



Seminario

Electrical imaging for the characterization of contaminant plumes and the monitoring of emerging remediation techniques

Giovedì, 22 novembre 2018 – ore 16:30
Aula Arduino

Relatore: **Prof. Flores-Orozco**

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Abstract:

During this talk I plan on presenting the recent developments in the Complex Conductivity Imaging (CCI) method for the delineation of hydrocarbon-contaminated plumes as well as its potential for the characterization of subsurface geochemical changes accompanying the stimulation of microbial activity for the transformation of groundwater pollutants. The CCI is an extension of the well established electrical resistivity tomography (ERT), which permits to gain information about the conductivity as well as the capacitive electrical properties of the subsurface. Recent numerical investigations have demonstrated that changes in the geometrical properties of the pore-space imposed by the presence of contaminants play a dominating role on the electrical response, permitting the interpretation of contradictory results observed in laboratory investigations. Our numerical observations permitted an improved interpretation of field signatures, in particularly regarding the delineation of the source-zone and the plume of hydrocarbon contaminants. Furthermore, we present CCI monitoring results for data collected along two different remediation experiments: (i) subsurface amendment to enhance the activity of iron-reducing bacteria for the immobilization of uranium in groundwater; (ii) the injection of nano- and micro-scale particles for the remediation of common hydrocarbon contaminants present in groundwater

Proponente: Jacopo Boaga