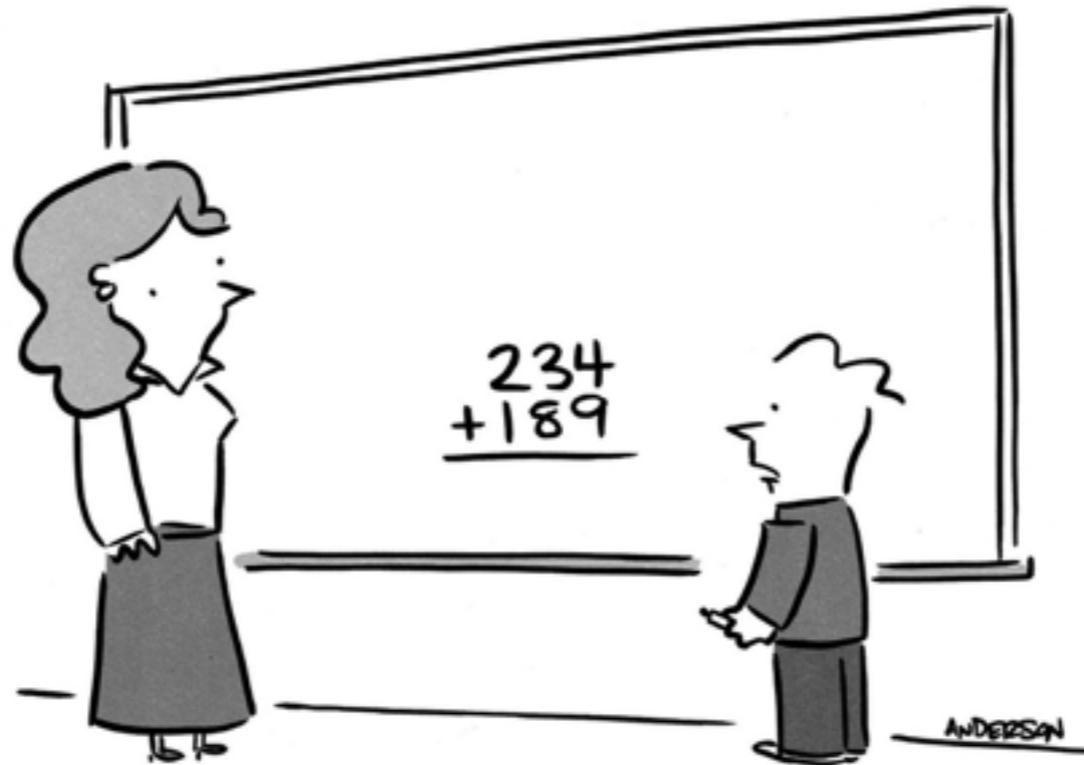


Integrated data analysis for precision spectroscopy

Guido Cupani, INAF–OATs
+ S. Cristiani, G. Calderone, V. D’Odorico et al.

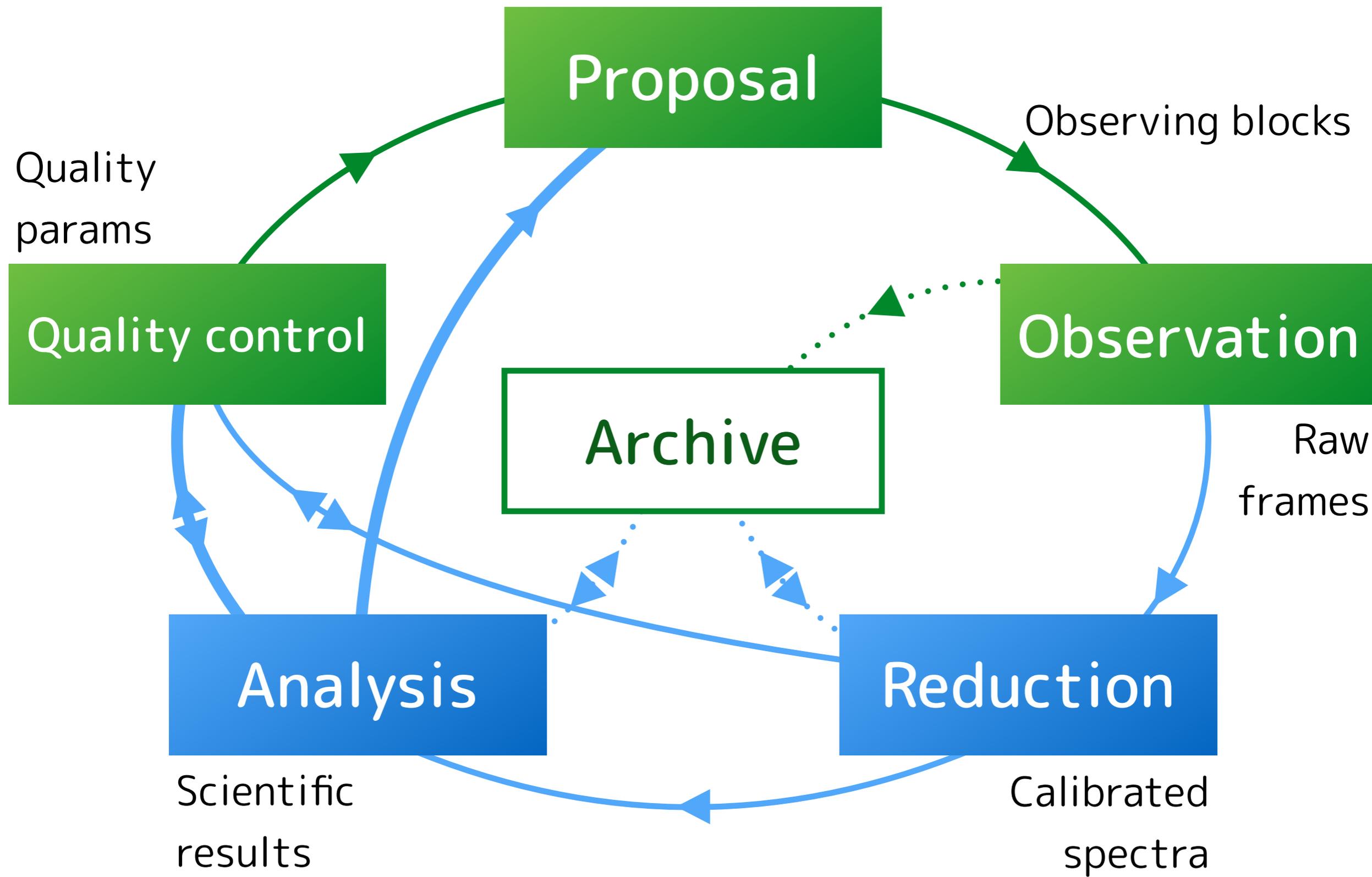
© MARK ANDERSON, WWW.ANDERSTOONS.COM

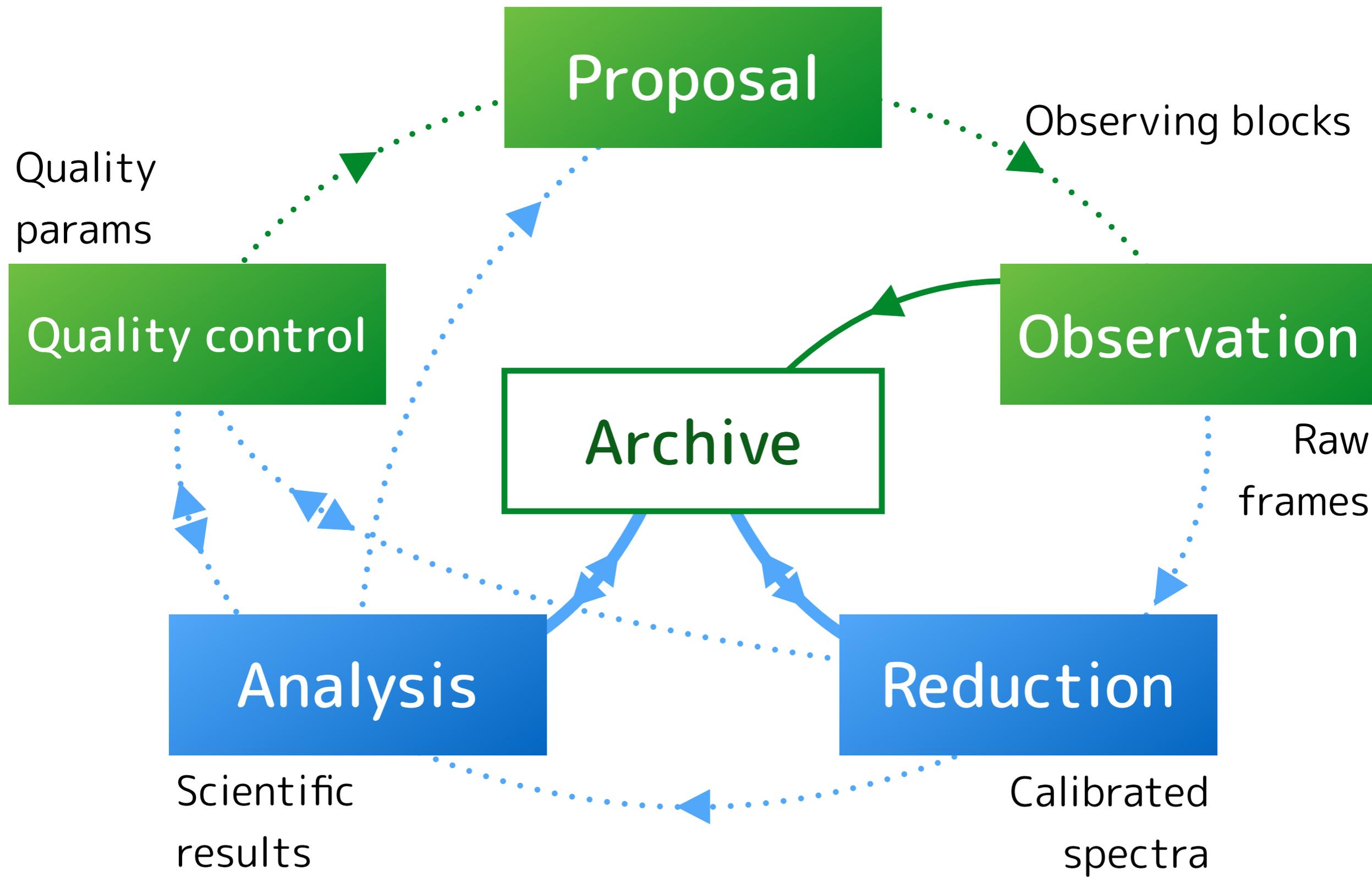


"Does this count as big data?"

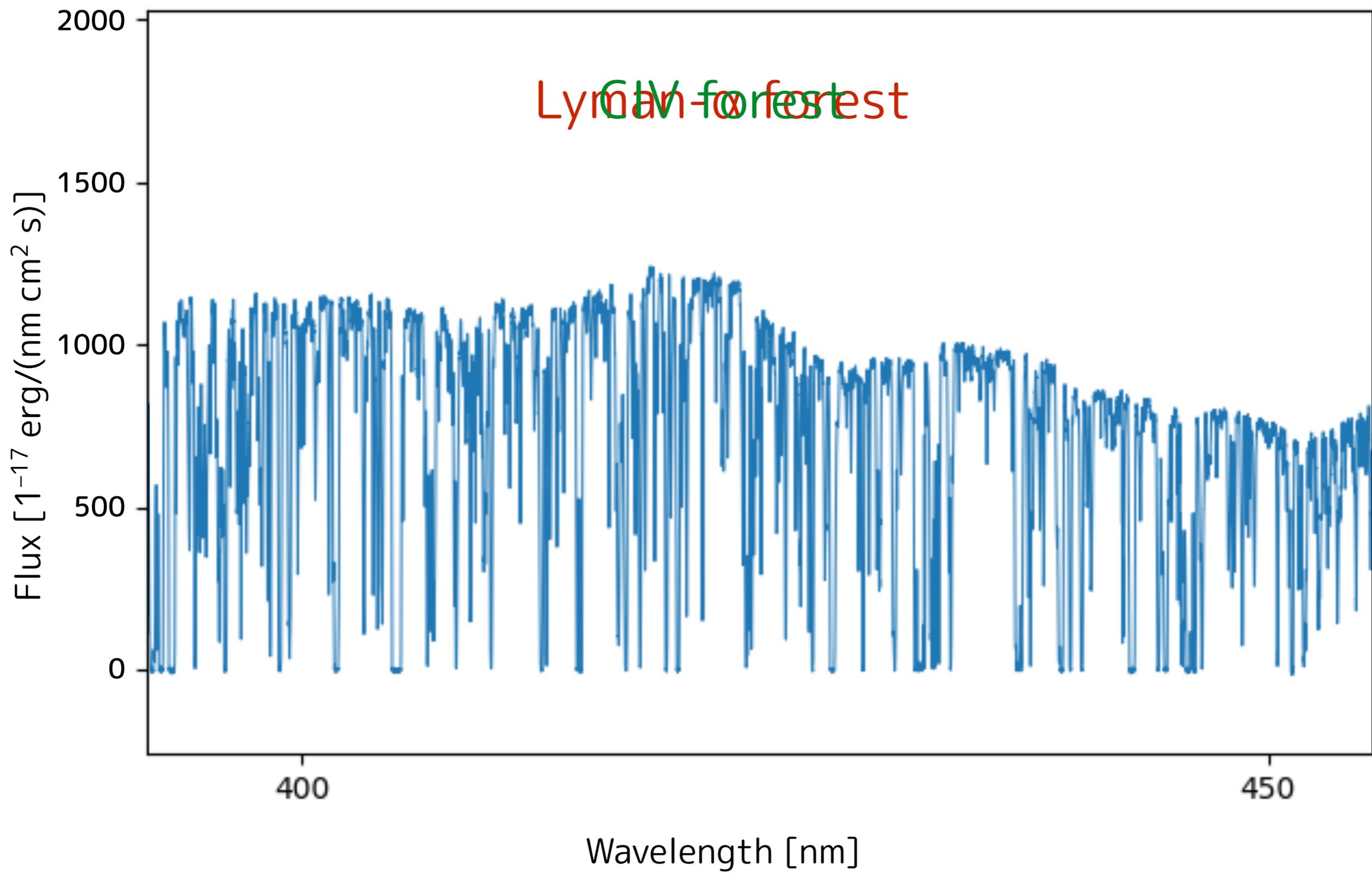
INAF Science Archives & the Big Data Challenge

INAF, 17–18 June 2019





HE 0940-1050







✓ Goal-oriented

✓ Big picture

✓ Trainable

✗ Not scalable

✗ Not reproducible

✗ No goals

✗ Workflow

✓ Trainable

✓ Scalable

✓ Reproducible

VLT-ESPRESSO DAS

QuickTime Player File Modifica Vista Finestra Aluto

espda_test

ESPRESSO DAS WORKFLOW – Quasar Branch (v. 0.9.6)

Search Components

Advanced ... Sources Cancel

All Ontologies and Folders

- Components
- Projects
- Statistics
- Demos
- Actors
- Dataturbine
- Directors
- Esoreflex
- Job
- Opendap
- Outreach
- R

0 results found.

DIRECTORIES

Input directories:

- ROOT_DATA_DIR: /Users/guido/Work/sandbox/data_wkf
- RAW_DATA_DIR: \$ROOT_DATA_DIR/reflex_input/espda
- CALIB_DATA_DIR: /Users/guido/Work/esopipe/install/calib/espda-0.9.6

Working Directories:

- BOOKKEEPING_DIR: \$ROOT_DATA_DIR/reflex_book_keeping/espda
- LOGS_DIR: \$ROOT_DATA_DIR/reflex_logs/espda
- TMP_PRODUCTS_DIR: \$ROOT_DATA_DIR/reflex_tmp_products/espda
- BOOKKEEPING_DB: \$BOOKKEEPING_DIR/bookkeeping.db

Output directories:

- END_PRODUCTS_DIR: \$ROOT_DATA_DIR/reflex_end_products/espda/

PARAMETERS

NE: Parameters in yellow boxes are temporary.

General parameters:

- RecipeFailureMode: Ask In case of recipe failure: 'Continue', 'Stop', 'Ask'
- EraseDirs: false Erase working directories: 'true' or 'false'
- FITS_VIEWER: fv Fits viewer used for inspection: 'fv'
- ProductExplorerMode: Triggered Show Product Explorer window: 'Triggered'
- SelectDatasetMethod: Interactive Dataset selection: 'All', 'New', 'Reduced', 'Failed', 'Interactive'

Instrument Parameters:

- INSTR: UVES Instrument (UVES/XSH/HARPS)
- WAVEL_MIN: 480 Minimum wavelength
- WAVEL_MAX: 600 Maximum wavelength

Auxiliary parameters (do not change):

- GLOBAL_TIMESTAMP: 2017-09-08T17:31:17
- END_PRODUCTS_SUBDIR: HE0940-1050_UVES_HR_2012-04-01T01:14.03_564_WAVEL/2017-0...
- ESORexArgs: --suppress-prefix=TRUE
- N_SELECTED_DATASETS: 1
- N_SELECTED_SYSTEMS: 1
- CURRENT_LINE: 1

Resolution Parameters:

- VEL_STEP_UVES: 3.0 VEL_STEP_XSH: 1.6 VEL_STEP_HARPS: 1.0 GLOB_VEL_STEP: 3.0
- RESOL_UVES: 45000 RESOL_XSH: 6200 RESOL_HARPS: 115000 GLOB_RESOL: 45000
- LINE_VEL_STEP: 10

CASCADE

Data Organisation and Selection

DDF Director

Notice:
The general concepts of Reflex are described in A&A 559, A96. Please credit this article if you use Reflex for your research. Workflow tutorial, demo data, and user manuals are available on http://www.eso.org/sci/software/pipelines/#reflex_workflows.

Instructions:

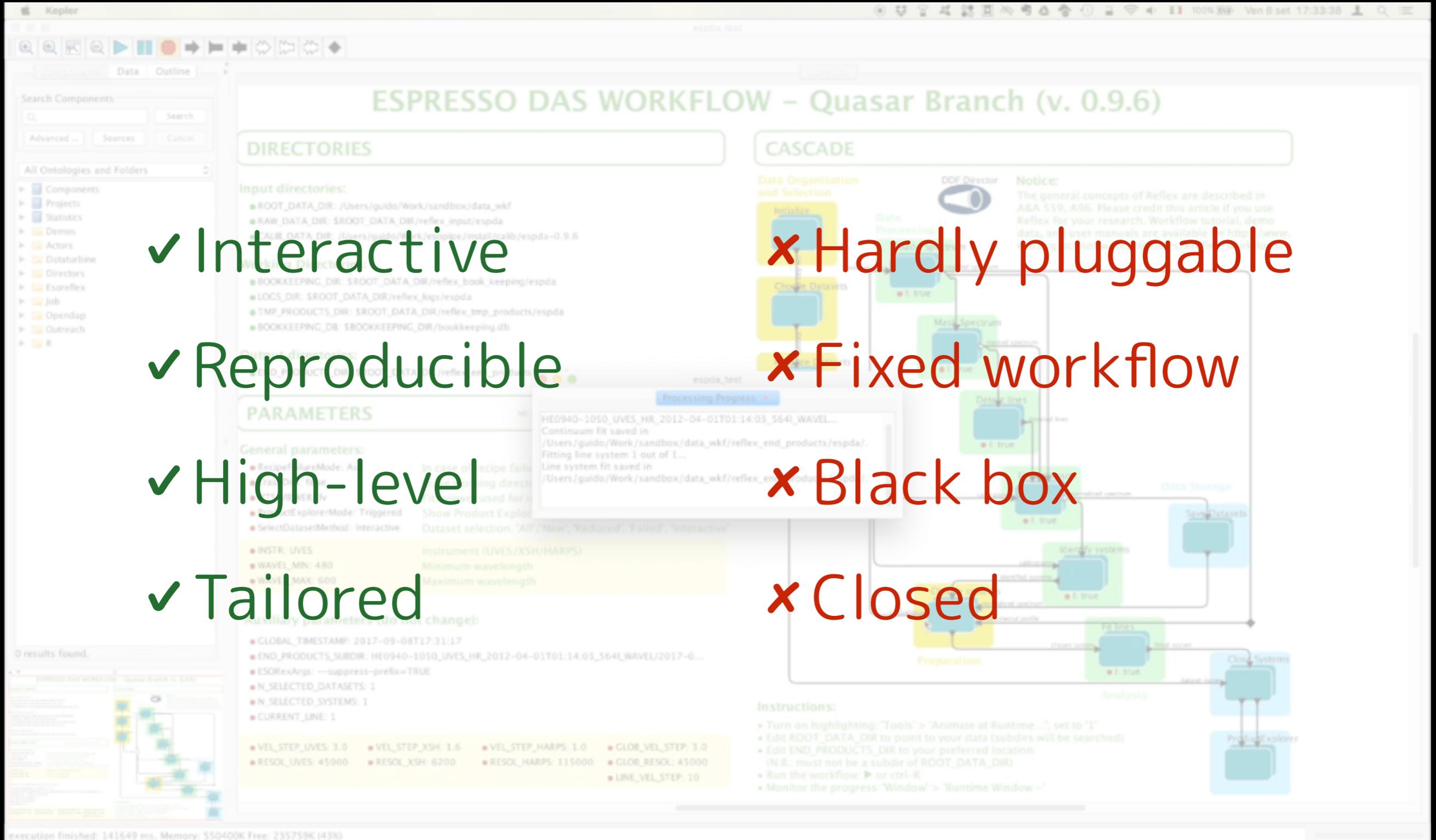
- Turn on highlighting: 'Tools' > 'Animate at Runtime...', set to '1'
- Edit ROOT_DATA_DIR to point to your data (subdirs will be searched)
- Edit END_PRODUCTS_DIR to your preferred location (N.B.: must not be a subdir of ROOT_DATA_DIR)
- Run the workflow: ▶ or ctrl-R
- Monitor the progress: 'Window' > 'Runtime Window -'

execution finished: 141649 ms. Memory: 550400K Free: 235759K (43%)

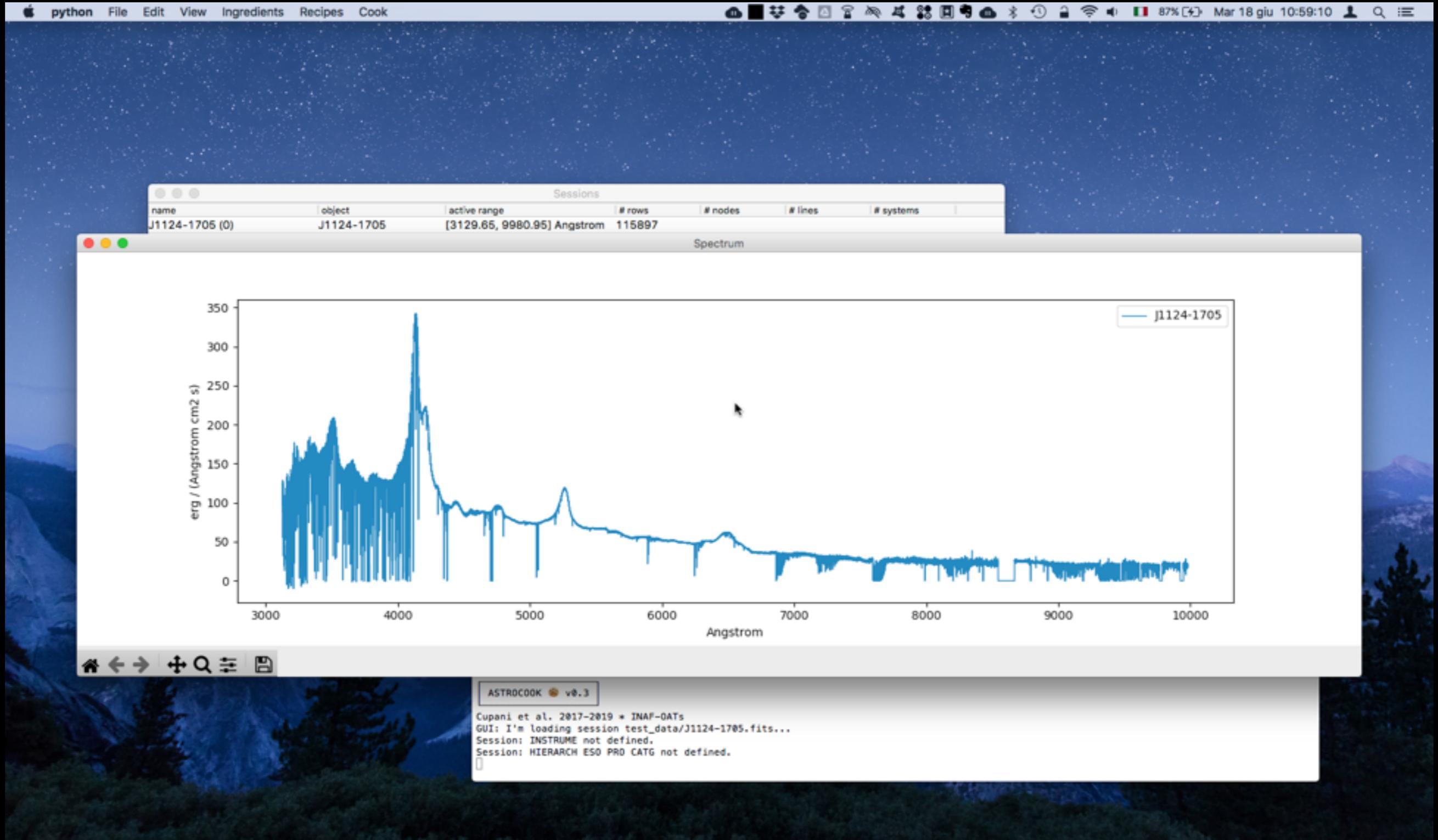
VLT-ESPRESSO DAS

- ✓ Interactive
- ✓ Reproducible
- ✓ High-level
- ✓ Tailored

- ✗ Hardly pluggable
- ✗ Fixed workflow
- ✗ Black box
- ✗ Closed



ASTROCOOK



ASTROCOOK

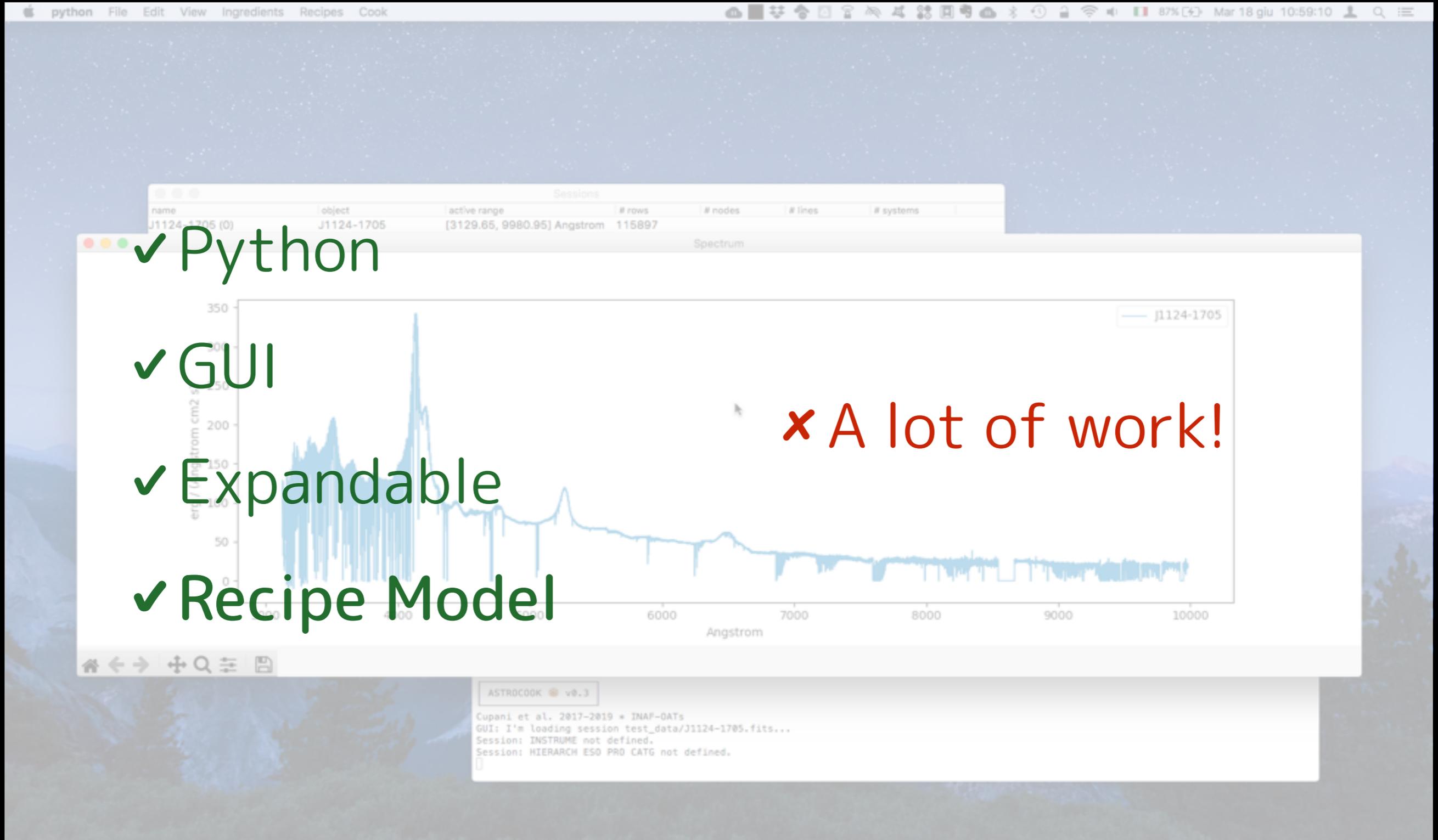
✓ Python

✓ GUI

✓ Expandable

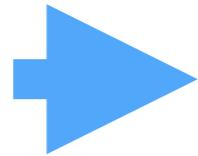
✓ Recipe Model

✗ A lot of work!

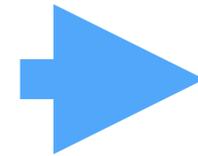


Meta-procedure

Data

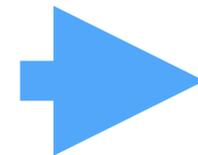
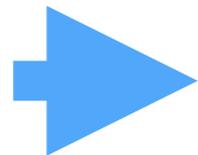


Procedure
[your algorithm
goes here]



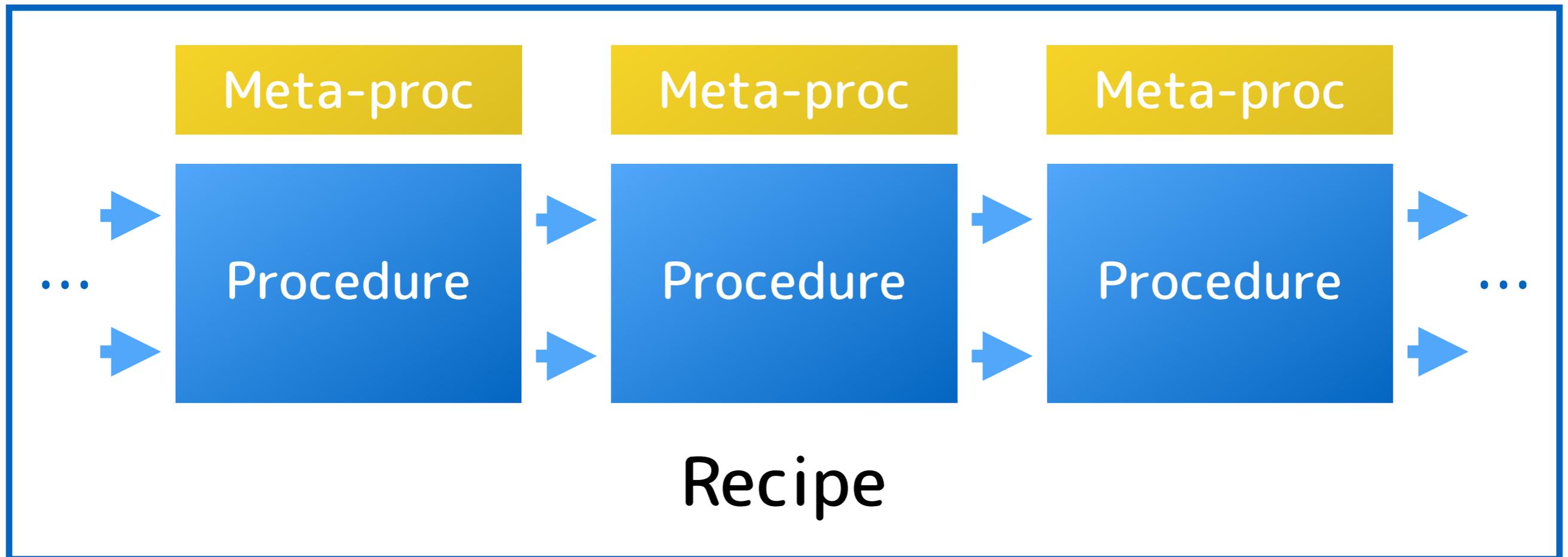
Data

Parameters



Parameters

Meta-recipe



Meta-recipe

Meta-recipe

Meta-recipe

Recipe

Recipe

Recipe

...

Meta-proc

Meta-proc

Meta-proc

Meta-proc

Procedure

Procedure

Procedure

Procedure

...

Self-sustaining ecosystem

Meta-recipe

Meta-recipe

Meta-recipe

Recipe

Recipe

Recipe

...

Meta-proc

Meta-proc

Meta-proc

Meta-proc

Procedure

Procedure

Procedure

Procedure

...

Self-sustaining ecosystem

