EDPS GUI: A Modern Graphical Frontend for the ESO Data Processing System

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The ESO Data Processing System (EDPS) is a framework designed to execute data reduction pipelines for ESO's optical and infrared instruments at the La Silla Paranal Observatory and, in the future, the Extremely Large Telescope (ELT).

EDPS supports a wide range of use cases, from real-time data quality control at the telescope to interactive use by individual scientists. It has been used operationally for quality control at Paranal for over three years and was made publicly available at the end of 2023. It has proven to be robust enough for large-scale processing yet flexible enough to handle the diversity of data produced by ESO's La Silla Paranal Observatory.

Each ESO pipeline comprises a series of standalone programs known as *recipes*, each of which is tailored to process a specific type of input data. These recipes usually require various auxiliary files, such as calibration data. EDPS automates the selection of the correct input files and orchestrates the sequential – or, when appropriate, parallel –execution of recipes according to a defined workflow, enabling fully automated data processing.

We present the first release of the **EDPS GUI**, a web-based Graphical User Interface for EDPS designed for scientific and interactive use. It is built with Panel, an open-source Python web application framework that streamlines the development of robust tools, dashboards, and complex applications. Panel is part of the Holoviz ecosystem, which provides high-level tools for simplifying data visualization in Python.

The EDPS GUI is designed to replace the current EsoReflex environment. It offers a modern, flexible, and user-friendly interface for pipeline execution, enabling users to configure and optimize the reduction cascade. EDPS integrates data-specific quality control plots, as well as a new generation of interactive plots implemented with HoloViews/HvPlot and optimized for web usage.
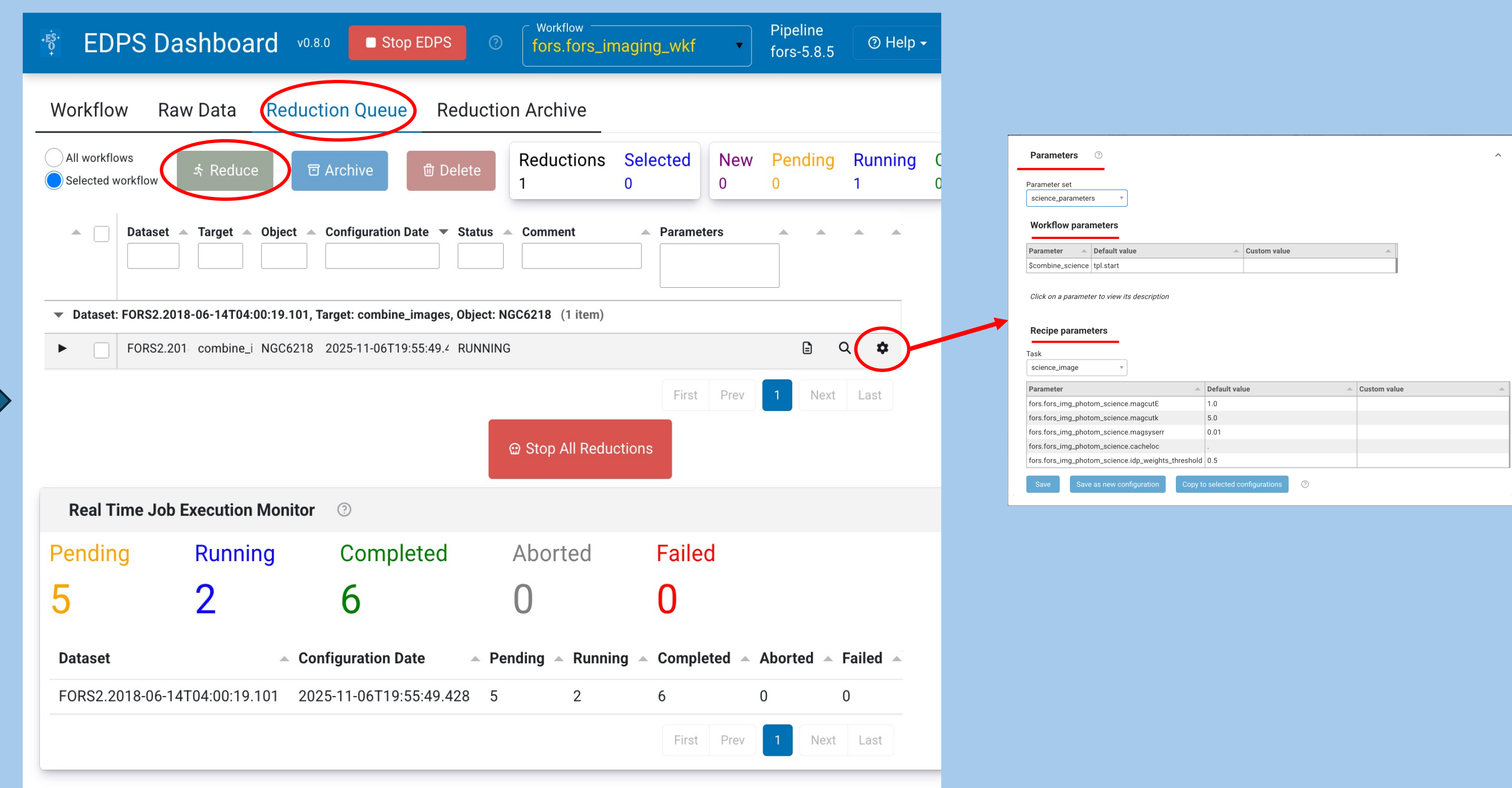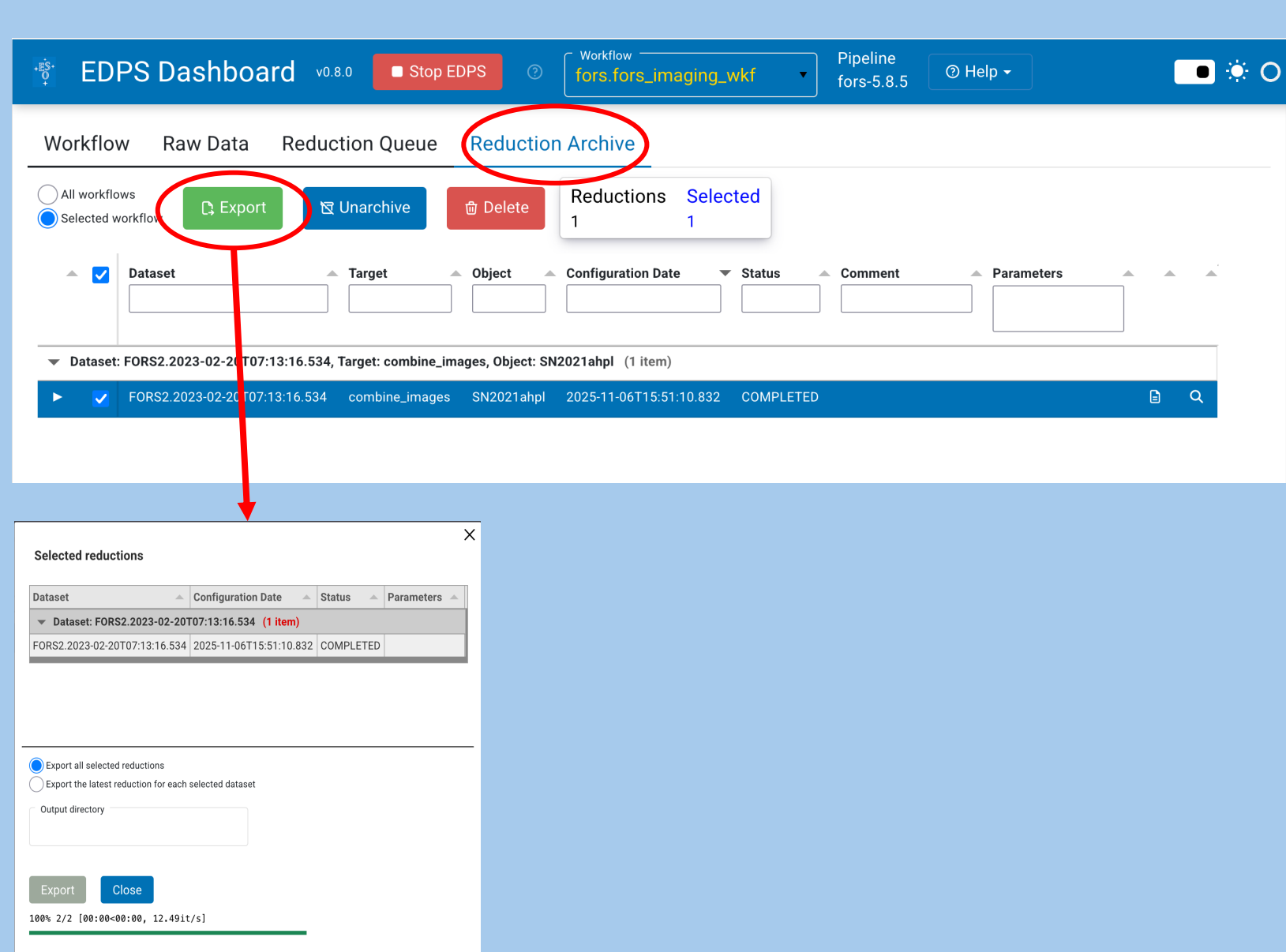
1. Select workflow
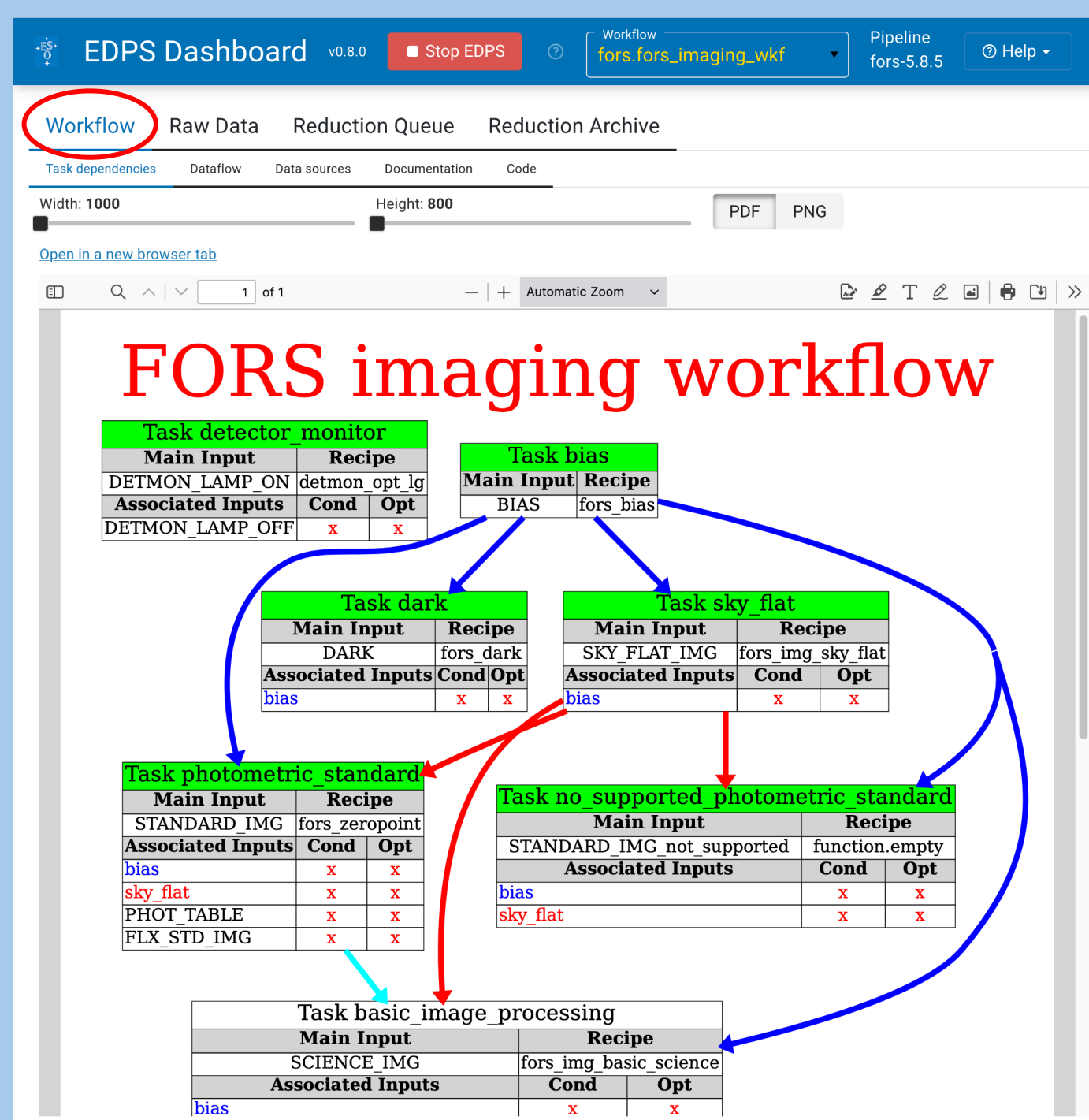
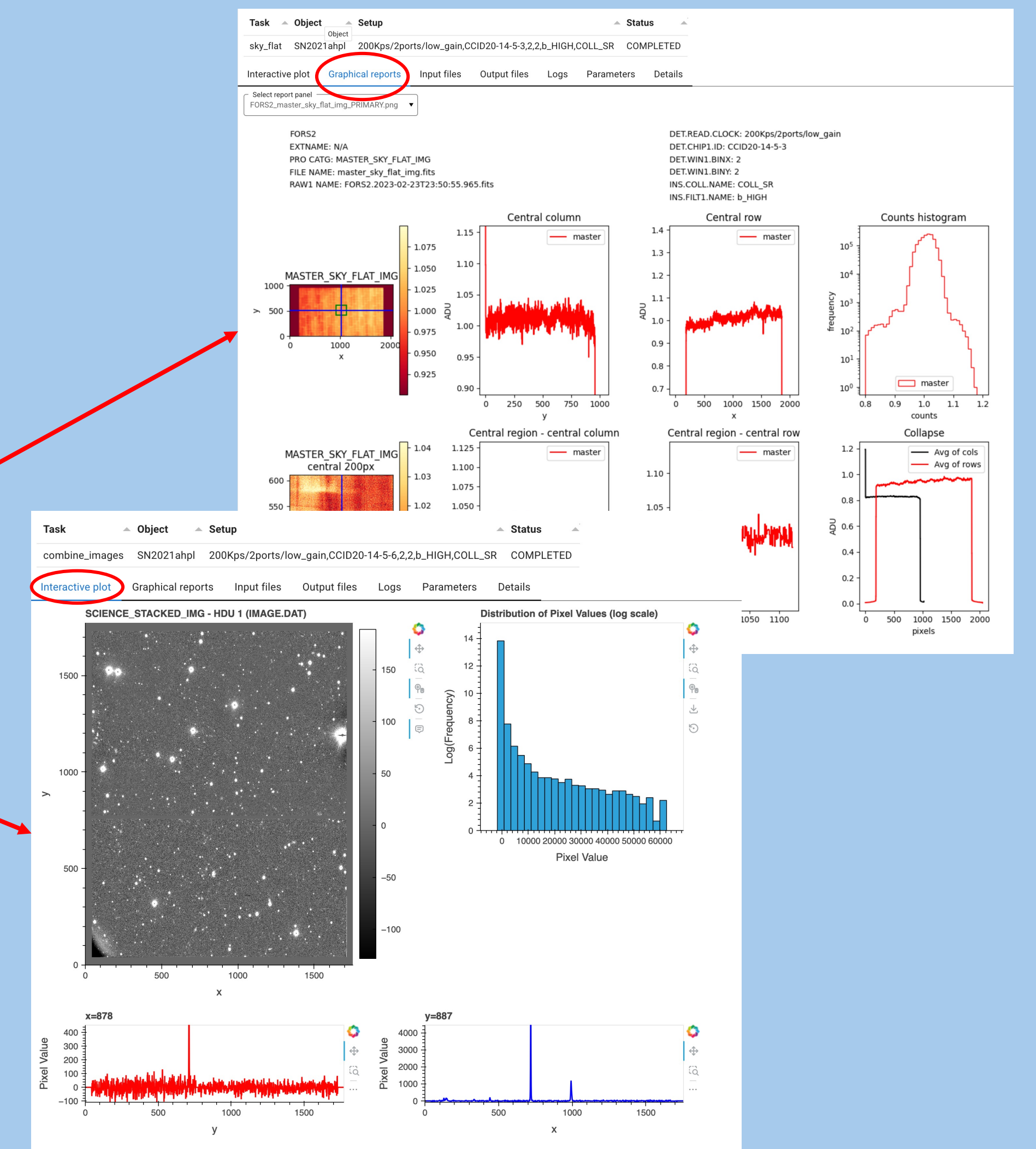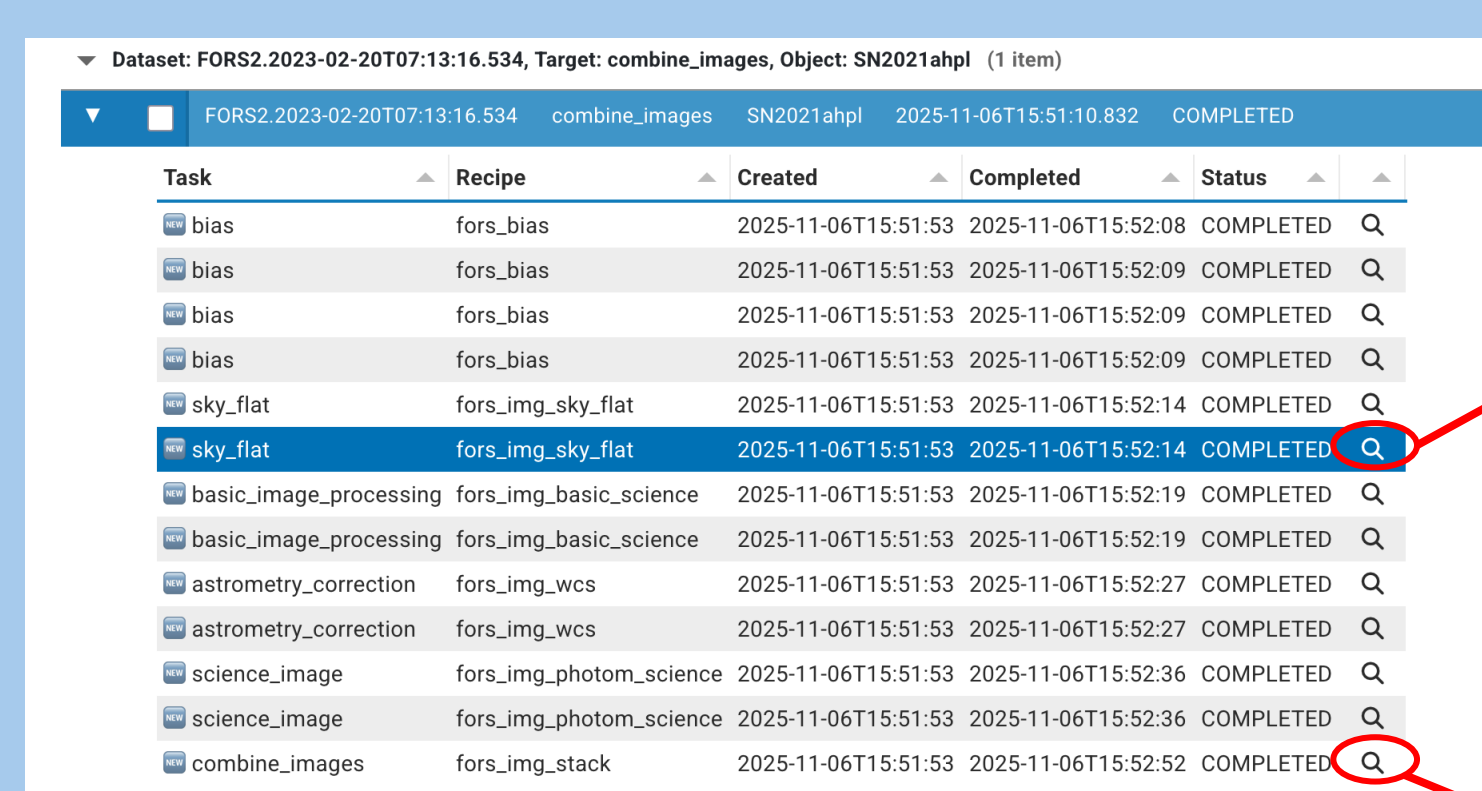2. Select input data, create datasets, and submit them to the reduction queue
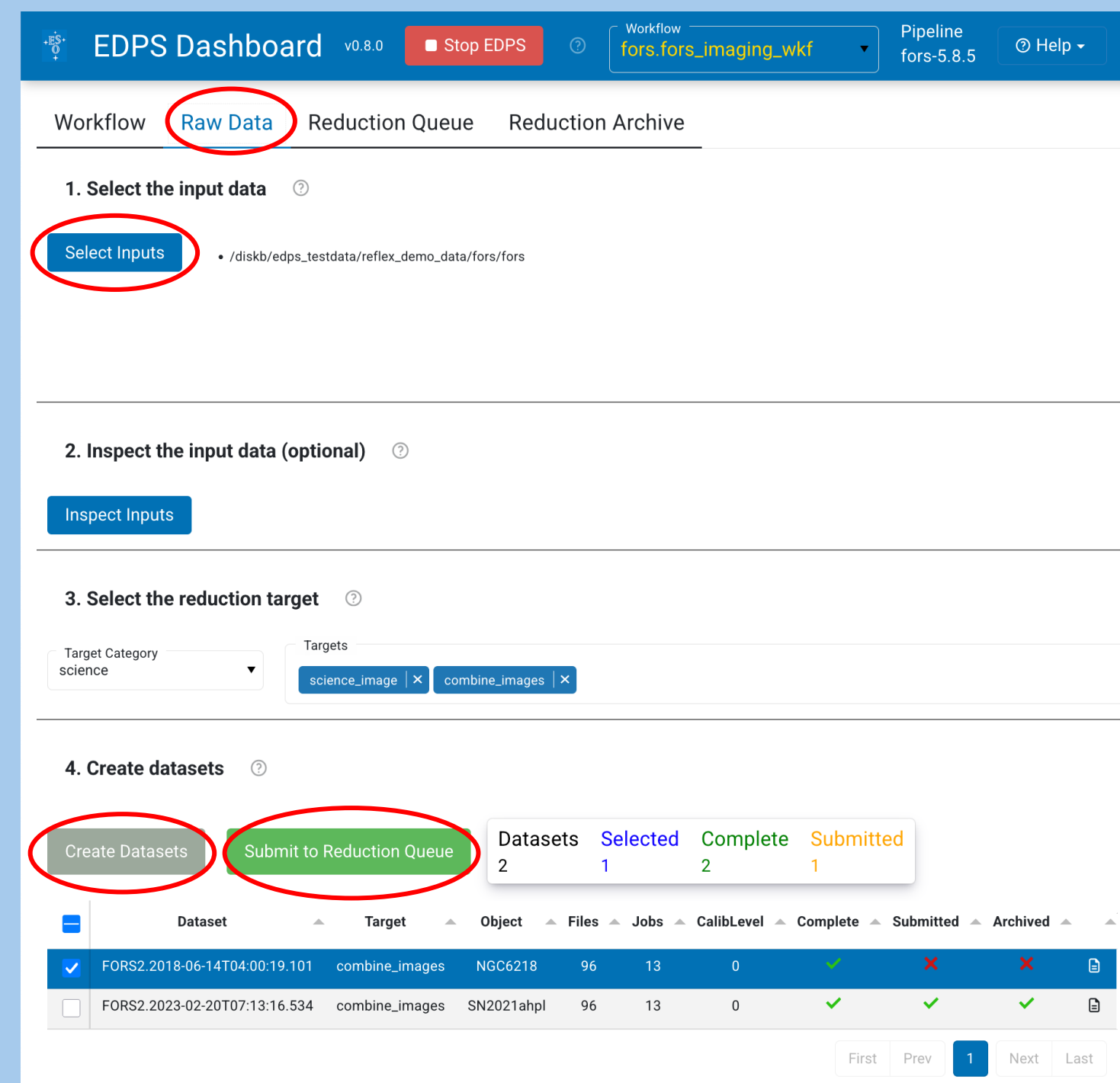
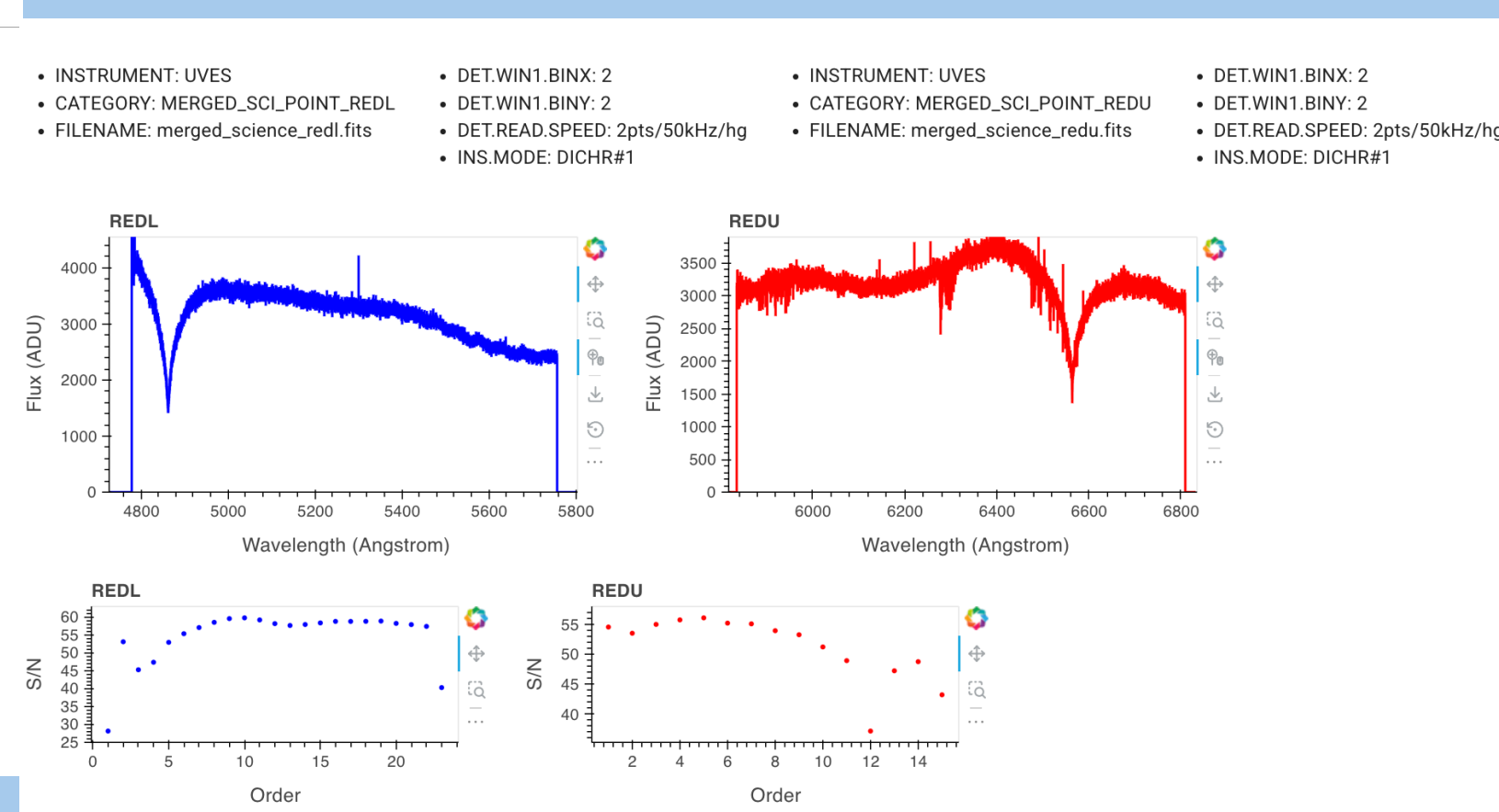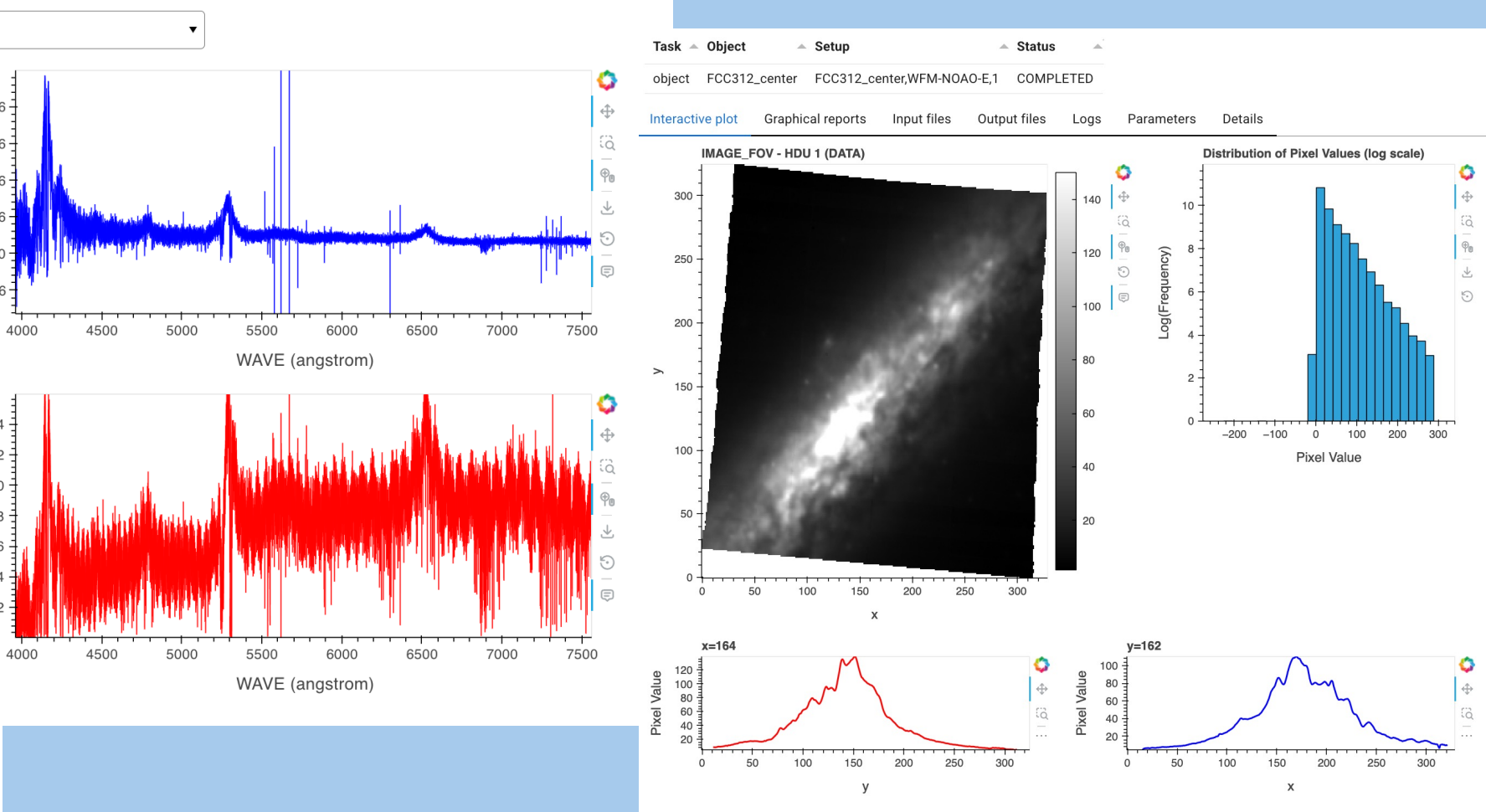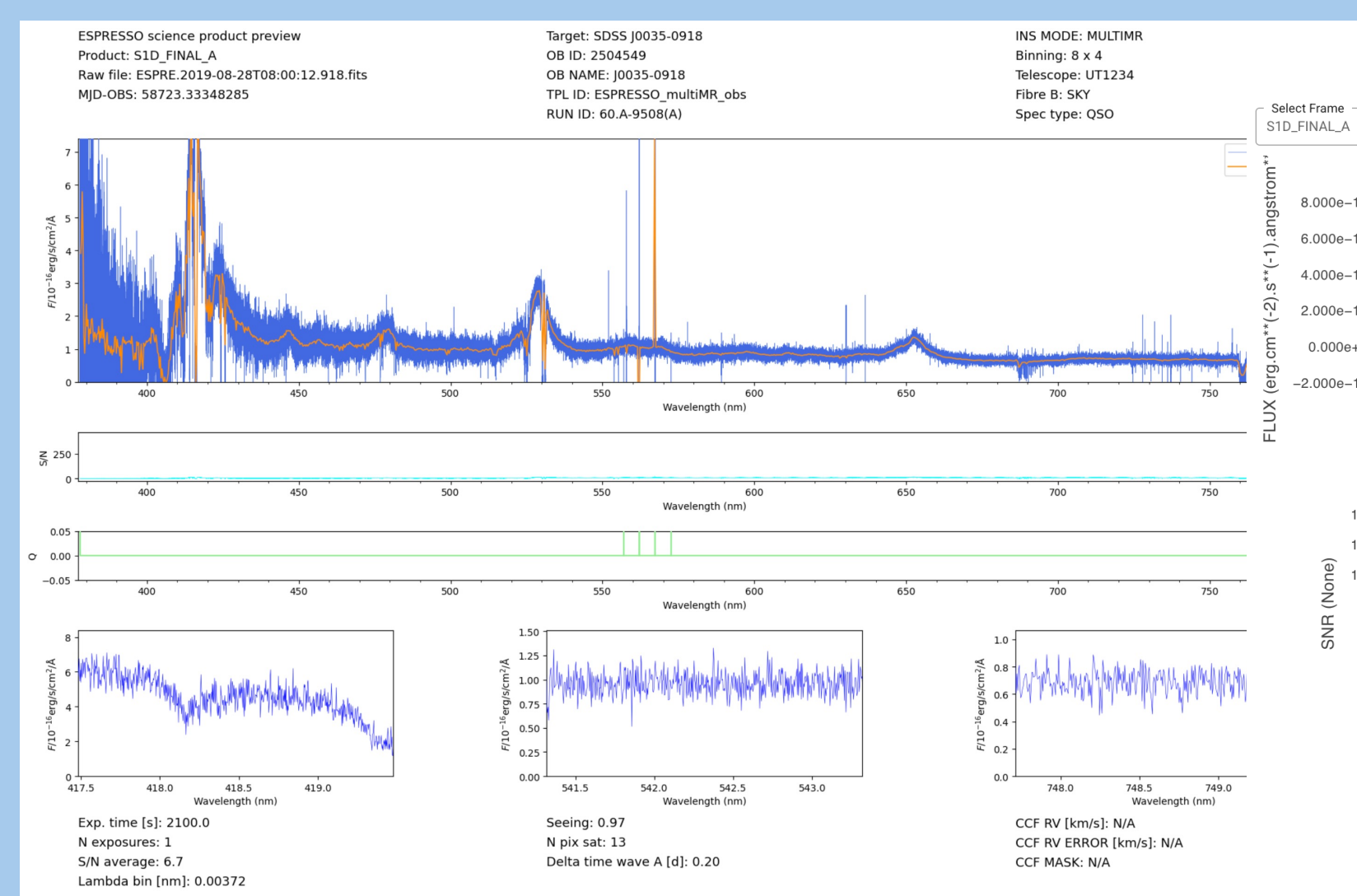3. Edit the configuration and reduce the data

5. Export the reduced data

4. Inspect the results; optionally, change the parameters and resubmit

Many instrument-specific data visualizers are already available — with more to come!
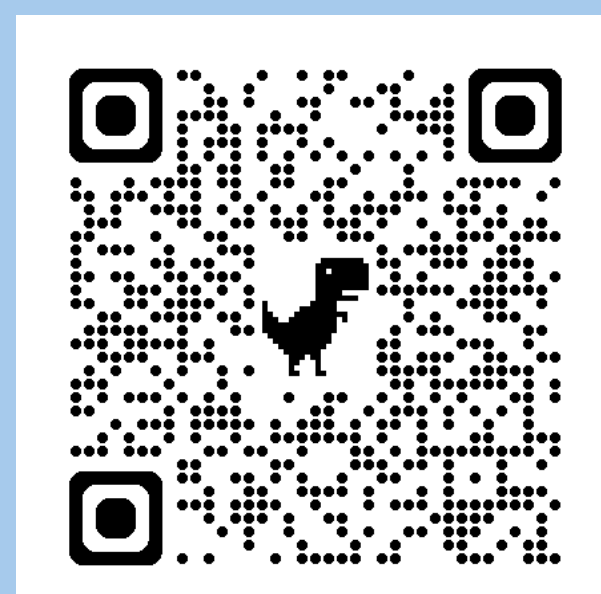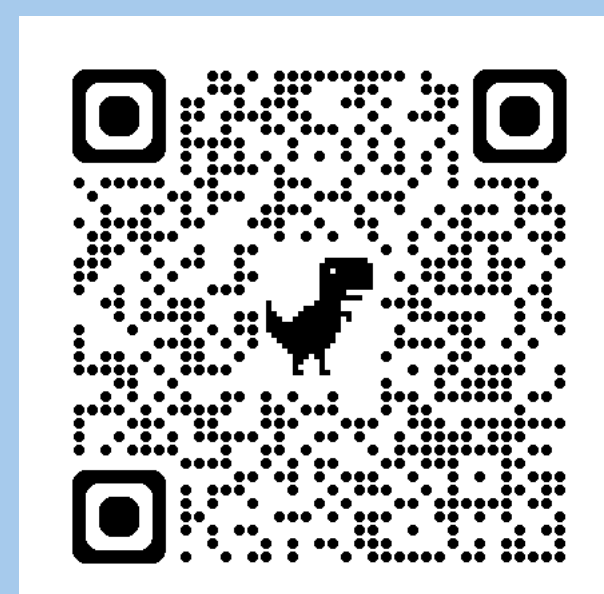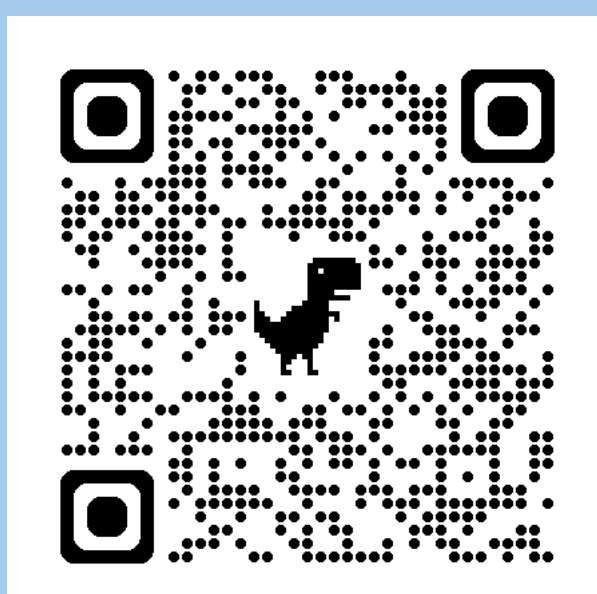
EDPS Homepage

EDPS Documentation

Freudling, Zampieri, Coccato et al 2024, A&A 681, A93.

Live demo

Software stack

Join us at the ESO demo table for a live demonstration of EDPS in action!