Previous GEO 392F/343Q Class Projects – Fundamentals and Applications of ICP-MS

*Affiliated abstracts and publications

Fall 2019
- Investigating Yttrium and REE Zonation in Garnets Adjacent to diffusive Accessory Minerals using LA-ICP-MS (Daniel Campos – GeoSci/Undergrad)
- When do standards actually expire? Developing a method to determine elemental concentrations of expired vs unexpired multi-element standards in ICP-MS (Heather Gunn – GeoSci/Undergrad)
- Method for Optimizing ICP-MS Analysis of Trace Elements and Calcium in Carbonates (Tyler Logie – GeoSci/Undergrad)
- LA-ICP-MS method for determining the redox state of zircons by U/Ce isobarometry (Paul Redman – GeoSci/Grad)
- Application of LA-ICP-MS method to study taphonomy of Early Jurassic fishes from Strawberry Bank Formation, UK (Sinjini Sinha – GeoSci/Grad)
- A Method for Multi-Element Soil Analysis Through Microwave Digestion and Inductively Coupled Plasma Mass Spectrometry (Byron Smith – Geography/Grad)

Fall 2018
- A method for analysis of hornblende amphibole in andesite from the Rumiqolqa Formation, Perú (Julia Earle – Anthropology/Grad)
- 2D trace element mapping of garnet by LA-ICP-MS: A new method toward enhanced petrochronology (Thomas Etzel – GeoSci/Grad)
- Sediment mixing in modern eolian environments with detrital circon U-Pb geochronology and detrital feldspar REE geochemistry using LA-ICP-MS (Jaime Hirtz – GeoSci General)
- Trace element variations in cement and allochems of Pleistocene and Tertiary carbonate deposits, Little Cayman Island, Cayman Islands (Scarlette Hsia – GeoSci/Grad)
- A method for obtaining rare earth element concentrations in a speleothem and evaluating oxide correction in solution-mode ICP-MS (Hunter Manlove – GeoSci/Grad)
- Chemical characterization of Mendoza ceramics from Central Panama by ICP-MS and LA-ICP-MS (Ana María Navas Méndez – Anthropology/Grad)
- Using rare earth elements in clinopyroxenes of an ophiolite suite located in Dobsina, Slovakia (Gabriel Villasenor – GeoSci General)

Fall 2017
- Method to analyze REE, HFSE, LILE and U-Th-Pb in acid leached minerals from the pore network of polycrystalline diamond aggregates – Carbonado (Scott Eckley – GeoSci/Grad)
- LA-ICP-MS method to precisely determine elemental concentrations of Buchia bivalve and belemnite fossil from the Jurassic-Cretaceous boundary section of Grindstone Creek, California (James Hall – Geo/Geo Sci General)
- Evaluation of Pt, Pd and Rh in particulate matter and urban dust from high traffic avenues in the Monterey Metropolitan Area, Mexico (Susana Hinojosa – Grad/visiting scholar)
- Microwave-assisted quantification of Pd and Au in Pd_Au_{100-x} alloy nanoparticle-based heterogeneous catalysts using ICP-MS (Pranaw Kunal – Chem/Grad)
- Analysis of Red River Saline Water by ICP-MS (Jorge Luna – Geo/Geo Sci General)
- An ICP-MS Method to Tentatively Identify Meteoritic Contamination in a Potential Distal Impact Layer in the Arbuckle Anticline, Oklahoma, USA (Andrew Parisi - GeoSci/Grad)
• A Provenience Study of Terminal Classic and Post-Classic Ceramics from the Maya Site of Colha Using LA-ICP-MS (Sheldon Smith – LA/ Anthropology)
• Laser Ablation ICPMS Study of Trace Element Geochemistry in Molybdenite, Cave Peak Porphyry Mo Deposit (Mert Ugurhan - GeoSci/Grad)

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)

• 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)

• (Stephanie Suarez – Geo/Geo Sci General)

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 Muklil, 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 Feroni – 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)