



## **The Italian drilling project of the Mont Blanc road tunnel in the late fifties: an example of no geological care and lack of ethics in carrying out a big work.**

Guido Gosso (1), Giuseppe Croce (2), Ruggero Matteucci (3), Silvia Peppoloni (4), Sandra Piacente (5), and Janusz Wasowski (6)

(1) Geoethical Commission of FIST, and University of Milan, Italy (guido.gosso@unimi.it), (2) Via Papa Giovanni XXIII, 25, 20093 Cologno Monzese, (3) Geoethical Commission of FIST, and University of Rome "Sapienza", Italy, (4) Geoethical Commission of FIST, and Istituto Nazionale di Geofisica e Vulcanologia, Italy, (5) Geoethical Commission of FIST, and University of Modena and Reggio Emilia, Italy, (6) Geoethical Commission of FIST, and C.N.R. IRPI, Bari, Italy

In the first decade after the Second World War Italy was rushing to recover a positive role among European countries; basic needs as road communications with European neighbours became main priorities. The necessity of a rapid connection with South-eastern France, a subject already debated between the two nations over more than 50 years, appeared then on first line; the two countries convened on a joint investment for the construction of a tunnel across the international border of Mont Blanc, along the shortest track between Courmayeur and Chamonix. The political agreements were in favour of the quickest start of the drilling operations and such obligation imposed on the Italian side an impoverishment of the project content, specially concerning geological issues. No surveys were performed on fracture systems, cataclastic zones and faults, on the few rock ridges standing above the tunnel line and outcropping through thick talus cones, moraines, ice tongues and their related ice plateaus. Metasediments, migmatites and poorly foliated granites were to be drilled. Three Italian academics were allowed by the drilling company to track the working progress and collect rocks for comparison with other Alpine types; they mapped the lithology and the fault zones all along the freshly excavated tunnel; the results of such survey appeared after the end of works. Geologists from Florence University published the surface granite faulting pattern 20 years after the road tunnel became operative. Such geological cares could have located the risky zones in time for the tunnel project, mitigating the catastrophic effects of sudden drainage of subglacial water from the Vallée Blanche ice plateau (Ghiacciaio del Gigante) at progression 3800m, that caused dramatic accidents and affected negatively the economy of the drilling. Also the wallrock temperature drops, measured during the drill, should have warned the company management on the location of dangerous fracture zones. Anxiety of national renaissance probably committed the Italian team to a fast conclusion, skipping attention from geological urgencies. But did attitudes change since then? This late episode gives us the opportunity to reflect on the necessity of making politicians seriously aware of the importance of geology when carrying out big works, to impose by law more effective policies and make interrelations between the involved professionals mandatory. Firm geoethic principles should guide choices and decisions in projects of great environmental impact.