

PHYSICAL OCEANOGRAPHY

Palmer Station has a tide and conductivity gauge located on the west side of the pier at -64.774558° -64.055580° at a depth of 11.46 meters (WGS-84). It was reinstalled at this deeper depth after the completion of the Palmer Pier in June 2022.

The Research Associate acts as the station's physical oceanography observer by maintaining and observing the sea state. Observations of sea ice extent and growth stage is recorded along with continuous tidal height, ocean temperature, and ocean conductivity. The tide gauge performed nominally this month. After the cleaning in May, our local data seemed to be consistently ~ 0.5

feet higher than the prediction. On June 10th we briefly raised and lowered the tide gauge to get it unstuck on the inner tube that houses it in the water. That successfully aligned the real tide gauge data with the predictions more closely.

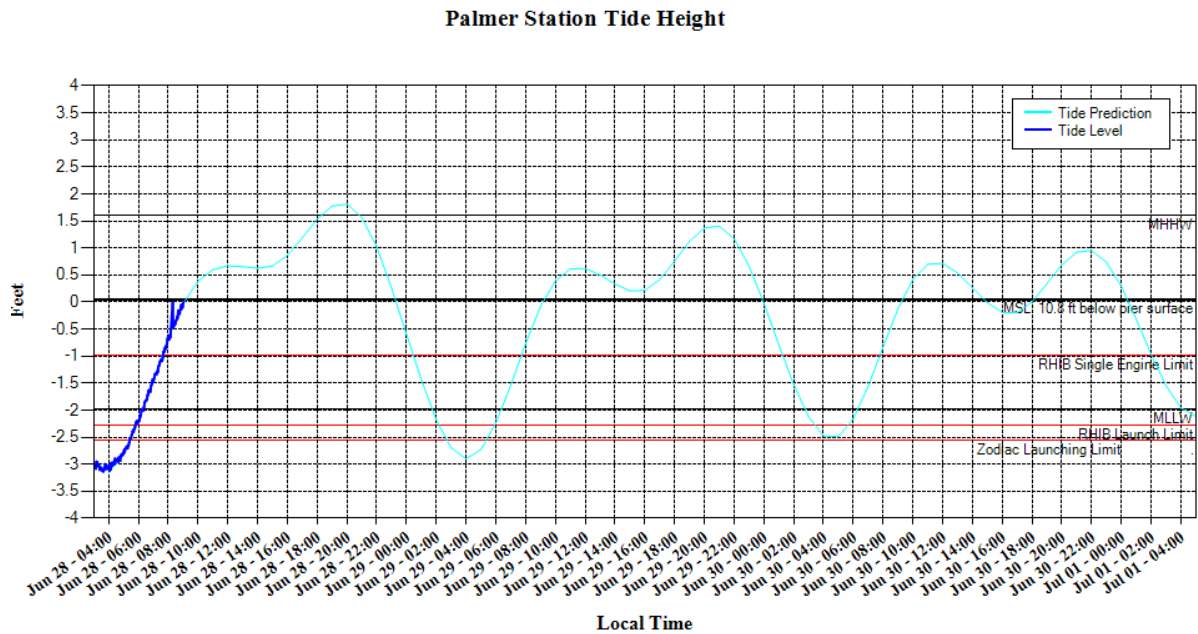


Figure 8. Palmer Station tide gauge data on June 28th showing a ~0.5 foot spike from a return to the prediction and real data matching.

Tide level, sea water conductivity, and sea water temperature data is archived on the AMRDC website: <https://amrdcdata.ssec.wisc.edu/dataset?q=Palmer+Station>.

METEOROLOGY

Mike Carmody, Principal Investigator, United States Antarctic Program

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 at five

accumulation stakes found near the PAWS system. All weather data is archived locally and forwarded to the University of Wisconsin on the first day of each month for archiving and further distribution.

June continued to have more mild weather, including warmer than average air temperatures and lower than average winds. Sadly, June 2025 experienced one of the least snowy Junes on record. The final days of June were characterized by very wet snow, sleet, and rain which is hopefully not a sign of our future snowfall for the season as we continue to have high hopes for a snowy year. One-minute weather data is archived on the AMRDC website:
<https://amrdcdata.ssec.wisc.edu/dataset?q=Palmer+Station>.

Palmer Monthly Met summary for June, 2025

Temperature
Average: -1.7 °C / 28.9 °F
Maximum: 6.2 °C / 43.16 °F on 12 Jun 18:16
Minimum: -7.2 °C / 19.04 °F on 7 Jun 12:11
Air Pressure
Average: 992.4 mb
Maximum: 1019.2 mb on 11 Jun 02:10
Minimum: 959.7 mb on 21 Jun 15:36
Wind
Average: 8.8 knots / 10.2 mph
Peak (5 Sec Gust): 59 knots / 68 mph on 19 Jun 17:36 from NNE (21 deg)
Prevailing Direction for Month: NNE
Surface
Total Melted Precipitation: 25.9 mm / 1.02 in
Total Snowfall: 25 cm / 9.8 in
Greatest Depth at Snow Stake: 32.4 cm / 12.6 in
WMO Sea Ice Observation: 11-20 bergs, bergy bits, growlers, brash ice, occasional pancake ice forming
Average Sea Surface Temperature: -1.09 °C / 30 °F

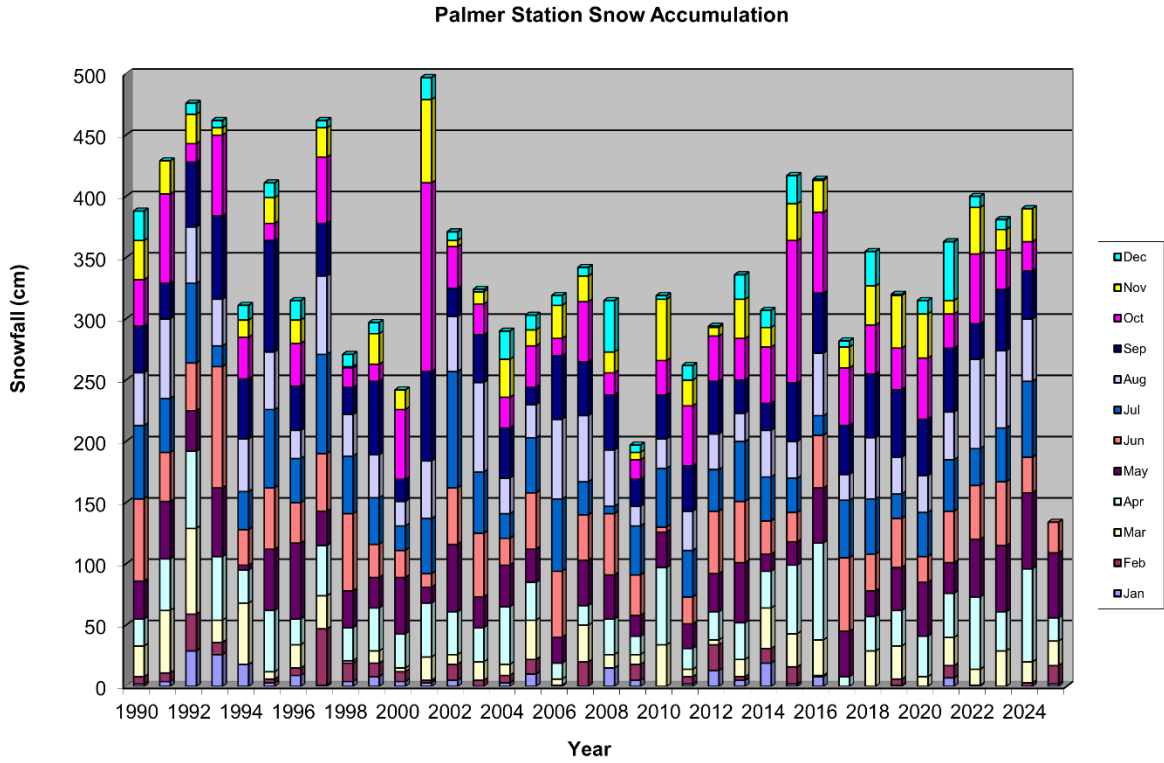


Figure 9. Palmer Station snow accumulation, 1990-present.

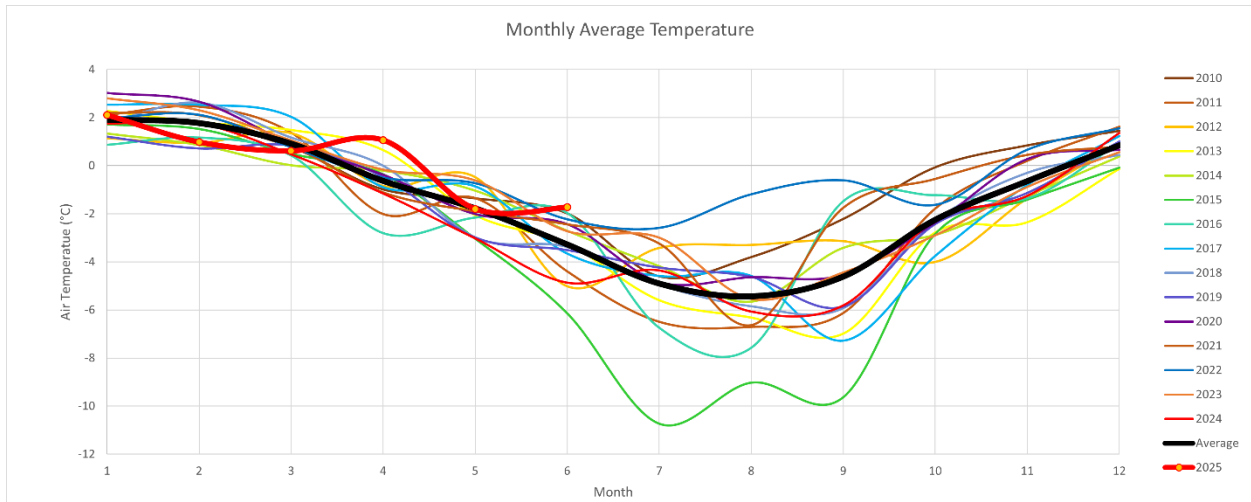


Figure 10. Palmer Station monthly average temperature, 2010-present.

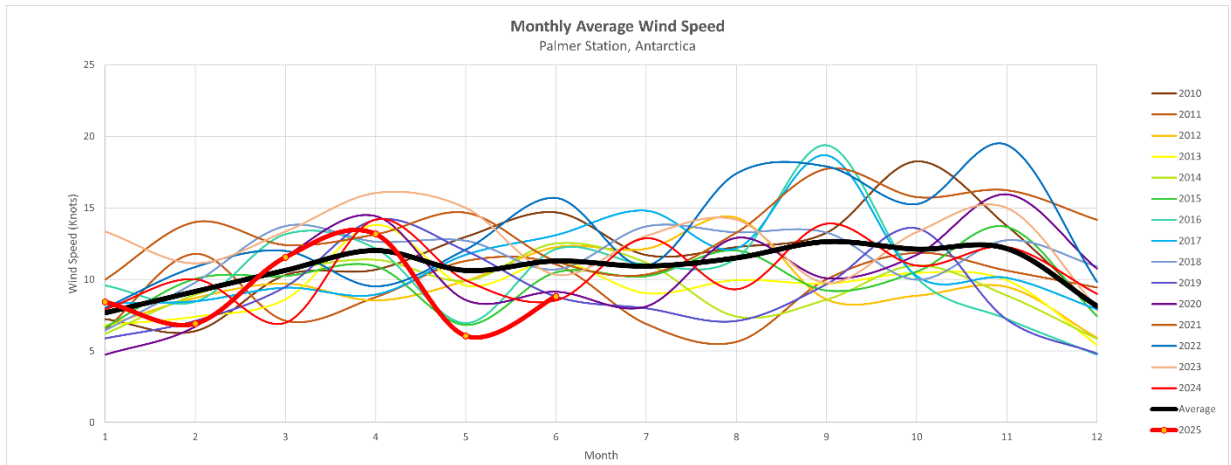


Figure 11. Palmer Station monthly average wind speed, 2010-present.

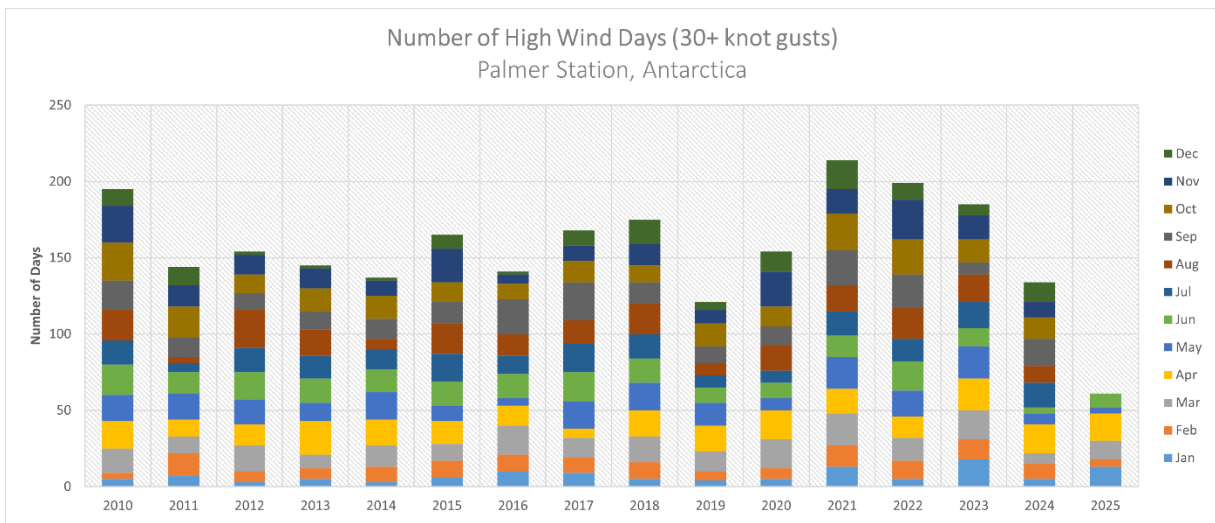


Figure 12. Number of high wind days (gusting 30+ knots) at Palmer Station, 2010-present.