

January 1998

# Zephyr

Your Window on the Atmospheric Environment Program

## Canadians Learn about Climate Change

### About Zephyr

Zephyr is written for and about the staff of Environment Canada's Atmospheric Environment Program.

Our mission is to provide quality service through science for the sustainable benefit of Canadians and the environment.

Zephyr is your newsletter. We are always looking for your ideas and contributions.

Zephyr

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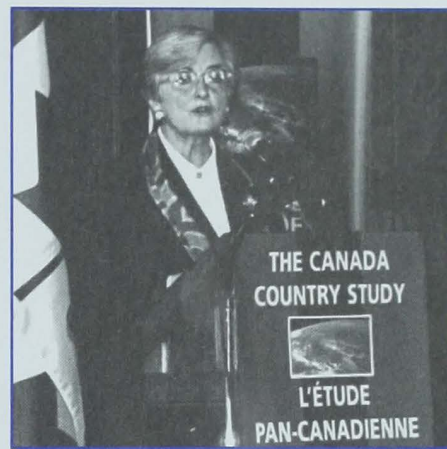
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Overall impacts of climate change in Canada could be significant, according to the Canada Country Study (CCS). More than 150 participants attended a national symposium in Toronto from November 24 to 26 to discuss the study's findings and to plan further scientific research.

Environment Minister Christine Stewart opened the conference, congratulating those involved in the study. "You have made an invaluable contribution to Canadians' understanding of the problem and their involvement in the solution." This was the first national assessment of its kind in Canada, involving more than 3,500 pages of research. A multi-disciplinary approach was key to its success. Fifty-five lead authors drew upon the expertise of researchers from the federal, provincial and territorial governments, academia and industry to ensure a broad sampling of scientific knowledge.



"We couldn't have pulled it off without the dedication and professionalism of some of Canada's leading experts in climate change," explained Roger Street, head of CCS and Director of AES' Environmental Adaptation Research Group.

Where does the study go from here? "After identifying some significant gaps in scientific knowledge," added Roger, "we now want to work more closely with Canadians, identifying specific adaptation options within their communities, regions and sectors."

For copies of the two national summary reports, *Highlights for Canadians* and the *National Summary for Policy Makers*, call the EC Inquiry Centre at: 1•800-668-6767. Find the CCS website at: <http://www.ec.gc.ca/climate/ccs/>.



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## **EC Contributes Internationally**

A Special Report of IPCC  
Working Group II

*The Regional Impacts of Climate  
Change: An Assessment of  
Vulnerability*

CCS contributed to a North American chapter in this special Intergovernmental Panel on Climate Change (IPCC) report, co-authored by Roger Street and David Shriner (involving 36 experts from Canada and the U.S.). The report looks at how vulnerable people and the environment are to potential effects of climate change. Find a *Summary for Policy Makers* at: <http://www.usgcrp.gov/ipcc/html/RISPM.html>

Adaptation to Climatic Variability  
and Change  
San Jose, Costa Rica  
March 29 to April 1, 1998

About 300 participants, speakers and dignitaries will attend this IPCC workshop, led by EC. The workshop will help guide the global assessment of adaptation for the Third IPCC Assessment Report (expected 2001). For information contact: [don.maciver@ec.gc.ca](mailto:don.maciver@ec.gc.ca) (or call Don at 416•739-4391).

## **Point and Click Your Way to El Niño**

El Niño is going strong, expecting to peak in January and February. Now you can go to EC's Green Lane ([http://www.tor.ec.gc.ca/el\\_nino/](http://www.tor.ec.gc.ca/el_nino/)) for:

- El Niño's expected impacts on Canada
- Quick facts on history, origins and global effects
- Vital statistics in full colour graphs and charts
- Links to EC's regional websites and others

Interest is high with over 15,000 visitors to EC's El Niño websites from October to December alone. Since August, EC experts have been featured in over 350 newspaper articles, radio and television interviews on El Niño.

## **Facts At Your Fingertips**

The American Meteorology Society journals are now available on-line @ Downsview, King Radar, Egbert, Dorval, LaSalle Academy, Climate Modeling at Victoria, and regional weather offices.

Downsview Library workstations can provide access to *PC Magazine* ([www.pcmag.com](http://www.pcmag.com)), *Review of Scientific Instruments* ([www.aip.org](http://www.aip.org)) and a new journal, *Earth Interactions*. Also accessible through workstations at 4905 Dufferin Street: *Environmental Science and Technology*.



## Partnering for Road Safety

The Ottawa Regional Weather Centre (ORWC) is actively applying leading-edge technology to improve driving conditions in Ontario. Through partnerships with the Regional Municipality of Ottawa-Carleton and the Ontario Ministry of Transportation, the ORWC is helping to provide transportation engineers and road crews with real-time and forecasted road conditions at their desktops.

"Road temperatures are critically linked to road safety" advises Paul Delannoy of the ORWC. A myriad of factors enter into road treatment decisions. Timing can be key. For instance, if salt is applied before snow and ice can bond with the pavement, then clearing to bare pavement is much easier and requires only a quarter as much salt (on average). Decision-makers are now able to work from real-time data and forecasts to identify what treatments are needed and precisely at what time.



The ORWC's investment in road safety over the past four years is now producing commercial dividends. The Ottawa-Carleton installation is one of the most complete in Canada, with two full and three partial sites in operation. The ORWC is also providing complete winter road weather services to Ontario's brand new Highway 407 Express Toll Route as well as the entire Chatham district. This work will bring extended benefits nation-wide through better knowledge about winter road maintenance technologies.

## Québec Road Safety

People in most of Québec can now get real-time information about weather and road conditions, thanks to an innovative partnership between EC and Transports Québec. Information can be accessed through:

- 33 free phone answering devices in urban centres
- Weatheradio broadcasts
- 1•900•565-4000
- Transports Québec Internet: [http://www.mtq.gouv.qc.ca/etat\\_routes/WelcomeAng.html](http://www.mtq.gouv.qc.ca/etat_routes/WelcomeAng.html)
- EC Internet: [http://www.qc.doe.ca/meteo/index\\_ang.html](http://www.qc.doe.ca/meteo/index_ang.html)

To promote the service, 2.3 million flyers were recently distributed to Québec households with the Canadian Tire Christmas catalogue. More than 200 media outlets were also contacted. The program demonstrates that both safety and efficiency can be achieved through co-operative efforts.

## Did You Know?

Annually, EC activities include:

- 1.1 million weather forecasts
- 14,000 weather warnings
- 50 million public calls for weather info



## Tracking the Red River Flood

EC's Manitoba Weather Services Centre became a vital source of information on the "flood of the century" last spring when the Red River turned into the "Red Sea". Weather services staff provided daily briefing sessions in a "war room" to help emergency measures officials decide what areas to evacuate and where to allocate resources.



Around the clock weather forecasts tracked heavy precipitation, above normal temperatures as well as strong wind and wave action. Added support came from the Winnipeg Climate Centre and volunteer climate observers, who provided model-ready data for flood forecasting. Atlantic, and Pacific and Yukon Regions responded quickly to urgently required information on wave models.

A special website was set up on the region's Green Lane, including a real-time "flood cam". The site recorded over 42,000 hits per day at peak times. EC spokespersons did over 300 interviews for local, national and international media.

## Alternative Service Delivery: Building on Your Views

ADM Gordon McBean recently sent EC staff a discussion paper on AEP's Alternative Service Delivery (ASD) study. They were encouraged to complete a questionnaire (via an ASD web-site). The same document was sent to about 1,000 AEP stakeholders. Responses will help determine the need for future consultations.

Workshops have also been organized across the country to provide AEP staff with:

- information about work by the ASD study team;
- study directions; and
- options being considered for the future.

To date, workshops have taken place in Atlantic, and Pacific and Yukon regions and at the Canadian Ice Service in Ottawa.

Issues raised include:

- the continuing development of AEP partnerships;
- the role to be played in atmospheric research;
- clear distinction between services for the public good and commercial services;
- the attraction and retention of skilled people; and
- maintaining the current standards of service delivery.

Staff contributions from these workshops will help the ASD study team focus its communications and consultations.

For more information, visit <http://wwwib.tor.ec.gc.ca/asd>, or input your comments directly to [ASD-Question@ec.gc.ca](mailto:ASD-Question@ec.gc.ca).



## Jim Bruce Receives Order of Canada



Congratulations are extended to Jim Bruce (former AES ADM) who recently became an Officer of the Order of Canada. This honour recognizes Jim's work internationally to reduce the environmental impact of

natural disasters, while ensuring the sustainable development of resources. He served as the first Chair of the United Nations Scientific and Technical Committee for the International Decade for Natural Disaster Reduction and has made significant contributions to the World Meteorological Organization.

## Remembering Pat McTaggart-Cowan



Friends and colleagues of Pat McTaggart-Cowan were saddened by news of his passing on October 11th, 1997 at Bracebridge, Ontario.

Gaining fame as a trans-Atlantic forecaster during World War II, Dr. McTaggart-Cowan was made a Member of the Order of the British Empire in recognition of his services to RAF Ferry Command. He led the expansion of Canadian meteorology following the war, serving as the Director of Meteorological Service in Canada from 1959 to 1963. Pat was the first President of Simon Fraser University, and Executive Director of the Science Council of Canada. He was awarded the Patterson Medal in 1965, the Centennial Medal in 1967 and made an Officer of the Order of Canada in 1979.

## Making Progress

### Lightning Network: Better Public Safety



By this summer, Canadians will be receiving earlier weather warnings to protect themselves and their property against lightning and thunderstorms. A \$9.5 million Canadian Lightning Detection Network will allow meteorologists to track the growth and movement of thunderstorms. Eighty-one state-of-the-art lightning detection units will relay data to EC's weather

centres within 30 seconds of the actual strike.

Those involved in finalizing the contract with Global Atmospheric, Inc. were recognized with Citations of Excellence and a Group Merit Award.

## Tornado and Severe Weather Warnings

Canada's new National Doppler Weather Radar Network will allow EC to detect and predict severe weather earlier and more accurately. This \$34.9 million initiative will result in 29 Doppler radar sites across the country being operational by 2003. This year two new Doppler radar systems will be installed in Regina and Lac Castor (in the Saguenay), complementing those now functioning in Edmonton, King City (north of Toronto) and Montreal.

## WeatherAlert: Canadians Want to Know

With the success of WeatherAlert in Greater Toronto, EC now is working with the broadcasting industry to extend this service to other centres across the country. WeatherAlert scrolls severe weather messages across the bottom of your television screen alerting viewers in time to take action.



## Making Progress

### CMC: Historic Implementation

EC has implemented a new data assimilation system to better describe the current condition of the atmosphere around the world at its Canadian Meteorological Centre (CMC). Called 3-D VAR, this



new technique runs on the Centre's NEC SX-4 supercomputer, and replaces a scheme used at CMC since the mid-seventies.

A critical first step in predicting the weather is to

accurately describe the current state of the atmosphere around the globe. Because 3-D VAR can use observations from non-traditional sources (e.g. weather radar, satellite sensors and aircraft), it provides a better first impression of the atmospheric conditions needed to produce a weather forecast. Of nine major meteorological centres around the world, the CMC is the fourth to implement this state-of-the-art technology.

### Sky Watchers: Making Kids Weatherwise

In the Pacific and Yukon Region, Sky Watchers continues to be a success. This year, students from grades four to seven (from over 180 schools) are reporting their daily weather observations to EC. Reports are then made available to the public via the Internet and television. BCTV airs two daily broadcasts and three Sky Watcher Reports per broadcast.

### New Smog Forecast: A Success

The Saint John Citizens Coalition for Clean Air triumphed EC's new smog forecast as an "outstanding success". The program was launched by the New Brunswick Weather Centre in Fredericton, working with specialists under the national Air Quality Prediction Program. The two-day smog forecast was issued twice a day during the summer months and gave predictions for ground-level ozone. Local media broadcast the forecast widely and the public responded well to a special telephone number and Internet site.

What's ahead in 1998? Work is underway to consider implementing forecasts in southeast New Brunswick. Discussions are also being held with other provinces with an eye to future expansion in Canada.

### Science: Getting the Word Out

This has been a banner year for getting EC scientific research out to decision-makers. Accomplishments include:

- *Ozone Science: A Canadian Perspective on the Changing Ozone Layer*, produced in September (marking the 10th anniversary of the Montreal Protocol);
- *The Canadian 1996 NO<sub>x</sub>/VOC Science Assessment*, a nine volume study completed in November; and
- *The Canadian Arctic Contaminants Assessment Report*, an analysis of the long range atmospheric transport of pollutants into the Arctic

Work is underway for the release of two more assessments on acid rain and airborne particulates in 1998.