Christine F. Waigl

Curriculum Vitae

March 19, 2018

Address: Geophysical Institute, University of Alaska Fairbanks
2156 Koyukuk Drive, Fairbanks, AK 99775
Phone: +1 (907) 699-9943
Email: cwaigl@alaska.edu
WWW: http://gi.alaska.edu/~cwaigl

Education

2017	Ph.D. in geophysics/remote sensing), University of Alaska Fairbanks (UAF)
1994	Diplom in physics (equiv. to MS), University of Heidelberg, Germany
1990	Intermediate exam in physics, University of Erlangen-Nuremberg, Germany

Professional experience

2011 - 2012	Research Professional 3, UAF: Atmospheric Radiation Measurement (ARM) project North Slope of Alaska site (operations and software development)
2010 - 2011	Client Solutions Engineer, Bazaarvoice Inc., London
2006 - 2010	Technology Operations Manager/Tech Support Lead, Epsilon, London, UK
2004 - 2006	Web developer and online producer, freelance, Paris, France

Research experience

2017, fall	Temporary Research Technician, UAF
2012 - 2016	Research Assistant, UAF
2000, summer	Research Intern (history of science), Musée Curie, France
1994 - 1995	Research Assistant (stochastic optimization), Chemnitz University of Technology, Germany
1990 - 1991	Student Assistant (stochastic optimization), IBM Institute for Supercomputing and Applied Mathematics, Heidelberg, Germany

Teaching experience

2013 - 2018	Guest lectures on fire remote sensing and ground-based visible and infrared spectroscopy, GEOS F422 (“Geoscience applications of remote sensing”), GEOS F458 (“Geoscience applications of GPS and GIS”), and GEOS F654 (“Visible and infrared remote sensing”), UAF
2016 - 2017	Teaching Assistant, GEOS F120 (“Earthquakes, glaciers, volcanoes”), UAF
2014 - 2017	Mentored student projects in UAF GEOS F422 (remote sensing) and independent study, UAF
2015, October	Co-taught R workshop (“Resource Selection Function”), UAF
2014, October	Co-taught GIS workshop to Alaska Dept. of Fish and Game, Juneau, Alaska
2014, March	University of the Arctic: course development “Arctic Natural Hazards”. Kick-off workshop Arkhangelsk, Russia
2013, August	Mentored two undergraduate research interns (USDA-GIS workshop), and co-taught workshops materials, UAF
2002 - 2004	Secondary school teacher, Ile-de-France school system, France
1992 - 1994	Teaching Assistant (calculus, linear algebra, physics), U Heidelberg, Germany

Awards and honors

2012 - 2016	NASA Earth and Space Science Fellowship
2014	UAF Center for Global Change/CIFAR Student Award Competition
2015	Earth Science Information Partners (ESIP) Federation Robert G. Raskin Scholarship
1988 - 1994	German National Merit Foundation (Studienstiftung des deutschen Volkes)
1988 - 1994	Scholarship for highly talented students of the state of Bavaria, Germany

Publications

PhD thesis

Waigl, C. F. (2017). *Satellite remote sensing of active wildfires in Alaska's boreal forest*. PhD thesis. Fairbanks, AK, USA: University of Alaska Fairbanks.

Peer-reviewed articles and book chapters

Starkenburg, D. P., Waigl, C. F., and R. Gens (2018). Chapter 3: Nurturing a Geospatially Empowered Next Generation. In: *Emerging Trends in Open Source Geographic Information Systems*. Ed. by N. N. Srivastava. in press, expected May 2018. IGI Global, p. 270. DOI: 10.4018/978-1-5225-5039-6.

Waigl, C. F., M. Stuefer, A. Prakash, and C. Ichoku (2017). Detecting high and low-intensity fires in Alaska using VIIRS I-band data: An improved operational approach for high latitudes. *Remote Sensing of Environment*, vol. 199, pp. 389–400. DOI: 10.1016/j.rse.2017.07.003.

Waigl, C. F., A. Prakash, A. Ferguson, and M. Stuefer (2015). Chapter 24 - Coal-Fire Hazard Mapping in High-Latitude Coal Basins: A Case Study from Interior Alaska. In: *Coal and Peat Fires: a Global Perspective*. Ed. by E. V. Sokol, G. B. Stracher, and A. Prakash. Vol. 3. Boston: Elsevier, pp. 633–649. DOI: 10.1016/B978-0-444-59509-6.00024-7.

Articles in preparation

Waigl, C. F., A. Prakash, and M. Stuefer (2018). *Sub-pixel fire characterization and sensitivity analysis with VIIRS I- and M-band data*. manuscript in preparation.

Waigl, C. F., A. Prakash, M. Stuefer, D. L. Verbyla, and P. E. Dennison (2018). *Fire detection and temperature retrieval using EO-1 Hyperion data over selected Alaskan boreal forest fires*. submitted to *International Journal of Applied Geoinformation and Remote Sensing*.

Published abstracts

Stuefer, M., Waigl, C. F., and C. K. Kim (2014). Alaska wildfire observations and near real-time emission modeling with WRF-Chem. In: *Proceedings of the International Smoke Symposium*. International Smoke Symposium. October 21-24, 2013, Hyattsville, Maryland.

Presentations and conferences

Conference talks

Waigl, C. F. (2017). Improved operational approaches to high- and low-intensity fire detection in Alaska using the VIIRS I-band Fire Detection Algorithm for High Latitudes (VIFDAHL). Talk presented at the workshop *Opportunities to Apply Remote Sensing in Boreal/Arctic Wildfire Management and Science*, Fairbanks, Alaska, April 5, 2017.

Waigl, C. F., A. Prakash, M. Stuefer, and C. M. Ichoku (2016). Using NPP-Suomi VIIRS I-band data to delineate high- and low-intensity burn areas for forest fires in interior Alaska. In: *AGU Fall Meeting Abstracts*. GC42C-02. Talk presented at the 2016 AGU Fall Meeting, San Francisco, CA.

Waigl, C. F. (2015). Data usability in the context of remote sensing data. Talk presented at the 2015 Summer Meeting of the Federation of Earth Science Information Partners (ESIP, Asilomar, CA, July 15, 2015.

Waigl, C. F., M. Stuefer, G. Grell, and A. Prakash (2013). Refining source input for wildfire emissions forecasts with remote sensing and modeling. Talk presented at the 2013 ARSC Weather Symposium, Fairbanks, AK.

Poster presentations

Prakash, A., M. Buchhorn, J. Cristobal, R. F. Kokaly, P. R. Graham, Waigl, C. F., D. L. Hampton, M. Werdon, N. Guldager, M. Bertram, and M. Stuefer (2015). Field-Based and Airborne Hyperspectral Imaging for Applied Research in the State of Alaska. In: *AGU Fall Meeting Abstracts*. GC23K-1233. Poster presented at the 2015 AUG Fall Meeting, San Francisco, CA.

Prakash, A., R. Gens, J. Cristobal, Waigl, C. F., M. S. Balazs, P. R. Graham, C. E. Butcher, and E. B. Sparrow (2015). Using Place-Based Independent Class Projects as a Means to Hone Research Skills and Prepare a Future Geospatial Workforce. In: *AGU Fall Meeting Abstracts*. ED22B-07. Poster presented at the 2015 AUG Fall Meeting, San Francisco, CA.

Waigl, C. F., A. Prakash, M. Stuefer, and P. E. Dennison (2014). Fire Characterization and Fire-Related Land Cover Classification Using Hyperion Data over Selected Alaskan Boreal Forest Fires. In: *AGU Fall Meeting Abstracts*. GC33D-0551. Poster presented at the 2014 AUG Fall Meeting, San Francisco, CA.

Gens, R., A. Prakash, G. Ozbay, S. Sriharan, M. S. Balazs, A. Chittambakkam, D. P. Starkenburg, Waigl, C., S. Cook, A. Ferguson, et al. (2013). A Prototype Two-tier Mentoring Program for Undergraduate Summer Interns from Minority-Serving Institutions at the University of Alaska Fairbanks. In: *AGU Fall Meeting Abstracts*. Vol. 1. ED43B-0768.

Waigl, C., M. Stuefer, and A. Prakash (2013). Remote sensing of Alaskan boreal forest fires at the pixel and sub-pixel level: multi-sensor approaches and sensitivity analysis. In: *AGU Fall Meeting Abstracts*. Vol. 1. B51H-0399. Poster presented at the 2013 AUG Fall Meeting, San Francisco, CA.

Waigl, C. F., M. Stuefer, B. Perkins, M. Ivey, J. Zirzow, W. Brower, J. Ivanoff, and C. Stuart (2012). NSA Corrective Maintenance Reporting: A Status Report. In: Poster presented at the ARM Science Team Meeting, Crystal City, VA, March 15, 2012.

Waigl, C., A. Prakash, and M. Stuefer (2012). Sub-pixel characterization of Alaskan boreal forest fires using medium-resolution satellite-borne infrared remote sensing. In: *AGU Fall Meeting Abstracts*. NH53A-1813. Poster presented at the 2012 AUG Fall Meeting, San Francisco, CA.

Outreach and volunteer contributions

2017, April 3-4	Member of the organizing committee of the NASA-funded workshop "Opportunities to Apply Remote Sensing in Boreal/Arctic Wildfire Management and Science" organized by the Alaska Fire Science Consortium, Fairbanks, Alaska
2015 - present	UAF GI portable planetarium: multiple presentations to K-8 students
2017, May	PyCon US, Portland, OR: "The Next Step: Finding Model Parameters With Random Walks"
2016, April	OpenVis Conference, Boston, MA: "Our Planet Seen from Space"
2015, April	PyCon US, Montréal, Canada: "Satellite Mapping for Everyone"
2014, September	Arctic AAAS, Fairbanks, AK: "The Arctic seen from space: enhancing STEM education with interactive learning"

Skills & interests

Wildfire remote sensing

- near real-time product generation for operational natural hazard management
- pre-fire conditions, active fire behavior, post-fire land cover change
- environmental change in the northern high latitudes

Remote sensing data processing

- satellite-based multispectral and hyperspectral data (advanced experience)
- aerial optical, hyperspectral and thermal infrared data (intermediate experience)
- SAR, passive microwave and LiDAR data (working knowledge)
- RS and GIS software (ENVI, ArcMap, ERDAS Imagine, MapReady, Agisoft, ENSO Mosaic) and custom-written code

Scientific software engineering

- Coding in Python, R (advanced experience); other languages: Matlab, JavaScript, IDL, NetCDF, Fortran90, C (working knowledge)
- software engineering tools and workflows (version control, issue tracking, requirements management, documentation, testing)

Data management

- scientific data storage and distribution formats
- data usability, reproducibility and open science

Field work

- Spectral Evolution PSR+ and ADS FieldSpec spectroradiometers

Languages

- German (native speaker)
- English (fluent spoken and written)
- French (fluent spoken and written)