



# Symposium on Lightning and Lightning Safety Awareness

Arlene Laing, PhD

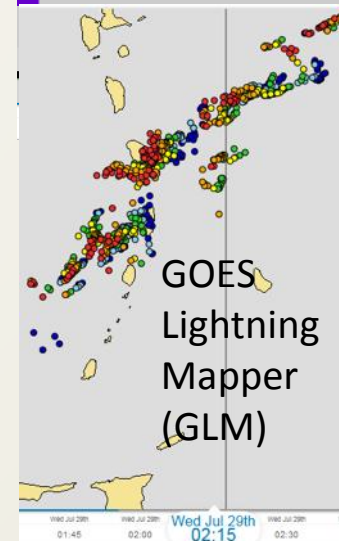
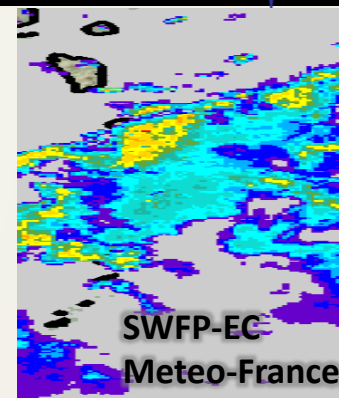
Caribbean Meteorological Organization  
(CMO)



# Motivation: Lightning, Lessons, and Linkages



- Lightning as nearly daily occurrence growing up in SW Jamaica
  - Family friend (“Uncle”) badly burnt by lightning strike while farming
  - Home appliances damaged by lightning
  - Power outages due to damaged power company equipment
- Recent reports of deaths, injuries, damages, e.g., in Jamaica, El Salvador
- Lightning & wildfires: Historic Florida wildfires in 1998, 2001-2002, lightning as main single ignition source
- Relationship of El Niño-Southern Oscillation & Lightning
- Lightning and Climate Variability/Climate Change
- Severe Weather Forecast Programme – Eastern Caribbean
- Impact-based forecasting, better serve societal needs



## Outdoor sports

### Olympic surfing hopeful, 22, dies after being struck by lightning while training at El Salvador beach

This is the second incident in recent weeks this season as five players were hit by lightning during a game between Jamaica College and Wolmer's Boys on September 16 at Stadium East Field.

Since that incident and subsequent postponements due to severe weather, ISSA has moved up the start time of all games after September 25 to 2:00pm.

## Maritime

According to US insurance claims (from BoatUS Marine Insurance) the odds of a boat being struck by lightning in any year are about 1 per 1,000, increasing to 3.3 per 1,000 in lightning prone areas such as Florida. Pantaeinius reports that while high-risk areas include the Caribbean, Florida and Mexican Gulf, the incidence in other

struck in Tobago but only discovered the electrical damage to the port engine when we reached St Lucia and it was in the Azores that we found out the rudder post was broken and we had lost half our rudder."

Yachting World

Yachting World

August 27, 2020

AP

## Agriculture

### Police: Lightning kills 2 in Jamaica as they picked pears

f

September 10, 2020

others had seen unfold before in the rural farming district. Residents told **The Gleaner** that they have been living in fear for years, with dozens of cows and goats falling victim to lightning strikes.

Garfield Saunders said that Keynsham has always been at the mercy of dangerous lightning strikes during heavy rainfall.

The erection of several lightning rods has not mitigated their vulnerability, residents said.

## Fires

The New York Times

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### **LIGHTNING FIRES SIX HOUSES.; Heavy Damage in Jamaica from Storm -- Bolt Stuns Man.**

f @

Special to The New York Times.

July 29, 1913

## Lightning strike from Irma grounds flights

Share this Story:

Published: Friday | September 8, 2017 |

### 2-hour blackout as lightning strikes

by Alicia Llanos

Port-of-Spain was without electricity for more than two hours yesterday after lightning struck the Trinidad and Tobago Electricity Commission (T&TEC) Bamboo sub-station, Valsayn. Power outages also were reported in north, central and east Trinidad. T&TEC's communications manager, Annabell Brasnell, said around 11.30 am yesterday lightning struck the Bamboo sub-station disrupting electricity transmission. She said that resulted in the power loss. She said the problem at Bamboo sub-station caused all generator units at PowerGen's Port-of-Spain power station to trip, leaving the city without electricity for over two hours.

Brasnell said T&TEC technicians quickly assessed the problem and began work shortly after the incident at the sub-station. Reports of power outages came from Orange Grove, Maraval, St James, Tunapuna, Curepe, Chaguana, Piarco, Bamboo and the East West Corridor. Power was restored to downtown Port-of-Spain around 1 pm and around 12.25 pm in the East.

Sandy confirms story

Speaking at yesterday's daily state of emergency meeting at the Prime Minister's Office, Port-of-Spain, National Security Minister John Sandy said the blackout was caused by lightning striking the Bamboo sub-station. He said the office of the Prime Minister also was affected and was operating on generators.

# Business Continuity



Mon Aug 29 2011

## Thirteen Hampton students affected by lightning strike

5:49 pm, Thu October 10, 2019

About 3 p.m. the students were in a club meeting in a classroom when the lightning struck the building during heavy rain.



Screenshot from a video which captures a lightning strike at the Hampton School in St. Elizabeth

# Buildings & Infrastructure

## Bolt of lightning beheads church statue

Sep 10, 2020 Updated Sep 10, 2020 1 min to read

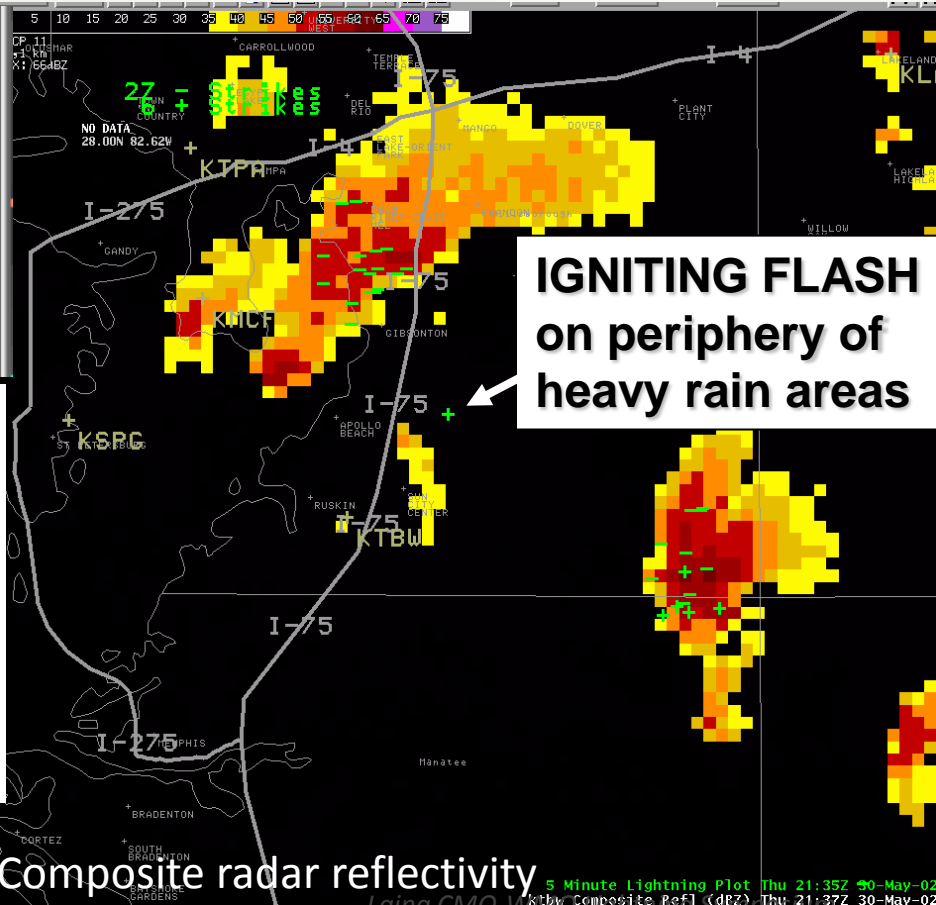
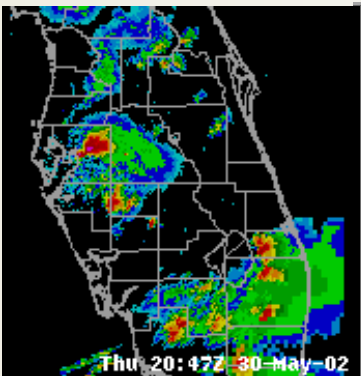


# Insurance losses - Recent Trends

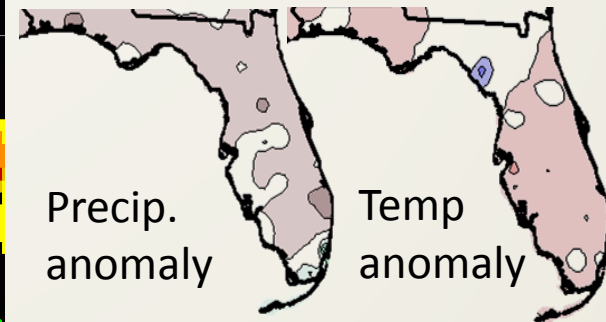
Yachting World August 27, 2020

Pantaenius handles more than 200 cases of lightning damage every year. "Over the past 15 years, the total number of such loss events has tripled in our statistics. The relative share of lightning damage in the total amount of losses recorded by us each year is already 10% or more in some cruising areas such as the Med, parts of the Pacific or the Caribbean," added Pantaenius's Jonas Ball.

# Florida Lightning Fires



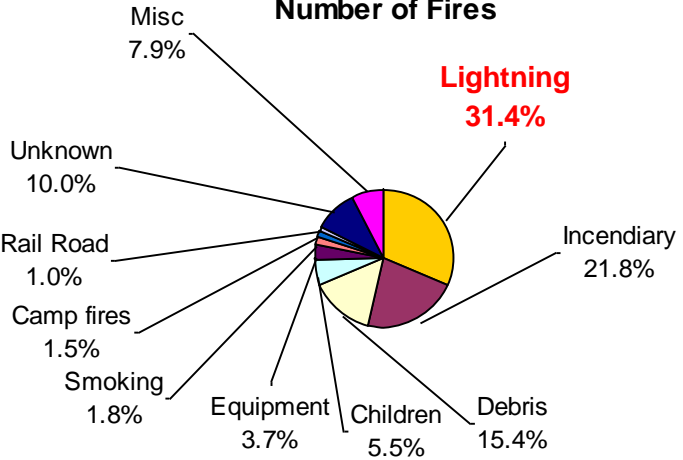
## WHERE IS FIRE RISK?



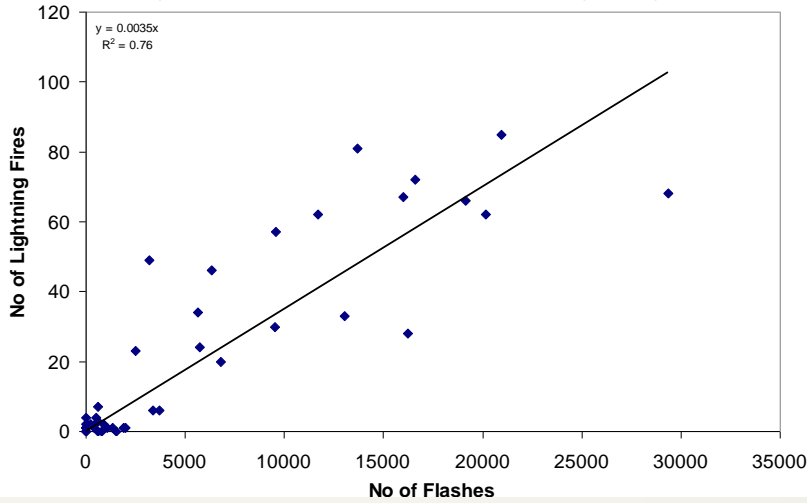


# Lightning & 1998 Florida Fires

**Number of Fires**



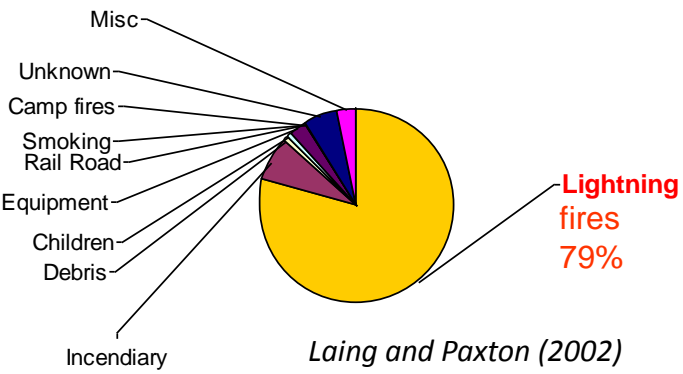
**Daily Distribution: Florida Flashes vs Fires, 25 May - 4 July 1998**



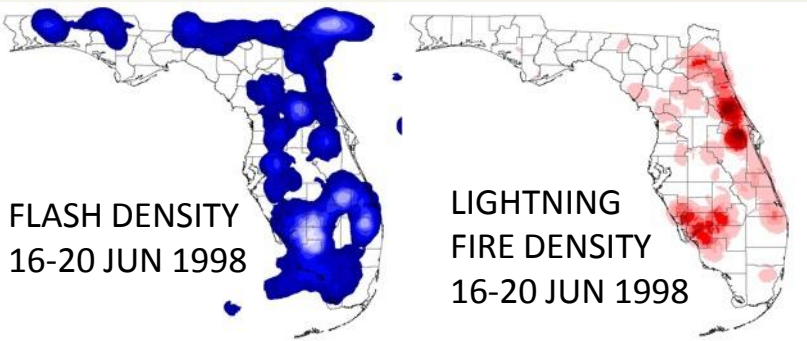
**LIGHTNING - major ignition source**

**More frequent, Negative Flashes caused most fires**

**Causes of Acres Burnt**



*Laing and Paxton (2002)*



**Fewer fires started by less frequent, positive flashes but higher ignition ratio**

# Link to El Niño – Lessons for Caribbean



Winter 1997-98 - El Niño  
Summer - La Niña

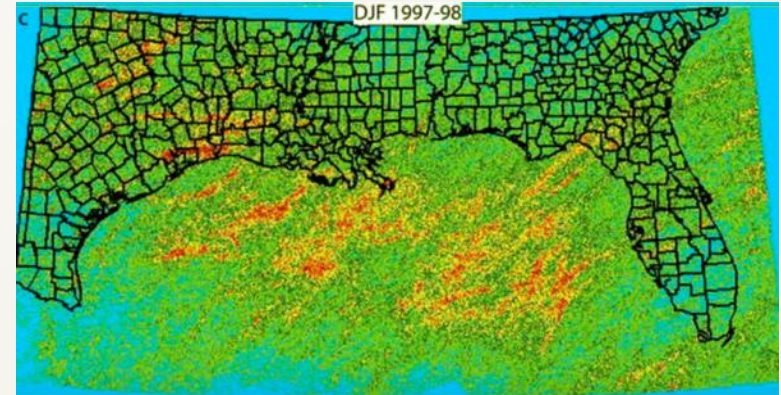
Oct - Feb

- Precipitation 100-290% of normal

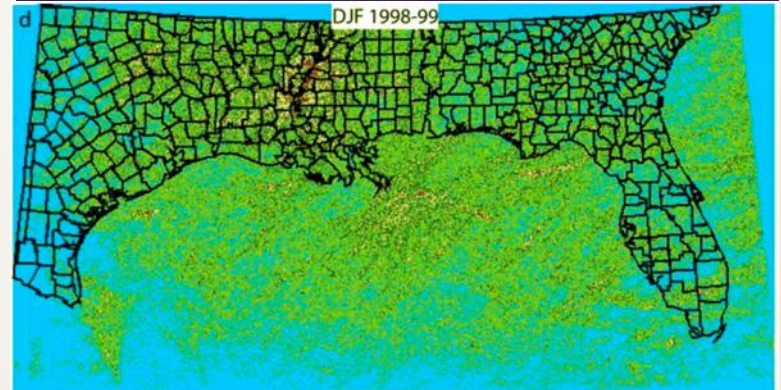
April, May, June

- Precipitation < 50% of normal

El Niño



La Niña



*Laing and LaJoie (MWR2008)*

- Improved lightning safety in the Caribbean in terms of fewer deaths, injuries, and property damage.
- Better understanding of lightning risk (where & when it happens)
- Shared information and resources on lightning injury prevention
- Improved messaging for lightning safety awareness
- Investment and capacity development in lightning early warning
- Initiation or strengthening of public-private-academic partnerships in lightning research and applications
- Other future actions resulting from open discussions



# Acknowledgements



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