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Explanation of the detection parameter deviations for a known source

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The infrasound station I31KZ was commissioned in 2001. Since March 2005 all arrived data have been processed automatically using PMCC detector. Collected bulletins have a lot of detections of infrasound events. Azimuthal distribution of detections in bulletins is inhomogeneous. It can be explained by existence of some permanent sources recorded by the station constantly.
The source which is most frequently recorded by the I31KZ is the gas flairs group on Zhanazhol oil and gas field. The nature of the source was earlier proved with the aid of the temporary infrasound array.
The PMCC analysis of the automatic processing results shows clear seasonal trends in the measured backazimuth and horizontal trace velocity. A sine variation for Zhanazhol detections of the azimuth deviation were noted within a range of 15°.
The ray path between the I31KZ and the oil field was constructed. Reformulated tau-p method was used. It was found a very good match between the observed data and the modeling results.
The modeling predicted three different infrasound phases. The stratospheric phase should be frequently observed from September to April. Troposphere phase should be met more seldom during a whole year. And thermosphere phase should prevail in observation in summer and not frequently occurs at other time. All three phases exist in observed waveforms, excluding only thermosphere returns at summer time.
Good match between observed and predicted data allowed to precise localization by excluding of the wind influence.