Week 17

1

Meteorology 4

Local Winds
&
Fog

AX E YACHT CLUB

2

Sea Breezes

Daytime

AXE YACHT CLUB

RYA Training Centre

3

Sea Breezes

Evening / Night

AXE YACHT CLUB

RYA Training Centre
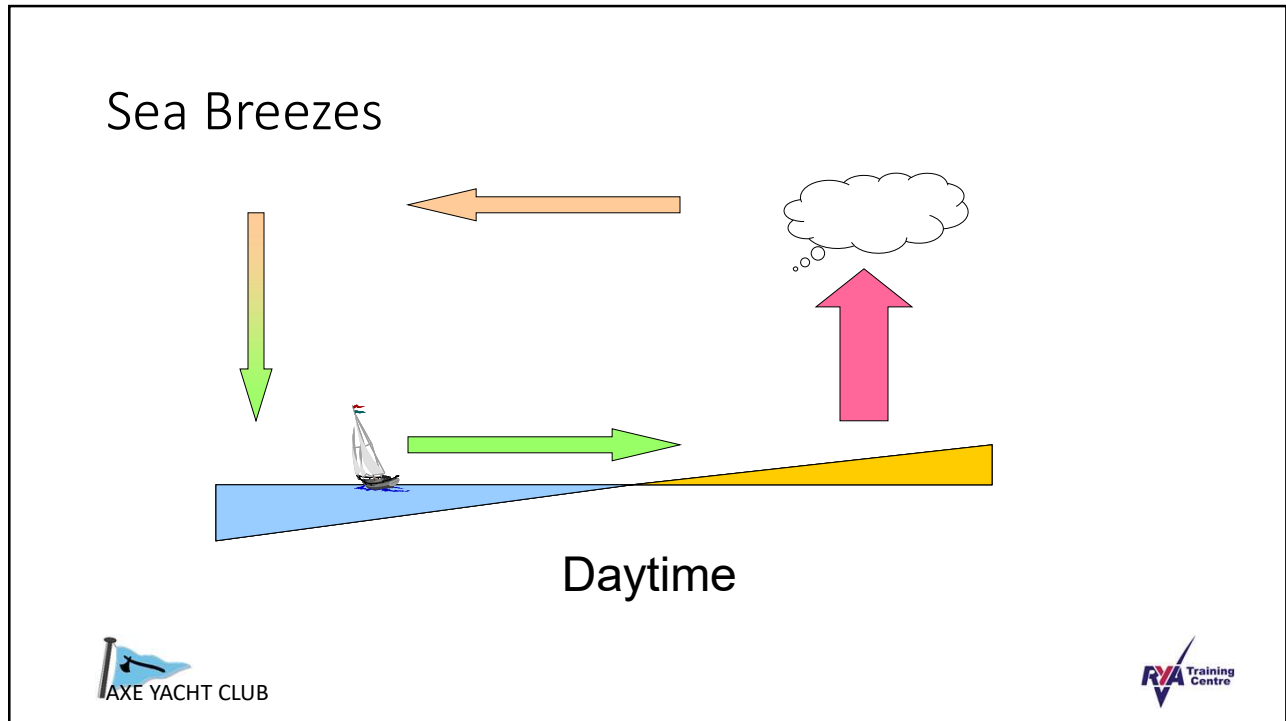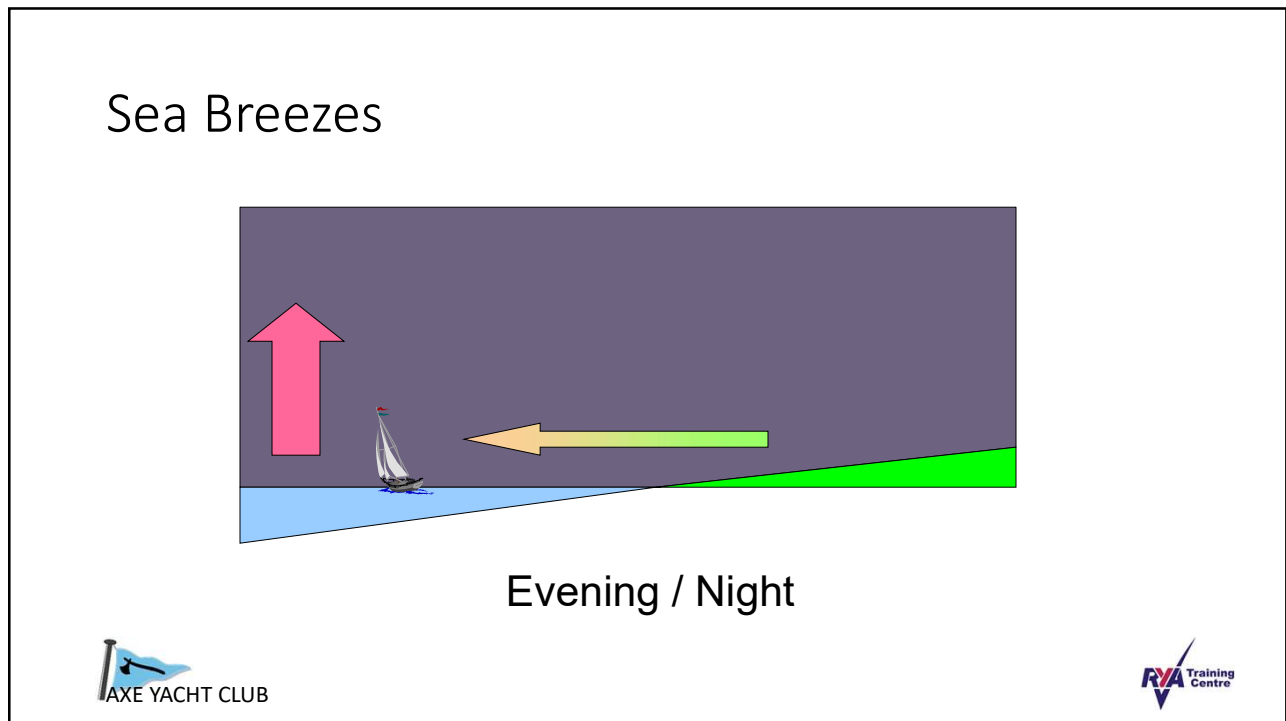
4

Cumulus clouds along a sea breeze front.

Credited to:

A climatological study of sea breeze clouds in the southeast of the Iberian Peninsula (Alicante, Spain)

C. AZORIN–MOLINA
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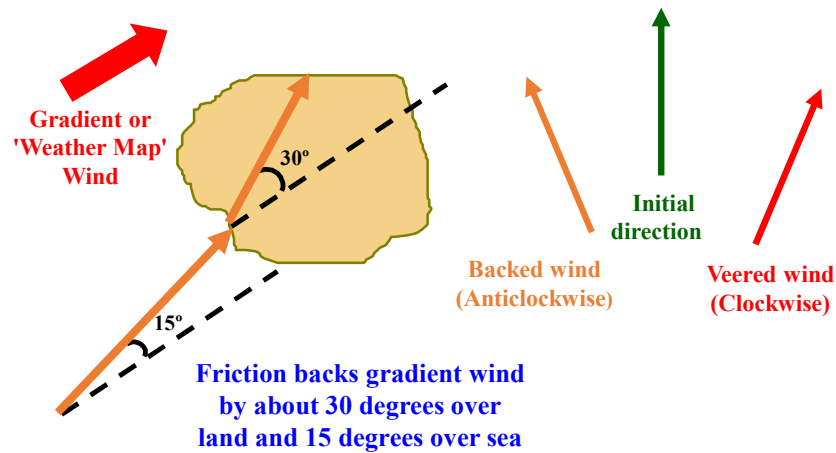
Fig. 2a. Stratus fractus, cumulus fractus and cumulus humilis clouds showing the advance of southeasterly (on the left-hand side of the photograph) sea breezes over the city of Alicante and surrounding area (within the CIBL) at 0842 UTC on August 30, 2004.
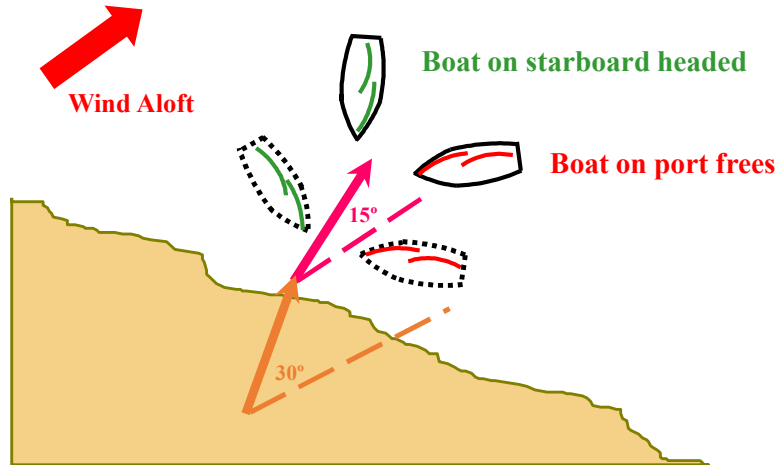
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EFFECT OF SURFACE FRICTION

Gradient or 'Weather Map' Wind

30º

15º

Initial direction

Backed wind (Anticlockwise)

Veered wind (Clockwise)

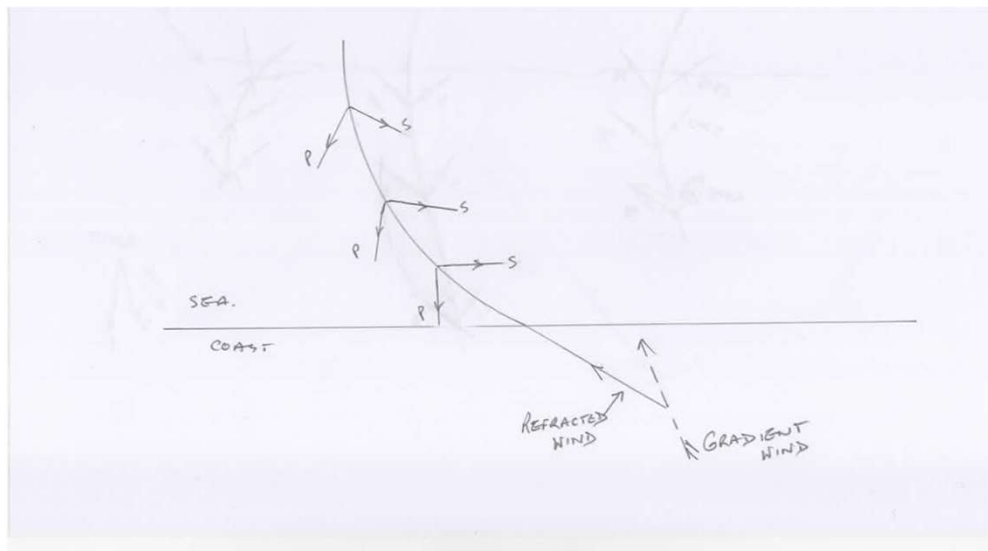**Friction backs gradient wind by about 30 degrees over land and 15 degrees over sea**

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3

PRACTICAL EFFECT OF FRICTION

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COMBINED WIND EFFECTS

Wind Aloft

Land and Sea
Winds Diverge

Light Wind

Strong Wind

Sea and Land
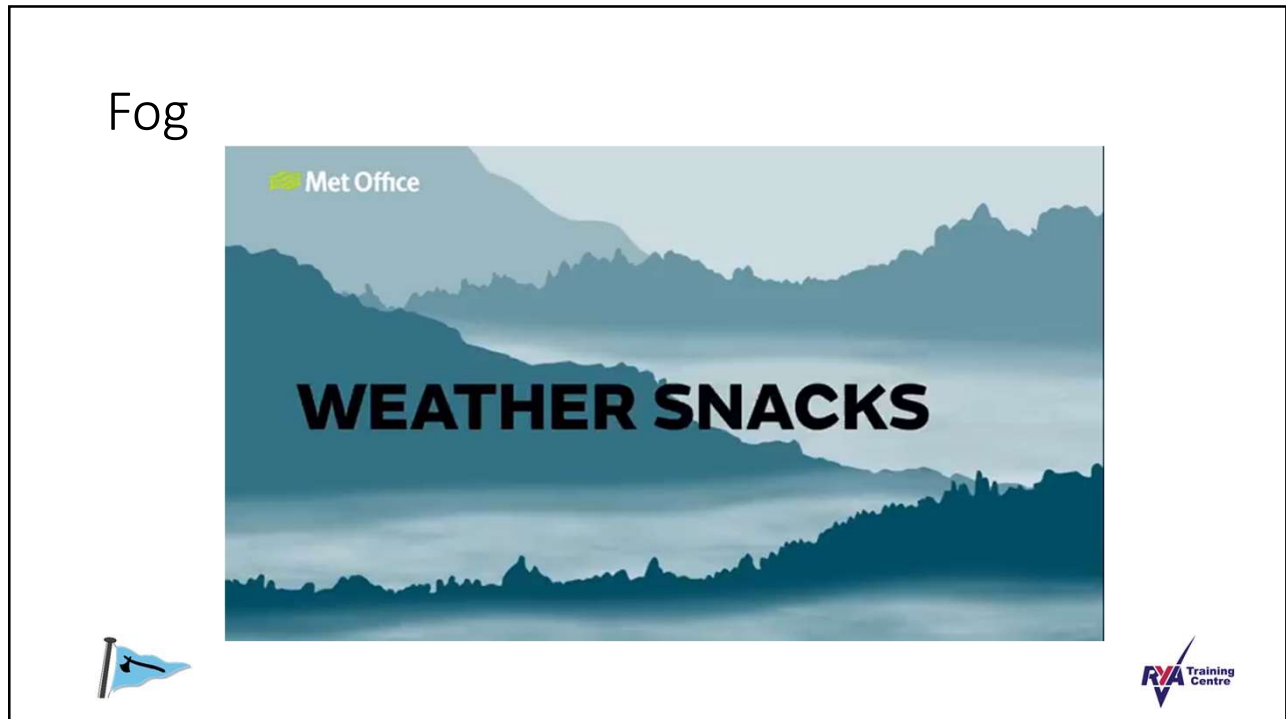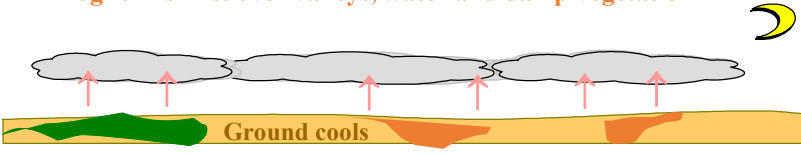**Winds Converge**

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Fog
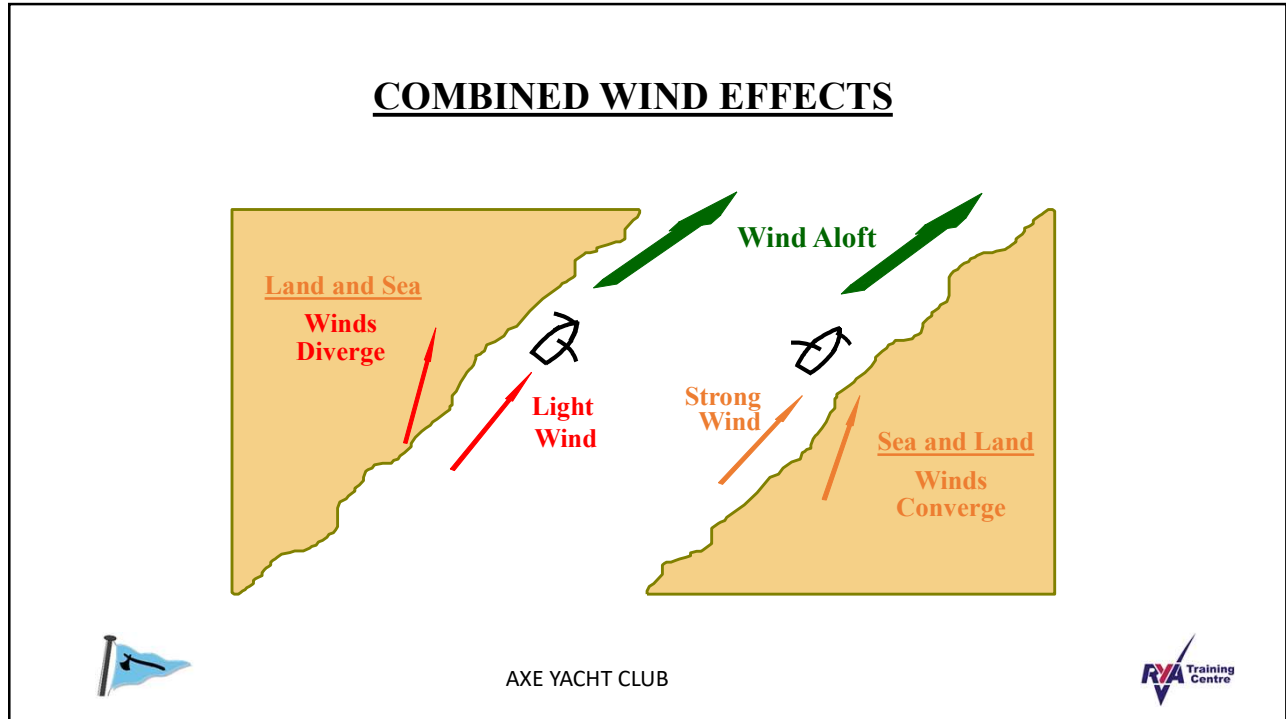
FOG

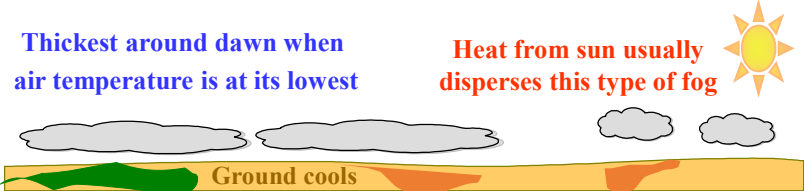**Radiation Fog**   **Clear nights with little wind**

Damp warm air radiates off as the ground cools at night
Condensation takes place
Fog forms first over valleys, water and damp vegetation

Ground cools

Thickest around dawn when
air temperature is at its lowest

Heat from sun usually
disperses this type of fog

Ground cools

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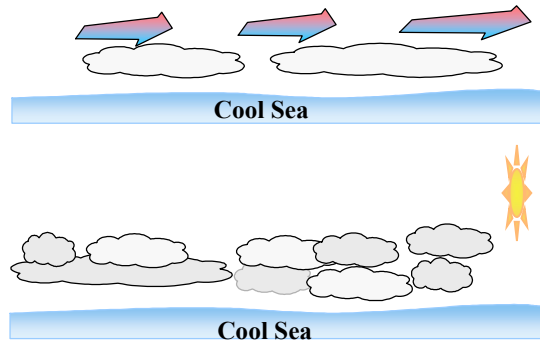# Clearing Radiation Fog – Axe Wetlands

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FOG

Advection Fog

Tropical Maritime - warm moist wind blowing over cold sea
Air cools and water vapour condenses to form fog

Force 5/6 winds will lift the fog to form low stratus cloud

Cool Sea

Sun tends to thicken the fog by warming the air further

Cool Sea

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Navigation in Restricted Visibility

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Hazards and Controls

Hazard	Potential Severity	Skipper's possible actions

Carry out your own "risk assessment" to consider the potential hazards of navigating in fog and consider ways by which these can be reduced.

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Hazards and Controls

Hazard	Potential Severity	Skipper's possible actions
Collision with Large Vessel	High	Radar reflector hoisted if not permanent Use Radar and AIS if available If possible seek shallow water Maintain steerage way
Collision with similar sized vessels	Medium	Use Radar and AIS if available but remember that there will be vessels without AIS. Use foghorn. If using engine – stop and listen at frequent intervals if in area with high density of similar vessels. Maintain steerage way.
Getting lost	High	Fix position before landmarks obscured Maintain EP Navigate towards shallow water Use a contour line to find shelter.

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Continued

Hazard	Potential Severity	Skipper's possible actions
Losing crew overboard in collision	Medium	Muster crew on deck Lifejackets and harnesses (?) worn

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Passage Planning 2

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Scenario

Your boat "Catkin" is berthed in St Kilda Marina. The details of the boat are:

On Saturday 3 August you will be taking the boat from St Kilda to Seahorse Marina in Port Fraser. Those on board will be:
• Yourself with five years' experience of the boat and these waters.
• Bob, a friend, who has sailed on the boat before and did a RYA Competent Crew last year.
• Sam, Bob's 15 year-old son, who sails a dinghy.

You expect to get to the boat by 1800 SPDST on Friday 2 August, but Bob and Sam will not be able to get there until 2100 that evening. You intend to sleep on the boat and depart on Saturday morning.

Boat Details
LOA	8.5m	
Beam	2.5m	
Draught	1.2m	
Air Draught	4.5m	
Cruising speed	6 knots	
Fuel Consumption at cruising speed		2.5 litres per hour
Fuel Capacity	40 litres	

Navigation Equipment
Charts RYA 3 and 4
Training Almanac North
Text based GNSS system
Echo sounder set to waterline
Radar
AIS receiver and display
DSC/VHF radio

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Tasks

Task 1

Carry out an appraisal of the proposed voyage. Assume that you are doing this in the week before the proposed voyage. The 7-day forecast indicates that you can expect fair weather with NW winds of force 3 to 4 and good visibility.

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Task 2

Assuming that your appraisal indicates that the voyage is feasible, produce a passage plan for the voyage using the Farlow Channel. For the moment you do not need to do pilotage plans for St Kilda or Port Fraser.
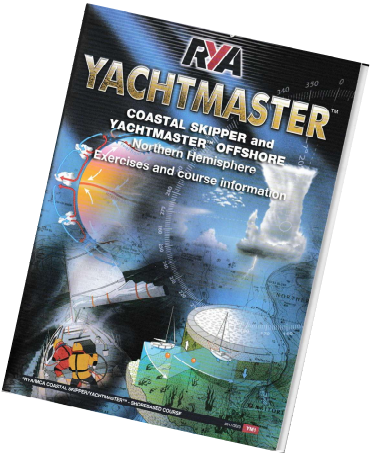
20
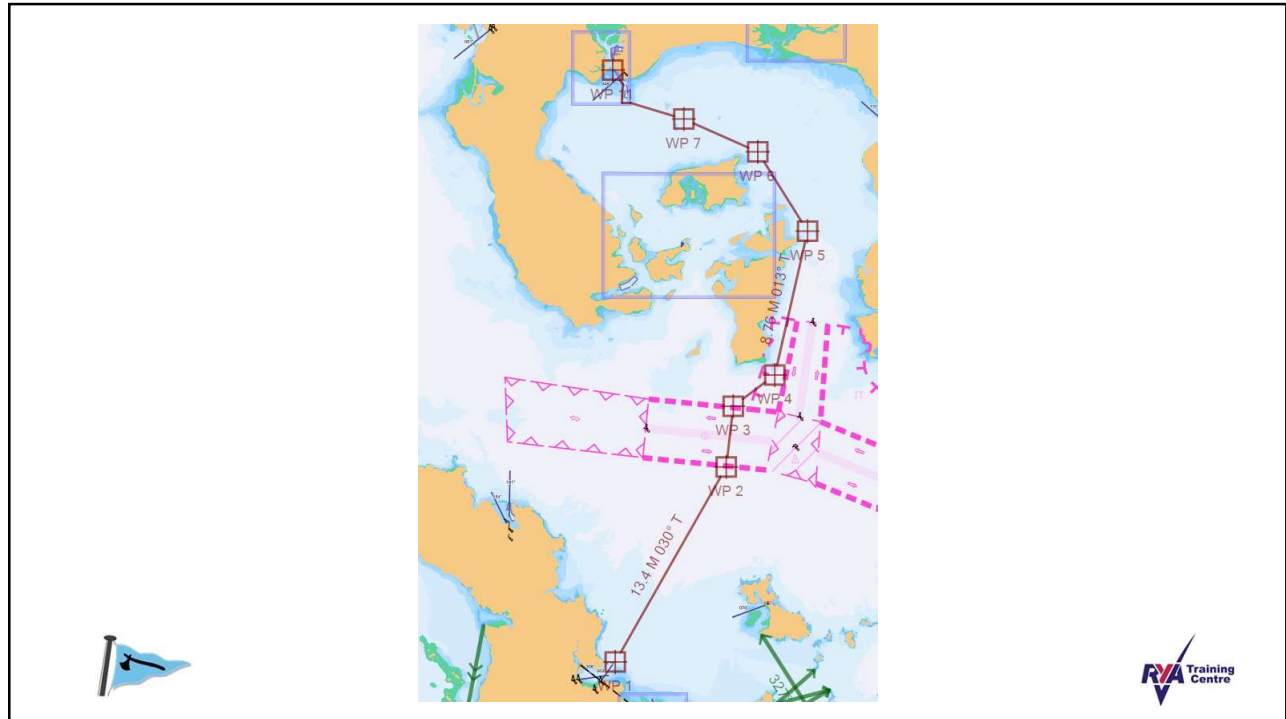
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Homework

- *Exercise "Meteorology" pages 24 / 25.*
- *Complete for Week 19 (20 Feb)*

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