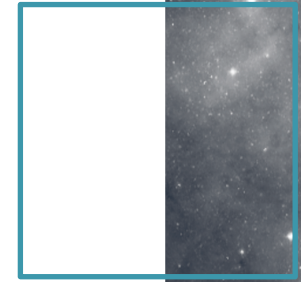
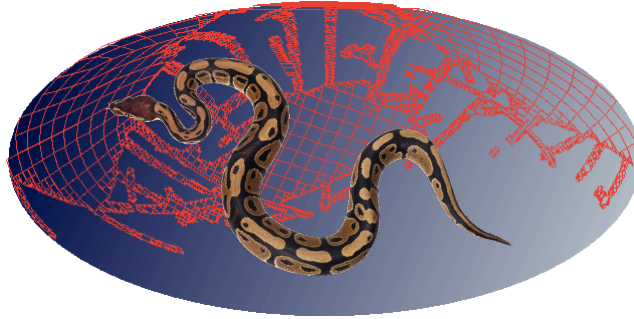


MOCPy



A Python library to handle MOCs



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□ Outline

1. Context
2. Main features
3. Demonstration
4. Requirements/installation
5. Links

□ Context

- MOC (Multi-Order Coverage map)
 - IVOA standard to describe arbitrary sky regions
 - Based on HEALPix tessellation
 - Serialized in a FITS file
- Available MOCs
 - 14,000+ VizieR tables with positions
 - 200+ CDS HiPS (Hierarchical Progressive Surveys)
 - SVO resources
 - WFAU-hosted surveys (UKIDSS, VISTA, OmegaCAM)
 - ...

□ MOCPy features (1/2)

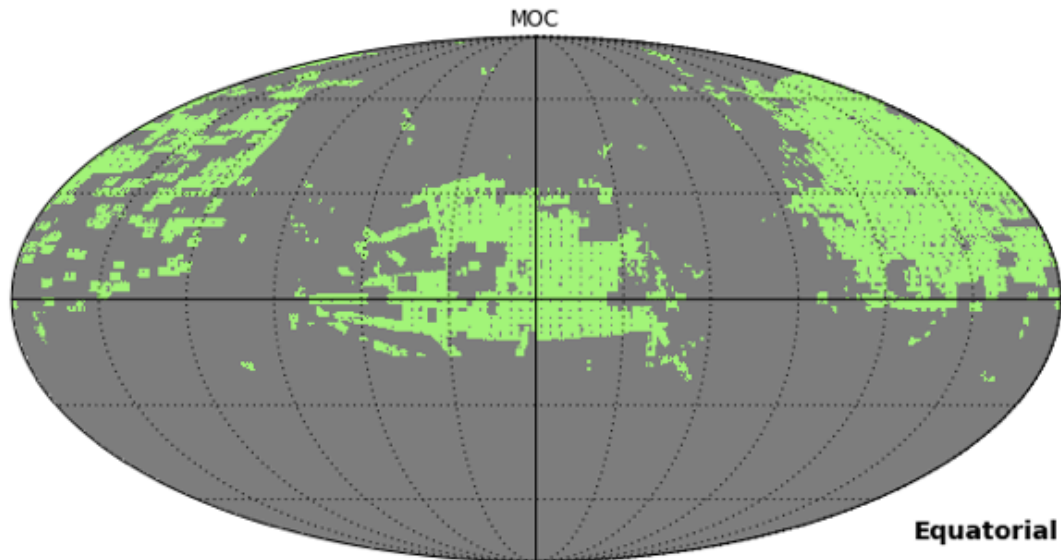
- Read
 - from local file or URL
- Write
- Create a MOC
 - from scratch
 - from a list of positions
- Filter a list of astronomical sources

□ MOCPy features (2/2)

- Plot
- Operations
 - intersection
 - union
- Retrieve a MOC
 - for a VizieR table
 - for a given HiPS
 - query CDS MOCServer
 - (cf. Pierre Fernique's presentation in Registry 2 tomorrow)
- Query by MOC
 - any VizieR table having position
 - a view of SIMBAD data

□ Demonstration

```
In [1]: from mocpy import MOC  
  
In [2]: m1 = MOC.from_vizier_table('II/313/table3', nside=512)  
  
In [3]: m2 = MOC.from_vizier_table('V/139/sdss9', nside=512)  
  
In [4]: m1.intersection(m2).plot()  
0.0 180.0 -180.0 180.0  
The interval between parallels is 30 deg -0.00'.  
The interval between meridians is 30 deg -0.00'.
```



□ Installation

- Requirements
 - Python 2 and Python 3
 - Dependencies
 - astropy
 - numpy
 - healpy
- Available on PyPi repository
 - `pip install mocpy`

Work in progress

- Better documentation
- More tests
- Performances
 - Some operations currently too slow
 - MOC creation for 1+ million positions

□ Links

- Github project
 - <https://github.com/tboch/mocpy>
 - GPL v3

- Notebooks
 - Examples on how to use the API
 - <https://github.com/tboch/mocpy/tree/master/notebooks>