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Office for Outer Space Affairs



Radar-based Flood Mapping in Python

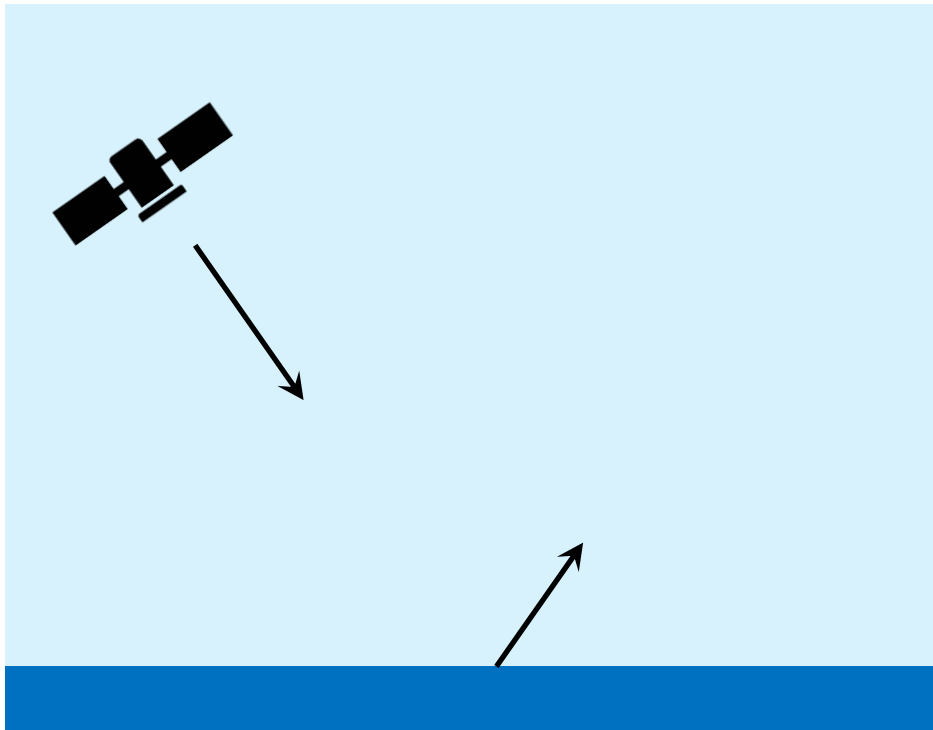
UN-SPIDER Recommended Practice

21 February 2023

□ Specular Reflection

Occurs on smooth surfaces (e.g. water)

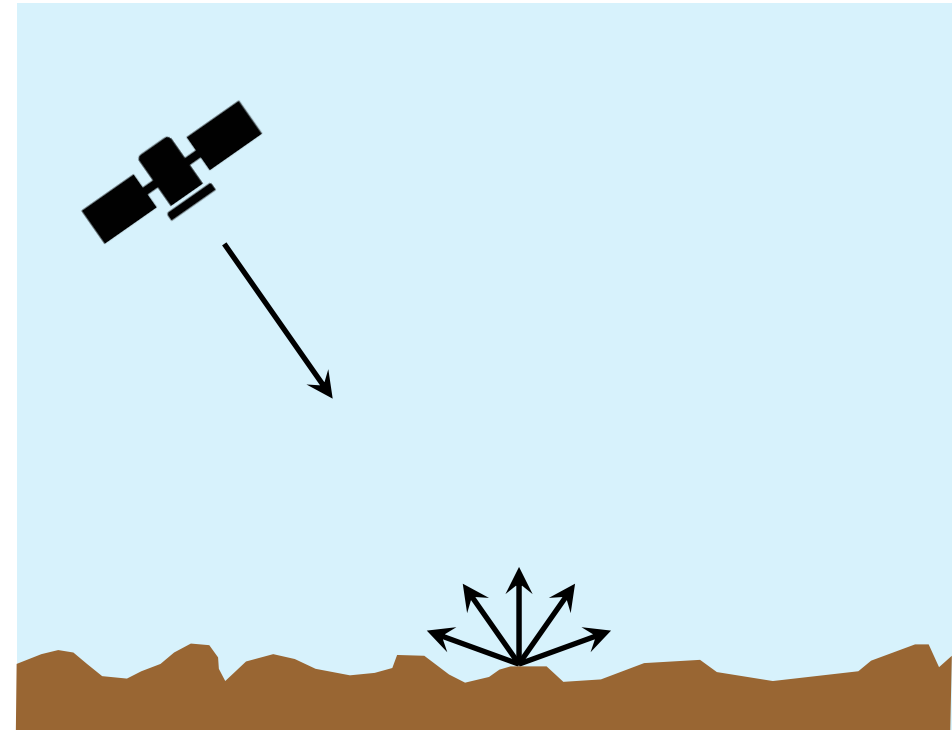
→ Appears **dark** due to low backscatter intensity



□ Diffuse Reflection

Occurs on rough surfaces (e.g. soil)

→ Appears **bright** due to high backscatter intensity



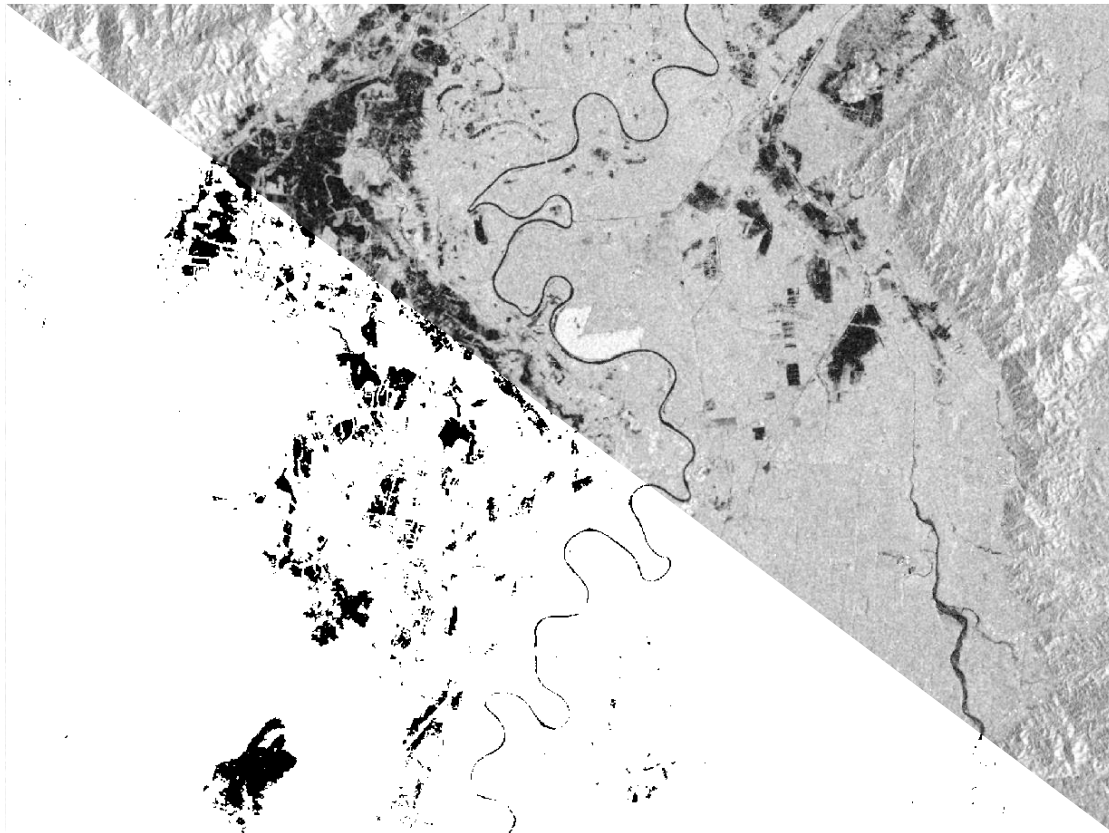
Rule-based Flood Segmentation



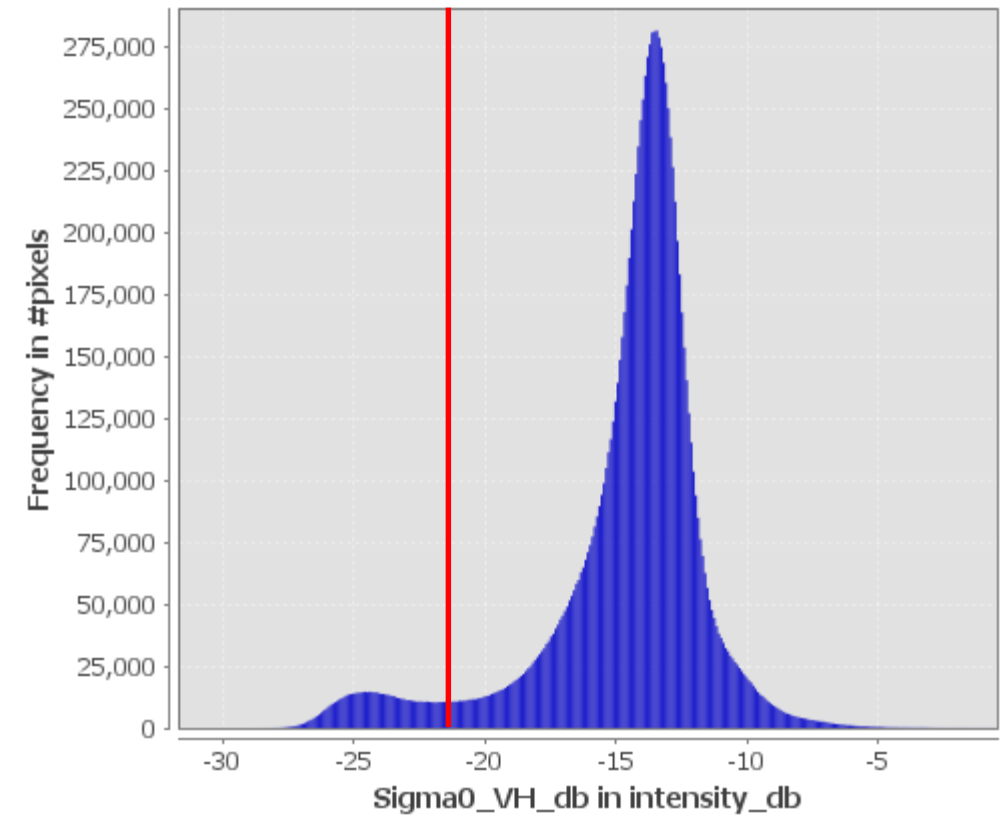
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□ SAR image after processing



□ Histogram





❑ Jupyter Notebook

- ❑ Open-source and interactive web application
→ Share text, live code, visualizations, etc.
- ❑ Includes full processing chain including data query/download and processing

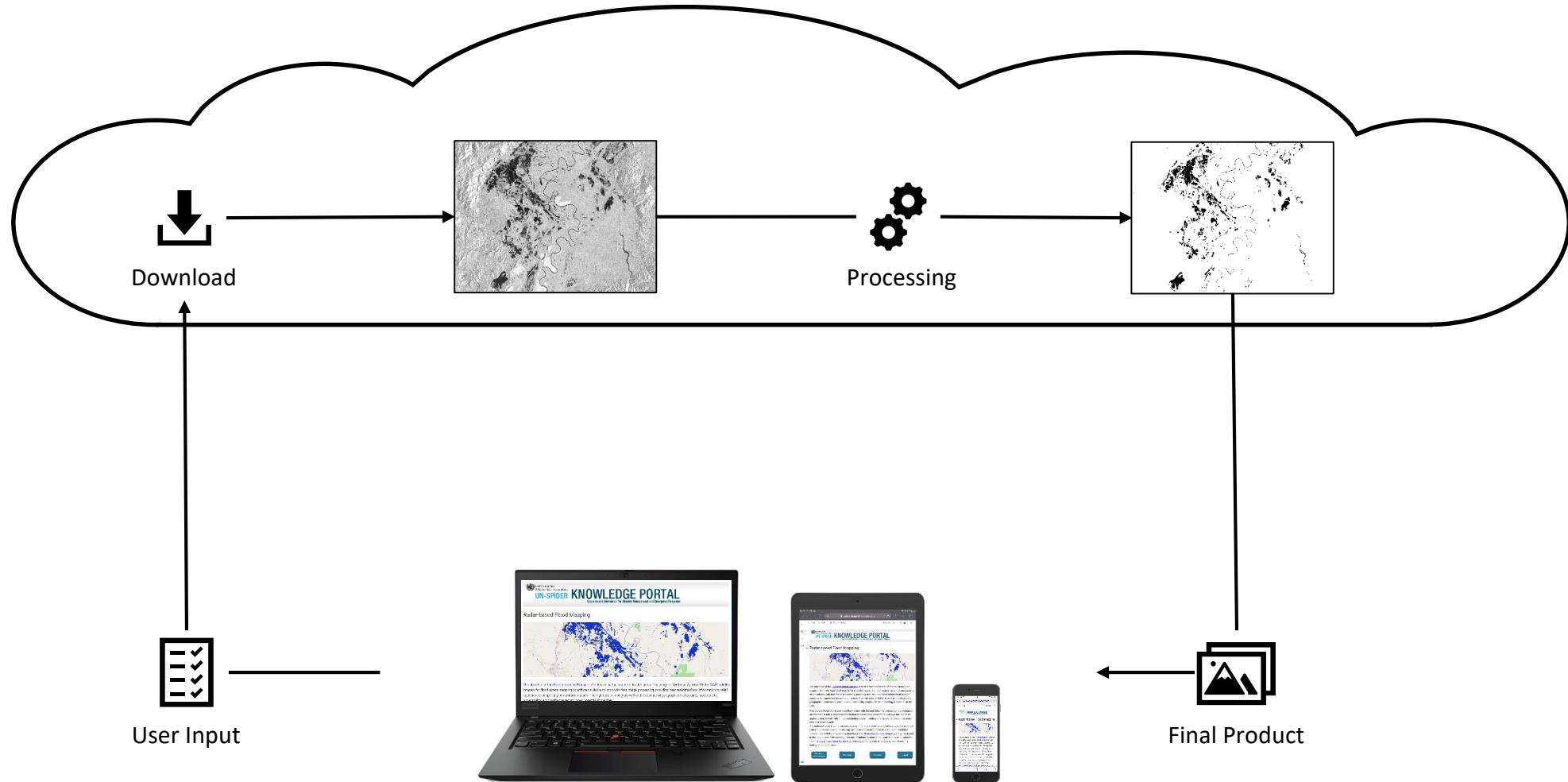
❑ Sentinel-1

- ❑ Synthetic Aperture Radar (SAR) mission
- ❑ Two identical satellites: Sentinel-1A, Sentinel-1B
- ❑ Repeat cycle (max. 6 days at Equator)
- ❑ Access: [Copernicus Open Access Hub](#)

Cloud Computing



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Thank you

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