

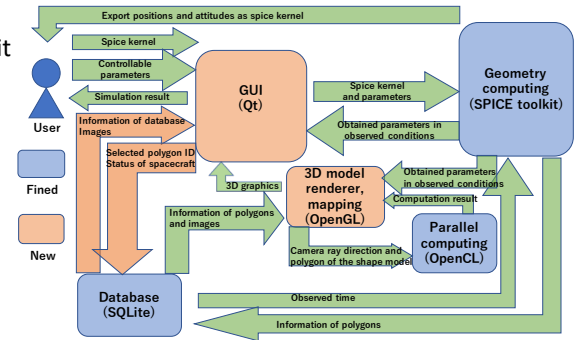
GUI Retrieval of FOVS in HARMONICS for 2018 Rendezvous of Hayabusa2

#1857

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- ◆ HARMONICS (HAYabusa Remote MONItoring and Commanding System)
 - Visualization tool for supporting Hayabusa/Hayabusa2 missions based on SPICE toolkit
 - FOVs (Field Of View) and LOSs (Line Of Sight) of scientific instruments
 - Geometry between the spacecraft and the target asteroid
 - Coverage of observed areas with a DB
 - Modification of loaded positions and attitudes of S/C
 - Uses
 - Loading predicted trajectories with attitudes before observations
Mission planning for timing of observations based on the coverage DB
 - Loading determined trajectories with attitudes after observations
Data analysis with observations to consider illumination conditions, etc.
 - History
 - Original HARMONICS [1] has been developed with GTK (a GUI library).
 - Ueno+(2017) has been replaced from GTK to Qt.
 - We have added a new function of GUI retrieval.



Web site
<https://arcspace.jp>

Development environment

OpenGL 4.5 OpenCL 2.2
 Cfitsio 3.4 Ccfits 2.4
 Qt 5.8.0 OpenCV 3.2.0
 C++ SQLite 3.21.0
 SPICE toolkit N0066

HARMONICS and SBMT

(Small Body Mapping Tool by APL)

- Advantages of HARMONICS
 - Visualization of FOVs, LOSs, and geometry of S/C and targets
 - Modification of loaded S/C info.
- Advantages of SBMT
 - Mapping observed images
 - Analysis (measuring & marking)
- Differences in appearance
 - Visualization of obs. coverage
 - H: Footprint with polygons
 - S: Footprint with objects

References

- [1] Nemoto+(2005) 36th LPSC #2050
- [2] Ueno+(2017) Transactions of the Japan Society for Aeronautical and Space Sciences 60(3) pp.132 – 136
 DOI: 10.2322/tjsass.60.132

Switching instruments

Displaying time

Parameter of S/C info.

Opening coverage DB

Listing kernel files
 e.g. observation
 history, shape,
 surface shape data

Storing retrieved
 coverage as new
 project name

