

Passive seismology of ice: an overview of main seismic sources and their characteristics

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Recent ‘flood’ of papers and passive seismic data about ice covered areas of the planet produced a need for generalized ways to distinguish between different types of seismic sources generating ice-quakes. Basing on analysis of more than 100 publications, we make a step in this direction and attempt to take a quantitative look at key features of previously reported signals. We find that the emerging seismic ‘portrait’ of the Cryosphere can be mainly explained in terms of released glacial stress and external forcings. Our study presents the first sketch of criteria which could be ultimately helpful in detecting and categorizing various ice-related phenomena.

Keywords: icequake, Cryosphere, Seismology, seismic source, magnitude, stress drop