Greg Lucas

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Education

PhD Aerospace Engineering Sciences, University of Colorado 2017

Investigating the physical mechanisms that impact electric fields in the atmosphere

MS Medical Physics, University of Wisconsin 2010

BS Nuclear Engineering, University of Wisconsin 2010

Minor Computer Science, University of Wisconsin 2009

Experience

Professional Research Assistant, University of Colorado, LASP 2019 - Present

- Leading the development of a cloud-based HPC environment to facilitate R2O and O2R in Space Weather Forecasting

Mendenhall Postdoctoral Fellow, United States Geological Survey 2017 - 2019

- Developed an open source software package to process and analyze data from geomagnetic and geoelectric communities. (Github link)
- Designed statistical analysis frameworks for historic magnetic field datasets to generate hazard maps highlighting areas in the US that are more susceptible to solar storms.
- Designed a deep neural network that is able to predict magnetic field perturbations across the US from a small set of input observatories. (Poster link)

Graduate Research Assistant, University of Colorado 2012 - 2017

Member of the Technical Staff, Sandia National Laboratories 2009 - 2013

Selected Publications

Love, J. J., Lucas, G. M., Bedrosian, P. A., Kelbert, A, Extreme-value geoelectric amplitude and polarization across the Northeast United States, (2019) Space Weather, 17.

Love, J. J., Lucas, G. M., Kelbert, A., Bedrosian, P. A. Geoelectric hazard maps for the Pacific Northwest, (2018), Space Weather, 16.

Lucas, G. M., Love, J. J., Kelbert, A., Calculation of voltages in electric power transmission lines during historic geomagnetic storms: an investigation using realistic Earth impedances, (2018), Space Weather, 16.

Love, J. J., Lucas, G. M., Kelbert, A., & Bedrosian, P. A. Geoelectric hazard maps for the Mid-Atlantic United States: 100 year extreme values and the 1989 magnetic storm, (2017), Geophysical Research Letters, 44.