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

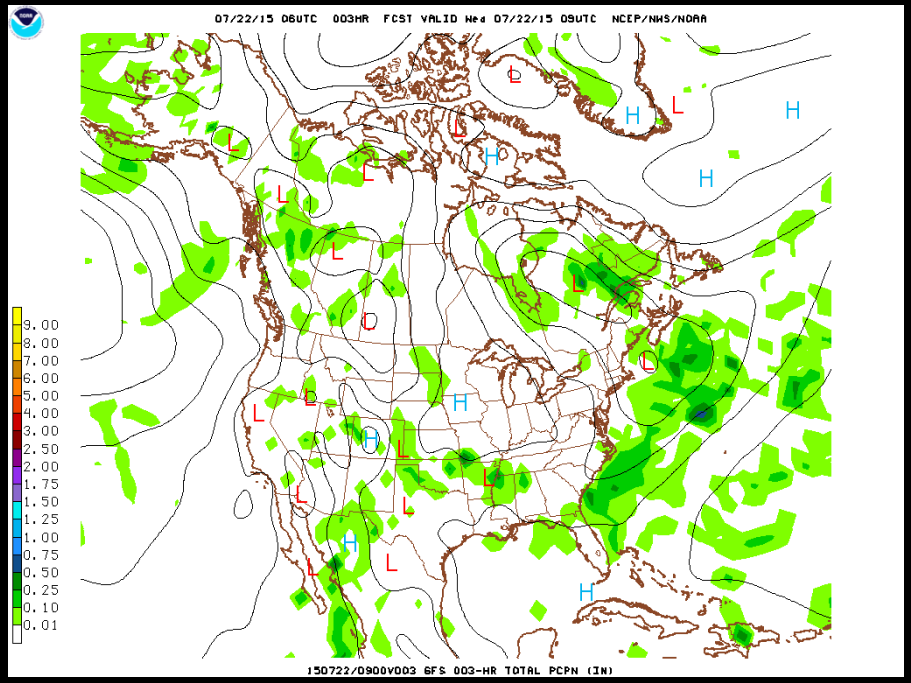
July 20, 2015

Outline

- Goals
- Video Demo
- About Global Forecast System
- Visualization Architecture
- Getting Started
- Challenges
- Final Product
- Next Steps
- Acknowledgements

Goal #1

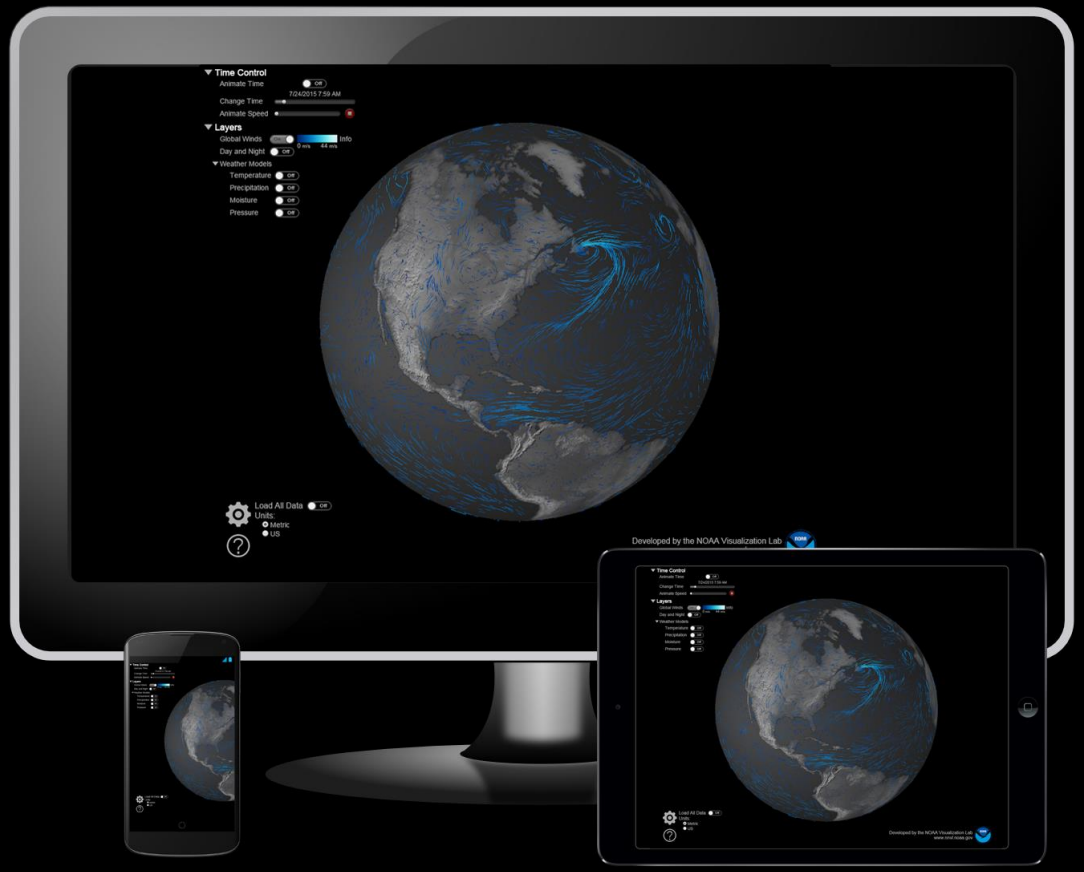
Modernize display of weather data



Model Analyses and Guidance
(mag.ncep.noaa.gov)

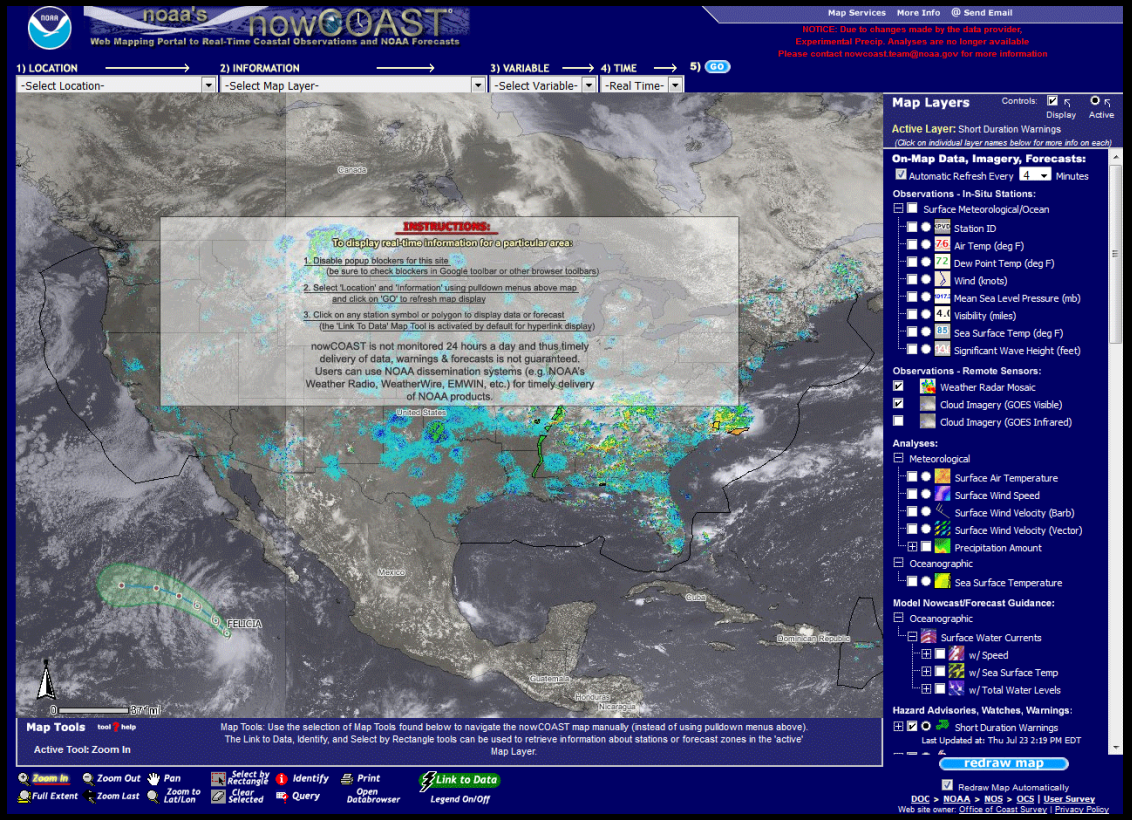
Goal #2

Online access of real-time weather data



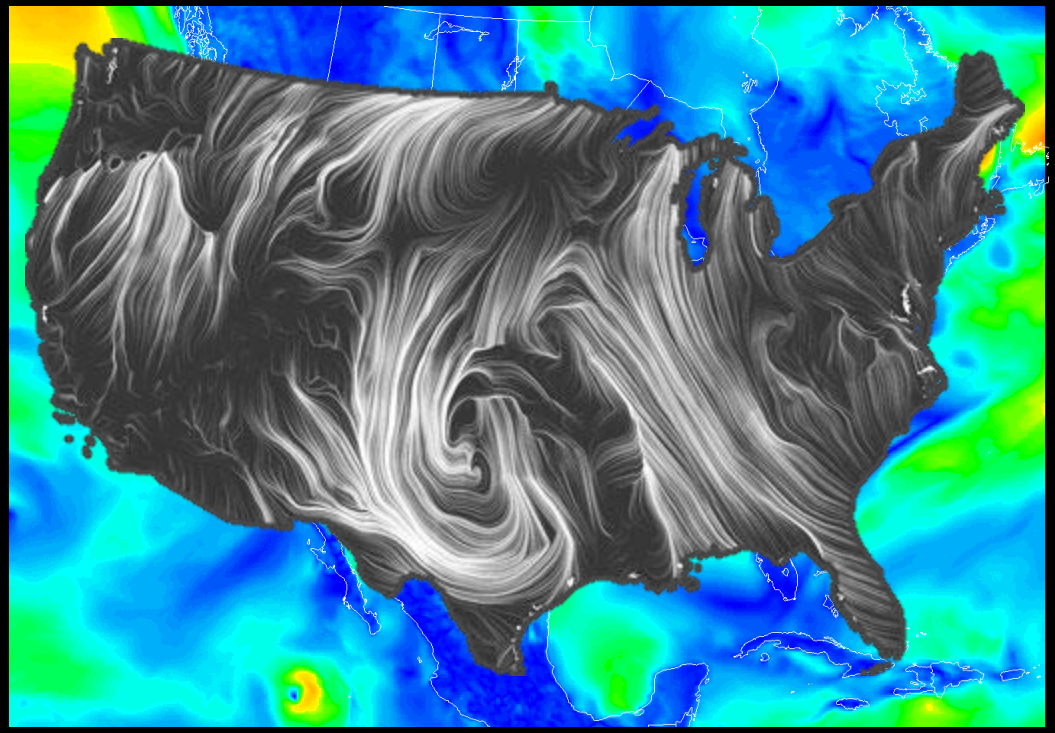
Goal #3

Easy to use interface



Goal #4

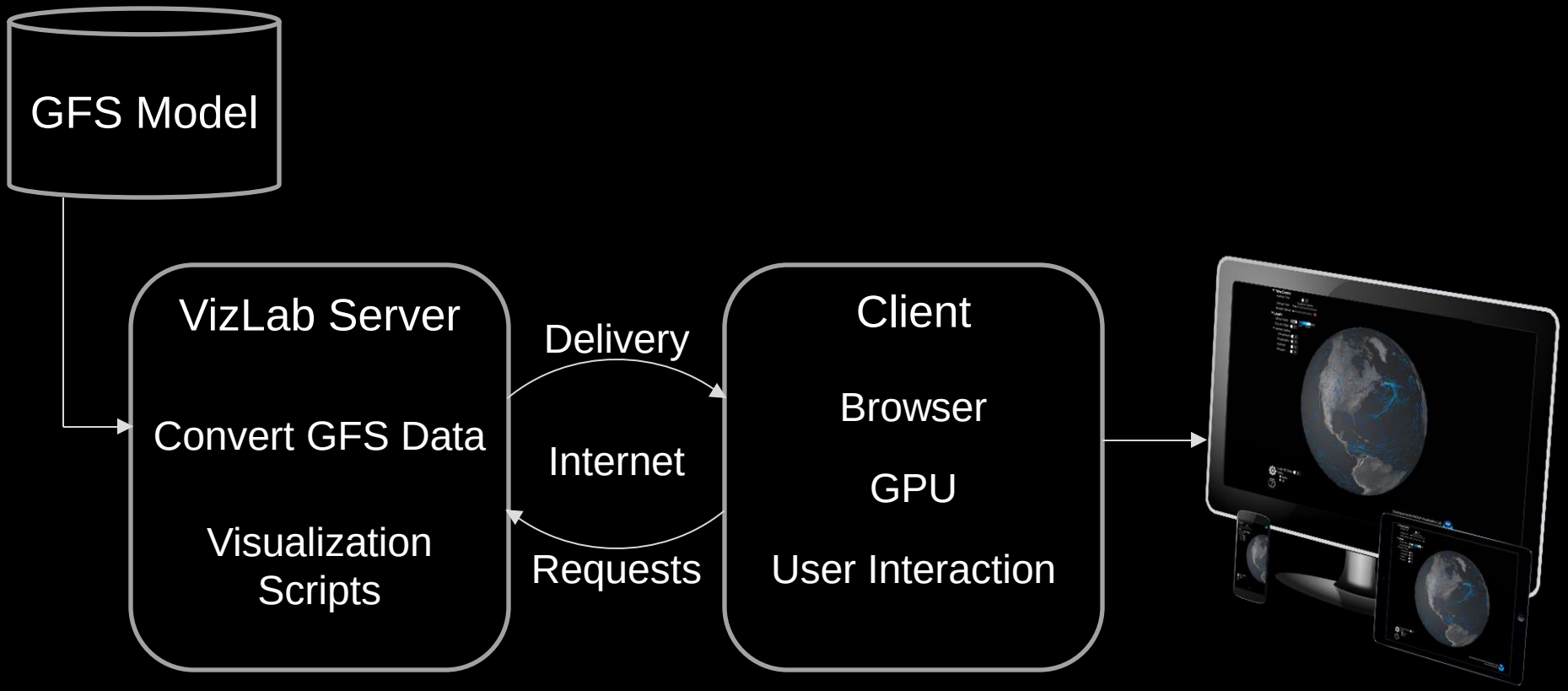
Easy to understand the direction, magnitude, and time



About Global Forecast System

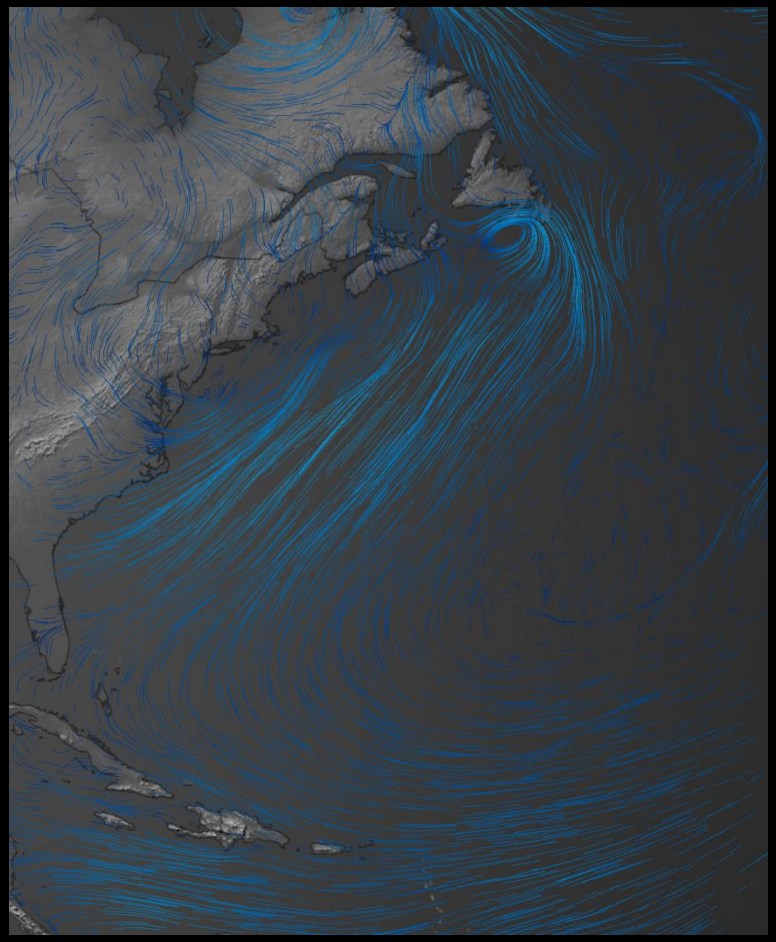
- Main weather model used by NOAA and the weather industry
- Updates and resolution
- Data accessed via a THREDDS server, simplifying access to the 400 GB of data
- Gridded data output

Visualization Architecture



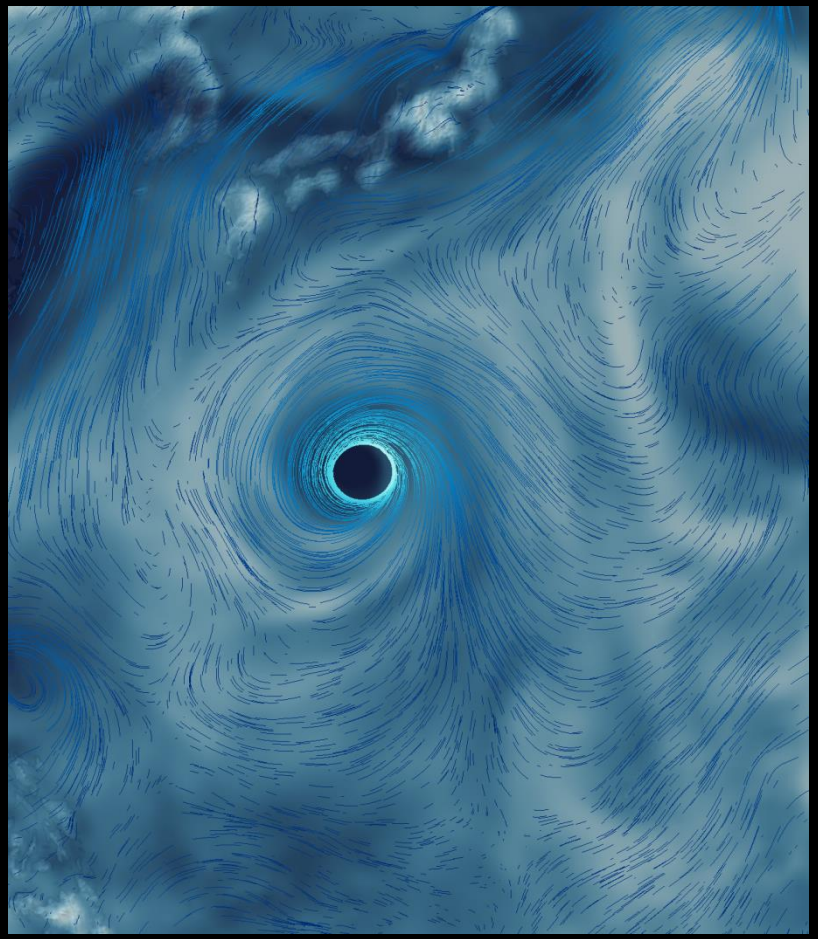
Getting Started

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

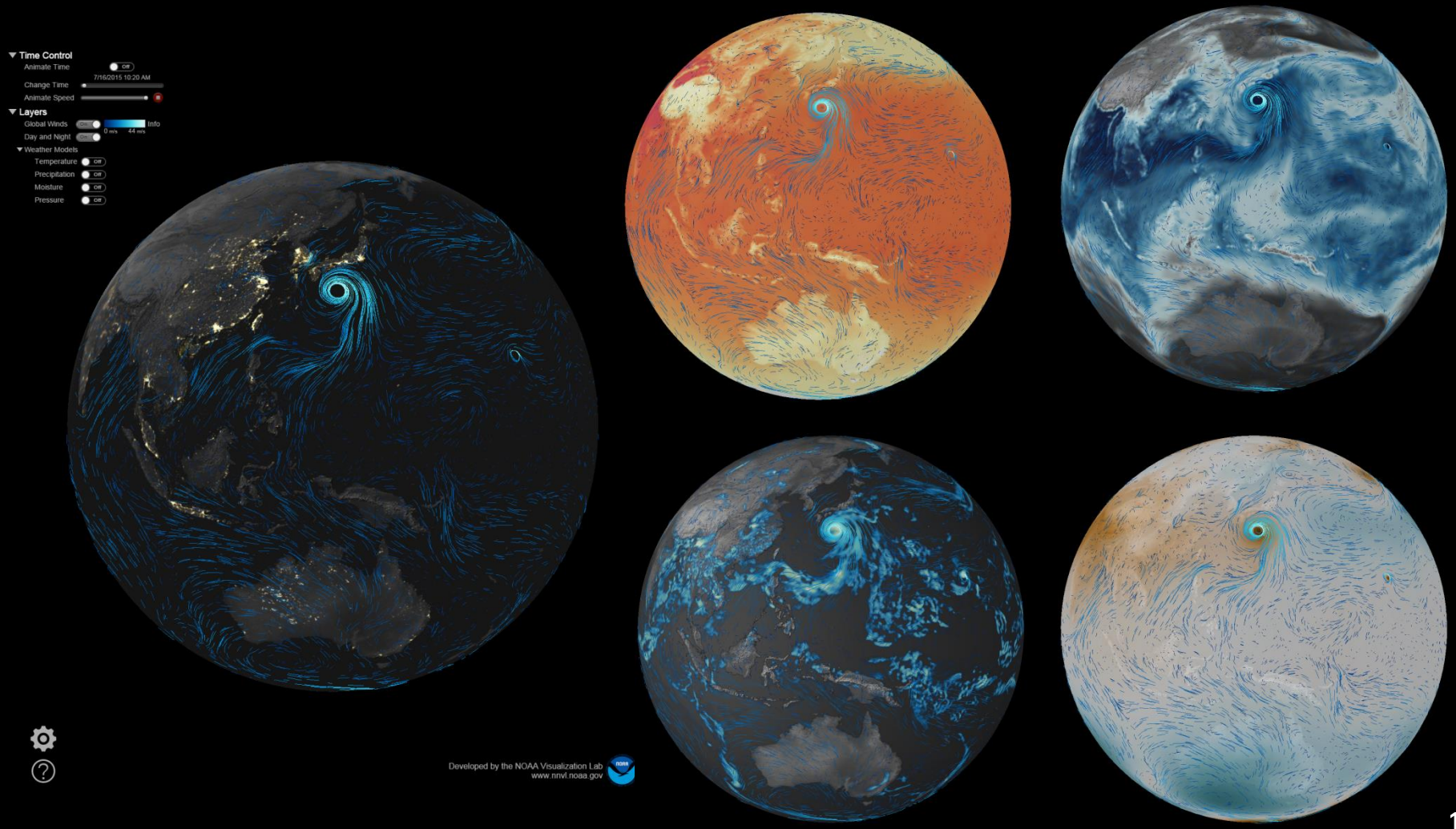


Challenges

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

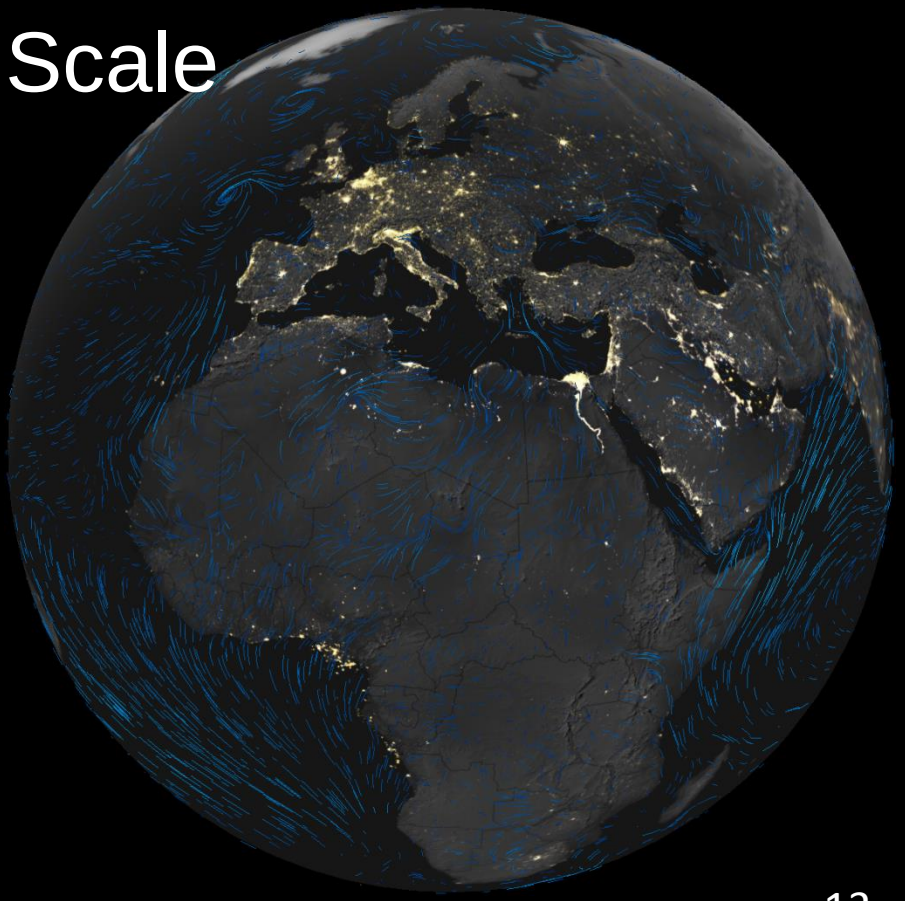


Final Product



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