

Fractured Rock Hydrogeology, Rock Mechanics, Civil Engineering

Expertise Fractured Rock Hydrogeology, Rock Mechanics, Civil Engineering, Numerical Modeling of Hydraulic and Mechanical Processes

Education Doctorat en Hydrogéologie Quantitative, 1990
(Ph.D., Quantitative Hydrogeology)
Ecole Nationale Supérieure des Mines de Paris, France
M.Sc. (Civil Engineering, Geotechnical Engineering), 1980
Stanford University, Stanford, California
Ingénieur Civil des Ponts et Chaussées, 1979
Ecole Nationale des Ponts et Chaussées, Paris, France

Professional Affiliations Member: Board, French Society of Rock Mechanics; French Society of Soils Mechanics

Professional Experience

1990 - Present *Itasca Consultants S.A., Ecully, France*
Managing Director & Senior Hydrologist

1988 - 1990 *Bureau de Recherches Géologiques et Minières (BRGM)*
Geotechnical Engineering Department, Head of Research & Development

1986 - 1988 *Lawrence Berkeley Laboratory, Earth Sciences Division, Staff Scientist*

1984 - 1985 *BRGM Regional Office, Project Engineer*

1982 – 1984 *Bureau de Recherches Géologiques et Minières (BRGM)*
Geotechnical Engineering Department, Project and Research Engineer

1980 – 1982 *Ecole Nationale des Travaux Publics d'Algers*
(Algiers School of Public Works), Lecturer in Soil and Fluid Mechanics

Project Experience

Fractured Rock Hydrogeology: Reviewer or Project Manager for several studies, including flow and transport behavior, in the field of fractured rock hydrogeology for nuclear-waste disposal projects in France, Sweden, Switzerland and the USA.

Numerical Development in the field of Fractured Rock Hydrogeology: Development of a particle-tracking procedure in a flow code. Development of an image-analysis code for the study of single fracture geometry (BRGM). Development of a chain of computer programs for modeling flow in fractured rocks: statistical processing; geometric modeling; graphical representation; and finite-element flow computation (Lawrence Berkeley Laboratory).

Applied Rock Mechanics: Project Engineer for stability and dimensioning studies of mines in France, Tunisia, and Quebec (BRGM). Appraisal of the stability conditions of open-pit mines in Southeast Asia, including definition of the needs in computer codes, code set-up, and training of users in Malaysia, Indonesia, Thailand, and the Philippines (BRGM).

Research: Program Manager for research projects in the field of geotechnical engineering, including elaboration and implementation of the department's research strategy and coordination of projects (BRGM).

Project Manager for government and European Union-funded research programs: hydro-mechanical behavior of rock fractures under shear; geometric modeling of the fracture field in a stratified rock mass; development of interpretation models for hydraulic tests in fractured media; development of new numerical methods for the simulation of damage and creep around underground excavations or of the weathering of boulder dams.

Civil Engineering Consulting & Numerical Modeling: Reviewer of Project Manager for numerous geotechnical consulting and numerical modeling civil engineering projects in France (slope stabilities, reinforcement studies, complex foundations, retaining walls, surface excavations, offshore structures, dams, dynamic analysis).

Teaching and Lecturing: Lecturer at various universities and commercial seminars in France, Germany and Austria regarding the use of numerical methods in geomechanics and hydrogeology.