



## 162-9 - DEPOSITIONAL AGE AND PROVENANCE OF THE GREAT VALLEY FOREARC BASIN EXAMINED THROUGH U-PB GEOCHRONOLOGY, WILBUR HOT SPRINGS AND LYNCH CANYON, NORTHERN CALIFORNIA

 Tuesday, October 12, 2021

 9:00 AM - 1:00 PM

 *Oregon Convention Center - Exhibit Hall A*

**Booth No. 121**

### Abstract

The Great Valley Forearc (GVF) is a well-preserved onshore ancient forearc basin located in California (USA). Initiation of forearc basins and the age relationship between underlying basement and forearc sediments in the GVF can be better understood through geochronology. Seven sandstones samples ( $n = 2100$ ) and two igneous samples ( $n = 100$ ) from the Lynch Canyon and Wilbur Hot Springs localities were collected for U-Pb dating and comparison to existing geochronologic data from the GVF. Preliminary provenance results from sandstones collected from the GVF immediately above the underlying basement in the western part of the basin, collectively referred to as the Coast Range Ophiolite (CRO), or in contact with serpentinite diapirs show major age peaks at  $\sim 1400$  Ma,  $\sim 1100$  Ma,  $\sim 480$  Ma,  $\sim 300$  Ma, and  $\sim 145$  Ma. These age populations imply that there were sources of sediment from intercontinental North America flowing westward into the GVF during the early stages of deposition, in addition to the well-documented proximal sources of the Sierra Nevada-Klamath magmatic arcs. Preliminary maximum depositional ages (MDAs) range from Late Jurassic to Lower Cretaceous, with some straddling the J-K boundary at  $\sim 145$  Ma. MDAs change along strike in the GVF, which implies diachronous deposition of sediment in the basal GVF. Collection of U-Pb data from the CRO and neighboring serpentinite diapirs that intrude the basal GVF are ongoing and will be compared to the age spectra of GVF sandstones. These data aid in understanding the relationship between basal GVF sediments and the underlying basement, and support field observations as to where the contact between the two is a depositional unconformity with significant time missing or a fault that omits parts of the basal GVF.

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**ROMERO, Mariah** and **ORME, Devon**, Department of Earth Sciences, Montana State University, Bozeman, MT 59717

#### PROVENANCE AND DEPOSITIONAL AGE ANALYSIS OF THE BASAL GREAT VALLEY FOREARC IN NORTHERN CALIFORNIA USING DETRITAL AND IGNEOUS ZIRCON U-PB GEOCHRONOLOGY

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## THE RELATIONSHIP BETWEEN THE FORMATION AND EVOLUTION OF THE COAST RANGE OPHIOLITE AND GREAT VALLEY FOREARC, NORTHERN AND CENTRAL CALIFORNIA

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