

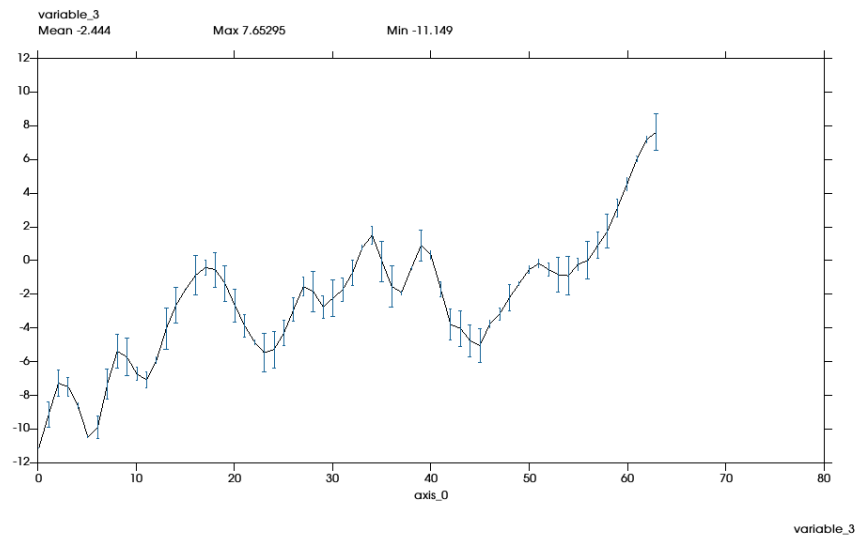
LLNL Climate
POP: July-September, 2017

Summary

This quarter, most of our the development efforts were devoted to vCDat and supporting work in vcs-js, vcs, VTK and vtk-web. We solved major performance issues of vCDat by making use of vtk-web. When running the server locally, vCDat now delivers the performance of a desktop application and uses a modern web interface. We implemented variable sub-setting and reordering in vCDat. Additionally, we implemented error bars in VCS (not yet merged).

Bug fixes and enhancements to VCS

- Added an initial implementation of error bars on 1D plots in VCS. The changes are in PR #247

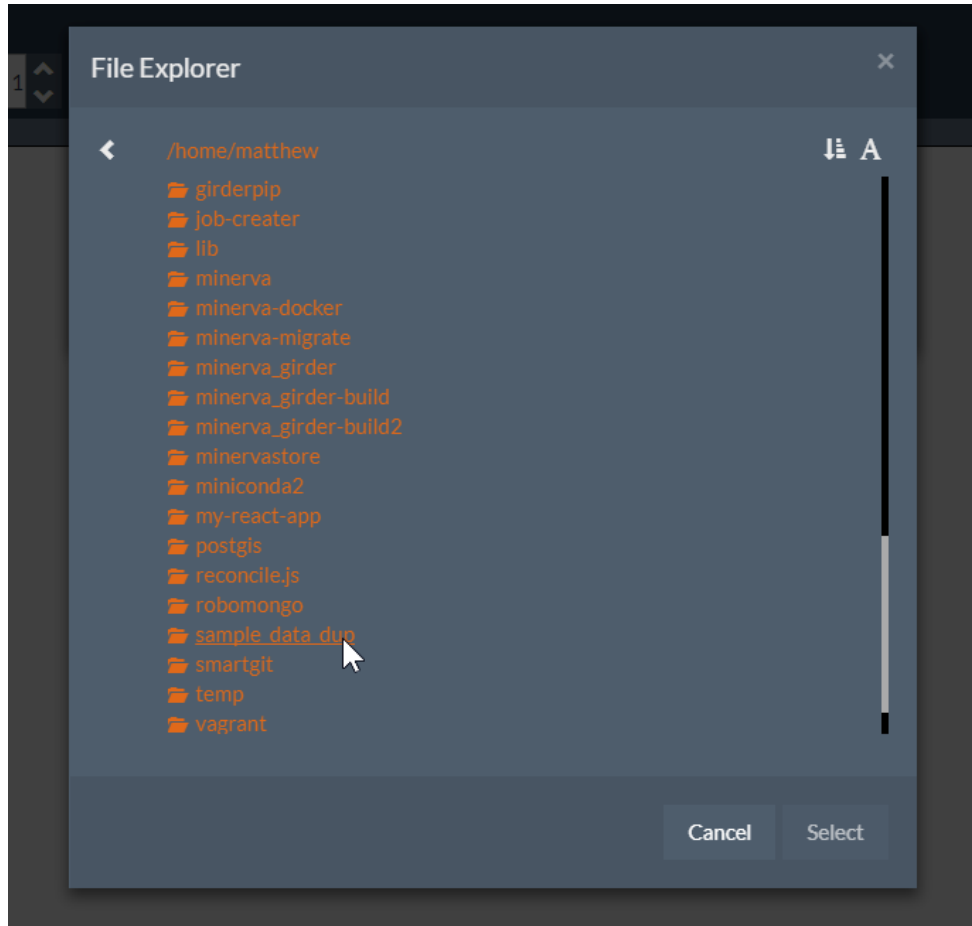


- Initial work to post nose-test results to CDash.
- Fix resize in vcs
- Print an error when no streamlines are created.

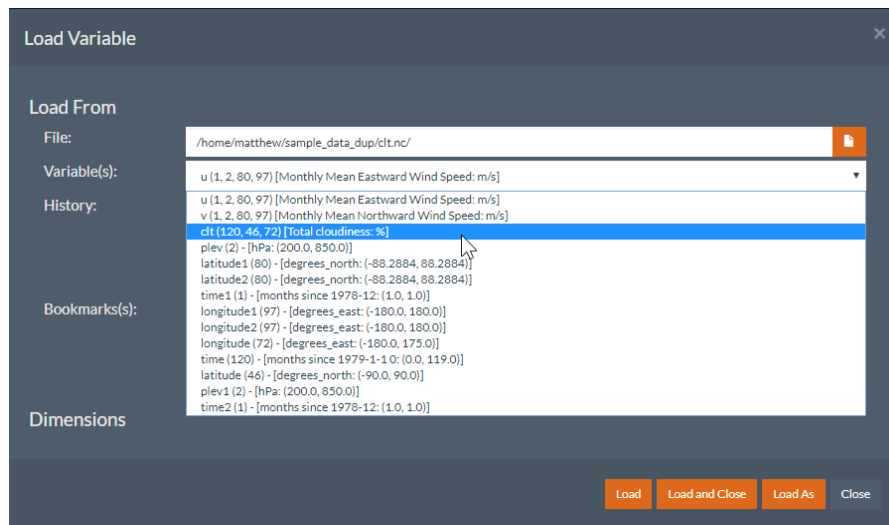
- Enable use of `vcs.init(bg=1)` in `vcs.js`

Enhancements to VCDAT

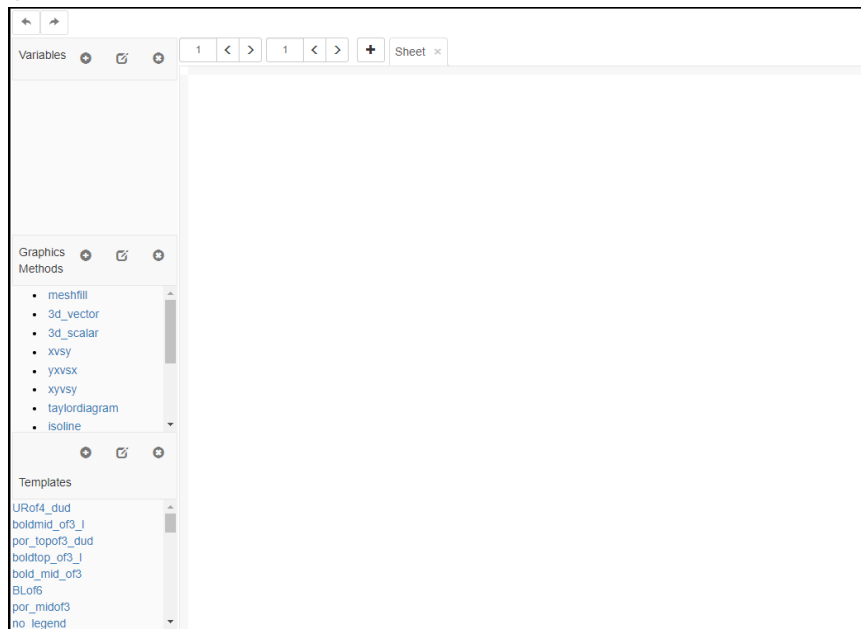
- Created new File Explorer, to provide ability to pick any files on server



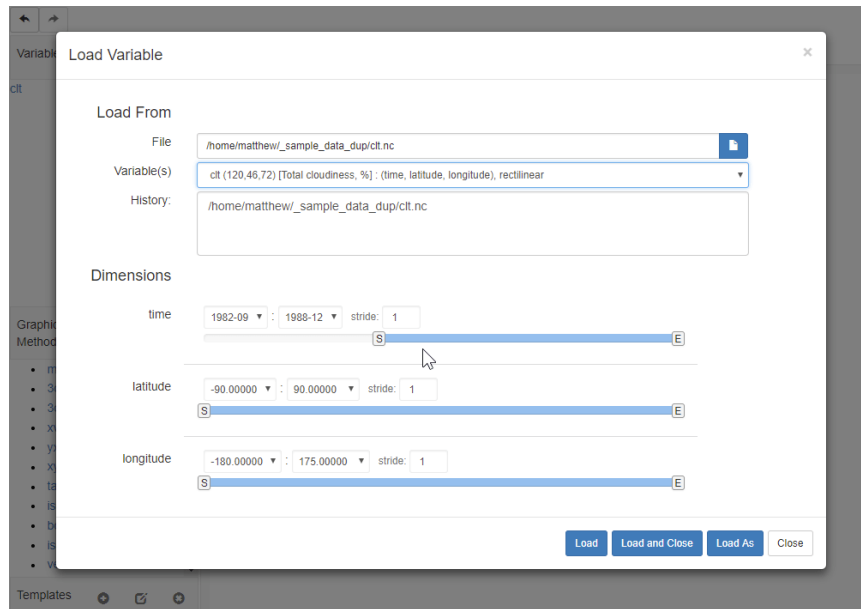
- Created UVCDAT style load variable modal and support basic variable loading



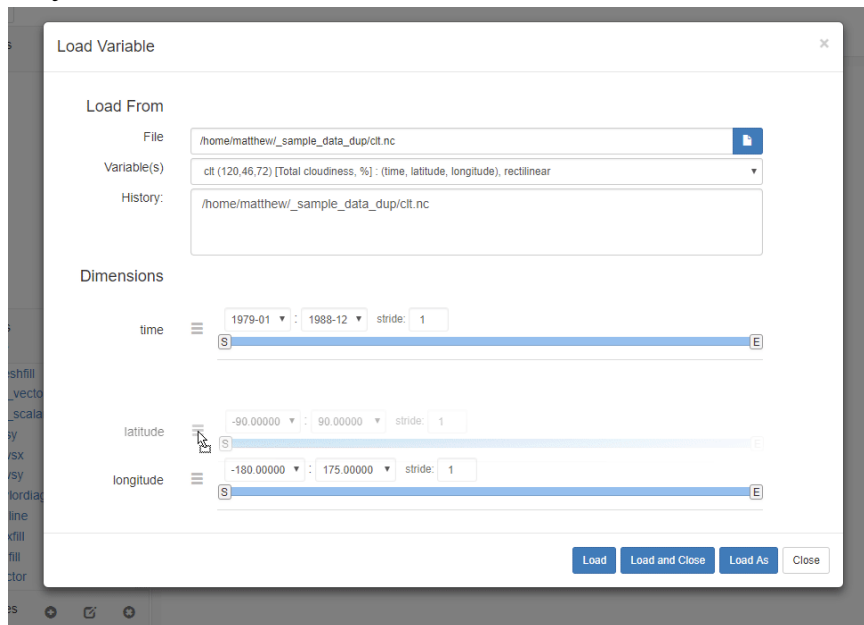
- Applied new color theme and overall frontend UI structure improvement and refactoring



- Implemented variable dimension selection UI



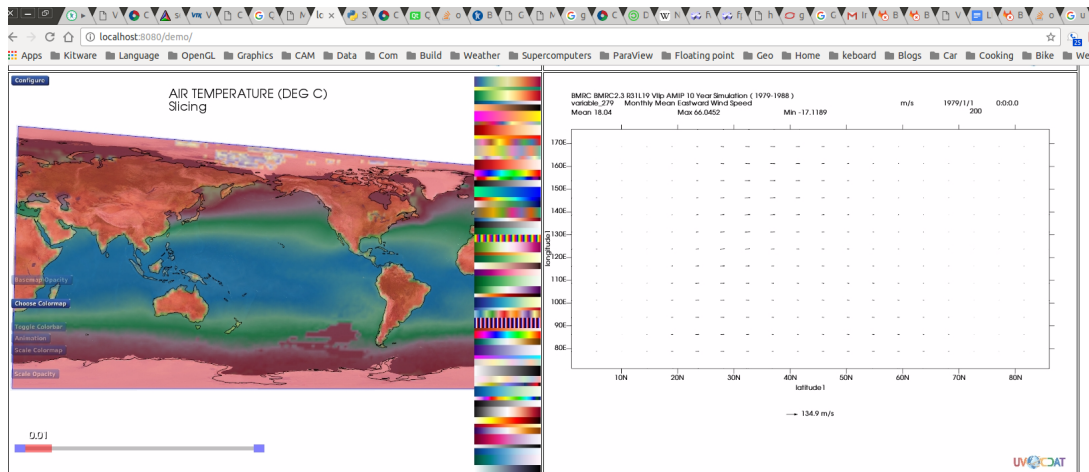
- Added ability to send dimension selections to vcs.js
- Added ability to reorder dimension



- Added polyfill library to support IE 11 and Safari.
Both VCDAT frontend code and VCS.js are using modern JavaScript functions internally. IE 11 and Safari doesn't come with those function by default, polyfill will be applied at runtime to provide those functions.

Enhancements to vcs.js

- Use vtk-web for showing vcs plots in the browser. This work fixed major performance issues of previous implementation. We support clicking on a plot to show context information, interaction with 3D plots, multiple plots in different canvases or on the same canvas and we partially support resizing of a plot. In the next figure we show a 3D plot and a vector plot of a subset variable.



- Do not pop-up a window on the server if using `vcs.init(bg=1)`
- Add a list of subset operations to a variable specification. A variable can have a list of operations that are applied in order to subset that variable. Operations supported are `subRegion` and `subSlice` from CDMS2 spec. For `subSlice`, the begin and end index can be null to specify the current begin and end index.
- Add the ability to reorder variables in a plot.

Bugfixes for VTK

- Fixed a bug that resulted in a failure in `vcs-js` when creating, closing and then recreating plots.

Bugfixes for vtk-web

- Send a view ID argument to the `vtk-web` server. This enables showing several plots on the same page in `vcs-js`.

Bugfixes for conda-recipes

- Investigate and fix a performance issue in VCS using OSMesa. Fixed by changing OSMesa build to use llvmpipe backend.