NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

March 10, 2016

Group Chairman's Weather Factual Report

METEOROLOGY

DCA16PM008

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A. ACCIDENT

Location: approximately 34 miles east of Cape Ann, Massachusetts, for the first reported problems; approximately 13 miles east of Cape Ann, Massachusetts, for the sinking location
Date: December 3, 2015
Time: approximately 0900 eastern standard time (1400 UTC[1]) first reported problems, rogue wave around 1447 eastern standard time (1947 UTC), and sank at approximately 2017 eastern standard time (0117 UTC on December 4)
Vehicle: *F/V Orin C*

B. METEOROLOGY GROUP

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C. SUMMARY

For a summary of the accident, refer to the *Accident Summary* report, which is available in the docket for this investigation.

D. DETAILS OF THE INVESTIGATION

The National Transportation Safety Board's (NTSB) Meteorologist was not on scene for this investigation and gathered all the weather data for this investigation from the NTSB's Washington D.C. office and from official National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) sources including the National Climatic Data Center (NCDC). All times are eastern standard time (EST) on December 3, 2015, and are based upon the 24-hour clock, where local time is -5 hours from UTC, and UTC=Z (unless otherwise noted). Directions are referenced to true north and distances in nautical miles. Heights are above mean sea level (msl) unless otherwise noted. Visibility is in statute miles and fractions of statute miles.

[1] UTC – is an abbreviation for Coordinated Universal Time.

The accident location was located at latitude 42.71° N, longitude 69.92° W, where the boat first reported problems. The accident vessel was hit by a “rogue wave” at latitude 42.68° N, longitude 70.16° W. The boat sinking location was located near latitude 42.57° N, longitude 70.37° W.

E. FACTUAL INFORMATION

1.0 Synoptic Situation

The synoptic or large scale migratory weather systems influencing the area were documented using standard NWS charts issued by the National Center for Environmental Prediction (NCEP), and the Weather Prediction Center (WPC) located in College Park, Maryland. These are the base products used in describing synoptic weather features and in the creation of forecasts and warnings for the NWS. Reference to these charts can be found in the, joint NWS and Federal Aviation Administration (FAA) Advisory Circular “Aviation Weather Services”, AC-0045G CHG 1.

1.1 Surface Analysis Chart

The NWS Surface Analysis Charts for 1000, 1300, 1600, and 1900 EST are provided as figures 1 through 4, with the approximate location of the accident site marked. The 1000 EST chart depicted a cold front stretched north to south off the coast of the eastern United States 100 miles east of the accident site and that cold front continued to move eastward with time (figures 1 through 4) away from the East Coast. A surface low pressure center with a pressure of 998- to 996-hectopascals (hPa) was located near Nova Scotia between 1000 and 1900 EST and moved eastward with time. The station models around the accident site depicted air temperatures in the low 40’s to upper 40’s Fahrenheit (F), with temperature-dew point spreads of 5° F or more, northwest to west wind between 10 and 20 knots, and mostly cloudy skies. The temperature-dew point spread increased between 1000 and 1900 EST near the accident site with drier surface air moving from west to east across the accident area. The surface wind speed across the accident area was the strongest between 1000 and 1600 EST with wind speeds dropping by 5 knots across the area by 1900 EST.

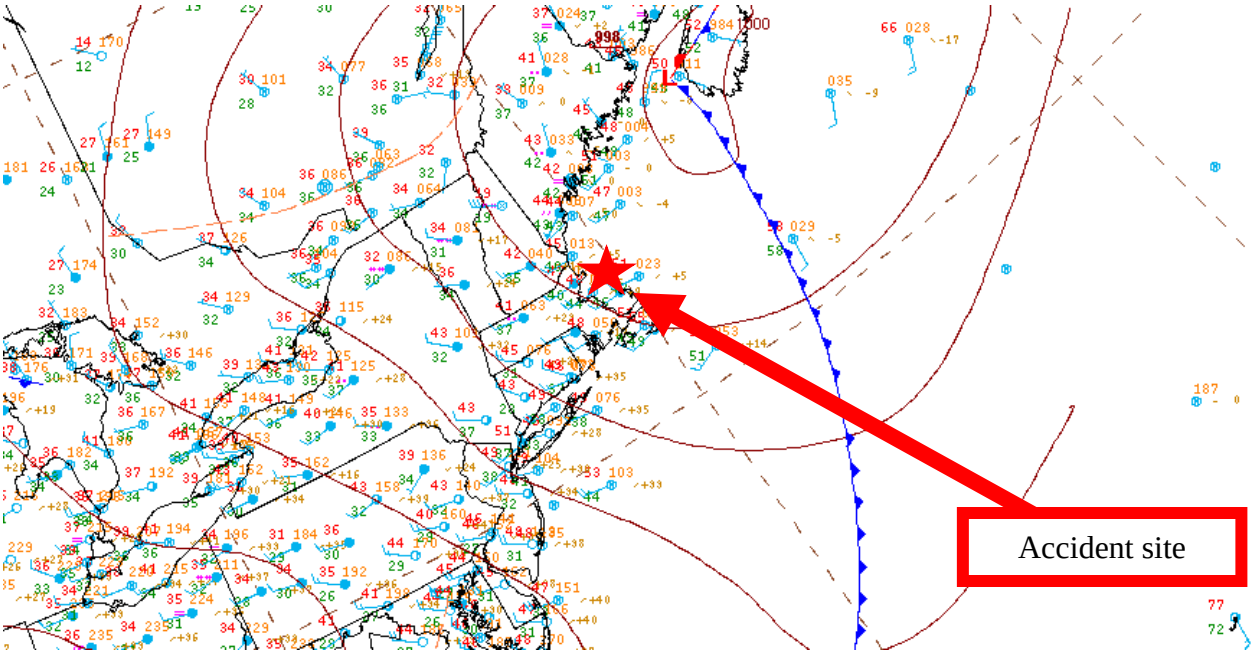

Figure 1 – NWS Surface Analysis Chart for 1000 EST

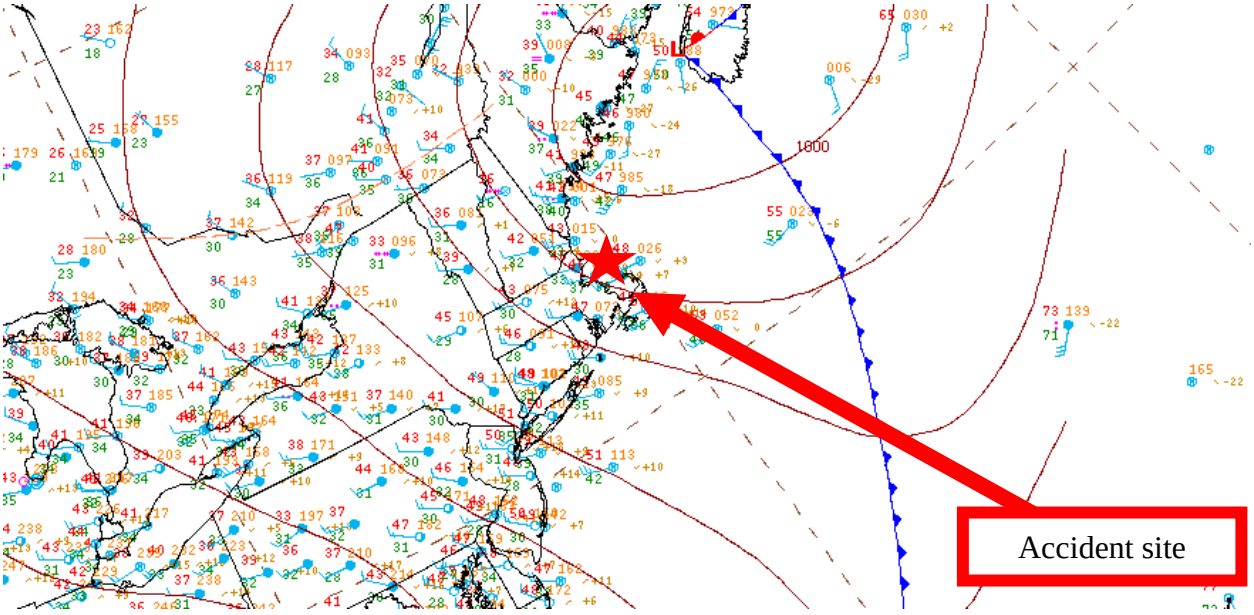

Figure 2 – NWS Surface Analysis Chart for 1300 EST

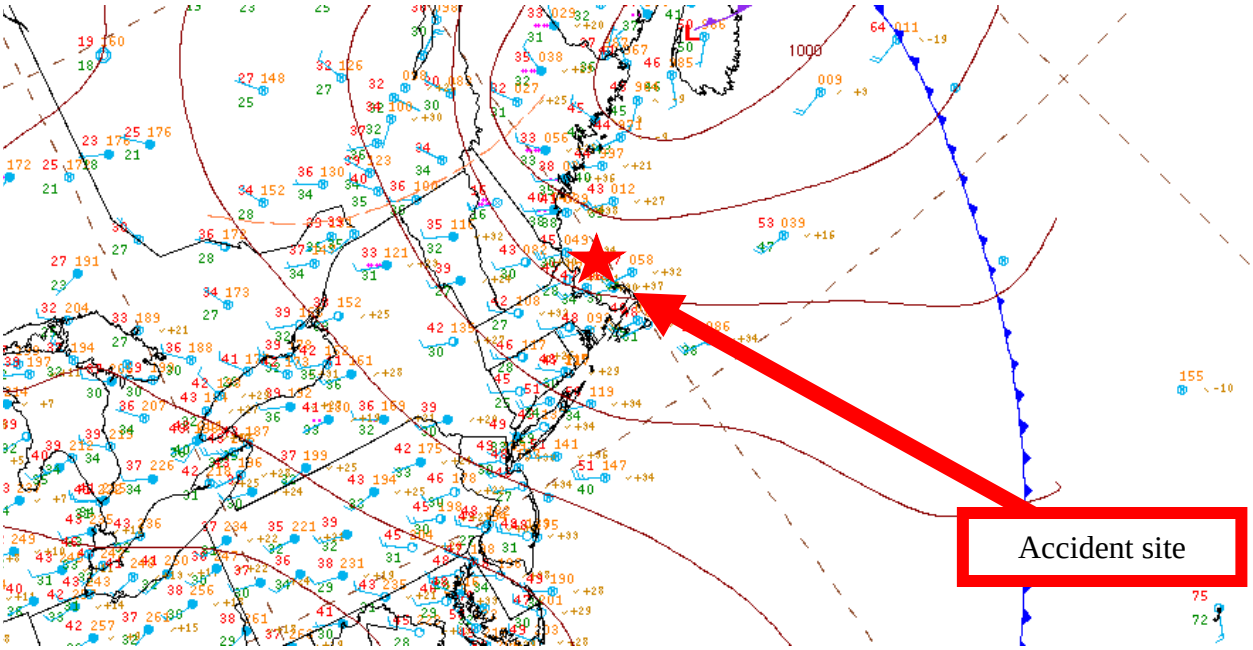

Figure 3 – NWS Surface Analysis Chart for 1600 EST

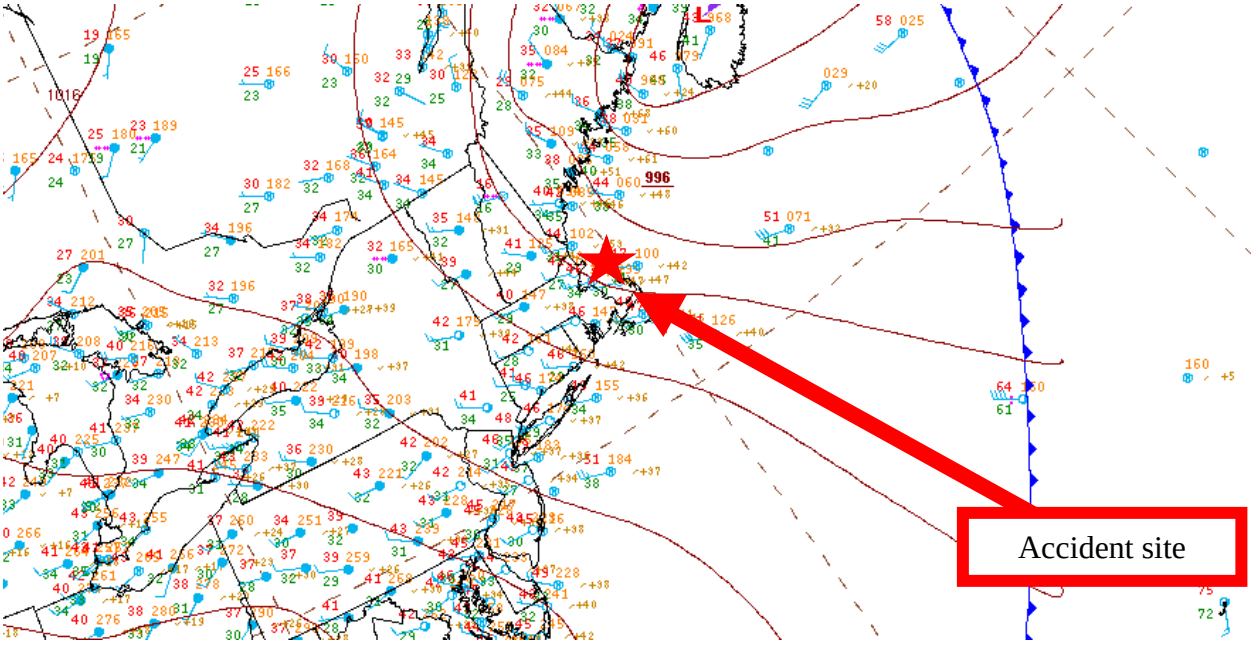

Figure 4 – NWS Surface Analysis Chart for 1900 EST

1.2 Upper Air Charts

The NWS Storm Prediction Center (SPC) Constant Pressure Charts for 1900 EST at 925-, 850-, 700-, 500-, and 300-hPa are presented in figures 5 through 9. The charts depicted low- and mid-level troughs[2] in the vicinity of the accident site. Areas near and ahead of troughs are typically areas where enhanced lift, clouds, and precipitation can occur. The more abundant moisture at mid- and upper-levels was east of the accident near the cold front (figures 1 through 4). At 925- and 850-hPa the wind was from the west between 35 and 55 knots. The wind increased above 70 knots by 500-hPa and became southwesterly. A southwesterly wind continued through 300-hPa with the wind speed increasing to over 120 knots.

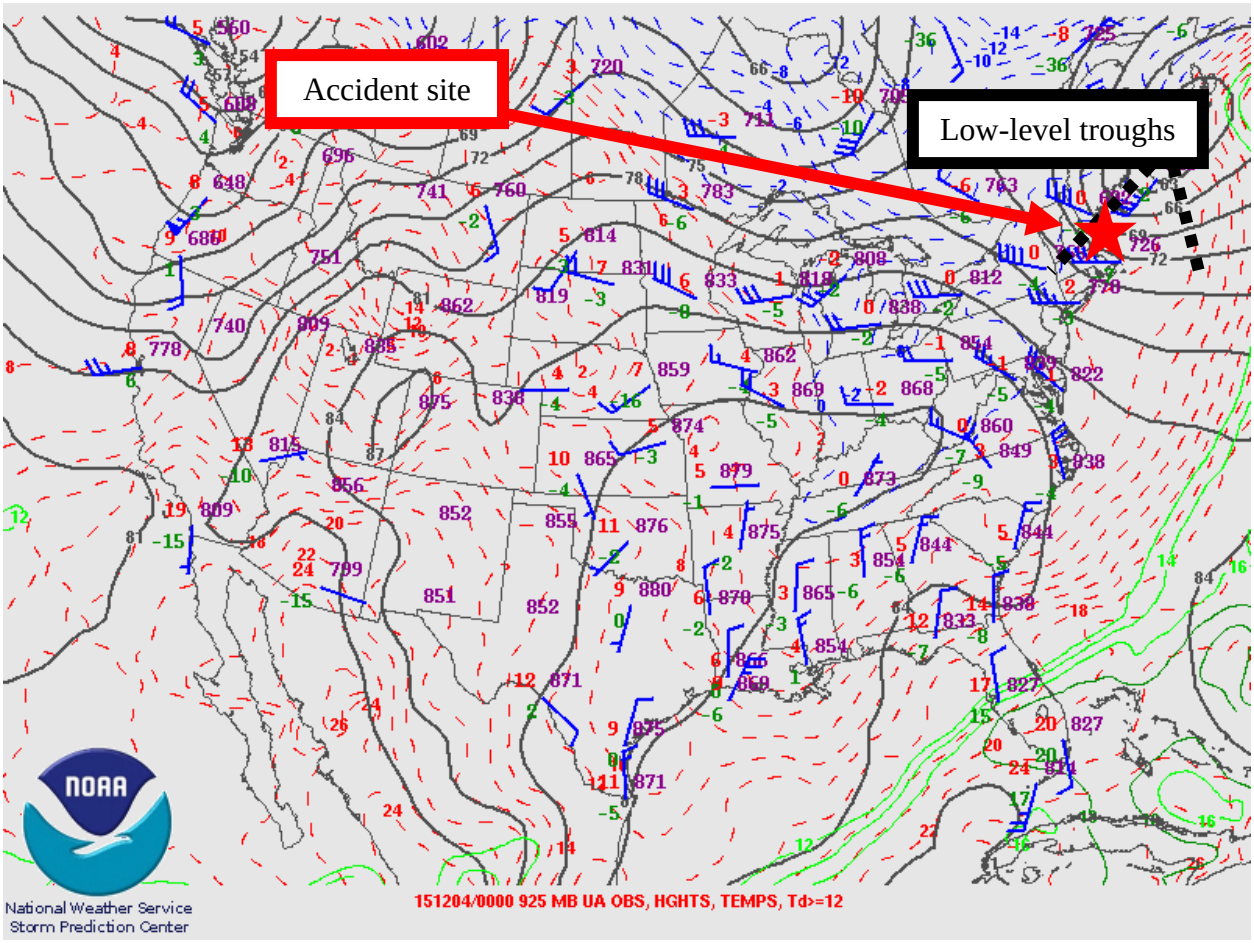

Figure 5 – 925-hPa Constant Pressure Chart for 1900 EST

[2] Trough – An elongated area of relatively low atmospheric pressure or heights.

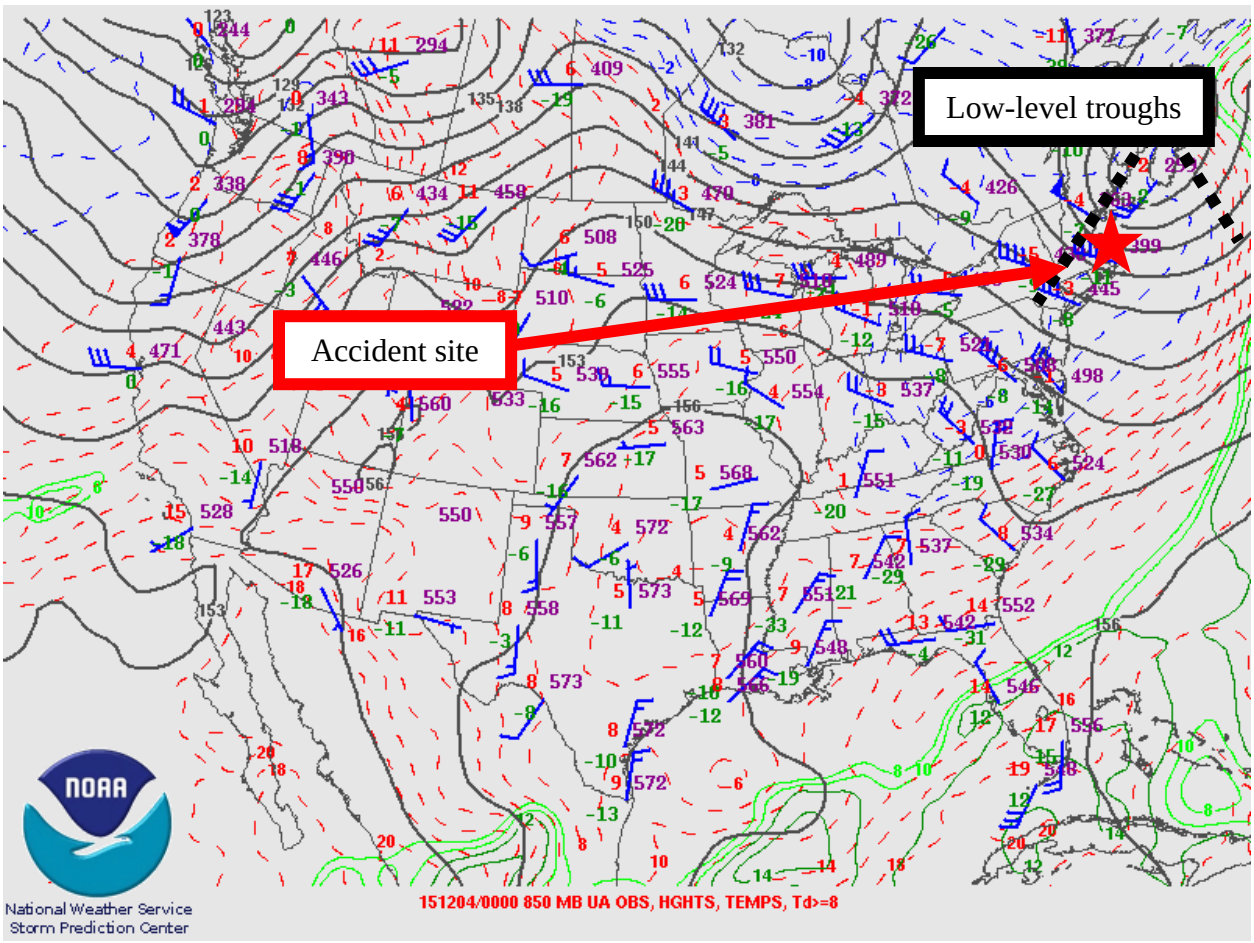

Figure 6 – 850-hPa Constant Pressure Chart for 1900 EST

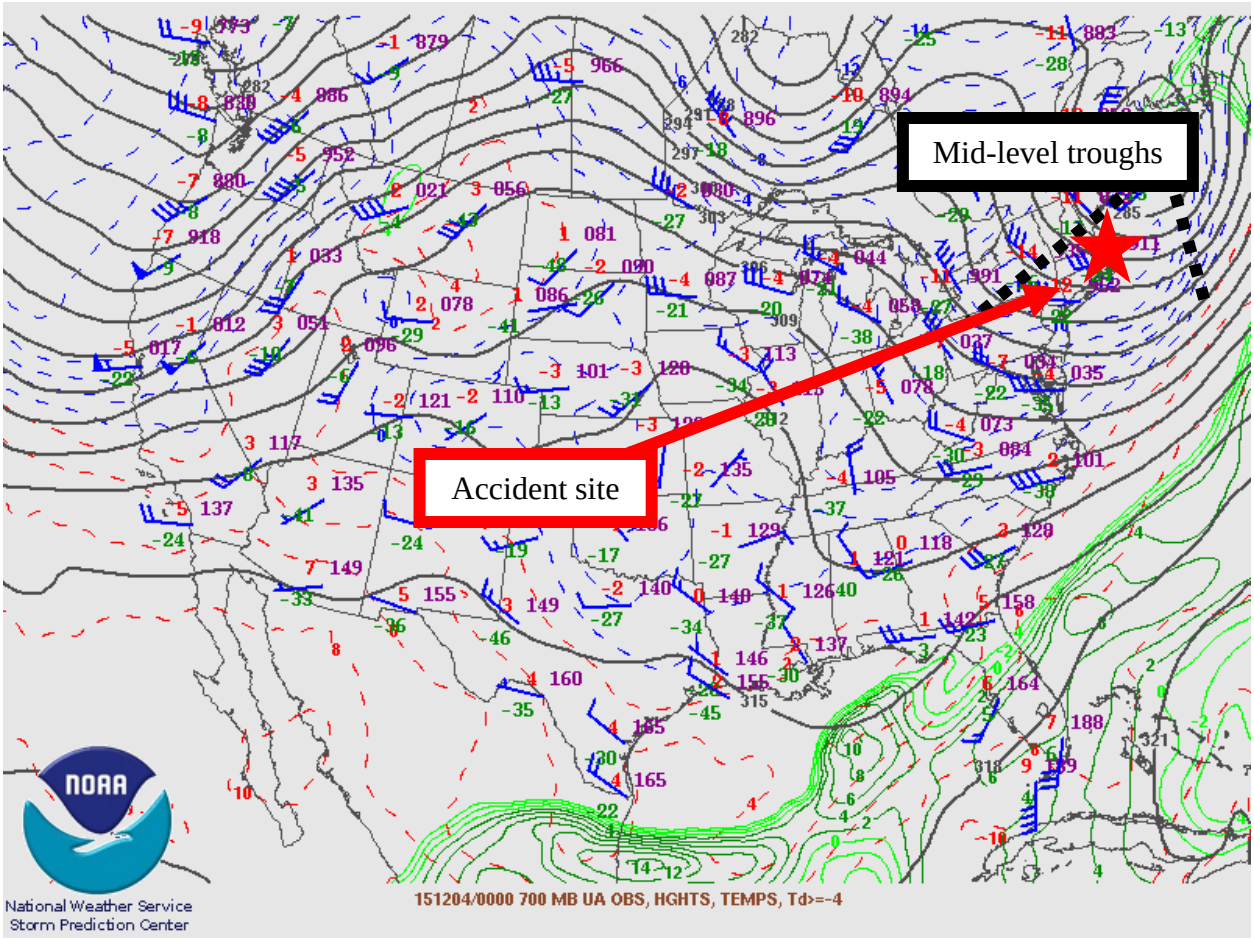

Figure 7 – 700-hPa Constant Pressure Chart for 1900 EST

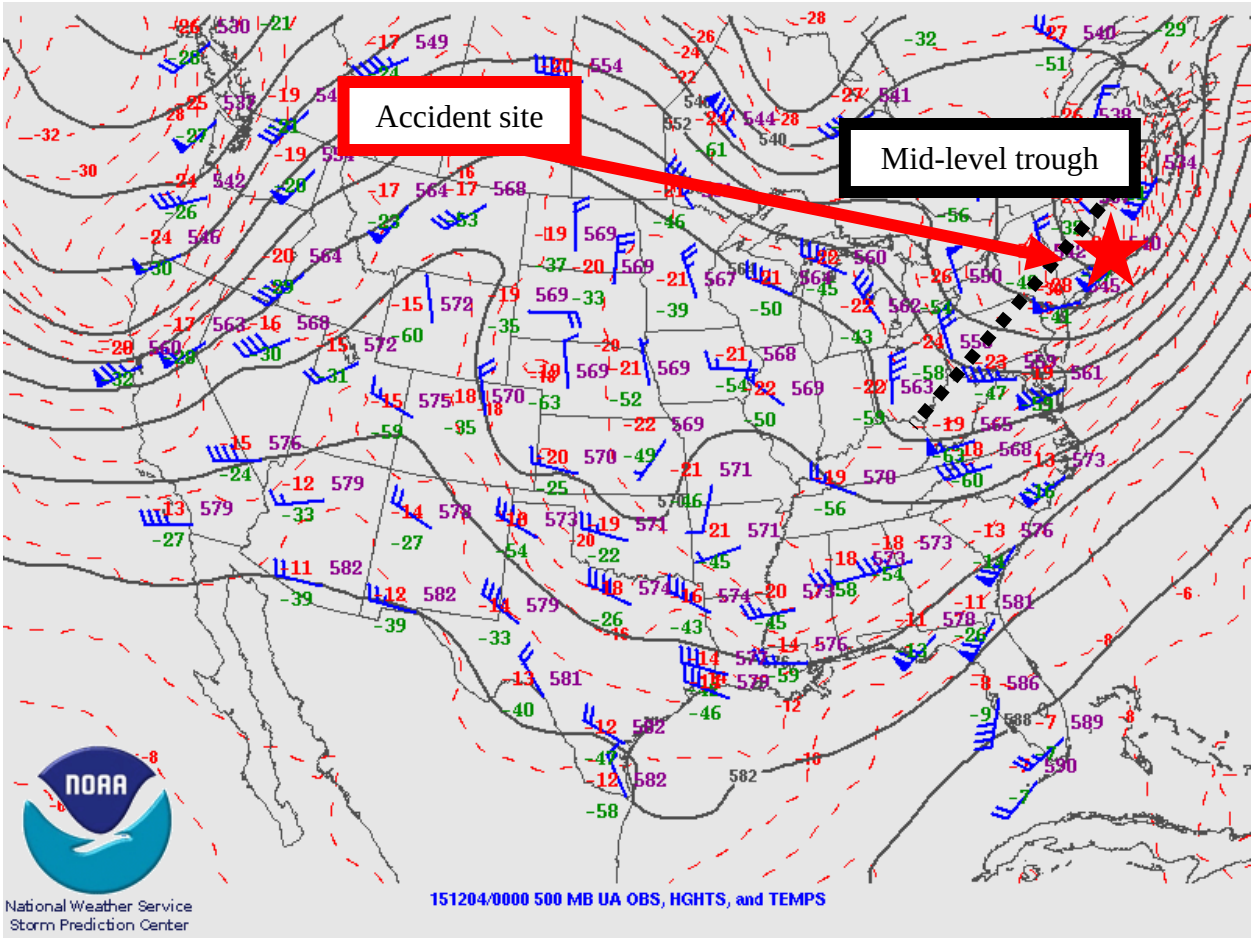

Figure 8 – 500-hPa Constant Pressure Chart for 1900 EST

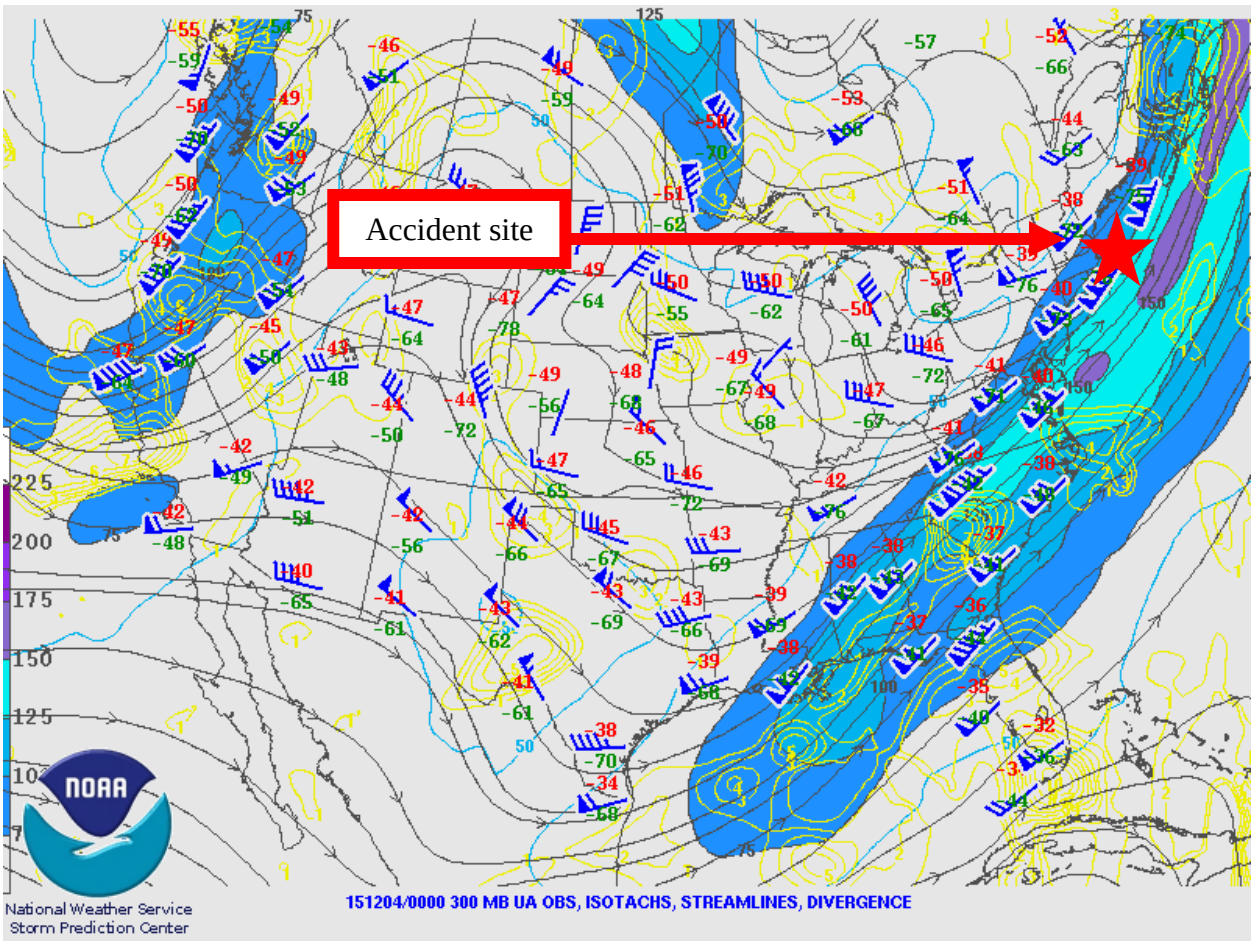

Figure 9 – 300-hPa Constant Pressure Chart for 1900 EST

2.0 Surface Observations

The area surrounding the accident site was documented utilizing official NWS Meteorological Aerodrome Reports (METARs) and Specials (SPECIs). The following observations were taken from standard code and are provided in plain language.

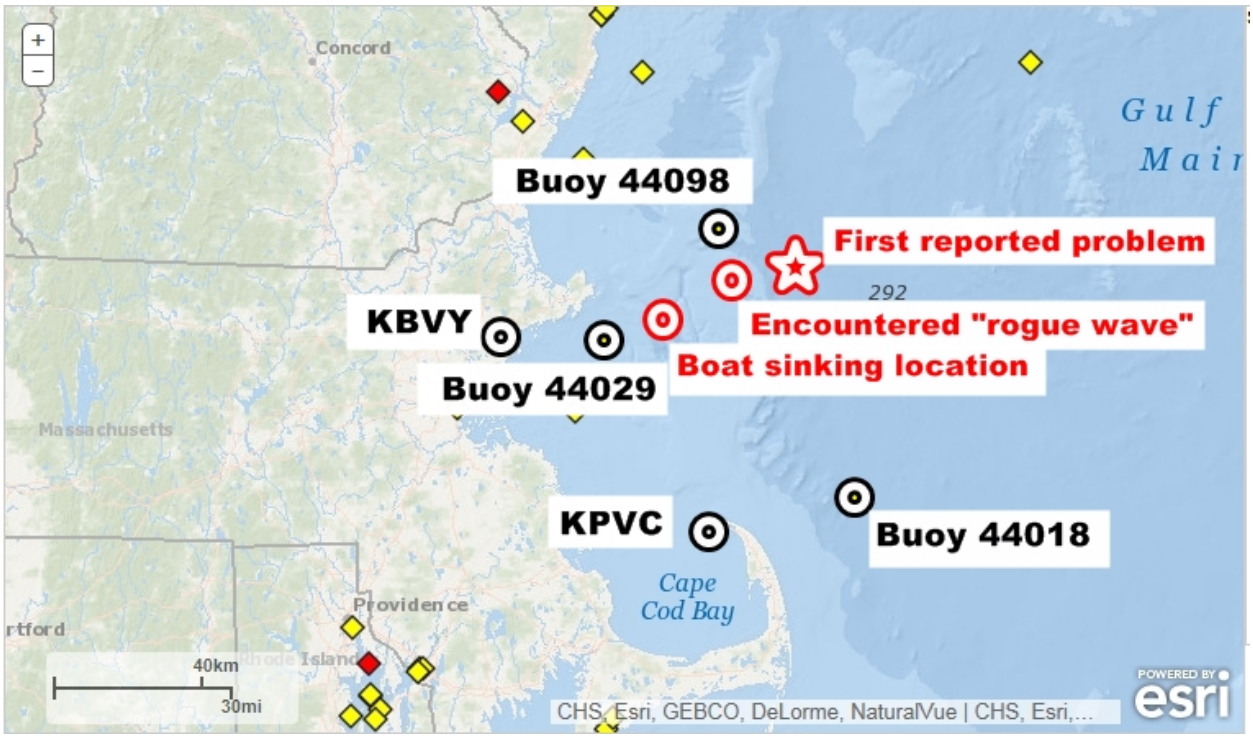

Figure 10 – Map of the Boston area with the location of the accident site and surface observation sites

Provincetown Municipal Airport (KPVC) was the closest official surface land weather station to the accident site located 2 mile northwest of Provincetown, Massachusetts, and had an Automated Weather Observing System (AWOS[3]) whose reports were not supplemented by a human observer. KPVC was located 39 miles south-southwest of the accident site, at an elevation of 8 feet, and had a 16° westerly magnetic variation[4] (figure 10). The following observations were taken and disseminated during the times surrounding the accident:[5]

[0735 EST] KPVC 031235Z 25007KT 10SM BKN020 BKN024 OVC090 11/11 A2960 RMK AO2 SLP296 PWINO FZRANO RVRNO=

[0752 EST] KPVC 031252Z AUTO 26008KT 10SM FEW022 BKN085 11/11 A2961 RMK AO2=

[0755 EST] KPVC 031255Z 26009KT 10SM FEW022 BKN085 11/11 A2961 RMK AO2 SLP296 PWINO FZRANO RVRNO=

[3] AWOS – Automated Weather Observing System is equipped with meteorological instruments to observe and report temperature, dewpoint, wind speed and direction, visibility, cloud coverage and ceiling up to twelve thousand feet, and altimeter setting.
[4] Magnetic variation – The angle (at a particular location) between magnetic north and true north.
[5] The bold sections in this NWS product and the rest of products in the weather factual report are to highlight the individual sections that directly reference the weather conditions that are or will affect the accident location around the accident time.

[0756 EST] KPVC 031256Z AUTO 27009KT 10SM FEW024 BKN085 11/11 A2961 RMK AO2 SLP025 T01110106=

[0815 EST] KPVC 031315Z 26010KT 10SM OVC085 11/11 A2962 RMK AO2 SLP296 PWINO FZRANO RVRNO=

[0835 EST] KPVC 031335Z 26009KT 10SM SCT015 BKN030 OVC085 11/10 A2961 RMK AO2 SLP296 PWINO FZRANO RVRNO=

[0855 EST] KPVC 031355Z 27010KT 10SM SCT012 BKN017 OVC033 11/10 A2962 RMK AO2 SLP296 PWINO FZRANO RVRNO=

[0856 EST] KPVC 031356Z AUTO 27009KT 10SM SCT012 SCT017 OVC033 11/10 A2962 RMK AO2 SLP030 T01060100=

ACCIDENT TIME 0900 EST

[0913 EST] KPVC 031413Z AUTO 29009KT 10SM BKN012 OVC031 11/09 A2962 RMK AO2=

[0915 EST] KPVC 031415Z 28008KT 10SM BKN012 OVC031 11/09 A2962 RMK AO2 SLP296 PWINO FZRANO RVRNO=

[0935 EST] KPVC 031435Z 28009KT 10SM SCT012 OVC110 10/08 A2962 RMK AO2 SLP296 PWINO FZRANO RVRNO=

[0955 EST] KPVC 031455Z 27012KT 10SM SCT012 BKN029 OVC110 10/08 A2963 RMK AO2 SLP296 PWINO FZRANO RVRNO=

[0956 EST] KPVC 031456Z AUTO 27011KT 10SM SCT012 BKN029 OVC110 10/08 A2963 RMK AO2 SLP033 T01000083 53007=

[1015 EST] KPVC 031515Z 26014KT 10SM BKN012 OVC029 09/08 A2964 RMK AO2 SLP296 PWINO FZRANO RVRNO=

[1025 EST] KPVC 031525Z AUTO 26020G25KT 10SM BKN014 BKN029 OVC038 09/07 A2964 RMK AO2=

KPVC weather at 0855 EST, wind from 270° at 10 knots, 10 miles visibility, scattered clouds at 1,200 above ground level (agl), broken ceiling at 1,700 feet agl, overcast skies at 3,300 feet agl, temperature of 11° C, dew point temperature of 10° C, and an altimeter setting of 29.62 inches of mercury. Remarks: automated station with precipitation discriminator, sea level pressure 1029.6 hPa, present weather identifier sensor not operating, freezing rain sensor not operating, and runway visual range should not be reported, but is missing.

KPVC weather at 0856 EST, wind from 270° at 9 knots, 10 miles visibility, scattered clouds at 1,200 agl, scattered clouds at 1,700 feet agl, overcast ceiling at 3,300 feet agl, temperature of 11° C, dew point temperature of 10° C, and an altimeter setting of 29.62 inches of mercury. Remarks: automated station with precipitation discriminator, sea level pressure 1003.0 hPa, temperature of 10.6° C, dew point temperature of 10.0° C.

KPVC weather at 0913 EST, wind from 290° at 9 knots, 10 miles visibility, broken ceiling at 1,200 agl, overcast skies at 3,100 feet agl, temperature of 11° C, dew point temperature of 9° C, and an altimeter setting of 29.62 inches of mercury. Remarks: automated station with precipitation discriminator.

KPVC weather at 0915 EST, wind from 280° at 8 knots, 10 miles visibility, broken ceiling at 1,200 feet agl, overcast skies at 3,100 feet agl, temperature of 11° C, dew point temperature of 9° C, and an altimeter setting of 29.62 inches of mercury. Remarks: automated station with precipitation discriminator, sea level pressure 1002.9 hPa, present weather identifier sensor not operating, freezing rain sensor not operating, and runway visual range should not be reported, but is missing.

For additional KPVC observations surrounding the accident and boat sinking times please see attachment 1.

Beverly Municipal Airport (KBVY), was located 3 miles northwest of Beverly, Massachusetts, and had an Automated Surface Observing System (ASOS[6]) whose reports were supplemented by air traffic control. KBVY was located 45 miles west of the accident site, had an elevation of 107 feet, and had a 16° westerly magnetic variation (figure 10). The following observations were taken and disseminated during the times surrounding the accident:

[0618 EST] KBVY 031118Z AUTO 26003KT 1/2SM FG VV002 07/07 A2958 RMK AO2 T00720067=

[0637 EST] KBVY 031137Z AUTO 24003KT 1/4SM FG VV002 07/07 A2958 RMK AO2 T00720067=

[0653 EST] KBVY 031153Z AUTO 24005KT 1/4SM FG VV002 07/07 A2958 RMK AO2 SLP013 70021 T00720067 10094 20072 51011=

[0715 EST] KBVY 031215Z 27008KT 4SM BR SCT002 OVC045 07/06 A2959 RMK AO2 T00720061=

[0735 EST] KBVY 031235Z 25007KT 10SM FEW002 BKN028 OVC045 07/07 A2960 RMK AO2 T00720067=

[0749 EST] KBVY 031249Z 27009KT 10SM BKN030 BKN035 OVC048 07/06 A2961 RMK AO2=

[6] ASOS – Automated Surface Observing System is equipped with meteorological instruments to observe and report wind, visibility, ceiling, temperature, dewpoint, altimeter, and barometric pressure.

[0753 EST] KBVY 031253Z 26011KT 10SM BKN030 BKN035 OVC050 07/06 A2962 RMK AO2 SLP025 T00720061=

[0853 EST] KBVY 031353Z 27009KT 10SM SCT050 08/06 A2962 RMK AO2 SLP025 T00830061=

ACCIDENT TIME 0900 EST

[0930 EST] KBVY 031430Z 27011G17KT 10SM BKN028 08/05 A2961 RMK AO2 T00830050=

[0953 EST] KBVY 031453Z 27010G18KT 10SM SCT022 OVC032 08/04 A2963 RMK AO2 SLP029 T00830044 53005=

[1004 EST] KBVY 031504Z 27013G19KT 10SM BKN022 OVC031 08/04 A2963 RMK AO2 T00780039=

[1053 EST] KBVY 031553Z 27016G24KT 10SM OVC025 08/03 A2963 RMK AO2 SLP031 T00780028=

[1153 EST] KBVY 031653Z 29016G23KT 10SM SCT022 BKN028 OVC036 08/03 A2964 RMK AO2 PK WND 27027/1614 RAB11E35 SLP034 P0000 T00780028=

[1200 EST] KBVY 031700Z 28018G23KT 10SM -RA SCT024 OVC032 08/02 A2964 RMK AO2 RAB00 P0000 T00780022=

[1253 EST] KBVY 031753Z 29012G29KT 10SM SCT032 BKN055 OVC070 08/01 A2966 RMK AO2 PK WND 29029/1746 RAB00E08 SLP039 P0000 60000 T00780006 10089 20072 53010=

KBVY weather at 0753 EST, wind from 260° at 11 knots, 10 miles visibility, a broken ceiling at 3,000 feet agl, broken skies at 3,500 feet agl, overcast skies at 5,000 feet agl, temperature of 7° C, dew point temperature of 6° C, and an altimeter setting of 29.62 inches of mercury. Remarks: automated station with precipitation discriminator, sea level pressure 1002.5 hPa, temperature of 7.2° C, dew point temperature of 6.1° C.

KBVY weather at 0853 EST, wind from 270° at 9 knots, 10 miles visibility, scattered clouds at 5,000 feet agl, temperature of 8° C, dew point temperature of 6° C, and an altimeter setting of 29.62 inches of mercury. Remarks: automated station with precipitation discriminator, sea level pressure 1002.5 hPa, temperature of 8.3° C, dew point temperature of 6.1° C.

KBVY weather at 0930 EST, wind from 270° at 11 knots with gusts to 17 knots, 10 miles visibility, a broken ceiling at 2,800 feet agl, temperature of 8° C, dew point temperature of 5° C, and an altimeter setting of 29.61 inches of mercury. Remarks: automated station with precipitation discriminator, temperature of 8.3° C, dew point temperature of 5.0° C.

KBVY weather at 0953 EST, wind from 270° at 10 knots with gusts to 18 knots, 10 miles visibility, scattered clouds at 2,200 feet agl, overcast ceiling at 3,200 feet agl, temperature of 8° C, dew point temperature of 4° C, and an altimeter setting of 29.63 inches of mercury. Remarks: automated station with precipitation discriminator, sea level pressure 1002.9 hPa, temperature of 8.3° C, dew point temperature of 4.4° C, 3-hourly pressure increase of 0.5 hPa.

For additional KBVY observations surrounding the accident and boat sinking times please see attachment 2.

2.1 Local Marine Observations

Additional surface and marine observations were examined north and east of Cape Cod, Massachusetts, and the closest buoy with wave observations to the accident site was Buoy 44098 at Jeffrey's Ledge, a University of New Hampshire maintained buoy located 12 miles west-northwest of the accident site (figure 10). Around the accident time the significant wave heights[7] at Buoy 44098 were around 3 feet high (figure 11). The mean wave direction was from 134° to 137° with the water temperature of 9.8° C. Around the 1447 EST "rogue wave" encountered time, the significant wave heights had increased to 7.2 feet at Buoy 44098 located 7 miles north-northwest of the "rogue wave" encounter location. The significant wave heights increased to as high as 8 feet by 1730 EST with the mean wave direction shifting to the west by 1030 EST.

[7] For greater detail on significant wave heights please see section 17.0

#YY	MM	DD	hh	mm	WDIR	WSPD	GST	WVHT	DPD	APD	MWD	PRES	ATMP	WTMP	DEWP	VIS	PTDY	TIDE
#yr	mo	dy	hr	mn	degT	m/s	m/s	m	sec	sec	degT	hPa	degC	degC	degC	nmi	hPa	ft
2015	12	4	3	4	MM	MM	MM	1.8	5	4.4	289	MM	MM	9.6	MM	MM	MM	MM
2015	12	4	2	34	MM	MM	MM	1.8	6	4.4	286	MM	MM	9.6	MM	MM	MM	MM
2015	12	4	2	4	MM	MM	MM	1.9	5	4.5	292	MM	MM	9.7	MM	MM	MM	MM
2015	12	4	1	34	MM	MM	MM	1.9	5	4.4	297	MM	MM	9.7	MM	MM	MM	MM
2015	12	4	1	4	MM	MM	MM	1.8	5	4.4	293	MM	MM	9.8	MM	MM	MM	MM
2015	12	4	0	34	MM	MM	MM	1.9	5	4.6	297	MM	MM	9.8	MM	MM	MM	MM
2015	12	4	0	4	MM	MM	MM	2.1	6	4.6	301	MM	MM	9.8	MM	MM	MM	MM
2015	12	3	23	34	MM	MM	MM	2.1	6	4.8	292	MM	MM	9.8	MM	MM	MM	MM
2015	12	3	23	4	MM	MM	MM	2.3	6	5	290	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	22	34	MM	MM	MM	2.4	6	5.1	294	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	22	4	MM	MM	MM	2.3	6	5	297	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	21	34	MM	MM	MM	2.3	6	5.1	293	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	21	4	MM	MM	MM	2.2	6	4.9	285	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	20	34	MM	MM	MM	2.3	6	5.1	290	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	20	4	MM	MM	MM	2.3	6	5.1	285	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	19	34	MM	MM	MM	2.2	6	5	276	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	19	4	MM	MM	MM	2.1	6	4.9	283	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	18	34	MM	MM	MM	2.1	6	4.8	280	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	18	4	MM	MM	MM	2	5	4.8	278	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	17	34	MM	MM	MM	1.9	5	4.6	280	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	17	4	MM	MM	MM	1.8	5	4.4	273	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	16	34	MM	MM	MM	1.4	5	4.2	282	MM	MM	9.7	MM	MM	MM	MM
2015	12	3	16	4	MM	MM	MM	1.3	4	4.2	276	MM	MM	9.8	MM	MM	MM	MM
2015	12	3	15	34	MM	MM	MM	1.2	4	4.2	275	MM	MM	9.8	MM	MM	MM	MM
2015	**12**	**3**	**15**	**4**	**MM**	**MM**	**MM**	**1**	**7**	**4.3**	**135**	**MM**	**MM**	**9.8**	**MM**	**MM**	**MM**	**MM**
2015	**12**	**3**	**14**	**34**	**MM**	**MM**	**MM**	**1**	**8**	**4.8**	**134**	**MM**	**MM**	**9.8**	**MM**	**MM**	**MM**	**MM**
2015	**12**	**3**	**14**	**4**	**MM**	**MM**	**MM**	**1**	**7**	**5**	**134**	**MM**	**MM**	**9.8**	**MM**	**MM**	**MM**	**MM**
2015	12	3	13	34	MM	MM	MM	1	7	5.3	137	MM	MM	9.8	MM	MM	MM	MM
2015	12	3	13	4	MM	MM	MM	0.9	8	5.5	133	MM	MM	9.8	MM	MM	MM	MM
2015	12	3	12	34	MM	MM	MM	0.9	7	5.9	134	MM	MM	9.8	MM	MM	MM	MM
2015	12	3	12	4	MM	MM	MM	1	8	6.3	133	MM	MM	9.8	MM	MM	MM	MM
2015	12	3	11	34	MM	MM	MM	0.9	8	6.1	127	MM	MM	9.8	MM	MM	MM	MM
2015	12	3	11	4	MM	MM	MM	0.9	8	5.9	144	MM	MM	9.8	MM	MM	MM	MM
2015	12	3	10	34	MM	MM	MM	0.9	8	6	131	MM	MM	9.8	MM	MM	MM	MM
2015	12	3	10	4	MM	MM	MM	0.9	8	6.1	133	MM	MM	9.8	MM	MM	MM	MM
2015	12	3	9	34	MM	MM	MM	1	8	5.9	133	MM	MM	9.8	MM	MM	MM	MM
2015	12	3	9	4	MM	MM	MM	1	8	5.9	135	MM	MM	9.9	MM	MM	MM	MM
2015	12	3	8	34	MM	MM	MM	1	8	6	127	MM	MM	9.9	MM	MM	MM	MM
2015	12	3	8	4	MM	MM	MM	1	8	6	133	MM	MM	9.9	MM	MM	MM	MM

Figure 11 – Buoy 44098 surface and marine data from around the accident time

The closest buoy with wind observations to the accident site was Buoy 44018, a National Data Buoy Center (NDBC) maintained buoy located 36 miles south-southeast of the accident site (figure 10). Around the accident time the wind was from 240° to 280° between 12 and 23 knots (figure 12). The significant wave heights at Buoy 44018 were around 3 to 3.5 feet high (figure 12). The mean wave direction was from 137° to 148° with the water temperature of around 10.4° C. Around the 1447 EST "rogue wave" encountered time, the significant wave heights had increased to 7.5 feet at Buoy 44018 located 38 miles southeast of the "rogue wave" encounter location. The significant wave heights increased to as high as 10.5 feet by 2050 EST with the mean wave direction shifting to the west-northwest at 1150 EST.

#YY	MM	DD	hh	mm	WDI	R WSP	D GST	WVHT	DPD	APD	MWD	PRES	ATMP	WTMP	DEWP	VIS	PTDY	TIDE
#yr	mo	dy	hr	mn	deg	T m/s	m/s	m	sec	sec	deg	T hPa	degC	degC	degC	nmi	hPa	ft
2015	12	4	6	50	310	13	15	2.6	7	5.5	315	1018.3	7.5	10.2	2.1	MM	3.5	MM
2015	12	4	5	50	310	13	17	2.6	7	5.6	313	1016.9	7.7	10.2	2.2	MM	3.2	MM
2015	12	4	4	50	300	14	17	2.6	7	5.6	314	1016	7.9	10.2	1.8	MM	3.4	MM
2015	12	4	3	50	300	14	17	2.7	7	5.6	312	1014.8	8	10.2	1.7	MM	3.2	MM
2015	12	4	2	50	300	14	17	2.8	7	5.6	310	1013.7	8	10.3	1.4	MM	3.7	MM
2015	12	4	1	50	290	15	17	3.2	7	5.8	309	1012.6	8.1	10.2	1.4	MM	4.3	MM
2015	12	4	0	50	300	13	17	3	7	5.7	307	1011.6	8.3	10.2	1.6	MM	4.6	MM
2015	12	3	23	50	300	15	19	3.1	7	5.8	312	1010	8.5	10	1.2	MM	4.2	MM
2015	12	3	22	50	290	15	18	3	7	5.7	304	1008.3	8.7	10	1.6	MM	3.9	MM
2015	12	3	21	50	290	15	18	2.8	7	5.5	302	1007	8.6	10	1.9	MM	3.3	MM
2015	12	3	20	50	280	15	18	2.7	7	5.6	301	1005.8	8.5	10.1	2.1	MM	3.2	MM
2015	12	3	19	50	280	16	19	2.3	7	5.3	292	1004.4	8.1	10.1	2.6	MM	2.3	MM
2015	12	3	18	50	280	14	17	2.1	6	5	299	1003.7	8.6	10.2	4.1	MM	1.1	MM
2015	12	3	17	50	280	14	17	1.7	5	4.6	302	1002.6	9.1	10.2	4.8	MM	0.3	MM
2015	12	3	16	50	260	13	15	1.3	4	4.2	286	1002.1	9.4	10.2	5.7	MM	-0.4	MM
2015	**12**	**3**	**15**	**50**	**270**	**10**	**12**	**1.1**	**8**	**4.3**	**148**	**1002.6**	**10.1**	**10.3**	**7.7**	**MM**	**0.6**	**MM**
2015	**12**	**3**	**14**	**50**	**280**	**10**	**11**	**1**	**7**	**4.9**	**143**	**1002.3**	**10.5**	**10.4**	**8.1**	**MM**	**0.5**	**MM**
2015	**12**	**3**	**13**	**50**	**240**	**6**	**7**	**1.1**	**7**	**5.8**	**137**	**1002.5**	**11**	**10.4**	**10.9**	**MM**	**0.8**	**MM**
2015	12	3	12	50	210	4	4	1.1	7	6	135	1002	11.1	10.5	11	MM	1.2	MM
2015	12	3	11	50	230	4	5	1.1	7	5.9	132	1001.8	11.3	10.5	11.2	MM	1.2	MM
2015	12	3	10	50	210	5	6	1.1	7	5.9	128	1001.7	11.4	10.5	11.3	MM	0.8	MM
2015	12	3	9	50	230	4	5	1.1	7	5.7	136	1000.8	11.7	10.5	11.6	MM	-0.9	MM
2015	12	3	8	50	210	5	5	1.1	7	5.8	146	1000.6	11.7	10.5	11.6	MM	-1.5	MM
2015	12	3	7	50	200	4	5	1.1	8	5.9	132	1000.9	11.9	10.5	11.8	MM	-1.6	MM
2015	12	3	6	50	180	4	4	1	8	5.6	134	1001.7	11.3	10.5	11.2	MM	-1.9	MM
2015	12	3	5	50	170	5	5	1.2	8	5.8	136	1002.1	11.6	10.5	11.5	MM	-1.3	MM
2015	12	3	4	50	190	6	7	1.2	8	5.8	138	1002.5	12.2	10.5	12.1	MM	-1.2	MM
2015	12	3	3	50	210	4	4	1.3	8	6.1	133	1003.6	11.9	10.5	11.8	MM	-1.7	MM
2015	12	3	2	50	180	6	7	1.4	9	5.8	134	1003.4	11.6	10.5	11.5	MM	-3.6	MM
2015	12	3	1	50	160	8	9	1.4	8	6.2	131	1003.7	11.7	10.5	11.6	MM	-3.7	MM
2015	12	3	0	50	160	7	8	1.5	8	6.4	139	1005.3	11.5	10.5	11.4	MM	-2.3	MM
2015	12	2	23	50	180	6	7	1.4	8	6.3	141	1007	11.5	10.5	11.3	MM	-1.7	MM
2015	12	2	22	50	180	5	6	1.6	8	6.6	131	1007.4	11.4	10.5	11.2	MM	-1.8	MM
2015	12	2	21	50	170	5	6	1.5	7	6.4	142	1007.6	11.5	10.5	11.3	MM	-2.6	MM

Figure 12 – Buoy 44018 surface and marine data from around the accident time

The closest buoy with wind observations to the boat sinking location was Buoy 44029, a Northeastern Regional Association of Coastal Ocean Observing Systems maintained buoy located 9 miles west-southwest of the boat sinking location (figure 10). Around the accident time the wind at Buoy 44029 was between 14 and 23 knots, while at the time of the boat sinking the wind was between 19 and 25 knots (figure 13). At both times the wind was from the west to west-northwest. Around the accident time the significant wave heights were not available, but at the time of the boat sinking the significant wave heights were between 3 and 4 feet (figure 13).

#YY	MM	DD	hh	mm	WDI	R WSP	D GST	WVHT	DPD	APD	MWD	PRES	ATMP	WTMP	DEWP	VIS	PTDY	TIDE
#yr	mo	dy	hr	mn	deg	T m/s	m/s	m	sec	sec	degT	hPa	degC	degC	degC	nmi	hPa	ft
2015	12	4	6	4	300	8	10	0.7	4	MM	MM	MM	6.4	9.9	MM	1.6	MM	MM
2015	12	4	5	4	290	9	11	0.8	4	MM	MM	MM	6.5	10	MM	1.6	MM	MM
2015	12	4	4	4	280	10	13	0.9	4	MM	MM	MM	6.8	10	MM	1.6	MM	MM
2015	12	4	3	4	290	11	14	0.8	4	MM	MM	MM	7	10	MM	1.6	MM	MM
2015	12	4	2	4	280	10	12	0.9	4	MM	MM	MM	7.1	10	MM	1.6	MM	MM
2015	12	4	1	4	290	10	13	0.9	4	MM	MM	MM	7.2	10	MM	1.6	MM	MM
2015	12	4	0	4	280	11	13	1	4	MM	MM	MM	7.3	10	MM	1.6	MM	MM
2015	12	3	23	4	290	12	14	1	4	MM	MM	MM	7.7	10	MM	1.6	MM	MM
2015	12	3	22	4	290	11	14	1.2	5	MM	MM	MM	7.8	10	MM	1.6	MM	MM
2015	12	3	21	4	280	12	14	1.2	4	MM	MM	MM	8	10	MM	1.6	MM	MM
2015	12	3	20	4	290	13	16	1.1	4	MM	MM	MM	7.9	10	MM	1.6	MM	MM
2015	12	3	19	4	280	12	15	1.2	4	MM	MM	MM	7.4	10	MM	1.6	MM	MM
2015	12	3	18	4	290	12	15	1.2	4	MM	MM	MM	7.6	10	MM	1.6	MM	MM
2015	12	3	17	4	290	13	16	1.2	4	MM	MM	MM	7.8	10.1	MM	1.6	MM	MM
2015	12	3	16	4	270	11	13	MM	MM	MM	MM	MM	8.4	10.1	MM	1.6	MM	MM
2015	**12**	**3**	**15**	**4**	**260**	**10**	**12**	**MM**	**MM**	**MM**	**MM**	**MM**	**8.7**	**10.1**	**MM**	**1.6**	**MM**	**MM**
2015	**12**	**3**	**14**	**4**	**270**	**9**	**10**	**MM**	**MM**	**MM**	**MM**	**MM**	**8.9**	**10.1**	**MM**	**1.6**	**MM**	**MM**
2015	**12**	**3**	**13**	**4**	**260**	**7**	**9**	**MM**	**MM**	**MM**	**MM**	**MM**	**8.2**	**10.1**	**MM**	**1.6**	**MM**	**MM**
2015	12	3	12	4	250	5	5	MM	MM	MM	MM	MM	8.1	10.1	MM	0.4	MM	MM
2015	12	3	11	4	290	2	3	MM	MM	MM	MM	MM	8	10.1	MM	0.4	MM	MM
2015	12	3	10	4	350	5	6	MM	MM	MM	MM	MM	8.3	10.1	MM	0.4	MM	MM
2015	12	3	9	4	260	1	2	MM	MM	MM	MM	MM	8.9	10.1	MM	0.2	MM	MM
2015	12	3	8	4	200	2	2	MM	MM	MM	MM	MM	9.1	10.1	MM	0.2	MM	MM
2015	12	3	7	4	MM	0	1	MM	MM	MM	MM	MM	8.8	10.1	MM	0.4	MM	MM
2015	12	3	6	4	320	2	3	MM	MM	MM	MM	MM	9.7	10.1	MM	0.4	MM	MM
2015	12	3	5	4	260	1	2	MM	MM	MM	MM	MM	9.9	10.1	MM	0.3	MM	MM
2015	12	3	4	4	290	2	3	MM	MM	MM	MM	MM	9.8	10.1	MM	0.4	MM	MM
2015	12	3	3	4	260	3	4	MM	MM	MM	MM	MM	9.9	10.1	MM	0.3	MM	MM
2015	12	3	2	4	180	4	5	MM	MM	MM	MM	MM	10.6	10	MM	0.2	MM	MM
2015	12	3	1	4	140	4	4	MM	MM	MM	MM	MM	10.1	10.1	MM	1.1	MM	MM
2015	12	3	0	4	160	3	4	MM	MM	MM	MM	MM	9.7	10.1	MM	1.6	MM	MM
2015	12	2	23	4	200	3	3	MM	MM	MM	MM	MM	9.4	10.1	MM	1.4	MM	MM
2015	12	2	22	4	200	2	3	MM	MM	MM	MM	MM	9.2	10.1	MM	1.4	MM	MM
2015	12	2	21	4	190	4	4	MM	MM	MM	MM	MM	8.8	10.1	MM	0.6	MM	MM

Figure 13 – Buoy 44029 surface and marine data from around the accident time

3.0 Upper Air Data

The closest official upper air sounding to the accident site was from Chatham, Massachusetts, (KCHH) located 63 miles southwest of the accident site, with a site number 74494. The 1900 EST sounding from KCHH was plotted on a standard Skew-T log P diagram[8] with the derived stability parameters included in figure 14 (with data from the surface to 700-hPa, or 10,000 feet msl). The 1900 EST sounding was the closest sounding to the accident time and boat sinking time with representative weather conditions experienced by the accident vehicle. This upper air sounding data was analyzed utilizing the RAOB[9] software package. The sounding depicted a dry vertical environment with the Lifted Condensation Level (LCL)[10] at 2,516 feet msl, a Convective Condensation Level (CCL)[11] of 7,408 feet, and a Level of Free Convection (LFC)[12] at 3,876 feet. The freezing level was identified at 2,791 feet. The precipitable water value was 0.28 inches.

[8] Skew T log P diagram – is a standard meteorological plot using temperature and the logarithmic of pressure as coordinates, used to display winds, temperature, dew point, and various indices used to define the vertical structure of the atmosphere.

[9] RAOB – (The complete Rawinsonde Observation program) is an interactive sounding analysis program developed by Environmental Research Services, Matamopras, Pennsylvania.

[10] Lifting Condensation Level (LCL) - The height at which a parcel of moist air becomes saturated when it is lifted dry adiabatically.

[11] Convective Condensation Level (CCL) – The level in the atmosphere to which an air parcel, if heated from below, will rise dry adiabatically, without becoming colder than its environment just before the parcel becomes saturated.

[12] Level of Free Convection (LFC) – The level at which a parcel of saturated air becomes warmer than the surrounding air and begins to rise freely. This occurs most readily in a conditionally unstable atmosphere.

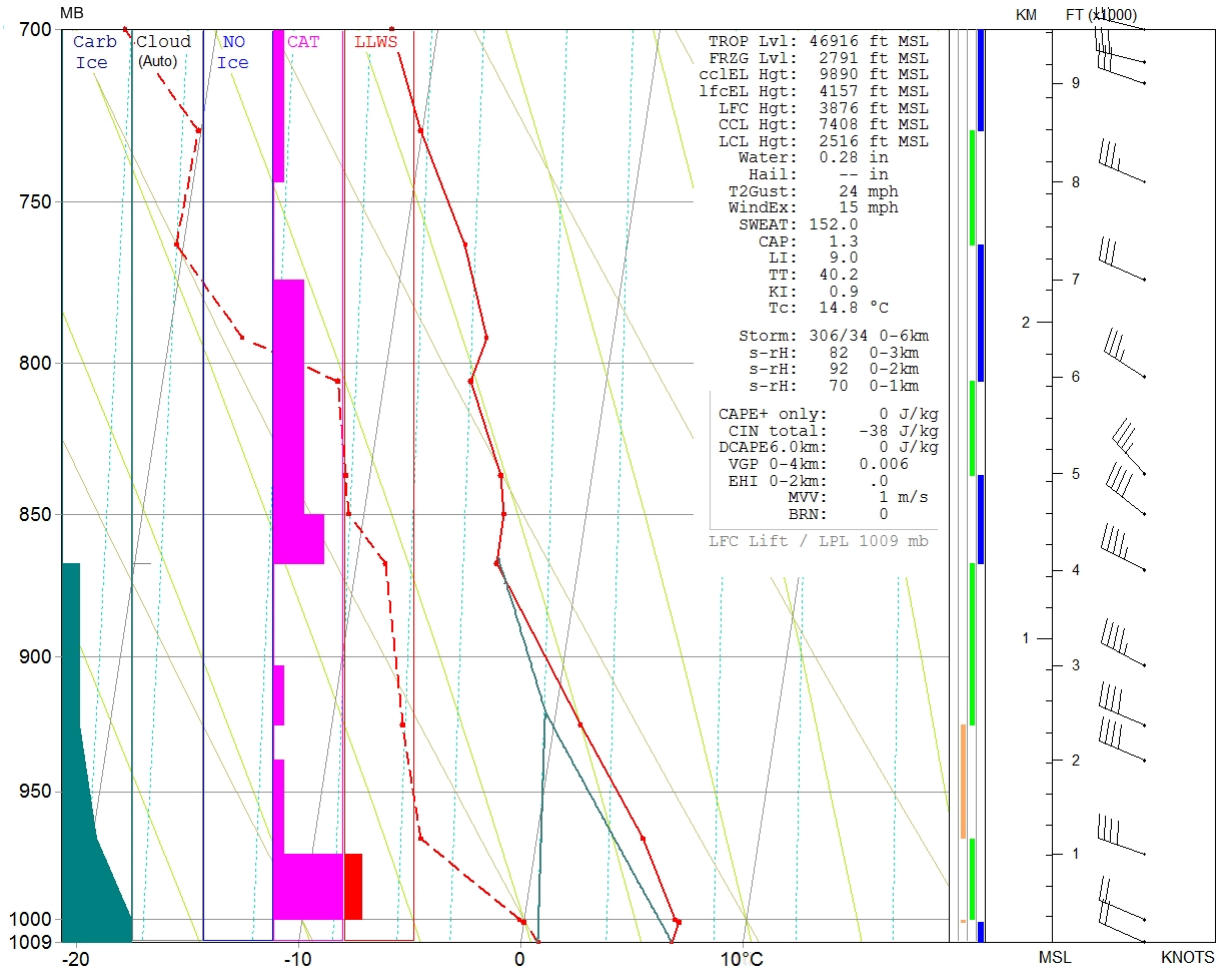

Figure 14 – 1900 EST KCHH sounding

The 1900 EST KCHH sounding indicated a relatively dry conditionally unstable environment, especially from the surface through 4,000 feet msl. This environment would have not been supportive of cloud formation as indicated by RAOB. The conditionally unstable environment would have been supportive of gusty low-level winds. Low-level wind shear (LLWS) was indicated by RAOB below 1,000 feet along with several layers of clear air turbulence from the surface through 10,000 feet. With a conditionally unstable environment any wind magnitude below 4,000 feet (the first stable layer) would have been supported to see that wind magnitude at the surface. So while the sounding wind profile indicated there was a surface wind from 295° at 19 knots, the wind speed increased to above 45 knots by 4,000 feet msl, and so wind gusts up to 45 knots were possible to the surface. The wind remained between 30 and 40 knots from 4,000 feet through 10,000 feet.

4.0 Satellite Data

Visible and infrared data from the Geostationary Operational Environmental Satellite number 13 (GOES-13) data was obtained from the NCDC and processed with the NTSB's Man-computer Interactive Data Access System (McIDAS) workstation. Visible and infrared imagery (GOES-13 band 1 and 4) at a wavelength of 0.65 microns (μm) and 10.7 μm retrieved brightness temperatures for the scene. Satellite imagery surrounding the time of the accident, from 0800 EST through 2300 EST at approximately 15-minute intervals, were reviewed and the closest images to the time of the accident are documented here.

Figures 15 and 16 present the GOES-13 visible imagery from 0900 and 0930 EST, at 2X magnification with the accident site highlighted with a red square. The boat sinking location is highlighted with a green square. The visible imagery indicated several layers of clouds over the accident site before and around the time of the accident with the cloud cover moving from west to east. Attachment 3 shows the visible imagery from 0900 through 1500 EST with the same movement of the clouds from west to east across the boat sinking location and accident site. Figure 17 presents the GOES-13 infrared imagery from 2030 EST at 4X magnification. Inspection of the infrared imagery indicated higher clouds (colder cloud tops and brighter colors) to the north the boat sinking location by 2030 EST with the same movement of the clouds from west to east (attachment 4). Based on the brightness temperatures above the boat sinking location and the vertical temperature profile provided by the 1900 EST KCHH sounding (figure 14), the approximate cloud-top heights over the boat sinking location were 2,500 feet at 2030 EST, with the approximate cloud-top heights over the accident site being 7,500 feet at 0900 EST.

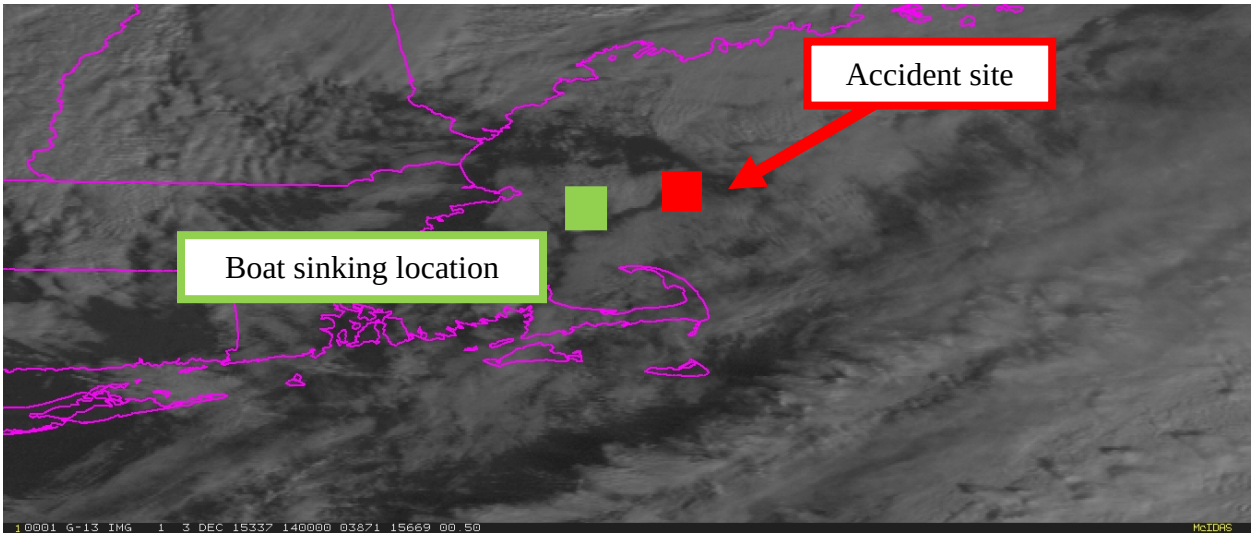

Figure 15 – GOES-13 visible image at 0900 EST

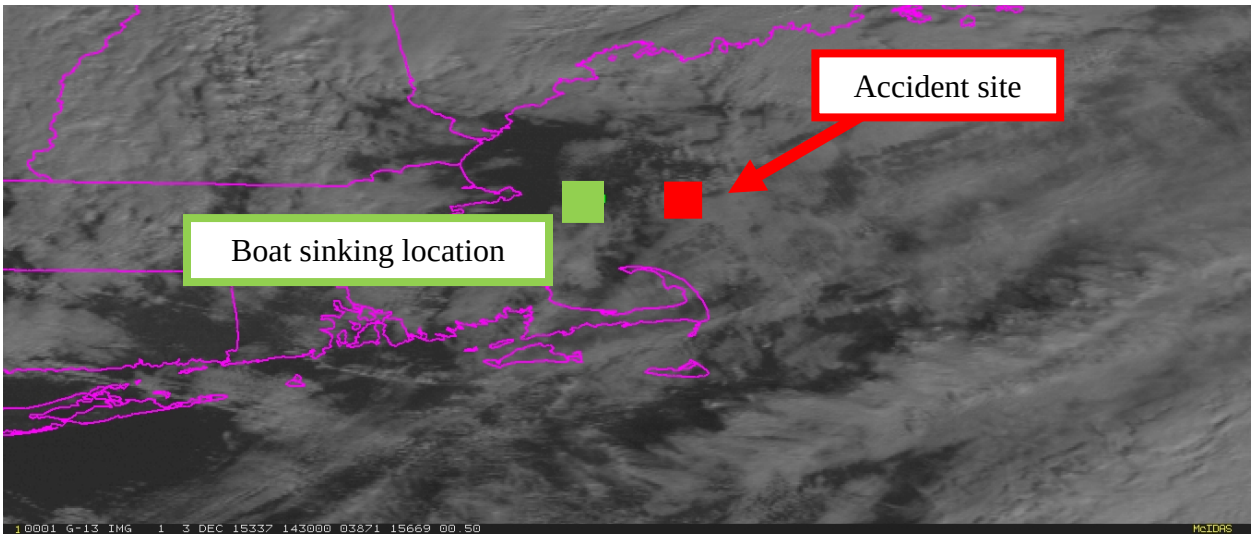

Figure 16 – GOES-13 visible image at 0930 EST

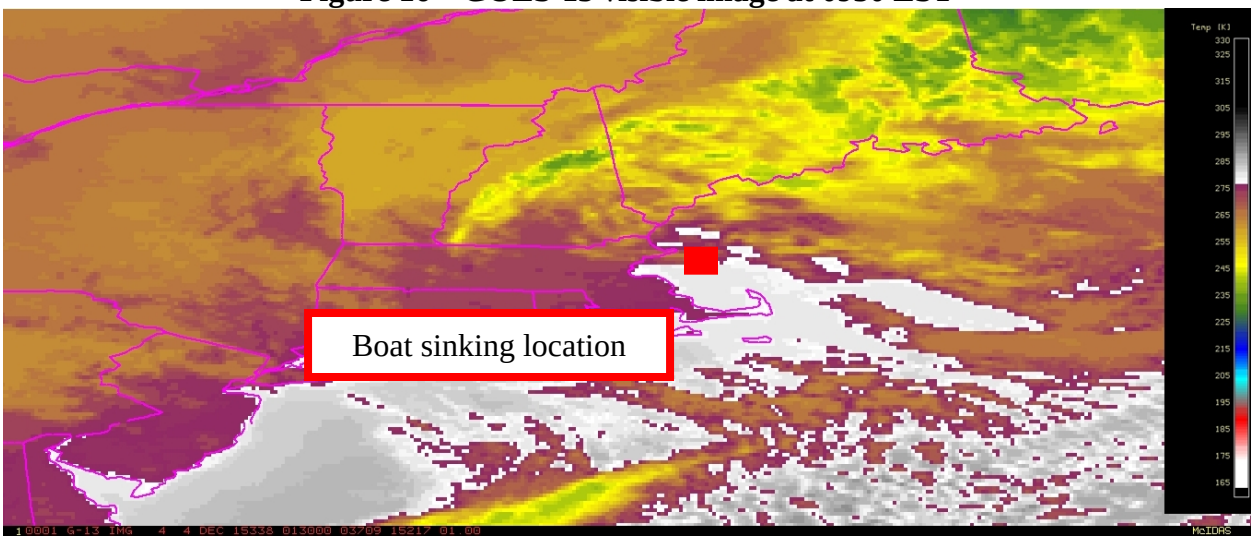

Figure 17 – GOES-13 infrared image at 2030 EST

5.0 Radar Imagery Information

The closest NWS Weather Surveillance Radar-1988, Doppler (WSR-88D) was in Boston, Massachusetts, (KBOX) located approximately 71 miles west-southwest of the accident site at an elevation of 231 feet. Level II archive radar data was obtained from the NCDC utilizing the NEXRAD Data Inventory Search and displayed using the NOAA's Weather and Climate Toolkit software. There were no precipitation targets above the accident site at the accident time or above the boat sinking location around the boat sinking time.

6.0 Aviation Pilot Reports

Aviation Pilot reports (PIREPs) were reviewed close to the accident site from around two hours prior to the accident time to around two hours after the boat sinking time, with the closest PIREPs to the ground and the accident site provided below:

KOWD UA /OV 3 W/TM 1532/FL030/TP SR22/SK 024BKN030/TB LGT-MDT/RM CLR ABV 030=

BED UA /OV BED /TM 1645 /FL015 /TP BE9L /RM LLWS +/- 15KT FINAL RWY 29 015-SFC DURD=

BVY UA /OV BVY/TM 1820/FL010/TP P28A/WV 30014G35KT/TB MOD-SEV/IC NO =

BOS UA /OV 2 MILE FINAL/TM 2035/FL1100/TP E190/RM WIND SHEAR REPORTED GAIN OR LOSS OF 10 KNOTS BY AN E190 ON 2 MILE FINAL RWY 27=

Routine pilot report (UA); 3 miles west of Norwood, Massachusetts; Time – 1032 EST (1532Z); Altitude – 3,000 feet msl; Type aircraft – Cirrus SR-22; Sky – Broken 2,400 feet with tops at 3,000 feet; Turbulence – Light to moderate; Remarks – Clear above 3,000 feet.

Routine pilot report (UA); Over Bedford, Massachusetts; Time – 1145 EST (1645Z); Altitude – 1,500 feet msl; Type aircraft – Beechcraft King Air 90; Remarks – LLWS + or – 15 knots on final to runway from 1,500 feet to the surface during descent.

Routine pilot report (UA); Over Beverly, Massachusetts; Time – 1320 EST (1820Z); Altitude – 1,000 feet msl; Type aircraft – Piper PA-28 Cherokee; Wind – from 300° at 14 knots with gusts to 35 knots; Turbulence – Moderate to severe; Icing – None.

Routine pilot report (UA); Over 2 mile final into Boston, Massachusetts; Time – 1535 EST (2035Z); Altitude – 1,100 feet msl; Type aircraft – Embraer 190; Remarks – Wind shear reported with gain or loss of 10 knots by Embraer 190 on 2 mile final to runway 27.

7.0 SIGMET and CWSU Advisory

No SIGMET was valid for the accident site for below 5,000 feet at the accident time.

No CWSU Advisory (CWA) was valid for the accident site at the accident time.

No Meteorological Impact Statement (MIS) was valid for the accident site at the accident time.

8.0 AIRMETs

AIRMET Tango was valid for the accident site and for the boat sinking site during the whole accident day. The Tango AIRMETs were issued at 0345, 0709, 0945, 1545, 1552, and 1811 EST and forecasted moderate turbulence below 10,000 feet msl and forecasted strong sustained surface winds greater than 30 knots expected:

WAUS41 KKCI 032311 AAA
WA1T
_BOST WA 032311 AMD
AIRMET TANGO UPDT 6 FOR TURB AND STG SFC WNDS VALID UNTIL 040300
.
AIRMET TURB...ME NH VT MA NY LO PA OH LE WV AND CSTL WTRS
FROM 30ESE YSC TO 50SSW MPV TO 30ESE EWC TO HNN TO CVG TO FWA TO
DXO TO 30NNE BUF TO 30ESE YOW TO 30ESE YSC

MOD TURB BTN FL240 AND FL410. CONDS CONTG BYD 03Z THRU 09Z.
.
AIRMET TURB...ME NH VT MA RI CT NY NJ PA OH WV MD DC DE VA AND
CSTL WTRS
FROM 80NW PQI TO 40NNE PQI TO 60WSW YSJ TO 200SE ACK TO 160SE
SIE TO 30ENE ECG TO HMV TO HNN TO 40E EWC TO 50SSW MPV TO 30E
YSC TO 80NW PQI
MOD TURB BTN FL180 AND FL410. CONDS CONTG BYD 03Z THRU 09Z.
.
AIRMET TURB...ME NH VT MA RI CT NY LO NJ PA LE WV MD DC DE VA
AND CSTL WTRS
FROM 50NNE PQI TO 20E HUL TO 30SW MLT TO 20W HAR TO 30S RIC TO
30E BKW TO 20NNW ERI TO 40ESE YYZ TO 30ESE YOW TO 40E YSC TO
50NW PQI TO 50NNE PQI
MOD TURB BLW 100. CONDS CONTG BYD 03Z ENDG 06-09Z.
.
AIRMET TURB...ME NH VT MA RI CT NY NJ PA MD DC DE VA AND CSTL
WTRS
FROM 20E HUL TO 60SW YSJ TO 200SE ACK TO 180S ACK TO 160SE SIE
TO 20NE ECG TO 60S RIC TO 20W HAR TO 20E HUL
MOD TURB BLW FL180. CONDS CONTG BYD 03Z THRU 09Z.
.
AIRMET STG SFC WNDS...ME NH MA RI CT NY NJ MD DE VA AND CSTL
WTRS...UPDT
FROM 60SW YSJ TO 200SE ACK TO 160SE SIE TO 50ESE SIE TO 20ESE
HTO TO 30SE BOS TO 30S ENE TO 60SSW BGR TO 60SW YSJ
SUSTAINED SURFACE WINDS GTR THAN 30KT EXP. CONDS CONTG BYD 03Z
ENDG 06-09Z.
...CORRECTED AIRMET...
.
OTLK VALID 0300-0900Z
AREA 1...TURB ME NH VT MA RI CT NY LO NJ PA OH LE WV MD DC DE VA
AND CSTL WTRS
BOUNDED BY 70NW PQI-40NNE PQI-50WSW YSJ-150ENE ACK-30S CSN-20NNE
GSO-HMV-HNN-CVG-20WNW ERI-40ESE YYZ-50SSW YOW-30ESE YOW-40E YSC-
70NW PQI
MOD TURB BTN FL240 AND FL410. CONDS CONTG THRU 09Z.
.
AREA 2...TURB ME NH VT MA RI CT NY LO NJ PA MD DE AND CSTL WTRS
BOUNDED BY 30NNE PQI-110SE BGR-ACK-20SE SBY-30ENE EMI-30NW JST-
20E BUF-20N PLB-40SE YSC-30NNE PQI
MOD TURB BLW 080. CONDS ENDG 06-09Z.
....

WAUS41 KKCI 032052
WA1T
_BOST WA 032052 COR
AIRMET TANGO UPDT 5 FOR TURB AND STG SFC WNDS VALID UNTIL 040300
.
...SEE SIGMET VICTOR SERIES...
.
AIRMET TURB...ME NH VT MA NY LO PA OH LE WV AND CSTL WTRS
FROM 30ESE YSC TO 50SSW MPV TO 30ESE EWC TO HNN TO CVG TO FWA TO
DXO TO 30NNE BUF TO 30ESE YOW TO 30ESE YSC
MOD TURB BTN FL240 AND FL410. CONDS CONTG BYD 03Z THRU 09Z.
.

AIRMET TURB...ME NH VT MA RI CT NY NJ PA OH WV MD DC DE VA AND
CSTL WTRS
FROM 80NW PQI TO 40NNE PQI TO 60WSW YSJ TO 200SE ACK TO 160SE
SIE TO 30ENE ECG TO HMV TO HNN TO 40E EWC TO 50SSW MPV TO 30E
YSC TO 80NW PQI
MOD TURB BTN FL180 AND FL410. CONDS CONTG BYD 03Z THRU 09Z.
.
AIRMET TURB...ME NH VT MA RI CT NY LO NJ PA LE WV MD DC DE VA
AND CSTL WTRS
FROM 50NNE PQI TO 20E HUL TO 30SW MLT TO 20W HAR TO 30S RIC TO
30E BKW TO 20NNW ERI TO 40ESE YYZ TO 30ESE YOW TO 40E YSC TO
50NW PQI TO 50NNE PQI
MOD TURB BLW 100. CONDS CONTG BYD 03Z ENDG 06-09Z.
.
**AIRMET TURB...ME NH VT MA RI CT NY NJ PA MD DC DE VA AND CSTL
WTRS
FROM 20E HUL TO 60SW YSJ TO 200SE ACK TO 180S ACK TO 160SE SIE
TO 20NE ECG TO 60S RIC TO 20W HAR TO 20E HUL
MOD TURB BLW FL180. CONDS CONTG BYD 03Z THRU 09Z.**
.
**AIRMET STG SFC WNDS...ME NH MA RI CT NY NJ MD DE VA AND CSTL
WTRS...UPDT
FROM 60SW YSJ TO 200SE ACK TO 160SE SIE TO 50ESE SIE TO 20ESE
HTO TO 30SE BOS TO 30S ENE TO 60SSW BGR TO 60SW YSJ
SUSTAINED SURFACE WINDS GTR THAN 30KT EXP. CONDS CONTG BYD 03Z
ENDG 06-09Z.**
...CORRECTED AIRMET...
.
OTLK VALID 0300-0900Z
AREA 1...TURB ME NH VT MA RI CT NY LO NJ PA OH LE WV MD DC DE VA
AND CSTL WTRS
BOUNDED BY 70NW PQI-40NNE PQI-50WSW YSJ-150ENE ACK-30S CSN-20NNE
GSO-HMV-HNN-CVG-20WNW ERI-40ESE YYZ-50SSW YOW-30ESE YOW-40E YSC-
70NW PQI
MOD TURB BTN FL240 AND FL410. CONDS CONTG THRU 09Z.
.
AREA 2...TURB ME NH VT MA RI CT NY LO NJ PA MD DE AND CSTL WTRS
BOUNDED BY 30NNE PQI-110SE BGR-ACK-20SE SBY-30ENE EMI-30NW JST-
20E BUF-20N PLB-40SE YSC-30NNE PQI
MOD TURB BLW 080. CONDS ENDG 06-09Z.
....
WAUS41 KKCI
WA1T
_BOST WA 032045
AIRMET TANGO UPDT 5 FOR TURB VALID UNTIL 040300
.
...SEE SIGMET VICTOR SERIES...
.
AIRMET TURB...ME NH VT MA NY LO PA OH LE WV AND CSTL WTRS
FROM 30ESE YSC TO 50SSW MPV TO 30ESE EWC TO HNN TO CVG TO FWA TO
DXO TO 30NNE BUF TO 30ESE YOW TO 30ESE YSC
MOD TURB BTN FL240 AND FL410. CONDS CONTG BYD 03Z THRU 09Z.
.
AIRMET TURB...ME NH VT MA RI CT NY NJ PA OH WV MD DC DE VA AND
CSTL WTRS
FROM 80NW PQI TO 40NNE PQI TO 60WSW YSJ TO 200SE ACK TO 160SE

SIE TO 30ENE ECG TO HMV TO HNN TO 40E EWC TO 50SSW MPV TO 30E
YSC TO 80NW PQI
MOD TURB BTN FL180 AND FL410. CONDS CONTG BYD 03Z THRU 09Z.
.
AIRMET TURB...ME NH VT MA RI CT NY LO NJ PA LE WV MD DC DE VA
AND CSTL WTRS
FROM 50NNE PQI TO 20E HUL TO 30SW MLT TO 20W HAR TO 30S RIC TO
30E BKW TO 20NNW ERI TO 40ESE YYZ TO 30ESE YOW TO 40E YSC TO
50NW PQI TO 50NNE PQI
MOD TURB BLW 100. CONDS CONTG BYD 03Z ENDG 06-09Z.
.
**AIRMET TURB...ME NH VT MA RI CT NY NJ PA MD DC DE VA AND CSTL
WTRS**
**FROM 20E HUL TO 60SW YSJ TO 200SE ACK TO 180S ACK TO 160SE SIE
TO 20NE ECG TO 60S RIC TO 20W HAR TO 20E HUL**
MOD TURB BLW FL180. CONDS CONTG BYD 03Z THRU 09Z.
.
OTLK VALID 0300-0900Z
AREA 1...TURB ME NH VT MA RI CT NY LO NJ PA MD DE AND CSTL WTRS
BOUNDED BY 30NNE PQI-110SE BGR-ACK-20SE SBY-30ENE EMI-30NW JST-
20E BUF-20N PLB-40SE YSC-30NNE PQI
MOD TURB BLW 080. CONDS ENDG 06-09Z.
.
AREA 2...TURB ME NH VT MA RI CT NY LO NJ PA OH LE WV MD DC DE VA
AND CSTL WTRS
BOUNDED BY 70NW PQI-40NNE PQI-50WSW YSJ-150ENE ACK-30S CSN-20NNE
GSO-HMV-HNN-CVG-20WNW ERI-40ESE YYZ-50SSW YOW-30ESE YOW-40E YSC-
70NW PQI
MOD TURB BTN FL240 AND FL410. CONDS CONTG THRU 09Z.
....
WAUS41 KKCI
WA1T
_BOST WA 031445
AIRMET TANGO UPDT 4 FOR TURB AND STG SFC WNDS VALID UNTIL 032100
.
...SEE SIGMET VICTOR SERIES...
.
**AIRMET TURB...ME NH VT MA RI CT NY NJ PA OH WV MD DC DE VA AND
CSTL WTRS**
**FROM 20NE HUL TO 60SW YSJ TO 200SE ACK TO 190S ACK TO 160SE SIE
TO 90E ORF TO 20NE ECG TO 20ENE HMV TO HNN TO 50SW AIR TO 30SSE
JHW TO 40ENE SYR TO 50WSW CON TO 20NE HUL**
MOD TURB BLW FL180. CONDS CONTG BYD 21Z THRU 03Z.
.
AIRMET TURB...ME NH VT MA CT NY LO PA OH LE WV
FROM 70NW PQI TO 30N PQI TO 20NE HUL TO 50WSW CON TO 40ENE SYR
TO 30SSE JHW TO 50SW AIR TO 30NNE CLE TO 40ESE YYZ TO MSS TO
30ESE YSC TO 70NW PQI
MOD TURB BLW 100. CONDS DVLPG 15-18Z. CONDS CONTG BYD 21Z THRU
03Z.
.
AIRMET TURB...ME NH VT MA RI CT NY LO NJ PA OH LE WV MD DC DE VA
AND CSTL WTRS
FROM 70NW PQI TO 50NNE PQI TO 50WSW YSJ TO 200SE ACK TO 160SE
SIE TO 20NE ECG TO HMV TO HNN TO CVG TO 30SE DXO TO 20NW BUF TO
30ESE YOW TO 30ESE YSC TO 70NW PQI

MOD TURB BTN FL180 AND FL410. CONDS CONTG BYD 21Z THRU 03Z.
.
AIRMET STG SFC WNDS...ME NH MA RI NY NJ MD DE VA AND CSTL WTRS
FROM 100SSW YSJ TO 190SE ACK TO 150SE SIE TO 100E ORF TO 30SE
SIE TO 40S JFK TO 20E HTO TO 20W ACK TO 40S ENE TO 50ENE ENE TO
100SSW YSJ
SUSTAINED SURFACE WINDS GTR THAN 30KT EXP. CONDS CONTG BYD 21Z
THRU 03Z.
.
OTLK VALID 2100-0300Z...TURB ME NH VT MA RI CT NY LO NJ PA LE WV
MD DC DE VA AND CSTL WTRS
BOUNDED BY 70NW PQI-50NNE PQI-20ENE HUL-60WSW YSJ-160ENE ACK-ACK-
30E SBY-40S RIC-30E BKW-20NNW ERI-40ESE YYZ-30ESE YOW-30E YSC-
70NW PQI
MOD TURB BLW 100. CONDS CONTG THRU 03Z.
....
WAUS41 KKCI 031209
WA1T
_BOST WA 031209 AMD
AIRMET TANGO UPDT 3 FOR TURB AND STG SFC WNDS VALID UNTIL 031500
.
...SEE SIGMET VICTOR SERIES...UPDT
.
AIRMET TURB...ME NH VT MA RI CT NY LO NJ PA OH LE WV MD DC DE VA
AND CSTL WTRS
FROM 70NW PQI TO 40NE PQI TO 50WSW YSJ TO 200SE ACK TO 150SE SIE
TO 20NE ECG TO HMV TO HNN TO CVG TO FWA TO DXO TO YYZ TO YOW TO
YSC TO 70NW PQI
MOD TURB BTN FL180 AND FL410. CONDS CONTG BYD 15Z THRU 21Z.
.
AIRMET TURB...ME NH VT MA RI CT NY NJ PA WV MD DC DE VA AND CSTL
WTRS
FROM 70NW PQI TO 50NE PQI TO 50SW YSJ TO 200SE ACK TO 160SE SIE
TO 20NE ECG TO HMV TO HNN TO EWC TO 40W ALB TO YSC TO 70NW PQI
MOD TURB BLW FL180. CONDS CONTG BYD 15Z THRU 21Z.
.
AIRMET STG SFC WNDS...MA RI NY NJ MD DE VA CSTL WTRS
FROM 20SW ACK TO 190S ACK TO 160SE SIE TO 90E ECG TO 20ESE SIE
TO 40SE JFK TO 20SW ACK
SUSTAINED SURFACE WINDS GTR THAN 30KT EXP. CONDS CONTG BYD 15Z
THRU 21Z.
.
OTLK VALID 1500-2100Z...STG SFC WNDS ME NH MA RI NY NJ MD DE VA
AND CSTL WTRS
BOUNDED BY 110SE BGR-200SE ACK-190S ACK-100E ORF-30SE SIE-30E
CYN-30E ACK-80SE ENE-110SE BGR
SUSTAINED SURFACE WINDS GTR THAN 30KT EXP. CONDS CONTG THRU 21Z.
....
WAUS41 KKCI
WA1T
_BOST WA 030845
AIRMET TANGO UPDT 2 FOR TURB AND STG SFC WNDS VALID UNTIL 031500
.
AIRMET TURB...ME NH VT MA RI CT NY LO NJ PA OH LE WV MD DC DE VA
AND CSTL WTRS
FROM 70NW PQI TO 40NE PQI TO 50WSW YSJ TO 200SE ACK TO 150SE SIE

TO 20NE ECG TO HMV TO HNN TO CVG TO FWA TO DXO TO YYZ TO YOW TO
YSC TO 70NW PQI
MOD TURB BTN FL180 AND FL410. CONDS CONTG BYD 15Z THRU 21Z.
.
**AIRMET TURB...ME NH VT MA RI CT NY NJ PA WV MD DC DE VA AND CSTL
WTRS
FROM 70NW PQI TO 50NE PQI TO 50SW YSJ TO 200SE ACK TO 160SE SIE
TO 20NE ECG TO HMV TO HNN TO EWC TO 40W ALB TO YSC TO 70NW PQI
MOD TURB BLW FL180. CONDS CONTG BYD 15Z THRU 21Z.**
.
**AIRMET STG SFC WNDS...MA RI NY NJ MD DE VA CSTL WTRS
FROM 20SW ACK TO 190S ACK TO 160SE SIE TO 90E ECG TO 20ESE SIE
TO 40SE JFK TO 20SW ACK
SUSTAINED SURFACE WINDS GTR THAN 30KT EXP. CONDS CONTG BYD 15Z
THRU 21Z.**
.
OTLK VALID 1500-2100Z...STG SFC WNDS ME NH MA RI NY NJ MD DE VA
AND CSTL WTRS
BOUNDED BY 110SE BGR-200SE ACK-190S ACK-100E ORF-30SE SIE-30E
CYN-30E ACK-80SE ENE-110SE BGR
SUSTAINED SURFACE WINDS GTR THAN 30KT EXP. CONDS CONTG THRU 21Z.
....

9.0 Terminal Aerodrome Forecast

Boston, Massachusetts, (KBOS), was the closest site to the sinking location with a NWS TAF, and was located 31 miles west-southwest of said boat sinking location. The TAF valid at the time of the accident was issued at 1840 EST and was valid for a 24-hour period beginning at 1900 EST. The TAF for KBOS was as follows:

TAF KBOS 032340Z 0400/0506 **29015G26KT P6SM FEW040**
FM040500 30012G22KT P6SM FEW250
FM041000 30009KT P6SM SKC=

The forecast expected a wind from 290° at 15 knots with gusts to 26 knots, greater than 6 miles visibility, and few clouds at 4,000 feet agl.

10.0 Area Forecast

The Area Forecast issued at 0445 EST forecasted a broken ceiling between 1,500 and 2,500 feet msl, with broken skies at 6,000 feet msl, and cloud tops at 14,000 feet msl. The Area Forecast discussed visibilities between 3 and 5 miles in light rain and mist conditions with winds gusting above 25 knots after 1100 EST. The Area Forecast issued at 1345 EST forecasted ceilings at 3,500 feet msl with tops at 7,000 feet msl, and a west wind at 20 knots gusting to 35 knots:

FAUS41 KKCI
FA1W
_BOSC FA 031845
SYNOPSIS AND VFR CLDS/WX
SYNOPSIS VALID UNTIL 041300
CLDS/WX VALID UNTIL 040700...OTLK VALID 040700-041300

ME NH VT MA RI CT NY LO NJ PA OH LE WV MD DC DE VA AND CSTL WTRS
.
SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.
.
SYNOPSIS...19Z CDFNT ECNTRL ME-YSC-NERN LH. LOW PRES NR 60SE BGR.
HI PRES RDG SE NY-SW WV. UPR LVL LOW PRES OVR NH. 00Z HI PRES SRN
IL-SE VA. CDFNT SE ME-NRN NY. UPR LVL TROF NERN PA-SW WV-ERN KY.
13Z HI PRES ERN VA-CNTRL KY. STNR FNT ECNTRL ME-NW ME. UPR LVL
TROF WRN QUEBEC-CNTRL LE-NW OH.
.
ME NH VT
NERN ME...OVC015 TOP FL220. VIS 3-5SM -SN. 03Z BKN025 BKN140 TOP
FL250. OCNL VIS 3-5SM -SN. 05Z BKN CI. OTLK...VFR.
SE ME...OVC010 TOP FL220. VIS 3-5SM -RA BR. 03Z BKN020 TOP 100.
OTLK...MVFR CIG 08Z VFR.
NW ME/NRN NH/NRN VT...OVC025 TOP FL250. VIS 3SM -SN BR. 02Z
BKN040. TIL 04Z VIS 3-5SM IN SCT -SHSN. OTLK...MVFR CIG.
SW ME...OVC025 TOP FL250. OCNL VIS 5SM -RA BR. 22Z BKN025 OVC100.
04Z SCT050. OTLK...VFR.
SE NH...BKN025 OVC080 TOP 130. WND NW G25KT. 23Z BKN080. 03Z
SCT050. OTLK...VFR.
SW NH/SRN VT...BKN050 TOP 100. 03Z OVC045 TOP 080. 05Z SCT040.
OTLK...VFR.
.
MA RI CT
WRN 1/3 MA...BKN045 OVC060 TOP 150. OCNL VIS 5SM IN WDLY SCT
-SHRASN. 00Z SCT045. OTLK...VFR.
CNTRL MA...BKN040 TOP 060. WND W G25-30KT. 22Z SCT050. WND W
G25-30KT. 01Z SKC. TIL 05Z WND W G25KT. OTLK...VFR.
NERN MA...BKN025 TOP 120. ISOL -SHRA. WND W G30KT. 22Z SCT040.
WND W G30KT. 03Z SKC. WND W G25KT. OTLK...VFR.
SE MA/RI...BKN035 TOP 070. WND W 20G35KT. 21Z SKC. WND W 20G35KT.
03Z SKC. WND W G25KT. OTLK...VFR.
CT...BKN040-045 TOP 060. WND NW G25KT. 01Z SKC. OTLK...VFR.
.
NY LO NJ
WRN NY...OVC035-040 TOP 140. ISOL -SHRA. 23Z OVC030. OTLK...MVFR
CIG N...IFR CIG S...AFT 12Z WND THRUT.
NCNTRL NY/LO...OVC020-025 LYRD 120. WDLY SCT -SHRA. 21Z
OVC025-030 TOP 080. OTLK...MVFR CIG.
SCNTRL NY...BKN030 OVC045 TOP 120. WDLY SCT -SHRA. 01Z OVC035 TOP
090. OTLK...MVFR CIG.
NERN NY...BKN025 OVC040 TOP 120. WDLY SCT -SHRA/-SHSN. 02Z BKN030
OVC050 TOP 100. WDLY SCT -SHSN. 06Z OVC040. OTLK...MVFR CIG.
ECNTRL NY...BKN050 TOP 100. ISOL -SHRA. WND W G25KT. 23Z SCT050
BKN CI. OTLK...VFR.
SE NY...BKN045-050 TOP 100. 00Z SCT050. OTLK...VFR.
LONG ISLAND/NRN NJ...BKN045-050 TOP 080. WND NW G25KT. 00Z SKC.
OTLK...VFR.
SRN NJ...SCT040. WND W G25KT. 22Z SKC. OTLK...VFR.
.
PA
NW...OVC025-035 TOP 100. TIL 21Z ISOL -SHRA. OTLK...MVFR CIG.
SW...OVC025-035 TOP 100. OTLK...MVFR CIG.

NCNTRL...BKN025-035 TOP 140. TIL 22Z OCNL VIS 3-5SM BR. WDLY SCT
-SHSN. 01Z TOP 100. OTLK...MVFR CIG.
SCNTRL...OVC035-040 TOP 140. ISOL -SHSN. WND W G25KT. 23Z OVC045
TOP 100. OTLK...MVFR CIG.
NERN...OVC040 TOP 140. OCNL VIS 3-5SM BR. 00Z OVC035. OTLK...MVFR
CIG.
SE...BKN040 TOP 080. WND NW G25KT. 23Z SCT070. OTLK...VFR.
.
OH LE
NW OH...BKN020-030 OVC050 TOP 080. 20Z BKN045 TOP 070. 01Z
SCT045. OTLK...VFR 09Z IFR BR.
NERN OH/LE...OVC025-035 TOP 080. 03Z OVC045 TOP 070. OTLK...VFR.
SW OH...BKN025 OVC040 TOP 060. 23Z SCT040. OTLK...VFR.
SE OH...BKN030 TOP 070. OTLK...VFR.
.
WV
WRN...BKN035-040 TOP 080. 00Z BKN030 TOP 060. 03Z SKC.
OTLK...VFR.
NERN...OVC040 TOP 100. 02Z OVC045 TOP 080. 05Z OVC030 TOP 060.
OTLK...MVFR CIG.
SE...BKN040-050 TOP 100. 22Z TOP 080. OTLK...MVFR CIG.
.
MD DC DE VA
MD PNHDL...BKN030 TOP 100. ISOL -SHSN. 23Z BKN035 TOP 080.
OTLK...MVFR CIG.
NERN MD/DC/DE/NRN VA...SCT050. WND NW G30KT. 23Z SKC. OTLK...VFR.
ERN SHORE MD/SE VA...SCT-BKN CI. TIL 21Z WND NW G25-30KT.
OTLK...VFR.
SW VA...SCT045. 22Z SCT CI. OTLK...VFR.
.
CSTL WTRS
BOS-150E ACK NWD...OVC010-020 TOP FL250. VIS 3-5SM -RA BR. WND NW
30-40KT. OTLK...MVFR CIG WND.
RMNDR E OF JFK-150SE SIE...BKN025 TOP 050. WND NW 30KT.
OTLK...MVFR CIG WND.
W OF JFK-150SE SIE...SCT025. WND NW 25KT. 03Z SCT-BKN CI. WND NW
G25KT. OTLK...VFR.
....
FAUS41 KKCI 030945
FA1W
_BOSC FA 030945
SYNOPSIS AND VFR CLDS/WX
SYNOPSIS VALID UNTIL 040400
CLDS/WX VALID UNTIL 032200...OTLK VALID 032200-040400
ME NH VT MA RI CT NY LO NJ PA OH LE WV MD DC DE VA AND CSTL WTRS
.
SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.
.
SYNOPSIS...CLSD UPR LOW WRN NY/LO WILL APCH CNTRL/SRN ME/NEW
ENGLAND CSTL WTRS THRU PD AND CONT NEWD DURG OTLK. TROF WRN PA-WV
WILL APCH NE US-E CNTRL US CSTL WTRS 20-22Z AND CONT NEWD DURG
OTLK. SECONDARY TROF LE/OH 15-18Z WILL APCH NEW ENGLAND-CNTRL
APPALACHIANS-ERN PTNS MID/DEEP S DURG OTLK. WLY FLOW W PTN..SW
FLOW E PTN. CDFNT ERN US CSTL WTRS-SRN FL PEN WILL CONT E-SEWD

THRU PD. CDFNT NRN ME 12-15Z WILL APCH CSTL ME-CNTRL PTNS NH VT DURG OTLK. HI PRES WILL BLD OVR RMNDR FM W.

.

ME

N HLF...OVC015-020 TOPS 140. VIS 3-5SM BR. ISOL -SHRA. BECMG 1618 OVC015 TOPS 160. OCNL VIS 3-5SM BR. ISOL -SHSN. OTLK...MVFR CIG SHSN BR.

S HLF...OVC010-020 TOPS 120. VIS 3-5SM BR. ISOL -SHRA. BECMG 1719 OVC010-015 LYRD FL200. ISOL -SHRASN. OTLK...MVFR CIG RASN BR.

.

NH VT

N HLF...OVC030 TOPS 080. VIS 3-5SM BR. ISOL -SHRASN. BECMG 1416 OVC030 LYRD FL200. OCNL VIS 3-5SM BR. ISOL -SHSN. OTLK...MVFR CIG SHSN BR.

S HLF...BKN-OVC025 TOPS 060. OCNL VIS 3-5SM BR. BECMG 1416 BKN020-025 OVC050 LYRD 160. ISOL -SHRA. 19Z SCT025 BKN040 TOPS 140. OTLK...VFR.

.

MA RI CT

WRN MA/CT...BKN025 TOPS 060. OCNL VIS 3-5SM BR. BECMG 1517 BKN030 TOPS 100. ISOL -SHRA. WND NW G30KT. 20Z BKN040 TOPS 080. WND NW G30KT. OTLK...VFR WND.

ERN MA/RI...BKN015-025 BKN060 TOPS 140. OCNL VIS 3-5SM -RA BR. BECMG 1618 BKN030 TOPS 080. WND W G25KT. 20Z BKN035 TOPS 060. WND W G30KT. OTLK...VFR WND.

.

NY LO

SE NY-LONG ISLAND...SCT035 SCT050 BKN CI. BECMG 1516 SCT040 SCT-BKN080 TOPS 120. WND NW G25KT. OTLK...VFR.

NE NY...OVC025 TOPS 080. VIS 3-5SM -SN BR. BECMG 1416 OVC020-025 LYRD 140. OCNL VIS 3-5SM BR. ISOL -SHSN. OTLK...IFR CIG SHSN BR.

CNTRL NY...OVC020 TOPS 080. OCNL VIS 3-5SM -RA BR. BECMG 1416 OVC025 LYRD 140. ISOL -SHRA. OTLK...MVFR CIG SHRA.

WRN NY/LO...OVC020-025 LYRD 160. OCNL VIS 3-5SM BR. ISOL -SHRASN. OTLK...IFR CIG SHRA.

.

PA NJ

WRN-CNTRL PA...BKN-OVC025 OVC040 LYRD 160. OCNL VIS 3-5SM BR. WDLY SCT -SHRASN. BECMG 1516 OVC030 TOPS 080. OCNL VIS 3-5SM -RASN BR. OTLK...MVFR CIG.

ERN PA/NJ...SCT-BKN035 TOPS 070. BECMG 1416 BKN040 BKN080 TOPS 120. WND NW 20G30KT. OTLK...VFR.

.

OH LE

NRN OH/LE...BKN-OVC015-025 OVC040 TOPS 080. OCNL VIS 3-5SM -SN BR. BECMG 1416 BKN020-025 TOPS 050. OCNL VIS 3-5SM BR. OTLK...MVFR CIG.

SRN OH...OVC025 TOPS 045. OCNL VIS 3-5SM BR. BECMG 1719 BKN030 TOPS 040. OTLK...MVFR CIG..

.

WV

W HLF...BKN030 TOPS 080. OCNL VIS 3-5SM BR. BECMG 1416 BKN035 TOPS 060. 18Z SCT-BKN040. OTLK...VFR.

E HLF...BKN030 TOPS 070. OCNL VIS 3-5SM BR. BECMG 1618 BKN040

TOPS 060. OTLK...VFR.
.
MD DC DE VA
WRN MD...BKN035 BKN050 TOPS 100. OCNL VIS 3-5SM BR. BECMG 1416
SCT040. OTLK...VFR.
NRN VA/ERN MD/DC/DE...SCT035 SCT050 BKN CI. BECMG 1517 SCT045.
OTLK...VFR.
SWRN VA...BKN035 TOPS 060. OCNL VIS 3-5SM BR. BECMG 1416 SCT040.
OTLK...VFR.
SERN VA...SCT040-060 BKN CI. BECMG 1416 SCT045 BKN CI.
OTLK...VFR.
.
CSTL WTRS
CYN-NWD...BKN-OVC010-020 OVC050 LYRD FL240. ISOL -SHRA. WND SW
25G35KT. BECMG 1416 BKN020-025 TOPS 060. WND W 25G35KT.
OTLK...MVFR CIG WND.
S CYN...BKN025 BKN-OVC040 LYRD FL240. ISOL -SHRA. WND WSW
25G30KT. BECMG 1517 SCT-BKN040 TOPS 060. WND WNW 25G35KT.
OTLK...VFR WND.
.
BACKUP OF AWC DOMESTIC AIRMETS/SIGMETS BY THE AIR FORCE 15TH OWS
/SCOTT AFB/ WILL BE FM 21Z DECEMBER 3 TO 04Z DECEMBER 4. FA/S
WILL BE ISSUED DURG TEST. AIR FORCE 15TH OWS COORDINATION NUMBER
IS 618-256-1394.
....

11.0 National Weather Service Area Forecast Discussion

The National Weather Service Office in Taunton, Massachusetts, issued the following Area Forecast Discussions at 0637, 1011, 1256, 1500, and 1650 EST which discussed high confidence in gale force winds on the accident day, at the accident time, and at the time of the boat sinking. Winds were expected to diminish on Friday and then even more into the weekend:

FXUS61 KBOX 032150
AFDBOX
AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE TAUNTON MA
450 PM EST THU DEC 3 2015
.SYNOPSIS...
HIGH PRESSURE WILL BRING DRY WEATHER THROUGH MONDAY WITH A WARMING
TREND THIS WEEKEND. THERE IS STILL QUITE A BIT OF UNCERTAINTY AS
TO WHETHER A DEVELOPING LOW OFF THE MID ATLANTIC COAST EARLY NEXT
WEEK MAY AFFECT THE REGION SOMETIME TUESDAY NIGHT AND/OR
WEDNESDAY.
&&
.NEAR TERM /UNTIL 6 AM FRIDAY MORNING/...
MAIN FOCUS FOR ANY LIGHT RAIN/SNOW SHOWERS THROUGH EARLY EVENING
WILL BE ACROSS UPSLOPE AREAS ALONG THE W SLOPES OF THE BERKSHIRES
WHICH MAY SPILL INTO THE E SLOPES BUT COVERAGE WILL BE LIMITED.
OTHERWISE...CLEARING SKIES EXPECTED TONIGHT AS SFC RIDGING MOVES
INTO THE REGION WITH GOOD MID LEVEL DRYING.
STRONG WINDS WILL BE A CONCERN INTO THE EARLY EVENING AND SOUNDINGS
SUGGEST THE PEAK OF THE WIND WILL OCCUR LATE THIS AFTERNOON. STEEP
LOW LEVEL LAPSE RATES IN PLACE WITH GOOD PRESSURE RISES AND

SOUNDINGS SHOW POTENTIAL FOR GUSTS TO 40 MPH AND CANT RULE OUT ISOLD GUSTS TO 45-50 MPH OVER THE HIGHER TERRAIN IF WE CAN MIX DOWN WINDS FROM THE TOP OF THE MIXED LAYER.
WINDS WILL GRADUALLY DIMINISH TONIGHT...ESPECIALLY IN THE INTERIOR BUT REMAIN GUSTY UNTIL WELL AFTER MIDNIGHT ALONG THE IMMEDIATE COAST. LOW TEMPS WILL RANGE FROM THE UPPER 20S TO MID 30S.
&&
.SHORT TERM /6 AM FRIDAY MORNING THROUGH FRIDAY NIGHT/...
FRIDAY...
A SECONDARY MID LEVEL SHORTWAVE WILL BE MOVING THROUGH SNE FRI AFTERNOON. HOWEVER...THE COLUMN IS QUITE DRY WITH THE BETTER MOISTURE WELL TO THE N SO EXPECT DRY WEATHER WITH JUST A PERIOD OF SCT-BKN CU DEVELOPING IN THE INTERIOR DURING THE AFTERNOON. MAX TEMPS WERE A BLEND OF AVAILABLE GUIDANCE...MID TO UPPER 40S EXCEPT CLOSER TO 40 ACROSS THE HIGHER TERRAIN.
FRIDAY NIGHT...
SHORTWAVE RAPIDLY MOVES OFFSHORE WITH STRONG HIGH PRES BUILDING IN FROM THE WEST. EXPECT MOSTLY CLEAR SKIES WITH LIGHT NW WINDS. MIN TEMPS RANGE FROM MID 20S TO LOWER 30S.
&&
.LONG TERM /SATURDAY THROUGH THURSDAY/...
HIGHLIGHTS...
* DRY WEATHER AND ABOVE NORMAL TEMPS WILL LAST INTO EARLY NEXT WEEK
* LOW CONFIDENCE FOR ANY RAIN AND/OR WINDS EFFECTING THE REGION FROM LOW PRES DEVELOPING OFF THE MID ATLC COAST AROUND TUE-WED TIMEFRAME
OVERVIEW AND MODEL PREFERENCES...
MEDIUM RANGE MODEL SUITE CONTINUES TO SIGNAL SPLIT UPPER FLOW AS HIGHLY AMPLIFIED BUT PROGRESSIVE RIDGE BUILDS ACROSS CANADA THIS WEEKEND...THEN TENDS TO FLATTEN OUT BUT REMAINING SPLIT EARLY NEXT WEEK. BIG QUESTIONS COME INTO PLAY WITH POSSIBLE DEVELOPMENT OF LOW PRES OFF THE MID ATLC COAST AROUND MON OR TUE AS CUTOFF H5 LOW MOVES OFF. HAVE BEGUN TO SEE DISTINCT BUT VERY DIFFERENT SOLUTIONS ON THE 12Z ECMWF/CMC MODELS VS. THE GFS...WITH BOTH INTERNATIONAL MODELS MOVING THE LOW OFFSHORE WITH LITTLE IF ANY EFFECTS TO THE REGION. NOTED ONLY A FEW WEAK IMPULSE MON-TUE ON THE ECMWF. HOWEVER...GFS BRINGS SHOT OF RAINFALL AND GUSTY NE WINDS AROUND THE TUE NIGHT/WED TIMEFRAME. WILL NEED TO CONTINUE TO WATCH THE EVOLUTION OF THIS SYSTEM CLOSELY THOUGH.
DEPENDING UPON HOW THE COASTAL LOW EVOLVES...LOOKS LIKE DRY CONDITIONS RETURN FOR THURSDAY.
USED A BLEND OF AVAILABLE GUIDANCE FOR SAT-MON...THEN TRANSITIONED OVER TO ENSEMBLE BLEND FOR MON NIGHT-THU DUE TO FORECAST UNCERTAINTY.
DETAILS...
SATURDAY THROUGH MONDAY...HIGH CONFIDENCE.
LARGE HIGH PRES EXPANDS FROM THE OHIO AND TENNESSEE VALLEYS TO ENCOMPASS PRETTY MUCH THE ENTIRE EASTERN HALF OF THE COUNTRY BY TUESDAY AS LARGE H5 RIDGE BUILDS INTO NORTHERN QUEBEC. THAT RIDGE DOES FLATTEN OUT...WITH BROAD TROUGHING MOVING ACROSS LATE SUN/SUN NIGHT. AS E-W ELONGATED SURFACE HIGH SINKS S LATE THIS WEEKEND...
WILL SEE WEAK COLD FRONT MOVING ACROSS WITH LITTLE IF ANY FANFAIR. MOISTURE STARVED AND NOT A LOT OF MID LEVEL ENERGY WITH IT. NOTING WIND SHIFT FROM SW TO NW DURING MON.
WILL SEE SEVERAL LOVELY EARLY WINTER DAYS ACROSS THE REGION THROUGH AT LEAST SUNDAY. EXPECT GENERALLY MAINLY SUNNY CONDITIONS WITH TEMPS RUNNING AROUND 10 DEGREES ABOVE SEASONAL NORMALS DURING THE DAY.

SOME CLOUDS MAY PUSH IN DURING MONDAY BUT IT WILL REMAIN MILD.
MONDAY NIGHT THROUGH WEDNESDAY...LOW CONFIDENCE.
HIGH PRES CROSSES SOUTHERN QUEBEC TOWARD NORTHERN MAINE MON NIGHT-TUESDAY...KEEPING DRY BUT COOLER CONDITIONS IN PLACE ON E-NE WINDS. THE TRICKY PART COMES INTO PLAY FROM TUE AFTERNOON THROUGH WED. AS MENTIONED ABOVE...TOUGH CALL ON DEVELOPING MID ATLC COASTAL LOW /OR NOT/ THAT MAY OR MAY NOT EFFECT THE REGION. USED ENSEMBLE GUIDANCE AND KEPT ONLY LOW CHANCE POPS GOING FOR NOW WITH BEST SHOT FOR ANY PRECIP ACROSS SOUTHERN AREAS. THERE IS POTENTIAL FOR GUSTY NE WINDS AS WELL. THIS IS ALL DEPENDENT UPON TRACK AND STRENGTH OF THIS LOW. ALSO...DEPENDING UPON TEMP PROFILE...MIGHT EVEN SEE SOME FREEZING AND/OR FROZEN PRECIP. THE EVOLUTION OF THIS SYSTEM AS ITS TRACK WILL BE KEY. WILL CONTINUE TO WATCH THIS CAREFULLY. FOR NOW... CARRIED ONLY CHANCE POPS WITH MAINLY WET CONDITIONS.
THURSDAY...LOW TO MODERATE CONFIDENCE.
SENSIBLE WEATHER DURING THIS TIMEFRAME WILL BE DEPENDENT UPON WHAT EVENTUALLY HAPPENS WITH THE COASTAL LOW AND ITS POSSIBLE EFFECTS TO THE REGION. FOR NOW...ANY LEFTOVER RAIN ACROSS THE CAPE AND ISLAND EARLY WILL MOVE OFFSHORE AS HIGH PRESSURE RETURNS.
&&
.AVIATION /22Z THURSDAY THROUGH TUESDAY/...
FORECASTER CONFIDENCE LEVELS...
LOW...LESS THAN 30 PERCENT.
MODERATE...30 TO 60 PERCENT.
HIGH...GREATER THAN 60 PERCENT.
SHORT TERM /THROUGH FRIDAY NIGHT/...
THROUGH 00Z...MAINLY VFR CIGS 3-5K FT ALTHOUGH CANT RULE OUT SOME MVFR...ESPECIALLY HIGHER TERRAIN. CLOUD COVERAGE WILL DECREASE BY LATE AFTERNOON. W/NW GUSTS TO 35 KT EXPECTED TO DEVELOP WITH A FEW G40KT POSSIBLE OVER HIGHER TERRAIN.
TONIGHT...HIGH CONFIDENCE. MAINLY VFR. LOW RISK OF MVFR OVER THE BERKSHIRES. NW GUSTS 25-35 KT IN THE EVENING WILL GRADUALLY DIMINISH THROUGH THE NIGHT.
FRIDAY AND FRIDAY NIGHT...HIGH CONFIDENCE. VFR. SOME LOW VFR CIGS DEVELOPING IN THE INTERIOR DURING FRI AFTERNOON.
KBOS TERMINAL...HIGH CONFIDENCE.
KBDL TERMINAL...HIGH CONFIDENCE.
OUTLOOK /SATURDAY THROUGH TUESDAY/...
SATURDAY-MONDAY...HIGH CONFIDENCE. VFR.
MONDAY NIGHT AND TUESDAY...LOW TO MODERATE CONFIDENCE. CIGS MAY LOWER TO MVFR MAINLY ACROSS CENTRAL AND SOUTHERN AREAS. LOW CHANCE FOR RAIN AND PATCHY FOG LATE MON NIGHT-TUE.
&&
.MARINE...
FORECASTER CONFIDENCE LEVELS...
LOW...LESS THAN 30 PERCENT.
MODERATE...30 TO 60 PERCENT.
HIGH...GREATER THAN 60 PERCENT.
SHORT TERM /THROUGH FRIDAY NIGHT/...
THROUGH TONIGHT...HIGH CONFIDENCE. GALE FORCE NW WIND GUSTS TO 35 KT EXPECTED TO PEAK LATE THIS AFTERNOON INTO EARLY EVENING BEFORE SLOWLY DIMINISHING OVERNIGHT. WINDS SHOULD DROP BELOW SCA TOWARD DAYBREAK OVER THE OUTER WATERS.
FRI INTO FRI NIGHT...HIGH CONFIDENCE. W/NW WINDS BELOW SCA WITH SUBSIDING SEAS. LINGERING SCA SEAS LIKELY OVER OUTER WATERS EARLY

FRI.
OUTLOOK /SATURDAY THROUGH TUESDAY/...

SATURDAY-SUNDAY...HIGH CONFIDENCE. EXPECT WINDS AND SEAS BELOW SMALL CRAFT CRITERIA AS HIGH PRESSURE BUILDS ACROSS. SW WINDS MAY GUST UP TO 20 KT ON THE SOUTHERN OUTER WATERS LATE SUN/SUN NIGHT.
MONDAY-TUESDAY...MODERATE CONFIDENCE. DEPENDING UPON APPROACH OF LOW PRESSURE FROM THE MID ATLC COAST...MAY SEE NE WINDS INCREASING... WITH GUSTS POSSIBLY UP TO 25-30 KT. SEAS MAY BUILD UP TO 6-10 FT LATE TUE...HIGHEST ALONG THE SOUTHERN OUTER WATERS.
&&
.BOX WATCHES/WARNINGS/ADVISORIES...
CT...NONE.
MA...NONE.
RI...NONE.
MARINE...GALE WARNING UNTIL 2 AM EST FRIDAY FOR ANZ231-232-250-251-254>256.
GALE WARNING UNTIL 10 PM EST THIS EVENING FOR ANZ233>235-237.
GALE WARNING UNTIL 8 PM EST THIS EVENING FOR ANZ230-236.
&&
$$

2015337 2000
AFDBOX
AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE TAUNTON MA
300 PM EST THU DEC 3 2015
.SYNOPSIS...
HIGH PRESSURE WILL BRING DRY WEATHER THROUGH MONDAY WITH A WARMING TREND THIS WEEKEND. IT REMAINS UNCERTAIN IF DEVELOPING LOW PRESSURE WILL TRACK CLOSE ENOUGH TO THE COAST TO HAVE A SIGNIFICANT IMPACT ON OUR WEATHER BY NEXT MONDAY NIGHT AND TUESDAY.
&&
.NEAR TERM /THROUGH TONIGHT/...
MAIN FOCUS FOR ANY LIGHT RAIN/SNOW SHOWERS THROUGH EARLY EVENING WILL BE ACROSS UPSLOPE AREAS ALONG THE W SLOPES OF THE BERKSHIRES WHICH MAY SPILL INTO THE E SLOPES BUT COVERAGE WILL BE LIMITED.
OTHERWISE...CLEARING SKIES EXPECTED TONIGHT AS SFC RIDGING MOVES INTO THE REGION WITH GOOD MID LEVEL DRYING.
STRONG WINDS WILL BE A CONCERN INTO THE EARLY EVENING AND SOUNDINGS SUGGEST THE PEAK OF THE WIND WILL OCCUR LATE THIS AFTERNOON. STEEP LOW LEVEL LAPSE RATES IN PLACE WITH GOOD PRESSURE RISES AND SOUNDINGS SHOW POTENTIAL FOR GUSTS TO 40 MPH AND CANT RULE OUT ISOLD GUSTS TO 45-50 MPH OVER THE HIGHER TERRAIN IF WE CAN MIX DOWN WINDS FROM THE TOP OF THE MIXED LAYER.
WINDS WILL GRADUALLY DIMINISH TONIGHT...ESPECIALLY IN THE INTERIOR BUT REMAIN GUSTY UNTIL WELL AFTER MIDNIGHT ALONG THE IMMEDIATE COAST. LOW TEMPS WILL RANGE FROM THE UPPER 20S TO MID 30S.
&&
.SHORT TERM /FRIDAY THROUGH FRIDAY NIGHT/...
FRIDAY...
A SECONDARY MID LEVEL SHORTWAVE WILL BE MOVING THROUGH SNE FRI AFTERNOON. HOWEVER...THE COLUMN IS QUITE DRY WITH THE BETTER MOISTURE WELL TO THE N SO EXPECT DRY WEATHER WITH JUST A PERIOD OF SCT-BKN CU DEVELOPING IN THE INTERIOR DURING THE AFTERNOON. MAX TEMPS WERE A BLEND OF AVAILABLE GUIDANCE...MID TO UPPER 40S EXCEPT

CLOSER TO 40 ACROSS THE HIGHER TERRAIN.
FRIDAY NIGHT...
SHORTWAVE RAPIDLY MOVES OFFSHORE WITH STRONG HIGH PRES BUILDING IN FROM THE WEST. EXPECT MOSTLY CLEAR SKIES WITH LIGHT NW WINDS. MIN TEMPS RANGE FROM MID 20S TO LOWER 30S.
&&
.LONG TERM /SATURDAY THROUGH THURSDAY/...
HIGHLIGHTS...
* BLUSTERY BUT A DRYING TREND FOR THURSDAY
* DRY WEATHER AND ABOVE AVG TEMPS FRIDAY LASTING INTO EARLY NEXT WEEK
* LOW CONFIDENCE ON RAIN CHANCES MID-NEXT WEEK
OVERVIEW...
SLOW START TO DECEMBER FOR SNOW LOVERS AS TRANQUIL WEATHER CONDITIONS AND ABOVE AVERAGE TEMPERATURES PERSISTENT WELL INTO NEXT WEEK. LATEST 03/00Z MODEL AND NUMERICAL GUIDANCE SHOWS BROAD MID- ATLANTIC SURFACE HIGH PRESSURE BUILDING FRIDAY THROUGH EARLY NEXT WEEK. THIS SYSTEM IS +2-3 STANDARD DEVIATIONS ABOVE NORMAL WHILE 700 MB HEIGHTS ARE CLOSER TO +3-4 STD!
APPEARS NEXT SHOT OF PRECIP WILL BE LATE TUESDAY INTO WEDNESDAY IN A POTENTIAL NOR'EASTER. SEVERAL ENSEMBLE MEMBERS WITHIN THE GEFS AND EPS ALSO SHOW THE SYSTEM DEVELOPING. HOWEVER THIS LATEST RUN CONTINUES TO INDICATE THAT THE TRACK OF THIS SYSTEM WILL WOBBLE OVER THE NEXT SEVERAL DAYS. SO WILL CONTINUE TO WATCH ITS EVOLUTION.
DAILIES...
FRIDAY INTO MONDAY...HIGH CONFIDENCE.
HIGH PRESSURE WILL BUILD FRIDAY INTO THE WEEKEND. THIS WILL ALLOW FOR DRY WEATHER AND TEMPERATURES ABOVE NORMAL. PASSING SHORTWAVE WILL BRING A FEW MORE CLOUDS TO THE REGION ON FRIDAY. HOWEVER ANTICIPATE MOSTLY SUNNY SKIES THROUGH THE PERIOD.
TEMPERATURES WILL BE ABOVE AVERAGE FOR THIS TIME PERIOD...ESPECIALLY ON SUNDAY. GUIDANCE IS SHOWING 850 MB TEMPS WARMING TO 7-9 C...WITH CLEAR SKIES AND BONE DRY CONDITIONS THE REGION COULD SEE HIGH TEMPS INTO THE UPPER 50S. COULD EVEN SEE TEMPS IN THE 60S. USED MEX GUIDANCE AND UPPED IT A FEW DEGREES FOR BOTH SATURDAY AND SUNDAY. WARM TEMPS AND CLEAR SKIES...A GREAT WEEKEND APPEARS TO BE ON TAP FOR SOUTHERN NEW ENGLAND!
TRANSITION PERIOD ON MONDAY AS HIGH BEGINS TO MOVE OFFSHORE. TEMPS WILL STILL BE ABOVE AVERAGE BUT COULD SEE A FEW MORE CLOUDS AROUND.
TUESDAY INTO WEDNESDAY...MODERATE CONFIDENCE.
HIGH PRESSURE TO THE NORTH OF THE AREA AS A POTENTIAL NOR'EASTER DEVELOPS OFF THE MID-ATLANTIC AND MOVES UP THE EASTERN SEABOARD. LOTS OF UNCERTAINTY FOR THIS TIME PERIOD BUT DETERMINISTIC AND ENSEMBLE GUIDANCE CONTINUE TO SHOW THE POTENTIAL FOR THIS SYSTEM LATE TUESDAY INTO WEDNESDAY. LATEST GUIDANCE KEEPS THIS SYSTEM WARM...BUT DEPENDING ON THE EXACT TRACK AND STRENGTHEN OF THIS SYSTEM THERE COULD BE THE POTENTIAL FOR FROZEN PRECIP. ASIDE FROM PRECIPITATION COULD SEE POTENTIAL WIND AND COASTAL FLOODING ISSUES. WILL NEED TO WATCH AS THIS SYSTEM EVOLVES OVER THE NEXT SEVERAL DAYS.
&&
.AVIATION /19Z THURSDAY THROUGH TUESDAY/...
FORECASTER CONFIDENCE LEVELS...
LOW...LESS THAN 30 PERCENT.
MODERATE...30 TO 60 PERCENT.
HIGH...GREATER THAN 60 PERCENT.
SHORT TERM /THROUGH FRIDAY NIGHT/...

THROUGH 00Z...MAINLY VFR CIGS 3-5K FT ALTHOUGH CANT RULE OUT SOME MVFR...ESPECIALLY HIGHER TERRAIN. CLOUD COVERAGE WILL DECREASE BY LATE AFTERNOON. W/NW GUSTS TO 35 KT EXPECTED TO DEVELOP WITH A FEW G40KT POSSIBLE OVER HIGHER TERRAIN.
TONIGHT...HIGH CONFIDENCE. MAINLY VFR. LOW RISK OF MVFR OVER THE BERKSHIRES. NW GUSTS 25-35 KT IN THE EVENING WILL GRADUALLY DIMINISH THROUGH THE NIGHT.
FRIDAY AND FRIDAY NIGHT...HIGH CONFIDENCE. VFR. SOME LOW VFR CIGS DEVELOPING IN THE INTERIOR DURING FRI AFTERNOON.
KBOS TERMINAL...HIGH CONFIDENCE.
KBDL TERMINAL...HIGH CONFIDENCE.
OUTLOOK /SATURDAY THROUGH TUESDAY/...
SATURDAY INTO MONDAY...HIGH CONFIDENCE. VFR AND DRY WEATHER LIKELY.
&&
.MARINE...
FORECASTER CONFIDENCE LEVELS...
LOW...LESS THAN 30 PERCENT.
MODERATE...30 TO 60 PERCENT.
HIGH...GREATER THAN 60 PERCENT.
SHORT TERM /THROUGH FRIDAY NIGHT/...
THROUGH TONIGHT...HIGH CONFIDENCE. GALE FORCE NW WIND GUSTS TO 35 KT EXPECTED TO PEAK LATE THIS AFTERNOON INTO EARLY EVENING BEFORE SLOWLY DIMINISHING OVERNIGHT. WINDS SHOULD DROP BELOW SCA TOWARD DAYBREAK OVER THE OUTER WATERS.
FRI INTO FRI NIGHT...HIGH CONFIDENCE. W/NW WINDS BELOW SCA WITH SUBSIDING SEAS. LINGERING SCA SEAS LIKELY OVER OUTER WATERS EARLY FRI.
OUTLOOK /SATURDAY THROUGH TUESDAY/... HIGH CONFIDENCE

SAT INTO MONDAY...HIGH CONFIDENCE. HIGH PRESSURE BUILDS ON FRIDAY LASTING INTO NEXT WEEK. BOTH SEAS AND WINDS WILL RELAX ON FRIDAY. LINGERING SCA MAY BE NEEDED. OTHERWISE EXPECT LIGHT WINDS AND DRY WEATHER FOR THE WEEKEND INTO NEXT WEEK.
&&
.BOX WATCHES/WARNINGS/ADVISORIES...
CT...NONE.
MA...NONE.
RI...NONE.
MARINE...GALE WARNING UNTIL 2 AM EST FRIDAY FOR ANZ231-232-250-251-254>256.
GALE WARNING UNTIL 10 PM EST THIS EVENING FOR ANZ233>235-237.
GALE WARNING UNTIL 8 PM EST THIS EVENING FOR ANZ230-236.
&&
$$
SYNOPSIS...KJC
NEAR TERM...KJC
SHORT TERM...KJC
LONG TERM...DUNTEN
AVIATION...KJC/DUNTEN
MARINE...KJC/DUNTEN

FXUS61 KBOX 031756
AFDBOX
AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE TAUNTON MA

1256 PM EST THU DEC 3 2015
.SYNOPSIS...
A COLD FRONT WILL BRING MUCH CHILLIER TEMPERATURES ALONG WITH A PERIOD OF STRONG NORTHWEST WIND GUSTS FROM MID AFTERNOON INTO EARLY THIS EVENING. HIGH PRESSURE WILL BRING DRY WEATHER THROUGH MONDAY WITH UNSEASONABLY MILD TEMPERATURES THIS WEEKEND. IT REMAINS UNCERTAIN IF DEVELOPING LOW PRESSURE WILL TRACK CLOSE ENOUGH TO THE COAST TO HAVE A SIGNIFICANT IMPACT ON OUR WEATHER BY NEXT MONDAY NIGHT AND TUESDAY.
&&
.NEAR TERM /UNTIL 6 PM THIS EVENING/...
MAIN CONCERN IS FOR A PERIOD OF NORTHWEST WIND GUSTS OF 40 TO 50 MPH THIS AFTERNOON INTO EARLY THIS EVENING
1 PM UPDATE...
A FEW SHOWERS ACROSS NE MA WILL MOVE OFFSHORE...OTHERWISE RADAR IS QUIET. MAIN FOCUS FOR SCT RAIN/SNOW SHOWERS THROUGH THE AFTERNOON WILL BE ACROSS UPSLOPE AREAS ALONG THE W SLOPES OF THE BERKSHIRES WHICH MAY SPILL INTO THE E SLOPES BUT COVERAGE IS LIMITED.
THE MAIN CONCERN THROUGH THE AFTERNOON IS FOR A PERIOD OF STRONG WIND GUSTS AS STEEP LOW LEVEL LAPSE RATES IN PLACE WITH GOOD PRESSURE RISES. SOUNDINGS SHOW POTENTIAL FOR GUSTS TO 40 MPH AND CANT RULE OUT ISOLD GUSTS TO 45-50 MPH OVER THE HIGHER TERRAIN IF WE CAN MIX DOWN WINDS FROM THE TOP OF THE MIXED LAYER.
&&
.SHORT TERM /6 PM THIS EVENING THROUGH 6 AM FRIDAY/...
MAINLY DRY WEATHER EXPECTED TONIGHT OTHER THAN PERHAPS A FEW SNOW FLURRIES ALONG THE EAST SLOPES OF THE BERKSHIRES DURING THE EVENING. STRONG NORTHWEST WIND GUSTS EARLY THIS EVENING SHOULD GRADUALLY DIMINISH...ESPECIALLY ACROSS PORTIONS OF THE INTERIOR TOWARD DAYBREAK WHERE THEY SHOULD DECOUPLE. LOW TEMPS WILL BOTTOM OUT IN THE MIDDLE TO UPPER 20S ACROSS THE NORMALLY COOLER OUTLYING LOCATIONS AND BETWEEN 30 AND 35 ELSEWHERE.
&&
.LONG TERM /FRIDAY THROUGH WEDNESDAY/...
HIGHLIGHTS...
* BLUSTERY BUT A DRYING TREND FOR THURSDAY
* DRY WEATHER AND ABOVE AVG TEMPS FRIDAY LASTING INTO EARLY NEXT WEEK
* LOW CONFIDENCE ON RAIN CHANCES MID-NEXT WEEK
OVERVIEW...
SLOW TO START TO DECEMBER FOR SNOW LOVERS AS TRANQUIL WEATHER CONDITIONS AND ABOVE AVERAGE TEMPERATURES PERSISTENT WELL INTO NEXT WEEK. LATEST 03/00Z MODEL AND NUMERICAL GUIDANCE SHOWS BROAD MID-ATLANTIC SURFACE HIGH PRESSURE BUILDING FRIDAY THROUGH EARLY NEXT WEEK. THIS SYSTEM IS +2-3 STANDARD DEVIATIONS ABOVE NORMAL WHILE 700 MB HEIGHTS ARE CLOSER TO +3-4 STD!
APPEARS NEXT SHOT OF PRECIP WILL BE LATE TUESDAY INTO WEDNESDAY IN A POTENTIAL NOR'EASTER. SEVERAL ENSEMBLE MEMBERS WITHIN THE GEFS AND EPS ALSO SHOW THE SYSTEM DEVELOPING. HOWEVER THIS LATEST RUN CONTINUES TO INDICATE THAT THE TRACK OF THIS SYSTEM WILL WOBBLE OVER THE NEXT SEVERAL DAYS. SO WILL CONTINUE TO WATCH ITS EVOLUTION.
DAILIES...
FRIDAY INTO MONDAY...HIGH CONFIDENCE.
HIGH PRESSURE WILL BUILD FRIDAY INTO THE WEEKEND. THIS WILL ALLOW FOR DRY WEATHER AND TEMPERATURES ABOVE NORMAL. PASSING SHORTWAVE WILL BRING A FEW MORE CLOUDS TO THE REGION ON FRIDAY. HOWEVER

ANTICIPATE MOSTLY SUNNY SKIES THROUGH THE PERIOD.
TEMPERATURES WILL BE ABOVE AVERAGE FOR THIS TIME PERIOD...ESPECIALLY ON SUNDAY. GUIDANCE IS SHOWING 850 MB TEMPS WARMING TO 7-9 C...WITH CLEAR SKIES AND BONE DRY CONDITIONS THE REGION COULD SEE HIGH TEMPS INTO THE UPPER 50S. COULD EVEN SEE TEMPS IN THE 60S. USED MEX GUIDANCE AND UPPED IT A FEW DEGREES FOR BOTH SATURDAY AND SUNDAY. WARM TEMPS AND CLEAR SKIES...A GREAT WEEKEND APPEARS TO BE ON TAP FOR SOUTHERN NEW ENGLAND!
TRANSITION PERIOD ON MONDAY AS HIGH BEGINS TO MOVE OFFSHORE. TEMPS WILL STILL BE ABOVE AVERAGE BUT COULD SEE A FEW MORE CLOUDS AROUND.
TUESDAY INTO WEDNESDAY...MODERATE CONFIDENCE.
HIGH PRESSURE TO THE NORTH OF THE AREA AS A POTENTIAL NOR'EASTER DEVELOPS OFF THE MID-ATLANTIC AND MOVES UP THE EASTERN SEABOARD. LOTS OF UNCERTAINTY FOR THIS TIME PERIOD BUT DETERMINISTIC AND ENSEMBLE GUIDANCE CONTINUE TO SHOW THE POTENTIAL FOR THIS SYSTEM LATE TUESDAY INTO WEDNESDAY. LATEST GUIDANCE KEEPS THIS SYSTEM WARM...BUT DEPENDING ON THE EXACT TRACK AND STRENGTHEN OF THIS SYSTEM THERE COULD BE THE POTENTIAL FOR FROZEN PRECIP. ASIDE FROM PRECIPITATION COULD SEE POTENTIAL WIND AND COASTAL FLOODING ISSUES. WILL NEED TO WATCH AS THIS SYSTEM EVOLVES OVER THE NEXT SEVERAL DAYS.
&&
.AVIATION /18Z THURSDAY THROUGH TUESDAY/...
FORECASTER CONFIDENCE LEVELS...
LOW...LESS THAN 30 PERCENT.
MODERATE...30 TO 60 PERCENT.
HIGH...GREATER THAN 60 PERCENT.
SHORT TERM /THROUGH FRIDAY NIGHT/...
THROUGH 00Z...MAINLY VFR CIGS 3-5K FT ALTHOUGH CANT RULE OUT SOME MVFR...ESPECIALLY HIGHER TERRAIN. CLOUD COVERAGE WILL DECREASE BY LATE AFTERNOON. W/NW GUSTS TO 35 KT EXPECTED TO DEVELOP WITH A FEW G40KT POSSIBLE OVER HIGHER TERRAIN.
TONIGHT...HIGH CONFIDENCE. MAINLY VFR. LOW RISK OF MVFR OVER THE BERKSHIRES. NW GUSTS 25-35 KT IN THE EVENING WILL GRADUALLY DIMINISH THROUGH THE NIGHT.
FRIDAY AND FRIDAY NIGHT...HIGH CONFIDENCE. VFR. SOME LOW VFR CIGS DEVELOPING IN THE INTERIOR DURING FRI AFTERNOON.
KBOS TERMINAL...HIGH CONFIDENCE.
KBDL TERMINAL...HIGH CONFIDENCE.
OUTLOOK /SATURDAY THROUGH MONDAY/...
SATURDAY INTO MONDAY...HIGH CONFIDENCE. VFR AND DRY WEATHER LIKELY.
&&
.MARINE...
FORECASTER CONFIDENCE LEVELS...
LOW...LESS THAN 30 PERCENT.
MODERATE...30 TO 60 PERCENT.
HIGH...GREATER THAN 60 PERCENT.
SHORT TERM /THROUGH TONIGHT/...
TODAY AND TONIGHT...HIGH CONFIDENCE. A COLD FRONT WILL MOVE THROUGH THE WATERS EARLY THIS MORNING. STRONG COLD ADVECTION OVER THE RELATIVELY MILD OCEAN WILL RESULT IN NORTHWEST WIND GUSTS OF 35 TO 40 KNOTS DEVELOPING THIS AFTERNOON AND CONTINUING INTO THE EVENING. GALE WARNINGS REMAIN POSTED FOR ALL WATERS. WIND SHOULD DIMINISH SOME AFTER MIDNIGHT BUT REMAIN AT SMALL CRAFT ADVISORY THRESHOLDS WELL INTO THE OVERNIGHT HOURS.

OUTLOOK /FRIDAY THROUGH MONDAY/... HIGH CONFIDENCE

FRI INTO MONDAY...HIGH CONFIDENCE. HIGH PRESSURE BUILDS ON FRIDAY LASTING INTO NEXT WEEK. BOTH SEAS AND WINDS WILL RELAX ON FRIDAY. LINGERING SCA MAY BE NEEDED. OTHERWISE EXPECT LIGHT WINDS AND DRY WEATHER FOR THE WEEKEND INTO NEXT WEEK.
&&
.BOX WATCHES/WARNINGS/ADVISORIES...
CT...NONE.
MA...NONE.
RI...NONE.
MARINE...GALE WARNING UNTIL 2 AM EST FRIDAY FOR ANZ231>235-237-250-251-254>256.
GALE WARNING UNTIL 8 PM EST THIS EVENING FOR ANZ230-236.
&&
$$
SYNOPSIS...FRANK/DUNTEN
NEAR TERM...KJC
SHORT TERM...FRANK
LONG TERM...DUNTEN
AVIATION...KJC/DUNTEN
MARINE...FRANK/DUNTEN

FXUS61 KBOX 031511
AFDBOX
AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE TAUNTON MA
1011 AM EST THU DEC 3 2015
.SYNOPSIS...
A COLD FRONT WILL BRING MUCH CHILLIER TEMPERATURES ALONG WITH A PERIOD OF STRONG NORTHWEST WIND GUSTS FROM MID AFTERNOON INTO EARLY THIS EVENING. HIGH PRESSURE WILL BRING DRY WEATHER THROUGH MONDAY WITH UNSEASONABLY MILD TEMPERATURES THIS WEEKEND. IT REMAINS UNCERTAIN IF DEVELOPING LOW PRESSURE WILL TRACK CLOSE ENOUGH TO THE COAST TO HAVE A SIGNIFICANT IMPACT ON OUR WEATHER BY NEXT MONDAY NIGHT AND TUESDAY.
&&
.NEAR TERM /UNTIL 6 PM THIS EVENING/...
MAIN CONCERN IS FOR A PERIOD OF NORTHWEST WIND GUSTS OF 40 TO 50 MPH THIS AFTERNOON INTO EARLY THIS EVENING
10 AM UPDATE...
COLD FRONT MOVING ACROSS THE CAPE/ISLANDS WILL PUSH OFFSHORE BEFORE MIDDAY. STRONG COLD ADVECTION WILL RESULT IN TEMPS FALLING INTO THE 40S ACROSS CAPE/ISLANDS...WITH TEMPS NEAR STEADY IN THE LOW TO MID 40S IN THE INTERIOR AND UPPER 30S HIGHER ELEVATIONS. STRONG MID LEVEL SHORTWAVE AND ACCOMPANYING COLD POOL PUSHING INTO NEW ENG WILL RESULT IN A FEW SHOWERS IN THE INTERIOR. HI-RES GUIDANCE MAINLY TARGETING THE HIGHER TERRAIN ACROSS THE BERKSHIRES AND ORH HILLS WHERE THE RAIN MAY MIX WITH OR CHANGE TO SNOW AS THE COLUMN COOLS. NOT EXPECTING ANY ACCUM BUT A COATING IS POSSIBLE ABOVE 2000 FT ELEVATION.
THE MAIN CONCERN IS FOR A PERIOD OF STRONG WIND GUSTS AFT 18Z INTO EARLY THIS EVENING AS STEEP LOW LEVEL LAPSE RATES IN PLACE WITH GOOD PRESSURE RISES. SOUNDINGS SHOW POTENTIAL FOR GUSTS TO 40 MPH AND CANT RULE OUT ISOLD GUSTS TO 45-50 MPH OVER THE HIGHER TERRAIN IF WE CAN MIX DOWN WINDS FROM THE TOP OF THE MIXED LAYER.

THINK ANY GUSTS TO 50 WILL BE BRIEF AND ISOLD IN COVERAGE SO
WILL CONTINUE WITH THE SPS.
&&
.SHORT TERM /6 PM THIS EVENING THROUGH 6 AM FRIDAY/...
MAINLY DRY WEATHER EXPECTED TONIGHT OTHER THAN PERHAPS A FEW SNOW
FLURRIES ALONG THE EAST SLOPES OF THE BERKSHIRES DURING THE EVENING.
STRONG NORTHWEST WIND GUSTS EARLY THIS EVENING SHOULD GRADUALLY
DIMINISH...ESPECIALLY ACROSS PORTIONS OF THE INTERIOR TOWARD
DAYBREAK WHERE THEY SHOULD DECOUPLE. LOW TEMPS WILL BOTTOM OUT IN
THE MIDDLE TO UPPER 20S ACROSS THE NORMALLY COOLER OUTLYING
LOCATIONS AND BETWEEN 30 AND 35 ELSEWHERE.
&&
.LONG TERM /FRIDAY THROUGH WEDNESDAY/...
HIGHLIGHTS...
* BLUSTERY BUT A DRYING TREND FOR THURSDAY
* DRY WEATHER AND ABOVE AVG TEMPS FRIDAY LASTING INTO EARLY NEXT WEEK
* LOW CONFIDENCE ON RAIN CHANCES MID-NEXT WEEK
OVERVIEW...
SLOW TO START TO DECEMBER FOR SNOW LOVERS AS TRANQUIL WEATHER
CONDITIONS AND ABOVE AVERAGE TEMPERATURES PERSISTENT WELL INTO NEXT
WEEK. LATEST 03/00Z MODEL AND NUMERICAL GUIDANCE SHOWS BROAD MID-
ATLANTIC SURFACE HIGH PRESSURE BUILDING FRIDAY THROUGH EARLY NEXT
WEEK. THIS SYSTEM IS +2-3 STANDARD DEVIATIONS ABOVE NORMAL WHILE 700
MB HEIGHTS ARE CLOSER TO +3-4 STD!
APPEARS NEXT SHOT OF PRECIP WILL BE LATE TUESDAY INTO WEDNESDAY IN A
POTENTIAL NOR'EASTER. SEVERAL ENSEMBLE MEMBERS WITHIN THE GEFS AND
EPS ALSO SHOW THE SYSTEM DEVELOPING. HOWEVER THIS LATEST RUN
CONTINUES TO INDICATE THAT THE TRACK OF THIS SYSTEM WILL WOBBLE OVER
THE NEXT SEVERAL DAYS. SO WILL CONTINUE TO WATCH ITS EVOLUTION.
DAILIES...
FRIDAY INTO MONDAY...HIGH CONFIDENCE.
HIGH PRESSURE WILL BUILD FRIDAY INTO THE WEEKEND. THIS WILL ALLOW
FOR DRY WEATHER AND TEMPERATURES ABOVE NORMAL. PASSING SHORTWAVE
WILL BRING A FEW MORE CLOUDS TO THE REGION ON FRIDAY. HOWEVER
ANTICIPATE MOSTLY SUNNY SKIES THROUGH THE PERIOD.
TEMPERATURES WILL BE ABOVE AVERAGE FOR THIS TIME PERIOD...ESPECIALLY
ON SUNDAY. GUIDANCE IS SHOWING 850 MB TEMPS WARMING TO 7-9 C...WITH
CLEAR SKIES AND BONE DRY CONDITIONS THE REGION COULD SEE HIGH TEMPS
INTO THE UPPER 50S. COULD EVEN SEE TEMPS IN THE 60S. USED MEX
GUIDANCE AND UPPED IT A FEW DEGREES FOR BOTH SATURDAY AND SUNDAY.
WARM TEMPS AND CLEAR SKIES...A GREAT WEEKEND APPEARS TO BE ON TAP
FOR SOUTHERN NEW ENGLAND!
TRANSITION PERIOD ON MONDAY AS HIGH BEGINS TO MOVE OFFSHORE. TEMPS
WILL STILL BE ABOVE AVERAGE BUT COULD SEE A FEW MORE CLOUDS AROUND.
TUESDAY INTO WEDNESDAY...MODERATE CONFIDENCE.
HIGH PRESSURE TO THE NORTH OF THE AREA AS A POTENTIAL NOR'EASTER
DEVELOPS OFF THE MID-ATLANTIC AND MOVES UP THE EASTERN SEABOARD.
LOTS OF UNCERTAINTY FOR THIS TIME PERIOD BUT DETERMINISTIC AND
ENSEMBLE GUIDANCE CONTINUE TO SHOW THE POTENTIAL FOR THIS SYSTEM
LATE TUESDAY INTO WEDNESDAY. LATEST GUIDANCE KEEPS THIS SYSTEM
WARM...BUT DEPENDING ON THE EXACT TRACK AND STRENGTHEN OF THIS
SYSTEM THERE COULD BE THE POTENTIAL FOR FROZEN PRECIP. ASIDE FROM
PRECIPITATION COULD SEE POTENTIAL WIND AND COASTAL FLOODING ISSUES.
WILL NEED TO WATCH AS THIS SYSTEM EVOLVES OVER THE NEXT SEVERAL
DAYS.
&&

.AVIATION /15Z THURSDAY THROUGH MONDAY/...
FORECASTER CONFIDENCE LEVELS...
LOW...LESS THAN 30 PERCENT.
MODERATE...30 TO 60 PERCENT.
HIGH...GREATER THAN 60 PERCENT.
SHORT TERM /THROUGH TONIGHT/...
TODAY...MODERATE TO HIGH CONFIDENCE. SCATTERED TO BROKEN MARGINAL MVFR-VFR CIGS WILL PERSIST INTO THE AFTERNOON ALONG WITH THE RISK OF A FEW BRIEF SHOWERS...ESPECIALLY NORTH OF THE MA TURNPIKE. NORTHWEST WIND GUSTS OF 30 TO 40 KNOTS EXPECTED AFT 18Z.
TONIGHT...MODERATE TO HIGH CONFIDENCE. MAINLY VFR CONDITIONS BUT MAY HAVE A FEW BRIEF BOUTS OF MARGINAL MVFR CIGS WITH HIGHEST RISK ACROSS THE INTERIOR. STRONG NORTHWEST WIND GUSTS EARLY IN THE EVENING WILL DIMINISH OVERNIGHT.
KBOS TERMINAL...MODERATE TO HIGH CONFIDENCE IN TAF.
KBDL TERMINAL...MODERATE TO HIGH CONFIDENCE IN TAF.
OUTLOOK /FRIDAY THROUGH MONDAY/...
FRIDAY...HIGH CONFIDENCE. VFR. LINGER CIGS NEAR 4 KFT.
SATURDAY INTO MONDAY...HIGH CONFIDENCE. VFR AND DRY WEATHER LIKELY.
&&
.MARINE...
FORECASTER CONFIDENCE LEVELS...
LOW...LESS THAN 30 PERCENT.
MODERATE...30 TO 60 PERCENT.
HIGH...GREATER THAN 60 PERCENT.
SHORT TERM /THROUGH TONIGHT/...
TODAY AND TONIGHT...HIGH CONFIDENCE. A COLD FRONT WILL MOVE THROUGH THE WATERS EARLY THIS MORNING. STRONG COLD ADVECTION OVER THE RELATIVELY MILD OCEAN WILL RESULT IN NORTHWEST WIND GUSTS OF 35 TO 40 KNOTS DEVELOPING THIS AFTERNOON AND CONTINUING INTO THE EVENING. GALE WARNINGS REMAIN POSTED FOR ALL WATERS. WIND SHOULD DIMINISH SOME AFTER MIDNIGHT BUT REMAIN AT SMALL CRAFT ADVISORY THRESHOLDS WELL INTO THE OVERNIGHT HOURS.
OUTLOOK /FRIDAY THROUGH MONDAY/... HIGH CONFIDENCE

FRI INTO MONDAY...HIGH CONFIDENCE. HIGH PRESSURE BUILDS ON FRIDAY LASTING INTO NEXT WEEK. BOTH SEAS AND WINDS WILL RELAX ON FRIDAY. LINGERING SCA MAY BE NEEDED. OTHERWISE EXPECT LIGHT WINDS AND DRY WEATHER FOR THE WEEKEND INTO NEXT WEEK.
&&
.BOX WATCHES/WARNINGS/ADVISORIES...
CT...NONE.
MA...NONE.
RI...NONE.
MARINE...GALE WARNING UNTIL 2 AM EST FRIDAY FOR ANZ231>235-237-250-251-254>256.
GALE WARNING UNTIL 8 PM EST THIS EVENING FOR ANZ230-236.
&&
$$
SYNOPSIS...FRANK/DUNTEN
NEAR TERM...KJC/FRANK
SHORT TERM...FRANK
LONG TERM...DUNTEN
AVIATION...FRANK/DUNTEN
MARINE...FRANK/DUNTEN

FXUS61 KBOX 031137
AFDBOX
AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE TAUNTON MA
637 AM EST THU DEC 3 2015
.SYNOPSIS...
A COLD FRONT WILL BRING MUCH CHILLIER TEMPERATURES ALONG WITH A PERIOD OF STRONG NORTHWEST WIND GUSTS FROM MID AFTERNOON INTO EARLY THIS EVENING. HIGH PRESSURE WILL BRING DRY WEATHER THROUGH MONDAY WITH UNSEASONABLY MILD TEMPERATURES THIS WEEKEND. IT REMAINS UNCERTAIN IF DEVELOPING LOW PRESSURE WILL TRACK CLOSE ENOUGH TO THE COAST TO HAVE A SIGNIFICANT IMPACT ON OUR WEATHER BY NEXT MONDAY NIGHT AND TUESDAY.
&&
.NEAR TERM /UNTIL 6 PM THIS EVENING/...
7AM UPDATE...
SHOWERY WEATHER OVER THE CAPE AND ISLANDS WILL PUSH OFFSHORE WITHIN THE NEXT HOUR. OTHERWISE DENSE FOG ACROSS THE NORTH SHORE WILL BURN OFF OVER THE NEXT HOUR OR TWO AS WINDS BEGIN TO PICK AND MIXING OCCURS. FINALLY A BAND OF SCT SHOWERS OVER BERKSHIRE COUNTY WILL MOVE INTO WESTERN MASS THIS MORNING. THESE SHOWERS ARE ASSOCIATED WITH POTENT SHORTWAVE WHICH WILL MOVE THROUGH TODAY. COULD SEE THE SHOWERY WEATHER EXPAND IN COVERAGE ESP NORTH OF THE PIKE LATER TODAY.
MAIN CONCERN IS FOR A PERIOD OF NORTHWEST WIND GUSTS OF 40 TO 50 MPH FROM MID AFTERNOON INTO EARLY THIS EVENING
MILD TEMPS ACROSS RHODE ISLAND AND SOUTHEAST MA WILL DROP INTO THE UPPER 40S TO NEAR 50 BY MID MORNING AS COOLER AIR WORKS INTO THE REGION BEHIND THE FRONT. AFTERNOON TEMPS WILL MAINLY BE IN THE LOWER TO MIDDLE 40S ACROSS THE HIGHER TERRAIN AND BETWEEN 45 AND 50 ON THE COASTAL PLAIN.
A POTENT SHORTWAVE BEHIND THE SURFACE FRONT WILL CROSS THE REGION THIS AFTERNOON. WHILE MOST OF THE GUIDANCE DOES NOT SHOW QPF...FEEL WITH STEEP MID LEVEL LAPSE RATES/COLD POOL ALOFT THERE SHOULD BE A FEW RAIN SHOWERS...PARTICULARLY NORTH OF THE MA PIKE NEAR THE BETTER DYNAMICS. A FEW WET SNOW FLAKES ARE POSSIBLE ACROSS THE EAST SLOPES OF THE BERKSHIRES...BUT NO ACCUMULATION.
THE MAIN CONCERN IS FOR A PERIOD OF STRONG WIND GUSTS FROM MID AFTERNOON INTO EARLY THIS EVENING. STEEP LAPSE RATES COMBINED WITH NICE PRESSURE RISES WILL BRING THE POTENTIAL FOR NORTHWEST WIND GUSTS OF 40 TO 50 MPH. WE WILL GO AHEAD AND ISSUE A SPECIAL WEATHER STATEMENT TO HIGHLIGHT THESE CONCERNS AND MENTION THE NEED FOR A POSSIBLE WIND ADVISORY. SINCE THE STRONGEST WINDS WILL NOT OCCUR UNTIL MID TO LATE AFTERNOON FIGURED WE COULD LET THE NEXT SHIFT LOOK THINGS OVER...BUT AT LEAST WANTED TO HIGHLIGHT THE POTENTIAL.
&&
.SHORT TERM /6 PM THIS EVENING THROUGH 6 AM FRIDAY/...
MAINLY DRY WEATHER EXPECTED TONIGHT OTHER THAN PERHAPS A FEW SNOW FLURRIES ALONG THE EAST SLOPES OF THE BERKSHIRES DURING THE EVENING. STRONG NORTHWEST WIND GUSTS EARLY THIS EVENING SHOULD GRADUALLY DIMINISH...ESPECIALLY ACROSS PORTIONS OF THE INTERIOR TOWARD DAYBREAK WHERE THEY SHOULD DECOUPLE. LOW TEMPS WILL BOTTOM OUT IN THE MIDDLE TO UPPER 20S ACROSS THE NORMALLY COOLER OUTLYING LOCATIONS AND BETWEEN 30 AND 35 ELSEWHERE.
&&
.LONG TERM /FRIDAY THROUGH WEDNESDAY/...

HIGHLIGHTS...
* BLUSTERY BUT A DRYING TREND FOR THURSDAY
* DRY WEATHER AND ABOVE AVG TEMPS FRIDAY LASTING INTO EARLY NEXT WEEK
* LOW CONFIDENCE ON RAIN CHANCES MID-NEXT WEEK
OVERVIEW...
SLOW TO START TO DECEMBER FOR SNOW LOVERS AS TRANQUIL WEATHER CONDITIONS AND ABOVE AVERAGE TEMPERATURES PERSISTENT WELL INTO NEXT WEEK. LATEST 03/00Z MODEL AND NUMERICAL GUIDANCE SHOWS BROAD MID-ATLANTIC SURFACE HIGH PRESSURE BUILDING FRIDAY THROUGH EARLY NEXT WEEK. THIS SYSTEM IS +2-3 STANDARD DEVIATIONS ABOVE NORMAL WHILE 700 MB HEIGHTS ARE CLOSER TO +3-4 STD!
APPEARS NEXT SHOT OF PRECIP WILL BE LATE TUESDAY INTO WEDNESDAY IN A POTENTIAL NOR'EASTER. SEVERAL ENSEMBLE MEMBERS WITHIN THE GEFS AND EPS ALSO SHOW THE SYSTEM DEVELOPING. HOWEVER THIS LATEST RUN CONTINUES TO INDICATE THAT THE TRACK OF THIS SYSTEM WILL WOBBLE OVER THE NEXT SEVERAL DAYS. SO WILL CONTINUE TO WATCH ITS EVOLUTION.
DAILIES...
FRIDAY INTO MONDAY...HIGH CONFIDENCE.
HIGH PRESSURE WILL BUILD FRIDAY INTO THE WEEKEND. THIS WILL ALLOW FOR DRY WEATHER AND TEMPERATURES ABOVE NORMAL. PASSING SHORTWAVE WILL BRING A FEW MORE CLOUDS TO THE REGION ON FRIDAY. HOWEVER ANTICIPATE MOSTLY SUNNY SKIES THROUGH THE PERIOD.
TEMPERATURES WILL BE ABOVE AVERAGE FOR THIS TIME PERIOD...ESPECIALLY ON SUNDAY. GUIDANCE IS SHOWING 850 MB TEMPS WARMING TO 7-9 C...WITH CLEAR SKIES AND BONE DRY CONDITIONS THE REGION COULD SEE HIGH TEMPS INTO THE UPPER 50S. COULD EVEN SEE TEMPS IN THE 60S. USED MEX GUIDANCE AND UPPED IT A FEW DEGREES FOR BOTH SATURDAY AND SUNDAY. WARM TEMPS AND CLEAR SKIES...A GREAT WEEKEND APPEARS TO BE ON TAP FOR SOUTHERN NEW ENGLAND!
TRANSITION PERIOD ON MONDAY AS HIGH BEGINS TO MOVE OFFSHORE. TEMPS WILL STILL BE ABOVE AVERAGE BUT COULD SEE A FEW MORE CLOUDS AROUND.
TUESDAY INTO WEDNESDAY...MODERATE CONFIDENCE.
HIGH PRESSURE TO THE NORTH OF THE AREA AS A POTENTIAL NOR'EASTER DEVELOPS OFF THE MID-ATLANTIC AND MOVES UP THE EASTERN SEABOARD. LOTS OF UNCERTAINTY FOR THIS TIME PERIOD BUT DETERMINISTIC AND ENSEMBLE GUIDANCE CONTINUE TO SHOW THE POTENTIAL FOR THIS SYSTEM LATE TUESDAY INTO WEDNESDAY. LATEST GUIDANCE KEEPS THIS SYSTEM WARM...BUT DEPENDING ON THE EXACT TRACK AND STRENGTHEN OF THIS SYSTEM THERE COULD BE THE POTENTIAL FOR FROZEN PRECIP. ASIDE FROM PRECIPITATION COULD SEE POTENTIAL WIND AND COASTAL FLOODING ISSUES. WILL NEED TO WATCH AS THIS SYSTEM EVOLVES OVER THE NEXT SEVERAL DAYS.
&&
.AVIATION /12Z THURSDAY THROUGH MONDAY/...
FORECASTER CONFIDENCE LEVELS...
LOW...LESS THAN 30 PERCENT.
MODERATE...30 TO 60 PERCENT.
HIGH...GREATER THAN 60 PERCENT.
SHORT TERM /THROUGH TONIGHT/...
TODAY...MODERATE TO HIGH CONFIDENCE. DRIER AIR WAS ALLOWING DENSE FOG AND LOW CLOUDS TO RAPIDLY SCOUR OUT THIS MORNING. SCATTERED TO BROKEN MARGINAL MVFR-VFR CIGS WILL PERSIST INTO THE AFTERNOON ALONG WITH THE RISK OF A FEW BRIEF SHOWERS...ESPECIALLY NORTH OF THE MA TURNPIKE. NORTHWEST WIND GUSTS OF 30 TO 40 KNOTS EXPECTED FROM MID AFTERNOON INTO EARLY THIS EVENING.
TONIGHT...MODERATE TO HIGH CONFIDENCE. MAINLY VFR CONDITIONS BUT

MAY HAVE A FEW BRIEF BOUTS OF MARGINAL MVFR CIGS WITH HIGHEST RISK
ACROSS THE INTERIOR. STRONG NORTHWEST WIND GUSTS EARLY IN THE
EVENING WILL DIMINISH OVERNIGHT.
KBOS TERMINAL...MODERATE TO HIGH CONFIDENCE IN TAF.
KBDL TERMINAL...MODERATE TO HIGH CONFIDENCE IN TAF.
OUTLOOK /FRIDAY THROUGH MONDAY/...
FRIDAY...HIGH CONFIDENCE. VFR. LINGER CIGS NEAR 4 KFT.
SATURDAY INTO MONDAY...HIGH CONFIDENCE. VFR AND DRY WEATHER LIKELY.
&&
.MARINE...
FORECASTER CONFIDENCE LEVELS...
LOW...LESS THAN 30 PERCENT.
MODERATE...30 TO 60 PERCENT.
HIGH...GREATER THAN 60 PERCENT.
SHORT TERM /THROUGH TONIGHT/...
TODAY AND TONIGHT...HIGH CONFIDENCE. A COLD FRONT WILL MOVE THROUGH THE WATERS EARLY THIS MORNING. STRONG COLD ADVECTION OVER THE RELATIVELY MILD OCEAN WILL RESULT IN NORTHWEST WIND GUSTS OF 35 TO 40 KNOTS DEVELOPING THIS AFTERNOON AND CONTINUING INTO THE EVENING. GALE WARNINGS REMAIN POSTED FOR ALL WATERS. WIND SHOULD DIMINISH SOME AFTER MIDNIGHT BUT REMAIN AT SMALL CRAFT ADVISORY THRESHOLDS WELL INTO THE OVERNIGHT HOURS.
OUTLOOK /FRIDAY THROUGH MONDAY/... HIGH CONFIDENCE

FRI INTO MONDAY...HIGH CONFIDENCE. HIGH PRESSURE BUILDS ON FRIDAY LASTING INTO NEXT WEEK. BOTH SEAS AND WINDS WILL RELAX ON FRIDAY. LINGERING SCA MAY BE NEEDED. OTHERWISE EXPECT LIGHT WINDS AND DRY WEATHER FOR THE WEEKEND INTO NEXT WEEK.
&&
.BOX WATCHES/WARNINGS/ADVISORIES...
CT...NONE.
MA...NONE.
RI...NONE.
MARINE...GALE WARNING FROM NOON TODAY TO 2 AM EST FRIDAY FOR ANZ231>235-237-250-251-254>256.
GALE WARNING FROM NOON TODAY TO 8 PM EST THIS EVENING FOR ANZ230-236.
&&
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12.0 National Weather Service Gale Warning

The National Weather Service Office in Taunton, Massachusetts, issued a Gale Warning for the marine area that included the accident site and boat sinking site as early as 0307 EST on December 2. The gale warning was updated 5 times through 1552 EST on December 3, with wind gusts up to 40 knots forecast and seas between 5 to 8 feet:

ANZ250-040500-
/O.CON.KBOX.GL.W.0076.000000T0000Z-151204T0700Z/
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK
NATIONAL MARINE SANCTUARY-
352 PM EST THU DEC 3 2015
...GALE WARNING REMAINS IN EFFECT UNTIL 2 AM EST FRIDAY...
*** WINDS AND SEAS...NORTHWEST WINDS 20 TO 30 KT WITH GUSTS UP TO**

40 KT. SEAS 5 TO 8 FEET.
PRECAUTIONARY/PREPAREDNESS ACTIONS...
A GALE WARNING MEANS WINDS OF 34 TO 47 KNOTS ARE IMMINENT OR OCCURRING. OPERATING A VESSEL IN GALE CONDITIONS REQUIRES EXPERIENCE AND PROPERLY EQUIPPED VESSELS. IT IS HIGHLY RECOMMENDED THAT MARINERS WITHOUT THE PROPER EXPERIENCE OR EQUIPMENT SEEK SAFE HARBOR PRIOR TO THE ONSET OF GALE CONDITIONS.
&&
$$

ANZ250-032330-
/O.CON.KBOX.GL.W.0076.151203T1700Z-151204T0700Z/
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY-
1024 AM EST THU DEC 3 2015
...GALE WARNING REMAINS IN EFFECT UNTIL 2 AM EST FRIDAY...
*** WINDS AND SEAS...NORTHWEST WINDS 20 TO 30 KT WITH GUSTS UP TO 40 KT. SEAS 5 TO 8 FEET.**
PRECAUTIONARY/PREPAREDNESS ACTIONS...
A GALE WARNING MEANS WINDS OF 34 TO 47 KNOTS ARE IMMINENT OR OCCURRING. OPERATING A VESSEL IN GALE CONDITIONS REQUIRES EXPERIENCE AND PROPERLY EQUIPPED VESSELS. IT IS HIGHLY RECOMMENDED THAT MARINERS WITHOUT THE PROPER EXPERIENCE OR EQUIPMENT SEEK SAFE HARBOR PRIOR TO THE ONSET OF GALE CONDITIONS.
&&
$$

ANZ250-031645-
/O.EXT.KBOX.GL.W.0076.151203T1700Z-151204T0700Z/
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY-
334 AM EST THU DEC 3 2015
...GALE WARNING NOW IN EFFECT FROM NOON TODAY TO 2 AM EST FRIDAY...
*** WINDS AND SEAS...WEST WINDS 20 TO 30 KT WITH GUSTS UP TO 40 KT. SEAS 5 TO 8 FEET.**
PRECAUTIONARY/PREPAREDNESS ACTIONS...
A GALE WARNING MEANS WINDS OF 34 TO 47 KNOTS ARE IMMINENT OR OCCURRING. OPERATING A VESSEL IN GALE CONDITIONS REQUIRES EXPERIENCE AND PROPERLY EQUIPPED VESSELS. IT IS HIGHLY RECOMMENDED THAT MARINERS WITHOUT THE PROPER EXPERIENCE OR EQUIPMENT SEEK SAFE HARBOR PRIOR TO THE ONSET OF GALE CONDITIONS.
&&
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ANZ250-031100-
/O.CON.KBOX.GL.W.0076.151203T1600Z-151204T0700Z/
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY-
402 PM EST WED DEC 2 2015
...GALE WARNING REMAINS IN EFFECT FROM 11 AM THURSDAY TO 2 AM EST FRIDAY...
*** WINDS AND SEAS...WEST WINDS 20 TO 30 KT WITH GUSTS UP TO 40**

KT. SEAS 5 TO 8 FEET.
PRECAUTIONARY/PREPAREDNESS ACTIONS...
A GALE WARNING MEANS WINDS OF 34 TO 47 KNOTS ARE IMMINENT OR OCCURRING. OPERATING A VESSEL IN GALE CONDITIONS REQUIRES EXPERIENCE AND PROPERLY EQUIPPED VESSELS. IT IS HIGHLY RECOMMENDED THAT MARINERS WITHOUT THE PROPER EXPERIENCE OR EQUIPMENT SEEK SAFE HARBOR PRIOR TO THE ONSET OF GALE CONDITIONS.
&&
$$

ANZ250-022300-
/O.CON.KBOX.GL.W.0076.151203T1600Z-151204T0700Z/
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY-
1048 AM EST WED DEC 2 2015
...GALE WARNING REMAINS IN EFFECT FROM 11 AM THURSDAY TO 2 AM EST FRIDAY...
*** WINDS AND SEAS...WEST WINDS 20 TO 30 KT WITH GUSTS UP TO 40 KT. SEAS 5 TO 8 FEET.**
PRECAUTIONARY/PREPAREDNESS ACTIONS...
A GALE WARNING MEANS WINDS OF 34 TO 47 KNOTS ARE IMMINENT OR OCCURRING. OPERATING A VESSEL IN GALE CONDITIONS REQUIRES EXPERIENCE AND PROPERLY EQUIPPED VESSELS. IT IS HIGHLY RECOMMENDED THAT MARINERS WITHOUT THE PROPER EXPERIENCE OR EQUIPMENT SEEK SAFE HARBOR PRIOR TO THE ONSET OF GALE CONDITIONS.
&&
$$

ANZ250-021615-
/O.CAN.KBOX.SC.Y.0280.000000T0000Z-151203T1600Z/
/O.UPG.KBOX.GL.A.0026.151203T1600Z-151204T0600Z/
/O.NEW.KBOX.GL.W.0076.151203T1600Z-151204T0700Z/
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY-
307 AM EST WED DEC 2 2015
...GALE WARNING IN EFFECT FROM 11 AM THURSDAY TO 2 AM EST FRIDAY...
...SMALL CRAFT ADVISORY IS CANCELLED...
THE NATIONAL WEATHER SERVICE IN TAUNTON HAS ISSUED A GALE WARNING...WHICH IS IN EFFECT FROM 11 AM THURSDAY TO 2 AM EST FRIDAY. THE SMALL CRAFT ADVISORY HAS BEEN CANCELLED. THE GALE WATCH IS NO LONGER IN EFFECT.
*** WINDS AND SEAS...WEST WINDS 20 TO 30 KT WITH GUSTS UP TO 40 KT. SEAS 5 TO 8 FEET.**
PRECAUTIONARY/PREPAREDNESS ACTIONS...
A GALE WARNING MEANS WINDS OF 34 TO 47 KNOTS ARE IMMINENT OR OCCURRING. OPERATING A VESSEL IN GALE CONDITIONS REQUIRES EXPERIENCE AND PROPERLY EQUIPPED VESSELS. IT IS HIGHLY RECOMMENDED THAT MARINERS WITHOUT THE PROPER EXPERIENCE OR EQUIPMENT SEEK SAFE HARBOR PRIOR TO THE ONSET OF GALE CONDITIONS.
&&
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13.0 National Weather Service Marine Forecast

The Coastal Waters east of Ipswich Bay and the Stellwagen Bank National Marine Sanctuary weather forecast issued by the NWS included gale force wind gust for the accident area as early as the morning of December 1 with a gale watch issued 2128 EST on December 1. The gale warning was issued for the accident area as early as 0307 EST on December 2 as mentioned in the previous section and the marine weather forecast supported the gale warning message through the accident time and boat sinking time:

ANZ250-020100-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK
NATIONAL MARINE SANCTUARY-
717 AM EST TUE DEC 1 2015
...SMALL CRAFT ADVISORY IN EFFECT FROM 5 PM EST THIS AFTERNOON
THROUGH WEDNESDAY AFTERNOON...
.TODAY...S WINDS 5 TO 10 KT...BECOMING SE 10 TO 15 KT THIS
AFTERNOON. SEAS 3 TO 4 FT. RAIN LIKELY THIS AFTERNOON.
.TONIGHT...E WINDS 10 TO 15 KT...BECOMING S 5 TO 10 KT AFTER
MIDNIGHT. GUSTS UP TO 20 KT. SEAS AROUND 5 FT. AREAS OF FOG.
RAIN. VSBY 1 NM OR LESS.
.WED...W WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT...BECOMING SW
5 TO 10 KT IN THE AFTERNOON. SEAS AROUND 5 FT. A CHANCE OF
SHOWERS IN THE MORNING...THEN RAIN LIKELY IN THE AFTERNOON. AREAS
OF FOG IN THE MORNING WITH VSBY 1 TO 3 NM.
.WED NIGHT...SW WINDS 5 TO 10 KT. GUSTS UP TO 20 KT AFTER
MIDNIGHT. SEAS 4 TO 5 FT. RAIN.
.THU...W WINDS 15 TO 20 KT...INCREASING TO 25 TO 30 KT IN THE
AFTERNOON. GUSTS UP TO 30 KT IN THE MORNING. SEAS AROUND 5 FT...
BUILDING TO 7 FT IN THE AFTERNOON. A CHANCE OF SHOWERS IN THE
MORNING.
.THU NIGHT...W WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT...
BECOMING NW 20 TO 25 KT WITH GUSTS UP TO 30 KT AFTER MIDNIGHT.
SEAS 6 TO 7 FT.
.FRI...W WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE MORNING.
SEAS 3 TO 4 FT.
.FRI NIGHT...NW WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT. SEAS
AROUND 2 FT.
.SAT...N WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT...DIMINISHING
TO 5 TO 10 KT IN THE AFTERNOON. SEAS AROUND 2 FT.
.SAT NIGHT...W WINDS 5 TO 10 KT...BECOMING SW 10 TO 15 KT AFTER
MIDNIGHT. SEAS 2 TO 3 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE
AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE
HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
$$

ANZ250-020415-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK
NATIONAL MARINE SANCTUARY-
1026 AM EST TUE DEC 1 2015
...SMALL CRAFT ADVISORY IN EFFECT FROM 5 PM EST THIS AFTERNOON
THROUGH WEDNESDAY AFTERNOON...
.THIS AFTERNOON...SE WINDS 5 TO 10 KT...INCREASING TO 10 TO 15 KT
WITH GUSTS UP TO 20 KT. SEAS AROUND 2 FT... BUILDING TO 4 FT.
RAIN LIKELY.

.TONIGHT...E WINDS 10 TO 15 KT...BECOMING S 5 TO 10 KT AFTER MIDNIGHT. GUSTS UP TO 20 KT. SEAS AROUND 5 FT. AREAS OF FOG. RAIN. VSBY 1 NM OR LESS.
.WED...W WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT...BECOMING SW 5 TO 10 KT IN THE AFTERNOON. SEAS AROUND 5 FT. A CHANCE OF SHOWERS IN THE MORNING...THEN RAIN LIKELY IN THE AFTERNOON. AREAS OF FOG IN THE MORNING WITH VSBY 1 TO 3 NM.
.WED NIGHT...SW WINDS 5 TO 10 KT. GUSTS UP TO 20 KT AFTER MIDNIGHT. SEAS 4 TO 5 FT. RAIN.
.THU...W WINDS 15 TO 20 KT...INCREASING TO 25 TO 30 KT IN THE AFTERNOON. GUSTS UP TO 30 KT IN THE MORNING. SEAS AROUND 5 FT... BUILDING TO 7 FT IN THE AFTERNOON. A CHANCE OF SHOWERS IN THE MORNING.
.THU NIGHT...W WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT... BECOMING NW 20 TO 25 KT WITH GUSTS UP TO 30 KT AFTER MIDNIGHT. SEAS 6 TO 7 FT.
.FRI...W WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE MORNING. SEAS 3 TO 4 FT.
.FRI NIGHT...NW WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT. SEAS AROUND 2 FT.
.SAT...N WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT...DIMINISHING TO 5 TO 10 KT IN THE AFTERNOON. SEAS AROUND 2 FT.
.SAT NIGHT...W WINDS 5 TO 10 KT...BECOMING SW 10 TO 15 KT AFTER MIDNIGHT. SEAS 2 TO 3 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
$$

ANZ250-020700-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY-
117 PM EST TUE DEC 1 2015
...SMALL CRAFT ADVISORY IN EFFECT FROM 5 PM EST THIS AFTERNOON THROUGH WEDNESDAY AFTERNOON...
.THIS AFTERNOON...SE WINDS 10 TO 15 KT. SEAS AROUND 4 FT. A CHANCE OF RAIN.
.TONIGHT...SE WINDS 10 TO 15 KT...BECOMING NE 5 TO 10 KT AFTER MIDNIGHT. GUSTS UP TO 20 KT. SEAS AROUND 5 FT. PATCHY FOG. RAIN IN THE EVENING...THEN SHOWERS LIKELY AFTER MIDNIGHT. VSBY 1 TO 3 NM.
.WED...W WINDS 5 TO 10 KT...BECOMING SW IN THE AFTERNOON. SEAS AROUND 5 FT. PATCHY FOG. SHOWERS LIKELY IN THE MORNING...THEN RAIN LIKELY IN THE AFTERNOON. VSBY 1 NM OR LESS...INCREASING TO 1 TO 3 NM IN THE AFTERNOON.
.WED NIGHT...SW WINDS 5 TO 10 KT. GUSTS UP TO 20 KT AFTER MIDNIGHT. SEAS 4 TO 5 FT. RAIN. PATCHY FOG IN THE EVENING WITH VSBY 1 TO 3 NM.
.THU...W WINDS 15 TO 20 KT...INCREASING TO 25 TO 30 KT IN THE AFTERNOON. GUSTS UP TO 30 KT IN THE MORNING. SEAS AROUND 5 FT... BUILDING TO 7 FT IN THE AFTERNOON. A CHANCE OF SHOWERS IN THE MORNING.
.THU NIGHT...W WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT... BECOMING NW 20 TO 25 KT WITH GUSTS UP TO 30 KT AFTER MIDNIGHT. SEAS 6 TO 7 FT.
.FRI...W WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE MORNING.

SEAS 3 TO 4 FT.
.FRI NIGHT...NW WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT. SEAS AROUND 2 FT.
.SAT...N WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT...DIMINISHING TO 5 TO 10 KT IN THE AFTERNOON. SEAS AROUND 2 FT.
.SAT NIGHT...W WINDS 5 TO 10 KT...BECOMING SW 10 TO 15 KT AFTER MIDNIGHT. SEAS 2 TO 3 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
$$

ANZ250-021015-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY-
428 PM EST TUE DEC 1 2015
...SMALL CRAFT ADVISORY IN EFFECT THROUGH THURSDAY MORNING...
...GALE WATCH IN EFFECT FROM THURSDAY MORNING THROUGH LATE THURSDAY NIGHT...
.TONIGHT...SE WINDS 10 TO 15 KT...BECOMING NE 5 TO 10 KT AFTER MIDNIGHT. GUSTS UP TO 20 KT. SEAS AROUND 5 FT. PATCHY FOG. RAIN THIS EVENING...THEN SHOWERS LIKELY AFTER MIDNIGHT. VSBY 1 TO 3 NM.
.WED...W WINDS 5 TO 10 KT...BECOMING SW IN THE AFTERNOON. SEAS AROUND 5 FT. PATCHY FOG. SHOWERS LIKELY IN THE MORNING...THEN RAIN LIKELY IN THE AFTERNOON. VSBY 1 NM OR LESS...INCREASING TO 1 TO 3 NM IN THE AFTERNOON.
.WED NIGHT...SW WINDS 5 TO 10 KT. SEAS 4 TO 5 FT. PATCHY FOG. RAIN. VSBY 1 TO 3 NM.
.THU...W WINDS 15 TO 20 KT WITH GUSTS UP TO 30 KT... INCREASING TO 25 TO 30 KT WITH GUSTS UP TO 40 KT IN THE AFTERNOON. SEAS AROUND 6 FT...BUILDING TO 9 FT IN THE AFTERNOON. PATCHY FOG IN THE MORNING. A CHANCE OF SHOWERS IN THE MORNING WITH VSBY 1 TO 3 NM.
.THU NIGHT...W WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT... BECOMING NW 20 TO 25 KT WITH GUSTS UP TO 30 KT AFTER MIDNIGHT. SEAS AROUND 10 FT...SUBSIDING TO 8 FT AFTER MIDNIGHT.
.FRI...NW WINDS 15 TO 20 KT WITH GUSTS UP TO 25 KT...DIMINISHING TO 5 TO 10 KT IN THE AFTERNOON. SEAS AROUND 5 FT...SUBSIDING TO 3 FT IN THE AFTERNOON.
.FRI NIGHT...NW WINDS 5 TO 10 KT. SEAS AROUND 2 FT.
.SAT...N WINDS 5 TO 10 KT. SEAS AROUND 2 FT.
.SAT NIGHT...W WINDS 5 TO 10 KT...BECOMING SW 10 TO 15 KT AFTER MIDNIGHT. SEAS AROUND 2 FT.
.SUN...SW WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT. SEAS AROUND 2 FT.
.SUN NIGHT...W WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT. SEAS 2 TO 3 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
$$

ANZ250-022115-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY-

310 AM EST WED DEC 2 2015
...GALE WARNING IN EFFECT FROM THURSDAY MORNING THROUGH LATE THURSDAY NIGHT...
.TODAY...NW WINDS AROUND 5 KT...BECOMING S THIS AFTERNOON. SEAS AROUND 5 FT. AREAS OF FOG. SHOWERS. AREAS OF DRIZZLE THIS MORNING. VSBY 1 NM OR LESS.
.TONIGHT...SW WINDS 5 TO 10 KT. SEAS AROUND 4 FT. AREAS OF FOG. SHOWERS...MAINLY IN THE EVENING. VSBY 1 NM OR LESS.
.THU...W WINDS 15 TO 20 KT WITH GUSTS UP TO 30 KT... INCREASING TO 25 TO 30 KT WITH GUSTS UP TO 40 KT IN THE AFTERNOON. SEAS AROUND 5 FT...BUILDING TO 7 FT IN THE AFTERNOON. AREAS OF FOG IN THE MORNING WITH VSBY 1 TO 3 NM.
.THU NIGHT...NW WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT. SEAS AROUND 8 FT.
.FRI...NW WINDS 15 TO 20 KT...BECOMING W 5 TO 10 KT IN THE AFTERNOON. SEAS AROUND 6 FT...SUBSIDING TO 3 FT IN THE AFTERNOON.
.FRI NIGHT...W WINDS 5 TO 10 KT...BECOMING NW 10 TO 15 KT AFTER MIDNIGHT. SEAS AROUND 3 FT.
.SAT...N WINDS 10 TO 15 KT...BECOMING NW 5 TO 10 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
.SAT NIGHT...W WINDS 5 TO 10 KT...BECOMING SW 10 TO 15 KT AFTER MIDNIGHT. SEAS AROUND 2 FT.
.SUN...SW WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
.SUN NIGHT...W WINDS 15 TO 20 KT. SEAS AROUND 3 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
$$

ANZ250-030100-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY-
717 AM EST WED DEC 2 2015
...GALE WARNING IN EFFECT FROM THURSDAY MORNING THROUGH LATE THURSDAY NIGHT...
.TODAY...NW WINDS AROUND 5 KT...BECOMING SW THIS AFTERNOON. SEAS AROUND 5 FT. AREAS OF FOG. SHOWERS. AREAS OF DRIZZLE THIS MORNING. VSBY 1 NM OR LESS.
.TONIGHT...SW WINDS 5 TO 10 KT. SEAS AROUND 4 FT. AREAS OF FOG. SHOWERS IN THE EVENING. A CHANCE OF SHOWERS AFTER MIDNIGHT. VSBY 1 NM OR LESS.
.THU...W WINDS 15 TO 20 KT WITH GUSTS UP TO 30 KT... INCREASING TO 25 TO 30 KT WITH GUSTS UP TO 40 KT IN THE AFTERNOON. SEAS AROUND 5 FT...BUILDING TO 7 FT IN THE AFTERNOON. AREAS OF FOG IN THE MORNING WITH VSBY 1 NM OR LESS.
.THU NIGHT...NW WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT. SEAS AROUND 8 FT.
.FRI...NW WINDS 15 TO 20 KT...BECOMING W 5 TO 10 KT IN THE AFTERNOON. SEAS AROUND 6 FT...SUBSIDING TO 3 FT IN THE AFTERNOON.
.FRI NIGHT...W WINDS 5 TO 10 KT...BECOMING NW 10 TO 15 KT AFTER MIDNIGHT. SEAS AROUND 3 FT.
.SAT...N WINDS 10 TO 15 KT...BECOMING NW 5 TO 10 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
.SAT NIGHT...W WINDS 5 TO 10 KT...BECOMING SW 10 TO 15 KT AFTER MIDNIGHT. SEAS AROUND 2 FT.

.SUN...SW WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE AFTERNOON.
SEAS 2 TO 3 FT.
.SUN NIGHT...W WINDS 15 TO 20 KT. SEAS AROUND 3 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE
AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE
HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
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ANZ250-022300-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK
NATIONAL MARINE SANCTUARY-
1005 AM EST WED DEC 2 2015
...GALE WARNING IN EFFECT FROM THURSDAY MORNING THROUGH LATE
THURSDAY NIGHT...
.TODAY...NW WINDS AROUND 4 KT...BECOMING SW THIS AFTERNOON. SEAS
AROUND 5 FT. AREAS OF FOG. SHOWERS. AREAS OF DRIZZLE THIS
MORNING. VSBY 1 NM OR LESS.
.TONIGHT...SW WINDS 5 TO 10 KT. SEAS AROUND 4 FT. AREAS OF FOG.
SHOWERS IN THE EVENING. A CHANCE OF SHOWERS AFTER MIDNIGHT. VSBY
1 NM OR LESS.
.THU...W WINDS 15 TO 20 KT WITH GUSTS UP TO 30 KT... INCREASING
TO 25 TO 30 KT WITH GUSTS UP TO 40 KT IN THE AFTERNOON. SEAS
AROUND 5 FT...BUILDING TO 7 FT IN THE AFTERNOON. AREAS OF FOG IN
THE MORNING WITH VSBY 1 NM OR LESS.
.THU NIGHT...NW WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT. SEAS
AROUND 8 FT.
.FRI...NW WINDS 15 TO 20 KT...BECOMING W 5 TO 10 KT IN THE
AFTERNOON. SEAS AROUND 6 FT...SUBSIDING TO 3 FT IN THE AFTERNOON.
.FRI NIGHT...W WINDS 5 TO 10 KT...BECOMING NW 10 TO 15 KT AFTER
MIDNIGHT. SEAS AROUND 3 FT.
.SAT...N WINDS 10 TO 15 KT...BECOMING NW 5 TO 10 KT IN THE
AFTERNOON. SEAS 2 TO 3 FT.
.SAT NIGHT...W WINDS 5 TO 10 KT...BECOMING SW 10 TO 15 KT AFTER
MIDNIGHT. SEAS AROUND 2 FT.
.SUN...SW WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE AFTERNOON.
SEAS 2 TO 3 FT.
.SUN NIGHT...W WINDS 15 TO 20 KT. SEAS AROUND 3 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE
AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE
HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
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ANZ250-022300-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK
NATIONAL MARINE SANCTUARY-
1159 AM EST WED DEC 2 2015
...GALE WARNING IN EFFECT FROM THURSDAY MORNING THROUGH LATE
THURSDAY NIGHT...
.THIS AFTERNOON...SW WINDS 5 TO 10 KT. SEAS AROUND 4 FT. AREAS OF
FOG. SHOWERS. VSBY 1 NM OR LESS.
.TONIGHT...SW WINDS 5 TO 10 KT. SEAS AROUND 4 FT. AREAS OF FOG.
SHOWERS IN THE EVENING. A CHANCE OF SHOWERS AFTER MIDNIGHT. VSBY
1 NM OR LESS.
.THU...W WINDS 15 TO 20 KT WITH GUSTS UP TO 30 KT... INCREASING
TO 25 TO 30 KT WITH GUSTS UP TO 40 KT IN THE AFTERNOON. SEAS
AROUND 5 FT...BUILDING TO 7 FT IN THE AFTERNOON. AREAS OF FOG IN

THE MORNING WITH VSBY 1 NM OR LESS.
.THU NIGHT...NW WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT. SEAS AROUND 8 FT.
.FRI...NW WINDS 15 TO 20 KT...BECOMING W 5 TO 10 KT IN THE AFTERNOON. SEAS AROUND 6 FT...SUBSIDING TO 3 FT IN THE AFTERNOON.
.FRI NIGHT...W WINDS 5 TO 10 KT...BECOMING NW 10 TO 15 KT AFTER MIDNIGHT. SEAS AROUND 3 FT.
.SAT...N WINDS 10 TO 15 KT...BECOMING NW 5 TO 10 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
.SAT NIGHT...W WINDS 5 TO 10 KT...BECOMING SW 10 TO 15 KT AFTER MIDNIGHT. SEAS AROUND 2 FT.
.SUN...SW WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
.SUN NIGHT...W WINDS 15 TO 20 KT. SEAS AROUND 3 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
$$

ANZ250-031100-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY-
400 PM EST WED DEC 2 2015
...GALE WARNING IN EFFECT FROM THURSDAY MORNING THROUGH LATE THURSDAY NIGHT...
.TONIGHT...SW WINDS 5 TO 10 KT. SEAS AROUND 4 FT. SHOWERS LIKELY...MAINLY THIS EVENING. AREAS OF FOG THIS EVENING. VSBY 1 NM OR LESS.
.THU...W WINDS 15 TO 20 KT WITH GUSTS UP TO 30 KT...INCREASING TO 25 TO 30 KT WITH GUSTS UP TO 40 KT IN THE AFTERNOON. SEAS AROUND 4 FT...BUILDING TO 7 FT IN THE AFTERNOON.
.THU NIGHT...NW WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT. SEAS AROUND 8 FT.
.FRI...NW WINDS 15 TO 20 KT...BECOMING W 5 TO 10 KT IN THE AFTERNOON. SEAS AROUND 6 FT...SUBSIDING TO 3 FT IN THE AFTERNOON.
.FRI NIGHT...W WINDS 5 TO 10 KT...BECOMING NW 10 TO 15 KT AFTER MIDNIGHT. SEAS AROUND 3 FT.
.SAT...N WINDS 10 TO 15 KT...BECOMING NW 5 TO 10 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
.SAT NIGHT...W WINDS 5 TO 10 KT...BECOMING SW 10 TO 15 KT AFTER MIDNIGHT. SEAS AROUND 2 FT.
.SUN...SW WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
.SUN NIGHT...W WINDS 15 TO 20 KT. SEAS AROUND 3 FT.
.MON...NW WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE MORNING. SEAS 2 TO 3 FT.
.MON NIGHT...NE WINDS 10 TO 15 KT. SEAS AROUND 3 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
$$

ANZ250-032115-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY-
343 AM EST THU DEC 3 2015

...GALE WARNING IN EFFECT FROM NOON EST TODAY THROUGH LATE TONIGHT...
.TODAY...W WINDS 15 TO 20 KT WITH GUSTS UP TO 30 KT... INCREASING TO 25 TO 30 KT WITH GUSTS UP TO 40 KT THIS AFTERNOON. SEAS AROUND 5 FT...BUILDING TO 8 FT THIS AFTERNOON. A CHANCE OF SHOWERS.
.TONIGHT...NW WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT... DIMINISHING TO 20 TO 25 KT WITH GUSTS UP TO 30 KT AFTER MIDNIGHT. SEAS 8 TO 9 FT.
.FRI...NW WINDS 15 TO 20 KT...BECOMING W 10 TO 15 KT IN THE AFTERNOON. SEAS AROUND 6 FT...SUBSIDING TO 3 FT IN THE AFTERNOON.
.FRI NIGHT...NW WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE EVENING. SEAS 3 TO 4 FT.
.SAT...W WINDS 5 TO 10 KT. SEAS 2 TO 3 FT.
.SAT NIGHT...W WINDS 5 TO 10 KT. SEAS AROUND 2 FT.
.SUN...SW WINDS 10 TO 15 KT. SEAS 2 TO 3 FT.
.SUN NIGHT...SW WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT. SEAS AROUND 4 FT.
.MON...W WINDS 10 TO 15 KT...BECOMING NW 5 TO 10 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
.MON NIGHT...N WINDS 10 TO 15 KT...BECOMING NE 15 TO 20 KT AFTER MIDNIGHT. SEAS 3 TO 4 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
$$

ANZ250-040100-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY-
717 AM EST THU DEC 3 2015
...GALE WARNING IN EFFECT FROM NOON EST TODAY THROUGH LATE TONIGHT...
.TODAY...W WINDS 15 TO 20 KT WITH GUSTS UP TO 30 KT... INCREASING TO 25 TO 30 KT WITH GUSTS UP TO 40 KT THIS AFTERNOON. SEAS 4 TO 6 FT. SCATTERED SHOWERS. PATCHY FOG THIS MORNING WITH VSBY 1 NM OR LESS.
.TONIGHT...NW WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT... DIMINISHING TO 20 TO 25 KT WITH GUSTS UP TO 30 KT AFTER MIDNIGHT. SEAS 5 TO 8 FT.
.FRI...NW WINDS 15 TO 20 KT...BECOMING W 10 TO 15 KT IN THE AFTERNOON. SEAS 3 TO 5 FT.
.FRI NIGHT...NW WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE EVENING. SEAS 3 TO 4 FT.
.SAT...W WINDS 5 TO 10 KT. SEAS 2 TO 3 FT.
.SAT NIGHT...W WINDS AROUND 10 KT. SEAS AROUND 2 FT.
.SUN...SW WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT. SEAS 2 TO 3 FT.
.SUN NIGHT...SW WINDS AROUND 15 KT WITH GUSTS UP TO 20 KT. SEAS 2 TO 4 FT.
.MON...NW WINDS 10 TO 15 KT. SEAS 2 TO 3 FT.
.MON NIGHT...NE WINDS 15 TO 20 KT. SEAS 2 TO 4 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
$$

ANZ250-040330-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK
NATIONAL MARINE SANCTUARY-
1009 AM EST THU DEC 3 2015
...GALE WARNING IN EFFECT THROUGH LATE TONIGHT...
.THIS AFTERNOON...W WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT.
SEAS AROUND 5 FT...BUILDING TO 8 FT.
.TONIGHT...NW WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT...
DIMINISHING TO 20 TO 25 KT WITH GUSTS UP TO 30 KT AFTER MIDNIGHT.
SEAS 8 TO 9 FT.
.FRI...NW WINDS 15 TO 20 KT...BECOMING W 10 TO 15 KT IN THE
AFTERNOON. SEAS AROUND 6 FT...SUBSIDING TO 3 FT IN THE AFTERNOON.
.FRI NIGHT...NW WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE
EVENING. SEAS 3 TO 4 FT.
.SAT...W WINDS 5 TO 10 KT. SEAS 2 TO 3 FT.
.SAT NIGHT...W WINDS 5 TO 10 KT. SEAS AROUND 2 FT.
.SUN...SW WINDS 10 TO 15 KT. SEAS 2 TO 3 FT.
.SUN NIGHT...SW WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT. SEAS
AROUND 4 FT.
.MON...W WINDS 10 TO 15 KT...BECOMING NW 5 TO 10 KT IN THE
AFTERNOON. SEAS 2 TO 3 FT.
.MON NIGHT...N WINDS 10 TO 15 KT...BECOMING NE 15 TO 20 KT AFTER
MIDNIGHT. SEAS 3 TO 4 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE
AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE
HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
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ANZ250-040700-
COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK
NATIONAL MARINE SANCTUARY-
117 PM EST THU DEC 3 2015
...GALE WARNING IN EFFECT THROUGH LATE TONIGHT...
.THIS AFTERNOON...W WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT.
SEAS 4 TO 7 FT.
.TONIGHT...NW WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT...
DIMINISHING TO 20 TO 25 KT WITH GUSTS UP TO 30 KT AFTER MIDNIGHT.
SEAS 5 TO 8 FT.
.FRI...W WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE MORNING.
SEAS 3 TO 5 FT.
.FRI NIGHT...NW WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE
EVENING. SEAS 3 TO 4 FT.
.SAT...W WINDS 5 TO 10 KT. SEAS 2 TO 3 FT.
.SAT NIGHT...W WINDS AROUND 10 KT. SEAS AROUND 2 FT.
.SUN...SW WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT. SEAS 2 TO
3 FT.
.SUN NIGHT...SW WINDS AROUND 15 KT WITH GUSTS UP TO 20 KT. SEAS
2 TO 4 FT.
.MON...NW WINDS 10 TO 15 KT. SEAS 2 TO 3 FT.
.MON NIGHT...NE WINDS 15 TO 20 KT. SEAS 2 TO 4 FT.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE
AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE
HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
$$

ANZ250-040930-

COASTAL WATERS EAST OF IPSWICH BAY AND THE STELLWAGEN BANK
NATIONAL MARINE SANCTUARY-
350 PM EST THU DEC 3 2015
...GALE WARNING IN EFFECT UNTIL 2 AM EST FRIDAY...
.TONIGHT...NW WINDS 25 TO 30 KT WITH GUSTS UP TO 40 KT...
DIMINISHING TO 20 TO 25 KT WITH GUSTS UP TO 30 KT AFTER MIDNIGHT.
SEAS AROUND 9 FT.
.FRI...W WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE MORNING.
SEAS AROUND 5 FT...SUBSIDING TO 3 FT IN THE AFTERNOON.
.FRI NIGHT...NW WINDS 10 TO 15 KT. SEAS 3 TO 4 FT.
.SAT...W WINDS 5 TO 10 KT. SEAS 2 TO 3 FT.
.SAT NIGHT...W WINDS 5 TO 10 KT. SEAS AROUND 2 FT.
.SUN...SW WINDS 10 TO 15 KT. GUSTS UP TO 20 KT IN THE AFTERNOON.
SEAS 2 TO 3 FT.
.SUN NIGHT...SW WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT. SEAS
AROUND 3 FT.
.MON...W WINDS 10 TO 15 KT WITH GUSTS UP TO 20 KT... BECOMING NW
5 TO 10 KT IN THE AFTERNOON. SEAS 2 TO 3 FT.
.MON NIGHT...N WINDS 10 TO 15 KT...BECOMING NE 15 TO 20 KT WITH
GUSTS UP TO 25 KT AFTER MIDNIGHT. SEAS 2 TO 3 FT.
.TUE...NE WINDS 15 TO 20 KT...INCREASING TO 20 TO 25 KT IN THE
AFTERNOON. GUSTS UP TO 30 KT. SEAS 3 TO 4 FT.
.TUE NIGHT...NE WINDS 20 TO 25 KT...DIMINISHING TO 15 TO 20 KT
AFTER MIDNIGHT. GUSTS UP TO 30 KT. SEAS AROUND 4 FT...BUILDING TO
6 FT AFTER MIDNIGHT. A CHANCE OF RAIN.
SEAS ARE REPORTED AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE
AVERAGE OF THE HIGHEST THIRD OF THE WAVES. INDIVIDUAL WAVE
HEIGHTS MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.
$$

14.0 Weather Briefing

The captain of the vessel obtained weather information from the marine information broadcasts (MIAB) on VHF radio from the US Coast Guard. However, the exact weather forecast received and information contained therein is not known. VHF audio recordings between the Good Samaritan towing vessel (the *Foxy Lady*) and *Orin C* captured both captains talking about the expected increase in wind conditions and making preparations to secure the *Orin C* for the weather. At 0933 EST, the captain of the *Foxy Lady* could be heard telling the Coast Guard that “in two hours from now there is going to be a lot of wind coming down” and that he was expecting to have a hard time managing the tow. The captain on *Foxy Lady* further remarked to the captain of the *Orin C* that conditions would be “shitty” by the time he got to him. There was no known additional weather information received by the crew of the accident vessel before the accident.

15.0 Video Images

A video[13] was provided to the NTSB showing the weather conditions surrounding the accident vessel from the point of view of a towing vessel after the accident time and before the boat sinking time. At the time of the video the sea conditions represented a Beaufort number between 6 and 7. These sea conditions would correspond to between 25 and 30 knot wind speeds and wave heights between 9 and 19 feet. There was a layer of stratocumulus clouds between 1,500 and 3,000 feet agl with sunshine breaking through the clouds. For more information please see attachment 5.

16.0 Astronomical Data

The astronomical data obtained from the United States Naval Observatory for the accident site on December 3, 2015, indicated the following:

SUN	
Begin civil twilight	0620 EST
Sunrise	0652 EST
Sun transit	1129 EST
Sunset	1607 EST
End civil twilight	1639 EST

MOON	
Moonrise	2309 EST on preceding day
Moon transit	0545 EST
Moonset	1213 EST

17.0 Significant Wave Height

The standard ocean wave forecast set forth by the World Meteorological Organization (WMO) instructs that the countries responsible for the weather forecast for the world's oceans use significant wave height for their ocean wave height forecasts. OPC and the Tropical Prediction Center's Tropical Analysis and Forecast Branch (TAFB) are responsible for the NOAA forecast for the northern Atlantic and Pacific Oceans. NWS is responsible for NOAA forecast closer to the coastal regions and the NWS Boston office was the responsible office for the weather forecast for the accident area and boat sinking location.

[13] For additional information on this video please see attachment 5.

The wavy water surface in the ocean is made up of an entire spectrum of waves and the waves can vary quite a bit for a given wind speed and fetch. Significant wave height is defined as the average height of the highest one-third of the waves in a wave spectrum. Figure 18 shows a typical wave spectrum distribution. This distribution shows that for a given wavy ocean surface the most probable wave height and mean wave height a person would encounter would be lower than the significant wave height, with statistically a much smaller chance of encountering a wave whose height is larger than the significant wave height. For example, given a significant wave height observed of 20 ft, the mean wave height encountered by a vessel for that wave spectrum would be 12.8 ft with the most probable wave height encountered of 12 ft. However, the highest 10 percent of waves within that wave spectrum would be 25.4 ft and the highest 1 percent of waves would be around 33.4 ft high. The highest wave a vessel could encounter with a significant wave height of 20 ft would be 40 ft. Therefore for the accident time and boat sinking time, given a significant wave height forecast or observation of 10 ft a vessel will encounter mostly waves around 6 ft high, but should be prepared for waves as high as 20 ft. Further details can be found in attachment 6.

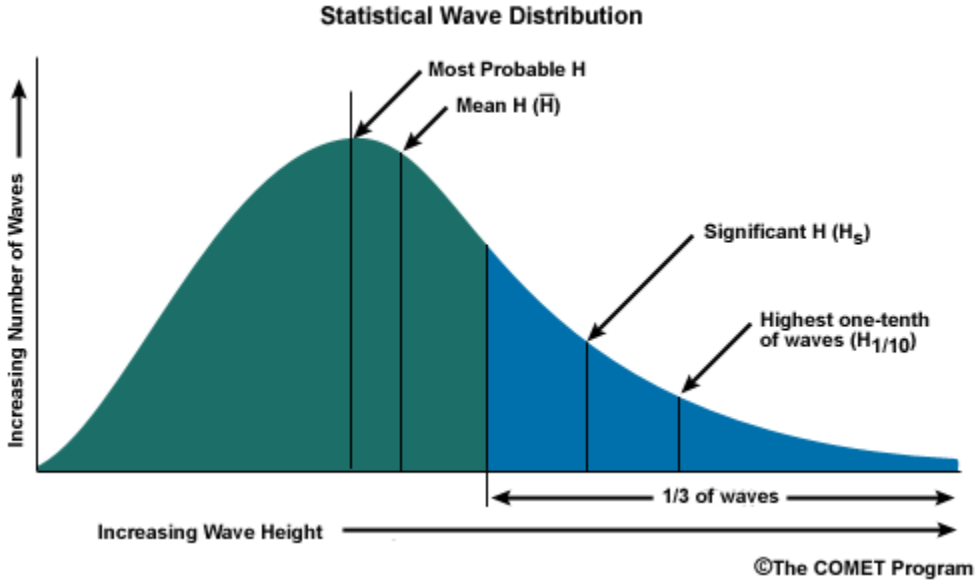

Figure 18 – Typical statistical wave distribution

F. LIST OF ATTACHMENTS

Attachment 1 – Surface METAR observations from KPVC from December 2nd to December 4th, 2015

Attachment 2 – Surface METAR observations from KBVY from December 2nd to December 4th, 2015

Attachment 3 – Visible imagery animation over the accident site from 0900 to 1500 EST

Attachment 4 – Infrared imagery animation over the accident site from 1500 to 2100 EST

Attachment 5 – Video taken of the accident vessel from the point of view of the towing vessel after the accident time and before the boat sinking time

Attachment 6 – Significant Wave Height reference

Paul Suffern
NTSB, AS-30