

## Pierre Jeanne

Earth Sciences Division, Lawrence Berkeley National Laboratory (LBNL), Berkeley, CA 94720

Phone: (510) 486-6261, email: [pjeanne@lbl.gov](mailto:pjeanne@lbl.gov)

### EDUCATION AND PROFESSIONAL EXPERIENCE

2012–present: Lawrence Berkeley National Laboratory, postdoctoral fellow.

2008- 2012: University of Nice-Sophia Antipolis, France. Ph.D in Earth sciences entitled: ‘*Architectural, petrophysical and hydromechanical properties of fault zones in fractured-porous rocks: compared studies of a moderate and mature fault zones (France)*’.

2006-2008: University of Nice-Sophia Antipolis, France. Master in System dynamics and geological hazards.

### JOURNAL PUBLICATIONS

**Jeanne, P.**, Rutqvist, J., Hutchings, L., Singh, A., Dobson, P.F., Walters, M., Hartline, C., Garcia, J. **2015**. Degradation of the mechanical properties imaged by seismic tomography during an EGS creation at The Geysers (California) and geomechanical modeling. *Physics of the Earth and Planetary Interiors* 240, 82–94.

**Jeanne, P.**, Rutqvist, J., Hartline, C., Garcia, J., Dobson, P.F., Walters, M. **2014**. Reservoir structure and properties from geomechanical modeling and microseismicity analyses associated with an Enhanced Geothermal System at The Geysers, California. *Geothermics*, 51, 460–469.

**Jeanne, P.**, Rutqvist, J., Vasco, D., Garcia, J., Dobson, P.F., Walters, M., Hartline, C., Borgia, A. **2014**. A 3D Hydrogeological and Geomechanical Model of an Enhanced Geothermal System at The Geysers, California. *Geothermics*, 51, 240–252.

**Jeanne, P.**, Rutqvist, J., Dobson, P.F., Garcia, J., Walters, M., Hartline, C. **2014**. The Impacts of Mechanical Stress Transfers Caused by Hydromechanical and Thermal Processes on Fault Stability During Hydraulic Stimulation in a Deep Geothermal Reservoir. *Int. J. Rock Mech. Min. Sci.* 72, 149–163.

**Jeanne, P.**, Guglielmi, Y., Cappa, F., Rinaldi, P.A., Rutqvist, J. **2014**. The effects of lateral property variations on fault-zone reactivation by fluid pressurization: Application to CO<sub>2</sub> pressurization effects within major and undetected fault zones. *Journal of Structural Geology* 62. 97-108.

Rinaldi, P.A., **Jeanne, P.**, Rutqvist, J., Cappa, F., Guglielmi, Y. **2014**. Effects of fault-zone architecture on earthquake magnitude and gas leakage related to CO<sub>2</sub> injection in a multi-layered sedimentary system. *Greenhouse Gas Sci Technol.* 1–22; DOI: 10.1002/gghg.

**Jeanne, P.**, Guglielmi, Y., Cappa, F. **2013**. Dissimilar properties within a carbonate-reservoir’s small fault zone, and their impact on the pressurization and leakage associated with CO<sub>2</sub> injection, *Journal of Structural Geology* 47 (2013) 25e35.

**Jeanne, P.**, Guglielmi, Y., Cappa, F. **2013**. Hydromechanical heterogeneities of a mature fault zone: Impacts on fluid flow. *Groundwater Journal*, doi: 10.1111/gwat.12017.

- Rutqvist, J., Dobson, P.F., Garcia, J., Hartline, C., **Jeanne, P.**, Oldenburg, C.M., Vasco, D.W., Walters, M. **2013**. The Northwest Geysers EGS demonstration project, California: Pre-stimulation modeling and interpretation of the stimulation. *Mathematical Geosciences*, DOI 10.1007/s11004-013-9493-y.
- Jeanne, P.**, Guglielmi, Y., Cappa, F. **2012**. Multiscale seismic signature of a small fault zone in a carbonate reservoir: Relationships between VP imaging, fault zone architecture and cohesion, *Tectonophysics* (2012), doi:10.1016/j.tecto.2012.05.012.
- Jeanne, P.**, Guglielmi, Y., Lamarche, J., Cappa, F., Marié, L. **2012**. Architectural characteristics and petrophysical properties evolution of a slip fault zone affecting fractured porous carbonate layers. *J. Struct. Geol.* Doi:10.1016/j.jsg.2012.08.016.

## **JOURNAL PUBLICATIONS ACTUALLY SUBMITTED**

- Jeanne, P.**, Rutqvist, J., Rinaldi, A.P., Dobson, P.F., Garcia, J., Walters, M., Hartline, C. Seismic and Aseismic Deformations and Impact on Reservoir Permeability: The Case of EGS Stimulation at The Geysers, California, USA. (Submitted to *Journal of Geophysical Research - Solid Earth*, 2015).
- Rutqvist J., **Jeanne P.**, Dobson P.F., Garcia J., Hartline C., Hutchings L., Singh A., Vasco D.W., Walters M. The Northwest Geysers EGS Demonstrations Project, California, Part 2: Modeling and interpretation. (Submitted to *Geothermics*, 2015)
- Garcia, J., Hartline, C., Walters, M., Wright, M., Rutqvist, J., Dobson, P.F., **Jeanne, P.** The Northwest Geysers EGS Demonstration Project, California - Part 1: Characterization and response to injection. (Submitted to *Geothermics*, 2015)
- Jeanne, P.**, Rutqvist, J., Borgia, A., Dobson, P.F., Garcia, J., Walters, M., Hartline, C. Geomechanical simulation of the stress tensor rotation caused by injection of cold water in a deep geothermal reservoir. (Submitted to *Geothermics*, 2015).

## **OTHER PUBLICATIONS**

- Jeanne, P.**, Rutqvist, J. Stress field respond to massive injection of cold water into a geothermal reservoir TOUGH-FLAC simulation. *Tough-Symposium*, **2015**.
- Jeanne, P.**, Rutqvist, J., Rinaldi, A.P., Hutchings, L., Singh, A., Dobson, P.F. Mechanisms of EGS Creation at The Geysers (California) revealed by seismic tomography, spatiotemporal evolution of the microseismic events and geomechanical simulations. In: *Proceedings of the 49th US Rock Mechanics, Geomechanics Symposium*. San Francisco, 29-31 June **2015**.
- Jeanne, P.**, Rinaldi, A.P., Rutqvist, J., Dobson, P.F. Seismic and Aseismic Deformations Occurring During EGS Stimulation at The Geysers: Impact on Reservoir Permeability. Conference: *PROCEEDINGS, Fortieth Workshop on Geothermal Reservoir Engineering* Stanford University, Stanford, California, January 26-28, **2015**.
- Jeanne, P.**, Rutqvist, J., Vasco, D., Garcia, J., Dobson, P.F., Walters, M., Hartline, C., Borgia, A. Development of a 3D hydrogeological and geomechanical model of an Enhanced Geothermal System using microseismic and ground deformation data from a 1-year injection program. *PROCEEDINGS, Thirty-Ninth Workshop on Geothermal Reservoir Engineering* Stanford University, Stanford, California, February 24-26, **2014** SGP-TR-202.

**Jeanne, P.**, Rinaldi, A.P., Rutqvist, J., Cappa, F., Guglielmi, Y., 2013. Relation between fault zone architecture, earthquake magnitude and leakage associated with CO2 injection in a multilayered sedimentary system. In: Proceedings of the 47th US Rock Mechanics, Geomechanics Symposium. San Francisco, 23 26 June **2013**.

Rinaldi, A.P., **Jeanne, P.**, Rutqvist, J., Cappa, F., Geomechanical effects on CO2 leakage through fault zones during large-scale underground injection. In: Proceedings of the 47th US Rock Mechanics, Geomechanics Symposium. San Francisco, 23 26 June **2013**.

**Jeanne P.**, Guglielmi Y., Cappa F. Structural and hydraulic properties of a small fault zone in a layered reservoir. iDust **2012**. DOI: 10.1051/e3sconf/20140403001.

## **LANGUAGES**

French (native), English (fluent)

## **PROFESSIONAL SKILLS**

Good knowledge in **Structural Geology** and **Sedimentology** and capacity to perform field and laboratory works (stratigraphic logging, structural mapping, rock facies and fractures characterization, thin sections analyzes).

Good knowledge in **Hydrogeology, rock mechanics, seismology and geophysics**

Strong ability to analyze and interpret different set of data

**Numerical Modeling** Multiphase Flow with TOUGH2 code, flow inverse modelling with iThought2 code, Thermo-Hydro-Mechanical modelling with Tough-Flac simulator.