

ZEPHYR

APRIL 1974 AVRIL



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RÔLE PRIMORDIAL DU CANADA AU SEIN D'UNE EXPÉRIENCE MÉTÉOROLOGIQUE INTERNATIONALE

Le navire météorologique canadien *Quadra*, spécialement équipé d'ordinateurs, de radar et d'un certain nombre d'appareils météorologiques parmi les plus complexes du monde, quittera Victoria (C.-B.) le 17 mai pour participer à la plus importante étude météorologique internationale jamais entreprise.

Le *Quadra*, dont l'équipage sera augmenté de plus de 30 savants et techniciens, jouera un rôle primordial dans l'expérience tropicale atlantique GARP, que l'on désigne généralement par le sigle GATE. GARP signifie "Programme mondial de recherche atmosphérique": il s'agit d'une entreprise conjointe de l'Organisation météorologique mondiale et du Conseil international des associations scientifiques.

Le projet GATE est la première expérience d'observation d'envergure entreprise dans le cadre du Programme mondial de recherche atmosphérique, dont l'objectif principal est d'accroître la portée et la précision des prévisions météorologiques. Grâce à l'utilisation d'ordinateurs et de modèles mathématiques, les savants espèrent que les données recueillies par l'expérience GATE et d'autres études menées à l'échelle mondiale leur permettront de prédire le temps jusqu'à 15 jours à l'avance et peut-être de prévoir les tendances météorologiques plusieurs années à l'avance.

Le Canada est l'une des 11 nations participant à l'expérience GATE, qui doit démarrer à la mi-juin dans l'océan Atlantique équatorial et se poursuivre jusqu'à la fin de septembre. Les autres pays participants sont le Brésil, la Grande-Bretagne, l'Allemagne de l'Est, la France, le Mexique, les Pays-Bas, le Portugal, les États-Unis, l'Union soviétique et l'Allemagne de l'Ouest.

Une flotte de 36 navires de recherche doit accumuler une masse vertigineuse de données dans des stations réparties dans l'Atlantique le long de la ceinture équatoriale qui, sur 2.400 milles, s'étend des Barbades à l'Afrique occidentale. D'autres observations seront faites par des stations terrestres, des aéronefs et un satellite géostationnaire. Le *Quadra* sera l'un des sept navires principaux postés à 600 milles au sud-ouest de Dakar (Sénégal), dans la zone centrale qui servira de base à l'ensemble des opérations.

L'ensemble d'instruments spéciaux du *Quadra* comprend un puissant radar pour détecter la pluie, et des palpeurs météorologiques spécialisés qui seront envoyés en altitude par un ballon captif afin de mesurer le vent, la température et l'humidité de l'atmosphère jusqu'à une altitude de 3.000 pieds au-dessus de l'Atlantique tropical.

On prévoit que les données recueillies par le *Quadra* pendant ces trois mois d'exercice couvriront 2.400.000 pieds de bande magnétique. Ces renseignements seront confirmés et enregistrés sur bandes à l'Administration centrale du S.E.A. à Toronto et seront ensuite envoyés aux Centres mondiaux de données en Russie et aux États-Unis pour utilisation dans des programmes scientifiques ultérieurs.

Le coordonnateur des programmes scientifiques canadiens du GATE, M. Rao J. Polavarapu, de la Direction de la recherche sur la couche limite, du S.E.A., qualifie l'expérience "d'entreprise d'une portée et d'une complexité sans précédent qui mettra à l'épreuve l'aptitude de nombreuses nations à faire front commun pour s'attaquer à un problème scientifique d'une importance planétaire." On note aussi la participation au programme GATE d'autres personnes du S.E.A., soit M. B.S.V. Cudbird, administrateur des

données canadiennes pour le GATE, M. G.A. McBean, coordonnateur du Programme de recherche sur la couche limite, et de près de vingt météorologues et techniciens qui travailleront à bord du *Quadra* au cours des différentes étapes de l'expérience.

J.M. LEAVER RETIRES

by D.E. McClellan

The day after the official opening of the new quarters of the Canadian Meteorological Centre, more than 125 persons gathered for dinner at the Hotel Seville in Dorval to mark the retirement of Jim Leaver.

Jim's position as Director of CMC, from its founding as the Central Analysis Office in 1952, until his retirement in December 1973, had followed a series of postings throughout most of Canada.

By shrewd timing, the farewell party coincided with a meeting of the Regional Directors and enabled representation from all regions of Canada. The former Director of the Met Service Dr. P.D. McTaggart-Cowan, Dr. K. Johannsen from Washington and the new CMC Director Dr. André Robert were honoured guests; in addition many old friends from Headquarters were present.

Some highlights of Jim's early days were recounted by Reg Noble, ADMA and by Frank Benum Director General Field Services. One story related Jim's meticulous accounting of a \$25.00 advance on a Montreal Posting, as provided by the legendary parsimonious John Patterson. The recital of a passionate request for relocation as recorded in a most formal form detailing inadequate accommodation for Jim and his bride brought forth roars of laughter.

Besides Jim and Agnes Leaver, the head table included all of the heads of the various sections of the CMC and their wives. It was notable that all of these section heads had worked closely with Jim for more than twenty years. Under the guidance of that inimitable Master of Ceremonies Bill Creswick, Ralph Anderson, Don McClellan, Andy Marien, Joe Simla and Mac McCluskey, all reminisced briefly about their experiences with the "hard-nosed" Jim. These farewells indicated the personal loss being experienced at Jim's departure and the intense respect Jim had generated through his fairness and understanding over the years. Contributions from the CMC staff and his many friends outside Montreal were used to purchase a golf cart and luggage. Hopefully he will make good use of both.

Finally Audrey Arnup, a longtime administrative aide, made a presentation to Jim of some well worn aids which had made for comfortable living as an executive at CMC. These items included his teapot, slide rule, worn seat cushion and his office briefcase. Jim remembered and everyone else laughed as each elaborately wrapped piece was displayed.

Speaking for himself and Agnes, Jim's thanks were given in characteristic fashion, complete, brief and sincere.



Highlights of Earlier Days – By J.R.H. Noble – Bill Creswick – Seated.



Head table – Left – Right. F.W. Benum, Helen McClellan, Don McClellan, Agnes Leaver, Jim Leaver.



Comfortable Aids for a CMC Executive.



Agnes and Jim Leaver.

Photos Courtesy
Mr. Robert Fournier.

Lachine, Quebec,
17 May 1974.

To the CMC staff, my friends and ex-colleagues:

Don McClellan recently brought me the album of photographs taken at my retirement party. They are excellent, and I am most pleased to have them as a reminder of a joyous occasion and a wonderful get-together. Thank you for your thoughtfulness.

My compliments to the person who made the final selection from the many pictures which were taken. And my special compliments to the photographer who managed to work miracles in the pictures he took of me.

*Yours sincerely,
Jim Leaver.*

HEAVY RAINS AT KENORA, ONTARIO – 1973

by C.J. Brosch

Abstract

Heavy showers occurred at Kenora, Ontario on August 31 and September 1, 1973. Rainfall amounts recorded for these two climatological days, at first glance, do not appear to be outstanding. However, when the two periods of precipitation, which occurred within a span of 27 hours, are considered together it becomes evident that the Kenora area received near record amounts of rain.

Introduction

Late in the evening of 31 August 1973 and again on the first day of September, Kenora, Ontario experienced heavy rainshowers and thundershowers which resulted in localized flooding and surface soil erosion. Figure 1 shows the flooding of 4th Street North, a low lying area in Kenora, Ontario. Figure 2 shows the erosion of Mellick Avenue in Kenora, Ontario. The street had been prepared for paving just prior to the heavy rains. The photos were taken Sunday morning, September 2, 1973.

Climatological Data

In terms of records, the last day of August 1973 was somewhat unusual. Precipitation amounts for the climatological day at Kenora was reported as 1.38 inches which approached the record rainfall of 1.42 inches of 31 August 1966. Records show that 1.38 inches was the second highest twenty-four hour precipitation amount for any August 31. The mean precipitation amount for August 31, calculated over a 35 year period is .18 inches.



While the above figures relate to the climatological day, they do not show the totality of the storm. Thunderstorms began Friday evening (0340Z), continued on after midnight and ended about 0700GMT. During this period 2.65 inches of rain fell at Kenora Airport. The greatest precipitation amount in any one hour period during the storm was .76 inches. This is much less than the previous record of 1.43 inches for any one hour period. Figure 3 shows precipitation amounts within a 50 mile radius of Kenora as a result of the thundershower activity during the period 010000GMT-021200GMT. The heaviest precipitation was concentrated in the Kenora-Rabbit Lake area. Although the reports are limited somewhat in number, conversations with people in the area indicated that the heaviest precipitation, in fact, occurred in the vicinity of Kenora.

On the evening of September 1, an almost identical situation repeated itself. Showers began in the evening (0020GMT) and continued off and on for approximately seven hours, during which time 2.44 inches of rain fell at Kenora. Figure 4 shows precipitation amounts within a 50 mile radius of Kenora as a result of the shower and thunder-shower activity during the period 020000GMT - 021200GMT. Isohyets drawn at intervals of .25 inches on this map show that the heaviest precipitation was again concentrated in the Kenora area with another maximum in the vicinity of Vermilion Bay. What is striking is 2.44 inches of rain fell in a three hour period near midnight. The tipping bucket rain gauge chart shows the heaviest precipitation in any 30 minute period during this series of thunder-showers was .80 inches and in any one hour period was 1.58 inches. This is considerably in excess of the previous one hour record of .93 inches for any September day and also exceeds the all time mark of 1.45 inches for a one hour period, for any day, established in July 1970.

On the climatological day of 1 September 1973, Kenora recorded a rainfall of 3.21 inches. This was considerably in excess of the greatest 24 hour precipitation of 1.09 inches (1941), for any September 1st. It is also in excess of the greatest 24 hour precipitation amount for any September day since 1908 the previous record being 3.07 inches set in 1920.

In terms of greatest 24 hour rainfall amounts for any day, these figures 1.38 and 3.21 at first do not appear to be remarkable when compared to the record 5.05 inches that fell in July 1970. One of the difficulties in comparing this situation with past records is that on both these days the showers occurred over midnight, which is the end and beginning of the climatological day.

If the amount of precipitation that fell early Sunday morning (the tailend of the storm) is added to the amounts 1.38 and 3.21, the total rainfall becomes 5.09 inches. The time period over which this occurred was approximately 27 hours. Although the time periods with which these two figures, 5.05 and 5.09, are associated differ by about three hours, it is still significant to note that the rains that fell in the Kenora area during this 27 hour period must have approached the all-time record. The second greatest 24 hour rainfall amount is recorded as 4.30 inches and that occurred in 1916.

Another interesting note to this, is that the 5.09 inches of rain which fell in just 27 hours far exceeds the mean total rainfall of 3.90 inches for July, the wettest month for Kenora. September 1973, with 7.14 inches of rain, turned out to be the second wettest September month on record for Kenora, the record being 11.17 inches set in 1941.

Synoptic Situation

The surface weather map of 010000GMT, figure 5, shows a trough of low pressure extending from western North Dakota to Brandon, Hodgson and thence northeast. A Maritime Polar wave was located in a low about sixty miles southwest of Minot, North Dakota. A warm front extended from the wave to the vicinity of Jamestown and thence southeast. A Maritime Arctic front is in a line from near Hodgson to Estevan and then south southwest. By 010600GMT the trough line showed an eastward shift of about 50 to 75 miles. The Polar wave was located approximately sixty miles southeast of Minot with the warm front extending southeast from the wave.

Upper air soundings for 010000GMT show that the air masses involved were MP and MT which were unstable to nearly 40,000 feet. The upper level charts of 010000GMT indicate a moist south to southwesterly flow of 25 to 35 knots over the Kenora area. As a result there was marked overrunning of moist unstable MT air in the Kenora area north of the warm front.

The surface weather map 020000GMT, figure 6, shows a trough of low pressure and the Maritime Arctic front extending from near Bismarck to fifty miles northwest of Lansdowne House. The Polar wave is located in a weak low near Aberdeen, South Dakota with a trough northeast to Sioux Lookout. By 020600GMT, the trough and Maritime front had moved east to a line Bismarck-Kenora-Lansdowne House.

Upper air soundings taken at Bismarck, International Falls and Minneapolis at 020000GMT, indicated the air mass was unstable to about 40,000 feet. The 020000GMT 700 mb chart, figure 7, shows a southwesterly flow over the area and the trough of warm air extending from New Mexico to northwestern Ontario.

A study of weather charts show that a high pressure area near Cape Hatteras with a ridge extending to the Great Lakes remained near stationary during the period. This slowed the eastward motion of the broad trough of low pressure located over the Dakotas and Manitoba. As a result, the area in question remained under the influence of a moist unstable southerly flow of MT air overrunning the Polar Front located south of Kenora. On Saturday a ridge of high pressure over the prairies began to build and drift slowly eastward, while aloft the cold trough over Idaho began to dig. This caused the surface trough over the Dakotas to sharpen and the Polar wave to occlude.

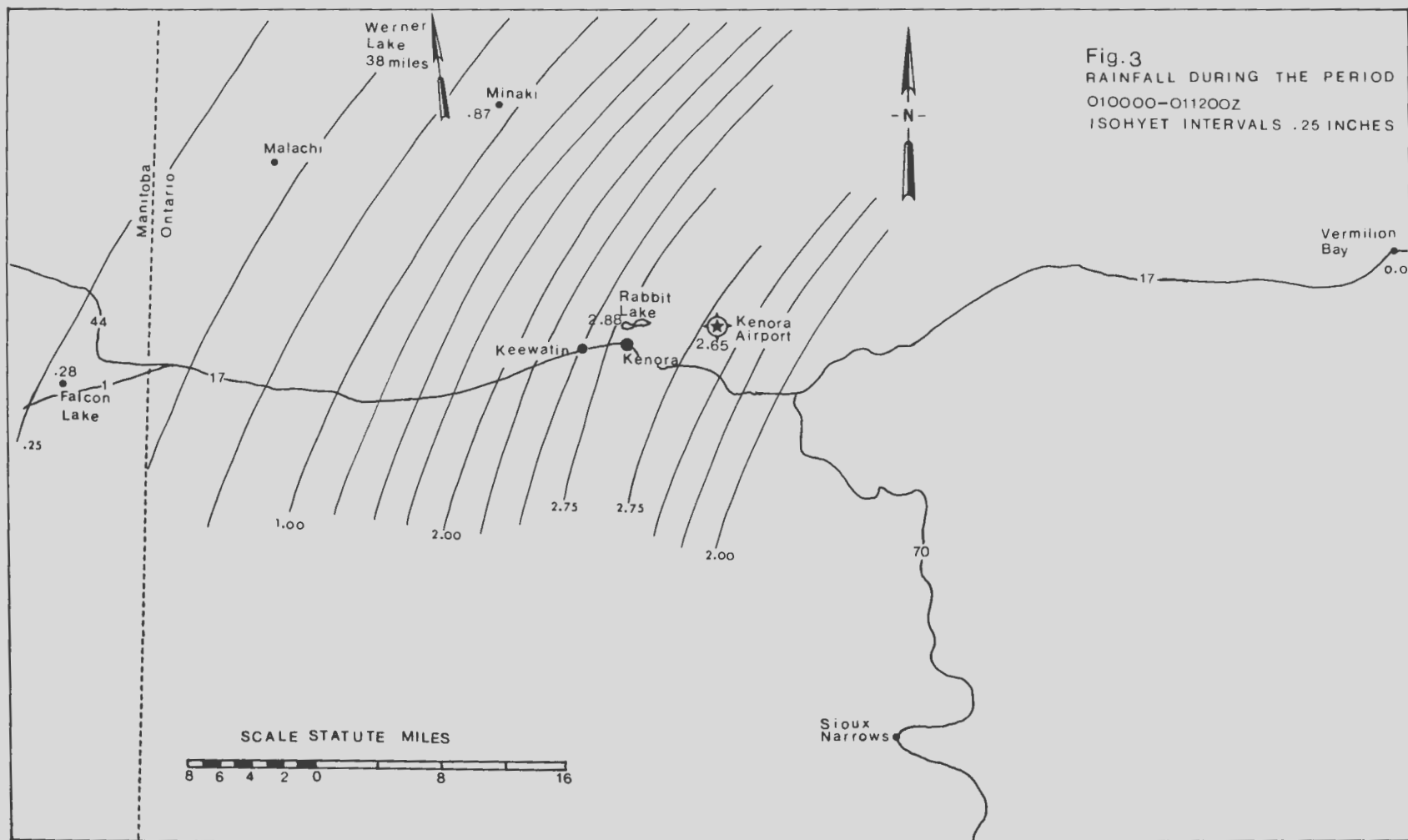
Conclusions

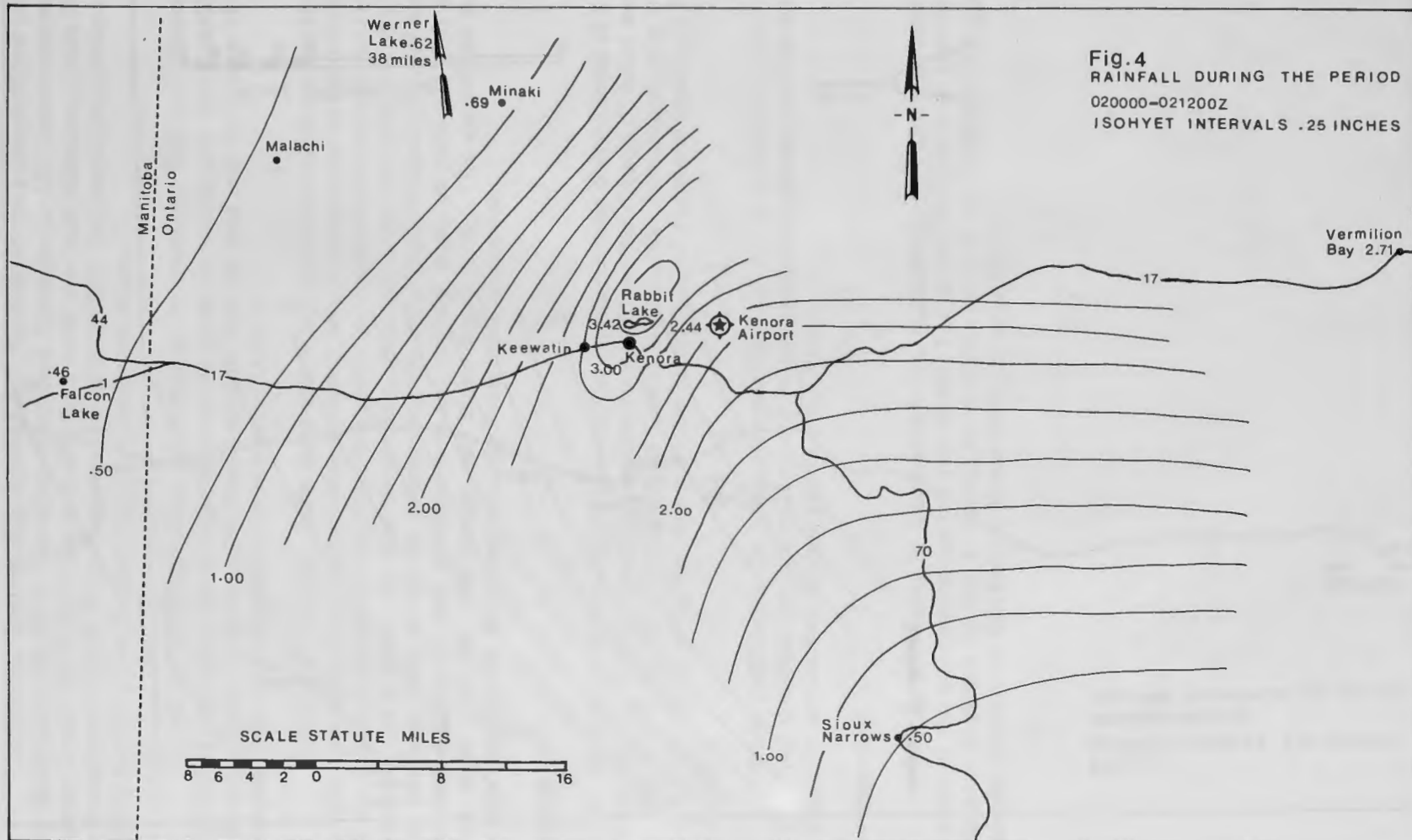
It appears that the heavy showers and thundershowers that occurred at Kenora late Friday evening was the result of overrunning (on the Polar Front) of moist unstable MT air. The 2.44 inches of rain that fell at Kenora late Saturday evening and early Sunday morning was associated with the passage of the Maritime Cold Front and associated trough of low pressure.

When considering the total precipitation that fell in a period of just over 24 hours, one must conclude the Kenora area did indeed experience unusual rainfall amounts which probably approached all-time record proportions.

Acknowledgement

The author wishes to acknowledge the work of Mr. J. Carpick in helping to gather some of the information used in this article. The author also wishes to acknowledge the assistance provided by Mr. J. Junson in acquiring some of the climatological records. Photographs courtesy of the Kenora Miner News, Kenora, Ontario.





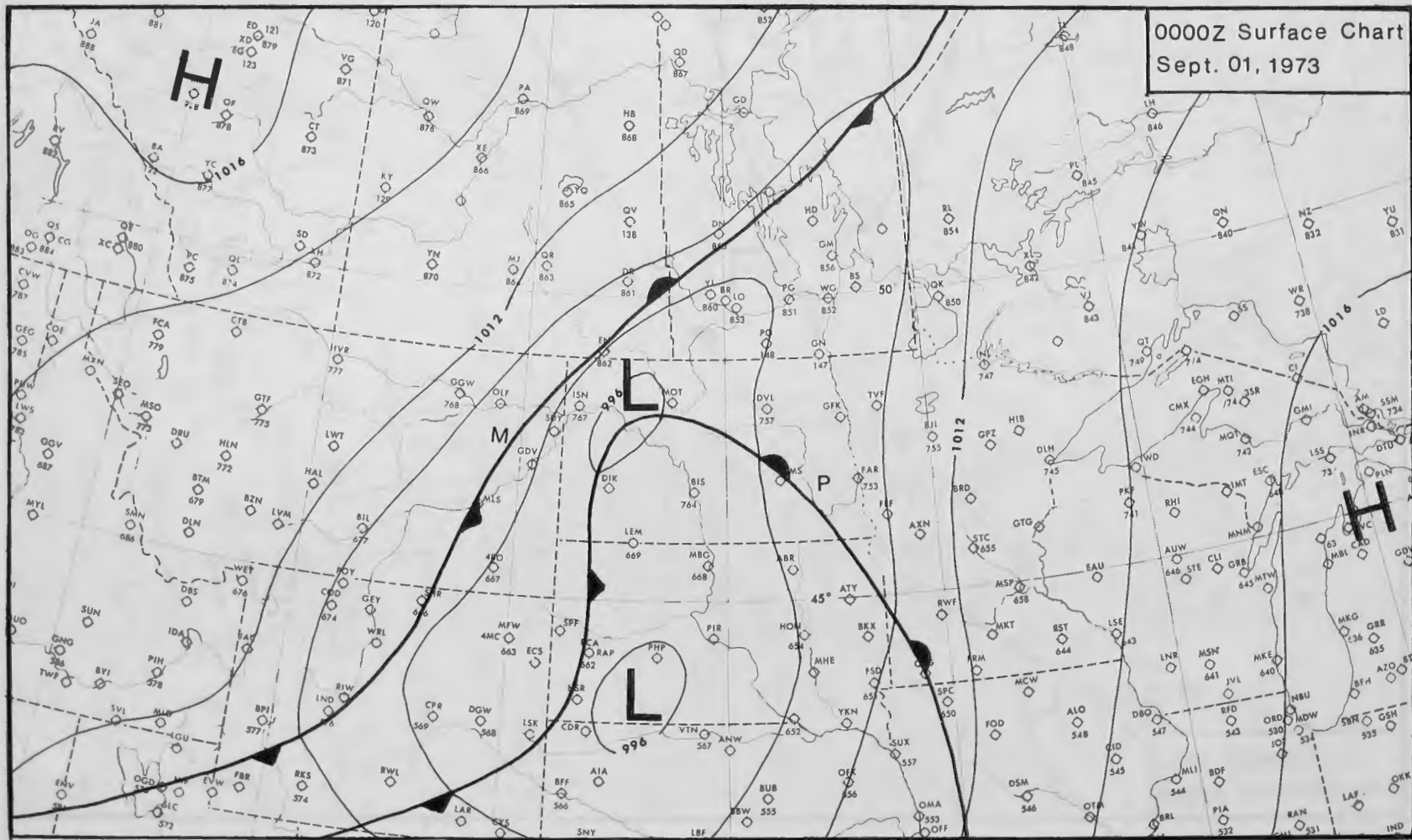


Fig. 5

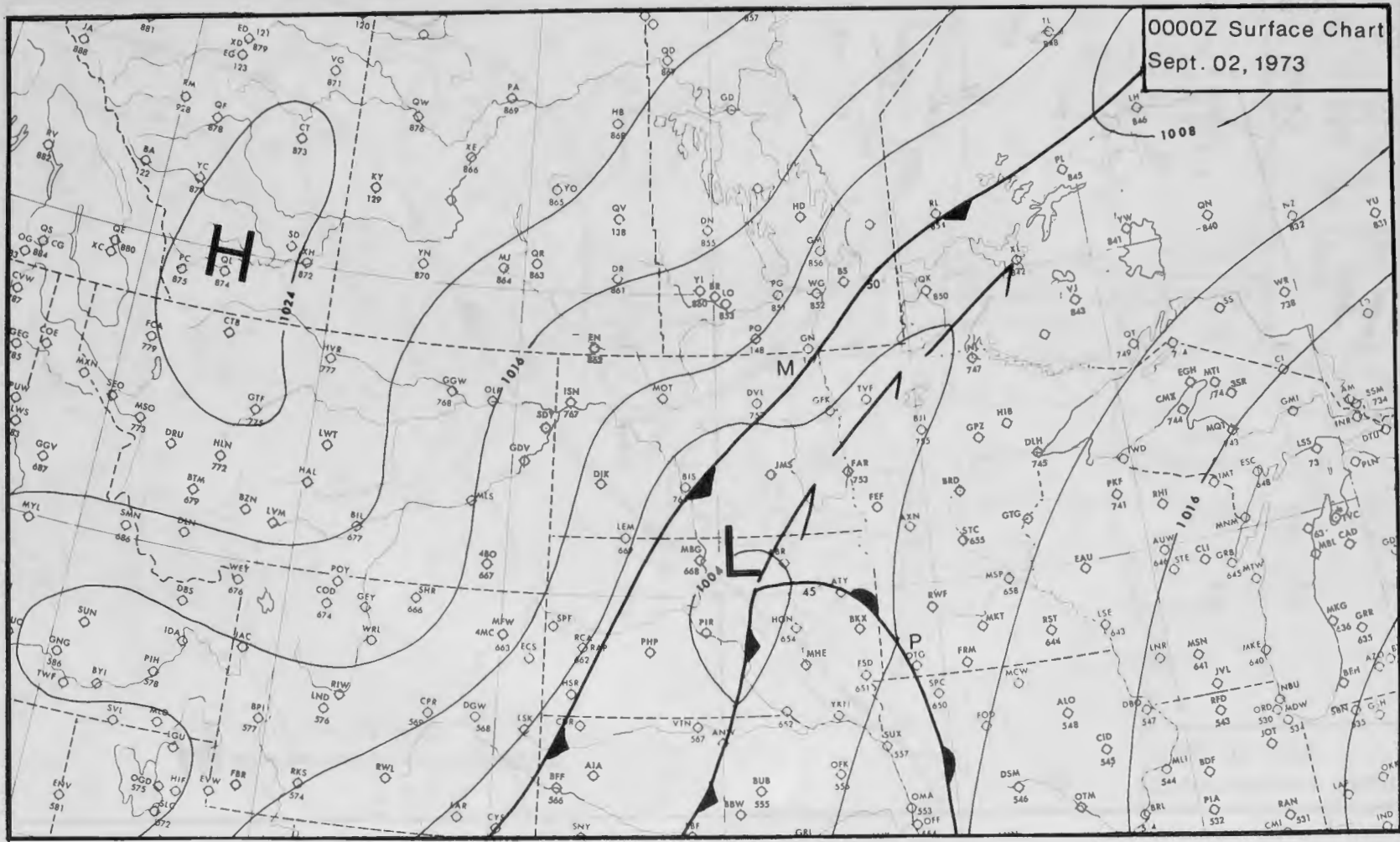


Fig. 6

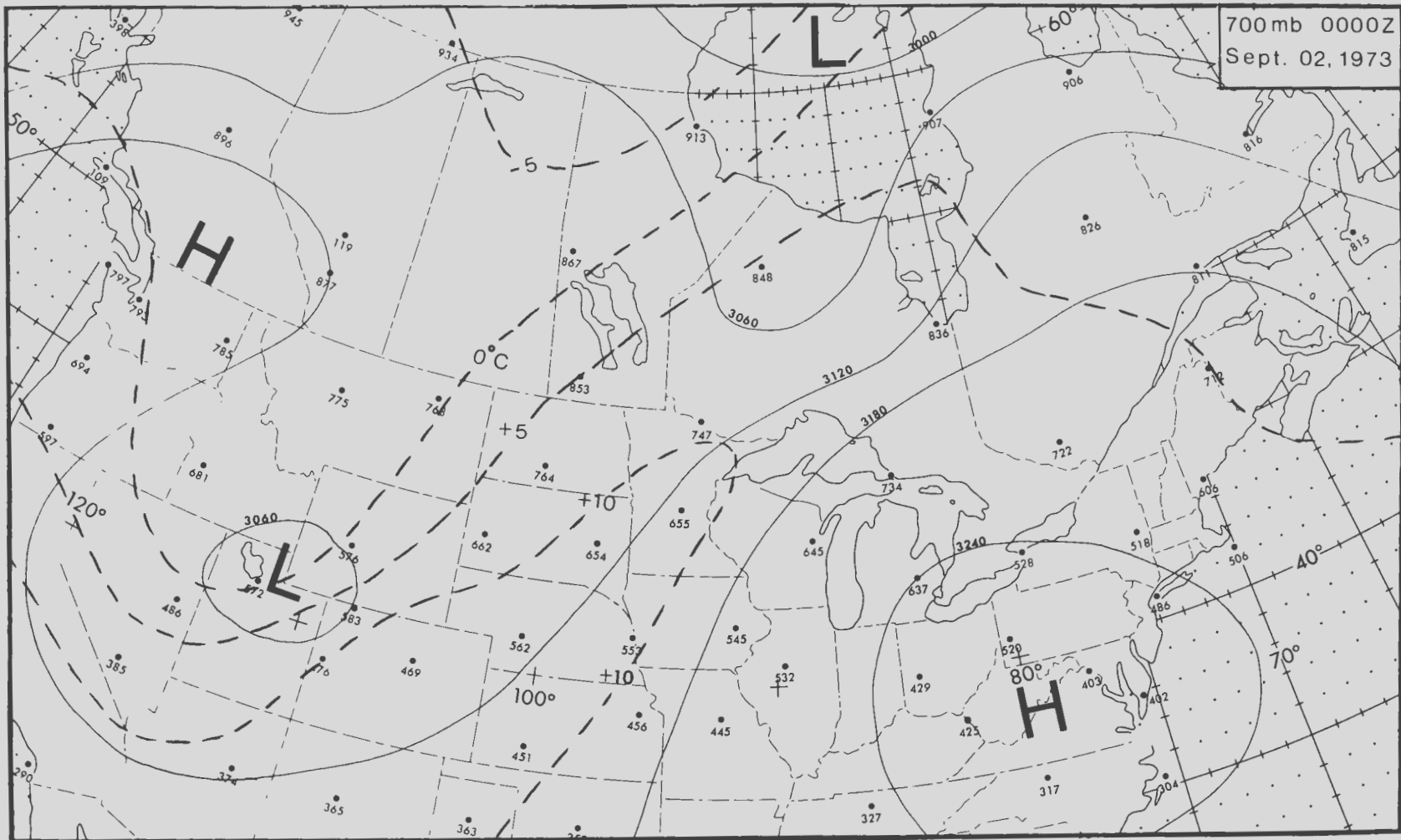


Fig.7

**VOLUNTEER WEATHER OBSERVERS IN BRITISH COLUMBIA
HONOURED FOR SERVICES TO METEOROLOGY**

Eight volunteer Weather Observers in British Columbia have been chosen to receive awards for their contribution to meteorology. These awards for distinguished service were announced in Vancouver by Mr. John L. Knox, Regional Director, Pacific Region, Atmospheric Environment Service. In addition to the special recognition of the work of these eight Weather Observers, Mr. Knox expressed the appreciation of the Atmospheric Environment Service to all Weather Observers for the contribution they have made in providing very valuable climatological data for British Columbia.

Awards are made annually to selected Weather Observers in all regions of Canada. This year's B.C. award winners are:

Mr. R.O. Deane, Ladner
Miss D. Mercer, Hatzic Prairie
Mr. J.A. Wood, West Vancouver
Mr. W.J. Wright, Kimberley
Mr. R.F. Purvis, Lillooet
Mr. J.A. English, Chilliwack
Mr. J.H. Keenan, Ochiltree
Mr. L. Kier, Rossland

Each will receive an inscribed desk barometer with temperature and humidity indicators, as a token of appreciation, for their outstanding cooperative service over the years.

PREMIER COURS FRANÇAIS AU CFOA

Une étape importante a été franchie au Centre de Formation d'Observateurs aérologiques. Pour la première fois un cours d'aérologie se donnait entièrement en français. Ce cours a permis à quatre stagiaires francophones de continuer leur entraînement dans leur langue maternelle.

La cérémonie du 19 avril marquait la fin du cours 74-1F qui avait débuté le 4 janvier 1974. Après un bref exposé sur les prochains développements du radiosondage atmosphérique, M. Gerger a remis les diplômes.

La photo a été prise lors de la graduation au Bureau Central de Toronto.



Dans l'ordre habituel, Messieurs Penner, (directeur de la Formation), Daniel Beaudoin, Jean-Paul Gasse, Pierre Lessard, Richard Dupuis, H. Gerger, (chef de la Planification et de la Réalisation des systèmes), et A. Missio, (surintendant du Centre de Formation d'Observateurs aérologiques).

Exceptions faites des difficultés qu'occasionna le démarrage d'un nouveau cours l'expérience fut des plus enrichissante pour tous. De plus, les résultats nous permettent d'espérer une implantation prochaine des politiques linguistiques fédérales à travers le réseau aérologique canadien.

THE BIG BLOW

by M.A. Cardwell, R.J. Lines, R.A. Klein

A "typical" day in the life of an Upper Air Meteorological Technician, the unsung hero of the Arctic.

It was November 11, 1973, the wind was blowing a steady 45 MPH with gusts up to 57 MPH. The temperature was +16 F giving a wind chill factor of -30 F.

The visibility was "ZERO" due to extremely heavy blowing snow, giving rise to the famous (or rather infamous) "WOXOBS" designation to our surface weather observation.

The wind man (the man who fills and launches the balloon and instrument package) filled his balloon while the Raob man (the man who computes the data received from the instrument package) was making preliminary checks on the instruments.

The moment of truth was rapidly approaching the dread of the Upper Air Met. Techs. - the high wind release directly into the door trick.

As the wind man was opening the massive overhead door to the balloon inflation shelter, the wind was already playing havoc with the balloon - bouncing it around on its support.

The observer grabbed hold of the balloon and instrument, paused a few seconds, hoping the wind would miraculously die down. . . . butterflies were fluttering in his stomach. NOW!! His heart momentarily stopped beating - he ran headlong into the wind - bang - a fraction of a second later the wind man was flat on his back being physically dragged along the hard ground for what seemed = like eons.

He mastered up all his reserves of strength - tugged mightily on the balloon, managed to scramble to his feet - all the time keeping the balloon and instrument package from being dashed mercilessly against the frozen earth.

He began to run, released the balloon, then the instrument a perfect release, the wind man was momentarily stupefied - unable to believe he actually got the balloon and instrument off into the atmosphere successfully.

The wind man then went to read the surface temperature, as is the usual practise. Due to the high wind and zero visibility plus the blowing snow, the wind man proceeded towards the Stevenson screen housing the thermometers, with his head down. As he approached the approximate location of the Stevenson screen he reached up to open the door to the screen and lo and behold no door, also no screen and no thermometers - the wind during one of its peak gusts had torn the complete screen from its supports, deeply embedded in the frozen ground.

The wind man then took a quick survey of the situation - discovered the Stevenson screen about 20' away from its prior perch, and read the "unbroken" thermometers.

As fate would have it though, the balloon burst before the minimum altitude was achieved, and the wind man had to make two more attempts at releasing a successful balloon and instrument. However, as luck would have it, the instruments became a pile of broken plastic, unable to utter any data whatsoever. After the mornings work was over the Met. Techs. had to tunnel their way into the barracks as the entrances were all blocked by drifts. Such is the life of the Upper Air Tech.

B.Sc. COURSE 30

During the month of April 1974, forty new meteorologists began their careers with the AES. The graduation ceremony for the final half of the class was held in the auditorium of AES HQ on Thursday, 25 April 1974. As had been the case with the initial half of the class, who had graduated a few weeks earlier, the key note address was given by Mr. L.T. Campbell, Director-General of Central Services.

Mr. Campbell congratulated them on their performance while in training and encouraged them to meet the challenges of meteorology during the next few decades.

Then it was off to Trenton for a few weeks of "final polishing" before they each go their separate way to forecast offices all across Canada.



Ten months of training is now behind them. The excitement of Unit I, the challenge and frustrations of Unit II, the teamwork and self-improvement of Unit III are now but memories; some bitter, some sweet. The soccer games with UQAM#1, the Christmas party at Karen and Cathy's, the Wednesday night gathering of WART (Weathermen's Athletic Recreation Team), the regular visits to Charlie C's, the Bridge games, the hockey games and the many parties have tied the strings of many life-long friendships.

To each member of B.Sc. Course 30, Welcome!

LA SESSION SUR LA STRUCTURE ET LA DYNAMIQUE DE L'ÉPOQUE GLACIAIRE

par J.A.W. McCulloch

La session sur la "structure et la dynamique de l'époque glaciaire" fut l'une des sessions les plus intéressantes des réunions de printemps de l'*American Geophysical Union* et de l'*American Meteorological Society* qui se sont tenues à Washington du 8 au 12 avril. La session s'est ouverte par l'étude d'une communication sur la chronologie des climats de l'époque glaciaire depuis un million d'années, suivie d'une communication sur les derniers 15% de cette période. Des carottes-témoins en provenance des Barbades et de l'Extrême-Orient ont révélé de grandes fluctuations du niveau des mers liées à la progression et au recul des fronts de glace au cours des derniers 150,000 ans. La troisième communication portait sur la répartition des glaces à l'échelle du globe pendant la dernière glaciation il y a environ 18,000 ans, tandis qu'une autre étude faisait la synthèse des isothermes de la surface des mers à cette époque et établissait des comparaisons avec les phénomènes actuels.

La dernière des huit communications de la session présentait certaines perspectives des modifications climatiques survenues dans l'intervalle d'un million d'années. Ce résumé touchait à cinq points importants:

1) Quelles sont les caractéristiques qui ont marqué la période qui a débuté il y a un million d'années? Bien que nous n'ayons que peu de détails, nous sommes néanmoins en train d'acquérir quelques notions quantitatives sur les volumes des glaces, les températures des eaux, la distribution de la salinité dans les océans et ainsi de suite. Nous découvrons un cycle de période d'environ 100,000 ans dont les sommets et les creux sont très aplanis. On a suggéré d'autres variations de 40,000 ou de 20,000 ans qui sont peut-être d'origine astronomique. Si l'on se penche sur la période la plus récente, il semble que des fluctuations de période plus courte puissent être décelées.

2) Quelle est notre situation actuelle par rapport aux conditions climatiques qui régnaient habituellement dans le passé? Le climat actuel est plus chaud que la moyenne depuis un million d'années et les dernières décennies ont été plus chaudes que la moyenne des climats pendant les époques inter-glaciaires. L'auteur a appelé cela "une épée de Damoclès suspendue au-dessus de nos têtes".

3) Quels sont les phénomènes qui causent les modifications climatiques? La question n'a pas encore trouvé de réponse, mais les expériences en cours montrent la

voie vers d'autres expériences qui permettront éventuellement d'éclaircir le problème. Nous sommes en présence de nombreux phénomènes d'un système stochastique et le défi consiste à déterminer dans quelle mesure ces phénomènes ne sont pas gouvernés par le hasard.

4) Est-il possible de prévoir les modifications climatiques? Il est possible de faire la relation entre les climats des périodes révolues et les processus physiques, mais cela ne signifie pas nécessairement que nous soyons en mesure de faire des prévisions. Ainsi deux conditions climatiques de probabilité identique peuvent découler d'un même ensemble de conditions physiques, sans qu'il soit possible de déterminer rationnellement celle qui se produira. Nous pouvons, de plus, rattacher les modifications à des événements comme l'activité solaire ou les éruptions volcaniques, ramenant ainsi le problème à une situation tout aussi difficile, celle de prédire ces derniers événements.

5) Quel climat à l'avenir, aurons-nous, compte tenu de l'impact des activités humaines? Ce point n'a pas vraiment été déterminé. Si nous pensons que nous savons comment les facteurs de notre milieu se modifieront à l'avenir, nous sommes en mesure de faire des expériences pour faire la synthèse des climats. Mais il faut envisager l'atmosphère, les océans et les calottes glaciaires comme un seul système et ne pas les étudier séparément. Il n'est peut-être pas nécessaire qu'un facteur externe perturbe le système pour amorcer un processus de modification mais, si cela est nécessaire, il existe de nombreuses modifications astronomiques et géologiques pour cela. Il faudra faire encore de nombreuses études pour comprendre comment l'activité humaine influence le climat.

Pour terminer, le présentateur a constaté que le climat actuel est singulièrement chaud et que nous allons entrer dans une phase de refroidissement, mais ce n'est pas nécessairement pour demain.

THE IAMAP MEETING – MELBOURNE, JANUARY 1974 (or Around the World in 40 days)

B.W. Boville

After snowbound Canada and an energybound New Year's Eve in London, the narrow winding road into Colombo unfolded into a tropical paradise of blue skies, verdant palms and friendly people – people on foot everywhere. This was Sri Lanka, with its empty ocean beaches, its working elephants and bullock carts, its rice paddies and its upland tea plantations: an agricultural nation where food seems to fall from the trees, yet inflation has led to rice and bread ration queues and the lack of industrial resources has created foreign exchange problems. Still for the tourist this is a very different, beautiful and enchanting world. In sharp contrast, we next saw the expressways and modern buildings of Kuala Lumpur overlaying a mixed Chinese-Malaya culture richly supported by tin and rubber resources.

Over northern Australia the global nature of climatic aberrations was reflected in vast flood areas covering the great desert. Fortunately this abnormal southward displacement of the intertropical rain belt remained far from sunny Melbourne, host city of the



Working elephants in Sri Lanka.



Australia's Fairy Penguin Parade.



Canadians enjoy EMU BOTTOM.



New Zealand Glacier.

International Congresses on the Atmospheres and Oceans. To us Melbourne had a familiar flavour – the downtown was Toronto of the forties, the pre high-rise era, and the university area has followed our trend to a cosmopolitan anglo-italian community.

The sixty scientific sessions were spread over two weeks and liberally interspersed with Australian hospitality. Whilst the meteorologists pondered the problems of stratospheric pollution, the polar regions, clouds and surface biometeorology, their oceanic counterparts delved into physical problems, ocean waves, estuarine dynamics and large ocean experiments. The two groups shared imaginative Frontier Sessions, air-sea interaction, GARP and deep convection. Throughout the sessions one sensed the great impact of the satellite observations and the numerical models on experimental programs and the excitement over the GARP experiments such as AMTEX, GATE and POLEX. Full reports on the meetings are being published and distributed by IAMAP.

A feature of the Australiana program was the amazing Fairy Penguin Parade. After a days fishing at sea these little gentlemen came ashore at dusk, waddled up the beach ignoring the curious êtres humains, and headed for their burrows and their ravenous young. One wondered if the sign 'Penguin Parade at 9 p.m.' had its counterpart underwater 'People Spectacle at 9 p.m.' Another highlight was a visit to the pioneer sheep station at EMU Bottom which was followed by a memorable outdoor barbeque and singalong.

We left the land of wide open spaces, deserts, vineyards, gumtrees and marsupials remembering a burgeoning modern nation of open friendly people with customs, advantages and problems not dissimilar to our own. (Save holiday weekend traffic crunches and a friendly giant close by.)

On the way home we saw Nova Scotia to Vancouver Island compressed into the magnificent scenery of New Zealand's 150 mile stretch from Christchurch to the Franz Joseph Glacier. The frontal retreat of the glaciers several miles up the valley was clear evidence of the climatic events of the last 30 years. A break in the equatorial rains gave us three days of azure blue in Samoa – an idyllic setting which fortunately has still not Come of Age. A days surfing was the thrill of Hawaii, the final stepping stone before we landed back home in Canada. Throughout our world tour we were conscious of the energy crisis and fuel and speed controls – this feeling disappeared rapidly in Toronto and a Sunday drive on Highway 400 showed how fortunate we Canadians are and perhaps how little we have responded to voluntary constraint.

Looking back on the First Special Assemblies of the International Association of Meteorology and Atmospheric Physics and the International Association for the Physical Sciences of the Ocean we can only classify them as a resounding success. The scientific organizers and our hosts down under are to be heartily congratulated – we look forward to the published proceedings.

BEAUFORT SEA PROJECT

During the latter part of 1973 and early this year, the private oil companies and the DOE acting for the Canadian Government negotiated and now have agreed to undertake a cooperative venture known as the Beaufort Sea Project. The estimated cost of this project is about \$5 million of which 80 percent will be paid by the oil industry. This project has been designed to:

- 1) carry out a number of necessary environmental assessment studies before the commencement of offshore drilling in the Beaufort Sea in 1976.
- 2) study methods of reacting to pollution incidents requiring the containment and clean-up of oil spills.
- 3) design and assess a system for prediction of environmental conditions including weather conditions, ice movement and wave height so as to minimize the risk of environmental damage during drilling operations.

The AES contribution to the DOE Project is to conduct three sub-projects under the coordination of a special AES Beaufort Project Steering Committee of which Dr. J. Clodman, Director of the Meteorological Services Research Branch is Chairman. The main sub-project, designated E-1, is to design the complete environmental prediction system in such a way that it can be ready for operation in 1976. The AES is also responsible for studies E2 and G1 dealing with climatological expectations and risks in the South-eastern Beaufort Sea, particularly in respect to temperatures, winds, ice conditions and storm-tracks.

Dr. Clodman is also a member of the DOE Project Steering Committee which is chaired by Dr. R.W. Stewart, Director of the West Coast Region of the Marine Sciences Directorate of the Fisheries and Marine Service. The third member of this Committee is Dr. A.H. McPherson, Director of the Western Region of the Canadian Wildlife Service.

COMPUTER USED TO PRODUCE METSTAT

D.J. Blakey, a student from the cooperative Waterloo University program, has developed the detailed design and computer program for producing METSTAT (Meteorological Stations in Canada).

The Introduction, Part I Synoptic and Aeronautical Stations, and Part V Canadian Selected, Supplementary and Auxiliary Ships, went to press in April. The remaining parts were in the process of being printed – Part II Supplementary Programs, Part III Letter Identifiers, Part IV Numerical Identifiers and Part VI Maps and Charts.

An innovation that will save many hours in the field is that future amendments will be of the replace-a-page type. By the use of Mr. Blakey's computer program amended pages can be produced in a few seconds.

PERSONNEL

The following transfers took place:

A.D. Dow	From: 1 CAG Lahr To: Atlantic Regional Headquarters, Moncton
P.C. Haering	From: Atlantic Regional Headquarters, Moncton To: Pacific Weather Central, Vancouver
R. Leduc	From: Maritime Weather Office To: Montreal Weather Office
R.A. Strachan	From: CSD, AES Headquarters, Downsview To: FSD, AES Headquarters, Downsview

The following are on temporary duty or project assignment:

A.W. Cott	From: Winnipeg Weather Office To: Prairie Weather Central
F.J. Sebastian	From: CFWO Winnipeg To: Prairie Weather Central
D.A. VandeVyvere	From: Winnipeg Weather Office To: CFWO Winnipeg
Dr. P.E. Carlson	From: ARD, AES Headquarters, Downsview To: Toronto Weather Office
J.R. Gagnon	From: Montreal Weather Office To: CSD, AES Headquarters, Downsview
G.J.M. Fenech	From: Toronto Weather Office To: CSD, AES Headquarters, Downsview
F.J. Herfst	From: ARD, AES Headquarters, Downsview To: Toronto Weather Office
C.J. Brosch	From: Winnipeg Weather Office To: FSD, AES HQ, Downsview

The following have accepted positions as a result of competition:

Genot 009	Meteorology (MT7) Head, Systems Development Unit Forecasting, Computers and Communications System Division FSD, AES HQ, Downsview R. Nelis
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73-DOE-TOR-CC-368	Meteorology (MT 8) Regional Superintendent, Scientific Services Central Region Headquarters H.M. Fraser
Genot 003	Meteorology (MT 7) Head, Systems Control Unit Observational Systems Division Field Meteorological Systems Branch FSD, AES HQ, Downsview F.J. Brunning
73-DOE-TOR-CC-252	Meteorology (MT 8) Regional Superintendent Scientific Support Unit Atlantic Regional Headquarters Dr. A.D.J. O'Neill

Separations:

C.K. Odegaard	Arctic Weather Central
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The following have accepted positions as a result of competition:

73-DOE-AES-A-CC-2	AS4 Regional Supervisor, Station Operations Atlantic Regional Office Moncton, N.B. R.J. Graham
74-DOE-AES-CC-1	EG-ESS 6 Presentation Technician Goose Bay Weather Office D.W. Matthews

The following transfers took place:

F. Androschuk	From: Moncton Regional Office To: Shelburne UAS
R.K. Brannen	From: Goose WO To: Resolute WO

Western Region Appointments

Mr. F.E. Burbidge has been appointed to the position of Superintendent of Scientific Services and Mr. B. Janz to the position of Scientific Services Meteorologist. Both positions are in the Western Region Headquarters. Mr. Burbidge and Mr. Janz previously filled Shift Supervisory positions at the Arctic Weather Central.

Miss E.P. Crouch has been appointed Regional Communications Officer. She served previously as Senior Communicator at the Edmonton Int'l Airport.

TRIVIA

Shortly before the April mail strike of the Postal Clerks began, it appeared that matters were not perfect with Canada Post, as several packages (of climatological records) arrived at AES Headquarters stamped "Duty Free" by Canada Customs at Toronto. The packages were from either Moncton, N.B., or Norman Wells, N.W.T.

Unusual Requests

Saskatoon

From Holland requesting information on a new type of rose apparently developed somewhere in Canada. It took about 25 minutes via telephone operators and translators to convince caller he had the wrong number.

Calgary Weather Office

Mr. S.B. Supina had a 5-minute interview with a Reporter (telephone) regarding "Streaking in Sub-zero Temperature." The coldest streaker in North America occurred at Calgary (4 degrees below zero).

Did you ever stop to think that furthermore means farther than further? People who quit smoking cigarettes usually substitute something else for it — like bragging.

Are you, like most people, wanting the front of the bus, the back of the church, and the middle of the road?

TORONTO WEATHERMEN CURLING BONSPIEL

The Atmospheric Environment Service Recreational Association held its first Weatherman's Mixed Curling Bonspiel on Saturday, March 9th. More than 50 curlers from the Headquarters and the Toronto Weather Office, and their friends and relatives enjoyed the keen competition during the day and the merriment that followed in the evening. Twelve rinks were entered, each playing 3 eight end games.

Prizes were awarded on a point system. The following were major prize winners:

MOLSON'S TROPHY (Three Win High)

Ralph Harley (skip)

Donalda Davis

Lou Berthelot

Pam Berthelot

**METEOROLOGICAL EMPLOYEES (Toronto) CREDIT UNION
(Two Win High)**

John Metcalfe (skip)
Ann Bishop
Gary Teeter
Peter Bowman

PSAC (Environment Component) (One Win High)

Karen Jensen (skip)
Bob Cormier
Kaz Higuchi
Cathy Cherney

(Met. Course #30 Student Team)

A number of consolation prizes were awarded by Canadian Schenley, Distillers Company, Seagram's, Gooderham's and MacDonald Tobacco.

The Bonspiel organizing committee wishes to thank the sponsors for helping to make our first spiel a success. Plans for next year include a mixed league and a one day bonspiel.



*Left to Right: David Phillips presents Molson Award to Ralph Harley (skip)
Donalda Davis, and Mr. and Mrs. Lou Berthelot.*



*Left to Right: John Metcalfe, John Sandilands,
Glen Bristow and Jim McCulloch.*

*Left to Right: J. Metcalfe, A. Bishop
P. Bowman, G. Teeter, (Meteorological
Employees Credit Union Prize).*



*Left to Right: Kaz Higuchi, Cathy Cherney
(on ice) Len Doucette (hidden) and Karen Jensen.*



Left to Right: Brian O'Donnell, Ivan McGregor, and Al Keating.



Left to Right: Ralph Harley, Donalda Davis, Lou Berthelot and Ruth McNaughton.

CET ALMANACH
EST LE MEILLEUR
DEPUIS 40 ANS!



VOTRE ALMANACH