CDAT

VCDAT

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Introduction

vCDAT is the browser based UI of CDAT (Climate Data Analysis Tools) that aims to solve the problem of visualizing data sets that are growing faster than ever. vCDAT leverages some of the latest web based technologies to render a desktop grade application in a flexible browser based container. It is easily installed using Anaconda, a repository for scientific code written in Python and R.
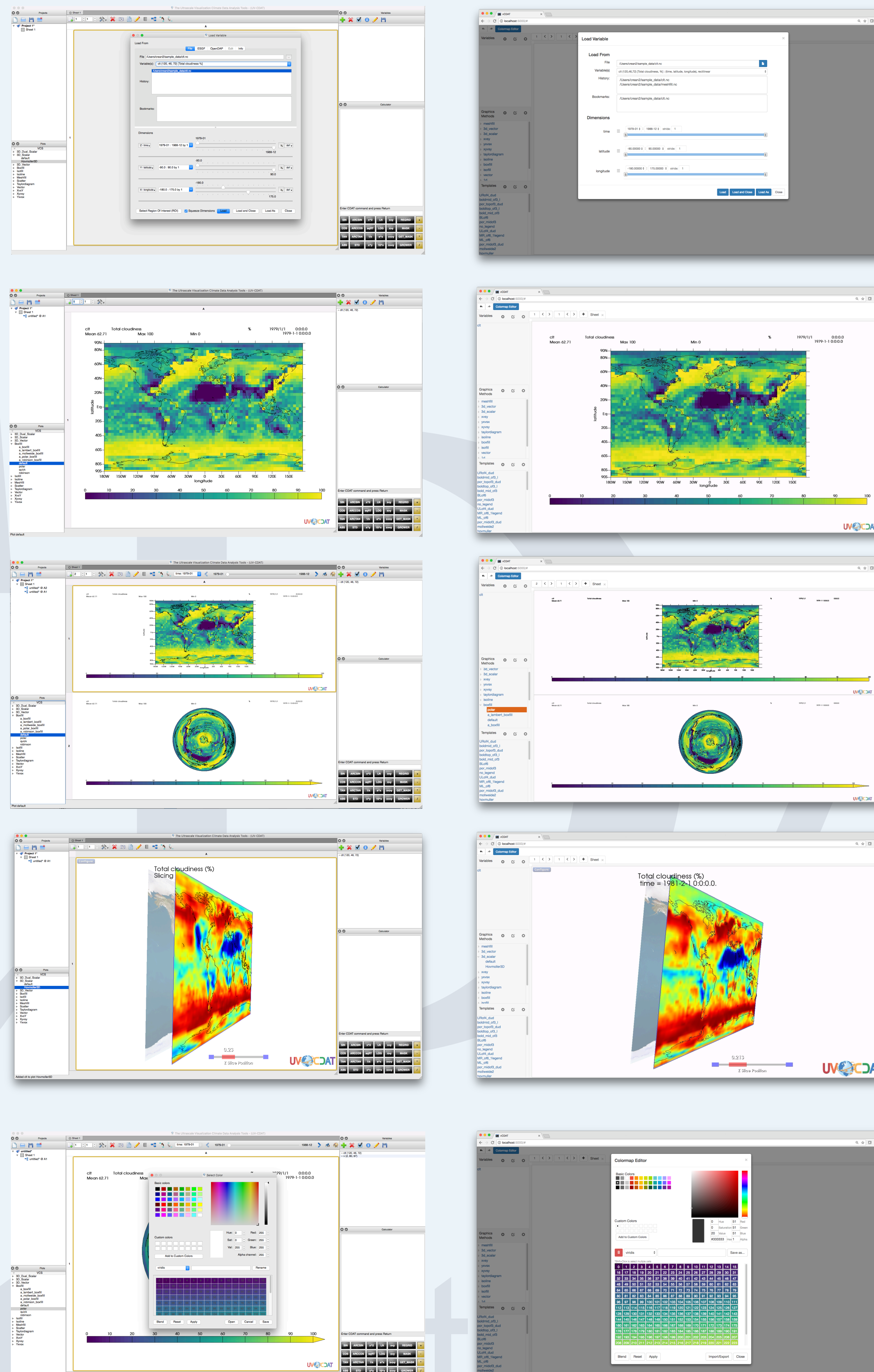
Motivation

The motivation for vCDAT is primarily due to the trend of growing data sets. In order to use a traditional desktop application on a given data set, a user must download the data from a remote server. Network bandwidth is often shared and limited, which can result in transfer times that can take hours, if not days. To make matters worse, these data sets eventually need to be removed in order to make room for a different or updated set. This pattern of transferring the raw data to view it has become untenable for high resolution data.
Additionally, by migrating to a web browser, VCDAT hopes to take advantage of the wealth of optimizations and advances that the web development world has created to make the user interface both responsive and fast. Because it will be ran as a web app, users will not need to install any software to use it, they need only to point their browser to the appropriate web address.

UVCDAT -> VCDAT

Below is a demonstration of the features from UVCDAT that have been implemented in VCDAT.

Implementation

VCDAT is powered by React, a Javascript library developed by Facebook, Redux, a library for managing application state, and Bootstrap, a frontend component library. This results in an application that is broken up into logical components that are easy to build, test, and maintain. The backend of VCDAT is currently powered by Flask and a prototype vcs server. The frontend Javascript code communicates to the vcs server via the vcs.js API.

Current Features

VCDAT currently has the following features implemented:

- Single Variable Plots
- Multi-Dimensional Plots (*Partial*)
- Multiple Plot Cells / Multiple Sheets
- Undo/Redo
- Select/Edit Graphics Methods
- Select/Edit Templates
- Select/Edit Colormaps
- Variable Dimension Subsetting

Future Features

- Multiple User Environment
  - Individual User Accounts
  - User Specific Settings

- Support for 3D plots
- "Calculator"

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