Plotting Tool Updates - ARM Data Quality Office

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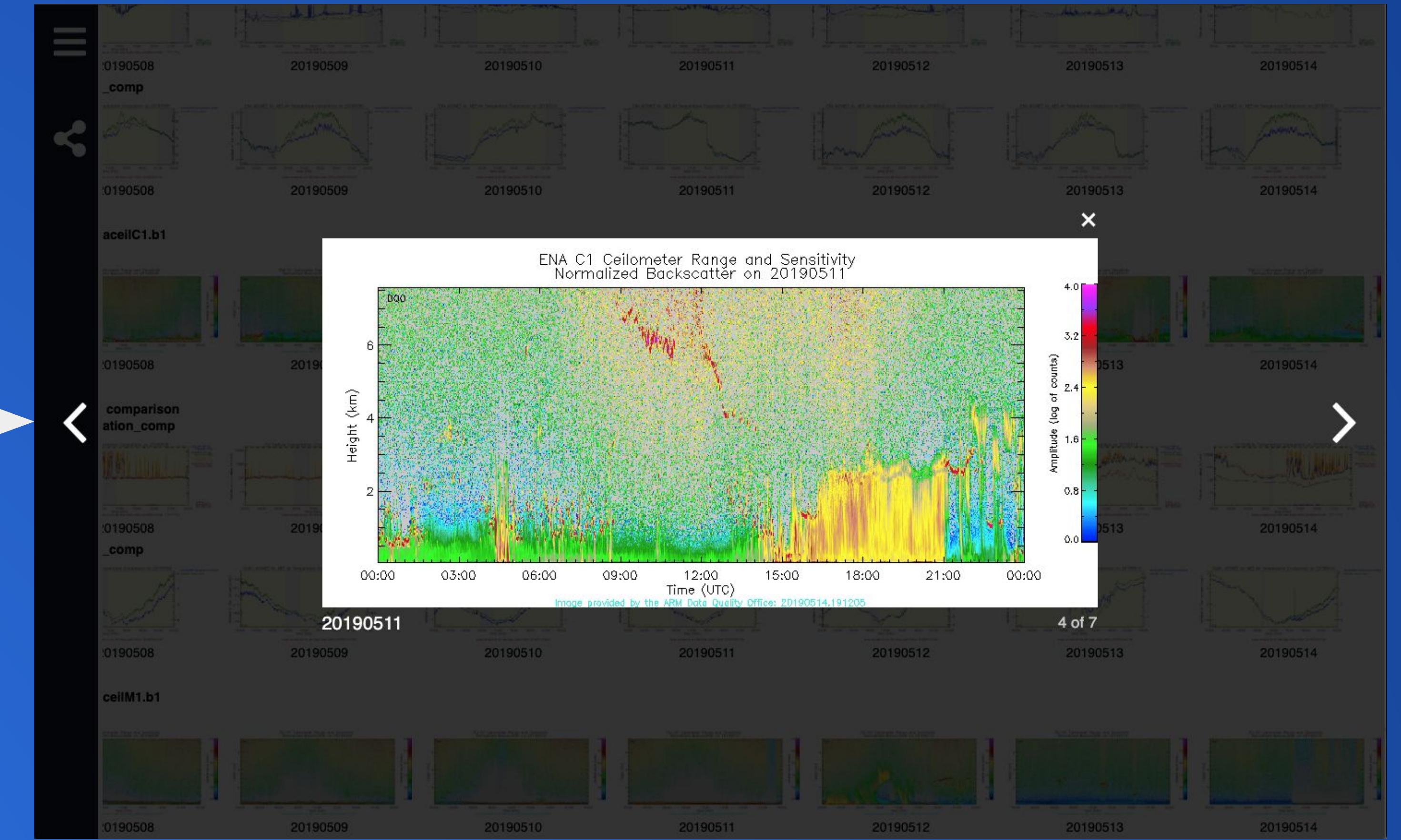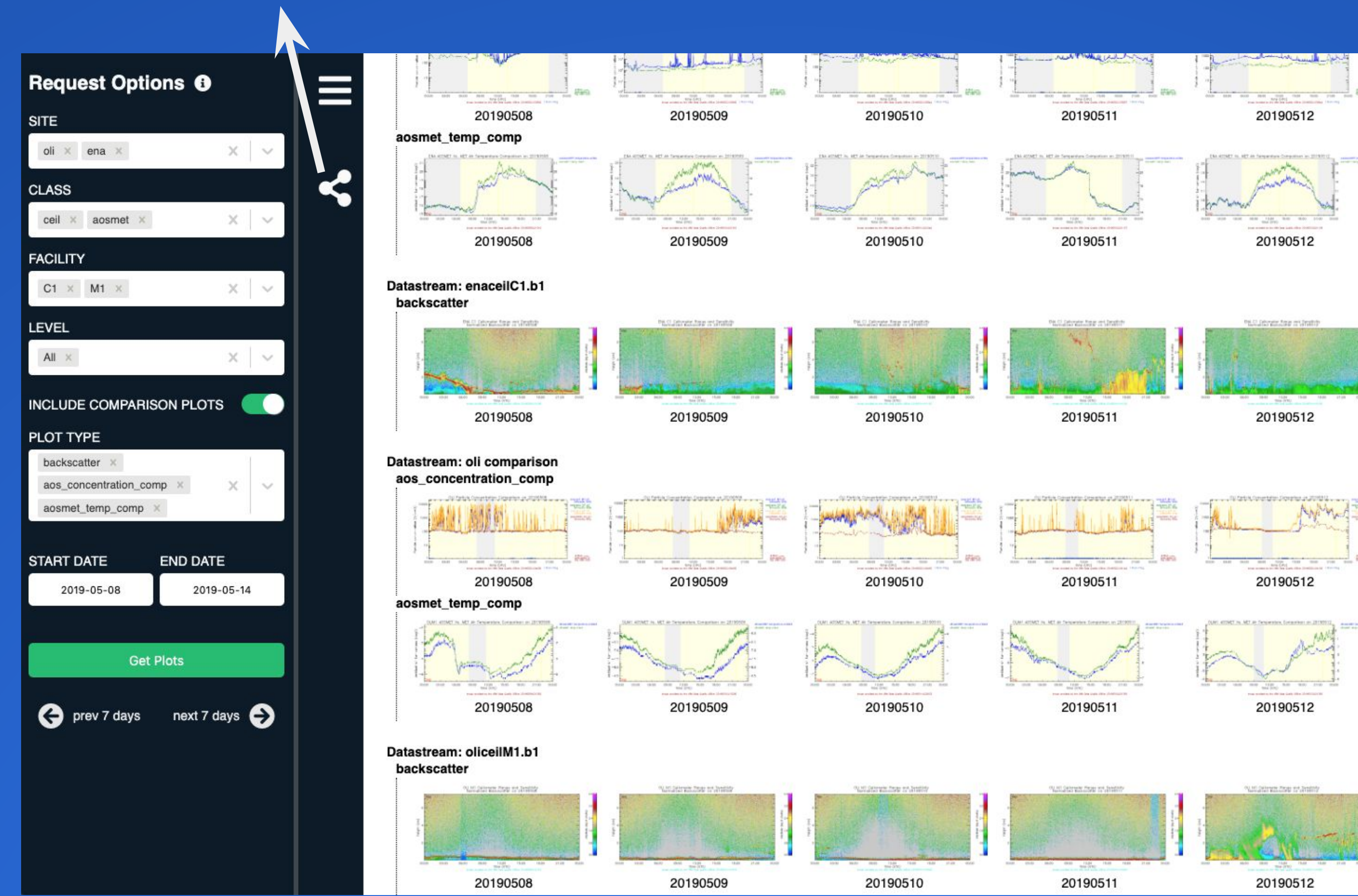[1]University of Oklahoma, [2]Argonne National Laboratory

New DQ Plotbrowser

Visualization is the most common initial method for reviewing and analyzing data. Typically some processing or filtering is performed on data, but this may be computationally intensive. To reduce the interactive processing time, pre-generated plots are available through the DQ Plotbrowser.

To improve functionality, an entirely new plotbrowser was created using modern web technologies. Some improved features include:

- Snappy menu selection utilizing *mod_wsgi* library combined with Flask microframework for database queries
  - Dynamic menu that auto updates when modified
  - Ability to refine search by site, class, facility, level, plot type
- Embedded support for mp4 movies
- Fast plot loading
- No pre-generated thumbnail images; thumbnails generated directly from image
- Mobile device friendly
- Collapsible menu for larger display area
- Better interface for viewing multiple or individual plots
- Bookmark option for sharing search criteria
- Selectable date range with previous/next step
- Current catalog of 17+ million plots, with 5,000+ added daily
- Date alignment maintained with missing plots

http://bit.ly/2WgCCj4

Expandable Design

The plotbrowser user interface is built using the ReactJS javascript framework. This allows for sharing of modular components across multiple web-tools for decreased development time. The menu selection is driven by a Postgres table structured to enable multiple groups across ARM to add plots for display without interfering with other groups. The display is capable of being installed at a data collection site for use by scientists or principal investigators to aid in making near real-time decisions for aircraft flights, balloon launches, and radar scan strategies. It is also capable of aiding site technicians with problem resolution.

Menu options only show available data

Variables listed in file with multi-dimension indicated

Optional coordinate variable slicing

http://bit.ly/2Wjyfnq
Option to bookmark. Go ahead try it!

Time logging from mouse clicks on plot exportable

Histogram and statistics from current window. Updates when zoomed.

Updated DQ Zoom

- Replacement for NCVweb
- Updated to utilize WSGI (previously used CGI) for much faster load times and snappy menu selection.
  - More stable with heavy use
  - Significant decrease in time to create plot
- More capable of handling larger multi-dimensional datasets with new *Plotly* plotting library
- Same great features as previous version
  - Histogram and statistics of data in plot window, time logging, log Y axis, bookmark URL for sharing, day/night/solar-noon background, collapsible menu to increase plot size
- New framework will allow for faster future improvements. Planned updates:
  - Multiple datasets on single plot
  - Multi y-axis plotting

dq.arm.gov/dq-plotbrowser/

dq.arm.gov/dq-zoom/