

Summary of Key Briefing Points: 1030-1130am MST January 21, 2016

Flight Plan for Research Flight No. 1--- Mesoscale Convective Circuit
21 January Takeoff 1000HT G-IV flight, 7.5hr duration:



Flight No 1 Details

- Sample thermodynamics and region of poleward divergent outflow around mesoscale convective complex north of the ITCZ
- G-IV flies “box” module clockwise at cruise altitude (41-45 kft)
- Sondes are launched on both in/outbound legs to/from HNL

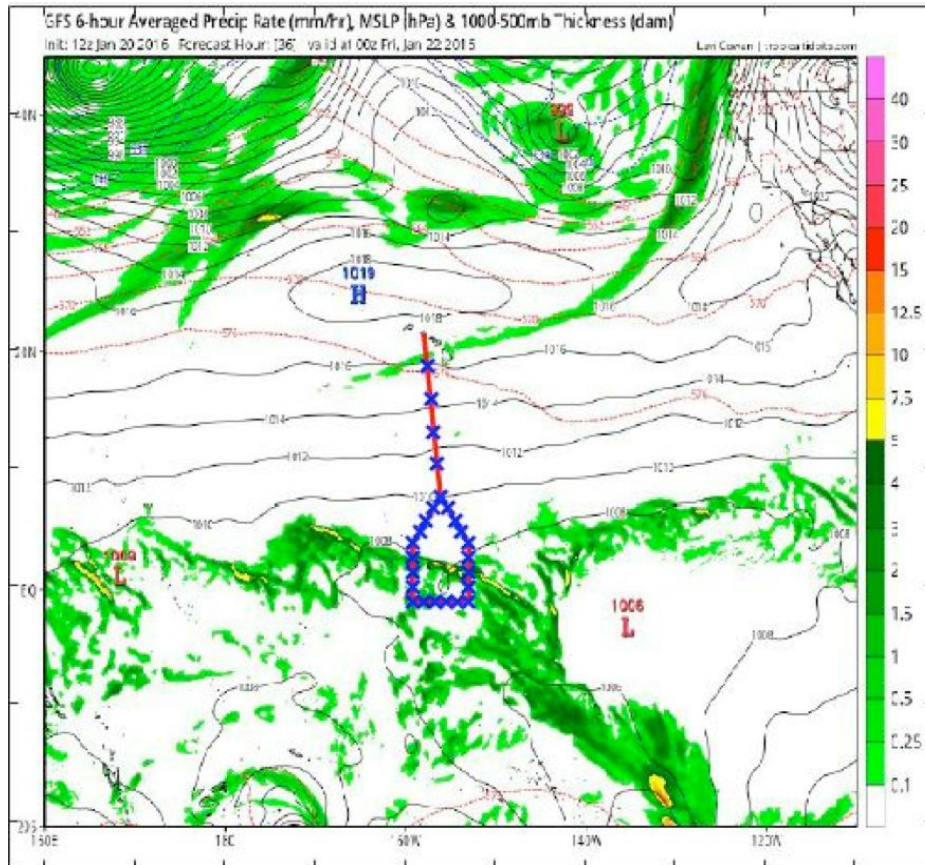
Platform Scientist: Ryan Spackman

Onboard Scientists: Randy Dole, Janet Intrieri

Dropsondes: 30 dropsondes (75 nmi spacing except 160 nmi spacing in/out HNL)

Kiritimati radiosonde launch operations tentatively begin on 25 Jan at 1400 HT

**Flight Path Superposed Atop Expected Meteorological Conditions, as per GFS
18hr - Lead Forecast Valid 00Z Friday Jan 22 (1400; 2PM HT Thursday 21 Jan)**



Current Conditions as of 12Z 21 January

Tropics and Midlatitudes

Over the Tropical Pacific:

- Convection: Convection evolved during the period 18Z Wed thru 12Z Thu is agreement with the model guidance from the Wednesday deterministic forecasts.

At 12Z Thursday, a large scale region of organized convection is located in the region of 0-5N, 180-150W.

While the center of mass of this connection is slightly north of the equator this morning, there is also appreciable convection that extends southeastward into the SH.

- Low level 850 mb circulation at 12Z Thu consists of a well defined cyclonic center located slightly south of the equatorward, and extending from about 180W-150W. It is this feature that is organizing the overall convection, and the NH enhancement. This low pressure/large scale cyclonic disturbance appears is slowing propagating westward.
- The 12Z Thu analyses indicate poleward divergent flow from 0-10N in the 180-150W longitude sector of active convection.
- Jetstream: Large scale 250 mb winds over the NPAC is still showing 2 distinct jet streams
 - a subtropical branch w/entrance region near 15°N, 120°W
 - a wavy polar branch spanning the Pacific, and centered north of Hawaii

Over CA:

- CA experienced a relative dry day in the last 24 hours ending 12Z Thu 21 Jan.
- runoff from the multitude of moderate, but frequent rain events, is beginning to fill NCAL reservoirs;
 - Folsom Lake east of Sacramento rose **44 feet** in the last month
 - the elevation at Lake Oroville shot up a dramatic 20 feet in only six days.
 - 8 & 5-Station CADWR monitoring indicates *above normal accumulation WY* at 112% and 120% of normal as of 21 January..

Tropical Outlook

- Enhanced, large scale, convection between 180-150W, 0-5°N expected to continue thru Friday 22 Jan. A slow westward drift of this convection is expected.
 - 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.
 - Large scale divergent outflow -- likely to prevail in region 180-150W, and north of EQ thru Friday 22 Jan.
- Models indicate the large scale convection will continue to drift westward, and be replaced by a less convectively active regime for Saturday 23 January.
- Models indicate that the drying in the region from Hawaii to near at least 10N on Saturday 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 is moderately high
- *The period Sunday Jan24 January may see an increase in convection 170-140W, 0-5N, but confidence is low at this time.*

Midlatitude Outlook

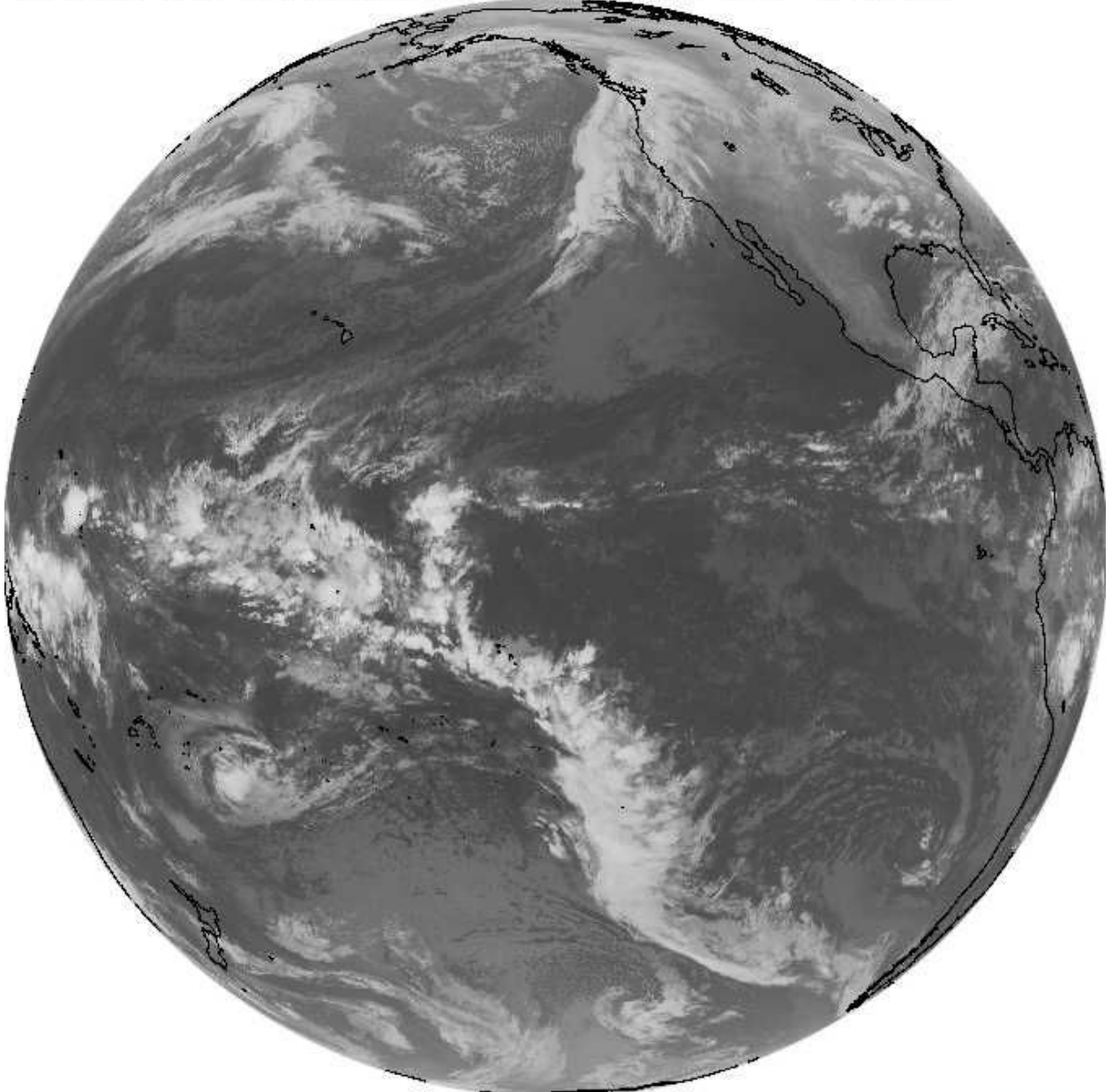
Short Term:

- A storm is expected to bring heavy rains and winds to mostly northern CA and the central-northern Sierra over the next 48 hours. The rains will begin tonight, and a second system will arrive Friday night and continue rains thru Saturday.
- Precipitation in the coastal range north of SFO, and in the Sierras expected to be near 5" for this storm.
- This storm complex is expected to lead to coastal flooding owing to wave action, and hydrologic flooding is also expected in some regions inland.
- A strong storm is also expected to develop in the US midatlantic region, likely to deliver 1-2" snowfall from Washington DC to southern NY. Blizzard conditions expected in the Baltimore-Washington metro area late Fri thru Sat.
- 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 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.

GOES WEST FULL DISK LONGWAVE IR 21 JAN 16 12:00 SSEC: UW-MADISON

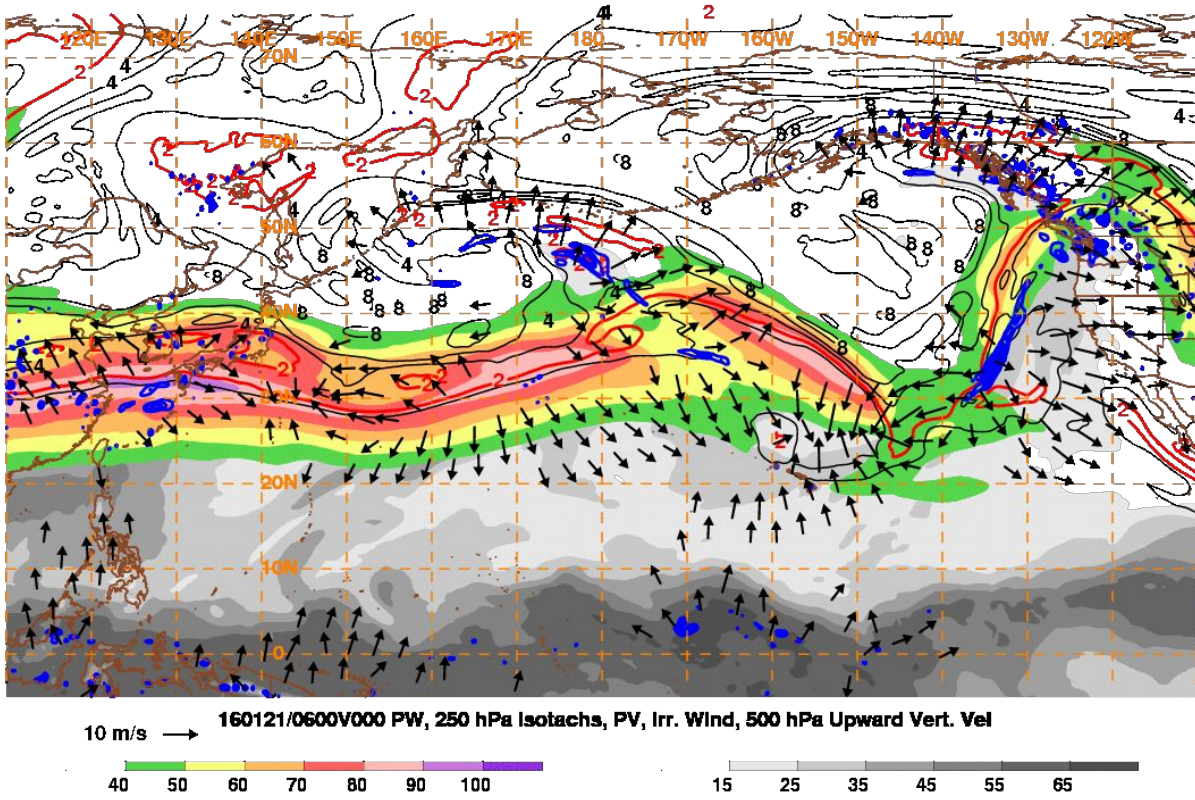


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GFS 06Z 21 January Analysis Valid 12Z Thursday

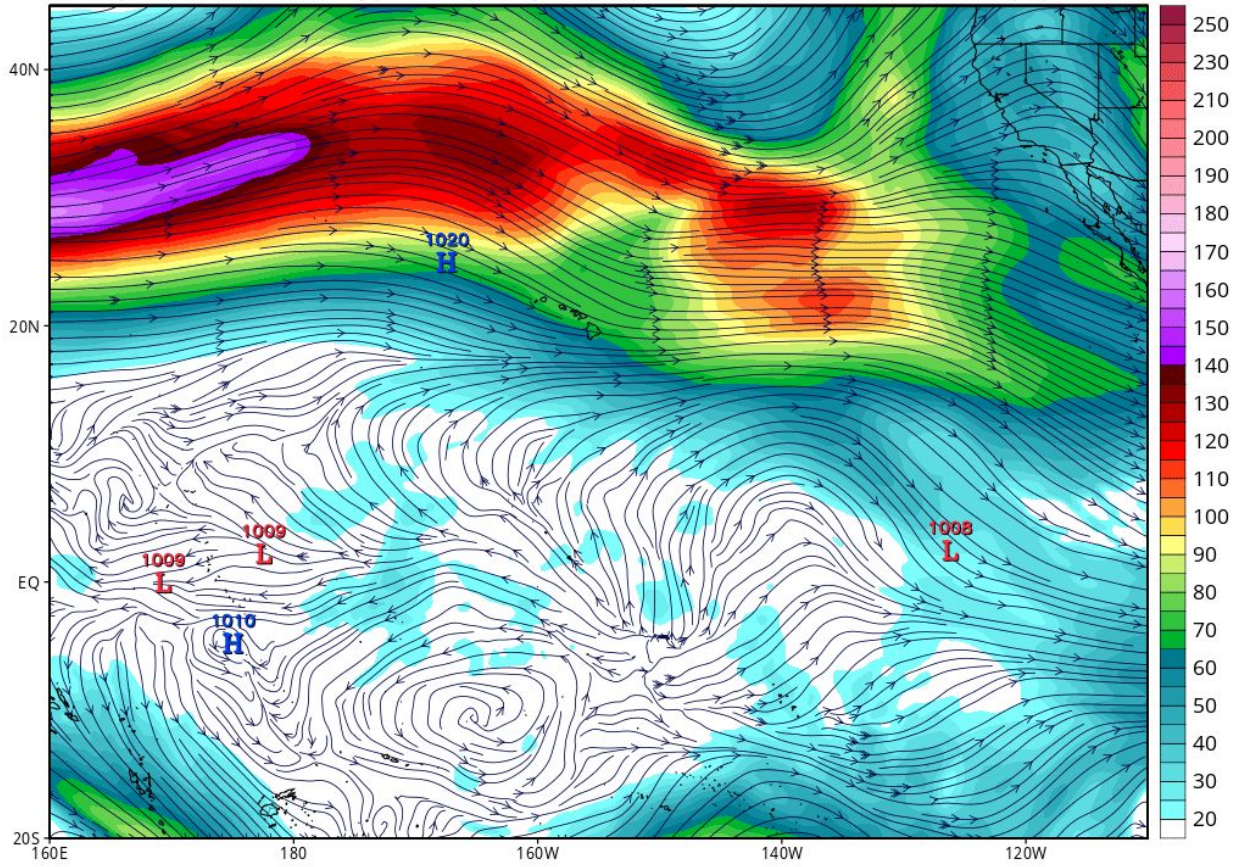


GFS 12Z Thursday 21 January Analysis : 200 mb isotachs and streamlines

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

Init: 12z Jan 21 2016 Forecast Hour: [0] valid at 12z Thu, Jan 21 2016

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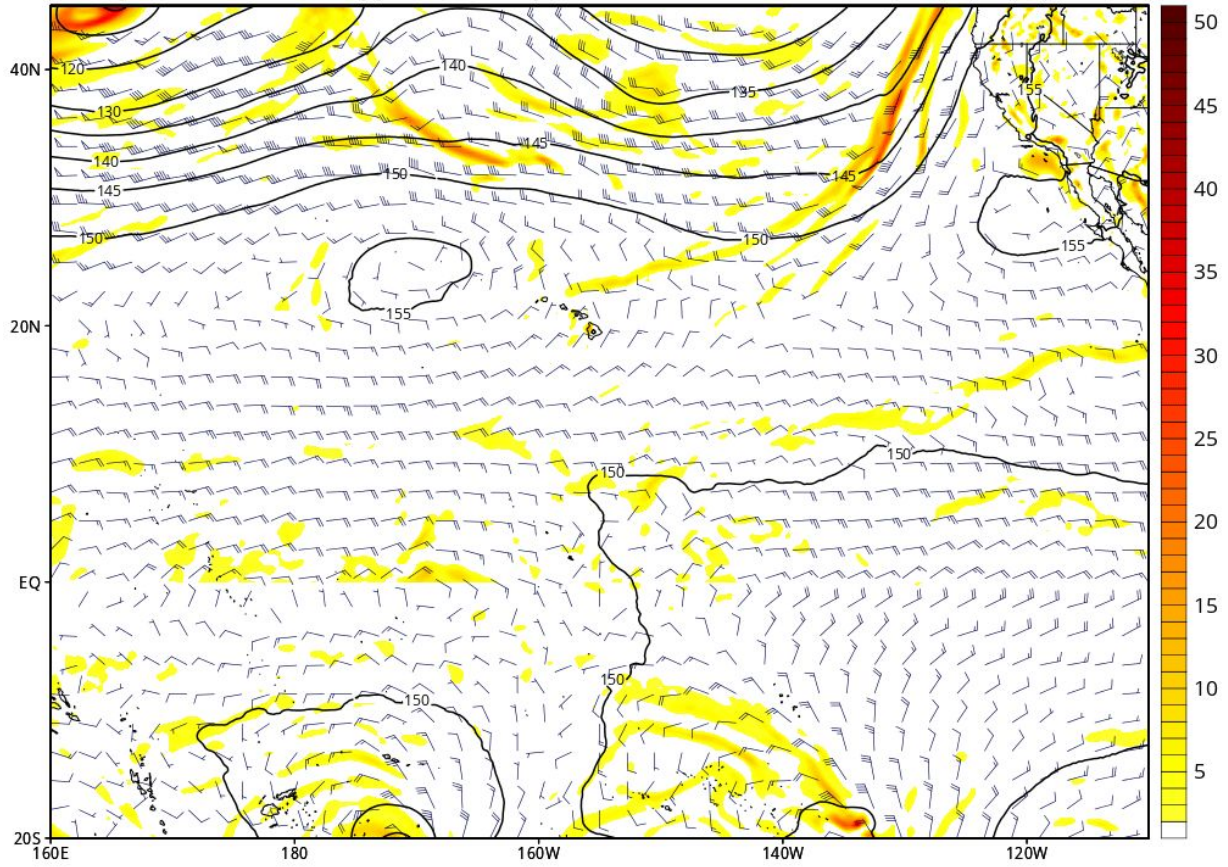


GFS 12Z Thursday 21 January Analysis : 850 mb pressure and winds

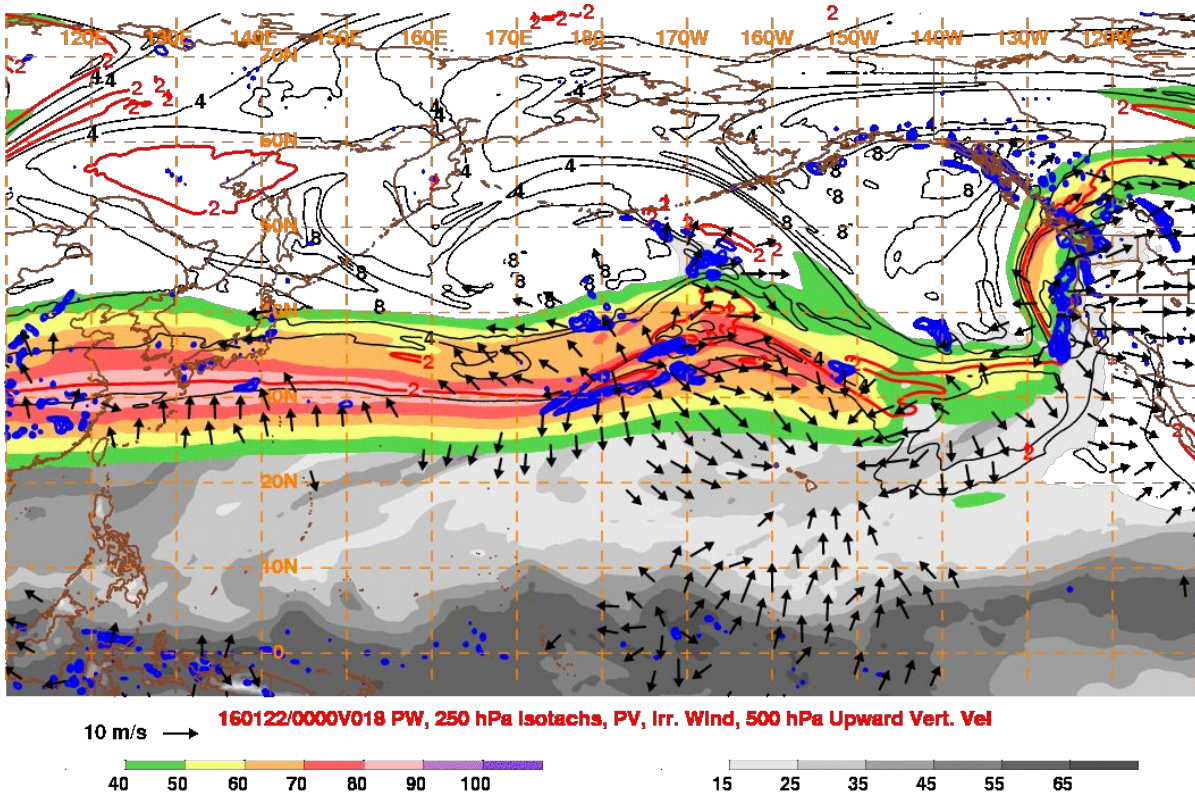
GFS 850mb Geopotential Height (dam), Cyclonic Vorticity (10^6 s^{-1} , shaded), and Wind (kt)

Init: 12z Jan 21 2016 Forecast Hour: [0] valid at 12z Thu, Jan 21 2016

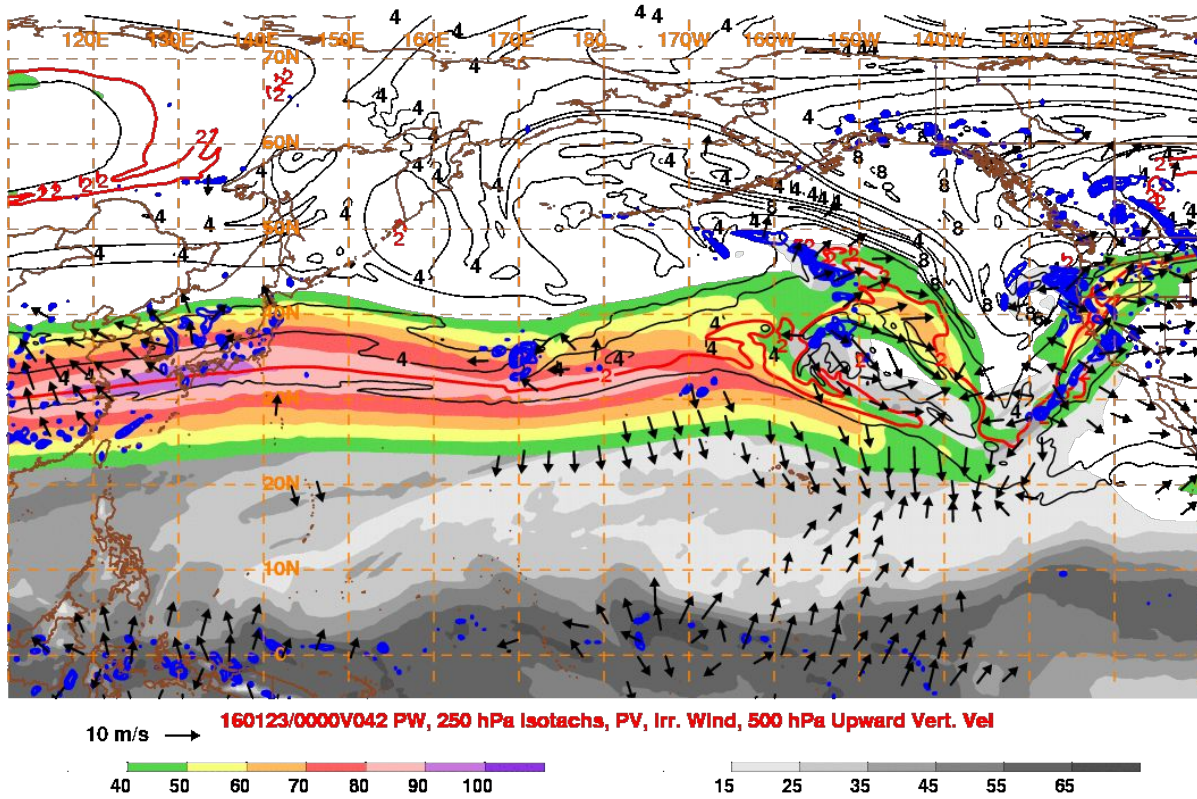
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GFS 18-hr Fcst Valid 00Z 22 January Friday



GFS 42-hr Fcst Valid 00Z 23 January Saturday

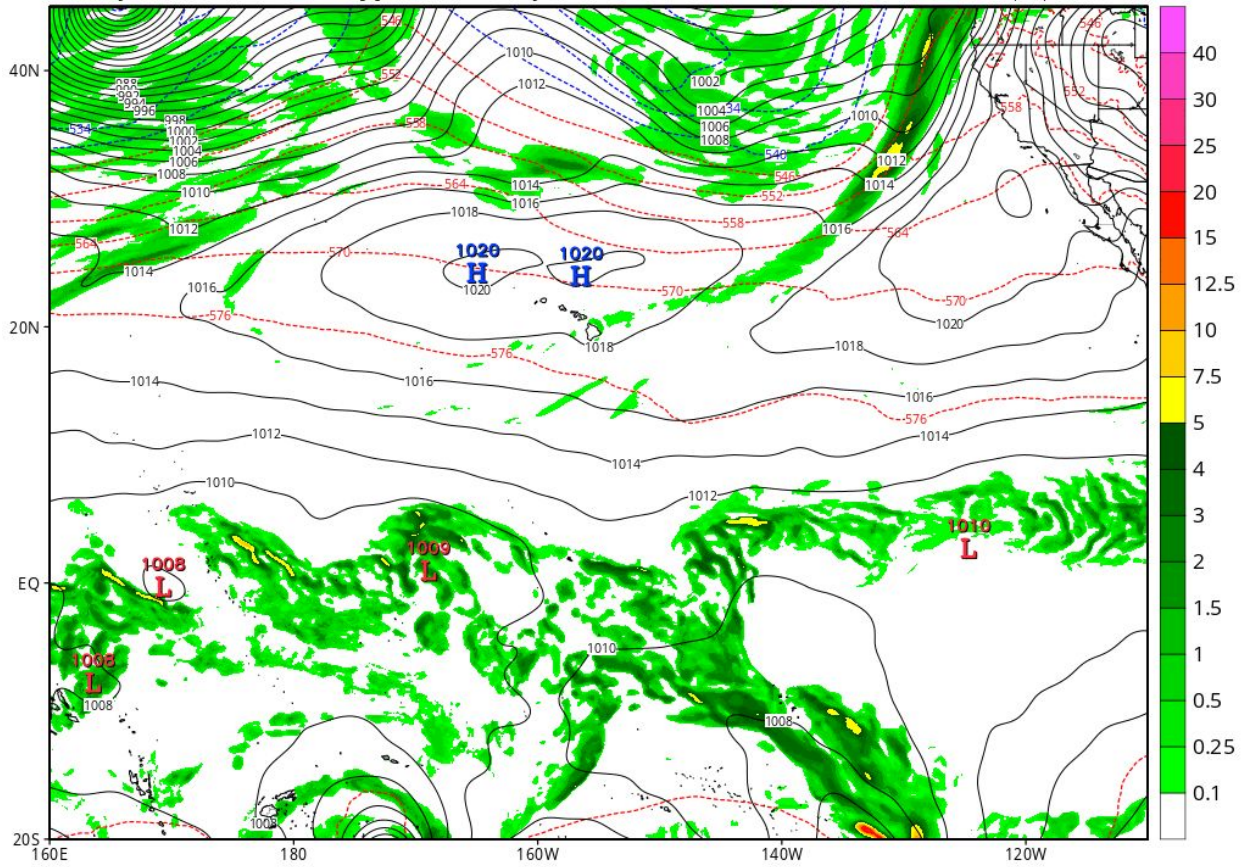


GFS 6-HR Forecast Valid 18Z Thursday 21 January

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

Init: 12z Jan 21 2016 Forecast Hour: [6] valid at 18z Thu, Jan 21 2016

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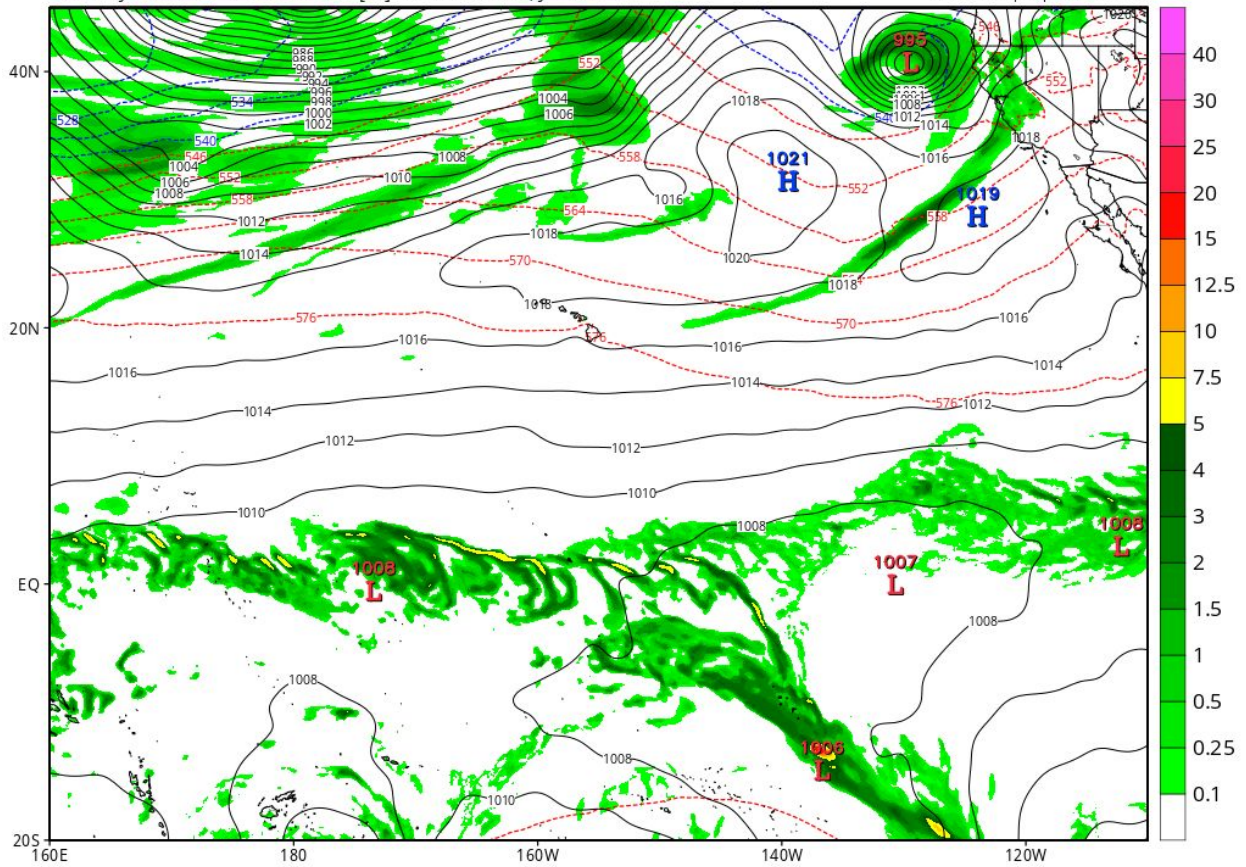


GFS 36-HR Forecast Valid 00Z Saturday 23 January (2PM HT Friday 22 Jan)

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

Init: 12z Jan 21 2016 Forecast Hour: [36] valid at 00z Sat, Jan 23 2016

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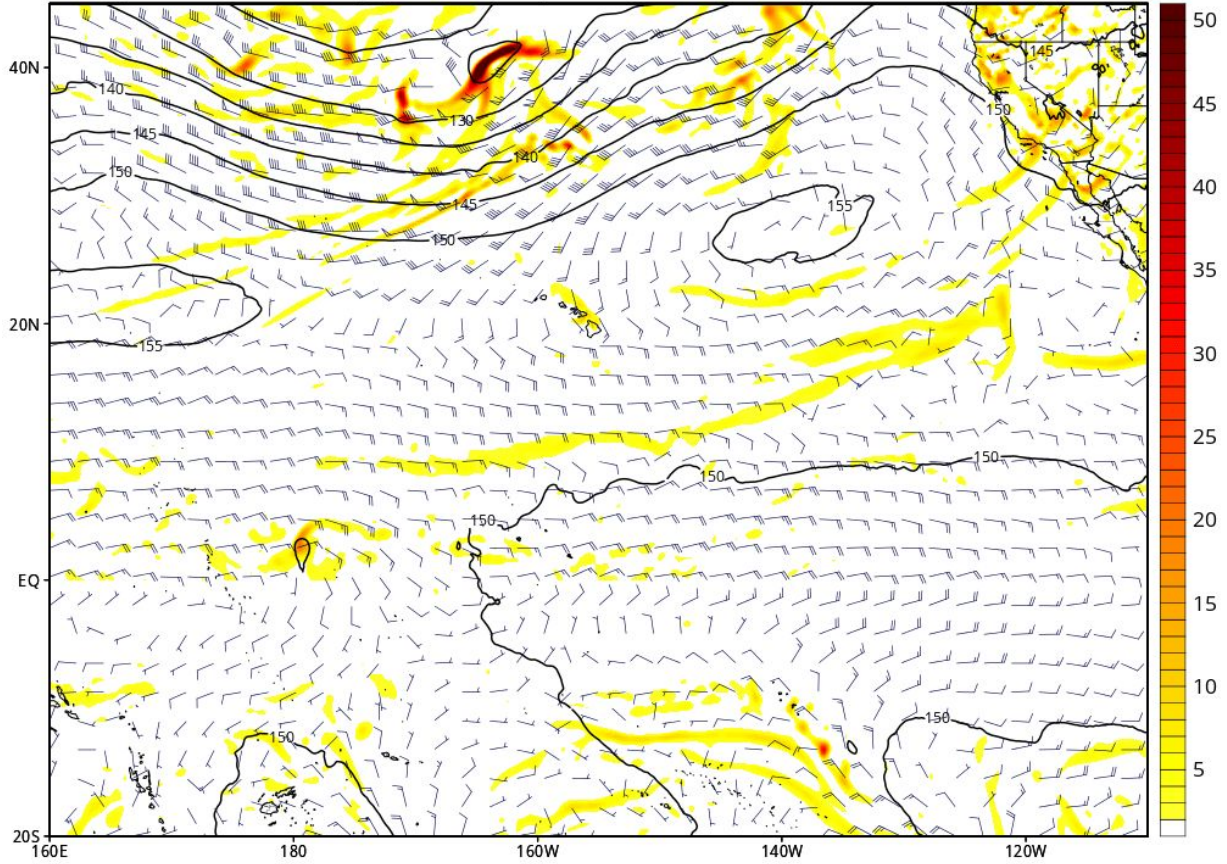


GFS 60-HR Forecast Valid 00Z Sunday 23 January (2PM HT Sat 23 Jan): 850mb

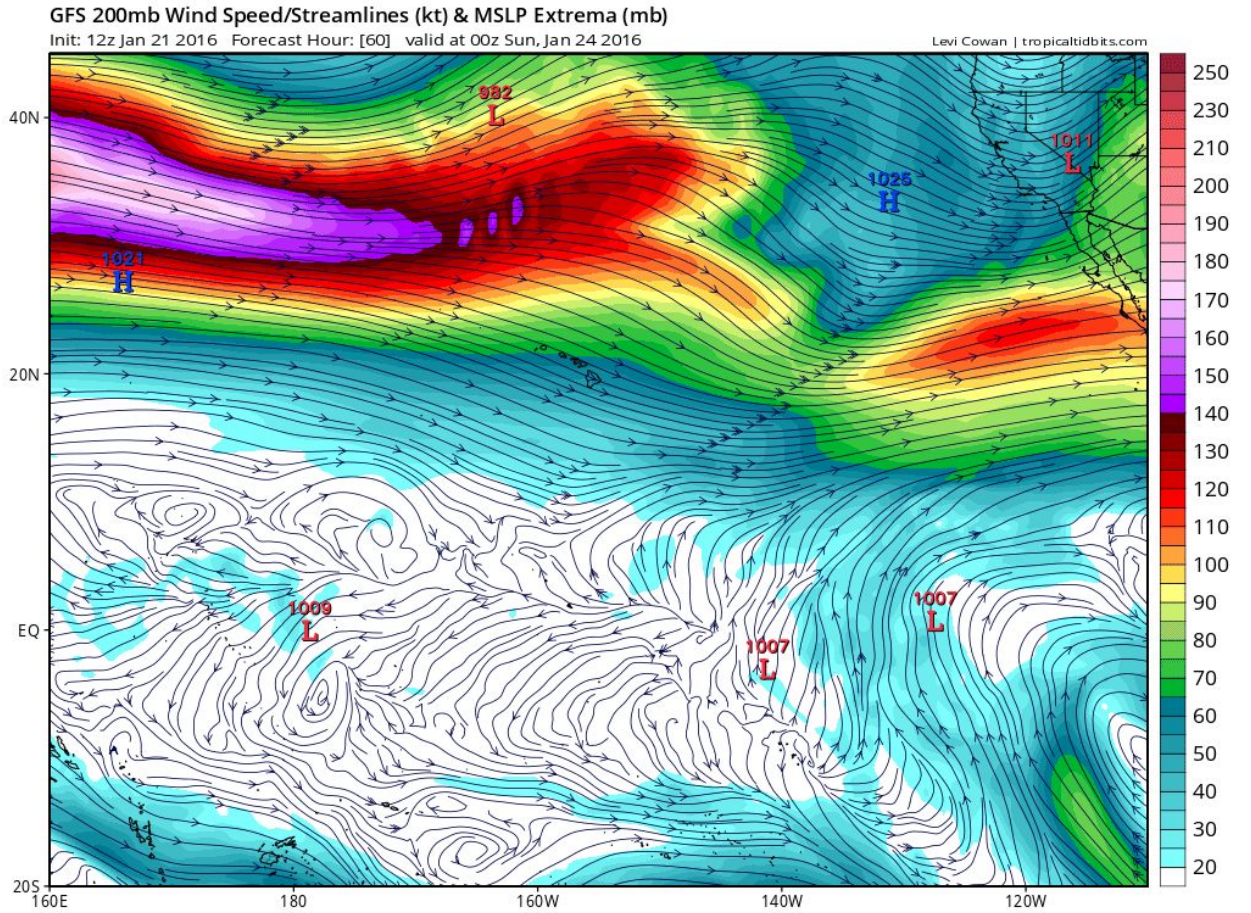
GFS 850mb Geopotential Height (dam), Cyclonic Vorticity (10^3 s^{-1} , shaded), and Wind (kt)

Init: 12z Jan 21 2016 Forecast Hour: [60] valid at 00z Sun, Jan 24 2016

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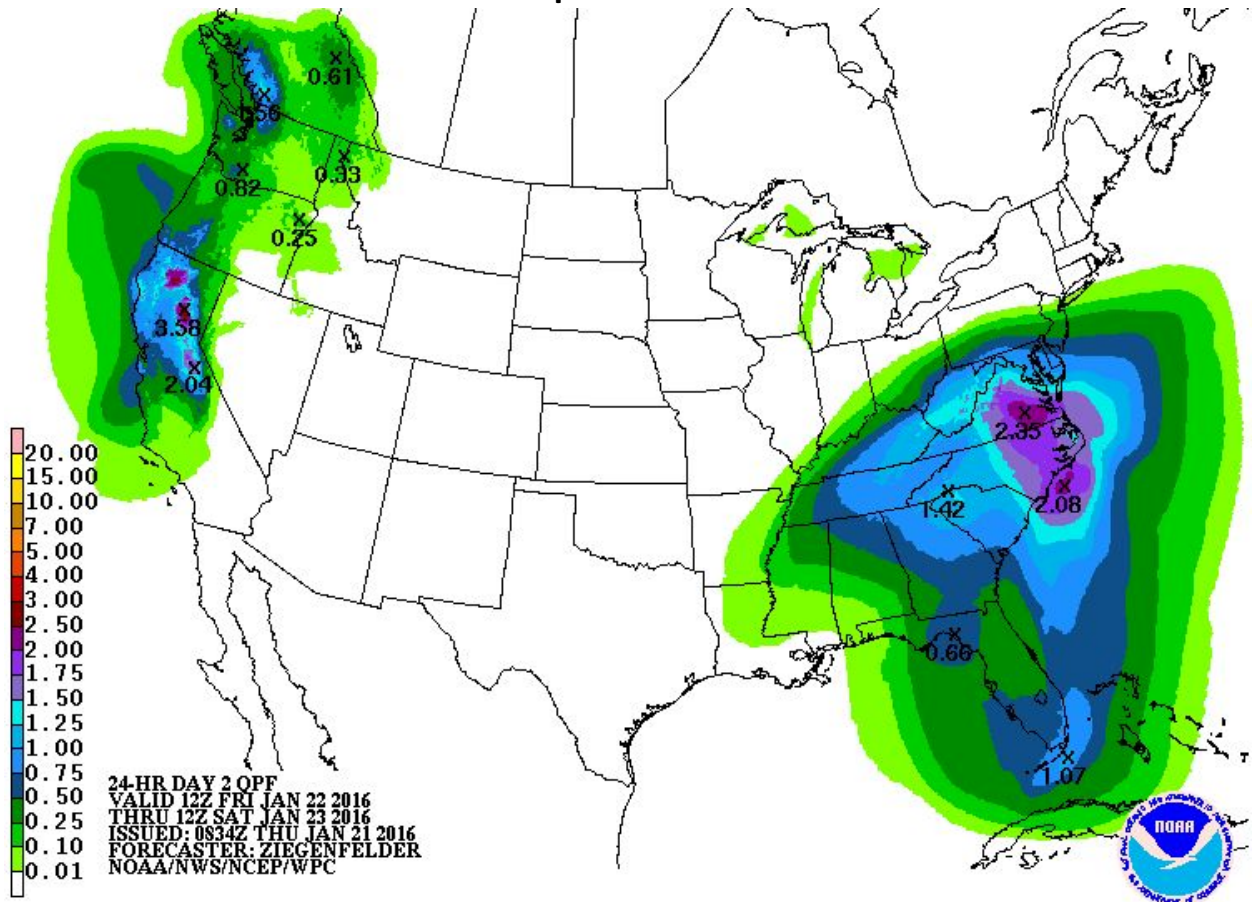


GFS 60-HR Forecast Valid 00Z Sunday 23 January (2PM HT Sat 23 Jan): 200mb



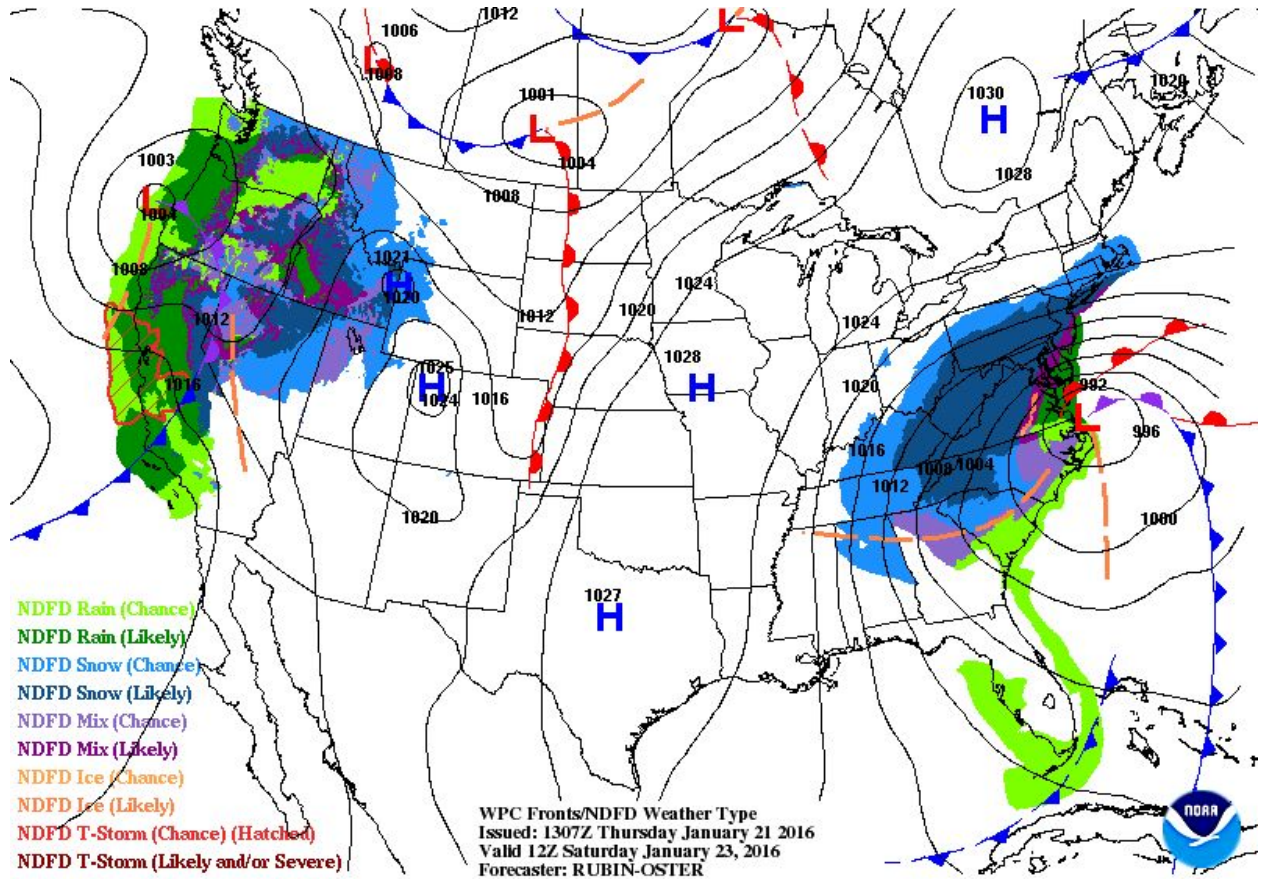
Short Range NWS Official Outlook

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



Short Range NWS Official US Outlook

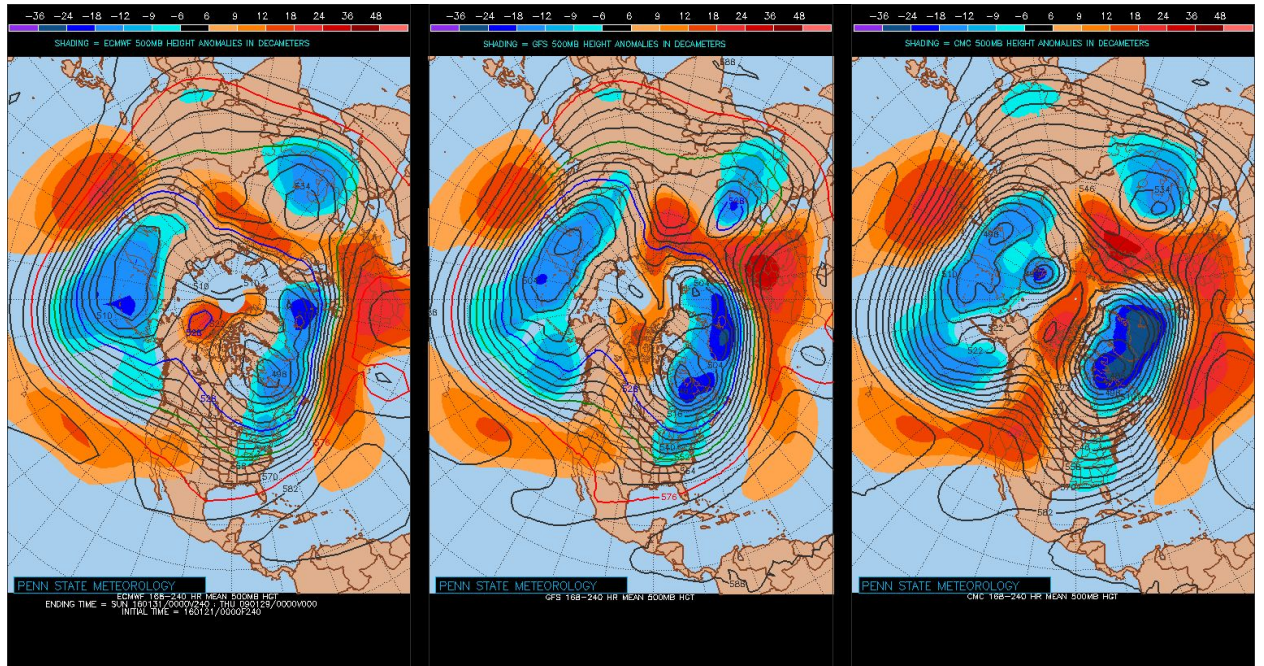
NOAA Weather Prediction Center 48-hr Outlook: Valid 12Z Sat Jan 23



Medium Range Forecast

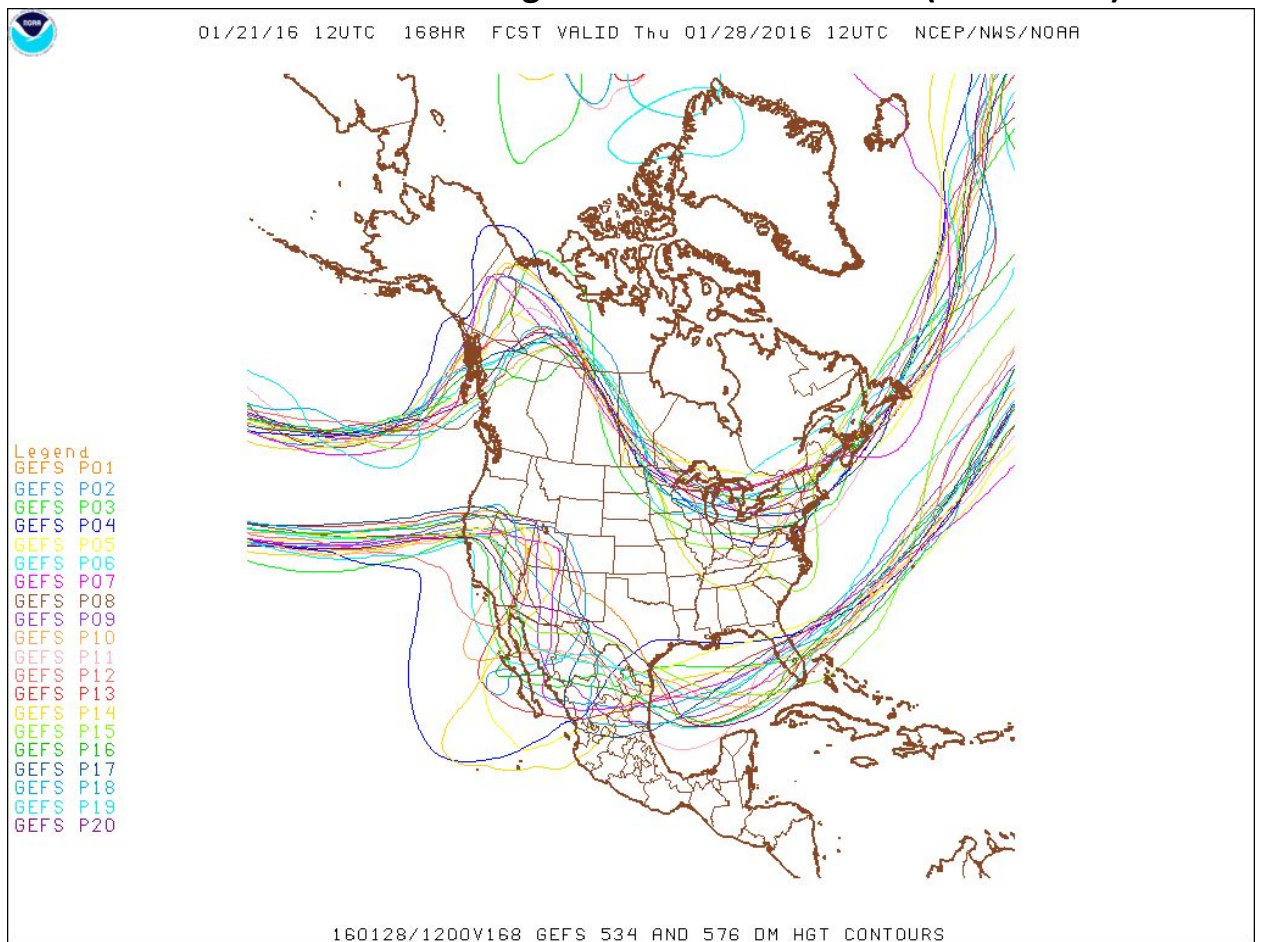
3 Model Intercomparison Deterministic Fcsts of 500Z/anomalies :

Day 7-10 Mean/anomalies (from 00Z Thurs 21 Jan initializations)



Day 7 Forecast Uncertainty

NCEP GEFS Ensemble 500 mb Height fcsts Valid 12Z 28 Jan (168 Hr Fcst)



Long Range Forecast:

GFS 222-HR Forecast Valid 18Z Saturday 30 January

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

Init: 12z Jan 21 2016 Forecast Hour: [222] valid at 18z Sat, Jan 30 2016

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