



Atmospheric dynamics InfraStructure in Europe: The ARISE project

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ARISE proposes to design a new infrastructure that integrates different station networks in order to provide a new “3D” image of the atmospheric dynamics from the ground up to the mesosphere with unprecedented spatio-temporal resolution. The implied networks are:

- the International infrasound network developed for the verification of the Comprehensive nuclear Test Ban Treaty (CTBT). This system is unique by its quality for infrasound and atmospheric wave observations,
- the Network for the Detection of Atmospheric Composition Changes (NDACC) which uses Lidar to measure stratospheric dynamics,
- the Network for the Detection of Mesopause Changes (NDMC), dedicated to airglow layer measurements in the mesosphere, and additional complementary stations and satellite data.

The infrastructure extends across Europe and outlying regions, including polar and equatorial regions.

The measurements will be used to improve the parameterization of gravity waves in the stratosphere to better resolve climate models. Such description is crucial to estimate the impact of stratospheric climate forcing on the troposphere. In the long term, data will be used for monitoring changes in the occurrence of extreme events and trends in the middle atmosphere climate. The project impact also concerns civil applications related to monitoring of natural hazards as volcanoes. The presentation will focus on the first results obtained using three technologies during specific events as stratospheric warming, volcanic eruptions and severe weather. The benefits of using the three technologies will be discussed.