Università Tor Vergata, Roma

Ingegneria Civile e Ingegneria Informatica

GeoInformation PhD Curriculum

GeoInformation Seminar

DISP meeting room, Ingegneria dell'Informazione, 1 Via del Politecnico
21 February 2013, starting at 15:00

Lucia Maria Laurenza

Comparison of XCO$_2$ total column retrieved from IASI/MetOp-A using KLIMA algorithm and TANSO-FTS/GOSAT level 2 products

Carbon dioxide is a key constituent of the terrestrial atmosphere with both natural and anthropogenic sources. It is one of the primary forcing agents of the greenhouse effect, as well as it is the most mobile component of the global carbon cycle that is critically coupled to the Earth's climate system.

In this study, one year of observations taken by the Infrared Atmospheric Sounding Interferometer (IASI) onboard MetOp-A satellite, are used to retrieve the columnar abundance of atmospheric carbon dioxide, for global geographical coverage in clear-sky conditions. The dedicated software is the KLIMA inversion algorithm, integrated into the ESA grid-based operational environment G-POD system to retrieve the CO$_2$ total column with a target accuracy of 1%. The KLIMA retrieval code has been used to process one week per month of 2010-2011 IASI measurements, with TANSO-FTS SWIR Level-2 data obtained from the GOSAT User Interface Gateway (GUIG). Extensive comparison of column-average CO$_2$ dry air mole fraction has been carried out against operational Level-2 SWIR products from co-located TANSO-FTS observations.

Lucia Maria Laurenza received her MS degree in Physics (Geophysics curriculum) from La Sapienza University, Rome, Italy, and is currently pursuing the GeoInformation Curriculum Ph.D. degree at the Tor Vergata University in Rome with a Research Fellowship at CNR-IFAC (Florence).

Her MS graduation project focused on the urban heat island over Rome, using MERIS and AATSR products along with data from ARPA Lazio regional ground stations. Her present research is focused mainly on the development of radiative transfer model and inversion techniques for the retrieval of physical and chemical parameters of the atmosphere.

Alessandro Piscini

Neural-Network approach to multispectral and hyperspectral data analysis for volcanic monitoring

Volcanic monitoring is a quite important issue for human safety, involving both atmospheric and land environments.

The research project is focused on the Neural-Network (NN) approach to monitor the volcanic risk from satellite data in a fast and reliable way.

The results obtained by the NN are in particular summarized for the retrieval of volcanic sulphur dioxide from hyperspectral satellite data and for detecting lava flow hot spots from multispectral data.

Alessandro Piscini received his MS degree in Physics from La Sapienza University, Rome, Italy, and is currently pursuing the GeoInformation Curriculum Ph.D. degree at the Tor Vergata University in Rome.

He is currently with the Remote Sensing Laboratory of the Istituto Nazionale di Geofisica e Vulcanologia (INGV) in Rome. His research is focused mainly on the analysis of optical multipsectral and hyperspectral remote sensing data.

You are cordially invited to attend.

http://www.disp.uniroma2.it/geoinformation/