

The 2018 Activity of Kamchatka Volcanoes and Danger to Aviation

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Strong explosive eruptions of volcanoes are the most dangerous for aircraft because they can produce in a few hours or days to the atmosphere and the stratosphere till several cubic kilometers of volcanic ash and aerosols. Ash plumes and the clouds, depending on the power of the eruption, the strength and wind speed, can travel thousands of kilometers from the volcano for several days, remaining hazardous to aircraft, as the melting temperature of small particles of ash below the operating temperature of jet engines.

There are 30 active volcanoes in the Kamchatka, and several of them are continuously active. Scientists of KVERT monitor Kamchatkan volcanoes since 1993. In 2018, three of these volcanoes (Sheveluch, Klyuchevskoy, Karymsky) had strong and moderate explosive eruptions.

The eruptive activity of Sheveluch volcano began since 1980 (growth of the lava dome) and is continuing at present. In 2018, strong explosions sent ash up to 10-11 km a.s.l. on 09 January, 26 and 30 December; and up to 6-7 km a.s.l. – on 09 November, and 12, 14, 26-27 and 29 December; ash plumes extended more 2000 km to the different directions of the volcano. Satellite data by KVERT showed a thermal anomaly over the volcano all year. Activity of the volcano was dangerous to international and local aviation.

The moderate explosive events (ash up to 5-6 km a.s.l.) of Klyuchevskoy volcano were observing from 01 till 18 January, on 08 May, and 06 and 15 June. Strong explosions sent ash up to 10.5 km a.s.l. on 14 May. Ash plumes extended more 350 km to the eastern and south-western directions from the volcano. Satellite data by KVERT showed a thermal anomaly over the volcano all year. Activity of the volcano was dangerous to international and local aviation.

The thermal anomaly over Karymsky volcano was recorded on satellite images from time to time, most brightly it manifested in January, May, June-August, September and December. According to visual and satellite data, at this time explosions rose ash up to 6.5 km a.s.l., ash plumes drifted for about 860 km to the different directions from the volcano. The most intense eruptive activity of the volcano was observed on 10, 14-20 and 26-31 July, besides, isolated strong explosive events were observed on 07 and 25 August, on 10-11, 22-23 and 30 September, and 01 December. The size of the ash clouds varied from 5-6 to 240 km. Activity of the volcano was dangerous to local aviation.

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