GSSC Now ESA GNSS Digital Platform for Open Science

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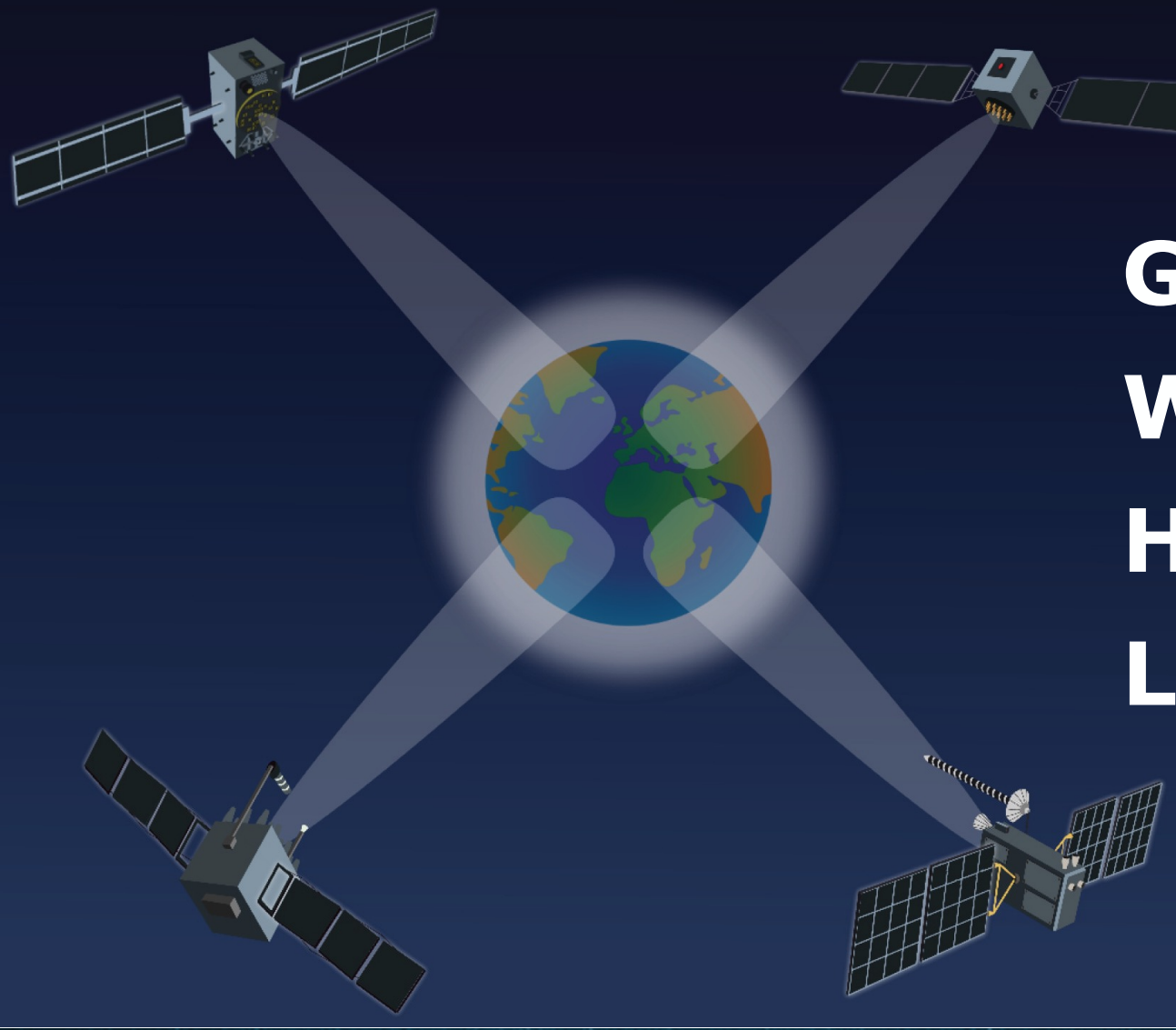
IGS Symposium , 01.07.2024, Bern, Switzerland

GNSS Signals – A Mine of Data for Innovative Solutions



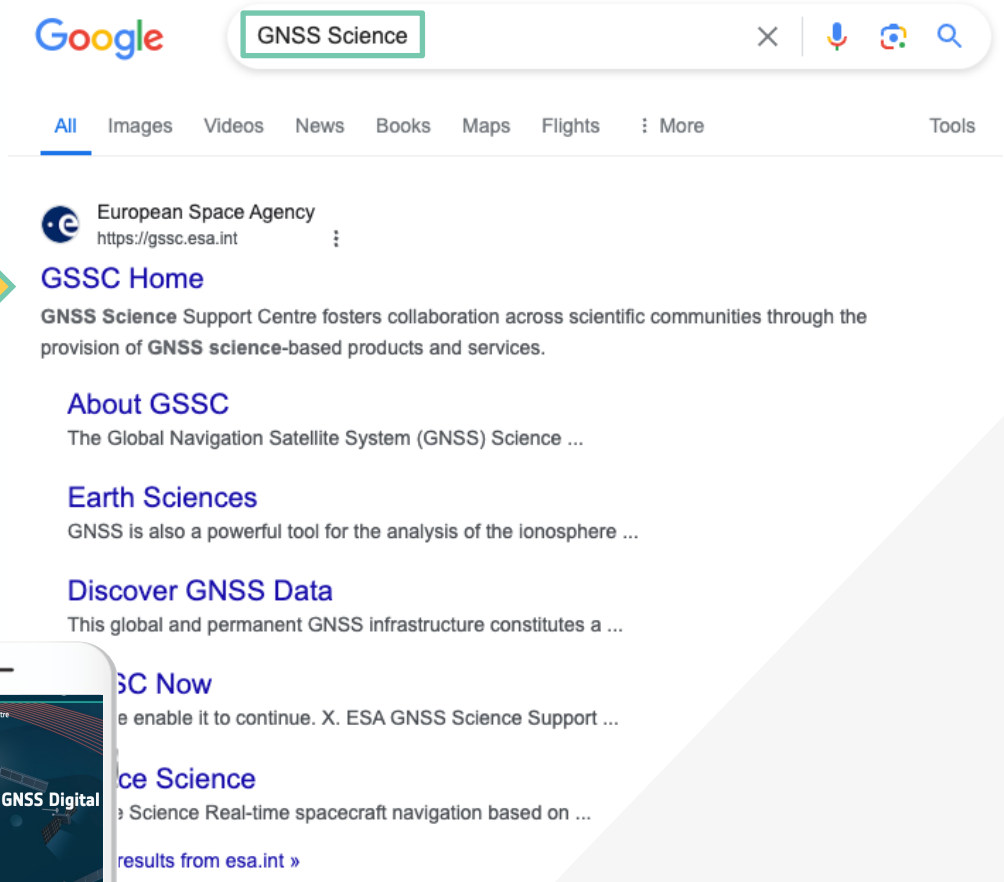
Global Coverage
Well-Characterised
Highly-Monitored
Long-Term Archiving

GNSS Science Support Centre (GSSC)

GSSC Operations & Integration Room (ESAC, Madrid - Spain)

GSSC strategy pivots around five key goals

GSSC Home Portal



GSSC Repository: IGS Global Data Centre and more

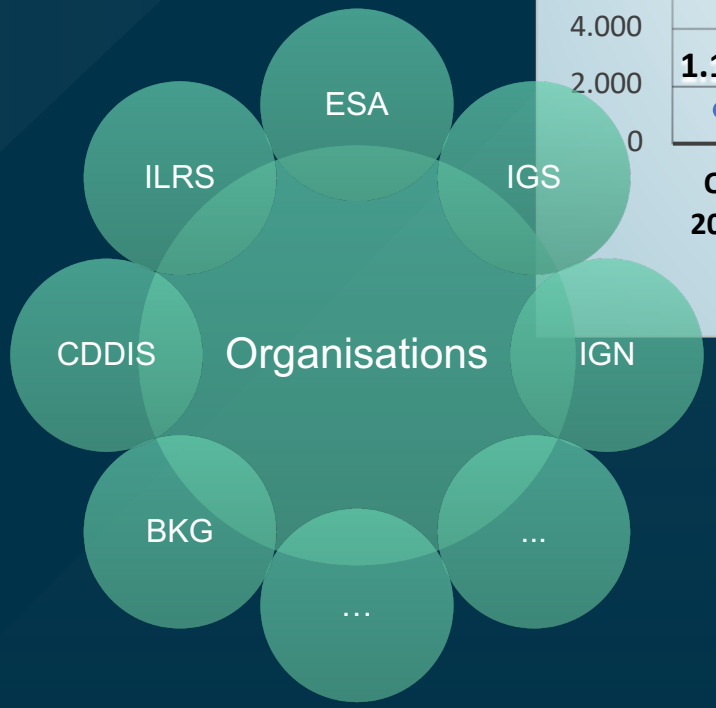
sftp://gssc.esa.int

http://gssc.esa.int/webftp

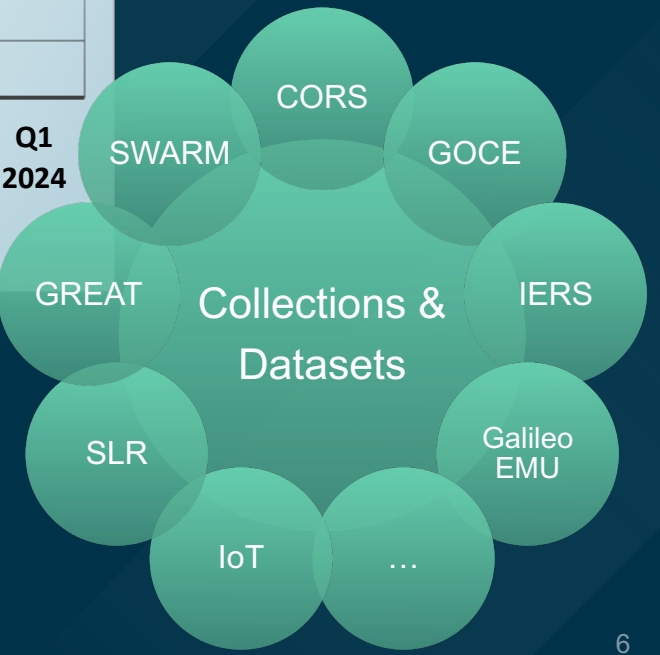
Name	Date Modified
bkg	25 May 2021 at 00:00
cddis	28 Jun 2022 at 08:06
crowdsourcing	24 Jan 2020 at 00:00
esa	18 Jul 2022 at 14:02
camaliot1	18 Jul 2022 at 14:56
colloquium	9 Mar 2020 at 00:00
galileo_3d_models	15 Mar 2021 at 00:00
gesta	26 Mar 2021 at 00:00
gmld	19 May 2022 at 10:42
great	26 Mar 2021 at 00:00
pulchron	21 Jan 2020 at 00:00
gnss	31 May 2021 at 00:00
iers	25 Oct 2019 at 00:00
ign	6 Jun 2022 at 14:46
igs	6 Oct 2021 at 00:00
processing-assets	4 Jul 2022 at 06:43
satellite	24 Jan 2022 at 10:58
champ	15 Dec 2020 at 00:00
goce	31 Mar 2022 at 11:26
icesat	15 Dec 2020 at 00:00
jason	15 Dec 2020 at 00:00
sac-c	15 Dec 2020 at 00:00
swarm-a	2 Dec 2020 at 00:00
swarm-b	15 Dec 2020 at 00:00
swarm-c	16 Dec 2020 at 00:00
slr	21 Apr 2021 at 00:00
cpf_predicts	1 Jan 2022 at 16:12
data	13 Apr 2021 at 00:00
predicts	10 Apr 2021 at 00:00
products	8 Apr 2021 at 00:00
slreport	2 Jan 2022 at 15:00
slrmail	5 Jul 2022 at 15:00
specs	12 Mar 2021 at 00:00

Goal → Quick access and long term preservation for ESA and non-ESA GNSS data

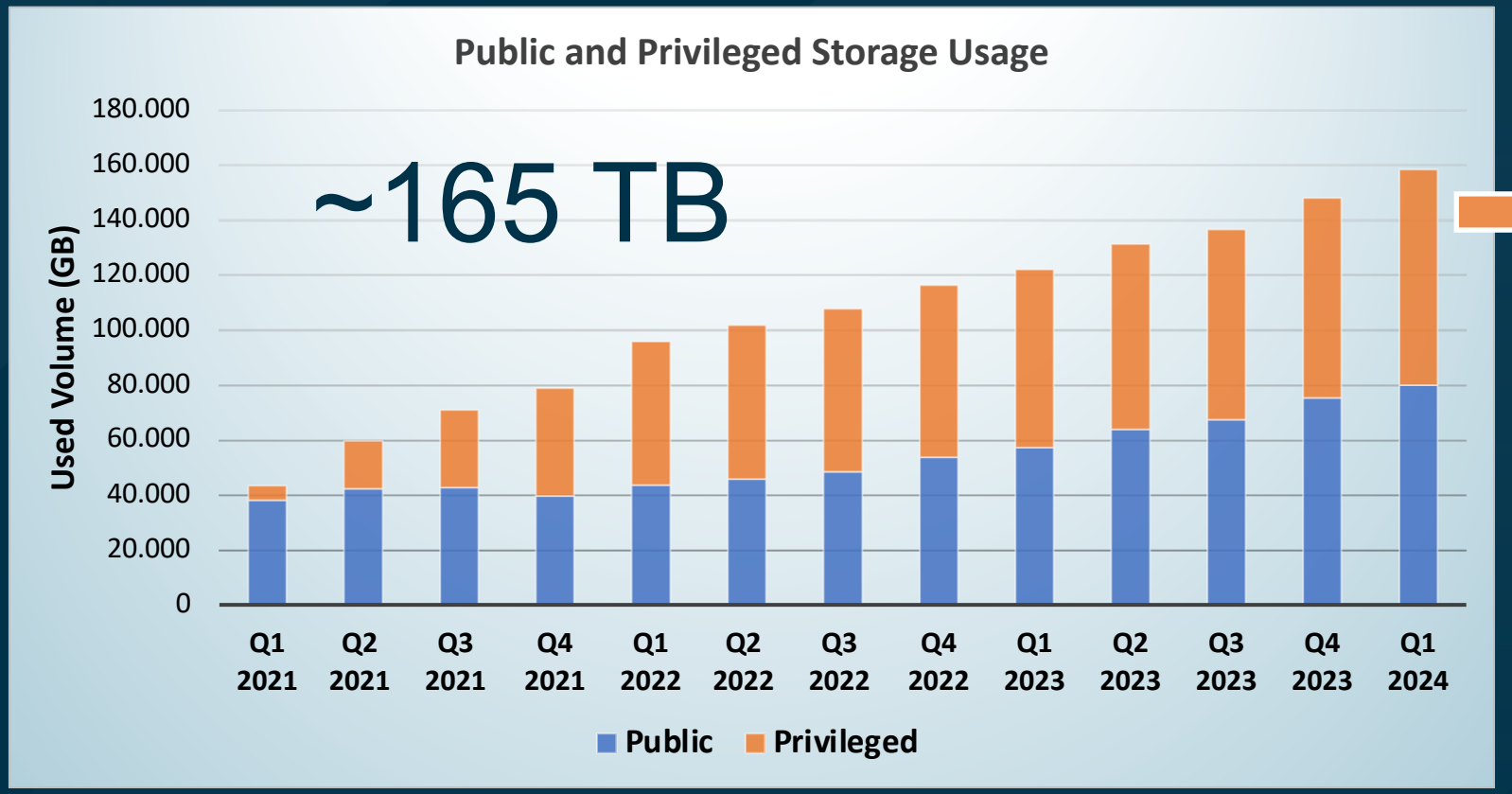
GSSC Repository: Contributors & Users



↓10 TB / Quarter



GSSC Repository: Public & Privileged Data



ESOC

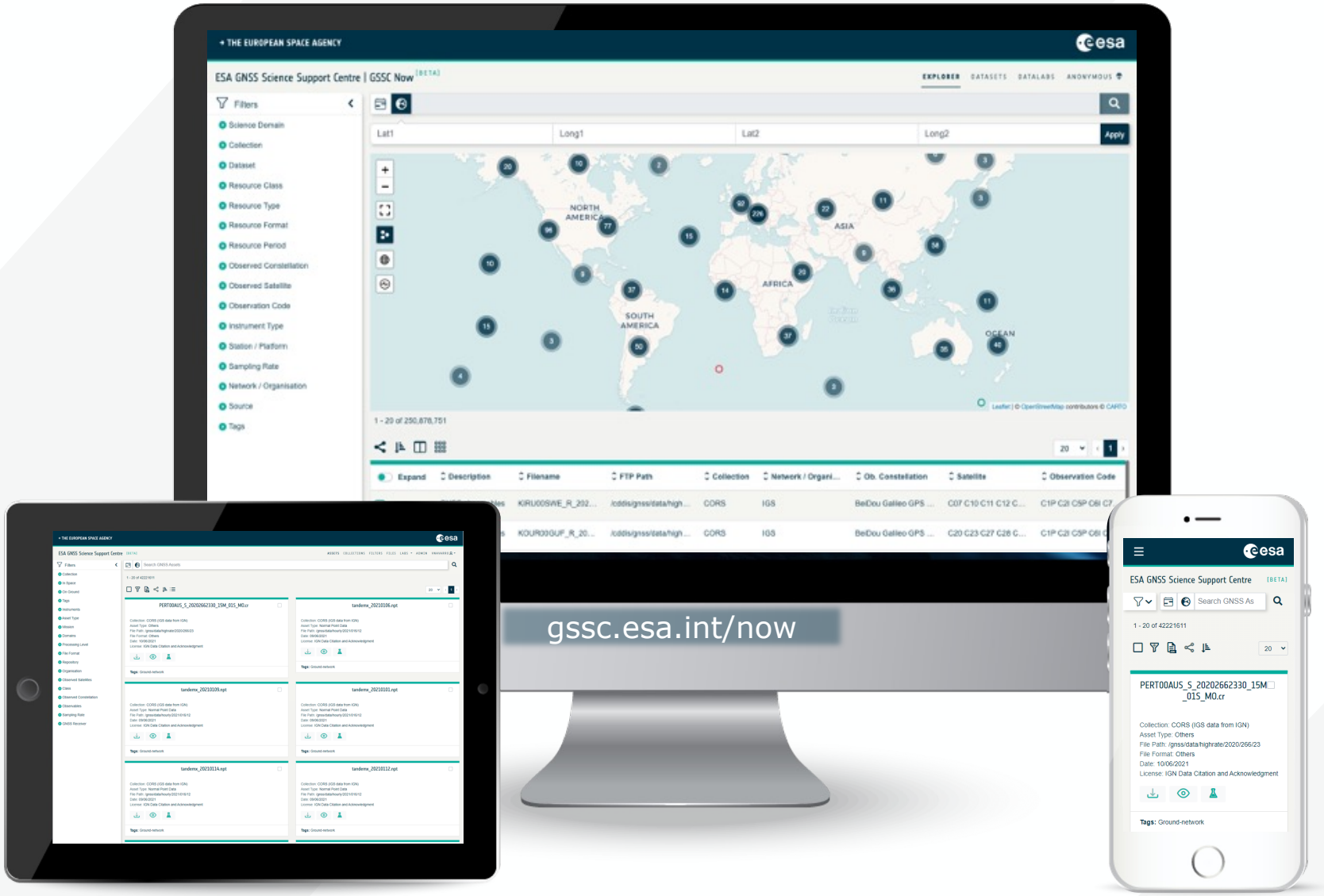
ESA Projects

Geoscience Australia

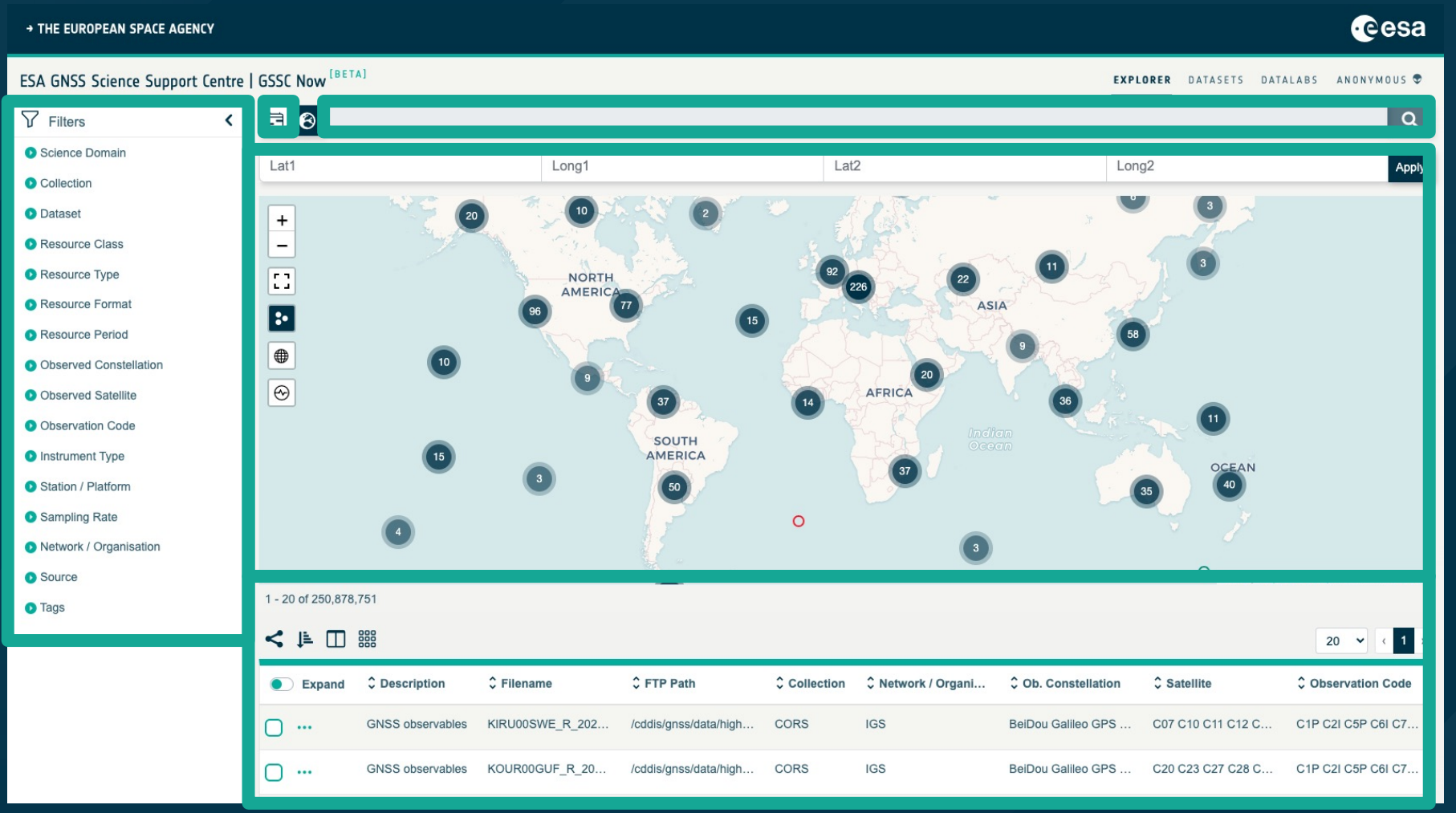
...

POTENTIAL FUTURE **GSSC PUBLIC DATA**

GSSC Portals - GSSC Now, ESA GNSS Digital Platform



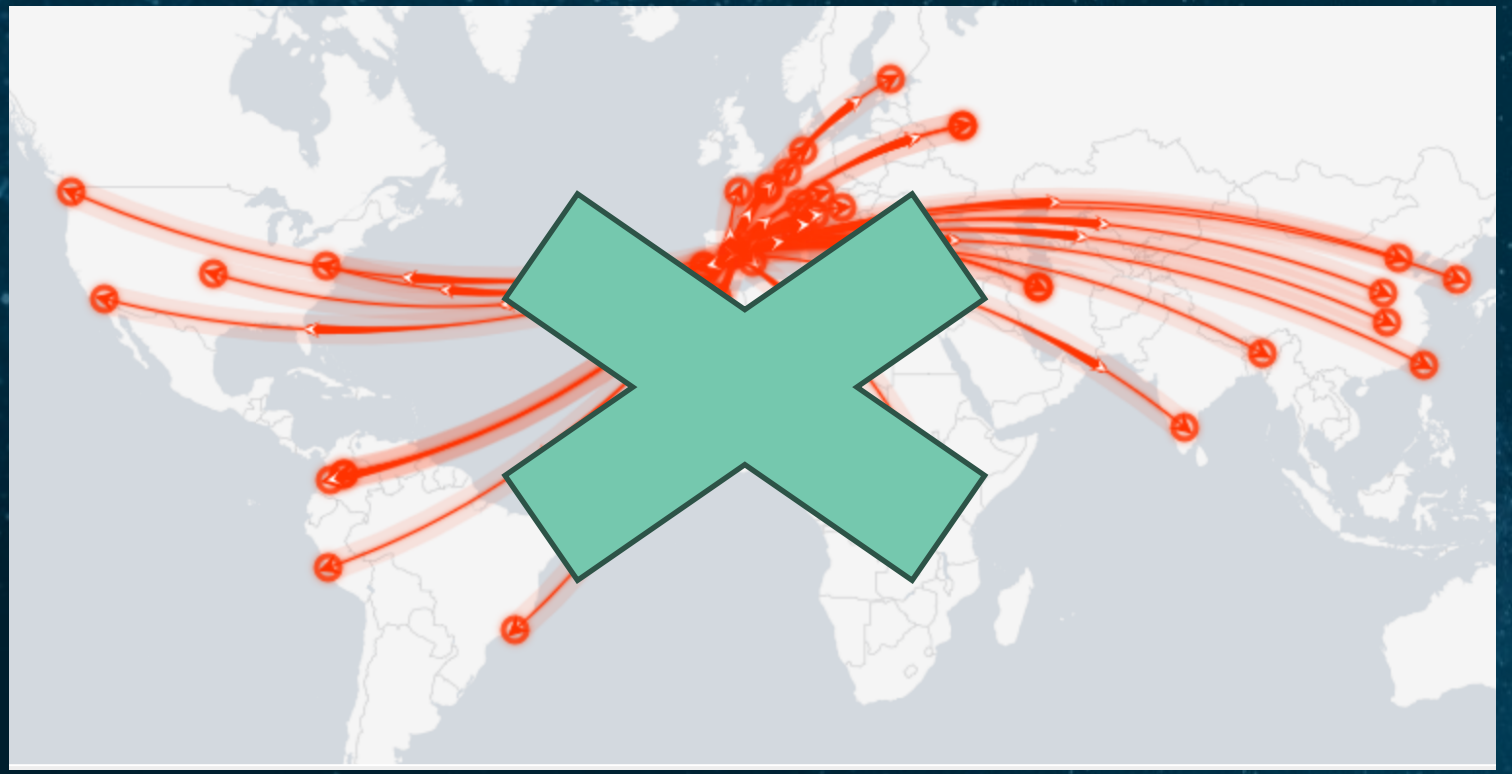
GSSC Now Explorer for Data Discovery



Goal → Seamless browsing of +200 million GNSS assets

Paradigm shift for Data Centric Navigation

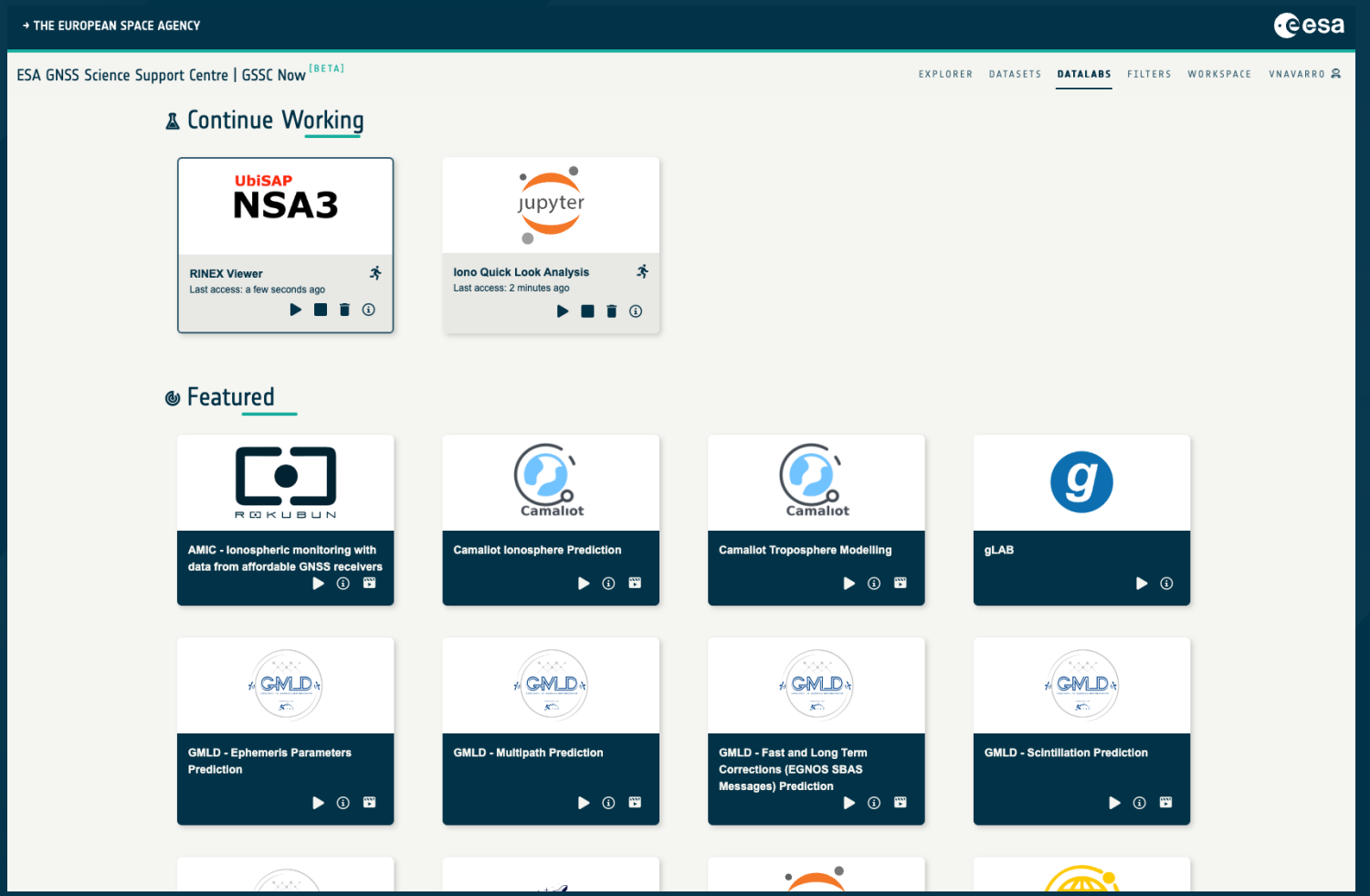
Data → Insights



From *bring the data to the user*

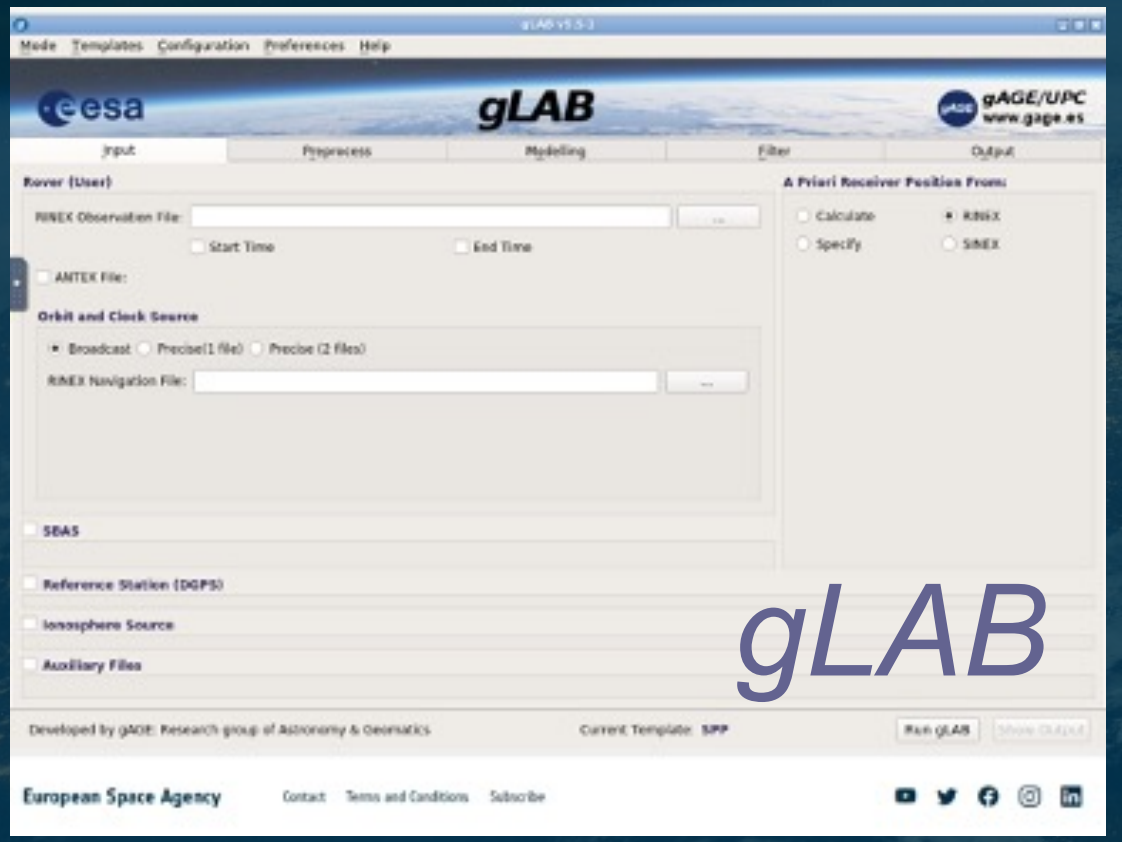
To *bring the user to the data*

GSSC Now Datalabs Marketplace



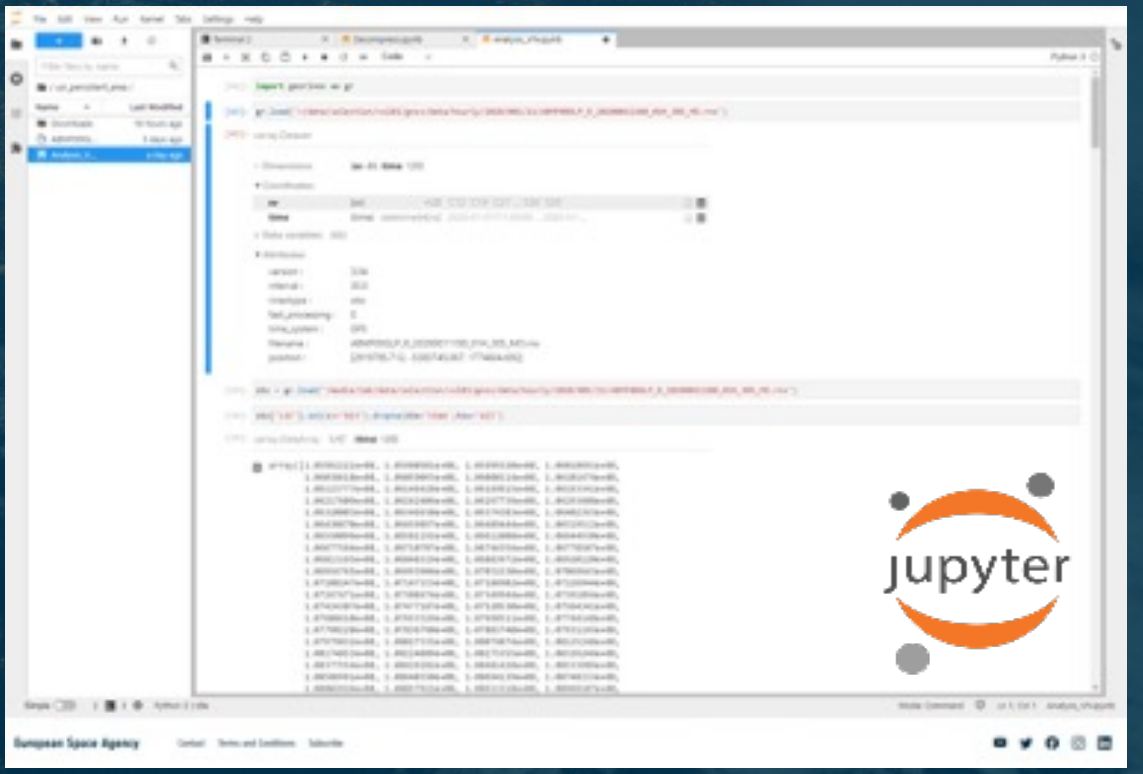
Goal → Zero config & download, data-centric GNSS innovation

Datalabs for GNSS Interactive Analysis as a Service

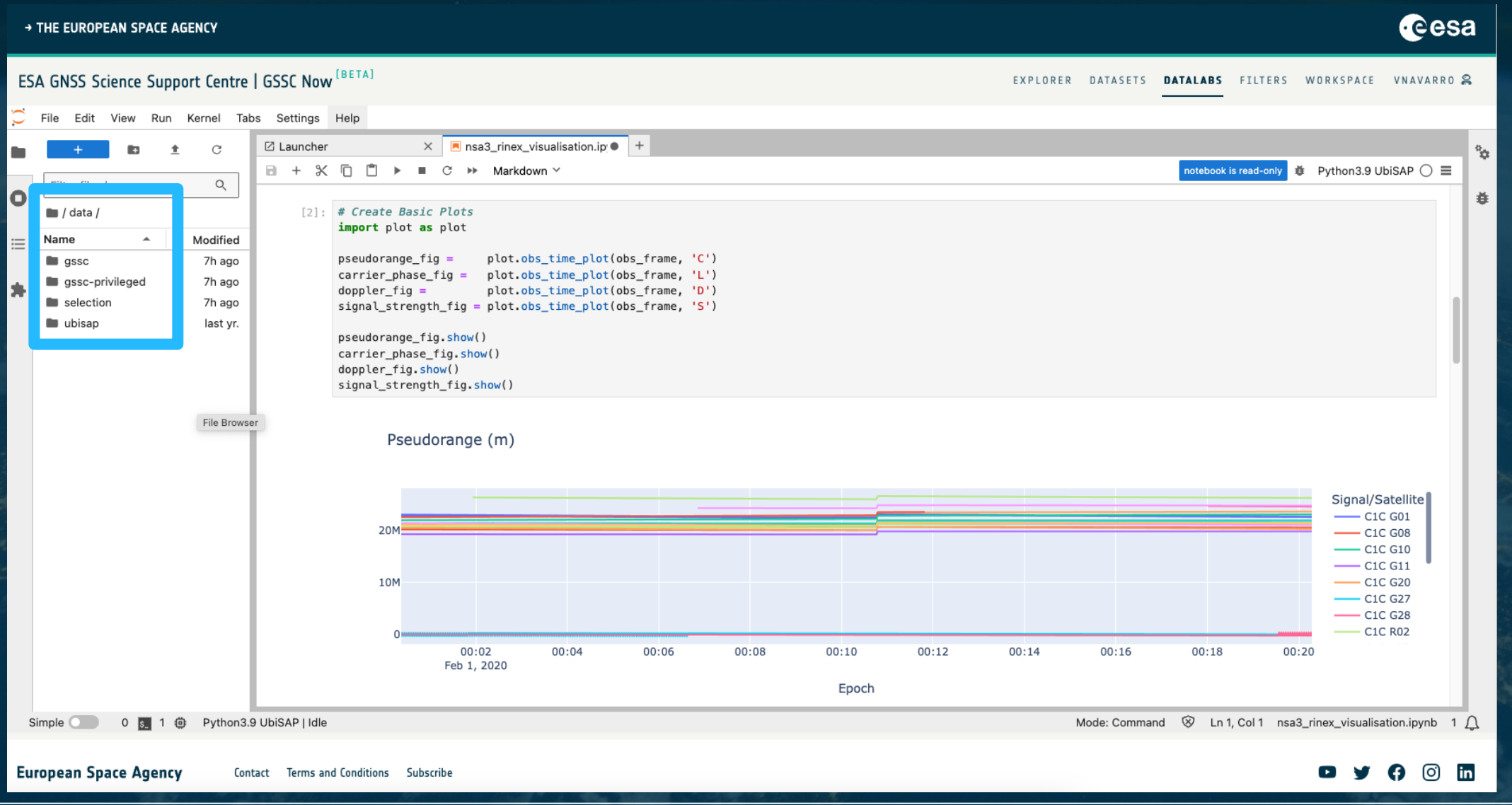


Desktop-Based

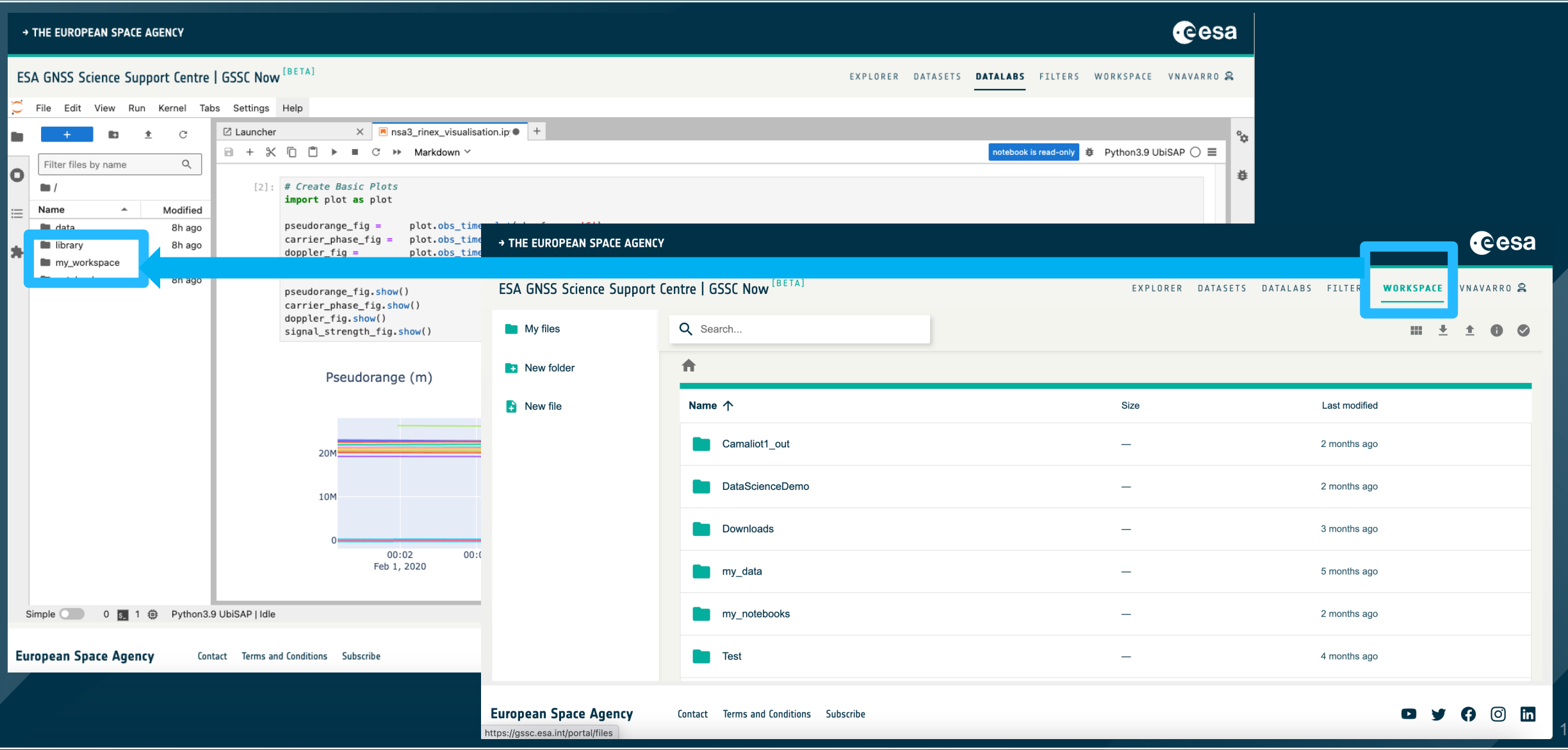
Web-Based



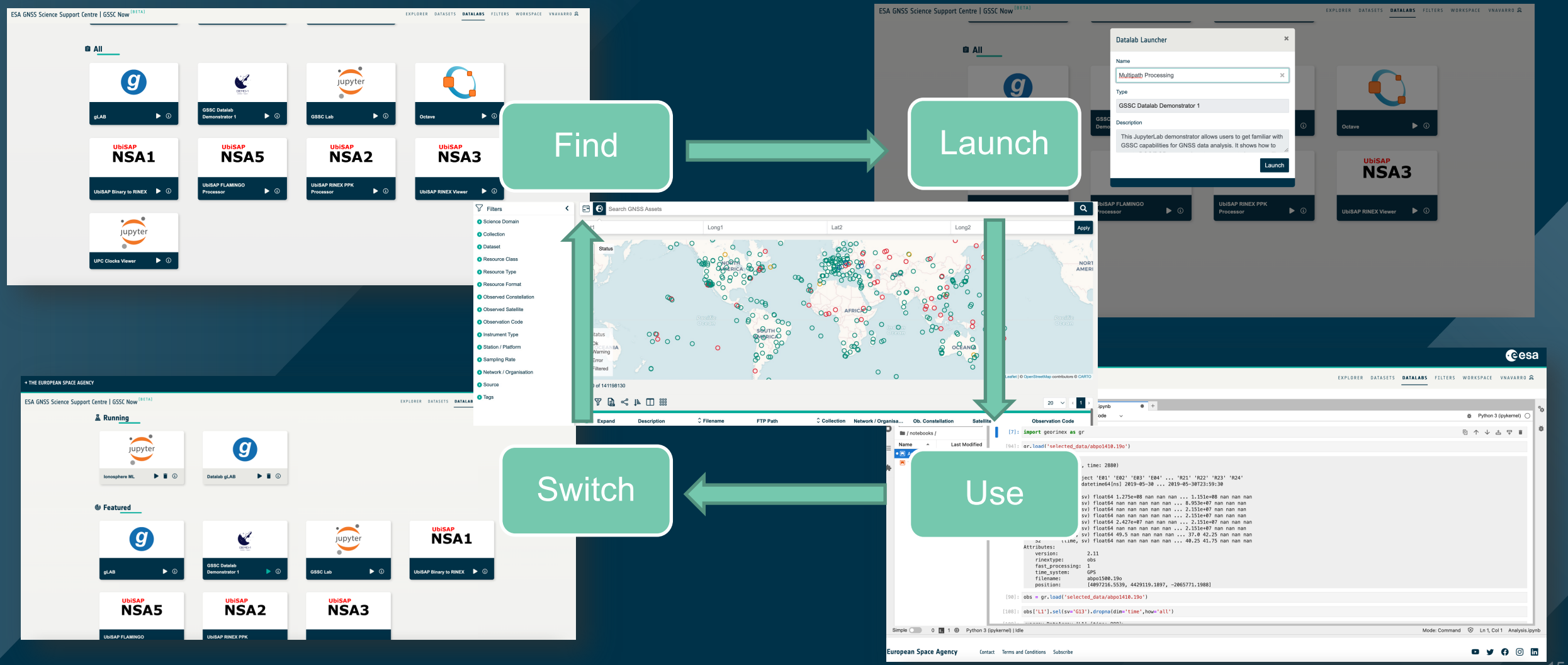
Datalabs and Data Co-location: GSSC Repository



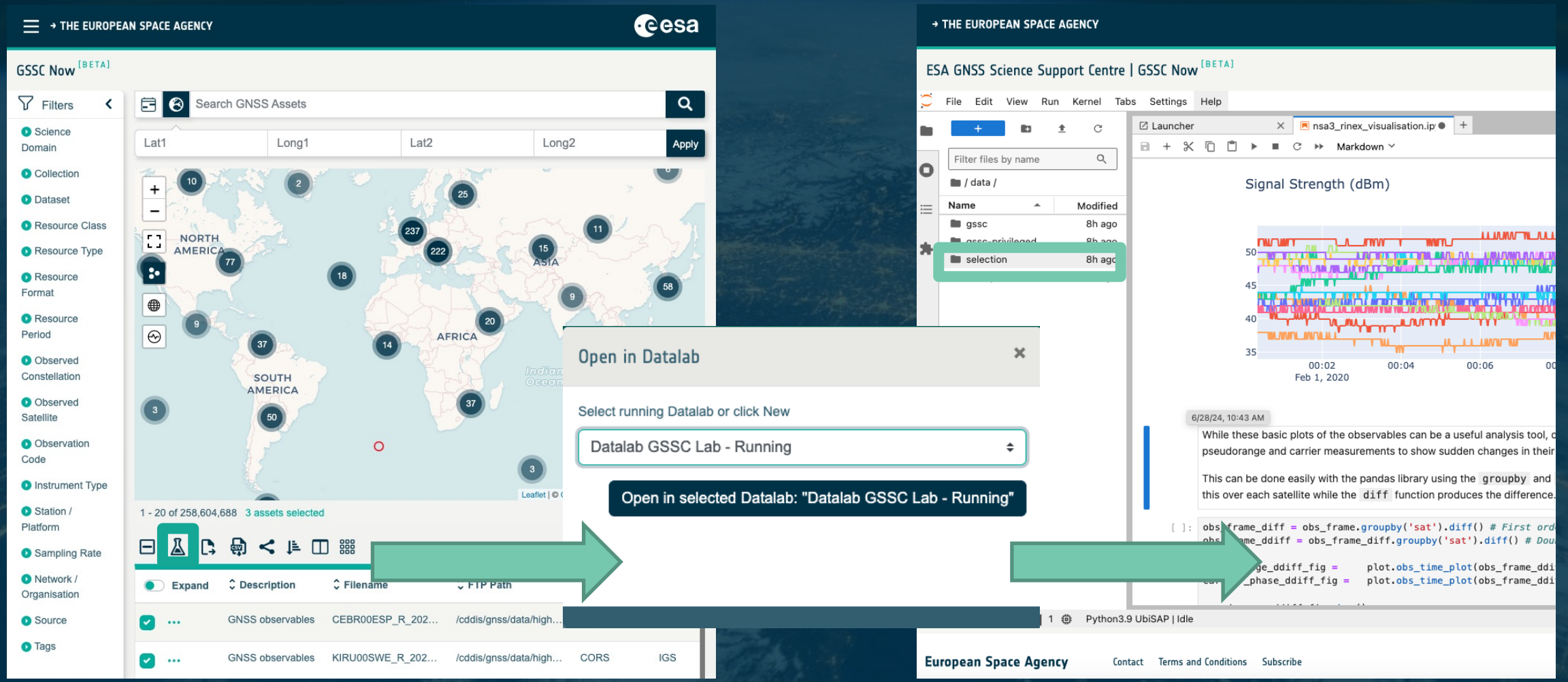
Datalabs and Data Co-location: Your Own Workspace



Find and launch your datalab

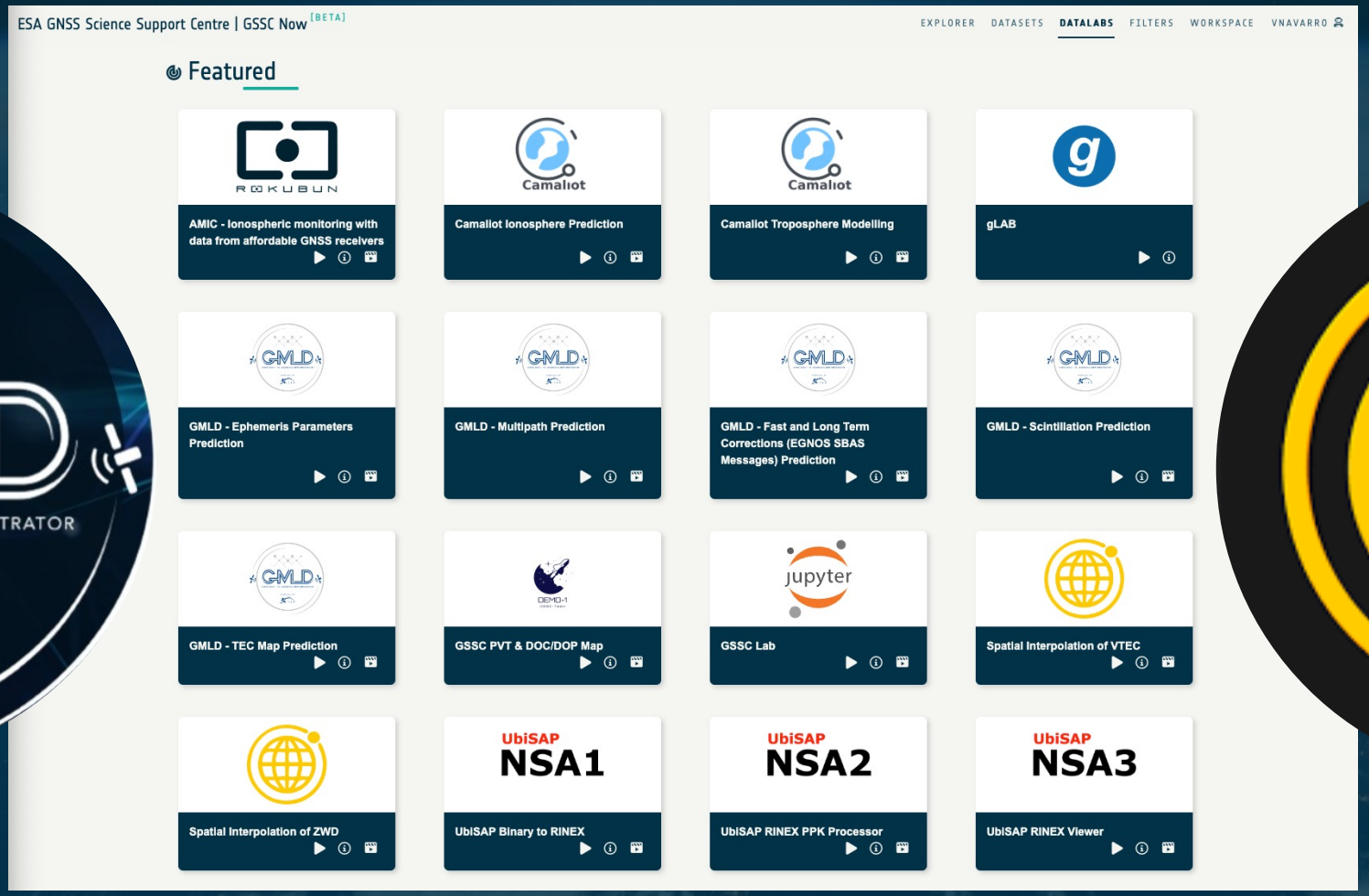


Select data, find and launch your datalab



Bringing discovery and analysis goals together

Enabler for Navigation AI and Digital Twin



Goal → Short time-to-market for the deployment of AI-based Navigation solutions

GNSS Open Science

First name*

Surname*

E-mail Address*

Country*

Organisation*

Organisation Type*

- (•) Research and education
- ( ) Industry and commercial
- ( ) International / national organisation
- ( ) Other:

Describe the datasets or datalabs you would like to contribute*

- [ ] I would like to subscribe to your Newsletter
- [ ] I agree with the Terms and Conditions

What?

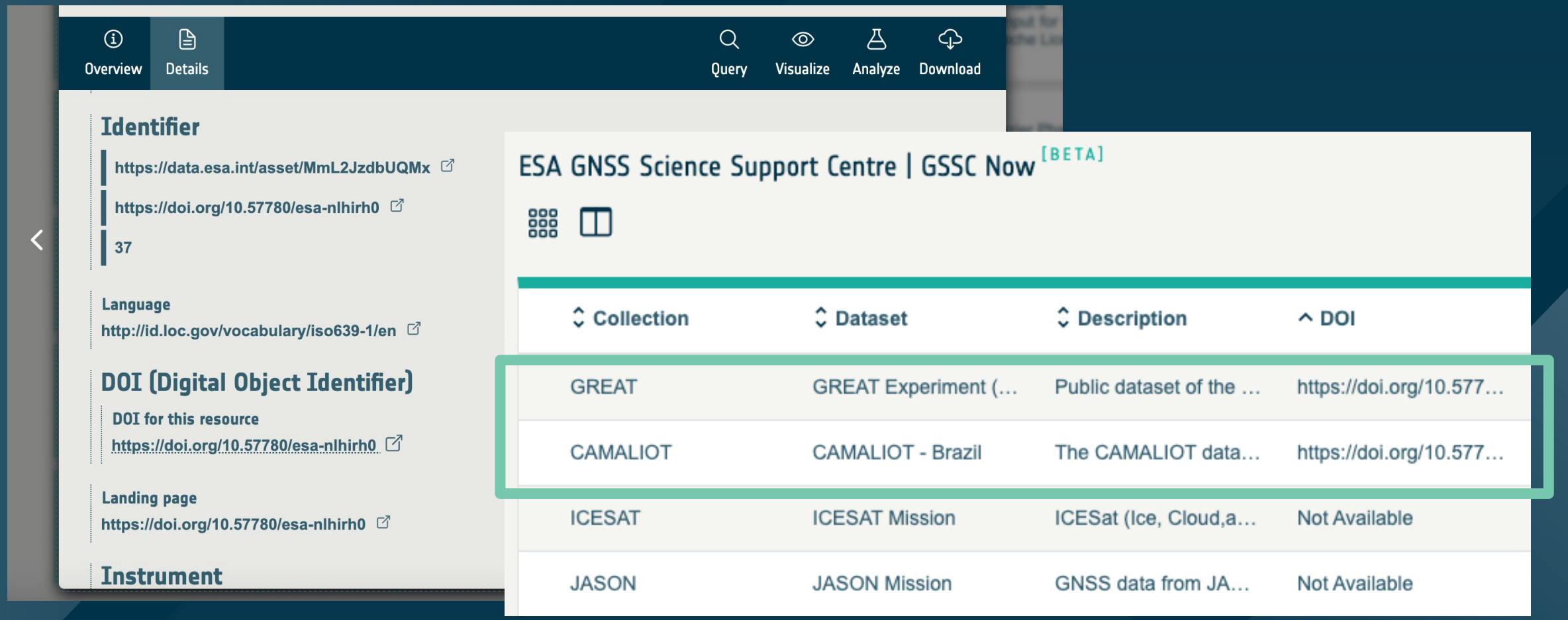
- Datasets
- Datalabs

How?

- Native integration
- Federated integration

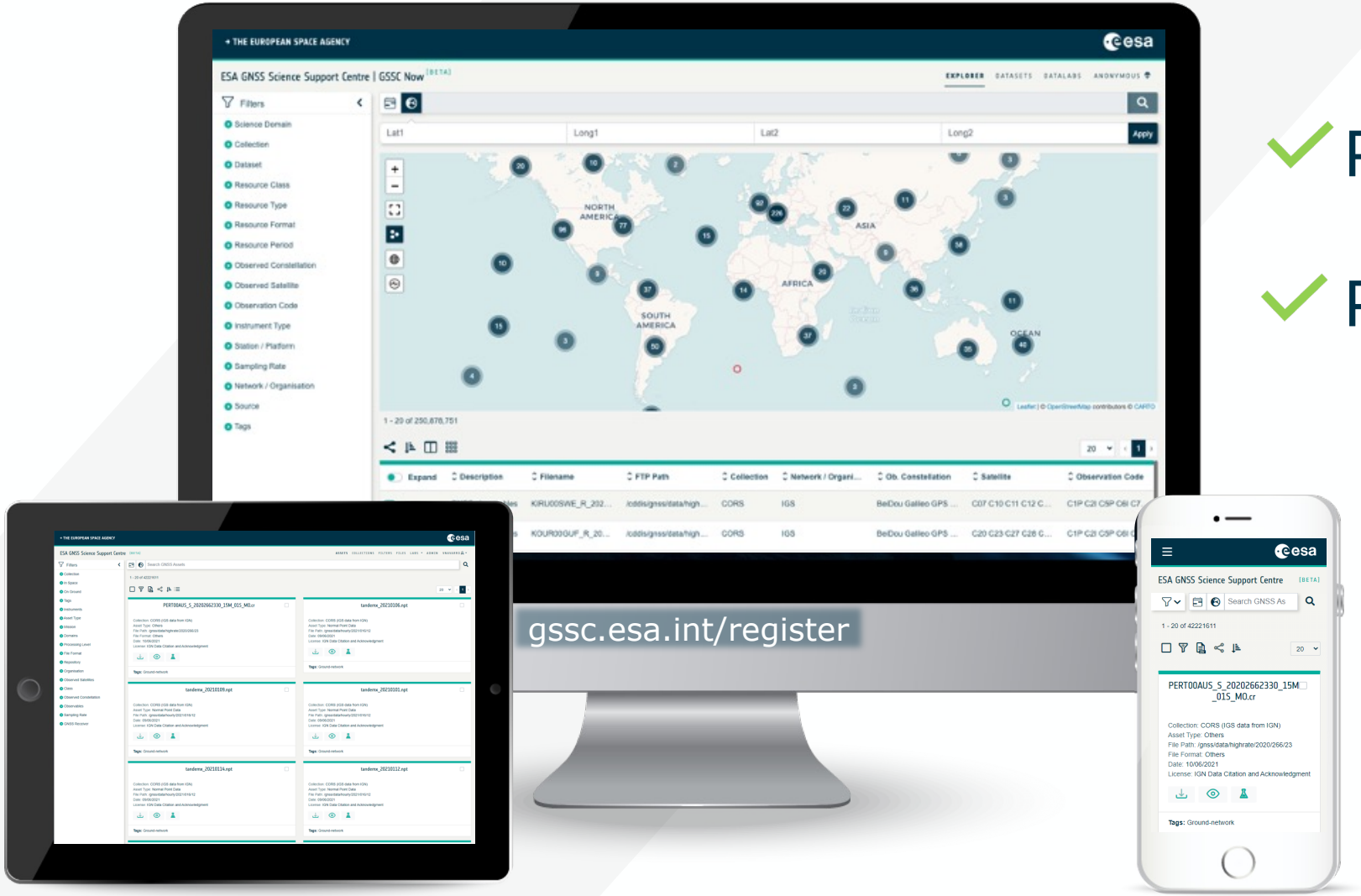
Goal → Maximise visibility and realise the potential of GNSS community contributions

Fostering FAIR Research Principles in GNSS



ESA Minted Digital Object Identifiers (DOIs) for Datasets and Datalabs (in-progress)

Open Platform in Beta – Moderated Registration Process



- ✓ Public Access
- ✓ Preview Access
  - → Invitation Code IGS2024

+200 Users

GENESIS PROAD: Collaborating across ESA

Measurements and Ancillary Data

Data and Products

Data Processing
&
Precise Orbit Determination

esa ESOC

esa ESAC

Data Storage
&
Distribution

IGS — GNSS

IVS — VLBI

ILRS — SLR

Navigation Support Office

GNSS Science Support Centre

POD Products and Additional Data

PROcessing, Archiving and Distribution (PROAD)

Session 5 - GNSS-Enabled Applications
GENESIS: A Multi-Technique Geodetic Observatory in Space, Pierre Waller, et al.

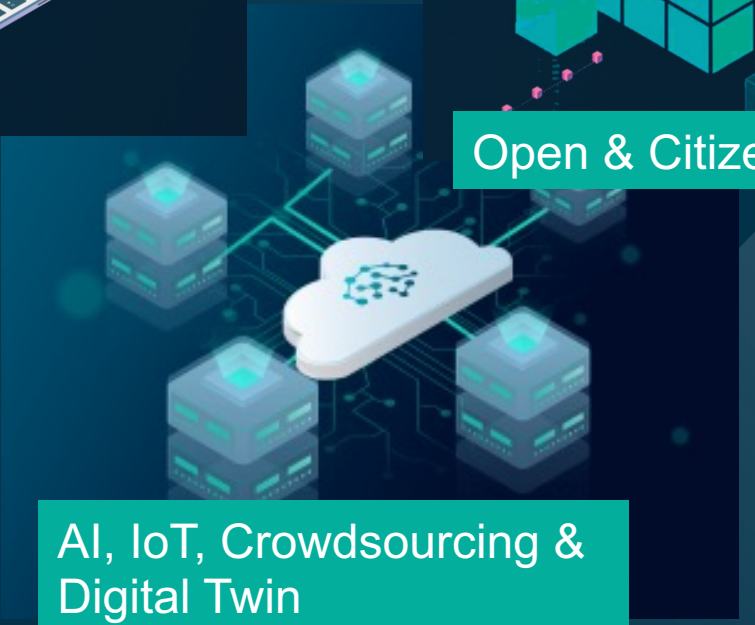
Five Goals Strategy Summary

Repository

Analysis

Open & Citizen Science

Discovery & Dissemination



AI, IoT, Crowdsourcing & Digital Twin

Thank You!

This is not a journey about impacting technology …

… this is a journey about impacting gnss

Invitation code IGS2024

Find us at gssc.esa.int