

Digitization and analysis of printed seismograms from aftershocks of the Novaya Zemlya explosion on October 27, 1973

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In October 1973, a nuclear explosive with a yield of about 4 megatons was detonated underground at the Novaya Zemlya test site. The explosion was followed by a series of aftershocks, a phenomenon that had previously not been observed at Novaya Zemlya. Today, very few short period seismic recordings of these aftershocks exist. At the Swedish Defence Research Agency (FOI), printed short period seismograms from the Hagfors station have been preserved, and in this paper we present the results of scanning these seismograms and digitizing the signal. The digitization process as well as the associated difficulties are explained together with an analysis of the properties of the seismic signals from the aftershocks. Finally, a comparison with the aftershocks following the nuclear test on Sep 3, 2017 in North Korea is made. The region of Novaya Zemlya is a very low seismicity region. In the ISC catalogue between 1960 and 2016 only 57 earthquakes are found. The identification of the aftershocks is quite easy in both time and space.

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