

Current Status of Infrasound Processing at the IDC

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The data from nine infrasound arrays of the International Monitoring System (IMS) are currently received and processed at the International Data Centre (IDC) in Vienna. Five stations (I07AU, I10CA, I26DE, I34MN, I59US) are used in operations and may contribute to the Reviewed Event Bulletin (REB), the remainder (I08BO, I24FR, I33MG, I57US) are in the process of testing and validation on the IDC testbed before their promotion into the operations pipeline.

The sparse distribution of the infrasound network is the primary reason that explains the limited contribution of the infrasound stations to the REB. At the moment, it is difficult to find atmospheric events that have a sufficient yield to be detected only by the IMS infrasound network. In most cases, event sources are located in the vicinity of the infrasound arrays, are reported in single-station detection lists and eventually appear in the automatic event lists combined - most of the time incorrectly - with seismic and hydroacoustic arrivals.

The IDC continues to follow the testing strategy of separately reviewing the automatic detections produced by each infrasound array in order to understand the type of signals detected. Events of special interest are also analysed, documented and archived in a reference event database. The DFX-PMCC application has been activated in test mode to facilitate comparison with the DFX-libinfra detector currently used in the IDC automatic system. Near real-time comparison of the two detection bulletins is very helpful in understanding and cataloguing the various sources of signals recorded at each infrasound array and evaluating the detection capability of the two different algorithms.

IDC has also invested significant effort, in collaboration with the French NDC, regarding interactive processing of infrasound data with the installation of a “beta” version of WinPMCC software (stand-alone version of the Progressive Multi-Channel Correlation - PMCC - software running under a Matlab interface). WinPMCC has been adapted to meet some IDC requirements and has been installed on the IDC testbed in order to provide the analysts with an innovative and powerful tool for infrasound signal analysis. The experience has greatly increased the interest of the IDC staff for the infrasound technology, and has demonstrated the feasibility of implementing a new approach for processing and representing infrasound information.