

## **SSW forecast evaluation using infrasound**

Accurate prediction of Sudden Stratospheric Warming (SSW) events is important for the performance of numerical weather prediction due to significant stratosphere–troposphere coupling. In this study, for the first time middle atmospheric numerical weather forecasts are evaluated using infrasound. A year of near continuous infrasound from Mt. Tolbachik (Kamchatka, Russian Federation) is compared with simulations using high resolution deterministic forecasts of the European Centre for Medium-range Weather Forecasts (ECMWF). This study focuses on the period around the 2013 major SSW, and shows that while the SSW onset is better captured by the ten day forecast, the duration and recovery is better captured by the nowcast. As such, this study demonstrates the use of infrasound in the evaluation of middle atmospheric weather forecasts and therefore its potential in the assessment of tropospheric forecast skill.

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