



Università Tor Vergata, Roma
Ingegneria Civile e Ingegneria Informatica
GeoInformation PhD Curriculum

3rd 2014 GeoInformation Seminar

DISP meeting room, Ingegneria dell'Informazione, 1 Via del Politecnico
3 April 2014, starting at 15:00

Daniele Biron

**Investigating data management
for the future METEOSAT Third Generation Lightning Imager**

The next generation of EUMETSAT geostationary meteorological satellites, Meteosat Third Generation (MTG), will carry an instrument for optical lightning detection, the Lightning Imager (LI). The LI mission is intended to provide real-time lightning detection with accurate location capability, for identifying, monitoring and short-term forecasting atmospheric electrical hazards. Main goal of the research project is full investigation of the LI instrument characteristics and expected LI Level-1 data flow, building a convincing simulation environment for LI Level-2 data flow to the users, studying algorithms for fast online individuation of targets and removing false events induced by the various noise sources like particles, jitter, sunglint, background, thermo-mechanical effects, and electronics. The expected results will help understanding how to manage the massive data flow from future MTG-LI at operational user level and how to reach the optimal detection performances by reducing false events within timeliness constraints and without the support of external information. The current status of the project will be presented.

Daniele Biron received the MSc in Physics from the University of Pisa in 1999 with a Thesis on Fourier Transform Molecular Spectra reconstruction by Genetic Algorithms. Since 2000 he has been with the Italian Ministry of Defense - Air Force, as Officer (physicist) of Engineers Corp, fully involved in satellite data reception and processing, and in participating in the development of user requirements for future space-based observing systems. He is Head of the Satellite Area at CNMCA (Centro Nazionale di Meteorologia e Climatologia Aeronautica), Pratica di Mare, where he manages the main meteorological satellite data receiving and processing center in Italy. He is Italian Representative Member with EUMETSAT Science and Technical Group - Science Working Group (STG-SWG), Operations Working Group (STG-OPS) and MTG-LI Mission Advisory Group (LIMAG).

Antonio Vocino

**Potential of the hyperspectral sounder MTG-IRS products
for improving nowcasting and very short-range forecast atmospheric models**

The research project aims at investigating the potential of Level-1 and Level-2 products from the future EUMETSAT MTG-IRS sounder for the early detection of severe weather systems. Innovative concepts and methods in this field – as ANN, PCA and cluster analysis – will be explored, paving the way for the software design of the ground segment data processing running at the Italian Air Force National Meteorological and Climatological Centre. The current status of the project will be presented, with particular emphasis on the state of the art in the exploitation of the information content of data from operational hyperspectral IR sounders.

Antonio Vocino holds a MSc in Physics (1999) from the University of Pisa, with a thesis on magnetohydrodynamics of nuclear fusion plasmas carried out at the ENEA Research Centre in Frascati and a postgraduate certificate in Atmospheric Physics and Meteorology (2001-2002, Italian Meteorological Service). He also attended several training courses and workshops at ECMWF and other organizations. He is Head of the data processing, networking and telecommunications section of the Italian Air Force National Meteorological and Climatological Centre (CNMCA) and member of the EUMETSAT MTG-IRS Mission Advisory Group. For more than ten years he has been working in the field of data assimilation, with particular focus on the use of satellite data (e.g. ATOVS, IASI). Other current activities concern the development of the precipitation products in the framework of the EUMETSAT Hydrology SAF, led by the Italian Meteorological Service.

You are cordially invited to attend.