Annonce de conférence

Mercredi 31.08.2016 à 17:15, Salle GC C3 30 (Génie civil)
(http://plan.epfl.ch/?lang=en&room=GC+C3+30)

Dr Marc François Muller, Stanford University, Etats-Unis d'Amérique

The Data Revolution: Assessing Water Resources Between and Beyond Gauges

Abstract: With new satellite data, increasingly connected electronic devices on the ground, and the analytical capability to leverage both information sources, we are on the brink of a data revolution in water resources. These new data sources allow us to see between traditional gauges in regions where in situ information is challenging to collect. We can also now see beyond the gauges to monitor water resources, where information is not shared for strategic reasons. First, I will discuss the challenge of mapping micro-hydropower potential for rural electrification. Focusing on Nepal, a webGIS tool is shown to assess the feasibility of installing additional micro hydropower infrastructure by leveraging satellite data and the increasing penetration of mobile phone technology. The web tool interacts with community members via smart phones to collect and disseminate local design information. The approach is shown to reliably predict streamflow distributions in remote and scarcely gauged Himalayan basins. Second, I will discuss the use of game theory to study the allocation of transboundary waters in extremely arid regions. Focusing on the aquifer shared by both Saudi Arabia and Jordan, I show how (i) remote sensing is an effective tool to remove the effect of water data secrecy, and (ii) the impacts of conflicting in-country groundwater uses are more significant than transboundary competition.

Figure 1. Pivot irrigation fields in Saudi Arabian desert. Landsat 7 Quarterly Normalized Differential Vegetation Index composite

Bio: Dr Marc Muller is a postdoctoral fellow at the department of Earth Systems Science at Stanford University. His research focuses on new approaches to collect, analyze and disseminate water information, and study their implications for the sustainable management of water systems in data-scarce regions. Marc undertook his doctoral work in water resources at UC Berkeley (Environmental Engineering) as a Fulbright Science and Technology Fellow. He has a MSc (Civil Engineering) and a BSc (Material Science) from EPFL, where he accomplished is Master's thesis at the Laboratory of Hydraulic Constructions. Marc will start as an Assistant Professor at the University of Notre Dame (USA) in January 2017. Site personnel: https://sites.google.com/site/marcfrmuller/

Durée de la conférence: env. 45 minutes, suivie d'une discussion et d'un apéritif.

Prof. Dr Anton SCHLEISS & Dr Pedro MANSO

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