

# Week 17



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# Meteorology 4

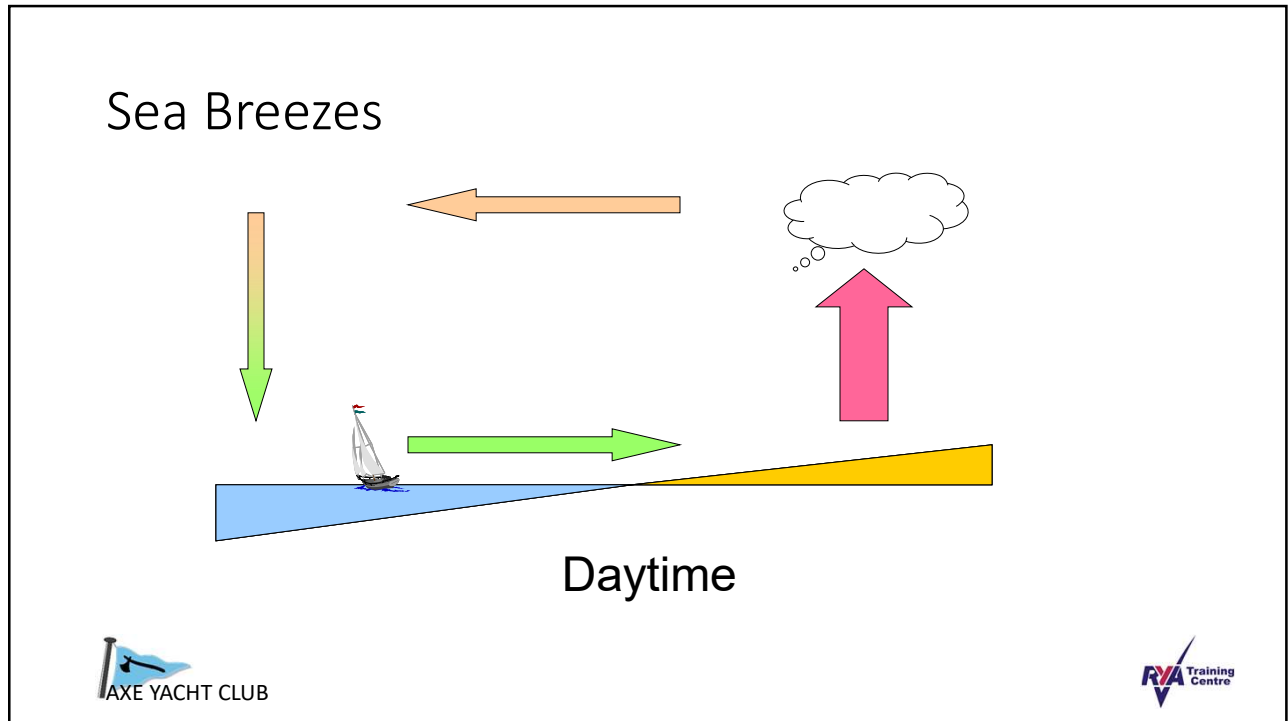
Local Winds  
&  
Fog



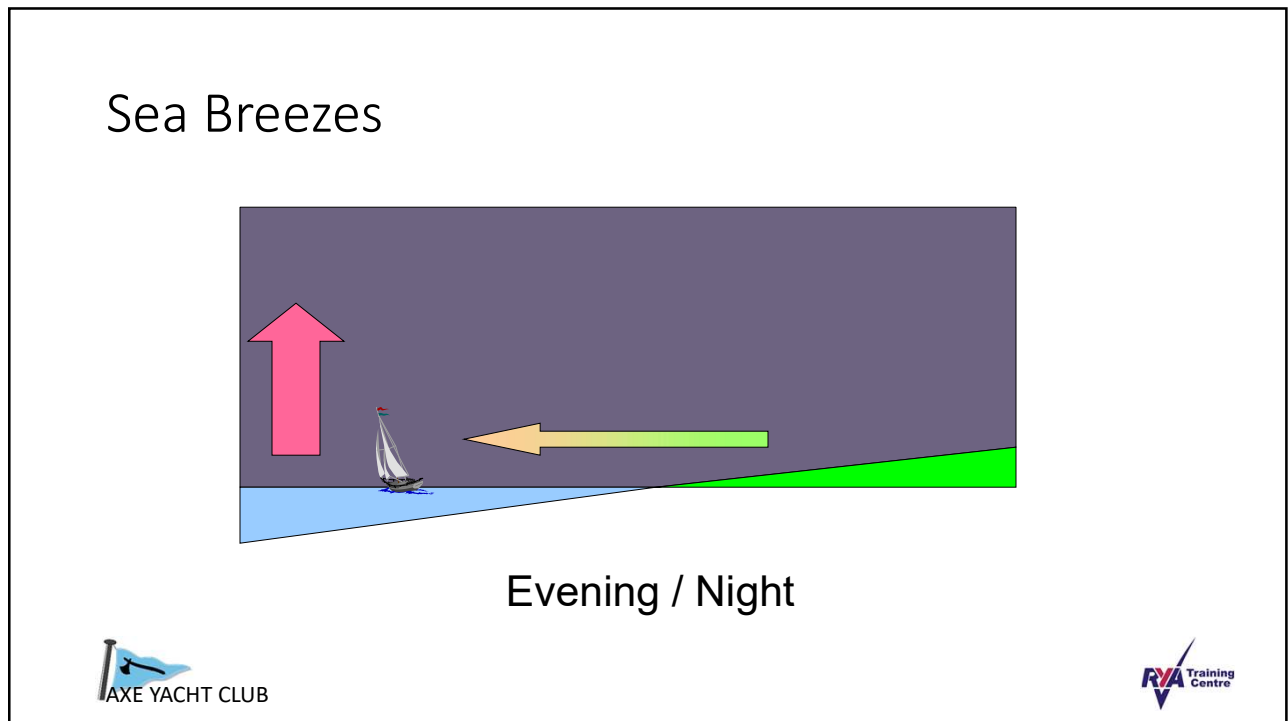
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## Cumulus clouds along a sea breeze front.

Credited to:

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

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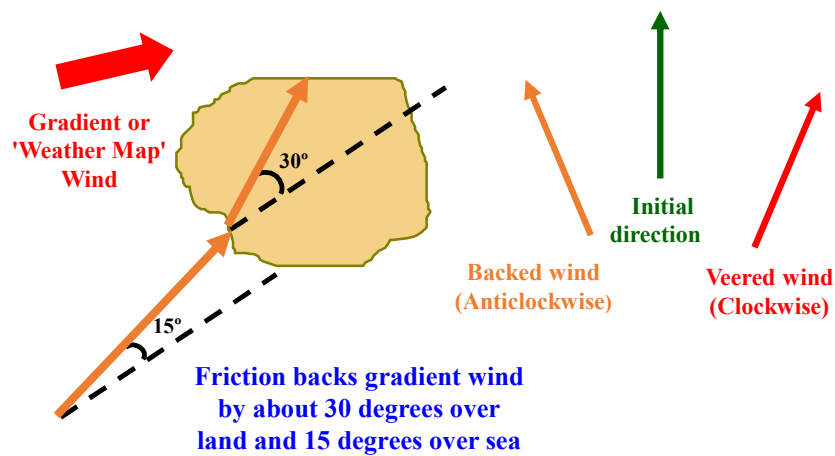


Fig. 2a. Sea breeze front, cumulus fractus and cumulus fractus clouds showing the advance of southeasterly (on the left-hand side of the photograph) sea breezes over the city of Alicante and surrounding area (within the CIBL) at 0842 UTC on August 30, 2004



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## EFFECT OF SURFACE FRICTION

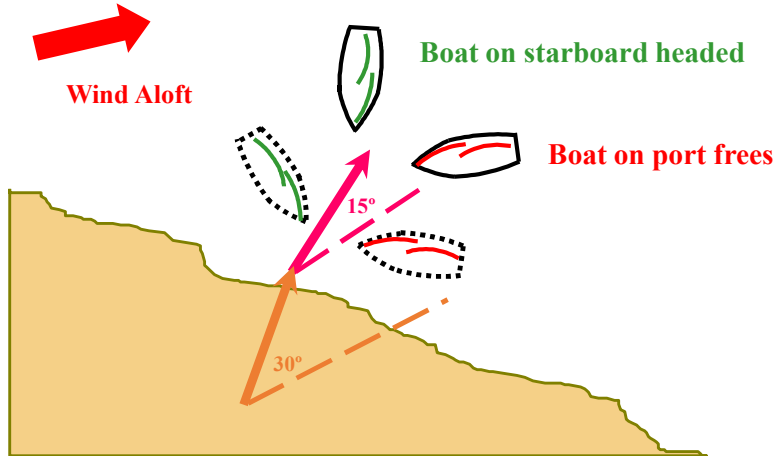


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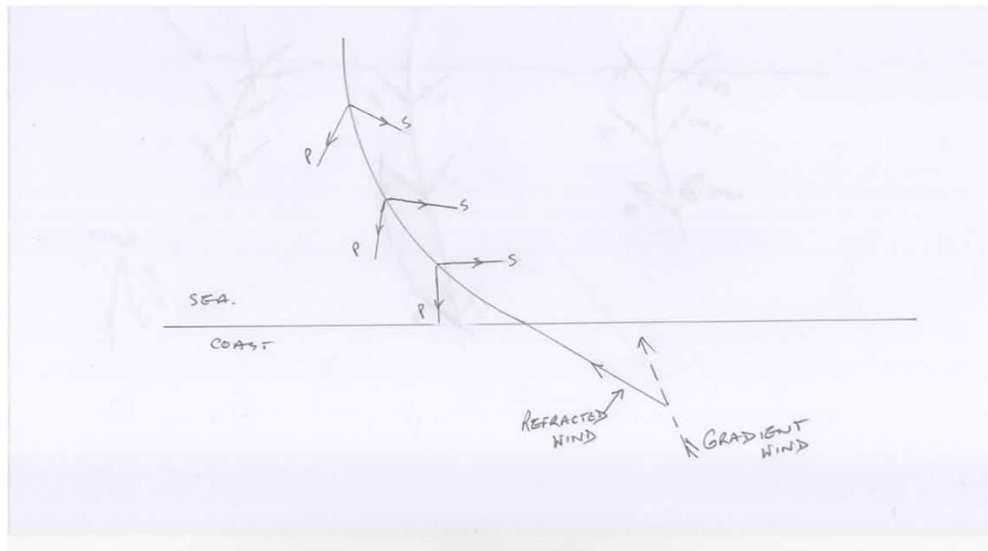
## PRACTICAL EFFECT OF FRICTION



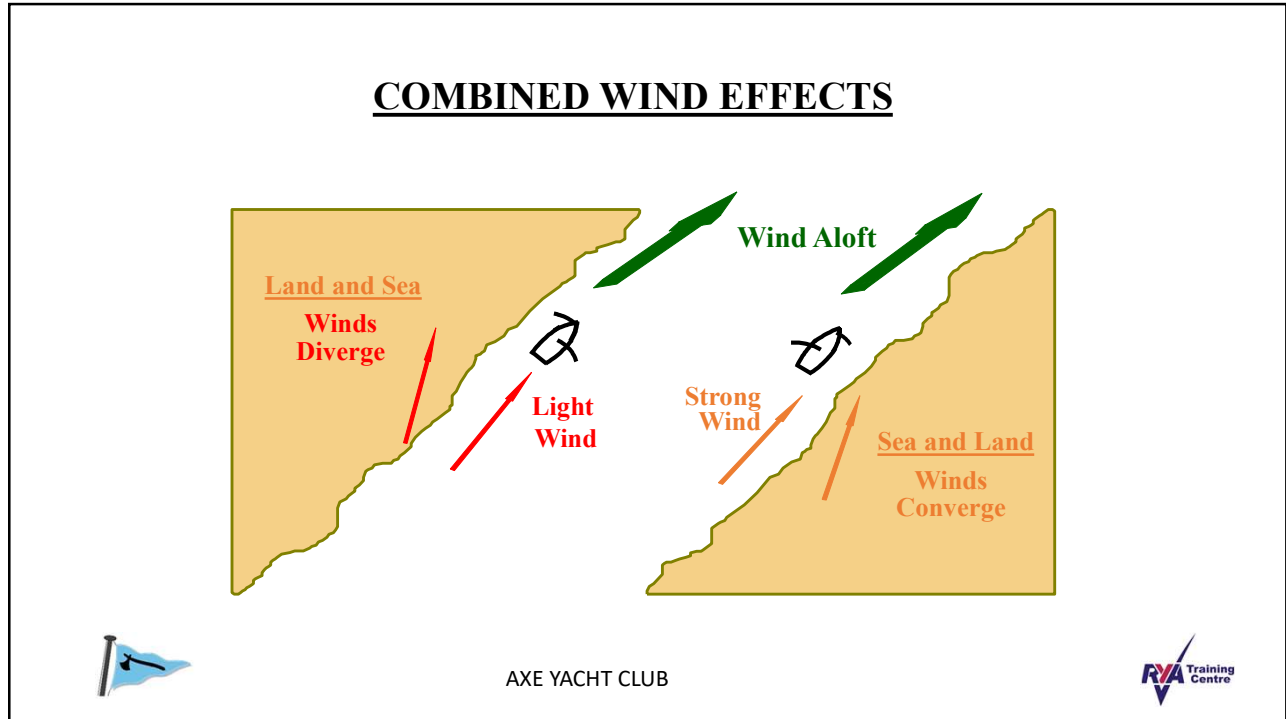
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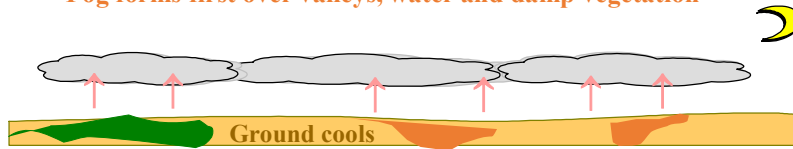


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## FOG

**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



Thickest around dawn when  
 air temperature is at its lowest

Heat from sun usually  
 disperses this type of fog



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## Clearing Radiation Fog – Axe Wetlands

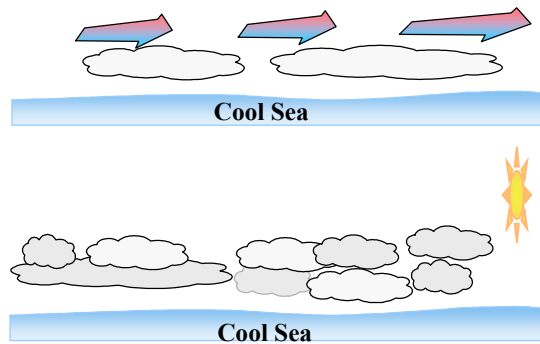


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## FOG

### 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

Sun tends to  
thicken the fog  
by warming the  
air further



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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.

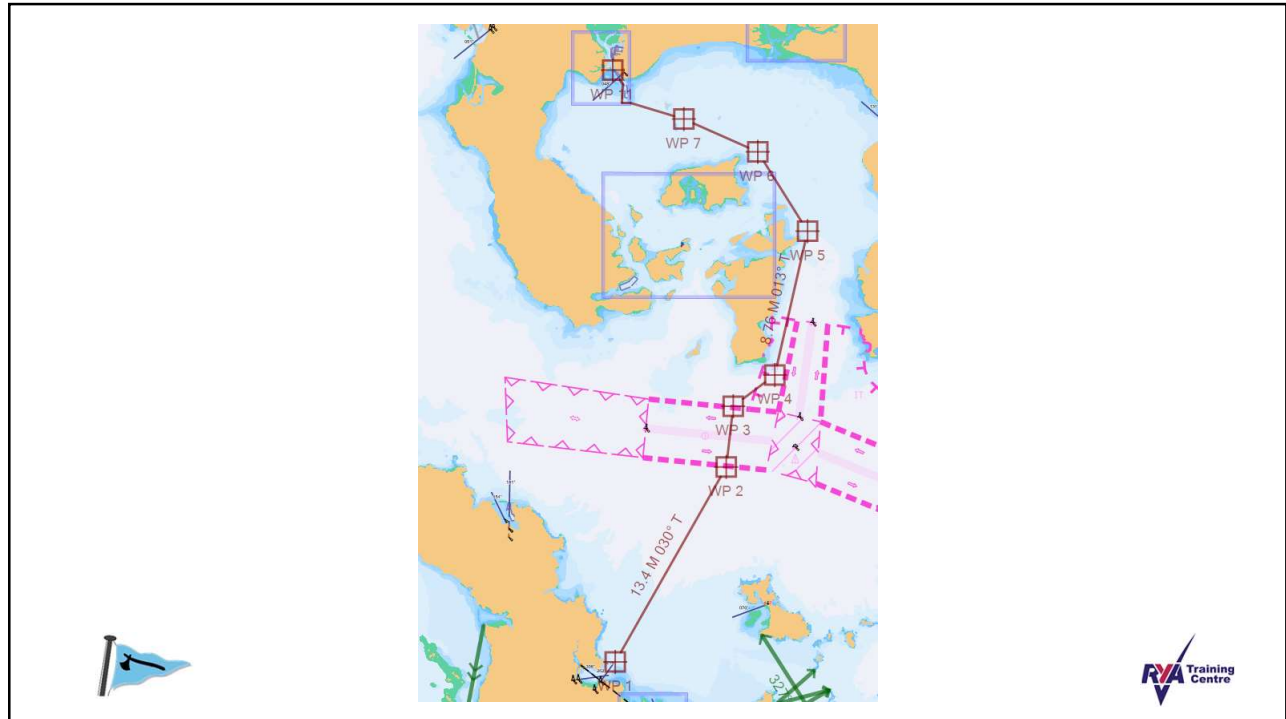
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**Task 2**

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.



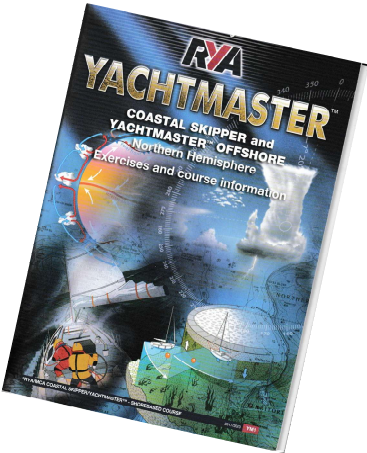

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## Homework

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

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