GREGORY HALVERSON

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EDUCATION

M.Sc. Geographic Information Science, California State University, Northridge (2018) 4.0 GPA

A.A. Computer Programming, Los Angeles Pierce College (2015) 3.6 GPA

B.A. History, California State University, Northridge (2010) 3.5 GPA

A.A. Psychology, Los Angeles Pierce College (2009) 4.0 GPA

PUBLICATIONS

Halverson, G., Lee, C., Hulley, G., Hestir, E., Cawse-Nicholson, K., Bergamaschi, B., Palmieri, B., Osti, A., Acuña, S., Tuffilaro, N., Radocinski, R., Rivera, G., Ade, C., Sommer, T. "Multi-Decadal Examination of Thermal Habitat Suitability for the Endangered Delta Smelt in the San Francisco Estuary using Landsat 5, 7, and 8" (in preparation)

Halverson, G., Cawse-Nicholson, K., Fisher, J., Braverman, A., Johnson, M., Kang, E., Li, M., Gunson, M., Hook, S. "Statistical Uncertainty Quantification and Sensitivity Analysis for the ECOSTRESS PT-JPL Evapotranspiration Algorithm" (in preparation)

Fisher, J.B., Lee, B., Purdy, A.J., **Halverson, G.H.**, Dohlen, M.B., Cawse-Nicholson, K., Wang, A., Anderson, R.G., Aragon, B., Arain, M.A., Baldocchi, D.D., Baker, J.M., Barral, H., Bernacchi, C.J., Bernhofer, C., Biraud, S.C., Bohrer, G., Brunsell, N., Cappelaere, B., Castro-Contreras, S., Chun, J., Conrad, B.J., Cremonese, E., Demarty, J., Desai, A.R., De Ligne, A., Foltýnová, L., Goulden, M.L., Griffis, T.J., Grünwald, T., Johnson, M.S., Kang, M., Kelbe, D., Kowalska, N., Lim, J.-H., Maïnassara, I., McCabe, M.F., Missik, J.E.C., Mohanty, B.P., Moore, C.E., Morillas, L., Morrison, R., Munger, J.W., Posse, G., Richardson, A.D., Russell, E.S., Ryu, Y., Sanchez-Azofeifa, A., Schmidt, M., Schwartz, E., Sharp, I., Šigut, L., Tang, Y., Hulley, G., Anderson, M., Hain, C., French, A., Wood, E., Hook, S., in press. "ECOSTRESS: NASA's next generation mission to measure evapotranspiration from the International Space Station" *Water Resources Research*

Cawse-Nicholson. K., Braverman, A., Kang, E., Li, M., Johnson, M., **Halverson, G.**, Anderson, M., Hain, C., Gunson M., Hook S. (2020) "Sensitivity and uncertainty quantification for the ECOSTRESS evapotranspiration algorithm–DisALEXI" *International Journal of Applied Earth Observation and Geoinformation*, 89, https://doi.org/10.1016/j.jag.2020.102088

Cooley, S., Williams, C., Lee, C., Fisher, J., Perret, J., **Halverson, G.** (2019) "Improving drought assessment with evapotranspiration data: a case study in Guanacaste, Costa Rica" *Ecological Applications*, 29(2), https://doi.org/10.1002/eap.1834

Purdy, A., Fisher, J., Goulden, M., Colliander, A., **Halverson, G.**, Tu, K., Famiglietti, J. (2018) "SMAP soil moisture improves global evapotranspiration" *Remote Sensing of Environment,* 219, https://doi.org/10.1016/j.rse.2018.09.023

Famiglietti, C., Fisher, J., **Halverson, G.**, Borbas, E. (2018) "Global Validation of MODIS Near-Surface Air Temperature and Dew Point" *AGU Geophysical Research Letters*, 45 https://doi.org/10.1029/2018GL077813

Colliander, A., Fisher, J., **Halverson, G.**, Merlin, O., Misra, S., Bindlish, R., Jackson, T., Yueh, S. (2017) "Spatial Downscaling of SMAP Soil Moisture Using MODIS Land Surface Temperature and NDVI During SMAPVEX15" *IEEE Geoscience and Remote Sensing Letters*, 14 (11), https://doi.org/10.1109/LGRS.2017.2753203

TECHNICAL SKILLS

Programming Languages: Python, R, Java, C++, C, JavaScript, MATLAB
Applications: PyCharm, QGIS, RStudio, ArcGIS Desktop, Adobe Illustrator and Photoshop, IntelliJ
Operating Systems: macOS, Linux, Windows

PROFESSIONAL EXPERIENCE

NASA Jet Propulsion Laboratory (329G), Pasadena, CA
11 February 2019 – Present
Scientific Applications Software Engineer

- ECOSTRESS L3/4 product
- ECOSTRESS applications
- WWAO New Mexico project
- Bay Delta Water Quality project
- MEaSUREs LST GEO product

NASA Jet Propulsion Laboratory (Center for Geospatial Science and Technology), Pasadena, CA
6 November 2017 – 11 February 2019
JVSRP Researcher

- Major contributions to the ECOSTRESS mission, including the downloader and preprocessor PGEs in Python for level 3 data products, ECOSTRESS Reprojection Tool to increase the accessibility and utility of ECOSTRESS data, ECOSTRESS quick-look generation, updates to the PT-JPL evapotranspiration PGE in C++, as well as GIS and cartography to produce visualizations supporting press releases
- Project formulation and partner outreach for the WWAO New Mexico Evapotranspiration project, including development of water management and land management applications of remotely sensed evapotranspiration data, as well as evapotranspiration modeling updates, including quantification of uncertainty

NASA Jet Propulsion Laboratory (Columbus Technology & Services, ANRE Technologies), Pasadena, CA
12 September 2016 – 26 October 2017
YIP Researcher

- Contributions to the ECOSTRESS mission and proof of concept for the New Mexico Evapotranspiration project, including development of an operational Python data pipeline, methods to calculate the orbits and swath granule footprints of satellites and spatio-temporally intersect them for data fusion, methods to resample and project satellite swath data for use in environmental models, and methods to derive lands-surface temperature (LST) and emissivity from Landsat
- Project formulation and proof of concept for the New Mexico Evapotranspiration project, including the capability to process LST and evapotranspiration from MODIS, Landsat, and MASTER, and the formulation of a remote sensing drought monitoring system

NASA Jet Propulsion Laboratory (NASA DEVELOP, SSAI), Pasadena, CA
6 June 2016 – 12 August 2016
DEVELOP Researcher

- Team Lead in the NASA DEVELOP Costa Rica agriculture project, engaging in applied science and partner outreach
- Development of a diurnal evapotranspiration model including diurnal air temperature corrections in coordination with the ECOSTRESS mission, and experience in environmental modeling, calibration/validation of environmental models, and statistical analysis with Python, R, and MATLAB

NASA Jet Propulsion Laboratory (California Institute of Technology), Pasadena, CA
21 December 2015 – 9 September 2016
Volunteer Researcher

- Proof of concept development for the New Mexico Evapotranspiration project, including development of remote sensing data acquisition interfaces to the Distributed Active Archive Centers (DAACs), translation of evapotranspiration model algorithms from MATLAB to Python, and extensive use of Python, GDAL, MATLAB, HTML/CSS/JavaScript, and Leaflet

NASA Jet Propulsion Laboratory (NASA DEVELOP, SSAI), Pasadena, CA
14 September 2015 – 15 November 2015
DEVELOP Researcher

- Project formulation and proof of concept development for the New Mexico Evapotranspiration project and initial development of the data acquisition system for the ECOSTRESS mission through the NASA DEVELOP New Mexico Water Resources II project

JOURNAL REVIEWER

AGU Water Resources Research

PRESENTATIONS

Halverson, G., Fisher, J., Magnuson, M. (2018) "Statewide Water Management in the 21st Century: NASA and the State of New Mexico" Presented at the American Geophysical Union Fall Meeting, Washington, DC

Halverson, G., Fisher, J., Magnuson, M., Longworth, J. (2018) "Western Water Applications Office – New Mexico Project" Presented at the ECOSTRESS Science Team Meeting, Cape Canaveral, FL

Halverson, G., Fisher, J., Magnuson, M., Longworth, J. (2018) "Operational Evapotranspiration for the State of New Mexico" Presented at the NASA Applied Science Program Water Resources Team Meeting, Boulder, CO

Halverson, G., Fisher, J., Magnuson, M., Longworth, J. (2017) "Global Operational Remotely Sensed Evapotranspiration System for Water Resources Management: Case Study for the State of New Mexico" Presented at the American Geophysical Union Fall Meeting, New Orleans, LA

Famiglietti, C., Fisher, J., **Halverson G.** (2017) "Global Validation of MODIS Near-Surface Air Temperature and Dew Point" Poster presented at the American Geophysical Union Fall Meeting, New Orleans, LA

Fisher, J., Jewell, L., **Halverson, G.** (2017) "ECOSTRESS L3/4 (PT-JPL) Processing and Products" Presented at the ECOSTRESS Science Team Workshop, Davis, CA

Halverson G., Fisher J., Jewell, L., Moore, G., Verma, M., McDonald, T., Kim, S., Muniz, A. (2016) "Near Real-Time Monitoring of Global Evapotranspiration and its Application to Water Resource Management" Presented at the American Geophysical Union Fall Meeting, San Francisco, CA

Halverson G., Cooley, S., Pestana, S., Barker, M. (2016) "Applying ECOSTRESS Diurnal Cycle Land Surface Temperature and Evapotranspiration to Agricultural Soil and Water Management" Presented at the **Annual Earth Science Applications Showcase, Washington, D.C.**

REFERENCES

Dr. Joshua B. Fisher
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Phone: (818) 354-0934 *Email*: Joshua.B.Fisher@jpl.nasa.gov

Dr. Christine Lee
Applications Lead, ECOSTRESS Mission, Jet Propulsion Laboratory
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Dr. Kerry Cawse-Nicholson
Scientist, Jet Propulsion Laboratory
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