

T2.3-P17. Seismo-acoustic monitoring of local events

Since the beginning of its deployment, in 2009, Plostina infrasonic array (IPLOR) has proven effective in detecting acoustic signals produced by impulsive sources such as explosions, quarry blasts, volcanic eruptions, bolides, or thunderstorms. This is explained by the sensors' characteristics (frequency response, dynamic range) and the large aperture of array. Initially comprising three elements, IPLOR is currently a 6-element array, with 2.5 km aperture, and Chaparral Physics Model 25 instruments. The analysis of the large set of data recorded during over 5 years of operation shows the enhancement of the detection capability at relatively low frequencies (0.5 Hz) with increasing of the number of array elements. A better characterization of the signal, in terms of back-azimuth and horizontal trace velocity, is observed as well, corresponding to the improved array response. We present several seismo-acoustic events observed with IPLOR array and Romanian seismic stations: a strong local earthquake (ML=5.7, h=39 km) occurred within of the 40 km distance of array, a quarry blast in Dobrogea region (two hundreds of kilometers from IPLOR) and a bolide explosion, recently produced in the array area. Surface explosions and earthquakes are useful sources for checking detection and location efficiency, when seismo-acoustic data are jointly processed.

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