



UNIVERSITÀ
DI TRENTO

Dipartimento di
Fisica



PhD Program in Space Science and Technology - SST

Ionospheric Irregularities at high latitudes

Specific Seminar – Curriculum 2

May 15, 2025, 3.00 p.m.

Speaker:

Dr. Giulia D'Angelo – Department of Physical and Chemical Sciences – University of L'Aquila

Abstract:

In this seminar, the physical mechanisms triggering amplitude scintillations at high latitudes is investigated with the aim of identifying the solar conditions favoring such events. The ionospheric background and other conditions that prevailed when the irregularities formed and moved is investigated following a multi observations approach. Specifically, it will be used combined information from scintillation parameters and recorded by multi-constellation (GPS, GLONASS and Galileo) receivers located at Concordia station (75.10_S, 123.35_E) and SANAE IV base (71.67_S, 2.84_W), with measurements acquired by the Special Sensor Ultraviolet Spectrographic Imager on board the Defense Meteorological Satellite Program satellites, the Super Dual Auroral Radar Network, the Swarm constellation and ground based magnetometers. Besides confirming the high degree of complexity of the ionospheric dynamics, the multi-instrument observation identified the physical conditions that likely favor the occurrence of amplitude scintillations at high latitudes. Results applied during high solar activity (specifically during the September 2017 Geomagnetic storm) suggest that the necessary conditions for the observation of this type of scintillation in high-latitude regions are high levels of ionization and a strong variability of plasma dynamics.

Short bio:

Giulia D'Angelo is a researcher at the Department of Physical and Chemical Sciences of the University of L'Aquila, Italy. Starting from her PhD, attained on 2019, she worked in both national and international collaborations in the field of Space Weather and Natural Hazard, focusing on the different responses of the magnetosphere-ionosphere coupling under external (Sun) and internal (atmosphere, lithosphere) forcing.

Online attendance:

<https://meet.google.com/wzt-saht-dwo>