



Marker ash layers of Central and Southern Kamchatka - unique stratigraphic tool for detail paleoenvironmental studies

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Kamchatka peninsula hosts more than 30 active volcanoes. Their Holocene eruptions produced numerous tephra, which spread over a different distance, being found as far as 1500 km from the source volcano. Previous tephrochronological investigations (Braitseva et al., 1997, etc.) have determined main marker ash layers distributed mainly in the eastern and southern part of Kamchatka. Our investigation has allowed to recognize and identify precisely some marker ash layers in Central Kamchatka Depression and northern part of Southern Kamchatka using their mineralogical, geochemical and physical characteristics.

Based on their spatial coverage, the transit ashes could be subdivided into three groups (codes and ages are given according to Braitseva et al., 1997, 2001; Pevzner, 2003; Bazanova et al., 2005; Ponomareva et al., 2006).

1. Overall tephra markers, which were found in the most of sections: KHG - the 6900 14C yrs BP Khangar volcano eruption; KS1 - the 1800 14C yrs BP Ksudach volcano eruption; OP - the 1500 14C yrs BP Barany Aphitheatre (Opala volcano) eruption.

2. Southern tephra markers, which spread over southern part of the study area: KO - the 7700 14C yrs BP Kurile Lake caldera-forming eruption; KS2 - the 6000 14C yrs BP Ksudach volcano eruption; AV5700, AV5300, AV1, AV2800, AV2300 - the Avachinsky volcano eruptions at 5700, 5300, 3500, 2800 and 2300 14C yrs BP, respectively.

3. Northern tephra markers, which comprise: SH2800, SH3 - the Shiveluch volcano eruptions at 2800 and 1400 14C yrs BP, respectively; KHG2- the 6600 14C yrs BP Khangar volcano eruption.

Being correlated site-to-site these ash layers create unique stratigraphic scheme for paleoclimatic, archeological, etc. investigations. Sets of precisely identified and well dated ash horizons provide perfect age control for the whole sequence and separate intervals what is extremely important for the study of organic-poor sections. They also enable to study paleoenvironments at synchronous levels over a large area as well as evaluate the influence of thin ash layers on different ecosystems. This research was supported by RFBR and RFBR-JSPS grants.