

Busy day at the Forces forecast centre (part one)

by Gary Burke

6:48 am – Day shift at the Canadian Forces Forecast Centre (CFFC), Edmonton is about to begin. Forecasts for the office's area of responsibility have already been transmitted by the two meteorologists on the midnight shift. The military briefer, who started at 4:00 am has already been apprised of the situation and is now busily preparing for his squadron briefings. Now a second briefer, as well as the duty observer for the day join the two forecasters to listen to the morning shift-change briefing.

No major problems are anticipated on this pleasant, late spring day. Some early morning fog patches at Moose Jaw will hold up flying operations for a few hours, and a weak upper trough moving across the province later in the afternoon is expected to produce some thunderstorm activity as it passes. After a few more words about the numerical progs, the extended forecasts, and equipment status, the night shift departs and the day shift settles in.

7:30 am – Almost immediately a call is taken from the base parachute school. An air drop is scheduled for 9:00 am and because of the experience level of the students the surface winds can be no more than 13 knots. Since surface winds are currently hovering near 10 knots, the officer in charge of the drop wants to know whether or not this 13 knot limit will be exceeded. Referring to the latest upper-air data the forecaster decides that surface winds will probably exceed this limit as the early morning inversion breaks down, however, it doesn't appear as if this will happen until much later in the morning and so the caller is advised that winds will be within acceptable limits at 9:00 am. With that, the jump goes ahead as scheduled.

Forecasting responsibilities at Edmonton are normally divided between two positions. One meteorologist looks after CFB Edmonton and CFB Cold Lake, producing Terminal and Area Forecasts for the flying area around each base. The second meteorologist devotes his time to CFB Moose Jaw and to providing a warning service to the prairie radar sites which make up the military's "Pine Tree" line. In addition to these basic duties the office also produces forecast upper winds and temperatures for both Cold Lake and Moose Jaw, upper jet stream and turbulence forecasts, 12- and 24-hour Horizontal Weather Depiction charts for the Prairies, and Satellite Nephanalysis Charts.

Apart from these "daily" duties, the office is also asked to provide a number of specialized services, for example, support to the "Maple Flag" exercises held in Cold Lake each spring and fall. This is a combined American-Canadian effort with the occasional participation of the U.K. and Germany and involves dozens of fighter aircraft from each country. CFFC Edmonton provides meteorologists to work on-site for the duration of the exercise in order to provide up-to-date forecast and amendment services, required by the vast number of aircraft which are in flight at any one time.

In the past, forecasters have responded to such requests as: site forecasts for the Papal Mass held at Namao in September 1984; 24-hour public and aviation forecasts for CFB Wainwright and CFB Suffield in southeastern Alberta during the recent "Rendez-vous 85" exercise involving over 12,000 military personnel; and enroute and terminal forecasts over the western Arctic and the Cold Lake Air Weapons Range in support of Cruise Missile tests. As well, several years ago, during the recovery of the Russian *Cosmos 954* satellite in the Northwest Territories, the office dispatched observers with portable observing equipment, and provided 24-hour aviation forecasts for the recovery aircraft operating in that remote location.

8:00 am – The military briefer departs to deliver his squadron briefings. Every day at this time he goes "down the line" giving pre-arranged briefings to each of CFB Edmonton's four squadrons. Meanwhile the other briefer looks after unscheduled briefings and prepares the synoptic summary for the regularly scheduled "Search and Rescue" briefings.

CFB Edmonton maintains SAR crews on a 24-hour-a-day basis in order to respond to emergencies anywhere within its area of responsibility. This area, the largest in the country, covers northeastern British Columbia, the three prairie provinces, northwestern Ontario, as well as the Northwest Territories and the Yukon. On this particular day an ongoing search in northern Alberta elicits a call from the crew chief operating out of High Level. He wants to update the latest conditions and satellite data and to discuss the synoptic situation for the next few days.

10:00 am – The fog in Moose Jaw has slowly lifted into a low stratus ceiling and the terminal forecast must now be



Aircraft such as the F-18 Hornet have long relied on forecasts put out by Canadian Forces Centres.

changed in order to reflect the new situation. A quick call to the briefer confirms that the stratus is breaking up slowly and with this information in hand, the forecaster issues the amendment.

To be continued.

Mr. Burke is a meteorologist at CFFC Edmonton

Instrument drop

The U.S. National Weather Service has issued an appeal for return of reusable weather instruments that twice daily are lifted into the sky by balloons from about 100 stations coast-to-coast. They rise until, at a height of about 32 kilometres, outside pressure becomes so weak that the balloons burst. Paper parachutes then ease their descent.

During the past 40 years, 670,000 of the radiosondes have been returned, notably by citizens who spend much time in the open. This has saved the U.S. Government \$10 million. Nevertheless, according to Richard E. Hallgren, director of the service, "We don't know why, but we are getting back several thousand fewer than the 18,000 radiosondes normally returned each year."

Consequently, costs of the program have increased. The instrument packages, roughly the size of shoe boxes, contain instructions on return and prepaid mailbags.

From the Globe and Mail. Please note that AES does not require return of its radiosondes, most of which come down in isolated Northern areas.

Busy day at the Forces forecast centre (part two)

CFB Moose Jaw, with over 100 jet trainers on site, is Air Command's primary flight training facility. Here, new pilots entering the system, after a basic course given at CFB Portage La Prairie, embark on a 10-month course to teach them the skills necessary to fly high performance jet aircraft. Because several courses are ongoing at any one time, with pilots at various levels of ability, weather conditions impact heavily on their program. Certain ceilings and visibilities, for example, may keep pilots attempting a solo flight grounded, while other students with instructor assistance, may still be able to fly. These factors must always be kept in mind whenever forecasts are written for this area.

2:00 pm — Weather radar indicates the first echoes of convective cloud forming over the foothills west of Edmonton. Satellite photos confirm the radar's accuracy and after monitoring the situation and plotting the system's movement a base weather warning is issued. The briefer contacts all relevant personnel concerning the warning and continually updates information during the event to those parties most concerned. During the period of the warning all refueling activities on the base cease.

5:00 pm — As the thunderstorm activity ends over Edmonton, the action shifts to Cold Lake. After consultation with the Cold Lake briefer, another weather warning is issued. A

direct line to the office in Cold Lake ensures rapid dissemination of the warning. The briefer is also quick to call with updates as the weather situation unfolds.

CFB Cold Lake is home of 419 and 410 training squadrons which employ CF-5's, and the latest, state of the art CF-18 fighter aircraft. Here pilots who pass their initial training at Moose Jaw, are brought up to performance standards prior to deployment with the First Canadian Air Group in Europe. Training occurs over a large area of northeastern Alberta and western Saskatchewan. Because of the base's somewhat isolated location, combined with the limited fuel capacity of these jets, weather again plays a critical role in all squadron activities. Timely and accurate warnings and amendments are therefore essential, not only at the base itself, but at the few alternate locations available to the type of aircraft.

6:00 pm — The briefer at Cold Lake phones to say all aircraft are down and secure prior to the onset of convective activity. At the same time in Edmonton, warnings are being transmitted by the NORAD forecaster to those radar sites which may be affected by the late afternoon thunderstorms. Many of these later warnings will carry into the early evening hours at sites across Saskatchewan.

6:45 pm — Shift change briefing for the midnight forecasters. Now the day's activities



Left to right at Alberta Forces Weather Centre: Meteorologists Gary Burke (The author of this two-part article); and George Ingles and M. Cpl. Charlie Kennedy (briefer in the Forecast Centre).

are reviewed and the sites currently with warnings are left with the new shift. It will be their responsibility to watch developments and update or end the warnings as required. And so, after 12 relatively busy hours, the two forecasters finally are able to go home for a few hours relaxation. The time to rest is short, however, for at 6:45 am, the next day, they will both be back at their desks, ready for another day's work for the Canadian Forces Weather Service.

Gary Burke, CFFC meteorologist