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Seismic Characterization of Fractured Reservoirs

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We present rock physics analyses for the San Andres carbonate reservoir, the Yates Field, with the objective of understanding how reservoir heterogeneities and fractures impact the seismic response. We evaluated the reflectivity and impedance contrast of the reservoir rock as a function of wave frequency. The normal fracture-specific stiffness is proposed to be a function of air injection into the sample. The approach is used to characterize fractured rock using seismic waves in fractured rock.

Preliminary Fracture Model for The SE Geysers Geothermal Reservoir

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In this work we present a model for the interpretation of steam entry points, seismic, shear-wave splitting, geologic structure, and thermal properties of the geothermal reservoir of the Southeast Geysers reservoir in an attempt to improve the interpretability of wellbore data obtained within the reservoir. The Geysers is a dry steam field located approximately 140 km NW of San Francisco in Sonoma and Lake Counties in northern California. We assume a model of anisotropic media having three-dimensional coordinates of wells and observations of steam entry encountered during drilling in conjunction with the construction of the field. The interpretations of fractures from shear-wave splitting, geologic interpretation and wellbore data are used to evaluate the reservoir.

We are interested in analyzing the fault, fracture, or wellbore data obtained at the reservoir level. Clearly, the information gathered on faults or fractures is very important as it permits to optimize the reservoir development. However, the presence of fractures or faults results in the complications on the reservoir description. In this work we present a model for the interpretation of steam entry points, seismic, shear-wave splitting, geologic structure, and thermal properties of the reservoir of the Southeast Geysers reservoir in an attempt to improve the interpretability of wellbore data obtained within the reservoir.