Joseph H. Kennedy

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COMPUTATIONAL SCIENTIST	Experienced with multi-institution open-source software development, high-performance computing, verification and validation of scientific models, and extensive experience analyzing Big Data with the scientific python ecosystem.

TECHNICAL SKILLS

Operating Systems:	Unix/Linux (desktop and HPCs), Windows, OSX
Languages:	Python, R, C/C++, FORTRAN, Bash, LaTeX
Math/Science Packages:	Pandas, Numpy, Scipy, MATLAB, Mathematica
Data Science:	Anaconda, netCDF4, HDF5, NCO, NCL
Web:	Javascript, HTML, CSS, PHP, Drupal, Jekyll
Frameworks/Skills:	Agile software development, test-driven development, verification and validation, unit and integration testing, continuous integration, version control systems

SOFTWARE

E3SM ([Energy Exascale Earth System Model](#)) core developer (infrastructure group) for phase 2; DOE's E3SM is a state-of-the-science Earth system model development and simulation project to investigate energy-relevant science using code optimized for DOE's advanced computers. Latest open-source release of E3SM, version 1.0.0, was on April 23, 2018.
https://github.com/E3SM-Project/E3SM

Lead developer of the Land Ice Verification and Validation toolkit (LIVVkit); a python-based, extensible verification and validation suite for land-ice models. Latest open-source release of LIVVkit, version 2.1.3, was on July 28, 2018. https://github.com/LIVVkit/LIVVkit

Developer of the ISMIP6 Atlas submission validation tool; an extension to LIVVkit which checks submissions to ISMIP6 experiments for correct file names, paths, metadata, etc. and produces a large variety of diagnostic plots. https://github.com/LIVVkit/Atlas

Developer on DOE's E3SM ecosystem projects
⬦ MPAS-Analysis: Analysis for simulations produced with Model for Prediction Across Scales (MPAS) components and DOE's E3SM. https://github.com/MPAS-Dev/MPAS-Analysis
⬦ A-Prime: Python based scripts to generate coupled priority metrics for DOE's E3SM. https://github.com/ACME-Climate/a-prime
⬦ EVV: Extended verification and validation for Earth system models. https://github.com/LIVVkit/evv4esm

Contributor to open-source software projects
⬦ Conda-forge recipe maintainer for [JSON tricks](#)
⬦ PR19 and PR27 to [sphinx-js](#) leading to release of (bugfix) v2.0.1 and contributing to v2.2.

Past: Developer and integrator for the joint DOE/NSF Community Ice Sheet Model (CISM); an open-source, next-generation ice sheet model used for predicting ice sheet evolution and sea level rise in a changing climate. Last contributed to CISM version 2.1.00, released on May 11, 2018. https://github.com/ESCOMP/cism

PROFESSIONAL EXPERIENCE

Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA
Computational Scientist in Glaciology
Climate Change Science Institute   **December 2016 – present**
Perform research tasks using Earth system models (ESMs; e.g., DOE's E3SM, CESM) and ice sheet models (e.g., MPAS-LI, BISICLES, PISM, CISM); coordinate the verification and validation of E3SM, MPAS-LI, and BISICLES simulations; development of the Land Ice Verification and Validation toolkit (LIVVkit), a python-based toolkit for robust evaluation of ice-sheet models; and develop an extended V&V evaluation tool (EVE) for climate reproducibility testing of ESMs.

Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA
Postdoctoral Research Associate
Climate Change Science Institute   **January 2015 – November 2016**
   Perform research tasks using the Community Ice Sheet Model (CISM) and coordinate the development of the Land Ice Verification and Validation toolkit (LIVVkit) — a python-based toolkit for robust evaluation of ice-sheet models.
   Advisor: Dr. Katherine J. Evans

EDUCATION   **University of Alaska Fairbanks**, Department of Physics, Fairbanks, Alaska, USA
                   Ph.D., 2015, Dissertation Topic:
                   "Linking climate history and ice crystalline fabric evolution in polar ice sheets."
                   Advisor: Dr. Erin C. Pettit

                   Western Washington University, Department of Physics, Bellingham, Washington, USA
                   B.S., 2008, Physics
                   Minors: Astronomy, The Study of Religion

AWARDS   **2016 CCSI Professional Development Award**, $100,000
                   Co-I: *Understanding the links between neighbourhood level human activity and global climate change by developing an integrative methodology using data analytics, agent-based modelling and Earth system modelling.* Project PI: Dr. Melissa R. Allen.
                   Climate Change Science Institute, Oak Ridge National Laboratory

                   2013–2014 Thesis Completion Fellowship, $15,000 + tuition
                   University of Alaska Fairbanks Graduate School

                   2011–2012 CASE GK-12 Fellow, $45,000
                   NSF Graduate STEM Fellow in K-12 Education, Changing Alaska Science Education

SYNERGISTIC   2016–present   Referee for the Australian Antarctic Division, the Geophysical Journal International, and the Journal of Mountain Science
ACTIVITIES

                   2015–present   Currently participating in the Ice Sheet Model Intercomparison Project 6 (ISMIP6)

                   2015–present   Conducting multiple experiments for the Initialization of Models Intercomparison Project (initMIP)

                   2015–present   Invited outreach talks, entitled
                                  ⋄ *The coolest science: Glaciers in the Earth system*
                                       ⋄ ORISE Summer Seminar Series, July 18, 2018
                                  ⋄ *Climate change today: An overview of the science, the observations, and a look toward the future*
                                       ⋄ The Executive Network of Seattle, Washington, Jan. 16, 2017
                                       ⋄ with Dr. Allen, League of Women Voters of Oak Ridge, Feb. 16, 2016
                                  ⋄ *Using computational science to understand Earth's climate*
                                       ⋄ UT Governor's School, June 18, 2018
                                       ⋄ APSU Governor's School, June 15, 2018; June 16, 2017; June 17, 2016; June 12, 2015
                                       ⋄ McCalie School (8th grade), May 9, 2018; May 10, 2017
                                       ⋄ Brevard College Tour, Sept. 20, 2017
                                       ⋄ UAH Joint Space Weather Summer Camp, June 30, 2017
                                       ⋄ University of Louisville's Society of Physics Students, March 15, 2017
                                       ⋄ White House High, April 7, 2016
                                       ⋄ Lipscomb Academy, Oct. 1, 2015

OTHER SKILLS   ⋄ Wilderness experience including a continuous 700 mile, 33 day, canoe trip down the Yukon River
AND ACTIVITIES   ⋄ Extensive boat experience: sailing, canoeing, power-boating, etc.
                   ⋄ Enjoy outdoor recreation: biking, hiking, backpacking, camping, etc.
                   ⋄ Trained in bear safety