



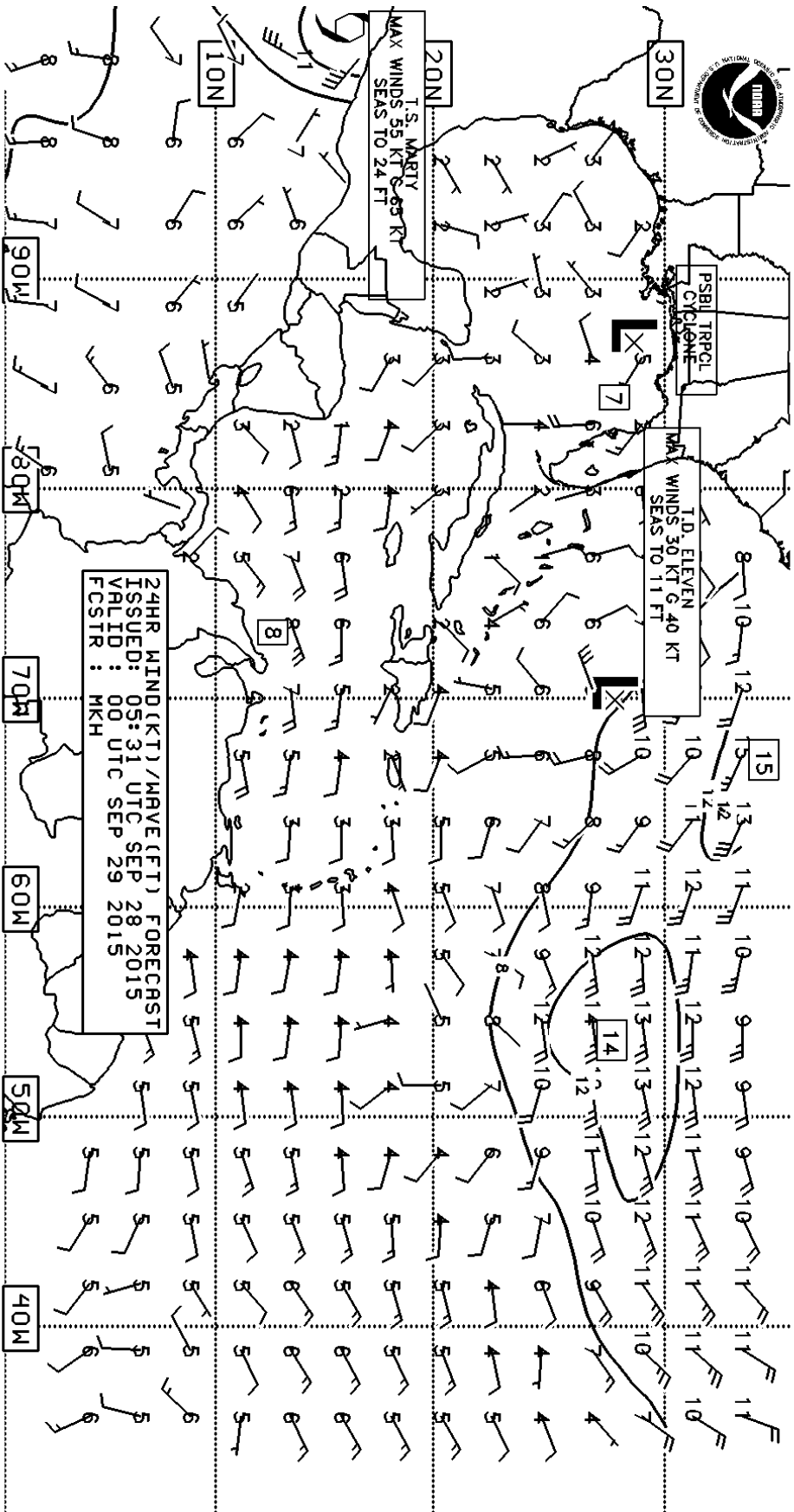
National Transportation Safety Board

Office of Marine Safety
Washington, D.C. 20594-2000
December 13, 2016

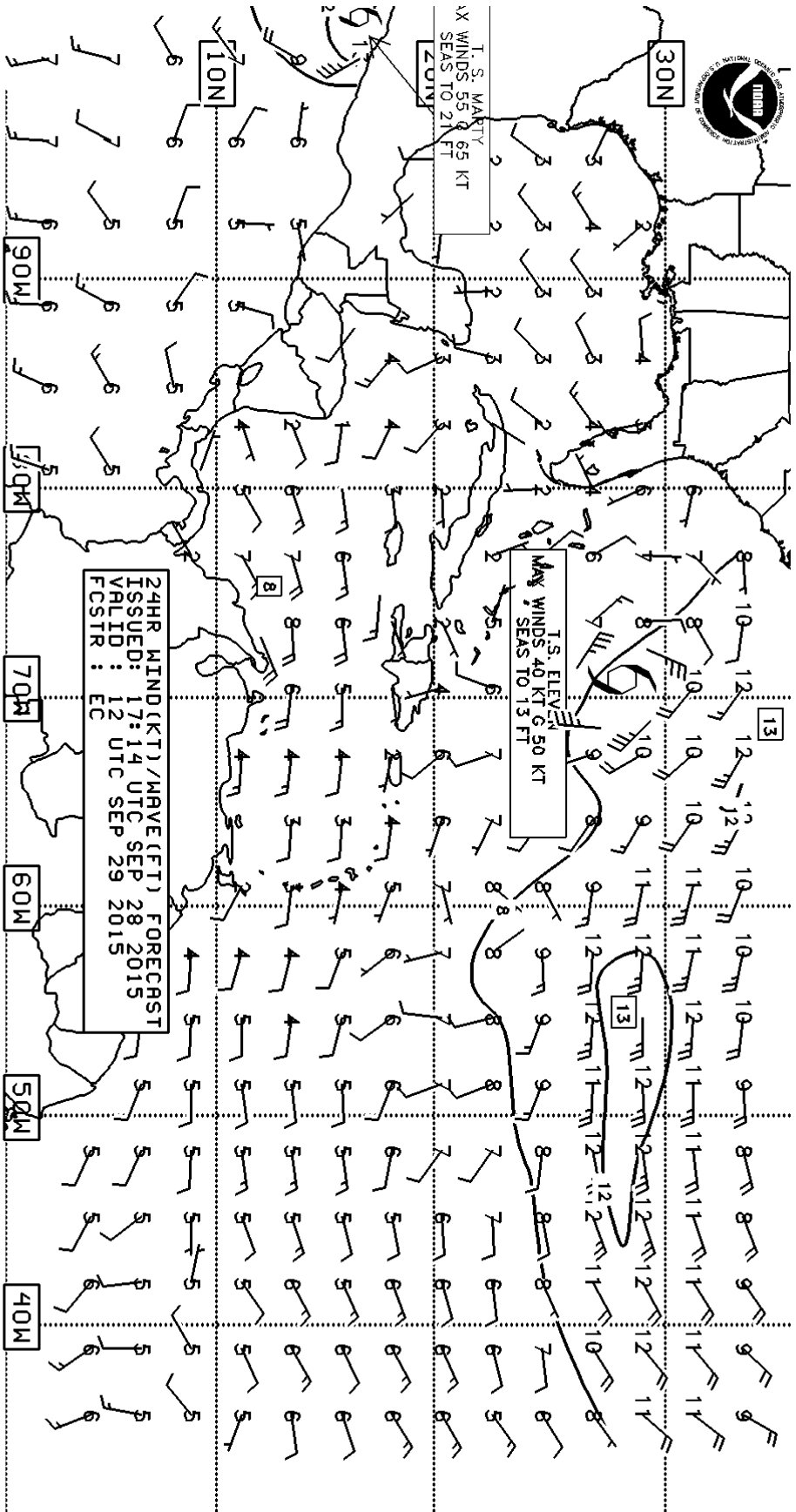
ATTACHMENT 9 to the METEOROLOGY GROUP FACTUAL REPORT
DCA16MM001

The National Hurricane Center's 24-, 48-, and 72-hour Wind/Wave Forecasts; the Ocean Prediction Center's two Northwest Atlantic 24-hour Wind/Wave Forecasts; the National Hurricane Center's 24-, 48- and 72-hour Surface Forecasts; the Ocean Prediction Center's Northwest Atlantic 24-Hour Surface Forecasts; and the Ocean Prediction Center's North Atlantic 48-Hour Surface Forecasts.

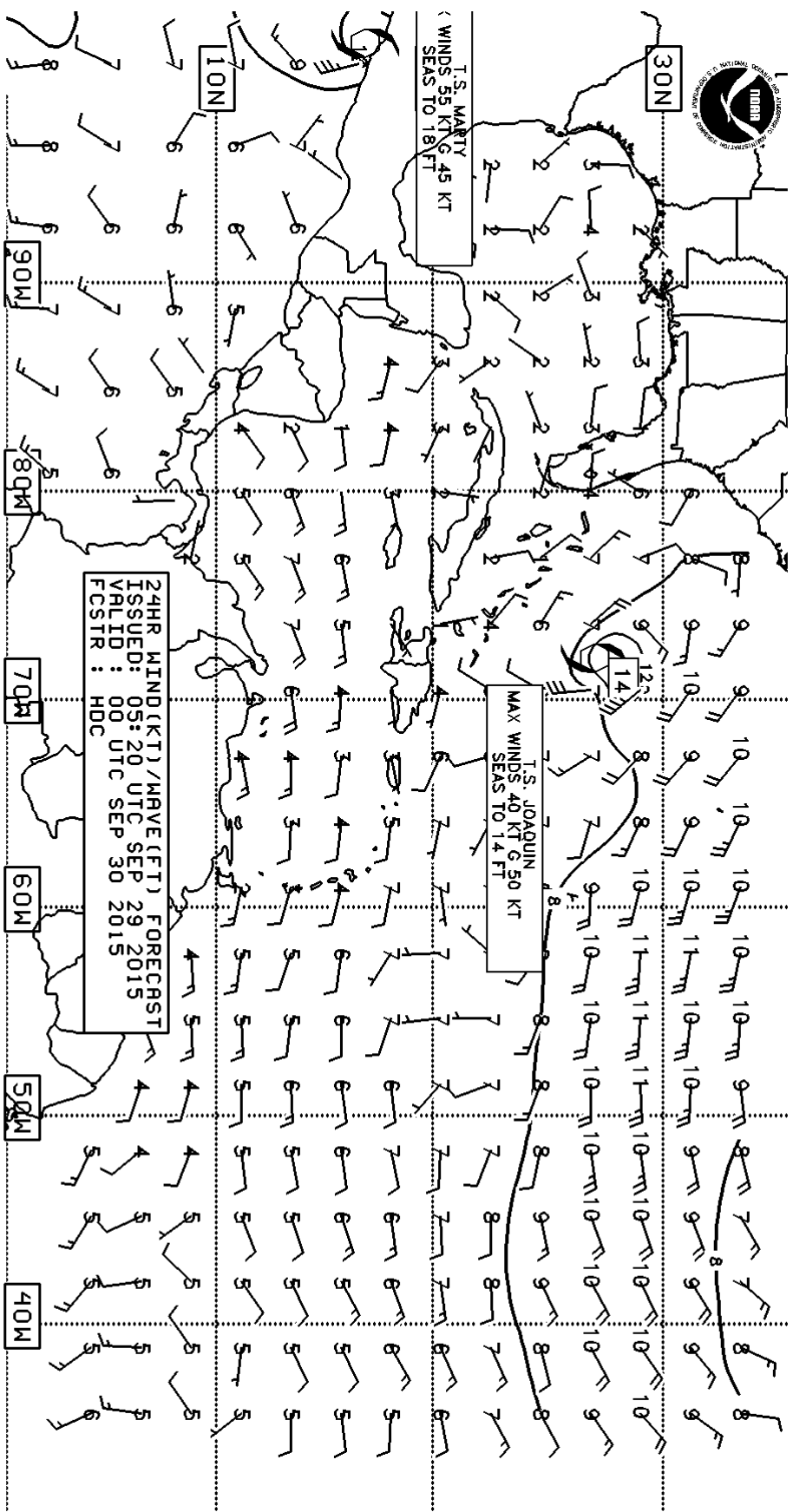
Submitted by: Mike Richards
NTSB, AS-30



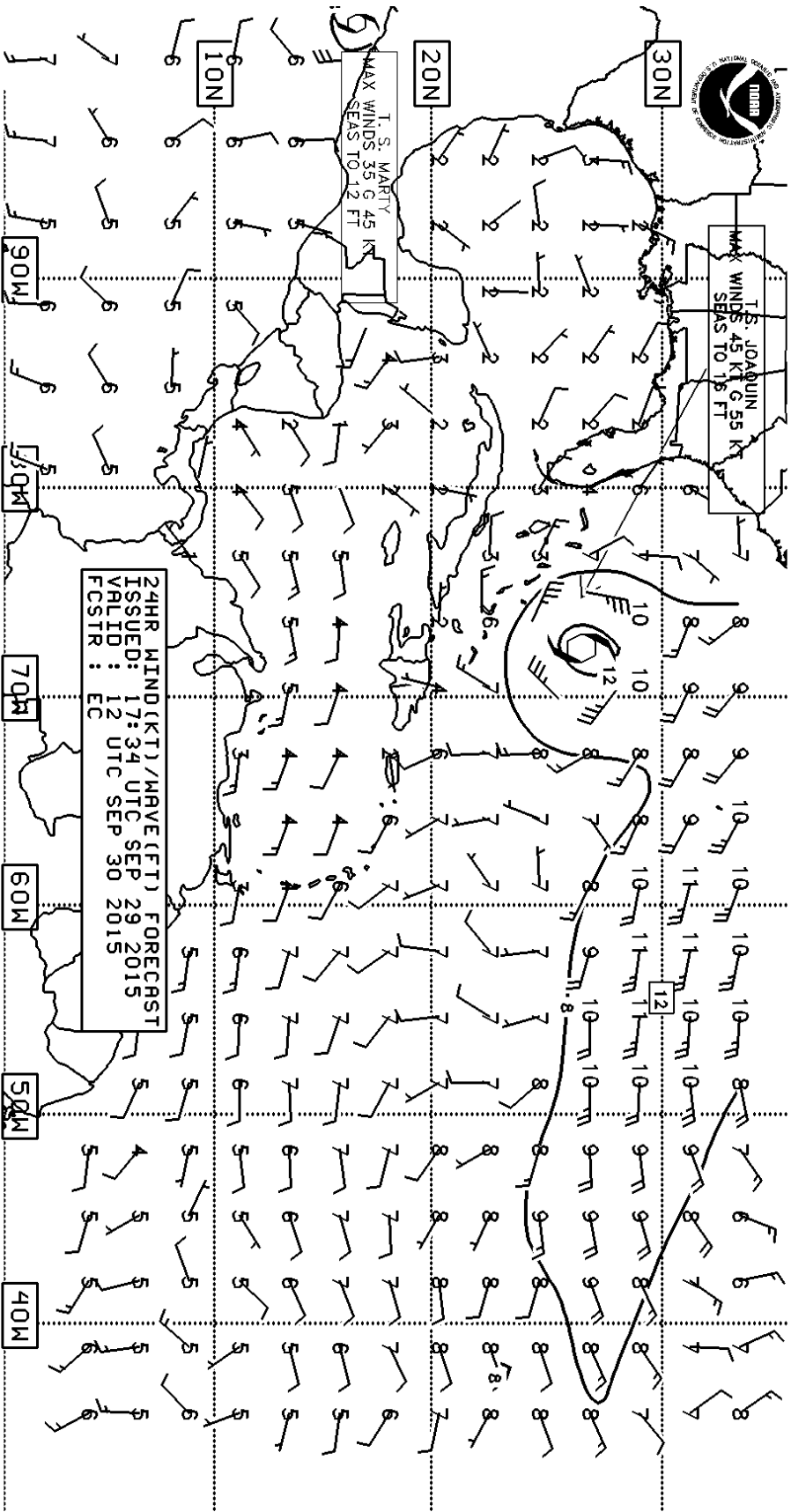
NWS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
 SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



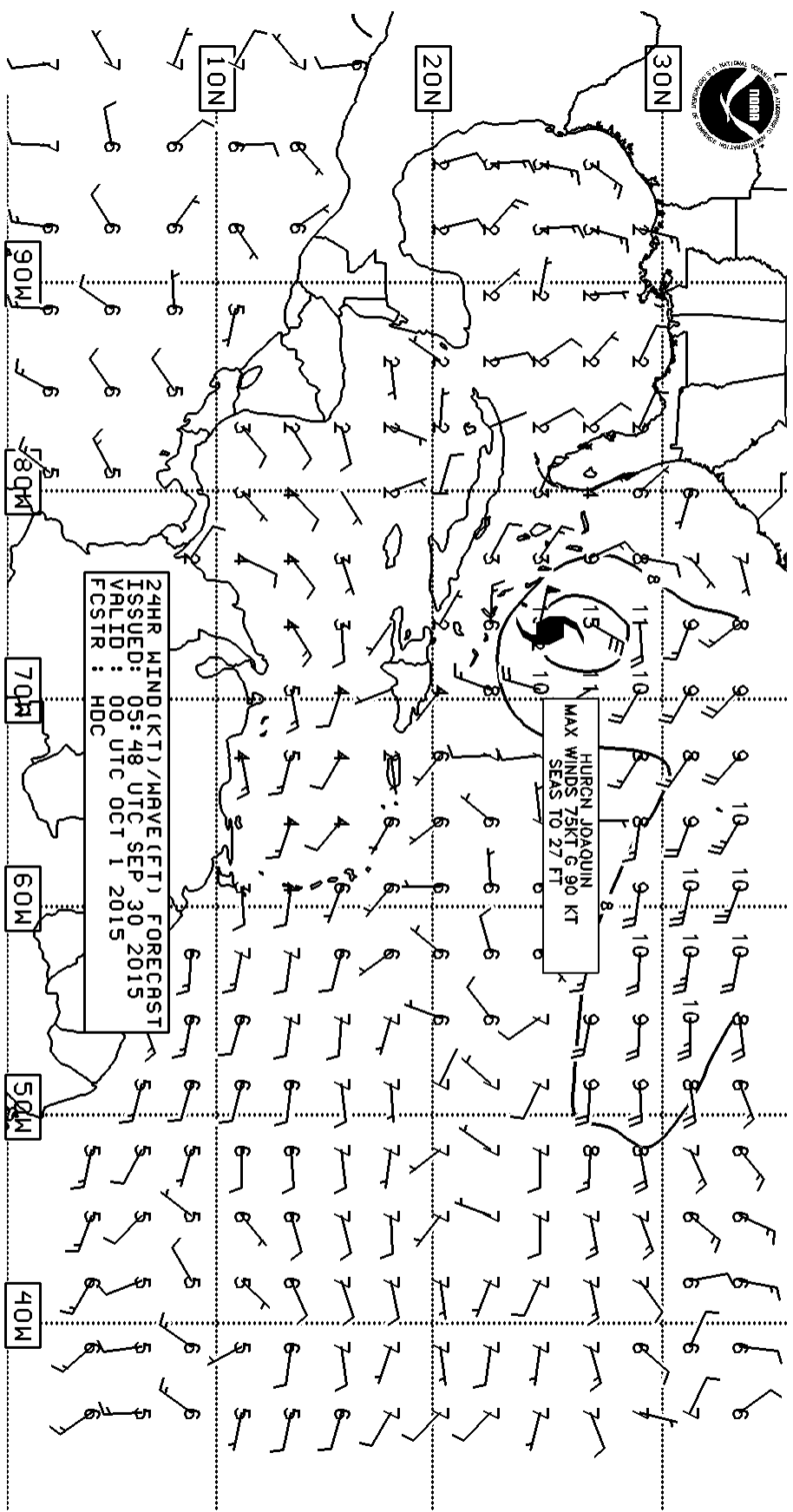
NWS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
 SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



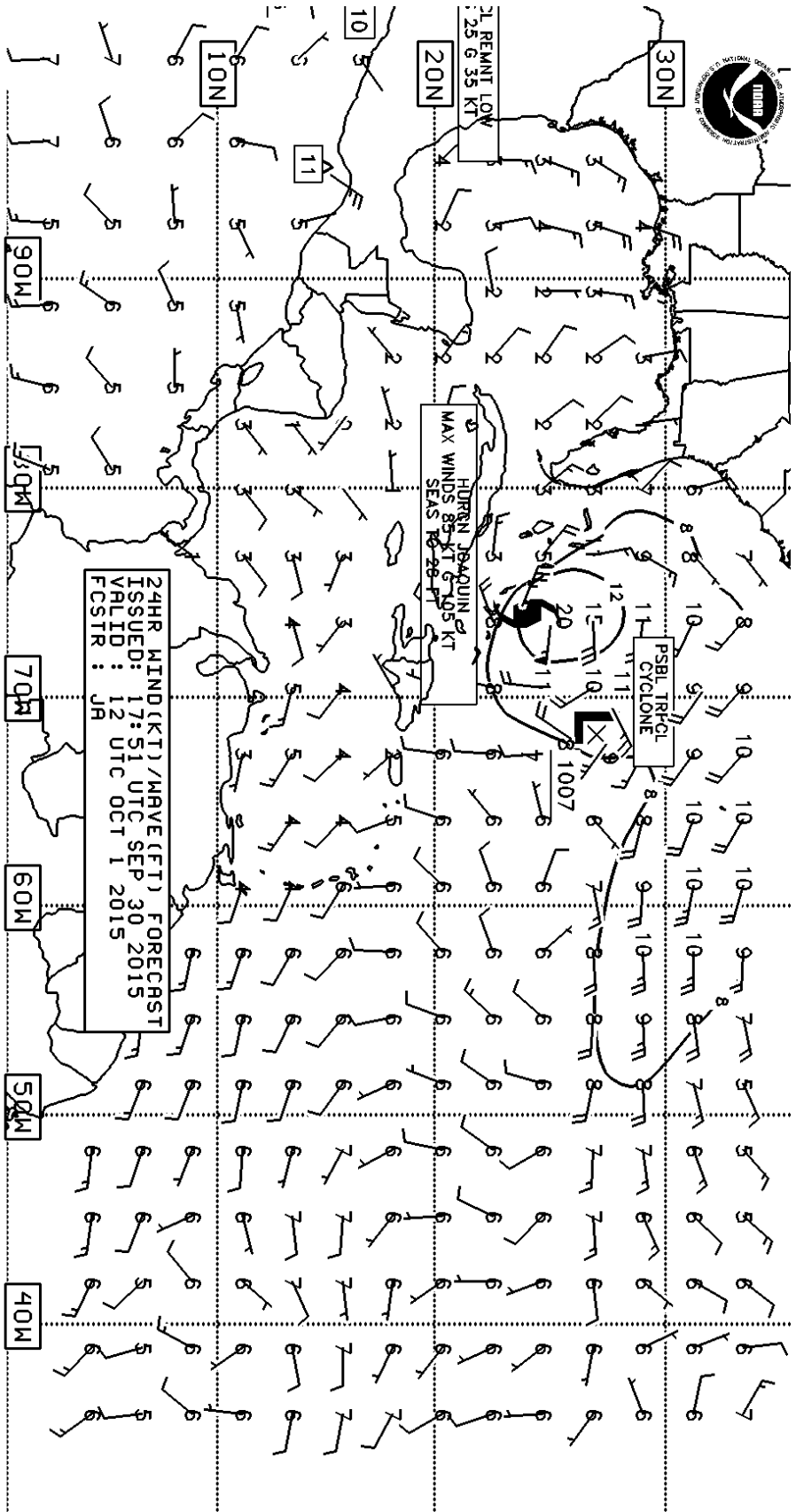
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



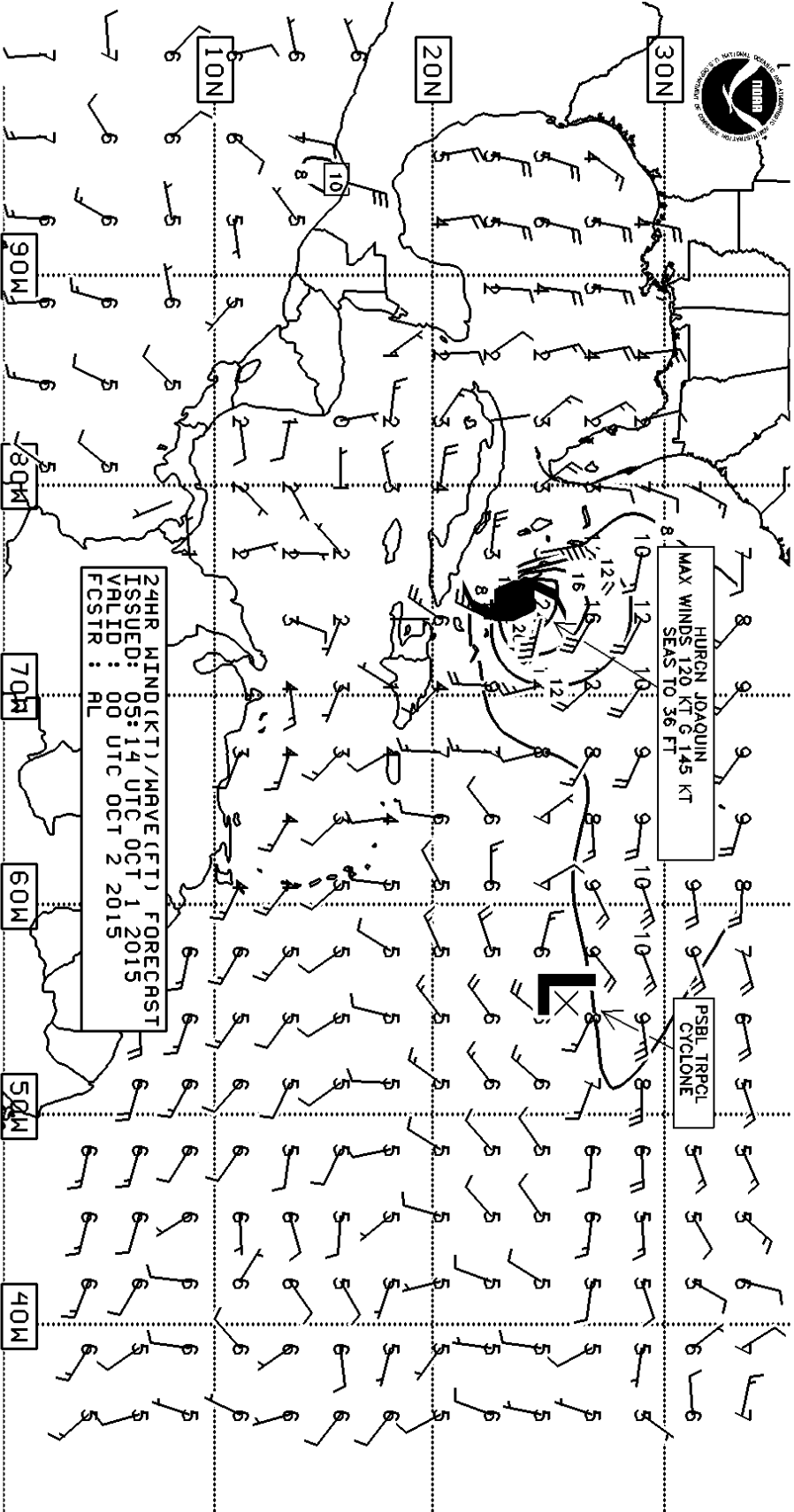
NWS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



NWS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)

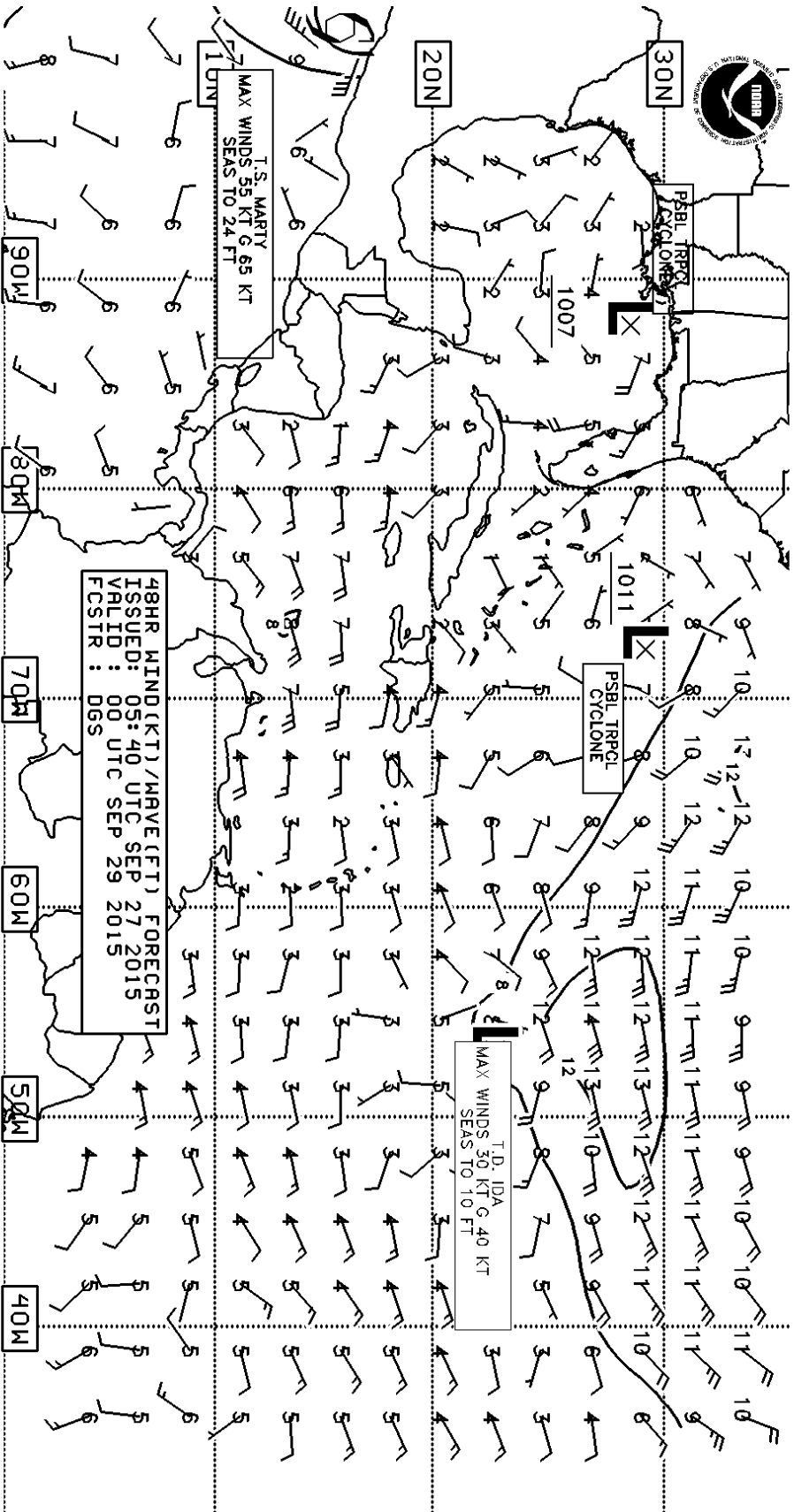


HURCN JOAQUIN
 MAX WINDS 120 KT G 145 KT
 SEAS TO 36 FT

PSBL TRPCL
 CYCLONE

24HR WIND(KT)/WAVE(FT) FORECAST
 ISSUED: 05:14 UTC OCT 1 2015
 VALID: 00 UTC OCT 2 2015
 FCSTR: RL

NWS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
 SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



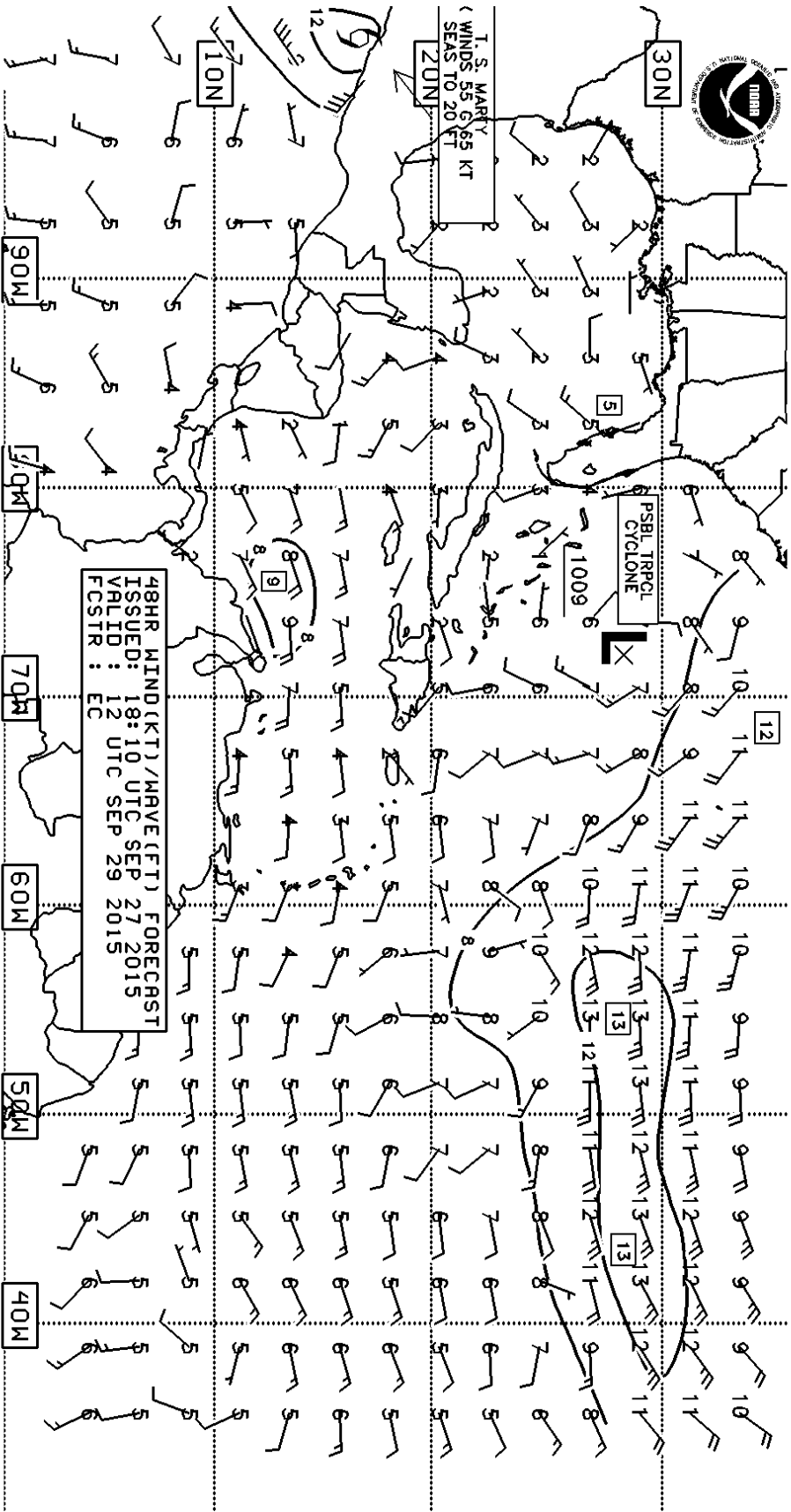
T.S. MARTY
MAX WINDS 55 KT G 65 KT
SEAS TO 24 FT

48HR WIND(KT)/WAVE(FT) FORECAST
ISSUED: 05:40 UTC SEP 27 2015
VALID: 00 UTC SEP 29 2015
FCSTR: DGS

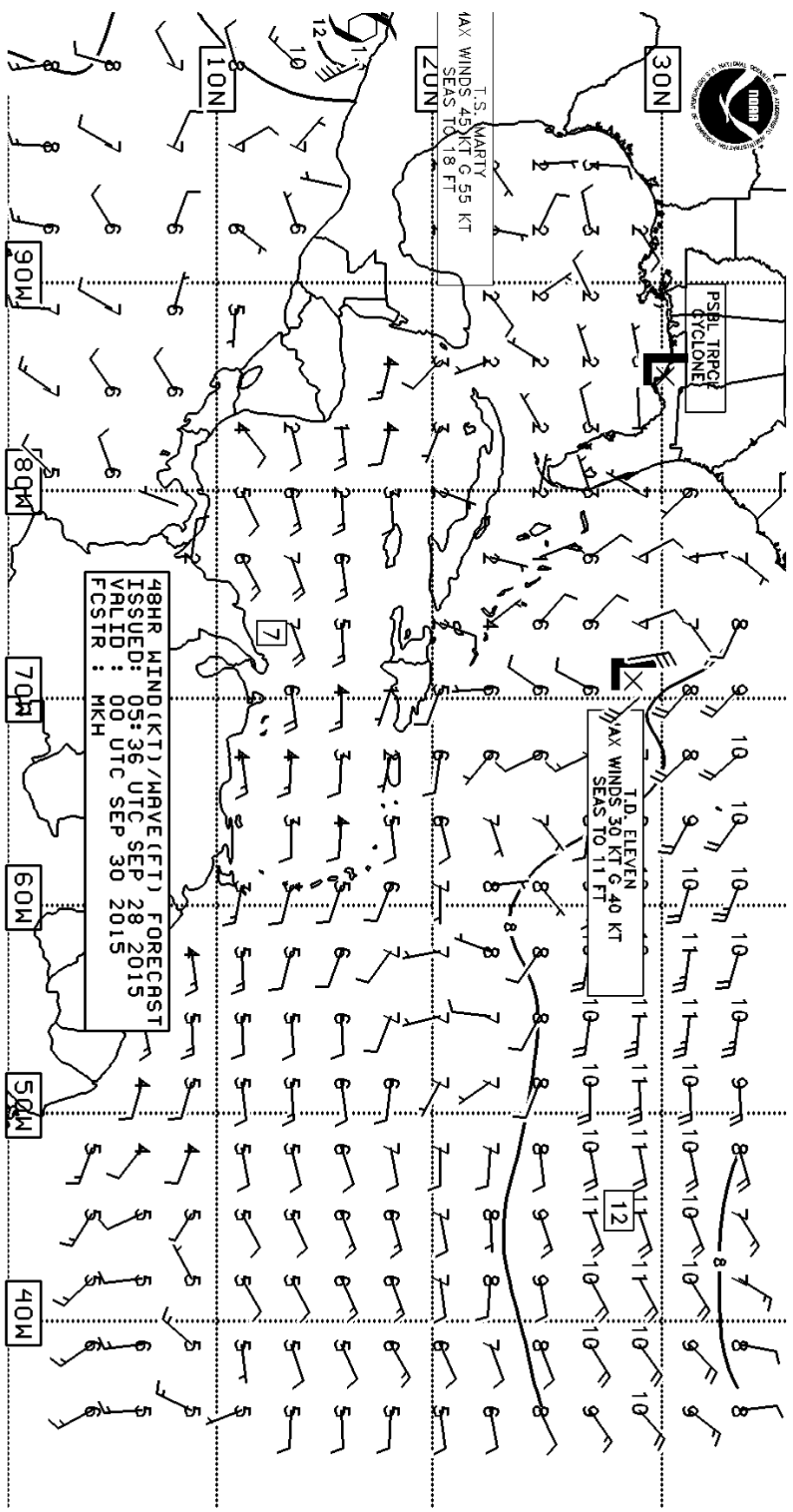
T.D. IDA
MAX WINDS 30 KT G 40 KT
SEAS TO 10 FT

SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)

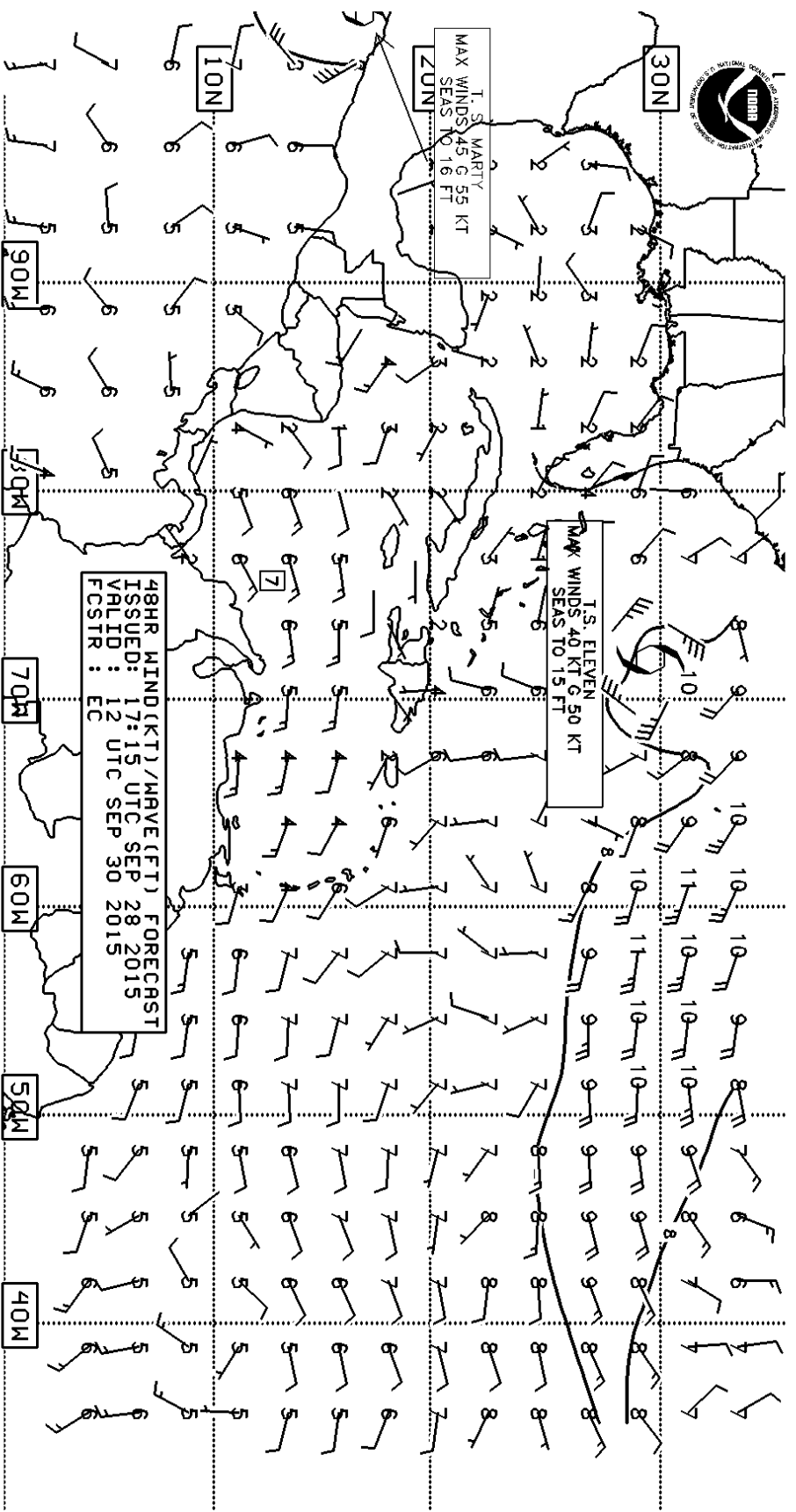
20N 30N 100W 90W 80W 70W 60W 50W 40W



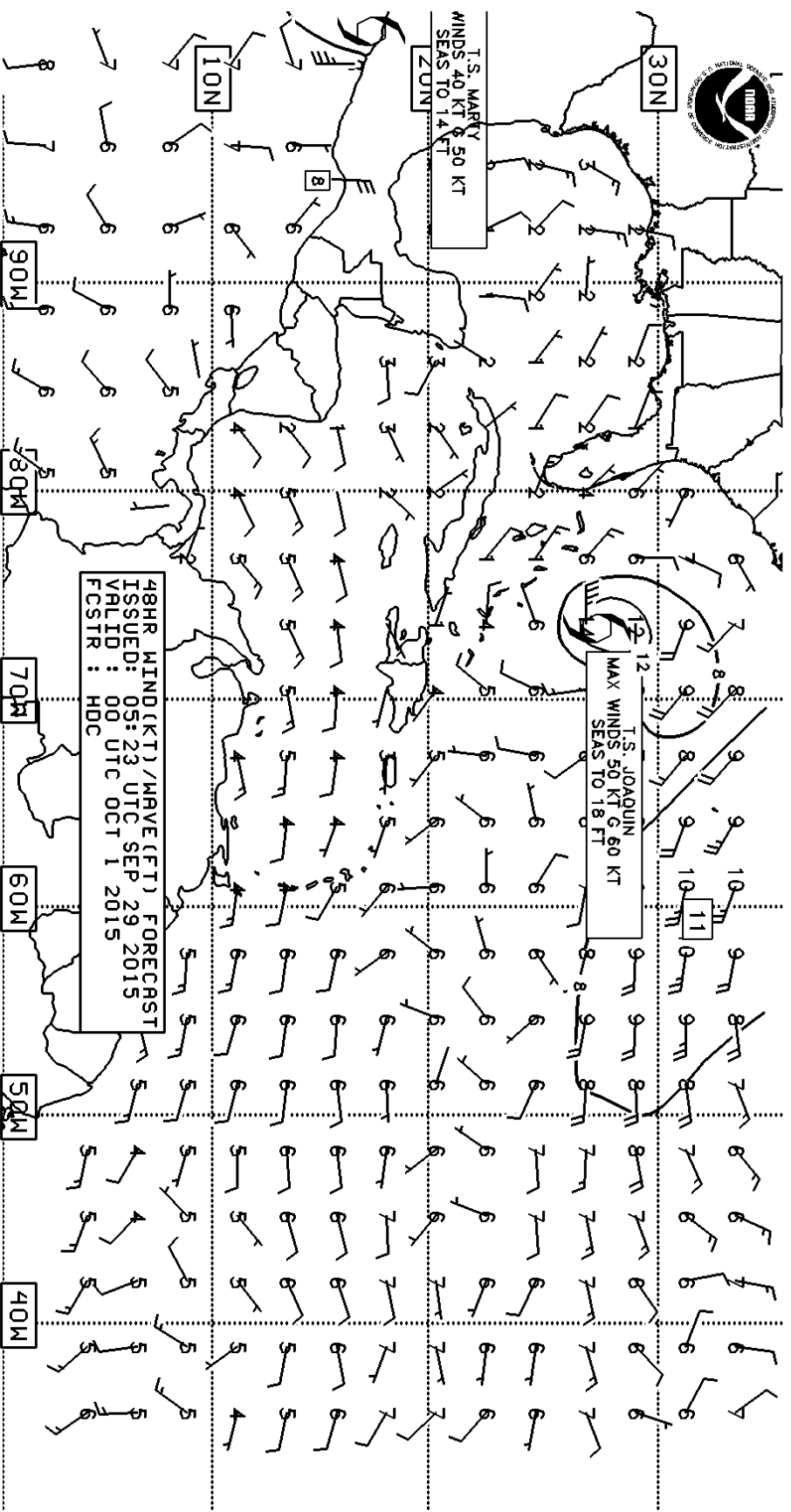
NWS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



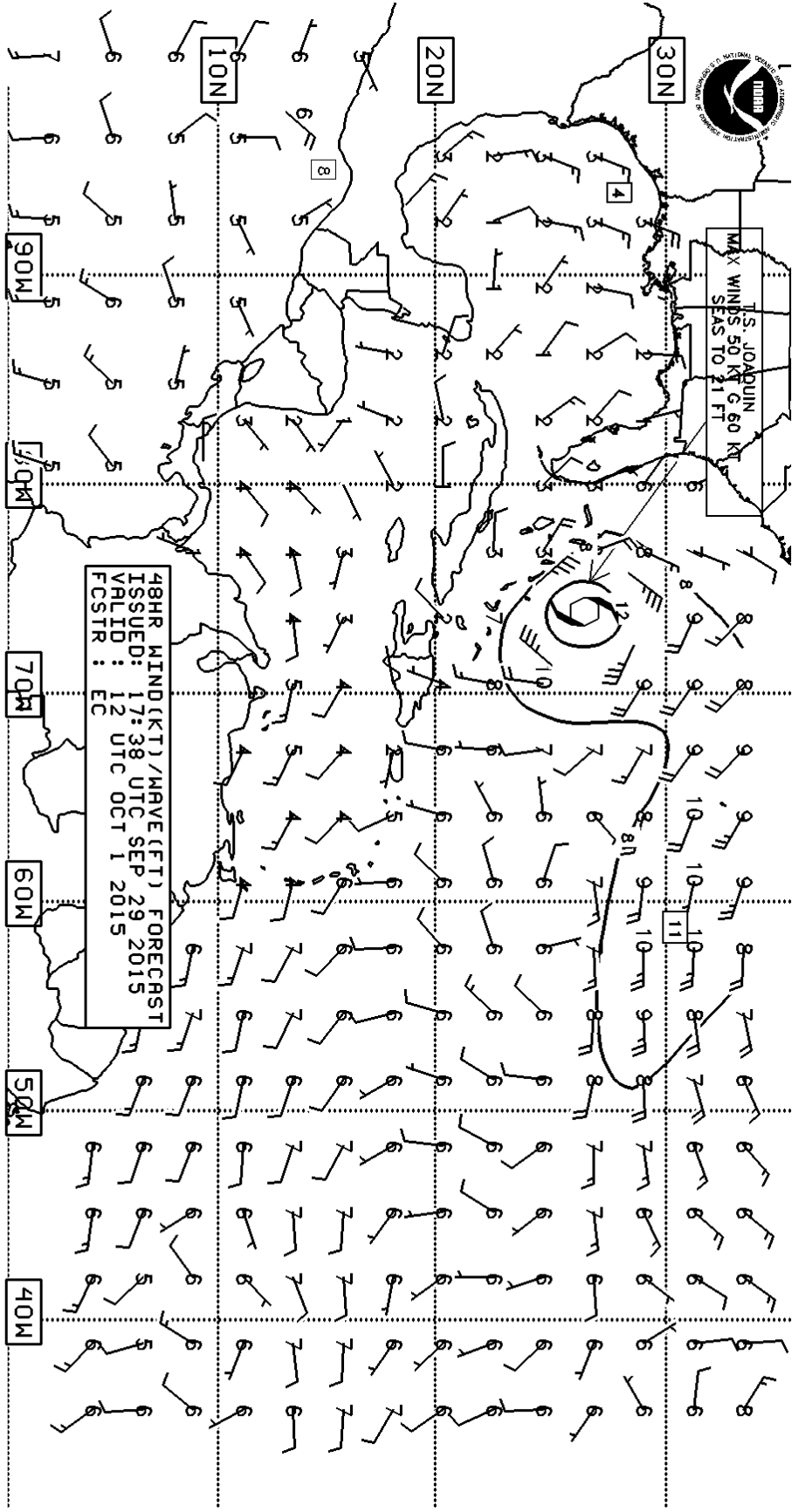
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
 SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



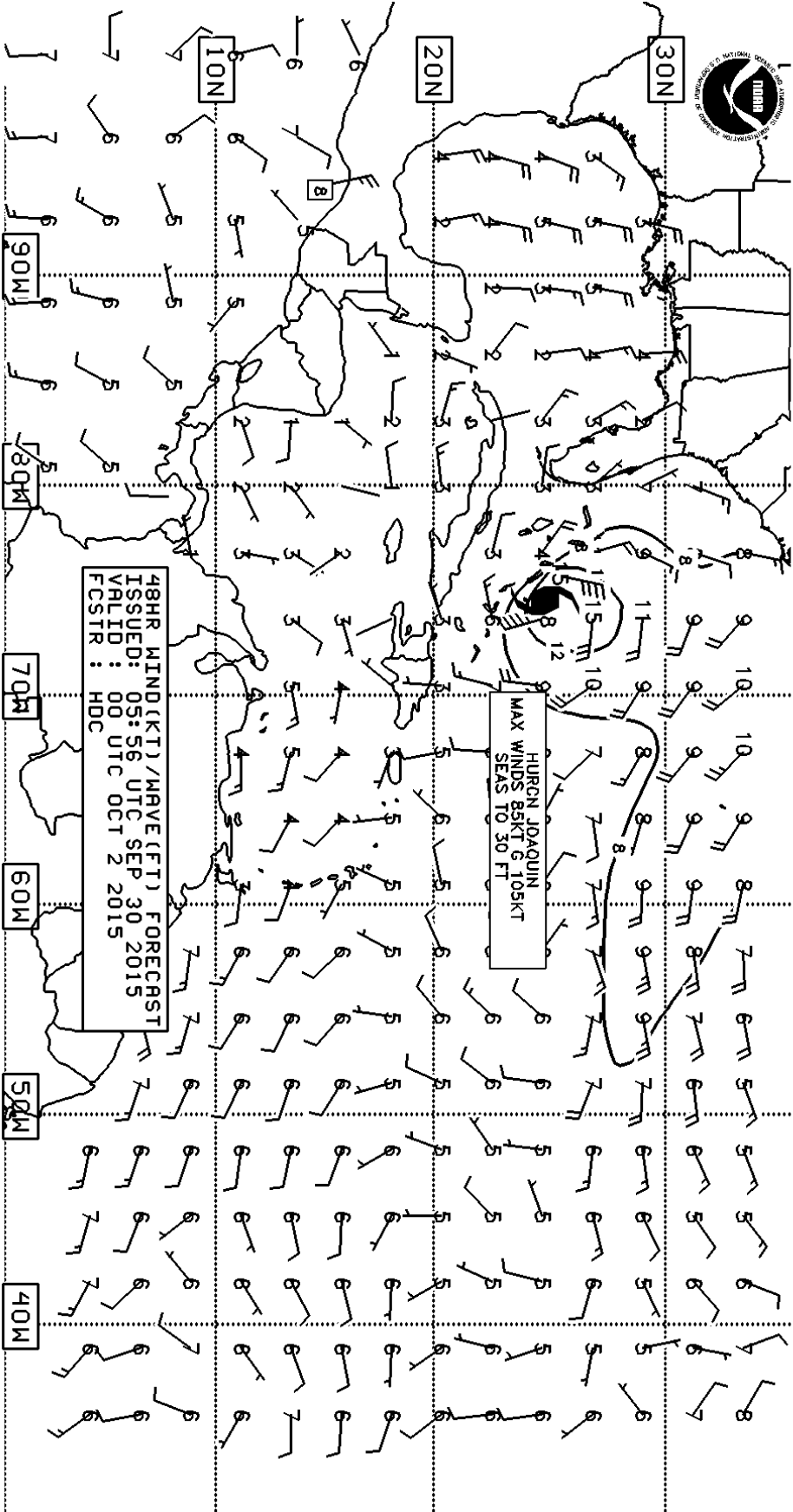
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



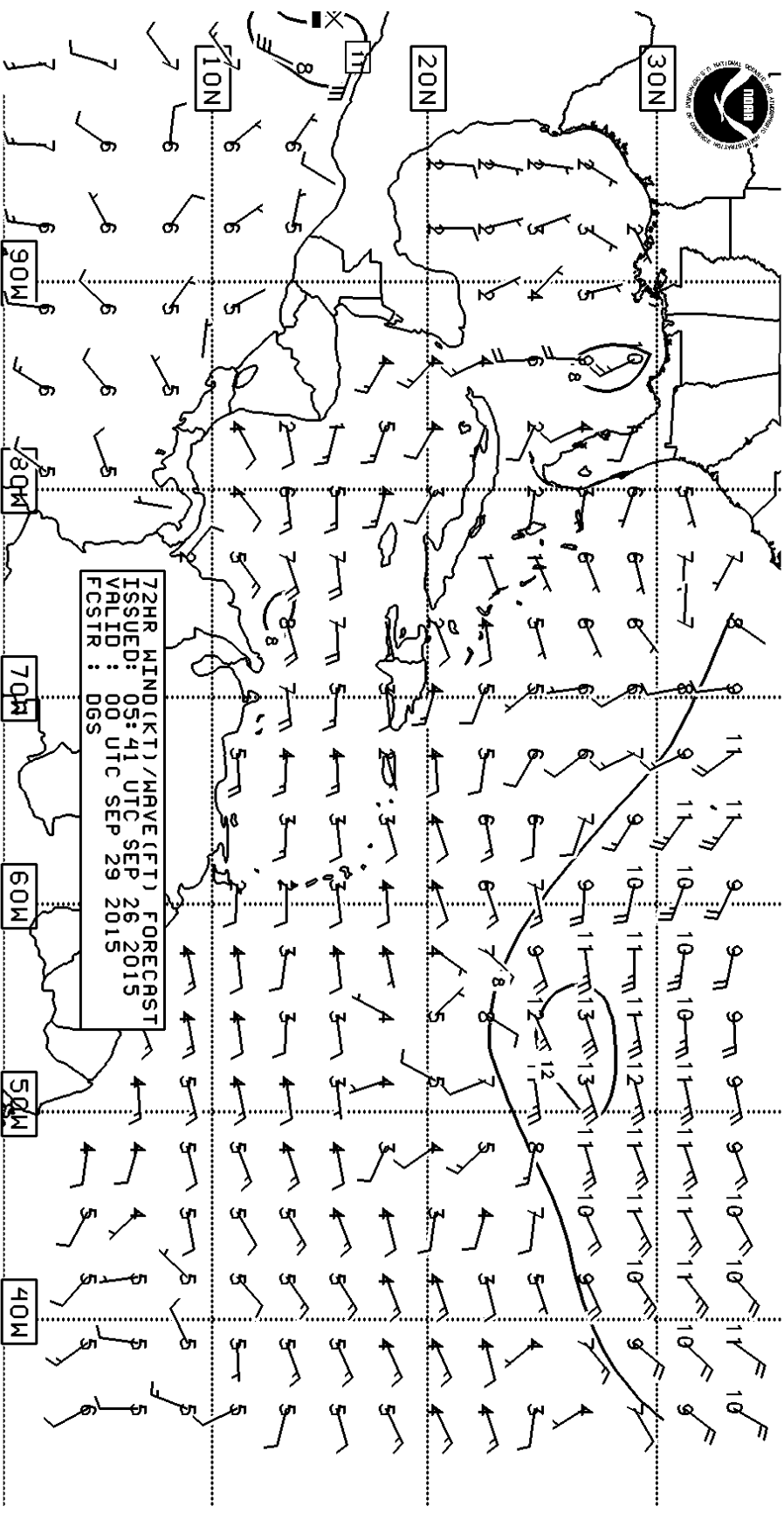
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SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



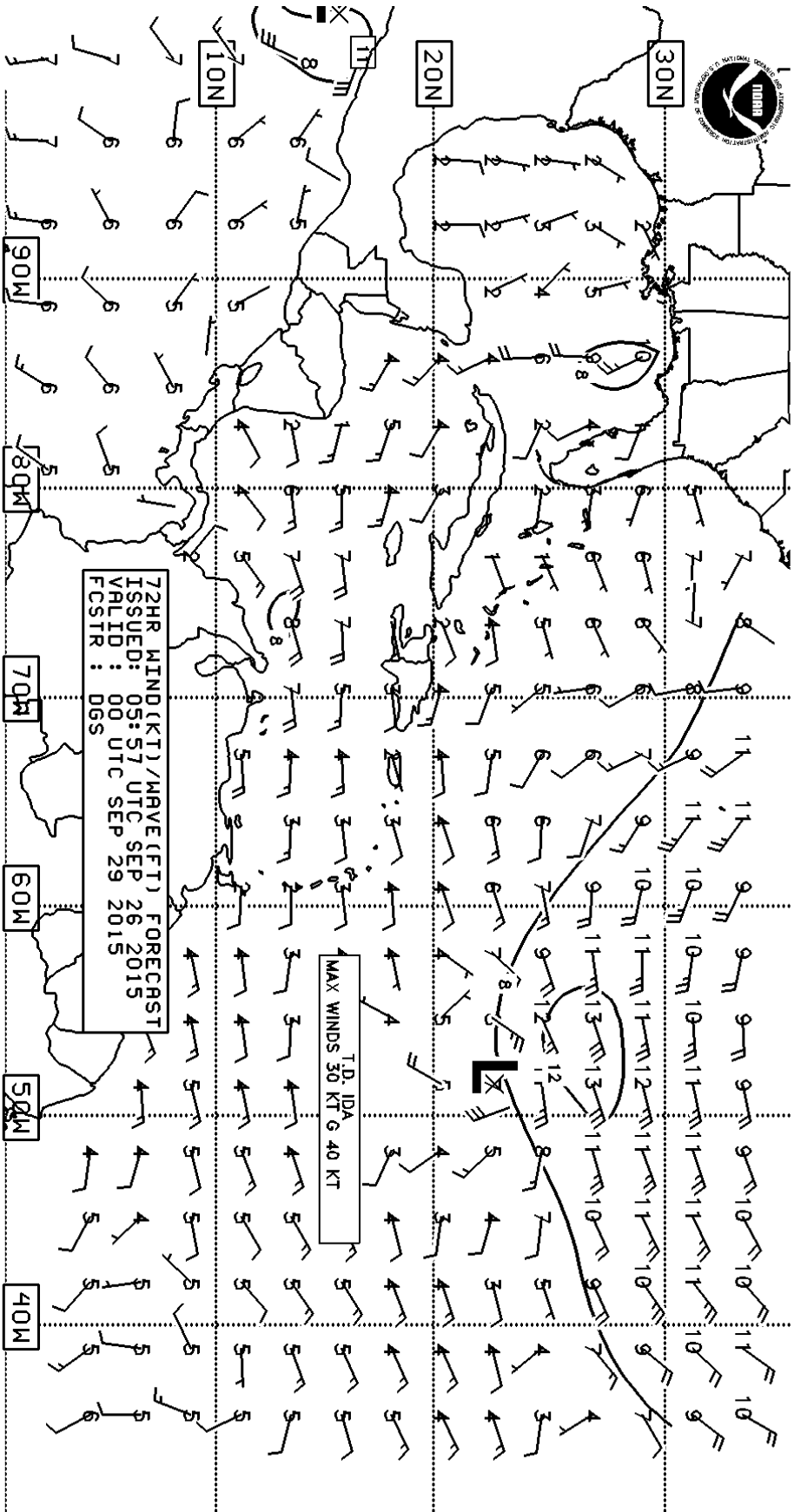
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



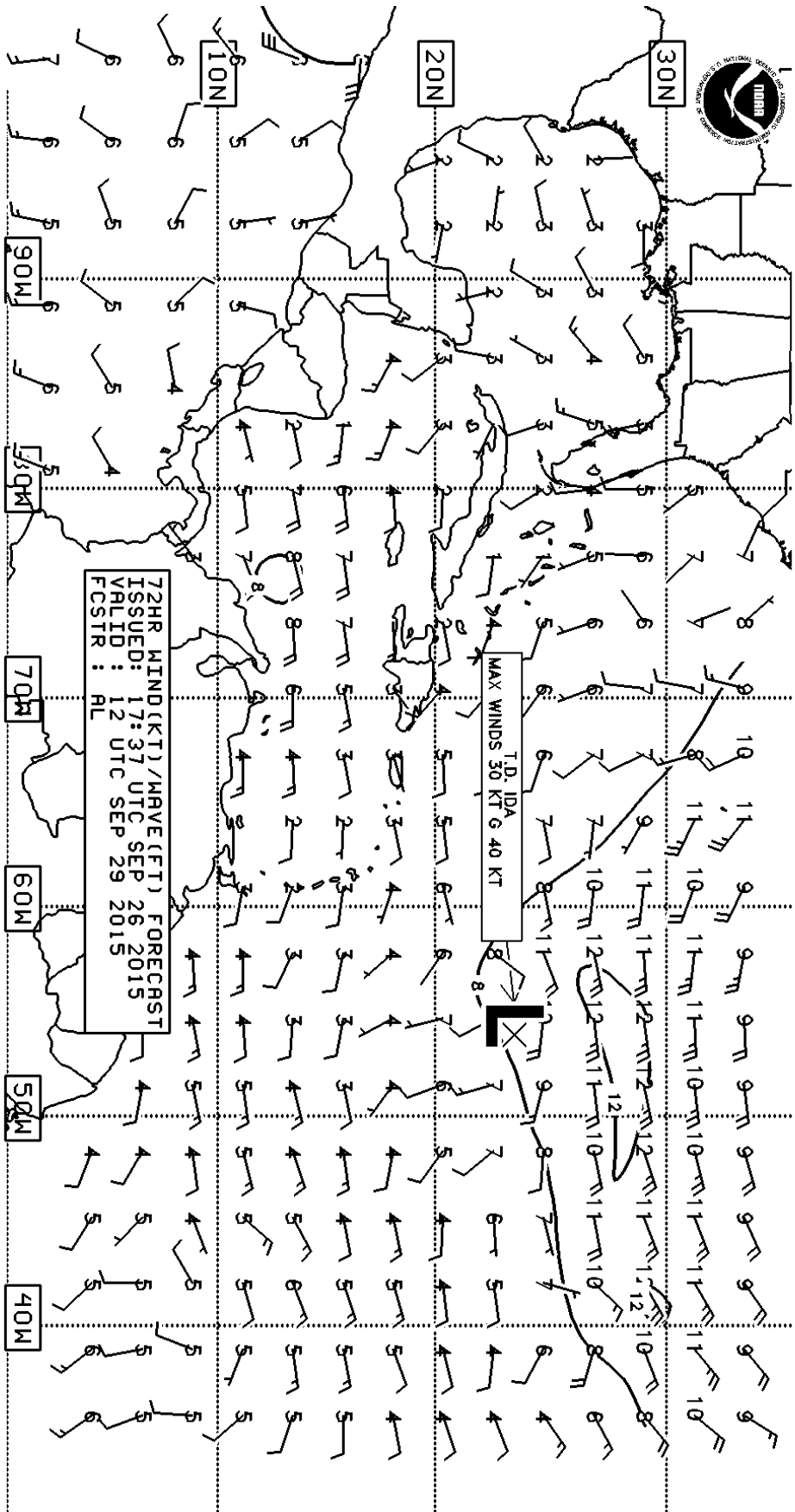
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
 SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



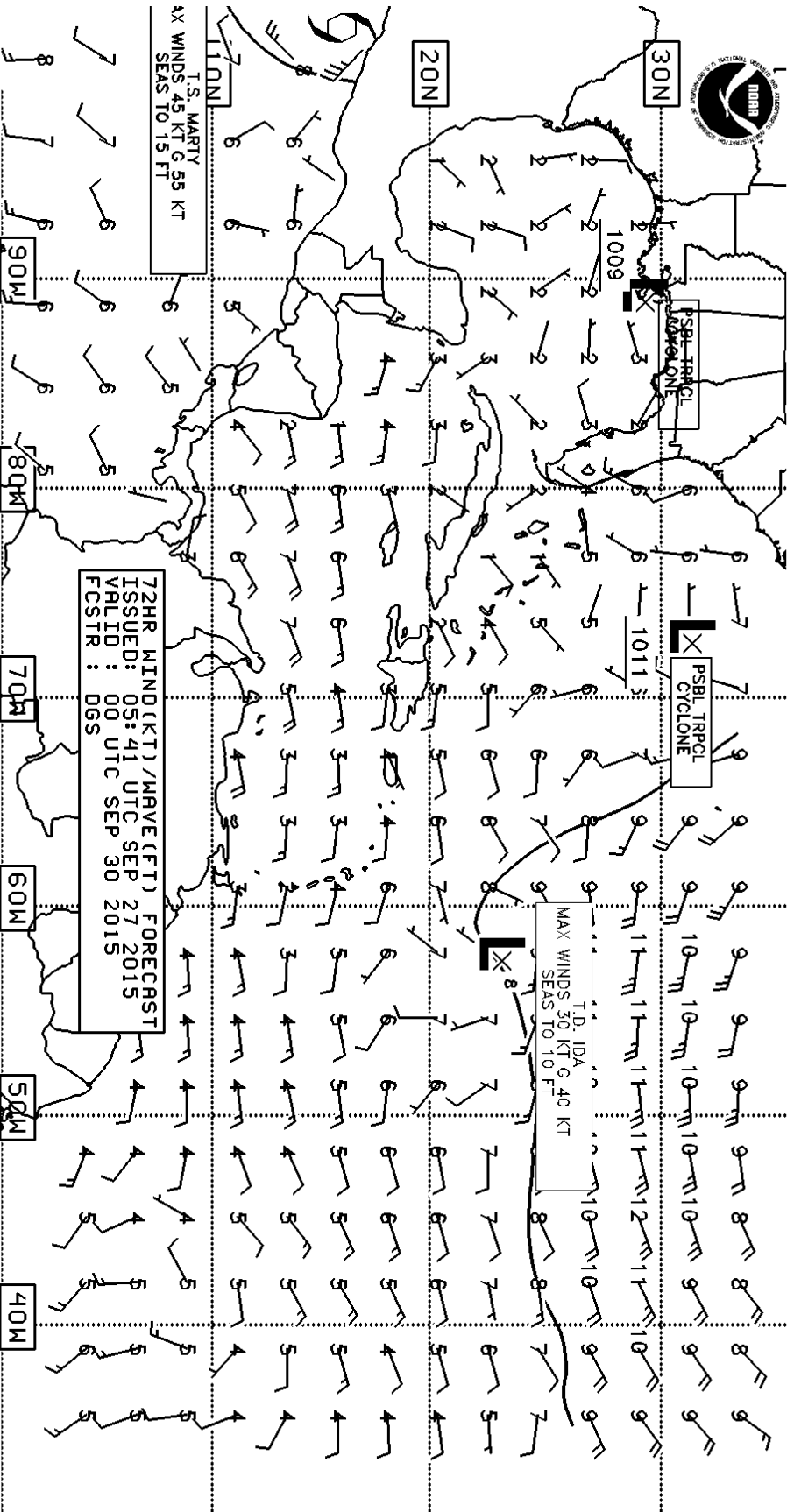
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



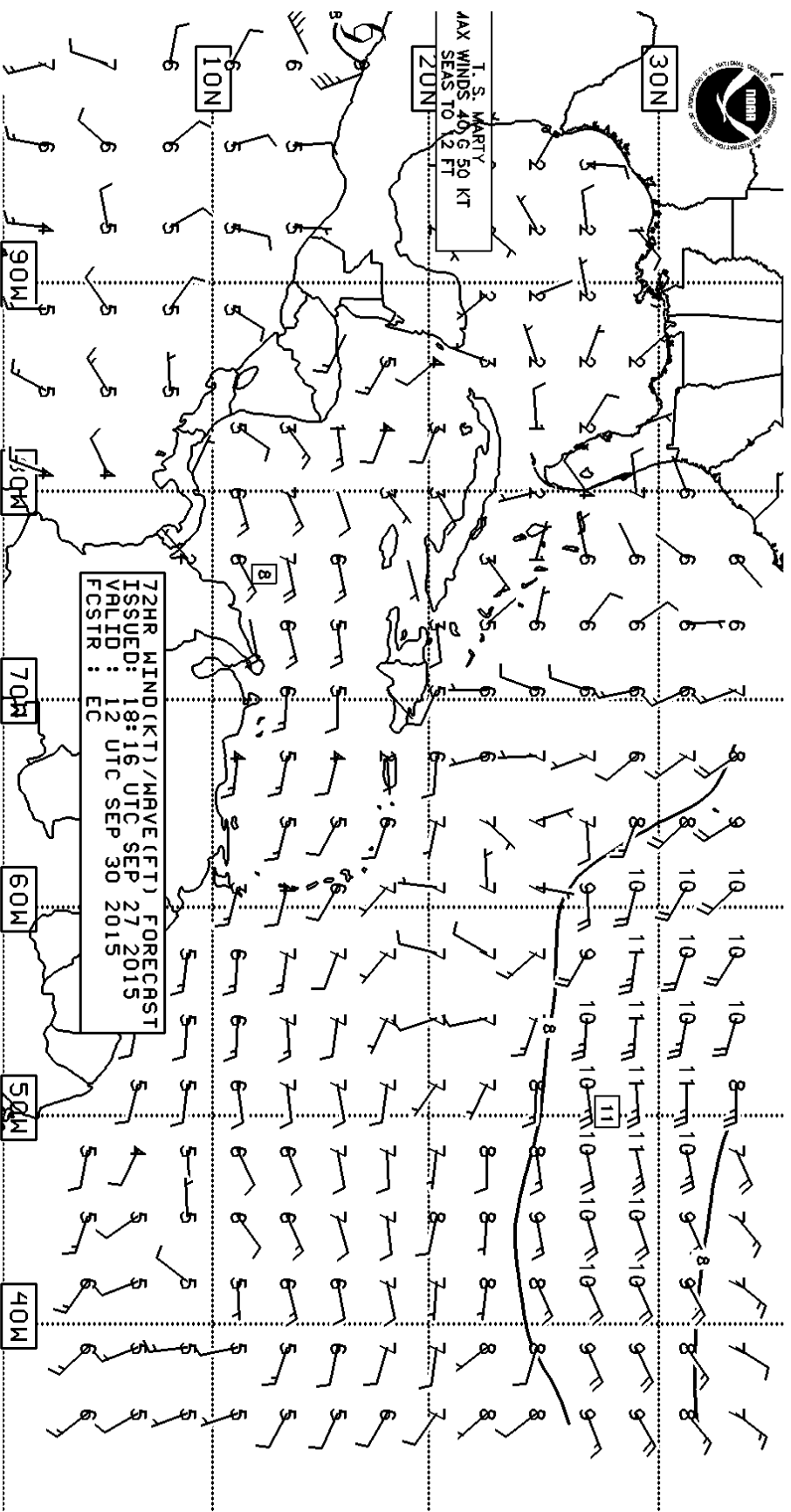
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



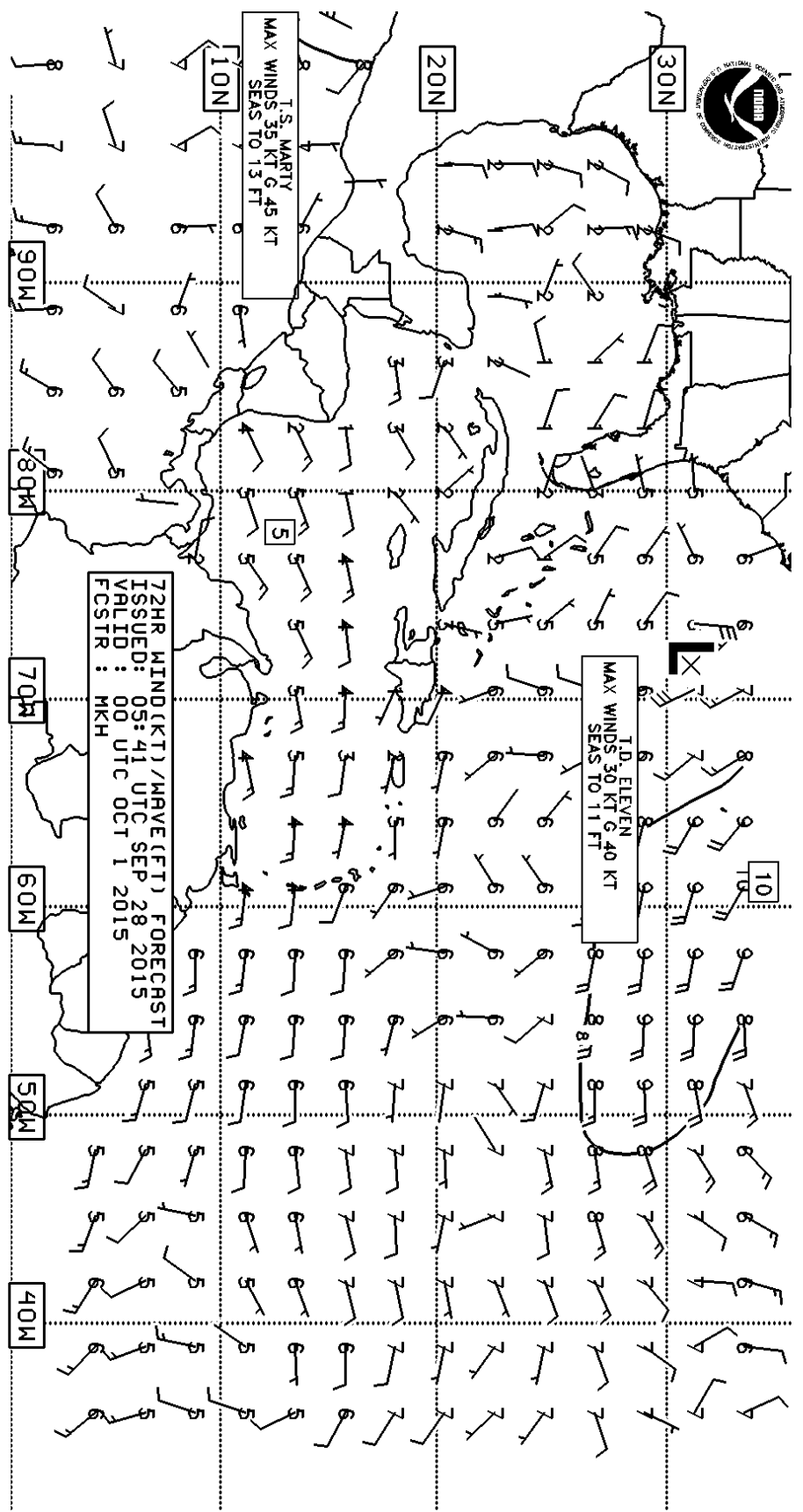
NWS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



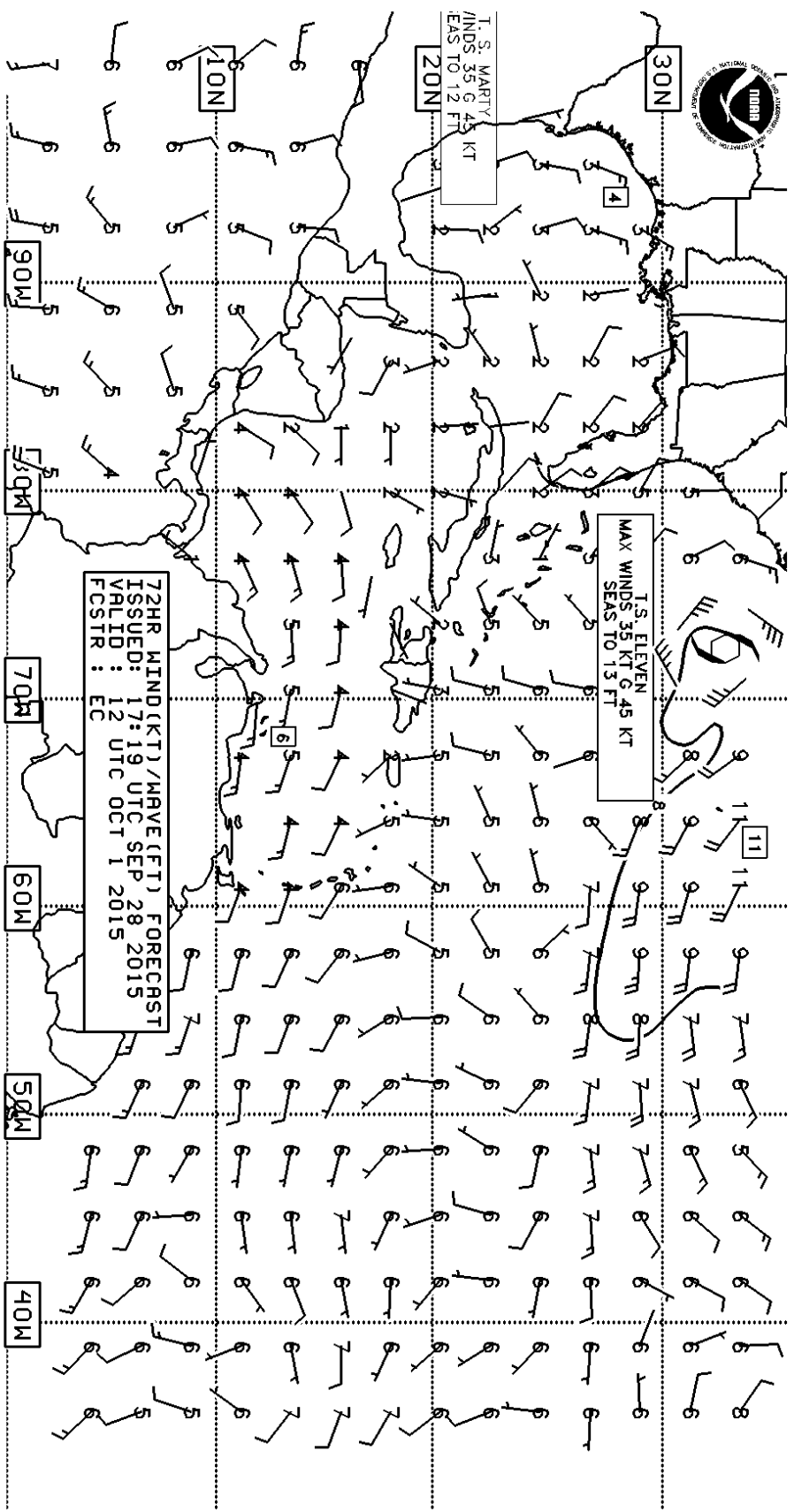
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
 SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



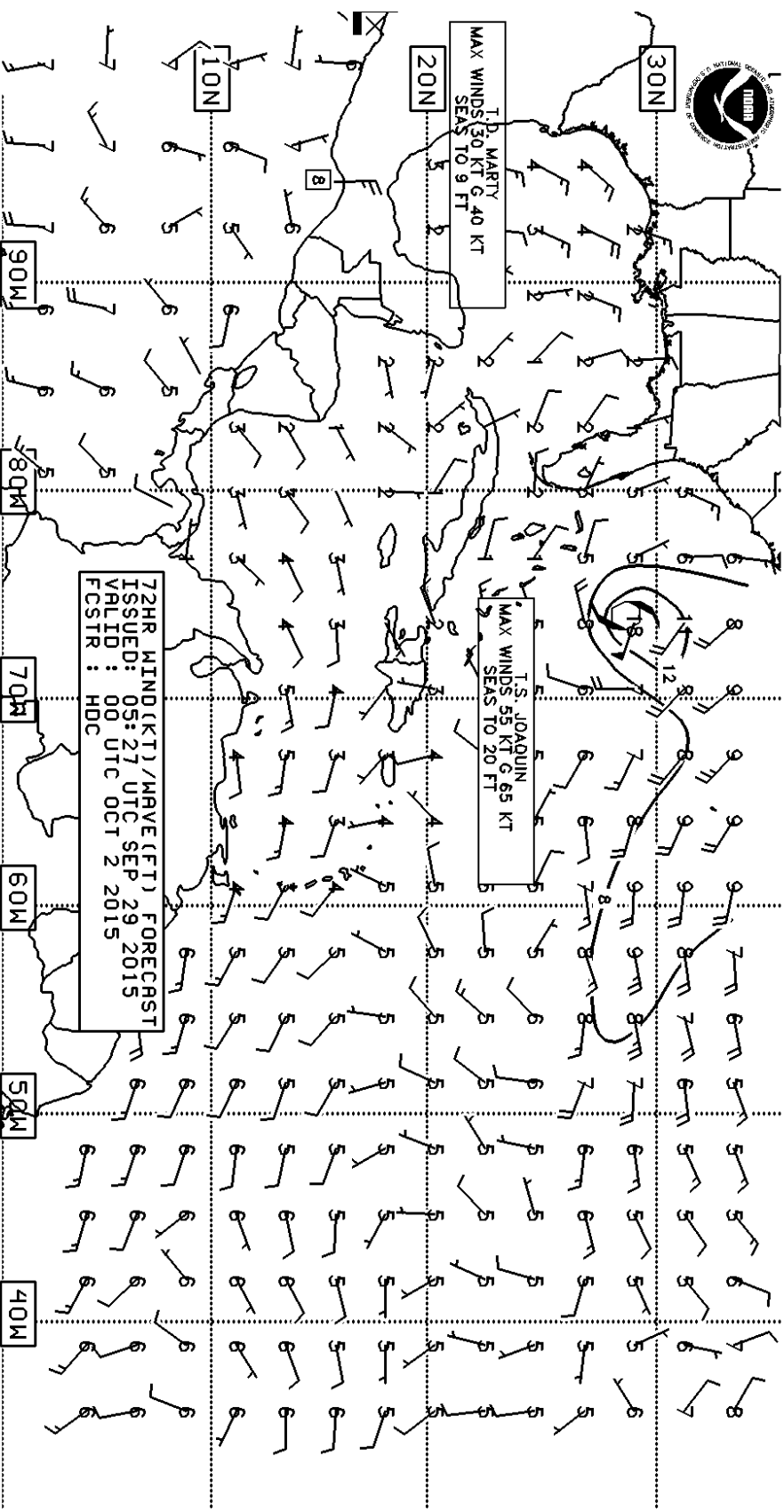
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



NWS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)



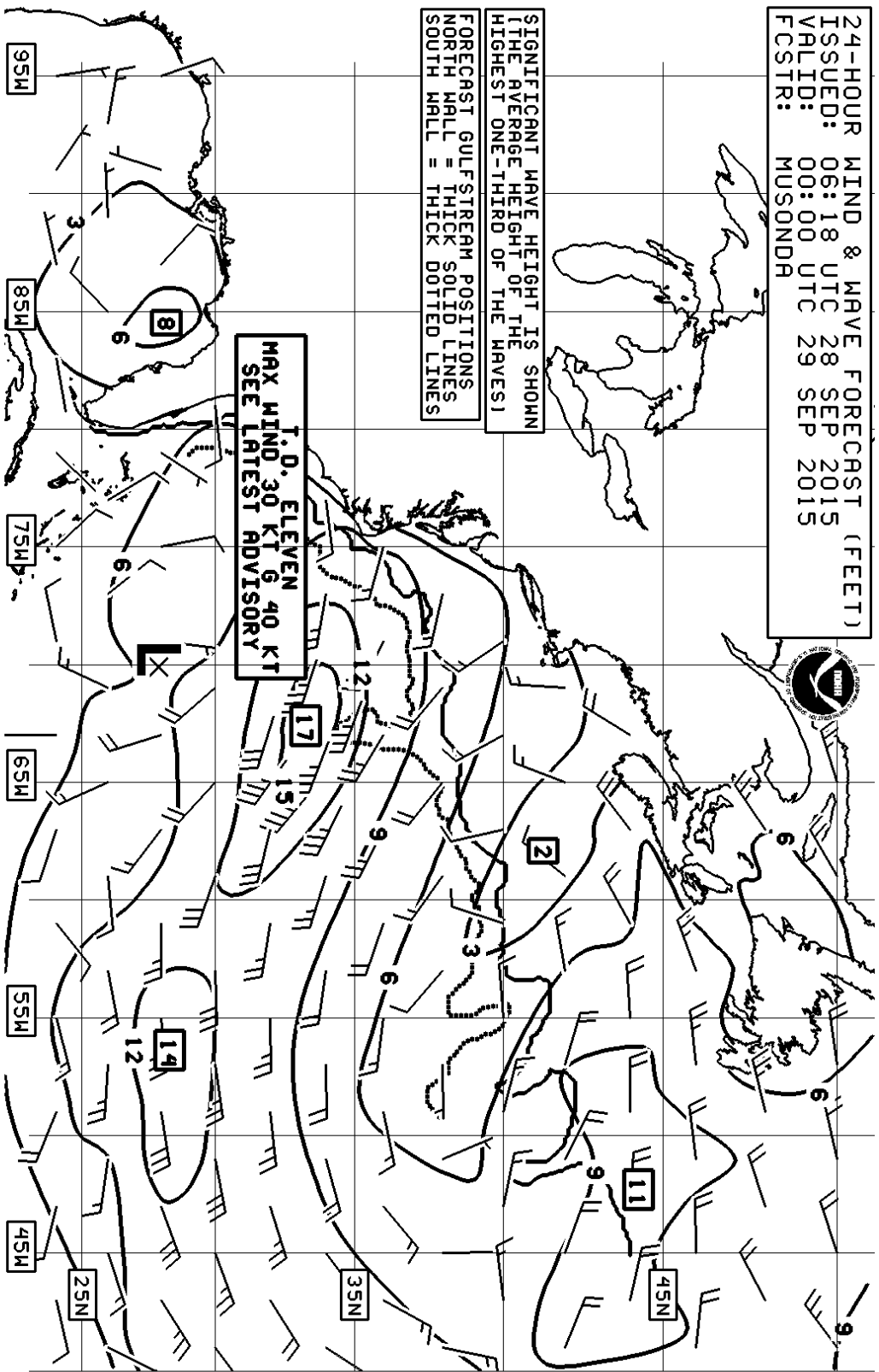
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)

24-HOUR WIND & WAVE FORECAST (FEET)
 ISSUED: 06:18 UTC 28 SEP 2015
 VALID: 00:00 UTC 29 SEP 2015
 FCSTR: MUSONDR



SIGNIFICANT WAVE HEIGHT IS SHOWN
 (THE AVERAGE HEIGHT OF THE
 HIGHEST ONE-THIRD OF THE WAVES)
 FORECAST GULFSTREAM POSITIONS
 NORTH WALL = THICK SOLID LINES
 SOUTH WALL = THICK DOTTED LINES

T.O. ELEVEN
 MAX WIND 30 KT G 40 KT
 SEE LATEST ADVISORY

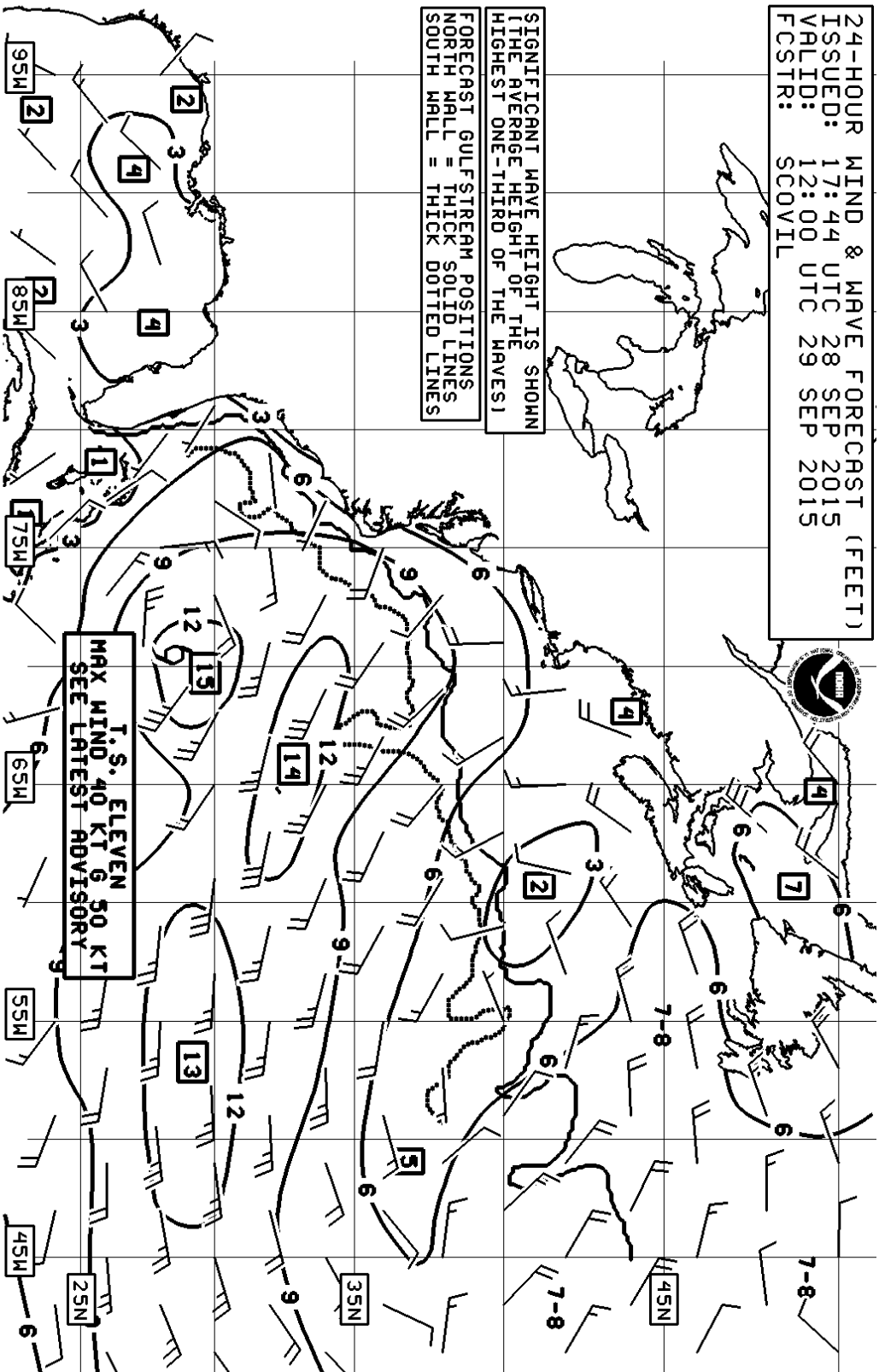


NWS/NCEP - Ocean Prediction Center
 www.opc.ncep.noaa.gov

24-HOUR WIND & WAVE FORECAST (FEET)
 ISSUED: 17:44 UTC 28 SEP 2015
 VALID: 12:00 UTC 29 SEP 2015
 FCSTR: SCOVIL



SIGNIFICANT WAVE HEIGHT IS SHOWN
 (THE AVERAGE HEIGHT OF THE
 HIGHEST ONE-THIRD OF THE WAVES)
 FORECAST GULFSTREAM POSITIONS
 NORTH WALL = THICK SOLID LINES
 SOUTH WALL = THICK DOTTED LINES

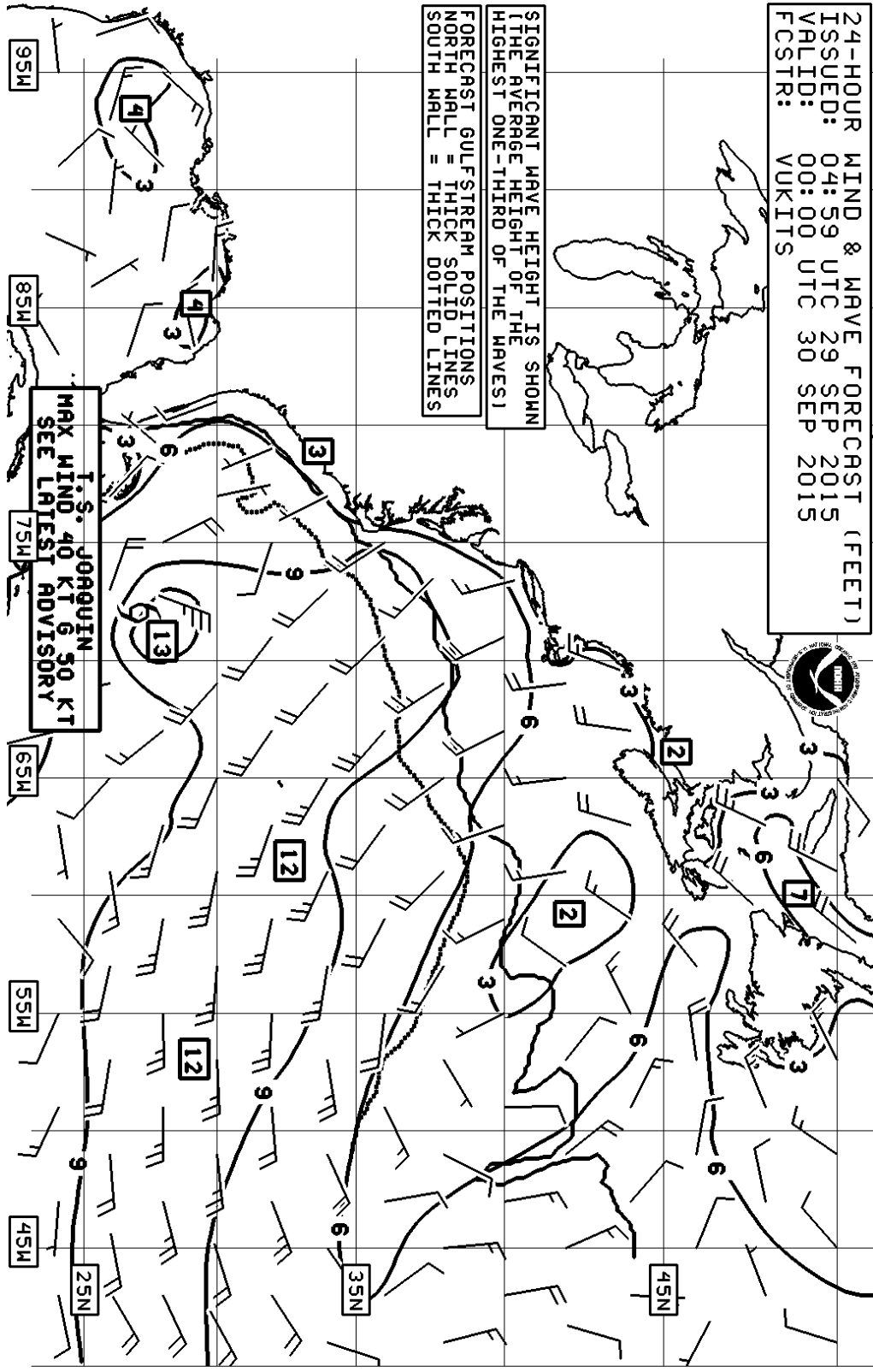


NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

24-HOUR WIND & WAVE FORECAST (FEET)
 ISSUED: 04:59 UTC 29 SEP 2015
 VALID: 00:00 UTC 30 SEP 2015
 FCSTR: VUKITS



SIGNIFICANT WAVE HEIGHT IS SHOWN
 (THE AVERAGE HEIGHT OF THE
 HIGHEST ONE-THIRD OF THE WAVES)
 FORECAST GULFSTREAM POSITIONS
 NORTH WALL = THICK SOLID LINES
 SOUTH WALL = THICK DOTTED LINES



T.S. JOAQUIN
 MAX WIND 40 KT 6 50 KT
 SEE LATEST ADVISORY

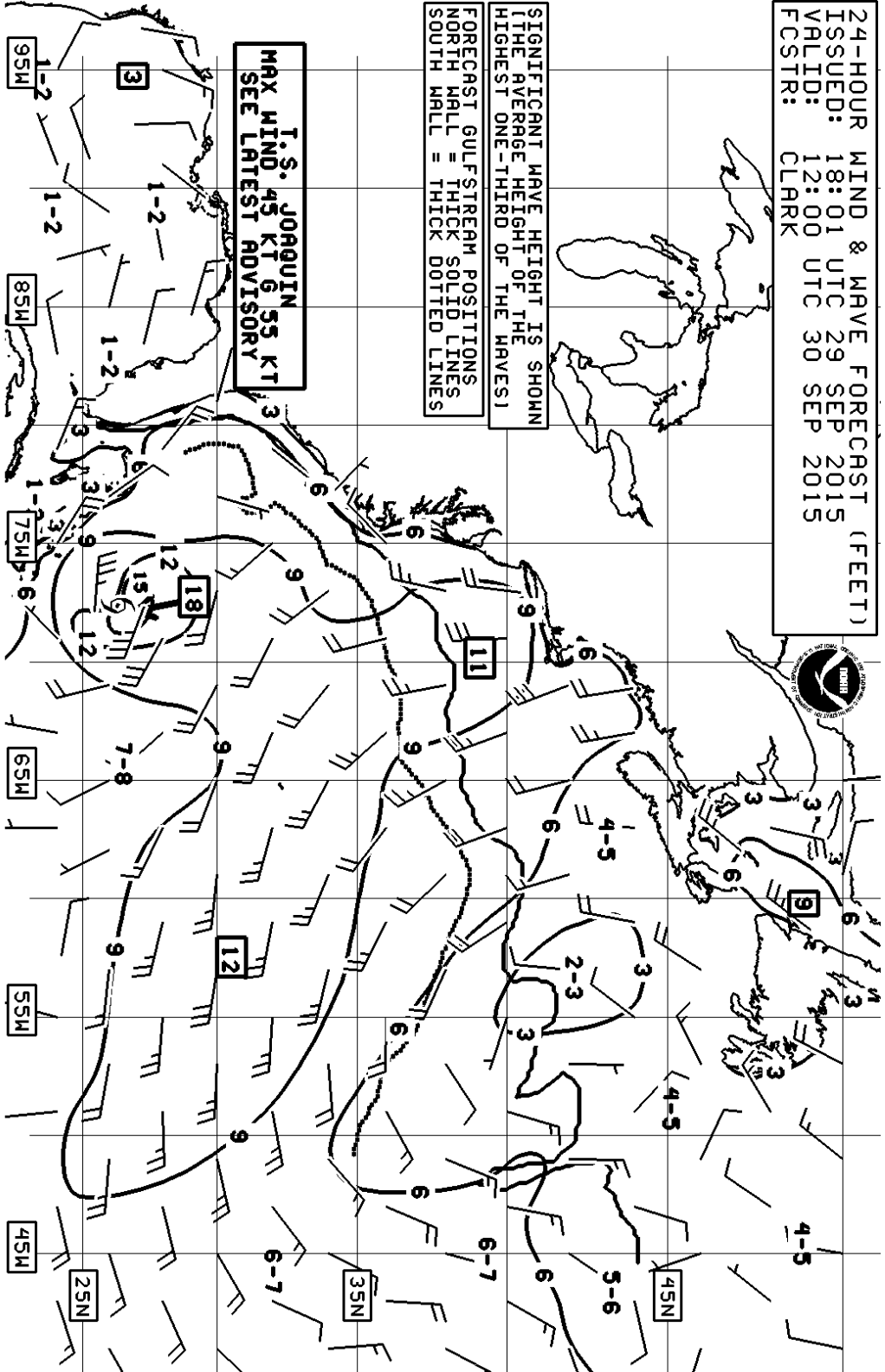
NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

24-HOUR WIND & WAVE FORECAST (FEET)
 ISSUED: 18:01 UTC 29 SEP 2015
 VALID: 12:00 UTC 30 SEP 2015
 FCSTR: CLARK



SIGNIFICANT WAVE HEIGHT IS SHOWN
 THE AVERAGE HEIGHT OF THE
 HIGHEST ONE-THIRD OF THE WAVES!
 FORECAST GULF STREAM POSITIONS
 NORTH WALL = THICK SOLID LINES
 SOUTH WALL = THICK DOTTED LINES

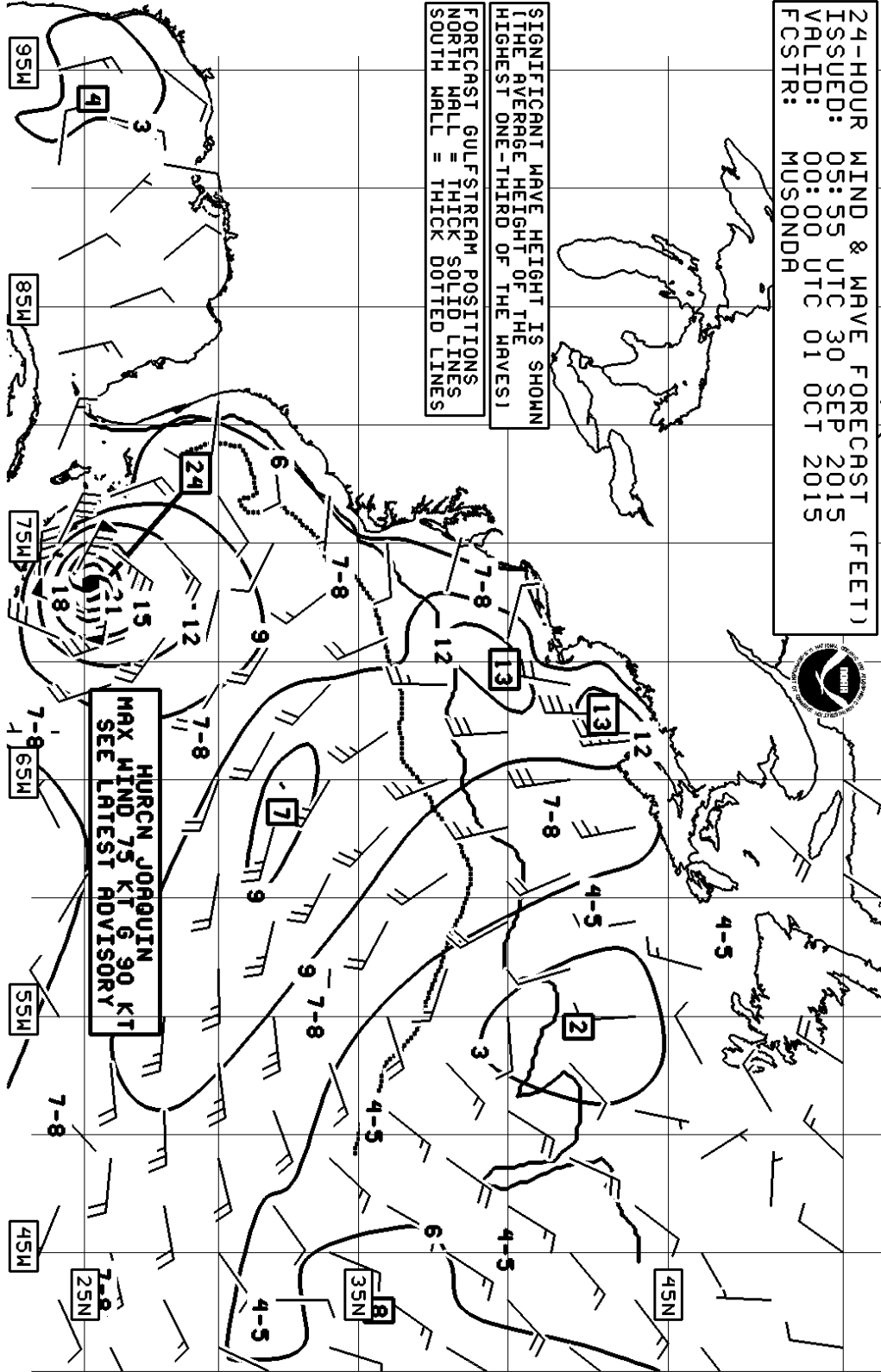
T.S. JOAQUIN
 MAX WIND 45 KT 6 55 KT 3
 SEE LATEST ADVISORY



24-HOUR WIND & WAVE FORECAST (FEET)
 ISSUED: 05:55 UTC 30 SEP 2015
 VALID: 00:00 UTC 01 OCT 2015
 FCSTR: MUSONDA



SIGNIFICANT WAVE HEIGHT IS SHOWN
 (THE AVERAGE HEIGHT OF THE
 HIGHEST ONE-THIRD OF THE WAVES)
 FORECAST GULFSTREAM POSITIONS
 NORTH WALL = THICK SOLID LINES
 SOUTH WALL = THICK DOTTED LINES



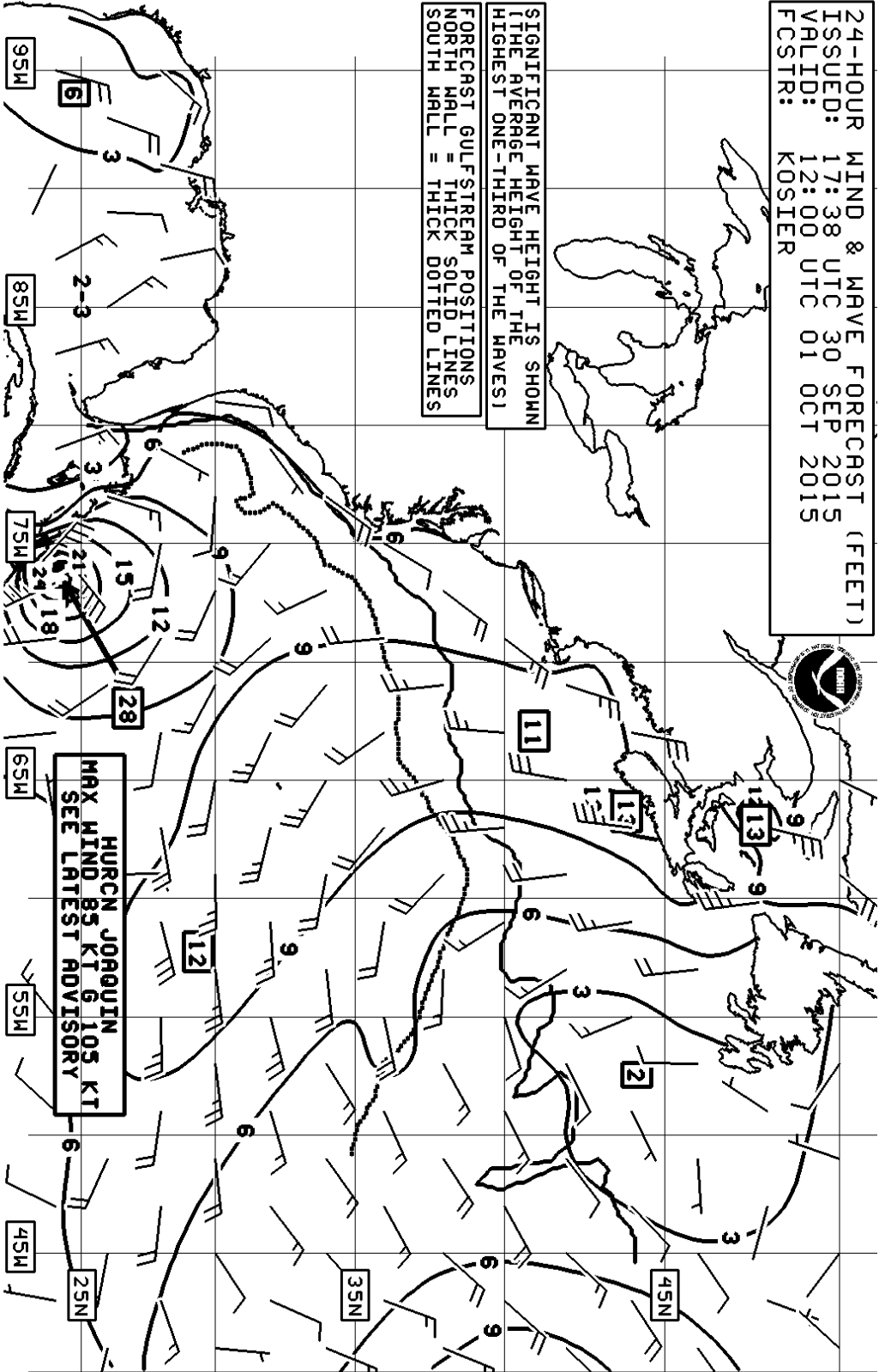
HURCN JORQUIN
 MAX WIND 75 KT 90 KT
 SEE LATEST ADVISORY

NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

24-HOUR WIND & WAVE FORECAST (FEET)
 ISSUED: 17:38 UTC 30 SEP 2015
 VALID: 12:00 UTC 01 OCT 2015
 FCSTR: KOSIER



SIGNIFICANT WAVE HEIGHT IS SHOWN
 (THE AVERAGE HEIGHT OF THE
 HIGHEST ONE-THIRD OF THE WAVES)
 FORECAST GULFSTREAM POSITIONS
 NORTH WALL = THICK SOLID LINES
 SOUTH WALL = THICK DOTTED LINES



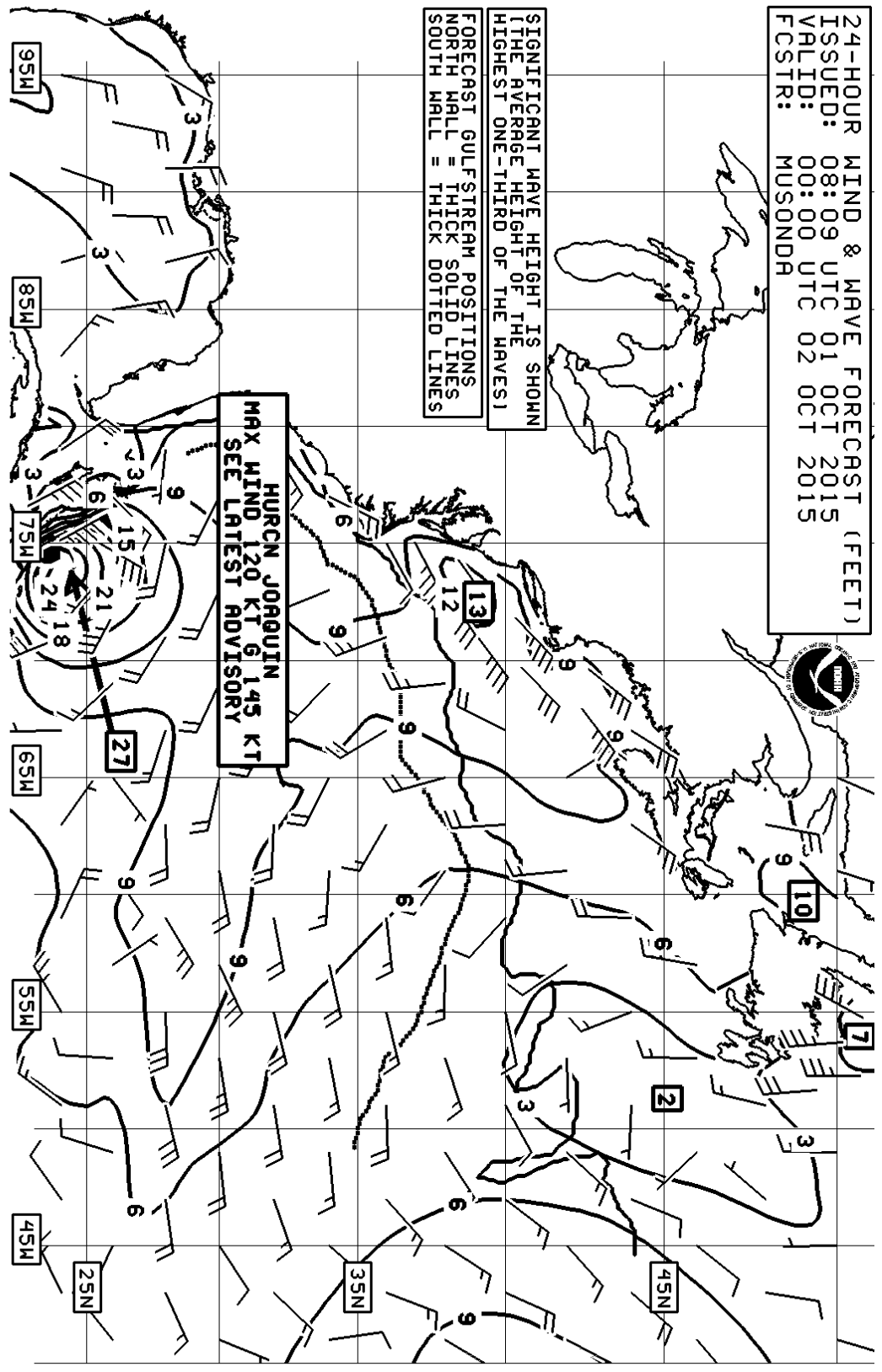
NWS/NCEP - Ocean Prediction Center
 www.opc.ncep.noaa.gov

24-HOUR WIND & WAVE FORECAST (FEET)
 ISSUED: 08:09 UTC 01 OCT 2015
 VALID: 00:00 UTC 02 OCT 2015
 FCSTR: MUSONDR



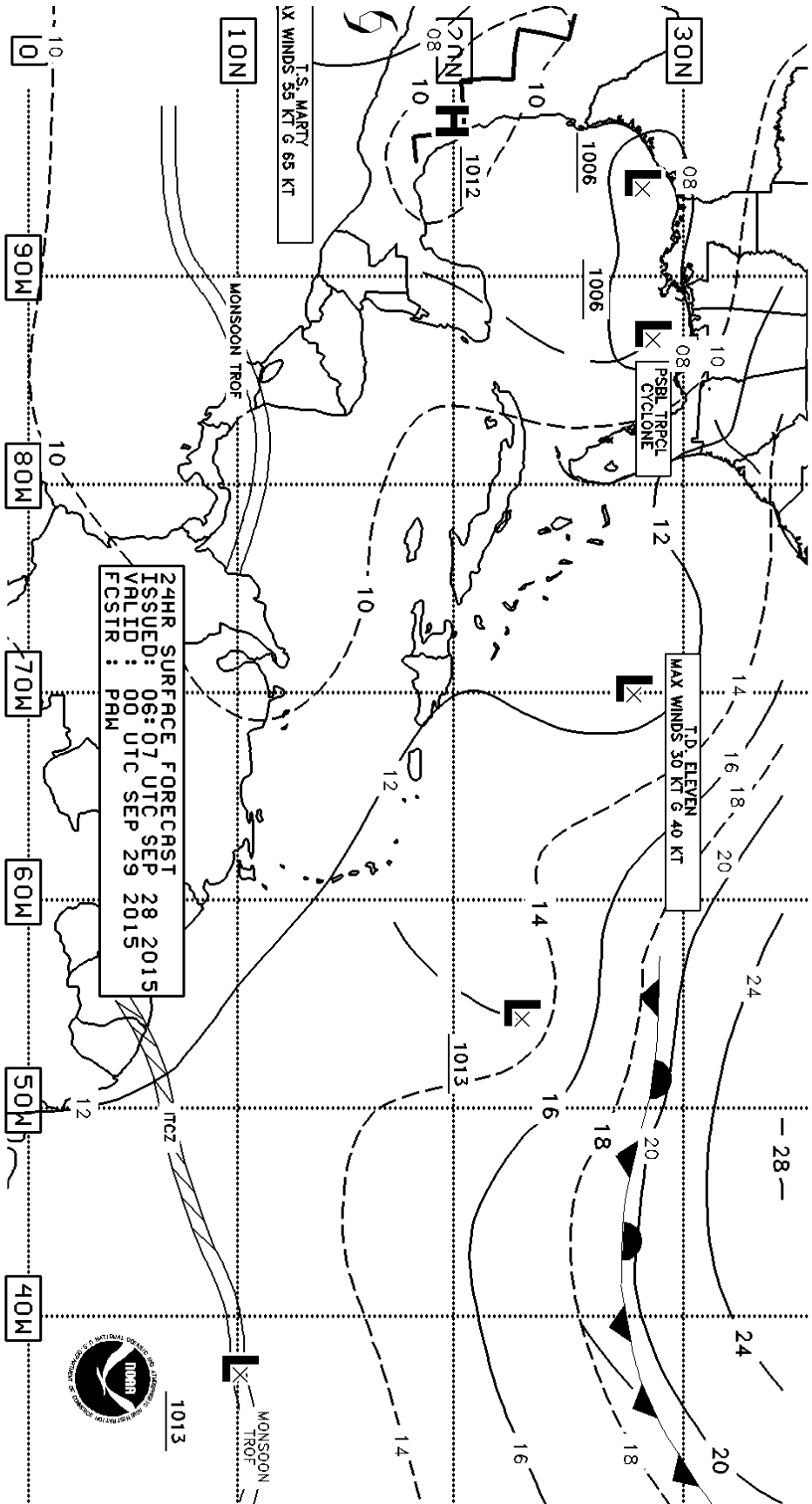
SIGNIFICANT WAVE HEIGHT IS SHOWN
 (THE AVERAGE HEIGHT OF THE
 HIGHEST ONE-THIRD OF THE WAVES)
 FORECAST GULFSTREAM POSITIONS
 NORTH WALL = THICK SOLID LINES
 SOUTH WALL = THICK DOTTED LINES

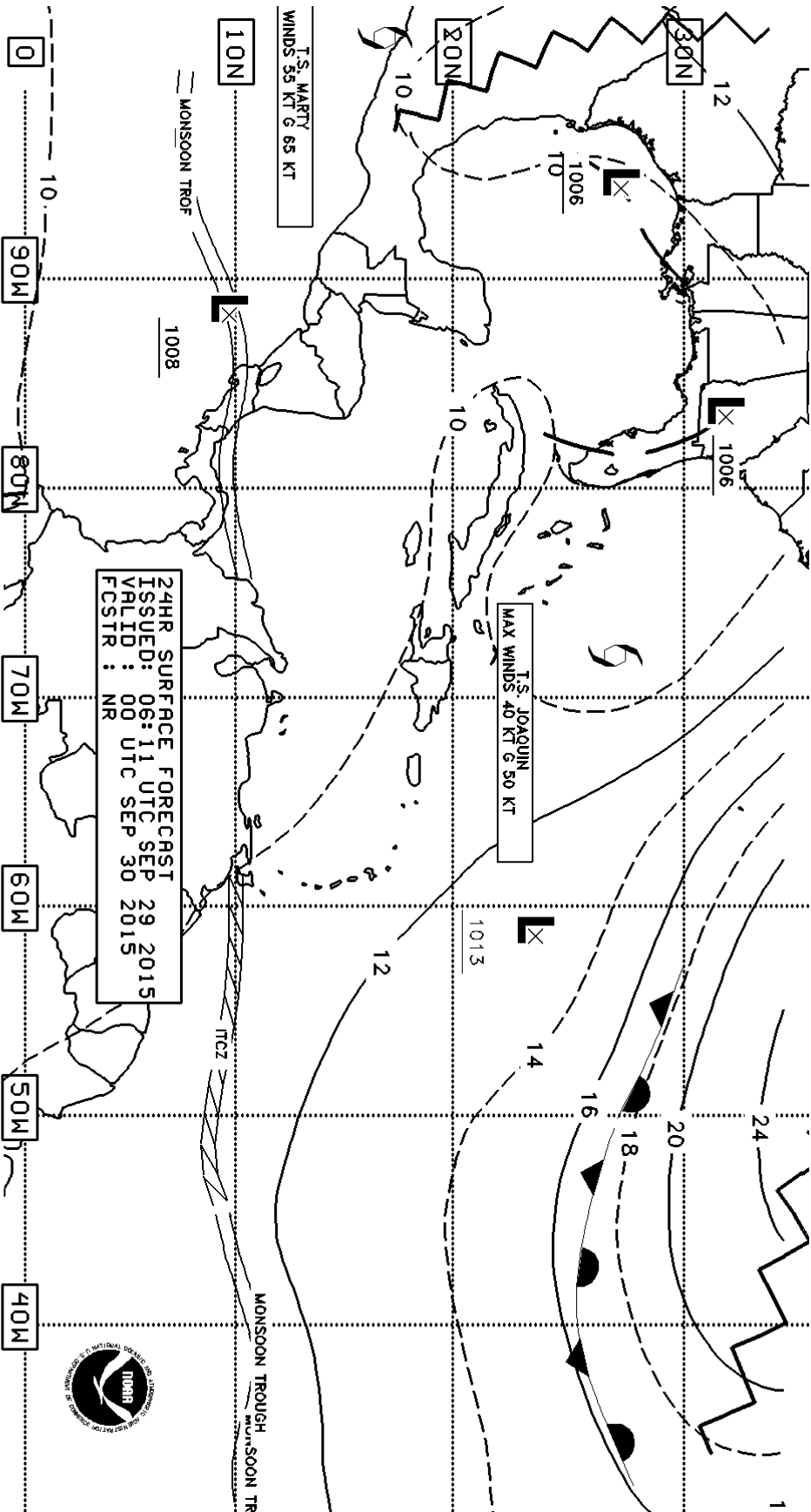
HURCN JORQUIN
 MAX WIND 120 KT 6 145 KT
 SEE LATEST ADVISORY



NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH

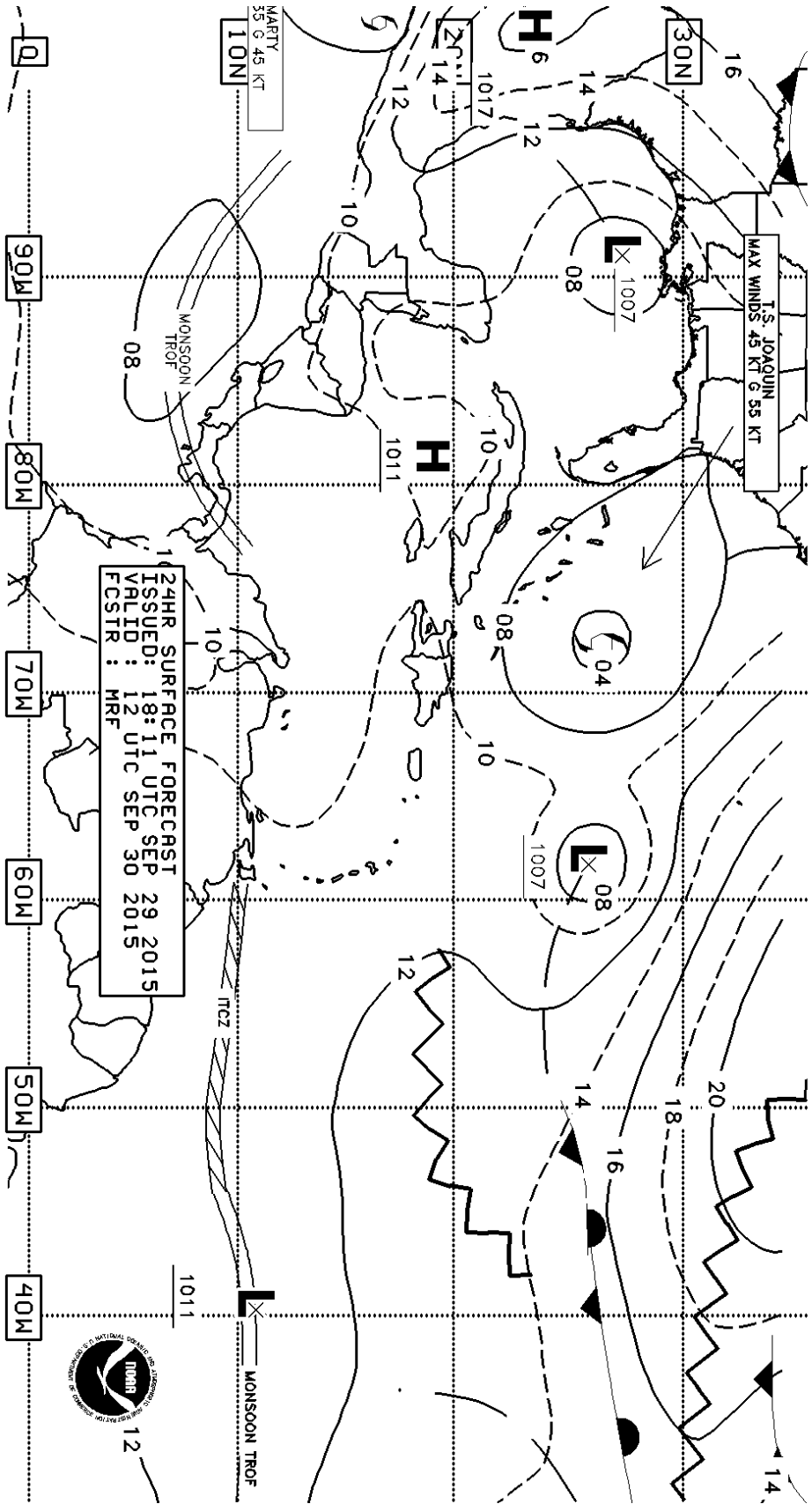




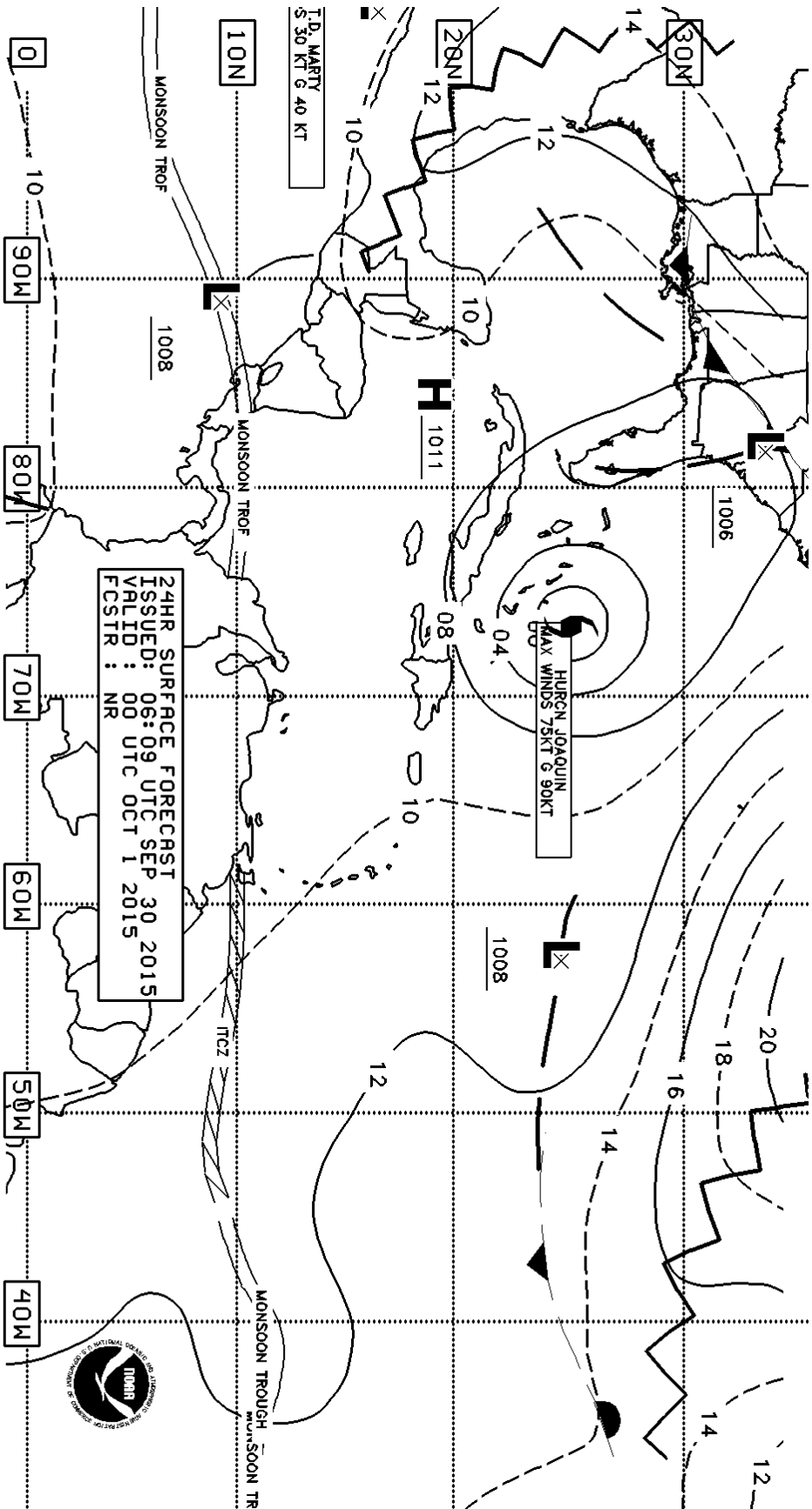
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH



NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH

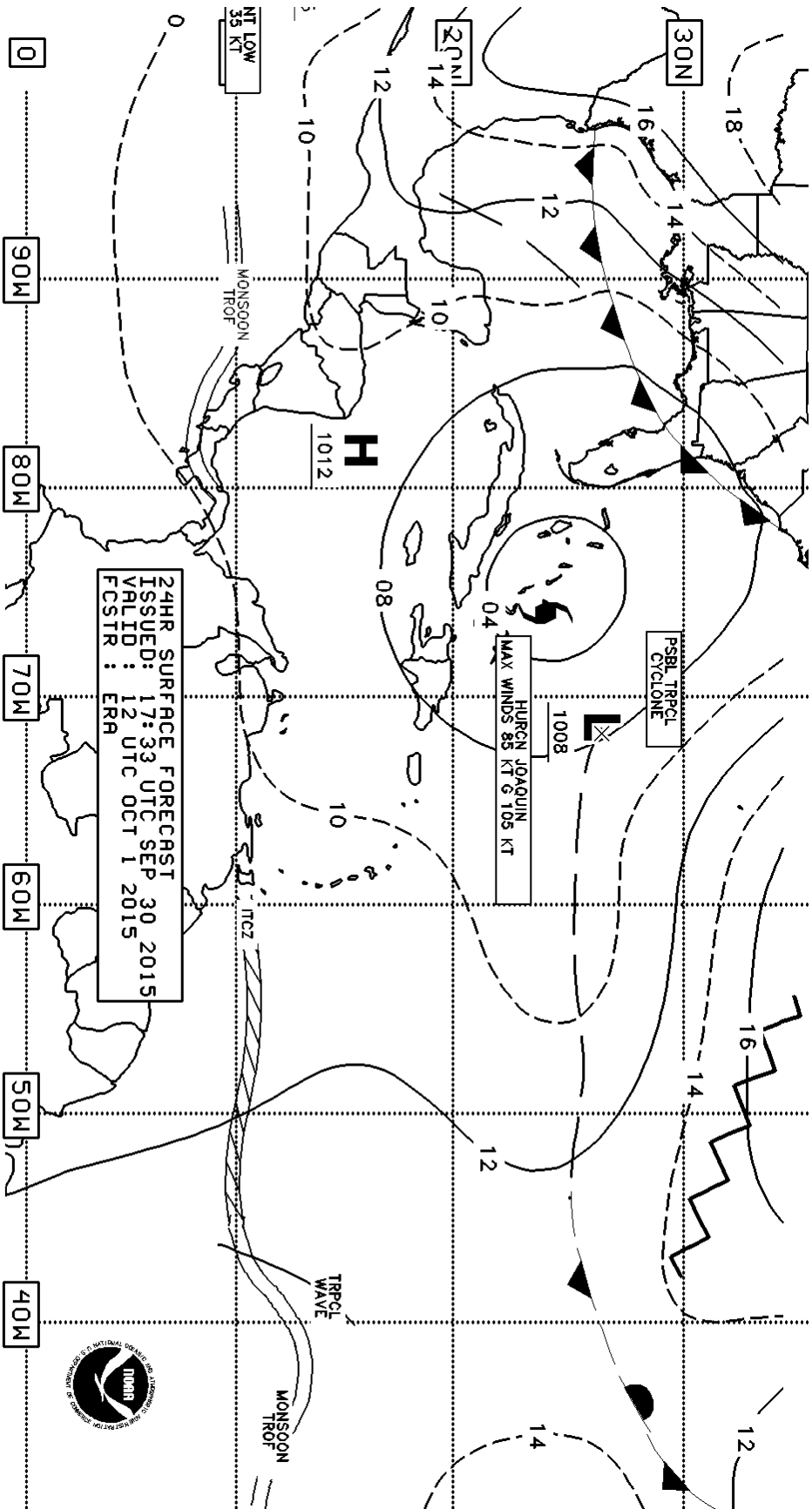


12

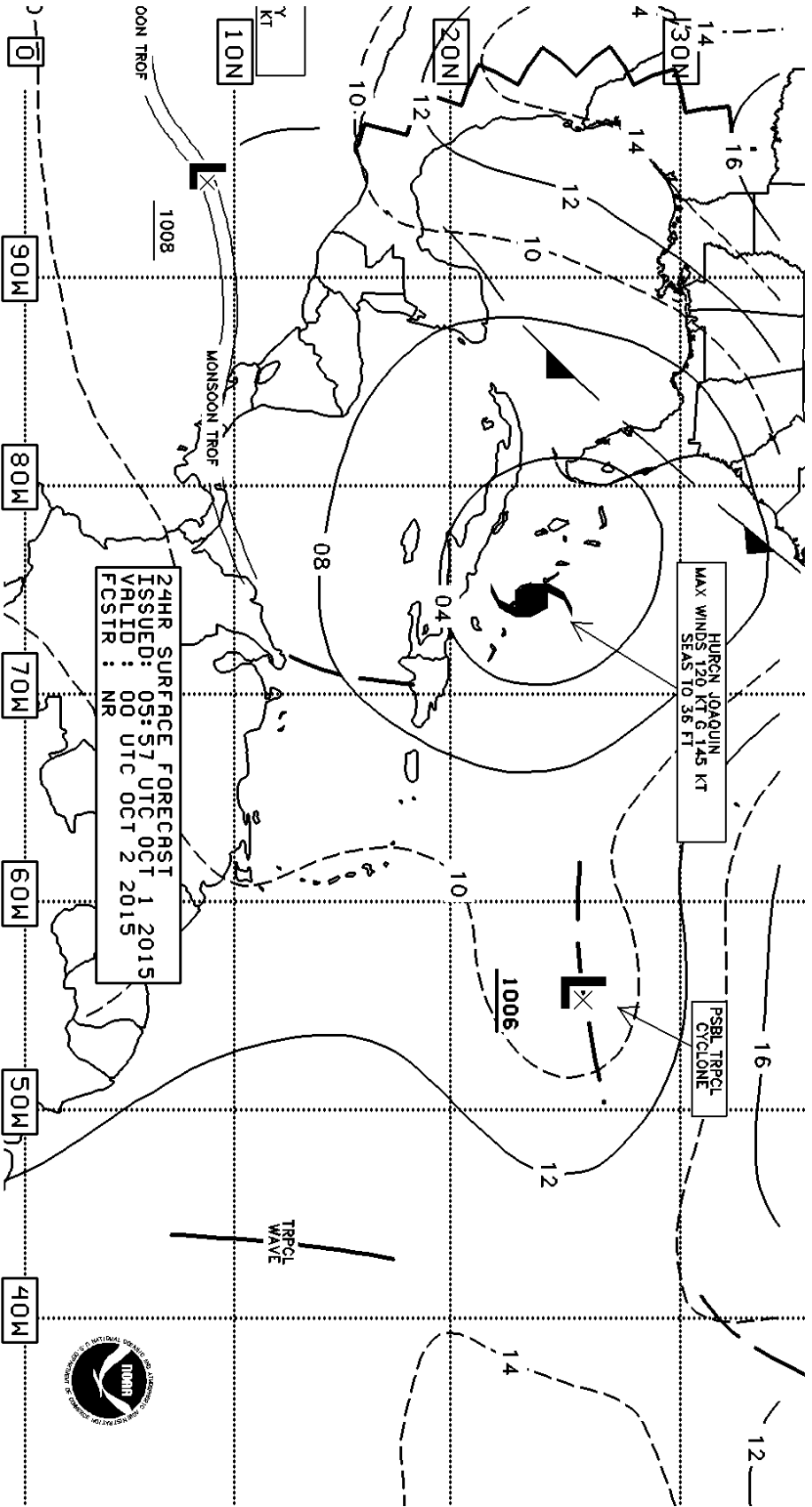


NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH





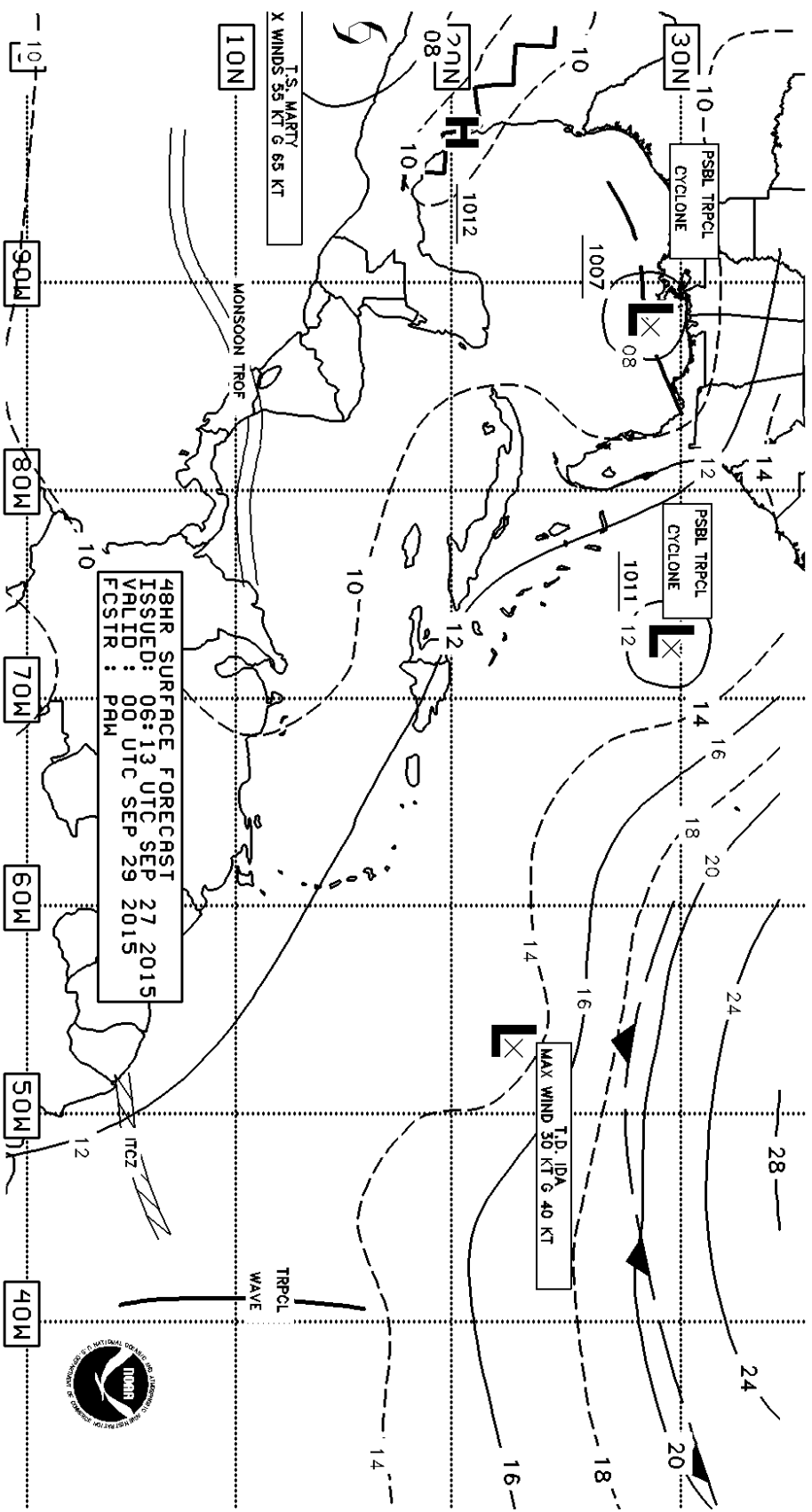
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH



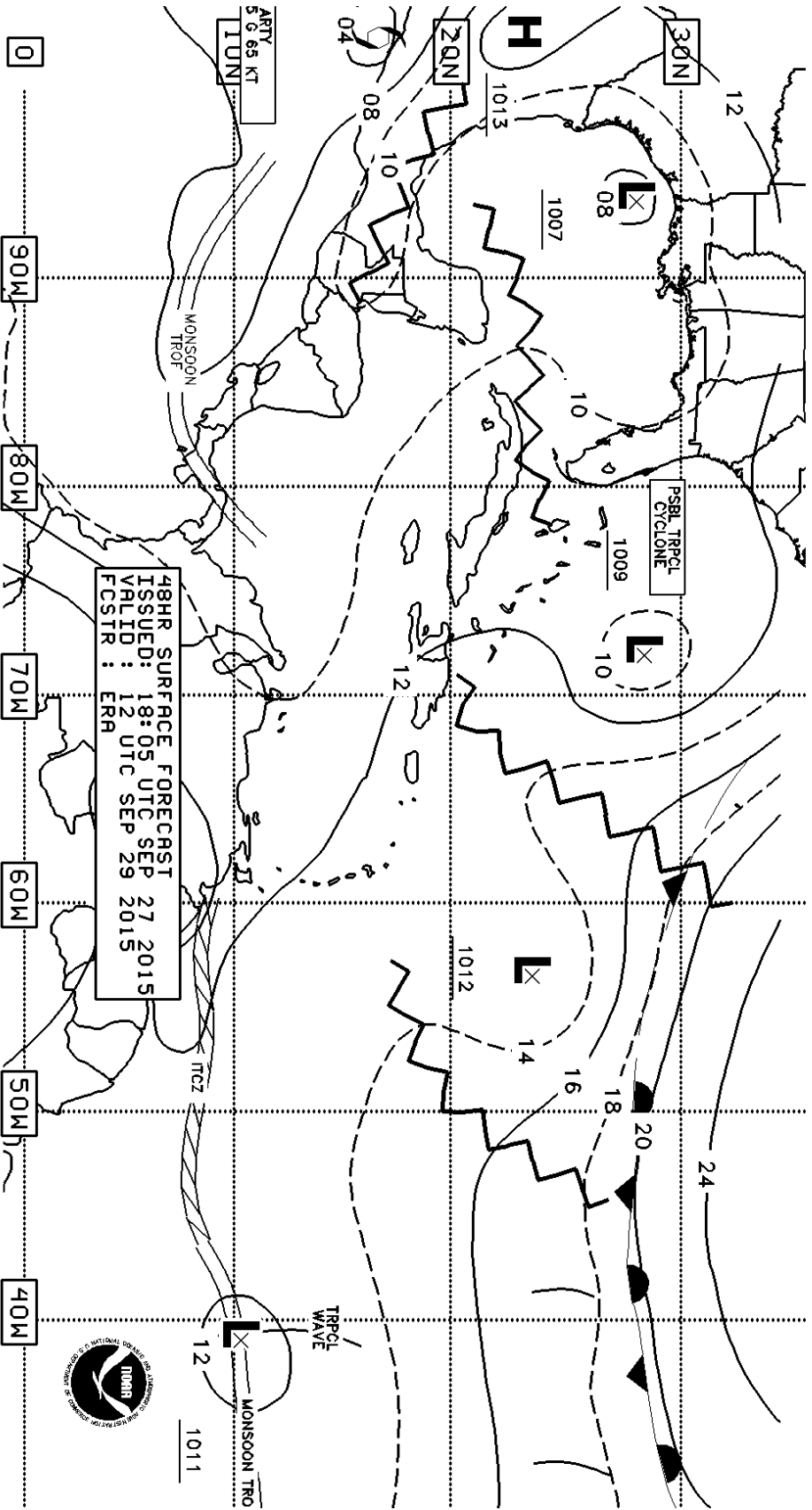
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH



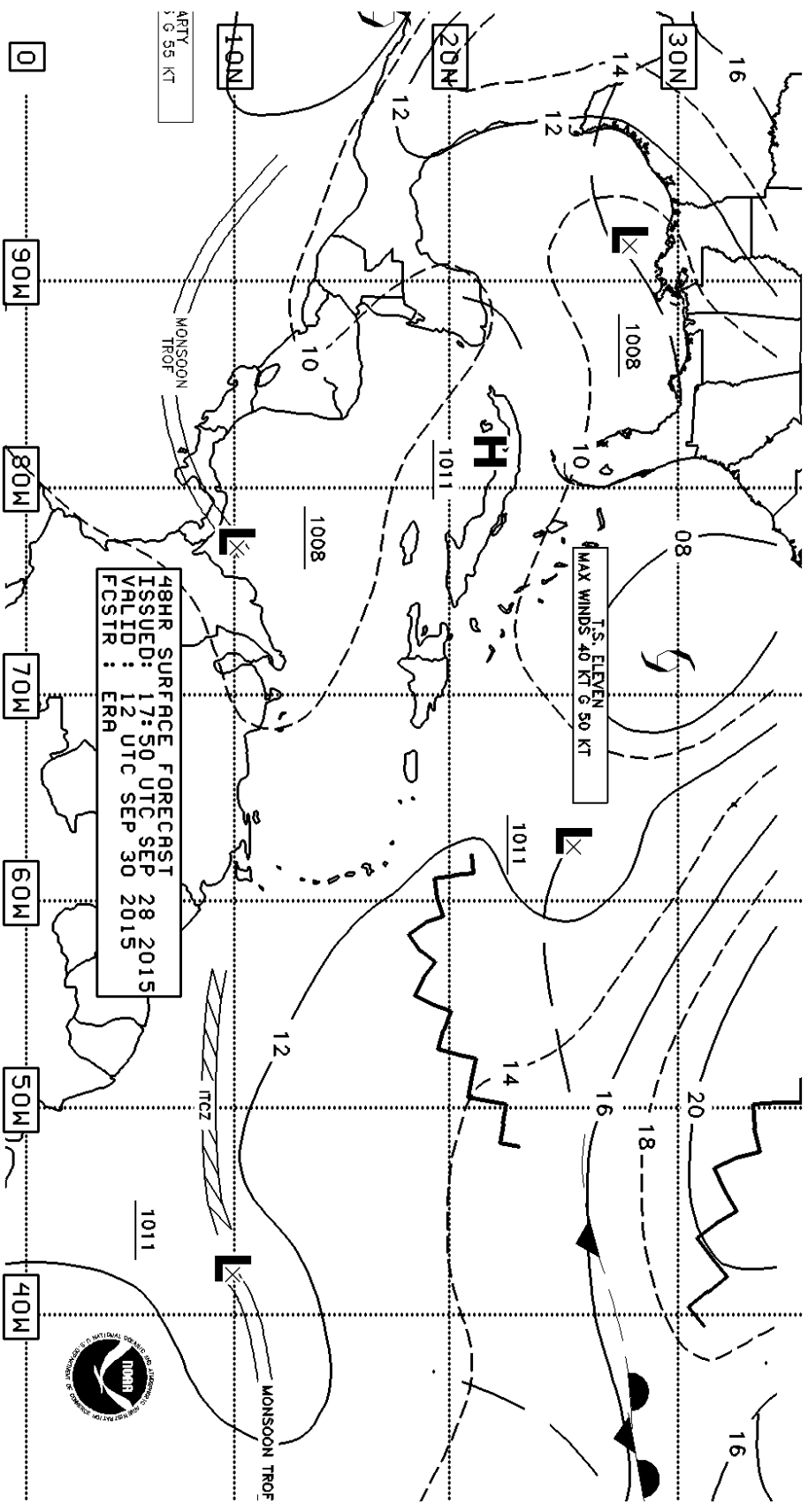
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH



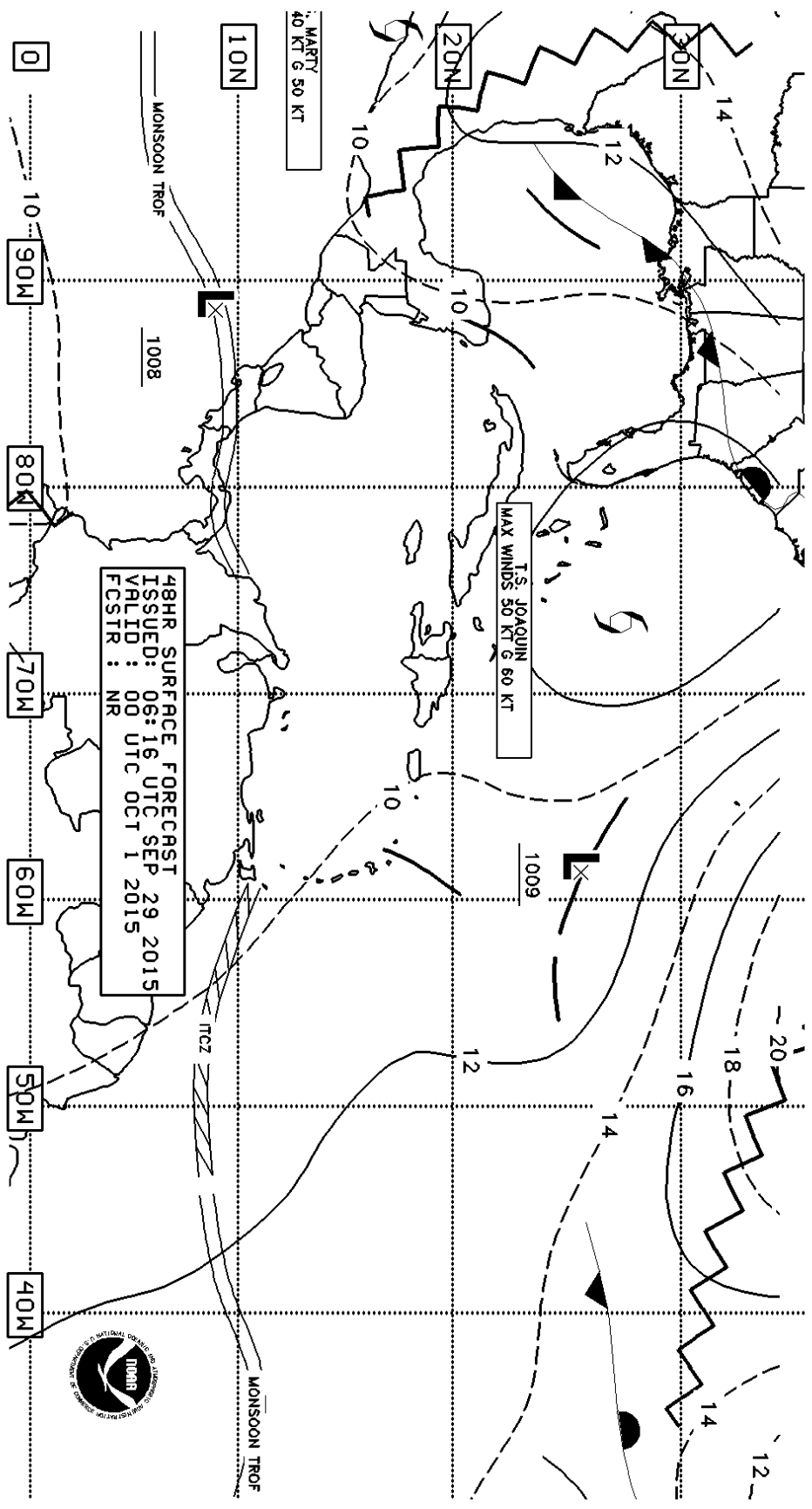
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH



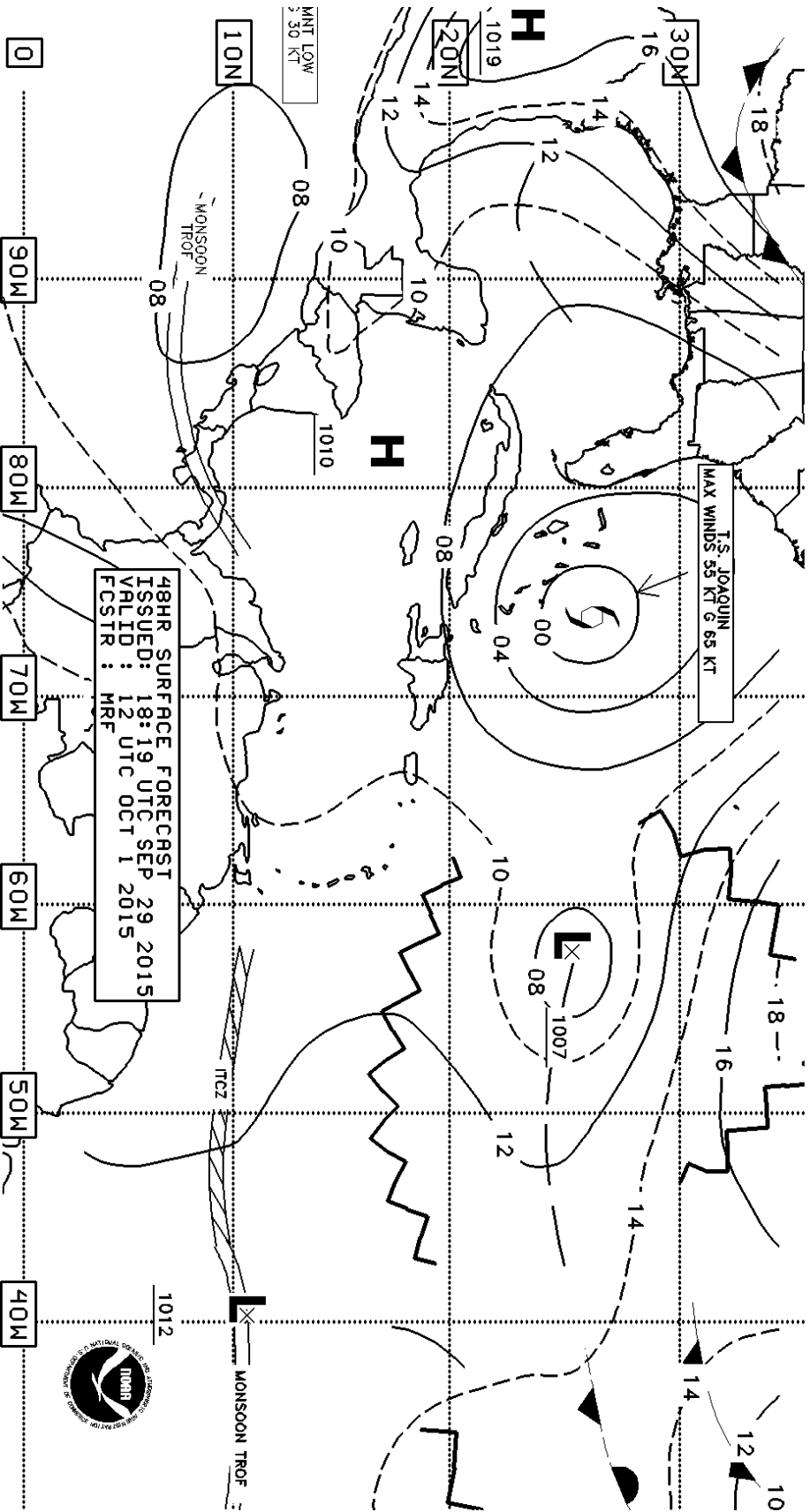
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH

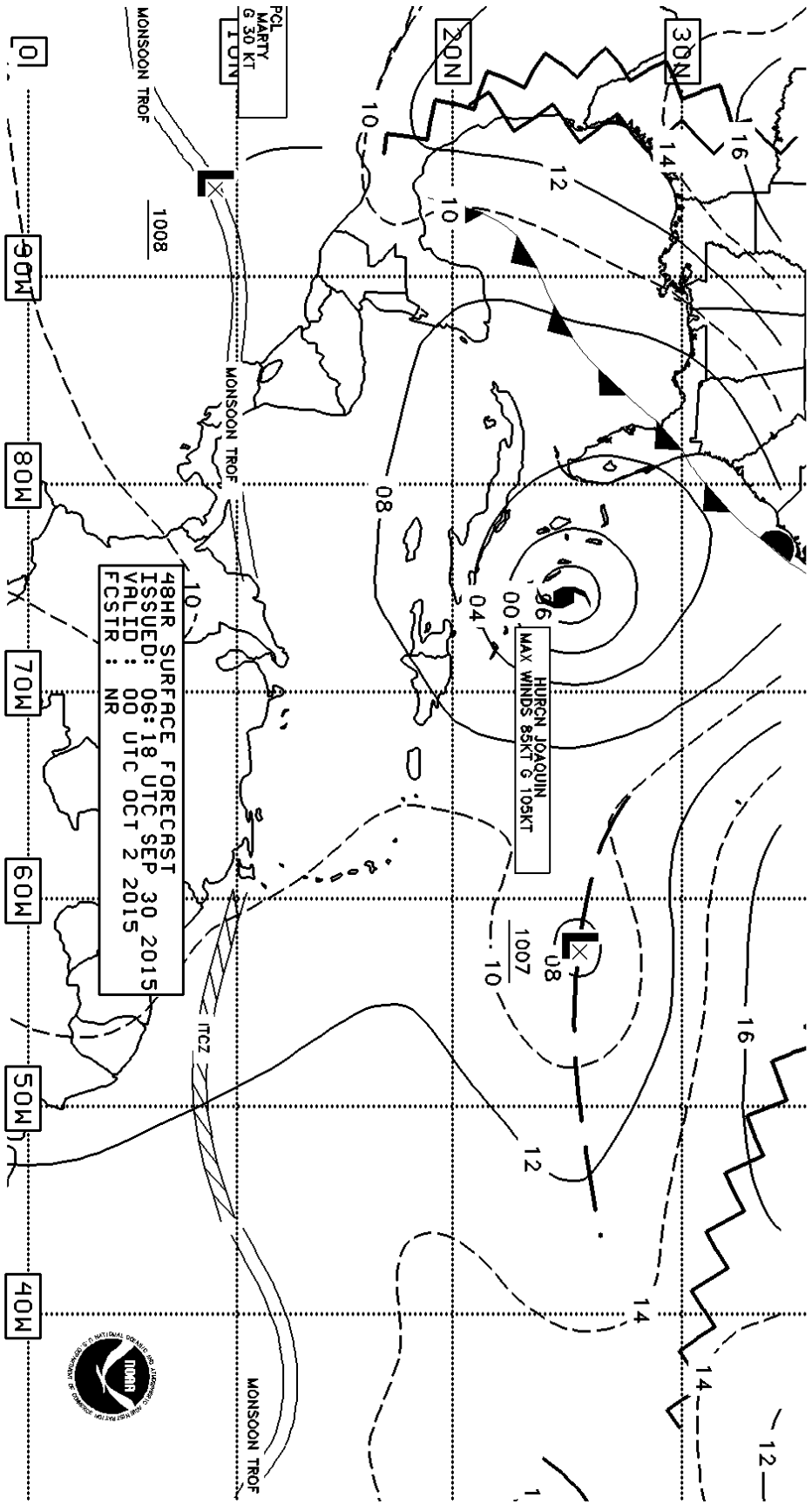


NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH



NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH





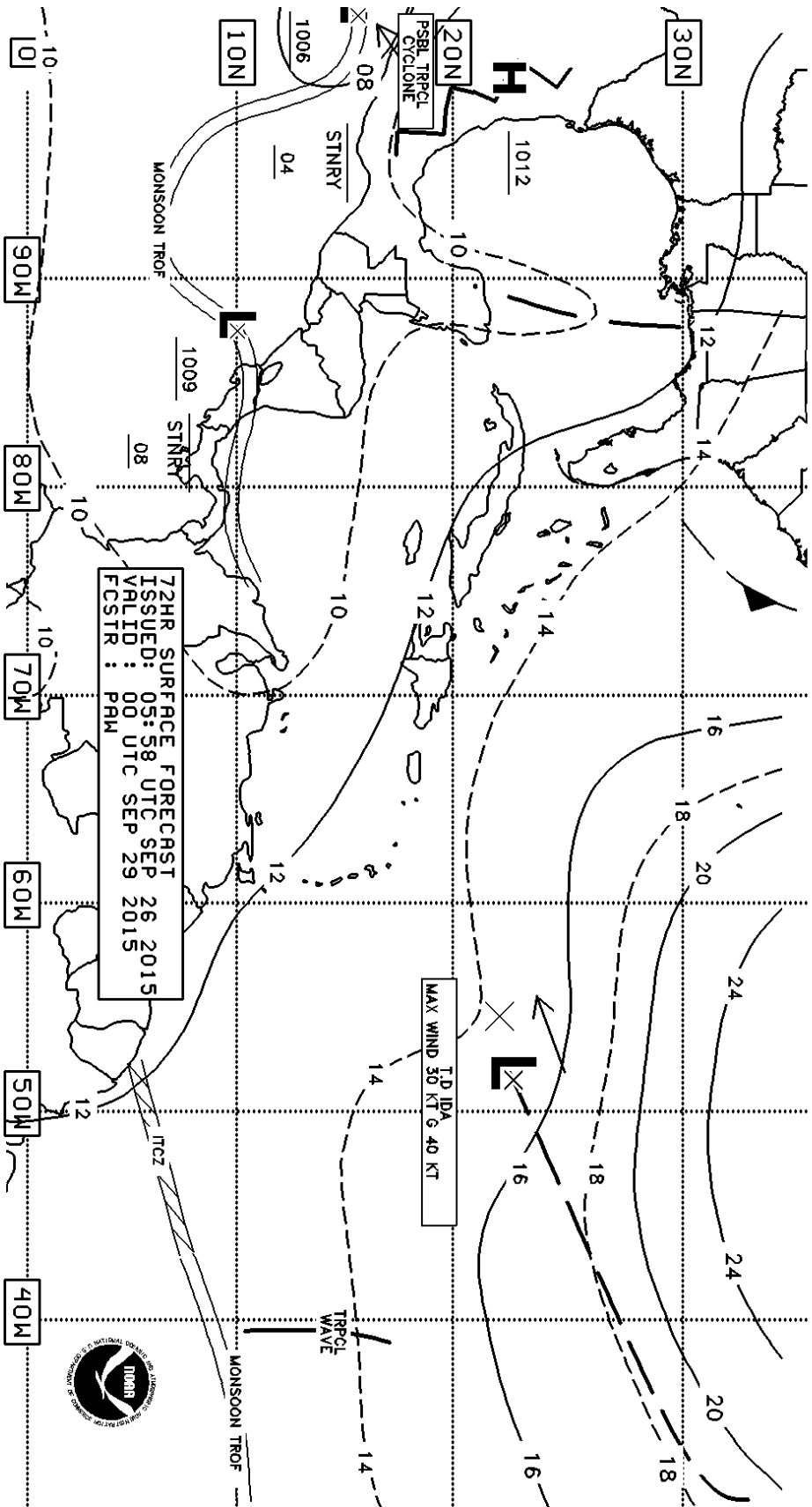
48HR SURFACE FORECAST
 ISSUED: 06:18 UTC SEP 30 2015
 VALID: 00 UTC OCT 2 2015
 FCSTR: NR

HURCN JOAQUIN
 MAX WINDS 85KT G 105KT

NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH



NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH

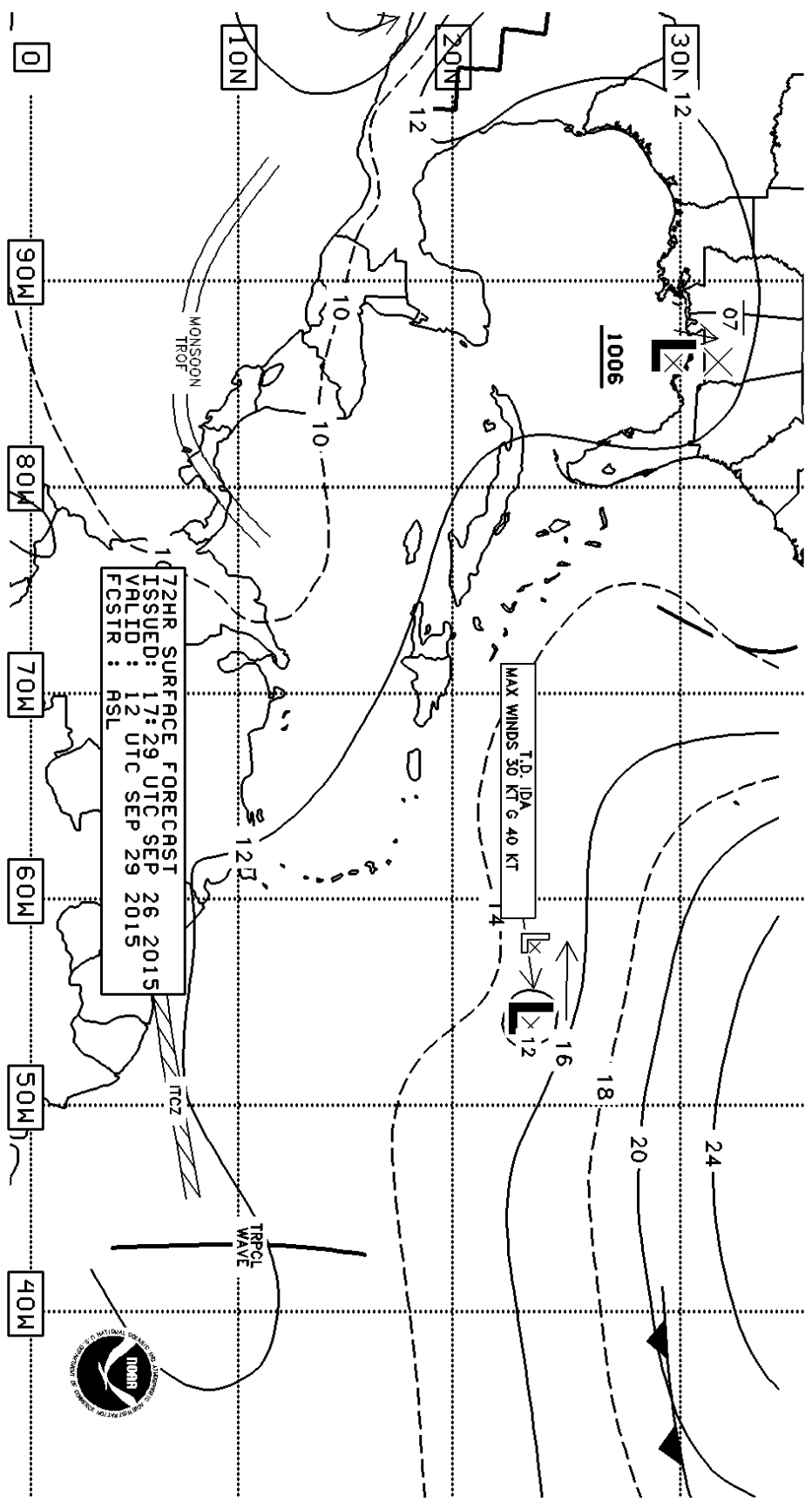


72HR SURFACE FORECAST
 ISSUED: 05:58 UTC SEP 26 2015
 VALID: 00 UTC SEP 29 2015
 FCSTR: PFM

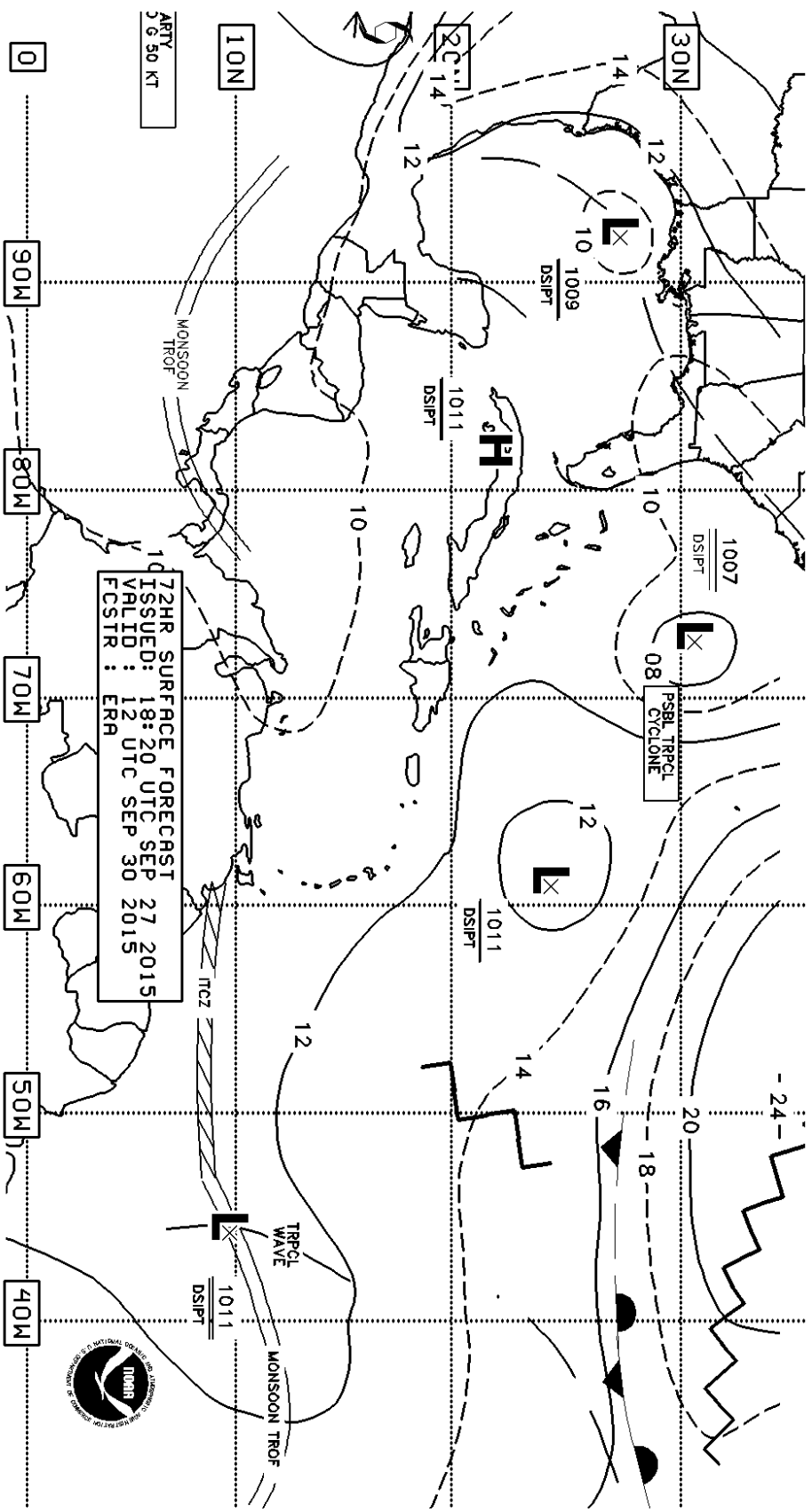
T.D. IDA
 MAX WIND 30 KT G 40 KT



NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH



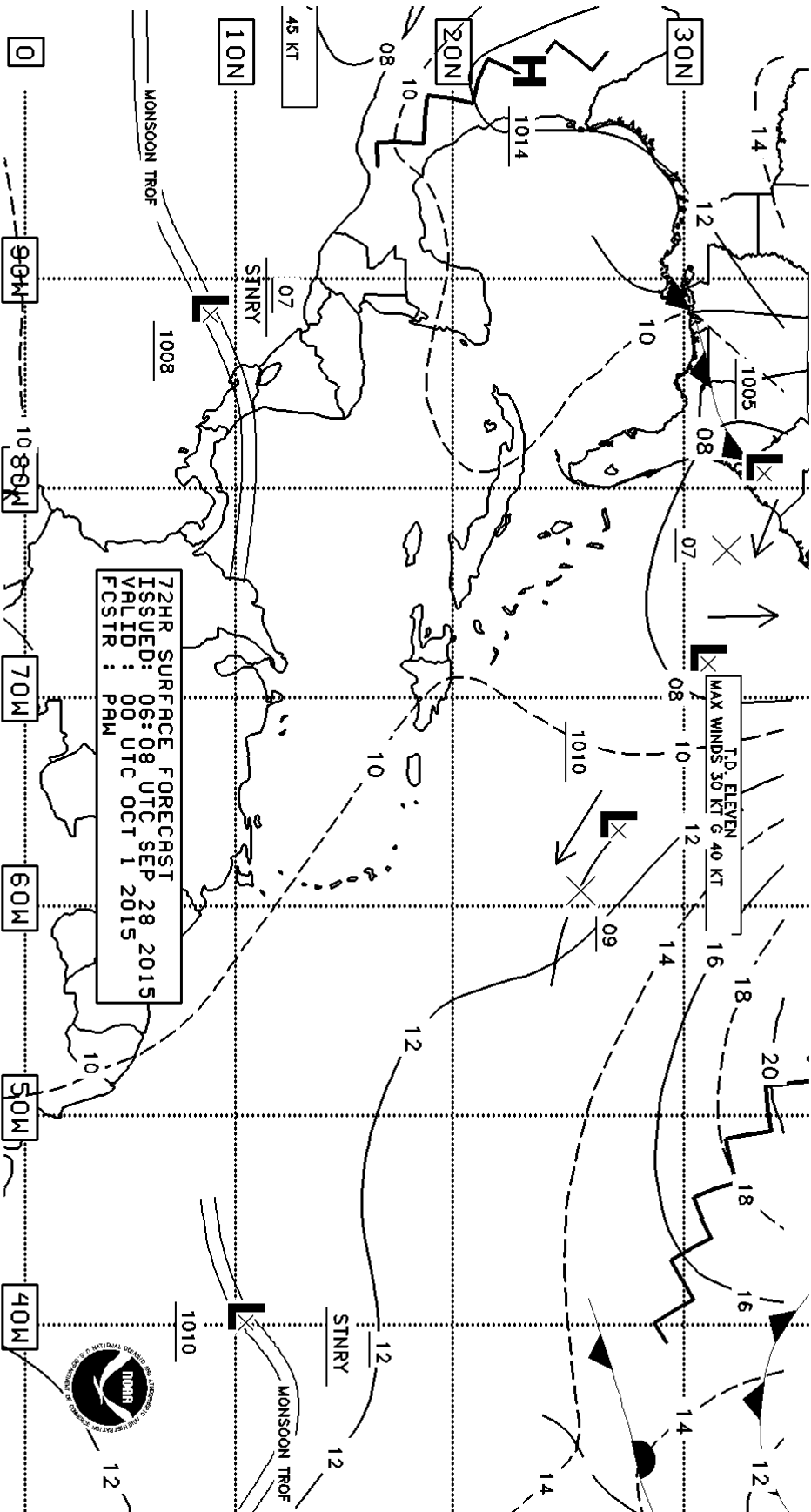
NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH



72HR SURFACE FORECAST
 ISSUED: 18:20 UTC SEP 27 2015
 VALID: 12 UTC SEP 30 2015
 FCSTR: ERA



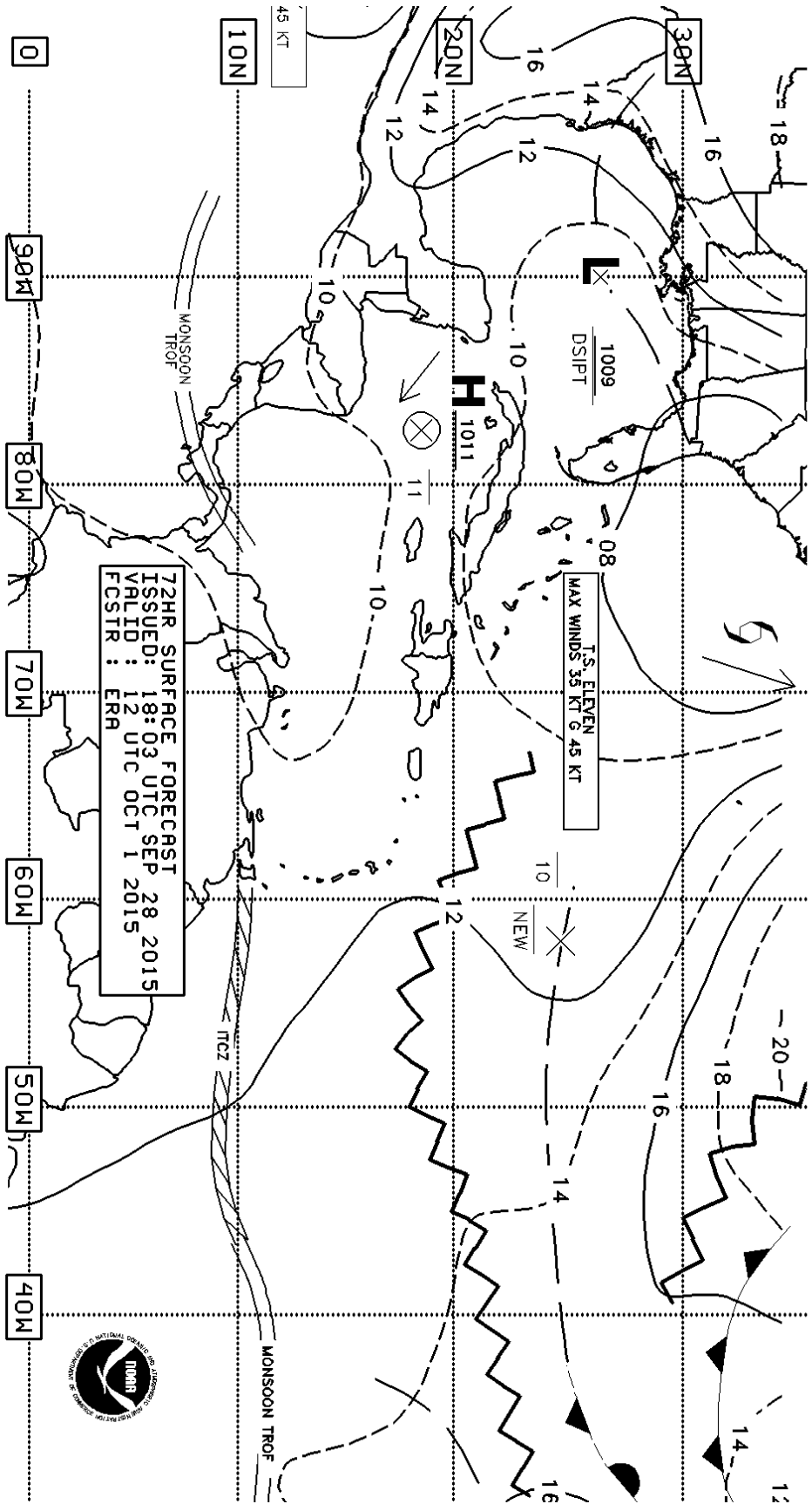
ARTY
 26 50 KT



NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH

72HR SURFACE FORECAST
 ISSUED: 06:08 UTC SEP 28 2015
 VALID : 00 UTC OCT 1 2015
 FCS: 1 PPM

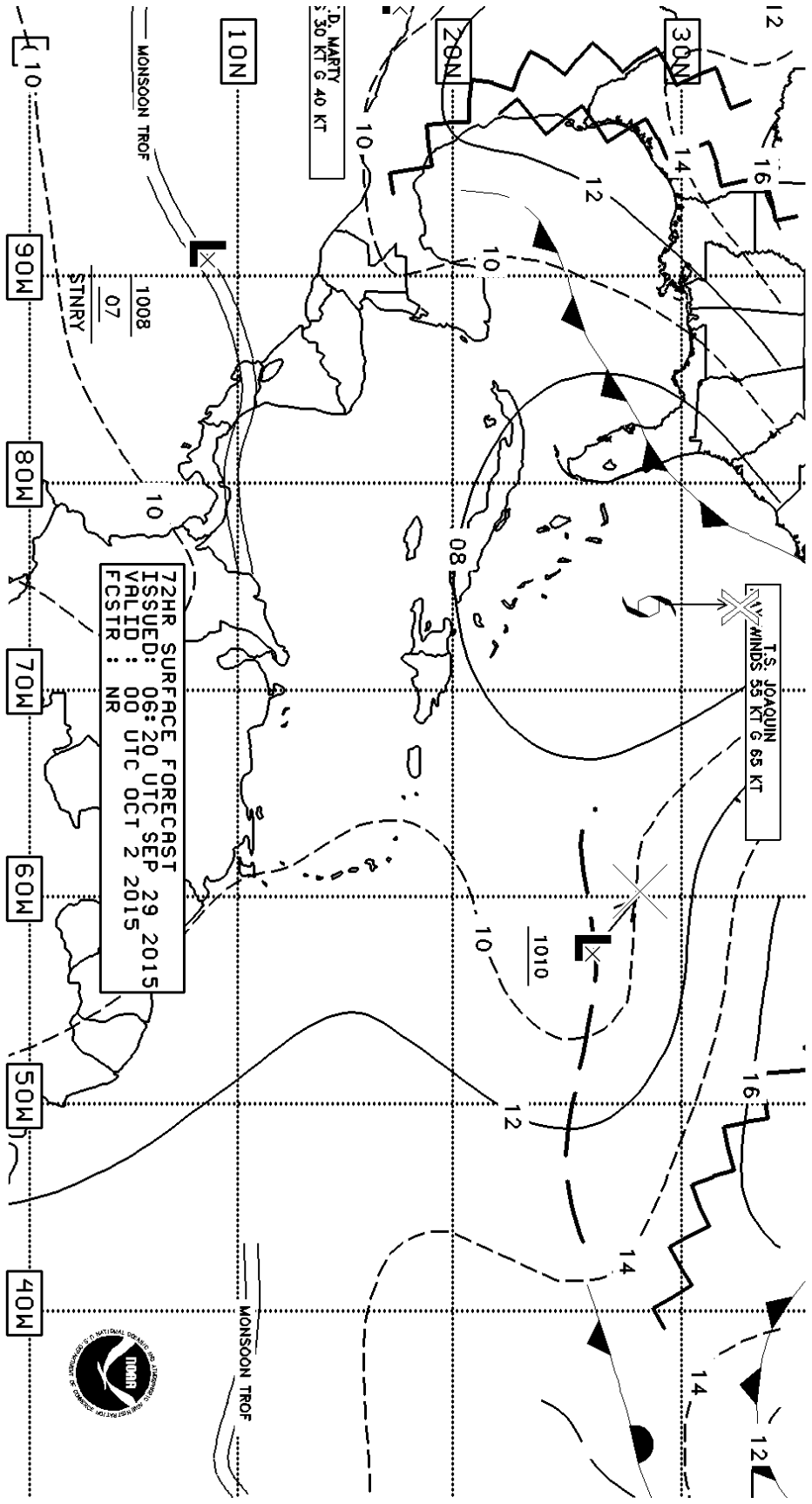




72HR SURFACE FORECAST
 ISSUED: 18:03 UTC SEP 28 2015
 VALID: 12 UTC OCT 1 2015
 FCSTR: ERA

NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH



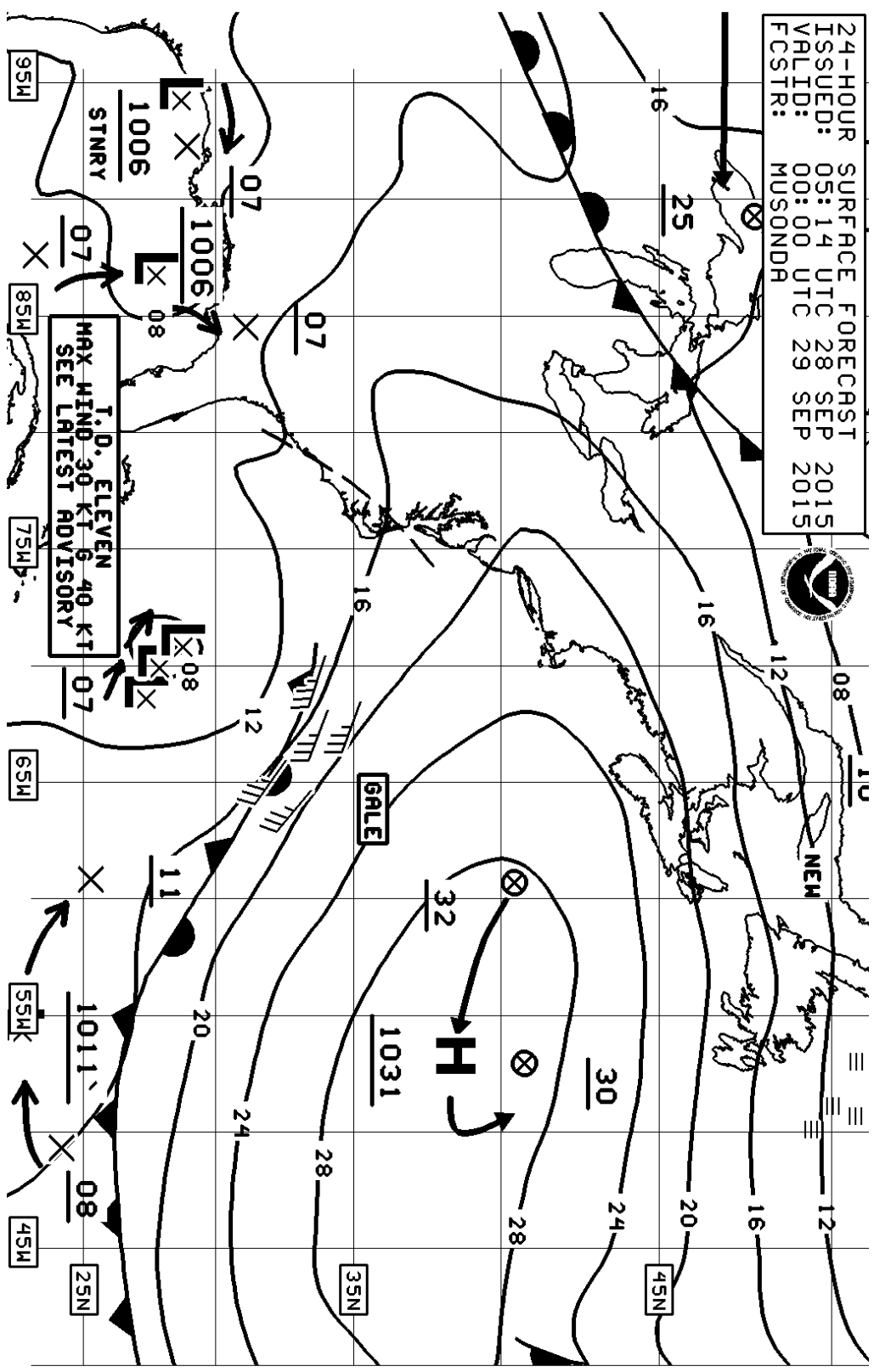


72HR SURFACE FORECAST
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 VALID: 00 UTC OCT 2 2015
 FCSTR: NR

NMS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH

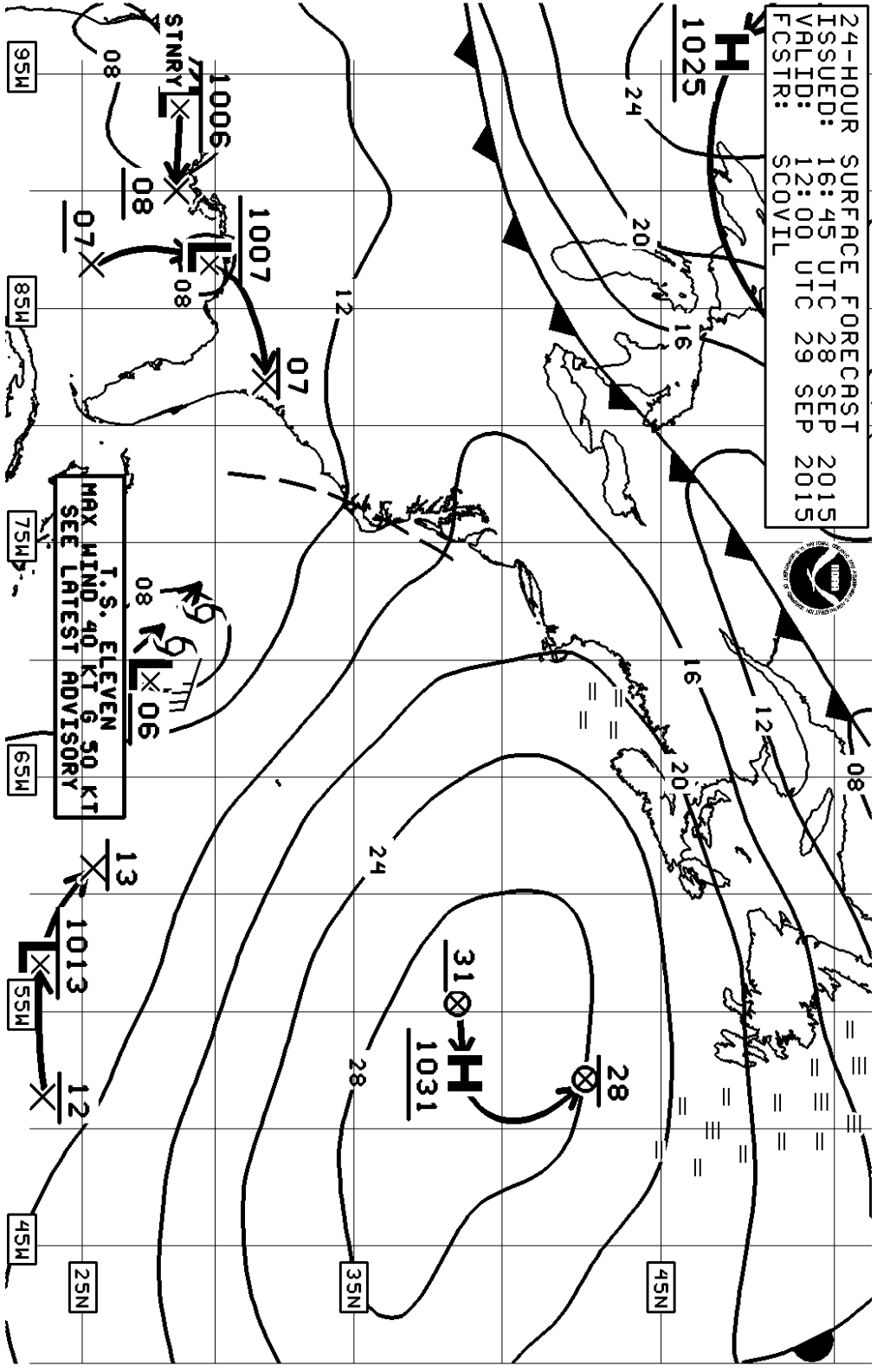


24-HOUR SURFACE FORECAST
 ISSUED: 05:14 UTC 28 SEP 2015
 VALID: 00:00 UTC 29 SEP 2015
 FCSTR: MUSONDA



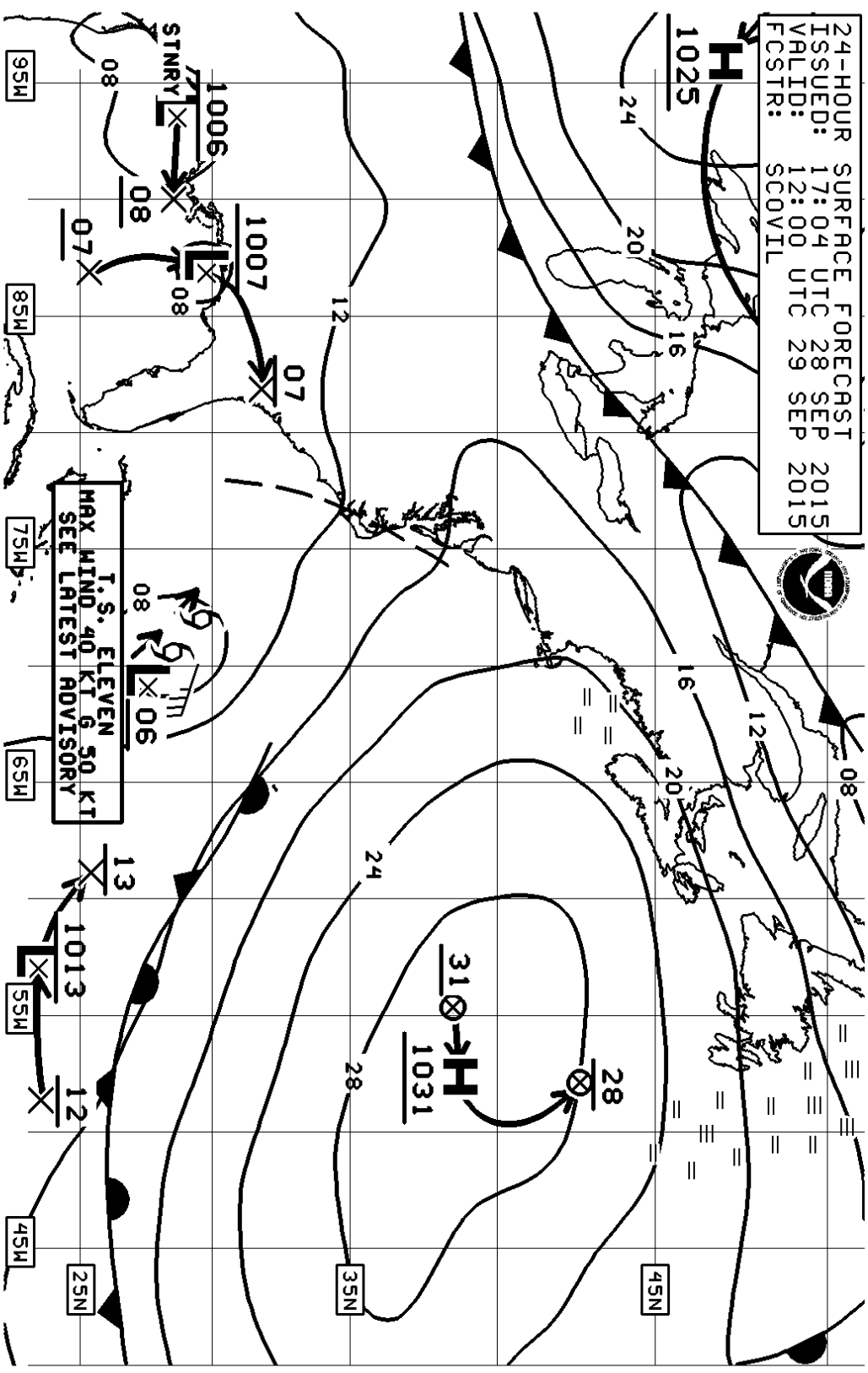
NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

24-HOUR SURFACE FORECAST
 ISSUED: 16:45 UTC 28 SEP 2015
 VALID: 12:00 UTC 29 SEP 2015
 FCSTR: SCOVIL



NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

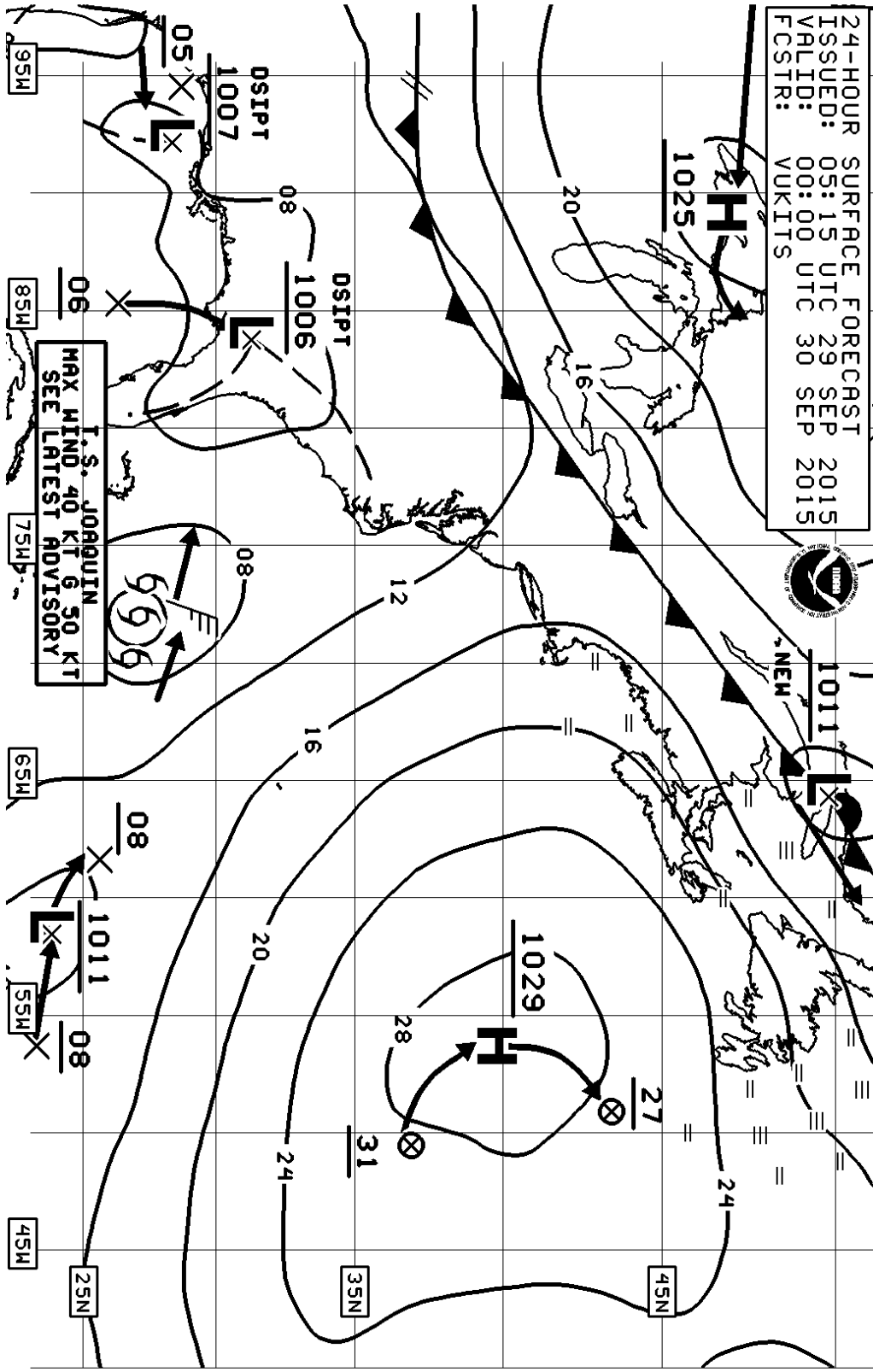
24-HOUR SURFACE FORECAST
 ISSUED: 17:04 UTC 28 SEP 2015
 VALID: 12:00 UTC 29 SEP 2015
 FCSTR: SCOVIL



T.S. ELEVEN
 MAX WIND 40 KT 6 50 KT
 SEE LATEST ADVISORY

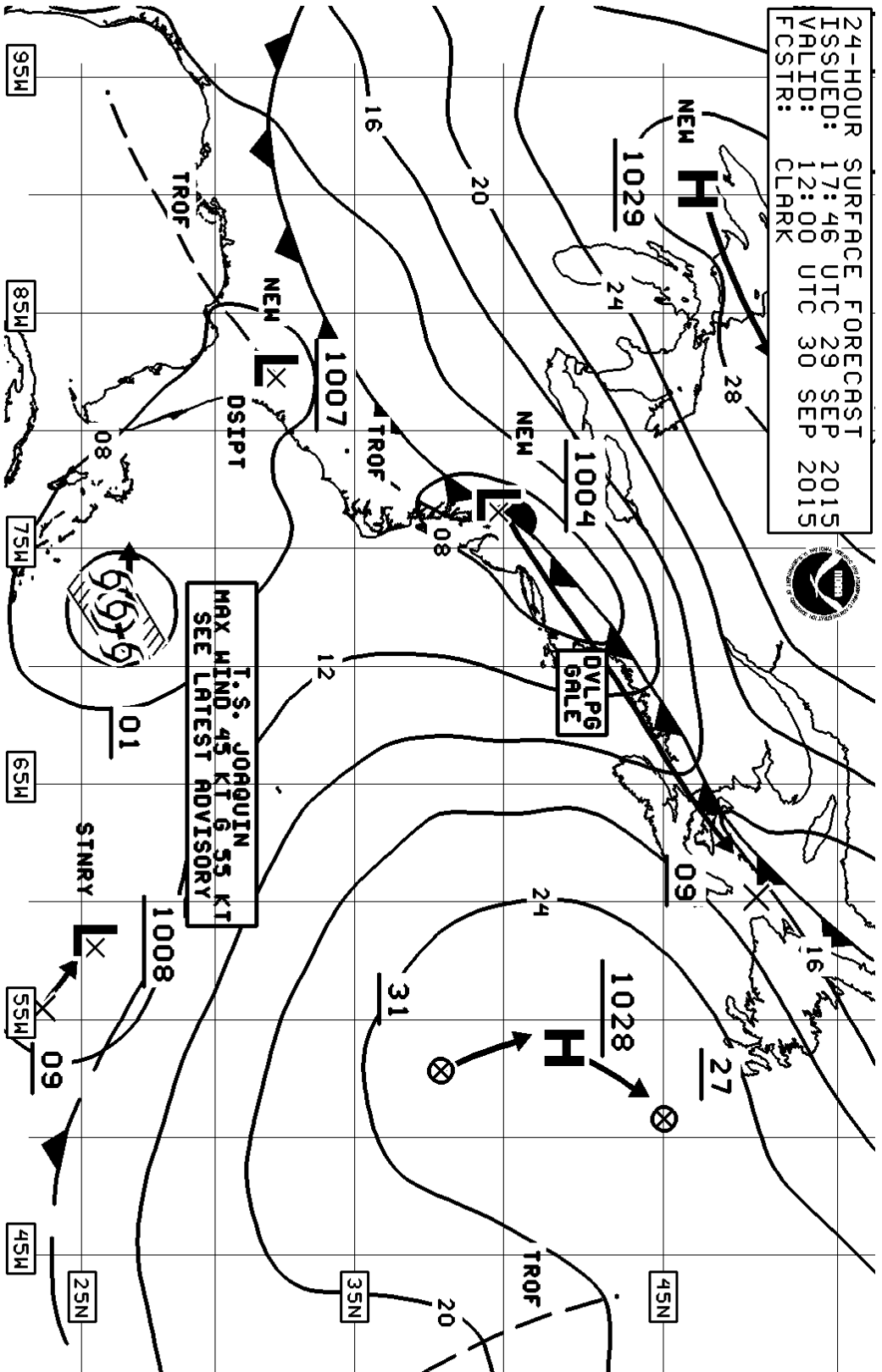
NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

24-HOUR SURFACE FORECAST
 ISSUED: 05:15 UTC 29 SEP 2015
 VALID: 00:00 UTC 30 SEP 2015
 FCSTR: VUKITS



NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

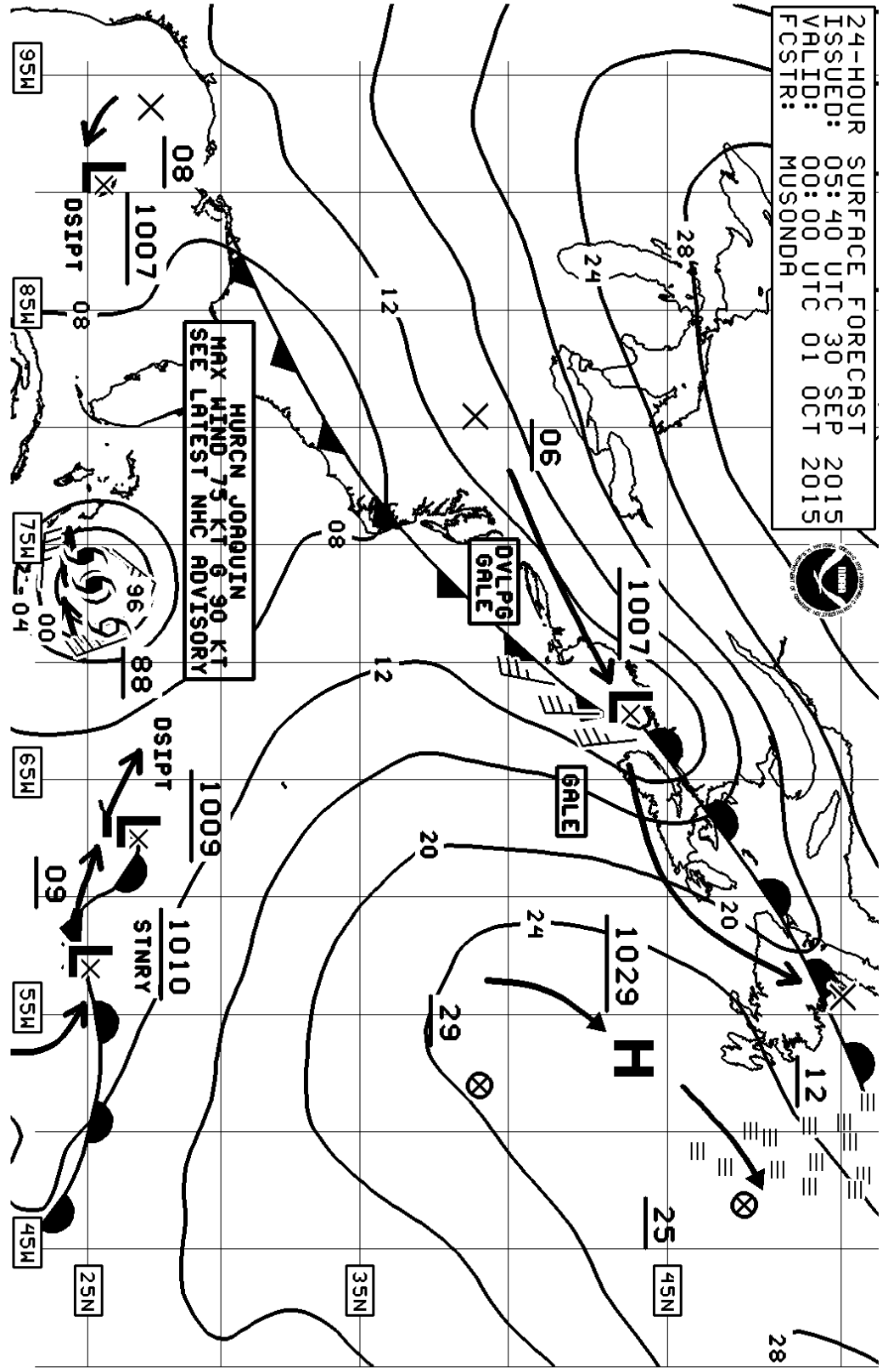
24-HOUR SURFACE FORECAST
 ISSUED: 17:46 UTC 29 SEP 2015
 VALID: 12:00 UTC 30 SEP 2015
 FCSTR: CLARK



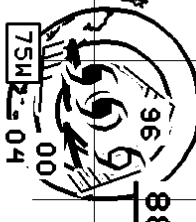
T.S. JORQUIN
 MAX WIND 45 KT 6 55 KT
 SEE LATEST ADVISORY

NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

24-HOUR SURFACE FORECAST
 ISSUED: 05:40 UTC 30 SEP 2015
 VALID: 00:00 UTC 01 OCT 2015
 FCSTR: MUSONDR

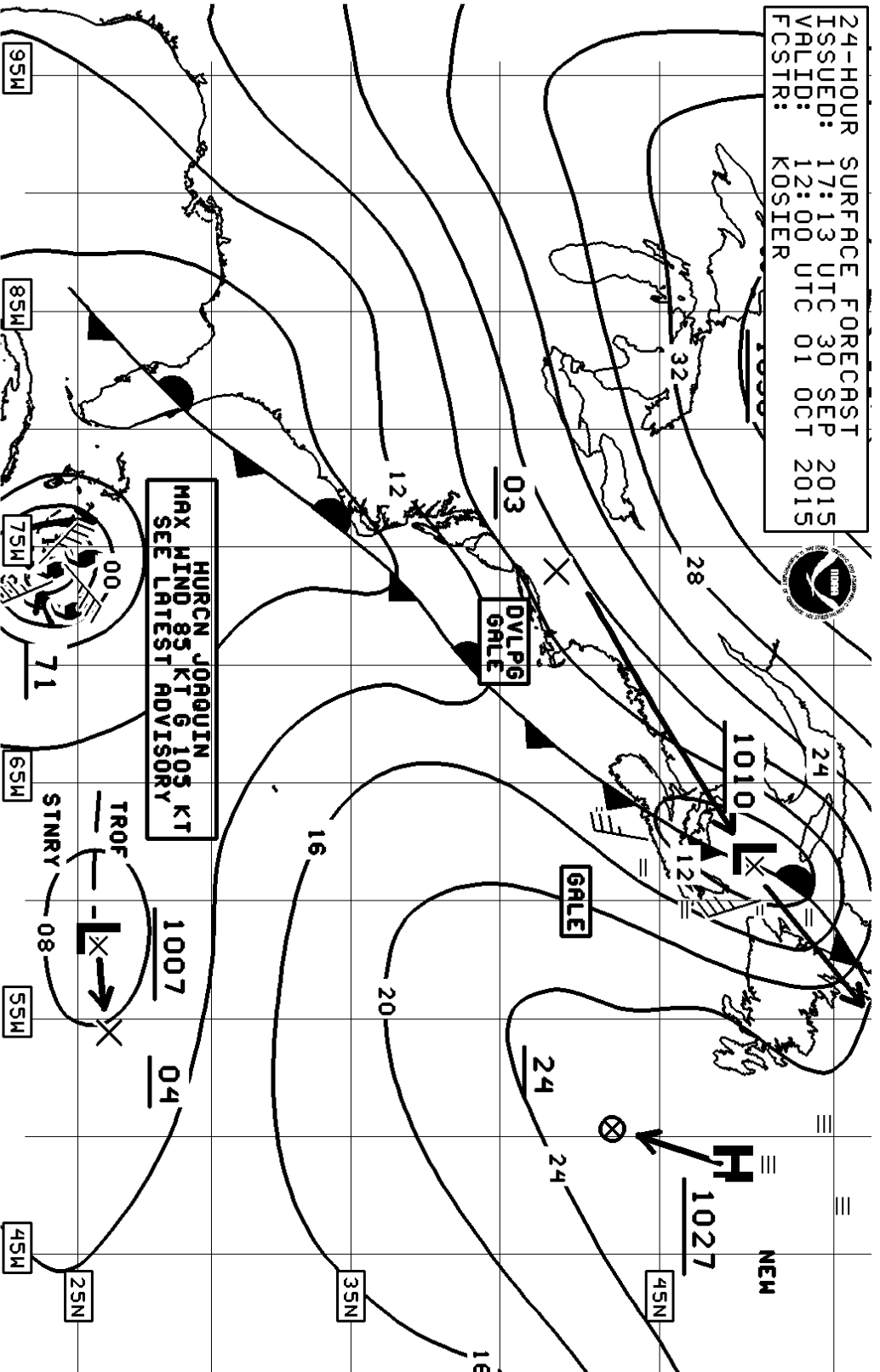


HURCN JOAQUIN
 MAX WIND 75 KT 6-90 KT
 SEE LATEST NHC ADVISORY



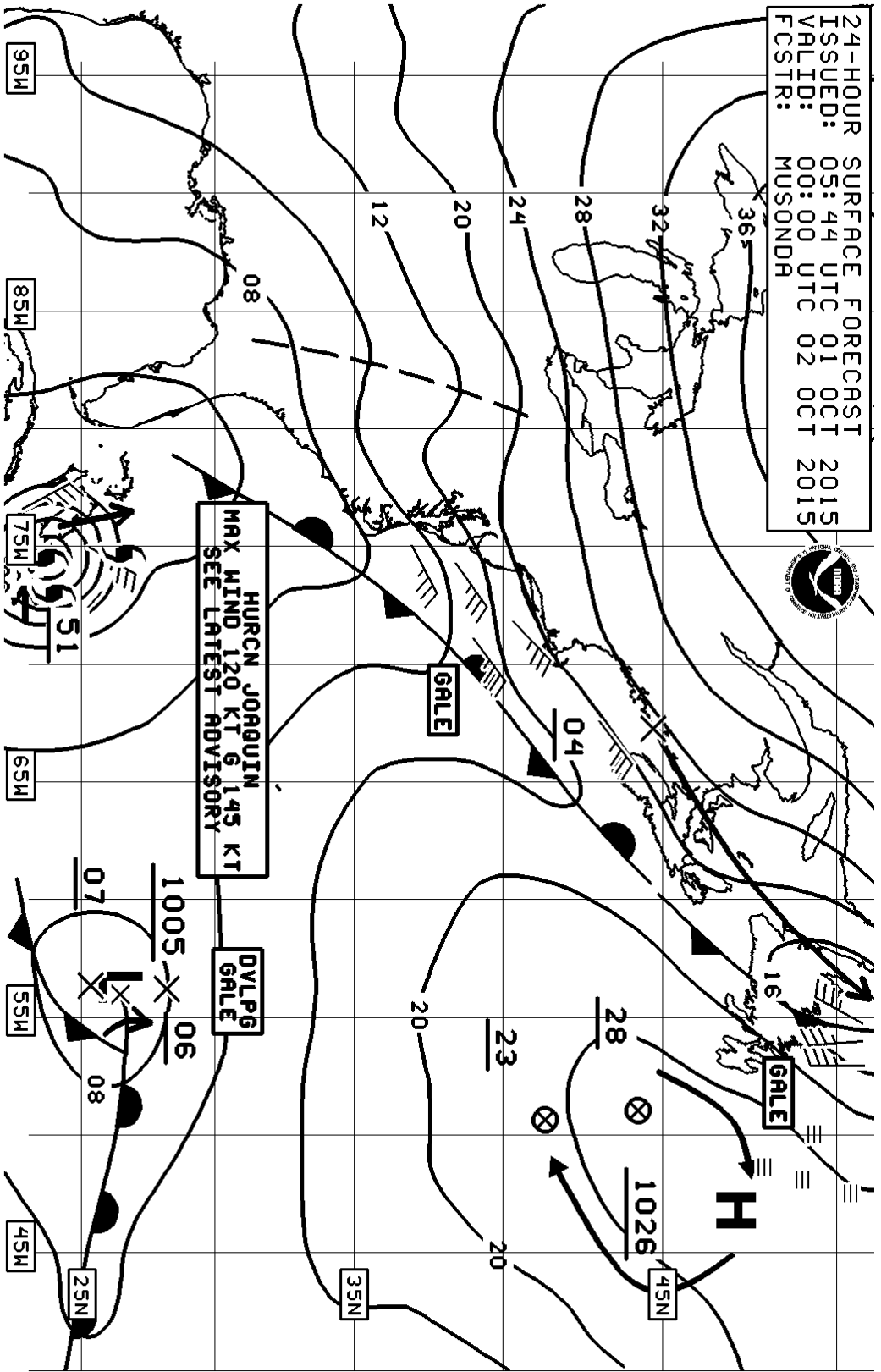
NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

24-HOUR SURFACE FORECAST
 ISSUED: 17:13 UTC 30 SEP 2015
 VALID: 12:00 UTC 01 OCT 2015
 FCSTR: KOSIER



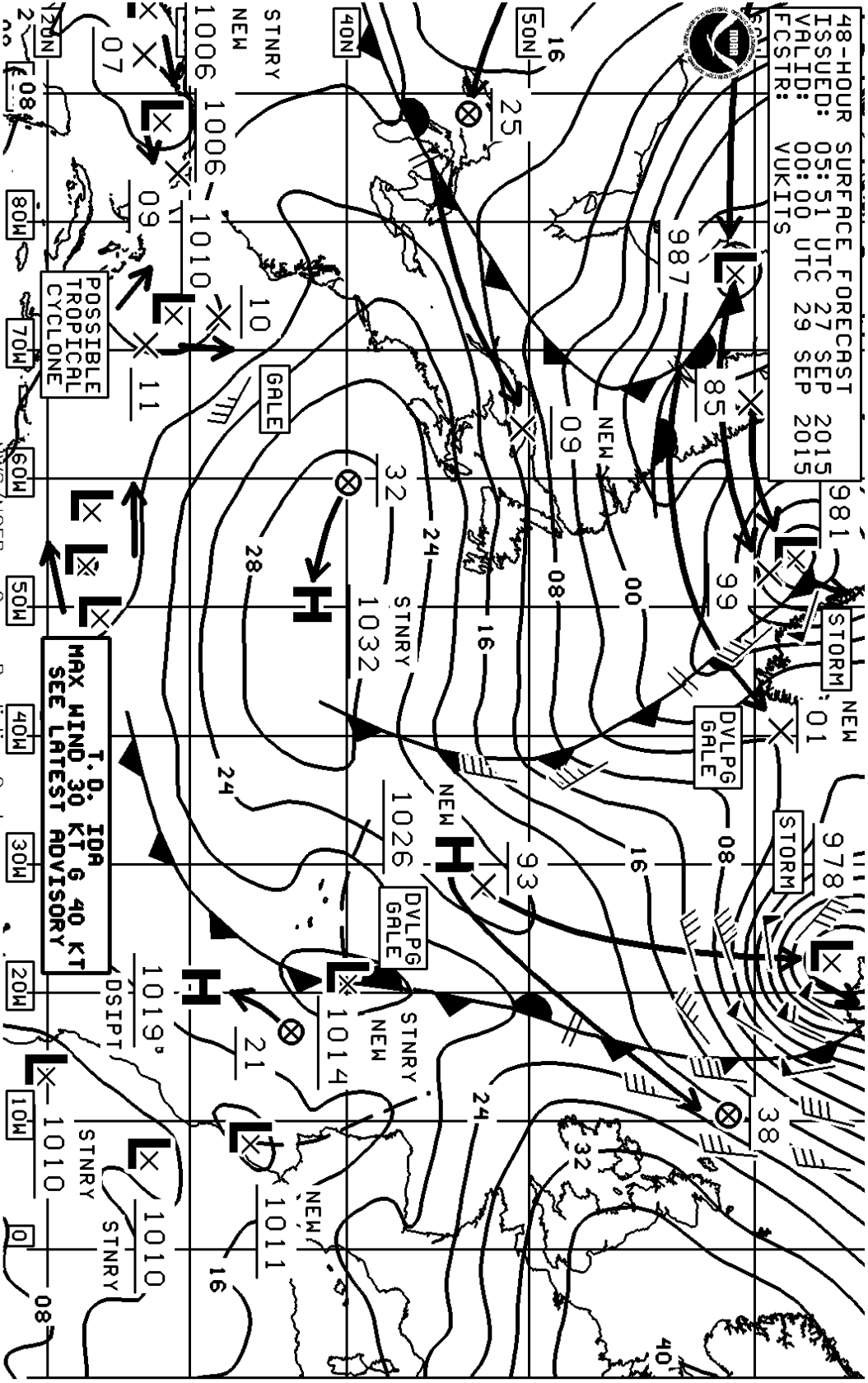
NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

24-HOUR SURFACE FORECAST
 ISSUED: 05:44 UTC 01 OCT 2015
 VALID: 00:00 UTC 02 OCT 2015
 FCSTR: MUSONDR



NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

48-HOUR SURFACE FORECAST
 ISSUED: 05:51 UTC 27 SEP 2015
 VALID: 00:00 UTC 29 SEP 2015
 FCSTR: VUKITS



NWS/NCEP - Ocean Prediction Center
 www.opc.ncep.noaa.gov

T.O. IDA
 MAX WIND 30 KT 6 40 KT
 SEE LATEST ADVISORY

POSSIBLE
 TROPICAL
 CYCLONE

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 STORM
 NEW
 01

978
 STORM

H

NEW
 H

H

120N

08

80W

70W

60W

50W

40W

30W

20W

10W

0

10E

20E

30E

40E

50E

60E

70E

80E

90E

100E

110E

120E

130E

140E

150E

160E

170E

180E

190E

200E

210E

220E

230E

240E

250E

260E

270E

280E

290E

300E

310E

320E

330E

340E

350E

360E

370E

380E

390E

400E

410E

420E

430E

440E

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460E

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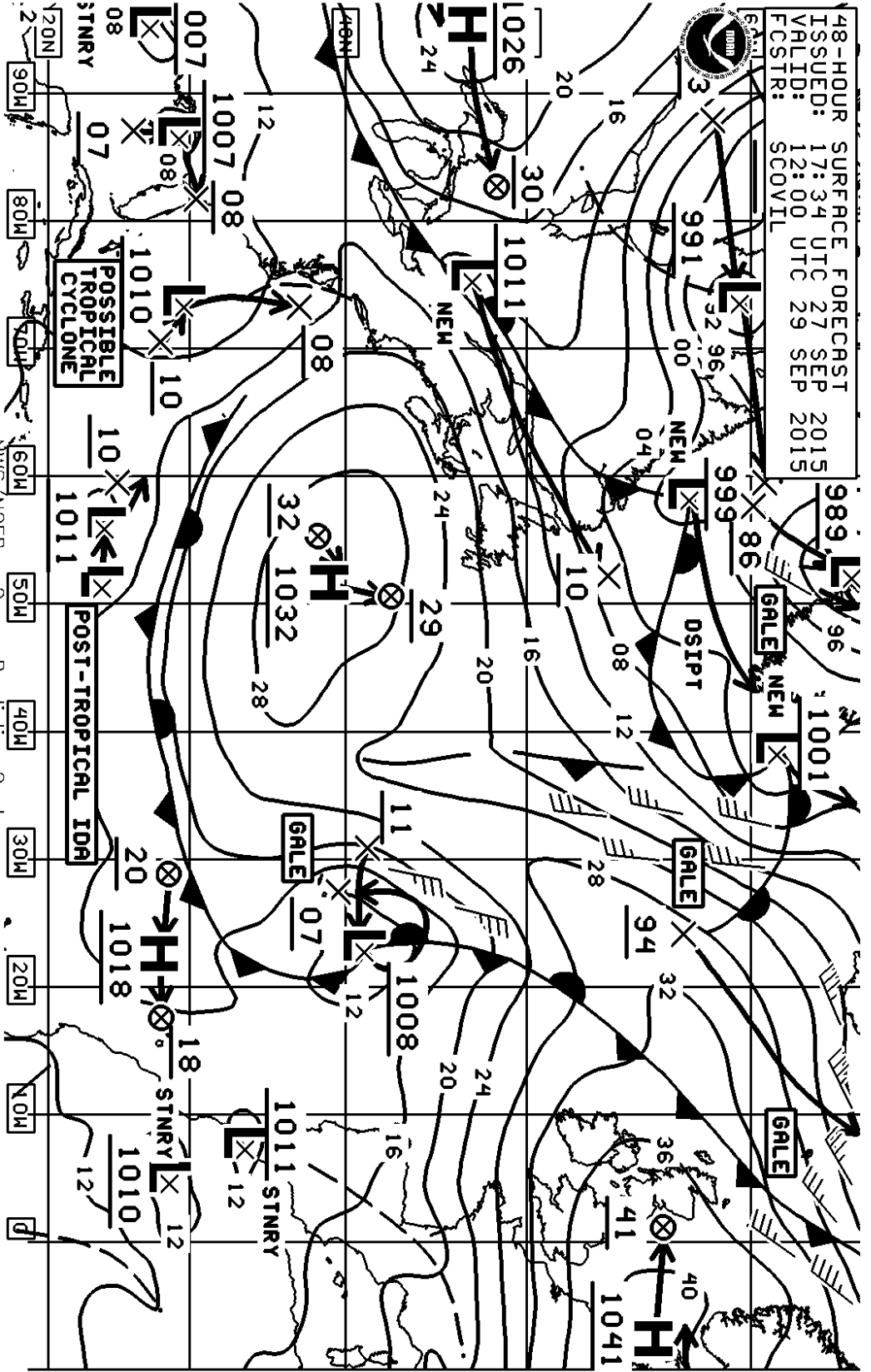
2560E

2570E

2580E

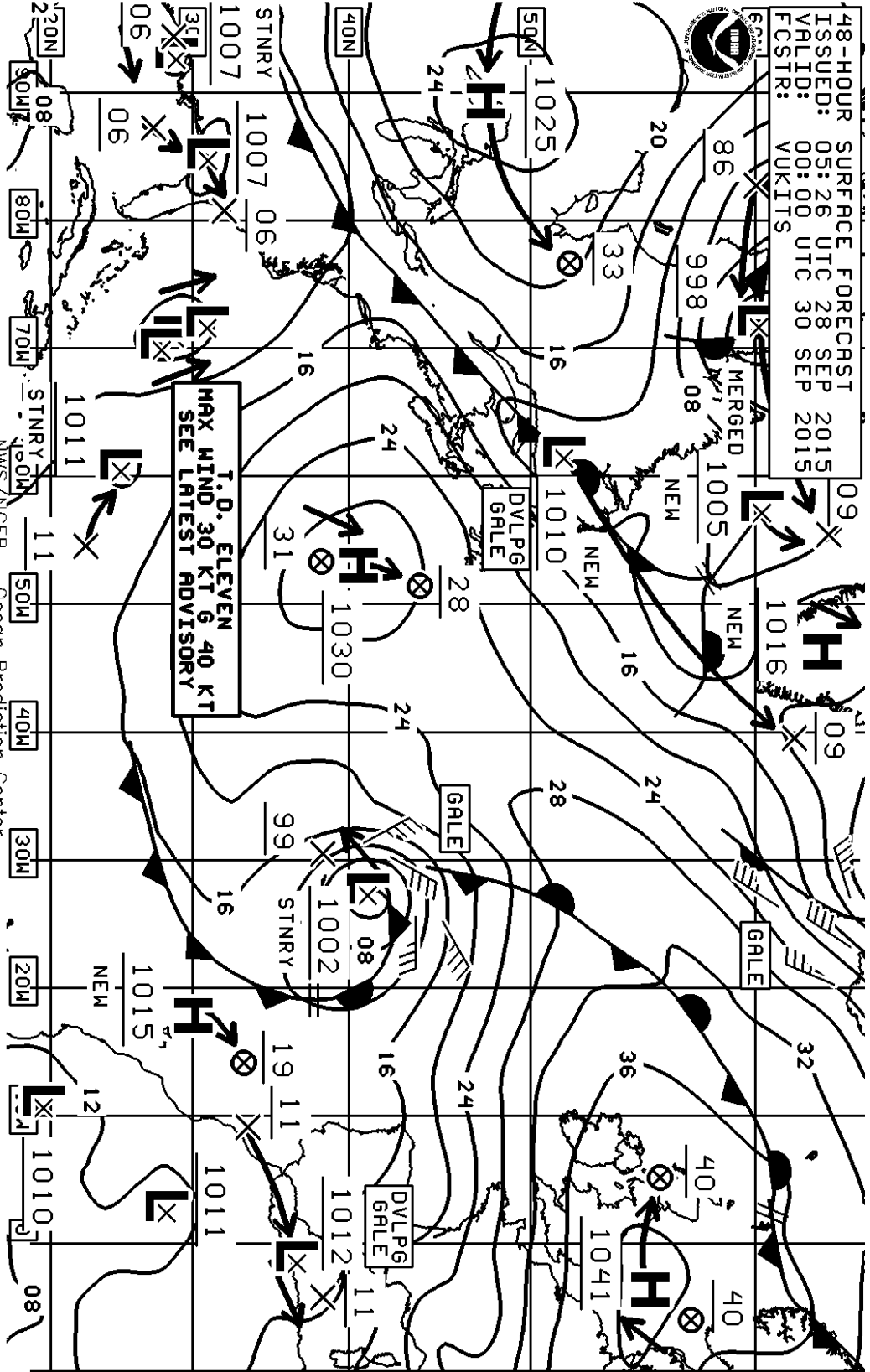
2590E

48-HOUR SURFACE FORECAST
 ISSUED: 17:34 UTC 27 SEP 2015
 VALID: 12:00 UTC 29 SEP 2015
 FCSIR: SCOVIL



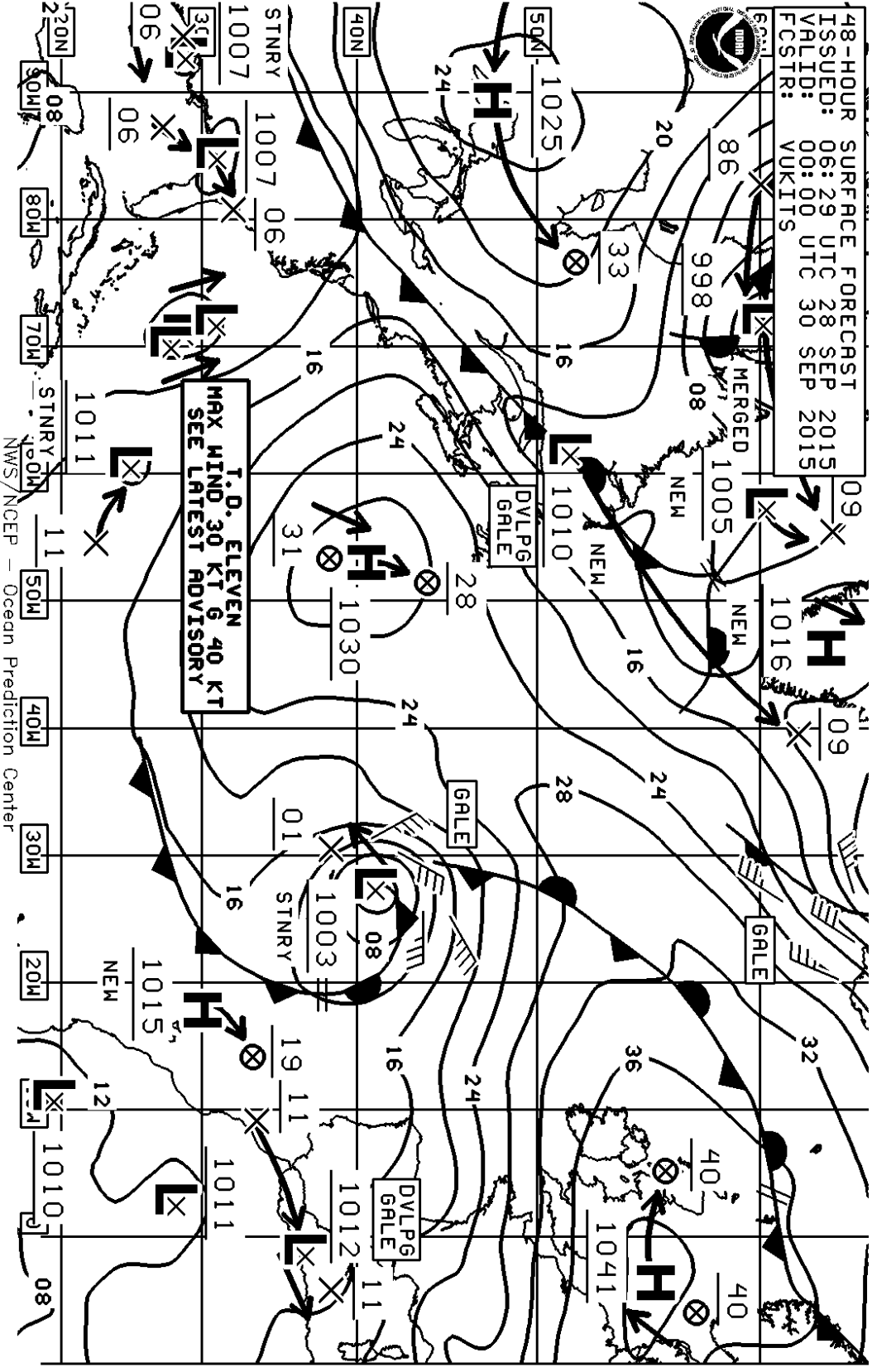
NWS/NCEP - Ocean Prediction Center
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48-HOUR SURFACE FORECAST
 ISSUED: 05:26 UTC 28 SEP 2015
 VALID: 00:00 UTC 30 SEP 2015
 FCSTR: VUKIITS



NWS/NCEP - Ocean Prediction Center
 www.opc.ncep.noaa.gov

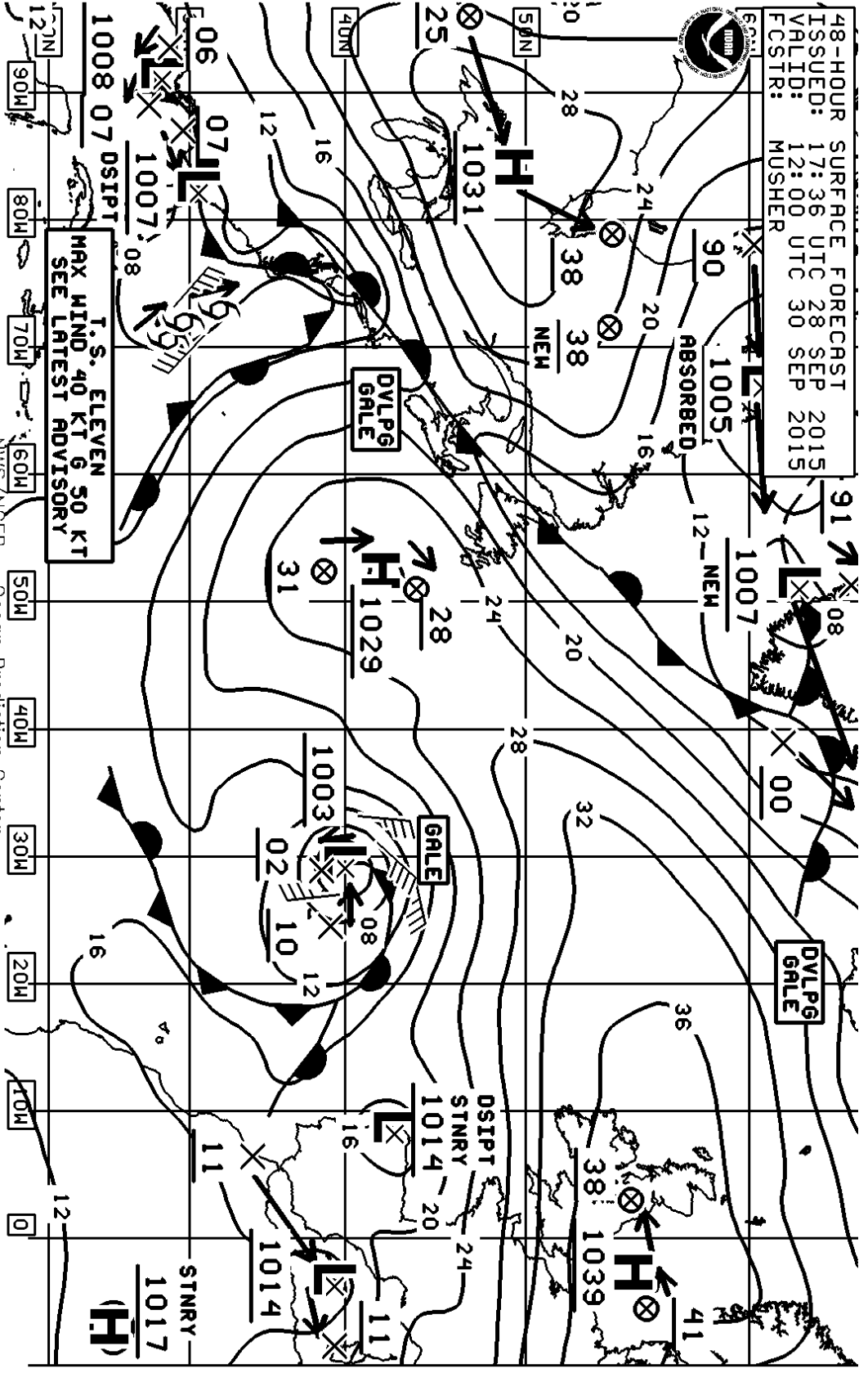
48-HOUR SURFACE FORECAST
 ISSUED: 06:29 UTC 28 SEP 2015
 VALID: 00:00 UTC 30 SEP 2015
 FCSTR: VUKITS



T.D. ELEVEN
 MAX WIND 30 KT 6 40 KT
 SEE LATEST ADVISORY

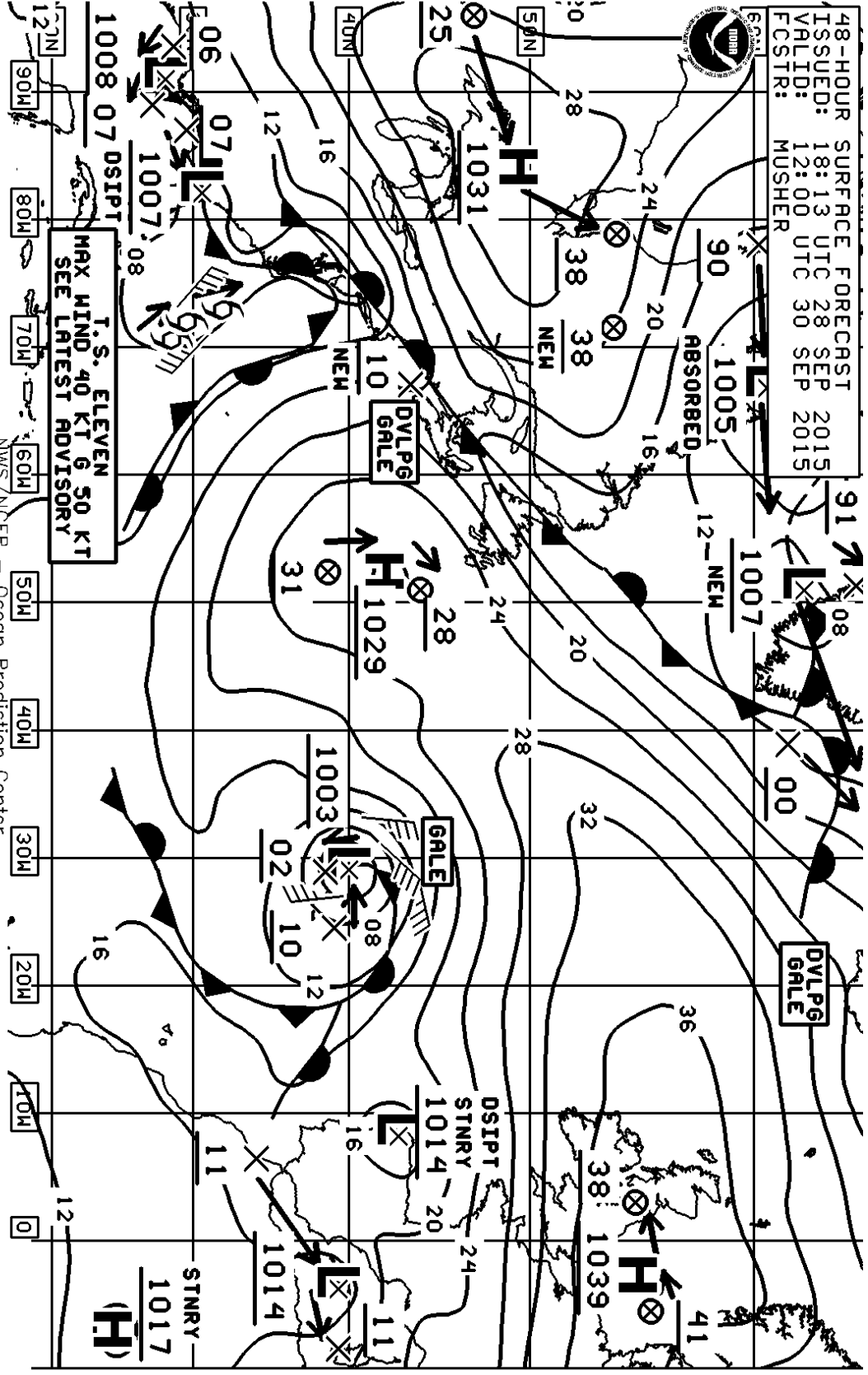
NWS/NCEP - Ocean Prediction Center
 www.opc.ncep.noaa.gov

48-HOUR SURFACE FORECAST
 ISSUED: 17:36 UTC 28 SEP 2015
 VALID: 12:00 UTC 30 SEP 2015
 FCSTR: MUSHER



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 www.opc.ncep.noda.gov

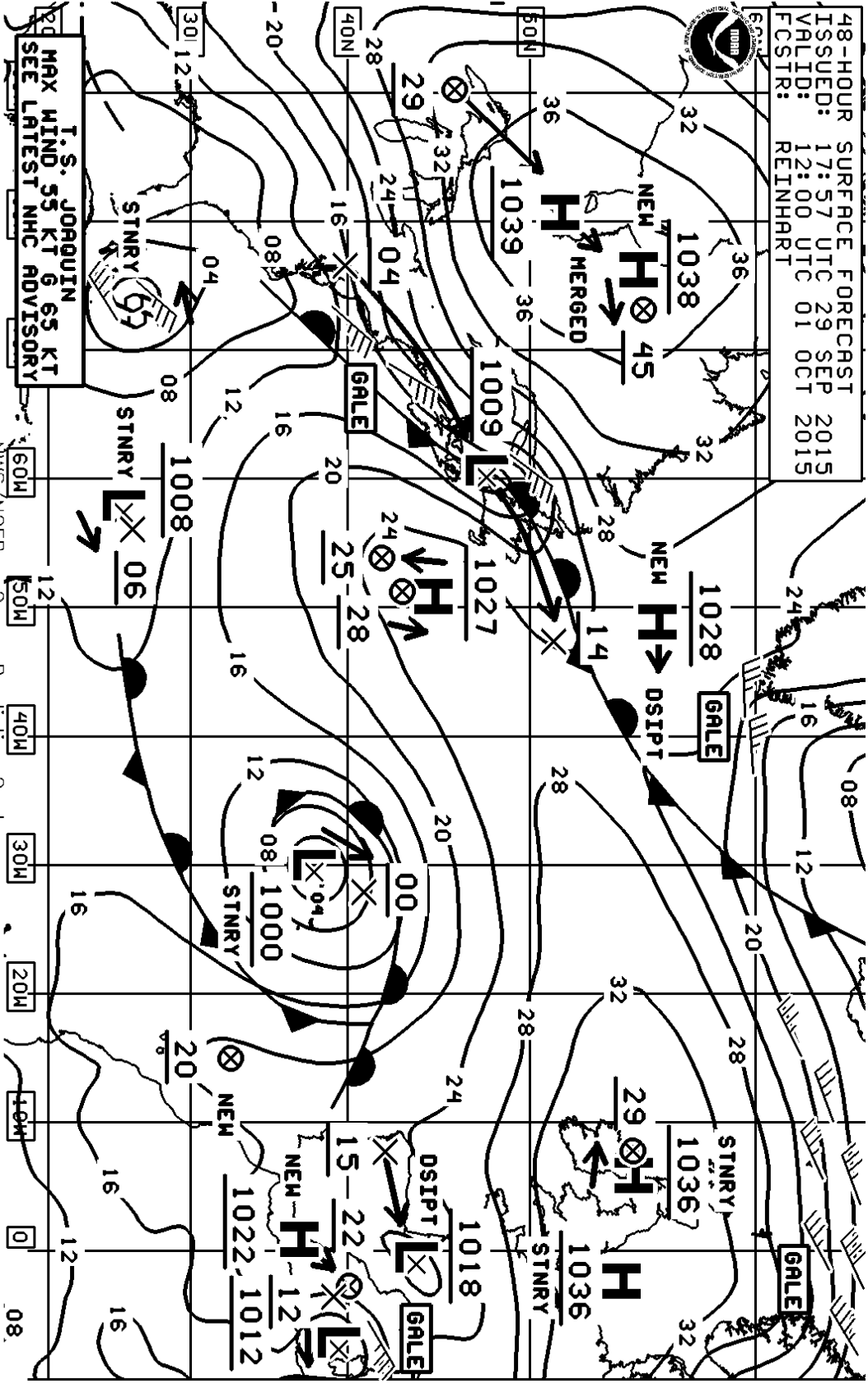
48-HOUR SURFACE FORECAST
 ISSUED: 18:13 UTC 28 SEP 2015
 VALID: 12:00 UTC 30 SEP 2015
 FCSTR: MUSHER



T.S. ELEVEN
 MAX WIND 40 KT 6 50 KT
 SEE LATEST ADVISORY

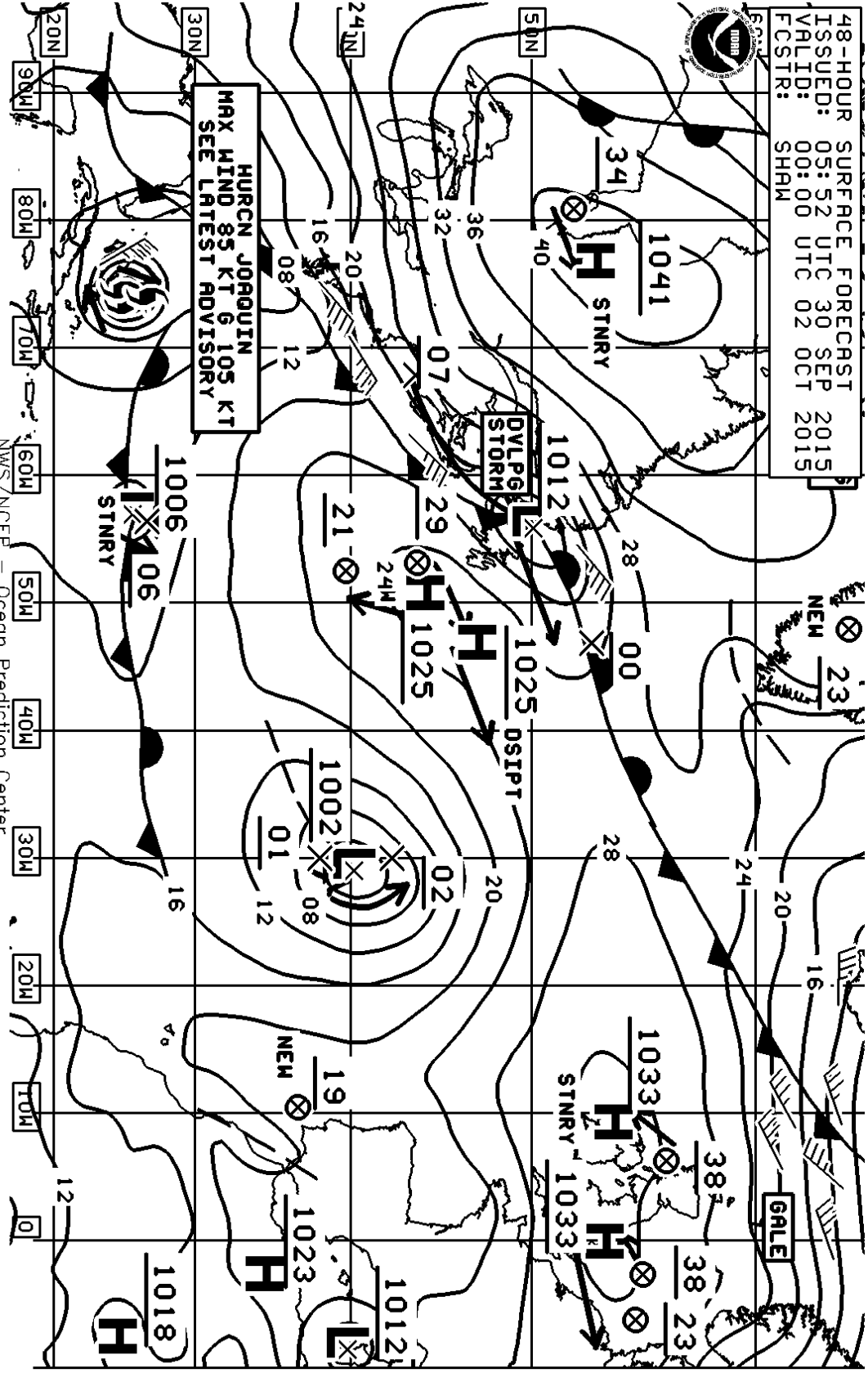
NWS/NCEP - Ocean Prediction Center
 www.opc.ncep.noaa.gov

48-HOUR SURFACE FORECAST
 ISSUED: 17:57 UTC 29 SEP 2015
 VALID: 12:00 UTC 01 OCT 2015
 FCSTR: REINHART



NWS/NCEP - Ocean Prediction Center
www.opc.ncep.noaa.gov

48-HOUR SURFACE FORECAST
 ISSUED: 05:52 UTC 30 SEP 2015
 VALID: 00:00 UTC 02 OCT 2015
 FCSTR: SHAM



NWS/NCEP - Ocean Prediction Center
 www.opc.ncep.noaa.gov