

Zephyr

Celebrating Weather 125



Minister Marchi touring Downsview's new Air Quality Laboratory with scientist Ken Brice.



Christopher Terry, Director General of the National Aviation Museum congratulating Deputy Minister Ian Glen and Gordon McBean at the unveiling of the Weather Services for Aviation bench at the museum entrance.



Steve Lapczak, Director, the Canadian Ice Service; Laurie Weir; Nancy Cutler, DG, National Weather Services; Don Coleman; Maria MacLeod; and ADM Gordon McBean at the Ice Centre open house in Ottawa. Weir, Coleman and MacLeod received Environment Canada long service recognition awards.

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ADM Gordon McBean; Celine St-Pierre, UQAM Vice-Principal for Research; Macdonald Evans, President, Canadian Space Agency; and Hubert Allard, DG, Canadian Meteorological Centre, in front of the CMC supercomputer.




Gary Wells, Director, AEB, Pacific and Yukon Region; Art Martell, RDG Pacific and Yukon region; Deputy Minister Ian Glen and Executive Assistant Judy Watling at the P&Y "Back to the Future" Workshop.



Environment Canada

Environnement Canada




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through science for the sus-
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and our environment.

Zephyr is your newsletter.
We would like to hear from
you. Your submissions, story
ideas, graphics and pictures
are most welcome.

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**Message
From the
ADM****Marking the 125th
anniversary of weather
services in Canada**

It is my pleasure to welcome you to this special edition of Zephyr, marking the 125th anniversary of weather services in Canada. We have had a special year of celebration to mark this anniversary, culminating in an enjoyable and impressive series of events during the month of October.

It was 30 years ago that I started as a weather forecaster and I have seen the nature of weather forecasting change dramatically. We emphasized the next six hours, analyzed maps that were hand-plotted and only occasionally had a couple of real-time satellite photographs. Today, we produce five-day forecasts and seasonal outlooks using satellite images and models. Along the way, the nature of what we do has also changed. We've moved from being just a weather service into an environmental service, providing research and global leadership on issues such as climate change, ozone depletion and smog. We have developed innovative mechanisms such as the Air Quality Index, the UV Index and climate outlooks.

Paradoxically, the importance of our work is underscored by the fact that many Canadians take what we do for granted. Every day, people wake up to our daily forecasts to prepare for the day ahead, and look to our long-range forecasts to plan activities for the next few days. We get plenty of attention if we get it wrong, so it follows that lack of attention means we are getting it right most of the time.

What many Canadians don't realize is that all these weather updates are based on the round-the-clock efforts of the meteorologists, climatologists, scientists and technicians who represent the Atmospheric Environment Program.

In 125 years of weather services in Canada, the single most important resource has been and will remain its dedicated and highly skilled people. We have adapted to many changes and challenges over the years – in the role of government, in technology and in science. Our challenge for the future is to continue to adapt wisely to the changes that still await us while maintaining our proud tradition of providing quality products and services to safeguard the health, safety and economic well-being of all Canadians.

Celebrating Our 125th

1996 Great Canadian Weather Quiz: Are you gold medal material? Find out by testing your skills on the internet weather quiz located on Environment Canada's web site. In honour of the Canadian weather service's 125th anniversary and the 100th anniversary of the Olympic Games, this year's theme celebrates "Meteorology in the Service of Sports." Completing the quiz may not get you on the podium, but this interactive web site will tally your score and let you know if you're a contender.
<http://www.on.doe.ca/comm/iss/quiz/quizeng.htm>

125th Anniversary Fact Sheet: From Telegraph to Internet – Canada's weather service since 1871. Take a look back and find out how Canada's weather service has evolved since 1871. This special anniversary fact sheet recounts Canada's weather history, and details the methods used to communicate forecasts to the public. It also contains historic photographs of some of the more memorable moments and figures in Canada's meteorological history. Copies can be ordered from 1-800-668-6767. The fact sheet can also be found on the Web at <http://www.on.doe.ca/comm/iss/annivers/history.htm>

125th Anniversary Page On The Web: So you've read the fact sheet, but you're still hungry for more? Satisfy your appetite for Canadian weather history by pulling up the 125 Anniversary Page on Environment Canada's website. Browse through our photo album, look up the history of the Canadian weather service and its founder and impress your friends with little known facts about Canadian weather.
<http://www.on.doe.ca/comm/iss/annivers/aniveng.htm>

Great Canadian Weather Screen Saver: Don't reserve cloud gazing for sunny days at the beach. Bring weather into the workplace with our Great Canadian Screen Saver. To activate, go to Environment Canada's web site and download the 15 full size images that make up this screen saver on to your computer. Once it is installed, sit back and watch the pictures appear on your screen image by image. (Sun screen is optional!) <http://www.on.doe.ca/comm/iss/scrnsave/sseng.htm>

Poster Series: Best of the Season! You may have noticed a series of posters on display in your work area with the message Your Window On Weather Since 1871 across the top. These posters featuring exceptional photos of Canadian weather were designed to celebrate the 125th anniversary of the Canadian weather service.

New Air Quality Laboratories Inaugurated

On Friday, October 4, Environment Minister Sergio Marchi officially opened the new air quality lab at AES Headquarters in Downsview, Ontario, as part of the week-long celebration of AES's 125th anniversary.

The new facility will be used for studying a number of priority air pollution issues, such as climate change, acid rain, smog and toxic pollutants in southern parts of Canada and the Arctic. The information from the labs will help policy makers develop more progressive policies when dealing with environmental pollutants. Access to better information will also help ensure that the best science is used to negotiate protocols on pollutants that have made their way into Canada from other countries.

Construction began on the new lab in September 1993. The building, which covers an area of approximately 2,500 square metres, is being constructed in three phases. Phase one, which was completed in the summer of 1995, involved the construction of the facility. Since then five of the ten labs the building will eventually accommodate have moved in.

Phase two begun in October 1996, will see relocating to the new building the five other labs currently located in leased space at York University and elsewhere. Phase three, scheduled for post-1997, will look at bringing in external partners from the research community.

The five labs now in operation are the Air Toxics Lab, the Co2 Lab, the Biogeochemical Cycling Lab, the Mercury Lab and the Northern Pollution and Trace Sulphur Lab.

The building will also house the Canadian Air and Precipitation Monitoring Network (CAPMoN) labs now located at York University. CAPMoN is used in the study of acid rain by taking precipitation measurements from across Canada and analyzing them.

After working for many years in labs that were cramped and outdated, AES lab researchers welcomed the opening of this spacious new state-of-the-art facility. Plans for this new facility can be traced back to the late 1980's early 1990's, when the Green Plan was initiated. At the time, AES was mandated to do more work involving air quality analysis, but found the building they were in was not suitable for this type of laboratory.

"The concern at the time was that the main building was not set up to handle the type of work we were doing which involved working with various chemical compounds," says Don McKay, Director of Air Quality Research. "The main drive was health and safety."

"We needed new instrumentation to remain at the forefront of science. The laboratories here are not just operational labs, they are research labs so there is a lot of methodology and instrumentation development going on," adds McKay.

The new labs meet safety standards by providing better ventilation and specially designed storage facilities for hazardous chemicals and compressed gases. "We have very good fume hoods for working with solvents and other chemicals," says Terry Bidleman, Research Scientist, Air Quality Processes Research Division.

The hoods are so good, in fact, that not only do they ventilate but they have been known to suck up research notes as well, says Bidleman.

Once the building is complete it will accommodate close to 100 employees. Although there will be some full time employees, most of the occupants will be a changing population of contract employees, summer students and post doctoral fellows.

The new labs meet safety standards by providing better ventilation and specially designed storage facilities for hazardous chemicals and compressed gases.



Minister Sergio Marchi, Ellen Spears and ADM Gordon McBean officially opening the new Air Quality Laboratory in Downsview.

Dr. Desmond O'Neill and Professor Jacques Derome Awarded the "Patterson"



Dr. Des O'Neill, a McGill University professor and former Regional Director General of AES Atlantic Region, is the co-recipient of the 1995 Patterson Medal for his work in advancing the value and importance of meteorology. His

co-awardee is Professor Jacques Derome, who received his award in recognition of his contributions in three areas: research in large-scale dynamics of the atmosphere; supervision and training of graduate students and postdoctoral fellows; and administrative service to the meteorology community in Canada and the United States.

The Patterson Medal is the Atmospheric Environment Service's most prestigious award and is presented annually to individuals in recognition of their distinguished service to meteorology in Canada. The award was created in 1946 in honour of Dr. John Patterson who, from 1929 to 1946, was director and controller of what is now the Atmospheric Environment Service.

Des O'Neill and Jacques Derome were given the award at the Canadian Meteorological Oceanographic Society (CMOS) 30th Annual Congress luncheon held in May. Jacques Derome's role as professor, and mentor has earned him the respect and admiration of his students and colleagues, and he is often referred to as the "Prince of Supervisors."

Des O'Neill was recognized for his success in reaching out to students, clients, researchers and policy makers and using his scientific knowledge, management and communication skills to advance the value and importance of meteorology. He was influential in establishing the Diploma in Meteorology program at Dalhousie University, where he served as adjunct professor in the 1980s.

As Chief of Scientific Services, AES Atlantic Region, in the 1970s, Des established four active Provincial Climate Advisory Committees which advanced climate change as an economic issue in Atlantic Canada. He also coordinated the Green Plan launch in the Maritimes, and has provided active leadership internationally on marine issues working with the Commission on Marine Meteorology (WMO) and the Intergovernmental Oceanographic Commission (IOC).

Reg Noble's Gift to the University of Toronto

Reg Noble, the former head of the Meteorological Service of Canada, has recently established The Muriel & Reginald Noble Endowment Fund for Atmospheric Physics in the Faculty of Arts & Science at University of Toronto. The fund will be administered through a series of charitable gift annuities and a bequest provision in his will.

Reg served as head of the Meteorological Service of Canada from 1965 until 1971 when the weather service was located at 315 Bloor Street West on the University of Toronto campus. The old building, now the University of Toronto's Office of Admissions and Awards, has since been declared a national historic site.

In 1971, when Environment Canada was formed, Reg moved with the service to its new location at 4905 Dufferin Street and was ADMA until 1976.

Reg has had a long connection with the University of Toronto, where he received an honours BA in 1934, and an MA in Physics (Meteorology) the following year.

For more information about this fund, please contact University of Toronto's Office of Planned Gifts and Bequests at (416) 978-3846.

The Patterson Medal is the Atmospheric Environment Service's most prestigious award and is presented annually to individuals in recognition of their distinguished service to meteorology in Canada.



From left to right:
Dr. Gordon McBean,
Assistant Deputy Minister;
Professor Jacques Derome;
Dr. Desmond O'Neill;
Dr. Michel Béland,
President of
CMOS.

The (Un)Official History of Canada's Weather Service

Zephyr takes a look at
some of the lesser known
highlights of our history



Weather – What's the attraction?

The first weather observatory in Toronto was located by the lake in what is now Old Fort York but then was called the Bathurst Street Barracks. The army wanted the permanent observatory built beside the fort. Observatory director Lieutenant Charles James Buchanan Riddell did not, for several reasons, not the least of which was that it would be too close to the artillery and the ammunition. Riddell was not so much worried that it all might blow up, although that was a concern, so much as he was concerned about the iron in the arsenal.

At that time, scientists believed there was a close connection between meteorology and terrestrial magnetism. Several countries including Britain had built magnetic and meteorological observatories to measure the direction and strength of the earth's magnetic fields and see if there was a connection to their variations and weather patterns. The British army's observatory in Toronto was such an observatory. Riddell believed that the iron in the artillery and muskets would affect the readings of his magnetic instruments.

Don't shoot the weather forecaster

King's College, now the University of Toronto, offered Riddell land on which to build an observatory. When the observatory opened in 1840, it was surrounded by fields. By 1843, the students were using them for their rifle shooting matches. One afternoon, the shooting came a little too close for Riddell's successor, John Henry Lefroy. He protested to the university in a stiffly worded note: "Yesterday afternoon five different discharges passed through the windows of the observatory."

The wooden observatory in which Lefroy worked was replaced in 1855 with the stone observatory, which was taken down in 1908 and rebuilt on the grounds for astronomical and geodetic use. (It is still there today, just south of Hart House and east of University College.)

The Meteorological Service of Canada moved north to the building on at the corner of Bloor and Devonshire Place which the service occupied until it moved even farther north to its present site in deepest Downsview.

The site of the original observatory, just south of Convocation Hall on Kings College Road, is marked with several plaques including one in front of the original transit pillars of the magnetic observatory.

George Kingston, our illustrious founder and unemployed math teacher

George Kingston, the founder of Canada's national weather service was a mathematician by training and a meteorologist by chance. When the University of Toronto's professor of mathematics died, a British appointments board invited Kingston to fill the post. But while he was travelling from Quebec where he had been the principal of a nautical college, the university's board of directors gave the job to one J.B. Cherriman who happened to be Kingston's brother-in-law. When Kingston arrived in Toronto with his family and all his worldly possessions in tow, the board gave him the choice between being the professor of meteorology and director of the observatory or becoming unemployed. He took the job.

Calling it what it really is

In 1874, Captain Adolphus Peele of the Peele Rifle Butts was the supervisor of the weather observing station in New Westminster in the then three-year-old Canadian province of British Columbia. Where meteorologists today must, in the interest of accuracy, content themselves with such bloodless terms as cloudy or overcast for the days when more than 90 per cent of the sky is covered in clouds, Peele described the day as he saw it, "gloomy" and with a mastery of understatement described a severe storm as "very gloomy."

Getting punchy with data

The data centre of Canada's weather service is located in the Canadian Meteorological Centre's super computers. Every day, they analyze the more than 100,000 weather observations which come from all over Canada and the world. This is a far cry from the state-of-the-art meteorological computer which the service bought in 1973. This computer was as powerful as one of the home computers now sold over the counter today at a big box store. Even that computer was a wizard compared to the service's first meteorological computer. It had less power than a cellular telephone.

But it is the service's very first steps into computing that now seem near-neolithic. In the early 1950s, the then Climatology Division (later renamed the Canadian Climate Centre) employed four people to record weather data by punching holes in cards with hand punches. Not long afterwards, the division invested in electric punches and unit record equipment. After a year or two, the division had 25 people punching cards. But even they could not keep up with the work. To lighten their load, headquarters put the field stations "on-line" – 1950s style – and sent them all hand punches.

It was a dark and stormy night

Like many of the 200 people who worked in the then relatively new Atmospheric Environment Service building at Dufferin and Steeles, Morley Thomas did not make it home the day of the big storm in April 1975. But it was for a very strange reason, he recalls. Morley, who was then the Director of the Meteorological Applications Branch, had John Jacobs from McGill University in Montreal coming in the next day at 10 a.m. to present a seminar.

'I better not go

home as I won't be

able to get back in

the morning.'

Morley knew how hard it was snowing and thought to himself, "I better not go home as I won't be able to get back in the morning.' Of course, no-one could get in at 10 a.m. the next day," he said, "especially John Jacob."

Jim McCulloch, who wrote a story about the storm for the April

1975 edition of Zephyr, helped to feed the many, or at least Morley. Jim had packets of dried soup in his desk and a tea kettle. The rest of the crew simply ate everything in the cafeteria and its stores. All the food was gone by 10 p.m. Some passed the night by playing bridge. Others tried to sleep. A few slept in the auditorium. One fellow made a bed of sorts by putting his padded room divider on his desk and slept on that. Morley was made of sterner stuff. He just curled his six-foot plus frame up on his desk and went to sleep.

Morley Thomas: Navigating Our Past

Morley Thomas has said many times that if it wasn't for the aviation boom before and during World War II, the Canadian weather service would never have developed into the organization it is today. Morley, a meteorologist and former Director General of the Canadian Climate Centre, has written a book, *Forecast for Flying*, documenting the growth of meteorology in Canada between 1918 and 1939.

Morley's interest in the history of Canadian meteorology began 25 years ago when he noticed that his department was about to throw out a series of letters that had been written to its weather observers, department officials and others, up to and including 1928. These letters had been bound and retained in "letter books." Realizing the historical value of the documents, Thomas talked the service into keeping the books and hiring a couple of summer students to go through and annotate them.

He also recognized that the documents would provide good source material to write a history of this period in Canadian meteorology. Since no one was available at the time, Morley decided to do it himself when he retired. In January 1983, the newly retired Morley was given an office in the Atmospheric Environment Service library in Downsview where he has worked part-time ever since, documenting Canadian meteorological history.

Thomas has based *Forecast for Flying* on the letter books, using them to cover the period up until 1928. For the period after 1928, he referred to annual reports, documents, and articles contained in the Canada Year Book and in British and American publications.

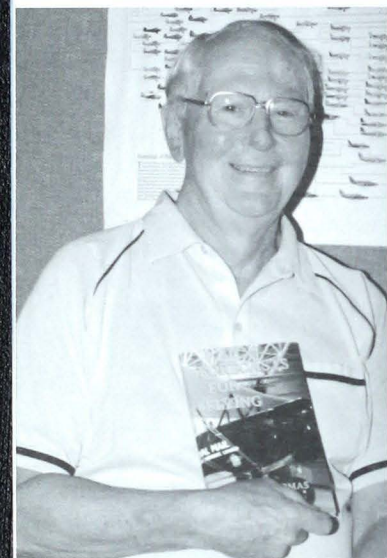
Since starting his research in 1983, Morley has also produced a series of articles on meteorological history and published another book, *The Beginnings of Canadian Meteorology*, in 1991.

Spending retirement holed up in a library may not appeal to everyone, but Morley thrives on it. "Let's say I enjoy wallowing in history," says Thomas. "So much of this has never been written before. I just love reading the letters and finding out some of the things that went on."

Morley's interest in aviation stems from the four years he spent with the Royal Canadian Air Force as a meteorological officer during World War II. "I joined in the fall of 1941 and went on course with 25 others who were just fresh out of college at the time," says Thomas.

The next four years were spent at a number of air force stations where he was responsible for doing the forecasting for training flights, and instructing pilots in meteorology. "In the fall of 1945 most people got out, but I was hooked on climatology and meteorology," recalls Morley. And so began a career in meteorology and climatology that Morley describes as "fascinating."

Until 1948, Morley worked in the climatology division, then he returned to school and took a masters degree in meteorology. He later became the Deputy Head of Climatology in the then-Meteorological Branch, and in the seventies became the Director General of Central Service for the Atmospheric Environment Service.



Morley Thomas with new book, *Forecast for Flying*.

Andrew Thomson Plaque Unveiled

A plaque commemorating Andrew Thomson, Director of the Canadian Meteorological Service between 1946 and 1959 was dedicated in the lobby of the new lab building. Thomson, who died in 1974, is remembered by many at AES as an important figure in Canadian meteorology. He oversaw the reorganization of the Canadian Meteorological Service after the Second World War, and was among the founding members of the World Meteorological Organization. During his tenure, considerable advances were made in the areas of forecasting services, research, instrument development, climatology and training methods. The reputation of the Canadian weather service in government circles and the public domain was much enhanced by his efforts.



Minister Marchi unveiling the Andrew Thomson dedication plaque alongside Thomson's daughter, Ellen Spears, grandsons Ian (left) and Andrew Spears and great-granddaughter Jordan Spears

The Canadian Weather Trivia Calendar... back for another year

Last year it was the best selling wall calendar in Canada, emptying bookstore shelves by mid-December with over 20,000 copies sold. Now Canada's "weather guru," our very own David Phillips, is back with the 1997 Canadian Weather Trivia Calendar, packed with NEW weather stories, trivia and history from Canada and around the world.

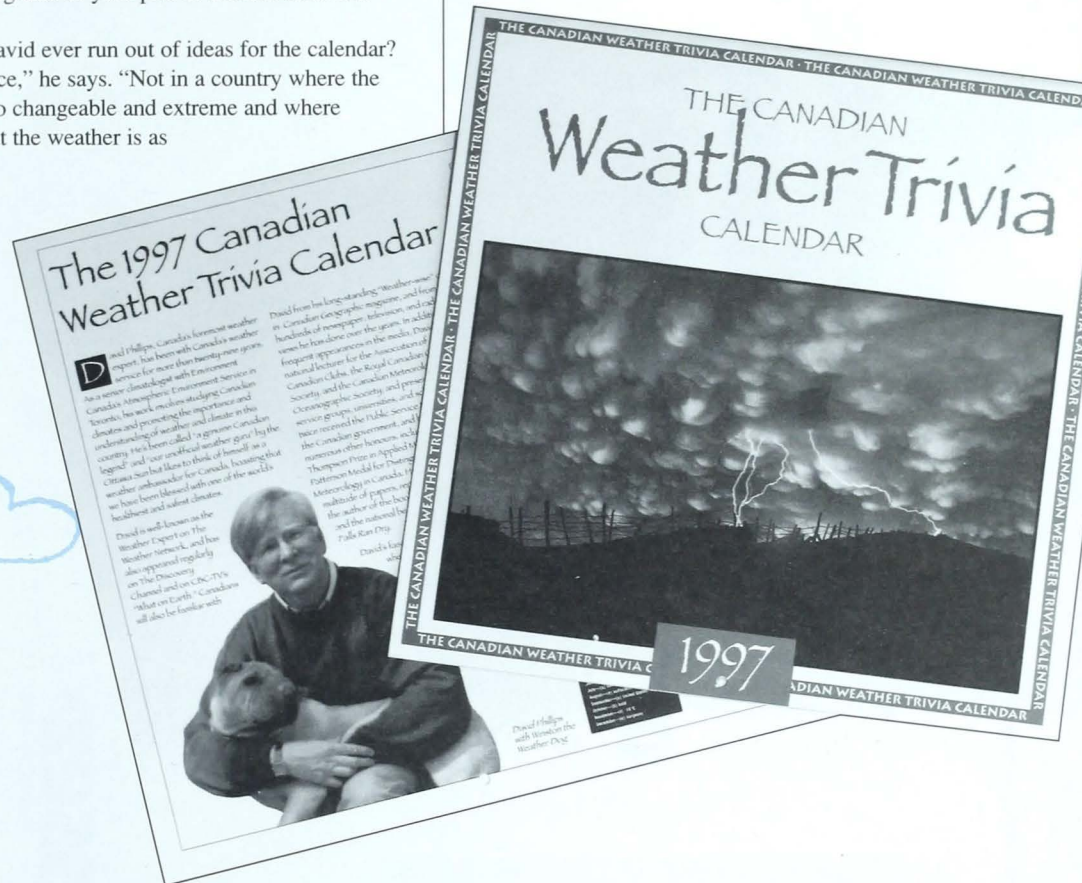
Back by popular demand, you'll find the Weather-Wise Quiz, as well as Weather Flashes, a 16 page mini-magazine insert. New to the calendar is Winston the Weather Dog (aka the Phillips' family dog) with his tips for taking care of your pets in Canada's hot and cold season.

Does David ever run out of ideas for the calendar? "Not a chance," he says. "Not in a country where the weather is so changeable and extreme and where talking about the weather is as

natural as breathing. And the past 12 months were chock full of weird and wild weather stories, given the hot summer of 1995, the long cold winter and no spring."

The 1997 Canadian Weather Trivia Calendar sells for \$14.95 and is now available at book and stationery stores and Environment Canada weather offices across the country.

Toll-free ordering is also available. For Western Canada, Yukon, and NWT call 1-800-360-8826 and in Eastern Canada call 1-800-565-9523.



Dave's picks:

Personal favourites from the 1997 calendar

When Australia's First Secretary to Canada arrived in Ottawa, he celebrated his new posting by buying 6 cases of beer, which promptly froze in his garage. The temperature that night fell to -19.2° C. Said the senior officer, "I realised this is the only country in the world where you have to put your beer in the fridge to keep it warm".

On 5 April 1936, a devastating tornado ravaged Tupelo, Mississippi, killing over 250 residents. One of the lucky survivors was an infant by the name of: (a) Jimmy Swaggart (b) Jerry Lee Lewis (c) Newt Gingrich (d) Elvis Presley (e) Jackie Robinson

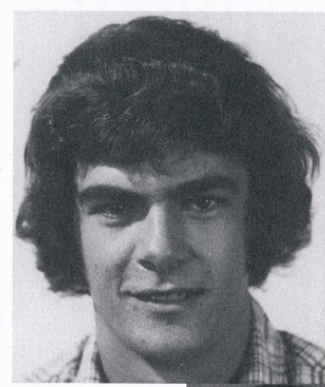
Find the answer on the inside front cover of the calendar!

6

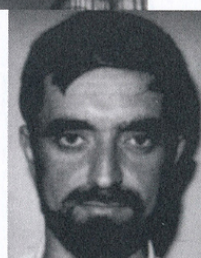
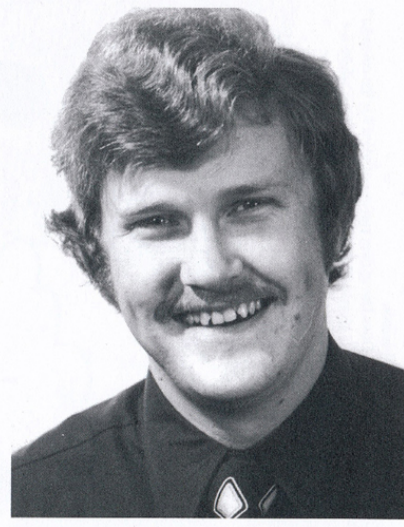
Recognize these meteorologists?



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1



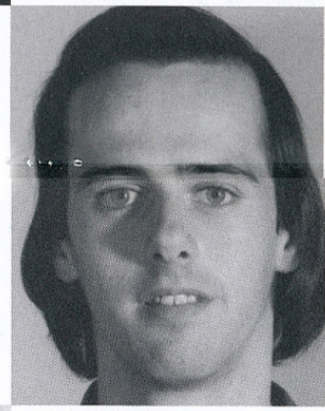
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Reconnaissez-vous ces météorologues?

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19



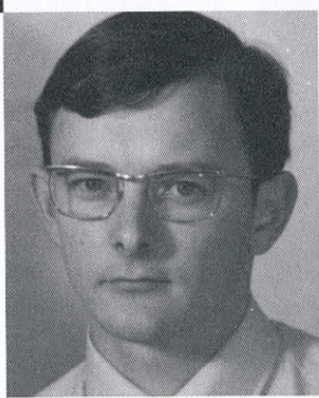
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18



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17



7

1. David Grimes
2. Gilles Labreuque
3. Pierre Dubreuil
4. M. P. C. Regan
5. Nancy Waller
6. Ken MacDonald
7. Brian O'Donnell
8. Dave Broadhurst
9. Martha Danks
10. Hubert Allard
11. Dave Dockendorff
12. Peter Lewis
13. Ted Koolwine
14. Ken Devine
15. J. C. McLeod
16. Paul Delannoy
17. John Bullas
18. Christian Doyle
19. André Sevigny