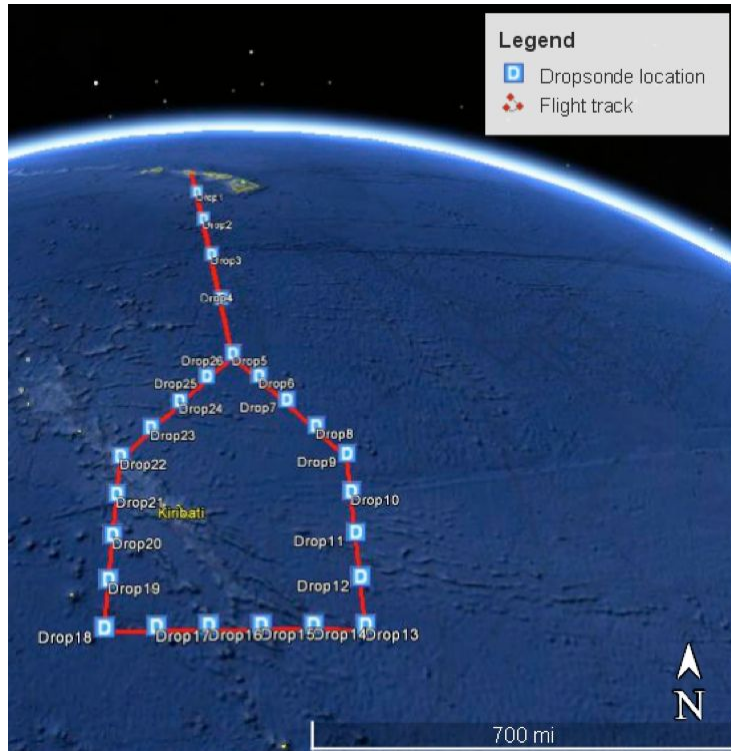


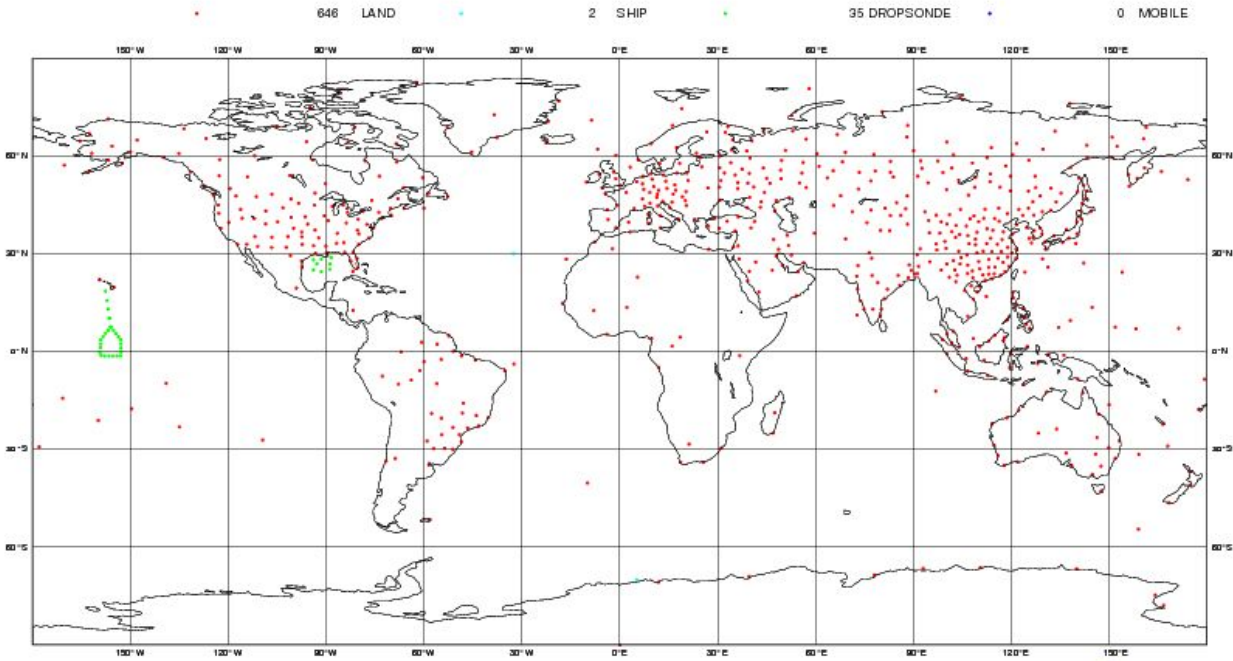
Summary of Key Briefing Points:1030-1130am MST January 22, 2016

Display and discuss some of the preliminary sounding data collected from the Thursday Jan 21 Research Flight No. 1 of G-IV



As a follow up, the 35-dropsonde measurements that were collected during the Research Flight #1, entered into the ECMWF assimilation process:

ECMWF Data Coverage (All obs DA) - Temp
22/Jan/2016; 00 UTC
Total number of obs = 683



Mages 2.247 (64 bit)

ECMWF

Current Conditions as of 12Z 22 January

Tropics and Midlatitudes

Over the Tropical Pacific:

- Convection: Convection in the region 180-150W is not less well organized than during previous days of this week. This morning's 12Z IR image shows a distinct minimum of convection with the sampling domain of the G-IV Research Flight #1.
- A further slight westward drift/weakening of yesterday's convection is now near EQ, 155-180W. A area of convection has developed this morning 5N, 145W---not clear at this time if this latter element will develop into a more organized feature.
- SPCZ convection remains very active
- Low level 850 mb circulation at 12Z Fri continues to show a well defined cyclonic center located slightly south of the equatorward, and extending from about 170E-160W. This feature has moved westward, about 5° longitude in the past 24 hours, consistent with forecast guidance of Thursday 21 January. This low pressure/large scale cyclonic disturbance continues to propagating westward.
- The 12Z Fri analysis indicate poleward divergent flow from 0-10N in the 170-140W longitude sector. This was tied to the convective complex (since dissipated) that was sampled in the Research Flight #1.
- Jetstream: Large scale 250 mb winds over the NPAC at 12Z Fri shows a strong polar jet centered at 30N, with a jet core speed of 170 kt from 160E-180W. Weaker flow downstream, with a split into a subtropical branch and a northern branch near 130W.
 - the subtropical branch has entrance region near 140W, and 12Z Fri analyzed peak winds near 90kt along 20N, 140-110W.
 - the northern polar branch has a trough near 130W, that is carrying a cyclonic event toward NCA. polar branch spanning the Pacific, and centered north of Hawaii

Over CA:

- First wave of rainfall today has been moderate, with generally less than 1" 24-hr totals (ending Fri morning). A second storm, evident by the common cloud in the 12Z satellite, is expected to reintensify rains this evening.

--- 8 & 5-Station CADWR monitoring indicates *above normal accumulation WY* at 113% and 118% of normal as of 22 January..

Tropical Outlook

- Enhanced, large scale, convection between 170E-160W, 0-5°N expected to continue westward movement thru Saturday 23 Jan.
 - Confidence is moderately high, given broad agreement among GFS, FIM, ECMWF, and C-LIM
 - Confidence is also high because of the large scale circulation feature that is organizing this convective event is forecast to propagate westward
 - Less organized convection to prevail in the 180-150W, 0-5N latitude band thru Saturday 23 Jan.
- Models indicate that the drying in the region from Hawaii to near at least 10N on Saturday to continue Sunday Jan 24. This is linked to a southward penetration of upper level westerly flow, and a strengthening of the low level trades in the region
 - Confidence in the suppression of convection in the longitude band of Hawaii, and in the region 0-5N during Saturday
 - *60 hr GFS fcst for 18 Z Sunday indicates suppressed convection in the longitudinal sector of our field campaign south of Hawaii/ 0-5N. Sunday guidance does, however, suggest more convection than Saturday, and this hint of recovery in convection will be closely monitored in subsequent fcst cycle.*
- Looking ahead toward middle of next week, we find a considerable fcst model agreement on a large scale picture for the equatorial Pacific convection:
 - that convection will continue to mainly reside 0N-5N, aside from the the SPCZ activity (which itself is east of the normal location that continues in the SH)
 - that little convection is expected to develop in the next south of the Eq, in the band 150W-110 W week .
 - *that a G-IV flight campaign launched from HNL rather than Tahiti makes the best sense for next week, at least as per Friday forecast guidance.*

Midlatitude Outlook

Short Term:

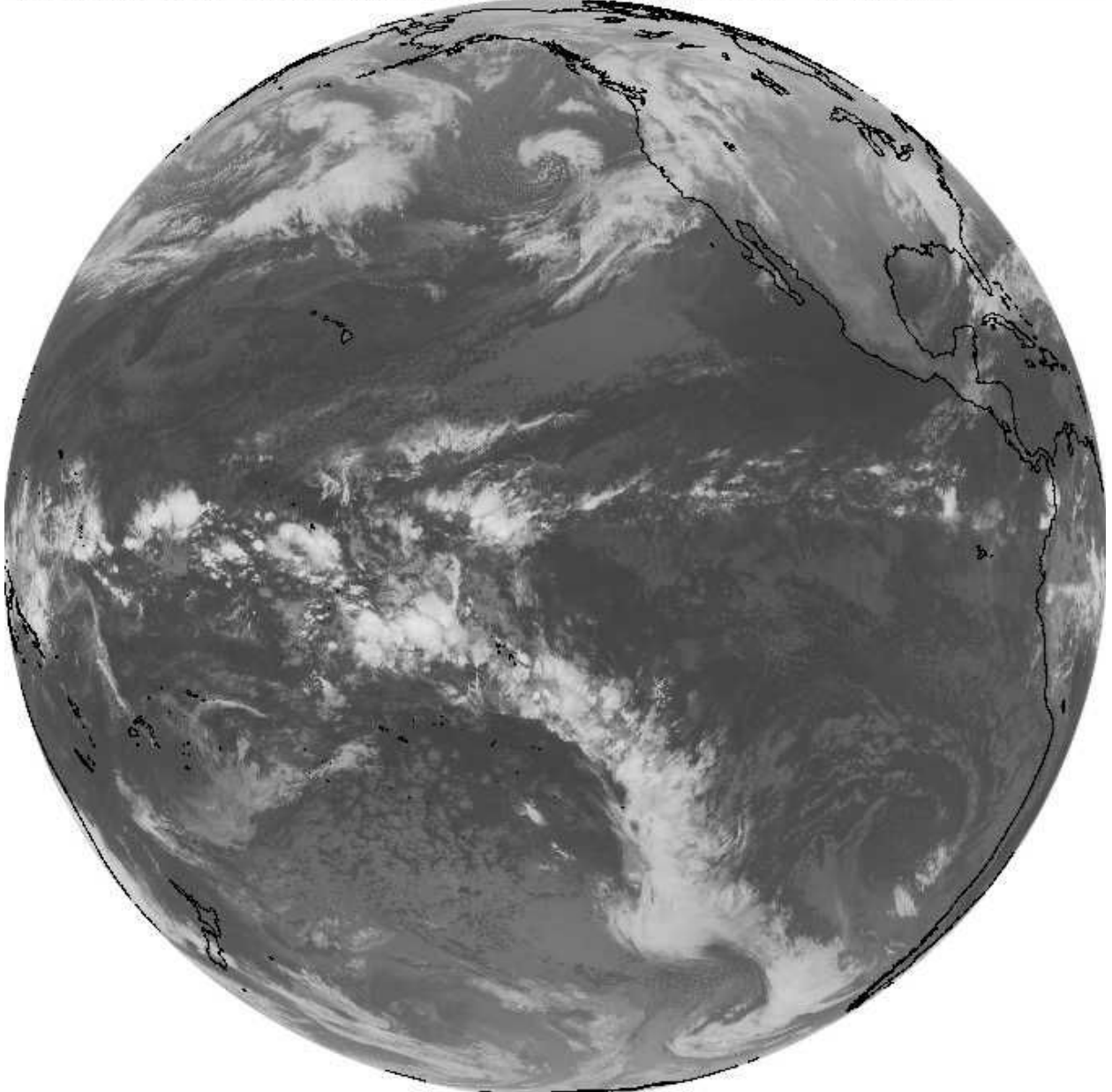
- A storm is expected to bring heavy rains and winds to mostly northern CA and the central-northern Sierra. mainly over the next 24 hours.
- Precipitation in the coastal range north of SFO, and in the Sierras expected to be near 5" for this storm thru Sunday morning.
- Mostly dry conditions expected Sunday through early week for CA
- A strong snowstorm and icestorm is also expected to develop in the US midatlantic region, likely to deliver 2-3' snowfall from Washington DC to southern NY. Blizzard conditions expected in the Baltimore-Washington metro area late Fri thru Sat.
- The GFS longer lead forecast, for lead times of 6 days, have been anticipating this event. Skill has been high...making this an excellent case to examine the effect of El Nino using the parallel model runs of the GEFS Reforecast model
- Is this potential MidAtlantic Blizzard being made more likely owing to El Nino?
 --- NOAA PSD analysis of historical linkages gives evidence for such a linkage:
http://www.esrl.noaa.gov/psd/csi/images/NOAA_AttributionTeam_SnowstormReport.pdf

Medium - Long Term:

- High confidence that CA will be mostly dry in the period 24 Jan thru Thu 28 Jan.
 --- GEFS ensemble in strong agreement to 168 hr lead (Thur 28 Jan) for a transient Ridge on the Pacific coast.
- Days 7-10 indicates a flattening of the West Coast ridge, exposing CA to intrusions of moisture
 --- moderate confidence of a return to wetter conditions for CA from Fri 28 Feb thru Sun 31 Jan
- Will keep close eye on future forecast as to the threat of CA storms in the first week of February (days 11-15 in the forecasts...), as the Global Hawk is set to deploy Tuesday Feb 2.
- GFS ensemble shows strong subtropical jet impinging the West Coast in the long range (valid 2 February)...storms are likely to be embedded in this pattern, though the daily synoptic details cannot be discerned at this time.

Friday January 22 GOES West IR Image

GOES WEST FULL DISK LONGWAVE IR 22 JAN 16 12:00 SSEC: UW-MADISON



1

2016022 120000

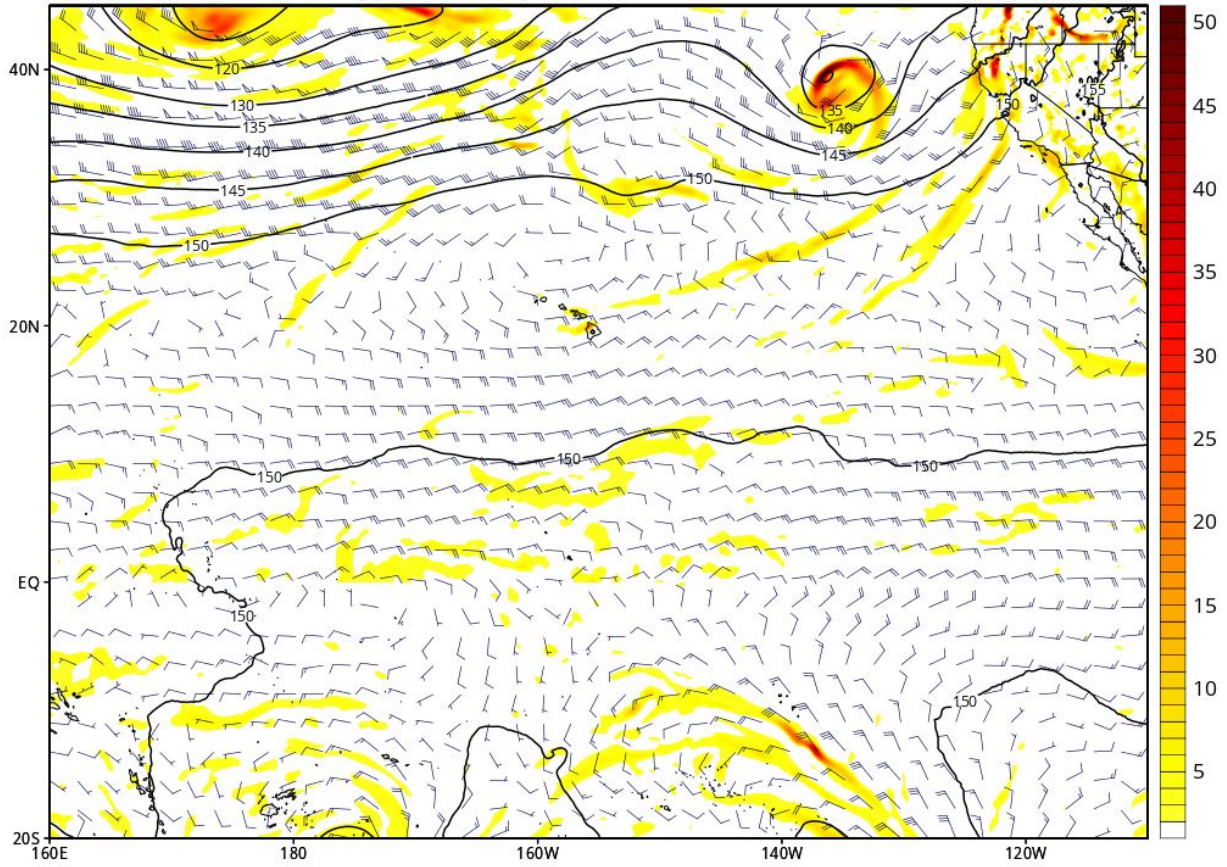
McIDAS

GFS 12Z Friday 22 January Analysis : 850 mb pressure and winds

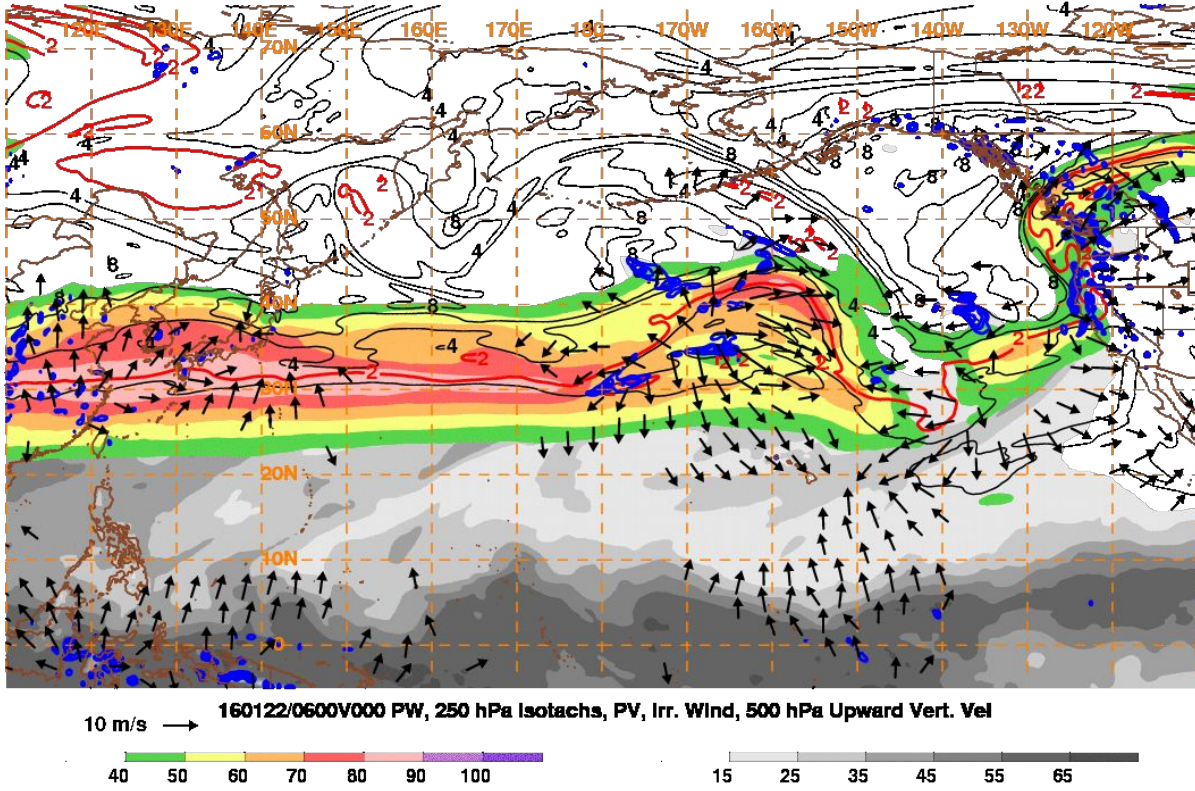
GFS 850mb Geopotential Height (dam), Cyclonic Vorticity (10^6 s^{-1} , shaded), and Wind (kt)

Init: 12z Jan 22 2016 Forecast Hour: [0] valid at 12z Fri, Jan 22 2016

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GFS 06Z Friday 22 January Analysis

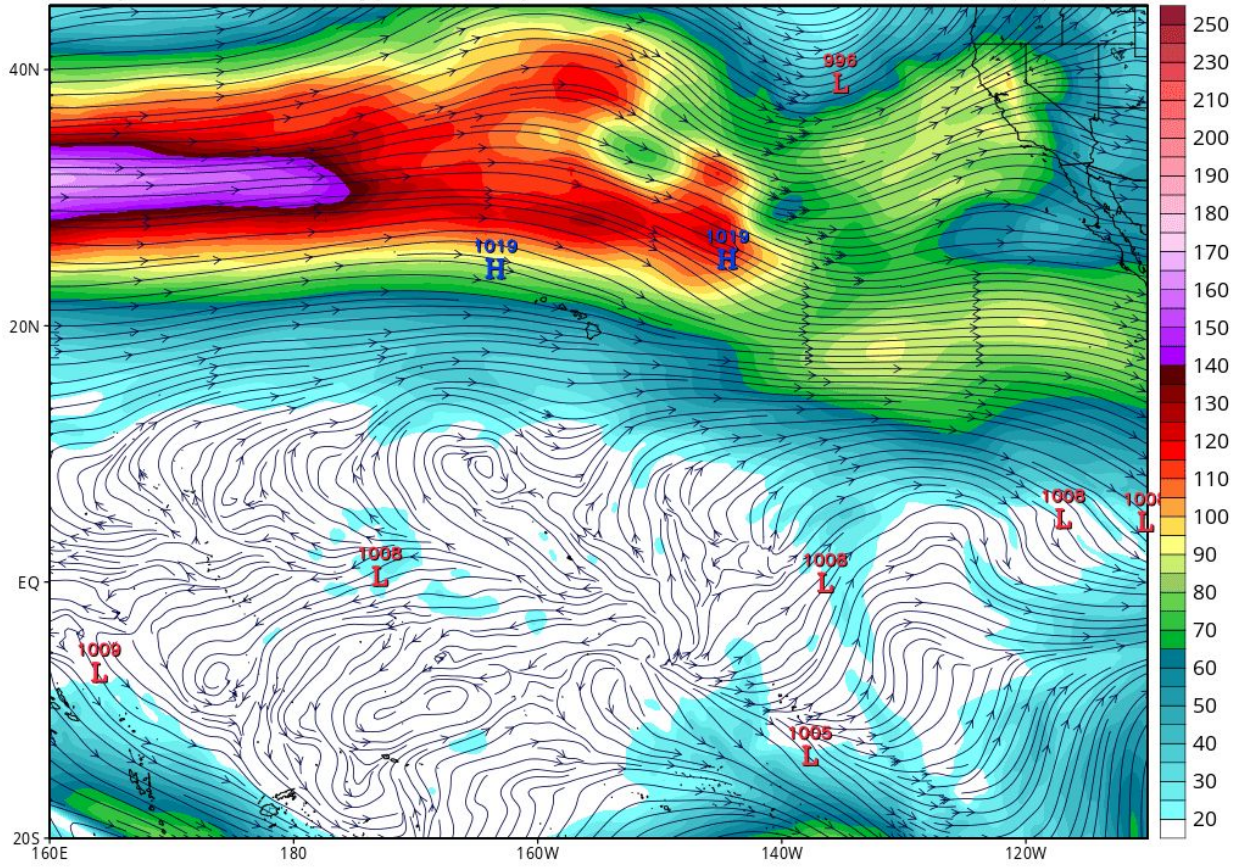


GFS 12Z Friday 22 January Analysis : 200 mb isotachs and streamlines

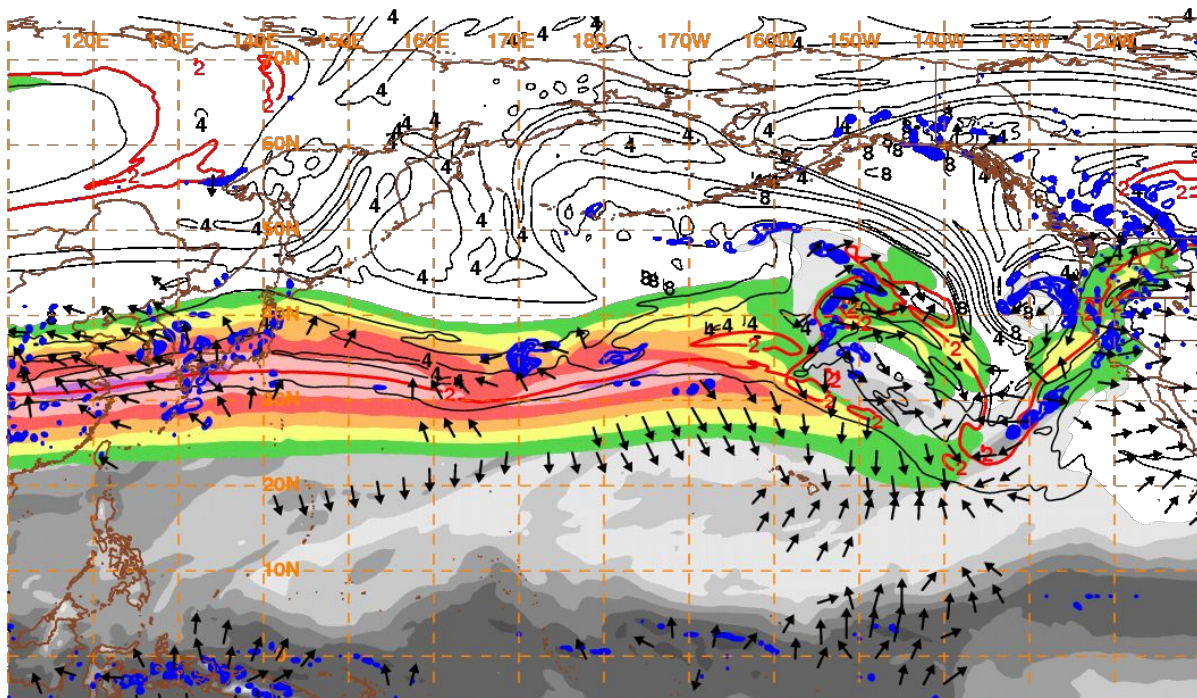
GFS 200mb Wind Speed/Streamlines (kt) & MSLP Extrema (mb)

Init: 12z Jan 22 2016 Forecast Hour: [0] valid at 12z Fri, Jan 22 2016

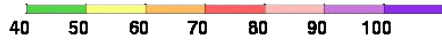
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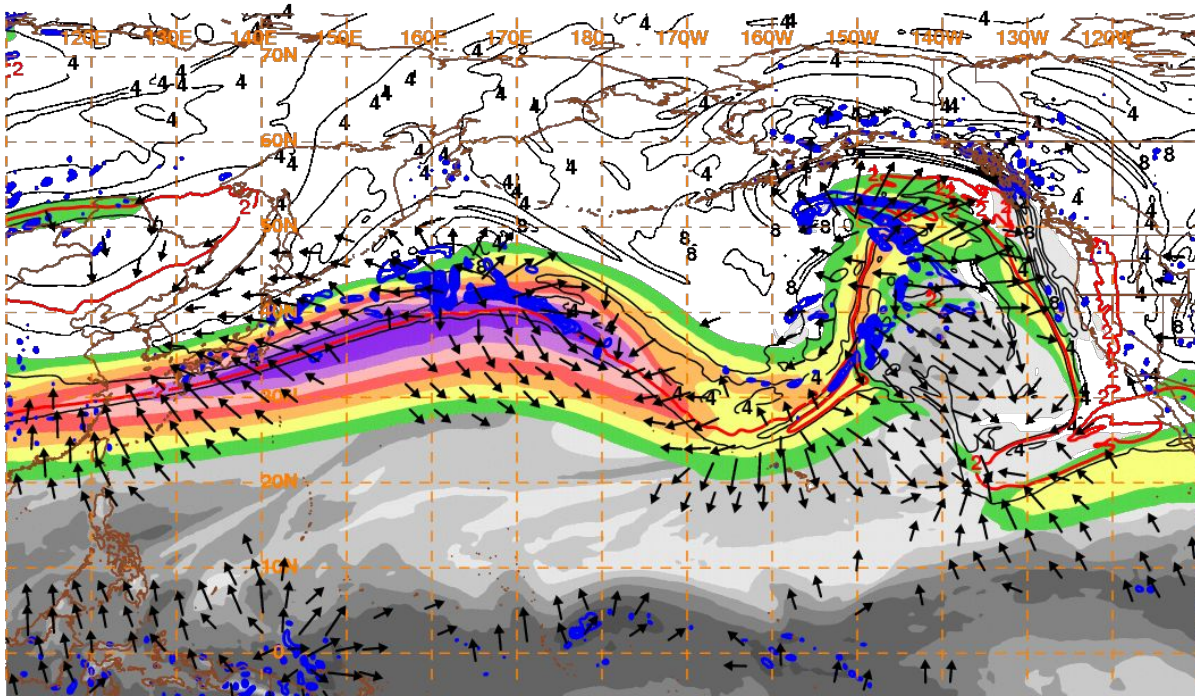
GFS 18-hr Fcst Valid 00Z 23 January Saturday



10 m/s → 160123/0000V018 PW, 250 hPa Isotachs, PV, Irr. Wind, 500 hPa Upward Vert. Vel



GFS 60-hr Fcst Valid 18Z 24 January Sunday



10 m/s → **160124/1800V060 PW, 250 hPa Isotachs, PV, Irr. Wind, 500 hPa Upward Vert. Vel**

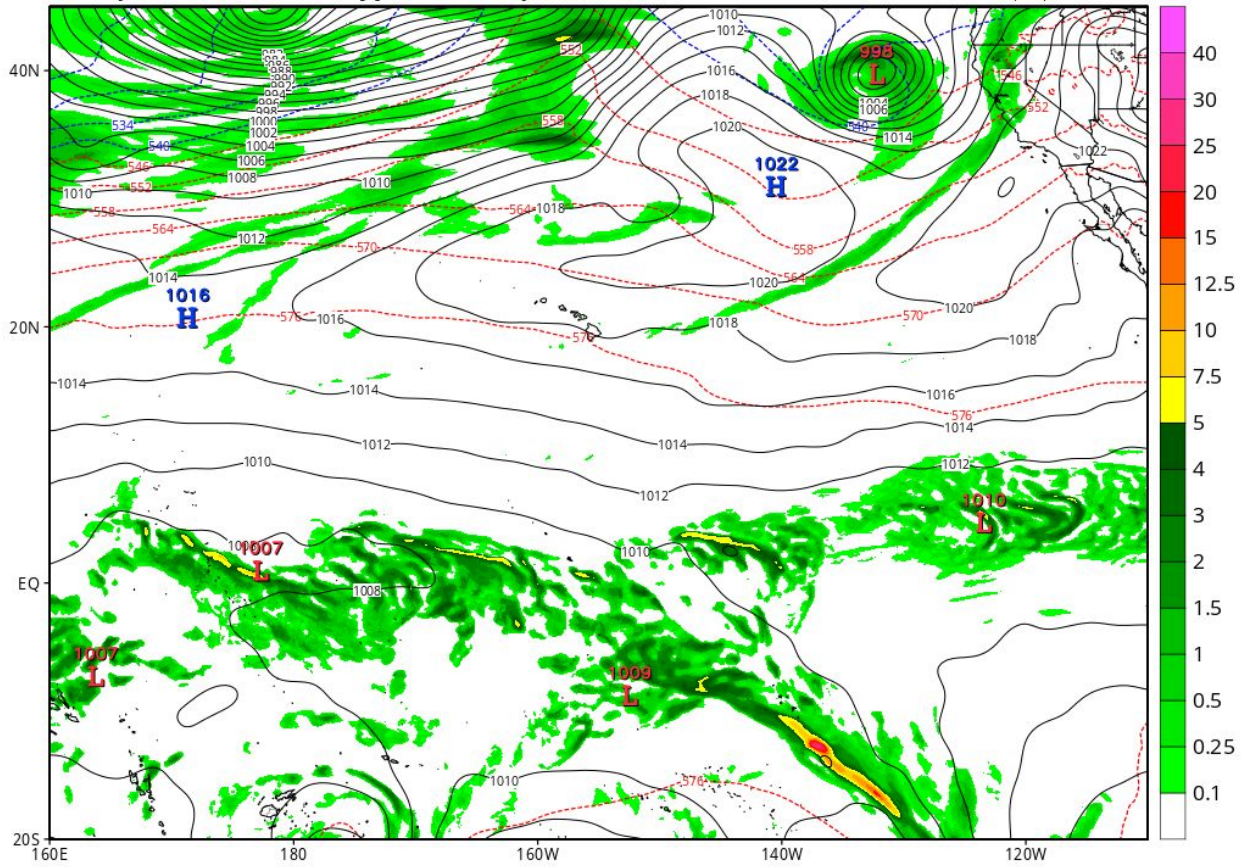
40 50 60 70 80 90 100 15 25 35 45 55 65

GFS 6-HR Forecast Valid 18Z Friday 22 January

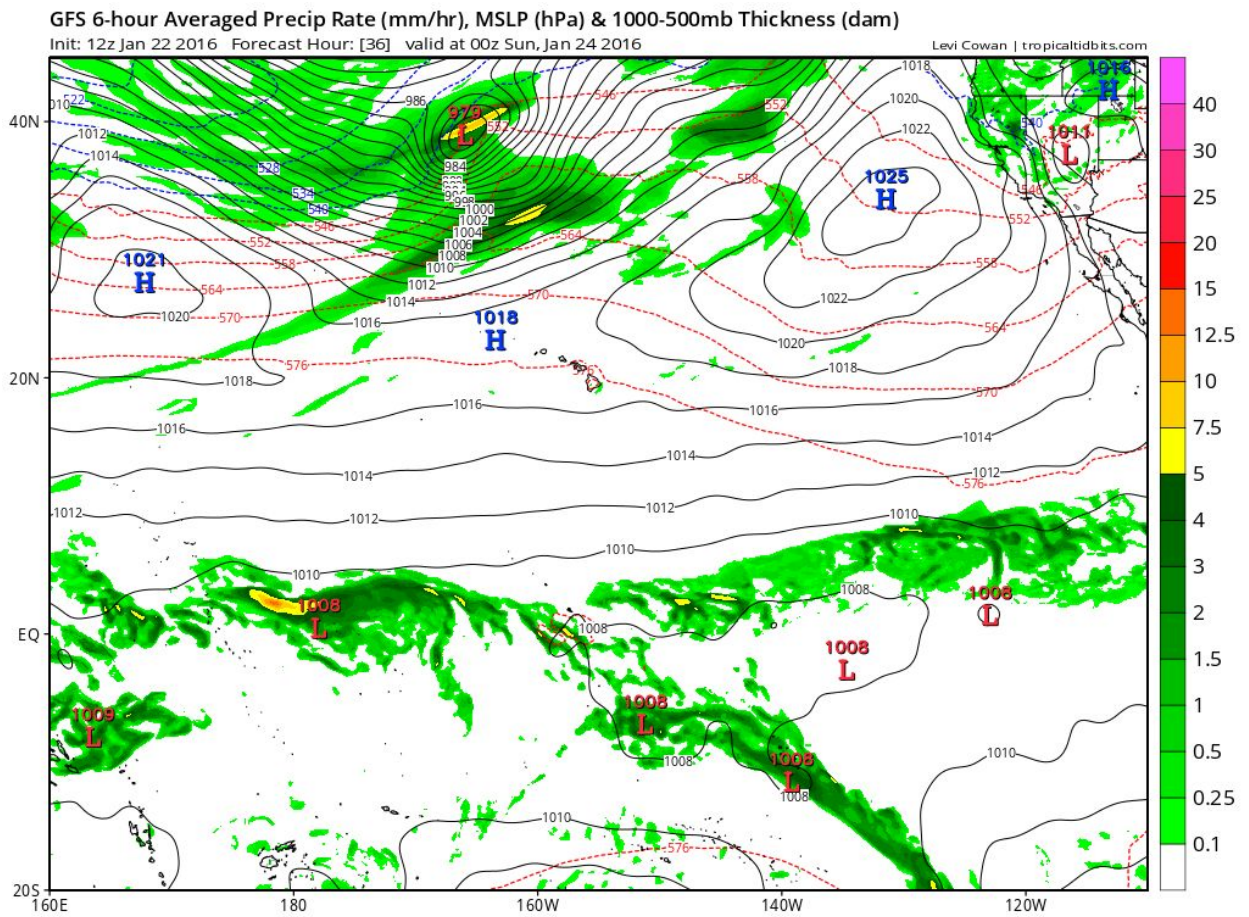
GFS 6-hour Averaged Precip Rate (mm/hr), MSLP (hPa) & 1000-500mb Thickness (dam)

Init: 12z Jan 22 2016 Forecast Hour: [6] valid at 18z Fri, Jan 22 2016

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GFS 36-HR Forecast Valid 00Z Sunday 24 January (2PM HT Saturday 22 Jan)

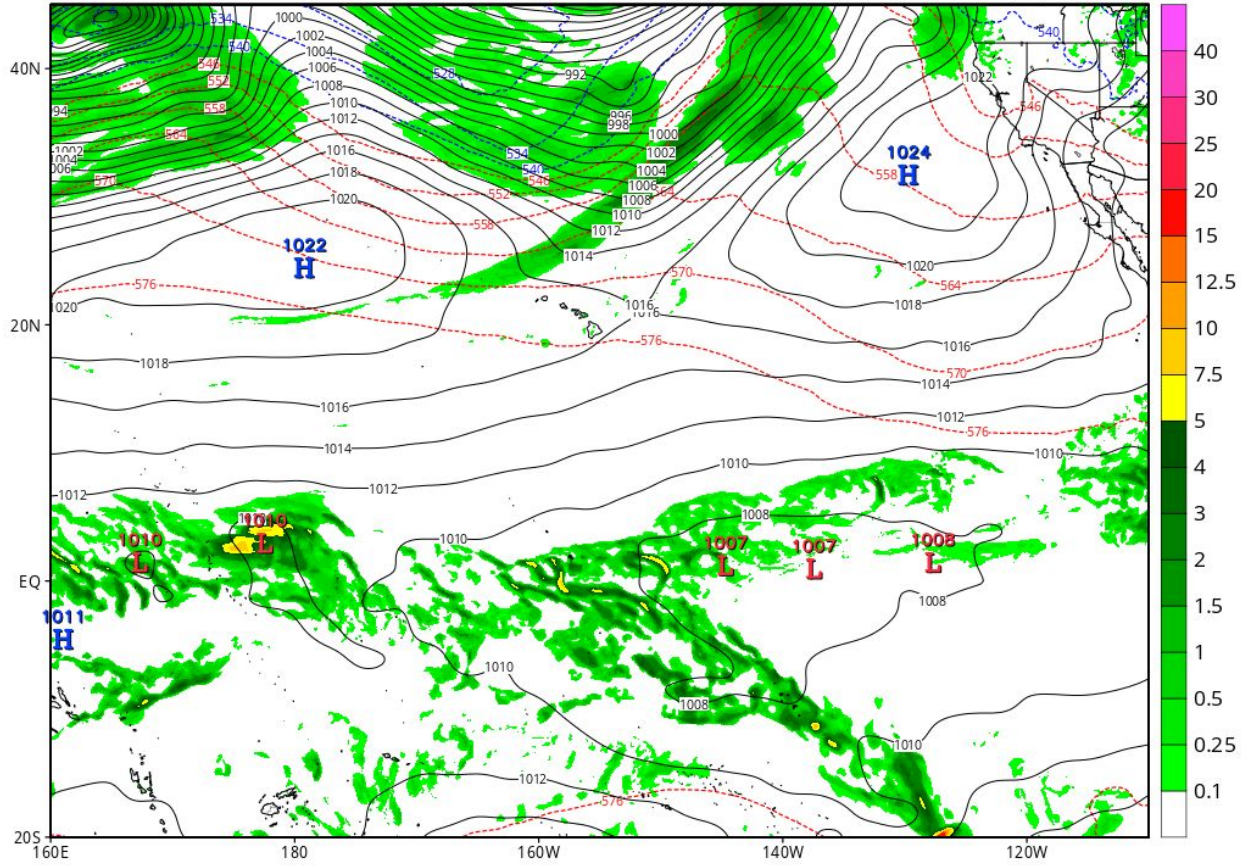


GFS 60-HR Forecast Valid 12Z Sunday 24 January : SLP/Pcpn

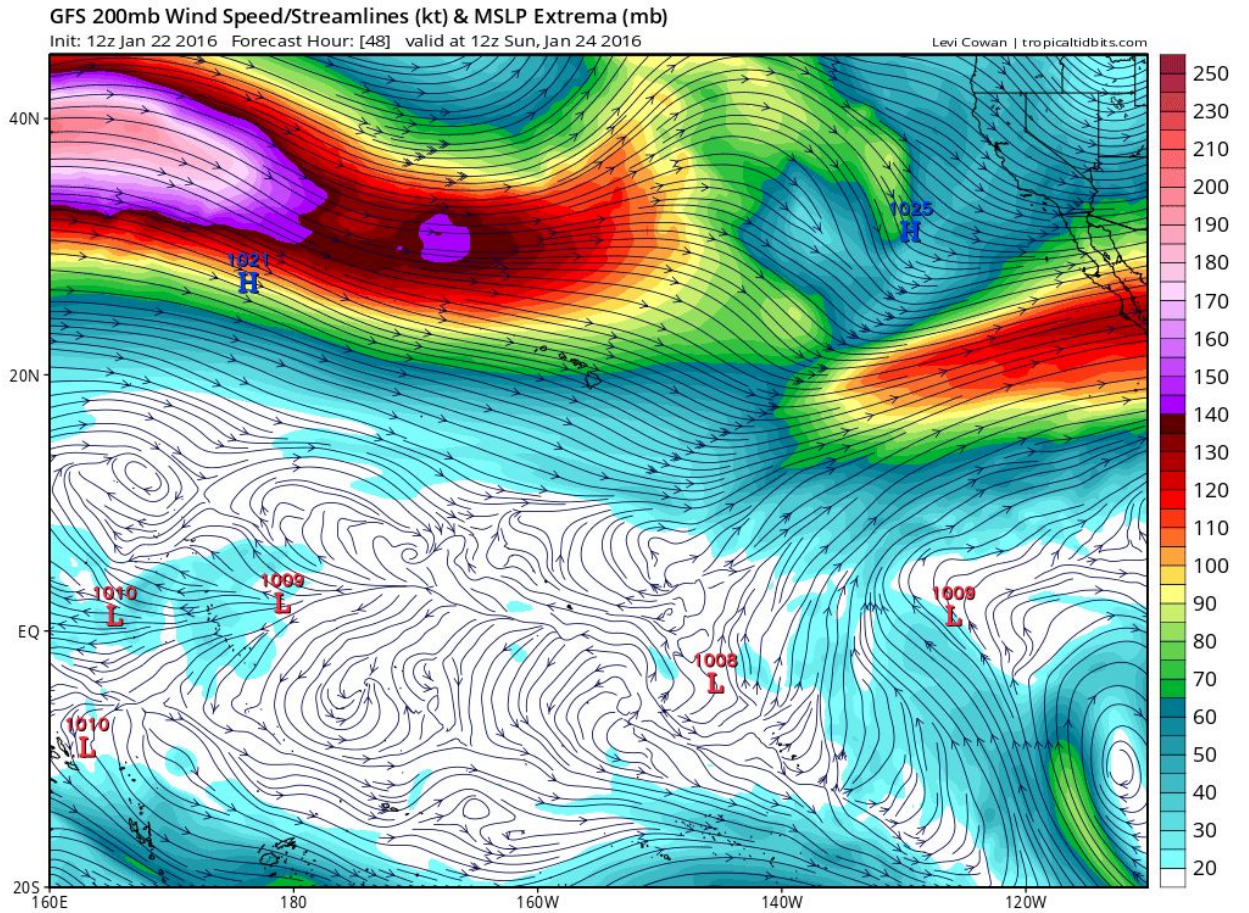
GFS 6-hour Averaged Precip Rate (mm/hr), MSLP (hPa) & 1000-500mb Thickness (dam)

Init: 12z Jan 22 2016 Forecast Hour: [60] valid at 00z Mon, Jan 25 2016

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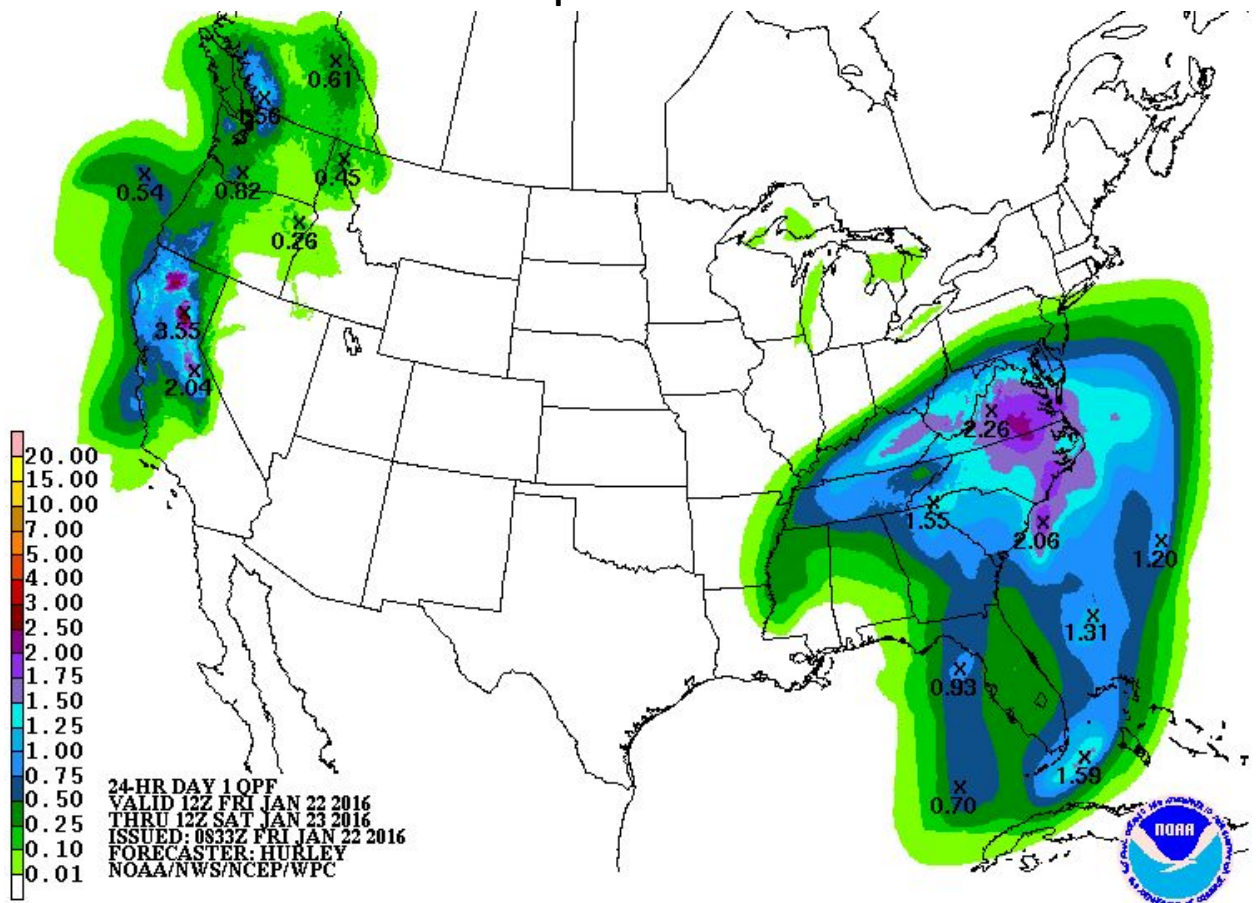


GFS 48-HR Forecast Valid 12Z Sunday 24 January: 200mb

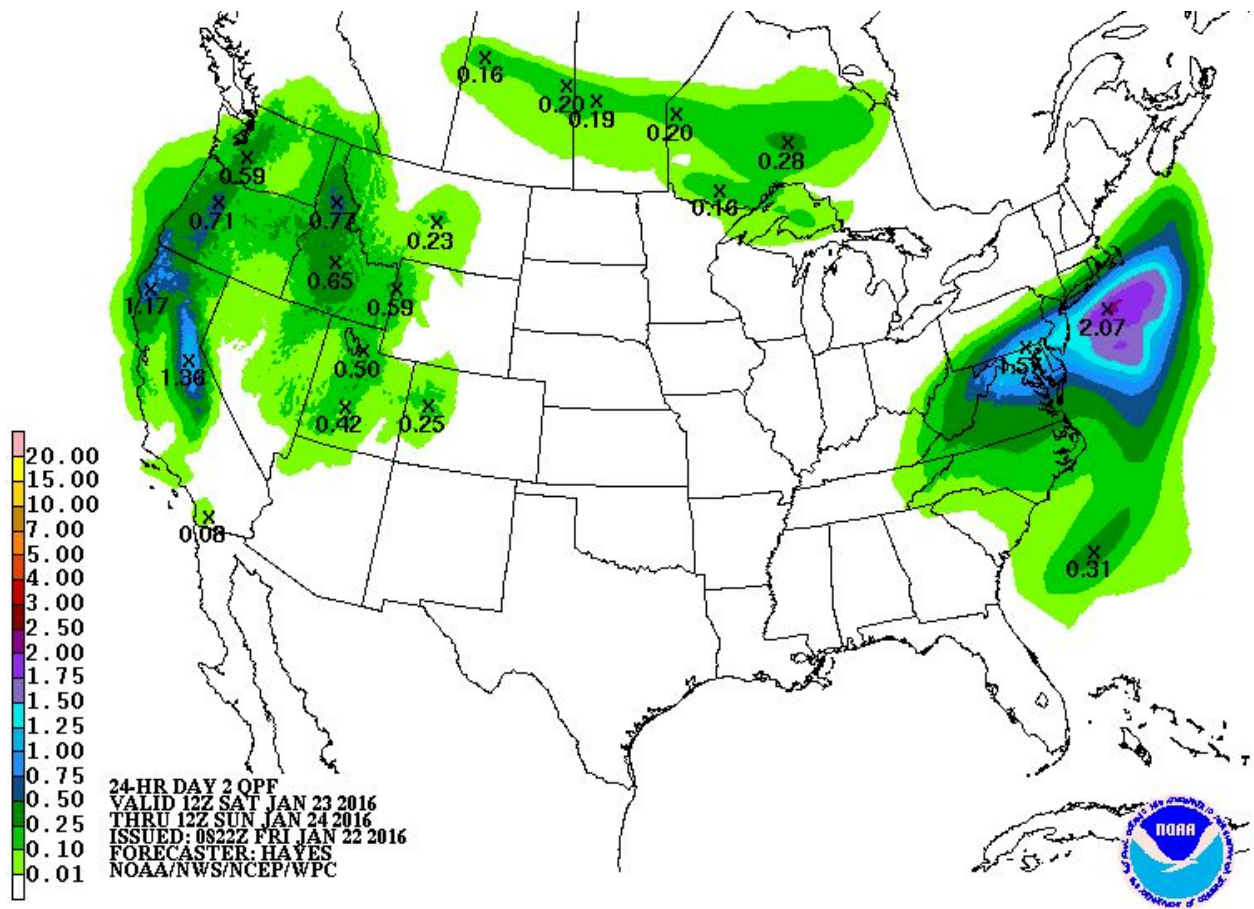


Short Range NWS Official Outlook

NOAA Weather Prediction Center 24-hr Pcpn Total: 12Z Fri- 12Z Sat Jan 23

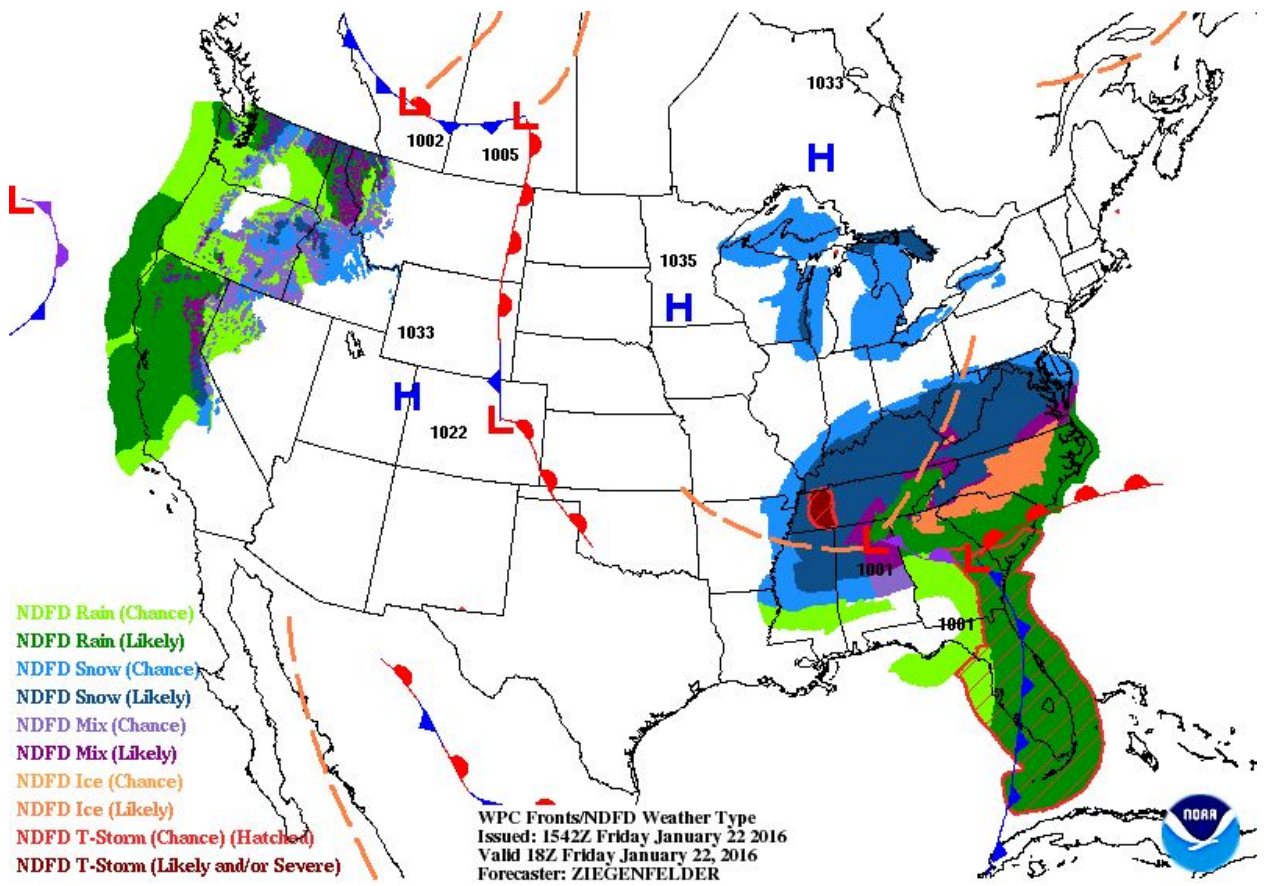


NOAA Weather Prediction Center 24-hr Total Pcpn Outlook: 12Z Sat- 12Z Sun
Jan 24

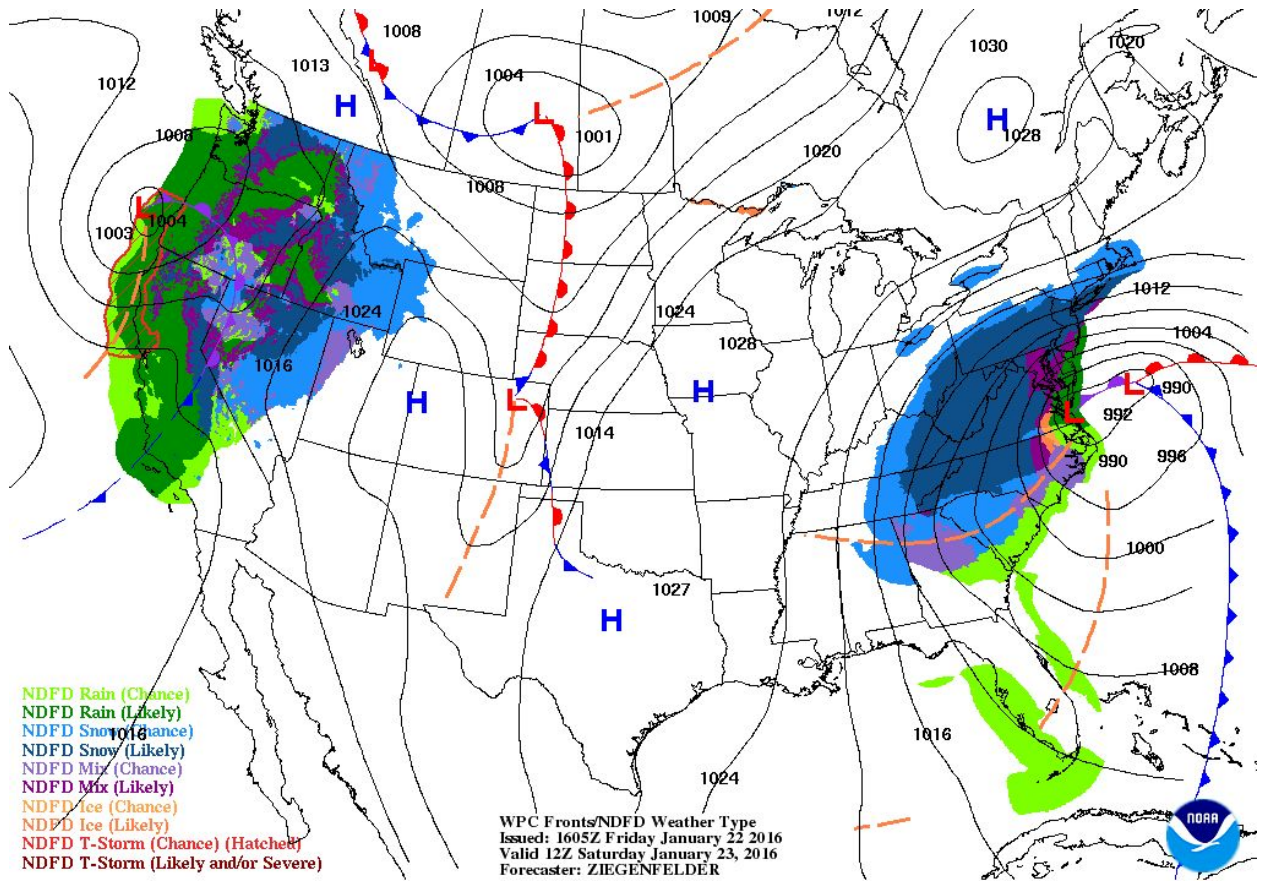


Short Range NWS Official US Outlook

NOAA Weather Prediction Center 6-hr Outlook: Valid 12Z Fri Jan 22



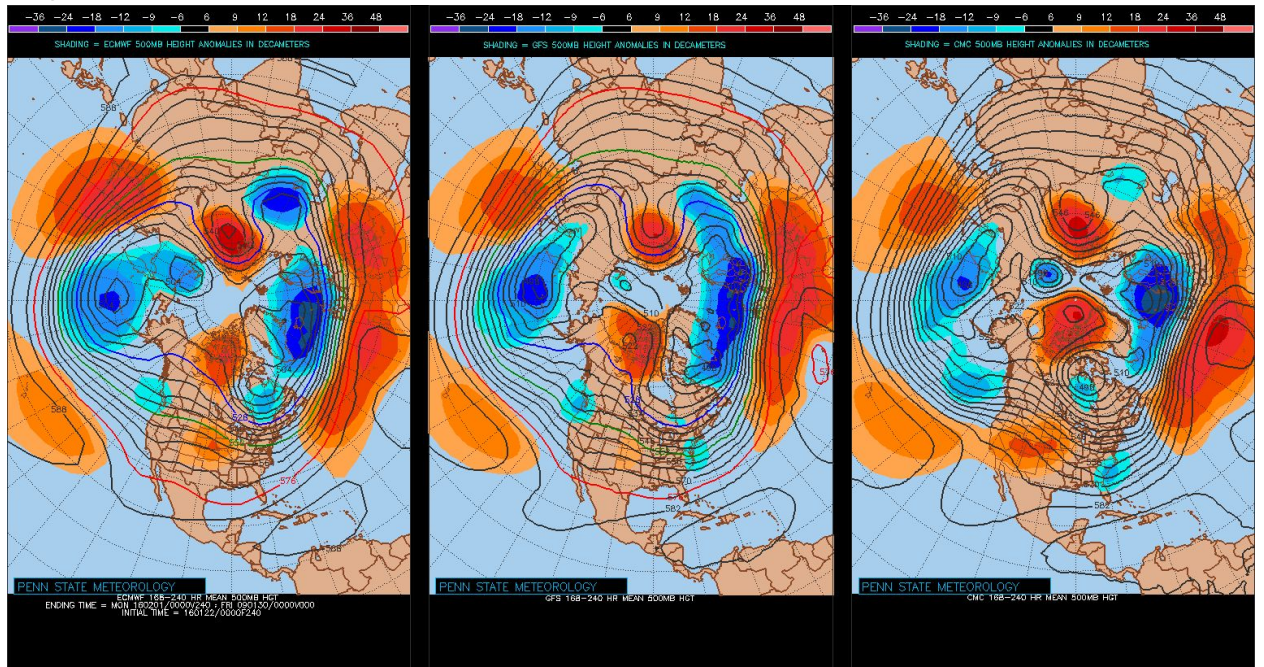
NOAA Weather Prediction Center 24-hr Outlook: Valid 12Z Sat Jan 22



Medium - Long Range Forecast

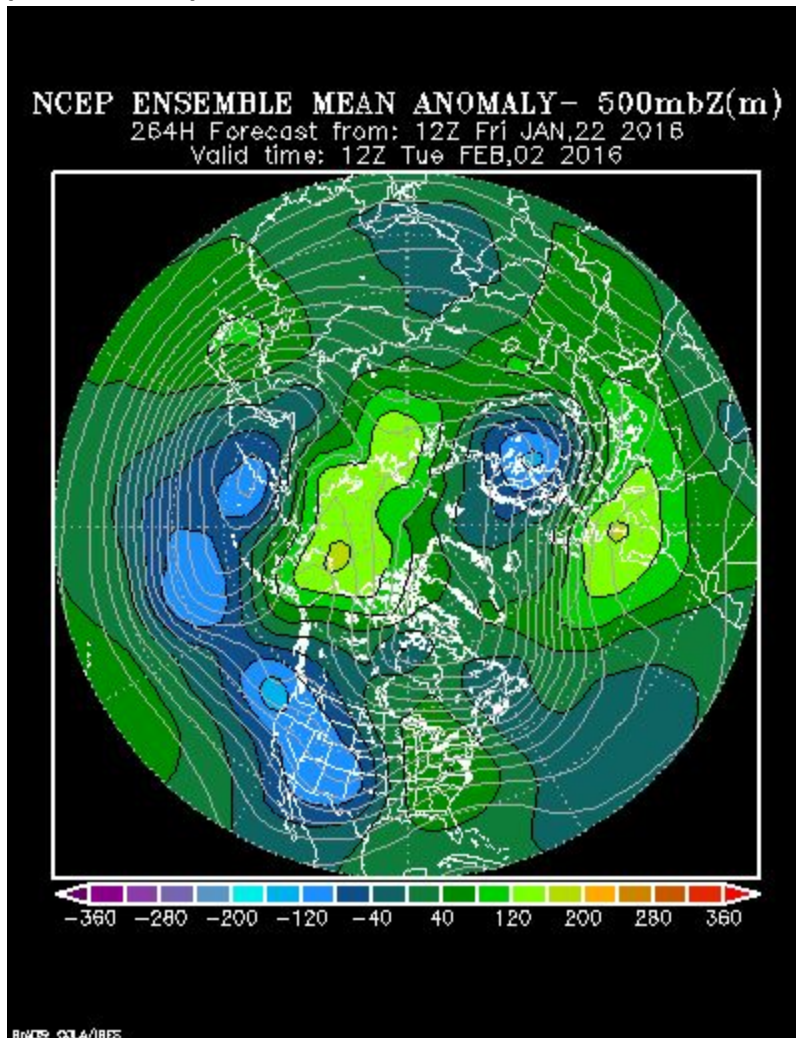
3 Model Intercomparison Deterministic Fcsts of 500Z/anomalies :

Day 7-10 Mean/anomalies (from 00Z Fri 22 Jan initializations)



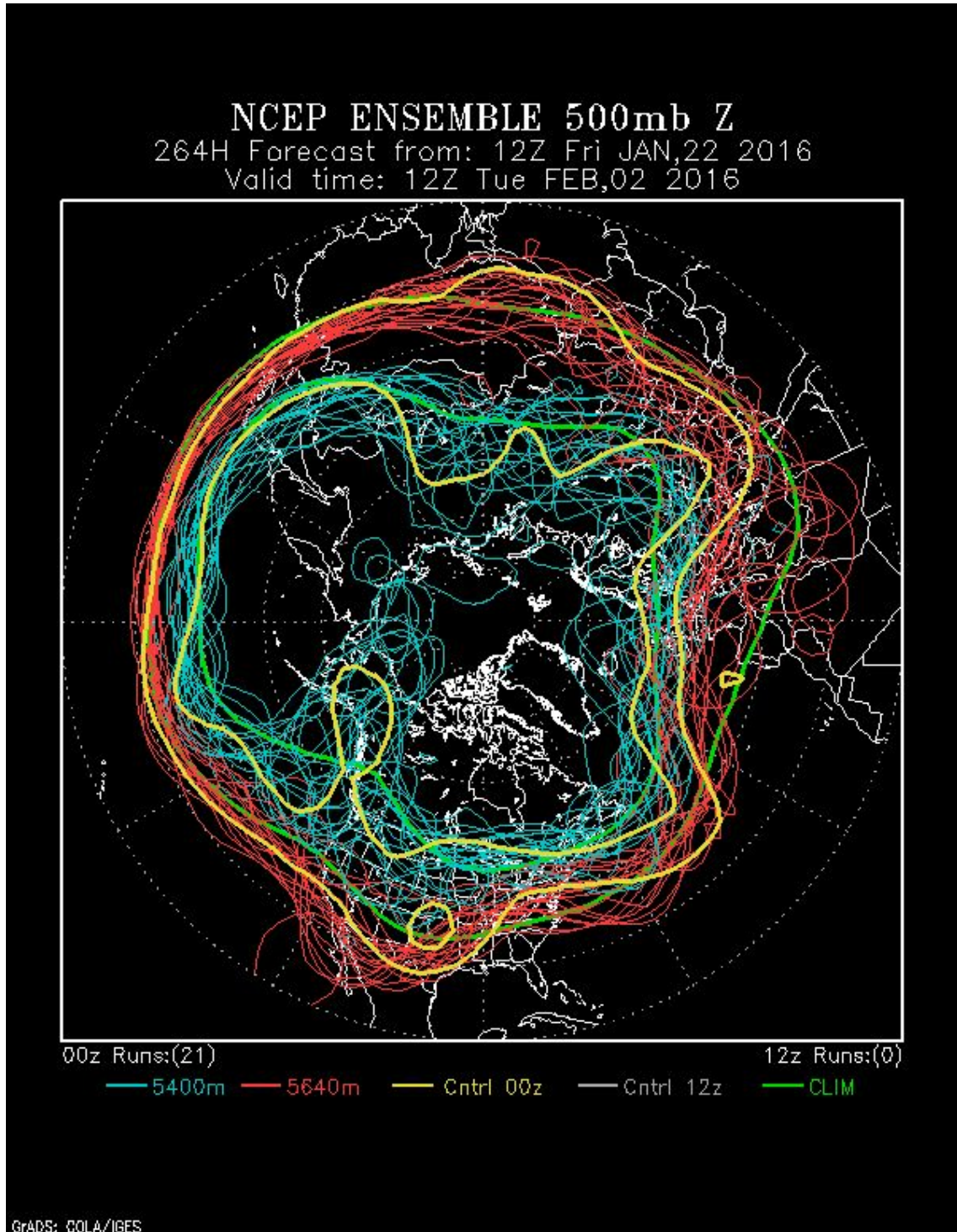
Day 11 Ensemble Mean 500Z Forecast

**NCEP GEFS Ensemble 500 mb Height and Anomalies Valid 12Z Feb 2
(264 Hr Fcst)**

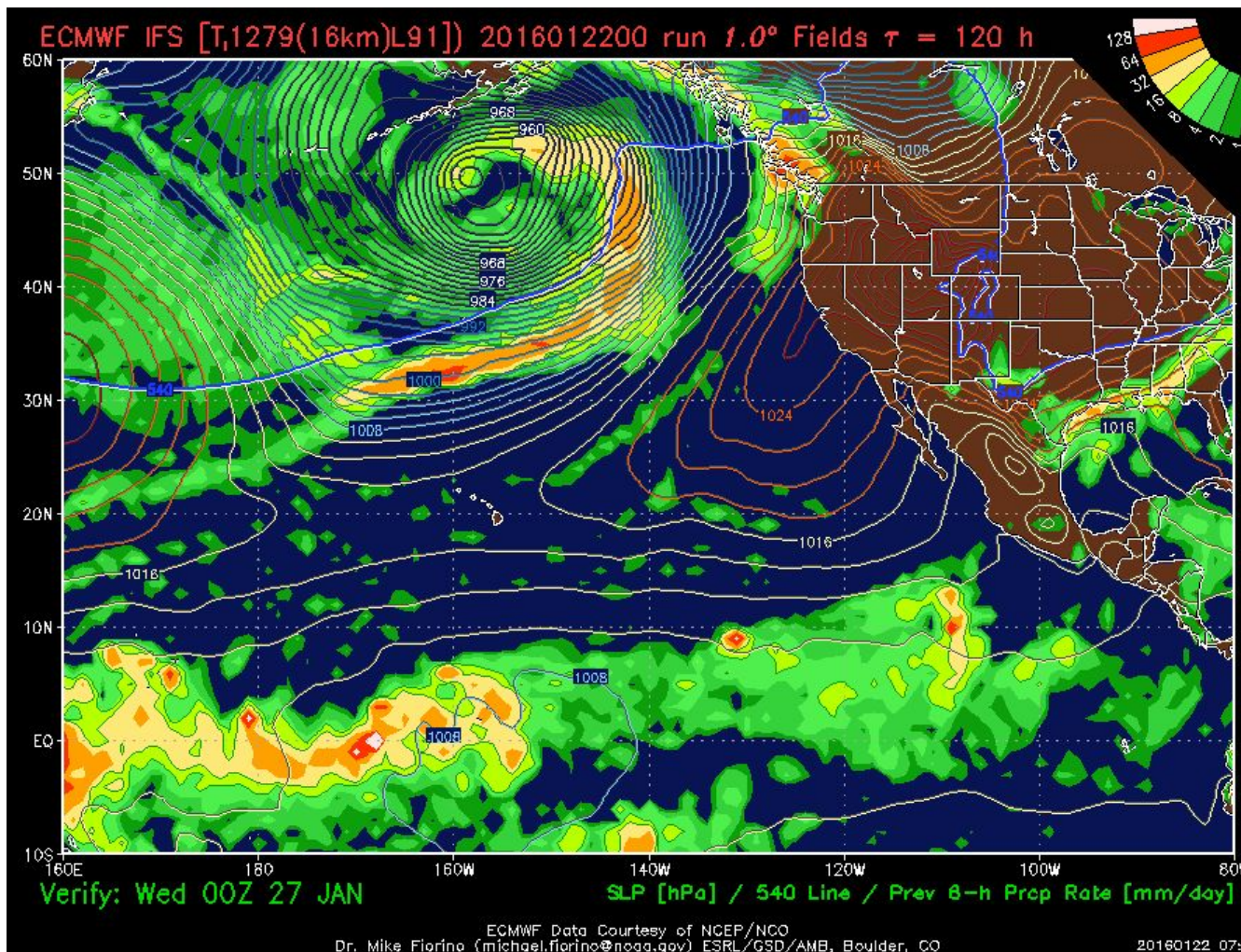


Day 11 Ensemble Mean 500Z Forecast Uncertainty

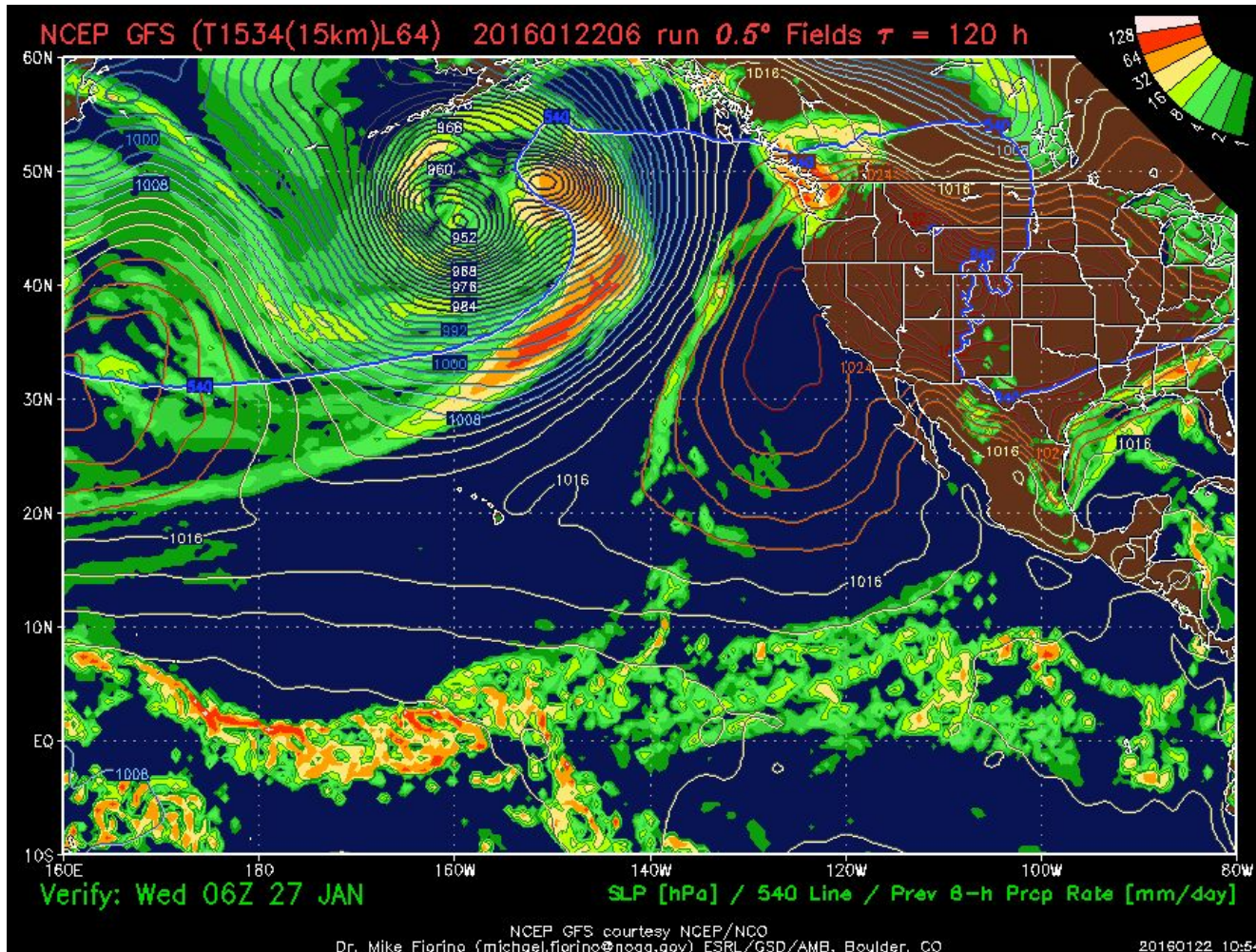
**NCEP GEFS Individual Runs 500 mb Height Valid 12Z Feb 2
(264 Hr Fcst)**



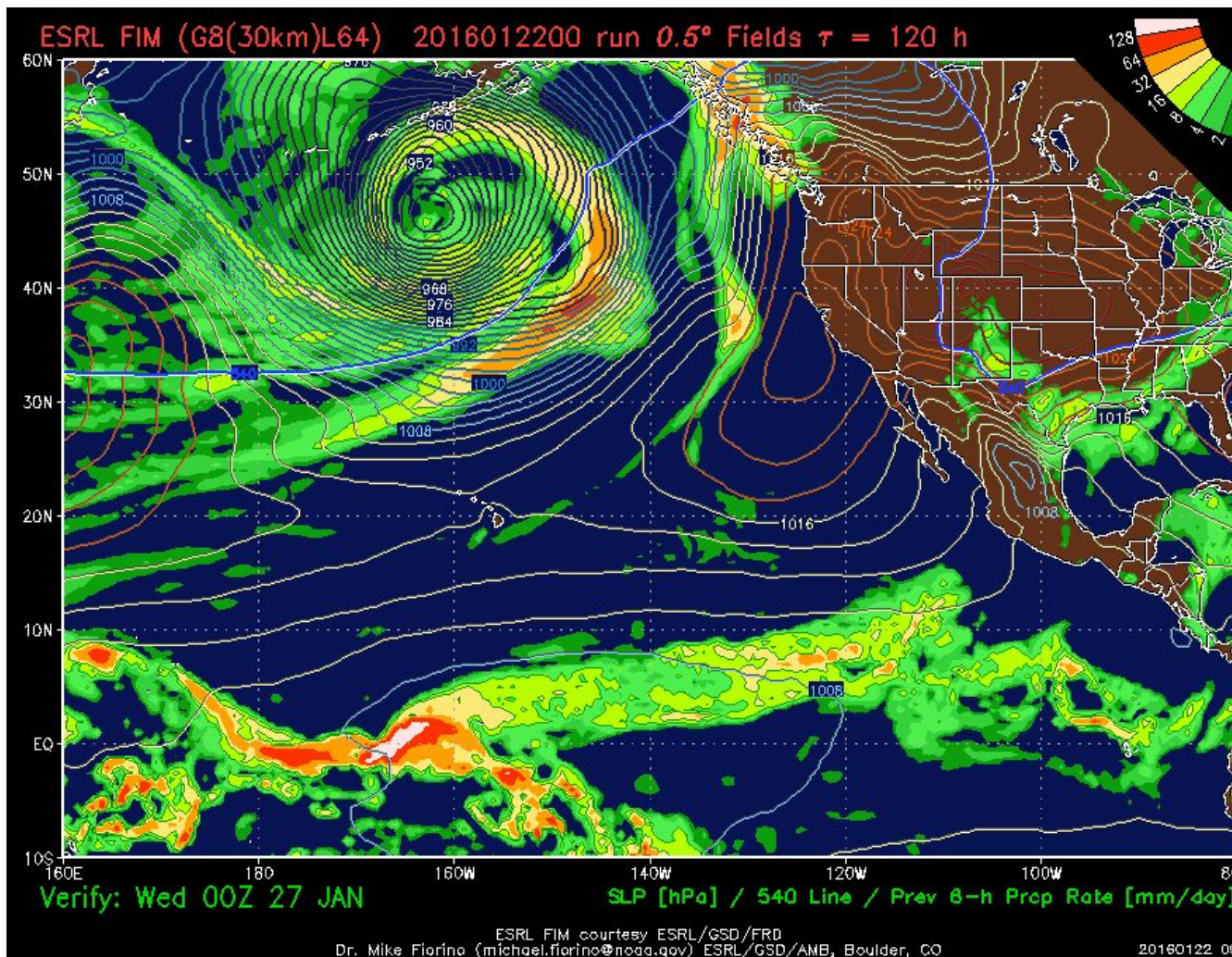
ECMWF Fcst for 00Z Wed 27 Jan (from 00Z Friday Run)



NCEP Fcst for 06Z Wed 27 Jan (from 06Z Friday Run)



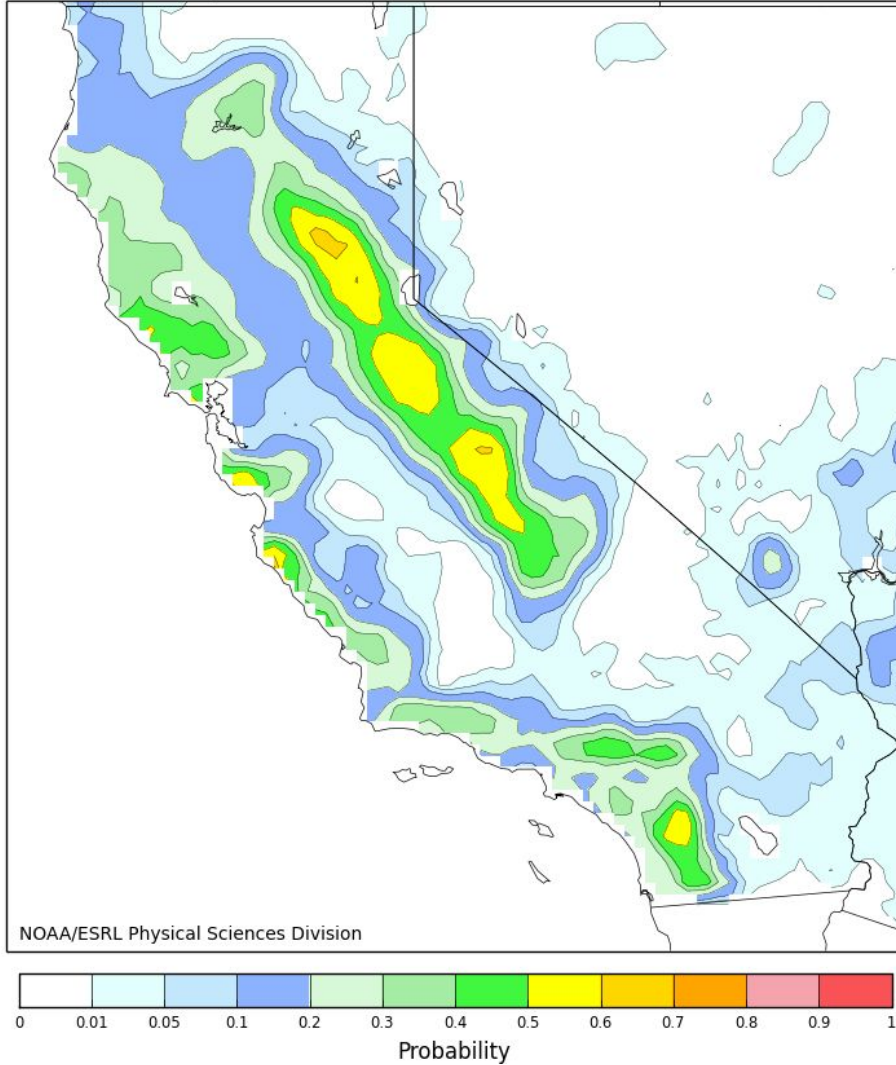
ESRL-FIM Fcst for 00Z Wednesday 27 Jan (from 00Z Friday Run)



ESRL-Calibrated Reforecast Pcpn :
Day 6-10 Fcst for 00z Wednesday -00z Mon February 1

(from the 00Z Friday ensembles of the experimental reforecast system)

120-240hr fcst from 00Z Fri Jan 22. Valid 00Z Wed Jan 27 - 00Z Mon Feb 01
Probability of Precip > 50mm. CSGD. 2002-2013 CCPA and Reforecast2 Calibration.



ESRL-Calibrated Reforecast Fractional Change in % Compared to Climo :
Day 6-10 Fcst for 00z Wednesday -00z Mon February 1

(from the 00Z Friday ensembles of the experimental reforecast system)

120-240hr fcst from 00Z Fri Jan 22. Valid 00Z Wed Jan 27 - 00Z Mon Feb 01
Ratio. Forecast/Climo Prob of Precip > 50mm. CSGD.

