James Mothersbaugh III
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SUMMARY
- Seeking to use skills in data analysis and software development to contribute to challenging Earth and space science missions
- Experience analyzing ground and space-based remote sensing data
- Experience creating and applying solutions to difficult, novel problems in space science data analysis
- https://cires.colorado.edu/researcher/james-forest-mothersbaugh-iii
- https://www.linkedin.com/in/jamie-mothersbaugh/

WORK EXPERIENCE
Associate Scientist, Cooperative Institute for Research in Environmental Sciences (CIRES)   ***December 2021 – Present***

Geostationary Operational Environmental Satellites – R Series (GOES-R)   December 2021 – Present
- Analysis, calibration, and validation of solar irradiance data from Extreme Ultraviolet Sensor (EUVS) and X-Ray Sensor (XRS) instruments
- Satellite in geostationary orbit funded by the National Oceanographic and Atmospheric Administration (NOAA) and the National Aeronautics and Space Administration (NASA)

Professional Research Assistant, Laboratory for Atmospheric and Space Physics (LASP)   ***June 2015 – December 2020***

Solar Radiation and Climate Experiment (SORCE) Mission   October 2017 – December 2020
- Developed software pipelines to analyze and process 16 years of daily solar spectral irradiance measurements at 1,600 wavelength values in ultraviolet, visible, and infrared light
- Collaborated with fellow analysts, software developers, and mission scientists to write, debug, and implement new data processing algorithms
- Coordinated code review, version control, and progress tracking with colleagues using GitHub, JIRA and Confluence
- Wrote publication release notes, metadata guides, and detailed software documentation
- Satellite in Earth orbit funded by NASA

Precision Solar Photometric Telescope (PSPT) Mission   June 2015 – September 2017
- Developed software pipelines to process and archive photometric solar image data
- Led recovery and restoration of 97,000 images with scientists from LASP, HAO, NCAR and SFO after catastrophic loss of 7 years of data
- Developed new data acquisition methods and updated metadata information with mission leaders
- Telescope at Mauna Loa, Hawaii funded by National Science Foundation

PROGRAMMING LANGUAGE EXPERIENCE
IDL
- Fluent knowledge of syntax, properties, and standard packages
- Wrote scripts, end-to-end processing pipelines, and code used in Jenkins continuous integration
- Wrote code for data visualization and large-scale processing

SQL
- Fluent knowledge of syntax for querying, writing, and parsing data within Oracle and Sybase databases
- Wrote code in IDL and shell scripts and utilized database tools to manage time series data

Python
- Two undergraduate courses in basic functions, class construction, and astronomy-focused calculation using NumPy and Matplotlib packages in Jupyter notebooks
- One graduate course in data structures and error handling techniques

Other
- Experience writing and executing shell scripts on Mac and Linux platforms
- Experience using Wolfram Mathematica to solve and model numerical physics and astronomy equations

EDUCATION
University of Colorado, Boulder   ***August 2012 – August 2016***
- Bachelor of Arts in Astrophysics
- Minor in Mathematics