

William Lambert Cable

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Date of birth: December 27, 1978 | Nationality: USA
Marital Status: Married with 2 children

Education

- 01/2014 – Master of Science in International Permafrost Ecosystem Studies:
08/2016 Interdisciplinary. Thesis title, “The Role of Environmental Factors in Regional and Local Scale Variability in Permafrost Thermal Regime”
University of Alaska Fairbanks, Fairbanks, AK. 3.70 GPA
- 09/1997 – Bachelor of Science in Environmental Biology with a Chemistry minor.
05/2001 Fort Lewis College, Durango, CO. 3.60 GPA
- 08/1993 – Douglas County High School, Castle Rock, CO. 3.73 GPA
05/1997

Skills

Scientific Equipment

- Extensive experience with Campbell Scientific data loggers, communication peripherals, and sensors.
- Experience with all types of meteorological sensors.
- LI-COR Environmental Infrared Gas Analyzers (LI-6262, LI-820, LI-6400, LI-7500).
- Installation and maintenance of eddy covariance systems.
- Operation and maintenance of continuous flow and dual inlet isotope ratio mass spectrometers (Thermo Finnigan Delta +XP, Micromass IsoPrime, and Micromass Optima) and associated peripherals (CE NC2500 Elemental Analyzer, Costech ECS 4010 Elemental Analyzer, Thermo Finnigan High Temperature Conversion Elemental Analyzer, Thermo Finnigan Gas Bench II, and Thermo Finnigan PreCon).

Computers

- Experienced with MatLab, Microsoft Office, Loggernet data logger programming and data collection software (Campbell Sci.), and Adobe Photoshop and Acrobat. Web design using Drupal content management system.
- Database construction using Microsoft Access and MySQL.
- Troubleshooting and upgrading computer hardware and building complete systems from the ground up.

Electronics

- Programming, constructing, and troubleshooting measurement systems that utilize data loggers to measure and control sap flow probes, soil moisture probes, temperature sensors, eddy covariance systems and meteorological sensors.
- Construction and troubleshooting of simple electronic circuits.
- Design and assembly of small photovoltaic systems.

Other Activities

- Obtained private pilot's license in 2012.
- Taken several different wilderness survival, wilderness medicine, first aid / CPR, and bear safety courses.

Professional Affiliations

- Permafrost Young Researchers Network (PYRN)
- United States Permafrost Association (USPA)
- Global Terrestrial Network for Permafrost (GTN-P), Member of Secretariat and US National Correspondent

Work Experience

Research Professional II (October 2008 - Present)

Geophysical Institute Permafrost Laboratory (GIPL), University of Alaska Fairbanks, USA
Supervisor: Dr. Vladimir Romanovsky, +1 907-474-7459, veromanovsky@alaska.edu

Duties and Accomplishments:

- Responsible for maintenance of existing and deployment of new environmental monitoring stations that measure soil temperature and moisture, air temperature, and snow depth.
- Upgraded permafrost observation sites with Iridium satellite transceivers, cellular modems, and radios to enable remote communications and data collection.
- Implemented a system for real-time data visualization.
- Designed and constructed vertical array thermistor probes and other thermistor based temperature sensors for monitoring soil and borehole temperatures.
- Responsible for data quality control and management.
- Constructed the GIPL web-site using Drupal, a content management system.

Technician (February 2007 - October 2008)

University of Wyoming Stable Isotope Facility, Laramie, WY, USA
Supervisor: Dr. David Williams, +1 307-766-2494, dgw@uwyo.edu

Duties and Accomplishments:

- Troubleshooting, routine maintenance, and processing samples on the three continuous flow isotope ratio mass spectrometers (two Thermo Finnigan Delta +XP's and a Micromass IsoPrime) and a dual inlet isotope ratio mass spectrometer (Micromass Optima) and their associated peripherals (two Elemental Analyzers, a Thermo Finnigan Gasbench II, a Thermo Finnigan PreCon, and a Thermo Finnigan High Temperature Conversion Elemental Analyzer).
- Sample preparation, cryogenic water extraction and zinc reduction for $\delta^2\text{H}$ analysis.
- Responsible for: day-to-day lab operations; supervising and training student workers; data management and normalization relative to international standards; and quality control / quality assurance.

Research Associate (July 2006 - January 2007)

University of Wyoming, Department of Botany, Laramie, WY, USA
Supervisor: Dr. Kiona Ogle, kiona.ogle@asu.edu, (now at Arizona State University)

Duties and Accomplishments:

- Responsible for: day-to-day lab operations and overseeing student workers.
- Used HYDRUS 1D to simulate water flow under differing watering regimes, soil types, and plant cover.

- Helped construct a database with ecophysiological data for a four desert data synthesis.
 - Built the lab website using Adobe GoLive.
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Hydrologic Technician (February 2003 - June 2006)

US Dept. of Agriculture, Agricultural Research Service (USDA - ARS), Tucson, AZ, USA
Supervisor: Dr. Russell Scott, +1 520-647-2971, russ.scott@ars.usda.gov

Duties and Accomplishments:

- Installation and maintenance of 7 CO₂ and H₂O eddy covariance.
 - Built and installed sap flow sensors to measure transpiration and hydraulic redistribution in trees and shrubs.
 - Designed and constructed automated soil respiration chambers for the measurement of CO₂ efflux from the soil.
 - Developed a model using Matlab and ArcGIS to estimate evapotranspiration for the San Pedro riparian corridor using satellite and ground-based data.
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Research Technician (May 2001 - February 2003)

The University of Arizona, Tucson, AZ, USA

Supervisor: Dr. David Williams, +1 307-766-2494, dgw@uwyo.edu (now at the University of Wyoming)

Duties and Accomplishments:

- Worked as part of a multi-agency collaboration of ecologists and hydrologists to investigate the water balance of a riparian ecosystem in Southeastern Arizona. As a part of this group I:
 - Utilized the Heat Ratio method of sap flow to measure whole tree transpiration in mesquite trees at three different sites.
 - Made allometric measurements to create scaling relationships between tree diameter, xylem area, and leaf area.
 - Employed the Heat Balance method of sap flow to measure canopy level transpiration in mesquite trees in a riparian floodplain.
 - Designed, constructed, and assisted with the implementation of an automated vapor collection system used to partition water vapor fluxes using stable isotopes of Hydrogen and Oxygen.
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Paid Intern (Oct 2000 - Apr 2001)

Sugnet Environmental, 1060 Main Ave., Suite 20, Durango, CO 81301

Supervisor: Sean Moore, 970-259-9595

Duties and Accomplishments:

- Maintained and collected data from six methane emission monitoring stations that employed a flow meter and datalogger to measure the rate of methane emission from the ground.
- Collected and analyzed water quality data up- and down-stream from an in-stream gravel operation to be included as part of the annual assessment of the gravel operations effect on the river.

Previous Funding

- Funding to attend GTN-P Workshop, May 6 to 8, 2013 (\$2,358).
- Funding to attend the 4th European Conference on Permafrost in Évora, Portugal, June 18th – 21st, 2014 (€500).

- Cable, W.L.**, Romanovsky, V. E., and Busey, R. C. in prep. “The Impact of Microtopography on Ground Thermal Regime in an Ice-Wedge Polygon Landscape”
- Cable, W. L.**, Romanovsky, V. E., and Jorgenson, M. T. in review. “Scaling-up Permafrost Thermal Measurements in Western Alaska using an Ecotype Approach” *The Cryosphere*, doi:10.5194/tc-2016-30
- Cable, W. L.** 2016. “The role of environmental factors in regional and local scale variability in permafrost thermal regime” Thesis (M.S.) University of Alaska Fairbanks. <http://hdl.handle.net/11122/6820>
- Biskaborn, B. K., Lanckman, J.P., Lantuit, H., Elger, K., Streletskiy, D. A., **Cable, W. L.**, and Romanovsky, V. E.: “The new database of the Global Terrestrial Network for Permafrost (GTN-P)”, *Earth Syst. Sci. Data*, 7, 245-259, doi:10.5194/essd-7-245-2015
- Muskett, R.R., Romanovsky, V.E., **Cable, W.L.**, Kholodov, A.L. 2015. “Active-Layer Soil Moisture Content Regional Variations in Alaska and Russia by Ground-Based and Satellite-Based Methods, 2002 through 2014.” *International Journal of Geosciences*, 6, 12-41. <http://dx.doi.org/10.4236/ijg.2015.61002>
- Cable, J. M., Ogle, K., Barron-Gafford, G. A., Bentley, L. P., **Cable, W. L.**, Scott, R. L., Williams, D. G. and Huxman, T. E.: Antecedent conditions influence soil respiration differences in shrub and grass patches, *Ecosystems*, 16(7), 1230–1247, 2013.
- Cable, W.L.**, Romanovsky, V., Kholodov, A., Marchenko, S., Grosse, G., Muskett, R. 2012. “Russia - United States Thermal State of Permafrost”: Permafrost Monitoring Internet Data Portal. *Proceedings from the Tenth International Conference on Permafrost. Salekhard, Russia*. Volume 4, 77-78.
- Romanovsky, V.E., Marchenko, S.S., Kholodov, A.L., **Cable, W.L.** 2012. Three Decades of Changes in Permafrost Temperature along the Alaskan Permafrost/Ecological Transect. *Proceedings from the Tenth International Conference on Permafrost. Salekhard, Russia*. Volume 4, 474-475.
- Scott, R.L., **Cable, W.L.**, Hultine, K.R. 2008. The ecohydrologic significance of hydraulic redistribution in a semiarid savanna. *Water Resources Research* 44, W02440.
- Scott, R.L., **Cable, W.L.**, Huxman, T.E., Nagler, P.L., Hernandez, M., Goodrich, D.C. 2008. Multiyear riparian evapotranspiration and groundwater use for a semiarid watershed. *Journal of Arid Environments* 72: 1232-1246.
- Yepez, E.A., Scott, R.L., **Cable, W.L.**, Williams, D.G. 2007. Intraseasonal variation in water and carbon dioxide flux components in a semiarid riparian woodland. *Ecosystems*. 10:1100-1115.
- Scott, R.L., Huxman, T.E., **Cable, W.L.**, Emmerich, W.E. 2006. Partitioning of evapotranspiration and its relation to carbon dioxide exchange in a Chihuahuan desert shrubland. *Hydrological Processes. J. Special Issue on Emerging Issues of Ecohydrology in Semiarid Areas*, eds. Wilcox, B. and Scanlon, B., 20: 3227-3243.
- Scott, R.L., Goodrich, D.C., Levick, L., McGuire, R., **Cable, W.L.**, Williams, D., Gazal, R., Yepez, E.A., Elsworth, P., Huxman, T.E. 2006. San Pedro Riparian National Conservation Area (SPRNCA) water needs - final study report. USGS Scientific Investigation Report.
- Williams, D.G., **W. Cable**, K. Hultine, J.C.B. Hoedjes, E. Yepez, V. Simonneaux, S. Er-Raki, G. Boulet, H.A.R. de Bruin, A. Chehbouni, O.K. Hartogensis and F. Timouk. 2004. Components of evapotranspiration determined by eddy covariance, sap flow and stable isotope techniques. *Agricultural and Forest Meteorology* 125:241-258.

Hultine, K.R., R.L. Scott, **W.L. Cable**, and D.G. Williams. 2004. Hydraulic redistribution by a dominant, warm desert phreatophyte: seasonal patterns and response to precipitation pulses. *Functional Ecology* 18:530-538.

Hultine, K.R., **W.L. Cable**, D.G. Williams, and S.S. Burgess. 2003. Hydraulic redistribution by deep roots of a Chihuahuan Desert phreatophyte. *Tree Physiology* 23:353-360.

Contributed Abstracts

Cable, W., Romanovsky, V., and Busey, R. 2016. Measured Two-Dimensional Ice-Wedge Polygon Thermal Dynamics. Abstract 318 presented at the 11th International Conference on Permafrost 20-24 June, Potsdam, Germany.

Cable, W., and Romanovsky, V. 2016. Best Practices in Permafrost Temperature Measurement. Abstract 942 presented at the 11th International Conference on Permafrost 20-24 June, Potsdam, Germany.

Romanovsky, V. E., Nicolsky, D. J., Marchenko, S. S., **Cable, W. L.**, Kholodov, A. L., Panda, S. K., Muskett, R. R. 2016. Past, present and future changes in permafrost temperatures in Alaska. Abstract 274 presented at the 11th International Conference on Permafrost 20-24 June, Potsdam, Germany.

Cable, W., Romanovsky, V., and Busey, R. 2016. Measured Two-Dimensional Ice-Wedge Polygon Thermal Dynamics. Abstract EGU2016-2102-2 presented at EGU 2016 General Assembly, Vienna, Austria, 17-22 Apr.

Muskett, R., Romanovsky, V., **Cable, W.** and Kholodov, A. 2015. Active-Layer Soil Moisture Content Regional Variations in Alaska and Russia by Ground-Based and Satellite-Based Methods, 2002 Through 2014. Abstract C21C-0752 presented at 2015 Fall Meeting, AGU, San Francisco, CA 14-18 Dec.

Romanovsky, V., **Cable, W.**, Kholodov, A., Nicolsky, D., Marchenko, S., Panda, S. and Muskett, R. 2015. Detecting and Forecasting Permafrost Degradation in a Warming Climate (Invited). Abstract B31D-0576 presented at 2015 Fall Meeting, AGU, San Francisco, CA 14-18 Dec.

Kholodov, A., Liljedahl, A., Chamberlain, A., Romanovsky, V. and **Cable, W.** 2015. Impact of shallow water bodies on the permafrost temperature and estimation of risk of thermokarst development at the Barrow Environmental Observatory area. Abstract C21C-0755 presented at 2015 Fall Meeting, AGU, San Francisco, CA 14-18 Dec.

Romanovsky, V., Nicolsky, D., Marchenko, S., **Cable, W.** and Panda, S. 2015. Merging Field Measurements and High Resolution Modeling to Predict Possible Societal Impacts of Permafrost Degradation (Invited). Abstract B42C-04 presented at 2015 Fall Meeting, AGU, San Francisco, CA 14-18 Dec.

Biskaborn, B.K., Lantuit, H., Dreßler, A., Lanckman, J.P., Jóhannsson, H., Romanovsky, V., **Cable, W.**, Sergeev, D., Vieira, G., Pogliotti, P., Nötzli, J. and Christiansen, H.H. 2015. Quality assessment of permafrost thermal state and active layer thickness data in GTN-P. Abstract 193, GEOQuébec 2015, Conference Paper, Québec.

Romanovsky, V., **Cable, W.** and Kholodov, A. 2015. Changes in Permafrost and Active-Layer Temperatures Along an Alaskan Permafrost-Ecological Transect. Abstract 479, GEOQuébec 2015, Conference Paper, Québec.

Cable, W., Romanovsky, V. 2015. Evaluating Ecotypes as a means for Scaling-up Permafrost Thermal Measurements in Western Alaska. Abstract EGU2015-967 presented at EGU 2015 General Assembly, Vienna, Austria, 12-17 Apr.
(http://presentations.copernicus.org/EGU2015-967_presentation.pdf)

- Chamberlain, A.J., Liljedahl, A., Wilson, C.J., **Cable, W.**, Romanovsky, V.E. 2014. Measured Hydrologic Storage Characteristics of Three Major Ice Wedge Polygon Types, Barrow, Alaska. Abstract C11C-0383 presented at 2014 Fall Meeting, AGU, San Francisco, CA, 15-19 Dec.
- Dafflon, B., Hubbard, S.S., Peterson, J., Ulrich, C., Oktem, R., Curtis, J.B., Tran, A.P., Wu, Y., **Cable, W.**, Romanovsky, V.E. 2014. Estimating Arctic Tundra Soil Water Content Variability and Relationship to Landscape Properties Using Above- and Below-Ground Imaging. Abstract C11C-0379 presented at 2014 Fall Meeting, AGU, San Francisco, CA, 15-19 Dec.
- Kholodov, A.L., Liljedahl, A., Romanovsky, V.E., **Cable, W.** 2014. Cryostratigraphy and Main Physical Properties of Active Layer Soils and Upper Horizon of Permafrost at the Barrow Environmental Observatory Research Site. Abstract C11C-0380 presented at 2014 Fall Meeting, AGU, San Francisco, CA, 15-19 Dec.
- Romanovsky, V.E., **Cable, W.**, Marchenko, S.S., Panda, S.K., 2014. Distributed Permafrost Observation Network in Western Alaska: the First Results. Abstract B33G-04 presented at 2014 Fall Meeting, AGU, San Francisco, CA, 15-19 Dec.
- Cable, W.**, Romanovsky, V. 2014. An evaluation of ecotypes as a scaling-up approach for permafrost thermal regime in Western Alaska. EUCOP – 4th European Conference on Permafrost 18-21 June 2014, Évora, Portugal.
- Romanovsky, V., Marchenko, S., **Cable, W.**, Panda, S., Kholodov, A. 2014. Advances and challenges in development of a Permafrost Observing System. EUCOP – 4th European Conference on Permafrost 18-21 June 2014, Évora, Portugal.
- Romanovsky, V.E., **Cable, W.**, Walker, D.A., Yoshikawa, K., Marchenko, S.S. 2013. Last Decade of Changes in Ground Temperature and Active Layer Thickness in the High Canadian Arctic and in Barrow. Abstract B31H-06 presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.
- Cherry, J.E., Young, J.M., **Cable, W.**, Worden, J.R., Crosson, E., Van Pelt, A.D., Welker, J. 2013. Water Vapor Isotope Measurements over the Alaskan Boreal Forest with Aircraft and Satellite Remote Sensing. Abstract B31E-0358 presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.
- Cherry, J., Cable, J., **Cable, W.**, Welker, J., Van Pelt, A. 2011. Aircraft Measurements of Water Vapor Isotopes. The Roles of Stable Isotopes in Water Cycle Research. <http://www.isowater.org/> Keystone, CO, March 29-31, 2011.
- Young, J.M., Ogle, K., **Cable, W.**, Welker, J. 2010. Ecohydrology of permafrost-affected boreal forest ecosystems: sources of water utilized by plants and fluxed by ecosystems. Abstract H43H-01 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.
- Sharma, S.S., **Cable, W.L.**, Williams, D.G. 2008. Removing oxygen and nitrogen interference for precise measurement of carbon and oxygen isotopes of soil and atmospheric CO₂ on Gas Bench-IRMS. 14th Canadian CF-IRMS Workshop. Saskatoon, SK.
- Cable, W.L.**, Scott, R.L. 2005. Quantifying the hydrological significance of tree hydraulic redistribution in a savanna ecosystem. *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract H53E-0521.
- Cable, J.M., Huxman, T.E., **Cable, W.L.**, Scott, R.L., Williams, D.G., Goodrich, D., 2005. Responses of Soil Respiration to Precipitation in a Savannah Ecosystem: Fine Temporal Measurements of Soil CO₂ Efflux. *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract B43A-0244.

- Potts, D.L., **Cable, W.L.**, Scott, R.L., Williams, D.G., Goodrich, D.C., Huxman T.E. 2005. Carbon and water exchanges in a semi-arid watershed: The role of interannual climate variability and woody plant encroachment. *European Geophysical Society Meeting, Geophysical Research Abstracts*, Vol. 7 (03742). SRef-ID: 1607-7962/gra/EGU05-A-03742.
- Cable, J.M., Snyder, K., Barron-Gafford, G., **Cable, W.L.**, Huete, A., Huxman, T.E. 2005. Microbial Crust CO₂ Response to Precipitation on the Jornada Experimental Range. *Proc. Ecol. Soc. Am. 90th Annual Meeting*, Aug. 7-12, Montréal, Canada.
- Scott, R.L., **Cable, W.L.** 2004. The differential response of transpiration and bare-soil evaporation to precipitation in a Chihuahuan Desert shrubland. *Proc. 26th Conf. on Agric. and For. Meteorol., Am. Meteorol. Soc.*, Aug. 23-27, Vancouver, BC, Canada.
- Cable, W.L.**, Scott, R.L., Emmerich, W.E. 2004. Partitioning of evapotranspiration in a semiarid Chihuahuan desert scrubland. *Proc. Ecol. Soc. Am. 89th Annual Meeting*, Aug. 1-5, Portland, OR.
- Williams D.G., **Cable W.**, Hultine K., Hoedjes J.C.B., Yepez E.A., Simonneaux V., Er-Raki S., Boulet G., de Bruin H.A.R., Chehbouni A., Hartogensis O.K., and Timouk F. Components of evapotranspiration in an olive orchard determined by eddy covariance, sap flow and stable isotope techniques. SIBAE-BASIN conference, "partitioning fluxes between the biosphere across spatial scales" Interlaken Switzerland, April 2004.
- Cable, W.L.**, K.R. Hultine, D.G. Williams, and R.L. Scott. 2002. Transpiration by mesquite on a desert river floodplain. *Proc. Ecol. Soc. Am. 87th Annual Meeting*, Aug. 4-9, Tucson, AZ.
- Hultine, K.R., D.G. Williams, **W.L. Cable**, and S.S. Burgess. 2002. Hydraulic redistribution by deep roots of a Chihuahuan Desert phreatophyte. *Proc. Ecol. Soc. Am. 87th Annual Meeting*, Aug. 4-9, Tucson, AZ.
- Yepez-Gonzalez, E.A., P.Z. Ellsworth, **W.L. Cable**, K.R. Hultine, and D.G. Williams. 2002. Partitioning evapotranspiration fluxes and sources in desert floodplain ecosystems. *Proc. Ecol. Soc. Am. 87th Annual Meeting*, Aug. 4-9, Tucson, AZ.
- Hultine, K.R., D.G. Williams, **W.L. Cable**, and S.S. Burgess. 2001. Downward recharge through root systems: has the decline of walnut trees altered the hydrology of semi-arid riparian systems? *Eos Trans. AGU*, 82(47), Fall Meet. Suppl., Abstract H41I-04.
- Williams, D.G., R. Scott, G. Lin, D. Martens, E. Yepez, P. Ellsworth, **W. Cable**, J. van Haren, and D. Pierce. 2001. Seasonal dynamics of water, carbon, and energy fluxes in mesquite woodland: project overview and preliminary results. *Eos Trans. AGU*, 82(47), Fall Meet. Suppl., Abstract B41A-07.