



Introduction to earthkit

Day 2

Yesterday



Today



What is Earthkit?

ECMWF Software



50 years of data-centric development

- Domain expertise
- Proven and trusted operationally

Open-Source Python



A global community and ecosystem

- Rapidly evolving
- Widely adopted and standardised



Domain expertise

Well-established tools,
algorithms and features

Usability and reach

Pythonic APIs that plug into
the wider ecosystem

Unified pipelines

Data-agnostic,
interoperable by design



earthkit.ecmwf.int

The earthkit ecosystem

Like LEGO™ Bricks



Format-agnostic Python
interface for geospatial data



Publication-quality weather
and climate visualisations



Tools for working with coordinates,
grids, interpolation and projections



Data transformations,
aggregations and analysis



Hydrological tools for river
networks, accumulations and
more



Tools for common meteorological
calculations & algorithms

... and some more

Why Earthkit?



Lowers barriers to entry

High-level APIs offer a shallow learning curve and greatly reduce boilerplate code.



Seamless data integration

Works with a wealth of data formats through a unified interface, eliminating format-specific headaches.



Free and open source

All source code on GitHub for open development and community contribution.



From research to operations

Designed for use by operational services and directly by researchers.



Modern architecture

Designed with Machine Learning / GPU / in-memory computations as first-class citizens.



Supported by NWP & climate centres

Supported and used operationally by weather and climate centres.

If you didn't do this yesterday

- JupyterHub/ATOS

- Go to <https://jupyterhub.ecmwf.int/>
- Choose **"Version : New"** on the config page



Memory
8 GB RAM
Session Duration
12 Hours
Project Account
eccg
Version
New

Check out the training notebooks:

SSH

```
git clone git@github.com:ecmwf-  
training/2026-earthkit-training.git
```

HTTP

```
git clone https://github.com/ecmwf-  
training/2026-earthkit-training.git
```

Setup environment

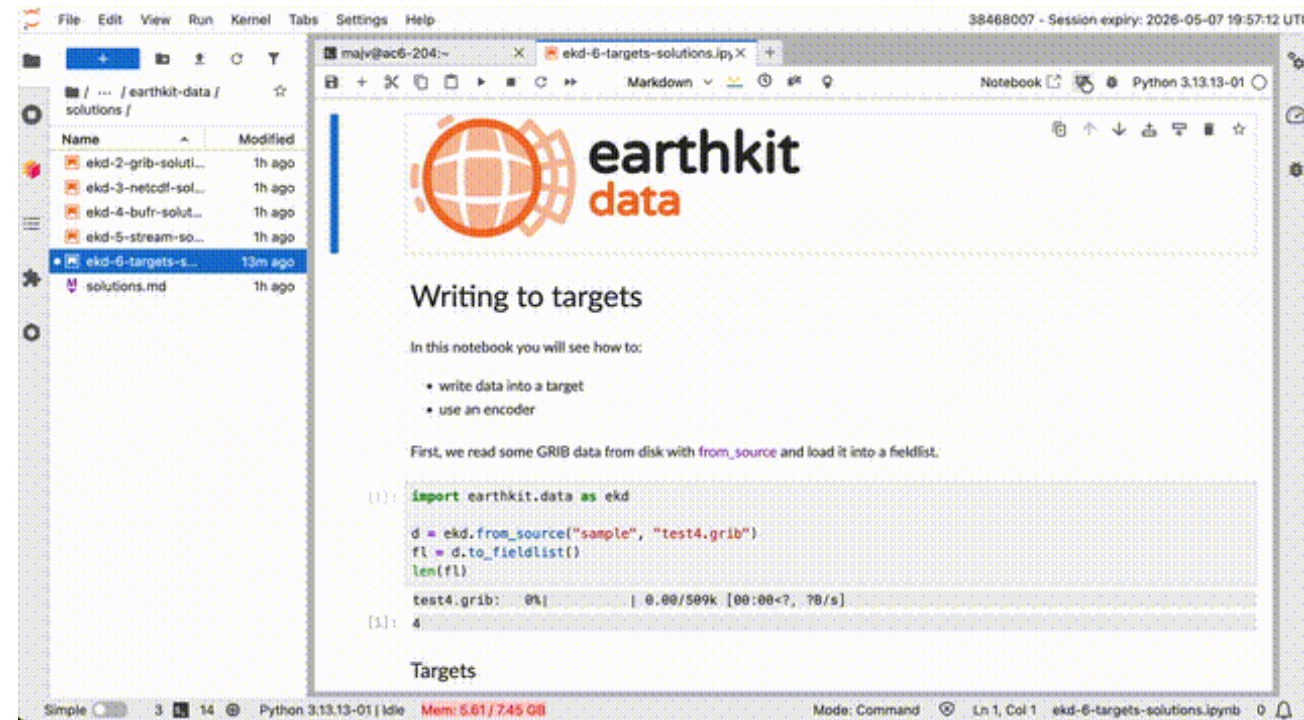
Macbook or other system that is not ATOS:

Create a virtualenv:

```
python3 -m venv ./earthkit-venv
source ./earthkit-venv/bin/activate
pip3 install -r ./requirements.txt
```

Launch jupyter:

```
jupyter lab
```



Make sure you use kernel **3.13.13-01**