

## July Mean Daily Minimum and Maximum Temperatures

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### Abstract

Below-freezing minimum temperatures in July are normal only for higher elevations on Ellesmere and Baffin Islands in Canada's far northeast. Much of southern Canada experiences minimum temperatures above 10°C in July. Maximum temperatures in July are above freezing across all of Canada except for high elevations on Ellesmere Island. The map shows the mean daily minimum and maximum temperatures for July.

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Below-freezing minimum temperatures in July are normal only for higher elevations on Ellesmere and Baffin Islands in Canada's far northeast. Much of southern Canada experiences minimum temperatures above 10°C in July. Cooler minimum temperatures at higher elevations over the Cordillera are clearly evident. Along the north shores of Lake Erie and Lake Ontario and along the St. Lawrence River valley as far east as Montréal, minimum temperatures in July exceed 15°C.

Maximum temperatures in July are above freezing across all of Canada except for high elevations on Ellesmere Island. Maximum temperatures exceed 25°C in the valley bottoms of southern British Columbia, across the southern Prairies, in southern Ontario and along the St. Lawrence River valley almost to the City of Québec and over parts of central New Brunswick. For many of these southern regions, this is the height of summer, with plentiful sunshine and warm dry days. Maximum temperatures along coastal regions of Atlantic Canada and British Columbia are moderated by the oceans but, even there, maximum temperatures near or above 20°C are the norm.

### Data Source and Methodology

The 1971 to 2000 temperature climate normals were calculated by Environment Canada in a manner consistent with the methodology of the World Meteorological Organization. For temperature, a monthly maximum (minimum) average was computed from the daily maximum (minimum) temperature observations. The normal is a simple arithmetic average of the monthly minimum or maximum temperatures for the specified period. These spatial models have been developed using the thin plate smoothing spline algorithms of ANUSPLIN, which is a mathematically sophisticated approach to generating climate maps at varying spatial and temporal scales. The Canadian Forest Service has been working in partnership with several staff in Environment Canada's Meteorological Service of Canada, the Australian National University (the creator of ANUSPLIN) and others to develop a variety of climate models that cover both Canada and North America.

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## Definition of underlined term

**Climate normals:** Climate normals are used to summarize or describe the average climatic conditions of a particular location.

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## Map Sources

### July Mean Daily Maximum Temperatures (°C)

The mean daily temperatures for the summer season are represented by the month of July, middle of the summer season and are intended to represent average conditions only, as the weather in any given year during summer would or could vary. The 1971 to 2000 temperature climate normals were calculated by Environment Canada and the monthly maximum average was computed from the daily maximum temperature observations. Spatial models have been developed using the thin plate smoothing spline algorithms of ANUSPLIN by the Canadian Forest Service in partnership with several staff in Environment Canada's Meteorological Service of Canada and the Australian National University (the creator of ANUSPLIN).

### July Mean Daily Minimum Temperatures (°C)

The mean daily temperatures for the summer season are represented by the month of July, middle of the summer season and are intended to represent average conditions only, as the weather in any given year during summer would or could vary. The 1971 to 2000 temperature climate normals were calculated by Environment Canada and the monthly minimum average was computed from the daily minimum temperature observations. Spatial models have been developed using the thin plate smoothing spline algorithms of ANUSPLIN by the Canadian Forest Service in partnership with several staff in Environment Canada's Meteorological Service of Canada and the Australian National University (the creator of ANUSPLIN).

## References

Environment Canada. Climate Trends and Variations Bulletin, January to August 1998 (Regional Analysis). [http://www.msccsmc.ec.gc.ca/ccrm/bulletin/summer98/spage2\\_e.html](http://www.msccsmc.ec.gc.ca/ccrm/bulletin/summer98/spage2_e.html)

Environment Canada. Climate Trends and Variations Bulletin, January to August 1998 Temperature and Precipitation in Historical Perspective (National Overview). [http://www.msc-smc.ec.gc.ca/ccrm/bulletin/summer98/index\\_e.html](http://www.msc-smc.ec.gc.ca/ccrm/bulletin/summer98/index_e.html)

Environment Canada. Meteorological Service of Canada. Climate Trends and Variations Bulletin. [http://www.msc-smc.ec.gc.ca/ccrm/bulletin/disclaim\\_e.cfm](http://www.msc-smc.ec.gc.ca/ccrm/bulletin/disclaim_e.cfm)

Environment Canada. Meteorological Service of Canada. Canada's Top Ten Weather Stories For 2005. [http://www.msc-smc.ec.gc.ca/media/top10/2005\\_e.html](http://www.msc-smc.ec.gc.ca/media/top10/2005_e.html)

Hare, F.K. and M.K. Thomas. 1974. *Climate Canada*. Toronto: Wiley Publishers of Canada Limited. 256pp.

McKenney DW, Papadopol P, Campbell K, Lawrence K, Hutchinson MF. 2006. *Spatial Models of Canadian and North American-Wide 1971/2000 Minimum and Maximum Temperature, Total Precipitation and Derived Bioclimatic Variables*. Sault Ste. Marie (Ontario): Canadian Forest Service Front Line Technical Note no. 106.

Phillips, David. 1990. *The Climates of Canada*. Ottawa: Ministry of Supply and Services, Ottawa. 176pp.

The Australian National University (ANU). Centre for Resource and Environmental Studies. <http://fennerschool.anu.edu.au/publications/software/anuclim.php>

## **Related Web sites (1999 – 2009)**

### **Federal Government**

Environment Canada. Canadian Climate Normal's or Averages 1971-2000  
[http://www.climate.weatheroffice.ec.gc.ca/climate\\_normals/index\\_e.html](http://www.climate.weatheroffice.ec.gc.ca/climate_normals/index_e.html)

Environment Canada. Canadian Weather at a Glance  
[http://www.weatheroffice.gc.ca/jet\\_stream/index\\_e.html](http://www.weatheroffice.gc.ca/jet_stream/index_e.html)

Environment Canada. Climate Data  
[http://www.climate.weatheroffice.ec.gc.ca/climateData/canada\\_e.html](http://www.climate.weatheroffice.ec.gc.ca/climateData/canada_e.html)

Environment Canada. Meteorological Service of Canada (MSC)  
[http://www.msc-smc.ec.gc.ca/contents\\_e.html](http://www.msc-smc.ec.gc.ca/contents_e.html)

Environment Canada. Meteorological Service of Canada. Weather information for Canada  
[http://www.weatheroffice.gc.ca/canada\\_e.html](http://www.weatheroffice.gc.ca/canada_e.html)

Environment Canada. National climate data and information archive  
[http://www.climate.weatheroffice.ec.gc.ca/Welcome\\_e.html](http://www.climate.weatheroffice.ec.gc.ca/Welcome_e.html)

Natural Resources Canada. Canadian Forest Service. Regional, National and International Climate Modeling  
<http://cfs.nrcan.gc.ca/subsite/glfc-climate>

## Other

Australian National University. Centre for Resource and Environmental Studies.

ANUSPLIN

<http://fennerschool.anu.edu.au/publications/software/anusplin.php>

ANUSPLIN is a mathematically sophisticated approach to generating climate maps at varying spatial and temporal scales.

The Weather Network

<http://www.theweathernetwork.com/>

