August 2016

Data Analysis Services Group - *August 2016*

News and Accomplishments

VAPOR Project

Project information is available at: http://www.vapor.ucar.edu

WASP Award:

John added support for int16_t external data types to WASP API. The 16 bit quantities are needed for observational data (e.g. UCSD imaging scans), which are typically only 16bits.

John met with the NCL team to discuss the possibility of developing prototype WASP/VDC data readers/writers for NCL. Mary's team was supportive of the idea. Stas will take this up as his next task.

Stas completed implementation of the WASP data reader for VisIt.

KISTI Award:

John submitted abstract for the KSC conference in October.

Dongmin Jang completed development of his Matlab based regridding code for FVCOM data. He then conducted a comparative analysis of the re-gridded vs native data.

Statistics: Scott conducted a preliminary design review of the Statistics App deliverable for KISTI and completed all of its current requirements. Dongmin requested the additional functionality of getting statistics of a variable at a single point as opposed to the statistics of a volume, which was implemented as well. Dongmin helped Scott test the statistics app on his windows machine, where he found that the application would crash when loading a 2D variable. Scott has not been able to reproduce this bug and is currently working on finding its root cause.

SeedMe: Scott was able to build a Python environment that accommodated SeedMe, and then implemented all requirements for the application except for 1) Data marshalling for acquiring download status and URL link to the SeedMe Collection, and 2) system testing. He will need to rebuild the python libraries on Windows to complete the ladder task.

MatPlotLib: Scott cycled through two iterations of the plotting deliverable for KISTI with John. They have currently agreed on what the application should look like conceptually, and Scott plans on beginning a preliminary implementation effort in September.

Colorbar Controllers: Scott finished the implementation of the colorbar manipulators and was given a code review. Scott then finalized the remaining loose ends, which leaves this KISTI deliverable complete aside from system testing.

2.x Development:

3.x Development:

John continued refactoring the VAPOR params database code to address numerous shortcomings such as, poor original design, memory leaks, and complexity:

- continue convert numerous remaining params classes to the new representation
- refactoring - renderers and visualizers managers
- Refactor ControlExec to use new params mechanisms
- refactored Box to do away with local and stretched coordinates

Administrative:

Education and Outreach:

John took over as CISL seminar chair from Allison baker. Two seminars were hosted for august:

> Enhancing the impact of weather and climate predictions via better software frameworks and specialized hardware platforms

> Raffaele Montuoro, PhD, Instructional Assistant Professor, Department of Atmospheric Sciences, Texas A&M University

and

> Overview of the DoD HPCMP, PETTT, Select Projects, and Upcoming Interests

Sean Ziegeler coordinates DoD HPC

Bruce Loftis and Tim Dunn of the high -performance computing group at CU invited Scott to give a talk on Vapor, which is currently scheduled on October 20, at 11:30 within the CU campus. Attendees are expected from CU's CSCI and ATOC departments, as well as from affiliate campuses across the country.

Scott gathered materials for Tim Scheitlin's presentation to the presidents of UCAR and the Weather Channel. Scott sat with Tim for a couple of hours to brief him on the science behind his coral reef visualization and Leigh Orf's tornado rendering.

ASD Support

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Publications, Papers & Presentations

Accepted for publication:

Jubair, Mohammad Imrul; Alim, Usman; Röber, Niklas; Clyne, John; Mahdavi-Amiri, Ali. Icosahedral Maps for a Multiresolution Representation of Earth Data, VMV 2016

John submitted an abstract for AGU on VAPOR3

Systems Projects

System Support

Scott was in communication with the team that develops the FastX VNC client so that they could install Vapor and troubleshoot the crash that occurs while rendering the DVR. This was done at Sidd Ghosh's request.

John has joined the NWSC2a and NWSC2b procurement requirements teams.

Research Projects

Time varying data compression:

Climate data compression:

Production Visualization Services & Consulting