Integrating Wind Profiling Radars and Radiosonde Observations with Model Point Data to Develop a Decision Support Tool to Assess Upper-level Winds For Space Launch

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Outline

• Problem
• Data
  – Observations
  – Model Point Data
• Graphical User Interface (GUI)
  – Model Initialization
  – Model Forecasts
    • Profilers
    • Rawinsonde
• Conclusions
Problem

• Launch Directors
  - Want to know upper-level wind forecasts during launch countdown
  - Steering, aerodynamic loads and trajectory

• Launch Weather Officers
  - Should be able to provide the forecasts
  - Limited capability

Solution
  - Develop GUI
  - Overlay vertical profiles of observations and model data

Observations & Model Data

KSC
50 MHz Profiler
915 MHz Profiler
AMPS Rawinsondes
CCAFS
Model Point Data
RAP | NAM | GFS

http://science.nasa.gov/amu
Launch Weather Officers requested Excel GUI
- Windows PC workstation located in Range Weather Operations
- All code written in Visual Basic for Applications
Model Initialization

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Model Initialization

Wind Speed

Wind Direction

Model Initialization

http://science.nasa.gov/amu
Model Initialization

- Wind Speed
- Wind Direction

Model Forecasts – Profiler

- Various forecast options and data sources are displayed.
Conclusions

• Launch directors need to know upper-level wind forecasts

• Developed an Excel-based GUI to display upper-level winds
  – Rawinsonde at CCAFS
  – Wind profilers at KSC
  – Model point data at CCAFS
Questions?