

USC CENTER FOR GEOTHERMAL STUDIES (CGS)
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Presents

**Influence of Geomechanics on the development of
unconventional reservoirs**

By

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ABSTRACT:

Enhancement of permeability is one of the key factors in unconventional geothermal and hydrocarbon reservoirs and the mechanism used for this important to understand. Up until 1980, the key mechanism put forward for enhancing the in-situ permeability was hydrofracking and the use of proppant. Since then shearing of natural joints, favorably aligned with the principal stresses of the local stress field is recognized as an important mechanism for enhancement of permeability. In-situ stress/geo-mechanics has a strong influence on the direction of the growth of artificially created reservoir. Examples are shown on how geo-mechanics affects the development and characteristic of artificial reservoirs. Additionally, the progress of the enhancement of permeability (stimulation) by the shearing process can be tracked using a microcosmic system in real time.

BIO:

Roy Baria is a geophysicist by profession. He is the technical director and founding member of EGS Energy Ltd. He started work on Engineered Geothermal Systems (EGS) in 1976 and has continued working on the development of this technology to date.

He was the deputy director of the UK's EGS project in Cornwall (1976-1990) before joining the European EGS program at Soultz, France as Scientist in Charge and program coordinator (1990- 2005). In 2005 he founded Mil-Tech U.K. Ltd. He is a consultant/advisor on the EGS and associated technologies to various governments/organizations in Europe, the United States, and the Far East. He is a director of Hot Dry Rock Pty Ltd, Australia and was Vice President (Science and Technology) at

AltaRock Energy, Inc. in the USA until early 2010. He was also one of the authors in the MIT report on Geothermal Development in the US, and he is also involved in the International Energy Agency's, Geothermal Implementing Agreement and International Panel on Climate Change.



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