

# WEATHER'S EFFECT ON AVIATION: THE NWS PERSPECTIVE



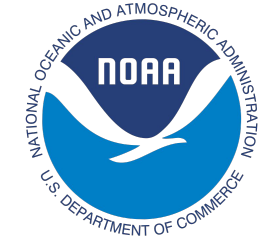
AUSTEN FLANNERY  
U.S. NATIONAL WEATHER SERVICE  
WEATHER FORECAST OFFICE, TAMPA BAY AREA



# A Need to Understand



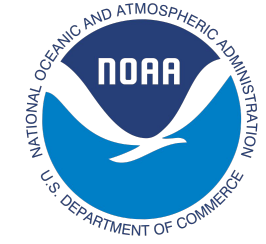
- February 9, 1870 – President Ulysses S. Grant signs a joint Congressional Resolution into law requiring the Secretary of War to:  
*"provide for taking meteorological observations at the military stations in the interior of the continent, and at other points in the States and Territories...and for giving notice on the northern lakes and on the seacoast, by magnetic telegraph and marine signals, of the approach and force of storms."*
- U.S. Army Signal Service is tasked with the responsibility of collecting meteorological observations and forecasting weather



# Weather is Important for Commerce



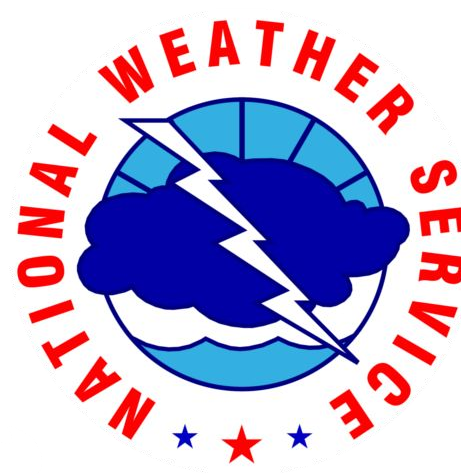
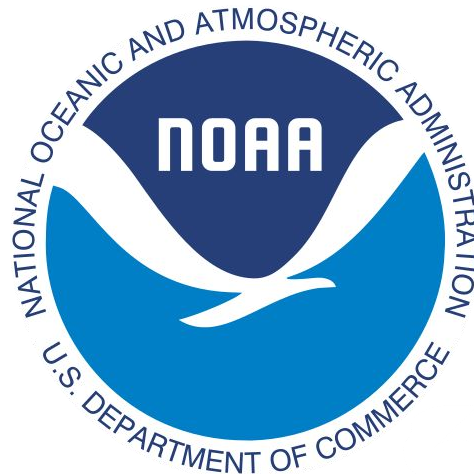
- Realizing the important role weather played in Aviation (and therefore commerce), Franklin D. Roosevelt transfers the Weather Bureau to the Department of Commerce in 1940

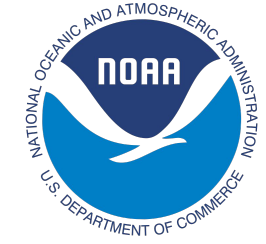


# National Environmental Policy Act & NOAA



- October 1, 1970 – The National Environmental Policy Act prompts the renaming of the U.S. Weather Bureau to the National Weather Service
- October 3, 1970 – Reorganization Plan No.4 brings multiple agencies (including the newly renamed Weather Service) under one umbrella: The National Oceanic and Atmospheric Administration (NOAA)





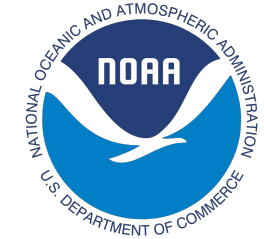
# Multiple Agencies Under One Roof



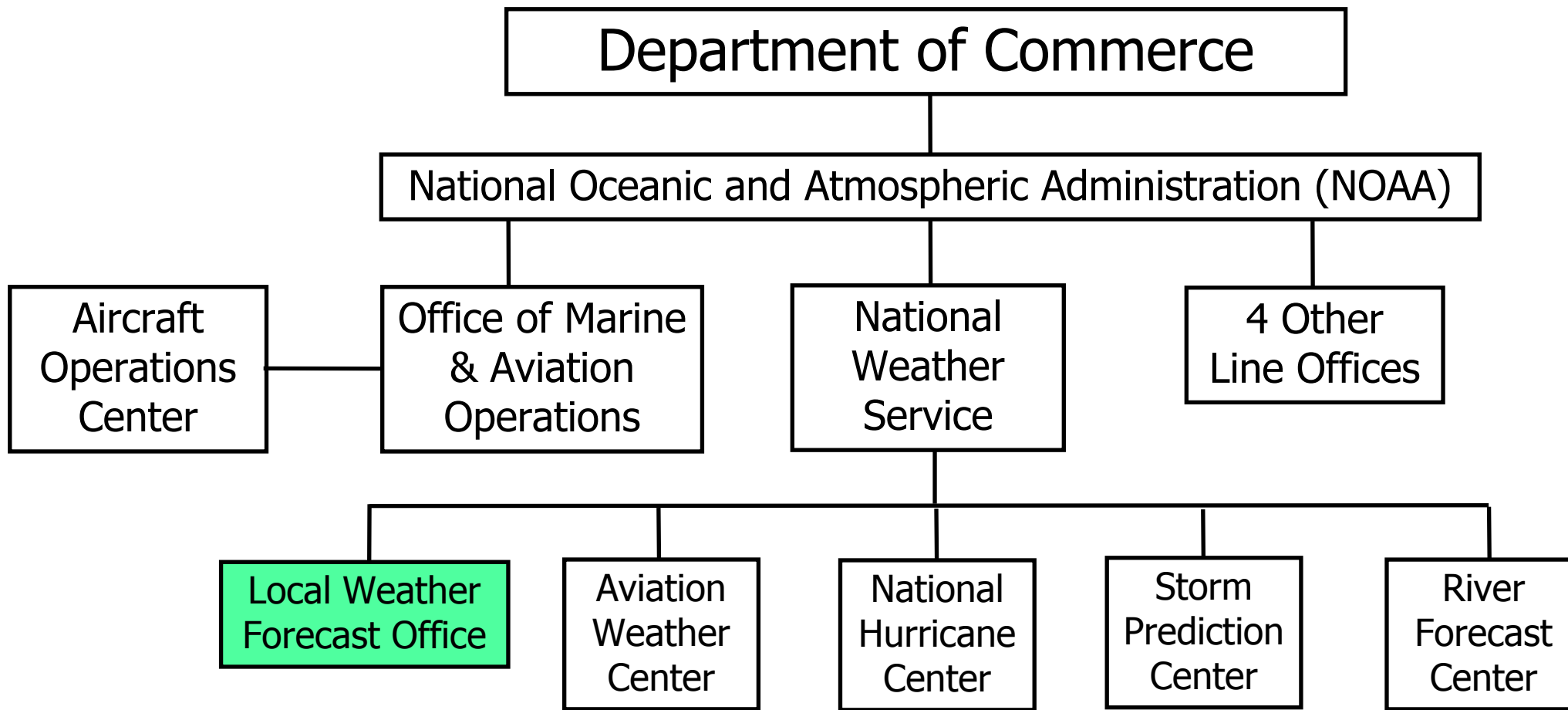
- NOAA Agencies:

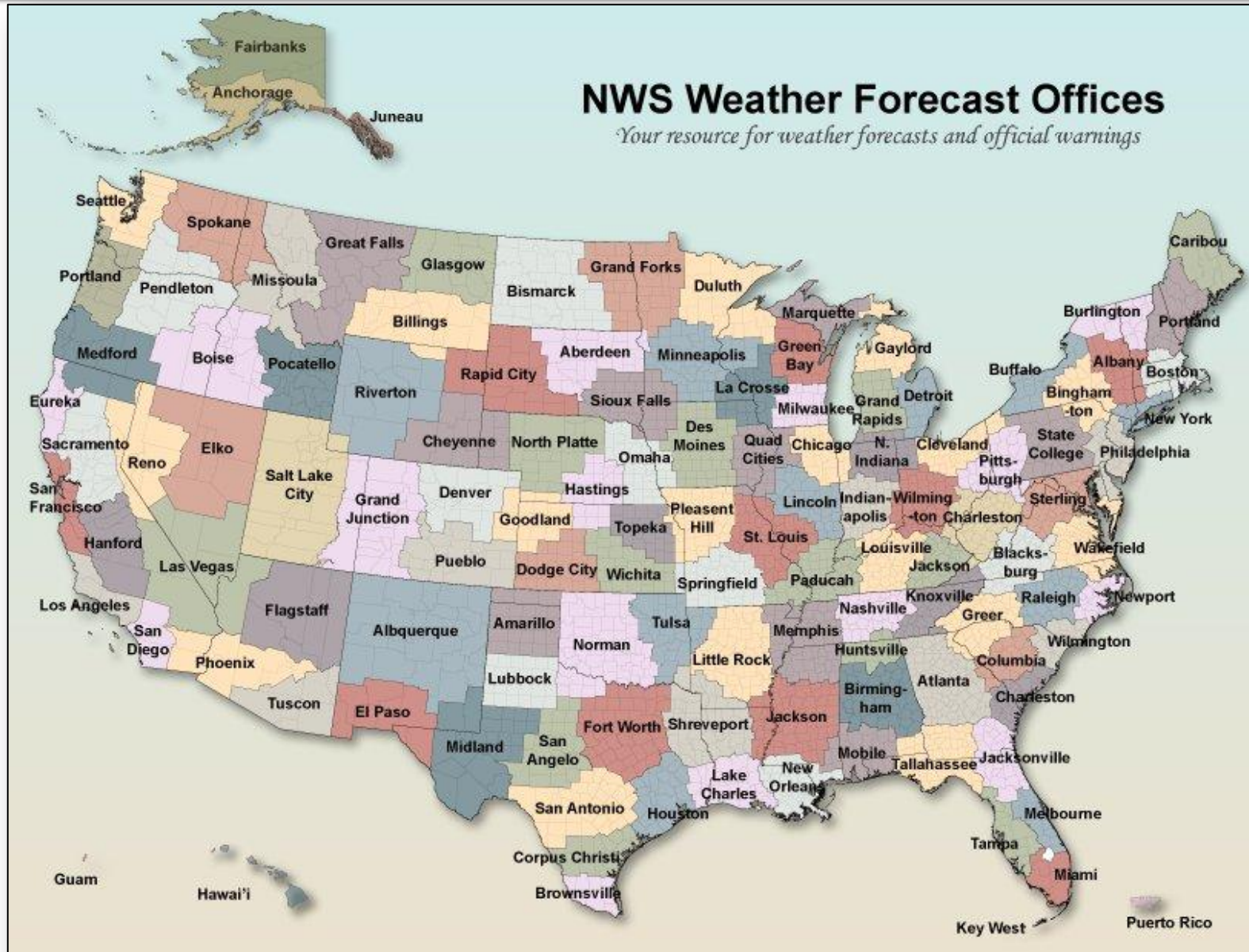
1. National Environmental Satellite, Data, and Information Service (NESDIS)
2. National Marine Fisheries Service (NMFS)
3. National Ocean Service (NOS)
4. National Weather Service (NWS)
5. Office of Marine & Aviation Operations (OMAO)
6. Office of Oceanic & Atmospheric Services (OAR)

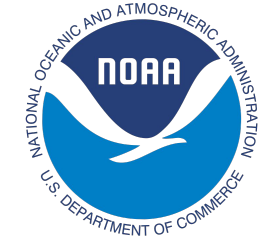




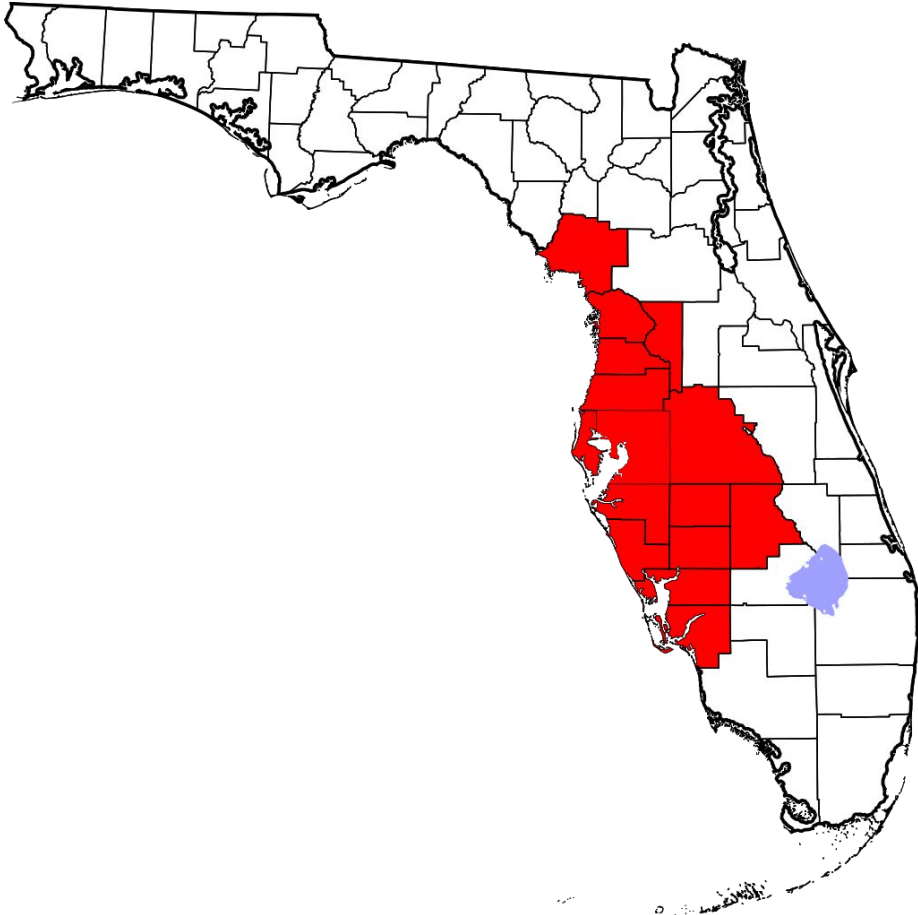
# Federal Government Agency







# Tampa Bay Weather Forecast Office



- One of 122 local offices
- 22 employees
  - 17 Operational Meteorologists
  - 5 Supporting Staff
- 24 hours a day / 365 days a year
- Shift work!

## Aviation



## Observations



Current conditions at Tampa, Tampa International Airport (KTPA)  
Lat: 27.99°N Lon: 82.54°W Elev: 20ft

Mostly Cloudy  
**85°F**  
29°C

Humidity: 65%  
Wind Speed: 1W 5 mph  
Barometer: 30.00 in (1015.5 mb)  
Dewpoint: 72°F (22°C)  
Visibility: 10.00 mi  
Heat Index: 91°F (33°C)  
Last update: 1 Jul 7:53 am EDT

More Information:  
[Local Forecast Office](#)  
[More Local Wx](#)  
[3 Day History](#)  
[Mobile Weather](#)  
[Hourly Weather Forecast](#)

## 7-day Forecast Updates



**Detailed Forecast**

**Today** Isolated showers and thunderstorms between 11am and 2pm. Partly sunny, with a high near 94. Heat index values as high as 104. Calm wind becoming west 5 to 8 mph in the morning. Chance of precipitation is 20%.

**Tonight** Partly cloudy, with a low around 80. West wind 3 to 7 mph.

**Thursday** Isolated showers and thunderstorms. Mostly sunny, with a high near 93. Heat index values as high as 104. Light west southwest wind increasing to 5 to 9 mph in the morning. Chance of precipitation is 20%.

**Thursday Night** Isolated showers and thunderstorms after 2am. Partly cloudy, with a low around 79. West wind 5 to 9 mph. Chance of precipitation is 20%.

**Friday** Scattered showers and thunderstorms, mainly after 8am. Partly sunny, with a high near 93. West wind 5 to 13 mph. Chance of precipitation is 40%.

**Friday Night** Isolated showers and thunderstorms. Partly cloudy, with a low around 79. West southwest wind 5 to 9 mph. Chance of precipitation is 20%.

**Independence Day** Scattered showers and thunderstorms. Partly sunny, with a high near 92. West southwest wind 6 to 13 mph. Chance of precipitation is 50%.

**Saturday Night** Scattered showers and thunderstorms. Mostly cloudy, with a low around 79. West southwest wind 5 to 10 mph. Chance of precipitation is 30%.

**Sunday** Showers and thunderstorms likely, mainly after 2am. Partly sunny, with a high near 92. Light west southwest wind increasing to 5 to 11 mph in the morning. Chance of precipitation is 70%.

**Sunday Night** Showers and thunderstorms likely, mainly before 8pm. Mostly cloudy, with a low around 79. Chance of precipitation is 60%.

**Monday** Showers and thunderstorms likely. Partly sunny, with a high near 93. Chance of precipitation is 70%.

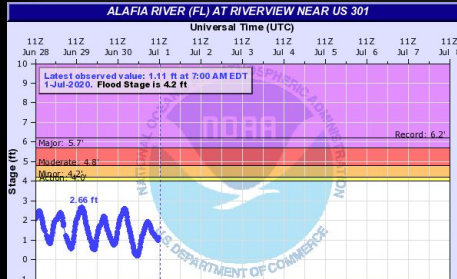
**Monday Night** Scattered showers and thunderstorms. Mostly cloudy, with a low around 79. Chance of precipitation is 30%.

**Tuesday** Showers and thunderstorms likely. Partly sunny, with a high near 94. Chance of precipitation is 70%.

**Point Forecast:** 2 Miles ESE Tampa FL  
27.94°N 82.49°W (Elev. 3 ft)  
4:03 am EDT Jul 1, 2020  
8am EDT Jul 1, 2020-8pm EDT Jul 7, 2020

[Last Update:](#)  
[Forecast Valid:](#)  
[Forecast Discussion](#)

## Marine



## Rivers

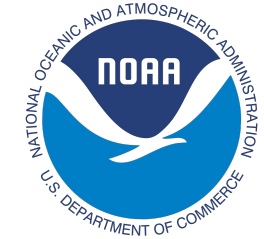
## Fire Weather



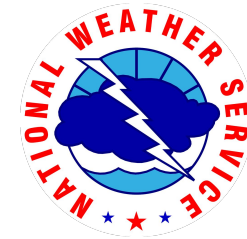
## Radar and Warnings



## Decision Support Services



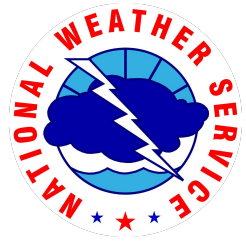
# Our Local Aviation Services



- Terminal Aerodrome Forecasts (TAFs) for seven airports: KPIE, KTPA, KLAL, KSRQ, KPGD, KFMY, KRSW
- Airport Weather Warnings for KTPA, KPIE
- ASOS Maintenance for eight airports: KBKV, KPIE, KTPA, KGIF, KSRQ, KPGD, KFMY, KRSW
- Aviation Outreach



# What Are Florida's Primary Aviation Hazards?



Fog in the winter months



Thunderstorms in the summer months

# What is Fog?



Water vapor



Water



Ice

- Condensed water droplets suspended in the air
- Water molecules are constantly coursing back and forth between phases (vapor, liquid, solid)
- If more molecules arrive at a surface of a fog droplet than leave, the drop grows
- Evaporation increases with increasing temperature so more water molecules are leaving the droplet than arriving, so the drop shrinks

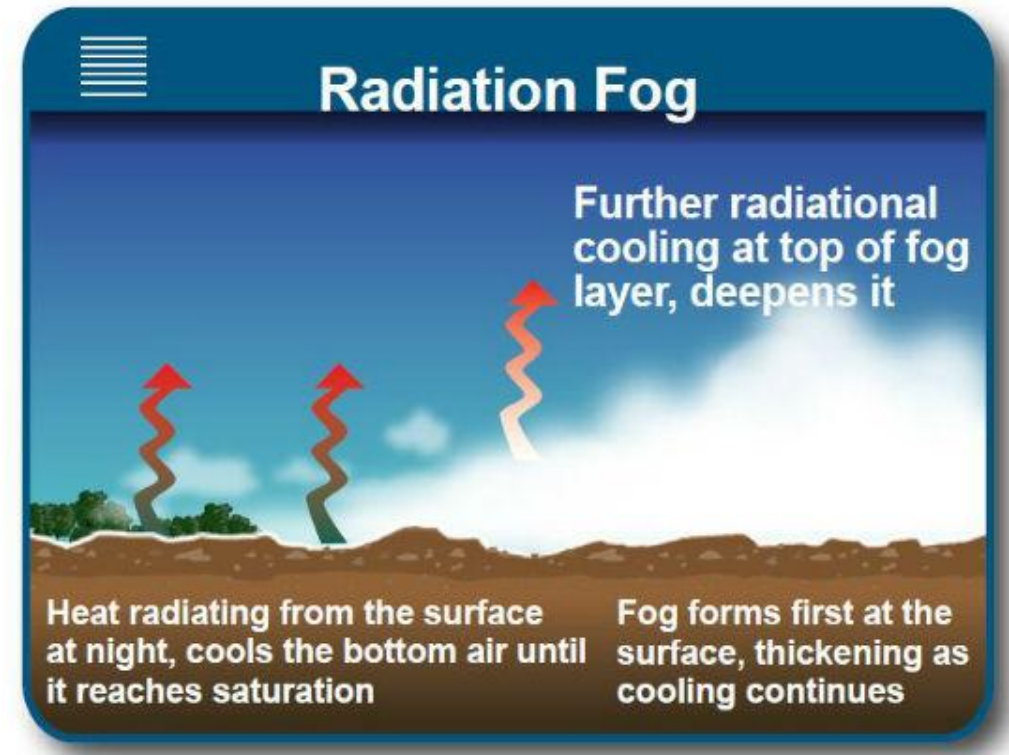
# Different Types of Fog

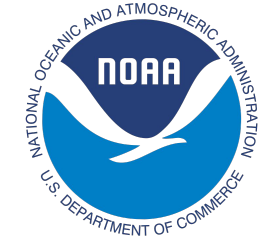


- Radiation Fog
- Sea Fog
- Super Fog
- Precipitation Fog
- Freezing Fog

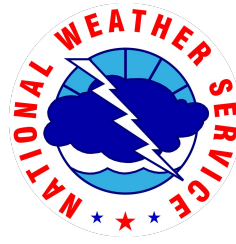
# Radiation Fog

- At night under clear skies and high humidity, the ground radiates its heat away from the the surface
- The cool surface cools the nearby air and continues to cool throughout the night until the air reaches condensation where water vapor condenses to water droplets/cloud allowing fog to form



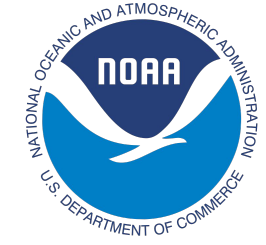


# Sea Fog / Advection Fog



- Forms when warm moist air passes over a cold surface
- A surge of moist air moving over cold wintertime Gulf waters ahead of an approaching cold front
- Example: Gulf water temperature of 60°F but air blowing onshore has a dew point temperature of 68°F
- Can stick around for hours or days

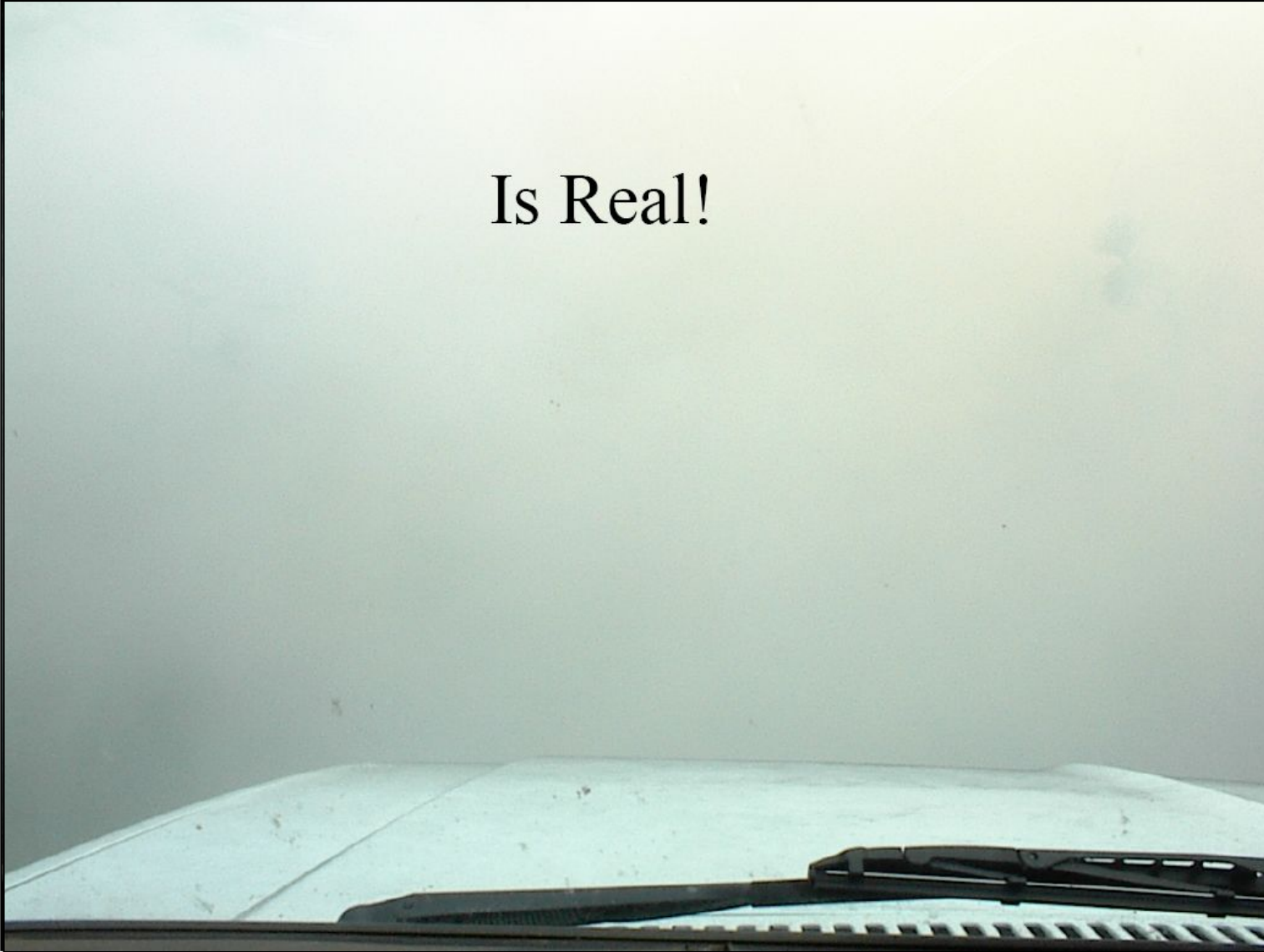


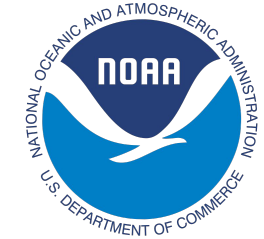


# Super Fog (Smoke Combines With Fog)

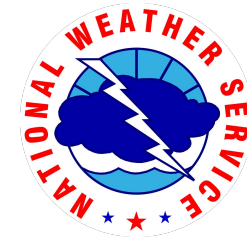


Is Real!

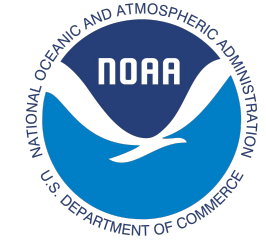




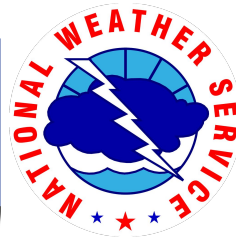
# How Super Fog Forms



- Large amounts of water vapor are boiled off as a smoldering fire burns downward into wetter fuel
- Smoke particles give water vapor an object to condense into fog droplets and can reduce visibility to less than 3 feet
- Areas without smoke particles have just “normal” fog with visibilities of 1,000 ft or more



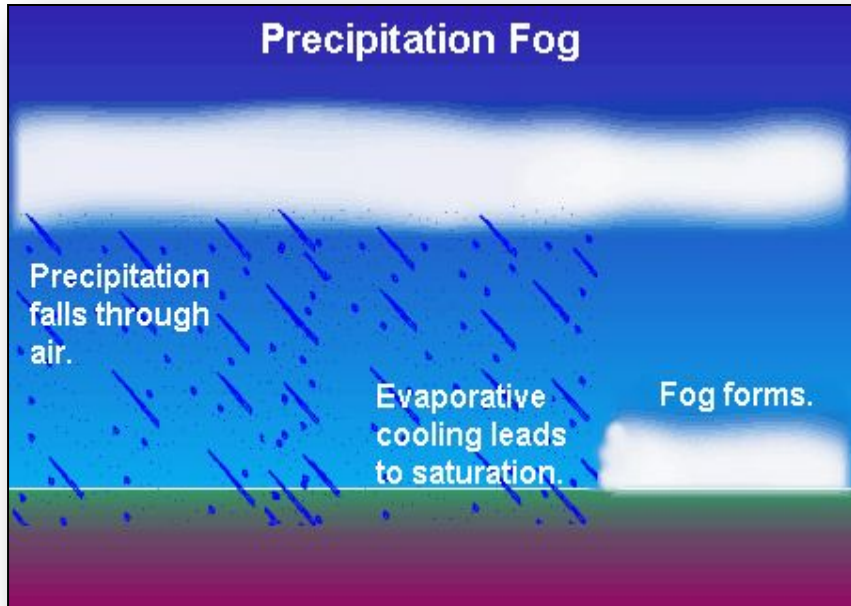
# Polk County Super Fog Event – January 9, 2008



5 Fatalities  
38 Injuries



# Precipitation Fog



- Precipitation falls into drier air below the cloud causing the precipitation to evaporate into water vapor
- The water vapor increases the number of water molecules in the air
- Evaporating rain cools the air which means more water molecules are entering the fog droplet than leaving, so the droplet grows

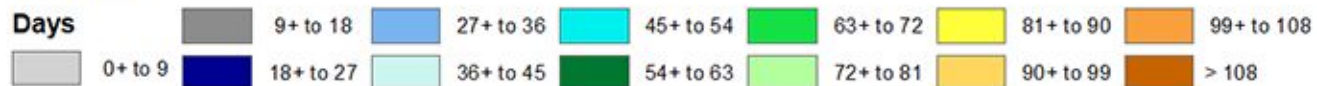
# How Does Fog Go Away?



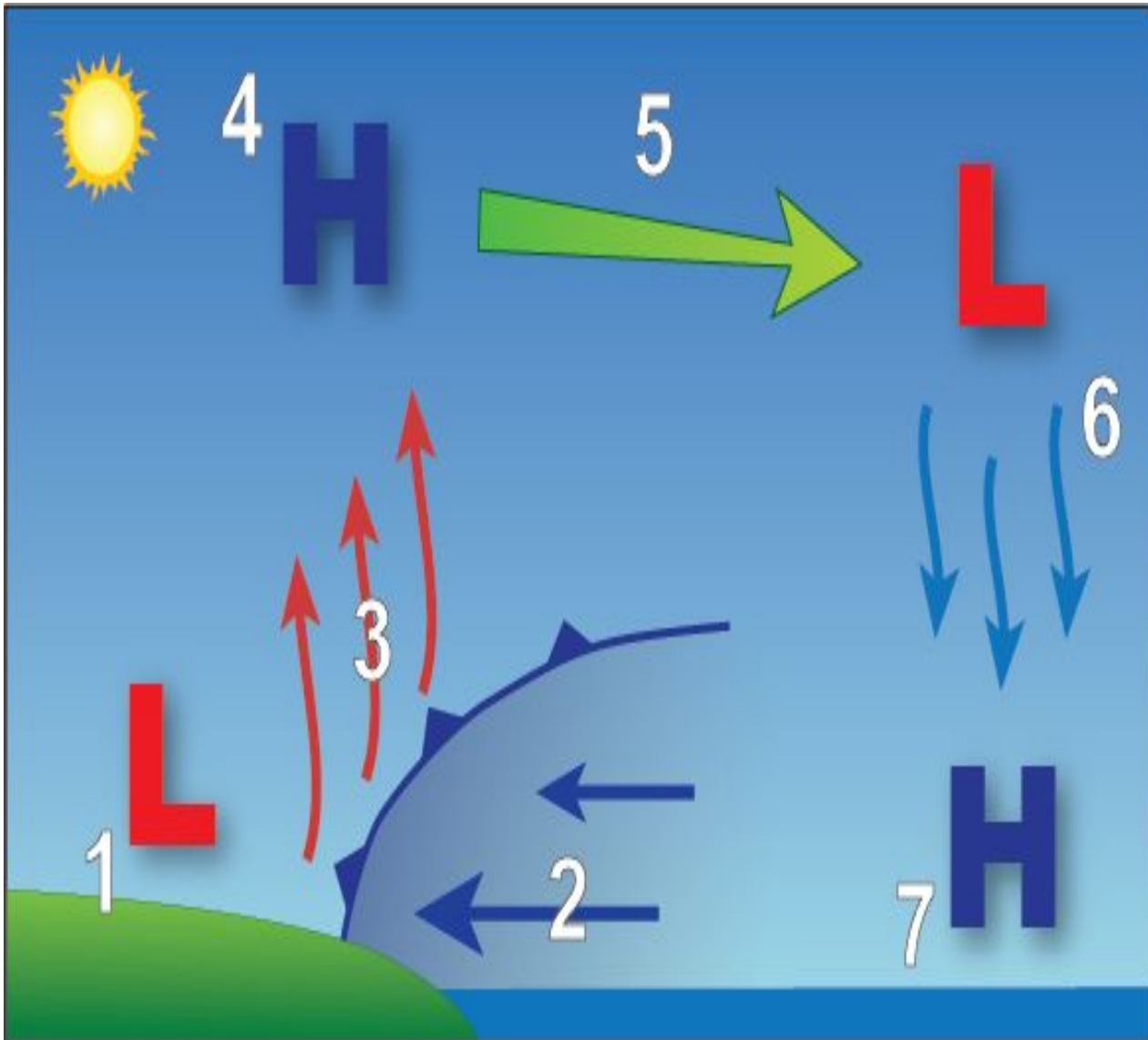
- The sun's energy begins to heat sunny areas outside of the fog area and erodes the fog from the edges
- The sun's energy also excites the water molecules at the top of the fog layer and it begins to decrease in depth
- A wind of 10 mph can mix the fog layer with drier air causing better visibility but IFR/LIFR cloud bases



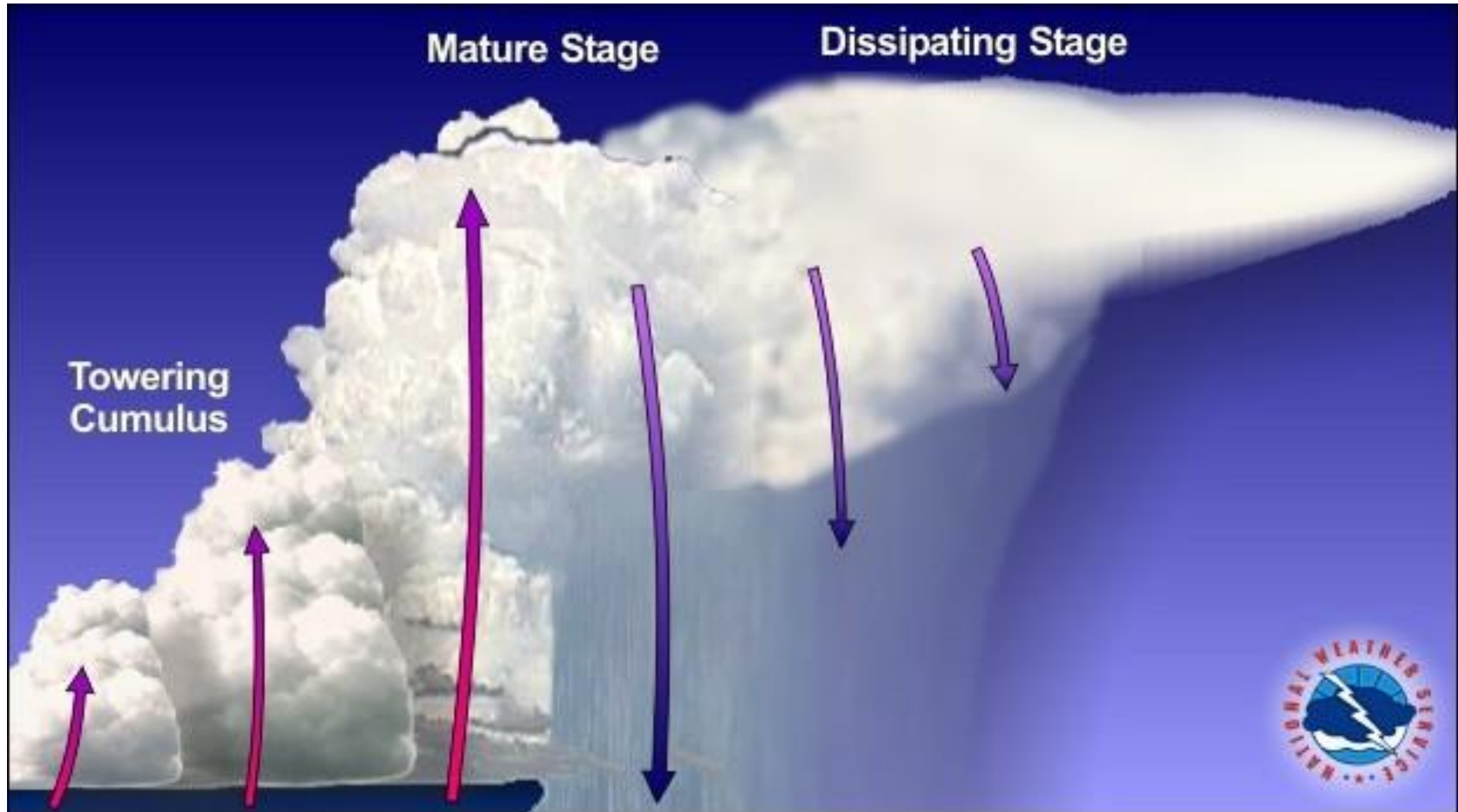
Days

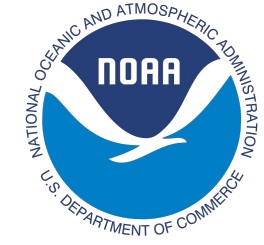


# Why? The Sea Breeze



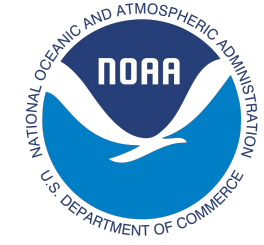
# A Typical Thunderstorm



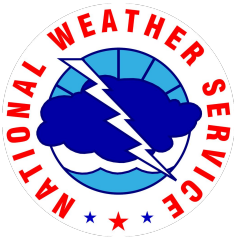


# A Typical Thunderstorm

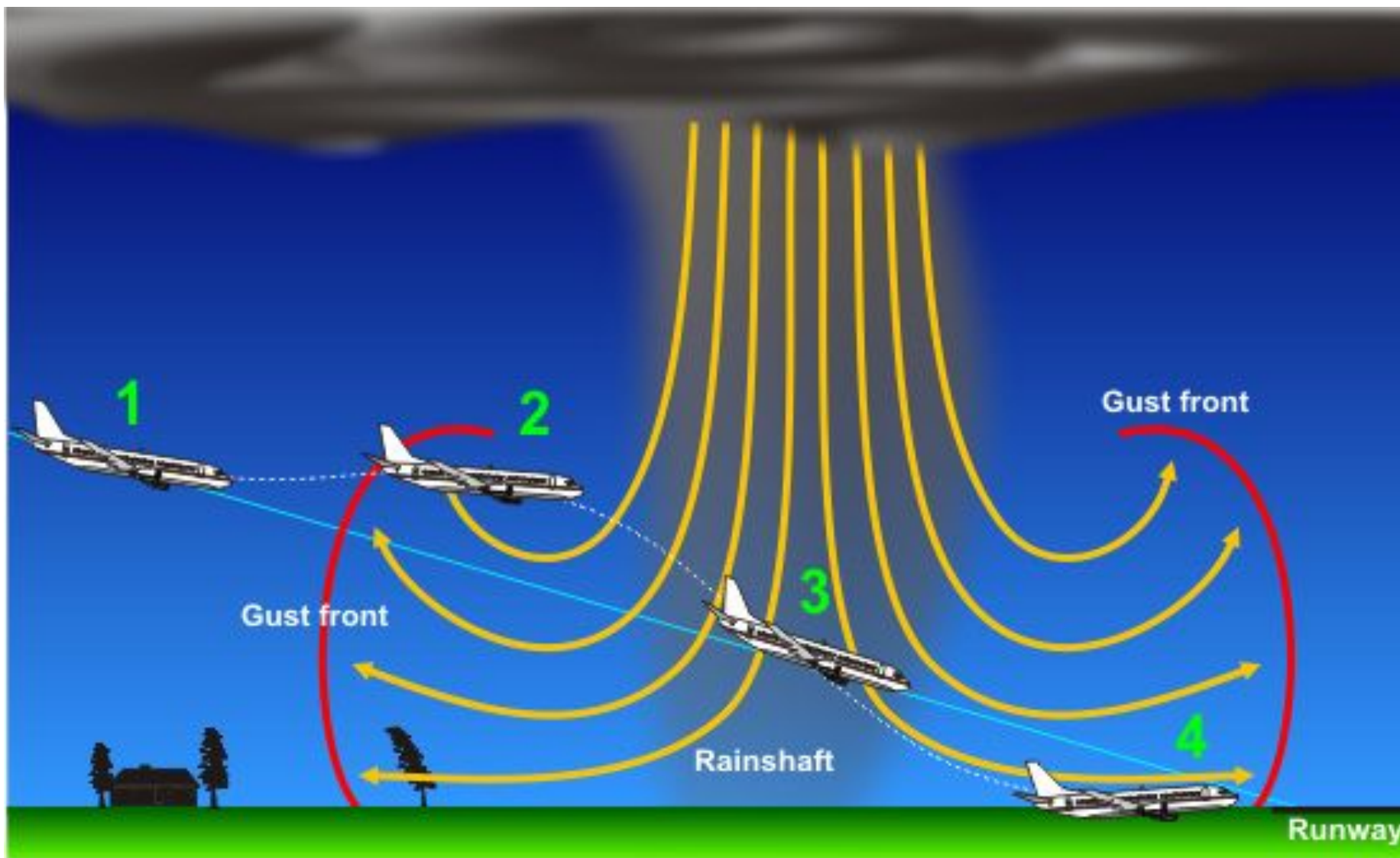


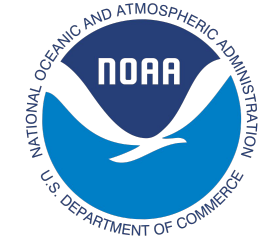


# Non Severe Downdraft in Tampa



# Microbursts - Severe Downdrafts

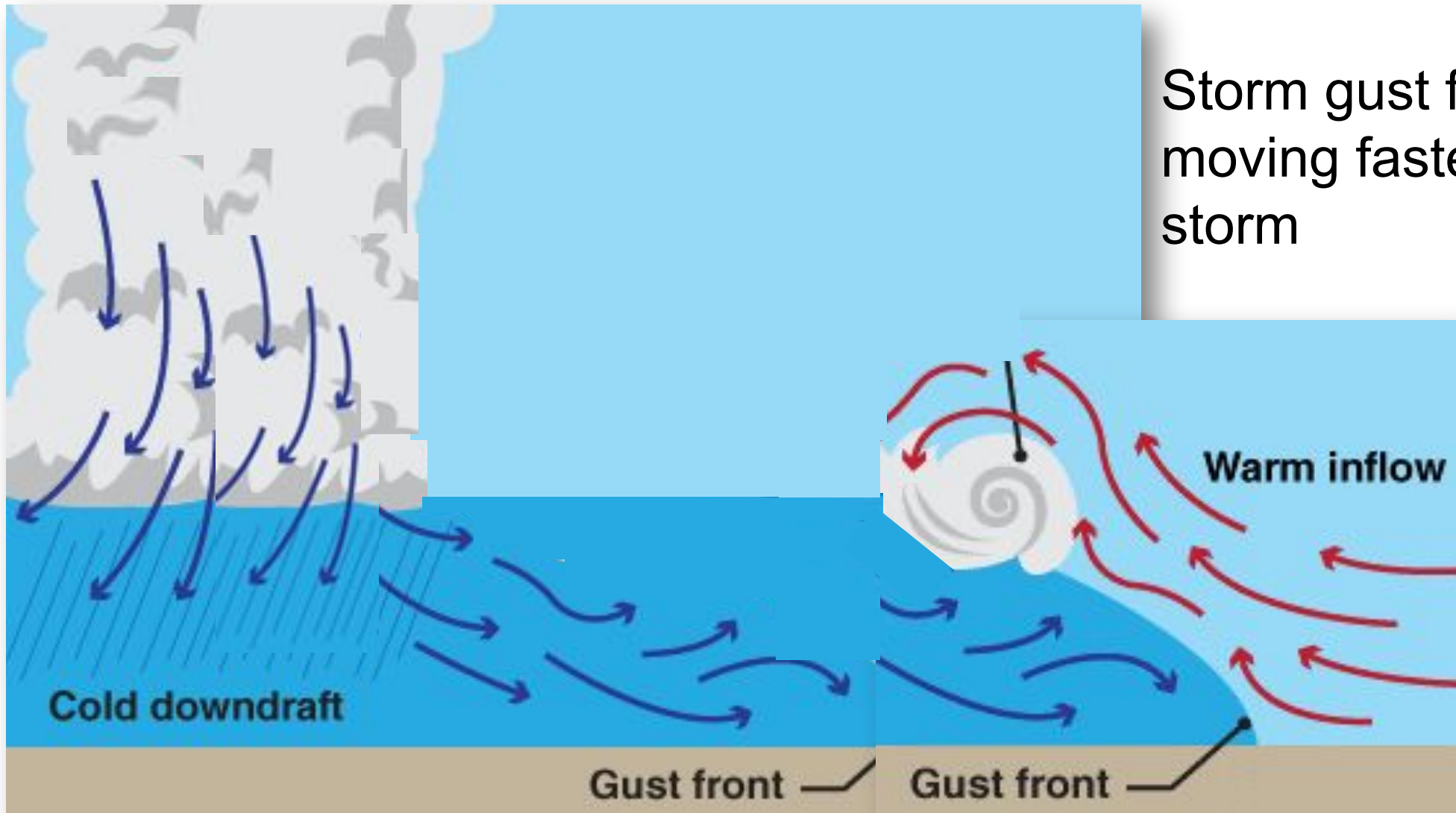




# The Shelf Cloud



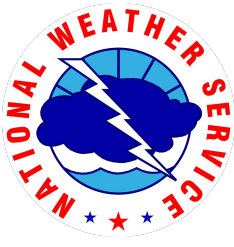
# The Roll Cloud

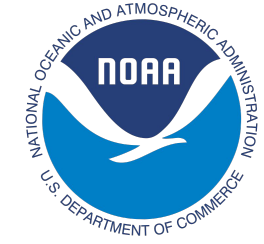


Storm gust front  
moving faster than  
storm

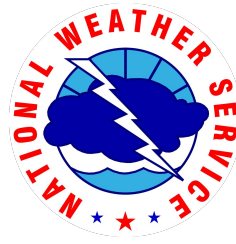


# The Roll Cloud

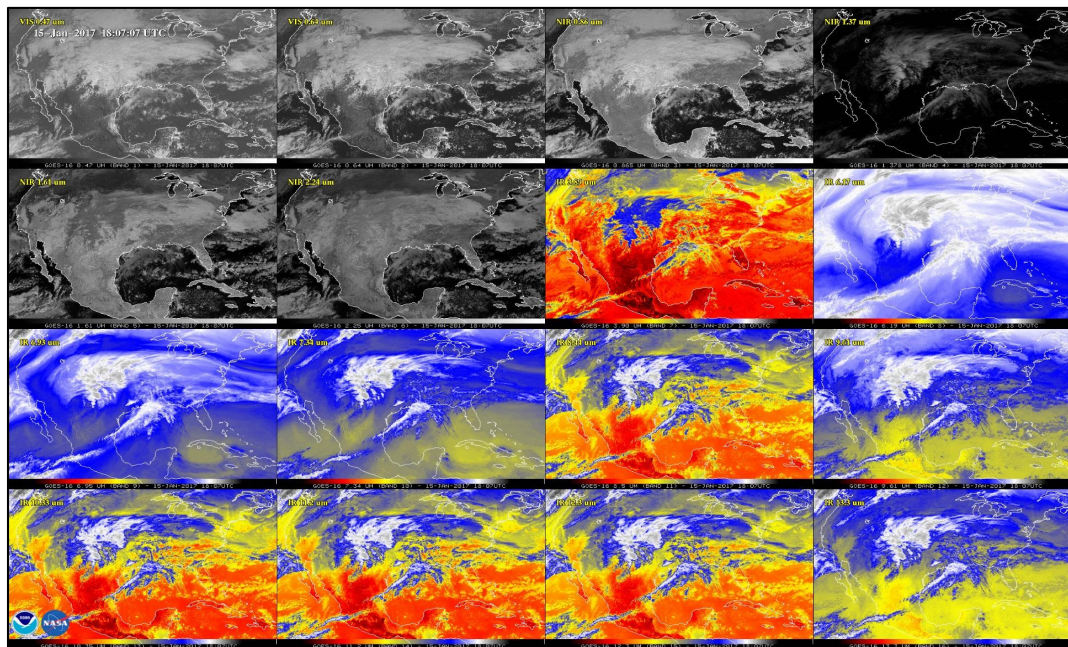




# Winter Thunderstorms - Squall Lines

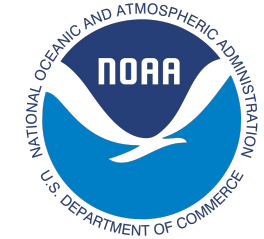


February 06th - February 07th, 2020 Squall Line

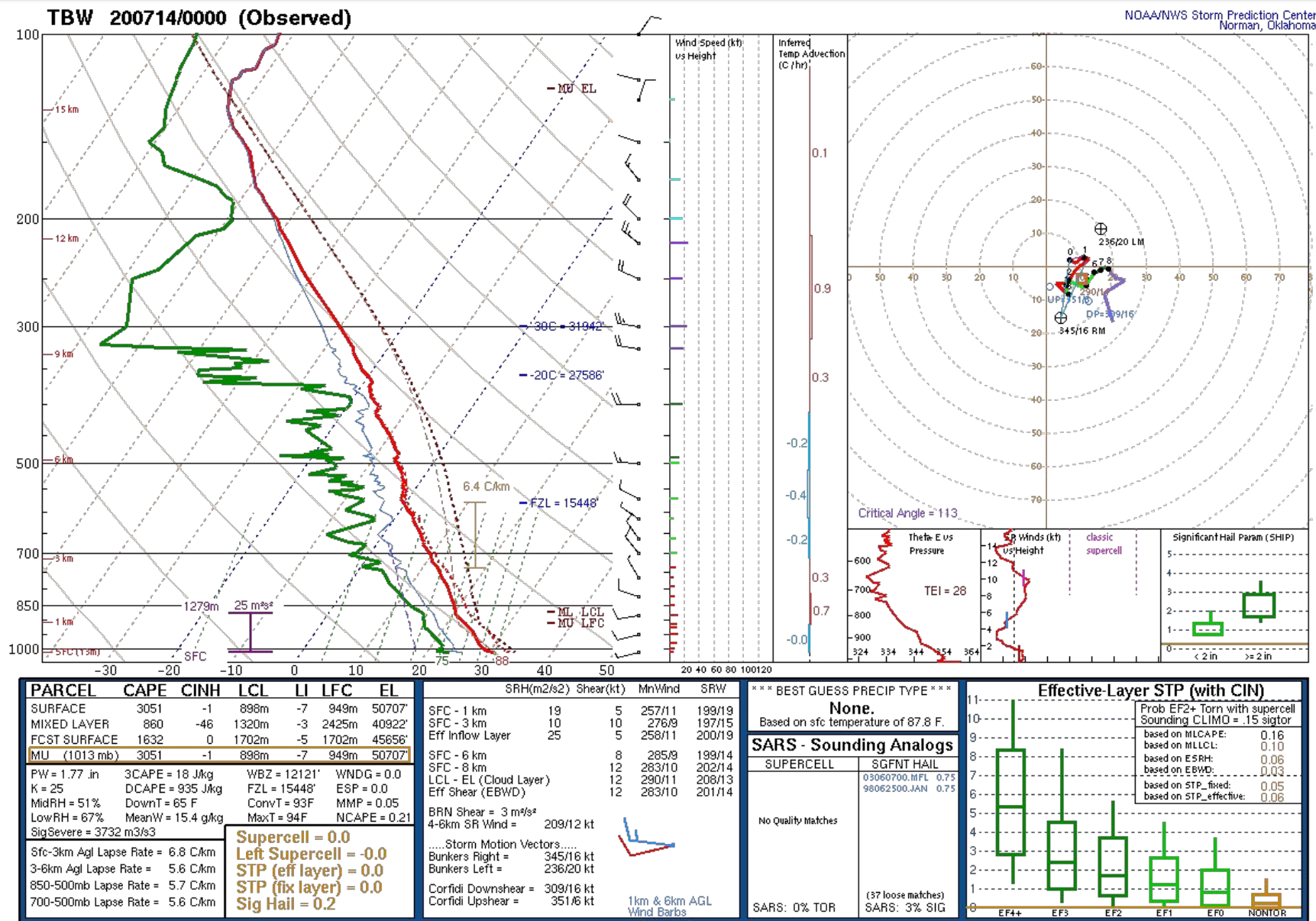
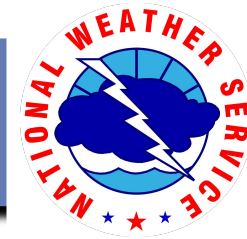


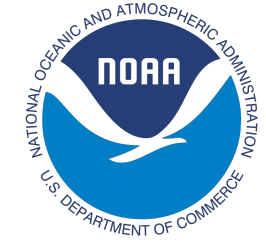
KRSW 142253Z 12010KT 10SM SCT030 29/23 A3004 RMK A02 TSB04E19 SLP168 T02940228

[illegible]



# Skew-T Log P Diagram - A Powerful Atmospheric Snapshot





# Want More Skew-T Info?

Check out these resources!

- CWSU ZHU's Skew-T Page:

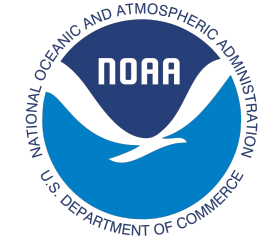
[https://www.weather.gov/source/zhu/ZHU\\_Training\\_Page/convective\\_parameters/skewt/skewtinfo.html](https://www.weather.gov/source/zhu/ZHU_Training_Page/convective_parameters/skewt/skewtinfo.html)

- COMET MetEd Skew-T Mastery Course:



“The MetEd website provides education and training resources to benefit the operational forecaster community, university atmospheric scientists and students, and anyone interested in learning more about meteorology, weather forecasting, and related geoscience topics. MetEd is populated and maintained by the COMET<sup>®</sup> Program, which is part of the [University Corporation for Atmospheric Research's \(UCAR's\) Community Programs \(UCP\)](#).” - MetEd

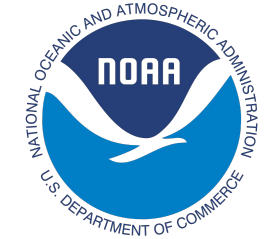
[https://www.meted.ucar.edu/training\\_module.php?id=225#.Xw5SwihKiM8](https://www.meted.ucar.edu/training_module.php?id=225#.Xw5SwihKiM8)



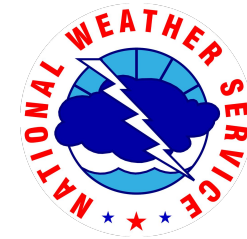
# Our Thought Process: What is A Pilot Looking For?



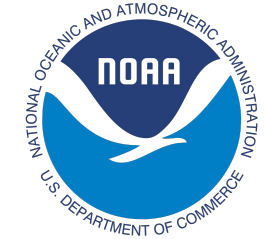
- The first thing a pilot wants to know is, will the forecast be VFR, MVFR, IFR or less?
- Can they legally fly that day; or is the weather beyond their capabilities and/or training?
- Is there any threat for thunderstorms?
- Is there going to be any sort of frontal activity?
- Visibility, ceilings, and winds pertinent to the primary runway.



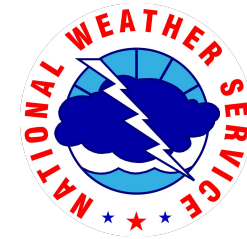
# Thought Process: Aviation Products Users



- General aviation pilots
- Pilots of small corporations
- Dispatchers for large corporations and commercial airlines
- Meteorologists for major airlines
- Flight Service Specialists
- Air Traffic Controllers
- Coordinators for special air show events
- Military aircrews

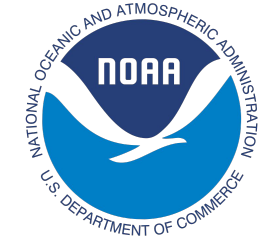


# Terminal Aerodrome Forecasts (TAFs)

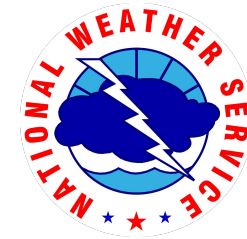


Forecast covers a five mile radius area surrounding the airport

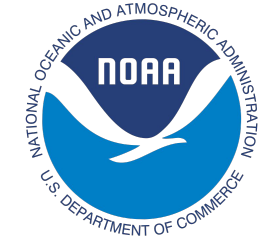
- Surface wind (direction, speed, gusts)
- Visibility
- Weather (if needed)
- Obstruction to visibility (if needed)
- Sky cover, cloud heights
- Non-convective low level wind shear



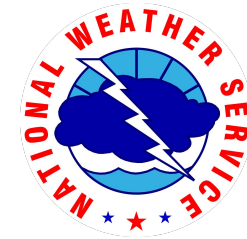
# TAFs...Continued...



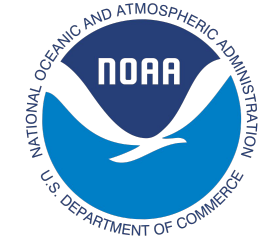
- FM group - indicates when prevailing changes are expected
- TEMPO group- indicates temporary fluctuations in the prevailing conditions
  - Used when:
    - Conditions have a higher than 50 percent of occurrence
    - Cover less than half of the time the TEMPO group is valid for
- PROB30 group-not be used in the first nine hours of the forecast period, but can be used to indicate a low chance of a thunderstorm or precipitation event of 6 hours or less
  - We don't PROB30 often; instead we use VCTS and VCSH



# The Final Product

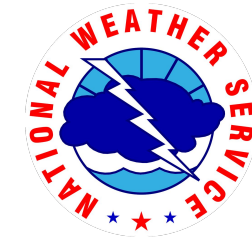


KSRQ 141000Z 1410/1506 28006KT P6SM VCSH FEW020 FEW250  
TEMPO 1410/1411 4SM SHRA BKN020  
FM141100 27007KT P6SM VCSH SCT025 BKN250  
FM141500 28008KT P6SM VCTS SCT030CB BKN250  
FM141900 27009KT P6SM FEW030 BKN250  
FM150100 28005KT P6SM FEW020 SCT250=



# KSRQ - Sarasota-Bradenton I, FL, US

Issued at 1130 UTC 15 Jul 2020  
Updated at 1636 UTC 15 Jul 2020



Potential Impact None **Slight** Moderate High

Time	1553Z	15/17Z	15/18Z	15/19Z	15/20Z	15/21Z	15/22Z	15/23Z	16/00Z	16/01Z	16/02Z	16/03Z	16/04Z	16/05Z >>
Type	OBS	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL
VIS	10	>6	>6	>6	>6	>6	>6	>6	>6	>6	>6	>6	>6	>6
CIG	--	250	250	250	250	250	250	250	250	250	250	250	250	250
Cover	SCT	BKN	BKN	BKN	BKN	BKN	BKN	BKN	BKN	BKN	BKN	BKN	BKN	BKN
FltCat	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR
WX	--	VCTS	VCTS	--	--	--	--	--	--	--	--	--	--	--
WDir	260	280	280	300	300	300	300	300	300	300	VRB	VRB	VRB	VRB
WSpd	7	7	7	8	8	8	8	8	8	8	3	3	3	3
WGst	--	--	--	--	--	--	--	--	--	--	--	--	--	--

## Raw TAF

**NOTE: FOR SITUATIONAL AWARENESS. NOT TO BE USED FOR FLIGHT PLANNING PURPOSES.**

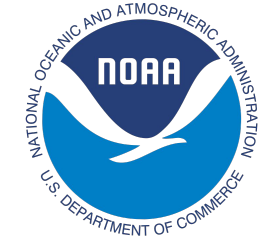
KSRQ 151130Z 1512/1612 VRB04KT P6SM SCT025 SCT250  
FM151500 28007KT P6SM VCTS SCT030CB SCT130 BKN250  
FM151900 30008KT P6SM FEW035 BKN250  
FM160200 VRB03KT P6SM FEW030 BKN250

## Raw METAR

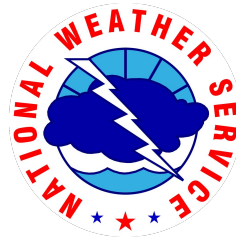
KSRQ 151553Z 26007KT 10SM SCT031 33/24 A3008 RMK AO2 SLP183 T03280239  
KSRQ 151453Z COR 27005KT 10SM SCT031 32/24 A3007 RMK AO2 SLP183 T03170239 51013  
KSRQ 151353Z 28004KT 10SM FEW024 31/24 A3006 RMK AO2 SLP179 T03110239

**METAR Board**  
**Radar Display**  
**Forecast Discussion**

[aviationweather.gov](https://aviationweather.gov)  
- Click TAFs Button  
- Click "Go To TAF Board"



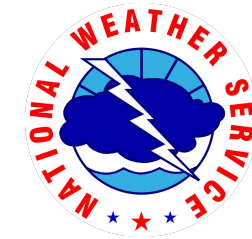
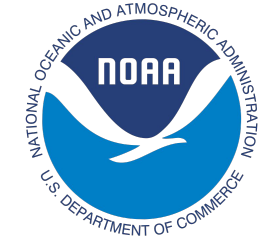
# The Aviation Forecast Discussion - Forecaster Reasoning



The Aviation Forecast Discussion is designed to allow user insight into a forecaster's thought process.

.AVIATION...

Shower and thunderstorm activity has subsided for now across northern TAF sites while renewed convection off the coast of SWFL will be an area to watch over the next few hours. The land breeze has become evident on radar off the coast of central part of the FL peninsula, and could serve as a renewed source of convection for northern TAF sites in the next couple hours too. Ample moisture and instability throughout the day will keep storms in the forecast through the afternoon and into the evening as WSW flow prevails. Conditions should begin to quiet tonight after sunset with lighter flow prevailing.



# Where to Find “Area Forecast Discussion”

<https://www.aviationweather.gov/fcstdisc>

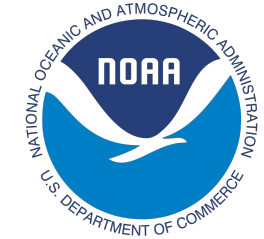
NOAA AVIATION WEATHER CENTER  
NOAA NATIONAL WEATHER SERVICE

Local Forecast   HOME ADVISORIES FORECASTS OBSERVATIONS TOOLS NEWS SEARCH ABOUT USER

**Aviation Forecast Discussions** [AFD Home](#) [Data Page](#) [Info](#)

Click on site to access discussion

[Data page](#)



# Where to Find “Area Forecast Discussion”



[weather.gov/tampabay](https://weather.gov/tampabay)

**NATIONAL WEATHER SERVICE**  
U.S. DEPARTMENT OF COMMERCE

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by Tampa Bay Area, FL  
2017-11-25 10:47 AM EST  
Location Help

**NWS Forecast Office Tampa Bay Area, FL**  
Tampa Bay Area, FL  
Weather.gov - Tampa Bay Area, FL  
Weather Forecast Office

Current Hourly Current Conditions Radar Forecasts Rivers and Lakes Climate and Past Weather Local Programs

**TBW Radar** Today Tonight Tomorrow Climate Today

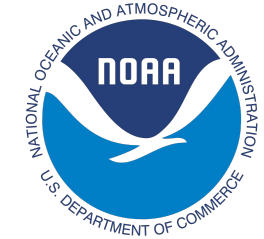
Overcast  
**79°F**  
28°C Cool. Detailed info  
This Afternoon  
60%  
Showers Likely  
High: 81°F  
Tonight  
20%  
Chance Showers Then  
Mostly Clearing  
Low: 55°F  
change location

Click a location below for detailed forecast

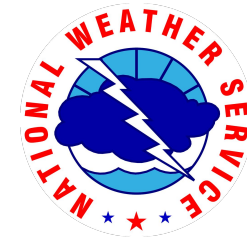
Local Map Update: Mon, Nov 25, 2017 at 2:47:22 pm EST

Text Product Selector (selected product opens in a new window)  
Forecast & Text Product

**Forecaster's Discussion**



# Where to Find “Area Forecast Discussion”



National Weather Service Weather Forecast Office  
Tampa Bay Area, FL

Home Site Map News Organization Search for

Local forecast by  
"City, St" or Zip Code  
City, St Go

**XML** RSS Feeds

**Warnings**  
Current  
By State/County...  
UV Alerts  
more....

**Observations**  
Radar  
Satellite  
Snow Cover  
Surface Weather...  
Observed Precip  
more....

**Forecasts**  
Local  
Graphical  
Aviation  
Marine  
Hurricanes  
Severe Weather  
Fire Weather  
more....

**Text Messages**  
By State  
By Message Type  
National

**Forecast Models**  
Numerical Models  
MOS Prod Statistical Model  
GFS-LAMP Prod Statistical Model  
more....

## Area Forecast Discussion

Issued by NWS Tampa Bay Area, FL

[Home](#) | [Current Version](#) | [Previous Version](#) | [Text Only](#) | [Print](#) | [Product List](#) | [G](#)  
Versions: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [11](#) [12](#) [13](#) [14](#) [15](#) [16](#) [17](#) [18](#) [19](#) [20](#) [21](#) [22](#) [23](#) [24](#) [25](#) [26](#) [27](#) [28](#) [29](#) [30](#) [31](#) [32](#) [33](#) [34](#) [35](#) [36](#) [37](#) [38](#) [39](#) [40](#) [41](#) [42](#) [43](#) [44](#) [45](#) [46](#) [47](#) [48](#) [49](#) [50](#)

-- Highlight Changed Discussion --

841  
FXUS62 KTBW 261809  
AFDTBW

[Area Forecast Discussion](#)  
National Weather Service Tampa Bay Ruskin FL  
109 PM EST Mon Nov 26 2018

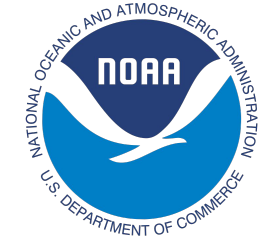
.SHORT TERM (Tonight-Tuesday)...  
A cold [front](#) is pushing into the area this afternoon, and will be moving through the area later this afternoon and tonight. Clearing will happen overnight into Tuesday, with cooler and drier air being ushered in under high pressure. Lows tonight with the cloud cover still in place will drop into the mid 40s north to the mid 60s south. Tuesday highs will only reach into the lower 60s north to the lower 70s south.

.LONG TERM (Tuesday Night-Monday)...  
Cooler and drier high pressure will continue across the area through Wednesday with winds subsiding Wednesday as the high pressure center settles into NW FL. Winds will then shift to the NE Thursday as the high center starts to shift east over north FL, then turn to the east Friday with the high center shifting offshore of the Atlantic. New model runs are coming in with some much colder temperatures for Wednesday night, and will be keeping more with a blend of

Scroll down until you find the section below

.AVIATION...  
Generally [VFR](#) conditions now in place across the terminals. Expect a few showers/storms possible later in the afternoon/early evening, then some [MVFR](#) ceilings possible overnight with SW winds shifting to the NW. Skies then clearing late in the period.

&&



# Customize AviationWeather.gov



AVIATION WEATHER CENTER  
NOAA NATIONAL WEATHER SERVICE

Local Forecast  Go HOME ADVISORIES FORECASTS OBSERVATIONS TOOLS NEWS SEARCH ABOUT **USER**

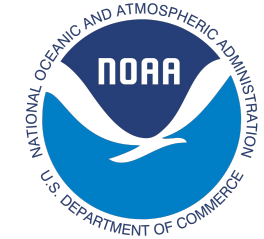
Aviation Weather Overview

METARs TAFs AIR/PIREPs SIGMETs G-AIRMETS

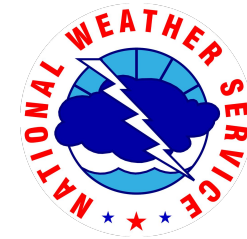
Data Overlay View 1504 UTC 27 Nov 2014

Map showing aviation weather data across the United States, including METARs, TAFs, and SIGMETs. A red box highlights the 'USER' link in the top navigation bar, and another red box highlights the 'Register' link in the dropdown menu.

Hover mouse  
over USER then  
click Register



# Enter Registration Information



**AVIATION WEATHER CENTER**  
NOAA NATIONAL WEATHER SERVICE

Local Forecast   [HOME](#) [ADVISORIES](#) [FORECASTS](#) [OBSERVATIONS](#) [TOOLS](#) [NEWS](#) [SEARCH](#) [ABOUT](#) [USER](#) [f](#) [t](#)

### User Registration

Please complete the registration and click submit. Your username will be your email address. A confirmation email will be sent to your email address.

E-mail: \*

Password: \*

Reenter Password: \*

First Name: \*

Last Name: \*

Company:

Address:

City:

State:

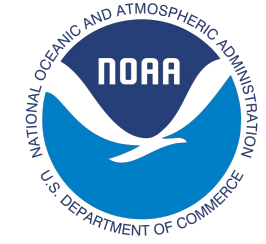
Postal Code:

Country:

Phone:

Comments:   
Ex: Request PIREPs Submission Account.

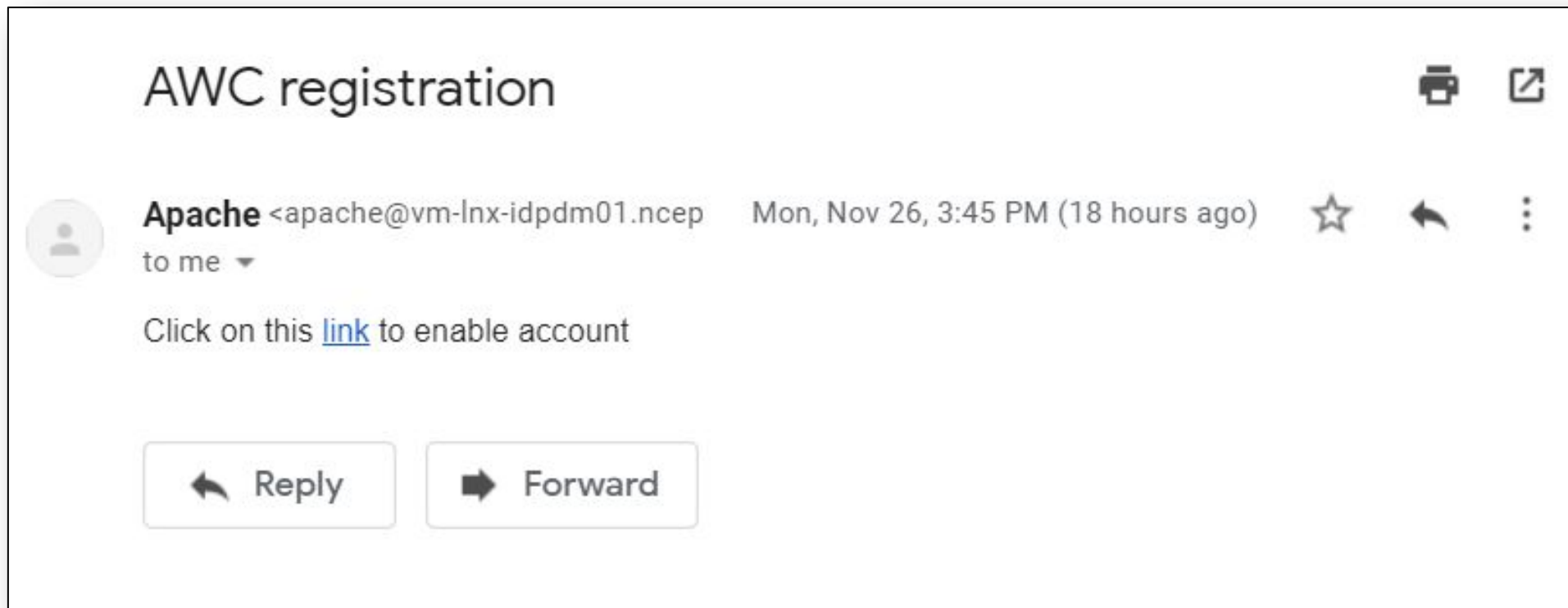
- If using a FAA email account, can sign-up for PIREP submission account
- Must include in comments section “Request PIREPs Submission Account”

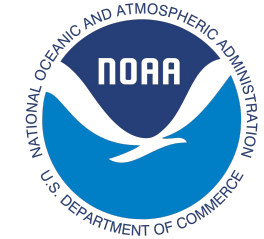


# Enable Your Account



You will receive an Email like the one below to enable your personal account






# Login and Customize AviationWeather.gov



  **AVIATION WEATHER CENTER**  
NOAA NATIONAL WEATHER SERVICE



Local Forecast   HOME ADVISORIES FORECASTS OBSERVATIONS TOOLS **NEWS** SEARCH ABOUT **USER**  



**Aviation Weather Overview**

Valid at 1425 UTC 22 Mar 2018




**Login**  
Settings  
Register

  **AVIATION WEATHER CENTER**  
NOAA NATIONAL WEATHER SERVICE Welcome: liam.lynam@noaa.gov

Local Forecast   HOME ADVISORIES FORECASTS OBSERVATIONS TOOLS NEWS SEARCH ABOUT **USER**  

**Aviation Weather Overview**

Valid at 1433 UTC 22 Mar 2018

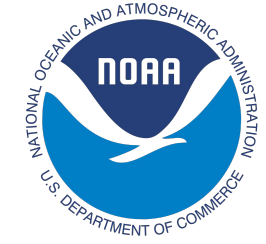


**Settings**  
Information  
Change Password  
Logout



# Settings

# Start with the defaults



# Customize Your Settings



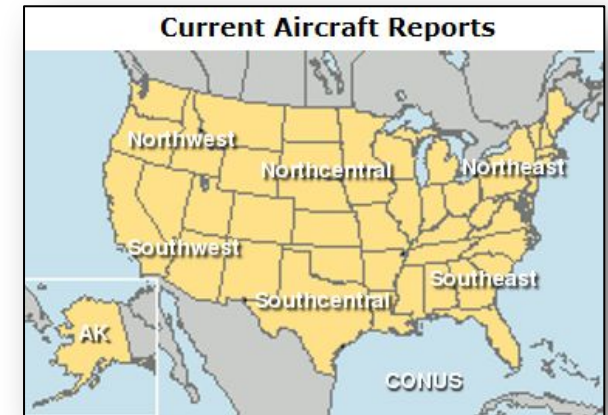
Label: HOME	URL: /	HOME ▼
Label: Turbulence	URL: /turbulence	Turbulence ▼
Label: Icing	URL: /icing	Icing ▼
Label: Convection	URL: /convection	Convection ▼
Label: Wind/Temp	URL: /windtemp	Wind/Temp ▼
Label: Prog Charts	URL: /progchart	Prog Charts ▼
Label: Cig & Vis	URL: /cva/plot?region=tpa	Custom ▼
Label: Discussion	URL: /fcstdisc	Forecasts Discussion ▼
Label: TAFs	URL: /taf	TAF ▼
Label: PIREPs	URL: /airep	Pilot Reports ▼
Label: SIGMETs	URL: /sigmet	SIGMET ▼
Label: G-AIRMETs	URL: /gairmet	GAIRMET ▼
Label: Satellite	URL: /satellite/plot?region=tpa	Custom ▼
Label: SE US Radar	URL: /radar/plot?region=tpa	Custom ▼

Setup ADDS Defaults Clear favorites

Interactive Maps: On ▼

Save Settings

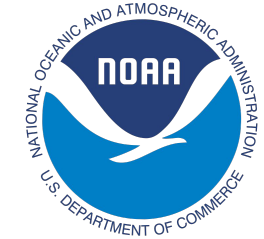
Default is CONUS,  
change to Sector



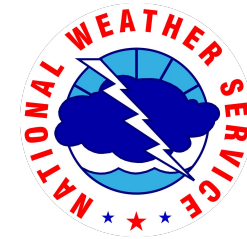
Copy part of URL after  
AviationWeather.gov

**/radar/plot?region=tpa**





# Custom AviationWeather.gov



## Forecast Discussion

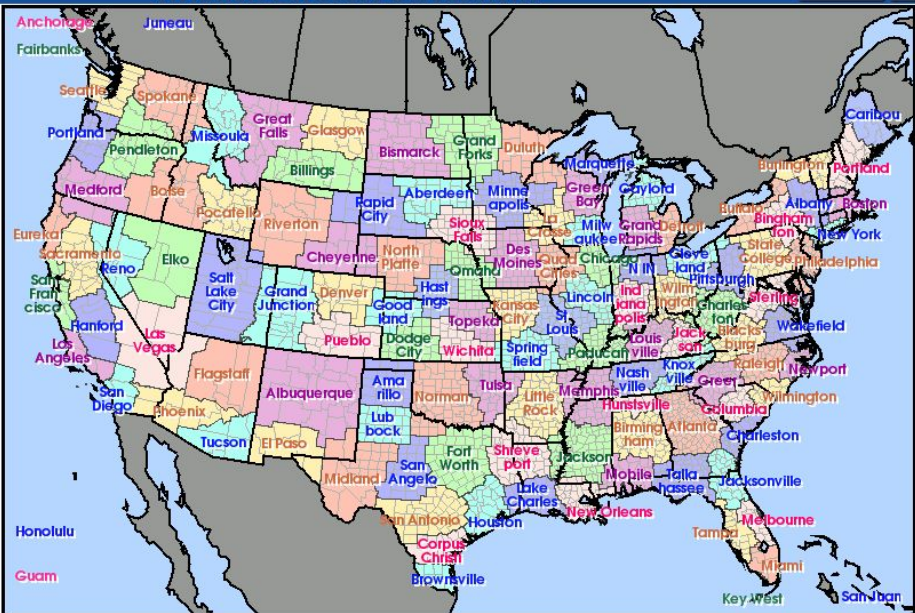
## Localize Maps to Your Area

**AVIATION WEATHER CENTER**  
NOAA NATIONAL WEATHER SERVICE

Local Forecast  Go HOME ADVISORIES FORECASTS OBSERVATIONS TOOLS NEWS SEARCH ABOUT USER

HOME Turbulence Icing Convection Wind/Temp Prog Charts Cig & Vis  
FDISC TAFs PIREPs SIGMETs G-AIRMETS Satellite SE US Radar

**Aviation Forecast Discussions** AFD Home Data Page Info



(EXTRACTED FROM FXUS62 KTBW 271248)

MVFR cigs in southern and interior areas to move Sward and leaving decreasing clouds but some residual strato cu and mid to upper cloud decks into the afternoon. Winds becoming gusty from the NW in the afternoon as well.

**AVIATION WEATHER CENTER**  
NOAA NATIONAL WEATHER SERVICE

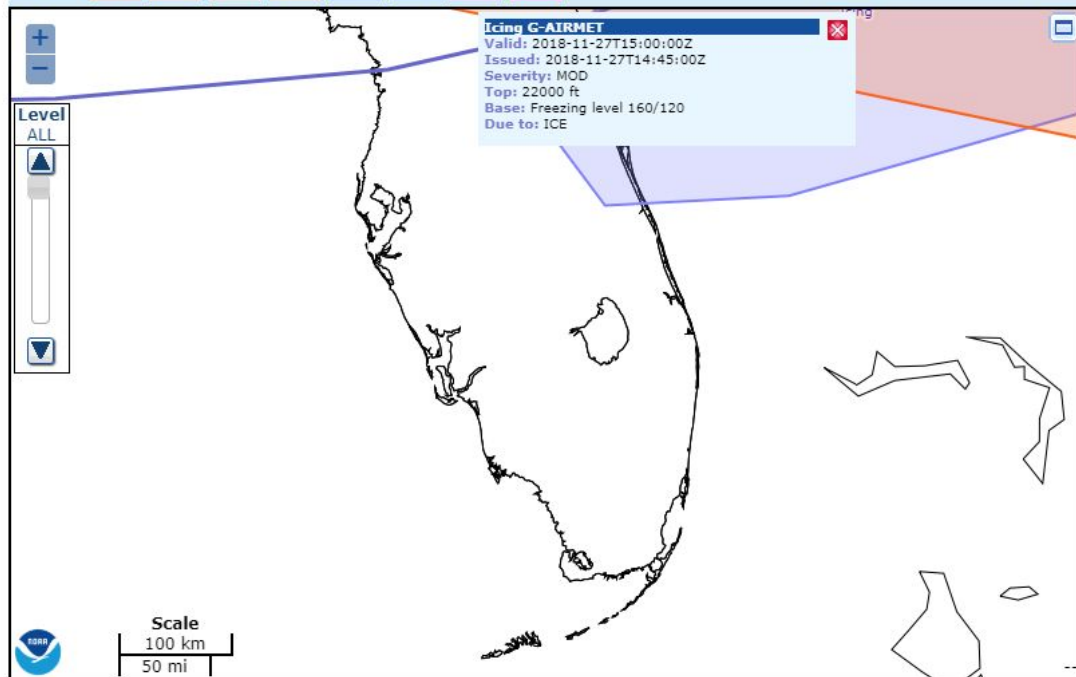
Local Forecast  Go HOME ADVISORIES FORECASTS OBSERVATIONS TOOLS NEWS SEARCH ABOUT USER

HOME Turbulence Icing Convection Wind/Temp Prog Charts Cig & Vis  
Discussion TAFs PIREPs SIGMETs G-AIRMETS Satellite SE US Radar

**Graphical AIRMETS** G-AIRMET Home Plots Thumbs Info

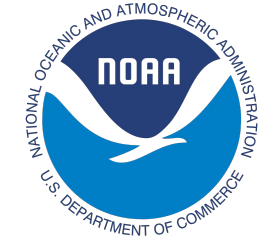
Overlays View Configure 1500 UTC 27 Nov 2018

Types: TurbHt TurbLo LLWS SfcWind Icing RZ IFR MtnOB Valid Time:

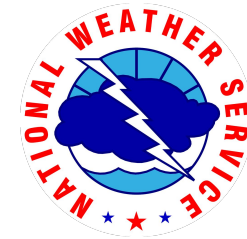


**Icing G-AIRMET**  
Valid: 2018-11-27T15:00:00Z  
Issued: 2018-11-27T14:45:00Z  
Severity: MOD  
Top: 22000 ft  
Base: Freezing level 160/120  
Due to: ICE

Scale  
100 km  
50 mi



# Note: A New Website is Coming



Visit <https://beta.aviationweather.gov/> try it yourself!

Aviation Weather Center EXPERIMENTAL Weather Products Tools Connect

Survey  
Please consider taking a [survey](#) about this new site!

### Current Conditions

Graphical Forecasts for Aviation

Interactive maps of aviation forecasts and observations

### Decision Support Services (DSS)

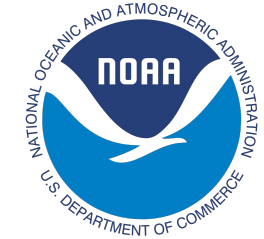
Static Images to embed in briefing material

### Station data

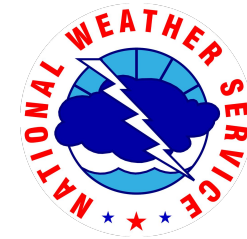
IDs:

### Tweets by @NWSAWC

NWS AWC @NWSAWC



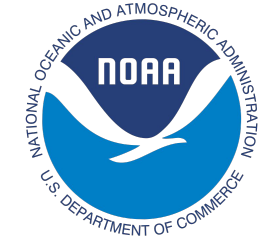
# Don't Try and Fly in a Hurricane...



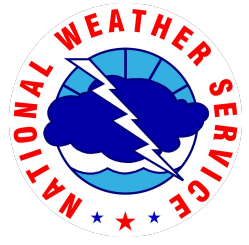
METAR TJSJ 200256Z 04022G29KT 9SM -RA SCT025 BKN034 BKN060  
28/25 A2978 RMK AO2 PK WND 04034/0201 SLP083 OCNL  
LTGIC DSNT NE-SE SW-W CB DSNT NE-SE SW-W LAST  
WX OBSERVATION,EVACUATING TOWER DUE TO HURRICANE  
P0000 60000 T028=

TAF TJSJ 200520Z 2006/2106 02030G50KT 5SM TSRA SCT015 BKN025CB  
FM200800 02060G90KT 1SM +TSRA SCT015 OVC025CB  
FM201600 12050G70KT 1SM +TSRA SCT015 OVC025CB  
FM201900 17020G40KT 3SM SHRA SCT015 BKN025=

Final observation and TAF Luis Muñoz Marín International Airport, San Juan,  
PR, prior to Hurricane Maria making landfall



# ...Unless You Are a Hurricane Hunter!



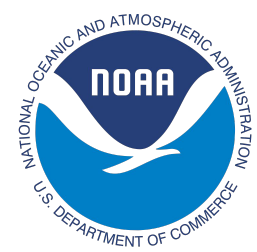
Lt. Kevin Doremus / NOAA



Lt. Kevin Doremus / NOAA

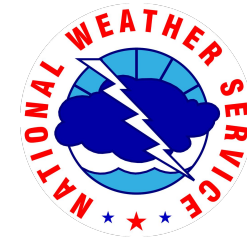
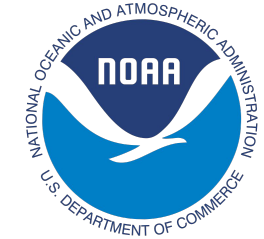


Maj. Marnee A.C. Losurdo / USAF



# Views from Hurricane Hermine





# Why So Much Research? Hurricanes Are Costly



## The Top Five Costliest U.S. Hurricanes on Record



Name .....	Year.....	Cost
------------	-----------	------

Katrina .....	2005 .....	\$161 Billion
---------------	------------	---------------

Harvey .....	2017 .....	\$125 Billion
--------------	------------	---------------

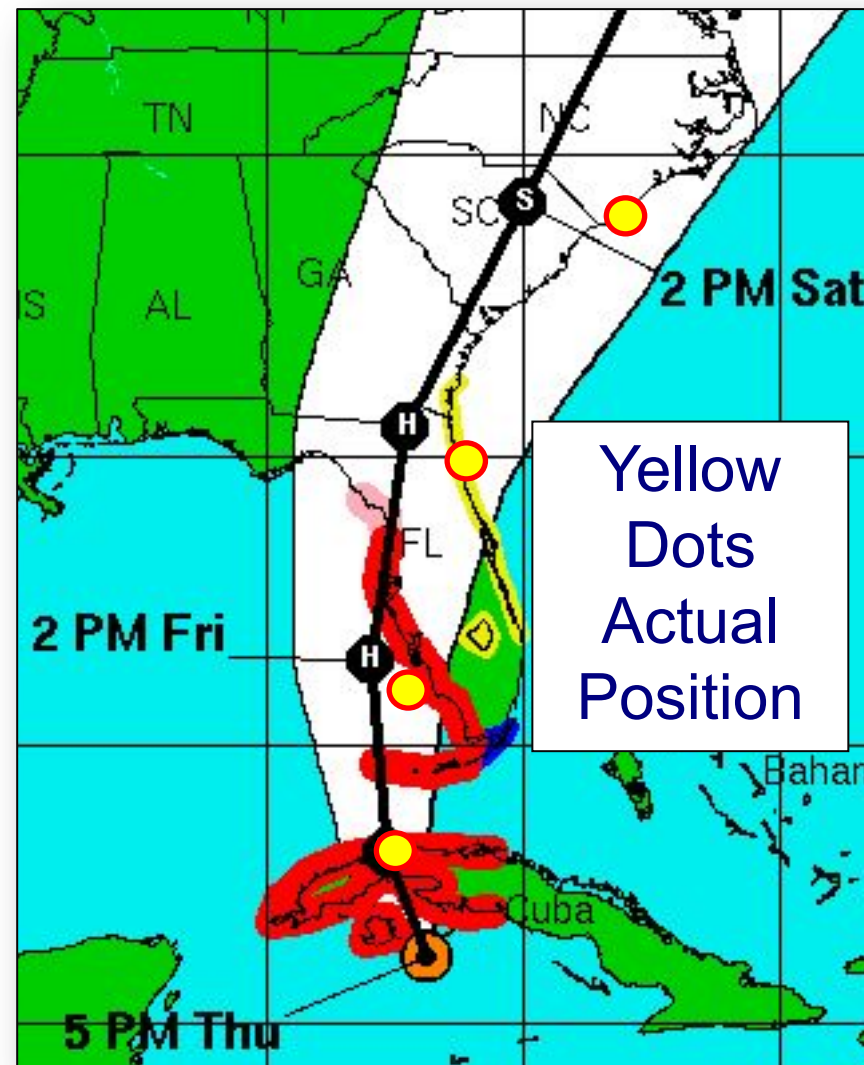
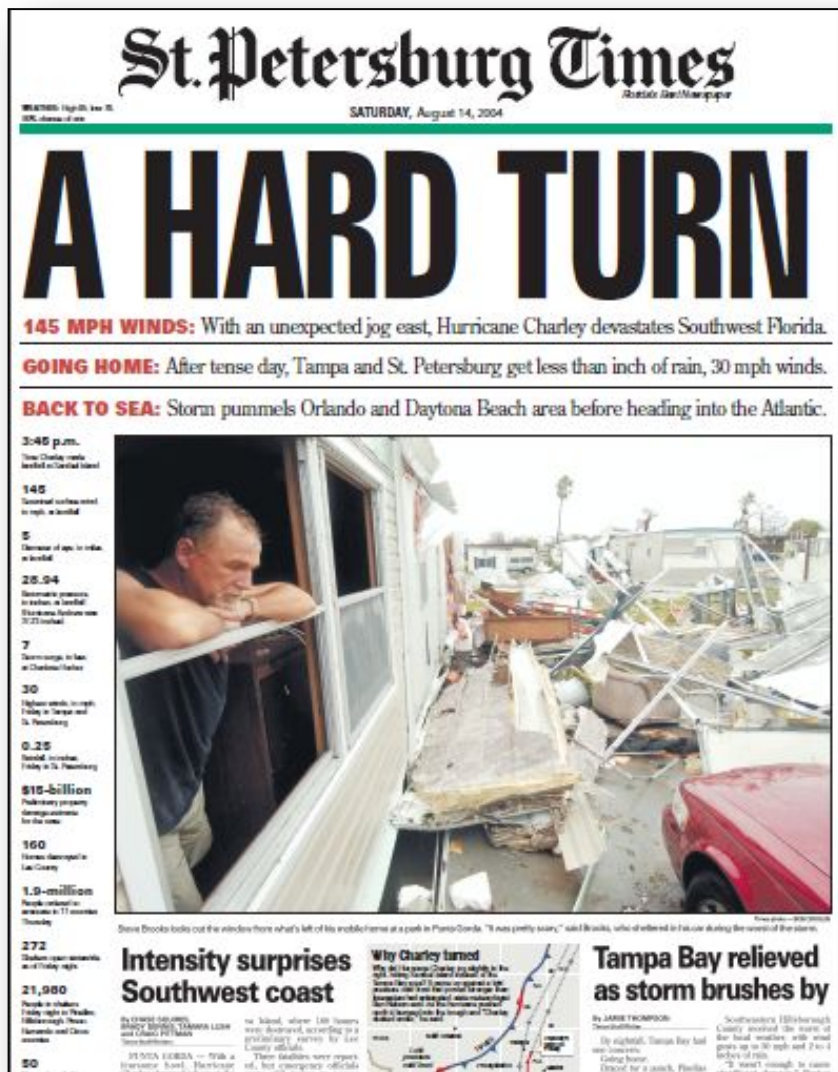
Maria .....	2017 .....	\$90 Billion
-------------	------------	--------------

Sandy .....	2012 .....	\$71 Billion
-------------	------------	--------------

<del>Irma .....</del>	<del>2017 .....</del>	<del>\$50 Billion</del>
-----------------------	-----------------------	-------------------------

Ida...2021...\$70 Billion

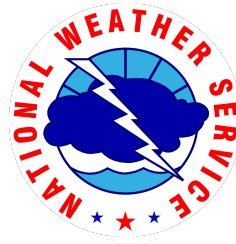
# Subtle Differences Drastically Affect Outcomes



Hurricane Charley - 2004



# Where Does a Local Forecast Office Fit In?



We assess and convey hazards and uncertainty to our area based on the official forecast track from the National Hurricane Center

## Key Take-Aways

Hurricane Isaias

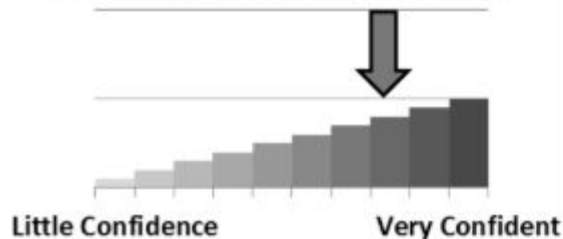


Tampa Bay (Ruskin)  
WEATHER FORECAST OFFICE

- Wind gusts 40 mph for portions of Polk and Highlands counties Sat night into Sunday.
- Significant impacts from Hurricane Isaias forecast are focused on East and Southeast coast of Florida.
- Strongest winds should remain mostly offshore in Atlantic if Isaias moves along forecast track.

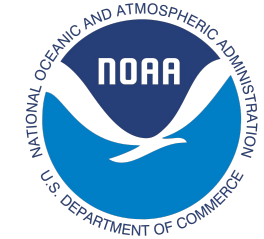
Summary slide  
from briefing  
conducted with  
Emergency  
Managers for  
Hurricane Isaias

### Forecast Confidence

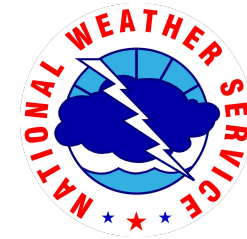


Keep an eye on actual track of Hurricane Isaias

Polk and Highlands counties will be closer to the stronger wind expected on the east and southeast coast of Florida.



# Where Does a Local Forecast Office Fit in?



We work with local partners to mitigate potential hazards ahead of time

## Port Tampa Bay Tabletop Exercise



By: Dustin Norman

Every year, Port Tampa Bay and the Tampa Bay Area's National Weather Service office presents a tabletop exercise with the goal of sharpening the preparedness and response actions of port tenants along with local, state, and federal partners. This year, COVID-19 prevented the exercise from taking place in person so it was decided to conduct the exercise remotely. The 8th Annual Hurricane Tabletop Exercise on Wednesday, May 27th 2020. Partners included U.S. Coast Guard, U.S. Customs, local/state emergency management, Tampa Fire/Police, Hillsborough County Sheriff, and members from the Port Heavy Weather Advisory Group just to name a few. In total, over 165 registrants ranging from a plethora of fields participated in this year's exercise.

After several years of simulations that would bring catastrophic hurricanes into Tampa Bay, it was time to switch up this year's exercise in order to induce new conversations. Meteorologist Dustin Norman imagined up and executed a multi-faceted 3-phased exercise that combined historic flooding, tornadoes, and a hazmat incident. With the help of Science & Operations Officer Bryan Mroczka, radar imagery from Hurricane Harvey was mapped onto the KTBW radar which simulated a very slow-moving tropical storm. During a period of significant flash flooding, a tornado warning was issued for the Port and adjacent parts of Tampa. Damage from the tornado not only involved scattered shipping containers, but it also resulted in a 30-minute chlorine leak from a tank located at the wastewater treatment plant. The NWS then provided a HYSPLIT run on the toxic plume to assist Tampa Fire Rescue and the Tampa EOC with information needed to make educated decisions on downwind evacuation orders. Nevertheless, the combination of several hazards, combined with a serious hazmat incident, introduced dynamics that successfully tested even the most seasoned of officials.

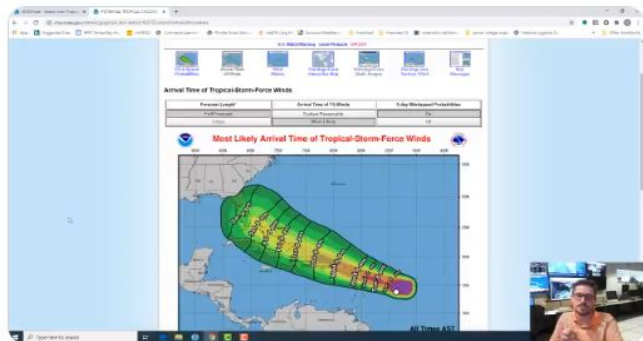
# Where Does a Local Forecast Office Fit In?

We engage the community to take proactive steps to prepare for hurricanes



NWS Tampa Bay @NWSTampaBay · Jul 28

Potential Tropical Cyclone #Nine is about 500 miles away from the Leeward Islands. However, Florida is in the cone of uncertainty by late Saturday. Make sure to stay tuned for more updates! #flwx



US National Weather Service Tampa Bay Florida

August 1 at 7:22 PM

As #Isaias makes its way towards Florida, we're starting to see some of the outer rain bands coming into our area. Will this continue? Here's Dan with an update #flwx



## Hurricane Preparedness Checklist

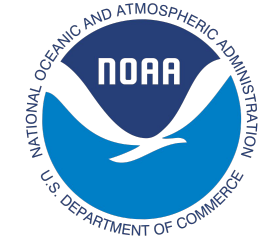


- ☐ Evacuation Plan
- ☐ Medications and Medical Supplies – Two Week Supply
- ☐ Cash
- ☐ Flashlight – Batteries
- ☐ Battery Weather Radio
- ☐ Important Documents:
  - ☐ Birth Certificates
  - ☐ Insurance Cards
  - ☐ Social Security Cards
  - ☐ Bank/Credit Card Numbers
  - ☐ Wills
  - ☐ House Inventory Photos
  - ☐ Titles (cars, boats, etc.)
  - ☐ Vet/Microchip Records for Pets
- ☐ Phone List:
  - ☐ Doctors
  - ☐ Insurance
  - ☐ Electric, Gas, and Water Companies
  - ☐ Family/Friends/Neighbors
  - ☐ Landlord or Property Manager
  - ☐ Bank or Credit Union
- ☐ Keep Your Vehicle filled with Gas



- ☐ Emergency Kit:
  - ☐ Nonperishable Food and Water (1 gallon per person per day) for 7 days
  - ☐ Non-electric Can Opener
  - ☐ Cooler
  - ☐ First Aid Kit
  - ☐ Pet Supplies – Pet Food and Water, Leash and Collar, Bowls, Medications, Carrier/Cage
  - ☐ Sleeping Bags
  - ☐ Tool Box/Rope
  - ☐ Plastic Sheeting
  - ☐ Work Gloves
  - ☐ Duct Tape
  - ☐ Fire Extinguisher
  - ☐ Cleaning Supplies
  - ☐ Clothing
  - ☐ Special Needs Items for Infants/ Small Children or Elderly/Disabled
- ☐ COVID-19 Supplies
  - ☐ Face Masks
  - ☐ Disinfectant Wipes
  - ☐ Hand Sanitizer





# Want More Info About Tropical Hazards?



**NATIONAL WEATHER SERVICE**  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by "City, ST or ZIP code"  
   
[Location Help](#)

**News Headlines**

- July 2020 Climate Story Map
- How Do Hurricanes Form?

**MY FORECAST**  
Tampa FL

**NWS Forecast Office Tampa Bay Area, FL**  
Tampa Bay Area, FL  
Weather Forecast Office

Current Hazards Current Conditions Radar **Forecasts** Rivers and Lakes Climate and Past Weather Local Programs

**Today** **Tomorrow** **Climate Tomorrow**

**Today**  
A Few Clouds  
**86°F**  
30°C [Get Detailed Info](#)

**Today**  
30% → 70%  
Scattered T-storms then  
T-storms Likely  
High: 93°F

**Tonight**  
70% → 30%  
T-storms Likely then  
Scattered T-storms  
Low: 77°F

[change location](#)

**Hourly View**  
Fire  
Forecaster's Discussion  
Activity Planner  
**Tropical**  
Aviation  
Hydrology  
Graphical  
Marine  
Beach  
Decision Support  
Weather Models

**Today**  
Weather Forecast Office  
Tampa Bay/Ruskin, FL  
Issued Aug 10, 2020 7:10 AM EDT

**Rain Chances**  
Chiefland 95°  
Crystal River 92°  
Brooksville 94°  
Tampa 93°  
Lakeland 94°  
Sarasota 92°  
Arcadia 94°  
Fort Myers 94°  
Sebring 94°

**Tomorrow**  
Chiefland 40%  
Crystal River 60%  
Brooksville 75%  
Tampa 60%  
Lakeland 70%  
Sarasota 60%  
Arcadia 70%  
Fort Myers 60%  
Sebring 70%

[@NWSTampaBay](#)  
weather.gov/tampabay

Mostly sunny with scattered to numerous showers and thunderstorms. Highs in the lower to mid 90s with afternoon heat indices around 105.  
[Hide Caption](#)

<https://www.weather.gov/tampabay/>

**NATIONAL WEATHER SERVICE**  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

**NWS Southern Region Tropical Webpage**  
[Weather.gov](#) > [Southern Region Headquarters](#) > NWS Southern Region Tropical Webpage

Southern Region Headquarters  
Regional Headquarters

Local Forecast Offices A-L Local Forecast Offices M-Z River Forecast Centers Center Weather Service Units Regional HQ

[NWS Tampa Bay homepage](#) [Provide Feedback on this Webpage](#)

**Outlook Threats and Impacts Satellite Radar Social Media Preparedness Links**

There are currently no active storms in the North Atlantic, Caribbean Sea, or Gulf of Mexico.

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

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

**Product Description**  
Click each image above to view the full-size image.

**Tropical Weather Outlook**  
NWS National Hurricane Center Miami FL  
800 AM EDT Mon Aug 10 2020

For the North Atlantic...Caribbean Sea and the Gulf of Mexico:

Showers and thunderstorms associated with a tropical wave and broad area of low pressure located about 600 miles west-southwest of the Cabo Verde Islands have changed little in organization since yesterday. Environmental conditions are expected to be somewhat conducive for development to occur, and a tropical depression could form during the next day or two while the disturbance moves generally westward to west-northwestward at 10 to 15 mph across the tropical Atlantic. Conditions are forecast to become less conducive for development by the end of the week.

- \* Formation chance through 48 hours...medium...60 percent.
- \* Formation chance through 5 days...medium...60 percent.

\$\$  
Forecaster Berg

[Oprima aqui para ver la Perspectiva sobre las Condiciones del Tiempo Tropical en Español](#)

<https://www.weather.gov/srh/tropical?office=tbw>

# Questions or Comments?



U.S. National Weather Service Tampa Bay



@NWSTampaBay



NWSTampa

Feel Free to Email Me!

[austen.flannery@noaa.gov](mailto:austen.flannery@noaa.gov)

