

METEOROLOGY

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Palmer Station is Station 89061 in the World Meteorological Organization (WMO) Worldwide Network. Automated surface synoptic observations are made 8 times each day and emailed to the

National Atmospheric and Oceanographic Administration (NOAA) for entry into the Global Telecommunication System (GTS).

The Palmer Automatic Weather Station (PAWS) is a collection of sensors, computers, and software that records the meteorological data and generates synoptic reports. PAWS began recording data in September of 2015. It was a replacement for the Palmer Meteorological Observing System (PalMOS) that was taken down in November 2017. The PAWS sensors and data acquisition hardware are located on a ridge in the backyard at -64.774130° -64.047440° at an elevation of 38.3 meters above sea level using the World Geodetic System-84. In addition to the synoptic and METAR reporting, PAWS also archives the current conditions at one-minute intervals and displays both raw data and graphs of the sensor data on our local intranet.

The Research Associate acts as Chief Weather Observer on station, measuring, compiling and distributing all meteorological data. Snow accumulation is physically observed by taking an average of five accumulation stakes found near the PAWS system. All weather data is archived locally and forwarded once per month to the University of Wisconsin on the first day of each month for archiving and further distribution.

The local weather station (PAWS) operated well throughout the month. The Joubins weather station was visited on December 5 and functionality was restored despite significant corrosion on the power cable and antenna. The Wauwermans weather station was attempted on one occasion during December but swell and wave action prohibited a safe landing.

One minute weather data is archived on the AMRC website:

<http://amrc.ssec.wisc.edu/data/ftp/pub/palmer/>.

Pal Palmer Monthly Met summary for December, 2022

Temperature
Average: 1.6 °C / 34.8 °F
Maximum: 7.3 °C / 45.14 °F on 14 Dec 14:11
Minimum: -3.2 °C / 26.24 °F on 1 Dec 09:14
Air Pressure
Average: 979.9 mb
Maximum: 998.4 mb on 23 Dec 21:59
Minimum: 953.4 mb on 1 Dec 00:00
Wind
Average: 9.8 knots / 11.3 mph
Peak (5 Sec Gust): 55 knots / 63 mph on 16 Dec 02:42 from NNE (23 deg)
Prevailing Direction for Month: NNE
Surface
Total Rainfall: 33.5 mm / 1.32 in

Total Snowfall: 9 cm / 3.5 in

Greatest Depth at Snow Stake: 116.8 cm / 45.6 in

WMO Sea Ice Observation: 1-5 bergs, bergy bits, growlers, and brash ice

Average Sea Surface Temperature: .99 °C / 33.8 °F

December continued our trend of warm temperatures and quick snow melt. Several broad and weak pressure systems brought periods of mild conditions. We returned to average snow levels and average wind speeds for the month. December was the driest month this year with only 33 mm precipitation.

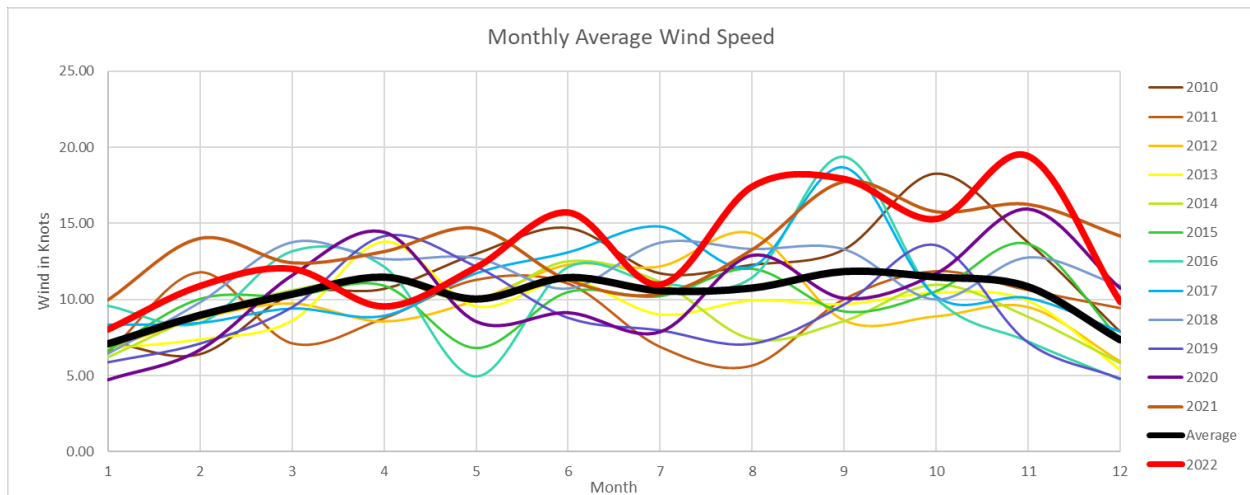


Figure 20. Monthly average wind speeds for 2022 compared with the last twelve years

This year was constantly warm, windy, and wet. Average winds were above the twelve year average for all months except for April. The warmer winter conditions led to 2022 being the highest average temperature year since 1997. This graph is the monthly average temperatures plotted with the annual average temperature defining the background color.

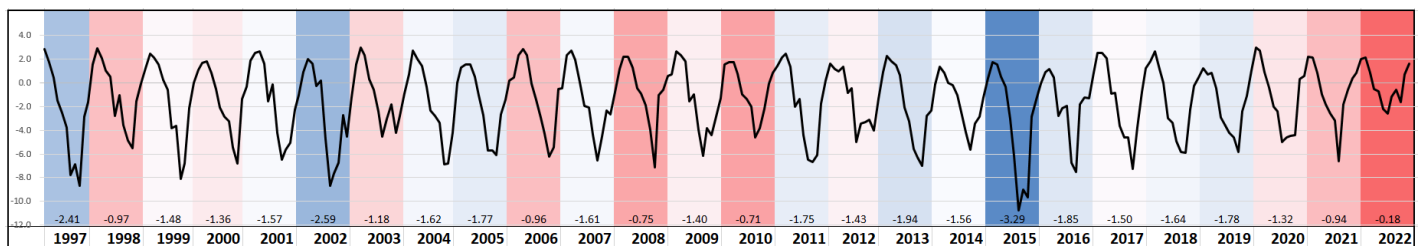


Figure 21. Monthly average temperatures from 1997 through 2022 plotted with the annual temperature average

This year was another high precipitation year, although not quite as wet as last year. Here are the monthly melted precipitation totals since 1990.

Palmer Station Precipitation

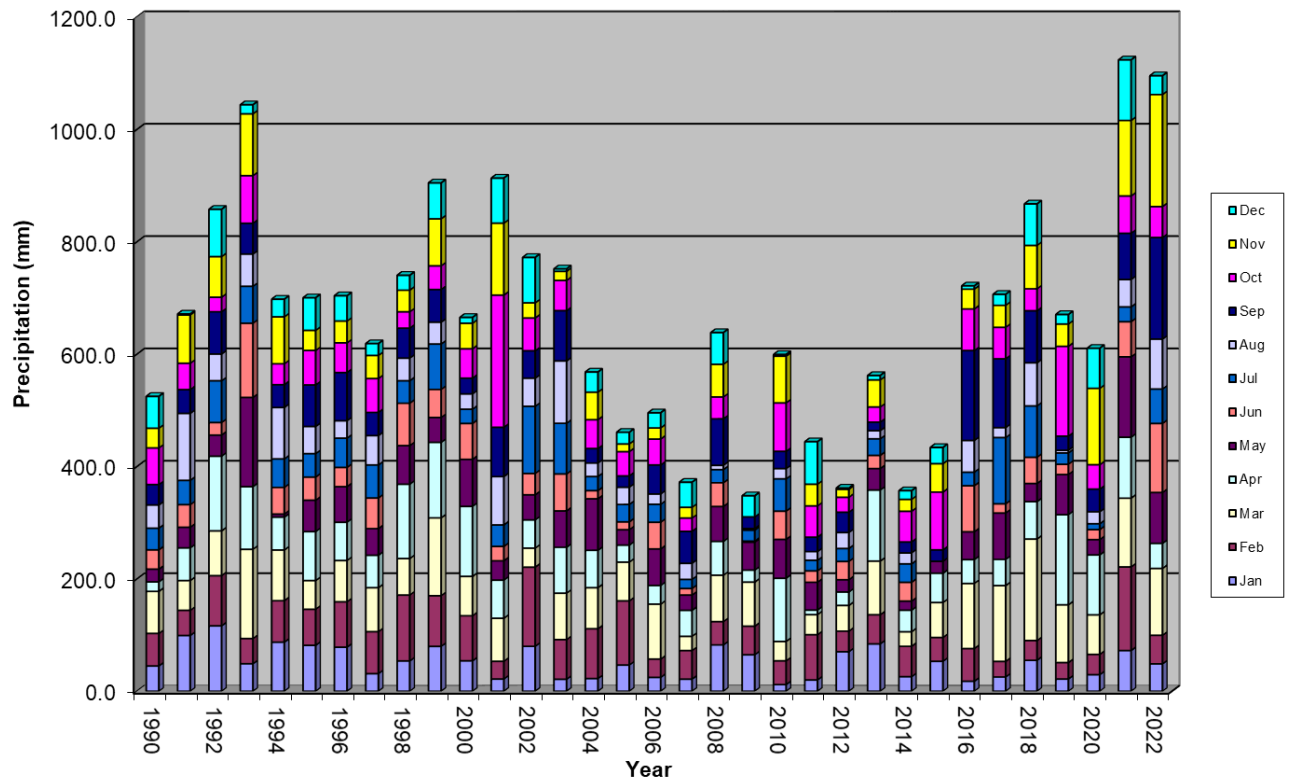


Figure 22. Monthly precipitation totals in millimeters since 1990