Major new Climate Data package much more than normals

Staff at the Canadian Climate Centre have reason to be proud. This March they completed the largest and most comprehensive climate data package ever produced by AES and possibly anywhere else in the world.

The recently published 1951-80 Canadian Climate Normals contain observations from about 2,300 climate stations and include a greatly expanded range of statistics. They now list such factors as percentiles, dacedal and full-period means, standard deviations, vector mean winds, percentage of possible sunshine, net radiation and rainfall intensity. This means that a station with a full observing program can now generate about 195 tables.

In publication form the normals are appearing as a series of volumes covering such elements as radiation, temperature, degree days, wind and frost. In addition, temperature and precipitation data are being published for six geographic regions of Canada. In keeping with the times, the same information is also available on microfiche and computer tape.

Why all this intense activity? Early in every decade in many countries meteorological services are busy updating revised normals for a wide variety of meteorological elements – everything from daily maximum temperature to the number of days with snow. AES is no exception. Nowadays climate people prefer to play down the word normals and talk about revising climate statistics.

According to David Phillips, superintendent of the Climatological Development Section, merely updating climate data is not enough. "New users are constantly needing information in different forms, formats and combinations," he says, "so new publications must be produced and new statistics generated to incorporate the needs of these users into the design of future information resources."

Many new factors had to be considered when designing the 1951-80 data package. For example, there is a new generation of computer as well as enhanced and reconverted archives. In addition, new government policies on metrication and bilingualism had to be incorporated. Finally, the increased number of stations (40% more than in the 1941-70 period) had to be taken into account.

The 1951-80 climate data package took three years to plan and prepare, including eighteen months to feed detailed user specifications into the computer. The printed data popped effortlessly out of the computer in a matter of days or weeks. This compares with the 1921-50 Canadian normals, when it took seven years to produce normals for two elements. Although the current package covers a 30-year period, data for some stations actually goes back 140 years.

The new data package also includes more than 10,000 microfiches containing more than 500 million pieces of information. There are also computer tapes for those in the private sector who wish to purchase the data in computer processible form.

In a closely related area, AES has also completed development of its new climatic atlas of Canada. With detailed analysis to begin in 1982, assistance of AES regions will be sought in the examination of local climate elements.

The climate statistics package was launched March 25 at a presentation held in the AES Auditorium, Downsview before an audience of specially invited guests, including ADMA Jim Bruce. David Phillips, gave an illustrated talk on the climate data program showing the tasks of the many people involved and relating the history of Canadian climate normals all the way back to 1921. In addition, Mrs. Jackie Blackburn, superintendent, Climate Archives Section, explained the programming and processing side of the normals operation. Displays of climate data material were shown in the AES building lobby and sample publications were handed out.

Commenting on the entire package, Mr. Phillips said, "a concerted effort was made to prepare summaries of interest and concern to a wide variety of users and to provide convenient and timely access to all information." He added that requests for these data account for almost 40% of all AES climate requests.

Requests to AES for climate data and information in 1981 numbered about 100,000. The more serious requests came from urban planners, businessmen, lawyers, government personnel, students, physicians, vacationers and agriculturalists. Queries were received by telephone, mail or in person, either at the Downsview-based Climate Centre or at one of six regional AES offices.

With this volume of enquiries, it is no surprise to learn that past weather data is put to a great variety of uses. For example, there are requests from large corporations for climate data for air pollution studies prior to future expansions and large oil companies often request statistics on extreme weather conditions in off shore areas before engaging in drilling. Litigation consumes considerable time to prepare documents submitted for presenting as evidence in court. In criminal cases weather data are often consulted to determine the time of death.

Graduate students frequently write in too. For instance one asked AES for temperature and precipitation records for some dates during the French Revolution. Other enquiries concern health. An arthritis sufferer might write in desperately seeking a place to live with a warm, dry climate. Migraine, asthma and bronchitis patients also seek climate advice as do doctors and public health officials.

Other major users of climate data are government agencies. A government scientist might request climate statistics for a study of forest biomass production or a biologist from the Department of Fisheries and Oceans seek climate data for studying fish stocks in the Gulf of St. Lawrence.

The Climate Centre gets its share of offbeat requests. For example, a small town in Northern Ontario found the clubhouse on its municipal golf course too isolated to be linked up to hydro, so it asked the Climate Centre how it could be supplied with wind power. When the Minnesota Northstars hockey club sued another for failing to make a scheduled game, Gerry Chapleau, Quebec Region climatologist was asked to describe the

Examining new Canadian Climate Normals publications are three of the key people involved, (left to right): Frank Yates, systems analyst, AES computer centre, Jackie Blackburn, supervisor, data base and David Phillips, supt. climatological systems section, Canadian Climate Centre.