

## Chris Mattmann, Ph.D.

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### CONTACT INFORMATION

#### Chief Architect

Instrument Software and Science Data Systems Section  
Pasadena, CA 91109 USA

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*E-mail:* [chris.a.mattmann@nasa.gov](mailto:chris.a.mattmann@nasa.gov)

*WWW:* <http://instrumentsystems.jpl.nasa.gov/people/Mattmann/>

NASA Jet Propulsion Laboratory

Office: 168-519

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#### Adjunct Associate Professor

Computer Science Department

Los Angeles, CA USA 90089

*Voice:* (213) 821-4336

*E-mail:* [mattmann@usc.edu](mailto:mattmann@usc.edu)

*WWW:* <http://sunset.usc.edu/~mattmann/>

University of Southern California

Office: SAL 216

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#### Visiting Assistant Researcher

Joint Institute for Regional Earth System Science/Engr.

Los Angeles, CA 90095-7228

*Voice:* (310) 794-9832

*E-mail:* [mattmann@jifresse.ucla.edu](mailto:mattmann@jifresse.ucla.edu)

*WWW:* <https://jifresse.ucla.edu/>

University of California, Los Angeles

Office: Young Hall, Room 4242

*Fax:* (310) 794-9796

### RESEARCH INTERESTS

Software Architecture, Software Engineering, Search Engines, Information Retrieval, Resource Discovery, Distributed Computing Platforms, Large-scale, distributed systems, Data modeling, design and development of distributed data intensive systems.

### EDUCATION

**University of Southern California**, Los Angeles, CA USA

Ph.D., Computer Science, August 2007

- Dissertation Topic: "Software Connectors for Highly Distributed and Voluminous Data-intensive Systems"
- Advisor: Nenad Medvidović
- <https://github.com/chris mattmann/disco>

M.S., Computer Science (Multimedia and Creative Technologies), August 2003

B.S., Computer Science, December 2001

### PROFESSIONAL EXPERIENCE

**Instrument Software and Science Data Systems Section, NASA Jet Propulsion Laboratory**, Pasadena, CA 91109 USA

*Principal Designation (Data Science)*

**January 2015 - present**

*Chief Architect*

**January 2014 - present**

*Software Architect V*

**September 2013 - present**

*Software Architect IV*

**September 2011 - September 2013**

*Senior Computer Scientist*

**September 2008 - December 2014**

*Cognizant Development Engineer*

**August 2007 - present**

*Member of Key Staff*

**September 2006 - present**

*Staff Software Engineer*

**September 2005 - September 2008**

*Associate Software Engineer*

**January 2001 - August 2005**

Awarded the designation of JPL Principal (focus area *Data Science*) to recognize sustained outstanding individual contributions in advancing scientific or technical knowledge, or advancing the implementation of technical and engineering practices on projects, programs, or the Institution. Chief Architect of Instrument Software and Science Data Systems Section. A member of Section

Staff with responsibility for influencing science data system designs and facilitating the infusion of new technologies to meet our future challenges. Developed reusable science data processing system for the Orbiting Carbon Observatory, NPP Sounder PEATE, SMAP, and DESDynI Earth Science missions. Wrote proposals to government agencies incl. NASA, NSF, DOD and the NIH. Vice President of open source project out of JPL called Object Oriented Data Technology, or OODT, runner-up NASA software of the year 2003, and the first NASA project to enter the Apache Software Foundation (ASF). Development Lead supervising development team, delivery, schedule and architecture at the National Cancer Institute's Early Detection Research Network (EDRN) Informatics Center. Principal Investigator on Software Royalty and Reinvestment Fund (SRRF) task to develop a climate model diagnostics package. Study PI for investigating architectural tradeoffs in the DESDynI mission. Task manager for 2009 ARRA funded effort to build a modeling parameter database for California Water Resource Management, awarded West Federal Labs Consortium Outstanding Partnership Award in 2011. Co-investigator and progenitor of winning ROSES ACCESS 2007 proposal to develop a Virtual Oceanographic Data Center. Co-investigator on winning NASA IPP Seed Fund 2008 proposal to link NASA climate models to the DOE Earth System Grid (ESG). Co-investigator on winning JPL R&TD task to construct a virtual grid system for Climate Data. Co-Investigator on winning NIH Challenge Grant to construct a virtual pediatric health data system for decision making in patient critical care. Co-Investigator on ROSES ACCESS 2009 proposal to develop a data management system for coastal ocean data. Data System Lead and Co-I on two winning NASA National Climate Assessment proposals in Regional Climate Modeling and in Snow Hydrology for the Western US and Alaska. Co-Investigator on winning UK Climate and Development Knowledge Network (CDKN) collaboration proposal to develop regional climate modeling software with the University of Cape Town. Data System Lead and Co-I for the JPL Airborne Snow Observatory (ASO) airborne demonstration mission. PI on NASA AIST funded task to develop a Regional Climate Model Evaluation System. Funded Co-Investigator on NASA Applied Sciences Water Resources (A.34) task to deliver snow hydrology products to NOAA's Colorado Basin River Forecast Center (CBFRC) and Co-Investigator on NASA Applied Sciences Remote Sensing Training (ARSET) program. PI on NASA A.40 (CMAC) proposal to publish NASA datasets to the Earth System Grid; PI on XDATA proposal to DARPA to establish a scalable, open source data archiving platform. Co-PI (JPL PI) on NSF MRI proposal with MIT Haystack Observatory to construct Radio Array of Portable Interferometric Devices (RAPID). PI on JPL R&TD strategic initiative in Big Data: focused on Archiving, Processing and Dissemination of Large Data sets. Co-PI on NSF S2I2 proposal with UCSB to construct an Institute for Sustainable Earth and Environmental Sciences (ISEES). Co-PI (UCLA JIFRESSE) on NSF/G8 Initiative Proposal for Climate Data Analysis on Exascale Archives (ExArch).

**Viterbi School of Engineering, University of Southern California, Los Angeles, CA 90089 USA**

*Adjunct Associate Professor*

**November 2013 - present**

*Adjunct Assistant Professor*

**November 2008 - November 2013**

*Part-time Faculty*

**November 2007 - November 2008**

Taught graduate level course in Software Architectures (CSCI 578) to a class of over 60 students, including remote professionals. Taught both a distance education (DEN) lecture, as well as on-campus version of the class. Developed syllabus for and taught course in Information Retrieval and Search Engines (CSCI 572) during Summer 2010 and 2011 and Spring 2012 and 2013. Participated in writing proposals to the U.S. National Science Foundation, and other agencies. Participated in program committees and reviewed papers for various prestigious international conferences incl. the ACM WWW 2009 conference, ICSE, and ASE, and journals including the Journal of Systems and Software, and IEEE Transactions on Software Engineering and IEEE Transactions on Dependable and Secure Computing. Participated and led paper writing efforts to ICSE and other conferences. Mentored and collaborated with several software architecture Ph.D. students. Established a successful research and industry collaboration with NASA JPL and USC.

**Joint Institute for Regional Earth System Science and Engineering, UCLA, Los Angeles,**

CA 90095 USA

*Visiting Researcher*

**March 2012 - present**

Appointed visiting researcher in the JIFRESSE institute, closely associated with JPL. Investigator on NSF proposals in the area of Regional Climate Modeling and Evaluation. Collaborated closely with Dr. Duane Waliser, JIFRESSE Fellow, and Dr. Jinwon Kim, expert in the area of regional climate modeling.

**Earth Science Data System (ESDS) Working Groups, National Aeronautics and Space Administration, Washington, DC 20546-0001 USA**

*Chair, Geospatial Working Group*

**January 2013 - present**

*Chair, Open Source Working Group*

**January 2013 - present**

*Chair, Software Reuse Working Group*

**October 2009 - January 2013**

Responsible for setting direction of software reuse for Earth science data systems research and making recommendations to NASA regarding identification, infusion, and dissemination of reusable assets. Organize telecons, meetings, and participate in reviews with NASA HQ program officers in Earth science research. Inform other working groups, including Software Metrics, Technology Infusion, and Software Process. Broadly advocate, and disseminate software developed on NASA Earth science data system missions, as well as in Distributed Active Archive Centers (DAACs) and downstream data analysis research projects (MeASURES and ACCESS).

**Apache Software Foundation, Forest Hill, MD USA**

*Director, Apache Software Foundation*

**May 2013 - present**

*Treasurer (Executive Officer), Apache Software Foundation*

**August 2012 - present**

*Member, Apache Software Foundation*

**March 2010 - present**

*VP, Apache OODT, OODT Project*

**November 2010 - March 2013**

*VP, Apache Tika, Tika Project*

**April 2010 - August 2012**

*Project Management Committee, Gora Project*

**January 2012 - present**

*Project Management Committee, Incubator Project*

**April 2010 - present**

*Project Management Committee, Nutch Project*

**April 2010 - present**

*Project Management Committee, Tika Project*

**April 2010 - present**

*Project Management Committee, Lucene Project*

**October 2009 - May 2010**

*Committer and Co-Founder, Tika project*

**March 2007 - present**

*Committer, Nutch project*

**October 2006 - present**

Elected to ASF Board of Directors in May 2014 and in May 2013. Took over as ASF Treasurer, responsible for managing foundation's bill paying, tax filing and other financial responsibilities. Voted to become the *first* NASA member of the Apache Software Foundation, helping to steer and set the direction for the overall ASF. Voted to be a Project Management Committee (PMC) member of the Apache Lucene project. Apache Lucene produces software for enterprise search and information retrieval, facet-based data-discovery, content detection, analysis and large-scale, distributed data mining algorithms. Provide project direction and leadership, vote on project releases, help guide community including 1000s of developers around the world. Developed original proposal and plan for Tika, a content analysis toolkit, in collaboration with existing Apache Nutch committer Jerome Charron. Tika provides a framework for content analysis and metadata extraction. Led the ascension of Tika into Apache Top Level Project (TLP) status. Tika release manager for the 0.1-incubating, 0.3, 0.4, 0.5, 0.6, 0.7 and 0.8 releases. Contributed several patches to Nutch, most notable were an RSS Parsing plugin, a complete redesign of the ParserFactory, Metadata container support, and an automatically generated web context file, including web parameter support to the Nutch webapp. Most of this work was done in collaboration with existing committer Jerome Charron. Nutch release manager for 0.9, 1.1 and 1.2 releases. Contributed CombiningTokenFilter for Apache Lucene that allows sorting on string titles that includes stop word removal, stemming, and synonym analysis on sortable fields. Contributed several patches to Apache SOLR during this time, committed during the 1.5 release cycle, and also contributed to what eventually became Apache Hadoop. Championed Incubator projects including OODT, SIS, Lucy, Gora, MRUnit, and Any23.

**Management Information Systems, 211 Los Angeles County, San Gabriel, CA 91778 USA**

*Chief Technology Officer*

**August 2013 - December 2014**

*Architect*

**January 2012 - August 2013**

*Independent Consultant*

**January 2008 - January 2012**

Advised on redesign of customer call center system. Provided architectural support and requirements guidance for the development of a “wizard” installer component for the three major subsystems of the customer call center redesign. Implemented installer component using topical PHP 5 programming language and PEAR installation framework. Implemented agency and resource service Google-like search for use by customer resource agents (CRAs). Lead developer of search redesign in customer call center system. Lead developer of GIS search capability using advanced geocoding techniques. Architect for system redesign and operational call center, inquiry system and full 211 IT end to end development. Appointed Chief Technology Officer in Summer 2013 to assist in advising 211 Executive and C-suite on IT portfolio, strategy, assist in recruiting and strategic relations with partners.

**Web Development and Engineering, E50.com, Inc, Hollywood, CA USA**

*Senior Software Consultant*

**September 2000 - August 2003**

Led software development and backend engineering for a major Internet hosting and development company that serviced over 500 web sites. Utilized Microsoft technologies incl. ASP, MS SQL Server and engaged in requirements gathering and interaction with customers and end-users. Designed and implemented several web sites including <http://snookies.com>.

**Engineering Team, Iwin.com, Inc, Westwood, CA USA**

*Engineering Intern*

**February 2000 - August 2000**

One of about 4 interns tasked with developing Java-based games for target demographic of 35-55 year old adults. Participated in software design and development, constructed query result caching mechanism that optimized DB query time against MS SQL Server by 25%. Helped formulate ranking algorithm for games listed on the site.

HONORS AND  
AWARDS

JPL Bonus Award, Outstanding Individual Contribution, Instrument Software and Science Data Systems, 2014.

Ticke’s Notable Scientists List

<https://twitter.com/ticckle/lists/notable-scientists>, 2014.

NASA Group Achievement Award, Early Detection and Research Network (EDRN), 2011.

SoftArtisans 30 Hadoop and Big Data Spelunkers Worth Following List

<http://bit.ly/vEUQre>, 2011.

JPL Mariner Award, Outstanding Individual Contribution, Instrument Software and Science Data Systems, 2011.

West Federal Labs Consortium Outstanding Partnership Award, NASA ARRA Water Resource

Management Project, 2011.  
 First NASA Member of the Apache Software Foundation (ASF), 2010.  
 NASA Team Award, Orbiting Carbon Observatory (OCO), 2009.  
 NASA Group Achievement Award, Planetary Data System (PDS), 2008.  
 NASA Software Reuse WG Peer-Recognition Award (OODT CAS), October 2008.  
 NASA Space Act Award (OODT CAS), September 2008.  
 NASA Team Bonus Award, Orbiting Carbon Observatory (OCO) mission, September 2008.  
 NASA Tech Briefs Award (OODT CAS), October 2007.  
 NASA Group Achievement Award, Planetary Data System (PDS), October 2007.  
 NASA Group Achievement Award, Object Oriented Data Technology (OODT) project, October 2007.  
 SIGSOFT CAPS Travel Scholarship, Doctoral Symposium, ASE, Tokyo, Japan, July 2006  
 Travel Scholarship, Doctoral Symposium, ICSE , Shanghai, China, May 2006  
 Teaching Assistantship Award, Department of Computer Science, USC, September 2003, February 2004, September 2004, January 2005, January 2007  
 Dean's List Recipient, School of Engineering ,USC, 1999

ACADEMIC  
EXPERIENCE

**University of California Los Angeles**, Los Angeles, California USA

*Visiting Researcher*

**March 2012 - present**

Appointed visiting researcher in the JIFRESSE institute, closely associated with JPL. Investigator on NSF EaSM2 proposal in the area of Regional Climate Modeling and Evaluation and the Coordinated Regional Downscaling Experiment. Collaborated closely with Dr. Duane Waliser, JIFRESSE Fellow, and Dr. Jinwon Kim, expert in the area of regional climate modeling. Will advise Ph.D. student at UCLA in Computer Science on the project.

**University of Southern California**, Los Angeles, California USA

*Adjunct Associate Professor*

**November 2013 - present**

*Adjunct Assistant Professor*

**November 2008 - November 2013**

*Part-time Faculty*

**November 2007 - November 2008**

Taught graduate level course in Software Architectures (CSCI 578) for 5 years to a class of over 60 students, including remote professionals. Taught both a distance education (DEN) lecture, as well as on-campus version of the class. Taught a graduate course in Search Engines and Information Retrieval (CSCI 572) during the Summer 2010, 2011, and Spring 2013 semesters. Significantly upgraded course lecture material and devised open-source, innovative crawling, parsing, and geo-location set of assignments for the course.

*Graduate Student*

**August 2002 - December 2007**

Includes Ph.D. research, Ph.D. and Masters level coursework and research projects. Active participant in proposal writing to funding agencies such as NASA, NSF, and the NIH.

*Teaching Assistant*

**September 2003 - May 2007**

TA for graduate level courses on Software Architectures, Software Engineering for Embedded Systems, and Operating Systems. Shared responsibility for lectures, exams, homework assignments, and grades.

- CSCI 578: Software Architectures, Spring 2005, Spring 2007
- CSCI 589: Software Engineering for Embedded Systems, Fall 2004
- CSCI 402: Operating Systems, Fall 2003, Spring 2004

*Senior Grader*

**September 2001 - August 2003**

Senior grader for graduate and undergraduate level courses on Issues of Programming Language Design and Programming the WWW. Shared responsibility for exams, homework assignments, and grades.

- CSCI 571: Issues of Programming Language and Design, Spring 2001, Summer 2003
- CSCI 351: Programming the WWW, Fall 2001, Spring 2002

COURSE  
DEVELOPMENT

### **Industry**

#### **1. JPL-Caltech Virtual Summer School in Big Data Analytics**

<http://bigdata.astro.caltech.edu/>

JP/Caltech Data Science

August 2014 - September 2014

Instructors: A. Braverman, D. Crichton, S. Davidoff, S. George Djorgovski, C. Donalek, R. Doyle, T. Fuchs, M. Graham, A. Mahabal, C. Mattmann, D. R. Thompson, M. Turmon

Class Size: 30 Virtual Participants via Coursera

Virtual Recording Big Data and Data Science Summer School jointly organized with JPL and Caltech. Helped to collaboratively develop meeting schedule and planning for the summer school and developed two course modules:

- Big Data Architectures - Fundamentals - a three part module covering software architecture, and Big Data, architectural fundamentals, components, connectors, configurations, styles, patterns, modeling, visualization, and architectural recovery and case studies.
- Content Detection and Analysis for Big Data - a three part module covering MIME identification, file parsing, text and information retrieval, language identification, machine translation, and case studies involving Apache Tika.

#### **2. Using Satellite Observations to Advance Climate Models - A Regional Climate Model Evaluation System**

JPL Center for Climate Sciences

August 2012 (1.5 hour short course)

Instructors: C. Mattmann

Class Size: ~30 students

Practical session demonstrating architecture, tools, and computer/data science aspects of comparing remote sensing data to climate model outputs using the Regional Climate Model Evaluation System (RCMES) tool and efforts emerging from JPL's climate software architecture work.

<http://climatesciences.jpl.nasa.gov/page/26>

<http://goo.gl/Wqo1ZBc>

#### **3. NASA ARSET Snow Product Training Western US Water Management**

NASA Applied Sciences Remote Sensing Training (ARSET) Program

January 2013 (5 week course)

Instructors: T. Painter and C. Mattmann

Program Managers: Ana Prados and Amita Mehta

Class Size: ~30 students

Training in improved NASA snow products pioneered by Dr. Tom Painter for the Western US, Alaska and Hindu Kush Himalaya region. Training in the basics of remote sensing, satellite orbits, basics of snow spectroscopy, and data management software and tools for snow data.

Training in improved snow covered area and grain size measurements, and dust radiative forcing of black carbon/impurities from Snow products. Training in JPL's Snow Server and Science Computing Facility for the management of NASA snow data and in open source methodologies and techniques and tools.

#### **4. PCS Technology Pilot Course**

NASA Jet Propulsion Laboratory Professional Development Program

January 2010

Instructors: C. Mattmann and D. Freeborn

Class Size: ~10 students

Basic training in JPL's Object Oriented Data Technology (OODT) Process Control System (PCS) Software and its applicability to science data processing systems. Topics covered include the PCS heritage, PCS architecture and 2 hands-on code development exercises in the afternoon involving RSS, Podcasting, iTunes, and file and workflow management.

## MEDIA

### Articles

1. The Apache Software Foundation Celebrates 15 Years of Open Source Innovation and Community Leadership. November 19, 2014.  
[https://blogs.apache.org/foundation/entry/the\\_apache\\_software\\_foundation\\_celebrates2](https://blogs.apache.org/foundation/entry/the_apache_software_foundation_celebrates2)
2. Media Alert - November 3-4, 2014: NSF Polar CyberInfrastructure DataVis Hackathon in New York, NY. Contact: USC Viterbi Media Relations - 213-821-5555 or vcomms@usc.edu. October 31, 2014.  
<http://goo.gl/dmf7gt>
3. NSF DataViz Hackathon for Polar CyberInfrastructure - Call for Remote Participation. *ESIP Federation Blog*. November 2, 2014.  
<http://esipfed.org/node/7305>
4. Scientists seek new ways for dealing with Big Data. (German). *Computerwoche.de*. October 7, 2014.  
<http://goo.gl/R6j1hA>
5. J. Duley. Open Innovation Team releases new CODE.nasa.gov. *Open NASA Blog*. October 6, 2014.  
<http://go.usa.gov/w4AR>
6. Researchers are looking for new ways of dealing with Large Amounts of Data. *NWZ Online*. October 7, 2014. (German).  
<http://goo.gl/ippyRD>
7. 3rd International Symposium on Big Data KIT. *Gau-Allianz*, Newsletter No. 29, September 2014. (German)  
<http://www.gauss-allianz.net/de/infobrief/430-infobrief-nr-29>
8. The Apache Software Foundation Announces Apache(tm) Tez(tm) as a Top-Level Project. *Global News Wire*. Tuesday, July 22, 2014.  
<http://goo.gl/aY91j5>
9. J. Vaughan. Apache Spark goes 1.0, looks to improve on MapReduce performance. *Search Data Management*. Wednesday, June 4, 2014.  
<http://bit.ly/1kuK2u8>
10. J. LeClaire. Can Super-Fast Apache Spark Light Up Hadoop?. *Top Tech News*, Friday May 30, 2014.  
[http://www.toptechnews.com/article/index.php?story\\_id=13200AZBZ75C](http://www.toptechnews.com/article/index.php?story_id=13200AZBZ75C)
11. The Apache Software Foundation Announces Apache(tm) Spark(tm) v1.0. *Yahoo! Finance*, Friday May 30, 2014.  
<http://goo.gl/sCioLM>
12. Apache Tajo Granted Top-Level Project Status by the ASF. *Gruter Blog*, April 1, 2014.  
<http://www.gruter.com/blog/?p=839>
13. C. Mulligan. Spark advances from Apache Incubator to top-level project. *SDTimes*, February 28, 2014.  
<http://www.sdtimes.com/content/article.aspx?ArticleID=68845&page=1>  
<http://buswk.co/NEIIXd>

14. P. Rubens, 7 Reasons Not to Use Open Source Software. *CIO magazine*, February 11, 2014.  
[http://www.cio.com.au/article/537990/7\\_reasons\\_use\\_open\\_source\\_software/](http://www.cio.com.au/article/537990/7_reasons_use_open_source_software/)
15. M. Gannon. How Scientists Tackle NASA's Big Data Deluge. *Space.com*, January 18, 2014.  
<http://www.space.com/23330-nasa-big-data-jet-propulsion-laboratory.html>  
[http://www.huffingtonpost.com/2014/01/21/nasa-big-data-deluge\\_n\\_4636667.html](http://www.huffingtonpost.com/2014/01/21/nasa-big-data-deluge_n_4636667.html)
16. N. Bharti. QCon London '14: Damian Conway, Tim Lister, Gunter Dueck Keynotes, 45% Speakers Confirmed (Mar 3-7). *InfoQ*, December 4, 2013.  
<http://www.infoq.com/news/2013/12/qcon-london-2014>
17. K. Hickey. NASA's virtual institute powers solar system exploration. *GCN: Technology, Tools and Tactics for Public Sector IT*. December 5, 2013.  
<http://gcn.com/Articles/2013/12/05/NASA-virtual-institute.aspx>
18. J. Bertolucci. How NASA Manages Big Data. *InformationWeek*. November 21, 2013.  
<http://goo.gl/bquF7h>
19. XDATA Tackles the Big Data Challenge. *JPL Science and Technology Website*, November 21, 2013.  
<http://scienceandtechnology.jpl.nasa.gov/newsandevents/newsdetails/?NewsID=2443>
20. P. Fiorenza. Are You Ready to Be the Agency of the Future? GovLoop's Latest Report Explores Open Source Technology. *GovLoop*, November 14, 2013.  
<http://goo.gl/R6dBsW>
21. A. Poulisse. JPL Researchers developing ways to handle big data. *Pasadena Star News and Los Angeles Daily News*, Saturday, November 2, 2013.  
<http://bit.ly/1iDxE1B>.
22. W. Clavin. Managing the Deluge of 'Big Data' From Space - NASA Jet Propulsion Laboratory. *NASA JPL / NASA Technology Website*. Thursday October 17, 2013.  
<http://www.jpl.nasa.gov/news/news.php?release=2013-299>  
[http://www.nasa.gov/mission\\_pages/spitzer/news/spitzer20131017.html#.UmCil2RARFh](http://www.nasa.gov/mission_pages/spitzer/news/spitzer20131017.html#.UmCil2RARFh)
23. J. Ouellette. Data Driven: the new Big Science. The Future Fabric of Data Analysis. *Quanta Magazine*. The Simons Foundation. October 9, 2013.  
<https://www.simonsfoundation.org/quanta/20131009-the-future-fabric-of-data-analysis/>  
<http://www.wired.com/wiredscience/2013/10/computers-big-data/>
24. T. Lin. Data Driven: the new Big Science. Imagining Data Without Division. *Quanta Magazine*. The Simons Foundation. September 30, 2013.  
<https://www.simonsfoundation.org/quanta/20130930-imagining-data-without-division/>  
<http://cacm.acm.org/careers/168401-imagining-data-without-division/fulltext>  
<http://www.wired.com/wiredscience/2013/10/big-data-science/>
25. M. Deutscher. Forget Math PhDs Predictive Analysts Replace Old Roles, Push New Markets. *SiliconANGLE*, March 27, 2013.  
<http://bit.ly/YT4h1M>
26. C. Goranson. HealthBoard: Moving Towards the Apache 2.0 License. *Open Source Electronic Health Record Agent (OSHERA) Blog*, March 3, 2013.  
<http://www.osehra.org/blog/healthboard-moving-towards-apache-20-license>
27. D. Coutler. SERVIR-Himalaya hosts training on assessing water availability and flooding potential in Hindu Kush Himalaya. *NASA SERVIR News*, December 10, 2012.  
<http://servirglobal.net>  
<http://goo.gl/9yMeY>
28. W. Grace. Big data out in space. *Open Search News*, November 15, 2012.  
<http://opensearchnews.com/2012/11/big-data-out-in-space/>
29. S. Putt. Big data the NASA way. *PC Advisor*, Tuesday, October 30, 2012.  
<http://www.pcadvisor.co.uk/news/small-business/3408107/big-data-nasa-way/>



30. S. Putt. Big data the NASA way. *Computerworld NZ*, Wednesday October 31, 2012.  
<http://computerworld.co.nz/news.nsf/news/big-data-the-nasa-way>
31. Fairfax Magazine. NASA and Sesame Street meet at ITEX 2012. Monday, October 29, 2012.  
<http://goo.gl/N4skm>
32. R. Bruecker. Chris Mattmann to Keynote HPC User Forum in Dearborn. *Inside HPC.com*. August 24, 2012.  
<http://goo.gl/RxTiX>
33. D. Perera. NASA needs open source framework. *Fierce Government IT*. June 25, 2012.  
<http://bit.ly/Q6DgbQ>
34. P. Krill. Hadoop becomes critical cog in the Big Data Machine. *Computerworld*. June 19, 2012.  
<http://goo.gl/5E7m0>
35. J. Casaretto. NASA Talks About Big Data, Hadoop. *Silicon Angle Blog*, June 14, 2012.  
<http://siliconangle.com/blog/2012/06/14/nasa-talks-about-big-data-hadoop/>
36. N. Skytland, A. Liewellyn, S. Herron. NASA Open Government Plan 2.0. NASA, 2012.  
<http://www.scribd.com/doc/88733284/NASA-Final-Open-Government-Plan-Version-2-0>  
<http://open.nasa.gov/plan/>  
<http://open.nasa.gov/plan/open-source-software/>
37. NASA Spinoff Magazine. Frameworks Coordinate Scientific Data Management. *NASA Spinoff Magazine*, 2011.  
<http://t.co/6A17FK4N>
38. A. Howard. Open Source is Mission Critical for NASA. *O'Reilly Radar*, 2011.  
<http://radar.oreilly.com/2011/04/nasa-open-source.html>
39. B. Ahier. Pediatric Health IT, a Space Odyssey. *Government Health IT*, June 27, 2010.  
<http://www.govhealthit.com/news/pediatric-health-it-space-odyssey>
40. A. Howard. NASA Technology leads to better Medical Decisions. *O'Reilly Radar*, 2010.  
<http://radar.oreilly.com/2010/06/harnessing-open-source-grid-so.html>

## Podcasts

1. C. Mattmann, J. Klemm. "FedOSS: Creating open source communities". FedScoop. Luke Fretwell and Gunnar Hellekson. Published Tuesday June 18, 2013.  
<http://fedscoop.com/fedoss-creating-open-source-communities/>
2. C. Mattmann "Episode 078 TMTc Chris Mattmann OODT/NASA". Teach Me To Code Podcast. Charles Max Wood, for TeachMeToCode.com. ApacheCon NA 2011 ancillary interview, Vancouver, BC, November 11, 2011, published December 30, 2011. <http://teachmetocode.com/podcast/078-tmtc-chris-mattman-oodtnasa/>
3. C. Mattmann. "Episode 69 - Apache Tika". FeatherCast - An unofficial podcast from the world of the Apache Software Foundation. August 11th, 2010. Rich Bowen for FeatherCast. <http://bit.ly/bhul1u>.
4. C. Mattmann. "NASA technology leads to better medical decisions". O'Reilly Radar. June 16, 2010. Alex Howard, for O'Reilly Media, Government 2.0 Health IT series, for the O'Reilly Open Source Convention (OSCON) 2010, Portland, Oregon, July 19-23. <http://oreil.ly/d2vRk4>.
5. C. Mattmann. "An Architecture-based Framework for Biomarker Discovery and Management in the Early Detection Research Network." BlogTalk Radio. February 2, 2010. International Quality & Productivity Center (IQPC) New York (IQPC-NYC) in preparation for the 6th Laboratory Informatics Conference, Philadelphia, PA. February 2, 2010. <http://bit.ly/bQR6Mp>.

## Webinars

1. BrightTALK Business Intelligence and Analytics Webinar. “Apache Hadoop, Meet Rocket Science: Big Data at NASA”. Chris A. Mattmann. January 23, 2014.  
<https://www.brighttalk.com/webcast/9059/94531>
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5. R. Roshandel, L. Markides, L. Stetson, Z. Yang, C. Mattmann, K. Zielinski. Toward Reliability Analysis for Software Product Families. Technical Report, SU-CSSE-2010-1. Computer Science and Software Engineering, Seattle University, April 2010.
6. C. Mattmann, B. Foster, A. Y. Chang, P. Ramirez, D. Freeborn, D. Woollard, D. Crichton. A Framework for Rapidly Integrating Science Data Processing Algorithms into Process Control Systems. NASA New Technology Report (NTR) NPO-47160, 2009.

7. C. Mattmann, J. Garcia, I. Krka, D. Popescu and N. Medvidovic. The Anatomy and Physiology of the Grid Revisited. Technical Report, USC-CSSE-2008-820. Center for Software Engineering, University of Southern California, October 2008.
8. C. Mattman, B. Foster, A. Chang, D. Crichton, D. Freeborn, D. Woollard. A Generic, Extensible, Configurable Push Pull Framework for Large Scale Science Missions. NASA New Technology Report (NTR) NPO-46185, 2008.
9. C. Mattmann, D. Freeborn, D. Crichton, J. S. Hughes, P. Ramirez, S. Hardman, D. Woollard, and S. Kelly. Refining and Improving the OODT Catalog and Archive Service via Agile Component Refactoring. NASA New Technology Report (NTR) NPO-44883, 2007.
10. V. Perrone, C. Mattmann, S. Kelly, D. Crichton, A. Finkelstein, and N. Medvidovic. A Reference Framework for Requirements and Architecture in Biomedical Grid Systems. Technical Report, USC-CSE-2007-706. Center for Software Engineering, University of Southern California, March 2007.
11. D. Woollard, C. Mattmann, and N. Medvidovic. Injecting Software Architectural Constraints into Legacy Scientific Applications. Technical Report, USC-CSE-2007-701. Center for Software Engineering, University of Southern California, January 2007.
12. J. Bhuta, C. Mattmann, N. Medvidovic, and B. Boehm. A Framework for the Assessment and Selection of Software Components and Connectors in COTS-based Architectures. Technical Report, USC-CSE-2006-615. Center for Software Engineering, University of Southern California, September 2006.
13. C. Mattmann. Software Connectors for Highly Distributed and Voluminous Data-intensive Systems. Technical Report (Qualifying Exam Report), USC-CSE-2006-600, 2006.
14. C. Mattmann, N. Medvidovic, P. Ramirez and V. Jakobac. Unlocking the Grid. Technical Report, USC-CSE-2004-512. Center for Software Engineering, University of Southern California, December 2004.
15. C. Mattmann, S. Malek, N. Beckman, M. Mikic-Rakic, N. Medvidovic and D. Crichton. GLIDE: A Grid-based, Lightweight, Infrastructure for Data-intensive Environments. Technical Report, USC- CSE-2004-509. Center for Software Engineering, University of Southern California, August 2004.
16. C. Mattmann and P. Ramirez. A Comparison and Evaluation of Architecture Recovery in Data-Intensive Systems using Focus. Technical Report, USC-CSE-2004-507. Center for Software Engineering, University of Southern California, May 2004.
17. C. Mattmann and P. Ramirez. Intelligent Coordinates: A Case Study in Improving Simulated Annealing in the Bin-Packing Domain. Technical Report, USC-03-798. Department of Computer Science, University of Southern California, September 2003.

### Review Articles

1. C. Mattmann. Review of: Big Data's Big Unintended Consequences. *ACM Computing Reviews*. Review #: CR154930, September 2013.
2. C. Mattmann. Review of: Geolocation in iOS: Mobile Positioning and Mapping on iPhone and iPad. *ACM Computing Reviews*. Review #: CR146916, March 2013.
3. C. Mattmann. Review of: Patterns of Data Modeling. *ACM Computing Reviews*. Review #: 130772, February 2012.
4. C. Mattmann. Review of: Run-time models for self-managing systems and applications. *ACM Computing Reviews*. Review #: CR123344, November 2011.
5. C. Mattmann. Review of: Rigi-An environment for software reverse engineering, exploration, visualization, and redocumentation. *ACM Computing Reviews*, Review #: CR138524, October 2010.



6. C. Mattmann. Review of: Domain-Specific Languages in a Customs Information System. *ACM Computing Reviews*, Review #: CR138361, September 2010.
7. C. Mattmann. Review of: Journal on Data Semantics XII. *ACM Computing Reviews*, Review #: CR137473, November 2009.
8. C. Mattmann. Review of: Pro Hadoop. *ACM Computing Reviews*, Review #: CR137448, November 2009.
9. C. Mattmann. Review of: Database and information-retrieval methods for knowledge discovery. *ACM Computing Reviews*, Review #: CR136803, May 2009.
10. C. Mattmann. Review of: Better scripts, better games. *ACM Computing Reviews*, Review #: CR136725, April 2009.
11. C. Mattmann. Review of: Software Engineering and Formal Methods. *ACM Computing Reviews*, Review #: CR135087, October 2008.
12. C. Mattmann. Review of: Constraint logic programming using ECLiPSe. *ACM Computing Reviews*, Review #: CR135844, July 2008.
13. C. Mattmann. Review of: Composition inference for UML class diagrams. *ACM Computing Reviews*, Review #: CR135556, May 2008.
14. C. Mattmann. Review of: MapReduce: simplified data processing on large clusters. *ACM Computing Reviews*, Review #: CR135329, March 2008.
15. C. Mattmann. Review of: Smart card applications: Design models for using and programming smart cards. *ACM Computing Reviews*, Review #: CR135205, February 2008.
16. C. Mattmann. Review of: Quality, productivity and economic benefits of software reuse: a review of industrial studies. *ACM Computing Reviews*, Review #: CR135087, January 2008.

#### Technical Articles

1. C. Mattmann. The Next Steps for the Digital Babel Fish. *Lingo24 Blog Post*. August 1, 2014. <http://blog.lingo24.com/next-steps-digital-babel-fish/>
2. L. McGibbney, C. Mattmann, K. Whitehall, A. Burgess. What's open source got to do with Earth science? NASA explains. *Opensource.com*. June 17, 2014. <http://opensource.com/life/14/6/NASA-Earth-science-open-source>
3. C. Mattmann. Apache OODT – Student: Rajith Siriwardana. Google Summer of Code Veteran Orgs: Apache Software Foundation. Google Open Source Blog. October 4, 2013. <http://google-opensource.blogspot.com/2013/10/google-summer-of-code-veteran-orgs.html>
4. C. Mattmann. Apache does science. *SD Times*, February 12, 2013. <http://www.sdtimes.com/content/article.aspx?ArticleID=39397>
5. C. Mattmann, E. Law and A. Hart. Special Feature: Apache in Space! Introduction to the ApacheCon NA 2011 - Apache in Space Track. *OStatic*, Published online: <http://ostatic.com/blog/guest-post-apache-in-space>, Friday November 4, 2011.
6. C. Mattmann and O. Tikhonov. Understanding Information Content with Apache Tika. *IBM DeveloperWorks*, Published online: <http://www.ibm.com/developerworks/opensource/tutorials/os-apache-tika/authors.html>, June 15, 2010.

## RESEARCH GRANTS **Current**

1. NASA Advanced Information Systems Technology (AIST) A.41  
“SciSpark: Highly Interactive and Scalable Model Evaluation and Climate Metrics for Scientific Data and Analysis”  
Amount: \$1.26M  
Duration: 03/01/2015 - 02/28/2017  
PI: Chris A. Mattmann JPL  
co-I(s):  
Brian Wilson, JPL  
Huikyo Lee, JPL  
Paul Loikith, JPL  
Lewis John McGibbney, JPL  
Jinwon Kim, UCLA JIFRESSE  
Yolanda Gil, USC/ISI  
Collaborator(s):  
Duane Waliser, JPL  
Kim Whitehall, Howard University  
Eric Fetzer, JPL  
<http://1.usa.gov/1wvofsP>
2. National Climate Assessment - NASA Centers Call for Proposals: 3 year extension request  
“Enabling Regional Climate Model Evaluation: A Critical Use of Observations for Establishing Core NCA Capabilities”  
Duration: October 2014 - September 2017  
Amount: \$1.2M  
PI: Duane Waliser, Jet Propulsion Laboratory  
CO-I(s): Chris A. Mattmann, Jet Propulsion Laboratory & USC  
Kenneth Kunkel, NCDC and NC State
3. NASA Suomi National Polar-orbiting Partnership (NPP) Science Team and Science Investigator-led Processing Systems for Earth System Data Records From Suomi NPP  
“Development, Operation and Management of the Sounder SIPS for Processing Suomi NPP Sounder Data”  
Amount: \$10.38M  
Duration: 06/01/2014 - 05/31/2019  
PI: Steven Friedman, JPL  
co-I(s):  
Eric Fetzer, JPL  
Evan Manning, JPL  
Ruth Monarrez, JPL  
Chris Mattmann, JPL  
Bruce Volmer, NASA GSFC  
Collaborator(s):  
Hartmut Aumann, JPL  
Evan Fishbein, JPL  
Sung-Yung Lee, JPL  
Thomas Pagano, JPL  
Paul Ramirez, JPL  
Joao Teixeira, JPL
4. National Science Foundation: Polar CyberInfrastructure NSF 14-1  
“A DataViz Hackathon for Polar CyberInfrastructure”  
Duration: 07/01/2014 - 06/30/2015  
Amount: \$50K  
PI(s): Chris A. Mattmann, USC  
Senior Personnel:

Ann Burgess, USC  
Collaborators:  
Christopher Goranson, Parsons: The New School  
[http://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1445624](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1445624)

5. DARPA BAA 14-21 Memex: TA1 (Domain Specific Indexing) and TA2 (Domain Specific Search)  
“An Exploratory Interface for a Focused Search with Multimedia”  
Amount: \$5.7M (JPL portion: \$2.4M)  
Duration: 08/01/2014 - 07/31/2017  
PI(s):  
Chris A. Mattmann, NASA JPL  
Jeff Baumes, Kitware  
Andy Terrel, Continuum Analytics  
Senior Personnel:  
Paul Ramirez, NASA JPL  
Peter Wang, Continuum Analytics  
Travis Oliphant, Continuum Analytics  
Sangmin Oh, Kitware  
Aashish Chaudhary, Kitware  
Hanspeter Pfister, Harvard
6. DARPA BAA 14-21 Memex: TA1 (Domain Specific Indexing) and TA2 (Domain Specific Search)  
“DIG: Domain Specific Insight Graphs”  
Amount: \$10.1M (JPL portion: \$1M)  
Duration: 08/01/2014 - 07/31/2017  
PI(s):  
Pedro Szekely, USC/ISI  
Craig Knoblock, USC/ISI  
Daniel Marcu, USC/ISI  
Prem Natarajan, USC/ISI  
Kevin Knight, USC/ISI  
Andrew Philpot, USC/ISI  
Steven Minton, InferLink  
Shih-Fu, Chang, Columbia University  
Todd Hughes, NextCentury  
Chris Mattmann, NASA JPL
7. National Science Foundation: EarthCube: Developing a Community-Driven Data and Knowledge Environment for the Geosciences  
“EarthCube Building Blocks: Collaborative Proposal: GeoSoft: Collaborative Open Source Software Sharing for Geosciences”  
Duration: 10/01/2014 - 09/30/2016  
Amount: \$1M  
PI(s): Yolanda Gil, University of Southern California Information Sciences Institute  
Co-PI(s):  
Chris A. Mattmann, USC  
Christopher J. Duffy, Penn State  
Scott D Peckham, University of Colorado  
Erin M Robinson, ESIP Foundation  
[http://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1440323](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1440323)
8. National Aeronautics and Space Administration: A.36 Advancing Collaborative Connections for Earth System Science (ACCESS)  
“Federated Giovanni for Multi-Sensor Data Exploration”  
Duration: Jan. 2014 - Dec. 2015

Amount: 600K  
PI(s): Christopher Lynnes, NASA GSFC  
Co-I(s):  
Chris Mattmann, NASA JPL  
Charles Thompson, NASA JPL  
James G. Acker, NASA GSFC  
Bryan A. Franz, NASA GSFC Ocean Biology Processing Group  
Tom Sohre, LPDAAC/USGS  
Eurico D'Sa, Louisiana State University

9. National Climate Assessment - NASA Centers Call for Proposals: 1 year extension request  
“Snow and Ice Climatology of the Western United States from MODIS (Extension): Climatology of Forest and Canopy Closure in Snow Covered Mountains of the Western US:bark beetles and wildfires”  
Duration: October 2013 - September 2014  
Amount: 200K  
PI: Thomas Painter, Jet Propulsion Laboratory  
CO-I(s): Chris A. Mattmann, Jet Propulsion Laboratory & USC  
David Schimel, JPL
10. National Science Foundation: Major Research Instrumentation (MRI)  
“NASA/Jet Propulsion Laboratory Support for MRI: Development of Radio Array of Portable Interferometric Detectors (RAPID)”  
Amount: 246K (JPL portion of larger 2.3M grant led by MIT Haystack Observatory)  
Duration: August 2013 - July 2016  
PI(s): Chris A. Mattmann, NASA JPL  
Broader Team:  
PI(s): Colin Lonsdale, MIT Haystack Observatory  
co-PI(s): Frank Lind, MIT Haystack Observatory  
[http://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1343583](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1343583)  
[http://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1229036](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1229036)
11. National Science Foundation: Office of Polar Programs: Office of Cyber Infrastructure (Polar CyberInfrastructure)  
“An open source framework for metadata exploration and discovery of Polar Data”  
Duration: 8/16/2013 - 7/31/2015  
Amount: 300K  
PI(s): Chris A. Mattmann, USC  
[http://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1348450](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1348450)
12. National Aeronautics and Space Administration - Earth Science Data Information System Project  
“Support for the NASA Earth Science Data Systems Open Source and Geospatial Working Groups”  
Duration: April 2013 - March 2016  
Amount: 1.05M  
PI(s): Chris Mattmann
13. Jet Propulsion Laboratory - Research and Technology (R&TD) Development Fund: (Principal Investigator)  
“9x: BigData Initiative: Archiving, Processing and Dissemination for the Big Data Era”  
Duration: Sept 2012 - Sept 2014  
Amount: 720K  
PI(s): Chris Mattmann, Jet Propulsion Laboratory  
Co-I(s):  
Shakeh Khudikyan, Jet Propulsion Laboratory  
Paul M. Ramirez, Jet Propulsion Laboratory

Michael Starch, Jet Propulsion Laboratory  
Rishi Verma, Jet Propulsion Laboratory  
Andrew F. Hart, Jet Propulsion Laboratory  
Luca Cinquini, Jet Propulsion Laboratory  
Dayton Jones, Jet Propulsion Laboratory  
Joe Lazio, Jet Propulsion Laboratory

14. Defense Research Projects Agency: XDATA: DARPA-BAA-12-38  
Technical Area 3 (TA3): Research software integration  
“A Scalable, Extensible, Open Source Platform for Data Processing, Archival and Dissemination”  
Duration: November 2012 - March 2017  
Amount: 12M (JPL portion: 4.7M)  
PI(s):  
Samuel Park, MDA Information Systems  
Chris A. Mattmann, Jet Propulsion Laboratory  
Adam Estrada, MDA Information Systems  
Yolanda Gil, USC/ISI Information Sciences Institute
15. NASA A.34 Earth Science Applications: Water Resources: (Co-Investigator)  
“Integration of precision NASA snow products with the operations of the Colorado Basin River Forecast Center to improve decision making under drought conditions”  
Duration: February 2012 - January 2016  
Amount: 1.2M  
PI: Thomas Painter, Jet Propulsion Laboratory  
CO-I(s): Chris A. Mattmann, Jet Propulsion Laboratory  
Kevin Werner, NOAA  
Andy Wood, NOAA

### **Pending**

1. NASA Computational Modeling Algorithms and CyberInfrastructure (CMAC) A.40  
“APPLE - Automatic Preconditioning and PubLishing of remote sensing data to the Earth System Grid Federation (ESGF)”  
Amount: \$602K  
Duration: 07/01/2015 - 06/30/2018  
PI: Chris A. Mattmann JPL  
co-I(s):  
Brian Wilson, JPL  
Christopher Lynnes, NASA GSFC  
Collaborator(s): Duane Waliser, JPL  
Luca Cinquini, JPL  
Tom Painter, JPL  
Paul Ramirez, JPL  
Dorothy Hall, NASA GSFC  
Amanda Leon, NSIDC  
Brian Johnson, NSIDC  
Traci Ruthkoski, Amazon Web Services
2. NASA Computational Modeling Algorithms and CyberInfrastructure (CMAC) A.40  
“Climate Data Analytics Workflow Management”  
Amount: \$601K  
Duration: 07/01/2015 - 06/30/2018  
PI: Jia Zhang, CMU  
co-I(s):  
Seungwon Lee, JPL  
Chris Mattmann, JPL

- Collaborator(s): Jonathan Jiang, JPL  
Zhangfan Xing, JPL
3. NASA Computational Modeling Algorithms and CyberInfrastructure (CMAC) A.40  
“SCARCE: Smart Characterization And Recovery of Climate Extremes for Data Acquisition and Analysis”  
Amount: \$561K  
Duration: 07/01/2015 - 05/31/2017  
PI: Kim Whitehall, JPL  
co-I(s):  
Jeff Baumes, Kitware  
Lewis John McGibbney, JPL  
Paul Ramirez, JPL  
Brian Wilson, JPL  
Aashish Chaudhary, Kitware  
Collaborator(s): Chris Mattmann, JPL  
Dean Williams, LLNL  
Michael Joyce, JPL
  4. National Science Foundation - CISE Research Infrastructure (CRI)  
“Multi-Level Heterogeneous Cloud Enabled Infrastructure for Research in Big Data Systems and Applications”  
Duration: 01/01/15 - 12/31/15  
Amount: \$291K  
PI(s): Viktor Prassana  
Co-PI(s):  
Marc Frincu  
Senior Personnel:  
Murali Annavaram, USC  
Paul Bogdan, USC  
Charalampos Chelmiss, USC  
Stephen Crago, USC Information Sciences Institute  
Director, Adaptive Parallel Execution, USC Information Sciences Institute  
Ewa Deelman, USC Information Sciences Institute  
Kai Hwang, USC  
Carl Kesselman, USC  
Wyatt Lloyd, USC  
Robert Lucas, USC Information Sciences Institute  
Chris Mattmann, USC & NASA Jet Propulsion Laboratory  
Aiichiro Nakano, USC  
Cyrus Shahabi, USC  
Minlan Yu, USC
  5. National Science Foundation: Partnerships for International Research and Education (PIRE)  
“PIRE: Expanding the Reach of the International Pulsar Timing Array through Community, Collaboration, and Cyber-Infrastructure”  
Duration: 09/15/2014 - 09/14/2019  
Amount: 4M  
PI(s): Maura A McLaughlin, West Virginia University  
Co-PI(s):  
Chris Mattmann, University of Southern California  
Shami Chatterjee, Cornell University  
Fredrick Jenet, University of Texas, Brownsville  
Scott Ransom, National Radio Astronomy Observatory (NRAO)

**Completed**

1. NASA Earth Science Technology Office (ESTO) Quick Response Study (QRS) Call 2014  
“Improving Interactivity and Interoperability in the Regional Climate Model Evaluation System (RCMES)”  
Amount: \$250K  
Duration: 04/01/2014 - 09/31/2014  
PI: Chris A. Mattmann
2. National Science Foundation: EarthCube: Developing a Community-Driven Data and Knowledge Environment for the Geosciences  
“EarthCube Building Blocks: Software Stewardship for the Geosciences”  
Duration: 7/15/2013 - 6/30/2015  
Amount: 342K  
PI(s): Yolanda Gil, University of Southern California Information Sciences Institute  
Co-PI(s):  
Chris A. Mattmann, USC  
Christopher J. Duffy, Penn State  
Scott D Peckham, University of Colorado  
Erin M Robinson, ESIP Foundation  
[http://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1343800](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1343800)
3. National Climate Assessment - NASA Centers Call for Proposals: 1 year extension request  
“Enabling Regional Climate Model Evaluation: A Critical Use of Observations for Establishing Core NCA Capabilities”  
Duration: October 2013 - September 2014  
Amount: 400K  
PI: Duane Waliser, Jet Propulsion Laboratory  
CO-I(s): Chris A. Mattmann, Jet Propulsion Laboratory & USC  
Jinwon Kim, UCLA  
Linda Mearns, NCAR
4. NASA & Jet Propulsion Laboratory - President and Director’s Fund: (Co-Investigator)  
“A Roadmap to Probing Cosmic Dawn at the Owens Valley Radio Observatory”  
Duration: FY2013  
Amount: 343K  
PI(s): Joseph Lazio, Jet Propulsion Laboratory  
Gregg Hallinan, Caltech  
Co-I(s):  
Marin Anderson, Caltech  
Stephen Bourke, Caltech  
Larry D’Addario, Jet Propulsion Laboratory  
Michael Eastwood, Caltech  
Jake Hartman, Jet Propulsion Laboratory  
David Hawkins, Caltech  
Shri Kulkarni, Caltech  
Walid Majid, Jet Propulsion Laboratory  
Chris Mattmann, Jet Propulsion Laboratory  
Melissa Soriano, Jet Propulsion Laboratory  
Brad Wiitala, Caltech  
David Woody, Caltech
5. National Science Foundation/G8 International Collaborative  
“ExArch: Climate analytics on distributed exascale data archives”  
Duration: 3/1/2011-2/29/2016  
Amount: 295K  
PI(s): Duane Waliser, UCLA JIFRESSE  
Co-PI(s):  
Jinwon Kim, UCLA JIFRESSE

Chris A. Mattmann, UCLA JIFRESSE  
[http://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1125798](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1125798)

6. NASA A.40 Computational Modeling Algorithms and Cyberinfrastructure (Principal Investigator)  
“Next Generation Cyberinfrastructure to Support Comparison of Satellite Observations with Climate Models”  
Duration: Sept 2012-August 2014  
Amount: 648.2K  
PI: Chris A. Mattmann, Jet Propulsion Laboratory  
CO-I(s):  
Luca Cinquini, Jet Propulsion Laboratory  
Pamela Rinsland, NASA Langley Research Center  
Dean Williams, LLNL  
Chris Lynnes, NASA Goddard Space Flight Center  
Collaborator(s):  
Dan Crichton, Jet Propulsion Laboratory  
Amy Braverman, Jet Propulsion Laboratory  
Thomas Huang, Jet Propulsion Laboratory  
Duane Waliser, Jet Propulsion Laboratory  
[http://www.hec.nasa.gov/user/funding/CMAC11\\_Selections.pdf](http://www.hec.nasa.gov/user/funding/CMAC11_Selections.pdf)  
<http://goo.gl/EYCCx>
7. National Science Foundation: Software Institutes - Software Infrastructure for Sustained Innovation (S2I2)  
“Conceptualizing an Institute for Sustainable Earth and Environmental Software (ISEES)”  
Amount: 582.7K  
PI(s): Matthew B. Jones, UCSB  
Co-PI(s): Peter Fox, RPI  
Carol B. Meyer, ESIP  
William K Michener, Long Term Ecological Research Network  
Mark P Schildhauer, UCSB  
Chris Mattmann, USC  
[http://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1216894](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1216894)
8. NASA Applied Sciences - ARSET (Applied Remote SENSing Training)  
“NASA Applied Remote Sensing Training Program”  
Duration: April 2012 - March 2013  
Amount: 80K  
PI: Ana Prados, NASA GSFC & University of Maryland  
Co-Is:  
Tom Painter, NASA JPL  
Chris A. Mattmann, NASA JPL  
Amita Mehta, NASA GSFC & University of Maryland  
Cindy Schmidt, NASA ARC
9. National Aeronautics and Space Administration: ROSES AIST  
“A Regional Climate Model Evaluation System”  
Duration: 06/2012-05/2013  
Role: Principal Investigator  
Amount: 420K  
PI(s): Chris A. Mattmann, JPL  
Co-I(s):  
Dr. Duane Waliser, JPL  
Dr. Jinwon Kim, UCLA  
Dr. Yolanda Gil, USC/ISI  
Mr. Dan Crichton, JPL



- Dr. Luca Cinquini, JPL  
Mr. Hook Hua, JPL  
Collaborator:(s)  
Dr. Tom Painter, JPL
10. U.S. Department of the Interior - Bureau of Reclamation  
“Airborne Snow Observatory Western Energy Balance of Snow An Integrated Observatory”  
Duration: Summer 2013 - Summer 2015  
Amount: 1.2M  
PI: Tom Painter, Jet Propulsion Laboratory  
Co-I(s):  
Richard Atwater, Independent Consultant  
Joe Boardman, AIG  
Jeff Deems, NSIDC  
Jennifer Dooley, Jet Propulsion Laboratory  
Chris A. Mattmann, Jet Propulsion Laboratory  
Bruce McGurk, McGurk Hydrological
  11. National Aeronautics and Space Administration: ROSES AIST  
“Advanced Rapid Imaging & Analysis for Monitoring Hazards (ARIA-MH)”  
Duration: 4/2012-03/2016  
Role: Co-Investigator  
Amount: 1.5M  
PI(s): Hook Hua, JPL  
Co-I(s):  
Dr. Chris A. Mattmann, JPL  
Dr. Susan Owen, JPL  
Dr. Sang-Ho Yun, JPL  
Dr. Angelyn Moore, JPL  
Dr. Paul Lundgren, JPL  
Dr. Chris Mattmann, JPL  
Ms. Jennifer Cruz, JPL  
Dr. Mark Simons, Caltech
  12. National Aeronautics and Space Administration: ROSES ACCESS  
“Collaborative Climate Model and Observational Data Services”  
Duration: FY2012-FY2013  
Role: Co-Investigator  
Amount: 789.4K  
PI(s): Hook Hua, JPL  
Co-I(s):  
Eric Fetzer , JPL  
Brian Kahn, JPL  
Chris Mattmann, JPL  
Brian Wilson, JPL  
Sun Wong, JPL  
Michael Bosilovich, GSFC
  13. Climate and Development Knowledge Network (CDKN) collaboration between knowledge brokers: (Co-Investigator)  
“Linking stakeholders with integrated climate change data”  
Duration: FY2012  
Amount: 130.7K  
PI: Bruce Hewitson, University of Cape Town  
CO-I(s):  
Chris A. Mattmann, Jet Propulsion Laboratory & USC  
Roger Street, Oxford University

14. National Climate Assessment - NASA Centers Call for Proposals: (Co-Investigator)  
“Snow and Ice Climatology of the Western United States from MODIS”  
Duration: FY11-FY13  
Amount: 427.5K  
PI: Thomas Painter, Jet Propulsion Laboratory  
CO-I(s): Chris A. Mattmann, Jet Propulsion Laboratory & USC
15. National Climate Assessment - NASA Centers Call for Proposals: (Co-Investigator)  
“Enabling Regional Climate Model Evaluation: A Critical Use of Observations for Establishing Core NCA Capabilities”  
Amount: 866.7K  
PI: Duane Waliser, Jet Propulsion Laboratory  
CO-I(s): Chris A. Mattmann, Jet Propulsion Laboratory & USC  
Jinwon Kim, UCLA  
Linda Mearns, NCAR
16. National Aeronautics and Space Administration - Earth Science Data Information System Project: (Principal Investigator)  
“Support for the NASA Earth Science Data Systems Software Reuse Working Group”  
Duration: July 2011 - January 2013  
Amount: 596K  
PI(s): Chris Mattmann
17. Jet Propulsion Laboratory - Research and Technology (R&TD) Development Fund: (Principal Investigator)  
“Radio Array Initiative: Scalable Data Archiving and Mining”  
Duration: FY2011-FY2013  
Amount: 170K  
PI(s): Chris Mattmann, Jet Propulsion Laboratory  
Co-I(s): Andrew Hart, Jet Propulsion Laboratory  
Dayton Jones, Jet Propulsion Laboratory
18. Jet Propulsion Laboratory - Strategic Investments for Earth Science : (Principal Investigator)  
“Regional Climate Modeling Evaluation System”  
Duration: FY2011  
Amount: 120K  
PI(s): Chris Mattmann, Jet Propulsion Laboratory
19. National Aeronautics and Space Administration - American Recovery and Reinvestment Act : (Principal Investigator)  
“IT Modeling Database: Water Resource Management”  
Duration: FY2010  
Amount: 65K  
PI(s): Chris Mattmann, Jet Propulsion Laboratory
20. Jet Propulsion Laboratory - Software Royalty Reinvestment Fund (SRRF)  
“Packaging and Disseminating the Climate Data eXchange (CDX) Software for Climate Model Diagnostics (CDX)”  
Duration: FY2010-11  
Amount: 53K  
PI(s): Chris Mattmann, Jet Propulsion Laboratory  
Co-I(s): Daniel J. Crichton, Jet Propulsion Laboratory  
Amy Braverman, Jet Propulsion Laboratory
21. National Aeronautics and Space Administration: ROSES ACCESS  
“Improving Discovery for Coastal Marine Web Services and Resources”  
Duration: FY2010-FY2012  
Role: Co-Investigator  
Amount: 583K

- PI(s): Ed Armstrong, JPL  
Co-I(s):  
Frank OBrien, SSA  
Dr. Dale Kiefer, USC, SSA  
Chris A. Mattmann, JPL
22. National Institutes of Health - Recovery Act Limited Competition: NIH Challenge Grants in Health and Science Research (RC1)  
“Advanced Computational Framework for Decision Support in Critically Ill Children”  
Duration: FY2010-FY2012  
Amount: 1000K  
PI(s): Randall Wetzel, CHLA  
Co-I(s):  
Daniel J. Crichton, JPL  
Chris A. Mattmann, JPL  
Amy Braverman, JPL
23. Jet Propulsion Laboratory - Research and Technology (R&TD) Development Fund: (Co-Investigator)  
“The Climate Data Exchange: A Distributed Science Analysis Environment for Climate Research”  
Duration: FY2009-FY2011  
Amount: 1300K  
PI(s): Amy Braverman, Jet Propulsion Laboratory  
Co-I(s): Daniel J. Crichton, Jet Propulsion Laboratory  
Chris Mattmann, Jet Propulsion Laboratory  
Robert Raskin, Jet Propulsion Laboratory  
David Woollard, Jet Propulsion Laboratory
24. National Aeronautics and Space Administration: IPP Seed Fund  
“Facilitating Climate Modeling Research By Integrating NASA and the Earth System Grid”  
Duration: FY2009-FY2010  
Role: Collaborator  
Amount: 250K  
PI(s): Dan Crichton, JPL  
Dean Williams, LLNL  
Collaborator(s):  
Yi Chao, JPL  
Robert Raskin, JPL  
Amy Braverman, JPL  
Chris A. Mattmann, JPL
25. National Aeronautics and Space Administration: ROSES ACCESS  
“Virtual Oceanographic Data Center”  
Duration: FY2008-FY2009  
Role: Co-Investigator  
Amount: 597K  
PI(s): Robert Raskin, JPL  
Co-I(s):  
Chris A. Mattmann, JPL  
Jorge Vasquez, JPL  
Edward Armstrong, JPL
26. National Institutes of Health: Task Plan Renewal  
“EDRN Cancer Research Informatics Platform”  
Duration: FY2005-2008  
Role: Key Staff

Amount: 4000K  
PI(s): Dan Crichton, Jet Propulsion Laboratory  
Status: Funded

27. Jet Propulsion Laboratory - Research and Technology (R&TD) Development Fund: (Co-Investigator)  
“Library of Reusable CMSV Tools”  
Duration: FY2004-FY2006  
Amount: 400K  
PI(s): Mark Kordon, Jet Propulsion Laboratory  
Co-I(s): Daniel J. Crichton, Jet Propulsion Laboratory  
Chris Mattmann, Jet Propulsion Laboratory  
Tom Boyce, Jet Propulsion Laboratory  
Jayne Dutra, Jet Propulsion Laboratory  
Norm Lamarra, Jet Propulsion Laboratory  
Young Lee, Jet Propulsion Laboratory  
Julia Dunphy, Jet Propulsion Laboratory  
Ted Specht, Jet Propulsion Laboratory  
Dana Freeborn, Jet Propulsion Laboratory

FORMAL  
PRESENTATIONS

1. *SciSpark: Highly Interactive and Scalable Regional Climate Model Evaluation*. C. Mattmann. Presented at the NASA Booth at the 2014 Fall American Geophysical Union (AGU) Meeting, San Francisco, CA, December 16, 2014.
2. *A Research Agenda and Vision for Data Science*. C. Mattmann. Presented at the American Geophysical Union (AGU) Fall 2014 Meeting, NG13A: Geophysical, Astrophysical, and Geophysical Fluid Dynamics and Big Data I. San Francisco, CA December 15, 2014.
3. *A Rapid Turn-around, Scalable, Big Data Processing Capability for the JPL Airborne Snow Observatory (ASO) Mission*. Poster at the American Geophysical Union (AGU) Fall 2014 Meeting, IN23C: Technology Trends for Big Science Data Management. San Francisco, CA December 16, 2014.
4. *Making the Case for the ESGF and Apache: Long-Term Software Stewardship*. C. Mattmann. Presented at the 4th Annual Earth System Grid Federation and Ultrascale Visualization Climate Data Analysis Tools Conference. Livermore, CA, December 10, 2014.
5. *NASAs Story of Big Data Innovations and Applications*. C. Mattmann. Presented at the BIG DATA and Enterprise Architecture 2014 Summit, Crystal City, Virginia, November 21, 2014.
6. *A Next Generation CyberInfrastructure to Support Comparison of Satellite Observations with Climate Models*. C. Mattmann. Presented at the ESA/ESRIN 2014 Conference on Big Data from Space (BiDS 2014), Frascati, Italy, November 13, 2014.
7. *Real Data Science at NASA*. C. Mattmann. Presented at CS597 PhD seminar Course. University of Southern California. Los Angeles, CA, October 27, 2014.
8. *Real Data Science at NASA*. C. Mattmann. Presented at the California Institute of Technology Information Science and Technology Lunch Bunch seminar, Pasadena, CA, October 21, 2014.
9. *An Open Source Big Data Ecosystem*. C. Mattmann. Keynote Presentation at the Challenge of Big Data in Science (3rd International LSDMA Symposium). Karlsruhe Institute of Technology (KIT) Campus, Karlsruhe, Germany, October 7, 2014.
10. *Automatically Classifying and Interpreting Polar Datasets with Apache Tika*. A. Burgess, C. Mattmann. Poster Presentation at the 15th IEEE International Conference on Information Reuse and Integration. San Francisco, CA, August 13, 2014.
11. *DRAT! Automated Analysis of Software Licenses*. C. Mattmann. Presented (remotely) at the Summer 2014 ESIP Federation Meeting, Frisco, CO, July 9, 2014.

12. *Real Data Science at NASA*. Day #2 Keynote: IT & Enterprise Architecture Forum. Auckland, NZ. June 29 - 30, 2014.  
<http://www.conferenz.co.nz/conferences/it-enterprise-architecture-forum>
13. *Data Science from the Trenches: NASA, Academia and Open Source Trial by Fire*. C. Mattmann. UCGIS 2014 Symposium Setting the Agenda: Research and Education for Today & Tomorrow - Invited Keynote, Pasadena, CA Monday May 19, 2014.
14. *Real Data Science at NASA*. C. Mattmann. Presented at the Workshop on High Performance Computing and Geospatial Analytics, Argonne National Laboratory (ANL), Chicago, IL, April 30, 2014.
15. *What can Apache OODT do for RAPID? (or how I learned to love OODT)*. C. Mattmann. Presented to the SKA Science Data Processing and Low Frequency Work package elements leadership at Cavendish Laboratory, University of Cambridge, Cambridge, UK, March 6, 2014.
16. *A Research Agenda and Vision for Big Data at NASA*. C. Mattmann. Presented at the QCon London conference. London, UK, March 7, 2014.
17. *Real Data Science at NASA*. C. Mattmann. Presented at the QCon London conference. London, UK, March 5, 2014.
18. *BIG DATA! 24 Hour Near Real Time Processing and Computation for the JPL Airborne Snow Observatory*. C. Mattmann. Presented at the USC/Information Sciences Institute (ISI) AI Seminar. Marina Del Rey, CA, January 24, 2014.
19. *Apache Hadoop, Meet Rocket Science: Big Data at NASA*. C. Mattmann. BrightTalk Webinar, January 23, 2014.
20. *Update on the Regional Climate Model Evaluation System*. C. Mattmann. NSF ExArch breakout at the American Geophysical Union Meeting, San Francisco, CA, December 12, 2013.
21. *Introduction to the NASA Computational Modeling; Cyberinfrastructure (CMAC) program and architecture; and Regional Climate Model Evaluation System (RCMES)*. C. Mattmann. Presented at the 3rd Annual Earth System Grid Federation; Ultra Scale Visualization, Climate Data Analysis Tools (UV-CDAT) Meeting, Livermore, CA, December 3, 2013.
22. *BIG DATA! 24 Hour Near Real Time Processing and Computation for the JPL Airborne Snow Observatory*. C. Mattmann. Presented at the San Gabriel Valley Linux User's Group (SGVLUG). Pasadena, CA, November 14, 2013.
23. *NSF RAPID Preliminary Design Review (PDR): OODT for RAPID*. C. Mattmann. Presented at NSF RAPID Preliminary Design Review (PDR). Remote Presentation. MIT Haystack Observatory, Medford, MA. October 21, 2013.
24. *Opportunities and Strategies for Big Data, Open Source Software in the Geosciences*. C. Mattmann. Presented at NSF EarthCube Domain End-User Workshop: Engaging the Atmospheric Cloud/Aerosol/Composition Community. George Mason University, Fairfax, VA, October 21, 2013.
25. *Big Data: 24 hour near real time processing and computation for the JPL Airborne Snow Observatory*. C. Mattmann. Presented at Celgene Corporation Big Data Seminar. Celgene Corporation, San Diego, CA September 20, 2013.
26. *Land Use Polar Infrastructure Drivers: the JPL Airborne Snow Observatory as Use Case*. C. Mattmann. Presented at the NSF Workshop on Cyberinfrastructure for Polar Sciences. McNamara Alumni Center - University of Minnesota, Minneapolis, MN, September 10-12, 2013.
27. *An Agency Strategy for Open Source*. C. Mattmann. Presented at DARPA Conference Center, I2O Leadership Program, Arlington, VA, September 3, 2013
28. *The IT Challenges of Big Data: Across Domains*. C. Mattmann. Presented at the Meaningful Use of Complex Medical Data (MUCMD) Symposium, Saban Research Institute, Children's Hospital Los Angeles (CHLA), Los Angeles, CA, August 17, 2013.

29. *XDATA Infrastructure: Open Source Analytics, Visualization and Integration*. C. Mattmann. Presented at the DARPA XDATA Summer Camp PI Meeting, Washington DC, July 30, 2013.
30. *Software and Algorithmic Preservation for Open Science Panel*. C. Mattmann. Presented at the NSF Data and Software Preservation for Open Science (DASPOS) meeting co-located with the 2013 ACM/IEEE Joint Conference on Digital Libraries. Indianapolis, IN, July 25, 2013.
31. *Big Data and Architecture in the Era of the Square Kilometre Array*. C. Mattmann. Presented at the ID Analytics Seminar, San Diego, CA April 5, 2013.
32. *Rapid, Flexible, and Open Source Big Data Technologies for the U.S. National Climate Assessment*. C. Mattmann. UCAR Software Engineering Assembly (SEA) Software Engineering Conference 2013, Boulder, CO, April 1, 2013.  
<http://bit.ly/XS1Szh>
33. *Big Data and Architecture in the Era of the Square Kilometre Array*. C. Mattmann. Presented at the USC CSSE Annual Research Review (ARR), Los Angeles, CA March 14, 2013.
34. *Detecting radio-astronomical Fast Radio Transient Events via an OODT-based metadata processing pipeline*. L. Cinquini, A. Hart, C. Mattmann, S. Khudikyan. Presented at the Apache in Science Track at ApacheCon NA 2013. Portland, OR, February 27, 2013.
35. *Wengines, Workflows, and 2 years of advanced data processing in Apache OODT*. C. Mattmann. Presented at the Apache in Science Track at ApacheCon NA 2013. Portland, OR, February 27, 2013.  
<http://www.youtube.com/watch?v=GZC3Zn3VXt8>
36. *Leveraging OODT tools and components within Climate Science and the Earth System Grid Federation*. L. Cinquini, D. Crichton, C. Mattmann. Presented at the Apache in Science Track at ApacheCon NA 2013. Portland, OR, February 27, 2013.
37. *Apache SIS*. C. Mattmann. Presented at the 4th Geospatial FOSS NOAA Meetup, Lens on Geospatial Processing, Feb 21, 2013, Silver Spring, MD.
38. *Using Apache Open Source Software OODT, Tika, Hadoop and Solr to Digest and Organize the Technical Content Available on XNET: a Demonstration of Quick Site Analysis*. C. Mattmann. Presented at the DARPA XDATA Kickoff Meetings. Washington, D.C., January 31, 2013.
39. *Open Source Cluster Breakout*. C. Mattmann. Presented at the 2013 Winter ESIP Federation Meeting. Washington, D.C., Wednesday January 9, 2013.
40. *Leveraging JPLs Regional Climate Model Evaluation System in the Coordinated Regional Downscaling Experiment (CORDEX)*. C. Mattmann. AGU Fall Meeting 2012, NASA Speaker Booth. December 4, 2012.
41. *A Tour of Big Data, Open Source Data Management Technologies from the Apache Software Foundation*. C. Mattmann. AGU Fall Meeting 2012, IN11F. Open Source Technologies and Architectures Facilitating Science Data Center Collaboration and Management II Session. December 3, 2012.
42. *Monitoring the Data Tide*. C. Mattmann. International Keynote Speech. ITEX 2012 (Internet Technology Expo). Auckland, New Zealand, November 8, 2012.  
<http://www.conferenz.co.nz/conferences/itex-new-zealand>
43. *Big Data/Archiving Challenges and Solutions*. C. Mattmann Big Data "Mini Workshop": Astronomy and Astrophysics. California Institute of Technology Keck Institute for Space Studies. Pasadena, CA, Thursday, November 1, 2012.
44. *Building Model Evaluation And Decision Support Capacity For CORDEX*. C. Mattmann, D. Waliser. Presented at the NSF G8 Initiative: ExArch: Climate Analytics on Distributed Exascale Data Archives, Winsor, London, UK, October 2, 2012.
45. *Scalable Data Mining and Archiving in the Era of the Square Kilometre Array*. C. Mattmann. HPC User Forum, Dearborn, Michigan, September 19, 2012.

46. *Water management, power grids Panel*. C. Mattmann, J. Frew, M. Denesuk. 6th Extremely Large Databases (XLDB) Invitational Workshop. Stanford, California, September 13, 2012.
47. *Software Communities at ESIP via Open Source*. C. Mattmann. ESIP Information Technology and Interoperability Cluster: Rants and Raves (IT & I Rants/Raves). Virtual Presentation. September 6, 2012.
48. *Developing an Open Source Strategy for NASA Earth Science Data Systems*. C. Mattmann. IEEE International Conference on Information Integration and Reuse (IRI-2012), Las Vegas, NV, August 10, 2012.
49. *A Regional Climate Model Evaluation System Based on Contemporary Satellite and other Observations for Assessing Regional Climate Model Fidelity*. C. Mattmann. JPL Center for Climate Sciences Summer School on Using Satellite Observations to Advance Climate Models. Keck Institute, California Institute of Technology, Pasadena, CA, August 8, 2012.  
[http://climatesciences.jpl.nasa.gov/summer-school](http://climatesciences.jpl.nasa.gov/summer-school/2012-school)  
<http://climatesciences.jpl.nasa.gov/page/25>
50. *Developing Open Source Software for NASA (or "how I learned to stop asking permission")*. C. Mattmann. ESIP Federation Summer 2012 Meeting, Madison, WI, Ignite Talk, July 18, 2012.  
<http://vimeo.com/47623282>
51. *Developing Open Source Software for NASA (or "how I learned to stop asking permission")*. C. Mattmann. Open Source Summit organized by NASA, the State Department and the VA. University of Maryland, Washington D.C., Wednesday June 20, 2012.  
<http://vimeo.com/45109553>
52. *Big Data Challenges at NASA*. C. Mattmann. Hadoop Summit 2012. San Jose Convention Center, June 13, 2012.
53. *NASA, Big Data, and Apache OODT*. C. Mattmann. Pasadena Java Users Group (JUG). Pasadena, CA (Idealab), May 21, 2012.
54. *Big Data Workflows for Science*. C. Mattmann. National Science Foundation (NSF) Earth Cube Workflow Workshop, Invited Talk, Virtual Participation, April 13, 2012.
55. *Open Source Panel at So Cal CWIC'12*. C. Mattmann. Celebration of Women in Computing in Southern California (CWIC-SoCal), April 15, 2012, Santa Ana, CA.
56. *Enabling rapid, scalable and effective comparison of model outputs with remote sensing data using the Regional Climate Model Evaluation System (RCMES)*. C. Mattmann, D. Waliser. ADSIMNOR-CORDEX workshop on Arctic climate modeling results and needs, Norrkoping, Sweden, March 20, 2012.
57. *A Regional Climate Model Evaluation System based on contemporary Satellite and other Observations for Assessing Regional Climate Model Fidelity*. C. Mattmann, D. Waliser. ADSIMNOR-CORDEX workshop on Arctic climate modeling results and needs, Norrkoping, Sweden, March 20, 2012.
58. *The Apache OODT Ecosystem: A Birds Eye View*. C. Mattmann. UCAR Software Engineering Assembly (SEA) Software Engineering Conference 2012, February 23, 2012.
59. *Understanding how to Best Leverage Open Source Data Management Software: A Roadmap*. C. Mattmann. Boulder Earth and Space Science Informatics Group (BESSIG), February 22, 2012. <http://bit.ly/zWC3zx>
60. *A Strategy for Open Source Software at NASA*. C. Mattmann. UCAR Software Engineering Assembly (SEA) Software Engineering Conference 2012, February 22, 2012.
61. *Realizing the Benefit of (Re-)using Open Source Software*. C. Mattmann. 2012 Winter ESIP Federation Meeting, Washington D.C., January 4, 2012.
62. *Defining an Open Source Strategy for NASA*. C. Mattmann. 2011 Fall Meeting, AGU, San Francisco, California, December 6, 2011.

63. *Apache Tika: 1 point Oh!*. C. Mattmann. ApacheCon NA 2011, Vancouver, BC, November 10, 2011. Available at: <http://na11.apachecon.com/talks/19391>.
64. *Supercharging your Apache OODT deployments with the Process Control System*. C. Mattmann. ApacheCon NA 2011, Vancouver, BC, November 9, 2011. Available at: <http://na11.apachecon.com/talks/19376>.
65. *A look into the Apache OODT ecosystem*. C. Mattmann. ApacheCon NA 2011, Vancouver, BC, November 9, 2011. Available at: <http://na11.apachecon.com/talks/19389>.
66. *An Introduction to the Apache OODT Ecosystem*. C. Mattmann. 10th NASA Earth Science Data Systems Working Group Meetings, Newport News, Virginia, November 2, 2011.
67. *NASA's Earth Science Data System Software Reuse WG: Year in Review 2011*. C. Mattmann, R. R. Downs, P. Ramirez, C. Goodale, A. Hart. 10th NASA Earth Science Data Systems Working Group Meetings, Poster Session, Newport News, Virginia, November 2, 2011.
68. *Discovering and Utilizing Coastal Ocean Data via NASA's CMDS*. E. Armstrong, C. Mattmann, F. O'Brien, L. Cinquini, G. Resneck, P. Zimdars. 10th NASA Earth Science Data Systems Working Group Meetings, Poster Session, Newport News, Virginia, November 2, 2011.
69. *Architecture Panel*. Moderator: J. Hammerbacher. C. Mattmann, D. Crichton, Z. Ives. Meaningful Use of Complex Medical Data (MUCMD) Symposium, Saban Research Institute, Children's Hospital Los Angeles (CHLA), Los Angeles, CA, August 26, 2011.
70. *Understanding the Meaningful Use of Open Source Software*. C. Mattmann. Meaningful Use of Complex Medical Data (MUCMD) Symposium, Saban Research Institute, Children's Hospital Los Angeles (CHLA), Los Angeles, CA, August 26, 2011.
71. *Software Reuse Methods to Improve Technological Infrastructure for e-Science*. C. Mattmann, J. Marshall, R. Downs. IEEE IRI Workshop on Issues and Challenges in Social Computing 2011, Las Vegas, NV, August 2nd, 2011.
72. *Open Source Software in the Sciences*. C. Mattmann. 2011 Summer ESIP Federation Meeting, Santa Fe, NM, July 14, 2011.
73. *Evaluating Cloud Computing in the NASA DESDynI Ground Data System*. C. Mattmann. 2011 Summer ESIP Federation Meeting, Santa Fe, NM, July 14, 2011.
74. *A report on THREDDS catalogs/OPeNDAP implementations for earth science data access and discovery*. Ed Armstrong, C. Mattmann. 2011 Summer ESIP Federation Meeting, Santa Fe, NM, July 12, 2011.
75. *Measuring the Suitability of Software for Reuse Using NASA's Software Reuse Readiness Levels*. C. Mattmann. SQI Technical Seminar, JPL, Pasadena, CA, June 15, 2011.
76. *Data Management Panel*. Speakers: R. Hanisch, C. Mattmann. Innovations in Data-Intensive Astronomy (2011) Meeting, Green Bank, WV, May 2-May 5, 2011.
77. *Understanding and Comparing Remote Sensing Data to Model Output*. International Conference on the Coordinated Regional Climate Downscaling Experiment - CORDEX Training Workshop, Trieste, Italy, March 21-March 26, 2011.
78. *A View from the Trenches: Open-source, Data-intensive Software*. C. Mattmann. Presented at the USC CSSE Annual Research Review (ARR), Los Angeles, CA March 9, 2011.
79. *NASA, JPL, CHLA and Data Systems Architecture*. C. Mattmann. Presented at the BedmasterEx Meeting, San Diego, CA January 15, 2011.
80. *Packaging Software Assets for Reuse*. C. Mattmann, J. Marshall, R. Downs. Presented at the 2010 AGU Fall Meeting, San Francisco, CA, December 17, 2010.
81. *Lessons Learned in the Development of a Web-scale Search Engine: Nutch2 and beyond*. C. Mattmann. ApacheCon NA 2010 - Lucene and friends Track, Atlanta, GA, November 5, 2010.
82. *Scientific data curation and processing with Apache Tika*. C. Mattmann. ApacheCon NA 2010 - Lucene and friends Track, Atlanta, GA, November 5, 2010.



83. *Reuse WG: Year in Review*, C. Mattmann, R. R. Downs, J. Marshall. 9th NASA Earth Science Data Systems Working Group Meetings, Poster Session, New Orleans, Louisiana, October 21, 2010.
84. *The NASA Coastal Marine Discovery Service (CMD5)*. E. Armstrong, C. Mattmann, D. Kiefer, F. O'Brien, S. McCleese, V. Hwang. 9th NASA Earth Science Data Systems Working Group Meetings, Poster Session, New Orleans, Louisiana, October 21, 2010.
85. *Medical/Bioinformatics Informatics Panel*. Speakers: J. Cohn, R. Guha, T. Malik, D. Kale, C. Mattmann, E. Kolker, M. Atkinson. 4th Extremely Large Databases Workshop (XLDB4), Menlo Park, CA, October 5th, 2010.
86. *NASA JPL and Data Systems Architecture*. C. Mattmann. Presented to Search/Interaction Team at AT&T Interactive. Glendale, CA September 27, 2010.
87. *Reuse of Software Assets for the NASA Earth Science Decadal Survey Missions*. C. Mattmann, R. Downs, J. Marshall, N. Most, S. Samadi. Presented at the 30th IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2010) Poster Session, Honolulu, HI, July 28th, 2010.
88. *Exploiting Reference Architecture to Guide the NASA Earth Science System Enterprise*. C. Mattmann. Presented at the 2010 ESIP Summer Federation Meeting, NASA Earth Science Data Systems (ESDS) Software Process and Standards WG breakout session on NASA Earth Science Reference Architectures. Knoxville, TN, July 22, 2010.
89. *Reuse Tools to Help Enable Climate Research in NASA Missions*. C. Mattmann, R. R. Downs, J. J. Marshall, N. F. Most. Presented at the 2010 ESIP Summer Federation Meeting Poster Session. Knoxville, TN, July 21, 2010.
90. *The Climate Data eXchange (CDX)*. C. Mattmann. Presented at the 2010 ESIP Summer Federation Meeting, Technical Workshops. Knoxville, TN, July 20, 2010.
91. *Object Oriented Data Technology (OODT)*. C. Mattmann. Presented at the 2010 ESIP Summer Federation Meeting, Technical Workshops. Knoxville, TN, July 20, 2010.
92. *Informatics and the caTissue Wrapper for the Early Detection Research Network*. C. Mattmann. Presented at the caBIG Tissue Banks and Pathology Tools and Integrated Cancer Research Workspaces Joint Face-to-Face Meeting. UCLA, Los Angeles, CA, May 4, 2010.
93. *Reuse Readiness Levels 1.0 Discussion*. C. Mattmann. Presented at the NASA Earth Science Data Systems (ESDS) Software Reuse Working Group (WG) Workshop on Reuse Readiness Levels. Washington D.C., April 7, 2010.
94. *An Architecture-based Framework for Biomarker Discovery and Management in the Early Detection Research Network*. C. Mattmann. Presented at the 6th Laboratory Informatics Conference, Philadelphia, PA, March 31, 2010.
95. *Open Source and the Cloud: IT Opportunities and Challenges Panel*. Speakers. J. Urquhart, C. Mattmann, E. Brescia. Open Source Business Conference (OSBC 2010). San Francisco, CA, March 17, 2010.
96. *An Architecture and Analysis Environment for Model to Observational Data Intercomparisons*. C. Mattmann, A. Braverman, D. Crichton and, D. Williams. Presented at the AGU Fall Meeting, San Francisco, CA, December 14, 2009.
97. *Enabling Interoperability – Supporting a Diversity of Search Paradigms Using Shared Ontologies and Federated Registries*. J. S. Hughes, D. Crichton, S. Hardman, C. Mattmann, and P. Ramirez. Presented at the AGU Fall Meeting, San Francisco, CA, December 14, 2009.
98. *A Distributed Computing Infrastructure for the Evaluation of Climate Models using NASA Observational Data*. C. Mattmann, D. Crichton, A. Braverman, D. Williams, M. Gunson, D. Woollard, S. Kelly and M. Cayan. Presented at the IEEE ICDM Workshop on Knowledge Discovery from Climate Data. Miami, FL, December 6th, 2009.

99. *Science Data System Architectural Approach for JPL-led Decadal Survey Missions*. C. Mattmann. Presented at the 8th Earth Science Data Systems Working Group (ESDSWG) Conference. Wilmington, DE, October 20th-22nd, 2009.
100. *An Adaptable Framework for Modeling, Processing, Distribution and Analysis of Science Data*. D. Freeborn, D. Woollard, C. Mattmann, S. Hardman, D. Crichton, P. Ramirez. Presented at the 8th Earth Science Data Systems Working Group (ESDSWG) Conference Poster Session. Wilmington, DE, October 20th-22nd, 2009.
101. *Integrating Modeling Capabilities in a Production Environment to Further Forecasting and Decision Support*. D. Woollard, D. Freeborn, D. Crichton, C. Mattmann, C. Norton, and E. Kay-Im. Presented at the 8th Earth Science Data Systems Working Group (ESDSWG) Conference Poster Session. Wilmington, DE, October 20th-22nd, 2009.
102. *A Reusable Process Control System Architecture for the Orbiting Carbon Observatory and NPP Sounder PEATE missions*. C. Mattmann. Section 388 Instrument and Science Data Systems Technical Seminar. Pasadena, CA September 17, 2009.
103. *Earth and Environmental Sciences Panel*. Speakers: P. Fox, N. Oza, and C. Mattmann. 3rd Extremely Large Databases Workshop (XLDB3), Lyon, France, August 28th-29th, 2009.
104. *A Reusable Process Control System Framework for the Orbiting Carbon Observatory and NPP Sounder PEATE missions*. C. Mattmann, D. Freeborn, D. Crichton, B. Foster, A. Hart, D. Woollard, S. Hardman, P. Ramirez, S. Kelly, A. Y. Chang, C. E. Miller. Presented at the 3rd IEEE Intl' Conference on Space Mission Challenges for Information Technology (SMC-IT 2009), Pasadena, CA, July 19 - 23, 2009.
105. *JPL's Global Change and Energy IT Architecture*. C. Mattmann, D. Crichton. Presented at the IT for Climate Research Workshop held in conjunction with the 3rd IEEE Intl' Conference on Space Mission Challenges for Information Technology (SMC-IT 2009), Pasadena, CA, July 19 - 23, 2009.
106. *A Virtual Oceanographic Data Center*. S. McCleese, C. Mattmann, R. Raskin, D. Crichton, S. Hardman. Presented at the 18th ACM/IEEE International World Wide Web Conference (WWW2009) – Developers Track, Madrid, Spain, April 24th, 2009.
107. *An Architecture-based Framework For Understanding Large-Volume Data Distribution*. C. Mattmann. Presented at the USC CSE Annual Research Review (ARR), March 17th, Los Angeles, CA 2009.
108. *A Service Oriented Architecture for Highly Distributed and Data-Intensive Geospatial Grid Software Systems*. C. Mattmann, R. Raskin, D. Crichton. Presented at the GIScience 2008 Workshop on Design of Service-Oriented Architecture (SOA) for Geospatial Science, Park City, UT, September 23, 2008.
109. *Facilitating Distributed Climate Modeling Research and Analysis via the Climate Data eX-change*. D. Crichton, C. Mattmann, A. Braverman. Presented at the Global Organization for Earth System Science Portals (GO-ESSP) 2008 Workshop, Seattle, WA, September 17-19, 2008.
110. *A Model Driven Architecture for Highly Distributed, Data Intensive Systems*. D. Crichton, P. Ramirez, C. Mattmann and J. S. Hughes. Presented at the DARPA Workshop on Digital Object Storage and Retrieval (DOSR), Chantilly, Virginia, July 15-16, 2008.
111. *Apache Tika -An extensible, configurable content-analysis framework*. J. Zitting, C. Mattmann. Presented at the ApacheCon US 2007, November 15, 2007, Atlanta, GA, 2007.
112. *A Reference Framework for Requirements and Architecture in Biomedical Grid Systems*. C. Mattmann, V. Perrone, S. Kelly, D. Crichton, A. Finkelstein, N. Medvidovic. Presented at the 2007 IEEE International Conference on Information Integration and Reuse (IRI-2007), August 15th, Las Vegas, NV, 2007.

113. *DISCO: A Framework for Classification and Selection of Software Connectors for Highly Distributed and Voluminous Data-intensive Systems*, C. Mattmann, D. Woollard, N. Medvidovic, T. Johns, R. Mahjourian. Presented at the 2007 UC Irvine ISR Research Forum, June 1, Irvine, CA, 2007.
114. *Software Connector Classification and Selection for Data-intensive Systems*, C. Mattmann, D. Woollard, N. Medvidovic, R. Mahjourian. Presented at the 2nd International Workshop on Incorporating COTS Software into Software Systems: Tools and Techniques (IWICSS), May 22nd, Minneapolis, MN, 2007.
115. *A Framework for the Assessment and Selection of Software Components and Connectors in COTS-based Architectures*, C. Mattmann, J. Bhuta. Presented at the 2nd International Workshop on Incorporating COTS Software into Software Systems: Tools and Techniques (IWICSS), May 22nd, Minneapolis, MN, 2007.
116. *A Framework for the Assessment and Selection of Software Components and Connectors in COTS-based Architectures*, J. Bhuta, C. Mattmann. Presented at the USC CSE Annual Research Review (ARR), February 13th, Los Angeles, CA 2007.
117. *A Distributed Information Services Architecture to Support Biomarker Discovery in Early Detection of Cancer*, D. Crichton, S. Kelly, C. Mattmann, Q. Xiao, J. S. Hughes, J. Oh, M. Thornquist, D. Johnsey, S. Srivastava, L. Esserman, B. Bigbee. Presented at the 2nd IEEE International Conference on e-Science and Grid Computing, December 4th, Amsterdam, the Netherlands, 2006.
118. *A Framework for Selecting Large-scale, Distributed, Data-intensive Software Connectors*. C. Mattmann, N. Medvidovic, and D. Crichton. Presented at the 2006 UC Irvine ISR Research Forum, June 2, Irvine, CA, 2006.
119. *A Software Architecture-based Framework for Highly Distributed and Data Intensive Scientific Applications*. C. Mattmann, D. Crichton, N. Medvidovic, and S. Hughes. Presented at the 28th ACM/ IEEE International Conference on Software Engineering (ICSE) Software Engineering Achievements and Challenges Track. May 24th, Shanghai, China, 2006.
120. *A Classification and Evaluation of Data Movement Technologies for the Delivery of Highly Voluminous Scientific Data Products*. C. Mattmann, S. Kelly, D. Crichton, J. S. Hughes, S. Hardman, P. Ramirez and R. Joyner. Presented at the NASA/IEEE Conference on Mass Storage Systems and Technologies. May 16th, College Park, MD, 2006.
121. *Tera/Petabyte Data Distribution Architectures*. C. Mattmann. Presented at the USC CSE Annual Research Review (ARR), March 14th, Los Angeles, CA 2006.
122. *Software Connectors for Highly Distributed and Voluminous Data-intensive Systems*. C. Mattmann. Qualifying Exam Presentation, University of Southern California, January 20th, Los Angeles, CA, 2006.
123. *The Movement Towards Grid Architectures in Planetary Science*. D. Crichton, J. S. Hughes and C. Mattmann. Presented at the 14th Global Grid Forum (GGF-14), June 26th-29th, Chicago, IL, 2005.
124. *A Light-weight, Event-based, Grid Infrastructure for Data-intensive Environments*. C. Mattmann, N. Medvidovic, D. Crichton, S. Malek, M. Mikic-Rakic, N. Beckman. Presented at the 2005 UC Irvine ISR Research Forum, June 3, Irvine, CA, 2005.
125. *Unlocking the Grid*. C. Mattmann, N. Medvidovic, P. Ramirez and V. Jakobac. Presented at the 8th ACM SIGSOFT Symposium on Component-based Software Engineering (CBSE8), May 15th, St. Louis, MO, 2005.
126. *Leveraging Architectural Models to Inject Trust into Software Systems*. S. Banerjee, C. Mattmann, N. Medvidovic, and L. Golubchik. Presented at the 2005 ICSE Workshop on Software Engineering for Secure Systems (SESS05), May 15th, St. Louis, MO, 2005.

127. *A Grid-based Lightweight Infrastructure for Data-intensive Environments*. C. Mattmann, S. Malek, N. Beckman, M. Mikic-Rakic, N. Medvidovic and D. Crichton. Presented at the USC CSE Annual Research Review (ARR), Los Angeles, CA 2005.
128. *GLIDE: A Grid-based, Lightweight Infrastructure for Data-intensive Environments*. C. Mattmann, S. Malek, N. Beckman, M. Mikic-Rakic, N. Medvidovic and D. Crichton. Presented at the 2005 European Grid Conference, Amsterdam, the Netherlands, February 2005.
129. *ACE: Improving Search Engines via Automatic Concept Extraction*. P. Ramirez and C. Mattmann. Presented at the 5th IEEE Conference on Information Reuse and Integration (IEEE-IRI-2004). Las Vegas, NV, November 2004.
130. *Software Architecture for Large-scale, Distributed, Data-Intensive Systems*. C. Mattmann, D. Crichton, J. S. Hughes, S. Kelly and P. Ramirez. Presented at the 4th IEEE/IFIP Working Conference on Software Architecture (WICSA-4), Oslo, Norway, June 2004.
131. *An Architectural Style for Highly Data-Intensive Systems*. C. Mattmann, D. Crichton and N. Medvidovic. Presented at the 2004 UC Irvine ISR Research Forum, Irvine, CA, June 2004.
132. *Packaging Data Products using Data Grid Middleware for Deep Space Mission Systems*. C. Mattmann, P. Ramirez, D. Crichton and J.S. Hughes. Presented at the 8th International Conference on Space Operations (Spaceops-2004), Montreal, Canada, May 2004.
133. *The Grid and Information Architecture*. C. Mattmann, D. Crichton, J.S. Hughes. Presented at Consultative Committee for Space Data Systems (CCSDS) Information Architecture Working Group, Montreal, Canada, May 2004.
134. *A Roadmap for Tool Support in Space Data System Software Architectures*. C. Mattmann, D. Crichton, J.S. Hughes. Presented at Consultative Committee for Space Data Systems (CCSDS) Information Architecture Working Group, Montreal, Canada, May 2004.
135. *A Software Architecture for Highly Data-Intensive Systems*. C. Mattmann. Presented at the USC CSE Annual Research Review (ARR), Los Angeles, CA 2004
136. *A Data Grid Framework for Managing Planetary Science Data*. D. Crichton, J.S. Hughes, C. Mattmann. Presented to the Center for Applied Scientific Computing (CASC) at Lawrence Livermore National Laboratory (LLNL), Livermore, California, December 2003.
137. *Towards a Distributed Information Architecture for Avionics Data*. C. Mattmann, D. Freeborn, and D. Crichton. Presented at the 2nd IADIS International Conference WWW/Internet, Algarve, Portugal, November 2003
138. *Tool Support for Modeling Space Data System Software Architectures*, C. Mattmann, D. Crichton, and J.S. Hughes. Presented at Consultative Committee for Space Data Systems (CCSDS) Information Architecture BOF (Birds of a Feather), Columbia, Maryland, October 2003.
139. *A Distributed Data Architecture for Mars Odyssey Data Distribution*, D. Crichton, J.S. Hughes, C. Mattmann. Presented to Center for Grid Technologies, Information Sciences Institute, Marina Del Rey, CA August 2003.

PH.D. COMMITTEE  
SERVICE

**Howard University, Department of Atmospheric Sciences**

Kim Dionne Whitehall

“Investigating an Automated Method to Explore Mesoscale Convective Complexes in West Africa”

Howard University, Ph.D. in Atmospheric Sciences

Advisor: Gregory Jenkins, Howard University

*Passed Thesis Proposal Defense (Qualifying Exam)*, April 2013

*Passed Thesis Defense (Ph.D. Defense)*, April 2014

Now a *Data Scientist Level 2* at *NASA JPL*

**University of Southern California, Computer Science Department**

Jae Young Bang

“Understanding and Reducing the Cost of Collaborative Software Design”

University of Southern California, Ph.D. candidate in Computer Science  
Advisor: Nenad Medvidovic, University of Southern California  
*Passed Screening*  
*Passed Thesis Proposal Defense (Qualifying Exam), May 2014*

#### MENTORING

#### **JPL/Caltech Postdoctoral Sponsor - October 2014 - present**

Janet Ruth Wyngaard  
Ph.D. University of Cape Town  
Project Title: "Data Science for Radio Astronomy and Climate Science"

#### **USC Computer Science Postdoctoral Sponsor - March 2014 - present**

Annie Bryant Burgess  
Ph.D. University of Utah  
Project Title: "An open source framework for metadata exploration and discovery of Polar Data"

#### **Google Summer of Code - 2013**

Rajith Siriwardana  
University of Moratuwa  
Mentor for Apache OODT  
Project Title: "Monitor that plugs into ganglia"  
Sponsored by: Google and the Apache Software Foundation

#### **University of Moratura, Sri Lanka - 2012**

Sanjaya Medonsa  
Project Title: "Integration of Apache Airavata with Data Intensive Systems"  
Co-advised with: Dr. Shahani Weerawarana, Visiting Lecturer, University of Moratura, Visiting Researcher, Indiana University

#### **Google Summer of Code - 2012**

Ross Laidlaw  
Oxford University  
Mentor for Apache OODT, Apache SIS  
Project Title: "Automated Publishing of GeoRSS Data from OODT File Manager to SIS"  
Sponsored by: Google, and the Apache Software Foundation

#### **JPL Graduate Fellowship - 2012, 2013**

Kim Whitehall  
Howard University, Ph.D. student in Atmospheric Sciences  
Advisor: Gregory Jenkins, Howard University  
Advised at JPL with assistance from: Duane Waliser, Jinwon Kim  
Sponsored by: NASA National Climate Assessment/RCMES project

#### **JPL/Caltech Postdoctoral Sponsor - 2011 - present**

Paul Loikith  
Ph.D. Rutgers University  
Project Title: "Enabling Regional Climate Model Evaluation: A Critical Use of Observations for Establishing Core NCA Capabilities"  
Co-advised with: Dr. Duane Waliser, JPL

#### **JPL/Caltech Postdoctoral Sponsor - 2011 - present**

Huikyo Lee  
Ph.D. University of Illinois  
Project Title: "Enabling Regional Climate Model Evaluation: A Critical Use of Observations for

Establishing Core NCA Capabilities”  
Co-advised with: Dr. Duane Waliser, JPL

**JPL/Caltech Postdoctoral Sponsor - 2011 - January 2014**

Karl Rittger  
Ph.D. University of California Santa Barbara  
Project Title: “Snow and Ice Climatology of the Western US and Alaska from MODIS”  
Co-advised with: Dr. Thomas Painter, JPL  
At present a *Scientist II* at the National Snow and Ice Data Center (NSIDC), Boulder, CO.

**JPL/Caltech Postdoctoral Sponsor - 2011 - October 2013**

Felix C. Seidel-Caprez  
Ph.D. University of Zurich  
Project Title: “Snow and Ice Climatology of the Western US and Alaska from MODIS”  
Co-advised with: Dr. Thomas Painter, JPL  
At present an *Algorithm Scientist II* at NASA Jet Propulsion Laboratory.

**JPL High School Summer Student Program - 2011, 2012, 2013**

Jesslyn Whittell  
Advised with assistance from: Paul Ramirez, Cameron Goodale, Andrew F. Hart  
Sponsored by: NASA Earth Science Data System Software Reuse WG and NCI Early Detection Research Network (EDRN) project  
At present an *undergraduate student in Computer Science* at UC Berkeley.

**Southern California Bioinformatics Summer Institute (So Cal BSI) - 2009**

Andrew Clark  
Advised with assistance from: Andrew F. Hart and Dan Crichton  
Sponsored by: National Science Foundation and the National Institutes of Health

**Southern California Bioinformatics Summer Institute (So Cal BSI) - 2004**

Ronny Chan  
Kim Ngo  
Co-advised with: Dr. Tina Xiao, Roshanak Roshandel, Paul Ramirez, Dan Crichton  
Sponsored by: National Science Foundation and the National Institutes of Health

PROFESSIONAL  
SERVICE

**Program Committee Membership**

1. Program Committee, Working IEEE/IFIP Conference on Software Architecture (WICSA), Montreal, Canada, 2015.
2. Program Committee, SC 2014: 2nd Workshop on Sustainable Software for Science: Practice and Experiences (WSSSPE), Sunday, November 16, 2014, New Orleans, LA.
3. Program Committee, XSEDE14: Software and Software Environments (Gateways, Bridging, and Application Developers), 2014.
4. Program Committee, Meaningful Use of Complex Medical Data (MUCMD) Symposium, August 8-9, 2014, Children’s Hospital Los Angeles, Saban Auditorium.
5. Program Committee, Meaningful Use of Complex Medical Data (MUCMD) Symposium, August 16-17 2013 Children’s Hospital Los Angeles, Saban Auditorium.
6. Program Committee, Working IEEE/IFIP Conference on Software Architecture (WICSA), Sydney, 2014.
7. Program Committee, SC 2013: 1st Workshop on Sustainable Software for Science: Practice and Experiences (WSSSPE), Sunday, November 17, 2013, Denver, CO.

8. Program Committee, ICSR 2013: International Workshop on Designing Reusable Components and Measuring Reusability (DReMeR '13), 2013.
9. Program Committee, XSEDE13: Gateway to Discovery Conference, 2013.
10. Program Committee, Meaningful Use of Complex Medical Data (MUCMD) Symposium, August 26-27 2011 Children's Hospital Los Angeles, Saban Auditorium.
11. Program Committee Member, IEEE International Workshop on the Future of Software Engineering for/in the Cloud (FoSEC), Washington DC, USA, July 4-9, 2011.
12. Program Committee Member, IT for Climate Research Workshop at the 3rd IEEE Intl' Conference on Space Mission Challenges for Information Technology (SMC-IT 2009), Pasadena, CA, July 19 - 23, 2009.
13. Program Committee Member, 18th Intl' WWW Conference (Developer's Track), Madrid, Spain, April 2009.
14. Program Committee Member, 34th Euromicro Conference, Special Session on Software Architecture for Pervasive Systems (SAPS), Parma, Italy, September 2008.
15. Program Committee Member, 2007 ISR Graduate Student Research Symposium, Irvine, CA, June 2007.

### **Conference/Workshop Organization**

1. Co-Organizer (with Jens Kump, Robert Downs and Edzer Pebesma) IN21D. Using Open Source Software to Enable Scientific Analysis and Reuse of Data I and II at the American Geophysical Union (AGU) Fall 2014 Meeting, San Francisco, December 16, 2014.
2. Organizing Committee (Demo Tools Chair), Working IEEE/IFIP Conference on Software Architecture (WICSA), 2014.
3. Co-Organizer (with Jens Klump, Robert Downs and Peter Loewe) N43C. Enabling Science Through Reuse of Data and Free and Open Source Software II at the American Geophysical Union (AGU) Fall 2013 Meeting, San Francisco, December 11, 2013.
4. Co-Organizer (with Karl Benedict) IN32A. Emerging Technologies in Earth and Space Science Informatics (ESSI) I at the American Geophysical Union (AGU) Fall 2013 Meeting, San Francisco, December 11, 2013.
5. Track Chair, Apache in Science, ApacheCon NA 2013, Portland, Oregon, February 26-28, 2012.
6. Session Chair, Session C32 Industrial/Application/Government Track, IEEE Information Reuse and Integration Conference, Las Vegas, NV, August 10, 2012.
7. Organizer, NASA "Mini-Summit" for Open Source Software and Science, 2012 ESIP Federation Summer Meeting, Madison, WI, July 17, 2012.
8. Co-Organizer, NSF EarthCube Workflow Session (with Yolanda Gil and Paul Ramirez), 2012 ESIP Federation Summer Meeting, Madison, WI, July 18, 2012.
9. Planning Team, Open Source Summit organized by NASA, the State Department, and the VA. University of Maryland, Washington D.C., June 20-21, 2012.
10. Co-Organizer (with Bob Downs), IN034. NASA Open Source Summit for Science Data Systems at the American Geophysical Union (AGU) Fall 2012 Meeting, San Francisco, CA, December 3-7, 2012.
11. Co-Organizer, IN30: Software Reuse and Open Source Software in Earth Science Oral Session at the American Geophysical Union (AGU) Fall 2011 Meeting, San Francisco, CA, December 5-9, 2011.
12. Track Chair, Apache in Space! (OODT) Track, ApacheCon NA 2011, Vancouver, CA, November 9, 2011.

13. Session Chair, IEEE IRI Workshop on Issues and Challenges in Social Computing (WICSOC 2011), Las Vegas, NV, August 2, 2011.
14. Lead Organizer, ICSE 2011 Workshop on Software Engineering for Cloud Computing (with Nenad Medvidovic, T. S. Mohan and Owen O'Malley). 33rd Intl' Conference on Software Engineering (ICSE 2011), Honolulu, HI, May 21-28, 2011.
15. Co-Organizer, IN04 Experiences and Challenges in Earth Science Software Reuse Poster Session at the American Geophysical Union (AGU) Fall 2010 Meeting, San Francisco, CA, December 13-17, 2010.
16. Organizer, Chair, 9th NASA Earth Science Data System Working Group Meetings Software Reuse Breakout, New Orleans, Louisiana, October 21-22, 2010.
17. Organizer, Chair, 9th NASA Earth Science Data System Working Group Meetings Open Source Breakout, New Orleans, Louisiana, October 20, 2010.
18. Organizer, NASA Earth Science Data Systems (ESDS) Software Reuse Working Group Workshop on Reuse Readiness Levels. Washington D.C., April 7, 2010.
19. Co-Organizer, IT for Climate Research Workshop at the 3rd IEEE Intl' Conference on Space Mission Challenges for Information Technology (SMC-IT 2009), Pasadena, CA, July 19 - 23, 2009.
20. Webmaster, 2005 Working IFIP/IEEE Conference on Software Architecture (WICSA)

### **Advisory Board**

1. Advisory Board, IcePod, Lamont-Doherty Earth Observatory (LDEO), Columbia University (PI: Dr. Robin Bell)  
<http://usat.ly/YUhDDo>  
<http://www.ldeo.columbia.edu/res/pi/icepod/>

### **Editorial Board**

1. Editorial Board, British Journal of Environment and Climate Change, 2014.  
<http://www.sciencedomain.org/editorial-board-members.php?id=10>
2. Guest Editor, Special issue of IEEE Computer: Computing in Astronomy, 2014.
3. Editorial Board, Journal of Big Data, Springer (JOBDD), 2013.
4. Editorial and Advisory Board, Big Data Management, Technologies, and Applications Book, IGI Global, Dr. Wen-Chen Hu, Dr. Naima Kaabouch, Editors, 2013.

### **Referee and Reviewer Service**

1. Reviewer, International Journal of Machine Learning and Cybernetics (JMLC), 2014.
2. Reviewer, GeoResJ, (<http://www.journals.elsevier.com/georesj/>), 2014.
3. Reviewer, Remote Sensing (<http://www.mdpi.com/journal/remotesensing>), 2014.
4. Reviewer, ESIP Federation Raskin Scholarship, 2013, 2014.
5. Reviewer, SC: 2nd Workshop on Sustainable Software for Science: Practice and Experiences (WSSSPE), New Orleans, LA, Sunday, November 16, 2014.
6. Reviewer, American Medical Informatics Symposium (AMIA), Washington DC, November 15, 2014.
7. Reviewer, SC: Workshop on Sustainable Software for Science: Practice and Experiences (WSSSPE), 2013, 2014.



8. Reviewer, XSEDE14: Software and Software Environments (Gateways, Bridging, and Application Developers), 2014.
9. Reviewer, IEEE Computer, 2014.
10. Reviewer, Journal of Scientific Programming, 2013.
11. Reviewer, Working IEEE/IFIP Conference on Software Architecture (WICSA), Sydney, 2014.
12. Reviewer, Springer Journal of Big Data, 2013.
13. Reviewer, ICSR 2013: International Workshop on Designing Reusable Components and Measuring Reusability (DReMeR '13), 2013.
14. Reviewer, XSEDE13: Gateway to Discovery Conference, 2013.
15. Reviewer, Big Data Management, Technologies, and Applications Book, IGI Global, Dr. Wen-Chen Hu, Dr. Naima Kaabouch, Editors, 2013.
16. Reviewer, 9th International Symposium on Management, Engineering and Informatics: MEI 2013.
17. Reviewer, ApacheCon North America, Apache Software Foundation, 2013.
18. Government Reviewer, Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report, 2012.
19. Reviewer, Service-driven Approaches to Architecture and Enterprise Integration Book, 2012.
20. Reviewer, Earth Science Information Partners (ESIP) Federation Data Management Short Course, 2012.
21. Reviewer, Meaningful Use of Complex Medical Data (MUCMD) Symposium, 2011.
22. Reviewer, Earth Science Informatics, 2011, 2013.
23. Reviewer, IEEE Transactions on Education, 2011, 2012.
24. Reviewer, IEEE International Workshop on the Future of Software Engineering for/in the Cloud (FoSEC), 2011.
25. Reviewer, Software Quality Journal, 2011.
26. Reviewer, The Computer Journal, 2011.
27. Reviewer, IEEE Military Communications Conference (MILCOM), 2010.
28. Reviewer, IEEE Transactions on Software Engineering (TSE), 2010, 2011, 2012, 2013.
29. Reviewer, IEEE Intl' Conference on Information Integration and Reuse – Journal Special Issue, 2009.
30. Reviewer, Journal of Software Engineering and Robotics (JOSER), 2009, 2010.
31. Reviewer, Journal of Software and System Modeling (SoSyM), 2009.
32. Reviewer, NASA Earth Science Data System Working Group (ESDSWG) Software Reuse Peer Award, Utilization Category, 2009.
33. Reviewer, IEEE Journal of Selected Topics in Earth Observations and Remote Sensing, 2009, 2010, 2012, 2013, 2014.
34. Reviewer, IEEE Transactions on Dependable and Secure Computing, 2008, 2010.
35. External Reviewer, 23rd IEEE/ACM International Conference on Automated Software Engineering (ASE), 2008.
36. Reviewer, 34th Euromicro Special Session on Software Architecture for Pervasive Systems (SAPS), 2008.
37. Reviewer, Wiley Encyclopedia of Computer Science and Engineering, 2008.
38. Reviewer, Journal of Systems and Software, 2008, 2013.
39. Reviewer, ACM Computing Reviews, 2007-2012

40. External Reviewer, 7th IFIP/IEEE Working Conference on Software Architecture, 2007
41. Reviewer, IBM Systems Journal, 2007.
42. Reviewer, 2007 ISR Graduate Student Research Symposium, Irvine, CA, June 2007.
43. External Reviewer, 3rd Intl' Conference on the Quality of Software-Architectures, 2007.
44. External Reviewer, 10th Intl' Symposium on Component-based Software Engineering, 2007.
45. External Reviewer, 1st IEEE Intl' Conf. on Self-Adaptive and Self-Organizing Systems, 2007.
46. External Reviewer, ICSE07 SHARK ADI Workshop, 2007.
47. External Reviewer, Journal of Systems and Software Special Section on Software Architecture, 2006.
48. External Reviewer, 6th Working IFIP/IEEE Conference on Software Architecture, 2006 .
49. External Reviewer, 9th Intl Symposium on Component-based Software Engineering, 2006.
50. External Reviewer, 3rd Intl Working Conference on Component Deployment, 2005 .
51. External Reviewer, 5th Intl Workshop on Software Engineering and Middleware, 2005.
52. External Reviewer, 9th Intl Software Product Line Conference, 2005.
53. External Reviewer, 8th Intl Symposium on Component-based Software Engineering, 2005.
54. Reviewer, IEEE Software, 2004, 2005.
55. External Reviewer, FSE-12 Workshop On Self-managing Systems (WOSS), 2004.
56. External Reviewer, UML04 Workshop on Software Architecture Description and UML, 2004.
57. External Reviewer, Workshop on Architecting Dependable Systems, 2004.
58. Reviewer, Journal of Autonomous Agents and Multi-agent Systems 2003 , 2011, 2012.

## Other

1. Proceedings Contributor to DBLP bibliography server (WICSA-4, ICWI2003, IEEE-IRI 2004)

## ADVISORY

### Completed

1. National Science Foundation (NSF), Proposal Review, January 2015.
2. National Science Foundation (NSF), Proposal Review, November 2014.
3. The Fund for Scientific Research FNRS, Brussels, Belgium, October, 2014.
4. National Science Foundation (NSF), Panel Review, June 2014.
5. National Science Foundation (NSF), Proposal Review, June 2014.
6. The Fund for Scientific Research FNRS, Brussels, Belgium, May 2014.
7. National Science Foundation (NSF), Proposal Review, May 2014.
8. National Science Foundation (NSF), Panel Review, May 2014.
9. National Science Foundation (NSF), Site Visit, May 2014.
10. National Science Foundation (NSF), Panel Review, March 2014.
11. National Science Foundation (NSF), Proposal Review, March 2014.
12. National Science Foundation (NSF), Panel Review, February 2014.
13. The Fund for Scientific Research FNRS, Brussels, Belgium, September 2013.
14. National Institutes of Health (NIH), National Institute's of Allergies and Infectious Disease (NIAID) Centers of Excellence in Translational Research (CETR) Panel, August 2013.
15. National Science Foundation (NSF), Proposal Review, July 2013.
16. National Science Foundation (NSF), Site Visit Team, June 2013.

17. National Science Foundation (NSF), Panel Review, May 2013.
18. National Science Foundation (NSF), Panel Review, April 2013.
19. NASA Small Business Innovation Research/Small Business Technology Transfer (SBIR/SBTT) Phase I Proposal Reviewer, October 2011.
20. NASA Small Business Innovation Research/Small Business Technology Transfer (SBIR/SBTT) Phase I Proposal Reviewer, October 2010.
21. Defense Advanced Research Projects Agency (DARPA), Digital Object and Storage Retrieval (DOSR) program, 2008-2010.
22. National Institutes of Health (NIH), National Institute's of Allergies and Infectious Disease (NIAID) Microbiology and Infectious Diseases Biological Resource Repository (BRR) Proposal Review Panel, 2009.
23. NASA Small Business Innovation Research/Small Business Technology Transfer (SBIR/SBTT) Phase I Proposal Reviewer, October 2009.
24. National Science Foundation (NSF), Panel Review, June, 2009.
25. NASA Jet Propulsion Laboratory (JPL), Strategic University Partnership (SURP) Program Proposal Review Panel, 2009.
26. National Institutes of Health (NIH), National Institute's of Allergies and Infectious Disease (NIAID) Adjuvant Development Program Proposal Review Panel, 2008.
27. National Institutes of Health (NIH), National Institute's of Allergies and Infectious Disease (NIAID) DMID Regulatory Affairs Support Proposal Review Panel, 2008.

PROFESSIONAL  
ASSOCIATIONS

Senior Member, Institute of Electrical and Electronics Engineers, Inc. (IEEE)  
 Member, American Astronomical Society (AAS)  
 Member, Foundation for Earth Science (ESIP)  
 Member, IEEE Geoscience and Remote Sensing Society (GRSS-IEEE)  
 Member, Apache Software Foundation (ASF)  
 Member, Open Geospatial Consortium (Voting Member, Geo API WG)  
 Member, ACM Special Interest Group on Software Engineering (SIGSOFT)  
 Participant (via JPL), Consultative Committee on Space Data Systems (CCSDS)

COMPUTER SKILLS

- Languages: Java, C/C++, Perl, Python, SQL, XML, HTML, JavaScript, VBScript, ASP, JSP, PHP
- Applications: L<sup>A</sup>T<sub>E</sub>X, common Windows database, spreadsheet, and presentation software, Adobe Photoshop, Adobe Framemaker, Git, Subversion, CVS, ViewVC, JIRA, Confluence, Maven, Ant, Junit
- Operating Systems: Windows, Solaris, Unix (particular experience with FreeBSD), Linux (experience with RedHat).

REFERENCES

Available upon Request

CITIZENSHIP

United States Citizen