

NAAMES Afternoon WX Discussion

Tuesday, August 29, 2017

Michael Shook

Forecast Highlights

- Sunny in WHOI and St. John's, miserable at Wallops
- No big changes from yesterday's briefing on WHOI and Wallops 8/30 Forecast
 - Wednesday departure from WHOI
 - Mostly cloudy with NNE winds at 20 mph, storm will be south and kicking up seas
 - Wednesday C130 transit
 - Partly cloudy at Wallops, NNW winds at 10-15 mph, Arrival into St. John's looks good
 - Storm will be just East of Wallops
 - Due to clouds ahead of storm, Sable Island will have high clouds but clear below
 - South eddies look partly cloudy if cold front passes through in time, slot timing is too slow for transit
 - Thursday C130 transit?
 - Partly cloudy at Wallops, SW winds at 5-10 mph with chance of T-storms, Rainy and windy in St. John's
 - Storm will be over Sable Island with 45 kt winds
 - South eddies impacted by high clouds, low and mid not much better than Wednesday
- Potential Tropical Cyclone 10 – Maybe Tropical Storm Irma
 - Currently near Cape Hatteras
 - Likely to become post-tropical before making TS strength, but will still strengthen significantly in the next 24-48 hours (peak wind speed reaching 70 kts)
 - Track has shifted south and increased speed somewhat since yesterday

Forecast Summary

Day 1 (Wednesday) – August 30

Recommendation: C-130 transit, Atlantis leaves WHOI

St. John's: Mostly cloudy, rain ending after noon, high in the low 60s, winds NNW 10-20 mph

Day 2 (Thursday) – August 31

Recommendation: C-130 unpack, Atlantis in transit to S1

St. John's: Mostly cloudy, rain beginning in the evening, high around 60, winds ENE 5-15 mph

Day 3 (Friday) – September 1

Recommendation: C-130 unpack, Atlantis in transit to S1

St. John's: Mostly cloudy, rain ending in the early morning, high in the low 60s, wind NW 10-20 mph

Day 4 (Saturday) – September 2

Recommendation: C-130 unpack, Atlantis in transit to S1

St. John's: Mostly cloudy, rain showers throughout the day, high around 60, wind SW 10-20 mph

Day 5 (Sunday) – September 3

Recommendation: C-130 potential fly day (cloud work), Atlantis potential practice station

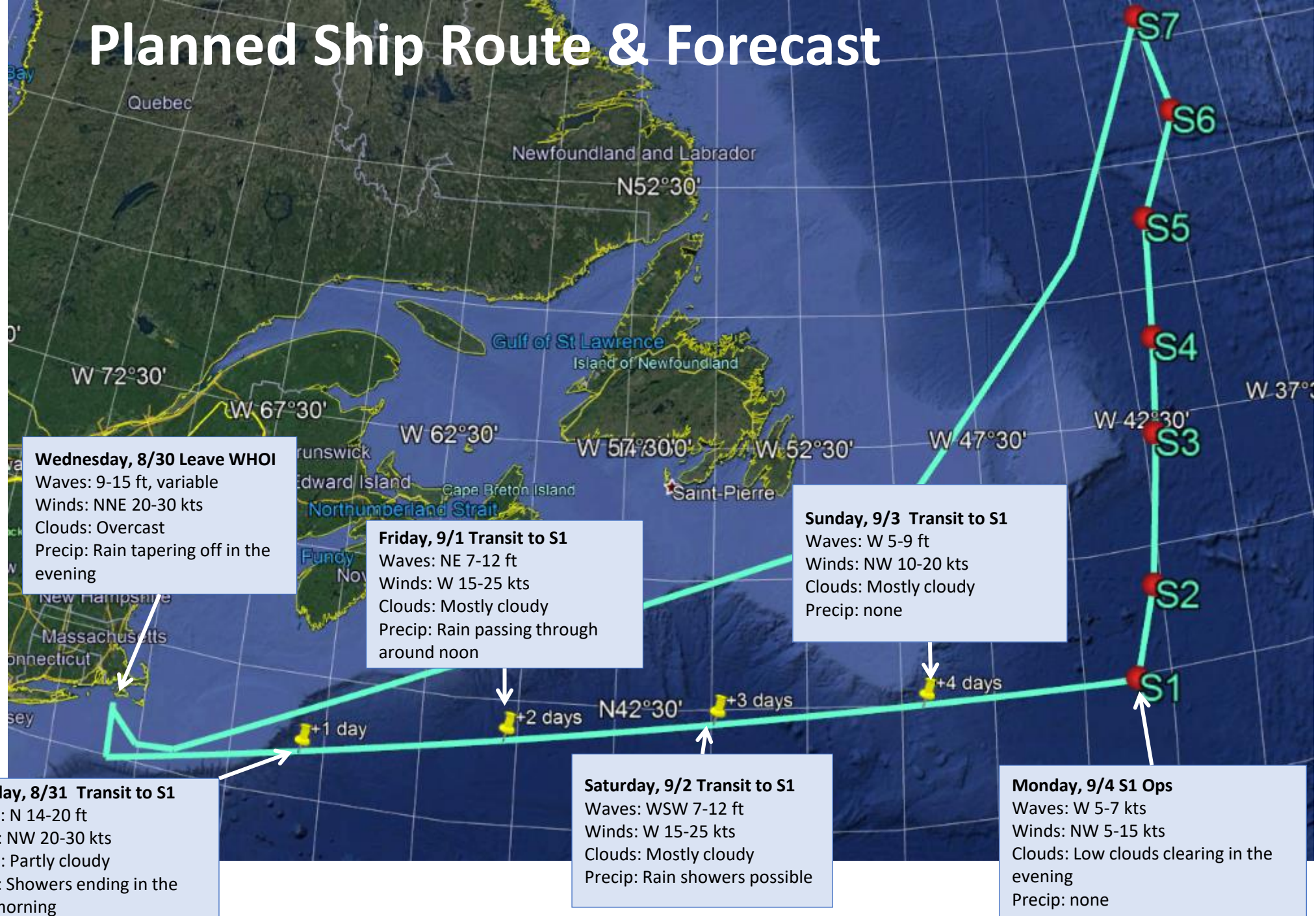
St. John's: Partly cloudy, chance of showers, high in the low 60s, wind W 15-20 mph

Day 6 (Monday) – September 4 – Ship at S1

Recommendation: Fly (S1 + ocean color work), Atlantis at S1

St. John's: Partly cloudy, rain possible after noon, high in the upper 60s, wind WSW 10-20 mph


Planned Ship Route & Forecast



Current Conditions at St. John's

Forecast History Calendar Rain / Snow Health


Elev 328 ft 47.59 °N, 52.73 °W | Updated 9 min ago



Scattered
Clouds

61.3 °F

Feels Like 61.3 °F



Wind from East
Gusts 4.0 mph

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

Today

High 62 | Low 51 °F

10% Chance of Precip.

Yesterday

High 65.3 | Low 45.1 °F

Precip. 0 in

Sign up for your Daily Forecast Email

Pressure	30.22 in
Visibility	15.0 miles
Clouds	Few 500 ft Scattered Clouds 24000 ft
Dew Point	49 °F
Humidity	65%
Rainfall	0.00 in
Snow Depth	Not available.

Sun & Moon



6:15 am



First Quarter,
53% visible

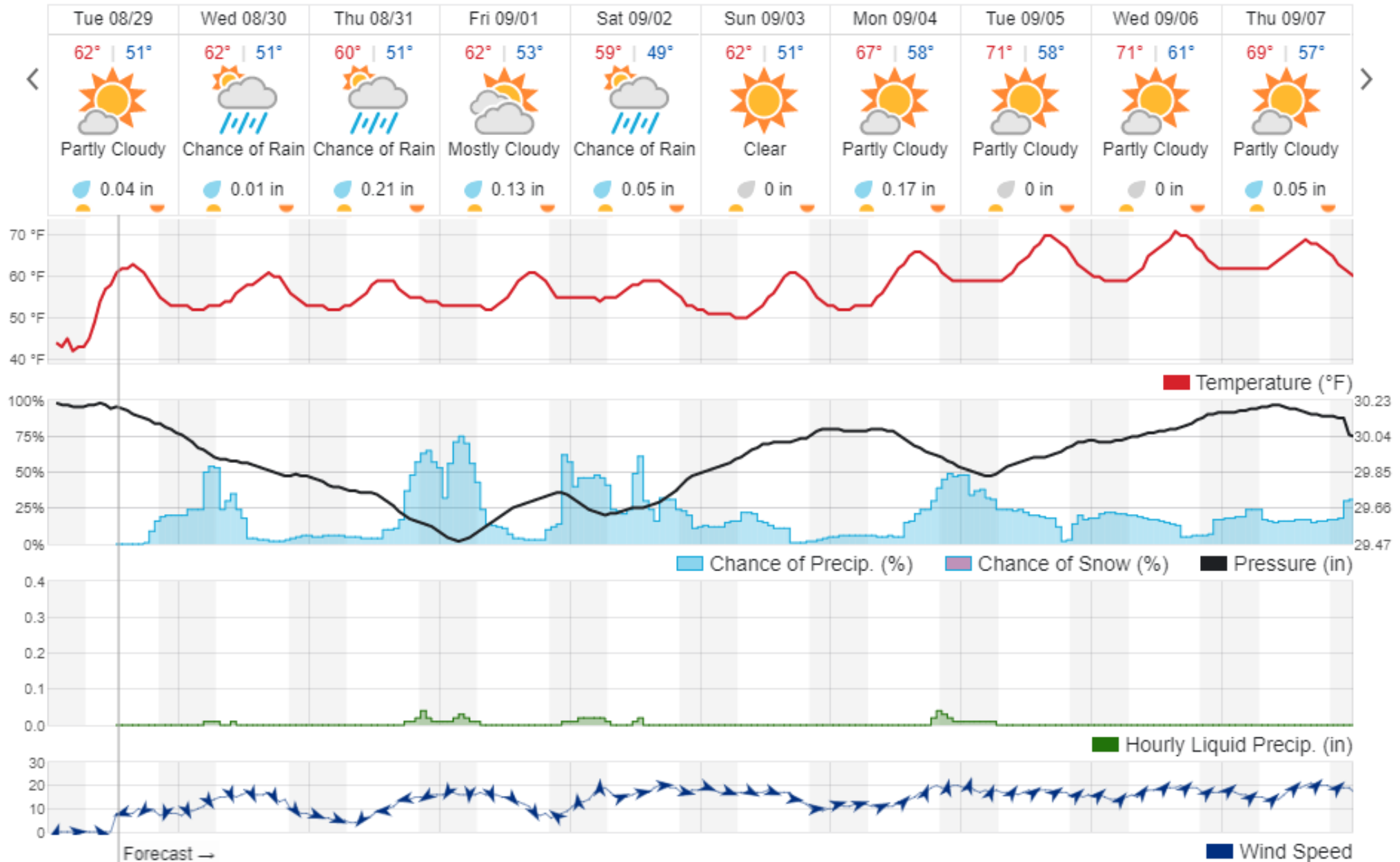
METAR CYYT 291400Z 13007KT 15SM FEW005
SCT240 17/10 A3020 RMK SF1CI3 SLP232

Radar Satellite WunderMap Nexrad



Show Webcams

St. John's Forecast



Current Conditions at WHOI



Active Advisory: [High Surf Advisory](#), [Wind Advisory](#) Active Notice: [High Surf Advisory](#)

Elev 128 ft 41.66 °N, 70.52 °W | Updated 18 min ago



Partly Cloudy

66 °F

Feels Like 66 °F



Wind from East

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

Today

High 68 | Low 59 °F

20% Chance of Precip.

Yesterday

High 73 | Low 54 °F

Precip. 0 in



[UV Warning](#)



Sign up for Severe Weather Alerts in your area

[Pressure](#)

30.27 in

[Visibility](#)

10.0 miles

[Clouds](#)

Clear

[Dew Point](#)

55 °F

[Humidity](#)

68%

[Rainfall](#)

0.00 in

[Snow Depth](#)

Not available.

Sun & Moon

6:05 am

7:20 pm



First Quarter,
53% visible

METAR KFMH 291435Z AUTO 08008KT 10SM CLR
19/13 A3027 RMK A02 FZRANO

[Radar](#)

[Satellite](#)

[WunderMap](#) | [Nexrad](#) | [Regional](#)



Show Webcams

WHOI Forecast

Tuesday
08/29

68 | 59 °F



Tuesday

20 % Precip. / 0 in

A mix of clouds and sun during the morning will give way to cloudy skies this afternoon. Slight chance of a rain shower. High 68F. Winds E at 10 to 20 mph.



Tuesday Night

90 % Precip. / 0.34 in

Rain likely. Becoming windy late. Low 59F. Winds ENE at 20 to 30 mph. Chance of rain 90%. Rainfall near a quarter of an inch. Winds could occasionally gust over 40 mph.

Wednesday
08/30

69 | 58 °F



Wednesday

60 % Precip. / 0.02 in

Windy. Showers early with mainly sunny skies in the afternoon. High 69F. Winds NNE at 25 to 35 mph. Chance of rain 60%.



Wednesday Night

0 % Precip. / 0 in

Clear. Low 58F. Winds WNW at 5 to 10 mph.

Current Conditions at Wallops



Active Advisory: [Flash Flood Watch](#), [Coastal Flood Advisory](#), [High Surf Advisory](#), [High Wind Warning](#) Active Notice: [Flash Flood Watch](#), [Coastal Flood Advisory](#), [High Surf Advisory](#)

Elev 39 ft 37.94 °N, 75.47 °W | Updated 36 min ago



Heavy Rain
Mist

70 °F

Feels Like 70 °F



Wind from ENE
Gusts 36 mph

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

Today


High 73 | Low 62 °F

100% Chance of Precip.


Yesterday

High 75 | Low 68 °F

Precip. 0 in




[Expect occasional rain to continue for the next several hours.](#)





Sign up for Severe Weather Alerts in your area

Pressure	30.00 in
Visibility	1.8 miles
Clouds	Mostly Cloudy 900 ft Overcast 1300 ft
Dew Point	70 °F
Humidity	100%
Rainfall	0.98 in
Snow Depth	Not available.

Sun & Moon

 6:29 am

 First Quarter, 53% visible

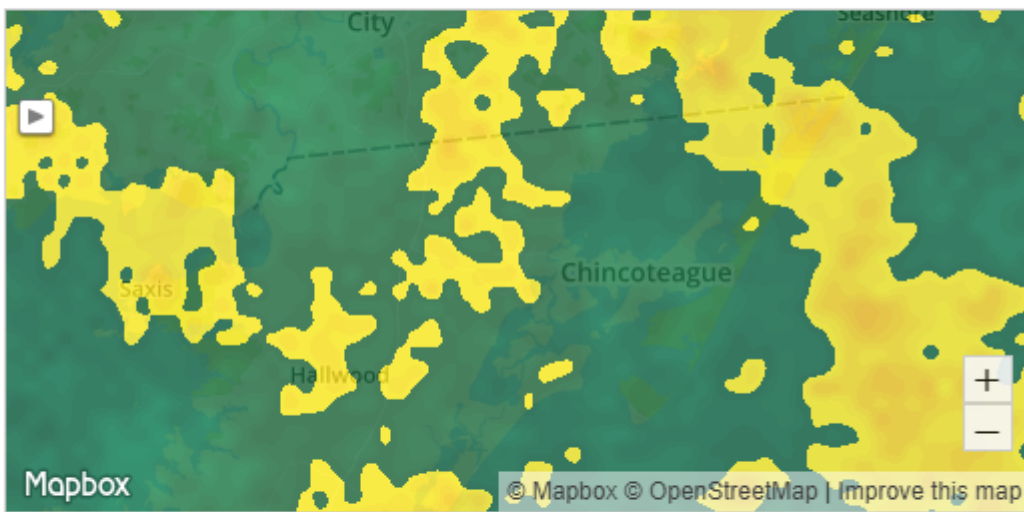
 7:35 pm

SPECI Kwal 291418Z AUTO 06022G31KT 1 3/4SM +RA BR BKN009 OVC013 21/21 A3000 RMK A02 PK WND 06031/1414 P0007 T02110211

Radar

Satellite









WunderMap | Nexrad | Regional



Mapbox

© Mapbox © OpenStreetMap | Improve this map

☐ Show Webcams

Tuesday 08/29 73 62 °F	<div>  Tuesday 100 % Precip. / 0.94 in </div> <p>Cloudy and windy with periods of rain. High 73F. Winds ENE at 25 to 40 mph. Chance of rain 100%. Rainfall possibly over one inch. Winds could occasionally gust over 50 mph.</p>
	<div>  Tuesday Night 90 % Precip. / 0.25 in </div> <p>Windy with a steady rain this evening. Showers continuing overnight. Low 62F. Winds N at 25 to 35 mph. Chance of rain 90%. Rainfall around a quarter of an inch. Winds could occasionally gust over 40 mph.</p>
Wednesday 08/30 77 66 °F	<div>  Wednesday 10 % Precip. / 0 in </div> <p>Sunshine and clouds mixed. High 77F. Winds NNW at 10 to 15 mph.</p>
	<div>  Wednesday Night 20 % Precip. / 0 in </div> <p>A few clouds. A stray shower or thunderstorm is possible. Low 66F. Winds light and variable.</p>
Thursday 08/31 83 64 °F	<div>  Thursday 50 % Precip. / 0.08 in </div> <p>Scattered thunderstorms in the morning, with mostly cloudy skies late. High 83F. Winds WSW at 10 to 15 mph. Chance of rain 50%.</p>
	<div>  Thursday Night 50 % Precip. / 0.02 in </div> <p>Mostly cloudy skies. Scattered thunderstorms during the evening. Low 64F. W winds shifting to N at 10 to 15 mph. Chance of rain 50%.</p>
Friday 09/01 73 58 °F	<div>  Friday 0 % Precip. / 0 in </div> <p>Mostly cloudy skies early, then partly cloudy in the afternoon. High 73F. Winds NNE at 10 to 20 mph.</p>
	<div>  Friday Night 50 % Precip. / 0.24 in </div> <p>Cloudy with occasional rain showers. Low 58F. Winds ENE at 5 to 10 mph. Chance of rain 50%.</p>

St. John's METAR/TAF

METAR CYYT 291400Z 13007KT 15SM FEW005 SCT240 17/10 A3020 RMK SF1C13 SLP232 DENSITY ALT 500FT=

METAR	LOCATION CYYT - ST. JOHN'S/ST. JOHN'S INTL/NL	DATE - TIME 29 AUGUST 2017 - 1400 UTC
WIND 130 TRUE @ 7 KNOTS	VISIBILITY 15 STAT. MILES	RUNWAY VISUAL RANGE
WEATHER	CLOUDINESS FEW CLOUDS (1/8 - 2/8) 500 FT SCATTERED CLOUDS (3/8 - 4/8) 24000 FT	TEMP / DEWPOINT 17 C / 10 C
ALTIMETER 30.20 IN HG	RECENT WEATHER	WIND SHEAR

TAF CYYT 291143Z 2912/3012 VRB03KT P6SM FEW004 FEW080 BECMG 2912/2914 07008KT BECMG 2919/2921 02009KT FM300600 34010KT P6SM FEW010 BECMG 3007/3009 34015G25KT RMK NXT FCST BY 291800Z=

TAF		LOCATION CYYT - ST. JOHN'S/ST. JOHN'S INTL/NL	VALIDITY [UTC] 29 AUG - 1143 to 30 AUG - 1200	
TIMES [UTC]	WIND [DEGREES TRUE]	VISIBILITY [STAT. MILES]	WEATHER	CLOUDINESS [FEET AGL]
29 AUG - 1200 to 30 AUG - 0600	VARIABLE @ 3 KNOTS	6+	NIL	400 FEW
BECOMING 29 AUG - 1200 to 29 AUG - 1400	70 @ 8 KNOTS			
BECOMING 29 AUG - 1900 to 29 AUG - 2100	20 @ 9 KNOTS			
30 AUG - 0600 to 30 AUG - 1200	340 @ 10 KNOTS	6+	NIL	1000 FEW
BECOMING 30 AUG - 0700 to 30 AUG - 0900	340 @ 15 KNOTS GUSTS 25 KNOTS			
REMARKS THE NEXT FORECAST WILL BE ISSUED BY 1800 UTC ON DAY 29				

KSBY/KNTU TAF

TAF for: KSBY (Salisbury/Ocean City, MD, US) issued at 1200 UTC 29 Aug 2017

Text: FM300300 36017G27KT 5SM -SHRA OVC010

Forecast period: 0300 to 1200 UTC 30 August 2017

Forecast type: FROM: standard forecast or significant change

Winds: from the N (360 degrees) at 20 MPH (17 knots; 8.7 m/s) gusting to 31 MPH (27 knots; 13.9 m/s)

Visibility: 5 sm (8 km)

Ceiling: 1000 feet AGL

Clouds: overcast cloud deck at 1000 feet AGL

Weather: -SHRA (light rain showers)

TAF for: KNTU (Oceana(NAS), VA, US) issued at 0717 UTC 29 Aug 2017

Text: BECMG 3003/3005 34018G25KT 9999 NSW BKN030 BKN100 540009 540906 QNH2966INS T22/2909Z T26/2919Z COR 0712 FN00188

Forecast period: 0300 to 0700 UTC 30 August 2017

Forecast type: BECOMING: Conditions expected to become as follows by 0500 UTC 30 August 2017

Winds: from the NNW (340 degrees) at 21 MPH (18 knots; 9.3 m/s) gusting to 29 MPH (25 knots; 12.9 m/s)

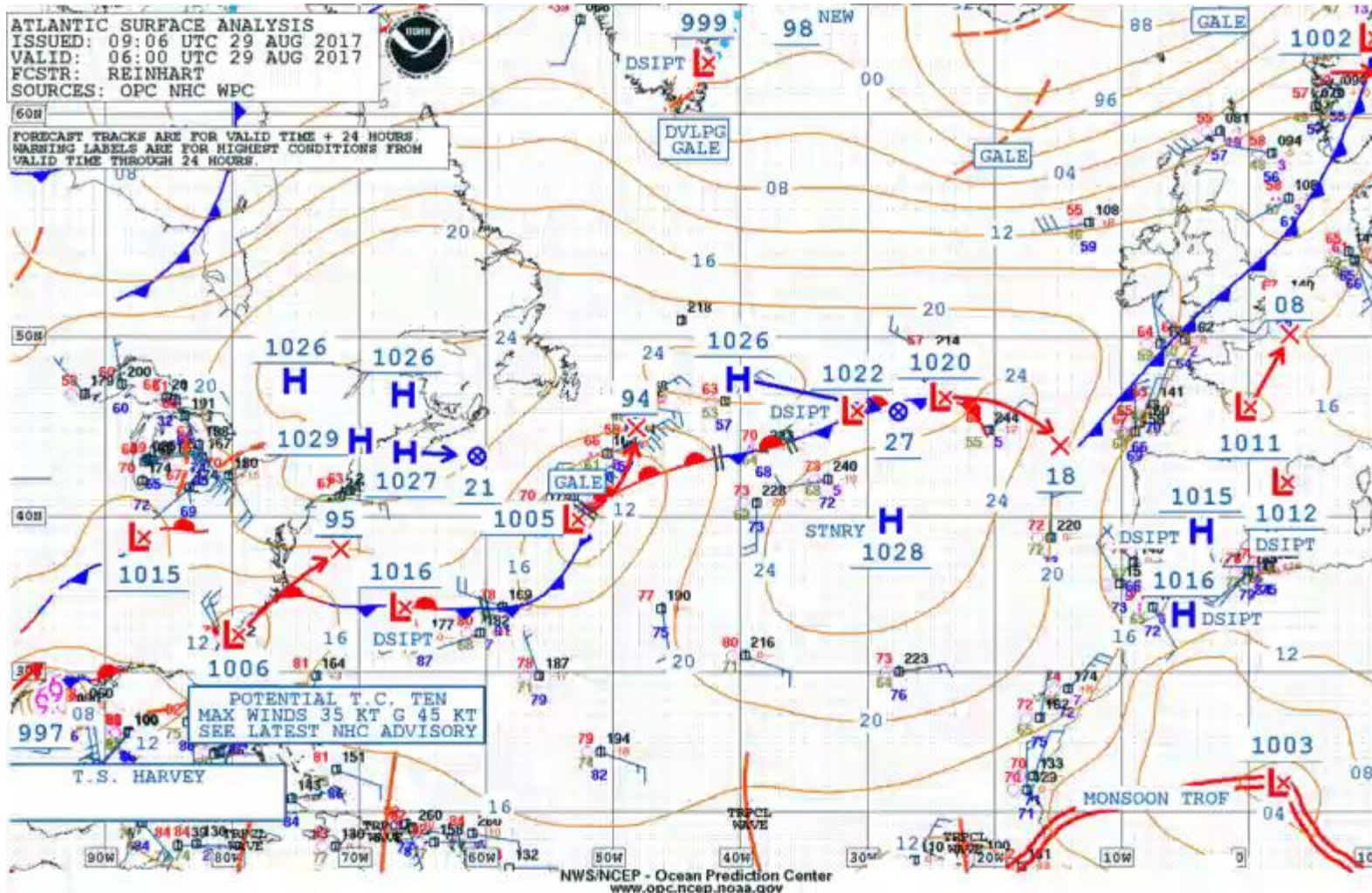
Visibility: 6 or more sm (10+ km)

Ceiling: 3000 feet AGL

Clouds: broken clouds at 3000 feet AGL, broken clouds at 10000 feet AGL

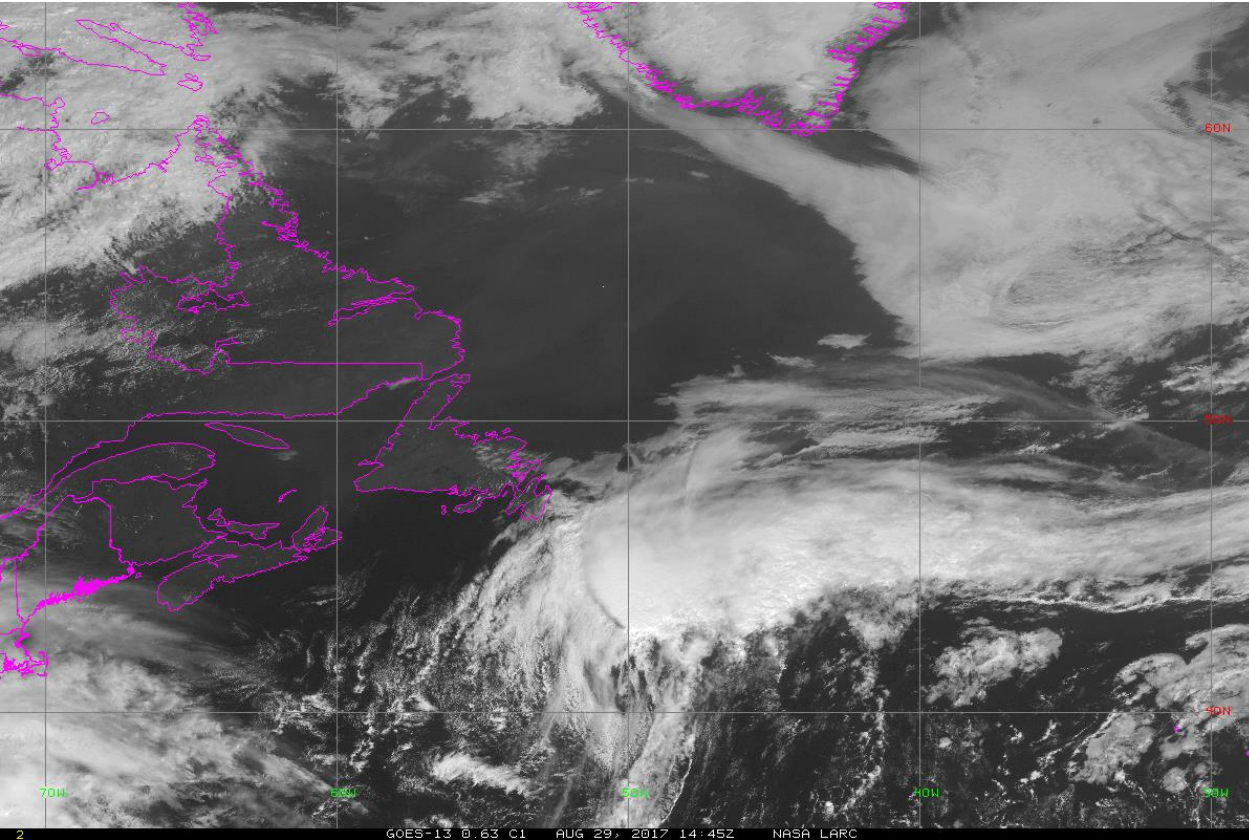
Weather: NSW (no significant weather)

Surface Current/Forecast Analysis

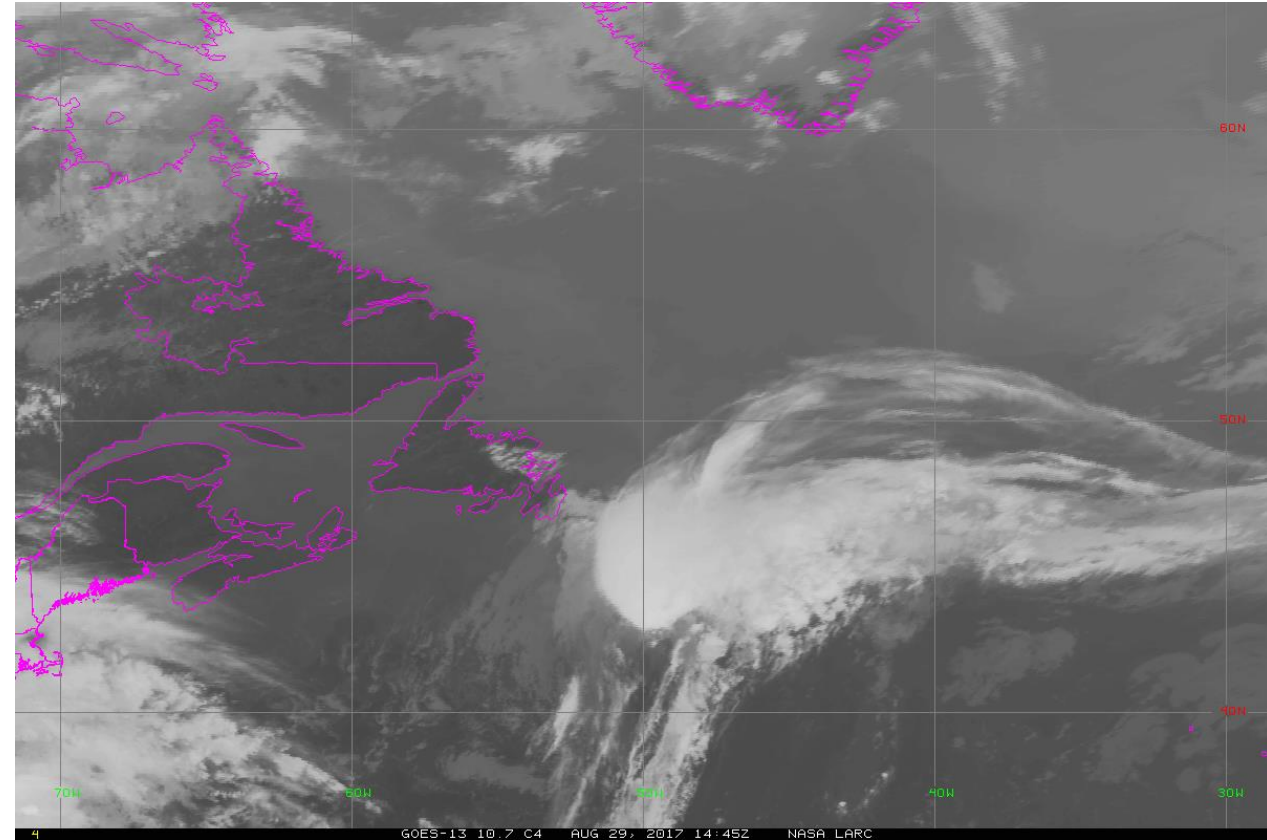


GOES-13 Imagery (8/29 14:45 UTC)

Visible

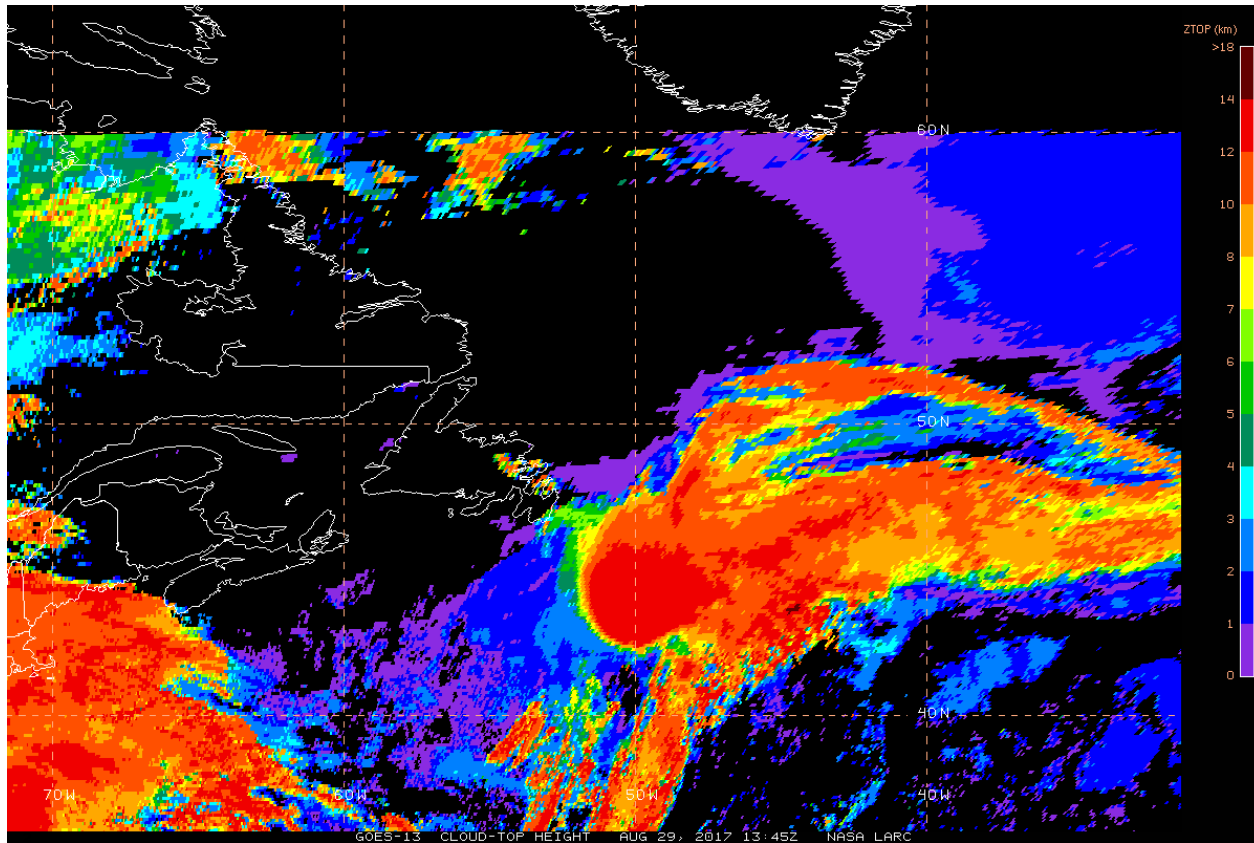


IR

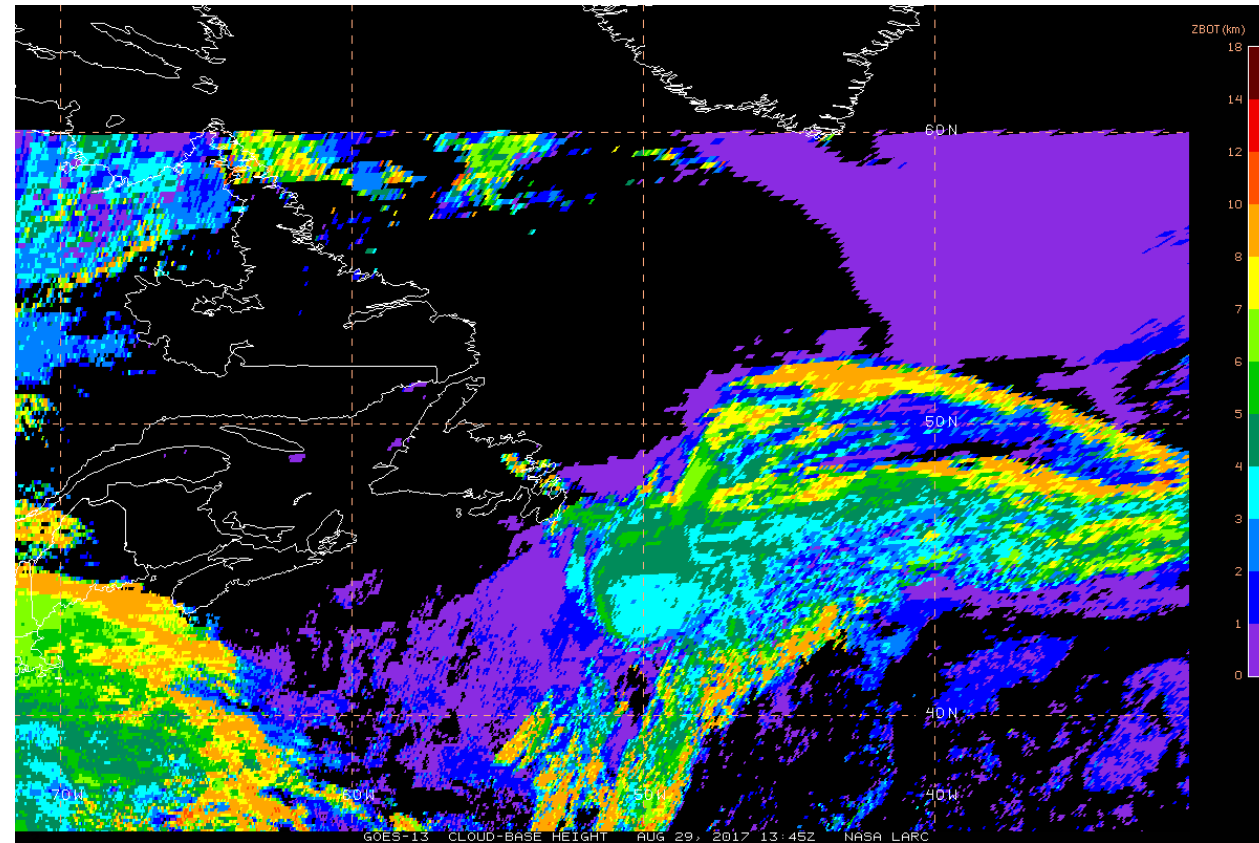


Cloud Products (8/29 13:45Z)

Cloud Top Height



Cloud Base Height



|ECMWF| 4-Panel Cloud Forecast

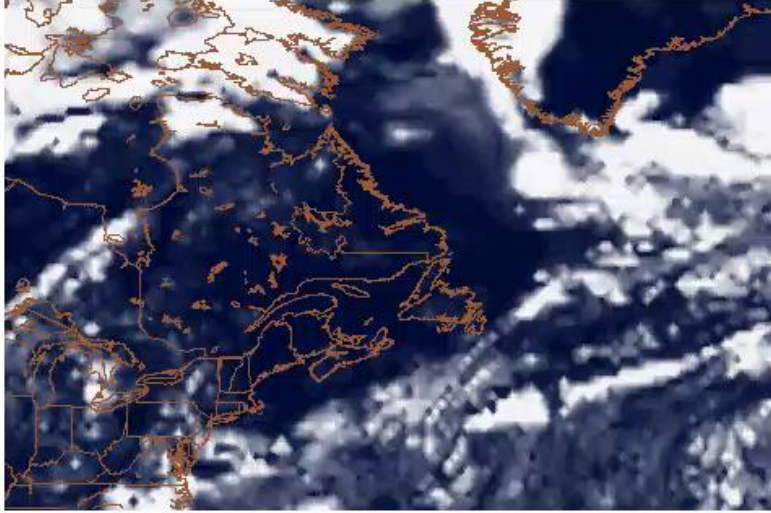
4-panel Cloud Cover (%)

00 hour forecast valid 00Z Tue, AUG 29, 2017

ECMWF Deterministic initialized 00Z Tue, AUG 29, 2017

AccuWeather Professional

Low level Clouds



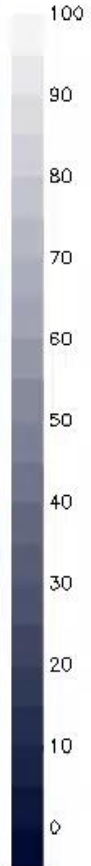
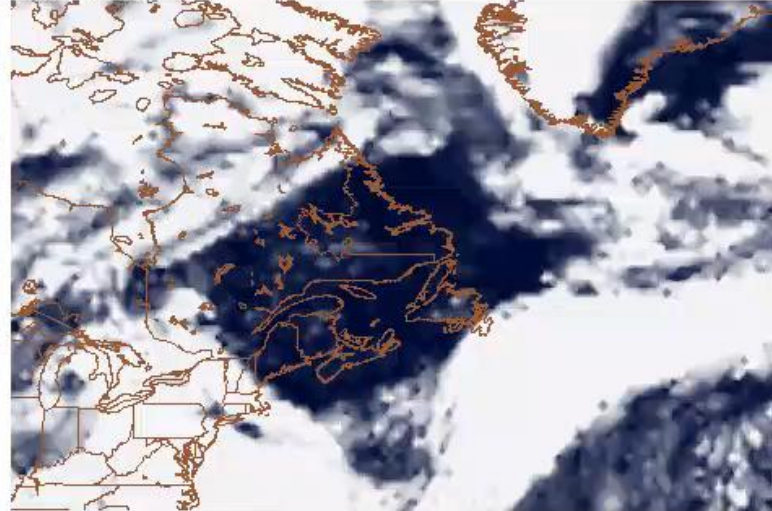
Mid level Clouds



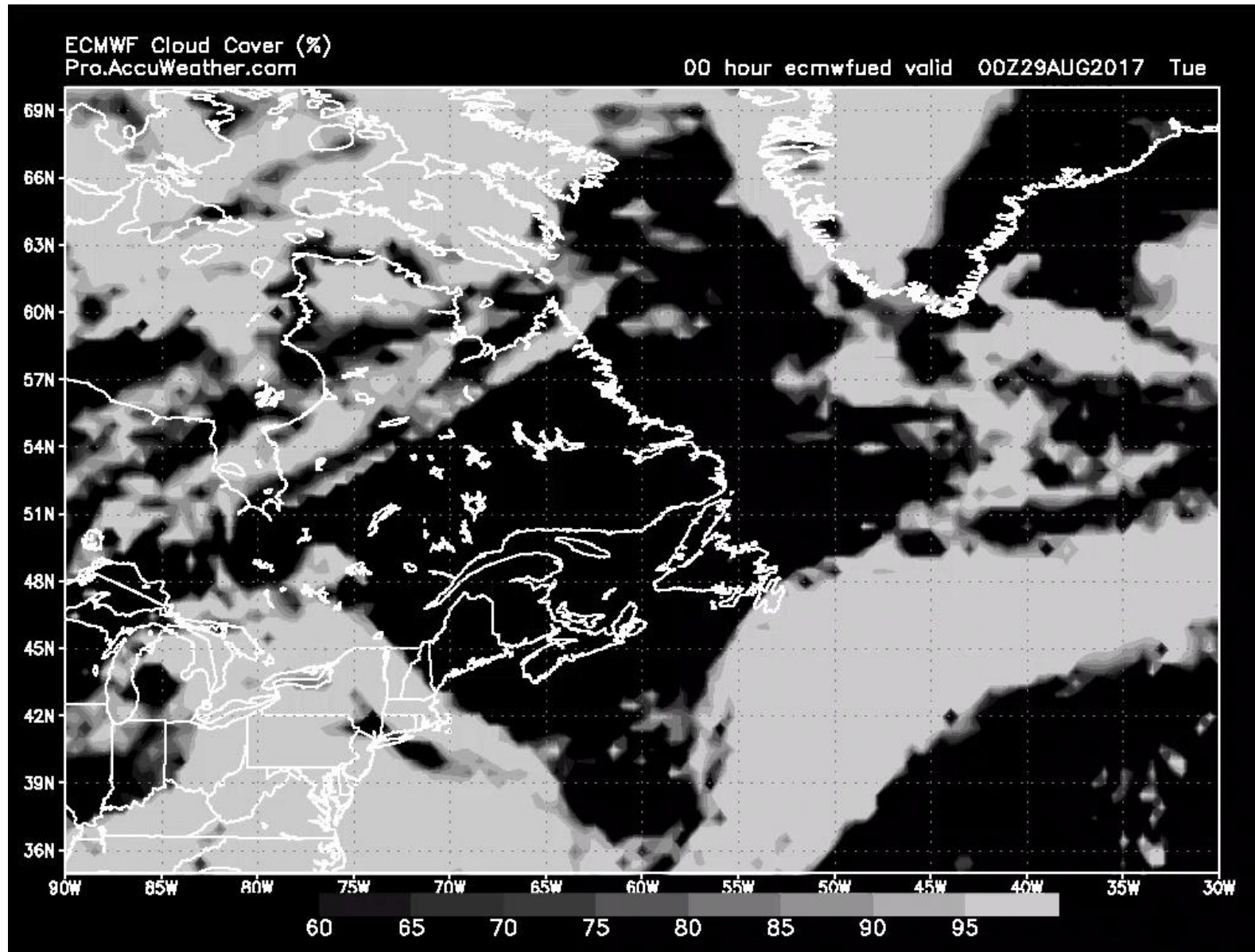
High level Clouds



Total Clouds



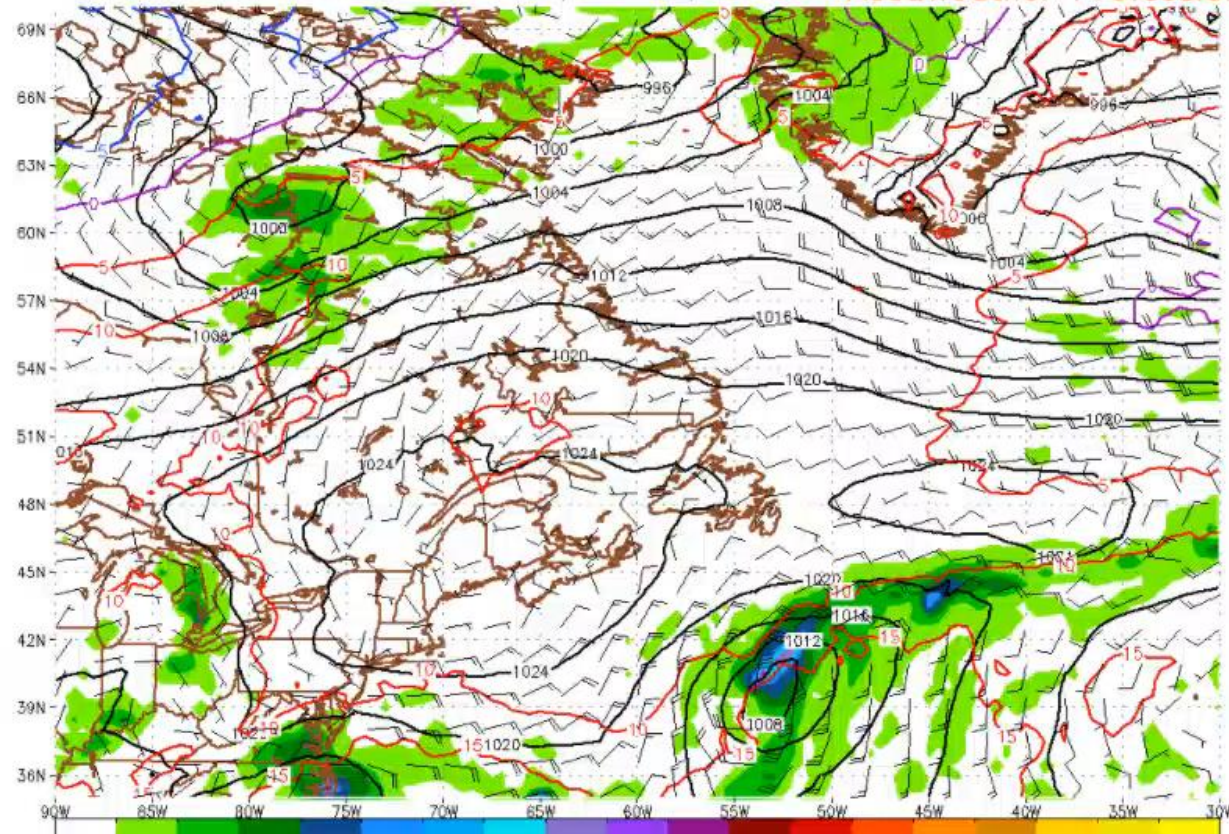
|ECMWF| Total Cloud Forecast



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

MSLP(mb), 850mb temp(C), 3-hour QPF(in) and 10m wind(kt)
06 hour forecast valid 06Z Tue, AUG 29, 2017
ECMWF Deterministic initialized 00Z Tue, AUG 29, 2017

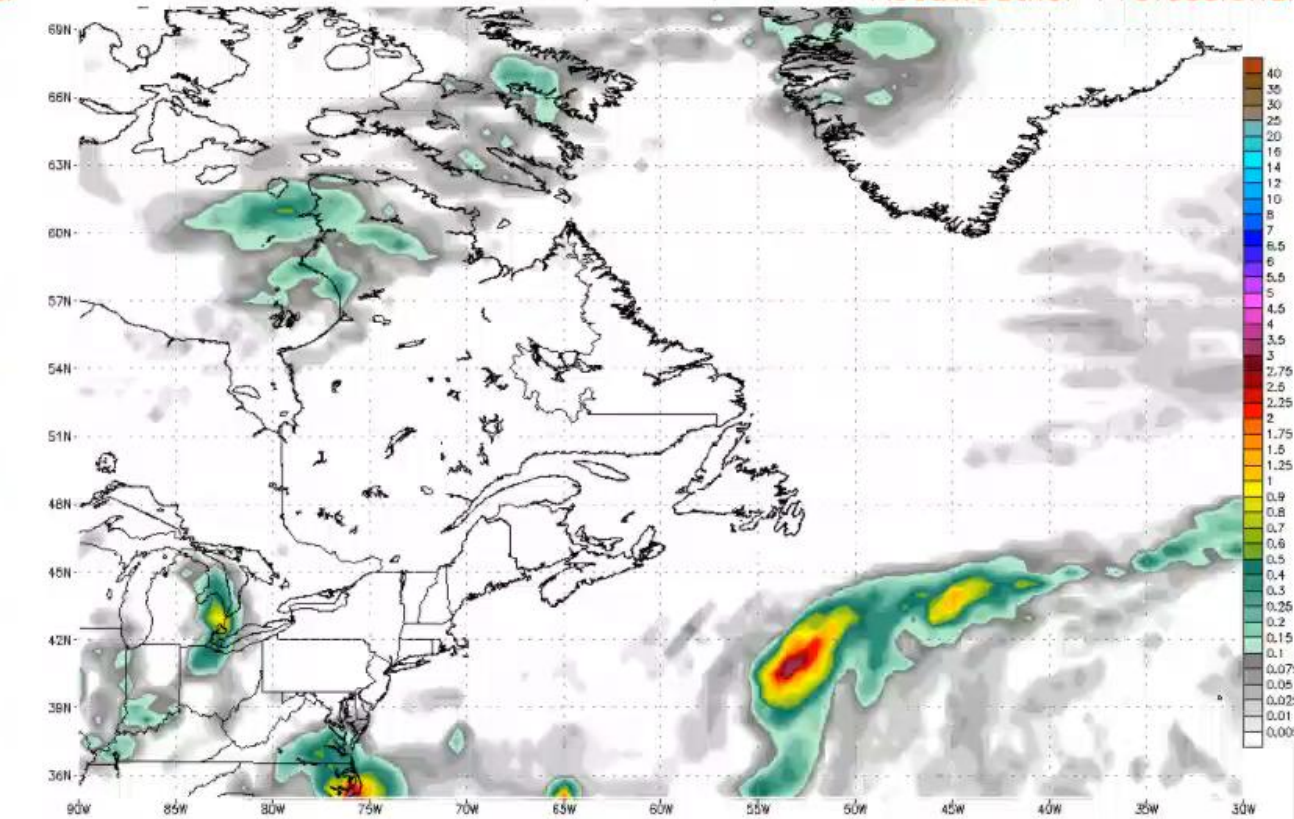
AccuWeather Professional



6 hour QPF (inches)

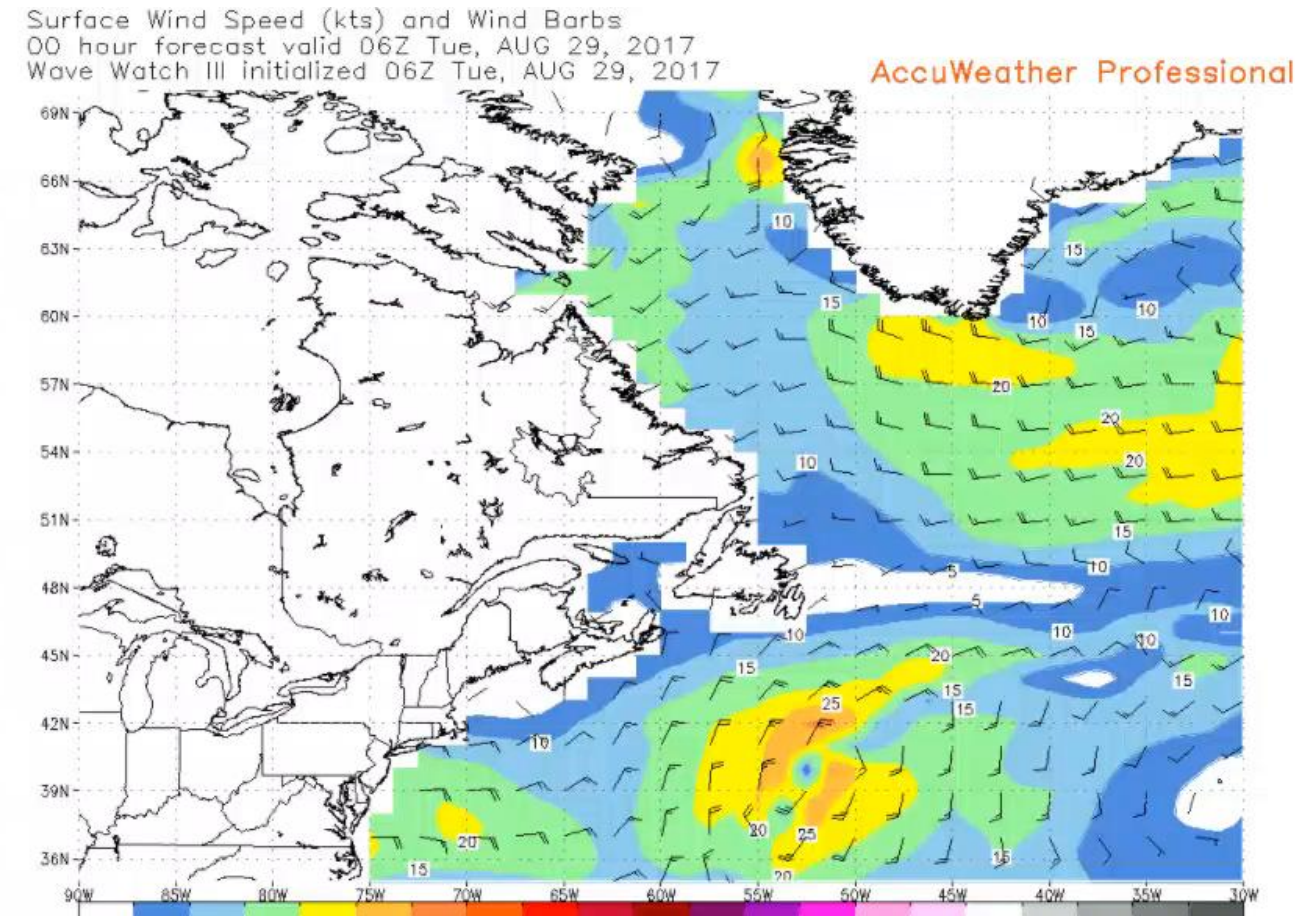
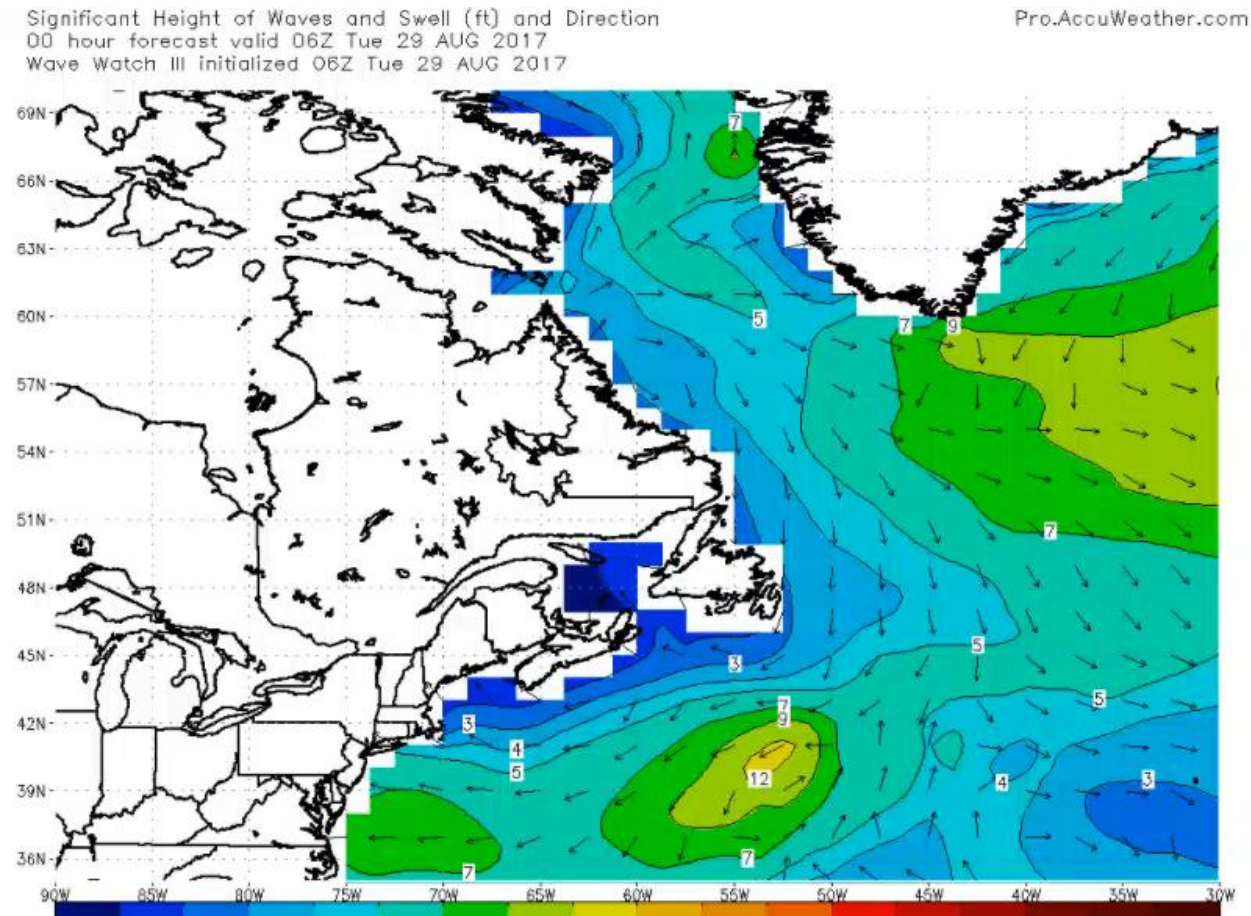
6-hour QPF (inches)
06 hour forecast valid 06Z Tue, AUG 29, 2017
ECMWF Deterministic initialized 00Z Tue, AUG 29, 2017

AccuWeather Professional



Wave height (ft)

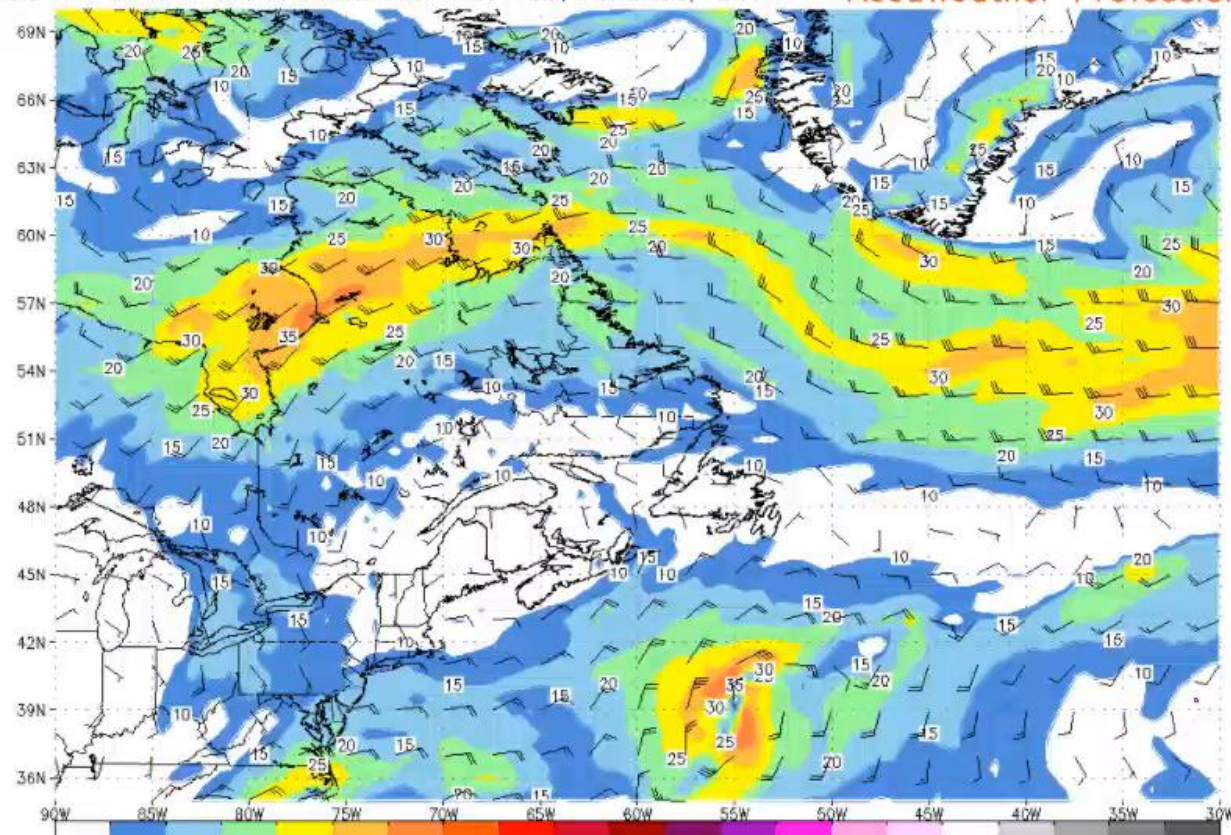
Winds (knots)



1000-850 mb Height and Winds Surface to ~ 1.5 km or 5000 ft AMSL

Mean wind 1000mb-850mb (knots)
00 hour forecast valid 00Z Tue, AUG 29, 2017
ECMWF Deterministic initialized 00Z Tue, AUG 29, 2017

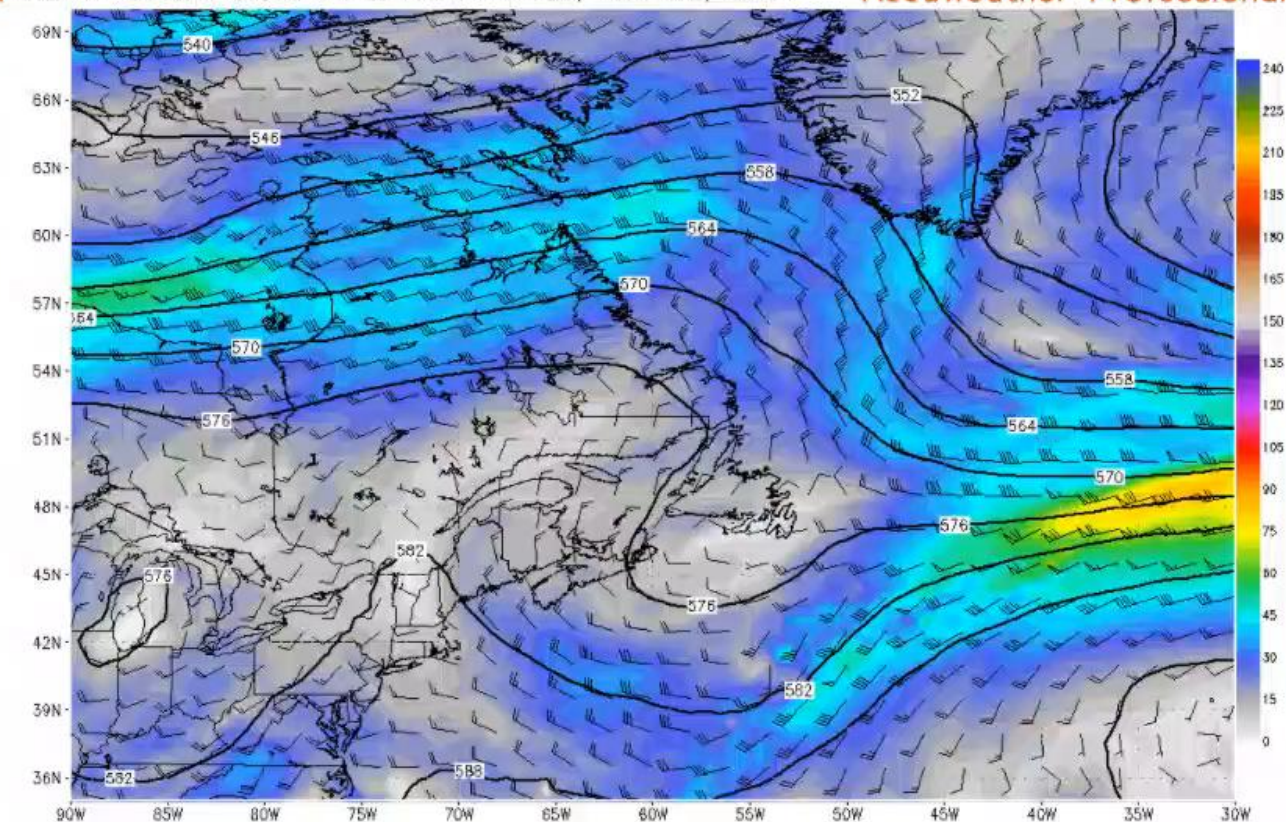
AccuWeather Professional



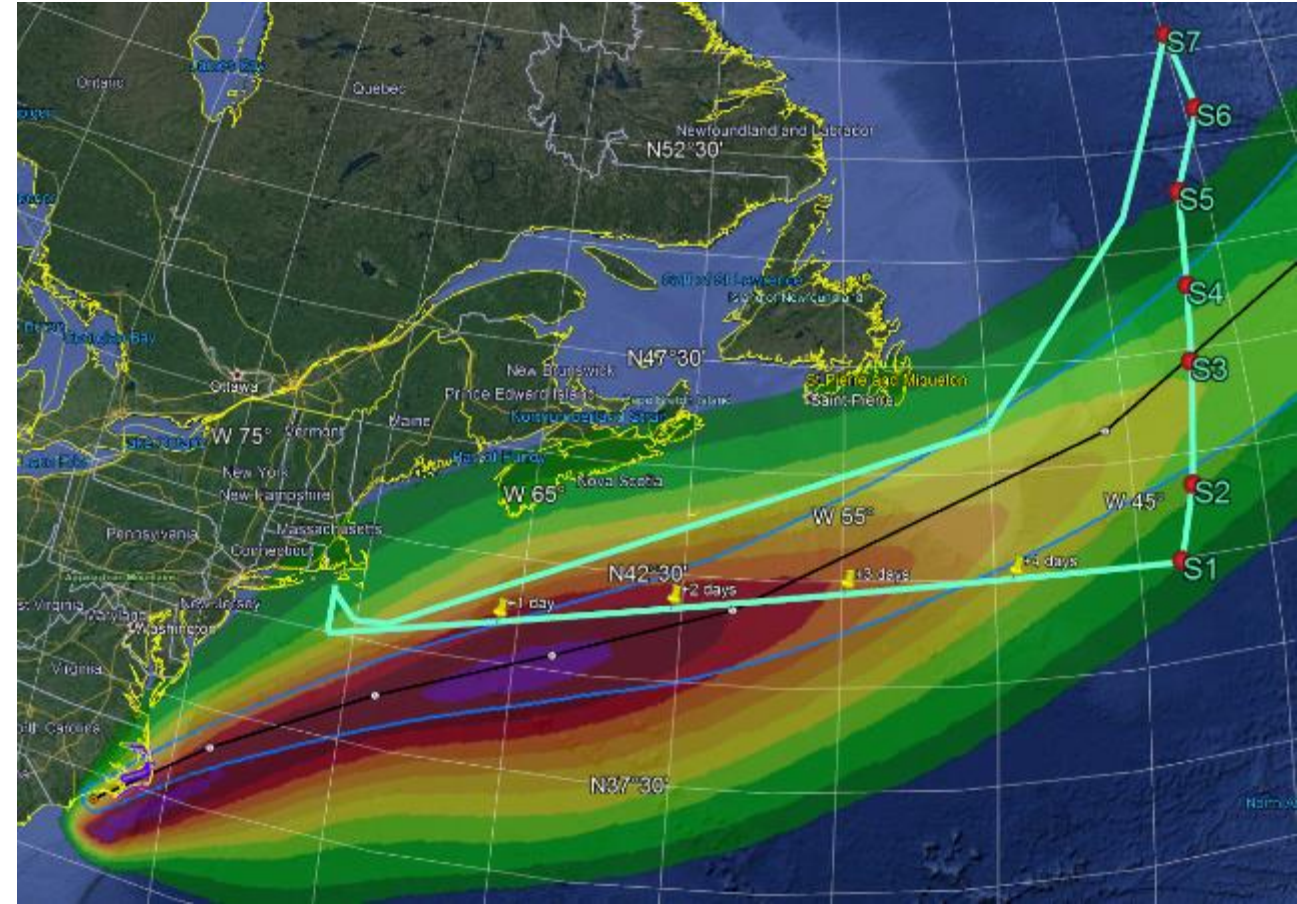
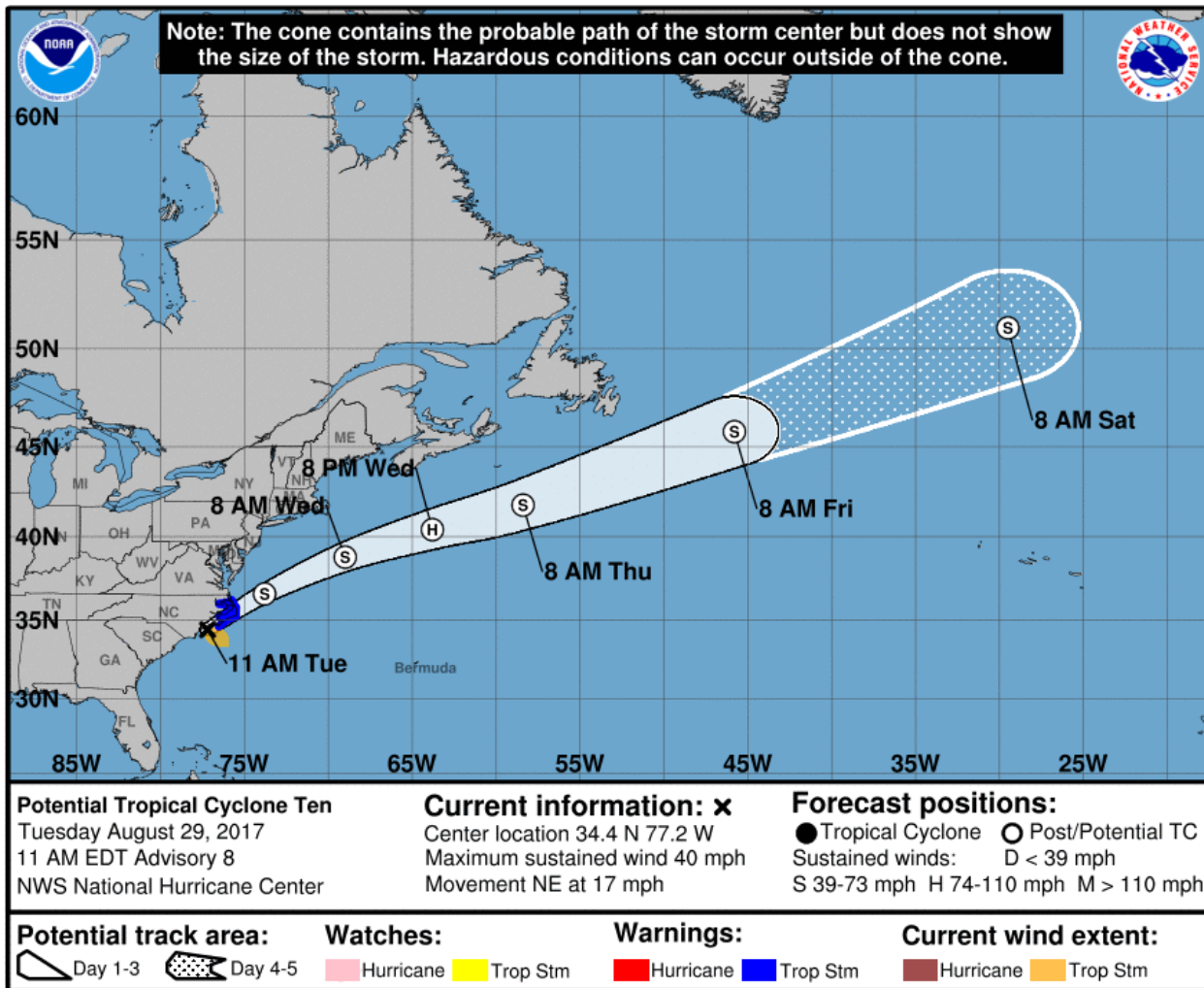
500 mb Height and Winds ~ 5.5 km or 18,000

500 MB Height and Winds (knots)
00 hour forecast valid 00Z Tue, AUG 29, 2017
ECMWF Deterministic initialized 00Z Tue, AUG 29, 2017

AccuWeather Professional



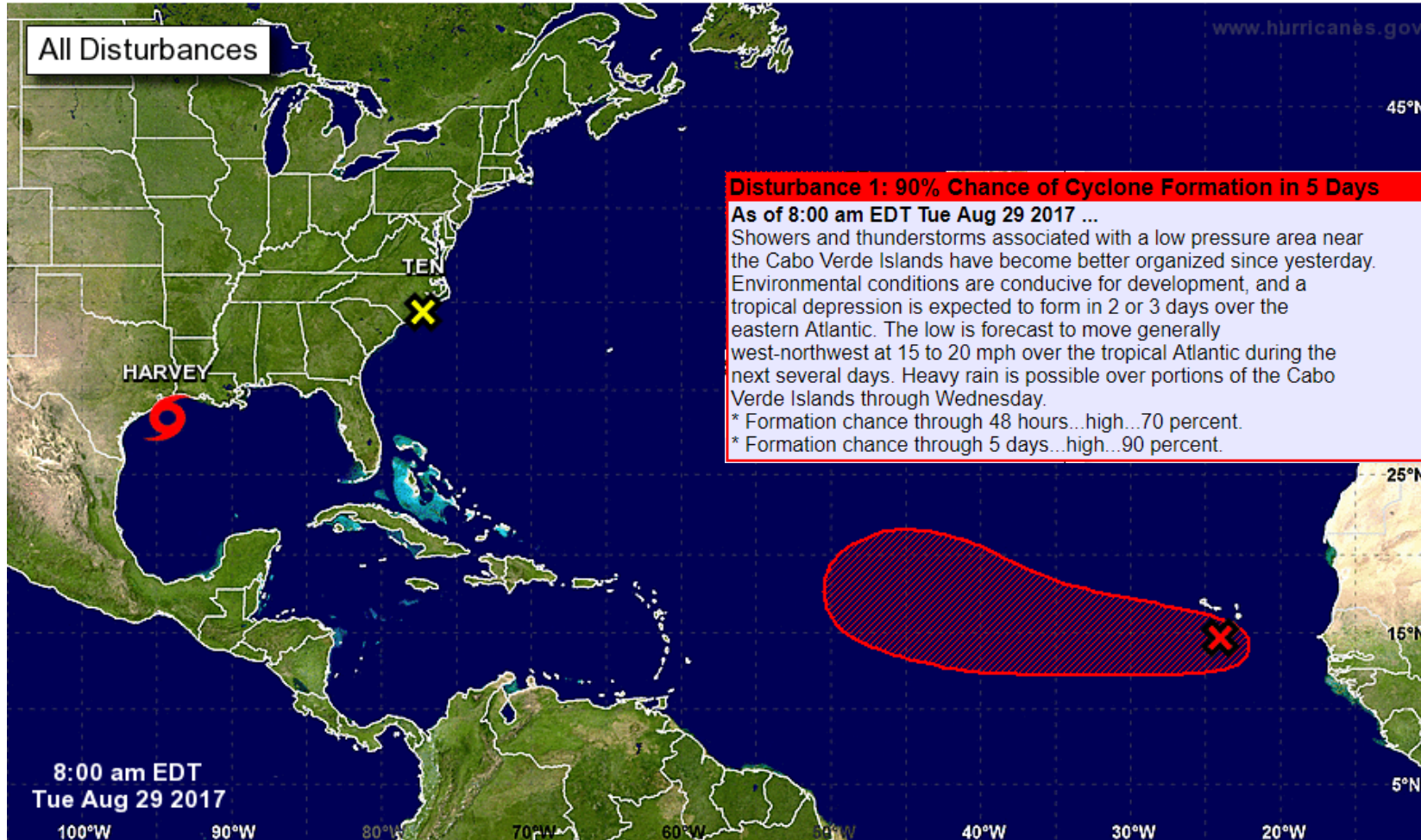
Eye on the Tropics – Potential TC 10



Eye on the Tropics - Outlook



Five-Day Graphical Tropical Weather Outlook National Hurricane Center Miami, Florida

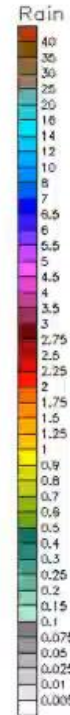
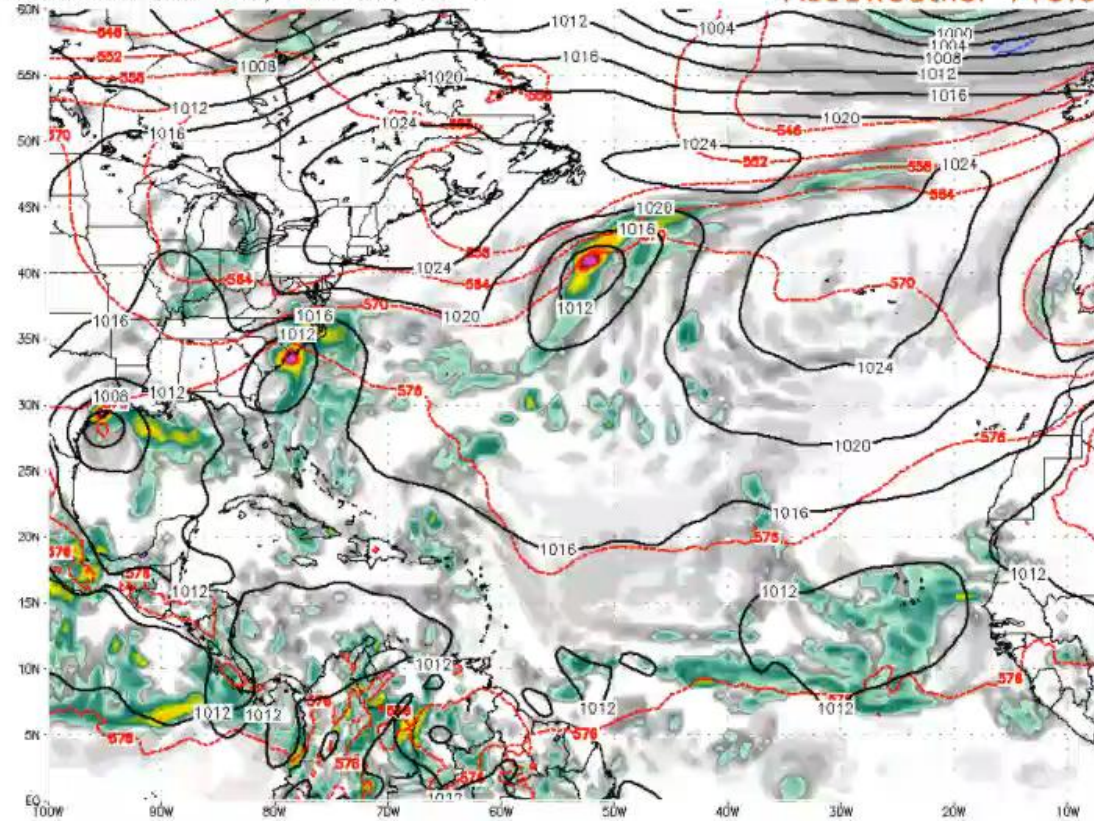


Current Disturbances and Five-Day Cyclone Formation Chance: ✖ < 40% ✖ 40-60% ✖ > 60%
Tropical or Sub-Tropical Cyclone: ○ Depression ◉ Storm ◉ Hurricane
⊗ Post-Tropical Cyclone ✖ Remnants

Eye on the Tropics

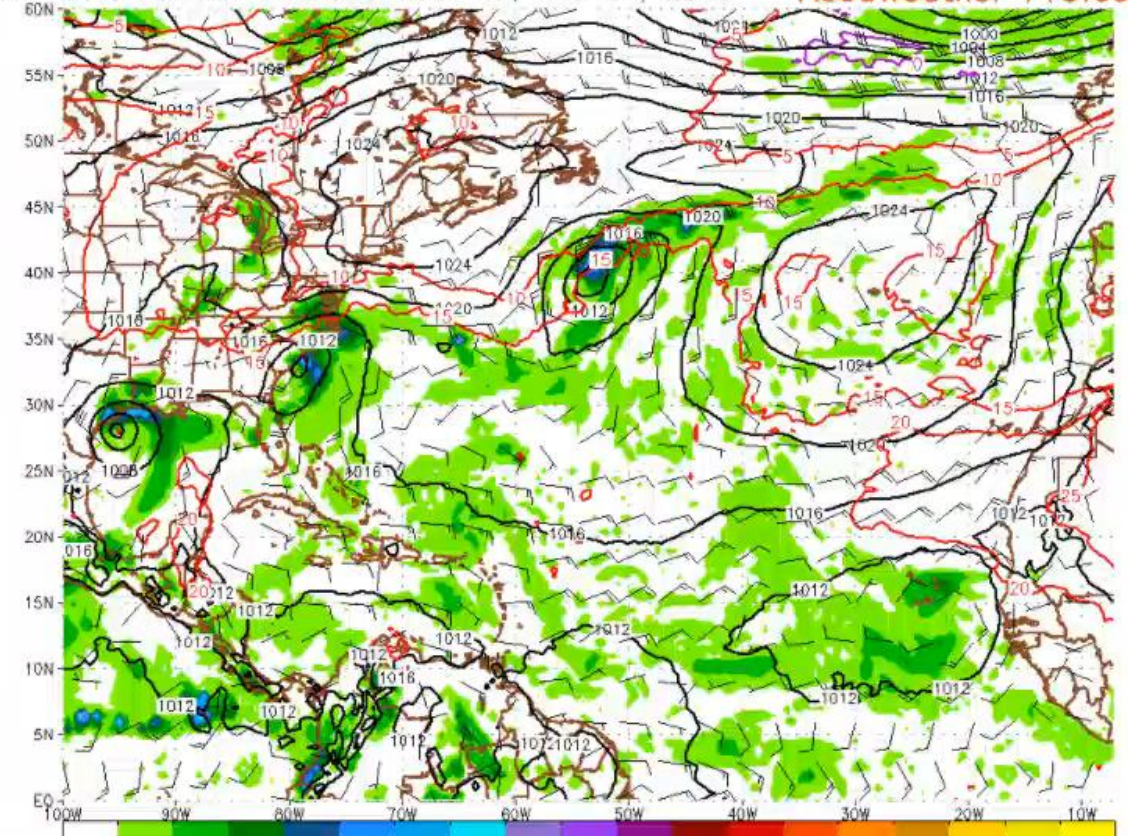
MSLP [mb] | 1000–500 Millibar Thickness [dm] | Categorical QPF [in]
06 hour forecast valid 06Z Tue, AUG 29, 2017
GFS initialized 00Z Tue, AUG 29, 2017

AccuWeather Professional

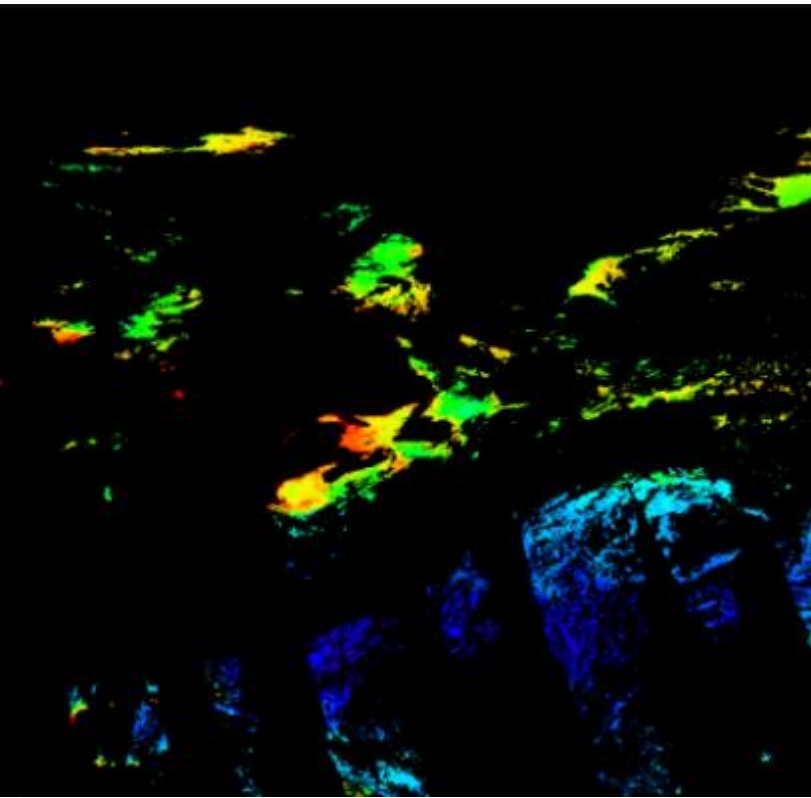


MSLP(mb), 850mb temp(C), 3-hour QPF(in) and 10m wind(kt)
06 hour forecast valid 06Z Tue, AUG 29, 2017
ECMWF Deterministic initialized 00Z Tue, AUG 29, 2017

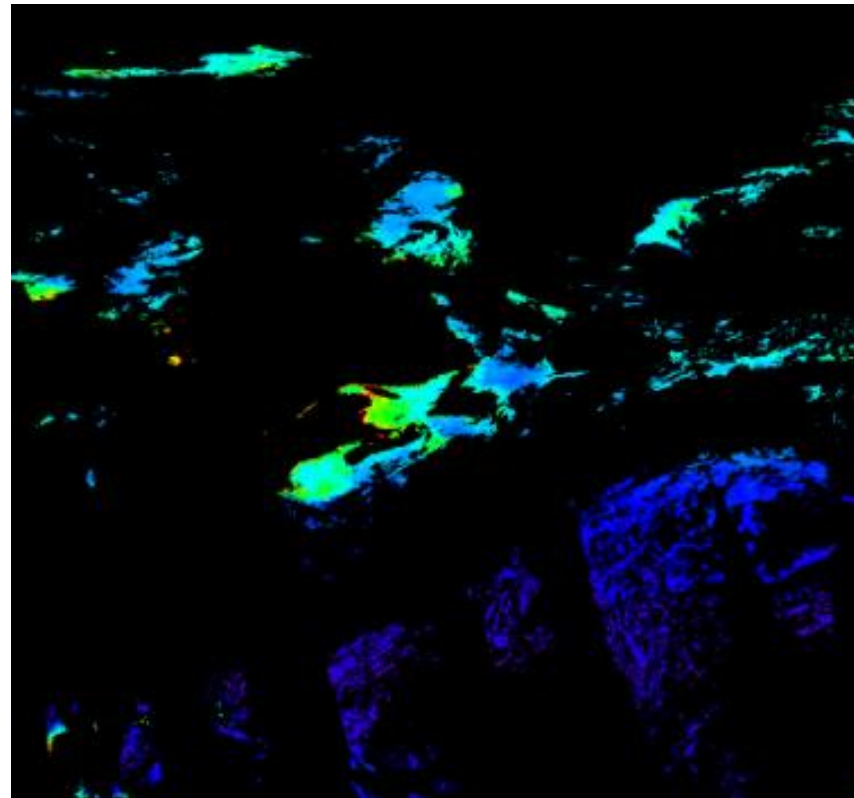
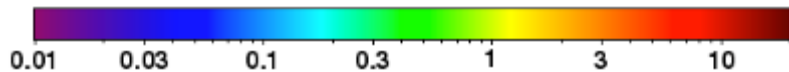
AccuWeather Professional



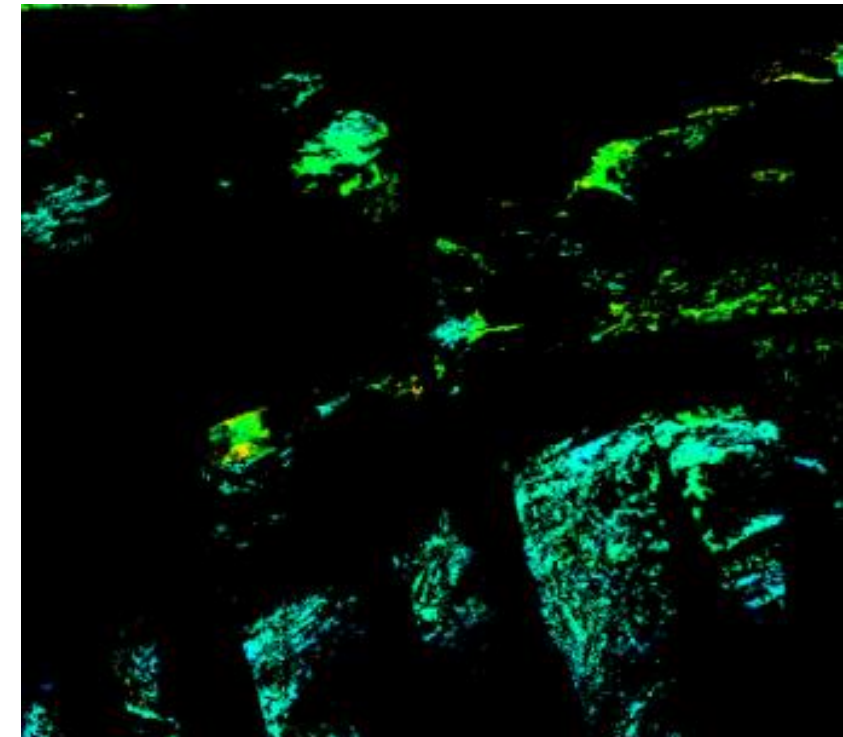
Aqua MODIS Ocean Color – August 28th



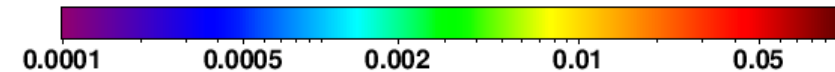
Chlorophyll a concentration (mg / m³)



Diffuse attenuation coefficient at 490 nm (m⁻¹)

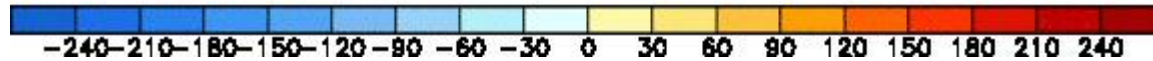
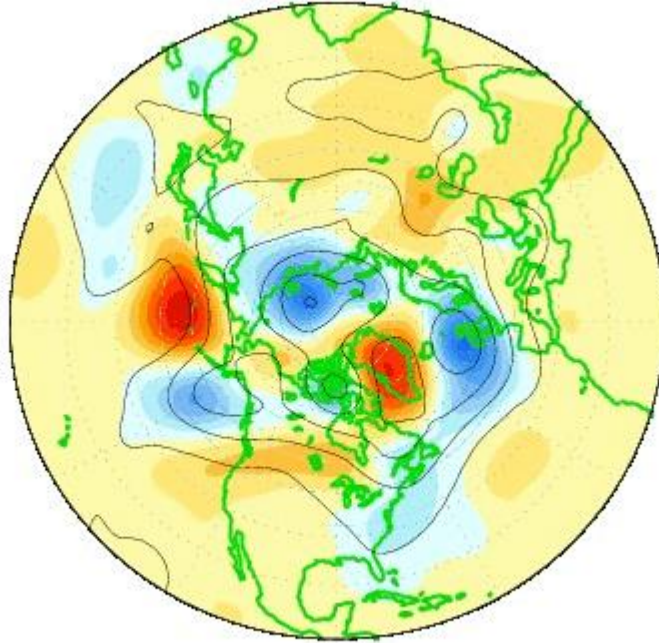


Particle backscatter at 443 nm (m⁻¹)

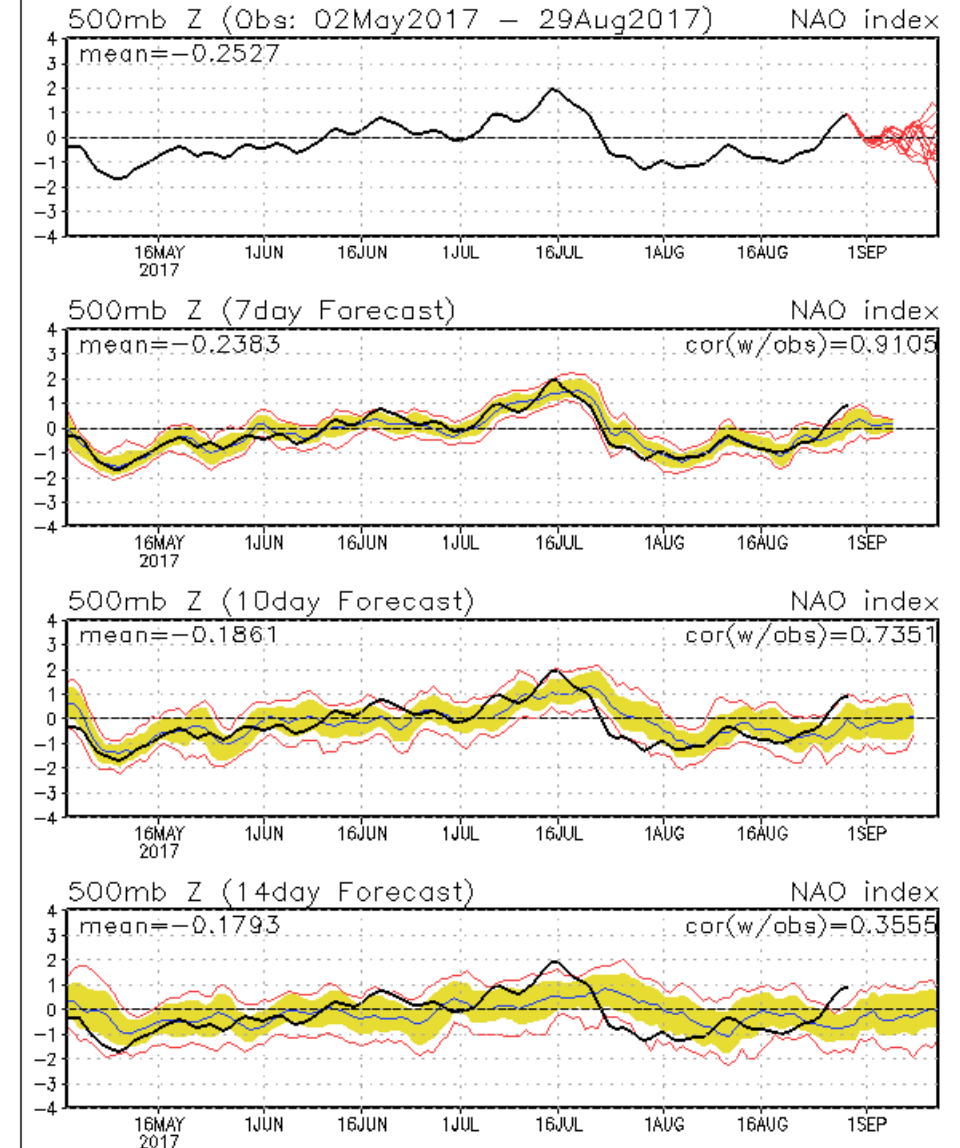


North Atlantic Oscillation

CDAS 500-hPa HT Anoms (5d rm)
29JUL2017



NAO: Observed & ENSM forecasts



GEOS-Chem – 8/30 & 8/31 15 UTC Forecast

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