Story Board 1: Met Éireann – Observing Climate for more than Seventy-five Years

Ned Dwyer and Séamus Walsh

Figure SB1.1. Met Éireann's headquarters located in Glasnevin, Dublin.

Some of the first operational meteorology observations in Ireland were made on Valentia Island in 1860. The observatory on the island was part of a network established by the Royal Navy around Britain and Ireland to improve safety at sea. In subsequent years the British Meteorological Office expanded the network of weather stations around Ireland and operated them until 1936, when the Irish Meteorological Service was established.

The late 1940s and 1950s saw a rapid expansion in the observation network, with the setting-up of a balanced nationwide network of stations. Met Éireann has continued to adopt new technologies over the years, moving from mechanical to digital recording and, more recently, automating its synoptic network to the new generation of stations, known as TUCSON.

SB I

The observation network is made up of three types of station (Fig. SB1.2). The most advanced are the 25 *synoptic* or real-time automatic weather stations (red & yellow) many of which make observations of key variables every minute, including temperature, rainfall amount, wind speed and direction. *Climatological* stations (blue), of which there are over 70, make less frequent observations of temperature and rainfall. There are more than 500 *rainfall* stations (orange) most of which make one measurement daily of accumulated rainfall amount. The synoptic weather stations at Valentia Observatory and Malin Head are part of the World Meteorological Organisation's Global Surface Network (GSN) and have been submitting data to world data centres since October 1939 and May 1955 respectively. Observations from rainfall radars in operation at Dublin and Shannon airports (yellow) are used to infer up-to-the-minute precipitation extent and intensity across the country.

In addition to these surface meteorological measurements, surface ozone and a range of upper air measurements are made at Valentia Observatory.

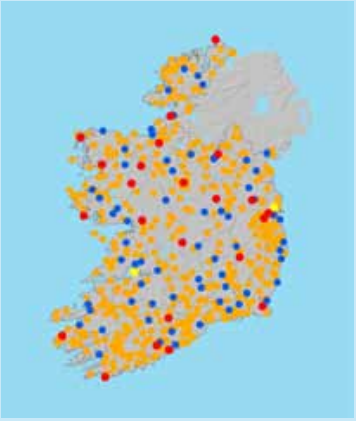

Figure SB1.2. Met Eireann's observation network.

Photo: © Kilian Harford

Figure SB1.3. A typical TUSCON weather station.

Although the network is extensive, an assessment of its adequacy should be carried out and recommendations made for any changes necessary in order to meet current and future climate observation needs. Moreover, protection of existing observation sites from encroachment by new developments is vital for the integrity of the network. The longer a record from a particular site, the more valuable it is in terms of monitoring and quantifying climate change. The service also requires additional resources to collate and digitise historical paper records and to carry out more in-depth analysis of the wealth of observational data collected over the last 75 years.