Thesis Proposal for the Master's Degree in Physics

Title:
Nonlinear models of atmospheric disturbances generated by strong seismic events

Abstract (max 10 lines):
It is known since many years that large seismic events can give rise to perturbations in the overlying atmosphere and ionosphere. In the last few years, the investigation of atmospheric and ionospheric co-seismic and pre-seismic signals has benefited from the significant improvements of the relevant measurements networks and from the operations of dedicated space missions. However, a detailed comprehension of the physical mechanisms governing the lithosphere-atmosphere-ionosphere coupling near large earthquakes is still lacking. In this thesis, nonlinear models of the coupling between the lithosphere and the lower layers of the atmosphere will be studied by means of numerical simulations, with the aim of characterising the properties of the atmospheric disturbances generated by strong earthquakes and propagating in the atmosphere.

Supervisor(s):
Prof. Fabio Lepreti
Prof. Leonardo Primavera
Dott. Francesco Carbone (Istituto sull' Inquinamento Atmosferico - CNR)

E-mail(s):
fabio.lepreti@unical.it
leonardo.primavera@unical.it
francesco.carbone@iia.cnr.it

Laboratory where the thesis is carried out:
Plasma Astrophysics Lab

Any participating external structures:
(Istituto sull' Inquinamento Atmosferico - CNR)

Type of thesis:
☐ research: theoretical/numerical simulations