

# RING-SHAPED SEISMICITY STRUCTURES IN THE REGION OF SOUTHWESTERN ALASKA: JUSTIFIED FORECASTS OF PLACES AND MAGNITUDES OF THE SIMEONOF (22/07/2020, Mw 7.8) AND CHIGNIK (29/07/2021, Mw 8.2) EARTHQUAKES

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We have been studying some seismicity characteristics in the region of Southwestern Alaska. Aftershock zones of the Simeonof (Mw 7.8) and Chignik (Mw 8.2) earthquakes were picked out. Characteristics of shallow ( $h=0-33$  km) and deep ( $h=34-70$  km) ring-shaped seismicity structures are described, which form during a few decades prior to these events. The forecasts of places and magnitudes of large earthquakes, which could prepare in the area of Shumagin seismic gap and to the east of it were made. Predicted magnitude estimates ( $M_w=7.9\pm 0.3$  and  $8.2\pm 0.2$  correspondingly) were obtained using correlation dependences between parameters of ring-shaped structures and magnitudes of large and great earthquakes for the eastern part of the Pacific. The forecasts of places and magnitudes of events considered were described in the articles, published in 2012 and 2021 respectively. We considered possible changes of ring-shaped structures parameters directly prior to the Simeonof and Chignik earthquakes. Sharp increase of the seismicity level in the area of shallow ring-shaped structure a year before the Chignik earthquake can be considered as a trigger, which testifies about accelerating large event preparation. At the same time, the similar effect was not observed prior to the Simeonof earthquake. We discuss geodynamic processes, which can lead to the ring-shaped structures formation.