

Dr. Adam J. Purdy
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Education

Post-Doctoral Scholar, NASA Jet Propulsion Laboratory Caltech Carbon and Ecosystems Group, Advisor: Joshua Fisher	2018-Present
Ph.D., University of California, Irvine Earth System Science, Advisor: James Famiglietti	2018
Master in Science University of California, Irvine Earth System Science, Advisor: James Famiglietti	2014
Master in Science California State University of Monterey Bay Coastal Watershed Science and Policy, Advisors: Fred Watson & Forrest Melton	2012
Bachelor of Arts & Bachelor of Science University of San Diego Industrial and Systems Engineering	2008

Publications

- 2018 **Purdy, A.J.**, Fisher, J.B., Goulden, M.L., Colliander, A., Halverson, G., Tu, K., Famiglietti, J.S., *SMAP soil moisture improves global evapotranspiration*. Remote Sensing of Environment 219: 1-14
<https://doi.org/10.1016/j.rse.2018.09.023>
- 2018 Talsma, C.J., Good, S.P., Miralles, D.G., Fisher, J.B., Martens, B., Jiménez, C., **Purdy, A.J.**, Sensitivity of Evapotranspiration Components in Remote Sensing-Based Models. Remote Sens. 10, 1601; doi:10.3390/rs10101601
- 2018 Massoud, E.C., **Purdy, A.J.**, Miro, M., Famiglietti, J.S. *Projecting groundwater storage changes in California's Central Valley*. Scientific Reports 8 (1), 12917
- 2018 Talsma, C., Good, S.P., Jimenez, C., Martens, B., Fisher, J.B., Miralles, D., McCabe, M., **Purdy, A.J.** *Partitioning of Evapotranspiration in Remote Sensing-based Models*. Agricultural and Forest Meteorology 260, 131:143.
- 2017 Joshua B. Fisher, Elizabeth Middleton, Forrest Melton, Martha Anderson, Simon Hook, Christopher Hain, Richard Allen, Matthew McCabe, Jean-Pierre Lagouarde, Kevin Tu, Dennis Baldocchi, Philip A. Townsend, Ayse Kilic, Johan Perret, Diego Miralles, Duane Waliser, **A.J. Purdy**, Andrew French, David Schimel, James S. Famiglietti, Graeme Stephens, Eric F. Wood, *The Future of Evapotranspiration: Global requirements for ecosystem functioning, carbon and climate feedbacks, agricultural management, and water resources*. Water Resour. Res., 53, 2618–2626, doi:10.1002/2016WR020175.
- 2016 **Purdy, A.J.**, Fisher, J.B., Goulden, M., Famiglietti, J.S., (2016), *Ground heat flux: An analytical review of 6 models evaluated at 88 sites and globally*. JGR Biogeosciences 10.1002/2016JG003591
- 2016 Castle, S., Thomas, B., Reager, J.T., **Purdy, A.J.**, Lo, M., Famiglietti, J.S., (2016), *Remote detection of water management impacts on evapotranspiration in the Colorado River Basin*. Geophysical Research Letters.
- 2011 Melton, F.S., Johnson, L.F., Lund, C.P., Pierce, L.L., Michaelis, A.R., Hiatt, S.H., Guzman, A., Adhikari, D.D., **Purdy, A.J.**, Rosevelt, C., Votava, P., Trout, T.J., Temesgen, B., Frame, K., Sheffner, E.J., Nemani, R.R., (2011), *Satellite irrigation management support with the terrestrial observation and prediction system: a framework for integration of satellite and surface observations to support improvements in agricultural water resource management*. IEEE Journal of Selected Topics in Applied Earth Observation and Remote Sensing 5(6): 1709-1721

Conference Presentations

- 2018 **Purdy, A.J.**, Fisher, J., Kawata, J., Reynolds, M., Om, G. Sikka, M., Designing Drought indicators. *Oral Presentation AGU Fall 2018*
- 2018 Famiglietti, J.S., Liu, P., McEvoy, A., Wiese, D.N., Reager, J.T., **Purdy, A.J.**, Rodell, M., David, C.H., Food

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Grows where Groundwater Flows: California Grapples with Chronic Water Scarcity. *Oral Presentation AGU Fall 2018*

- 2017 **Purdy, A.J.**, Fisher, J., Goulden, M.L., Randerson, J.S., Famiglietti, J.S., Water vs. Carbon: An evaluation of SMAP soil moisture, evapotranspiration, & OCO-2 solar induced fluorescence to characterize global plant stress. *Poster Presentation AGU Fall 2017*
- 2016 **Purdy, A.J.**, Fisher, J., Famiglietti, J.S., Potential for SMAP soil moisture observations to improve remote sensing of evapotranspiration algorithms. *Oral Presentation AGU Fall 2016*
- 2015 **Purdy, A.J.**, Fisher, J., Famiglietti, J.S., Ground Heat Flux: What's the best approach. *Oral Presentation AGU Fall 2015*
- 2014 Castle, S., Reager, J.T., Thomas, B.F., **Purdy, A.J.**, Lo, M. H., Rodell, M., Famiglietti, J.S., Assessing the impacts of water management on evapotranspiration in the Colorado River Basin. H34D-06 *AGU Fall 2014*
- 2013 **Purdy, A.J.**, Famiglietti, J.S. Remote sensing and modeling evapotranspiration: A high-resolution multi-method comparison at point and basin scales in California. *Oral Presentation AGU Fall 2013*
- 2013 Crop Specific Drainage and NO₃ Leaching in California's Central and Salinas Valleys: Monitoring and Management. K. Post, C. Lund, **A. Purdy** and I. Harlan, L. Pierce, L. Johnson and F. Melton. The U.S. Society for Irrigation and Drainage Professionals Conference, Sacramento California.
- 2012 Melton, F.S. Lund, C., Johnson, L., Michaelis, A., Pierce, L., Guzman, A., Hiat, S., **Purdy, A.**, Rosevelt, C., Brandt, W., Votava, P., Nemani, R., Satellite Mapping of Agricultural Water Requirements in California with the Terrestrial Observation and Prediction System. H21H-1272 *AGU Fall 2012*
- 2011 **Purdy, A.J.**, Lund, C.P., Pierce, L., Melton, F.S., Guzman, A., Harlen, I., Holloway, R., Johnson, L., Lee, C., Nemani, R.. Applications of wireless sensor networks, soil water balance modeling, and satellite data for crop evapotranspiration monitoring and irrigation management support. H21F-120: *Poster AGU Fall 2011*
- 2011 Melton, F., Johnson, L., Lund, C., Michaelis, A., Pierce, L., Guzman, A., Hiat, S., **Purdy, A.J.**, Lee, C., Rosevelt, C., Fletcher, N., Votava, P., Milesi, C., Hashimoto, H., Wang, W., Scheffner, E.J., Nemani, R., Satellite Monitoring and Management Support in California with the Terrestrial Observation and Prediction System H21F-1227 *AGU Fall 2011*

White Papers

- 2011 Pugh, K., Arenas, R., Cubanski, P., Lancot, M., **Purdy, A.J.**, Bassett, R., Smith, J., Hession, S., Stoner, K., Ashbach, R., Alberola, G., Jacuzzi, N., Watson, F., Stormwater outfall watershed delineation, land cover characteristics, and recommended priorities for monitoring and mitigation in the City of Pacific Grove, California The Watershed Institute Publication No. WI-2011-02
- 2011 Stoner, K., Smith, D., Cubanski, P., Pugh, K., Jacuzzi, N., Arenas, A., **Purdy, A.J.**, Bassett, R., Smith, J., Hession, S., Assessment of a photometric analysis technique for monitoring beach nourishment: An example from Del Monte Beach, Monterey, California The Watershed Institute Publication No. WI-2011-05

Field Experience

- 2016 FLUXCOURSE: Boulder, CO. Two-week workshop focused Eddy Covariance observations, including the theory, measurement, and modeling of canopy scale gas and energy exchange.
- 2015 SMAP-Ex 5 2015: Soil Moisture Active Passive Calibration & Validation. Murrumbidgee River, Australia. Supported on-ground soil moisture measurements, instrument calibration,

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and vegetation water content sampling.

2010-2012 TOP-SIMS: Satellite irrigation management support project. Central Valley and Salinas Valley, California. Installed and maintained wireless meteorological and soil moisture sensor networks to calculate field scale water budgets. Installed surface renewal flux towers to measure Latent Heat in agricultural fields. Processed soil moisture data. Attended meetings with agricultural growers and field managers to communicate how potential evapotranspiration and soil moisture data can assist irrigation management.

Teaching Experience

2017 CUAHSI: Instructor, Workshop on NASA remote sensing and hydrology. Boston, MA
2016 CUAHSI: Instructor, Workshop on NASA remote sensing and hydrology. Tuson, AZ
2016 Terrestrial Hydrology: Teaching Assistant UCI
2015 Data Analysis: Teaching Assistant UCI
2014 On Thin Ice: An introduction to cryosphere science: Teaching Assistant UCI
2014 Local and Regional Environmental Issues: Teaching Assistant UCI
2013 Fundamental Processes in Earth and Environmental Studies: Teaching Assistant UCI
2010-2011 Physics II: Lab Instructor and Tutor CSUMB
2010-2011 Physics I: Teaching Assistant and Tutor CSUMB

Awards & Fellowships

2017 Jet Propulsion Laboratory Visiting Student Research Program participant
2016-2018 NASA Earth System Science Fellowship: Water vs Carbon: An evaluation of SMAP soil moisture and OCO-2 Fluorescence to characterize global plant stress.
2015 NASA summer grant to examine SMAP soil moisture to support evapotranspiration
2014 University of California, Irvine Public Impact Honorable Mention Fellow
2014 Earth System Science Graduate Student Representative
2008 Tau Beta Pi, Engineering Honor Society
2007 Research Experience for Undergraduates: Manufacturing Engineering Texas A&M University College Station, TX

Technical Skills

Programming Python, Matlab, R, NCO, HEC-HMS, HEC-RAS, ESRI ArcMAP, Erdas Imagine

Professional Service

Journal Reviewer Geophysical Research Letters, Water Resources Research, Journal of Hydrometeorology, Agricultural and Forest Meteorology, Geoscientific Model Development, Remote Sensing, Water, Applied Water Science, Irrigation Science

Prior Professional Experience

Loss Prevention Consultant, Golden Eagle Insurance (now Liberty Mutual) 2008-2010
Analyzed hazards, exposures, and controls for different businesses insured by Golden Eagle Insurance. I interfaced with clients, evaluated exposures and controls, and completed internal reports for underwriting. Provided service to larger accounts by leading safety talks and demonstrations.