

EO @ BELSPO

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BELSPO - Space activities (1)

Space matters managed at federal level by Space Department within Belgian Science Policy Office (**BELSPO**)

Total BE Space budget: **275 M€/y** with about **25 %** dedicated to EO

BELSPO - Space activities (2)

BELSPO manages:

- ❑ BE participation in ***international organisations*** dealing with space:
 - **ESA** (BE = 6th largest contributor)
 - ECMWF, EUMETSAT, ESO
 - EU programmes (H2020, Copernicus, Galileo,...)
- ❑ ***Bilateral cooperations***: BE/France and BE/Argentina
- ❑ ***National programmes***: **STEREO** and **TERRASCOPE**

BELSPO's EO policy

historically a dual approach

- ***Development of technology*** via optional ESA and bilateral programmes
 - SPOT and SPOT Vegetation
 - PROBA-V and follow-up
 - Pleiades
 - APEX
 - ALTIUS
- ***Development of applications and support of scientific use of remote sensing data*** via dedicated national programmes

BELGIUM @ current ESA

Earth Observation programmes (1)

➤ *Future EO*

- Scientific backbone programme within ESA EO

➤ *Copernicus Space Component 4*

- Development of space capacities: 6 HPCM
- Strong BE industrial involvement in CO2M and CHIME

➤ *Earth Watch*

- ALTIUS: ozone monitoring
- PROBA-V: global vegetation monitoring
- INCUBED+: commercial developments
- GDA: Global development assistance
- CCI+: Climate change initiative

BELGIUM @ current ESA

Earth Observation programmes (2)

➤ *PRODEX: key projects*

- ALTIUS: ozone monitoring (BISA)
- BELSAR-Science: bistatic radar (UCL, UG, CSL)
- IASI-flow: infrared interferometer – atmospheric dust aerosols (ULB – BISA)
- TRACE-S5P: TROPOMI trace gas retrievals (BISA)
- TROVA: TROPOMI validation (BISA)
- Hypernet OC: spectrometer in-situ measurements for water surface reflectance validation (RBINS)

➤ *GSTP*

- Technological developments (PROBA-1, PROBA-V, Cubesats...)

➤ *BASS*

- Business applications (e.g. integrated vegetation monitoring services)

BELGIUM @ other EO organisations

➤ **EC**

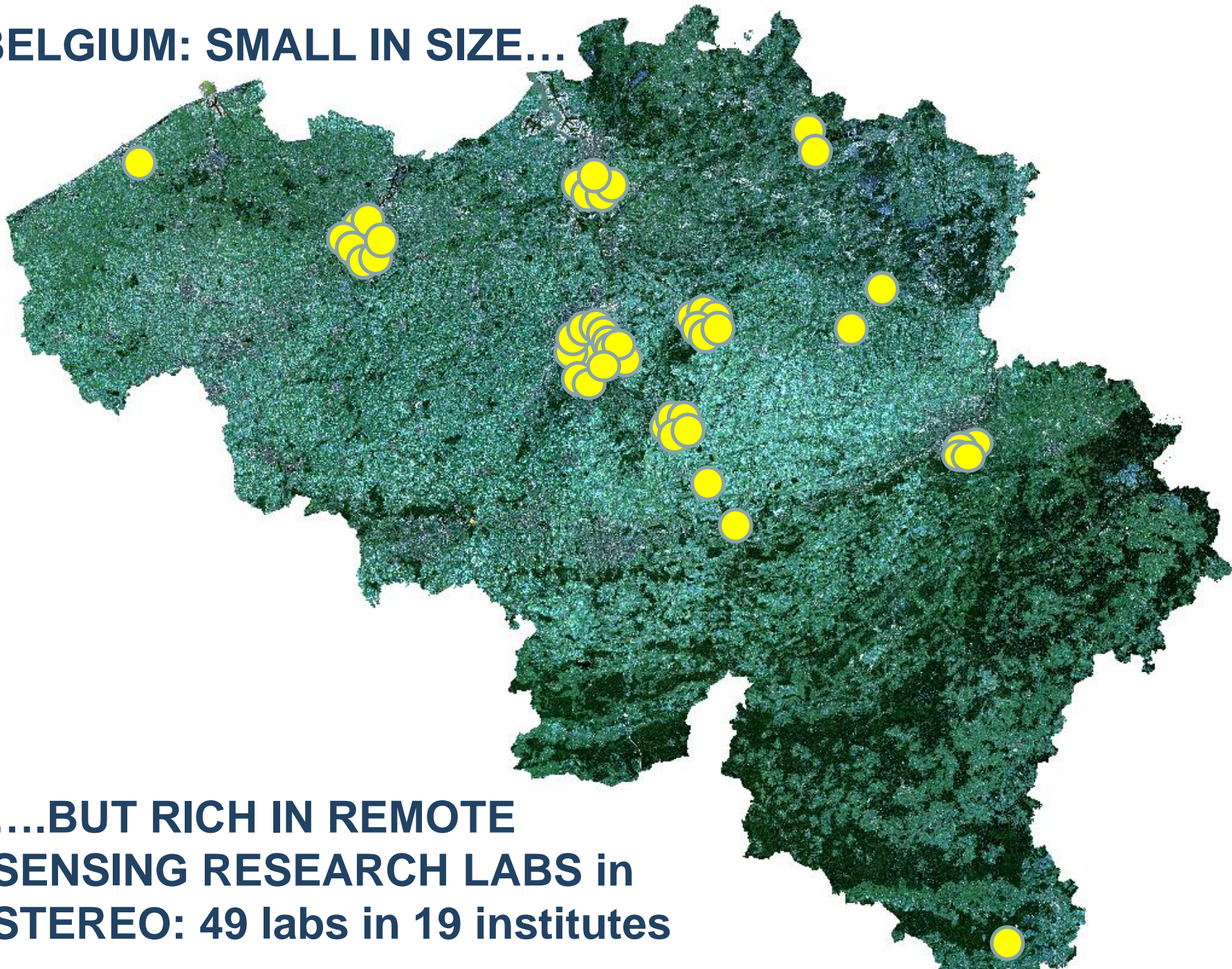
- ❑ Horizon 2020 / Horizon Europe
- ❑ Copernicus: BE involvement in Land, CAMS, C3S

➤ ***EUMETSAT and ECMWF***

➤ ***European Association Remote Sensing Laboratories***

➤ ***Others: GEO and CEOS***

BELGIUM: SMALL IN SIZE...



**....BUT RICH IN REMOTE
SENSING RESEARCH LABS in
STEREO: 49 labs in 19 institutes**



THE STEREO III PROGRAMME

- Research programme with limited *participation of international teams* (max. 20 % budget + fund matching)
 - *Support for research and researchers: financing projects and project Steering Committees*
 - *Support for research community: data acquisition, set-up calval sites, networking opportunities (BEODAY)*
 - *Support for outreach research results: website, newsletter, social media, (co)-organisation conferences (Multitemp, PROBA-V, EARSeL Urban, IGARSS...)*
- Duration: 2014-2021
- Budget: ± 28 M€
- Phase IV: approved by Government and awaiting implementation planning

TERRASCOPE: The Belgian Collaborative Ground Segment

www.terrascope.be

TERRA SCOPE



National Contact
Point



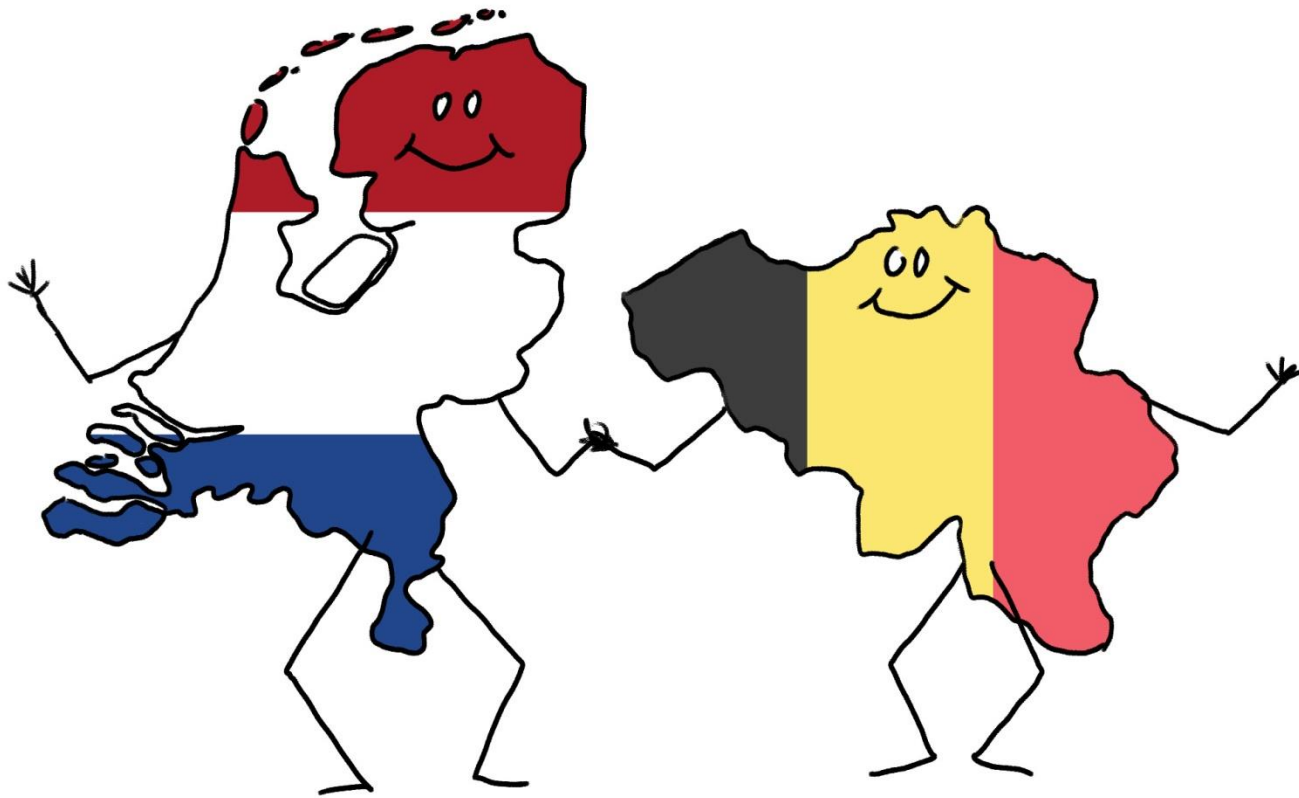
Designated
Entity



TERRASCOPE, THE BELGIAN CoIGS

- **TERRASCOPE** is the BE platform to search, visualize, analyze and share Earth Observation data from **Sentinel missions, heritage missions** and **post PROBA-V missions**
- Activities currently financed until mid-2023 (new phase planned)
- Current portfolio:
 - **S1 data**: complete products over Belgium/ the Netherlands and Luxembourg
 - **S2 data**: 2 year sliding window over EU and selected African sites
 - **S3 data**: global vegetation products and land surface temperature
 - **PROBA-V** archive
 - **SPOT VGT** archive
 - **S5P data**: global CO / HCHO / NO2 composites
 - **Viewer and analytical tools**
 - **Virtual machines**
 - **Jupyter notebooks**
 - Access to **computing power**

Belgium and the Netherlands Natural EO partners?





Belgium and the Netherlands

Natural EO partners!



- *Proximity*
- Historical and linguistical *ties*
- *Similar EO community*: SME (applications, data processing, sensor and platform design) and research mainly in universities (impressive publication record)
- *Similar need for EO applications* (agriculture, urbanization, water management, atmospheric pollution...)
- *Miniaturisation* (New Space) allows access to space for small countries



Belgium and the Netherlands Collaborations and interactions



- Mobility of *researchers* between universities
- Sharing of *experts* for evaluation of programme, proposal and project (**13**  experts in STEREO project steering committees)
- Sharing of *PhD students*
- Participation of  *partners* in STEREO *projects*
- Collaboration within EU and ESA projects (**TROPOMI!**)
- Joint   organisation of IGARSS 2021 conference
- Use of  TERRASCOPE platform by  universities and industry



STEREO



PARTNERS IN STEREO PROJECTS

- Novel in-situ 3D forest structure and biomass estimates to validate air/spaceborne products (**WUR**: Herold/Bartholomeus)
- High-resolution modelling and monitoring of water and energy transfers in wetland ecosystems (**UNESCO-IHE**: Van der Kwast)
- Red Palm Weevil infection detection with Remote Sensing (**WUR**: Kooistra)
- Past climate extremes and their impact on the terrestrial carbon cycle (**VU**: De Jeu/ Dolman)
- Remote Sensing for Slum Mapping and Characterization in sub-Saharan African Cities (**UTwente**: Kuffer)
- Understanding Turning Points in Dryland Ecosystem Functioning (**WUR**: Verbesselt; **TU Delft**: L'Hermitte)

*Just confirmed: key-note by
Ilse Aben (SRON)*



IGARSS OF THE LOW COUNTRIES 11-16th July 2021

igars
BRUSSELS 2021



Future collaboration?



Wish to foster future cooperation between  and  at different levels

- International: ESA, EU, EUMETSAT, ECMWF...
- Bilateral: joint call  and  within STEREO IV?

!Open for other ideas....!

Thank you for your attention