University of Pavia

Ph.D. School of Electrical and Electronics Engineering and Computer Science

SHORT COURSE

Space-borne radar remote sensing for flood risk analysis and damage mapping

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Tue 16th May, 2017 – 11 am to 1 pm – Room F2
Wed 17th May, 2017 – 9 am to 11 am – Room E6
Wed 17th May, 2017 – 2 pm to 6 pm – Room 8 / purple building

Abstract: This short course will tackle the flood mapping/risk issue using satellite Synthetic Aperture Radar (SAR) data, starting to recall some basic SAR concepts and features, such as polarimetry, wavelengths and InSAR coherence, and proceeding with more specific issues related to flood phenomena. All characteristics of SAR signal relevant to flood risk will be deeply analysed; they will be investigated for different land cover classes, which play an important role in the interaction between surface and SAR impinging signal, such as urban areas, bare to scarsely-vegetated soils, and densely vegetated regions. The aspects concerning flood risk will be described as well, and also how they relate to the currently available satellite monitoring technology. The course will conclude on describing forefront algorithms for detecting flooded areas and mapping flood hazard, providing practical examples, providing an overview of the SAR satellites currently available and discussing the unsolved scientific issues for the future.

Bio: Marco Chini received the Laurea (M.S.) degree in electronic engineering from La Sapienza University of Rome, Rome, Italy, in 2003 and the Ph.D. degree in geophysics from the University of Bologna, Bologna, Italy, in 2008. He then worked with the Remote Sensing Unit of the Istituto Nazionale di Geofisica e Vulcanologia (INGV), Rome, where he was involved in projects supported by the Civil Protection, European Space Agency, and the Italian Space Agency for mapping damage caused by earthquake, flood, and other natural hazards. From 2013 he has been working in Luxembourg (GL research centre and then LIST) on space-based monitoring of flooding risk and damage.

Organizer	**Ph.D. Coordinator**
Prof. Fabio Dell'Acqua	Prof. Paolo Di Barba