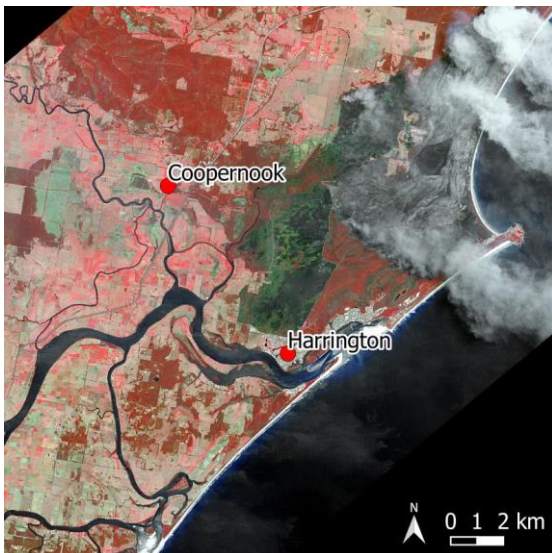


2019-01-11, Sentinel-2

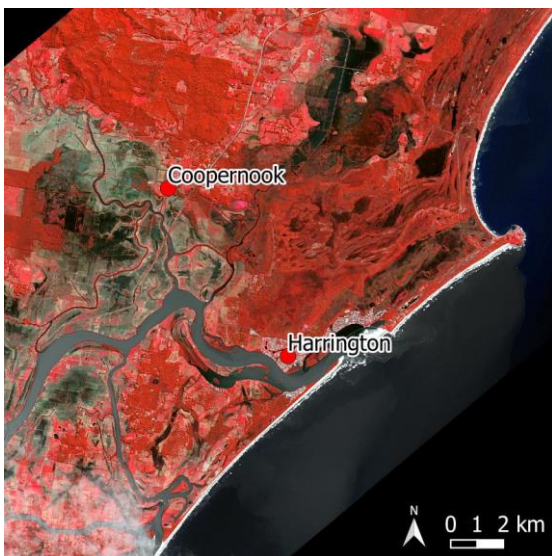
New South Wales (NSW), the most populous state in Australia, has been hit hard by natural disasters in recent years. The region has been affected by bushfires, floods, and severe storms, leading to loss of life, extensive damage to homes and infrastructure, and environmental devastation.

One of the most significant natural disasters to hit NSW was the 2019-2020 bushfire season. The fires started in September 2019 and continued until March 2020, affecting over 80% of the state. The fires burnt through millions of hectares of land, destroyed over 3,000 homes, and caused the loss of several lives. Many communities were evacuated, and residents faced the trauma of witnessing their homes and communities destroyed.



2019-11-07, Sentinel-2

In addition to bushfires, NSW has also experienced severe flooding. In February 2020, heavy rainfall caused widespread flooding in several regions, including the the Manning River catchment area. The flooding caused significant damage to homes, infrastructure, and farmland, leading to the evacuation of several communities. More recently, NSW has been hit by severe storms, including a severe thunderstorm event in February 2021 that caused extensive damage.



2021-03-26, Sentinel-2

Exercises

- Look at the false-colour infrared satellite image of January 2019 only. Describe the structures and try to identify the land use (forests, agricultural land, water bodies, settlements).
- In which colours do these areas appear in this false-colour infrared representation? How is the intensity of vegetation represented in this representation?
- Now look at the satellite image from November 2019. What can you see here? Why do areas along the coast appear in grey?
- Try to estimate the burnt area.
- Now look at the satellite image from March 2021. What has changed? What are the dark patches around the rivers? Compare the flooded areas in this image with the burnt areas in November 2019.
- What has happened to the burnt areas between November 2019 and March 2021? Why are they hardly visible anymore?

Additional Material



View of the smoke clouds extending over the Pacific Ocean, taken from the International Space Station ISS (photograph: iss061e120235)

Links and Sources

- https://www.esa.int/Applications/Observing_the_Earth/Aerosols_released_from_Australian_bushfires_triggers_algal_blooms – an unexpected consequence of bushfires assessed by satellite data
- https://www.esa.int/Applications/Observing_the_Earth/Copernicus/Australia_like_a_furnace – the 2020 bushfires in more detail