SPRING 2000

Zephyr

METEOROLOGICAL SERVICE OF CANADA

Environment Canada Environnement Canada

TRANSITION the Main Topic at First National Interactive MSC Meeting

Meteorological Service of Canada (MSC) staff from work sites across Canada were linked by telephone conference call and video conference for the first-ever National Interactive MSC Meeting on January 24 of this year. The meeting proved a useful forum for discussing the key issues of the day, including the Service's new name and mandate, the results of the Public Service Employee Survey, and other topics.

Speaking from the McTaggart-Cowan Auditorium at MSC Headquarters in Downsview, Assistant Deputy Minister Gordon McBean opened the meeting by expressing his pride in everyone's efforts to deal with the Y2K challenge and thanking staff for their dedication over the holidays. He added that the exercise was an opportunity for MSC to assess its systems in a broader context and to bring a uniform and national approach to its work.

Plans for revitalizing the MSC, with the cooperation of the Treasury Board, were the key topic of discussion for much of the meeting. Dr. McBean explained that the Service's name was changed to MSC because it was a single, easily recognizable identification that would be used both in the regions and at headquarters.

Dr. McBean also said he was pleased that Treasury Board's decision confirmed the mandate of the MSC as being responsible for Canada's weather service, the water survey of Canada, the Canadian Ice Service, and Canada's military and aviation weather services, and as the recognized authority for advice on atmospheric, climate and air-quality science. The goals of the newly revitalized service, he added, are still to help save lives, avoid health risks and reduce property losses, and to contribute to the enhancement of economic productivity and the adoption of environmental best-practices.

At the same time, Dr. McBean explained that the new financial flexibilities agreed to by the Board will enable the MSC to make the most effective use of its resources in delivering quality service to its clients. These flexibilities include the ability to enter into contracts of up to four million dollars, retain proceeds from the sale of capital assets, set up a procedure for entering into capital lease-back arrangements , and carry forward capital-funding appropriations. The

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TRANSITION the Main Topic at First National Interactive MSC Meeting

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Service will also be involved in a pilot project to test activity-based costing as a tool to determine the real costs of providing its services and find ways to operate more efficiently. Treasury Board will continue to work with MSC to find long-term funding and help meet its goals in such areas as human resources and infrastructure.

The discussion moved on to the subject of the Public Service Employee Survey, which Dr. McBean said provided interesting insight into the issues and concerns of employees across government. Based on the information collected from the survey, he highlighted some of the MSC's national priorities as:

- understanding, sharing and communicating our mission and values – something, he said, that meetings such as the National Interactive and managerial-level meetings are aimed at improving;
- understanding who our clients are, and developing service standards and performance measurement systems – information that is needed to demonstrate the good job we're doing;
- addressing the issue of employee workload and unpaid overtime, by trying to make mandates and expected deliverables consistent with our capabilities in terms of both human resources and infrastructure;
- tackling concerns about careers and career development by giving special attention to staff and their careers, and instilling the feeling that the MSC is the place they want to work; and
- eliminating harassment and discrimination from our workplaces.

Dr. McBean said that while only one-third of Public Service staff surveyed felt that management would try and resolve the concerns raised in the survey, he assured MSC staff that Environment Canada management takes these concerns very seriously and is committed to doing something about them. He said that the Department will use Performance Management Agreements with executives and annual performance reports for staff to focus on these and other issues raised. In most parts of the MSC, he said, managers have already held staff meetings on the survey, and are now developing action plans based on these meetings and other sources, such as Alternative Service Delivery consultations.

Dr. McBean wound up by touching on some of the many successes MSC has enjoyed over the past year, including numerous awards and recognitions, a positive report on our aviation weather-forecast performance-measurement system from external auditors, our response to the Swiss Air crash and Japan's nuclear accident, the installation of three new Doppler radars, a 90 per cent satisfaction rating with our weather information from citizens North of 60, and the recruitment and training of 16 new meteorologists and staff.

Dr. McBean closed by announcing that, after six years as ADM, he will likely be leaving his position in June. He encouraged all employees to take an active part in selecting his replacement by contributing their ideas and suggestions for consideration.

ZEPHYR

Published by the Communications Directorate of MSC, Environment Canada, **Zephyr** is a newsletter for and about the staff of the Meteorological Service of Canada.

Zephyr is your newsletter. We would like to hear from you. Your submissions, story ideas, graphics and pictures are most welcome. Submissions for the spring issue should be sent to us by April 27, 2000.

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Zephyr is now available electronically on the Intranet **wwwib.tor.ec.gc.ca/cd/zephyr** and the Internet **www1.tor.ec.gc.ca/cd/zephyr**

Introducing the MSC Communications Team!

The year 2000 has ushered in quite a host of changes for us here at MSC Communications – not the least of which has been the departure of long-standing director Linda Larocque, whose leadership was an integral part of this branch for some time. As Acting Director, I would like to take this opportunity to thank Linda for her dedication, and to say how pleased I am to be heading a team of such experienced and professional communicators.

The new MSC Communications team. From left to right, back row: Sylvie Bégin, Lucie Gagné, Micheline Gauthier, Sylvie Tessier and Michael DeJong. Front row: Lucie Lafrance and Liette Cormier.

MSC Communications is a service-oriented division that offers such services as strategic and operational communications planning, media relations, special events, media analysis, external and internal communications, marketing communications, and advice and guidance. To manage our files as effectively and efficiently as possible, responsibilities have been divided among the MSC Communications team. Since most of the team is new to this branch, please allow me to introduce them and the main issues they will be dealing with:

Sylvie Bégin – Doppler radar, wind chill and weather issues;
Liette Cormier – climate issues, including seasonal forecasts;
Michael DeJong – assistant and co-op student who supports the team; he will be with us until the end of April;
Micheline Gauthier – office manager;
Lucie Lafrance – air issues (e.g. ozone, smog, acid rain), MSC web site, Zephyr; and
Sylvie Tessier – internal communications (e.g. MSC Bulletin), issues related to Canadian Meteorological Centre.

As always, our focus is to provide you with the best service possible, and to work with you in our effort to promote MSC's programs and services. I look forward to a strong and productive relationship with all of you!

Lucie Gagné
Acting Director,
MSC Communications

Experts Discuss Climate Observing

Climate observing systems are of increasing importance to all nations in terms of climate change and seasonal to inter-annual climate predictions, yet progress on the implementation of Global Climate Observing Systems (GCOS) is limited.

This February, Dr. Gordon McBean initiated an informal meeting of 20 internationally renowned experts to discuss ways to achieve global commitment to providing climate observations, to reverse the degradation of existing systems, and to exchange climate information more effectively. The meeting addressed the atmospheric, oceanic and terrestrial domains and all GCOS-user needs, with a special emphasis on the United Nations Framework Convention on Climate Change.

Participants at the GCOS meeting: Front row (l-r): Drs. Ni Yunqi, Alan Thomas, Kirk Dawson, Robert Schiffer, Gordon McBean, Arie Kattenberg, Linda Moodie, Roy Gibson. Back row (l-r): Drs. David Warrilow, François Gérard, Udo Gartner, Geoff Holland, Erkki Jatila, Stan Wilson, John Stone, Howard Diamond, John Zillman. Missing: Drs. John Davis and Robert Corell, Mr. Bruce Angle, and Ms. Rebecca Wagner.

The open dialogue, which took place near Toronto, enabled participants to present their ideas freely, outside the usual institutional and governmental settings. The results will be communicated to the various agencies responsible for the climate agenda.

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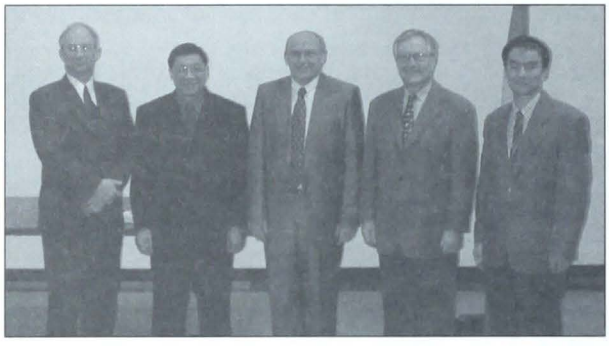
Employees Win Prestigious Scientific Award

Dr. Barry Goodison and Mr. Paul Louie, of the Meteorological Service of Canada (MSC), and Dr. Daqing Yang, a former post-doctorate Research Associate at MSC currently with the University of Alaska, Fairbanks, received the prestigious Professor Dr. Vilho Vaisala Award on February 15 for their important contribution to the World Meteorological Organization (WMO) Solid Precipitation Measurement Intercomparison project. The presentation was made by the Secretary-General of the WMO, which is a specialized agency of the United Nations.



Recipients of the Professor Dr. Vilho Vaisala Award with the ADM and DM of MSC (l-r): Dr. Gordon McBean (ADM), Paul Louie, Dr. Garry Goodison, Alan Nymark (DM) and Dr. Daqing Yang.

The purpose of the intercomparison project was to assess methods of measuring solid precipitation, or snow, by obtaining experimental results from 26 sites in 13 countries. The study took into account the various environmental factors and instrument types that affect the accuracy of solid precipitation measurement. In addition to advancing scientific knowledge on the accuracy of different instruments and methods of observation, the study results could be used for other essential purposes in Canada and other snow-prone nations of the world, including to improve water-supply forecasts for reservoir operations and flooding, and in the structural design of buildings to prevent collapse under snow loads.

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Research Scientist Promotions Announced

Congratulations to Dr. Tom McElroy, Dr. Norm McFarlane and Dr. Jocelyn Paré, who joined Environment Canada's prestigious team of senior scientists with their recent promotions to the level of SE RES-5.

Dr. McElroy has made major contributions to the MSC's upper atmosphere science program through his innovative instrument design and work on the physics of radiation. Dr. McFarlane has led aspects of work on the Canadian Climate General Circulation Model (GCM) for the Meteorological Service of Canada, and his efforts to improve the physics of the GCM have gained him recognition as one of the world's leading scientists in his field. Dr. Paré, of the Department's Environmental Technology Center, has contributed extensively to the development of microwave technology and its application to a host of environmental uses, and has an impressive number of patents to his credit.

Congratulations also to Dr. Robert Benoît, Dr. Kent Burnison, Dr. Bill Burrows, Dr. Tom Clair, Dr. Joseph Culp, Dr. Ewa Dabek-Zlotorzynska, Dr. Erica Dunn, Dr. Greg Flato, Dr. David Hudak, Dr. Kathy Martin, Dr. Tom Murphy, Dr. Trefor Reynoldson and Dr. Alain Sirois who have also been promoted through this year's competitive research scientist promotion process.

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SERVICE AWARDS

Linda Larocque, former Director of Communications at MSC, received a certificate from Assistant Deputy Minister Gordon McBean in recognition of her work at a special reception on January 27, 2000. Linda is now the Director of the Climate Change Action Fund at Environment Canada.

On December 17, 1999, Joanne Lancaster received a pin from Gordon McBean to mark her 10 years of work as a meteorologist at MSC.

Top Weather Stories of 1999

MSC senior climatologist David Phillips has tallied up the year's most extreme, record-breaking, headline-grabbing weather and come up with a list of the top weather stories for 1999.

Canadians across the country were feeling hot, hot, hot in 1999 – the third-warmest calendar year on record since 1948, when Environment Canada began keeping nationwide weather records. This follows 1998's all-time record of +2.5°C warmer than normal.

Summer was a season of extremes – cool and wet in the West, and hot and humid in the East. Calgary had more snow in July than in February, Edmonton never reached 30°C and Vancouver set a record for most number of days with rain. In the East, Toronto had the hottest June-July combination on record, while parts of central and eastern Canada gasped for air in frequent sauna-like conditions between May and September.

There was also a scarcity of severe summer storms – namely heavy thunderstorms, twisters and hailers. There were no strong tornadoes reported this year, and convective storms that did break out were generally weak and short-lived.

Going from west to east, British Columbia suffered its wettest, windiest and drabbest winter in decades. Winter storms caused 188 ferry sailing cancellations on the most popular routes in and out of Vancouver, compared to only 20 the year before. The city also had a record number of wet days: 116, compared to the old record of 108.

It was a sloppy spring in the Prairies. In southwestern Manitoba and southeastern Saskatchewan, cool wet spring weather prevented farmers from seeding nearly three million acres of some of the most productive farmland in Canada.

The Great Lakes reached record low water levels. After two dry years, the Lakes emptied rapidly due to lower precipitation, less runoff from rivers and streams, and huge evaporation losses.

Toronto's snowstorm of the century dumped a record-breaking 118.4 centimetres of snow on the city by the time the first month of 1999 was over. The Mayor called in the military, and plows came from as far away as Prince Edward Island to help the city haul away one million tonnes of snow from the downtown core.

A devastating avalanche in the tiny Inuit village of Kangiqsualujjuaq, Quebec, had rescuers battling fierce winds and lashing blizzards as they dug by hand through three metres of snow in a frantic effort to free dozens of people trapped under mounds of snow and debris. Nine people died, and 25 others were injured.

Drought conditions and intense heat wilted crops, endangered the health of livestock and forced open-fire bans in parks and forests across the Atlantic region. And during hurricane season, 12 tropical storms formed, 8 reaching hurricane strength and 5 being considered intense.

Two weather-related highway disasters occurred at opposite ends of the country. Dense early-morning fog enveloped sections of Highway #401 near Windsor, Ontario, contributing to one of the worst road disasters in Canadian history. Eight people were killed and 33 injured. In Calgary, black-ice conditions led to a 90-vehicle pileup, closing the highway for 20 hours. More than 27 ambulances were dispatched to the scene.

To mark the end of the millennium, Phillips has compiled a list of Canada's most significant weather events of the 20th century. Canadians were asked to vote for their top three choices on Environment Canada's web site at www.ec.gc.ca. We will let you know the results in the next issue of *Zephyr*.

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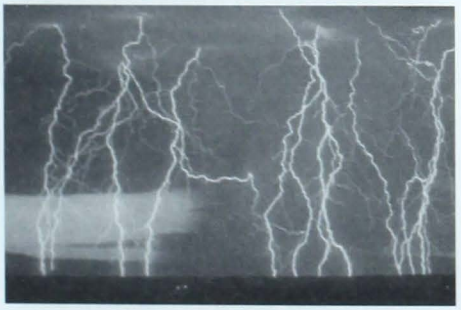

Scientists in Arctic to Study Ozone Layer

More than 350 scientists from Canada, the United States, Russia, Europe and Japan spent the first three months of the new year in Sweden doing high-altitude measurements of the Arctic ozone layer as part of a joint project involving the National Aeronautics and Space Agency (NASA). The effort was the largest ever made to explore exactly how the ozone layer is disappearing and the impact it is having on the environment.

Members of the international Arctic ozone-layer study who looked after the instruments aboard the ER-2 while the aircraft was in transit. MSC staff are pictured in the three right-hand seats, front row (l-r): Clive Midwinter, Tom McElroy and Bob Hall.

Scientists and technicians with the MSC were among those involved in the campaign, which involved a series of balloon launches and flights of the high-altitude ER-2 aircraft equipped with special instruments to measure polar stratospheric clouds and ozone-destroying chemicals from 20 kilometres above the earth. The EC scientists involved operated an MSC-designed spectrometer to measure the amount of ozone above the ER-2 and the reflectivity of the surfaces below it to improve the accuracy of model simulations of the chemical data collected by the instruments on board.

According to the latest findings, global warming may boost the amount of water vapour in the Arctic stratosphere, hastening ozone-eating chemical reactions by lowering temperatures in this layer of the atmosphere earlier in the winter than would previously have occurred. This earlier cooling would also give these chemicals a longer time to act.

Scientists had originally predicted that levels of ozone-depleting chemicals in the Arctic stratosphere would peak around 1999 and that ozone levels would begin a steady recovery over the next 50 years or so. The new findings suggest that, unless the world takes action on rising levels of greenhouse gases such as carbon dioxide, ozone levels could remain at current levels for years and take decades longer to recover completely.

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MSC Renewing Its Workforce

Workforce renewal is returning to the Meteorological Service of Canada (MSC), with a national human-resource-management regime already established for key employee groups in order to effectively plan for and deal with future scenarios. Recruiting new staff is important for all employee groups, given that the number of retirements per year is anticipated to increase substantially over the next several years.

One step in the renewal process is to train new meteorologists. A training course with 16 participants is currently underway and the next round of recruiting began in January. An updated Occupational Training Plan has been established, and work is progressing on the development of MT competencies. Robert Lefebvre and his team are working with regional staff and university partners to attract students to meteorological programs and subsequent careers with MSC. Students interested in a career in this field should contact Robert Lefebvre at (819) 994-6000 or Robert.Lefebvre@ec.gc.ca.

Recruitment for Technicians and Electronics Technologists has continued on an as-needed basis. An in-depth demographic analysis has been completed, and the need for individuals in these positions is expected to increase over the next five years. To address this need, work is well underway to develop an Occupational Training Plan for Technical Staff. The training curriculum will be updated and training delivery options considered.

Watch for results from these and similar activities that are underway for other groups, such as research scientists.

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Making Canada's Roads Safer

In Canada, more than 90 per cent of all passenger travel and over 70 per cent of all freight shipments, by revenue, are handled by roads. During winter, a large part of the country experiences snow and icy conditions that can make driving treacherous. To improve road safety, maintenance crews use some 4.7 million tonnes of road salt each year – a substance that is now being considered as a potentially toxic substance under the Canadian Environmental Protection Act, due to its harmful effects on the environment.

In the interest of improving road safety and, at the same time, reducing maintenance costs and environmental impacts, several Meteorological Service of Canada weather service centres have added pavement temperature and road condition forecasts for sites instrumented with Road Weather Information Systems (RWIS). These systems are simply automated weather stations installed immediately adjacent to the roadway. They also have specialized road sensors, which provide road surface and sub-surface temperatures, road surface wetness, and residual chemical factor. Visibility sensors (fog), air-quality monitors, traffic counters, video cameras and many other sensors could be added, where warranted.

Using its own METRo (Modèle de l'État/Environnement et de la Température des Routes) numerical heat-balance forecasting model, Environment Canada meteorologists predict the temperature of the road surface over the next 24 hours. Road temperature is the single most important parameter in determining future road-surface conditions. The Department is also interested in using RWIS data to initialize high-resolution supercomputer models that could produce sets of pavement temperatures and conditions for all grid points coinciding with roadways, a method that would allow road-surface temperature forecasts to be produced for entire road networks.

RWIS have proven highly effective in helping road agencies monitor and understand road conditions. The road-temperature forecasts enable road agencies to get the jump on road treatment – operations that have come to be known as "anti-icing". They also allow the agencies to treat roads before friction is lost due to ice formation or snow compaction, and to use the right strategy and precise, minimum amount of chemical required.

Several studies have shown that RWIS with pavement forecasts generate sufficient direct savings to the maintainer in terms of labour, equipment and fuel, to pay for themselves at least several times over. Indirect benefits in reduced accidents and legal fees, reduced salt damage to roads, structures and the environment, and more efficient use of existing roads, are estimated at more than 11 times the total costs of the system. In the United Kingdom, indirect benefits from RWIS have been proven to be in the order of one hundred to one. The value of RWIS in Canada could be even greater. The same networks could be used in summertime to provide the dense coverage required to refine integrated pest management for the agricultural sector and forest-fire indices for the forestry sector.

RWIS systems are in use in many northern countries around the world, as well as in the United States, which has more than 1600 fully equipped sites. Canada has fewer than 70, most of them located in Ontario, although several provinces have expressed an interest in increasing their coverage. Transport Canada is a major proponent of the technology, which it views as a fundamental part of a broader suite of Intelligent Transportation Systems (ITS). RWIS, like other ITS components, are electronic detection, warning and communications devices used to obtain more information from the road network in order to increase efficiency and safety. Transport Canada is currently preparing a national architecture for ITS in Canada as part of its sustainable transportation initiative.

The MSC is pursuing multi-lateral discussions with all provinces and several territories in the hopes of pulling together a common RWIS proposal for submission to Transport Canada.

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Storm Devastates Atlantic Coastal Areas

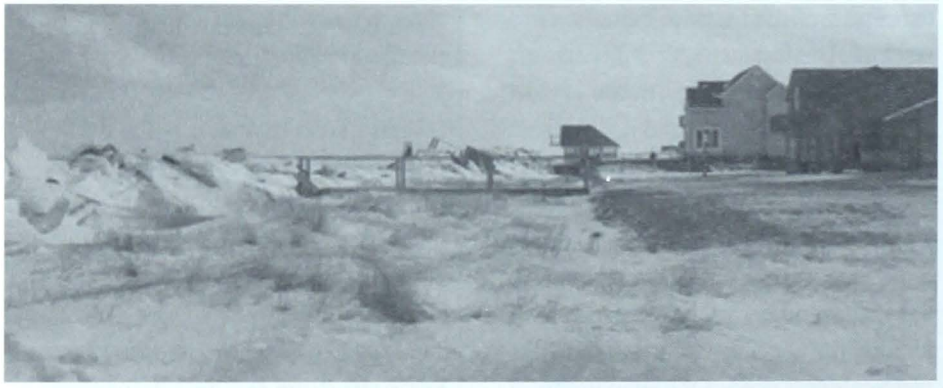
High tides, violent winds and an uncommonly low-pressure weather system combined to create a devastating winter storm surge that caused extensive flooding in Charlottetown, Prince Edward Island, and other coastal areas of the Maritimes on January 21 – an example of how several elements can combine to produce extreme weather in this part of the country.

MSC's meteorologists had been watching conditions closely all week long. Although the storm had yet to materialize by dawn on January 20, a low-pressure centre, which would prove to be the real weather maker the next day, was about to form south of the Carolinas. Environment Canada's meteorologists began issuing warnings of pending severe weather for all of Atlantic Canada, and added warnings of coastal flooding later that morning when it became evident that a storm surge would likely accompany the blizzard.

In just over a day, the low deepened rapidly as it raced northward over the Atlantic Ocean, its central pressure dropping below that of any Maritime storm in memory. This low-pressure centre pulled up a forceful wave of water beneath it – a phenomenon known in meteorological terms as an "inverted barometer effect"– and dragged it toward the coast. Conditions were exacerbated by several other factors. For one, the moon reached its perigee – or the point on its monthly orbit when it comes closest to the earth – on January 19, so there was a full moon on the day the storm hit. These lunar factors led to the second highest tides of the year. For another, northeasterly storm-force winds in the Gulf of St. Lawrence pushed water levels even higher, piling up water throughout the entire southern part of the Gulf and flooding both ends of the Northumberland Strait.

As part of a post-storm evaluation, Paul Noseworthy and Réal Daigle surveyed the New Brunswick coastal area from Petit Cap to Pointe Sapin on January 26 to determine the high-water marks reached during the storm surge on January 21. They concluded that the storm surge reached approximately 1.5 metres above normal high tides in most localities surveyed, causing widespread damage to structures built near shorelines, and particularly to unprotected wharves. Local residents who were questioned stated that they had never witnessed a surge of this magnitude ever before.

The photo above shows the Bouctouche Bridge taken near high tide on January 26, with the high water line clearly marked on the cement piling. The bottom photo was taken near Barachois, and shows how close the rafted ice came to homes in a new near-shore subdivision.



Although using computer models to predict storm surges has only recently been added to the traditional set of tools used by meteorologists, the use of such a model in this case was instrumental in confirming what traditional forecasting techniques had already predicted. Environment Canada, through MSC Atlantic, continues to work to develop the science of predicting storm surges as part of its commitment to protect the public.

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CMC Musical Group Still Rockin'

The Canadian Meteorological Centre's own musical group, Kelvin, wowed audiences across Quebec again last year, giving more than half a dozen performances for Environment Canada social activities and charities such as the United Way. The group, which was founded five years ago by staff at CMC and Meteorological Research Branch in Dorval, once again showcased its musical talents at the Centre's annual Christmas party. The band performed a number of well-known tunes using its own lyrics to spoof topical issues, such as the Y2K bug. Aging like a fine wine, Kelvin is looking forward to some new challenges in the year 2000, but mostly to continuing to have a lot of fun along the way.

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Members of the musical group Kelvin at the 1999 MSC Christmas party. From left to right: Gilles Richard, Michel Baltazar, Tom Robinson, Ross Brown, Susan Bisanti, André Plante, Louis Lefaivre, Alain St-Denis, Claude Landry, René Servranckx, Yves Pelletier, Judy St James, Claude Mercier and Gérard Croteau. Absent: Richard Hogue.

The Robinson family of Durham poses with the certificate and award they received from Environment Canada, Ontario Region, for their more than 50 years of volunteer weather observations. From left to right: Lee Anne Robinson, Norman Robinson, Ruth Anne Robinson, Verona Jackson and M.P. Ovid Jackson (who were present to honour the family's efforts), the Robinsons' grandchildren Dennis and Kelly Smith, and Ron Huibers, Call McLeod and Bryan Smith of Environment Canada, Ontario Region.

Environment Canada, Ontario region, recently honoured Lloyd King (right) of Hagersville for his more than 50 years as a volunteer weather observer. Mr. King is shown here with Member of Parliament Robert Spelling.

Poster Raises Awareness of Climate Change

In the fall of 1999, high school teachers in British Columbia received a new tool for discussing climate change in the classroom when a large-format educational poster entitled *Temperature Rising: Climate Change in Southwestern British Columbia* was introduced through a series of workshops.

Climate change is expected to have a significant impact on a number of natural resource sectors in southwestern British Columbia, including salmon fishing, agriculture and forestry. Other changes are likely to occur to shorelines and marshlands due to rising seas, altered flow regimes of rivers and streams, the disappearance of many glaciers, a decrease in air quality, and an increased risk of floods and landslides. Bringing together the diverse community of experts who are studying these impacts was one of the main challenges of the project.

The poster, which took over a year to produce, was developed by Environment Canada, Simon Fraser University and the Geological Survey of Canada, and involved contributions from a number of different agencies. It was funded, in part, by the Climate Change Action Fund. Visually appealing, with numerous photographs and illustrations, it covers the science and impacts of climate change, and issues a challenge to Canadians to do their part in reducing harmful greenhouse gas emissions. It discusses the role of carbon dioxide and other greenhouse gases in the global climate system, illustrates the Earth's temperature record over the past thousand years, and projects future temperatures based on increasing concentrations of greenhouse gases.

Roughly two-thirds of the poster is devoted to the potential impacts of climate change on the environment and our natural resources.

A small core group of climate scientists, a communications specialist, and a graphic artist developed the content of the poster, which was reviewed for accuracy by scientists and researchers. An education committee, comprising teachers and communication specialists, worked in tandem with the group to ensure that the poster's content matched the high-school science curriculum and met the needs of the target audience, and developed a teacher's resource kit to accompany it. Scientists, environmental non-government organizations, teachers and communicators reviewed the draft poster, which was also piloted in several schools.

The climate change poster is an excellent example of the role Environment Canada can play in bringing together diverse interests to focus on important environmental issues. For copies, please contact the Geological Survey of Canada, Sales Office, Suite 101, 605 Robson Street, Vancouver, British Columbia, V6B 5J3. More information is available on the Web at (www.climatechangecanada.org).

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On January 25, 2000, Nancy Grenier and Bill Taylor (far right), climatologists at Environment Canada, received Awards of Merit for their work on an educational poster on climate change in southwestern British Columbia. The awards were presented by Art Martel (centre), the Regional Director of Environment Canada's Pacific & Yukon region.

The Woodlands Doppler radar under construction.

Doppler Radar Under Construction

A new, $1.8 million Doppler radar is under construction at Woodlands, Manitoba, northwest of Winnipeg. The new radar will be part of the National Doppler Radar Network.

In addition to measuring the intensity of precipitation, Doppler weather radar can measure the speed and direction of precipitation within storms. Unlike traditional weather radar, Doppler helps meteorologists detect conditions that could lead to a tornado. Environment Canada meteorologists will also use the data from Doppler radar to provide more accurate predictions of hail, freezing rain, heavy rain and snow.

The Woodlands radar is expected to be commissioned by early spring.

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Automated Station Brings Weather to Public

A joint project involving Environment Canada and The Forks North Portage Partnership came to fruition on November 5, 1999, with the official opening of The Forks automated weather station in downtown Winnipeg.

In addition to reporting more specific weather conditions in the downtown area, the station will provide Forks visitors with a unique opportunity to observe first-hand the equipment and technology used to collect weather information throughout Canada and the world. Current weather conditions recorded at the new station are also displayed to the public through a television monitor located inside The Forks Market.

The Forks attracts five to seven million visitors annually from around the world and is host to over 100 special events each year. It is also home to Winnipeg's historic Union Station, which now houses Environment Canada's Prairie Storm Prediction Centre.

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The Forks automated weather station in downtown Winnipeg gives visitors a unique opportunity to see first-hand the equipment and technology used to collect weather information.

Designed with the Environment in Mind

The Weather Station Operations building in Churchill, Manitoba, served as everything from a surface weather observing station to a weather office during its 40 years, undergoing numerous renovations and additions along the way. The end result was a building that was expensive to heat and maintain, too large for its current use as an upper air station, and whose asbestos insulation, wall board and siding posed health risks to workers.

To tackle the problem, the Atmospheric Monitoring Division of Prairie and Northern Region replaced the building with a new structure designed to meet current operational requirements and minimize environmental life-cycle impacts, health hazards, and operating and maintenance costs. The departmental Contaminated Sites Fund provided $30,000 to complete an environmental assessment of the site, remove the old building and clean up any potential hazards that remained, and the $170,000 to purchase and install the new building came from the MSC Strategy Capital Fund.

The new building is a modular construction the size of a double-width trailer. Each module came in the same dimensions as a shipping container to make handling easier and reduce shipping costs. The modular design also reduced the amount of on-site waste and construction time – both of which are significant factors in the cost of construction in the north. By limiting the building size to meet current and foreseeable operational requirements, materials, operational energy requirements and environmental impacts were also kept to a minimum.

The new weather station in Churchill, Manitoba, was designed with the environment in mind.

Building materials were chosen for minimal environmental life-cycle impact. Wherever possible, materials with recycled content, the least "embodied" energy, and that could themselves be reused or recycled, were given preference. Forest impact was minimized by choosing engineered-wood materials, such as oriented strand board or medium-density fibreboard, made from fast-growing and more common trees. Materials, finishes and sealants were specified to be least detrimental to interior air quality. The building envelope was well sealed and insulated, and high-quality windows and doors were installed. Plumbing fixtures were chosen to minimize water usage.

The heating, ventilation and air-conditioning system was designed to create a healthy working environment. Continuous ventilation minimizes the build-up of contaminants, while recovering heat from exhausted air. Heat is provided by an electric furnace using hydro-generated power, thereby eliminating fuel storage tanks and potential environmental spills. Humidity is regulated by a low-maintenance plate-type humidifier.

Additional capital costs incurred over the cost of a basic building will be recouped over time in reduced operating and maintenance costs. Once this point has been reached, the building will continue to pay dividends of an estimated $5,000 per year in energy savings alone – proof that designing with the environment in mind can reap financial benefits as well.

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