

Sentinels above geological maps

[3D layer stack](#)

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CGMW General Assembly takes place on 22-23 February 2018 in UNESCO, Paris.

See <https://ccgm.org/en/content/7-general-assembly>

1. Collapse of Himalayan crust on Indochina

Fig.1: Structural Map of Eastern Eurasia above GEBCO topography (x30).

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

On the Structural Map of Eurasia, the Indian continental crust (left) is seen passing under the Himalayas and raising the Tibetan plateau (top), the continental crust of Sichuan (in light pink on the right) is doing the same under Tibet. We notice the collapse of Indochina with its crust "flowing" gravitational towards the south (bottom middle in pink).

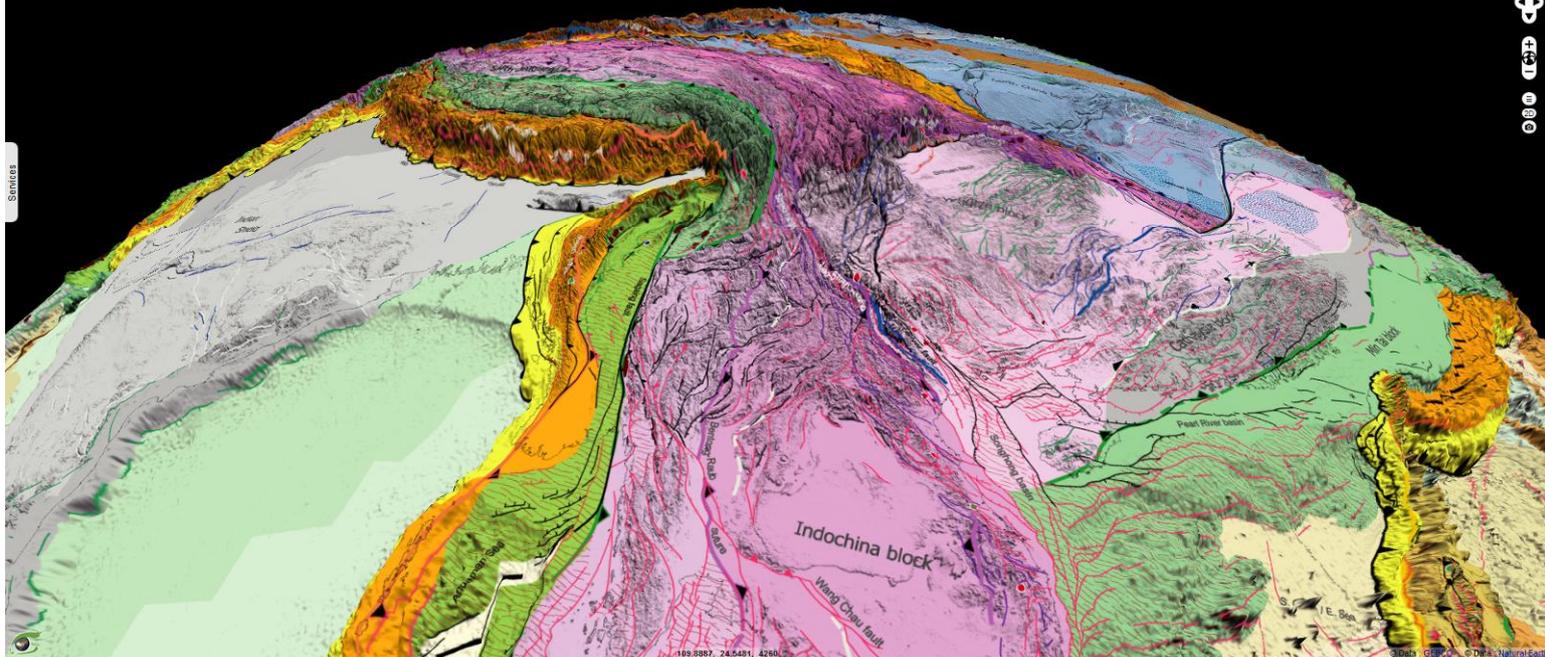


Fig.2: Sentinel-3 OLCI (medium resolution optical) observed on 21 February 2018.

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

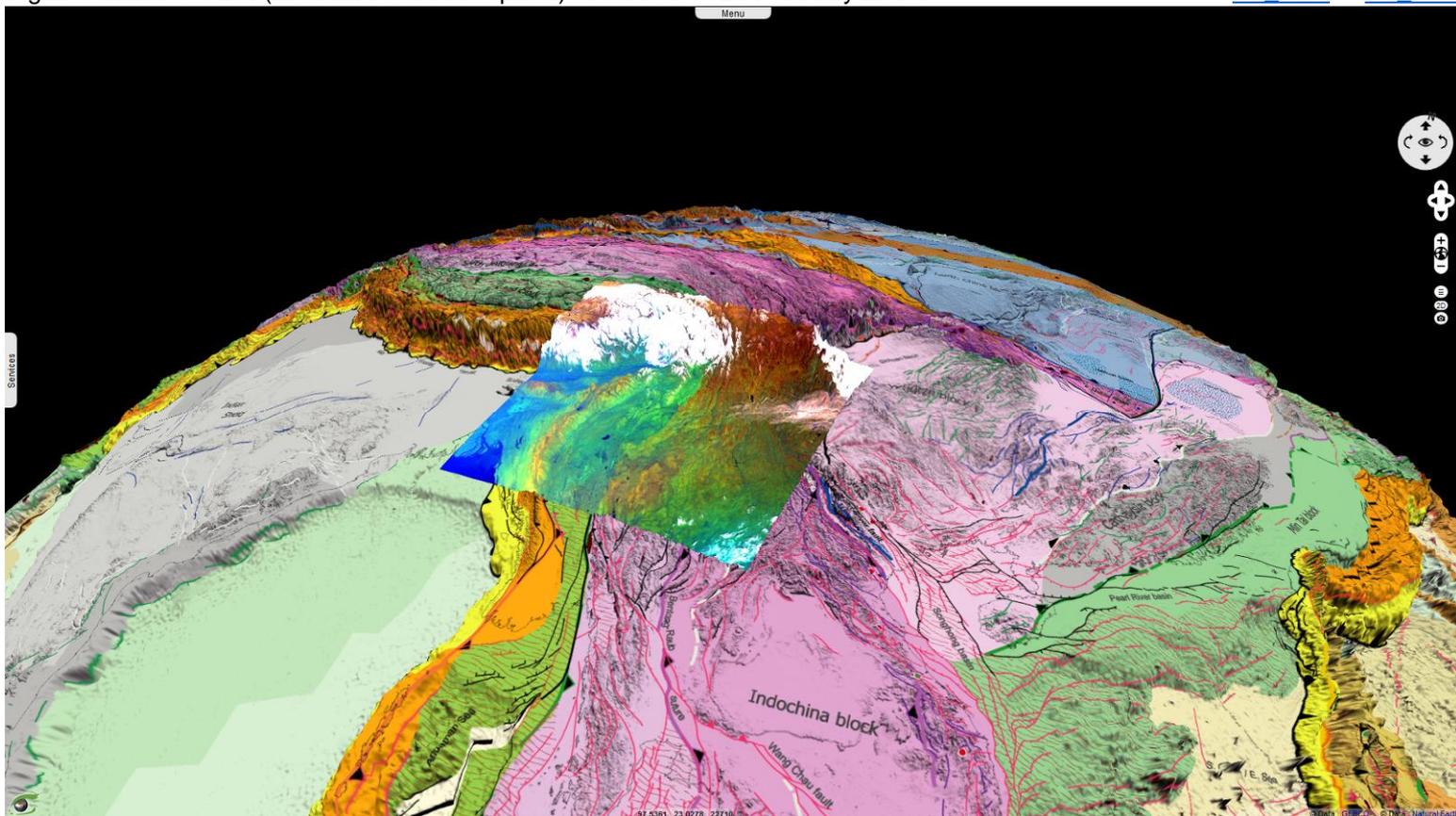


Fig.3: Illustration of the subduction of the Pacific (Nazca plate in brown on the left), under the Andes which are severely uplifted suggesting a rather flat inter-plate contact underneath the Andes. We also see a gradual slope of the South American continental crust to the east (right) which becomes milder under the Amazon craton (far right).

Fig.4: The eastern front of the Andean Fold-and-Thrust Belt is seen with sediments carried towards the range (notice saw-teeth pointing to the right), contrarily to many mountain fronts, and shows a typical "triangular zone"; meaning the basin to the right of the sat image is carried toward the range.

2. Andes (Tectonic Map) and long wavelength topography on Geoid

Fig.3: Tectonic Map of South America above GOCE geoid (x10000).

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

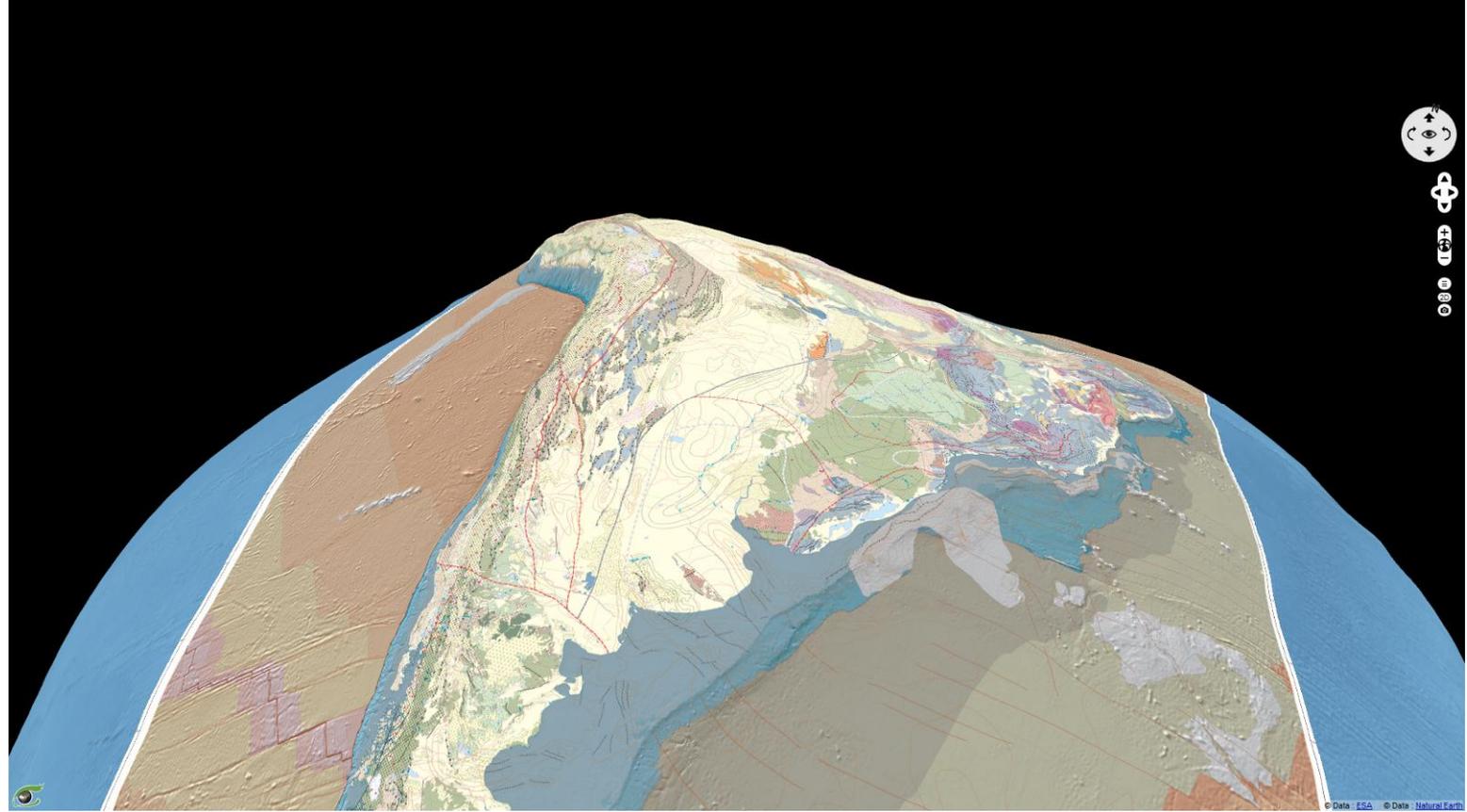
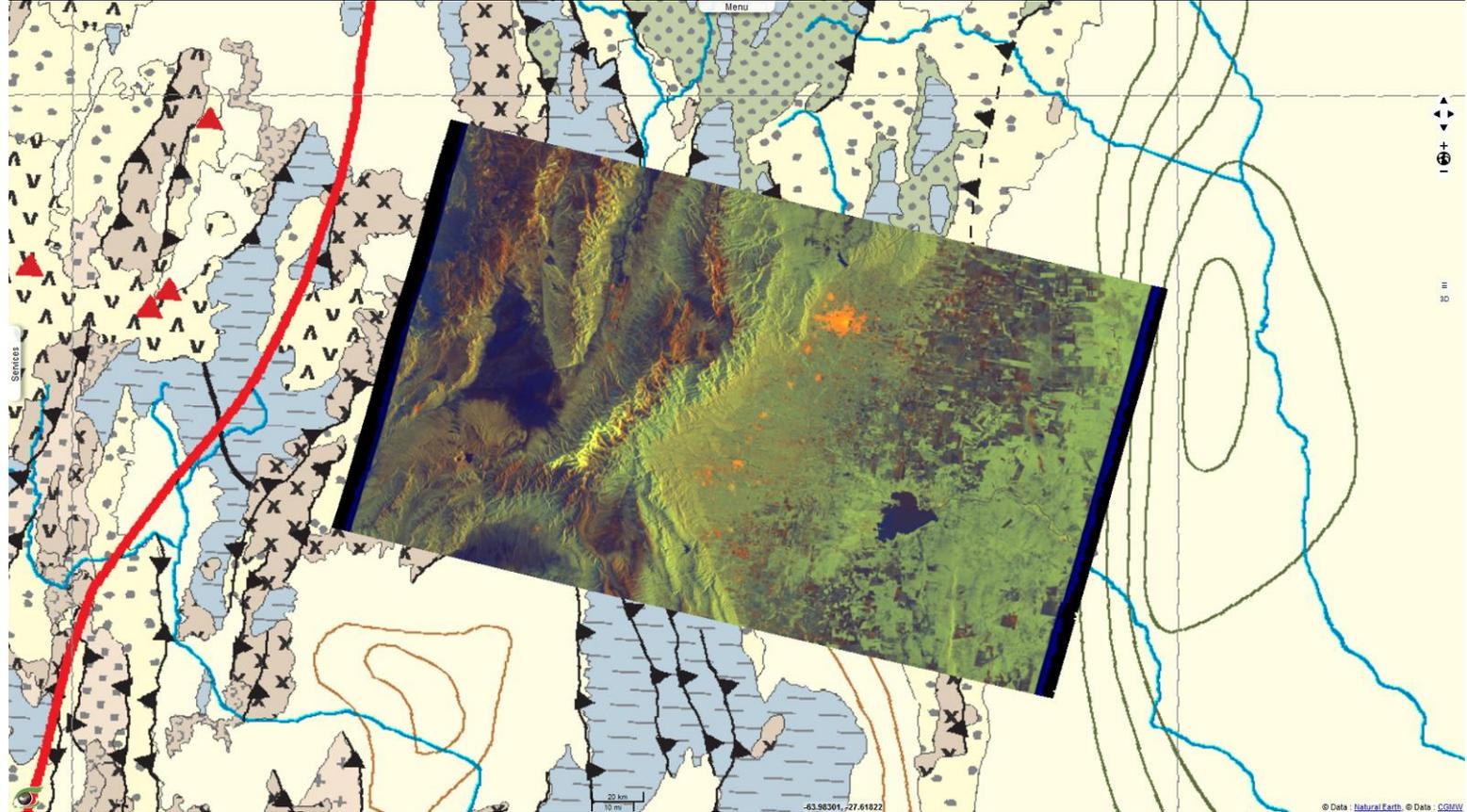


Fig.4: Sentinel-1 C-SAR IW (radar) observed on 17 July 2017 in descending orbit (09:45:06 GMT).

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



The oceanic mid-Atlantic ridge responsible for the separation of Africa and South America highlights a thermal dome that is homogeneous and "cylindrical" not only from the point of view of geological ages but also from the point of view of the topography; thus implying the morphology of the ocean floor is controlled by the density of the plates which increases (as temperature decreases) away from the ridge and therefore creates an increase in depth. The thermal dome evidences there is an age / depth relationship.

3. Mid-Atlantic Ridge and oceanic subsidence with age on Geoid

Fig.5: Structural Map of the Atlantic Ocean above GOCE geoid (x10000).

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

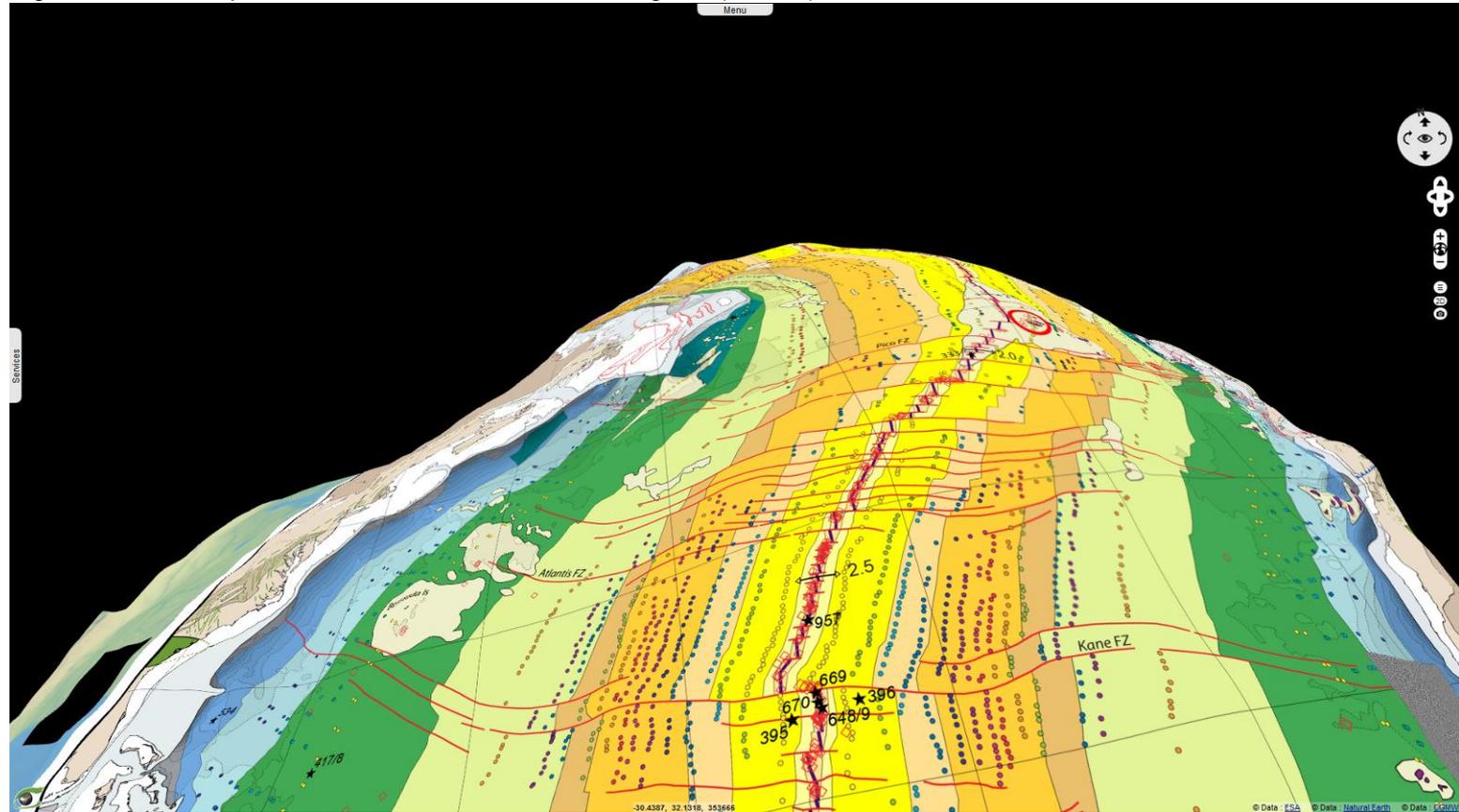
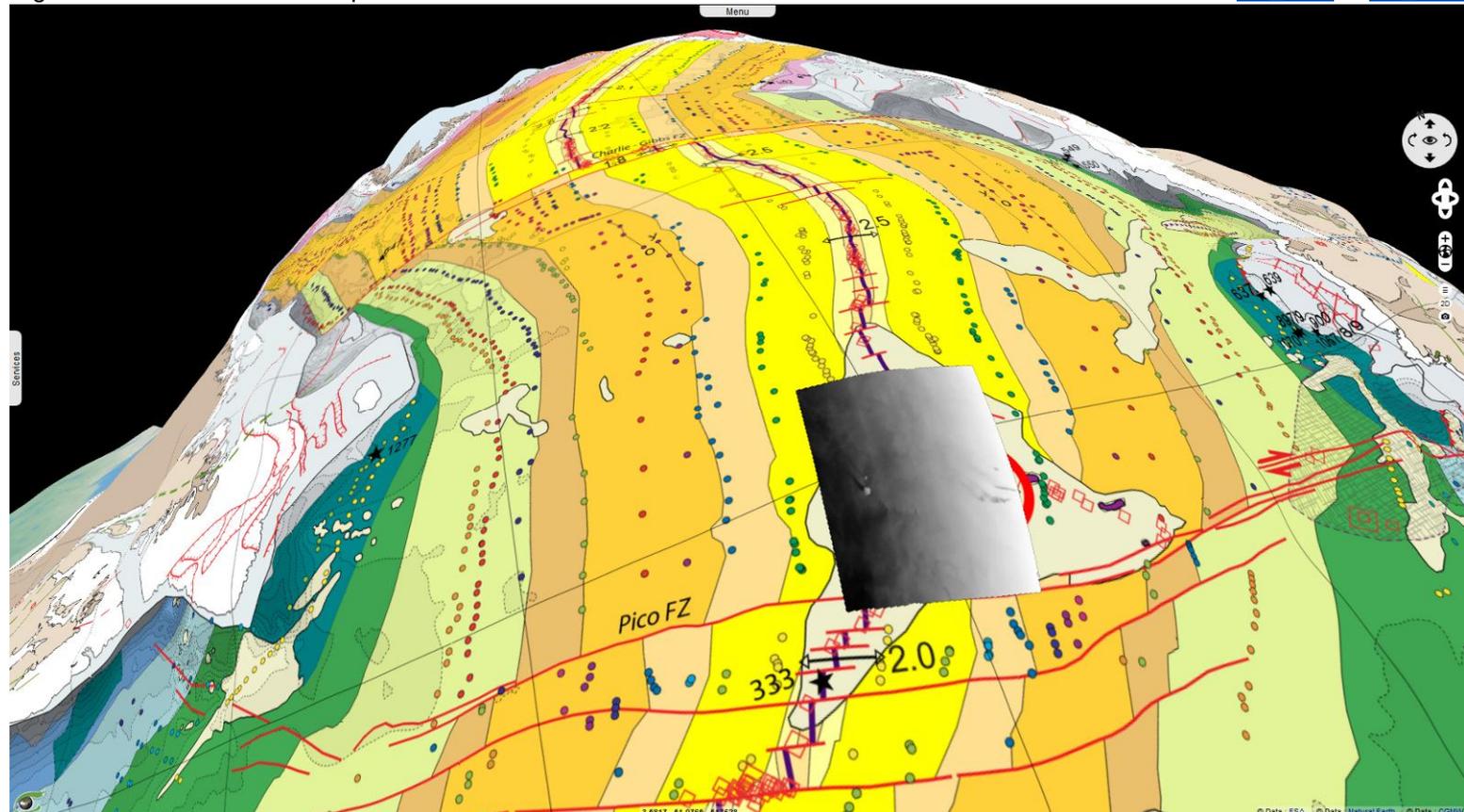


Fig.6: Envisat ASAR WSM acquired on 18 March 2012 at 12:14:57 GMT.

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



The South China Sea seen from the South. The Tertiary oceanic crust is purple in the shape of a "V" (scissor opening). The continental crust is much stretched over 2000 km on each side of the "V". On this stretched crust stand out the old granites of the Early Cretaceous (in brown). Recent volcanoes (Plio-Quaternary) piercing through the oceanic part stand out near the ridge axis (although the ocean spreading ceased 15 Ma ago), and are also present in the highlands of Vietnam.

4. South China Sea Bathymetry and structures

Fig.7: Structural Map of the South China Sea above GEBCO (x30).

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

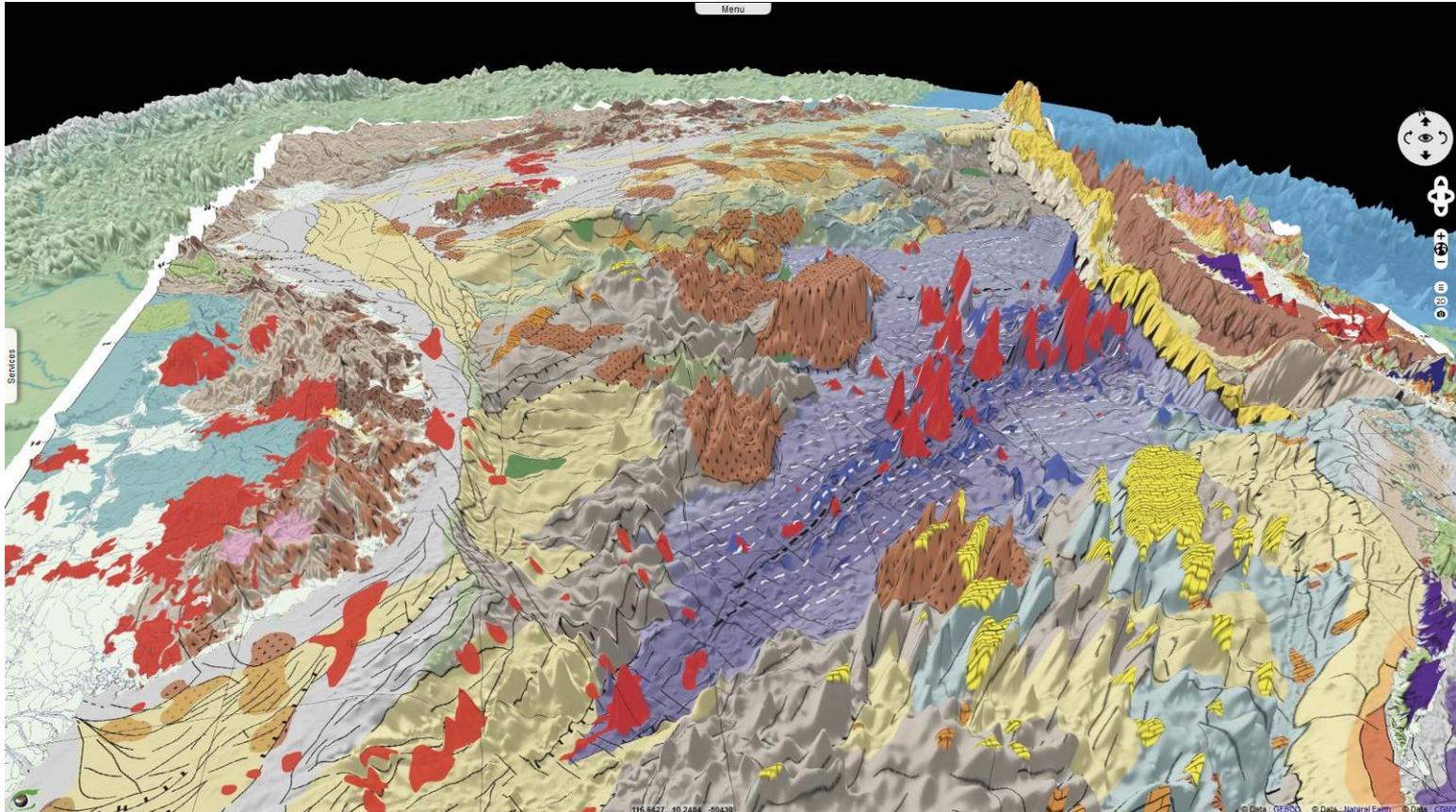
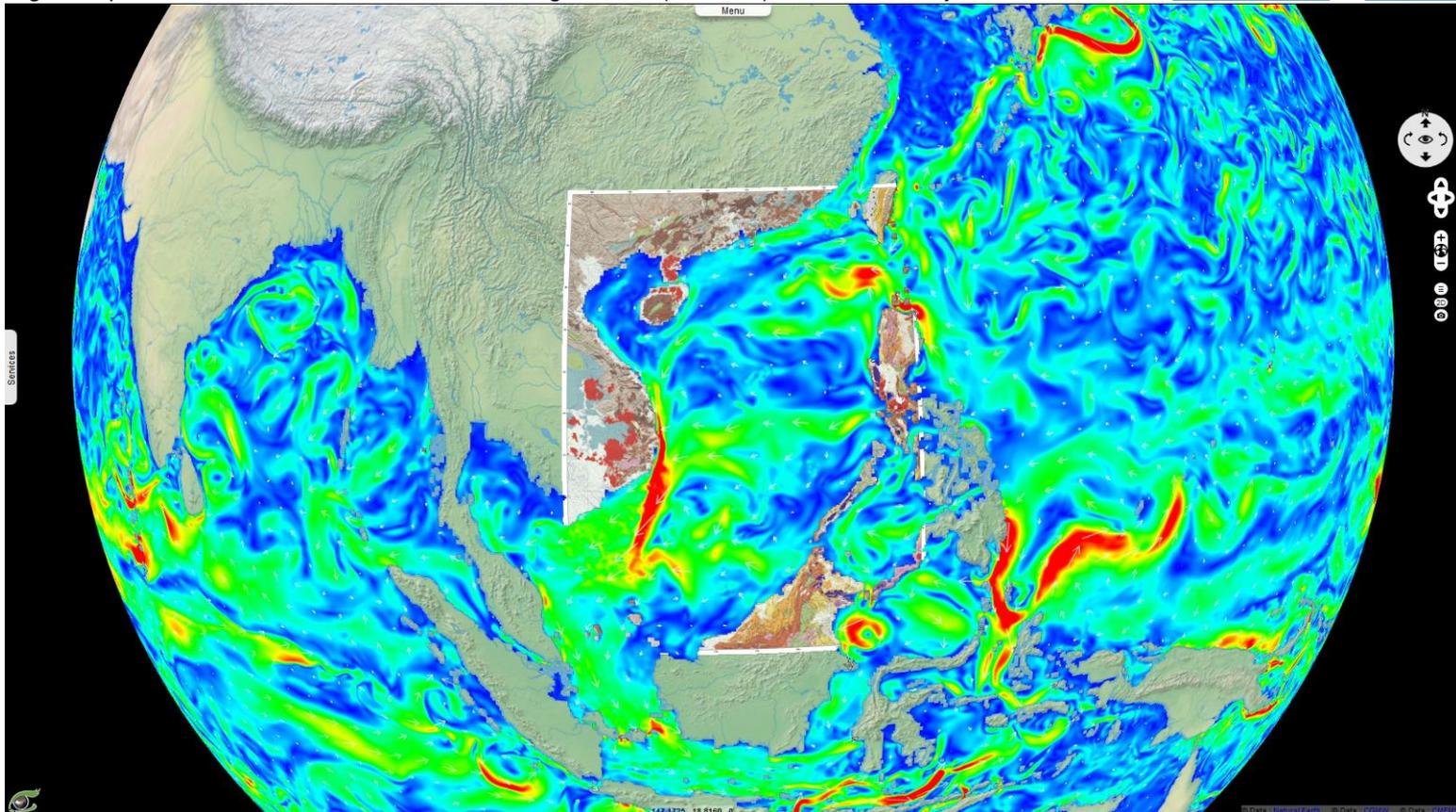


Fig.8: Copernicus Marine Environment Monitoring Service (CMEMS) for 1st February 2018.

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



Geoid anomalies with a depression on Sri Lanka and a hump over Indonesia and New Guinea. We see (on the Sunde subduction zone) the bulging of the Australian oceanic plate before it plunges into the subduction zone. We see to a certain extent the same pattern for the Indian plate (which is continental) which makes a bulge before being underthrust beneath Eurasia with a longer wavelength.

5. Isostatic World Gravity on Geoid

Fig.9: Isostatic World Gravity above the GOCE geoid (x10000).

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

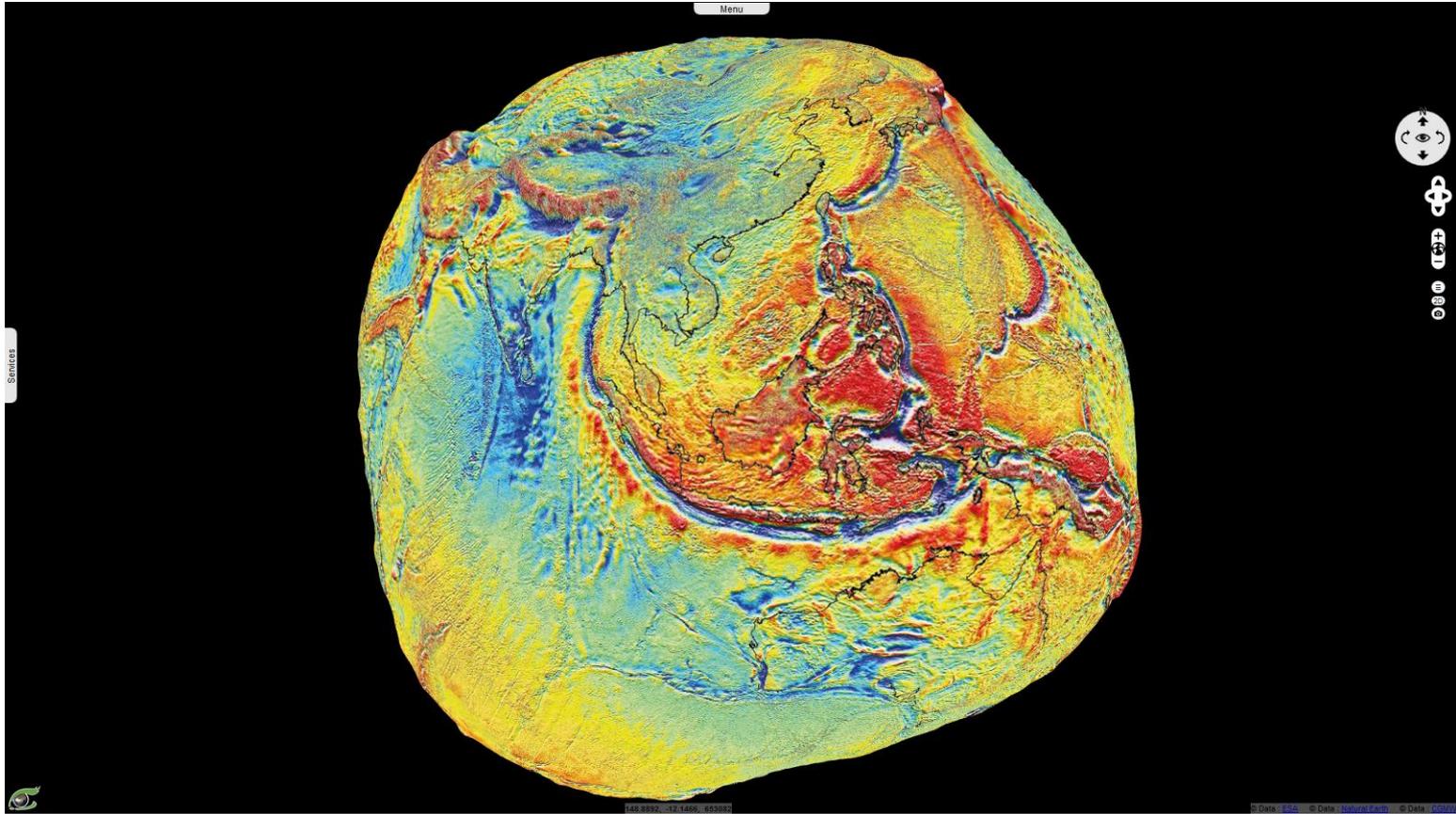


Fig.10: Sentinel-3 SRAL (altimeter) backscatter coefficient 1Hz C band (dB) observed on 24-07-2016 and 02-01-2017. [3D view](#)

