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Contribution of infrasound network to the study of the dynamics of the atmosphere

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This paper presents observations of gravity waves by the infrasound network which has been developed for the verification of the CTBT (Comprehensive Nuclear-Test-Ban Treaty) and which currently consists of 42 homogenously distributed stations around the globe. Such waves are produced in the troposphere mainly by convection related to thunderstorms and wind over mountains. Gravity waves are directly observed by the network. Differently, planetary waves are observed indirectly through their influence on the long distance propagation of microbaroms, in high latitude stations in winter. Both planetary and gravity waves interact with the stratosphere and mesosphere, affecting the main flow and contributing to the global circulation of the atmosphere. Such low frequency infrasound observations are used by the project ARISE (Atmospheric dynamics InfraStructure in Europe) in complement to additional lidar and mesospheric observations for studying dynamics of the atmosphere and based on a long-term observational basis of effects on climate as well.