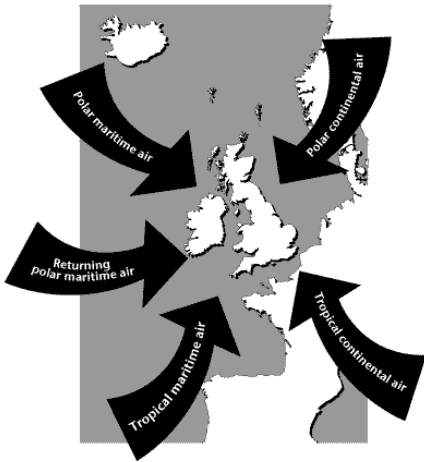


Air Masses



(‘continental’ or ‘maritime’).

Definition

An air mass is a large body of air with relatively uniform characteristics (temperature and humidity) in the horizontal.

Source

The characteristics of an air mass are determined by its source region. The source regions tend to be semi-permanent anticyclones (associated with the sinking regions of the global atmospheric circulation) in the sub-tropics and polar regions (‘tropical’ or ‘polar’ air). The air masses acquire the characteristics by contact with the underlying surface in the source region.

Track

As the position of anticyclones changes, there can be an outflow of air whose properties are modified as it migrates from its source. The modification depends partly on whether the track is over land or sea

Classification

Air masses are classified according to their source region and track.

	Air temperature	Direction of Travel	Humidity increasing or not?	Temperature increasing or decreasing?	Convection?	Rainfall?
Polar Maritime						
Polar Continental						
Tropical Maritime						
Tropical Continental						

Properties

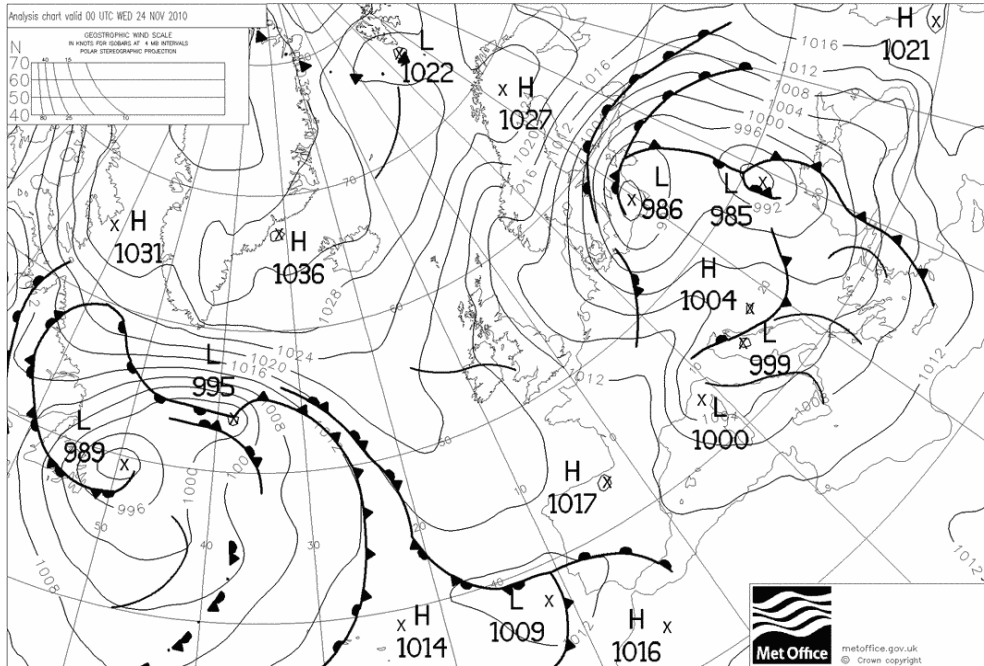
The properties of an air mass depend upon:

- a) its source – air originating in tropical regions is warm, whereas air originating in polar regions is cold.
- b) Its track – air travelling over the sea is moistened, whereas the moisture in air with a continental track is hardly changed.

Southward moving air is warmed from below and becomes more unstable, whereas northward flowing air is cooled from below and becomes more stable.

The large scale vertical motion in a depression encourages the development of showers in southward moving air, whereas in the vicinity of an anticyclone the subsidising air tends to suppress showers.

November 2010



<http://www.wetter3.delfax>

24-11-10 00 UTC + 00

What is the wind direction over the UK?

What is the air mass affecting the UK?

Would you expect convective activity?

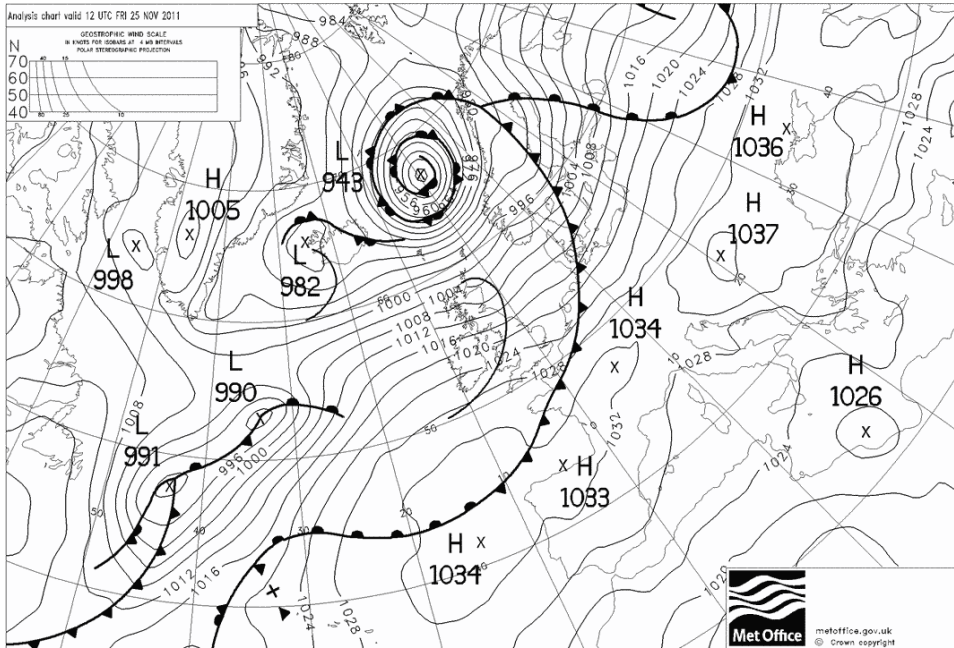
Describe the weather, in terms of wind speed, direction, temperature, cloud and precipitation.

Explain your answer

Would you expect any difference between day and night?

Would you expect any difference in the weather between the sea/ the windward coast and inland regions?

November 2011



Archived by www.wetter3.de

25-11-11 12 UTC

What is the wind direction over the UK?

What is the air mass affecting the UK?

Would you expect convective activity?

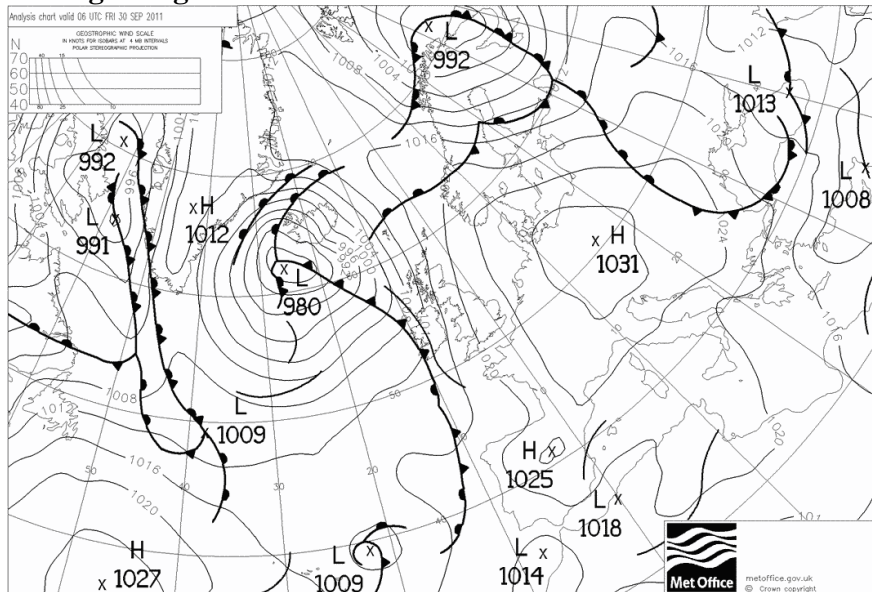
Describe the weather, in terms of wind speed, direction, temperature, cloud and precipitation.

Explain your answer

Would you expect any difference between day and night?

Would you expect any difference in the weather between the sea/ the windward coast and inland regions?

End of September/ Beginning of October 2011



Archived by www.wetter3.de

30-09-11 06 UTC

What is the current wind direction over the UK?

What is the air mass affecting the UK?

Would you expect convective activity?

Describe the weather, in terms of wind speed, direction, temperature, cloud and precipitation.

Explain your answer

Would you expect any difference between day and night?

Would you expect any difference in the weather between the sea/ the windward coast and inland regions?

You can find more air mass resources and activities in the teachers' KS4 section of MetLink.