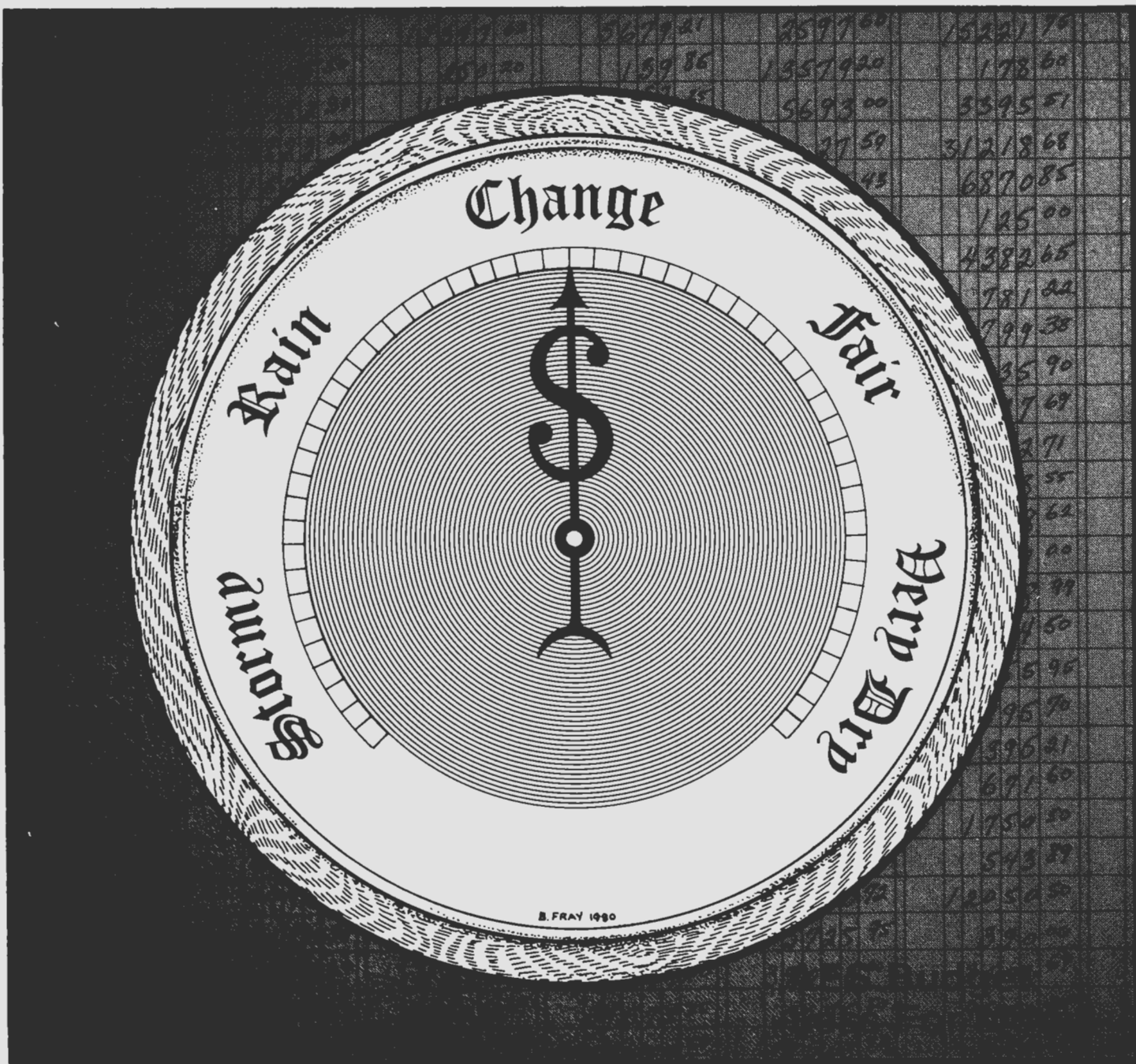


ZEPHYR



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March/April 1980

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John Roberts new Minister



John Roberts is Environment Canada's new Minister.

John Roberts became the new Environment Minister on March 3, 1980. Concurrently, he serves as the Minister of State for Science and Technology. From 1976 until 1979 he was Secretary of State.

Mr. Roberts first entered the federal government in 1963 as a foreign service officer with External Affairs. He then went on to serve as executive assistant for the Minister of Forestry and Rural Development between 1966 and 68. He won his first seat in Parliament in 1968. In 1972 he served as parliamentary secretary for the Department of Regional Economic Expansion and Development. From 1972 to 1974, Mr. Roberts worked in the Prime Minister's office as program secretary. He currently represents St. Paul's riding in Toronto.

Don Smith new DG Central Services



Don Smith assumed his new duties as Director General of Central Services in March 1980.

Don Smith has been named director general of Central Services. He was previously director of the Meteorological Services Research Branch.

In viewing his new responsibilities, Mr. Smith expects that the main challenge will come from trying to meet expanding AES needs with static resources. "I see many opportunities to improve the quality of AES outputs. Increasing computing power, improving communications systems for internal use and for the public distribu-

tion of information, and exploiting new remote sensing techniques will be some of the ways in which Central Services can contribute to such improvements.

"I have every confidence in the ability of the directorate to respond to the challenge, and I welcome the opportunity to contribute to its evolution in the years ahead."

Mr. Smith joined the weather service in 1949 and served as a forecaster before undertaking air quality research. He also served two years as director of the Ontario Region.

PMO gets award



Geoff Meek, well known on the Toronto waterfront, was recently honored for his meteorological work.

AES's Ontario Region port meteorological officer Geoffrey T. Meek was made an Honorary Life Member of the International Ship Masters' Association at its annual convention in Toledo, Ohio, on February 8, 1980.

Mr. Meek, now Captain Meek because of the honorary title the award carries, says, "I appreciate this award because it conveys recognition from the actual users of the work I produce".

Captain Meek is the first Canadian to receive the award. It is his second award on behalf of marine interests on the Great Lakes. The first was the United States National Weather Service Centennial Certificate presented in 1971.

Born in England, Captain Meek obtained his knowledge of ships and the sea through service with the British Royal Naval Reserve, 1947/48. He spent the following five years on civilian ships sailing the Far and Near East and rising to the rank of second officer.

He immigrated to Toronto in 1955 and started service with AES in 1957. He served as a weather observer in the Arctic on several ships and in 1961 joined the Ontario Region Marine Section of Basic Weather. (Basic Weather was the organizational predecessor of Field Services.)

He has been Port Meteorological Officer since 1968 and, has represented AES at meetings of the Lake Carriers' Association, the International Ship Masters' Association, and the Dominion Marine Associa-

tion's Navigation Committee. He has also been a prime mover in the AES display for the Toronto International Boat Show for over a decade.

Captain Meek is well known for his other Toronto waterfront activities. In 1976 he was President of the Toronto Marine Club, an association of the Great Lakes shipping industry with 550 members. And, it goes without saying that Captain Meek is an active yachtsman and a member of the National Yacht Club.

Operation Firstlight

February is the month when Canadians board charter flights to the sunny south. Not so for eight AES specialists and a guest scientist, who boarded a flight on February 19 to head for the north shore of Ellesmere Island, the most northerly point in Canada. No, they weren't confused; their mission, Operation Firstlight had a purpose.

As part of Ice Branch research, their objectives related to questions about the feasibility of possible future year-round Arctic resource extraction activities. The mission used the Ice Branch aircraft's Side Looking Airborne Radar (SLAR) to map the ice shelf remnant along the northern Ellesmere Island coastline and ice island fragments in Hadley Bay on the north shore of Victoria Island. It also determined the usefulness of SLAR in iceberg detection and undertook topographic measurements along the Alaskan coast using a laser profiler. Finally, the flight provided tactical support to the Dome Petroleum icebreaker Kigoriak maneuvering in the Beaufort Sea.

Operation Firstlight departed Summerside, PEI with a flightplan which was to take the mission as far east as Thule, Greenland to as far west as Fairbanks, Alaska. Fairbanks welcomed them with a balmy -4°C but the refueling stop at Resolute registered -37°C with a 25 kt. wind.

Some flights crossed six time zones, which narrow toward the pole. This led to odd situations such as when the one hour flight from Inuvik to Frobisher left at 19:00 and arrived at 17:00, providing a little extra leisure time. In the other direction, however, Fairbanks to Frobisher left at 08:00 and arrived at 03:00 the next morning, wiping out a couple of meals.

Back in Summerside, 6 days later, after 66 hours of flight over seven days, the weary crew unloaded boxes of data, and expressed a reluctance to again undergo such an endurance test.

A ray of hope for solar energy

"Coming up, the news. Weather today; temperature minus two, cloudy. Pollution index 10. Solar energy index five."

This announcement, or something similar, could well become standard broadcast practice in the not too distant future.

Although solar energy index does not yet exist, it could very well become part of regular weather reports across Canada if one of the recommendations of the recent Solar and Passive Energy Utilization Workshop is implemented. Participants felt that an appropriate index given with weather reports would help make the public conscious of the value of solar energy.

The workshop, one of a series organized by the Canadian Climate Program, was held February 12 and 13 at AES Downsview. Participants made recommendations on everything from data required for the development of solar energy to a possible federal government solar energy policy. Above all, the participants were looking for ways of getting the public to regard climate as an exploitable energy source.

Dr. J. Hollins of Energy, Mines and Resources, who chaired the session on policy, stressed the importance of getting solar energy devices, "out of the labs and onto the roofs of the nation." But he pointed out that, even with the best of intentions, such an undertaking will take time. "It took thirty years of development before the CANDU nuclear reactor was supplying one percent of Canada's power needs." He expects that solar developments will take just as long.

Many of the participants pointed out that widespread use of solar energy heating will require far greater attention to climate than oil and gas heating. An oil furnace which is twice as powerful as required for a particular climate costs only a few dollars more than a small version. But a solar collector's cost is in direct proportion to its surface area, and the provision of twice the required capacity would double costs. Defining the required capacity therefore becomes much more critical, as does the need for better climatic analysis.

Furthermore, the positioning of solar collectors and windows depends on local climatic conditions. It would be quite accidental if a user were to get the maximum energy available by simply slapping a collector on his roof. In theory, maximum sunlight occurs at noon from the south. But, if local conditions create overcast skies which last well past noon, or if winds coming from a southerly direction cool collectors more than expected, one might be able to find better angles for collectors and windows.

AES has developed a computer program

which takes prevailing local solar conditions into account in order to calculate the most appropriate angle of placement for solar collectors. Although not yet fully operational, this service can be rendered on a cost-recovery basis.

Even where prevailing microclimates are taken into account, however, other factors, such as the erection of a building can so alter the climatic conditions at a site that energy utilization characteristics are changed. For this reason, workshop participants recommended research into better microclimate prediction techniques, and the development of methods and guidelines to allow those developing low energy urban districts to assess the results of their projects.

Dr. Don McKay of the Canadian Cli-

mate Centre, who organized the workshop, sums it up as follows: "The participants realized that a great deal of development of solar devices and climatic assessment techniques will have to take place before widespread use of solar energy can occur. Even more important, however, is the marketing of the concepts of solar energy and supporting climatic data, a step which must be undertaken before use of solar energy will find general acceptance."

"Many participants felt that AES was hiding its data under a bushel. At least we can try to correct this problem by approaching contractors, urban planners and those developing and manufacturing solar technology. As for raising general public awareness of this resource, perhaps this can be done through AES participation in well publicized demonstration projects."

ELIAS doing fine



Jan Glover and Verna Gilchrist verify microfiche records of computer generated Library acquisitions lists.

At last, ELIAS has got it all together at the AES Downsview library. ELIAS is now alive and well, with all parts functioning satisfactorily. ELIAS, of course, is the long awaited Environmental Library Automated System.

Jan Glover, newly appointed head of library operations, explains that as of February 1980 the acquisition computer program has been brought on line to join those for circulation and cataloging which have been in use for three years. Ms. Glover notes that the new system will eventually speed up the acquisition process by eliminating the need for manual files. This will aid the library user. An addi-

tional benefit is that the library can now provide the user with a microfiche listing of all materials being ordered, a listing which was not available before.

The library staff has been retrained in the use of automated library systems. The staff has learned to code the materials, although the actual keypunching required is being done by the computer center (ACPO).

The ELIAS program catalogs all of the Environment Canada Library collections and, since the program is accessible to anyone with the proper computer terminals, the service is available to Canadians at large. All subject headings in the program are bilingual.

Coping with the AES budget

by Gord Shimizu

April 1, 1980, may be April fools day to some, but to the Government of Canada it is the first day of the new fiscal year. For AES it seems like a good time to take a look at its new budget to see whether it is likely to help make the new year a happy one.

The total AES budget went up by \$12 million, but it remains virtually unchanged over the previous year's in constant dollars, i.e. dollars adjusted for inflation. This means that each Canadian will pay about \$4.70 for weather services this year. Considering the impact of weather on personal lives and the national economy, the public is probably getting a bargain.

But, what does it mean for AES? As salaries are rising, the non-salary budget is being squeezed. In constant dollars, the non-salary budget fell by almost 10 per cent. In addition, the Person-Year (PY) budget has also been reduced.

On top of that, new demands are being made of us and priorities are changing, which means reallocation of resources. Money must be shifted from some programs to permit undertaking others.

What is happening and how is AES covering the financial shortfall?

Projects which are being expanded or started in 1980-81 include expanded research on Long-range transport of air pollutants (LRTAP), acquisition of five medium capability radar units, ice research, a study on atmosphere/ocean interactions called Storm Transfer and Response Experiment (STREX), a study of the AES data processing and communications system, the acquisition of the AES Downsview computer, a cooperative satellite Arctic data program with Denmark, and participation in the national search and rescue program. (See box for details.)

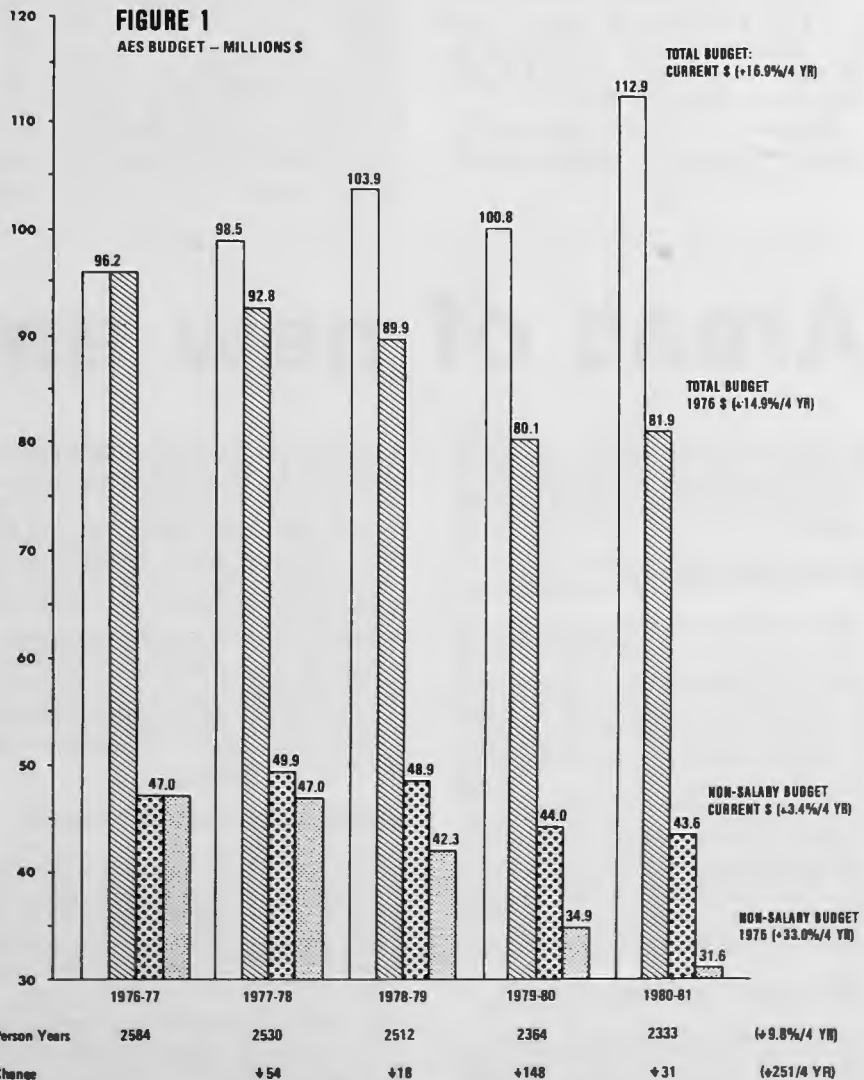
To compensate for the budget squeeze and priority shifts, AES management, over the past several years, have made cuts in administration, support activities, and some areas of research. Every effort is being made to maintain current levels of

weather services.

Specifically, the management decision manifested itself in

- staff cuts within administration throughout AES;

- staff cuts in the Training Branch, and elimination of the in-house post BSc courses in meteorology;
- elimination of the in-house development of meteorological instruments;



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- research cuts in projects relating to atmospheric electricity, weather modification, stratospheric studies, hydrometeorology, biometeorology, and boundary layer studies.

The data gathering network, which uses about 40 per cent of the AES budget, has had its share of cuts. For example, data gathering in the far north is costly and some savings were realized in this area, such as the closure of Isachsen two years ago.

The current budgetary situation becomes clearer when set against the background of the last several years.

Figure 1 illustrates what has happened to AES's budget since 1976. Over this period the total budget has fallen nearly 15 per cent in inflation adjusted dollars. The non-salary budget in these same constant 1976 dollars has fallen by 33 per cent. In other terms, over the past four years, one in every three dollars with which AES was providing weather services and doing environmental research has disappeared.

Over the same period, AES has lost 251 PYs, a decrease of almost 10 per cent. Since 1975, when AES was at an all-time high strength of 2,630 PYs, the decrease has been 300 PYs.

Fortunately, AES has been able to accommodate the PY reduction without

having to resort to many layoffs. By carefully matching recruitment to attrition, and by arranging transfers whenever possible, less than a dozen people have had to suffer the traumatic effects of layoff.

The budget reductions have been another matter. Initial budget cuts were accommodated by belt-tightening. However, this only worked for the first year. Subsequent cuts meant determining priorities and then cutting lower priority projects. Fortunately, AES has not as yet actually had to lower standards of weather services.

Some changes have resulted, however, and these are perceived by the public as a threat to weather services, even though this will not likely prove to be the case in the long run. For example, the move of forecasting services from Regina to Winnipeg, and the announcement of the Ocean Station PAPA termination caused considerable public concern.

In fact, a successful replacement of Ocean Station PAPA could save millions of dollars in the long run.

AES does not plan the retirement of the weather ships until a suitable replacement system has been tested and found satisfactory. According to a popular saying one has to spend money, to save money, and AES is finding itself more and more in this position. In the interim, AES will have to fund both the weather ships and

the replacement. Three million dollars have been earmarked in 1980/81 towards developing a replacement system.

Needless to say, it will be impossible to continue with the present declining real dollar budget without making more serious cuts in weather services.

On the other hand, demand for weather services continues to grow as the number of aviation terminals, agricultural users, offshore and high Arctic hydrocarbon drillings, and fisheries within Canada's recently defined 200 mile economic zone increases. Demand for research on acidic precipitation, climatic variability, and other environmental issues is also mounting, as it is for climatic data and consulting services.

The budget cuts have forced AES to become more efficient and AES has met this challenge. As the fiscal year 1980/81 progresses, we do not foresee any more resource cuts. However, the outlook for resources remains tight and the Service will continue to have to shift resources in order to meet new priorities. Any additional management actions will have as the main principle the maintenance of weather and environmental services at the highest level possible. □

Gord Shimizu is Director, Program Development and Evaluation Branch.

Areas of new emphasis for

These capsule descriptions provide information about the eight areas of the 1980/81 AES budget which were expanded.

Communications

AES's services are only as good as the communications system it uses at every step from the transmission of observations to the delivery of weather information to the users. To anticipate and keep ahead of communications needs and abreast of the most efficient new technology, AES has budgeted about \$180,000 to hire a consortium of three consulting firms to make recommendations on every aspect of internal and external communications. Fred Herfst is the scientific manager of the project and is coordinating the contracts.

Greenland satellite station

Ice data from the northeastern portion of the Arctic are not currently available.

Current NOAA satellites could provide the data if AES had a receiving station in the far north. If current talks between Canada and Denmark bear fruit, data and the costs of obtaining them would be shared by the two countries. AES would use \$180,000 of its new budget to purchase a weather information processing system and install it in Greenland. The Danes would provide the antenna. Dr. Jaan Kruus, chief of Central Service's Network Planning and Standards Division, is coordinating the project.

Search and rescue support

Although AES has always provided meteorological forecasts for search and rescue operations conducted by DND or the Coast Guard, a novel approach is being considered by the three organizations: make boaters and others familiar enough with weather to enable them to keep out of trouble in the first place, and don't need to be rescued. The 1980/81 budget provides

\$46,000 for two projects. One will determine what boaters need in the way of educational materials, and the second will investigate the adequacy of weather services to recreational boaters. Al Campbell of Field Services coordinates the project.

Ice research

Because of the growing interest in resource extraction in the north and the increased importance of fisheries in ice-frequented waters, AES is facing a stronger demand for more sophisticated ice information. The 1980/81 budget allocates \$200,000 as part of a long range plan, to improve the computer methods of extracting and integrating data received from satellites, aircraft and surface based sensors. Efforts will also be made to improve the detection systems used to map ice. Dr. René O. Ramseier, a senior scientist with the Research Directorate is coordinating these ice research and development efforts for the Ice Branch.

AES and how it functions

by J.A.W. McCulloch

This is the second of a two-part article on the structure and organization of the Atmospheric Environment Service. Part 1 appeared in the November/December issue of Zephyr.

Employing about 60 per cent of the total AES staff, and responsible for a proportional part of the service's budget, the Field Service is the largest element of AES.

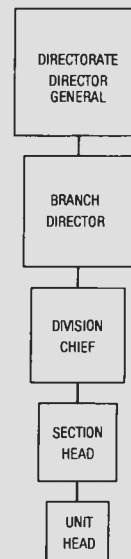
Several systems exist within FSD. They function regionally and are coordinated at headquarters. They include:

- a data acquisition system for surface observations, upper air and climatological data;
- a communications system to ensure the data are processed and forwarded to the end users;
- a real time data processing system;
- a system to present data and processed products to users;
- a system to ensure AES participation in departmental programs and in the Environmental Assessment and Review Process;
- a management system to meet the

requirements of the central Agencies, statutory acts and regulations.

FSD operations are carried out by two organizational units in Downsview, a meteorological center in Montreal and six regional offices. Also located in Downsview is the task force for the PAPA Alternative Data System, and the Arctic coordination.

The Field Meteorological Systems Branch comprises three divisions. The first division's activities are related to forecasting, communications and computers; it deals with national carriers and operates the sub-system control. The second division, Observational Services, works with other elements of AES (Central Services Directorate, Administration Branch), and also manages the budget allocated to observational sy-



Ladders in the AES organization chart.

AES budget

STREX

Knowledge of how the atmosphere and oceans interact is important for advancing the art of weather and climate forecasting. AES and the US's NOAA will jointly undertake a Storm Transfer and Response Experiment (STREX) to measure such interactions in the northeast Pacific. AES has budgeted \$135,000 to equip Ocean Station PAPA with required instrumentation and to operate its part of the experiment. The United States will commit two aircraft, a ship, and several buoys. Dr. Gord McBean, chief of the Boundary-Layer Research Division, is coordinating Canadian efforts.

Acid rain

Increasing concerns by both the department and the public about the effects of air pollutants and related acidic precipitation on the environment, and about the control of such pollutants resulted in a financial

boost to the federal LRTAP program. The program's 1980/81 budget is now \$557,000, an increase of \$380,000. The department's activities concerning LRTAP include pollutant emission, atmospheric transport and chemical/physical transformation during it, environmental effects studies and modelling of relevant processes. An LRTAP program office, headed by Dr. Hans Martin and assisted by Bill Hart, has been established to co-ordinate the program.

Downsview Computer

A shortage of general purpose computing capacity at Downsview has strained the Canadian Meteorological Centre computer and resulted in some inefficiency in AES research projects. With environmental and climatic research expanding, AES has decided that the answer to the long term problem is to acquire a new computer to be located at Downsview. The cost of acquiring the computer will be an estimated \$3.5 million over the next

five years. The exact amount to be spent in 1980/81 is dependent upon the terms of the contract which is still being negotiated. Bruce Byce, chief of the Central Services computing centre is coordinating the acquisition.

Weather radar

Weather radar improves AES's ability to detect severe weather such as tornadoes or hailstorms, and makes earlier warnings possible. The 1980/81 budget provides \$948,000 (followed by \$632,000 in 1981/82) for the purchase and deployment of five medium capability weather radar systems. They are to provide coverage for Regina, Sask.; Brandon, Man.; and Thunder Bay, Sault Ste. Marie and North Bay, Ont. Five Raytheon/SCEPTRE high capability and four Curtiss-Wright/RROMS medium capability systems are currently in operation across Canada. Eric Aldcroft of Field Services is the manager for the radar program. □

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stems. The Weather Services division handles ministerial responses to enquiries, liaises with Transport Canada, and facilitates communications between the regional scientific services divisions and elements of AES in Downsview.

The Directorate Secretariat complements the scientific and technical activities by coordinating personnel and finance matters. It also evaluates internal programs and provides secretarial functions at FSD committee meetings while taking an active part in all discussions.

The Canadian Meteorological Centre is located in Montreal. It comprises three divisions responsible for forecast operations, computer operations and operational development.

Six regional offices (Pacific, Western, Central, Ontario, Quebec, and Atlantic) are each headed by a regional director. Their structures are parallel to that of FSD. Also, they all use the same designators to describe functions and positions. Each region has six divisions:

—Administration covers finance, materiel management, central registry and mail, facility planning and personnel matters;

—a Weather Center is responsible for the communications and computer systems, as well as all basic forecast products for the region;

—Observational Services is responsible for the operations of all weather and climatological stations, and a variety of other data-acquisition activities;

—Scientific Services handles consultations, non-forecast services, and other tasks related to climatological data and summaries;

—Weather Services operates several levels of weather offices, and keeps contact with the public to ensure existing products meet user needs;

—Communications deals with Transport Canada, wire and telephone companies on the regional level.

The Canadian Forces Weather Service, though not a part of AES, employs meteorologists. Working closely with the Field Services Directorate, its director is a full member of the Directorate Management Committee.

Canadian Climate Centre (CCC)

The CCC was formed through the realignment of certain sections of the Research and the Central Services Directories. It presently consists of two Branches.

Meteorological Applications Branch. The four divisions which make up this branch are little changed in their structure or activities since the move from Central Services.

—Services supplies publications, summaries and other climatic data required

across the country by specific regions.

—*Data Management* undertakes the completion of the quality-control tasks begun in the regions for entry of data into the archive, maintenance of all station records needed for proper interpretation of the data, and related planning and design.

—*Hydrometeorology and Applications and Impact.* These two divisions contain the service specialists in meteorological applications to other disciplines and private sector activities. These specialists also provide the in-depth expertise backing up the scientific services divisions in the regions.

Research Branch. Under the direction of the chief scientist of the Canadian Climate Centre (CCC), the activities of the two divisions, — *Numerical Modelling*, and — *Monitoring and Prediction*, are closely related, with the outputs of the former providing guidance for the activities of the latter.

— *The Monitoring and Prediction Division* monitors trends, identifies areas of concern, and attempts to foresee and explain future areas of concern. Some of the tools available are the outputs of models which are run for appropriate time intervals. Forecasting done by the CCC is for periods longer than those now handled in the regions. As operational tools improve, the boundary between the forecast responsibilities of the Field Services Directorate and the Canadian Climate Center will shift.

CCC has a weekly publication: *Climatic Perspectives*, to meet a longstanding information need within the service.

Central Services Directorate (CSD)

The structure of the Central Services Directorate has changed considerably during the latter part of 1979. At present, it consists of three branches and two divisions.

The Atmospheric Instruments Branch recently moved into Central Services Directorate. Because of the very serious resource cuts in the fall of 1978, the precise internal organization is currently under review, but the expertise in instrumentation systems, sensors, and instruments calibration and maintenance standards rests with this branch. The work includes development of instrumentation, preparation of precise engineering specifications, monitoring contracts with suppliers, and a wide variety of related activities. Computer systems expertise is required to introduce computer-like technology to instrumentation.

Ice Branch. Originally formed in response to the needs of the Coast Guard, and still funded to a considerable extent by Transport Canada, responsibilities of this branch cover ice reconnaissance (aircraft, ship, etc.), analysis, forecasting, and information distribution, as well as the develop-

ment of relevant statistical summaries of data (ice climatology). Developmental activities are largely related to new reconnaissance techniques such as satellite imagery, laser profilometry and synthetic aperture radar, as well as prediction modelling. Ice Forecasting Central is located in Ottawa (handy to Coast Guard operations) while other activities are centered in Downsview.

Training Branch. The major activity of the Branch is devoted to the technical training and development of AES, Department of Transport and Distant Early Warning (DEW) Line employees in such programs as data acquisition, weather information and presentation services, and the operation and maintenance of meteorological equipment.

In line with the new AES policy, candidates for meteorologist positions require a BSc or MSc in meteorology or an equivalent certificate program. The Meteorologist Operation Course is designed to provide training for positions in AES and Department of National Defence (DND) forecast offices. The Branch also provides and coordinates training and development to meteorologists through workshops and extension programs. Management courses form a new activity of the Branch.

Network Planning and Standards Division. This division, reporting directly to the director general, will plan and develop a "best mix" of observational systems (e.g. radar, surface station and satellites) and establish standards and procedures for the data required by AES.

Downsview Computing Centre. Classed as a division, the centre is charged with providing computing support to all elements of AES that do not require the computing capacity at CMC. Included are many of CCC and ARD (except for large-scale modelling which requires the more powerful Montreal facility), as well as many requests which come from the regional scientific services divisions or external users.

Administration Branch (AAB)

The responsibilities of this Branch encompass a number of functions, including the following:

- finance
- material management
- library
- general administration
- office services
- central records
- facilities co-ordinator
- printing
- cartography
- safety and security
- official languages

(J.A.W. McCulloch is Director-General, Field Services Directorate)

AES' Sunday historian

by Gwen Rawlings

In an isolated farming community in Quebec's Eastern Townships, the people of Inverness Township recall stories of the pioneer days when children walked to school barefoot on three miles of country roads and carried jam sandwiches wrapped in newspaper. From her home in Brampton, Ont., Gwen Rawlings wrote about them.

Mrs. Rawlings, head of weather services standards, field services directorate, Downsview, published *The Pioneers of Inverness Township*, a historical and genealogical story, last year.

She began her research six years ago. After growing up with family stories of life in Inverness, her curiosity led her to look for more information and history. She started writing letters to people who had lived there and sorted out some of the facts. From there it snowballed.

Gwen received more than 500 letters from all over North America. As the bits of information, collected on scraps of paper, began to pile up she decided it would be criminal to just leave them in a drawer.

She continued with what she calls her labor of love; working with the Ontario Genealogical Society and the Ulster Historical Guild in Belfast, going to genealogical conferences, interviewing people, reading cemetery records and documents

in the public archives.

Eventually, she realized only self discipline would get the book done. So began a Sunday ritual of starting work at 4:30 a.m. and continuing until 10 a.m. A year later her story of the hardworking, down-to-earth farm community was complete.

The first part of the book described the settlement of the township by immigrants from Northern Ireland, Scotland and England, starting in 1811. The patterns are traced right through to resettlement in other parts of the Eastern Townships, in Scott and Cherokee counties of Iowa and Southern Alberta. Part two includes a six-generation genealogy of six pioneer families, covering 190 years.

They stayed close-knit, intermarrying then moving away together. Today the community is 98 per cent French-Canadian. Had Mrs. Rawlings waited 10 years to do her research, there may not have been any contacts left to talk to.

Part of the history of the area is given through tall tales and folklore she picked up in conversation among old-timers. It seems a Hornerite minister who often visited one Inverness family was illiterate but knew the bible by heart, cover to cover. To account for his good memory, he claimed he went into a trance one day, and swallowed the Bible whole.

Even though the book is finished the research isn't. "Genealogy is like a disease," Gwen says, "once you start, you can't stop." She is still getting letters with information from people who have seen the book or have heard about her interest.

Over 400 copies have been sold in the first year of circulation. While interest from members of the widely-spread Inverness clan was anticipated, she did not expect the interest generated by the book, in genealogical and historical circles. Through her own marketing efforts, copies of the book have found their way into university and genealogical libraries and archives in every state in the USA.

Gwen is also working on magazine articles about the area. The publishers of *Canadian Genealogist* magazine have invited her to prepare papers on Irish settlements in Megantic County, data sources in the Eastern Townships and on the Irish-Canadian settlements in Iowa. She was approached as a result of the book, and her research on other parts of the townships.

Gwen hopes some day to be able to continue her research right back to Ireland where her ancestors originated. □

Gwen Rawlings is head of Weather Services Standards, Field Services Directorate, Downsview.



When the relatives came home to Megantic County, the cameras came out. This 1914 visit from Vermont, reunited uncle and nephew.



Early immigrants were grateful for a small house and an opportunity to grow with their new country. A family of fifteen lived in this house before Gwen Rawlings' grandparents did.

Meteorologist sees sunny forecast for VIA

When John Pearce, Supervising Meteorologist, Atlantic Weather Centre, sees the world of transport unfolding as it shouldn't, he gets involved. He is now spending most of his spare time trying to improve Maritime transportation services. He believes that people should take action when they see a way of bettering their lot rather than just muttering under their breath. He practices what he preaches.

Three years ago, applications were brought to the Canadian Transport Commission (CTC) to discontinue some Maritime rail services. The reason: falling passenger loads and rising costs.

John Pearce says he always enjoyed travelling by rail, and the announced hearings were a threat to his preferred mode of transport. He says, "I figured it was time for action."

He took the longer view of the region's needs. He foresaw energy shortages and rising motor car costs, and concluded that the passenger train should be helped over the difficulties it was experiencing at the time to ensure that it would still be around as an alternative mode of travel when the family car might be facing some problems.

When, in 1977, the CTC came to the Maritimes to hold hearings on the eastern transcontinental rail system, Mr. Pearce voiced his views. He did so as a new member of a group called Transport 2000. This organization is international in scope, and is dedicated to improving all modes of transportation in ways conducive to social

and environmental objectives.

Both Mr. Pearce and the maritime chapter of Transport 2000 have made progress since those first hearings. John Pearce became the group's president last year and the chapter now has about 100 members. They have also been succeeding in their efforts.

The 1977 transcontinental passenger train hearings consisted of two weeks of examination and cross examination. Upon questioning by Transport 2000, the consultants, who had examined the proposed discontinuance of service for Transport Canada, admitted that their study had lacked adequate funding and time, and therefore had several flaws. This caused complications, however, since the report had already been used as the basis of several federal-provincial agreements. Would the CTC reverse the trend?

Historically, there have been two main rail routes between Montreal and Halifax. The consultants' report argued that one of them should be eliminated. Transport 2000 demonstrated that the two routes served two different populations and were thereby essential to both areas. They went on to point out that the reason passenger traffic was falling was because the schedules were less than ideal and they then proposed alternatives.

The results of the hearing arrived two and a half years later. The CTC ruled that both routes would stay, and that schedules should be changed in ways similar to those proposed by Transport 2000.

John Pearce says of the new service: "Although the new schedules were only put into effect in October of 1979, it looks as if ridership is already improving. There is now even a shortage of rolling stock on weekends. Even with a minimum of improvements to the national rail network, overall national ridership is up 34% in the three years since the first hearings were held. On the basis of the results our optimism and work seem justified."

The work done by Mr. Pearce and Transport 2000 did not stop after the 1977 hearings. Last June, another CTC hearing was held on the future of the Annapolis Valley service which runs between Yarmouth and Halifax. Again be-

cause of falling ridership, it was assumed that the service would be abandoned.

For this hearing Transport 2000 decided to use a different tactic. Instead of making the principle intervention as it had in 1977, the group undertook to get the issue into the press in order to inspire potential users of the service to come forward and state their views. The result: what was to have been a short hearing stretched to four days. The hearings themselves had to be moved to bigger halls.

The public stated how the train was in fact the fastest way of getting from the countryside into Halifax to do a bit of shopping. However, the schedule was such that the train user could not return the same day, but had to spend a night in a hotel. The CTC rearranged the schedules and saved the service. Again Transport 2000 had turned the tide.

John Pearce has other objectives for his group. Up until now most efforts have been concentrated on rail service since, as he puts it, "Maritime and national rail passenger service has been short changed and is in jeopardy. It therefore needed more immediate attention." However, now Transport 2000 is turning its efforts to the failing motor coach service on Prince Edward Island.

The value of John Pearce's work has been recognized by VIA Rail itself. He now sits on the Maritime section of the VIA Rail Advisory Council. The council is an invited group of rail users and observers who provide VIA with advice on how to run the railway.

Mr. Pearce credits his ability to work on behalf of his community to the shift work he does for AES. Shift work, which he enjoys, allows him to attend hearings and meetings which are invariably scheduled during the day.

Mr. Pearce joined the weather service in 1956, spent the first year at the University of Toronto earning his Masters in Meteorology, and then moved on to the forecast office in Montreal. In 1962 he moved to his present location in Halifax. The free time which remains after his transport work is spent with his two sons, aged six and one, and singing in his church choir. □



John Pearce (left) discusses the future of transportation services in the Maritimes with a member of Transport 2000.

Weather modification workshop attracts Canadian and U.S. scientists

As part of its involvement with the U.S. government in the High Plains Cooperative Program (HIPLEX), the Cloud Physics Research Division hosted a 3-day workshop from February 5 to 7th, 1980, at AES Downsview.

HIPLEX-1 is a randomized rainfall augmentation experiment on cumulus congestus clouds on the Montana High Plains. The experiment is not only, however, a test of cloud seeding technology. There are equally important parallel studies of the economic, environmental and socio political aspects of the program.

In 1979, an agreement was reached with representatives of the United States government for Canadian participation in the 1979 (and subsequent) HIPLEX programs.

The Canadian contribution to the program in 1979 centered on the provision of a Twin Otter Aircraft owned and operated by the National Aeronautical Establishment (NAE) of the National Research Council.

The aircraft was equipped with AES cloud physics instrumentation and NAE turbulence sensors and was flown out of Miles City, Montana during the month of July.

The research is aimed at determining whether rainfall enhancement is possible and economically sound in the High Plains region. The high quality data collected is now being compared with that obtained in Canada. AES will then be in a position to assess whether the results could be transferred to the Canadian prairies and other climatic areas.

The workshop agenda included several presentations by the organizations involved in the 1979 Miles City field project and the formulation of plans for the 1980 and 1981 field years. The lead agency in the experiment is the Water and Power Resources Service of the United States Department of the Interior.

Participants came from the University of Wyoming, Colorado State University, the University of North Dakota, the South Dakota School of Mines and Technology, the National Center for Atmospheric Research, the Montana Department of Natural Resources and Conservation, Colorado International Corporation, and Western Weather Consultants, Inc.

Observers to the workshop came from the Canadian Department of External

Affairs, the Alberta Research Council, and the Saskatchewan Research Council.

Presentations made by each of the participants emphasized their data from 1979 and their plans for the subsequent years. The last half of the workshop was devoted to discussions of both general and very specific topics concerned with the

direction of the project and the role of AES/NAE within HIPLEX.

A tour of the AES facilities in Downsview and Woodbridge rounded off the workshop. A dinner hosted by AES in Kleinburg, a historic village near Toronto, provided visitors with a glimpse of the Ontario countryside.



Instrumented Twin Otter aircraft in Miles City with (left to right) Walter Strapp (AES), Murray Morgan (NAE) and Dave Ker (AES) sitting at the back.

AES staff responds to Red Cross needs

On February 18, 1980 (voting day for all Canadians), 103 AES employees elected to donate blood to the Red Cross Society, North York Branch at a special clinic held in the foyer of AES Downsview.

Several businesses and industries in the immediate vicinity had also been previously canvassed by the Society, as well as the neighbouring University of Toronto Press and Institute for Aerospace Studies.

Overall, 124 persons attended and 115 were able to donate. Of the total number of donors, 103 were AES employees. The 115 units of blood collected will go to children suffering from leukemia and hemophilia.

In Canada, about 1,500 people have leukemia, a form of cancer of the blood. Platelets, one of the blood components, are given to leukemia sufferers as a form of treatment to prevent bleeding.

Hemophiliacs, about 2,000 in Canada, need 'cryoprecipitate', a blood component which provides the clotting power their blood lacks. Without it, internal hemorrhaging can become extremely serious and a threat to their lives.

The Red Cross Society holds two regular blood clinics at AES headquarters,

usually in the Spring and Fall. Blood donated is used in major surgery, to treat persons with specific bleeding problems, to combat infectious diseases, to help heal extensive burns, to mothers of newly born Rh positive babies (Rh positive infants born to Rh negative mothers can develop a blood disorder), as well as to persons suffering from severe cases of anemia.

The process is quick and simple. In a matter of 5 to 10 minutes, qualified nurses take the blood and, after refreshments and a rest period, the donor will be out of the clinic half an hour after his arrival.

Within 48 hours the body has already replaced the plasma donated, while the red cells will need another few weeks to replace themselves. (Donors can only give blood every 3 months).

May Hetherington, nurse at the AES Downsview Health Unit, was pleased with the February clinic. "The percentage of AES versus non AES contributors is extremely high", she said. "If people knew how safe and simple the whole process really is, I am sure we'd have them lining up in the foyer to fill those beds".

Women on the move

AES women respond to EOW survey

Soon after it was established by the AES Management Committee, the Equal Opportunities for Women Co-ordinating Committee conducted a survey to find out the career aspirations of AES female staff, and their views on some feminist issues.

A questionnaire was distributed to all women working in Downsview, with questions grouped under four major categories: personal information, career aspirations, training, and job related problems.

Results of the Questionnaire:

From the personal information category this profile emerged: out of a total of 87 women (or 51 per cent) who responded from seventeen occupational groups, over 50 per cent were between the ages of 25 and 45; 60 per cent were married and 50 per cent have children. Only six women had been at their present job and level for six years or more, the remainder having been there either less than two years or between two to five years.

Almost all respondents considered their salary an integral part of the family income. They regarded their work as careers, and not merely as a source of "extra" income.

Although 94 per cent were willing to take on new and increased responsibilities associated with advancement, most of the women had not established a career objective or defined any means of achieving it. Women therefore had little knowledge of career planning techniques. They expressed a strong interest in attending a Public Service Commission career planning seminar, on their own time if necessary.

While 70 per cent of the respondents had taken job related courses, the balance had not, either because they had not requested to do so or because they were denied the opportunity by their supervisors. Some women felt that training opportunities should be discussed with supervisors during the annual evaluation, so that funds could be set aside and plans made well in advance to enable them to take relevant courses.

But when asked which improvement courses they would take, over half of the women said they did not know, nor did they know where to go for information and advice. Nonetheless, the commitment

to job related or enrichment courses was clearly there: 83 per cent of the respondents were willing to take courses outside of working hours and 72 per cent would personally fund them, if necessary.

Job interviewing skills are learned and not inborn. But AES women are seldom (32 per cent) asked to be a member of a selection board and some 20 per cent reported never being a candidate before a board.

About a third of the participants felt that being female prevented them from advancing their career positions or from assuming new levels of responsibilities. Travel and transfer have not, however, created conflicts for 87 per cent of the respondents whose spouses also maintain full-time careers.

Mothers of pre-school or young children had some child care arrangement which was generally considered acceptable, but by no means ideal. Of these, 72 per cent were therefore very interested in a daycare program at AES Downsview, provided it were within the building.

Fathers and mothers shared child-related problems requiring time off from work, reported 63 per cent of the respondents. Their absences were recorded as annual leave (41 per cent), special leave (32 per cent), or sick leave (14 per cent). It was interesting to note, however, that a third of the mothers had never needed to take time off to tend to their children.

Twelve women indicated that, although they have no children at present, they fully intended to raise a family in the near future. Of these, 75 per cent were planning to return to work to resume their career.

Also 30 per cent of the respondents indicated they would be interested in working part-time. Part-time employment, although not encouraged by managers or widely known among employees, does in fact exist at AES, where several employees hold a regular part-time job. Some commented that such an arrangement might prove beneficial to all in these times of financial and person-year constraints.

What Now?

The EOW Committee and the Status of Women Committee have been guided by the survey results. Future activities will reflect this.

For example, a career planning seminar for women is scheduled for 1980. The committee is promoting the establishment of a career information centre where training information will be available and on display. This will be co-ordinated with Ontario Area Personnel who will give individualized career counselling to interested employees.

In its annual report to the AES Management Committee (AMC), EOW encouraged directors to communicate the feasibility of part-time employment to managers and employees.

The Qualifications Enhancement Programme (QEP) is now ongoing and is designed to accommodate both employees and managers interested in short-term projects. Employees are able to broaden and enrich their experience and develop new skills. Managers, with short-term projects which cannot be completed immediately because of other commitments, benefit by being able to take advantage of this mechanism to meet their requirements.

Finally, and at the request of the assistant deputy minister, the EOW Committee has surveyed all AES employees regarding their need for an in-house daycare centre. Should a need be indicated, the Committee will investigate the feasibility of such a facility.

These are the main points of the questionnaire. Respondents also indicated several issues which they felt significant and which were not surveyed. These include shift work, lack of opportunities for training and advancement for women above 45 years of age, and sexual harassment. These problems will be dealt with by the Committee in the near future.

For more information on the results of the questionnaire or any other relevant EOW issue, contact Joan Masterton, EOW Convener at (416) 667-4702 or write to her at Applications and Impact Division (CCAI), Canadian Climate Centre, Downsview.

Correction

The cover picture on the Nov./Dec. issue shows a Church steeple rather than a gable off a house as explained by the cover caption.

Book Review

Remote Sounding of the Atmosphere from Space, H.J. Bolle, ed., Pergamon Press, Oxford, Toronto, 1979, 256 pp, illustrated \$50

The largest number of papers in this volume of about 40 are concerned with inversion methods and accuracy analysis applied to atmospheric remote sounding. Several papers in this section dealt with optimizing the choice of channels on future sounding instruments and with the potential improvements in vertical resolution and accuracy that can be achieved. The papers were presented at the mid-1978 Committee on Space Research (COSPAR) Symposium in Innsbruck, Austria.

The impact of satellite soundings on routine numerical weather prediction was a major topic of the symposium. Unfortunately, the most interesting one of the five papers on this subject, describing impact tests at the US National Meteorological Centre (NMC), consisted only of an abstract*, as did several other papers with interesting titles.

A number of papers in the volume may be particularly interesting to forecasters. These include a description of algorithms for global processing of TIROS-N sounding data by L.M. McMillin, and a paper by W.L. Smith et al describing the use of interactive processing techniques to obtain mesoscale information from the TIROS-N sounders.

Other papers describe imaginative techniques which are just beginning to appear feasible, such as using satellite-borne lidar to obtain global wind profiles. (A lidar is a device similar in operation to a radar but which emits pulsed laser light instead of microwaves).

As with other specialized conference proceedings, many of the papers require background knowledge. "Quantitative Meteorological Data from Satellites" (WMO Technical Note No. 166) will provide an overview of sounding techniques currently in operational use.

Reviewed by J.D. Steenbergen

Mr. Steenbergen is head Meteorological Satellite Section Aerospace Meteorology Division, Atmospheric Research Directorate, AES - Downsview

*A recent and more complete description of the NMC tests can be found in "Use of Data from Meteorological Satellites - Proceedings of a Technical Conference held in Lannion, France, 17-21 September, 1979" (European Space Agency SP-143).

AES loses 106 years of expertise



Jack Labelle (left), Regional Director, Central Region, presenting a long-service certificate to Art Lamont.

Central Region's Scientific Services lost over 106 years of experience and expertise recently when Einar Einarsson,

Art Lamont and Paul Lemieux retired from AES.

Friends and co-workers gathered to honor the three employees and their wives at a luncheon at the Charterhouse Hotel on January 18, 1980.

Hugh Fraser, Regional Chief, Scientific Services, after reading several telegrams and messages of good wishes from across the country, briefly recounted the careers of the three meteorologists. Then, on behalf of their many friends and colleagues, he presented them with gifts.

Regional director Jack Labelle presented the three with framed certificates, signed by the Prime Minister, thanking them for their long and dedicated service. In addition, he presented medallions to Einar Einarsson and Art Lamont, honoring each for his more than 35 years of public service.

Advanced met course grads

December 13, 1979 saw the end of advanced meteorology course 79-3 at the Department of Transport Training Institute in Cornwall, Ontario. All nine students in the course completed it successfully.

The graduates are: Nicole Wozny (Ottawa), André Charpentier (Maniwaki), Roger Déry (Fort-Chimo), Richard Dupuis (Sept-Îles), Bernard Girard and Jean Richard (Mirabel), Jacques Pelletier (Dorval), Marcel Saumure (Quebec Forecasting Centre) and Benoit Simard (Baie-Comeau).

Mr. Doug Tesch, head of the Meteorology Centre, gave a short speech and then handed the students their certificates.

Graduates from the Advanced Meteorology Course (AMC) 79-2, completed on October 30th, 1979, came from all across Canada. They were: (front row and left to right) M. Greenwood, A. Webster, B. Robilliard, M. Hawkes (instructor), D. Crosbie, N. Rollinson and S. Hopwood. (Back row and left to right) G. Philpott, G. Lines, J. Hamilton, P. McLaughlin (instructor) and D. Schmidt.



Staff changes

Promotions/ Appointments

A. Abraham (GL-COI-11) Site Dev. Officer, Reg. H.Q., Winnipeg, Man.
T.R. Allsopp (MT-7) EARP Co-ordinator, Downsview, Ont.
K. Asmus (A/EG-6) Special Programs, Dewline, Hall Beach, N.W.T.
R. Asselin (MT-9) Director, D.Met.Oc., Ottawa, Ont.

R. Berry (MT-6) Head, Energy Applications Unit, Downsview, Ont.
J.P. Blanchet (MT-5) Research MT, Numerical Modelling Div., Downsview, Ont.
A. Borm (FI-2) Financial Accountant, Reg. H.Q., Winnipeg, Man.
M. Botten (EG-4) OIC, WS4, Lansdowne House, Ont.
G. Bouchard (EG-5) Chief of Services, Maniwaki, Que.
T. Dame (FI-1) Disbursement Accountant, Reg. H.Q., Winnipeg, Man.

DEPARTMENTS

L. Funk (MT-5) OP Satellite, Pacific Weather Central, Vancouver, B.C.
L. Funnell (EG-6) Pres. Tech., WO4, Winnipeg, Man.
V. Gossen (EG-5) Obs/Pres. Tech., WO4, Churchill, Man.
W.H. Gowdy (FI-6) Chief Finance Division, Administration Branch, Downsview, Ont.
T. Gurdebeke (EG-4) OIC Gillam, WS4, Gillam, Man.
M. Hacksley (MT-6) SSU, Scientific Services, Winnipeg, Man.
L.S. Hawley (EG-2) Sfc. Tech., WS2, Hall Beach, N.W.T.
M.G. Jamieson (EG-2) Sfc. Tech., WS4, Armstrong, Ont.
E.C. Jarvis (SE-REM 2) Chief, Forecast Research Division, Downsview, Ont.
C. Labonne (ST-SCY 3) Chief, General Weather Services, St-Laurent, Que.
M. Lafrance (EG-8) Superintendent, U/A Station, St-Laurent, Que.
G.J. Lauze (EG-2) Sfc. Tech., WO4, Resolute, N.W.T.
J.L. LeBlanc (EG-7) Instructor, Training Branch, Cornwall, Ont.
L.R. Legal (MT-5) OP Satellite, Pacific Weather Central, Vancouver, B.C.
P.Y.T. Louie (MT-7) Supt. Hydromet Projects Section, Downsview, Ont.
D.E. Marciski (EG-2) Sfc. Tech., WS4, Lansdowne House, Ont.
J.D. McTaggart-Cowan (REM-2) Scientific Programs Co-ordinator, Ottawa, Ont.
A.M. Melenchenko (EG-2) Sfc. Tech., WS4, Island Lake, Man.
R. Moffet (MT-5) Sr. Meteorologist, WO1, St-Laurent, Que.
A. Niitsoo (EG-6) Canadian Climate Centre, Downsview, Ont.
G. Ouimet (EG-5) Chief of Services, Nitchequon, Que.
T.L. O'Connor (CR-3) Administration Branch, Downsview, Ont.
D. Parsons (CS-3) Computer Analyst, Instruments Branch, Downsview, Ont.
D.M. Pollock (MT-8) Senior Analyst, Policy Division, Ottawa, Ont.
J. Renaud (EG-6) Instructor, Training Branch, Cornwall, Ont.
I.D. Rutherford (SE-REM 2) CRPN, Montreal, Que.
J. Sawchuk (EG-2) Sfc. Tech., WS4, Wynyard, Sask.
J. Sawchuk (EG-6) Instructor, Reg. H.Q., Winnipeg, Man.
P. Scholefield (MT-7) Head, Climate Program Office, Downsview, Ont.
D. Sortland (MT-5) Officer ODIT MT, DND, Namao, Alta.
J.D. Steenbergen (MT-7) Head, Met. Satellite Systems Div., Downsview, Ont.
M.K. Thomas (SX-2) Director General, Canadian Climate Centre, Downsview, Ont.
D.C. Watt (EG-2) Sfc. Tech., WS4, Cree Lake, Sask.

D.J. Webster (MT-8) Chief, Program Development & Integration, Downsview, Ont.

Transfers

W.S. Appleby (MT-6) Management Program, Met. Services, Research Branch, Downsview, Ont.
J. Atkinson (ST-SCY 2) Canadian Climate Centre, Downsview, Ont.
D.W. Coleman (MT-2) Maritimes Weather Office, Bedford, N.S.
L. Diehl (MT-3) Meteorologist, Pacific W/C, Vancouver, B.C.
B.L. Flynn (EG-7) Scientific Services, Bedford, N.S.
W. Hart MOP Program, Downsview, Ont.
K. Haslam (EG-5) Pres. and Ops. Technician, WO4, Grande Prairie, Alta.
E.R. Lord (MT-2) Development Meteorologist, PWC, Winnipeg, Man.
C.F. MacNeil (MT-7) Chief Meteorologist, Maritimes Weather Office, Bedford, N.S.
R.W. McCarter (EG-6) Presentation Technician, Weather Office, Vancouver, B.C.
R. Nordmann (EG-6) WO4, Calgary, Alta.
P. Perreault (EG-2) Observational Tech., Ste-Agathe, Que.
O. Poulton (CR-4) Canadian Climate Centre, Downsview, Ont.
T. Sainsbury (EG-4) Aerological Technician, WS2, U/A Station, Whitehorse, Y.T.
G. Toth (MT-3) Pacific Weather Central, Vancouver, B.C.
G. Weavers (EG-4) Ontario Region Toronto, Ont.
N. Yacowar (MT-7) Chief Meteorologist, CMC, Dorval, Que.

Secondments/ Leave Of Absence

B.M. Burns, Data Acquisition, Edmonton, Alta. to Western RDG's Office
N. Guerin, WO4, Dorval, Que. to Western Reg. H.Q.
R.J. Mills, CAP Course, Ottawa, Ont.
D. Siemieniuk, Prairie Weather Centre, Winnipeg, Man. to DND

Temporary or Acting Positions

P. Bier (ST-SCY 1) Administration Branch, Downsview, Ont.
J. Donegani, President P.I. Ottawa, Ont.
C. Gautier (ST-SCY 2) ARQL, ARQD, ARD, Downsview, Ont.
P. Kociuba (MT-6) Scientific Services, Edmonton, Alta.
J. Kotylak (MT-7) Chief, Data Acquisition, Edmonton, Alta.

C.L. Payette (CS-4) Head, Users Support Section, Dorval, Que.

Retirements

W.L. Gutzman CMC, Dorval, Que. March 1980
P. Lemieux (MT-3) Scientific Services, Winnipeg, Man. December 1979

Deceased

Y.J. Franco, Ice Branch, Downsview, Ont.
V. Nespliak, Data Acquisition, Edmonton, Alta.

Departures From AES

H. Binstock, Central Records Office, Downsview, Ont.
H. Blain, WS2, Norman Wells, N.W.T.
K. Bouchard, U/A, Maniwaki, Que.
M. Butler, ARQL, ARQD, ARD, Downsview, Ont.
F. Canning, Arctic Weather Centre, Edmonton, Alta.
B. Clarke, WS4, Ennadai Lake, N.W.T.
R. Guedo WS4, Wynyard, Sask.
N. Hill, WS4, Winnipeg, Man.
K. Kanthak, Central Records Office, Downsview, Ont.
K. Lloyd-Walters, WS2, Resolute, N.W.T.
W.V. Martiniuk, Regional Office, Finance, Edmonton, Alta.
P. Pearson, Program Development and Integration, Downsview, Ont.
J. Rebelo, CPQ, Ville St-Laurent, Que.
D. Steele, WS2, Mould Bay, N.W.T.
M. Stokes, Central Records Office, Downsview, Ont.
M. Van Rheenen, Vancouver, B.C.
S. Wong, Canadian Climate Centre, Downsview, Ont.

Promotions, appointments, transfers, temporary or acting positions sections provide information on new postings including location. Only temporary or acting positions which involve a change of location are listed. Retirements and departures indicate the last posting.

Abbreviations used are:

MT -	meteorologist
EG -	engineering & scientific support
SERES -	research scientist
PC -	physical scientist
ES -	economist, sociologist, or statistician
SX -	senior executive
DA-PRO -	data processing
EL -	electronics technologist
ENG -	engineer
GL-VHE	general trades
ST -	secretary
FI -	financial officer