Transpac Weather Safety

Joe Sienkiewicz
NOAA/NWS Ocean Prediction Center

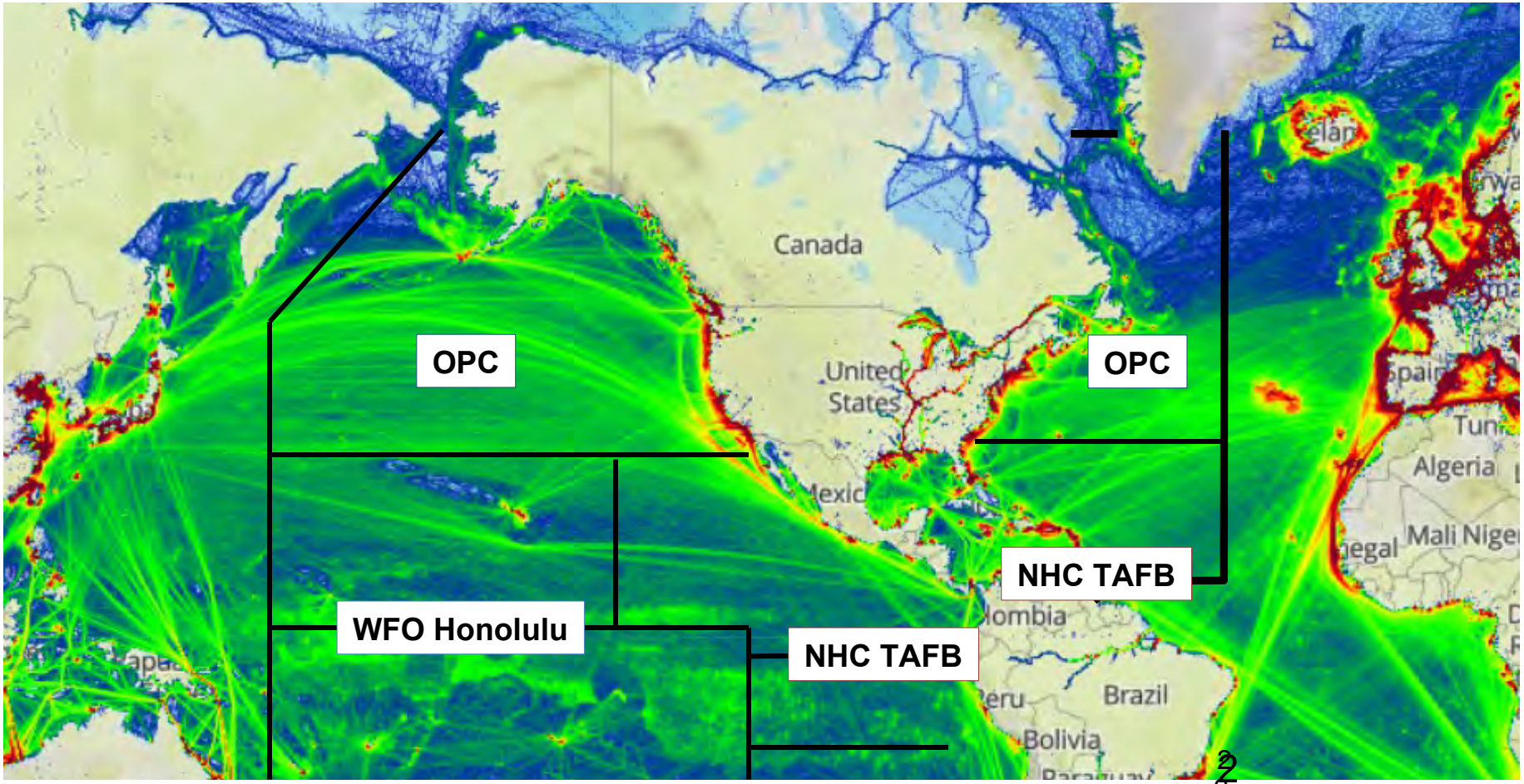
With Jon Gottschalck
NOAA/NWS Climate Prediction Center

www.opc.ncep.noaa.gov

2016 Global Ship Tracks

(NWS High Seas Marine Zones)

Shipping lanes in green:



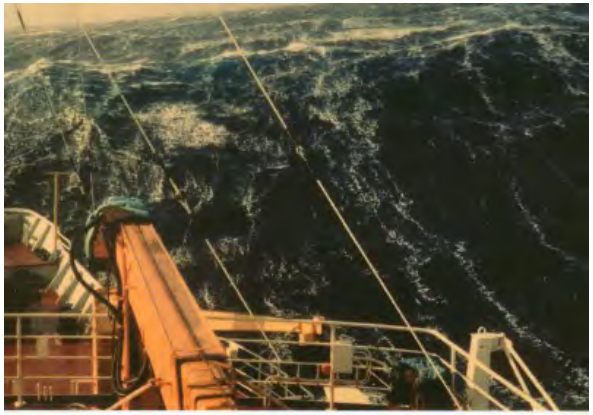
Source of 2013 total ship tracks and background: marinetraffic.com

WARNINGS (non-TROPICAL)

BEAUFORT FORCE 8
WIND SPEED: 34-40 KNOTS

SEA: WAVE HEIGHT 5.5-7.5M (18-25FT), MODERATELY HIGH WAVES OF GREATER LENGTH, EDGES OF CREST BEGIN TO BREAK INTO THE SPINDRIFT, FOAM BLOWN IN WELL MARKED STREAKS ALONG WIND DIRECTION.

GALE
WARNING
Force 8,9



BEAUFORT FORCE 9
WIND SPEED: 41-47 KNOTS

SEA: WAVE HEIGHT 7-10M (23-32FT), HIGH WAVES, DENSE STREAKS OF FOAM ALONG DIRECTION OF THE WIND, WAVE CRESTS BEGIN TO TOPPLE, TUMBLE, AND ROLL OVER. SPRAY MAY AFFECT VISIBILITY.

BEAUFORT FORCE 10
WIND SPEED: 48-55 KNOTS

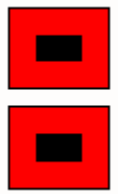
SEA: WAVE HEIGHT 9-12.5M (29-41FT), VERY HIGH WAVES WITH LONG OVERHANGING CRESTS, THE RESULTING FOAM, IN GREAT PATCHES, IS BLOWN IN DENSE WHITE STREAKS ALONG WIND DIRECTION. ON THE WHOLE, SEA SURFACE TAKES A WHITE APPEARANCE, TUMBLING OF THE SEA IS HEAVY AND SHOCK-LIKE, VISIBILITY AFFECTED.

STORM
WARNING
Force 10,11

BEAUFORT FORCE 12
WIND SPEED: 64 KNOTS

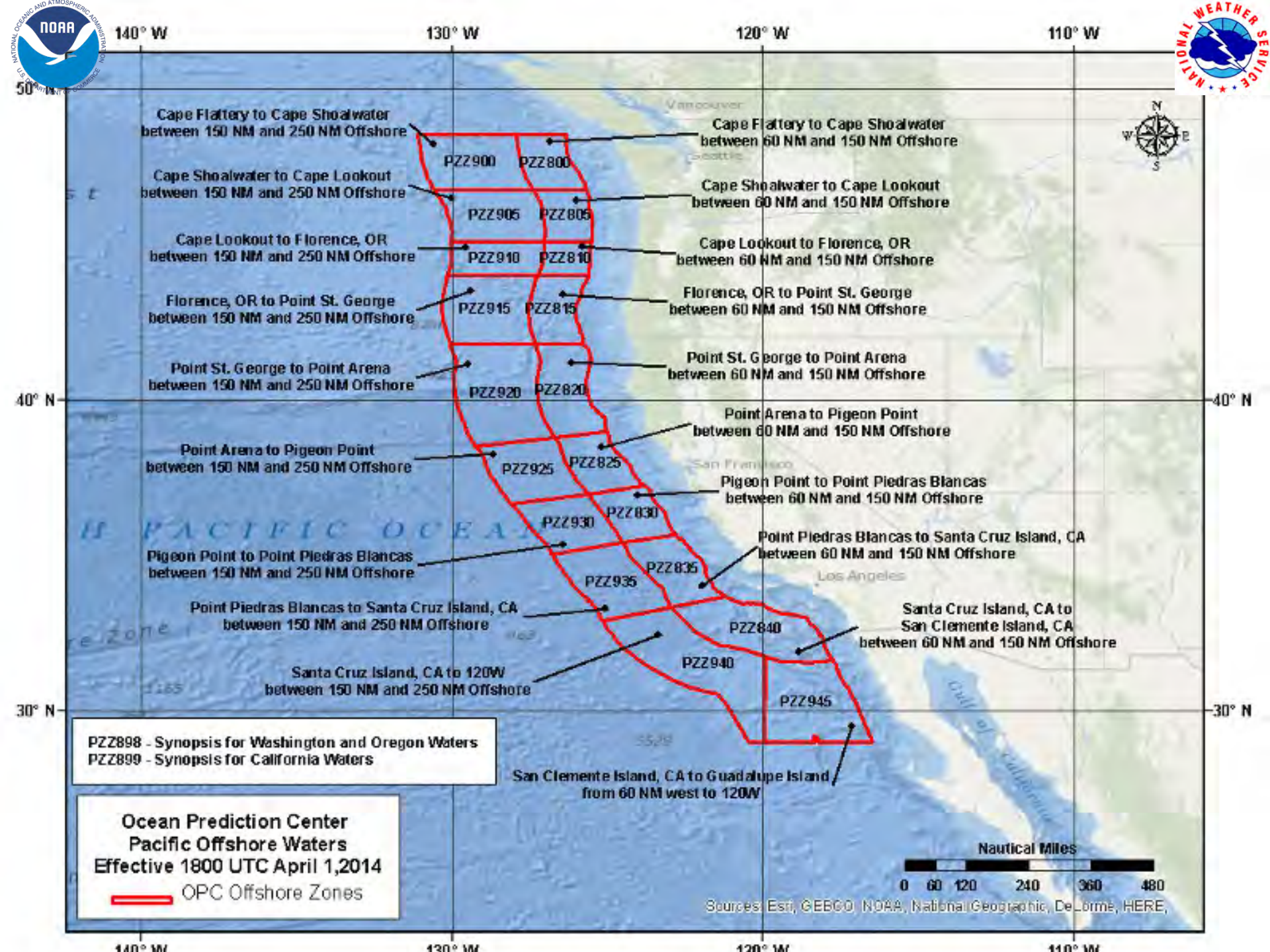
SEA: SEA COMPLETELY WHITE WITH DRIVING SPRAY, VISIBILITY VERY SERIOUSLY AFFECTED. THE AIR IS FILLED WITH FOAM AND SPRAY

HURRICANE FORCE
WARNING
Force 12



Beaufort Wind Scale

NWS Marine Weather


140° W
130° W
120° W
110° W
50° N
40° N
30° N
Cape Flattery to Cape Shoalwater between 150 NM and 250 NM Offshore
Cape Flattery to Cape Shoalwater between 60 NM and 150 NM Offshore
PZZ900
PZZ800
Cape Shoalwater to Cape Lookout between 150 NM and 250 NM Offshore
Cape Shoalwater to Cape Lookout between 60 NM and 150 NM Offshore
PZZ905
PZZ805
Cape Lookout to Florence, OR between 150 NM and 250 NM Offshore
Cape Lookout to Florence, OR between 60 NM and 150 NM Offshore
PZZ910
PZZ810
Florence, OR to Point St. George between 150 NM and 250 NM Offshore
Florence, OR to Point St. George between 60 NM and 150 NM Offshore
PZZ915
PZZ815
Point St. George to Point Arena between 150 NM and 250 NM Offshore
Point St. George to Point Arena between 60 NM and 150 NM Offshore
PZZ920
PZZ820
Point Arena to Pigeon Point between 150 NM and 250 NM Offshore
Point Arena to Pigeon Point between 60 NM and 150 NM Offshore
PZZ925
PZZ825
Pigeon Point to Point Piedras Blancas between 60 NM and 150 NM Offshore
PZZ930
PZZ830
Pigeon Point to Point Piedras Blancas between 150 NM and 250 NM Offshore
Point Piedras Blancas to Santa Cruz Island, CA between 60 NM and 150 NM Offshore
PZZ935
PZZ835
Point Piedras Blancas to Santa Cruz Island, CA between 150 NM and 250 NM Offshore
Santa Cruz Island, CA to San Clemente Island, CA between 60 NM and 150 NM Offshore
PZZ840
PZZ940
Santa Cruz Island, CA to 120W between 150 NM and 250 NM Offshore
PZZ945
San Clemente Island, CA to Guadalupe Island from 60 NM west to 120W
PZZ898 - Synopsis for Washington and Oregon Waters
PZZ899 - Synopsis for California Waters
Ocean Prediction Center
Pacific Offshore Waters
Effective 1800 UTC April 1,2014
OPC Offshore Zones
Nautical Miles
0 60 120 240 360 480
Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE,
Vancouver
Seattle
San Francisco
Los Angeles
PACIFIC OCEAN
Gulf of California
N
S
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W

National Weather Service

Ocean Prediction Center

http://www.opc.ncep.noaa.gov/Pac_tab.shtml

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Local forecast by "City, St" or "ZIP"

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OPC is updating its website format and changing its URL to **https://ocean.weather.gov** on August 30, 2017. You may view the preview site at **https://para.ocean.weather.gov** and submit comments **here**. Please see the offical **Service Change Notice** for more information.

NOAA>NWS>NCEP>OPC>Pacific

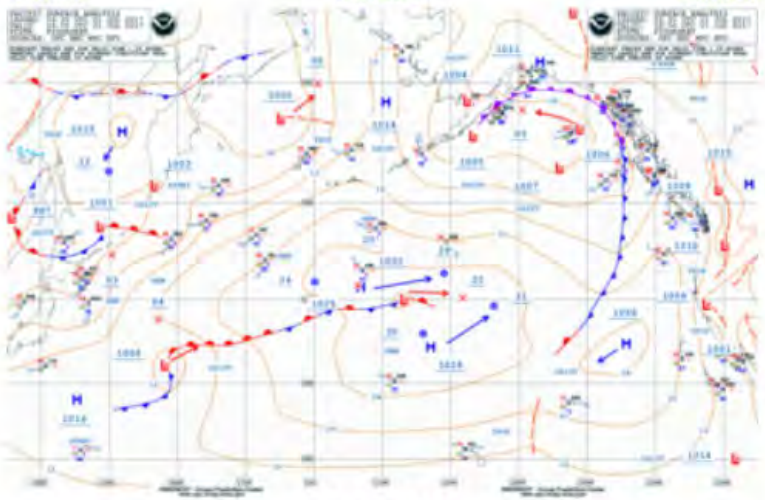
Unified Analysis | Atlantic Marine | Pacific Marine | Alaska/Arctic Marine | Ocean Products

Analysis – Graphical Forecasts – Text Forecasts – Experimental/Hazards – Gridded

Pacific Analysis

Click on the map below or choose from:

W Pacific | Full Pacific | E Pacific



Surface Analysis

W Pacific Loop:
[3] [7] [14] Days
Updated: Sat, 01-Jul-2017 09:42:22 UTC

E Pacific Loop:
[3] [7] [14] Days
Updated: Sat, 01-Jul-2017 09:42:22 UTC

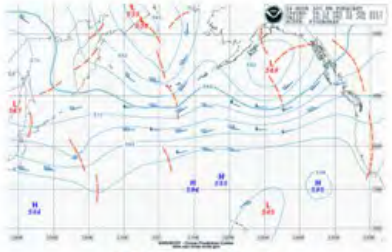
Wind and Wave Analysis

B&W Loop:
[3] [7] [14] Days
Updated: Sat, 01-Jul-2017 13:29:28 UTC

VIEW ALL OPC SOCIAL MEDIA

http://www.opc.ncep.noaa.gov/Pac_tab.shtml

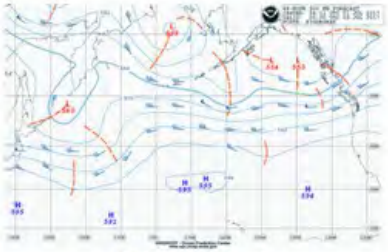
Pacific Graphical Forecasts



24-hour 500 mb

Loop: [3] [7] [14] Days

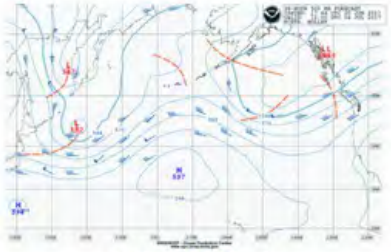
Updated: Sat, 01-Jul-2017 06:14:34 UTC



48-hour 500 mb

Loop: [3] [7] [14] Days

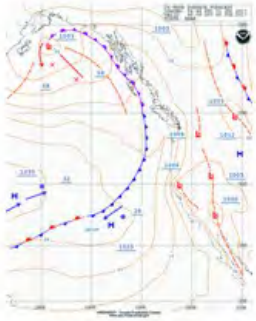
Updated: Sat, 01-Jul-2017 04:12:11 UTC



96-hour 500 mb

Loop: [3] [7] [14] Days

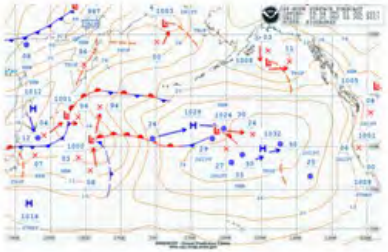
Updated: Fri, 30-Jun-2017 17:47:01 UTC



24-hour surface

Loop: [3] [7] [14] Days

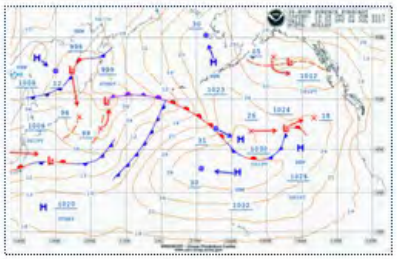
Updated: Sat, 01-Jul-2017 04:48:54 UTC



48-hour surface

Loop: [3] [7] [14] Days

Updated: Sat, 01-Jul-2017 05:55:35 UTC



96-hour surface

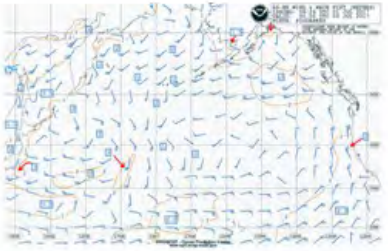
Loop: [3] [7] [14] Days

Updated: Fri, 30-Jun-2017 19:29:20 UTC

24-hour wind & wave

Loop: [3] [7] [14] Days

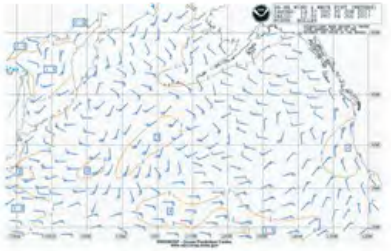
Updated: Sat, 01-Jul-2017 05:16:16 UTC



48-hour wind & wave

Loop: [3] [7] [14] Days

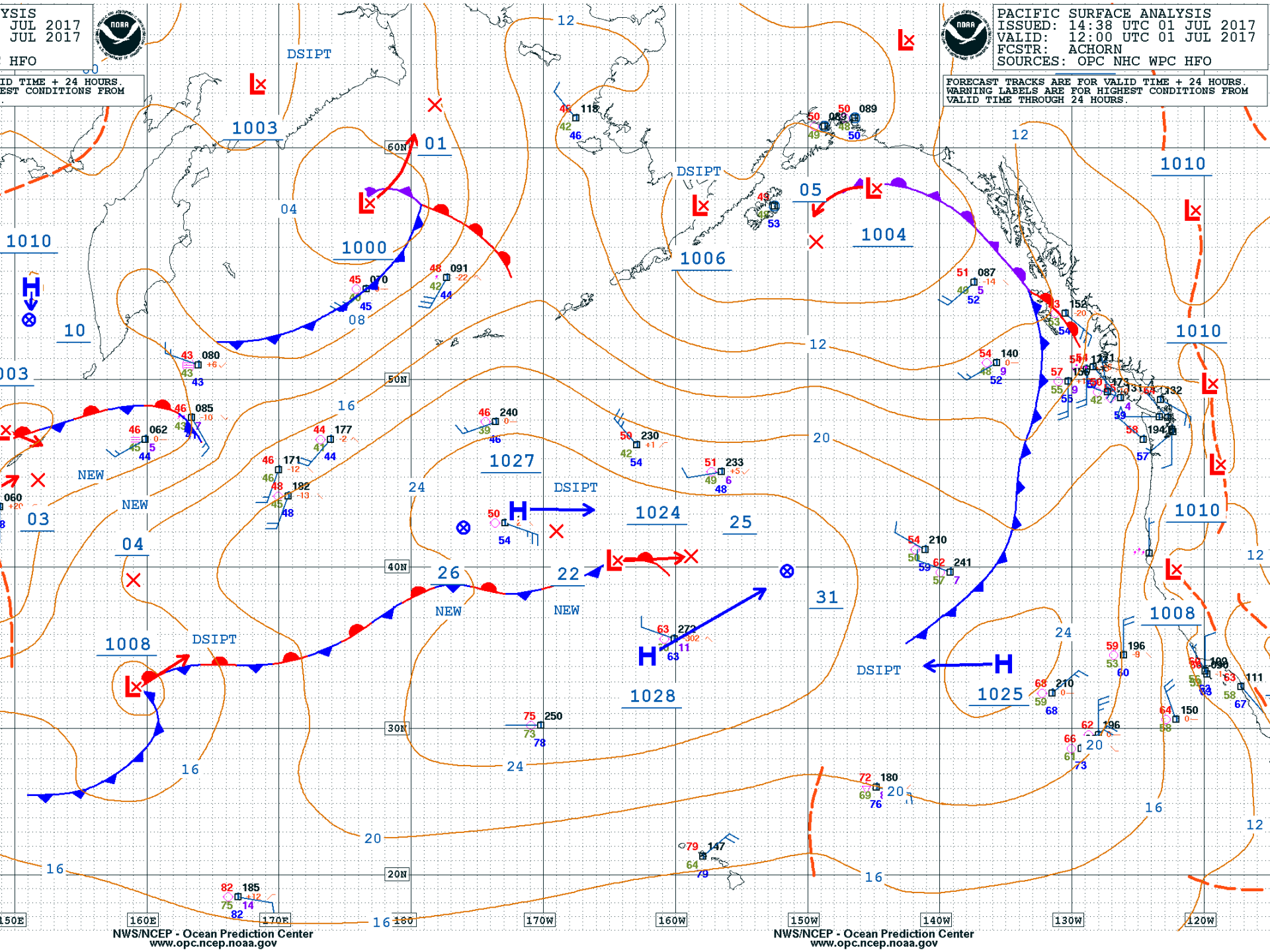
Updated: Sat, 01-Jul-2017 06:26:47 UTC



96-hour wind & wave

Loop: [3] [7] [14] Days

Updated: Fri, 30-Jun-2017 19:57:42 UTC


YSIS
JUL 2017
JUL 2017
HFO
ID TIME + 24 HOURS.
EST CONDITIONS FROM
PACIFIC SURFACE ANALYSIS
ISSUED: 14:38 UTC 01 JUL 2017
VALID: 12:00 UTC 01 JUL 2017
FCSTR: ACHORN
SOURCES: OPC NHC WPC HFO
FORECAST TRACKS ARE FOR VALID TIME + 24 HOURS.
WARNING LABELS ARE FOR HIGHEST CONDITIONS FROM
VALID TIME THROUGH 24 HOURS.
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40N
30N
20N
150E
160E
170E
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170W
160W
150W
140W
130W
120W
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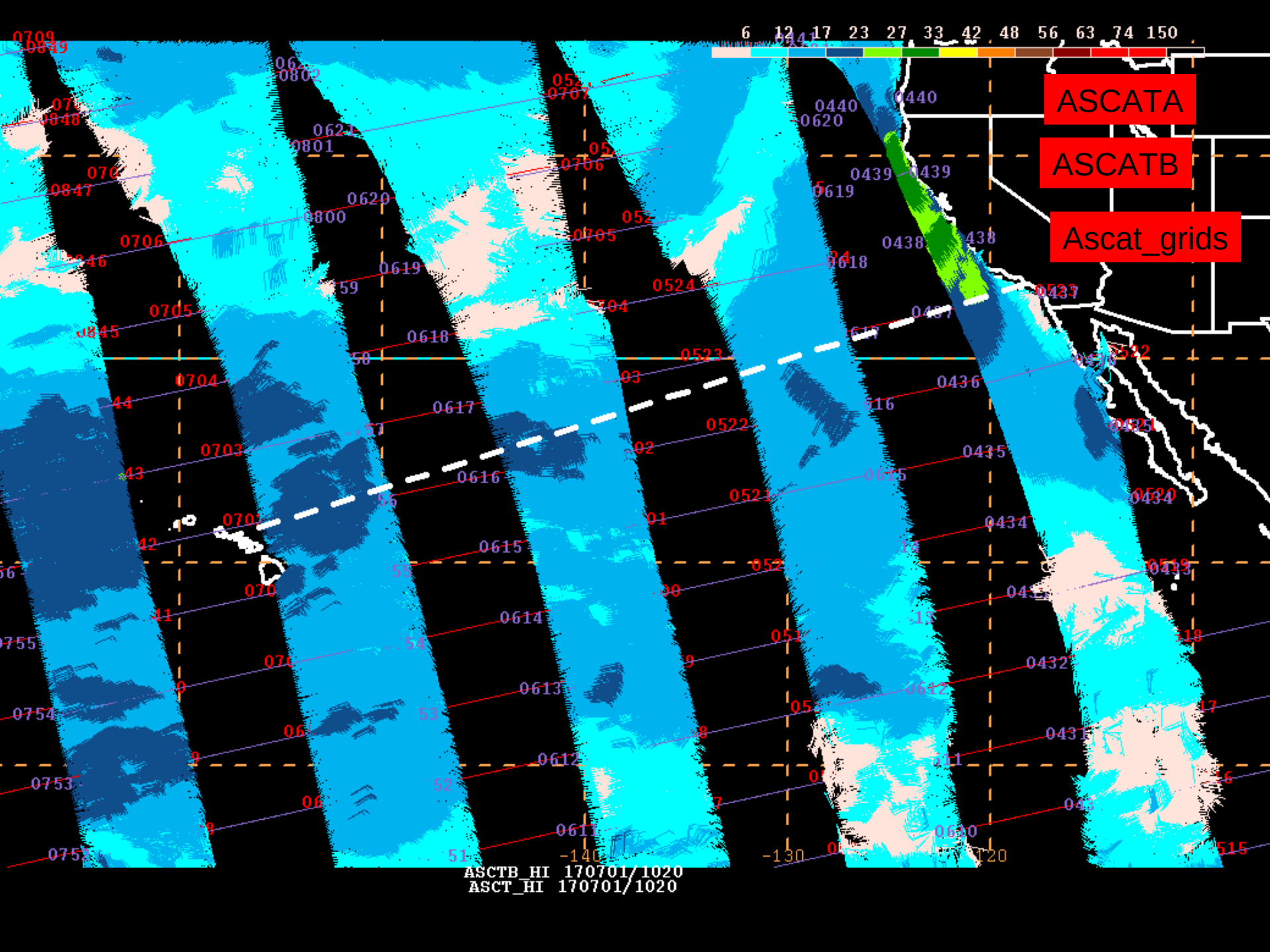
www.opc.ncep.noaa.gov
NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov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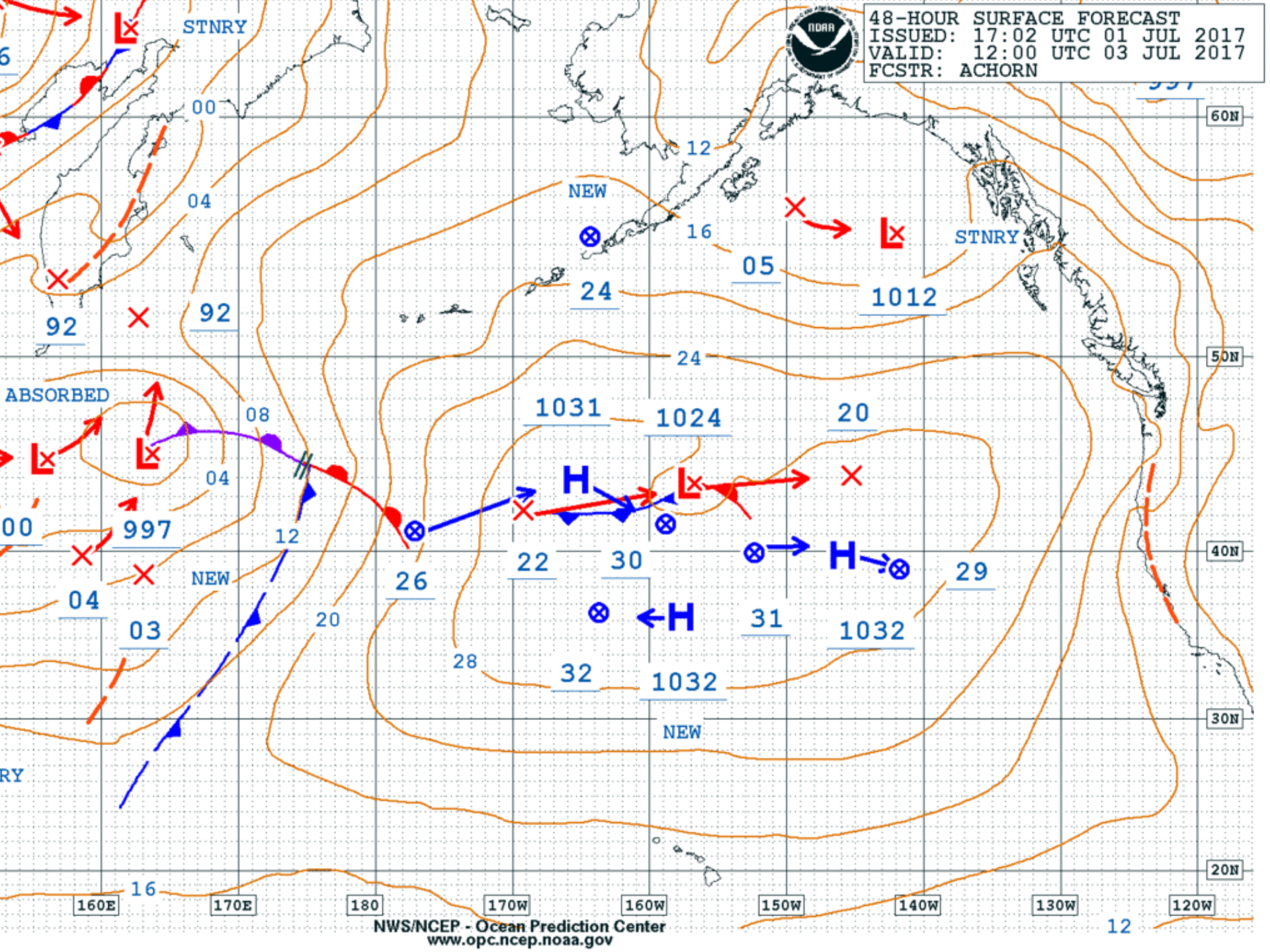
ASCATB
Ascat_grids
ASCTB_HI 170701/1020
ASCT_HI 170701/1020


48-HOUR SURFACE FORECAST
ISSUED: 17:02 UTC 01 JUL 2017
VALID: 12:00 UTC 03 JUL 2017
FCSTR: ACHORN
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ABSORBED
STNRY
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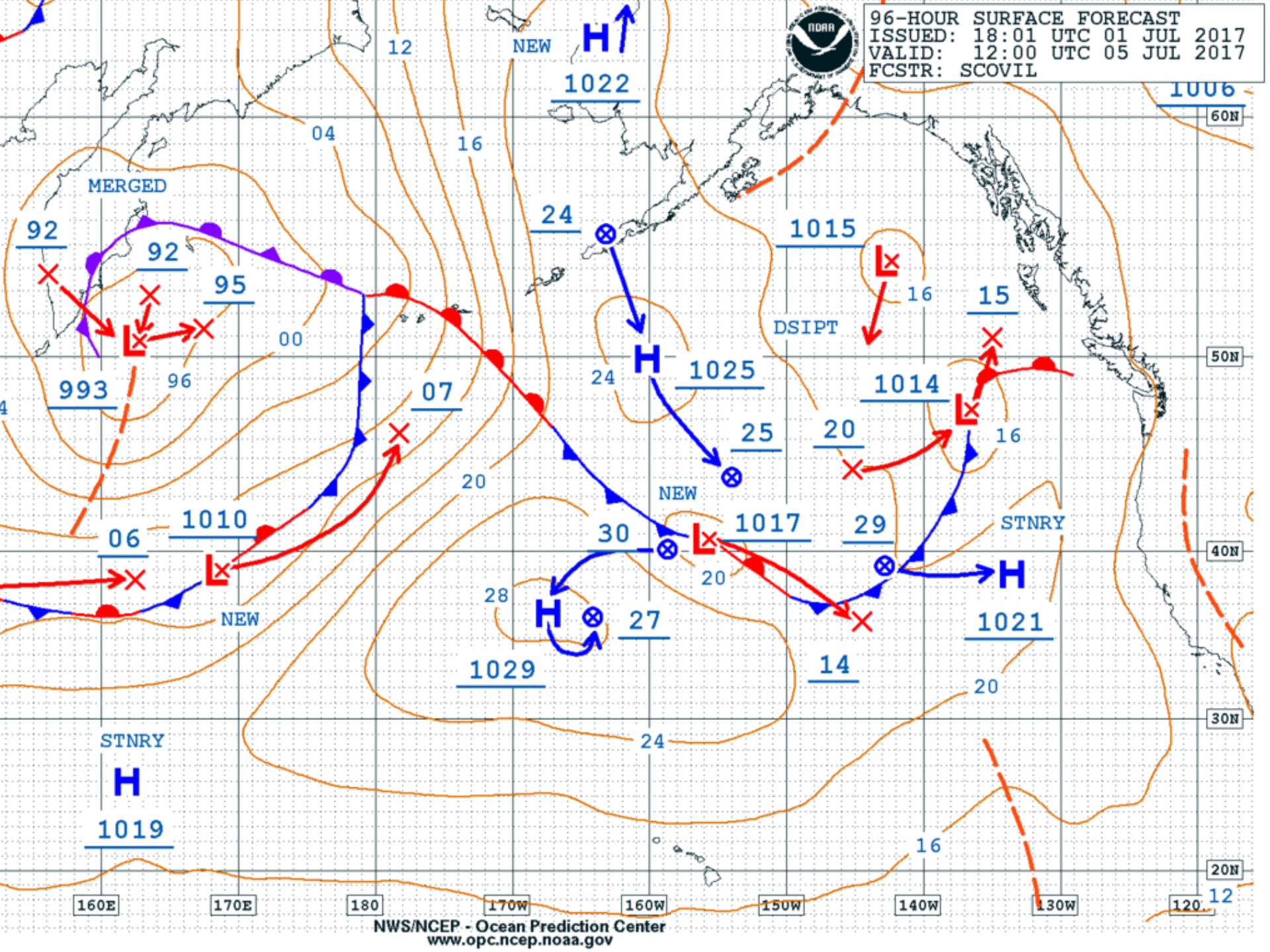
120W
NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov


96-HOUR SURFACE FORECAST
ISSUED: 18:01 UTC 01 JUL 2017
VALID: 12:00 UTC 05 JUL 2017
FCSTR: SCOVIL
NDAA
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NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

Two-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida

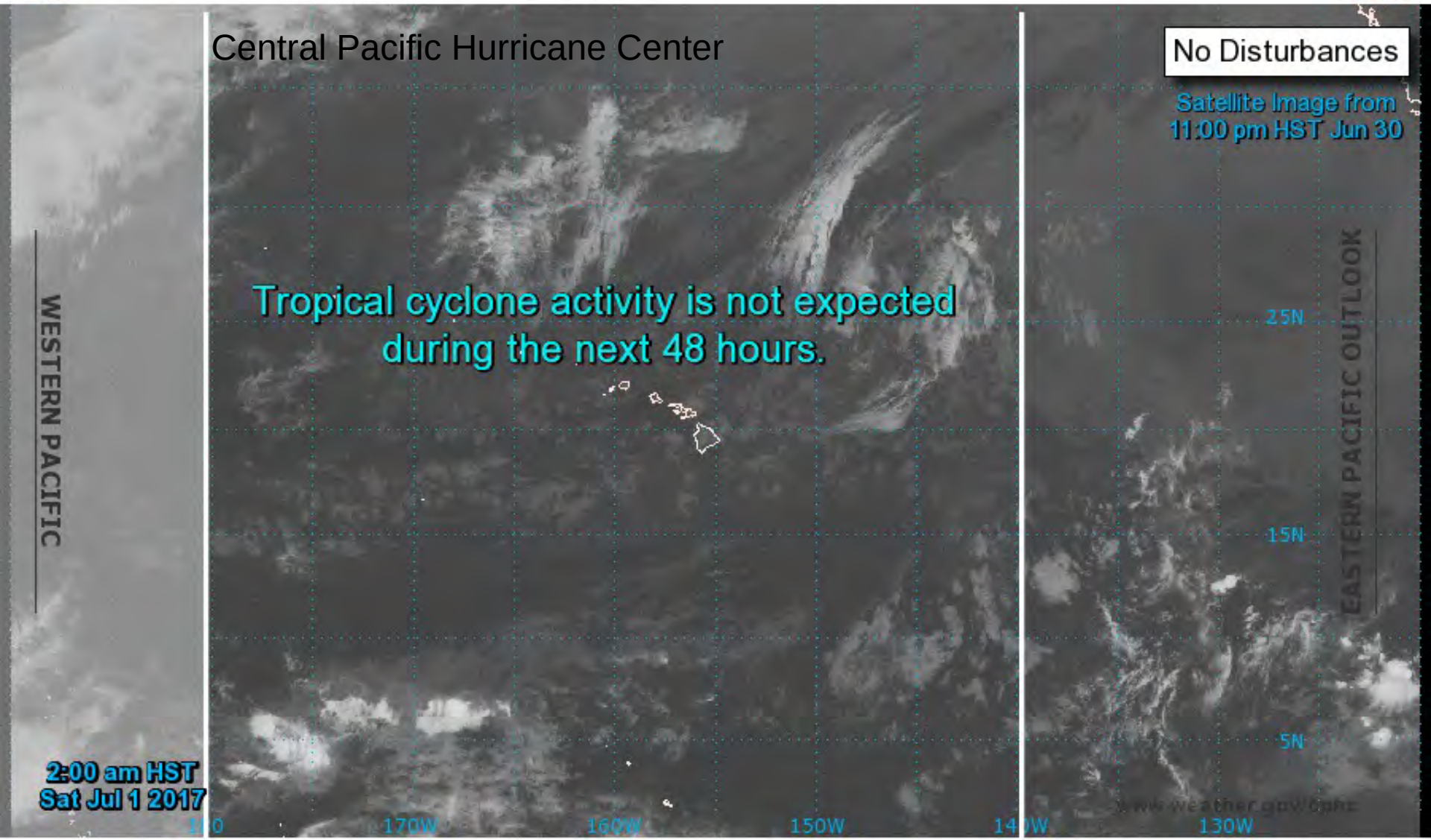
Current Disturbances and Two-Day Cyclone Formation Chance: < 40% 40-60% > 60%

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

Post-Tropical Cyclone Remnants

Two-Day Graphical Tropical Weather Outlook

Central Pacific Hurricane Center Honolulu, Hawaii



Current Disturbances and Two-Day Cyclone Formation Chance: < 40% 40-60% > 60%

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

Post-Tropical Cyclone Remnants

CENTRAL PACIFIC HURRICANE CENTER

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Product Archive

This storm originated in the Eastern Pacific, with the first bulletins issued by NHC. Visit NHC's Archive for Post-tropical cyclone ela to view their bulletins.

Bulletins issued by CPHC for Tropical Storm Post-tropical cyclone ela (2015)

Products Issued Wed Jul 08 2015 UTC

Advisory Number	Forecast Advisory (TCM)	Public Advisory (TCP)	Discussion (TCD)	Wind Speed Probabilities (PWS)	ICAO Advisory (TCA)
2	0900 UTC	1100 PM HST	1100 PM HST	0900 UTC	-
3	1500 UTC	500 AM HST	500 AM HST	1500 UTC	1500 UTC
4	2100 UTC	1100 AM HST	1100 AM HST	2100 UTC	2100 UTC

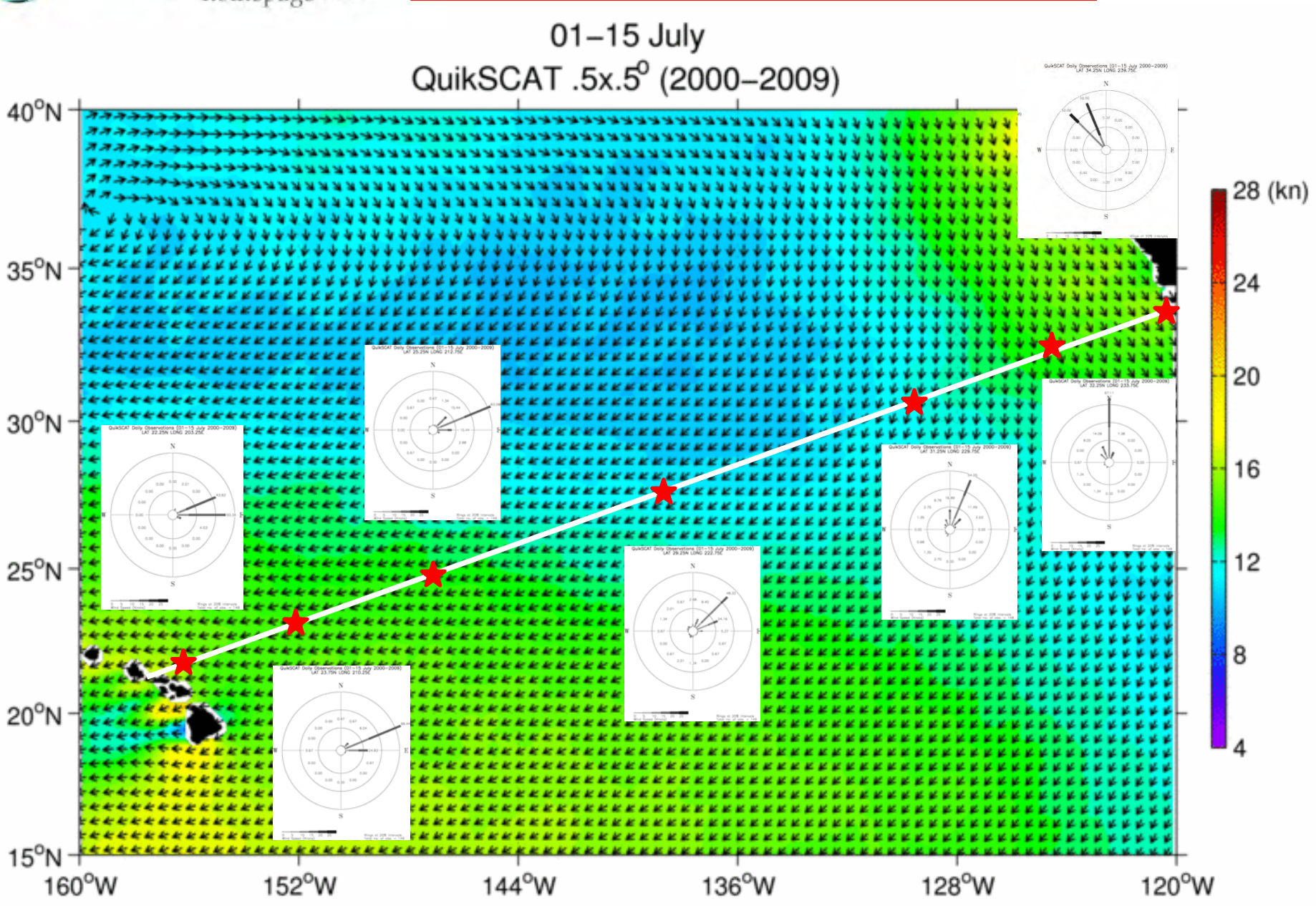
Products Issued Thu Jul 09 2015 UTC

Advisory Number	Forecast Advisory (TCM)	Public Advisory (TCP)	Discussion (TCD)	Wind Speed Probabilities (PWS)	ICAO Advisory (TCA)
5	0300 UTC	500 PM HST	500 PM HST	0300 UTC	0300 UTC
6	0900 UTC	1100 PM HST	1100 PM HST	0900 UTC	0900 UTC
7	1500 UTC	500 AM HST	500 AM HST	1500 UTC	1500 UTC
8	2100 UTC	1100 AM HST	1100 AM HST 1100 AM HST - CCA	2100 UTC	2100 UTC

Products Issued Fri Jul 10 2015 UTC

cogow homepage >>>

http://numbat.coas.oregonstate.edu/cogow/



Take Home Messages

- Short term climate factors that can sometimes aid extended range prediction (Weeks 2-4 in the future) are unfortunately not active at the current time with forecasts indicating this is favored to continue. For example:

ENSO neutral conditions (neither El Nino or La Nina) are present. When one of these phases is ongoing, the Trade winds can be impacted and ENSO can be used to assess/predict changes from normal. This is not the case this year (Slide 2).

The Madden-Julian Oscillation (MJO), an additional slowly evolving tropical climate pattern, is also not active and so can not be used to anticipate any departures from normal in the Trade winds this year.

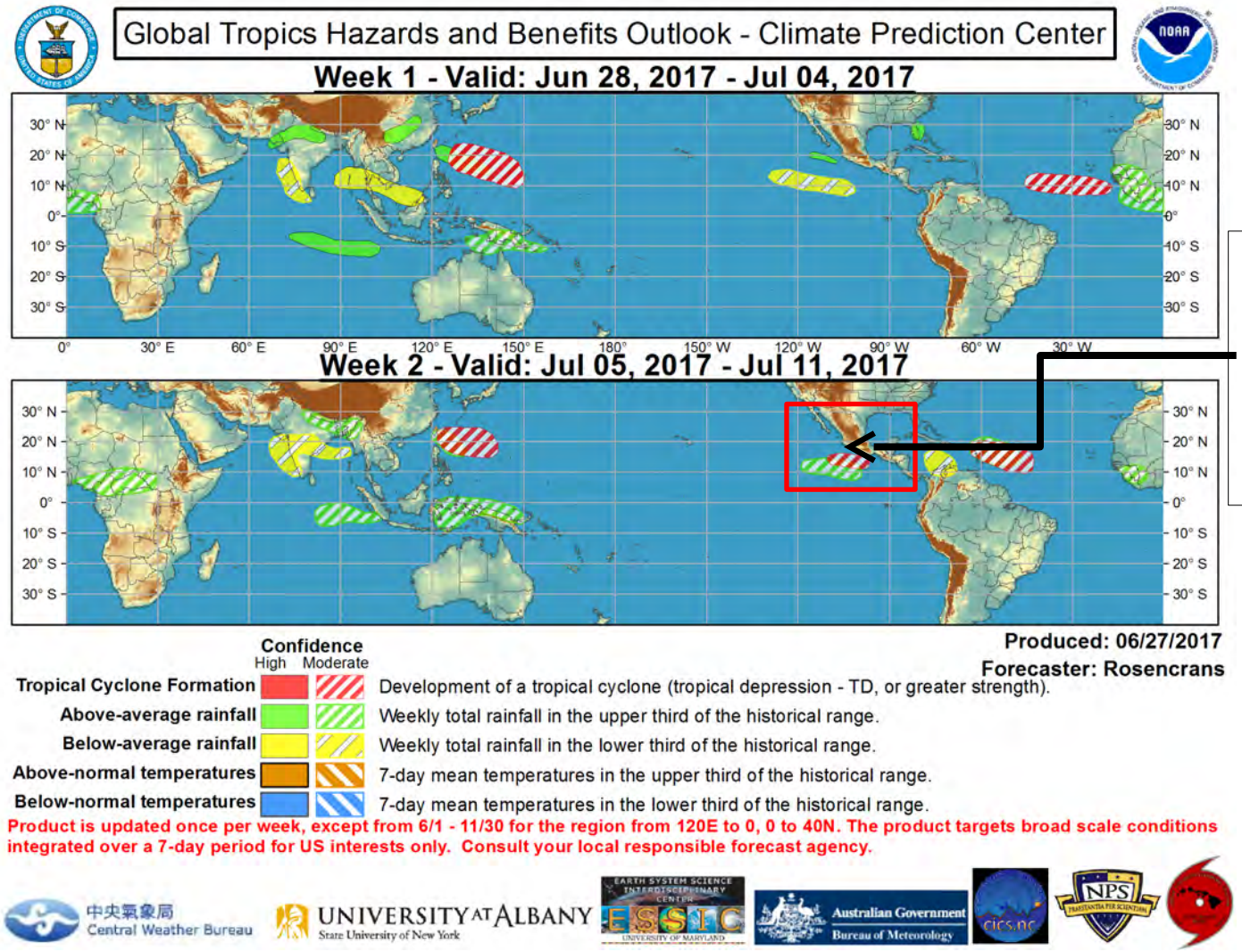
- Model guidance (MSLP, near surface winds) are in reasonably good agreement for a scenario most consistent with near-normal Trade winds on average for much of the period.

- One item to note is that weekly averaged ocean surface temperatures remain above normal for waters from 140W to Hawaii, especially north/northeast of the Islands (Slide 2).

- Some indications in extended range guidance that EPAC (closer to the Mexico coast) may be favorable for tropical cyclogenesis after a brief respite (7 days) following Dora after 7/5 (Slide 3).

- It is likely that any tropical systems, if they develop, would weaken due to cooler absolute ocean surface temperatures as they travel west-northwestward, but

Some Outlook Information

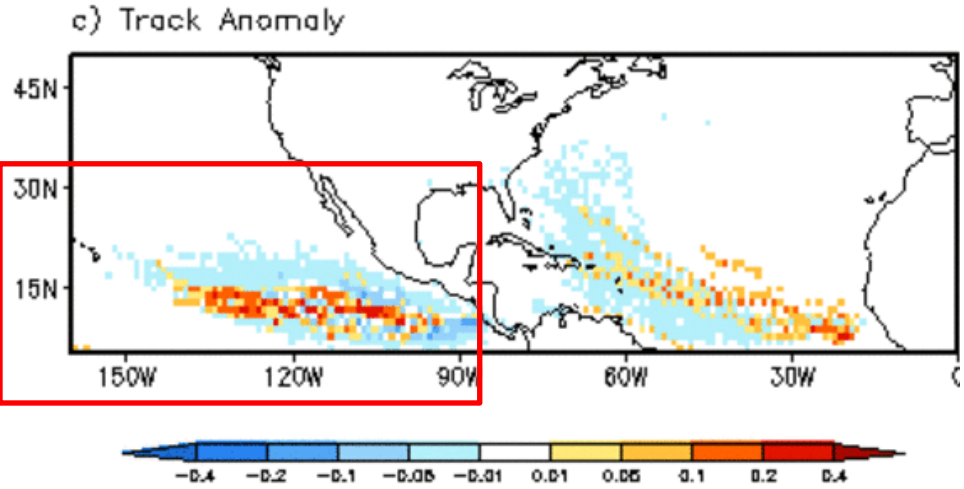


Elevated odds for tropical cyclone development during this period in this region.

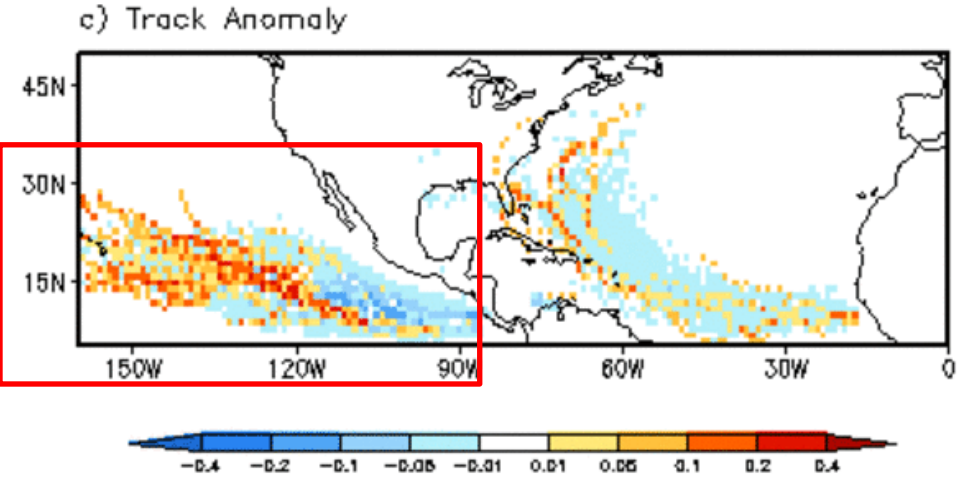
Some Outlook Information

Potential tropical cyclone tracks from the Climate Forecast System (CFS) (red boxes) for parts of the event period.

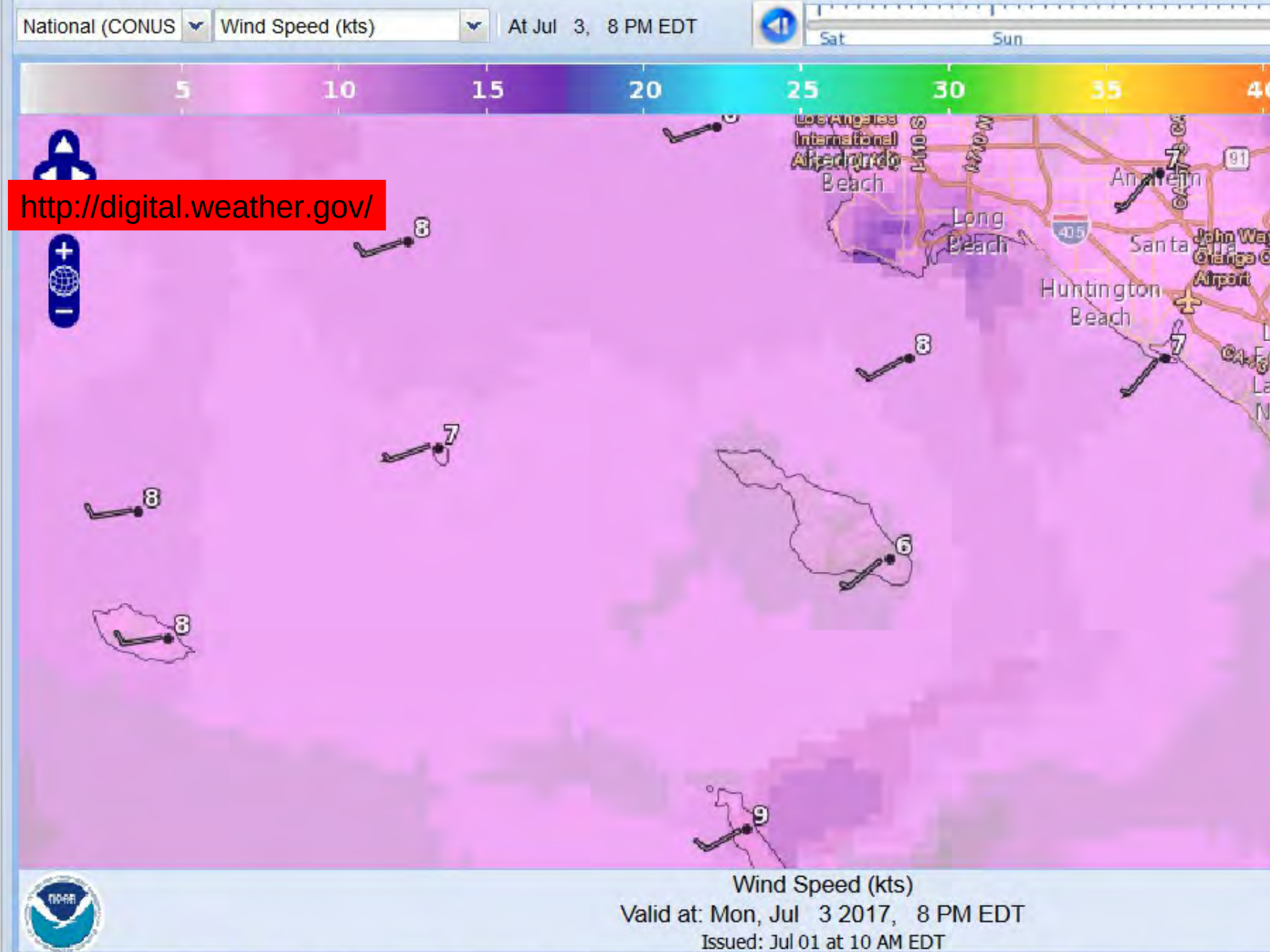
Forecast generation date ➔ June 27, 2017



Dates: 7/4-7/10 (*i.e.*, Week-2)



Dates: 7/11-7/17 (*i.e.*, Week-3)


National (CONUS
Wind Speed (kts)
At Jul 3, 8 PM EDT
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http://digital.weather.gov/
Los Angeles International Airport
Beach
Long Beach
Anaheim
Santa Ana
Huntington Beach
John Wayne Airport
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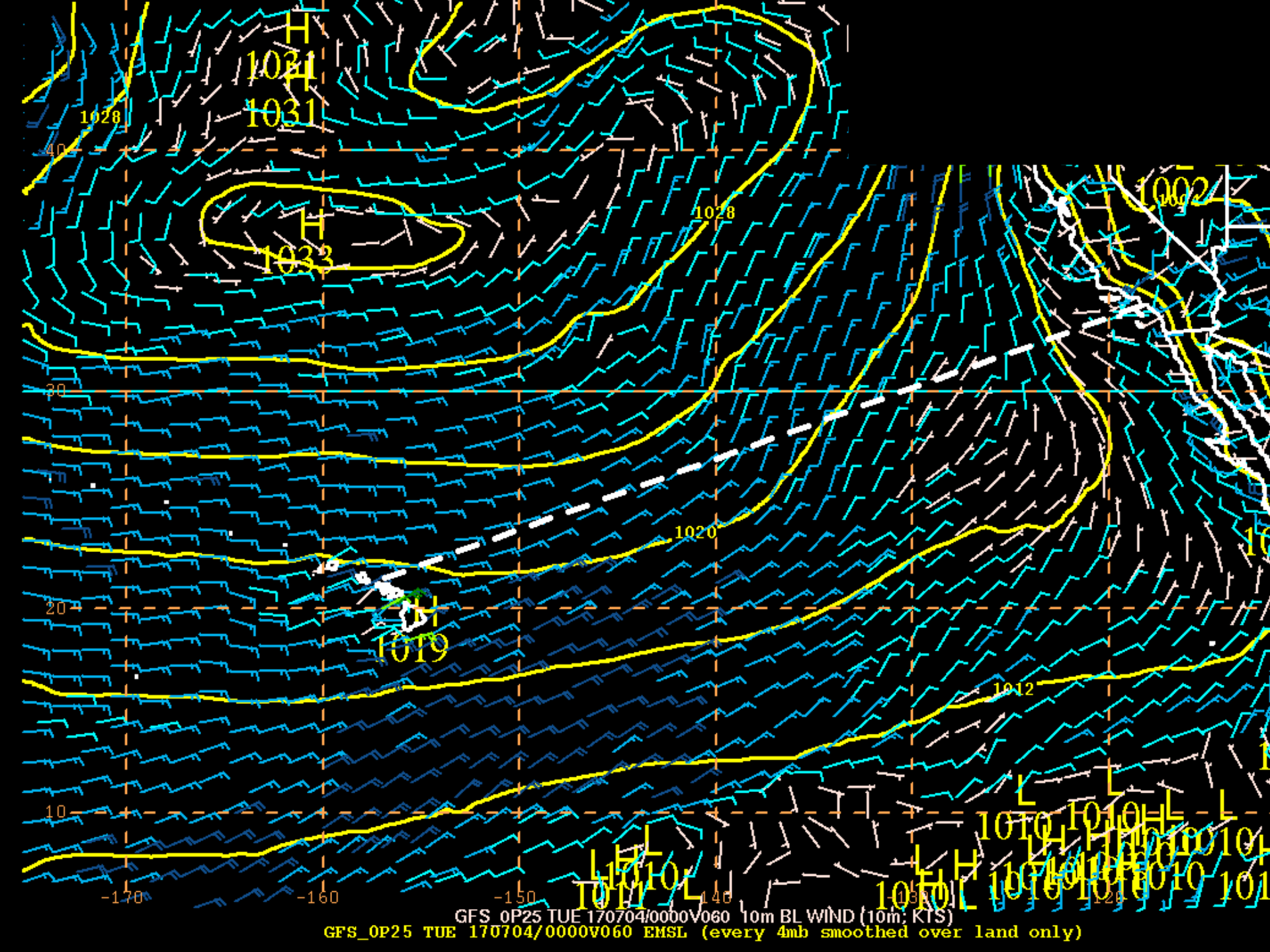
Wind Speed (kts)
Valid at: Mon, Jul 3 2017, 8 PM EDT
Issued: Jul 01 at 10 AM EDT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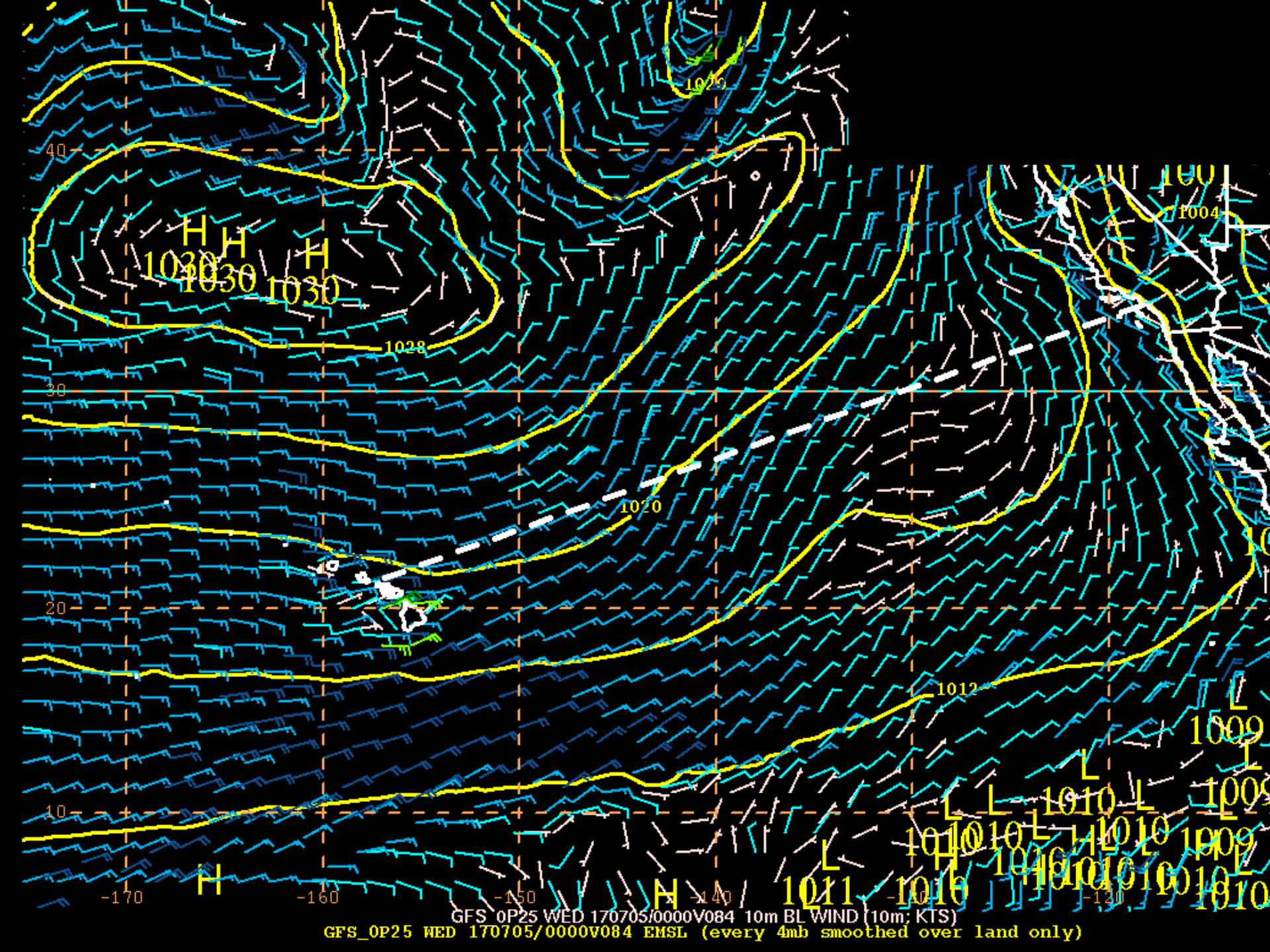
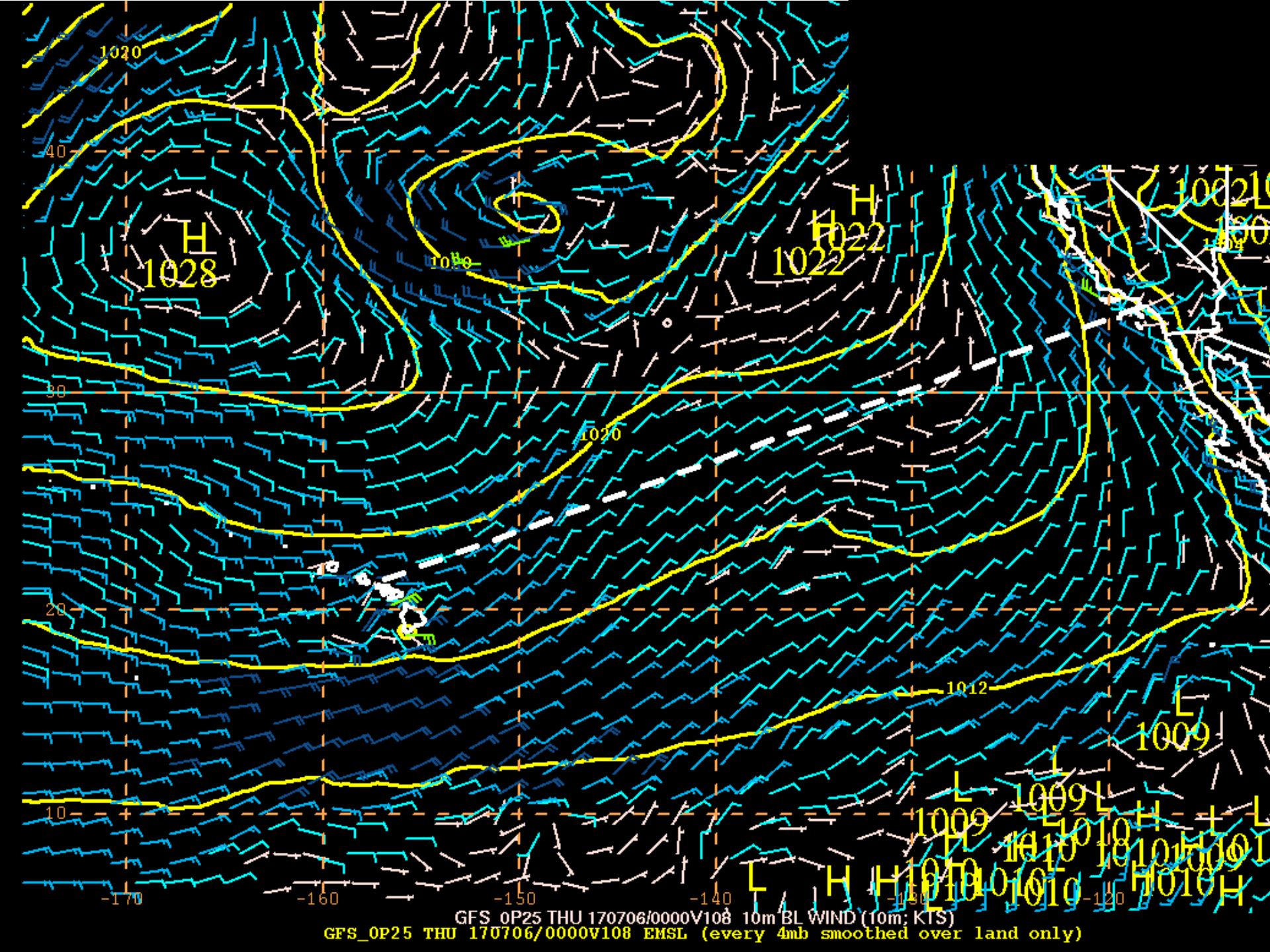
GFS 0P25 TUE 170704/0000V060 10m BL WIND (10m; KTS)
GFS_0P25 TUE 170704/0000V060 EMSL (every 4mb smoothed over land only)


GFS 0P25 WED 170705/0000V084 10m BL WIND (10m; KTS)
GFS_0P25 WED 170705/0000V084 EMSL (every 4mb smoothed over land only)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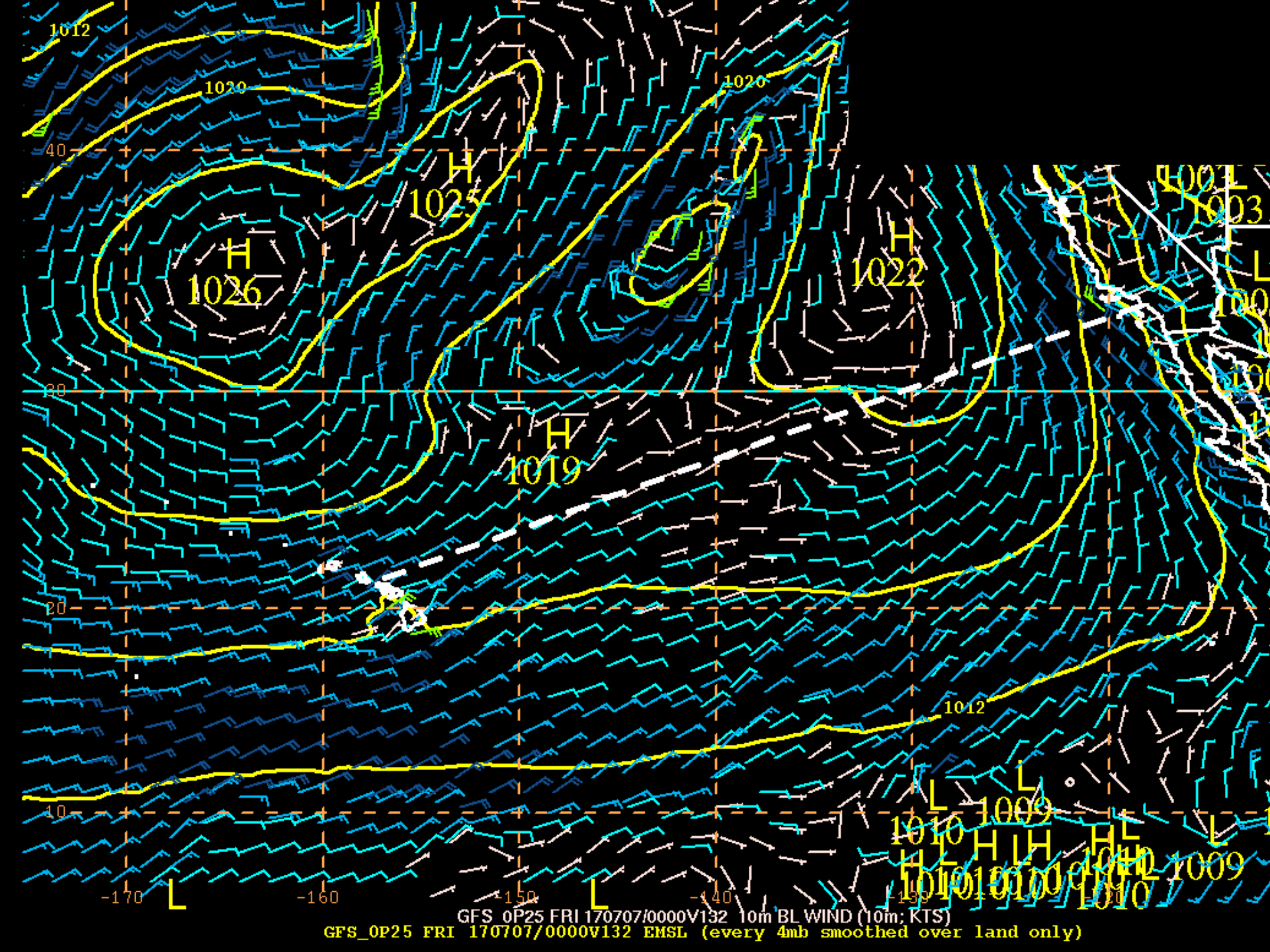
-120
GFS 0P25 THU 170706/0000V108 10m BL WIND (10m; KTS)
GFS_0P25 THU 170706/0000V108 EMSL (every 4mb smoothed over land only)



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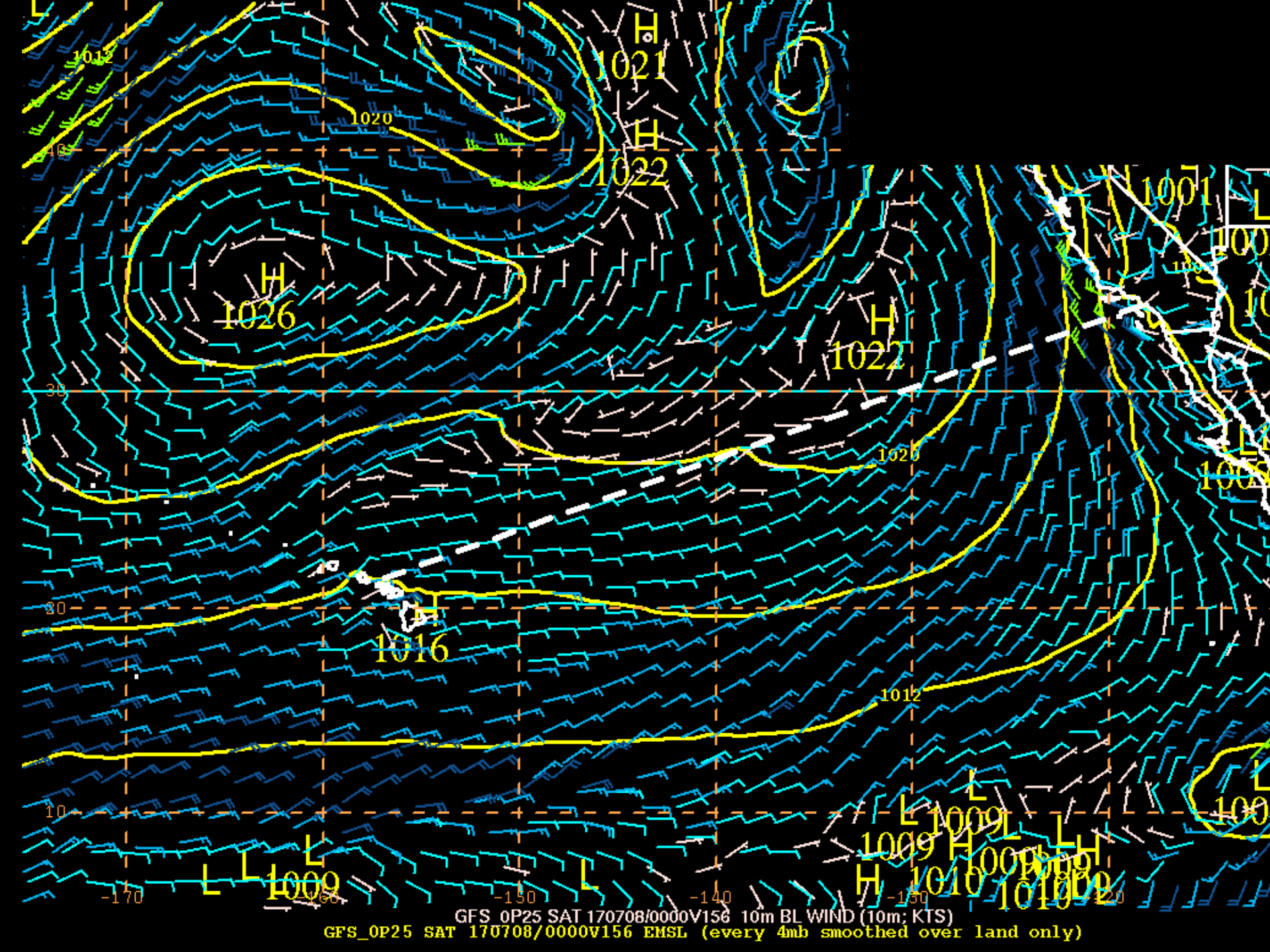
GFS_0P25 FRI 170707/0000V132 EMSL (every 4mb smoothed over land only)


1021
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1001
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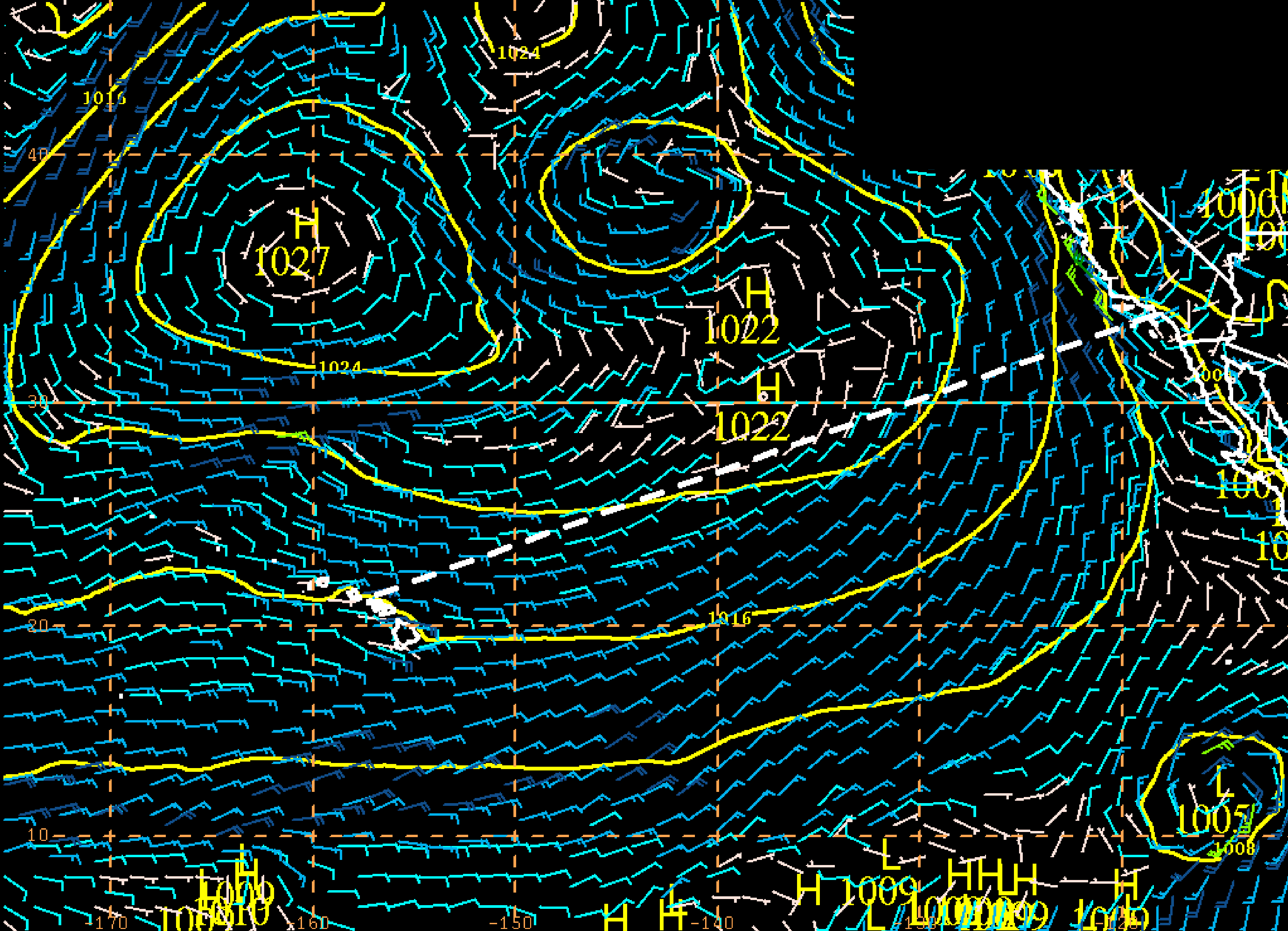
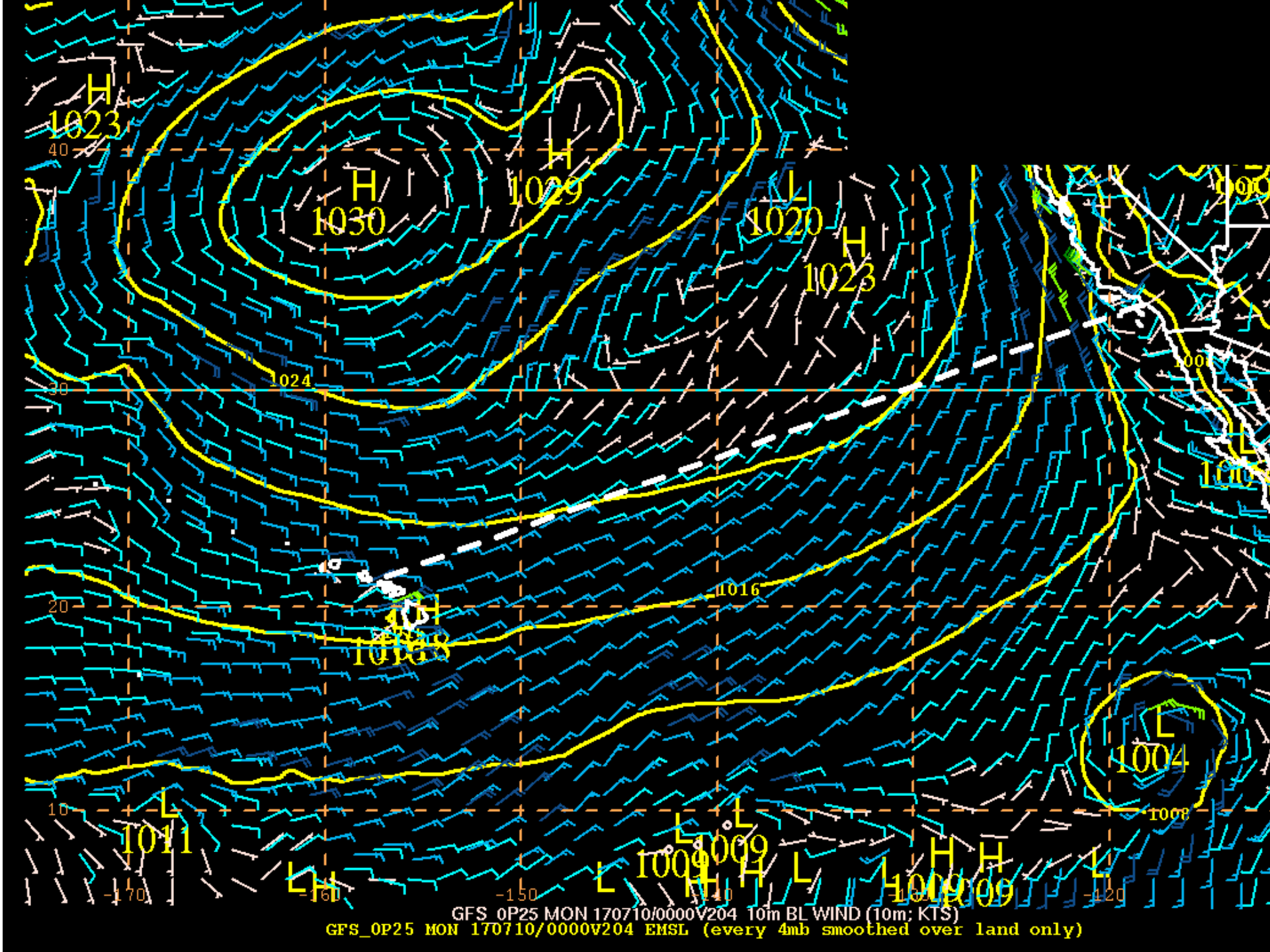
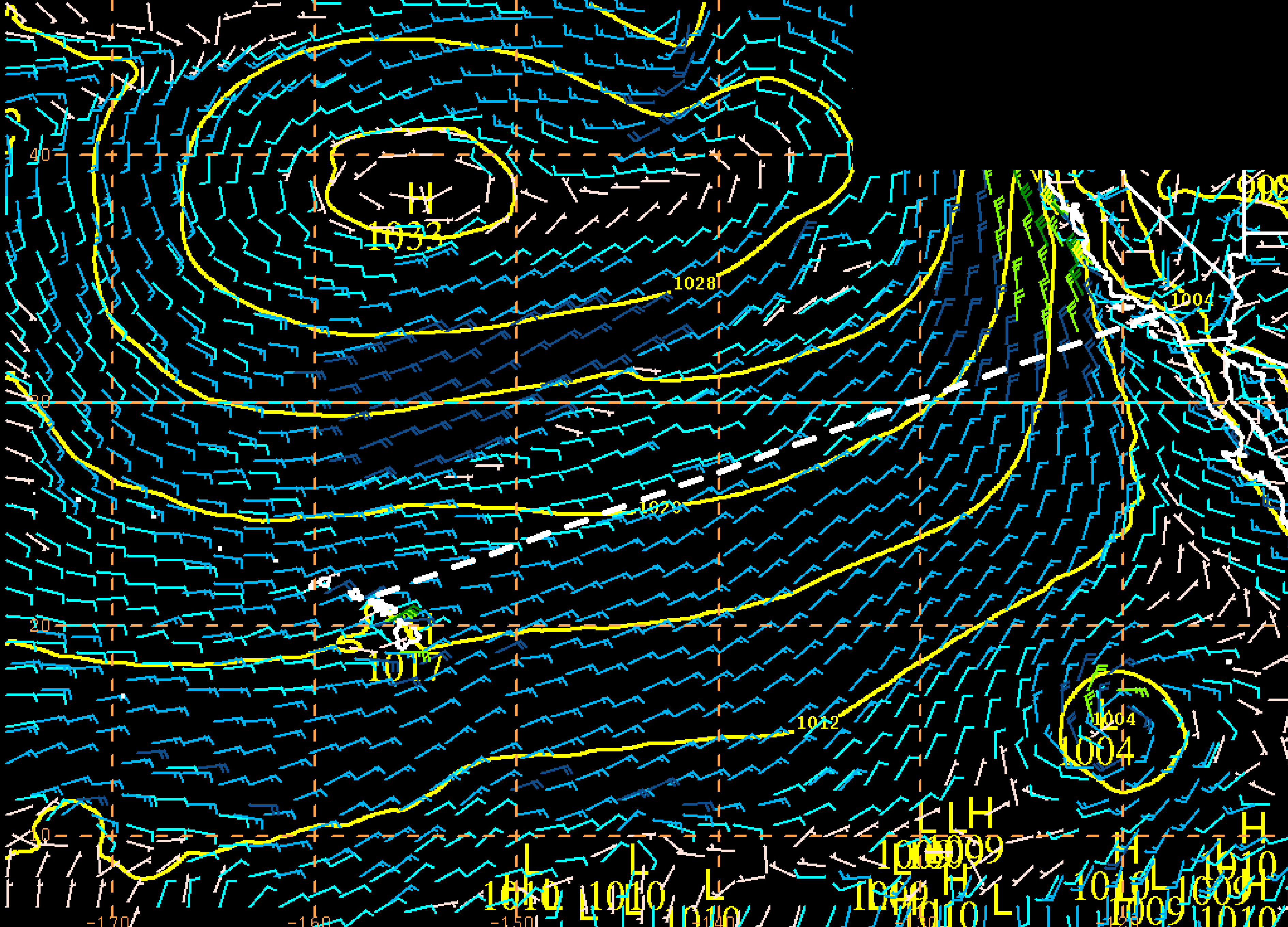
GFS 0P25 SAT 170708/0000V156 10m BL WIND (10m; KTS)
GFS_0P25 SAT 170708/0000V156 EMSL (every 4mb smoothed over land only)

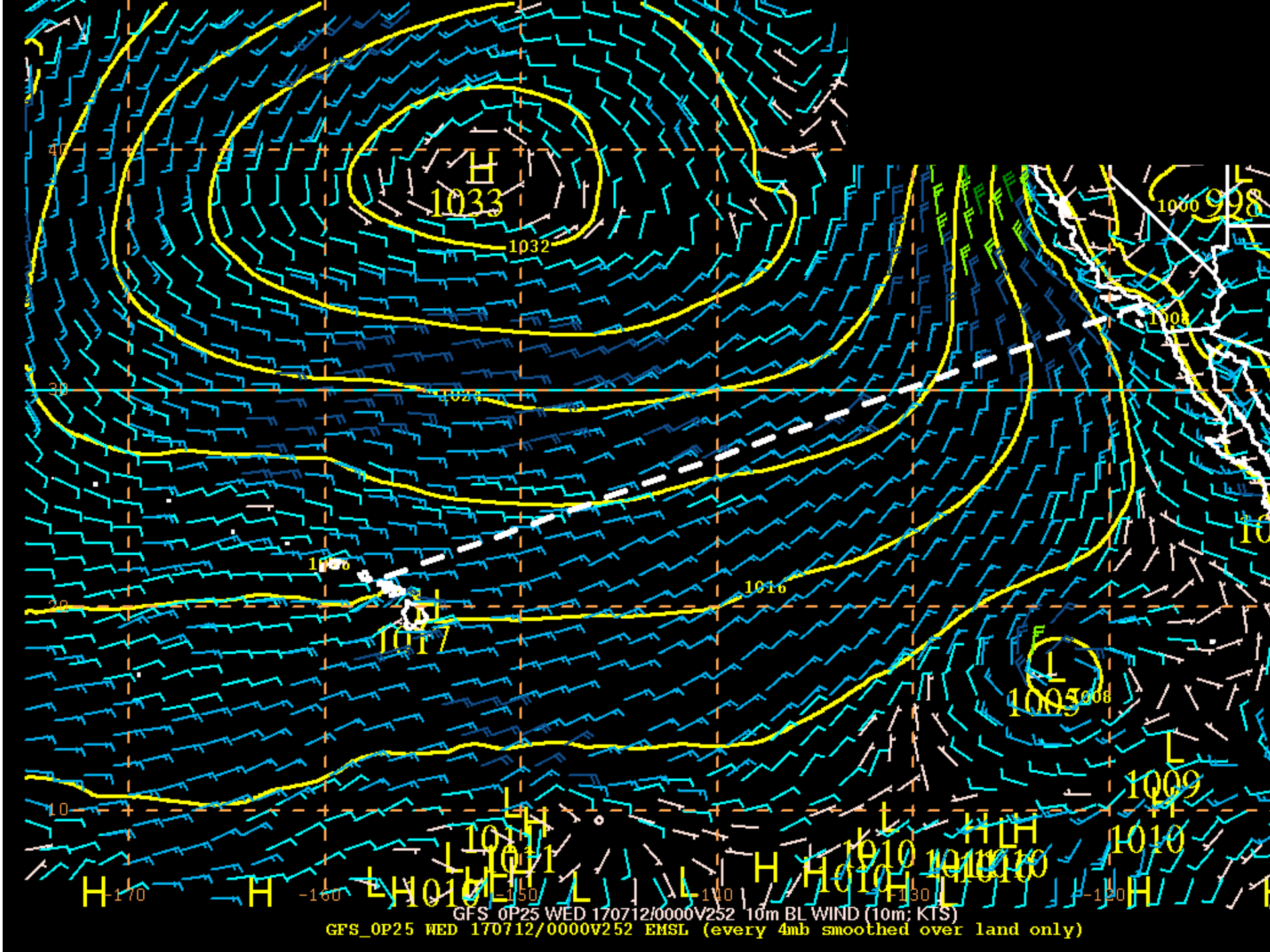


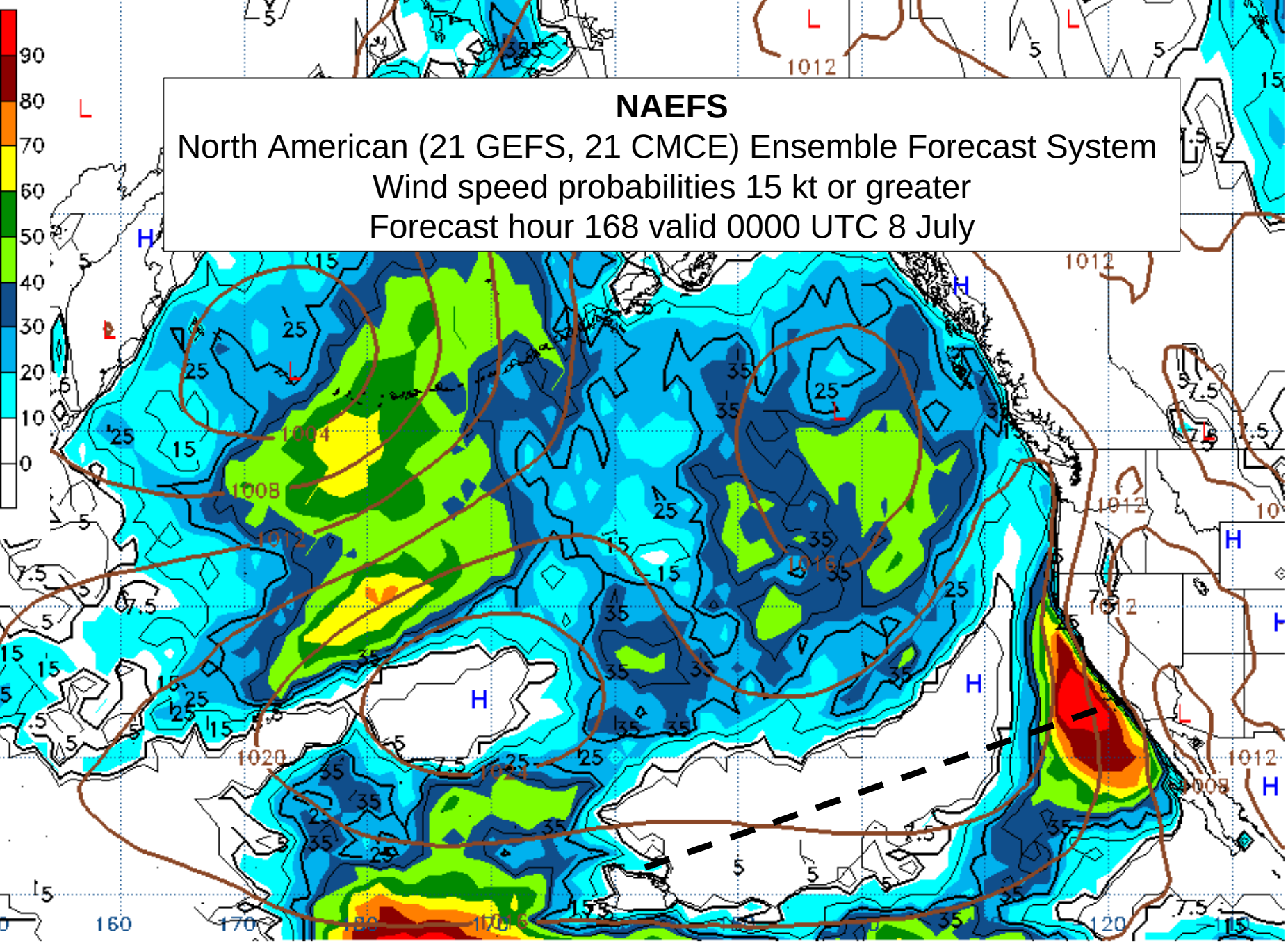
GFS_0P25 SUN 170709/0000V180 10m BL WIND (10m; KTS)
GFS_0P25 SUN 170709/0000V180 EMSL (every 4mb smoothed over land only)

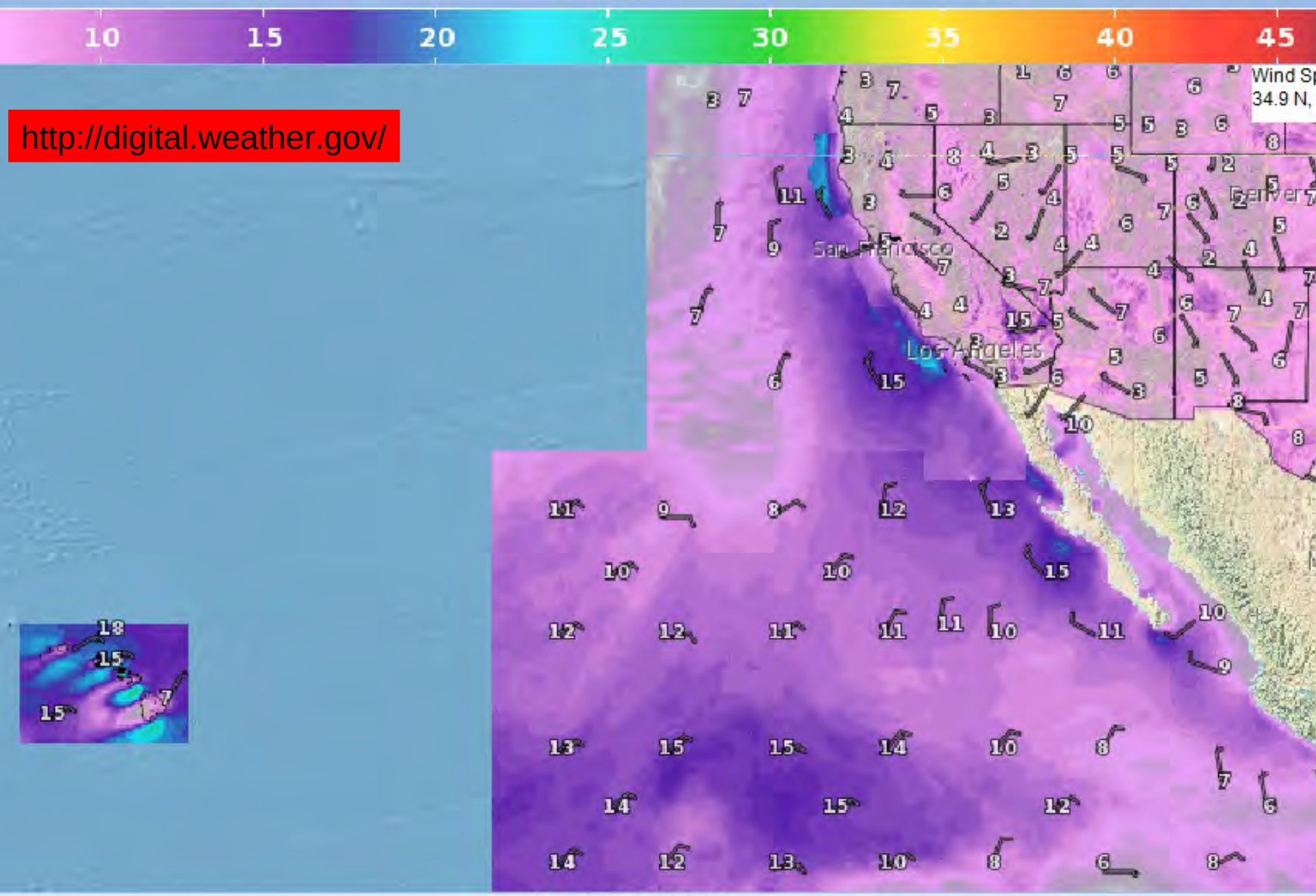

H
1023
H
1030
H
1029
L
1020
H
1023
1024
1016
1008
1004
1011
1009
1009
1009
40
30
20
10
-170
-160
-150
-140
-130
-120
GFS 0P25 MON 170710/0000V204 10m BL WIND (10m; KTS)
GFS_0P25 MON 170710/0000V204 EMSL (every 4mb smoothed over land only)



GFS_0P25 TUE 170711/0000V228 10m BL WIND (10m; KTS)
GFS_0P25 TUE 170711/0000V228 EMSL (every 4mb smoothed over land only)


H
1033
1032
1024
1016
1017
L
1005
1008
1000
998
1008
L
1009
1010
1011
1010
1010
1010
H
H
H
H
-170
-160
-150
-140
-130
-120
40
30
20
10
GFS 0P25 WED 170712/0000V252 10m BL WIND (10m; KTS)
GFS_0P25 WED 170712/0000V252 EMSL (every 4mb smoothed over land only)


NAEFS
North American (21 GEFS, 21 CMCE) Ensemble Forecast System
Wind speed probabilities 15 kt or greater
Forecast hour 168 valid 0000 UTC 8 July
90
80
70
60
50
40
30
20
10
0
Probability(NAEFS 10m WIND >= 15kt) (%) and NAEFS ensemble mean PMSL (mb)
20170701/0000 UTC F168 valid Sat 20170708/0000 UTC


10
15
20
25
30
35
40
45
http://digital.weather.gov/
Wind Sp
34.9 N,
San Francisco
Los Angeles
Denver
Wind Speed (kts)
Valid at: Thu, Jul 6 2017, 2 AM EDT

Receiving information - FTPMAIL

Directions

http://www.nws.noaa.gov/tg/ftpmail_using.php

Email to: **NWS.FTPMail.OPS@noaa.gov**

Subject – any subject you like

Example to receive instructions and header (filenames) of products for:

1. **Hurricane bulletins**
2. **Pacific radiofax products**
3. **Hawaii radiofax**
4. **Instructions**

Body of email:

open
cd fax
get ftpcmd.txt
get rfaxpac.txt
get rfaxhi.txt
get marine2.txt
quit

Received

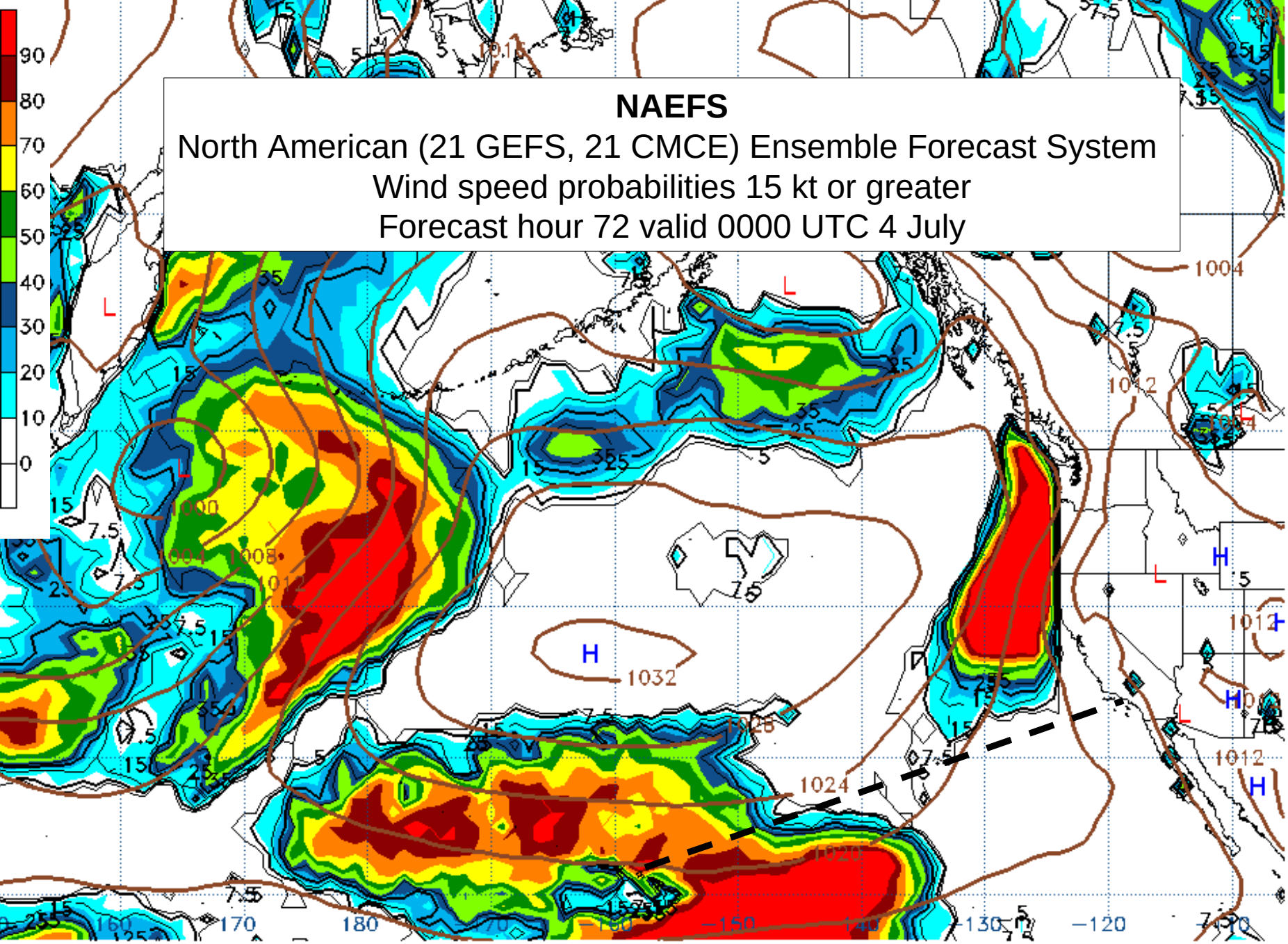
Summary

- Balance the information you use – routing tools,
  - and authoritative information - NOAA
  - Update frequently

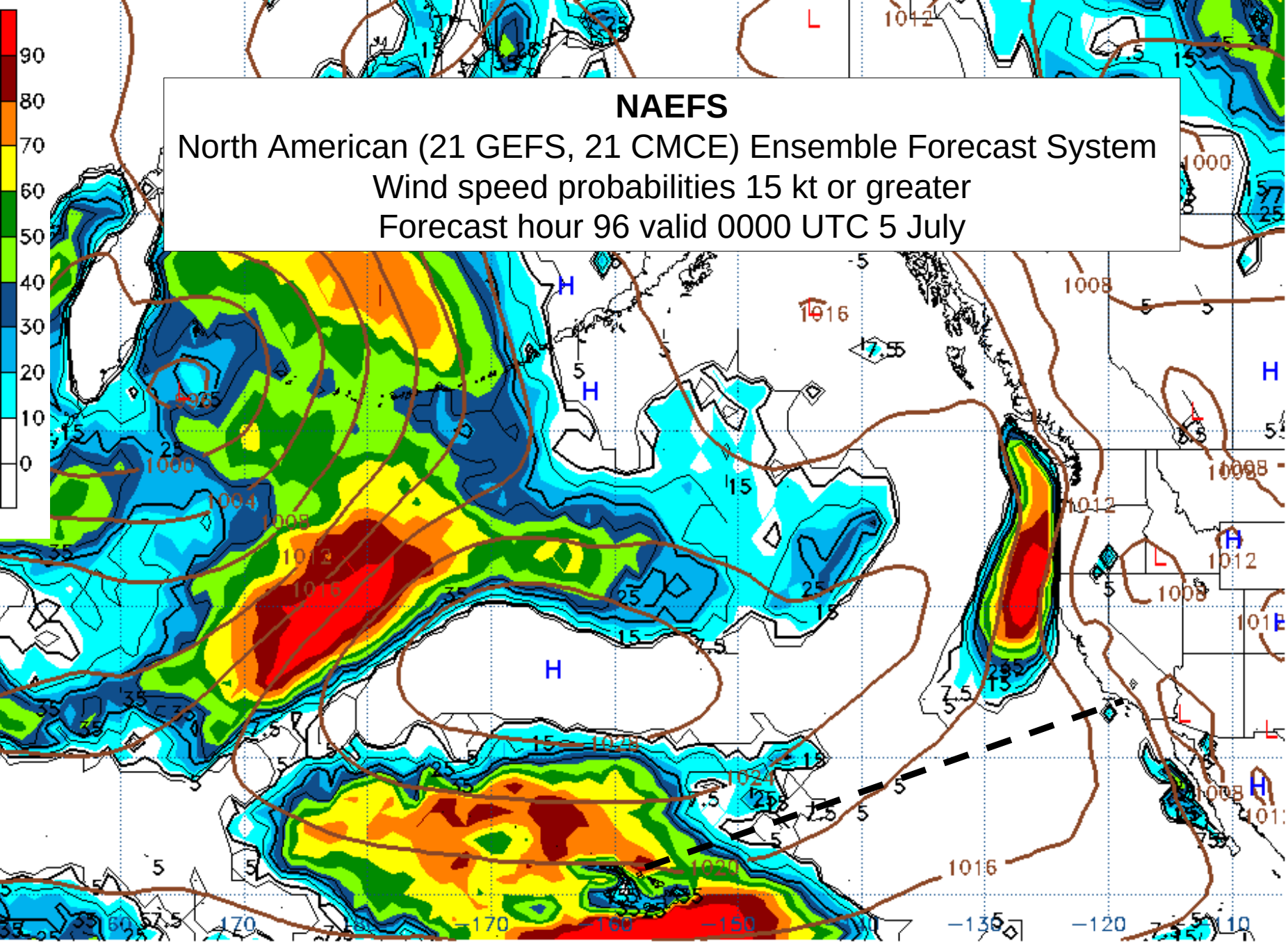
- Recommend you are familiar with products such as
  - Tropical Cyclone Bulletins, schedule and how to receive them
    - National Hurricane Center (east of 140 W)
    - Central Pacific Hurricane Center (west of 140W)

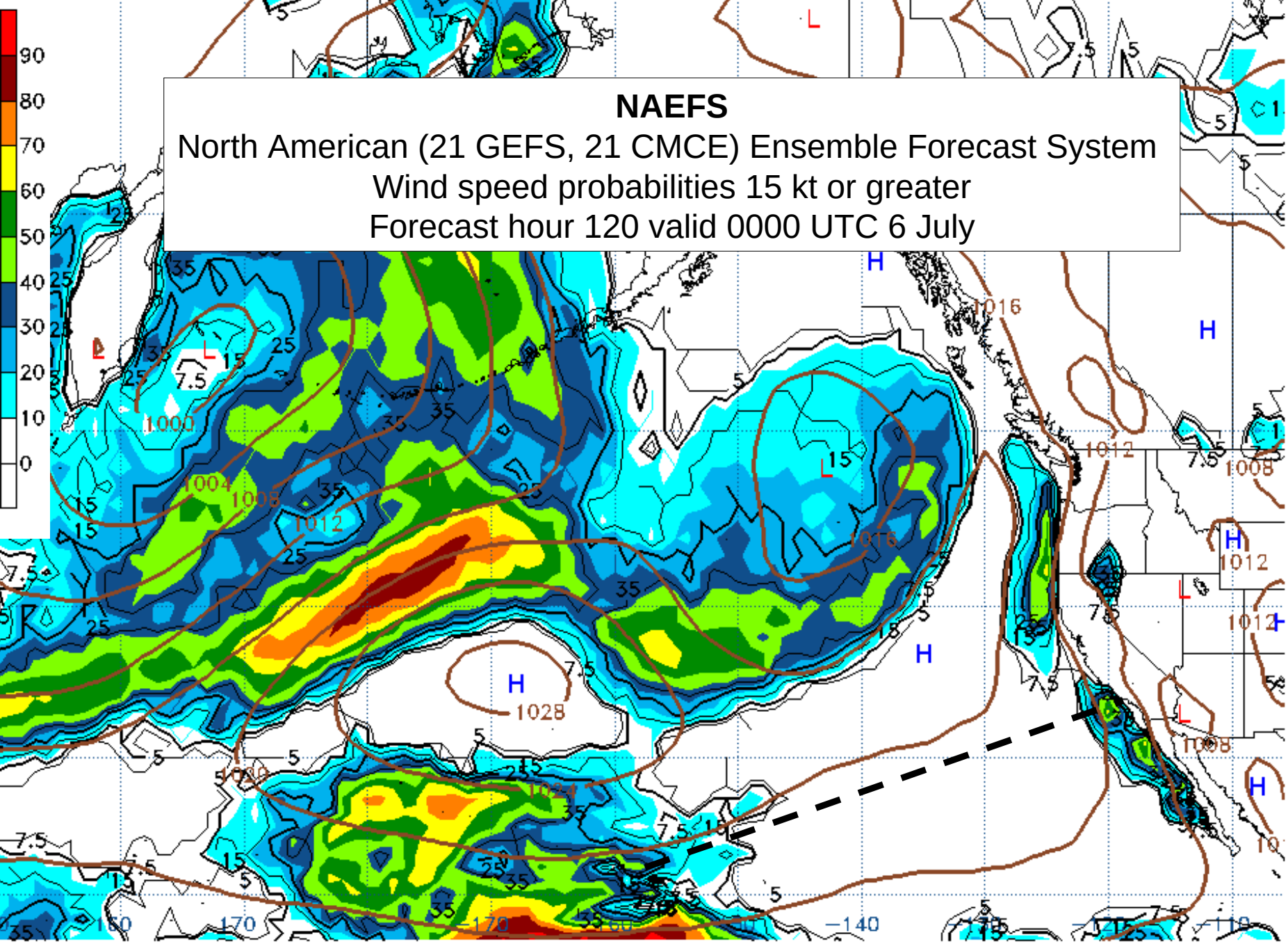
- Climate scale – ENSO is neutral – trades “normal”
  - Madden Julian Oscillation not a factor
  - Slight chance of Tropical Cyclone activity farther west 7/11 - 1

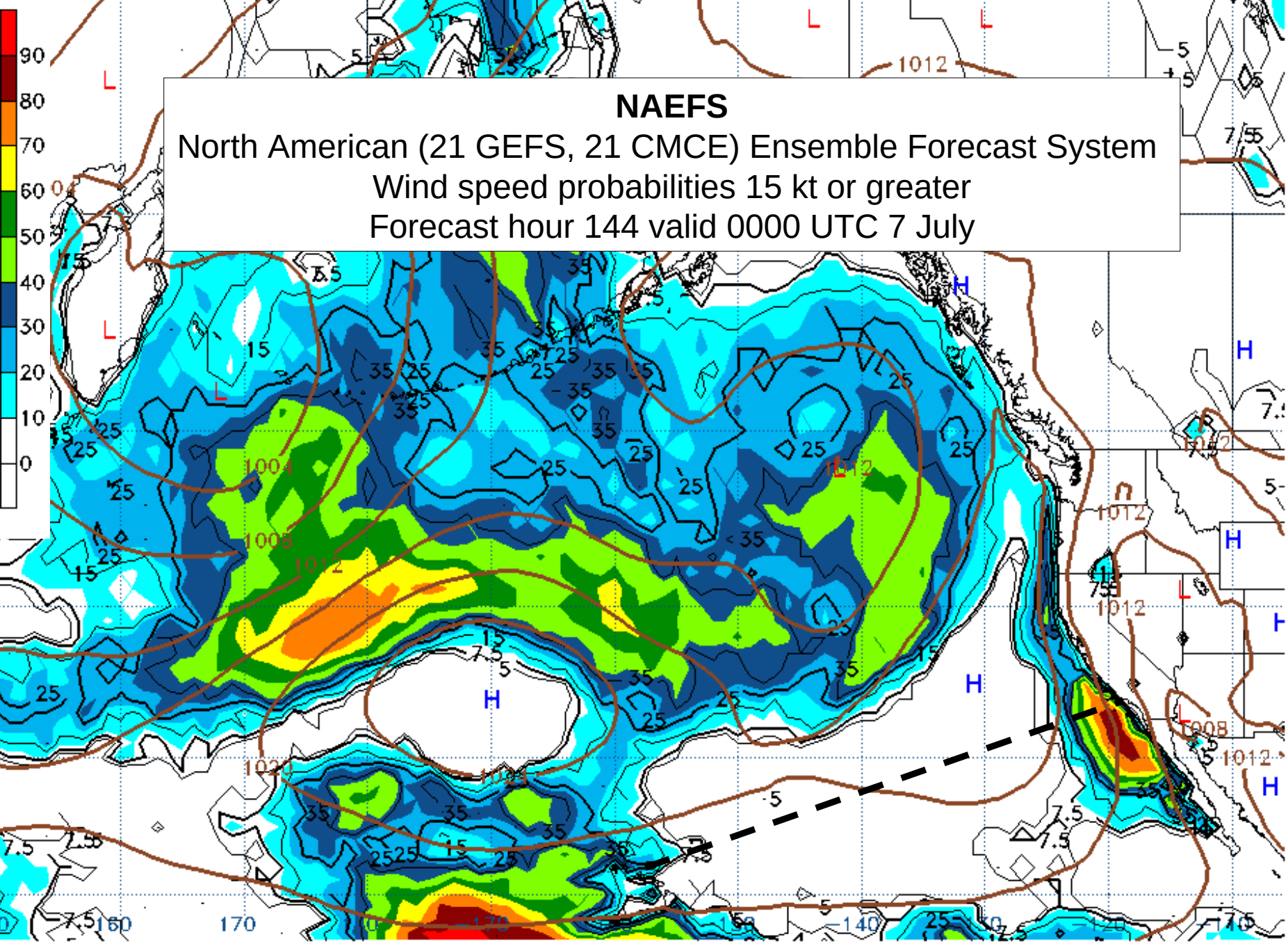
- Weather – weakening of east Pacific High to impact trades (weak
  - Amplification of weather pattern across North Pacific through July 10th

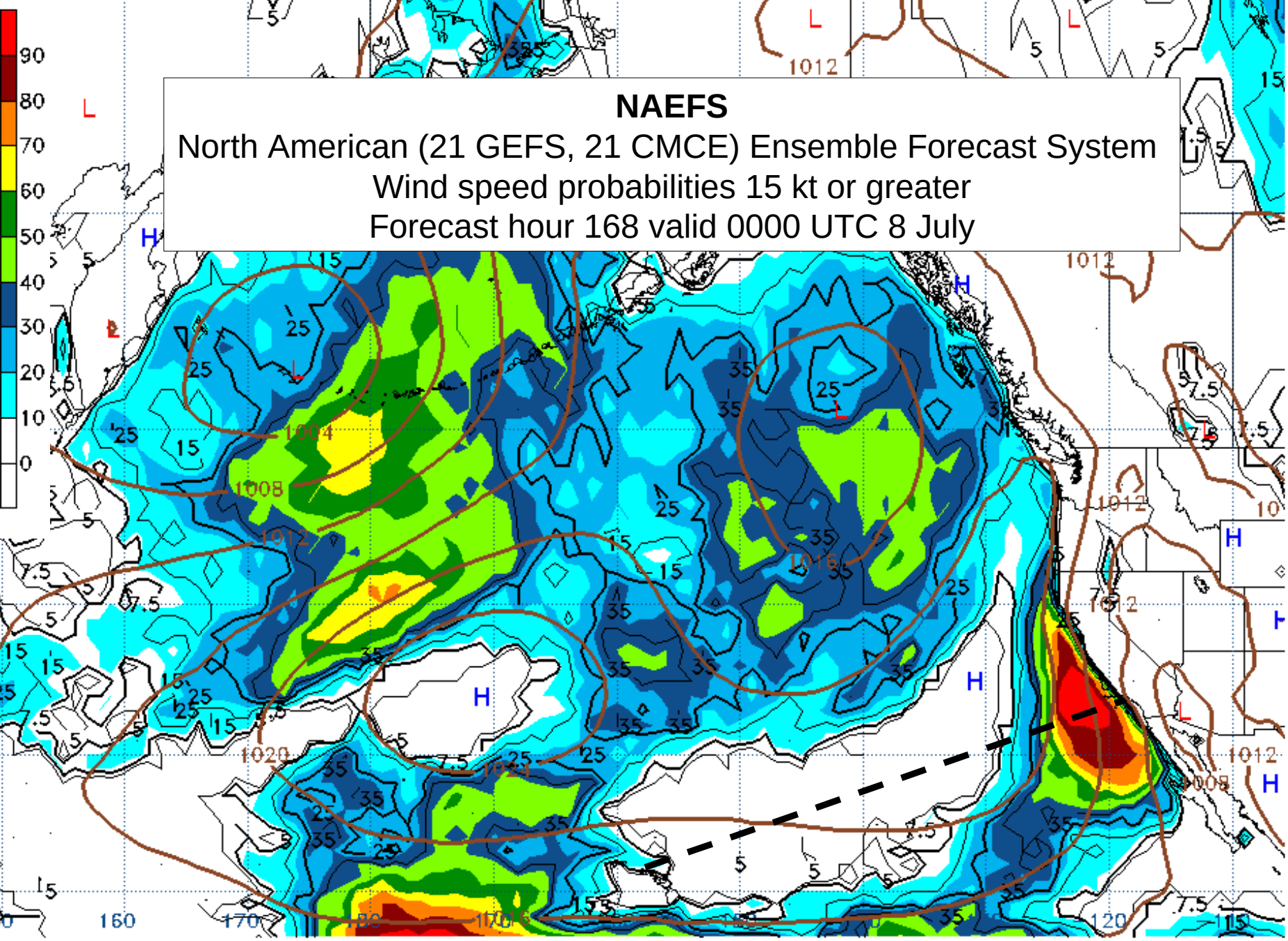


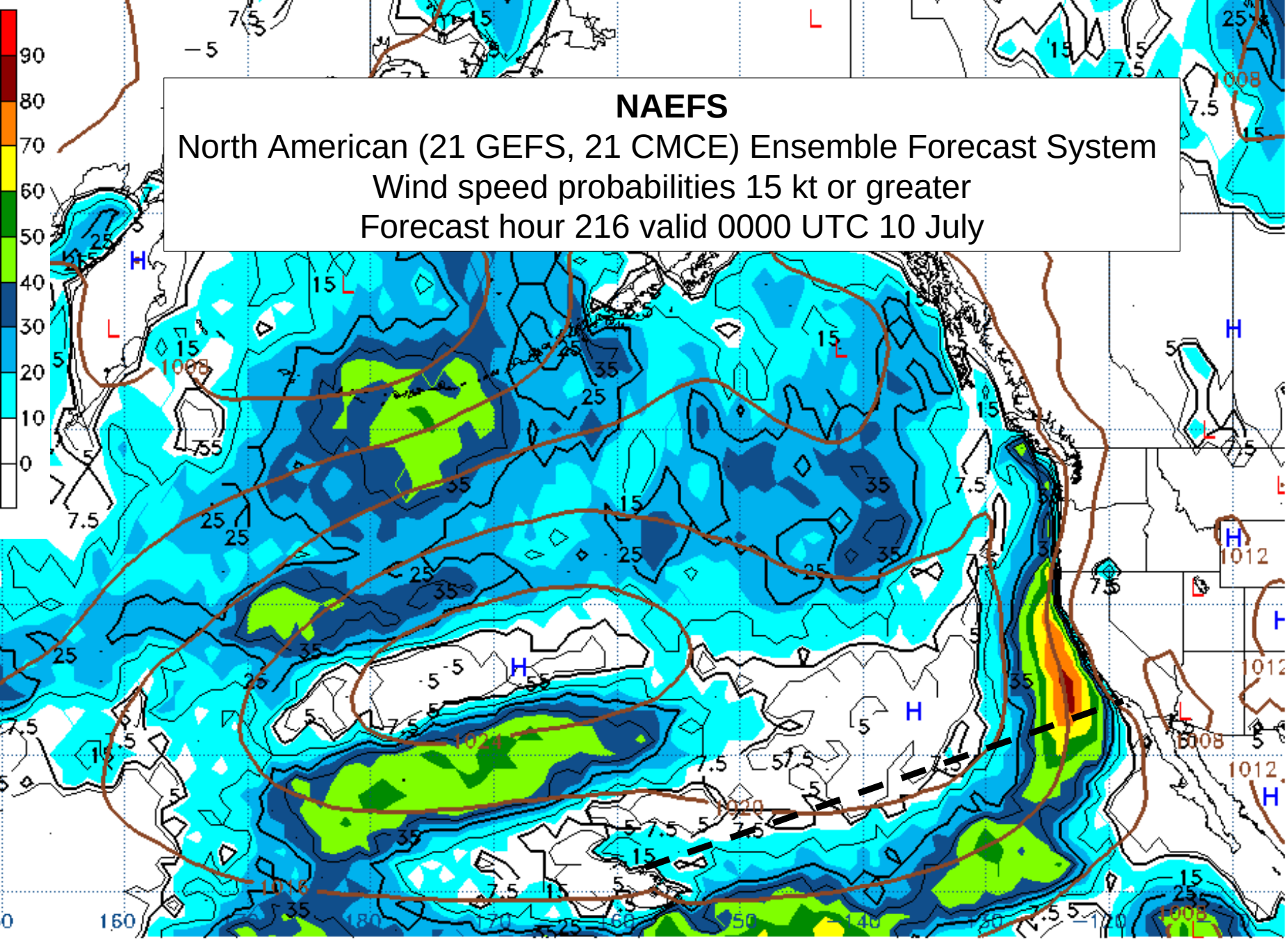
Probability(NAEFS 10m WIND >= 15kt) (%) and NAEFS ensemble mean PMSL (mb)
20170701/0000 UTC F072 valid Tue 20170704/0000 UTC


NAEFS
North American (21 GEFS, 21 CMCE) Ensemble Forecast System
Wind speed probabilities 15 kt or greater
Forecast hour 96 valid 0000 UTC 5 July
90
80
70
60
50
40
30
20
10
0
Probability(NAEFS 10m WIND >= 15kt) (%) and NAEFS ensemble mean PMSL (mb)
20170701/0000 UTC F096 valid Wed 20170705/0000 UTC

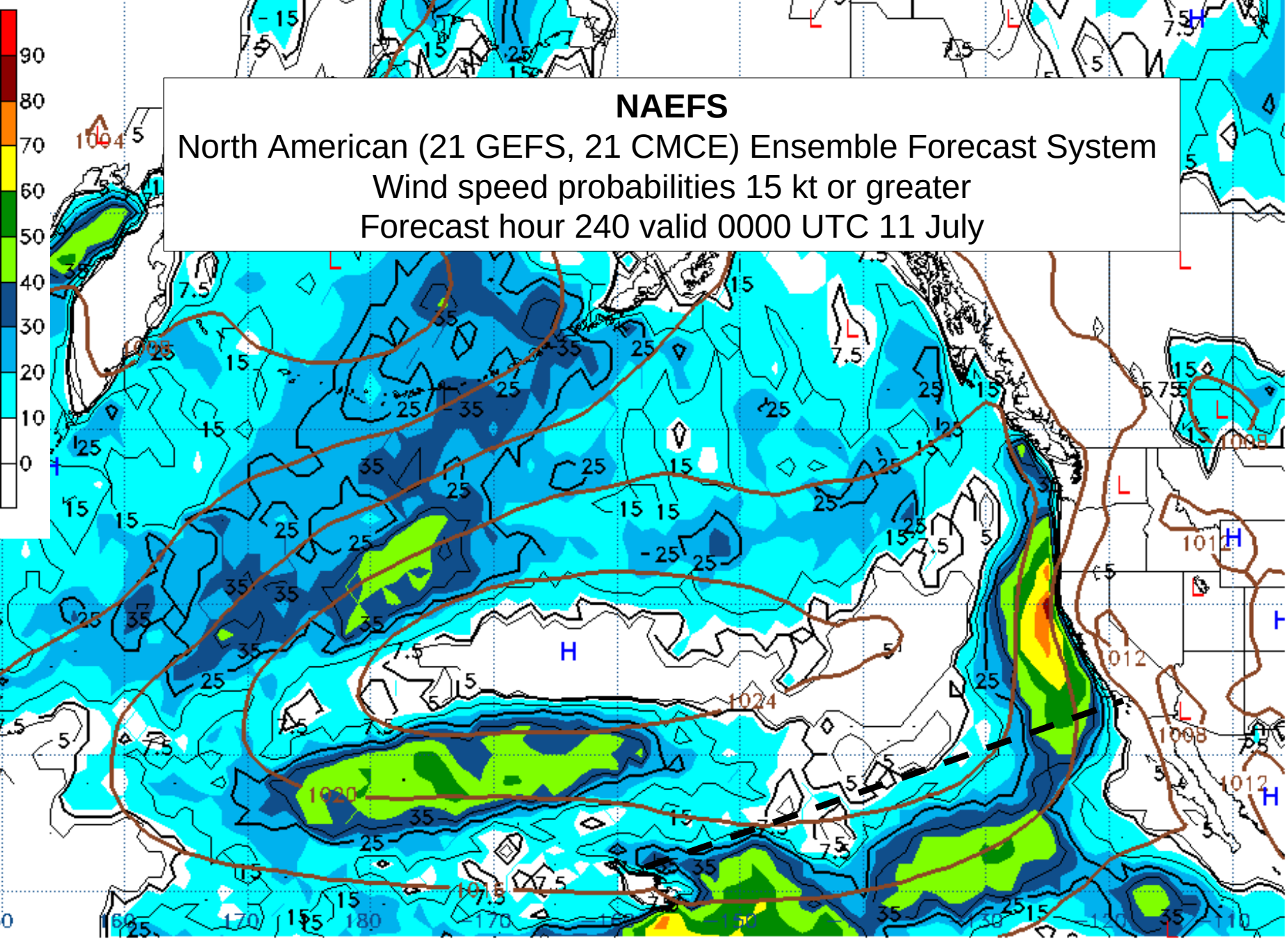

NAEFS
North American (21 GEFS, 21 CMCE) Ensemble Forecast System
Wind speed probabilities 15 kt or greater
Forecast hour 120 valid 0000 UTC 6 July
90
80
70
60
50
40
30
20
10
0
Probability(NAEFS 10m WIND >= 15kt) (%) and NAEFS ensemble mean PMSL (mb)
20170701/0000 UTC F120 valid Thu 20170706/0000 UTC


NAEFS
North American (21 GEFS, 21 CMCE) Ensemble Forecast System
Wind speed probabilities 15 kt or greater
Forecast hour 144 valid 0000 UTC 7 July
90
80
70
60
50
40
30
20
10
0
Probability(NAEFS 10m WIND >= 15kt) (%) and NAEFS ensemble mean PMSL (mb)
20170701/0000 UTC F144 valid Fri 20170707/0000 UTC

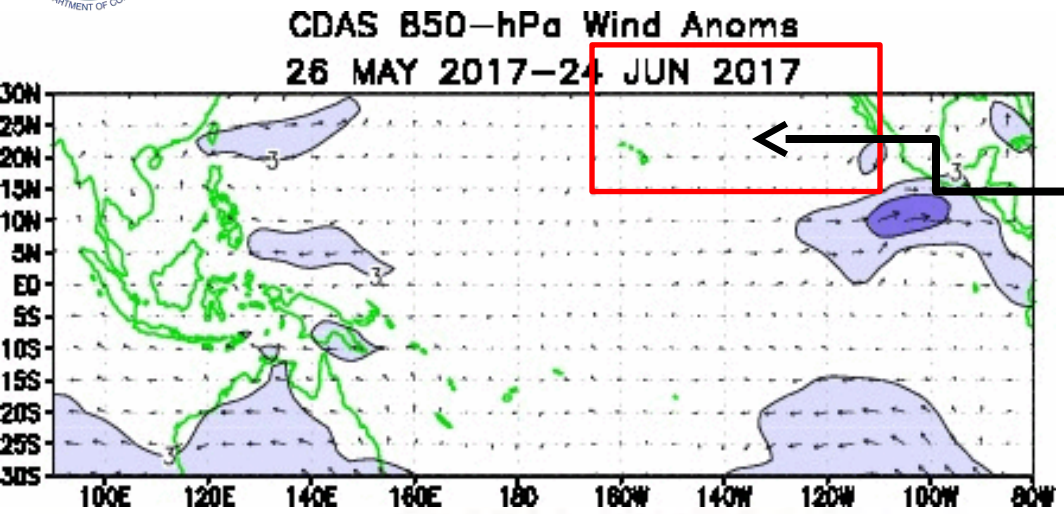

NAEFS
North American (21 GEFS, 21 CMCE) Ensemble Forecast System
Wind speed probabilities 15 kt or greater
Forecast hour 168 valid 0000 UTC 8 July
90
80
70
60
50
40
30
20
10
0
Probability(NAEFS 10m WIND >= 15kt) (%) and NAEFS ensemble mean PMSL (mb)
20170701/0000 UTC F168 valid Sat 20170708/0000 UTC



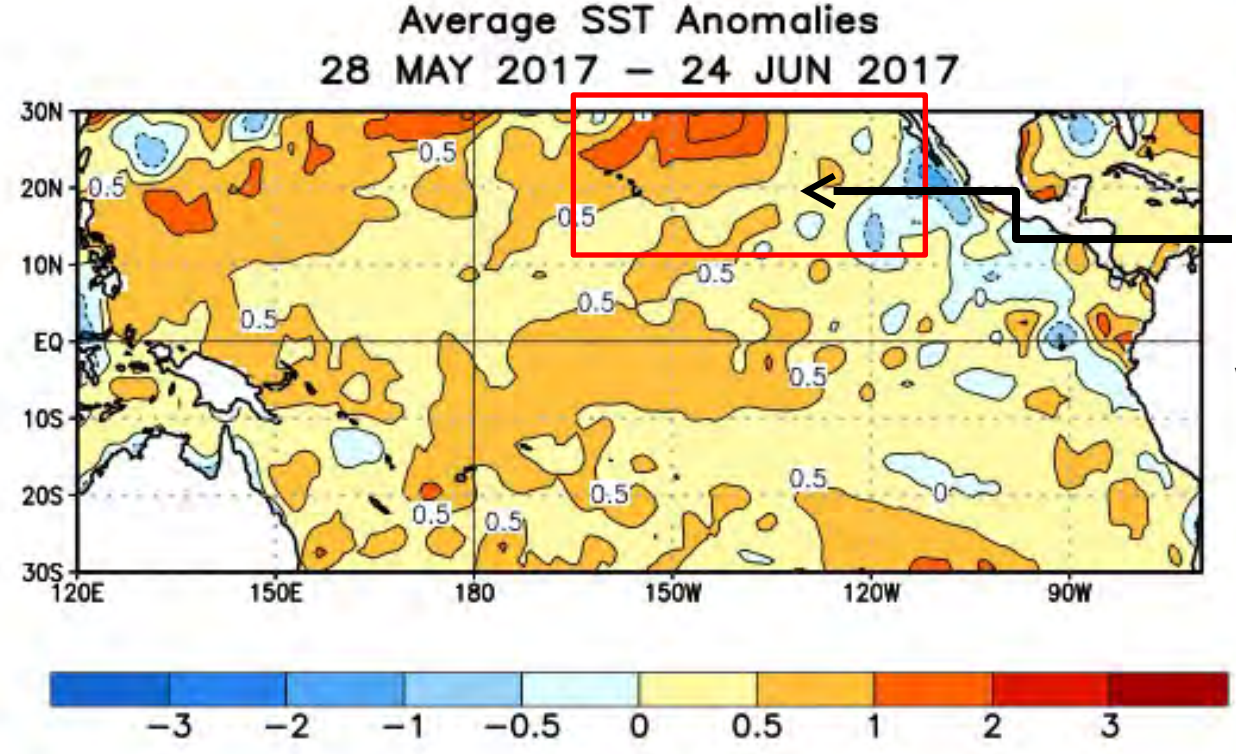
Probability(NAEFS 10m WIND >= 15kt) (%) and NAEFS ensemble mean PMSL (mb)
20170701/0000 UTC F216 valid Mon 20170710/0000 UTC


NAEFS
North American (21 GEFS, 21 CMCE) Ensemble Forecast System
Wind speed probabilities 15 kt or greater
Forecast hour 240 valid 0000 UTC 11 July
90
80
70
60
50
40
30
20
10
0
Probability(NAEFS 10m WIND >= 15kt) (%) and NAEFS ensemble mean PMSL (mb)
20170701/0000 UTC F240 valid Tue 20170711/0000 UTC

Some Recent Observations



The depiction of no arrows and a white map (red box) indicate near normal winds over the past month



Surface ocean temperature departures from climatology

Warm colors – above normal
Blue colors – below normal