NLS
FINNISH GEOSPATIAL RESEARCH INSTITUTE
FGI

Sentinel-2 Data in Allas

What is it and how to use it

Arttu Kivimäki

Sentinel-2 Mission

- Operated by European Space Agency

- Consists of two similar satellites
  - Sentinel-2A launched in 2015, Sentinel-2B in 2017

- Optical images from 13 bands
  - Visible, near infrared, and short wave infrared part of the spectrum

- Spatial resolution of 10 / 20 / 60 meters depending on band

- Revisit frequency of 5 days with same viewing conditions
  - Increased frequency with different viewing conditions
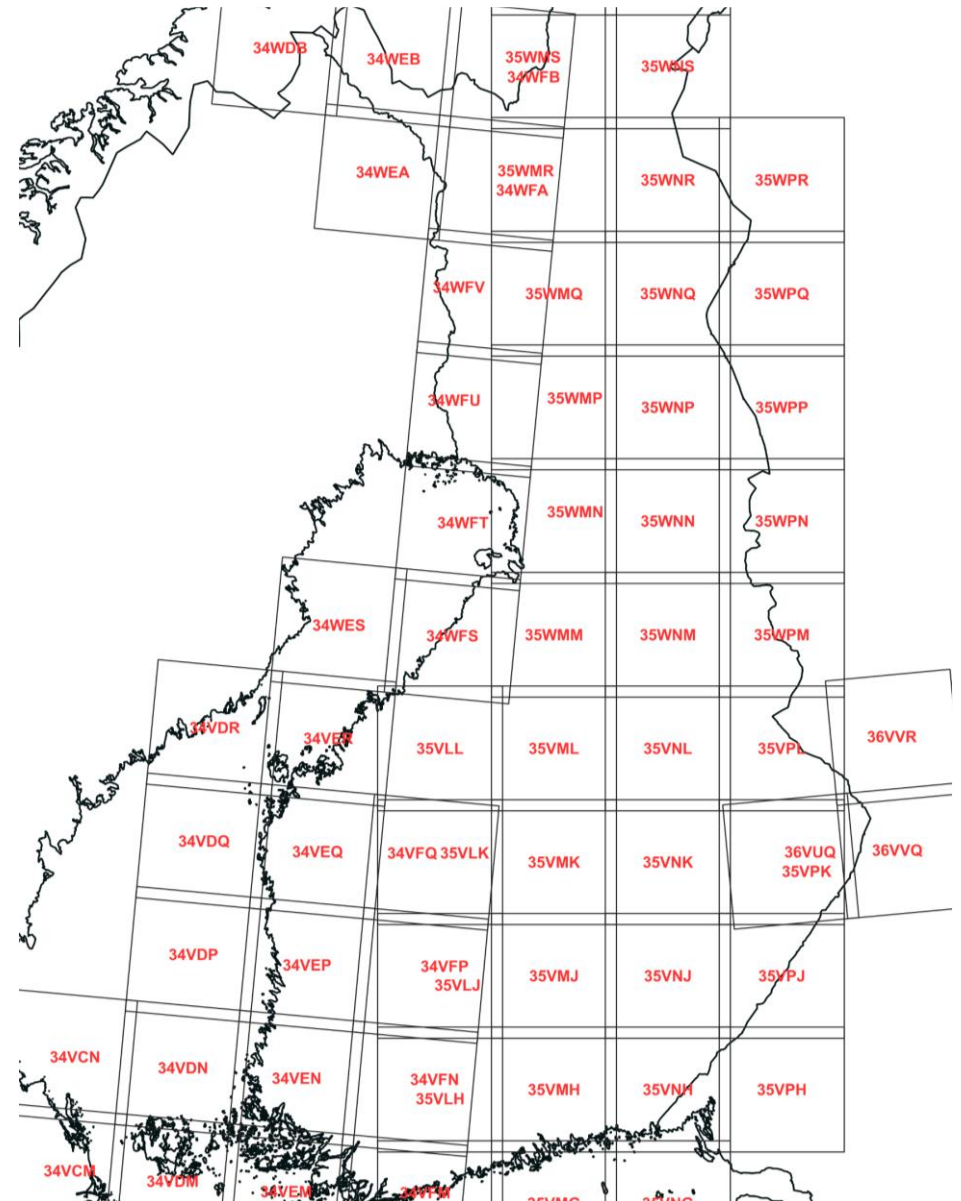
Data Distribution

- Sentinel-2 data is distributed through *Copernicus Open Access Hub*
  - Requires registration but is free of charge
  - Allows programmatic downloading

- Two product types available
  - L1C: Top-of-Atmosphere (spatially registrated, radiometrically and geometrically corrected)
  - L2A: Bottom-of-Atmosphere (atmospheric correction applied to L1C)
  - Both are distributed in a 100x100 km grid with named tiles

Sentinel-2 Data in Allas

- Data from growing seasons since 2016
  - ~ 10.5. – 31.8.
  - Product type L2A

- Finland is covered by ~70 tiles
  - Tiles for each year can vary
  - Focus on agricultural areas

- Data gathered by
  - Maria Yli-Heikkilä (LUKE)
  - Arttu Kivimäki (FGI)
  - Matias Heino (Aalto University)

How to access

- Data is stored in buckets following a naming convention
  - *s3://Sentinel2-MSIL2A-cloud-0-95-year-Ttilecode/*
  - Year is between 2016-2022
  - Tilecode is in format *XXYYY* where X are numbers and Y capital letters.
  - Example: *s3://Sentinel2-MSIL2A-cloud-0-95-2021-T35VMG/*

- In Puhti, accessing is easy with s3cmd commands
  - No project configuration needed as the buckets are public
  - *module load allas*
  - *s3cmd get --recursive s3://Sentinel2-MSIL2A-cloud-0-95-2021-T35VMG/*
  - Listing contents in a bucket:
    - *s3cmd ls s3://Sentinel2-MSIL2A-cloud-0-95-2021-T35VMG/*

Interacting with Data

- If you end up using the data in your work:
  - Please cite the people involved and CSC in acknowledgements
  - Write a short summary of the project the data was used in
    - This is to acknowledge the data host/uploaders the data have been used

- If you encounter issues with the data:
  - Contact CSC service desk (and potentially uploader of the data)
  - *servicedesk@csc.fi*

- If you want to contribute:
  - Contact Maria Yli-Heikkilä for adding you to the project
  - Alternatively contact *giscoord@csc.fi* to help you with uploading

- More information: *https://a3s.fi/sentinel-readme/README.txt*