

Applications Session 3

IVOA Interop 2021b

of participants: 57

All these presentations include demos, so there is no substitute for watching the recording.

Pierre Fernique

MocServer v2

Who, where and when in milliseconds. Benefits for VO tools. Demonstration with Aladin Desktop.

MOC is a way to specify sky and/or time coverage (time new with MOC 2.0)

Have 2 libraries: javaMoc and MOCpy

MOCServer is a natural first application

- "small" web server to answer in a few ms:
 - data collections coinciding with a predefined space and/or time coverage
 - Which collections meet some other criteria
 - what is the space/time coverage of those collections?
- Tomcat servlet hosted at CDS
- Manages thousands of MOCs in memory
 - currently >28000 descriptions
 - 23,800 SMOC, >1000 each TMOC and STMOC
 - ~3GB in memory
- Performance comparable to that prior to TMOC support (though server has been upgraded)

Can query by cone, STC, MOC (inline, file or by URL reference)

Slide 14, impressive new benchmarks with time and space coverage

Most queries come from CDS clients, but 25% come from Python

Demo:

MOCServer collections and coverages browsable in Aladin. Interactive features include

- sky coverage display continuously updating as mouse moves over time intervals
- Constraints on MOCServer queries can be graphically selected, supporting constraints in space, time or both
- Construction of new MOCs

Next steps:

1. - Evolution of the python lib for supporting MocServer time extension

2. - VO needs more MOC (S,T,ST) available in/from the VO registry:

- Use "Hipsgen.jar ... STMOC" action => to generate a STMOC from a HiPS
- Use MOCpy/rust/wasm (FX Pineau's tools&lib) => <https://github.com/cds-astro/cds-moc-rust>

Q:What updates are needed to the python library

A: In a sense cosmetic, including understanding the JSON formats

Q: How laborious to create time MOCs

A: Main deal is to recognize appropriate time columns

Q:At ESO have a lot of spectra that may require higher resolution than 1 arcmin recommended?

A: There is a trade off between resolution and resolution. If you have enough memory to improve resolution, then OK. Within MOCServer we have decided to limit the memory footprint with the current limits. Also there is an ADASS paper by Daniel Durand describing SMOCs with HST spectra

Markus Demleitner

Blind discovery and semantics for resource discovery with WIRR

Show and tell on the Web Interface to the Relational Registry (WIRR).

WIRR is a web interface to the registry.

- VODaataService 1.2 supports MOCs (SMOCs)
- UAT keywords with completion
- Search for UCDS
- SQL output to help with RegTAP queries
- Eslint-clean, modern Javascript

STC constraints still suffer from lack of declarations in Registry

Demo

Shows

- UAT autocompletion: b-l-a-z-ars
- related resources
- ADQL-like RegTAP query
- "Blind" Data discovery shows list of resources without specifying mission or data provider
 - Can send result over to Topcat for querying
- Suppose looking for distances - can select from relevant UCDS

- Add a constraint for spectral coverage

listen to `vresource.loadlist SAMP MTypes` to have your client participate (see <https://wiki.ivoa.net/twiki/bin/view/IVOA/SampMTypes>)

Nuria Álvarez Crespo

What's new on ESASky 4.0?

ESASky offers astronomers an easy and interactive way to access high-quality scientific data from gamma rays to radio wavelengths. It is continuously evolving with the addition of new features and the ingestion of new data. In collaboration with the ESA/Hubble team, it is now possible to see the stunning images on the ESA/Hubble website with ESASky, allowing users to overload over two hundred outreach images released by the ESA/Hubble team on top of the ESASky public astronomical data. Moreover, as a first step to turn ESASky into a multi-messenger portal, it is now possible to search for public multi-messenger events from gravitational waves, display their footprints in the sky and download data. Additionally, now the lightcurves from the ESA's Characterising ExOPlanet Satellite (CHEOPS) are available on ESASky too.

ESASky is continuously evolving based on feedback from scientists. Include science mode with most details as well as an "Explorer" mode more geared for the public/amateur users

PyESASky, Astroquery and Javascript API support and allow accessibility to these features

New release is v4.0

Includes

- collaboration with Hubble team to access press release images, (available in Explorer mode only). Can browse in the sky to find where these images are, then select and view them overlaid on the sky, so they are in context, especially regarding relative size.
- CHEOPS light curves
- multi-messenger icon, can find and display gw event data

Future plans

IceCube collaboration

eROSITA

Q: Could there be more links to spectral analysis tools (via SAMP) to analysis tools like CASSIS (and please revive VOSpec)?

A: Certainly can be considered.

Q: Is there any check in ESASky to validate the correct display of observations from other archives, say via ObsTAP queries?

A: We have a few checks, but of course cannot detect everything. Will continue evolving of the checks.

Response: Yes, just acknowledging that the distributed access of data makes tracking issues challenging.

Q: Are there statistics kept on when data from other archives are accessed?

A: Yes, can supply HiPS for chandra access.

Q: What is the percentage of Science vs. Explorer usage?

A: Don't know at this time. Have a perception that it is widely used for outreach.

Q: "New version can use global HiPS registry." Is this using CDS directly?

A: Yes