

T1.1-P07. Dynamics of the middle atmosphere as observed by the ARISE project

The atmosphere is a complex system submitted to disturbances in a wide range of scales, including high frequency sources as volcanoes, thunderstorms, tornadoes and at larger scales, stratospheric warming events, gravity waves from deep convection or wind over mountains, atmospheric tides and planetary waves. These waves affect the different atmospheric layers submitted to different temperature and wind systems which strongly control the general atmospheric circulation. Variations in the middle atmosphere circulation influence weather and climate throughout the troposphere all the way to the Earth's surface. Limited observation of the middle atmosphere limits the ability to faithfully reproduce the dynamics of the middle atmosphere in numerical weather prediction and climate models. The objective of this paper is to present a review of recent advances, especially obtained in the framework of the ARISE (Atmospheric dynamics Research InfraStructure in Europe) project. ARISE is based on the use of the IMS (Infrasound Monitoring System) developed for the verification of the CTBT (Comprehensive nuclear-Test-Ban Treaty) completed by complementary stations and infrastructures. The main objective is to provide data in the different layers of the atmosphere for improving weather and climate models and monitoring extreme events for many civil applications.

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