

Senior Geomechanical Engineer

Expertise Rock and Soil Mechanics, Numerical Modeling

Education Ph D. (Geotechnical Engineering), 2008
M.Sc. (Environmental Engineering), 2004
Politecnico di Torino, Torino, Italy

Professional Experience

2014 – present *Itasca Consultants S.A.S., Ecully, France, Senior Geotechnical Engineer*
2011 - 2014 *Itasca Consultants S.A.S., Ecully, France, Geotechnical Engineer*
2008 - 2010 *Itasca Consultants GmbH, Gelsenkirchen, Germany, Geotechnical Engineer*
2002 - 2007 *Politecnico di Torino, Torino, Italy, Scientific Collaborator*

Project Experience

Supervision and implementation of numerical models for civil and process engineering projects mainly using Itasca codes FLAC and FLAC3D (Fast Lagrangian Analysis of Continua).

Civil engineering Consulting & Numerical modelling: Senior Engineer for numerous geotechnical consulting and numerical modeling civil engineering projects: nuclear waste and gas storage, tunnels, underground power plants, surface excavations, reinforcement studies, dams, slope stability, complex foundations, retaining walls.

Numerical development: Development of numerous coupling procedures between discrete and continuous modeling software, as well as between mechanical and thermal codes or fluid flow codes.

Teaching: Organization of numerical modeling training sessions for engineers, focusing on various aspects of continuous modeling, thermomechanical coupled phenomena and creep.

Project*Civil engineering*

- Numerical modeling and stability analysis for several tunnel projects;
- Numerical modeling for nuclear-waste repository projects, including THM coupling processes;
- Estimation of time-dependent subsidence above gas storage caverns during cyclic service phase;
- Evaluation of polluted brine outflows from an ultimate waste storage located in a salt formation; study of the permeability evolution of salt around the sealing dams of the storage and evaluation of the rock damage close to the tunnel walls;
- Analysis of the mechanical and thermal effects on the damage of coal layer during its exploitation by the Underground Coal Gasification technique;

- Implementation in FLAC and FLAC3D of a creep law to simulate the behavior of frozen soil. Thermo-mechanical simulation of a shaft excavation in a soil consolidated using the ground-freezing technique;
- Dynamic analysis of surface and underground structure behavior under seismic loading;

Process engineering

- Development of a Hydro-Mechanical coupling model to study the effect of proppant crushing on fracture permeability at different stress states (oil industry field);
- Soil-geogrid interaction study: numerical modeling of pullout tests and wheel load tests on reinforced soil;
- Study of potential segregation of a mix of limestone and coke during the loading of a cylindrical metallic hopper and the discharge over the lime kiln.

Camusso M., Saitta A. and Ozanam O. “CIGEO radioactive waste repository project – Modelling of claystone behavior and analysis of thermomechanical induced effects based on FLAC3D simulations”, Fifth International Itasca Symposium, Vienna (Austria), February 17 – 20, 2020.

Camusso M., Ghazal R., Billaux D., Plassart R. and Poutrel A. “Support design optimization for the CIGEO repository tunnels based on 2D numerical simulations”, Clay Conference 2017, Davos (Switzerland), September, 24-27, 2017.

Camusso M., Billaux D and A. Rollet. “Estimation des flux potentiels de saumure contaminée à partir du stockage de Wittelsheim (France) et prédiction de l’état de contrainte actuel dans le sel”, AFTES, Paris, November 13-15, 2017.

Billaux D., Camusso M., Shiu W. and A. Poutrel. “Long term behavior of claystone and its interaction with steel casing. Comparison between continuum/discontinuum 3D models”, Clay Conference 2015, Brussels, March 23-26, 2015. Poster.

Barla, M., and M. Camusso. “A method to design microtunnelling installations in the Torino randomly cemented alluvial soil”, in *Tunnelling and Underground Space Technology*, Elsevier, pp. 9, 2013, Vol. 33, pp. 73-81, ISSN: 0886-7798, doi: [10.1016/j.tust.2012.09.002](https://doi.org/10.1016/j.tust.2012.09.002).

Barla, M., and M. Camusso. “Computing jacking forces in alluvial soils as a function of the cementation degree of the ground,” in *Geotechnical challenges in megacities, Proceedings of the International Geotechnical Conference (Moscow, June 2010)*, Vol. 2, pp. 8, ISBN: 9785990200524, 2010.

Barla, M., and M. Camusso. “Modelling microtunnel excavation in Torino by particle elements,” in *EURO:TUN 2009, 2nd International Conference on Computational Methods in Tunnelling (Ruhr University Bochum, Germany, September 2009)*, Vol. 1-4, pp. 1-7. Aedificatio Publishers, 2009.

Camusso, M., and M. Barla. “Microparameters Calibration for Loose and Cemented Soil When Using Particle Methods,” in *INTERNATIONAL JOURNAL OF GEOMECHANICS*, Vol. 9-5, pp. 217-230, ISSN: 1532-3641, 2009.

Barla, M., and M. Camusso. “Using Particle Elements to Model the Torino Subsoil Mechanical Behaviour to Improve the Applicability of Microtunnelling Technique,” in *Geomechanics in the Emerging Social & Technological Age (CD Proceedings, 12th IACMAG Conference, Goa, India, October 2008)*, Paper No. 060. Toronto: X-CD Technologies Inc., 2008.

Barla, G., M. Barla, M. Camusso and M. E. Martinotti. “Setting up a new direct shear testing apparatus,” in *The Second Half Century of Rock Mechanics (11th Congress of the International Society for Rock Mechanics, Lisbon, July 2007)*, Vol. 1, pp. 415-418. L. Ribeiro e Sousa et al., Eds. London: Taylor & Francis Group, 2007.

Barla, G., M. Barla, M. Camusso, D. Debernardi and M. E. Martinotti. “Attrezzature innovative per la caratterizzazione dei materiali rocciosi,” in *Proceedings, Giornata di studio in ricordo di Renato Ribacchi (Rome, December 2007)*, pp. 55-66. Bologna: Pàtron Editore (ITALY), 2007.

Camusso, M., and M. Barla. “Applicability of Microtunnelling Technology in the Torino Subsoil,” in *Proceedings, Mediterranean NO DIG 2007 (25th International Conference & Exhibition, Rome, September 2007)*, Printed on CD, 2007.

Barla, M., M. Camusso and S. Aiassa. “Analysis of Jacking Forces During Microtunnelling in Limestone,” *Tunn. Undergr. Sp. Tech.*, **21**, 668-683, doi:[10.1016/j.tust.2006.01.002](https://doi.org/10.1016/j.tust.2006.01.002), 2006.