May/June 1984

ZEPHYR

Inauguration of the CRAY Supercomputer

Environment Canada Environnement Canada

Canada

NEWS

Canadian astronaut will use AES Sunphotometer

Marc Garneau the recently named Canadian astronaut, will point a small light meter-like instrument at the sun through the window of the October space shuttle flight.

The Super Sunphotometer experiment will support current Canadian environmental research in climate, the ozone layer and acid rain.

Aiding climate research, the Sunphotometer will measure the state of the El Chichon volcanic cloud in the stratosphere. The haze cloud is slowly disappearing and Environment Canada scientists want to study how this is happening.

The Sunphotometer will measure gases, such as water vapor which affect the chemistry of the ozone layer, vital in protecting the earth's surface from ultra-violet solar radiation.

In the acid rain monitoring network in Canada, the Sunphotometer has become the instrument against which all others are calibrated.

The Sunphotometer, recently designed by Environment Canada scientists and built by Sonotek Ltd., a Mississauga, Ontario firm, replaces an older instrument monitoring haze in the atmosphere.

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Zephyr is a periodical publication for employees of the Atmospheric Environment Service, Environment Canada. It is produced for the Atmospheric Environment Service by the Information Directorate of Environment Canada.

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Environment Canada / Environnement Canada

Atmospheric Environment Service / Service de l'environnement atmosphérique

WMO Bureau meets in Canada

The ninth session of the Bureau of the World Meteorological Organization (WMO) was held in the AES Building, Downsview from January 31 to February 2, 1984 at the invitation of the Permanent Representative of Canada with WMO, ADMA Jim Bruce. The Bureau comprises the President, the three Vice-Presidents and special invitees including the Secretary General of the organization.*

The business section of the session dealt with administrative matters, long term planning and personnel questions in the Secretariat. Administrative arrangements for the 36th session of the Executive Council to be held in Geneva from June 6 to 23, 1984 were also finalized. The impact of the possible U.S. withdrawal from UNESCO and the Convention on the Protection of the Ozone Layer, presently being developed were also discussed.

On February 1 the Bureau members travelled to the Canadian Meteorological Centre (CMC) in Dorval, Que. to attend the official inauguration ceremony for the new CRAY vector computer.

While at CMC, Dr. Roman L. Kintanar, president of WMO gave a short speech praising the new computer and the key Regional Meteorological Centre in Montreal. He said they were both essential components of the WMO's World Weather Watch.

While in the building, the visitors toured other CMC facilities and received a briefing on all Centre activities. Before leaving, some of the WMO group received special computer-produced weather forecasts for their own countries as a souvenir of their visit to the CMC.

Other meetings were held in Downsview during the Bureau's visit here.

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The next issue of Zephyr will be a special Western Canada Edition.

(contd. from page 2)

In addition all attendees were thoroughly briefed on AES by senior managers. After the first official morning session, the Bureau attended a press meeting in the Downsview Building lobby. As visitors were filmed by several TV crews they answered questions during informal meetings with the media. Topics ranged from the greenhouse effect and global climate change to the possibilities of continuing free international exchange of weather satellite data.

Other activities during the first Bureau visit to Canada included tours of the Ontario Weather Centre, of the Mount Forest (Ont.) manned and automatic weather station, of the Woodbridge radar station and experimental farm and of the AES Downsview Satellite Data Lab. A tour of the Ontario Science Centre was also organized.

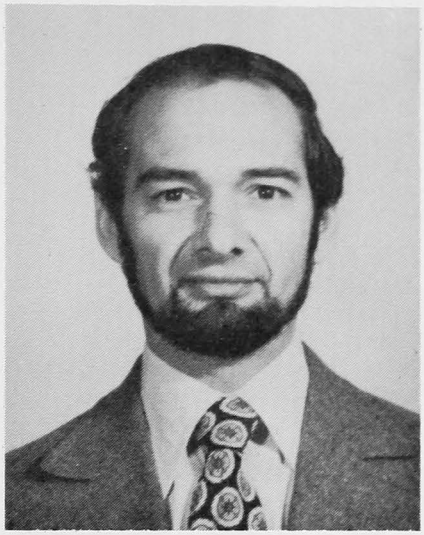
Bureau members and special invitees who attended were:

Dr. Roman L. Kintanar, President of WMO and Director General of the Philippines Atmospheric, Geophysical and Astronomical Services Administration; Prof. Yuri Izrael, first vice-president of WMO and chairman of the USSR State Committee for Hydrometeorology and Control of the Natural Environment; Mr. Zou Jingmeng, second vice-president WMO and Administrator of the Chinese State Meteorological Administration; Mr. J.P. (Jim) Bruce, third vice-president WMO and Assistant Deputy Minister AES; Dr. G.O.P. Obasi, Secretary General WMO and former head of the Nigerian Institute for Meteorological Research and Training; Dr. Richard Hallgren, member of the WMO Executive Council, and Director of the United States National Weather Service; Dr. John William Zillman, member of the WMO Executive Council and Director of Meteorology of the Australian Weather Service; Mr. Workineh Degefu, President of WMO Regional Association I, (Africa) and General Manager, Ethiopian National Meteorological Services Agency and Mr. C.A. Grezzi, President of WMO Regional Association III (South America) and Head of the Uruguay Weather Service.

★ At Bureau meetings it is customary to invite participation by the Permanent Representatives of members operating World Meteorological Centres (Australia, USA and USSR), if they are not attending either as President or as a V.P. One or two others also attend as special invitees to provide representation from all six WMO Regions.

One of the principal stops of the WMO Bureau on their tour of AES facilities in Eastern Canada was at the Canadian Meteorological Centre in Dorval, Que. Trying the CRAY Supercomputer "for size", the entire Bureau and their special invitees join Environment Minister Charles Caccia, fourth from right, for a photo. From left to right are Dr. R.E. Hallgren, USA; Dr. J.W. Zillman, Australia (standing); Mr. Zou Jingmeng, People's Republic of China; Dr. G.O.P. Obasi, Nigeria — Secretary-General, WMO; Dr. R.L. Kintanar, Philippines — President, WMO; Mr. Caccia; Mr. J.P. Bruce, Canada; Mr. W. Degefu, Ethiopia; Mr. C.A. Grezzi, Uruguay.

Meteorologist named director general of Information



Richard Asselin

Richard Asselin's appointment as director general of Information, (DGI), Environment Canada, is probably the first time a meteorologist has occupied the post of information head of a federal government department.

Dr. Asselin's appointment was announced in February. Before that he was director of the Canadian Forces Weather Service. He has spent most of his career, however, as a scientist with AES and its predecessor, the Meteorological Branch of the Department of Transport. Joining the Met Branch in 1962, he was employed as a research meteorologist at the Central Analysis Office and until 1978 he occupied various posts with the division de Recherche en Prévision Numérique (RPN) Atmospheric Research Directorate in Dorval P.Q.

Dr. Asselin says he is confident that a person of his background occupying the DGI's post is well placed to give the weather service a higher profile within the Department's information programs but cautions that changes cannot be made overnight. One method which he has already used to do this was to distribute copies of a newsletter of the Association for the Advancement of Science in Canada containing an editorial on "Scientists and the Media".

(contd. on page 4)

Dave Murdoch wins $2 000 award

Dave Murdoch, second from right, receives his merit award certificate from ADMA Jim Bruce at an Ontario weather centre ceremony. OIC Walter Lawrynuik is seen centre between these two.

Like most events with which David Murdoch is associated, the merit award ceremony was slightly out of the ordinary. In the boardroom of the regional weather centre at Toronto International Airport, ADMA Jim Bruce presented the Climatological Information and Forensic Meteorology Technician with a cheque for $2 000, an award made under the Departmental Merit Award Program.

The citation praised Mr. Murdoch for his "tireless efforts to promote the services of AES and the high quality of service he has provided to a myriad of clients among the research, legal, insurance, and industrial communities." To this Mr. Bruce added his personal congratulations and his observations that Dave Murdoch had done more than almost anyone else in Canada to put forensic climatology on the map.

There was a large turnout from the Ontario and Toronto weather offices and Don Smith, Director General, Field Services Directorate was also present. An unusual touch was the attendance at the ceremony of two members of the World Meteorological Organization Bureau delegation — Mr. Zou Zingmeng, Director General of the Chinese State Meteorological Administration and Second Vice-President of the WMO and special invitee Dr. John William Zillman, director of Meteorology of the Australian weather service and a member of the Executive Council of WMO.

George McPherson, regional Director Ontario Region, who was unable to attend the ceremony, said that Murdoch's growing recognition as a forensic climatologist was due to his effective and efficient manner in providing information to the judicial system. (Murdoch has handled some 400 court cases to date).

Mr. McPherson added that organizations such as the Metropolitan Toronto Police, Ontario Police College, the Ontario Provincial Police, the RCMP as well as coroners and pathologists had requested and benefited from Murdoch's seminars on meteorology and climatology. A major milestone in recognizing his expertise came when he was invited in June 1980 to lecture to the Harvard Associates in Police Science.

(contd. from page 3)

It claimed there is a pressing need for scientists to "break out of their shell" and talk to the media about their work.

Dr. Asselin says he is in a good position to understand this communications problem. He is a scientist "at heart" and while occupying the post in 1982/83 of president of the Canadian Meteorological and Oceanograhic Society, he learned a great deal about ways in which Canadian scientists communicate or fail to communicate with the media. "I am still learning to be a communicator myself," says Dr. Asselin. "Meanwhile I want my information staff to assist and encourage departmental scientists in communicating more clearly and positively."

In Dr. Asselin's opinion there is a long-standing natural link between AES and communications. "The weather service is by its very nature scientific, yet for more than a century its daily bread has been limited to communicating weather details to the public. In fact AES can play a leading role in bridging the information gap between the scientific community and the general public through a better use of its extensive media contacts."

As for Information Directorate producing specific programs of interest to AES employees, Dr. Asselin says it's too early to announce anything radically new. At present he would just like to emphasize two programs that will have wide popular appeal and certainly interest AES personnel. One is a series of 13 half hour interactive TV shows, en français, called Heritage 2001 in which various environmental messages will be relayed. The second program is a joint campaign with Participaction to add environmental themes to their physical exercise messages. "Let's see you do it" (in the Environment) is the slogan: in the National Parks, in the forest, in the clean lake, possibly even in the atmosphere! These are experiments relating to the new advocacy role of the Department in stimulating greater environmental consciousness. If they are successful, they will be continued and expanded.

Dr. Asselin started his university training at the Collège Militaire Royal de St-Jean. He obtained the BSc (honors Maths) from Université de Montréal and he obtained both his MSc and PhD in meteorology from McGill University. He has given conferences in Europe and the U.S., written papers in specialized journals and taught a course at McGill. From 1974 to 1978 he was head of RPN. After graduating from the National Defence College in 1979 he served for a few months as advisor to ADMA and was then appointed to his previous position with National Defence normally called director of meteorology and oceanography, or DMet Oc in short.

He is married and the father of three sons. He enjoys badminton, cross-country skiing, sailing, curling, gardening and woodworking.

January 27, 1962

During the onset of a chinook at Pincher Creek, Alta. the temperature rose from -29°C at midnight to 3°C at 1 am.

AES aids handicapped

In March 1982, a Handicapped Program Committee was formed with nine members drawn from AES Downsview and Ontario Regional Headquarters. The committee has among its objectives: to assist and encourage managers to hire the handicapped, to provide outside and inside building facilities enabling handicapped persons to get around and to bring building equipment within easy reach of everyone.

For assisting managers to hire the handicapped, an effective inventory of variously qualified handicapped persons has been compiled. Each handicapped person is interviewed and screened before being placed on the list. It includes candidates qualified for both officer-level and lower-level positions. The list is in the hands of the Public Service Commission Coordinator of Services to the Handicapped. The Handicapped Program Committee urges AES managers to refer to AES Personnel when positions become vacant to see if a suitable handicapped candidate is available.

Here a psychological factor is sometimes involved. There may be a reluctance about hiring handicapped persons based on nothing more than unfamiliarity in daily life with handicapped people. The committee is particularly concerned to break down this trivial impediment by demonstrating that handicapped persons are easy to work with and are, within their qualifications, as competent as the non-handicapped. Increased sensitivity in behaviour towards handicapped AES personnel also promotes the committee's program.

The committee's work has already produced active results. In 1982, six handicapped persons were hired by AES through referral to the handicapped inventory.

In the case of improving building facilities, obvious modifications such as wheelchair ramps for entering and leaving buildings have been installed. But only a handicapped person has real experience of the inconveniences — so the committee assigned an AES handicapped employee to make a tour of facilities and to produce a critical report — together with recommendations for handicapped-oriented changes. The study was slanted to the ambulant disabled, the sight-impaired, and above all the wheelchair user. Accordingly, the assignee conducted her tour in a wheelchair.

The report covered 17 pages and was completed in December, 1983. Recommendations for action began out at the adjacent bus stops. The bus shelter should be equipped with a bench-seat for the disabled. This detail is an index to the thoroughness of the report. Building approaches and the parking lot produced nine recommendations. Building entrances, doors, and the lobby were dealt with — then stairs, corridors, elevators, and inside doors. All common areas — washrooms, cafeteria, and so on — were inspected and recommendations offered, many urgently required.

When Theresa Smith volunteered to do a wheelchair tour of the AES Downsview building she found that even hanging a coat up in the cloak room was an ordeal for a handicapped person. She also tested labs, elevators, drinking fountains and notice boards and encountered similar problems. Miss Smith made her unaccompanied rounds while working in the AES Downsview library as a temporary assistant librarian.

The following is a sample of the report's attention to detail! "The highest operable part of the telephone should be no higher than 1 400 mm above the floor. There should be a hearing aid coupler coil on the handset and an amplifier. The cord from the telephone to the handset should be 750 mm in length. The telephone should have push button controls and have a directory about 750 mm above the floor for eye level access. There should be a small shelf for special hearing devices."

A major section of the report was devoted to work areas. Generally speaking, they were found to be wheelchair-convenient, with only some filing cabinets out of reach. No changes at all were needed in such work areas as the Information Directorate and Administration areas. On the other hand there is absolutely no access to the mail room. Labs are overcrowded with equipment and short of space and it is unlikely at present that the handicapped can work in them.

At various points in the report, valuable comments are made about general and fire safety.

All in all, the report sticks to practical recommendations for action. But it also gives an eye-opening insight into the problems and frustrations encountered by the handicapped in their daily working life.

One of the conclusions of the report states: — "It is strongly recommended that every Director General survey his section and conduct his business from a wheelchair at least once a year."

The Handicapped Program Committee members are: J.M. Glover (AAL); J. Short (AABD); S. Hjelholt (OAP); S.F. Smith (AFDH); F. Fanaki (ARDG); M. Malone (CCDG); D. Grant (ACDG); S. Hardaker (OAED) and R. Lee (Human Resources).

Miss Smith encounters difficulties in the cafeteria.

Library acquires tornado file

Mike Newark shows his special tornado file to librarian Lilita Stripnieks while visiting the AES Downsview library.

The AES Downsview library has received a unique donation, of great practical value to meteorologists and researchers. It is a detailed record of Canadian tornadoes over a period of more than 200 years. The donor is Mike Newark currently head of the Building and Construction Research Unit of AES Canadian Climate Centre and formerly a supervising meteorologist at the Ontario Weather Centre who from 1980 to 1982 specialized in severe summer storms.

The story of this large and impresive tornado file runs as follows:

In the summer of 1975, a tornado struck the town of Georgetown, Ontario. Mike Newark, who was also a writer and a CBC radio weather commentator, drove out to view the damage. Wanting some historical and technical background to supplement the Georgetown incident, he was surprised to find that little Canadian information existed. Some meteorologists even denied tornadoes existed in Ontario. Challenged, Newark set out to prove that they do.

Proof itself was not hard to establish but now Newark was lured on by the striking hiatus in meteorological literature — how often, when, and where do tornadoes occur in Canada. To answer this, it would be necessary to collect a large volume of material. He travelled widely out of town to the offices of daily and weekly newspapers, searching their "morgues". He broadcast radio appeals for information, interviewed people who had witnessed tornadoes, made field surveys of severe weather events and searched for archive material.

In 1977, he was joined by Peter J. Elms, an AES meteorological technician, who for the next five years dedicated his spare time to collecting documentary facts and reports about tornadoes. A year later, in 1978 Newark and Elms began collaborating with Professor K.D. Hage, of the University of Alberta, who was doing much the same work in Alberta and Saskatchewan. By this time, Newark had hired a national newspaper clipping service — and what had begun in 1975 as a minor enquiry, now became a significant and original research project.

As the Newark-Elms collection expanded, other questions arose — about tornado seasons, the length and width of tornado paths, the extent and severity of damage, deaths and injuries. Newark now had to get all his raw material systematically organized.

The file is arranged chronologically by province, beginning with data about 18th and 19th century tornadoes and on into the more substantial data about 20th century tornadoes. Each processed file contains a project summary sheet listing such items as time, location, length and width of path, damage estimates, injuries, deaths, and homeless. Path maps and photographs are also included.

The files also contain statistical and interpretative reports on tornadoes which Newark terms "the most complex of severe weather phenomena." From his raw material, he has extracted statistical tables, and maps and has transcribed ordinary language descriptions into digital format for data processing.

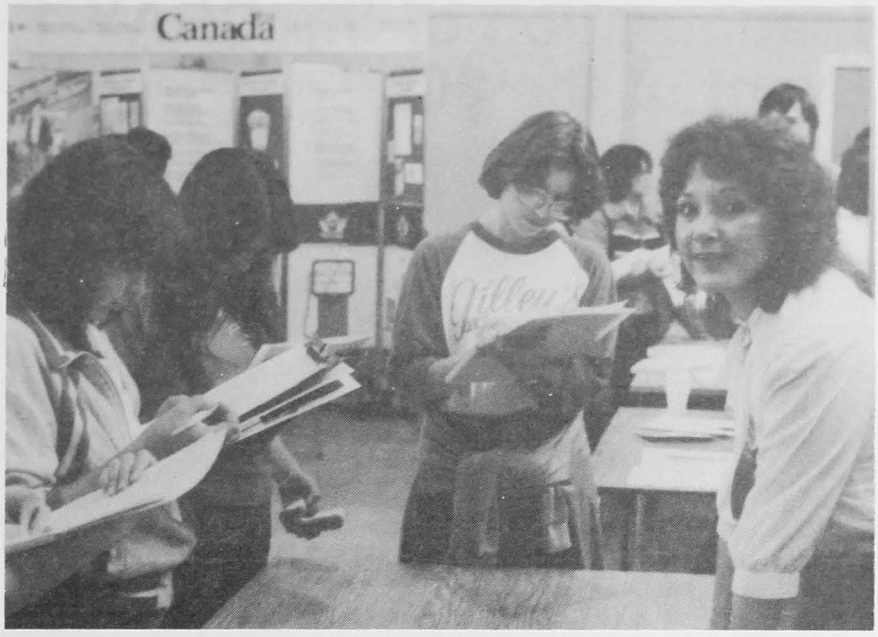
The entire file — four filing cabinet shelves — has now been donated to the AES library. In 1982, Peter J. Elms retired and Newark himself, in 1983, was transferred to other AES duties in which tornado research "reluctantly became a much lower priority."

The Michael J. Newark-Peter J. Elms Tornado File will not circulate beyond the library as much of the material, if lost or destroyed, cannot be replaced. However, the file is open for everybody's use and its material may be photocopied. While the file itself will not be updated, the Library intends to search the Canadian Newspaper Index database periodically to provide up-to-date newspaper reports on tornadoes and invites donations of Canadian tornado material.

The file, according to Janice Glover, AES head librarian, is "a unique and original collection and a distinguished addition to the library's archives."

Bob Bourbonnais (left) and Ray Walker, two AES Ice observers stand in front of their Canadian Coastguard DC3 ice reconnaissance plane. The occasion was an unusual stop in Toronto to pick up two journalists accompanying observers and crew on a scheduled three day flight over the Great Lakes to Thunder Bay. Normally the 12-hour, 2 000 kilometre trip is made weekly out of Ottawa during the winter with the plane flying over the lakes and the St. Lawrence system at an average height of 500 metres. Ice conditions were severe this year and the two AES observers sitting up front in the plane near the pilots were kept busy making visual sightings and plotting maps in order to pass on valuable information to ships using the Great Lakes. The data enabled the vessels to avoid ice hazards and become aware of coastal flooding caused by ice jams.

The new professional counsellor for AES employees under the Employee Assistance Program (EAP) is Dr. Barbara Luedecke. Replacing Anthea Stewart, she joins Dr. Charles Cooley as one of two professional psychologists available to give confidential advice to all AES members requiring it. Dr. Luedecke specializes in the area of human resource utilization and personnel assessment. She has done individual counselling and is equipped to refer employees to appropriate sources for treatment assistance, as well as for career counselling. She is seen here in the lobby of the AES Downsview building with Dr. Cooley. Both counsellors can be reached by phoning (416) 483-4313.



Susan Hjelholt (OAP) meets students at Native Fair. See also Zephyr Breezes.

Sail Kingston

The Kingston Weather Office has played an active part in the success of two international class sailing events — the Canadian Olympic Training Regatta and the International Windsurfing Championships. The two events were held consecutively from August 20 to 26 and from August 26 to September 5, 1983.

For both events, the staff of the Kingston Weather Office maintained a static weather display at the Olympic Harbour Site. Special marine weather forecasts were provided by the Ontario Weather Centre and a special radar watch from the Ottawa Weather Office. This display was opened every morning at 7:00. At 8:00 am the racing committee arrived to consult the weather forecast and to decide whether the day's races were "go" or "no go" and also to set the race courses. About 300 sailors a day visited the display. The weather office staff remained on site, giving briefings and consultations, until after the race began.

The weather generally was hot and bright with the lake too warm to raise lake breezes. On August the 27, however, Ontario Weather Centre phoned in a warning of a band of severe thunderstorms approaching Kingston from the northwest and this report was closely followed by a radar report from Ottawa. Luckily, the storm's strong winds died out before reaching the race area.

In a letter of thanks to AES, the chairman of the Wind Surfing Committee wrote — "Out of many regattas I have attended as a competitor or organizer, your weather service was certainly the most effective."

Ross Armstrong recently retired after 35 years service with the Canadian Forces Weather Service. He was perhaps best known for his role as Commandant of the School of Meteorology, Trenton, Ont. Seen left of him at his retirement dinner are Gordon Shimizu, director general, Policy, Planning and Assessment, and Ruth Bruce. To the right are: ADMA Jim Bruce and Mrs. Armstrong.

Inauguration of the CRAY 1 — computer event of the 80s

General view of the audience at CMC during the inauguration of the CRAY 1 by Environment Minister Charles Caccia.

Canada's computer event of the decade took place on February 1 in a medium-sized office building near a Dorval, Que. shopping mall.

About 150 scientists, government and municipal officials, international guests, academics, data processing experts and media gathered on the main floor of the Canadian Meteorological Centre (CMC). The occasion was the inauguration by Environment Minister Charles Caccia of the CRAY 1-S/1300 supercomputer, the fastest and most powerful of its kind in Canada.

The Minister mounted the yellow-draped dais for his first major high technology speech since assuming his position last July. He told his audience that weather and climate information provided by Environment Canada is worth over one billion dollars annually to the Canadian economy and that "obviously anything which will improve the accuracy and usefulness of our weather information is valuable economically. And that's exactly what this new supercomputer will do."

The audience felt a sense of occasion when the Minister later pressed a button. A stirring fanfare sounded and a short series of weather maps of North America appeared on four video display screens around the room. These maps conveyed the first five-day weather forecasts achieved through CRAY computing. The presentation looked unrehearsed but had actually required several weeks programming using the new computer. Chief of CMC operations Iain Findleton had done part of the work at his home using telephone connections to the office. The result was the two minute repeating film shown on the screens.

The sense of occasion grew stronger as Dr. Roman L. Kintanar, president of the World Meteorological Organization (WMO), specially invited to attend the CRAY opening, went to the lectern. He stressed the importance of the new super-computer in promoting international cooperation and the exchange of weather and climate data between developed and developing countries. While Dr. Kintanar spoke other prominent WMO delegates and officials looked on. These included Dr. G.O.P. Obasi, WMO secretary general, Zou Jingmeng, second vice president of the WMO and director general of the Chinese State Meteorological Administration, and the heads of five other national weather offices around the world.

Also speaking was Peter Gregory, vice president, Corporate Planning, Cray Research Inc.

At the end of the proceedings, the Minister made himself available to questions from the media. A crowd of reporters, TV interviewers and radio commentators bombarded him with questions on every aspect of weather high technology and the diverse uses of the supercomputer.

Meanwhile other guests were starting out on tours of the CMC facilities. Divided into small groups and led by a guide, their main point of convergence was of course the CRAY 1. Looking more modest than its supercomputer image suggests, its rounded, brightly colored, vertical segments and leather bench base reminded some people of an upturned Montreal billboard kiosk. Most groups moved on to inspect other data processing equipment in the room, including the CRAY's predecessor, the CYBER 176. As more and more groups entered the computer room, there was a short line up and tours lasted until well into the afternoon.

In the communications room above the computer, visitors were offered dedicated computerized weather maps. While in the forecast room nearby, they could order computerized weather forecasts, in both languages, for any point in the northern hemisphere.

The more curious were taken on tours of the basement to see the huge cooling systems — up to seventy-five tons of refrigeration equipment required to air condition the CRAY.

They also saw the recently upgraded Hydro Quebec power supply room as well as a room for the new Uninterrupted Power Supply system, essential if the CMC computer is to continue work during energy black outs and other emergencies.

Once official ceremonies were over, the room was converted into a reception area where guests could examine photo exhibits or mingle with fellow guests and exchange views on the new computer era just ushered in. University professors were seen comparing notes with mathematical modelling staff, seeking more information on outside research time to be made available on the CRAY. WMO delegates chatted with Canadian forecasters to learn about operational conditions in this country. Municipal representatives mingled with CMC administrative staff to discover more about the premises they had previously considered just an anonymous piece of real estate. Media personnel clustered around the Minister, ADMA Jim Bruce, senior CMC and CID personnel or other senior AES staf. They enquired how the CRAY would upgrade weather forecasts or be used in such areas as long-range climate prediction or tracing the transport of airborne pollutants.

AES officials were pleased with the turn out and the media coverage. "We only stage an event like this once every

A news photographer points a camera at Environment Minister Charles Caccia as he inaugurates the CRAY Supercomputer at CMC, symbolizing the fact that the ceremony was a media event.

ten years," comments François Lemire, director of the CMC. "This was the right time because the installation of the CRAY 1 represents a quantum leap in data processing for weather forecasting. We won't organize a similar occasion until we get the next generation of computers sometime in the 1990s."

Added CRAY Research Inc's Peter Gregory, "It's unusual to celebrate the installation of a CRAY computer on such a large scale. We are grateful for the interest shown."

The interest in the computer was not only restricted to the research and meteorological communities, but caught the imagination of a wider public. Reports on the opening had been carried on all major Canadian TV networks, both English and French as well as on numerous radio stations across the country. Many large newspapers and several big circulation magazines had run features depicting the new high tech age of weather forecasting in Canada. In all, five employees specially trained in media relations gave twenty-five interviews before, during and after the inauguration.

Mr. Lemire said his one regret was that other regions of Canada were unable to have direct conference links with the inauguration. Several AES regions reported, however, that they were very conscious of the day since they had received detailed advance briefings on the event. Dale Henry, chief of weather services, AES Central Region said that about 18 weather office personnel in his region had been briefed on the eventual uses of the CRAY. He added that public interest had also been aroused and the local media had done several interviews on the supercomputer.

Dr. Des O'Neill, AES Regional Director, Atlantic Region, said there was a high level of interest in the CRAY among all regional employees. "It's an event of great significance when Canada moves into a position of equality with the leaders in the field of meteorological computing."

He added that everyone from WO4 staff to the director's office personnel were now more aware of the CRAY and its huge potential. There was also excellent media coverage in his region.

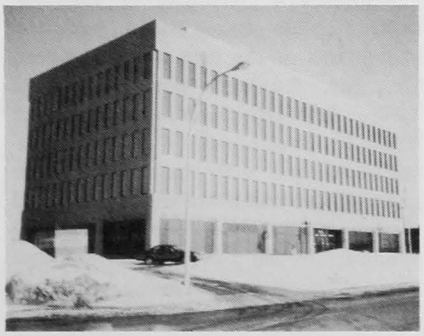
Despite the praise pouring in from east and west and the moving ceremonies inside the CMC building, it was business as usual as far as the output of maps and forecasts to regional weather centres was concerned. Most forecasting staff in these centres did their job without realizing anything unusual was going on at CMC and even inside the Dorval complex it was a "normal" day for many personnel. Even if many people worked a full shift, all five floors of the CMC complex did in fact become an open house, and almost everybody played some part in hosting a unique event, both for CMC and for Environment Canada as a whole.

The great day has come and gone. In the months and years ahead, AES will in a quieter way get down to the challenging but exhilarating task of making the computer deliver its promises and of providing the Canadian people with better services.

AES vector computer now a reality

The Canadian Meteorological Centre (CMC) in Montreal has now installed Canada's first supercomputer, one of the largest and fastest of its kind in the world. The $5 million a year Environment Canada acquisition will benefit a wide cross section of Canadians, not only with respect to longer range and more accurate weather forecasting, but also in such areas as newly planned seasonal climate predictions and the tracking of acid rain and other long range chemical pollutants.

Officially inaugurated February 1 by Environment Minister Charles Caccia, the CRAY 1S 1300 is a vector computer with ten million bytes of memory, calculating at a rate of over 50 million operations per second (ten times faster than its predecessor, the CYBER 176). One of the reasons such enormous speed is required is that only two hours are allotted to the computer to forecast the weather.



General view of the CMC building, Dorval, Que.

Experimental testing, based on more sophisticated mathematical modelling of the CRAY 1 is now underway. The new machine should begin meteorological operations in June of this year.

Introduction of the new supercomputer won't change things overnight, but the big machine's extra speed and power allows it to provide not only improved weather forecasts but also to have a major multi-use capability. For example the CRAY 1 will be able to evaluate climate scenarios based on increased atmospheric carbon dioxide or large-scale volcanic eruptions.

It also has the extra speed for specialized weather forecasting calculations during emergencies such as the Mississauga, Ontario train derailment or the Three Mile Island nuclear mishap. Critical questions such as determining the next downwind direction could in either of these cases have been solved by a supercomputer.

Lastly, the new vector processor will be a boon to the entire academic community since ten per cent of its time will be set aside for use by universities and other research organizations enabling them to work on their own projects.

Currently a large weather computer such as the CYBER 176 can forecast the weather up to about four days ahead. When the CRAY 1's modelling is fully upgraded, it will be able to extend the forecast range to six days. Under a six and a half year contract signed between CRAY and Environment Canada a newer, faster

(contd. on page 10)

FEATURES

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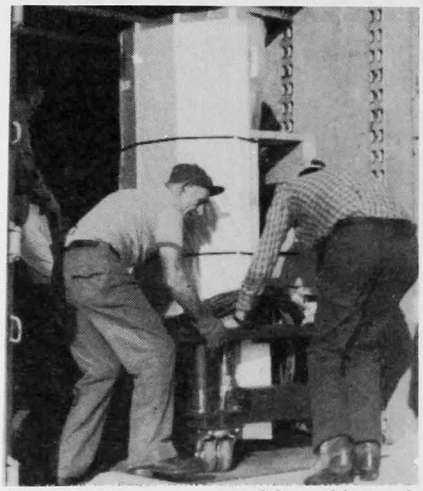


The CRAY computer was delivered by truck to the CMC some four months before inauguration day. Workmen are seen unloading it prior to installation.

CRAY X/MP supercomputer will replace the CRAY 1 at CMC in 1986. With the introduction of even more sophisticated mathematical modelling, a ten day weather forecast at least will become possible.

In order to carry out its multi-use program as planned, the supercomputer's modelling will be upgraded approximately as follows:

1985-86

- Introduction of more sophisticated model will allow improved forecasting of large scale wind patterns.
- Extension of forecast period to six day forecasts.
- Fewer two to five day temperature forecasting errors.
- Improved accuracy in severe weather forecast over 24-28 hour period.

1986-87

- Automated prediction of all weather elements for longer time periods, greater accuracy in precipitation amount predictions and improved wind forecasts.
- A big increase in the number of specific locality forecasts.

1987-88

- New global model will extend range of forecasts for seven to ten days for all of Canada.

Since no computer has the power to predict weather everywhere, certain equally spaced points are selected for which forecasts are made. The closer the points the greater the ability to forecast detailed weather conditions for a given location such as a city. The closeness of the points is referred to as resolution; the nearer the points, the greater the resolution.

In the current model the points are about 300 km apart. Thus variations in the weather over areas smaller than 300 km cannot be predicted directly by the computer.

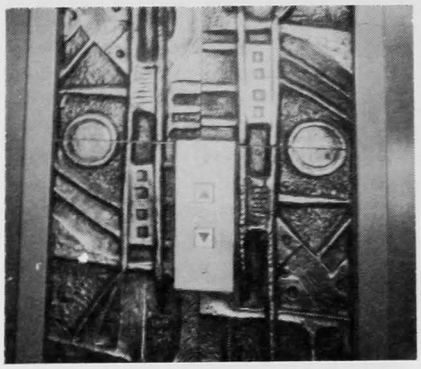
Winter storms are about 1 500 km across and are, therefore, generally predictable. High and low pressure zones are large enough to be predicted and since weather conditions are related to these pressure patterns, meteorologists can extract useful predictions from computer-generated maps.

Unfortunately, weather conditions vary significantly over distances less than 300 km. Rain may be falling in Montreal while it is snowing in Quebec City or it may be snowing and blustery in Edmonton while it is sunny and mild with a chinook in Calgary. The new computer will permit Environment Canada to use models of higher resolution and thus improve forecasts of these smaller-scale variations.

A second drawback of current models is the fact that they exclude data from the southern hemisphere. Mixing of weather between the two hemispheres and for forecast periods of up to five days the use of data for the northern hemisphere alone does not cause much error. For longer forecasts, it will be necessary to add weather information from the southern hemisphere to the model. The new computer is capable of handling this increased workload.

Atmospheric scientists at Environment Canada are pleased with the installation of the new supercomputer. Dr. Ian Rutherford, director of Meteorological Services for the Research Branch comments, "The CRAY supercomputer will allow research to proceed on much more sophisticated mathematical models of the physics and dynamics of the atmosphere for future use in weather forecasting. Weather forecasts will become more accurate, more detailed and valid for longer periods."

Dr. George Boer, head of Environment Canada's Numerical Modelling Division (Climate) adds, "Since the climate system and variation and changes in climate are studied by making extensive general circulation models of the atmosphere and ocean and since the amount of computation involved is formidable, it certainly requires the use of a modern vector computer such as the CRAY 1."



Intriguing bronze work covers the walls of the lobby of the CMC building, making an elevator ride seem like a fantasy art experience.

February 3, 1947

The lowest temperature ever officially recorded in Canada, -63° C, was observed at Snag, Y.T.

March 23, 1950

The first postwar meetings of the 10 Technical Commissions of the International Meteorological Organization were held at Meteorological Division Headquarters in Toronto during August 1947. Approximately 250 delegates were present from 73 countries. A Conference of Directors of the national services followed in Washington at which a World Meteorological Convention was adopted to provide for the transformation of the International Meteorological Organization into a new World Meteorological Organization affiliated with the United Nations. The new organization came into being on March 23, 1950 and the final transfer of the activities, functions, assets and obligations of IMO took place a year later.

A day in the life of an . . .

Upper air technician

The following interview consists of answers supplied by several AES upper air technicians. (Z = ZEPHYR; T = Technician)

Z — What is an upper air technician?
T — An upper air technician is a specialist in obtaining weather data from the lower and upper atmosphere.

Z — And the earth's atmosphere extends to about 3 100 metres?
T — Yes, approximately, although traces of atmospheric gases exist well into the stratosphere.

Z — Where do these people work?
T — At aerological stations.

Z — And where are they located?
T — There are 33 of them scattered across the country, north, south, east and west. Actually, their locations form a pattern, roughly, of 500 km grids.

Z — What is an upper air technician's main duty?
T — Twice a day, seven days a week, he sends up a radiosonde balloon.

Z — What kind of data does it collect?
T — It measures temperature, humidity, air pressure, wind speed and wind direction.

Z — Are these measurements taken by the radiosonde or by the balloon?
T — By the radiosonde. The balloon merely carries the radiosonde up.

Z — Briefly, what is a radiosonde?
T — It is a small, light, inexpensive instrument that sucks in air, reads the temperature, humidity, and pressure and radios this information down to a dish antenna on the ground.

Z — What about wind speed and direction?
T — The balloon is like a leaf in the wind. The dish antenna tracks its flight and registers the speed and direction. During a flight a balloon may be carried several hundred kilometres away.

Z — What happens after the antenna picks up the information signals from the ascending radiosonde?
T — You're right to emphasize the word *ascending*. The radiosonde rises at about 300 metres a minute. First it takes a profile of the atmosphere, then the dish antenna feeds this profile into ADRES, you know, the Aerological Data Reduction System.

Z — I suppose aerological stations are attached to larger Environment Canada installations?
T — Yes, to weather stations. Some of these are remote, like Alert and Resolute in the Arctic. Others are less remote, like The Pas in Manitoba and Goose in Labrador. And some are in urbanized places like Edmonton, Alberta or Sept-Iles, Quebec.

Z — Do upper air technicians have location preferences?
T — Well, some technicians may prefer remote locations, but I would suppose that the majority prefer more populated locations, so that they benefit from the resources of nearby towns and villages.

Z — That's understandable. Resolute might be fascinating to a single person but be unattractive to married people.
T — Some technicians don't care where they are located — any station will do.

Z — True! Are you married?
T — I am — but I would say the majority are not.

Z — Where have you been located during your career as an upper air technician?
T — At Eureka, Cambridge Bay, Goose and Sept-Iles.

Z — What kind of living accommodations did you have in, say, Goose?
T — We were a family of four, by then. We lived in a house we rented from the government.

Z — Tell me more about ADRES.
T — The system is contained within a domed roof and consists of various pieces of electronic equipment — microcomputer, paper-tape reader punch, printing terminal, equipment rack — and so forth.

The ADRES system

Z — And ADRES receives the radiosonde data through the dish antenna?
T — Well, the receiver is on the roof of the dome.

Z — Is ADRES fully automated?
T — Not quite. The technician, during the balloon's flight, must sit in on ADRES and feed significant radiosonde information into the computer. He may have to delete or modify information already in the computer. But the computer itself automatically computes and recomputes information fed into it.

Z — Tell me more about the balloon.
T — It is made of rubber and is inflated with hydrogen gas.

Z — Where do you get the hydrogen gas from?
T — The station is equipped to produce its own hydrogen gas. The gas is stored in a tank in the hydrogen shed. A hose is connected to the balloon and the gas inflates the balloon.

Z — To what size?
T — Two to three metres in diameter at the time of release and eight to ten metres in diameter when it bursts.

Z — I see. The balloon is released, rises and carries the radiosonde aloft.
T — It carries it at the end of a long length of rayon cord. The heat from the balloon must not be allowed to affect the radiosonde instruments.

(contd. on page 12)

FEATURES

(contd. from page 11)

Z — It seems that as the balloon rises, its diameter will expand until, like any balloon, it bursts.

T — Right!

Z — At what altitude does the balloon burst?

T — At about 28 000 metres — about 110 minutes after release. When the balloon bursts, the radiosonde plummets to the ground, and of course the flight ends.

Z — But surely there is more to it than that?

T — Oh yes! The technician must report to ADRES a visual observation of the weather before the flight begins — and check radiation equipment — and go through a large number of checks on the radiosonde itself to see that it is in perfect working order — and a large number of safety checks . . .

Z — Yes. I imagine working with hydrogen can be dangerous.

T — Right! And there are various post-flight reports to fill out and daily, weekly and monthly maintenances to look after. The technician helps out generally around the weather station. He often has to shovel snow away from the door of the hydrogen shed and do other "housekeeping" jobs.

Z — How does an aerological station contribute to daily weather reports?

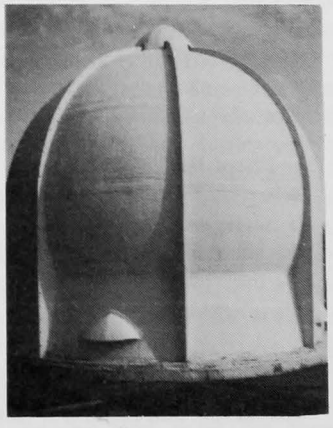
T — Its data, passed on to the major Montreal and Washington weather centres is compiled into messages for world wide distribution and sent in chart form to many more weather offices. With reliable and accurate atmospheric data, a meteorologist can make substantial predictions about approaching weather. Profiles of the atmosphere are vital to weather forecasting both on a local and hemispheric scale.

Z — What other things do aerological stations do?

T — Some of them operate seismological equipment to record earthquakes. Some send balloons up into the ozone layer above the earth's atmosphere to measure solar radiation. Canada, you know, is a world leader in ozone observations.

Z — How do you like your job?

T — Well, doesn't it sound like an interesting, varied job requiring considerable expertise? I think it does.



Upper air station dome.

Z — What of the future? — the next ten years?

T — It isn't absolutely clear right now, but the future has a way of producing new opportunities, doesn't it?

AES scientist does "meaningful work" at children's camp

An AES air quality scientist has successfully completed one of the weather service's most people-oriented projects to date.

Dr. Fouad Fanaki of the Research Directorate's Atmospheric Dispersion Division spent nearly three weeks last summer at a children's camp on Lake Couchiching about 130 km north of Toronto. His object was to provide meteorological observations at the request of the Department of Health and Welfare while they carried out a study to examine the effect of air pollutants transported over long distance on children with respiratory illness. Of 120 residential campers, 52 children, aged eight to 16 obtained parental permission to participate and among these, 23 children was asthmatic.

Arriving with a van full of equipment at the pleasantly wooded site around June 26, Dr. Fanaki accompanied by AES technician Steve Melnichuk, spent two days setting up the equipment. The wind monitoring equipment which had been carefully calibrated in the AES Downsview wind tunnel was set atop a ten metre meteorological tower. The whirring anemometers at the summit

Steve Melnichuk punches the Camp Couchiching readings into the AES wind tunnel computer as scientist Fouad Fanaki looks on.

later proved to be one of the main attractions for the inquisitive young campers. Other equipment included two Anderson impactors, one set up on open ground and the other under a "filtered" tree to determine the size and concentration of pollution particulates in the area. Finally, there were instruments to measure temperature, relative humidity and surface atmospheric pressure.

(contd. on page 13)

January 19-20, 1935

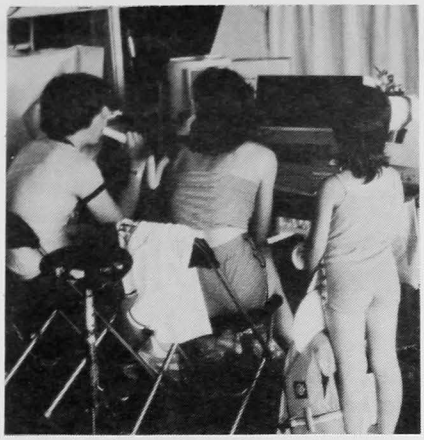
Extremely low temperatures were recorded in Vancouver and Victoria which resulted in fuel shortages and frozen water supplies. Temperatures as low as -16° C at Vancouver were followed by 44 cm of snow on the 20th. Many roads were impassable for days. A mild spell and rain followed causing the Forum and other roofs to collapse in Vancouver. Weatherwise, the winter of 1934-35 was one of the worst on record throughout southern British Columbia, and especially at Vancouver and Victoria.

(contd. from page 12)

During the next two weeks (until July 8) Dr. Fanaki and Mr. Melnichuk took hourly observations of the main weather parameters and supplied once or twice daily meteorological reports to Health and Welfare officials or to on-site fellow researchers from the Gage Research Institute (Toronto) or from Harvard University. Finally, they were asked to provide a daily weather forecast, which they assembled with the aid of weather maps and reports from area weather stations.

On his return to Downsview, Dr. Fanaki had back trajectories made of all airborne pollutants, confirming that high concentrations of these chemicals came from the south and east. The results were then sent on to Health and Welfare Canada.

Despite the fact that Dr. Fanaki and assistant were doing a busy operational job, they described their camp experiences as "unique and meaningful" providing them with a real sense of participation in something benefitting the health of young Canadians. They added they would like to do more meteorological work of this kind in the future. (Though it seems less likely because of recent government cuts in funding for social programs of this nature.)



Children at Camp Couchiching.

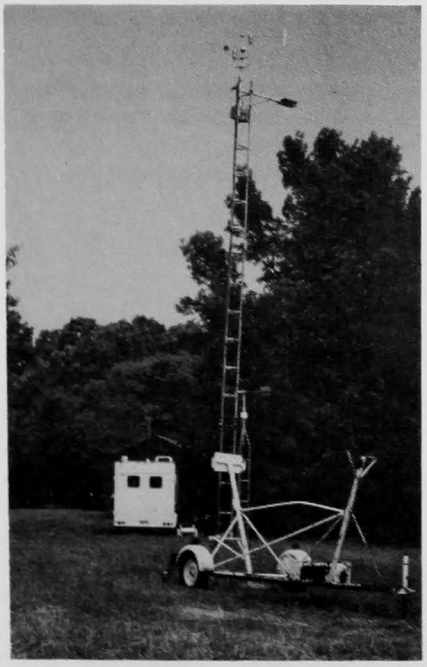
"The weather was perfect," added Dr. Fanaki, "there was hardly any rain and the warm, sunny weather kept all camp activities in full operation."

He added that the only nearest thing they had to bad weather was a hurricane that just managed to miss Couchiching camp but damaged a few boats out on the lake.

Dr. Fanaki said that he enjoyed some of the smaller human events such as the interest the participating children took in his monitoring work. "They wandered over in groups and asked us many intelligent questions about the equipment." They all understood why it was there. They had been briefed by the camp counsellors and had been introduced one by one to Fanaki. "What they chiefly wanted to know was how everything worked," he added.

Dr. Fanaki emphasized that the camp was in every way a normal summer camp with children from all parts of Ontario, (not necessarily from industrial cities where pollution is traditionally supposed to have greater effects on health). Finally, he noted that once the excitement had died down, the children quickly resumed normal camp pursuits like canoeing, swimming and hiking. Fanaki and Melnichuk could then proceed with their work unhindered.

The department of Health and Welfare are still working on the results of their health study. According to Dr. Fanaki all that can be said at present is that "associated increases in LRTAP pollutants coupled to meteorological measurements produced modest changes in health indices."



AES van and weather recording equipment installed on the Camp Couchiching grounds ready for action.

". . . twenty-five scientists from Environment Canada and five other Canadian and US agencies will be flying into clouds in the North Bay area to learn more about acid snow." From an AES news backgrounder.

Acid snow (1)

Acid snow (2)

FEATURES

Zephyr Breezes * * *

Participating in the third Ontario career fair for native students, Steve Hardaker, AES Ontario Region volunteer climate station supervisor, was impressed by the hospitality of the local residents from St. Regis Indian Reserve. Formed into committees of parents, school, employment and Band counsellors they prepared the students, publicized the event to the media and last but not least organized the Feast. This gave exhibitors the opportunity to sample native foods, such as moose, deer, buffalo, corn soup, fresh vegetables and homemade bread. Later participants were given a tour of the North American Indian Travelling College museum.

Steve Hardaker and Diane Potvin (back), Monique Lapalme and Gary Simon at the Cornwall Native Career Fair.

The AES people and more than 20 other federal exhibitors were kept very busy. Steve's role was to give formal presentations using the AES slide show, showing the wide variety of careers within AES. Monique Lapalme, Gary Simon and Diane Potvin, also of Ontario Region, ran the AES booth in the school auditorium, containing weather instruments, satellite maps, career brochures and AES display panels.

Steve says that more than 800 students attended and the two day fair was a success. The object was to promote the policy of increased Native participation in the federal public service and Hardaker shared the view of most exhibitors: if they could influence just one student to make wise school course choices leading to a satisfying career, the fair was worthwhile.

★ ★ ★ ★

AES International Affairs Bureau reminds AES staff that they can volunteer for meteorological or hydrological work in other United Nations member countries through the UN Development Program (UNDP).

Until now few Canadians have volunteered for meteorological work overseas, but at the World Meteorological Organization's ninth Congress last year, Members were urged to take advantage of these volunteer programs.

A spokesman for AES International Affairs adds that Canadian volunteers should have at least two years experience as a meteorologist or technician, and should be willing to work for a minimum of two years in a developing country on a subsistance allowance with only basic accommodation provided. Applicants should be fluent in one or two other languages, besides English, have good academic and work records and be able to endure unfamiliar cimate conditions. Interested volunteers should contact the World University Service of Canada office in Ottawa.

The spokesman concludes, "Applicants should be prepared to take leave without pay. As volunteers they take up their assignments not for careers or employment but for commitment and service."

★ ★ ★ ★

Several photos in this issue were taken with an Olympus XA owned by a member of the ZEPHYR staff. Main advantages of the camera are its smallness and simplicity. All 35 millimetres of it fit inconspicuously into one's shirt pocket. Main challenge is knowing how to focus and to vary the aperture.

Most dedicated photographers, including world travellers, prefer something fancier. But not Dr. John William Zillman, the director of Meteorology of the Australian weather service and member of the Executive Council of the World Meteorological Organization (WMO), recently here as a special invitee of the WMO Bureau, holding its first meeting in Canada. He was seen during a visit to the Ontario Weather Centre snapping happily away on an XA. One thing is certain: the tiny camera can be relied upon to supply Dr. Zillman with a good souvenir of all the faces, places and equipment he encountered while touring AES.

★ ★ ★ ★

ADMA Jim Bruce, Norwegian Environment Minister Rakel Surlien, Norwegian scientist Eric Lykke and Walter Giles, associate Deputy Minister, Ontario Ministry of the Environment.

In addition to the visit of the WMO Bureau (see story page 2) AES has welcomed other foreign dignitaries during recent months. In December, Mansouri Ben Ali, Moroccan Minister of Transport, arrived to inspect the AES Satellite Data Lab in Downsview and tour the CMC in Dorval. He said he wanted to create the means to receive and process satellite-based weather data, as well as improve staff training facilities in the Moroccan weather service. He needed AES's advice and the opportunity to purchase Canadian-made equipment. The Minister who is responsible for both civil aviation and meteorology in his country said that Canada had a lot to offer in the areas of satellite receiving technology and in general weather forecasting. In addition to his AES tour, Mr.

Zephyr Breezes * * *

Ben Ali was able to visit some Canadian aviation and high tech companies, as well as confer with Minister of External Relations Jean-Luc Pepin.

In March it was the turn of the Norwegian Minister of the Environment, Mrs. Rakel Surlien to visit AES. During her visit she contacted many federal and provincial environmental agencies and attended the ten country Conference of Ministers on Acid Rain in Ottawa. It was obvious that the serious acid rain problem in her own country weighed heavily on her mind. Like most VIPs who come to AES Downsview she also inspected the Satellite Data Lab.

★ ★ ★ ★

Displayed on an AES notice board is a "recipe" for making "official government chocolate chip cookie units."

After procurement actions, decontainerize inputs. Perform measurement tasks on a case-by-case basis. In a mixing type bowl, impact heavily on brown sugar, granulated sugar, softened butter and shortening. Coordinate the interface of eggs and vanilla, avoiding an overrun sceanario to the best of your skills and abilities.

At this point in time, leverage flour by baking soda and salt into a bowl and aggregate. Equalize with prior mixture and develop intense and continuous liaison among inputs until well co-ordinated. Associate key chocolate and nut subsystems and execute stirring operations.

Within this time frame, take action to prepare the heating environment for throughput by manually setting the oven baking unit by hand to a temperature of 190°C. Drop mixture in an ongoing fashion from a teaspoon implement onto an ungreased cookie sheet at intervals sufficient enough apart to permit total and permanent separation of throughputs to the maximum extent practicable under operating conditions.

Position cookie sheet in a bake situation and surveil for eight to ten minutes. Initiate coordination of outputs within the cooling rack function. Containerize, wrap in red tape and disseminate to authorized staff personnel on a timely and expeditious basis.

The recipe concocted by a Ms. Susan Russ, appeared in the Washington Post of March 4, 1982.

★ ★ ★ ★

Here is a note about an AES retiree who is leading a very full life. C. Francis Rowe, former OIC at St. John's, Nfld. weather office, collects currency, writes books and is helping restore a 200 year old Cathedral. He has been a coin collector since he was 11 and has some coins dating back to early Spanish, Portuguese and French settlements on the island. His collection of paper currency includes merchants' scrip or private paper money once in circulation and he has a wide variety of big Newfoundland pennies. Last fall Mr. Rowe had the satisfaction of seeing the publication of a book called *The Currency and Medals of Newfoundland* to which he was a major contributor.

As a warden of the Anglican Cathedral he has been involved in a major restoration project, including pumping water out of two-metre thick walls and placing a tower atop the still unfinished church.

If this wasn't enough, Mr. Rowe is now writing a history of the Cathedral and is expanding his collection of Newfoundland relics.

★ ★ ★ ★

While the men of the Second Canadian Division were landing on the Normandy Beaches during the historic D-Day invasion of France, exactly 40 years ago, service women behind the lines carried out vital support duties. The photo shows a pair of British WAAFS carrying out a weather balloon flight to determine the strength and direction of the wind. The photo was supplied by Elsie Traill (AES Downsview ID) herself a WAAF during the Second World War. She cites it as an example of early mastery by women of operational meteorology.

Two WAAFs about to launch a weather balloon.

March 31, 1922

Mr. W. Menzies, Magnetician, retired from the staff of the Meteorological Office in Toronto after 52 years of service. Mr. Menzies' father, Thomas Menzies, was the first magnetician at the observatory when it was established in 1839, and held that position until his death in 1887.

June 20, 1877

A disastrous fire spread throughout Saint John, N.B. and levelled a building housing the meteorological observatory. Eighteen lives were lost in the city and property damages were estimated to be approximately $27 000 000.

Unusual requests flood weather office

AES field staff are aware that weather offices act as front line listening posts for public enquiries on just about any subject. Marcel Robichaud, officer-in-charge, Thunder Bay Airport weather office has been busy over the past year compiling a list of the more offbeat requests.

A Greyhound bus driver phoned to say he was looking for a snow storm. He was a driver instructor and wanted to take some driver trainees to where poor driving conditions existed.

Air Canada called in about what weather they had had in Toronto several weeks earlier in order to help them satisfy a damage claim on a shipment of crickets.

A commodity broker from Miami, Florida wanted information on "the wedge of cold Canadian air advancing into Florida." The data were to be used, in his own words, "for cornering a chunk of the citrus market." There was also a call from a travel agent in Tampa requesting more information on an ongoing cold spell in Ontario and an outlook for the next few weeks. He was contemplating promoting a package deal for the forthcoming March break.

A local resident decided to fly a cat in the freight section of a passenger plane from Boston to Thunder Bay. When the weather office told him there would be extreme cold during a six hour wait and freight transfer in Toronto, the enquirer said he would make arrangements to buy his pet a warm, comfortable, non-smoking seat complete with pre-boarding facilities.

A person called the office, quite upset that the sun was setting northwest of the city. For him it meant that the earth's axis was shifting and the world was ending. A quick check by WO4 staff found that the world was safe and the sun was setting in its usual west southwest position. Another fearful caller asked if it would be safe to go out between 4 and 6 pm. There were reports that the ozone layer was quite thin at this time and the enquirer dreaded getting a bad burn from over exposure to ultra-violet rays.

A pilot, about to take off, asked the airport weather office if the elevation of a station was "its height above ground." American Motors phoned in from Detroit asking whether Thunder Bay was the right cold weather area for testing four-wheel drive vehicles and a potential house buyer had the "foresight" to ask Environment Canada: "What side of town has the most sunshine?"

STAFF CHANGES

Promotions/ Appointments

D.A. Marciski (EG-6) Weather Svcs. Specialist, WO1, PRWC Winnipeg, Man.
G.C. Lauze (EG-6) Weather Svcs. Specialist, WO1, PRWC Winnipeg, Man.
V. Jarvi (EG-5) OIC, WS3, Cree Lake, Sask.
F.R. Bowkett (SM) Chief, Tech. Training & Dev. Div., ACGC, Downsview, Ont.
M.D. Conner (AS-1) Admin. officer, ACSM, Downsview, Ont.
D. Barton (EG-7) Radiation Tech., ARPX, Downsview, Ont.
D. Ker (EG-7) Aerospace Instrument Dev. Tech., ARPX, Downsview, Ont.
R. Picard (EG-3) U/A Tech., WS1, Inukjuak, P.Q.
G. Cormick (EG-6) OIC, WO4, Inuvik, N.W.T.
H.G. Ewen (EG-4) U/A Tech., WS1, Hall Beach, N.W.T.
J.S. Bruce (EG-4) U/A Tech., WS2, Baker Lake, N.W.T.
P.A. Thorne (EG-5) OIC, Stephenville, Nfld.
M. Herrera (CM-5) Comm. Operator, WC1, Edmonton, Alta.
C. Fode (CM-5) Comm. Operator., WC1, Edmonton, Alta.
M. Samji (CR-3) Clerk, WC1, Edmonton, Alta.
G. Neault (MT-4) Meteorologist, WO1, Whitehorse, Y.T.
A. Charpentier (EG-6) Pres. Tech., WO4, Val d'Or, P.Q.
J.P. Bernard (EG-6) Pres. Tech., WO4, Val d'Or, P.Q.
R. Ouimet (EG-6) Pres. Tech., QAEW, Dorval, P.Q.
R. Aubin (CS-1) Programmer, CMCFI, Dorval, P.Q.
L. Ang (CS-2) Sr. Comp. Consultant, ACPT, Downsview, Ont.
R. Garabedian (CS-2) Sr. Comp. Consultant, ACPT, Downsview, Ont.
J. Mills (EX-2) DMETOC, Ottawa, Ont.

R.J. Cormier (MT-5) Meteorologist, WO1, Winnipeg, Man.
L. Foucault (MT-2) Meteorologist, WO1, Winnipeg, Man.
P. Saindon (MT-2) Meteorologist, WO1, Winnipeg, Man.
I. Soule (MT-2) Meteorologist, WO1, Winnipeg, Man.
R. Harrison (EG-7) OIC, WO3, Resolute, N.W.T.

Temporary or Acting Positions

M.L. Miller (EG-5) Tech. Supervisor, WO4, St. John's, Nfld.
J. Rockwell (EG-5) Tech. Supervisor, WO4, Goose, Nfld.
R. Sheppard (EG-7) OIC, WS1, Sable Island, N.S.
R.B. Barrett (EG-7) Project Officer, Data Acquisition, Winnipeg, Man.
B. Godding (CM-7) Operations Supervisor, ACPN, Downsview, Ont.
O. Prescod (DA-PRO 6) Shift Supervisor, ACPC, Downsview, Ont.
M.A. Morneau (EG-5) Pres. Tech., WO4, Sherbrooke, P.Q.
R. Mailhot (MT-6) Meteorologist, CMC, Dorval, P.Q.
G. Fenech (REM-1) Chief, Office of ARDG, ARDS, Downsview, Ont.
C. Hayes (SCY-3) Secretary, ARDG, Downsview, Ont.
D. Lynch (AS-4) Radar Project Manager, AFON, Downsview, Ont.
J. Barron (EG-5) OIC, WS3, Cape St. James, B.C.
A. Tortolo (CR-4) Clerk, LLO/ADMA, Downsview, Ont.
S.L. Guzylak (CR-4) Management Information Clerk, AFOC, Downsview, Ont.
E. Chirka (SCY-3) Secretary, AFSD, Downsview, Ont.
R. Goodson (MT-3) Meteorologist, WC1, Edmonton, Alta.
J. Pelletier (EG-6) Pres. Tech., WS3, Mirabel, P.Q.
J.Y. Rancourt (EG-6) Pres. Tech., WO4, Val d'Or, P.Q.
J. Beaudry (EG-2) Met. Tech., QAEOO, Dorval, P.Q.
Y. Bélanger (EG-1) Met. Tech., WS3, Ste Agathe des Monts, P.Q.
M.I. Markowitz (CM-6) Sub-System Controller, ACPN, Downsview, Ont.
G. Dansereau (CS-2) Scientific Programmer, CIDU, Dorval, P.Q.
D.M. Grant (AS-4) Directorate Administrator, ACDA, Downsview, Ont.
C.L. Blackwood (EG-6) Inspector, WO1, Gander, Nfld.
P.V. Connor (EG-9) READAC Project Manager, AFOC, Downsview, Ont.
K.A. Bishop (AS-1) Admin. Officer, APEC, Downsview, Ont.
B. O'Connor (IS-5) Information Advisor, ID, Downsview, Ont.

Transfers

G.N. Yeo (EG-2) Surface Obser., WS3, Estevan, Sask.
D. Wright (EG-4) U/A Tech., WS2, Resolute, N.W.T.
Y. Sivret (EG-4) U/A Tech., WS2, Mould Bay, N.W.T.
R.T. Bowser (EG-4) U/A Tech., WS1, Alert, N.W.T.
J. Burrows (EG-2) Met. Obs., WS3, Vancouver Harbour, B.C.
R. Campbell (EG-1) Met. Obs., WS3, Revelstoke, B.C.
R. Stainer (EG-2) Met. Obs., WS3, Cape St. James, B.C.
I. Morrison (EG-1) Met. Obs., WS3, Cape St. James, B.C.
R. Sanheim (EG-2) Met. Obs., WS3, Lytton, B.C.
F. Guay (EG-6) Pres. Tech., WO4, Frobisher Bay, N.W.T.
J. Richard (EG-6) Pres. Tech., WO4, Frobisher Bay, N.W.T.
W. Romanko (EG-4) U/A Tech., WS2, Whitehorse, Y.T.
H. Wilkinson (EG-2) Met. Obs., Vancouver, B.C.
L. Dussault (EG-4) U/A Tech., WS1, Kuujjuaq, P.Q.
D. Langevin (EG-2) Met. Tech., WS3, Cape Dyer, N.W.T.
Y. Landry (EG-6) Instructor, TCTI, Cornwall, Ont.
L. Dixon (EG-5) Pres. Tech., WO4, Calgary, Alta.
B. Dobinson (EG-4) U/A Tech., WS2, Resolute, N.W.T.
M. Majcher (EG-2) Met. Tech., WS1, Eureka, N.W.T.
E. Hurak (CR-4) Clerk, OAP, Downsview, Ont.
C. Yang (CS-4) Head, Graphics & Communications, CIDX, Dorval, P.Q.
W. Scott (EG-2) Met. Tech., PAEOO, Vancouver, B.C.
M. Donoghue (EG-6) Met. Tech., CMCF, Dorval, P.Q.
G. Drapeau (EG-6) Met. Tech., CMCF, Dorval, P.Q.
C. Fortier (EG-6) Met. Tech., CMCF, Dorval, P.Q.
F. Landry (EG-6) Met. Tech., CMCF, Dorval, P.Q.
R. Sarrazin (MT-5) Forecast Research Met., ARMF, Downsview, Ont.
H.R. Ellsworth (EG-6) Met. Inspector, MAED, Bedford, N.S.

STAFF CHANGES

R. Shaw (ENG-5) LLO/ADMA, Downsview, Ont.
D. Baldwin (EG-5) Pres. Tech., WO4, Calgary, Alta.
A. Drouin (EG-3) U/A Tech., WS1, Maniwaki, P.Q.
M. Trépanier (EG-2) Met. Tech., WS3, Ste Agathe des Monts, P.Q.
C. Rancourt (EG-2) Met. Tech., WS3, Baie Comeau, P.Q.
E. Gola (EG-1) Met. Tech., WS3, Cape Dyer, N.W.T.
A. Vasilescu (CS-2) Programmer, CMCFI, Dorval, P.Q.
M. Mondou (EG-7) CMCFT, Dorval, P.Q.
D. Dubuc (EG-6) Met. Tech., CMCFT, Dorval, P.Q.
K. Rasl (EG-6) Met. Tech., CMCFT, Dorval, P.Q.
P. Fichaud (EG-4) Met. Tech., Dorval, P.Q.
P. Harper (EG-4) U/A Tech., WS1, Eureka N.W.T.
S.R. Smith (EG-4) U/A Tech., WS1, Alert, N.W.T.
J. Parrott (EG-4) U/A Tech., WS2, Mould Bay, N.W.T.

Departures

R. Dallaire, QAEOO, Ste Agathe des Monts, P.Q.
R. Sakaliuk, WO4, Edmonton, Alta.
R. Asselin, DMETOC, Ottawa, Ont. to Director General, Information Directorate, DOE — Ottawa, Ont.

Secondment

E. Gregoire, Sault Ste. Marie, Ont., WO4, to Ice Branch, Ottawa, Ont.
M. Pleau, Inuvik, N.W.T., to Ice Branch, Ottawa, Ont.
S. Van Balen, Slave Lake, Alta., WS3, to Ice Branch, Ottawa, Ont.

Leave of Absence

E.M. Law, OAEOO, Toronto Island, Ont.
L. Lamontagne, QAEOU, Inukjuak, P.Q.
E.L. Kulin, ID, Downsview, Ont. French.

Beverley S.V. Cudbird

After a long and courageous battle Bev Cudbird passed away in Toronto on April 15, 1984. Before his retirement, in 1978, Bev was well known throughout the Service for his outstanding work in the development of climate data processing methods and the provision of a data service at meteorological headquarters. After retirement Bev became a weather broadcaster and climatologist for CFRB Radio and quickly won thousands of radio fans.

Bev Cudbird, born in Toronto in 1914 and a graduate of Trinity College, University of Toronto, joined the Service as a Meteorological Assistant in August 1940. Following observer training he was posted to Vancouver where he served for a year before joining Intensive Training Course IV in October 1941 and subsequent posting to Newfoundland. He served at Gander and subsequently was OIC at Botwood, St. John's and Torbay where he was responsible for providing weather forecasts and weather information for aircrew engaged in coastal patrol and transatlantic operations. He then served as a meteorological liaison officer in Ottawa from 1946 until May 1948 when he was selected for a position in the Climatology Division in Toronto.

In 1950 Bev was given responsibility for developing the use of punched cards in the processing of climate data. Under Bev's leadership the Section was soon responsible for most of the current climate data processing and the transfer of "back" data to punched cards archived for subsequent use in climatological applications work. During the early 1960s Bev visited Nigeria twice and played a leading role in assisting that country in the development and use of modern methods for climate data processing. The Climatology Division obtained its first computer in 1965 and credit for the successful use of this and the background development of the archives must be given to Bev Cudbird.

Bev first encountered health problems in the mid 1970s. When he was forced to retire from the Service he became a regular on the CFRB Radio late afternoon shows. Here he exhibited the same enthusiasm and irrepressibility that had marked his nearly 40 year career with AES. This, coupled with his use of the English language that few people could match, made him an instant success on radio. Few people knew however that he was largely confined to his residence with a small built-in weather office and a microphone for his broadcasts. Bev left so much to those of us who knew him, so much to this family of whom he was most proud, so much to Canadian climatology where he was an enthusiast to the end and so much to his radio public who looked forward to hearing him everyday. Bev is survived by his wife, Irene, and three married daughters, all in the Toronto area. One of his daughters April Hoeller, is employed in the Canadian Climate Centre at Downsview.

Retirements

R. Crackle, WC1, Edmonton, Alta. Dec. 1983.
F. Lesik, WC1, Edmonton, Alta. Dec. 1983.
G. Godard, WO4, Calgary, Alta. Dec. 1983.
P.T. Hawley, WS3, Hudson Bay, Sask. Dec. 1983.
J.L. Franz, Winnipeg, Man. Dec. 1983.
C.J. Baker, PWC, Winnipeg, Man. Dec. 1983.
S. Froeschl, QAEM, St-Laurent, P.Q. Jan. 1984.
S. Bain Bourque, ACPT, Downsview, Ont. Dec. 1983.
C. Olsen, CAED, Winnipeg, Man. Dec. 1983.
B. Chambers, AAF, Downsview, Ont. Feb. 1984.

Deaths

O.D. Gorveatte, MAED, Bedford, N.S. Jan. 1984.

CORRECTION

D. McCulloch and H. Auld have both departed from CFWS-CFFC Trenton, Ont., and their new location is AES — PWC, Vancouver, B.C.