CDPP web-based tools for solar-terrestrial physics and space weather

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Outline

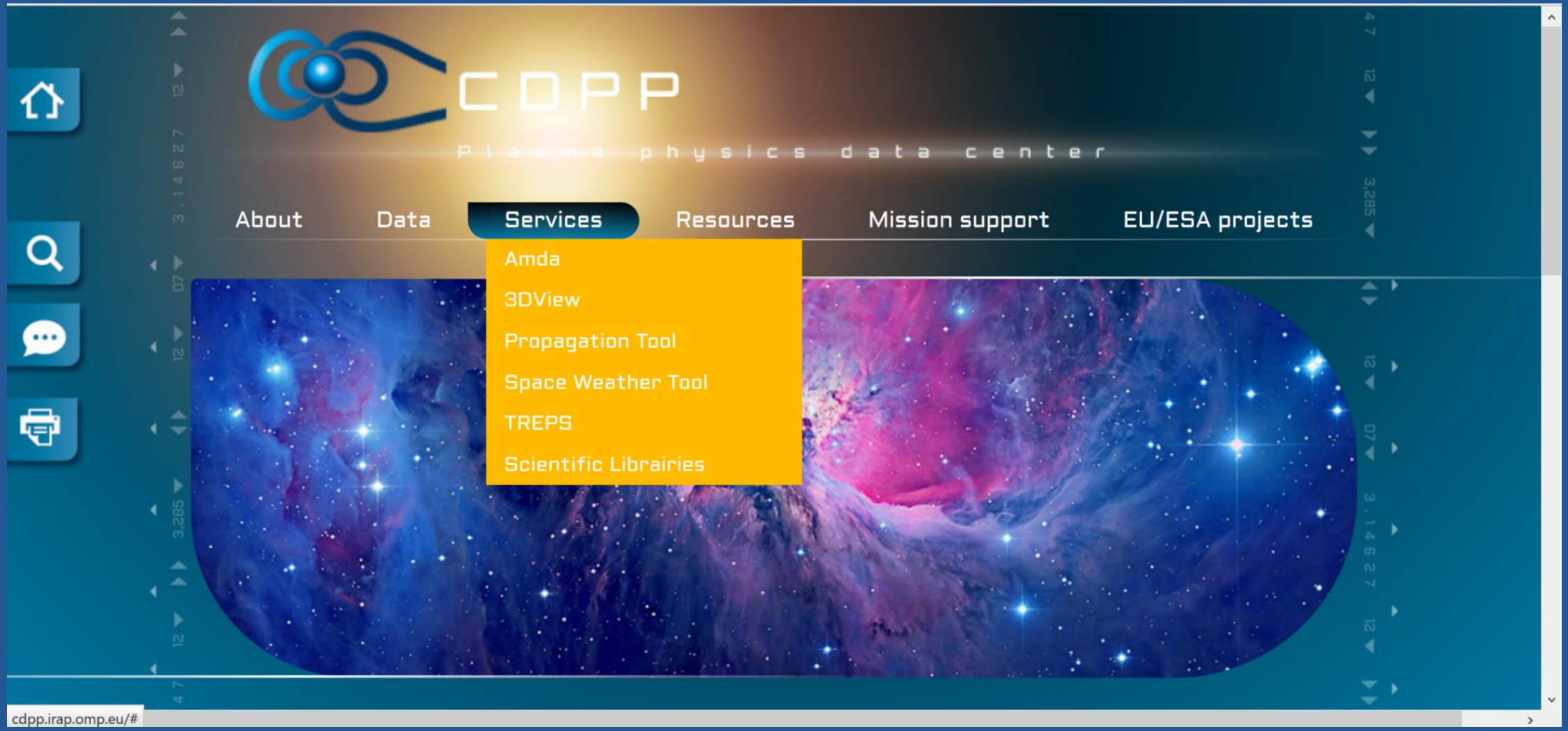
- General presentation of CDPP and its services
- Overview of the capabilities of some of the tools
  - Propagation Tool
  - AMDA
  - 3D View
- Summary

General presentation of CDPP

- Created in 1998 by the French space agency (CNES) and National Science research Council (CNRS).
- Mostly hosted at IRAP in Toulouse. CNES (Toulouse) and LESIA (Observatoire de Paris) also host CDPP members. Contractors contribute to developments and coding.
- The primary purpose of the CDPP is to assure long-term preservation of data relevant to the physics of naturally occurring plasmas in the Solar System, especially data from experiments which are either French or have a strong French participation.
- The data archived and rendered accessible at CDPP have been obtained for more than 40 years onboard satellites or from ground observatories, from or around the Earth, planetary environments or the solar wind.
- CDPP develops **tools and services** helping data and numerical models exploitation. The CDPP is also involved in the development of interoperability efforts and virtual observatories.

CDPP Services

http://www.cdpp.eu



CDPP Services

http://www.cdpp.eu

Multi dataset visualisation and download
Event search and data mining
Catalogue generation and exploitation
Access to data, model and image centres via VO tools

3D visualisation of spacecraft position, data and models
Access to data, model and image centres via VO tools

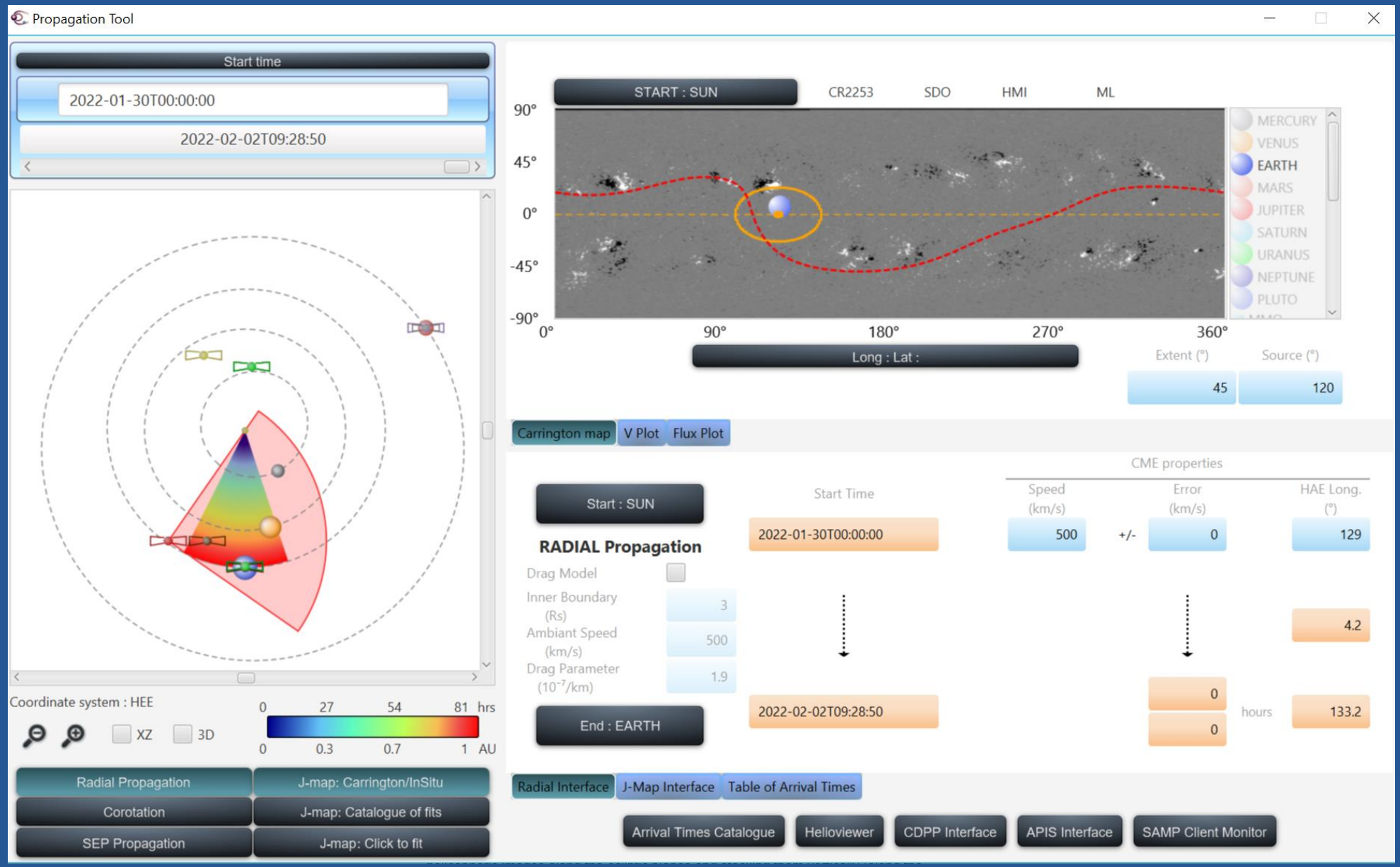
Propagation of CME, CIR and SEP
Comparison to STEREO data (J maps)

Reconstruction of magnetic flux ropes and prediction of IMF/SW and geomagnetic indices

Reference frames and coordinate systems transformations

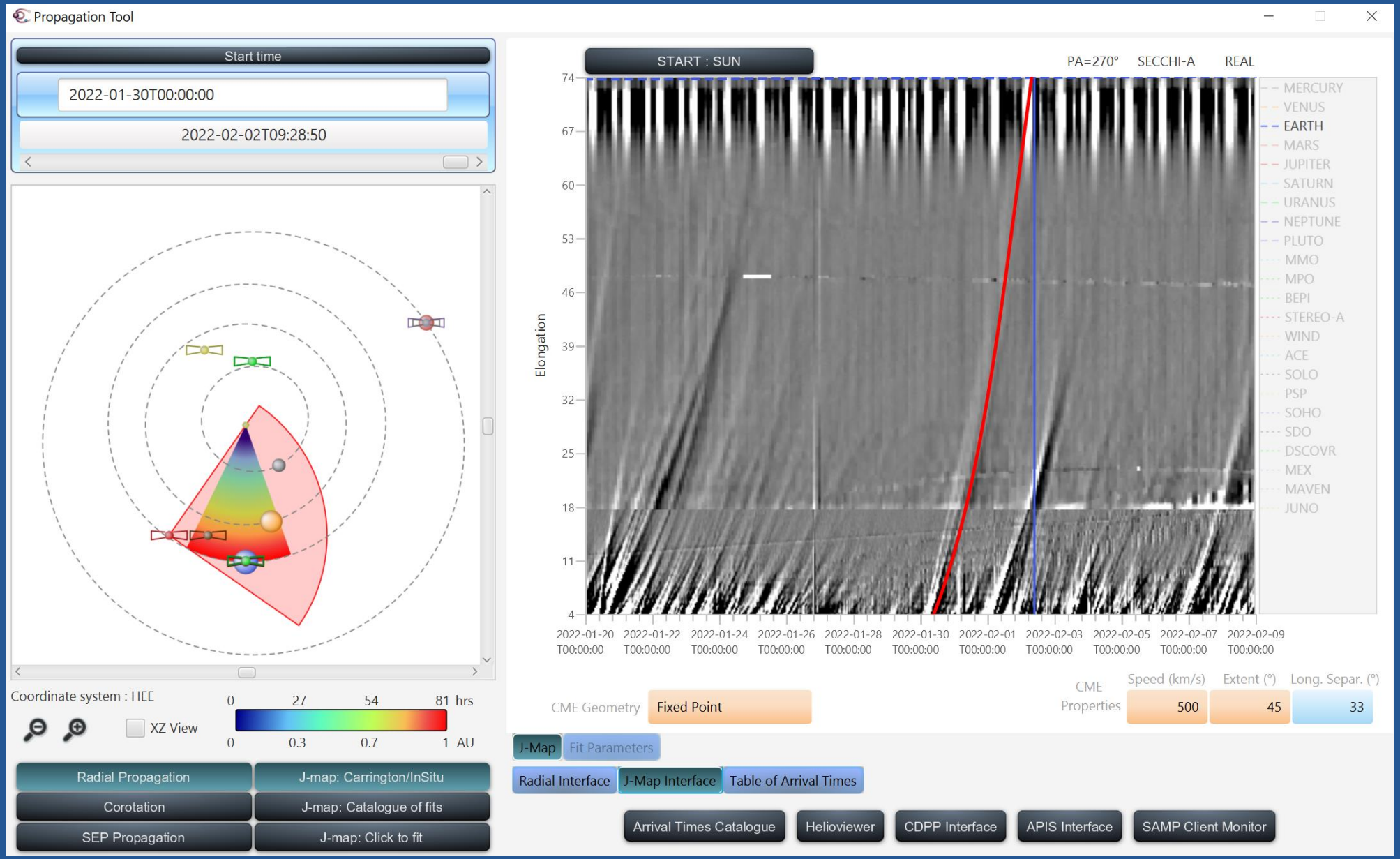
Propagation Tool

http://propagationtool.cdpp.eu



Propagation Tool

http://propagationtool.cdpp.eu



Automated Multi Dataset Analysis (AMDA)

http://amda.cdpp.eu

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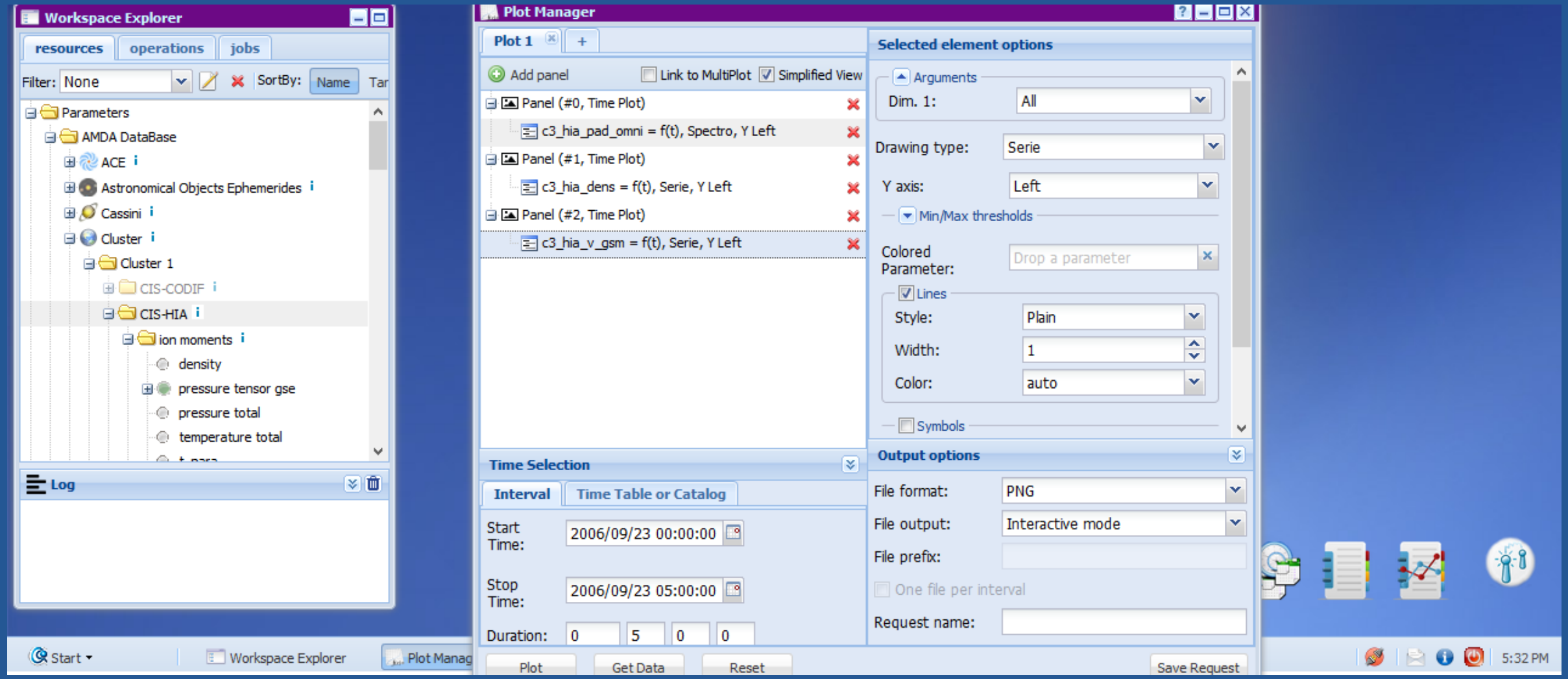

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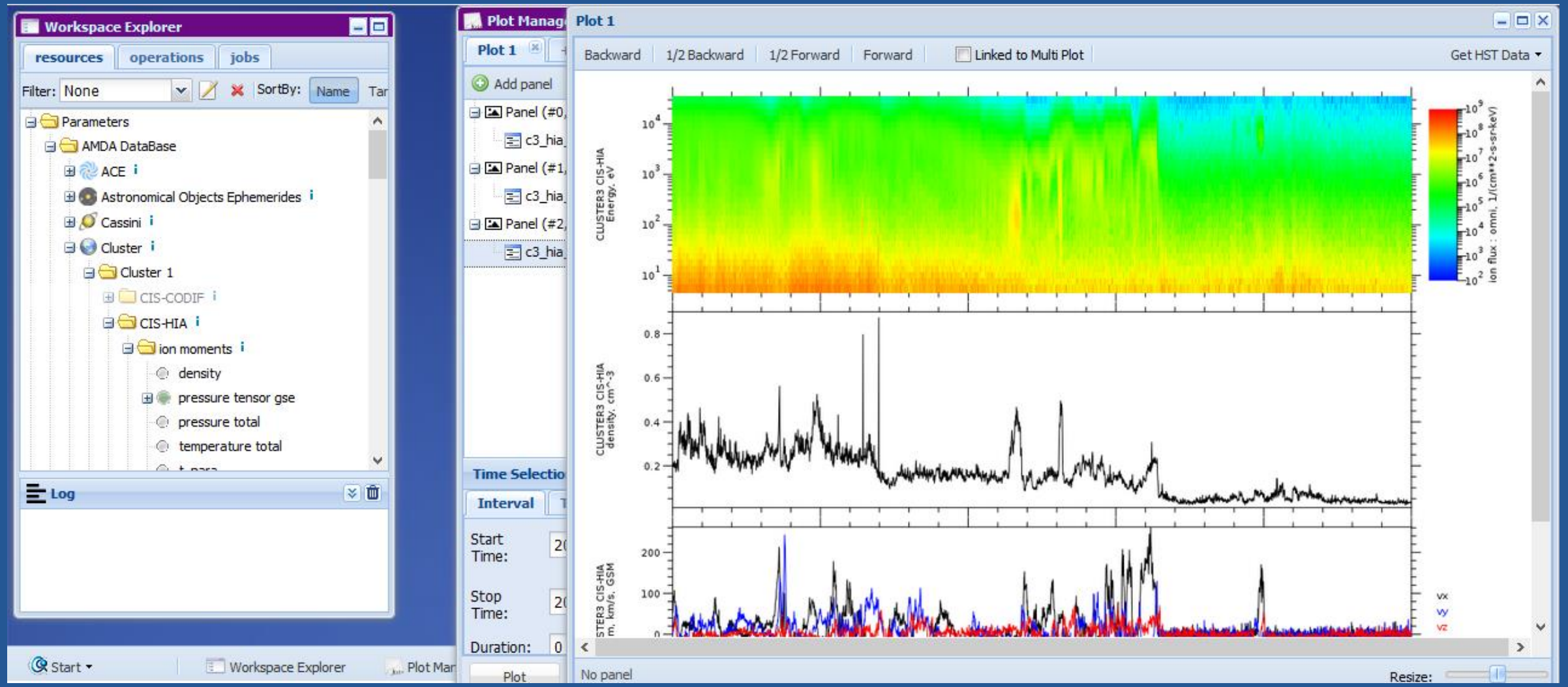

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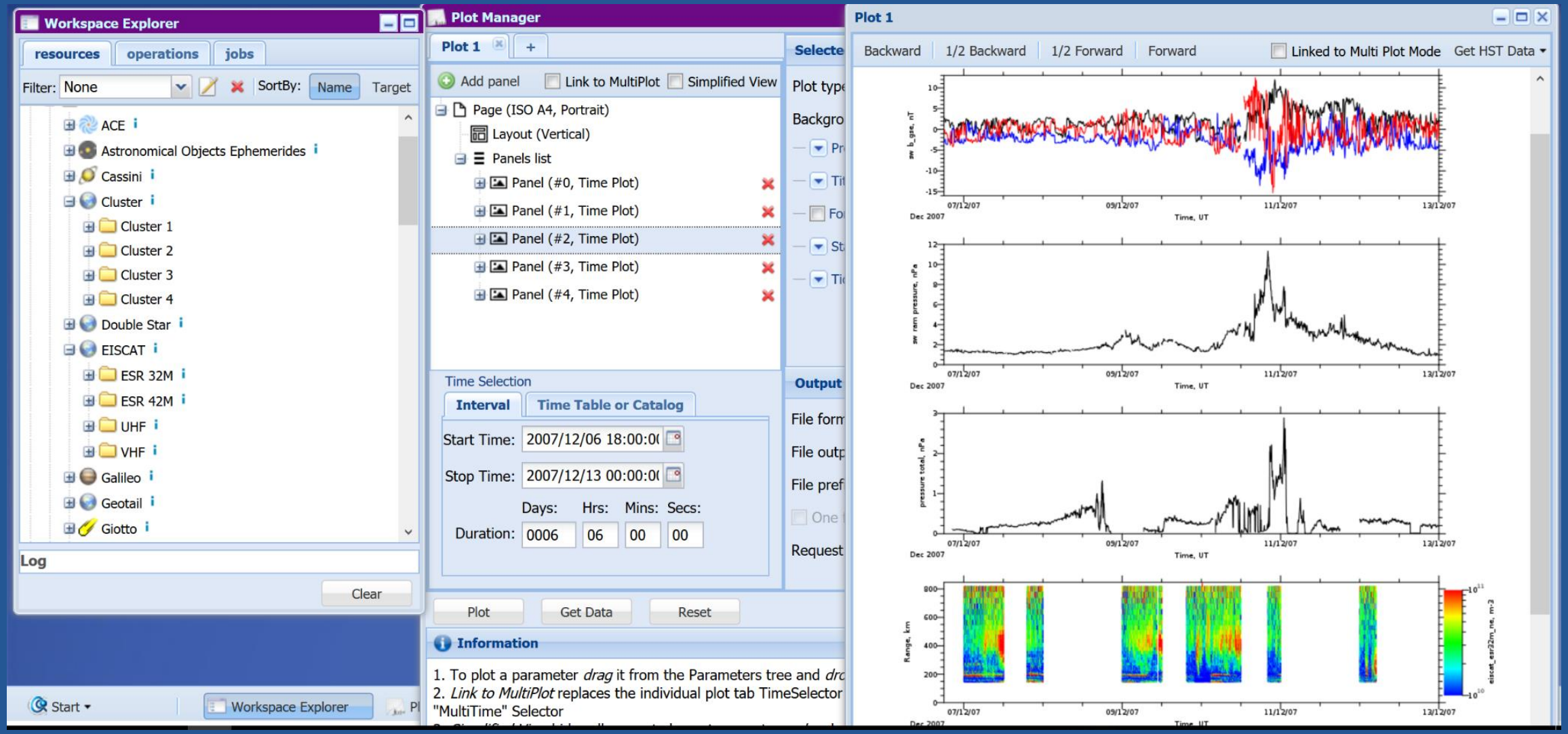

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Data mining with AMDA

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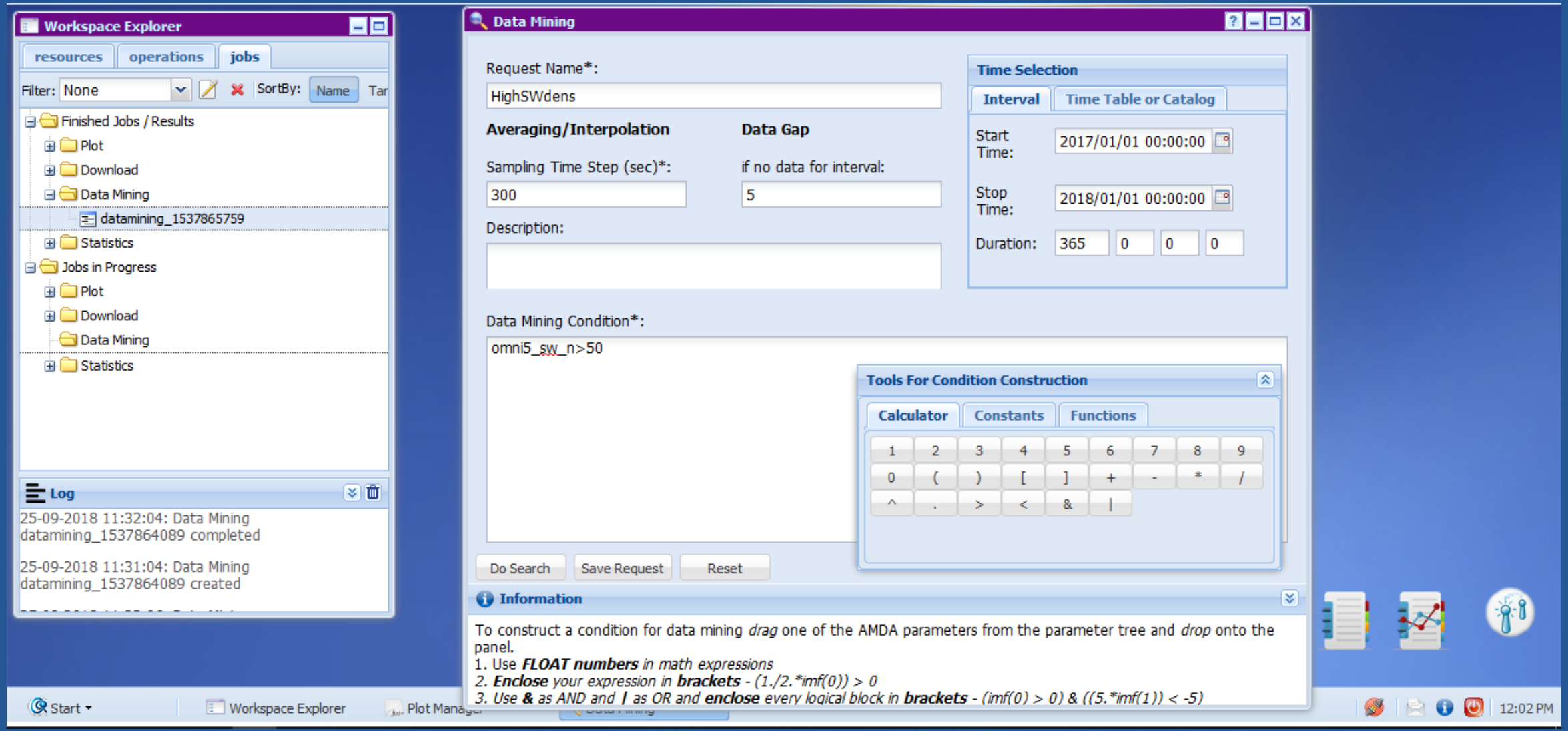

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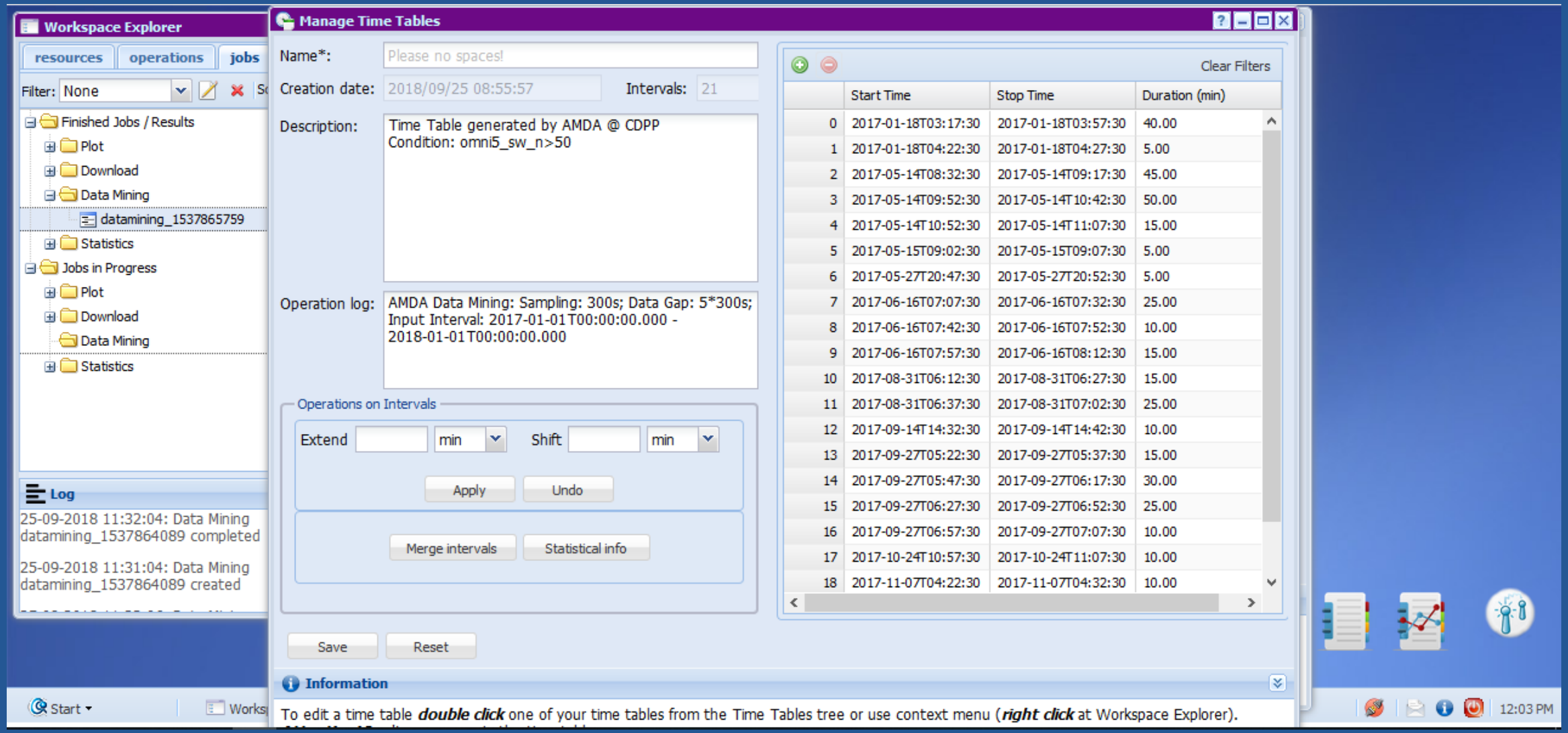

Statistics with AMDA

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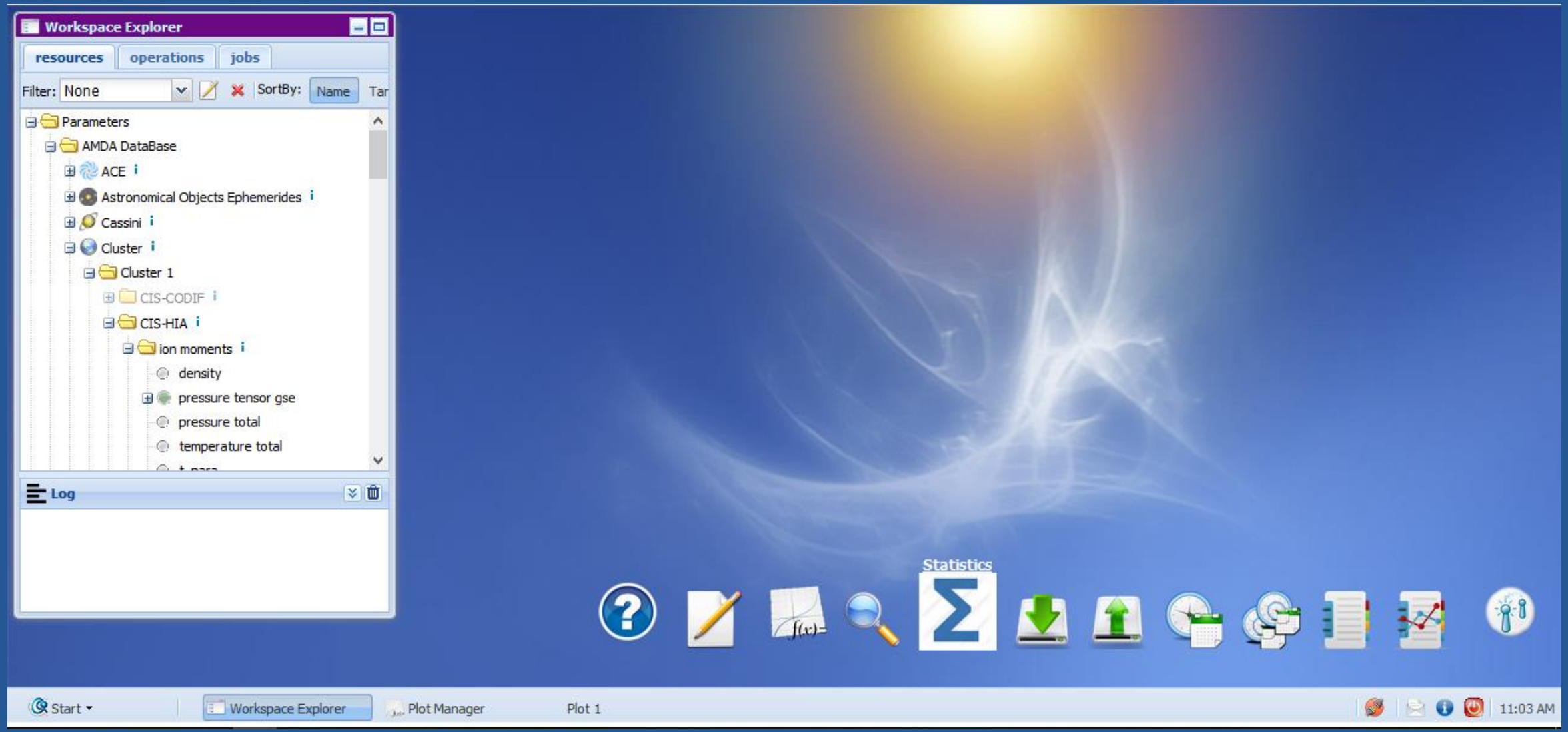

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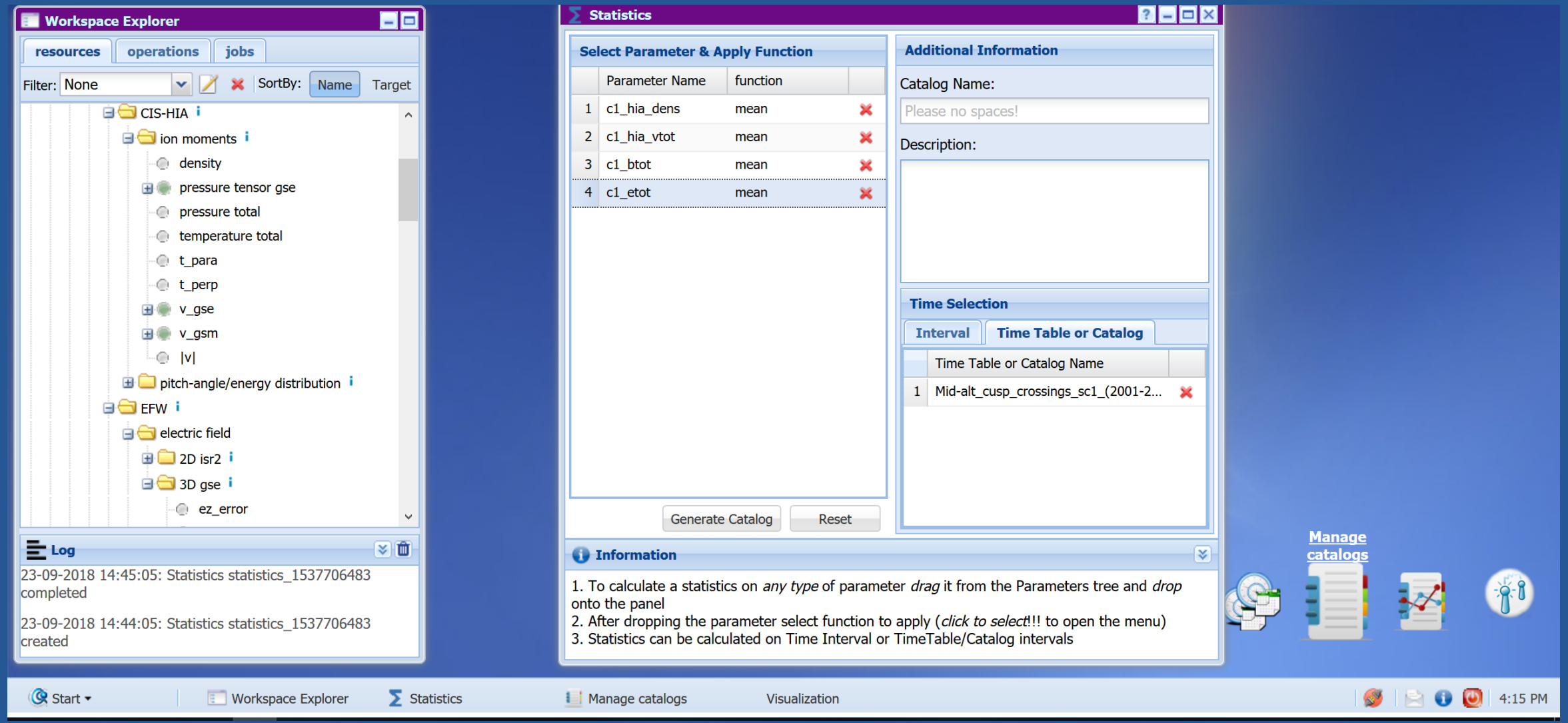

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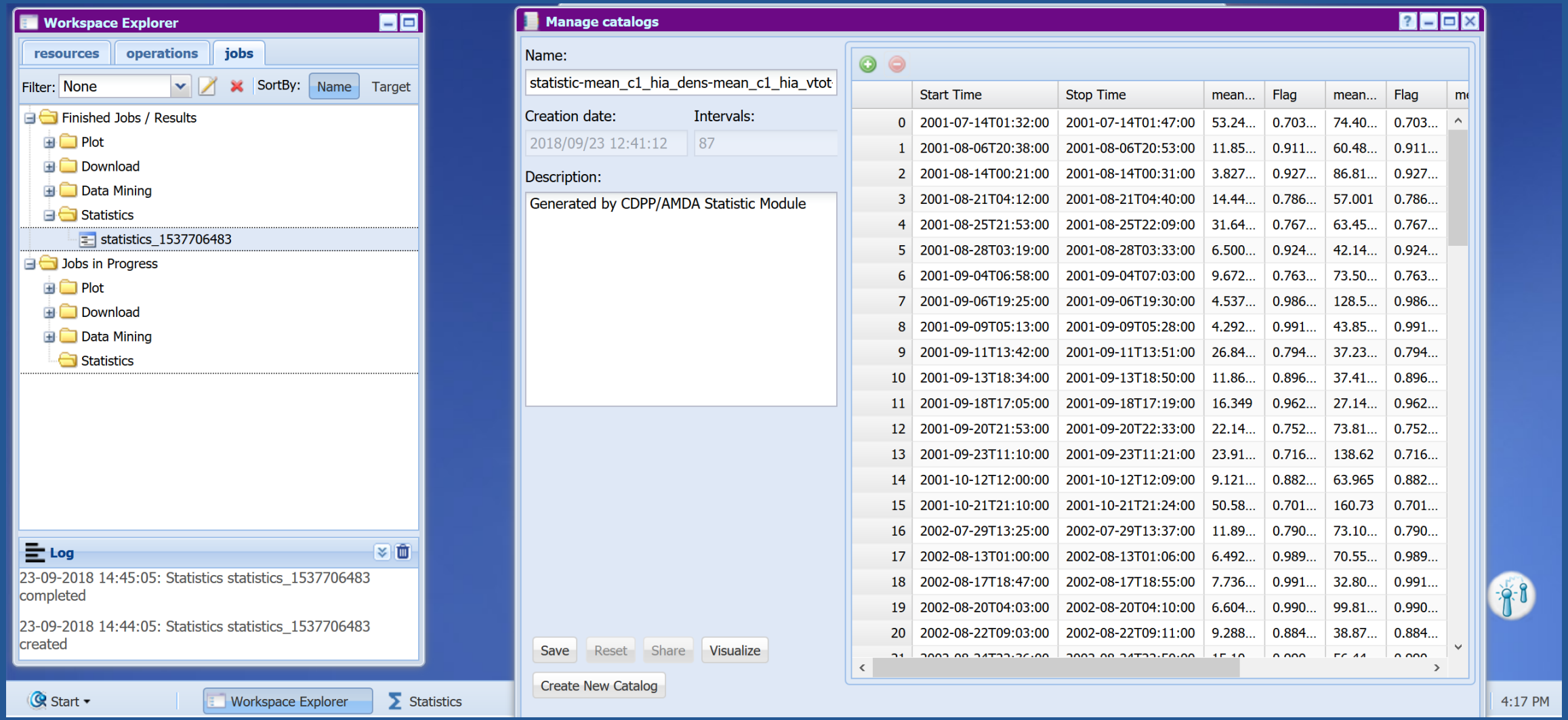

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0	2001-07-14T01:32:00	2001-07-14T01:47:00	53.24...	0.703...	74.40...	0.703...
1	2001-08-06T20:38:00	2001-08-06T20:53:00	11.85...	0.911...	60.48...	0.911...
2	2001-08-14T00:21:00	2001-08-14T00:31:00	3.827...	0.927...	86.81...	0.927...
3	2001-08-21T04:12:00	2001-08-21T04:40:00	14.44...	0.786...	57.001	0.786...
4	2001-08-25T21:53:00	2001-08-25T22:09:00	31.64...	0.767...	63.45...	0.767...
5	2001-08-28T03:19:00	2001-08-28T03:33:00	6.500...	0.924...	42.14...	0.924...
6	2001-09-04T06:58:00	2001-09-04T07:03:00	9.672...	0.763...	73.50...	0.763...
7	2001-09-06T19:25:00	2001-09-06T19:30:00	4.537...	0.986...	128.5...	0.986...
8	2001-09-09T05:13:00	2001-09-09T05:28:00	4.292...	0.991...	43.85...	0.991...
9	2001-09-11T13:42:00	2001-09-11T13:51:00	26.84...	0.794...	37.23...	0.794...
10	2001-09-13T18:34:00	2001-09-13T18:50:00	11.86...	0.896...	37.41...	0.896...
11	2001-09-18T17:05:00	2001-09-18T17:19:00	16.349	0.962...	27.14...	0.962...
12	2001-09-20T21:53:00	2001-09-20T22:33:00	22.14...	0.752...	73.81...	0.752...
13	2001-09-23T11:10:00	2001-09-23T11:21:00	23.91...	0.716...	138.62	0.716...
14	2001-10-12T12:00:00	2001-10-12T12:09:00	9.121...	0.882...	63.965	0.882...
15	2001-10-21T21:10:00	2001-10-21T21:24:00	50.58...	0.701...	160.73	0.701...
16	2002-07-29T13:25:00	2002-07-29T13:37:00	11.89...	0.790...	73.10...	0.790...
17	2002-08-13T01:00:00	2002-08-13T01:06:00	6.492...	0.989...	70.55...	0.989...
18	2002-08-17T18:47:00	2002-08-17T18:55:00	7.736...	0.991...	32.80...	0.991...
19	2002-08-20T04:03:00	2002-08-20T04:10:00	6.604...	0.990...	99.81...	0.990...
20	2002-08-22T09:03:00	2002-08-22T09:11:00	9.288...	0.884...	38.87...	0.884...

Statistics with AMDA

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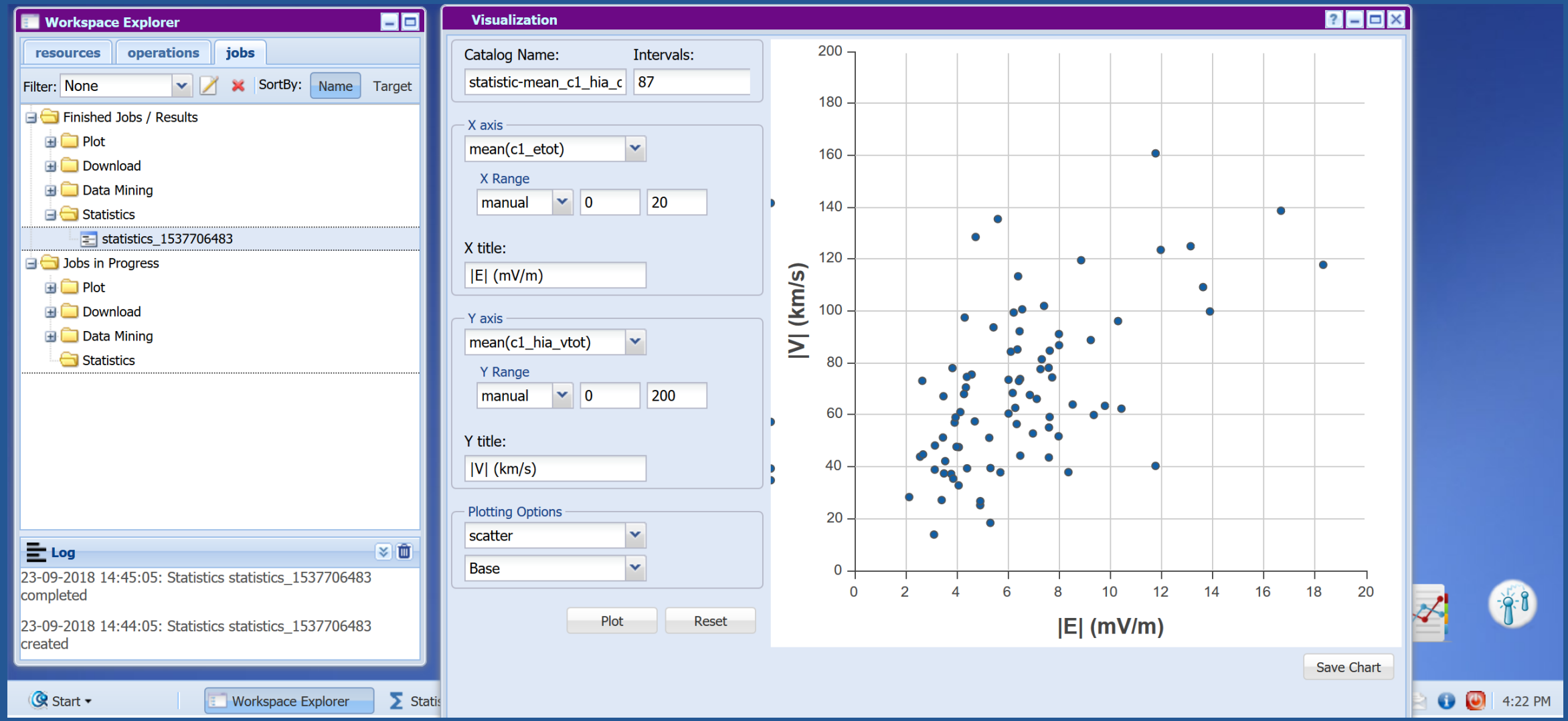

Creating new parameters with AMDA

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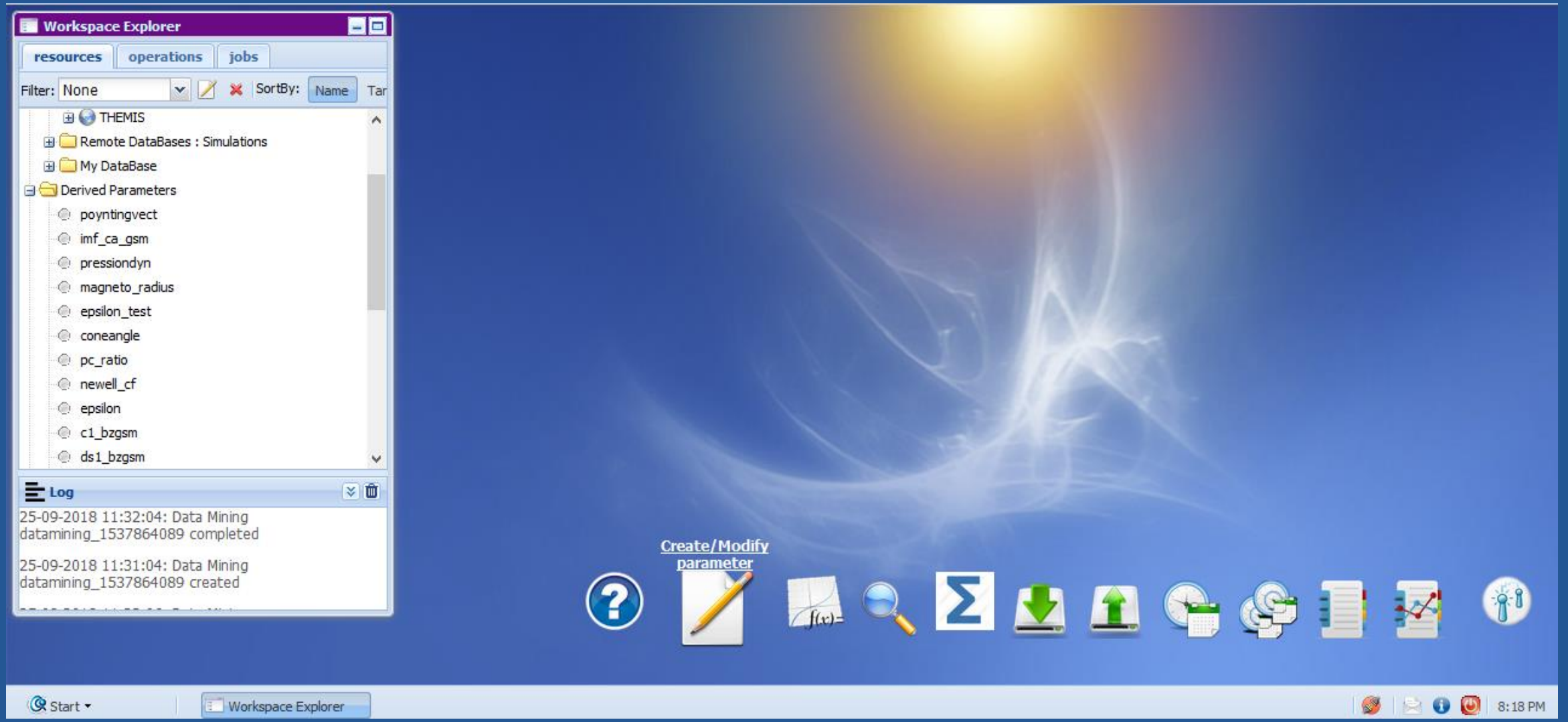

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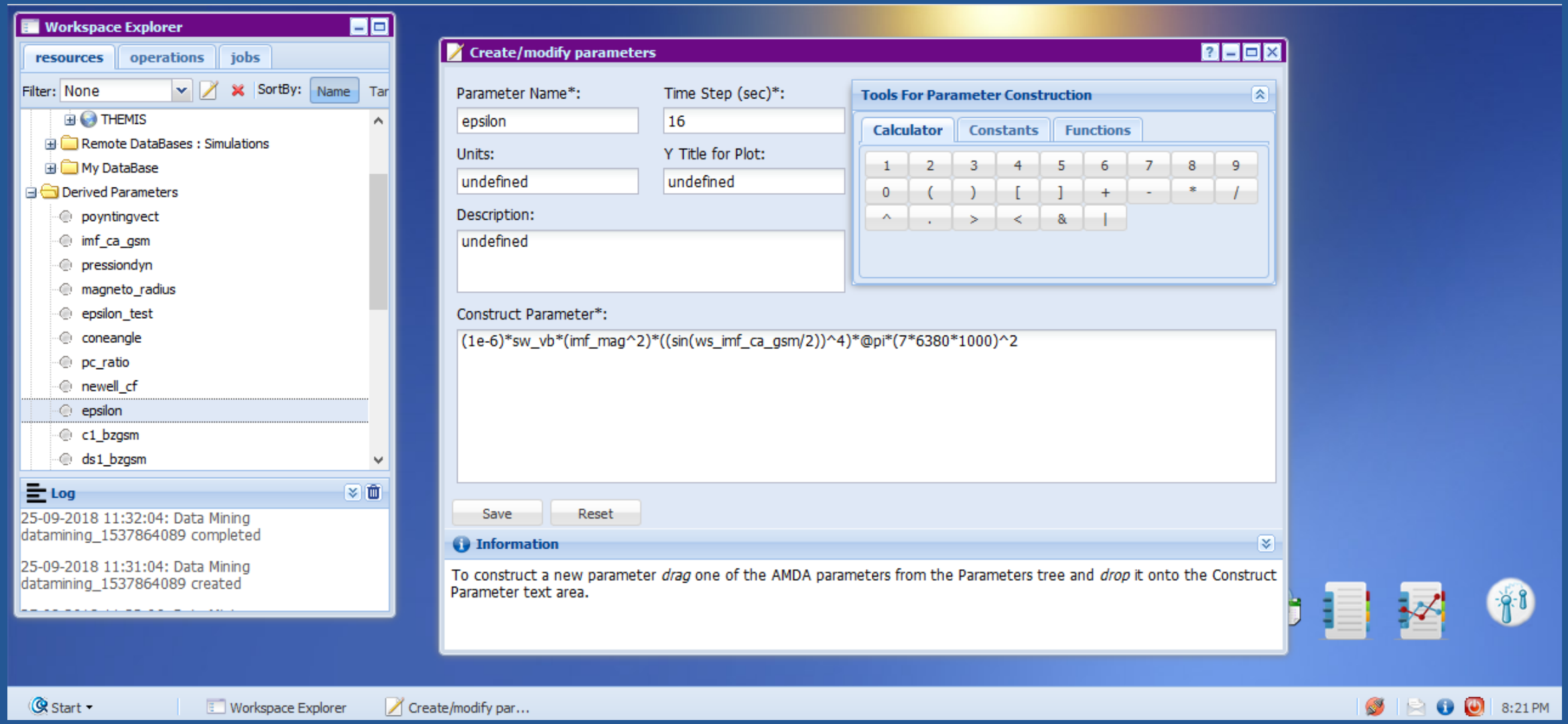

3D View

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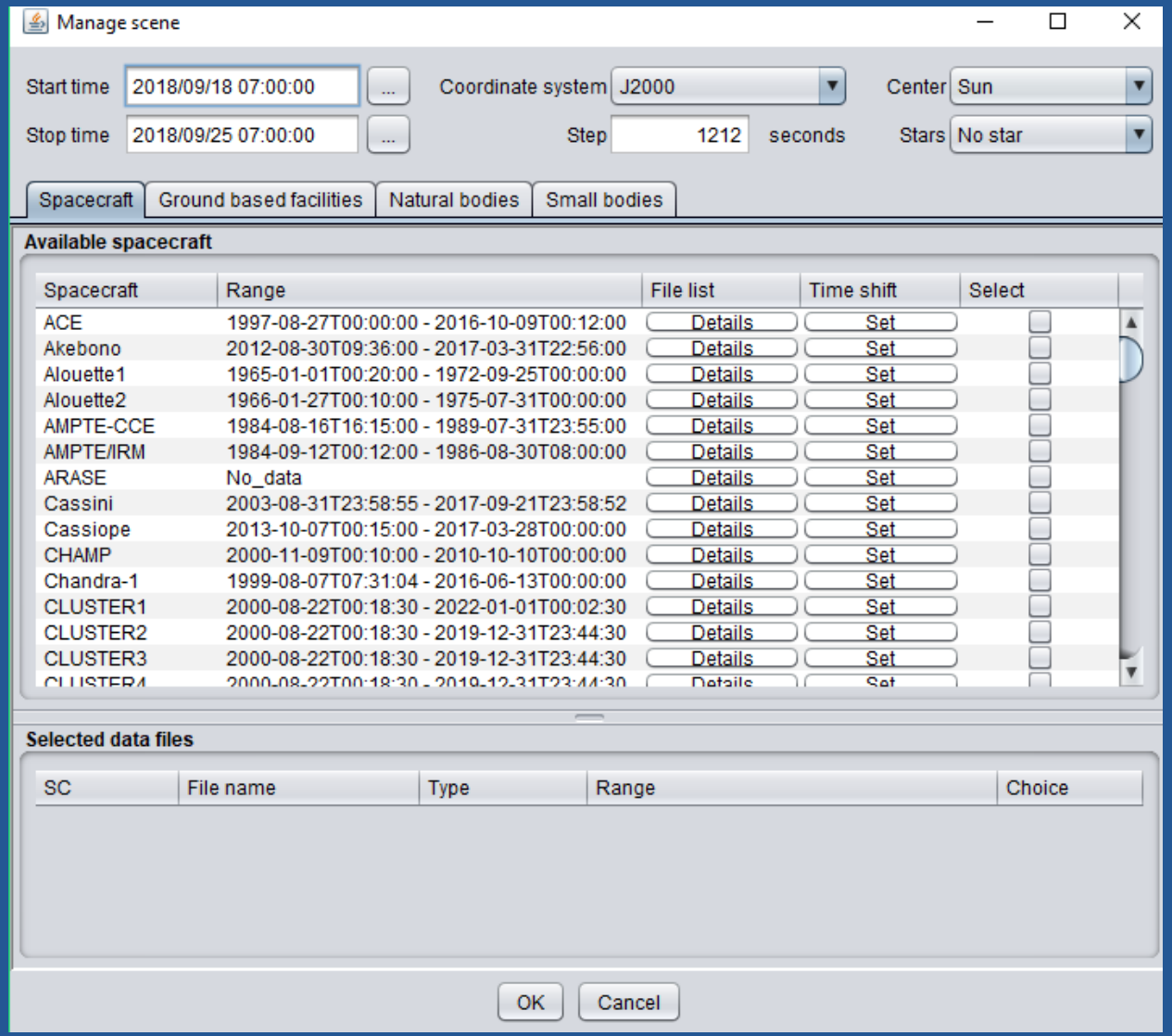

Orbits, data and models in 3D

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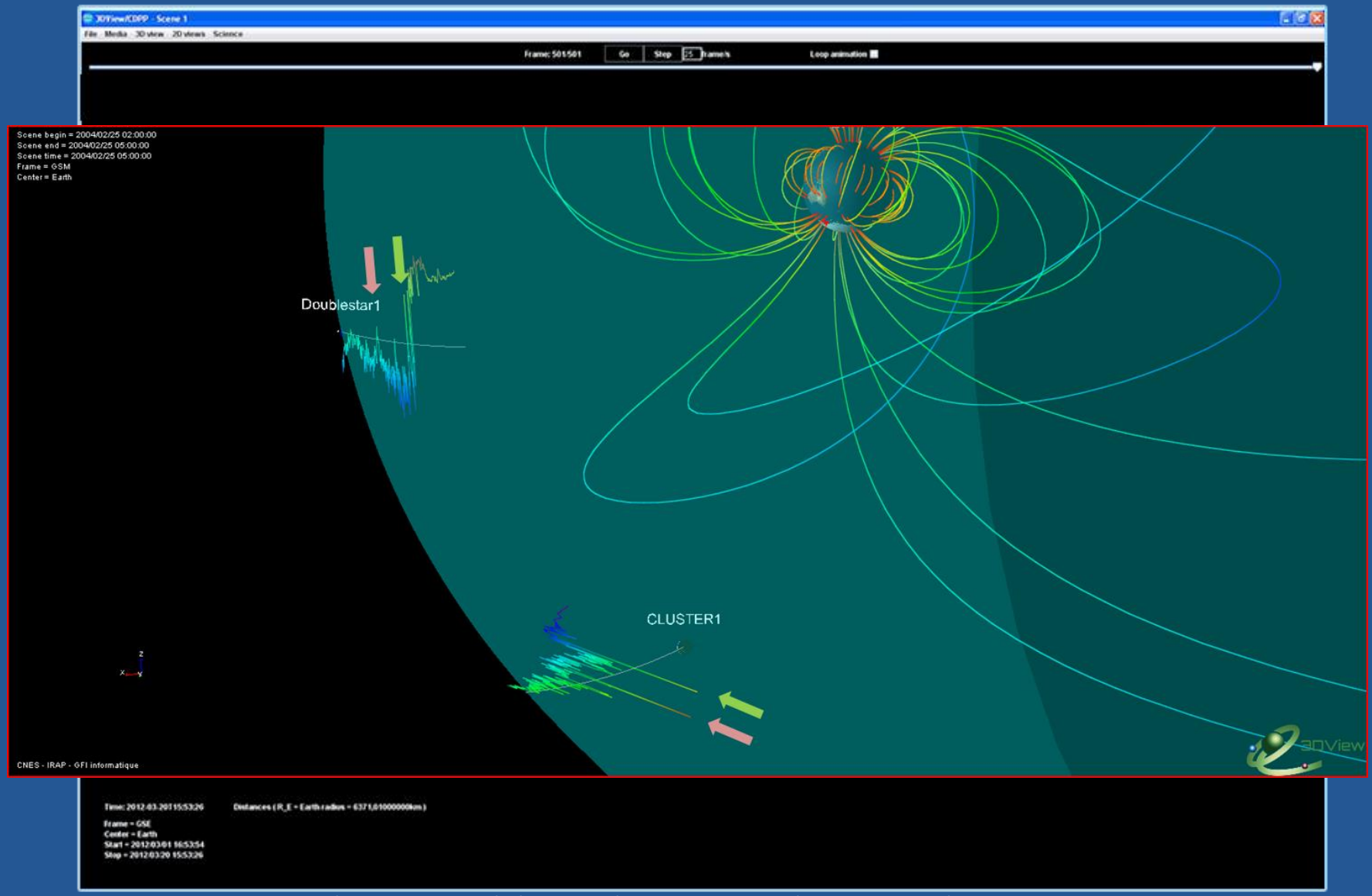

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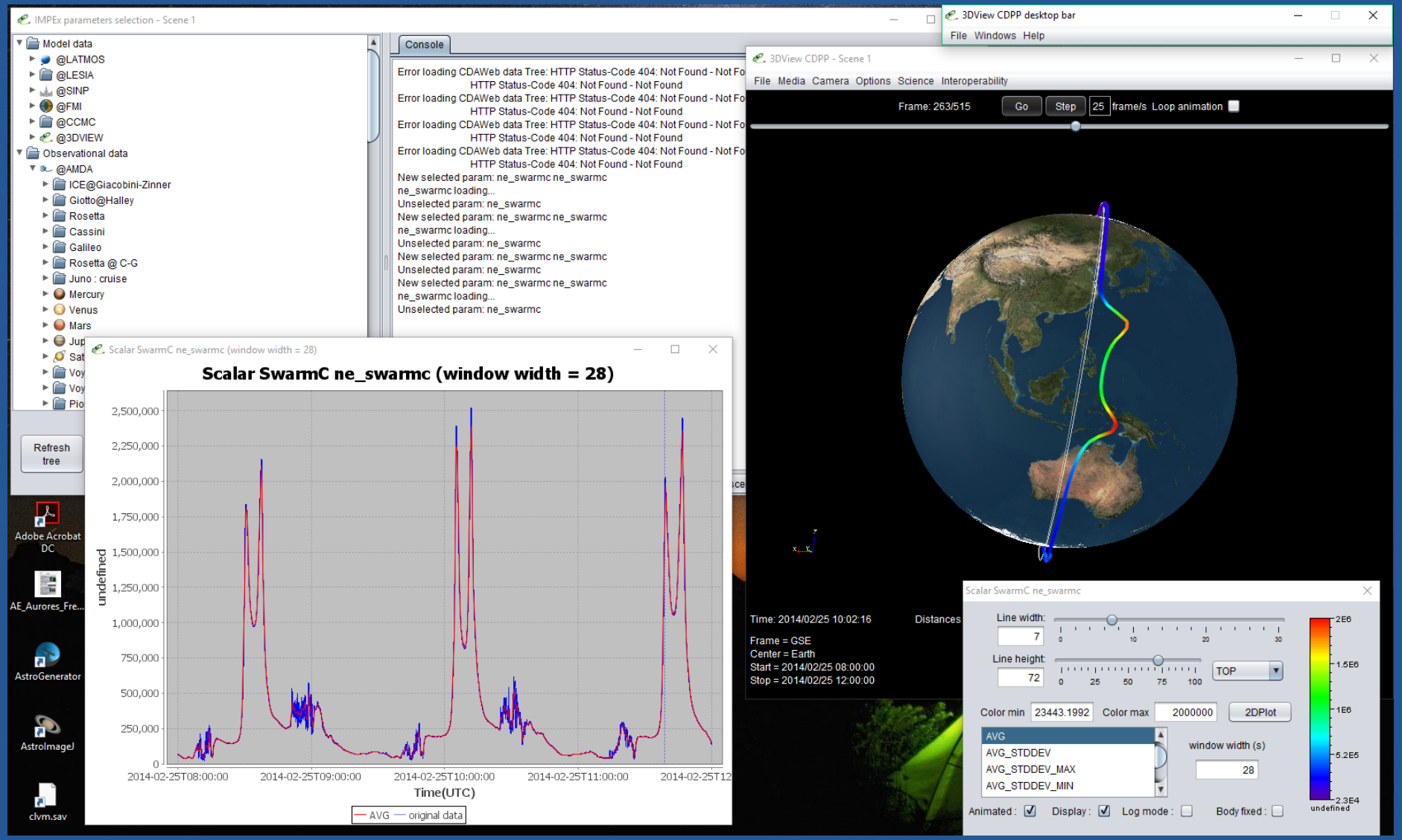

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3D View: Conjunction Search Tool

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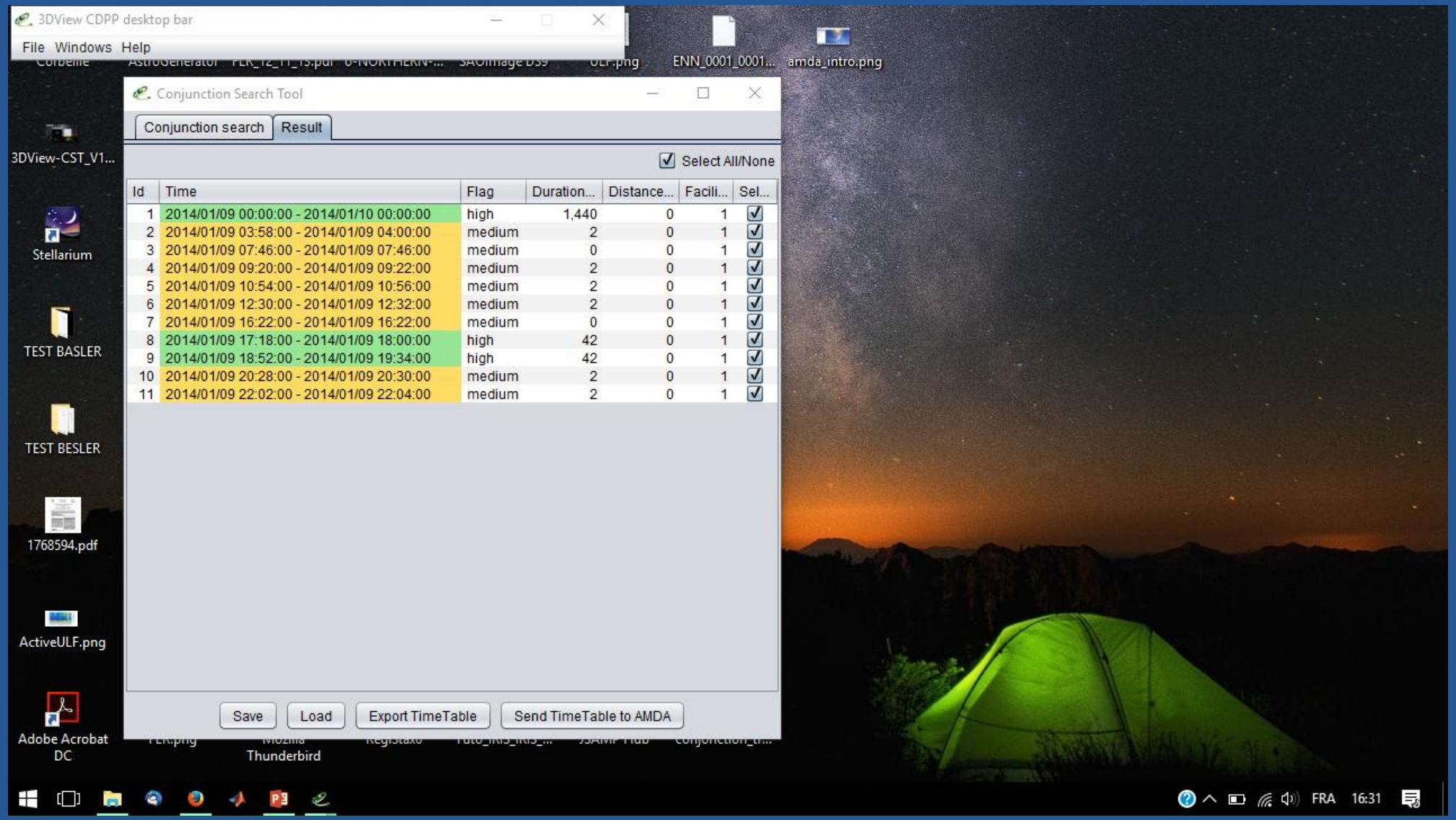

Orbits, data and models in 3D

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3D View: 2D projection with field-line tracing

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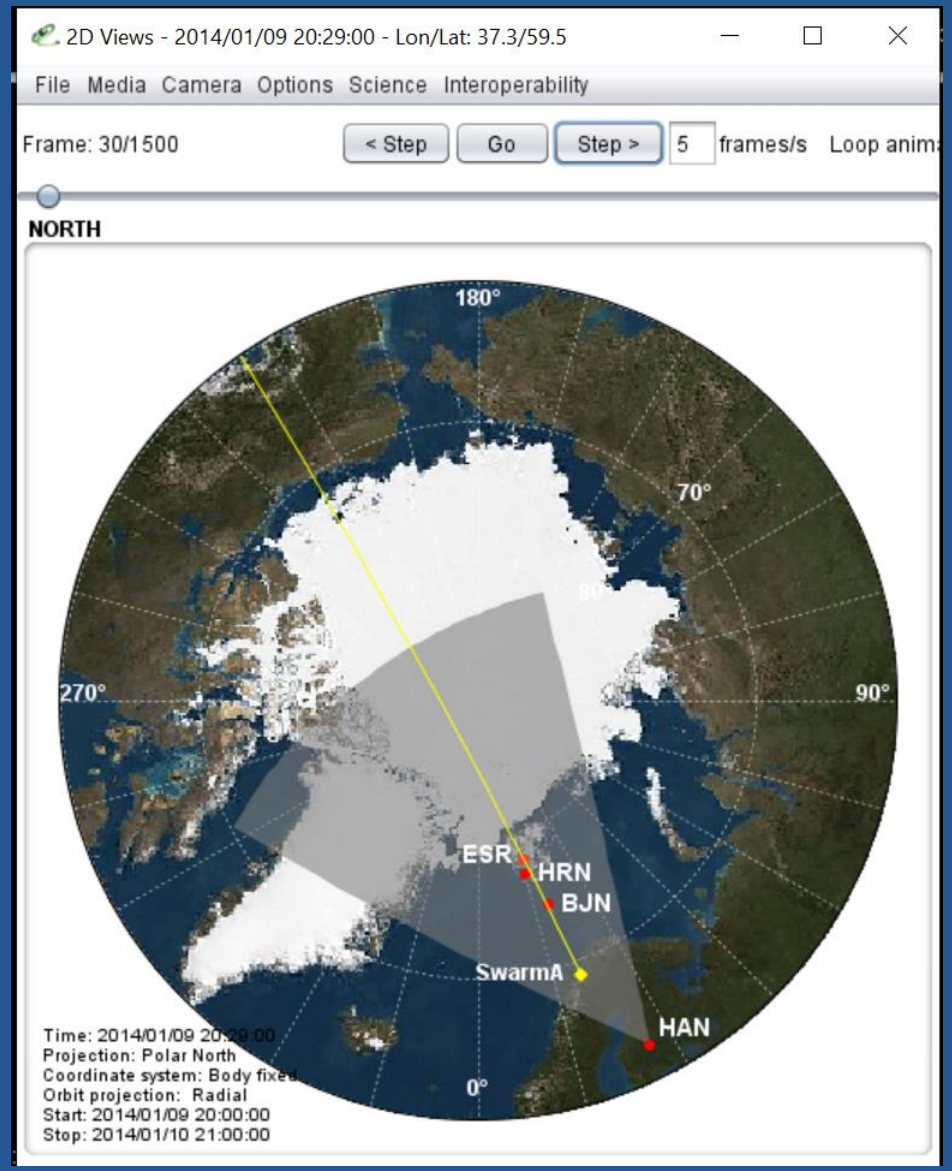

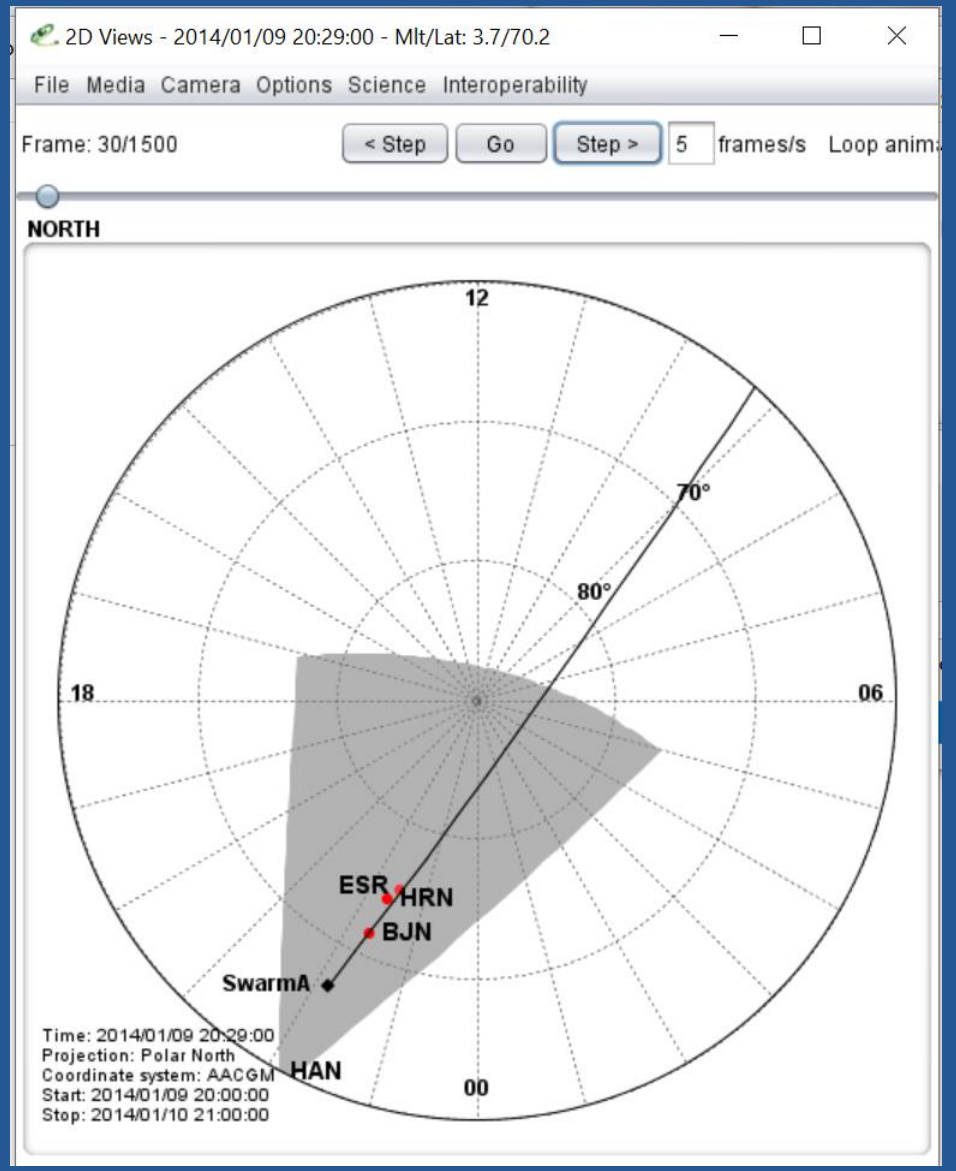

Summary

http://cdpp.eu

The French data centre for plasma physics (CDPP) has been developing various web-based services that are designed to, among other things:

- facilitate multi-instrument data access, exploitation and visualisation;
- combine data and models;
- allow data mining;
- find and predict conjunctions between ground-based and space-borne instruments;
- make ready-to-publish figures.

Beyond research, CDPP services are also used for teaching and public outreach.

We need your feedback to improve!