Università Tor Vergata, Roma

Dipartimento di Informatica, Sistemi e Produzione

GeoInformation Doctorate

Earth Observation Laboratory

GeoInformation Seminar

DISP meeting room, Ingegneria dell'Informazione ground floor, Via del Politecnico, 1
14 April 2011, starting at 17:30

Andrea Giacomini

The Gulf of Mexico oil rig accident: a multi-platform satellite analysis

ABSTRACT

Oil spills in the ocean are one of major environmental concerns, especially in costal waters. An approach to oil spill detection and analysis is presented using optical and SAR satellite images. For the *Deepwater Horizon* oil spill accident, which occurred in the Gulf of Mexico starting on April 20^{th}, 2010, the spills were captured by COSMO-SkyMed, TerraSAR-X, ENVISAT ASAR, and WorldView-2 sensors both in different and close acquisition times.

Feature extraction has been applied and a physical and morphological analysis has been carried out to identify and quantify the slicks from SAR and optical images. The achieved results hint at the potential of both microwave and multi-spectral sensors in quantitatively monitoring oil spills.

Andrea Giacomini graduated in Telecommunications Engineering, with distinction, from Tor Vergata University, Rome, Italy, and is currently pursuing the Masters Degree in Telecommunications Engineering.
His MS thesis has been carried out in cooperation with the University of Colorado at Boulder, U.S.A..

Ruggero G. Avezzano

Neural Networks for oil spill detection from satellite X-band SAR images

ABSTRACT

Different aproaches have been considered for designing Neural Networks (NN) to process satellite X-band SAR data for oil spill detection.

A first analysis has been carried out on NN training directly based on TerraSAR-X images. A novel NN algorithm has then been implemented, based on training by C-band ENVISAT data suitably scaled through theoretical modeling, to process X-band images of the sea in presence of oil slicks. Significant results are presented.

Ruggero G. Avezzano received his degree in Telecommunications Engineering in 2008 from the Federico II University, Napoli. After a stage at IREA laboratories in Neaples, he joined the Tor Vergata University in Rome, towards his Master's Degree in Telecommunications Engineering.
His MS thesis has been carried out in cooperation with the DLR in Oberpfaffenhofen, Germany.

You are cordially invited to attend.