

Risk of debris flow downstream of glaciers, Peru

Sentinel-1 CSAR IW acquired on 02 February 2016 at 10:46:34 UTC
Sentinel-1 CSAR IW acquired on 16 May 2018 at 10:45:59 UTC
Sentinel-2 MSI acquired on 23 June 2018 at 15:26:39 UTC
Sentinel-1 CSAR IW acquired on 17 February 2021 at 10:46:16 UTC
Sentinel-1 CSAR IW acquired on 17 June 2021 at 10:46:20 UTC

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[2D Layerstack](#)

Fig. 1 - S2 (23.06.2018) - In Peru, former Yungay (red) and new Yungay (orange) lie beneath Andean glaciers and glacial lakes.

[2D view](#)

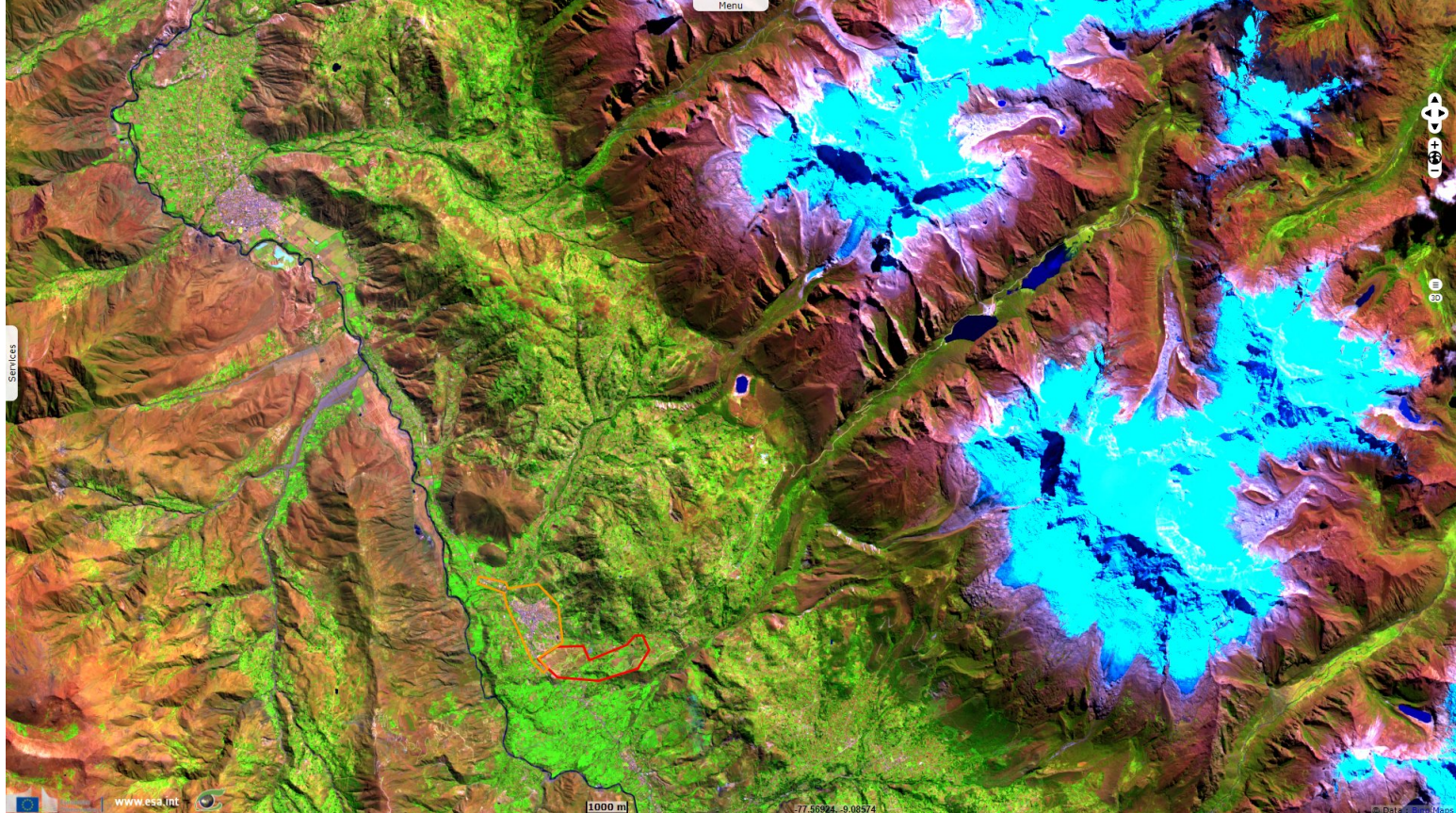


Fig. 2 - S2 (23.06.2018) - Earthquake and ice melt may trigger debris flow in this landslides-prone region.

[3D view](#)

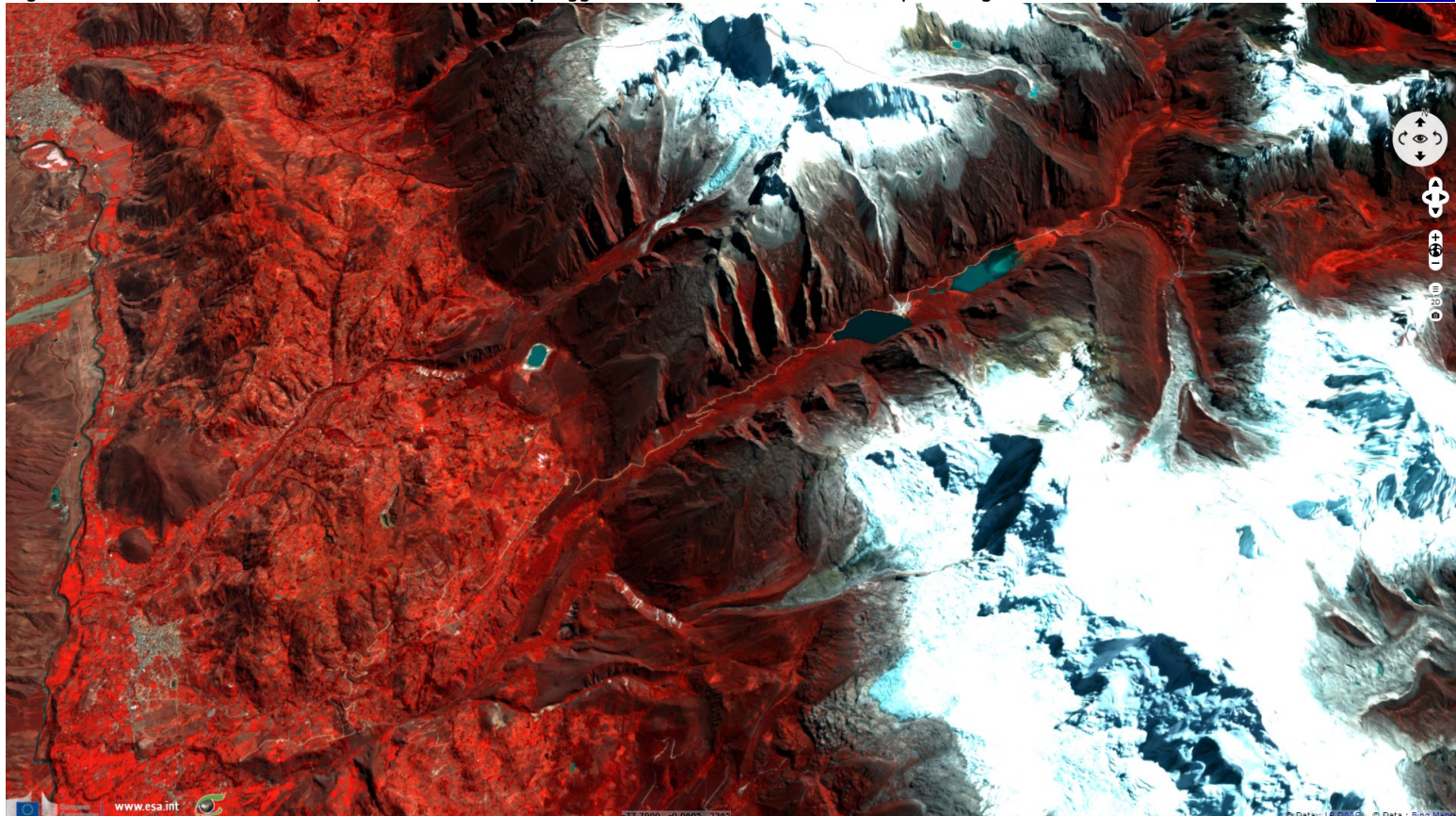
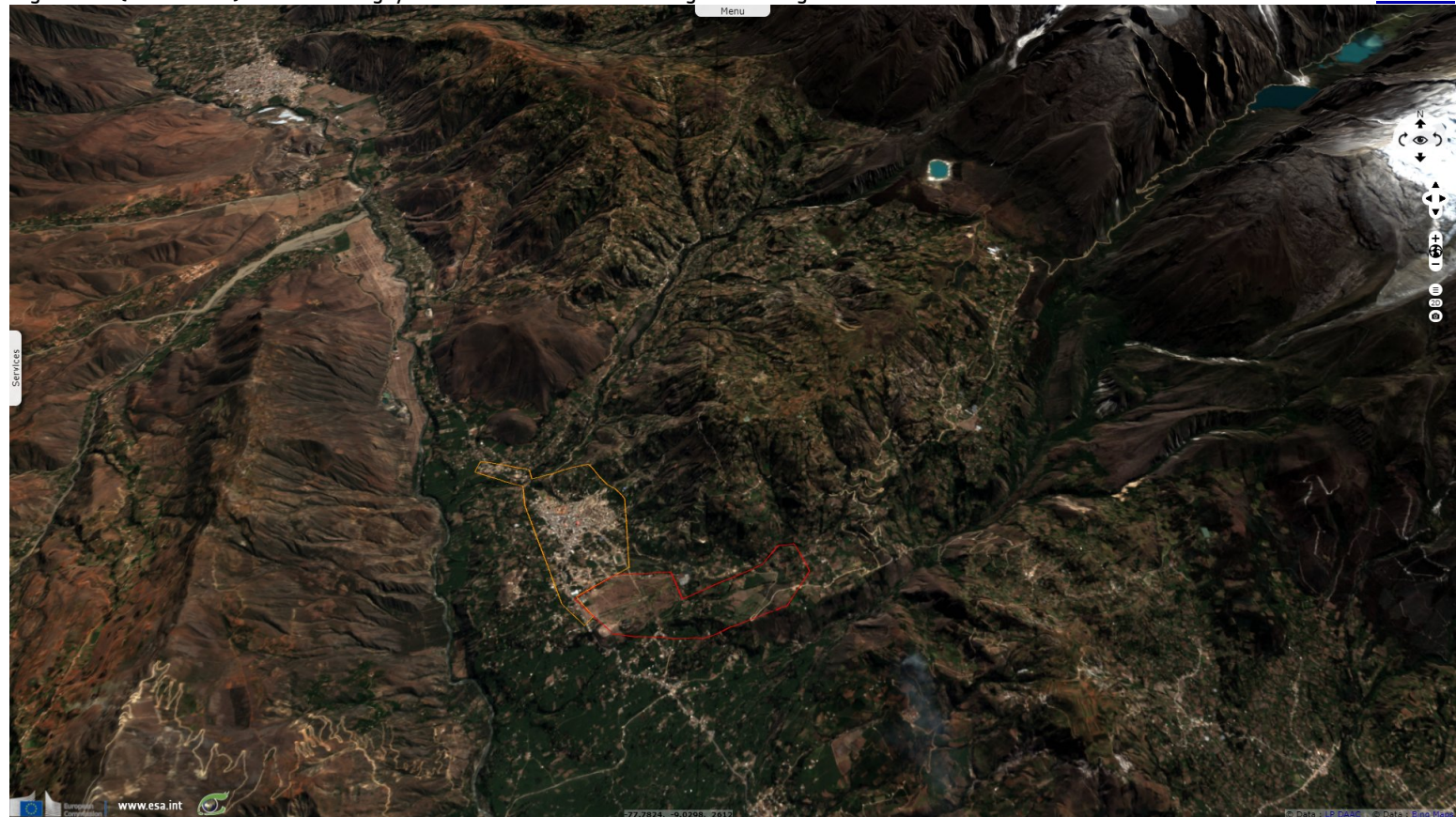


Fig. 3 - S2 (23.06.2018) - Former Yungay was located downstream of glacier and glacial lakes.

[3D view](#)



In 1962 an avalanche killed 4000 people of Yungay. On 31 May 1970, an earthquake caused an unstable mass of glacial ice to fall of the 6746m high mountain, causing a debris avalanche. Over 50 million m³ of debris slid approximately 15 km downhill, reaching speeds between 500 and 1000 km/h. It [buried](#) Yungay and Ranrahirca which of only 400 out of 20 000 inhabitants survived.

Fig. 4 - S1 - Next to the dark area of Former Yungay, New Yungai has been built in a safer location.

[3D view](#)

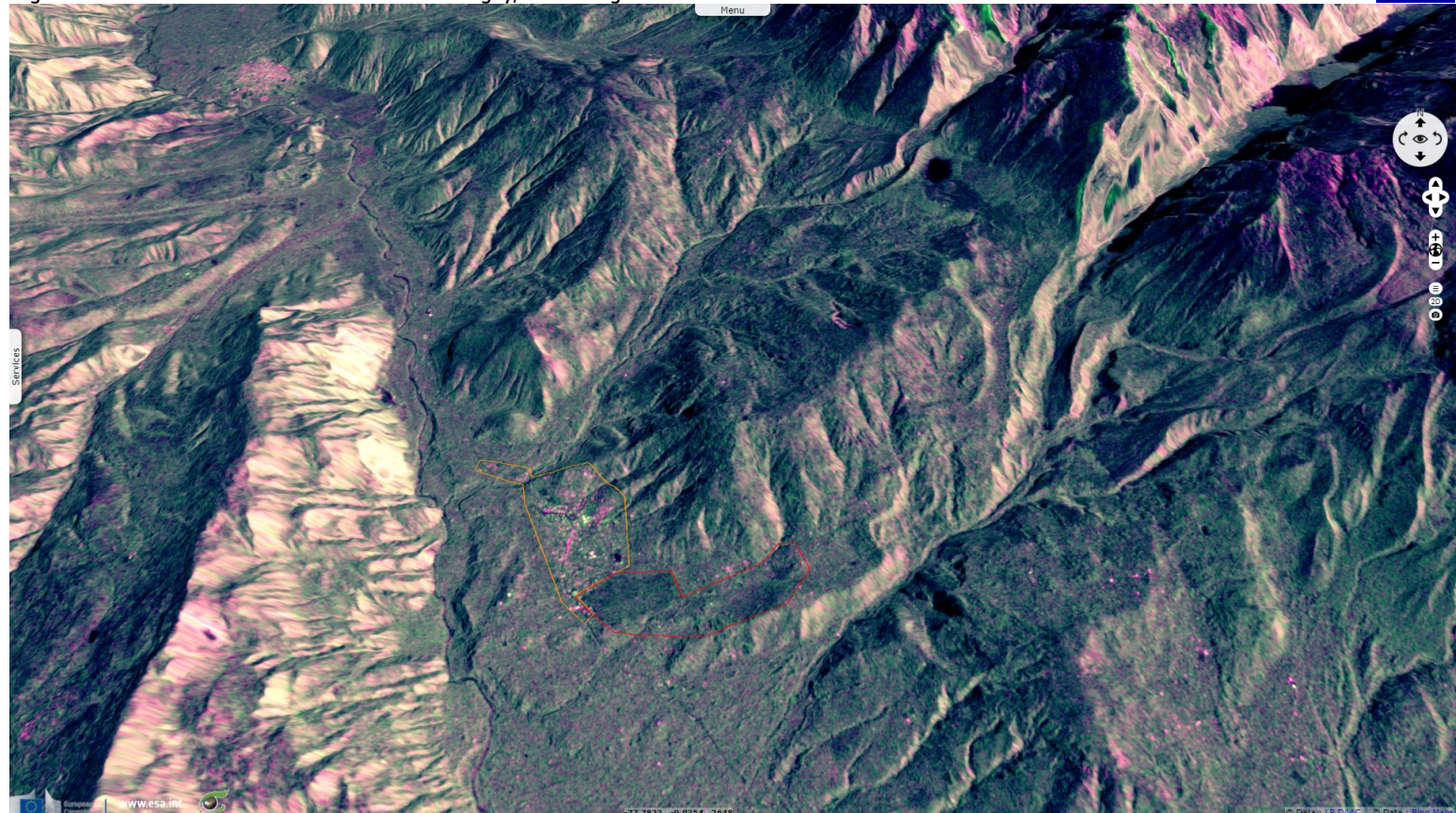


Fig. 5 - S2 (23.06.2018) - Many other cities in the region are concerned by this threat such as Huaraz downstream of Lake Palcacocha. [3D view](#)

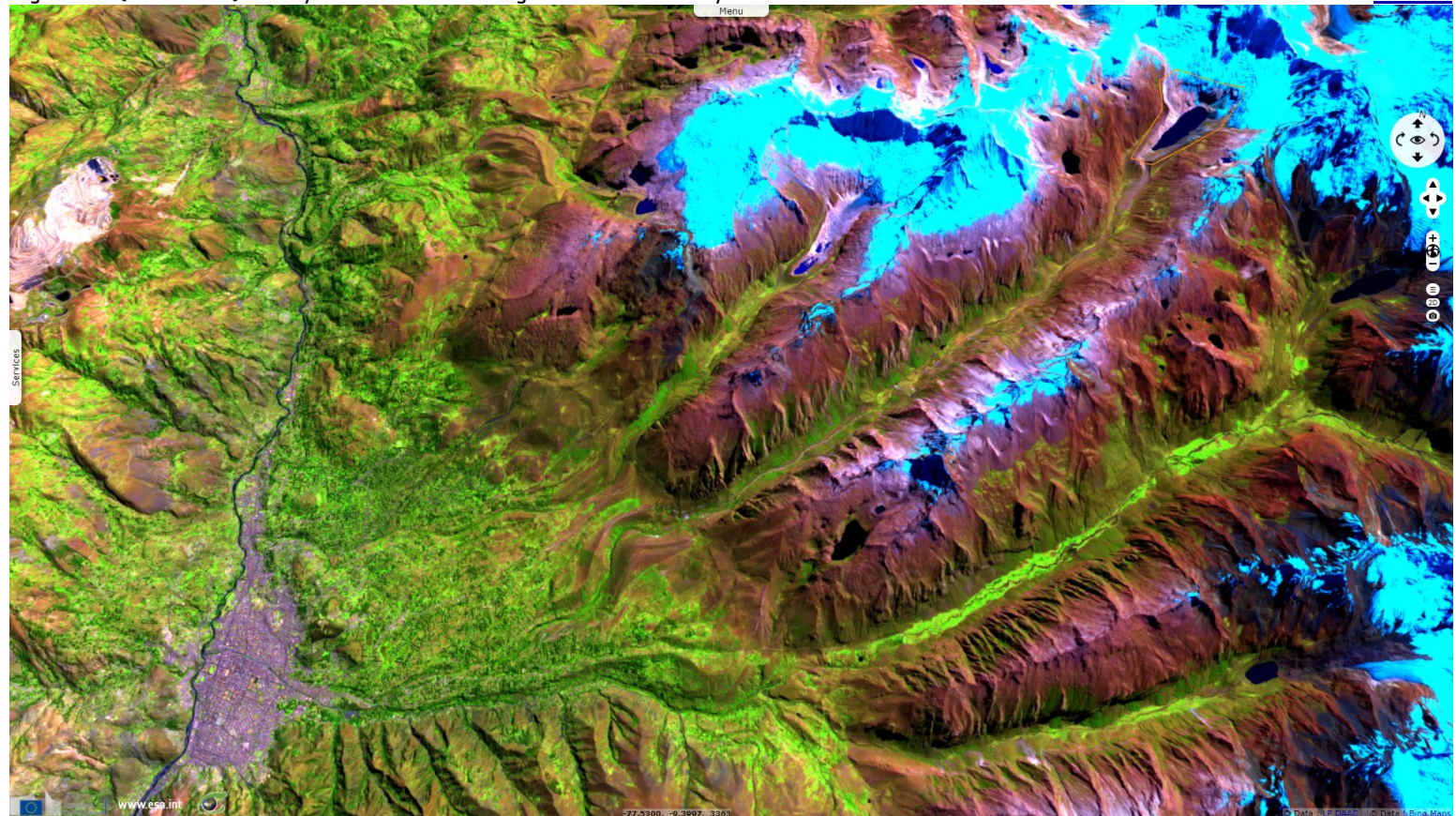
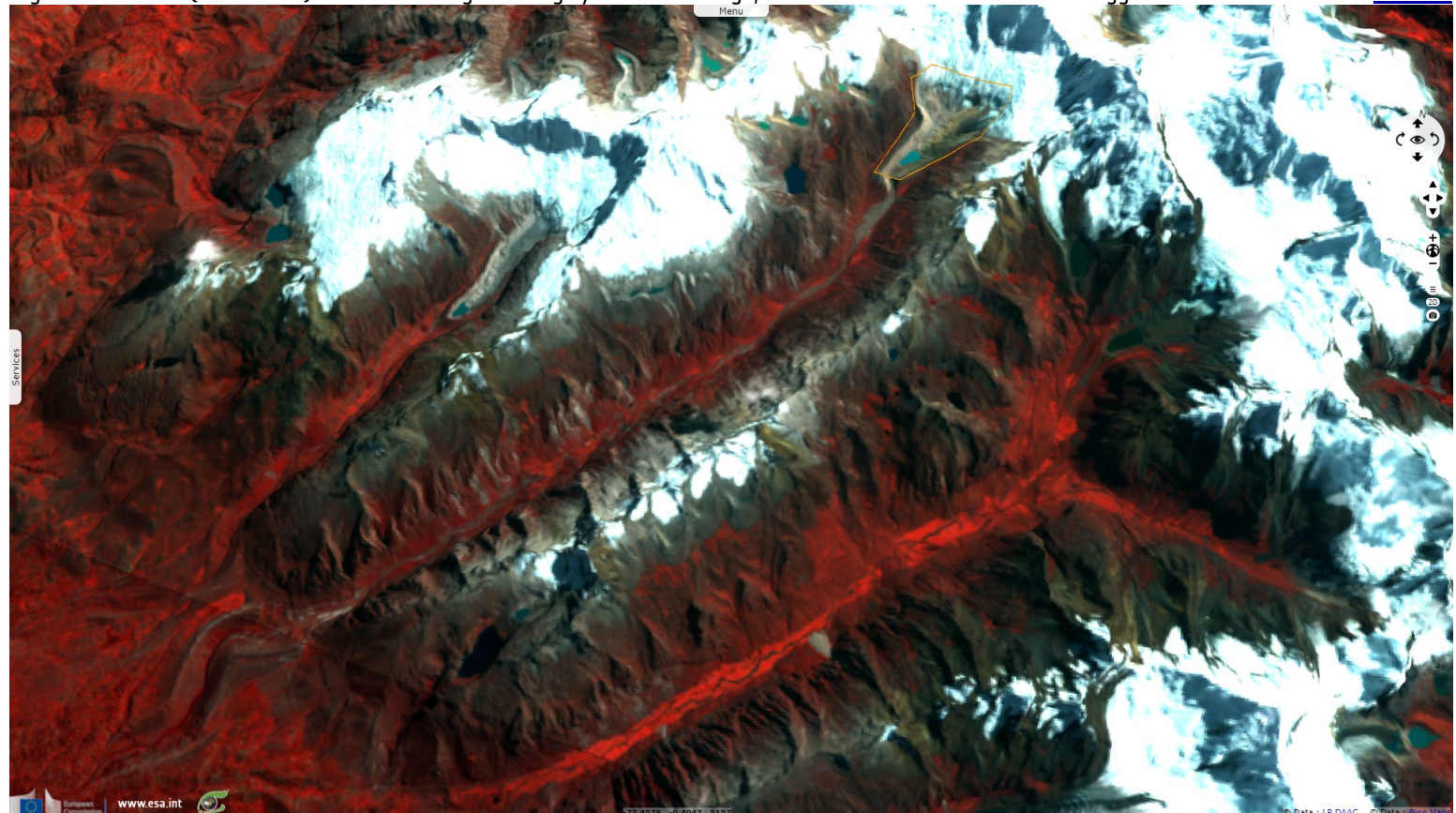


Fig. 6 - Landsat-5 (15.05.1987) - The lake has grown largely since this image, it causes the risk of an landslide-triggered tsunami. [3D view](#)



*The views expressed herein can in no way be taken to reflect the official opinion of the European Space Agency or the European Union.
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