

## What is Weather?

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The weather describes the state of the atmosphere above and around us at a given time.

When we talk about weather, we are referring to the short-term state of the atmosphere.

We use terms such as ‘cloudiness’, ‘precipitation’, ‘temperature’ and ‘wind’ when we are telling the forecast for the next few days ahead.

Have a look outside the window and see what the weather is like now.

### How is the weather forecast produced?

Meteorologists are people who forecast the weather.

They are similar to detectives because they use all the available clues or information in order to piece the weather story together.

These clues are available to Irish Meteorologists from a wide range of sources. As follows:

### Weather Stations

There are a number of official Met Éireann stations all around the country.

These are positioned along the coast and further inland.

They are widely distributed so as to give a representative picture of the weather all around the country.

In these weather stations the person in charge goes outside every hour and reads the temperature, cloud type, cloud amount, wind direction, wind speed etc.

The readings are then coded into a special numeric language.



Figure 1: Map of weather stations in Ireland

This numbering system is a universal language understood by all people working in weather.

The code is entered into a computer and transmitted to the Met Éireann Headquarters in Dublin.

In some stations, the readings are taken by an automatic machine. The machine sends the information to Head Quarters too.

## **Weather Balloons**

Every 6 hours a special weather balloon is released from Valentia Observatory in County Kerry.

It carries various weather instruments, and travels high into the sky recording the state of the atmosphere at different levels.



*Figure 2: Weather balloon being launched*

## **Marine Observations**

The sea is an important source of weather information.

Weather buoys float in the water and reports all types of weather and oceanic phenomena.

Information like wind speed, wind direction, pressure, temperature, significant wave height and wave period is gathered by the weather buoys.

There are 6 of these buoys located around Ireland.

This information is sent automatically to Met Éireann Headquarters.

There are also many ships on the seas, which send similar observations.

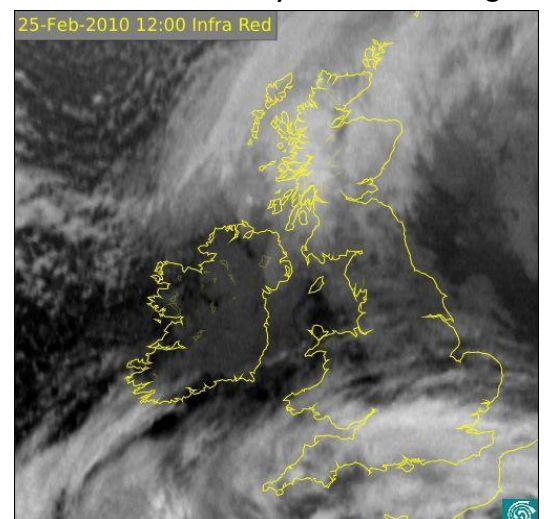
## **Satellites**

Satellites are launched into space to retrieve up-to-date pictures of the weather systems occurring in the atmosphere below.

There are two types of weather satellites.

A **visible satellite** image measures the light reflected by the ground and clouds. The image is similar to a photo of the ground below.

An **infra-red satellite** measures the temperature of the ground and clouds. The advantage of this type of satellite is that it may be used in darkness as well as during daylight hours.



*Figure 3: Infra red satellite image*

## **Radar**

There are two radars in Ireland, one in Dublin and the other in Shannon.

They work by sending out a particular light beam and measuring the time taken for it to return.

This beam is reflected by precipitation.

Radar picture signals can pinpoint where precipitation (rain, hail, sleet or snow) is falling.

## **Rainfall Stations**

In Ireland, data is collected from over 450 voluntary rainfall stations all around the country.

Members of the public kindly take the time to record how much rain falls on a daily basis.

This information is recorded at the end of each day.

At the end of each month, this information is passed to Met Éireann.

Some enthusiasts also call us when they record excessive amounts.

This can really help the forecaster because sometimes heavy rainfall can be a localized effect and may otherwise pass by unrecorded.

## **The Forecaster**

All of the information listed above is used by the forecaster when determining the weather.

The forecaster draws up weather charts, to better understand the current weather situation.

The next stage is to establish how the weather will develop.

To do this, the forecaster looks at the movement and development of various weather systems.

There are several computer models available to the forecasters, which offer guidance.

Finally the forecast is communicated to the end user...you!

The forecast can come to you via many media; T.V., radio, newspaper, phone, the web or fax.



*Figure 4: Met Éireann HQ in Glasnevin, Dublin*