Climate Change: Meteorological Indicators for Ireland

Aug 29 2007

The Environmental Protection Agency (EPA) research report, launched today by Mr John Gormley, Minister for Environment, Heritage and Local Government, shows that signals of climate change are evident in recent meteorological records for Ireland. The report is based on research carried out by Dr Laura McElwain and Dr John Sweeney of the University of Maynooth with funding from the Environmental Protection Agency.

Temperature records provide the clearest indicators of climate change. These records show that Ireland's climate has warmed over the last 100 years. This is similar to regional and global patterns as reported by the recent IPCC 4th Assessment Report on climate change. There is also a trend towards more intense and frequent rainfall, which is in line with climate change projections.

Commenting on the report Dr Mary Kelly, Director General, EPA said *"The analysis in this report shows that Ireland is now experiencing the effects of climate change. These changes will increase over the coming 10-20 years regardless of current actions under the Kyoto Protocol or future post Kyoto actions."*

She continued, *"It is therefore necessary to consider and develop actions which will allow us adapt to future climate conditions in order to avoid adverse impacts. **Adaptation** is now part of the EU and national agenda on climate change."*

The EPA 2020 Vision strategy document has identified climate change as a national priority. The EPA is implementing a major programme of climate change research, which contributes to the implementation of the National Climate Change Strategy.

The report published today, called "Key Meteorological Indicators of Climate Change in Ireland" updates and expands the work done in an earlier report called "Climate Change: Indicators for Ireland" published by the EPA in 2002.

The main findings of the current report are:

- Ireland's mean annual temperature has increased by 0.7°C between 1890 and 2004.

- The average rate of increase is 0.06°C per decade. However, as Ireland experiences considerable climate variability, the trend is not linear.

- The highest ten yearly rate of increase has occurred since 1980, with a warming rate of 0.42°C per decade.

- Six of the 10 warmest years have occurred since 1990; however, 1945 was the warmest year on record.

- There has been a reduction in the number of frost days and a shortening of the frost season length.

- The annual precipitation has increased on the north and west coasts, with decreases or small increases in the south and east.

- The wetter conditions on the west and north coastal regions appear due to increases in rainfall intensity and persistence.

- There is an increase in precipitation events over 10mm on the west coast with decreases on the east coast; there is an increase in the amount of rain per rain day on the west coast.

The report points out that it is imperative to monitor key climate variables in order to identify trends, which may be an important guide for future change. Climate indicators for Ireland are based primarily on daily synoptic weather station temperature and precipitation from Met Eireann's monitoring network.

The report entitled ***"Key Meteorological Indicators of Climate Change in Ireland"*** is available on the EPA web site at
http://www.epa.ie/downloads/pubs/research/climate/

Adaptation: The IPCC 4th assessment report indicates that the focus on adaptation is necessary, as current concentrations of greenhouse gases (GHG) in the atmosphere will continue to warm and change the climate system at least until the end of this century even if atmospheric GHG concentrations were stabilised at 2000 levels.

UNFCCC objective: The objective of the UN Framework Convention on Climate Change (UNFCCC) is to stabilise atmospheric greenhouse gases at a level that would prevent dangerous human interference with the climate system.

Limiting temperatures to 2°C above pre-industrial levels: The EU considers that if Global average temperatures do not exceed 2°C above pre-industrial levels then the most dangerous climate impacts can be avoided. This has informed the EU decision to collectively reduce its GHG emissions by 20 per cent of 1990 levels, by 2020, and by 30 per cent of 1990 levels if other major emitters take similar actions.

Global average temperature: The Global average temperature is a regionally weighted average value. The increase in the Global temperature caused by increased greenhouse gas levels will vary from region to region. This is evident from the temperature records, which show that average Arctic temperature has increased by twice the global average rate over the past 100 years.

UNFCCC meeting: The UNFCCC meeting in Bali December 2007 will provide an opportunity for the development of international action on climate change.

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ICARUS

The **Irish Climate Analysis and Research Unit (ICARUS)** was established in order to improve our scientific understanding of climate change and its impacts, with particular emphasis on Ireland. This objective is achieved primarily through the analysis of past climate trends and their causes, regional climate modeling and assessing impacts for the future.

ICARUS provides key climate services, solutions, data and advice to the scientific community, policy makers and community at large, both nationally and internationally, with the most up to date scientific knowledge, relevant for a particular sector and region of interest.

ICARUS is one of the largest dedicated climate change research and modeling centres in Ireland conducting both pure and applied research, covering all aspects of climate change from regional climate modeling to impact assessments on a variety of sectors and provides a wide and diverse range of research capabilities in the climatic arena.

http://icarus.nuim.ie/