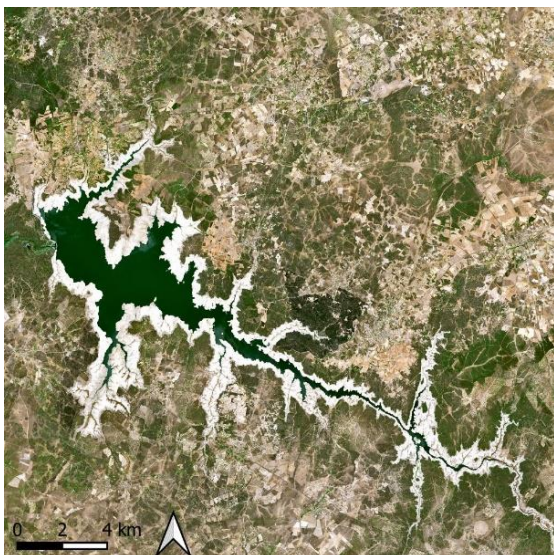


2015-08-01, Sentinel-2

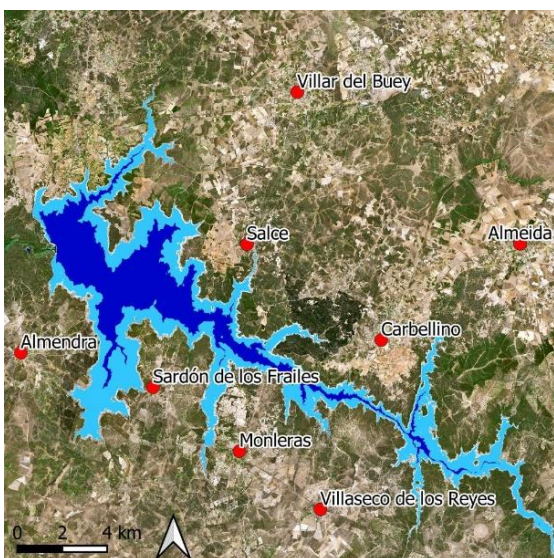
The Almendra Reservoir covers an area of more than 8,000 hectares, making it one of the largest reservoirs of Spain. It is located near the Spanish-Portuguese border in the region of Castilla y León and is a lifeline for the local agriculture sector. It was created between 1963 and 1970 with the construction of the Almendra Dam on the Tormes River. The dam provides water for two tasks: irrigation of agricultural land and producing energy in the Villarino hydropower station, which has an installed capacity of 810 Megawatts.

Agriculture in this region heavily relies on the Almendra Reservoir for irrigation, with over 50,000 hectares of arable land benefiting from its controlled water release. This sustains the cultivation of various crops despite the aridity of the region, including wheat, barley, sunflowers, and vineyards, contributing significantly to Spain's agricultural production.



2022-08-02, Sentinel-2

In recent years, climate change has posed challenges to the Almendra Reservoir's reliability. Rising temperatures and changing precipitation patterns have put pressure on water resources in the area. Sustainable water management practices have become increasingly important to adapt to these changes not only to safeguard the livelihoods of local farmers, but to secure the energy production by the hydropower station, too.



2022-08-02, Sentinel-2, with water bodies derived from satellite images

Exercises

- Look at the satellite image from 2015. Which land cover classes can you identify?
- Compare the satellite images from 2015 and 2022. Where are the modifications of the landscape most prominent?
- Where can you find an change of the water area?
- Compare this with the overlay of the water bodies in the third image. How accurate would you consider this water map derived from satellite data?
- How can the changes in the water surface influence the wildlife in this region?
- How do they affect the people living there? Think about the agriculture and the water supply to citizens.

Additional Material



View of the dam showing the low water level (photograph: Perronaider)

Links and Sources

- ESA Video: https://www.esa.int/ESA_Multimedia/Videos/2015/11/Earth_from_Space_Spanish_mosaic
- ESA Satellite Image: https://www.esa.int/ESA_Multimedia/Images/2015/11/Merida_Spain