

a characteristically hummocky surface and is low lying except along its eastern margin in Labrador, and Baffin and Ellesmere islands.

**Orogens.** The Appalachian, Cordilleran and Innuitian orogens are mountain belts of deformed and metamorphosed sedimentary and volcanic rocks, mainly of Phanerozoic age, intruded by great masses of granite. The orogens are of different ages and different complex origins.

**Platforms.** The St. Lawrence, Interior, Arctic and Hudson platforms are formed of thick, flat-lying Phanerozoic strata which cover large parts of the Canadian Shield. The Interior platform is a vast flatland extending west from the edge of the shield to the foothills of the Rocky Mountains.

**Shelves.** The geologically youngest provinces, the submarine Atlantic, Pacific and Arctic continental shelves, are formed of little deformed sediments chiefly of Mesozoic and Cenozoic age that have accumulated and are still accumulating along the margins of the present continental mass.

## 1.4 Climate

Climate depends primarily on radiative exchanges between the sun, the atmosphere and the surface of the earth. Regional climates of Canada are controlled by the geography of North America and by the general movement of air from west to east. The Pacific Coast is cool and fairly dry in summer but mild, cloudy and wet in winter. Interior British Columbia has climates varying more with altitude than latitude: wet windward mountain slopes with heavy snows in winter, dry rainshadow valleys, hot in summer, and high plateaus with marked day to night temperature contrasts. Interior Canada, from the Rocky Mountains to the Great Lakes, has a continental-type climate with long cold winters, short but warm summers and scanty precipitation. Southern portions of Ontario and Quebec have a humid climate with cold winters, hot summers and generally ample precipitation all year. The Atlantic provinces have a humid continental-type climate although in the immediate coastal areas there is a marked maritime effect. On the northern islands, along the Arctic Coast and around Hudson Bay, arctic conditions persist, with long frigid winters and only a few months with temperatures averaging above freezing. Precipitation is light in the tundra area north of the treeline. Between the arctic and southern climates, boreal Canada has a transitional type climate with bitter long winters but appreciable summer periods. Precipitation is light in the West, but heavier in the Ungava Peninsula.

**Climatic data.** Some climatic detail of individual provinces and territories is given in Section 1.1.1, Regional geography. Temperature and precipitation data for various districts are shown in Table 1.7.

## 1.5 Time zones

Canada has six time zones. The most easterly, Newfoundland standard time, is three hours and 30 minutes behind Coordinated Universal Time (UTC), and the most westerly, Pacific standard time, is eight hours behind UTC. From east to west, the remaining zones are called Atlantic, Eastern, Central and Mountain.

Standard Time, adopted at a world conference at Washington, DC in 1884, sets the number of time zones in the world at 24, each zone ideally extending over 1/24th of the surface of the earth and including all the territory between two meridians 15° of longitude apart. In practice, the zone boundaries are quite irregular for geographic and political reasons. UTC is the time of the zone centred on the zero meridian through Greenwich, England. Each of the other time zones is a definite number of hours ahead of or behind UTC to a total of 12 hours, at which limit the international date-line runs roughly north-south through the mid-Pacific.

**Legal authority for the time zones.** Time in Canada has been of provincial rather than federal jurisdiction. Each of the provinces and territories has enacted laws governing standard time and these laws determine the time zone boundaries. Lines of communication, however, have sometimes caused communities near the boundary of a time zone to adopt the time of the adjacent zone, with amendments to provincial legislation. Official time for federal purposes is the responsibility of the National Research Council of Canada (NRC).

Based on atomic clocks, Canada's time is established by the National Research Council with a precision of one ten-millionth of a second per day, and co-ordination with other countries is maintained to the same precision through the Bureau international de l'Heure in Paris.

**Daylight saving time.** Most provinces have legislated provincial adoption (or rejection) of daylight saving time; in the other provinces authority is left to the municipalities. By general agreement, daylight saving time set at one hour earlier than standard time is in force from the first Sunday in April until the last Sunday in October throughout Canada, except in most of the province of Saskatchewan. Previous to April 1987, daylight saving time began the last Sunday in April.