Irish Meteorological Society

Newsletter

Number 23 **SEPTEMBER 1990**

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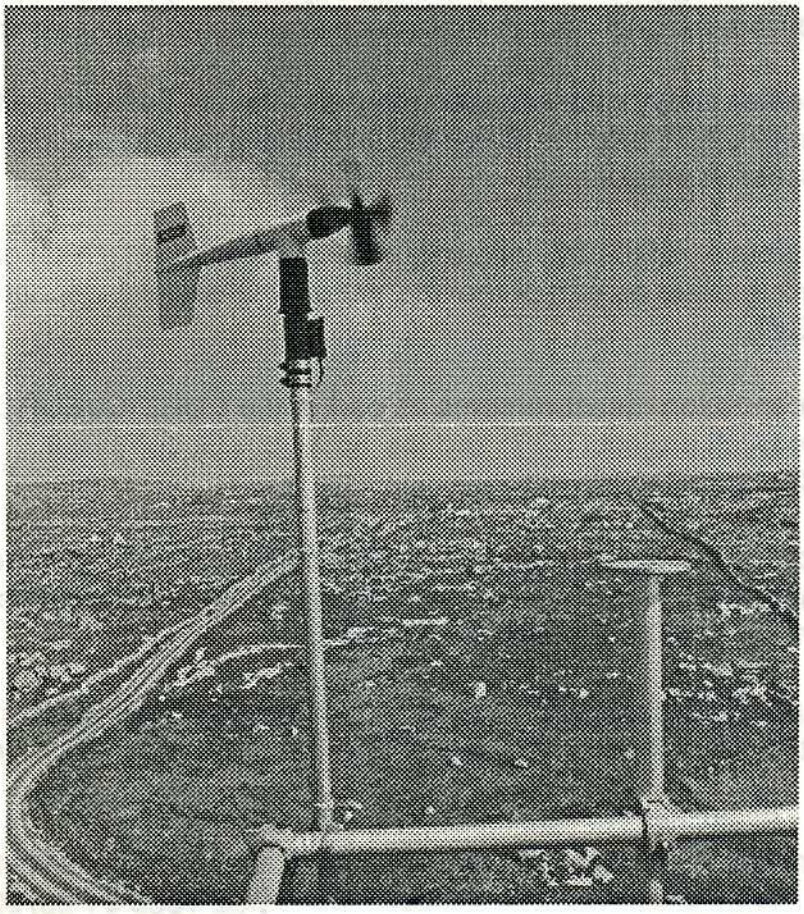

View from the 20m mast at Mace Head

The Mace Head Atmospheric Research Station

The importance of the West Coast of Ireland for environmental studies, especially global climate change, has long been recognised by scientists. University College Galway has operated an Atmospheric Research Station on Mace Head, near Carna, Co. Galway since 1958. In recent years this facility has been extended with funds from research groups within the University, in Europe and America and with a substantial grant from European Structural funds via the Irish Government's Office of Science and Technology.

The site was chosen because it is a remote area at the centre of the Atlantic Coast of Europe in the path of the mid-latitude weather systems which, for about 65% of the time, bring in air masses from the ocean which are not contaminated by local man-made pollution. For the rest of the time the air contains traces of man's activities in Ireland and the rest of Europe. Measurements to date show the clear distinction between continental and ocean air and the suitability of the site for the measurements of trends in the global background concentrations of aerosol particles and gases, natural biogeochemical cycles, air-sea exchange processes and the long distance transport and transformation of pollutants from the more highly industrialised developed areas of the Northern hemisphere.

Current research programmes at the Mace Head station include:

1. Studies of particulate matter in Atlantic air [including the variations with air mass of the concentration, size distribution, volatility and carbon black content of the particles]. This research is being performed by the Atmospheric Physics Group of U.C.G. with sponsorship from EOLAS - the Irish Science and Technology agency.

2. Studies of mercury and other heavy metal concentrations in the air, being done by U.C.G. in collaboration with GKSS and the University of Hanover under the Irish-German collaborative research programme.

3. Studies of the global distribution of the five principal chlorofluorocarbon (CFC) gases, methane, ozone and nitrous oxide as part of the international Global Atmospheric Gases Experiment (GAGE).

4. Ground level ozone concentration measurements as part of the EUREKA/EUROTRAC Tropospheric Ozone Research project (TOR) and the American Geophysical Monitoring for Climate Change (CMCC) network.

5. The US Atmospheric/Ocean Chemistry Experiment (AEROCE) on the biogeochemical cycles in the North Atlantic which is part of the North Atlantic Regional Experiment in the International Geosphere Biosphere programme (IGBP).

6. The investigation of natural sources of sulphur compounds by U.C.G. in collaboration with the Max Planck Institute for Chemistry at Mainz and the Dept. of the Environment in Dublin.

Further information from Dr. Thomas C. O'Connor, U.C.G. Tel. +353 91 24411
Fax +353 91 25700

Remote Sensing for Inland Water Quality Monitoring.

Eon O'Mongain, Physics Department, U.C.D.

A collaboration between U.C.D. Physics Department and the Environmental Research Unit of the Department of the Environment has been developing new methods for remotely sensing the Chlorophyll content of Irish lakes. Ireland's 4000 lakes are currently monitored by sampling, whereby water samples for a small number of critical lakes are returned to Dublin for an analysis which is, in essence, an optical analysis for the determination of the chlorophyll content. The optical properties of lake and marine waters are affected by the presence of glebstoff (yellow substance), sediment, and the chlorophyll containing algae. It is the latter which are used as tracers of potential pollution problems. A combination of spectral reflectance measurements from the air, taken with a spectral radiometer developed in U.C.D., together with laboratory measurements and computer simulations of the radiation transfer process, have all led to an improved understanding of the potential of remote sensing to detect and quantify the state of water quality.

Health Effects of Air Pollutants

Dr. Luke Clancy, Senior Lecturer, Respiratory Medicine, T.C.D.,
Consultant Physician, St. James's Hospital

There are both immediate and chronic effects of air pollution on health. The best documented immediate effects are an increase in the number of exacerbations of chronic bronchitis, an increase in the sickness absence benefit, increases in hospital bed demand and increase in mortality particularly among patients already suffering from chronic respiratory disease. The young and the elderly are the most vulnerable to these immediate effects.

Chronic effects are also well established but more difficult to evaluate. These include an effect on overall mortality as evidenced by epidemiological studies particularly using urban/rural comparisons. International comparison studies on children have also demonstrated a clear morbidity effect. A contribution of air pollution to lung cancer is also considered likely but particularly difficult to assess. The effects on man of controlled exposure, industrial exposure and community exposure have been studied, taking account of factors such as the level of pollution, the duration of exposure, smoking habits, socio-economic level, climate and type of work. It is obvious therefore that "proof" is hard to find. The study of individual pollutants such as oxide of sulphur and nitrogen, suspended particulate matter, carbon monoxide and hydrocarbons give some clues as to possible mechanisms including the effect on mediator release, enhanced sensitivity to infection, alveolar wall damage and oedema, activation of lung reflex mechanisms and bronchial mucosal irritation but still reveal only a tiny piece of complex process.

SERVICE NEWS

There have been some changes recently in the organisational structure of the Service.
Peter Lynch and Liam Burke have both been promoted to Senior Meteorologist.
Peter becomes head of the Research Division and Liam takes charge of a new Instruments and Observations Division.
Eamon Murphy will soon move from Valentia to take over as Head of Services.
Denis Fitzgerald remains head of Climate Division and also assumes responsibility for Applications.
Tom Sheridan, at present on leave of absence and working for the European Space Agency in Germany, is expected to take over as Head of the Central Analysis and Forecast Office.
Jim Logue moves from Training Officer to Head of Computer Division but retains responsibility for training matters for the time being.

Liam Keegan moves from C.A.F.O. to Climate Division, replacing Gerry O'Reilly who becomes Head of Casement Aerodrome.
Gerry McDonald moves to Glasnevin to work on the new Dublin Airport radar system.

Peter Barry moves to Dublin Airport having been promoted P.M.O. and Mick Kingston leaves Shannon to become P.M.O. Instruments, also on promotion.
Vincent O'Shea has been promoted to Meteorologist and is currently on the first part of the Training Course in Glasnevin. He joins previous promotees Dave Murphy - who was posted to Shannon - and Jean Byrne - who is currently completing the final part of her course in Shannon - as Meteorological Officers who have successfully made the 'quantum leap'.

In Glasnevin, Donal Fallon has moved from Services to Computer Division and Margaret Finnucane (Supplies) has been promoted C.O.
In the Observing Stations Network , John Flanagan moves to Clones and Johnny White to Rosslare. Finbarr Maher is on temporary transfer to Birr from Galway and Steve O'Shea is at Cork Airport on temporary transfer from Clones. Paddy Bridgeman moves back to Shannon from Rosslare.

Finally, and sadly, we note the passing of Con Gillman. For many of us, Con was our first introduction to the Meteorological Service - being the Training Officer in the days when the course was held in Rosslare.
Lectures were often interrupted by his references to, amongst others , 'that emporium of learning, by the Lee' and '*lumbricus terestris*'.
His impish wit provided a welcome relief for us trainees from what we perceived as the tedium of the lecture room.
A meteorologist by profession but at heart a statistician , he was an ardent and enthusiastic supporter of the Society and his presence will be missed by all.
To his wife and family we extend our deepest sympathy.

Proposed schedule for 1990-1991.

Firstly, there will be a change of venue for lectures in Dublin. University College Dublin have kindly agreed to allow the Society the use of lecture theatre G33 in their **Earlsfort Terrace** building for a nominal fee. The theatre is directly opposite the new Conrad Hilton hotel.

John Doyle , meteorologist and RTE weather presenter will start off our season on October 5th with a talk on how weather presentation on television has evolved.

On November 23rd, Dr. Dave Fegan of U.C.D. will speak on the "Chaos" theory -to be confirmed.

The Society plans to hold a dinner in Dublin in January 1991 for members and guests. More details of this in the next Newsletter.

February will see Tom Sheridan, the new Head of the Forecast office, speaking on his work over the past few years with the European Space Agency in Germany.

World Meteorological Day 1991 on March 23rd will be marked by a lecture on the theme of " The Atmosphere of the Living Planet Earth. Though W.M. Day falls on a Saturday, we hope to have the lecture on Friday 22nd to tie in with the opening of the " Dublin - European Culture Capital 1991 " Science and Technology Exhibition.

The Annual One-Day Meeting and A.G.M. will take place on April 27th. This year we will deal with the History of Meteorology.

We plan to have our Annual Outing on May 11th, Armagh Observatory and Birr Castle are two venues being considered.

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The Royal Meteorological Society's Calender for 1991 is now available .
Single copy: £2.50 plus 70p postage/packing
Five copies: £10.00 plus £2.80 postage/packing
Please note all prices are in Sterling

Cheques should be sent to: Royal Meteorological Society,
104 Oxford Road,
Reading,
Berkshire RG1 7LJ

South and East get the best of the summer

Summer's weather was rather a mixed bag. June was unsettled and quite wet as a result: more than twice the normal rainfall was measured at both Kilkenny and Roche's Point, while at Malin Head and Belmullet it was the wettest June since 1958. July was dry for much of the time but some heavy falls early and late in the month brought totals close to normal at some stations. August was drier than normal except in the north midlands.

Clones had a summer total of 285mm of rain but Rosslare had just over half that amount. Rainfall was above average in the north, north midlands and northwest, and also in the south and southwest. The east coast, the midlands, and western areas away from coasts fared a bit better. Amounts ranged from 80% of normal at Claremorris and Rosslare to 126% at Clones. It was Birr's driest summer since 1981 and the driest since 1984 at Belmullet, Casement, Claremorris and Rosslare.

Overall the summer was quite warm. Although June's temperatures were slightly below normal at most stations, both July and August were warm months, August being the warmest since 1984 at most places and the warmest ever at Rosslare. Mean temperatures for the summer ranged from 14.3°C at Malin Head to 16°C at Shannon Airport, generally between 0.6°C and 1°C above normal for summer.

June — Dull, wet, and cooler than normal

July — Warm, sunny and fairly dry

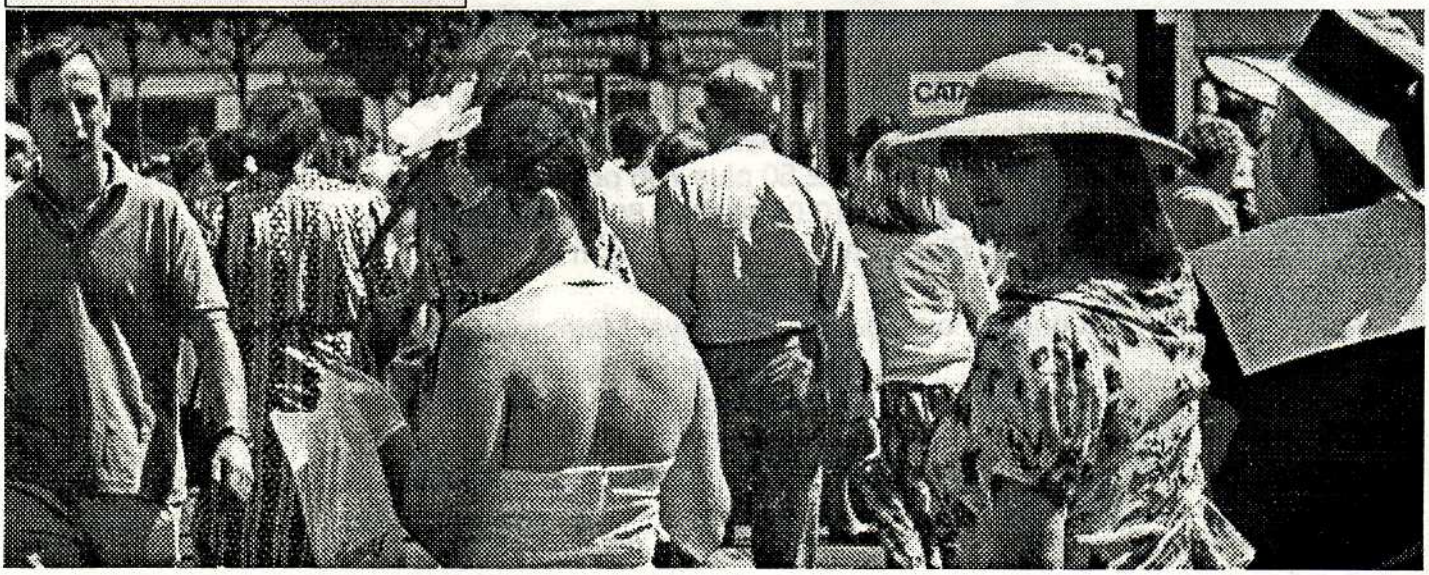
August — Very warm, mainly dry, dull in the west

The hottest days of the summer in most areas were the 2nd and 3rd of August. The temperature exceeded 30°C in Dublin city that day; the highest value recorded at a weather station was 29.5°C at Casement Aerodrome. The 13th of July was the hottest day in the west. The lowest value of the summer was 3.6°C, which occurred at Kilkenny on the 15th and 19th of June and at Claremorris on the 3rd of July.

After a dull June and a very sunny July, August varied from very dull in the northwest to quite sunny in the southeast. The pattern for summer is similar, from below average in the west to above average in the south and east. Rosslare enjoyed a daily average of over 7 hours of sunshine this summer but Claremorris averaged less than 4 hours a day. Rosslare's sunshine was 11% above normal whereas Belmullet only received 77% of normal sunshine. The sunniest day was the 18th of July at Casement Aerodrome, when 15.3 hours of sun were measured. Most other stations had their sunniest day of the summer on the 21st of July.

There was some thunder in June and in August but little or none during July. The south coast was affected by fog on between 12 and 24 days during the summer; elsewhere there were generally between 1 and 7 days with fog. The highest gust was 53 knots, recorded at Cork Airport on the 4th of July. The wind gusted to gale force in coastal areas on between 17 and 29 days, but there were only 7 to 15 days with gale gusts at inland locations.

A warm, sunny Ladies' Day at the Horse Show in July (photo Irish Times)



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"The Television Viewer's Guide to the Weather !"

An illustrated lecture by

JOHN DOYLE

R.T.E. weather presenter and meteorologist in the Central Forecast Office, Dublin.

The lecture will deal with the evolution of weather presentation on television, including the use of satellite pictures, radar charts and graphics and will cover the preparation and dissemination of T.V. weather forecasts.

in

Lecture Theatre G33
Earlsfort Terrace (U.C.D.)
Dublin 2

on

Friday October 5th 1990
at 8.00 pm.

Admission Free

Open to the Public