El Niño & Expected Florida Severe Weather

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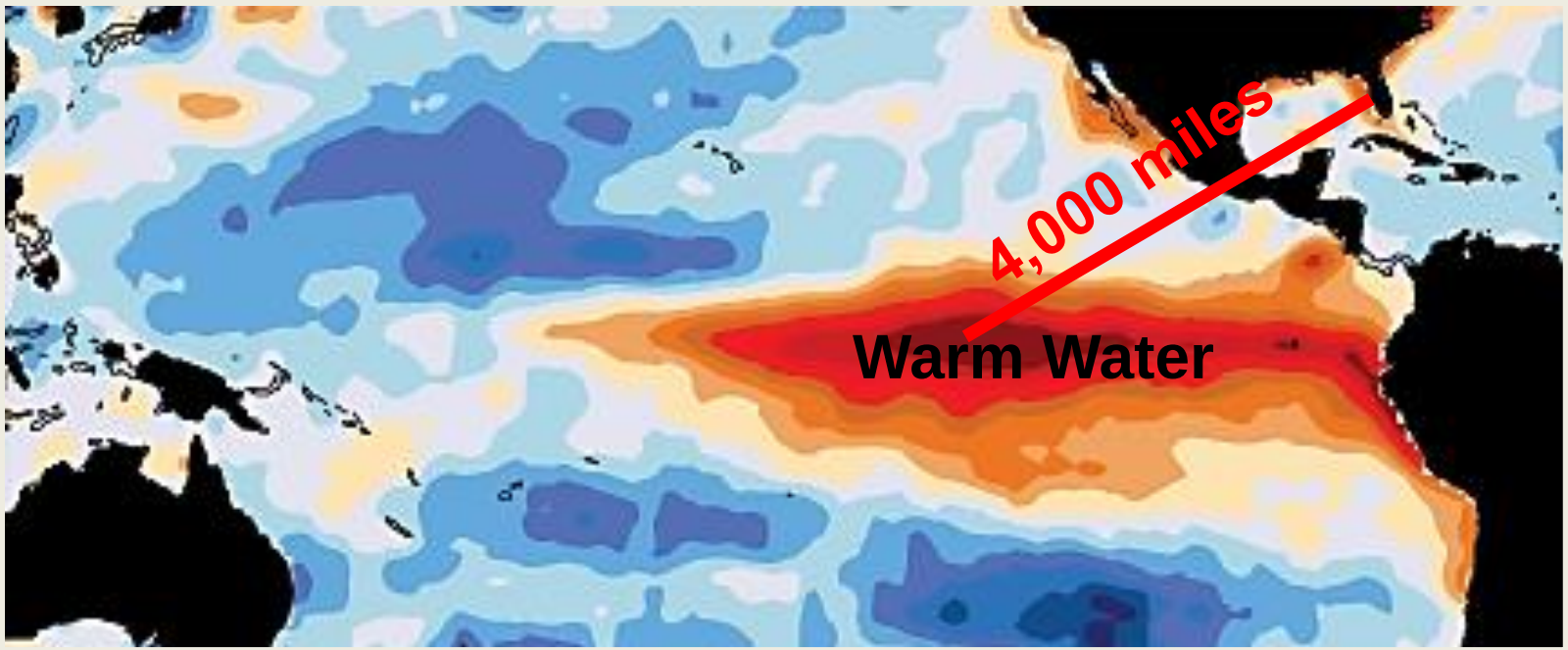
NWS Media #
813-645-4111 x1

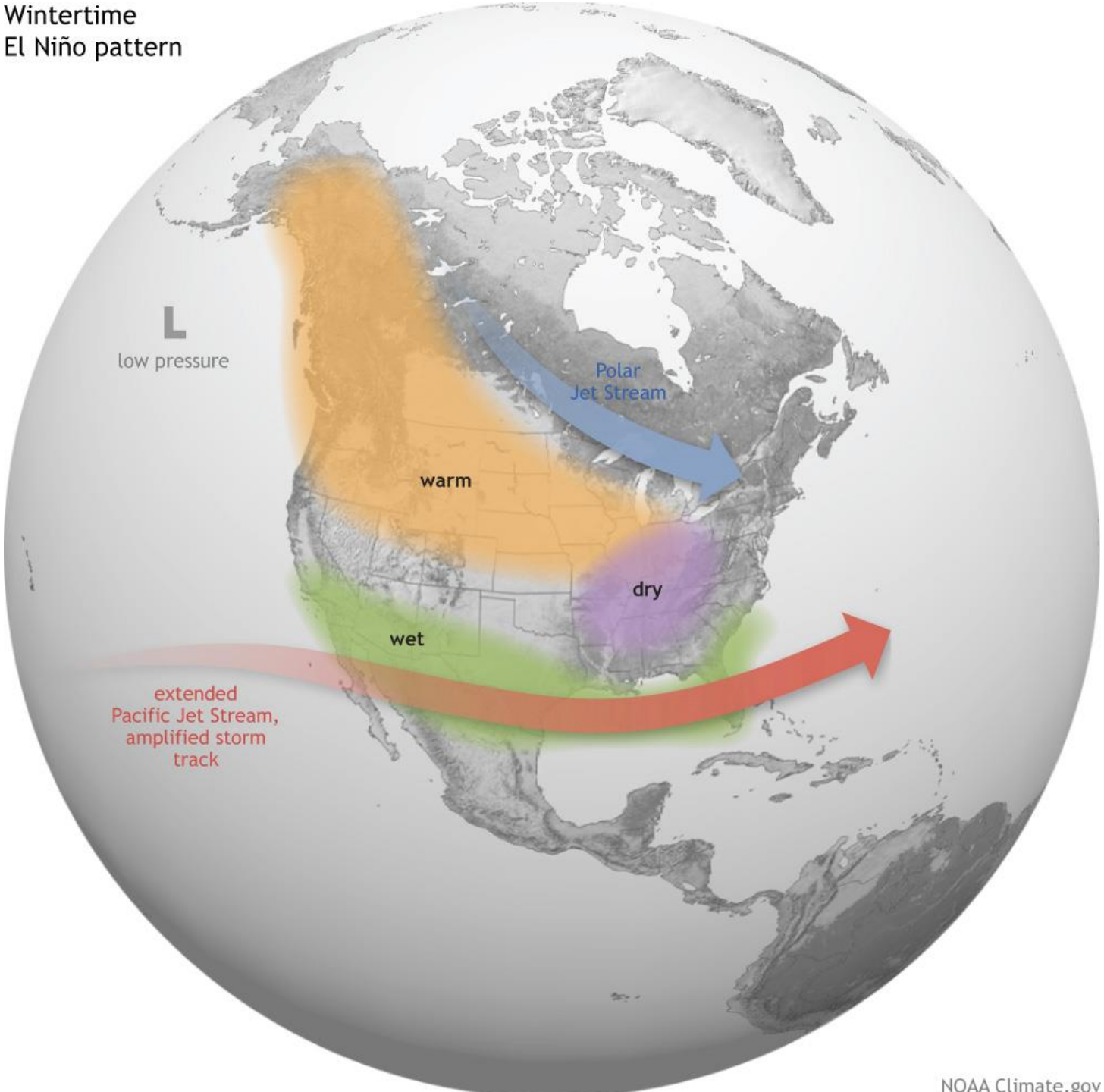
What is El Niño?



- During the 1600s, South American fishermen noticed cycles of unusually warm, nutrient poor water, resulting in poor fishing

- El Niño means The Little Boy, or Christ Child in Spanish - chosen based on the time of year (around December) when the warm waters events occurred.

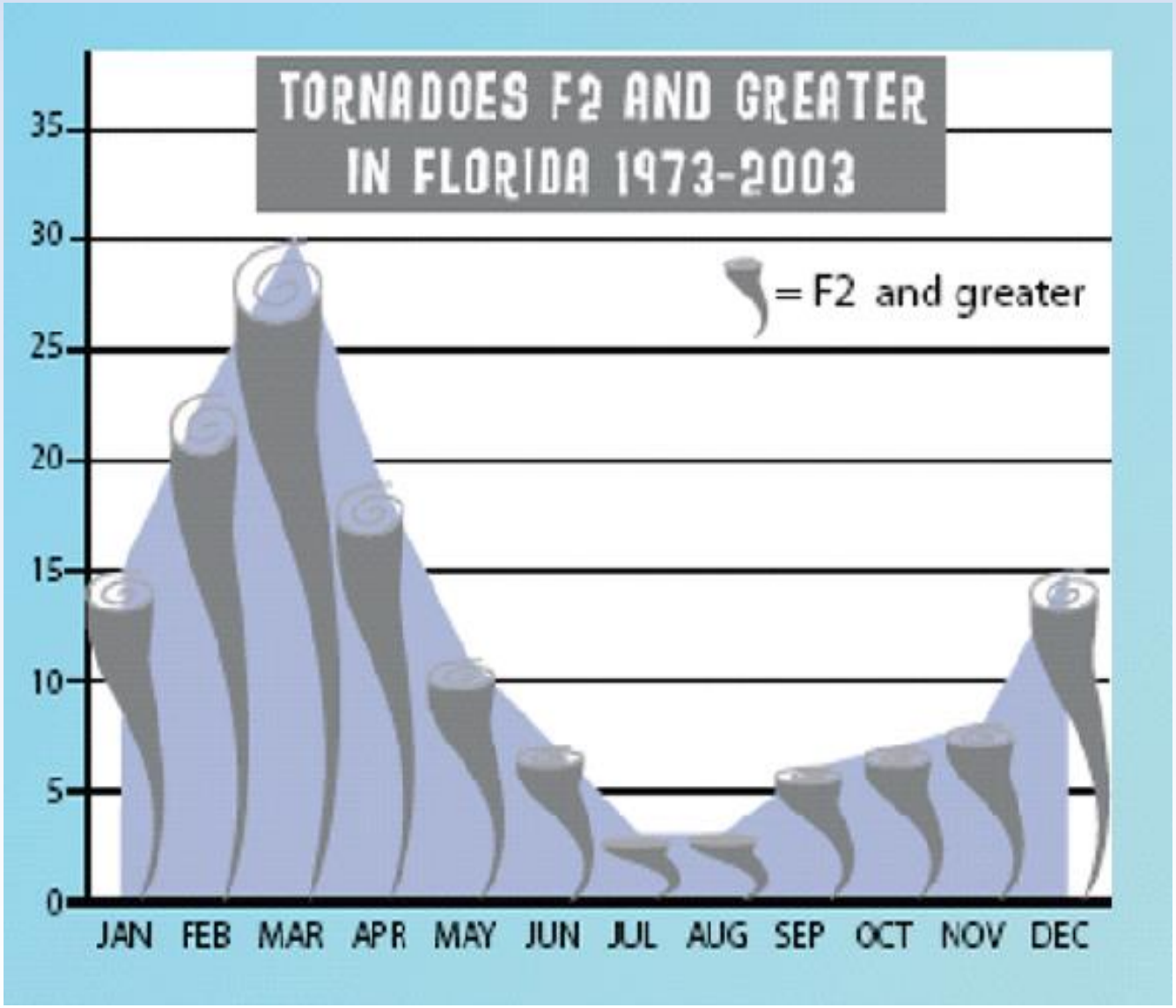
Wintertime
El Niño pattern



NOAA Climate.gov

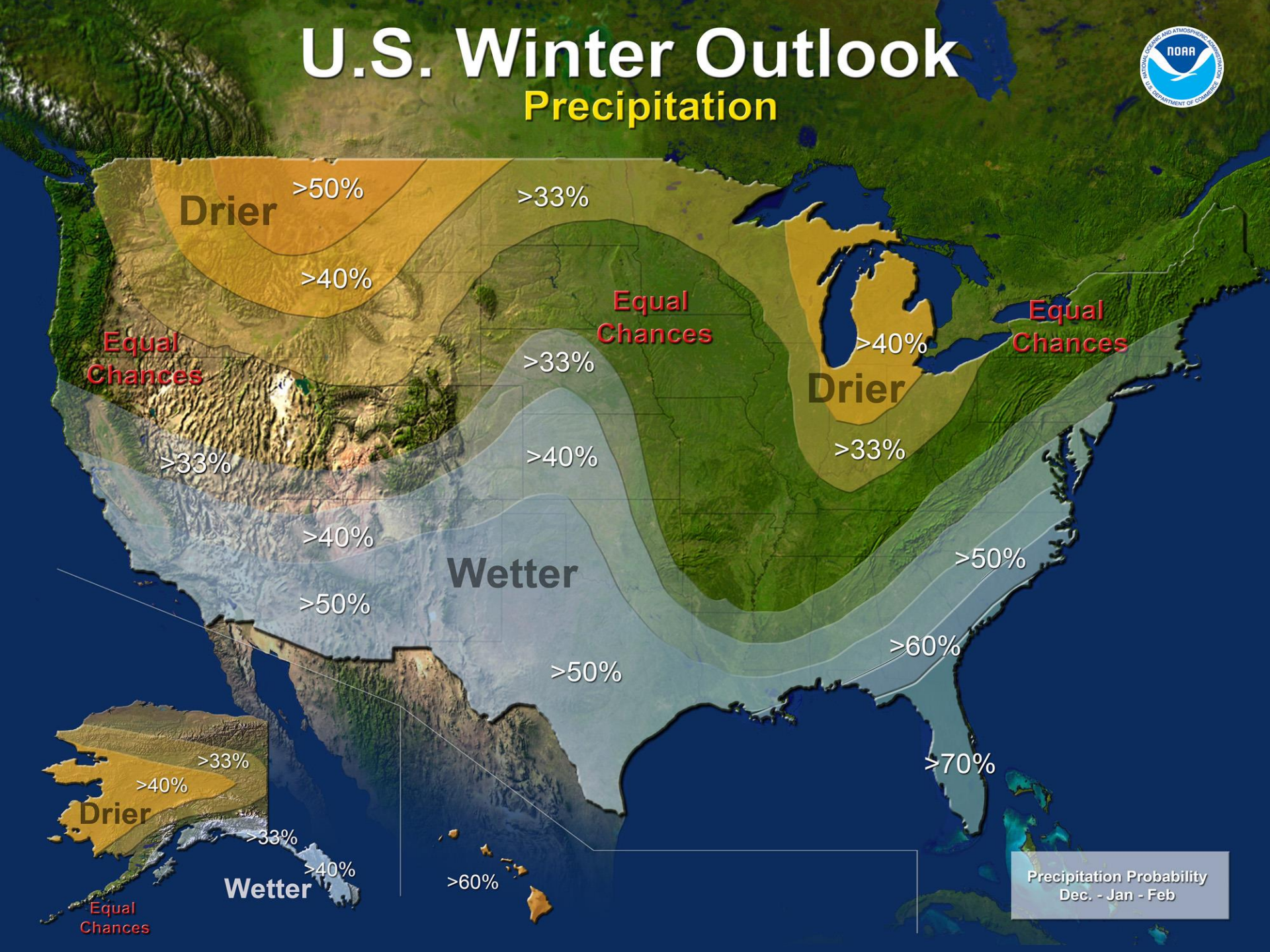
Comparison of Winter Storm Tracks

Violent Tornadoes in Florida

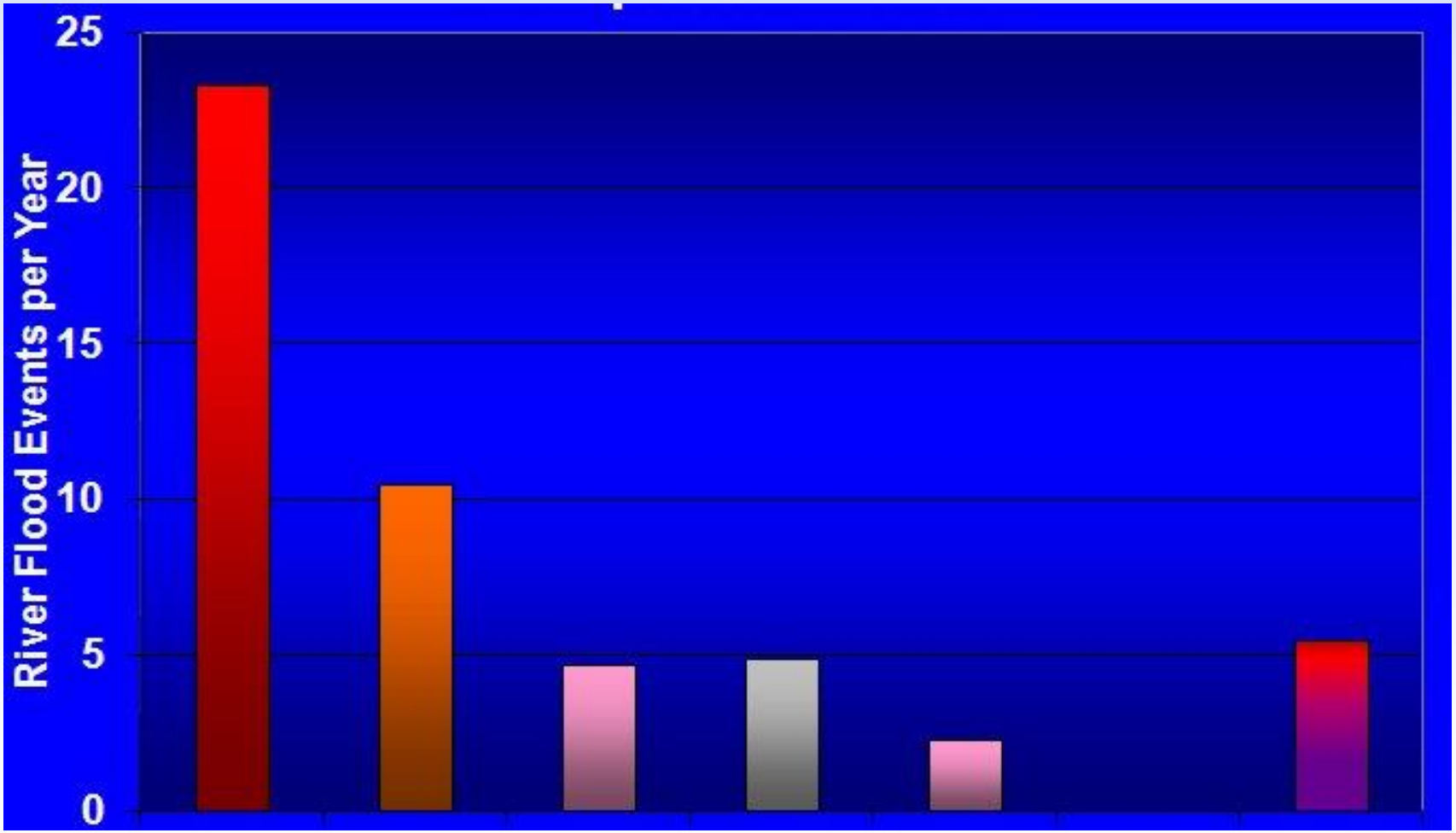


U.S. Winter Outlook

Precipitation



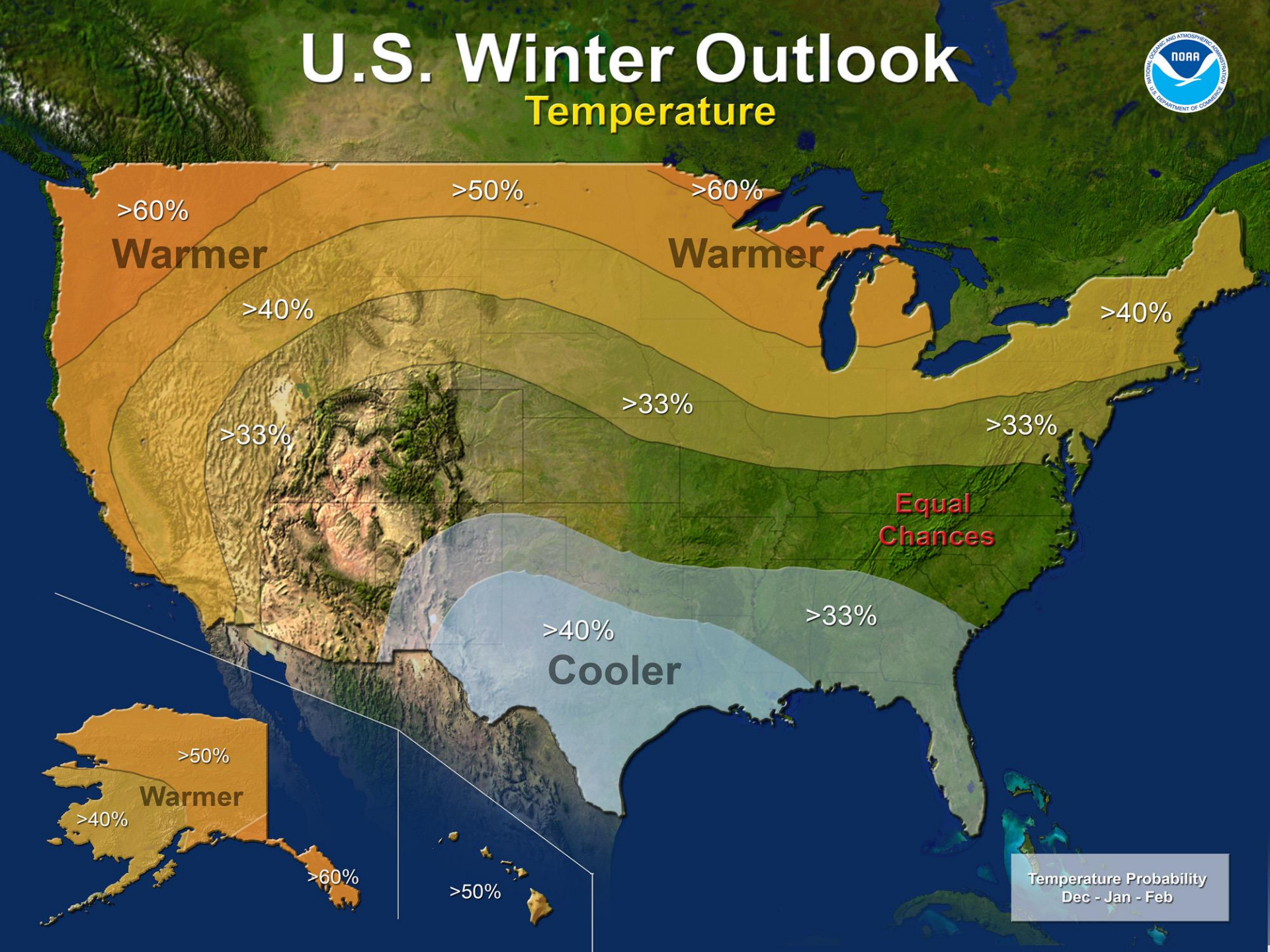
Expected Florida River Flood Events per Year



Strong El Nino | Moderate El Nino | Weak El Nino | Neutral Conditions | Weak, Moderate, and Strong La Nina

U.S. Winter Outlook

Temperature



Waterspout Crossed Sunshine Skyway Bridge

on October 11, 2015

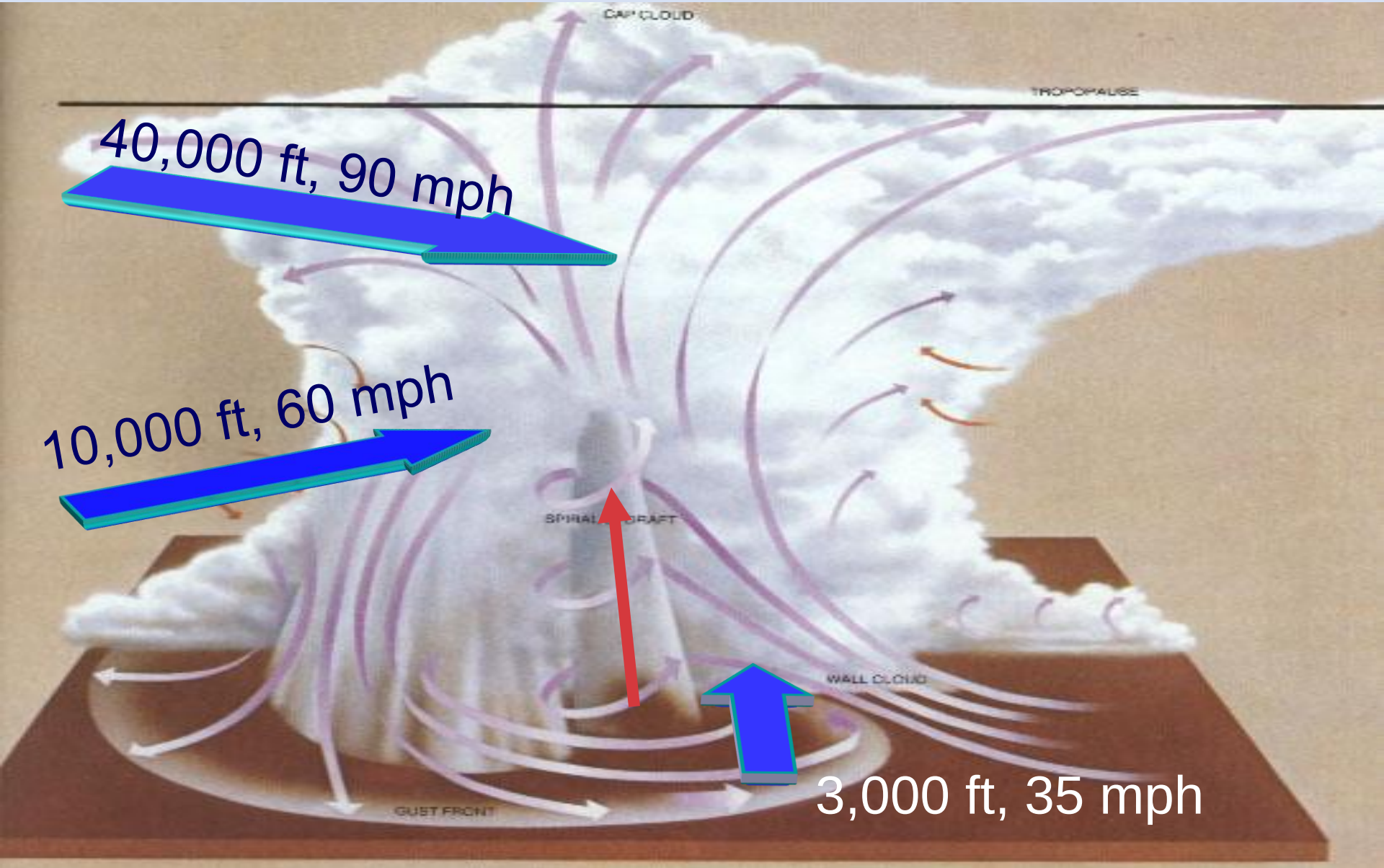
Not All Tornadoes are Created Equal

EF-0 80 mph Waterspout Crossed Sunshine Skyway Bridge on Oct 11, 2015

Not All Tornadoes are Created Equal

EF-3 Tornado Destroys Home

Wind Shear Separates Updraft & Downdraft



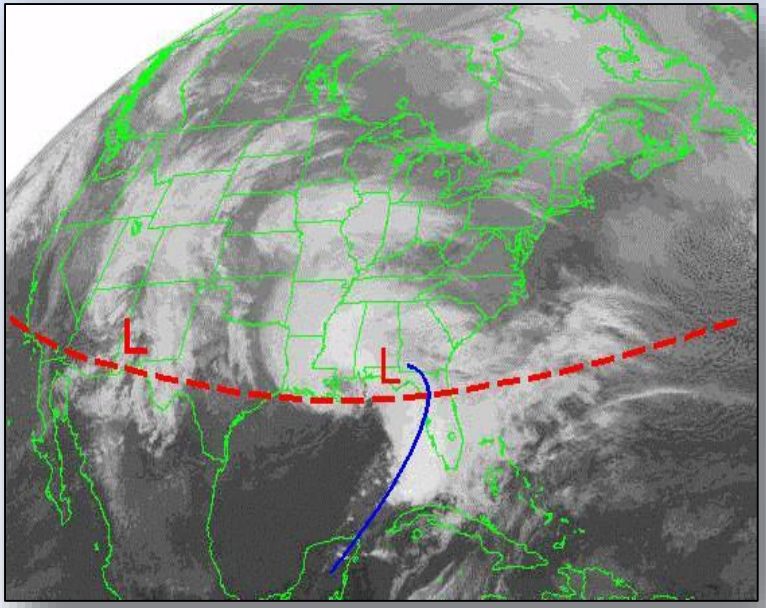
El Niño Florida Impact Awareness

Potential for historic El Niño this winter and upcoming spring, even stronger than the 1997/98 El Niño

- increased chances for strong-to-violent tornadoes and tornado outbreaks
- increased chances for episodes of heavy rain and river flooding

Given that the previous eight winters in Florida experienced storminess much below normal, the likely transition to a very active season may come as a surprise to those who are unaware

Increased Winter/Spring Severe Weather



- Florida's two deadliest tornado outbreaks
  - 2/22-23/98: 42 fatalities in Kissimmee
  - 2/02/2007: 21 fatalities in Lady Lake
- 1997-98 record rain and river flooding

Key Points

- El Niño's don't cause violent tornadoes in Florida, but they enable them

✓ El Nino's SET THE STAGE!

✓ Environmental conditions become more favorable, more often

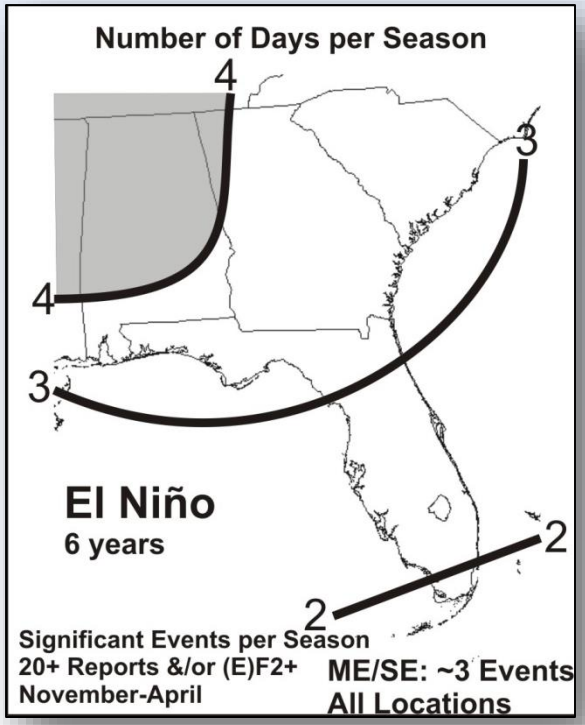
February 22-23, 1998 11 p.m. – 3 a.m.
Osceola / Orange / Seminole Counties
42 fatalities (3 F3 Tornadoes)

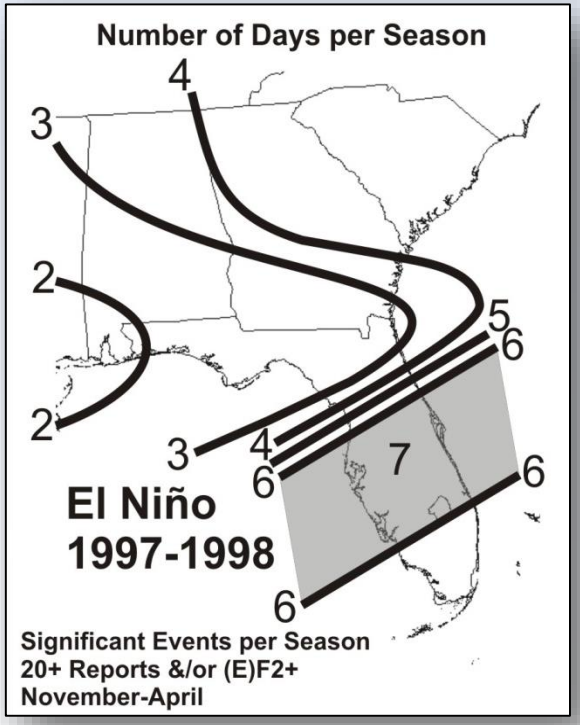
February 2, 2007 1 a.m. – 3 a.m.
Lake / Volusia Counties
21 fatalities (2 EF3 Tornadoes)

La Niña vs. El Niño Tornadoes in Florida

How Many Days of Violent Weather Can We Expect?

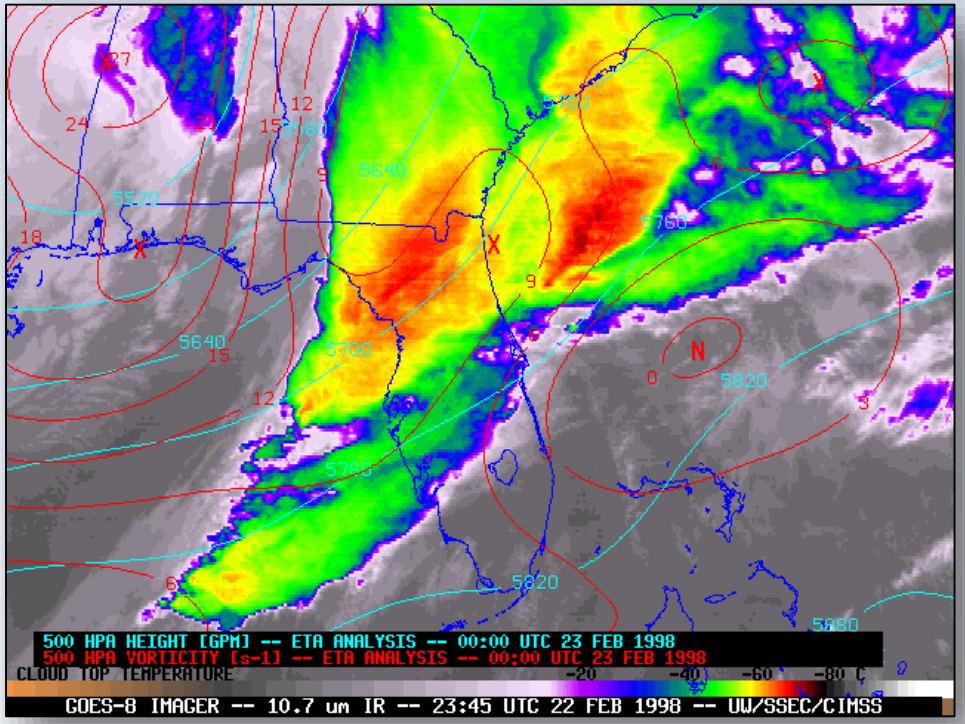
Pattern is most pronounced from January-April

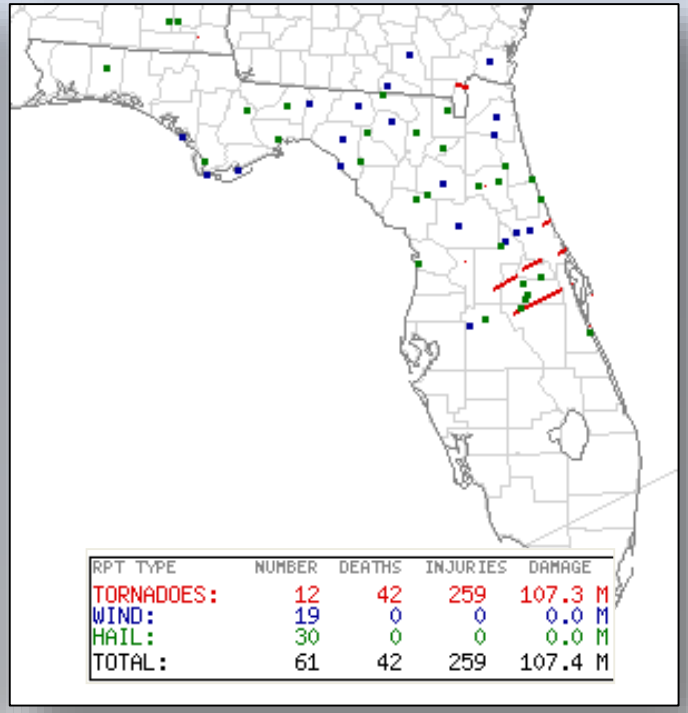




Central Florida Tornado Outbreak

February 23, 1998





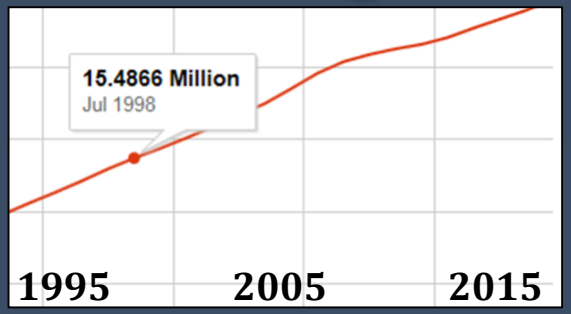
RPT TYPE	NUMBER	DEATHS	INJURIES	DAMAGE
TORNADOES:	12	42	259	107.3 M
WIND:	19	0	0	0.0 M
HAIL:	30	0	0	0.0 M
TOTAL:	61	42	259	107.4 M

Tornadoes: 12

Deaths: 42, Injuries: 259, Damage: $107.3 million

Florida Societal Considerations

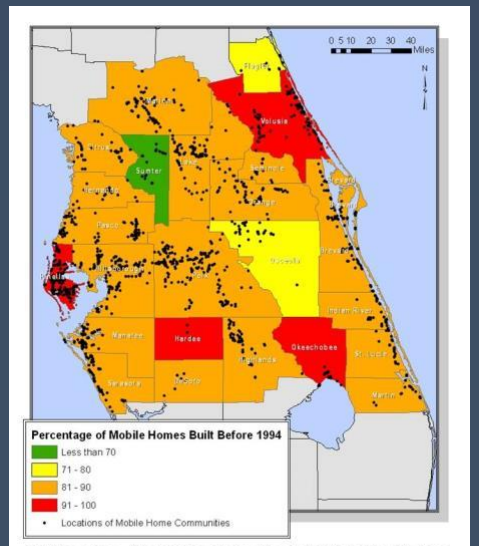
Increasing Vulnerability



4.7 million new residents since 1998 outbreak!

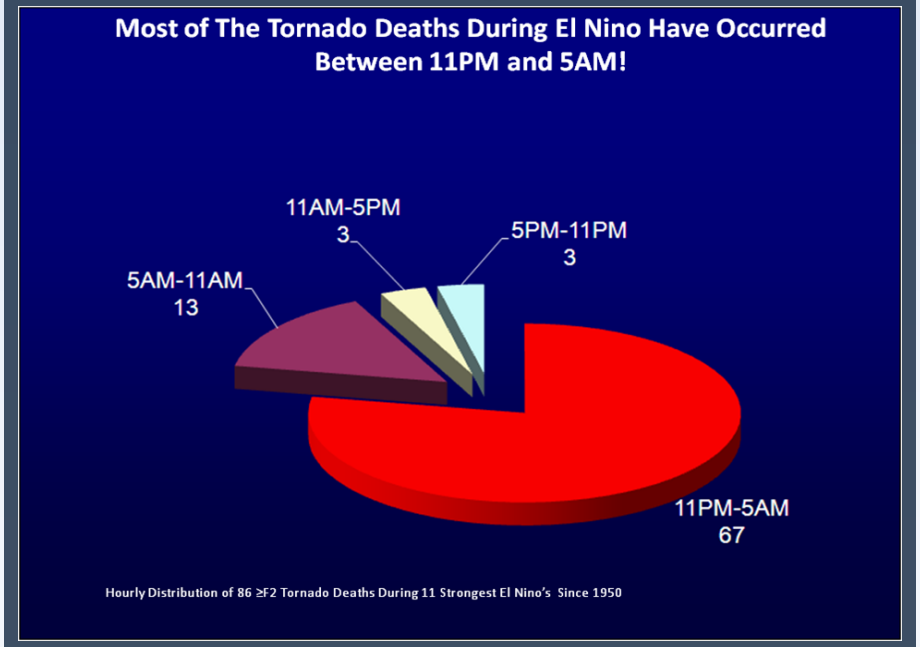
Many unaware of Florida (winter) severe weather risks

- High percentage of mobile homes
- Much lower threshold for damage
- High winter occupancy
- Greater casualty rate



RV Parks, Manufactured and Mobile Home Communities in Central Florida

Time of Day



Overnight Tornadoes

- Lower perception of threat
- Decreased Awareness (asleep)
- Favored time period

What Are We Doing?

- NWS Ruskin will host Webinars for Emergency Management and the Media before expected events. Email Briefings may start a day before the webinar for big events.

- Broadcast and Print Media can heighten awareness and provide safety information. Promote you Apps that deliver warning notifications.

- Emergency Management can reinforce the message with their local media, Facebook, Twitter, other notification methods

Storm Prediction Center (SPC)

SPC will issue a Public Severe Weather Outlook at 3pm or 8pm when a **10% or greater probability of significant tornadoes is expected to occur at night**

NWS Products & When Issued

- Public Weather Outlook (24 hour prior)
- Ruskin Email Briefing (5-24 hours prior)
- Tornado Watch (2-6 hour prior)
- Tornado Warning (10-20 minutes prior)

SPC Severe Weather Outlooks

www.spc.noaa.gov

Storm Prediction Center

N O A A / National Weather Service

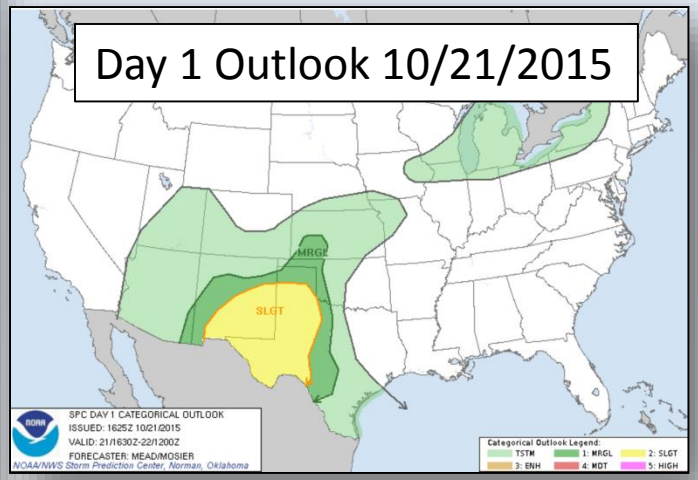
Understanding Severe Thunderstorm Risk Categories

THUNDERSTORMS (no label)	1 - MARGINAL (MRGL)	2 - SLIGHT (SLGT)	3 - ENHANCED (ENH)	4 - MODERATE (MDT)	5 - HIGH (HIGH)
No severe* thunderstorms expected	**Isolated severe thunderstorms possible**	**Scattered severe storms possible**	**Numerous severe storms possible**	**Widespread severe storms likely**	**Widespread severe storms expected**
Lightning/flooding threats exist with all thunderstorms	Limited in duration and/or coverage and/or intensity	Short-lived and/or not widespread, isolated intense storms possible	More persistent and/or widespread, a few intense	Long-lived, widespread and intense	Long-lived, very widespread and particularly intense
• *Winds to 40 mph* • *Small hail*	• *Winds 40-60 mph* • *Hail up to 1"* • *Low tornado risk*	• *One or two tornadoes* • *Reports of strong winds/wind damage* • *Hail ~1", isolated 2"*	• *A few tornadoes* • *Several reports of wind damage* • *Damaging hail, 1 - 2"*	• *Strong tornadoes* • *Widespread wind damage* • *Destructive hail, 2" +*	• *Tornado outbreak* • *Derecho*

* NWS defines a severe thunderstorm as measured wind gusts to at least 58 mph, and/or hail to at least one inch in diameter, and/or a tornado. All thunderstorm categories imply lightning and the potential for flooding. Categories are also tied to the probability of a severe weather event within 25 miles of your location.

National Weather Service

www.spc.noaa.gov



Some Tornadoes are Worse Than Others

Tornadoes 2008-2012 in Study Area (north central U.S.)

13% were EF2-EF5, 262 fatalities (97%)
87% were EF0-EF1, 7 fatalities (3%)

Local destruction shown below

Lady Lake Feb 2, 2007 – 21 killed, 76 injured

Kissimmee Feb 22-23, 1998 – 42 killed, 260 injured

Impact Based Warnings (IBW)

We are going to ring the bell louder for the worst storms

Provide additional information within our warnings to allow all the various warning notification systems to ring the bell louder

Began October 1, 2015

Tornado Warning EF0 or EF1

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BULLETIN - EAS ACTIVATION REQUESTED
TORNADO WARNING
NATIONAL WEATHER SERVICE DES MOINES IA
425 PM CDT WED JUN 12 2013

THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A

* TORNADO WARNING FOR...
  SOUTHWESTERN BREMER COUNTY IN NORTHEAST IOWA...
  CENTRAL BUTLER COUNTY IN NORTH CENTRAL IOWA...

* UNTIL 500 PM CDT

* AT 422 PM CDT...A SEVERE THUNDERSTORM CAPABLE OF PRODUCING A
  TORNADO WAS LOCATED NEAR ALLISON...AND MOVING EAST AT 20 MPH.

  HAZARD...TORNADO AND QUARTER SIZE HAIL.

  SOURCE...RADAR INDICATED ROTATION.

  IMPACT...FLYING DEBRIS WILL BE DANGEROUS TO THOSE CAUGHT
           WITHOUT SHELTER. MOBILE HOMES WILL BE DAMAGED OR
           DESTROYED. DAMAGE TO ROOFS...WINDOWS AND VEHICLES
           WILL OCCUR. TREE DAMAGE IS LIKELY.

* LOCATIONS IMPACTED INCLUDE...
  CLARKSVILLE...SHELL ROCK...WAVERLY AND PLAINFIELD.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

TAKE COVER NOW. MOVE TO AN INTERIOR ROOM ON THE LOWEST FLOOR OF
A STURDY BUILDING. AVOID WINDOWS. IF IN A MOBILE HOME...A VEHICLE
OR OUTDOORS...MOVE TO THE CLOSEST SUBSTANTIAL SHELTER AND PROTECT
YOURSELF FROM FLYING DEBRIS.

&&

LAT...LON 4284 9240 4264 9250 4265 9255 4275 9288
      4289 9282
TIME...MOT...LOC 2125Z 280DEG 17KT 4279 9278

TORNADO...RADAR INDICATED
HAIL...1.00IN

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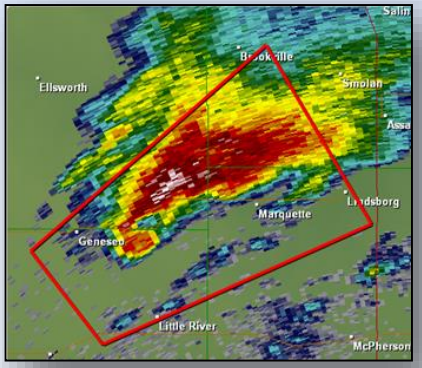
Tornado Warning EF2 or Stronger



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BULLETIN - EAS ACTIVATION REQUESTED
TORNADO WARNING
NATIONAL WEATHER SERVICE DULUTH MN
657 PM CDT THU AUG 29 2013

THE NATIONAL WEATHER SERVICE IN DULUTH MN HAS ISSUED A

* TORNADO WARNING FOR...
  NORTHWESTERN AITKIN COUNTY IN EAST CENTRAL MINNESOTA...
  EXTREME EAST CENTRAL CASS COUNTY IN NORTH CENTRAL MINNESOTA...

* UNTIL 730 PM CDT

* AT 656 PM CDT...A CONFIRMED LARGE AND EXTREMELY DANGEROUS
  TORNADO WAS LOCATED 4 MILES WEST OF HILL CITY...NEAR HIGHWAY
  200...AND MOVING SOUTHEAST AT 25 MPH.

  THIS IS A PARTICULARLY DANGEROUS SITUATION.

  HAZARD...DAMAGING TORNADO.

  SOURCE...CONFIRMED TORNADO FROM TRAINED SPOTTERS.

  IMPACT...YOU ARE IN A LIFE THREATENING SITUATION. FLYING
           DEBRIS MAY BE DEADLY TO THOSE CAUGHT WITHOUT SHELTER.
           MOBILE HOMES WILL BE DESTROYED. CONSIDERABLE DAMAGE
           TO HOMES...BUSINESSES AND VEHICLES IS LIKELY AND
           COMPLETE DESTRUCTION IS POSSIBLE.

* LOCATIONS IMPACTED INCLUDE...
  HILL CITY...SWATARA...HAYPOINT AND BAIN.
  HIGHWAY 200 WEST OF HILL CITY.
  HIGHWAY 169 SOUTH OF HILL CITY.
  QUADNA MOUNTAIN RESORT AREA.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

TO REPEAT...A LARGE...EXTREMELY DANGEROUS AND POTENTIALLY DEADLY
TORNADO IS ON THE GROUND. TO PROTECT YOUR LIFE...TAKE COVER NOW.
MOVE TO AN INTERIOR ROOM ON THE LOWEST FLOOR OF A STURDY BUILDING.
AVOID WINDOWS. IF IN A MOBILE HOME...A VEHICLE OR OUTDOORS...MOVE
TO THE CLOSEST SUBSTANTIAL SHELTER AND PROTECT YOURSELF FROM FLYING
DEBRIS.

THIS STORM HAS A HISTORY OF PRODUCING TORNADOES. TAKE COVER IN A
BASEMENT OR STORM SHELTER NOW!

&&

LAT...LON 4703 9377 4703 9359 4694 9335 4684 9342
        4677 9361 4696 9386
TIME...MOT...LOC 2356Z 310DEG 22KT 4698 9370

TORNADO...OBSERVED
TORNADO DAMAGE THREAT...CONSIDERABLE
HAIL...1.75IN

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Public Awareness and Safety

- Monitor local television and radio for severe weather situations
- Have multiple ways to receive timely weather warnings
  - ✓ This can save lives, especially with dangerous, night-time tornadoes
  - ✓ NOAA Weather radio
  - ✓ Wireless Emergency Alert
  - ✓ Reverse 911

What Can You Do?

Pick an employee who is into weather to be an Ambassador for a Weather Ready Nation

http://weather.gov/tampa/?n=wrn

The Ambassador will receive 1 or 2 Emails a month with resources to promote hazardous weather awareness and preparedness to those in your organization and can be a resource for your social media posts.

Hillsborough Ambassadors

- Hillsborough County Fire Rescue Office of Emergency Management
- Port Tampa Bay
- Tampa Bay Regional Planning Council
- University of South Florida
- Valencia Lakes Home Owners Association
- WUSF Public Radio
- WRMD Telemundo Tampa
- Fox 13 WTVT-TV Tampa Bay

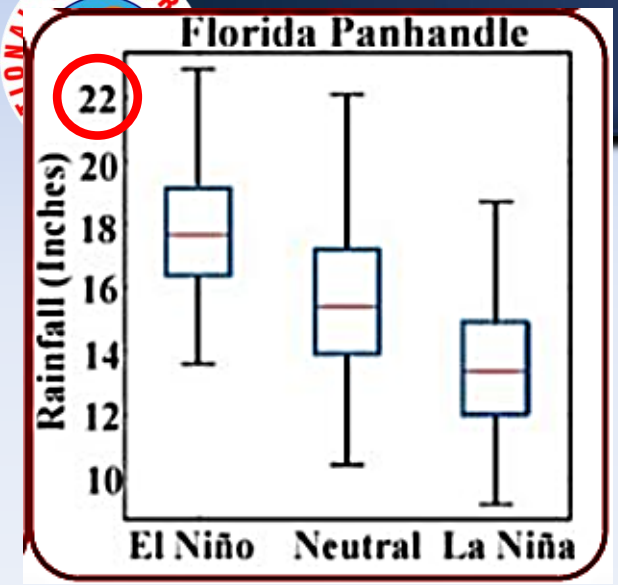
NWS Tampa Bay Social Media

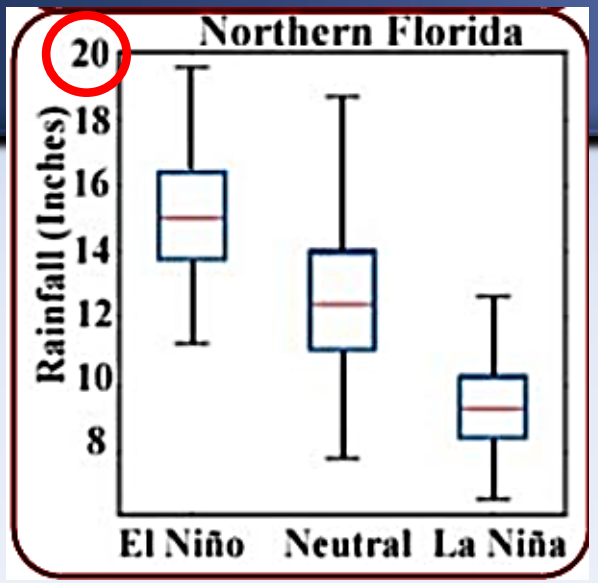
http://weather.gov/tampabay

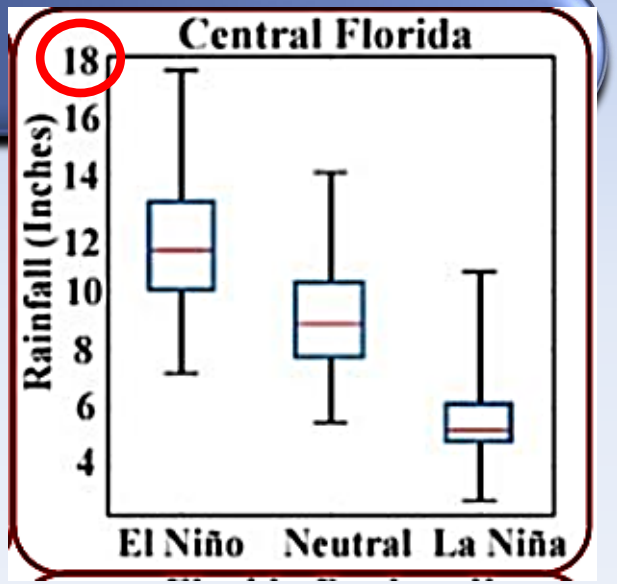
@NWSTampaBay

NWSTampaBay

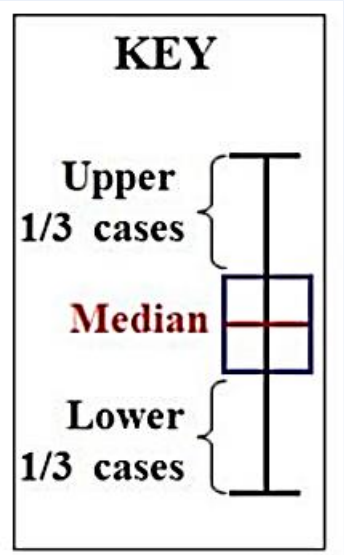
NWSTampa

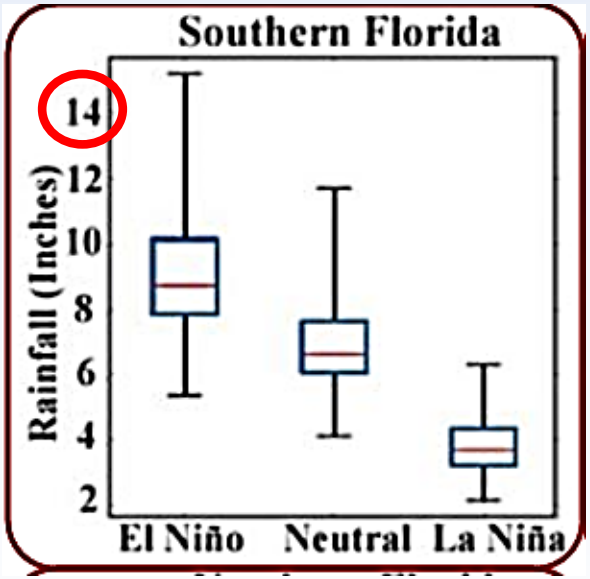




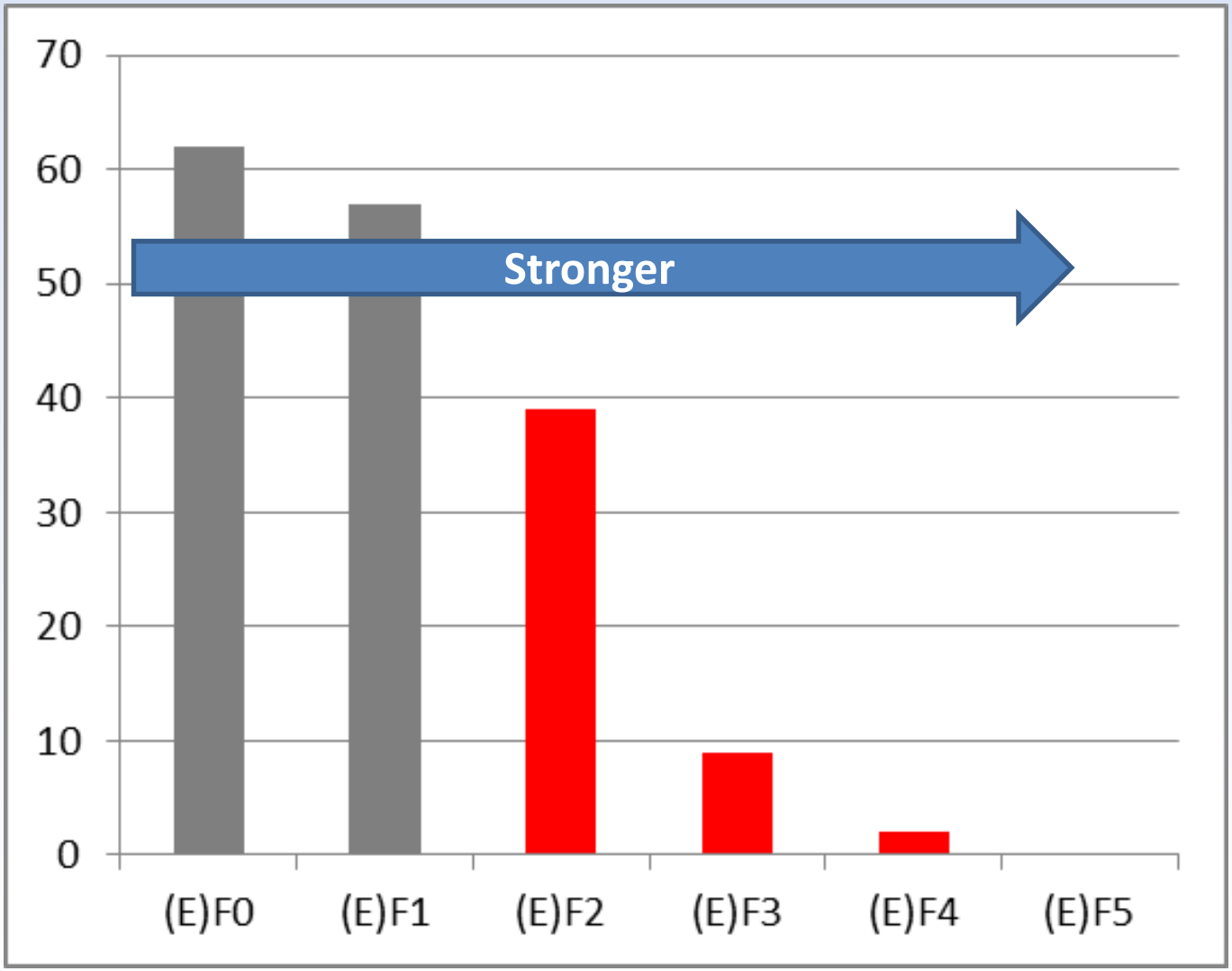


Florida Winter Rainfall





El Niño Tornadoes in Florida Since 1950



Severe Thunderstorm & Tornado Warnings

These are the only warnings we don't tell you the predicted magnitude

What if we gave you a

- River Flood Warning without the crest?
- Freeze Warning without the expected low?
- Hurricane Warning without the category?