

Current state of the Arkhangelsk seismic network and results of seismic monitoring of the European Arctic region in 2015

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Arkhangelsk seismic network (ASN) was established in 2002. A significant contribution to the study of seismicity of the Arctic was made possible by the installation of new stations, located directly in the Arctic zone. There are the station ZFI on the archipelago Franz Josef Land and the station AMD on the coast of the Kara Sea. At the stations of ASN installed equipment made by Geophysical Survey of the Russian Academy of Sciences and company Guralp due to several reasons and the possibilities we have.

In autumn 2015 was installed one more seismic station on the archipelago Franz Josef Land with sensor CMG-3ESP-Polar at a distance of 3 km from ZFI. Seismic station TMC was closed due to technical problems and high noise levels. We have found another place in the same area where was opened the new station ADZ. Seismic station ADZ has a significantly lower noise level than TMC.

Seismic monitoring of the European Arctic and Northern European Russia carried out by the Arkhangelsk seismic network. The catalog for 2015 contains information about 1,000 different seismic events, their coordinates and magnitude. A minimum of three seismic stations were used to locate seismic events. The wave forms of the stations of the international networks have been involved for the analysis also, such as IRIS, NORSAR, ect.

Spatial distribution of earthquakes is related to the main seismic active zones of the Arctic Basin, there are Knipovich Ridge, Gakkel Ridge and Svalbard. The main amount of seismic events have been recorded on the continental part of the Arctic region have technogenic nature and relate with mining operations in mines and open pits. However, the ASN records several tectonic earthquakes every year. We note that the two earthquakes occurred on the continental part of Northern European Russia 03.07.2015 to=17:05:43 ($\varphi=58.22^{\circ}\text{N}$, $\lambda=45.96^{\circ}\text{E}$, $\text{ML}=3.7$) and 05.07.2015 to=06:11:37 ($\varphi=58.13^{\circ}\text{N}$, $\lambda=46.37^{\circ}\text{E}$, $\text{ML}=3.5$).

In general, the earthquakes distribution is consistent with seismic monitoring of previous years. In 2013 a representative level of magnitude was equal to 2.7, in 2014 – 2.9. For the first six months of 2015 the representative level of the magnitude has remained at the level of 2.9.

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