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of the 4 August 2020 Beirut explosion from the infrasound component of the IMS network

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The 4 August 2020 tragic Beirut ground truth explosion is of great interest to test the infrasound component of the IMS network, especially in terms of localization accuracy and energy estimation. Although the event was detected by five infrasound IMS stations located from 2 400 km (I48TN, Tunisia) to 6200 km (I11CV, Cape Verde), the early location capability from such a sparse network remains limited. Indeed, the spatial distribution of the remote detecting stations tainted by variable background noise levels, coupled with the relatively high uncertainties associated to the atmospheric parameters in the middle atmosphere, make the accurate localization estimation of such medium size events very challenging. We will show in this presentation that even if meteorological institutes can now provide high spatial and time resolution operational products (1h in time and 0.25° in space) at a global scale up to 80 km altitude, the final localization uncertainties remain quite high using infrasound-only data. Examples of full-wave modelling performed from ECMWF analysis and forecasts products, that the IDC distributes to Member States, will be shown to illustrate that point. Such model effects on energy estimation will also be quantified and discussed.

Promotional text

Infrasound analysis of the 4 August 2020 tragic Beirut explosion

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