



## **Infrasound Data Inversion for Atmospheric Sounding**

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In the framework of the verification of the Comprehensive Test Ban Treaty (CTBT), a network of 60 microbarometric stations will be deployed in order to monitor atmospheric nuclear explosion. The CEA/DASE has in charge the installation and maintenance of a number of these stations as well as the development of data processing methods for operational infrasound monitoring.

Due to the lack of data in the middle and upper atmosphere (>50 km), there is a growing interest in infrasound measurements as a remote sensing technology for atmospheric sounding. Various simulation studies show the relevance of infrasound data for validating standard atmospheric models, and most of them point the limits of these models to explain the large variability observed in infrasound data. Systematic biases are observed between simulations and observations, especially during the seasonal transitions and at smaller time scale (days), due to meteorological effects. They are the manifestations of atmospheric variations not included in the models.

Our studies deal with the development of inversion methods of infrasound data in order to retrieve some meteorological parameters of the atmosphere such as wind velocity or temperature profiles. We present a methodology for infrasound data inversion, regularization methods of the inverse problem and preliminary results from synthetic data.