WEST COAST OF UNITED STATES AND NORTH PACIFIC

In night-time AVHRR imagery, areas of negative sea surface temperature (SST) anomalies have spread and intensified in the North Pacific (NP) during February. Negative SST anomalies (≥ -2°C) occurred in areas along the US west coast from 37°N to 41°N. Negative anomalies were found offshore of North America from 20°N to 50°N and extending southwest to 10°N, 180 E/W. Weak positive SST anomalies were otherwise pervasive, with larger anomalies (≤ 2°C) observed in the Bering Sea and between 25°N and 45°N in the central and western NP.

http://www.ospo.noaa.gov/Products/ocean/sst/anomaly/

During February, three large areas (>10,000 km²) of sea level height anomaly (SLA) occupied most of the NP. A band across the equator, between 160°E and 120°W extended northeastern to the coast of central America and Mexico. A broad band of negative SLA (≥-20 centimeters) extended from 10°N, 120°E, northeast to 20°N, 160°W. The third anomaly band (≤25 cm) occurred in the western NP, north of 20°N.

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ocean/weeklyenso_clim_81-10/wksl_anm.gif

Through February, the coastal bands of Chorophyll-a (Chl-a) with surface concentration ≥ 2 mg/m³ dispersed, with the formation of filaments of Chl-a reaching seaward and ocean eddies of lower concentration approaching the coast. These processes produced an irregular coastal Chl-a zone, varying in width of 25 to 300 km, extending from northern Mexico to Canada. Smaller, inshore areas of Chl-a concentration exceeding 6 mg/m³ occurred nearshore.

https://coastwatch.pfeg.noaa.gov/coastwatch/CWBrowserWW180.jsp#

At the Cape San Martine Data Buoy (46028), off Central California (35.7°N), the long-term average surface temperature for February is 12.6°-12.8°C, compared to an average of 13.3°C for February 2019. Ten-day averages were 13.6, 13.3 and 12.9°C for the beginning, middle and end of February, respectively, and noted for the other buoys as [13.6, 13.3, 12.9°C]. At the St. Georges Data Buoy (46027), 8 nautical miles NW of Crescent City (41.9°N), the long-term and February 2019 SST is 10.6°-10.9°C and 10.9°C, respectively [11.2, 10.9, 10.6°C]. At the Tillamook Data Buoy (46089), 85 nautical miles WNW of Tillamook, Oregon (46°N), the long-term and February 2019 SST was 10.0-10.2°C and 10.0°C, respectively [10.4, 9.9, 9.7°C].

https://www.ndbc.noaa.gov/station_page.php?station=46028

The La Jolla (32.9°N) shore station Subtidal Water Temperature (STWT) varied from 13.4°C to 15.9°C during February 2019 with a monthly average of 14.9°C. In Southern Monterey Bay (36.6°N), STWT fluctuated between 12.7 and 14.0°C, with a February average of 13.4°C. Arena Cove (38.9°N) STWT varied between 10.0 and 12.9°C with a monthly average of 11.9°C. Neah Bay, (48.4°N) STWT varied between 5.1 and 9.0°C with a February average of 7.3°C.

https://tidesandcurrents.noaa.gov/stations.html?type=Physical+Oceanography
EQUATORIAL AND SOUTH PACIFIC (late February)
Negative SST anomalies became more common across the South Pacific (SP), as mild El Niño conditions intensified along the central and eastern equatorial Pacific. Subsurface ocean temperature anomalies (2°-5°C) persisted at 50-100 m. Much of the SP had neutral to weakly positive SST anomalies, but negative SST anomaly (> -2°C) was found in areas (>5,000 km²) along the coast of southern Chile, intermittently across the SP, and along the northeastern coast of Australia. Areas of positive SST anomaly (≤2°C) appeared centered near 40°S and between New Zealand and Australia.

http://www.ospo.noaa.gov/Products/ocean/sst/anomaly/
http://www.pc.ncep.noaa.gov/products/analysis_monitoring/ocean/weeklyenso_clim_81-10/wksl_anm.gif

The NOAA OCEANIC EL NIÑO INDEX (ONI) Index values of 0.8 for NDJ, and 0.8 for DJF are fourth and fifth consecutive El Niño positive values.


NOAA / NCEI PACIFIC DEcadAL OSCillation INDEX (PDO) series had eleven consecutive negative or neutral values, including -0.78, -0.14, -0.29 and -0.55 for November through February 2019.

https://www.ncdc.noaa.gov/teleconnections/pdo/

The monthly PACIFIC / NORTH AMERICAN (PNA) teleconnection Index computed from western hemisphere atmospheric pressure had neutral to positive monthly values from November 2018 through January 2019, but became strongly negative for February 2019, at -3.49.

http://www.cpc.ncep.noaa.gov/data/teledoc/pna.shtml

February ERD Upwelling Index (UI), was low magnitude throughout the range from 21°N to 60°N. UI anomaly was positive from 42°N poleward.

https://upwell.pfeg.noaa.gov/products/PFELData/upwell/monthly/table.1902

PRECIPITATION and RUNOFF (Late February)
February 2019 precipitation remained below average along the Cascade Range of Washington and Oregon, however, many parts of California received more than 200% average February precipitation.

https://cdew.water.ca.gov/reportapp/javareports?name=PRECIPSUM

The Fraser River, measured at Hope, BC, was flowing at about at about 26,483 cubic feet per second (cfs) [historical median as cfs, 27,189 cfs)].

https://wateroffice.ec.gc.ca

The Puyallup River at Puyallup, Washington was flowing at 1,500 cfs [2,000 cfs].

The Skagit River near Mount Vernon was flowing at 10,000 [14,000 cfs].

The Columbia River at the Dalles 120,000 [130,000 cfs].

The Rogue River in Oregon was flowing at 30,000 [6,000 cfs] at Agness.

In California, the Klamath River near Klamath was transporting at 109,850 [23,300 cfs].

Sacramento River transport was 85,100 [32,100 cfs] at Freeport.

San Joaquin River flow was 15,700 [3,600 cfs] at Vernalis.

https://waterdata.usgs.gov/ca/nwis/current/?type=flow

https://www.cnrfc.noaa.gov/awipsProducts/RNOWRKCLI.php=

NOTE: Sun Spot Progression in Solar Cycle 24 appeared to be reaching a minimum during February 2019, sooner than previously predicted.


Jerrold.G.Norton@noaa.gov Phone:831-648-9031