MATISSE

The ASDC tool to access, analyze and visualize planetary exploration data

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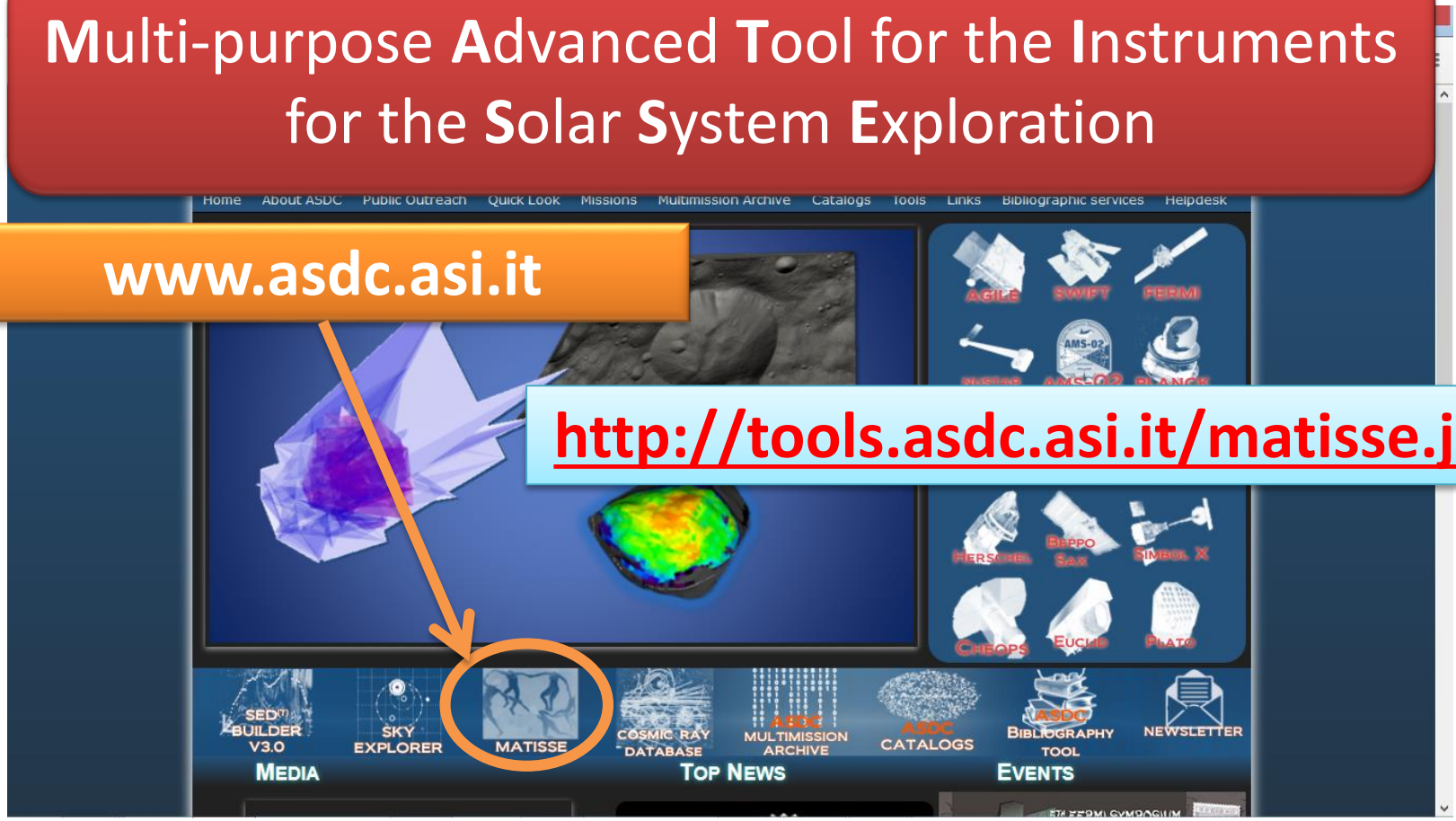
Accessing MATISSE

Multi-purpose **A**dvanced **T**ool for the **I**nstruments for the **S**olar **S**ystem **E**xploration

www.asdc.asi.it

http://tools.asdc.asi.it/matisse.jsp

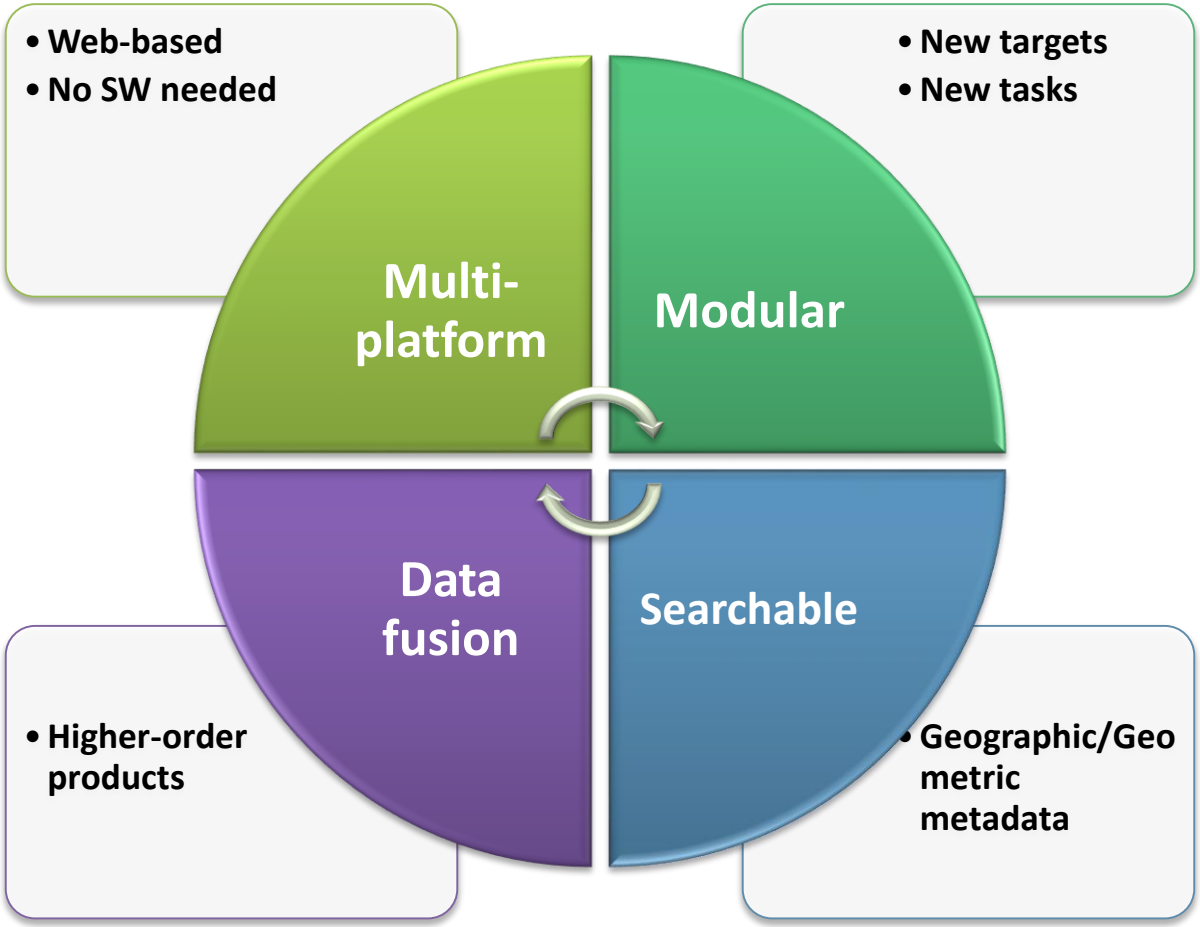


Main goal

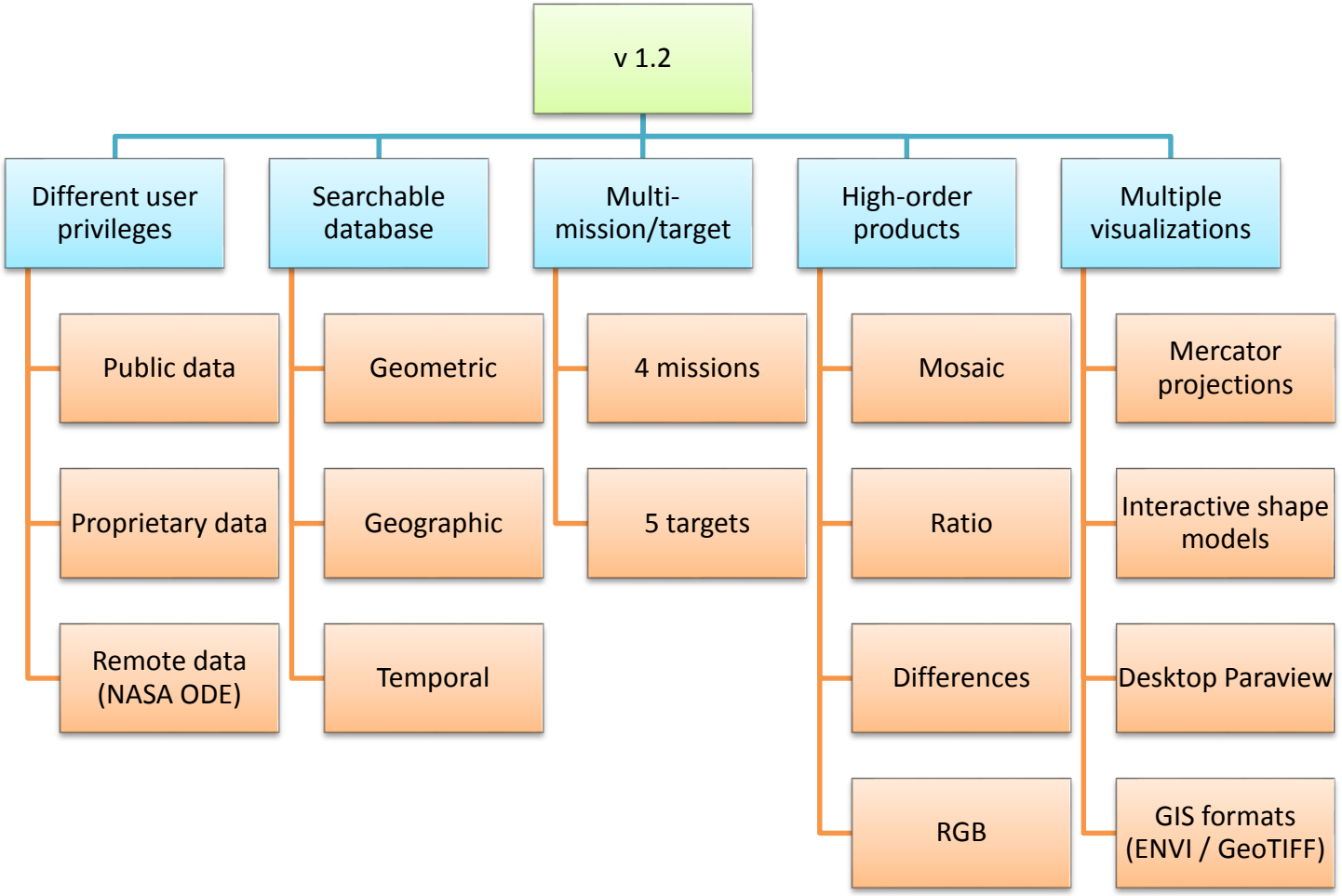
Give the ASDC planetological community a tool to access and visualize data on the shape model of the desired target

- No more searching through old-style FTPs
- No more huge data downloading
- No more self-made SW to read data
- 3D visualization directly on the target body

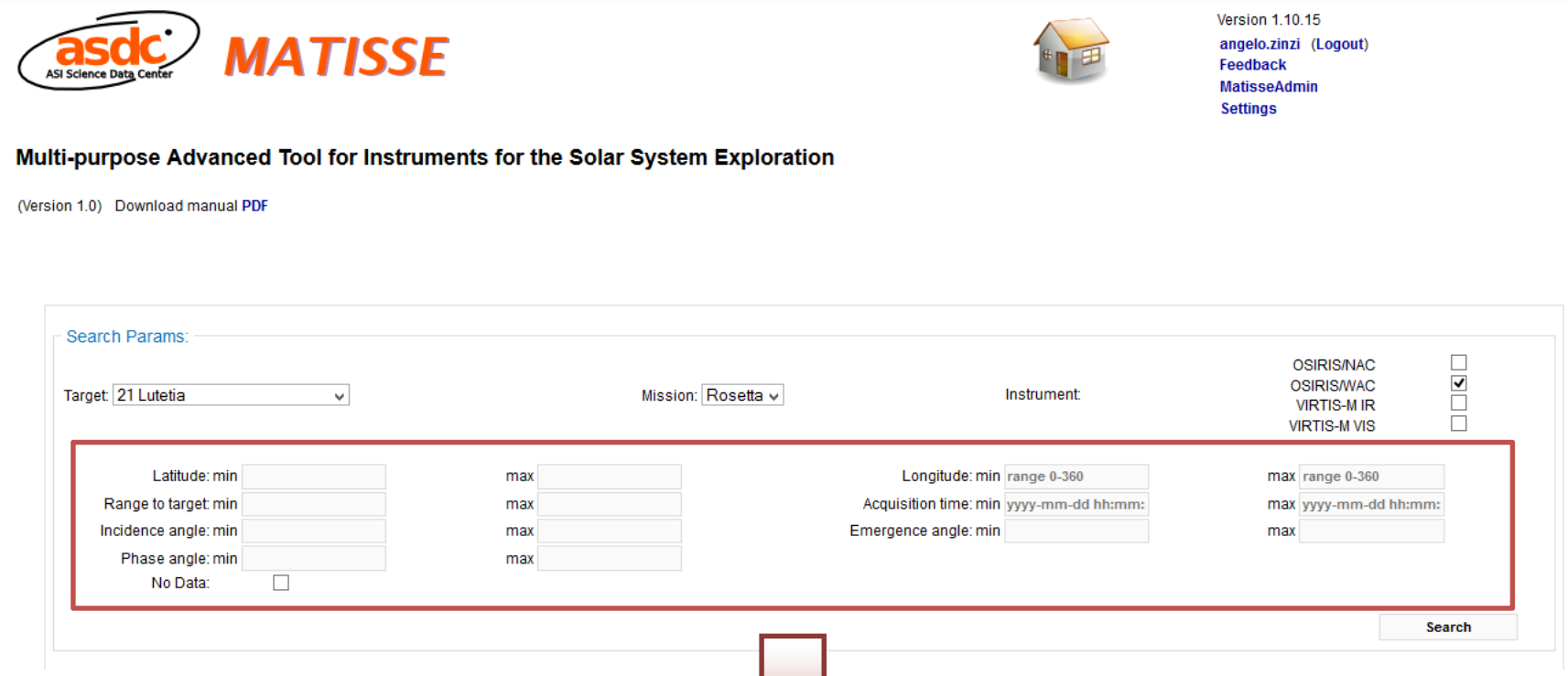
MATISSE


• Web-based
• No SW needed
• New targets
• New tasks
Multi-platform
Modular
Data fusion
Searchable
• Higher-order products
• Geographic/Geometric metadata

MATISSE current features

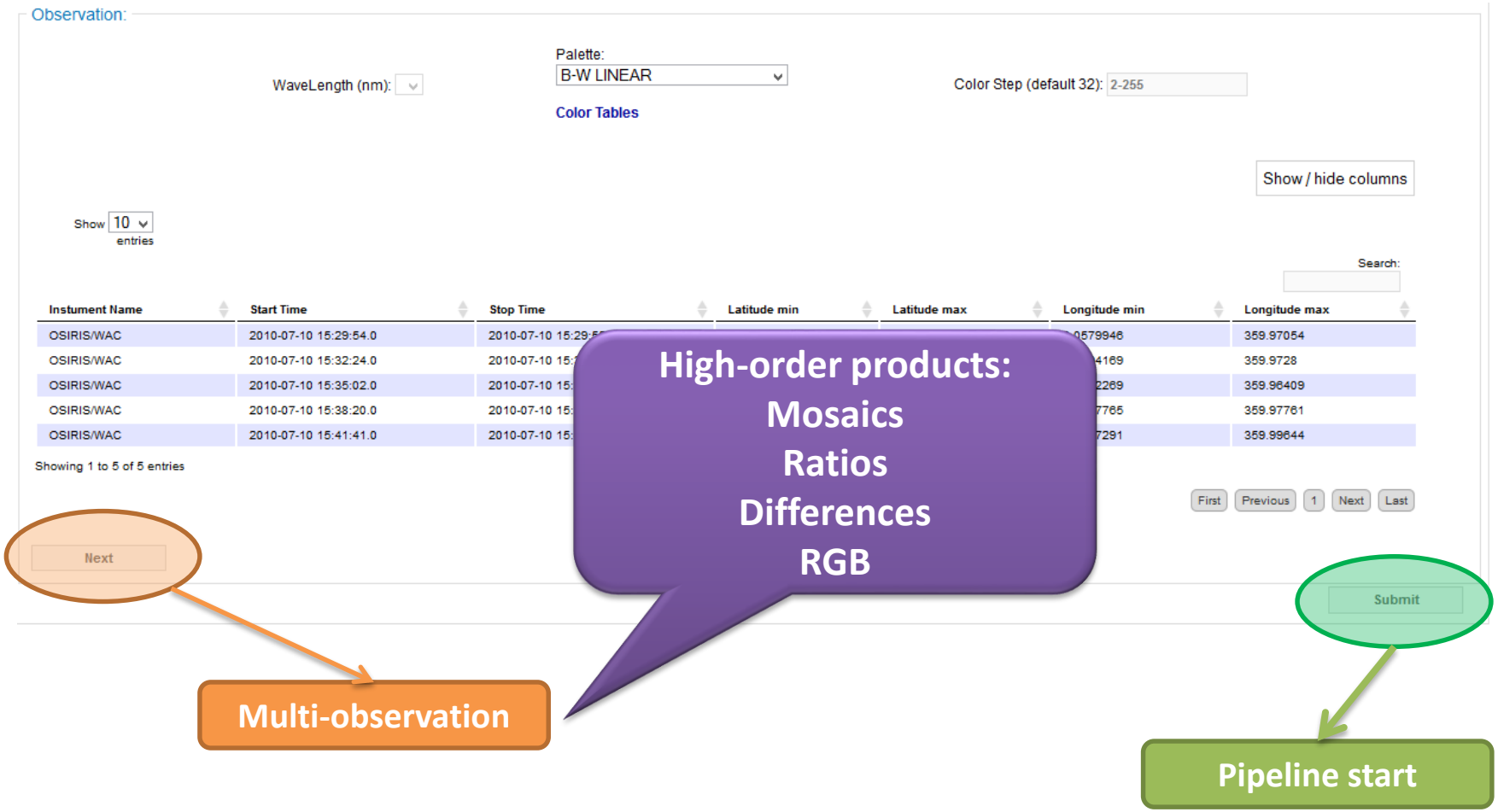


MATISSE homepage

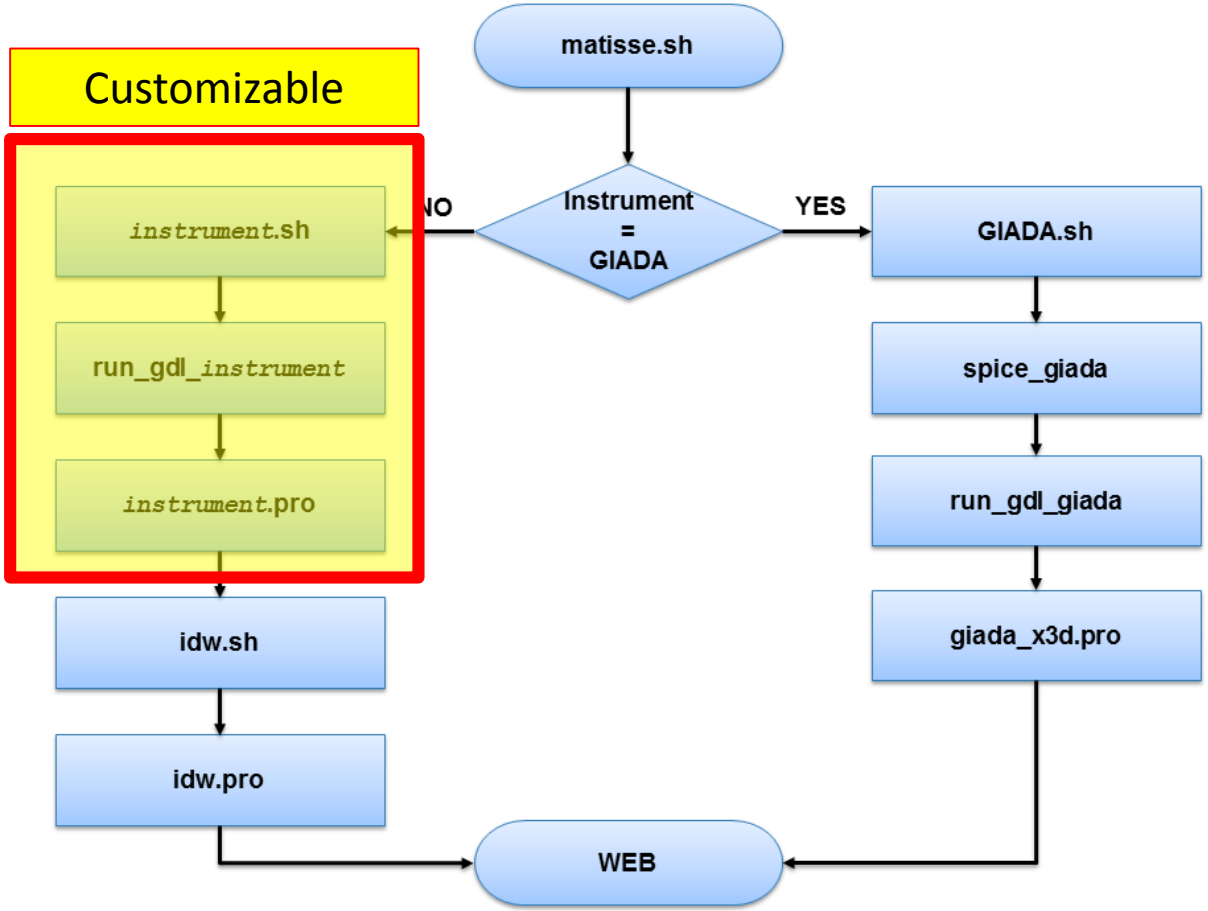


Geographic/Geometric search

Query results

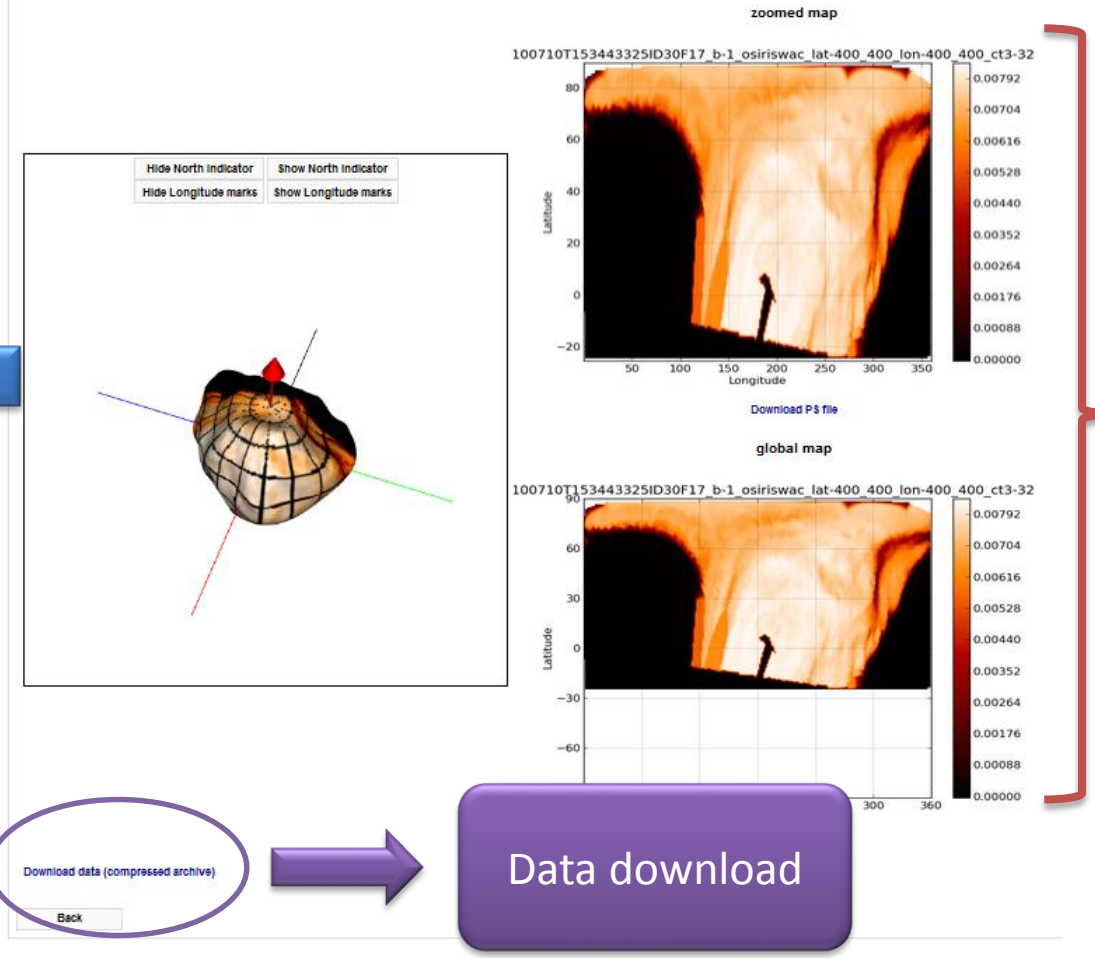


MATISSE flowchart



Output page

3D interactive shape model



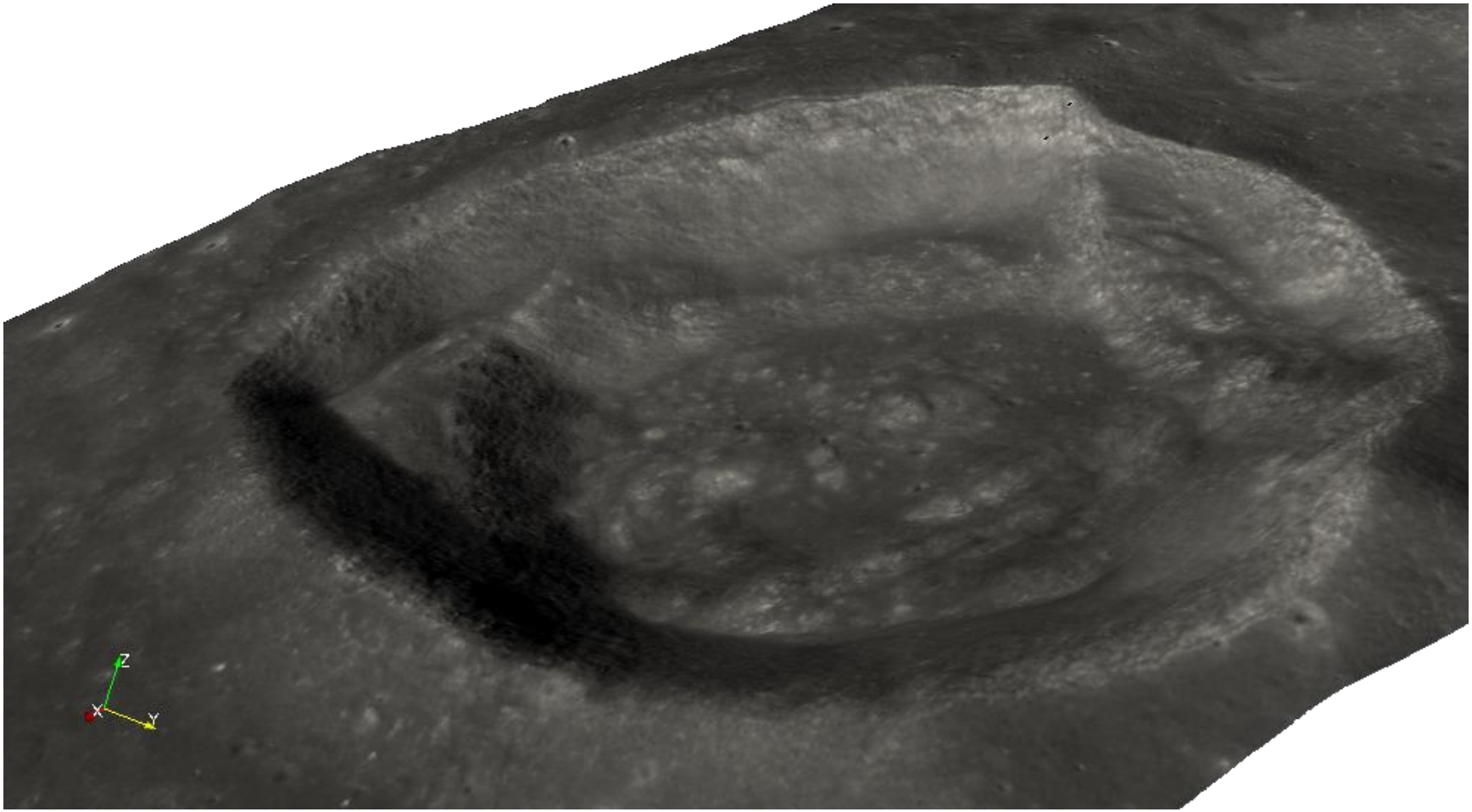
2D projected maps

Data download

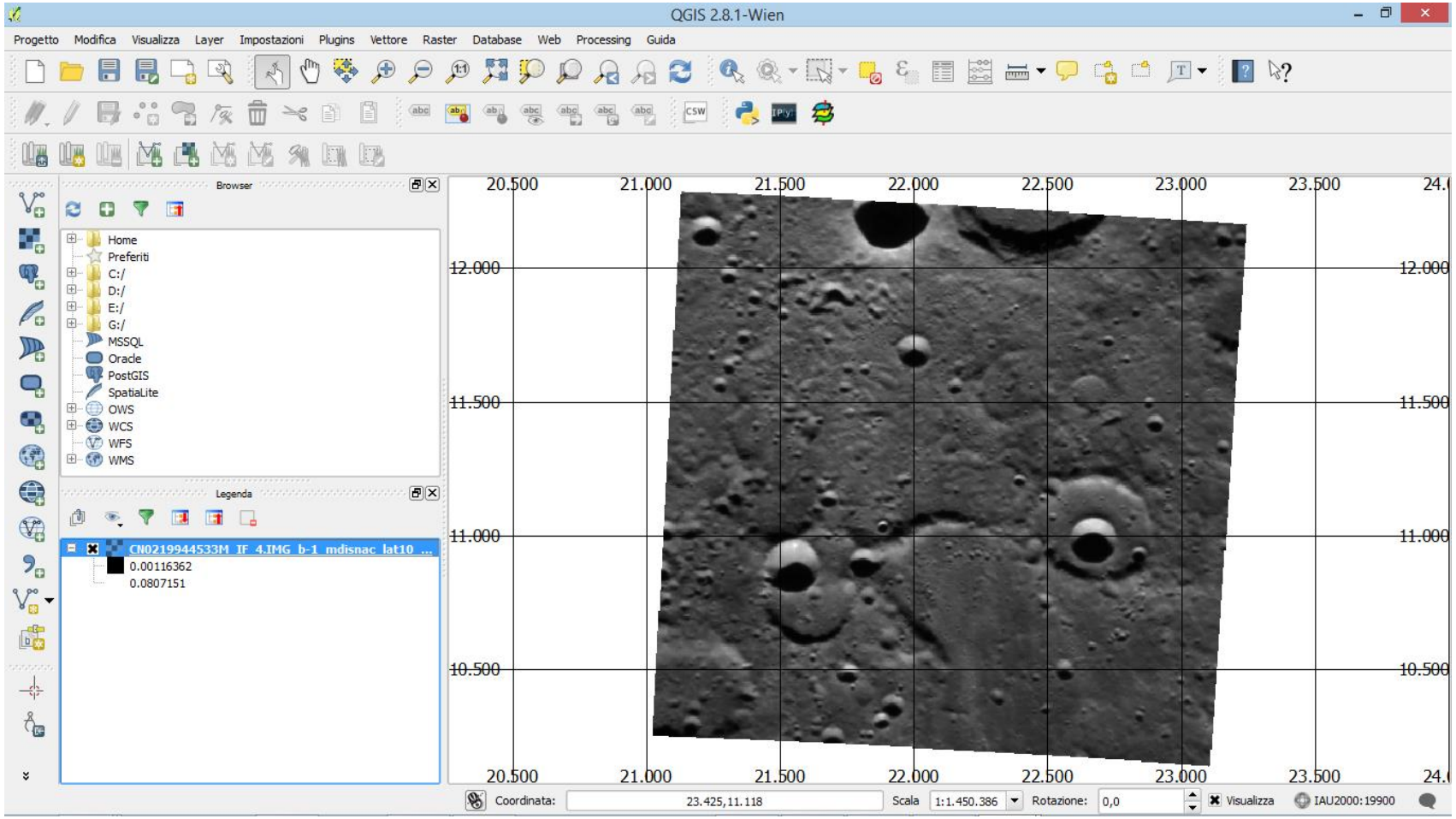
High-resolution visualization

- Downloadable files can be read with Paraview (free software available online)
- The offline visualization offers huge possibilities to improve resolution

The Moon



Mercury


QGIS 2.8.1-Wien
Progetto Modifica Visualizza Layer Impostazioni Plugins Vettore Raster Database Web Processing Guida
Browser
Home
Preferiti
C:/
D:/
E:/
G:/
MSSQL
Oracle
PostGIS
SpatiaLite
OWS
WCS
WFS
WMS
Legenda
CN0219944533M_IF_4.IMG_b-1_mdisnac_lat10_...
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21.000
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22.000
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23.000
23.500
12.000
11.500
11.000
10.500
Coordinata:
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Scala
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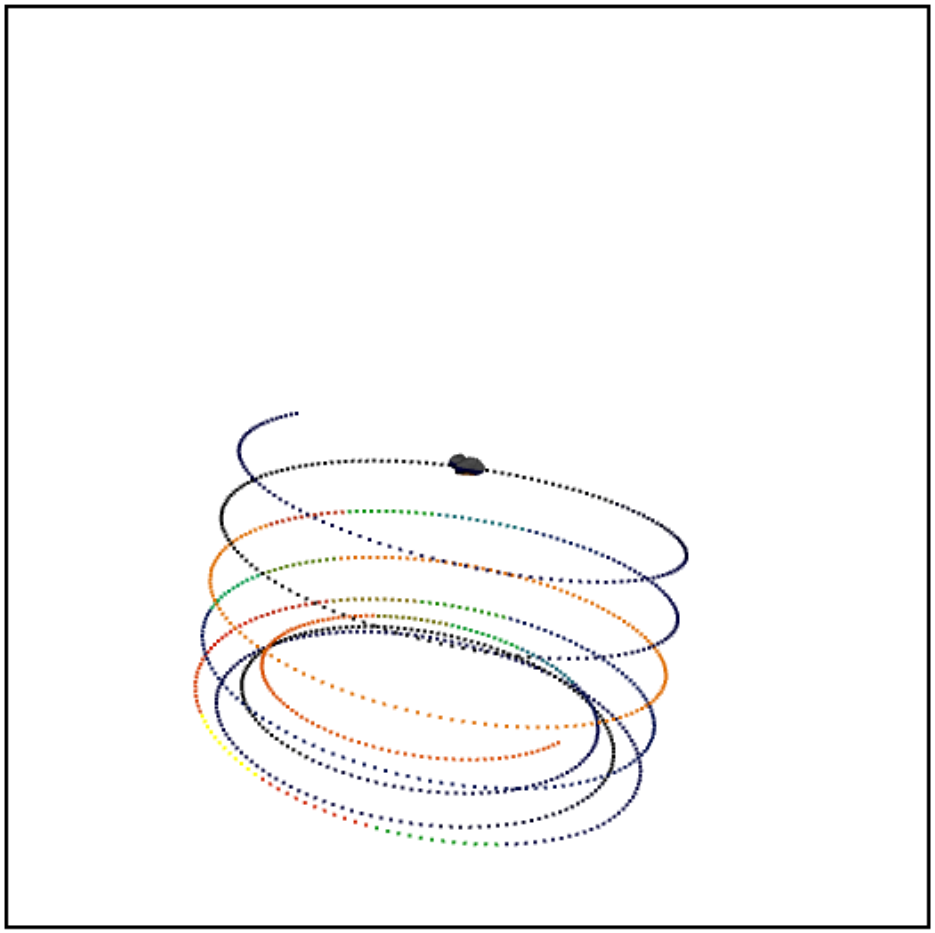
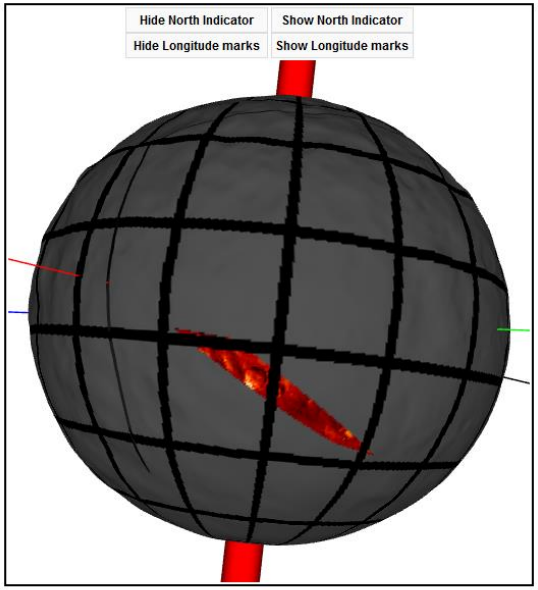
Rotazione:
0,0
Visualizza
IAU2000:19900

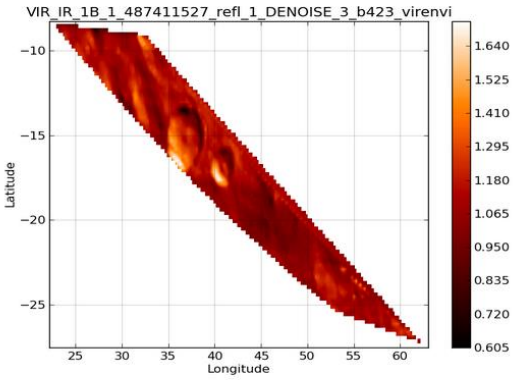
GIADA-Rosetta simulated data



NEW INSTRUMENTS READY TO BE ADDED

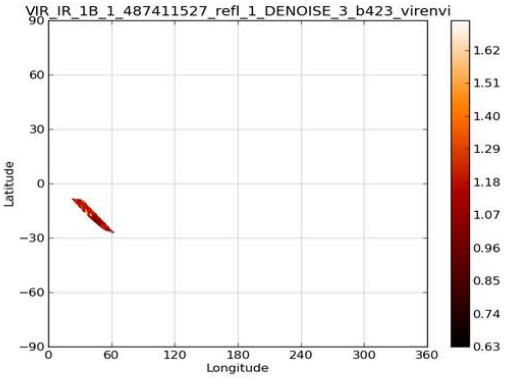
VIR-Dawn @ Ceres | web





Download PS file

global map

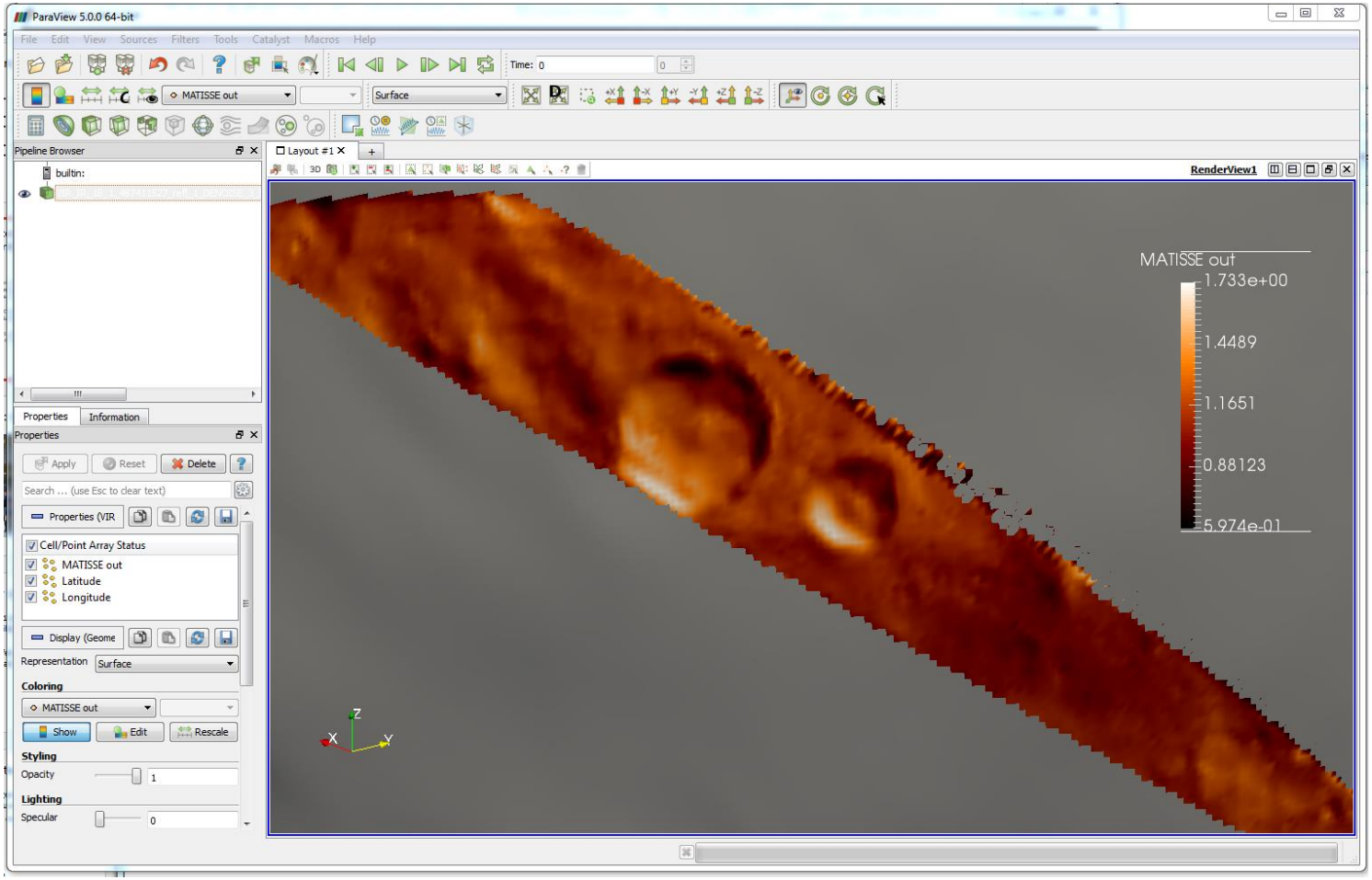


Download PS file

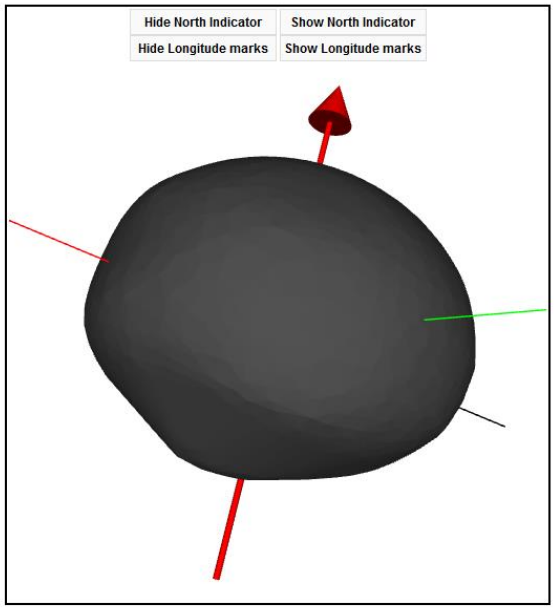
Download data (compressed archive)

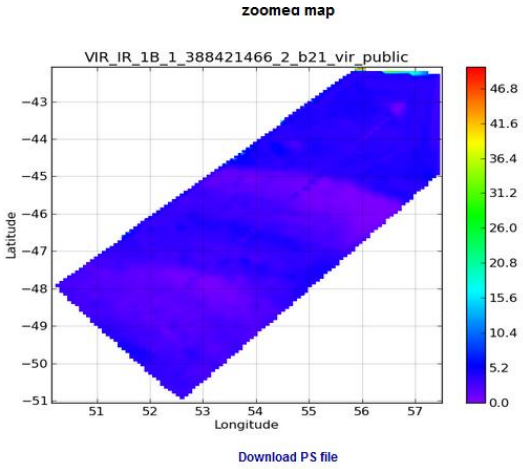
Download 3D data (compressed archive)

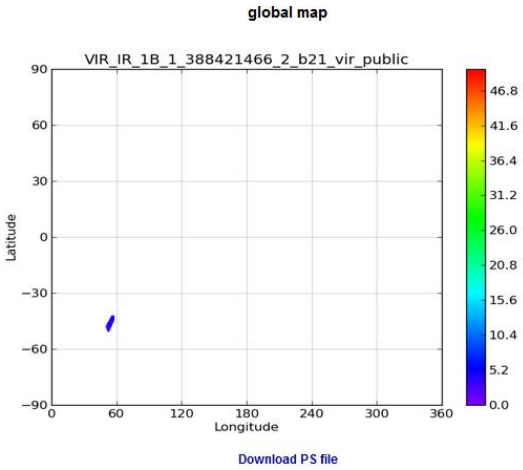
VIR-Dawn @ Ceres | Paraview



VIR-Dawn @ Vesta





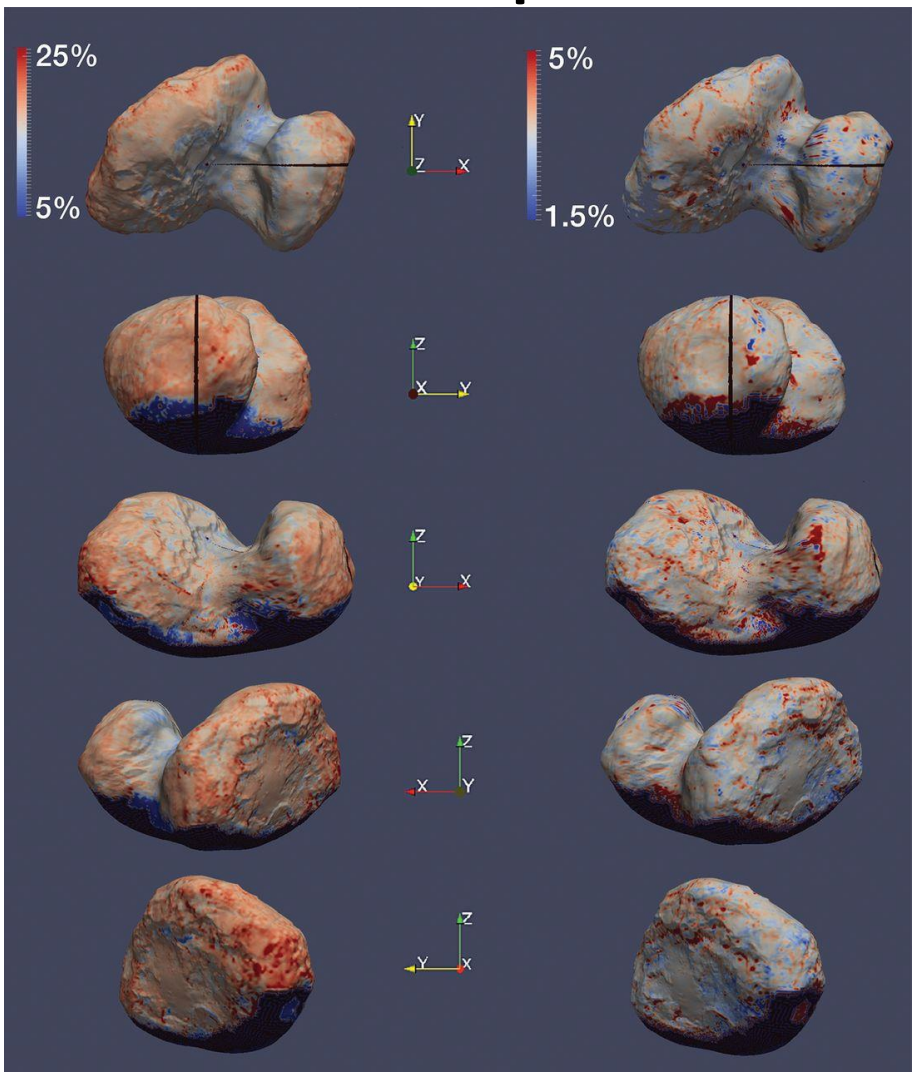


Public data

vtpMaker.py

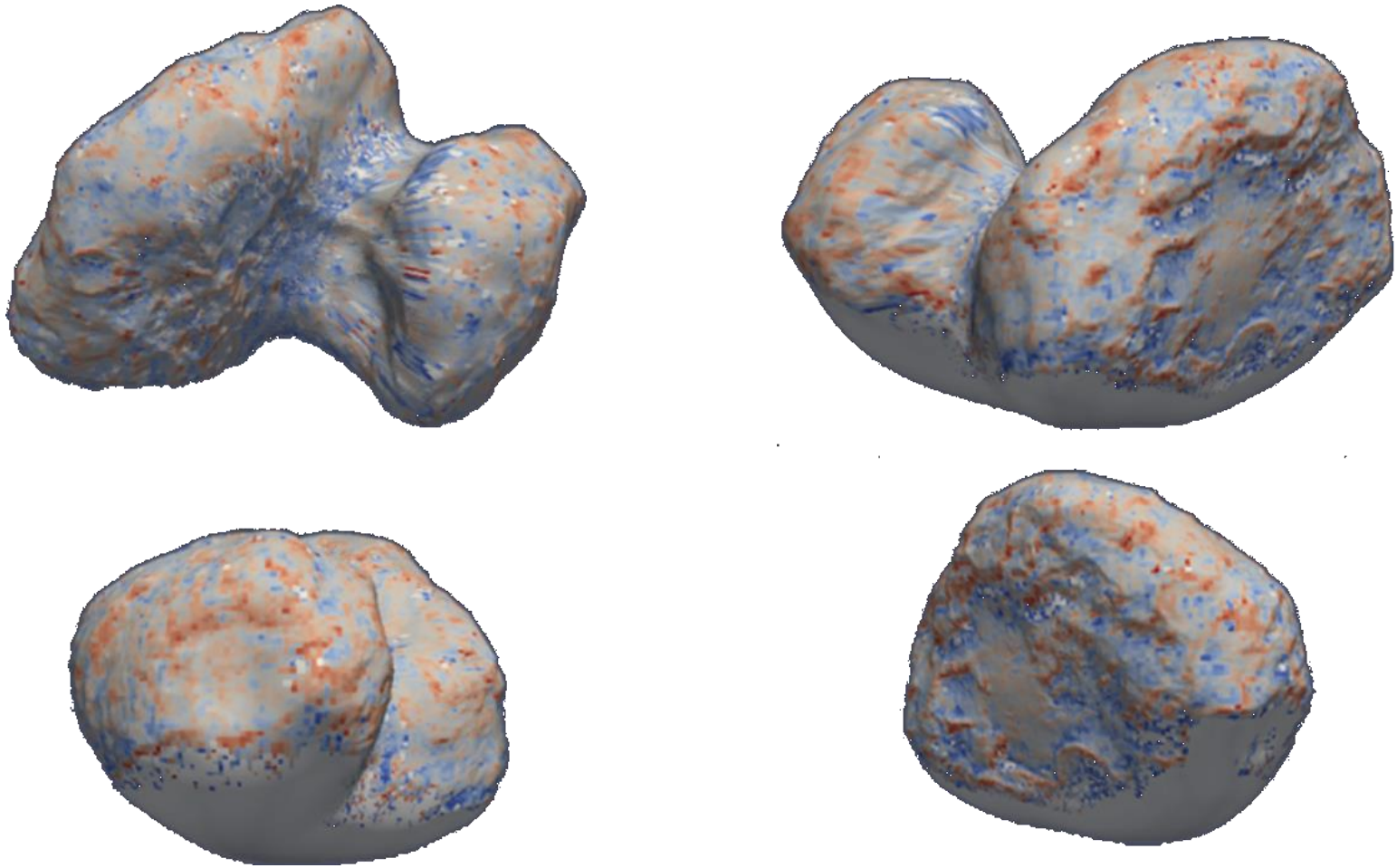
- Stand-alone Python script to build high-resolution Paraview files
  - Used in MATISSE to create Paraview files
- Easily customizable to create ad-hoc visualizations not included in MATISSE

VIRTIS-Rosetta Spectral Slopes



F. Capaccioni et al. Science 2015;347:aaa0628

VIRTIS-Rosetta organics map



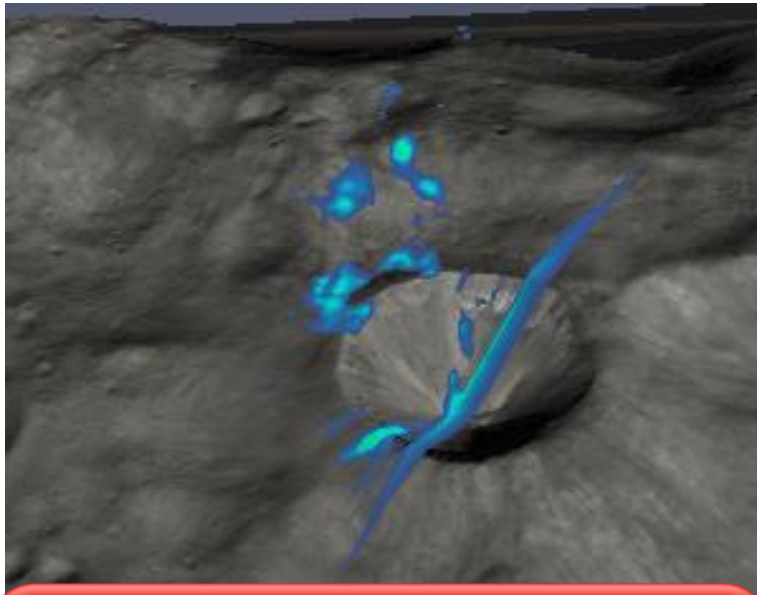
From Filacchione et al., 2014, AGU Fall Meeting

Shape model credit: ESA/Rosetta/MPS for OSIRIS Team MPS/UPD/LAM/IAA/SSO/INTA/UPM/DASP/IDA

NASA Dawn mission @ Vesta

Public shape model by NASA

Ultra Hi-Res DTM converted to 3D visualization



2 layers:
Albedo from the camera
VIR derived parameters
(Palomba et al., Icarus 2015)

Future developments

From the next month new Chang'e-1 observations of the Moon (visible & hyperspectral) will be added (non public)

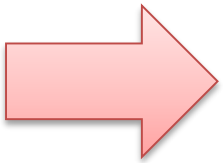
New public datasets to be added

(i.e., Cassini-VIMS)

Ready to work with Planetary VO

Future developments

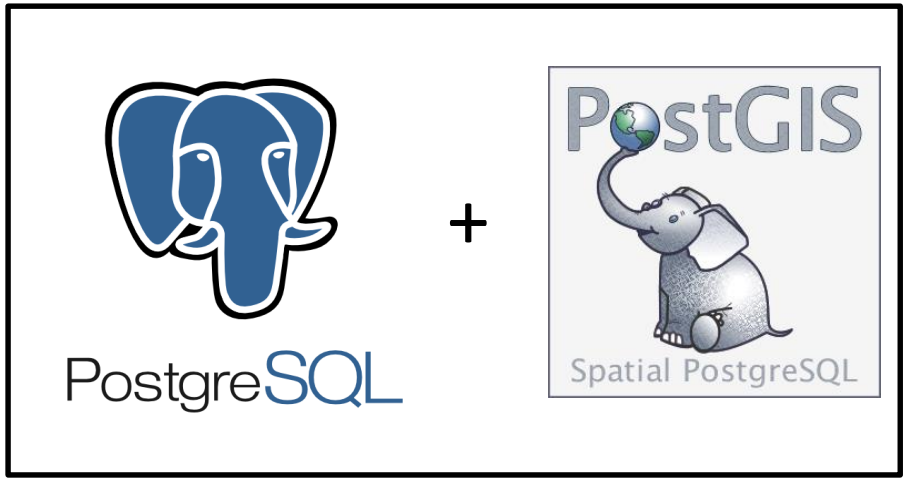
Develop a desktop software to be distributed and used on several operating systems



Huge improvement of data types to be visualized

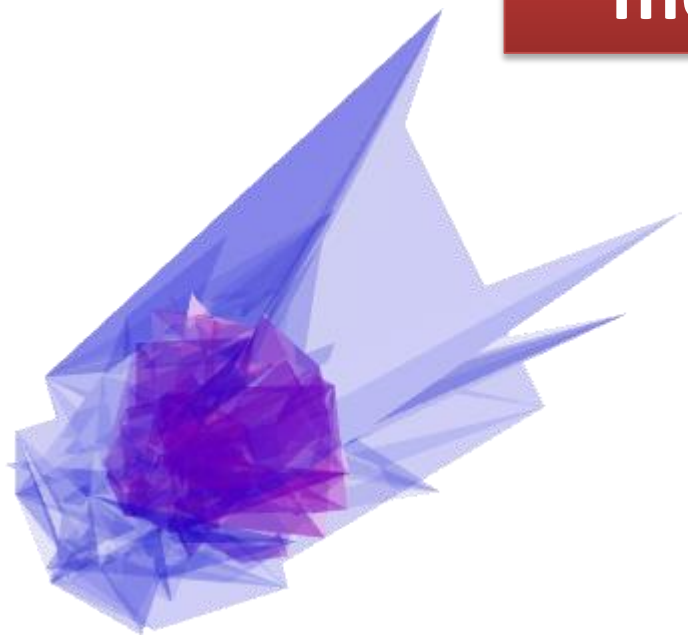
Future developments

Database to be upgraded to PostgreSQL+PostGIS database, best tailored for planetological observations



Future developments

Non surface measurements



Conclusions

MATISSE presently manages several data types and can be easily expanded to new missions, targets and functionalities

- VIR (public & proprietary) data to be added in the next weeks
- Chang'e Moon (proprietary) observations to be added in the next month
- New public datasets to be added (NASA ODE, Planetary VO, PDS, PSA)

We would be glad to further improve collaborations

THANK YOU

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