New Web Interface for Real-Time Visualization of NOAA Atmosphere Model Data

Timothy Murphy
Ohio University
Computer Science
Engagement Enterprise
NESDIS / Environmental Visualization Lab
Dan Pisut

July 20, 2015
Outline

• Goals
• Video Demo
• About Global Forecast System
• Visualization Architecture
• Getting Started
• Challenges
• Final Product
• Next Steps
• Acknowledgements
Goal #1

Modernize display of weather data

Model Analyses and Guidance
(mag.ncep.noaa.gov)
Goal #2

Online access of real-time weather data
Goal #3

Easy to use interface
Goal #4

Easy to understand the direction, magnitude, and time
About Global Forecast System

- Main weather model used by NOAA and the weather industry
- Updates and resolution
- Data accessed via a THREDDS server, simplifying access to the 400 GB of data
- Gridded data output
Visualization Architecture

GFS Model

VizLab Server
- Convert GFS Data
- Visualization Scripts

Delivery

Internet

Client
- Browser
- GPU
- User Interaction

Requests
Getting Started

• Configure VizLab servers with JavaScript libraries
• Convert GFS output to JSON
• Learn necessary JavaScript libraries.
• Develop prototype
Challenges

- Visualize global wind over time
- Decrease loading time
- Increase animation performance
- Additional layers
- Mobile device Compatibility
- Incorporate feedback
Final Product
Summary

- Modern web-based Visualization
- Visualized on a Global Scale
- Updated in real-time
- Easy to understand
- Intuitive User Interface
Next Steps

- Public release by NOAA
- Promotion at events like AMS and on Social Media
- Extendable
Acknowledgements

• Dan Pisut
• VizLab members
  – Tim Loomis
  – Vivek Goel