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 are recorded along with continuous tidal height, ocean temperature, and ocean conductivity.

This month, ASC divers performed an inspection of the ice-damaged tide gauge. Unfortunately, the severity of the damage made it impossible for them to free the tide tube from its sleeve. A replacement tube, cable, and sensors will arrive in October 2026 and will be installed in a new location adjacent to the existing tide gauge.

In mid-January, the *R/V Roger Revelle* and *R/V Sikuliaq* got underway for the UNOLS-01 and UNOLS-02 cruises, respectively. The Research Associate has continued to provide ice imagery and weather forecasts to both vessels.

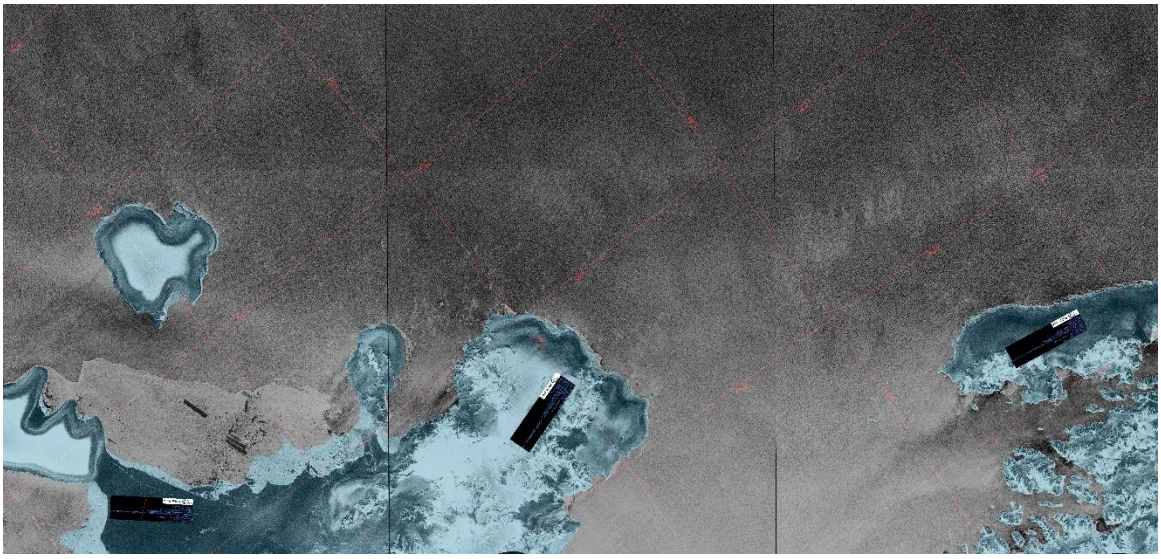

Figure 10. January 29th SAR sea ice imagery of the Marguerite Bay area, where UNOLS-01 is operating. *Source: Polar View/Sentinel-1A*

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 eight 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 are archived locally and forwarded to the University of Wisconsin on the first day of each month for archiving and further distribution. The PAWS ceilometer has not been reporting since August 10th. The PAWS barometer was offline January 22nd through January 30th, and again on January 31st. Troubleshooting is ongoing for both issues. All three remote weather stations continue to report reliably, with the exception of the AWS2 barometer.

Research Associate working on the PAWS weather station, January 6th, 2026. *Image credit: Hector Plaza*

Weather Information for January 2026:
In January, the stretch of this season's uncharacteristically calm weather finally broke and we saw a fairly average January, with 10 stormy days (30+ knot gusts, mostly NNE) and 68.1 mm of precipitation. Historical January averages are 7 stormy days and 52.8 mm.

The snow stakes fully melted out on January 5th, the earliest since their installation in 2016. Although an average amount of snow fell in 2025 (310 cm total), multiple rapid melting events in September 2025 dropped the snow level from its peak of 109 cm on September 10th down to 64 cm by September 31st. From there, the accumulated snow never returned to typical levels.

One-minute weather data are archived on the AMRDC website:
https://amrdcdata.ssec.wisc.edu/dataset?q=Palmer+Station.

Palmer Monthly Met Summary for January 2026

Temperature
Average: 2.5 °C / 36.5 °F
Maximum: 6.5 °C / 43.7 °F on 29 Jan 18:47
Minimum: -0.4 °C / 31.3 °F on 4 Jan 10:07
Air Pressure
Average: 986.1 mb
Maximum: 998.5 mb on 9 Jan 01:48
Minimum: 961.6 mb on 20 Jan 17:48
Data unavailable 01/22 12:34 – 1/30 14:36 UTC, 1/31 11:55 – 23:59 UTC.
Wind
Average: 9.2 knots / 10.6 mph
Peak (5 Sec Gust): 56 knots / 65 mph on 23 Jan 00:54 from NNE (26 deg)
Prevailing Direction for Month: NNW
Surface
Total Melted Precipitation: 68.1 mm / 2.7 in
Total Snowfall: 0.6 cm / 0.2 in
Greatest Depth at Snow Stake: 5.2 cm / 2.0 in
WMO Sea Ice Observation: 6-10 bergs, bergy bits, growlers, brash ice
Average Sea Surface Temperature: Not available due to broken tide sensor

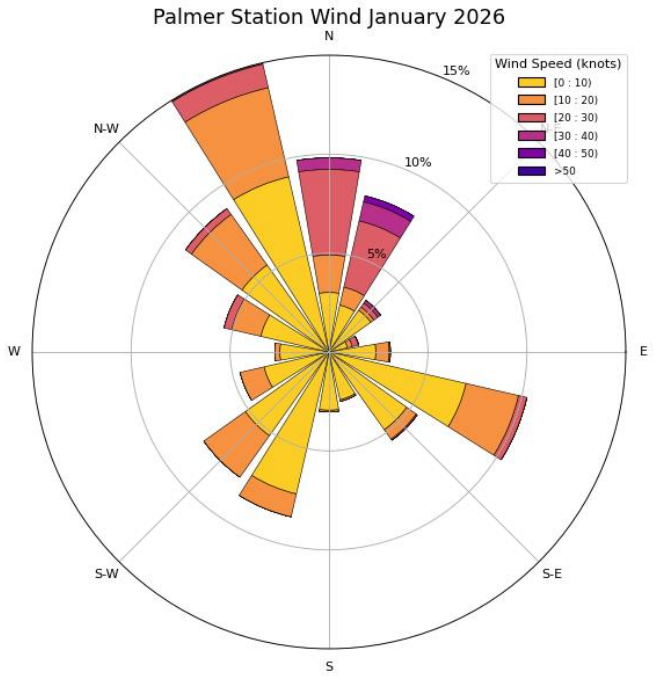

Figure 11. Palmer Station wind rose, January 2026. January saw a typical pattern of strong NNE winds.

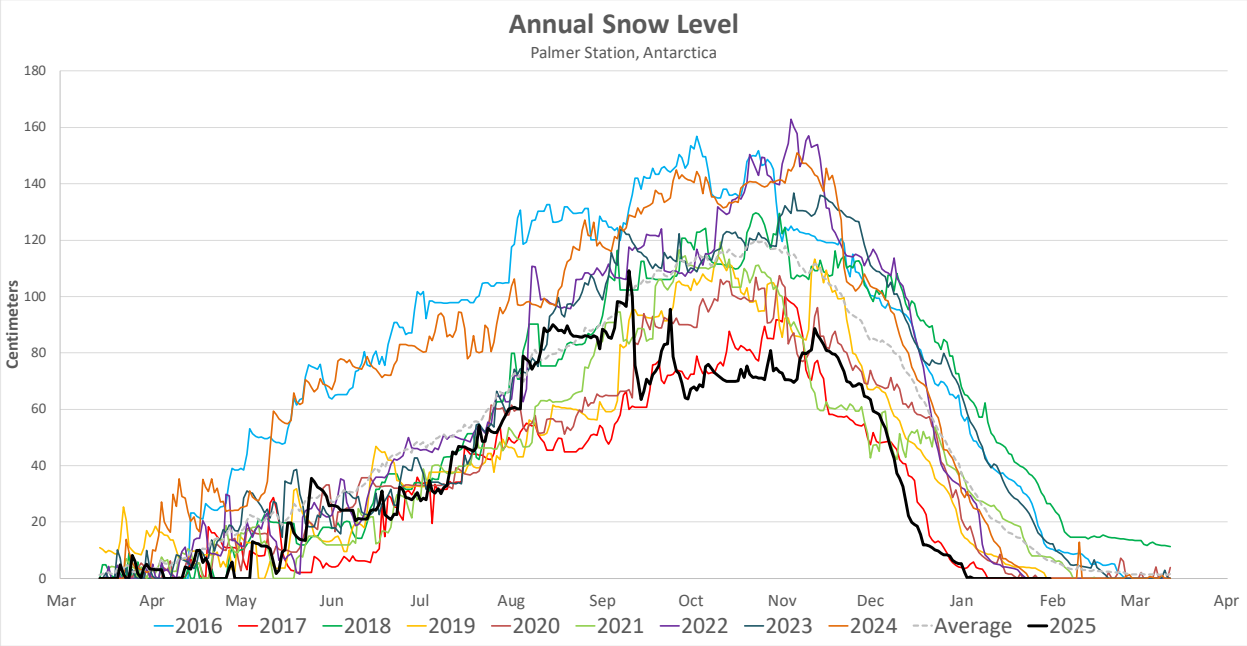

Figure 12. Palmer Station snow level (average of 5 backyard snow stakes). The snow stakes fully melted out on January 5, the earliest since their installation in 2016.