SAILING ROUTES

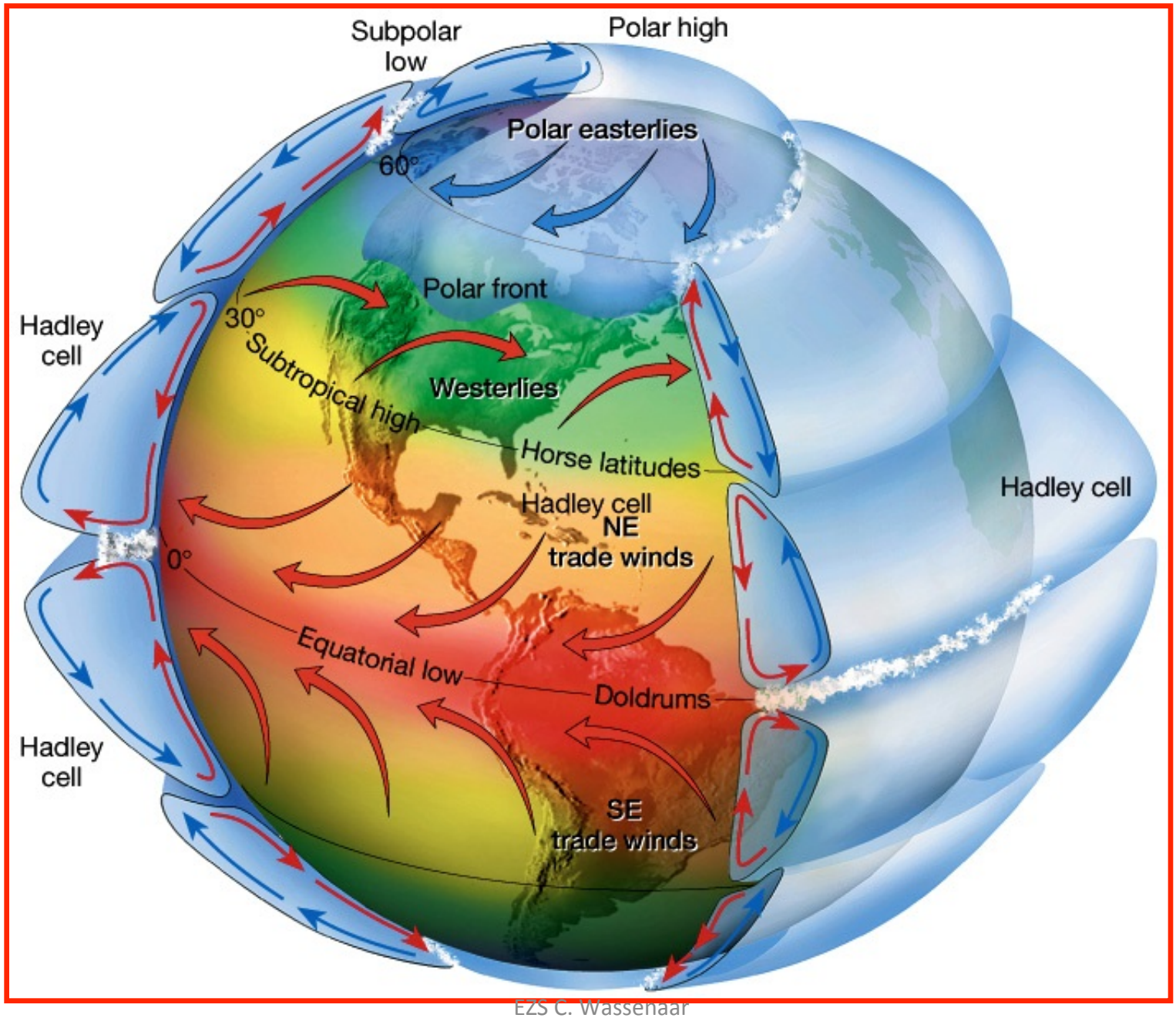
GZV/ENDORSEMENT

SETUP

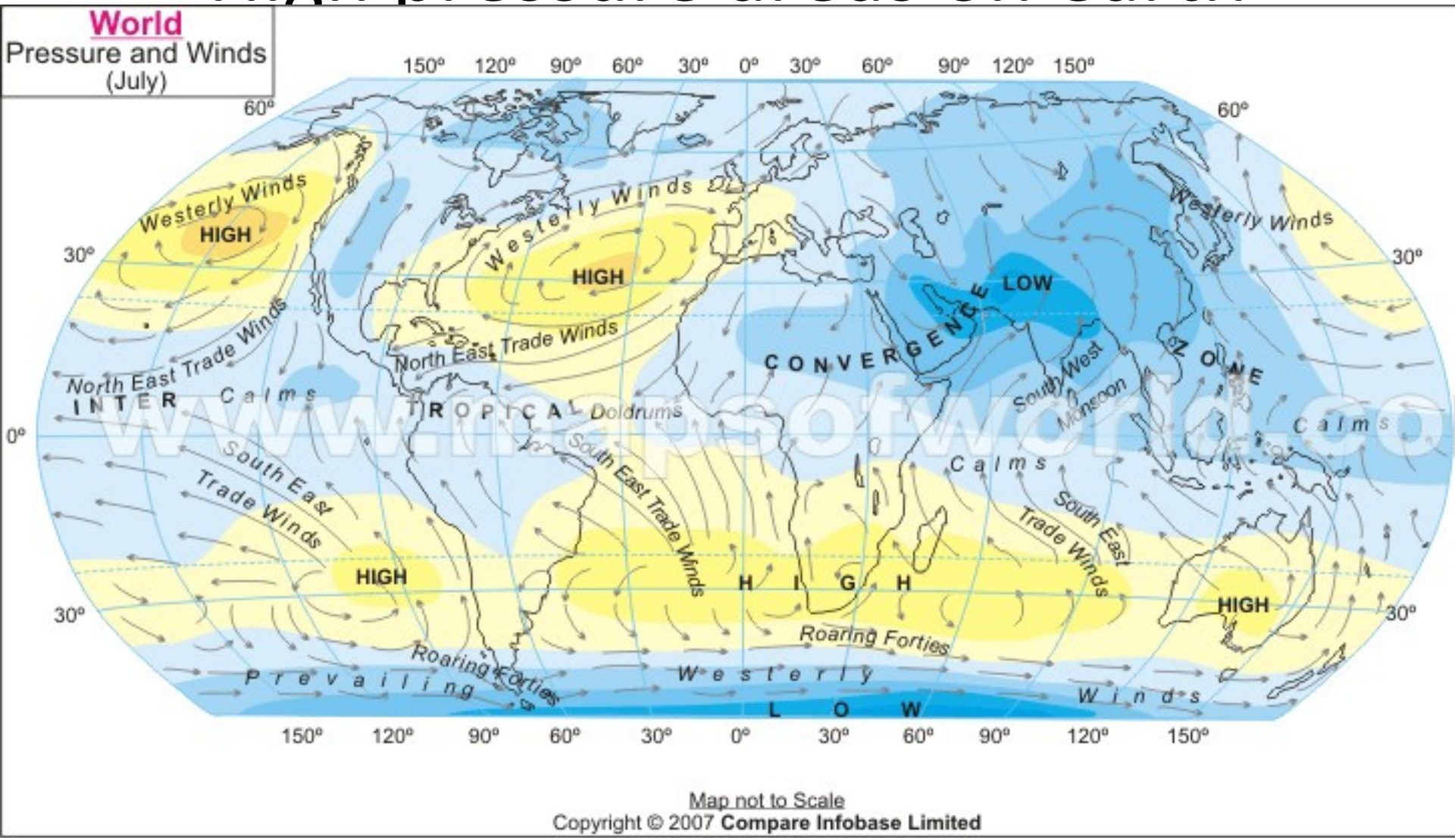
- Low & high pressure areas on earth
- Prevailing winds
- Ocean currents
- Hurricane areas
- Dangerous areas
- Routeing per area
- Use of Pilot charts and Ocean Passages

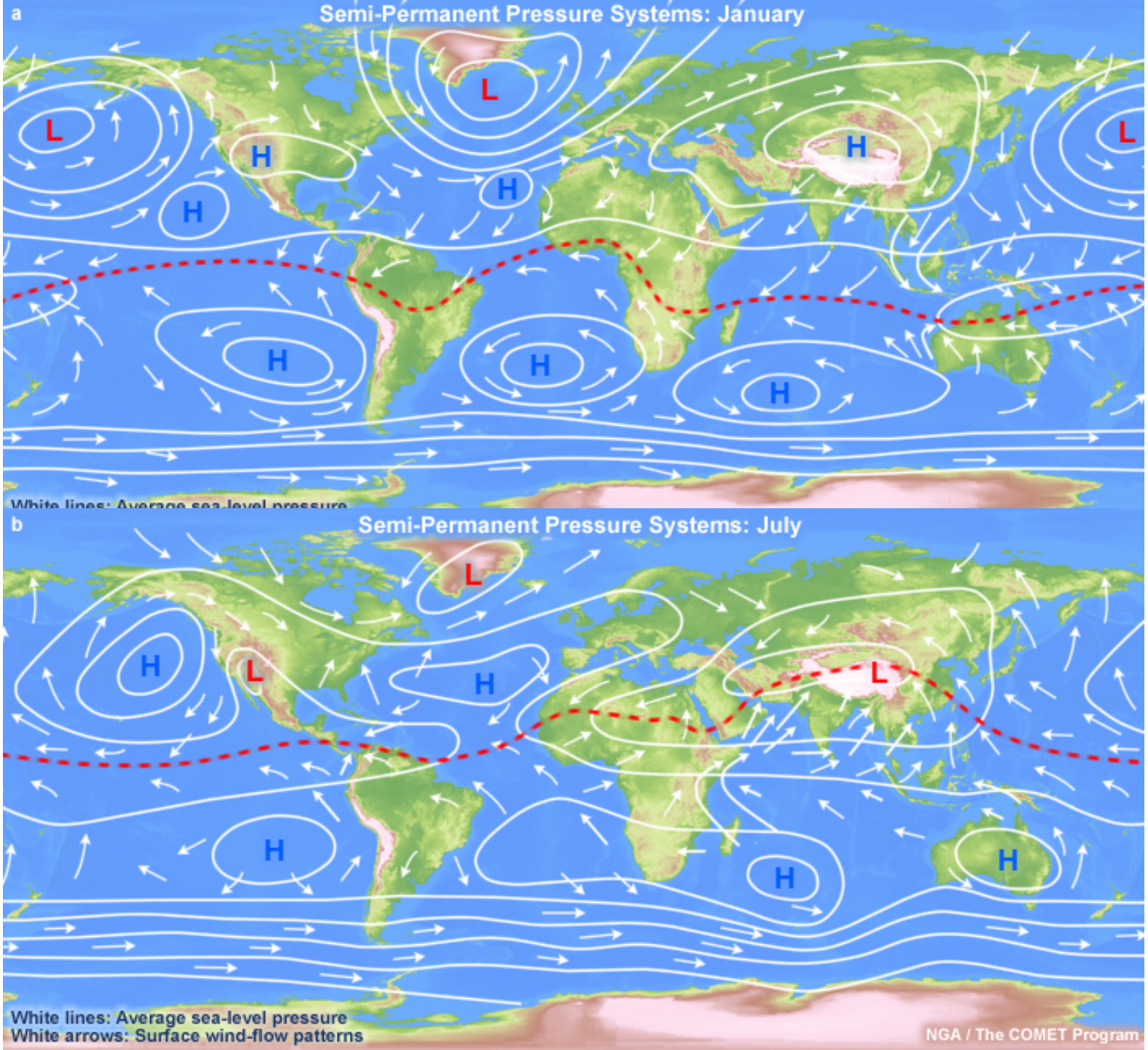
CONCEPTS

- Doldrums
- Horse latitudes
- Trade winds
- Monsoon
- Continental shelf
- Intertropical convergency zone


Subpolar low
Polar high
Polar easterlies
60°
Polar front
30°
Subtropical high
Westerlies
Horse latitudes
Hadley cell
NE trade winds
0°
Equatorial low
Doldrums
SE trade winds
Hadley cell
Hadley cell
Hadley cell

High pressure areas on earth



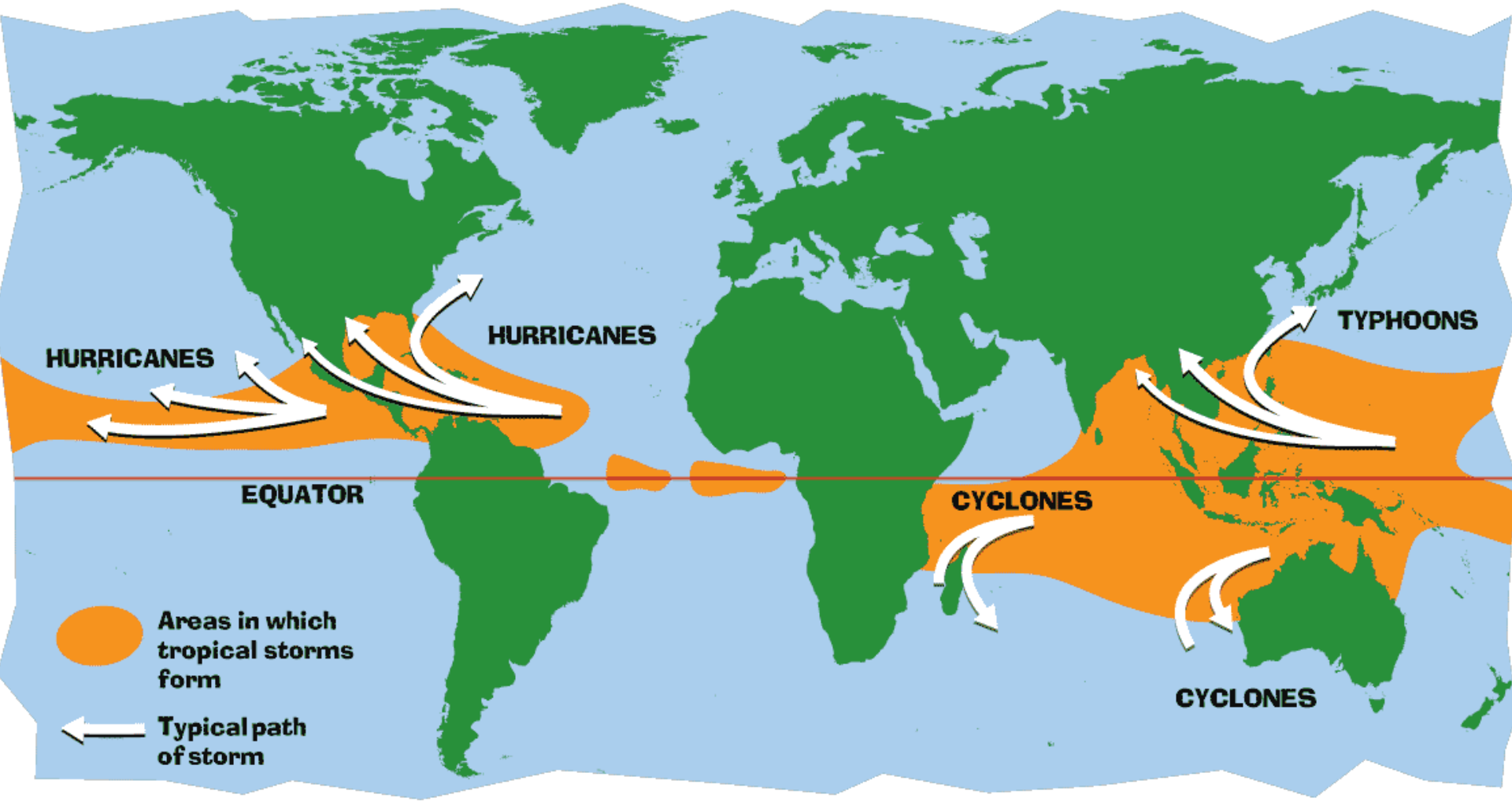

a
Semi-Permanent Pressure Systems: January
L
L
L
H
H
H
H
H
H
H
b
Semi-Permanent Pressure Systems: July
L
L
L
H
H
H
H
H
White lines: Average sea-level pressure
White arrows: Surface wind-flow patterns
NGA / The COMET Program

Ocean currents

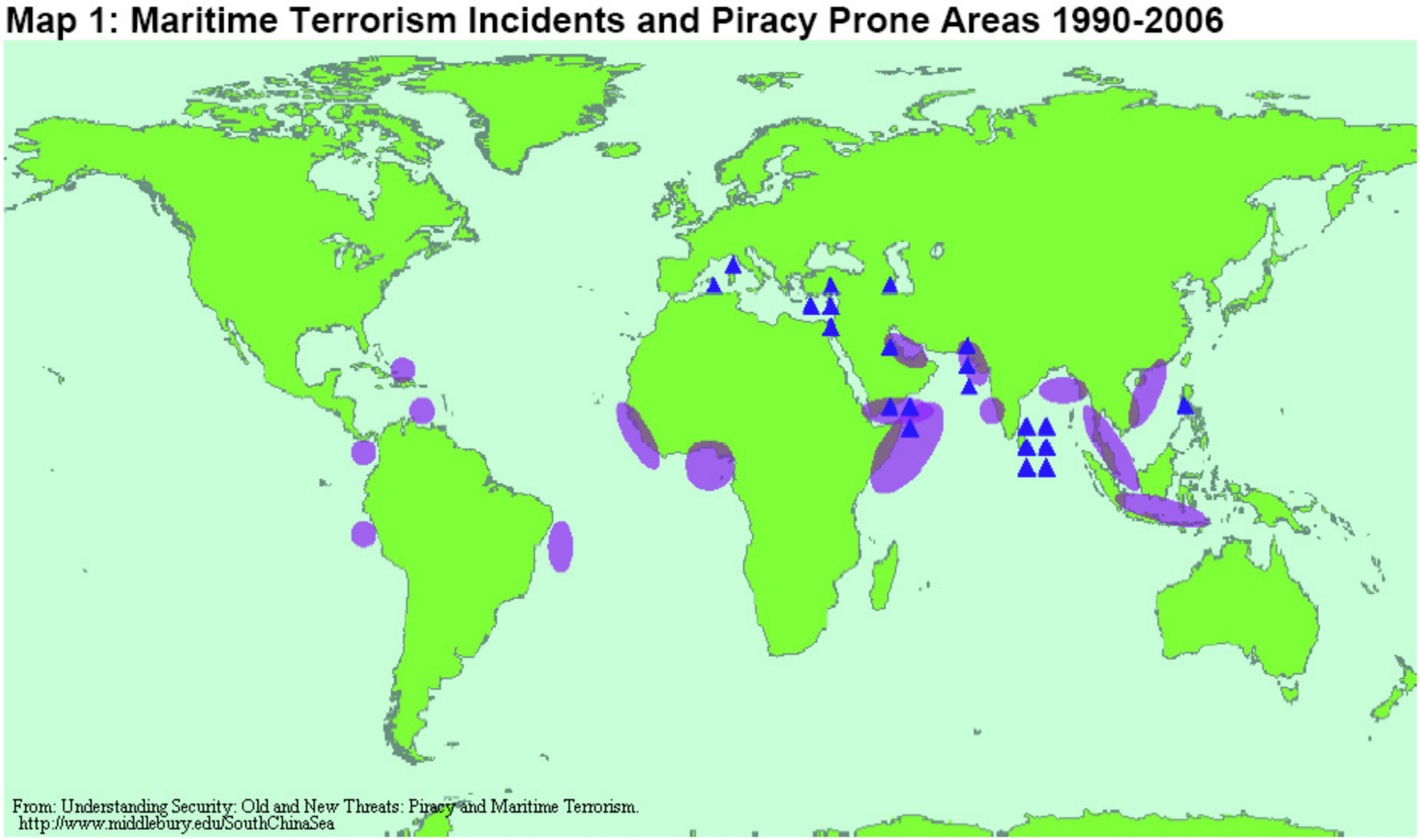
- Drawing pg 105/106
- Caused by prevailing wind
- Course changed by Coriolis

Hurricane areas

Routes huricanes, cyclones, typhoons

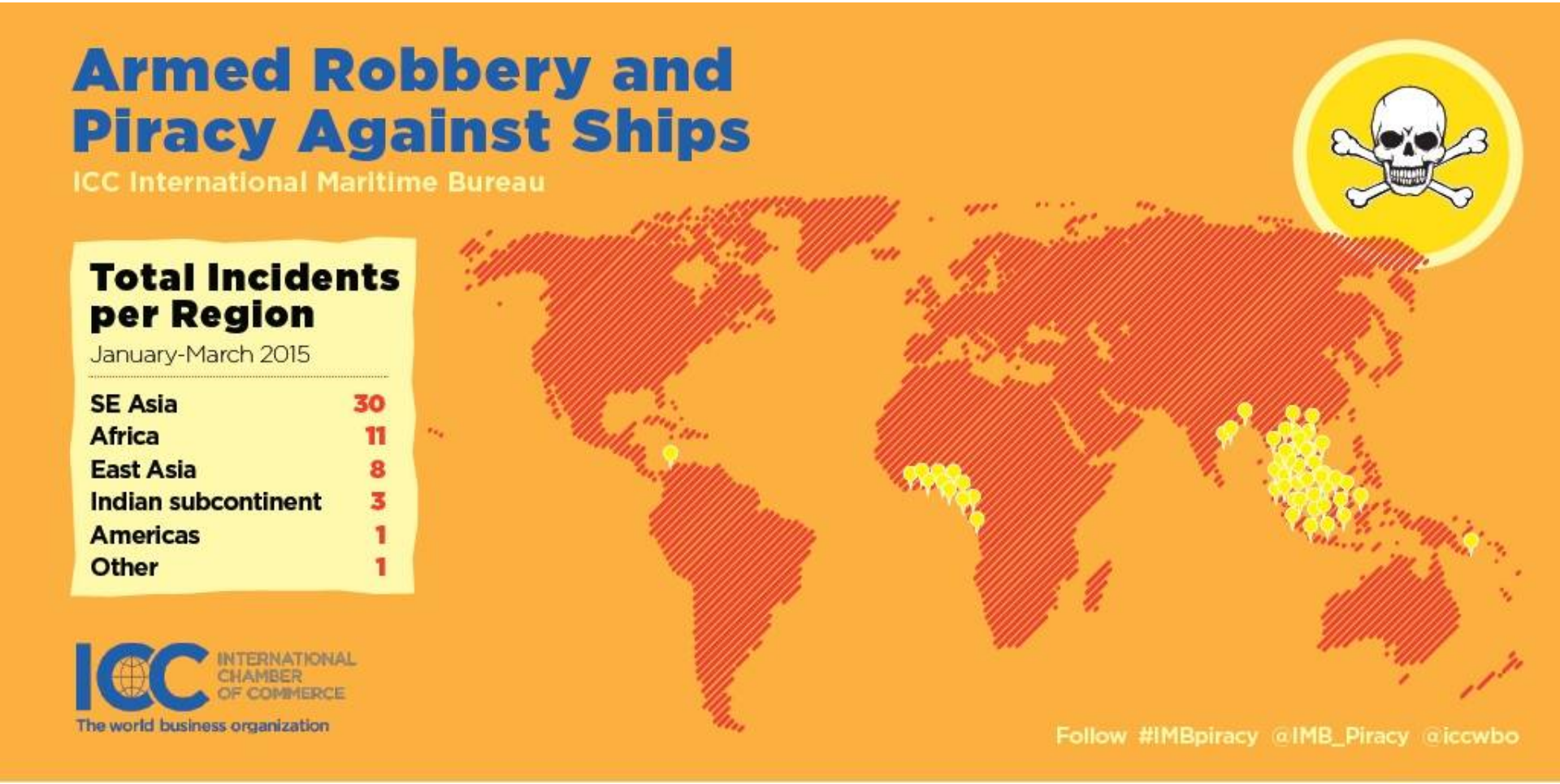


Piracy prone areas



Pink shaded areas denote piracy prone areas; blue triangles denote terrorist incidents.
Source: ICC IMB & MIPT

Decrease in Piracy?



ROUTING

General routes

North Atlantic: Europe-Americas

Westerlies!

Directly: Seldom possible. MV's or fast ships when using professional routing bureaus!

South: Pick up the tradewinds

North: North of L pressure area

(Short but cold!!)

Southern (tradewind) route

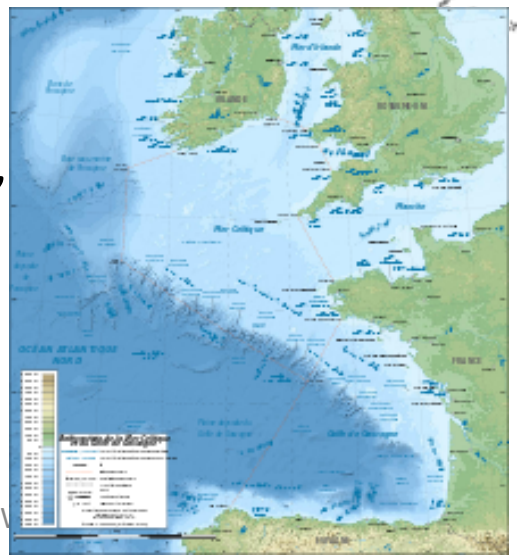
Lizard Point course WSW to 10°-12° West

Keep clear of Biscay!

Ile d'Ouessant should

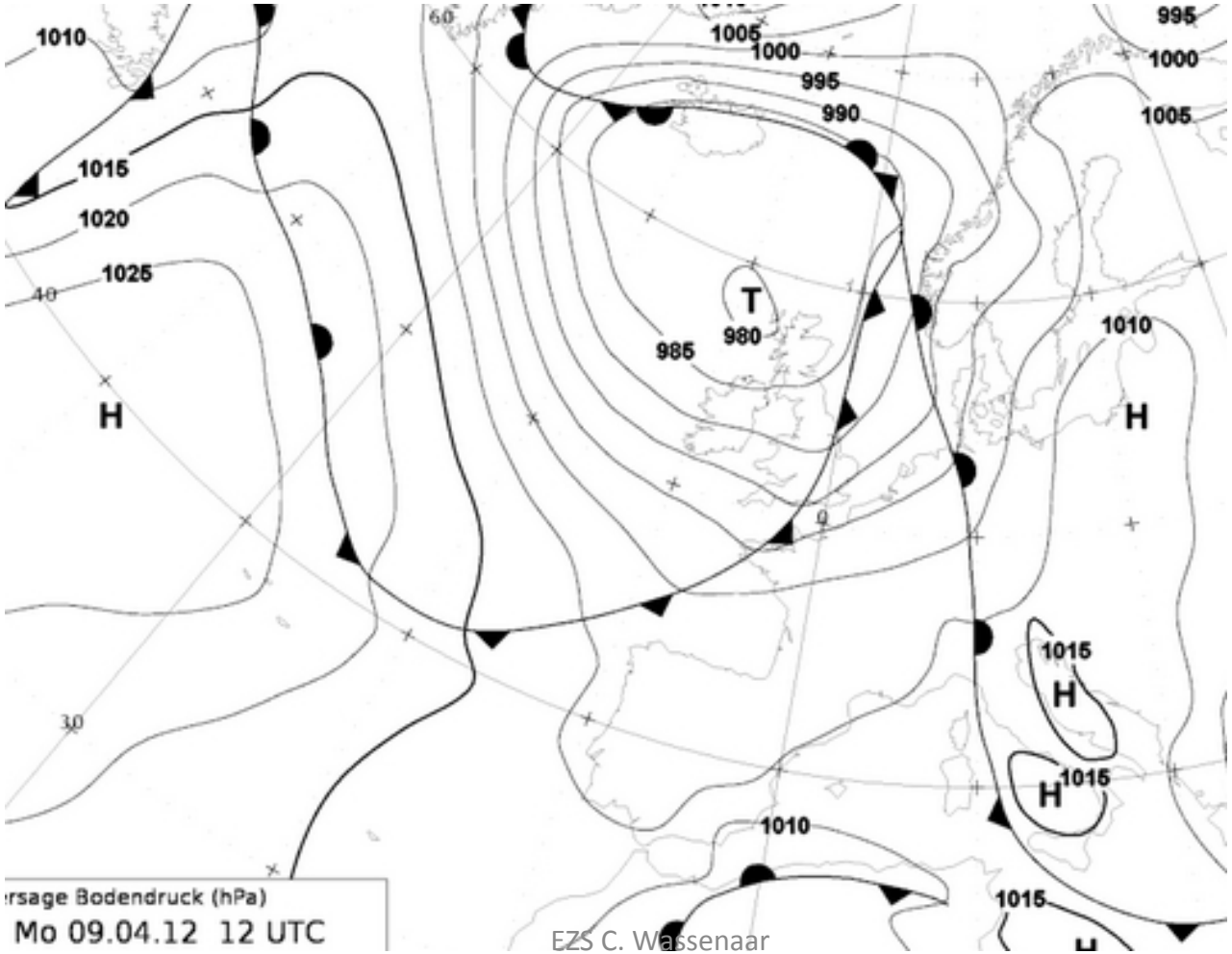
Not be sighted!

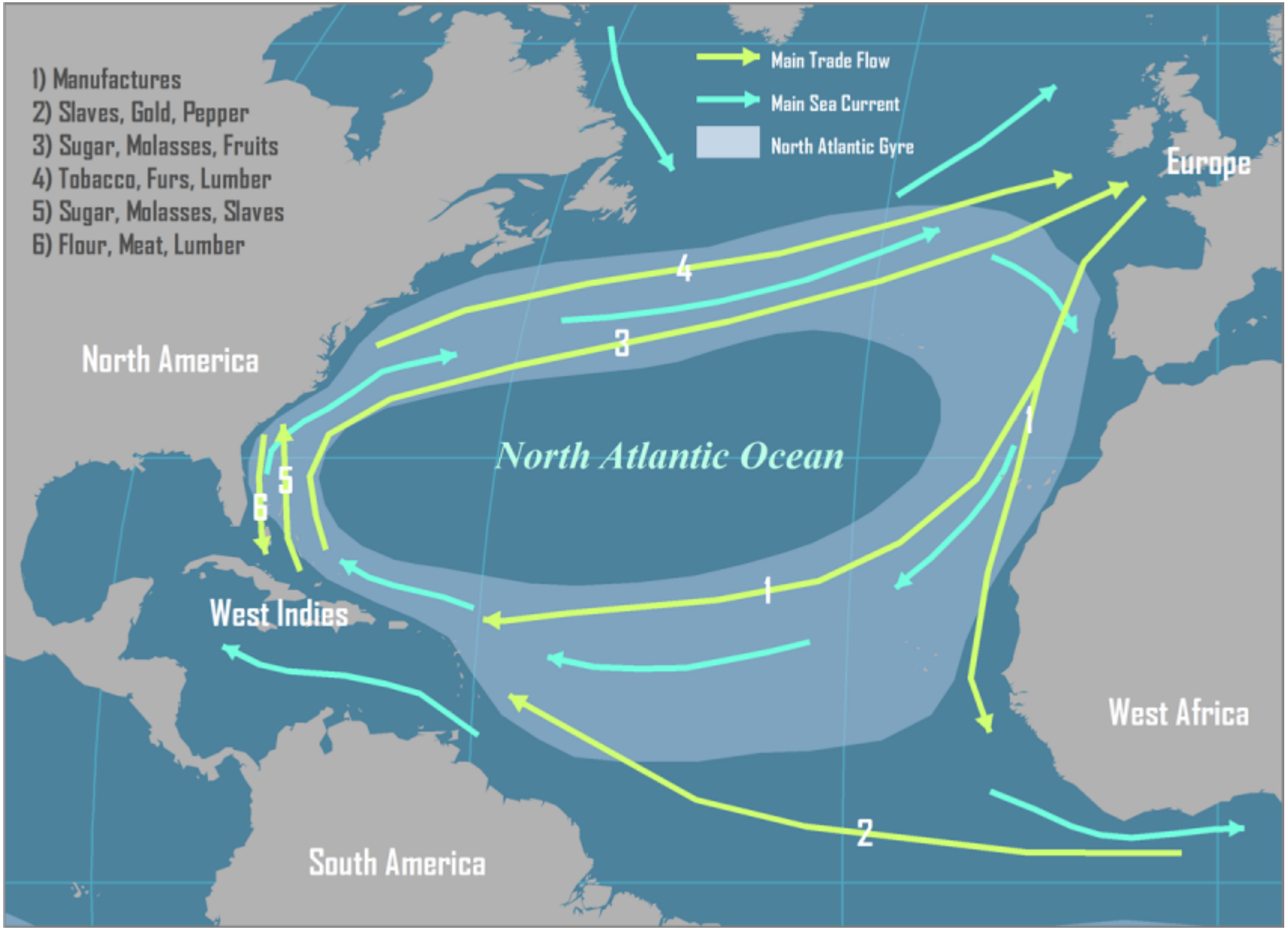
Biskay, 100 fathom line, continental shelf



Bay of Biscay

Make west! → veering wind after passing coldfront




1) Manufactures
2) Slaves, Gold, Pepper
3) Sugar, Molasses, Fruits
4) Tobacco, Furs, Lumber
5) Sugar, Molasses, Slaves
6) Flour, Meat, Lumber
Main Trade Flow
Main Sea Current
North Atlantic Gyre
Europe
North America
North Atlantic Ocean
West Indies
West Africa
South America
1
2
3
4
5
6

Crossing doldrums and equator

Not too far to the east: Doldrums area larger!

Not too far to the west: S- hemisphere: **SE tradewind**

Northern Summer: South-east tradewind more S!

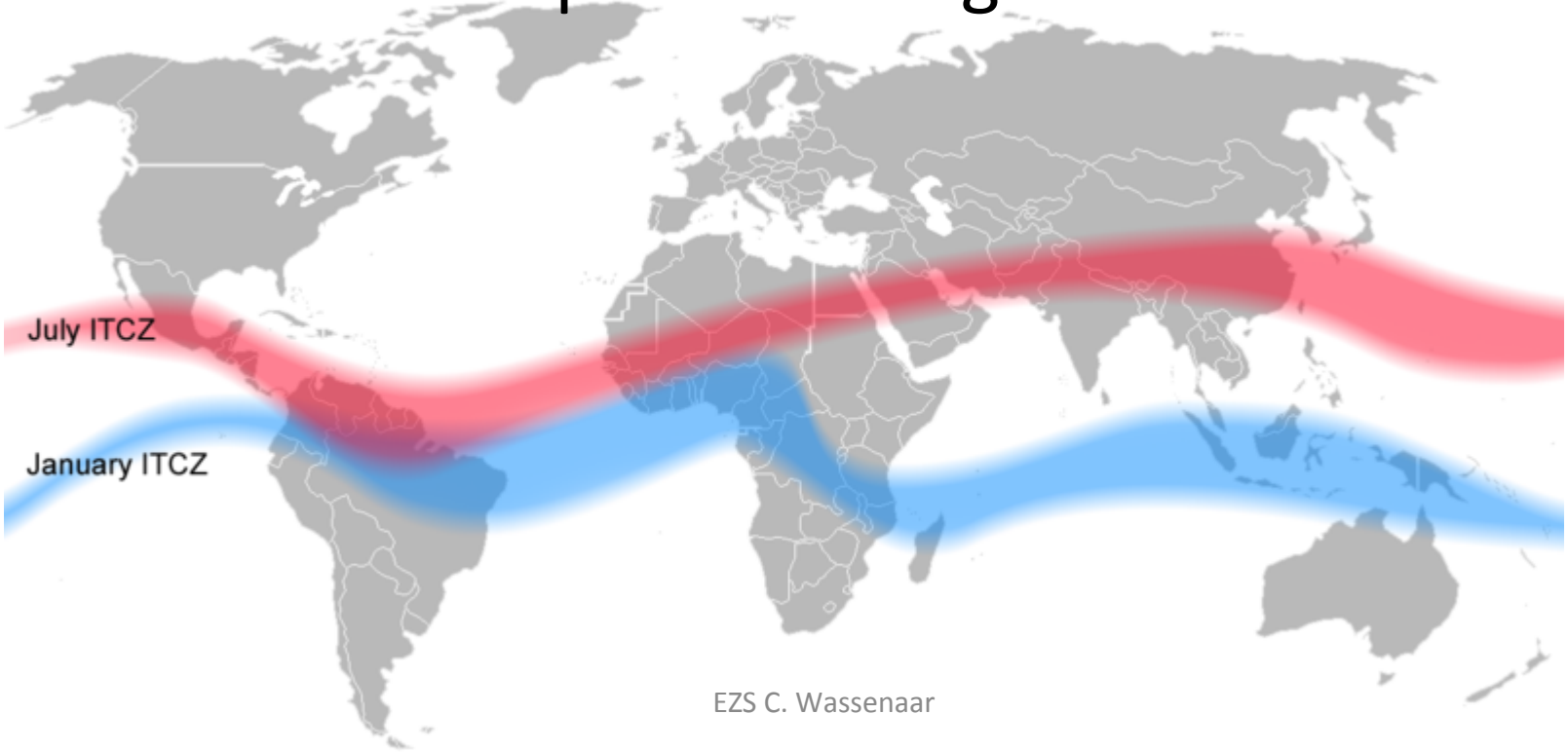
Northern Summer: pass between 17° – 19° west

Northern Winter: pass between 24° – 29° west

Very little wind

Horse lattitudes - *Sir James Ross* (descending of air: H)
Doldrums: Rising of air (L)

"Intertropical convergence zone"



South-Atlantic: Cape Horn

East to west: head South first! South side L

But…. NOT too far!

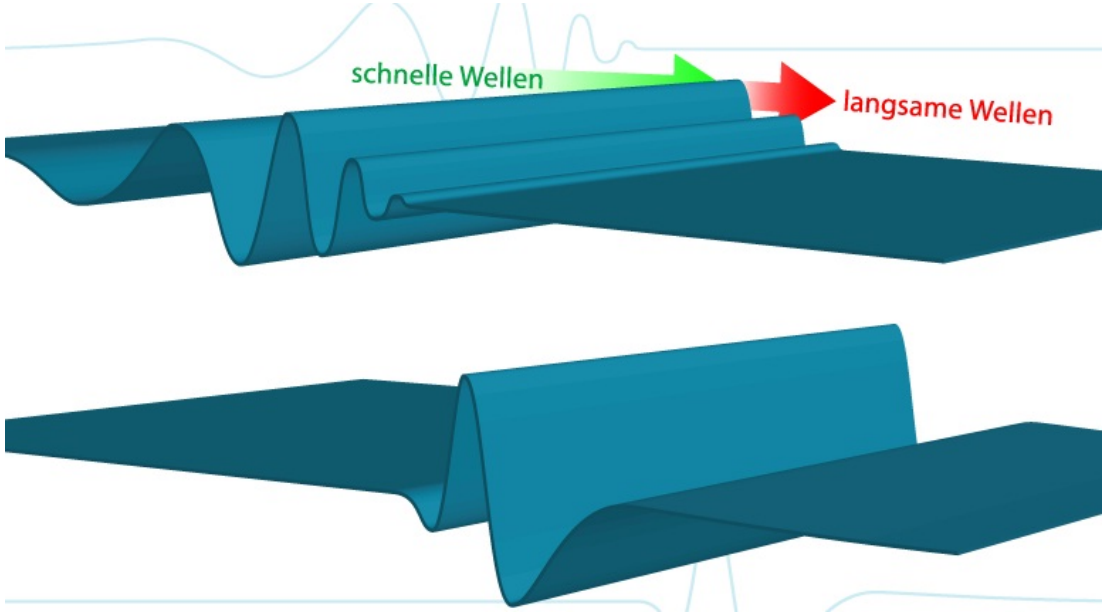
West to east: prevailing winds, stay North of L!

67 days

1914 “Edward Sewall”

South Atlantic: Cape of Good Hope

- Roaring forties, screaming fifties
- Agulhas current: *"freakwaves"*, southgoing stream 6 kt → Prevailing westerly wind



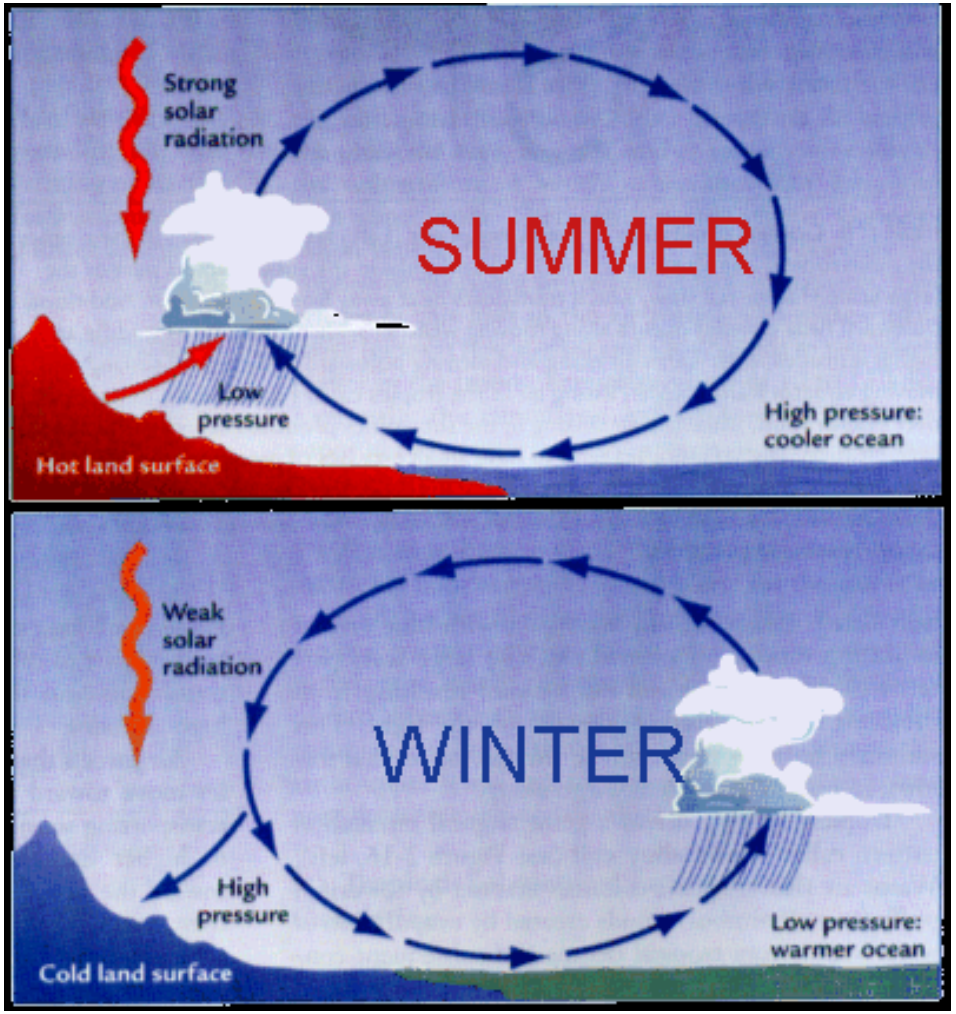
Indian ocean

Monsoon!

N winter: NE

N summer: SW

Difference in temperature

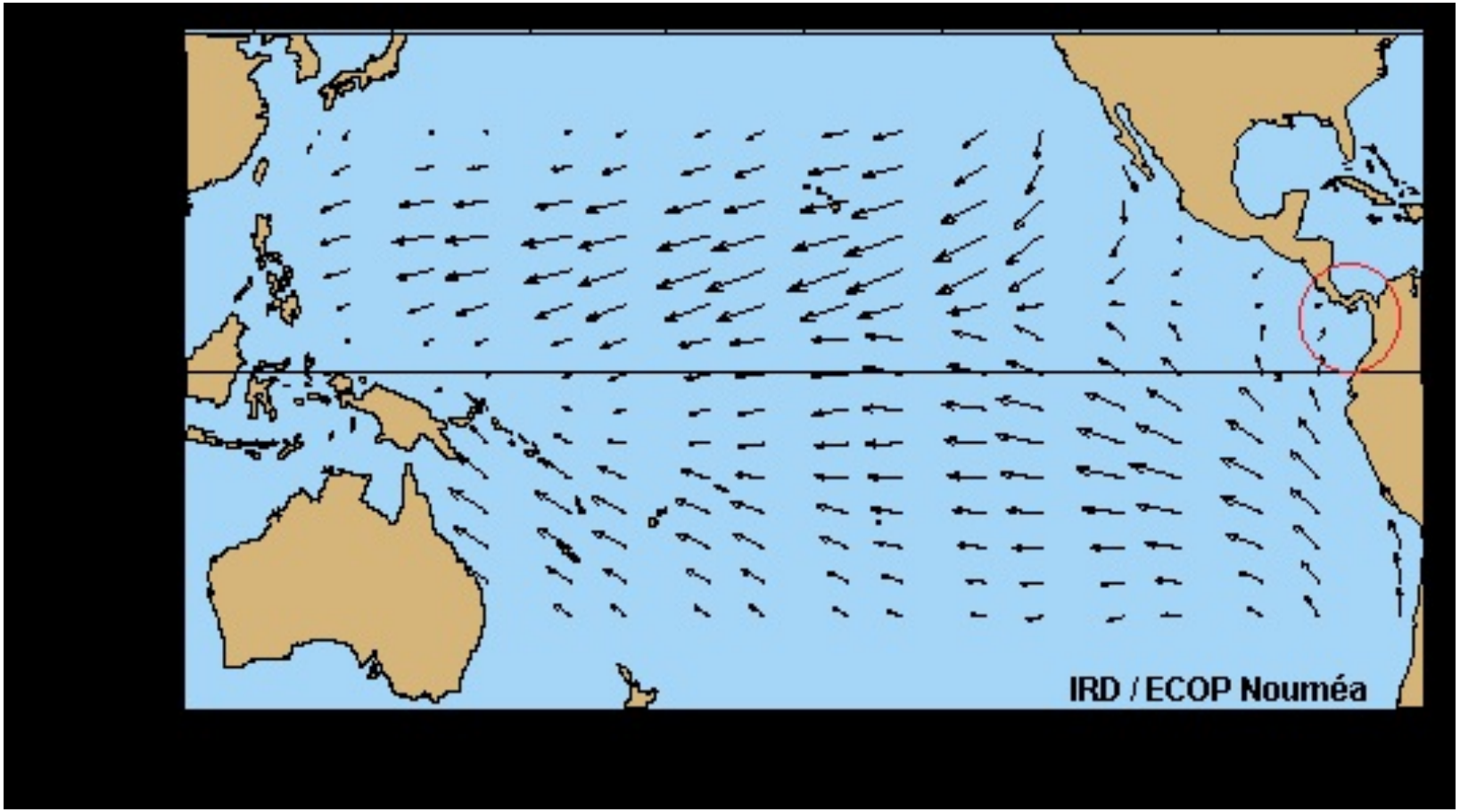


Indian ocean

- In the winter head west, in the summer go east
- NE monsoon 4-5 bf; SW monsoon 5-7 bf
- Entrance Red sea 8 bf!
- Suez channel: not ‘sailable’

Panama canal

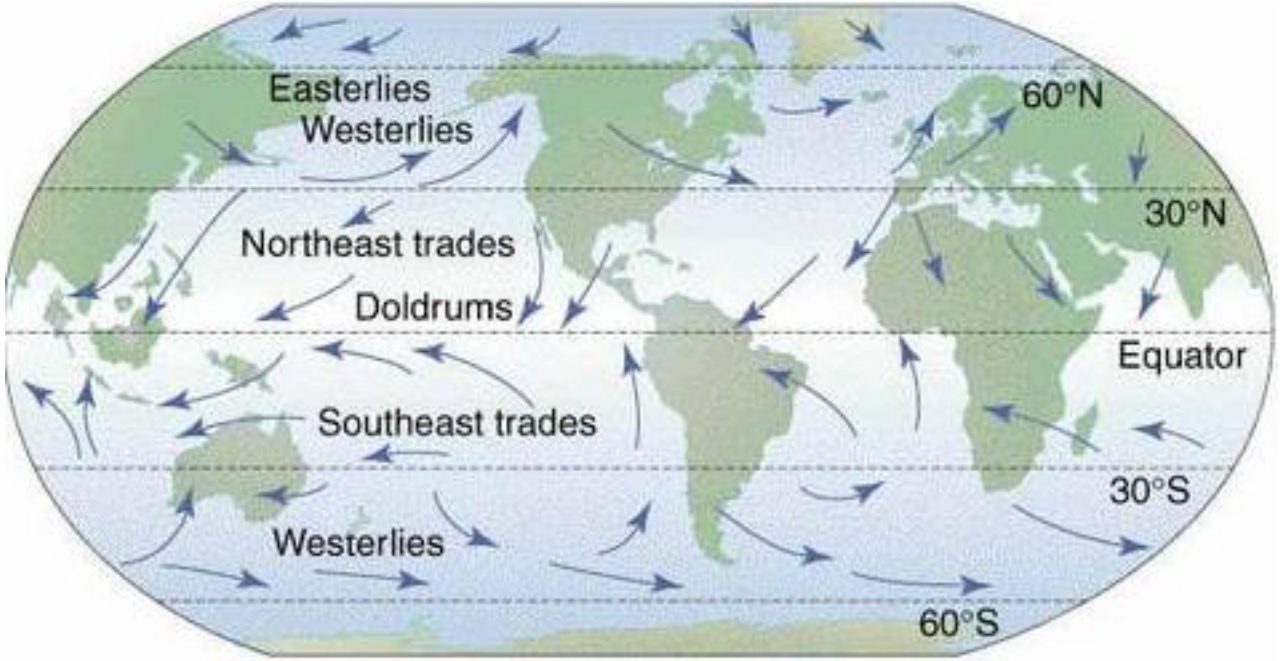
Pacific: area with no wind



Panama canal

Leaving West side: first go south before heading West

(Leaving East side: lee shore Caribian sea



(c) Global trade winds

Southern Pacific

East to west: SE tradewind

West to east: first go south (westerlies)

Atolls:

→ Sun from behind and enter with daylight. Polaroid shades!

→Be aware of strong currents! Differences in waterlevel inside-outside atol

Mediterranean

Current goes counterclockwise!

W-E stay south (in winter leeshore, N gales!)

E-W stay north

Pilot Charts

Averages of prevailing winds, currents, air and surface temperatures, wave heights, ice limits, visibility, pressure and weather conditions

obtained from oceanographic and meteorologic observations over many decades

Not to be used for navigation!

Material: pilot charts containing the months Feb/April/May/ July/Sept.

+ 10 copies of Ocean Passages of the World

General questions:

1. Explain the meaning of the red lines
2. How far south have icebergs or growlers been spotted and in which year?

Wind roses

1. What does the length of the shaft of the arrows mean?
2. What does the amount of feathers on the arrow indicate?
3. What does the figure in the centre of the wind rose indicate?

Routeing question:

- Sailing from Brest (France) to Miami (USA). Plan a course on the map that offers the best chance on running winds. Also use recommendations from the Ocean Passages chapter 8.
- What are the disadvantages of a great circle route from Brest to Miami? Which ocean currents play a part here?