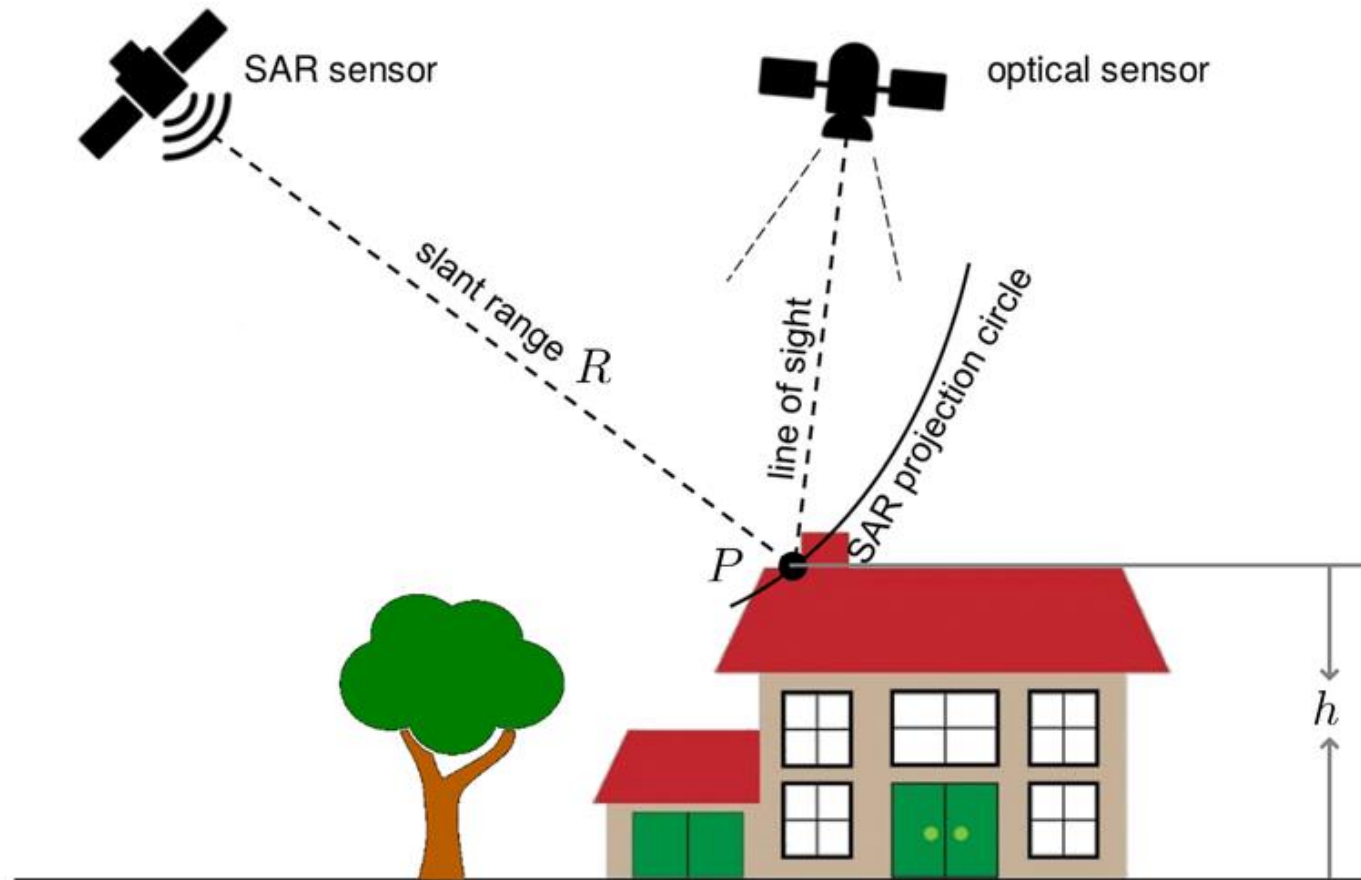Coastal Change from Space

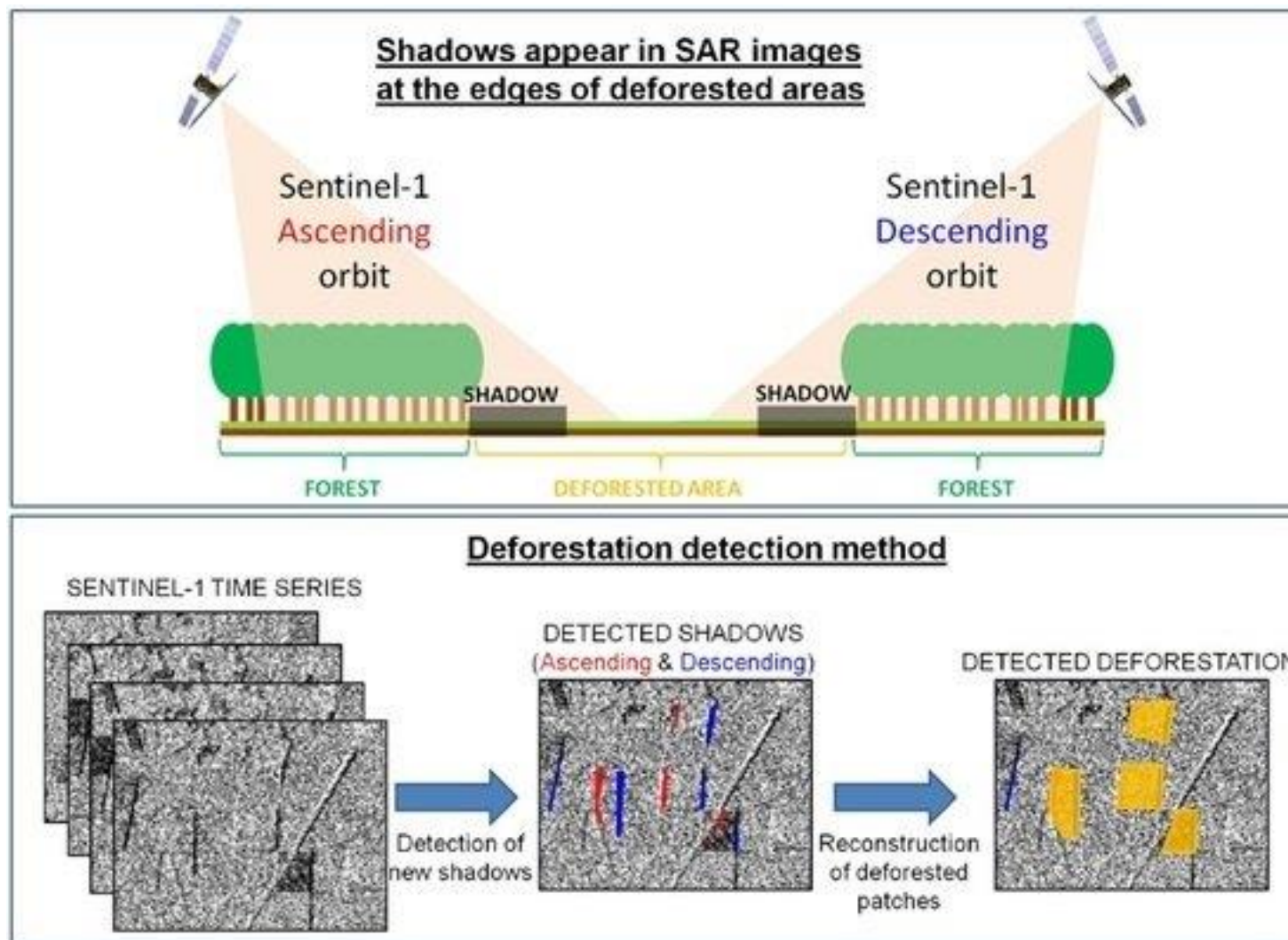# SAR Webinar

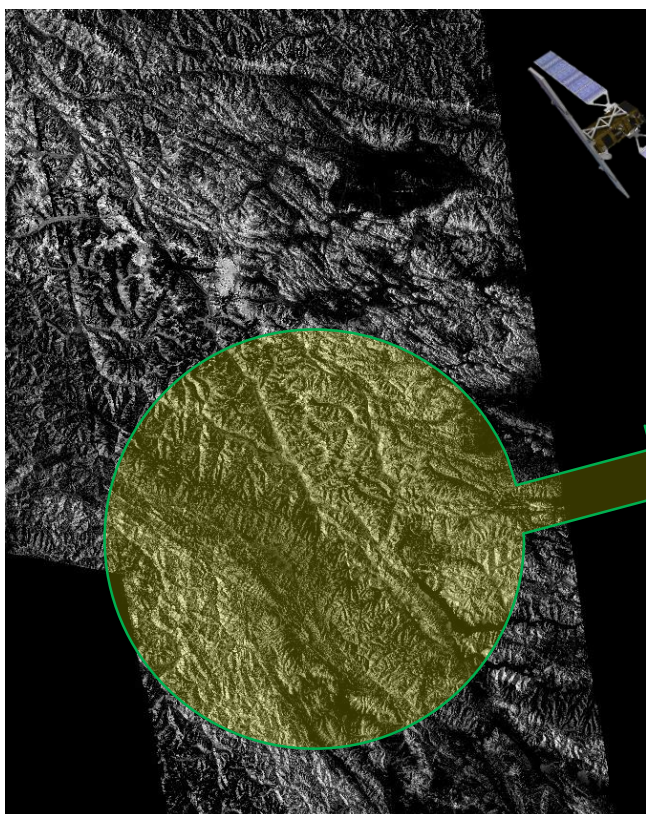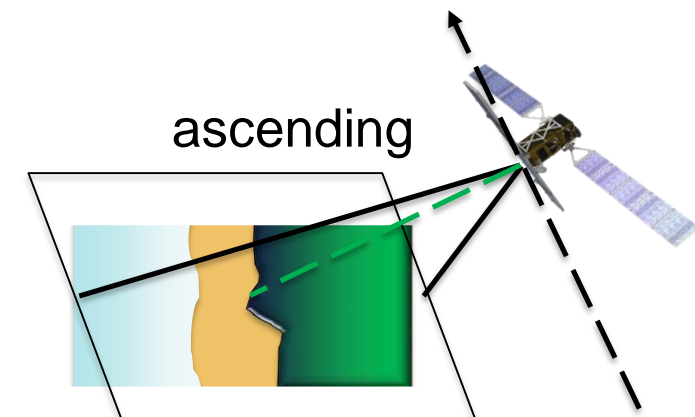Albert Garcia-Mondejar, Mark Pattler, Salvatore Savastano

SAR Basic concepts: Geometry

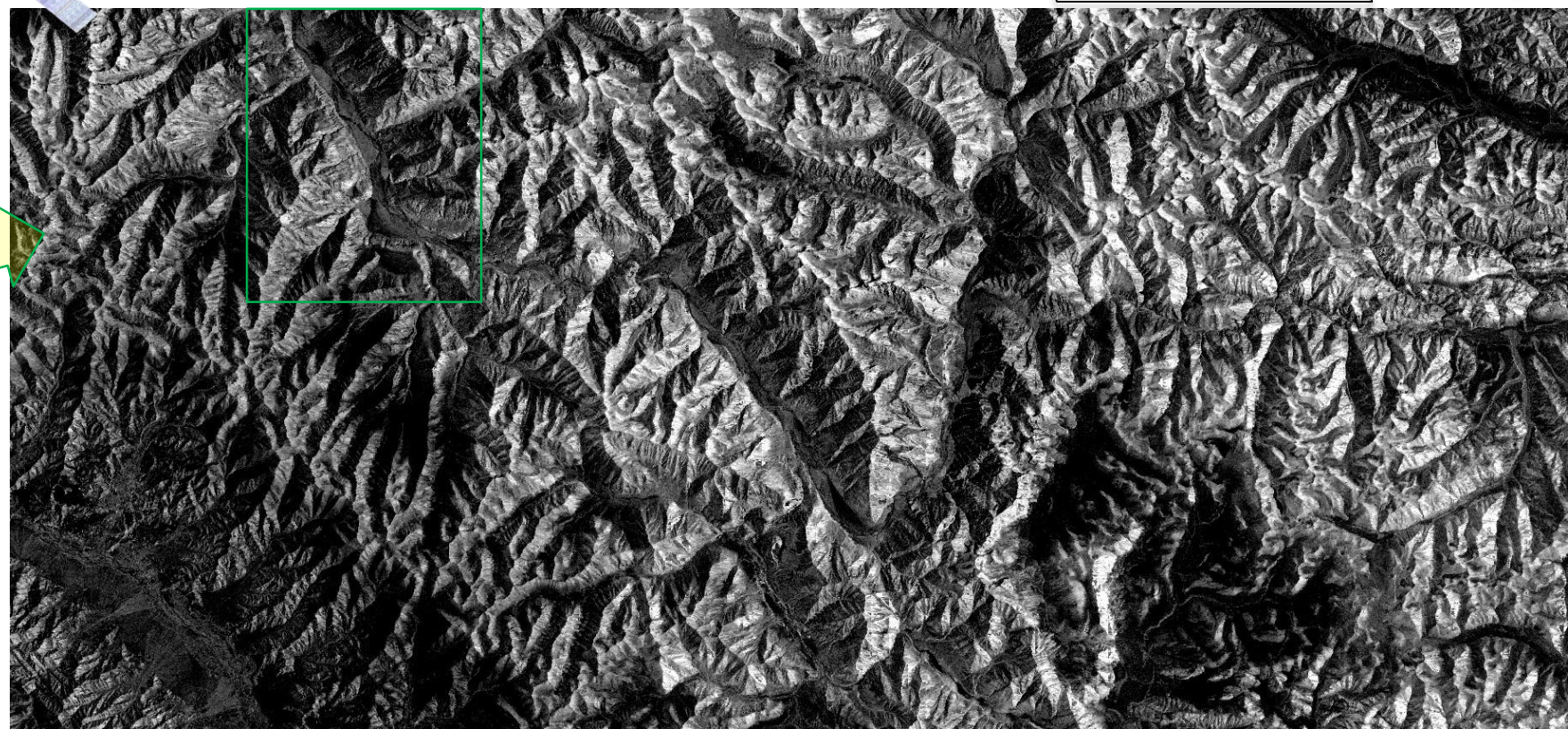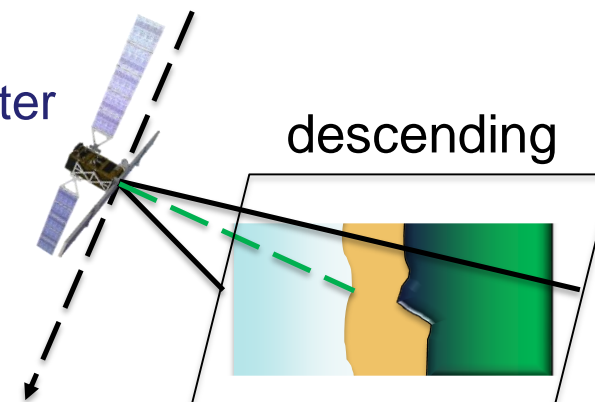# SAR Basic concepts: Geometry - Shadows

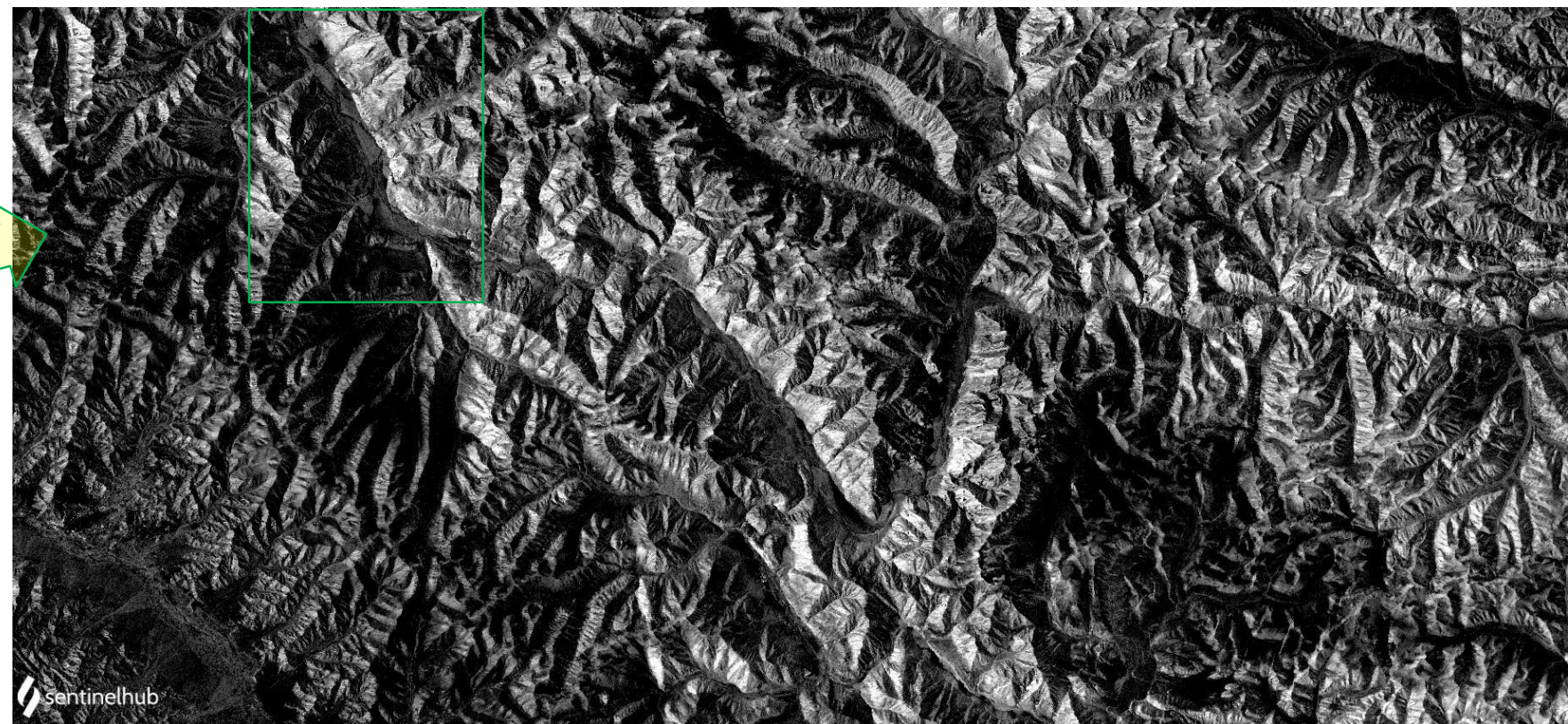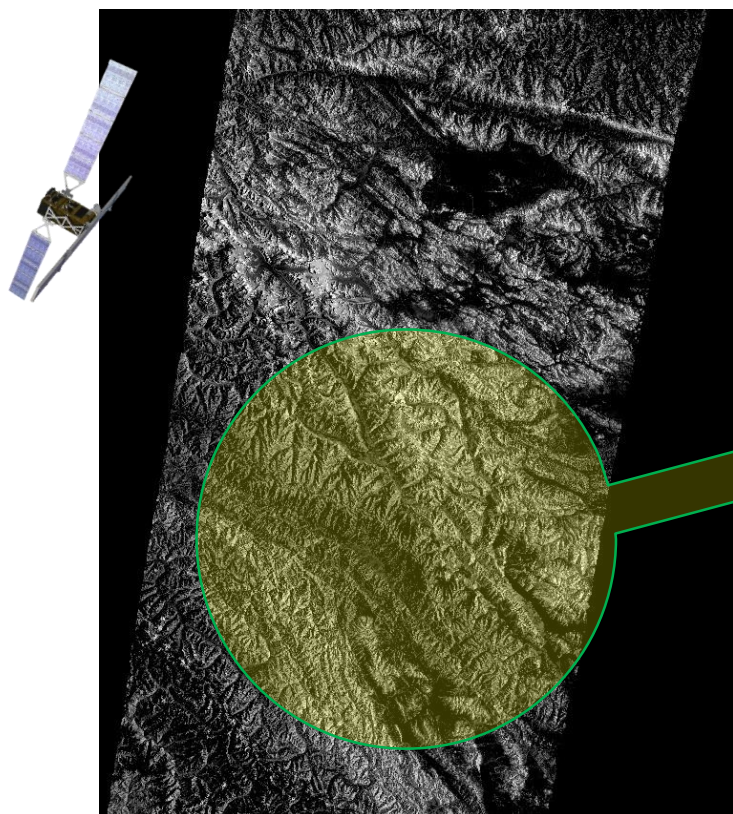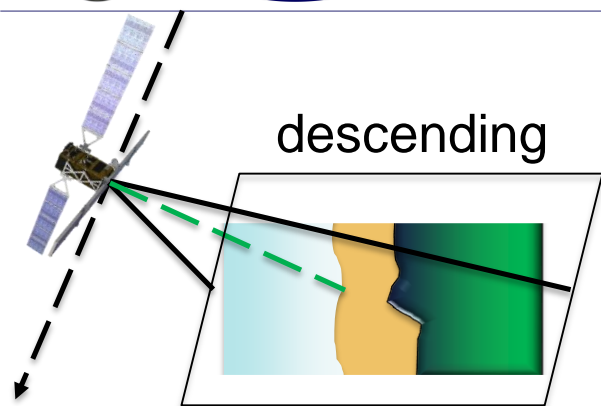# SAR Basic concepts: Geometry - Backscatter

ascending

Leh, Indian Himalaya link
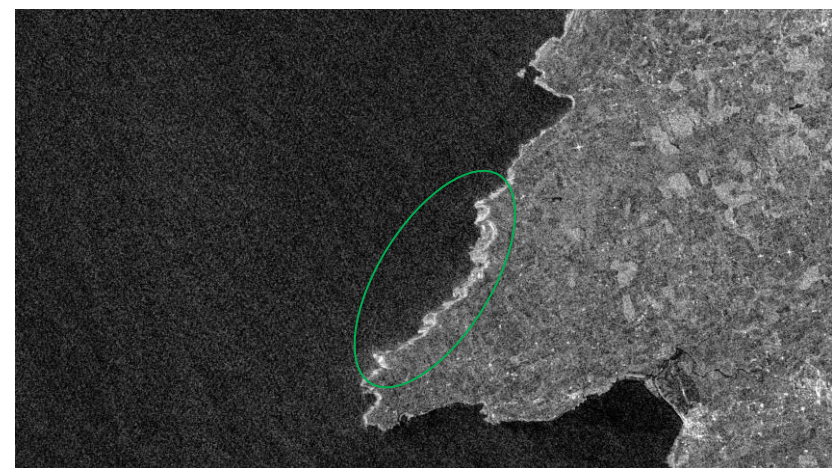
SAR Basic concepts: Geometry - Backscatter

descending

Leh, Indian Himalaya   link
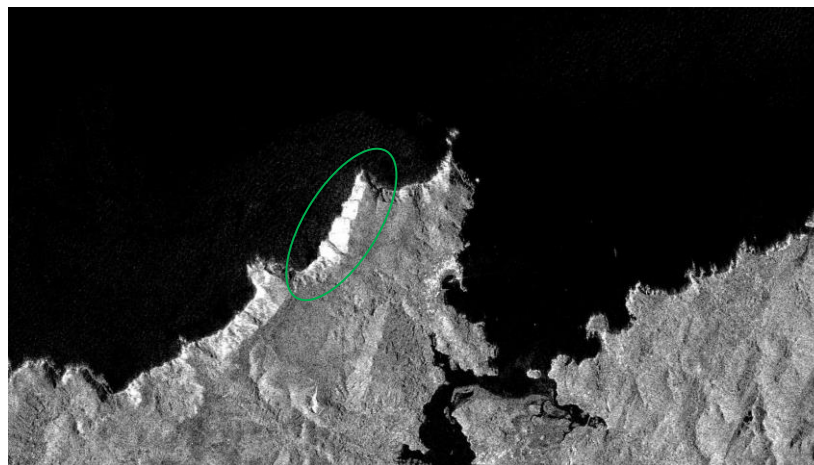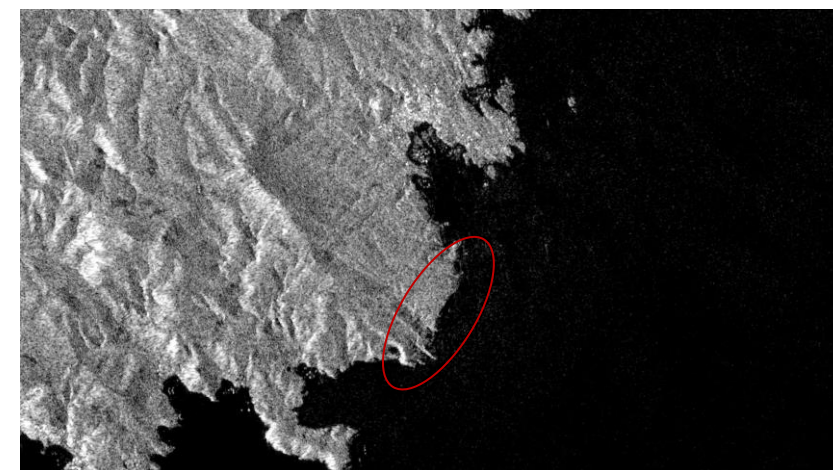
sentinelhub

descending

SAR Basic concepts: Geometry - Backscatter

Cliffs of Moer

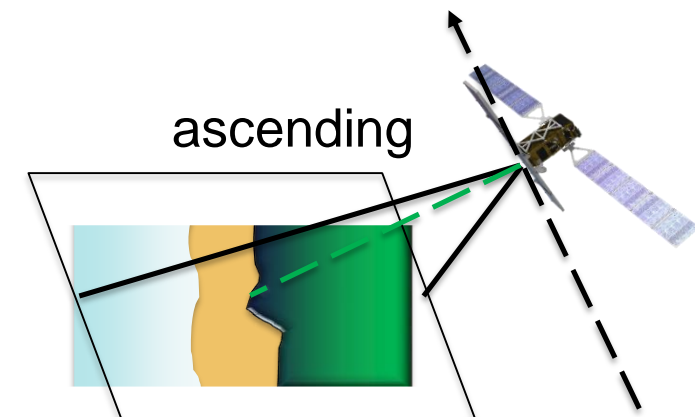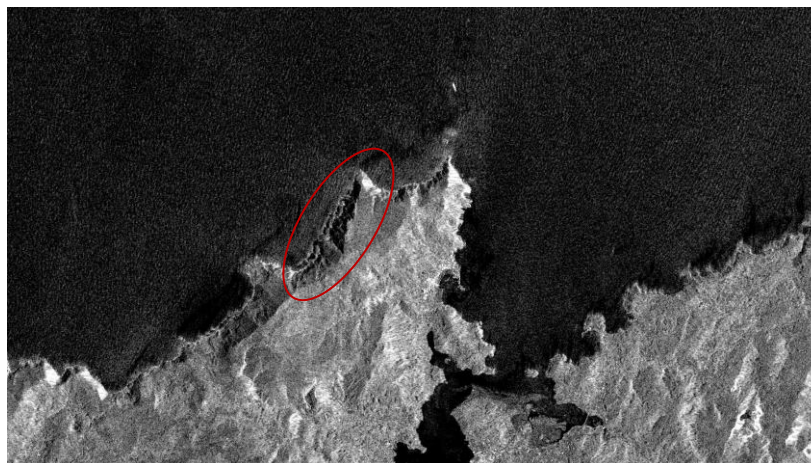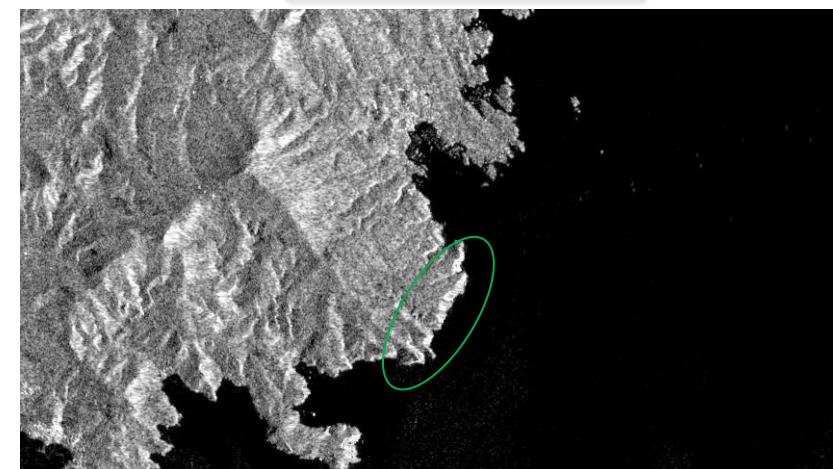Cariño

Cadaqués

SAR Basic concepts: Geometry - Backscatter

ascending

Cliffs of Moer

Cariño

Cadaqués

SAR coastal products

- Waterlines – production phase
- Digital Terrain Model (DTM) – under development
- Bathymorphology (waves length and direction) – under development

SAR coastal products

- Waterlines

Three different quality control parameters can be found in the product

SAR coastal products

- Waterlines

Three different quality control parameters can be found in the product
1- Backscatter difference between see and land

A backscatter difference two small can indicate that the boundary between the water and the land would be poorly identified

Will only be useful in case bad images overall. The common value for that difference is around 0.15.

SAR coastal products

- Waterlines:

Three different quality control parameters can be found in the product
2- Quality Control: distance

The computed distance between the reference line and the current waterline retrieved.

SAR coastal products

- Waterlines:

Three different quality control parameters can be found in the product
2- Quality Control: distance

SAR coastal products

- Waterlines:

Three different quality control parameters can be found in the product
3- Heatmap: density

SAR coastal products

Tordera

- Waterlines:

Three different quality control parameters can be found in the product
3- Heatmap: density
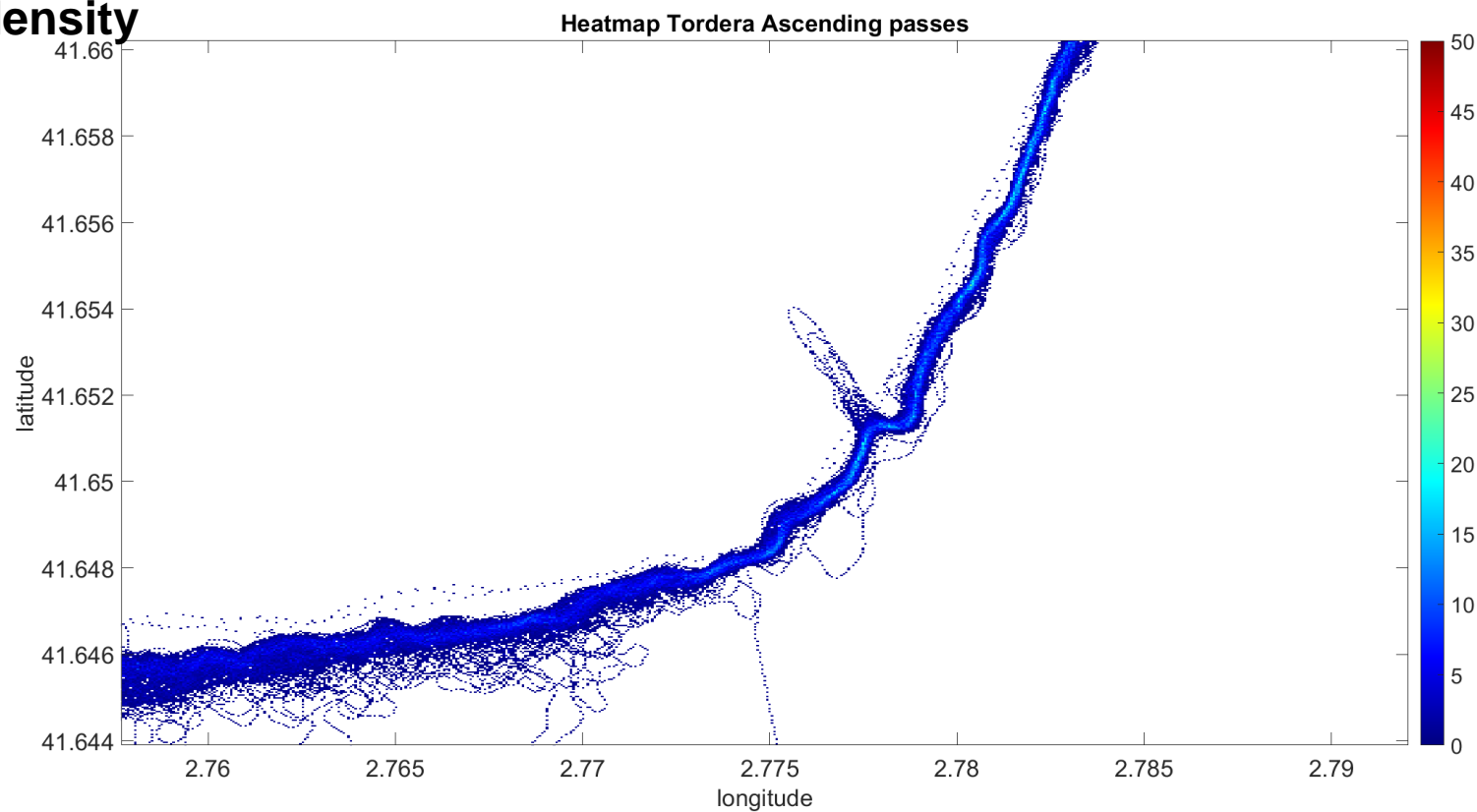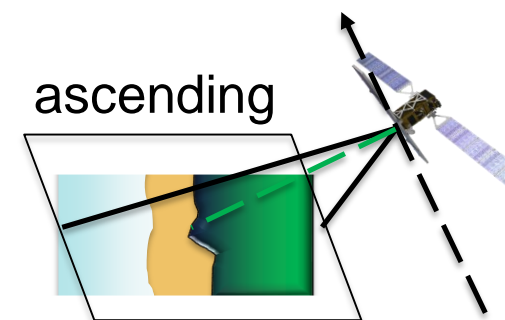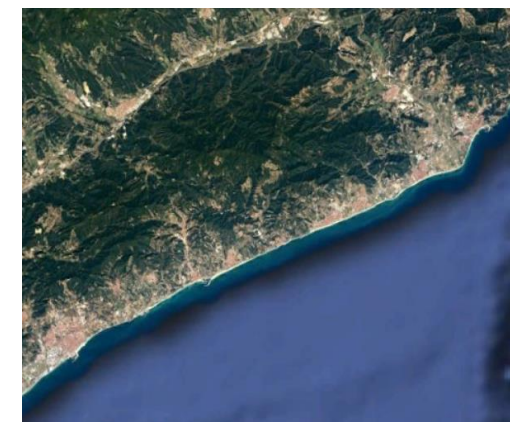

Heatmap Tordera Ascending passes

ascending

SAR coastal products

Tordera

- Waterlines:

Three different quality control parameters can be found in the product
3- Heatmap: density

descending

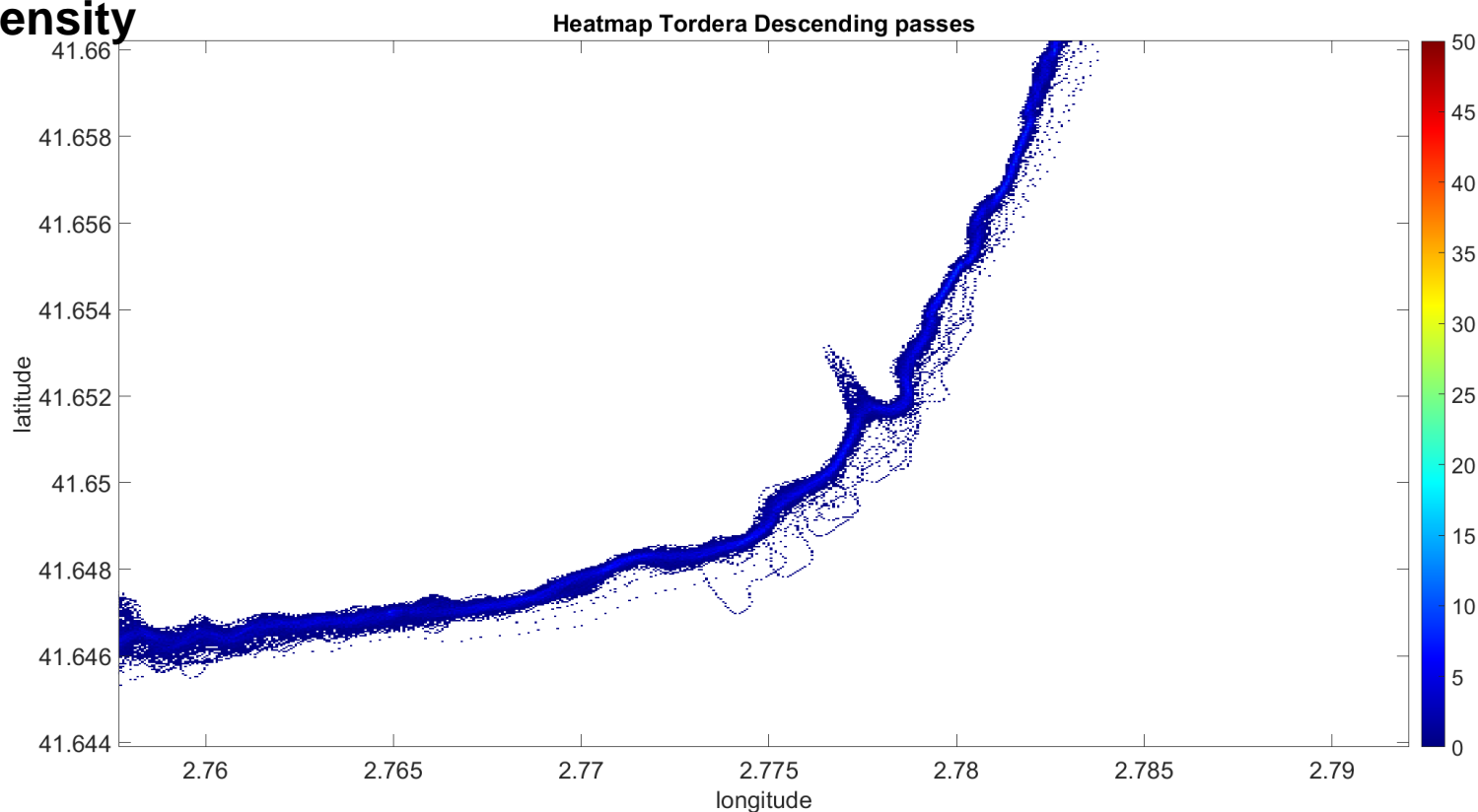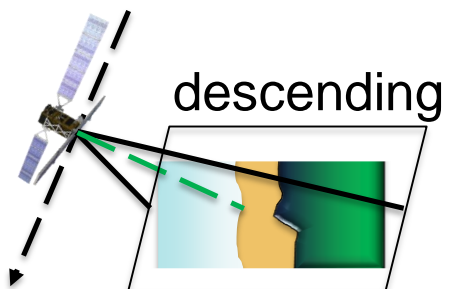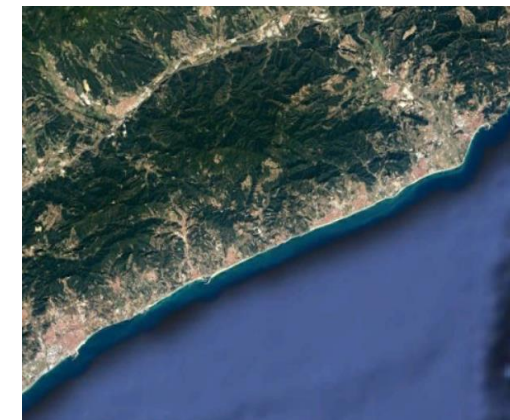Heatmap Tordera Descending passes

SAR coastal products

Waterford

- Waterlines:

Three different quality control parameters can be found in the product
3- Heatmap: density

Heatmap Waterford Estuary Ascending passes

ascending

SAR coastal products

Waterford

- Waterlines:

Three different quality control parameters can be found in the product
3- Heatmap: density

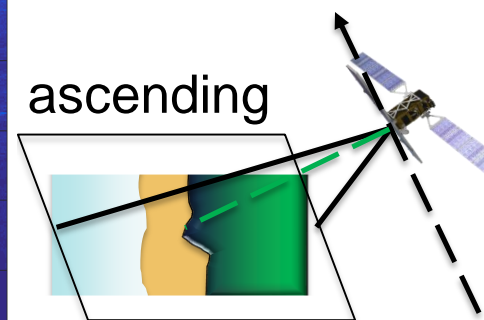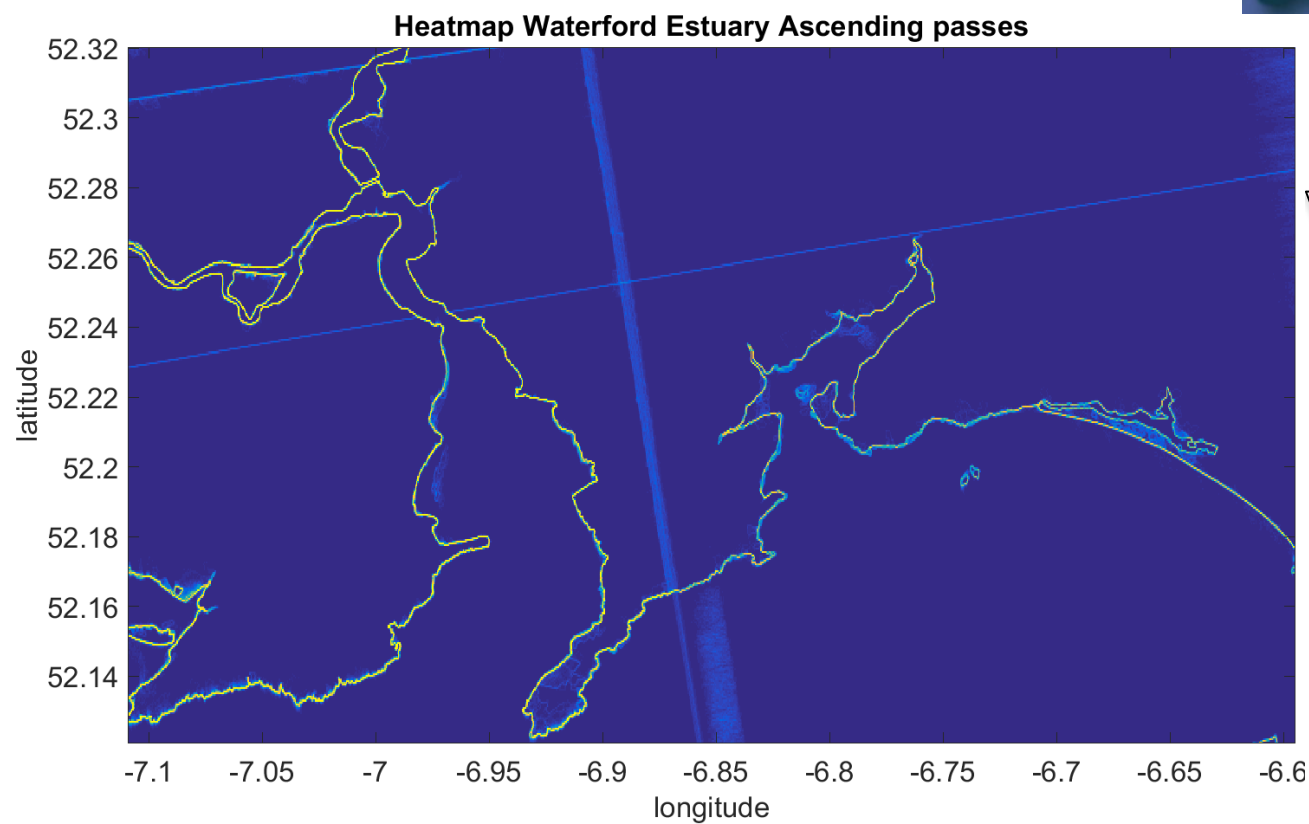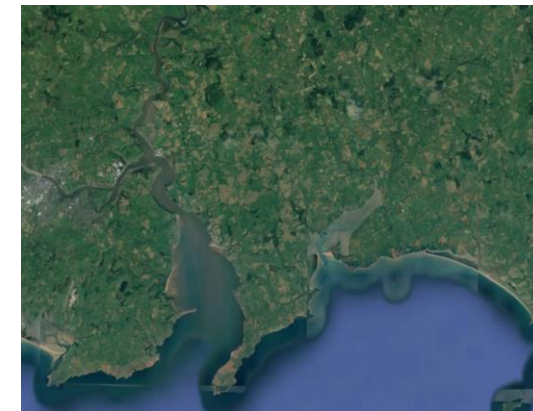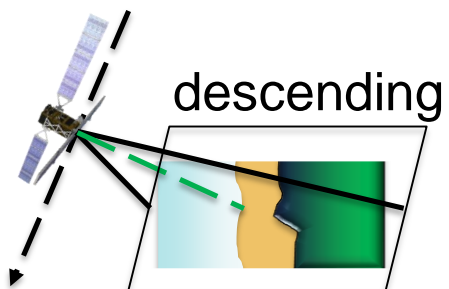descending

Heatmap Waterford Estuary Descending passes

SAR coastal products

- Waterlines:

Three different quality control parameters can be found in the product
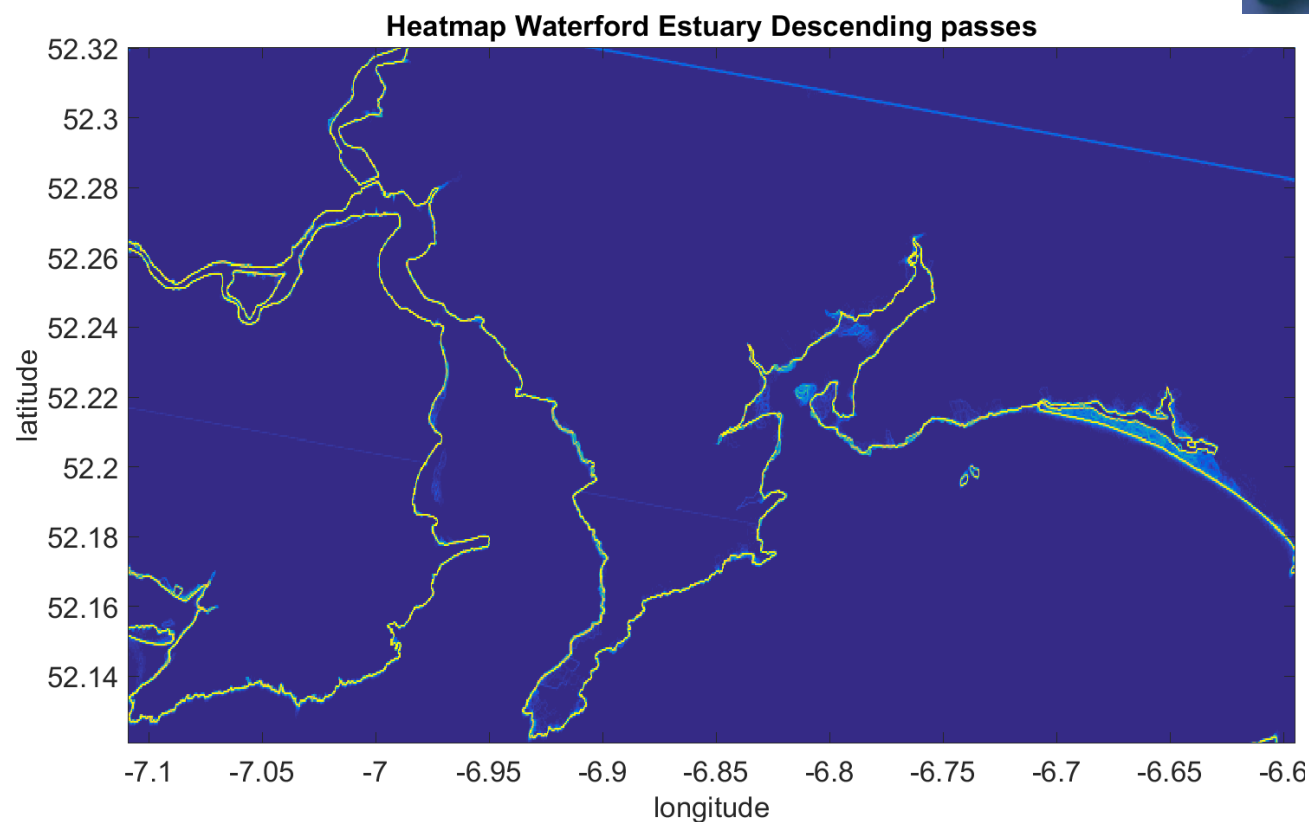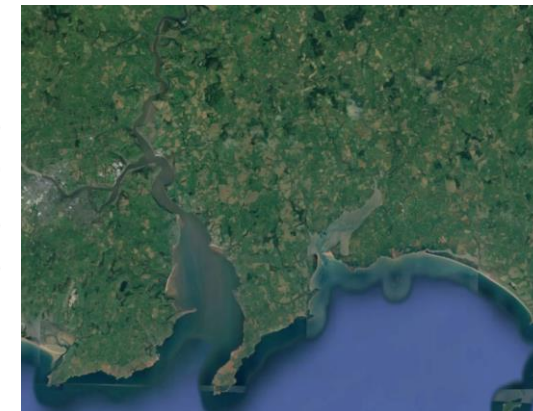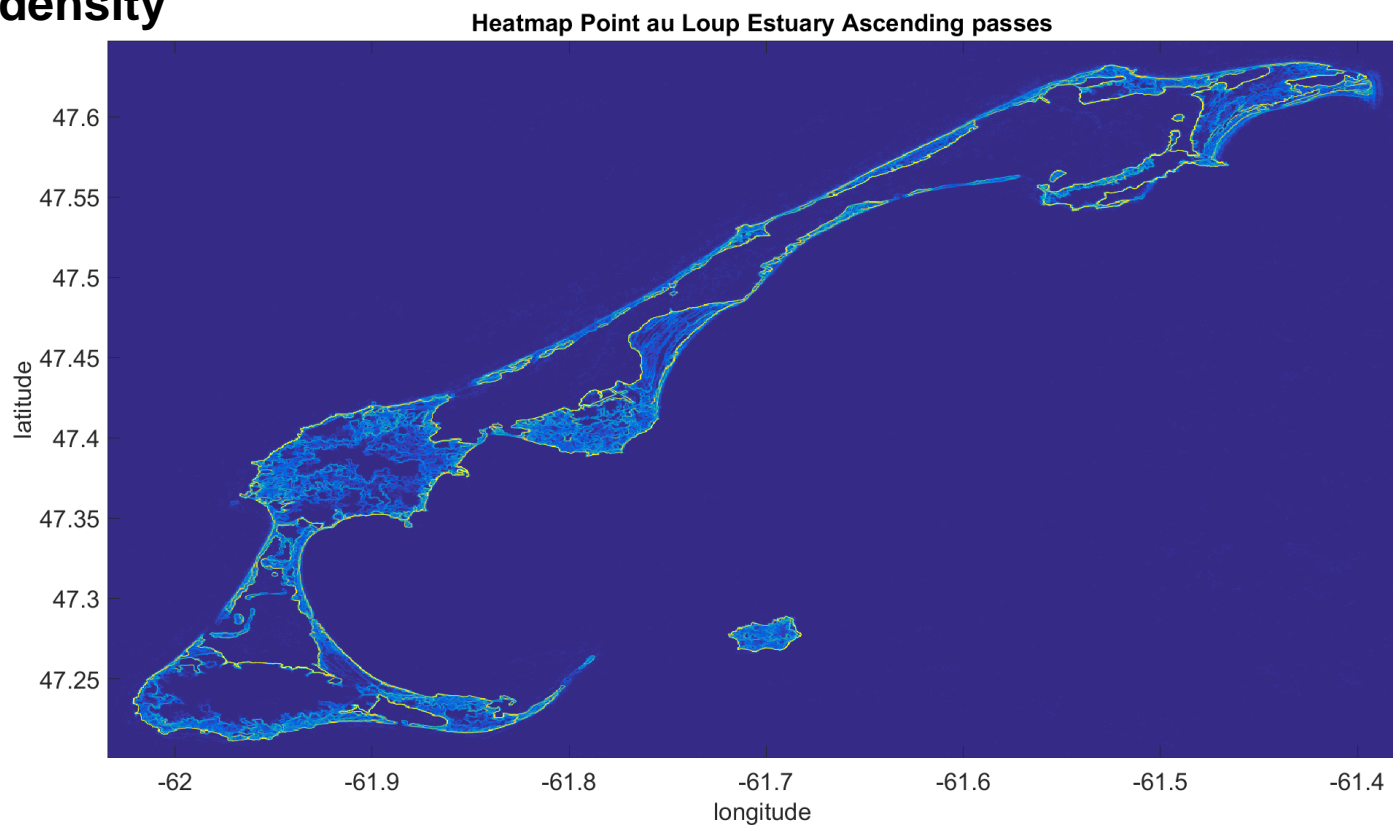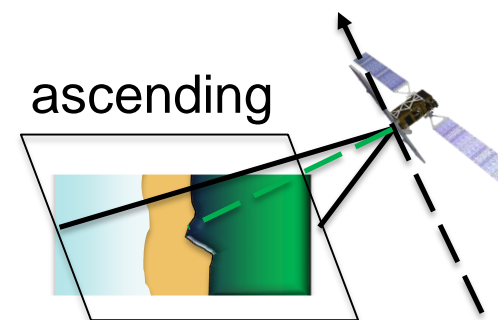**3- Heatmap: density**

Point au Loup
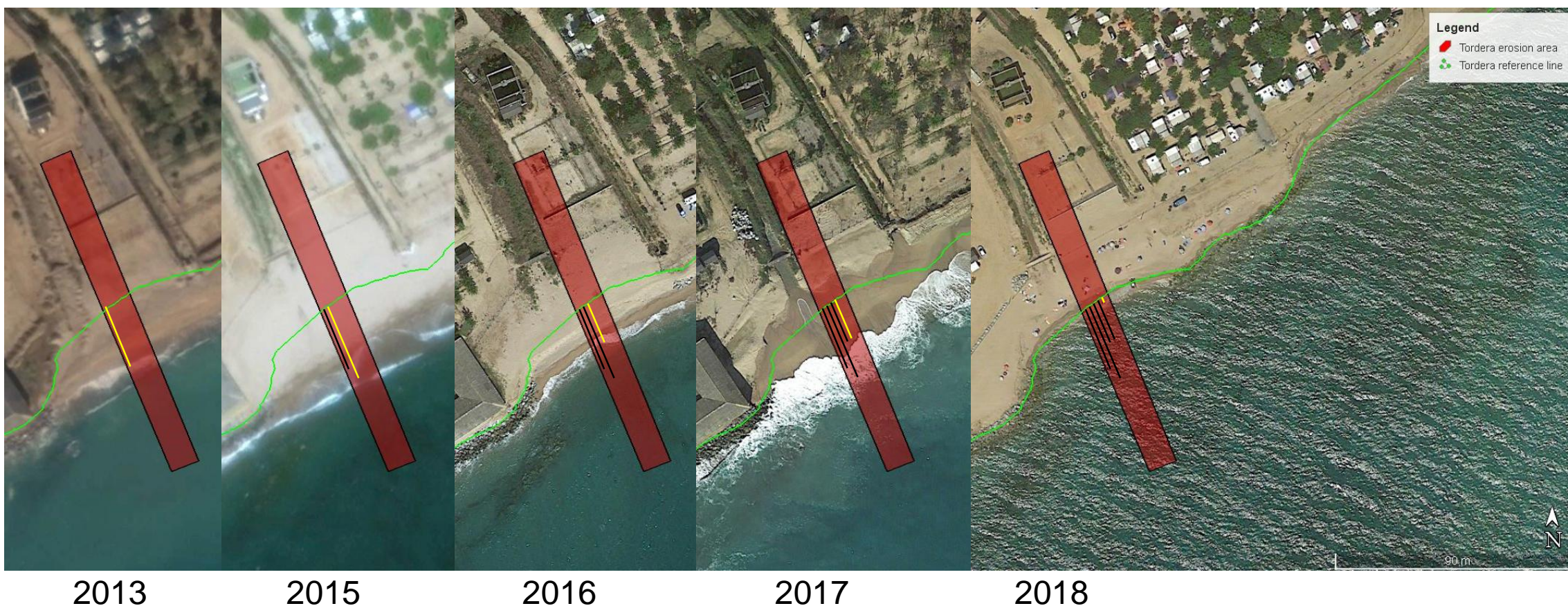

Heatmap Point au Loup Estuary Ascending passes

ascending

SAR coastal products

- Waterlines:
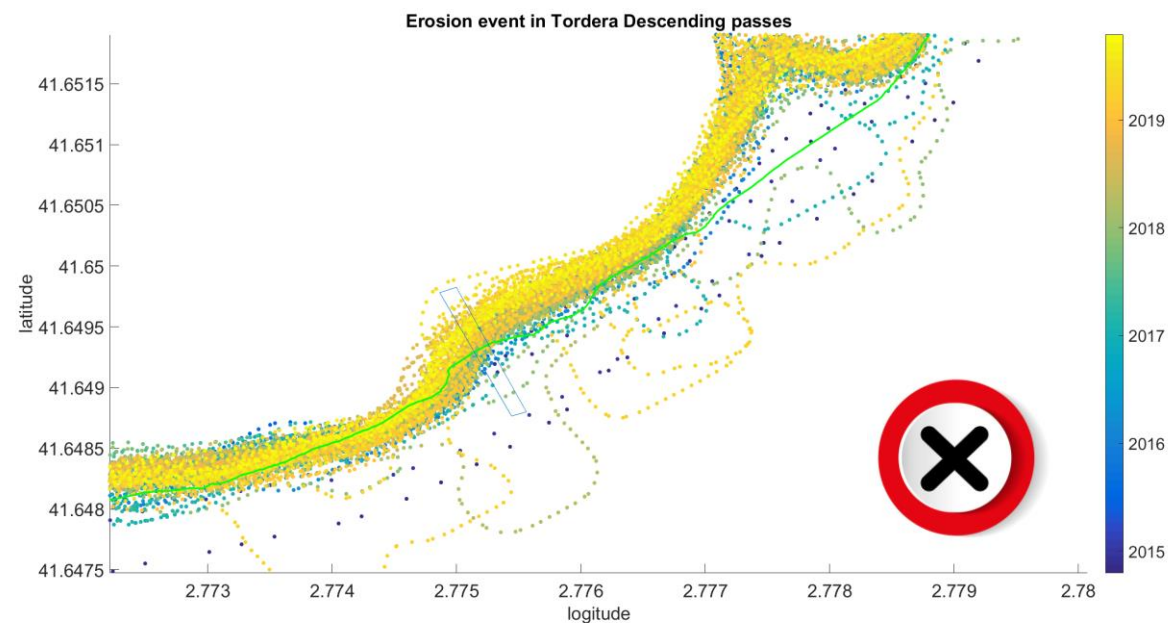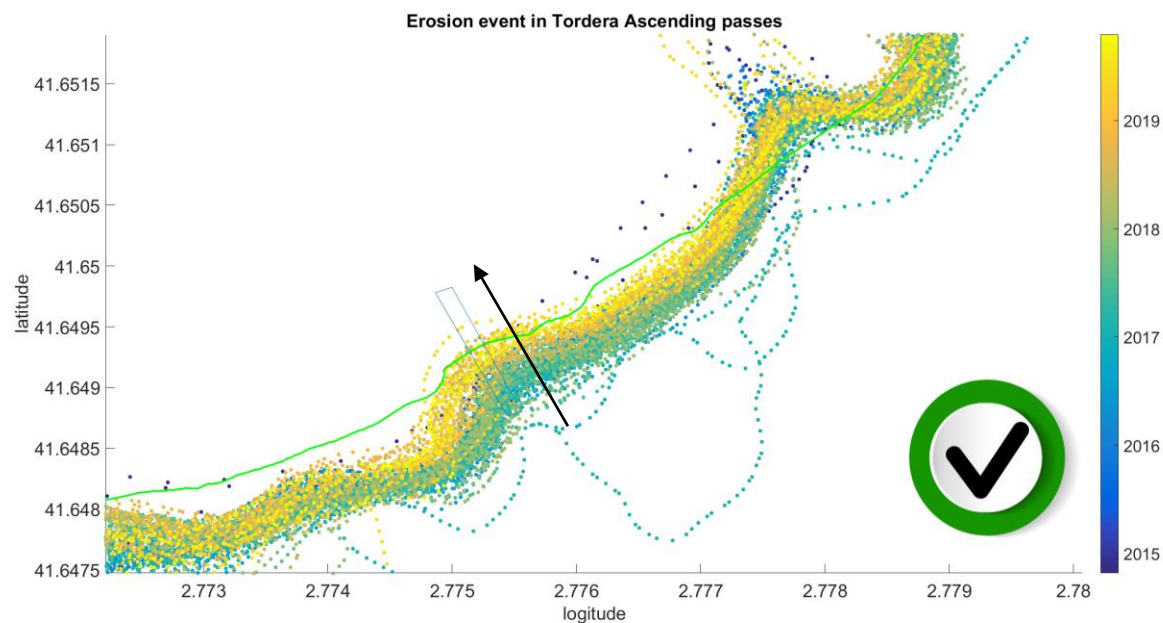
　　Use case: Erosion in Tordera Delta, around **32 meters** can be seen between **2015** and **2018 in Google Earth**

| 2013 | 2015 | 2016 | 2017 | 2018 |

SAR coastal products

- Waterlines:

    Use case: Erosion in Tordera Delta, similar erosion rate can be seen in the **ascending waterlines, but not in the descending** (not favourable geometry)
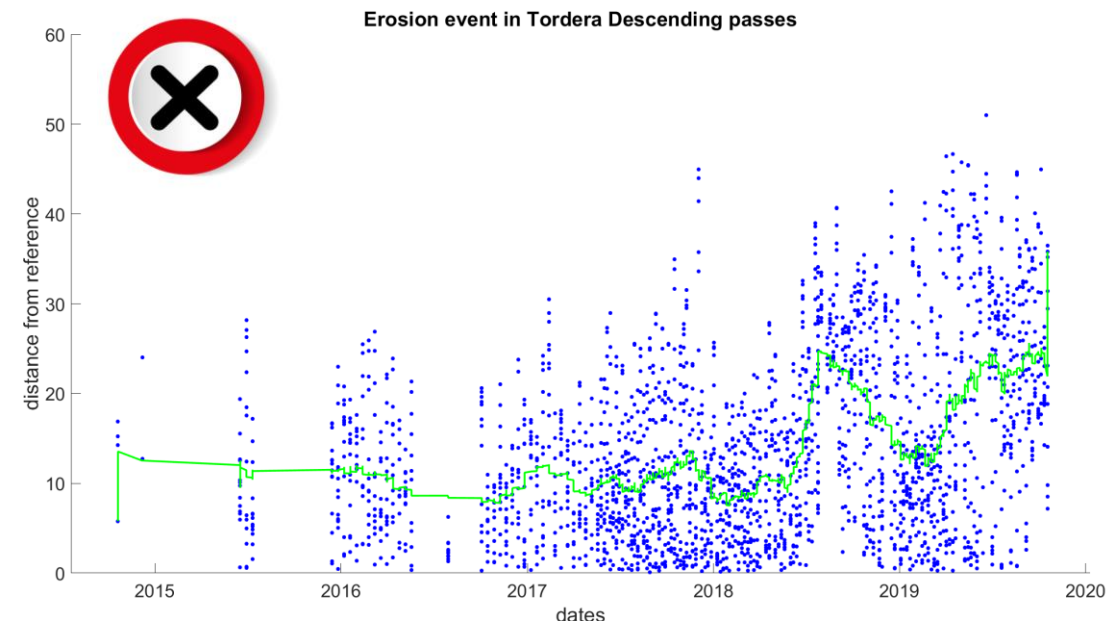
SAR coastal products

- Waterlines:
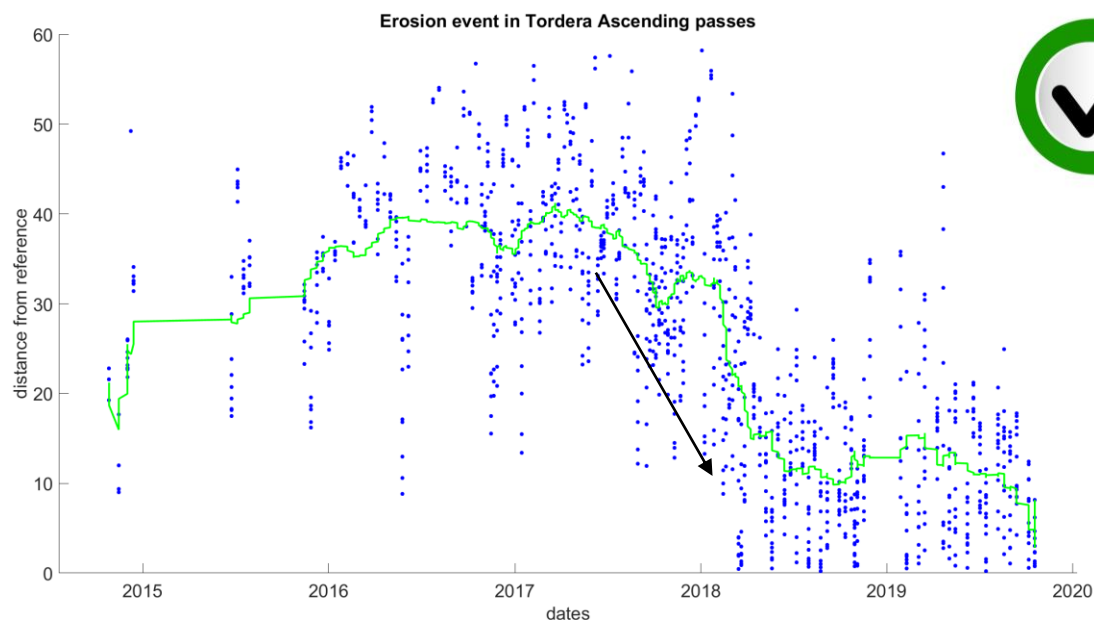
Use case: Erosion in Tordera Delta, similar erosion rate can be seen in the **ascending waterlines, but not in the descending** (not favourable geometry)

Plot of the QC distance parameter for the points inside the blue polygon from previous slide