Inter-university Training in Continental-scale Ecology (ITCE): Collaborations, Knowledge and Skills to Advance Spatial Ecosystem Science in the NEON Era

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http://itce.utah.edu

Educational and Training Products
• Recorded lectures available online, being parsed into 15-minute module segments for broader distribution
• Hands-on, step-by-step laboratory modules on both isotope ratio methods and spatial analysis methods
• Coming online with web-based modules for handling spatial data sets, isotope fractionation models, and isoscape mapping

Inter-university Training in Continental-scale Ecology (ITCE):

Project-based group projects for students in IsoCamp and SPATIAL Labs
• Student-developed, faculty lead projects related to isotopes and spatial processes
• 4-6 students work together as a team for data collection, analyses, and presentation
• Students exposed to latest analytical approaches, including full instrumentation access
• Students exposed to GIS approaches for data integration of data and pattern analyzes

Trainee Feedback:
• “The program helped me to refine my research framework...to think about ways to better understand various systems using isotopes.”
• “...one of the most memorable experiences of my education and training.”
• “This camp has helped me see my way forward through some grad student frustration. The instructors are not only great thinkers, a number of them make themselves approachable as mentors...Iso-Camp has provided me added confidence beyond learning skills in the lab, physics of IRMS, and in isotope basics.”

Research-in-residence training
• Offered to IsoCamp/SPATIAL students; ideas explored during/following short courses
• 1-3 month research opportunity in another lab with IsoCamp/SPATIAL mentor(s)
• Conduct new research to complement thesis research and add thesis chapter
• Broadens student exposures to research-mentoring networking at hosting institution
• Products are thesis chapters, publications, and presentations at national meetings

Postdoctoral training with two faculty mentors at different institutions
• Testing a new training approach with faculty co-advisers at different institutions
• Two-year, research-based postdoctoral training on spatially-relevant topics
• Postdocs are also actively engaged as co-instructors in IsoCamp/SPATIAL courses

ITCE postdoctoral trainees over the past two years:

Stephen Good, isotopes in hydrology from catchment to continental scales
Hannah vander Zanden, spatial analysis of migration using stable isotopes in marine mammals
Logan Mitchell, fine-scale analyses urban carbon dioxide concentrations across spatial and temporal dimensions

Jennifer Cotton, spatial analysis of sales and modern carbon isotopes in biomass reconstitute carbon
Daniel Mendoza, high-resolution database development and spatial modeling of emissions of carbon dioxide and pollutant gases at parcel scale in urban systems