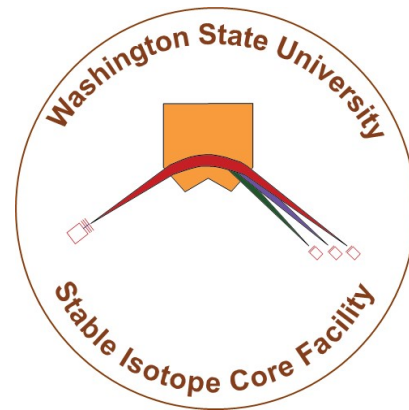




Stable Isotope Core Facility

College of Arts and Sciences

Eastlick Hall 364-368



Established in 2004, the SICF provides methods development and innovation in the area of stable isotope analyses for WSU scientists and researchers across the globe. The Facility also provides unique research training for our students through courses and other opportunities that provide hands-on use.

isotopes.wsu.edu
509-335-6154

Contact information

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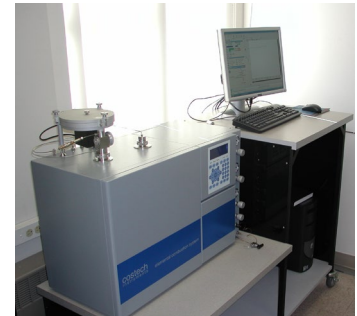
Ben Harlow, Manager
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Equipment

- Five Thermo-Electron stable isotope ratio mass spectrometers
- One Thermo DSQ quadrupole mass spectrometer
- Three CNS elemental analyzers
- Two high-temperature HO elemental analyzers
- Three gas chromatographs
- Two gas analyzers
- One hydrogen analyzer
- Full microbalance and sample prep lab

Capabilities: Elemental Analysis

- Carbon, nitrogen, oxygen, hydrogen and sulfur content (%) of solids and liquids for any study requiring elemental composition
- Stable isotope ratios of CNOHS serve as **natural tracers**, gaining insights to origins of materials and the physiological or chemical processes impacting them.
- forage quality, drought tolerance, water use efficiency, nutrient use, water sources, migration, identify sources of pollution, food webs, paleoclimate, paleodiet, biofuel creation, forensics,





Costech 4010 elemental analyzer configured for CN or S quantification
Thermo Pyrolysis elemental analyzer for H or O quantification

Gas and liquid analysis

- Pure gasses and mixtures, CO₂, CH₄, N₂, H₂, O₂, N₂O
- Isotopomer and secondary fragment analysis
- Carbonate digestion
- NO₃ in waters through bacterial reduction
- Water sources, utilization and movement
- Sources of pollution
- Distinguish between atmospheric and terrestrial gasses

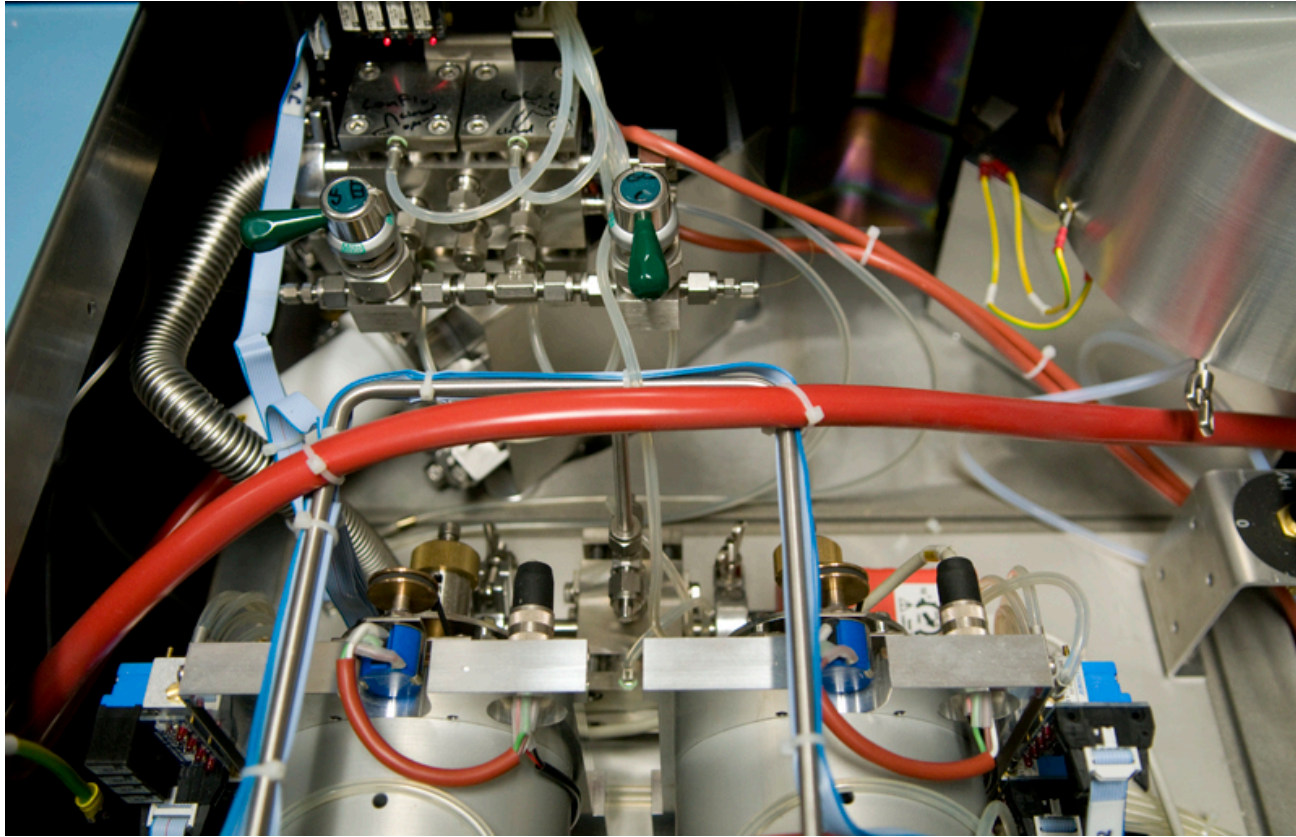


Compound specific isotope analyses and compound identification

- Quadrupole mass spectrometer for compound identification and methods development
- Stable isotope ratios of individual compounds including alkanes, carbohydrates, lipids, fatty acids, amino acids
- Develop additional GC-MS techniques for stable isotope studies



Thermo DSQII Gas Chromatograph with single quadrupole mass spectrometer



Isotope Ratio Mass Spectrometer with dual inlet for analysis of pure gasses



Modified Thermo Gas bench for nitrates, trace atmospheric gasses, N₂O, N₂O isotopomers, and GC for compound specific stable isotope analysis

Teaching, Training and Hands-on experiences

- Courses in biology, natural resources and anthropology make use of facilities
- Undergraduate research projects and internships
- Dedicated EA-IRMS and gas bench for student use
- Hands-on training and method shadowing available
- Reduced rates for users who take part in processing
- Sample processing facilities; drying ovens, Retsch MM400 mixer mill, wiley mill, microbalance, solvent extraction

