

Hurricane Flying & Forecasting

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Florida International University

MSC 118 20APR07

WINDS OF THE HURRICANE

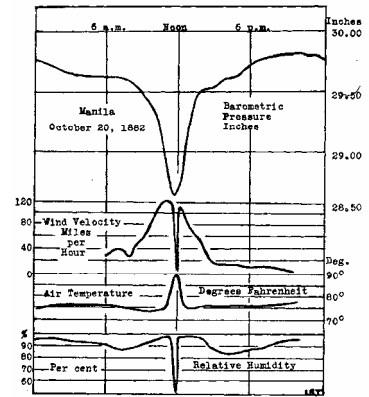
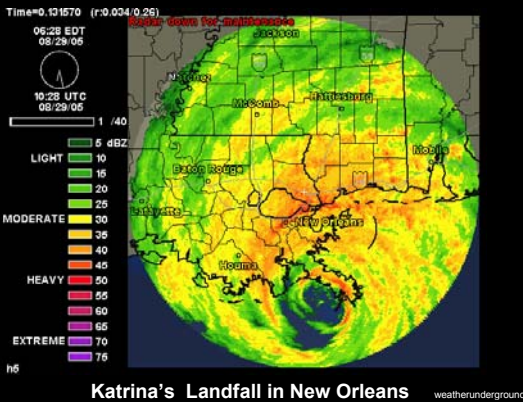
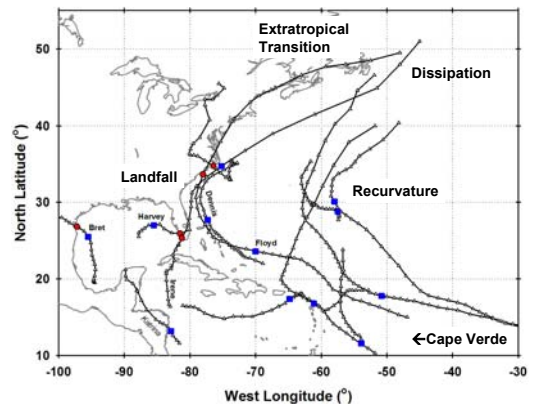


FIGURE 10. Barometric pressure, wind velocity, temperature and relative humidity during passage of cyclone over Manila on October 20, 1882.

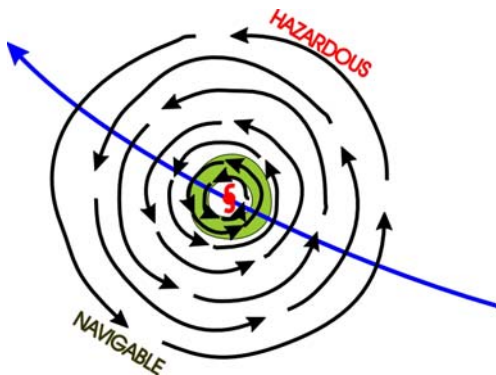
The Nightmare Scenario Comes to Pass



1999 Hurricane Season

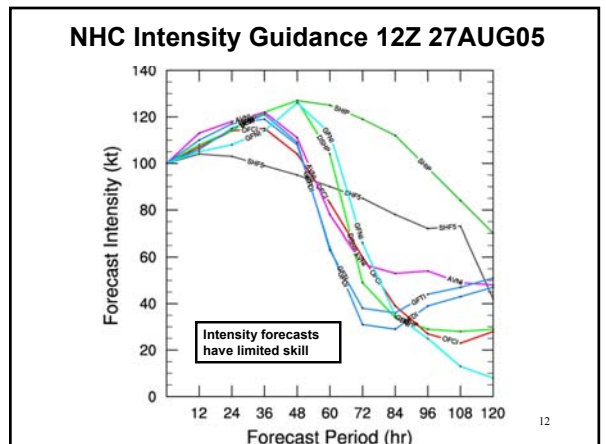
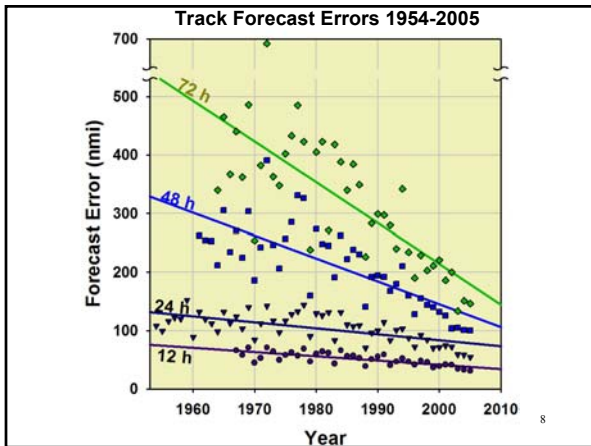
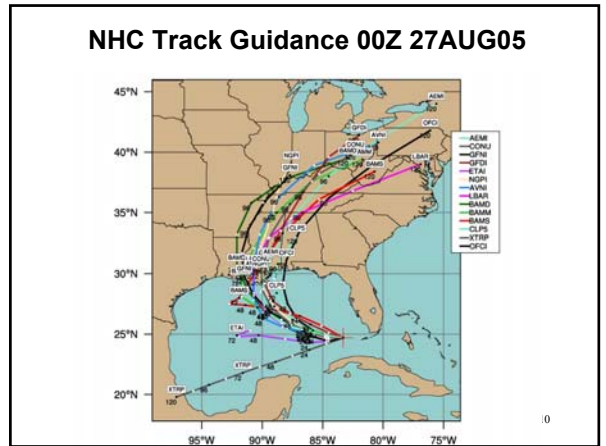
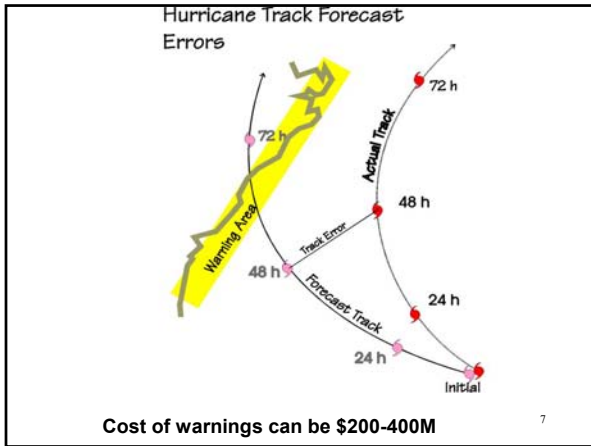


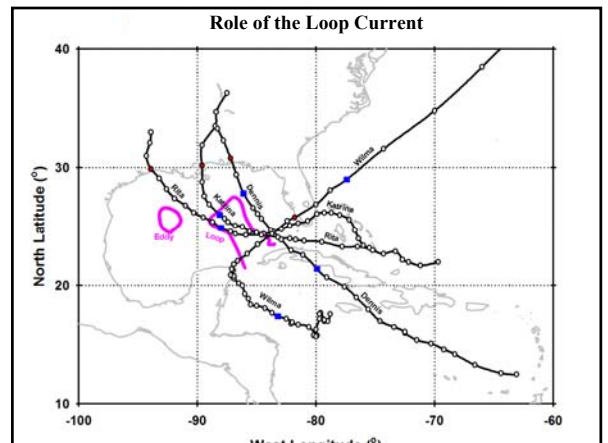
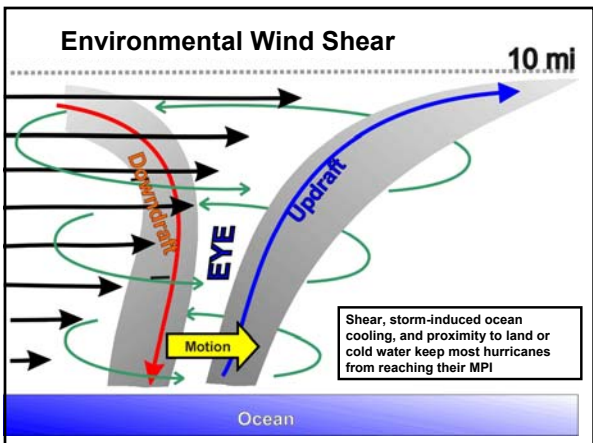
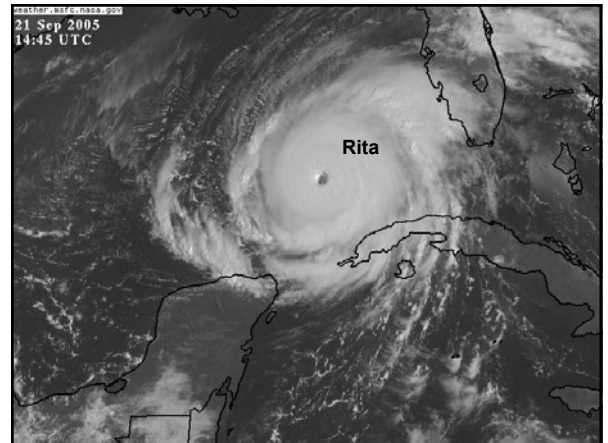
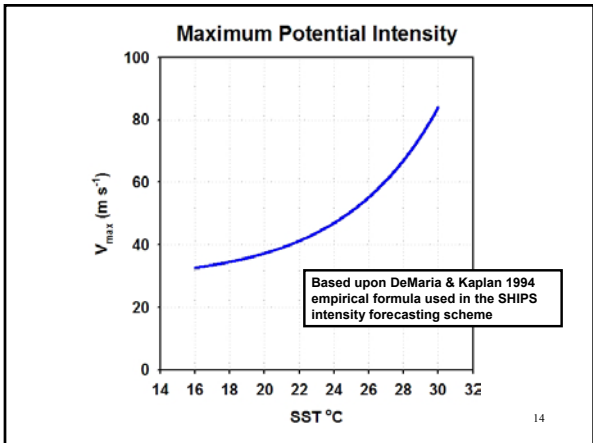
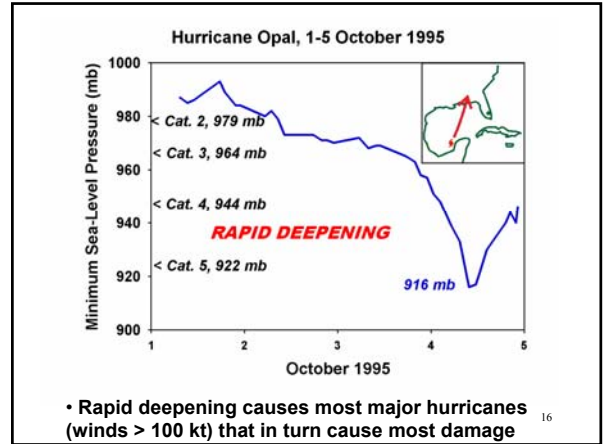
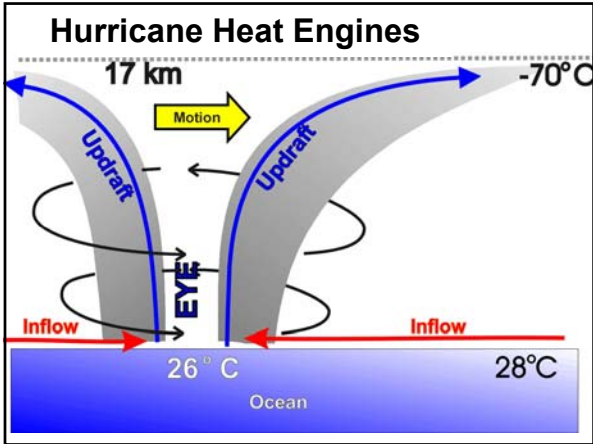
Law of Storms

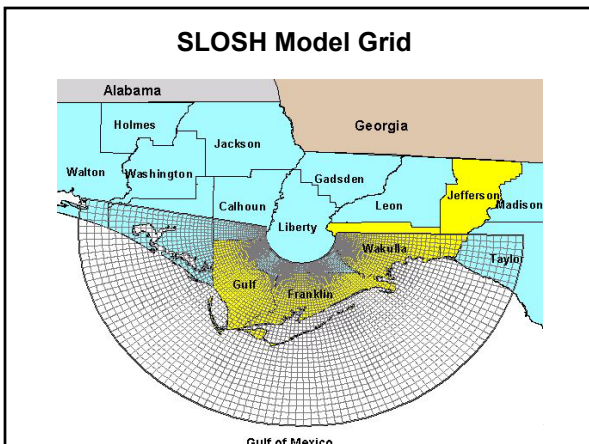
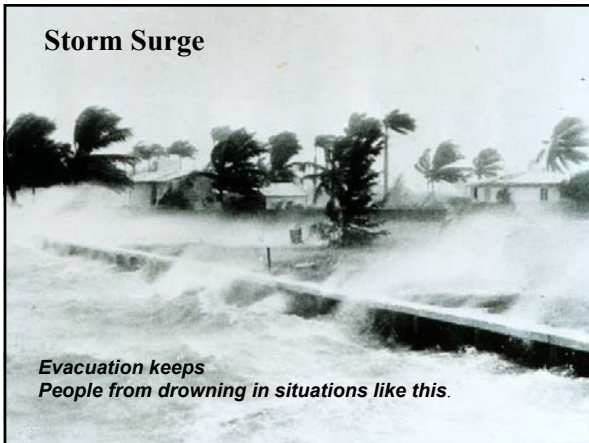
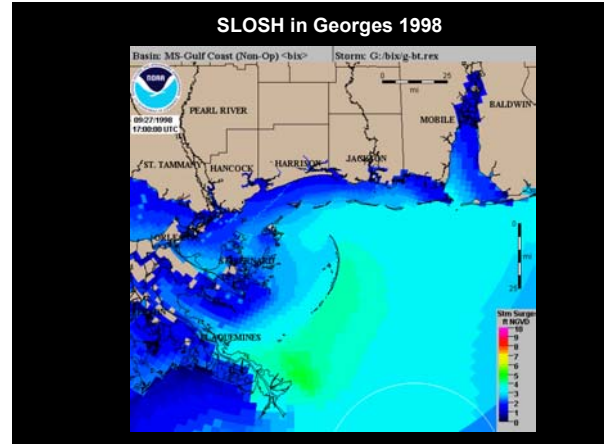
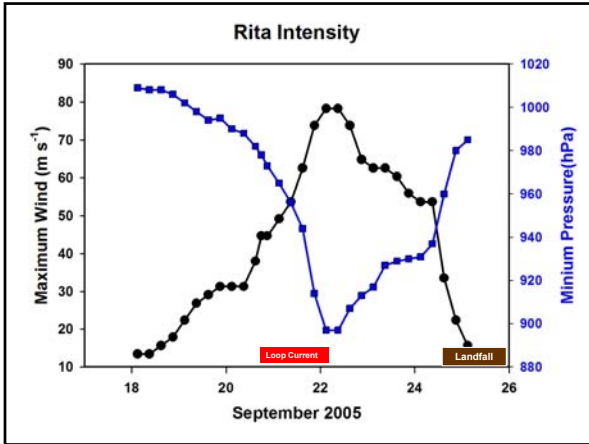


Forecast Elements

- Track: Where is it going?
- Intensity: How Strong is it?
- Distributions of rainfall and winds
- Storm surge
- Timeliness
 - Synoptic observations at 00, 6, 12, 18 UTC
 - Advisories at 5 AM, 11 AM, 5 PM and 11 PM EDT
- Chaos and uncertainty
- Guidance—i.e. numerical models



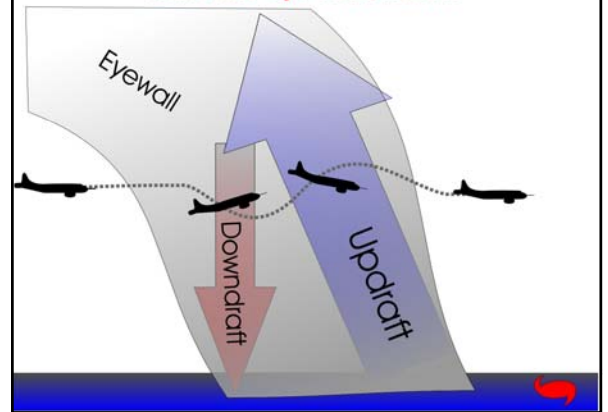




NOAA WP-3Ds



Hurricane Eye Penetration



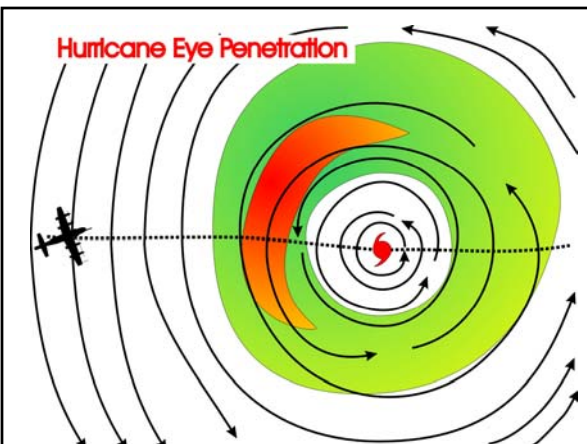
ON FLYING IN TURBULENCE:

If you maintain attitude and airspeed,
altitude will take care of itself
---provided you have some.

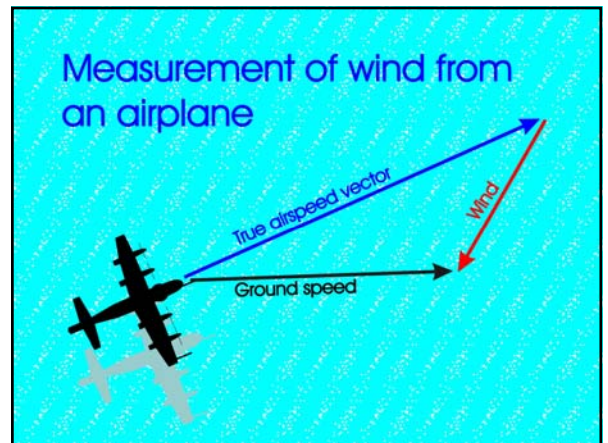
Flight Instructor

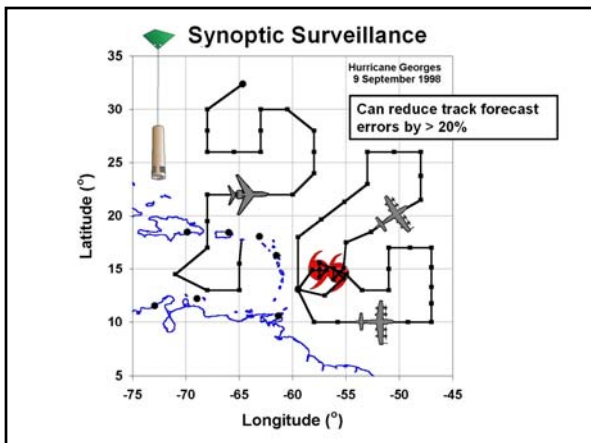
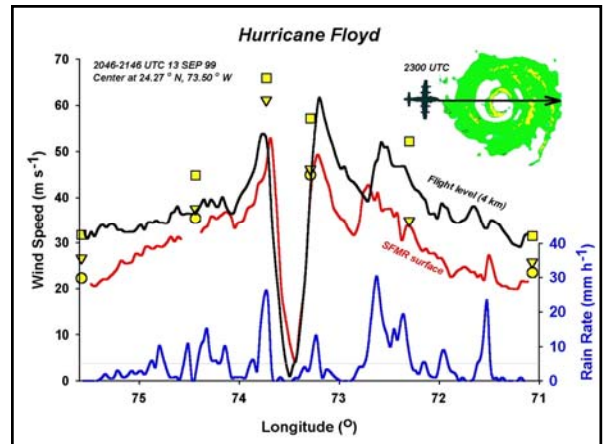
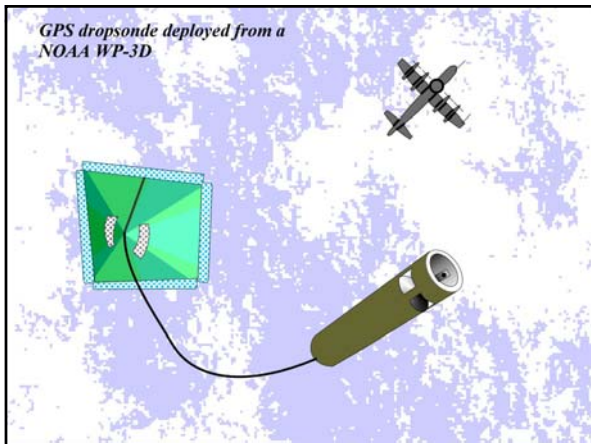
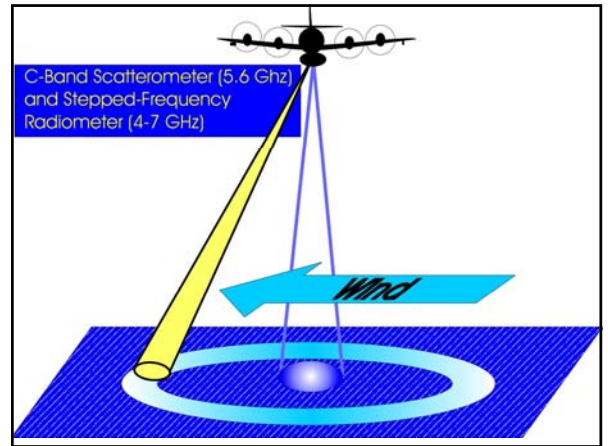
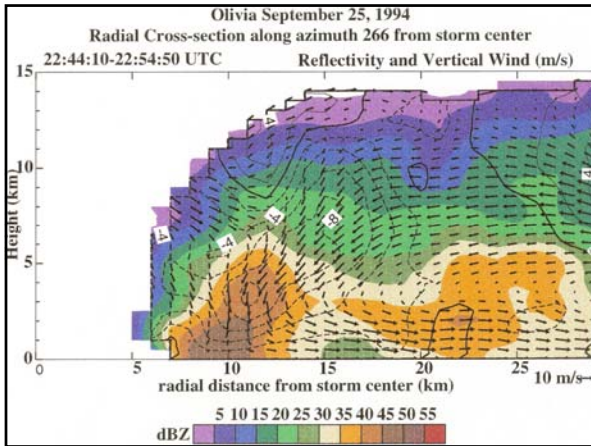


Hurricane Eye Penetration



Measurement of wind from an airplane





Summary

- Hurricanes are circular storms with motion much slower than the maximum wind.
- Forecast attributes
 - Track: Where is it going
 - Intensity: How strong is it?
 - Impacts: Geographical distributions of wind, rain and storm surge
 - Synoptic timelines
- Numerical guidance is key
- Rapid Intensification
- Role of ocean temperature structure
- Attitude & Airspeed
 - In-situ observations from aircraft
 - Radar: Reflectivity & Doppler
 - Dropsondes
 - Airborne remote sensing

43

Thank you for your attention.
Questions?

