

Dean N. Williams

Supported Projects: AIMS, ESGF, UV-CDAT, ACME, PCMDI, DREAM, and ASCAC

Quarterly Report for January 1, 2017 – March 31, 2017

Quarter Accomplishments:

AIMS:

- Led and participated in daily, weekly, and monthly meetings and teleconferences for the following projects: ESGF, ACME, CDAT, PCMDI, DREAM, and ASCAC. **[January – March 2017]**
- Searching to hire a post-doc candidate in computational visualization. We have a generic posting out through the CASC Division. No viable candidates yet. We will continue the search through the next quarter. **[January – March 2017]**
- Invited speaker and participant in the National Institutes of Health (NIH) Federal Workshop on Measuring the Impact of Digital Repositories. The goal of the workshop was to identify current metrics, tools and methodologies for assessing and communicating the impact of digital repositories and to identify technical, social and financial obstacles. I represented the climate community's ESGF data archive and how we identify use demographics and metrics of success. **[February 2017]**
- IEEE Big Data paper: Hashim Iqbal Chunpir, Dean N. Williams, Thomas Ludwig, 2017, "User eXperience (UX) of a Big Data Infrastructure", Accepted by the 19th International Conference on Human-Computer Interaction (HCI), Vancouver, Canada, 9-14 July. (camera ready version accepted for conference proceeding). **[March 2017]**
- Working with the team to purchase a GPU compute cluster required for Machine Learning. This will be used primarily for prototyping deep learning for ESGF, ACME, PCMDI, UV-CDAT, and the DREAM projects. With Soo Kim on board, we can look to put the cluster specs together for purchase. **[March 2017]**
- Serving on the scientific advisory board of the **European Distributed Earth sciences Computation and Analytics (EUDECA)** project. This project addresses pressing user needs, given that data volumes are increasing faster than available network bandwidth. **[March 2017]**

ESGF:

- As the Chair of ESGF, I led and participated weekly and monthly teleconferences pertaining to ESGF development and operations. This includes leading written reports, articles, and letters of support and collaborations. In addition, this also includes posters and presentations to various organizations. **[January – March 2017]**
- Completed the 6th Annual Earth System Grid Federation Face-to-Face Conference Report: Dean N. Williams, et al., U.S. DOE. 2017. 6th Annual Earth System Grid Federation Face-to-Face Conference Report. DOE/SC-0188. U.S. Department of Energy Office of Science.", March 2017, https://esgf.llnl.gov/media/pdf/2017-ESGF_F2F_Conference_Report.pdf. **[March 2017]**
- As the Principal Investigator and Chair of ESGF, I led and completed the Scientific Focus Area in Climate Change Data Management: Earth System Grid Federation Proposal Plan. The Proposal covers LLNL's and the community's organization and overarching plans for the continued development and deployment of ESGF. The

proposal is due April 21, 2017, but was completed and submitted three week before the due date in March. The review of ESGF will be conducted in the Washington D.C. area June 8 – 9, 2017. **[January – March 2017]**

- Working with others to complete the “*Earth System Grid Federation (ESGF)*” brochure/white paper, which captures the usefulness of the ESGF infrastructure for the DOE BER CESD projects. The brochure is expected to be completed in April in time for the ESGF proposal review. **[March 2017]**

ACME:

- As the ACME Workflow co-group lead, I worked with the team leaders to complete the 12-Month Roadmap from January 1, 2017 through December 31, 2017. The roadmap includes components, such as the ACME Workbench, ACME Diagnostics, UV-CDAT, Data Management, Provenance (i.e., ProvEn), and Hardware. **[January - March 2017].**
- As the ACME Workflow co-group lead, I led and participated weekly and monthly teleconferences pertaining to ACME development and operations. This includes leading written reports, and letters of collaborations. In addition, this also includes presentations to various organizations. **[January – March 2017].**

DREAM:

- As the DREAM PI, I led and participated weekly and monthly teleconferences pertaining to DREAM development and operations. This includes leading writing reports. In addition, this also includes presentations to various organizations. **[January – March 2017].**
- Worked on the “*2016 Distributed Resources for the Earth System Grid Advanced Management (DREAM) Annual Report*”. This report covers the over-arching goal of the project and the projected tasks for 2017 **[January – March 2017].**

Papers:

- Hashim Iqbal Chunpir, **Dean N. Williams**, Thomas Ludwig, 2017, “User eXperience (UX) of a Big Data Infrastructure”, Accepted by the 19th International Conference on Human-Computer Interaction (HCI), Vancouver, Canada, 9-14 July. (accepted). **[March 2017].**
- **Dean N. Williams**, et al., U.S. DOE. 2017. 6th Annual Earth System Grid Federation Face-to-Face Conference Report. DOE/SC-0188. U.S. Department of Energy Office of Science.”, March 2017, https://esgf.llnl.gov/media/pdf/2017-ESGF_F2F_Conference_Report.pdf. **[March 2017].**

Next Quarter’s Roadmap

- I have two main focuses for the next quarter’s roadmap:
 1. Prepare for the ACME All Hands Meeting that is scheduled for June 5 – 7, 2017. This will be the third face-to-face all hands meeting for the ACME team, which will be held in the Washington, D.C. area. **[April - June 2017]**
 2. Prepare for the ESGF proposal review that is scheduled June 8 – 9, 2017. There will be 8 to 12 scientific experts in the field who will evaluate the current deployment and future development of ESGF. It also will be held in the Washington, D.C. area. **[April - June 2017]**
- As a member of the ASCR Advisory Committee (ASCAC), I will attend the ASCAC Spring Meeting in the Washington, D.C. area, April 17 – 19, 2017. **[April 2017]**

- As a member of the *ESS Executive Committee*, I be attending the CESD ESS Executive Committee Workshop Group meeting on Data Infrastructure to be held in the Washington D.C. area, April 23-24, 2017. I will participate in the writing of the workshop report. **[April - June 2017]**
- By invitation only, I will be attending the Energy-Water Expert Meeting in the Washington, D.C. area, to be held the week of June 13, 2017. This meeting will discuss the critical elements within the overall data, modeling, and analysis components for DOE's Energy-Water Nexus Knowledge Discovery Framework. **[June 2017]**
- I will continue to lead ESGF, CDAT, ACME Workflow, DREAM, and other AIMS *software development efforts* and continue to lead and/or participate in several *daily, weekly and monthly meetings and teleconferences* for the ESGF, ACME, CDAT, PCMDI, WIP, DREAM, and ASCAC projects. **[April - June 2017].**
- I will continue chair and participate on several review and *advisory committees and boards* **[April - June 2017].**
- I will continue to push the AIMS leadership team to develop *strategic and implementation Roadmap with JIRA tasks* for stakeholders and the community at large. **[April - June 2017]**

Resources Required to Achieve Goals

- *GPU clusters* are needed for Machine Learning, visualization development and server-side (remote) computing. This next quarter, we will look to purchase a GPU cluster for prototyping development.