Previous GEO 391 Class Projects – Fundamentals and Applications of ICP-MS

Fall 2016
- Determination of U-Pb and Pb-Pb ages of zircon using LA-ICP-Q-MS (Christian Baker – Geo/Geo Sci General)
- Determination of soil nutrient deposition and loss in fire effecting ecosystems (Sol Cooperdock – Geo Sci/Grad)
- Digestion and Dilution Method Comparison of Cell Samples for ICP-MS Analysis for Investigation of Native Metal Concentration (Audrey Fikes – Chem/Grad)
- Geochemical Characterization of Natural Waters at the Eel River Critical Zone Observatory by ICP-Q-MS (Katherine Meek – GeoSci/Grad)
- A Method for Elemental Analysis Including REE+ Y and Patterns in Carbonates Using ICP-Q-MS: A case study of basin water geochemistry using Permian shoreline deposits from West Texas and New Mexico (Ben Smith – Geo Sci/Grad)
- Assessing the Heterogeneity of Volcanic Ash Beds Through Trace Element Concentrations of Zircon Grains (Stephanie Suarez – Geo/Geo Sci General)
- Is there a genetic connection between copper sulfides and free-gold grains in the Ertsberg-Grasberg District, Papua, Indonesia? An LA-ICP-MS trace element analysis of copper sulfides in porphyry and skarn deposits (Kylie Wright – Geo Sci/Grad)

Fall 2015
- Trace and REE analysis of hydrothermal tourmaline (Nemazgh aplitic intrusion, NW Turkey), by LA-ICP-MS (Kimberly Aguilera – Geo/Geo Sci General)
- Element distribution in deformed amphiboles showing subgrain boundaries using LA-ICP-MS (Christian Black – Geo/Geo Sci General)
- Geochemical analysis of wetland soils near the Maya site of Akab Mukil, Belize by ICP-MS (Samantha Krause – Anthropology/Grad)
- Element distribution through a fault-related pseudotachylyte vein using LA-ICP-MS (Daniel Ortega-Arroyo – Geo/Geo Sci General)
- Water chemistry in an active volcanic zone: ICP-MS analysis of the Jökulsá á Fjöllum Watershed, Eastern Iceland (Greta Wells – Anthropology/Grad)

Fall 2014
• Determination of metal binding properties of proteins by ICP-MS (Christopher Crittenden – Chemistry/Grad)

• Characterization of fluid-rock interactions by analyzing Li, B, Sr, Ba and Rb using ICP-MS (Rebecca deGraffenried – Geo/Geo Sci General)

• ICP-MS for measuring gadolinium in wastewater treatment plant effluent (Curtis Feronti – Environmental and Water Resources Engineering/Grad)

• Investigation of dissolution in Late Holocene planktonic foraminifer utilizing trace metals (Victoria Fortiz – Geo/Geo Sci General)

• Characterization of otolith Sr/Ca and Ba/Ca in a commercially important fish species (Cynoscion othonopterus) from the Gulf of California (Erin Reed – Marine Science/Grad)

• Trace and REE measurement and detection in biotite: LA-ICP-MS study on thin sections, Menghai granite batholith, SW China (Enrique Reyes – Geo/Geo Sci General)

• Slipping through the cracks: using LA-ICP-MS to determine trace element concentrations (Mn and REEs) as proxies for fluid source and evolution in fractured carbonates from the North Anatolian Fault, Turkey (Colin Sturrock – Geo Sci/Plan II Honors)


• An examination of ancient Mayan ceramic specialization through LA-ICP-MS (Angelina Sweeney – Anthropology/Grad)

Fall 2013

• Seasonal temperature reconstruction using trace-element values of a stalagmite (Richard Casteel – Geo Sci/Grad)


• Spatial constraints on rare earth and high field strength elements in Alpine serpentinites: Progress on a LA-ICP-MS method to quantitatively measure concentrations in magnetite and chromite (Emily Goldstein – Geo Sci/Grad)

• Trace elements in plate calcite by solution mode and laser ablation ICP-MS (Rosemary Hatch)

• Characterizing Guam groundwater composition using geochemical data from and ICP-MS (Michelle Hulewicz – Geo Sci/Grad)

• A new method for concentrating fresh to slightly-brackish acid mine drainage (AMD) for ICP-MS analysis of rare earth elements (REEs) (L. Joy Mercier– Geo Sci/Grad)

• Identifying spatial heterogeneity in the elemental concentration of Early Jurassic dinosaur bones: Implications for the direct radiometric dating of fossil bone (Adam Marsh– Geo Sci/Grad)

• Use of trace elements for establishing least-altered Neoproterozoic carbonate compositions in the Kahar Formation, Northern Iran (Riken Patel– Geo/Geo Sci General)

• Geochemical tracers and stable isotope analysis of scales reveal variation in diadromy in Atlantic Tarpon Megalops atlanticus (Matthew Seeley– Marine Sci/Grad)


Fall 2011

• U-Pb and Lu-Hf zircon geochronology and Ti-in-zircon thermometry of the Salta Rift basement, Argentina (Mariya Levina– Geo Sci/Grad)

• Analytical comparison of relative ages of detrital zircons using zircon standards of drastically different ages (Caleb Rhatigan– Geo Sci/Grad)
• Improved methods of laser ablation ICP-MS for apatite: determining uranium content for fission-track chronometry (Sean Sanquinito – Geo Sci/Grad)
• Rare earth element analysis of zircon by LA-Q-ICP-MS (Spencer Seaman – Geo Sci/Grad)
• Can a trend for cationic tracers of urbanization be established corresponding to a watershed experiencing outdoor watering regulations? A study examining Cu, Ni and Pb via ICP-Q-MS (Jeff Senison – Geo Sci/Grad)

Summer 2011
• What do rare earth element distributions in pelagic and hemipelagic sequences reveal about deposition and diagenesis? (Ryan Cahalan – Geo/ Geo Sci/ Honors program)