

# Storm causes flash floods at the Franco-Italian border

Sentinel-2 MSI acquired on 13 September 2020 at 10:16:29 UTC

Sentinel-3 SLSTR RBT acquired on 30 September 2020 from 09:52:20 to 10:31:49 UTC

Sentinel-5P TROPOMI CLOUD acquired on 30 September 2020 from 12:51:24 to 14:32:54 UTC

...

Sentinel-2 MSI acquired on 03 October 2020 at 10:17:59 UTC

Author(s): Sentinel Vision team, VisioTerra, France - [svp@visioterra.fr](mailto:svp@visioterra.fr)

Keyword(s): Emergency, natural disaster, climate change, global warming, precipitations, rainfall, flooding, river, Italy, France



[3D Layerstack](#)

Fig. 1 - S3 SLSTR (30.09.2020) - Following a warm September, early snow was still abundant in Alps & Pyrenees when storm Alex arrived. [2D view](#)

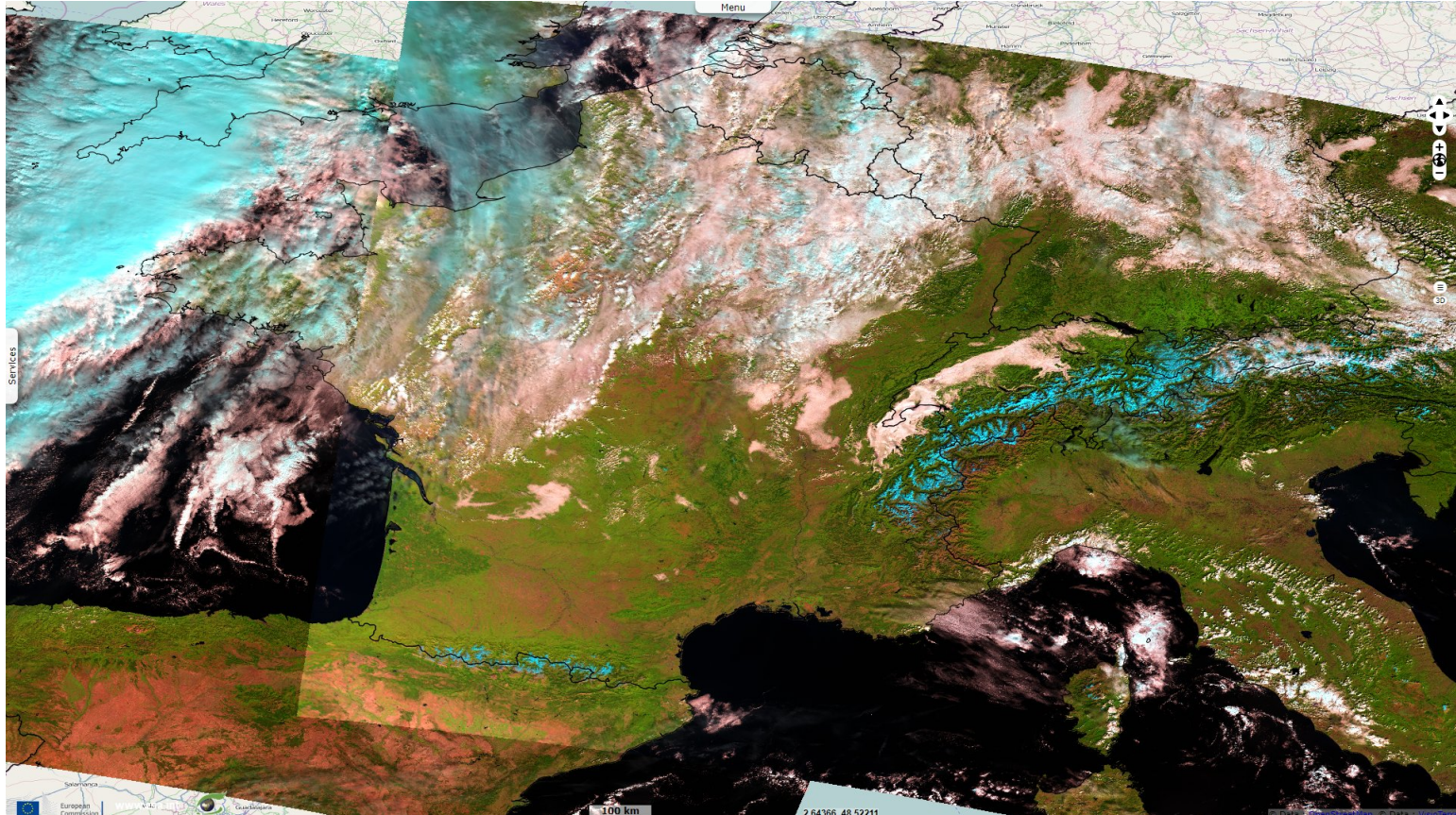


Fig. 2 - S5P TROPOMI (30.09.2020) - Cloud formation of storm Alex. [2D view](#)

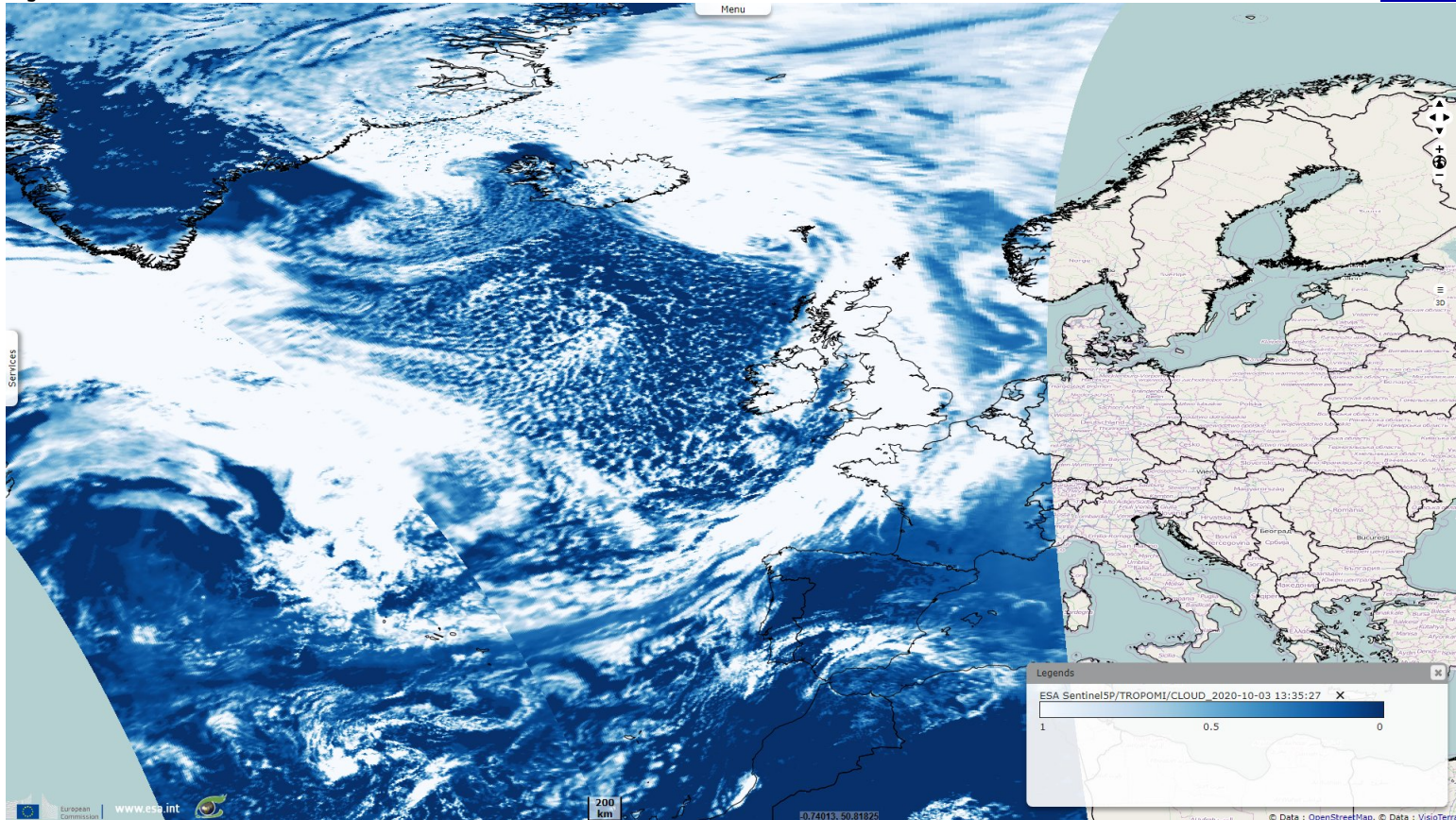
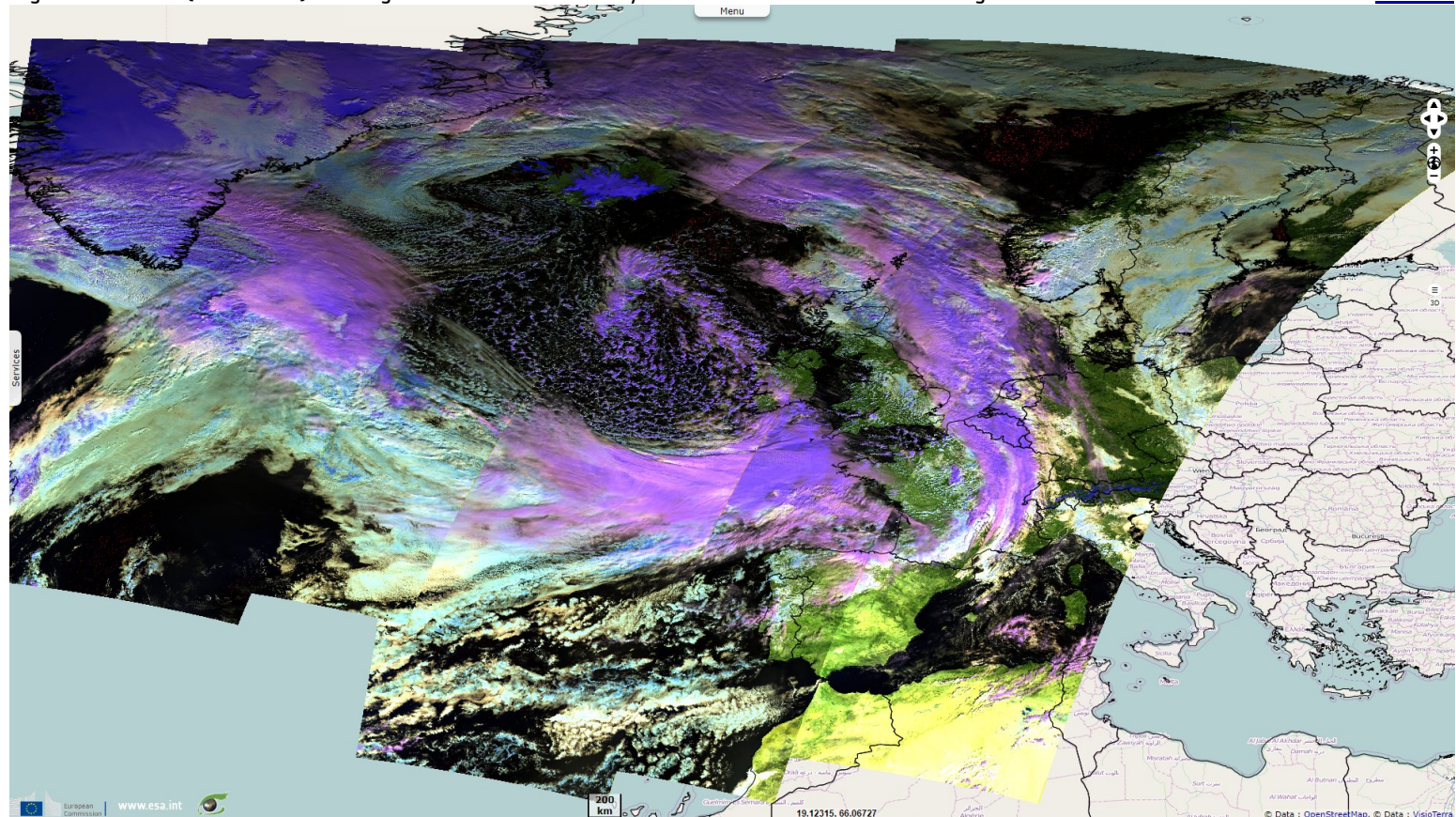




Fig. 3 - S3 SLSTR (01.10.2020) - Strong winds blew over Brittany before Alex reached the flooded regions.

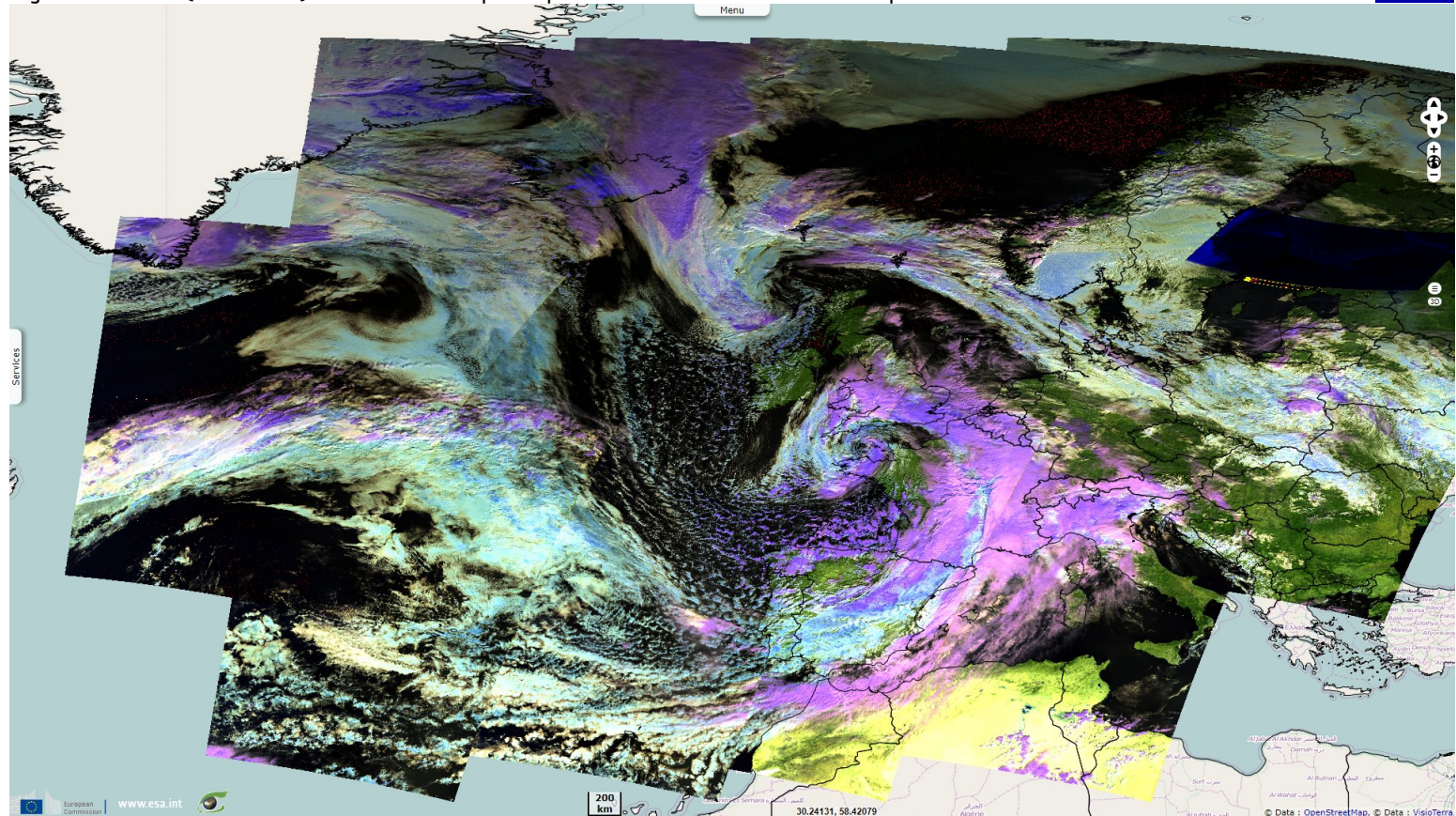
[2D view](#)



Storm Alex was a powerful early-season extratropical cyclone that was particularly notable for its extreme flooding around the Mediterranean. A wind gust as strong as 186 km/h was recorded at Belle-Île, Brittany, France.

Fig. 4 - S3 SLSTR (02.10.2020) - The comma shaped depression then crossed western Europe.

[2D view](#)

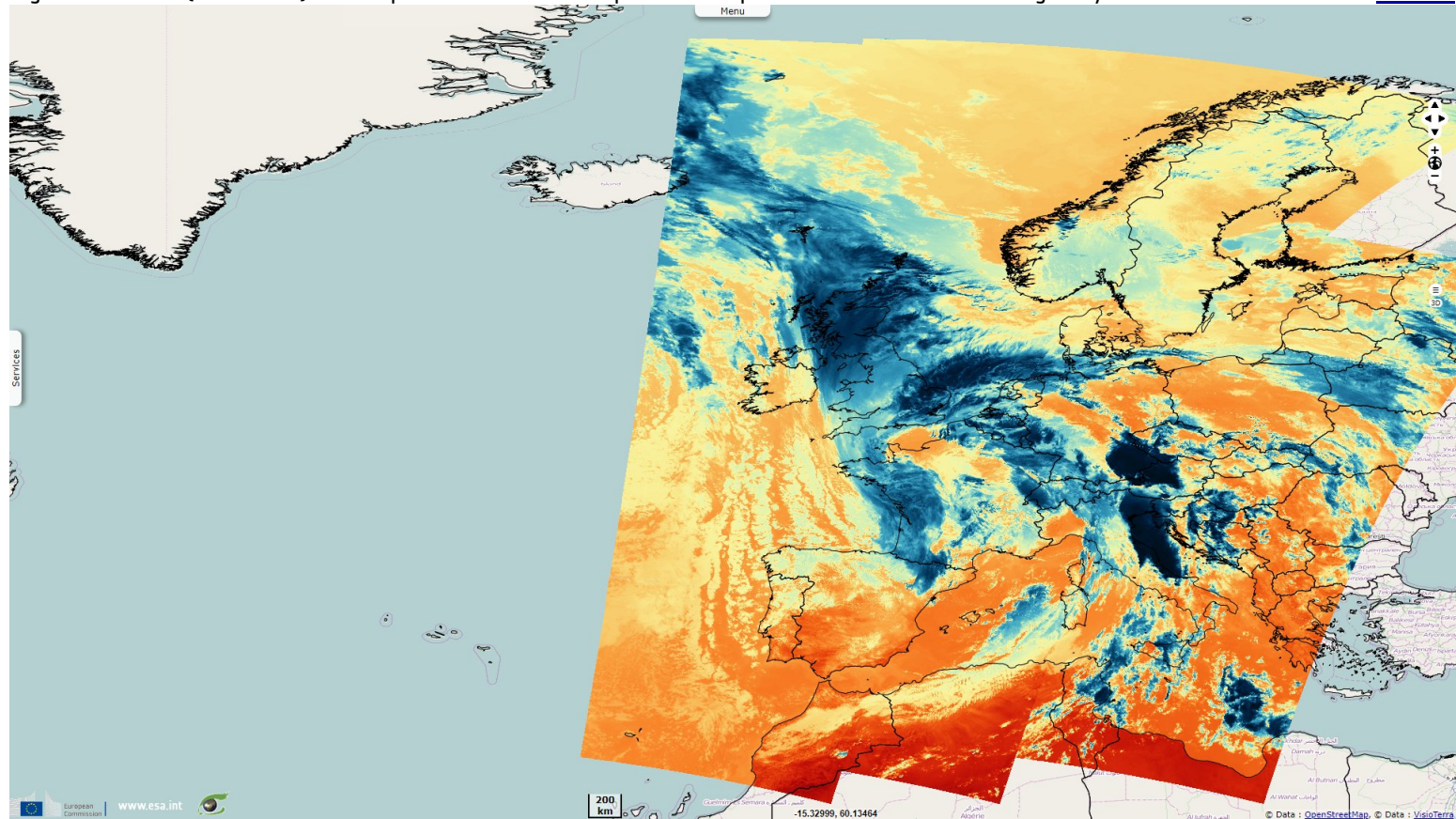


The Telegraph [reported](#): "A storm that moved overnight across southeastern France and then northern Italy caused major flooding on both sides of the border, destroying bridges, blocking roads and isolating communities." "The situation at the tunnel on the high mountain pass is complicated by the fact that French emergency responders cannot access their side due to flood damage, Cari said. Italian firefighters were searching the French side for people who may have been blocked."



Fig. 5 - S3 SLSTR (03.10.2020) - Some parts of the western Alps received up to 10 months of rain in a single day.

[2D view](#)



"France's national weather agency, Météo France, said that up to 500 millimeters of rain were recorded in some areas", the equivalent of almost 10 months of average rainfall.

Fig. 6 - S2 (13.09.2020) - Multiple landslides had already happened in the upstream slopes of the Var basin, allowing erosion by the storm.

[3D view](#)





Fig. 7 - S2 (03.10.2020) - Multiple plumes caused by the arrival of the eroded material in the Mediterranean Sea.

[3D view](#)



Fig. 8 - S2 (03.10.2020) - South looking view of the valleys affected on the Italian side.

[3D view](#)

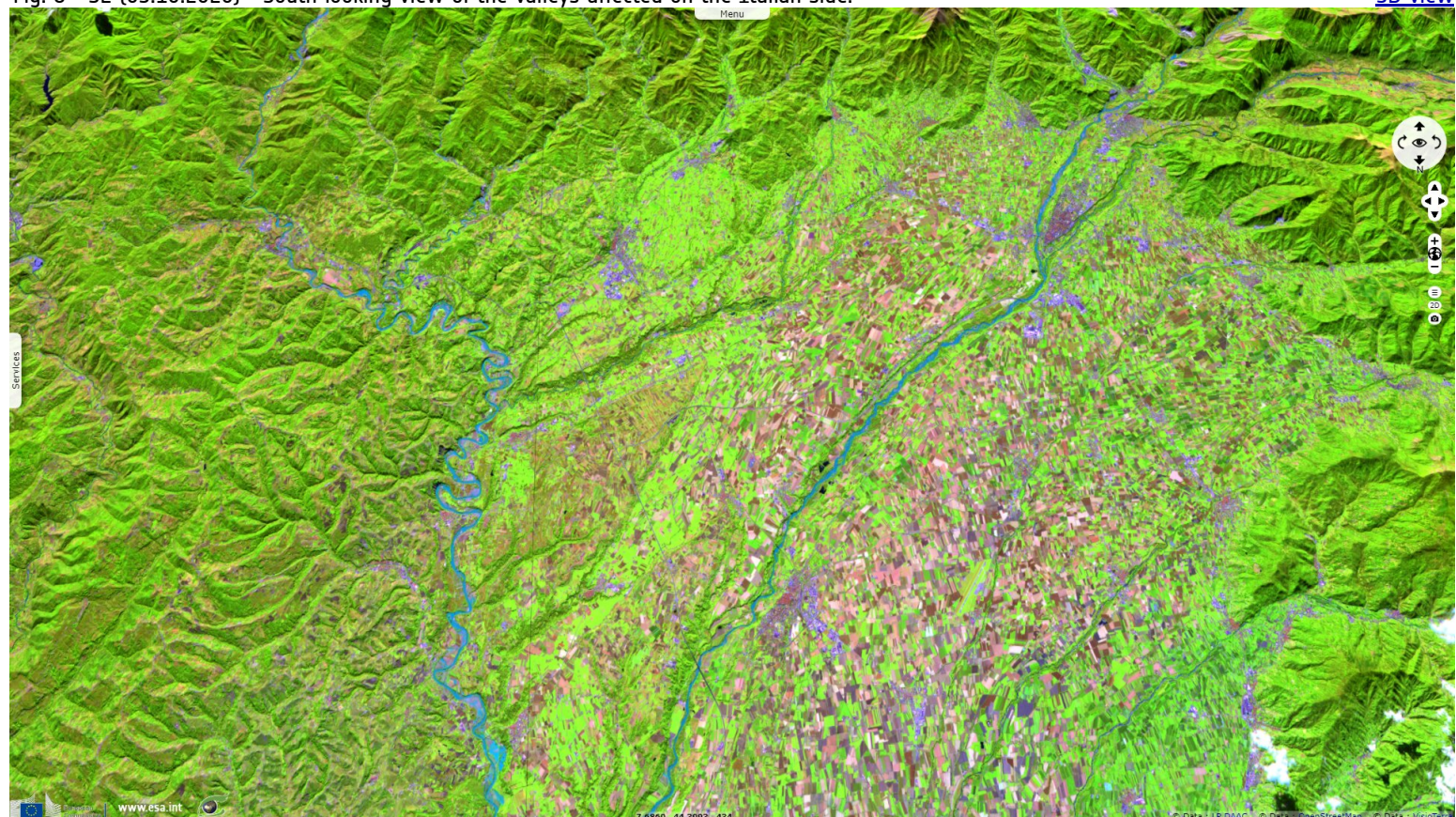




Fig. 9 - S2 (13.09.2020) - Rivers of the upper basin before the storm.

[3D view](#)

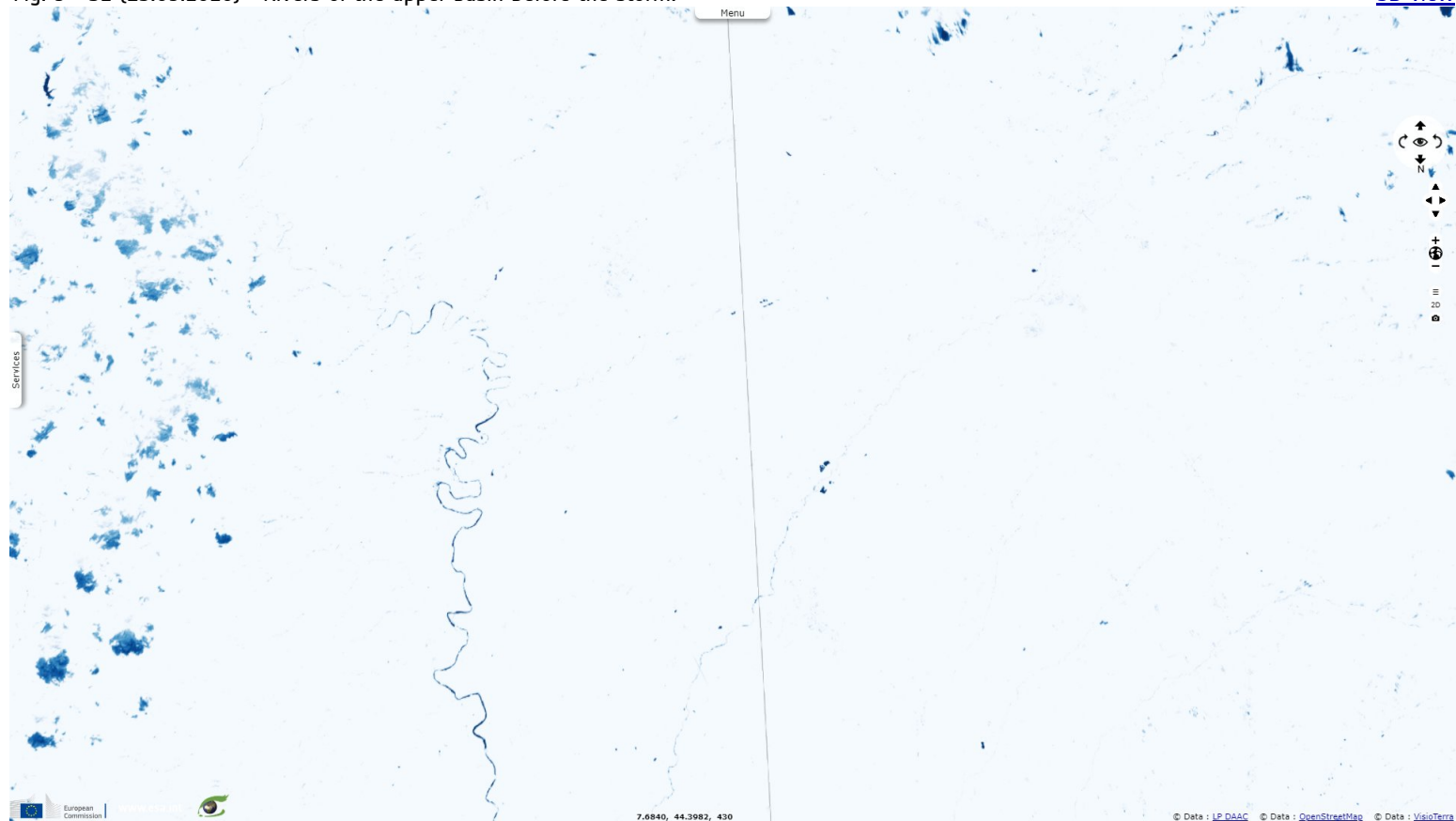
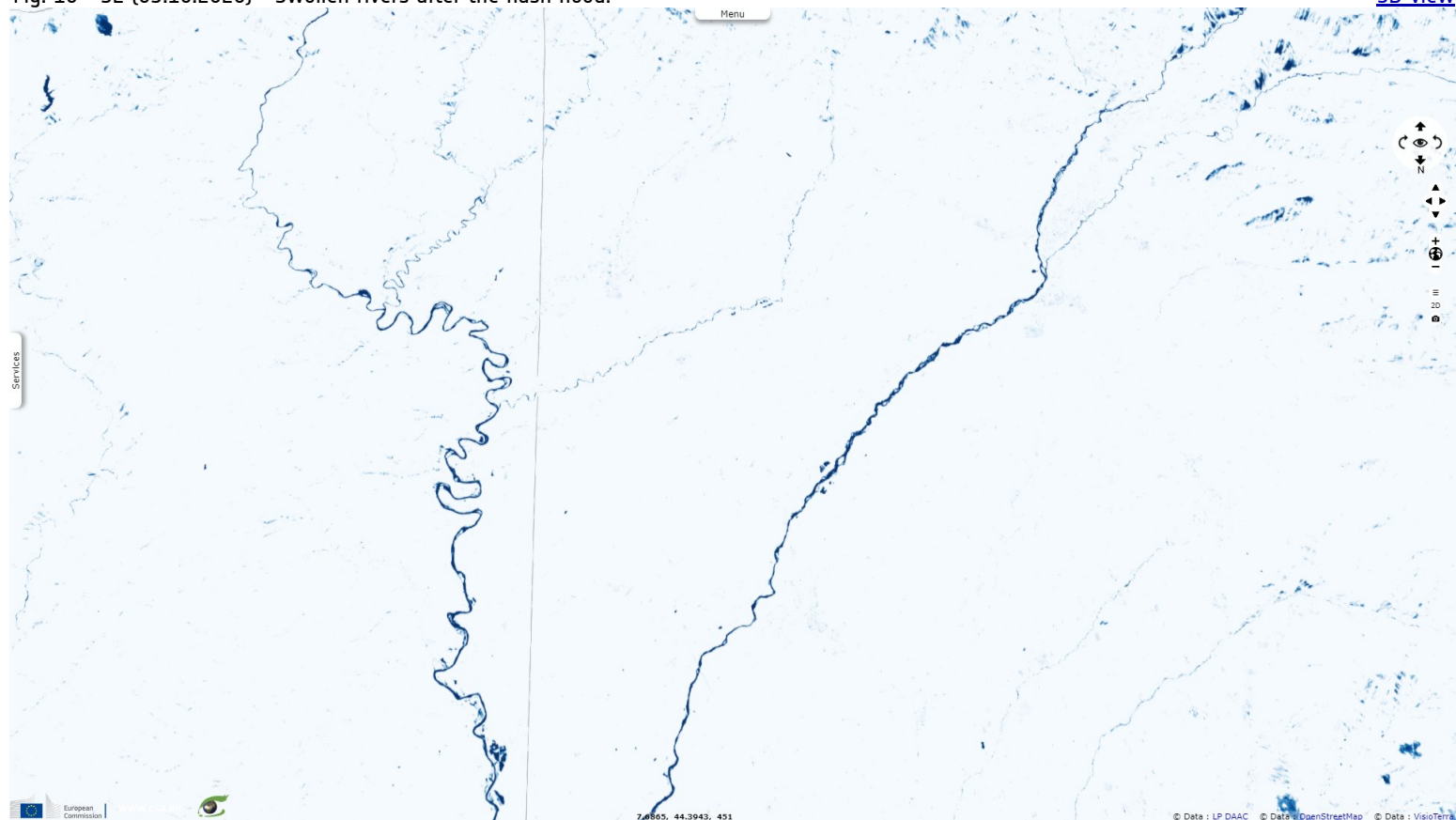


Fig. 10 - S2 (03.10.2020) - Swollen rivers after the flash flood.

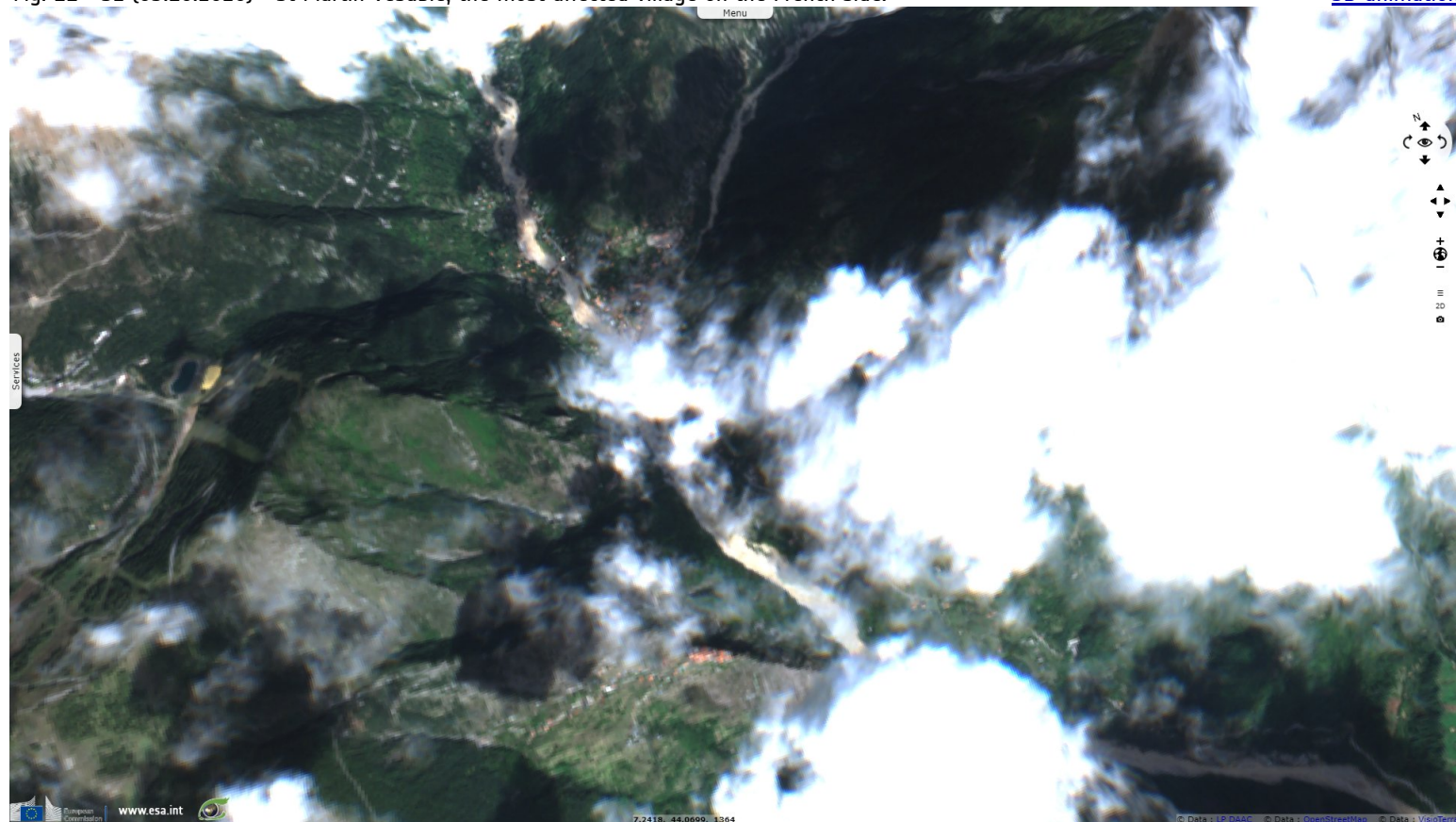
[3D view](#)



*"Unrelenting rainfall overnight hit levels not seen since 1958 in northern Italy's Piedmont region, where as much as 630 millimeters of rain fell in a 24 hour period, according to the Italian civil protection agency."*

Fig. 11 - S2 (03.10.2020) - St Martin Vésubie, the most affected village on the French side.

[3D animation](#)



Floodlist [describes](#) the consequences in south-east France as: *"In France, areas of Alpes-Maritimes Department were among the hardest hit, in particular the communes of Saint-Martin-Vésubie and Breil-sur-Roya."*



Floods in Vésubie, France 03 October 2020 - Source: [Sappeurs Pompiers 06](#)



Fig. 12 - S2 (03.10.2020) - Roquebillière, Bollène-Vésubie and Lantosque are located downstream, along the sediments-filled Vésubie. [3D animation](#)



"Surging waters in the Vesubie River pulled houses from their foundations in Roquebillière in France's southern Alps" - Source: [Valey Hache](#) for Agence France Presse and Getty Image.



Fig. 13 - S2 (03.10.2020) - Nice, at the mouth of the Var river, main stem of the Vésubie. Notice the orange spots in the water.

[3D animation](#)















Die Deutsche Welle [added](#): "Residents near the coastal city of Nice were urged to stay indoors. Nice Mayor Christian Estrosi described the fallout of the storm as something he has 'never seen before.' 'The roads and about 100 houses were swept away or partially destroyed,' he told French news channel BFM." As a result of this storm, 17 people have died across Europe and 23 are missing.

Fig. 14 - S2 (03.10.2020) - Damage to the roads have made cities of Fontan, Saorge, la Brigue & Tende inaccessible in the Roya valley. [3D animation](#)



"French Fire service said 952 firefighters have been mobilized in the Alpes-Maritimes Department, of which nearly 400 are engaged in the communes of Saint-Martin-Vésubie and Breil-sur-Roya. As of 04 October 429 interventions had been carried out. Military and helicopter have been deployed to assist with rescue efforts."



More on European Commission space:							
More on ESA:				<a href="#">S-1 website</a>	<a href="#">S-2 website</a>	<a href="#">S-3 website</a>	
More on Copernicus program:				<a href="#">SciHub portal</a>	<a href="#">Cophub portal</a>	<a href="#">Inthub portal</a>	<a href="#">Colhub portal</a>
More on VisioTerra:				<a href="#">Sentinel Vision Portal</a>	<a href="#">Envisat+ERS portal</a>	<a href="#">Swarm+GOCE portal</a>	<a href="#">CryoSat portal</a>

