



Optische satellietbeelden en toepassingen in het waterbeheer



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PLANET'S MISSION

To image the whole world every day,
making change **visible, accessible,
and actionable.**





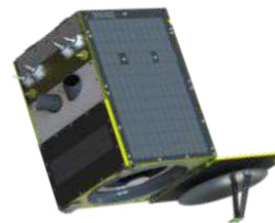
PLANET SATELLIETEN



~180 SuperDoves

Always-on monitoring

- 3.7 meter resolutie
- Dagelijkse opnames
- 8 banden (incl RGB en NIR)
- Archief terug tot 2017



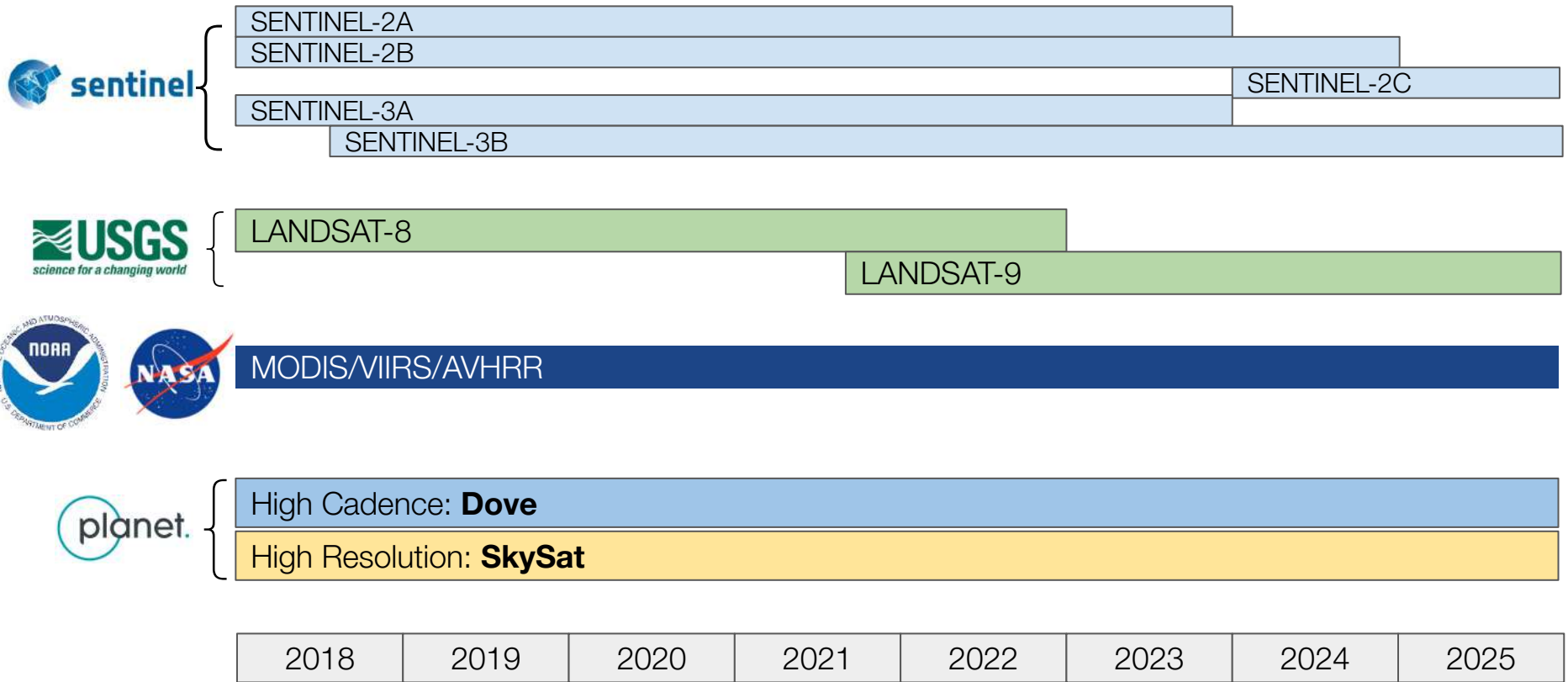
21 SkySats

On-demand tasking

- 50 cm resolutie
- RGB en NIR
- Archief terug tot 2017



Planet's vision: to complement public missions





LANDSAT-8

30 meter resolutie





SENTINEL-2

10 meter resolutie





PlanetScope

3.7 meter resolutie





SkySat

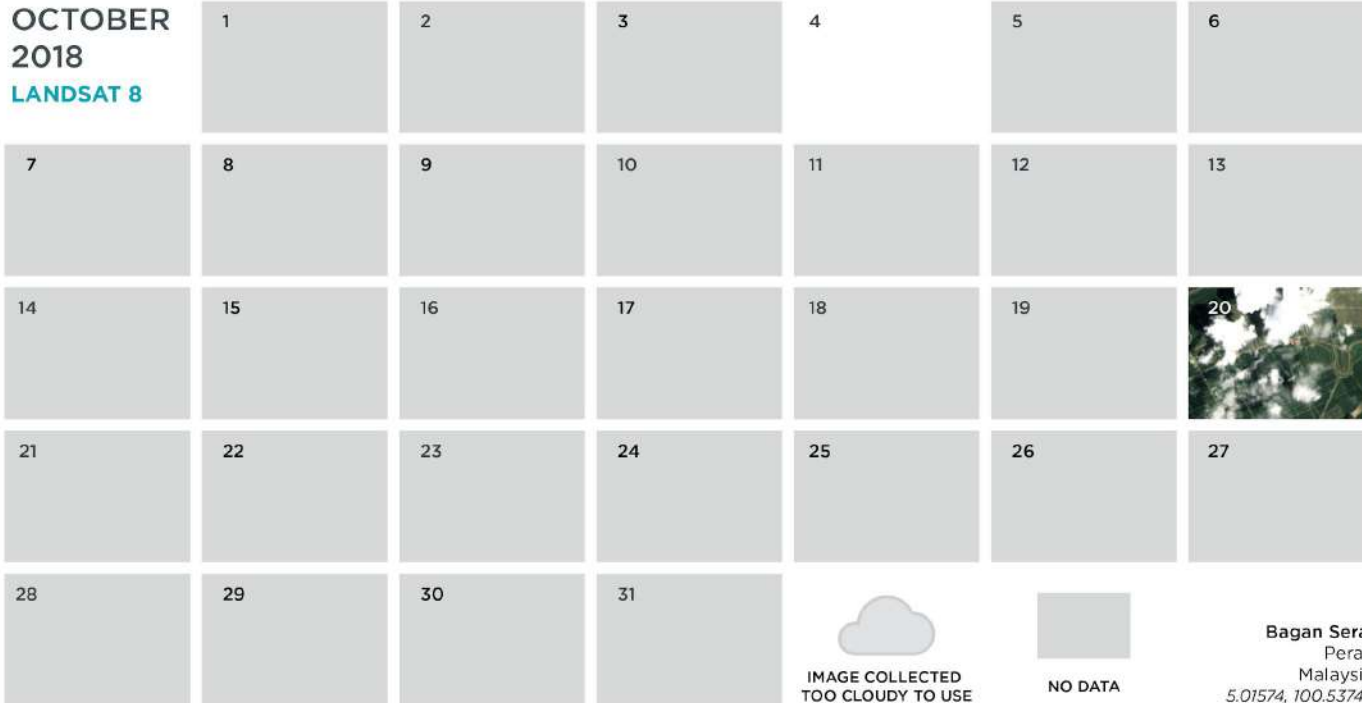
0.5 meter resolutie





Landsat-8 revisit time

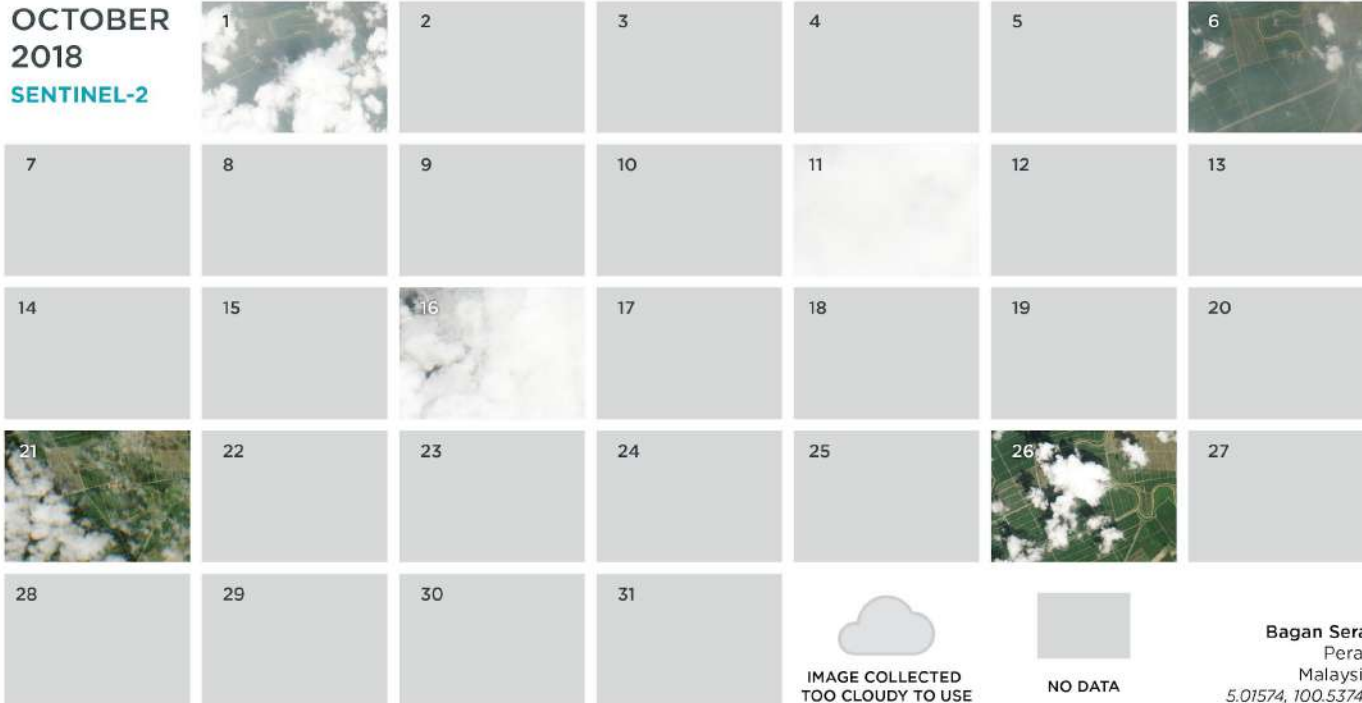
OCTOBER
2018
LANDSAT 8





Sentinel-2 revisit time

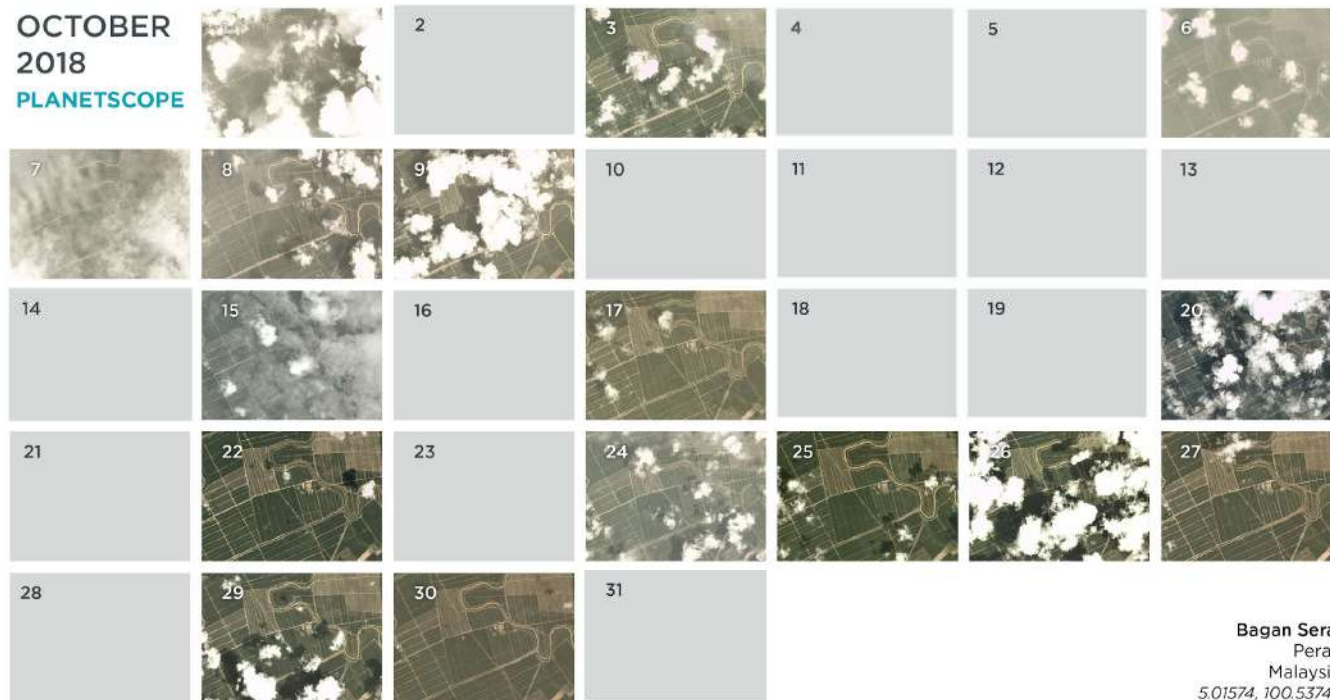
OCTOBER
2018
SENTINEL-2





PlanetScope revisit time

OCTOBER
2018
PLANETSCOPE



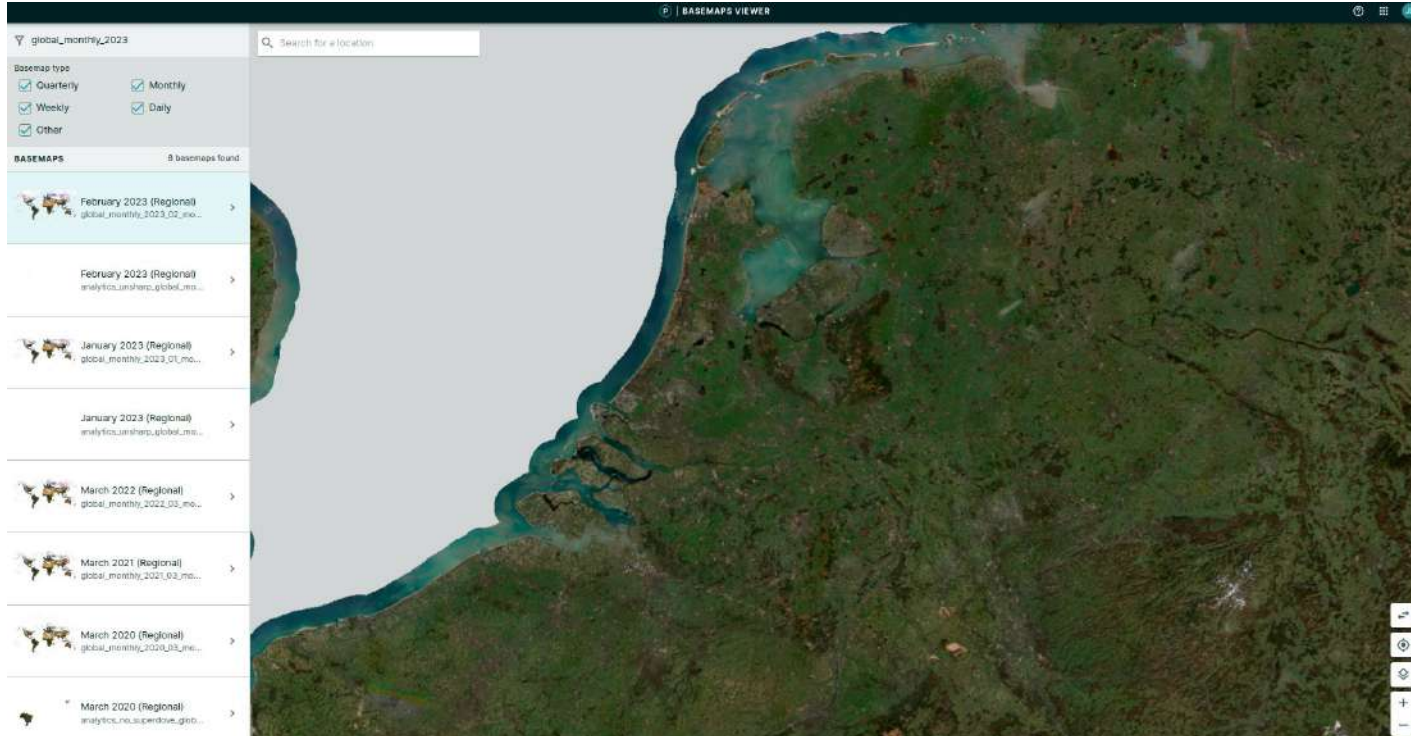
Bagan Serai
Perak
Malaysia
5.01574, 100.53745





Planet basemaps

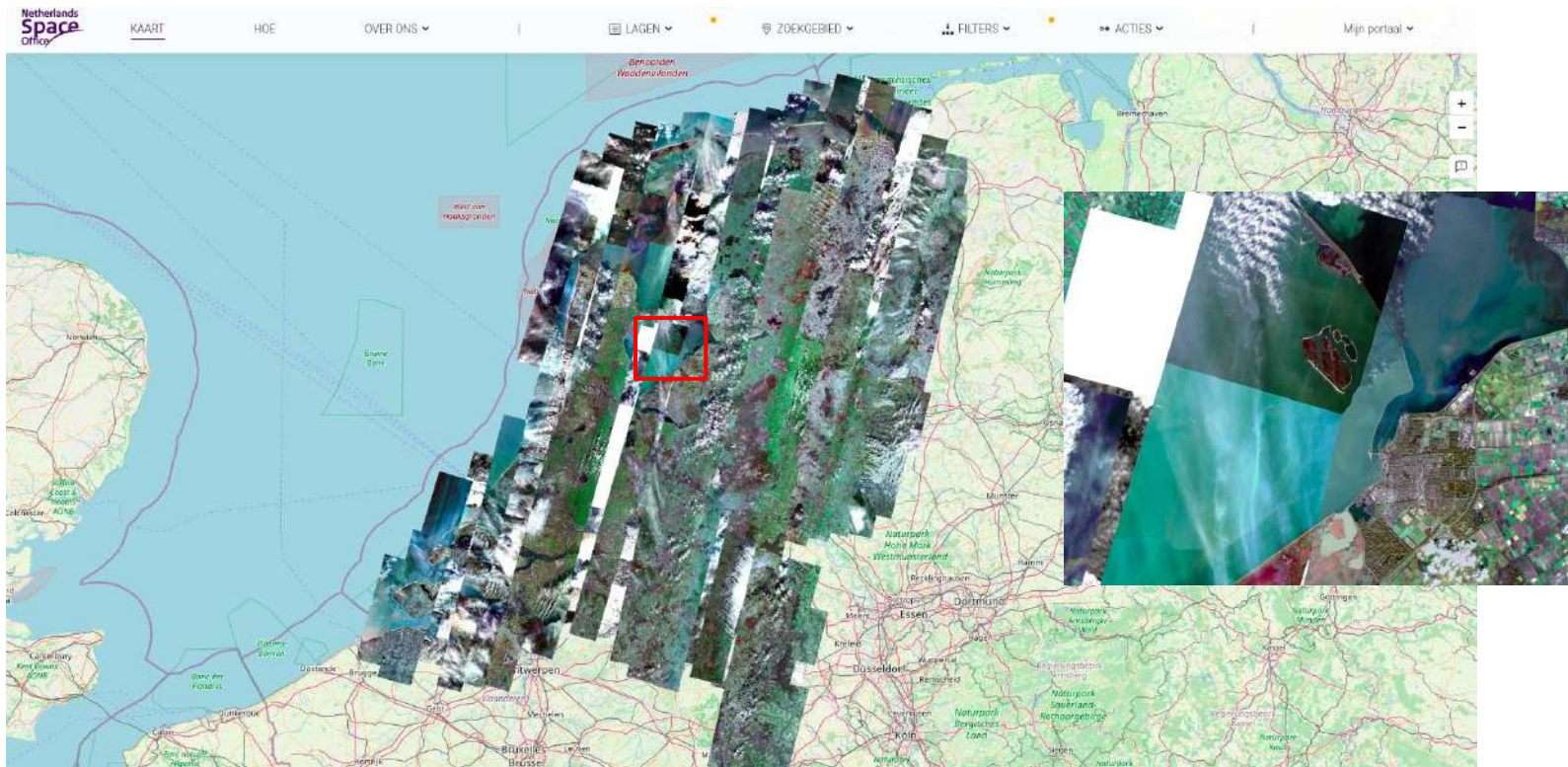
Maandelijkse mozaïeken van onbewolkte beelden





Satellietdataportaal

Superview 50cm, 6 mosaics per jaar



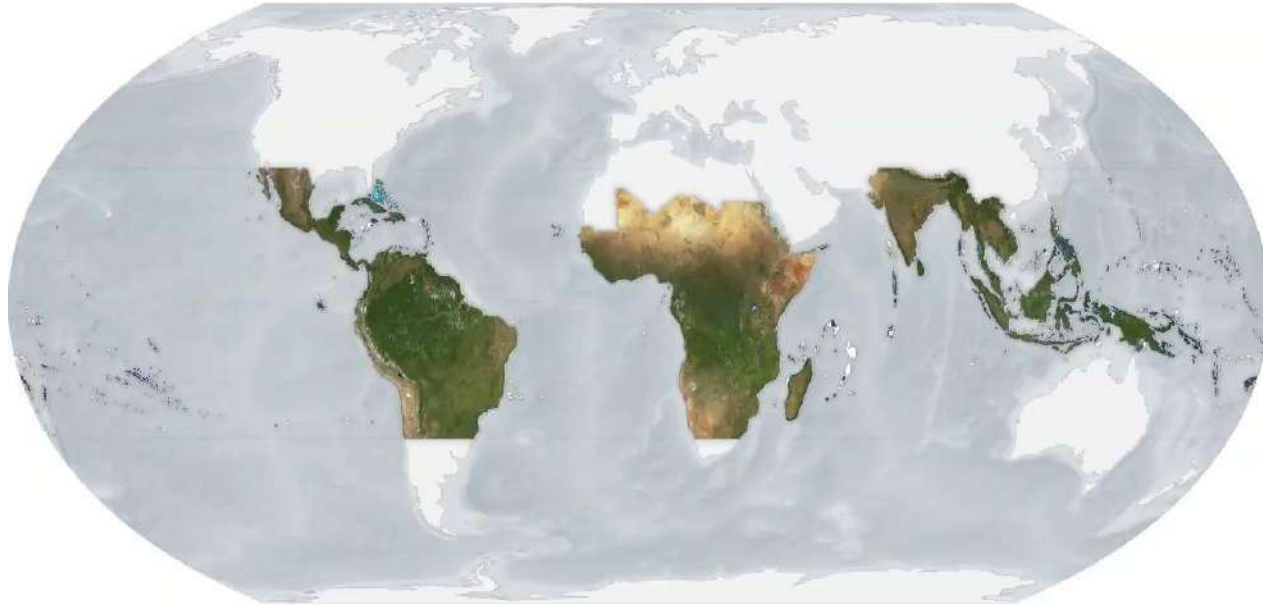


Toepassingen in de water sector

- Monitoren van landgebruik
- Waterkwaliteit
- Overstromingen
- Nieuwe toepassingen in ontwikkeling

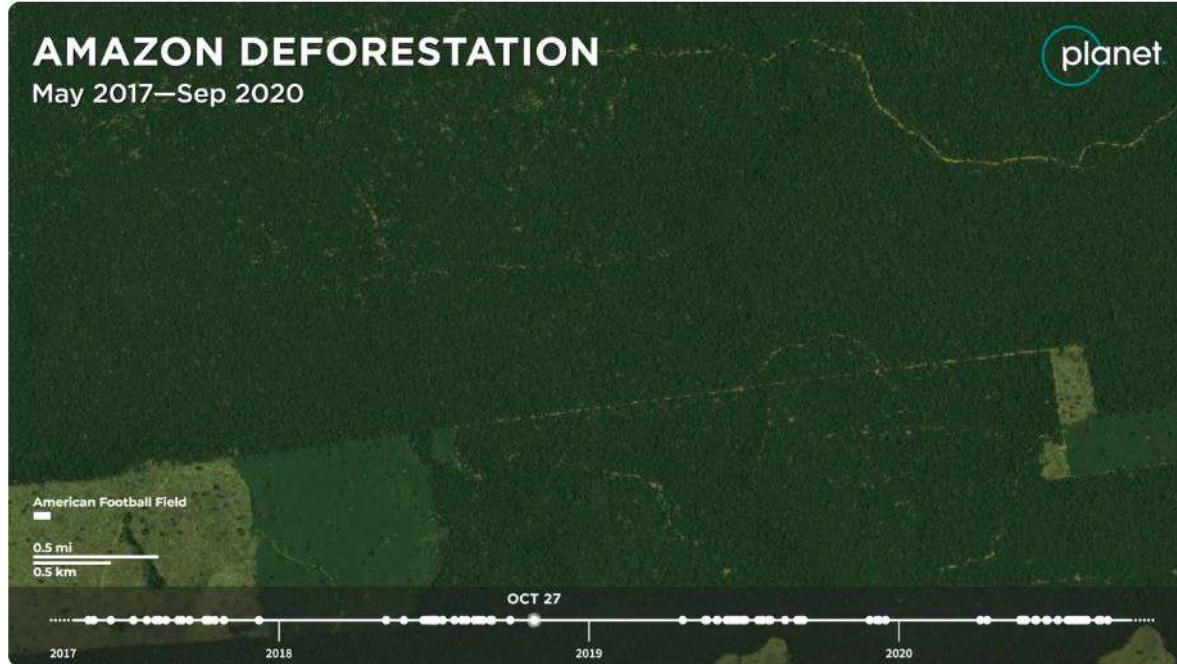


NICFI programma: monitoren van tropisch regenwoud





Van earth observation naar earth monitoring





Monitoren van landgebruik

Chindwin, Myanmar





Monitoren van landgebruik

Chindwin, Myanmar



februari 2018



februari 2022



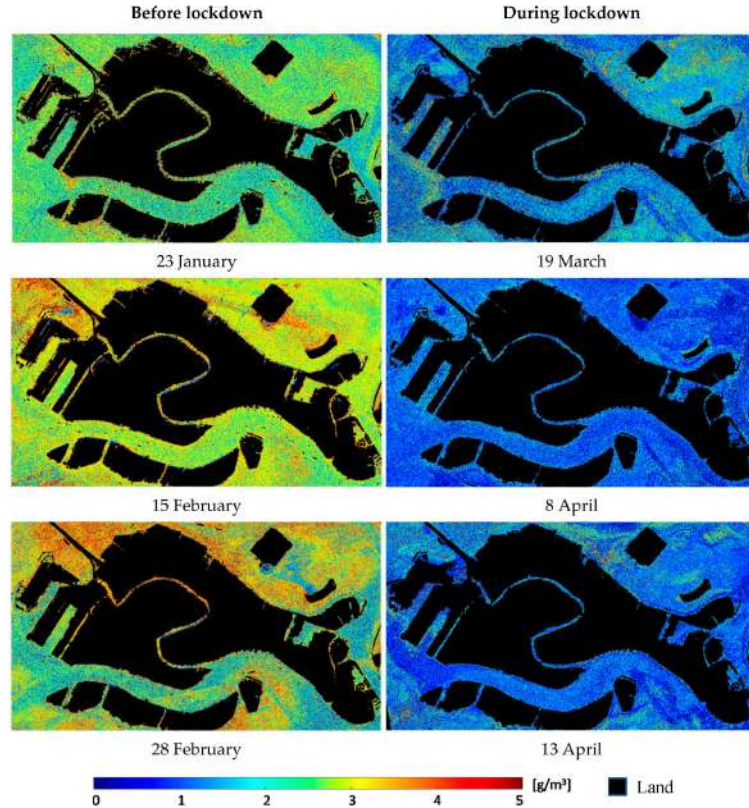
Monitoren van landgebruik

Markerwadden



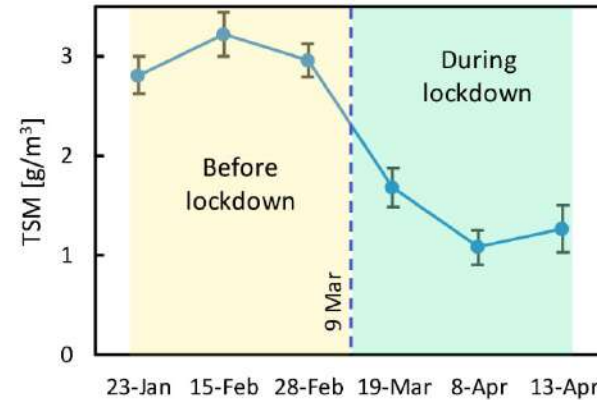


Waterkwaliteit



TSM = Total Suspended Matter

wordt berekend uit de verhouding van de reflecties bij verschillende golflengtes.



Niroumand-Jadidi, Bovolo, Bruzzone and Gege
Remote Sens. 2020, 12(15), 2381;
<https://doi.org/10.3390/rs12152381>



Waterkwaliteit monitoring: Mandichosee, zuid-Duitsland

Hund stirbt an Vergiftung: Blaualgen-Alarm und Badeverbot am Mandichosee

Badeverbot



2. Juli

3. Juli

6. Juli

10. Juli

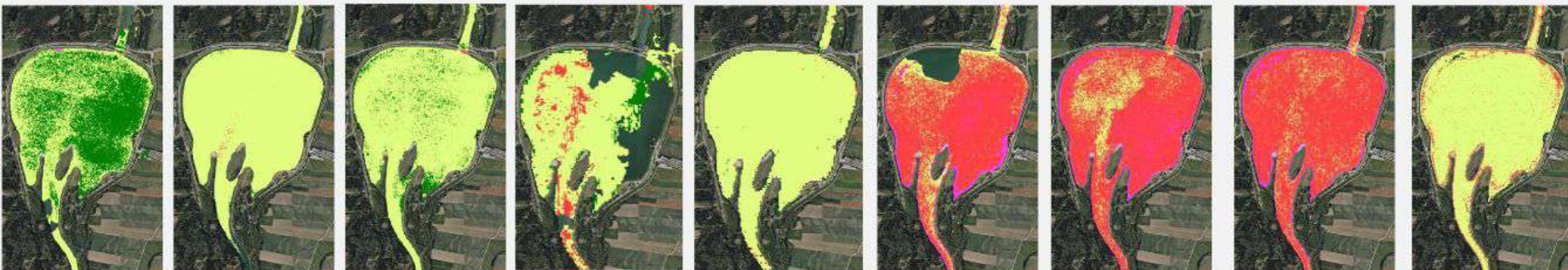
12. Juli

20. Juli

21. Juli

22. Juli

30. Juli



SuperDoves

SuperDoves

SuperDoves

Sentinel-2

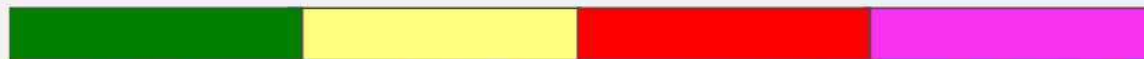
Sentinel-2

SuperDoves

SuperDoves

SuperDoves

SuperDoves



keine HAB

unwahrscheinlich

wahrscheinlich

sehr wahrscheinlich

Planet SuperDoves



Wateroverlast Drenthe 22 februari 2022

Modelresultaat WDOD





Wateroverlast Drenthe

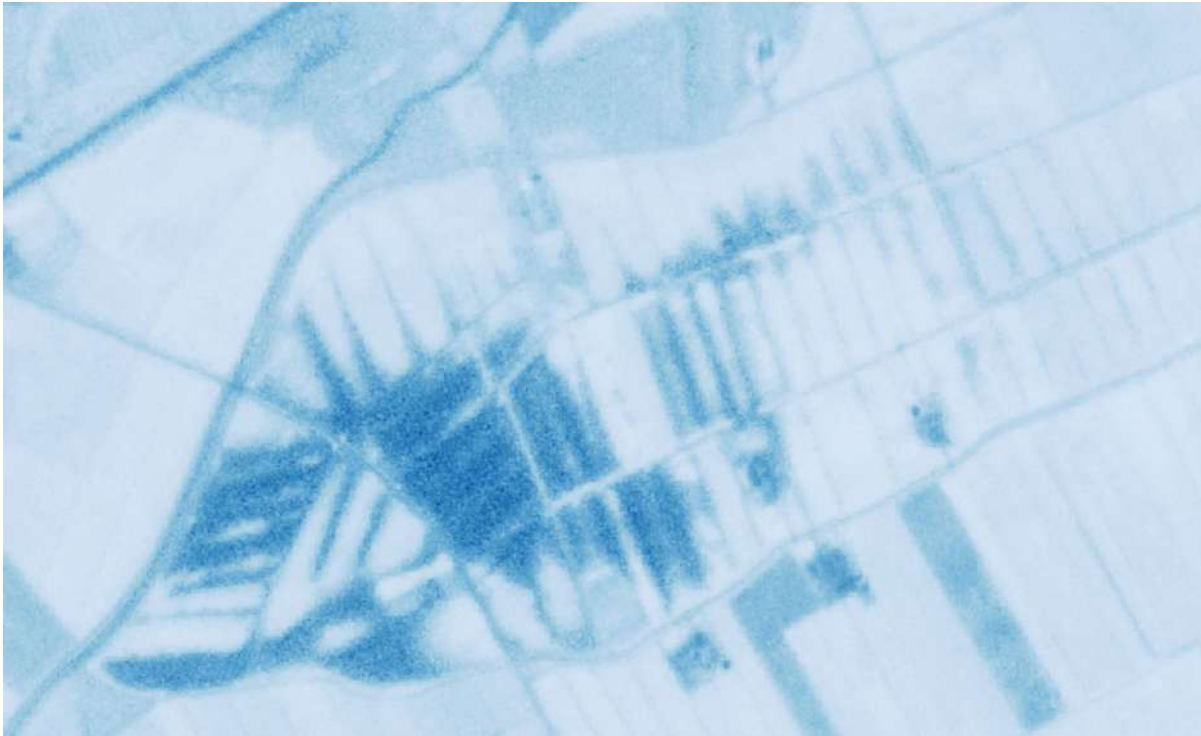
PlanetScope 23 februari 2022





Wateroverlast Drenthe

Modified Normalized Difference Water Index (MNDWI)





Nyando River Flood

Kenya
-0.26 S, 35.07 E

“Kenya National Highways Authority reported several sections of roads in the Lake Victoria basin were affected by flooding, leaving some lakeside communities isolated”
FloodList, 2020



PLANETSCOPE TRUE COLOR, RGB

Feb 02, 2020





Nyando River Flood

Kenya

-0.26 S, 35.07 E

Affected area : Approx. 2000 ha



Flooded area



Feb 02, 2020








Nyando River

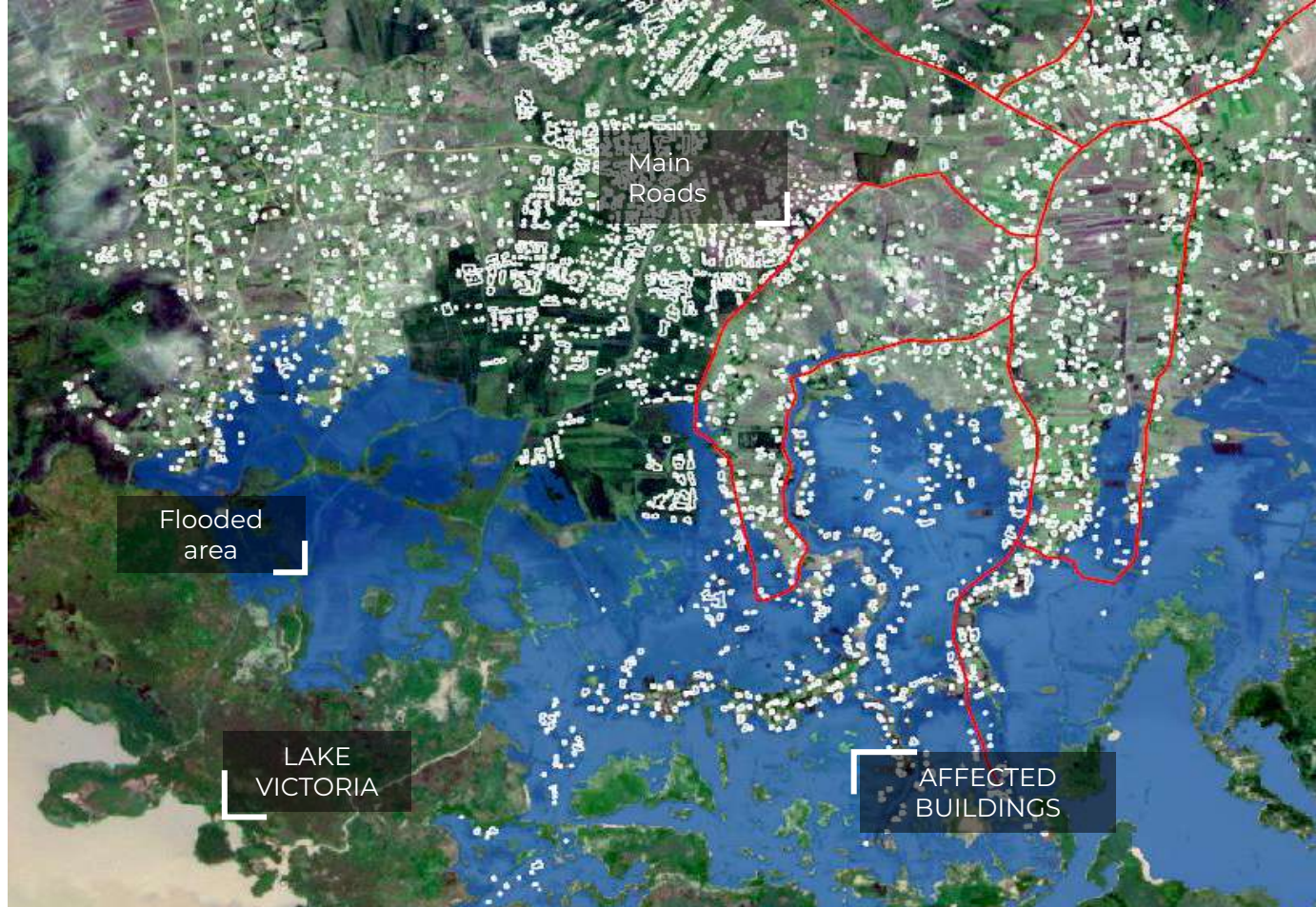
Flood,

Kenya

-0.26 S, 35.07 E

-  Roads
-  Buildings
-  Flooded area

637 Affected buildings



Feb 02, 2020





Nieuwe toepassingen: irrigatie

Hoge resolutie satellietbeeld 7 juni 2018





Irrigatie

PlanetScope



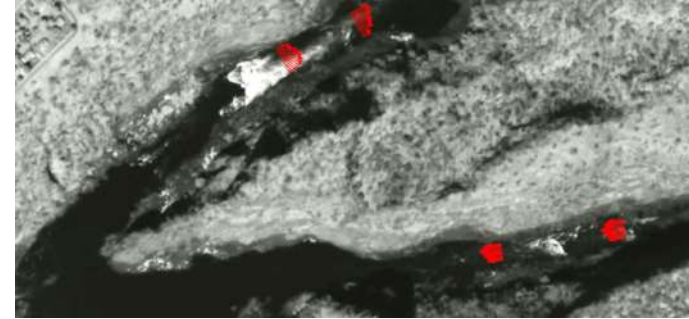


Nieuwe toepassingen: SkySat video

FluViSat project



UK Centre for
Ecology & Hydrology



Stroomsnelheid rivieren

<https://www.ceh.ac.uk/our-science/projects/Fluvisat>





Nieuwe ontwikkelingen



Pelican

Very High Resolution Tasking

- Initial fleet of up to 30 satellites¹
- 30cm product
- Builds on SkySat heritage
- Up to 30 revisits/day



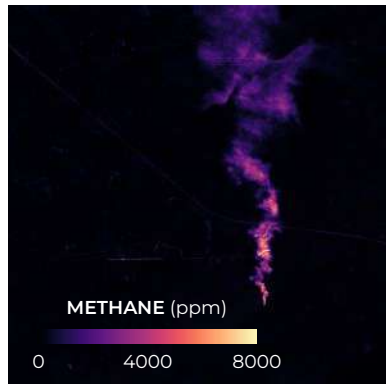
Tanager

Hyperspectral Tasking

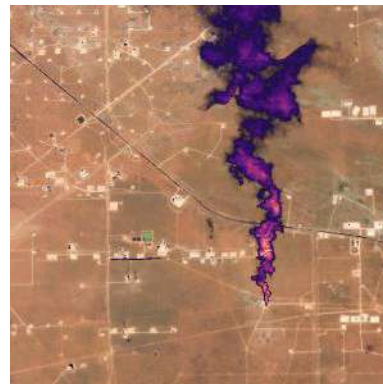
- Methane, water quality, wildfire risk
- High sensitivity
- 2 satellites planned to launch late 2023

¹ Does not include initial 2 demonstration satellites planned for FY'24.

MULTI-CONSTELLATION APPROACH - Revealing nuanced insights



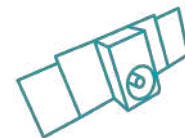
Methane plume detection from Tanager



Contextual basemap from PlanetScope



Infrastructure ID with SkySat/Pelican





Conclusies

- Commerciële satellietbeelden zijn een interessante aanvulling op publieke data
- Hogere resolutie en kortere revisit time zijn belangrijk voor bepaalde toepassingen
- Nieuwe toepassingen zijn in ontwikkeling

