



2023-05-14, Sentinel-1 (Enhanced visualisation)



2023-08-19, Sentinel-2

The Strait of Gibraltar separates Europe from Africa and is only about 14 kilometres wide at its narrowest point. It is passed by more than 100,000 vessels per year. With this it is one of the busiest shipping lanes in the world, connecting the Atlantic Ocean to the Mediterranean Sea. The port of Gibraltar facilitates significant maritime activities, serving as a refuelling and supply point for ships passing through the strait.

The Strait of Gibraltar is also known for the occurrence of internal waves. These are large waves that form within a fluid medium, typically at the interface between layers of different densities. In the strait, the interaction between tidal currents and the varying water density creates internal waves. These waves can have a significant impact on underwater navigation and the distribution of marine life.

Satellite technology plays a crucial role in monitoring the maritime activities around Gibraltar. Satellites provide real-time data on ship movements, ocean currents, and environmental conditions. This information is valuable for navigation, maritime security, and environmental monitoring.

Exercises

- Look at Sentinel-1 satellite image.
- Describe the satellite image and the land cover classes you can identify. Which features can be identified most easily?
- Which features can you identify in the water surface? Zoom in to the Strait of Gibraltar and try to count ships.
- Look east of the Strait of Gibraltar – what type of wave structures can you see there? Try to estimate a typical wavelength of these waves.
- Deselect the Sentinel-1 radar satellite image and select the Sentinel-2 optical satellite image.
- Describe the land use types you can see in the region and compare with your findings with the radar satellite image.

Additional Material



View over the Strait of Gibraltar towards Africa (photograph: Rob3fish).

Links and Sources

- [https://www.esa.int/ESA_Multimedia/Videos/2021/03/Earth_from_Space_Strait_of_Gibraltar/\(lang\)/es](https://www.esa.int/ESA_Multimedia/Videos/2021/03/Earth_from_Space_Strait_of_Gibraltar/(lang)/es) - Video on a Sentinel-2 image of the Strait of Gibraltar (2021)
- https://www.esa.int/Applications/Observing_the_Earth/Earth_from_Space_Strait_of_Gibraltar - Sentinel image of the Strait of Gibraltar (2021)
- https://www.esa.int/ESA_Multimedia/Images/2010/10/The_Strait_of_Gibraltar - Envisat radar image of a larger region around the Strait of Gibraltar (2010)