

Geology of Mountains & Basins Research

Forest Inventory and Analysis

- **Dr. Brenda J Buck**
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- Department of Geoscience
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Expertise

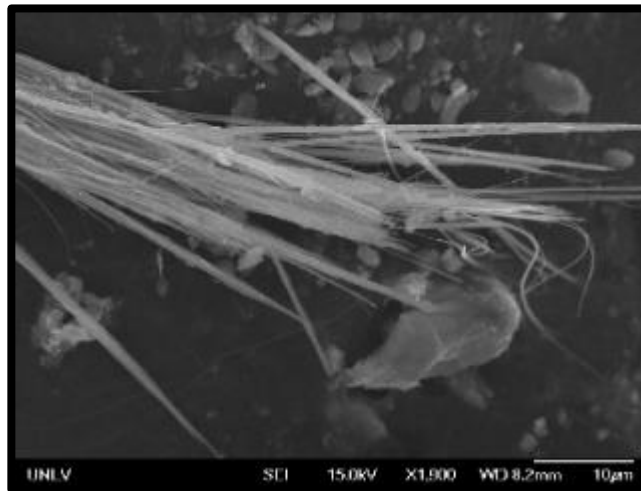
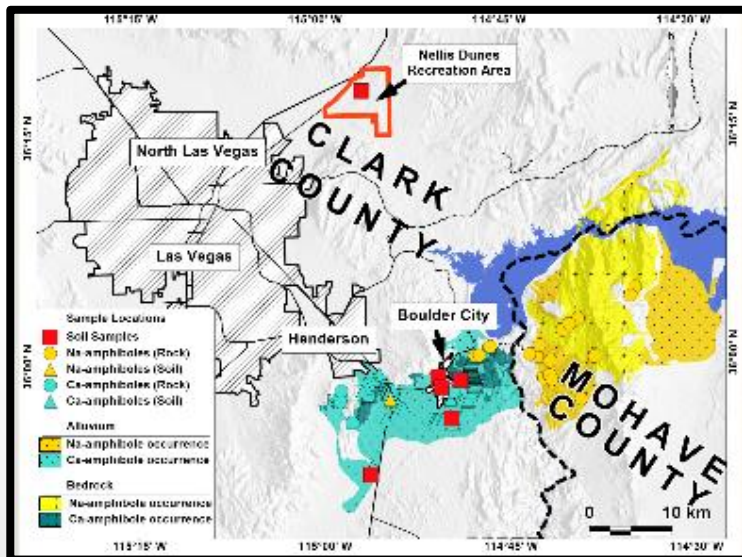
- University partner to USDA-FIA. Area of emphasis is information management research and development to optimize the storage, delivery, and display of forest inventory data.
- The support we provide helps policy makers, land stewards and non-governmental groups base decisions and assessments related to the health, diversity, and productivity of U.S. forests and grasslands on scientifically credible information.

Medical Geology

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Expertise

- Expertise: Health effects of mineral dust; Asbestos; Heavy Metals; Soil Science/Geology



Sedimentary Geology

Dr. Ganqing Jiang

Professor

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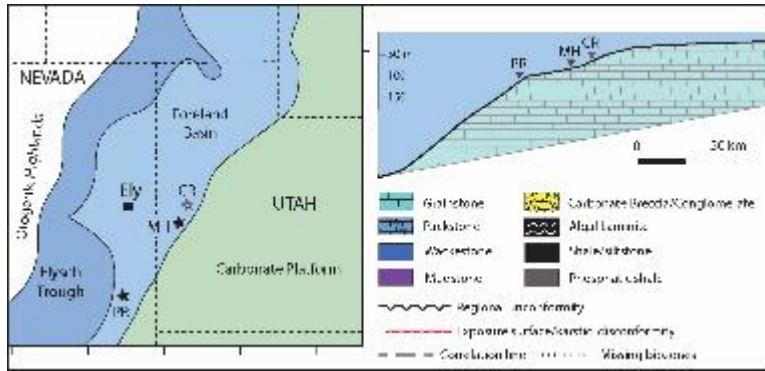
Email: Ganqing.Jiang@unlv.edu

Expertise:

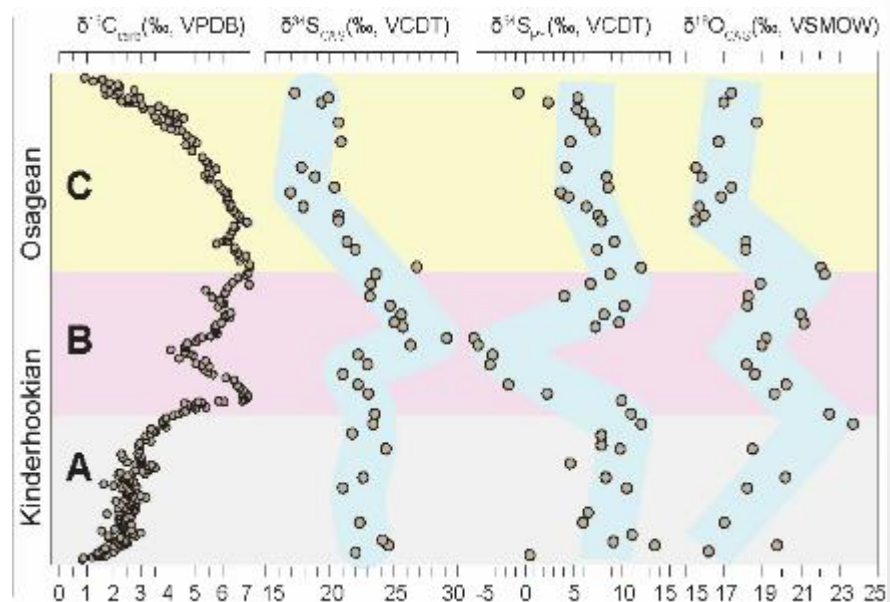
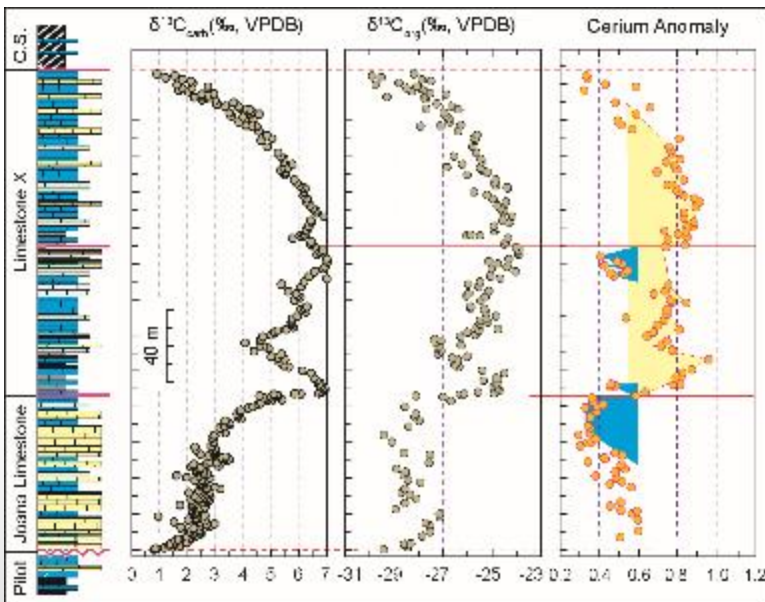
Sequence and chemostratigraphy

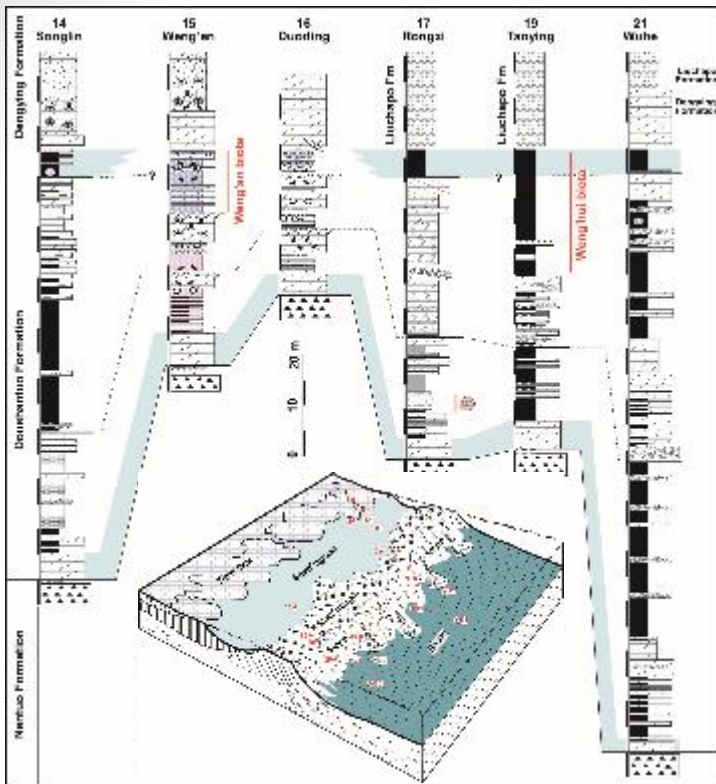
sedimentology

Carbonate diagenesis

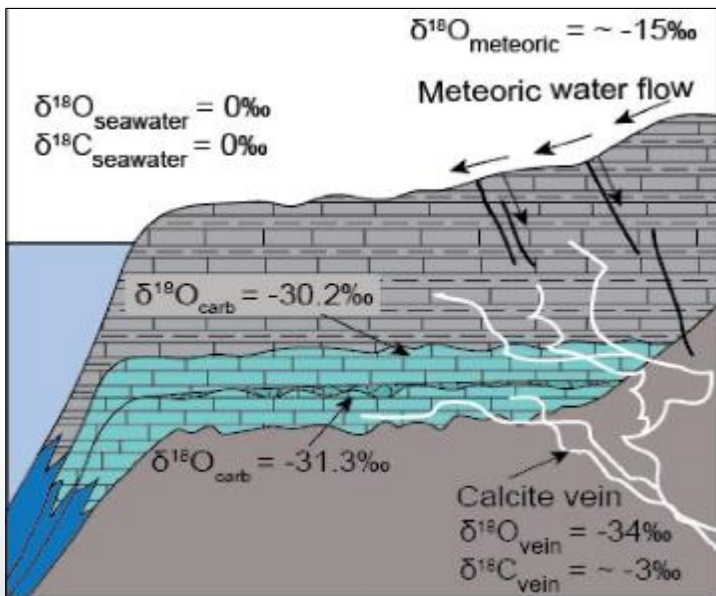


- Sequence and chemostratigraphy
- Paleogeographic reconstruction
- Applications of stable isotopes and rare earth elements
- Paleoenvironmental change across major perturbations of the carbon cycle and mass extinctions





- Basin analyses and paleoceanography
- Fluid migration and carbonate diagenesis
- Tracing fluid migration in sedimentary basins using stable isotopes and trace elements
- Carbonate aquifer



Kiel IV

Delta V Plus

TC/EA

EA

Hydrology

Dr. Michael Nicholl

Department of Geoscience

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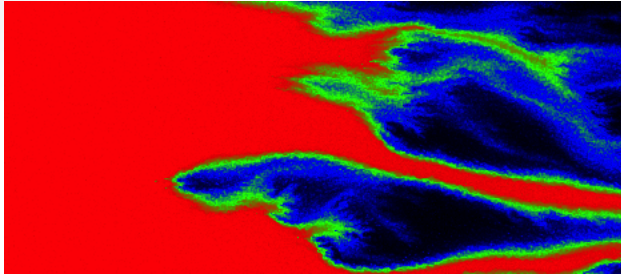
Expertise:

Unsaturated zone hydrology

Fractured rock hydrology

Environmental fluid mechanics

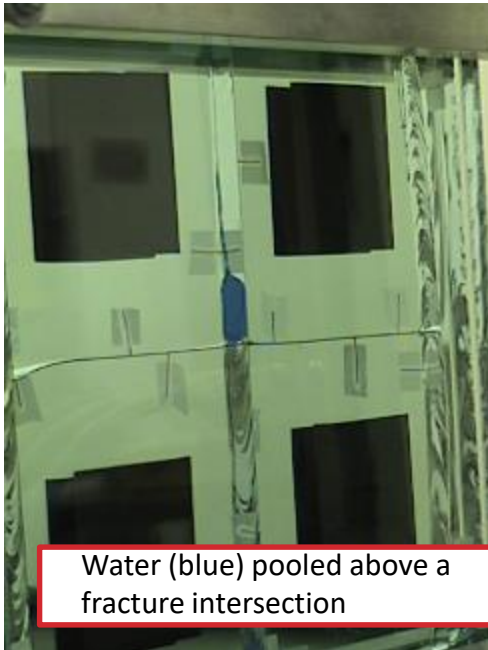
Fractured Rock Hydrology



False color image of a miscible displacement experiment in a single fracture



Field mapping of fracture networks
blue dye (right foreground) is from an infiltration test



Water (blue) pooled above a fracture intersection



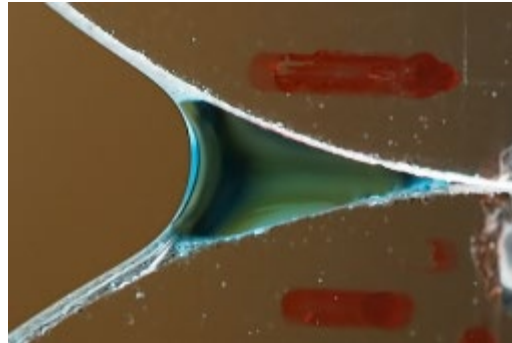
Isothermal flow across a single rock fracture (matrix-to-matrix flow)

- ❑ Two-phase flow and transport in fractured rock
- ❑ Laboratory experimentation, field mapping, numerical simulations
- ❑ Contaminant transport, geothermal energy, enhanced petroleum recovery

Unsaturated Porous Media



Seepage through gravel-sized capillary barrier materials



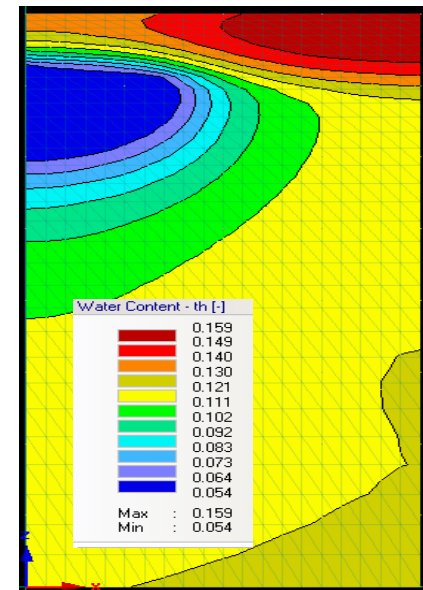
Millimeter-scale transport experiment



Hydraulic conductivity of a rock slab



Sampling Chloride as a proxy for root-driven horizontal flow



2D simulation of root-driven transport

- ❑ Challenging existing conceptual models for unsaturated and two-phase flow
- ❑ Design and execution of critical laboratory/field/numerical experiments