Using Google Earth to Integrate & visualize GIS Data & Real-time Natural Disaster Information

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Outline

- Google Earth Overview
- How to view Emergency related GIS data via Google Earth
- How to link the Real time Natural Hazard data on Google Earth
- Conclusion

Google Earth Overview

- Google Earth combines the power of Google Search with satellite imagery, maps, terrain and 3D buildings to put the world's geographic information at your fingertips.
- A powerful solution for utilizing any form of geospatial data
- Free download 3D global maps of the earth
- High Performance
    - Consolidation of different data layers into a single view
    - No "click-and-wait"
    - Truly interactive interface, visual
    - End user is the priority
    - Low technical skill
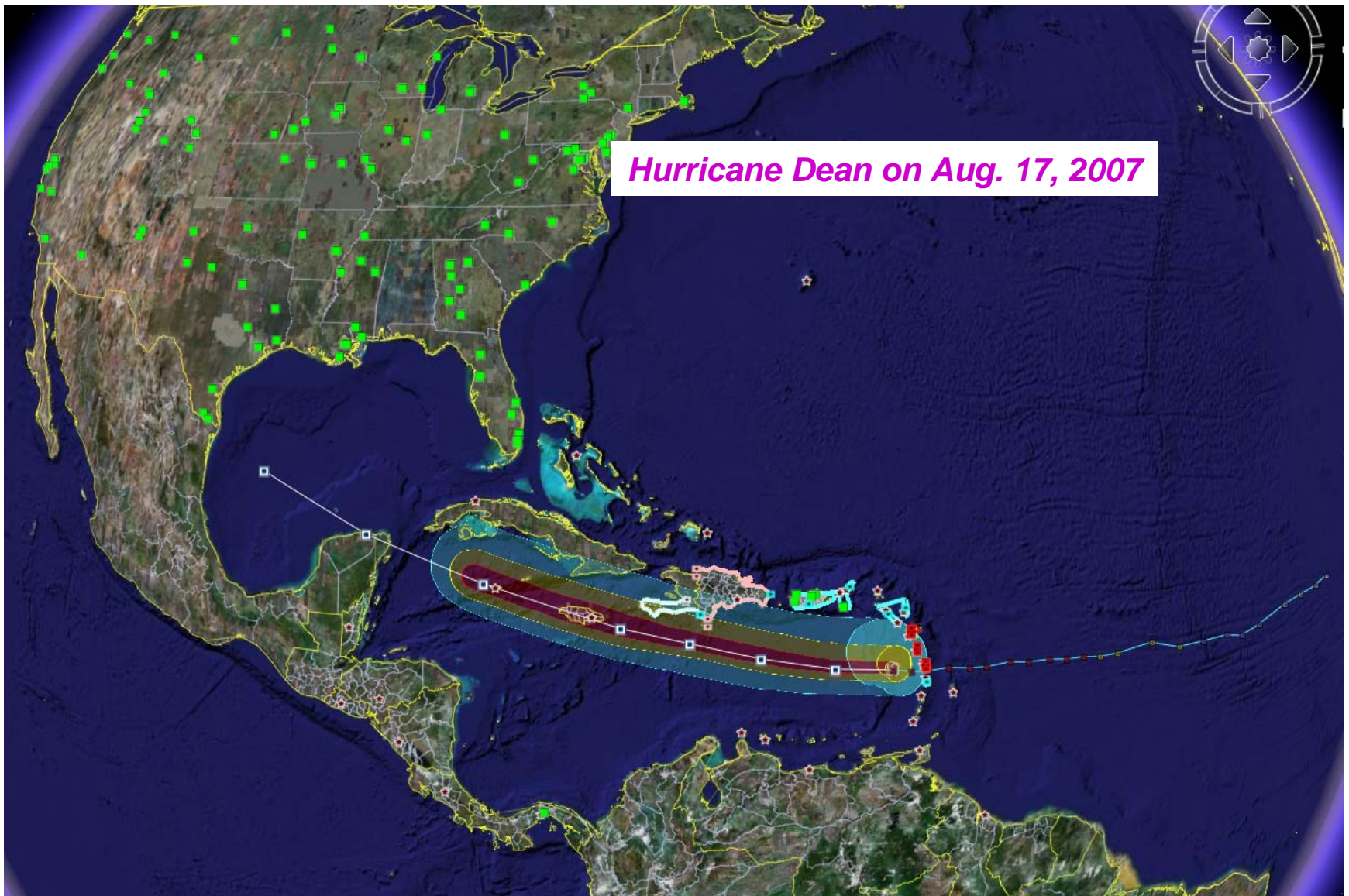   - Integrate your own data to Google Earth.

Using GIS Data in Google Earth For 2007 Pre - Hurricane Season
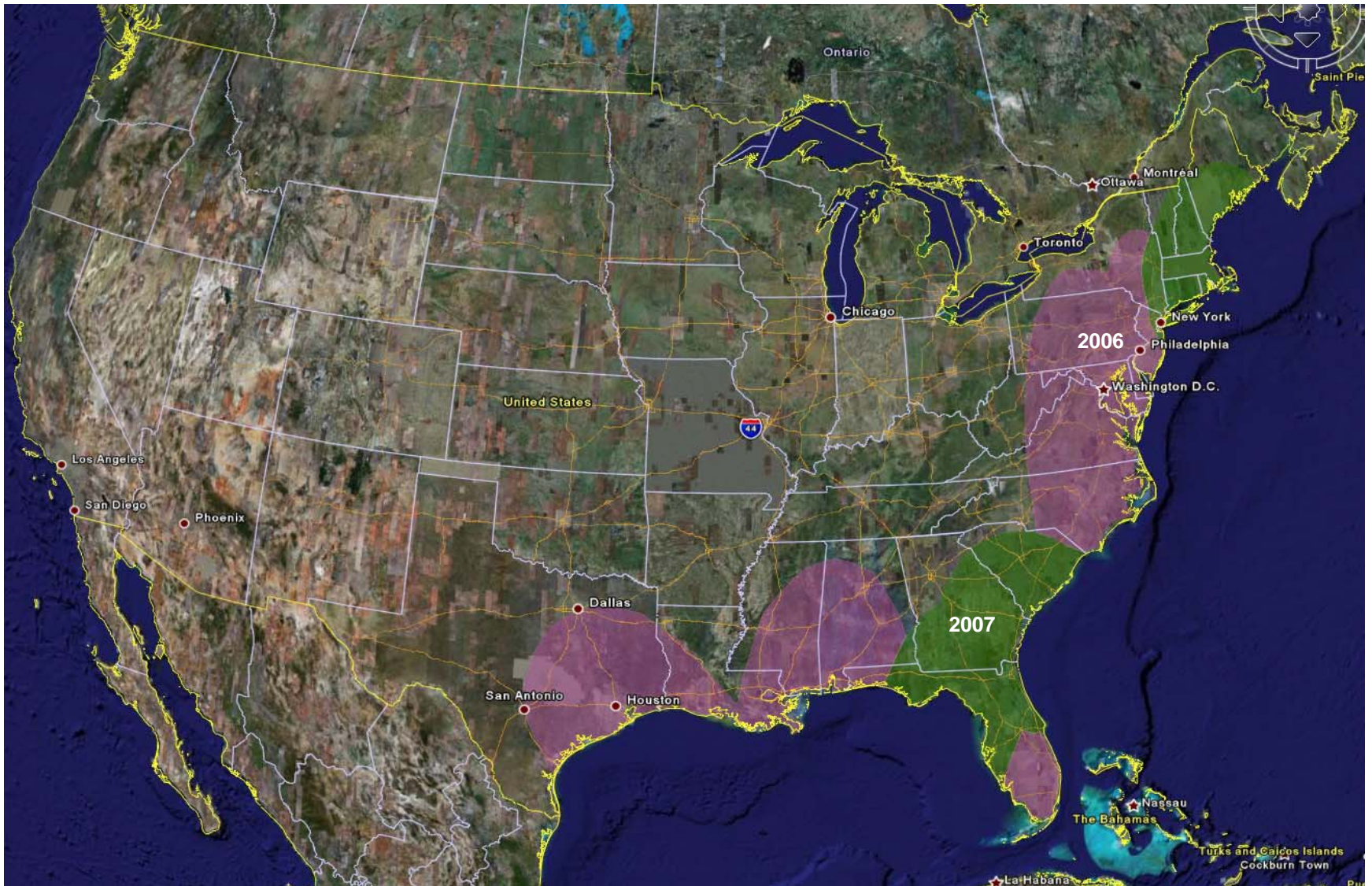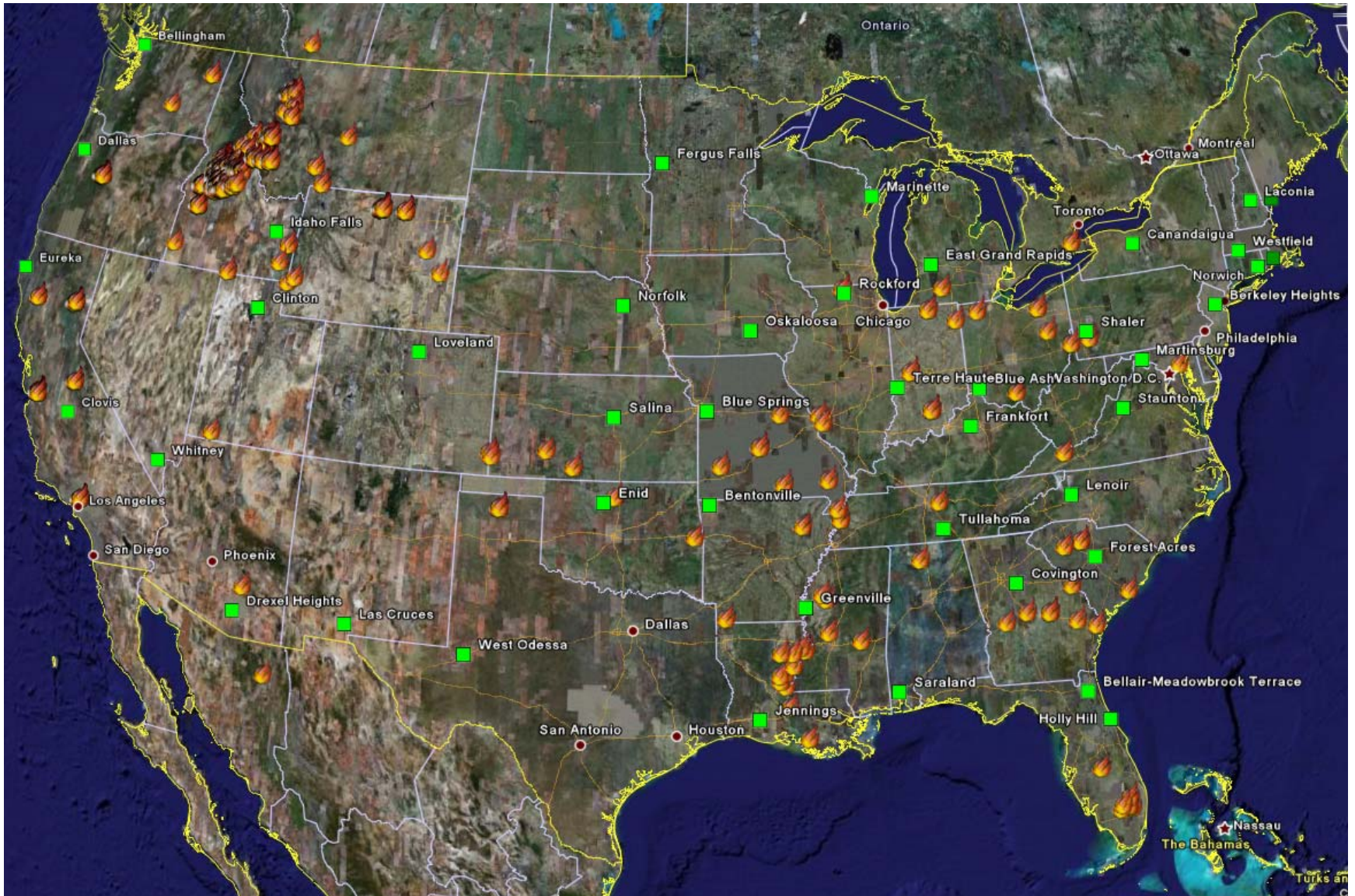
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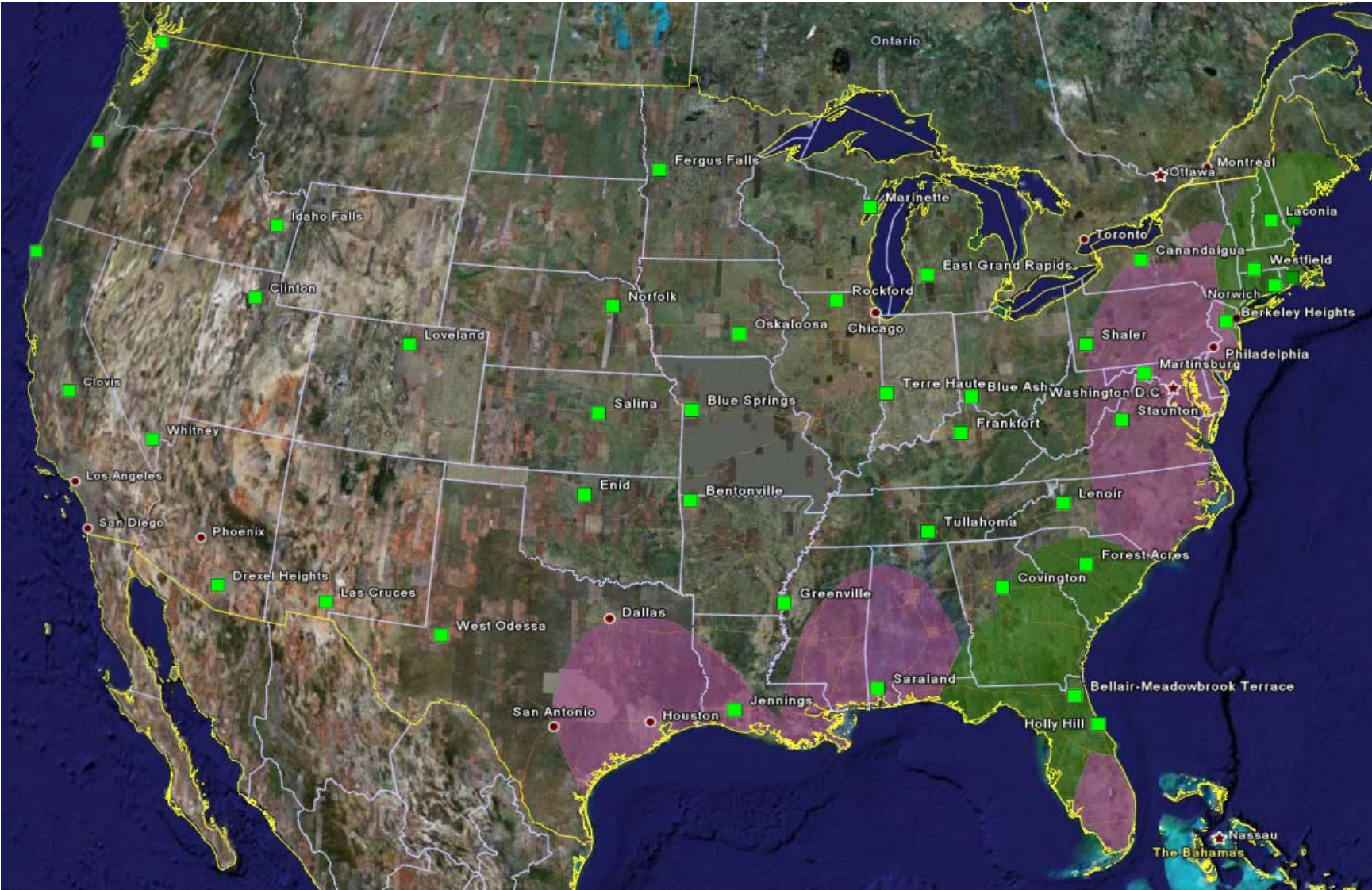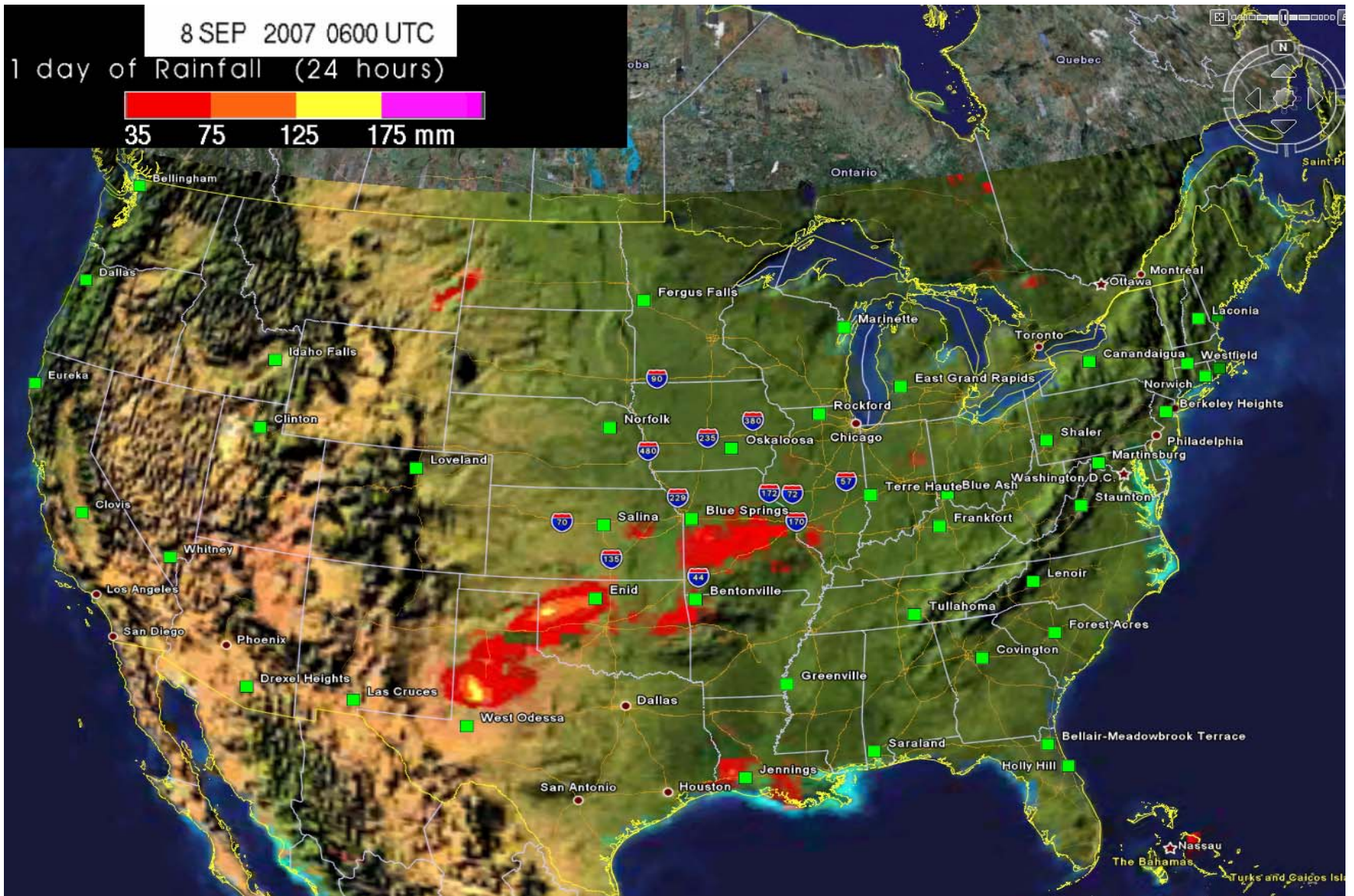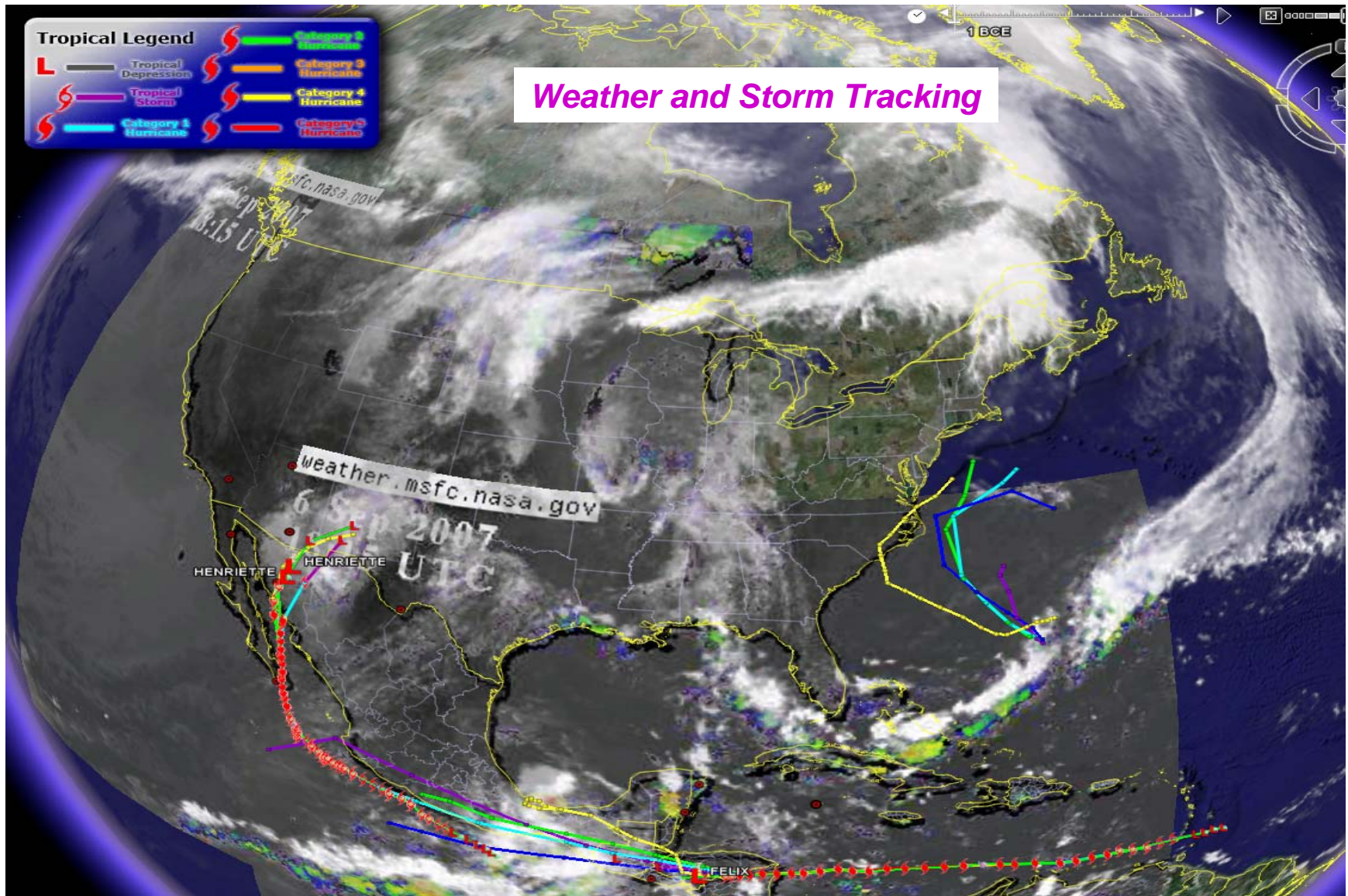
Real-time (Hurricane) data visualization

Hurricane Dean on Aug. 17, 2007

Real-time (Fire) data visualization

Real-time (Rainfall) data visualization

Real-time (Weather) data visualization

Weather and Storm Tracking

How to link the Data to Google Earth

Vector data (shape file with .prj) from ArcMap → Extension → **Export to KML** → KML → **Google Earth**

Vector data (shape file with .prj) from ArcMap → Command Line → **Python script** → KMZ → **Google Earth**

Real Time data download → Web Site → **WMS** → KMZ / KML → **Google Earth**
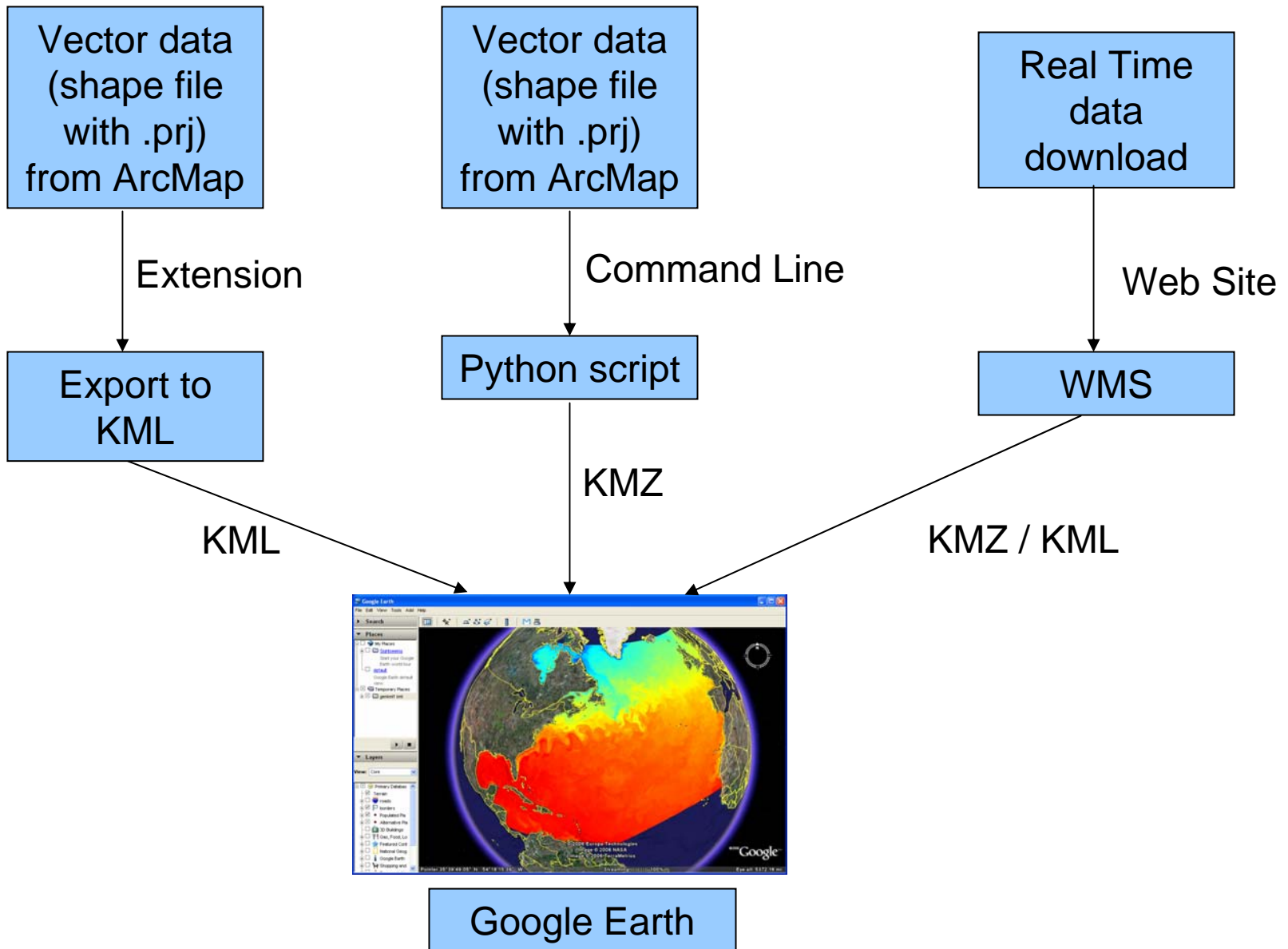
Using GIS Data in Google Earth

- Google Earth allows for easy visualization that comes with an easier learning curve for the user than ArcScene
- Google Earth Files - KML/KMZ
- KML – stands for Keyhole Markup Language
- KMZ – stands for KML - Zipped

ArcMap Resources

- ArcMap Scripts – Export Shapefile to KML / KMZ
- Download ArcGIS Extension:

  Export to KML v2.3.6:

  http://arcscripts.esri.com/details.asp?dbid=14273

  Last modified: June 12, 2007
- At ArcGIS, it must be a shapefile, must have a .prj
- You can control display with style, symbol, and color in ArcMap / Google Earth
- ArcMap Demo

Real Time Natural Hazard Google KML file download Sites

Fire information – updated every 24 hours

http://maps.geog.umd.edu/firms/kml/

Rainfall and flood potential information – updated every 24 hours

http://trmm.gsfc.nasa.gov/affinity/download_kmz.html

Hurricane information – updated every 3 hours

http://hurricanemapping.com/data/

Best storm tracking and weather tools

http://www.gearthblog.com/blog/archives/2007/08/best_storm_tracking_and_weather_tools_for_google_earth.html

Weather data for the US from NOAA -- updated every 1 to 2 minutes

http://www.gearthblog.com/blog/archives/2006/05/near_realtime_s.html

Current world-wide disasters

http://www.gearthblog.com/blog/archives/2007/08/news_roundup_peru_ea.html

Google Earth Resources

• Google Earth central:

http://earth.google.com/

• Community discussion of Google Earth:

http://bbs.keyhole.com/ubb/ubbthreads.php/Cat/0

• Technical specifications and tutorial for KML files:

http://earth.google.com/kml/

• A rather pleasant online interface to the same information:

http://www.keyhole.com/kml/docs/webhelp/

Further information:

http://www.ogleearth.com/index.html

http://www.googleearthhacks.com/

Conclusion

- Using Google Earth is fun and easy
- Integration+Visualization+Collaboration --
  Google Earth and GIS data integrating provides a better
  overview
- You can use Google Earth to capture the work you're doing
- By creating and downloading KML files, anyone, anywhere can fly
  in Google Earth
- No cost
- This can help us increasing our knowledge and understanding
  dynamic changes of our environment.

Q&A