

CHARACTERIZATION AND ANALYSIS OF A POTENTIAL HIDDEN GEOTHERMAL RESOURCE IN THE JERSEY SUMMIT AREA, NORTH-CENTRAL, NEVADA

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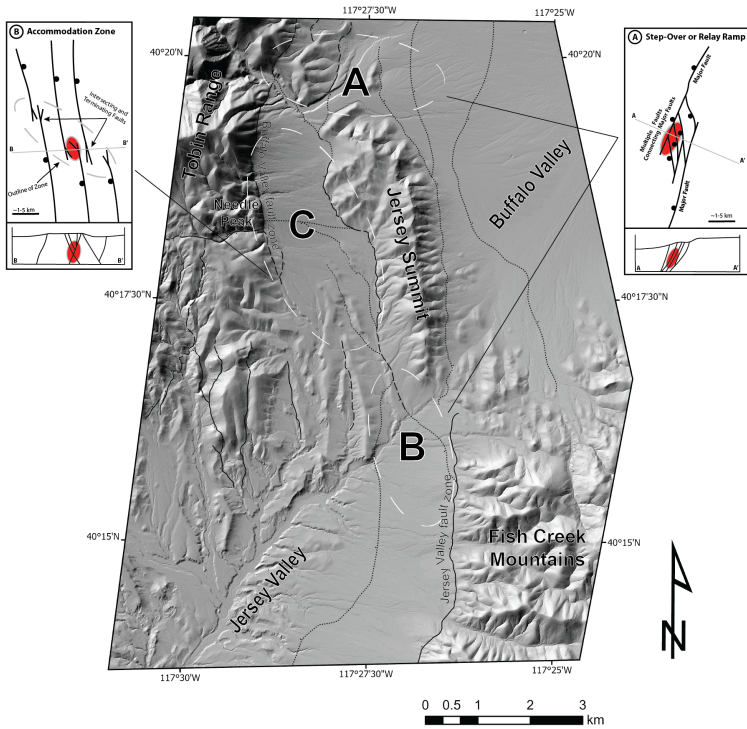
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The Great Basin region (GBR) in western North America has substantial geothermal resource potential due to its favorable tectonic setting; however, most of the geothermal systems in this region are hidden, with no surface manifestations such as hot springs or steam vents. For this study, we aim to better characterize hidden geothermal systems in the GBR using detailed structural analyses of designated field sites. Here, we focus on the Jersey Summit area in north-central Nevada. This site has been identified as having high potential for a hidden system based on the presence of a major Quaternary accommodation zone between the southward terminating, east-dipping Buffalo Valley normal fault zone and northward terminating, west-dipping Jersey Valley normal fault zone. Our objectives are to integrate multiple geological, and geophysical datasets to establish the stratigraphic and structural framework of the Jersey Summit area, delineate the geometry and kinematics of the Quaternary fault systems, identify particularly favorable structural, define locations of thermal anomalies, and assign the most favorable targets for future temperature gradient drilling. Detailed geologic mapping, geophysical potential fields surveys (i.e., gravity, magnetic, and magnetotelluric), structural analysis, and shallow 2-m temperature surveys were employed to identify the most highly prospective areas. These data suggest two particularly promising areas: 1) a broad left step-over in the southern part of the Buffalo Valley fault zone, and 2) a complex fault intersection between terminating strands of both the Buffalo Valley and Jersey Valley fault zones as well as a major east-striking, down-to-the south fault that transects the Tobin Range and projects into the accommodation zone.

Note: Figure is on the next page.





Normal Fault Solid where certain, dashed where approximately located, dotted where concealed; queried if identity or existence uncertain. Ball on downthrown side.

