

EXPORTS NE Pacific Context Situational Awareness

Date: Wed - Aug 15, 2018 - JD 227

Creators: Dave Siegel, Erik Fields, Andy Thompson

Weather Forecast Summary:

Tomorrow (Thu 8/16) will be cloudy, moderately windy (15 kts), humid, and cool (13°C). A large storm system will enter over the weekend and winds are forecast to increase early Sat to > 25kts from the SSW. ECMWF says that will pass by noon Sunday, but GFS and NEMS have it hanging out into Mon.

Moderate rain during early morning hours of Thurs (~0.3" total) and some models say rain Friday too (0.1").

Current SWHs ~1.4m from W and hold at these levels until Friday. These are expected to increase up to >4m Saturday evening then decreasing throughout Sunday to about 3.5 Monday (WaveWatch3).

Oceanography Summary:

Ocean Color: Last good Chl image - July 3 - see below. Some patchy images from Viirs, Terra, and Aqua from Sunday show some definite spatial changes (S to N increases from 0.2 to > 0.6 mg/m³ over large spatial extent), but these are >200 km N of PAPA. No notable features around PAPA. No surprise, there are lots of clouds...

Upper Ocean Profiles: Please note that all NRT SeaGlider data are largely unprocessed and only notionally calibrated. SeaGlider 219 CTD observations show SST values of ~14C and MLDs are ~21 m for the last available dive (dive 89). Over the past ten dives, there is some variability in mixed layer depth between 20 and 35 m; may be related to diurnal cycle. Strong pycnoclines are seen just beneath the MLD, between 25 and 40 m and between 100 and 115m. Salinity values slowly increase with depth over the upper 90 m showing none of the strong gradient seen in temperature. There is a halocline between 100 and 115m.

Mixed layer Chl values seemed to stabilize over the last couple of dives at roughly 0.4 mg/mg³ with a good deal of variability over the past couple of days. The last dive (89) shows a strong ChlMax at ~60 m. Increases are also seen in surface layer optical backscatter with some large subsurface features consistent with the Chl Max (but mostly not). 1% light level was at ~ 78m. As of the last dive 89, glider was NNW of PAPA heading.

SST: The SST distribution shows a large-scale temperature gradient that is aligned such that the temperature changes from NW to SE near PAPA (colder waters to the NW, warmer waters to the SE). At smaller (sub-100 km) scales, there are some bands of elevated SST gradients; these high gradient regions are aligned from SW-NE, consistent with the larger-scale temperature distribution. One of these high gradient regions is located just to the south of PAPA. However, these gradients are not particularly strong. Little evidence of coherent eddies in the SST data.

Sea Level: Both absolute dynamic topography and sea level anomaly show that PAPA continues to sit on the west edge of a weak, coherent mesoscale anti-cyclone (about 100-km in scale). The absolute geostrophic velocity associated with this feature is still fairly weak, ~4.7km/d to the NNE but amongst the strongest velocities in the region. There is an indication that this anticyclone may be merging with weaker features to the S and NE of PAPA. Mercator products also show an anticyclone, although it is centered on PAPA rather than to the east as in altimetry.

Currents: According to altimetry surface currents at Station P are ~4.7km/d to the NNE; PAPA sits on the western edge of the anti-cyclone. Mercator products show -surface currents are ~4.3km/d to the NNE at PAPA. At 95m Mercator is showing 5.4km/d to the NE. Mercator product shows an anti-cyclone centered on PAPA.

Weather forecast details

[ECMWF,GFS,NEMS summary](#)

[sea state summary \(wavewatch3 CDIP for UW wave rider mooring\)](#)

[sea state summary \(ECMWF WAM 13km\)](#)

Date	Wind(kn) "from the"	Tair(°C)	SWH(m) "from the"	Clouds(%)	Precip(")	URL	predictability
Thu 8/16	15SW->W	15	1.5W	100	0.2-0.4	aug16 forecast URL	high
Fri 8/17	20S	15	1.5->3.5SSW	100	0.1	aug 17 forecast URL	medium
Sat 8/18	25SSE	15	3.5->5SSW	100	--	aug 18 forecast URL	high
Sun 8/19	25SSE	15	5->3SSW	100	0.5	aug 19 forecast URL	low
Mon 8/20	15SSW	15	2WSW	90	--	aug20 forecast URL	low

Comparison of weather forecasts at Station P of 7 different model runs - [6 day forecast model comparison](#)

Glider219- Real time depth profiles

Dive 89 2018-08-15 06:47-12:08 utc-9

Start 50.17N 145.10W

End 50.21N 145.10W

- [locations/dates/times](#)
- [chlor a](#)
- [fraction of surface PAR](#)
- [fraction of saturated O2](#)
- [Temperature](#)
- [Salinity](#)
- [Sigma0](#)
- [Optical scatter](#)

Note: all NRT glider data are using manufacturers offsets / cal constants

Last 10 profiles dives 80-89 2018 Aug 13 03:50 utc-9 Aug 15 12:08 utc-9

- [Locations](#)
- [chlor a](#)
- [fraction of surface PAR](#)
- [fraction of saturated O2](#)
- [temperature](#)
- [Salinity](#)
- [Sigma0](#)
- [Blue scatter](#)
- [Red scatter](#)

PMEL mooring

Last week of hourly air temp, wind, current, sss, sst - [PMEL stack time series plot](#)

Satellite Imagery:

Last good Chl image: July 3 - JD 184 - Aqua - [URL](#) corresponding [sst](#)

Aug 5 Chl image: JD 217- Aqua- [URL](#), corresponding [sst](#) and [Rrs555](#)

“ “ NPP-S [URL](#) corresponding [Rrs551](#)

Microwave SST: [URL 10 deg](#) & [URL 5 deg](#), $||\text{grad}(\text{sst})||$ [5 deg URL](#)

Merged Satellite Altimetry:

Absolute Sea Level & Geostrophic Velocity - [10 degree box](#) & [5 degree box](#)

Sea level anom & anom currents - [10 degree box](#) & [5 degree box](#)

Mercator Ocean Products:

Surface currents, SST & SSH: [10 degree](#) & [5 degree](#)

95 m currents & salinity: [10 degree](#) & [5 degree](#)

Today's Situational Awareness data **on the google drive** [sitAware for 2017-08-15](#)
EXPORTS NRT Platform positions in [graphic](#) and [tex](#) format.