



XSEDE Resource Allocation System XRAS

[XRAS / Request](#)

Environmental Data Exchange Server for Wildfire Simulation and Visualization

Submission for XRAC - March 2015 [View Opportunity](#)

FEEDBACK

Actions:

Number GEO150001

Status Submitted

Type New

Abstract — Wildfire models require many disparate datasets to initialize and update to compute. The core data components include elevation, vegetation, and weather, yet none of these data are readily available at fine spatial scale at relevant temporal scales to study and respond to real fire events. Two Cyberinfrastructure (CI) efforts are using these available datasets and combining them with computational tools that assimilate available real-time data into physical wildfire models often comprised of computational fluid dynamics (CFD) and weather modeling tools. One of these efforts, called WIFIRE, was awarded by NSF to University of California at San Diego (UCSD) to build an end-to-end cyberinfrastructure (CI) for real-time and data-driven simulation, prediction and visualization of wildfire behavior. WIFIRE partners with in this efforts with TelaScience, a joint cyberinfrastructure collaboration between SDSU, UCSD's Calit2, and the global open source GIS community. The effort to provide real-time global environmental data for disaster relief has been pioneered by TelaScience, lead by John Graham, but has hit its limit of data ingestion to global environmental models. With data the US Government has made available in the last year, computing requirements have surpassed the TelaScience server capabilities. Additionally, through this partnership, after a review of wildfire data and behaviour modeling state-of-the-art, we have discover that this research community would greatly benefit from high-end computing platforms. Therefore, we are requesting cycles on Gordon and Comet to design a system that can deliver the required cyberinfrastructure and tools to the wildfire research and disaster response communities.

Keywords — UNIDATA,LDM,IDD,WRF-chem,WRF-fire,EDEX,GFS,RAP,HRRR,landcover,MODIS,models,radar,satellite,weather,simulation,wildfire

Fields of Science

- Geosciences primary
- Visualization, Graphics, and Image Processing
- Global Atmospheric Research
- Educational Infrastructure
- Climate Dynamics
- Natural and Man-Made Hazard Mitigation
- Earth Sciences
- Atmospheric Chemistry

Personnel

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New Submitted

Opportunity Information

Resources

1. SDSC Appro with Intel Sandy Bridge Cluster (Gordon Compute Cluster)

Requested	500,000.00 SUs	Comments: During the first year we will need to test some more advanced CFD coupled models on Gordon because of the large 4T scratch SSDs
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2. SDSC Medium-term disk storage (Data Oasis)

Requested	35,000.00 GB	Comments: Export LusterFS vi NFS is requested
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3. SDSC Dell Cluster with Intel Haswell Processors (Comet)

Requested	2,000,000.00 SUs	Comments: 2M will support the full feed from the EDEX with NEXRAD enabled and enough to support the libNDIS libGINI and grib_countour products.
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Documents

1. *Code Perf & Scaling: Code Perf & Scaling* CodePerformanceandScaling.pdf (119.5 kB)
2. *Main Document: Main Document* WIFIREXSEDEProposal.pdf (798.2 kB)
3. *CoPI CV: Jessica Block CV* BlockBiosketch_Jan2015.doc.pdf (175.2 kB)
4. *CoPI CV: Ilkay Altintas CV* altintas_NSF_11-2014.doc.pdf (117.2 kB)
5. *PI CV: John Graham CV PI* John_Graham_CVnew.pdf (160.7 kB)

Grants

1. **Hazards SEES Type 2: WIFIRE: A Scalable Data-Driven Monitoring, Dynamic Prediction and Resilience Cyberinfrastructure for Wildfires** (1331615)

Funding agency: National Science Foundation (NSF)

Program Officer: Anita Nikolic <anikolic@nsf.gov>

PI: Ilkay Altintas

Dates: 2013-10-01 - 2016-09-30

Award: \$2651758.0 (10.0% support)

Comments: John Graham is supported 10% FTE on WIFIRE Jessica Block is supported 40% FTE on WIFIRE Ilkay Altintas is supported 15% FTE on WIFIRE

Publications

No publications entered!

MY XSEDE	RESOURCES	DOCUMENTATION	ALLOCATIONS	TRAINING	USER FORUMS	HELP	ABOUT
Summary	Systems Monitor	Get Started	Overview	Overview	Forums	Overview	Welcome
Allocations/Usage	Remote	Access	Allocation	Course Calendar		Help Desk	Team
Accounts	Visualization	Resources	Policies	Online Training		Security Incident	XSEDE Home
Jobs	Software	Manage Data	Request Steps				
Profile	Queue Prediction	User Guides	Submit/Review				
Publications	Science	News	Request				
Tickets	Gateways	Usage Policy	Successful				
Change	Scheduled	Knowledge Base	Requests				
Password	Downtimes	File Management	ECSS				
Add User		Downloads	Justification				
Community			Manage				

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