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Continuous infrasound monitoring for atmospheric studies

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Infrasound data processing on a routine-basis provides a powerful tool to quantify relationships between infrasonic observables and atmospheric specification problems. In particular, studies of continuous sources of infrasonic waves provide further evidence that long-range propagation primarily depends on the seasonal variability of the prevailing zonal winds. It confirms that most of the detected infrasound energy propagates in the stratospheric waveguide. The observed detection capability of the IMS network is compared to the predicted one using near-real time atmospheric updates. Moreover, on regional scales, signals from volcanic activities open up new fields for investigations into inverse problems for atmospheric remote sensing in a range of altitude where routine ground based or satellite measurements are rare. 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 will help to optimize the siting of infrasound arrays with respect to both the number and configuration in order to monitor infrasonic sources of interest.