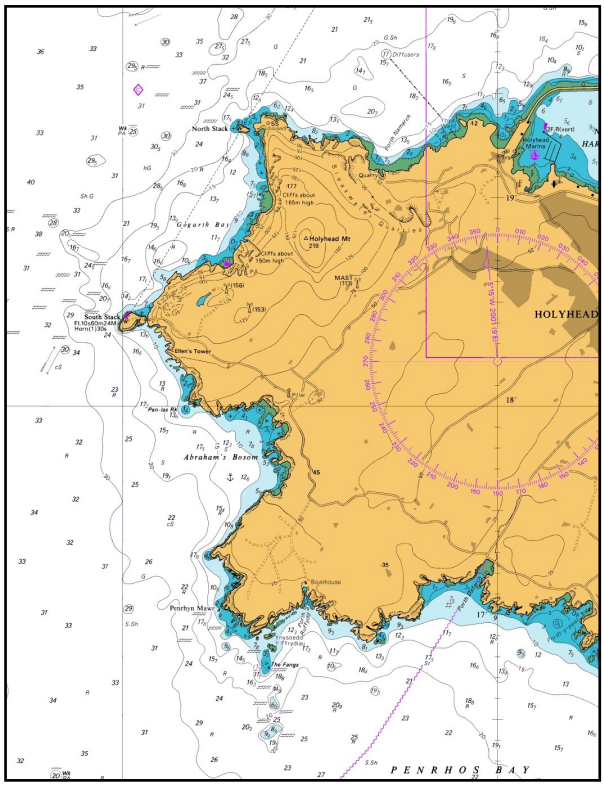
Init: 05.01.2019 12 UTC	Th 10. 03h	Th 10. 06h	Th 10. 09h	Th 10. 12h	Th 10. 15h	Th 10. 18h	Th 10. 21h
Wind speed (knots)	9	10	10	12	11	12	12
Wind gusts (knots)	15	16	16	15	16	16	16
Wind direction	↘	↘	↘	↘	↘	↘	↘
Wave (m)	0.7	0.7	0.7	0.7	0.8	0.9	0.9
Wave period (s)	4	4	4	4	4	4	5
Wave direction	↘	↘	↘	↘	↘	↘	↘
*Temperature (°C)	9	9	9	10	9	9	9
Cloud cover (%) high / mid / low	84 / 57 / 99	57 / 99	24 / 99	23 / 100	12 / 97	6 / 98	99 / 100
*Precip. (mm/3h)							
Windguru rating				★	★	★	★

Weather source: WindGuru
Tides source: EasyTide (GMT)

Standard Port: Liverpool Gladstone Dock
Tide Times: GMT / Heights: Metres

Mean Spring Tidal Range Liverpool: 8.5m
Mean Neap Tidal Range Liverpool: 4.5m

Thu 10 Jan			
HW	LW	HW	LW
01:18	07:52	13:32	20:18
8.5 m	2.2 m	8.8 m	2.1 m



Using the above weather / tidal info, predict the expected paddling conditions on the west coast of Anglesey between Porth Dafarch (Trearddur Bay) & Soldier's Point (Holyhead Bay).

Use tidal information provided in Questions 2 & 9.

- Identify locations / times when sea conditions will develop due to the interaction of wind / tide.
- Select 'decision points' where conditions might change as a result of wind / tide effects.
- Estimate likely conditions - wave heights / shapes, tide races, exposure to onshore winds.
- Identify possible landing points / escape beaches; 'tidal gates' beyond which retreat would be difficult; sections of increased commitment.

We will need to interpret the weather forecast to anticipate, in practice, the likely conditions along a section of coastline, and their effect on our groups.

Awareness of conditions will assist decision making, route choice, positioning and overall goals.

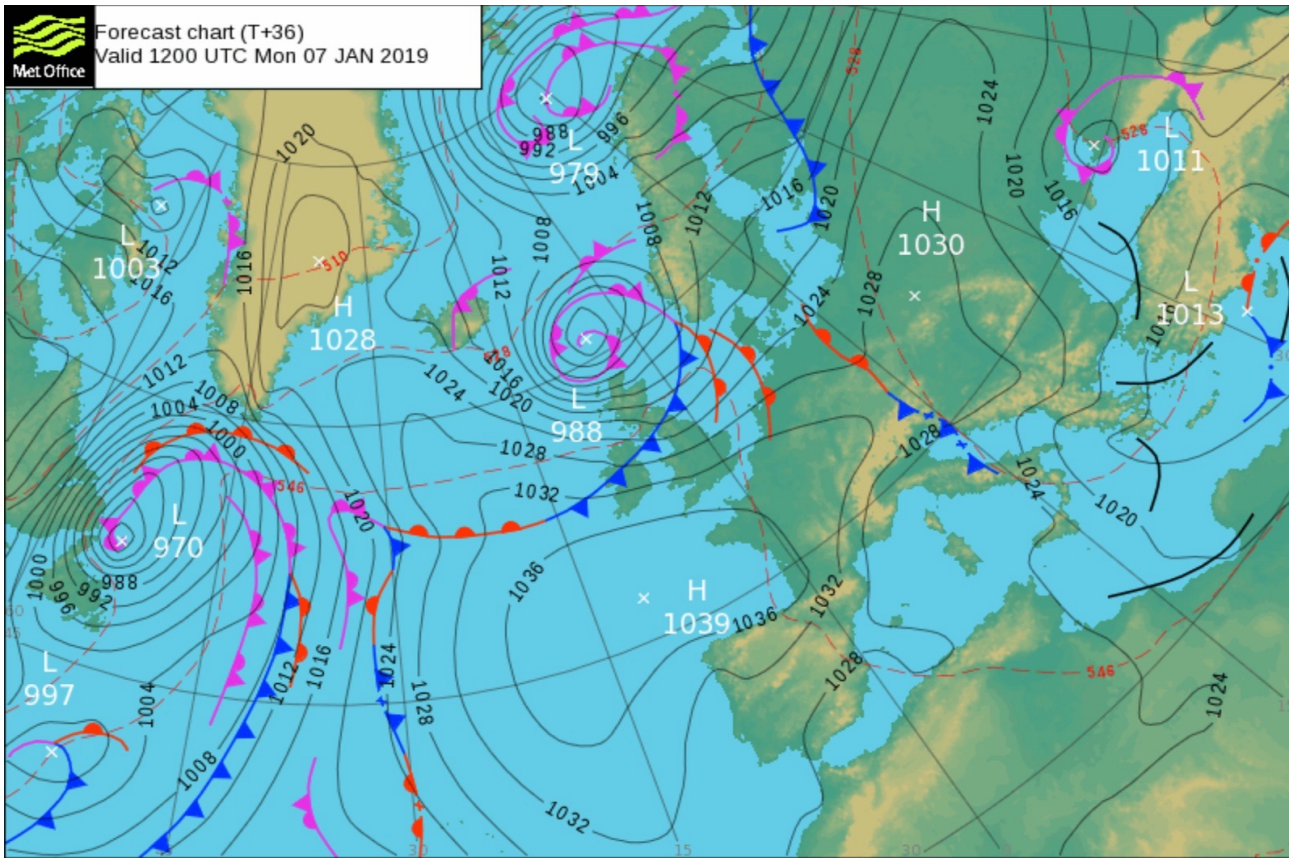
The pressure chart below shows a dynamic combination of low and high pressure systems, active in the North Atlantic ocean between North America and Europe. Identify:

- Areas of stronger /lighter winds.
- Areas where weather systems are likely to be more stable / slower-changing.
- Areas where weather systems are likely to be less stable / faster-changing.

- Warm / Cold / Occluded fronts
- Wind strengths / directions in areas between low & high pressure systems
- Likely weather effects associated with passage of fronts.

- Estimated wind strength / direction in the following locations:

- North Wales coast
- Scotland West coast
- Denmark West coast
- France North West coast



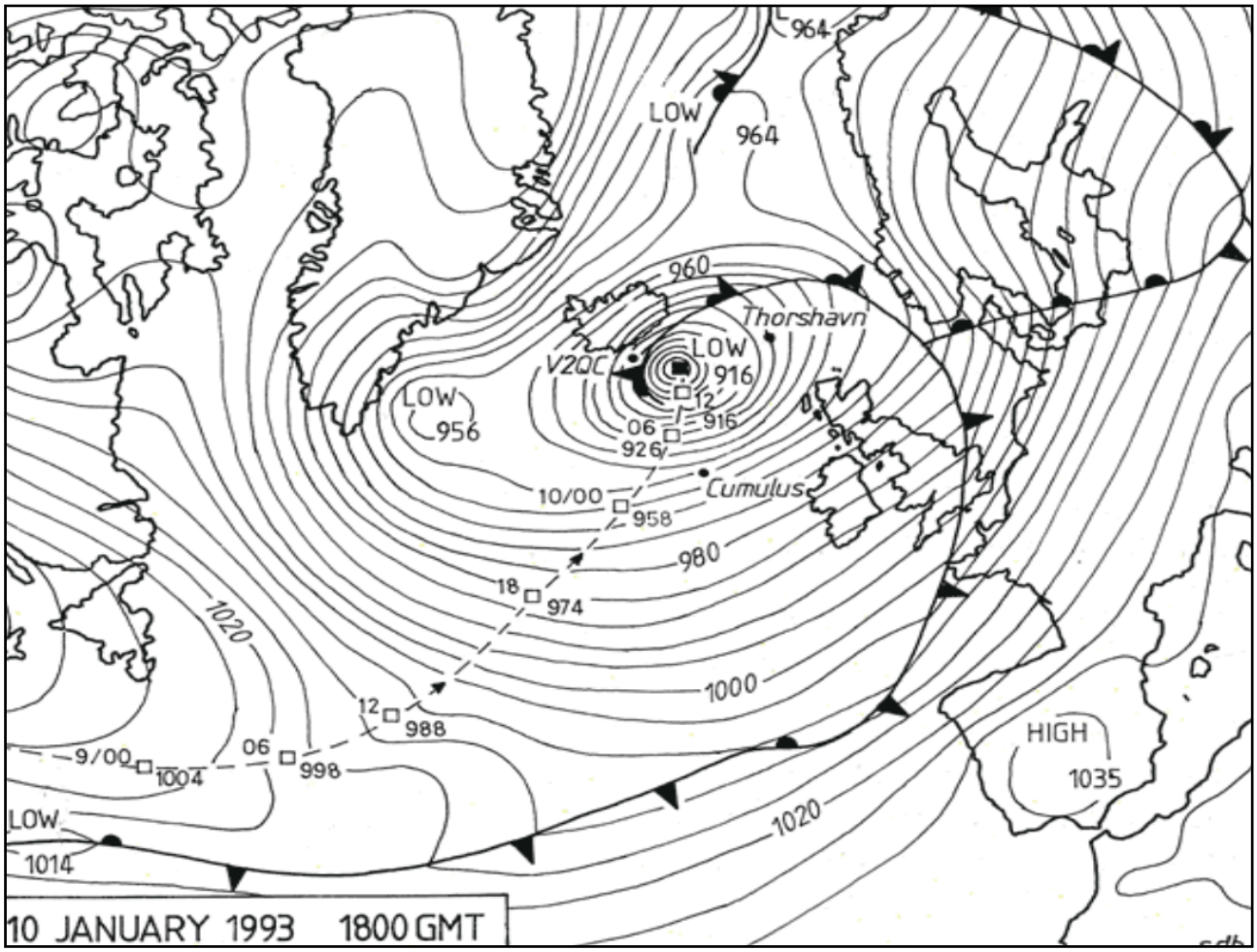
Useful planning skills for sea kayaker include:
an ability to understand the development of weather systems in the UK at different times of the year, and to interpret the available information in the pressure chart above.

a. What is Buys Ballots Rule?
b. What is the Polar Front?
c. How would you make use of isobars on a pressure chart to identify the direction / strength of a gradient wind in a specific location? What is a 'gradient' wind?

d. What does the term 'cyclonic' mean? How can we predict the presence of cyclonic conditions?
e. What weather conditions would your typically experience in an occluded front?
f. What cloud types would you expect to see after the passage of a cold front?

g. What is a katabatic wind?
h. What are convergent / divergent winds?
i. What is the typical cause of a classic sea breeze?

j. Describe the principle of 'fetch': how can this effect conditions on Anglesey's west coast?
k. How does 'refraction' affect the formation of surf conditions in coastal venues?
l. How does specific 'wave period' affect the characteristics of a swell pattern?



A bad day to be afloat…

St Davids Head to Great Orme Head, including St Georges Channel

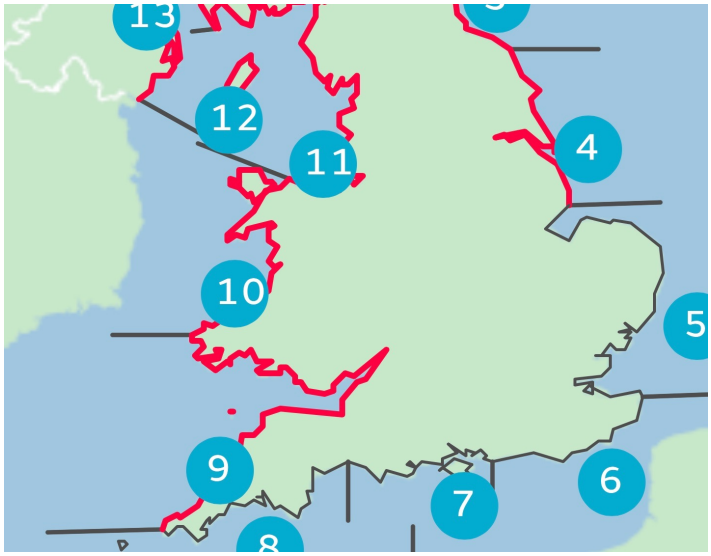
Strong winds are forecast

24 hour forecast:

Wind	Southwest 3 or 4, increasing 5 or 6 later.
Sea state	Slight, becoming moderate later.
Weather	Occasional rain or drizzle.
Visibility	Good, occasionally moderate.

Outlook for the following 24 hours:

Wind	Southwest veering northwest 5 or 6, occasionally 4 later.
Sea state	Moderate.
Weather	Rain or drizzle at first.
Visibility	Good, occasionally moderate at first.



The information above is taken from the Met Office Inshore Waters Forecast.

a. What time period (in hours) does the forecast cover?
b. What is the straight-line distance between St Davids Head & Great Orme's Head?
c. The inshore waters forecast is valid for how many miles offshore?

d. What do the Sea State terms 'Slight' & 'Moderate' mean?
e. What do the Visibility terms 'Good' & 'Moderate' mean?
f. What is the wind speed range in knots (nautical miles per hour) for:
Beaufort Force 3, Force 4, Force 5, Force 6?

Summarised weather forecasts, covering longer time periods and larger geographical areas, are often less detailed than hour-by-hour forecasts for specific locations.

Summarised forecasts will typically predict the highest forecast wind speed, for the given time period and the given geographical area.

These effects can be magnified when using the Beaufort Scale to summarise wind strengths. This can reduce the decision-making opportunities that a more detailed forecast provides.

The precise wind direction is also an important factor.
For example, between Rhoscolyn Head and Penrhyn Mawr, the aspect of coastline changes from West to South in different areas of the bay.

A forecast wind direction of, for example South / South-West will create different exposure / sea conditions in different areas of the bay, when compared to a wind direction of West / North-West.

Detailed access to specific wind direction changes during a sea kayaking day in Trearddur Bay will give a group leader more informed decision-making opportunities.