



**ADMIRALTY**

# Ocean Passages for the World

**Atlantic Ocean Volume I**



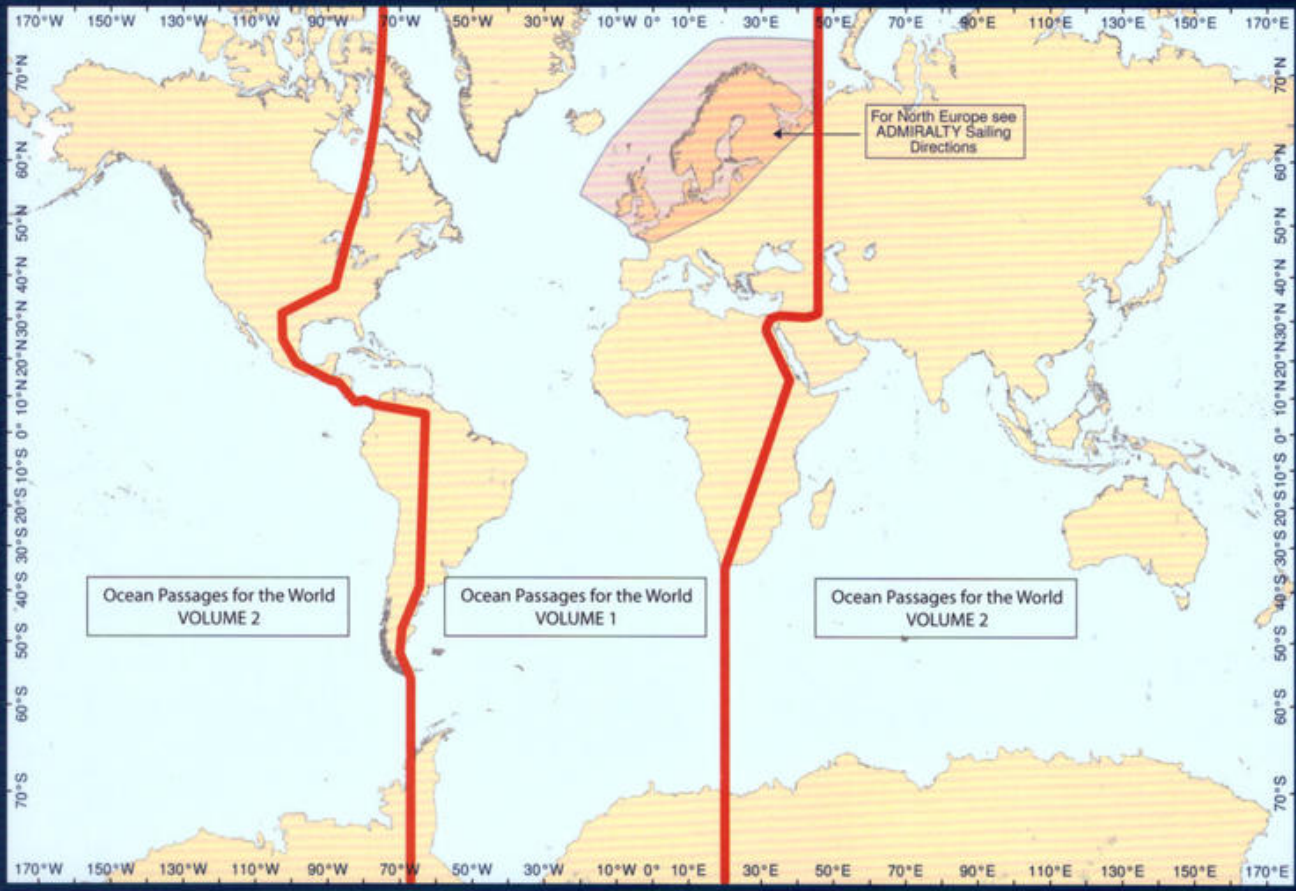
United Kingdom  
Hydrographic Office

**NP136**  
**1st Edition**  
**2018**

## Ocean Passages for the World

A wealth of information on ocean voyage planning  
Individual chapters on each of the world's oceans  
Weather, currents, swell and ice hazards  
Shortest routes between ports and important positions  
Routing details for powered vessels

## Limits of ADMIRALTY Ocean Passages for the World



## About us

The United Kingdom Hydrographic Office is a leading provider of global marine geospatial data.

We help to inform maritime decision-making for navigation, infrastructure development and the management of marine resources.

## Serving users worldwide

Our world-leading location based information is available through ADMIRALTY Maritime Data Solutions to users worldwide.

For more information, contact our global network of ADMIRALTY Chart Agents. Alternatively, contact our customer service team.



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NP136

ADMIRALTY SAILING DIRECTIONS

# OCEAN PASSAGES FOR THE WORLD VOLUME 1 ATLANTIC OCEAN

Including Caribbean Sea and Mediterranean Sea

FIRST EDITION  
2018

**IMPORTANT - SEE RELATED ADMIRALTY PUBLICATIONS**

**Notices to Mariners** (Annual, Permanent, Preliminary and Temporary); **ADMIRALTY Information Overlay (AIO)**; **Symbols and Abbreviations used on ADMIRALTY Paper Charts (NP5011)**; **ADMIRALTY Guide to ENC Symbols used in ECDIS (NP5012)**; **The Mariner's Handbook (NP100, especially Chapters 1 and 2 on the use, accuracy and limitations of charts)**; **Sailing Directions (Pilots)**; **List of Lights and Fog Signals**; **List of Radio Signals** and **Tide Tables** (or their digital equivalents).

**KEEP CHARTS AND PUBLICATIONS UP TO DATE AND USE THE LARGEST SCALE CHART APPROPRIATE**

**PUBLISHED BY THE UNITED KINGDOM HYDROGRAPHIC OFFICE**

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# PREFACE

ADMIRALTY Sailing Directions (Pilots) provide essential information to support port entry and coastal navigation for all classes of ships at sea. They amplify charted detail and contain information needed for safe navigation which is not available from charts or other hydrographic publications. They are written with the assumption that the required charts and publications are to hand and are intended to be read in conjunction with them.

The following sources of information, other than UKHO Publications and Ministry of Defence papers, have been consulted:

## Other publications

*IHS Sea-Web*

Information on climate and currents has been based on data provided by the Met Office

The United Kingdom Hydrographic Office has used all reasonable means to ensure that this publication contains all the information obtained by and assessed by it at the date shown below. Information received or assessed after that date will be included in ADMIRALTY Notices to Mariners where appropriate. For details of ADMIRALTY Notices to Mariners and guidance on their use, see NP100 The Mariner's Handbook or NP294 How to keep your ADMIRALTY Products Up-to-Date

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**Warning. This volume should only be used once fully updated by Section VII Notices to Mariners.**

Sailing Directions are kept up to date in a 'Continuous Revision' cycle. This means that they will be continuously revised for a period of up to approximately five years using information received in the Hydrographic Office, and then republished. Publication is announced in Part 1 of ADMIRALTY Notices to Mariners, and a listing of all current editions is updated and published quarterly in Part 1B of ADMIRALTY Notices to Mariners and six-monthly in NP234 Cumulative List of ADMIRALTY Notices to Mariners. Additionally, this list is continuously updated and available on the ADMIRALTY website at [admiralty.co.uk/maritime-safety-information](http://admiralty.co.uk/maritime-safety-information)

During the life of this book, it is updated as necessary by notices published weekly in Section VII of *ADMIRALTY Notices to Mariners*. Those in force at the end of the year are reprinted in NP247(2) *Annual Summary of ADMIRALTY Notices to Mariners Part 2*. A list of updates in force is published in Section IV of the Weekly Edition quarterly. Full details of how to keep Sailing Directions up-to-date can be found in NP294 *How to Keep Your ADMIRALTY Products Up-to-Date*

This edition supersedes the Sixth Edition (2014), which is cancelled.

Mr John Humphrey  
Chief Executive  
United Kingdom Hydrographic Office

8th March 2018

# HOW TO REPORT NEW OR SUSPECTED DANGERS TO NAVIGATION OR CHANGES OBSERVED IN AIDS TO NAVIGATION

Hydrographic Notes allow you to inform us of any navigationally significant information. This information could include new or suspected dangers, changes to navigational aids, amendments to details included in publications and suspicious charts or publications that could be counterfeit. A Hydrographic Note with instructions, is contained in the back of the Weekly Edition of ADMIRALTY Notices to Mariners, or can be downloaded from the UKHO Website.

For emergency information affecting safety of life at sea, forward to: [navwarnings@btconnect.com](mailto:navwarnings@btconnect.com). Alternatively, contact T: +44 (0)1823 353448 (direct line) or F: +44 (0)1823 322352.

Alternatively, new dangers can be reported using the ADMIRALTY H-Note app. Available free for use on the iPhone and Android platforms, the app offers a quick and simple way to report dangers and takes advantage of the mobile device's camera and GPS functions.

Further information regarding reporting new dangers can be found in *NP100 The Mariner's Handbook* or on the ADMIRALTY website.

## FEEDBACK

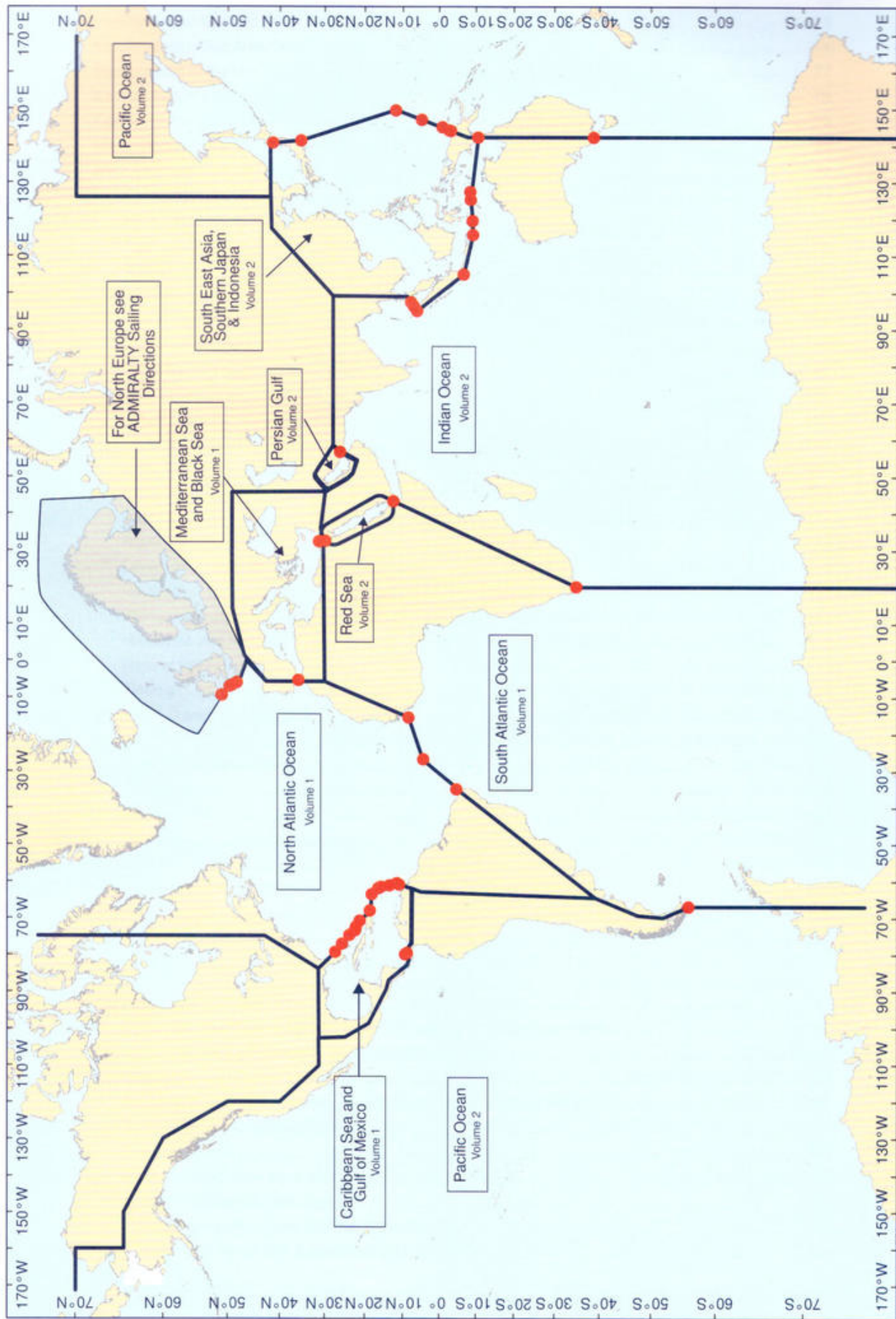
To maintain and improve the accuracy of information contained within ADMIRALTY publications, The United Kingdom Hydrographic Office welcomes general comments, new or additional, and digital images from mariners and other users. Such information, including the source for the information if this is not based on personal observation, can be sent to UKHO using the contact details found on the rear cover of this publication.

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## ROUTE PLANNING

**Introduction**

Ocean Passages for the World is a guide for passage planning. It has been updated using AIS (Automatic Identification System) data for container, bulk cargo and passenger types of vessels collected over a period of one year. Using this data, the busiest areas and ports and the most frequently used routes between these areas and ports are presented in a graphical and tabular format. Ocean Passages for the World also contains distances and notes on the weather, dangers and other factors that could affect navigation.

This book should be only be used as a guide and used in conjunction with the latest ADMIRALTY Sailing Directions, Routeing Charts and other appropriate ADMIRALTY charts and publications when detailed passage planning is required.

**How routes are organised**

Ocean Passages for the World is in two volumes. Volume 1 includes Atlantic Ocean, Mediterranean Sea, Black Sea, Caribbean Sea and Gulf of Mexico. Volume 2 includes Indian Ocean, Red Sea, Persian Gulf, SE Asia, Indonesia and Pacific Ocean. For N Europe see the appropriate ADMIRALTY Sailing Directions.

Each volume is divided into chapters. Each chapter covers an area and routes are grouped by areas. Chapters include the chapter area coverage showing ports and connectors for that area, area specific notes and cautions on factors (for example, natural conditions, limiting conditions, navigational hazards and regulations) that could affect navigation, area 'through' routes and routes that originate from named ports (listed alphabetically).

**Finding and using routes within Ocean Passages for the World**

The routes detailed in Ocean Passages for the World are either port to port (the route is contained within one area), port to connector (the route spans more than one area) or connector to connector (area 'through') routes. Areas are linked by connectors and routes that span more than one area will pass through and be linked by a connector. All routes are subject to the ordinary requirements of navigation.

The routes shown are the most frequently used routes between ports, calculated and plotted from AIS data collected over a period of one year. Routes can be rhumb, great circle or composite great circle and distances (length of route) are shown in Nautical Miles (NMs). These routes are presented in a graphical and tabular format showing start points, end points and waypoints. Each point's geographical position (GP) is given in degrees and minutes. Starting points and end points quoted may be a considerable distance from the port and are usually pilot grounds or anchorages or close to the start of a TSS.

Routes are overlaid onto currents that have been taken from the January edition of the relevant ADMIRALTY Routeing Chart. Currents are provided to assist the mariner in determining the potential direction of a particularly route. Currents should only be used as an indicator and other ADMIRALTY products should be used when detailed passage planning is required. The appropriate ADMIRALTY Routeing Chart should be consulted for seasonal changes to currents and routes. Any diagrams are representational and should not be used for navigation.

Waypoints detailed in tables are listed sequentially by their waypoint identification number (ID) and names for ports and connectors are listed alphabetically.

Where options for either the whole route or part of a route are shown, these are identified by a route identifier for example A, B, C and will be shown on the routeing diagram and in the routeing table.

The chosen route, start and end points and waypoints can be determined from the routeing diagram. These can be cross referenced with the routeing table to obtain coordinates (GPs) for the chosen route. For each route, this provides a guide for planning, however, conditions will rarely be precisely as predicted and the advice should be reviewed in the light of existing circumstances. Diagrams are provided for each route. These, however, should only be taken as an indication of the general direction of the route and should not be relied on to show all details. The scale of these diagrams only permits large land masses to be included. Ocean and coastal charts, of a scale sufficient for the safe navigation of the vessel, must always be used for passage planning and navigation. See Mariner's Handbook for advice on the use of charts and other navigational aids.

**HOW ROUTES AND AREAS CONNECT PASSAGE PLANNING****Track selection**

The selection of the best track for a passage demands skilled evaluation of a number of factors, the principal of which are the sea conditions, winds and currents which it is expected to encounter and the way in which the vessel will react to them. Such factors as the likelihood of damage to ship or cargo, as well as fuel economy and time on passage will also need to be considered. Some cargoes, such as those carried on deck and livestock are likely to be more susceptible to the weather than others and may therefore affect the choice of route or speed.

## Weather routing

Having planned the passage considering the normal conditions, consideration should then be given to the actual conditions which are expected for the voyage.

With the aid of the latest weather forecasts, weather maps and ice charts, a system of weather routing enables the original route to be modified to make best use of the actual weather pattern and the alterations expected to take place within it. This will produce the greatest economy in fuel expenditure and reduce the risk of heavy weather damage to the ship and her cargo.

Weather Routing Services are provided by certain foreign governments and private firms; details of which can be obtained from ADMIRALTY List of Radio Signal, Volume 3.

These services apply latest weather reports and long range forecasts to determine the best route for a particular vessel. On passage, modifications to the route are passed to the vessel to enable early action to avoid developing areas of adverse conditions.

The World Meteorological Organization (WMO) has established a global service for the transmission of high seas weather warnings and routine weather bulletins.

Meteorological service areas (METAREAS) are identical to the 16 NAVAREAS

For details of the service, see ADMIRALTY List of Radio Signals, Volume 3 and Annual Summary of ADMIRALTY Notices to Mariners.

## Load Line Rules

The zones, areas and seasonal periods defined in The International Convention on Load Lines, 1966 and protocol of 1988, as amended, are shown on the back end-papers of this book.

These rules apply to all ships, except ships of war, ships engaged solely in fishing and pleasure yachts.

## Offshore installations

In some parts of the world oil and gas fields are found many miles offshore. The rigs, platforms and associated moorings and pipelines used in operating these fields form hazards to navigation. Many fields lie within Prohibited or Restricted Areas and most of the installations are protected by Safety Zones.

For descriptions of installations and Safety Zones, see The Mariner's Handbook and Annual Summary of ADMIRALTY Notices to Mariners.

Offshore windfarms, for generating electricity, are increasingly being developed in various parts of the world and could pose a hazard to shipping.

## Traffic Separation Schemes

Where main shipping lanes converge when entering straits, channels or round headlands, or in other areas where traffic is congested, Traffic Separation Schemes (TSS) have been established.

All such schemes are shown on appropriate charts and referred to in ADMIRALTY Sailing Directions.

Rule 10 of International Regulations for Preventing Collisions at Sea 1972 applies to all IMO-adopted schemes. Regulations for unadopted schemes are given in ADMIRALTY Sailing Directions.

In this book reference is made to Traffic Separation Schemes in waterways through which the various routes described pass, but not to those in port approaches or inner coastal waters.

## Archipelagic Sea Lanes

ADMIRALTY charts show all adopted archipelagic sea lanes, including the axis lines and the lateral limits of the sea lanes.

## Areas to be Avoided

Areas which are to be avoided for various reasons have been established in some parts of the world.

All such areas, which are IMO-approved, are shown on ADMIRALTY Charts and described in ADMIRALTY Sailing Directions.

## Maritime Safety Information (MSI)

MSI is defined as "navigational and meteorological forecasts and other urgent safety-related messages", of vital importance to all ships at sea.

It is a sub-system of the Global Maritime Distress and Safety System (GMDSS).

Full details of MSI and GMDSS can be found in ADMIRALTY List of Radio Signals, Volumes 3 and 5 respectively.

### World-Wide Navigational Warning Service (WWNWS)

Navigational warning messages to give early information of important incidents or changes which may constitute a danger to navigation are promulgated by the WWNWS. The service consists of three warning systems:

**NAVAREA warnings** which are issued for each of the 16 geographical areas covering the sea areas of the world. They normally provide sufficient information to enable vessels to pass in safety through main shipping lanes clear of the coast.

**Coastal warnings** which are used for information of importance only in a particular region. They are broadcast by the country concerned.

**Local warnings** usually refer to inshore waters and do not carry information needed for ocean passages. They are often issued by coastguards, port or pilotage authorities.

For details of the service, see ADMIRALTY List of Radio Signals, Volumes 3 and 5 and Annual Summary of ADMIRALTY Notices to Mariners.

### Ship Reporting Systems

The purpose of such systems are either to:

Enable the positions of ships in oceanic areas to be maintained ashore in order to facilitate search and rescue operations when they are required. Ships of all nations are encouraged to participate in these systems. For details see ADMIRALTY List of Radio Signals, Volume 1.

Regulate traffic in ports and their approaches. For details of these systems see ADMIRALTY List of Radio Signals, Volume 6.

**AMVER** (Automated Mutual-assistance Vessel Rescue System) is such a system and is operated on a world wide basis by the US Coast Guard. Certain other countries operate similar systems for particular areas off their coasts. For AMVER and some of the systems participation is voluntary while for others it is mandatory.

For further details of these systems, see Annual Summary of ADMIRALTY Notices to Mariners.

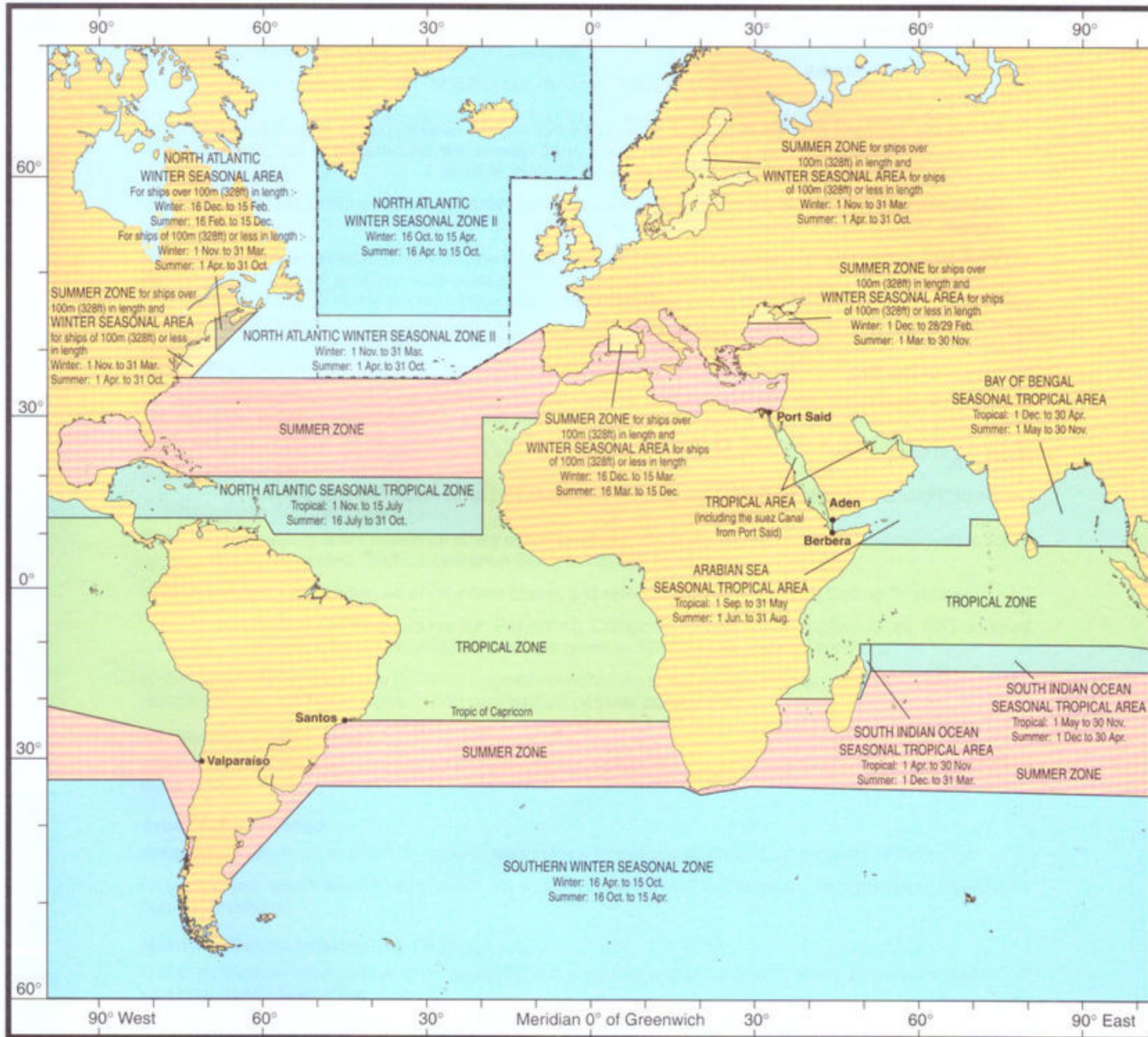
### Pollution of the Sea

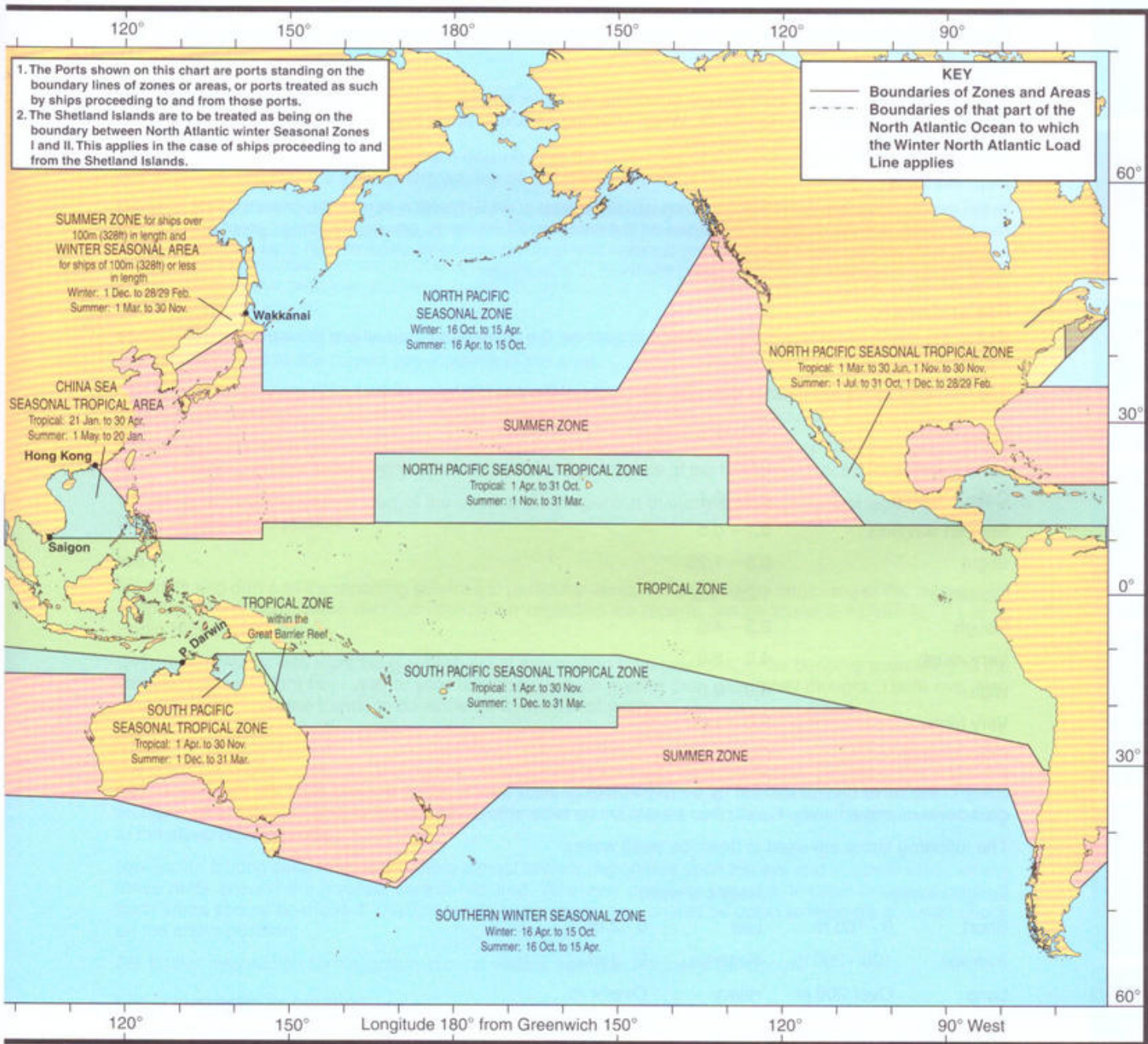
International regulations concerning pollution of the sea by oil or other substances are contained in International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL 1973) as amended by the Protocol of 1978 and known as MARPOL 73/78. Further information can be found in The Mariner's Handbook.

Details of "Pollution Reports by Radio" are given in ADMIRALTY List of Radio Signals, Volume 1.

## Load Line Zones

NOTE:- The zones, areas and seasonal periods shown on this chart relate to THE MERCHANT SHIPPING (LOAD LINE) RULES 1998.





## NATURAL CONDITIONS

### Climatic conditions

The diagrams give the general distribution of atmospheric pressure, wind, sea surface temperature, fog, currents and ice. Their accompanying notes should be read carefully.

The general principles of maritime meteorology, of ocean current circulation, of formation and distribution of ice and the formation of fog are given in *The Mariner's Handbook*.

The climatic features of particular oceanic areas are given at the beginning of the appropriate chapters of this book.

### Seasonal winds

Over certain parts of the oceans the general distribution of pressure and winds, such as the Trade Winds, is greatly modified by the seasonal heating and cooling of adjacent large land masses. The result is a seasonal reversal of the prevailing wind over the adjacent oceans and known in low latitudes as "monsoons".

### Tropical Storms

Signs of Tropical Storms, their typical behaviour and precautions which can be taken to avoid them, are described in *The Mariner's Handbook*. When affecting particular areas they are described in the appropriate volume of ADMIRALTY Sailing Directions.

### Depressions

In the middle latitudes, depressions which usually sweep in an E direction across the oceans of the N and S hemispheres, are the dominant influence on the weather. Of immense power, they cover great areas of the oceans with uninterrupted winds of long duration and build up extensive areas of high seas and heavy swell. They are an important factor in deciding the route of a passage.

### Sea and swell

Sea is the name given to waves in, what is known as, the generating area where the waves are formed by the wind.

The following terms are used to describe the height of the sea waves:

Description	Height in metres
Calm - glassy	0.0
Calm - rippled	0.0 - 0.1
Smooth wavelets	0.1 - 0.5
Slight	0.5 - 1.25
Moderate	1.25 - 2.5
Rough	2.5 - 4.0
Very rough	4.0 - 6.0
High	6.0 - 9.0
Very high	9.0 - 14.0
Phenomenal	Over 14.0

Swell is the wave motion caused by a meteorological disturbance, which persists after the disturbance has died down or moved away. Swell often travels for considerable distances out of its generating area.

The following terms are used to describe swell waves:

Length of wave		Height of wave	
Short	0 - 100 m	Low	0 - 2 m
Average	100 - 200 m	Moderate	2 - 4 m
Long	Over 200 m	Heavy	Over 4 m

### Abnormal waves

Wherever sea or swell waves encounter a seabed rising steeply from deep water, a strong opposing tidal stream or current, or are reinforced by waves from another wave system, they may be distorted to form large abnormal waves. Where waves are normally large, such abnormal waves may be massive, steep-fronted and capable of causing severe structural damage to the largest of ships.

Places where abnormal waves have been reported, usually near the 200 m depth contour at the steep edge of a continental shelf, include:

- Parts of the Norwegian Sea;
- Off the entrance to the Chesapeake Bay;
- Off the NW coast of Spain;
- Off the SE coast of South Africa.

It is off the SE coast of South Africa that most reports have been received and most research has been carried out on these waves.

For further information, see *The Mariner's Handbook*.

### Currents

The principal currents of each ocean are described at the beginning of the appropriate chapter of this book and in greater detail in the appropriate volume of ADMIRALTY Sailing Directions.

Detailed current information can be found in the series of Routing Charts which depict, on a three monthly basis, the predominant direction, rate and constancy of currents in the various oceans.

It should be appreciated that the number of current observations available varies enormously, being greatest in the areas of the principal shipping routes. In other parts of the oceans, particularly in polar regions, observations are sparse.

Predominant direction is the mean direction of the 90° sector containing the greatest number of vector representations of all the current observations in the area.

Constancy, as indicated by the thickness of the arrow on the diagrams, is a measure of the persistence of a current. Low constancy, for example, implies marked variability in rate and, particularly, in direction.

Change in currents is continuous and most marked in tropical waters. Variability of direction occurs in the most constant currents and in many other areas the predominance of the indicated direction is often minimal.

On average, over the greater part of the oceans the proportion of current observations of less than ½ kn is between 50 and 60 percent.

### Ice

Ice limits and drift and ice reporting services in particular areas are given at the beginning of the appropriate chapters of this book. More detailed information regarding ice reports can be found in ADMIRALTY List of Radio Signals, Volume 3.

Over recent years, with increasing availability of information from satellites, it has become apparent that the variability of ice extent from year to year is probably much greater than previously thought. There may also be a tendency for some trends to continue for a number of years.

### Coral waters

Coral reefs are often steep-to, and depths of more than 200 m may be found within 1 cable of the edge of a reef. Soundings are therefore of little value as a warning of their proximity. The soundings furthermore shoal so rapidly that it is sometimes difficult to follow the echo sounder trace and the echo itself is often weak owing to the steep bottom profile.

Navigation among coral reefs is therefore almost entirely dependent upon the eye and in ocean areas where these reefs abound the greatest care is required. Wherever possible, passage through the worst parts of such areas should be made in daylight, while every precaution should be taken to keep an accurate check on the ship's position.

For further information on navigation in coral waters, see *The Mariner's Handbook*.

### Local magnetic anomalies

In parts of the oceans, particularly where volcanic action has taken place, local magnetic anomalies have been reported.

For further information on local magnetic anomalies, see *The Mariner's Handbook*, and for details of reports, see the appropriate volume of ADMIRALTY Sailing Directions.

## WINDS AND WEATHER

### Intertropical Convergence Zone

In the North Atlantic Ocean, the belt of calms and light variable winds, known as the Intertropical Convergence Zone, Equatorial Trough or Doldrums which lies between the Trade Winds of the two hemispheres remains N of the equator throughout the year.

The actual position is subject to much day-to-day variation, as is also the width of the zone, which averages about 200 to 300 miles but may at times be reduced to almost nothing by an increase in strength of one or both Trade Winds.

There is evidence to show that showers, squalls or thunderstorms are more common within 200 to 300 miles from the African coast than in the W part of the area.

Visibility in the Intertropical Convergence Zone is invariably good except in rain.

### South-west Monsoon

In summer the intense heating of the land mass of N Africa lowers the atmospheric pressure over that area and distorts the Equatorial Trough towards N. The south-east Trade Wind is drawn across the equator and is forced to veer by the earth's rotation, so that it arrives off the W coast of Africa between the equator and about 15°N, to the E of about 20°W, as a SW wind which is known as the south-west monsoon.

This monsoon, which is accompanied by cloudy weather and considerable rainfall, lasts from about June until the middle of October; the rainfall is heavy on the coast between The Gambia and Liberia. Visibility is good at this season except in rain.

During the rest of the year winds in this area are mainly N between Liberia and Mauretania, but are mostly from between S and W in the Gulf of Guinea; in both cases they are generally light. Between November and February a dry, dust laden wind known as the "Harmattan" occurs at times. Weather at this season is generally fine, but visibility is often only moderate due to haze and it may become poor while the Harmattan is blowing.

Towards the beginning and end of the rainy season, that is April to May and October to November, violent thunderstorms accompanied by severe squalls, generally from the E, occur at times near the coast. These are known locally as "Tornadoes", but they should not be confused with storms of that name which occur in the interior of the United States and of Australia, to which they bear no relation.

### North-east Trade Wind

The North-east Trade Wind forms the SE and equatorial sides of the clockwise circulation round the oceanic anticyclone situated in about 30°N. This Trade Wind belt extends from the African coast as far W as the Caribbean Sea and the Gulf of Mexico, blowing from the NNE on the E side of the ocean and from a little N of E in the W part of the zone. The S limit of the North-east Trade Wind is marked by the Intertropical Convergence Zone.

The winds blow permanently with an average strength of force 4, though on rare occasions they may increase to force 7 or decrease to force 2. In the Gulf of Mexico they are more variable both in direction and strength; between October and April they are sometimes interrupted in that area by strong or gale force N winds, known as "Northers".

In the NE part of the Trade Wind zone the weather is generally fair or fine with small amounts of detached cumulus and little or no rain. Cloud cover and showers increase towards the Intertropical Convergence Zone and towards the W part; in the latter area rain is comparatively frequent, particularly in summer.

Haze occurs frequently in the E part of the Trade Wind zone; it is caused by the dust or sand carried seaward by the prevailing offshore wind. Sea fog forms at times in the NE part of the zone over the cold water of the Canary Current. In the W part of the zone, visibility is good except in rain.

### The Variables (Horse Latitudes)

A belt of generally light or variable winds over the oceanic area of high pressure extends across the ocean in about 30°N, oscillating from about 28°N in winter to 32°N in summer. The predominant winds in this area, E of about 20°W in winter and 30°W in summer, are from between N and NE and form an extension of the North-east Trade Winds, particularly in summer.

Weather in the E part of the zone is fine with little cloud; in the W part there is more cloud and rain is fairly common. Visibility in the E part is often reduced by haze and sometimes by fog.

### Hurricanes

Hurricanes occur in the W part of the North Atlantic Ocean. They affect in particular the Caribbean Sea, the Gulf of Mexico, Florida, the Bahamas and Bermuda, with the adjacent sea areas. They occur from June to November and sometimes in May and December, with their greatest frequency from August to October.

More detailed information on storm frequencies will be found in the relevant volumes of ADMIRALTY Sailing Directions. Notes of precursory signs and avoiding action are published in The Mariner's Handbook.

## Westerlies

The N part of the Atlantic Ocean experiences predominantly unsettled weather on the polar side of the oceanic anticyclone. As a result of the almost continuous passage of depressions across this zone in an E or NE direction, the wind varies greatly in both direction and strength and there is a high frequency of strong winds. Gales are common especially in winter. The stormiest belt extends roughly from the vicinity of Newfoundland to the channel between Iceland and Føroyar. The central and E sections of this belt are especially stormy and winds of force 7 and over may be expected on 16 to 20 days per month in January and February. In July, which is the quietest month, the stormiest area remains SW of Iceland but the frequency of winds of force 7 and above is only about 7 days a month in it. Close to the coasts of Greenland, Iceland and Norway, katabatic winds are common.

## Fog and visibility

The frequencies of fog and poor visibility are indicated on the Routeing Charts and the subject is treated at length in the relevant ADMIRALTY Sailing Directions.

In the region of the Westerlies, overcast skies, with periods of rain or snow, alternate with brief fine spells. Cloud amounts are generally large. The part of the North Atlantic Ocean most affected by fog lies E and S of Newfoundland.

In the vicinity of the coast between Long Island and Nova Scotia, and the Newfoundland Banks, fog is very prevalent in late spring and early summer, being due to the movement of warm, moist air from S or SW over the cold Labrador Current; over a large part of this area fog is experienced on more than 10 days a month. It is also liable to occur at times in other parts of this zone; usually in spring and early summer and in association with winds from between S and SW. Visibility is good with NW winds except in showers.

## The North Polar regions

The greater part of the region lying on the polar side of the Westerlies is denied to navigation on account of ice. The prevailing wind is from some E point, though, as in the case of the Westerlies, great variations in direction and strength are caused by the passage of depressions across the area. Gales are common but less so than in the Westerlies.

Weather is generally very cloudy, and precipitation, usually in the form of snow, may occur at any time.

Fog, often of the Arctic sea-smoke type, is prevalent in summer.

Further information is published in the relevant ADMIRALTY Sailing Directions.

## SWELL

### Height and direction

Between the equator and 30°N, frequencies of swell greater than 4 m in height rarely exceed two to four percent. One of the most persistent swells is from the NE, between Islas Canarias and the NE coast of South America. In the extreme SE, off Freetown, S and E swells prevail.

Between 30°N and 40°N, frequencies of swell greater than 4 m in height are:

April	10%
May to August	5 to 10%
September to November	10%
December to March	20%

The predominant direction is from between W and NW.

Between 40°N and 60°N, frequencies of swell greater than 4 m in height are:

April	20%
May to July	10%
August and September	20%
October to March	30%

In December and January a maximum of 40% is reached in an area centred on 55°N, 22°W. Throughout the year swell comes mainly from between SW and NW, with swell from W predominating.

### Length of swell

Swell in the Atlantic Ocean is generally short (less than 100 m) or average (100 to 200 m) in length. However long swells may be found from time to time, though they are less frequent than in the Pacific Ocean.

## CURRENTS

### North and South Atlantic Oceans

The Atlantic Ocean is dominated in equatorial regions by the semi-permanent N and S sub-tropical anticyclones centred in latitudes 25° to 30°N and S respectively.

Under the influence of the North-east and South-east Trade Winds the respective clockwise circulation of the N gyre and counter-clockwise circulation of the S gyre ensure a steady transport of water to the W between 25°N and 25°S, the N and S boundaries varying by a few degrees with the season. Just N of the equator a counter-current sets to the E between the North and South Equatorial Currents over a narrow latitude band for part of each year.

Polewards and across the belt of variable winds near the centre of the gyres weaker E-going flows are generated under the influence of W winds blowing around the Icelandic and Sub-Antarctic low pressure belts. Again, in both hemispheres, there is a weak return flow to the W adjacent to the land masses in polar latitudes.

### North Atlantic Ocean

The North Equatorial Current setting W to the S of the main sub-tropical gyre provides a continuous supply of warm water into the Caribbean Sea and Gulf of Mexico. This is supplemented through the year by a S equatorial flow that has crossed the equator, and been diverted to the WNW by the prominent NE coast of Brazil. However from May to November a good deal of this water turns E into the Equatorial Counter-current, which then splits, some continuing E, the rest turning back NW to join the North Equatorial Current. In the N hemisphere winter an anti-clockwise circulation develops at about 7°N, 47°W, probably because of interaction between the North Equatorial Current and a weakened Equatorial Counter-current. The WNW sets along the Brazilian coast are of high constancy with average rates of between 2 and 3 kn.

The combination of warm surface waters and a steady inflow into the Gulf of Mexico allows a noticeable "head of water" to develop. The resulting outflow through the Straits of Florida is further enhanced by recurving equatorial waters being topographically accelerated through Old Bahama Channel onto its E flank. This combined flow is initially called the Florida Current and later the Gulf Stream. Average rates in the highly constant main stream reach 3 to 3½ kn during the summer months between 25°N and 30°N at 78° to 80°W. Rates decrease to the N to near 1 kn in the vicinity of Cape Hatteras where the current tends to turn away from the shore and set in a broad E to ENE direction towards W Europe. In this general area, to the NE of Cape Hatteras and S of Newfoundland, the current is joined on its W flank by cooler water that has originated in the N part of Baffin Bay and steadily moved S gathering melt water from the Canadian mainland and island coasts. South of Newfoundland more fresh and cool water from the Gulf of Saint Lawrence adds to the formation of a marked temperature discontinuity both at the surface and at depth as the cold and warm currents converge.

The cold Labrador Current is turned through S to E on the N side of the of the warmer Gulf Stream. The combined flow then continues ENE at a reduced rate and greater variability as the North Atlantic Current. Approaching the coasts of W Europe the S part of the flow is turned gradually through SE to S and the N part continues to the W of the British Isles and on to the N coast of Norway and the Arctic Basin. The relatively weak but general S-going drift E of 30°W and between 25°N and 45°N is known as the Azores Current in the W, the Portugal Current off the Iberian coast and the Canary Current in the SE. Average rates are ½ to ¾ kn and constancies low, increasing to moderate or more in the Canary Current.

The N part of the North Atlantic Current continues toward Iceland but to the SW of the island part is turned NW as the relatively warm Irminger Current. The W part forms a weak counter-clockwise eddy between S Greenland and Iceland and the E part continues clockwise around Iceland rejoining the NE-setting North Atlantic Current. There is a diffuse counter-clockwise circulation between the N coast of Norway, Svalbard and NE Greenland. This is complex and probably consists of a number of minor eddies formed along the boundary between the predominant warm N Atlantic water in the SE and the cold outflow from the Arctic Basin in the N and W.

To the NW of Norway the warm N-setting current diverges, part passing to the W of Svalbard and part continuing around Nordkapp, into the S part of the Barents Sea and along the W coast of Novaya Zemlya. As the warm more saline water meets the colder fresher Arctic water it sinks but continues into the Arctic Basin as a sub-surface warm current.

The East Greenland Current emerges from the Arctic as an extension of the Transpolar Drift and continues SSW, the cold temperature being maintained by melt water from the ice edge, glaciers and fjords. Rates are mostly near ½ kn but increase to near 1 kn at times during the summer months, particularly S of Denmark Strait. Currents are mainly variable in the central regions of the main gyres and of near moderate constancy along the E coast of Greenland. Off Kap Farvel the combined East Greenland and recurving Irminger Currents turn N along the SW coast of Greenland. The circulation in Davis Strait and Baffin Bay is broadly counter-clockwise with a tendency for a N and S gyre. The strongest of these generally weak currents are on the W side. Further S the flow becomes more organised continuing SSE as the Labrador Current thus completing the gyre.

### Equatorial Counter-current

South of about 10°N the currents are more complex and show a marked seasonal variation. Lying between the North and South Equatorial Current, which both set W, the E-setting Equatorial Counter-current fluctuates throughout the year. It is a minimum during March and April when there is little evidence of any E-going sets in the W, and it is only evident from 20°W in the E. During the late spring a small area of E-going sets appears off the NE coast of Brazil between the equator and about 4°N. This gradually moves NW and expands E over the following few months emerging with an extension to the W of the Guinea Current. By the late summer and early autumn the Counter-current is at its maximum extent from near 50°W to its confluence with the Guinea Current in 20°W. During November and December the Equatorial Currents tend to merge near 30°W. A slow contraction of both the E and W sections of the Counter-current takes place over the following months to the spring minimum. Constancies in the Counter-current are mostly moderate or high and average rates are between 1 and 1½ kn. The width of the Counter-current varies continuously but is usually between 4° and 6° of latitude and is centred about 7°N.

### Newfoundland Banks

After passing the Strait of Belle Isle and the E coast of Newfoundland, the Labrador Current covers the whole of the Grand Banks except, during summer, the extreme S part. A large branch of the current follows the E edge of the bank; this is the part which carries the ice farthest S to reach the transatlantic shipping routes. Another branch rounds Cape Race and sets SW. Although some of the water that has passed on to the Grand Banks continues in a more S direction, especially during August to October, the bulk of it sets SW and continues, as a SW-going set, to fill the region between Newfoundland, Nova Scotia and the Gulf Stream.

The Labrador Current subsequently continues S along the coast of the United States as a cold current as far as about 36°N from November to January, 37°N from February to April, 38°N from May to July and 40°N from August to October. Between the S limit of the Labrador Current and the Tail of the Bank, the warm and cold waters converge on a line which is known as the "Northern Edge" (or sometimes the North Wall) of the Gulf Stream.

The E end of the Northern Edge presents the greatest hydrographic contrasts to be found in the world, the water changing from the olive or bottle green of the Arctic side to the indigo blue of the Gulf Stream: a temperature change of 12° to 0° Celsius has been recorded within a ship's length.

The currents off the coasts of Labrador and Newfoundland are complex; for details, reference should be made to the relevant volumes of ADMIRALTY Sailing Directions.

### North Sea

A branch of the North Atlantic Current diverges from the main flow NE of the Shetland Isles and flows S, fanning out E towards the S part of the Skagerrak, along the E coast of Britain as far as the Thames Estuary. It is there joined by a branch of the North Atlantic Current which passes through the English Channel and the Strait of Dover, the combined currents then flowing along the Netherlands and Jutland coasts. This current then flows around Skagerrak in a counter-clockwise direction and finally sets N along the W coast of Norway.

The outflow from the North Sea forms the Norwegian Coastal Current and is probably the most constant part of the circulation. In about 62°N this current re-joins the main branch of the North Atlantic Current flowing towards Nordkapp.

In most parts of the North Sea, except in Skagerrak, these currents are small and mostly insignificant to navigation compared with the predominant tidal influence and the effect of wind drift currents.

### Western approaches to English Channel

After SW or W gales, a set towards the mouth of the channel may be expected, at a rate depending on the locality, strength and duration of the gale. In winter, sets of up to 1½ kn are sometimes recorded, mainly in directions between ENE and SE, but the tidal streams are responsible for most of the water movement within the 200 m contour.

### Bay of Biscay

Off the mouth of the Bay of Biscay the current is trending SE to S to form the beginning of the Portugal Current. A branch enters the bay and recurves W along the N coast of Spain, but over most of the bay the currents are highly variable with a tendency for directions between E and S to predominate. The rates for the most part do not exceed 1 kn and very rarely reach 2 kn.

Following W or NW gales, E-going sets occur off the N coast of Spain, sometimes attaining a rate of 3 kn off Bilbao and 4 to 5 kn at the head of the bay particularly where current and tidal stream are in the same direction.

## ICE

**General remarks**

The following brief account of ice in the North Atlantic is by no means comprehensive. Before undertaking voyages through areas in which ice is likely to be met, The Mariner's Handbook and the relevant ADMIRALTY Sailing Directions should be studied, as well as the monthly Routeing Charts, which show the ice limits. These limits are shown approximately on diagrams but they may not always agree with the Routeing Charts which endeavour to show the extreme limits on a monthly basis as far as this is possible with the limited and variable data available.

Details of Ice Warning and facsimile ice chart broadcasts are also available and are described in the relevant volumes of ADMIRALTY List of Radio Signals.

A factor always to be borne in mind where ice conditions are concerned is their great variability. For this reason, and on account of the sparsity of observations in many areas, the charted positions of ice limits must be regarded as approximate. The dates which follow refer to average conditions.

**Ice limits and drift**

The Routeing Charts show the influence of the ocean currents in setting the pack ice over much of the area of the Grand Banks of Newfoundland from the latter part of January until May, while the E part of the ocean remains ice-free to high latitudes.

Almost all the icebergs which menace the North Atlantic routes originate in the glaciers of the W coast of Greenland where they are calved at a rate of several thousand a year. Most are carried N by the West Greenland Current, round the head of Baffin Bay, and then S by the Canadian and Labrador Currents, and when they finally reach the shipping routes they may be several years old. The bergs calved on the E coast of Greenland also drift S, and may be met off Kap Farvel. Some drift across the East Greenland Current and may be met throughout the year on the E flank of that current, extending SW from the W extremity of Iceland. Others drift round Kap Farvel, but they do not survive the relatively warm waters of the Davis Strait and are not a source of danger on the regular transatlantic routes.

Icebergs may be found beyond the limits of the pack ice at all seasons, but mostly in early summer, in winter many are frozen into the pack ice.

**Ice in specific localities**

**Kap Farvel.** The greatest distance at which bergs are met S of Kap Farvel is generally about 120 miles. This usually occurs in May when they may be encountered as far S as 66°N and as far E as 32°W. Their least extent is in December. Bergs are not usually met S of 48°N between September and December, but may well be encountered in any month N of 52°N.

**Saint Lawrence River.** Below Montreal the river is closed by ice between early December and mid-April. Commercial navigation ceases in most parts of the Gulf of Saint Lawrence by mid-December; in the S part navigation is not considered safe between early December and mid-April.

**Strait of Belle Isle.** The Strait is generally not navigable from late December until June.

**Cabot Strait.** The Strait is usually navigable from mid-April until February. Pack ice arrives from N of Cape Race about the end of January in an ordinary season, extending round the coasts of the Avalon Peninsular in February, until early May.

**The Grand Banks of Newfoundland.** The Grand Banks are entirely free of pack ice between July and December inclusive. Pack ice reaches the banks in January and extends farthest S in March and April, on the E edge of the banks. In very rare seasons, dangerous pack ice may extend to the Tail of the Bank and even S of it but, on average, the floes begin to break up on reaching 45°N.

In the region of the Grand Banks, the worst season for icebergs is between March and July, with April, May and June as the months of greatest frequency. Bergs are not often found S of 40°N or E of 40°W, though occasionally they may be considerably outside these limits. They are particularly prevalent around the E flanks of the banks, on which many of them ground. More detail is given in the relevant volume of ADMIRALTY Sailing Directions.

**Denmark Strait.** The strait is normally free of ice on its E side throughout the year, but on rare occasions, as in the spring of 1968, the ice spreads across from Greenland to close the strait. Icebergs may be met throughout the year on both sides of the Denmark Strait.

**White Sea.** The White Sea is normally closed to navigation from about mid-December to mid-May.

**Kol'skiy Zaliv.** The N part remains open throughout the year but, from December to April ice forms along the shore and at times breaks away, to be carried out to sea. It may be a hindrance for three or four days at a time in exceptionally cold winters.

**Norwegian coast.** None of the main ports on the W coasts is ever closed by ice, and the closure of Oslo is rare.

**North Sea.** Serious ice conditions in the entrances to German, Netherlands and Danish ports, lasting from 1 to 4 weeks, occur about two or three times in ten years at some time between mid-January and early March.

### Ice Information Services

Ice information, comprising up-to-date reports and forecasts from the Gulf of Saint Lawrence, the Grand Banks of Newfoundland, Greenland, Iceland and the NW approaches to Europe are transmitted from the coast radio stations listed in the relevant volume of ADMIRALTY List of Radio Signals.

**International Ice Patrol.** This service is operated by the US Coast Guard with the primary object of collecting data and warning shipping of the amount and extent of icebergs and sea ice in the vicinity of the Grand Banks. The service operates principally between the parallels of 39° and 50°N and the meridians of 42° and 60°W during the ice season from February or March until about the end of June.

In spite of the efforts of the International Ice Patrol bergs are known to drift unnoticed into the usual routes in the vicinity of the Grand Banks. For details of the International Ice Patrol see the relevant volumes of ADMIRALTY Sailing Directions and ADMIRALTY List of Radio Signals.

**Ice Advisory Service.** This service, maintained by the Canadian Coast Guard during the winter navigational season, is based on aerial reconnaissance. Reports of existing and forecast ice conditions are broadcast from certain Canadian radio stations. For details of the service see the relevant volumes of ADMIRALTY Sailing Directions and ADMIRALTY List of Radio Signals. The volume Ice Navigation in Canadian Waters, issued by the Canadian Coast Guard, should also be consulted.

**Caution.** Tests conducted by the International Ice Patrol have shown that radar cannot provide positive assurance for iceberg detection. Sea-water is a better reflector than ice. This means that unless a berg or growler is observed outside the area of 'sea return' or 'clutter' it will not be detected by radar. The average range of detection of a dangerous growler, if detected at all, is only 4 miles.

Radar is a valuable aid, but its use cannot replace the traditional caution exercised during a passage passing near the Grand Banks during the ice season.

## Explanatory Notes for World Climatic Chart (January)

## GENERAL

The information incorporated in this chart deals with the average, not actual, conditions and this is therefore a Climactic, and not a Weather Chart.

Unless otherwise stated, the chart represents the characteristic state of affairs for January (approximately the height of the northern winter and southern summer).

For detailed information about any particular part of the world, reference should be made to the appropriate Weather Handbooks, Climactic and Current Atlases, Admiralty Pilots and Ice Charts.

## PRESSURE

1016mb

Pressure, like wind, is variable in quantity. On any given day in January the actual pressures recorded and the arrangement of lines of equal pressure (= isobars) may be quite different from those shown on this chart. This is especially likely to be the case with the "travelling Lows" (or depressions) which usually move from West to East across the temperature zone. The "Highs" (or anticyclones) are much less mobile and their day-to-day variations of pressure much smaller. This is the main reason why the Trades, for instance, are steadier in force and direction than the Westerlies of the North Atlantic.

## WINDS



The arrows give the general picture of the prevailing winds over the oceans. Where these winds are unusually steady, as in the Trades, the arrows have been strengthened: in such cases it can be assumed that the winds blow in the direction indicated on more than 2/3rds of all occasions. Where the arrows are broken or omitted altogether, as in the heart of the High and Low pressure areas, there the winds are variable.

## GALE FREQUENCY



Gales and low pressures usually go together: this is the main reason why they are mostly confined to the extra-tropical depression zones of the world. Winds of force 7 or more occur on more than 10 days a month in the darker-tinted areas. Such winds occur on 5-10 days a month in the lighter tinted areas.

## SWELL

No attempt has been made to show the distribution of swell, but it can be inferred broadly from information on the chart. Low or moderate swell is liable to occur to the leeward of all the main wind belts; there is, for instance, a persistent short and low - at times moderate - swell along the E. African coast during the N.E. monsoon. Heavy swell is generally only produced in the extra-tropical gale zones; however, in favourable circumstances it generates up to 3,000 miles beyond the confines of these zones. These circumstances are most likely to arise in the rear of the eastward-moving depressions where, in the Northern Hemisphere, the winds are N. Westerly and in the Southern Hemisphere, S. Westerly. From this it follows (i) that heavy swell is more likely to out-run the gale zones on their tropical, than on their poleward flanks, and (ii) that it is more likely to be experienced in the eastern than in the western sides of the oceans.

## TROPICAL STORMS

In low latitudes gales are almost entirely confined to those areas frequented by tropical storms. In a normal year the number of such storms seldom exceeds two a month in any one area. In the South Indian and South Pacific Oceans the cyclone season usually lasts from December to April; in the South Atlantic and north of the equator there are generally no tropical storms in these months.

INTERTROPICAL  
CONVERGENCE  
ZONE  
(EQUATORIAL  
TROUGH)  
(DOLDRUMS)



The chart shows the mean monthly position of the Intertropical Convergence Zone. The severity of the weather near the Zone depends upon the degree of wind convergence occurring there and varies both in space and time from clear skies, when there is no convergence, to squalls, with heavy rain and thunderstorms, when the convergence is marked.

## CURRENTS



Only the location and direction of the main ocean currents are indicated. Except where the winds are generally light and/or variable, as in the vicinity of the Equatorial Counter Currents, there is close agreement between the direction of the current and that of the prevailing wind. A direct result of this is that, according to whether the wind blows from warmer to colder latitudes, or vice versa, the surface water temperatures will be above, or below, the average for the latitude. Some idea of the relative warmth or coldness of the currents is given by the extent to which the sea isotherms in the vicinity of the current arrows bend polewards or equatorwards respectively; thus the Benguella Current is obviously cold, the Agulhas Current warm.

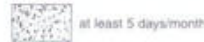
## SEA TEMPERATURE

25°C

Unlike pressure and winds, the day-to-day variation of sea temperature is very small; monthly changes of more than 1°-2°C are unusual, and year-to-year departures from the mean monthly value are of the same low order.

In the open ocean, and along leeward shores, sea and air temperatures agree fairly closely (within 1° or so); thus February sea temperatures off Scilly is approximately 9°-10°C. and the average air temperature for the same place 8°C. Along windward shores, especially in high latitudes, differences up to 10°-20°C. are not uncommon. Sometimes the air will be much colder than the sea (e.g. in high latitudes in winter); at others (e.g. in summer along the west coast of S. Africa) the sea will have the lower temperature.

## FOG



at least 5 days/month

Sea fog is likely to form wherever warm air passes over cold water; it is most likely to be persistent where the sea isotherms lying athwart the track of a wind blowing from warmer to colder waters are packed closely together. Areas in which sea fog may be encountered on at least 5 days a month are indicated by a light stipple.

## ICE

Ice is about the most variable of all the elements depicted on this chart. The year-to-year fluctuations in the limit of pack-ice (or icebergs for that matter) are often very considerable. For instance, in some seasons Jan Mayen remains almost completely ice-free; in others it cannot be approached by a ship not specially strengthened, until July. Icebergs (formed by the "calving" of ice from continental ice-caps and valley glaciers) are liable to be encountered beyond the pack-ice limits at all seasons of the year, but mostly in early summer. They melt fast once they have drifted into comparatively warm water e.g. the Gulf Stream.

## NORTHERN HEMISPHERE



Mean limit of 4/8 pack-ice at time of greatest extent (March, but February in Gulf of St. Lawrence)



Approximate limit of Icebergs - October to November (mean least extent)

## SOUTHERN HEMISPHERE

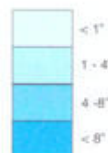


Mean Limit of 4/8 pack-ice at time of least extent (February, March)



Extreme limit of iceberg sightings (at all times of the year)

## RAINFALL



This is another uncertain quantity, and the amount falling in a particular January may bear little relation to the averages shown on the chart; especially is this the case with areas lying near the lower limit of the 1" - 4" zone. Over the oceans the only habitually rainy areas are the Doldrums and the storm (depression) belts of middle and high latitudes. The Trades and N.E. Monsoon blowing, it will be noticed, off arid lands, are practically rainless.

## Explanatory Notes for World Climatic Chart (July)

## GENERAL

The information incorporated in this chart deals with average, not actual, conditions and this is therefore a Climatic, and not a Weather Chart.

Unless otherwise stated, the chart represents the characteristic state of affairs for July (approximately the height of the northern summer and the southern winter).

For detailed information about any particular part of the world, reference should be made to the appropriate Weather Handbooks, Climatic and Current Atlases, Admiralty Pilots and Ice Charts.

## PRESSURE

Pressure, like wind, is variable in quantity. On any given day in July the actual pressures recorded and the arrangement of lines of equal pressure (= isobars) may be quite different from those shown on this chart. This is especially likely to be the case with the "travelling Lows" (or depressions) which usually move from West to East across the temperature zone. The "Highs" (or anticyclones) are much less mobile and their day-to-day variations of pressure much smaller. This is the main reason why the Trades, for instance, are steadier in force and direction than the Westerlies of the North Atlantic.

— 1016mb —

## WINDS

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## GALE FREQUENCY



Gales and low pressures usually go together: this is the main reason why they are mostly confined to the extra-tropical depression zones of the world. Winds of force 7 or more occur on more than 10 days a month in the darker-tinted areas. Such winds occur on 5-10 days a month in the lighter tinted areas.

## SWELL

No attempt has been made to show the distribution of swell, but it can be inferred broadly from information on the chart. Low or moderate swell is liable to occur to the leeward of all the main wind belts; there is, for instance, a persistent moderate - at times heavy - swell along the N.W. coast of India during the S.W. monsoon. Heavy swell is generally only produced in the extra-tropical gale zones; however, in favourable circumstances it penetrates up to 3,000 miles beyond the confines of these zones. These circumstances are most likely to arise in the rear of the eastward-moving depressions where, in the Northern Hemisphere, the winds are North Westerly and in the Southern Hemisphere, South Westerly. From this it follows (i) that heavy swell is more likely to out-run the gale zones on their tropical, than on their poleward flanks; and (ii) that it is more likely to be experienced in the eastern than in the western side of the oceans.

## TROPICAL STORMS

In low latitudes gales are almost entirely confined to those areas frequented by tropical storms. In a normal year the number of such storms seldom exceeds two a month in any one area. In the North Indian and North Pacific Oceans the cyclone season usually lasts from May to December; in the North Atlantic from May to November. South of the Equator there are no tropical storms in these (winter) months.

**INTERTROPICAL CONVERGENCE ZONE (EQUATORIAL TROUGH) (DOLDRUMS)**



The chart shows the mean monthly position of the Intertropical Convergence Zone. The severity of the weather near the Zone depends upon the degree of wind convergence occurring there and varies both in space and time from clear skies, when there is no convergence, to squalls, with heavy rain and thunderstorms, when the convergence is marked.

## CURRENTS



Only the location and direction of the main ocean currents are indicated. Except where the winds are generally light and/or variable, as in the vicinity of the Equatorial Counter Currents, there is close agreement between the direction of the current and that of the prevailing wind. A direct result of this is that, according to whether the wind blows from warmer to colder latitudes, or vice versa, the surface water temperatures will be above, or below, the average for the latitude. Some idea of the relative warmth or coldness of the currents is given by the extent to which the sea isotherms in the vicinity of the current arrows bend polewards or equatorwards respectively; thus the Benguella Current is obviously cold, the Agulhas Current warm.

## SEA TEMPERATURE

— 25°C —

Unlike pressure and winds, the day-to-day variation of sea temperature is very small; monthly changes of more than 1°-2°C are unusual, and year-to-year departures from the mean monthly value are of the same low order.

In the open ocean, and along leeward shores, sea and air temperatures agree fairly closely (within 1° or so); thus August sea temperature off Scilly is approximately 15°-16°C, and the average air temperature for the same place 17°C. Along windward shores, especially in high latitudes, differences up to 10°-20°C. are not uncommon. Sometimes the air will be much colder than the sea (e.g. in high latitudes in the winter hemisphere); at others (e.g. in summer along Trade wind coasts) the sea will have the lower temperature.

## FOG



Sea fog is likely to form wherever warm air passes over cold water; it is most likely to be persistent where the sea isotherms lying athwart the track of a wind blowing from warmer to colder waters are packed closely together. Areas in which sea fog may be encountered on at least 5-10 days a month are indicated by a light stipple; 10-20 days a month areas are shown by a darker stipple.

## ICE

Ice is about the most variable of all the elements depicted on this chart. The year-to-year fluctuations in the limit of pack-ice (or icebergs for that matter) are often very considerable. For instance, in some seasons Jan Mayen remains almost completely ice-free; in others it cannot be approached by a ship not specially strengthened, until July. Icebergs (formed by the "calving" of ice from continental ice-caps and valley glaciers) are liable to be encountered beyond the pack-ice limits at all seasons of the year, but mostly in early summer. They melt fast once they have drifted into comparatively warm water e.g. the Gulf Stream.

## NORTHERN HEMISPHERE



Mean limit of 4/8 pack-ice at time of least extent (September)



Approximate limit of Icebergs - March to June (mean greatest extent)

This does not include exceptional sightings in the Eastern part of the North Atlantic

## SOUTHERN HEMISPHERE

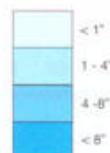


Mean Limit of 4/8 pack-ice at time of greatest extent (September and October)



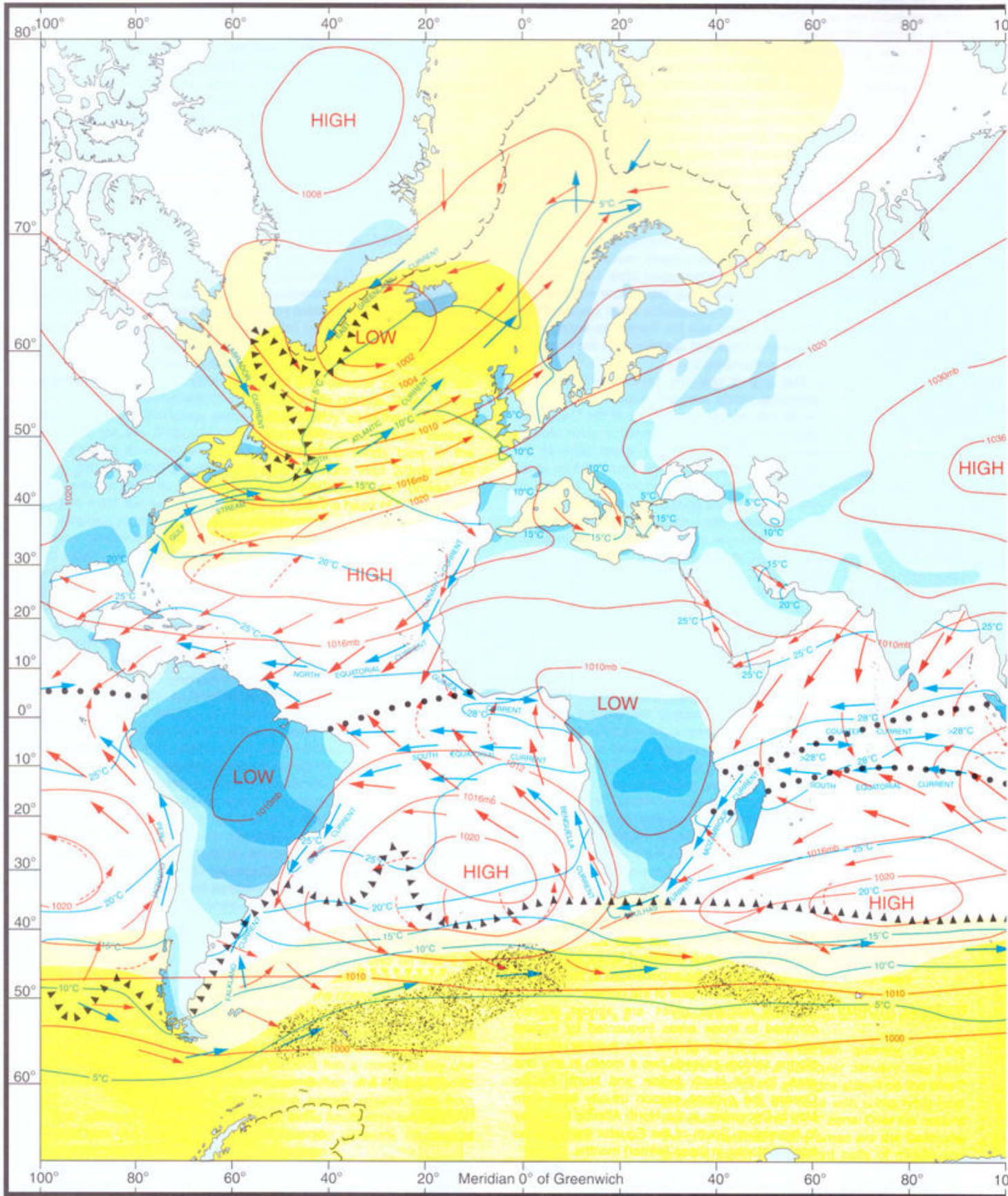
Extreme limit of iceberg sightings (at all times of the year)

## RAINFALL

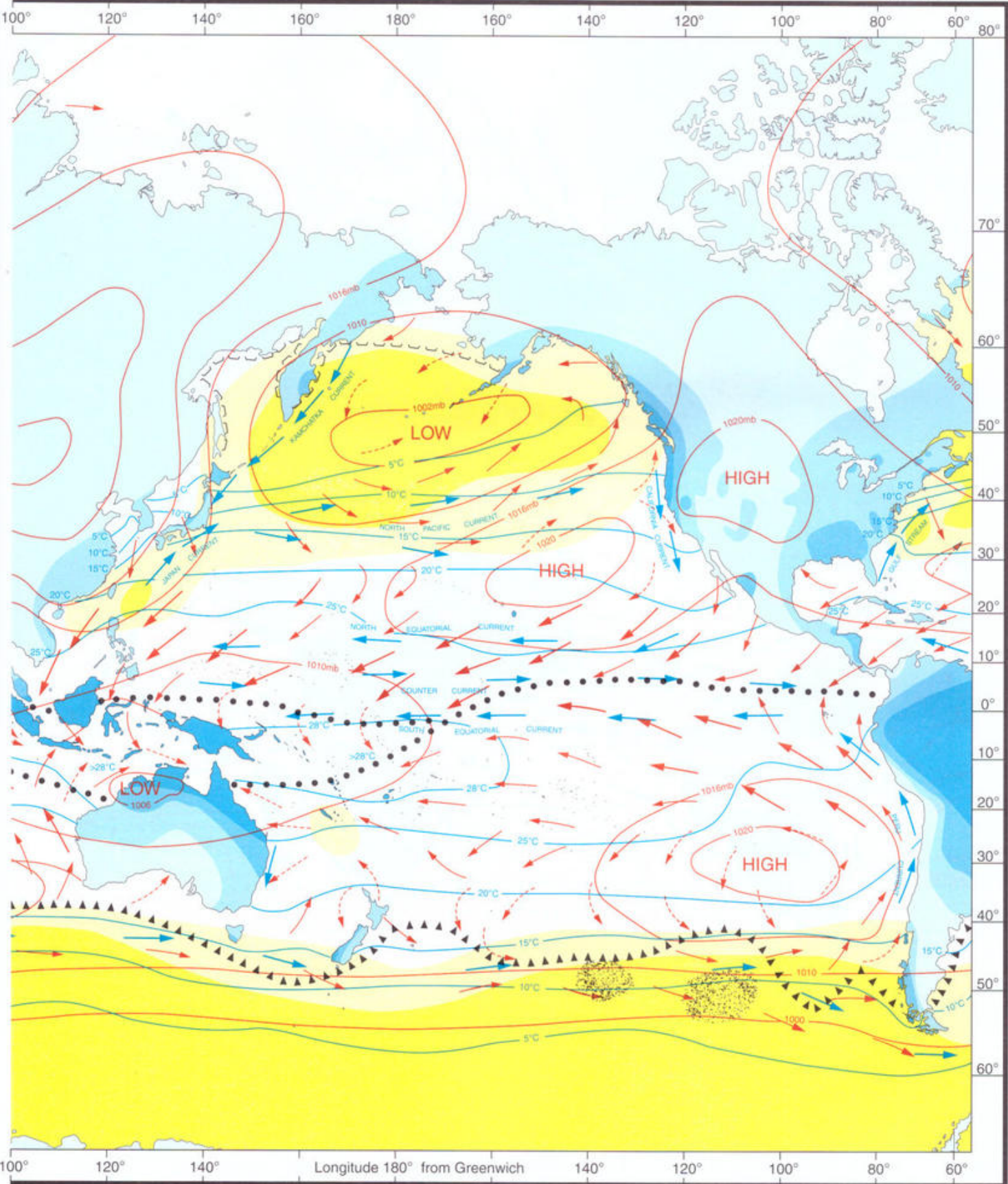


This is another uncertain quantity, and the amount falling in a particular July may bear little relation to the averages shown here; especially is this the case with areas lying near the lower limit of the 1" - 4" zone. Over the oceans the only habitually rainy areas are the Doldrums and the storm (depression) belts of middle and high latitudes. The Trades and N.E. and S.E. Trades, blowing, it will be noticed, off arid lands, are practically rainless.

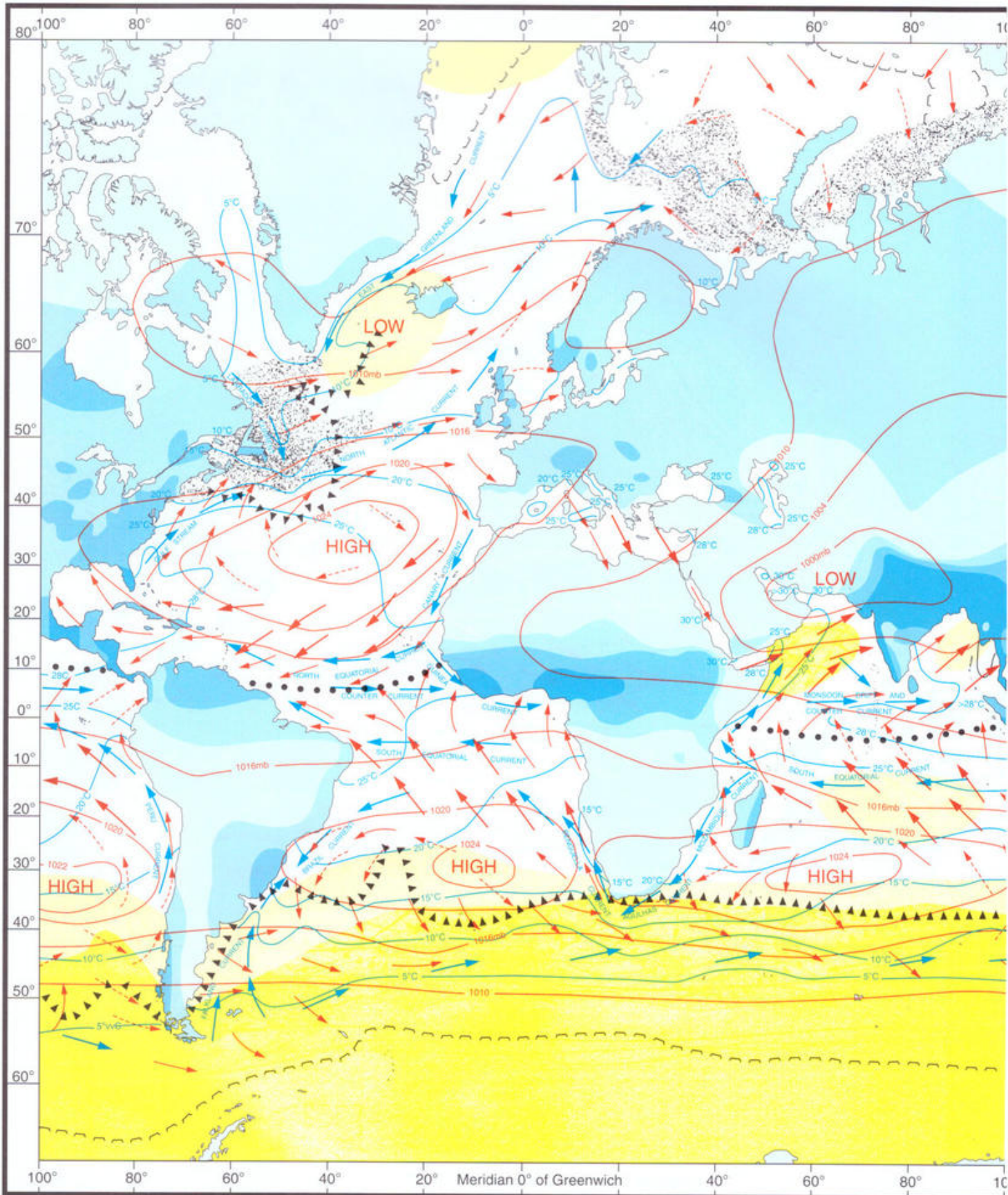
# World Climatic Chart - January

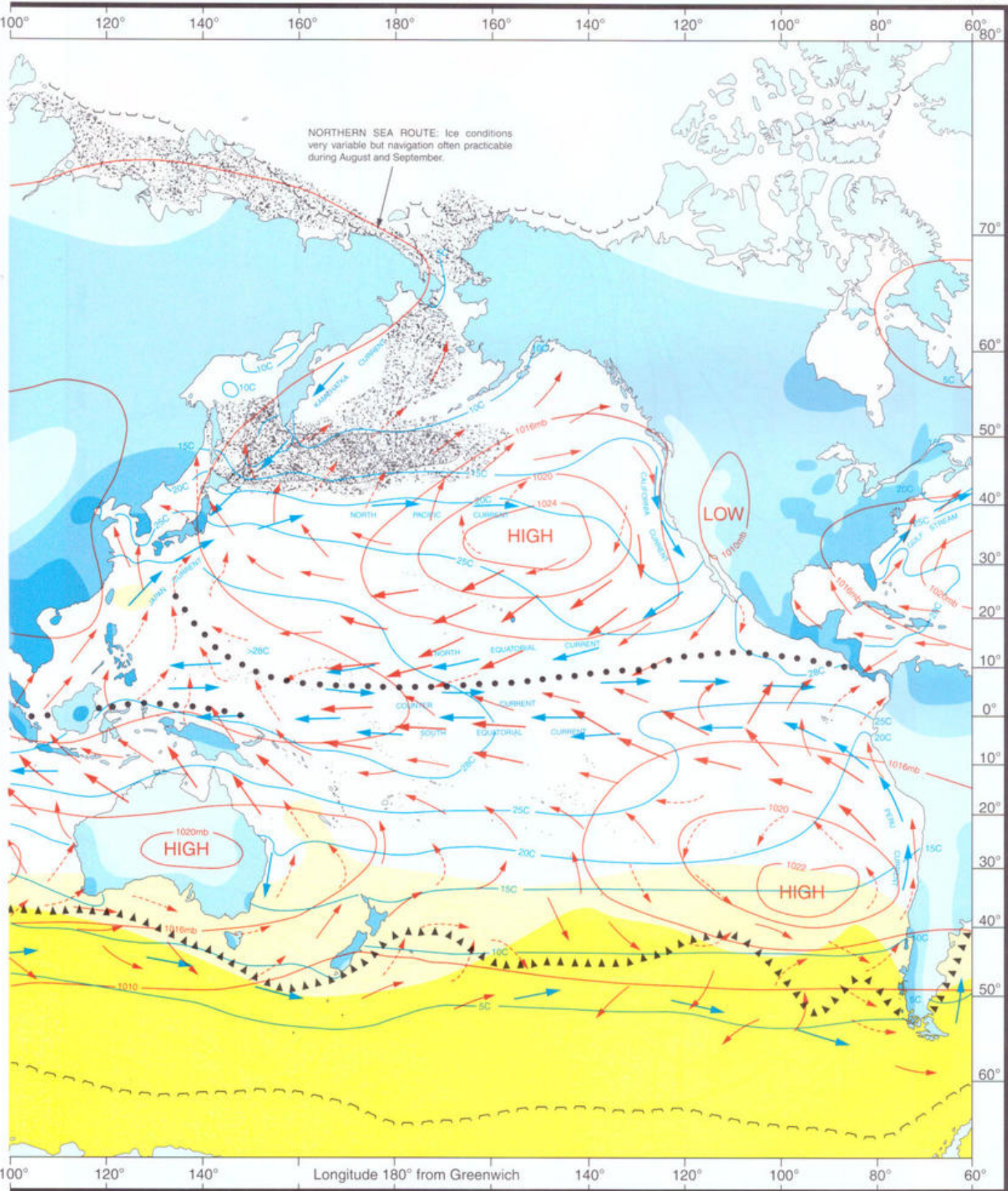


JANUARY

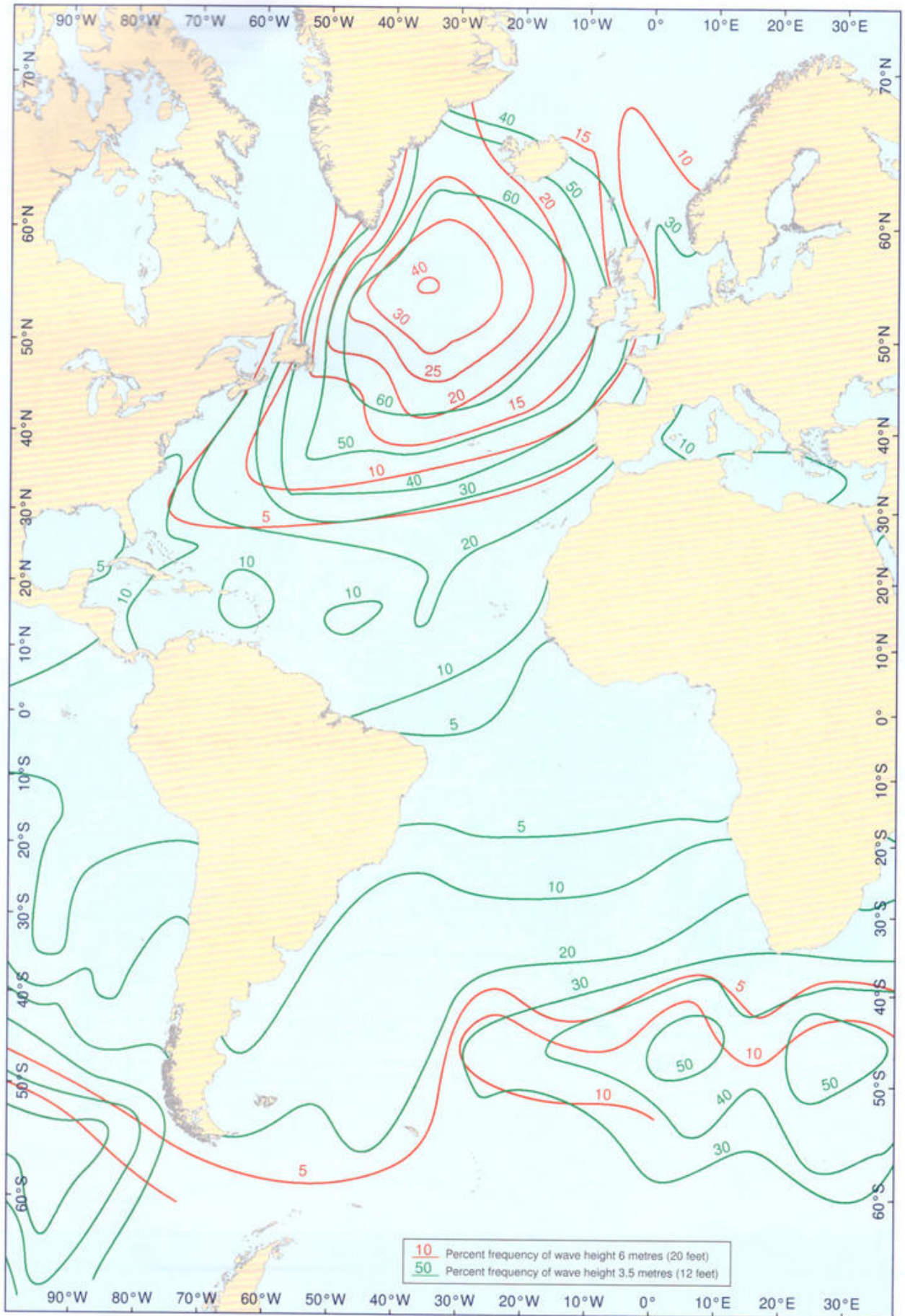


## World Climatic Chart - July





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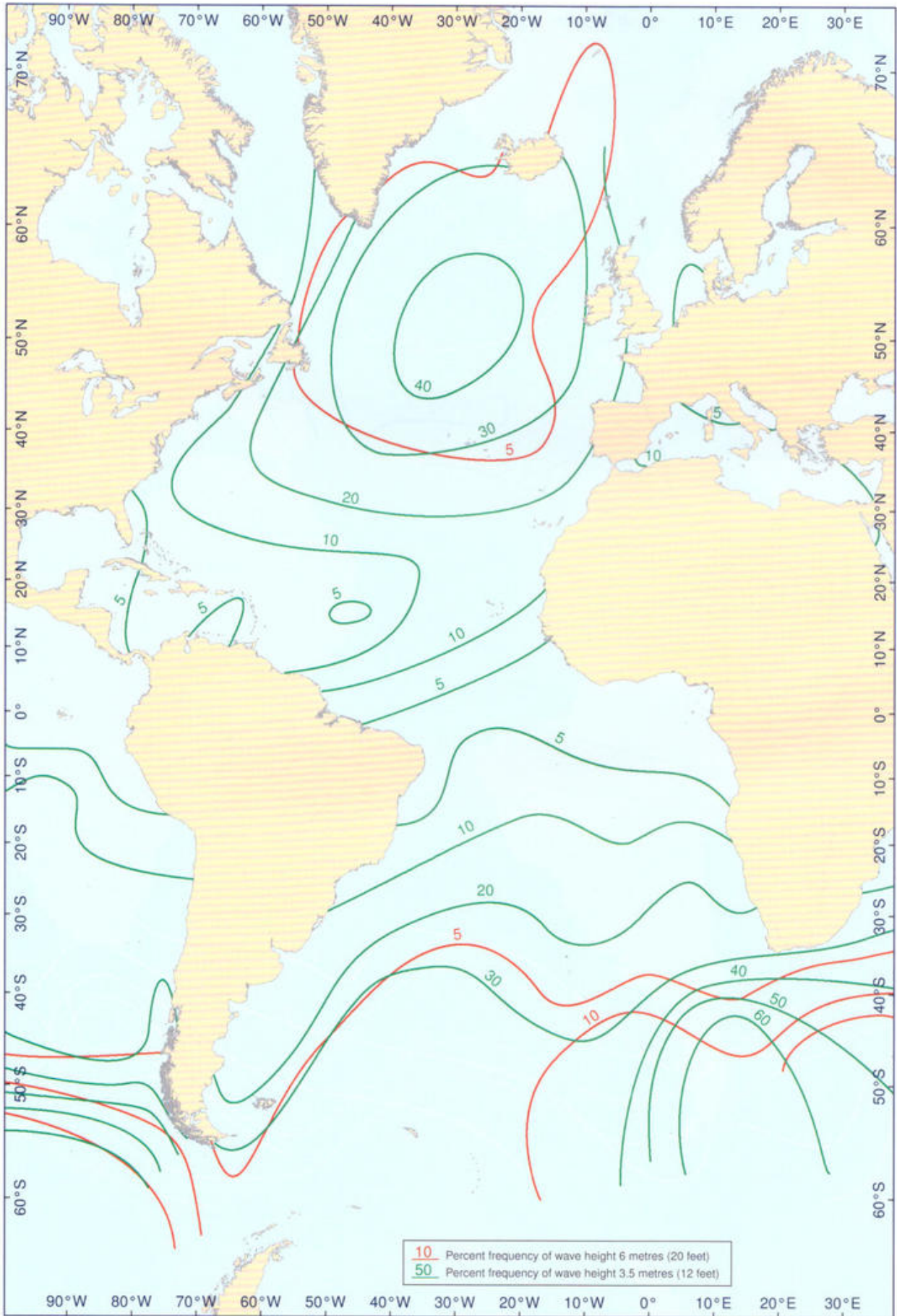
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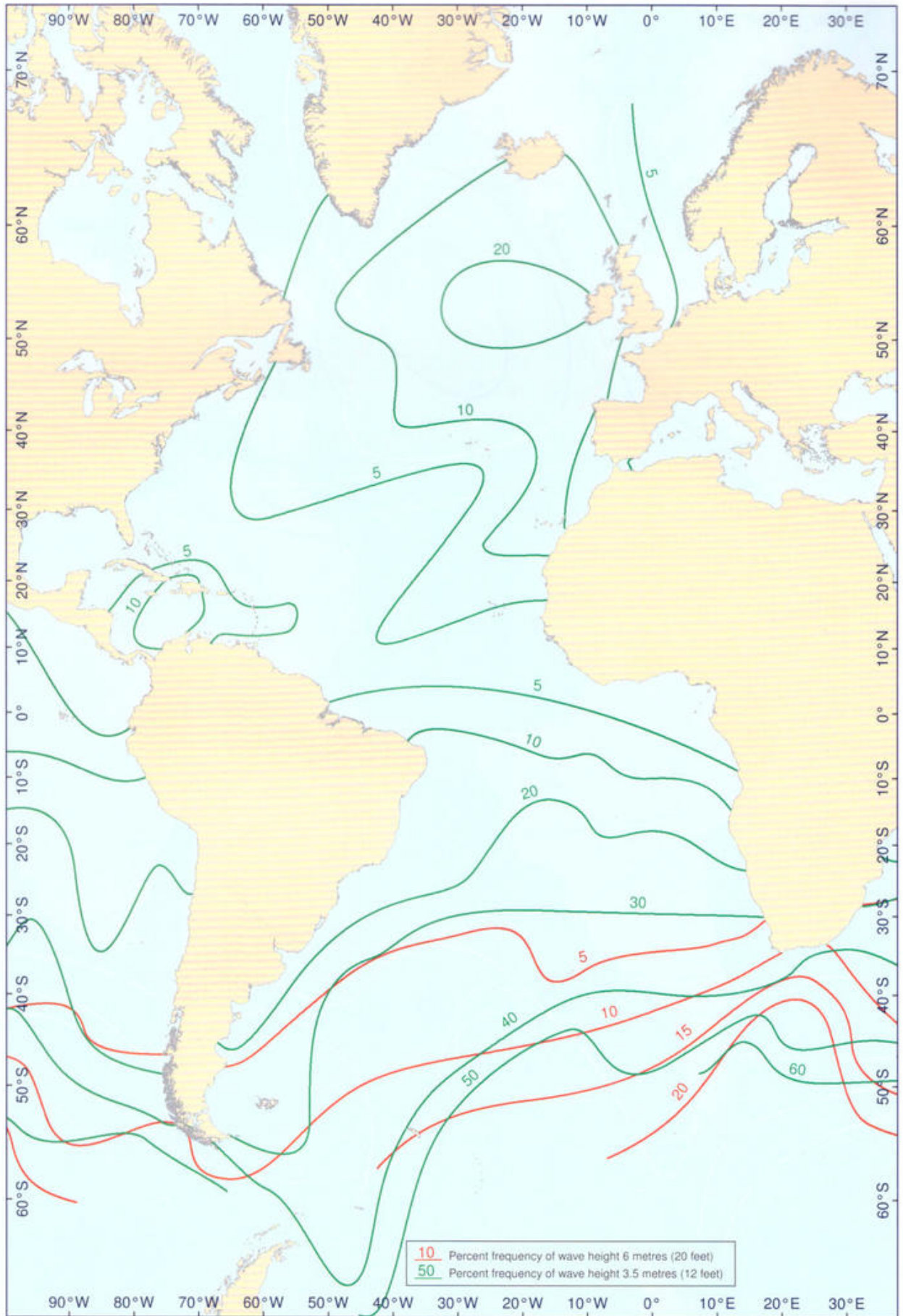
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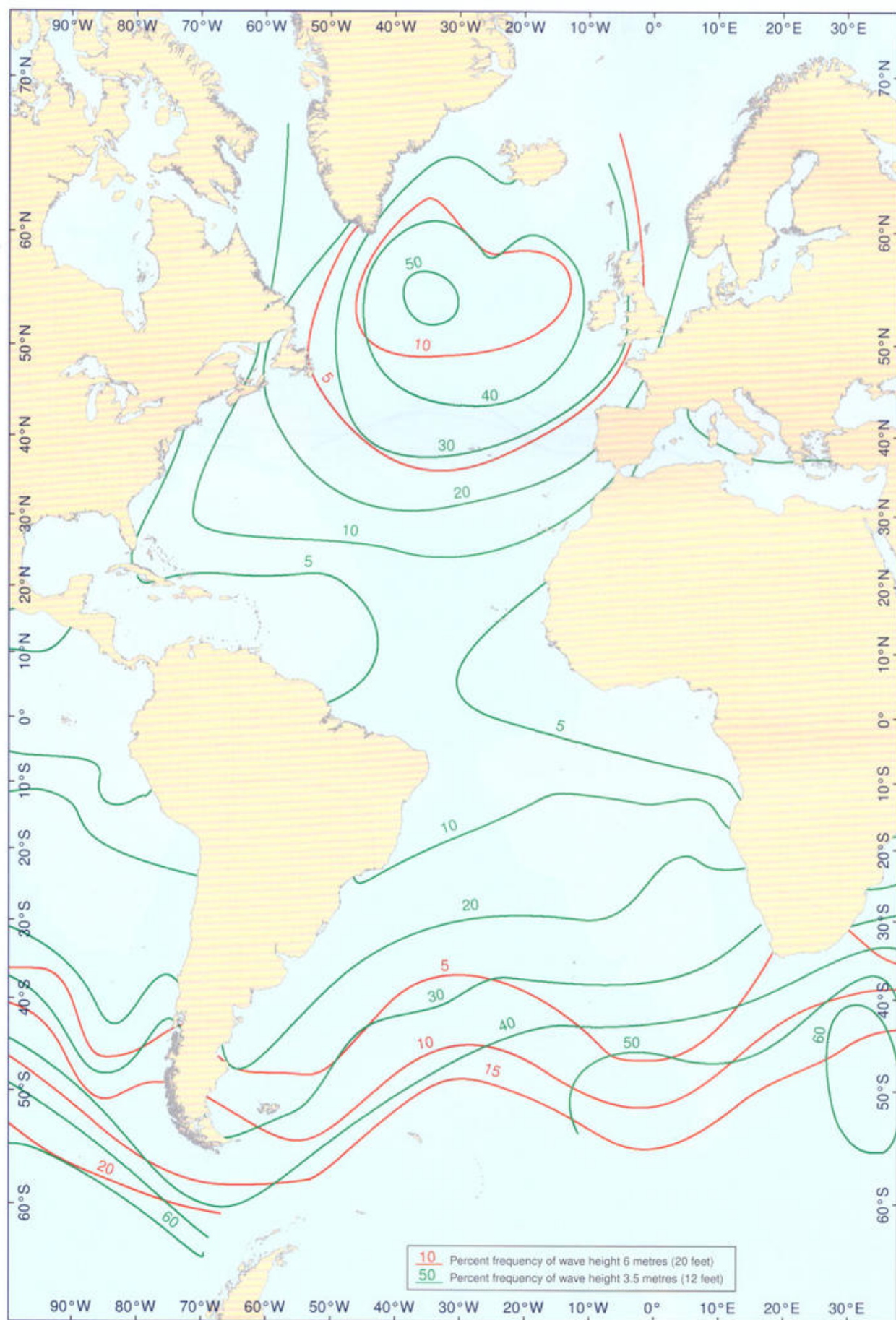
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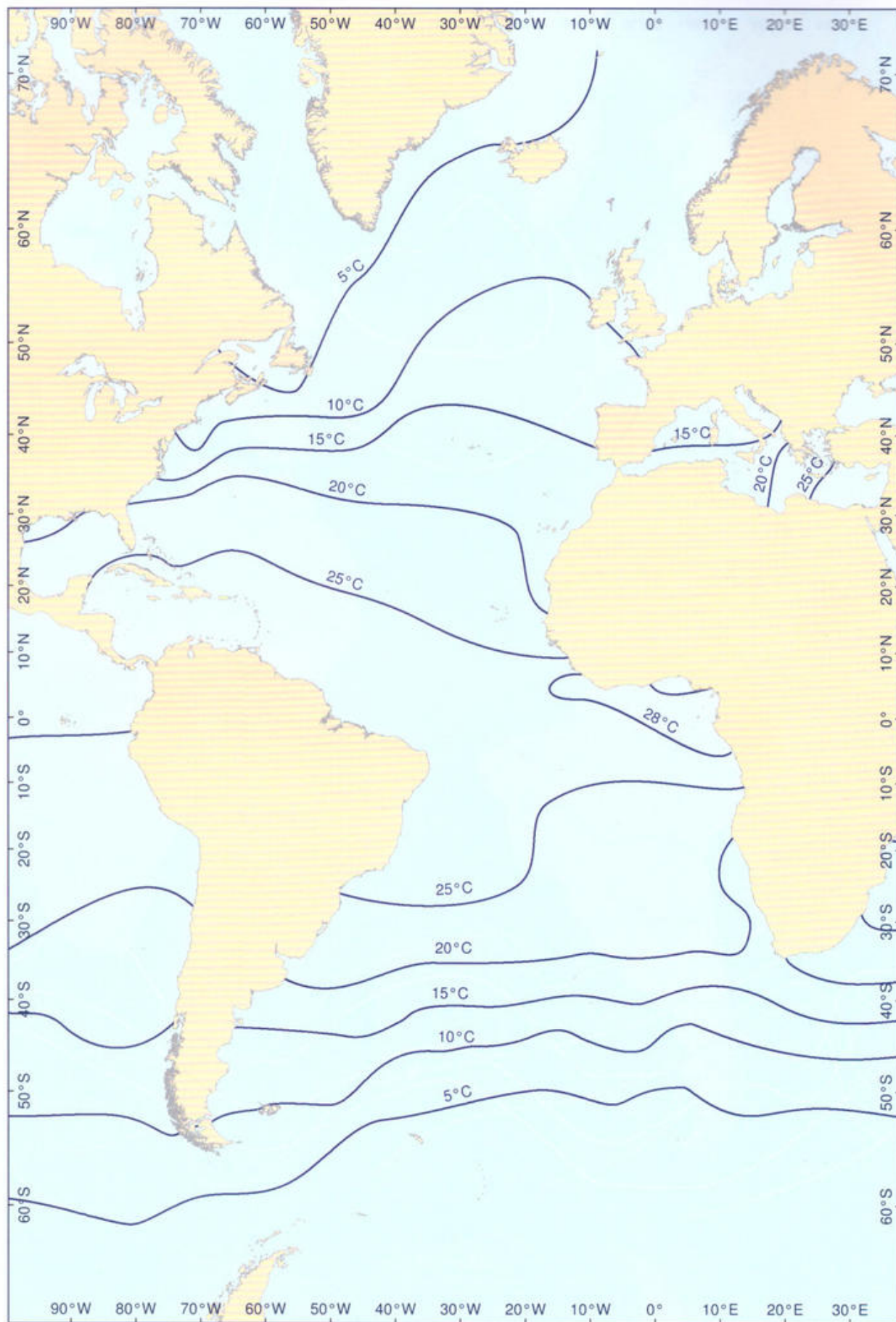
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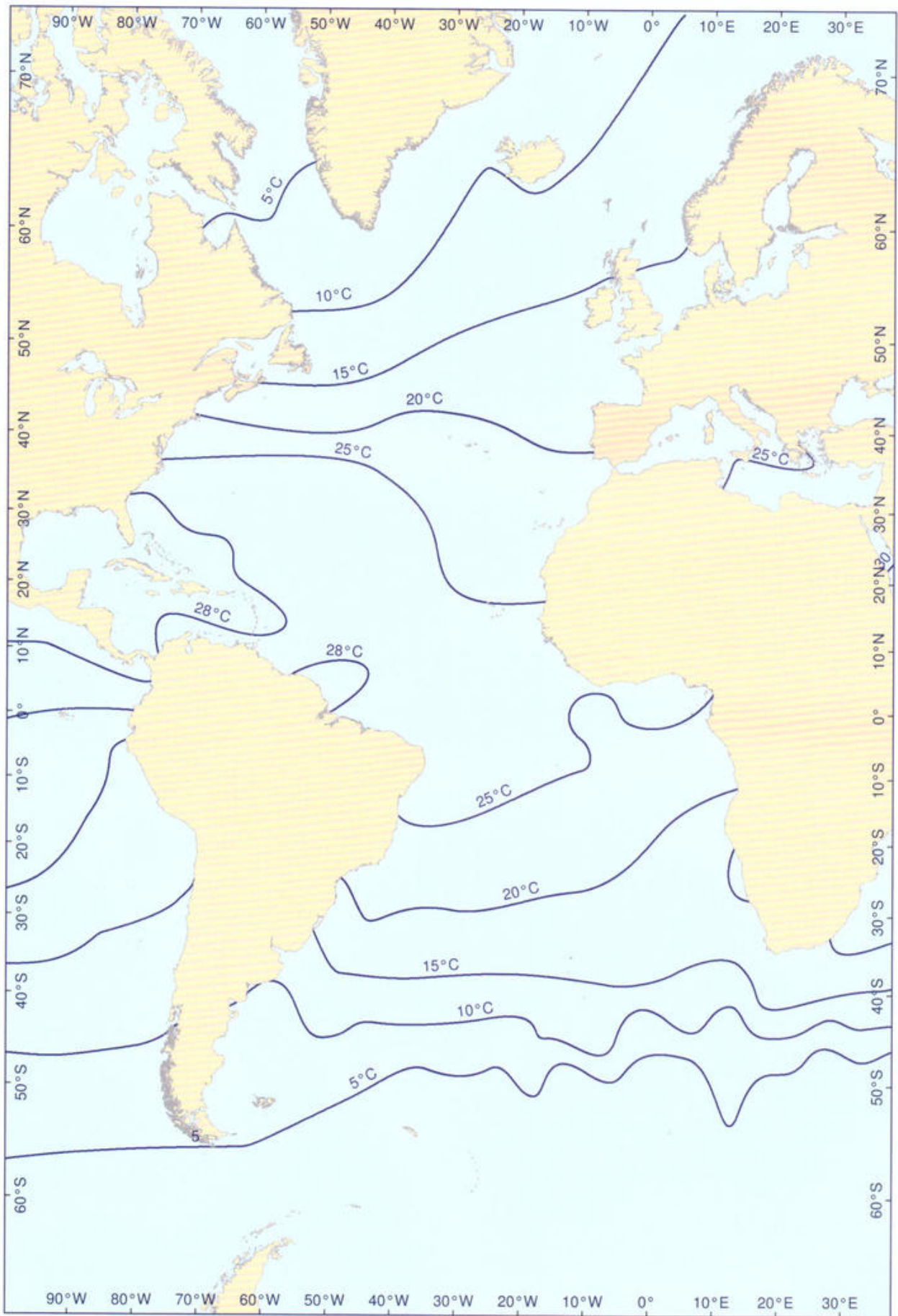
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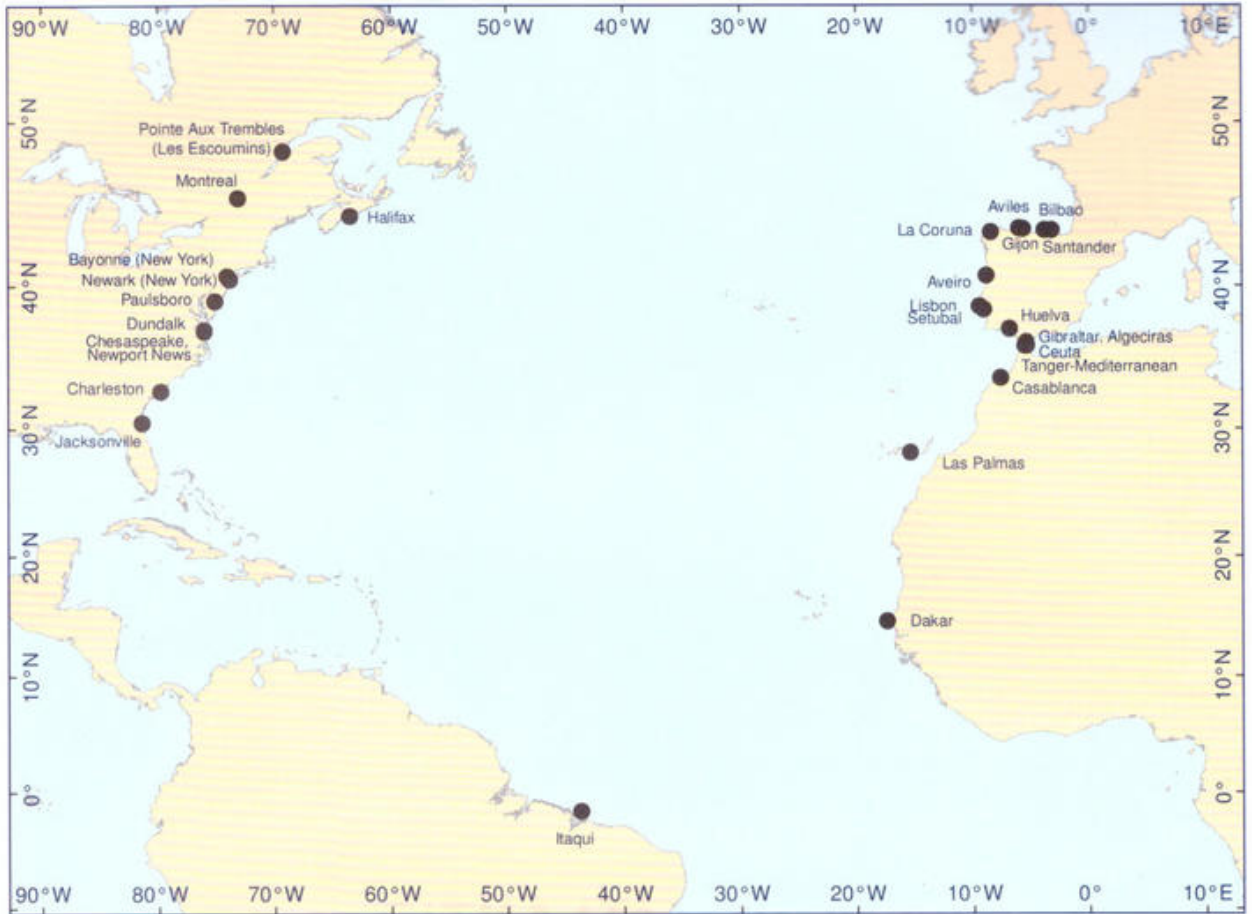
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# North Atlantic Area Coverage, Ports and Connectors



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# North Atlantic Area Coverage, Ports and Connectors

## Ports

NAME	GP
Aveiro	40°39'N 08°49'W
Aviles	43°42'N 05°58'W
Bayonne (New York)	40°40'N 74°05'W
Bilbao	43°34'N 03°11'W
Casablanca	33°41'N 07°34'W
Ceuta	35°55'N 05°19'W
Charleston	32°43'N 79°47'W
Chesapeake, Newport News	36°57'N 76°01'W
Dakar	14°36'N 17°25'W
Dundalk	36°57'N 76°01'W
Gibraltar, Algeciras	36°08'N 05°24'W
Gijon	43°38'N 05°40'W
Halifax	44°30'N 63°29'W

NAME	GP
Huelva	37°06'N 06°50'W
Itaqui	01°38'S 43°46'W
Jacksonville	30°24'N 81°23'W
La Coruna	43°28'N 08°25'W
Las Palmas	28°08'N 15°23'W
Lisbon	38°37'N 09°24'W
Montreal	45°33'N 73°32'W
Pointe Aux Trembles (Les Escoumins)	48°20'N 69°16'W
New York	40°27'N 73°49'W
Paulsboro	39°00'N 75°08'W
Santander	43°33'N 03°46'W
Setubal	38°25'N 09°00'W
Tanger-Mediterranean	35°55'N 05°30'W

## Connectors

NAME	GP
Antigua Channel	16°34'N 61°53'W
Bishop Rock W	49°41'N 07°01'W
Cabo Calcanhar	04°38'S 34°57'W
Caicos Passage	22°15'N 72°20'W
Cape Sierra Leone	08°26'N 15°29'W
Crooked Island Passage N	23°52'N 74°41'W
Galleons Passage	10°57'N 60°54'W
Guadeloupe Channel	15°49'N 61°35'W
Ile d'Ouessant SW	48°24'N 06°04'W
Mayaguana Pasage	22°30'N 73°20'W
Mid Atlantic	04°26'N 26°44'W

NAME	GP
Mona Passage	18°41'N 67°57'W
Mouchoir Passage	21°16'N 70°42'W
NE Providence Channel	25°44'N 77°04'W
Sombrero Passage	18°10'N 63°32'W
SW Approaches	49°11'N 06°39'W
St Lucia/St Vincent Channel	13°34'N 61°12'W
Straits of Florida N	27°26'N 79°17'W
Strait of Gibraltar E	36°00'N 05°24'W
Strait of Gibraltar W	35°57'N 06°26'W
Tobago Passage	11°35'N 60°35'W

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This chapter contains information relating to passages within and across the North Atlantic Ocean. Relevant navigational publications should be consulted when planning and conducting passages. These publications include ADMIRALTY Routeing Guides, ADMIRALTY Sailing Directions and The Mariner's Handbook, amongst others.

## PASSAGES BETWEEN ENGLISH CHANNEL AND STRAIT OF GIBRALTAR OR INTERMEDIATE PORTS

### • Notes and Cautions

Traffic Separation Schemes exist in the entrance to the English Channel, Île d'Ouessant and off the Spanish and Portuguese coasts. For regulations governing them see ADMIRALTY Sailing Directions.

### • Fishing

For details of fishing grounds see relevant volume of ADMIRALTY Sailing Directions.

### • Natural Conditions

Natural Île d'Ouessant. When rounding Île d'Ouessant in uncertain weather, great care should be taken, see Channel Pilot. The incidence of fog in the vicinity is high, it is important to remember, when in fog, that it is not always possible from the land to determine the existence of fog banks in the offing and that fog signals may not therefore be in operation. Bay of Biscay. Between Île d'Ouessant (48°28'N 5°05'W) and Cabo Finisterre (42°53'N 9°16'W) a general E-going set may be experienced. Onshore winds bring clouds, which may develop into low visibility near the coast.

The coast between Cabo Ortegal (43°46'N 7°52'W) and Cabo Finisterre (42°53'N 9°16'W) is a dangerous landfall except in good weather, owing to the E-going set of the current, the tidal streams and the risk of poor visibility with low cloud which may obscure the lights. Approaching across the Bay of Biscay, a landfall should be made at Cabo Villano (43°10'N 9°13'W) which is high and easily recognised. In poor visibility, soundings will give a good indication of the distance off the shore. See also Bay of Biscay Pilot.

### • West coasts of Spain and Portugal

Although in general a good offing is advisable off the coasts of Spain and Portugal, when coasting the normal route for N-bound traffic follows the coast to Cabo Finisterre (42°53'N 9°16'W) more closely than that for S-bound traffic.

The channel between Ilha Berlenga (39°25'N 9°30'W) and Cabo Carvoeiro (39°21'N 9°24'W) is clear and deep and may be taken in clear weather. When uncertain of the position near Os Farilhões (39°29'N 9°33'W) and Ilha Berlenga (39°25'N 9°30'W), it is vital to gain sea room since sounding gives little indication of the vicinity of these islands. For general remarks on depths off these coasts see West Coasts of Spain and Portugal Pilot.

In the vicinity of Cabo de São Vicente (37°01'N 9°00'W), the currents set strongly along the coast and have a tendency towards the cape. S-going currents predominate; N-going currents are especially likely to occur during SW gales.

## PASSAGES BETWEEN NORTH AMERICA AND PLACES BETWEEN GULF OF MEXICO AND CABO CALCANHAR

### • Notes and Cautions

Gulf of Mexico, West Indies channels and E coast of USA. For recommended approaches to the Gulf of Mexico and directions for passages through the West Indies Channels or along the E coast of the United States, see relevant volume of ADMIRALTY Sailing Directions.

### • Natural Conditions

A strong N-going current will be encountered for 200 miles in the N approaches to North-East Providence Channel.

### • Bahamas

The Gulf Stream is the main factor affecting voyages in the part of the ocean between Gulf of Saint Lawrence and the Bahamas.

### • Bermuda

For routes passing near Bermuda Islands, see relevant volume of ADMIRALTY Sailing Directions.

## PASSAGES BETWEEN EASTERN PART OF NORTH ATLANTIC OCEAN AND NORTH COAST OF SOUTH AMERICA

- **Notes and Cautions**

Offshore hazards. Penedos de São Pedro e São Paulo and Atol das Rocas, which are both low-lying and dangerous, as well as Arquipélago de Fernando de Noronha, lie close to the routes to Recife, and in the main stream of the W-going South Equatorial Current.

The coast S of Cabo de São Roque should be approached with caution. Currents, which often set onshore should be guarded against.

Landfall off Recife should normally be made in 8°00'S 34°40'W, 10 miles E of Ponta de Olinda, or N of this position from October to January. See South America Pilot, Volume I.

### PASSAGES TO AND FROM ARQUIPÉLAGO DOS AÇORES

- **Natural conditions**

Currents. The islands lie in the main flow of the Azores Current and S of the predominantly W winds of the North Atlantic Ocean.

### PASSAGES TO AND FROM ARQUIPÉLAGO DE CABO VERDE

- **Natural conditions. Currents**

The E islands of Arquipélago de Cabo Verde more especially feel the force of the Canary Current setting to the SW; several wrecks have been caused by disregarding it. The currents between the islands of the group are frequently strong, irregular and influenced by the wind. For further details of currents see Africa Pilot, Volume I.

Local magnetic anomalies have been reported in the vicinity of Arquipélago de Cabo Verde, especially off the W side of Sal, off the E side of Boavista and near Fogo and Brava.

# Connector Routes for the North Atlantic

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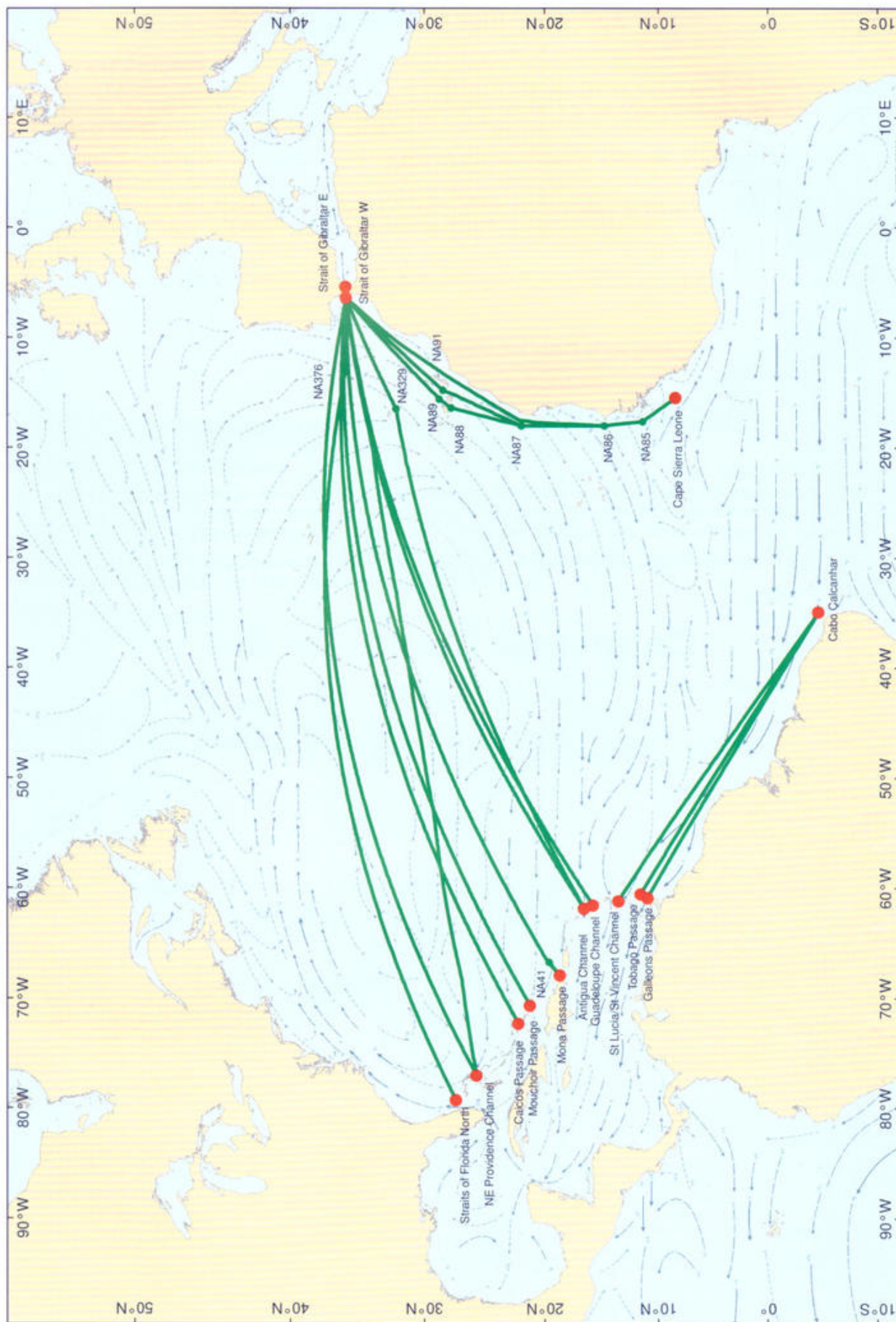
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# Connector Routes



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## Connector to Connector Routes

FROM	GP	TO	GP	LENGTH
NE Providence Channel	25°44'N 77°04'W	Strait of Gibraltar W	35°57'N 06°26'W	4304
Mona Passage	18°41'N 67°57'W	Strait of Gibraltar W	35°57'N 06°26'W	3837
NE Providence Channel	25°44'N 77°04'W	Strait of Gibraltar W	35°57'N 06°26'W	4397
Antigua Channel	16°34'N 61°53'W	Strait of Gibraltar W	35°57'N 06°26'W	3609
Caicos Passage	22°15'N 72°20'W	Strait of Gibraltar W	35°57'N 06°26'W	4137
Mouchoir Passage	21°16'N 70°42'W	Strait of Gibraltar W	35°57'N 06°26'W	4050
Guadeloupe Channel	15°49'N 61°35'W	Strait of Gibraltar W	35°57'N 06°26'W	3608
Antigua Channel	16°34'N 61°53'W	Strait of Gibraltar W	35°57'N 06°26'W	3592
Strait of Gibraltar W	35°57'N 06°26'W	Cape Sierra Leone	08°26'N 15°29'W	2056
Strait of Gibraltar W	35°57'N 06°26'W	Cape Sierra Leone	08°26'N 15°29'W	2084
Strait of Gibraltar W	35°57'N 06°26'W	Cape Sierra Leone	08°26'N 15°29'W	2110
Strait of Gibraltar E	36°00'N 05°24'W	Strait of Gibraltar W	35°57'N 06°26'W	62
Straits of Florida N	27°26'N 79°17'W	Strait of Gibraltar W	35°57'N 06°26'W	4501
St Lucia/St Vincent Channel	13°34'N 61°12'W	Cabo Calcanhar	04°38'S 34°57'W	1919
Tobago Passage	11°35'N 60°35'W	Cabo Calcanhar	04°38'S 34°57'W	1821
Galleons Passage	10°57'N 60°54'W	Cabo Calcanhar	04°38'S 34°57'W	1817

## Waypoints

ID	NAME	GP
NA41	Mona Passage NE	19°43'N 66°47'W
NA85	Archipelago dos Bijagos	11°22'N 17°38'W
NA86	Cap Vert	14°48'N 18°00'W
NA87	Cabo Barbas	21°59'N 18°01'W
NA88	Tenerife S	27°49'N 16°24'W

ID	NAME	GP
NA89	Tenerife N	28°46'N 15°36'W
NA91	Las Palmas N	28°28'N 14°49'W
NA329	Madeira S	32°10'N 16°30'W
NA376	Hirondelle II Seamount S	35°56'N 12°44'W

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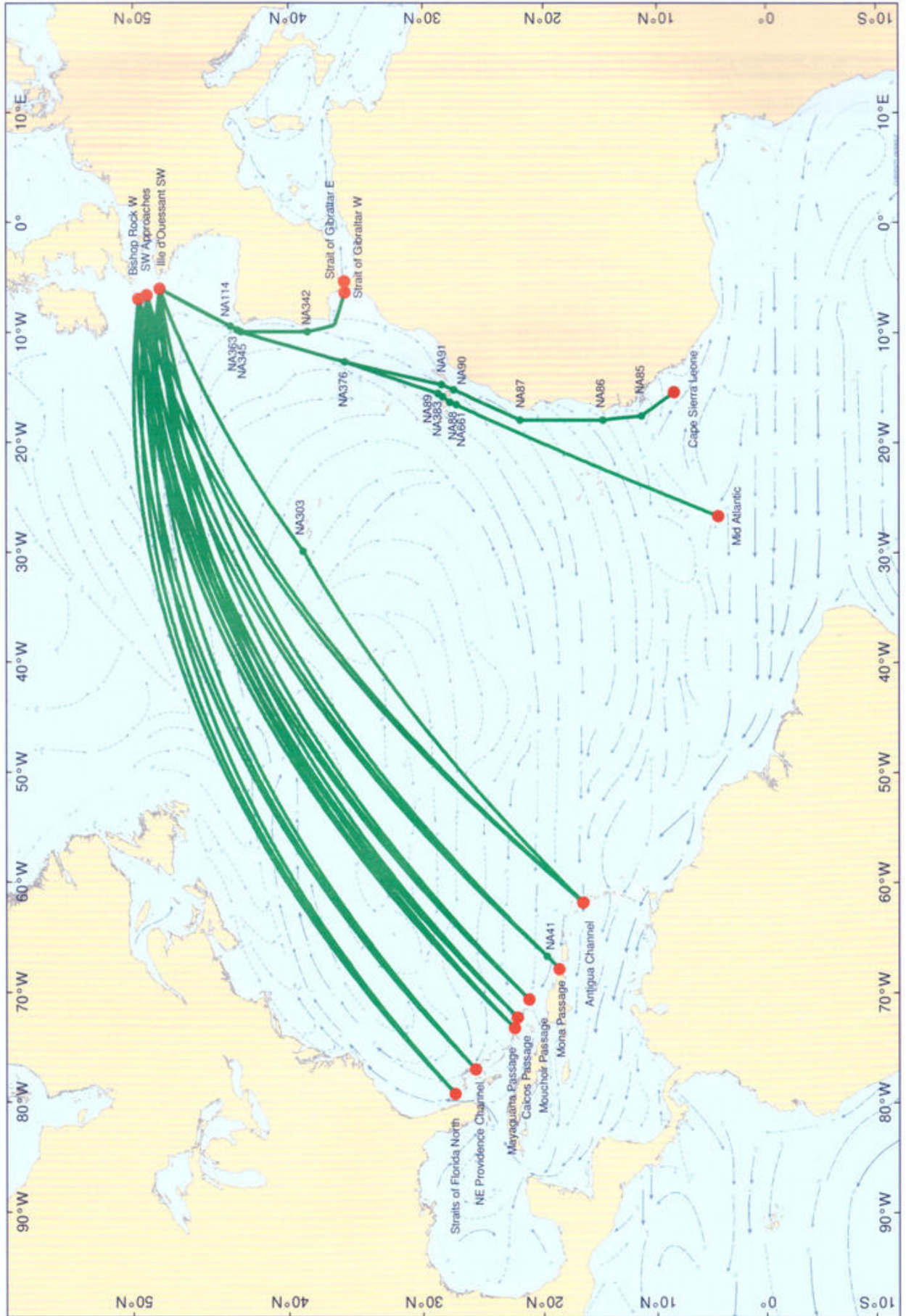
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## Connector to Connector Routes

FROM	GP	TO	GP	LENGTH
Mona Passage	18°41'N 67°57'W	SW Approaches	49°11'N 06°39'W	4300
Antigua Channel	16°34'N 61°53'W	Ile d'Ouessant SW	48°24'N 06°04'W	4100
Caicos Passage	22°15'N 72°20'W	Bishop Rock W	49°41'N 07°01'W	4543
Caicos Passage	22°15'N 72°20'W	SW Approaches	49°11'N 06°39'W	4541
Caicos Passage	22°15'N 72°20'W	Ile d'Ouessant SW	48°24'N 06°04'W	4541
Mouchoir Passage	21°16'N 70°42'W	Bishop Rock W	49°41'N 07°01'W	4477
Mouchoir Passage	21°16'N 70°42'W	SW Approaches	49°11'N 06°39'W	4474
Mouchoir Passage	21°16'N 70°42'W	Ile d'Ouessant SW	48°24'N 06°04'W	4472
Mona Passage	18°41'N 67°57'W	Ile d'Ouessant SW	48°24'N 06°04'W	4295
Antigua Channel	16°34'N 61°53'W	Bishop Rock W	49°41'N 07°01'W	4153
Antigua Channel	16°34'N 61°53'W	SW Approaches	49°11'N 06°39'W	4143
NE Providence Channel	25°44'N 77°04'W	SW Approaches	49°11'N 06°39'W	4735
NE Providence Channel	25°44'N 77°04'W	Ile d'Ouessant SW	48°24'N 06°04'W	4741
Strait of Gibraltar E	36°00'N 05°24'W	Ile d'Ouessant SW	48°24'N 06°04'W	1265
Mayaguana Passage	22°30'N 73°20'W	Bishop Rock W	49°41'N 07°01'W	4594
Mayaguana Passage	22°30'N 73°20'W	SW Approaches	49°11'N 06°39'W	4593
Mayaguana Passage	22°30'N 73°20'W	Ile d'Ouessant SW	48°24'N 06°04'W	4594
Straits of Florida N	27°26'N 79°17'W	Bishop Rock W	49°41'N 07°01'W	4831
Straits of Florida N	27°26'N 79°17'W	SW Approaches	49°11'N 06°39'W	4835
Straits of Florida N	27°26'N 79°17'W	Ile d'Ouessant SW	48°24'N 06°04'W	4844
Cape Sierra Leone	08°26'N 15°29'W	Ile d'Ouessant SW	48°24'N 06°04'W	2991
Mid Atlantic	04°26'N 26°44'W	Ile d'Ouessant SW	48°24'N 06°04'W	3303
NE Providence Channel	25°44'N 77°04'W	Bishop Rock W	49°41'N 07°01'W	4733
Mona Passage	18°41'N 67°57'W	Bishop Rock W	49°41'N 07°01'W	4306

## Waypoints

ID	NAME	GP	ID	NAME	GP
NA41	Mona Passage NE	19°43'N 66°47'W	NA114	Cabo Finisterre NE	43°56'N 09°29'W
NA85	Archipelago dos Bijagos	11°22'N 17°38'W	NA303	Azores W	38°58'N 29°58'W
NA86	Cap Vert	14°48'N 18°00'W	NA342	Off Cape Roca TSS	38°39'N 09°59'W
NA87	Cabo Barbas	21°59'N 18°01'W	NA345	Off Finisterre TSS	43°16'N 10°00'W
NA88	Tenerife S	27°49'N 16°24'W	NA363	Off Finisterre TSS N	43°31'N 09°49'W
NA89	Tenerife N	28°46'N 15°36'W	NA376	Hirondelle II Seamount S	35°56'N 12°44'W
NA90	Las Palmas S	27°30'N 15°15'W	NA383	Tenerife E	28°24'N 15°55'W
NA91	Las Palmas N	28°28'N 14°49'W	NA661	San Sebastian de la Gomera SE	27°17'N 16°38'W

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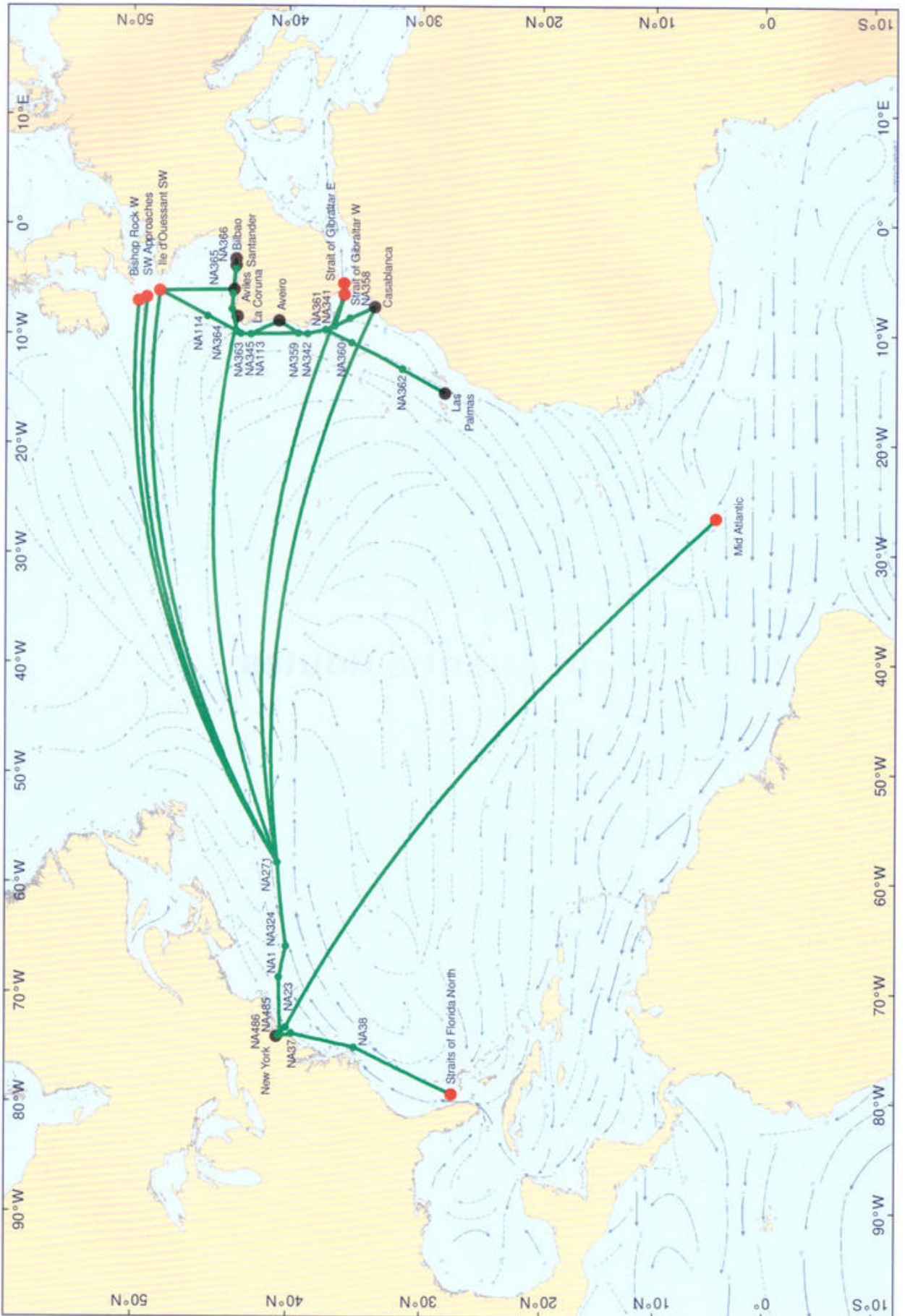
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## Aveiro, Aviles and Bayonne (New York)

## Port to Port Routes

PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From Aveiro	40°39'N 08°49'W	AVE	PT			NP67
To Aviles	43°42'N 05°58'W	AVS	ES	485		NP22
To Bilbao	43°34'N 03°11'W	BIO	ES	653		NP22
To Casablanca	33°41'N 07°34'W	CAS	MA	574		NP1
To Las Palmas	28°08'N 15°23'W	LPA	ES	1019		NP1
To Santander	43°33'N 03°46'W	SDR	ES	618		NP22
From Aviles	43°42'N 05°58'W	AVS	ES			NP22
To Aveiro	40°39'N 08°49'W	AVE	PT	485		NP67
To Casablanca	33°41'N 07°34'W	CAS	MA	1022		NP1
From Bayonne (New York)	40°39'N 74°03'W	BAY	US			NP68
To Casablanca	33°41'N 07°34'W	CAS	MA	4097		NP1
To La Coruna	43°28'N 08°25'W	LCG	ES	4016		NP67

## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Aveiro	40°39'N 08°49'W	Ile d'Ouessant SW	48°24'N 06°04'W	171	North Europe ports
Aviles	43°42'N 05°58'W	Ile d'Ouessant SW	48°24'N 06°04'W	407	North Europe ports
Aviles	43°42'N 05°58'W	Strait of Gibraltar E	36°00'N 05°24'W	1022	Mediterranean, Marmara Denizi and Black Sea ports
Aviles	43°42'N 05°58'W	Strait of Gibraltar W	35°57'N 06°26'W	1022	Mediterranean, Marmara Denizi and Black Sea ports
Bayonne (New York)	40°39'N 74°03'W	Bishop Rock W	49°41'N 07°01'W	4199	North Europe ports
Bayonne (New York)	40°39'N 74°03'W	Ile d'Ouessant SW	48°24'N 06°04'W	4230	North Europe ports
Bayonne (New York)	40°39'N 74°03'W	Mid Atlantic	04°26'N 26°44'W	3740	South Atlantic ports
Bayonne (New York)	40°39'N 74°03'W	SW Approaches	49°11'N 06°39'W	4210	North Europe ports
Bayonne (New York)	40°39'N 74°03'W	Straits of Florida N	27°26'N 79°17'W	1028	Caribbean, Panama Canal and Pacific ports
Bayonne (New York)	40°39'N 74°03'W	Strait of Gibraltar E	36°00'N 05°24'W	4208	Mediterranean ports
Bayonne (New York)	40°39'N 74°03'W	Strait of Gibraltar W	35°57'N 06°26'W	4208	Mediterranean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
NA1	Great South Channel	40°30'N 68°42'W	NA358	Offshore Casablanca	35°33'N 08°33'W
NA23	New York SE	40°01'N 73°13'W	NA359	Off Cabo Carvoeiro	39°19'N 09°57'W
NA37	New York S	39°39'N 73°47'W	NA360	Offshore El Jadida NW	35°24'N 10°49'W
NA38	Cape Hatteras SE	35°04'N 75°01'W	NA361	Cape S.Vicente NW	37°22'N 09°37'W
NA113	Cabo Finisterre S	42°35'N 10°02'W	NA362	Offshore Ras Cantin	33°03'N 12°13'W
NA114	Cabo Finisterre NE	43°56'N 09°29'W	NA363	Finisterre TSS N	43°31'N 09°49'W
NA271	Sable Island	40°38'N 58°14'W	NA364	Off Carino NE	43°51'N 07°46'W
NA324	Retriever Seamount	40°02'N 65°50'W	NA365	Off Aviles NW	43°46'N 06°22'W
NA341	Cape S.Vicente TSS	36°40'N 09°17'W	NA366	Off Santander	43°36'N 04°07'W
NA342	Cape Roca TSS	38°39'N 09°59'W	NA485	Long Island S	40°25'N 73°46'W
NA345	Cape Finisterre TSS	43°16'N 10°00'W	NA486	Sandy Hook	40°32'N 74°00'W

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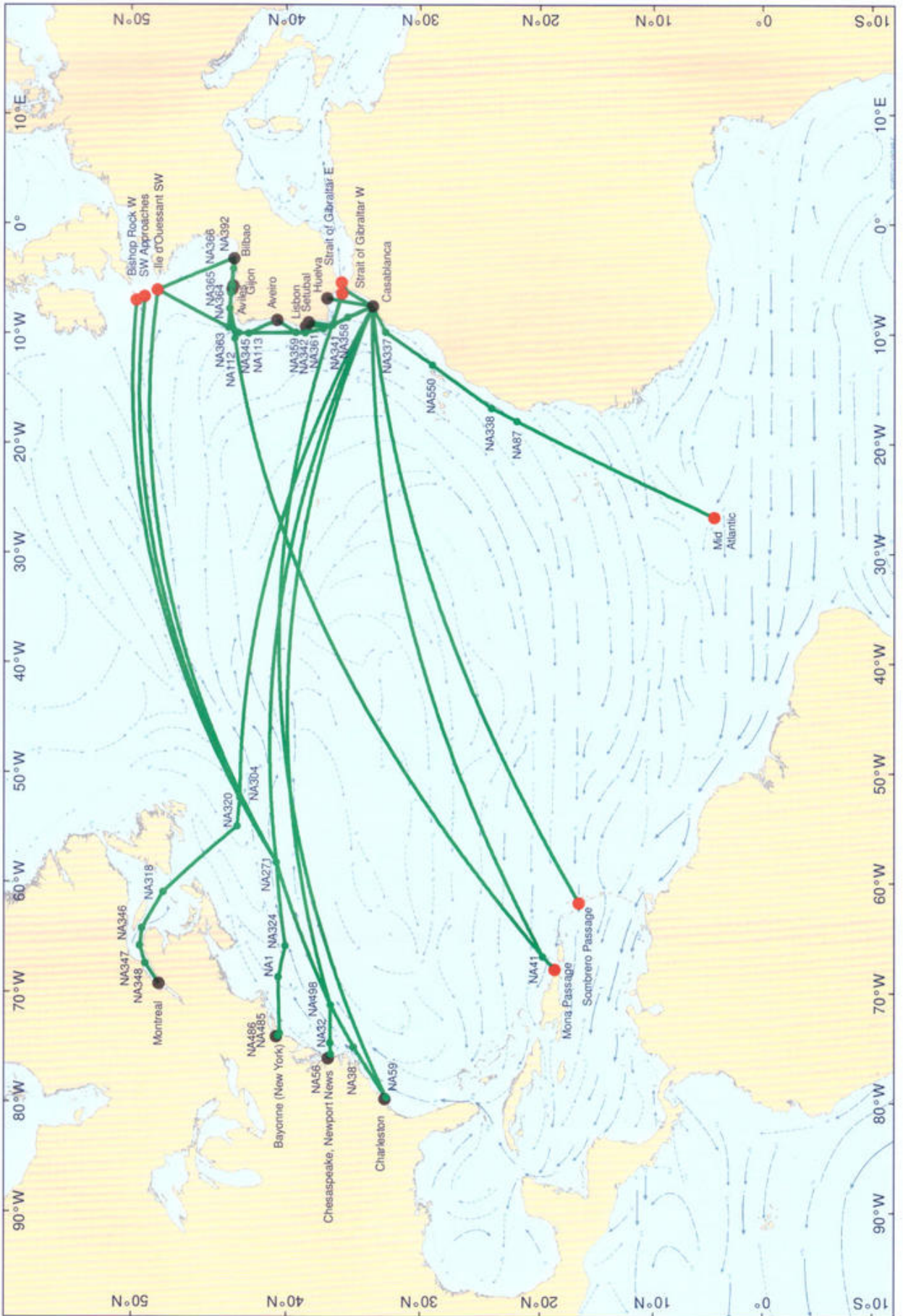
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## Bilbao, Casablanca and Charleston



## Bilbao, Casablanca and Charleston

## Port to Port Routes

PORT		GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Bilbao	43°34'N 03°11'W	BIO	ES			NP22
To	Aveiro	40°39'N 08°49'W	AVE	PT	653		NP67
To	Casablanca	33°41'N 07°34'W	CAS	MA	1190		NP1
To	Lisbon	38°37'N 09°24'W	LIS	PT	827		NP67
From	Casablanca	33°41'N 07°34'W	CAS	MA			NP1
To	Aveiro	40°39'N 08°49'W	AVE	PT	574		NP67
To	Aviles	43°42'N 05°58'W	AVS	ES	1040		NP22
To	Bayonne (New York)	40°39'N 74°03'W	BAY	US	4097		NP68
To	Bilbao	43°34'N 03°11'W	BIO	ES	1208		NP22
To	Chesapeake, Newport News	36°57'N 76°01'W	UFG	US	4204		NP69
To	Gijon	43°38'N 05°40'W	GIJ	ES	1064		NP22
To	Huelva	37°06'N 06°50'W	HUV	ES	255		NP67
To	Lisbon	38°37'N 09°24'W	LIS	PT	389	Lisbon, Santa Apolonia	NP67
To	Montreal	48°20'N 69°16'W	MTR	CA	4072		NP65
To	Setubal	38°25'N 09°00'W	SET	PT	375	Secil Cement Factory	NP67

## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Bilbao	43°34'N 03°11'W	Ile d'Ouessant SW	48°24'N 06°04'W	452	North Europe ports
Bilbao	43°34'N 03°11'W	Mona Passage	18°41'N 67°57'W	4371	Caribbean ports
Bilbao	43°34'N 03°11'W	Strait of Gibraltar E	36°00'N 05°24'W	1189	Mediterranean, Suez Canal and Indian Ocean ports
Bilbao	43°34'N 03°11'W	Strait of Gibraltar W	35°57'N 06°26'W	1189	Mediterranean, Suez Canal and Indian Ocean ports
Casablanca	33°41'N 07°34'W	Ile d'Ouessant SW	48°24'N 06°04'W	1266	North Europe ports
Casablanca	33°41'N 07°34'W	Antigua Channel	16°34'N 61°53'W	3482	Caribbean ports
Casablanca	33°41'N 07°34'W	Mid Atlantic	04°26'N 26°44'W	2230	South Atlantic ports
Casablanca	33°41'N 07°34'W	Mona Passage	18°41'N 67°57'W	3815	Caribbean ports
Casablanca	33°41'N 07°34'W	Strait of Gibraltar E	36°00'N 05°24'W	221	Mediterranean, Suez Canal and Indian Ocean ports
Charleston	32°43'N 79°47'W	Bishop Rock W	49°41'N 07°01'W	4667	North Europe ports
Charleston	32°43'N 79°47'W	Ile d'Ouessant SW	48°24'N 06°04'W	4698	North Europe ports
Charleston	32°43'N 79°47'W	SW Approaches	49°11'N 06°39'W	4678	North Europe ports
Charleston	32°43'N 79°47'W	Strait of Gibraltar E	36°00'N 05°24'W	4601	Mediterranean ports
Charleston	32°43'N 79°47'W	Strait of Gibraltar W	35°57'N 06°26'W	4601	Mediterranean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
NA1	Great South Channel	40°30'N 68°42'W	NA341	Capé S.Vicente TSS	36°40'N 09°17'W
NA32	Chesapeake E	36°48'N 74°39'W	NA342	Cape Roca TSS	38°39'N 09°59'W
NA38	Cape Hatteras SE	35°04'N 75°01'W	NA345	Cape Finisterre TSS	43°16'N 10°00'W
NA41	Mona Passage NE	19°43'N 66°47'W	NA346	Detroit D'Honguedo	49°20'N 64°13'W
NA56	Chesapeake Bay SE	36°47'N 75°42'W	NA347	Mont-Louis N	49°27'N 65°47'W
NA59	Charleston	32°37'N 79°35'W	NA348	Saint-Felicite N	49°08'N 67°24'W
NA87	Cabo Barbas	21°59'N 18°01'W	NA358	Offshore Casablanca	35°33'N 08°33'W
NA112	Cabo Finisterre Offshore	43°31'N 10°30'W	NA359	Off Cabo Carvoeiro	39°19'N 09°57'W
NA113	Cabo Finisterre S	42°35'N 10°02'W	NA361	Cape S.Vicente NW	37°22'N 09°37'W
NA114	Cabo Finisterre NE	43°56'N 09°29'W	NA363	Cape Finisterre TSS N	43°31'N 09°49'W
NA271	Sable Island	40°38'N 58°14'W	NA364	Off Carino NE	43°51'N 07°46'W
NA304	Tail of the Bank W	43°08'N 52°19'W	NA365	Off Aviles NW	43°46'N 06°22'W
NA318	Cabot Strait N	48°03'N 60°55'W	NA366	Off Santander	43°36'N 04°07'W
NA320	Laurentian Channel S	43°20'N 54°55'W	NA392	Off Gijon	43°43'N 05°40'W
NA324	Retriever Seamount	40°02'N 65°50'W	NA485	Long Island S	40°25'N 73°46'W
NA337	Off Safi	32°40'N 09°55'W	NA486	Sandy Hook	40°32'N 74°00'W
NA338	Off Ad Dakhla	24°09'N 16°49'W	NA498	Caryn Seamount W	36°47'N 71°12'W
NA340	Cap Spartel	35°49'N 06°03'W	NA550	Fuerteventura NE	28°59'N 12°54'W

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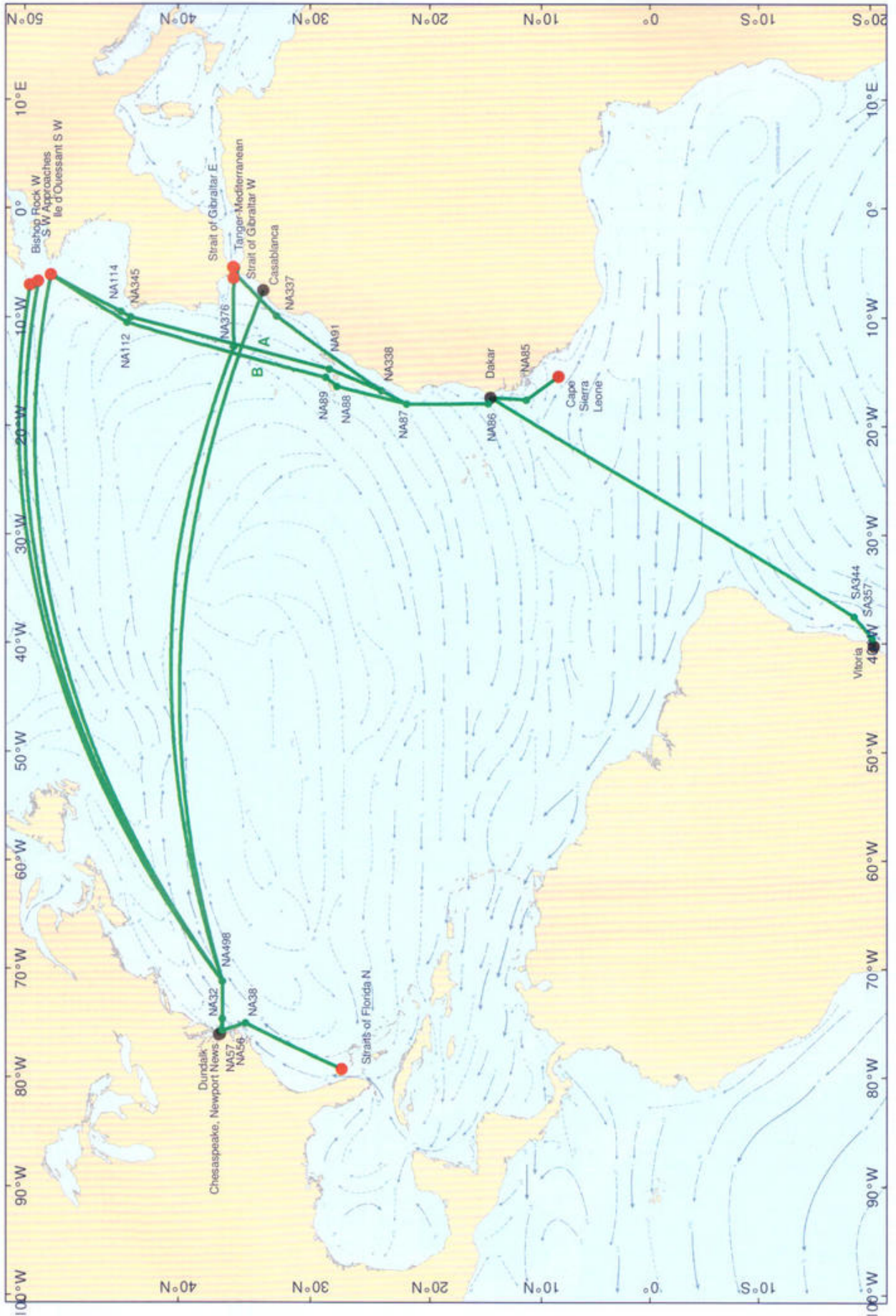
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## Chesapeake, Dakar and Dundalk



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## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Chesapeake	36°57'N 76°01'W	UFG	US			NP69
To	Casablanca	33°41'N 07°34'W	CAS	MA	4204		NP1
From	Dakar	14°36'N 17°25'W	DKR	SN			NP1
To	Tanger-Mediterranean	35°55'N 05°30'W	PTM	MA	1718		NP67
To	Vitoria	20°19'S 40°15'W	VIX	BR	2546		NP5

## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Chesapeake	36°57'N 76°01'W	Straits of Florida North	27°26'N 79°17'W	751	Caribbean ports
	Chesapeake	36°57'N 76°01'W	Strait of Gibraltar E	36°00'N 05°24'W	4322	Mediterranean ports
	Chesapeake	36°57'N 76°01'W	Strait of Gibraltar W	35°57'N 06°26'W	4322	Mediterranean ports
	Dakar	14°36'N 17°25'W	Cape Sierra Leone	08°26'N 15°29'W	418	South Atlantic ports
	Dakar (Route A)	14°36'N 17°25'W	Ile d'Ouessant SW	48°24'N 06°04'W	2596	North Europe ports
	Dakar (Route B)	14°36'N 17°25'W	Ile d'Ouessant SW	48°24'N 06°04'W	2605	North Europe ports
	Dakar	14°36'N 17°25'W	Strait of Gibraltar E	36°00'N 05°24'W	1725	Mediterranean ports
	Dundalk	36°57'N 76°01'W	Bishop Rock W	49°41'N 07°01'W	4411	North Europe ports
	Dundalk	36°57'N 76°01'W	Ile d'Ouessant SW	48°24'N 06°04'W	4439	North Europe ports
	Dundalk	36°57'N 76°01'W	SW Approaches	49°11'N 06°39'W	4421	North Europe ports
	Dundalk	36°57'N 76°01'W	Straits of Florida N	27°26'N 79°17'W	759	Caribbean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
NA32	Chesapeake East	36°48'N 74°39'W	NA114	Cabo Finisterre NE	43°56'N 09°29'W
NA38	Cape Hatteras SE	35°04'N 75°01'W	NA337	Off Safi	32°40'N 09°55'W
NA56	Chesapeake Bay SE	36°47'N 75°42'W	NA338	Off Ad Dakhla	24°09'N 16°49'W
NA57	Chesapeake Bay E	36°57'N 75°44'W	NA340	Cap Spartel	35°49'N 06°03'W
NA85	Archipelago dos Bijagos	11°22'N 17°38'W	NA345	Cape Finisterre TSS	43°16'N 10°00'W
NA86	Cap Vert	14°48'N 18°00'W	NA376	Hirondelle II Seamount S	35°56'N 12°44'W
NA87	Cabo Barbas	21°59'N 18°01'W	NA378	Strait of Gibraltar	35°55'N 05°40'W
NA88	Tenerife S	27°49'N 16°24'W	NA380	Strait of Gibraltar W	35°53'N 05°48'W
NA89	Tenerife N	28°46'N 15°36'W	NA498	Caryn Seamount W	36°47'N 71°12'W
NA91	Las Palmas N	28°28'N 14°49'W	SA344	Abrolhos Bank N	18°36'S 37°34'W
NA112	Cabo Finisterre Offshore	43°31'N 10°30'W	SA357	Off Vitoria	20°10'S 39°32'W

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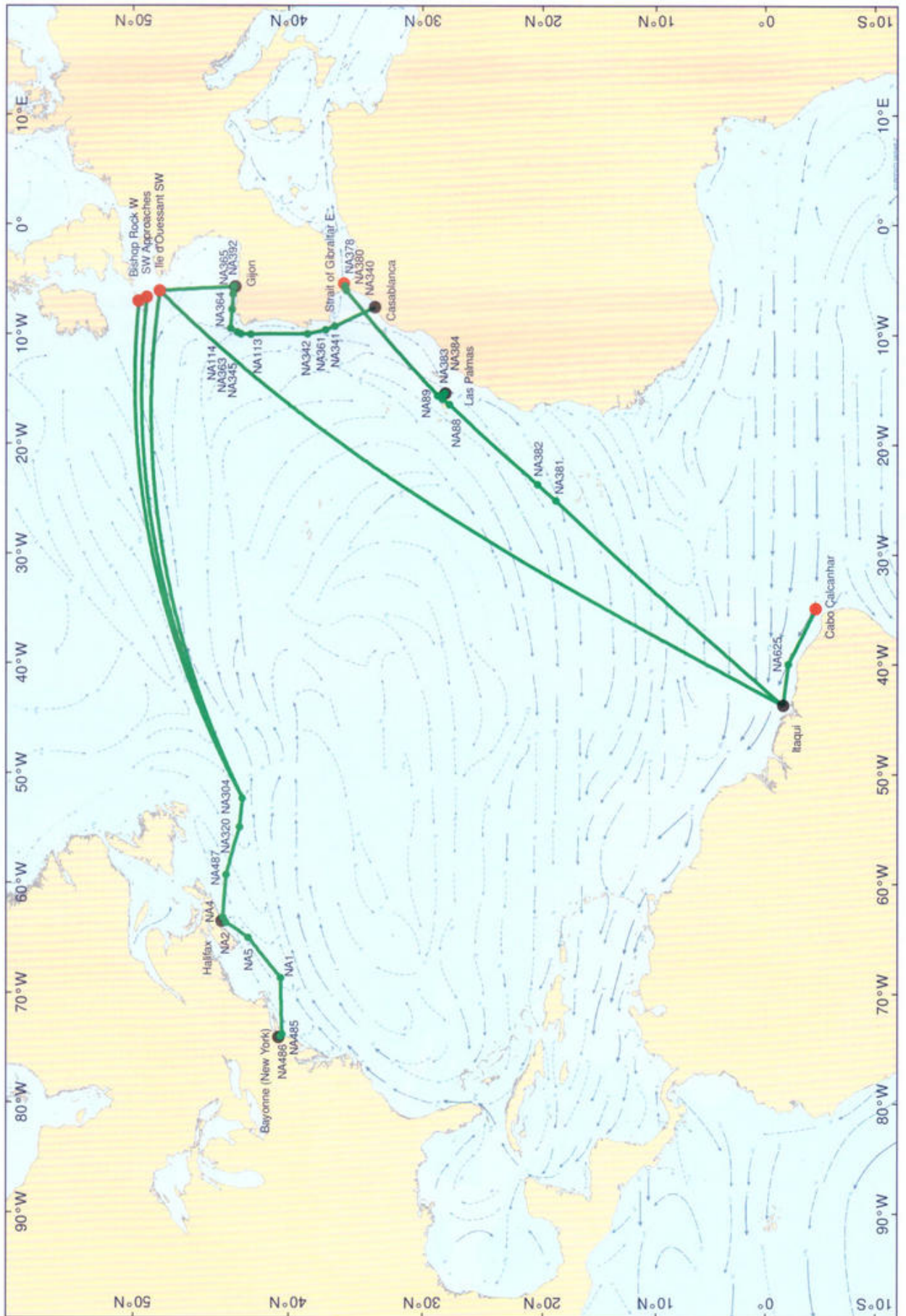
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## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Gijon	43°38'N 05°40'W	GIJ	ES			NP22
To	Casablanca	33°41'N 07°34'W	CAS	MO	1063		NP1
From	Halifax	44°30'N 63°29'W	HAL	CA			NP59
To	Bayonne (New York)	40°39'N 74°03'W	PNJ	US	791	Newark	NP68
From	Itaqi	01°38'S 43°46'W	ITQ	BR			NP5
To	Las Palmas	28°08'N 15°23'W	LPA	ES	2545		NP1

## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Gijon	43°38'N 05°40'W	Ile d'Ouessant SW	48°24'N 06°04'W	412	North Europe ports
	Halifax	44°30'N 63°29'W	Bishop Rock W	49°41'N 07°01'W	3505	North Europe ports
	Halifax	44°30'N 63°29'W	Ile d'Ouessant SW	48°24'N 06°04'W	3541	North Europe ports
	Halifax	44°30'N 63°29'W	SW Approaches	49°11'N 06°39'W	3518	North Europe ports
	Itaqi	01°38'S 43°46'W	Cabo Calcanhar	04°38'S 34°57'W	567	South Atlantic, Cape of Good Hope and Indian Ocean ports
	Itaqi	01°38'S 43°46'W	Ile d'Ouessant SW	48°24'N 06°04'W	4111	North Europe ports
	Itaqi	01°38'S 43°46'W	Strait of Gibraltar E	36°00'N 05°24'W	3339	Mediterranean ports

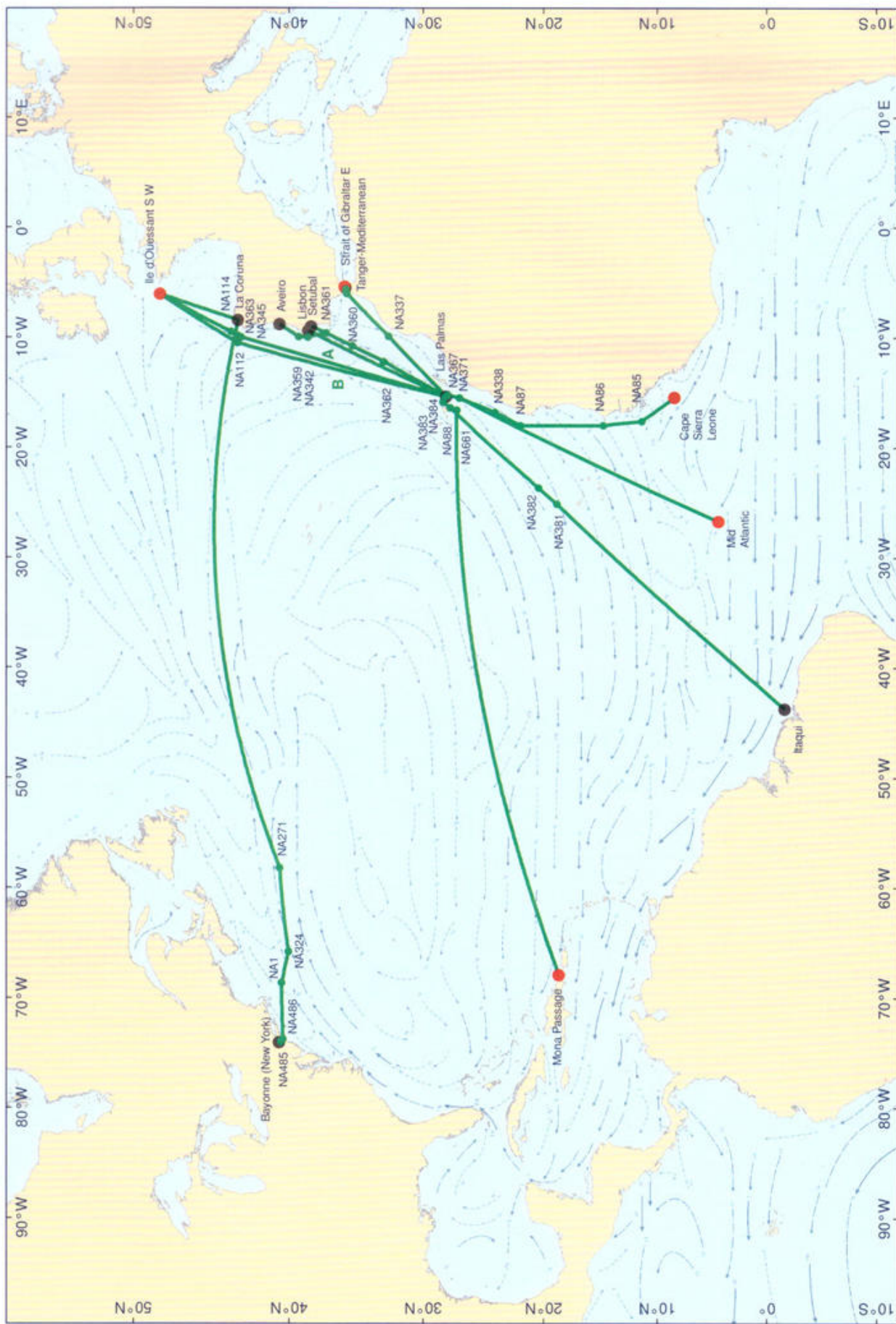
## Waypoints

ID	NAME	GP
NA1	Great South Channel	40°30'N 68°42'W
NA2	Halifax SW	44°13'N 63°36'W
NA4	Halifax E	44°25'N 63°10'W
NA5	Cape Sable	42°43'N 65°00'W
NA88	Tenerife S	27°49'N 16°24'W
NA89	Tenerife N	28°46'N 15°36'W
NA113	Cabo Finisterre S	42°35'N 10°02'W
NA114	Cabo Finisterre NE	43°56'N 09°29'W
NA304	Tail of the Bank W	43°08'N 52°19'W
NA320	Laurentian Channel S	43°20'N 54°55'W
NA340	Cap Spartel	35°49'N 06°03'W
NA341	Cape S.Vicente TSS	36°40'N 09°17'W
NA342	Cape Roca TSS	38°39'N 09°59'W
NA345	Cape Finisterre TSS	43°16'N 10°00'W
NA361	Cape S.Vicente NW	37°22'N 09°37'W

ID	NAME	GP
NA363	Cape Finisterre TSS N	43°31'N 09°49'W
NA364	Off Carino NE	43°51'N 07°46'W
NA365	Off Aviles NW	43°46'N 06°22'W
NA378	Strait of Gibraltar	35°55'N 05°40'W
NA380	Strait of Gibraltar W	35°53'N 05°48'W
NA381	Ilha de Santa Antao N	18°50'N 25°10'W
NA382	Cape Verde N	20°26'N 23°41'W
NA383	Tenerife E	28°24'N 15°55'W
NA384	Off Las Palmas	28°12'N 15°24'W
NA392	Off Gijon	43°43'N 05°40'W
NA485	Long Island S	40°25'N 73°46'W
NA486	Sandy Hook	40°32'N 74°00'W
NA487	Sable Island NE	44°12'N 59°16'W
NA625	Belem Ridge N	02°06'S 40°00'W

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## La Coruna and Las Palmas

## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	La Coruna	43°28'N 08°25'W	LCG	ES			NP67
To	Bayonne (New York)	40°39'N 74°03'W	BAY	US	4016		NP68
From	Las Palmas	28°08'N 15°23'W	LPA	ES			NP1
To	Aveiro	40°39'N 08°49'W	AVE	PT	1019		NP67
To	Itaquí	01°38'S 43°46'W	ITQ	BR	2545		NP5
To	Lisbon	38°37'N 09°24'W	LIS	PT	834	Santa Apolonia	NP67
To	Setubal	38°25'N 09°00'W	SET	PT	831	Secil Cement Factory	NP67
To	Tanger-Mediterranean	35°55'N 05°30'W	PTM	MA	814		NP67

## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
La Coruna	43°28'N 08°25'W	Ile d'Ouessant SW	48°24'N 06°04'W	449	North Europe ports
Las Palmas	28°08'N 15°23'W	Cape Sierra Leone	08°26'N 15°29'W	1325	South Atlantic, Cape of Good Hope and Indian Ocean ports
Las Palmas (Route A)	28°08'N 15°23'W	Ile d'Ouessant SW	48°24'N 06°04'W	1668	North Europe ports
Las Palmas (Route B)	28°08'N 15°23'W	Ile d'Ouessant SW	48°24'N 06°04'W	1678	North Europe ports
Las Palmas	28°08'N 15°23'W	Mid Atlantic	04°26'N 26°44'W	1643	South Atlantic ports
Las Palmas	28°08'N 15°23'W	Mona Passage	18°41'N 67°57'W	3277	Caribbean ports
Las Palmas	28°08'N 15°23'W	Strait of Gibraltar E	36°00'N 05°24'W	821	Mediterranean, Marmara Denizi, Black Sea, Suez Canal and Indian Ocean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
NA1	Great South Channel	40°30'N 68°42'W	NA360	Offshore El Jadida NW	35°24'N 10°49'W
NA85	Archipelago dos Bijagos	11°22'N 17°38'W	NA361	Cape S.Vicente NW	37°22'N 09°37'W
NA86	Cap Vert	14°48'N 18°00'W	NA362	Offshore Ras Cantin	33°03'N 12°13'W
NA87	Cabo Barbas	21°59'N 18°01'W	NA363	Cape Finisterre TSS N	43°31'N 09°49'W
NA88	Tenerife South	27°49'N 16°24'W	NA367	Gran Canaria E	28°00'N 15°16'W
NA112	Cabo Finisterre Offshore	43°31'N 10°30'W	NA371	Gran Canaria S	27°04'N 15°31'W
NA114	Cabo Finisterre NE	43°56'N 09°29'W	NA379	Off Tanger-Mediterranean	35°54'N 05°39'W
NA271	Sable Island	40°38'N 58°14'W	NA380	Strait of Gibraltar W	35°53'N 05°48'W
NA324	Retriever Seamount	40°02'N 65°50'W	NA381	Ilha de Santa Antao N	18°50'N 25°10'W
NA337	Off Safi	32°40'N 09°55'W	NA382	Cape Verde N	20°26'N 23°41'W
NA338	Off Ad Dakhla	24°09'N 16°49'W	NA383	Tenerife E	28°24'N 15°55'W
NA340	Cap Spartel	35°49'N 06°03'W	NA384	Off Las Palmas	28°12'N 15°24'W
NA342	Cape Roca TSS	38°39'N 09°59'W	NA485	Long Island S	40°25'N 73°46'W
NA345	Cape Finisterre TSS	43°16'N 10°00'W	NA486	Sandy Hook	40°32'N 74°00'W
NA359	Off Cabo Carvoeiro	39°19'N 09°57'W	NA661	San Sebastian de la Gomera SE	27°17'N 16°38'W

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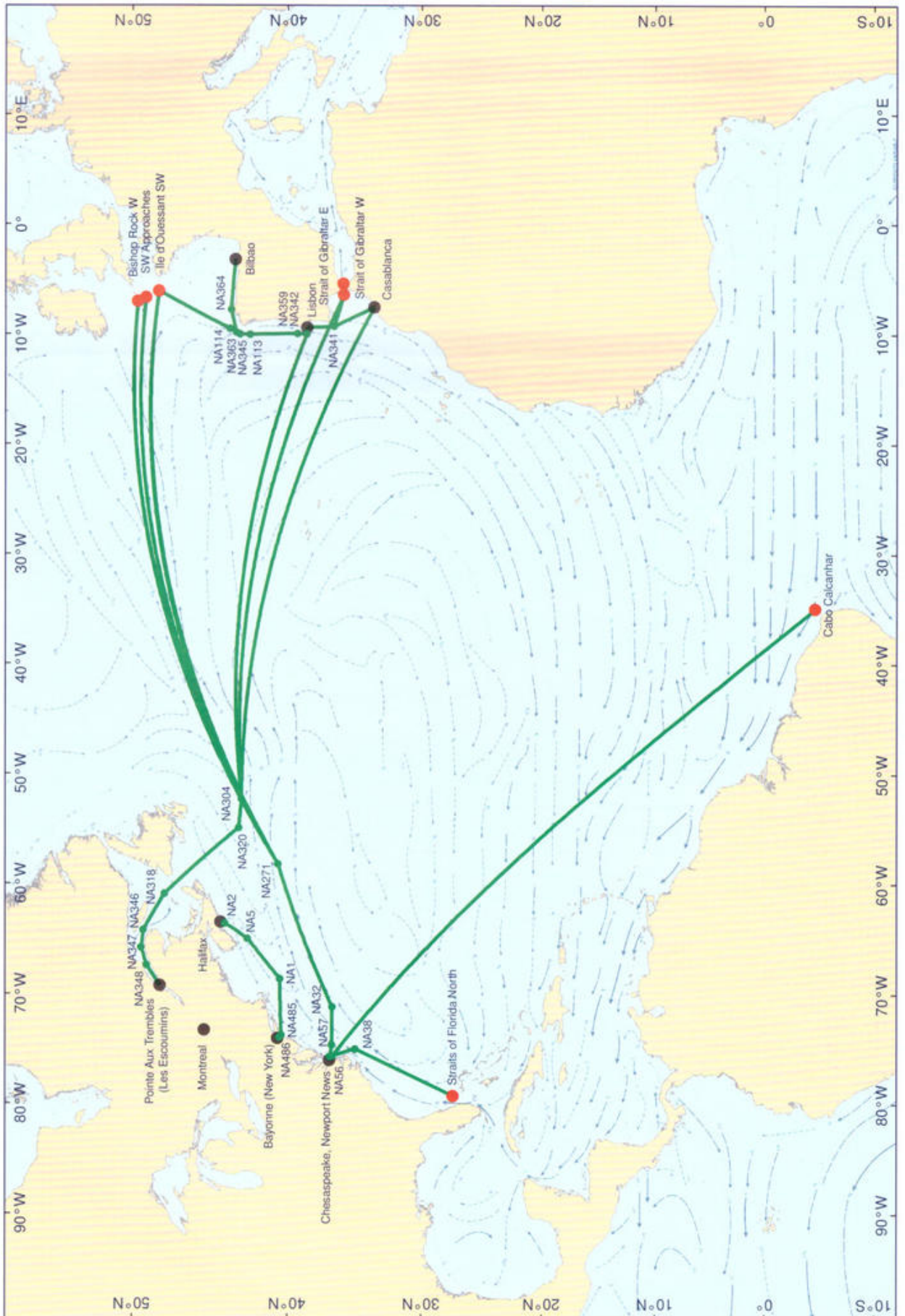
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From	Lisbon	38°37'N 09°24'W	LIS	PT			NP67
To	Bilbao	43°34'N 03°11'W	BIO	ES	827		NP22
To	Casablanca	33°41'N 07°34'W	CAS	MA	389		NP1
To	Montreal	48°20'N 69°16'W	MTR	CA	3888		NP65
From	Montreal	48°20'N 69°16'W	MTR	CA			NP65
To	Casablanca	33°41'N 07°34'W	CAS	MA	4072		NP1
To	Lisbon	38°37'N 09°24'W	LIS	PT	3888		NP67
From	Newark (New York)	40°39'N 74°33'W	PNJ	US			NP68
To	Halifax	44°30'N 63°29'W	HAL	CA	791		NP59

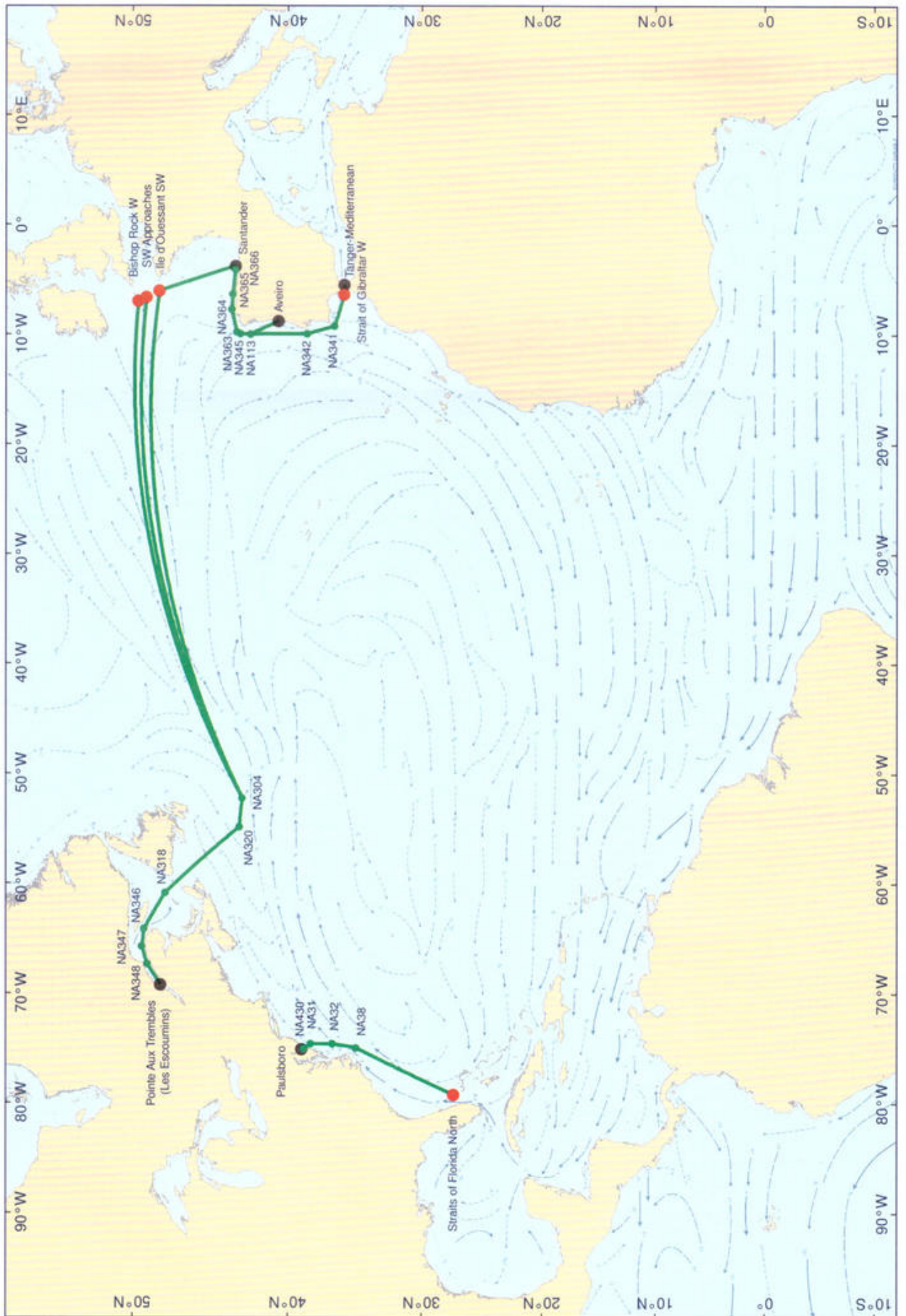
## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Lisbon	38°37'N 09°24'W	Ile d'Ouessant SW	48°24'N 06°04'W	903	North Europe ports
Lisbon	38°37'N 09°24'W	Strait of Gibraltar E	36°00'N 05°24'W	389	Mediterranean ports
Lisbon	38°37'N 09°24'W	Strait of Gibraltar W	35°57'N 06°26'W	389	Mediterranean ports
Montreal	48°20'N 69°16'W	Bishop Rock W	49°41'N 07°01'W	4080	North Europe ports
Montreal	48°20'N 69°16'W	Ile d'Ouessant SW	48°24'N 06°04'W	4116	North Europe ports
Montreal	48°20'N 69°16'W	SW Approaches	49°11'N 06°39'W	4093	North Europe ports
Montreal	48°20'N 69°16'W	Strait of Gibraltar E	36°00'N 05°24'W	4166	Mediterranean ports
Montreal	48°20'N 69°16'W	Strait of Gibraltar W	35°57'N 06°26'W	4166	Mediterranean ports
Newport News	36°57'N 76°01'W	Bishop Rock W	49°41'N 07°01'W	4356	North Europe ports
Newport News	36°57'N 76°01'W	Cabo Calcanhar	04°38'S 34°57'W	3634	South Atlantic ports
Newport News	36°57'N 76°01'W	Ile d'Ouessant SW	48°24'N 06°04'W	4388	North Europe ports
Newport News	36°57'N 76°01'W	SW Approaches	49°11'N 06°39'W	4367	North Europe ports
Newport News	36°57'N 76°01'W	Straits of Florida N	27°26'N 79°17'W	751	Caribbean, Panama Canal and Pacific Ocean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
NA1	Great South Channel	40°30'N 68°42'W	NA341	Cape S.Vicente TSS	36°40'N 09°17'W
NA2	Halifax SW	44°13'N 63°36'W	NA342	Cape Roca TSS	38°39'N 09°59'W
NA5	Cape Sable	42°43'N 65°00'W	NA345	Cape Finisterre TSS	43°16'N 10°00'W
NA32	Chesapeake E	36°48'N 74°39'W	NA346	Detroit D'Honguedo	49°20'N 64°13'W
NA38	Cape Hatteras SE	35°04'N 75°01'W	NA347	Mont-Louis N	49°27'N 65°47'W
NA56	Chesapeake Bay SE	36°47'N 75°42'W	NA348	Saint-Felicite N	49°08'N 67°24'W
NA57	Chesapeake Bay E	36°57'N 75°44'W	NA359	Off Cabo Carvoeiro	39°19'N 09°57'W
NA113	Cabo Finisterre S	42°35'N 10°02'W	NA363	Cape Finisterre TSS N	43°31'N 09°49'W
NA114	Cabo Finisterre NE	43°56'N 09°29'W	NA364	Off Carino NE	43°51'N 07°46'W
NA271	Sable Island	40°38'N 58°14'W	NA485	Long Island S	40°25'N 73°46'W
NA304	Tail of the Bank W	43°08'N 52°19'W	NA486	Sandy Hook	40°32'N 74°00'W
NA318	Cabot Strait N	48°03'N 60°55'W	NA498	Caryn Seamount W	36°47'N 71°12'W
NA320	Laurentian Channel S	43°20'N 54°55'W			

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From	Santander	43°33'N 03°46'W	SDR	ES			NP22
To	Aveiro	40°39'N 08°49'W	AVE	PT	618		NP67
To	Tanger-Mediterranean	35°55'N 05°30'W	PTM	MA	1148		NP67

## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Paulsboro	39°00'N 75°08'W	Straits of Florida N	27°26'N 79°17'W	898	Caribbean ports
	Pointe Aux Trembles (Les Escoumins)	48°20'N 69°16'W	Bishop Rock W	49°41'N 07°01'W	4080	North Europe ports
	Pointe Aux Trembles (Les Escoumins)	48°20'N 69°16'W	Ile d'Ouessant SW	48°24'N 06°04'W	4116	North Europe ports
	Pointe Aux Trembles (Les Escoumins)	48°20'N 69°16'W	SW Approaches	49°11'N 06°39'W	4093	North Europe ports
	Santander	43°33'N 03°46'W	Ile d'Ouessant SW	48°24'N 06°04'W	441	North Europe ports
	Santander	43°33'N 03°46'W	Strait of Gibraltar W	35°57'N 06°26'W	1148	Mediterranean ports

## Waypoints

ID	NAME	GP
NA31	Delaware South E	38°24'N 74°39'W
NA32	Chesapeake E	36°48'N 74°39'W
NA38	Cape Hatteras SE	35°04'N 75°01'W
NA113	Cabo Finisterre S	42°35'N 10°02'W
NA304	Tail of the Bank W	43°08'N 52°19'W
NA318	Cabot Strait N	48°03'N 60°55'W
NA320	Laurentian Channel S	43°20'N 54°55'W
NA341	Cape S.Vicente TSS	36°40'N 09°17'W
NA342	Cape Roca TSS	38°39'N 09°59'W

ID	NAME	GP
NA345	Cape Finisterre TSS	43°16'N 10°00'W
NA346	Detroit D'Honguedo	49°20'N 64°13'W
NA347	Mont-Louis N	49°27'N 65°47'W
NA348	Saint-Felicite N	49°08'N 67°24'W
NA363	Cape Finisterre TSS N	43°31'N 09°49'W
NA364	Off Carino NE	43°51'N 07°46'W
NA365	Off Aviles NW	43°46'N 06°22'W
NA366	Off Santander	43°36'N 04°07'W
NA430	Delaware Bay	38°52'N 75°04'W

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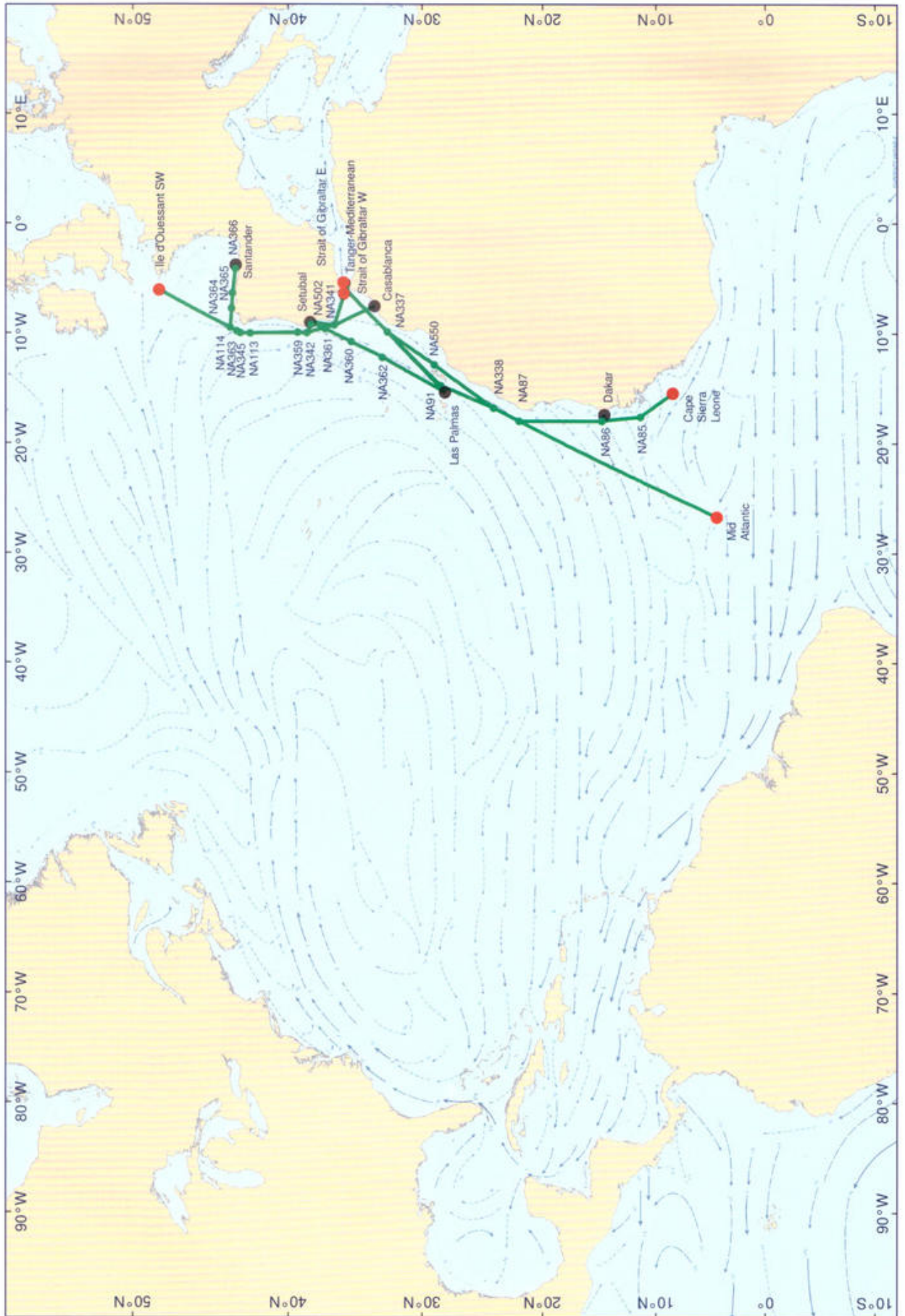
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## Setubal (SECIL Cement Factory) and Tanger-Mediterranean

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## Setubal (SECIL Cement Factory) and Tanger-Mediterranean

## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Setubal (SECIL Cement Factory)	38°25'N 09°00'W	SET	PT			NP67
To	Casablanca	33°41'N 07°34'W	CAS	MA	375		NP1
To	Las Palmas	28°08'N 15°23'W	LPA	ES	831		NP1
From	Tanger-Mediterranean	35°55'N 05°30'W	PTM	MA			NP67
To	Dakar	14°36'N 17°25'W	DKR	SN	1732		NP1
To	Las Palmas	28°08'N 15°23'W	LPA	ES	814		NP1
To	Santander	43°33'N 03°46'W	SDR	ES	1166		NP22

## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Setubal (SECIL Cement Factory)	38°25'N 09°00'W	Ile d'Ouessant SW	48°24'N 06°04'W	933	North Europe ports
	Setubal (SECIL Cement Factory)	38°25'N 09°00'W	Strait of Gibraltar E	36°00'N 05°24'W	375	Mediterranean ports
	Setubal (SECIL Cement Factory)	38°25'N 09°00'W	Strait of Gibraltar W	35°57'N 06°26'W	375	Mediterranean ports
	Tanger-Mediterranean	35°55'N 05°30'W	Cape Sierra Leone	08°26'N 15°29'W	2113	South Atlantic, Cape of Good Hope and Indian Ocean ports
	Tanger-Mediterranean	35°55'N 05°30'W	Mid Atlantic	04°26'N 26°44'W	2431	South Atlantic ports
	Tanger-Mediterranean	35°55'N 05°30'W	Strait of Gibraltar E	36°00'N 05°24'W	8	North Europe, North Atlantic and Mediterranean ports
	Tanger-Mediterranean	35°55'N 05°30'W	Strait of Gibraltar W	35°57'N 06°26'W	56	North Europe and North Atlantic ports

## Waypoints

ID	NAME	GP
NA85	Archipelago dos Bijagos	11°22'N 17°38'W
NA86	Cap Vert	14°48'N 18°00'W
NA87	Cabo Barbas	21°59'N 18°01'W
NA91	Las Palmas N	28°28'N 14°49'W
NA113	Cabo Finisterre S	42°35'N 10°02'W
NA114	Cabo Finisterre NE	43°56'N 09°29'W
NA337	Off Safi	32°40'N 09°55'W
NA338	Off Ad Dakhla	24°09'N 16°49'W
NA340	Cap Spartel	35°49'N 06°03'W
NA341	Cape S.Vicente TSS	36°40'N 09°17'W
NA342	Cape Roca TSS	38°39'N 09°59'W
NA345	Cape Finisterre TSS	43°16'N 10°00'W

ID	NAME	GP
NA359	Off Cabo Carvoeiro	39°19'N 09°57'W
NA360	Offshore El Jadida NW	35°24'N 10°49'W
NA361	Cape S.Vicente NW	37°22'N 09°37'W
NA362	Offshore Ras Cantin	33°03'N 12°13'W
NA363	Cape Finisterre TSS N	43°31'N 09°49'W
NA364	Off Carino NE	43°51'N 07°46'W
NA365	Off Aviles NW	43°46'N 06°22'W
NA366	Off Santander	43°36'N 04°07'W
NA379	Off Tanger-Mediterranean	35°54'N 05°39'W
NA380	Strait of Gibraltar W	35°53'N 05°48'W
NA502	Off Setubal	38°21'N 09°13'W
NA550	Fuerteventura NE	28°59'N 12°54'W

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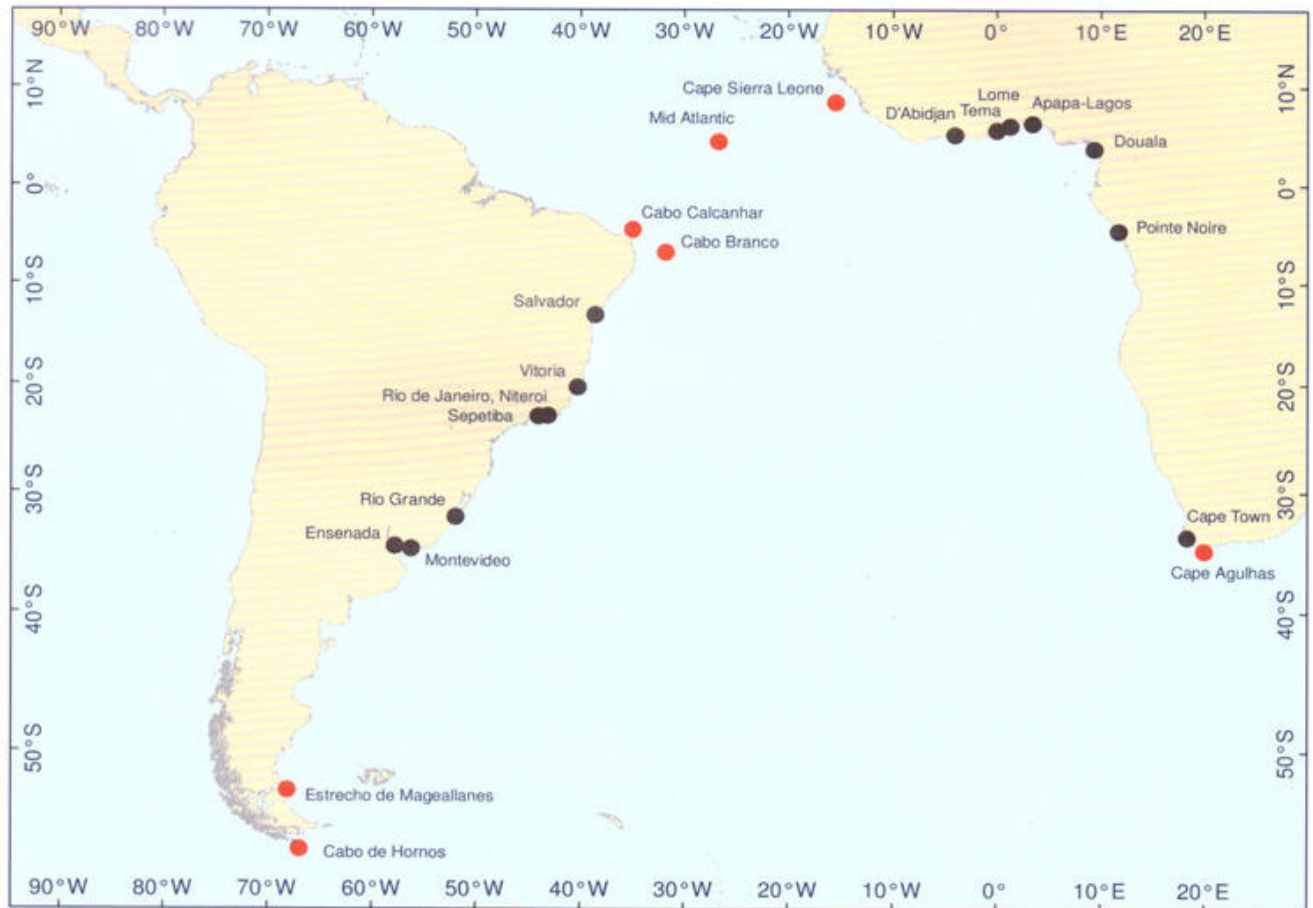
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# South Atlantic Area Coverage Ports and Connectors



## Ports

NAME	GP
Cape Town	33°52'S 18°19'E
D'Abidjan	05°10'N 04°01'W
Douala	03°44'N 09°24'E
Ensenada	34°44'S 57°46'W
Lagos	06°19'N 03°25'E
Lome	06°04'N 01°19'E
Montevideo	34°59'S 56°13'W

NAME	GP
Pointe Noire	04°46'S 11°42'E
Rio de Janeiro, Niteroi	23°03'S 43°06'W
Rio Grande	32°14'S 51°58'W
Salvador	13°14'S 38°33'W
Sepetiba	23°09'S 44°02'W
Tema	05°35'N 00°02'E
Vitoria	20°19'S 40°15'W

## Connectors

NAME	GP
Cabo Branco	06°56'S 31°47'W
Cabo Calcanhar	04°38'S 34°57'W
Cabo de Hornos	56°07'S 66°55'W
Cape Agulhas	35°05'S 20°00'E

NAME	GP
Cape Sierra Leone	08°26'N 15°29'W
Estrecho de Mageallanes	52°38'S 68°06'W
Mid Atlantic	04°26'N 26°44'W

This chapter contains information relating to passages within and across the South Atlantic Ocean. Relevant navigational publications should be consulted when planning and conducting passages. These publications include ADMIRALTY Routeing Guides, ADMIRALTY Sailing Directions and The Mariner's Handbook, amongst others.

## PASSAGES OFF THE EAST COAST OF SOUTH AMERICA

### • Notes and Cautions

Between ports on the E coast of South America, routes are coastwise and are not described in this book; the relevant ADMIRALTY Sailing Directions should be consulted. Off-lying shoals. Generally speaking, all passages are as direct as prudent navigation permits, but off-lying shoals make wide divergence from the coast necessary in some places, notably near Arquipélago dos Abrolhos (18°00'S 38°40'W), Cabo de São Tomé (22°02'S 41°03'W) and Banco do Albardão (33°10'S 52°25'W). All ships, particularly deep-draught vessels, should note the dangers which extend offshore between the parallels of 15°S and 22°S, particularly the ridge extending 600 miles E from the coast which terminates in Ilhas Martin Vaz (20°31'S 28°51'W); this region is largely unsurveyed.

Known dangers are described in ADMIRALTY Sailing Directions, but it should be borne in mind that modern deep-draught ships could well ground on shoals over which their predecessors passed safely.

An oilfield, with platforms, pipelines and associated operations, is situated about 50 miles SE of Cabo de São Tomé (22°02'S 41°03'W).

### • Natural Conditions.

Currents in general move water towards Río de la Plata (35°10'S 56°15'W); S from Cabo Calcanhar (5°10'S 35°29'W) and N from Cabo de Hornos (56°04'S 67°15'W), though the latter set is well away from the coast. Off the coast S of Peninsula Valdes (42°30'S 64°00'W) currents are very variable, and within 20 miles of the shore tidal influences only are felt. Onshore currents are prevalent at any time of the year between Cabo de São Roque (5°29'S 35°16'W) and Cabo Frio (23°01'S 42°00'W). Penedos de São Pedro e São Paulo and Ilha de Fernando de Noronha. Caution is necessary in the vicinity of these islands as the South Equatorial Current sets WNW past them at a rate of 1 to 2 kn.

From the equator to the English Channel:

Join the route from Cape of Good Hope on meeting the North-east Trade Wind.

Seasonal changes in the coastal currents should be noted. See the relevant volumes of ADMIRALTY Sailing Directions.

Advantage may be taken of these currents by making N-bound passages between Río de la Plata and Cabo Frio closer inshore during May, June and July than at other times, but with due regard to the possibility of onshore sets.

Río de la Plata <=> Cabo de Hornos and intermediate ports

### • Notes and cautions

Currents. The N-going Falkland Current will affect voyages between Río de la Plata (35°10'S 56°15'W) and the Falkland Islands (51°40'S 57°49'W) or Estrecho de Le Maire (54°50'S 65°00'W) or, to a lesser extent, Estrecho de Magallanes (52°27'S 68°26'W).

Rounding Cabo de Hornos. Off Cabo de Hornos, W winds predominate with at least 30% of force 7 or more throughout the year. The current off the cape is usually E-going. Swell is mainly from the W throughout the year, heavy on 25% of occasions. Icebergs may be encountered.

Estrecho de Magallanes provides an alternative route between the E and W coasts of South America, it is regularly navigated by ocean-going vessels. Although caution is required in making the passage, the difficulties and dangers in navigating the strait, in either direction, are the same as those experienced in other narrow channels and harbours, but they are accentuated by the prevalence of bad weather and by the generally foul and rocky character of the anchorages.

Manoeuvrability of a vessel is important as an unhandy or low-powered vessel is at a disadvantage in those parts of the strait where rapid action may be required to counter strong cross-tidal streams, or where there is a risk of meeting another vessel simultaneously with one of the violent and unpredictable squalls which are common.

W-bound vessels avoid the adverse currents and gales and the heavy head seas so commonly experienced in rounding Cabo de Hornos and off the archipelago NW of the cape. The risk of encountering icebergs is avoided and there is usually a saving in distance.

E-bound vessels in bad weather may find it difficult to make a good landfall which is essential before a vessel enters the strait. Tidal streams in the E part of the strait tend to be less favourable to an E-bound ship than to a W-bound one.

Some masters favour the passage of the strait both W-bound and E-bound, particularly for vessels W-bound in ballast.

For further information and details of pilotage requirements, see South America Pilot, Volume II. Tidal streams. Approaching Estrecho de Magallanes, special attention is required as the range of the tide is great, and the tidal streams at the entrance run with great strength, causing, at times, an indraught towards Banco Sarmiento (52°30'S 68°04'W) and the dangers extending from Cabo Virgenes (52°20'S 68°21'W). The tidal streams in the strait are a controlling factor in the choice of the time of arrival.

## PASSAGES OFF WEST COAST OF AFRICA

### • Notes and Cautions

The coast between Rio Cunene (17°15'S 11°45'E) and Walvis Bay (22°54'S 14°30'E) is known as the Skeleton Coast, having been the scene of innumerable shipwrecks, not only from the imperfect nature of the surveys, but because currents setting onshore are frequently experienced and in addition fog is prevalent, especially in winter. See Africa Pilot, Volume II. Abnormal refraction, liable to cause appreciable error in sights, occur at times near the coast, especially off SW Africa.

### • Oilfields

With numerous structures, pipelines and submerged obstructions, sometimes marked by buoys, exist within the 200m depth contour between Benin River (5°45'N 5°00'E) and Luanda (8°50'S 16°00'E). Isolated exploration rigs and production facilities may be found in depths of 3,000 metres off the coast.

### • Tankers

Loaded tankers navigating off the coast of South Africa are governed by regulations regarding the offing to be kept. See Africa Pilot, Volumes II and III.

### • Rounding Cape of Good Hope

The SW-going Agulhas Current flows off the SE coast of South Africa. It is strongest in the vicinity of the 200 m depth contour and, at times, reaches a rate of 5 kn. To the S of the cape W winds predominate from April to September and winds of force 7 or more can be expected for about 30% of the time.

From October to March winds are more variable in direction and the frequency of strong winds is less. Loaded tankers navigating off the coast of South Africa are governed by regulations regarding the offing to be kept. See Africa Pilot, Volumes II and III. Entering the Indian Ocean. There is a choice of either making Cape Agulhas and thence keeping inshore of the Agulhas Current or passing S of the current through 36°45'S 19°00'E (145 miles S of Cape of Good Hope).

### • Leaving the Indian Ocean

The Agulhas Current should be sought, but avoiding the dangerous seas and abnormal waves found at times in its vicinity.

## TRANSATLANTIC PASSAGES

### • Notes and Cautions

Vema Seamount lies in 31°48'S 8°20'E, about 500 miles WNW of Cape Town. It has a depth of 11 m over it and constitutes a danger to deep-draught vessels.

Landfall off Recife should normally be made in 8°00'S 34°40'W, 10 miles E of Ponta de Olinda, or N of this position from October to January. See South America Pilot, Volume I.

South-west coast of Africa and Gulf of Guinea <=> Colón (for Panama Canal). West-bound, benefit may be obtained by making use of the W-going South Equatorial Current and North Equatorial Current.

**East-bound**, currents in general are unfavourable, but it may be possible to make use of the E-going Equatorial Counter-current and Guinea Current.

# Connector Routes for the South Atlantic

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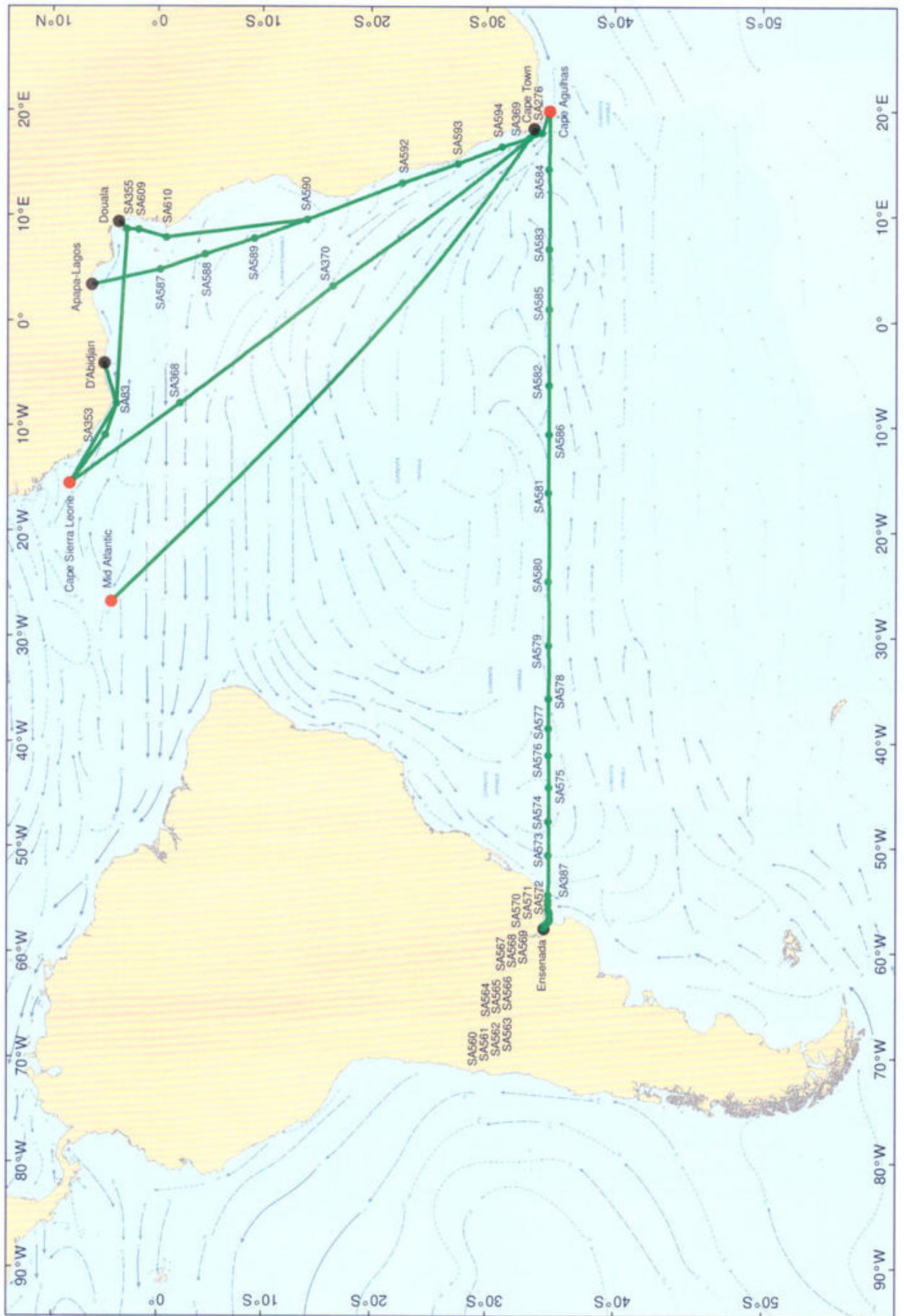
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## Cape Town, D'Abidjan, Doula and Ensenada

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## Cape Town, D'Abidjan, Doula and Ensenada

## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Cape Town	33°52'S 18°19'E	CPT	ZA			NP2
To	Apapa-Lagos	06°19'N 03°25'E	LOS	NG	2702		NP1

## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Cape Town	33°52'S 18°19'E	Cape Agulhas	35°05'S 20°00'E	183	Cape of Good Hope and Indian Ocean ports
Cape Town	33°52'S 18°19'E	Cape Sierra Leone	08°26'N 15°29'W	3350	Mediterranean ports
Cape Town	33°52'S 18°19'E	Mid Atlantic	04°26'N 26°44'W	3637	North Atlantic ports
D'Abidjan	05°10'N 04°01'W	Cape Sierra Leone	08°26'N 15°29'W	778	Mediterranean ports
Douala	03°44'N 09°24'E	Cape Agulhas	35°05'S 20°00'E	2671	Cape of Good Hope and Indian Ocean ports
Douala	03°44'N 09°24'E	Cape Sierra Leone	08°26'N 15°29'W	1588	North Atlantic and Mediterranean ports
Ensenada (La Plata)	34°44'S 57°46'W	Cape Agulhas	35°05'S 20°00'E	4683	Cape of Good Hope and Indian Ocean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
SA83	Cape Palmas	03°59'N 07°55'W	SA581	Tristan da Cunha NW	35°02'S 16°17'W
SA276	Cape Town W	34°29'S 17°55'E	SA582	Wust Seamount SW	35°03'S 06°07'W
SA353	Off Buchanan SW	05°01'N 10°54'W	SA583	Cape Basin	35°03'S 06°51'E
SA355	Bioco S	02°59'N 08°42'E	SA584	Engelbrecht Sea Mount N	35°02'S 14°27'E
SA368	Ascension Island NE	02°09'S 07°53'W	SA585	Wust Seamount E	35°03'S 01°08'E
SA369	Cape Town NW	33°27'S 17°26'E	SA586	Tristan da Cunha NE	35°03'S 10°47'W
SA370	Saint Helena E	16°31'S 03°19'W	SA587	Sao Tome SW	00°14'S 04°53'E
SA573	Cabo Polonio	35°05'S 50°47'W	SA588	Pointe Noire W	04°31'S 06°20'E
SA574	South Atlantic1	35°04'S 47°36'W	SA589	Luanda W	09°14'S 07°48'E
SA575	South Atlantic2	35°05'S 44°19'W	SA590	Cabo de Santa Marta SW	14°09'S 09°37'E
SA576	South Atlantic 3	35°04'S 41°15'W	SA592	Walvis Bay W	22°47'S 13°08'E
SA577	Bromley Plateau SW	35°04'S 38°43'W	SA593	Off Granietberg SW	27°36'S 14°59'E
SA578	Bromley Plateau S	35°03'S 35°54'W	SA594	Off Kanoepkop SW	31°15'S 16°36'E
SA579	Bromley Plateau SE	35°04'S 30°50'W	SA609	Ilha do Principe E	01°50'N 08°40'E
SA580	Samarin Seamount SW	35°02'S 24°43'W	SA610	Off Cap Lopez	00°47'S 07°54'E

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## Lome, Montevideo, Niteroi and Pointe Noire

## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Apapa-Lagos	06°19'N 03°25'E	LOS	NG			NP1
To	Cape Town	33°52'S 18°19'E	CPT	ZA	2702		NP2

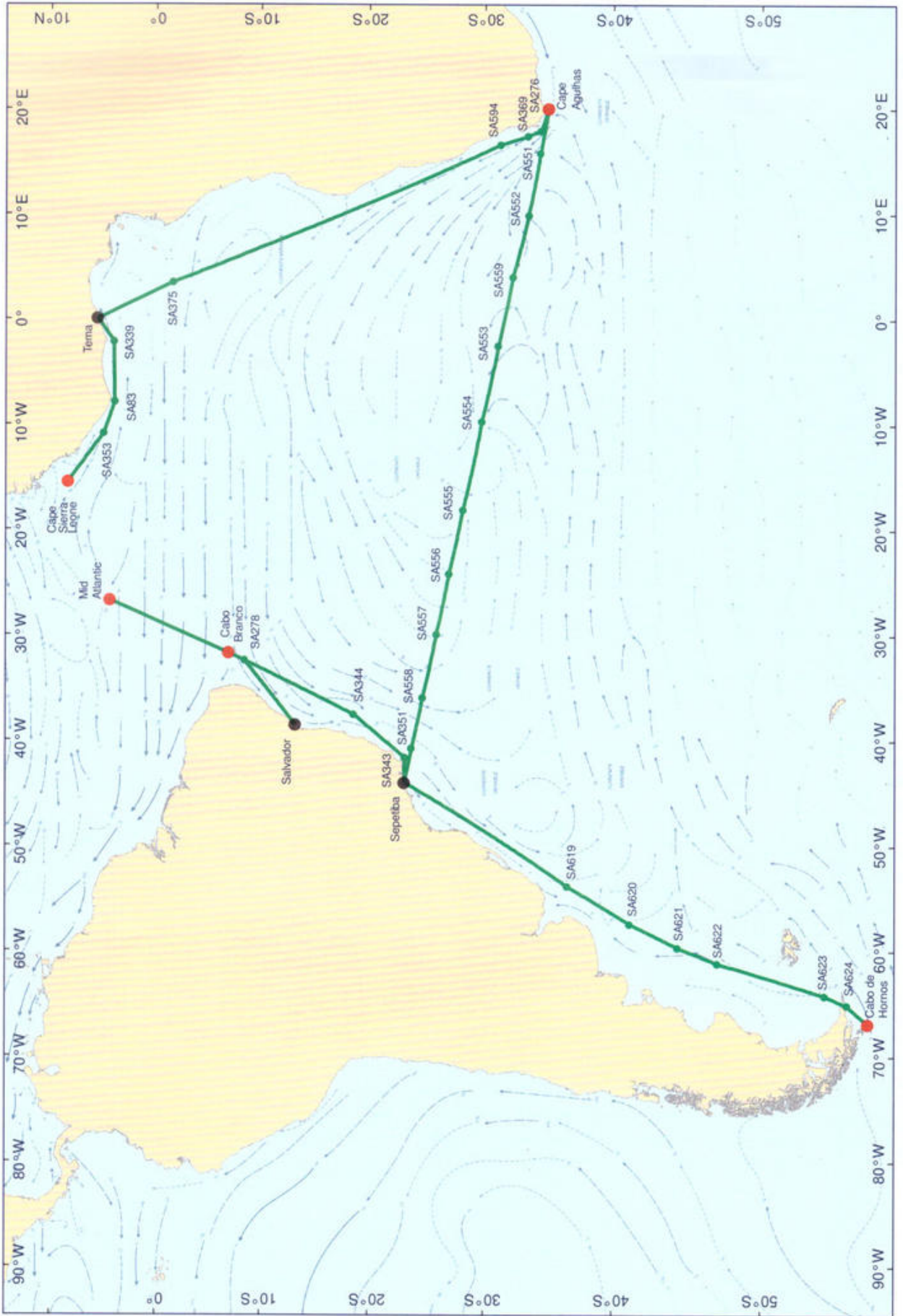
## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Apapa-Lagos	06°19'N 03°25'E	Cape Agulhas	35°05'S 20°00'E	2853	Cape of Good Hope and Indian Ocean ports
Apapa-Lagos	06°19'N 03°25'E	Cape Sierra Leone	08°26'N 15°29'W	1240	North Europe and Mediterranean ports
Apapa-Lagos	06°19'N 03°25'E	Galleons Passage	10°57'N 60°54'W	3920	Caribbean ports
Lome	06°04'N 01°19'E	Cape Agulhas	35°05'S 20°00'E	2879	Cape of Good Hope and Indian Ocean ports
Lome	06°04'N 01°19'E	Cape Sierra Leone	08°26'N 15°29'W	1118	North Europe and Mediterranean ports
Montevideo	34°59'S 56°13'W	Cabo Branco	06°56'S 31°47'W	3167	North Atlantic ports
Montevideo	34°59'S 56°13'W	Mid Atlantic	04°26'N 26°44'W	3167	North Atlantic ports
Niteroi (Rio de Janeiro)	23°03'S 43°06'W	Cabo Branco	06°56'S 31°47'W	2003	North Atlantic and Mediterranean ports
Niteroi (Rio de Janeiro)	23°03'S 43°06'W	Cabo Calcanhar	04°38'S 34°57'W	1333	Caribbean ports
Niteroi (Rio de Janeiro)	23°03'S 43°06'W	Mid Atlantic	04°26'N 26°44'W	2003	North Atlantic and Mediterranean ports
Pointe Noire	04°46'S 11°42'E	Cape Agulhas	35°05'S 20°00'E	2112	Cape of Good Hope and Indian Ocean ports
Pointe Noire	04°46'S 11°42'E	Cape Sierra Leone	08°26'N 15°29'W	1823	North Europe, North Atlantic and Mediterranean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
NA278	Recife E	08°28'S 32°30'W	SA388	I. de Flores S	35°03'S 55°51'W
SA83	Cape Palmas	03°59'N 07°55'W	SA428	Ponta de Pedras SE	07°49'S 34°24'W
SA276	Cape Town W	34°29'S 17°55'E	SA544	Cabo de Sao Tome NE	21°45'S 40°11'W
SA339	Cape Three Points	04°04'N 02°10'W	SA546	Cape Saint Paul S	05°27'N 00°52'E
SA344	Abrolhos Bank E	18°36'S 37°34'W	SA571	Punta Negra SW	35°03'S 55°26'W
SA351	Cabo de Sao Tome S	23°47'S 40°46'W	SA572	Punta del Este SW	35°03'S 55°06'W
SA352	Off Rio Grande	32°21'S 50°30'W	SA587	Sao Tome SW	00°14'S 04°53'E
SA353	Off Buchanan SW	05°01'N 10°54'W	SA588	Pointe Noire W	04°31'S 06°20'E
SA369	Cape Town NW	33°27'S 17°26'E	SA589	Luanda W	09°14'S 07°48'E
SA372	Cabo Frio E	23°03'S 41°40'W	SA590	Cabo de Santa Marta SW	14°09'S 09°37'E
SA374	Guinea Abyssal Plain N	01°49'N 04°35'W	SA591	Off Cape Frio NW	17°49'S 11°20'E
SA375	Off Isla de Pagalu W	01°36'S 03°28'E	SA592	Walvis Bay W	22°47'S 13°08'E
SA385	Almirante Saldanha Seamount W	22°01'S 39°01'W	SA593	Off Granietberg SW	27°36'S 14°59'E
SA386	C. Polonio S	34°44'S 53°44'W	SA594	Off Kanoepkop SW	31°15'S 16°36'E
SA387	I. de Lobos E	35°04'S 54°33'W			

## Salvador, Sepetiba and Tema



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## Salvador, Sepetiba and Tema

## Port to Connector Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Salvador	13°14'S 38°33'W	SSA	BR			NP5
To	Cabo Branco	06°56'S 31°47'W			1310	North Europe and Mediterranean ports	
From	Salvador	13°14'S 38°33'W	SSA	BR			NP5
To	Mid Atlantic	04°26'N 26°44'W			1310	North Europe and Mediterranean ports	
From	Sepetiba	23°09'S 44°02'W	SPB	BR			NP5
To	Cabo Branco	06°56'S 31°47'W			2063	North Atlantic ports	
From	Sepetiba	23°09'S 44°02'W	SPB	BR			NP5
To	Cabo de Hornos	56°07'S 66°55'W			3010	Pacific Ocean ports	
From	Sepetiba	23°09'S 44°02'W	SPB	BR			NP5
To	Cape Agulhas	35°05'S 20°00'E			3933	Cape of Good Hope and Indian Ocean ports	
From	Sepetiba	23°09'S 44°02'W	SPB	BR			NP5
To	Mid Atlantic	04°26'N 26°44'W			2063	North Atlantic ports	
From	Tema	05°35'N 00°02'E	TEM	GH			NP1
To	Cape Agulhas	35°05'S 20°00'E			2882	Cape of Good Hope and Indian Ocean ports	
From	Tema	05°35'N 00°02'E	TEM	GH			NP1
To	Cape Sierra Leone	08°26'N 15°29'W			1039	North Europe, North Atlantic and Mediterranean ports	

## Waypoints

ID	NAME	GP	ID	NAME	GP
NA278	Recife E	08°28'S 32°30'W	SA554	Atlantic Ridge E	29°44'S 09°46'W
SA83	Cape Palmas	03°59'N 07°55'W	SA555	Atlantic Ridge W	28°09'S 18°08'W
SA276	Cape Town W	34°29'S 17°55'E	SA556	Trinidad SE	27°00'S 24°12'W
SA339	Cape Three Points	04°04'N 02°10'W	SA557	Trinidad S	25°54'S 29°59'W
SA343	Cabo Frio S	23°11'S 41°40'W	SA558	Sao Santos Plateau NE	24°44'S 35°58'W
SA344	Abrolhos Bank E	18°36'S 37°34'W	SA559	Walvis Ridge E	32°15'S 04°00'E
SA351	Cabo de Sao Tome S	23°47'S 40°46'W	SA594	Off Kanoepkop SW	31°15'S 16°36'E
SA353	Off Buchanan SW	05°01'N 10°54'W	SA619	Puntó Medanos E	36°37'S 53°53'W
SA369	Cape Town NW	33°27'S 17°26'E	SA620	Segunda Barranca E	41°16'S 57°28'W
SA375	Off Isla de Pagalu W	01°36'S 03°28'E	SA621	Cabo San Jose E	44°37'S 59°42'W
SA551	Offshore Capetown W	34°27'S 15°48'E	SA622	Cabo Blanco E	47°15'S 61°13'W
SA552	Vema Seamount SE	33°30'S 09°52'E	SA623	Isla de los Estados N	53°44'S 64°15'W
SA553	Walvis Ridge W	31°04'S 02°33'W	SA624	Isla de los Estados W	54°59'S 65°09'W

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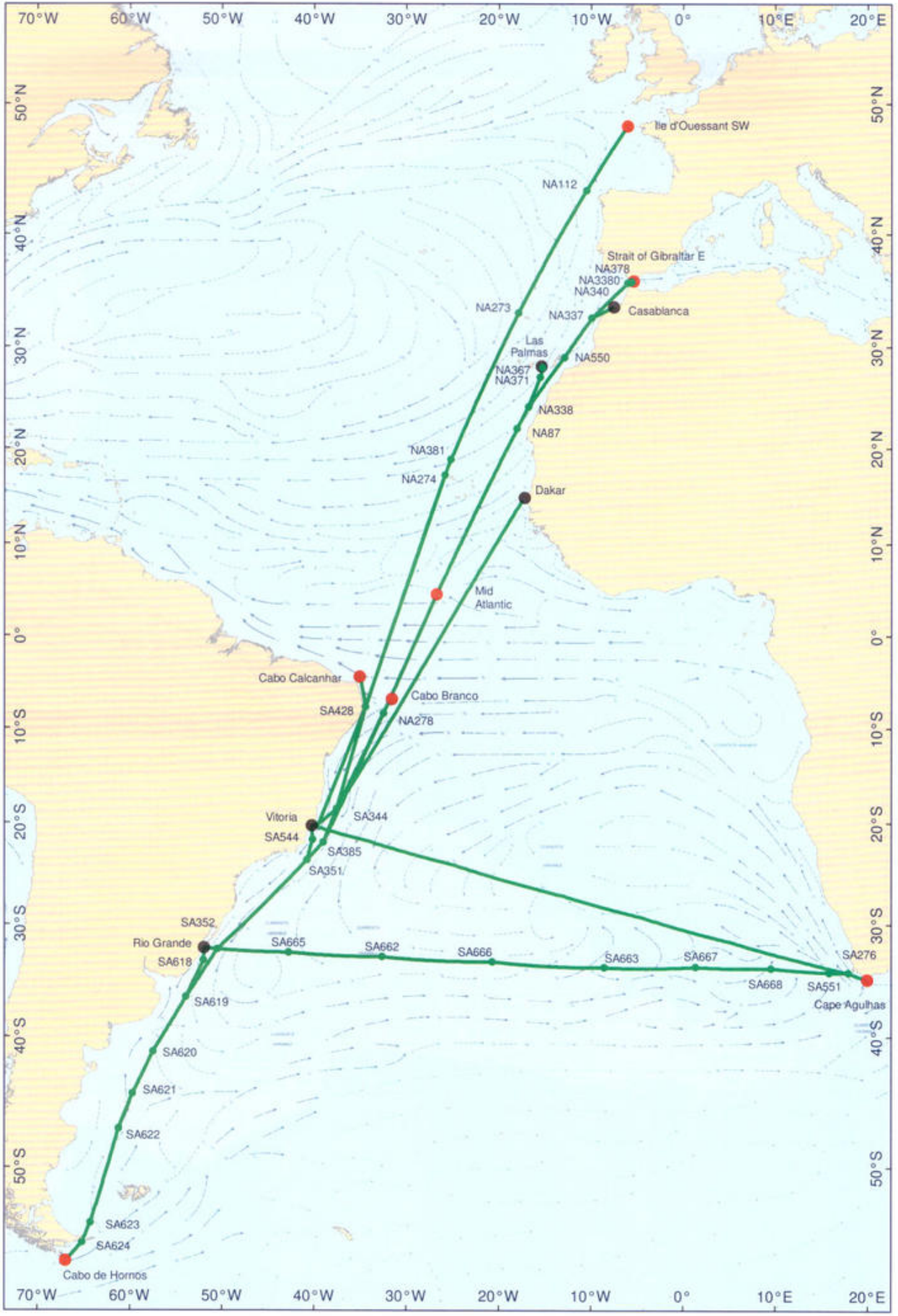
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# Rio Grande and Vitoria

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## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Rio Grande	32°14'S 51°58'W	RIG	BR			NP5
To	Casablanca	33°41'N 07°34'W	CAS	MA	5071		NP1
To	Las Palmas	28°08'N 15°23'W	LPA	ES	4484		NP1
From	Vitoria	20°19'S 40°15'W	VIX	BR			NP5
To	Dakar	14°36'N 17°25'W	DKR	SN	2546		NP1

## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Rio Grande	32°14'S 51°58'W	Cabo Branco	06°56'S 31°47'W	5279	Mediterranean and North Atlantic ports
	Rio Grande	32°14'S 51°58'W	Cabo de Hornos	56°07'S 66°55'W	2249	Pacific Ocean ports
	Rio Grande	32°14'S 51°58'W	Cape Agulhas	35°05'S 20°00'E	4336	Indian Ocean ports
	Rio Grande	32°14'S 51°58'W	Ile d'Ouessant SW	48°24'N 06°04'W	6155	North Europe ports
	Rio Grande	32°14'S 51°58'W	Mid Atlantic	04°26'N 26°44'W	5279	Mediterranean and North Atlantic ports
	Rio Grande	32°14'S 51°58'W	Strait of Gibraltar E	35°60'N 05°24'W	5279	Mediterranean and North Atlantic ports
	Vitoria	20°19'S 40°15'W	Cabo Branco	06°56'S 31°47'W	1738	Mediterranean, North Atlantic and North Europe ports
	Vitoria	20°19'S 40°15'W	Cabo Calcanhar	04°38'S 34°57'W	1061	Caribbean and Gulf of Mexico ports
	Vitoria	20°19'S 40°15'W	Cape Agulhas	35°05'S 20°00'E	3757	Indian Ocean ports
	Vitoria	20°19'S 40°15'W	Ile d'Ouessant SW	48°24'N 06°04'W	5030	North Europe ports
	Vitoria	20°19'S 40°15'W	Mid Atlantic	04°26'N 26°44'W	1738	Mediterranean, North Atlantic and North Europe ports
	Vitoria	20°19'S 40°15'W	Cabo de Hornos	56°07'S 66°55'W	3328	Pacific Ocean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
NA87	Cabo Barbas	21°59'N 18°01'W	SA544	Cabo de Sao Tome NE	21°45'S 40°11'W
NA112	Cabo Finisterre Offshore	43°31'N 10°30'W	SA551	Offshore Capetown W	34°27'S 15°48'E
NA273	Madeira W	33°09'N 17°52'W	SA599	Dogaressa Bank S	21°58'S 33°56'W
NA274	Cape Verde W	17°12'N 25°51'W	SA600	Brazil Basin	24°15'S 24°57'W
NA278	Recife E	08°28'S 32°30'W	SA601	Atlantic Ridge	27°18'S 13°00'W
NA337	Off Safi	32°40'N 09°55'W	SA602	Angola Basin SW	29°19'S 04°39'W
NA338	Off Ad Dakhia	24°09'N 16°49'W	SA603	Vema Seamount W	31°40'S 05°07'E
NA340	Cap Spartel	35°49'N 06°03'W	SA604	Offshore Saldanha Bay W	33°23'S 12°33'E
NA367	Gran Canaria E	28°00'N 15°16'W	SA618	Cape Columbine W	33°24'S 51°60'W
NA371	Gran Canaria S	27°04'N 15°31'W	SA619	Punto Medanos E	36°37'S 53°53'W
NA378	Strait of Gibraltar	35°55'N 05°40'W	SA620	Segunda Barranca E	41°16'S 57°28'W
NA380	Strait of Gibraltar W	35°53'N 05°48'W	SA621	Cabo San Jose E	44°37'S 59°42'W
NA381	Ilha de Santa Antao N	18°50'N 25°10'W	SA622	Cabo Blanco E	47°15'S 61°13'W
NA550	Fuerteventura NE	28°59'N 12°54'W	SA623	Isla de los Estados N	53°44'S 64°15'W
SA276	Cape Town W	34°29'S 17°55'E	SA624	Isla de los Estados W	54°59'S 65°09'W
SA344	Abrolhos Bank N	18°36'S 37°34'W	SA662	Rio Grande Plateau SE	33°03'S 32°37'W
SA351	Cabo de Sao Tome S	23°47'S 40°46'W	SA663	Tristan Da Cunha NE Outer	34°01'S 08°31'W
SA352	Off Rio Grande	32°21'S 50°30'W	SA665	Bromley Plateau W	32°39'S 42°44'W
SA357	Off Vitoria	20°10'S 39°32'W	SA666	Samarin Seamount N	33°30'S 20°41'W
SA385	Almirante Saldanha Seamount W	22°01'S 39°01'W	SA667	Wust Seamount E	33°58'S 01°20'E
SA428	Ponta de Pedras SE	07°49'S 34°24'W	SA668	Vema Seamount S	34°05'S 09°33'E

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## Mediterranean Sea Area Coverage, Ports and Connectors



## Ports

NAME	GP
Ad Dukhaylah	31° 11' N 29° 46' E
Agiol Theodoroi	37° 53' N 23° 10' E
Al Iskandariyah	31° 13' N 29° 50' E
Alger	36° 51' N 03° 06' E
Aliaga	38° 53' N 26° 53' E
Barcelona	41° 18' N 02° 12' E
Beirut, Dora Terminal	33° 55' N 35° 16' E
Brindisi	40° 40' N 18° 01' E
Cagliari	39° 07' N 09° 08' E
Ceuta	35° 55' N 05° 19' W
Damietta Port	31° 36' N 31° 47' E
Fos	43° 11' N 05° 03' E
Genoa	44° 22' N 08° 57' E
Gibraltar, Algeciras	36° 08' N 05° 24' W
Gioia Tauro	38° 27' N 15° 53' E
Haifa	32° 52' N 34° 58' E
Izmir	38° 26' N 27° 05' E
Koper	45° 34' N 13° 42' E
La Spezia	44° 02' N 09° 52' E

NAME	GP
Lavera	43° 18' N 04° 59' E
Leghorn	43° 31' N 10° 14' E
Limassol	34° 39' N 33° 04' E
Marsaxlokk	35° 48' N 14° 34' E
Marseilles	43° 11' N 05° 13' E
Mersin	36° 43' N 34° 40' E
Naples	40° 45' N 14° 16' E
Nemrut Bay	38° 46' N 26° 54' E
Piraeus	37° 56' N 23° 37' E
Punto Franco	45° 37' N 13° 35' E
Sagunto	39° 37' N 00° 12' W
Salerno	40° 38' N 14° 43' E
Savona Vado	44° 18' N 08° 32' E
Sete	43° 23' N 03° 46' E
Tarragona	41° 04' N 01° 14' E
Thessaloniki	40° 37' N 22° 55' E
Valencia	39° 25' N 00° 17' W
Valletta	35° 56' N 14° 33' E

## Connectors

NAME	GP
Dardanelles	40° 01' N 26° 09' E
Port Said	31° 24' N 32° 21' E

NAME	GP
Strait of Gibraltar E	36° 00' N 05° 24' W

## Black Sea Area Coverage, Ports and Connectors



## Ports

NAME	GP
Azov	47°05'N 39°14'E
Bandirma	40°23'N 27°58'E
Burgas	42°29'N 27°41'E
Buyukdere	41°09'N 29°04'E
Constanta	44°06'N 28°44'E
Erdemir, Ereğli	41°17'N 31°20'E
Gemlik	40°26'N 29°06'E
Hereke	40°45'N 29°31'E
Ilichevsk	46°18'N 30°44'E
Istanbul	41°01'N 29°00'E
Izmit	40°45'N 29°31'E
Kartal	40°53'N 29°11'E
Kherson	46°36'N 31°47'E
Konstantinovsk	47°03'N 38°52'E
Mariupol'	46°58'N 37°31'E
Nikolayev	46°36'N 31°47'E

NAME	GP
Nikolayevskaya	47°05'N 38°56'E
Nvorossiysk	44°37'N 37°50'E
Odessa	46°30'N 30°47'E
Oktyabrsk	46°36'N 31°47'E
Pendik	40°52'N 29°15'E
Poti	42°10'N 41°37'E
Rostov	47°03'N 38°52'E
Samsun	41°24'N 36°22'E
Semikarakorsk	47°03'N 38°52'E
S-Port (Ambarli Limani)	40°58'N 28°41'E
Tuapse	44°03'N 39°02'E
Tuzla	40°48'N 29°17'E
Varna	43°11'N 27°59'E
Yeisk	46°46'N 38°14'E
Yuzhnyy	46°34'N 31°00'E

## Connectors

NAME	GP
Dardanelles	40°01'N 26°09'E

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This chapter contains information relating to passages within the Mediterranean and Black Seas. Relevant navigational publications should be consulted when planning and conducting passages. These publications include ADMIRALTY Routeing Guides, ADMIRALTY Sailing Directions and The Mariner's Handbook, amongst others.

- **Notes and Cautions.**

For information on notes and cautions, the mariner should refer to the appropriate ADMIRALTY Sailing Directions volume.

- **Natural Conditions.**

The weather of the Mediterranean Sea is markedly seasonal, being characterised by hot dry summers with mainly light or moderate winds and mild rainy winters with a rather high frequency of strong winds and gales. The situation of this sea, surrounded by land, much of which is either mountainous or desert, together with the indented nature of parts of the coast, leads to the occurrence of a large number of local winds, many with special names and characteristics. Some of these can produce extremely violent conditions. Information concerning these local winds can be found in the relevant volume of ADMIRALTY Sailing Directions.

Over the greater part of the open waters of the Mediterranean Sea, winds from between N and W are the most frequent, though the passage of depressions across the area causes great variations in both the direction and force of the wind. From about November to March these depressions are frequent and often vigorous, while from about May to September they are less common and much less intense.

For convenience in describing the winds and for convenience in describing the winds and weather of the Mediterranean Sea, the area has been divided up into the W part lying W of the Sicilian Channel and the E part E of the Sicilian Channel. It is emphasised that the statements which follow apply to the open sea away from the influence of the land, in the vicinity of which marked differences are to be found.

### WESTERN PART OF THE MEDITERRANEAN SEA

For convenience the following descriptions are divided into seasonal periods.

- **November to March.**

In the more confined part of the area W of about 1°W, winds blow mainly parallel with the coast, westerlies being somewhat more common than easterlies from January to March and very considerably more frequent in November and December. Over the remainder of the area as far E as the longitude of Sardegna the most frequent wind directions are from between N and W, with a bias towards the latter direction in the S part of the area.

In the N part of the Tyrrhenian Sea there is no clearly predominant wind direction, though winds from some N point are more common than from a S point. In the S part of this sea and in the Sicilian Channel the prevailing direction is NW.

In January, the stormiest month in most of the W part of the Mediterranean Sea, winds reach force 7 or above on six to nine days per month in the NW and on three to seven days per month elsewhere. Most of the winter gales are from between N and W, though NE gales are not uncommon and gales from other directions may occasionally occur. Weather at this season is subject to rapid changes due to the passage of depressions with their associated frontal belts of cloud and rain. The rain is usually heavy but of relatively shorter duration than in the British Isles.

Visibility over the open sea is generally good except when reduced by rain, but it may at times be only moderate with winds from a S quarter.

- **May to September.**

In that part of the area S of about 40°N and W of the longitude of Sardegna, winds are most frequent from between E and NE or from between W and SW, the former being slightly more common. Elsewhere from June to August the most frequent wind directions are from between N and W, but in May and September there is no clearly predominant wind direction. Winds are likely to reach force 7 or above on one to three days per month in the NW part of the area; elsewhere, winds of that strength are rare at this season, but in September the mariner should be alert to the possibility of rapid development of depressions and squalls which can give unexpected onsets of strong winds.

Weather in July and August is generally fine with little or no rainfall, especially in the S and E. Cloud amounts are larger and rain is somewhat more common in May and September, especially in the latter month and NE of a line joining the Gulf of Lions, Sardegna and Sicilia. Visibility is generally good, though occasional patches of sea fog may be experienced in early summer and, with winds from a S quarter, haze is sometimes prevalent. April and October. In the transitional months of April and October conditions can be taken as intermediate between winter and summer, though it should be realised that considerable variations are likely from year to year.

## EASTERN PART OF THE MEDITERRANEAN SEA

For convenience the following descriptions are divided into seasonal periods:

- **November to March.**

South of about 35°N, winds are most often from between SW and N, while to the N of that parallel between Sicilia and Greece there is no clearly prevailing wind direction.

In the greater part of the Adriatic Sea and the N part of the Aegean Sea winds from between N and E are the most frequent, though these are often interrupted by winds from a S quarter blowing in advance of an approaching depression. In the S part of the Aegean Sea, S winds occur more frequently than in the N. Winds, however, blow mainly as in the N part, from between N and E. The confined nature of the Adriatic Sea gives rise to many local effects, details of which can be found in Mediterranean Sea Pilot, Volume III. At the height of the season, winds are likely to reach force 7 or above on six to nine days per month in the Aegean Sea and the E part of the Ionian Sea and on three to six days per month elsewhere in the area. Weather at this season, as in the W part of the Mediterranean Sea, is subject to rapid changes caused by moving depressions as experienced equally in the W part of the Mediterranean Sea. Visibility is generally good except, when reduced by rain, but with winds from a S quarter, which are experienced in advance of a depression, it is often only moderate.

- **May to September.**

Over the whole of the E part of the Mediterranean Sea, other than the Aegean Sea, the prevailing winds are NW throughout the period, and particularly persistent in July and August and E of 20°E, where winds from directions, other than between N and W, are uncommon. Over the Aegean Sea the prevailing wind is N; here also, the degree of persistence is particularly high in July and August, during which months the great majority of winds are from between NE and NW.

From May to August winds are likely to reach force 7 only on rare occasions, except over the Aegean Sea in July and August, where winds of this strength may be expected on one or two days per month. In September the frequency of these winds is one to three days per month over most of the E part of the Mediterranean Sea, but the mariner should be particularly alert to the possibility of rapid development of depressions and squalls which can give unexpected onsets of strong winds and violent conditions.

Over the greater part of the open waters of the area, weather at this season is fine with small amounts of cloud and little or no rain, especially in the S and E of the area in July and August. Over the N parts of the Aegean and Adriatic Seas some rain is likely throughout the period. Visibility is generally good, though occasional patches of sea fog may be experienced in early summer, most often in the N part of the area; with winds from a S quarter haze is sometimes prevalent.

- **April and October.**

In the transitional months of April and October conditions can be taken as intermediate between winter and summer, though it should be realised that considerable variations are likely from year to year.

Heavy swells are more frequent in the W part than in the E part of the Mediterranean Sea. In the W part of the Mediterranean Sea, between Corse and Islas Baleares, the percentage frequency of swell greater than 4 m is:

June to September	1 to 2 %
October	2 to 5 %
November to March	10 %
April and May	2 to 5 %

These swells are invariably short or average in strength.

- **Currents. Mediterranean Sea, Adriatic Sea and Aegean Sea.**

In the Mediterranean Basin the rate of evaporation is about three times as great as the inflow from the rivers which discharge into it. In consequence, there is a continuous inflow of water through the Strait of Gibraltar from the Atlantic Ocean. Evaporation causes the Mediterranean water to increase its salinity; this dense water sinks and its excess emerges through the Strait of Gibraltar as a W-going sub-surface current, a smaller quantity similarly reaches the Black Sea.

The main body of water entering the Strait of Gibraltar flows E along the N coast of Africa; this is the most constant part of the main circulation, but it gradually loses its strength as it penetrates E. On reaching Malta Channel part of it turns N to circulate counter-clockwise in the Western Mediterranean; the remainder continues through the Malta Channel and along the African coast turning N at the E end of the Mediterranean Sea and returning W along its N shores until it reaches the Ionian Sea where it turns S to re-join the main E-going flow. Branches of this current enter the Aegean and Adriatic Seas, giving rise to counter-clockwise circulations in those areas.

- **Ice.**

No ice occurs in the Mediterranean Sea.



# Connector Routes for Mediterranean Sea and Black Sea including Dardanelles

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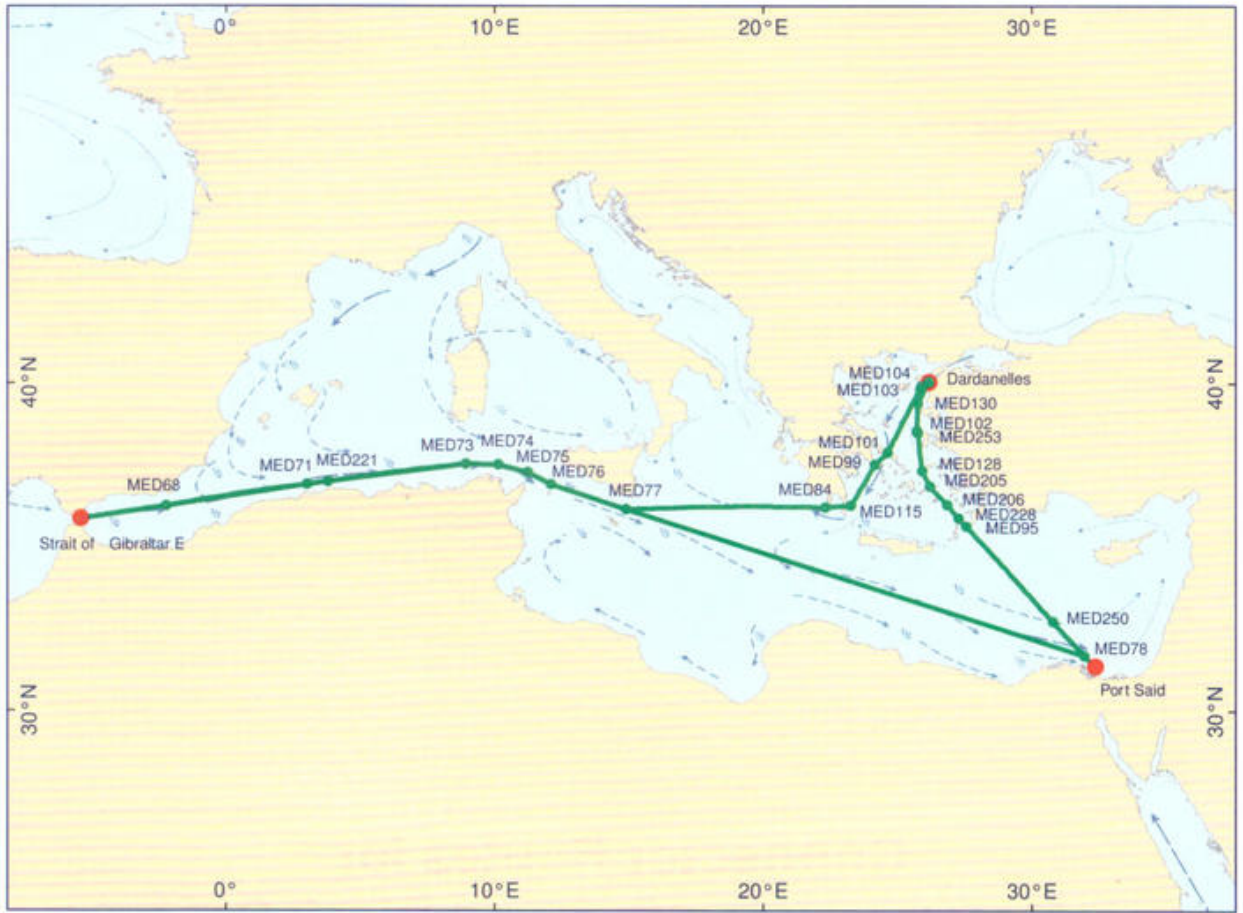
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## Mediterranean Sea and Dardanelles Connector Routes

## Connector to Connector Routes

FROM	GP	TO	GP	LENGTH
Strait of Gibraltar E	36°00'N 05°24'W	Port Said	31°24'N 32°21'E	2356
Dardanelles	40°01'N 26°09'E	Port Said	31°24'N 32°21'E	790
Strait of Gibraltar E	36°00'N 05°24'W	Dardanelles	40°01'N 26°09'E	2078

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED108	Istanbul S	40°55'N 28°55'E
MED71	Off Alger2	37°02'N 03°01'E	MED109	Istanbul N	41°18'N 29°11'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED115	Ak Maleas S	36°24'N 23°16'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED128	Off N.Ikaria SW	37°25'N 25°55'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED130	Off Nisos Lesvos NW	39°24'N 25°45'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED145	Strait of Canakkale TSS	40°04'N 26°18'E
MED77	Malta Channel	36°17'N 14°54'E	MED146	Off Canakkale W	40°11'N 26°23'E
MED78	Off Port Said	31°46'N 31°57'E	MED147	Off Cardak NW	40°24'N 26°42'E
MED84	Ak. Tainaron SW	36°21'N 22°18'E	MED198	Straight of Istanbul TSS E	40°52'N 28°36'E
MED95	N.Karpathos NE	35°46'N 27°33'E	MED205	N.Amorgos NE	36°58'N 26°13'E
MED99	Makronisos SE	37°38'N 24°10'E	MED206	N. Kandhilousa SW	36°25'N 26°51'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED221	Off Alger3	37°07'N 03°48'E
MED102	Nisos Psara E	38°37'N 25°44'E	MED228	N.Karpathos N	36°01'N 27°17'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED231	The Bosphorus	41°07'N 29°05'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED250	Masabb Rashid N	32°49'N 30°47'E
MED105	Karabiga N	40°36'N 27°15'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED106	Marmara Ad. N	40°43'N 27°39'E			

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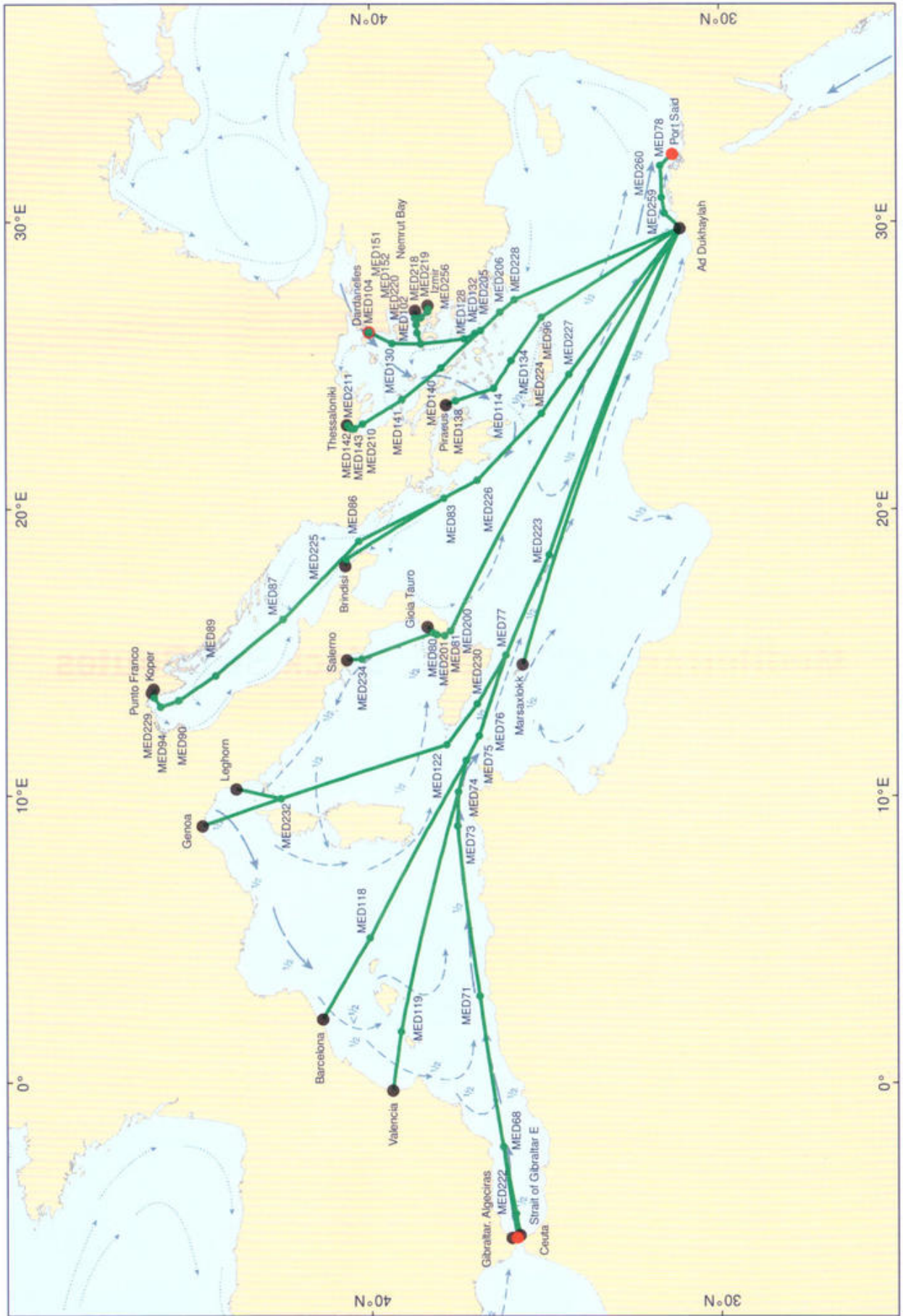
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# Ad Dukhaylah



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## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG			NP49
To	Barcelona	41°18'N 02°12'E	BCN	ES	1822		NP45
To	Brindisi	40°40'N 18°01'E	BDS	IT	1013		NP47
To	Ceuta	35°55'N 05°19'W	CEU	ES	2207		NP67
To	Genoa	44°22'N 08°57'E	GOA	IT	1730		NP46
To	Gibraltar. Algeciras	36°08'N 05°24'W	ALG	ES	2222		NP67
To	Gioia Tauro	38°27'N 15°53'E	GIT	IT	1030		NP45
To	Izmir	38°26'N 27°05'E	IZM	TR	695		NP48
To	Koper	45°34'N 13°42'E	KOP	SI	1543		NP47
To	Lephorn	43°31'N 10°14'E	LIV	IT	1652		NP46
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	972		NP45
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	674		NP48
To	Piraeus	37°56'N 23°37'E	PIR	GR	630		NP48
To	Punto Franco	45°37'N 13°35'E			1538		NP47
To	Salerno	40°38'N 14°43'E	SAL	IT	1203		NP46
To	Thessaloniki	40°37'N 22°55'E	SKG	GR	828		NP48
To	Valencia	39°25'N 00°17'W	VLC	ES	1910		NP45

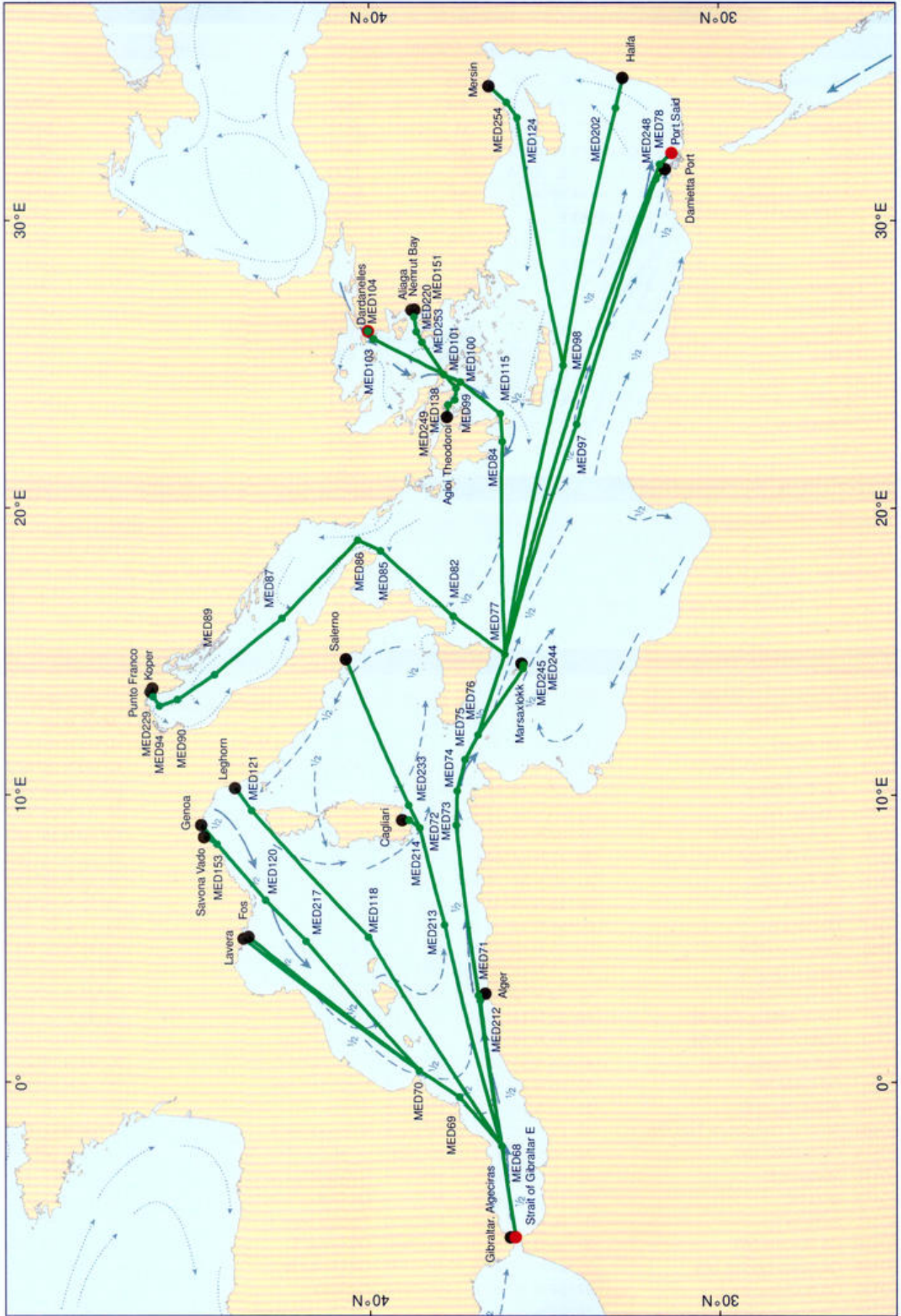
## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
Ad Dukhaylah	31°11'N 29°46'E	Dardanelles	40°01'N 26°09'E	717	Marmara Denizi and Black Sea ports	
Ad Dukhaylah	31°11'N 29°46'E	Port Said	31°24'N 32°21'E	180	Suez Canal and Indian Ocean ports	
Ad Dukhaylah	31°11'N 29°46'E	Strait of Gibraltar E	36°00'N 05°24'W	2212	North Europe, North and South Atlantic and Caribbean ports	

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED141	Off Skopelos E	39°08'N 23°48'E
MED71	Off Alger2	37°02'N 03°01'E	MED142	Ak. Epanomis NW	40°25'N 22°47'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED143	Ak Megalo Emvolo W	40°30'N 22°47'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED151	Aslan NW	38°47'N 26°38'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED152	Komur NE	38°44'N 26°25'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED200	Messina SE	37°49'N 15°44'E
MED77	Malta Channel	36°17'N 14°54'E	MED201	Straits of Messina	38°12'N 15°36'E
MED78	Off Port Said	31°46'N 31°57'E	MED205	N.Amorgos NE	36°58'N 26°13'E
MED80	Messina N	38°18'N 15°41'E	MED206	N. Kandhilousa SW	36°25'N 26°51'E
MED81	Messina S	37°59'N 15°34'E	MED210	Thermaikos Kolpos	40°12'N 22°56'E
MED83	Zakynthos NW	38°00'N 20°22'E	MED211	Off Thessaloniki	40°35'N 22°54'E
MED86	Off C d'Otranto	40°18'N 18°52'E	MED218	Off Foca SW	38°37'N 26°40'E
MED87	Off O Palagruza	42°18'N 16°08'E	MED219	Izmir Approach	38°26'N 26°52'E
MED89	North Adriatic TSS SE	44°02'N 14°10'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED90	North Adriatic TSS NE	44°57'N 13°18'E	MED222	Alboran Sea1	36°02'N 04°33'W
MED94	Gulf of Trieste TSS	45°24'N 13°06'E	MED223	Malta Ridge E	35°02'N 18°24'E
MED96	Off Crete NE	35°15'N 26°40'E	MED224	Nisos Kriti SW	35°15'N 23°19'E
MED102	Nisos Psara E	38°37'N 25°44'E	MED225	Brindisi E	40°38'N 18°15'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED226	N. Strofades S	37°04'N 21°00'E
MED114	Off N.Milos SW	36°36'N 24°12'E	MED227	Off N. Gavdhos SE	34°27'N 24°41'E
MED118	Menorca E	40°02'N 05°02'E	MED228	N.Karpathos N	36°01'N 27°17'E
MED119	Ibiza NE	39°12'N 01°47'E	MED229	Off Gulf of Trieste	45°33'N 13°25'E
MED122	Sicily W	37°56'N 11°47'E	MED230	Terrible Bank E	37°05'N 13°12'E
MED128	Off N.Ikaria SW	37°25'N 25°55'E	MED232	Off Corse E	42°22'N 09°54'E
MED130	Off Nisos Lesvos NW	39°24'N 25°45'E	MED234	Off Licosa W	40°14'N 14°45'E
MED132	Off N.Dhenousa E	37°07'N 26°07'E	MED256	Off Izmir	38°25'N 26°58'E
MED134	Off Nisidhes Khristiana SW	36°07'N 25°09'E	MED259	Off Masabb Rashid	31°38'N 30°18'E
MED138	Off Lavrion W	37°40'N 23°45'E	MED260	Burullus NW	31°43'N 30°51'E
MED140	Off Nisos Andros N	38°05'N 24°54'E			

# Agiou Theodoroi and Algeciras



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	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Algeciras	36°08'N 05°24'W	ALG	ES			NP67
To	Alger	36°51'N 03°06'E	GHZ	DZ	530		NP45
To	Aliaga	38°53'N 26°53'E	ALI	TR	2057		NP48
To	Cagliari	39°07'N 09°08'E	CAG	IT	932		NP46
To	Damietta Port	31°36'N 31°47'E	DAM	EG	2329		NP49
To	Fos	43°11'N 05°03'E	FOS	FR	893		NP46
To	Genoa	44°22'N 08°57'E	GOA	IT	1126		NP46
To	Haifa	32°52'N 34°58'E	HFA	IL	2488		NP49
To	Koper	45°34'N 13°42'E	KOP	SI	2233		NP47
To	Lavera	43°18'N 04°59'E	LAV	FR	899		NP46
To	Leghorn	43°31'N 10°14'E	LIV	IT	1140		NP46
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	1259		NP45
To	Mersin	36°43'N 34°40'E	MER	TR	2490		NP49
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	2057		NP48
To	Punto Franco	45°37'N 13°35'E			2229		NP47
To	Salerno	40°38'N 14°43'E	SAL	IT	1276		NP46
To	Savona Vado	44°18'N 08°32'E	SVN	IT	1105		NP46

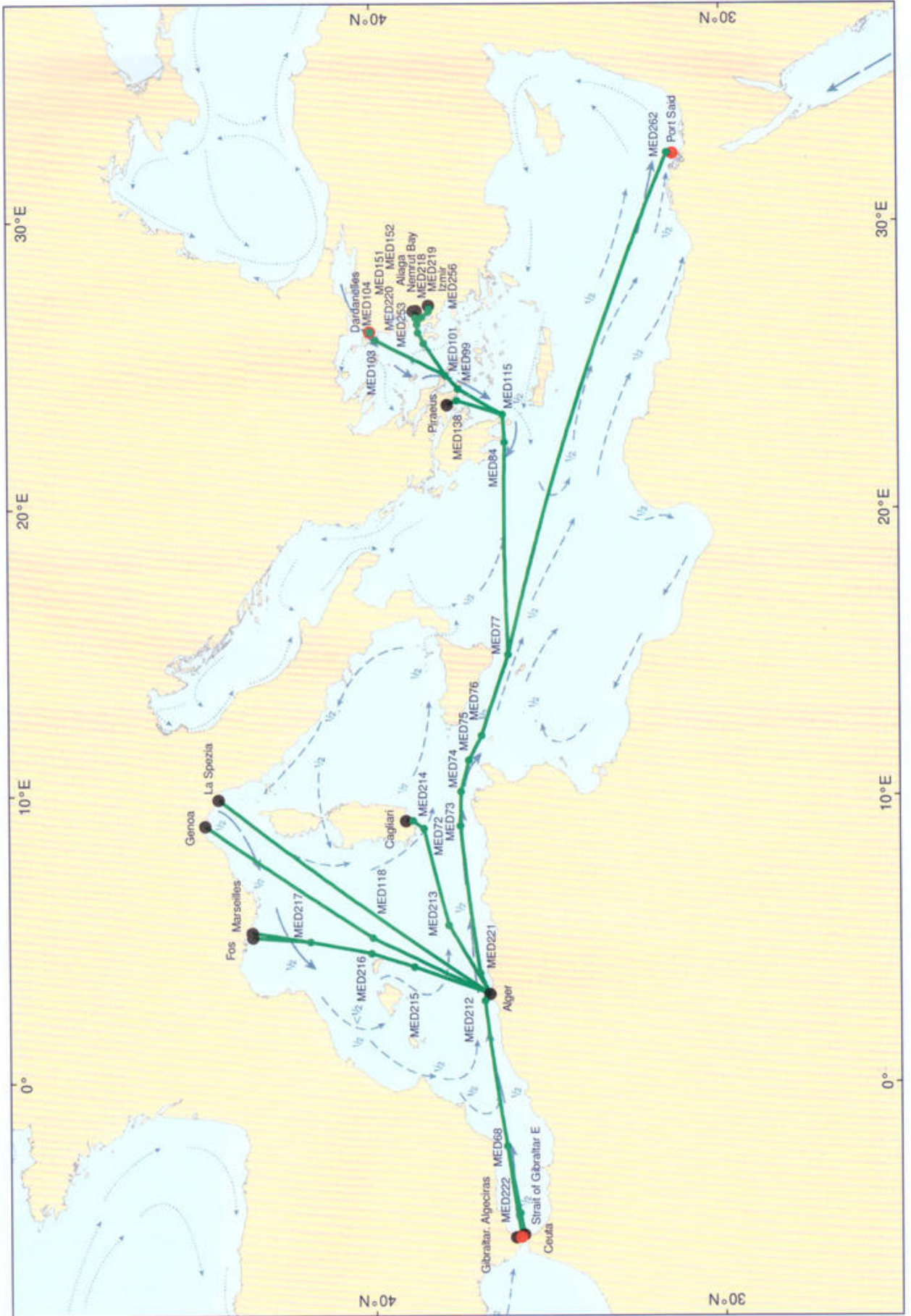
## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Agiou Theodoroi	37°53'N 23°10'E	Dardanelles	40°01'N 26°09'E	291	Marmara Denizi and Black Sea ports
	Algeciras	36°08'N 05°24'W	Port Said	31°24'N 32°21'E	2368	Suez Canal and Indian Ocean ports
	Algeciras	36°08'N 05°24'W	Strait of Gibraltar E	36°00'N 05°24'W	932	North Europe ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED103	Off Bozcaada NW	39°53'N 25°52'E
MED69	Off Cape Palos	37°33'N 00°32'W	MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E
MED70	Off Cape La Nao	38°40'N 00°24'E	MED115	Ak Maleas S	36°24'N 23°16'E
MED71	Off Alger2	37°02'N 03°01'E	MED118	Menorca E	40°02'N 05°02'E
MED72	Cape Spartivento	38°39'N 08°50'E	MED120	Off Toulon	42°44'N 06°20'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED121	Corsica N	43°05'N 09°26'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED124	Off Cyprus N	35°55'N 33°35'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED138	Off Lavrion W	37°40'N 23°45'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED151	Aslan NW	38°47'N 26°38'E
MED77	Malta Channel	36°17'N 14°54'E	MED153	Alasio SE	43°58'N 08°17'E
MED78	Off Port Said	31°46'N 31°57'E	MED202	Off Haifa2	33°04'N 33°55'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED212	Off Alger1	36°59'N 02°50'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED213	Off Algeria	37°58'N 05°28'E
MED85	Off C S Maria de Leuca	39°42'N 18°30'E	MED214	Cagliari S	38°56'N 09°07'E
MED86	Off C d'Otranto	40°18'N 18°52'E	MED217	Off Palamos E	41°41'N 04°54'E
MED87	Off O Palagruza	42°18'N 16°08'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED89	North Adriatic TSS SE	44°02'N 14°10'E	MED229	Off Gulf of Trieste	45°33'N 13°25'E
MED90	North Adriatic TSS NE	44°57'N 13°18'E	MED233	Golfo di Cagliari E	38°57'N 09°38'E
MED94	Gulf of Trieste TSS	45°24'N 13°06'E	MED244	Marsaxlokk S	35°45'N 14°31'E
MED97	Herodotus Rise N	34°13'N 22°54'E	MED245	Off Malta S	35°46'N 14°24'E
MED98	Off Crete S	34°36'N 24°57'E	MED248	Al Burullus NE	31°52'N 31°26'E
MED99	Makronisos SE	37°38'N 24°10'E	MED249	Off Piraeus	37°51'N 23°35'E
MED100	N.Kithnos NW	37°31'N 24°22'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED254	Off Mersin SW	36°13'N 34°07'E

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From	Alger	36°51'N 03°06'E	GHZ	DZ			NP45
To	Aliaga	38°53'N 26°53'E	ALI	TR	1535		NP48
To	Cagliari	39°07'N 09°08'E	CAG	IT	417		NP46
To	Ceuta	35°55'N 05°19'W	CEU	ES	514		NP67
To	Fos	43°11'N 05°03'E	FOS	FR	512		NP46
To	Genoa	44°22'N 08°57'E	GOA	IT	692		NP46
To	Gibraltar. Algeciras	36°08'N 05°24'W			530		NP67
To	Izmir	38°26'N 27°05'E	IZM	TR	1556		NP48
To	La Spezia	44°02'N 09°52'E	SPE	IT	697		NP46
To	Marseilles	43°11'N 05°13'E	MRS	FR	513		NP46
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	1535		NP48
To	Piraeus	37°56'N 23°37'E	PIR	GR	1358		NP48

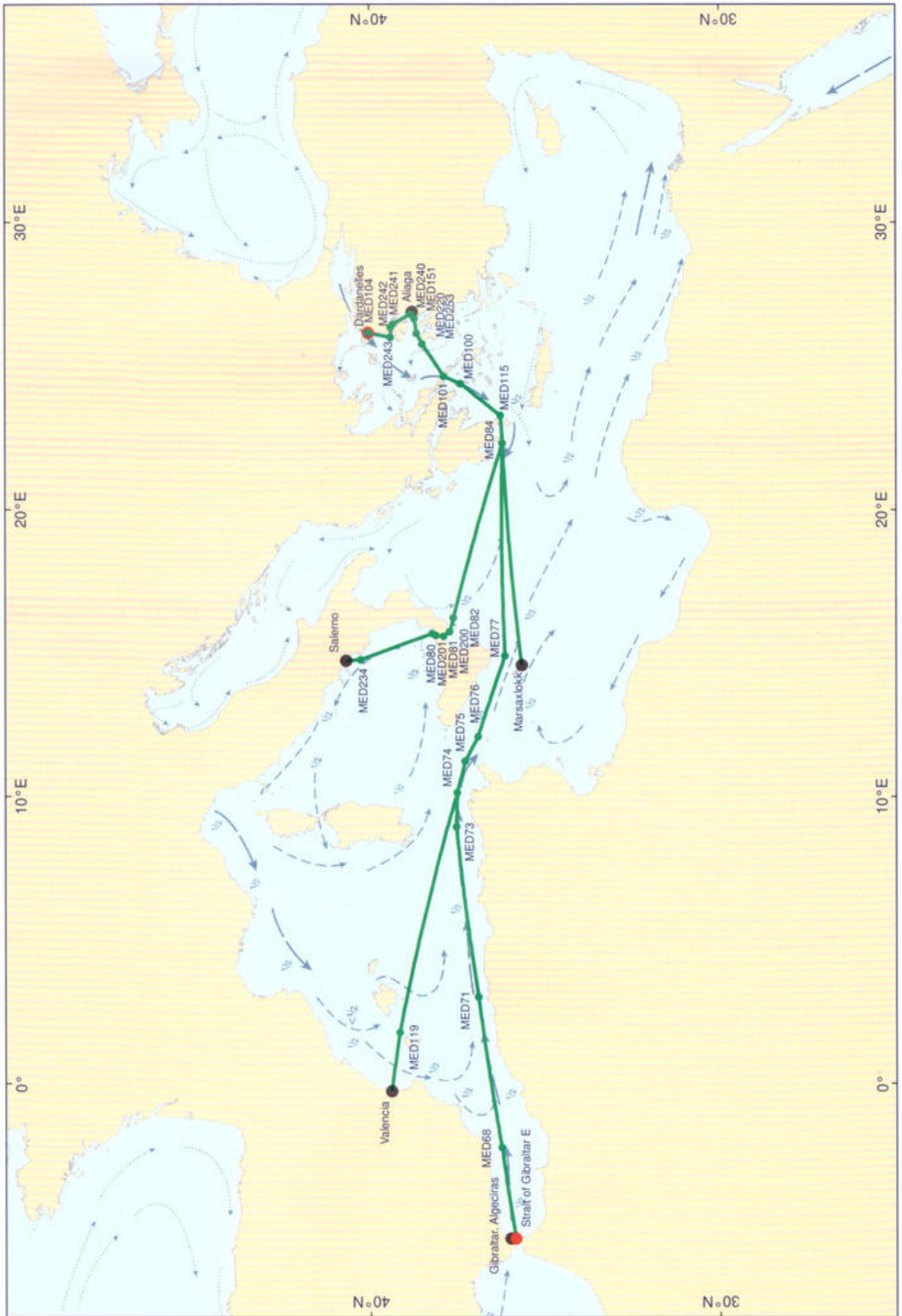
## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Alger	36°51'N 03°06'E	Dardanelles	40°01'N 26°09'E	1566	Marmara Denizi and Black Sea ports
Alger	36°51'N 03°06'E	Port Said	31°24'N 32°21'E	1852	Suez Canal and Indian Ocean ports
Alger	36°51'N 03°06'E	Strait of Gibraltar E	36°00'N 05°24'W	530	Mediterranean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED152	Komur NE	38°44'N 26°25'E
MED72	Cape Spartivento	38°39'N 08°50'E	MED212	Off Alger1	36°59'N 02°50'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED213	Off Algeria	37°58'N 05°28'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED214	Cagliari S	38°56'N 09°07'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED215	Off Mallorca SE	38°56'N 04°02'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED216	Off Menorca NE	40°05'N 04°30'E
MED77	Malta Channel	36°17'N 14°54'E	MED217	Off Palamos E	41°41'N 04°54'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED218	Off Foca SW	38°37'N 26°40'E
MED99	Makronisos SE	37°38'N 24°10'E	MED219	Izmir Approach	38°26'N 26°52'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED221	Off Alger3	37°07'N 03°48'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED222	Alboran Sea1	36°02'N 04°33'W
MED115	Ak Maleas S	36°24'N 23°16'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED118	Menorca E	40°02'N 05°02'E	MED256	Off Izmir	38°25'N 26°58'E
MED138	Off Lavrion W	37°40'N 23°45'E	MED262	Port Said N	31°35'N 32°24'E
MED151	Aslan NW	38°47'N 26°38'E			

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From	Aliaga	38°53'N 26°53'E	ALI	TR			NP48
To	Gibraltar, Algeciras	36°08'N 05°24'W	ALG	ES	2057		NP67
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	822		NP45
To	Salerno	40°38'N 14°43'E	SAL	IT	997		NP46
To	Valencia	39°25'N 00°17'W	VLC	ES	1745		NP45

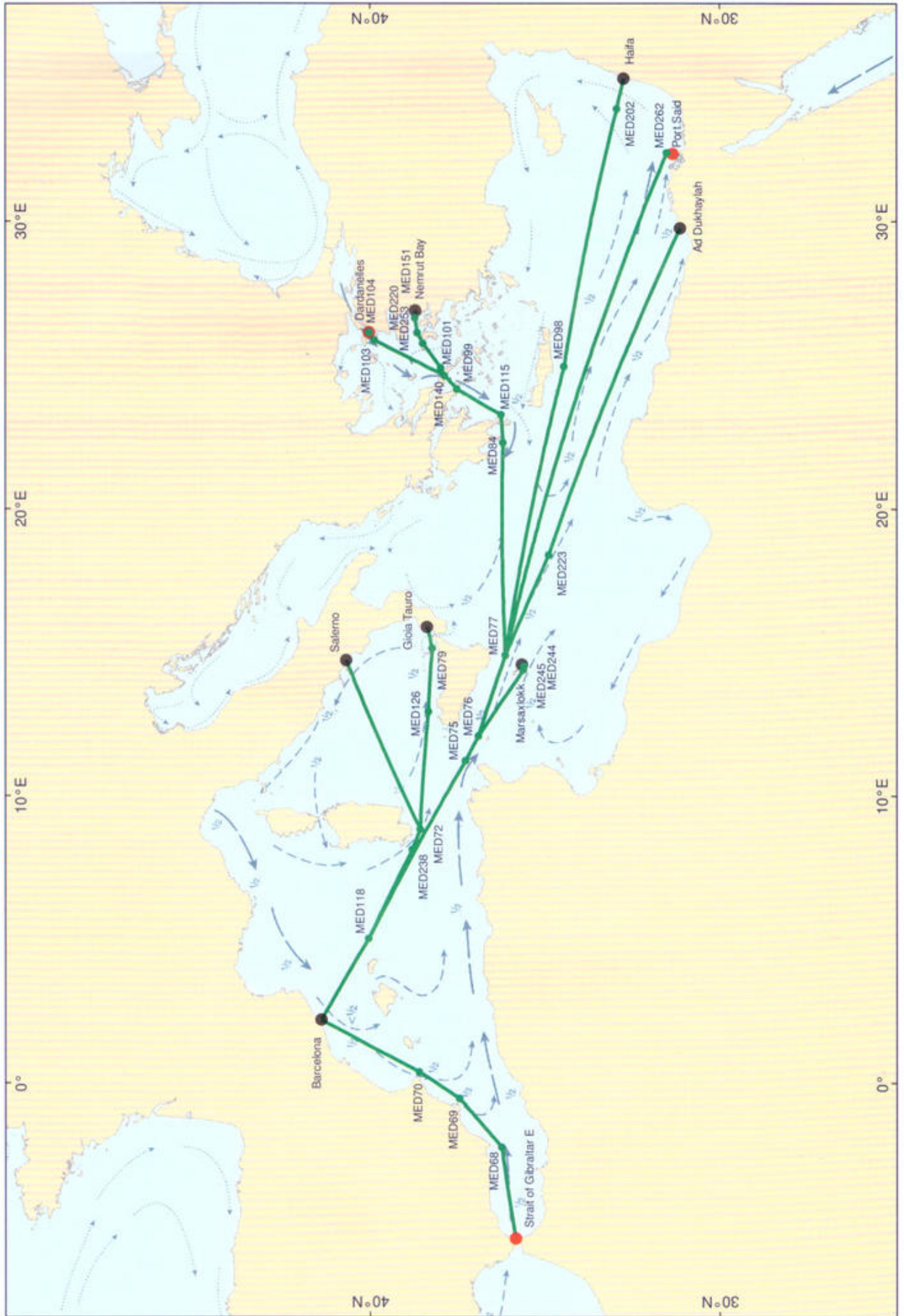
## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Aliaga	38°53'N 26°53'E	Dardanelles	40°01'N 26°09'E	124	Marmara Denizi and Black Sea ports
	Aliaga	38°53'N 26°53'E	Strait of Gibraltar E	36°00'N 05°24'W	2057	North Europe ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E
MED71	Off Alger2	37°02'N 03°01'E	MED115	Ak Maleas S	36°24'N 23°16'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED119	Ibiza NE	39°12'N 01°47'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED151	Aslan NW	38°47'N 26°38'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED200	Messina SE	37°49'N 15°44'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED201	Straits of Messina	38°12'N 15°36'E
MED77	Malta Channel	36°17'N 14°54'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED80	Messina N	38°18'N 15°41'E	MED234	Off Licoso W	40°14'N 14°45'E
MED81	Messina S	37°59'N 15°34'E	MED240	Off Aliaga	38°53'N 26°49'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED241	Off Tomari NE	39°22'N 26°27'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED242	Off Skamnia N	39°26'N 26°20'E
MED100	N.Kithnos NW	37°31'N 24°22'E	MED243	Off Babakale SW	39°26'N 25°59'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E

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	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Barcelona	41°18'N 02°12'E	BCN	ES			NP45
To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	1822		NP49
To	Gioia Tauro	38°27'N 15°53'E	GIT	IT	874		NP45
To	Haifa	32°52'N 34°58'E	HFA	IL	2088		NP49
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	859		NP45
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	1658		NP48
To	Salerno	40°38'N 14°43'E	SAL	IT	835		NP46

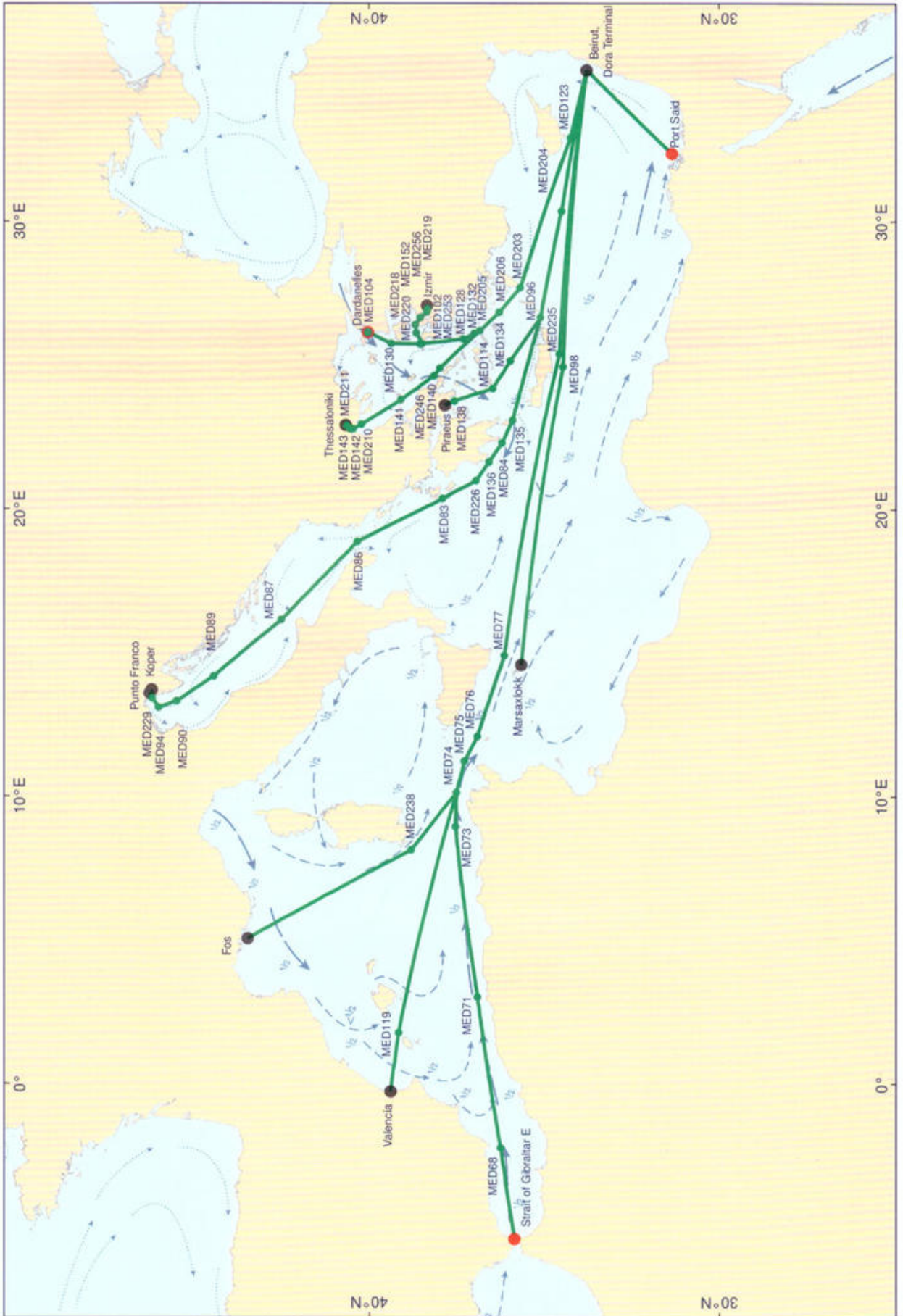
## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Barcelona	41°18'N 02°12'E	Dardanelles	40°01'N 26°09'E	1689	Marmara Denizi and Black Sea ports
	Barcelona	41°18'N 02°12'E	Port Said	31°24'N 32°21'E	1975	Suez Canal and Indian Ocean ports
	Barcelona	41°18'N 02°12'E	Strait of Gibraltar E	36°00'N 05°24'W	661	North Europe and North Atlantic ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED115	Ak Maleas S	36°24'N 23°16'E
MED69	Off Cape Palos	37°33'N 00°32'W	MED118	Menorca E	40°02'N 05°02'E
MED70	Off Cape La Nao	38°40'N 00°24'E	MED126	Off Palermo	38°25'N 12°56'E
MED72	Cape Spartivento	38°39'N 08°50'E	MED140	Off Nisos Andros N	38°05'N 24°54'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED151	Aslan NW	38°47'N 26°38'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED202	Off Haifa2	33°04'N 33°55'E
MED77	Malta Channel	36°17'N 14°54'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED79	Off Cape Milaxxo	38°19'N 15°08'E	MED223	Malta Ridge E	35°02'N 18°24'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED238	S.Antioco SW	38°51'N 08°08'E
MED98	Off Crete S	34°36'N 24°57'E	MED244	Marsaxlokk S	35°45'N 14°31'E
MED99	Makronisos SE	37°38'N 24°10'E	MED245	Off Malta S	35°46'N 14°24'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED262	Port Said N	31°35'N 32°24'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E			

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From	Beirut	33°55'N 35°16'E	BEY	LB			NP49
To	Fos	43°11'N 05°03'E	FOS	FR	2084		NP46
To	Izmir	38°26'N 27°05'E	IZM	TR	818		NP48
To	Koper	45°34'N 13°42'E	KOP	SI	1761		NP47
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	1252		NP45
To	Piraeus	37°56'N 23°37'E	PIR	GR	810		NP48
To	Punto Franco	45°37'N 13°35'E			1756		NP47
To	Thessaloniki	40°37'N 22°55'E	SKG	GR	955		NP48
To	Valencia	39°25'N 00°17'W	VLC	ES	2182		NP45

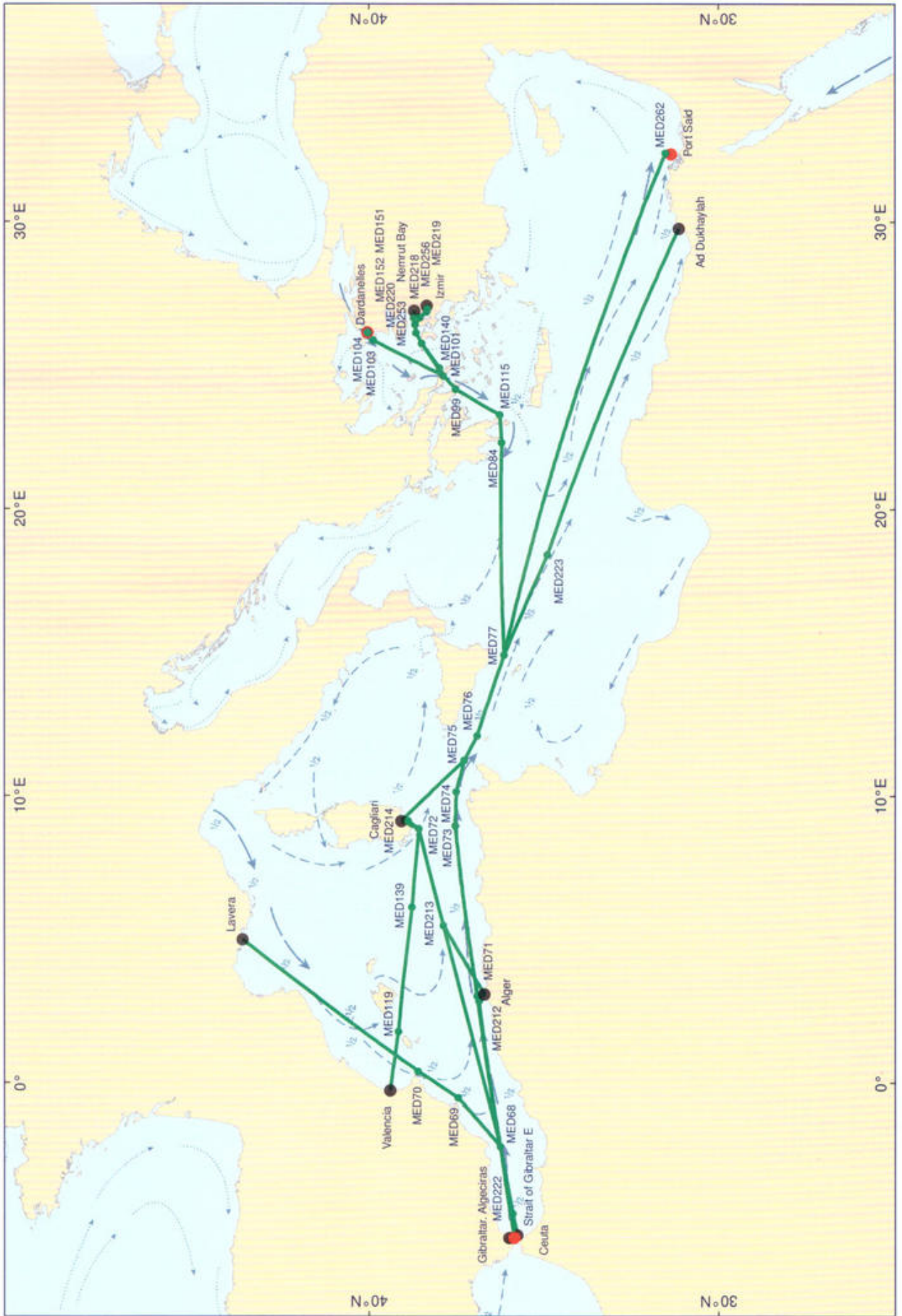
## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Beirut	33°55'N 35°16'E	Dardanelles	40°01'N 26°09'E	842	Marmara Denizi and Black Sea ports
	Beirut	33°55'N 35°16'E	Port Said	31°24'N 32°21'E	250	Suez Canal and Indian Ocean ports
	Beirut	33°55'N 35°16'E	Strait of Gibraltar E	36°00'N 05°24'W	2483	North Europe ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED135	Off Nisos Kythira SE	36°03'N 23°06'E
MED71	Off Alger2	37°02'N 03°01'E	MED136	Off N.Sapientza SW	36°42'N 21°38'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED138	Off Lavrion W	37°40'N 23°45'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED140	Off Nisos Andros N	38°05'N 24°54'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED141	Off Skopelos E	39°08'N 23°48'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED142	Ak. Epanomis NW	40°25'N 22°47'E
MED77	Malta Channel	36°17'N 14°54'E	MED143	Ak Megalo Emvolo W	40°30'N 22°47'E
MED83	Zakynthos NW	38°00'N 20°22'E	MED152	Komur NE	38°44'N 26°25'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED203	Nisos Rodos S	35°50'N 27°42'E
MED86	Off C d'Otranto	40°18'N 18°52'E	MED204	Off Cyprus W	34°39'N 30°21'E
MED87	Off O Palagruza	42°18'N 16°08'E	MED205	N.Amorgos NE	36°58'N 26°13'E
MED89	North Adriatic TSS SE	44°02'N 14°10'E	MED206	N. Kandhilousa SW	36°25'N 26°51'E
MED90	North Adriatic TSS NE	44°57'N 13°18'E	MED210	Thermaikos Kolpos	40°12'N 22°56'E
MED94	Gulf of Trieste TSS	45°24'N 13°06'E	MED211	Off Thessaloniki	40°35'N 22°54'E
MED96	Off Crete NE	35°15'N 26°40'E	MED218	Off Foca SW	38°37'N 26°40'E
MED98	Off Crete S	34°36'N 24°57'E	MED219	Izmir Approach	38°26'N 26°52'E
MED102	Nisos Psara E	38°37'N 25°44'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED226	N. Strofades S	37°04'N 21°00'E
MED114	Off N.Milos SW	36°36'N 24°12'E	MED229	Off Gulf of Trieste	45°33'N 13°25'E
MED119	Ibiza NE	39°12'N 01°47'E	MED235	O Keratokampos S	34°42'N 25°24'E
MED123	Off Cyprus S	34°24'N 32°55'E	MED238	S.Antioco SW	38°51'N 08°08'E
MED128	Off N.Ikaria SW	37°25'N 25°55'E	MED246	Ak. Kafireas N	38°14'N 24°37'E
MED130	Off Nisos Lesvos NW	39°24'N 25°45'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED132	Off N.Dhenousa E	37°07'N 26°07'E	MED256	Off Izmir	38°25'N 26°58'E
MED134	Off Nisidhes Khristiana SW	36°07'N 25°09'E			

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To	Alger	36°51'N 03°06'E	GHZ	DZ	417		NP45
To	Gibraltar. Algeciras	36°08'N 05°24'W	ALG	ES	932		NP67
To	Izmir	38°26'N 27°05'E	IZM	TR	1240		NP48
To	Valencia	39°25'N 00°17'W	VLC	ES	593		NP45
From	Ceuta	35°55'N 05°19'W	CEU	ES			NP67
To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	2207		NP49
To	Alger	36°51'N 03°06'E	GHZ	DZ	514		NP45
To	Lavera	43°18'N 04°59'E	LAV	FR	884		NP46
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	2043		NP48

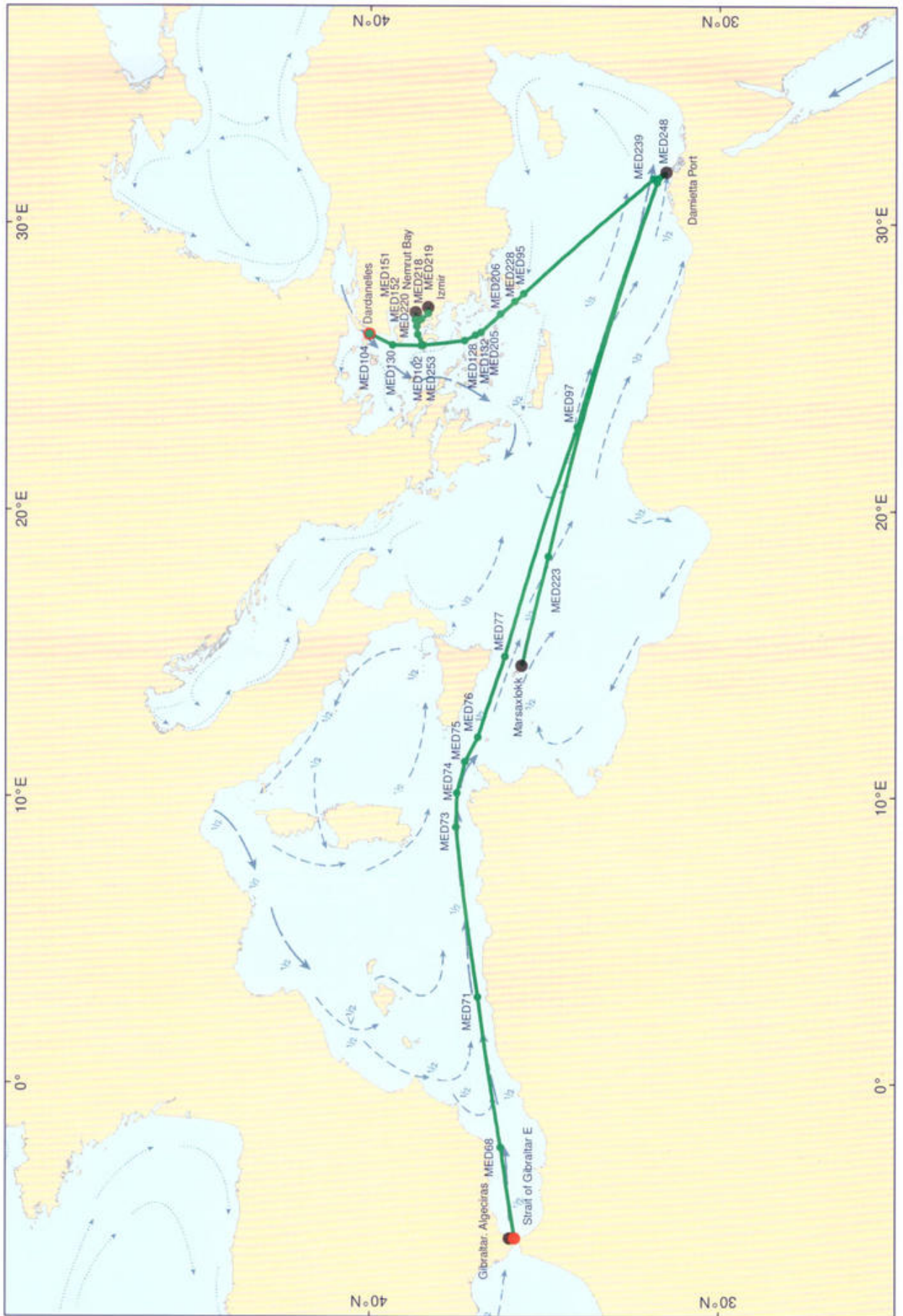
## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Cagliari	39°07'N 09°08'E	Port Said	31°24'N 32°21'E	1537	Suez Canal and Indian Ocean ports
Cagliari	39°07'N 09°08'E	Strait of Gibraltar E	36°00'N 05°24'W	932	North Europe, North and South Atlantic and Caribbean ports
Ceuta	35°55'N 05°19'W	Dardanelles	40°01'N 26°09'E	2074	Marmara Denizi and Black Sea ports
Ceuta	35°55'N 05°19'W	Port Said	31°24'N 32°21'E	2360	Suez Canal and Indian Ocean ports
Ceuta	35°55'N 05°19'W	Strait of Gibraltar E	36°00'N 05°24'W	8	North Europe ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED119	Ibiza NE	39°12'N 01°47'E
MED69	Off Cape Palos	37°33'N 00°32'W	MED139	Balearic Plain	38°50'N 06°07'E
MED70	Off Cape La Nao	38°40'N 00°24'E	MED140	Off Nisos Andros N	38°05'N 24°54'E
MED71	Off Alger2	37°02'N 03°01'E	MED151	Aslan NW	38°47'N 26°38'E
MED72	Cape Spartivento	38°39'N 08°50'E	MED152	Komur NE	38°44'N 26°25'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED212	Off Alger1	36°59'N 02°50'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED213	Off Algeria	37°58'N 05°28'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED214	Cagliari S	38°56'N 09°07'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED218	Off Foca SW	38°37'N 26°40'E
MED77	Malta Channel	36°17'N 14°54'E	MED219	Izmir Approach	38°26'N 26°52'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED220	Off Karaburun Yarimadası NW	38°43'N 26°07'E
MED99	Makronisos SE	37°38'N 24°10'E	MED222	Alboran Sea1	36°02'N 04°33'W
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED223	Malta Ridge E	35°02'N 18°24'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED256	Off Izmir	38°25'N 26°58'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED262	Port Said N	31°35'N 32°24'E

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	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Damietta Port	31°36'N 31°47'E	DAM	EG			NP49
To	Gibraltar. Algeciras	36°08'N 05°24'W	GIB	GI	2329		NP67
To	Izmir	38°26'N 27°05'E	IZM	TR	736		NP48
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	1081		NP45
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	713		NP48

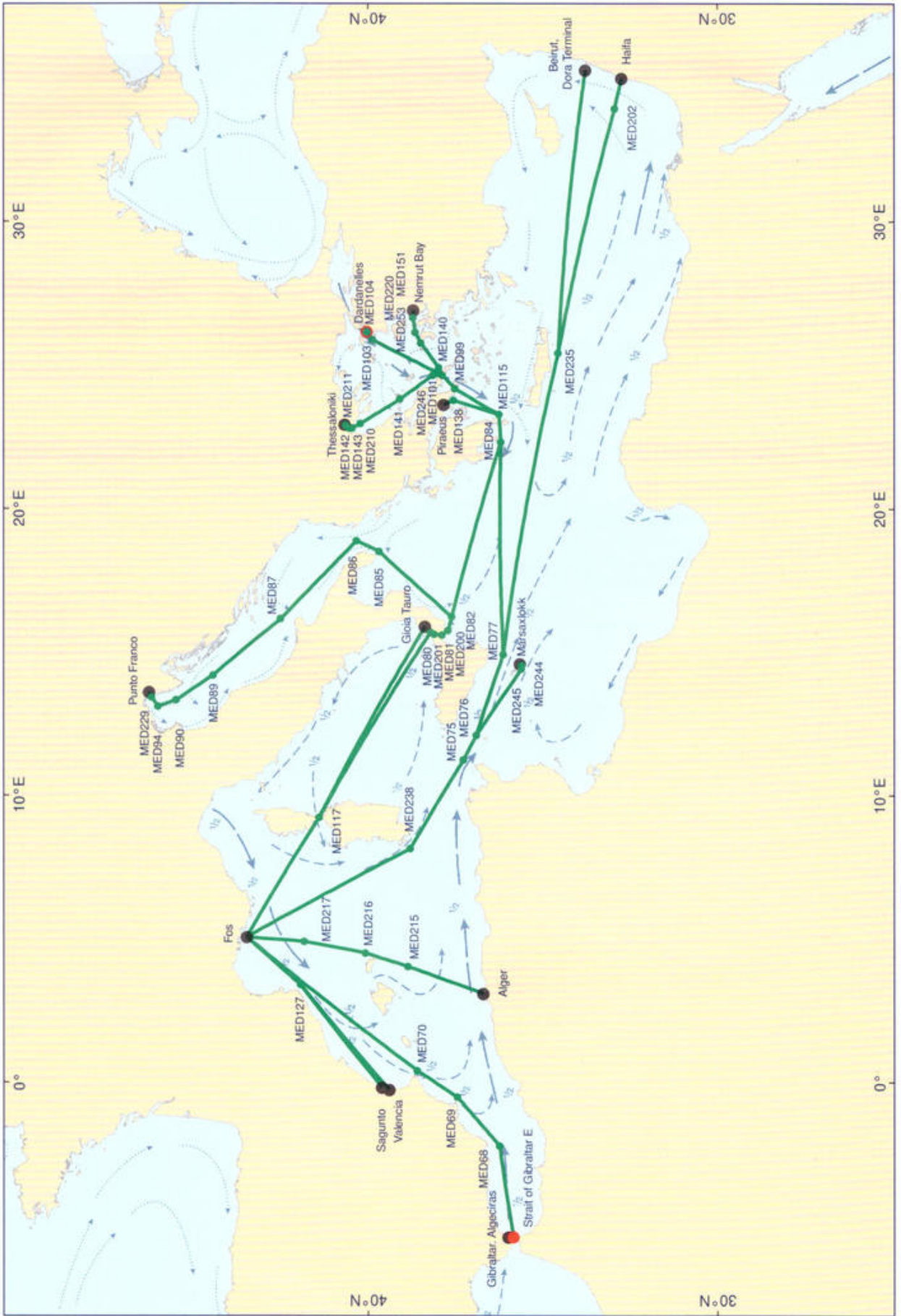
## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Damietta Port	31°36'N 31°47'E	Dardanelles	40°01'N 26°09'E	758	Marmara Denizi and Black Sea ports
	Damietta Port	31°36'N 31°47'E	Strait of Gibraltar E	36°00'N 05°24'W	2329	North Europe, North and South Atlantic and Caribbean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED132	Off N.Dhenousa E	37°07'N 26°07'E
MED71	Off Alger2	37°02'N 03°01'E	MED151	Aslan NW	38°47'N 26°38'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED152	Komur NE	38°44'N 26°25'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED205	N.Amorgos NE	36°58'N 26°13'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED206	N. Kandhilousa SW	36°25'N 26°51'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED218	Off Foca SW	38°37'N 26°40'E
MED77	Malta Channel	36°17'N 14°54'E	MED219	Izmir Approach	38°26'N 26°52'E
MED95	N.Karpathos NE	35°46'N 27°33'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED97	Herodotus Rise N	34°13'N 22°54'E	MED223	Malta Ridge E	35°02'N 18°24'E
MED102	Nisos Psara E	38°37'N 25°44'E	MED228	N.Karpathos N	36°01'N 27°17'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED239	Off Damietta Port NW	31°59'N 31°33'E
MED128	Off N.Ikaria SW	37°25'N 25°55'E	MED248	Al Burullus NE	31°52'N 31°26'E
MED130	Off Nisos Lesvos NW	39°24'N 25°45'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E

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	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Fos	43°11'N 05°03'E	FOS	FR			NP46
To	Alger	36°51'N 03°06'E	GHZ	DZ	512		NP45
To	Beirut, Dora Terminal	33°55'N 35°16'E	BEY	LB	2079		NP49
To	Gibraltar, Algeciras	36°08'N 05°24'W			893		NP67
To	Gioia Tauro	38°27'N 15°53'E	GIT	IT	751		NP45
To	Haifa	32°52'N 34°58'E	HFA	IL	2074		NP49
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	844		NP45
To	Nemrut Bay (Route A)	38°46'N 26°54'E	NEM	TR	1644		NP48
To	Nemrut Bay (Route B)	38°46'N 26°54'E	NEM	TR	1553		NP48
To	Piraeus	37°56'N 23°37'E	PIR	GR	1376		NP48
To	Punto Franco	45°37'N 13°35'E			1655		NP47
To	Sagunto	39°37'N 00°12'W	SAG	ES	425		NP45
To	Thessaloniki	40°37'N 22°55'E	SKG	GR	1731		NP48
To	Valencia	39°25'N 00°17'W	VLC	ES	439		NP45

## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Fos	43°11'N 05°03'E	Dardanelles	40°01'N 26°09'E	1675	Marmara Denizi and Black Sea ports
Fos	43°11'N 05°03'E	Strait of Gibraltar E	36°00'N 05°24'W	882	North Europe, North and South Atlantic ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED138	Off Lavrion W	37°40'N 23°45'E
MED69	Off Cape Palos	37°33'N 00°32'W	MED140	Off Nisos Andros N	38°05'N 24°54'E
MED70	Off Cape La Nao	38°40'N 00°24'E	MED141	Off Skopelos E	39°08'N 23°48'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED142	Ak. Epanomis NW	40°25'N 22°47'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED143	Ak Megalo Emvolo W	40°30'N 22°47'E
MED77	Malta Channel	36°17'N 14°54'E	MED151	Aslan NW	38°47'N 26°38'E
MED80	Messina N	38°18'N 15°41'E	MED200	Messina SE	37°49'N 15°44'E
MED81	Messina S	37°59'N 15°34'E	MED201	Straits of Messina	38°12'N 15°36'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED202	Off Haifa2	33°04'N 33°55'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED210	Thermaikos Kolpos	40°12'N 22°56'E
MED85	Off C S Maria de Leuca	39°42'N 18°30'E	MED211	Off Thessaloniki	40°35'N 22°54'E
MED86	Off C d'Otranto	40°18'N 18°52'E	MED215	Off Mallorca SE	38°56'N 04°02'E
MED87	Off O Palagruza	42°18'N 16°08'E	MED216	Off Menorca NE	40°05'N 04°30'E
MED89	North Adriatic TSS SE	44°02'N 14°10'E	MED217	Off Palamos E	41°41'N 04°54'E
MED90	North Adriatic TSS NE	44°57'N 13°18'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED94	Gulf of Trieste TSS	45°24'N 13°06'E	MED229	Off Gulf of Trieste	45°33'N 13°25'E
MED99	Makronisos SE	37°38'N 24°10'E	MED235	O Keratokampos S	34°42'N 25°24'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED238	S.Antioco SW	38°51'N 08°08'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED244	Marsaxlokk S	35°45'N 14°31'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED245	Off Malta S	35°46'N 14°24'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED246	Ak. Kafireas N	38°14'N 24°37'E
MED117	Corsica Channel	41°18'N 09°13'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED127	Palamos E	41°47'N 03°23'E			

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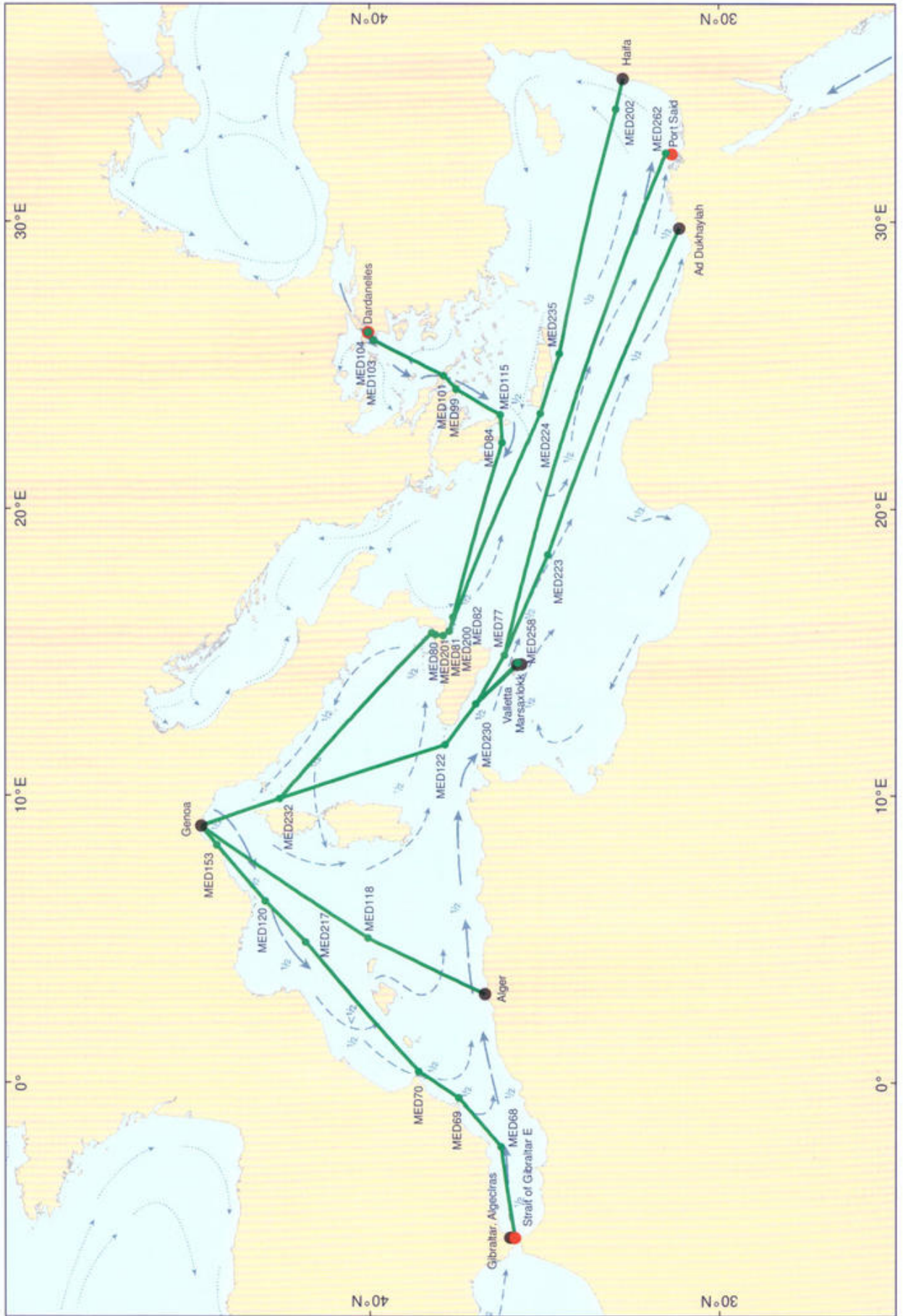
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## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Genoa	44°22'N 08°57'E	GOA	IT			NP46
To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	1730		NP49
To	Alger	36°51'N 03°06'E	GHZ	DZ	692		NP45
To	Gibraltar. Algeciras	36°08'N 05°24'W			1126		NP67
To	Haifa	32°52'N 34°58'E	HFA	IL	1903		NP49
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	777		NP45
To	Valletta	35°56'N 14°33'E	MLA	MT	765		NP45

## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Genoa	44°22'N 08°57'E	Dardanelles	40°01'N 26°09'E	1484	Marmara Denizi and Black Sea ports
	Genoa	44°22'N 08°57'E	Port Said	31°24'N 32°21'E	1883	Suez Canal and Indian Ocean ports
	Genoa	44°22'N 08°57'E	Strait of Gibraltar E	36°00'N 05°24'W	1116	North Europe and North Atlantic ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED120	Off Toulon	42°44'N 06°20'E
MED69	Off Cape Palos	37°33'N 00°32'W	MED122	Sicily W	37°56'N 11°47'E
MED70	Off Cape La Nao	38°40'N 00°24'E	MED153	Alassio SE	43°58'N 08°17'E
MED77	Malta Channel	36°17'N 14°54'E	MED200	Messina SE	37°49'N 15°44'E
MED80	Messina N	38°18'N 15°41'E	MED201	Straits of Messina	38°12'N 15°36'E
MED81	Messina S	37°59'N 15°34'E	MED202	Off Haifa2	33°04'N 33°55'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED217	Off Palamos E	41°41'N 04°54'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED223	Malta Ridge E	35°02'N 18°24'E
MED99	Makronisos SE	37°38'N 24°10'E	MED224	Nisos Kriti SW	35°15'N 23°19'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED230	Terrible Bank E	37°05'N 13°12'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED232	Off Corse E	42°22'N 09°54'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED235	O Keratokampos S	34°42'N 25°24'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED258	Off Valletta	35°55'N 14°37'E
MED118	Menorca E	40°02'N 05°02'E	MED262	Port Said N	31°35'N 32°24'E

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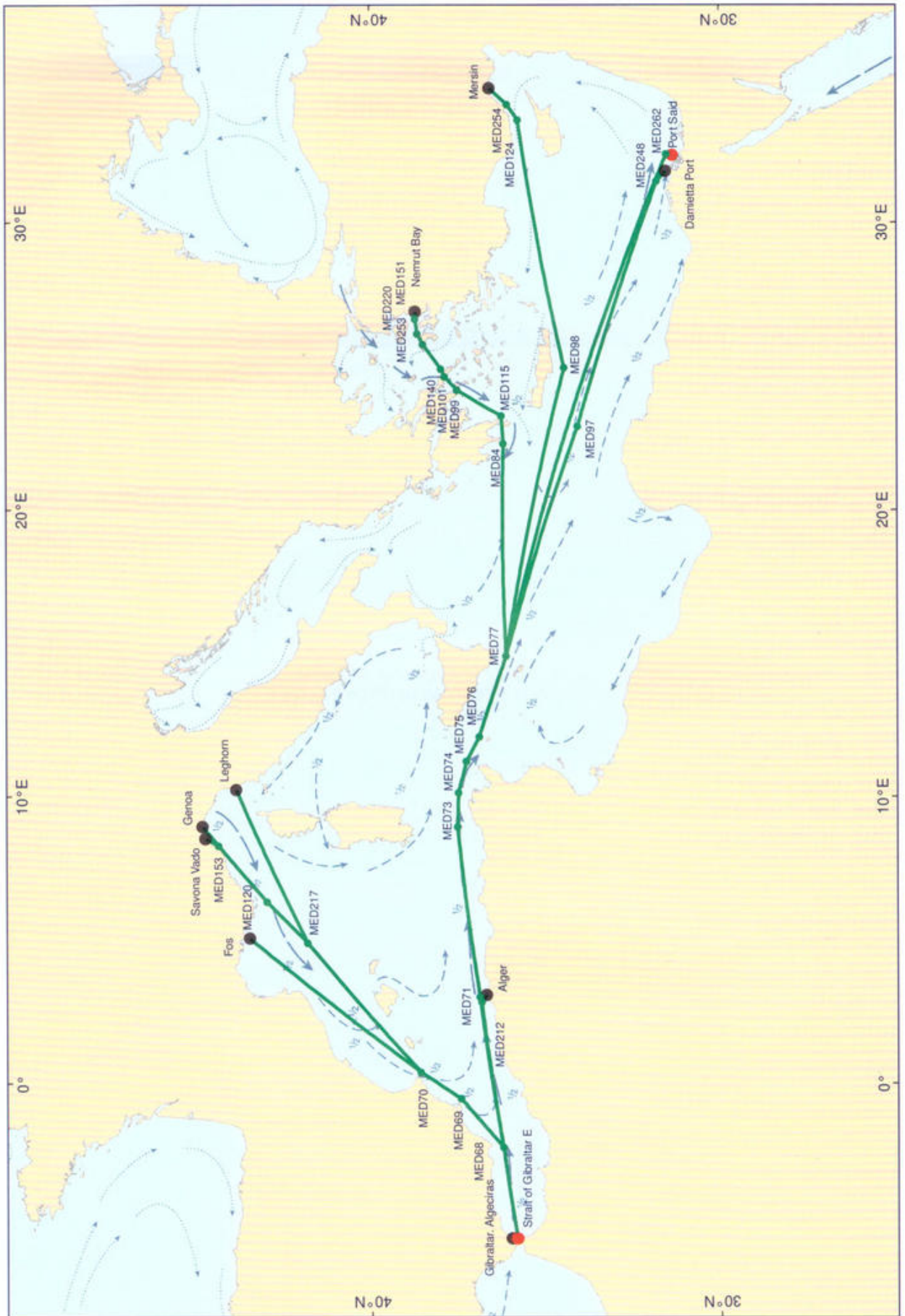
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## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Gibraltar	36°08'N 05°24'E	GIB	GI			NP67
To	Alger	36°51'N 03°06'E	GHZ	DZ	530		NP45
To	Damietta Port	31°36'N 31°47'E	DAM	EG	2329		NP49
To	Fos	43°11'N 05°03'E	FOS	FR	893		NP46
To	Genoa	44°22'N 08°57'E	GOA	IT	1126		NP46
To	Leghorn	43°31'N 10°14'E	LIV	IT	1151		NP46
To	Mersin	36°43'N 34°40'E	MER	TR	2492		NP49
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	2058		NP48
To	Savona Vado	44°18'N 08°32'E	SVN	IT	1105		NP46

## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Gibraltar	36°08'N 05°24'E	Port Said	31°24'N 32°21'E	2375	Suez Canal and Indian Ocean ports
	Gibraltar	36°08'N 05°24'E	Strait of Gibraltar E	36°00'N 05°24'W	1151	North Europe, South Atlantic and Caribbean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED115	Ak Maleas S	36°24'N 23°16'E
MED69	Off Cape Palos	37°33'N 00°32'W	MED120	Off Toulon	42°44'N 06°20'E
MED70	Off Cape La Nao	38°40'N 00°24'E	MED124	Off Cyprus N	35°55'N 33°35'E
MED71	Off Alger2	37°02'N 03°01'E	MED140	Off Nisos Andros N	38°05'N 24°54'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED151	Aslan NW	38°47'N 26°38'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED153	Alassio SE	43°58'N 08°17'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED212	Off Alger1	36°59'N 02°50'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED217	Off Palamos E	41°41'N 04°54'E
MED77	Malta Channel	36°17'N 14°54'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED248	Al Burullus NE	31°52'N 31°26'E
MED97	Herodotus Rise N	34°13'N 22°54'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED98	Off Crete S	34°36'N 24°57'E	MED254	Off Mersin SW	36°13'N 34°07'E
MED99	Makronisos SE	37°38'N 24°10'E	MED262	Port Said N	31°35'N 32°24'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E			

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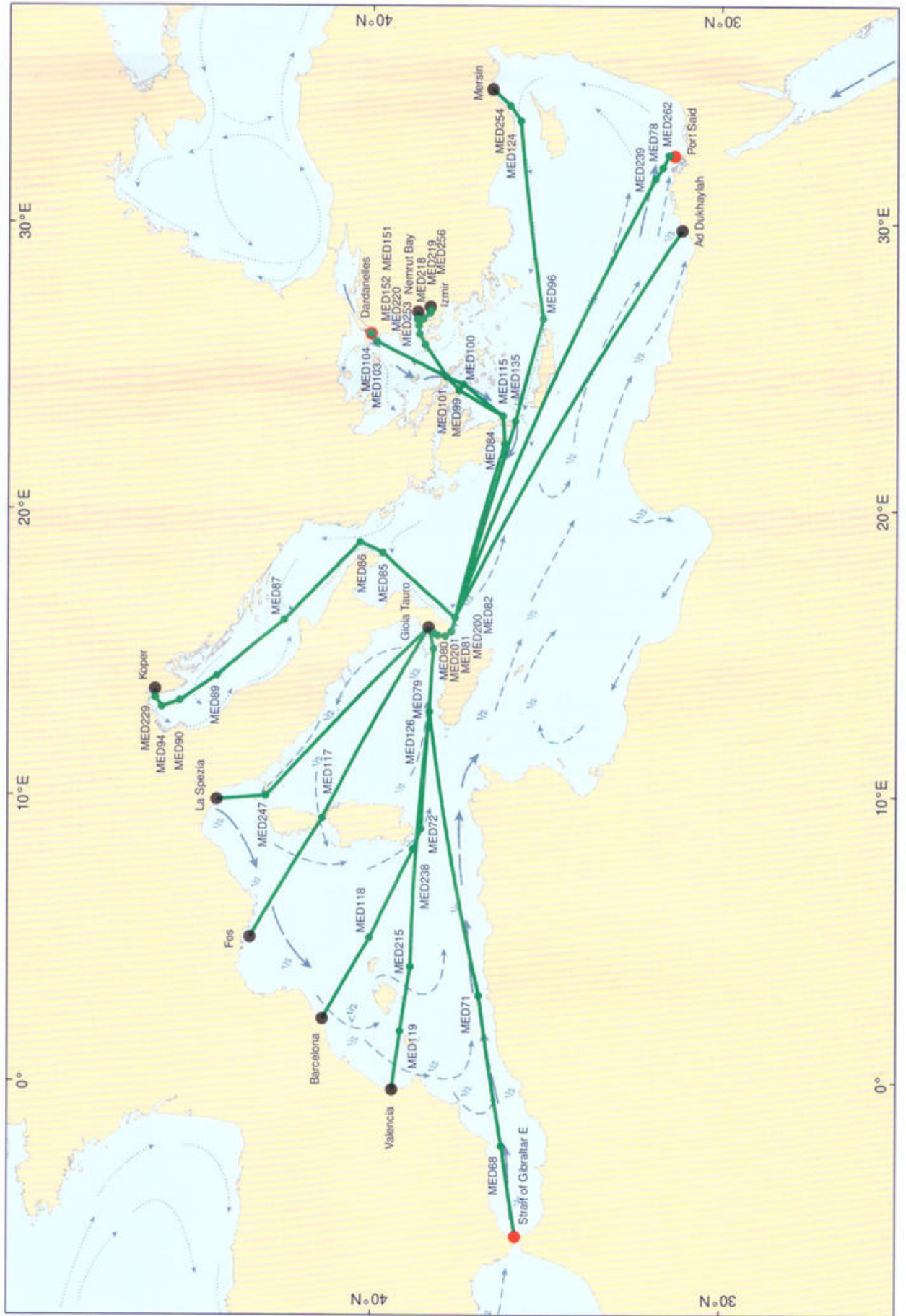
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## Gioia Tauro



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## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Gioia Tauro	38°27'N 15°53'E	GIT	IT			NP45
To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	1030		NP49
To	Barcelona	41°18'N 02°12'E	BCN	ES	874		NP45
To	Fos	43°11'N 05°03'E	FOS	FR	751		NP46
To	Izmir	38°26'N 27°05'E	IZM	TR	844		NP48
To	Koper	45°34'N 13°42'E	KOP	SI	931		NP47
To	La Spezia	44°02'N 09°52'E	SPE	IT	596		NP46
To	Mersin	36°43'N 34°40'E	MER	TR	1249		NP49
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	824		NP48
To	Valencia	39°25'N 00°17'W	VLC	ES	976		NP45

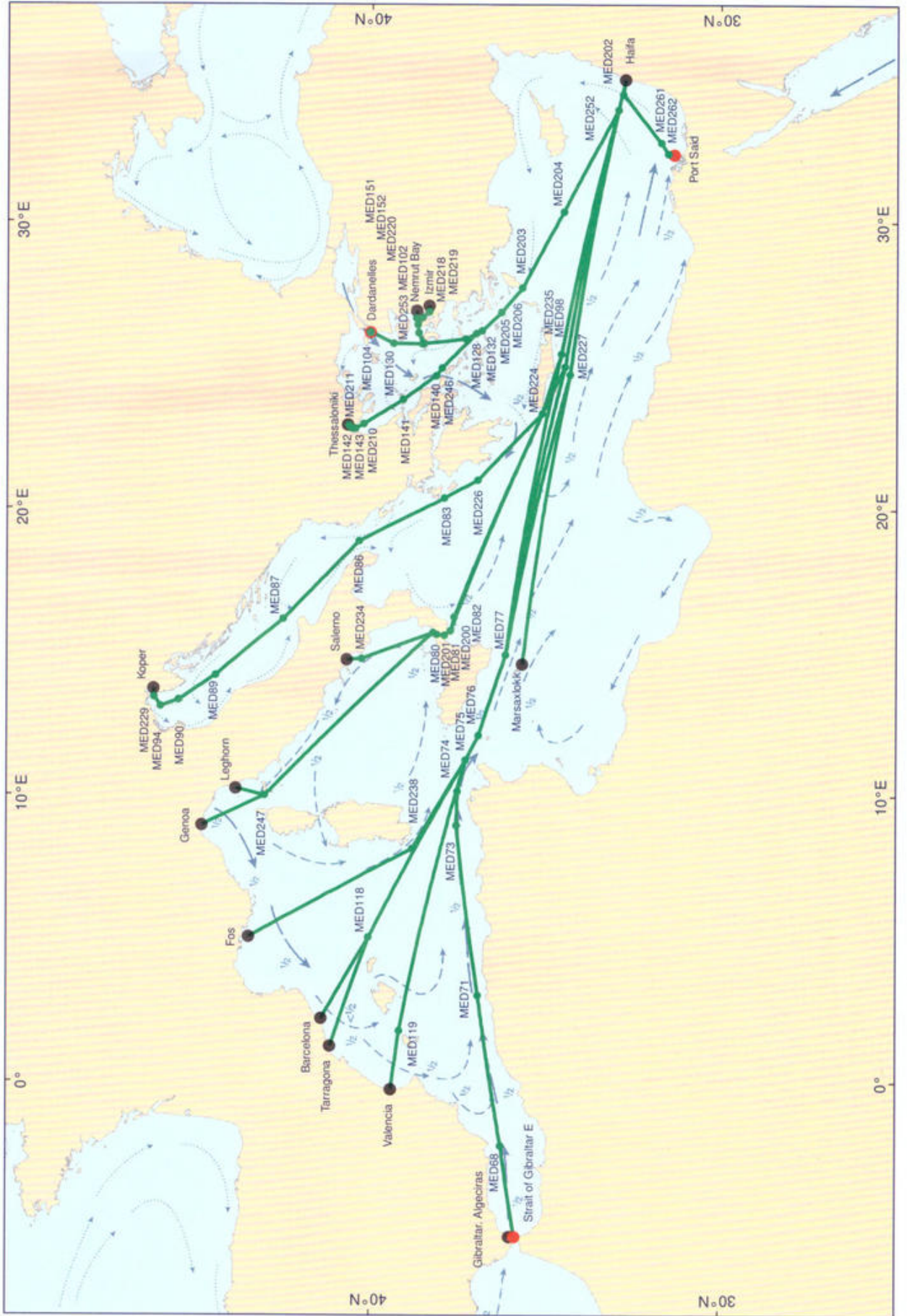
## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Gioia Tauro	38°27'N 15°53'E	Dardanelles	40°01'N 26°09'E	855	Marmara Denizi and Black Sea ports
	Gioia Tauro	38°27'N 15°53'E	Port Said	31°24'N 32°21'E	1171	Suez Canal and Indian Ocean ports
	Gioia Tauro	38°27'N 15°53'E	Strait of Gibraltar E	36°00'N 05°24'W	1295	North Europe, North Atlantic and Caribbean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED117	Corsica Channel	41°18'N 09°13'E
MED71	Off Alger2	37°02'N 03°01'E	MED118	Menorca E	40°02'N 05°02'E
MED72	Cape Spartivento	38°39'N 08°50'E	MED119	Ibiza NE	39°12'N 01°47'E
MED78	Off Port Said	31°46'N 31°57'E	MED124	Off Cyprus N	35°55'N 33°35'E
MED79	Off Cape Milaxxo	38°19'N 15°08'E	MED126	Off Palermo	38°25'N 12°56'E
MED80	Messina N	38°18'N 15°41'E	MED135	Off Nisos Kythira SE	36°03'N 23°06'E
MED81	Messina S	37°59'N 15°34'E	MED151	Aslan NW	38°47'N 26°38'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED152	Komur NE	38°44'N 26°25'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED200	Messina SE	37°49'N 15°44'E
MED85	Off C S Maria de Leuca	39°42'N 18°30'E	MED201	Straits of Messina	38°12'N 15°36'E
MED86	Off C d'Otranto	40°18'N 18°52'E	MED215	Off Mallorca SE	38°56'N 04°02'E
MED87	Off O Palagruza	42°18'N 16°08'E	MED218	Off Foca SW	38°37'N 26°40'E
MED89	North Adriatic TSS SE	44°02'N 14°10'E	MED219	Izmir Approach	38°26'N 26°52'E
MED90	North Adriatic TSS NE	44°57'N 13°18'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED94	Gulf of Trieste TSS	45°24'N 13°06'E	MED229	Off Gulf of Trieste	45°33'N 13°25'E
MED96	Off Crete NE	35°15'N 26°40'E	MED238	S.Antioco SW	38°51'N 08°08'E
MED99	Makronisos SE	37°38'N 24°10'E	MED239	Off Damietta Port NW	31°59'N 31°33'E
MED100	N.Kithnos NW	37°31'N 24°22'E	MED247	Off Elba W	42°46'N 09°59'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED254	Off Mersin SW	36°13'N 34°07'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED256	Off Izmir	38°25'N 26°58'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED262	Port Said N	31°35'N 32°24'E

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From	Haifa	32°52'N 34°58'E	HFA	IL			NP49
To	Barcelona	41°18'N 02°12'E	BCN	ES	2088		NP45
To	Fos	43°11'N 05°03'E	FOS	FR	2074		NP46
To	Genoa	44°22'N 08°57'E	GOA	IT	1893		NP46
To	Gibraltar, Algeciras	36°08'N 05°24'W	ALG	ES	2488		NP67
To	Izmir	38°26'N 27°05'E	IZM	TR	834		NP48
To	Koper	45°34'N 13°42'E	KOP	SI	1780		NP47
To	Leghorn	43°31'N 10°14'E	LIV	IT	1813		NP46
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	1244		NP45
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	810		NP48
To	Salerno	40°38'N 14°43'E	SAL	IT	1447		NP46
To	Tarragona	41°04'N 01°14'E	TAR	ES	2133		NP45
To	Thessaloniki	40°37'N 22°55'E	SKG	GR	968		NP48
To	Valencia	39°25'N 00°17'W	VLC	ES	2177		NP45

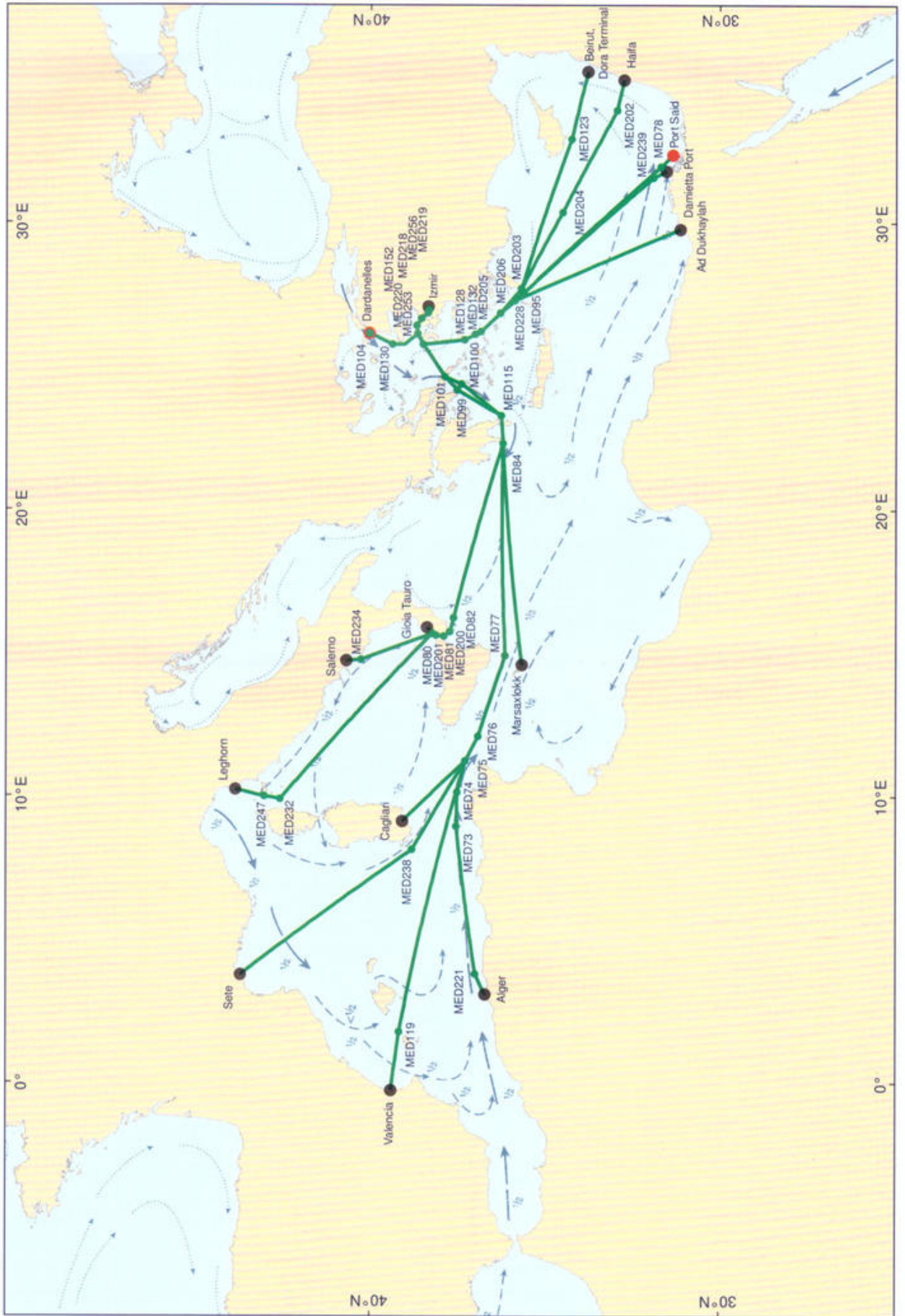
## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Haifa	32°52'N 34°58'E	Dardanelles	40°01'N 26°09'E	855	Marmara Denizi and Black Sea ports
Haifa	32°52'N 34°58'E	Port Said	31°24'N 32°21'E	200	Suez Canal and Indian Ocean ports
Haifa	32°52'N 34°58'E	Strait of Gibraltar E	36°00'N 05°24'W	2488	North Europe and North Atlantic ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED151	Aslan NW	38°47'N 26°38'E
MED71	Off Alger2	37°02'N 03°01'E	MED152	Komur NE	38°44'N 26°25'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED200	Messina SE	37°49'N 15°44'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED201	Straits of Messina	38°12'N 15°36'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED202	Off Haifa2	33°04'N 33°55'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED203	Nisos Rodos S	35°50'N 27°42'E
MED77	Malta Channel	36°17'N 14°54'E	MED204	Off Cyprus W	34°39'N 30°21'E
MED80	Messina N	38°18'N 15°41'E	MED205	N.Amorgos NE	36°58'N 26°13'E
MED81	Messina S	37°59'N 15°34'E	MED206	N. Kandhilousa SW	36°25'N 26°51'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED210	Thermaikos Kolpos	40°12'N 22°56'E
MED83	Zakynthos NW	38°00'N 20°22'E	MED211	Off Thessaloniki	40°35'N 22°54'E
MED86	Off C d'Otranto	40°18'N 18°52'E	MED218	Off Foca SW	38°37'N 26°40'E
MED87	Off O Palagruza	42°18'N 16°08'E	MED219	Izmir Approach	38°26'N 26°52'E
MED89	North Adriatic TSS SE	44°02'N 14°10'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED90	North Adriatic TSS NE	44°57'N 13°18'E	MED224	Nisos Kriti SW	35°15'N 23°19'E
MED94	Gulf of Trieste TSS	45°24'N 13°06'E	MED226	N. Strofades S	37°04'N 21°00'E
MED98	Off Crete S	34°36'N 24°57'E	MED227	Off N. Gavdhos SE	34°27'N 24°41'E
MED102	Nisos Psara E	38°37'N 25°44'E	MED229	Off Gulf of Trieste	45°33'N 13°25'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED234	Off Licosa W	40°14'N 14°45'E
MED118	Menorca E	40°02'N 05°02'E	MED235	O Keratokampos S	34°42'N 25°24'E
MED119	Ibiza NE	39°12'N 01°47'E	MED238	S.Antioco SW	38°51'N 08°08'E
MED128	Off N.Ikaria SW	37°25'N 25°55'E	MED246	Ak. Kafireas N	38°14'N 24°37'E
MED130	Off Nisos Lesvos NW	39°24'N 25°45'E	MED247	Off Elba W	42°46'N 09°59'E
MED132	Off N.Dhenousa E	37°07'N 26°07'E	MED252	Off Haifa	32°56'N 34°27'E
MED140	Off Nisos Andros N	38°05'N 24°54'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED141	Off Skopelos E	39°08'N 23°48'E	MED261	Port Said NE	31°48'N 32°46'E
MED142	Ak. Epanomis NW	40°25'N 22°47'E	MED262	Port Said N	31°35'N 32°24'E
MED143	Ak Megalo Emvolo W	40°30'N 22°47'E			

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From	Izmir	38°26'N 27°05'E	IZM	TR			NP48
To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	692		NP49
To	Alger	36°51'N 03°06'E	GHZ	DZ	1556		NP45
To	Beirut, Dora Terminal	33°55'N 35°16'E	BEY	LB	818		NP49
To	Cagliari	39°07'N 09°08'E	CAG	IT	1240		NP46
To	Damietta Port	31°36'N 31°47'E	DAM	EG	733		NP49
To	Gioia Tauro	38°27'N 15°53'E	GIT	IT	844		NP45
To	Haifa	32°52'N 34°58'E	HFA	IL	831		NP49
To	Leghorn	43°31'N 10°14'E	LIV	IT	1396		NP46
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	843		NP45
To	Salerno	40°38'N 14°43'E	SAL	IT	1018		NP46
To	Sete	43°23'N 03°46'E	SET	FR	1720		NP46
To	Valencia	39°25'N 00°17'W	VLC	ES	1767		NP45

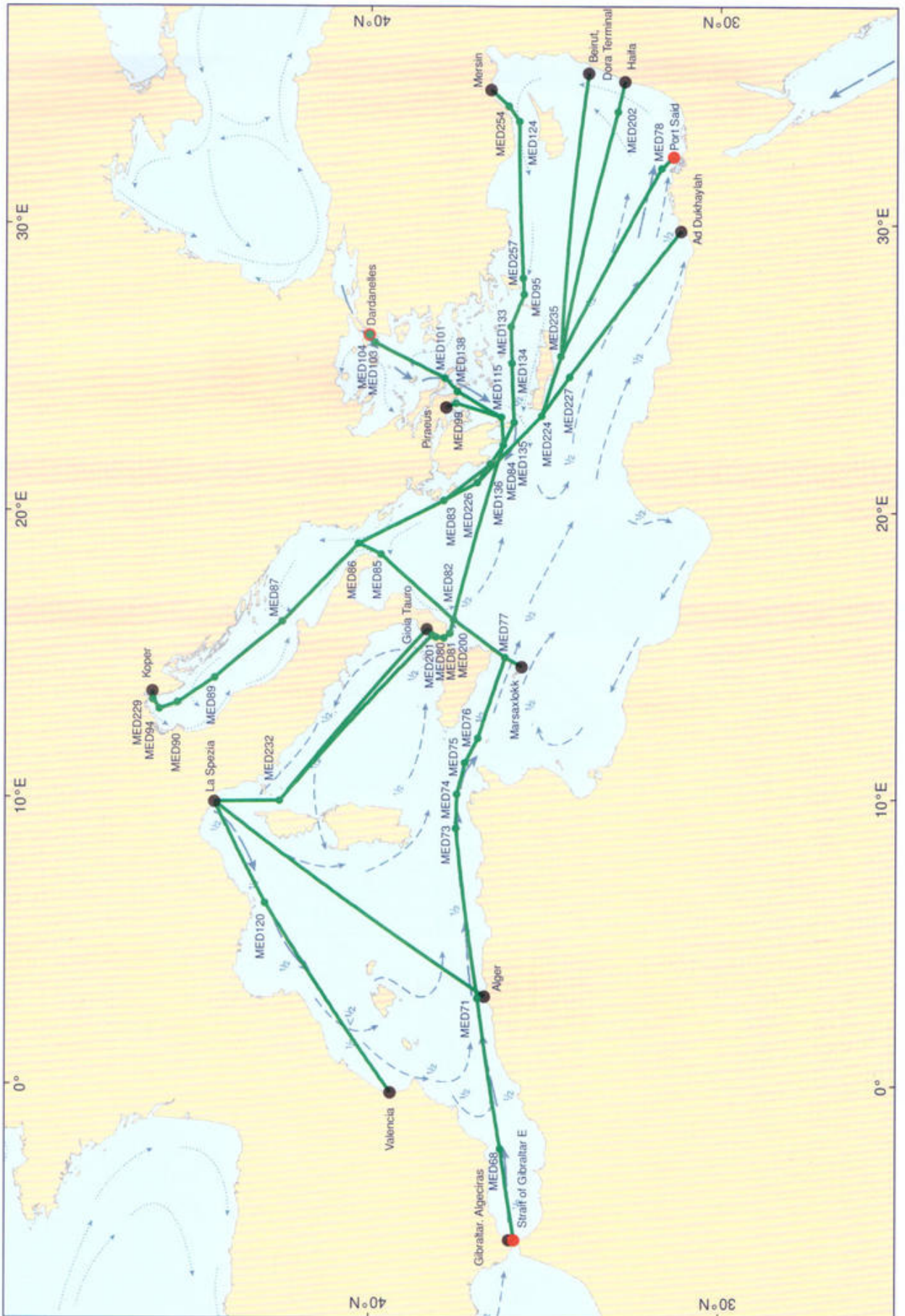
## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Izmir	38°26'N 27°05'E	Dardanelles	40°01'N 26°09'E	181	Marmara Denizi and Black Sea ports
	Izmir	38°26'N 27°05'E	Port Said	31°24'N 32°21'E	765	Suez Canal and Indian Ocean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED152	Komur NE	38°44'N 26°25'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED200	Messina SW	37°49'N 15°44'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED201	Straits of Messina	38°12'N 15°36'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED202	Off Haifa2	33°04'N 33°55'E
MED77	Malta Channel	36°17'N 14°54'E	MED203	Nisos Rodos S	35°50'N 27°42'E
MED78	Off Port Said	31°46'N 31°57'E	MED204	Off Cyprus W	34°39'N 30°21'E
MED80	Messina N	38°18'N 15°41'E	MED205	N.Amorgos NE	36°58'N 26°13'E
MED81	Messina S	37°59'N 15°34'E	MED206	N. Kandhilousa SW	36°25'N 26°51'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED218	Off Foca SW	38°37'N 26°40'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED219	Izmir Approach	38°26'N 26°52'E
MED95	N.Karpathos NE	35°46'N 27°33'E	MED220	Off Karaburun Yarimadası NW	38°43'N 26°07'E
MED99	Makronisos SE	37°38'N 24°10'E	MED221	Off Alger3	37°07'N 03°48'E
MED100	N.Kithnos NW	37°31'N 24°22'E	MED228	N.Karpathos N	36°01'N 27°17'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED232	Off Corse E	42°22'N 09°54'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED234	Off Licosa W	40°14'N 14°45'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED238	S.Antioco SW	38°51'N 08°08'E
MED119	Ibiza NE	39°12'N 01°47'E	MED239	Off Damietta Port NW	31°59'N 31°33'E
MED123	Off Cyprus S	34°24'N 32°55'E	MED247	Off Elba W	42°46'N 09°59'E
MED128	Off N.Ikaria SW	37°25'N 25°55'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED130	Off Nisos Lesvos NW	39°24'N 25°45'E	MED256	Off Izmir	38°25'N 26°58'E
MED132	Off N.Dhenousa E	37°07'N 26°07'E			

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From Koper	45°34'N 13°42'E	KOP	SI			NP47
To Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	1543		NP49
To Beirut, Dora Terminal	33°55'N 35°16'E	BEY	LB	1786		NP49
To Gibraltar, Algeciras	36°08'N 05°24'W	ALG	ES	2233		NP67
To Gioia Tauro	38°27'N 15°53'E	GIT	IT	931		NP45
To Haifa	32°52'N 34°58'E	HFA	IL	1780		NP49
To Marsaxlokk	35°48'N 14°34'E	MAR	MT	1017		NP45
To Mersin	36°43'N 34°40'E	MER	TR	1735		NP49
From La Spezia	44°02'N 09°52'E	SPE	IT			NP46
To Alger	36°51'N 03°06'E	GHZ	DZ	697		NP45
To Gioia Tauro	38°27'N 15°53'E	GIT	IT	610		NP45
To Piraeus	37°56'N 23°37'E	PIR	GR	1238		NP48
To Valencia	39°25'N 00°17'W	VLC	ES	714		NP45

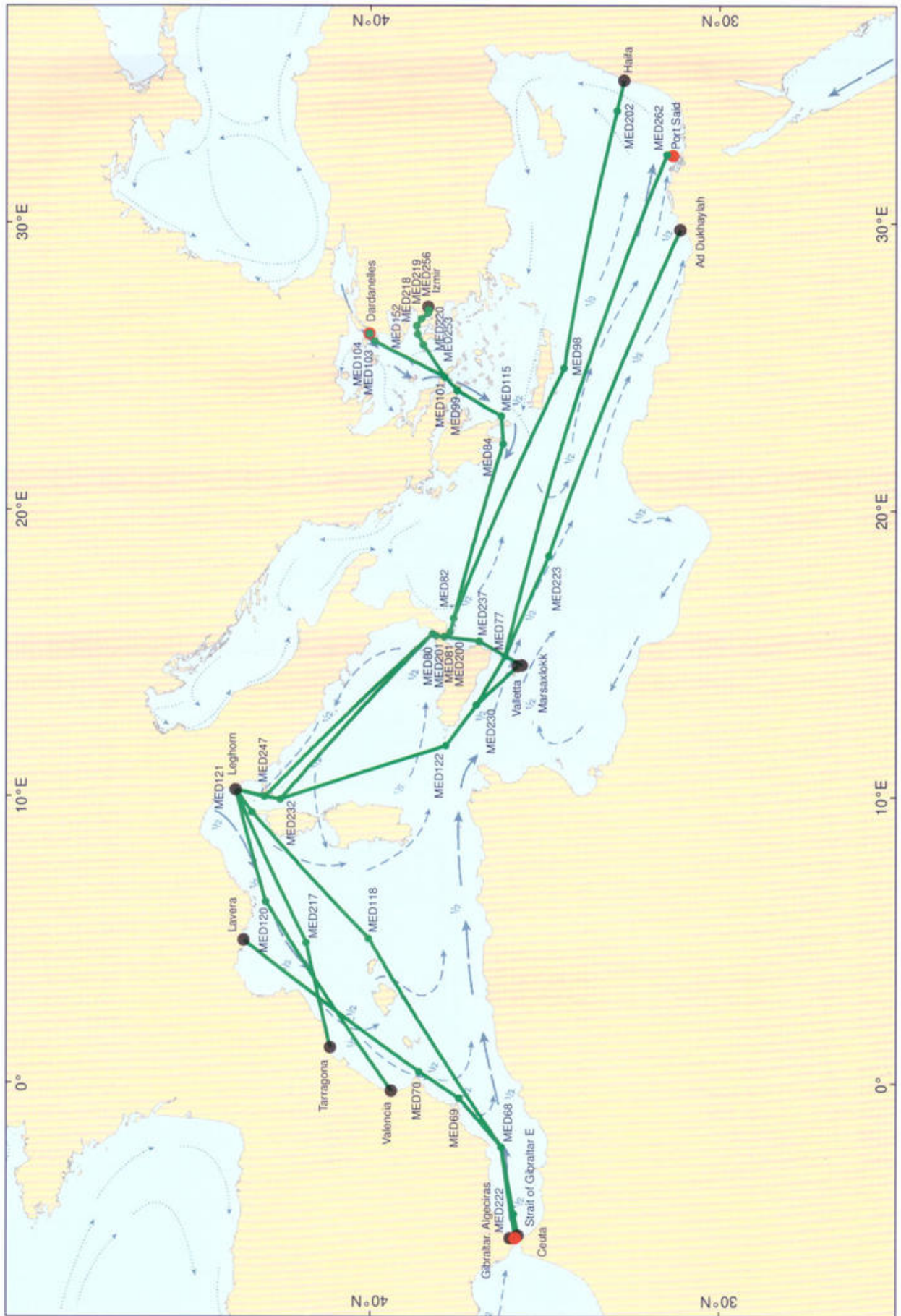
## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Koper	45°34'N 13°42'E	Dardanelles	40°01'N 26°09'E	1348	Marmara Denizi and Black Sea ports
Koper	45°34'N 13°42'E	Port Said	31°24'N 32°21'E	1672	Suez Canal and Indian Ocean ports
Koper	45°34'N 13°42'E	Strait of Gibraltar E	36°00'N 05°24'W	2233	North Atlantic ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED103	Off Bozcaada NW	39°53'N 25°52'E
MED71	Off Alger2	37°02'N 03°01'E	MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED115	Ak Maleas S	36°24'N 23°16'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED120	Off Toulon	42°44'N 06°20'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED124	Off Cyprus N	35°55'N 33°35'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED133	Off Nisidhes Sofrana NE	36°09'N 26°26'E
MED77	Malta Channel	36°17'N 14°54'E	MED134	Off Nisidhes Khristiana SW	36°07'N 25°09'E
MED78	Off Port Said	31°46'N 31°57'E	MED135	Off Nisos Kythira SE	36°03'N 23°06'E
MED80	Messina N	38°18'N 15°41'E	MED136	Off N.Sapientza SW	36°42'N 21°38'E
MED81	Messina S	37°59'N 15°34'E	MED138	Off Lavrion W	37°40'N 23°45'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED200	Messina SE	37°49'N 15°44'E
MED83	Zakynthos NW	38°00'N 20°22'E	MED201	Straits of Messina	38°12'N 15°36'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED202	Off Haifa2	33°04'N 33°55'E
MED85	Off C S Maria de Leuca	39°42'N 18°30'E	MED224	Nisos Kriti SW	35°15'N 23°19'E
MED86	Off C d'Otranto	40°18'N 18°52'E	MED226	N. Strofades S	37°04'N 21°00'E
MED87	Off O Palagruza	42°18'N 16°08'E	MED227	Off N. Gavdhos SE	34°27'N 24°41'E
MED89	North Adriatic TSS SE	44°02'N 14°10'E	MED229	Off Gulf of Trieste	45°33'N 13°25'E
MED90	North Adriatic TSS NE	44°57'N 13°18'E	MED232	Off Corse E	42°22'N 09°54'E
MED94	Gulf of Trieste TSS	45°24'N 13°06'E	MED235	O Keratokampos S	34°42'N 25°24'E
MED95	N.Karpathos NE	35°46'N 27°33'E	MED254	Off Mersin SW	36°13'N 34°07'E
MED99	Makronisos SE	37°38'N 24°10'E	MED257	Off Nisos Rodhos S	35°48'N 28°07'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E			

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From	Lavera	43°18'N 04°59'E	LAV	FR			NP46
To	Ceuta	35°55'N 05°19'W	CEU	ES	884		NP67
To	Gibraltar. Algeciras	36°08'N 05°24'W	ALG	ES	899		NP67
From	Leghorn	43°31'N 10°14'E	LIV	IT			NP46
To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	1652		NP49
To	Gibraltar. Algeciras	36°08'N 05°24'W			1140		NP67
To	Haifa	32°52'N 34°58'E	HFA	IL	1813		NP49
To	Izmir	38°26'N 27°05'E	IZM	TR	1396		NP48
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	756		NP45
To	Tarragona	41°04'N 01°14'E	TAR	ES	579		NP45
To	Valencia	39°25'N 00°17'W	VLC	ES	719		NP45
To	Valletta	35°56'N 14°33'E	MLA	MT	686		NP45

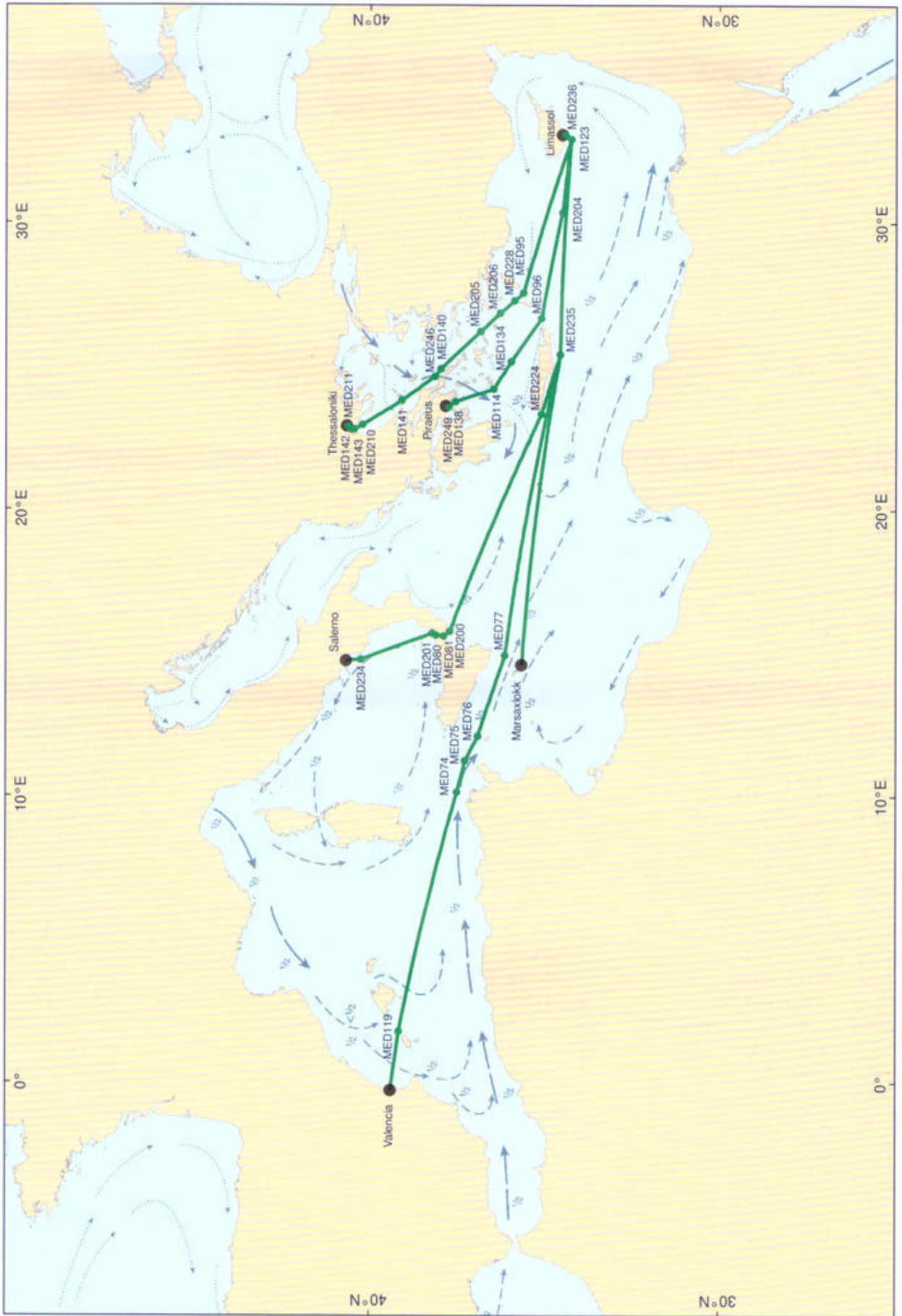
## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Lavera	43°18'N 04°59'E	Strait of Gibraltar E	36°00'N 05°24'W	899	North Europe, North and South Atlantic and Caribbean ports
Leghorn	43°31'N 10°14'E	Dardanelles	40°01'N 26°09'E	1406	Marmara Denizi and Black Sea ports
Leghorn	43°31'N 10°14'E	Port Said	31°24'N 32°21'E	1804	Suez Canal and Indian Ocean ports
Leghorn	43°31'N 10°14'E	Strait of Gibraltar E	36°00'N 05°24'W	1140	North Europe, North and South Atlantic and Caribbean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED152	Komur NE	38°44'N 26°25'E
MED69	Off Cape Palos	37°33'N 00°32'W	MED200	Messina SE	37°49'N 15°44'E
MED70	Off Cape La Nao	38°40'N 00°24'E	MED201	Straits of Messina	38°12'N 15°36'E
MED77	Malta Channel	36°17'N 14°54'E	MED202	Off Haifa2	33°04'N 33°55'E
MED80	Messina N	38°18'N 15°41'E	MED217	Off Palamos E	41°41'N 04°54'E
MED81	Messina S	37°59'N 15°34'E	MED218	Off Foca SW	38°37'N 26°40'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED219	Izmir Approach	38°26'N 26°52'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED98	Off Crete S	34°36'N 24°57'E	MED222	Alboran Sea1	36°02'N 04°33'W
MED99	Makronisos SE	37°38'N 24°10'E	MED223	Malta Ridge E	35°02'N 18°24'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED230	Terrible Bank E	37°05'N 13°12'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED232	Off Corse E	42°22'N 09°54'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED237	Murro di Porco E	37°01'N 15°25'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED247	Off Elba W	42°46'N 09°59'E
MED118	Menorca E	40°02'N 05°02'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED120	Off Toulon	42°44'N 06°20'E	MED256	Off Izmir	38°25'N 26°58'E
MED121	Corsica N	43°05'N 09°26'E	MED262	Port Said N	31°35'N 32°24'E
MED122	Sicily W	37°56'N 11°47'E			

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From	Limassol	34°39'N 33°04'E	LMS	CY			NP49
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	1129		NP45
To	Piraeus	37°56'N 23°37'E	PIR	GR	689		NP48
To	Salerno	40°38'N 14°43'E	SAL	IT	1331		NP46
To	Thessaloniki	40°37'N 22°55'E	SKG	GR	835		NP48
To	Valencia	39°25'N 00°17'W	VLC	ES	2060		NP45

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED74	Off Cap Blanc	37°37'N 10°08'E	MED143	Ak Megalo Emvolo W	40°30'N 22°47'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED200	Messina SE	37°49'N 15°44'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED201	Straits of Messina	38°12'N 15°36'E
MED77	Malta Channel	36°17'N 14°54'E	MED204	Off Cyprus W	34°39'N 30°21'E
MED80	Messina N	38°18'N 15°41'E	MED205	N.Amorgos NE	36°58'N 26°13'E
MED81	Messina S	37°59'N 15°34'E	MED206	N. Kandhilousa SW	36°25'N 26°51'E
MED95	N.Karpathos NE	35°46'N 27°33'E	MED210	Thermaikos Kolpos	40°12'N 22°56'E
MED96	Off Crete NE	35°15'N 26°40'E	MED211	Off Thessaloniki	40°35'N 22°54'E
MED114	Off N.Milos SW	36°36'N 24°12'E	MED224	Nisos Kriti SW	35°15'N 23°19'E
MED119	Ibiza NE	39°12'N 01°47'E	MED228	N.Karpathos N	36°01'N 27°17'E
MED123	Off Cyprus S	34°24'N 32°55'E	MED234	Off Licosa W	40°14'N 14°45'E
MED134	Off Nisidhes Khristiana SW	36°07'N 25°09'E	MED235	O Keratokampos S	34°42'N 25°24'E
MED138	Off Lavrion W	37°40'N 23°45'E	MED236	Off Limassol S	34°34'N 33°05'E
MED140	Off Nisos Andros N	38°05'N 24°54'E	MED246	Ak. Kafireas N	38°14'N 24°37'E
MED141	Off Skopelos E	39°08'N 23°48'E	MED249	Off Piraeus	37°51'N 23°35'E
MED142	Ak. Epanomis NW	40°25'N 22°47'E			

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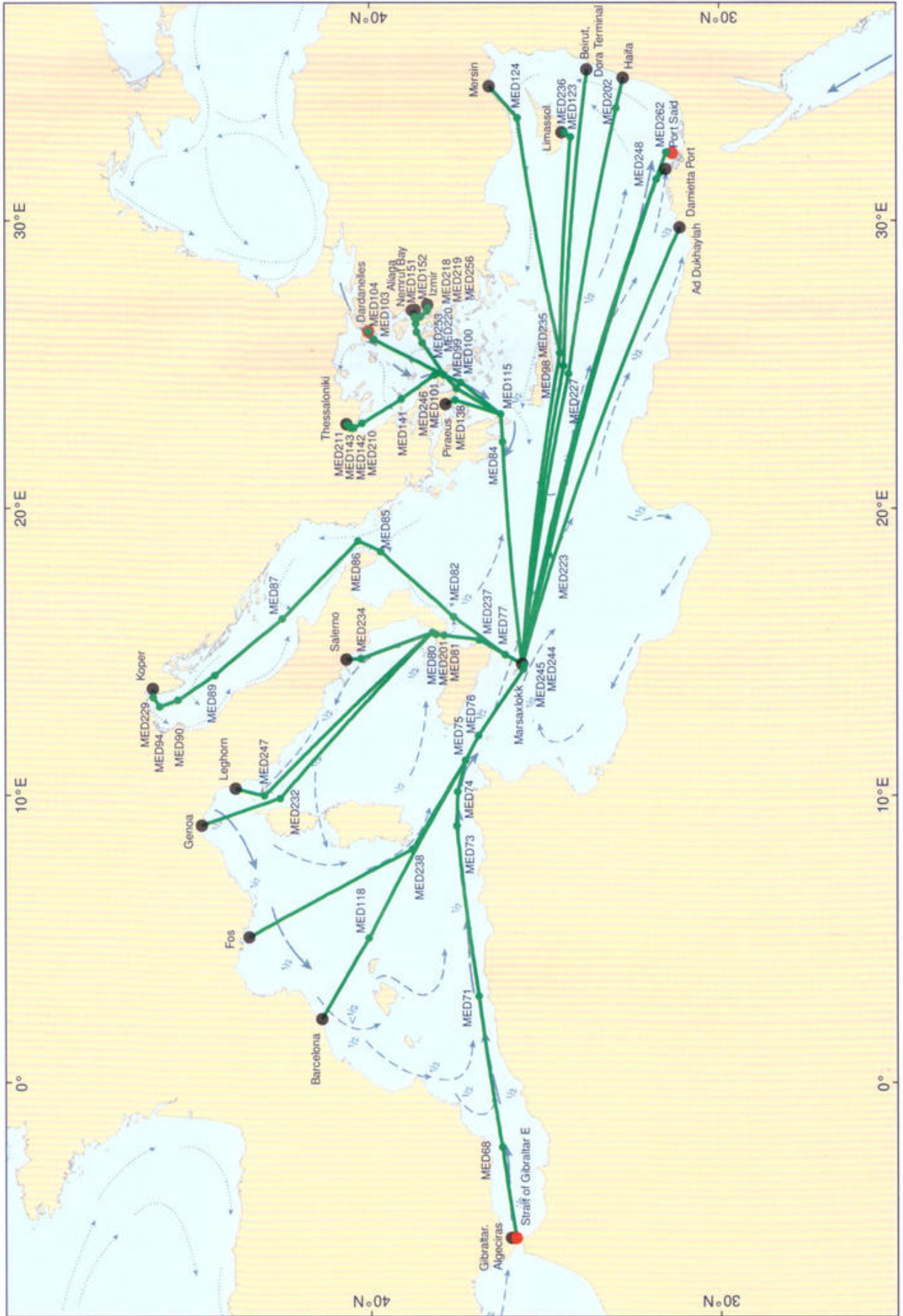
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From	Marsaxlokk	35°48'N 14°34'E	MAR	MT			NP45
To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	972		NP49
To	Aliaga	38°53'N 26°53'E	ALI	TR	822		NP48
To	Barcelona	41°18'N 02°12'E	BCN	ES	859		NP45
To	Beirut, Dora Terminal	33°55'N 35°16'E	BEY	LB	1252		NP49
To	Damietta Port	31°36'N 31°47'E	DAM	EG	1081		NP49
To	Fos	43°11'N 05°03'E	FOS	FR	844		NP46
To	Genoa	44°22'N 08°57'E	GOA	IT	849		NP46
To	Gibraltar, Algeciras	36°08'N 05°24'W	ALG	ES	1259		NP67
To	Haifa	32°52'N 34°58'E	HFA	IL	1244		NP49
To	Izmir	38°26'N 27°05'E	IZM	TR	843		NP48
To	Koper	45°34'N 13°42'E	KOP	SI	1017		NP47
To	Leghorn	43°31'N 10°14'E	LIV	IT	756		NP46
To	Limassol	34°39'N 33°04'E	LMS	CY	1129		NP49
To	Mersin	36°43'N 34°40'E	MER	TR	1244		NP49
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	822		NP48
To	Piraeus	37°56'N 23°37'E	PIR	GR	645		NP48
To	Salerno	40°38'N 14°43'E	SAL	IT	393		NP46
To	Thessaloniki	40°37'N 22°55'E	SKG	GR	910		NP48

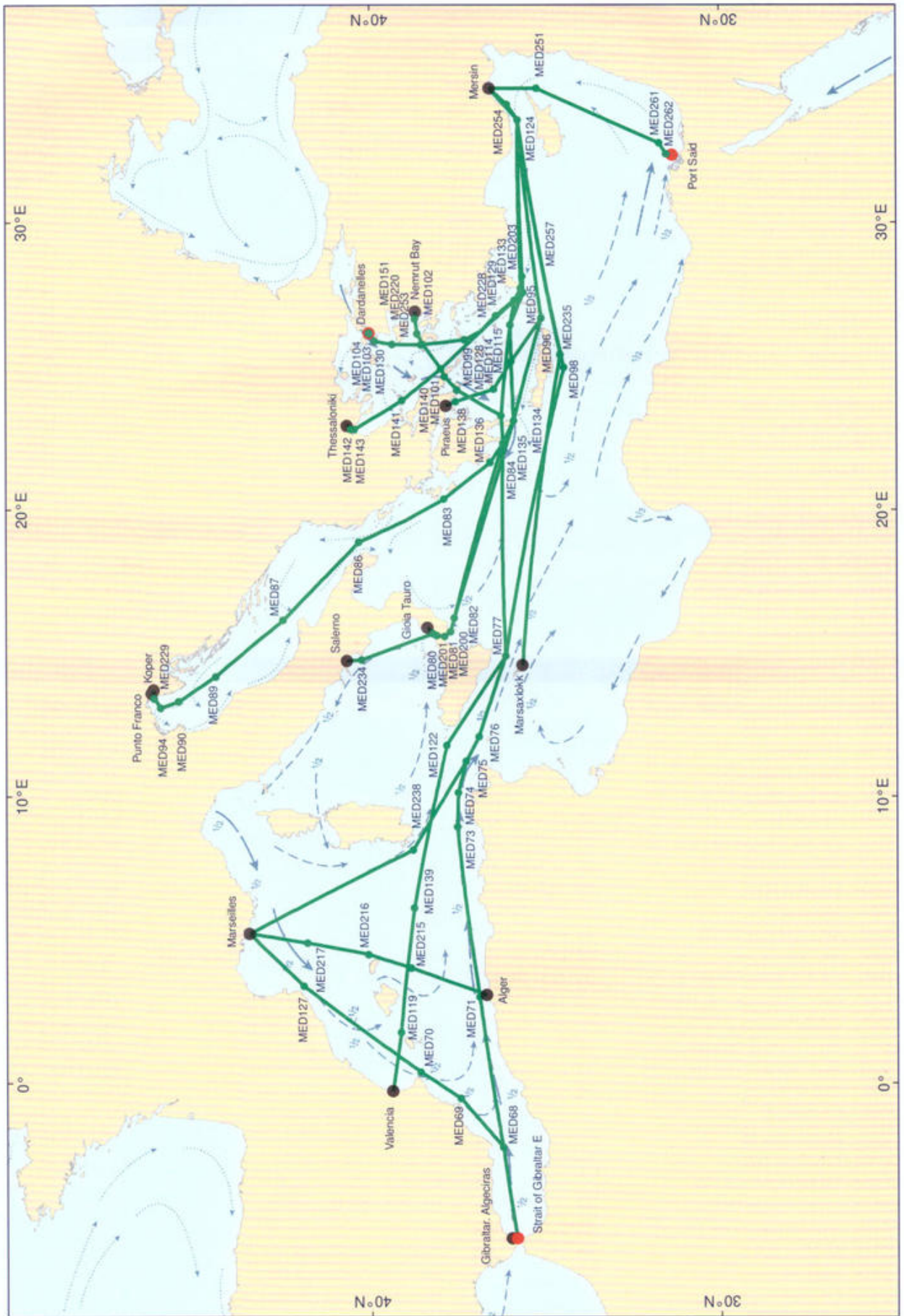
## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Marsaxlokk	35°48'N 14°34'E	Dardanelles	40°01'N 26°09'E	854	Marmara Denizi and Black Sea ports
Marsaxlokk	35°48'N 14°34'E	Port Said	31°24'N 32°21'E	1127	Suez Canal and Indian Ocean ports
Marsaxlokk	35°48'N 14°34'E	Strait of Gibraltar E	36°00'N 05°24'W	1259	North Europe and North Atlantic ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED142	Ak. Epanomis NW	40°25'N 22°47'E
MED71	Off Alger2	37°02'N 03°01'E	MED143	Ak Megalo Emvolo W	40°30'N 22°47'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED151	Aslan NW	38°47'N 26°38'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED152	Komur NE	38°44'N 26°25'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED201	Straits of Messina	38°12'N 15°36'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED202	Off Haifa2	33°04'N 33°55'E
MED77	Malta Channel	36°17'N 14°54'E	MED210	Thermaikos Kolpos	40°12'N 22°56'E
MED80	Messina N	38°18'N 15°41'E	MED211	Off Thessaloniki	40°35'N 22°54'E
MED81	Messina S	37°59'N 15°34'E	MED218	Off Foca SW	38°37'N 26°40'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED219	Izmir Approach	38°26'N 26°52'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED85	Off C S Maria de Leuca	39°42'N 18°30'E	MED223	Malta Ridge E	35°02'N 18°24'E
MED86	Off C d'Otranto	40°18'N 18°52'E	MED227	Off N. Gavdhos SE	34°27'N 24°41'E
MED87	Off O Palagruza	42°18'N 16°08'E	MED229	Off Gulf of Trieste	45°33'N 13°25'E
MED89	North Adriatic TSS SE	44°02'N 14°10'E	MED232	Off Corse E	42°22'N 09°54'E
MED90	North Adriatic TSS NE	44°57'N 13°18'E	MED234	Off Licosa W	40°14'N 14°45'E
MED94	Gulf of Trieste TSS	45°24'N 13°06'E	MED235	O Keratokampos S	34°42'N 25°24'E
MED98	Off Crete S	34°36'N 24°57'E	MED236	Off Limassol S	34°34'N 33°05'E
MED99	Makronisos SE	37°38'N 24°10'E	MED237	Murro di Porco E	37°01'N 15°25'E
MED100	N.Kithnos NW	37°31'N 24°22'E	MED238	S.Antioco SW	38°51'N 08°08'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED244	Marsaxlokk S	35°45'N 14°31'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED245	Off Malta S	35°46'N 14°24'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED246	Ak. Kafireas N	38°14'N 24°37'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED247	Off Elba W	42°46'N 09°59'E
MED118	Menorca E	40°02'N 05°02'E	MED248	Al Burullus NE	31°52'N 31°26'E
MED123	Off Cyprus S	34°24'N 32°55'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED124	Off Cyprus N	35°55'N 33°35'E	MED256	Off Izmir	38°25'N 26°58'E
MED138	Off Lavrion W	37°40'N 23°45'E	MED262	Port Said N	31°35'N 32°24'E
MED141	Off Skopelos E	39°08'N 23°48'E			

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From	Marseilles	43°11'N 05°13'E	MRS	FR			NP46
To	Alger	36°51'N 03°06'E	GHZ	DZ	513		NP45
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	1639		NP48
From	Mersin	36°43'N 34°40'E	MER	TR			NP49
To	Gibraltar. Algeciras	36°08'N 05°24'W			2490		NP67
To	Gioia Tauro	38°27'N 15°53'E	GIT	IT	1249		NP45
To	Koper	45°34'N 13°42'E	KOP	SI	1735		NP47
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	1244		NP45
To	Piraeus	37°56'N 23°37'E	PIR	GR	792		NP48
To	Punto Franco	45°37'N 13°35'E			1735		NP47
To	Salerno	40°38'N 14°43'E	SAL	IT	1413		NP46
To	Thessaloniki	40°37'N 22°55'E	SKG	GR	927		NP48
To	Valencia	39°25'N 00°17'W	VLC	ES	2191		NP45

## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Marseilles	43°11'N 05°13'E	Strait of Gibraltar E	36°00'N 05°24'W	890	North Atlantic ports
	Mersin	36°43'N 34°40'E	Dardanelles	40°01'N 26°09'E	820	Marmara Denizi and Black Sea ports
	Mersin	36°43'N 34°40'E	Port Said	31°24'N 32°21'E	420	Suez Canal and Indian Ocean ports
	Mersin	36°43'N 34°40'E	Strait of Gibraltar E	36°00'N 05°24'W	2490	North Europe, North and South Atlantic and Caribbean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED128	Off N.Ikaria SW	37°25'N 25°55'E
MED69	Off Cape Palos	37°33'N 00°32'W	MED129	Off N.Astipalaia SE	36°33'N 26°45'E
MED70	Off Cape La Nao	38°40'N 00°24'E	MED130	Off Nisos Lesvos NW	39°24'N 25°45'E
MED71	Off Alger2	37°02'N 03°01'E	MED133	Off Nisidhes Sofrana NE	36°09'N 26°26'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED134	Off Nisidhes Khristiana SW	36°07'N 25°09'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED135	Off Nisos Kythira SE	36°03'N 23°06'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED136	Off N.Sapientza SW	36°42'N 21°38'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED138	Off Lavrion W	37°40'N 23°45'E
MED77	Malta Channel	36°17'N 14°54'E	MED139	Balearic Plain	38°50'N 06°07'E
MED80	Messina N	38°18'N 15°41'E	MED140	Off Nisos Andros N	38°05'N 24°54'E
MED81	Messina S	37°59'N 15°34'E	MED141	Off Skopelos E	39°08'N 23°48'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED142	Ak. Epanomis NW	40°25'N 22°47'E
MED83	Zakynthos NW	38°00'N 20°22'E	MED143	Ak Megalo Emvolo W	40°30'N 22°47'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED151	Aslan NW	38°47'N 26°38'E
MED86	Off C d'Otranto	40°18'N 18°52'E	MED200	Messina SE	37°49'N 15°44'E
MED87	Off O Palagruza	42°18'N 16°08'E	MED201	Straits of Messina	38°12'N 15°36'E
MED89	North Adriatic TSS SE	44°02'N 14°10'E	MED203	Nisos Rodos S	35°50'N 27°42'E
MED90	North Adriatic TSS NE	44°57'N 13°18'E	MED215	Off Mallorca SE	38°56'N 04°02'E
MED94	Gulf of Trieste TSS	45°24'N 13°06'E	MED216	Off Menorca NE	40°05'N 04°30'E
MED95	N.Karpathos NE	35°46'N 27°33'E	MED217	Off Palamos E	41°41'N 04°54'E
MED96	Off Crete NE	35°15'N 26°40'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED98	Off Crete S	34°36'N 24°57'E	MED228	N.Karpathos N	36°01'N 27°17'E
MED99	Makronisos SE	37°38'N 24°10'E	MED229	Off Gulf of Trieste	45°33'N 13°25'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED234	Off Licosa W	40°14'N 14°45'E
MED102	Nisos Psara E	38°37'N 25°44'E	MED235	O Keratokampos S	34°42'N 25°24'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED238	S.Antioco SW	38°51'N 08°08'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED251	Off Cape Andreas	35°22'N 34°41'E
MED114	Off N.Milos SW	36°36'N 24°12'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED254	Off Mersin SW	36°13'N 34°07'E
MED119	Ibiza NE	39°12'N 01°47'E	MED257	Off Nisos Rodhos S	35°48'N 28°07'E
MED122	Sicily W	37°56'N 11°47'E	MED261	Port Said NE	31°48'N 32°46'E
MED124	Off Cyprus N	35°55'N 33°35'E	MED262	Port Said N	31°35'N 32°24'E
MED127	Palamos E	41°47'N 03°23'E			

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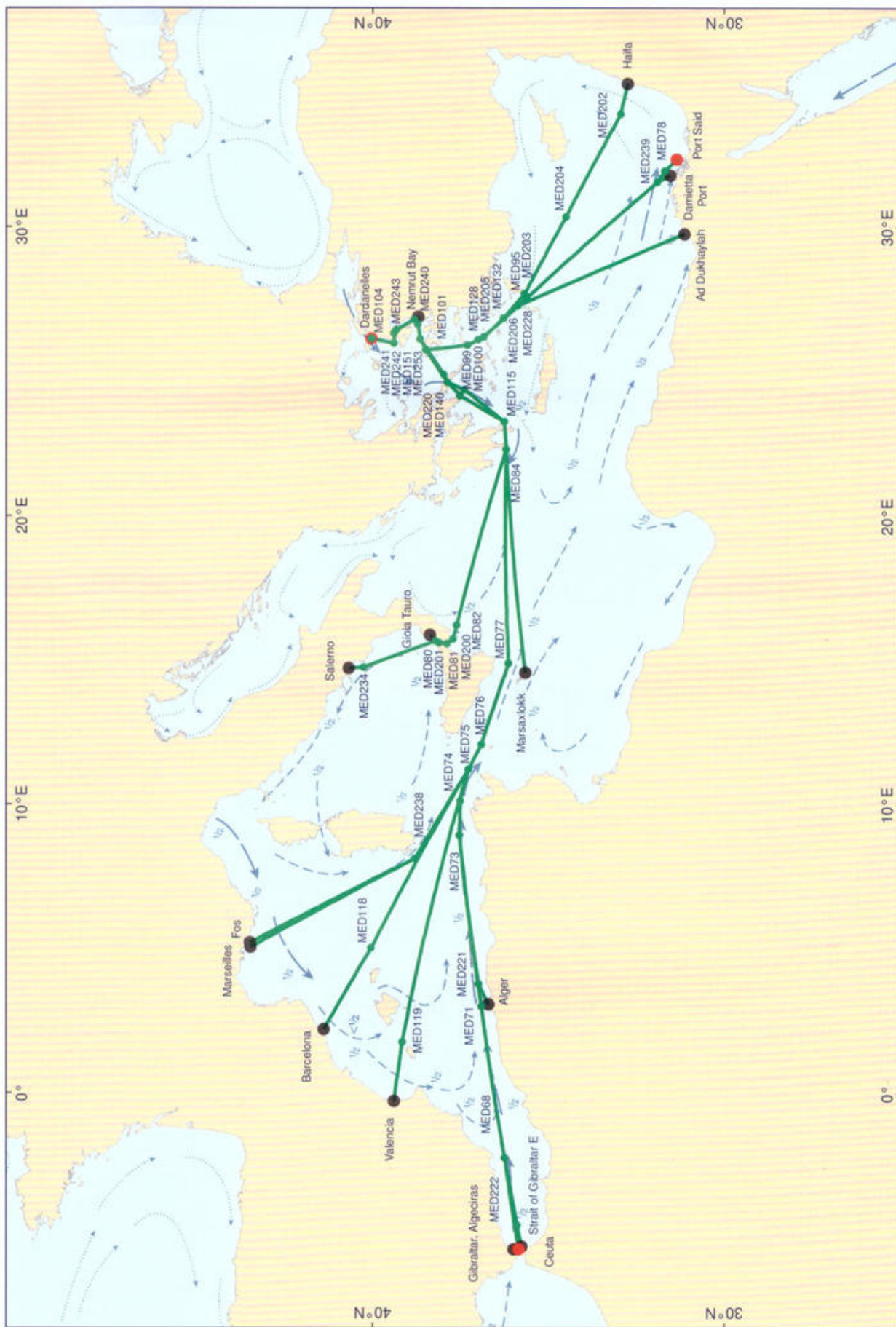
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	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Nemrut Bay	38°46'N 26°54'E	NEM	TR			NP48
To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	671		NP49
To	Alger	36°51'N 03°06'E	GHZ	DZ	1535		NP45
To	Barcelona	41°18'N 02°12'E	BCN	ES	1658		NP45
To	Ceuta	35°55'N 05°19'W	CEU	ES	2043		NP67
To	Damietta Port	31°36'N 31°47'E	DAM	EG	713		NP49
To	Fos	43°11'N 05°03'E	FOS	FR	1644		NP46
To	Gibraltar. Algeciras	36°08'N 05°24'W			2058		NP67
To	Gioia Tauro	38°27'N 15°53'E	GIT	IT	824		NP45
To	Haifa	32°52'N 34°58'E	HFA	IL	810		NP49
To	Marsaxiokk	35°48'N 14°34'E	MAR	MT	822		NP45
To	Marseilles	43°11'N 05°13'E	MRS	FR	1639		NP46
To	Salerno	40°38'N 14°43'E	SAL	IT	998		NP46
To	Valencia	39°25'N 00°17'W	VLC	ES	1746		NP45

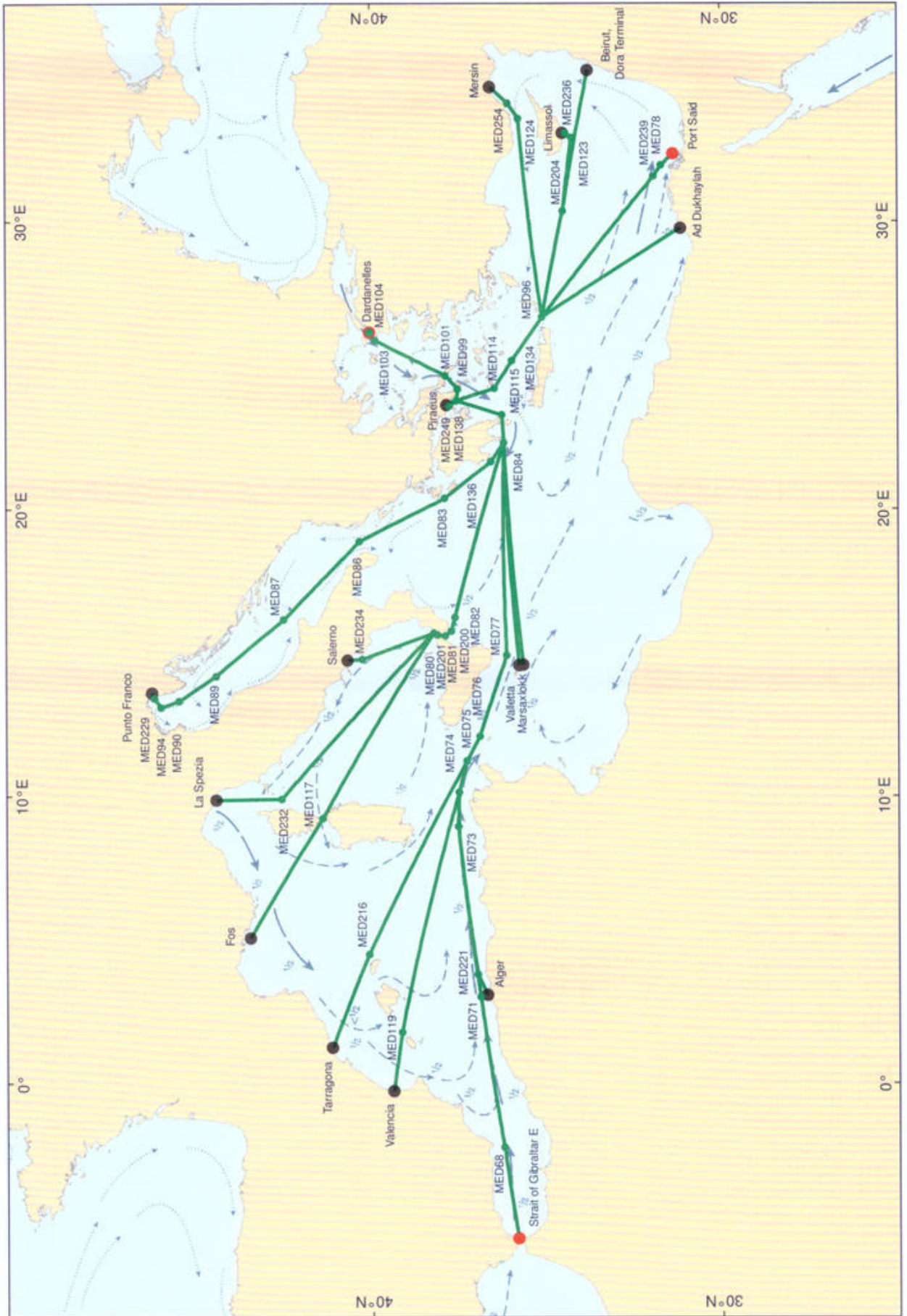
## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Nemrut Bay	38°46'N 26°54'E	Dardanelles	40°01'N 26°09'E	129	Marmara Denizi and Black Sea ports
	Nemrut Bay	38°46'N 26°54'E	Port Said	31°24'N 32°21'E	745	Suez Canal and Indian Ocean ports
	Nemrut Bay	38°46'N 26°54'E	Strait of Gibraltar E	36°00'N 05°24'W	2058	North Europe, North and South Atlantic and Caribbean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED140	Off Nisos Andros N	38°05'N 24°54'E
MED71	Off Alger2	37°02'N 03°01'E	MED151	Aslan NW	38°47'N 26°38'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED200	Messina SE	37°49'N 15°44'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED201	Straits of Messina	38°12'N 15°36'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED202	Off Haifa2	33°04'N 33°55'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED203	Nisos Rodos S	35°50'N 27°42'E
MED77	Malta Channel	36°17'N 14°54'E	MED204	Off Cyprus W	34°39'N 30°21'E
MED78	Off Port Said	31°46'N 31°57'E	MED205	N.Amorgos NE	36°58'N 26°13'E
MED80	Messina N	38°18'N 15°41'E	MED206	N. Kandhilousa SW	36°25'N 26°51'E
MED81	Messina S	37°59'N 15°34'E	MED220	Off Karaburun Yarimadası NW	38°43'N 26°07'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED221	Off Alger3	37°07'N 03°48'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED222	Alboran Sea1	36°02'N 04°33'W
MED95	N.Karpathos NE	35°46'N 27°33'E	MED228	N.Karpathos N	36°01'N 27°17'E
MED99	Makronisos SE	37°38'N 24°10'E	MED234	Off Licosa W	40°14'N 14°45'E
MED100	N.Kithnos NW	37°31'N 24°22'E	MED238	S.Antioco SW	38°51'N 08°08'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED239	Off Damietta Port NW	31°59'N 31°33'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED240	Off Aliaga	38°53'N 26°49'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED241	Off Tomari NE	39°22'N 26°27'E
MED118	Menorca E	40°02'N 05°02'E	MED242	Off Skamnia N	39°26'N 26°20'E
MED119	Ibiza NE	39°12'N 01°47'E	MED243	Off Babakale SW	39°26'N 25°59'E
MED128	Off N.Ikaria SW	37°25'N 25°55'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED132	Off N.Dhenousa E	37°07'N 26°07'E			

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## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Piraeus	37°56'N 23°37'E	PIR	GR			NP48
To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	630		NP49
To	Alger	36°51'N 03°06'E	GHZ	DZ	1358		NP45
To	Beirut, Dora Terminal	33°55'N 35°16'E	BEY	LB	810		NP49
To	Fos	43°11'N 05°03'E	FOS	FR	1376		NP46
To	La Spezia	44°02'N 09°52'E	SPE	IT	1238		NP46
To	Limassol	34°39'N 33°04'E	LMS	CY	689		NP49
To	Marsaxiokk	35°48'N 14°34'E	MAR	MT	645		NP45
To	Mersin	36°43'N 34°40'E	MER	TR	792		NP49
To	Punto Franco	45°37'N 13°35'E			1131		NP47
To	Salerno	40°38'N 14°43'E	SAL	IT	821		NP46
To	Tarragona	41°04'N 01°14'E	TAR	ES	1524		NP45
To	Valencia	39°25'N 00°17'W	VLC	ES	1569		NP45
To	Valletta	35°56'N 14°33'E	MLA	MT	646		NP45

## Port to Connector Routes

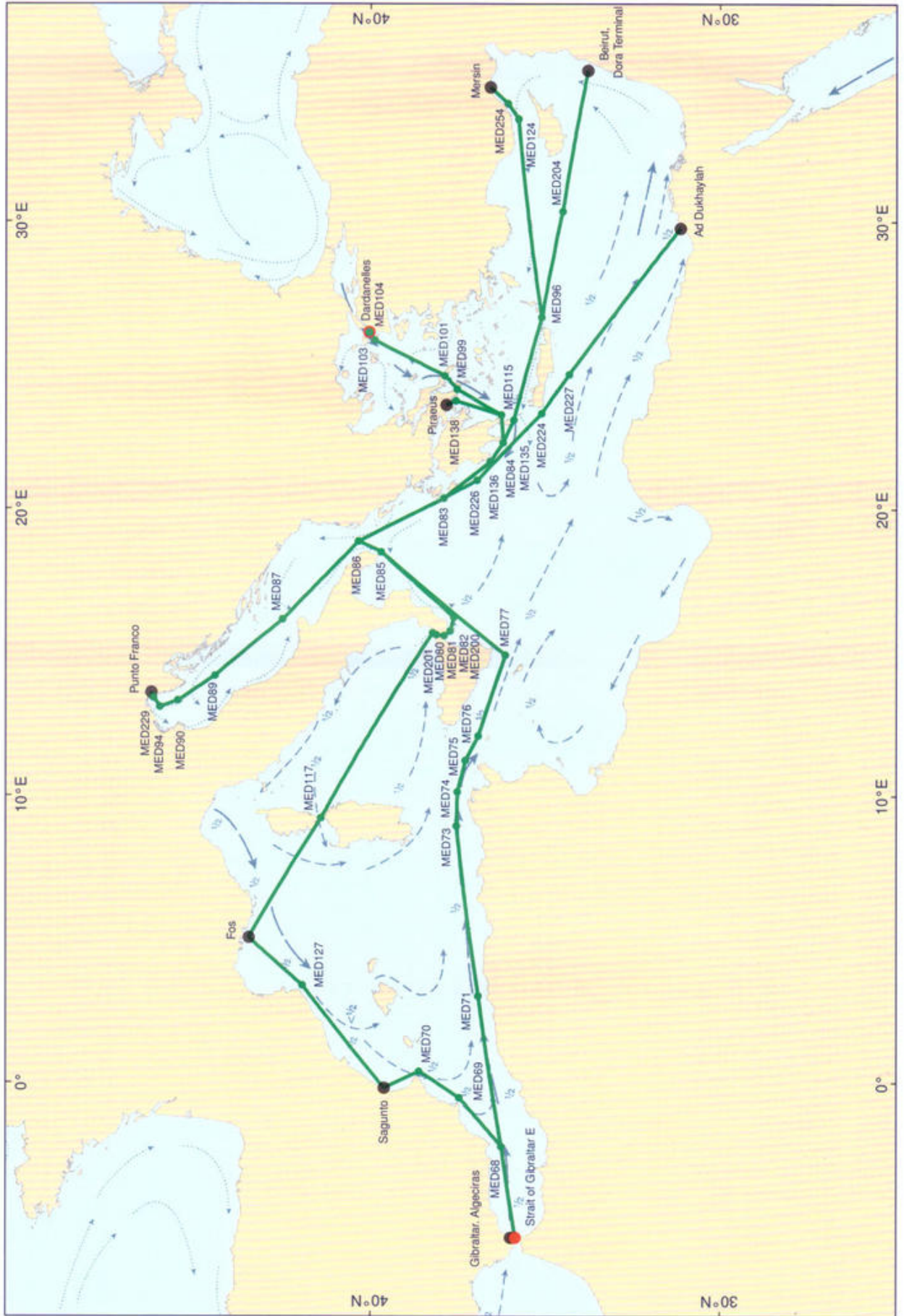
FROM	GP	TO	GP	LENGTH	FOR
Piraeus	37°56'N 23°37'E	Dardanelles	40°01'N 26°09'E	270	Marmara Denizi and Black Sea ports
Piraeus	37°56'N 23°37'E	Port Said	31°24'N 32°21'E	724	Suez Canal and Indian Ocean ports
Piraeus	37°56'N 23°37'E	Strait of Gibraltar E	36°00'N 05°24'W	1870	North Europe ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E
MED71	Off Alger2	37°02'N 03°01'E	MED114	Off N.Milos SW	36°36'N 24°12'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED115	Ak Maleas S	36°24'N 23°16'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED117	Corsica Channel	41°18'N 09°13'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED119	Ibiza NE	39°12'N 01°47'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED123	Off Cyprus S	34°24'N 32°55'E
MED77	Malta Channel	36°17'N 14°54'E	MED124	Off Cyprus N	35°55'N 33°35'E
MED78	Off Port Said	31°46'N 31°57'E	MED134	Off Nisidhes Khristiana SW	36°07'N 25°09'E
MED80	Messina N	38°18'N 15°41'E	MED136	Off N.Sapientza SW	36°42'N 21°38'E
MED81	Messina S	37°59'N 15°34'E	MED138	Off Lavrion W	37°40'N 23°45'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED200	Messina SE	37°49'N 15°44'E
MED83	Zakynthos NW	38°00'N 20°22'E	MED201	Straits of Messina	38°12'N 15°36'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED204	Off Cyprus W	34°39'N 30°21'E
MED86	Off C d'Otranto	40°18'N 18°52'E	MED216	Off Menorca NE	40°05'N 04°30'E
MED87	Off O Palagruza	42°18'N 16°08'E	MED221	Off Alger3	37°07'N 03°48'E
MED89	North Adriatic TSS SE	44°02'N 14°10'E	MED229	Off Gulf of Trieste	45°33'N 13°25'E
MED90	North Adriatic TSS NE	44°57'N 13°18'E	MED232	Off Corse E	42°22'N 09°54'E
MED94	Gulf of Trieste TSS	45°24'N 13°06'E	MED234	Off Licosa W	40°14'N 14°45'E
MED96	Off Crete NE	35°15'N 26°40'E	MED236	Off Limassol S	34°34'N 33°05'E
MED99	Makronisos SE	37°38'N 24°10'E	MED239	Off Damietta Port NW	31°59'N 31°33'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED249	Off Piraeus	37°51'N 23°35'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED254	Off Mersin SW	36°13'N 34°07'E

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## Punto Franco and Sagunto

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From	Punto Franco	45°37'N 13°35'E					NP47
To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	1538		NP49
To	Beirut, Dora Terminal	33°55'N 35°16'E	BEY	LB	1753		NP49
To	Fos	43°11'N 05°03'E	FOS	FR	1655		NP46
To	Gibraltar, Algeciras	36°08'N 05°24'W	ALG	ES	2228		NP67
To	Mersin	36°43'N 34°40'E	MER	TR	1735		NP49
To	Piraeus	37°56'N 23°37'E	PIR	GR	1131		NP48
From	Sagunto	39°37'N 00°12'W	SAG	ES			NP45
To	Fos	43°11'N 05°03'E	FOS	FR	425		NP46

## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Punto Franco	45°37'N 13°35'E	Dardanelles	40°01'N 26°09'E	1340	Marmara Denizi and Black Sea ports
	Punto Franco	45°37'N 13°35'E	Strait of Gibraltar E	36°00'N 05°24'W	2218	North Europe ports
	Sagunto	39°37'N 00°12'W	Strait of Gibraltar E	36°00'N 05°24'W	510	North Europe and North Atlantic ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED96	Off Crete NE	35°15'N 26°40'E
MED69	Off Cape Palos	37°33'N 00°32'W	MED99	Makronisos SE	37°38'N 24°10'E
MED70	Off Cape La Nao	38°40'N 00°24'E	MED101	Off Nisos Andros NW	37°58'N 24°38'E
MED71	Off Alger2	37°02'N 03°01'E	MED103	Off Bozcaada NW	39°53'N 25°52'E
MED73	Banc de Mazarilles	37°38'N 08°56'E	MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED115	Ak Maleas S	36°24'N 23°16'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED117	Corsica Channel	41°18'N 09°13'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED124	Off Cyprus N	35°55'N 33°35'E
MED77	Malta Channel	36°17'N 14°54'E	MED127	Palamos E	41°47'N 03°23'E
MED80	Messina N	38°18'N 15°41'E	MED135	Off Nisos Kythira SE	36°03'N 23°06'E
MED81	Messina S	37°59'N 15°34'E	MED136	Off N.Sapientza SW	36°42'N 21°38'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED138	Off Lavrion W	37°40'N 23°45'E
MED83	Zakynthos NW	38°00'N 20°22'E	MED200	Messina SE	37°49'N 15°44'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED201	Straits of Messina	38°12'N 15°36'E
MED85	Off C S Maria de Leuca	39°42'N 18°30'E	MED204	Off Cyprus W	34°39'N 30°21'E
MED86	Off C d'Otranto	40°18'N 18°52'E	MED224	Nisos Kriti SW	35°15'N 23°19'E
MED87	Off O Palagruza	42°18'N 16°08'E	MED226	N. Strofades S	37°04'N 21°00'E
MED89	North Adriatic TSS SE	44°02'N 14°10'E	MED227	Off N. Gavdhos SE	34°27'N 24°41'E
MED90	North Adriatic TSS NE	44°57'N 13°18'E	MED229	Off Gulf of Trieste	45°33'N 13°25'E
MED94	Gulf of Trieste TSS	45°24'N 13°06'E	MED254	Off Mersin SW	36°13'N 34°07'E

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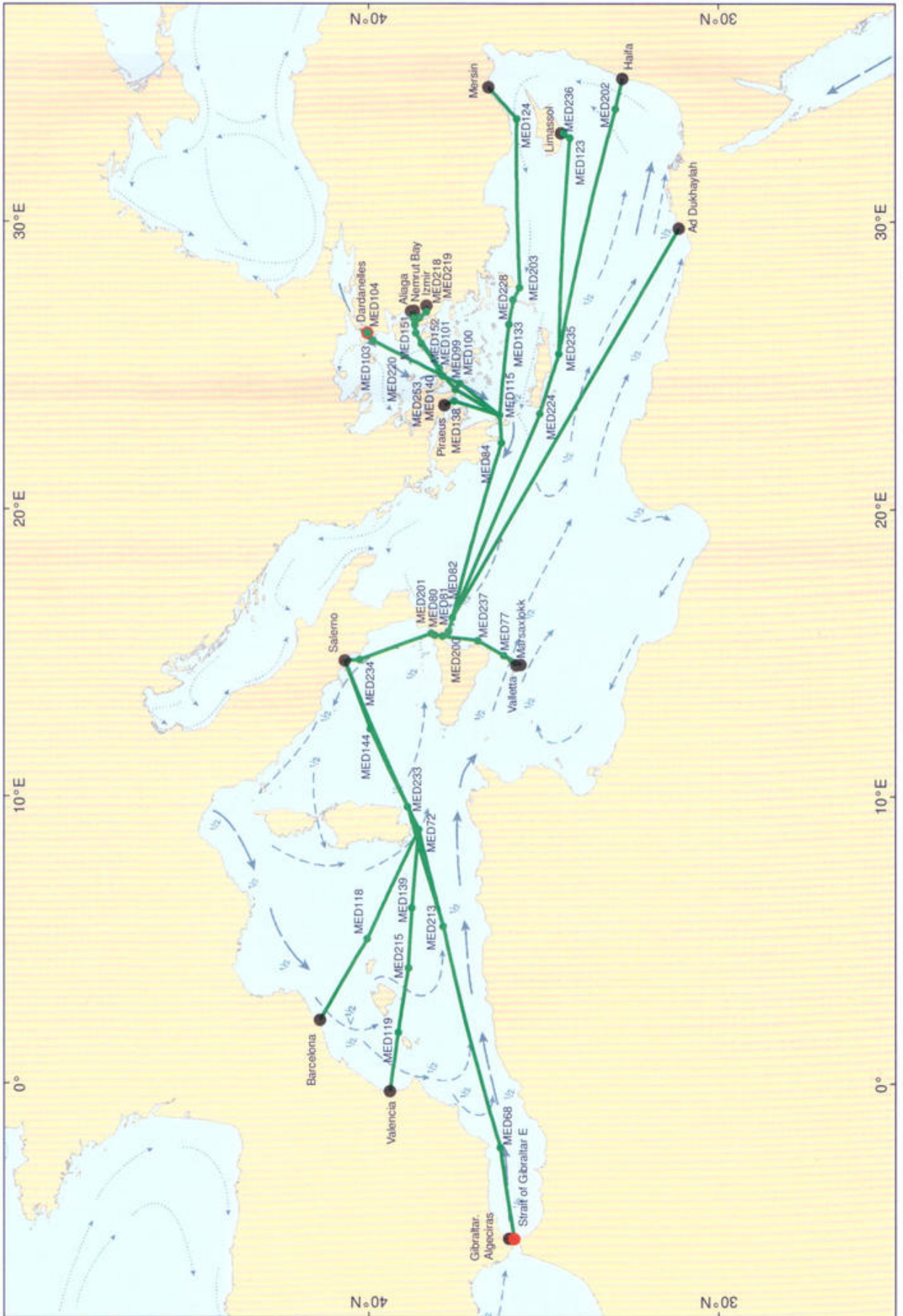
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To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	1204		NP49
To	Aliaga	38°53'N 26°53'E	ALI	TR	997		NP48
To	Barcelona	41°18'N 02°12'E	BCN	ES	835		NP45
To	Gibraltar, Algeciras	36°08'N 05°24'W	ALG	ES	1276		NP67
To	Haifa	32°52'N 34°58'E	HFA	IL	1447		NP49
To	Izmir	38°26'N 27°05'E	IZM	TR	1018		NP48
To	Limassol	34°39'N 33°04'E	LMS	CY	1331		NP49
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	393		NP45
To	Mersin	36°43'N 34°40'E	MER	TR	1413		NP49
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	998		NP48
To	Piraeus	37°56'N 23°37'E	PIR	GR	821		NP48
To	Valencia	39°25'N 00°17'W	VLC	ES	937		NP45
To	Valetta	35°56'N 14°33'E	MLA	MT	386		NP45

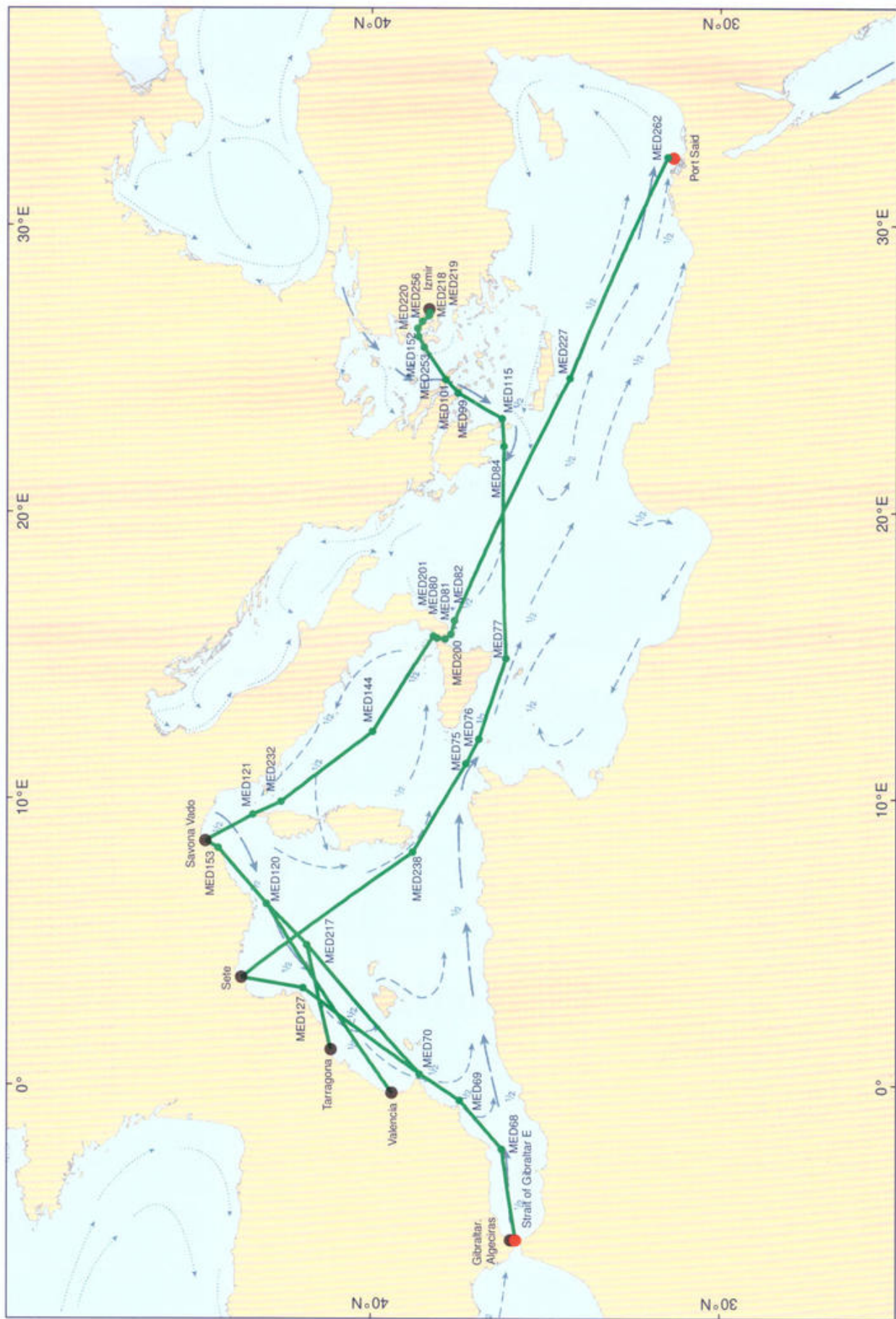
## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Salerno	40°38'N 14°43'E	Dardanelles	40°01'N 26°09'E	1029	Marmara Denizi and Black Sea ports
	Salerno	40°38'N 14°43'E	Strait of Gibraltar E	36°00'N 05°24'W	1276	North Europe and North Atlantic ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED144	Off Pta Della Guardia SW	39°57'N 12°21'E
MED72	Cape Spartivento	38°39'N 08°50'E	MED151	Aslan NW	38°47'N 26°38'E
MED77	Malta Channel	36°17'N 14°54'E	MED152	Komur NE	38°44'N 26°25'E
MED80	Messina N	38°18'N 15°41'E	MED200	Messina SE	37°49'N 15°44'E
MED81	Messina S	37°59'N 15°34'E	MED201	Straits of Messina	38°12'N 15°36'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED202	Off Haifa2	33°04'N 33°55'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED203	Nisos Rodos S	35°50'N 27°42'E
MED99	Makronisos SE	37°38'N 24°10'E	MED213	Off Algeria	37°58'N 05°28'E
MED100	N.Kithnos NW	37°31'N 24°22'E	MED215	Off Mallorca SE	38°56'N 04°02'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED218	Off Foca SW	38°37'N 26°40'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED219	Izmir Approach	38°26'N 26°52'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED224	Nisos Kriti SW	35°15'N 23°19'E
MED118	Menorca E	40°02'N 05°02'E	MED228	N.Karpathos N	36°01'N 27°17'E
MED119	Ibiza NE	39°12'N 01°47'E	MED233	Golfo di Cagliari E	38°57'N 09°38'E
MED123	Off Cyprus S	34°24'N 32°55'E	MED234	Off Licos W	40°14'N 14°45'E
MED124	Off Cyprus N	35°55'N 33°35'E	MED235	O Keratokampos S	34°42'N 25°24'E
MED133	Off Nisidhes Sofrana NE	36°09'N 26°26'E	MED236	Off Limassol S	34°34'N 33°05'E
MED138	Off Lavrion W	37°40'N 23°45'E	MED237	Murro di Porco E	37°01'N 15°25'E
MED139	Balearic Plain	38°50'N 06°07'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED140	Off Nisos Andros N	38°05'N 24°54'E			

# Savona Vado and Sete



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## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Savona-Vado	44°18'N 08°32'E	SVN	IT			NP46
To	Gibraltar. Algeciras	36°08'N 05°24'W	ALG	ES	1105		NP67
To	Tarragona	41°04'N 01°14'E	TAR	ES	532		NP45
To	Valencia	39°25'N 00°17'W	VLC	ES	662		NP45
From	Sete	43°23'N 03°46'E	SET	FR			NP46
To	Izmir	38°26'N 27°05'E	IZM	TR	1720		NP48

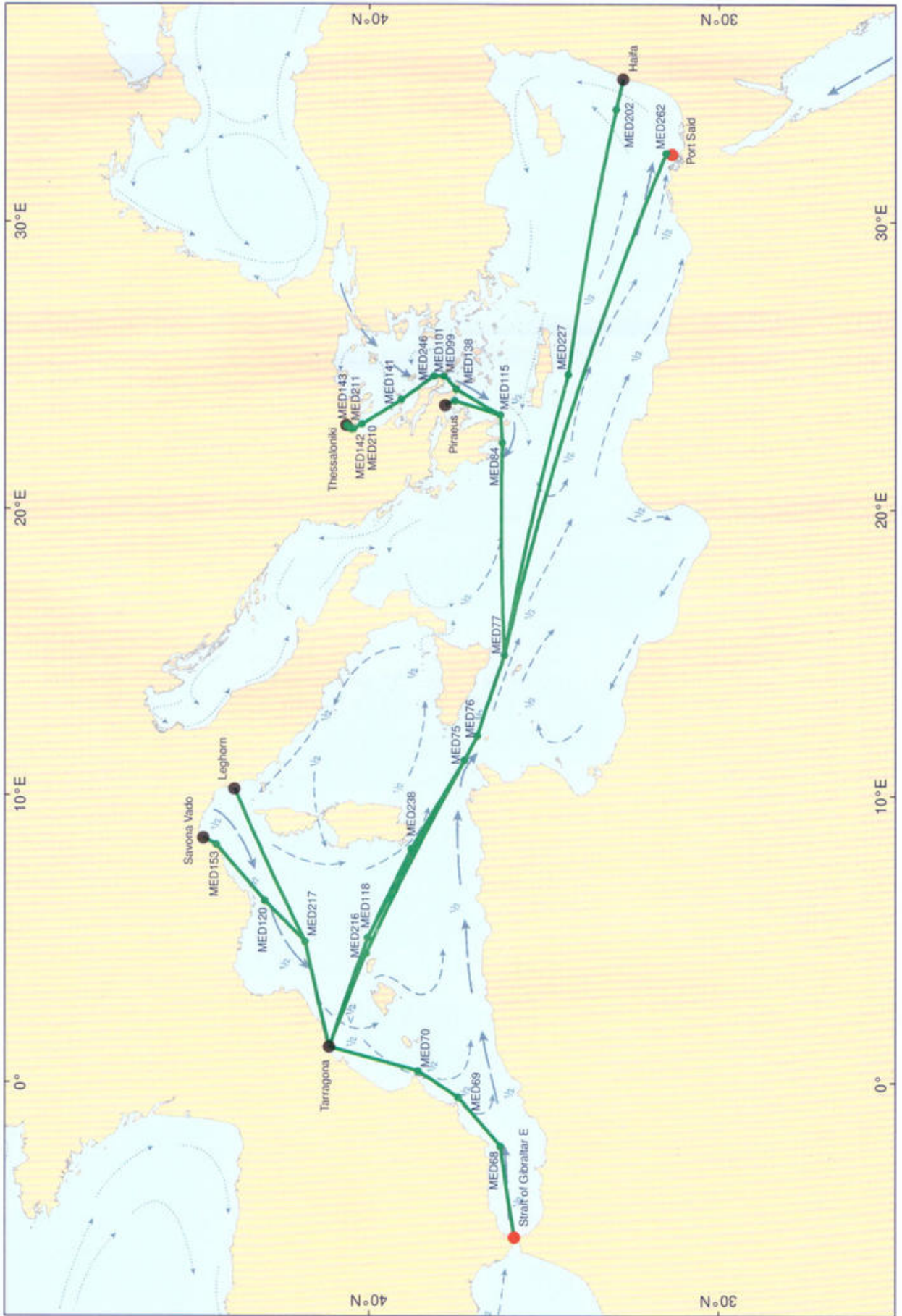
## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Savona-Vado	44°18'N 08°32'E	Port Said	31°24'N 32°21'E	1811	Suez Canal and Indian Ocean ports
	Savona-Vado	44°18'N 08°32'E	Strait of Gibraltar E	36°00'N 05°24'W	1105	North Europe, North and South Atlantic and Caribbean ports
	Sete	43°23'N 03°46'E	Strait of Gibraltar E	36°00'N 05°24'W	864	North Atlantic ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED144	Off Pta Della Guardia SW	39°57'N 12°21'E
MED69	Off Cape Palos	37°33'N 00°32'W	MED152	Komur NE	38°44'N 26°25'E
MED70	Off Cape La Nao	38°40'N 00°24'E	MED153	Alassio SE	43°58'N 08°17'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED200	Messina SE	37°49'N 15°44'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED201	Straits of Messina	38°12'N 15°36'E
MED77	Malta Channel	36°17'N 14°54'E	MED217	Off Palamos E	41°41'N 04°54'E
MED80	Messina N	38°18'N 15°41'E	MED218	Off Foca SW	38°37'N 26°40'E
MED81	Messina S	37°59'N 15°34'E	MED219	Izmir Approach	38°26'N 26°52'E
MED82	Off Cape Spartivento	37°43'N 16°13'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED227	Off N. Gavdhos SE	34°27'N 24°41'E
MED99	Makronisos SE	37°38'N 24°10'E	MED232	Off Corse E	42°22'N 09°54'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED238	S.Antioco SW	38°51'N 08°08'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED120	Off Toulon	42°44'N 06°20'E	MED256	Off Izmir	38°25'N 26°58'E
MED121	Corsica N	43°05'N 09°26'E	MED262	Port Said N	31°35'N 32°24'E
MED127	Palamos E	41°47'N 03°23'E			

## Tarragona



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## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Tarragona	41°04'N 01°14'E	TAR	ES			NP45
To	Haifa	32°52'N 34°58'E	HFA	IL	2133		NP49
To	Leghorn	43°31'N 10°14'E	LIV	IT	579		NP46
To	Piraeus	37°56'N 23°37'E	PIR	GR	1524		NP48
To	Savona Vado	44°18'N 08°32'E	SVN	IT	532		NP46
To	Thessaloniki	40°37'N 22°55'E	SKG	GR	1791		NP48

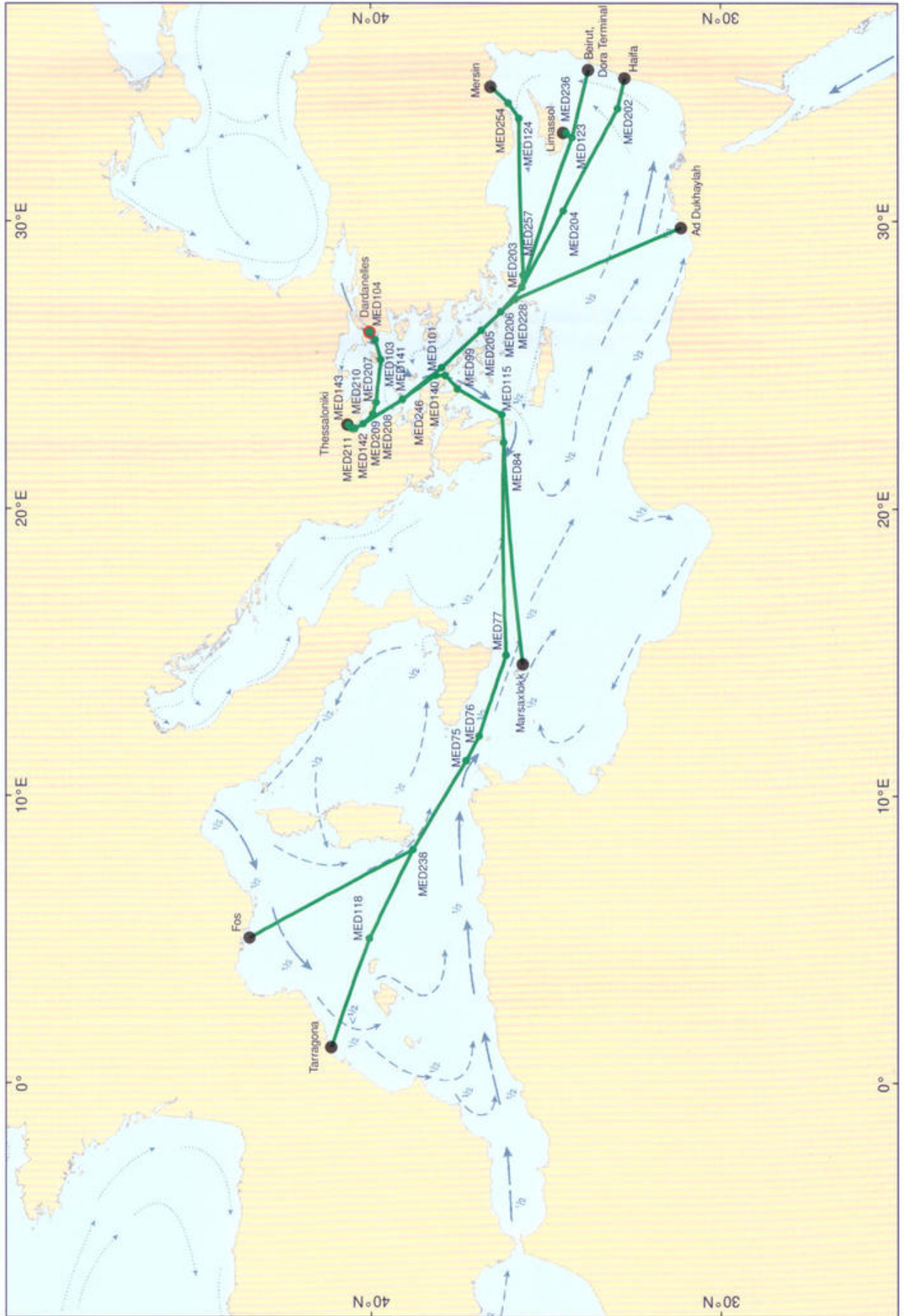
## Port to Connector Routes

FROM	TO	NAME	GP	LENGTH	FOR
Tarragona	41°04'N 01°14'E	Port Said	31°24'N 32°21'E	2019	Suez Canal and Indian Ocean ports
Tarragona	41°04'N 01°14'E	Strait of Gibraltar E	36°00'N 05°24'W	622	North Europe and North Atlantic ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED141	Off Skopelos E	39°08'N 23°48'E
MED69	Off Cape Palos	37°33'N 00°32'W	MED142	Ak. Epanomis NW	40°25'N 22°47'E
MED70	Off Cape La Nao	38°40'N 00°24'E	MED143	Ak Megalo Emvolo W	40°30'N 22°47'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED153	Alassio SE	43°58'N 08°17'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED202	Off Haifa2	33°04'N 33°55'E
MED77	Malta Channel	36°17'N 14°54'E	MED210	Thermaikos Kolpos	40°12'N 22°56'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED211	Off Thessaloniki	40°35'N 22°54'E
MED99	Makronisos SE	37°38'N 24°10'E	MED216	Off Menorca NE	40°05'N 04°30'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED217	Off Palamos E	41°41'N 04°54'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED227	Off N. Gavdhos SE	34°27'N 24°41'E
MED118	Menorca E	40°02'N 05°02'E	MED238	S.Antioco SW	38°51'N 08°08'E
MED120	Off Toulon	42°44'N 06°20'E	MED246	Ak. Kafireas N	38°14'N 24°37'E
MED138	Off Lavrion W	37°40'N 23°45'E	MED262	Port Said N	31°35'N 32°24'E

# Thessaloniki



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## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Thessaloniki	40°37'N 22°55'E	SKG	GR			NP48
To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	828		NP49
To	Beirut, Dora Terminal	33°55'N 35°16'E	BEY	LB	954		NP49
To	Fos	43°11'N 05°03'E	FOS	FR	1731		NP46
To	Haifa	32°52'N 34°58'E	HFA	IL	967		NP49
To	Limassol	34°39'N 33°04'E	LMS	CY	831		NP49
To	Marsaxlokk	35°48'N 14°34'E	MAR	MT	910		NP45
To	Mersin	36°43'N 34°40'E	MER	TR	921		NP49
To	Tarragona	41°04'N 01°14'E	TAR	ES	1791		NP45

## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Thessaloniki	40°37'N 22°55'E	Dardanelles	40°01'N 26°09'E	246	Marmara Denizi and Black Sea ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED75	Off Cap Bon	37°23'N 11°14'E	MED202	Off Haifa2	33°04'N 33°55'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED203	Nisos Rodos S	35°50'N 27°42'E
MED77	Malta Channel	36°17'N 14°54'E	MED204	Off Cyprus W	34°39'N 30°21'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED205	N.Amorgos NE	36°58'N 26°13'E
MED99	Makronisos SE	37°38'N 24°10'E	MED206	N. Kandhilousa SW	36°25'N 26°51'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED207	N.Limnos S	39°43'N 25°11'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED208	Off Paliouri	39°51'N 23°41'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED209	Kassandreia SW	39°56'N 23°17'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED210	Thermaikos Kolpos	40°12'N 22°56'E
MED118	Menorca E	40°02'N 05°02'E	MED211	Off Thessaloniki	40°35'N 22°54'E
MED123	Off Cyprus S	34°24'N 32°55'E	MED228	N.Karpathos N	36°01'N 27°17'E
MED124	Off Cyprus N	35°55'N 33°35'E	MED236	Off Limassol S	34°34'N 33°05'E
MED140	Off Nisos Andros N	38°05'N 24°54'E	MED238	S.Antioco SW	38°51'N 08°08'E
MED141	Off Skopelos E	39°08'N 23°48'E	MED246	Ak. Kafireas N	38°14'N 24°37'E
MED142	Ak. Epanomis NW	40°25'N 22°47'E	MED254	Off Mersin SW	36°13'N 34°07'E
MED143	Ak Megalo Emvolos W	40°30'N 22°47'E	MED257	Off Nisos Rodhos S	35°48'N 28°07'E



## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Valencia	39°25'N 00°17'E	VLC	ES			NP45
To	Ad Dukhaylah	31°11'N 29°46'E	EDK	EG	1910		NP49
To	Aliaga	38°53'N 26°53'E	ALI	TR	1745		NP48
To	Beirut, Dora Terminal	33°55'N 35°16'E	BEY	LB	2182		NP49
To	Cagliari	39°07'N 09°08'E	CAG	IT	593		NP46
To	Fos	43°11'N 05°03'E	FOS	FR	439		NP46
To	Gioia Tauro	38°27'N 15°53'E	GIT	IT	976		NP45
To	Haifa	32°52'N 34°58'E	HFA	IL	2177		NP49
To	Izmir	38°26'N 27°05'E	IZM	TR	1767		NP48
To	La Spezia	44°02'N 09°52'E	SPE	IT	714		NP46
To	Leghorn	43°31'N 10°14'E	LIV	IT	719		NP46
To	Limassol	34°39'N 33°04'E	LMS	CY	2060		NP49
To	Mersin	36°43'N 34°40'E	MER	TR	2191		NP49
To	Nemrut Bay	38°46'N 26°54'E	NEM	TR	1746		NP48
To	Piraeus	37°56'N 23°37'E	PIR	GR	1569		NP48
To	Salerno	40°38'N 14°43'E	SAL	IT	937		NP46
To	Savona Vado	44°18'N 08°32'E	SVN	IT	662		NP46

## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Valencia	39°25'N 00°17'E	Dardanelles	40°01'N 26°09'E	1777	Marmara Denizi and Black Sea ports
	Valencia	39°25'N 00°17'E	Port Said	31°24'N 32°21'E	2063	Suez Canal and Indian Ocean ports
	Valencia	39°25'N 00°17'E	Strait of Gibraltar E	36°00'N 05°24'W	500	North Europe, North and South Atlantic and Caribbean ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED68	Cabo de Gata	36°23'N 02°13'W	MED126	Off Palermo	38°25'N 12°56'E
MED69	Off Cape Palos	37°33'N 00°32'W	MED127	Palamos E	41°47'N 03°23'E
MED70	Off Cape La Nao	38°40'N 00°24'E	MED138	Off Lavrion W	37°40'N 23°45'E
MED72	Cape Spartivento	38°39'N 08°50'E	MED139	Balearic Plain	38°50'N 06°07'E
MED74	Off Cap Blanc	37°37'N 10°08'E	MED151	Aslan NW	38°47'N 26°38'E
MED75	Off Cap Bon	37°23'N 11°14'E	MED152	Komur NE	38°44'N 26°25'E
MED76	Off Isla Pantelleria	37°02'N 12°05'E	MED153	Alassio SE	43°58'N 08°17'E
MED77	Malta Channel	36°17'N 14°54'E	MED202	Off Haifa2	33°04'N 33°55'E
MED79	Off Cape Milaxxo	38°19'N 15°08'E	MED214	Cagliari S	38°56'N 09°07'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED215	Off Mallorca SE	38°56'N 04°02'E
MED98	Off Crete S	34°36'N 24°57'E	MED218	Off Foca SW	38°37'N 26°40'E
MED99	Makronisos SE	37°38'N 24°10'E	MED219	Izmir Approach	38°26'N 26°52'E
MED100	N.Kithnos NW	37°31'N 24°22'E	MED220	Off Karaburun Yarimadasi NW	38°43'N 26°07'E
MED101	Off Nisos Andros NW	37°58'N 24°38'E	MED223	Malta Ridge E	35°02'N 18°24'E
MED103	Off Bozcaada NW	39°53'N 25°52'E	MED227	Off N. Gavdhos SE	34°27'N 24°41'E
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED235	O Keratokampos S	34°42'N 25°24'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED236	Off Limassol S	34°34'N 33°05'E
MED119	Ibiza NE	39°12'N 01°47'E	MED253	Ak. Ag Nikolaos W	38°34'N 25°45'E
MED120	Off Toulon	42°44'N 06°20'E	MED254	Off Mersin SW	36°13'N 34°07'E
MED122	Sicily W	37°56'N 11°47'E	MED256	Off Izmir	38°25'N 26°58'E
MED123	Off Cyprus S	34°24'N 32°55'E	MED262	Port Said N	31°35'N 32°24'E
MED124	Off Cyprus N	35°55'N 33°35'E			

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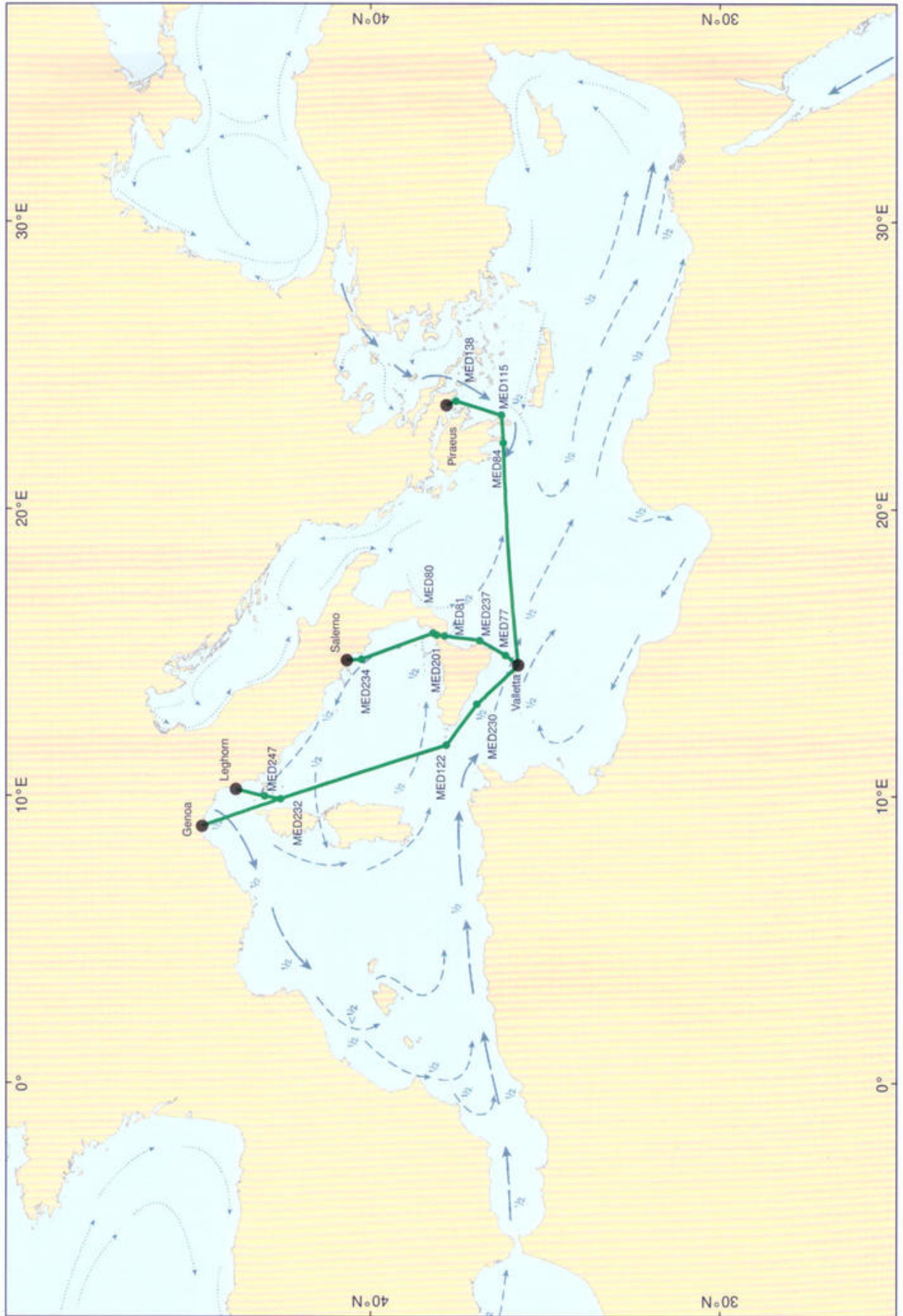
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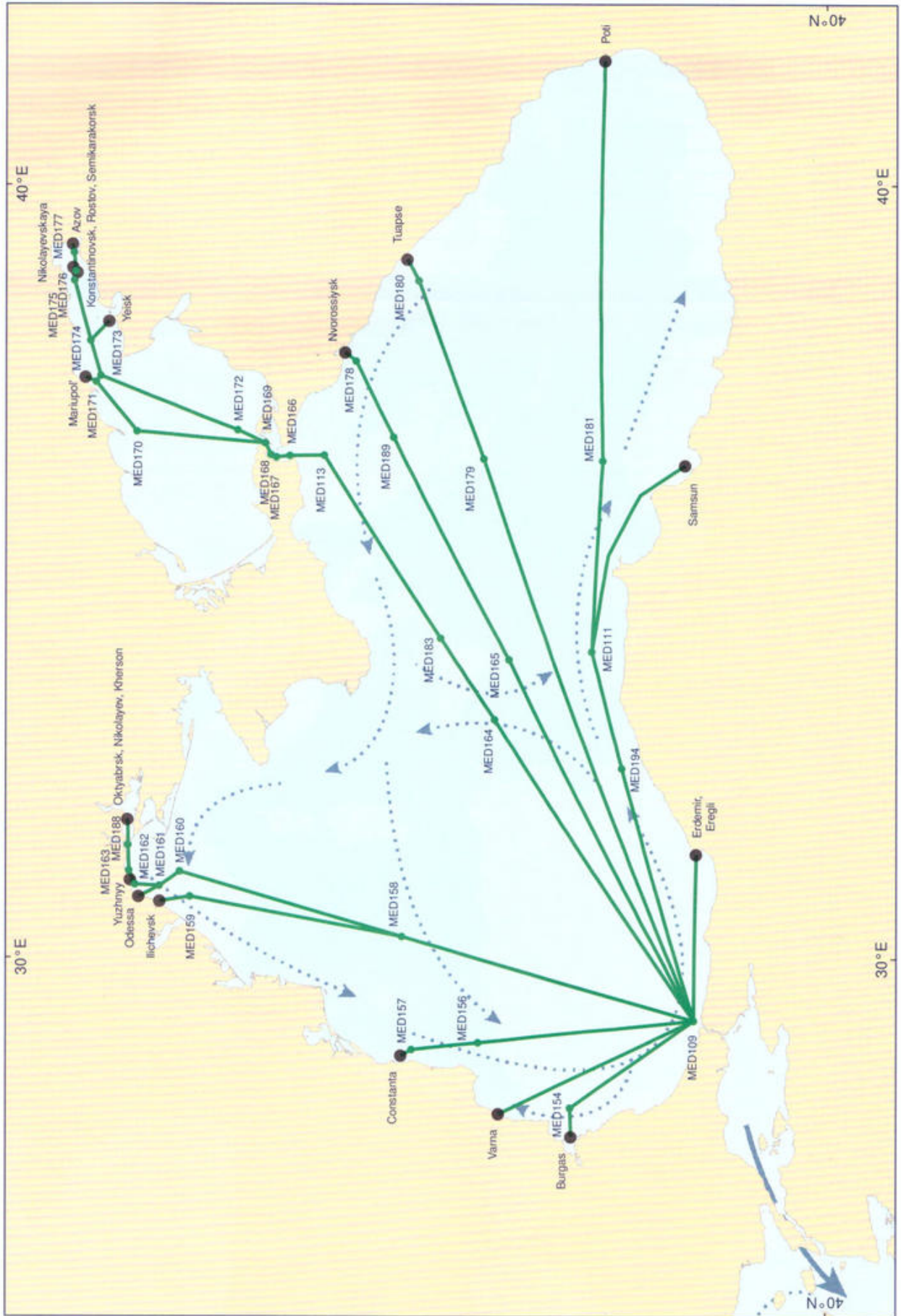
## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Valletta	35°56'N 14°33'E	MLA	MT			NP45
To	Genoa	44°22'N 08°57'E	GOA	IT	765		NP46
To	Leghorn	43°31'N 10°14'E	LIV	IT	686		NP46
To	Piraeus	37°56'N 23°37'E	PIR	GR	646		NP48
To	Salerno	40°38'N 14°43'E	SAL	IT	386		NP46

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED77	Malta Channel	36°17'N 14°54'E	MED201	Straits of Messina	38°12'N 15°36'E
MED80	Messina N	38°18'N 15°41'E	MED230	Terrible Bank E	37°05'N 13°12'E
MED81	Messina S	37°59'N 15°34'E	MED232	Off Corse E	42°22'N 09°54'E
MED84	Ak. Tainaro SW	36°21'N 22°18'E	MED234	Off Licosa W	40°14'N 14°45'E
MED115	Ak Maleas S	36°24'N 23°16'E	MED237	Murro di Porco E	37°01'N 15°25'E
MED122	Sicily W	37°56'N 11°47'E	MED247	Off Elba W	42°46'N 09°59'E
MED138	Off Lavrion W	37°40'N 23°45'E			

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	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Istanbul N	41°18'N 29°11'E					NP24
To	Azov	47°05'N 39°14'E	AZO	RU	821		NP24
To	Burgas	42°29'N 27°41'E	BOJ	BG	140		NP24
To	Constanta	44°06'N 28°44'E	CND	RO	230		NP24
To	Erdemir, Ereğli	41°17'N 31°20'E			129		NP24
To	Ilichevsk	46°18'N 30°44'E	ILK	UA	428		NP24
To	Konstantinovsk, Rostov, Semikarakorsk	47°03'N 38°52'E			799		NP24
To	Mariupol'	46°58'N 37°31'E	MPW	UA	736		NP24
To	Nikolayevskaya	47°05'N 38°56'E			804		NP24
To	Novorossiysk, Sheskhari	44°37'N 37°50'E			587		NP24
To	Odessa	46°30'N 30°47'E	ODS	UA	454		NP24
To	Oktyabrsk, Nikolayev, Kherson	46°36'N 31°47'E			506		NP24
To	Poti	42°10'N 41°37'E	PTI	GE	757		NP24
To	Samsun	41°24'N 36°22'E	SSX	TR	469		NP24
To	Tuapse	44°03'N 39°02'E	TUA	RU	633		NP24
To	Varna	43°11'N 27°59'E	VAR	BG	169		NP24
To	Yeisk	46°46'N 38°14'E	YEY	RU	765		NP24
To	Yuzhnyy	46°34'N 31°00'E			460		NP24

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED109	Istanbul N	41°18'N 29°11'E	MED169	Kerch Strait N	45°21'N 36°39'E
MED111	Off Inebolu	42°17'N 33°58'E	MED170	Berdyansk S	46°31'N 36°48'E
MED113	Off Mys Takyl	44°49'N 36°30'E	MED171	Mariupol S	46°53'N 37°27'E
MED154	Burgas E	42°30'N 28°03'E	MED172	Sea of Azov Entrance	45°37'N 36°42'E
MED156	Varna NE	43°22'N 28°54'E	MED173	Off Mariupol S	46°50'N 37°31'E
MED157	Constanta S	44°00'N 28°49'E	MED174	Dolzhanskaya N	46°56'N 37°59'E
MED158	Constanta E	44°05'N 30°16'E	MED175	Nikolayevskaya W	47°04'N 38°46'E
MED159	Ilichevsk S	46°02'N 30°47'E	MED176	Off Semikarakorsk	47°04'N 38°53'E
MED160	Ilichevsk SE	46°08'N 31°07'E	MED177	Off Azov	47°05'N 39°07'E
MED161	Ilichevsk E	46°18'N 30°55'E	MED178	Novorossiysk S	44°31'N 37°43'E
MED162	Odessa E	46°32'N 30°57'E	MED179	Black Sea3	43°19'N 36°28'E
MED163	Yuzhnyy E	46°35'N 31°07'E	MED180	Off Tuapse1	43°56'N 38°46'E
MED164	Black Sea1	43°13'N 33°05'E	MED181	Samsun N	42°11'N 36°26'E
MED165	Black Sea2	43°05'N 33°51'E	MED183	Yalta S	43°44'N 34°08'E
MED166	Kerch Strait S	45°08'N 36°30'E	MED188	Kherson W	46°35'N 31°27'E
MED167	Kerch Strait	45°15'N 36°29'E	MED189	Novorossiysk SW	44°10'N 36°44'E
MED168	Kerch Yenikal Channel	45°18'N 36°30'E	MED194	Amasra N	42°00'N 32°27'E

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From	Burgas	42°29'N 27°41'E	BOJ	BG			NP24
To	Konstantinovsk	47°03'N 38°52'E			846		NP24
To	Novorossiysk	44°37'N 37°50'E	NVS	RU	639		NP24
To	Poti	42°10'N 41°37'E	PTI	GE	837		NP24
To	Varna	43°11'N 27°59'E	VAR	BG	64		NP24
From	Constanta	44°06'N 28°44'E	CND	RO			NP24
To	Ilichevsk	46°18'N 30°44'E	ILK	UA	241		NP24
To	Kherson	46°36'N 31°47'E	KHE	UA	299		NP24
To	Konstantinovsk	47°03'N 38°52'E			749		NP24
To	Novorossiysk	44°37'N 37°50'E	NVS	RU	558		NP24
To	Odessa	46°30'N 30°47'E	ODS	UA	260		NP24
To	Yuzhnyy	46°34'N 31°00'E			266		NP24
From	Eregli	41°17'N 31°20'E	ERE	TR			NP24
To	Constanta	44°06'N 28°44'E	CND	RO	278		NP24
To	Novorossiysk	44°37'N 37°50'E	NVS	RU	478		NP24
To	Yuzhnyy	46°34'N 31°00'E			446		NP24
From	Novorossiysk	44°37'N 37°50'E	NVS	RU			NP24
To	Konstantinovsk	47°03'N 38°52'E			348		NP24
From	Odessa	46°30'N 30°47'E	ODS	UA			NP24
To	Konstantinovsk	47°03'N 38°52'E			713		NP24
To	Novorossiysk	44°37'N 37°50'E	NVS	RU	522		NP24
From	Poti	42°10'N 41°37'E	PTI	GE			NP24
To	Konstantinovsk	47°03'N 38°52'E			650		NP24
To	Yuzhnyy	46°34'N 31°00'E			774		NP24
From	Samsun	41°24'N 36°22'E	SSX	TR			NP24
To	Konstantinovsk	47°03'N 38°52'E			555		NP24
To	Novorossiysk	44°37'N 37°50'E	NVS	RU	278		NP24
To	Tuapse	44°03'N 39°02'E	TUA	RU	269		NP24
To	Yuzhnyy	46°34'N 31°00'E			548		NP24
From	Tuapse	44°03'N 39°02'E	TUA	RU			NP24
To	Konstantinovsk	47°03'N 38°52'E			426		NP24
To	Novorossiysk	44°37'N 37°50'E	NVS	RU	88		NP24
From	Varna	43°11'N 27°59'E	VAR	BG			NP24
To	Konstantinovsk	47°03'N 38°52'E			804		NP24

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED110	Off Mys Ayya	44°16'N 33°28'E	MED174	Dolzhanskaya N	46°56'N 37°59'E
MED111	Off Inebolu	42°17'N 33°58'E	MED175	Nikolayevskaya W	47°04'N 38°46'E
MED112	Off Yalta	44°16'N 34°17'E	MED178	Novorossiysk S	44°31'N 37°43'E
MED113	Off Mys Takyl	44°49'N 36°30'E	MED179	Black Sea3	43°19'N 36°28'E
MED154	Burgas E	42°30'N 28°03'E	MED181	Samsun N	42°11'N 36°26'E
MED155	Burgas NE	42°39'N 27°57'E	MED182	Erdemir N	42°25'N 30°53'E
MED156	Varna NE	43°22'N 28°54'E	MED184	Mys Sarych S	43°30'N 33°40'E
MED157	Constanta S	44°00'N 28°49'E	MED185	Constanta NE	44°26'N 29°44'E
MED158	Constanta E	44°05'N 30°16'E	MED186	Sulina E	45°10'N 30°04'E
MED159	Ilichevsk S	46°02'N 30°47'E	MED187	Yuzhnyy SE	46°27'N 31°17'E
MED160	Ilichevsk SE	46°08'N 31°07'E	MED188	Kherson W	46°35'N 31°27'E
MED161	Ilichevsk E	46°18'N 30°55'E	MED189	Novorossiysk SW	44°10'N 36°44'E
MED162	Odessa E	46°32'N 30°57'E	MED190	Mys Anapskiy W	44°50'N 37°05'E
MED166	Kerch Strait S	45°08'N 36°30'E	MED191	Off Mys Idokopas	44°23'N 38°11'E
MED167	Kerch Strait	45°15'N 36°29'E	MED192	Black Sea4	43°35'N 35°57'E
MED168	Kerch Yenikal Channel	45°18'N 36°30'E	MED193	Off Tuapse2	43°51'N 38°53'E
MED169	Kerch Strait N	45°21'N 36°39'E	MED194	Amasra N	42°00'N 32°27'E
MED172	Sea of Azov Entrance	45°37'N 36°42'E	MED195	Off Constanta E	44°08'N 31°17'E
MED173	Off Mauripol S	46°50'N 37°31'E	MED197	Mys Sarych SW	44°10'N 33°36'E

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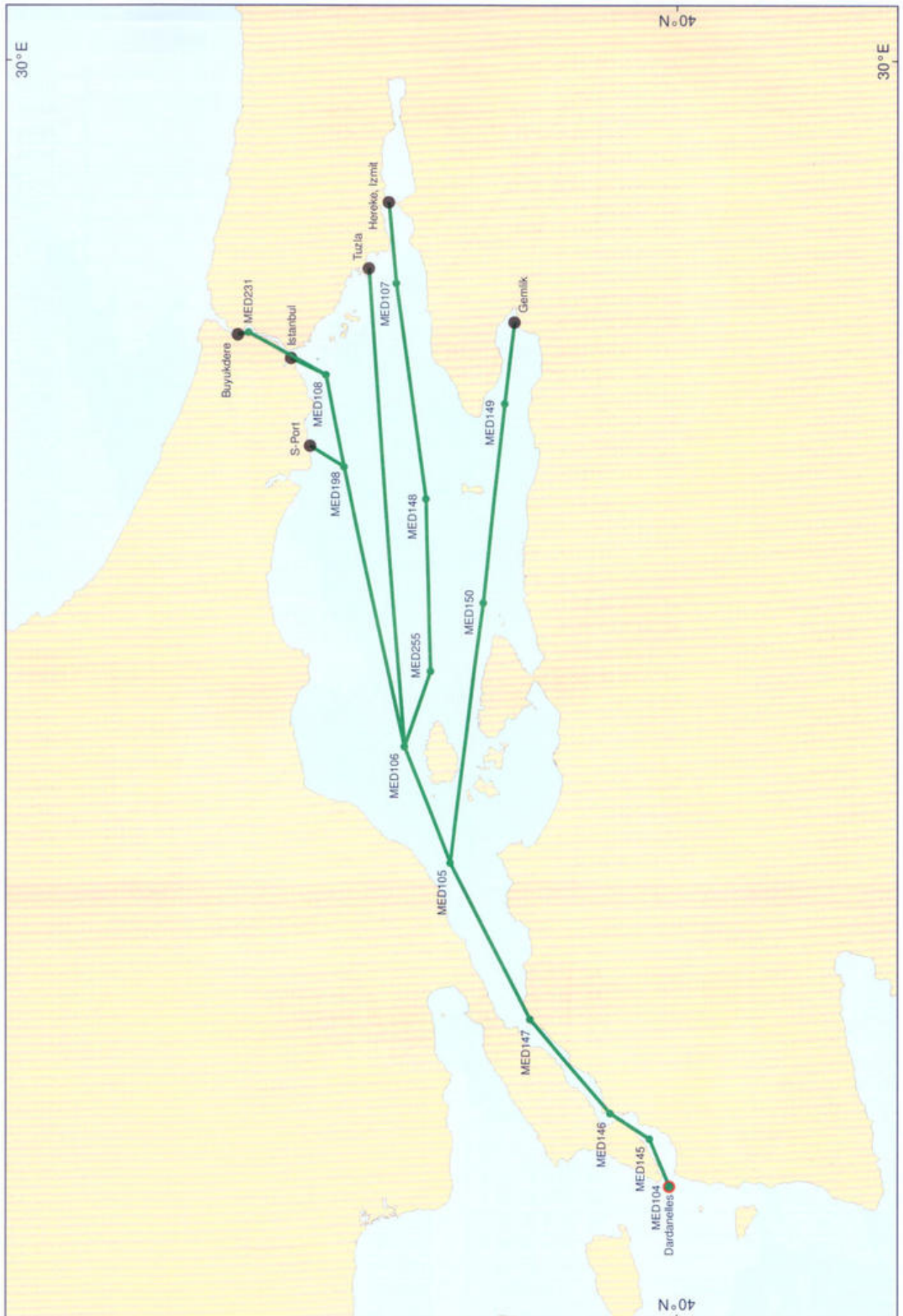
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PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From Buyukdere	41°09'N 29°04'E					NP24
To Dardanelles	40°01'N 26°09'E			206	Mediterranean ports, Suez Canal and Strait of Gibraltar	NP48
From Gemlik	40°26'N 29°06'E	GEM	TR			NP24
To Dardanelles	40°01'N 26°09'E			194	Mediterranean ports, Suez Canal and Strait of Gibraltar	NP48
From Hereke, Izmit	40°45'N 29°31'E					NP24
To Dardanelles	40°01'N 26°09'E			221	Mediterranean ports, Suez Canal and Strait of Gibraltar	NP48
From Istanbul	41°01'N 29°00'E	IST	TR			NP24
To Dardanelles	40°01'N 26°09'E			194	Mediterranean ports, Suez Canal and Strait of Gibraltar	NP48
From S-Port	40°58'N 28°41'E					NP24
To Dardanelles	40°01'N 26°09'E			175	Mediterranean ports, Suez Canal and Strait of Gibraltar	NP48
From Tuzla	40°48'N 29°17'E					NP24
To Dardanelles	40°01'N 26°09'E			206	Mediterranean ports, Suez Canal and Strait of Gibraltar	NP48

## Waypoints

ID	NAME	GP	ID	NAME	GP
MED104	Strait of Canakkale TSS SW	40°01'N 26°09'E	MED147	Off Cardak NW	40°24'N 26°42'E
MED105	Karabiga N	40°36'N 27°15'E	MED148	Imrali Adasi N	40°39'N 28°30'E
MED106	Marmara Ad. N	40°43'N 27°39'E	MED149	Gemlik Korfezi	40°27'N 28°49'E
MED107	Izmit W	40°44'N 29°14'E	MED150	Mola Adalari NE	40°31'N 28°09'E
MED108	Istanbul S	40°55'N 28°55'E	MED198	Straight of Istanbul TSS E	40°52'N 28°36'E
MED145	Strait of Canakkale TSS	40°04'N 26°18'E	MED231	The Bosphorus	41°07'N 29°05'E
MED146	Off Canakkale W	40°11'N 26°23'E	MED255	Off Marmara Adasi E	40°39'N 27°54'E

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# Caribbean Sea and Gulf of Mexico Area Coverage, Ports and Connectors



## Ports

NAME	GP
Altamira	22°29'N 97°48'W
Barranquilla	11°09'N 74°54'W
Coatzacoalcos	18°11'N 94°25'W
Coco Solo	09°27'N 79°54'W
Corpus Christi	27°50'N 97°02'W
Galveston	29°20'N 94°40'W
Jacksonville	30°24'N 81°23'W
Kingston, Port Royal	17°53'N 76°45'W
Miami	25°46'N 80°02'W
Mobile Bay	30°08'N 88°04'W
New Orleans	28°52'N 89°26'W

NAME	GP
Port Canaveral	28°23'N 80°32'W
Fort Lauderdale	26°05'N 80°02'W
Puerto Cortes	15°56'N 87°56'W
Puerto Moin	10°02'N 83°04'W
Puerto Rico North	18°34'N 66°09'W
Rio Haina	18°22'N 70°01'W
Sabine Pass	29°39'N 93°50'W
Santa Marta	11°15'N 74°15'W
St Anna Bay	12°04'N 68°58'W
Tampa	27°36'N 83°02'W
Veracruz	19°13'N 95°58'W

## Connectors

NAME	GP
Caicos Passage	22°15'N 72°20'W
Colon	09°24'N 79°55'W
Crooked Island Passage N	23°52'N 74°41'W
Cuba E	19°58'N 73°59'W
Cuba W	21°41'N 85°30'W
Galleons Passage	10°57'N 60°54'W
Guadeloupe Channel	15°49'N 61°35'W
Antigua Channel	16°34'N 61°53'W
Mayaguana Passage	22°30'N 73°20'W

NAME	GP
Mona Passage	18°41'N 67°57'W
Mouchoir Passage	21°16'N 70°42'W
NE Providence Channel	25°44'N 77°04'W
Panama City	08°55'N 79°32'W
Sombrero Passage	18°10'N 63°32'W
St Lucia/St Vincent Channel	13°34'N 61°12'W
Straits of Florida N	27°26'N 79°17'W
Tobago Passage	11°35'N 60°35'W

This chapter contains information relating to passages within the Caribbean Sea and Gulf of Mexico. Relevant navigational publications should be consulted when planning and conducting passages. These publications include ADMIRALTY Routeing Guides, ADMIRALTY Sailing Directions and The Mariner's Handbook, amongst others.

- **Notes and Cautions.**

In the Caribbean Sea and Gulf of Mexico, and in the channels leading thereto, great care is necessary near the cays and banks, as some of the charts are based on old and imperfect surveys. Furthermore depths over the shoals may be less than those charted owing to the growth of the coral of which many of them are composed or to the imprecise nature of the least depths reported over them. Shoal water should be approached with caution at all times and given a wide berth when conditions for fixing are poor; many of the banks are steep-to.

- **Caution.**

Strong currents can be expected in the entrances and channels leading to the Caribbean Sea and Gulf of Mexico, particularly in Straits of Florida.

- **Natural Conditions.**

**Winds and weather.** Over the Caribbean Sea, NE to E winds prevail throughout the year, while over the Gulf of Mexico the wind is generally lighter and more variable in direction, though frequently from between NE and SE. In coastal waters, strong N winds may reach gale force at times over the Gulf. For the whole area, wind speeds are mainly light or moderate, except for occasional hurricanes, which may affect the area from June to November. Most hurricanes track N of Cuba and they rarely occur S of 15°N.

The weather over the area is generally partly cloudy with scattered showers. Sunny spells are frequent and, from May to December, periods of heavy rain and thunderstorms are frequent. Squalls may occur at any time, but fog seldom occurs at sea. Visibility is generally good throughout the year though it may at times be drastically reduced by heavy rain.

- **Swell.**

Swells are generally lower in the Gulf of Mexico than in the Caribbean Sea. In the Caribbean Sea the prevailing direction is from NE to E; in the Gulf of Mexico, from March to September it is from E to SE and from October to February it is from NE. Highest swells occur in the area around 13°N 77°W in the Caribbean Sea, especially in June and July, when the frequency of swell greater than 4 m is 20%. These swells are invariably short or average in length.

- **Currents.**

The North Equatorial Current flows WNW through the Caribbean Sea with little change of direction until it approaches the Yucatan Channel where it turns to the N. It leaves an anti-clockwise eddy in the S part of the sea, S of about 12°N. There is also an E-going counter-current close to the S coast of E and central Cuba. In the Gulf of Mexico, part of the N-going flow from Yucatan Channel fans out in directions between SW and NW. Currents setting in these directions occupy most of the Gulf W of a line from Cabo Catoche to close W of the Mississippi delta.

From the NW flow along this line, water fans out NE and then shortly recurves to join the SE flow extending from the Mississippi delta to the W approaches to the Strait of Florida. This SE-going stream joins the NE-going stream which emerges from Yucatan Channel and the combined flow continues E, and through the Straits of Florida as the Florida Current. The emerging stream meeting the NW flowing water of North Sub-tropical Current, turns N off the E coast of Florida and forms the beginning of the Gulf Stream.

Along the W coast of Florida there is a N-going current which, with the SE flow coming from the Mississippi delta, forms an anti-clockwise eddy in the E part of the Gulf of Mexico.

There is little seasonal variation in the pattern of the currents.

The average current rates in most of the Caribbean Sea are about 1 kn, increasing on the W side of Yucatan Channel to about 4 kn. The strongest currents are observed in the Straits of Florida in about 25°N 80°W and for about 300 miles N from that position. Here the average rate is nearly 3 kn in summer and 2½ kn in winter.

# Connector Routes for Caribbean Sea and Gulf of Mexico

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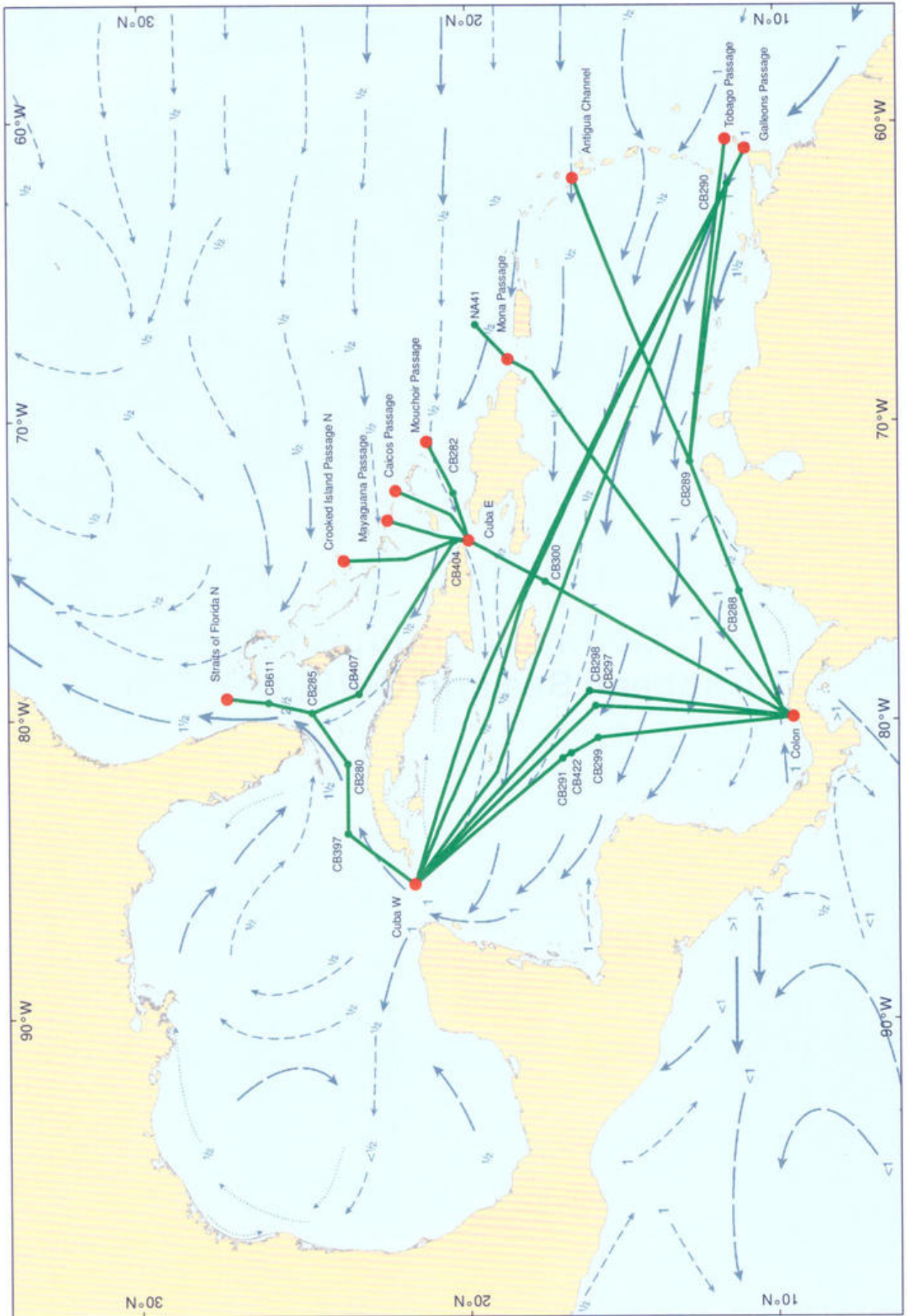
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## Connector to Connector Routes

FROM	GP	TO	GP	LENGTH
Colon	09°24'N 79°55'W	Galleons Passage	10°57'N 60°54'W	1203
Colon	09°24'N 79°55'W	Tobago Passage	11°35'N 60°35'W	1213
Colon	09°24'N 79°55'W	Mona Passage	18°41'N 67°57'W	1020
Colon	09°24'N 79°55'W	Antigua Channel	16°34'N 61°53'W	1176
Colon	09°24'N 79°55'W	Cuba E	19°58'N 73°59'W	743
Cuba E	19°58'N 73°59'W	Crooked Island Passage N	23°52'N 74°41'W	258
Cuba E	19°58'N 73°59'W	Mayaguana Channel	22°30'N 73°20'W	168
Cuba E	19°58'N 73°59'W	Caicos Passage	22°15'N 72°20'W	183
Cuba E	19°58'N 73°59'W	Mouchoir Passage	21°16'N 70°42'W	215
Colon	09°24'N 79°55'W	Cuba W	21°41'N 85°30'W	938
Colon	09°24'N 79°55'W	Cuba W	21°41'N 85°30'W	910
Colon	09°24'N 79°55'W	Cuba W	21°41'N 85°30'W	869
Cuba W	21°41'N 85°30'W	Galleons Passage	10°57'N 60°54'W	1626
Cuba W	21°41'N 85°30'W	Galleons Passage	10°57'N 60°54'W	1626
Cuba W	21°41'N 85°30'W	Galleons Passage	10°57'N 60°54'W	1630
Straits of Florida N	27°26'N 79°17'W	Cuba W	21°41'N 85°30'W	609
Straits of Florida N	27°26'N 79°17'W	Cuba E	19°58'N 73°59'W	668

## Waypoints

ID	NAME	GP	ID	NAME	GP
CB280	Straits of Florida S	23°46'N 81°28'W	CB299	Rosalind Bank S	15°50'N 80°36'W
CB282	Haiti N	20°27'N 72°25'W	CB300	Morant Cays	17°32'N 75°23'W
CB285	Miami SE	24°52'N 79°46'W	CB397	Habana NW	23°47'N 83°49'W
CB288	Punta Colombia	11°12'N 75°43'W	CB404	Cuba E	20°25'N 74°01'W
CB289	Punta Gallinas	12°49'N 71°22'W	CB407	Santjaren Channel	23°25'N 79°08'W
CB290	Grenada S	11°31'N 62°06'W	CB422	Rosalind Bank W	16°42'N 81°07'W
CB291	Rosalind Bank N	17°00'N 81°18'W	CB611	Fort Lauderdale E	26°11'N 79°26'W
CB297	Serranilla Bank	15°55'N 79°33'W	NA41	Mona Passage NE	19°43'N 66°47'W
CB298	Alice Shoal	16°06'N 79°02'W			

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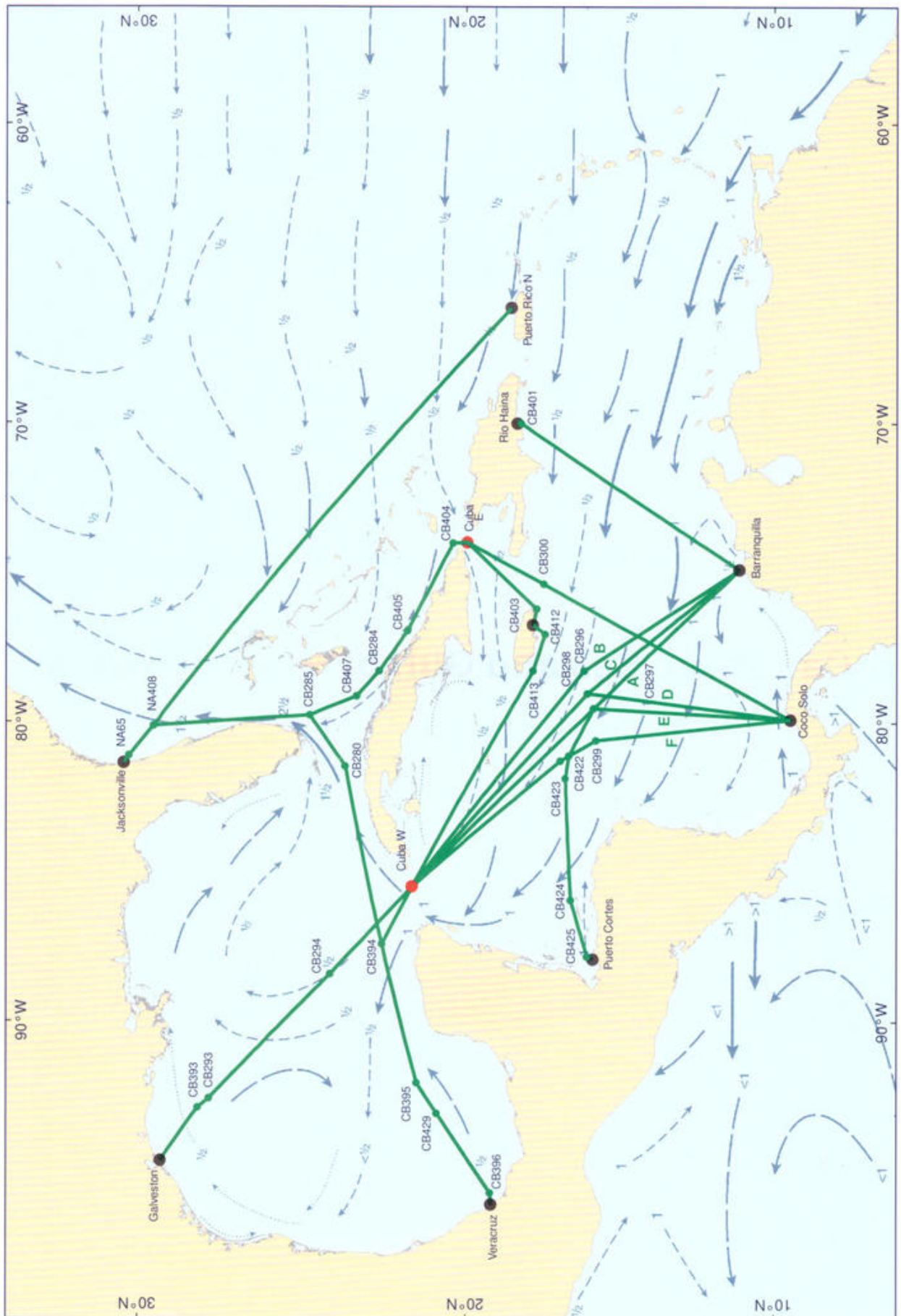
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## Barranquilla, Bayport (Galveston) and Blount Island (Jacksonville)



# Barranquilla, Bayport (Galveston) and Blount Island (Jacksonville)

## Port to Port Routes

PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From Barranquilla	11°09'N 74°54'W	BAQ	CO			NP7A
To Galveston (Route A)	29°20'N 94°40'W	DEX	US	1665	Deer Park	NP69A
To Galveston (Route B)	29°20'N 94°40'W	DEX	US	1676	Deer Park	NP69A
To Galveston (Route C)	29°20'N 94°40'W	DEX	US	1667	Deer Park	NP69A
To Puerto Cortes	15°56'N 87°56'W	PCR	HN	934		NP69A
To Rio Haina	18°22'N 70°01'W	HAI	DO	535		NP70
To Veracruz (Route A)	19°13'N 95°58'W	VER	MX	1623		NP69A
To Veracruz (Route C)	19°13'N 95°58'W	VER	MX	1625		NP69A
From Bayport (Galveston)	29°20'N 94°40'W	BPX	US			NP69A
To Coco Solo (Route D)	09°27'N 79°54'W	CSO	PA	1685		NP7A
To Coco Solo (Route E)	09°27'N 79°54'W	CSO	PA	1657		NP7A
To Coco Solo (Route F)	09°27'N 79°54'W	CSO	PA	1616		NP7A
To Kingston, Port Royal	17°53'N 76°45'W	PRO	JM	1354		NP70
From Blount Island (Jacksonville)	30°24'N 81°23'W	BLI	US			NP69
To Coco Solo	09°27'N 79°54'W	CSO	PA	1648		NP7A
To Kingston, Port Royal	17°53'N 76°45'W	KIN	JM	1133		NP70
To Puerto Rico North	18°34'N 66°09'W	SJU	PR	1202	San Juan	NP71
To Veracruz	19°13'N 95°58'W	VER	MX	1477		NP69A

## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Barranquilla	11°09'N 74°54'W	Cuba W	21°41'N 85°30'W	1665	Gulf of Mexico and North America ports
Bayport (Galveston)	29°20'N 94°40'W	Cuba W	21°41'N 85°30'W	1354	Caribbean ports and Panama Canal
Blount Island (Jacksonville)	30°24'N 81°23'W	Cuba E	19°58'N 73°59'W	1648	Caribbean Ports and Panama Canal

## Waypoints

ID	NAME	GP	ID	NAME	GP
CB280	Straits of Florida South	23°46'N 81°28'W	CB404	Cuba E	20°25'N 74°01'W
CB284	Cuba North	22°43'N 78°18'W	CB405	Old Bahama Channel	21°48'N 77°03'W
CB285	Miami South East	24°52'N 79°46'W	CB407	Santaren Channel	23°25'N 79°08'W
CB291	Rosalind Bank North	17°00'N 81°18'W	CB412	Jamaica S	17°29'N 77°04'W
CB293	Galveston South East	27°54'N 92°36'W	CB413	Jamaica SW	17°52'N 78°18'W
CB294	Gulf of Mexico West	24°14'N 88°26'W	CB422	Rosalind Bank W	16°42'N 81°07'W
CB296	Pedro Bank South	16°13'N 78°17'W	CB423	Miskito Bank N	16°50'N 81°53'W
CB297	Serranilla Bank	15°55'N 79°33'W	CB424	Isla de la Bahia N	16°39'N 85°57'W
CB298	Alice Shoal	16°06'N 79°02'W	CB425	Off Puerto Cortes	16°07'N 87°50'W
CB299	Rosalind Bank South	15°50'N 80°36'W	CB429	Pear Bank W	20°55'N 93°06'W
CB300	Morant Cays	17°32'N 75°23'W	NA38	Cape Hatteras South East	35°04'N 75°01'W
CB393	Sabine Passage S	28°14'N 92°54'W	NA59	Charleston	32°37'N 79°35'W
CB394	Cabo Caroché N	22°38'N 87°26'W	NA65	Jacksonville South East	30°15'N 81°08'W
CB395	English Banks S	21°33'N 92°04'W	NA271	Sable Island	40°38'N 58°14'W
CB396	Off Veracruz	19°14'N 95°44'W	NA406	Off Brunswick	31°29'N 79°35'W
CB401	Off Rio Haina	18°15'N 70°01'W	NA408	Port Canaveral N	29°32'N 80°08'W
CB403	Jamaica E	17°45'N 76°13'W	NA498	Caryn Seamount W	36°47'N 71°12'W

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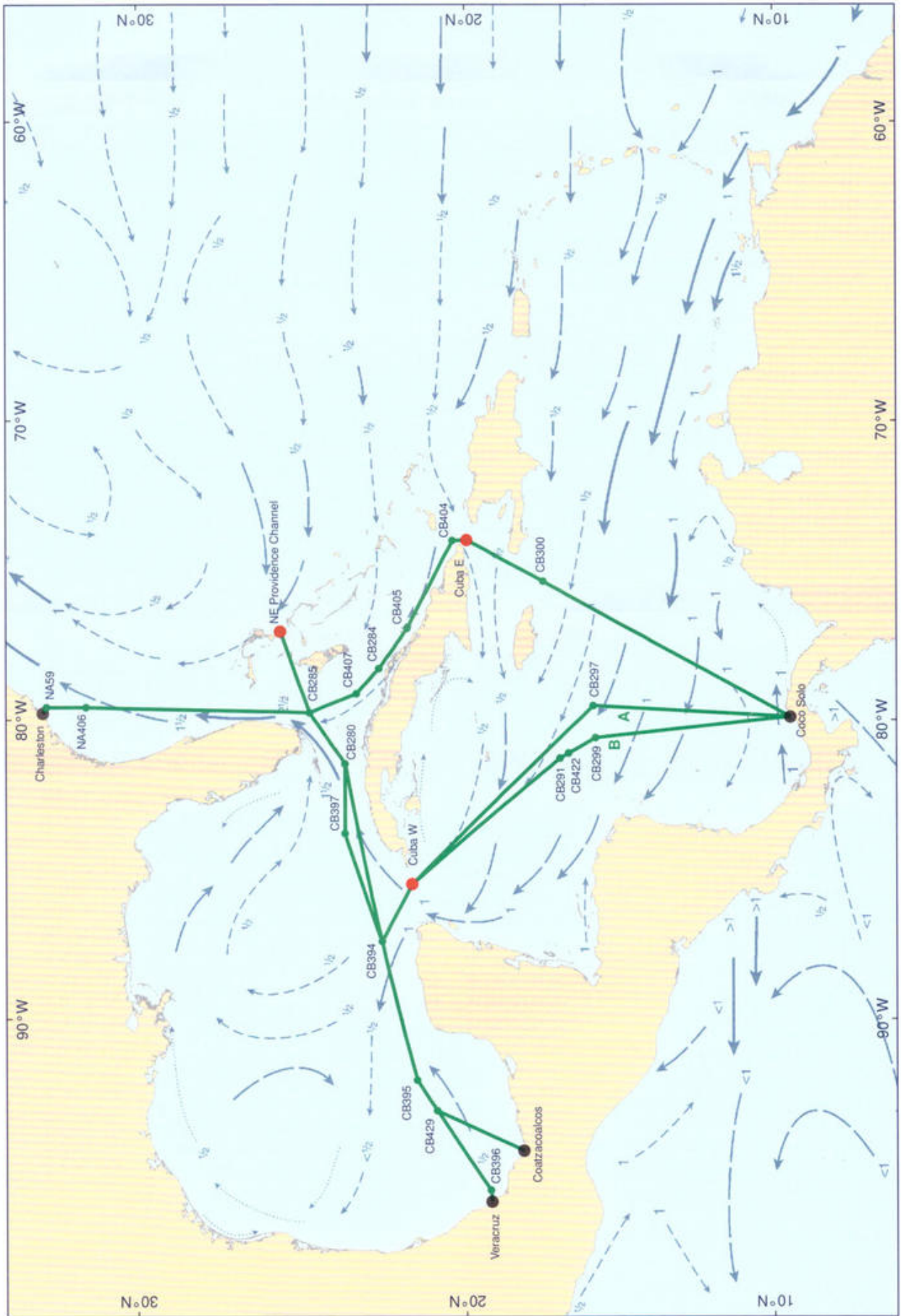
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## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Charleston	32°43'N 79°47'W	CHS	US			NP69
To	Coco Solo	09°27'N 79°54'W	CSO	PA	1780		NP7A
To	Veracruz	19°13'N 95°58'W	VER	MX	1610		NP69A
From	Coatzacoalcos	18°11'N 94°25'W	COA	MX			NP69A
To	Coco Solo (Route A)	09°27'N 79°54'W	CSO	PA	1591		NP7A
To	Coco Solo (Route B)	09°27'N 79°54'W	CSO	PA	1550		NP7A

## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Charleston	32°43'N 79°47'W	Cuba E	19°58'N 73°59'W	1780	Caribbean ports and Panama Canal
Coatzacoalcos	18°11'N 94°25'W	Cuba W	21°41'N 85°30'W	1591	Panama Canal, Caribbean and North Atlantic ports
Coatzacoalcos	18°11'N 94°25'W	NE Providence Channel	25°44'N 77°04'W	1219	North Europe ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
CB280	Straits of Florida S	23°46'N 81°28'W	CB404	Cuba E	20°25'N 74°01'W
CB284	Cuba N	22°43'N 78°18'W	CB405	Old Bahama Channel	21°48'N 77°03'W
CB285	Miami SE	24°52'N 79°46'W	CB407	Santaren Channel	23°25'N 79°08'W
CB291	Rosalind Bank N	17°00'N 81°18'W	CB422	Rosalind Bank W	16°42'N 81°07'W
CB297	Serranilla Bank	15°55'N 79°33'W	CB429	Pear Bank W	20°55'N 93°06'W
CB299	Rosalind Bank S	15°50'N 80°36'W	NA38	Cape Hatteras SE	35°04'N 75°01'W
CB300	Morant Cays	17°32'N 75°23'W	NA59	Charleston	32°37'N 79°35'W
CB394	Cabo Caroché N	22°38'N 87°26'W	NA271	Sable Island	40°38'N 58°14'W
CB395	English Banks S	21°33'N 92°04'W	NA406	Off Brunswick	31°29'N 79°35'W
CB396	Off Veracruz	19°14'N 95°44'W	NA498	Caryn Seamount W	36°47'N 71°12'W
CB397	Habana NW	23°47'N 83°49'W			

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From	Coco Solo	09°27'N 79°54'W	CSO	PA			NP7A
To	Altamira (Route A)	22°29'N 97°48'W	ATM	MX	1625		NP69A
To	Altamira (Route B)	22°29'N 97°48'W	ATM	MX	1666		NP69A
To	Charleston	32°43'N 79°47'W	CHS	US	1780		NP69
To	Coatzacoalcos (Route B)	18°11'N 94°25'W	COA	MX	1591		NP69A
To	Coatzacoalcos (Route A)	18°11'N 94°25'W	COA	MX	1550		NP69A
To	Corpus Christi (Route A)	27°50'N 97°02'W	CRP	US	1670		NP69A
To	Corpus Christi (Route B)	27°50'N 97°02'W	CRP	US	1711		NP69A
To	Corpus Christi (Route C)	27°50'N 97°02'W	CRP	US	1739		NP69A
To	Galveston (Route A)	29°20'N 94°40'W	CRP	US	1616	Deer Park, Bayport, Texas City	NP69A
To	Galveston (Route B)	29°20'N 94°40'W	CRP	US	1657	Deer Park, Bayport, Texas City	NP69A
To	Galveston (Route C)	29°20'N 94°40'W	CRP	US	1685	Deer Park, Bayport, Texas City	NP69A
To	Jacksonville	30°24'N 81°23'W	JAX	US	1648	Blount Island	NP69
To	Kingston, Port Royal	17°53'N 76°45'W			552		NP70
To	Miami	25°46'N 80°02'W	MIA	US	1300		NP70
To	New Orleans (Route A)	28°52'N 89°26'W	MSY	US	1397		NP69A
To	New Orleans (Route B)	28°52'N 89°26'W	MSY	US	1438		NP69A
To	New Orleans (Route C)	28°52'N 89°26'W	MSY	US	1466		NP69A
To	Puerto Cortes	15°56'N 87°56'W	PCR	HN	878		NP69A
To	Puerto Moin	10°02'N 83°04'W	PMN	CR	195		NP69A
To	Puerto Rico North	18°34'N 66°09'W	SJU	PR	1016	San Juan	NP71
To	Rio Haina	18°22'N 70°01'W	HAI	DO	812		NP70
To	Veracruz (Route A)	19°13'N 95°58'W	VER	MX	1574		NP69A
To	Veracruz (Route B)	19°13'N 95°58'W	VER	MX	1615		NP69A

## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Coco Solo	09°27'N 79°54'W	Caicos Passage	22°15'N 72°20'W	923	North Europe ports
	Coco Solo	09°27'N 79°54'W	Cuba E	19°58'N 73°59'W	1648	North Atlantic ports
	Coco Solo	09°27'N 79°54'W	Cuba W	21°41'N 85°30'W	1625	Gulf of Mexico and Caribbean ports
	Coco Solo	09°27'N 79°54'W	Galleons Passage	10°57'N 60°54'W	1195	South Atlantic ports
	Coco Solo	09°27'N 79°54'W	Antigua Channel	16°34'N 61°53'W	1176	Mediterranean and North Atlantic ports
	Coco Solo	09°27'N 79°54'W	Mayaguana Passage	22°30'N 73°20'W	910	North Europe ports
	Coco Solo	09°27'N 79°54'W	Mona Passage	18°41'N 67°57'W	921	Mediterranean and North Atlantic ports
	Coco Solo	09°27'N 79°54'W	Mouchoir Passage	21°16'N 70°42'W	956	North Europe ports
	Coco Solo	09°27'N 79°54'W	Straits of Florida N	27°26'N 79°17'W	1410	North Atlantic ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
CB282	Haiti N	20°27'N 72°25'W	CB405	Old Bahama Channel	21°48'N 77°03'W
CB284	Cuba N	22°43'N 78°18'W	CB407	Santaren Channel	23°25'N 79°08'W
CB285	Miami SE	24°52'N 79°46'W	CB409	Isla Saona SE	17°57'N 68°22'W
CB288	Punta Colombia	11°12'N 75°43'W	CB410	Puerto Rico NW	18°41'N 67°10'W
CB289	Punta Gallinas	12°49'N 71°22'W	CB411	Aruba N	12°45'N 69°49'W
CB290	Grenada S	11°31'N 62°06'W	CB414	Great Inagua S	20°35'N 73°07'W
CB291	Rosalind Bank N	17°00'N 81°18'W	CB417	Straits of Florida N	25°26'N 80°00'W
CB292	Galveston S	26°38'N 94°30'W	CB421	Arrecife NE	22°59'N 88°47'W
CB293	Galveston SE	27°54'N 92°36'W	CB422	Rosalind Bank W	16°42'N 81°07'W
CB294	Gulf of Mexico W	24°14'N 88°26'W	CB423	Miskito Bank N	16°50'N 81°53'W
CB297	Serranilla Bank	15°55'N 79°33'W	CB424	Isla de la Bahia N	16°39'N 85°57'W
CB298	Alice Shoal	16°06'N 79°02'W	CB425	Off Puerto Cortes	16°07'N 87°50'W
CB299	Rosalind Bank S	15°50'N 80°36'W	CB426	Off Coco Solo NW	09°39'N 80°17'W
CB300	Morant Cays	17°32'N 75°23'W	CB427	Off Puerto Moin	10°03'N 82°57'W
CB393	Sabine Passage S	28°14'N 92°54'W	CB429	Pear Bank W	20°55'N 93°06'W
CB394	Cabo Caroché N	22°38'N 87°26'W	CB545	Coco Solo N	09°40'N 79°54'W
CB395	English Banks S	21°33'N 92°04'W	NA59	Charleston	32°37'N 79°35'W
CB396	Off Veracruz	19°14'N 95°44'W	NA65	Jacksonville SE	30°15'N 81°08'W
CB401	Off Rio Haina	18°15'N 70°01'W	NA406	Off Brunswick	31°29'N 79°35'W
CB402	Isla Desterrada N	24°54'N 90°36'W	NA408	Port Canaveral N	29°32'N 80°08'W
CB404	Cuba E	20°25'N 74°01'W			

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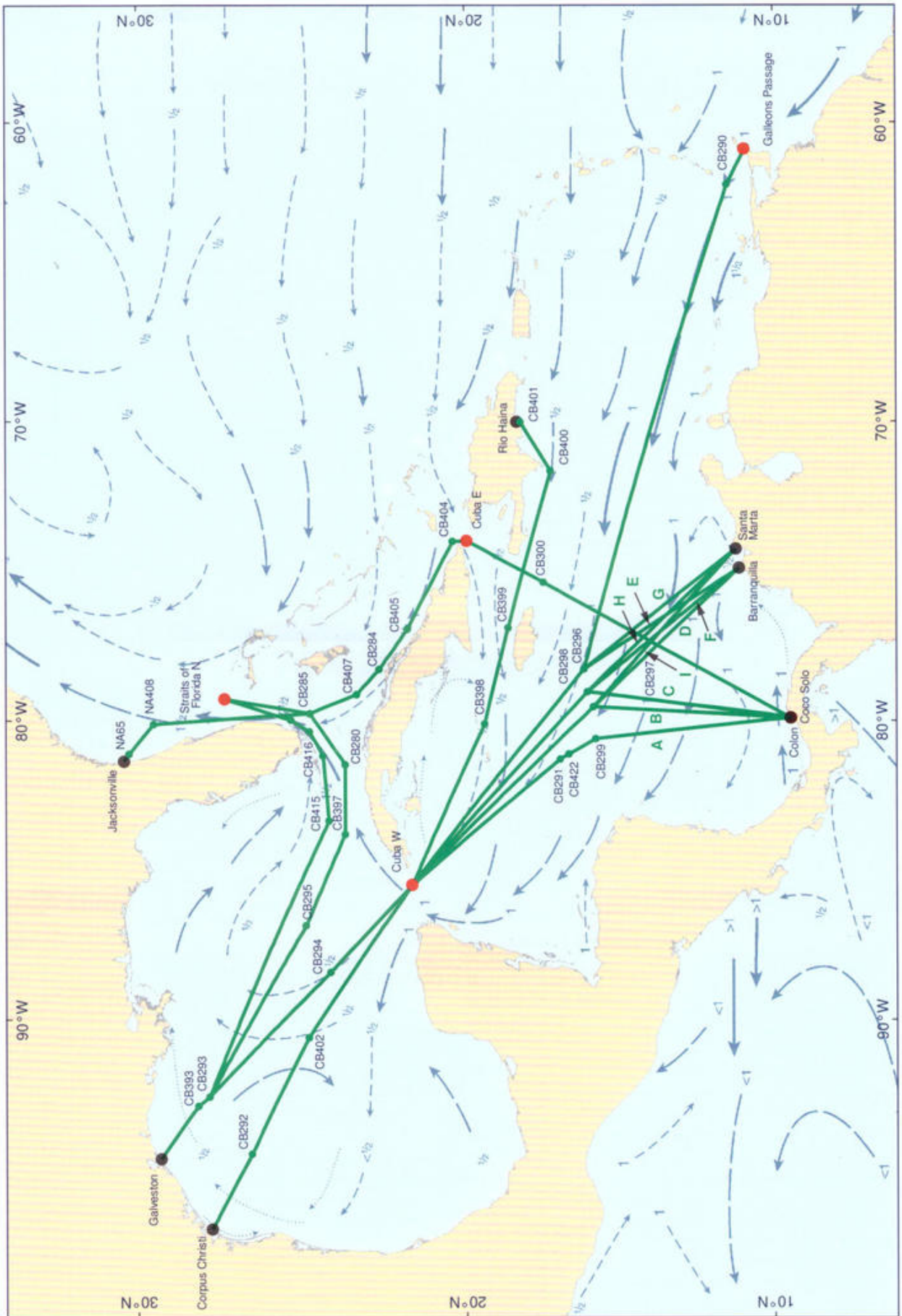
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# Corpus Christi, Deer Park (Galveston) and Jacksonville



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## Corpus Christi, Deer Park (Galveston) and Jacksonville

## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Corpus Christi	27°50'N 97°02'W	CRP	US			NP69A
To	Coco Solo (Route A)	09°27'N 79°54'W	CSO	PA	1670		NP7A
To	Coco Solo (Route B)	09°27'N 79°54'W	CSO	PA	1711		NP7A
To	Coco Solo (Route C)	09°27'N 79°54'W	CSO	PA	1739		NP7A
From	Deer Park (Galveston)	29°20'N 94°40'W	DEX	US			NP69A
To	Barranquilla (Route D)	11°09'N 74°54'W	BAQ	CO	1665		NP7A
To	Barranquilla (Route E)	11°09'N 74°54'W	BAQ	CO	1676		NP7A
To	Barranquilla (Route F)	11°09'N 74°54'W	BAQ	CO	1667		NP7A
To	Coco Solo (Route C)	09°27'N 79°54'W	CSO	PA	1685		NP7A
To	Coco Solo (Route B)	09°27'N 79°54'W	CSO	PA	1657		NP7A
To	Coco Solo (Route A)	09°27'N 79°54'W	CSO	PA	1616		NP7A
To	Rio Haina	18°22'N 70°01'W	HAI	DO	1752		NP70
To	Santa Marta (Route G)	11°15'N 74°15'W	SMR	CO	1693		NP7A
To	Santa Marta (Route H)	11°15'N 74°15'W	SMR	CO	1688		NP7A
To	Santa Marta (Route I)	11°15'N 74°15'W	SMR	CO	1688		NP7A
From	Jacksonville	30°24'N 81°23'W	JAX	US			NP69
To	Coco Solo	09°27'N 79°54'W	CSO	PA	1648		NP7A

## Port to Connector Routes

	FROM	GP	TO	GP	LENGTH	FOR
	Corpus Christi	27°50'N 97°02'W	Cuba W	21°41'N 85°30'W	1670	Caribbean ports and Panama Canal
	Deer Park (Galveston)	29°20'N 94°40'W	Colon	09°24'N 79°55'W	1688	Pacific Ocean ports
	Deer Park (Galveston)	29°20'N 94°40'W	Cuba W	21°41'N 85°30'W	1752	Caribbean ports and Panama Canal
	Deer Park (Galveston)	29°20'N 94°40'W	Galleons Passage	10°57'N 60°54'W	2398	North Atlantic, South Atlantic, North Europe and Mediterranean ports
	Deer Park (Galveston)	29°20'N 94°40'W	Straits of Florida N	27°26'N 79°17'W	1193	North Europe, North Atlantic and Mediterranean ports
	Jacksonville	30°24'N 81°23'W	Cuba E	19°58'N 73°59'W	1648	Caribbean ports and Panama Canal

## Waypoints

ID	NAME	GP	ID	NAME	GP
CB280	Straits of Florida S	23°46'N 81°28'W	CB398	Grand Cayman E	19°24'N 80°07'W
CB284	Cuba N	22°43'N 78°18'W	CB399	Jamaica N	18°40'N 76°55'W
CB285	Miami SE	24°52'N 79°46'W	CB400	Isla Beata S	17°18'N 71°40'W
CB290	Grenada S	11°31'N 62°06'W	CB401	Off Rio Haina	18°15'N 70°01'W
CB291	Rosalind Bank N	17°00'N 81°18'W	CB402	Isla Desterrada N	24°54'N 90°36'W
CB292	Galveston S	26°38'N 94°30'W	CB404	Cuba E	20°25'N 74°01'W
CB293	Galveston SE	27°54'N 92°36'W	CB405	Old Bahama Channel	21°48'N 77°03'W
CB294	Gulf of Mexico W	24°14'N 88°26'W	CB407	Santaren Channel	23°25'N 79°08'W
CB295	Gulf of Mexico E	24°59'N 86°52'W	CB415	Florida Keys W	24°16'N 83°22'W
CB296	Pedro Bank S	16°13'N 78°17'W	CB416	Florida Keys Mid	24°27'N 81°11'W
CB297	Serranilla Bank	15°55'N 79°33'W	CB417	Straits of Florida N	25°26'N 80°00'W
CB298	Alice Shoal	16°06'N 79°02'W	CB418	Florida Keys E	24°52'N 80°22'W
CB299	Rosalind Bank S	15°50'N 80°36'W	CB422	Rosalind Bank W	16°42'N 81°07'W
CB300	Morant Cays	17°32'N 75°23'W	NA65	Jacksonville SE	30°15'N 81°08'W
CB393	Sabine Passage S	28°14'N 92°54'W	NA408	Port Canaveral N	29°32'N 80°08'W
CB397	Habana NW	23°47'N 83°49'W			

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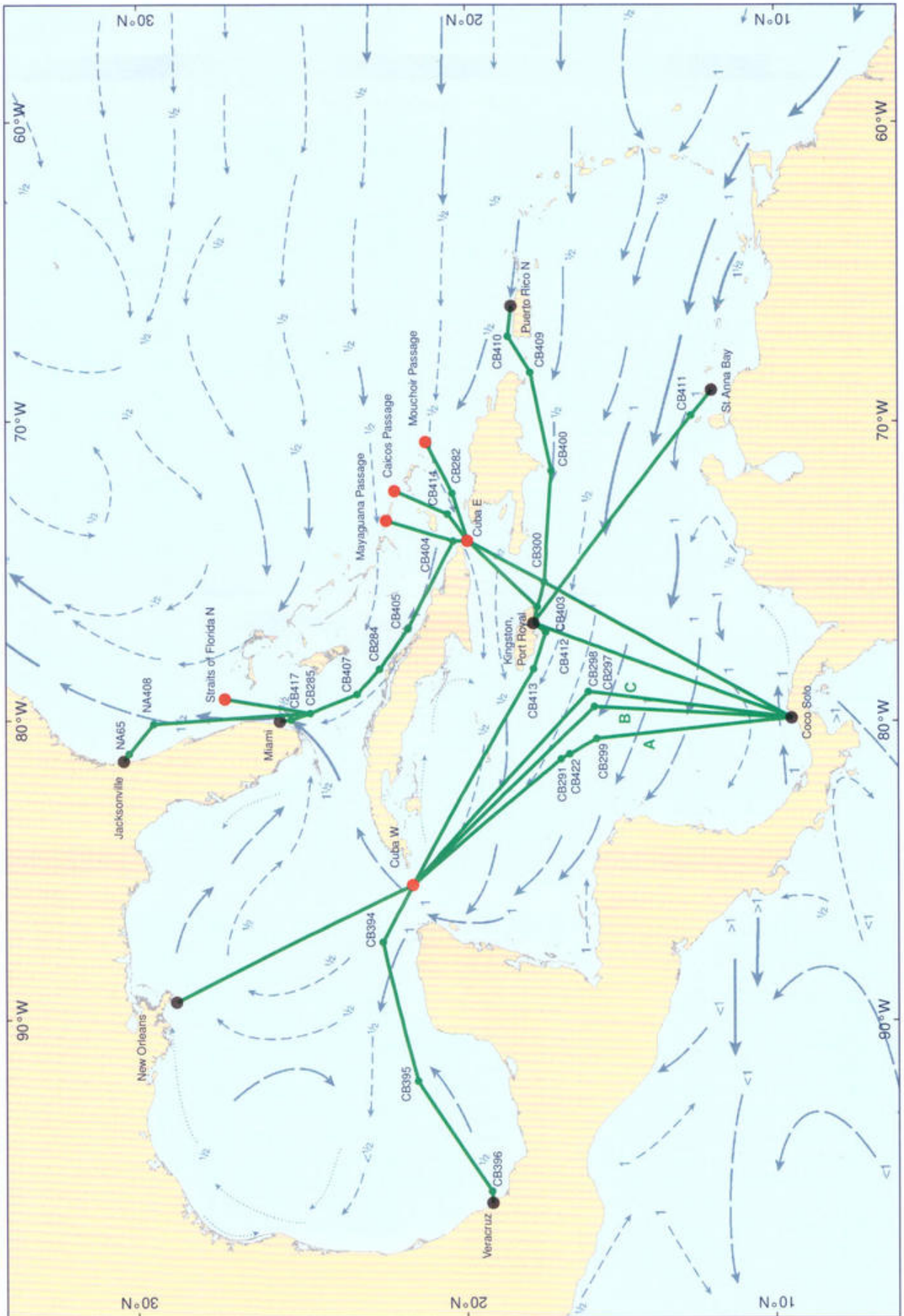
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## Kingston, Miami and New Orleans



## Kingston, Miami and New Orleans

## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Kingston	17°53'N 76°45'W	KIN	JM			NP70
To	Coco Solo	09°27'N 79°54'W	CSO	PA	552		NP7A
To	Jacksonville	30°24'N 81°23'W	JAX	US	1133	Blount Island	NP69
To	Puerto Rico North	18°34'N 66°09'W	SJU	PR	658	San Juan	NP71
To	St Anna Bay	12°04'N 68°58'W	WIL	CW	589		NP7A
To	Veracruz	19°13'N 95°58'W	VER	MX	1312		NP69A
From	Miami	25°46'N 80°02'W	MIA	US			NP70
To	Coco Solo	09°27'N 79°54'W	CSO	PA	1300		NP7A
From	New Orleans	28°52'N 89°26'W	MSY	US			NP69A
To	Coco Solo (Route A)	09°27'N 79°54'W	CSO	PA	1397		NP7A
To	Coco Solo (Route B)	09°27'N 79°54'W	CSO	PA	1438		NP7A
To	Coco Solo (Route C)	09°27'N 79°54'W	CSO	PA	1466		NP7A

## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Kingston	17°53'N 76°45'W	Caicos Passage	22°15'N 72°20'W	409	North Europe ports
Kingston	17°53'N 76°45'W	Cuba E	19°58'N 73°59'W	1133	North Atlantic ports
Kingston	17°53'N 76°45'W	Cuba W	21°41'N 85°30'W	1312	Panama Canal, Caribbean, North Atlantic and North Europe ports
Kingston	17°53'N 76°45'W	Mayaguana Passage	22°30'N 73°20'W	395	North Europe ports
Kingston	17°53'N 76°45'W	Mouchoir Passage	21°16'N 70°42'W	442	North Europe ports
Kingston	17°53'N 76°45'W	Straits of Florida N	27°26'N 79°17'W	896	North Atlantic ports
Miami	25°46'N 80°02'W	Cuba E	19°58'N 73°59'W	1300	Caribbean ports and Panama Canal
New Orleans	28°52'N 89°26'W	Cuba W	21°41'N 85°30'W	1397	Caribbean ports and Panama Canal

## Waypoints

ID	NAME	GP	ID	NAME	GP
CB282	Haiti N	20°27'N 72°25'W	CB404	Cuba E	20°25'N 74°01'W
CB284	Cuba N	22°43'N 78°18'W	CB405	Old Bahama Channel	21°48'N 77°03'W
CB285	Miami SE	24°52'N 79°46'W	CB407	Santaren Channel	23°25'N 79°08'W
CB291	Rosalind Bank N	17°00'N 81°18'W	CB409	Isla Saona SE	17°57'N 68°22'W
CB297	Serranilla Bank	15°55'N 79°33'W	CB410	Puerto Rico NW	18°41'N 67°10'W
CB298	Alice Shoal	16°06'N 79°02'W	CB411	Aruba N	12°45'N 69°49'W
CB299	Rosalind Bank S	15°50'N 80°36'W	CB412	Jamaica S	17°29'N 77°04'W
CB300	Morant Cays	17°32'N 75°23'W	CB413	Jamaica SW	17°52'N 78°18'W
CB394	Cabo Caroché N	22°38'N 87°26'W	CB414	Great Inagua S	20°35'N 73°07'W
CB395	English Banks S	21°33'N 92°04'W	CB417	Straits of Florida N	25°26'N 80°00'W
CB396	Off Veracruz	19°14'N 95°44'W	CB422	Rosalind Bank W	16°42'N 81°07'W
CB400	Isla Beata S	17°18'N 71°40'W	NA65	Jacksonville SE	30°15'N 81°08'W
CB403	Jamaica E	17°45'N 76°13'W	NA408	Port Canaveral N	29°32'N 80°08'W

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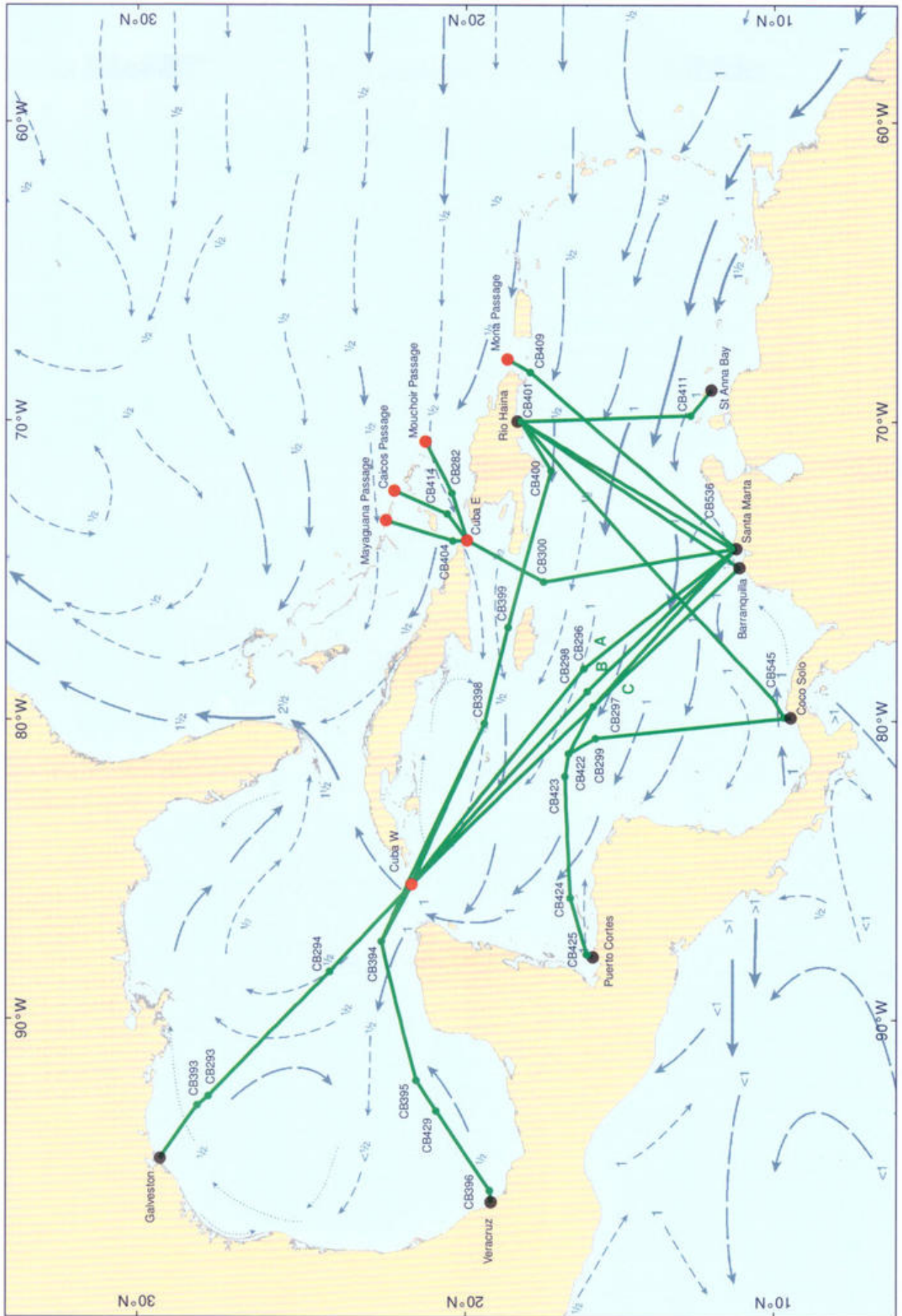
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## Puerto Cortes, Rio Haina and Santa Marta



## Puerto Cortes, Rio Haina and Santa Marta

## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	Puerto Cortes	15°56'N 87°56'W	PCR	HN			NP69A
To	Barranquilla	11°09'N 74°54'W	BAQ	CO	934		NP7A
To	Coco Solo	09°27'N 79°54'W	CSO	PA	878		NP7A
From	Rio Haina	18°22'N 70°01'W	HAI	DO			NP70
To	Barranquilla	11°09'N 74°54'W	BAQ	CO	535		NP7A
To	Coco Solo	09°27'N 79°54'W	CSO	PA	816		NP7A
To	Galveston	29°20'N 94°40'W	DEX	US	1752	Deer Park	NP69A
To	Santa Marta	11°15'N 74°15'W	SMR	CO	510		NP7A
To	St Anna Bay	12°04'N 68°58'W	WIL	CW	414		NP7A
To	Veracruz	19°13'N 95°58'W	VER	MX	1710		NP69A
From	Santa Marta	11°15'N 74°15'W	SMR	CO			NP7A
To	Galveston (Route A)	29°20'N 94°40'W	DEX	US	1693	Deer Park	NP69A
To	Galveston (Route B)	29°20'N 94°40'W	DEX	US	1688	Deer Park	NP69A
To	Galveston (Route C)	29°20'N 94°40'W	DEX	US	1688	Deer Park	NP69A
To	Rio Haina	18°22'N 70°01'W	HAI	DO	510		NP70
To	Veracruz (Route C)	19°13'N 95°58'W	VER	MX	1646		NP69A
To	Veracruz (Route B)	19°13'N 95°58'W	VER	MX	1646		NP69A
To	Veracruz (Route A)	19°13'N 95°58'W	VER	MX	1651		NP69A

## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
Rio Haina	18°22'N 70°01'W	Cuba W	21°41'N 85°30'W	1752	Caribbean, Gulf of Mexico, North America ports and Panama Canal
Santa Marta	11°15'N 74°15'W	Caicos Passage	22°15'N 72°20'W	749	North Europe ports
Santa Marta	11°15'N 74°15'W	Cuba E	19°58'N 73°59'W	736	North Europe ports
Santa Marta	11°15'N 74°15'W	Cuba W	21°41'N 85°30'W	1693	Panama Canal, Caribbean, Gulf of Mexico, North America and North Europe ports
Santa Marta	11°15'N 74°15'W	Mayaguana Passage	22°30'N 73°20'W	736	North Europe ports
Santa Marta	11°15'N 74°15'W	Mona Passage	18°41'N 67°57'W	596	North Europe ports
Santa Marta	11°15'N 74°15'W	Mouchoir Passage	21°16'N 70°42'W	782	North Europe ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
CB282	Haiti N	20°27'N 72°25'W	CB400	Isla Beata S	17°18'N 71°40'W
CB293	Galveston SE	27°54'N 92°36'W	CB401	Off Rio Haina	18°15'N 70°01'W
CB294	Gulf of Mexico W	24°14'N 88°26'W	CB404	Cuba E	20°25'N 74°01'W
CB296	Pedro Bank S	16°13'N 78°17'W	CB409	Isla Saona SE	17°57'N 68°22'W
CB297	Serranilla Bank	15°55'N 79°33'W	CB411	Aruba N	12°45'N 69°49'W
CB298	Alice Shoal	16°06'N 79°02'W	CB414	Great Inagua S	20°35'N 73°07'W
CB299	Rosalind Bank S	15°50'N 80°36'W	CB422	Rosalind Bank W	16°42'N 81°07'W
CB300	Morant Cays	17°32'N 75°23'W	CB423	Miskito Bank N	16°50'N 81°53'W
CB393	Sabine Passage S	28°14'N 92°54'W	CB424	Isla de la Bahia N	16°39'N 85°57'W
CB394	Cabo Caroché N	22°38'N 87°26'W	CB425	Off Puerto Cortes	16°07'N 87°50'W
CB395	English Banks S	21°33'N 92°04'W	CB429	Pear Bank W	20°55'N 93°06'W
CB396	Off Veracruz	19°14'N 95°44'W	CB536	Santa Marta N	11°25'N 74°14'W
CB398	Grand Cayman E	19°24'N 80°07'W	CB545	Coco Solo N	09°40'N 79°54'W
CB399	Jamaica N	18°40'N 76°55'W			

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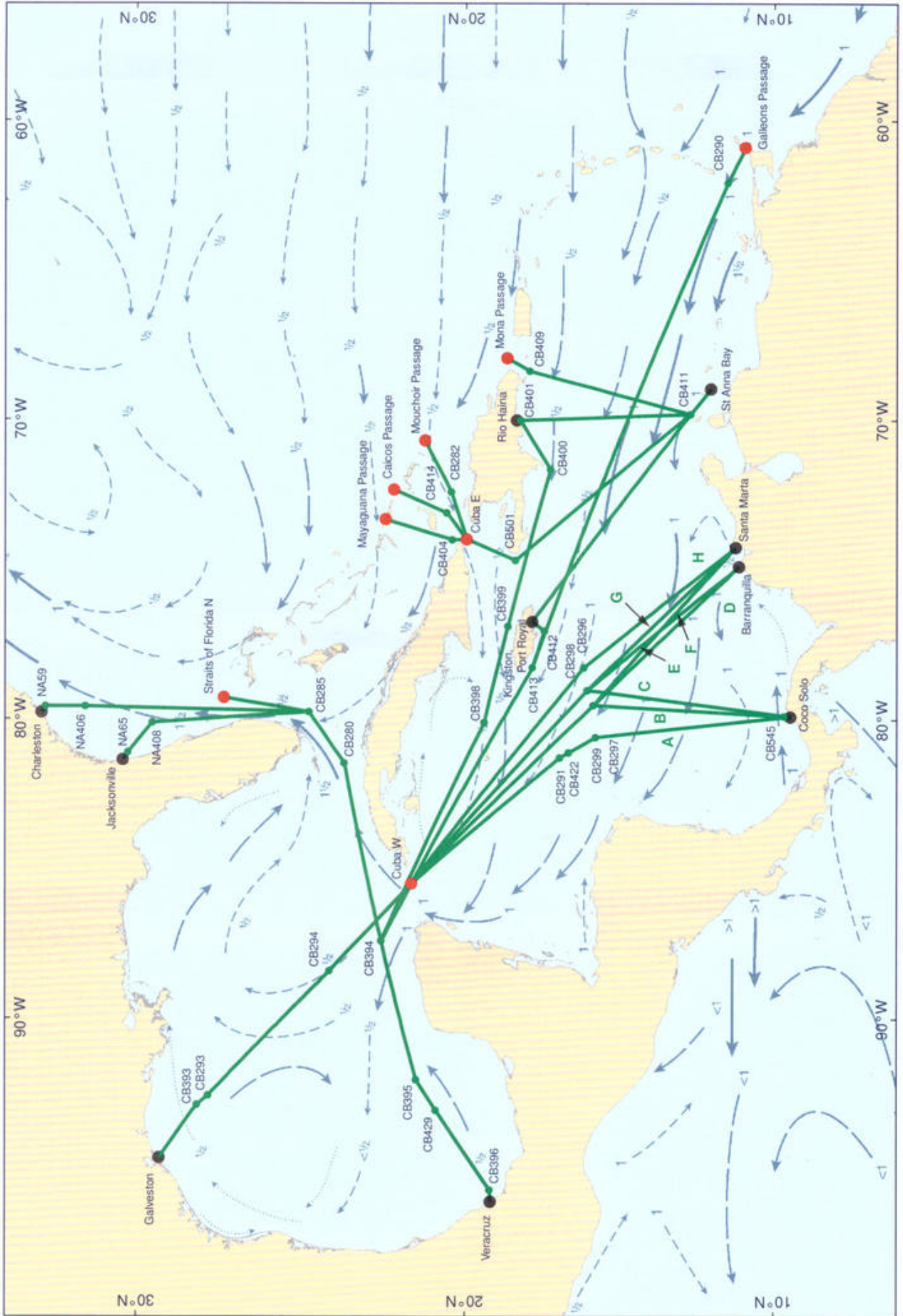
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## St Anna Bay, Texas City (Galveston) and Veracruz



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## St Anna Bay, Texas City (Galveston) and Veracruz

## Port to Port Routes

	PORT	GP	LOCODE	CCODE	LENGTH	FOR	NP
From	St Anna Bay	12°04'N 68°58'W	WIL	CW			NP7A
To	Kingston, Port Royal	17°53'N 76°45'W	KIN	JM	589		NP70
To	Rio Haina	18°22'N 70°01'W	HAI	DO	414		NP70
From	Texas City (Galveston)	29°20'N 94°40'W	TXT	US			NP69A
To	Coco Solo (Route A)	09°27'N 79°54'W	CSO	PA	1616		NP7A
To	Coco Solo (Route B)	09°27'N 79°54'W	CSO	PA	1657		NP7A
To	Coco Solo (Route C)	09°27'N 79°54'W	CSO	PA	1685		NP7A
From	Veracruz	19°13'N 95°58'W	VER	MX			NP69A
To	Barranquilla (Route D)	11°09'N 74°54'W	BAQ	CO	1623		NP7A
To	Barranquilla (Route E)	11°09'N 74°54'W	BAQ	CO	1625		NP7A
To	Charleston	32°43'N 79°47'W	CHS	US	1610		NP69
To	Coco Solo (Route A)	09°27'N 79°54'W	CSO	PA	1574		NP7A
To	Coco Solo (Route B)	09°27'N 79°54'W	CSO	PA	1617		NP7A
To	Jacksonville	30°24'N 81°23'W	JAX	US	1477	Blount Island	NP69
To	Kingston, Port Royal	17°53'N 76°45'W			1312		NP70
To	Rio Haina	18°22'N 70°01'W	HAI	DO	1710		NP70
To	Santa Marta (Route F)	11°15'N 74°15'W	SMR	CO	1646		NP7A
To	Santa Marta (Route G)	11°15'N 74°15'W	SMR	CO	1646		NP7A
To	Santa Marta (Route H)	11°15'N 74°15'W	SMR	CO	1651		NP7A

## Port to Connector Routes

FROM	GP	TO	GP	LENGTH	FOR
St Anna Bay	12°04'N 68°58'W	Caicos Passage	22°15'N 72°20'W	812	North Europe ports
St Anna Bay	12°04'N 68°58'W	Cuba E	19°58'N 73°59'W	798	North Europe ports
St Anna Bay	12°04'N 68°58'W	Mayaguana Passage	22°30'N 73°20'W	798	North Europe ports
St Anna Bay	12°04'N 68°58'W	Mona Passage	18°41'N 67°57'W	452	North Europe and North Atlantic ports
St Anna Bay	12°04'N 68°58'W	Mouchoir Passage	21°16'N 70°42'W	845	North Europe ports
Texas City (Galveston)	29°20'N 94°40'W	Cuba West	21°41'N 85°30'W	1616	Caribbean ports and Panama Canal
Veracruz	19°13'N 95°58'W	Cuba West	21°41'N 85°30'W	1312	Caribbean ports
Veracruz	19°13'N 95°58'W	Galleons Passage	10°57'N 60°54'W	2333	South Atlantic ports
Veracruz	19°13'N 95°58'W	Straits of Florida N	27°26'N 79°17'W	1240	North Europe ports

## Waypoints

ID	NAME	GP	ID	NAME	GP
CB280	Straits of Florida S	23°46'N 81°28'W	CB400	Isla Beata S	17°18'N 71°40'W
CB282	Haiti N	20°27'N 72°25'W	CB401	Off Rio Haina	18°15'N 70°01'W
CB285	Miami SE	24°52'N 79°46'W	CB404	Cuba E	20°25'N 74°01'W
CB290	Grenada S	11°31'N 62°06'W	CB409	Isla Saona SE	17°57'N 68°22'W
CB291	Rosalind Bank N	17°00'N 81°18'W	CB411	Aruba N	12°45'N 69°49'W
CB293	Galveston South E	27°54'N 92°36'W	CB412	Jamaica S	17°29'N 77°04'W
CB294	Gulf of Mexico W	24°14'N 88°26'W	CB413	Jamaica SW	17°52'N 78°18'W
CB296	Pedro Bank S	16°13'N 78°17'W	CB414	Great Inagua S	20°35'N 73°07'W
CB297	Serranilla Bank	15°55'N 79°33'W	CB422	Rosalind Bank W	16°42'N 81°07'W
CB298	Alice Shoal	16°06'N 79°02'W	CB429	Pear Bank W	20°55'N 93°06'W
CB299	Rosalind Bank S	15°50'N 80°36'W	CB501	Haiti SW	18°25'N 74°42'W
CB393	Sabine Passage S	28°14'N 92°54'W	CB545	Coco Solo N	09°40'N 79°54'W
CB394	Cabo Caroché N	22°38'N 87°26'W	NA59	Charleston	32°37'N 79°35'W
CB395	English Banks S	21°33'N 92°04'W	NA65	Jacksonville SE	30°15'N 81°08'W
CB396	Off Veracruz	19°14'N 95°44'W	NA406	Off Brunswick	31°29'N 79°35'W
CB398	Grand Cayman E	19°24'N 80°07'W	NA408	Port Canaveral N	29°32'N 80°08'W
CB399	Jamaica N	18°40'N 76°55'W			

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