

## January Mean Daily Minimum and Maximum Temperatures

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### Abstract

January marks the depths of winter across Canada and, with the exception of the coastal parts of southern Vancouver Island, below freezing minimum temperatures are the norm. Weak or no sunshine means there is minimal diurnal variation between the maximum and minimum temperature in January. The map shows the mean daily minimum and maximum temperatures for January.

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January marks the depths of winter across Canada and, with the exception of coastal parts of southern Vancouver Island, below freezing minimum temperatures are the norm. The deep freeze is particularly evident near Baker Lake in Nunavut and throughout much of the Arctic Archipelago, where normal January minimum temperatures average in the low -30s and even -40°C. The low sun angle means that much of the rest of Canada experiences minimum temperatures below -15°C.

Weak or no sunshine means there is minimal diurnal variation between the maximum and minimum temperatures in January. The far north remains in an icy grip, with maximum temperatures around -30°C or colder across parts of Nunavut. Throughout the interior of Canada, maximum temperatures are normally lower than -10°C. The maximum temperature approaches the melting point across southern Ontario and parts of the Atlantic Provinces. Above-freezing maximum temperatures are experienced only in coastal British Columbia and extreme southern Nova Scotia.

### 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

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

The mean daily temperatures for the winter season are represented by the month of January, middle of the winter season and are intended to represent average conditions only, as the weather in any given year during winter 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).

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

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## 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/sindex\\_e.html](http://www.msc-smc.ec.gc.ca/ccrm/bulletin/summer98/sindex_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/>

