

## The petit-spot volcanoes on the flexed plate in the world

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The new kind of volcanoes, petit-spot, is monogenetic and young volcano discovered on the Cretaceous NW Pacific Plate, where the outer-rise forms during subduction when old and cold lithosphere bends so that it can sink into the interior of the Earth at the trenches. The flexing is mostly an elastic behavior, but it may also cause brittle fracturing of the downgoing slabs. The lava escapes to the surface along brittle fractures of the flexed upper lithosphere and occur in the asthenosphere as a depleted mantle without the magma fed by mantle plume. The eruptive ages of the petit-spot at the NW Pacific Plate, 1.8, 4.2, 6.0 and 8.5 Ma  $^{40}\text{Ar}/^{39}\text{Ar}$  ages, implied episodic eruption of magma over a distance of 600 km of plate motion. Furthermore, I would show the possible sites of the petit-spot volcanic activities at the oceanward slopes of the Japan, Chile and Tonga trenches, which are good examples of fracture-related petit-spot volcanoes. Pending more detailed rock sampling at the ocean-ward slope of the trenches and the age dating of lavas, we anticipate that petit-spot volcanic activity is an ubiquitous phenomenon on all flexed parts of all subducting tectonic plates globally. Fissures forming in the outer-rises seem to be the logical mechanism allowing asthenospheric melts to escape to the surface and to form young petit-spot volcanoes.