

Cold snap in Mediterranean Europe, heat wave in Arctic

Sentinel-1 CSAR EW acquired from 23 February 2015 to 03 March 2015
Sentinel-1 CSAR EW acquired from 25 February 2018 to 27 February 2018
Sentinel-3 SLSTR RBT acquired on 26 February 2018 at 09:42:57 UTC
Sentinel-2 MSI acquired from 26 February 2018 to 28 February 2018

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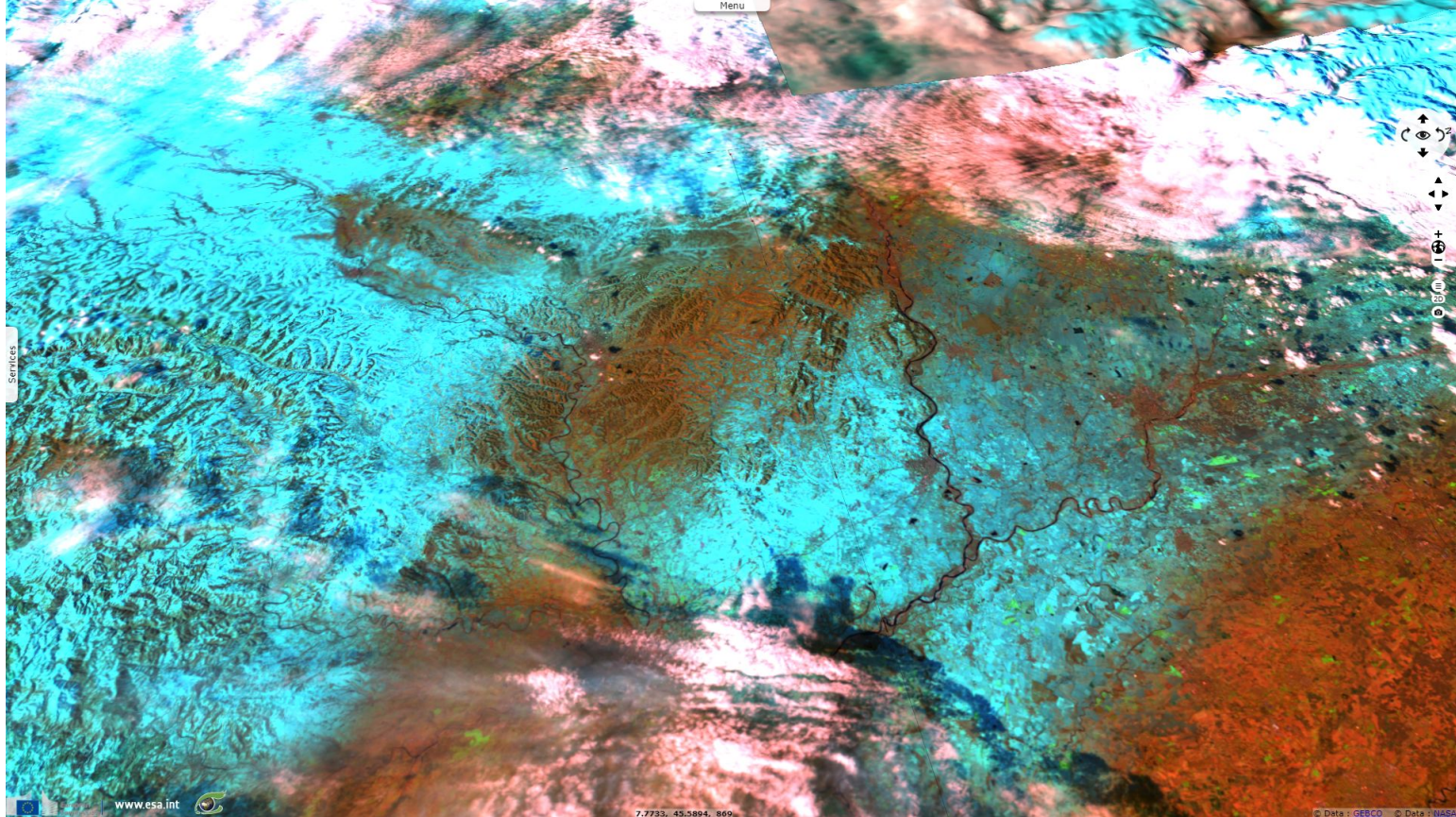
Keyword(s): Climate change, polar, cryosphere, sea ice, snow, Mediterranean Sea, Arctic Ocean, Italy, Croatia, Greece



[3D Layerstack](#)

Fig. 1 - Sentinel-2 (27.02.2018) - 11,8,2 colour composite - Snow in Piedmont plains, a rare occurrence in late February.

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

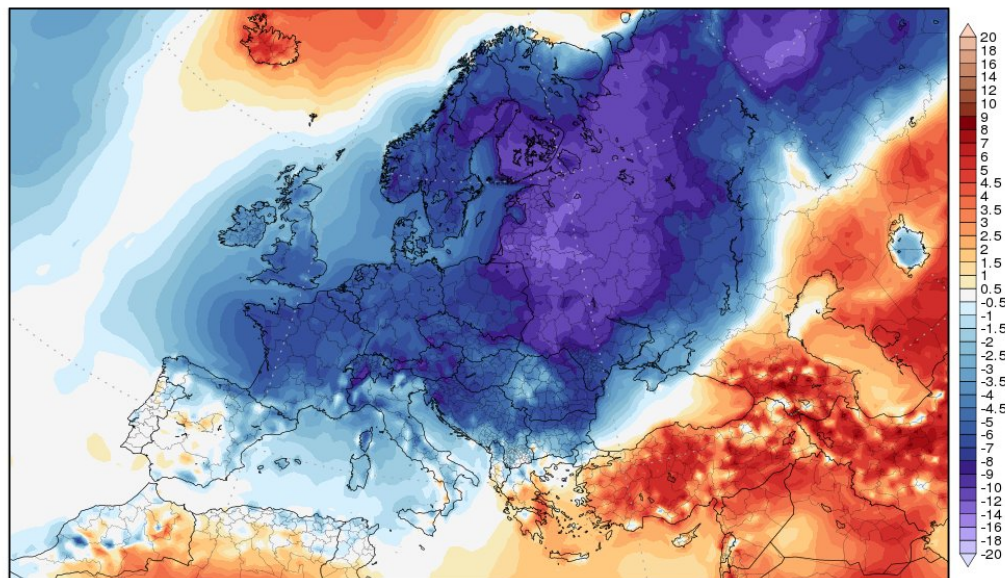


The recent cold snap over Europe caused snowfalls much more important than usual in some areas, especially in Central Europe or in United Kingdom and Ireland. Using Earth Observation images, it is however more impressive to show the unusual change in land cover than happened in some parts of Mediterranean Europe as snow coated even some plain regions.

NCEP GFS forecast vs CFSR reanalysis @0.5deg
Run: 22 Feb 2018 18z

7 day forecast mean (168h)
Reference: 22 Feb 2018 18z

Temperature anomaly 2m (°C)



Anomaly D: -6.14K

F: -5.41K

UK: -4.19K

E: -1.19K

Fig. 2 - 28.02.2018 - Snow also fell on Tuscany & Lazio regions, near Roma, not only in heights but also at sea level.

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

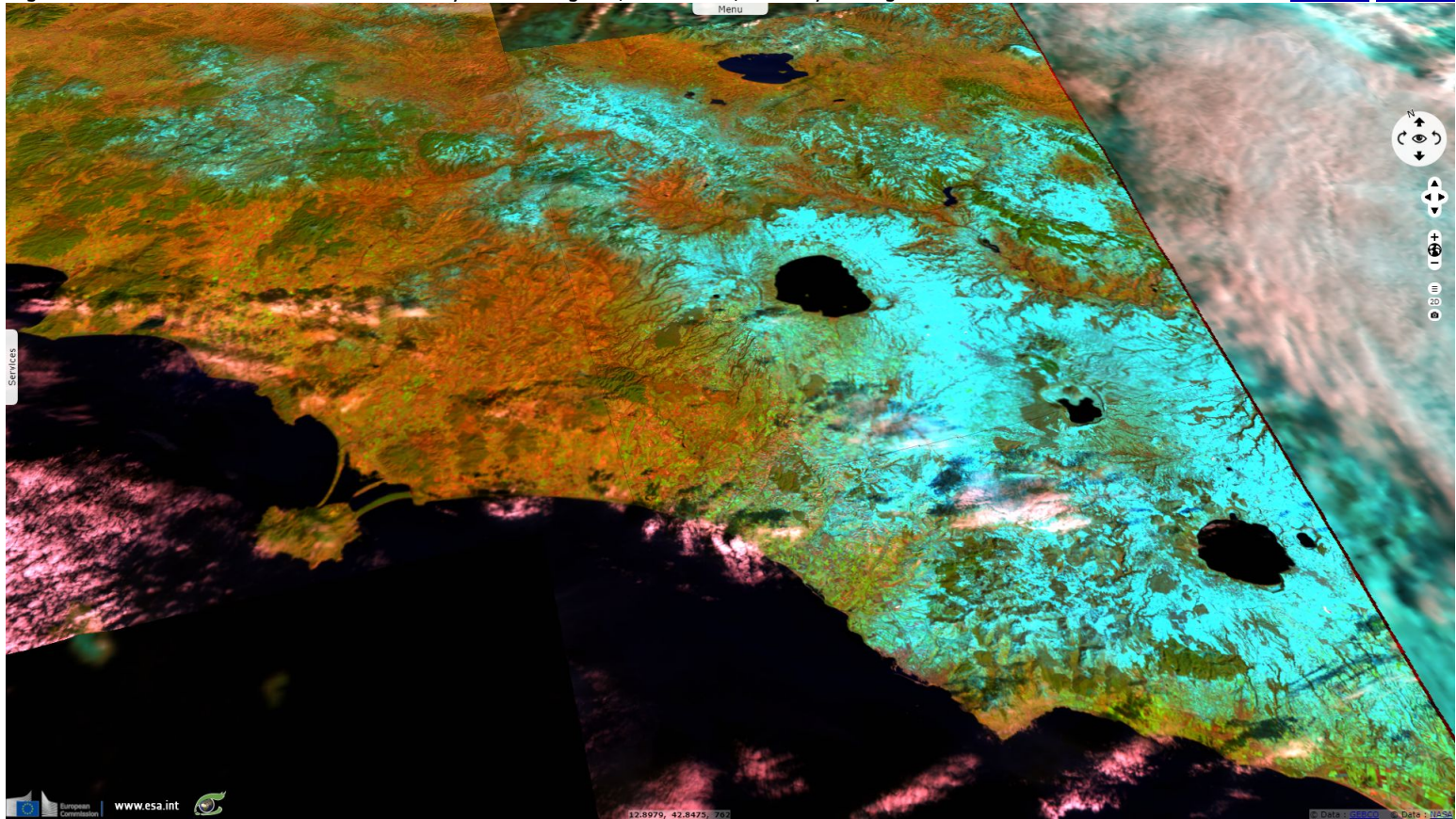


Fig. 3 - 28.02.2018 - On the Adriatic coast, Emilia-Romagna & Marche were also snow-capped with another patch near Venice.

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

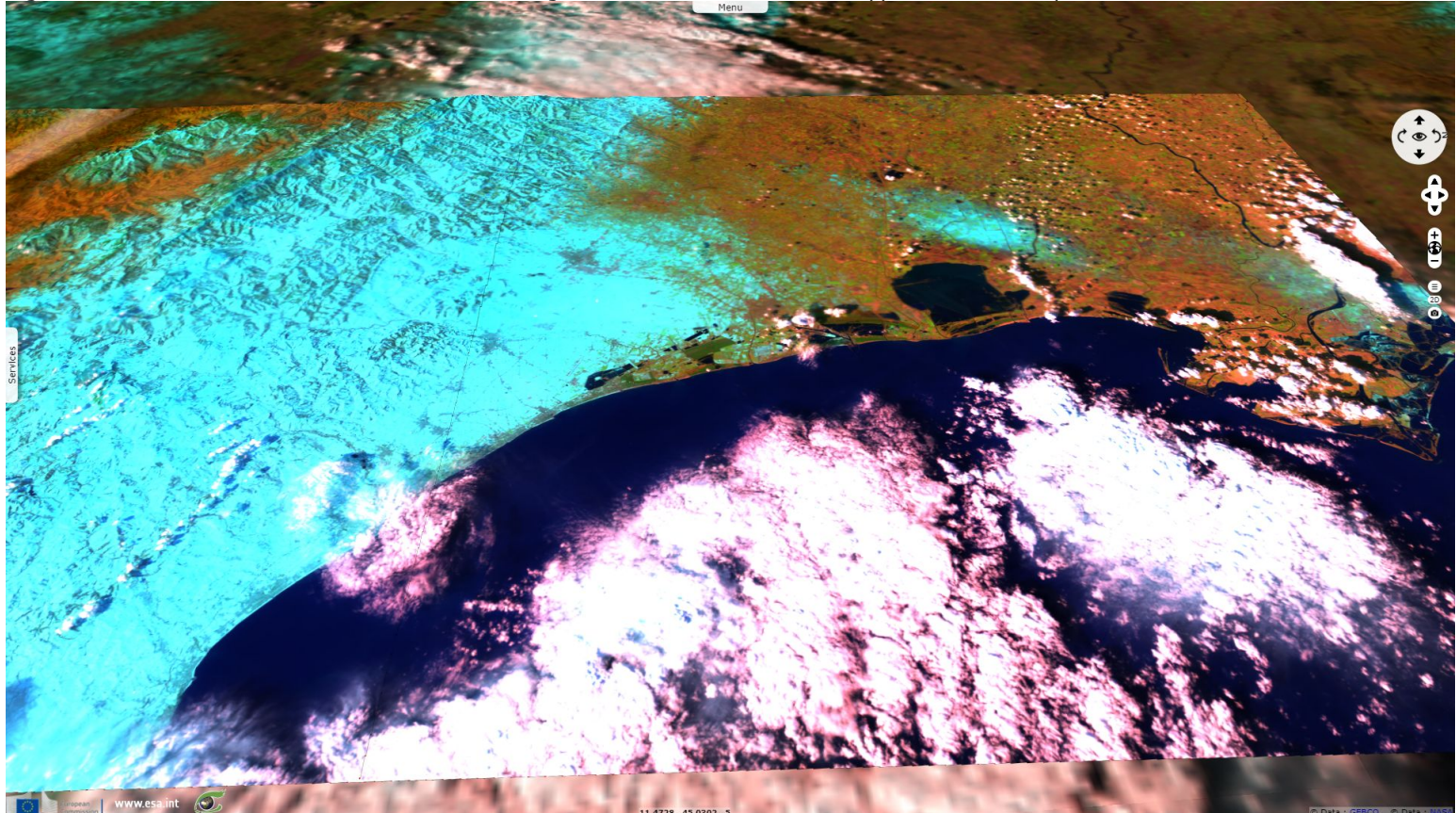


Fig. 4 - 27.02.2018 - Snow covered large parts of the South region continuously from one coast to the other.

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

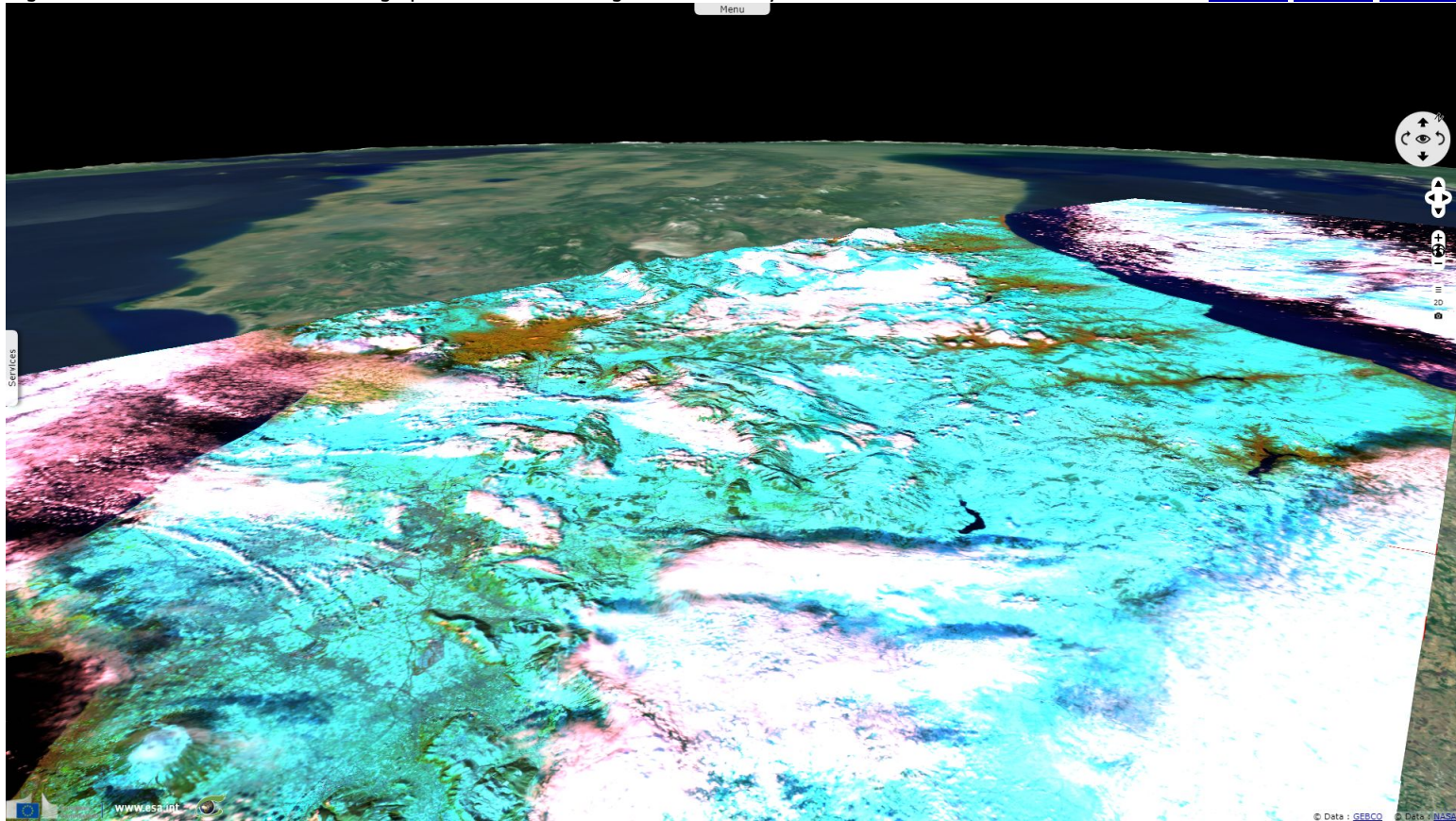


Fig. 5 - 27.20.2018 - On the Adriatic shore, the coldsnap reached Croatia, not only Balkans but also near Split region.

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

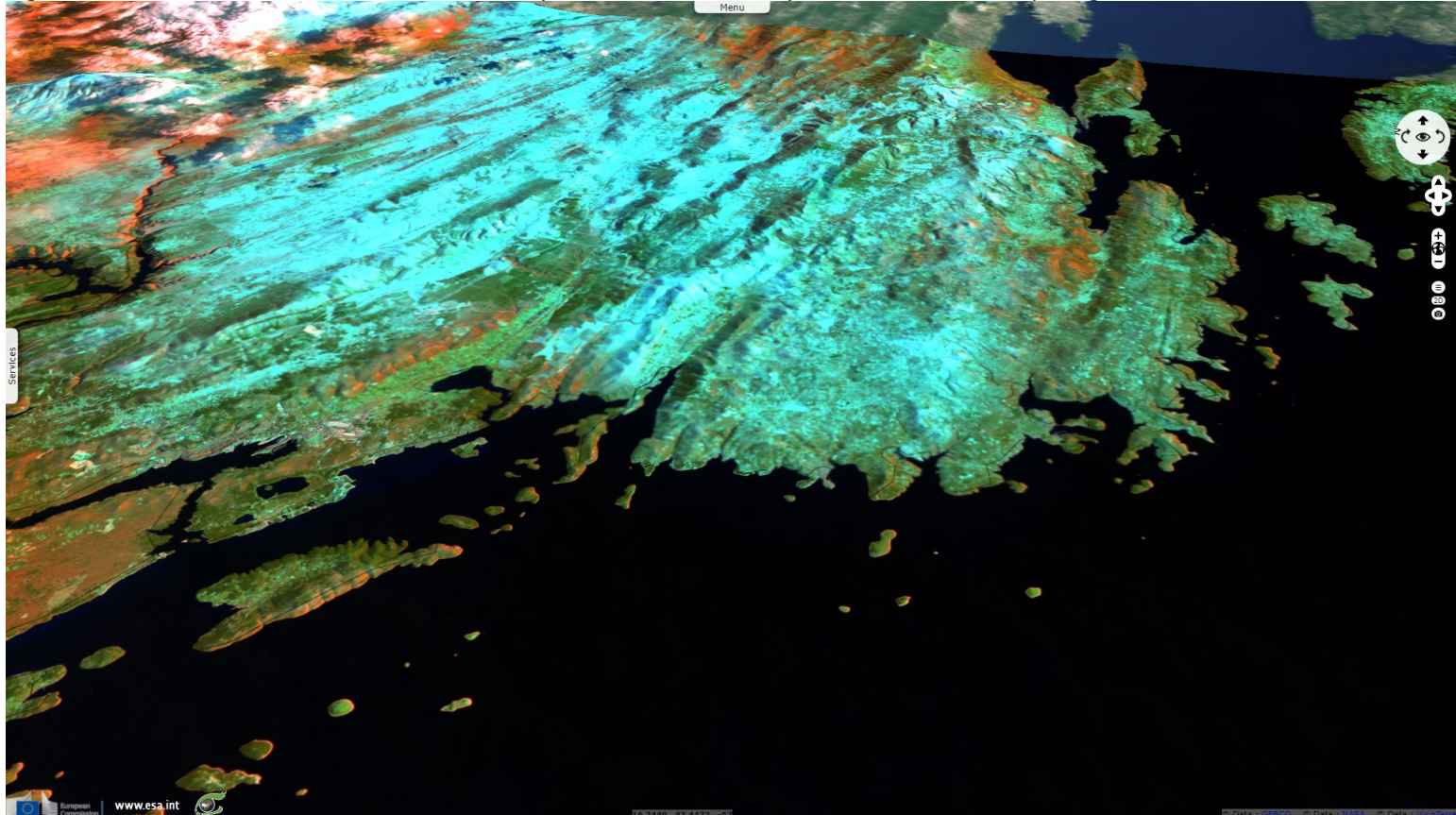


Fig. 6 - The cold wave from the north reached as far as rugged southern Greece and some of its eastern plains.

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

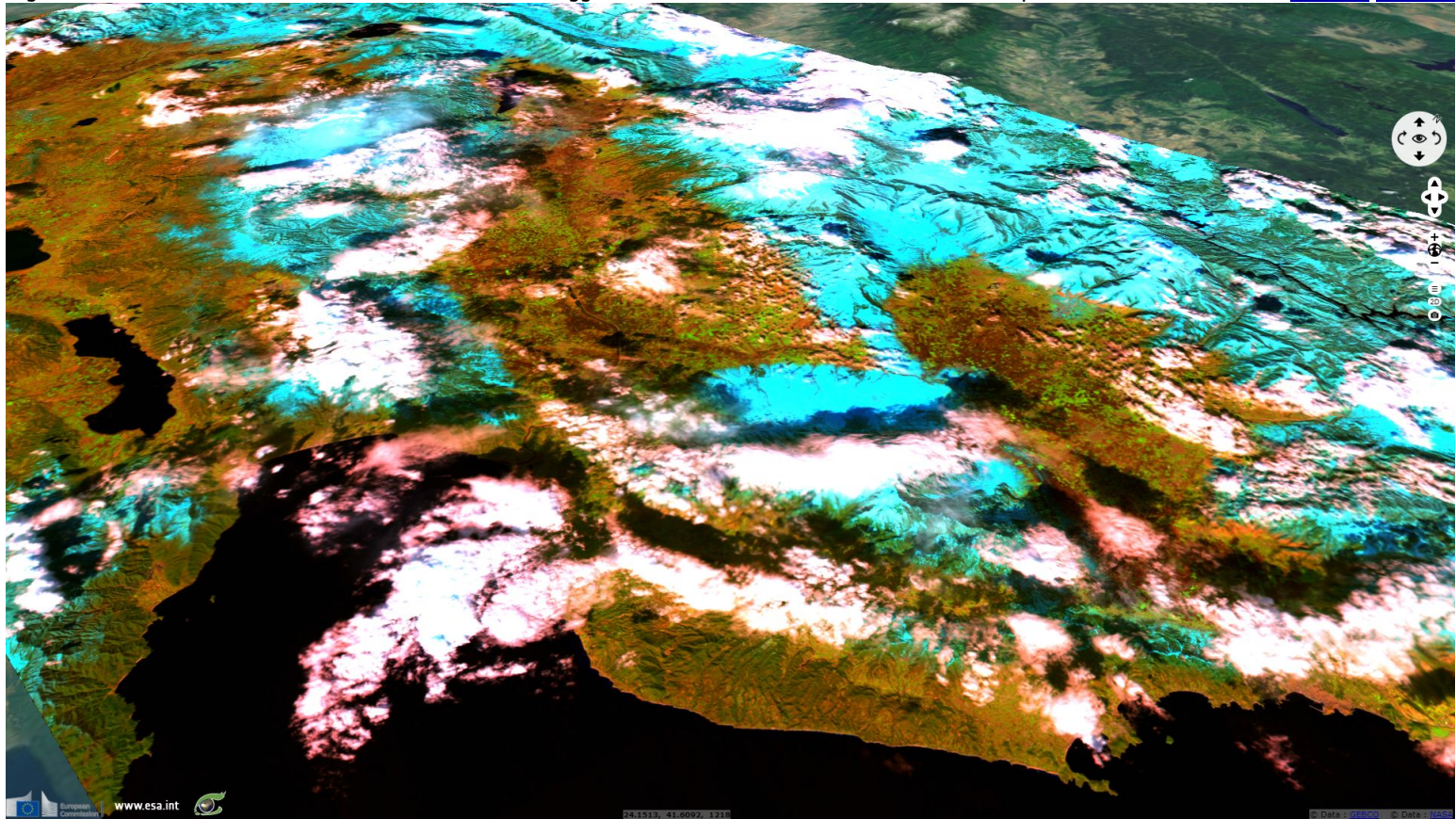
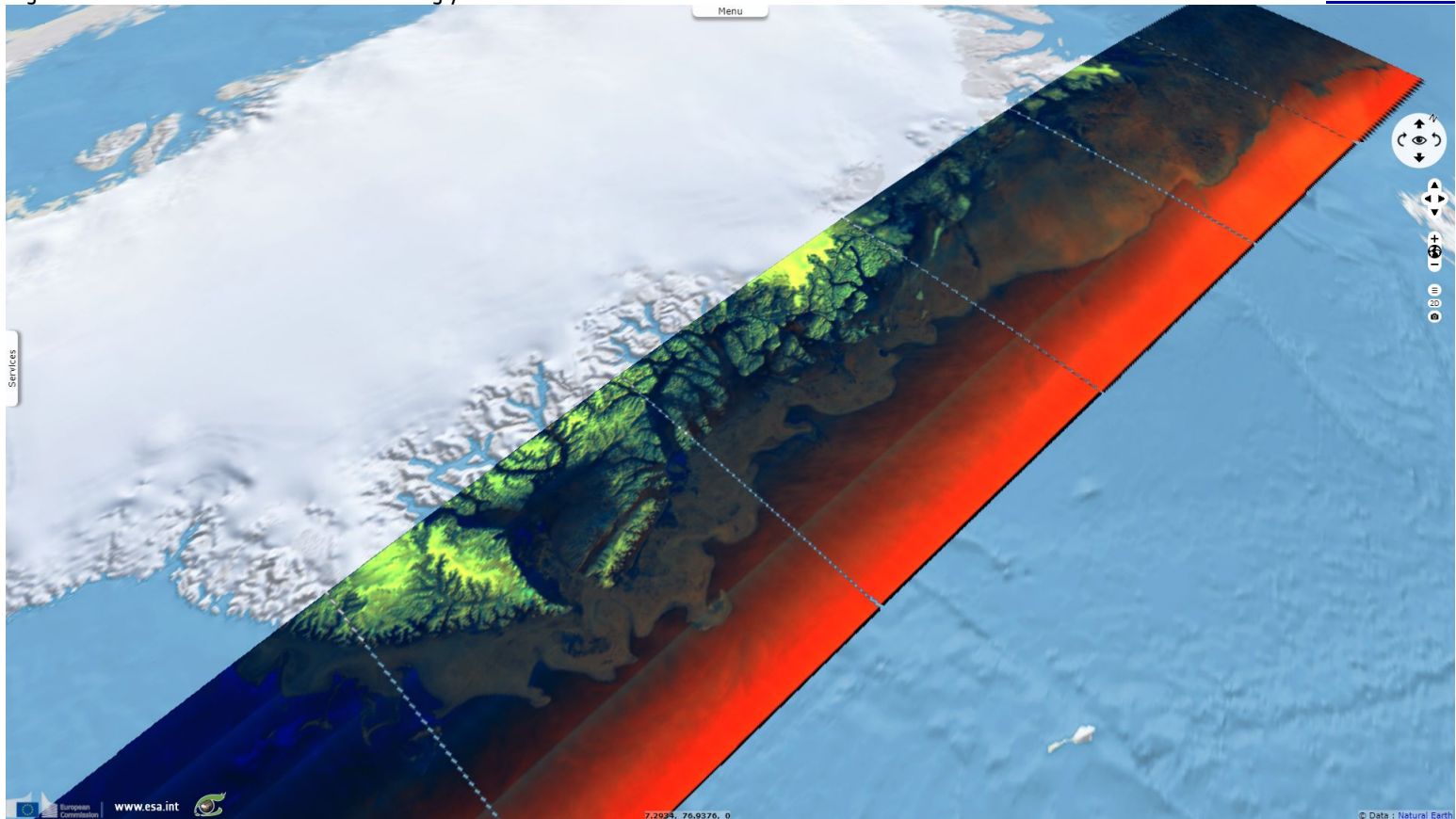
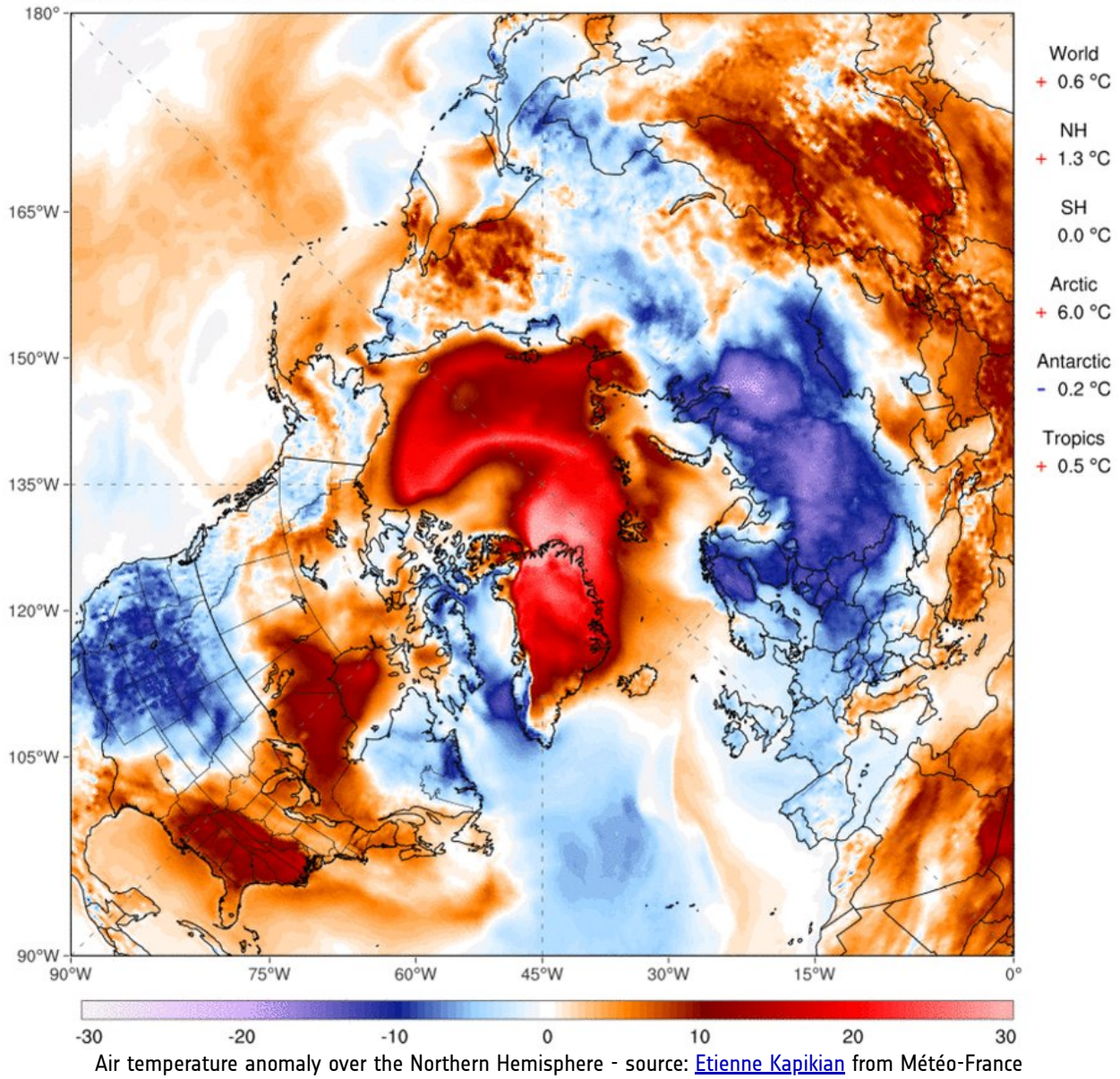


Fig. 7 - 25.02.2018 - Sea ice retreated strongly in East Greenland between winter 2015 & winter 2018.

[3D animation](#)



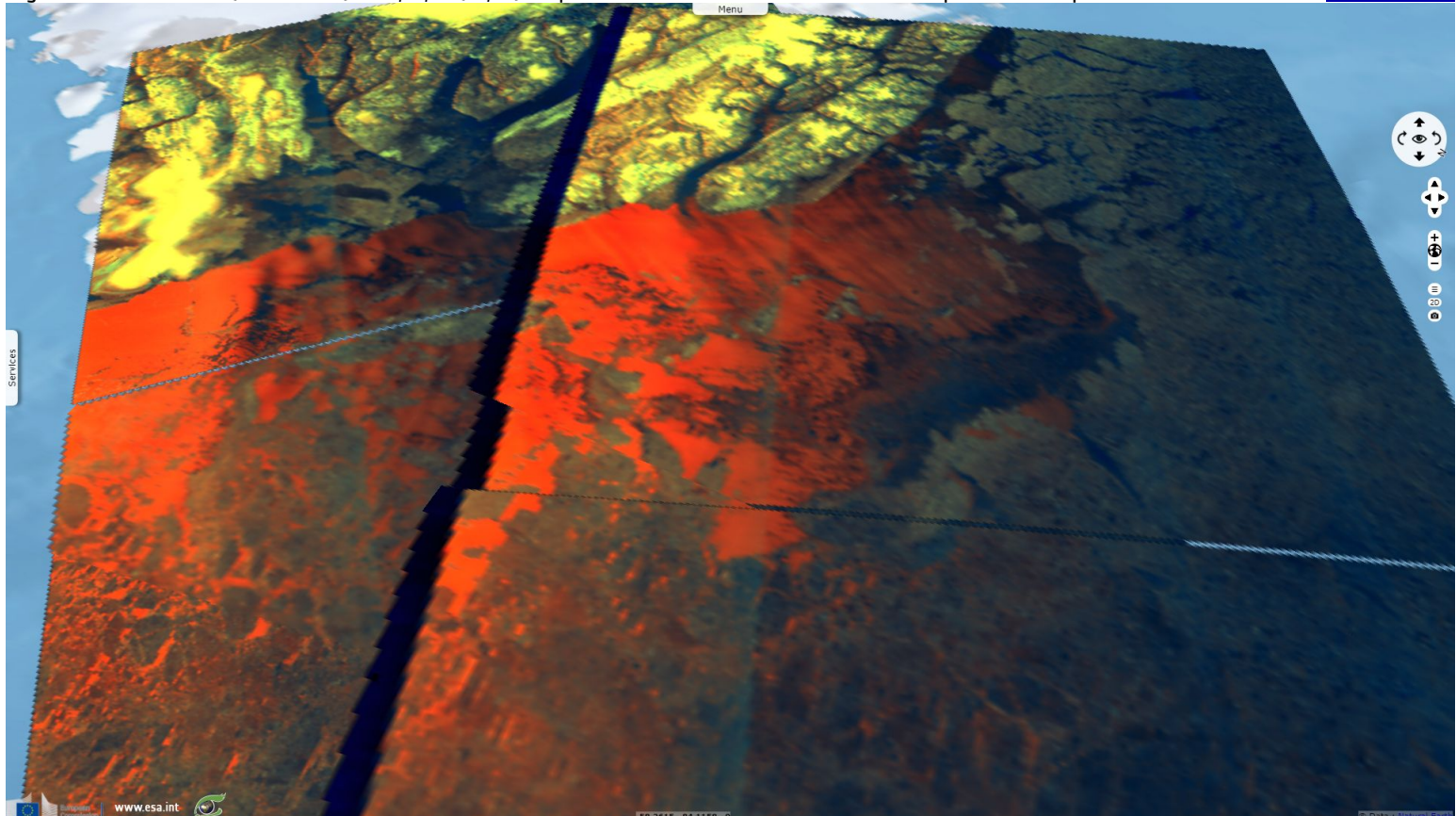
Even more impressive was the heat wave that occurred in the Arctic at the same time, due to the wintertime Arctic Oscillation (AO) / North Atlantic Oscillation (NAO). Temperatures reached +6°C instead of -15°C/-25°C at that time of the year in Northern Greenland, possibly a +30°C positive anomaly! Open water testimonies of this positive temperatures.

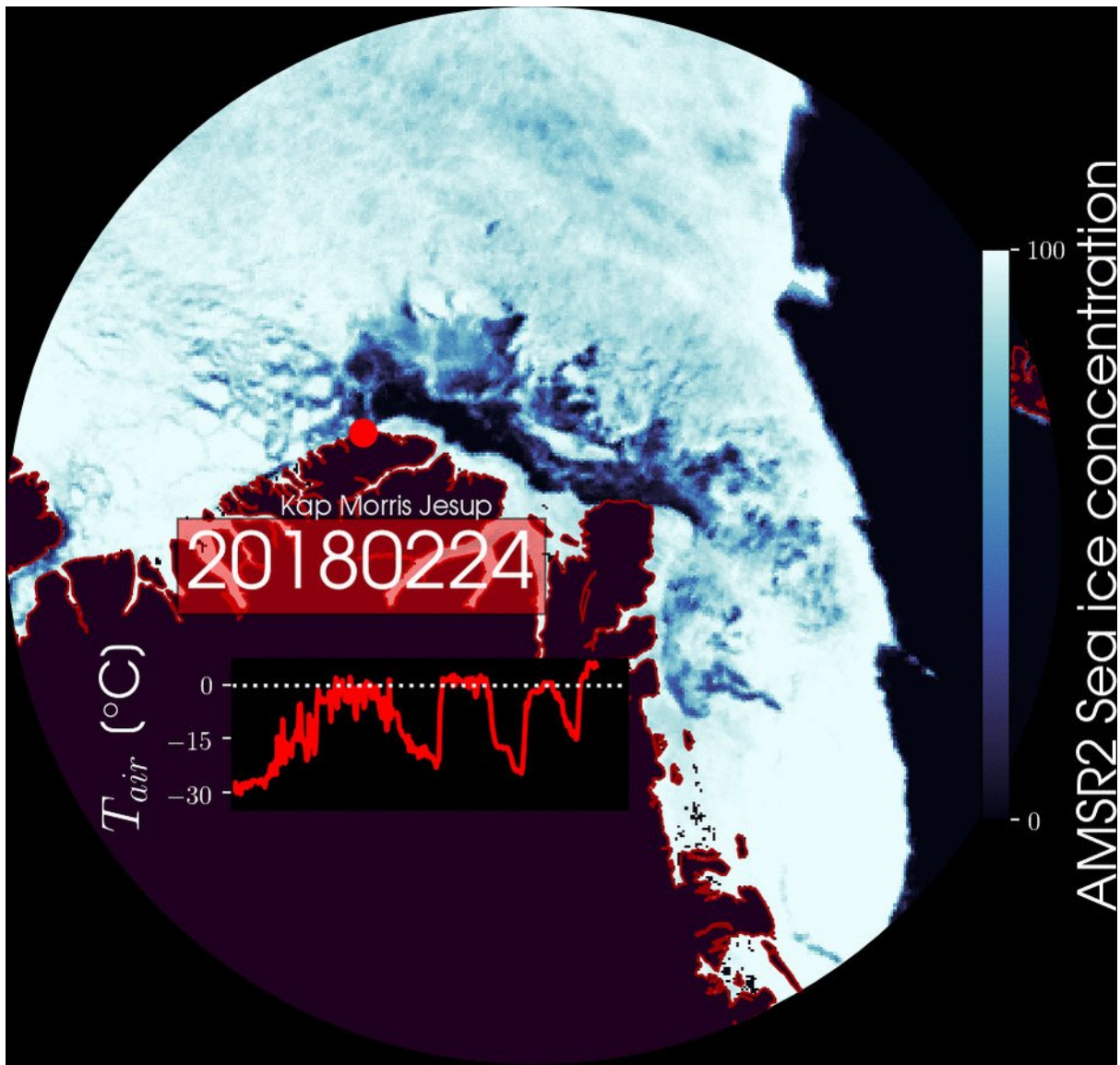


Air temperature anomaly over the Northern Hemisphere - source: [Etienne Kapikian](#) from Météo-France

Fig. 8 - Sentinel-1 EW (25.02.2018) - hh,hv,ndi(hv,hh) - Open sea in North Greenland between Kap Morris Jesup & Station Nord.

[3D animation](#)

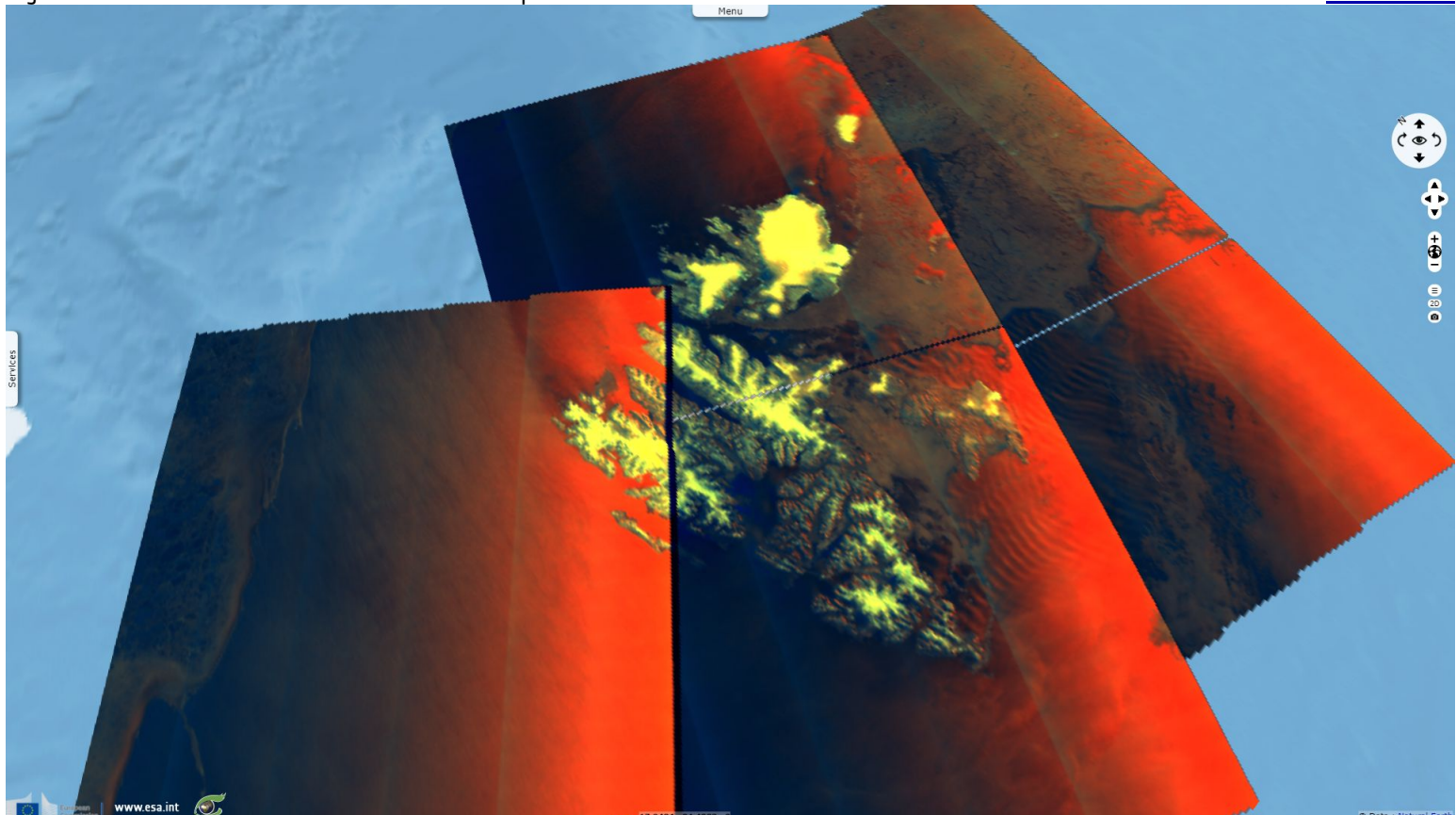




Air temperature & sea-ice cover in Kap Morris Jesup, Northern Greenland - source: [Lars Kaleschke](#), Professor for sea ice remote sensing at the University of Hamburg

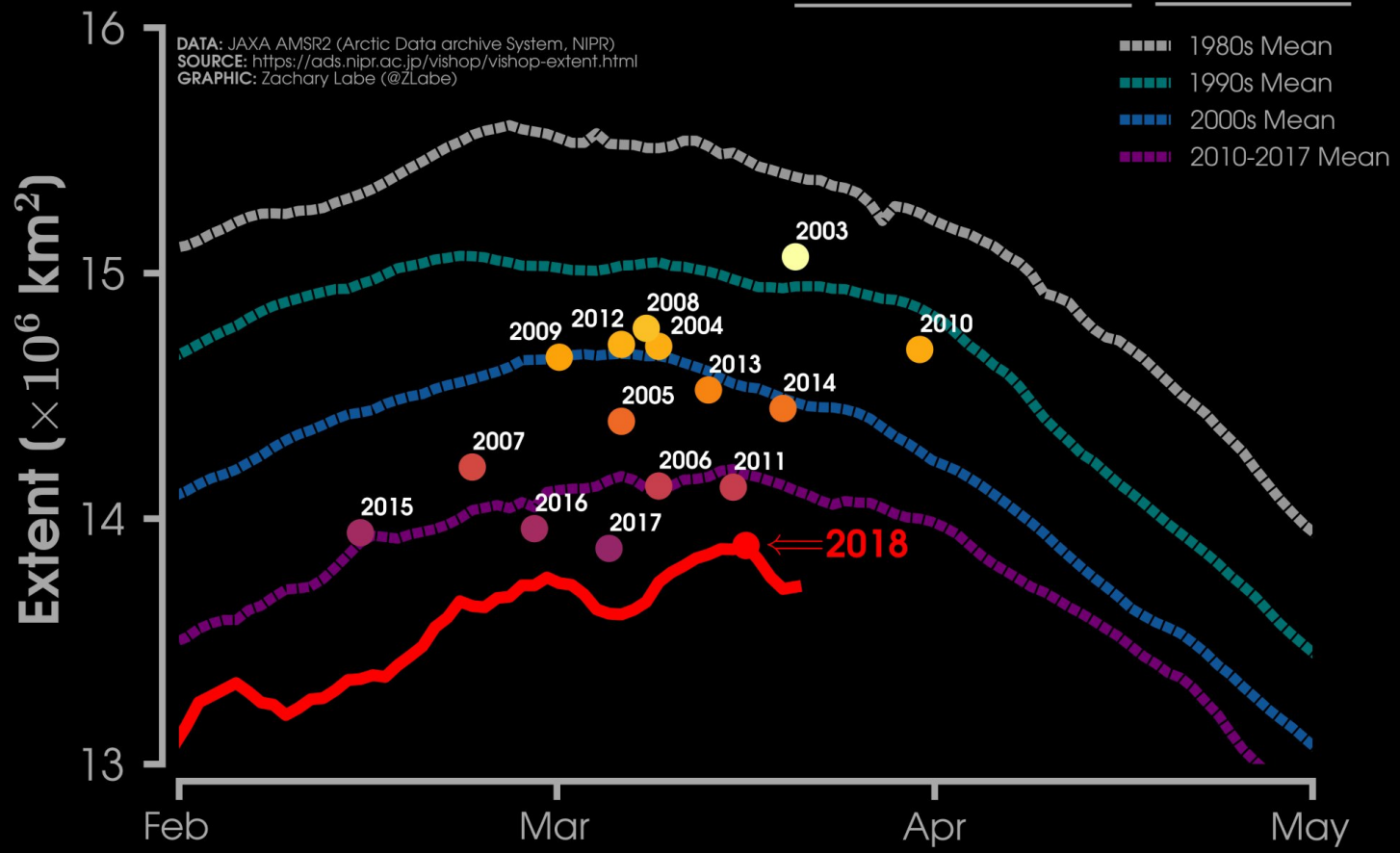
Fig. 9 - 25.02.2018 - Svalbard island lost most of its pack ice cover between these 2 dates.

[3D animation](#)



Looking back at the whole winter season, 2018 may be the second lowest annual max Arctic sea ice extent after 2017 according to JAXA's AMSR2 data.

ARCTIC SEA ICE ANNUAL MAX



Arctic sea ice annual maximum extent - source: [Zack Labe](#) from Cornell University

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