

Catalina M. Oaida

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Professional Summary

- Experience in earth system science, regional climate modeling, land-atmosphere interactions, hydrologic cycle, snow processes.
- Substantial work involving numerical model improvement, combining physical scientific concepts and programming
- Strong ability to interpret and analyze scientific data, from numerical model outputs to observational measurements, including in situ and remote sensing.
- Ability to work in interdisciplinary teams and advise on scientific competitions.

Education

Ph.D. in Atmospheric and Oceanic Sciences, University of California, Los Angeles (GPA 3.7/4.0)	Dec 2014
M.S. in Atmospheric and Oceanic Sciences, University of California, Los Angeles (GPA 3.6/4.0)	Jun 2011
M.S. in Atmospheric Science, University of Michigan (GPA 7.7/9.0)	Apr 2009
B.S.E. in Earth Systems Science and Engineering, University of Michigan (GPA 3.4/4.0)	Apr 2008

Professional Experience

Postdoctoral Scholar

NASA Jet Propulsion Laboratory (JPL)/California Institute of Technology, Pasadena, CA 2015 – Present

Western States Water Mission (WSWM) (adviser: James Famiglietti)

- Hydrology & Snow Scientist for JPL's Western States Water Mission.
- Run high (spatial) resolution hydrology model with data assimilation of remotely sensed product.
- Conduct validation of snow product from WSWM; advise on snow and hydrologic cycle-related processes.

Impact of model resolution on dust-on-snow processes & their effects on Western U.S. hydrology (adviser: Thomas Painter)

- Design and perform research study to investigate the impact of model spatial resolution when simulating dust-on-snow effects using a physically-based snow module within a regional climate modeling framework (WRF).
- Evaluate model performance across space and time, given understanding of multi-disciplinary processes such as dust atmospheric transport and surface deposition on snow, micro-physics and radiative interactions of impurities while in snowpack, and feedbacks with the atmosphere and the hydrologic cycle.
- Compare model output against in situ and satellite measurements to analyze snowmelt-driven hydrologic cycle in mountain systems.

Graduate Student Researcher

University of California, Los Angeles, CA 2009 – 2014

Investigate the impact of light absorbing impurities in snow on regional hydrology & climate (adviser: Yongkang Xue)

- Improved WRF regional climate model (RCM) by incorporating snow radiative transfer scheme (SNICAR) in land surface model (SSiB) to investigate the impact of aerosols-in-snow on mountain systems.
- Modified numerical model to account for physical processes such as scavenging of aerosols-in-snow due to meltwater.
- Designed, developed, and implemented technique to ingest global aerosol surface deposition data into WRF RCM.
- Analyzed model output and identified influences of aerosols-in-snow on mountain snowpack, runoff, the hydrologic cycle, and feedbacks with other components (e.g. vegetation/wildfire risk) and regional climate at large.
- Validated model results against field, reanalysis and satellite data products.

Influence of springtime western U.S. snow on summer climate in southern U.S. (adviser: Yongkang Xue)

- Conducted numerical experiments using WRF RCM to understand the relative influence of land-atmosphere interactions, remotely on drought.
- Analyzed both climatological observational data and model output to assess the impacts of springtime anomalous snowpack in western United States on summer temperature and precipitation in U.S. Southern Great Plains.

Graduate Teaching Assistant

University of California, Los Angeles, CA

September – December 2013

- Taught, instructed, evaluated and mentored upper level undergraduate and graduate students in computer lab setting.
- Trained students in land surface numerical modeling, shell scripting, programming, and data analysis.

University of California, Los Angeles, CA

March – June 2010

- Taught, instructed, and evaluated upper level graduate course (90 students) for the Climate Change and Climate Modeling course in computer lab setting.

Graduate Student Researcher

University of Michigan, Ann Arbor, MI

2008 – 2009

- Investigated the quasi-biannual oscillation atmospheric dynamics phenomena in reanalysis and GCM data using NCL.

Summer Research Intern

NASA Goddard Space Flight Center, Greenbelt, MD

June – August 2008

- Aided in development of algorithm that extracts sea ice thickness from satellite (ICESat, MODIS) measurements.

Undergraduate Research Assistant

University of Michigan, Ann Arbor, MI

Sept. 2006 – April 2008

- Assisted in analysis of raw buoy data from NOAA NDBC to detect and attribute climate change in the Great Lakes.
- Performed data processing and analysis using Excel and Matlab.

Undergraduate Research Opportunity Program, University of Michigan, Ann Arbor, MI

Sept. 2005 – April 2006

- Aided in simulating and studying electrification and microwave emissions from small scale dust devils (lab).
- Helped investigate results through statistical analysis, created reports of findings, presented results at symposium.

Field Research Assistant

Greenland (University of Michigan sponsored)

Summer 2006

- Explored atmospheric conditions at various locations in Greenland by setting up instruments, and collecting and analyzing data. Learn about ice core drilling technique on site.

Publications

Oaida, C.M., Y. Xue, M.G. Flanner, S.M. Skiles, F. De Sales, and T.H. Painter (2015), Improving snow albedo processes in WRF/SSiB regional climate model to assess impact of dust and black carbon in snow on surface energy balance and hydrology over western U.S. *J. Geophys. Res. Atmos.*, 120, 3228–3248. doi: 10.1002/2014JD022444.

Xue, Y., **Oaida, C.M.**, Diallo, I., Neelin, J.D., Li, S., De Sales, F., Gu, Y., Robinson, D., Vasic, R., Lan, Y., Spring land temperature anomalies in northwestern U.S. and the summer drought over Southern Plains and adjacent areas. *Environ. Res. Lett.*, 11, 044018. <http://dx.doi.org/10.1088/1748-9326/11/4/044018>

Oaida, C.M., Y. Xue, M. Chin, F. De Sales, T.H. Painter, S.M. Skiles, Impact of light absorbing aerosols in snow on surface energy and water budgets across North America and sub-regional mountain systems using WRF regional climate model, *in prep.*

Skills

- **Computer/Software:** Proficient in Fortran, UNIX/Linux, GrADS, NCL, Microsoft Office; Working knowledge of Matlab. Familiar with GIS and R. Becoming proficient in Python.
- **Languages:** Romanian (fluent), French (limited working proficiency), Spanish and Italian (elementary proficiency).

Awards and Fellowships

- UCLA Dissertation Year Fellowship, University of California Los Angeles 2014
- AOS Department Fellowship, University of California, Los Angeles 2009

- Best Student Poster, Michigan State University Climate Change Symposium 2007
- First Place, University of Michigan Best Student Paper on Environmental Issues & Climate Change 2007
- Third Place, Graham Environmental Sustainability Institute, University of Michigan 2006

Professional Associations and Activities

- AGU Outstanding Student Paper Award **Judge** (Fall Meeting, 2015)
- AGU Thriving Earth Exchange & MIT Climate CoLab **Volunteer Fellow** for contest "Anticipating Climate Change in the Pamir Mountains" (March – July 2015)
- Advisory Council of Women **member**, Jet Propulsion Laboratory, CA (2016-present)
- Personal **tutor** for media professional seeking online Meteorology Degree, Los Angeles (Aug 2011 – Nov 2014)
- Leaders in Sustainability Graduate Program **member**, Institute of the Environment & Sustainability, UCLA (2012-2013)
- AOS Graduate Student Organization **Recruitment Chair**, UCLA (2012-2013); **Vice President**, UCLA (2011-2012)
- AOS Outreach **board member**, UCLA (2012-2013): Orange County Children's Water Festival – exhibitor, UCLA's Explore your Universe – exhibitor
- Society of Undergraduate Earth System Science and Engineers **Co-President**, University of Michigan (2007-2008)
- Undergraduate Student Advisory **Board Member**, University of Michigan - College of Engineering (2007-2008)
- American Geophysical Union **member** (2007-present); American Meteorological Society **member** (2007-present)