GIM Tool

Presented by Jeff Smith
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DDF Funded Project

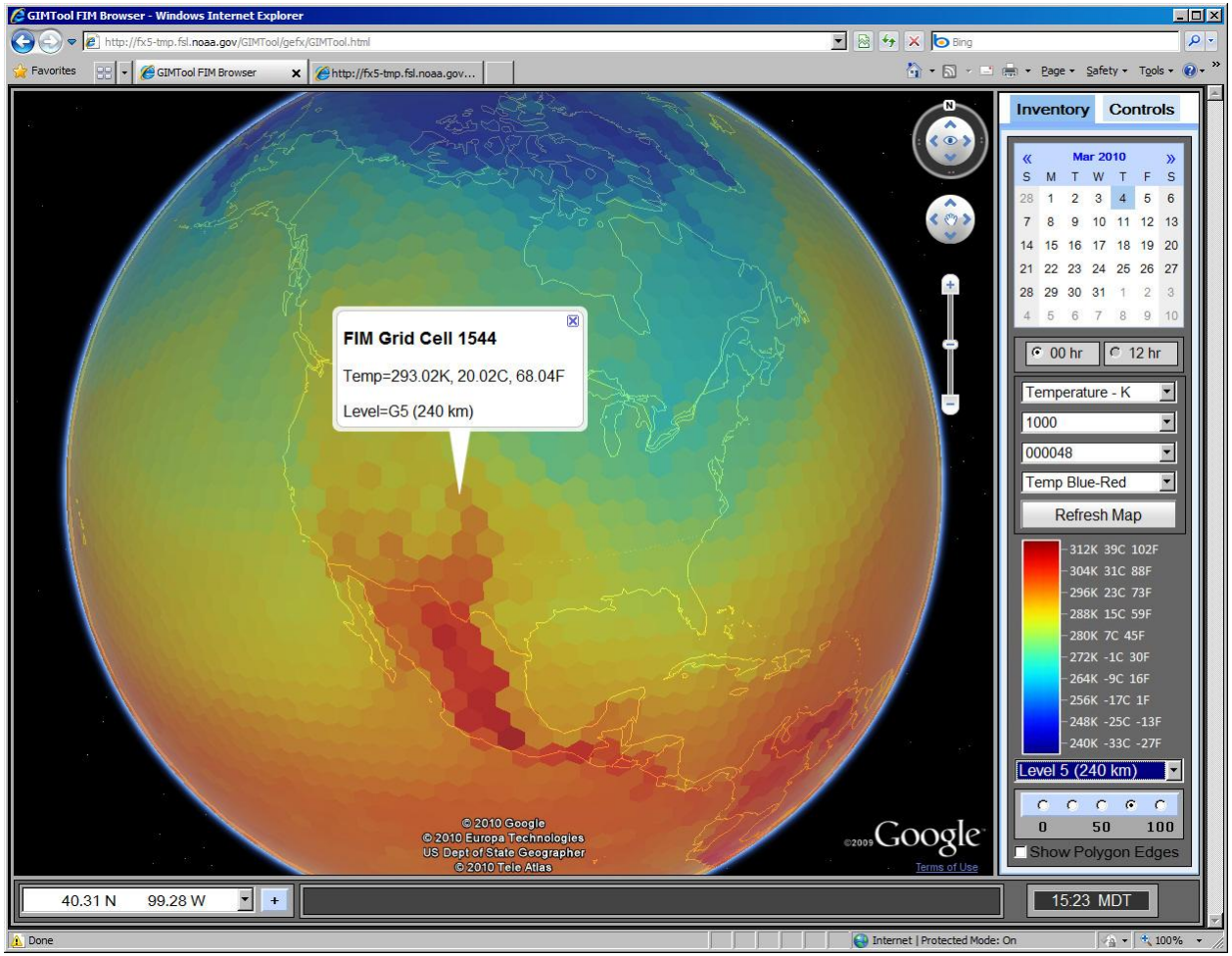
- GIM Tool (Global Icosahedral Model Tool)
  - Developed by Evan Polster, Ning Wang, and Jeff Smith
  - As part of a larger project on visualizing FIM data over an Amazon EC2 cloud with Erick Hackathorn and Mark Govett
- Currently two prototypes
  - Google Earth plug-in version
  - Google Maps version
- Both versions support
  - Subsetting display fields (variables)
  - Choosing color palettes
  - Choosing map backgrounds
  - Enabling/disabling polygon edge visibility
  - Fill opacity (how much of the background shows through)
  - Mouse over individual polygons to view details about FIM cells
  - Auto progressive disclosure (auto-load hi-res data as you zoom in)

Tech Stuff

- RESTful web service runs in Tomcat
  - Can be invoked by either GIM Tool client (Google Earth or Google Maps)
  - Has been run on single GSD server and also on an Amazon EC2 (elastic cloud)
  - EC2 has advantage of supporting automatically bringing additional servers online during high volume periods
- This web service
  - Subsets the raw FIM data for the requested variable within the requested geographic region
  - Builds a KML document
  - Returns KML to the calling client application

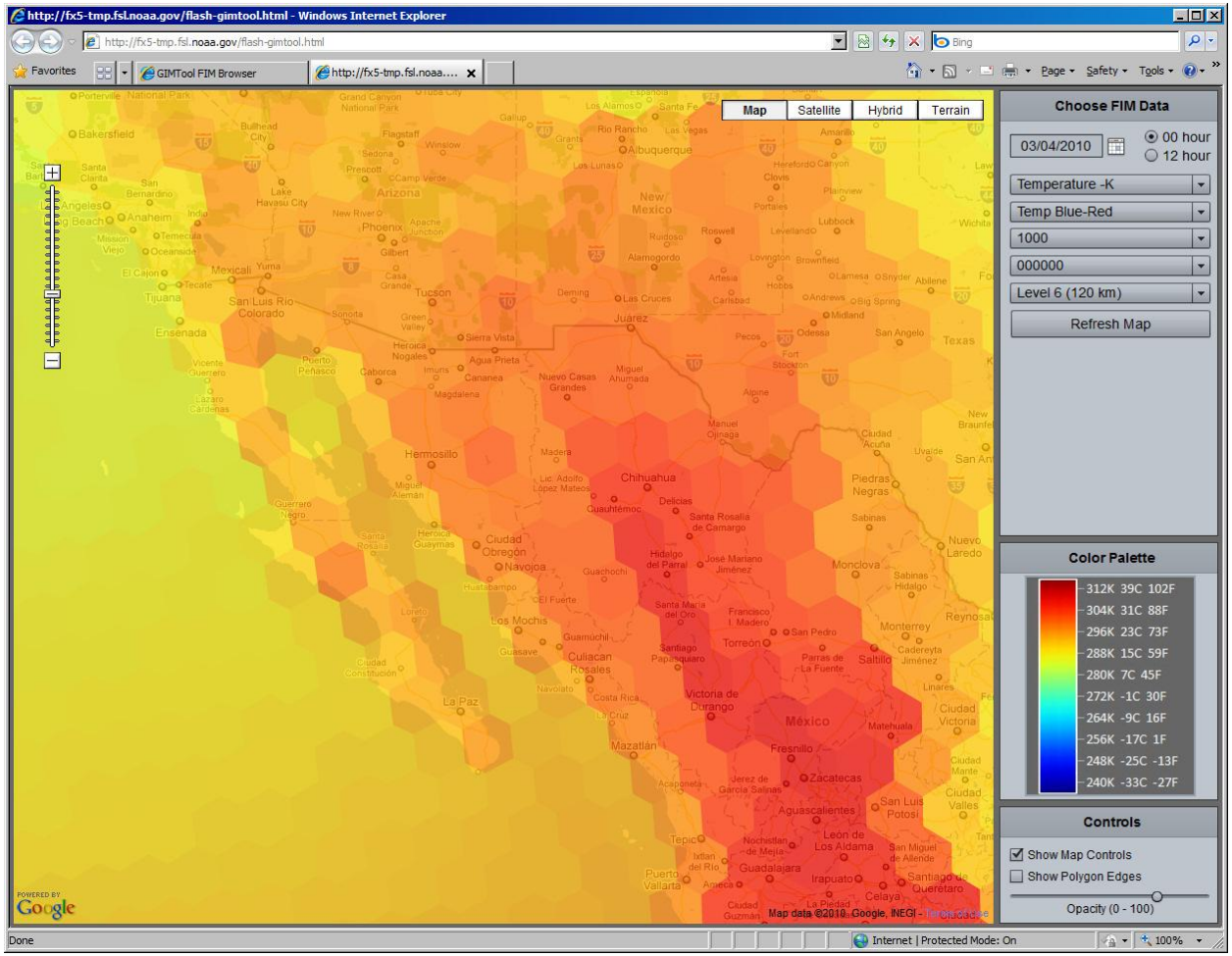
GIM Tool –Google Earth Version

- We wrote this client program with the Google Web Toolkit (GWT) and Google Earth plug-in



GIM Tool –Google Maps Version

- We wrote this version with Flash Builder 4 and Google Maps.



Advantages of Each Version

- Google Earth plug-in Advantages
  - Little distortion over the poles with quasi-orthographic map projection
  - “Wow” factor of displaying FIM data on 3D, spinning virtual globe
- Google Maps Advantages
  - Loads faster
  - No Google Earth plug-in requirement (note: there is no Google Earth plug-in for Linux)
  - Support for nearly all browsers on all platforms
- Both displays look very similar at regional scales (when you can’t see the entire globe)

Future Work

- The FIM team responded enthusiastically to the tool
- We hope to get DDF funding to create a production versions of GIM Tool
  - create a stand-alone version that doesn't require Tomcat
  - add a dynamic palette editor
  - support looping (animation)
  - support additional FIM variables
  - support overlaying other datasets such as vectors, contours, and shape files
  - various user interface improvements
  - support GSD's other global icosahedral model, NIM (Non-hydrostatic Icosahedral Model)