Irish Meteorological Society

Newsletter

Number 21 **March 1990**

Contents:

INTERNATIONAL HYDROLOGY PRIZE FOR 1989

The International Hydrology Prize for 1989 was awarded to Professor J.E. Nash of University College, Galway. The presentation took place during the first plenary session of the Third IAHS Scientific Assembly. The President of the IAHS, Dr. V. Klemes, paid tribute to Professor Nash's sharp intellect and to his outstanding contributions to hydrology in different fields, and not least in establishing and maintaining the International postgraduate hydrology course at Galway. The President of IAHS let it be known that Professor Nash was particularly proud of being an honorary visiting professor at the East China Technical University of Water Resources.

The Irish Meteorological Society is delighted to announce that Professor Nash will honour us with a lecture on March 22nd to mark World Meteorological Day and the start of the decade for International Disaster Reduction, details of which are enclosed with this Newsletter.

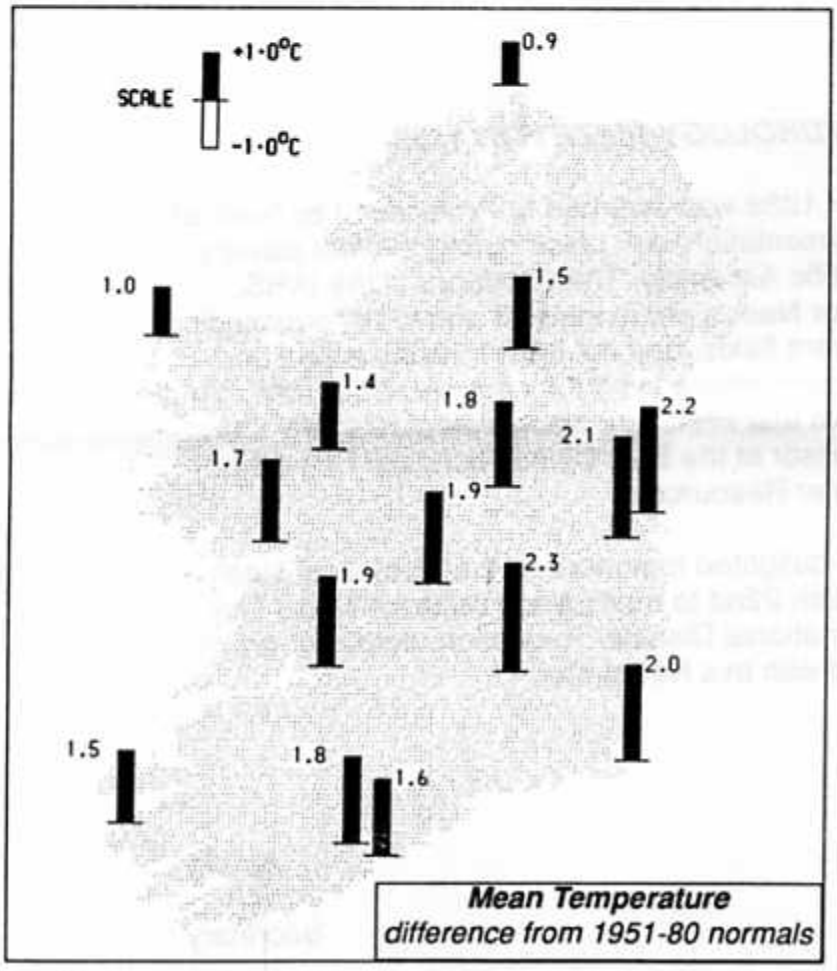
A.Kelly

Secretary

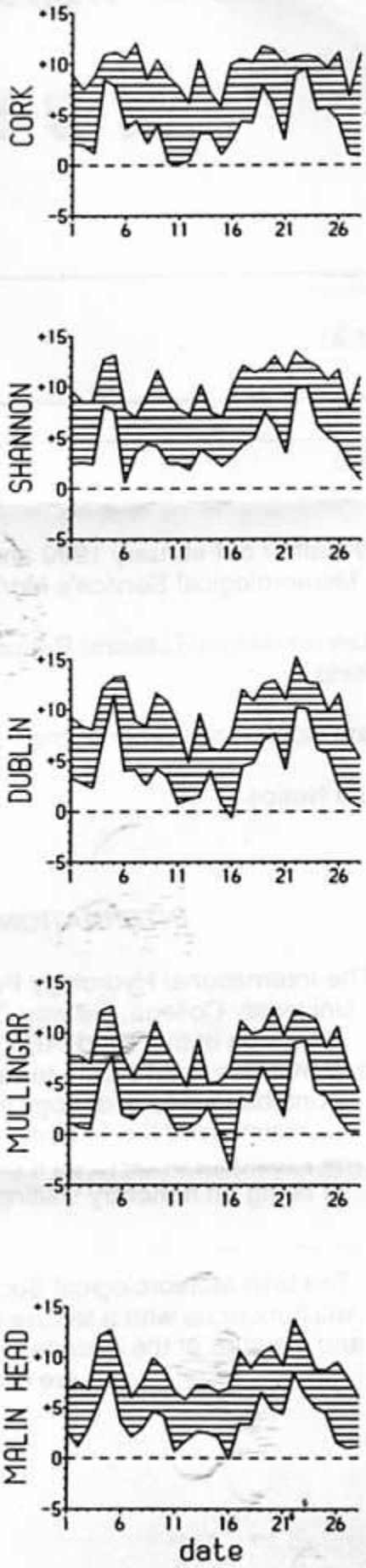
Warmest February for many years

It was another mild month,with temperatues everywhere above normal. Mean values ranged from 5.6°C at Clones to Cahirciveen's 8.1°C, making it the warmest February since 1961 at many eastern stations, but the warmest only since 1975 at more western locations.

In the west, north and south temperatures were between 1 and 2 degrees above normal; in midland and eastern areas they were 2 or more degrees above. Both daytime and nightime values were above normal. The highest temperature of the month was Dublin Airport's 15.3°C, recorded on the 22nd, which equals the highest ever February temperature recorded there, back in 1945. A number of stations had their warmest day of the month on the 22nd, including Malin Head, where the 13.8°C recorded that day set a new record for February. Maximum temperatures of 10°C or more were recorded at most stations on the 4th, 5th, 9th and during the period from the 17th to the 26th. The 16th was the coldest day at most stations; at both Clones and Claremorris the temperature that night got down to -4.3°C, the lowest temperature of the month. The night of the 11th/12th was also cool, the 11th being the coldest day of the month in the Cork area. There were few frosts, the most disruptive being a ground frost in the early hours of the 12th following some snow showers. At southern stations air temperatures stayed above freezing throughout the month.



Mean Temperature
difference from 1951-80 normals



Maximun and minimum temperatures in degrees Celsius


(photo: Irish Times)

Winter 1989-90 — Wet and windy, but mild

December - Coldest since '81
January - Mild and windy
February - Stormy , wet and mild

It was the wettest winter on record in parts of the midlands and in the west; in the Cork area it was the wettest since the winter of 1965/'66. At most other places the winter of 1983/'84 was wetter. Rainfall amounts ranged from 619mm at Cork Airport to 233mm at Dublin Airport. Most places got about 150% of normal rainfall , with Claremorris the wettest at 176% and Dublin Airport faring best with 118%. The period from the latter part of January to the end of February was wet, with some flooding following the heavy rain of February 6th. However, the highest daily total of winter was the 51.3mm recorded on the 16th of December at Cork Airport, where over 160mm of rain fell in the 6-day period commencing on the 11th of December.

From the 7th of January winds were often strong and blustery with gale to storm force winds at times, notably on January 25th, February 1st, 10th-11th and 26th-27th. Gusts of 80 knots or over were recorded in the Cork area on January 25th, and at Belmullet, Claremorris and Clones on February 26th. In December there was a stormy period just before Christmas during which a gust of 78 knots was recorded at Belmullet.

Both daytime and nightime temperatures were above normal: in the south, east and parts of the midlands, mean values were more than 1°C above normal while in the northwest they only just exceeded the normal values. The lowest temperature of the winter was -7.0°C, recorded at Birr on the 1st of December. That was the start of the only cold spell of note, during which there were problems with persistent freezing fog and extensive smog in urban areas. Highest temperature was the 15.3°C recorded at Dublin Airport on 22nd February.

It was a rather dull winter: average sunshine amounts ranged from about 2 hours a day in the east to around 1.5 hours in the west. Casement Aerodrome was the only station to get more than the normal amont of sunshine; elsewhere percentages varied from 77% to 93%.

WMO FEATURE

WORLD METEOROLOGICAL ORGANIZATION
A SPECIALIZED AGENCY OF THE UNITED NATIONS

- WORLD METEOROLOGICAL DAY -

23 March 1989

"NATURAL DISASTER REDUCTION: HOW METEOROLOGICAL AND HYDROLOGICAL SERVICES CAN HELP"

INTRODUCTORY NOTE

In 1973 the world meteorological community celebrated a century of organized international collaboration in meteorology. One hundred years before that date, the First International Meteorological Congress met in Vienna and prepared the ground for the establishment of the International Meteorological Organization (IMO). Almost eight decades later, this organization was replaced by an intergovernmental body, within the United Nations system, known as the World Meteorological Organization (WMO). The Convention of WMO came into force on 23 March 1950 and this day has been celebrated annually since 1961 as World Meteorological Day (WMD). The 1990 WMD therefore also marks the fortieth anniversary of WMO.

To mark the occasion, the WMO Congress and Executive Council (formerly Executive Committee) recommended that all Members of the Organization should make a particular effort on this day to bring the importance of meteorology to the attention of everyone concerned. To facilitate this task, it was decided that a specific theme should be designated each year in order to ensure the co-ordination of activities and efforts. The theme for the year 1990 is "Natural Disaster Reduction: How Meteorological and Hydrological Services can help".

"Natural Disaster Reduction" -how Meteorological and Hydrological Services can help

Strictly speaking, a natural disaster is the catastrophic consequence of a natural phenomenon or combination of phenomena resulting in injury, loss of life and property on a relatively large scale, and severe disruption to human activities. Usage has tended to merge the effect with the cause, so that the term has come to be applied to the phenomenon itself. Whether a given phenomenon is equated to a disaster does not depend so much on its intensity as on its impact on society. In one region the consequences of a phenomenon may require international assistance to allow the population to pick up the threads of its existence, in another region the impact may be relatively small, either because the nature of the human activities is such as not to be seriously affected, or because the existing infrastructure and procedures permit the ravages to be coped with satisfactorily.

To quote examples, in the context of the Decade, we are interested in hazards associated with geological, atmospheric, ecological and biological events. One can also categorize the hazards into meteorological/hydrological and other types. However, any disaster can be characterized in terms of five phases:

- The anticipatory phase;
- The alarm phase;
- The impact phase;
- The relief phase;
- The rehabilitation phase.

To achieve disaster reduction, procedures must be established and action taken in relation to all five phases. Decisions on these procedures should all be taken during the anticipatory phase.

The most frequent meteorological hazards are those associated with severe storms described in various parts of the world as tropical cyclones, hurricanes, typhoons and tornadoes. These storms carry with them heavy rain and can cause storm surges up to eight metres high covering hundreds of square kilometres. Tornadoes can have winds reaching 500 km/h, causing enormous destruction. Severe thunderstorms and snowstorms can also be devastating on a smaller scale.

Floods are the most severe and frequent hydrological hazard caused by intense rainfall from typhoons, cyclones and hurricanes. There are other causes of floods such as rapid snow melt and widespread frontal rain when rivers overtop their banks and inundate the surrounding countryside. Some naturally occurring phenomena are provoked by careless management of the environment, for example, uncontrolled farming, deforestation, urbanization, etc., that contribute to flooding potential.

Occasionally natural catastrophes occur in multiple, interrelated processes creating a chain reaction. For example, an earthquake can trigger a submarine landslide causing tsunamis (large oceanic waves) and generating floods. Volcanic eruptions are sometimes accompanied by severe mudflows and provoke floods caused by melting snow.

There are also other types of disasters such as droughts, which have prolonged impacts with long-lasting consequences.

One example is Hurricane Gilbert (1988), the most intense Caribbean hurricane in the century with winds of more than 300 km/h. It raged through the Caribbean islands and made landfall on Mexico's east coast. Destruction from the storm was extensive and economic losses enormous. Trees were uprooted, power lines destroyed, roofs of buildings blown away, but fortunately the number of lives lost, compared with that from other hurricanes of earlier years, was low. This was due to accurate tracking of the hurricane by means of meteorological satellites and other meteorological facilities, and also close regional co-operation throughout WMO Region IV (North and Central America) as envisaged in the operational plan of the Hurricane Committee. Excellent warnings were backed up by an effective preparedness programme.

In July 1988 Bangladesh was ravaged by a severe flood. Three-quarters of the country's land area was submerged and more than 1,500 lives were lost. Another 45 million were adversely affected. The water levels in the three river systems of the Brahmaputra, Ganges and the Jamuna rose dramatically. Not much could have been done to prevent the floods, but had the means been available to forecast them more precisely, it would have been possible to avoid much loss of life and property. Further, had it been possible to institute prevention measures such as land-use planning and ecologically based watershed management, the magnitude and severity of the damage could have been reduced. In the case of floods and droughts, adverse land use is a major cause of disaster. Deforestation can raise the flood peak by a factor of three to five, while erosion and sediment transport can increase even tenfold. Better prediction of river floods could ensure good protection if combined with an integrated disaster preparedness programme. Transfer of international experience would help greatly. A concerted basin-wide land-use planning strategy would go a long way to mitigate the effects of floods in the future. Hence, it is evident that, for international river systems, co-operation between the countries drained by them is indispensable.

Also in 1988, a tropical cyclone and associated storm surge devastated the coastal area of Bangladesh, leaving behind 2,000 people dead and 2.5 million homeless. These figures reflect not only the severity of the phenomena but also the degree of vulnerability of the area. However, when compared with cyclone disasters in this area during earlier years, i.e. with the loss of 11,000 and 300,000 lives caused by the cyclones of similar intensity in September 1985 and November 1970 respectively, the death toll was remarkably low. Undoubtedly this is attributable in large part to advances being made in the quality and timeliness of the warnings and the consequential preparedness actions, such as evacuation of people, utliization of shelters and skilful deployment of trained volunteers. Further advances are attainable.

In view of the regional nature of such problems, it is highly desirable that any project to improve forecasting techniques and warnings should be carried out on a regional basis and, of course, with support and participation of the advanced nations. Furthermore, improved forecasting should be associated with improved warning systems and other measures for population protection.

As an example of a non-meteorological hazard, mention could be made of the catastrophic earthquake of 7 December 1988 in north-western Armenia which virtually wiped out an entire town and caused extensive destruction to two other towns and 48 villages over a 70 kilometre-wide area. From the very first, the Government of the USSR took steps to meet emergency needs. Every effort was made to co-ordinate the international response to emergency needs. The labours of 47 international rescue and medical teams contributed mightily to the rescue of survivors. Whatever the final assessment of the economic impact of this disaster, direct economic losses were put at 8.5 billion roubles or US$ 14.2 billions (at the United Nations official exchange rate).

CLIMATE CONFERENCE

19th -20th MAY 1990
RIVERSIDE CENTRE, DUBLIN
8-11 Sir John Rogerson's Quay

REGISTRATION FORM

Places at the conference are limited so please book as soon as possible. All correspondence should be addressed to *Climate Conference '90, Earthwatch, Harbour View, Bantry, Co. Cork.*

Name:.....

Address:.....

.....

.....

Tel:.....

Organisation:.....

FEE ENCLOSED (Prices include all lectures, workshops and exhibition plus tea, coffee and biscuits. A resume of the proceedings will also be sent to delegates):

☐ £100 - Corporate bodies (lunch included)

☐ £55 - Voluntary organisations/general public (lunch included)

☐ £21 - Students/unwaged (soup & sand wiches included)

☐ £15 - Students/unwaged (without food)

Please indicate on the booking form if you require vegetarian food: ☐

Please make cheques payable to Earthwatch Ltd.
EARTHWATCH, HARBOUR VIEW, BANTRY, CO. CORK. TEL: 027 50968 / 027 51283
FAX: 027 51417

CLIMATE CONFERENCE

Climate change is the most serious and wide ranging environmental problem confronting the world community. The conference is a unique opportunity for dialogue amongst those in Ireland involved in the many issues related to global warming and climate change. Authoritative keynote addresses will set the scene for detailed workshop analysis and discussion of the options for action in Ireland. The general categories to be considered are: scientific aspects (including sea level rise & atmospheric levels of greenhouse gases); energy questions; the natural environment (including agriculture & forestry); economic problems and opportunities; political aspects with particular reference to the EC, the UN and the IPCC process.

EARTHWATCH

The Irish environmental organisation, Earthwatch, a member of Friends of the Earth International, was formed in 1986. Earthwatch now works at regional, national and international levels, to protect the environment by campaigning actively on specific issues and promoting general environmental awareness. It has spearheaded campaigns on major environmental problems such as acid rain, the ozone layer and global warming, heightening awareness of these issues and pressurising for concrete changes while there is still time. Earthwatch also publishes a quarterly magazine, responds to ever-increasing information requests from the media and the public, and is currently developing a local groups network.

Conference sponsors:

An Bord Bainne; An Taisce; Coillte Teoranta;
Department of Energy;
Department of the Environment.

PROGRAMME

SATURDAY 19TH MAY

8.30 a.m. Registration opens

9.30 a.m. Opening Address

Overview:

9.45 a.m. **Global Warming:** *Dr. P.M. Kelly, (Senior Research Associate, Climatic Research Unit, University of East Anglia)*

10.15 a.m. **World Cooperation in Climate Research:** *Prof. J. Dooge, (Chairman, Organising Committee for the Second World Climate Conference)*

10.45 a.m. Questions and Discussion

11.15 a.m. Coffee/tea

Consequences of Climate Change:

11.45 a.m. **Sea Level Rise:** *Dr. R.W.G. Carter, (Head of Environmental Studies, University of Ulster at Coleraine)*

12.15 p.m. **CO_2 Levels and Crop Yields:** *Dr. M. Jones, (School of Botany, Trinity College Dublin; Irish committee for the I.G.B.P.)*

12.45 p.m. Questions and Discussion

1.15 p.m. Lunch

Causes of Global Warming:

2.30 p.m. **The Main Greenhouse Gases:** *Mr J. Woolridge, (Earthwatch)*

3.15 p.m.. Workshops (coffee/tea to be served during workshops):

1. **Greenhouse Effect & Climate:** *Dr. P.M. Kelly*
2. **Sea Levels:** *Dr.R.W. Carter*
3. **Transport:** *An Taisce; Drs. P. Dowding, P.J. Drudy, Trinity College, Dublin; M. Slingerland, EC*
4. **International Climate Programmes:** *Prof. J. Dooge*

5.00 p.m. Reports back from workshops and open forum.

6.00 p.m. Close of day one.

SUNDAY 20TH MAY

Strategies to Contain Global Warming:

10.00 a.m. **Energy Efficiency as the Prime Means of Greenhouse Gas Abatement:** *Dr. Greg Kats, (Rocky Mountain Institute, U.S.A.)*

10.30 a.m. **Renewable Energy Alternatives:** *Prof. G. Wrixon, (Director, National Microelectronics Research Centre, University College Cork)*

11.00 a.m. Questions and Discussion

11.30 a.m. Coffee/tea

11.50 a.m. Workshops including contributions from environmental groups on policy options for Ireland (see panel opposite for initials):

1. **Energy and Transport policy:** *E.C.A.; S.E.S.I.; An Taisce; Earthwatch*
2. **Land Use:** *Earthwatch; I.O.F.G.A.; Crann; I.W.C.; I.P.C.C.; Sonairte; I.W.F.*

1.15 p.m. Lunch

Politics of Climate Change:

2.30 p.m. **Policies on climate change:**
EC Speaker (DG XI)
Government representative
Enviromental NGO speaker

With comments from a panel of political and environmental group representatives. To be followed by a general discussion

4.00 p.m. Coffee

4.30 p.m. **Resolutions** for Taoiseach and EC Energy Council followed by closing address.

• •

EXHIBITION: There will be an exhibition by organisations interested in climate change on view during the conference. Representatives will be in attendance to answer your questions. If your organisation wishes to take part in the exhibition, please contact Clare Heardman at Earthwatch for details.

RECEPTION: It is planned to hold a reception/ party on Saturday evening.

Environmental organisations involved in the conference:

An Taisce (National Trust for Ireland)
Crann (The Woodland Management Trust)
Earthwatch
Energy Conservation Association of Ireland
Greenpeace Ireland
Irish Organic Farmers and Growers Association
Irish Peatlands Conservation Council
Irish Wildbird Conservancy
Irish Wildlife Federation
Solar Energy Society of Ireland
Sonairte (The National Ecology Centre)

IRISH METEOROLOGICAL SOCIETY

World Meteorological Day 1990

lecture on

"Natural Disaster Reduction"
-how Meteorological and Hydrological Services can help

by
Professor J.E.Nash
winner of the 1989 International Hydrology Prize.

The World Meteorological Organisation has designated 'Natural Disaster Reduction' as its theme for W.M. Day 1990. The United Nations has passed a resolution making 1990-1999 the decade for Natural Dister Reduction. To mark these events the Irish Meteorological Society is presenting a lecture on this topic by Prof. J.E. Nash of U.C.G

on
Thursday March 22nd
at 8.00 pm
in the
Carrolls Theatre,
Grand Parade, Dublin 6

Open to the Public

Admission Free