

The hourly gale record from Valentia Observatory, SW Ireland from 1869 to 2005 and a comparison to 4 other Irish meteorological stations from 1955-2005

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Valentia Observatory was one of the first modern meteorological stations set up by the then new British Meteorological Service in 1869. Its location was chosen for a number of reasons including its position at the extreme SW tip of Ireland and the site of one of the earliest trans-Atlantic cable stations set up in 1861. As a result, as early as 1861 daily weather telegraphs were being sent to London with a particular emphasis on storm forecasting in order to reduce shipping losses. This paper examines the unique hourly record of gales from Valentia Observatory, SW Ireland over the period from 1869 to 2005. A brief explanation of the methodological difficulties in assembling such records will be presented as there has been significant wind measurement changes over this time period, along with changes at Valentia Observatory itself. The results show very significant variations in the total annual, seasonal and monthly incidence of gales over the length of the study period. In addition a detailed analysis of the individual gales shows that there has been significant changes in their strength and duration as experienced at Valentia. These hourly gale incidence strength and duration will be compared with 4 other meteorological stations throughout Ireland, where modern hourly wind records are available. This latter task will be carried out over the time period from 1955-2005. Finally some indication of the likely causal mechanisms driving hourly gale changes will also be indicated, including consideration of the NAO and global warming.