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Joint Processing of Pressure Pulsations and Wind Velocity Data at Infrasound Stations

Results have been obtained that make it possible to detect infrasound signals based on minimization of false alarm probability using data from pressure and wind velocity measurement channels. An algorithm for creating a multichannel selector performance characteristic has been developed using likelihood ration as per results of background measurements at the pressure and wind velocity channels as well as modeling acoustic signals in infrasound frequency range. Joint processing is based on methods presented at the SnT2015 in Vienna. It uses the principle of maximization of likelihood ratio Λ with joint recording of pressure pulsations and wind velocity. This methods uses the product of conditional probabilities for independent functionals Φ_1,Φ_2 of joint recording of functional Φ_дет calculated on the basis of data from pressure pulsations measurement channel as an assessment criterion Λ. The Λ numerator consists of the product of probabilities ⊠P(Φ⊠_i) calculated subject to signal S_k availability. The Λ denominator consists of the product of probabilities ⊠P(Φ⊠_i) calculated subject to signal S_k absence.

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