

Advanced Visualization Capabilities for NextGen Research

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MITRE Sponsored Research (MSR)



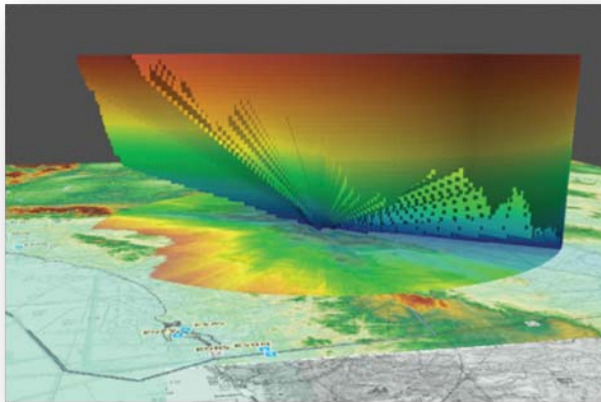
Problem



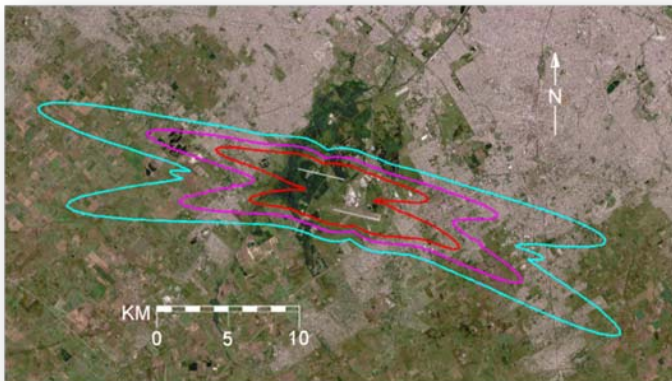
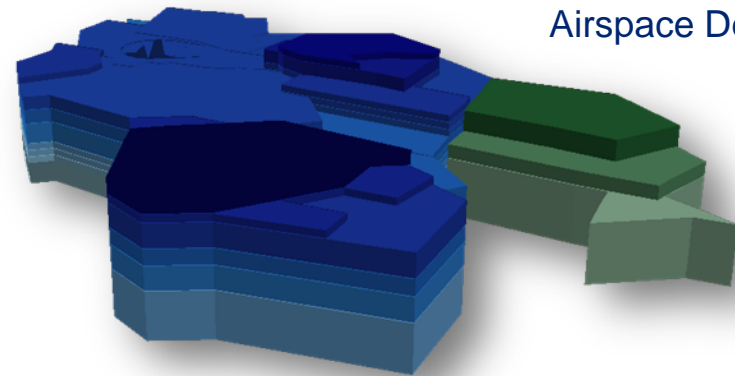
- **People are wired for visual input...**
 - “Do you get the big picture?”
 - “Do you see what I mean?”
- **Until recently, depicting complex phenomena and results has been time consuming and difficult.**
- **Advances in computation, display, and visualization methods and tools have made better things possible.**
- **How can we take advantage of these advances cost-effectively, to improve our research results and our ability to communicate them?**

Background

Communications, Navigation,
and Surveillance Coverage



Airspace Design



Noise Analysis

We have begun to take advantage of new methods and tools, but a systematic approach is needed to increase effectiveness and to reduce time spent learning new visualization techniques.

Objective



- **Improve MITRE's ability to discover and communicate complex research results in a clear and high-impact way**
 - **Initially, focus on NextGen Challenge projects**
 - **Adapt results to a broad framework for more effective visualization across MITRE's research.**

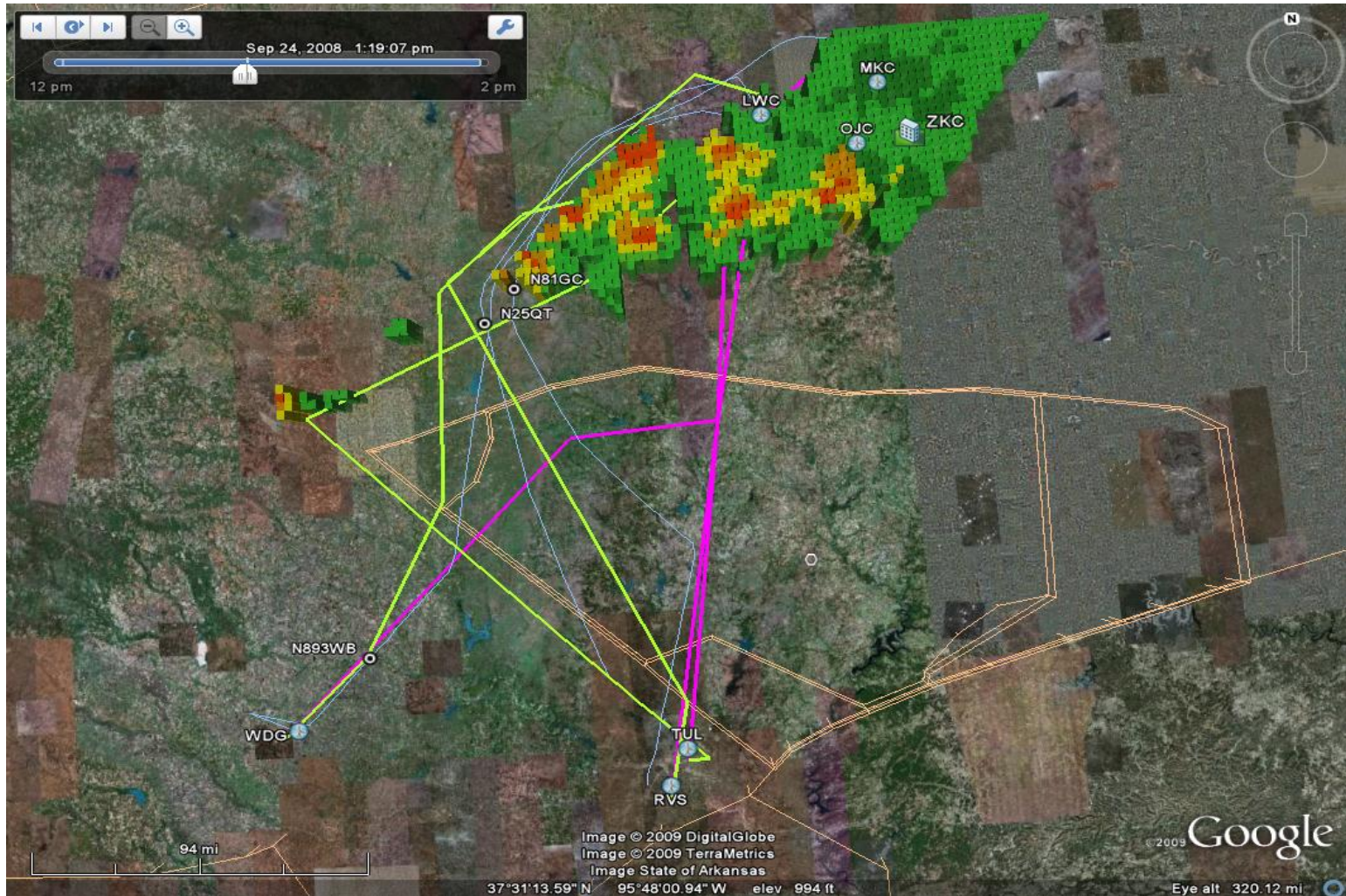
Activities



- **Understand the needs for discovery and communication of research results across MITRE's NextGen research.**
- **Develop a framework for addressing those needs through visualization.**
- **Demonstrate the effectiveness of this approach for two or three projects.**

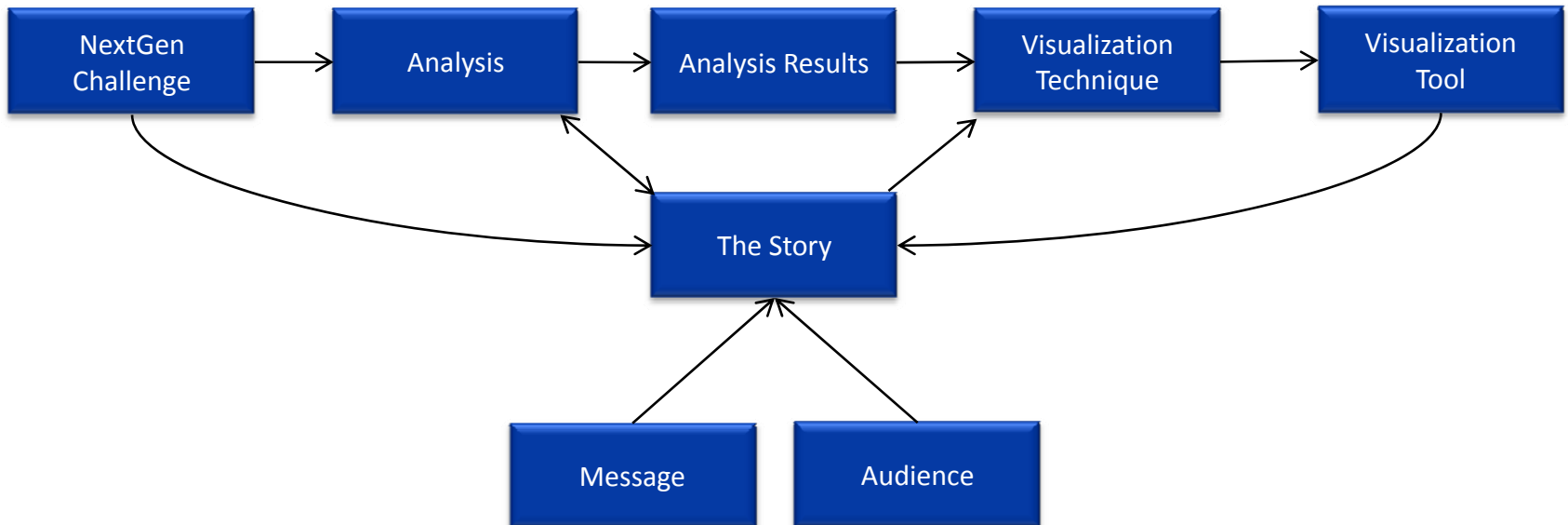
Highlight

An animated, integrated visualization of weather, airspace, flight paths, and reroute activity



Highlight

- Provide a framework that guides researchers in using visualization to tell the story of their key results.



Impacts



- **Improve MITRE's ability to discover and communicate complex research results in a clear and high-impact way.**
- **Improve the ability of key government and industry leaders to make the right decisions about NextGen investments.**

Future Plans

- **Broaden awareness and the use of visual storytelling techniques across MITRE work programs.**

