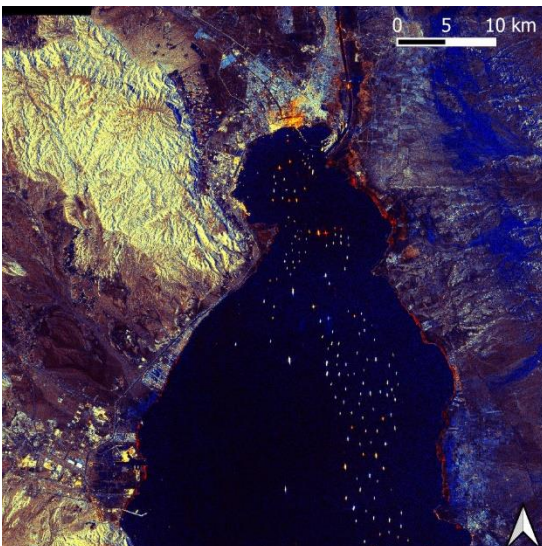
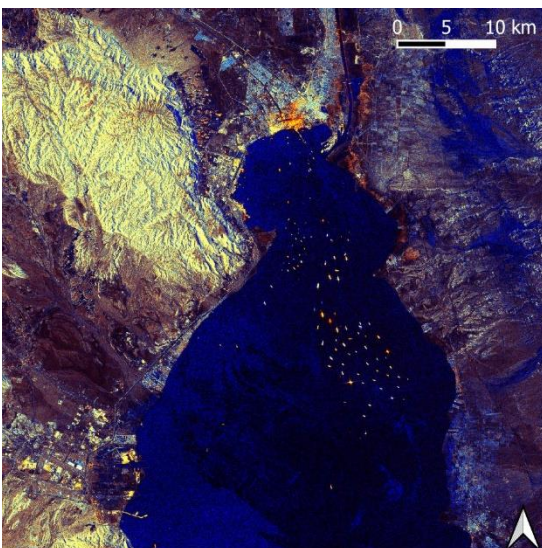


Sentinel-1, 2021-03-21



Sentinel-1, 2021-03-30

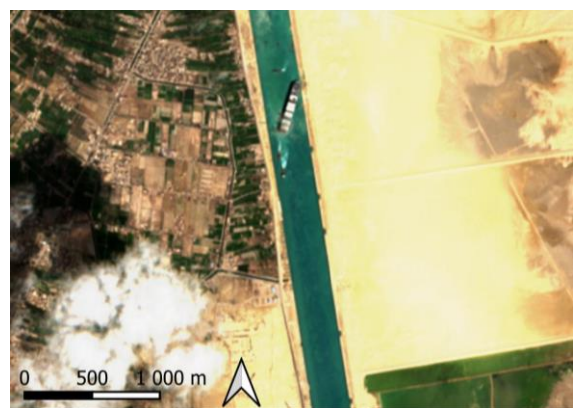


Sentinel-1, 2021-04-05

The Suez Canal, located in Egypt, is an important artificial waterway that connects the Mediterranean Sea to the Red Sea. Opened in 1869, the canal dramatically shortened the maritime route between Europe and Asia, allowing ships to avoid the lengthy and hazardous journey around the Cape of Good Hope. It plays a central role in international trade, enabling efficient transportation of goods, including oil, natural gas, and numerous other commodities. The canal's strategic location has made it a vital link between the East and the West, contributing significantly to global commerce.

In March 2021, the Ever Given, a large container ship measuring 400 meters in length and capable of carrying over 20,000 containers, ran aground in the southern section of the canal due to adverse weather conditions. This led to the temporary closure of the canal, causing a significant disruption to the global supply chains. Images from optical and radar satellites captured the immense size of the Ever Given, blocking the entire canal (below), and the traffic jam caused by the accident for ships waiting at the entrances to the canal. The Sentinel-1 radar satellite images (left) show the build-up of the traffic jam at the south entrance of the canal after the accident, its maximum and decrease after the blockade was removed. Radar satellite data are especially useful for monitoring ship traffic.

The incident highlighted the canal's importance and vulnerability to unforeseen disruptions. During the six-day blockage, more than 400 ships were stranded, impacting global trade, and causing delays in the delivery of goods worldwide. Tugboats and dredgers worked hard to free the vessel, and with coordinated efforts, the Ever Given was eventually refloated, allowing the Suez Canal to resume its critical role in international shipping.



Sentinel-2, 2021-03-21

Exercises

- **Satellite Map:**
 - Looking at the satellite radar satellite image maps, describe peculiarities of this type of data and its representation.
 - How are ships represented? Compare the typical length of container ships (~300 m) with the scale of the satellite images.
 - How can satellite imagery and data play a role in understanding and resolving the Ever Given incident in the Suez Canal? What specific information can satellites provide?
 - Explain how weather conditions and human error contributed to the grounding of the Ever Given. How could satellite data help anticipate and prevent such incidents in the future?

Additional Material



The Ever Given container ship (photograph: Wolfgang Fricke)

Links and sources

- https://www.esa.int/ESA_Multimedia/Images/2021/03/Suez_Canal_traffic_jam_seen_from_space - Sentinel-1 images of the event