

heaviest snowfall in the Canadian Arctic occurs at the south end of Baffin Island, where frequent southeasterly winds release their moisture as they are forced to rise over the coastal cliffs. In all other sections of the Arctic, where the rolling hills and plains are generally below 1,500 feet in elevation, the relief is locally important as far as winds and temperatures are concerned but it has little effect on the regional climate.

General Climate

For more than half of the year the snow- and ice-covered Arctic region is subjected to a "continental" type climate which is modified somewhat by the relatively warm waters beneath the ice. Temperatures average from -20°F in southern sections to -30°F in the north during three of the coldest months, generally remain below zero during the whole period, and seldom rise above freezing from October to May. Record low temperatures of -55°F to -60°F at most Arctic stations are not as low as the North American record of -81°F reported at Snag in the Yukon, or even the -70°F to -75°F temperatures that have been reported at a few northern locations in the western provinces and Ontario. While eastern sections of the Arctic, in particular, may be subjected to substantial variations in temperature from year to year, large rapid temperature fluctuations during a particular month or season are uncommon. During this season of continuous ice-cover in the seas and channels, the Arctic is relatively cloud-free. Although low pressure areas occasionally cross the region, the cold air is too dry to permit formation of effective snow-producing clouds and, as a consequence, snowfall is very light. The scarcity of Arctic snowfall may be emphasized by comparing annual snowfall totals at Arctic stations with similar figures for cities in Southern Canada. At the Arctic locations of Isachsen, Resolute, Cambridge Bay and Baker Lake, for example, annual snowfall amounts to less than 30 inches, and these figures represent the total precipitation for fully nine months of the year, while the cities of Edmonton, Calgary, Winnipeg and Toronto receive just under 60 inches of snow, most of which falls in less than six months. Although the steady Arctic cold and light snowfall are characteristic features of the winter climate, it is only when they occur in combination with strong winds that travel becomes hazardous or, in the case of heavy blowing snow, even impossible. The most uncomfortable area and the region where blizzards are most frequent is not the high Arctic, but the coastal sections of the eastern Arctic and the barren lands surrounding Hudson Bay, where cyclonic activity is greater and strong winds more frequent than elsewhere in the Arctic.

In June, July and August, low-lying stratus clouds and coastal fogs are notorious features of the climate. During these months all land areas are snow-free, with the exception of the permanently ice-capped mountains which form the eastern boundary of the Canadian Arctic Archipelago, and the waterways lose much of their ice cover. The majority of the land areas are frozen swamps which melt to shallow depths during this period, giving the impression that the Arctic is a very wet region. Precipitation figures do not, of course, bear this out. Rainfall makes up less than half the annual precipitation and averages from one to two inches over the northern islands to three inches along the mainland coast and to seven inches at the southern end of Baffin Island. Arctic rainfall depends mostly on the extent of cyclonic activity during this three-month period and, as this varies greatly from year to year, so also does the rainfall. The water-logged lands and cold, partially ice-covered waterways influence the climate by adding sufficient moisture to create extensive low-lying clouds and fog banks, while holding air temperatures to within a few degrees of the melting point. These months, the mildest of the year, are characterized by a uniform temperature pattern along the coasts, with temperatures generally remaining below 45°F and only occasionally, during brief interludes of sunny weather, exceeding 65°F .

It will be appreciated that the four seasons concept (winter, spring, summer and autumn), so familiar to residents of southern latitudes of Canada, cannot be readily applied to Arctic climates. If, for example, spring is considered to date from the vernal equinox,