SDA and DAWN
Scientific Data Analysis

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Scientific Computing
Diamond Light Source

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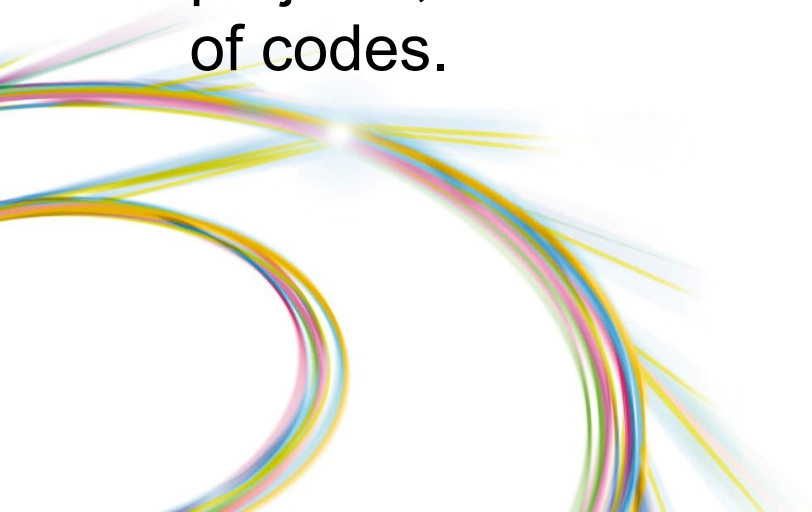
DAWN – General Project

- Combination of several elements in the eclipse framework
  - DAWB/Passerelle workflow tools
  - Fable/SDA Plotting/File loading
  - SDA Python/Jython
- This can be used as the underlying framework for many projects, with the ambition of reducing reimplementation of codes.



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SDA-Core

- Core functionality for dealing with datasets in Java
  - NDArray functionality which maps to a numpy ndarray
  - File Loading and saving functionality.
  - Maths, signal processing, fitting, Plotting
- Python/Jython modules
  - scisoftpy module, python/jython agnostic interface to all functionality, Based on numpy/scipy
  - XML-RPC and RMI serialization for all main dataset types allow communication between Java and Python ndarrays.
- Several generic GUI components :

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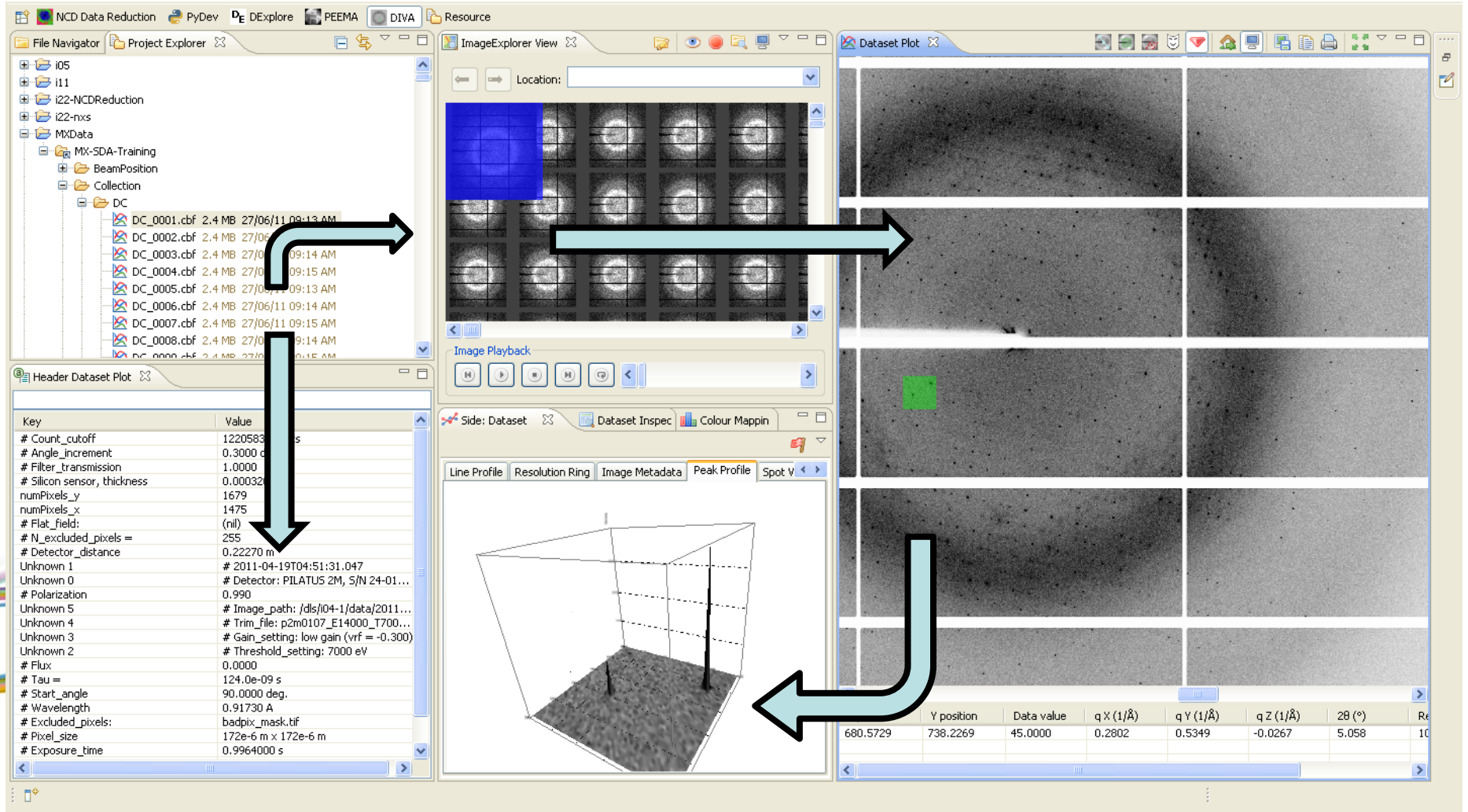
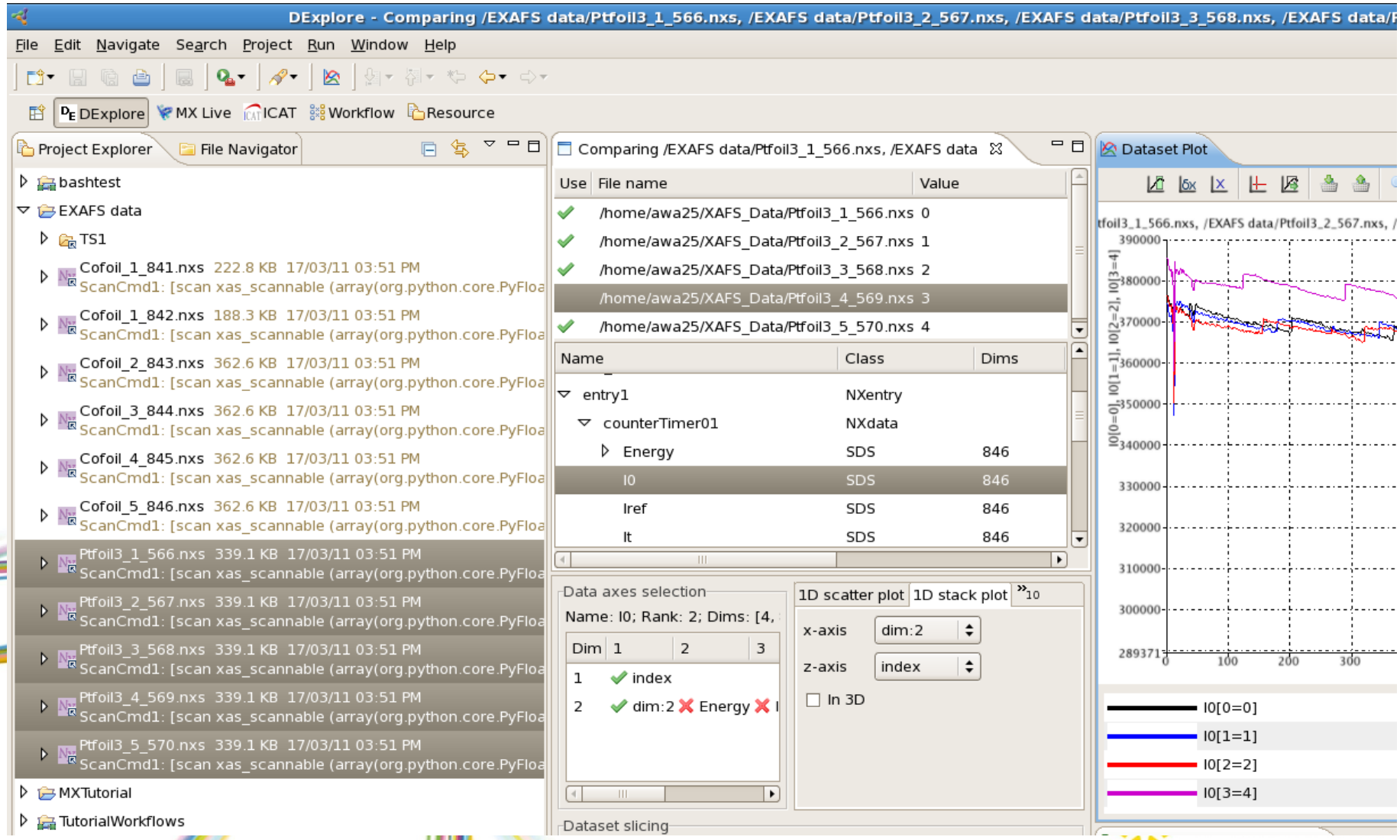
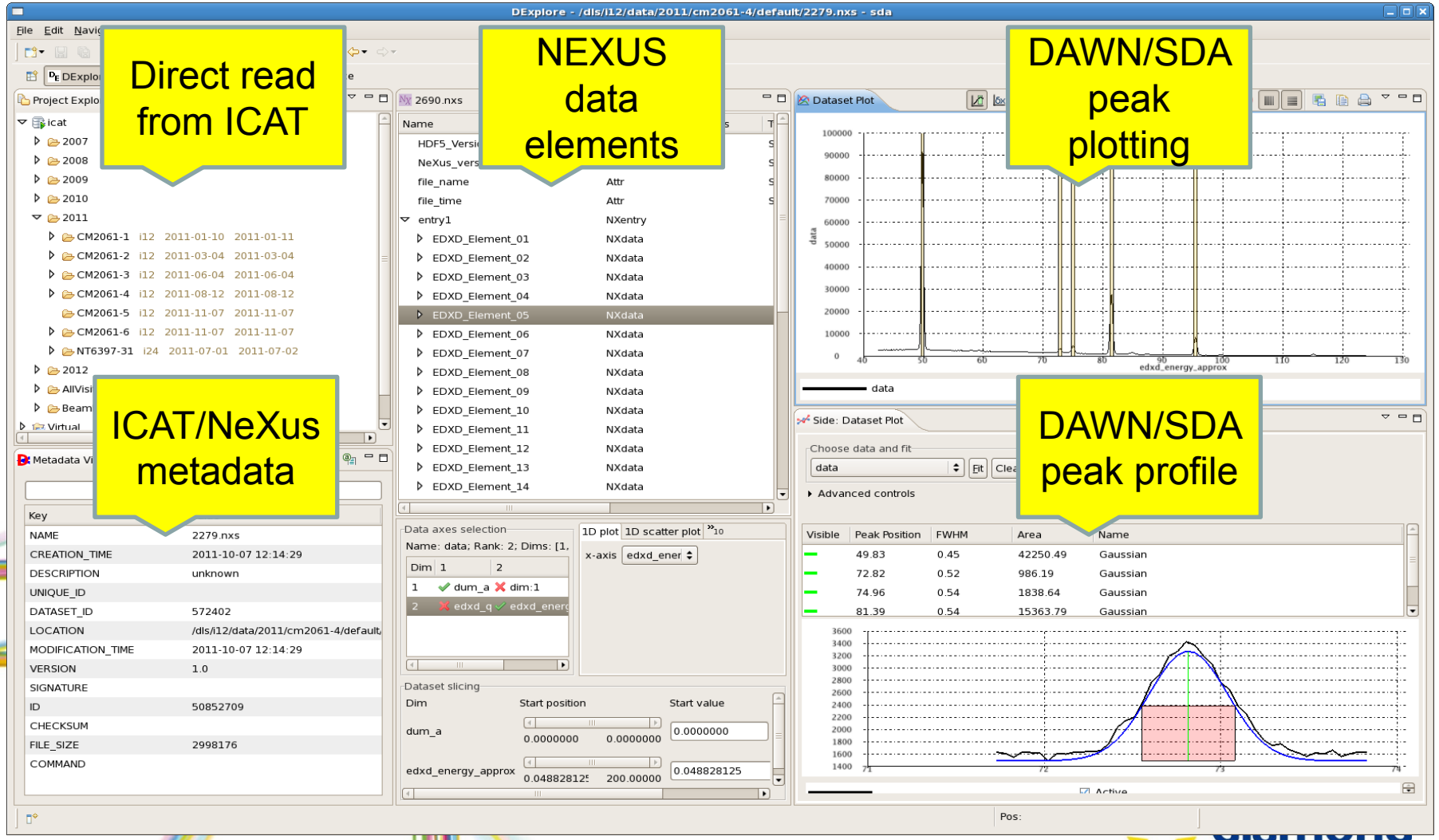
Eclipse/RCP (Rich Client Platform)



Generic File Exploring

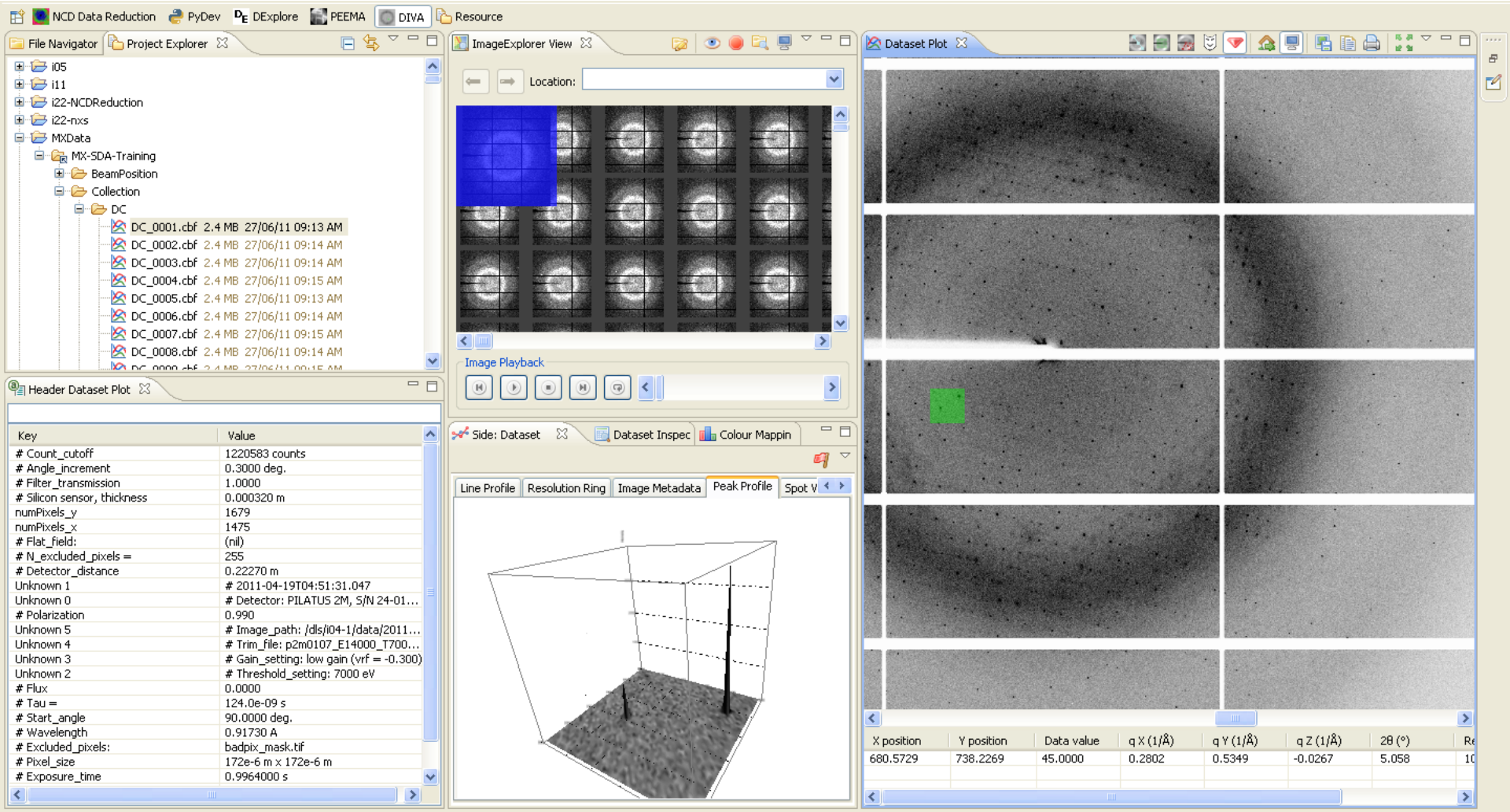


Generic Tools: ICAT Explorer

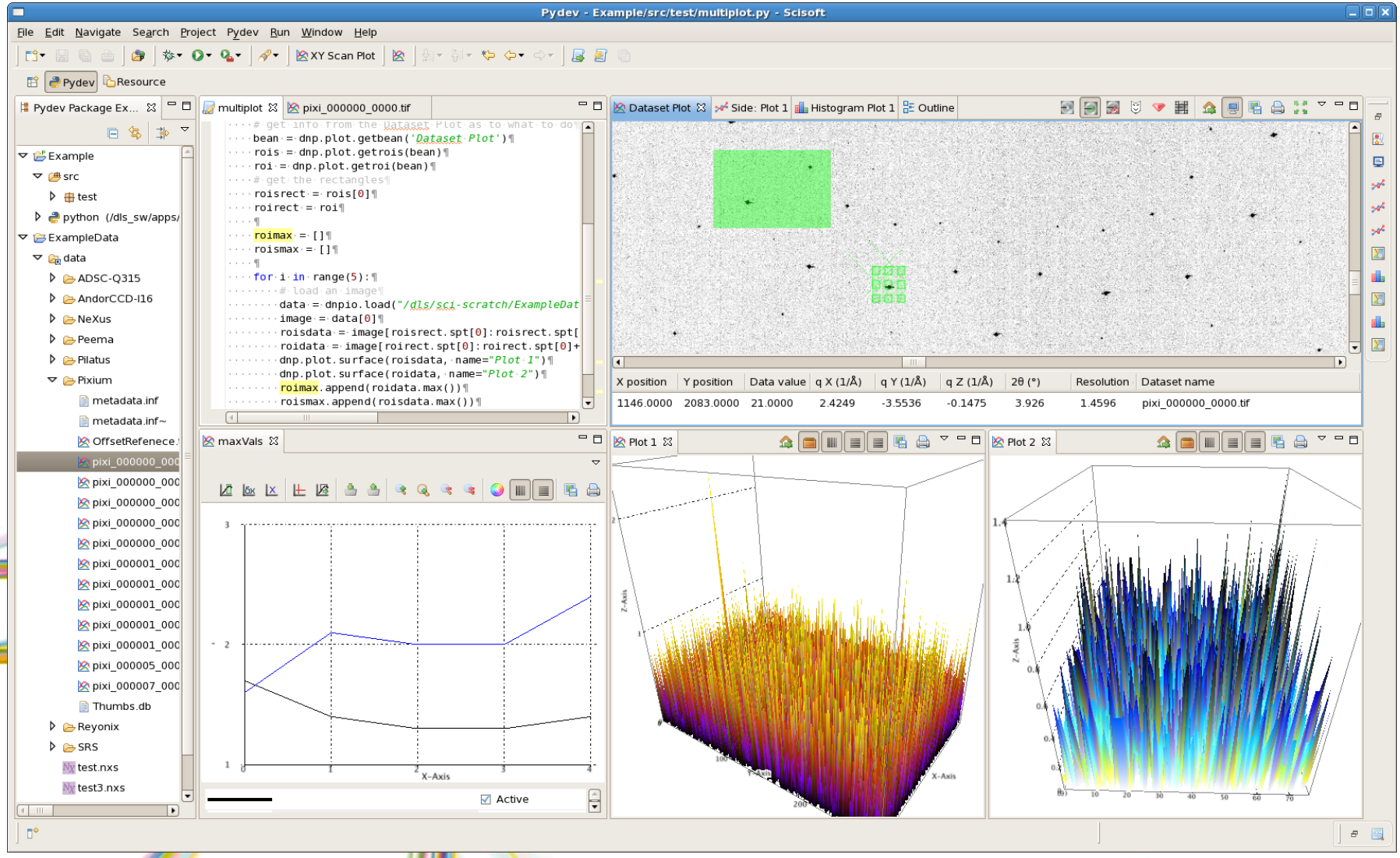


Generic Tools: DIVA

- ADXV capabilities.



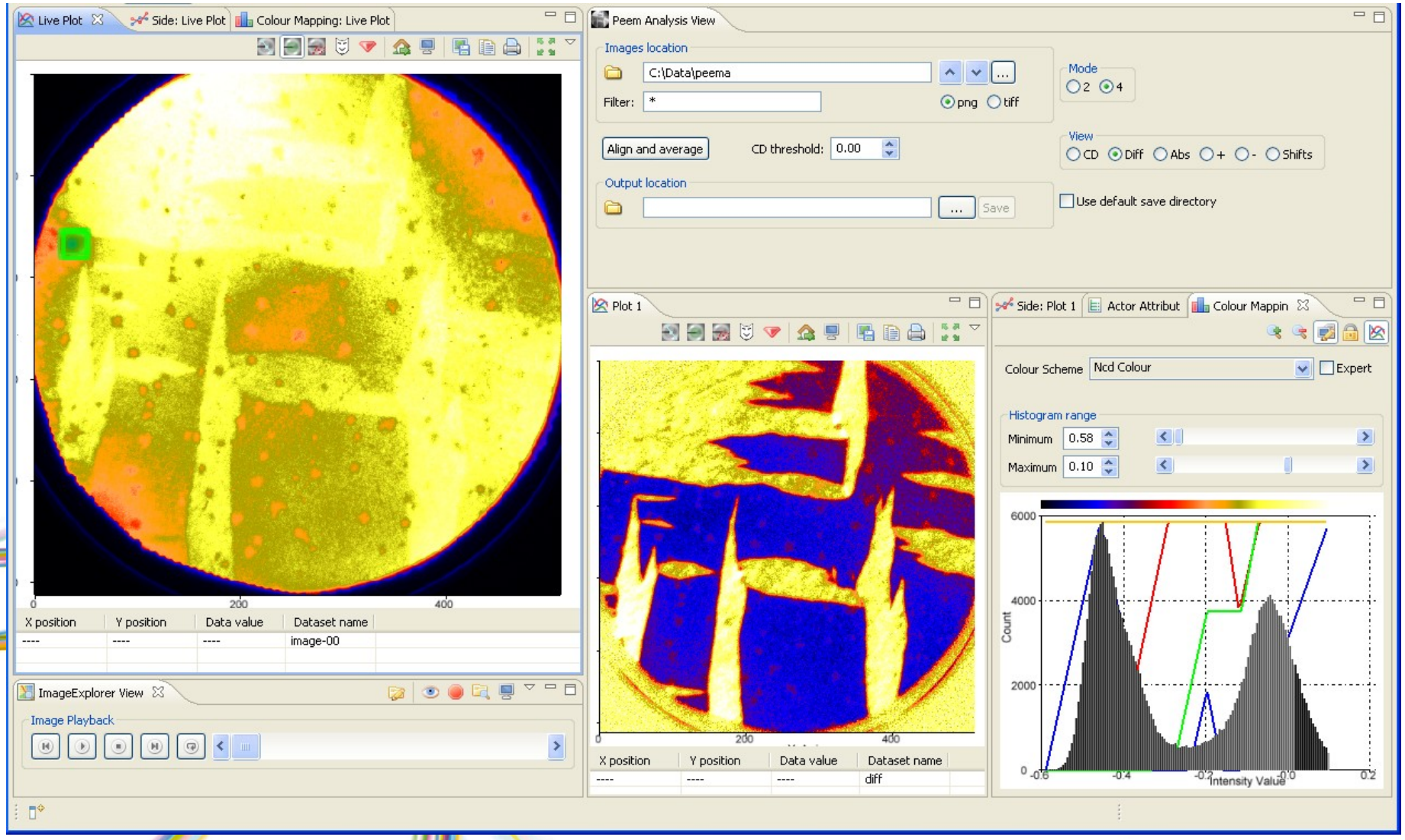
Python and PyDev



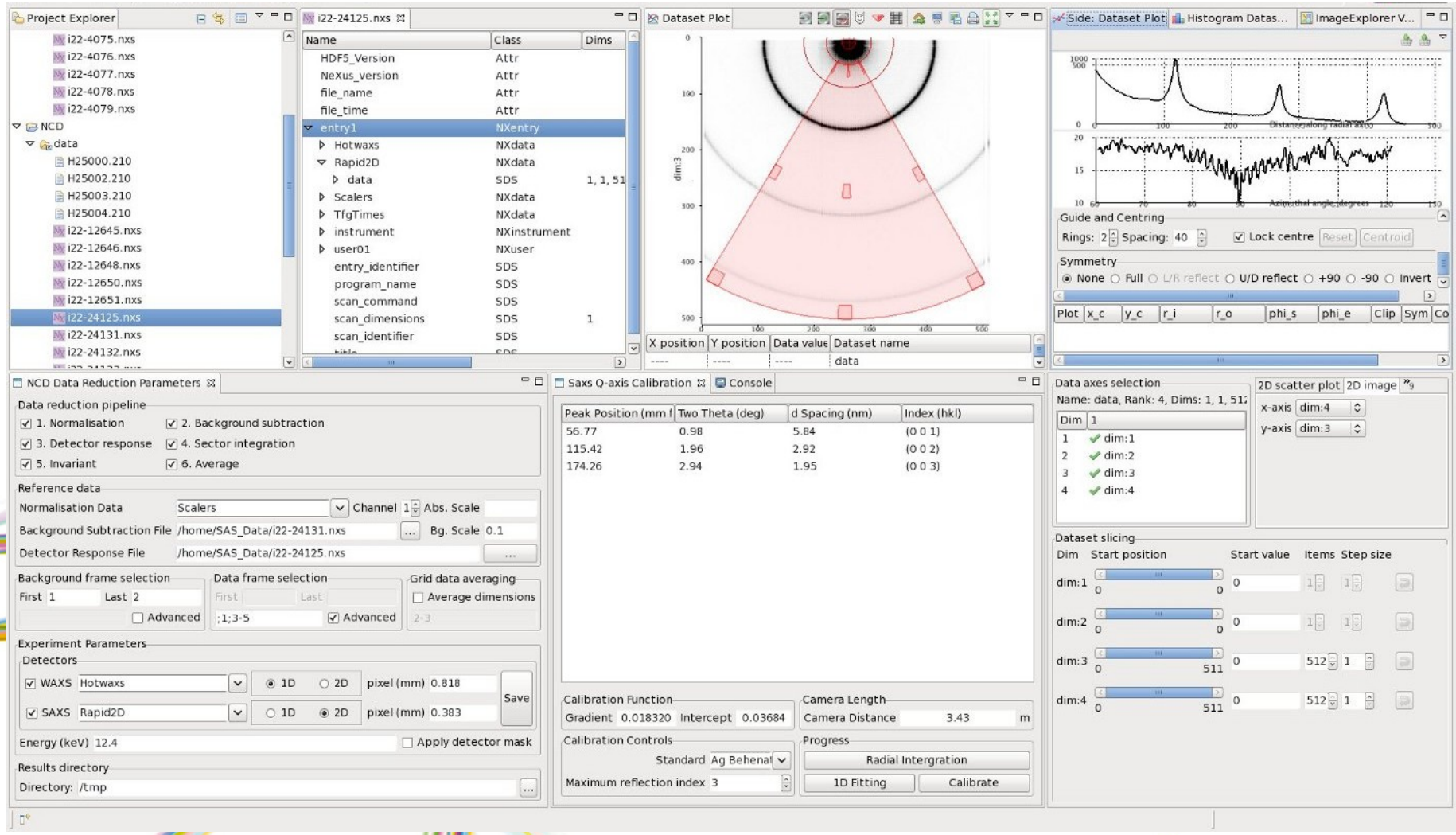
Generic vs. Specific

- General Eclipse interface moves towards the generic
  - Users can get confused with the amount of functionality, very steep learning curve.
  - Everything is available, make the tools work as you want
- These issues can be addressed by providing bespoke views and tools which provide the users with a single interface
  - More intuitive for users
  - Not as flexible

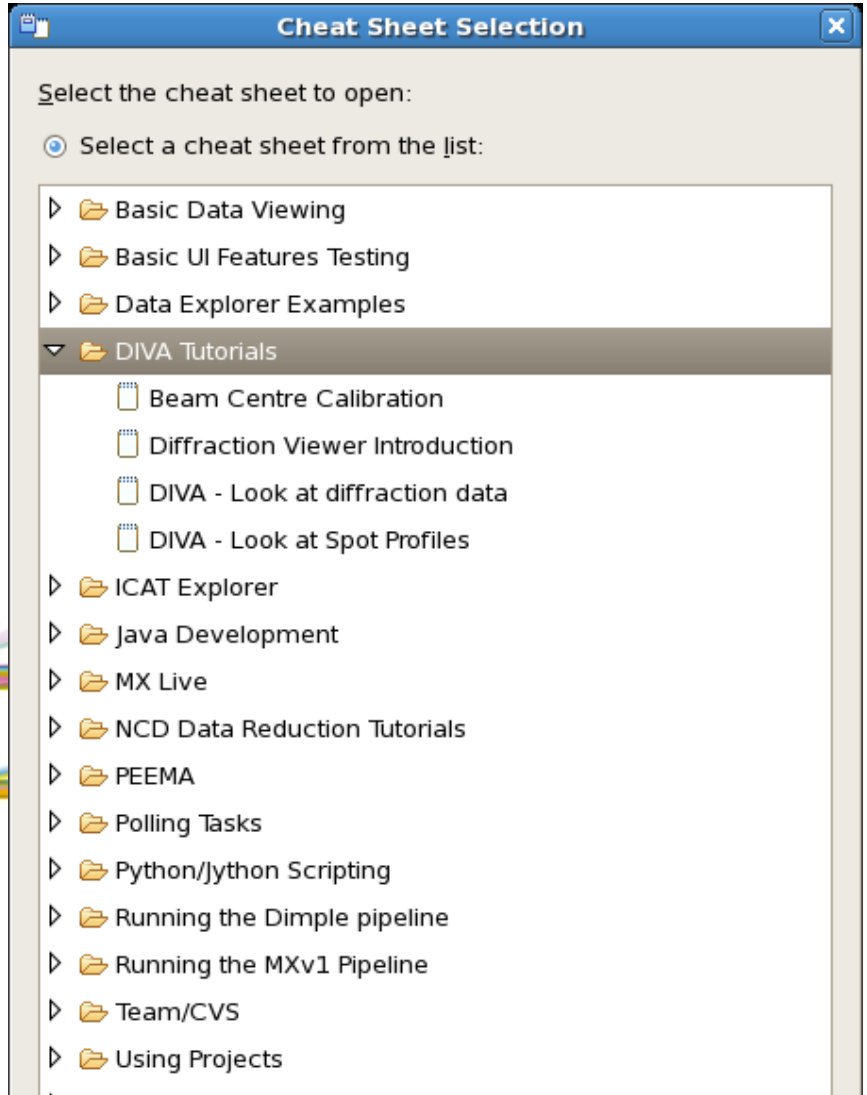
PEEMA: PEEM image analysis



NCD Calibration and Reduction



More User Help – Cheat Sheets/Documentation.



- Gives a workflow which the user can follow to understand how to achieve a goal
- Cheat sheets form major part of release testing.

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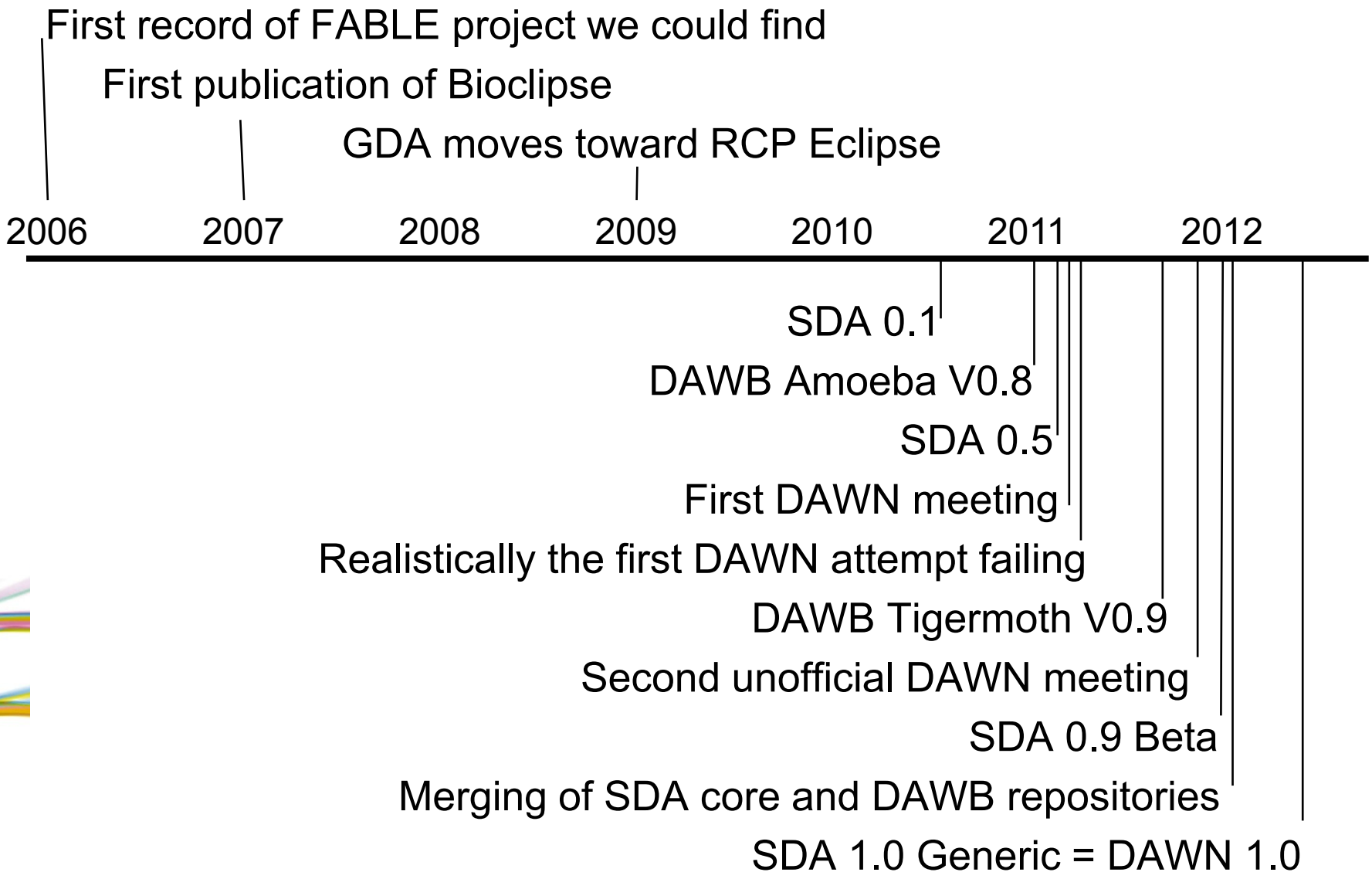
Future of SDA Generic - DAWNScience

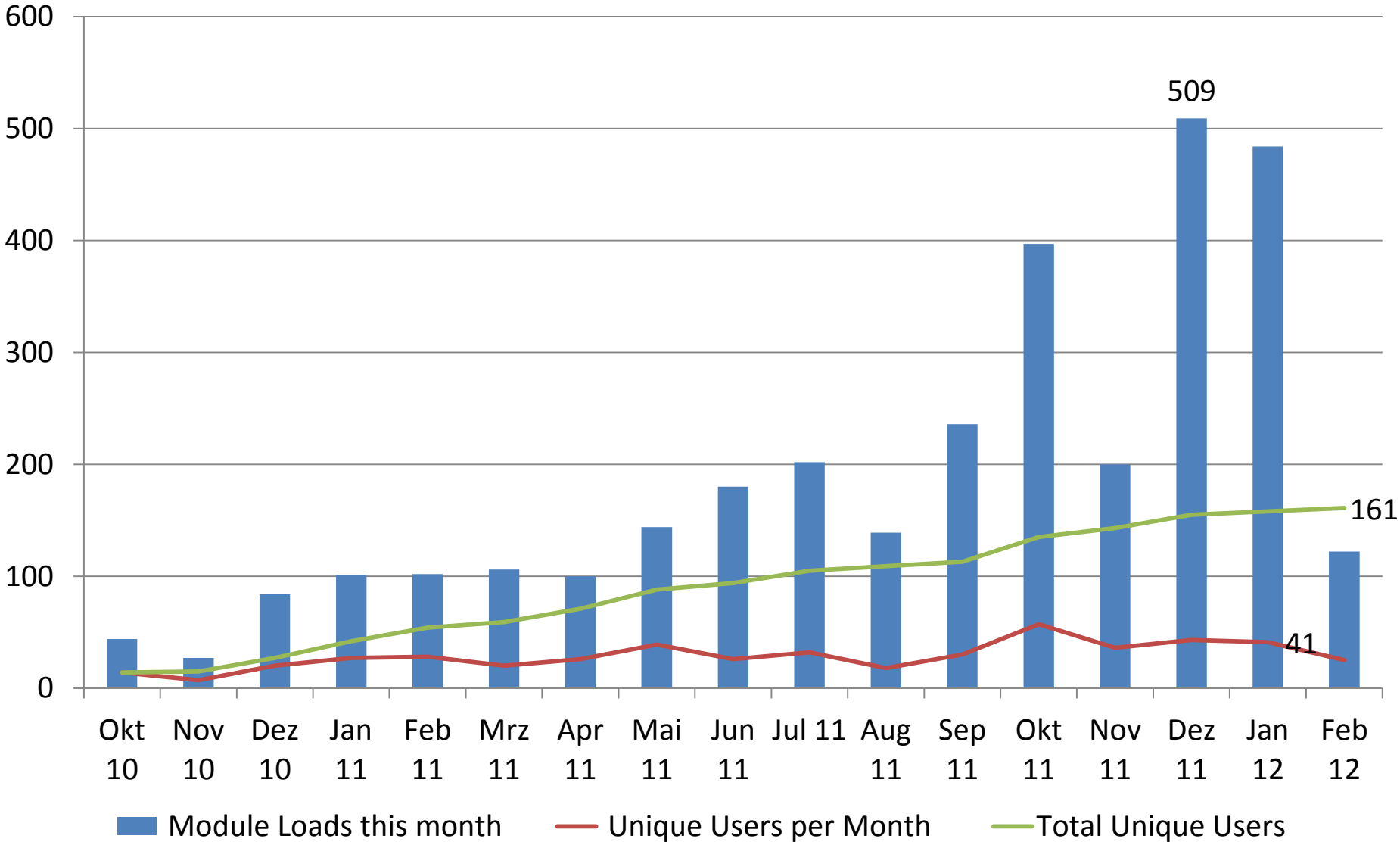
- Eclipse project for:
  - Viewing and plotting scientific data.
  - Integrated python environment for scripting.
  - Workflow tools for pipelines.

- Open collaboration with :
  - Initial members Diamond, ESRF and EMBL-Grenoble
  - Expressions of interest from Soleil, GlobalPhasing, SLS and APS.

Future of SDA Generic - DAWNScience



Unique users and Loads over time for the Diamond SDA product.



Any Questions?

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DAWN Project

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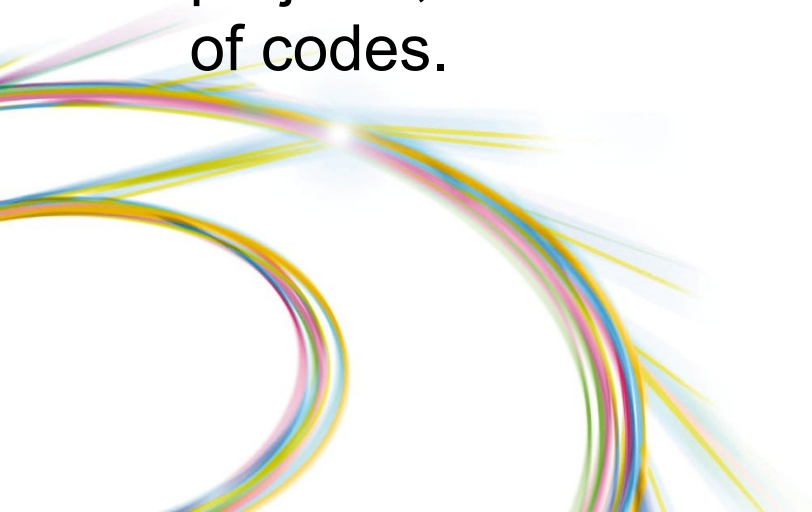

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DAWN – How will this work?

- Being based on the Eclipse Framework makes extension for other projects easy to achieve.
- Individuals or groups can work on extensions and other cutting edge tools based on the framework.
- Core functionalities are all worked on collaboratively by all DAWN contributors to keep the core tools up to date and bug free

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DAWN – Code Management

- DAWNSCIENCE github repository, Main repository for the core project elements

- Local repositories for local plugins, however being in GIT would be useful for migration to the core if required at a later date.

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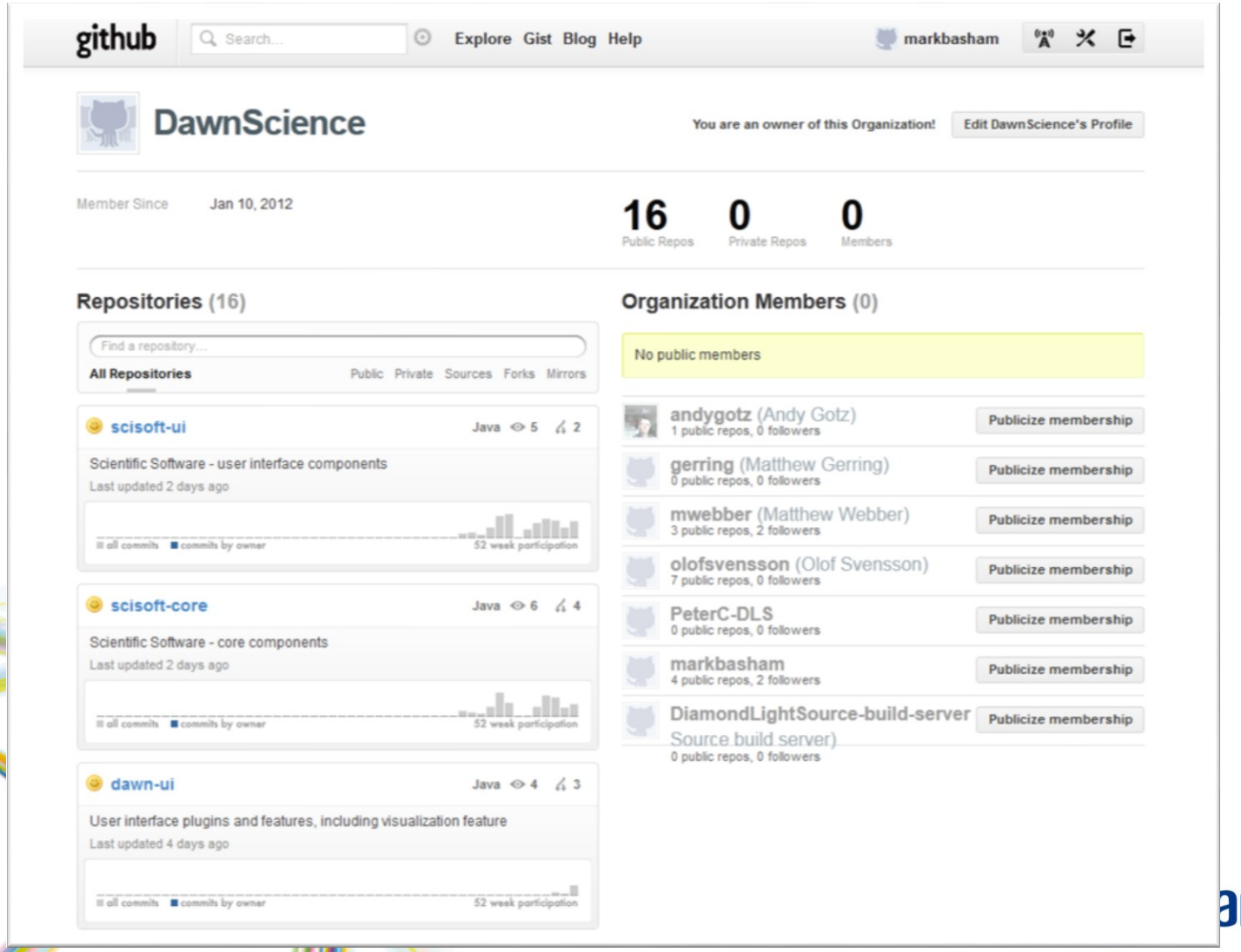
DawnScience – Git Site



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DAWN – Maintenance

- At DLS we run continuous Integration builds and tests for our product, currently the SDA, but soon will be DAWN + DLS
- This tests some but not all of the functionality, checking that other builds are also working is possibly difficult?
- This needs to be resolved somehow?

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DAWN – Release Cycles

- Individual groups should be able to release whenever they need, due to beam-time or other operational requirements.
- The core should be released under a different schedule, but this needs to be decided by the DAWN collaboration.
- The proposed release for DAWN v1.0 will be June/July based on the majority of the work being done by DLS Developers.

DAWN – Product

- There has been much debate over the DAWN product, at the DAWN meeting in Feb 2011 the decision was made that there would be no standard release.
- This seems to have been reconsidered recently, and it is now proposed that there is a central DAWN product, which can be extended as required.

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