

# **NAAMES Afternoon WX Discussion**

Wednesday, August 29, 2017

Amy Jo Scarino

# Forecast Summary

## **Day 1 (Thursday) – August 31**

**Recommendation: Atlantis transit to S1, C-130 transit**

St. John's: Mostly cloudy with afternoon rain showers, high 57, winds ENE 10-18 mph

## **Day 2 (Friday) – September 1**

**Recommendation: C-130 in St. John's, Atlantis transit to S1**

St. John's: Partly cloudy, decreasing clouds throughout day, high 64, winds NNW 10-15 mph

## **Day 3 (Saturday) – September 2**

**Recommendation: C-130 in St. John's, Atlantis transit to S1**

St. John's: Partly cloudy, high 62, winds W 15-20 mph

## **Day 4 (Sunday) – September 3**

**Recommendation: C-130 in St. John's, Atlantis transit to S1**

St. John's: Partly cloudy, high 63, winds NW 12-18 mph

## **Day 5 (Monday) – September 4 – Ship at S1**

**Recommendation: First science flight**

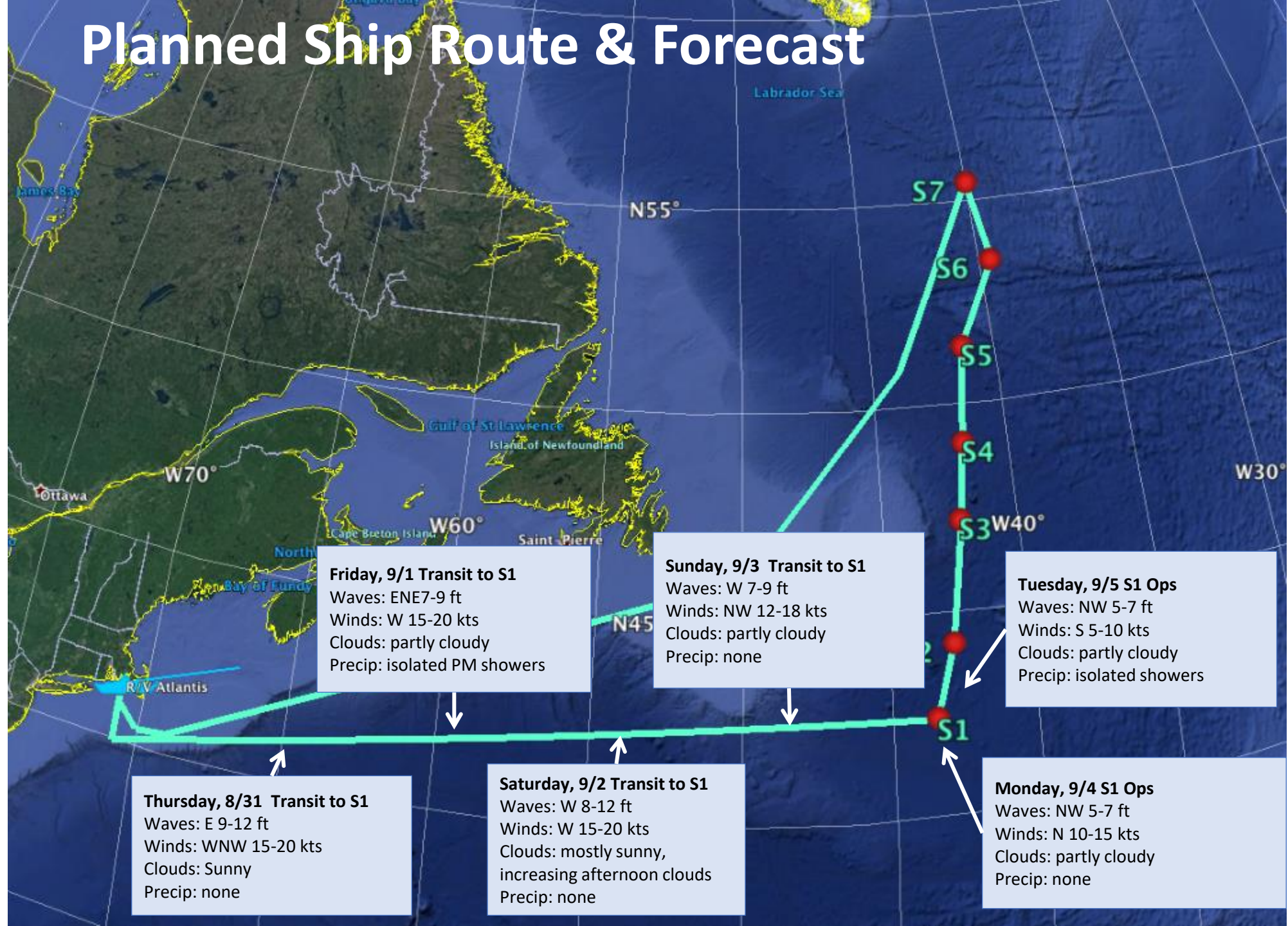
St. John's: Partly cloudy, afternoon rain showers, high 64, winds SSW 10-25 mph

## **Day 6 (Tuesday) – September 5 – Ship in transit to S2**

**Recommendation: Potential flight depending on timing of front**

St. John's: Sunny, high 72, winds WSW 15 mph

# Planned Ship Route & Forecast



# Current Conditions at St. John's

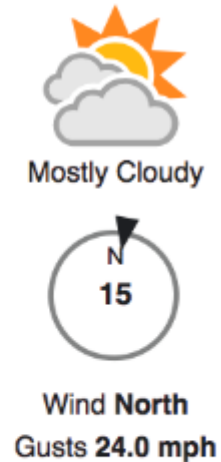
Elev 459ft 47.62 °N, 52.73 °W

## St. John's International, NF

✈ ST. JOHN'S INTERNATIONAL STATION | CHANGE ✓

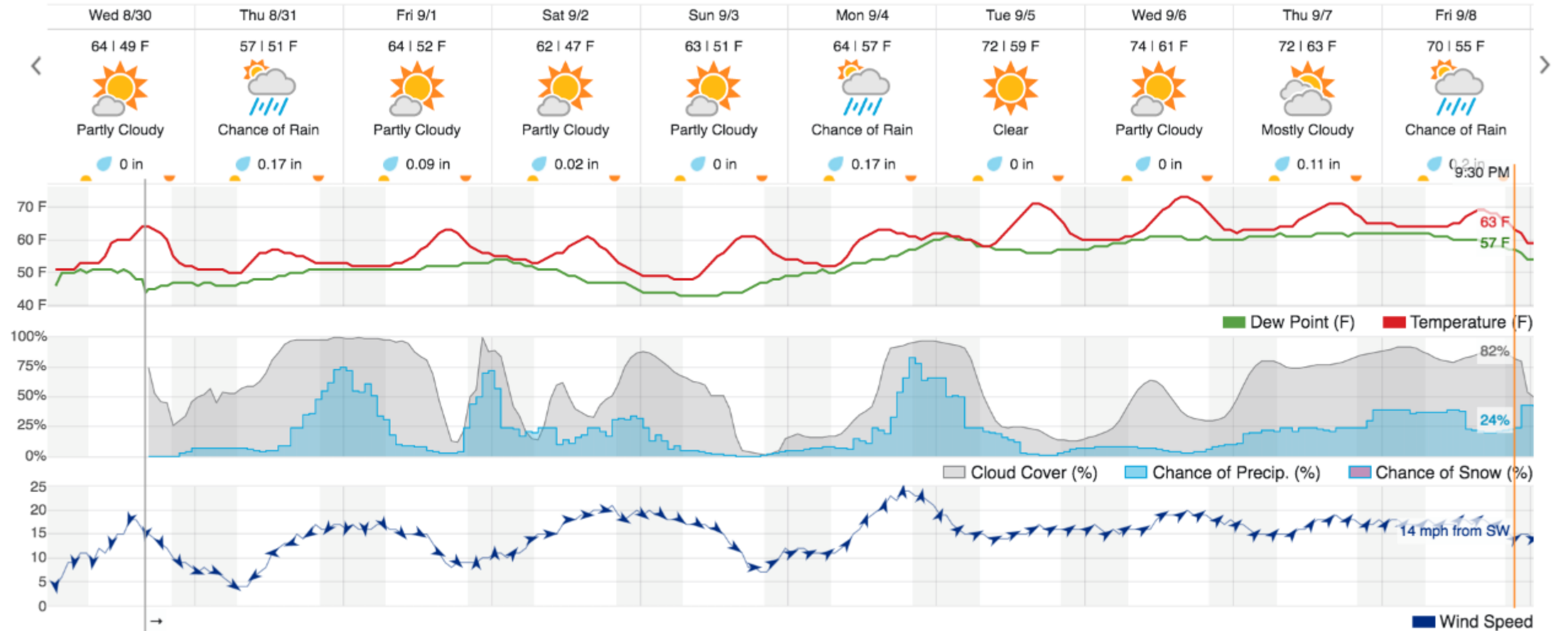
**TODAY** HOURLY FORECAST 10-DAY FORECAST

© 3:05 PM NDT on August 30, 2017 (GMT -0230) |



Today is forecast to be **NEARLY THE SAME** temperature as yesterday.

# St. John's Forecast



Elev 39ft 37.94 °N, 75.47 °W

# Wallops Flight Facility, VA

✈️ [WALLOPS FLIGHT FACILITY STATION](#) | [CHANGE](#) ▼

TODAY

HOURLY FORECAST

10-DAY FORECAST

© 12:54 PM EDT on August 30, 2017 (GMT -0400) |



Wind NNW

## Current Conditions at Wallops & Forecast

Today is forecast to be **WARMER** than yesterday.



**TODAY**  
WED 08/30  
HIGH 76 ° F

[0% Precip. / 0.00 in](#)

Mostly Cloudy. High 76F. Winds NW at 5 to 10 mph.



**TONIGHT**  
WED 08/30  
LOW 66 ° F

[20% Precip. / 0.00 in](#)

Partly Cloudy. Low 66F. Winds light and variable.



**TOMORROW**  
THU 08/31  
HIGH 82 | 63 ° F

[10% Precip. / 0.00 in](#)

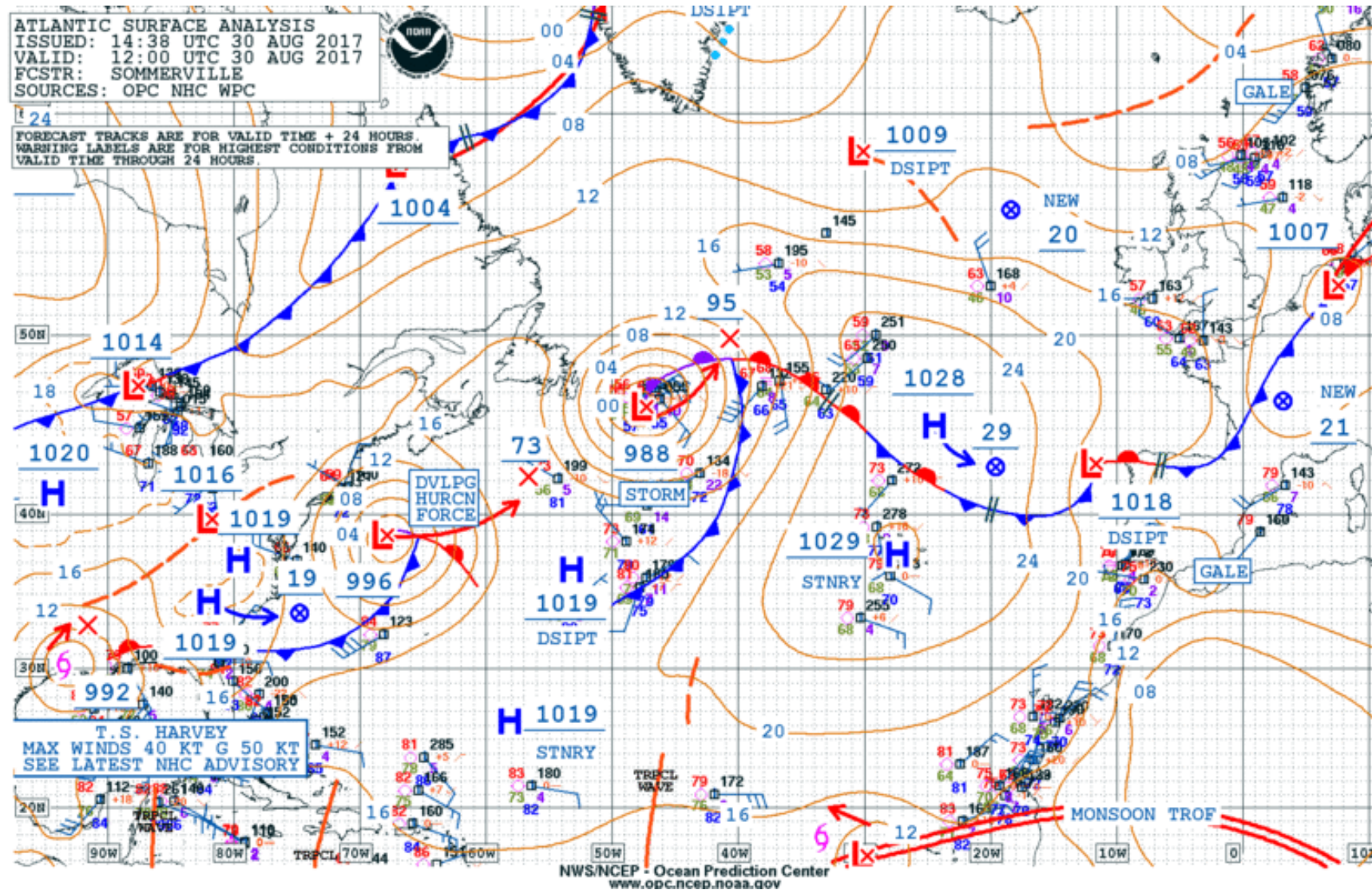
Partly Cloudy. High 82F. Winds WSW at 10 to 15 mph.



# St. John's METAR/TAF

TAF CYYT 301738Z 3018/3118 02015G25KT P6SM SCT150 FM302100 35012KT P6SM FEW200 BECMG 3100/3102 28006KT BECMG 3108/3110 10005KT FM311600 09012KT P6SM BKN220 RMK NXT FCST BY 310000Z=				
TAF		LOCATION		VALIDITY [UTC]
		CYYT - ST. JOHN'S/ST. JOHN'S INTL/NL		30 AUG - 1738 to 31 AUG - 1800
TIMES [UTC]	WIND [DEGREES TRUE]	VISIBILITY [STAT. MILES]	WEATHER	CLOUDINESS [FEET AGL]
30 AUG - 1800 to 30 AUG - 2100	20 @ 15 KNOTS GUSTS 25 KNOTS	6+	NIL	15000 SCATTERED
30 AUG - 2100 to 31 AUG - 1600	350 @ 12 KNOTS	6+	NIL	20000 FEW
BECOMING 31 AUG - 0000 to 31 AUG - 0200	280 @ 6 KNOTS			
BECOMING 31 AUG - 0800 to 31 AUG - 1000	100 @ 5 KNOTS			
31 AUG - 1600 to 31 AUG - 1800	90 @ 12 KNOTS	6+	NIL	22000 BROKEN
REMARKS				
THE NEXT FORECAST WILL BE ISSUED BY 0000 UTC ON DAY 31				

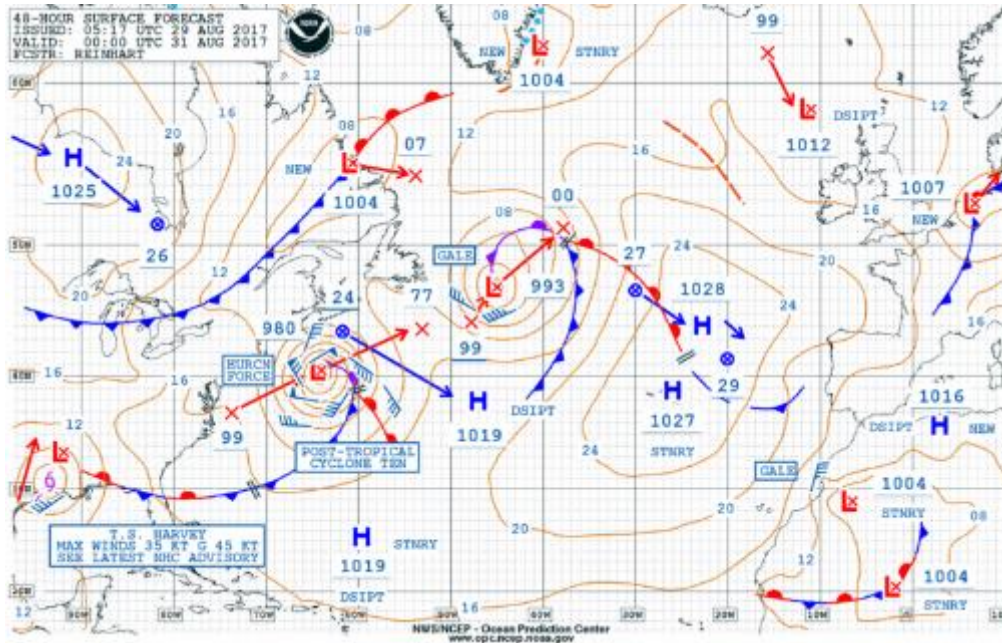
# Surface Analysis



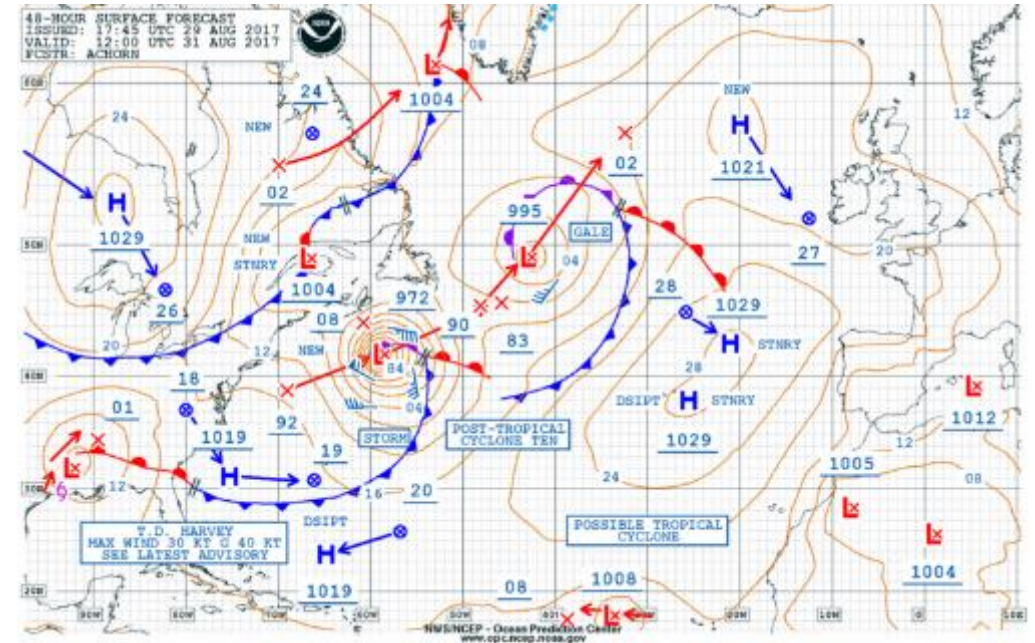


# Synoptic Forecast

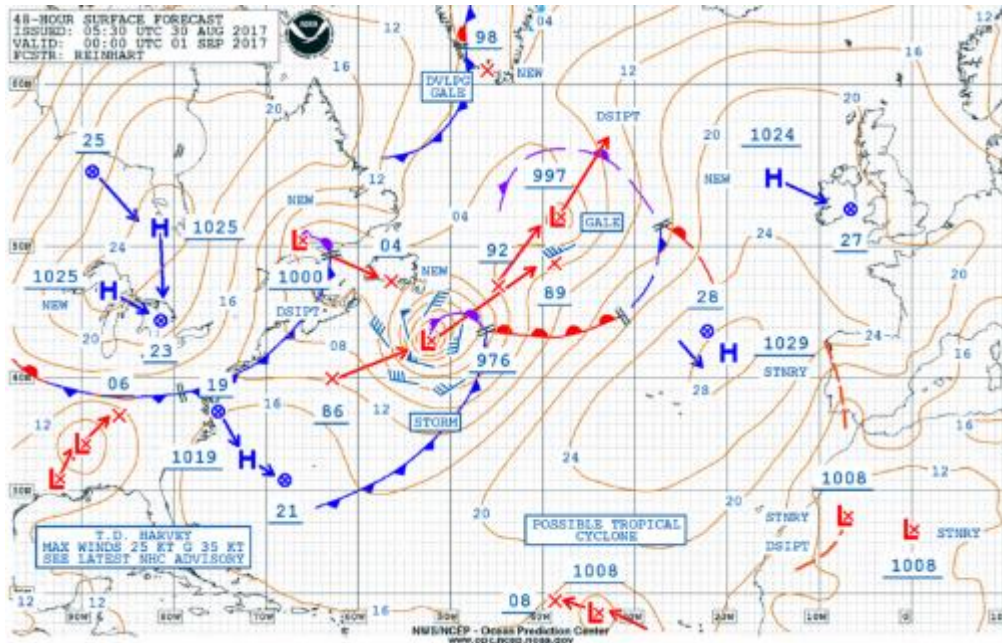
Wednesday 8pm



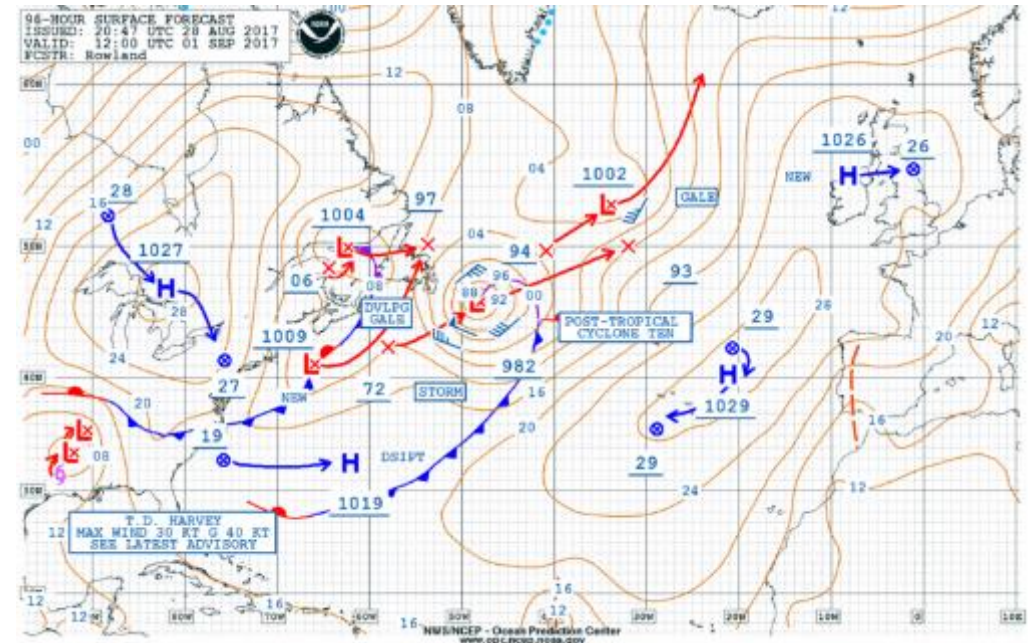
Thursday 8am



Thursday 8pm



Friday 8am

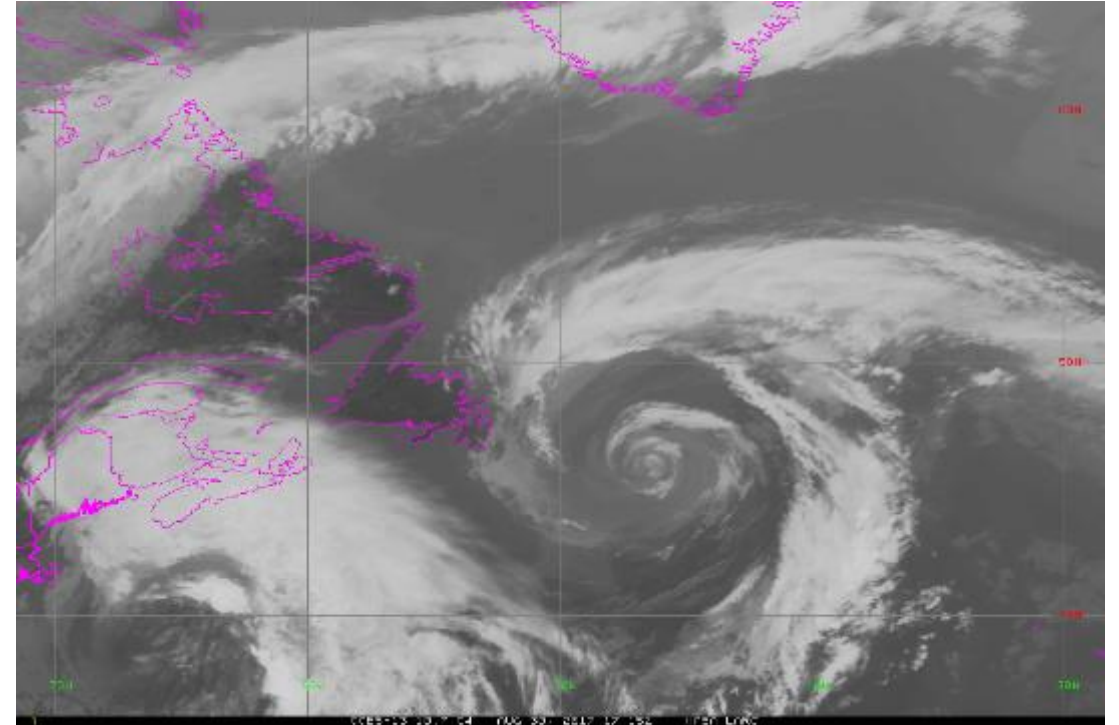
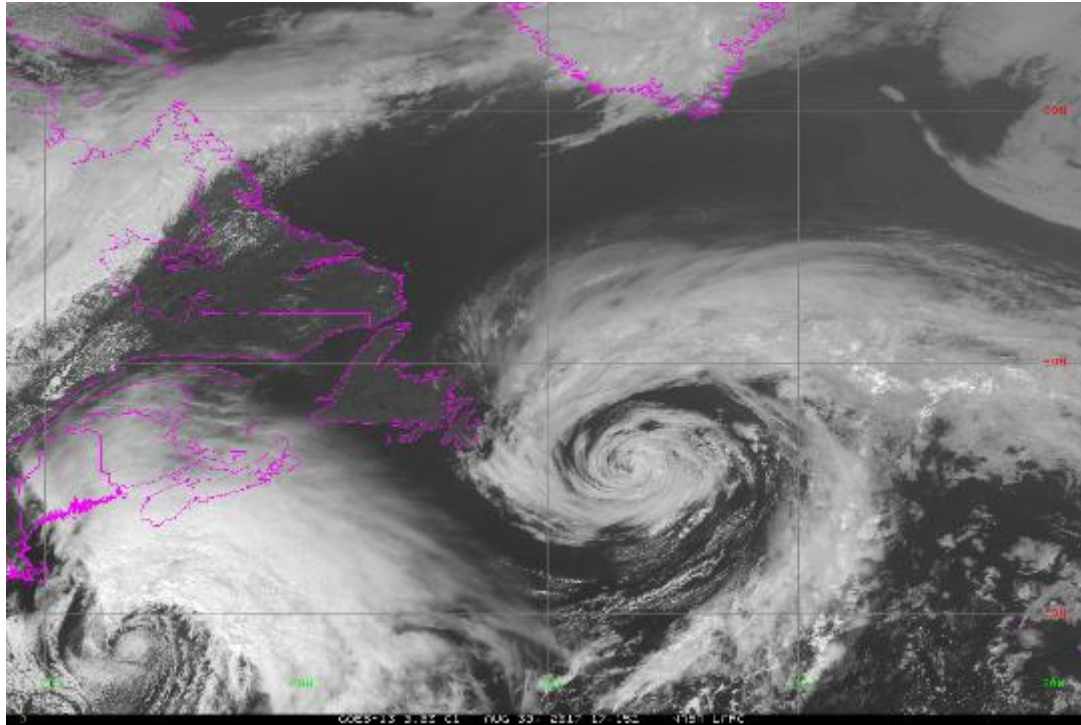




# GOES-13 Imagery (8/30 17:15 UTC)

Visible

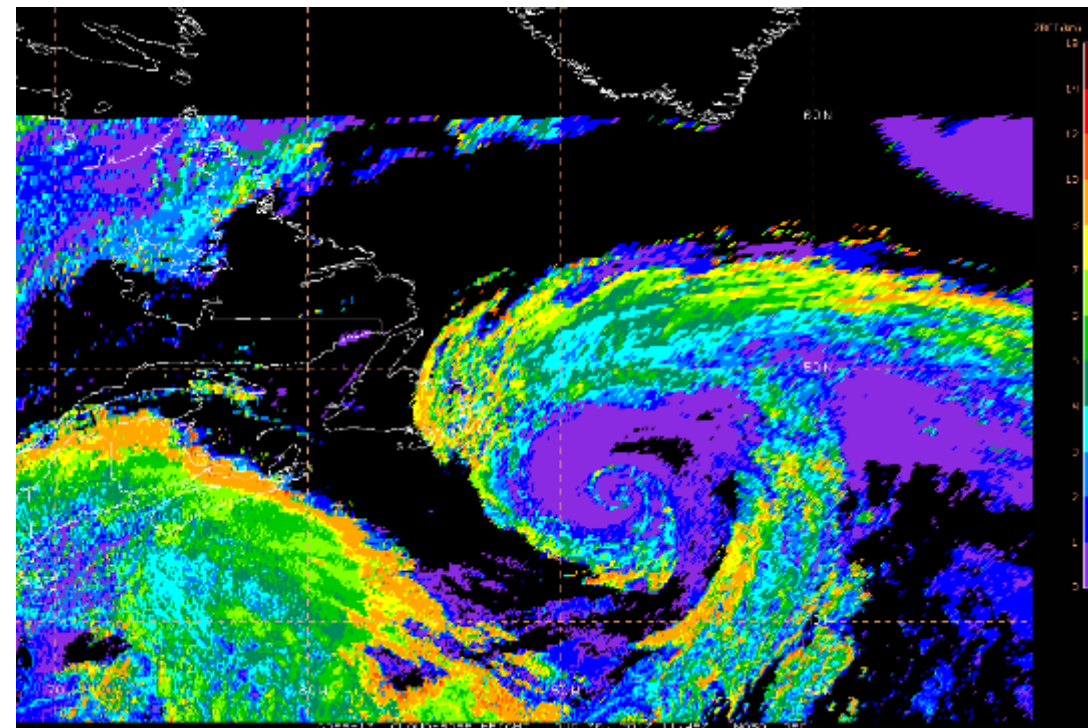
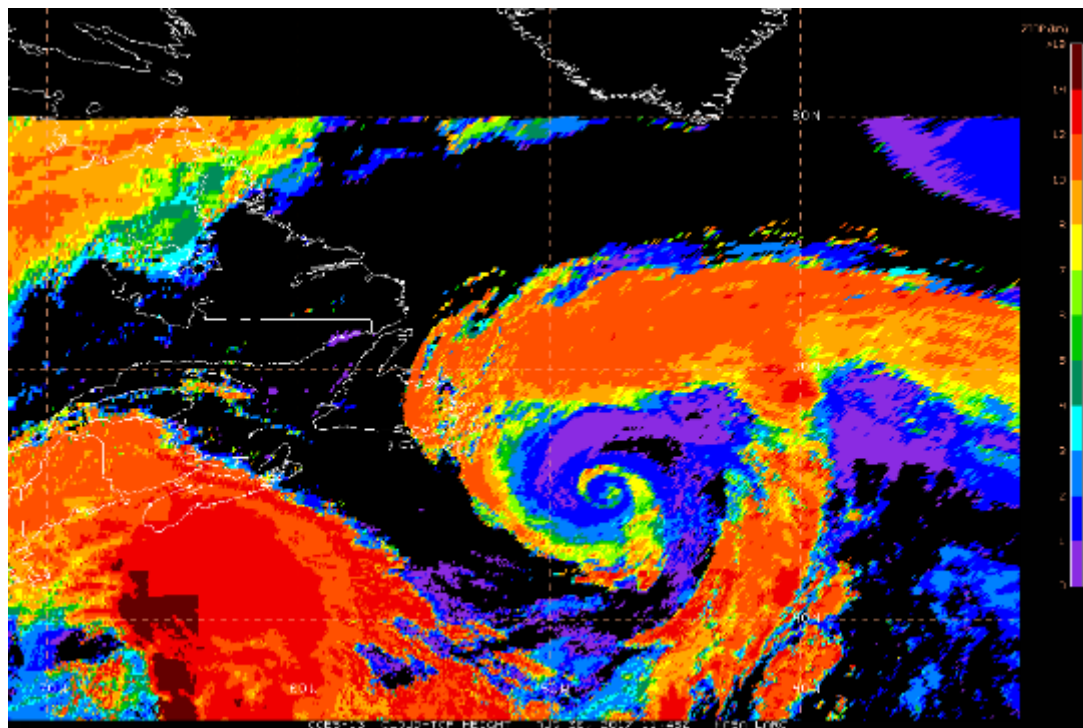
IR



# Cloud Products (8/30 11:45Z)

Cloud Top Height

Cloud Base Height





# |ECMWF| 4-Panel Cloud Forecast

4-panel Cloud Cover (%)

18 hour forecast valid 18Z Wed, AUG 30, 2017

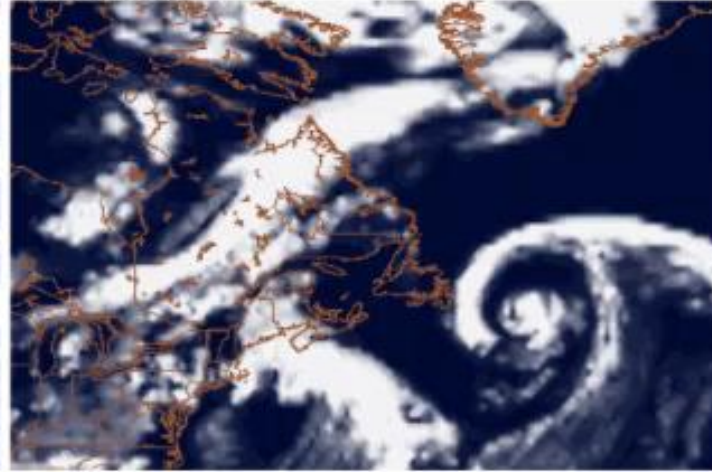
ECMWF Deterministic initialized 00Z Wed, AUG 30, 2017

AccuWeather Professional

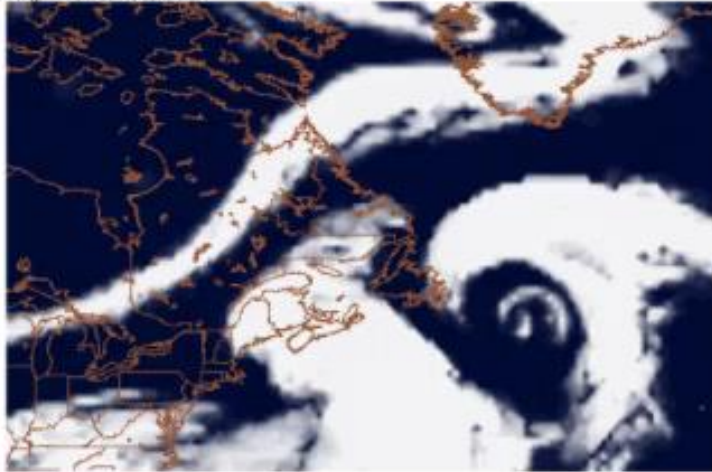
Low level Clouds



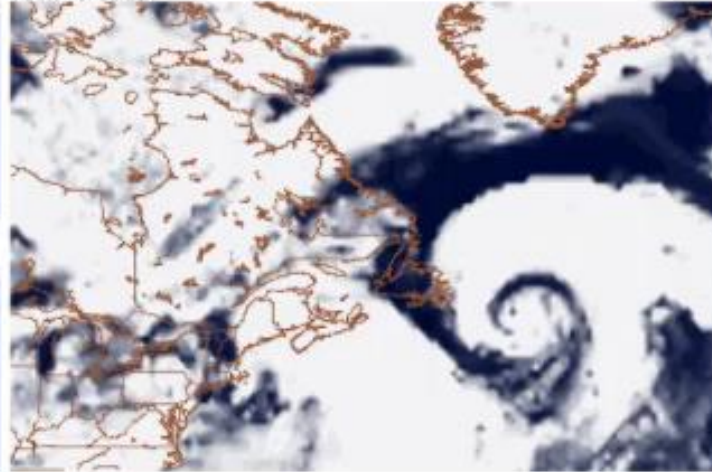
Mid level Clouds



High level Clouds

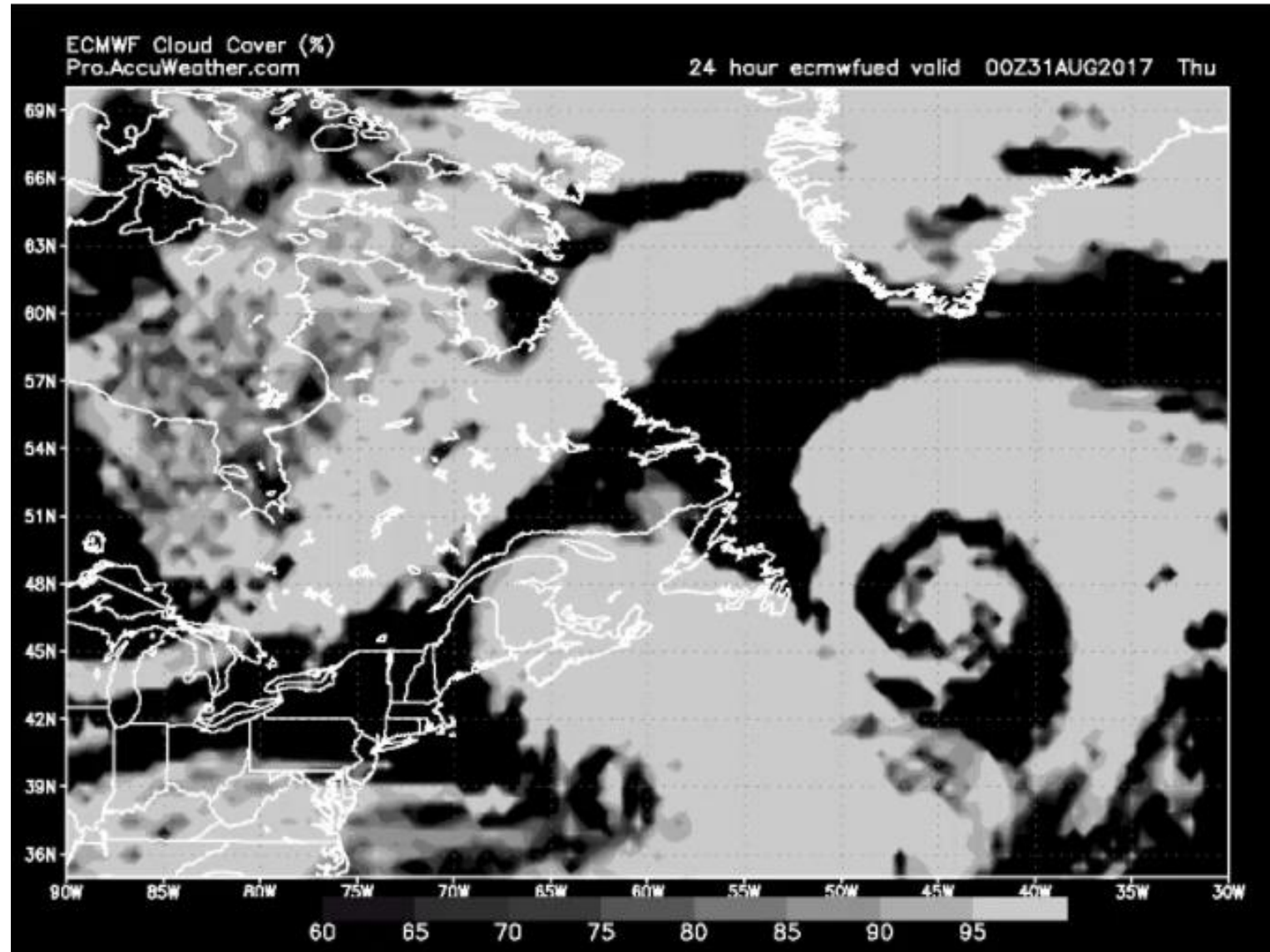


Total Clouds





# |ECMWF| Total Cloud Forecast

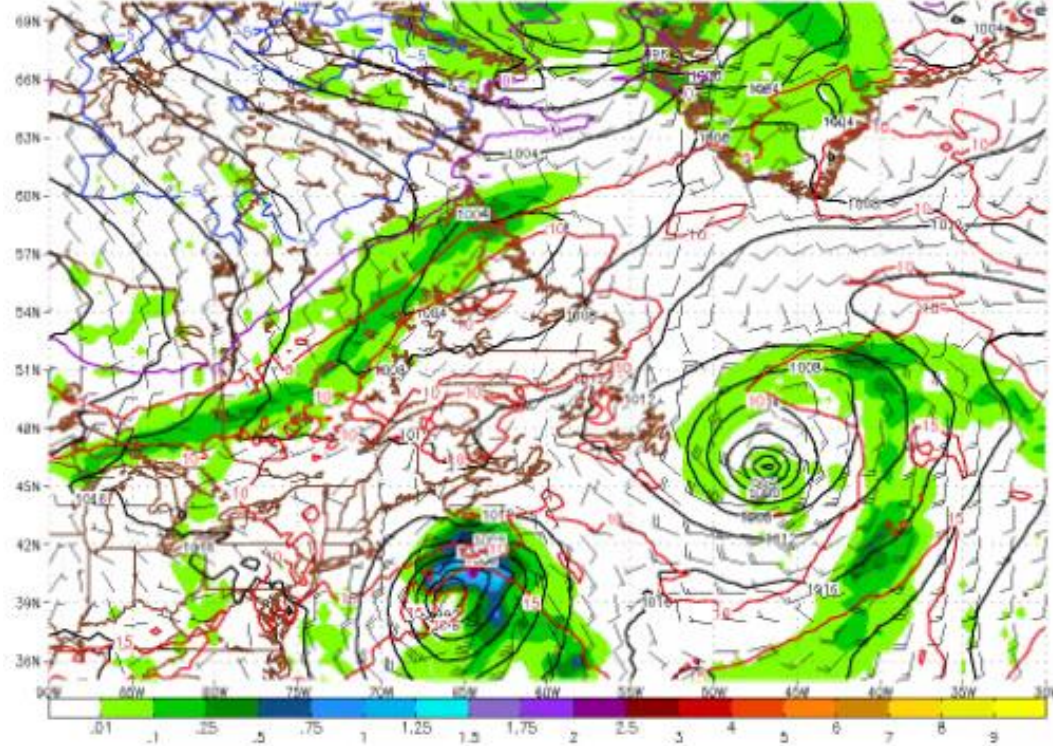


**MSLP, 850 mb temp,  
6 hour QPF, 10 m wind**

**6 hour QPF (inches)**

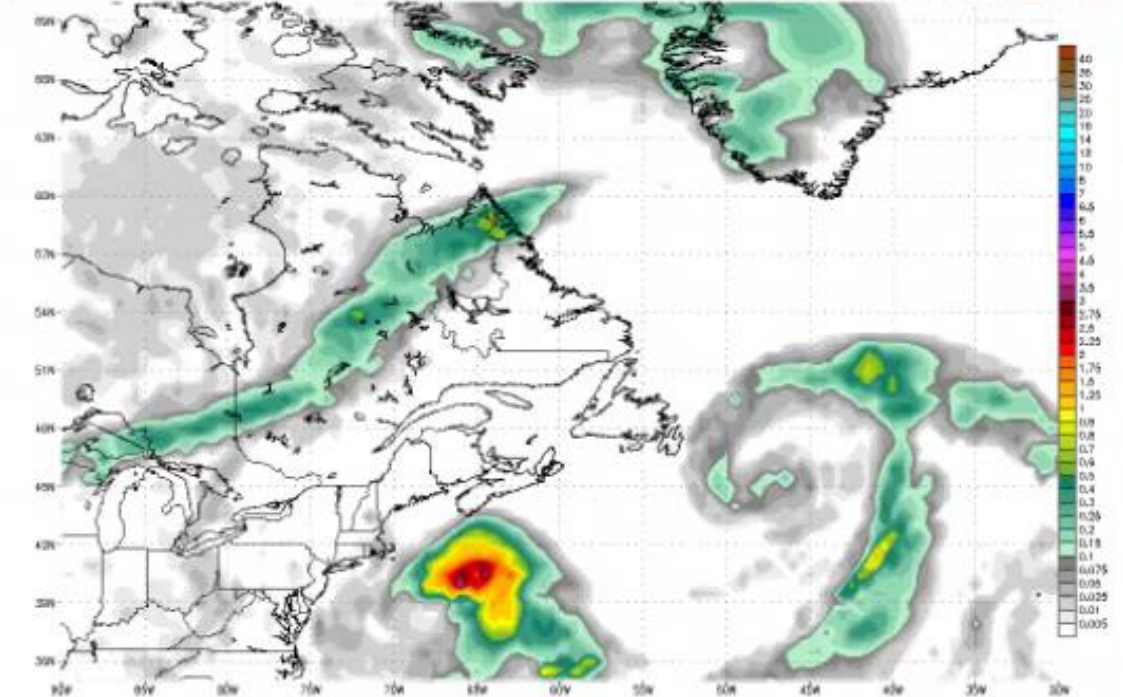
MSLP(mb), 850mb temp(C), 3-hour QPF(in) and 10m wind(kt)  
18 hour forecast valid 18Z Wed, AUG 30, 2017  
ECMWF Deterministic Initialized 00Z Wed, AUG 30, 2017

AccuWeather Professional



6-hour QPF (inches)  
18 hour forecast valid 18Z Wed, AUG 30, 2017  
ECMWF Deterministic Initialized 00Z Wed, AUG 30, 2017

AccuWeather Professional

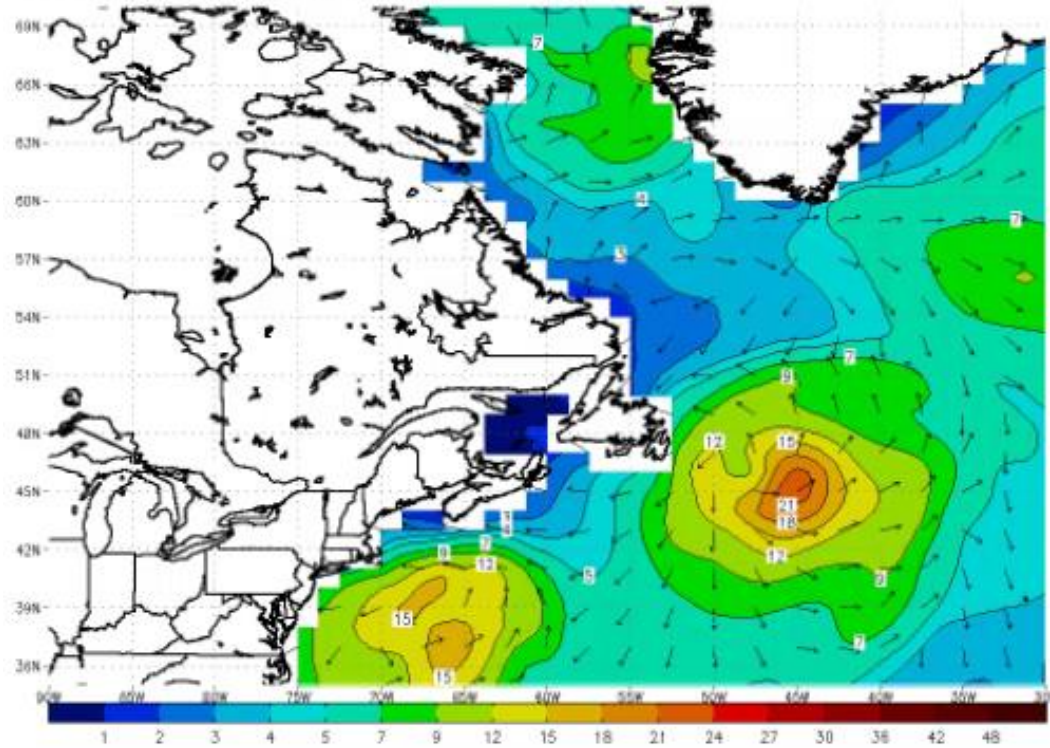




# Wave height (ft) Winds (knots)

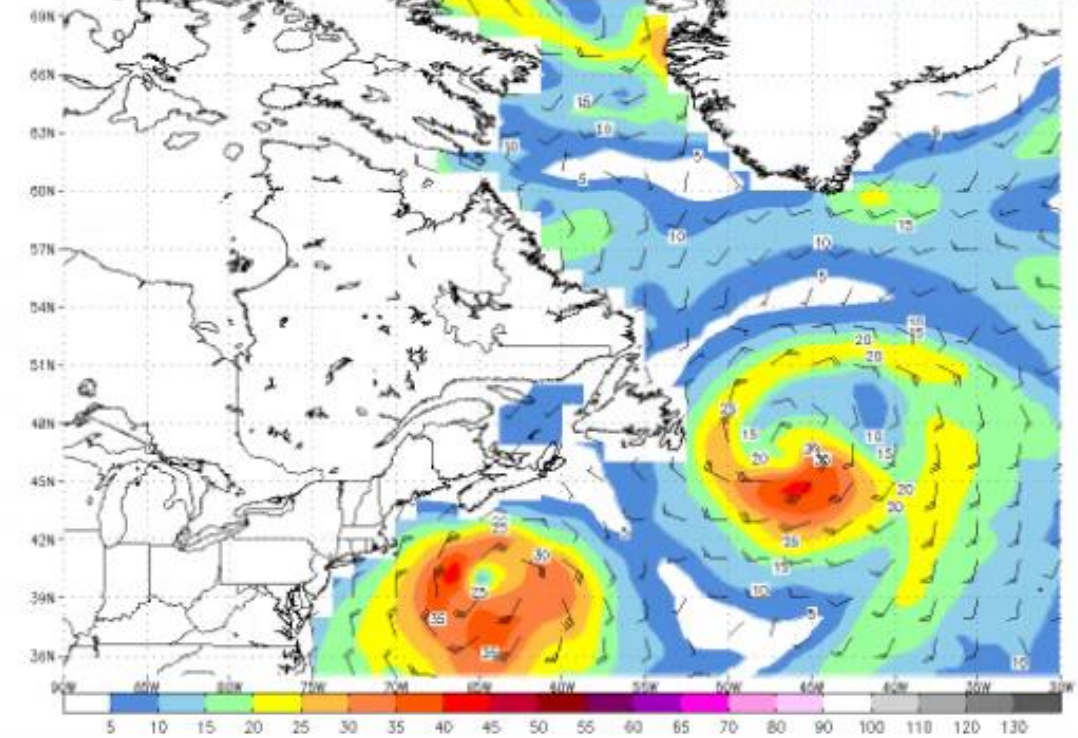
Significant Height of Waves and Swell (ft) and Direction  
18 hour forecast valid 18Z Wed 30 AUG 2017  
Wave Watch III initialized 00Z Wed 30 AUG 2017

ProAccuWeather.com



Surface Wind Speed (kts) and Wind Barbs  
18 hour forecast valid 18Z Wed, AUG 30, 2017  
Wave Watch III initialized 00Z Wed, AUG 30, 2017

AccuWeather Professional



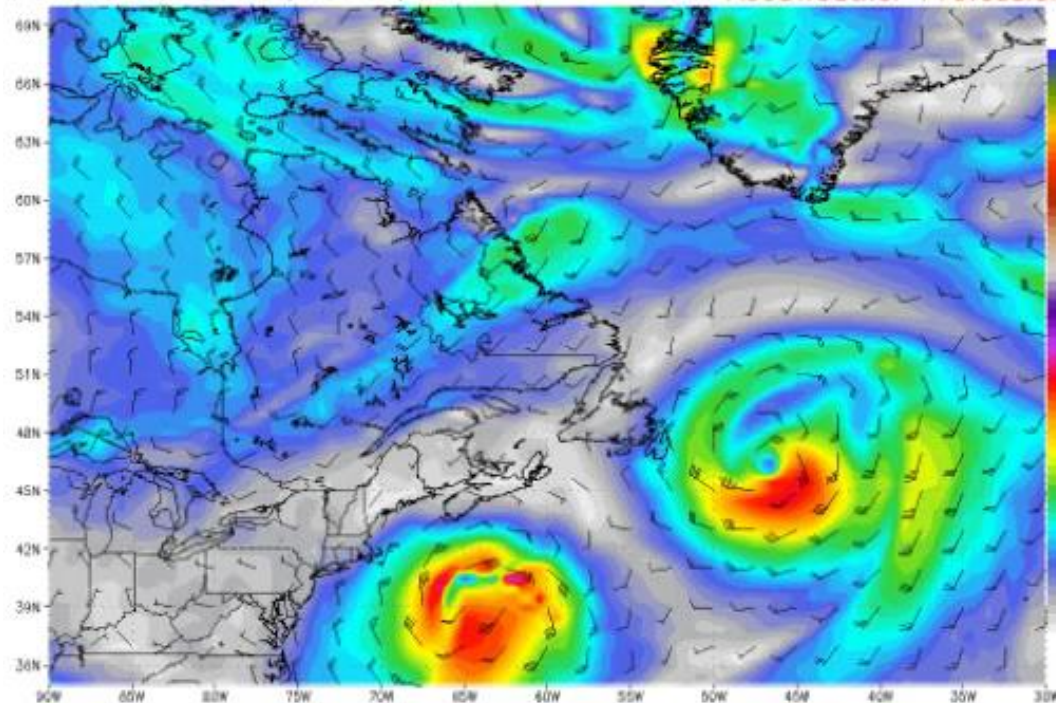


# 1000 mb-850 mb Mean Wind ~ 1.5 km or 5000 ft AMSL

# 850 mb-500 mb Mean Winds ~ 3 km or 10,000

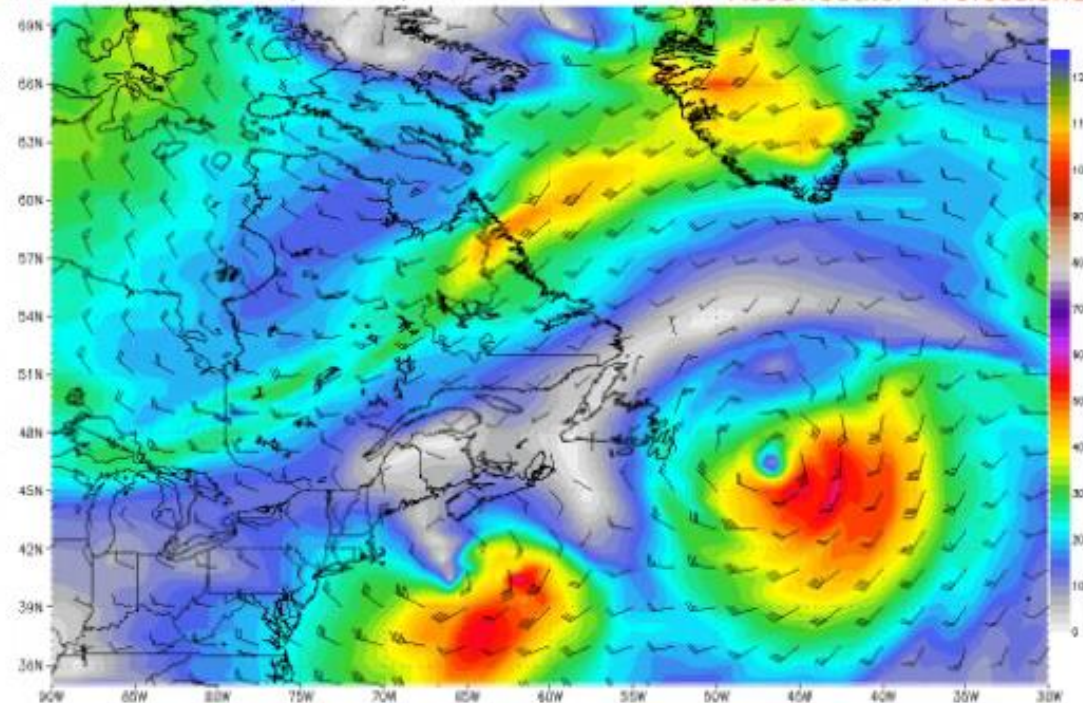
Mean wind 1000mb-850mb (knots)  
18 hour forecast valid 18Z Wed, AUG 30, 2017  
GFS initialized 00Z Wed, AUG 30, 2017

AccuWeather Professional



Mean wind 850mb-500mb (knots)  
18 hour forecast valid 18Z Wed, AUG 30, 2017  
GFS initialized 00Z Wed, AUG 30, 2017

AccuWeather Professional

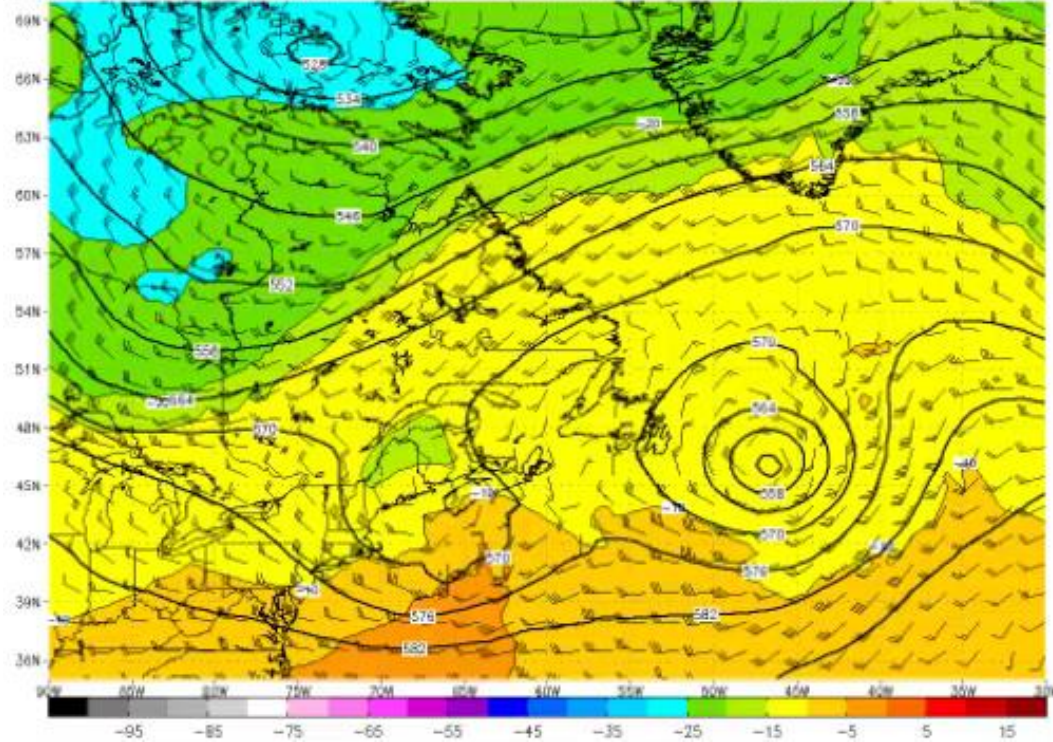




# ECMWF 500mb Height, Temp, Winds ~ 5.5 km or 18,000 ft AMSL

500 MB Height, Temperature, and Winds (knots)  
18 hour forecast valid 18Z Wed, AUG 30, 2017  
ECMWF Deterministic Initialized 00Z Wed, AUG 30, 2017

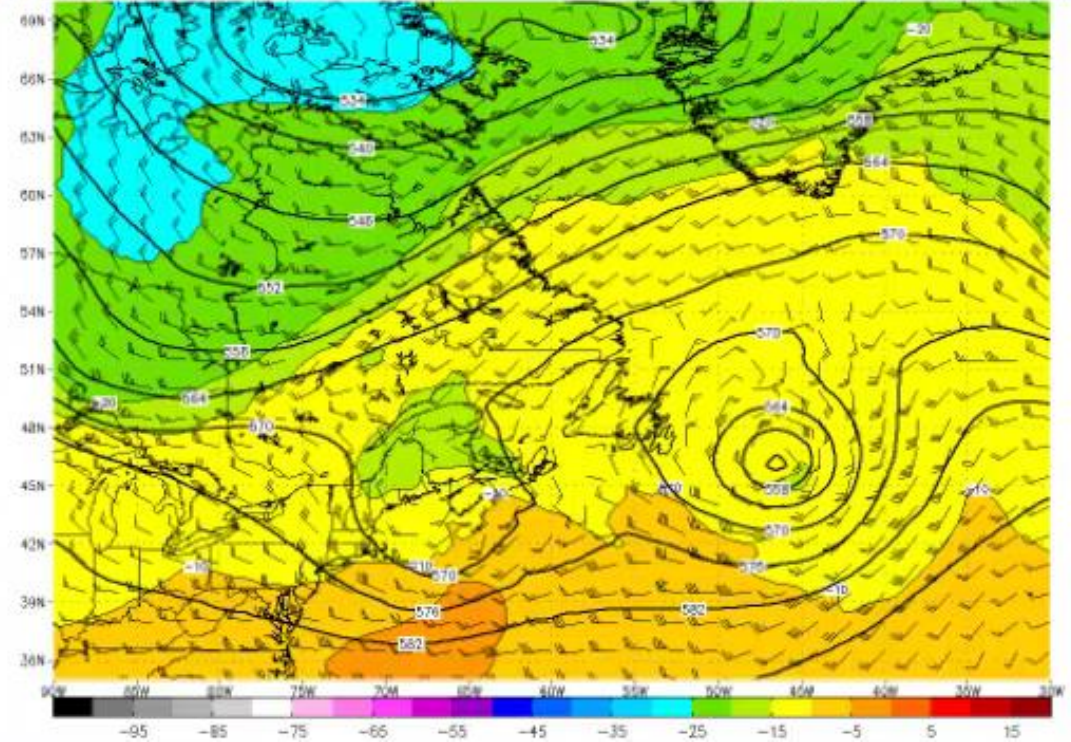
AccuWeather Professional



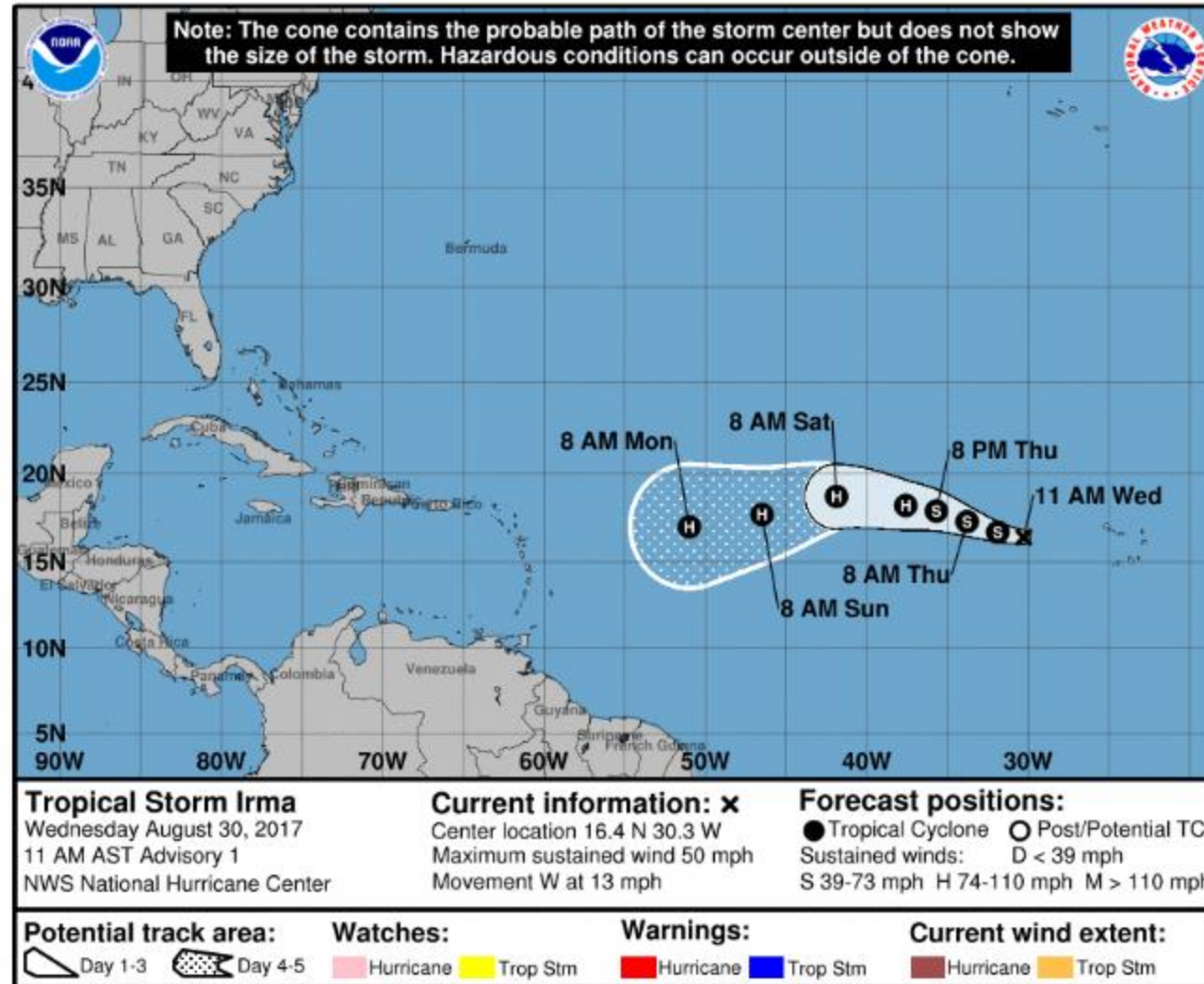
# GFS 500mb Height, Temp, Winds ~ 5.5 km or 18,000 ft AMSL

500 MB Height, Temperature, and Winds (knots)  
18 hour forecast valid 18Z Wed, AUG 30, 2017  
GFS Initialized 00Z Wed, AUG 30, 2017

AccuWeather Professional



# Eye on the Tropics - Outlook

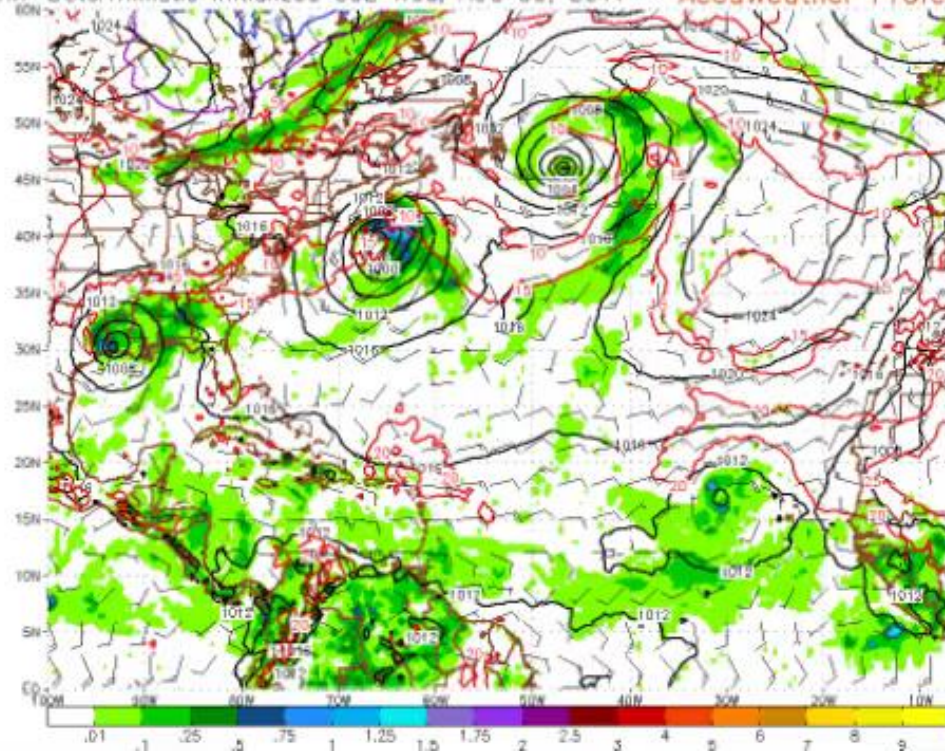




# Eye on the Tropics

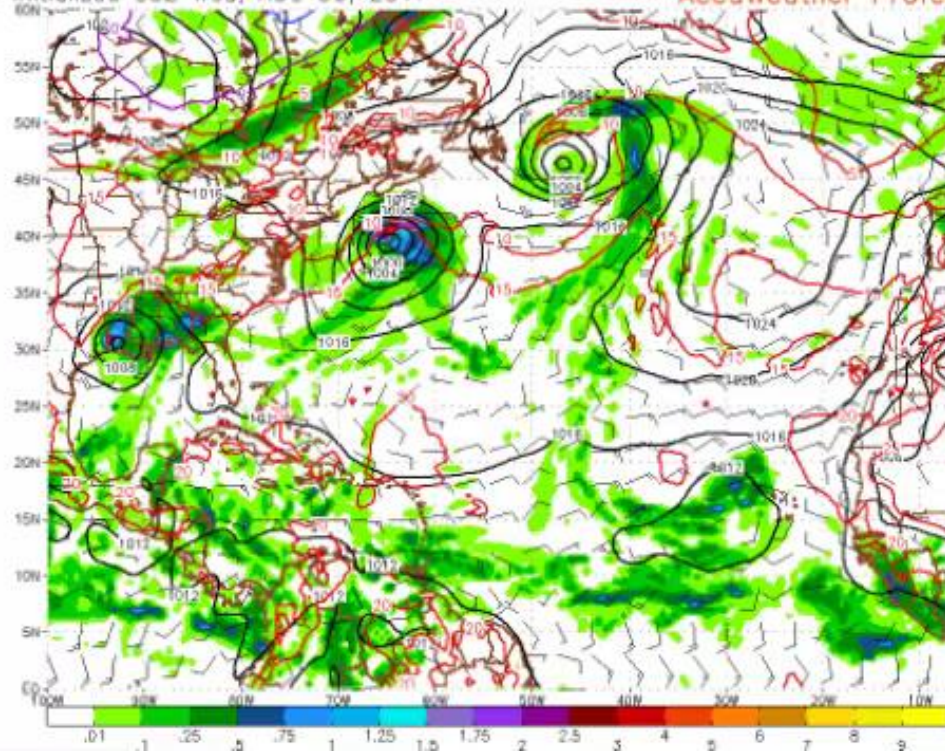
MSLP(mb), 850mb temp(C), 3-hour QPF(in) and 10m wind(kt)  
18 hour forecast valid 18Z Wed, AUG 30, 2017  
ECMWF Deterministic initialized 00Z Wed, AUG 30, 2017

AccuWeather Professional

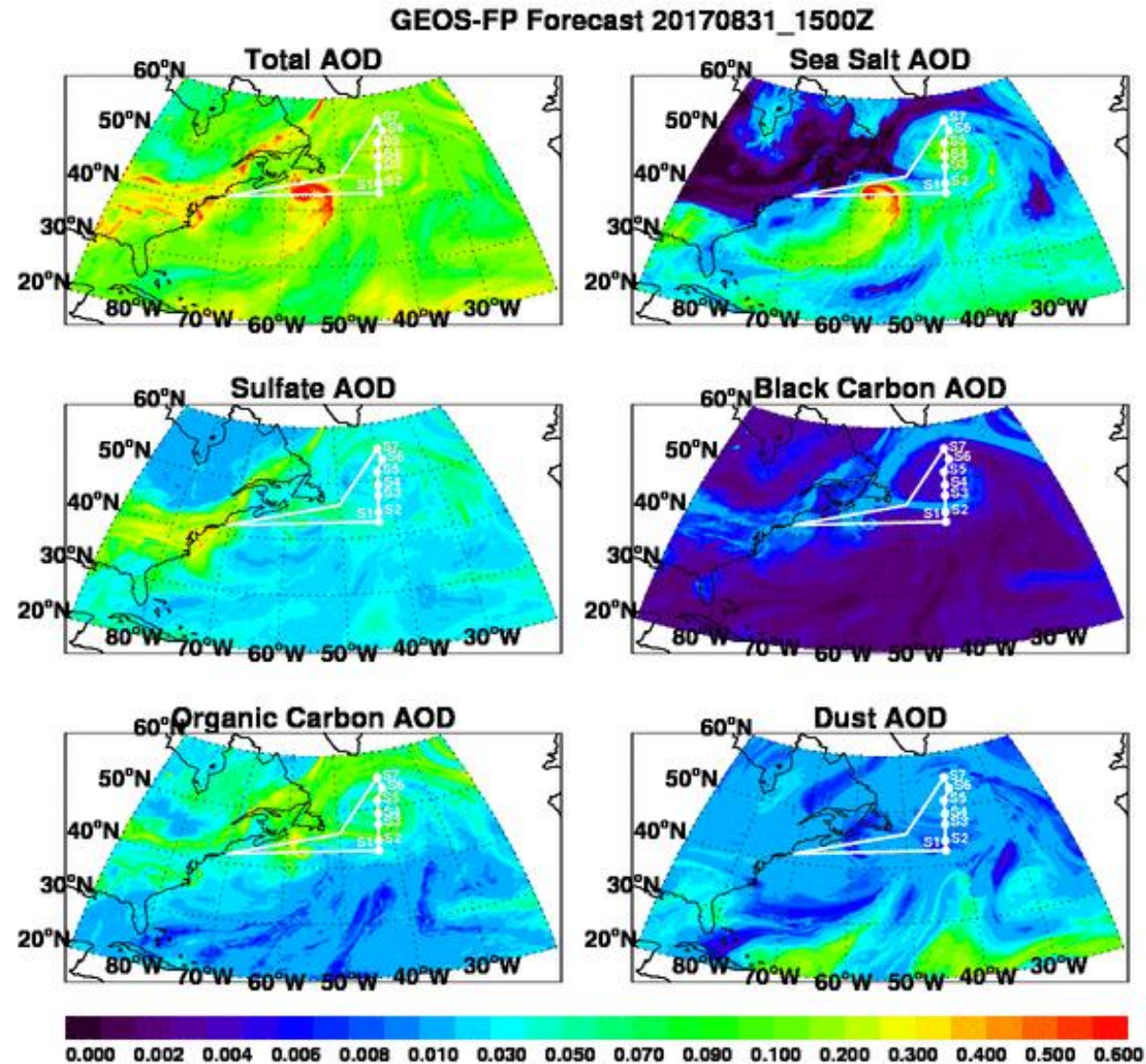


MSLP(mb), 850mb temp(C), 6-hour QPF(in) and 10m wind(kt)  
18 hour forecast valid 18Z Wed, AUG 30, 2017  
GFS initialized 00Z Wed, AUG 30, 2017

AccuWeather Professional



# GEOS-Chem





BEAUFORT WIND SCALE WITH CORRESPONDING SEA STATE CODES					
Beaufort Number	Wind Velocity (Knots)	Wind Description	Sea State Description	Sea State	
				Term and Height of Waves (Feet)	Condition Number
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, glassy 0	0
1	1-3	Light Air	Scaly ripples, no foam crests		
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Calm, rippled 0 – 0.3	1
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Smooth, wavelets 0.3-1	2
4	11-16	Moderate Breeze	Small waves, becoming longer, numerous whitecaps	Slight 1-4	3
5	17-21	Fresh Breeze	Moderate waves, taking longer form, many whitecaps, some spray	Moderate 4-8	4
6	22-27	Strong Breeze	Larger waves, whitecaps common, more spray	Rough 8-13	5
7	28-33	Near Gale	Sea heaps up, white foam streaks off breakers	Very rough 13-20	6
8	34-40	Gale	Moderately high, waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks		
9	41-47	Strong Gale	High waves, sea begins to roll, dense streaks of foam, spray may reduce visibility		
10	48-55	Storm	Very high waves, with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	High 20-30	7
11	56-63	Violent Storm	Exceptionally high waves, foam patches cover sea, visibility more reduced	Very high 30-45	8
12	64 and over	Hurricane	Air filled with foam, sea completely white with driving spray, visibility greatly reduced	Phenomenal 45 and over	9

Figure 8-1. Beaufort wind scale.

## MANDATORY PRESSURE LEVELS

<u>Level</u>	<u>Remarks</u>	Temp. Range	Critical Thickness For Snow	Standard Height Above Sea level	
1000 mb				0 meters	0 feet
925 mb				750 to 800 meters	2460 to 2624 ft
850 mb	Besides the surface, 850mb is used to calculate temperature advection. Also used in weather forecasting to determine high temperature on sunny, warm days and also used to determine maximum wind gust on sunny, well-mixed days.	0 to + 40 in summer -40 to +20 in winter	1000 to 850 = 1300 meters  850 to 700 = 1540 meters	1500 meters	4921 ft
700 mb	The "free atmosphere" begins here. This pressure level skims the tops of the Rockies, so, for practical purposes, there is little ground about this level. The last mandatory level in the lower troposphere	-15 to +15 in summer -40 to +5 in winter	1000 to 700 = 2840 meters	3000 meters	9842 ft
500 mb	This pressure marks the approximate level where half the weight of the local air column is below and half the weight is above. Thus, 500mb is considered to represent the middle troposphere	-25 to 0 in summer -45 to -10 in winter	1000 to 500 meters = 5400 meters	5500 meters	18044 ft
400 mb	The approximate level where winds steer well-developed hurricanes. The first mandatory level in the upper troposphere			7000 meters	22965 ft
300 mb	The pressure level near the cruising altitude of most commercial aircraft. The approximate pressure at the summit of Mount Everest.	-55 to -35 (marginal seasonal changes)		9000 meters	29527 ft
250 mb	The typical pressure level of the jet stream over the middle latitudes.			10500 meters	34448 ft
200 mb	The typical pressure level of the tropopause over the middle latitudes.	-60 to -45 (marginal seasonal changes)		12000 meters	39370 ft
150 mb				13500 meters	44291 ft