

## Section 2.—Meteorological Observing Stations in Canada\*

In 1959, official meteorological observations were taken and recorded at some 1,828 weather reporting stations in Canada. There are several different classes of stations, ranging from the first-order reporting stations at airports where hourly observations of all aspects of the weather are recorded, to the co-operative precipitation observing stations where a volunteer observer makes daily observations of rainfall and snowfall.

The official recording of weather observations in Canada began early in 1840. Although there were some scattered weather records prior to that date, it was at the Toronto Observatory, established by the British Government, that the first scientifically precise Canadian weather observations were recorded. Several additional observing stations were established in the 1860's after control of meteorological work had passed into local governmental hands and a national meteorological service was organized in 1871. By 1876 there were more than 100 stations, 15 of them reporting daily by telegraph to Toronto for forecasting purposes.

Since then, the number of meteorological observing stations has grown steadily. As the mid-west opened up around the turn of the century, they spread into that area and during the past three decades into the sub-Arctic and Arctic regions. At the same time the coverage has improved in the older portions of southeastern Canada. While there are vast areas of Canada where the weather stations are several hundred miles apart, most of the settled portions of the country are represented by first-order hourly reporting stations every 100 miles or so, and by co-operative climatological observing stations at least every 25 miles.

Of the 1,828 weather reporting stations across Canada about 250 are classified as first-order synoptic stations. At most of these stations complete weather observations are made every six hours and at a large percentage of them only slightly less complete observations for aviation forecasts every hour. These weather data, including information on temperature, precipitation, pressure, wind, humidity, cloud and visibility, are sent first by radio and teletype to the different weather offices across the Continent to be used for weather forecasting purposes, and at the end of the month the manuscript reports are dispatched by mail to Meteorological Headquarters for use in compiling climatic statistics. At some 90 of these observing stations, personnel of the Telecommunications Branch of the Department of Transport take weather observations as part of their scheduled duties, while 35 stations are operated in a similar manner by the different Armed Services. Seventy stations are operated by Meteorological Branch personnel and the remainder of the stations are operated under contract, mainly by various transportation and communications companies.

About 1,020 weather observing stations in Canada are classified as climatological stations where the observers record temperature extremes and precipitation once or twice daily and send in monthly data sheets. Most of these climatological observers serve on a voluntary basis and willingly spend several hours a month on their hobby. These observers come from all walks of life—farmers, business men, clergymen, retired people, etc. In addition, many governmental and industrial organizations such as agricultural experimental farms and power companies have incorporated brief climatological duties into the general work of some of their employees. These climatological stations have contributed much useful information on temperature and precipitation for publication by the Meteorological Branch.

There are about 510 stations classified as precipitation stations where rainfall and snowfall only are observed and recorded. Since precipitation varies more rapidly than temperature over short distances, a dense network of these stations is required, especially in large urban areas. Finally, there are about 50 miscellaneous stations where observations of wind, sunshine and temperature are taken for special purposes. In all, the total number of weather stations in Canada has been growing at a rate of more than fifty a year for the past decade and thus a steadily increasing climatic intelligence is assisting Canadians in all economic pursuits.

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