In the Eye of the Storm

John Morales, Chief Meteorologist, WTVJ

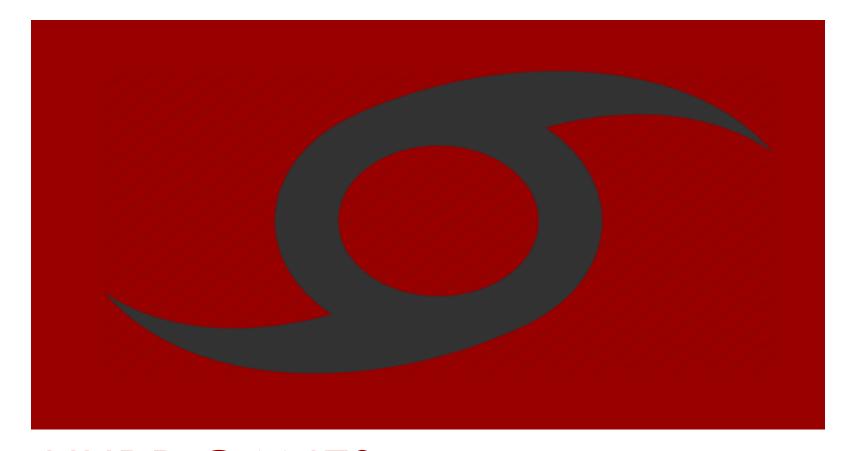


From Cornell to climate change...





IN THE EYE OF THE STORM



HURRICANES: The Future

John Morales, Chief Meteorologist WTVJ @JohnMoralesNBC6 john.morales@nbcuni.com



Review of 2017 (Atlantic)

- Irma
 - Strongest cyclone outside of the Gulf or Caribbean
 - World record as the longest continuous category 5
- María
 - 1-in-200 year event
- Ophelia
 - Easternmost major hurricane on record
- September
 - New world record for Accumulated Cyclone Energy (ACE)

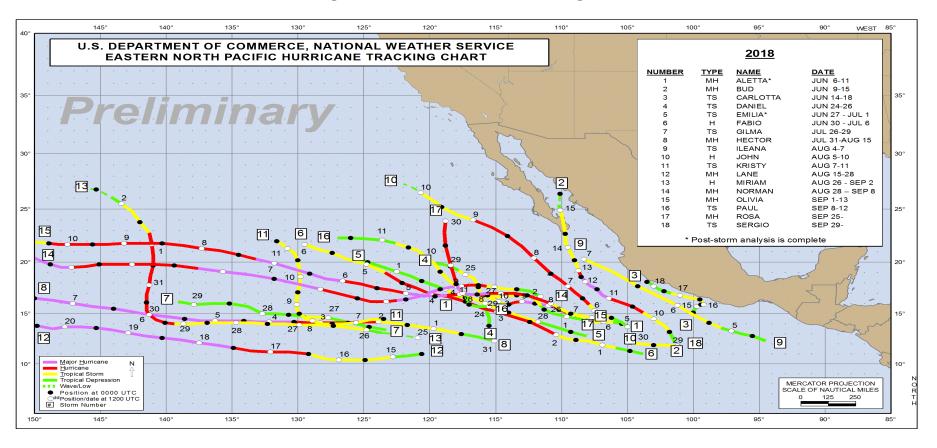




Review of 2018 (Hemisphere)

• Eastern Pacific

- New ACE seasonal record (double the average)
- World record as the longest continuous category 5



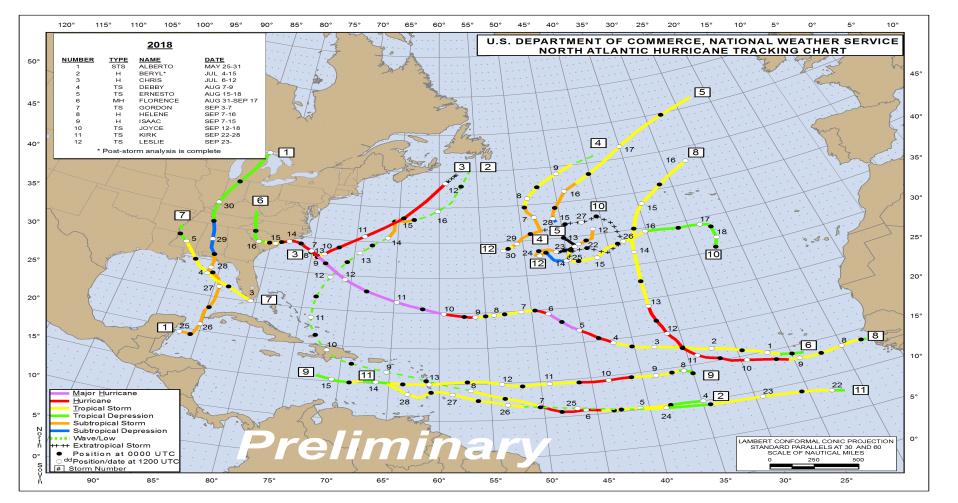




Review of 2018 (Hemisphere)

Atlantic

- Michael: strongest Panhandle hurricane on record
- Nadine: easternmost formation so late in the season

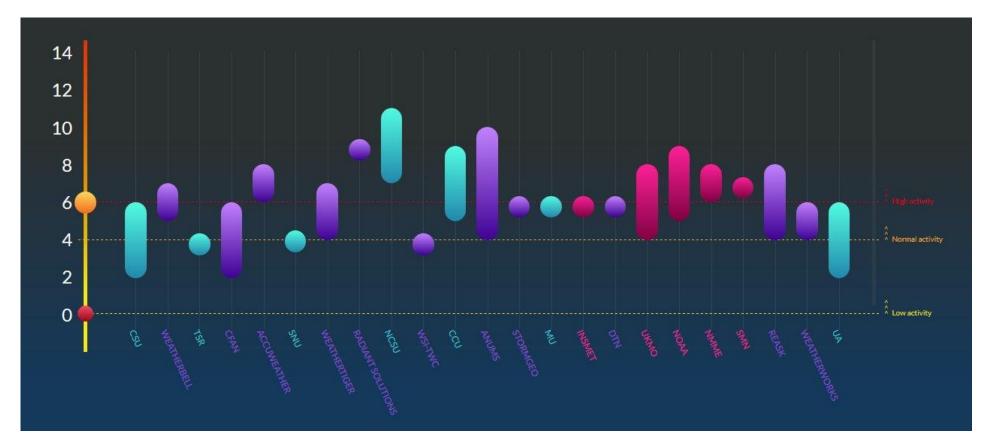






2018 Season Forecast

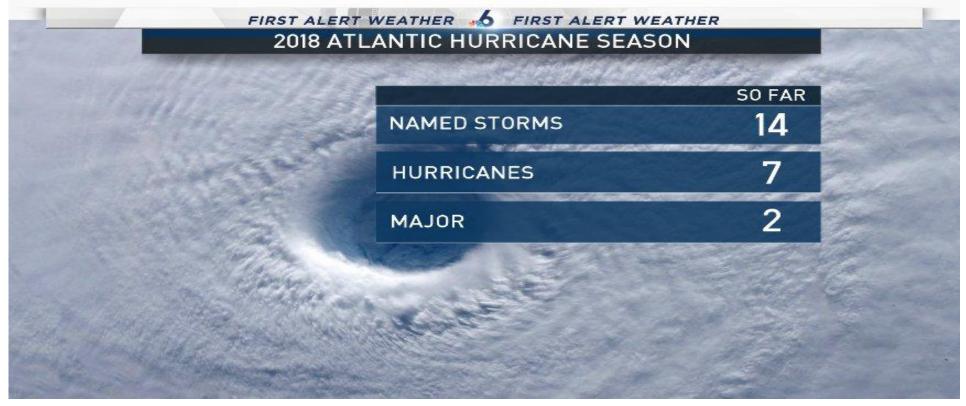
6 hurricanes = average season







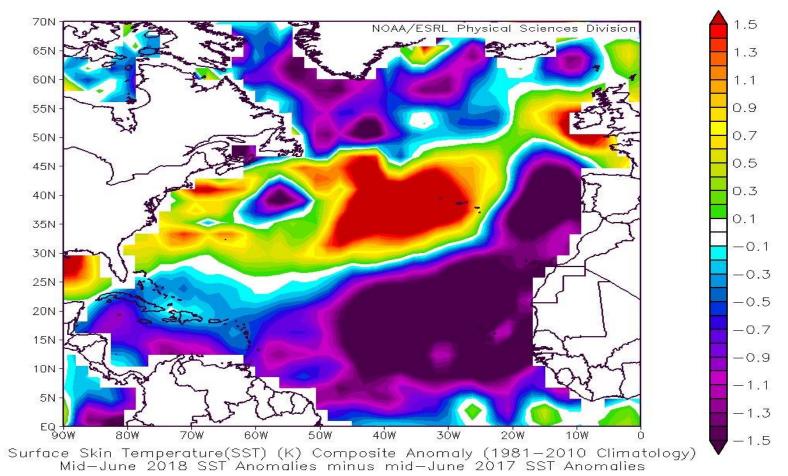
(Normal: 12 storms, 6 hurricanes, 2 major)







sea surface temperature anomaly

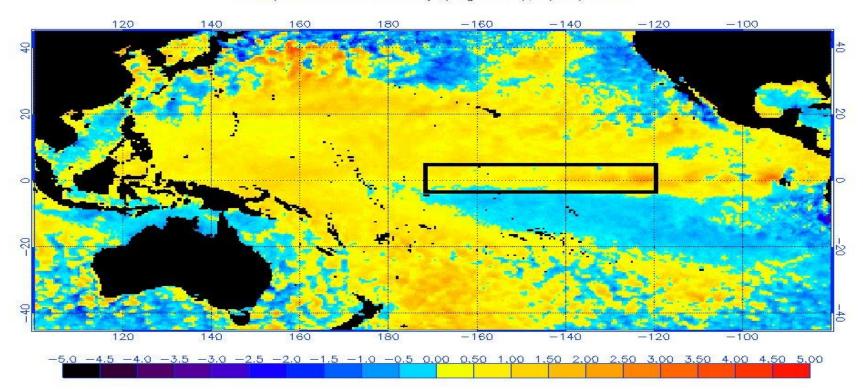






sea surface temperature anomaly

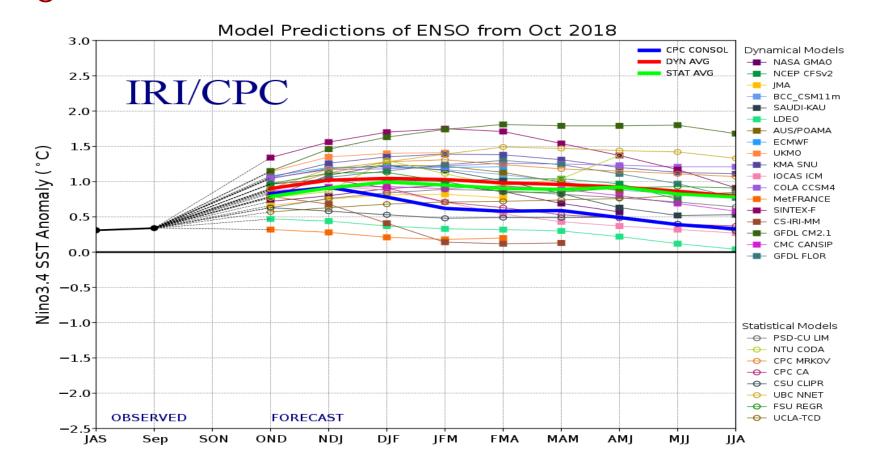








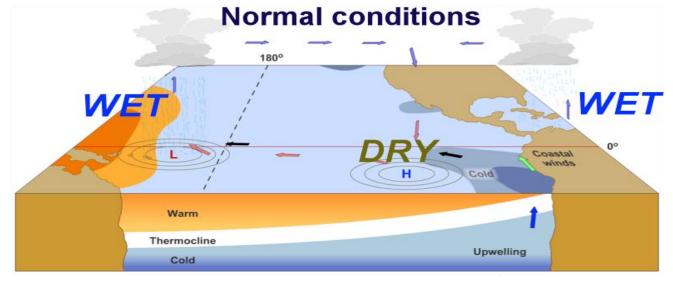
2018 Season signs of an El Niño

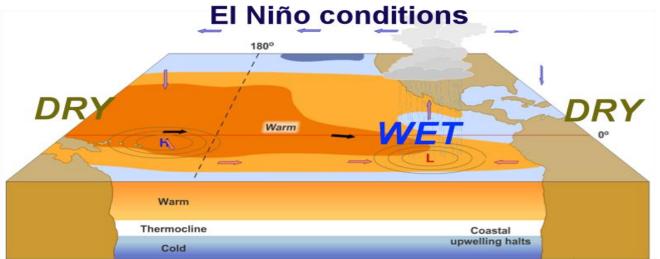






2018 Season signs of an El Niño



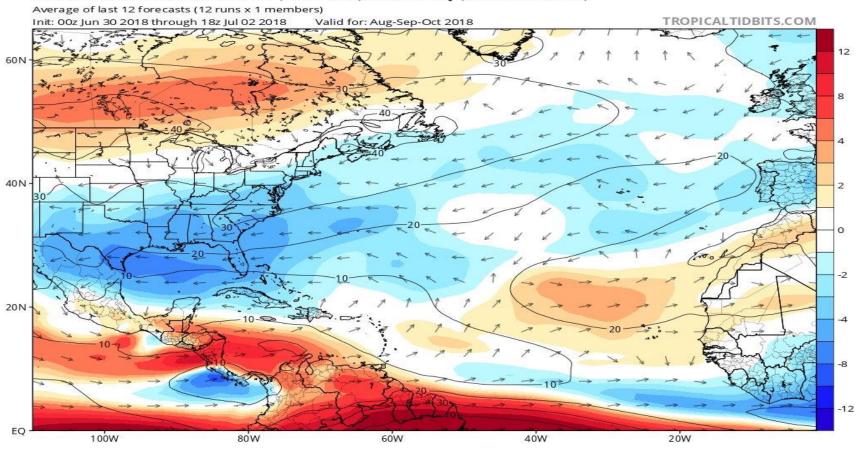






wind shear august-october

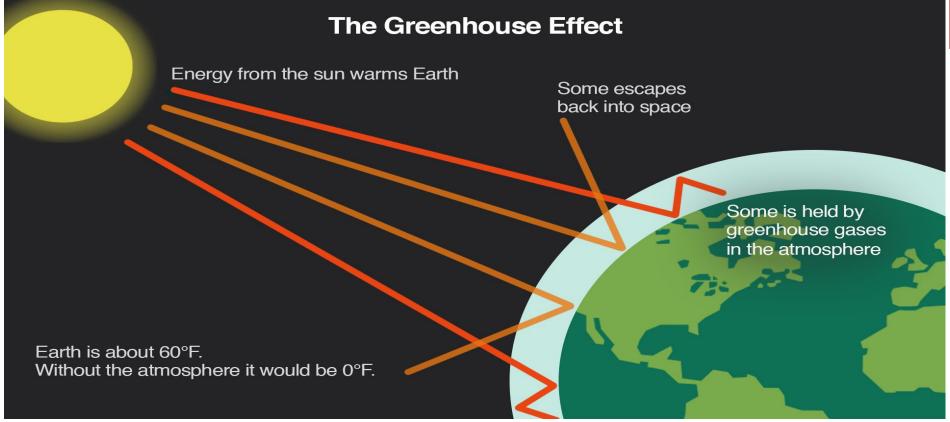
CFSv2 850-200 hPa Bulk Wind Shear (kt, contour) and Anomaly (kt, shaded/vector)







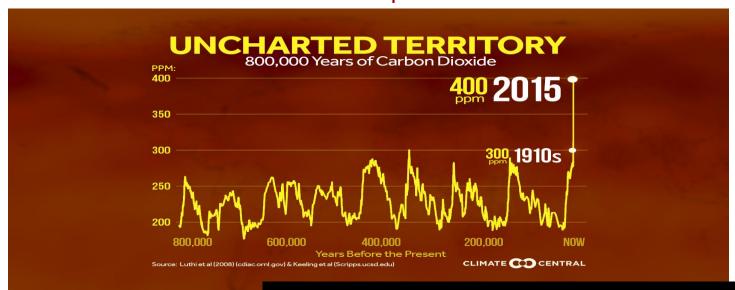
Climate Change greenhouse gases



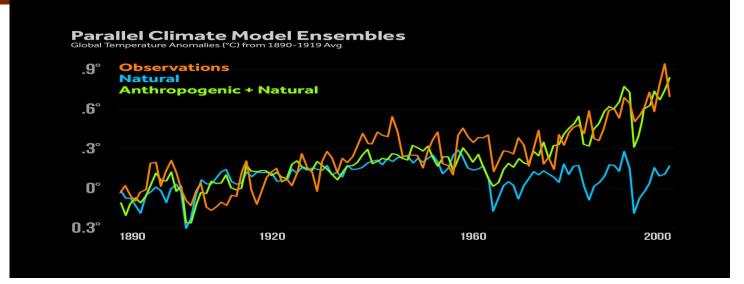




Climate Change carbon dioxide and temperature









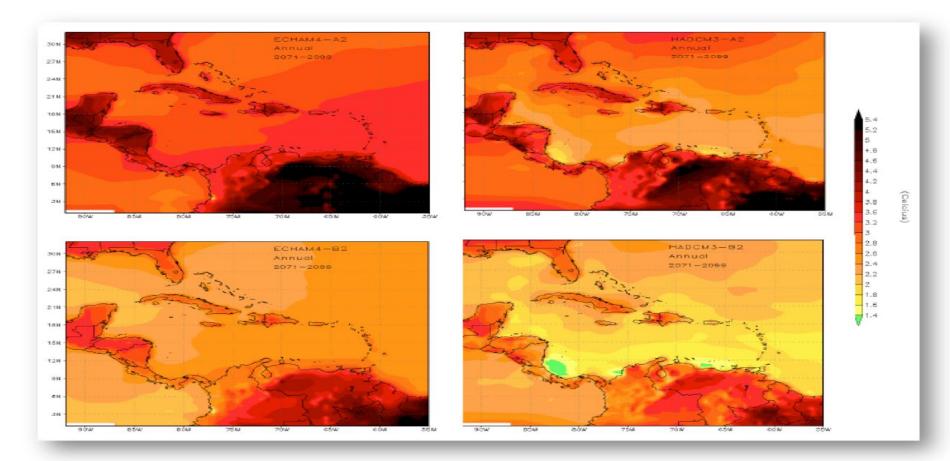
Climate Change impacts







Climate Change up to 4°C warmer by 2100







Climate Change tropical storms and hurricanes

 No observable trend in the number of tropical cyclones worldwide

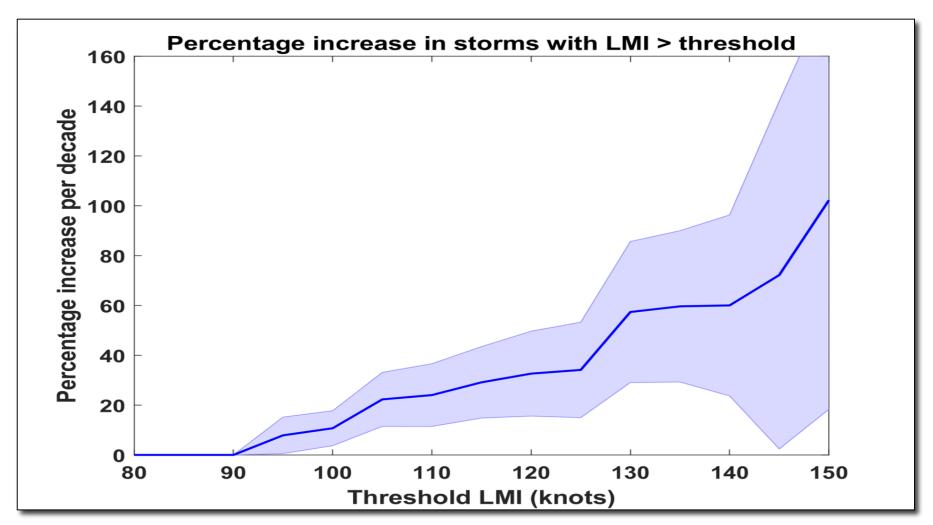


- Climate models don't add much clarity in regards to future frequency of tropical cyclones
- Climate models <u>do</u> point to a greater number of very intense (major) cyclones
- The storms that form have a greater opportunity to reach higher intensity



Global Intensity Trends

Lifetime Maximum Intensity

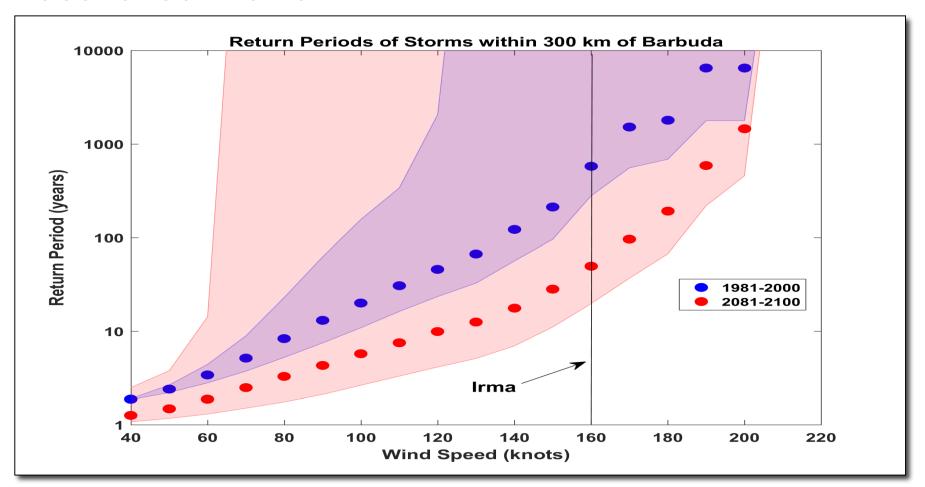






Possible Future Intensity

recurrence interval







Possible Future Intensity

recurrence interval

