Sentinel Vision
SED-1340
14 August 2023

2D Layerstack

Sinkholes of Imotsko karstic field, Croatia and Bosnia

Sentinel-1 CSAR IW acquired on **14 July 2018** at 16:49:36 UTC
Sentinel-2 MSI acquired on **22 October 2019** at 09:40:41 UTC
...
Sentinel-2 MSI acquired on **21 June 2022** at 09:50:41 UTC
Sentinel-1 CSAR IW acquired on **26 December 2022** at 04:55:14 UTC

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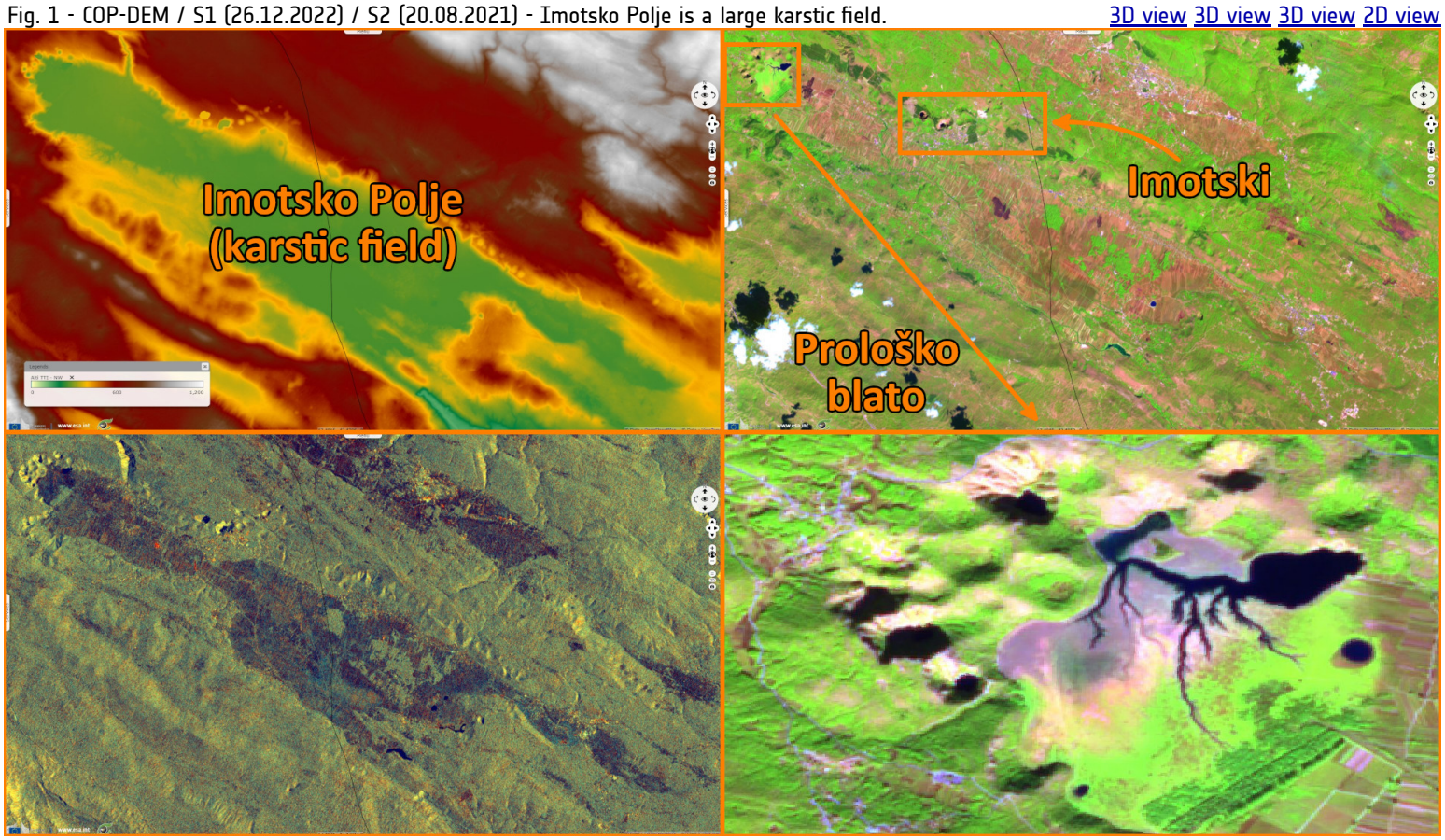
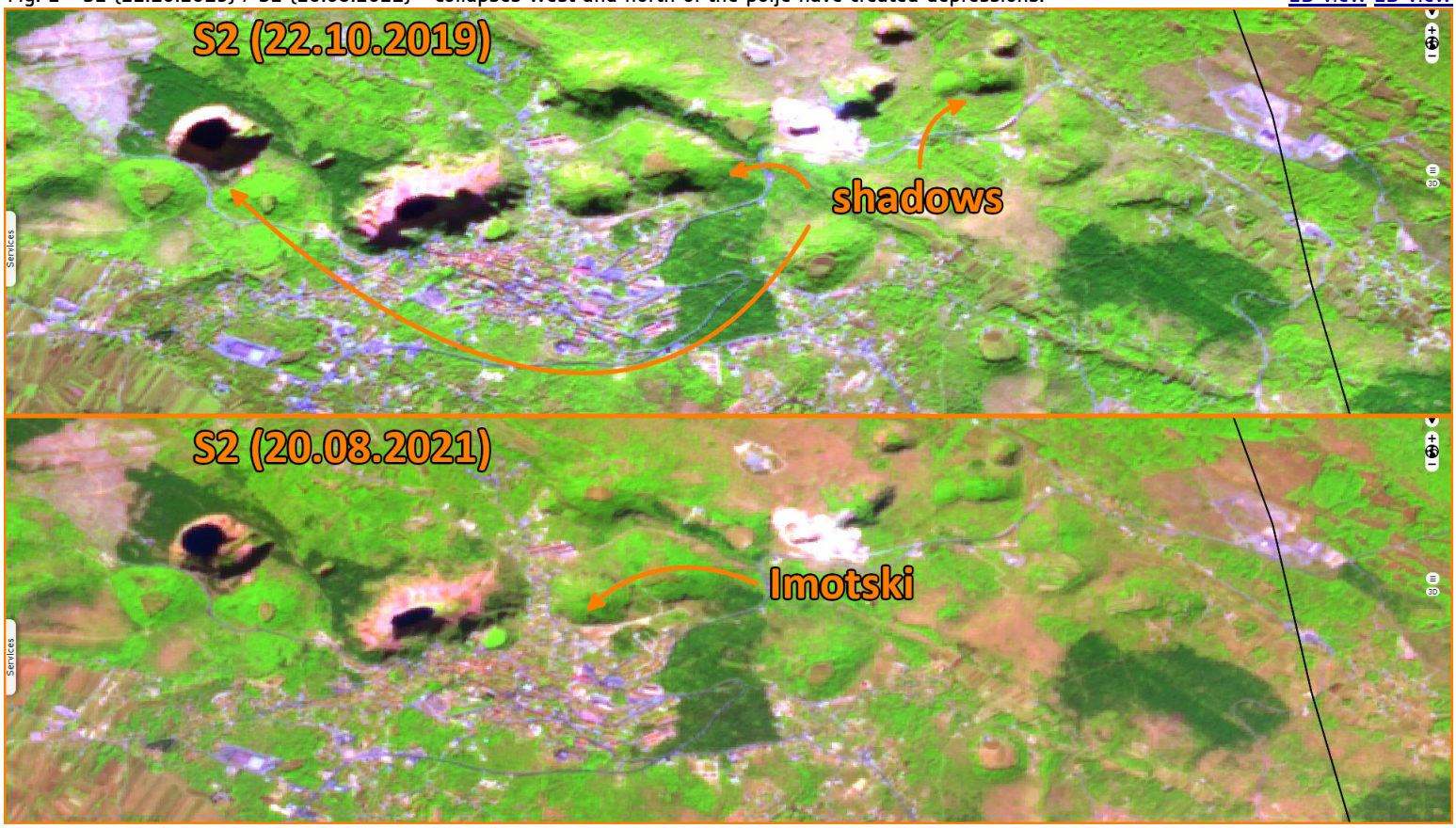
Fig. 1 - COP-DEM / S1 (26.12.2022) / S2 (20.08.2021) - Imotsko Polje is a large karstic field. 3D view 3D view 3D view 2D view



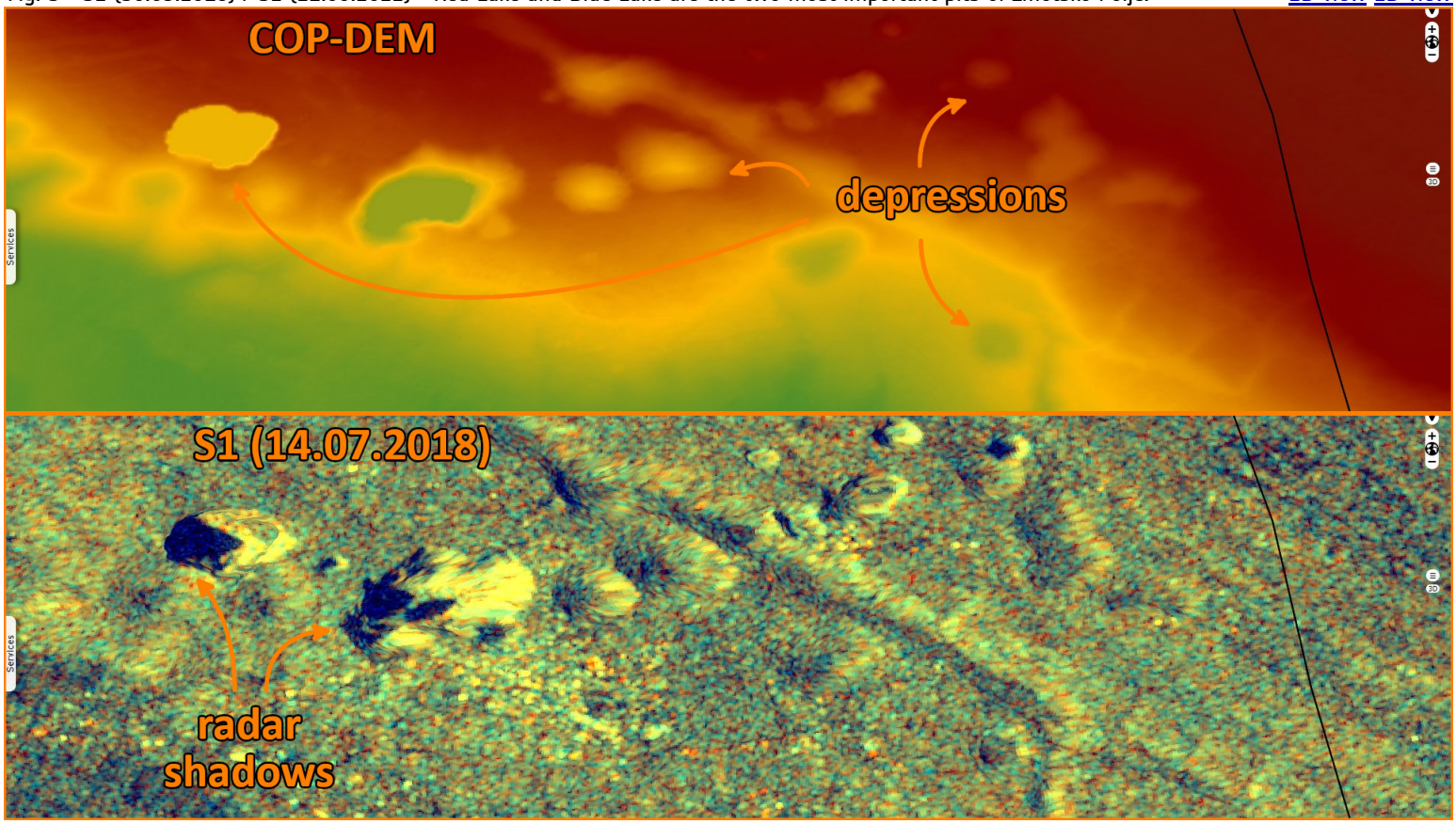
Imotsko Polje is a polje located on the border of Croatia and Bosnia and Herzegovina near the city of Imotski. It has an area of 95 km², it is 33.3 km long and 1-6 km wide. It extends in the northwest-southeast direction. It has a dolomite floor with an elevation between 248 and 283 m. Several rivers flow through the field. At west of the polje, Prološko blato is a protected zone of nature of which only one part is always underwater.

Fig. 2 - S2 (22.10.2019) / S2 (20.08.2021) - Collapses west and north of the polje have created depressions. 2D view 2D view



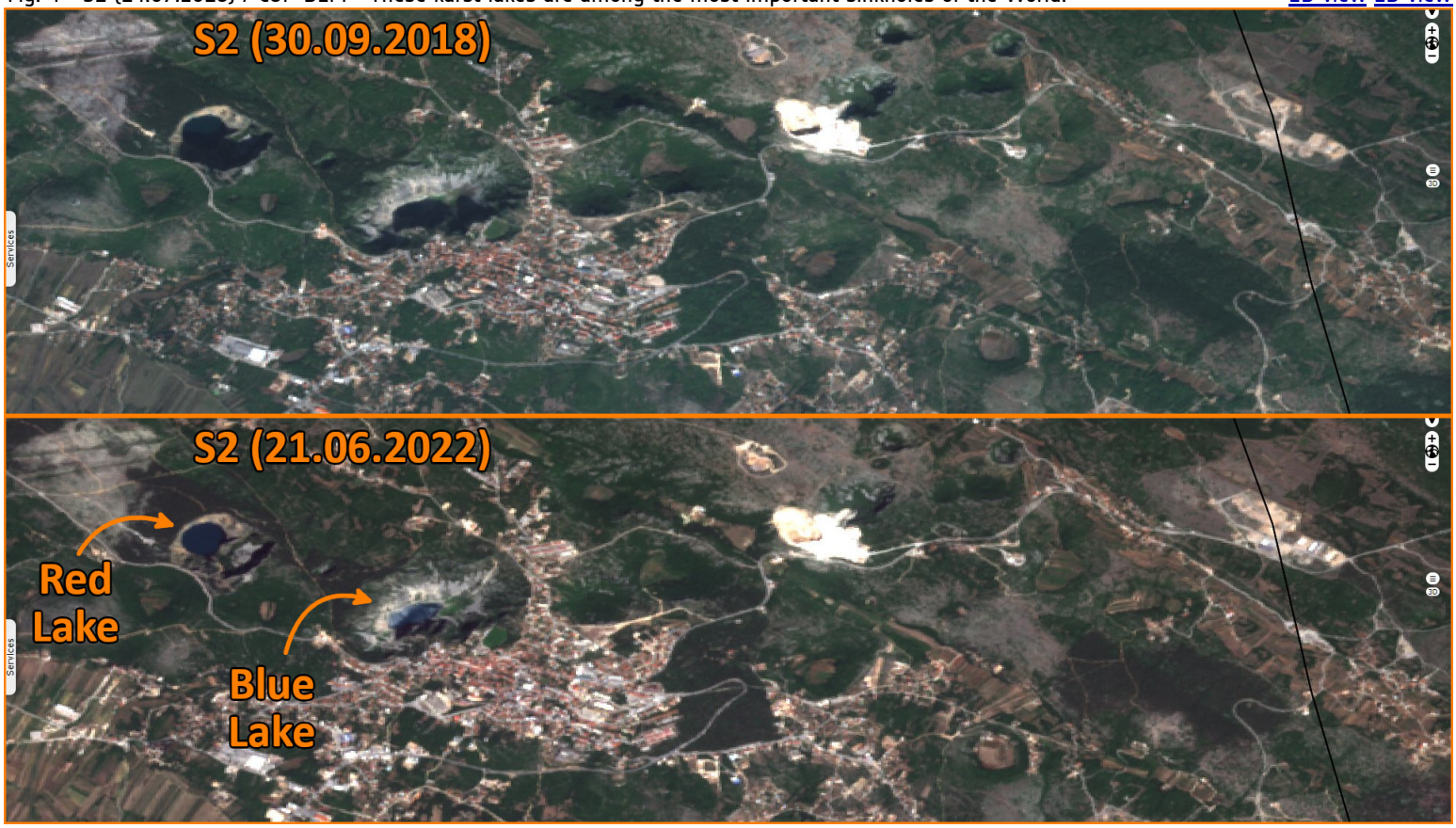
It is presumed these karst lakes emerged when the ceiling of large cave halls collapsed. The collapse of limestone rocks over time created numerous ravines, which today are filled with water and represent lakes. The two most important are Red Lake and Blue Lake.

Fig. 3 - S2 (30.09.2018) / S2 (21.06.2022) - Red Lake and Blue Lake are the two most important pits of Imotsko Polje. 2D view 2D view



Red Lake is a sinkhole reaching over 241 m above normal water level and continuing below the water level. This sinkhole is approximately 534 m deep with a volume of roughly 25–30 million m3, thus it is the third largest sinkhole in the world. Water drains out of the basin through underground waterways that descend below the level of the lake floor. The deepest known point of the lake is 4 m below sea level.
The sinkhole is named after the reddish-brown colour of the surrounding cliffs, coloured by iron oxides. In the dry period of the year, fish can be occasionally seen in surrounding springs, rivers and lakes, suggesting that there is an underground connection between Red Lake and other water bodies.

Fig. 4 - S1 (14.07.2018) / COP-DEM - These karst lakes are among the most important sinkholes of the World. 2D view 2D view



Maximum dimensions of Blue Lake are around 800 m × 500 m. The total depth from the upper rim is around 220 m, while water depth varies with season. It can reach 90 m, it reached 114 m in 1914, overflowing the southern rim but the lake may completely disappear.

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