JEANNE VIDAL
PhD in Geology
Post-doctoral position
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University of Chile - FCFM - Dept. of Geology
Andean Geothermal Center of Excellence (CEGA)
Plaza Ercilla 803
Santiago

Date of birth : April, 16th of 1991
Nationality : French

Scientific interest

The research of Dr Jeanne Vidal focuses on natural fracture systems with various approaches. She worked with well-logging data especially acoustic image logs in deep boreholes and developed skills in XRD, SEM and SWIR methodologies to study hydrothermal alteration and more specifically clay minerals in hydrothermal systems. The primary application field is for geothermal reservoir development in crystalline rocks.

Background

2014 – 2017: PhD thesis defended the 21st September 2017
Hydrothermal alteration associated to zones of fractures at the interface between sedimentary cover and granitic basement in the Upper Rhine Graben. Application to geothermal wells at Rittershoffen (France)
University of Strasbourg (France)

2012 – 2014: Master ST (Earth Science) with distinction
Specific formation to a wide range of courses in both geology and geophysics
University of Strasbourg (France)

Work experiences

Ongoing: Postdoctoral research fellow of the FONDECYT
Towards a better understanding of the dynamic of the Cerro Pabellon geothermal reservoir (Calama, Northern Chile): insights from clay minerals properties.
ANID (Agencia Nacional de Investigación y Desarrollo)
Universidad de Chile, Facultad de Ciencias Físicas y Matemáticas, CEGA – Santiago (Chile)

November 2018 – February 2021: Postdoctoral position
Better understanding of clay minerals in Chilean geothermal reservoir, geological studies of the Cerro Pabellon geothermal reservoir, collaboration with the PhD students Ch. Betancourt and C. Glaas
Universidad de Chile, Facultad de Ciencias Físicas y Matemáticas, CEGA – Santiago (Chile)

February 2018 - November 2018: Junior geologist
Work package leader in the EU Horizon 2020 project MEET (grant agreement no. 792037), scientific monitoring of the deep geothermal well GIL-01 (Illkirch, France), collaboration with the PhD student C. Glaas, EU Horizon 2020 project DESTRESS (grant agreement no. 691728)
ES-Géothermie – Schiltigheim (France)

October 2014 - October 2017: Doctoral research fellow
ADEME (French Agency for Environment and Energy)

February – September 2014: Master's internship supervised by Albert Genter
Evaluation of Thermal-Chemical-Hydraulic stimulation in the geothermal well GRT-1 (Rittershoffen, France) by comparing pre- and post-stimulation acoustic borehole images
ES-Géothermie – Haguenau (France)

July – August 2013: Assistant in charge of implementation of a database for geothermal wells at Rittershoffen supervised by Albert Genter
GEIE Exploitation minière de la chaleur – Soultz-sous-Forêts (France)

July 2011 and 2010: Assistant in charge of microseismic data processing supervised by Nicolas Cuenot and Albert Genter
Data processing of microseismic data in the geothermal site, study of the focal mechanisms and 3D events mapping and location of seismically active features
Participation to a measurement campaign to characterize the natural radioactivity evolution
GEIE Exploitation minière de la chaleur – Soultz-sous-Forêts (France)

Peer-reviewed publications

Maza S. N., Collo G., Morata D., Taussi M., **Vidal J.,** Mattioli M., Renzulli A (submitted to Geothermics) Active and fossil hydrothermal zones of the Apacheta volcano: insights for the Cerro Pabellón hidden geothermal system (Northern Chile)

Glaas C., Patrier P., **Vidal J**., Beaufort D., Genter A. (submitted to Minerals) Clay mineralogy: a signature of granitic geothermal reservoirs of central Upper Rhine Graben.

Glaas C., **Vidal J.,** Genter A. (submitted to Journal of Structural Geology) Structural characterization of naturally fractured geothermal reservoirs in the central Upper Rhine Graben.

Glaas C., **Vidal J**., Patrier P., Girard J-F., Beaufort D., Petit S., Genter A. (2019) How do secondary minerals in granite help distinguish paleo- from present-day permeable fracture zones? Joint interpretation of SWIR spectroscopy and geophysical logs in the geothermal wells of Northern Alsace, *Geofluids*, *Special Issue: Innovative Methods in Understanding Groundwater Flow in Fractured Rock Reservoirs,* doi:10.1155/2019/8231816

Vidal J., Hehn R., Glaas C., Genter A. (2019). How can temperature logs guide us to identify permeable fractures and define a conceptual model of fluid circulation? An example with deep geothermal wells in the Upper Rhine Graben, *Geofluids, Special Issue on Geofluids and Energy for the XXI Century,* doi:10.1155/2019/3978364

Glaas C., Genter A., Girard J.F., **Vidal J** (2018). How do the geological and geophysical signatures of permeable fractures in granitic basement evolve after long periods of natural circulation? Insights from the Rittershoffen geothermal wells (France), *Geothermal Energy Journal,* 6(14), doi:10.1186/s40517-018-0100-9

Vidal J. and Genter A. (2018). Overview of naturally permeable fractured reservoirs in the central and southern Upper Rhine Graben: insights from geothermal wells. *Geothermics,* 74, 57-73, doi: 10.1016/j.geothermics.2018.02.003

Vidal J., Patrier P., Genter A., Beaufort D., Dezayes Ch., Glass C., Lerouge C., Sanjuan B. (2018). Clay minerals related to the circulation of geothermal fluids in boreholes at Rittershoffen (Alsace, France), *Journal of Volcanology and Geothermal Research*, 349, 192-204, doi: 10.1016/j.jvolgeores.2017.10.019

Vidal J., Genter A., Chopin F. (2017). Permeable fracture zones in the hard rocks of the geothermal reservoir at Rittershoffen, France, *Journal of Geophysical Research: Solid Earth*, 122, 4864-4887, doi: 10.1002/2017JB014331

Baujard C., Genter A., Dalmais E., Maurer V., Hehn R., Rosillette R., **Vidal J.**, Schmittbuhl J. (2017). Hydrothermal Characterization of wells GRT-1 and GRT-2 in Rittershoffen, France: Implications on the Understanding of Natural Flow Systems in the Rhine Graben, *Geothermics*, 65, 255-268, doi: 10.1016/j.geothermics.2016.11.001

Vidal J., Genter A., Schmittbuhl J. (2016). Pre- and post-stimulation characterization of geothermal well GRT-1, Rittershoffen, France: insights from acoustic image logs of hard fractured rock, *Geophys. J. Int.*, 206(2), 845-860, doi: 10.1093/gji/ggw181

Vidal J., Genter A., Schmittbuhl J. (2015). How permeable fractures in the Triassic sediments of Northern Alsace characterize the top of hydrothermal convective cells? Evidences from Soultz geothermal boreholes (France), *Geothermal Energy Journal, Special Issue: Characterization of Deep Geothermal Systems*, 3(8), doi:10.1186/s40517-015-0026-4

Extended abstracts

Vidal J., Patrier P., Betancourt Ch., Maza S., Morata D. (2021) First results of the vein alteration in the deep well PGC1 of Irruputuncu geothermal system, Andean Cordillera, Northern Chile. World Geothermal Congress 2020+1, Reykjavic, Iceland, April-October 2021

Vidal J., Glaas C., Hehn R., Genter A. (2021) Identification of fluid circulations at the borehole scale from temperature logs: Insights from deep geothermal wells in the Upper Rhine Graben. World Geothermal Congress 2020+1, Reykjavic, Iceland, April-October 2021

Betancourt Ch., **Vidal J**., Morata D., Maza S. (2021) Hydrothermal alteration in the geothermal systems of the Irruputuncu volcano, Northern Chile. World Geothermal Congress 2020+1, Reykjavic, Iceland, April-October 2021

Morata D., Maza S., **Vidal J**.,Taussi M., Renzulli A., Mattioli M., Pizarro M., Camus E., Godoy B., Alvear B., Rivera G. (2021) Hydrothermal alteration in the Cerro Pabellón geothermal field: from surface and drill core data to conceptual model. World Geothermal Congress 2020+1, Reykjavic, Iceland, April-October 2021

Glaas C., Patrier P., **Vidal J.**, Beaufort D., Girard J-F., Genter A. (2020) Hydrothermal alteration in the new deep geothermal well GIL-1 (Strasbourg area, France). World Geothermal Congress 2020+1, Reykjavic, Iceland, April-October 2021

Glaas C., **Vidal J.,** Patrier P., Beaufort D., Genter A. (2019) Contribution of SWIR to the Clay Signature of Permeable Fracture Zones in the Granitic Basement. Overview of Soultz and Rittershoffen wells. *European Geothermal Congress*, June 11-14 2019, Den Haag, The Netherlands

Vidal J., Glaas C., Hébert B., Patrier P., Beaufort D., Genter A. (2018). Use of SWIR spectroscopy for the exploration of permeable fracture zones in geothermal wells at Rittershoffen (Alsace, France), *Geothermal Resources Congress Transactions*, vol 42, October 14-17 2018, Reno, Nevada, USA

Vidal J., Genter A., Glaas C., Hehn R., Cuenot N., Baujard C. (2018). Temperature signature of permeable fracture zones in geothermal wells of Soultz-sous-Forêts in the Upper Rhine Graben *Geothermal Resources Congress Transactions*, vol 42, October 14-17 2018, Reno, Nevada, USA

Baujard C., Genter A., Cuenot N., Mouchot J., Maurer V., Hehn R., Ravier G., Seibel O., **Vidal J.** (2018) Experience learnt from a successful soft stimulation and operational feedback after 2 years of geothermal power and heat production in Rittershoffen and Soultz-sous-Forêts plants (Alsace, France), *Geothermal Resources Congress Transactions*, vol 42, October 14-17 2018, Reno, Nevada, USA

Sosio G., Mandiuc A., Campana A., Hehn R., **Vidal J.,** Baujard C. (2018) Integration of Wellbore Logs in a Multi-disciplinary Geothermal Site Model: the Case of Rittershoffen, France, *EAGE/IGA/DGMK Joint Workshop on Deep Geothermal Energy*, November 8-9 2018, Strasbourg, France

Glaas C., **Vidal J.,** Hébert B., Patrier P., Beaufort D., Genter A. (2018) Infra-Red spectroscopy: a promising method for geothermal exploration of permeable fracture zones in crystalline reservoirs, *European Geothermal Workshop*, October 10 – 11 2018, EOST - University of Strasbourg, France

Genter A., Baujard C., Cuenot N., Hehn R., Maurer V., Mouchot J., Seibel O., **Vidal J.,** (2018). Exploiting fractured granites for producing heat or electricity: dream or reality? *80th EAGE Conference & Exhibition*, June 11-14 2018, Copenhagen, Denmark

Genter A., **Vidal J.**, Baujard C., Cuenot N., Dalmais E., Glaas C., Hehn R., Maurer V., Mouchot J., Richard A. (2018) Recent geothermal exploration and exploitation of hidden basement in the Upper Rhine Graben for producing heat or electricity, *International Workshop on Hot Dry Rock Resource Exploration and Enhanced Geothermal System Engineering*, September 18-19 2018, Changchun, Jilin University, China

Vidal J., Patrier P., Genter A, Beaufort D. (2017). Occurrences of clay minerals in permeable fracture zones in the granitic basement of geothermal wells at Rittershoffen, France, 42nd Workshop on Geothermal Reservoir Engineering, February 13 - 15 2018, Stanford University, California, USA

Vidal J., Genter A., Chopin F., Dalmais E. (2016). Natural fractures and permeability at the geothermal site Rittershoffen, France, *European Geothermal Congress*, September 19 - 26 2016, Strasbourg, France

Hehn R., Genter A., Baujard C., **Vidal J.** (2016). Stress field rotation in the EGS well GRT-1 (Rittershoffen, France), *European Geothermal Congress*, September 19 - 26 2016, Strasbourg, France

Genter A., Baujard C., Cuenot N., Dezayes Ch., Kohl Th., Masson F., Sanjuan B., Scheiber J., Schill E., Schmittbuhl J., **Vidal J.** (2016). Geology, Geophysics and Geochemistry in the Upper Rhine Graben: the frame for geothermal energy use, *European Geothermal Congress*, September 19 - 26 2016, Strasbourg, France

Vidal J., Ulrich, R., Whitechurch H., Genter A., Schmittbuhl J., Dalmais E., Girard-Berthet V. (2016) Hydrothermal alteration of the hidden granite in the geothermal context of the Upper Rhine Graben, *41st Workshop on Geothermal Reservoir Engineering*, February 22 - 24 2016, Stanford University, California, USA

Genter A., *Vidal J.*, Baujard C., Dalmais E., Schmittbuhl J. (2015). Permeability in deep-seated granitic rocks: lessons learnt from deep geothermal boreholes in the Upper Rhine Graben, *Vingtièmes journées techniques du Comité Français d'Hydrogéologie de l'Association Internationale des Hydrogéologues - Aquifères de socle : le point sur les concepts et les applications opérationnelles,* June 2015, La Roche-sur-Yon, France

Vidal J., Genter A., Schmittbuhl J., Whitechurch H., Baujard C., Dalmais E. (2015). Evolution of concepts for the geothermal projects in the Upper Rhine Graben, *European Geothermal Workshop*, October 19 – 20 2015, EOST - University of Strasbourg, France

Girard-Berthet V., **Vidal J.**, Whitechurch H., Ulrich M., Genter A., Schmittbuhl J. (2015). Hydrothermal alteration of Soultz-sous-Forêts granite near the granite-sediment interface in geothermal context, *European Geothermal Workshop*, October 19 – 20 2015, EOST - University of Strasbourg, France

Dalmais E., Genter A., **Vidal J.**, Baujard C., Vuataz F.-D. (2015) Permeability assessment based on drilling data in EGS projects: Case study of Muschelkalk fracture in GRT-1 well for ECOGI Project (Rittershoffen, Alsace, France), *European Geothermal Workshop*, October 19 – 20 2015, EOST - University of Strasbourg, France

Vidal J., Genter A., Duringer Ph., Schmittbuhl J. (2015). Natural permeability in fractured Triassic sediments of the Upper Rhine Graben from deep geothermal boreholes, *World Geothermal Congress*, April 19 – 24 2015, Melbourne, Australia

Vidal J., Genter A., Schmittbuhl J. (2014). Evaluation of THC stimulations from acoustic image logs in the geothermal Rittershoffen well GRT--1 (France), *European Geothermal Workshop*, October 15 – 16 2014, KIT, Karlsruhe, Germany

Vidal J., Genter A., Duringer Ph., Manatschal G., Schmittbuhl J. (2013). Evidence of permeable fractures in the Triassic sediments of Northern Alsace, *European Geothermal Workshop*, October 24 – 25, EOST - University of Strasbourg 2013, France

Cuenot N., Scheiber J., Moeckes W., Guéry B., Bruzac S., Sontot O., Meneust P., Maquet J., Orsat J., **Vidal J.** (2013). Evolution of the natural radioactivity within the Soultz geothermal installation, *European Geothermal Congress*, June 3 – 7 2013, Pisa, Italy

Cuenot N., Goerke X., Guery B., Bruzac S., Sontot O., Meneust P., Maquet J., **Vidal J.** (2011). Evolution of the natural radioactivity within the Soultz geothermal installation, *Soultz geothermal conference*, October 5 – 6 2011, Soultz-sous-Forêts, France

Skills

- **Computing**: WellCAD software (ALT), X'pert HighScore software (Malvern Panalytical), Match! software (Crystal Impact), MOVE software (Midland Valley), Petrel software (Schlumberger), Adobe Illustrator, MS Office Suite, Inkscape
- **Laboratory:** X-Ray diffraction (bulk rock and infra 2 µm fraction/oriented powders), Scanning Electron Microscope and Microprobe, Short Wave Infrared field spectrometer
- **Languages**: French, English, Spanish

Grant

- FONDECYT Post Doctoral Grant 2021-2024 (Agencia Nacional de Investigación y Desarrollo, ANID)
  Rank 3/22 for the category Earth Science
- ADEME PhD Grant 2014-2017
- AGU Fall Meeting Student Travel Grant 2016

Community tasks

- *Women IN Geothermal* Ambassador France (2018) and Chile (2020-2021)
- Representative for PhD students of the IPGS at the doctoral council ED413
- Organisation of the field trip for the European Geothermal Congress 2016, organisation of the PhD congress (ED 413) 2015, organisation of workshops for outreach