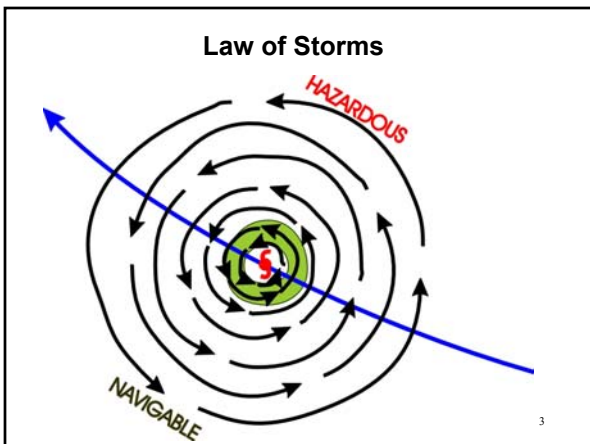
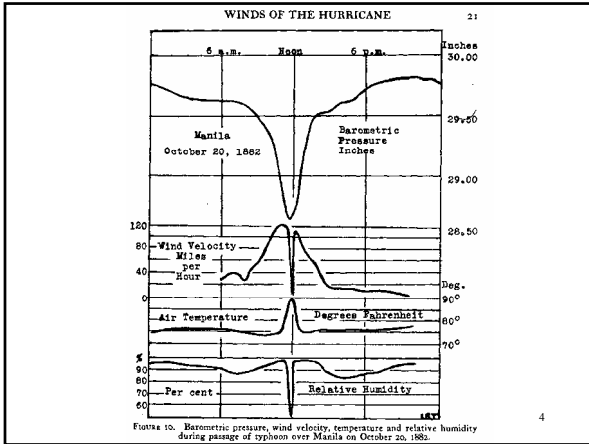
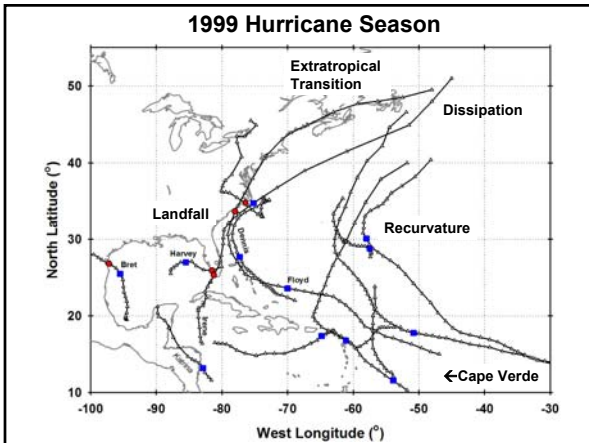






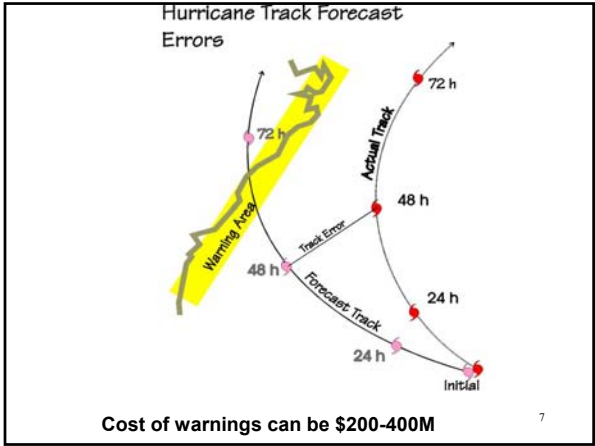


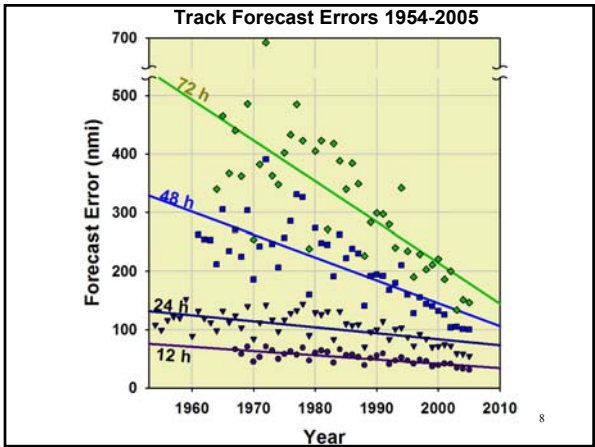


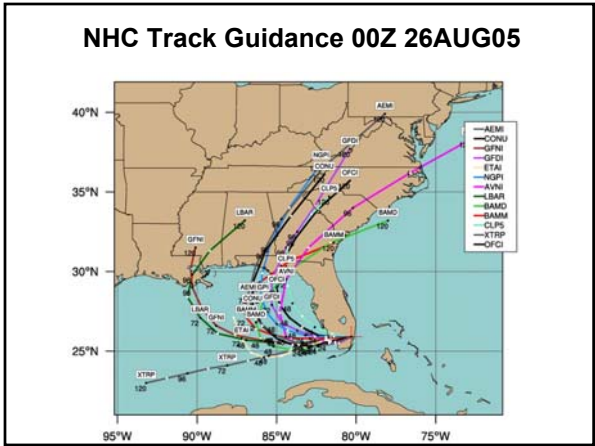


Forecast Elements

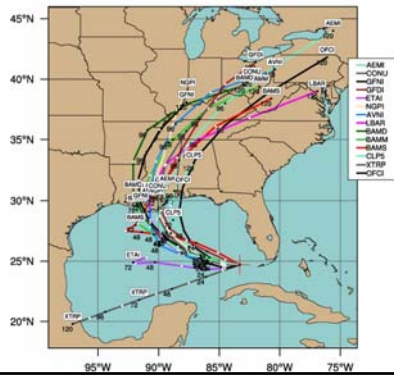
- Track: Where is it going?
- Intensity: How Strong is it?
- Distributions of rainfall and winds
- Storm surge
- Timeliness
 - Synoptic observations at 00, 6, 12, 18 UTC
 - Advisories at 5 AM, 11 AM, 5 PM and 11 PM EDT
- Chaos and uncertainty
- Guidance—i.e. numerical models







NHC Track Guidance 00Z 27AUG05

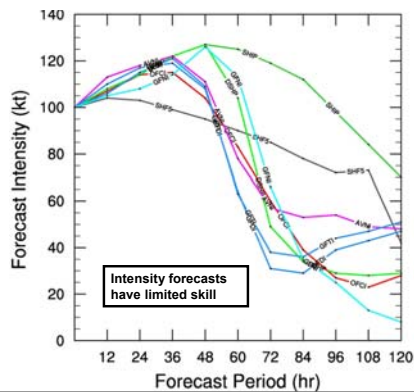


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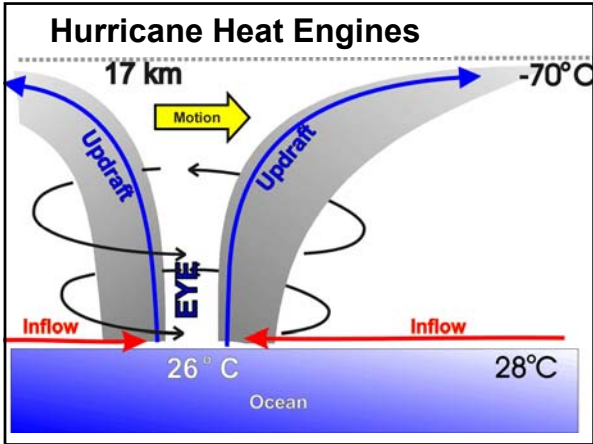
Katrina 2½ Day Forecast

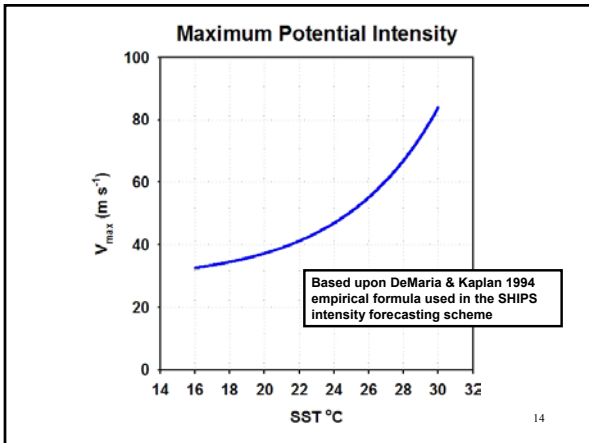


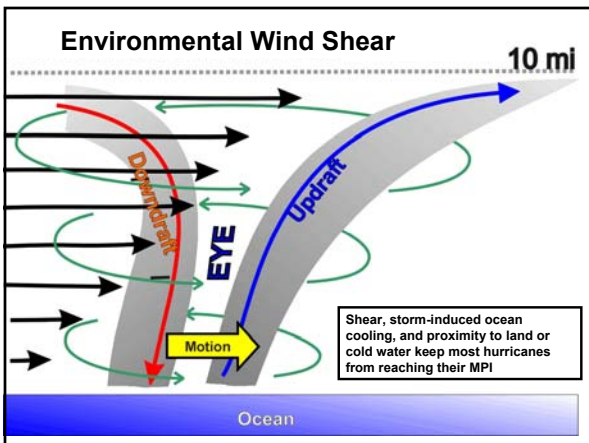
NHC Intensity Guidance 12Z 27AUG05

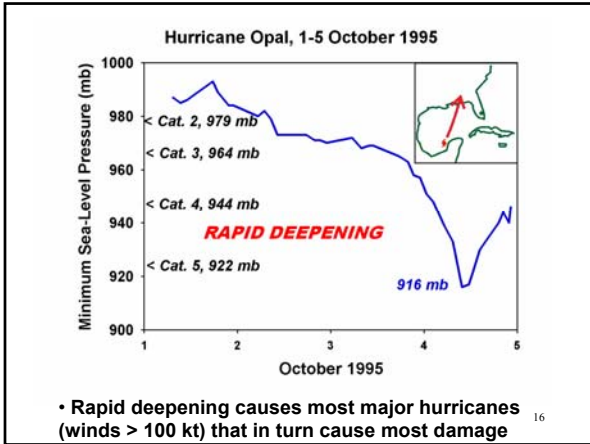


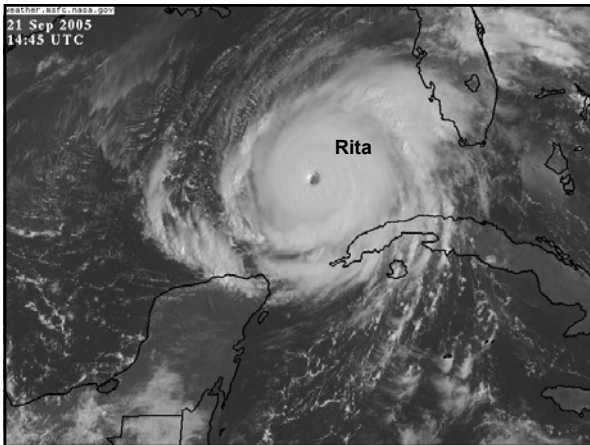
12

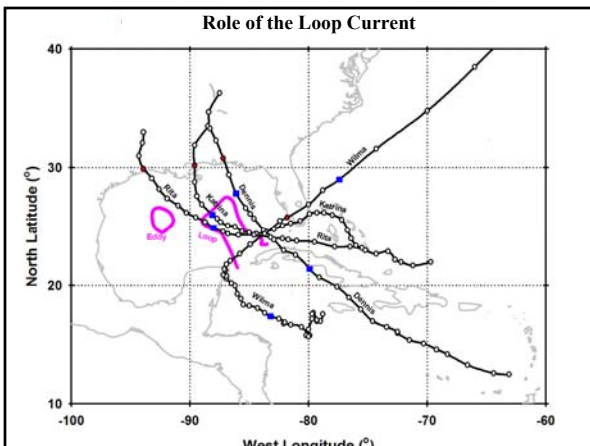


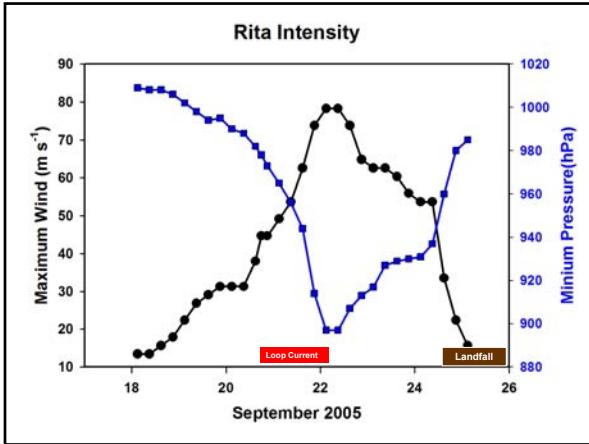


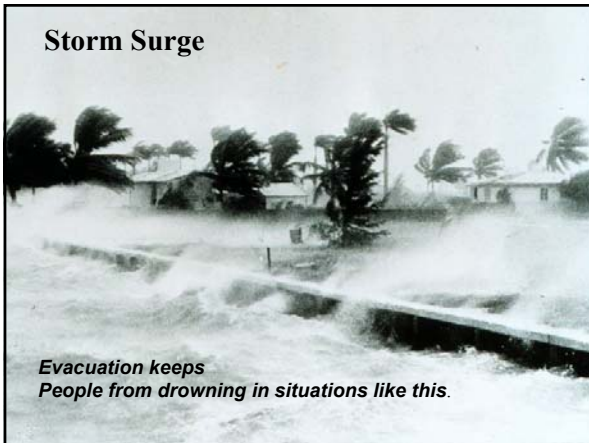


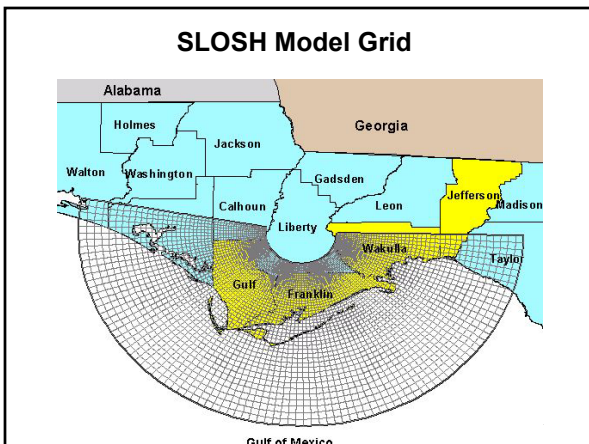




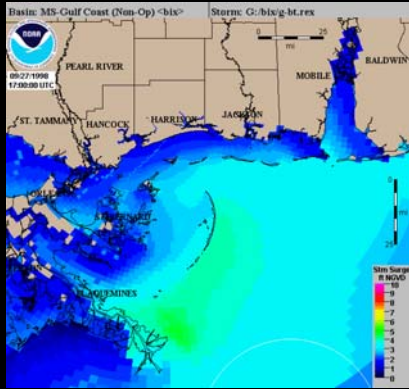








SLOSH in Georges 1998



53rd WRS WC-130s



NOAA G IV SP



NOAA WP-3Ds



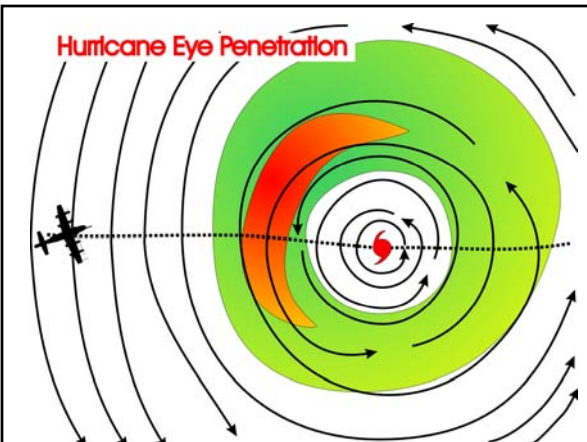
ON FLYING IN TURBULENCE:

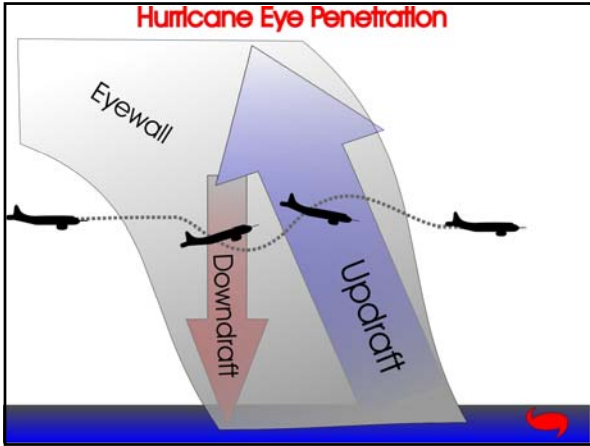
If you maintain attitude and airspeed,
altitude will take care of itself
---provided you have some.

Flight Instructor

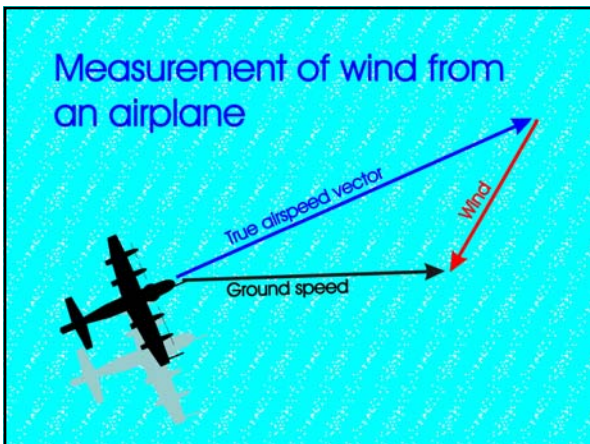


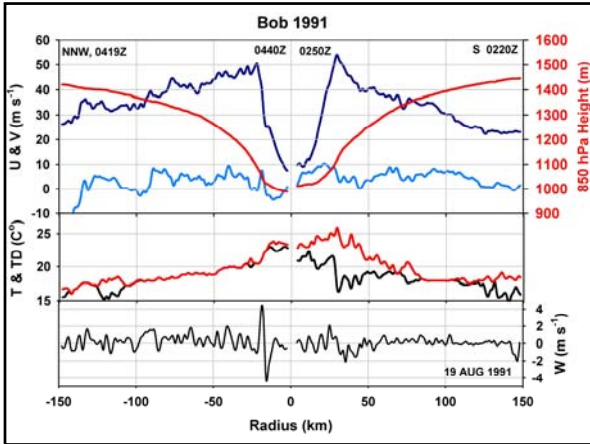
Hurricane Eye Penetration

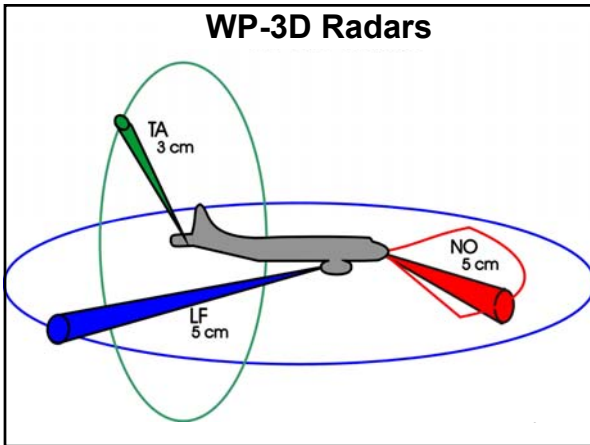


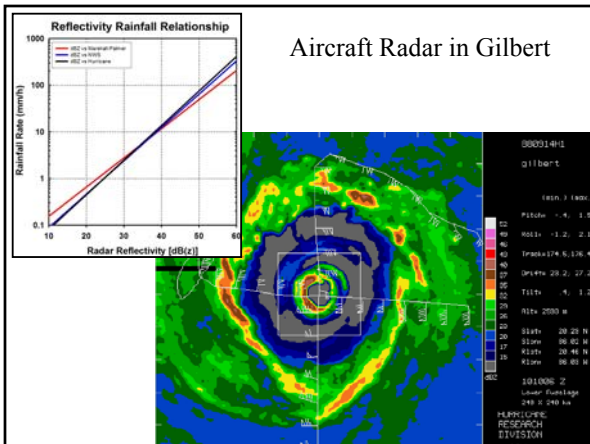




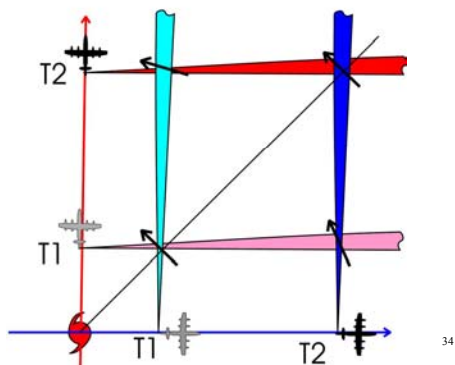






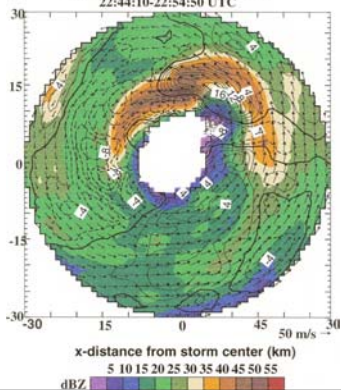


Airborne Dual-Doppler Radar Geometry



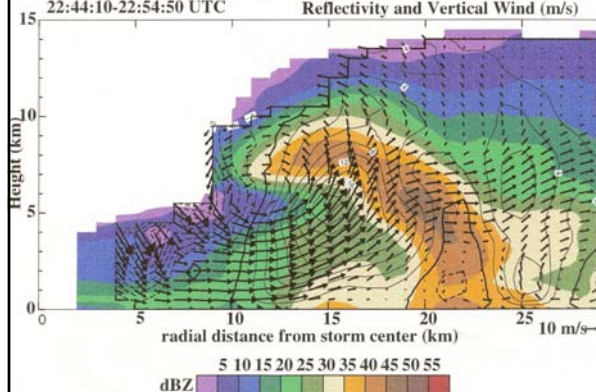
34

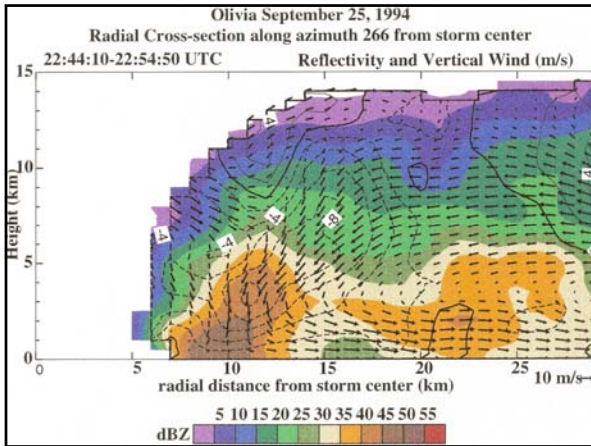
Olivia September 25, 1994
Horizontal Cross-section at 6.0 km
Reflectivity and Vertical Wind (m/s)
22:44:10-22:54:50 UTC

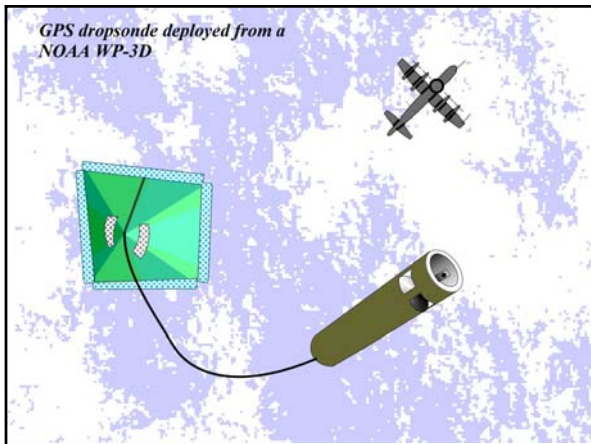


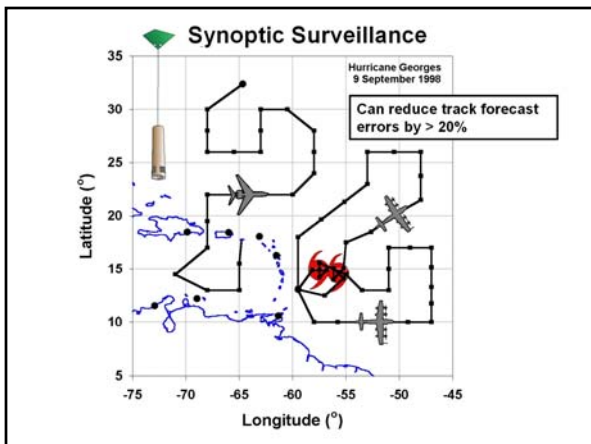
35

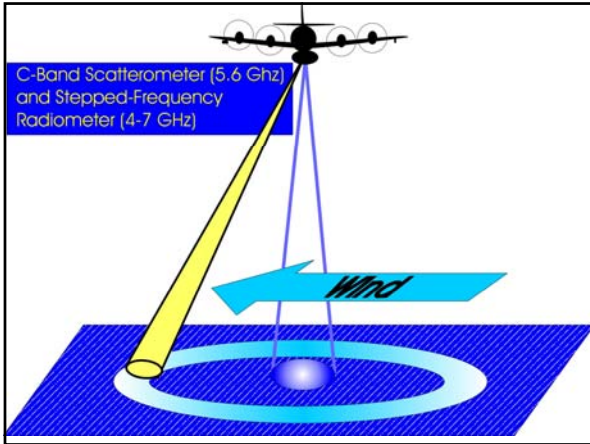
Olivia September 25, 1994
Radial Cross-section along azimuth 24 from storm center
Reflectivity and Vertical Wind (m/s)
22:44:10-22:54:50 UTC

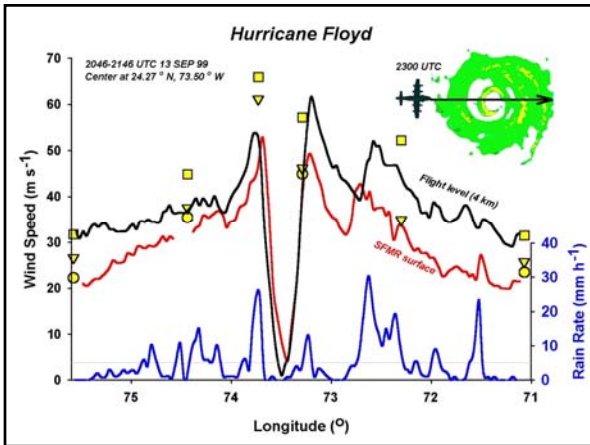


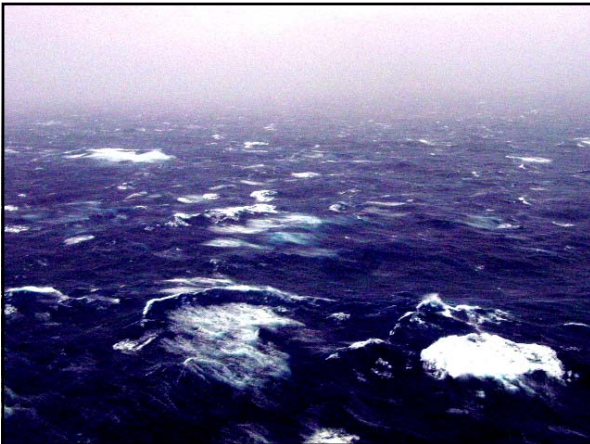












Summary

- 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

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Thank you for your attention.
Questions?
