

APPENDIX 2.

**Climatic data for the University of Manitoba, Portage la Prairie, Research Station
(latitude 49° 56' N, longitude 97° 14' W)
during the growing seasons of 1987, 1988 and 1989.**

All meteorological data were collected using a minimum dataset recorder¹⁹ except for the 30 year average (*sic*) data which was collected by Environment Canada at CFB Portage la Prairie. All 24 hour readings were from midnight to midnight and all integrated readings were determined at one-minute intervals. Solar irradiance was based on 24 hour integration of readings from a pyronometer sensor. A linearized thermistor at a height of four feet recorded the 24 hour integrated mean temperature and minimum and maximum temperatures. A linearized thermistor placed at a 10 cm depth in the soil recorded the 24 hour mean integrated temperatures beneath the grass covered lawn area surrounding the recorder. The 24 hour total precipitation was determined using a 20.3 cm orifice diameter (American style) tipping bucket (1mm content) rain guage.

¹⁹ Licor LI-1200S, LI-COR, LTD. Lincoln, Nebraska.

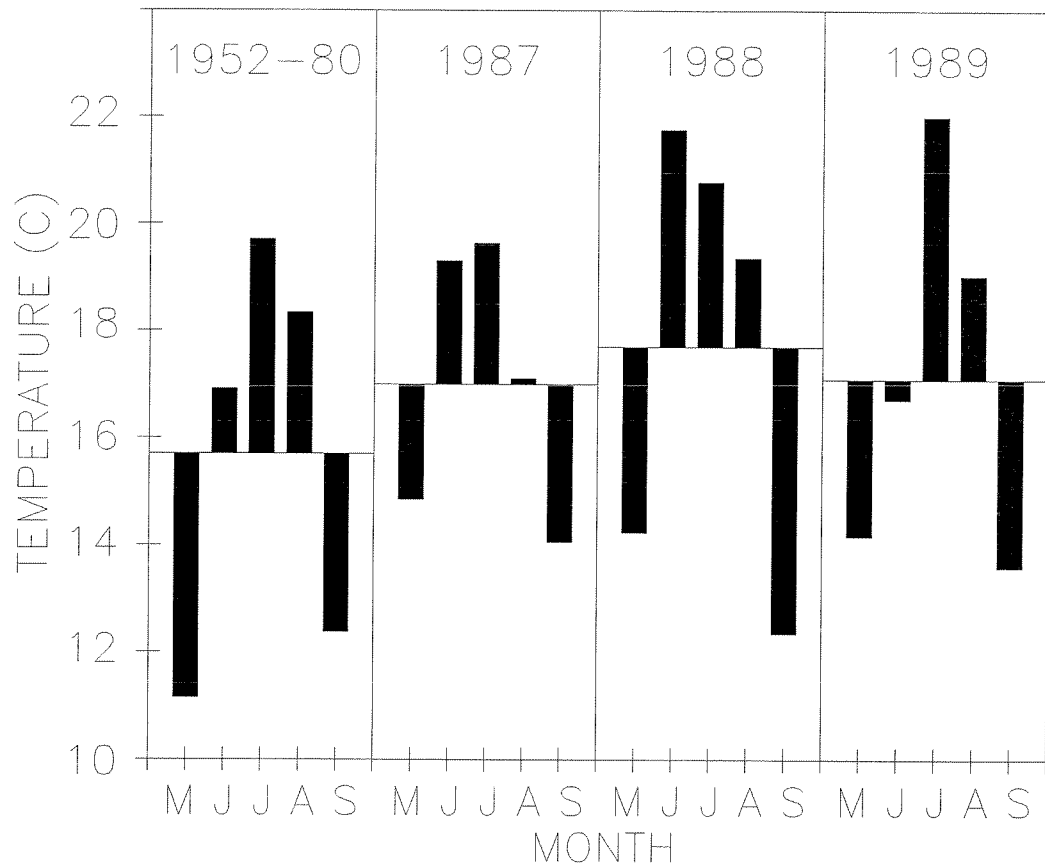


Figure 16. Seasonal subseries graph illustrating mean air temperatures recorded during the growing seasons of 1987, 1988, and 1989, relative to a 30 year (sic) average.

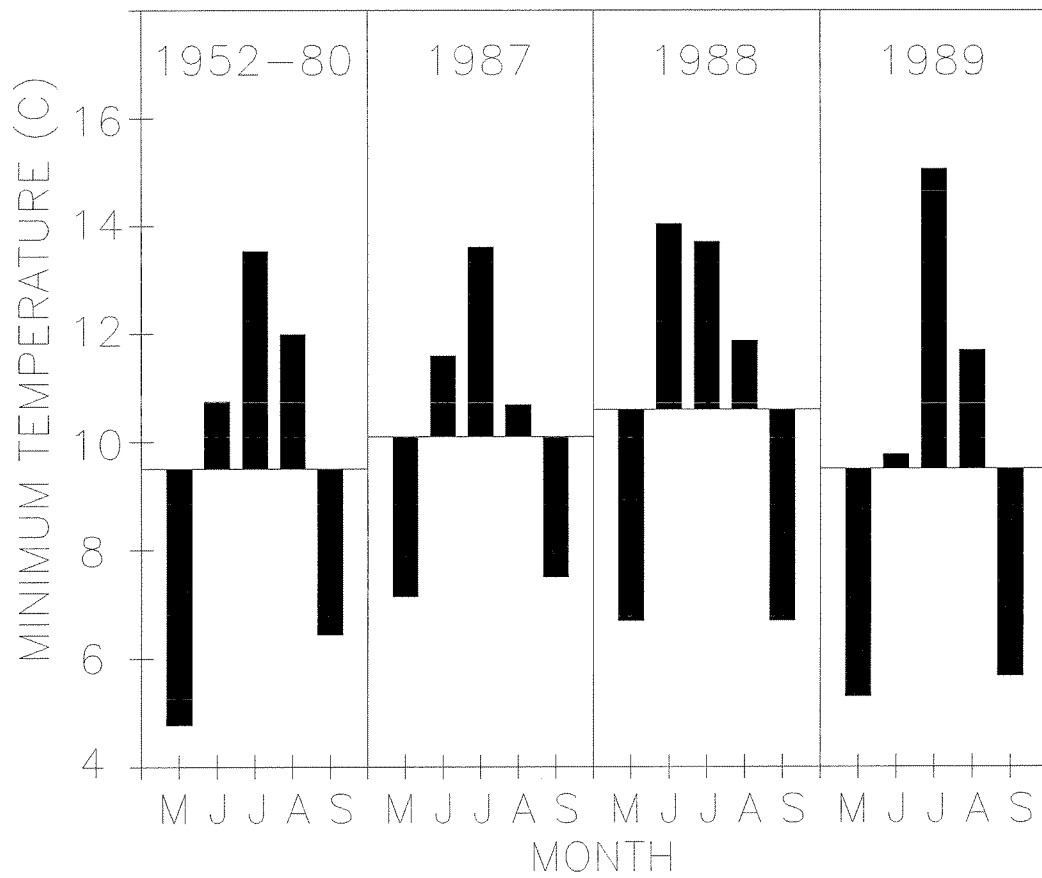


Figure 17. Seasonal subseries graph illustrating minimum air temperatures recorded during the growing seasons of 1987, 1988, and 1989, relative to a 30 year (sic) average.

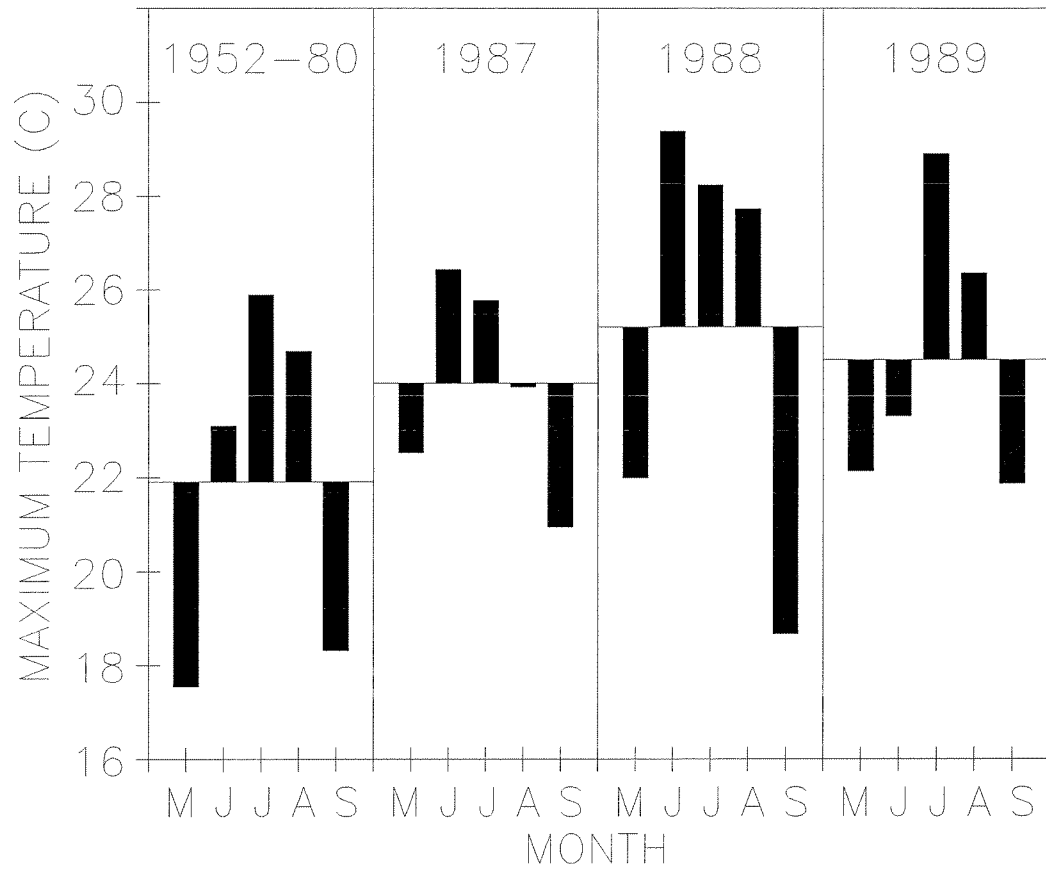


Figure 18. Seasonal subseries graph illustrating maximum air temperatures recorded during the growing seasons of 1987, 1988, and 1989, relative to a 30 year (sic) average.

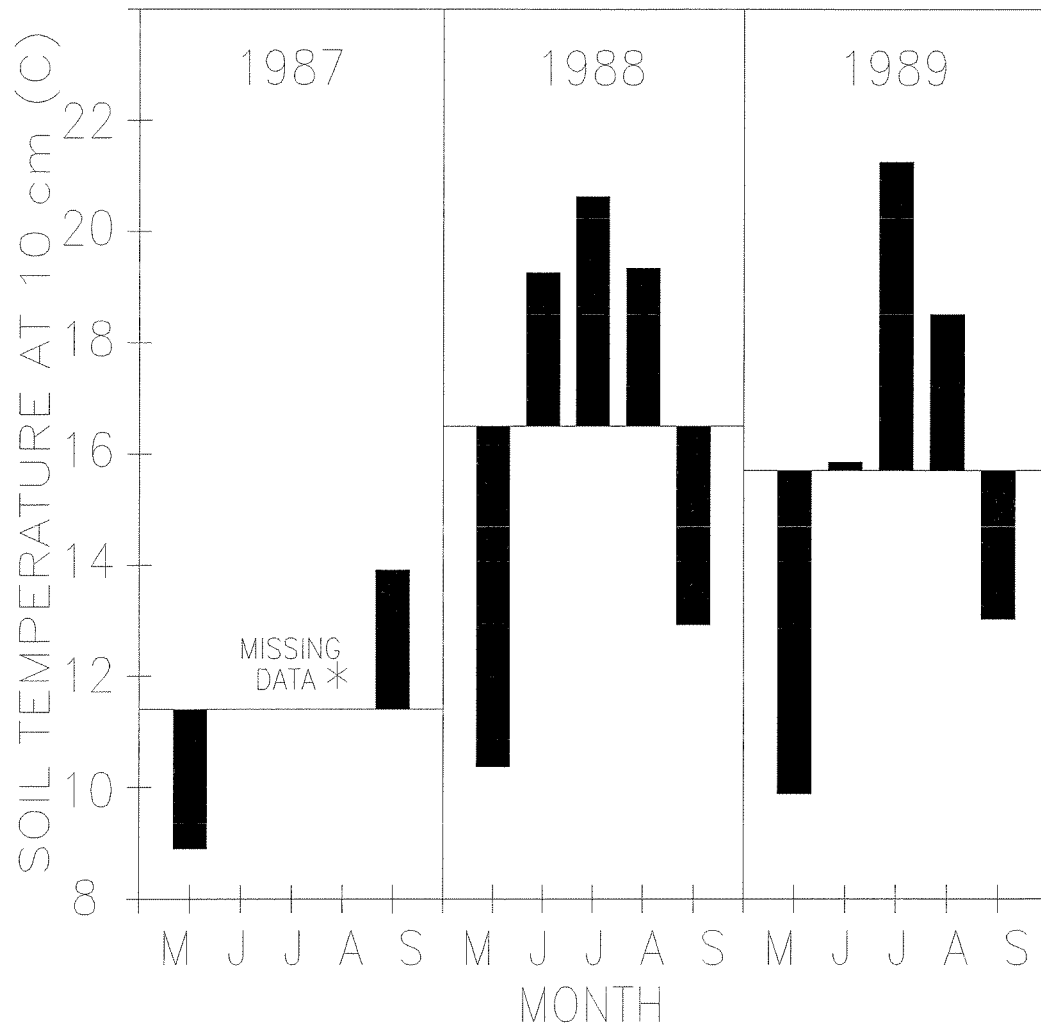


Figure 19. Seasonal subseries graph illustrating the mean daily soil temperature (at 10cm depth, below lawn) during the growing seasons of 1987, 1988, and 1989, at the Portage Research Station.

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^{20*} Technical difficulties with soil thermocouple resulted in lost data in 1987 for last part of May until the end of August.

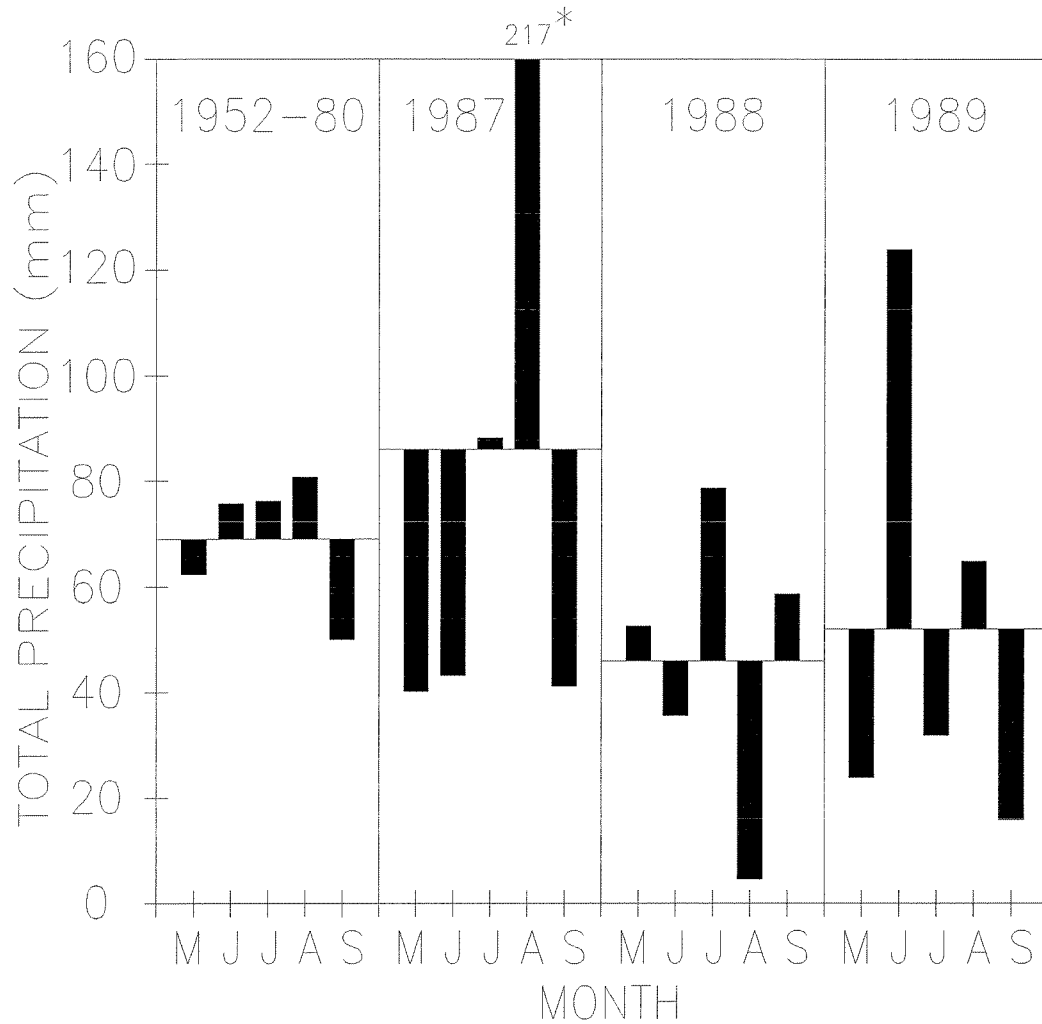


Figure 20. Seasonal subseries graph illustrating mean monthly precipitation recorded during the growing seasons of 1987, 1988, and 1989 relative to a 30 year (sic) average.

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^{21*} The majority of the 217mm of rain that fell in August, 1987, was 182mm that fell on August 14. CFB Portage recorded 86.4mm while a farm adjacent to the station recorded 120mm. Clearly rainfall on this date was both torrential and highly localized.

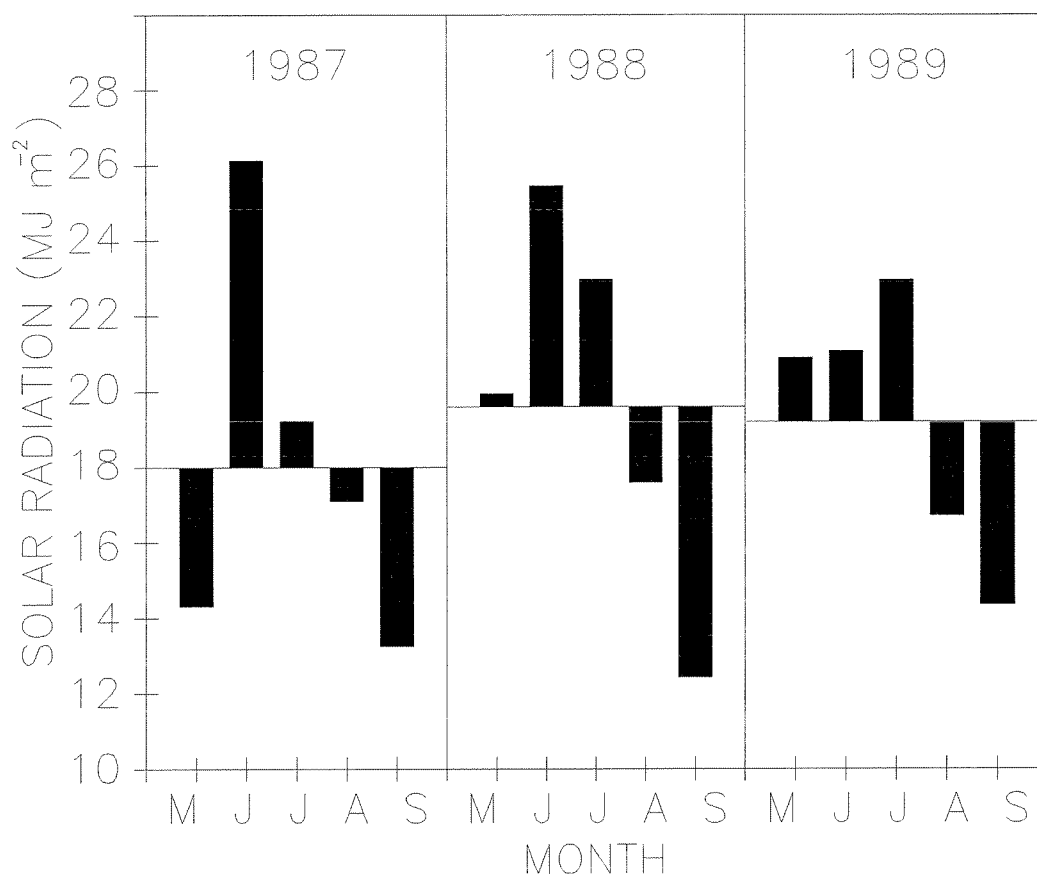


Figure 21. Seasonal subseries graph illustrating the mean daily solar radiation (400-1100nm) recorded during the growing seasons of 1987, 1988, and 1989, at the Portage Research Station.