

Volcanic activity on the Kuril Islands in 2023

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Abstract. Ebeko and Chikurachki volcanoes, located on Paramushir Island (the Northern Kuril Islands), were in a state of eruption in 2023. During that year, Ebeko volcano showed moderate volcanic activity typical of its recent years, characterized by frequent phreatic and phreatomagmatic ash explosions. According to video surveillance data, a total of 675 emissions to a height of 1.5 to 4.5 km above sea level were recorded, 293 of which were up to 3 km above sea level and higher. As in the previous years, the maximum activity (in terms of the number and height of emissions) was observed in the period from June to August (244 ash emissions, 94 of which were up to 3 km above sea level or higher). The explosions were more frequent from January to April (59 emissions in January and 64 emissions in March) and in December (56 emissions). Another explosive eruption of Chikurachki volcano occurred from 28.01.23 to 8.02.2023. The eruptive events were characterized by moderate volcanic activity: both occasional explosions and phases of relatively quiet and prolonged emission of ash and gas mixture were observed. At least 8 emissions to a height of 2.5–4.5 km above sea level were recorded, similar in their nature to the previous 5 episodes of explosive volcanic activity that occurred throughout 2022.

Keywords:

volcano, eruption, Ebeko, Chikurachki, Paramushir, the Kuril Islands, volcanic ash, satellite images

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References

1. Gorshkov G.S. **1967.** [Volcanism of the Kuril island arc]. Moscow: Nauka Publ., 287 p. (In Russ.).
2. Laverov N.P. **2005.** [Newest and modern volcanism on the territory of Russia]. Moscow: Nauka, 604 p. (In Russ.).
3. Fedorchenko V.I., Abdurakhmanov A.I., Rodionova R.I. **1989.** [Volcanism of the Kuril island arc: geology and petrogenesis]. Moscow: Nauka, 239 p. (In Russ.).
4. Melekestsev I.V., Dvigalo V.N., Kiryanov V.Yu., Kurbatov A.V., Nesmachny I.A. **1993.** [Ebeko volcano (the Kuril Islands): History of the eruption activity and future volcanic hazard. Pt I]. *Volcanology and Seismology*, 3: 69–81. (In Russ.).
5. Belousov A., Belousova M., Auer A., et al. **2021.** Mechanism of the historical and the ongoing Vulcanian eruptions of Ebeko volcano, Northern Kuriles. *Bull. of Volcanology*, 83(4). <https://doi.org/10.1007/s00445-020-01426-z>
6. Kotenko T.A., Smirnov Z.Z., Timina T.Y. **2023.** The 2022 activity of Ebeko volcano: The mechanism and ejecta. *J. of Volcanology and Seismology*, 17: 259–277. <https://doi.org/10.1134/S0742046323700264>
7. Panin G.L., Gora M.P., Bortnikova S.P., Shevko E.P. **2015.** Subsurface structure of the northeastern fumarole field of the Ebeko Volcano (Paramushir Island) according to the data of geoelectrical and geochemical studies. *Russian Journal of Pacific Geology*, 9: 301–311. <https://doi.org/10.1134/s1819714015040077>
8. Degterev A.V., Chibisova M.V. **2022.** Volcanic activity of the Kuril Islands in 2020–2021. *Geosistemy perehodnykh zon = Geosystems of Transition Zones*, 6(3): 195–205. (In Russ., abstr. in Engl.). <https://doi.org/10.30730/gtrz.2022.6.3.195-205>
9. Melekestsev I.V., Dvigalo V.N., Kiryanov V.Yu., Kurbatov A.V., Nesmachny I.A. **1993.** [Ebeko volcano, Kuril Islands: eruptive history and potential volcanic hazards. Pt II]. *Volcanology and Seismology*, 4: 24–42. (In Russ.).
10. Belousov A.B., Belousova M.G., Grishin S.Yu., Krestov P.V. **2003.** Historical eruptions of Chikurachki volcano. Paramushir I., Kuriles. *J. of Volcanology and Seismology*, 3: 15–34. (In Russ.).
11. Hasegawa T., Nakagawa M., Yoshimoto M., Ishizuka Y., Hirose W., Seki S., Ponomareva V., Rybin A. **2011.** Tephrostratigraphy and petrological study of Chikurachki and Fuss volcanoes, western Paramushir Island, northern

Kurile Islands: Evaluation of Holocene eruptive activity and temporal change of magma system. *Quaternary International*, 246(1-2): 278–297. <https://doi.org/10.1016/j.quaint.2011.06.047>

12. Degtereov A.V., Chibisova M.V. **2022**. The explosive activity of Chikurachki volcano in January–October 2022 (Paramushir Island, Northern Kuriles). *Geosistemy perehodnykh zon = Geosystems of Transition Zones*, 6(4): 328–338. (In Russ., abstr. in Engl.). <https://doi.org/10.30730/gtrz.2022.6.4.328-338>
13. Degtereov A.V., Chibisova M.V. **2023**. Explosive activity of Chikurachki volcano in January–February of 2023 (Paramushir Island, Northern Kuril Islands). *Geosistemy perehodnykh zon = Geosystems of Transition Zones*, 7(2): 212–218. (In Russ., abstr. in Engl.). <https://doi.org/10.30730/gtrz.2023.7.2.212-218>