Stable Isotope Workshop
September 21st – 23rd 2023

DAY 1: Thursday September 21st - Bosque School
Where: Fontana Lab in the Peru Science Building

8:15–8:45  Introductions and Workshop Overview (Snacks)

8:45–9:30  Isotope Overview (Seth Newsome):
• Stoichiometry, Isotope Definitions, and Fractionation

9:30–10:00 Carbon Isotopes in Plants (Emma Elliott Smith):
• Photosynthesis: On Land (C₃/C₄) and In Water (Algae)

10:00–10:30 Carbon Isotopes in Animals (Joshua Cortez):
• Trophic Discrimination and Isotopic Incorporation

10:30–10:45  BREAK

10:45–11:15 Nitrogen Isotopes in Plants and Microbes (Rachel Seddon):
• Sources, Chemical Transformations, and Fractionations

11:15–11:45 Nitrogen Isotopes in Animals (Emma Elliott Smith):
• Trophic Discrimination and Isotopic Incorporation

11:45–12:00  Group Project Overview (ALL)

12:00–1:00  LUNCH

1:00–1:30  Experimental Design (Alana Robinson):

1:30–1:45  Field Preparation (Groups with Group Leaders)

1:45–3:45  Bosque Field Sampling (Groups with Group Leaders):
• Sample Collection and Field Preservation (divide into 3 groups)
• Protein-based: 15-20 samples/group; Plants: 10 samples/group

3:45–4:00  Summary and Tomorrow Preview
**DAY 2: Friday September 22\textsuperscript{nd} - University of New Mexico**

*Where*: PAIS Main (West) Entrance

- **8:00–9:00** Overview and Isotope Ratio Mass Spectrometry (SDN)
- **8:30–10:30** Lab Sample Preparation/CSI (Bench Top Stations)
  - 4 Stations: EA-IRMS, Homogenization, Weighing, Lipid Extraction/Wash
- **10:30–10:45** BREAK
- **10:45–12:00** Project Sample Preparation (Groups with Group Leaders)
- **12:00–1:00** LUNCH
- **1:00–1:30** Hydrogen and Oxygen Isotopes in Water (Seth Newsome):
  - Isoscapes: Rayleigh Distillation, Latitude, Altitude, and Distance
- **1:30–3:45** Project Sample Preparation (Groups with Group Leaders)
- **3:45–4:00** Summary and Tomorrow Preview

**DAY 3: Saturday September 23\textsuperscript{rd} - University of New Mexico**

*Where*: PAIS Main (West) Entrance

- **9:00–9:15** Review and Overview (ALL)
- **9:15–9:45** Visualizing Isotope Data (Busquets Vass):
  - Manipulating Data in Excel
  - Isotopic Space: Carbon versus Nitrogen Biplots
  - Plotting Your Data
- **9:45–10:30** Group Projects (Manipulate Data and Create Figures)
- **10:30–10:45** BREAK
- **10:45–1:00** Group Projects (Create Figures and Presentations)
- **1:00–2:30** LUNCH and Group Presentations (Brown Bag Style)
- **2:30–3:30** Summary and Future Projects