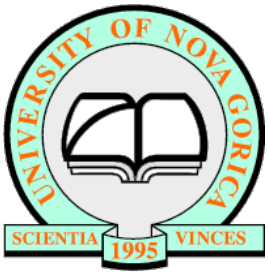

Graduate Physics Seminar
Monday, 2 April 2012 from 4 PM
University of Nova Gorica
Vipavska 13, Rozna dolina, Nova Gorica
SP-1 Lecture room

Marko Vučković

University of Nova Gorica, Center for Atmospheric Research

Characterization of ionospheric effects on GNSS systems

Abstract

One of the major error sources affecting GNSS is the delay caused when the signals pass through the ionosphere on their way to the Earth's surface. This delay is inversely proportional to the square of the carrier frequency, and directly proportional to the Total Electron Content (TEC) of the ionosphere. The use of new Global Navigation Satellite Systems (GNSS) signals, such as L2C, L1C and L5 for GPS, the L1, E5, E6 for GALILEO signals and new L1OF and L2OF for GLONASS signals will become more popular in the near future, capable to deliver a new generation of services. A number of industrial applications will benefit from the availability of new GNSS signals which will improve the availability and accuracy of their services.
This seminar will present structure and modulation schemes as well as the ionospheric effects on those new signals by taking into account their architecture and the consequent demodulation and carrier rate schemes. Furthermore, it will be discussion about the methods which can reduce the ionospheric impact on GNSS. Finally, results from a short measurement campaign done by means of EISCAT UHF radars at European auroral latitudes and instruments calibration techniques used to present these results will be explained.