EXPLORE

G-Tomo service

E-OSSR onboarding presentation

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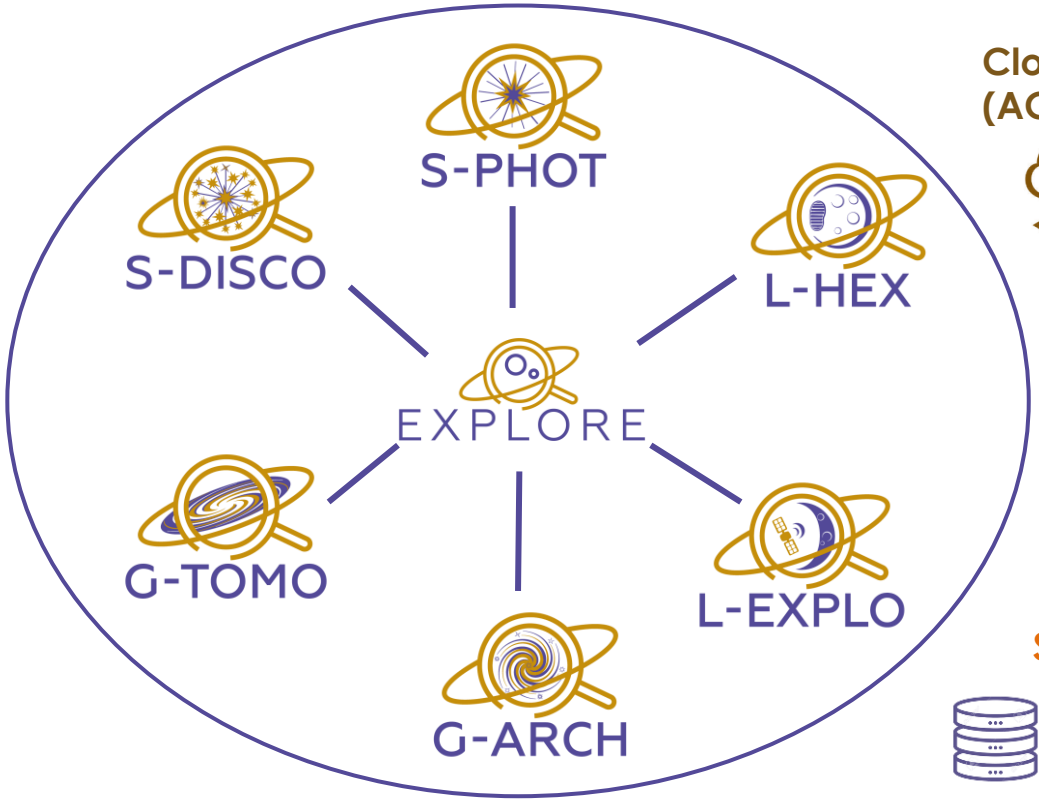
Introduction - EXPLORE

Lunar exploration and Gaia science applications powered with advanced visualization and machine learning features



Cloud Platforms (ACRI-ST, ESA, EU)

Space and ground-based data

FAIR+open data, code, and science

Science Archives

Enhanced products

G-Tomo

- Lead developer: ACRI-ST (FR)
- Contributing developers: Know-Center (AT), Tel-Aviv University (IL)
- Service: G-Tomo (short for Galactic Tomography)
- Purppose: Derive 3d distribution of interstellar gas & dust in the Galaxy and provide 1d, 2d, and 3 d exploration/visualisation tools
- Use case: i) User wants to know the interstellar extinction (cumulative or profile) towards a particular object of interest. ii) User want to know the distribution (2d, 3d) of an interstellar cloud or near an astrophysical object.
- Stand-alone tool. Core module is used by S-Phot to improve the fitting of SED for stars.

G-Tomo software/service developoment

- Software development on GitLab (to be tansfered to GitHub): https://gitlab.acri-cwa.fr/project-explore/sda-gtomo-mini
- Coding: Plotly/Dash framework (python)
- License: Apache 2.0
- Metadata: codemeta.json
- Documentation: manual and video tutorial
- Versioning: code tagged by project for major releases.

Software/service requirements

- Python3, Plotly/Dash, Docker
- Operating system: “python:3.8” base image
- Recommended to run with sufficient RAM (>2 Gb) and CPUs (>=2) (particularly for batch-mode for large number of targets)
- Tool/service is run as docker container, either locally or deployed on science platform (tested for EXPLORE, ESA Datalabs; Rosetta TBD)
- Environment variables (.env) used to define input(data)/output directories.

OSSR integration

- What is available?
  - →Source code
  - →Docker image

- What will be onboarded (source code, container, data)?
  - →Source code

- Complementary resources:
  - →Datasets are deposited separately (CDS/ViZieR and Zenodo)
  - →Manual deposited separately (Zenodo, CORDIS)

OSSR integration – EOSC User story

- From the data side (what data can be analysed and how)

→ Exploration and visualisation of the 3d dust and gas extinction cubes (different cubes at different extents and spatial resolutions available). Retrieve 1d line-of-sight profiles or cumulative extinction, 2d slices to show differential extinction, 3d volume rendering of sub-regions.

- From OSSR side (how to find data and easy use demos, tutorials, documentation, …)

→ G-Tomo is deployed on EXPLORE platform (https://explore-platform.eu). Video tutorial and user manual are in preparation.

Demonstration (10 min)

- How software is used?
- Outcome of the software?
- What should and can an EOSC user do with the software?