DIPARTIMENTO DI INGEGNERIA CIVILE E AMBIENTALE

POLITECNICO
MILANO 1863

SEMINAR ANNOUNCEMENT

Beltrami Room (Leonardo Campus, Building 5, ground floor)
Department of Civil and Environmental Engineering

June 7th 2017, from 15:30 to 16:30

Debris flow propagation and deposition: from the field scale of the Giampilieri alluvial event (Messina, Italy) to the laboratory scale

Dr. Laura Maria Stancanelli
University of Catania
Department of Civil Engineering and Architecture

Debris flows are rapid, gravity-induced mass movements consisting of sediment-liquid mixtures, which propagate along channels carved into mountain slopes or debris fans. These movements represent a serious natural hazard due to the high velocity, the large volumes of mobilized sediment, and the high-impact forces exerted on any obstacle they come across.
The alluvial event of Giampilieri (Italy) on the 1st October 2009 is presented. The analysis of such an event has raised open questions which have inspired laboratory activities.

Two aspects of the debris flow complex dynamics have been analyzed at the laboratory scale: i) the different stress generating mechanisms acting during the propagation phase of coarse-grained debris flows, and ii) the deposition of sediments in a main channel of debris flows generated in tributaries. The flume experiments provide information about the velocity profiles within the body of coarse-grained debris flows, the role of different stress-generating mechanisms, the dependence of the transport sediment concentration on the relevant parameters (runoff discharge, bed slope, grain size, and form), the overall sediment-water mobility, the possibility of dangerous damming and potential hazard in relation to confluence angles, tributary slopes and triggering conditions.

Reference: **Dr. Giovanni Porta** (giovanni.porta@polimi.it)

Dr Laura Maria Stancanelli was awarded her PhD at the University of Catania in 2013. From 2013 to 2014 she was postdoctoral fellow at University of Padua as a member of the project "GIS-based integrated platform for Debris Flow Monitoring, Modeling, and Hazard Mitigation", funded by CARIPARO foundation. In 2016 she was visiting at the Large Wave Flume (Großer Wellenkanal, GWK) Forschungszentrum Küste (FZK) - Joint Central Institution of Leibniz Universität Hannover and Technische Universität Braunschweig, where she carried out the laboratory campaign related to the project "Impact of Changing Foreshore on Flood Defence Performance – ICODEP", funded by the Horizon 2020 Research and Innovation Programme through the grant to Hydralab+.

She is currently postdoctoral fellow at the University of Catania, working on "Measurements of near-bed velocities and bottom shear stresses by means of ferrofluids" research funded by the EU Hydralab+ Project, and visiting researcher at Department of Civil and Environmental Engineering, Politecnico di Milano, working on alluvial risk analysis.