



Università Tor Vergata, Roma  
Dipartimento di Informatica, Sistemi e Produzione

GeoInformation Doctorate

GeoInformation Seminar

DISP meeting room, Ingegneria dell'Informazione, 1 Via del Politecnico  
9 February 2012, starting at 16:00

Andrea Gerardi

**Dynamic mapping of flood boundaries: current possibilities offered  
by Earth Observation Systems and Cellular Automata**

Floods are the most threatening natural disaster across the world.

The main objective of this research is to develop a software tool that can figure out dynamically the boundaries of natural floods with high accuracy. This objective could be achieved through cellular automata simulation software and Earth observation data.

**Andrea Gerardi** received his Masters degree in Computer Engineering from Unisalento University, Lecce, Italy, in 2005, with a thesis on turbine motor performance evaluation by neural networks. He is currently a second-year GeoInformation PhD candidate at Tor Vergata University, Rome.

His research involves the development of a software tool for mapping flood boundaries through cellular automata and Earth Observation Systems.

Cristina Vittucci

**Role of microwave signatures in flooding events and soil moisture  
monitoring**

Daily measurements of Brightness Temperature at V and H polarizations and Polarization Ratios at different frequencies carried out by the satellite-borne radiometers AMSR-E and MIRAS have been correlated with hydrological data collected at gauge stations with the aim of developing a procedure for flooding monitoring and forecasting.

The methodology has been applied to flooding occurred in the last two years in the lower Bermejo river basin (Argentina). A comparison with data collected simultaneously by active sensors during the events has also been carried out. Finally, a description of the ground SMAPEX Campaign will be presented

**Cristina Vittucci** obtained the Masters degree in Environmental Engineering from La Sapienza University, Rome, with a final thesis on "Hydrologic validation of satellite water level measurement", carried out at ESA. In 2009 she attended the specialization school in "GIS and Remote Sensing Techniques for Geo-environmental planning" at Roma Tre University. She is currently enrolled in the third year of the Tor Vergata University GeoInformation Doctorate, working on flood events monitoring by active and passive microwave signatures.

From 2008 to 2010 she has been working on GIS projects at ESRI and SELEX Sistemi Integrati and in September 2011 she participated in the third SMAPEX Campaign, in Yanco, Australia.

*You are cordially invited to attend.*

<http://www DISP.uniroma2.it/geoinformation/>