Basement Influences on Cenozoic Ancestral Cascades Arc Volcanic Rock Isotopic Compositions in Northeastern Nevada, USA

## Brian Cousens, Martina Boddy, Annabel Kabore





Christopher Hern







3

Sample locations in Ancestral Cascades arc in northern Nevada



- Evaluate the petrogenesis of volcanic fields and caldera complexes in Cenozoic "Ancestral Cascades" continental arc across northern Nevada
- Determine magma sources for mafic through felsic volcanic rocks
- Investigate if the volcanic rocks record an influence from basement of varying age, as proposed for plutonic rocks
- Better define the Archean-Proterozoic basement boundary in northeastern Nevada using metaluminous igneous rocks

## Northeastern Nevada Cenozoic Arc Rocks

4





Radiogenic Isotopes





## Summary

8

- Ancestral Cascades arc volcanic rocks in eastern California and northern Nevada heavily influenced by basement age and composition
- Volcanic rocks emplaced through Archean Wyoming craton exhibit distinctive Pb isotope ratios, similar to southern Wyoming craton young lamproites from Leucite Hills
- Wyoming (Grouse Creek) isotope signature begins south of Pequop/East Humboldt, south of Twin Buttes, then turns north east of Swales Mountain and the Tuscarora volcanic region

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Thanks for listening!

Stone structure, East Range, NW Nevada