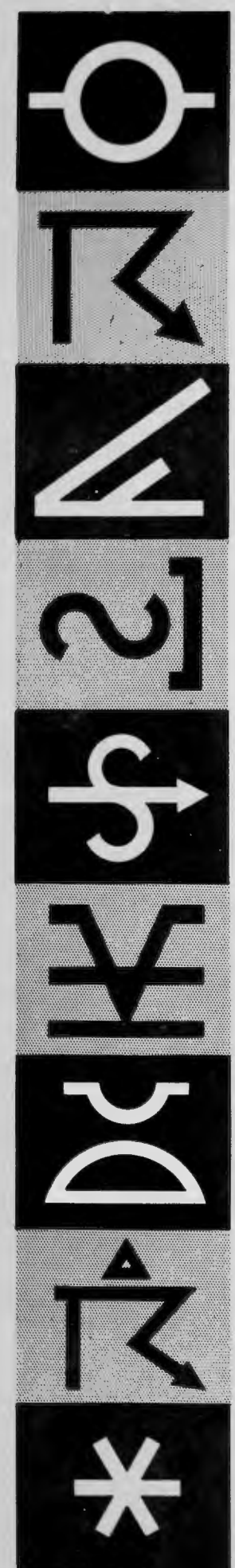

ZEPHYR

OCTOBER 1974 OCTOBRÉ

Environment Canada
Environnement Canada

Atmospheric Environment
Environnement atmosphérique

ZEPHYR

OCTOBER 1974 OCTOBRÉ

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editor/la rédactrice: B.M. BRENT

NOAA-AES MEETING

Left to Right, Karl R. Johannessen Associate Director Meteorological Operations NWS; R.E. Vockeroth Director, Atmospheric Instruments Branch AES; Merritt N. Techter Director, Systems Development Office NWS; Morley Thomas Director, Meteorological Applications Branch AES; Dr. Robert M. White Administrator NOAA; J.R.H. Noble Assistant Deputy Minister AES; Hugh Cameron Director, Program Development and Evaluation Branch AES; Dr. W. Godson Director-General Atmospheric Research Directorate AES; Dr. George P. Cressman Director NWS; F.W. Benum Director-General Field Services Directorate AES

IN MEMORIAM

ANDREW THOMSON O.B.E.

The many friends and colleagues of Dr. Andrew Thomson, former Director of the Canadian Meteorological Service will be saddened to hear of his death on October 17, 1974 in Toronto. He was 81.

Andrew Thomson was born near Owen Sound, Ontario on May 18, 1893. He graduated from the University of Toronto in 1915 in Honour Physics and later earned a Master's degree from the same institution. After studying under a Townsend Fellowship at Harvard University, he was employed by the Carnegie Institution of Washington and in 1917 became a mathematical assistant to Thomas Edison. Following a brief period in the U.S. Army, he rejoined the Carnegie Institution and in 1919 was sent to northern Brazil to observe the atmospheric effects during an eclipse of the sun.

During a voyage around the world on the brigantine Carnegie to study atmospheric electricity, Dr. Thomson became fascinated with the South Pacific. In 1922, he accepted the Directorship of the geophysical observatory at Apia in Western Samoa. In 1930 he went to Europe to study in Germany and Norway. In the latter country he became a good friend of Dr. Jacob Bjerknes and other Norwegian meteorologists who had developed, a few years earlier, the basic air mass and frontal theory.

Andrew Thomson D.SC., M.A., O.B.E.

6TH SESSION OF THE COMMISSION FOR AGRICULTURAL METEOROLOGY OF THE WORLD METEOROLOGICAL ORGANIZATION, WASHINGTON, D.C.

Wolfgang Baier, Head of Agrometeorology Research and Service, Chemistry and Biology Research Institute, Canada Department of Agriculture, has unanimously been re-elected as President of the Commission for Agricultural Meteorology of the World Meteorological Organization during the 6th Session of this Commission at Washington, D.C. from the 14 to the 26 October 1974. He was elected in this honourable position for the first time in 1971. Since then he directed the activities of 9 working groups and 17 rapporteurs, and advised the WMO Secretariat in regard to research, training and operational services for the application of meteorology to agriculture. The former Vice-President, Mr. J. Lomas (Israel) was also re-elected.

The recent 6th Session was a significant milestone in the history of this Commission. For more than two decades, it had accumulated basic knowledge of the relationships between weather-climate and agriculture. It has also demonstrated how this knowledge can be exploited in order to make efficient use of weather and climate data in farm management, assessment and preservation of the physical environment, and increased agricultural production. A major break-through in the application of this knowledge has now been achieved in view of the need for the more efficient use of climatic resources and the growing concern about the current world food situation in relation to weather and climate.

The significance of this Session was demonstrated during the opening ceremonies in the welcoming addresses by the Honorable Earl L. Butz, Secretary of Agriculture; Ambassador E.M. Martin, U.S. Coordinator for the World Food Conference; Dr. R.M. White, NOAA Administrator; and Dr. K. Langlo, WMO Secretariat. Later in the Session, the Commission was honoured by the visits of the President of WMO, Mr. M.F. Taha, and the Secretary-General, Dr. D.A. Davies. During the two weeks at Washington, the Commission held daily meetings of two working committees chaired by Mr. J. Lomas (Israel) and Dr. F. Hashemi (Iran) and in the final phase plenary meetings chaired by the President.

The Commission developed the program for the next four years to be conducted by nine working groups and fourteen rapporteurs. Two of the working groups are concerned with the world-wide collection of crop-weather data for wheat and lucerne. Others will review the state of art and make proposals for projects in regard to meteorological aspects and the forecasting of animal diseases, land use and agricultural management, soil degradation and erosion, methods of phenological forecasting, agricultural crop development and ripening, and the application of meteorology to forestry. One working group will serve as an advisory body to the President in all questions of research, training and applications in agricultural meteorology, and another one especially on all aspects of weather-climate and world food production. The rapporteurs will investigate more specific problems including the application of remote sensing techniques, mathematical simulation modelling, water requirements of agricultural crops, training and education, and requirements for medium and long-range weather forecasting by agriculture.

The Commission also developed a Global Agrometeorology Program in Aid of Food Production with special attention to the needs of developing as well as developed countries. This program includes components of research, training, regional and global crop condition assessments from current meteorological data obtained from the World Weather Watch (WWW). It is hoped that the 7th WMO Congress in April 1975 will approve this global program and provide the necessary funds for its implementation.

Canada has a significant role in world wheat supply and our researchers are leading in many fields of agricultural research and in the application of meteorology to agriculture. The Canadian delegation to the 6th Session therefore, participated actively in the discussions and in the development of the future program of the Commission. The Canadian delegates were: R.A. Treidl, W. Baier (President of CAgM), L.B. MacHattie, and W. Pelton. Mr. E.I. Mukammal, AES, also participated by special invitation as rapporteur on Non-Radioactive Pollutants in the Biosphere and their Injurious Effects on Plants, Animals and Yields. About 100 delegates from 50 countries, 4 representatives of international organizations, 2 representatives of the Holy See and a number of invited experts participated in this Session. The Session was held in the International Conference Suite of the U.S. Department of State. Besides the working meetings and plenary sessions there were scientific lectures and a tour to the USDA Agricultural Research Station Beltsville.

NOAA-AES MEETING
OCTOBER 23-25, 1974
ATMOSPHERIC ENVIRONMENT SERVICE HEADQUARTERS
DOWNSVIEW, ONTARIO

Based on the success of the NOAA-AES November 1973 meeting in Washington, it was agreed that similar meetings be held annually and the next one to be in Canada in October 1974.

The 1974 meeting like the 1973 one reviewed, on an informal basis, operational and developmental problems common or of interest to both NOAA and AES. Excellent exchanges of information were provided on (a) scientific and technological trends, (b) changing demands for meteorological and climatological services and, research on a national and global scale and (c) the impact of such trends and demands on current and future NOAA-AES operations.

The next meeting is planned for the fall of 1975 in Washington.

NEW PUBLICATION

GLOSSARY OF METEOROLOGY AND CLIMATOLOGY

THE BOOK

"The glossary defines over 5,000 words, phrases and technical terms of meteorology and climatology found in current literary and scientific writing. Also included is a French-English and English-French lexicon of these words, phrases and technical terms.

It is not possible to talk about meteorology and climatology without bringing in astronomy, chemistry and physics.

We felt obliged to include some of the vocabulary used by agronomists, biologists, botanists, ecologists, forestry scientists, geographers, geologists, hygienists, engineers, mathematicians and oceanographers."

THE AUTHORS

"Scientists working in universities and in the public sector, in co-operation with experts in etymology and linguistics."

Prepared between 1967 and 1972 under the direction of G.-Oscar Villeneuve, Ph.D., P. Eng., in co-operation with Michel Ferland, M.A., J.-Guy Frechette, M.F., P. Eng., Raymond Gagnon, M.Sc., Pierre Gosselin, M.Sc. and Raymond Perrier, M.A., all of the Meteorological Service of the Department of Natural Resources.

FROM THE PREFACE

"The quality, precision and completeness of the work speaks well of the efforts made by the contributors." (Patrick D. McTaggart-Cowan)

FROM THE FOREWORD

The glossary is not intended to be solely for specialists in the atmospheric sciences but for all scientists who deal with the environment. Its bilingual character will make it a useful working tool for both francophones and anglophones.

ORDER FROM

Presses de l'Université Laval, Cité universitaire, Sainte-Foy, Québec 10, Qué.

HALLOWEEN CASTS ITS SPELL ON WEATHERMEN TOO

Not all public weather synopses give colourless accounts of "large masses of cold air" and "disturbances" which move across the region. Proof is provided by the following synopsis issued by J. Anderson at the Winnipeg Weather Office when the spirit (and spirits) of the occasion supplied inspiration.

FPCN10 CYWG 312300

SYNOPSIS FOR MANITOBA AND NORTHWESTERN ONTARIO ISSUED BY ENVIRONMENT CANADA AT 5 PM CST OCTOBER 31ST 1974

THE WITCHES OF HALLOWEEN WILL FLY UNOBSERVED TONIGHT AS CLOUDY SKIES OBSCURE THE FULL MOON OVER MOST OF THE FORECAST AREA. ALONG THE INTERNATIONAL BOUNDARY BLACK CATS WILL HOWL THEIR MISERY IN OCCASIONAL LIGHT RAIN BUT GHOSTS AND GOBLINS IN ONTARIO CAN CREEP AMONG THE FOG PATCHES. IN NORTHERN REGIONS SNOWFLURRIES WILL OUTLINE THE FOOTSTEPS OF THE INVISIBLE MAN BUT WITH THE ARRIVAL OF FRIDAY SOME SUNSHINE IN CENTRAL MANITOBA WILL SWEEP AWAY THE COBWEBS OF THE NIGHT. TEMPERATURES WILL BE NEARER THE NORMAL FOR THIS TIME OF YEAR THROUGH FRIDAY BEFORE SOME SUN SLINKS INTO MOST REGIONS FOR SATURDAY

END

AN OPERATIONAL METHOD OF FORECASTING AREAS OF SHOWER AND THUNDERSTORM DEVELOPMENT

by

W.S. Harley

A method of forecasting shower and thunderstorm areas has been evolved from a series of case studies and computerised statistical tests of the performance of various stability indices. These indices included a number based on the equivalent potential temperature (EPT), a parameter which can be used as a measure of the 'total energy' content of particular atmospheric layers. The quantity of such energy available at a given time and place is directly related to the amount of convective development that can occur there. An index which utilises this parameter therefore becomes a measure of one of the basic driving forces of the atmosphere. One of the prime purposes of this project was to discover how indices of this type compare with empirically derived instability indices in common use as indicators of shower and thunderstorm development.

A statistical test using ten months of warm season surface and upper air data revealed that the Latent Instability in the 500-700 mb and 700-850 mb layers, when

computed separately using the equivalent potential temperature and then combined into a probability number, provides an index of single location and areal instability of superior performance to that of other instability indices in common use. The Latent instability index can be computed quite easily from a simple formula.

If the percentage shower and thunderstorm occurrence is obtained for all values of a particular index the results can then be plotted on a graph, which then reveals the relation, or lack of relation, between the two sets of values. An example of such a graph, for the 500-700 mb Latent Instability index, is shown in Fig. 1. The line of best fit for the series of points on such a graph, (the regression line), can be represented by a polynomial equation, (the regression equation). In this case, where the graphs relates percentage thunderstorm occurrence to index value, the regression polynomial becomes the means of obtaining the probability of the former given the latter. This is done by substituting the index value obtained in a particular case into the appropriate polynomial and then dividing the result by 100. The polynomial equations for selected instability indices have been computed, and these were then used in the manner described to obtain the probability of shower or thunderstorm development.

A probability theorem enables the probability of an event in a deep layer to be obtained from the separate probabilities of that event in component parts of that layer. The formula expressing this result would state, for example, that the probability of a thunderstorm occurring in either the 500-700 or in the 700-850 mb layers is equal to the sum of the probability of occurrence in each layer separately minus the product of the two probabilities, (which gives the probability that the event will occur in both layers). The probabilities for the 500-700 and 700-850 mb Latent Instability indices were combined in this way, and the statistical tests performed shows that the joint index has a higher statistical correlation with showers and thunderstorm development than any of the other fifty-one indices tested. The Combined Latent Instability Probability obtained as described above may be called the CLIP value for short.

Case studies have shown that the .6 CLIP value isopleth encloses areas on the weather map where showers or thunderstorms can be expected to occur within the twelve hour period following the time the observations used in the calculations were taken. An example of the CLIP value distribution on an occasion of widespread shower and thunderstorm activity over N. America is shown in Fig. 2. The dashed lines in the figure represent the .6 CLIP value for 12 GMT 6 August 1969 while the solid lines indicate the boundary of showers and thunderstorms observed during the subsequent twelve hour period. It will be seen that the region of high CLIP value coincides closely with that of the convective developments.

This probability method can also be used to predict areas where there is a strong risk of severe storm development. The statistical results obtained from the tests applied show that the Severe Weather index known for short as the SWEAT index, had the highest correlation with severe storms. This index is an experimentally determined combination of instability, humidity, wind and wind shear measurements found useful in the prediction of severe thunderstorms and tornadoes.

The probability of severe storm development is obtained by substituting the appropriate SWEAT index value in the best fit polynomial for the SWEAT index by the method explained above. The resultant probability is then combined with the CLIP value, using the probability formula, to give a combined CLIPSWEAT value. This combination of values is desirable since severe storms can be expected to develop only where the CLIP values are high enough, (i.e. .6 or higher). The critical value of the CLIPSWEAT probability

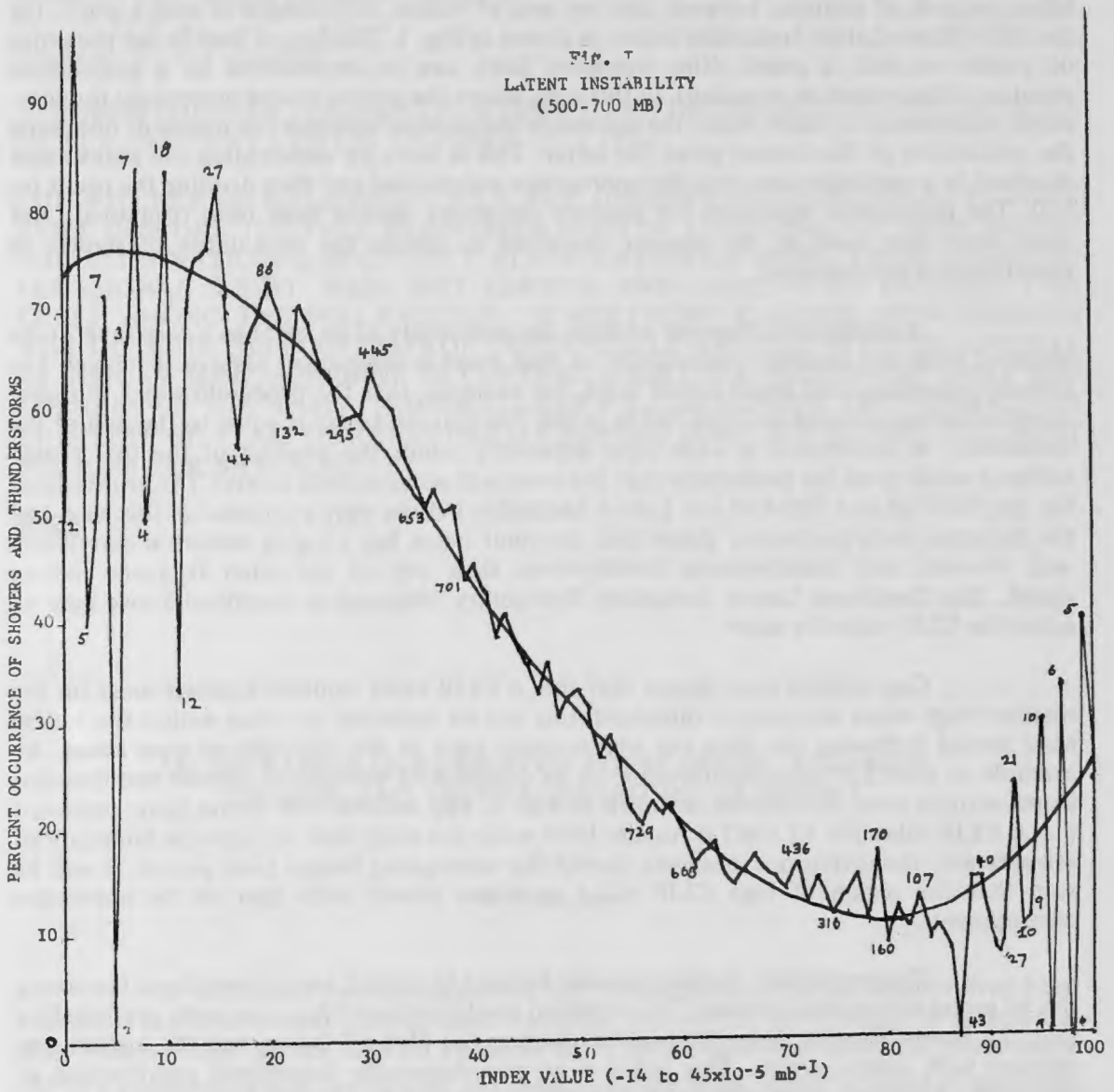


Fig. 7
LATENT INSTABILITY
(500-700 MB)
PERCENT OCCURRENCE OF SHOWERS AND THUNDERSTORMS
INDEX VALUE (-14 to 45x10-5 mb-1)
0
10
20
30
40
50
60
70
80
90
100
2
5
7
7
3
18
4
12
27
44
86
132
295
445
653
701
729
660
436
316
170
160
107
40
43
21
10
9
10
27
6
5

Dr. Thomson returned to Canada late in 1931 and in January 1932 took up an appointment as head of the Physics Division at the Headquarters of the Meteorological Service of Canada. Despite a reduced budget during the depression years, Dr. Thomson was the prime organizer and promoter for Canadian participation in the second International Polar Year and for the organization of a post-graduate course in Meteorology at the University of Toronto, given in cooperation with the Meteorological Service.

Shortly after the outbreak of the war in 1939, the British Commonwealth Air Training Plan was conceived and Dr. Thomson became the main organizer and administrator of the extensive meteorological program that was required. The Canadian Meteorological Service, in response to wartime demands, trained university graduates at an unprecedented rate until in 1944 there were nearly 350 meteorologists on duty at approximately 70 training and operational bases in Canada.

Following the war, Dr. Thomson undertook to lead the reorganization of the Canadian Meteorological Service to a peacetime basis. He was appointed Controller of the Meteorological Division in 1946 and established an organizational structure that was to last more than 25 years. In 1947, Dr. Thomson was host at Toronto of meetings of the nine Technical Commissions of the long-established IMO. In subsequent years he was one of the founders of the present World Meteorological Organization and served for many years on its Executive Committee. It was during this period that Dr. Thomson became somewhat of a globe-trotter visiting fellow directors of meteorology in Africa, Asia and Australasia.

When he retired in 1959, Dr. Thomson had presided over a period of rapid and remarkable growth for meteorology in Canada. During his tenure as Director, marked advances were made in forecasting services, research, instrument development, climatology and in training methods.

He was named an Officer of the British Empire in 1946 for his wartime contributions. A Fellow of the Royal Society of Canada, he received the Gold Medal of the Professional Institute of the Public Service of Canada in 1952 and, in 1958, he was awarded the honorary degree of Doctor of Science by McGill University.

A pleasant, kindly man, Andrew Thomson was known for his quick mind and keen intelligence. A unique figure in Canadian meteorology for more than forty years he was responsible, in many ways, for the stature the meteorological service has attained both in government circles and in the public domain.

VIENT DE PARAÎTRE

GLOSSAIRE DE MÉTÉOROLOGIE ET DE CLIMATOLOGIE

L'OUVRAGE

"Ce glossaire définit plus de 5,000 expressions, locutions et terme météorologiques et climatologiques rencontrés aujourd'hui dans les ouvrages tant littéraires que scientifiques et présente, en même temps, un dictionnaire français-anglais et anglais-français de ces mêmes expressions, locutions et termes."

"On ne peut parler de météorologie ou de climatologie, sans faire appel à l'astronomie, à la chimie et à la physique."

"Il nous a paru impossible de ne pas inclure dans ce glossaire un peu de vocabulaire des agronomes, des biologistes, des botanistes, des écologistes, des forestiers, des géographes, des géologues, des hygiénistes, des ingénieurs, des mathématiciens et des océanographes."

LES AUTEURS

"Des scientifiques oeuvrant dans les universités et le secteur public et collaborant avec des spécialistes en étymologie et en linguistique."

Ouvrage préparé par G.-Oscar Villeneuve, PH.D., ing., avec la collaboration de Michel Ferland, M.A., J.-Guy Fréchette, M.F., ing., Raymond Gagnon, M.Sc., Pierre Gosselin, M.Sc. et Raymond Perrier, M.A., tous du service de la Météorologie du ministère des Richesses naturelles durant la période 1967-1972.

LA PRÉFACE

"La qualité de l'ouvrage, sa précision et l'envergure du domaine traité constituent un témoignage éloquent des efforts de ceux qui y ont contribué." (Patrick D. McTaggart-Cowan)

L'AVANT-PROPOS

L'ouvrage est destiné non seulement aux spécialistes des sciences de l'atmosphère, mais à tous les scientifiques qui oeuvrent dans les diverses disciplines de l'environnement. En raison de son vacabulaire bilingue, il constitue un outil pratique de travail à la fois pour les francophones et les anglophones.

LA VENTE

Aux Presses de l'Université Laval, Cité universitaire, Sainte-Foy, Québec 10, P.Q.

SWIFT CURRENT WEATHER

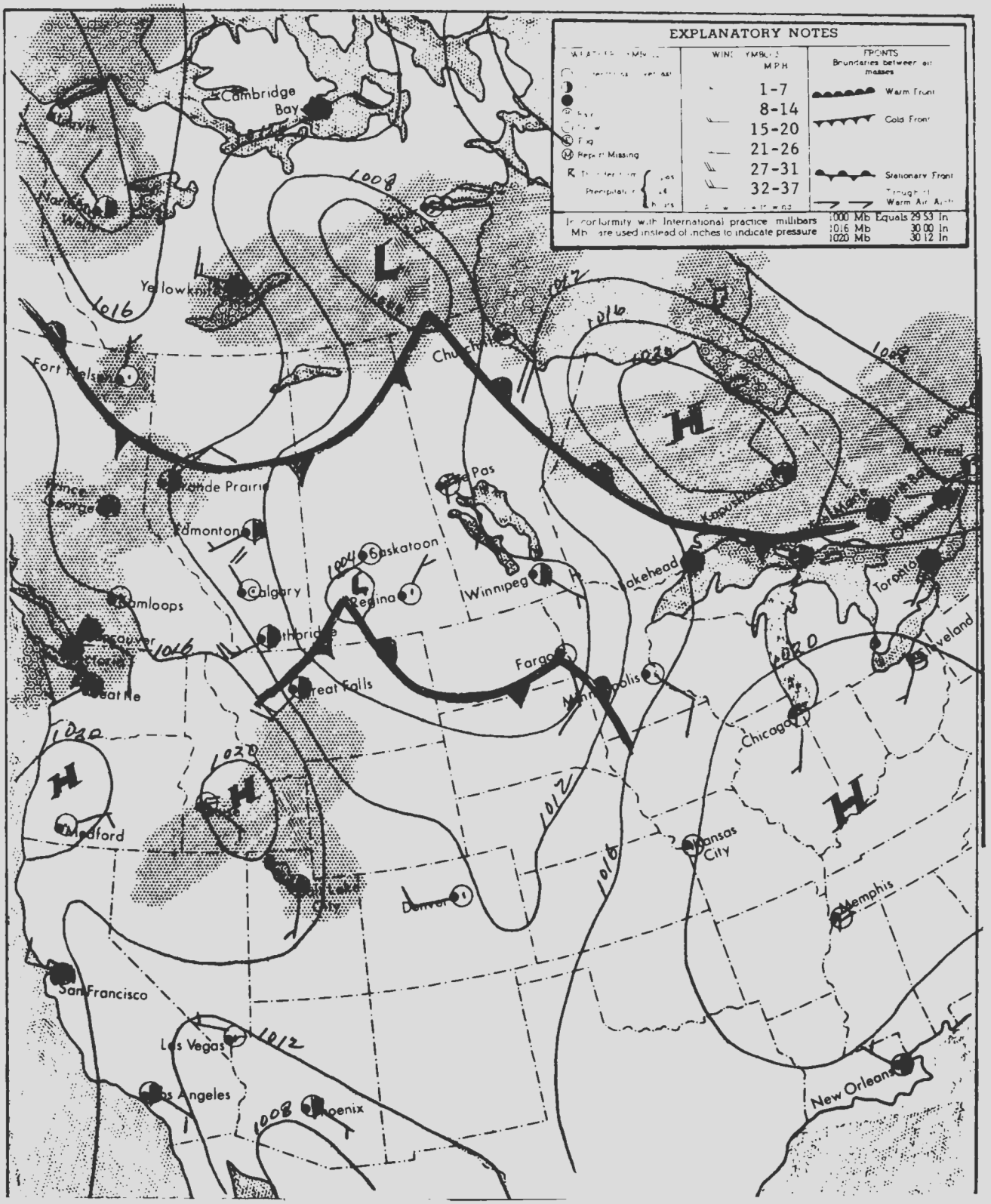
On October 10, 1974, 10 a.m. MST at Swift Current, Sask., Ed Higham, an inspector in Central Region took this photograph which shows an interesting line of "cirrus spissatus" on the right hand side.

The daily weather Map indicated the approach of a cold front preceded by warm, dry air. The maximum of the previous day reached the seventies and the night time minimum was in the lower thirties with no associated weather.

OCT. 10, 1974 10 a.m. M.S.T.
10 miles N of Swift Current, Sask.
looking NNW.

Photo courtesy
Mr. Ed Higham

DAILY WEATHER MAP, WINNIPEG
WEATHER OFFICE
6.00 AM CST OCT. 10, 1974



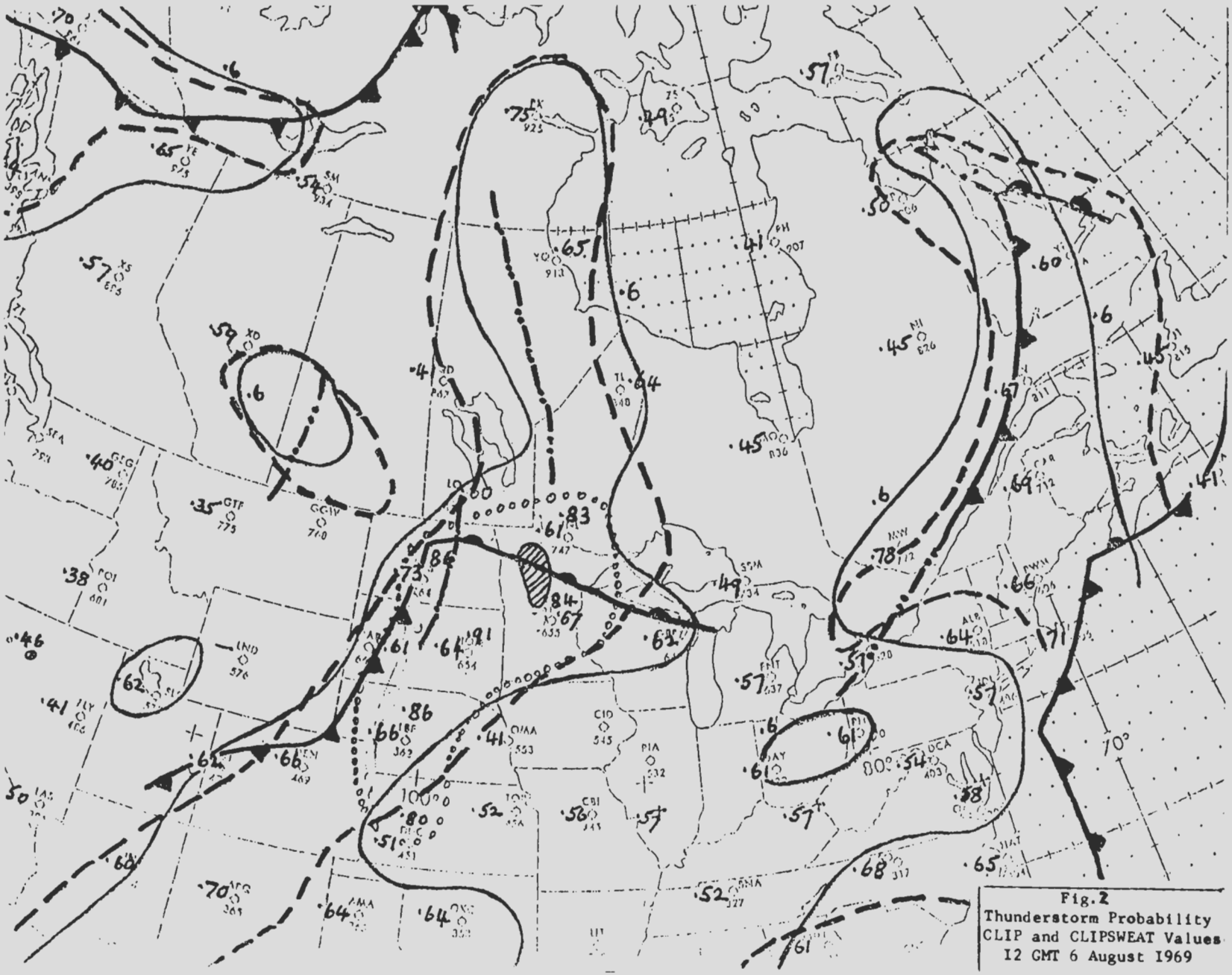


Fig. 2
Thunderstorm Probability
CLIP and CLIPSWEAT Values
12 GMT 6 August 1969

has been found to be .8. This means that the severe storm potential will be significant where the CLIPSWEAT value has a magnitude equal to or greater than .8. One such area is shown in Fig. 2 enclosed by the line of open circles representing the .8 CLIPSWEAT value. Severe storms occurred in the hatched area in Fig. 2 near the end of the period.

The observations of temperature and dew point or wind on which instability indices are based come from a widely spaced network of radiosonde stations called a synoptic scale network. However, showers and thunderstorms are often small enough to slip through such a network without being noticed, i.e. they are a mesoscale phenomenon. This method is, therefore, a synoptic scale technique, since it uses a synoptic scale network of observations, and its primary use is as an indicator of those areas where conditions are suitable for the development of showers or thunderstorms. Other techniques more appropriate to the mesoscale, such as radar and satellite photography, can then be concentrated in these areas to monitor and pinpoint the expected developments.

The method is a simple one to apply being based on a minimum number of readily available parameters, viz: temperature at three, and dew point at two levels; the moisture in the lowest one hundred mb and the wind at two levels is also required for calculation of the SWEAT index. It can be used on current charts for short range prediction and on prognostic charts for the longer range. In the latter case, the necessary temperature and dew point predictions are expected to become readily available from trajectory prognoses in the near future. The technique has the additional advantage in that it is applicable over the whole range of storm intensity, and, therefore, in any part of Canada. It has been applied to several independent data samples and the results are encouraging enough to warrant recommending that the method be subjected to an extensive operational test.

OÙ VA LE CLIMAT

LES COMPLICES DU SOLEIL

Le Soleil est le suspect numéro un. Pour cette raison, la collaboration entre astro-physiciens et météorologues s'impose. Les uns ont donc échangé avec les autres les données des satellites Tiros et Nimbus et des séries Orbiting Solar Observatories et Interplanetary Monitoring Platforms. L'étude est complexe et il est très difficile de rendre compte de liens directs entre l'activité solaire et les sécheresses ou les inondations. Il est en effet téméraire de tenir pour responsables les petites variations de l'énergie solaire qui atteignent la Terre alors qu'elles ne représentent qu'une fraction de l'énergie stockée dans le système climatique terrestre. Toutefois, le Dr Constance Sawyer, astronome au Space Environment Laboratory de Boulder (Colorado) a mis au point une méthode qui permettra peut-être d'élucider la question. Cette méthode estime et prévoit l'intensité des champs magnétiques solaires locaux. Ces champs contrôlent les perturbations solaires qui affectent, après coup, la radiation que nous envoie le Soleil. Le Dr Sawyer a réussi, grâce à des photos prises à intervalles réguliers puis projetées en accéléré, à mesurer les périodes des ondes galopantes qui se manifestent dans la haute atmosphère solaire, chromosphère. Le docteur Sawyer a démontré que la période de ces ondes est en relation directe avec l'intensité du champ magnétique de la chromosphère solaire. Une analogie souligne l'intérêt des (tremblements) de soleil.

Lorsqu'on tape au fond d'un bocal à poissons, des ondes se forment en surface. La hauteur des crêtes et la période de ces oscillations dépendent du mécanisme de transfert de l'énergie du fond vers la surface. Ainsi, dans le cas du Soleil. Les ondes galopantes trahissent le mécanisme le transfert de l'énergie du centre du Soleil vers sa surface où les gaz de l'atmosphère solaire irruptent en colonnes et en jets élevés. Les crêtes des ondes observées par le Dr Sawyer avancent à environ 96 km par seconde et se répètent en un lieu donné, à toutes les 5 minutes. Paradoxalement, les régions actives qui sont source d'un intense rayonnement oscillent beaucoup moins rapidement. La méthode du Dr Sawyer permet d'en prédire l'intensité et la fréquence.

Mais prédire l'activité magnétique du soleil n'a pas qu'un intérêt astronomique. Le Dr John Wilcox, de l'Université de Stanford (Californie) a observé un lien entre les variations du magnétisme solaire et les zones de basses pressions de l'atmosphère terrestre, qui apportent les tempêtes dans l'hémisphère nord.

Le champ magnétique du Soleil se divise en quatre secteurs. Cette structure est portée loin dans le système solaire par les particules chargées (protons, électrons, noyaux d'hélium) du vent solaire. Comme le Soleil tourne sur lui-même en 25 jours, son champ magnétique en fait tout autant, et à tous les six jours, la frontière d'un des secteurs magnétiques balaie la Terre. Quelques jours avant le passage d'une de ces frontières sectorielles, il y a une diminution progressive du champ magnétique et de la vitesse du vent solaire. Après le passage d'un secteur à l'autre, le champ magnétique augmente et la vitesse du vent solaire croît pendant quelques jours. À ce moment, la dimension des zones de basse pression de l'hémisphère nord est affectée. Ainsi, prédire le champ magnétique du soleil, c'est prédire les tempêtes de l'hémisphère nord!

Un autre chercheur, le professeur K.D. Wood, de l'Université du Colorado, soutient qu'il y a un lien entre l'alignement des planètes, l'activité solaire et le climat. Une possibilité curieuse, presque astrologique, ressort des travaux du Dr Wood: les planètes affectent le climat terrestre par les marées qu'elles provoquent sur le Soleil! C'est en cherchant la cause profonde des hoquets du Soleil que le Dr Wood en est venu à souligner l'influence des planètes.

On a longtemps cru que le climat de la Terre suivait le cycle de onze ans des taches solaires. Certains effets météorologiques mesurables semblent en effet évoluer en parallèle avec l'activité moyenne du soleil, par exemple, la durée des saisons de croissance des cultures. D'une année à l'autre, la période de croissance des plantes se prolonge à mesure que l'activité du Soleil augmente. Le professeur Wood a émis l'hypothèse que les marées exercées sur le Soleil par Mercure, Vénus, la Terre et Jupiter déclenchent des variations que notre climat ne tarde pas à ressentir. Ces planètes produisent en effet des marées solaires importantes. De plus, l'intensité de celles-ci est reliée au nombre de taches solaires.

Les prochains maxima de l'activité solaire se produiront en 1982 et 1993, mais avec une intensité légèrement plus basse que le cycle qui vient de se terminer en 1969. Ils seront aussi beaucoup plus faibles que les maxima de 1958 et 1947. En terme de climat, ceci signifie un retour aux conditions climatiques de 1920, alors que la température moyenne était d'environ 0.5 degré Celsius inférieure à celle du maximum de 1940.

JEUX D'EAU

Plus près de nous, la mer transforme à sa manière l'énergie thermique que nous envoie le Soleil et perturbe le climat. Les climatologues croient de plus en plus que les courants océaniques sont d'importants modificateurs du climat. L'apparition, il y a deux ans,

de (el Nino), une interruption temporaire de la remontée des eaux profondes propices à l'apparition du plancton végétal, au large du Pérou, a entraîné une chute catastrophique des pêches d'anchois péruviennes.

Récemment, les océanographes se sont aperçu qu' (el Nino) n'est qu'une manifestation côtière de changements majeurs non saisonniers des courants marins, des comportements du vent et des précipitations dans le Pacifique équatorial. La source de ce bouleversement se présente sous forme d'étendues d'eau dont la température est de 1 à 2 degrés Celsius plus élevée ou plus basse que la normale. Chacune de ces pièces d'eau couvre environ un million de kilomètres carrés et peut atteindre quelque 100 mètres de profondeur. Tout au cours de l'hiver, ces étendues chaudes et froides se maintiennent dans le Pacifique. Au niveau de ces vastes réservoirs d'énergie thermique se produisent d'importants échanges de chaleur de l'océan vers l'atmosphère, à une échelle suffisamment importante pour que le climat en soit modifié. À long terme, les variations de température se produisent globalement et sur de grandes étendues de quelque 1 000 kilomètres ou plus de diamètre. Les scientifiques de la North Pacific Experiment ont décelé une certaine corrélation entre le comportement de ces masses d'eau et la rigueur de l'hiver de l'Amérique du Nord. La présence d'une nappe d'eau froide au centre du Pacifique et d'une autre chaude au large de la côte californienne a correspondu, au cours des 30 dernières années, à des hivers plus froids que la normale. À l'inverse, un hiver chaud est associé à la présence d'une nappe d'eau chaude dans le Pacifique centre et d'une autre froide sur la côte californienne. Certes, ces déductions faites à partir de statistiques concernant une aussi courte période de temps demeurent incertaines. On ne peut en tirer une loi, mais, si elles se vérifient dans l'avenir et si l'on arrive à saisir l'origine de ces masses d'eau anormalement chaudes ou froides, il n'y aura pas qu'un pas à franchir vers la prédiction de la rigueur de nos hivers.

PRESENTATION OF LONG SERVICE AWARDS

A presentation of long service awards was held in the AES Headquarters auditorium on October 16, 1974. Mr. J.R.H. Noble, the Assistant Deputy Minister, presented 25 year pins to the following AES Personnel:

G.R. Armstrong
W.T.R. Allen
Miss L.A. Bradley
C.L. Crozier
W.S. Harley
D.C. Hay
T.B. Kilpatrick
Dr. M. Kwizak
J.R. Latimer
R. Lee
V. Marsh
R.S. McMaster
W.B. McNaughton
K.J. O'Leary
J.E. Persson
R.E.W. Peterson
J. Rogalsky
Dr. H.P. Sanderson
D.H. Saville
Mrs. J.M. Schlenkrich
Miss B.E. Sherman
Miss M.M. Skinner
D.K. Smith
J.H. Stone
G.A. Toole
F.W. Trow
H.B. Vallieres

Presentation of Fishing Gear.

PERSONNEL

The following transfers took place:

J.W. Ogletree	From: CFWO Chatham To: CFWO Greenwood
B.L. Webber (Miss)	From: AES HQ – CSD To: Maritimes WO
R.J. Daigle	From: CFWO Greenwood To: CFWO Chatham
S.M. Checkwitch	From: Arctic Weather Central To: WO Edmonton
M.H. Prout	From: CFB Comox To: CFB Ottawa

Temporary Duty:

D.A. Vande Vyuere	From: WO Winnipeg To: Churchill

The following have accepted positions as a result of competition:

73-DOE-TOR-CC-303	Meteorology (MT8) Field Services Directorate Head, Economic Development Weather Service AES Headquarters D.M. Scott
74-DOE-TOR-CC-167	Meteorology (MT9) Field Services Directorate Arctic Coordinator AES Headquarters J.H. McBride
74-DOE-TOR-CC-372	Meteorology (MT7) RSOS Ontario Region R. Miller
74-DOE-AES-V-CC-66	Meteorology (MT7) Weather Central, Vancouver Operational Development Meteorologist M.F. Rose
74-DOE-TOR-CC-261	Meteorology (MT7) Integration and Evaluation Division Program Development & Evaluation Branch AES Headquarters J.R. Sandilands

The following are on temporary duty on project assignment:

R.J. Mills	From: Maritimes WO To: DMetOc
L. Berntsen	From: AES, HQ, Training To: AMRD, AES HQ. (Management Project Assignment)
W.L. Ranahan	From: WO Churchill To: AES HQ, IFYGL

THE WEATHER MODIFICATION INFORMATION ACT

The Weather Modification Information Act, being Chapter 59 of the Statutes of Canada, 1970-71-72, was passed by Parliament and given Royal Assent on December 15, 1971. This Act requires any person proposing to engage in weather modification activities in Canada to give notice to his intention at least 10 days in advance, to keep a full documented record of the activities during the project, and submit a report to the Administrator of the Act on a monthly basis. The required content of these records are spelled out in the Weather Modification Information Act Regulations, which were proclaimed effective on July 23, 1974. The Administrator of the Act is designated as the Assistant Deputy Minister, Atmospheric Environment Service.

A Weather Modification Information Officer (PM-2) has been assigned to the Cloud Physics Research Division to administer the provisions of the Act and Regulations on behalf of ADMA. His responsibilities are to provide information and advice, and supply the regulatory forms to weather modifiers; to receive, process, and record the information provided by persons complying within the terms of the Act; to analyse, summarize and clarify information where required and to inspect the activities, reports, and records of these weather modifiers to ensure they are operating in compliance with the Act where necessary; investigate complaints which may stem from weather modification activities, and if these activities are not in compliance with the Act initiate legal action as provided for in the Act. He will maintain liaison with other weather modification disciplines, such as in the scientific field, attend to other associated administrative duties, and issue regular weather modification activity reports, information, or advice to the Canadian public, as well as various governmental and private agencies. Information on activities will be promptly reported to Regional AES offices when any activities take place in their respective regions; as well, activities on a national scale will be summarized in reports to these offices. When activities increase in numbers and complexity, it is expected Regional AES Offices will be more involved. In the meantime, these offices will be on the lookout for any known activity and report these to the Weather Modification Information Officer.

It is hoped that the Weather Modification Information Act will help the public and scientific communities in many aspects. The legislation has been designed to, 1) acquire prompt, accurate, and detailed information on all weather modification activities taking place in Canada; 2) monitor the scientific and economic impact, growth, and exploitation of technology of weather modification, and; 3) form the basis for the development of further legislation should the need arise, particularly if weather modification activity control becomes necessary.

RETIREMENT – D.B. CURRIE

On October 4, 1974 about 120 friends, relatives and cohorts of Don Currie gathered at St. Basil's Hall in Edmonton for a banquet and dance to mark his retirement.

Don joined the Meteorological Service in 1940, serving the British Commonwealth Air Training Plan at Prince Albert and Portage la Prairie until 1942.

His service at Edmonton has been longer than that of any meteorologist. His strong capabilities as a forecaster have been beneficial to his fellow meteorologists and all AES customers. He has been Officer-in-Charge of the Weather Office since 1966.

Don and Ann have been active in their community and with MOT and AES associates. They will be missed in Edmonton, but Nanaimo will receive a benefit.

The staff and friends are determined that the Curries will have salmon steaks ready for visitors hence presented fishing gear as a major gift.

D.B. Currie.

SEPARATIONS:

J. Corbett	CFB Trenton
G. Vachon	NRWC, North Bay

RETIREMENTS:

D. Currie	WO Edmonton

DECEASED:

P. Belanger	AES HQ.

TRIVIA

"Only some of us can learn by the experience of others. The rest of us have to be the others."

"One of the tragedies of life is the murder of a beautiful theory by a gang of brutal facts."

"Have you heard there's a new Chinese diet? Eat all you want; however, use only one chopstick."

"A boy becomes a man when he walks around a puddle of water instead of through it."

THERMOMETRIC

from a poem by Patrick Kemp

One hundred C will boil the tea
and nought produces ice;
But even when its up to ten
It isn't very nice.
The key to comfort is twenty-one
In the house and garden too;
But don't go out in the tropical Sun
When it gets to thirty-two.

EXPRESSIONS FRANÇAISES UTILISÉES DANS LA LANGUE ANGLAISE

Laissez-faire	(let alone) governmental policy of non-interference
Bon voyage	(Have a) pleasant trip
Chargé d'affaires	minor diplomat at foreign post, ambassador's deputy
Chef-d'oeuvre	masterpiece
Crème de la crème	the best of the best
Coup d'état	violent political overthrow of government
Coup de grâce	finishing stroke
Coûte que coûte	whatever the cost
Dernier cri	latest fashion
Esprit de corps	group spirit
Pièce de résistance	outstanding feature, main dish
Pot pourri	hodgepodge, medley
Sang-froid	coolness under difficult circumstances
Billet doux	Love letter
Bourgeois	middle class
Fleur de lis	Emblem of French royalty
Entente cordiale	friendly understanding
Entourage	one's followers
Fait accompli	deed already done
Faut-pas	False step, blunder
Née	born
Mise en scène	Putting on stage
Noblesse oblige	Behavior worthy of the noble
Nom de plume	Pen name
Nuance	Shade
Outré	extravagant
Passé	Out of fashion
Saboteur	A person who damages things illegally
Salon	Drawing room, Exhibition room
Savoir faire	Knowing what to do, tact, poise