



*Fakulteta za podiplomski študij / University of Nova Gorica, Graduate School*

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**VABILO NA PREDAVANJI / INVITATION TO THE LECTURES**

***Kompleksnost v ionosferi  
Complexity in the Geospace***

***Dr. Massimo Materassi  
Istituto dei Sistemi Complessi, Sesto Fiorentino, Italy***

*in/and*

***Opazovanja in raziskave ionosferskih svetlobnih  
bliskov***

***Observation and investigation of the ionospheric  
scintillations***

***Dr. Lucilla Alfonsi  
Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy***

***Četrtek, 3. 4. 2008 ob 15:00 / Thursday, 4. 4. 2008 at 15:00  
Predavalnica 201 Fakultete za znanosti o okolju, Križna ulica 3, Gorica, Italija /  
Lecture hall 201, Via della Croce 3, Gorizia, Italy***

***Predavanja bosta v angleščini / Lectures will be held in English.***

***Povzetek 1. kratkega predavanja / Abstract of the first short lecture:***

*The near-Earth space environment, referred to as geospace, is richly structured by the interaction of the solar wind and radiations with the Earth's magnetic field and atmosphere. This region shows those features defining the "complexity" in theoretical physics: a hierarchy of rather stable sub-regions with a complicated dynamics on many time and space scales.*

*Quasi-periodic variability, with elements of unpredictability, of the "permanent" structures (current systems, "spheres", "pauses" and the cusp), and small scale turbulence in the various subregions of the geospace are all manifestations of such "complexity".*

*In the seminar a short and non-comprehensive review of subjects and methods related to geospace complexity will be presented, with reference to theoretical speculations, new tools of data analysis and campaigns of measurements.*

***Povzetek 2. kratkega predavanja / Abstract of the second short lecture:***

*Since 2003 INGV is managing observations of the upper atmosphere by means of GPS receivers. Such instruments are 50 Hz sampling frequency receivers allowing the observation and monitoring of the ionospheric fast fluctuations, known as scintillations. Scintillations are defined as diffraction effects of the satellite signals due to electron density irregularities of the ionosphere. They typically occur at polar and equatorial regions even if they can be observed also at middle latitudes. INGV manages five stations: three in the northern hemisphere, at the Svalbard Islands (Norway), and two in the southern hemisphere, at the Antarctic sites of Mario Zucchelli station and Concordia. The observatories are equipped with GISTM (GPS Ionospheric Scintillation and TEC Monitor) dual-frequency receivers, able to measure the Total Electron Content (TEC) on L1 and L2 bands and to provide scintillations indices on the L1 frequency. These data have been analysed to understand the causes of scintillations during storm events, providing interesting information on the origin, evolution and dynamics of the ionospheric plasma under disturbed conditions. Beside studies specifically addressed to scientific aims, the scintillations measurements are of interest also for developing forecasting and mitigation techniques of the corruption effects on the trans-ionospheric signals. INGV is involved also on these aspects realizing prediction models and ad techniques useful for positioning and navigational systems users.*