

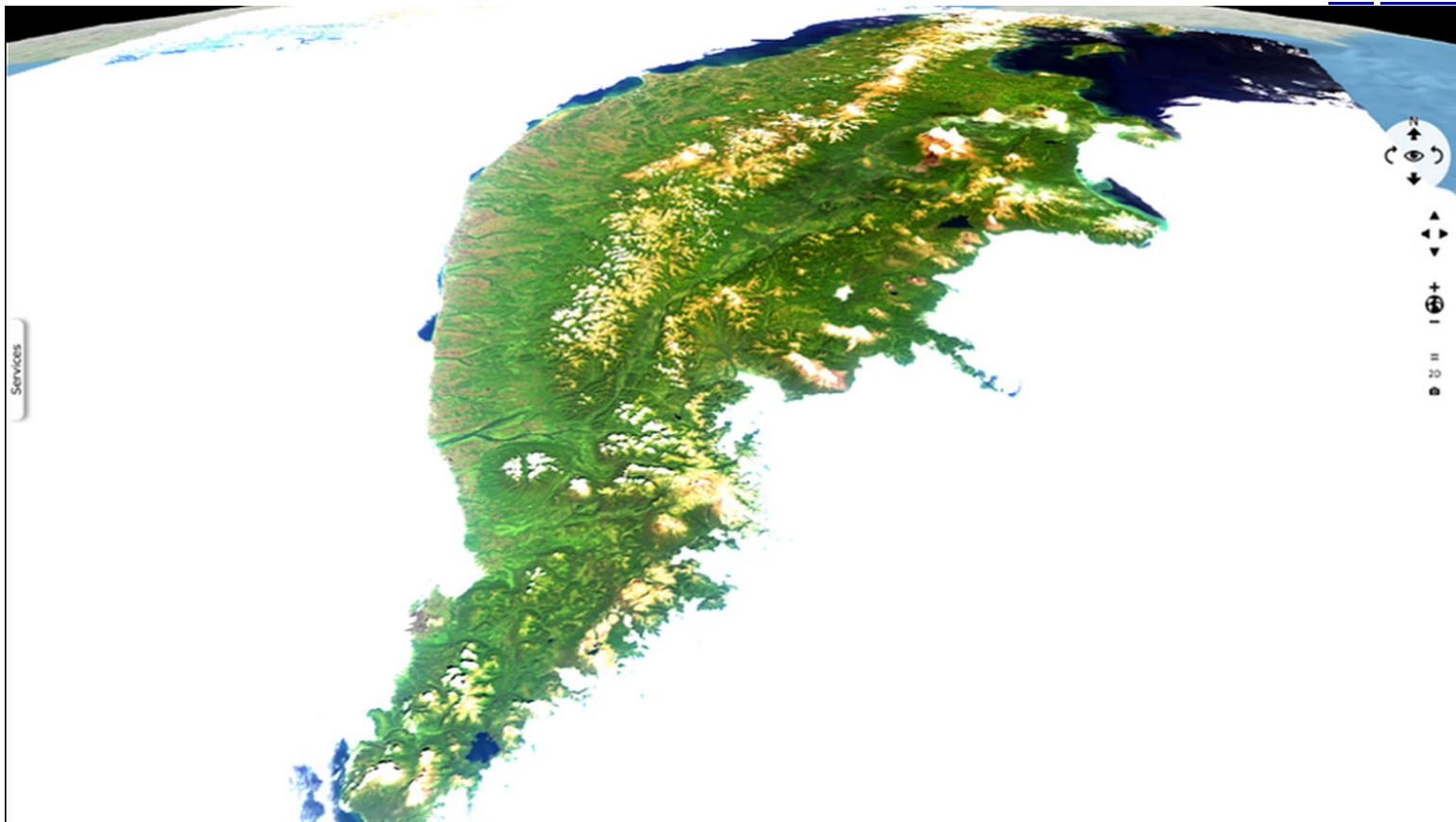
Kamchatka Peninsula

Sentinel-2 MSI acquired on **13 May 2017** at 00:36:11 UTC
Sentinel-2 MSI acquired on **06 September 2017** at 00:56:41 UTC
Sentinel-2 MSI acquired on **07 September 2017** at 00:26:11 UTC
Sentinel-3 OLCI FR acquired on **08 September 2017** at 00:07:41 UTC
Sentinel-2 MSI acquired on **30 September 2017** at 00:36:01 UTC
Sentinel-1 CSAR IW acquired on **04 October 2017** at 07:08:10 UTC
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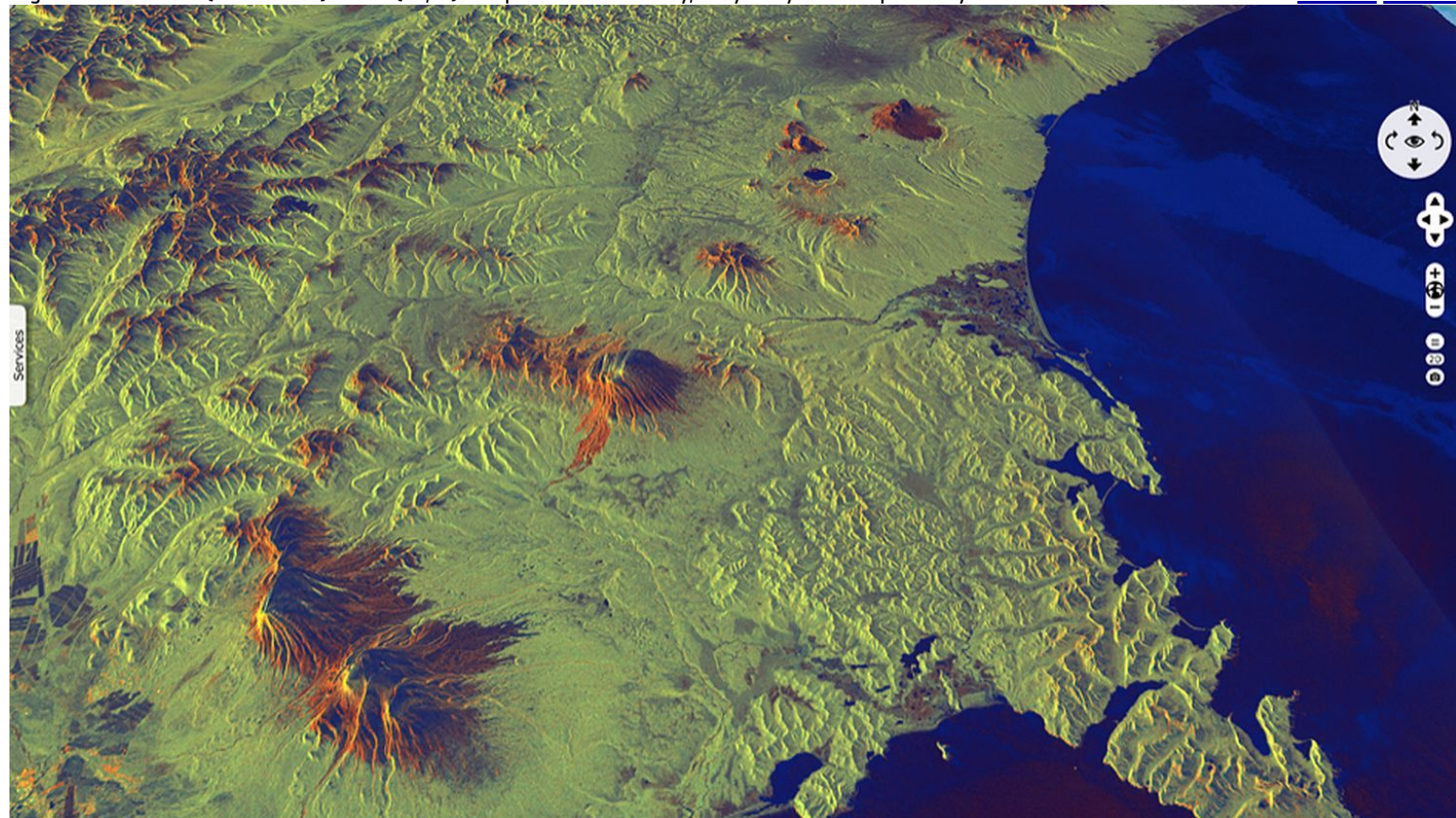
Fig. 1 - Sentinel 3 OLCI (08.09.2017) - 10,6,4 Natural composite - Kamchatka Peninsula surrounded by clouds - Relief magnified with a 3x factor. [3D view](#) [2D view](#)



"Kamchatka Peninsula, peninsula in far eastern Russia, lying between the Sea of Okhotsk on the west and the Pacific Ocean and Bering Sea on the east. It is about 750 miles (1,200 km) long north-south and about 300 miles (480 km) across at its widest; its area is approximately 140,000 square miles (370,000 square km). Two mountain ranges, the Sredinny ("Central") and Vostochny ("Eastern"), extend along the peninsula and rise to 15,584 feet (4,750 metres) in Klyuchevskaya Volcano. The trough between these mountain chains is occupied for much of its length by the Kamchatka River. Of the 127 volcanoes, 22 are still active, as are a number of geysers and hot springs. Most of the active volcanoes lie along a fault line on the eastern flank of the Vostochny Range. The eastern coast is an alternation of broad gulfs and cliffed, mountainous peninsulas. A small geothermal-power station uses underground steam and is in operation near the southern end of the peninsula." [Encyclopædia Britannica](#)

Fig. 2 - Sentinel 1A (10.04.2017) - NDI (vh,vv) composite - Avachinsky, Koryaksky and Zhupanovsky volcanoes.

[3D view](#) [2D view](#)

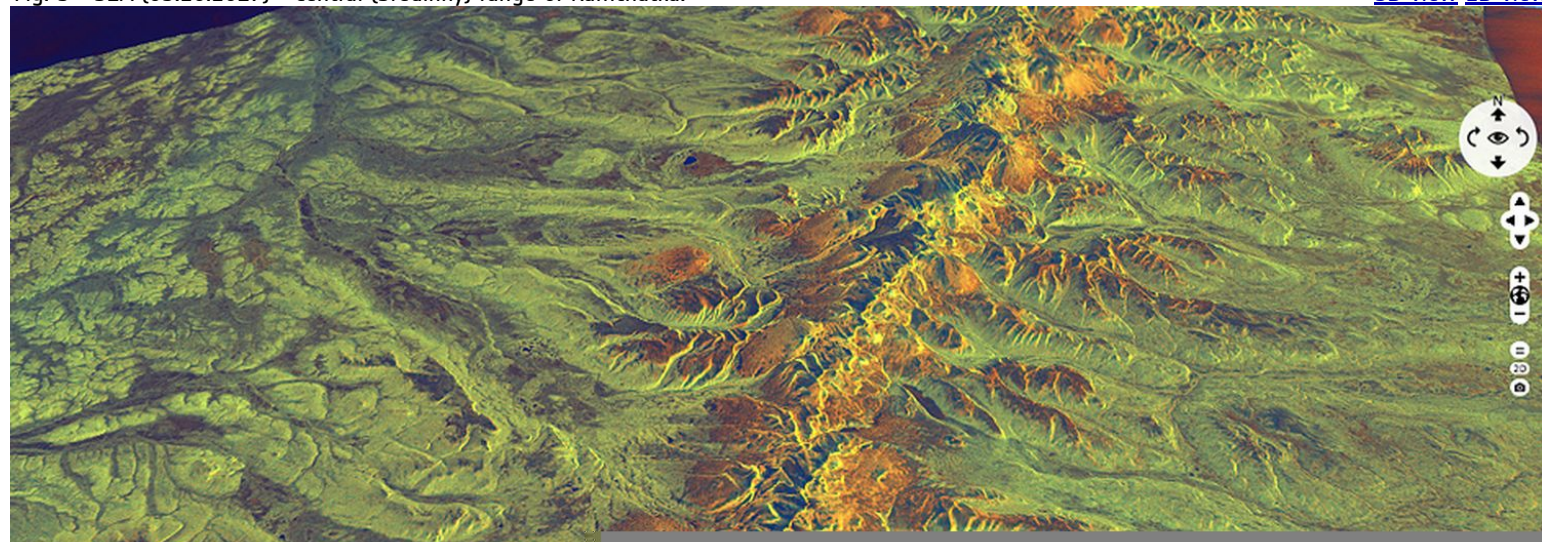


Avachinsky and Koryaksky volcanoes are visible from Petropavlovsk-Kamchatsky, where more than half of the population lives, and represent the most accessible volcanoes of the Peninsula. They both are active stratovolcanoes and designated as Decade Volcanoes, which means they are identified by the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) as being worthy of particular study in light of their history of large, destructive eruptions and proximity to populated areas.

Zhupanovsky is also an active volcano that consists of four overlapping stratovolcanoes. After 54 years of inactivity, the volcano began erupting on October 23, 2013 and again in 2014, continuing nonstop into 2016.

Fig. 3 - S1A (05.20.2017) - Central (Sredinny) range of Kamchatka.

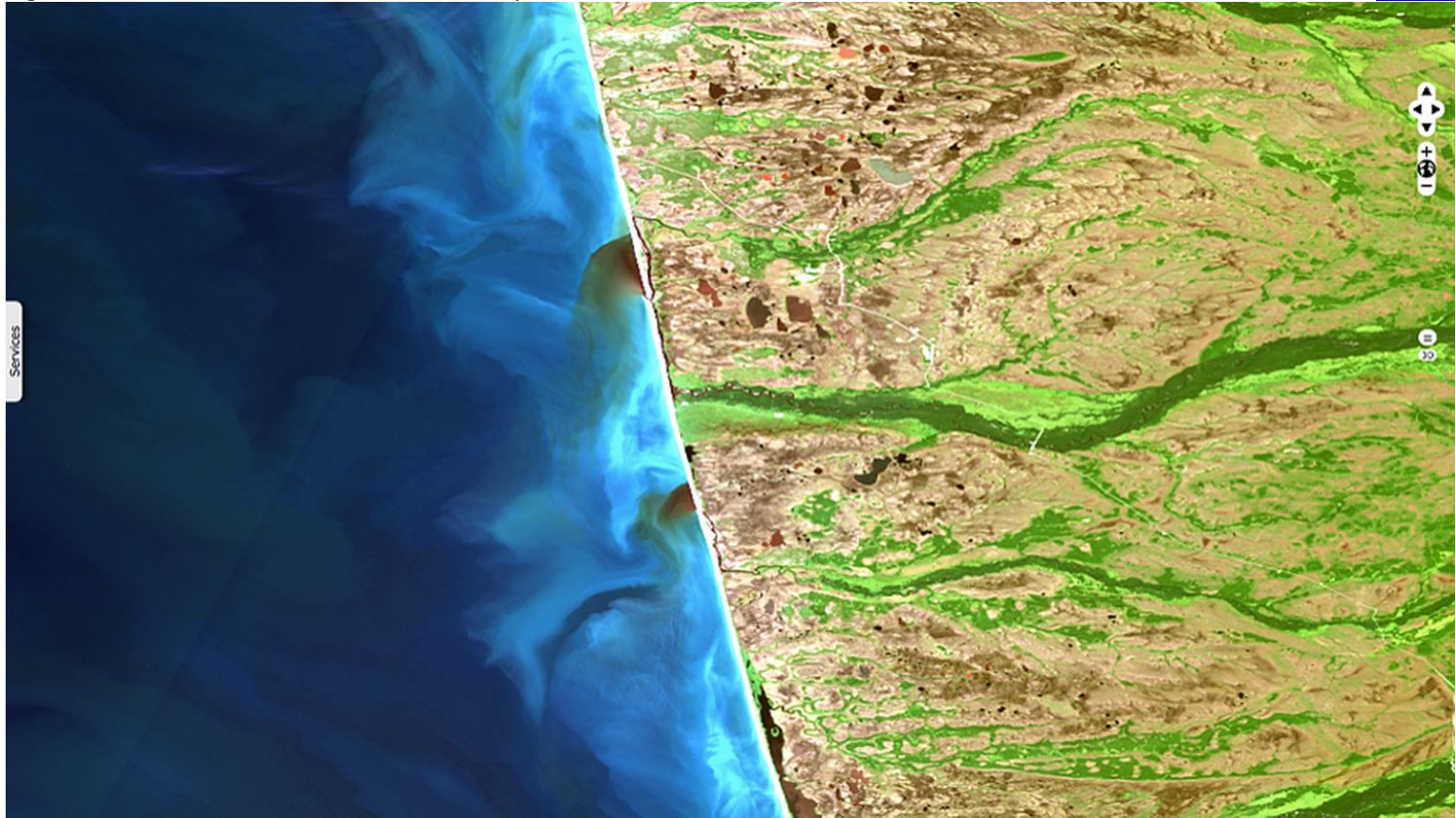
[3D view](#) [2D view](#)



Volcanic activity in Kamchatka is a result of convergence of Eurasian and Pacific plates, the latter of which presently subducts at a rate of 8-9 cm/year. Sredinny Range is located in the back arc region, 400 km from the present trench. The range is one of the least studied regions in Kamchatka. There is an active Benioff zone in the southern part of the Range, at a depth of 350 km. In the north, subduction appears to have stopped, although active volcanoes are still located in the area. *"The Sredinny Range of Kamchatka is a largest volcano-tectonic structure of the peninsula. It consists of two parts: Sredinny Metamorphic Massif and a volcanic zone. Sredinny Metamorphic Massif (200 × 50 km) is located in the southern part of the Sredinny Range. The peak of metamorphic events and subsequent lifting of the metamorphic rocks to the surface took place in*

Fig. 4 - Sentinel 2A (06.09.2017) - 4,3,2 Natural composite - West coast.

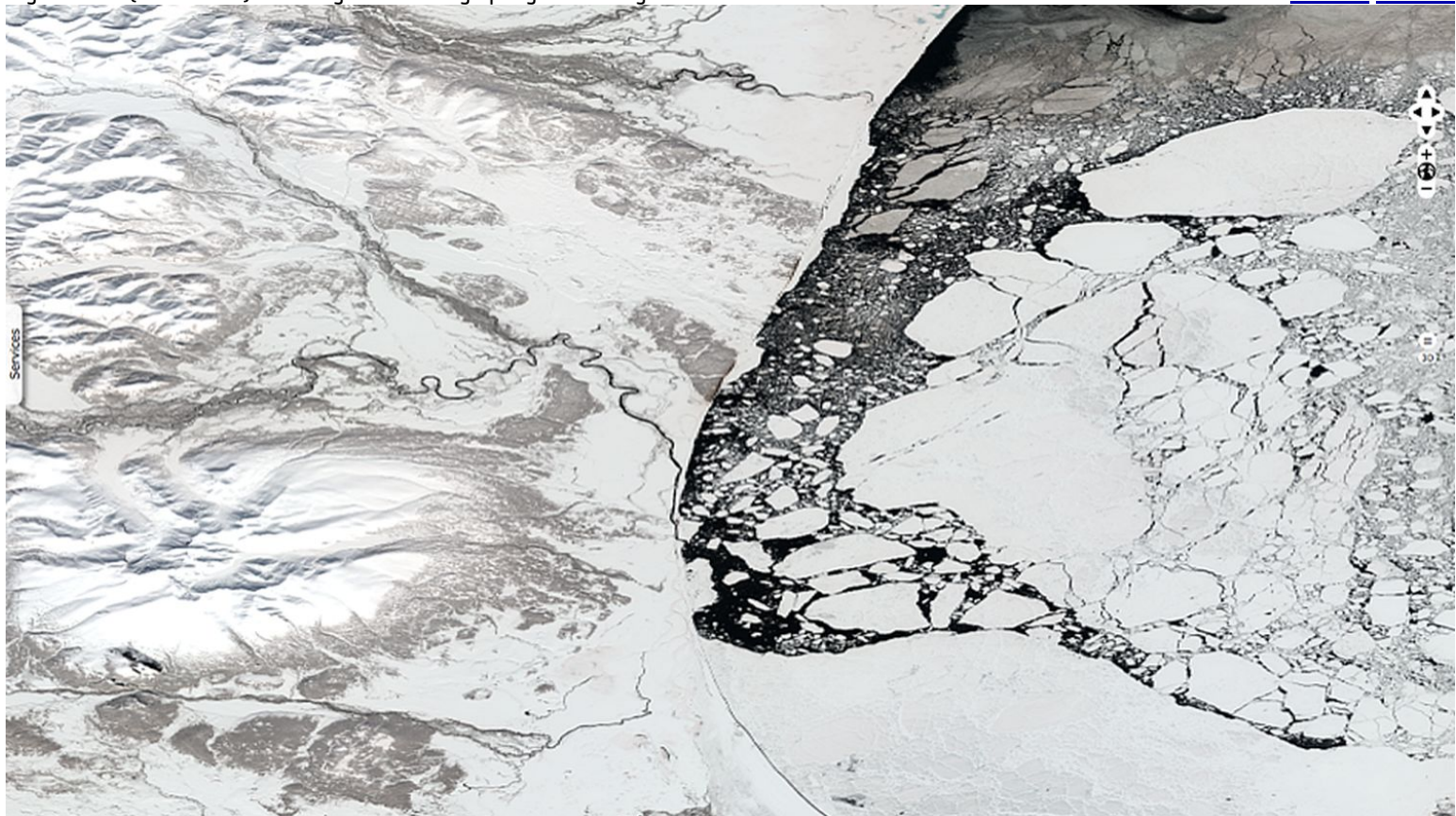
[2D view](#)



The western coastlands of the Kamchatka Peninsula form a low plain crossed by many rivers and with extensive swamps, as shown on this image.

Fig. 5 - S2A (13.05.2017) - Melting snow during spring time along the eastern coast.

[3D view](#) [2D view](#)



Under the Köppen climate classification, Kamchatka generally has a subarctic climate. Although Kamchatka lies at similar latitudes to Great Britain, cold arctic winds from Siberia combined with the cold Oyashio sea current see the peninsula covered in snow from October to late May. This image was taken in May, when the ice starts melting.

[The geography of Kamchatka \(Jones and Salomina, 2015\)](#)



Sentinel 2A captured a natural-color image of a massive bloom of microscopic algae spreading green over the nearby waters of the eastern coast of Kamchatka, in the Pacific Ocean. The high volcanism (spewing iron-rich ash and lava), the numerous rivers and the nutrient-rich currents flowing from Arctic waters probably play an important part in these blooms and support an abundance of other fish and marine life.

Fig. 7 - Kronotsky Nature Reserve : Land of fire and ice.

[3D view](#) [2D view](#)

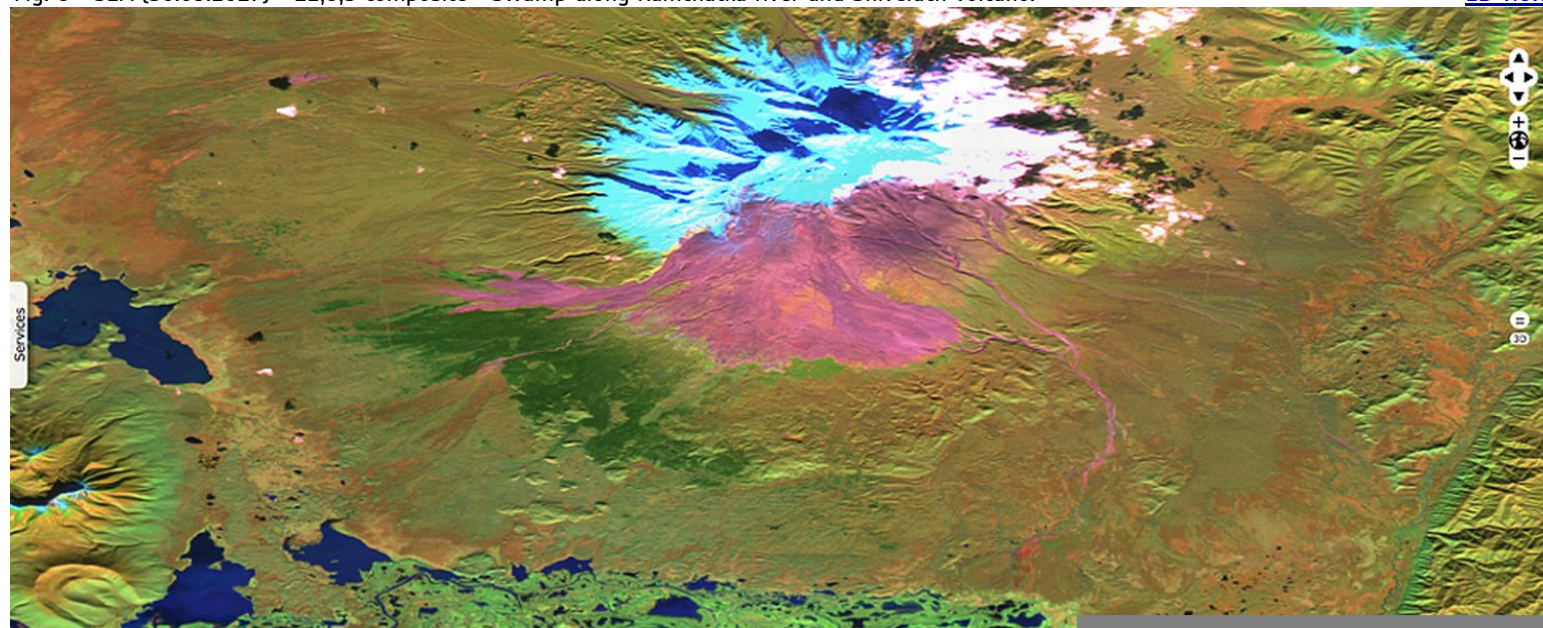


Lake Kronotskoye, Valley of Geysers and numerous volcanoes are visible on this image taken along the eastern coast, in the Kronotsky Nature Reserve. "Kronotsky is the largest protected population in Eurasia and represents a home to more than 800 brown bears. The reserve takes its name from the perfectly-coned and snow-crowned Kronotsky Volcano, visible on the right of Lake Kronotskoye, it is a mountain river canyon where over 20 large geysers act on seven square kilometre area."

[Siberian Times](#)

Fig. 8 - S2A (30.09.2017) - 12,8,3 composite - Swamp along Kamchatka river and Shiveluch volcano.

[2D view](#)



(North) Shiveluch is the northernmost active volcano in Kamchatka. It is one of the largest and most active volcano of the Peninsula. The most recent eruption of Young Shiveluch started on August 15, 1999, and continues as of 2017. There are three elements of the volcano: the stratovolcano Old Shiveluch ; an ancient caldera; and the active Young Shiveluch, with an elevation of about 2,800 metres.

(South) The Kamchatka River (Russian: Камча́тка) runs eastward for 758 kilometers through Kamchatka towards the Pacific Ocean. The river is rich with salmon and spawn.

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