



Detection capability of the global IMS infrasound network

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Infrasound data processing on a routine-basis provides a powerful tool to quantify relationships between infrasonic observations and atmospheric specifications. A global scale analysis based on available detection lists for all operating IMS infrasound stations provides further evidence that long-range propagation primarily depends on the seasonal variability of the prevailing stratospheric zonal winds. It confirms that most of the detected infrasound energy propagates within the stratospheric waveguide. For most arrays, the seasonal transition in the bearings and the number of detections between easterly and westerly directions along with the stratospheric wind circulation will be presented. The observed detection capability of the IMS network is compared to the predicted one using near-real time atmospheric updates and realistic background noise levels. The detection thresholds will finally be discussed as a function of season and time of day. With the increasing number of IMS and experimental arrays deployed around the globe, a valuable contribution can be anticipated in the understanding of the dynamics of the upper atmosphere. In return, such studies would help to optimize the siting of infrasound arrays with respect to both number and configuration to monitor infrasonic sources of interest.