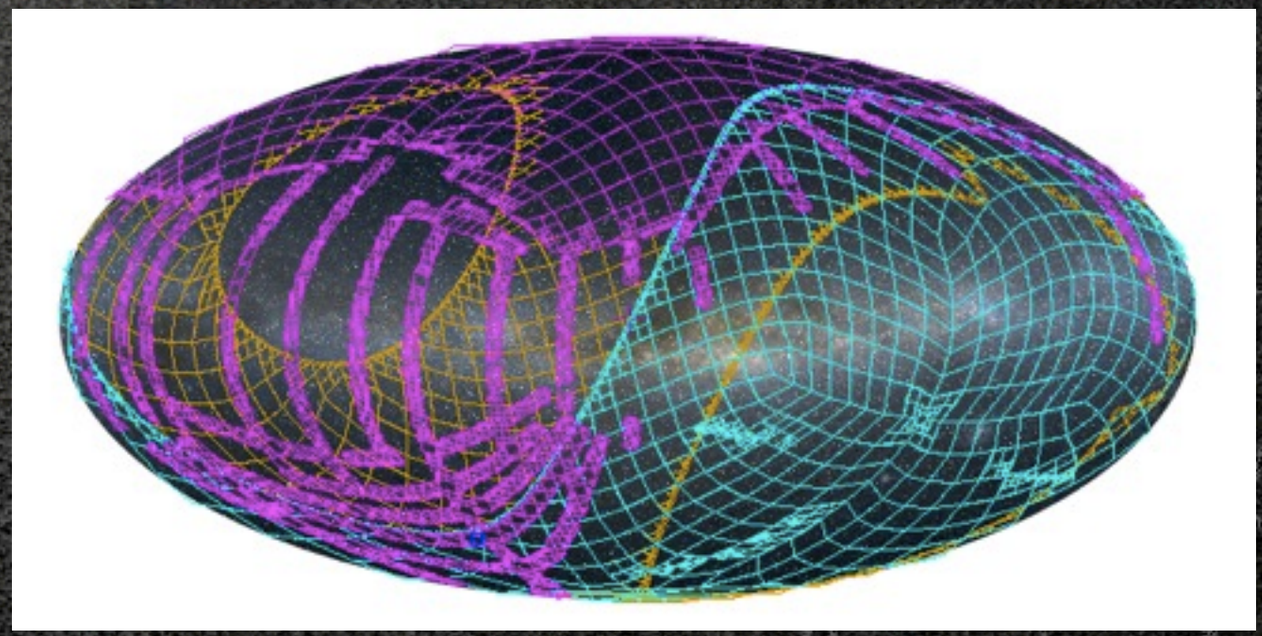
MOC : status and perspectives

Thomas Boch [CDS]



What ?

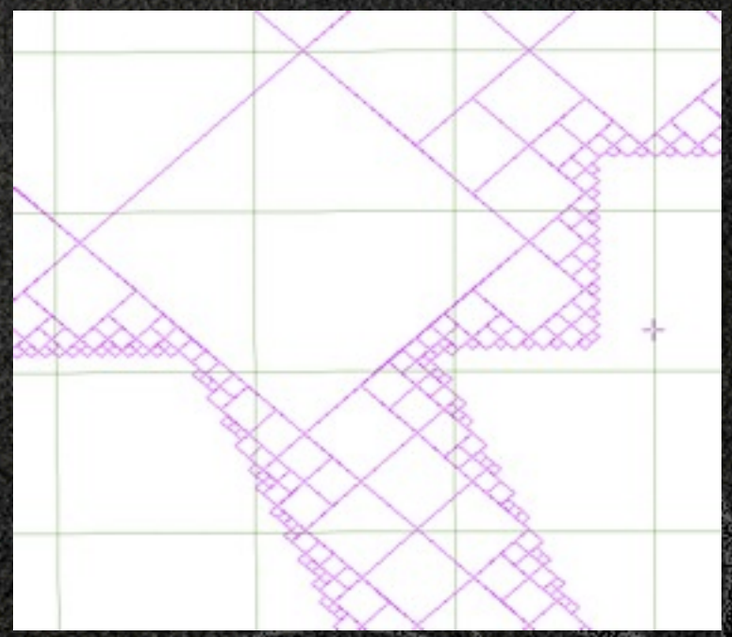
- MOC: Multi Order Coverage maps
- A method to specify the **coverage of a dataset** (list of sources, image survey, etc)

What for ?

- Use cases:
  - visualization of coverage
  - fast comparison of coverages
    - find common coverage between multiple datasets
  - filter out a list of positions, keeping only those inside the coverage of a given dataset

How ?

- Based on HEALPix tessellation
- A MOC = a list of HEALPix cells at different resolutions
- Encoded in a FITS binary table (details in IVOA note)



Why not ... STC ?

- STC is well-suited to describe **accurately** a region on the sky
- But:
  - no canonical way to express a region
    ⟶ comparison of STC coverages, computation of intersection is complex (spherical geometry) and slow

History

- *January 2011*: first implementation
- *May 2011*: presentation at Interop Apps session
- *November 2011*: poster at ADASS
- *April 2012*: IVOA note *(Boch, Donaldson, Fernique, O'Mullane, Reinecke, Taylor)*
- *November 2012*: oral presentation at ADASS

Available products

- Available MOCs
  - MOCs for all VizieR tables and cone search services
  - MOCs for a dozen CS services published by ROE *(UKIDSS, VVV, VMC, VIKING, VHS, VIDEO, ...)*
- Libraries
  - Java library to create MOCs (serialization/deserialization) and compare them (computation of intersection/union)

Who uses MOCs ?

- TOPCAT
  - to speed up *multi-cone search* by discarding positions with no potential counterpart
- Aladin
  - visualization
  - operations (intersection, union, difference, complement)
  - filter out a list of sources
  - query a VizieR table by MOC

Roadmap

- publish code to generate a MOC from
  - a list of positions
  - a list of FITS images WCS
  - code already exists, needs better documentation
- standardization path
  - publish Working Draft by March
  - discuss at Heidelberg Interop
- possible extension of Registry schema for MOCs
  (interest from P. Le Sidaner, vice-chair of Registry WG)

Links

- IVOA note:
  http://ivoa.net/Documents/Notes/MOC/index.html
- MOC for VizieR tables:
  http://alasky.u-strasbg.fr/footprints
- Java library to manipulate MOCs:
  http://cds.u-strasbg.fr/resources/doku.php?id=moc