Datalink
XMM-Newton Spectra
TapHandle

http://www.ivoa.net/documents/Notes/DataLink/index.html

http://saada.u-strasbg.fr/taphandle

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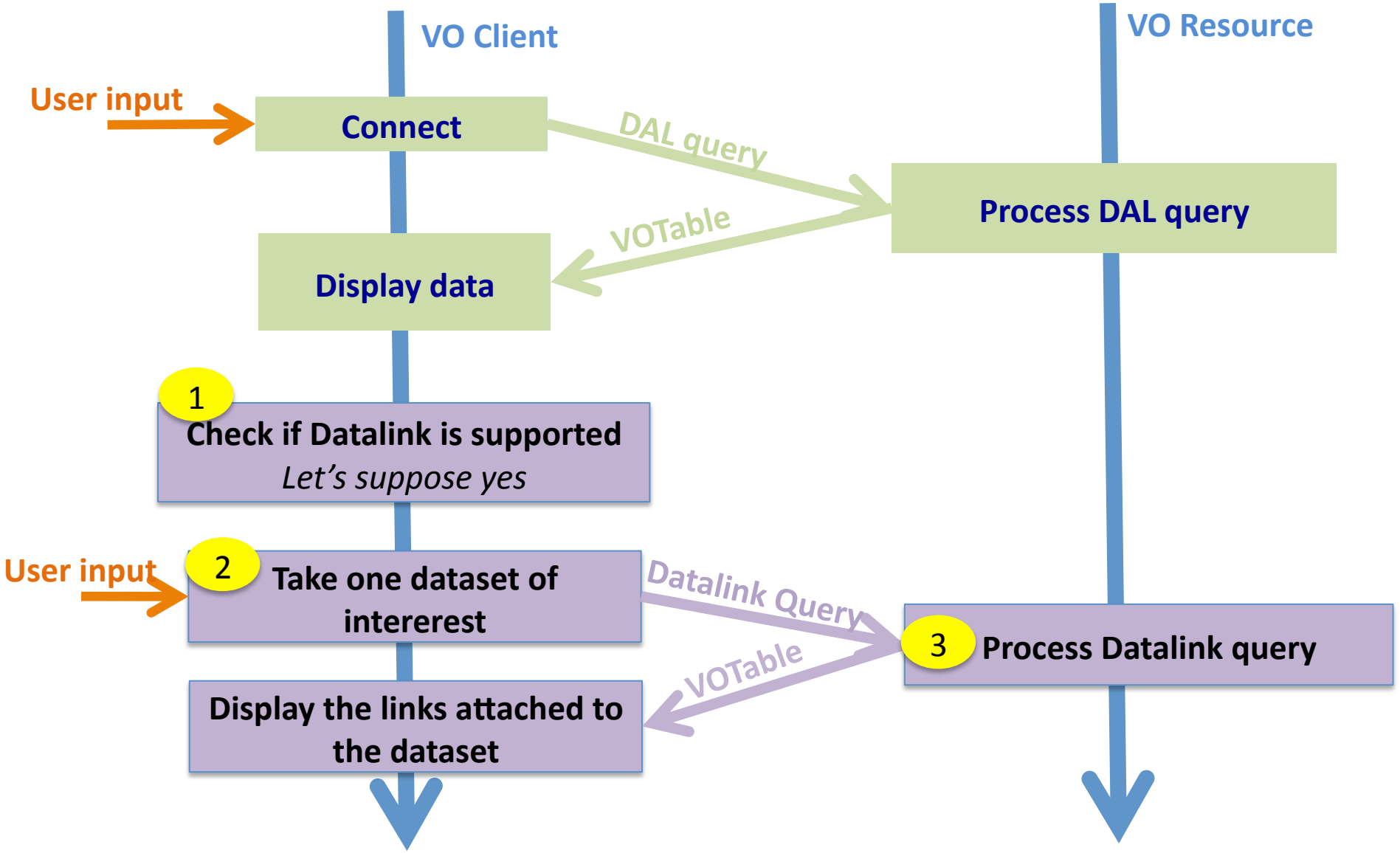
DataLink

- **A new type of protocol**
  - Not designed to explore data collections
  - Designed to explore data or services attached to one observation/dataset/data file
- **At the edge of the VO**
  - It can access data either into the VO or out of the VO
  - It can either refer to standardized VO protocols or it can access any legacy service or archive.
- **IVOA note published in May 2013**
  (L Michel, F. Bonnarel and M. Louys)

Diagram of Datalink Access Sequence

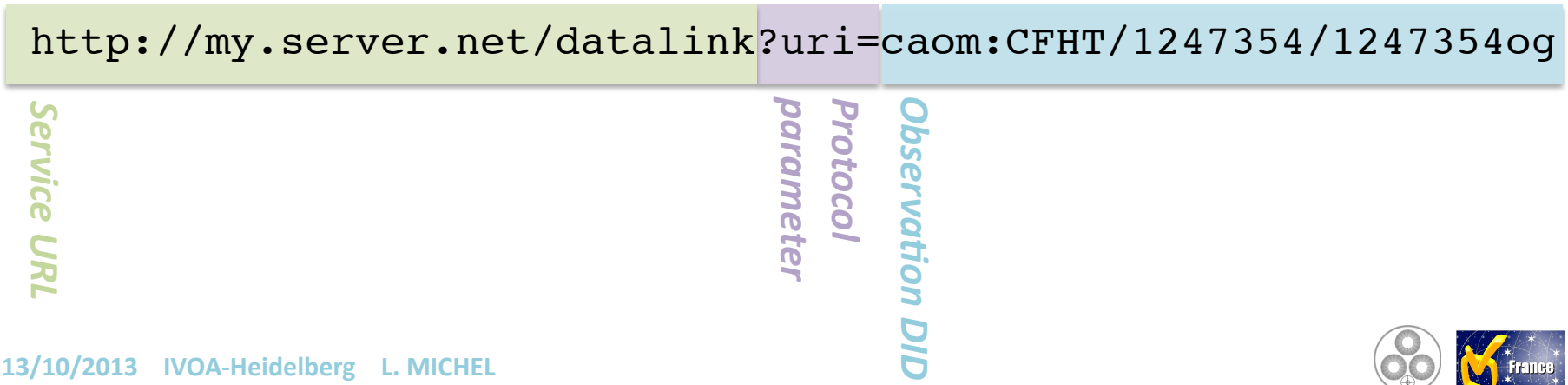


1 Registering Datalink

- **Datalink as a registered service**
  - The service takes any universal observation identifier to return pointers to linked data.
    - ? *How to locate an dataset from its DID?*
    - *? Is the server supposed to be able to forward requests to the server which actually hosts the observations ?*

- **Datalink as a service capability**
  - Capability attached to one DAL service
  - The client connecting this DAL service can get any information he needs to provide users with linked data

- **Same access method in both cases (http get/post)**

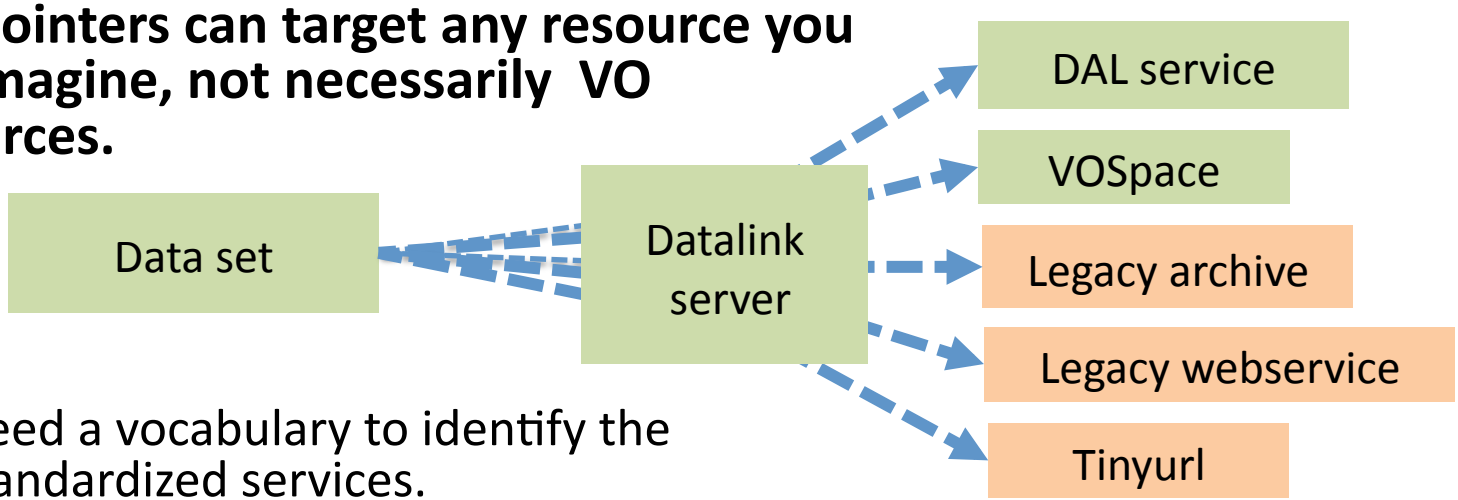


2 Observation Identifier

- **The Datalink server needs a unique identifier to retrieve the starting point dataset.**
  - The Obs IDs must be identifiable by the client in both query result matching or not a DM..
  - Must be automatically retrieved by the client.
    1. By **Utype** e.g. *Curation.PublisherDID…*
    2. By **UCD** e.g. *meta.ref.url;meta.curation*
    3. By **Column name** for data table matching a data model e.g. *Obs_publisher_DiD* for *ObsCore*

3 Data returned by the server

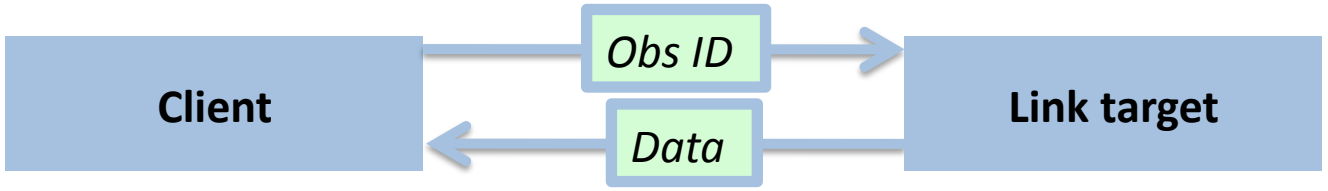
- **The Datalink server does not return data but a list of pointers.**
  - Each pointer is a URI of the link target
    - Data
    - Online processing result
  - Need a vocabulary to identify the standardized services.
    - Preview, DAL queries, Cutout….
- **The pointers can target any resource you can imagine, not necessarily VO resources.**



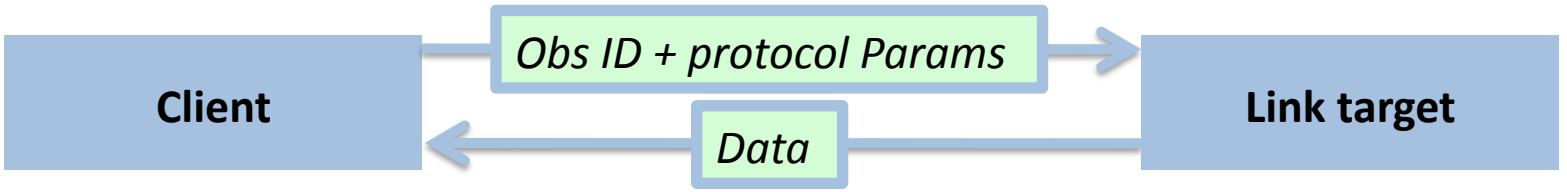
  - Need a vocabulary to identify the standardized services.
    - Preview, DAL queries, Cutout….

3 Datalink Access Modes

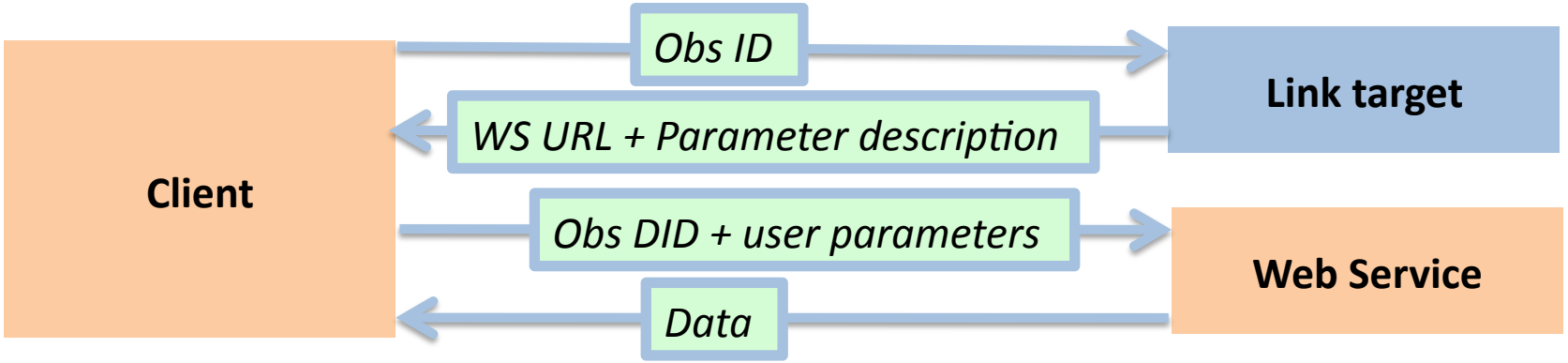
- **Direct data access**



- **Web service with a standard protocol**



- **Free Web service or *Self Described Services***



Self Described Services Parameters

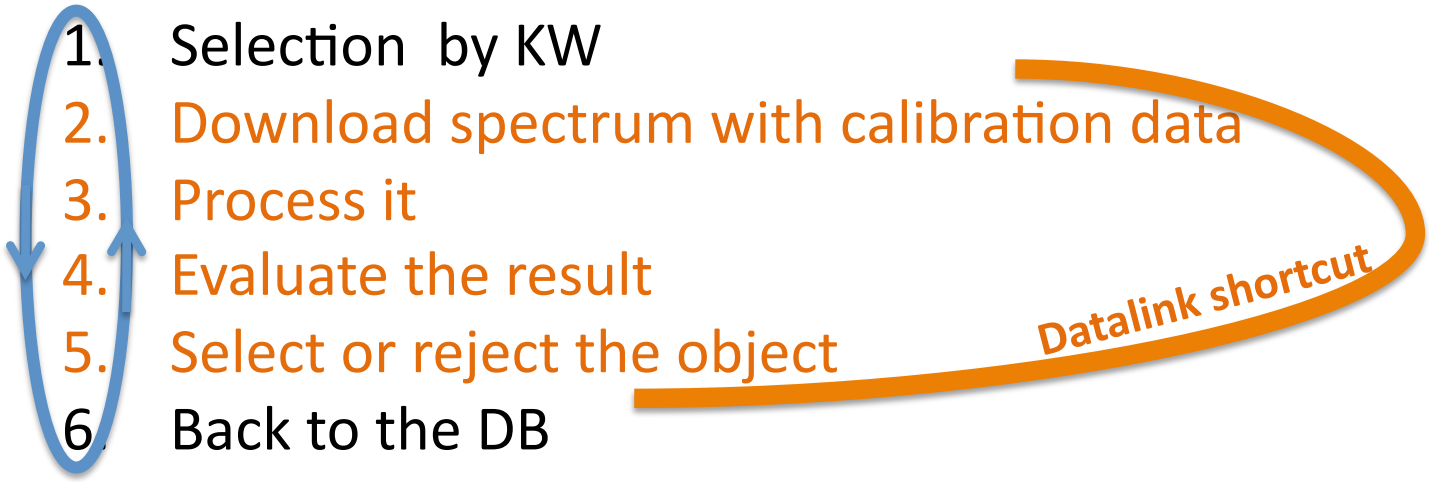
- **The parameter definition remains simple and flexibe**
  - Name
  - Free text description
  - Simple data type (String, integer, float, STC?)
  - Unit
  - UCD
  - Range of values ([min, max] or enumeration)
    - Include one default value to allow queries without user setup

- **The way to use this parameter description to get user inputs is in charge of the client.**

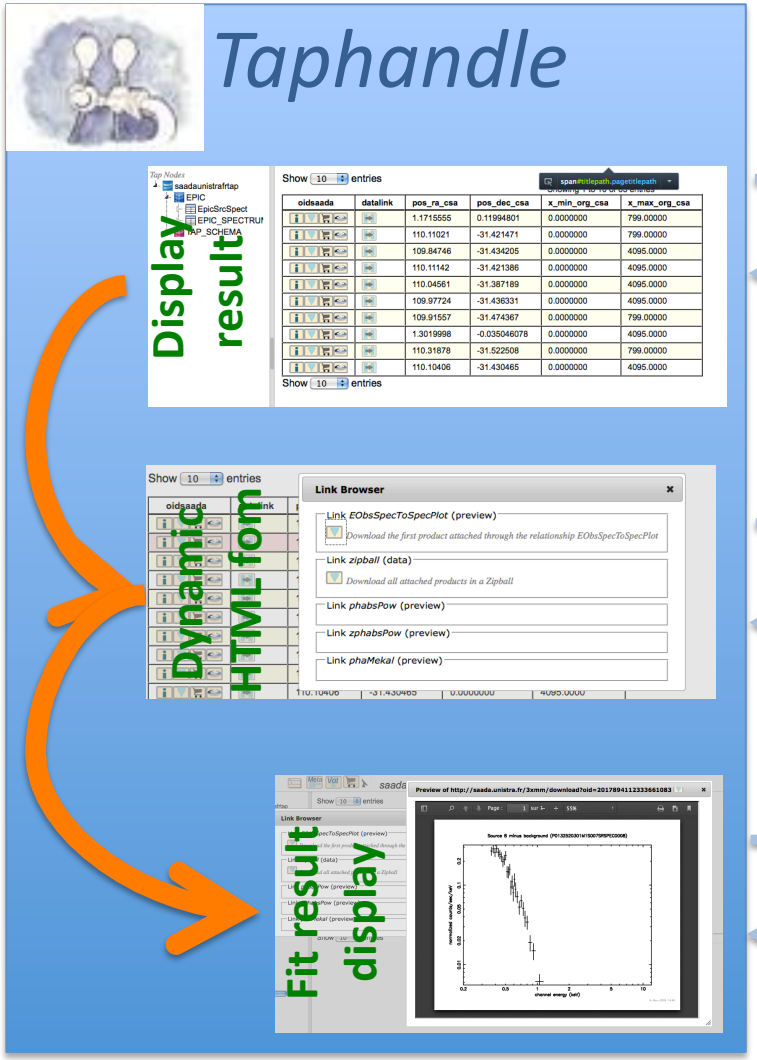
XMM-Newton Use Case

- **HE astronomers are often interested in using VO resource to find out outlayers or objects matching a specific class (no POO here)**

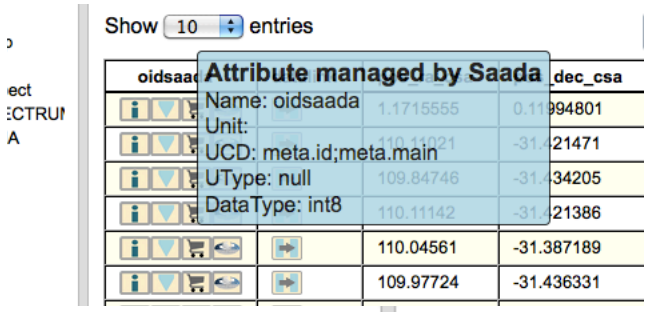
- **The *naked eye* selection of object is a frequent usage of the XCatDB (XMM-Newton)**



Demo Sequence



Demo Screenshot: EPIC spectra table



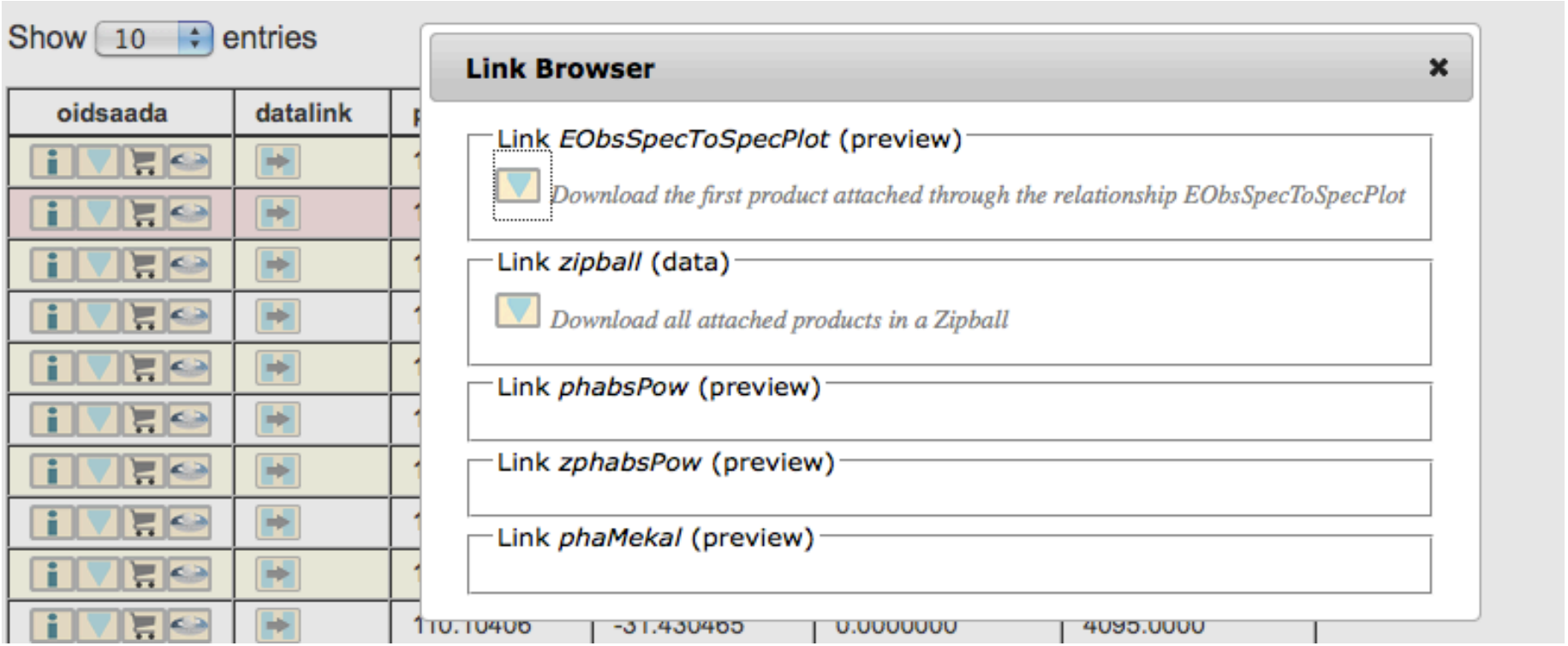
Show 10 entries

span#titlepath.pagetitlepath

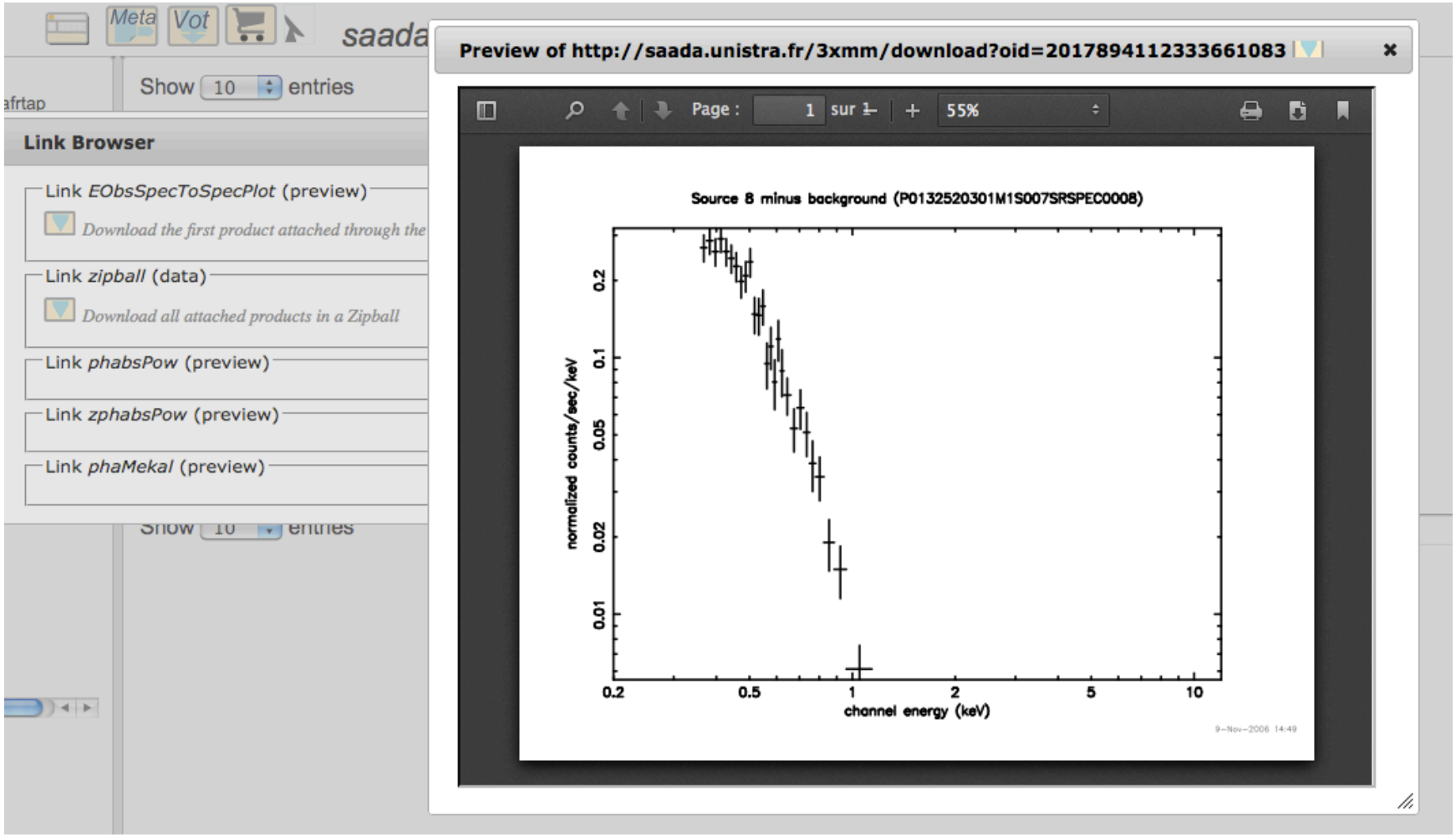
oidsaada	datalink	pos_ra_csa	pos_dec_csa	x_min_org_csa	x_max_org_csa
		1.1715555	0.11994801	0.0000000	799.00000
		110.11021	-31.421471	0.0000000	799.00000
		109.84746	-31.434205	0.0000000	4095.0000
		110.11142	-31.421386	0.0000000	4095.0000
		110.04561	-31.387189	0.0000000	4095.0000
		109.97724	-31.436331	0.0000000	4095.0000
		109.91557	-31.474367	0.0000000	799.00000
		1.3019998	-0.035046078	0.0000000	4095.0000
		110.31878	-31.522508	0.0000000	799.00000
		110.10406	-31.430465	0.0000000	4095.0000

Show 10 entries

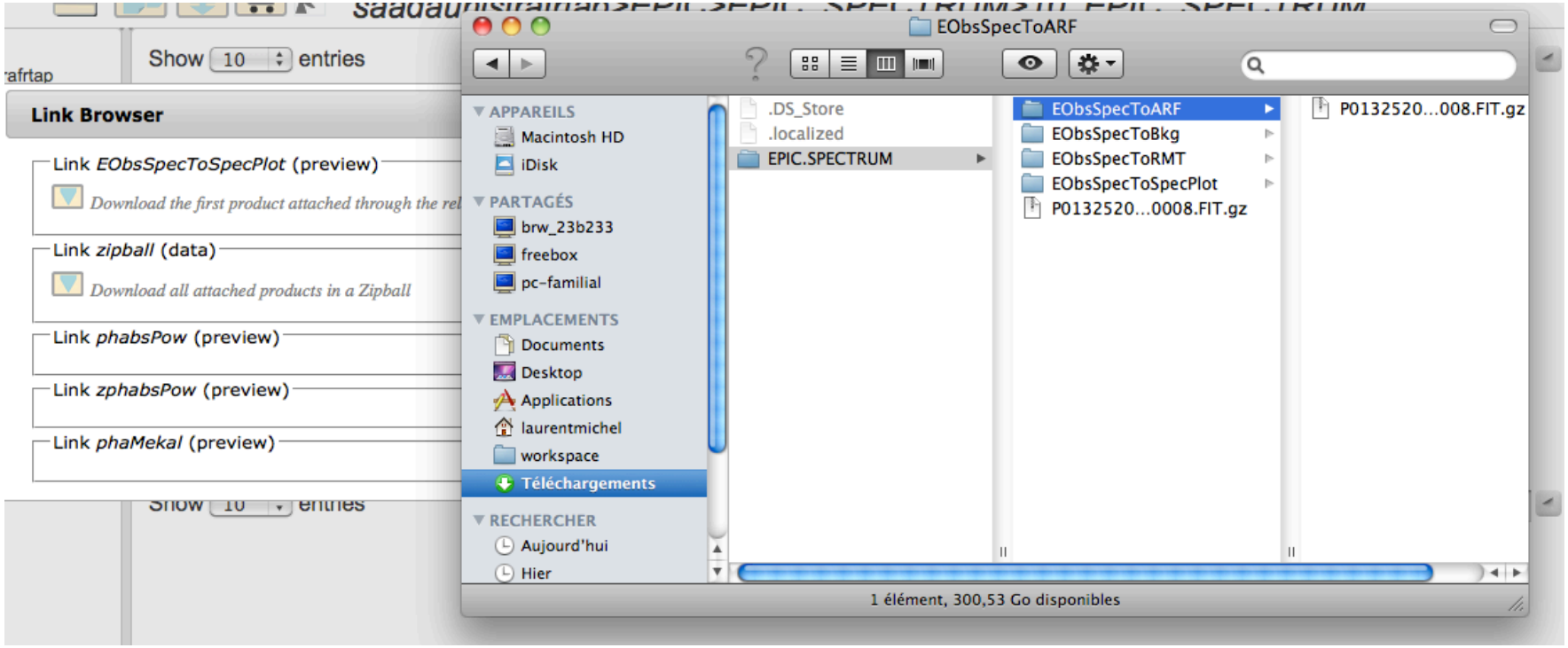
Demo Screenshot: Datalink popup



Demo Screenshot: precomputed Preview



Demo Screenshot: Zipball download



Demo Screenshot: Model Fitting Result