



1985-07-26, Landsat 5



2022-07-13, Sentinel-2

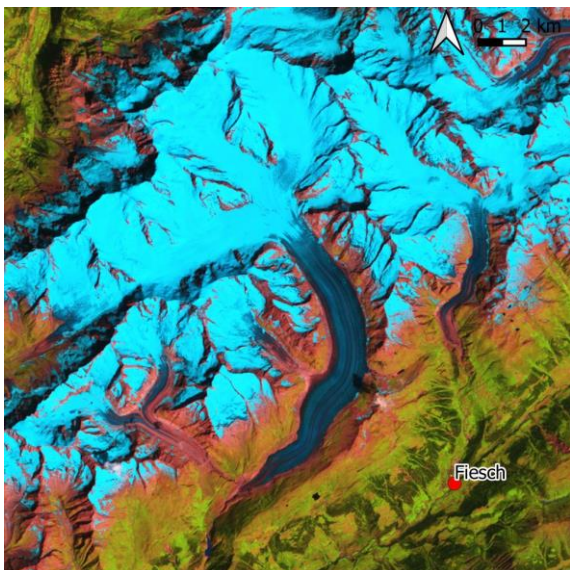
With a total length of almost 23 kilometres and an area of approximately 80 square kilometres, the Aletsch Glacier is the largest glacier in the Alps. Its ice reaches a thickness of up to 900 meters, forming a frozen river that winds its way through the rugged mountain landscape.

The effects of climate change are taking a toll on the Aletsch Glacier. Over the past century, it has been retreating at an increasing rate of about 100 meters per year. Rising global temperatures are causing the glacier to lose more ice through melting than it gains through snowfall. This imbalance threatens not only the glacier's size but also the ecosystems that depend on it.

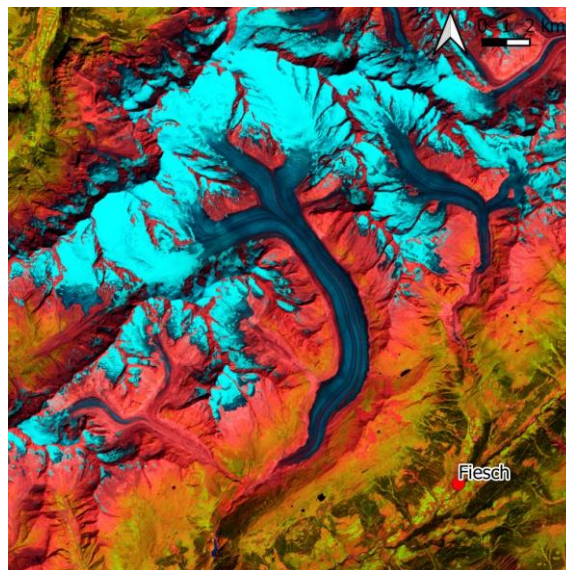
Satellite imagery has been instrumental in monitoring the Aletsch Glacier's changes. These images provide a clear visual record of the glacier's retreat and allow scientists to quantify its decline. Since the 1980s, satellite data has shown that the Aletsch Glacier has lost almost 2 kilometres in length, highlighting the urgency of addressing climate change.

### Exercises

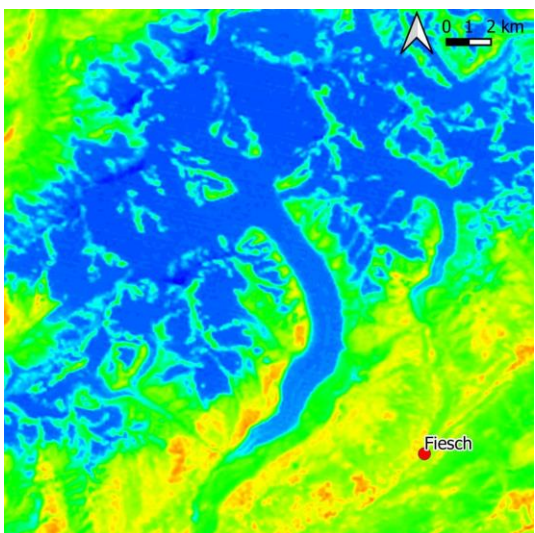
- Look at the satellite image from 1985. Which land cover classes can you identify in the image?
- Focus on the Aletsch Glacier and try to identify important features of the glacier, such as moraines.
- Compare the satellite images from 1985 and 2022. Which differences can you identify?
- Try to identify the end of the glacier and estimate the distance the glacier tongue has receded since 1985. Is this easy to do? Why or why not?
- Use now the false-colour visualisations on page 2 and compare the false-colour infrared visualisations of the glacier in 1985 and 2022. In this band combination the ice of the glacier is very well visible, making it easier to determine its extent.
- How can the changes in the glacier extent influence the wildlife in this region?
- How do they affect the people living there?



1985-07-26, Landsat 5 (bands 5-4-3)



2022-07-13, Sentinel-2 (bands 11-7-4)



1985-07-26, Landsat 5 (6 – thermal infrared; from blue (cold) to red (warm))

### Additional Material



View of the Aletsch Glacier (photograph: Dirk Beyer)