

# Metadata for astronomical Time Series in VizieR

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# □ The context : VizieR

- 16,500 catalogues
  - 1790+ with timeSerie flag



**Find catalogs among 16574 available**

Clear  Find...

Expand search

? *Catalog, author's name, word(s) from title, description, etc. e.g.: AGN, Veron, I/239, or bibcodes...*

► Search for catalogs by column descriptions (UCD) ?

▼ Hide catalogs containing additional data

time serie  spectrum  images  cube  SED (Spectral Energy Distribution)  none

**Search by Position across 17720 tables**

Target Name (resolved by [Sesame](#)) or Position: Clear  J2000

Target dimension: 2 arcmin Go!

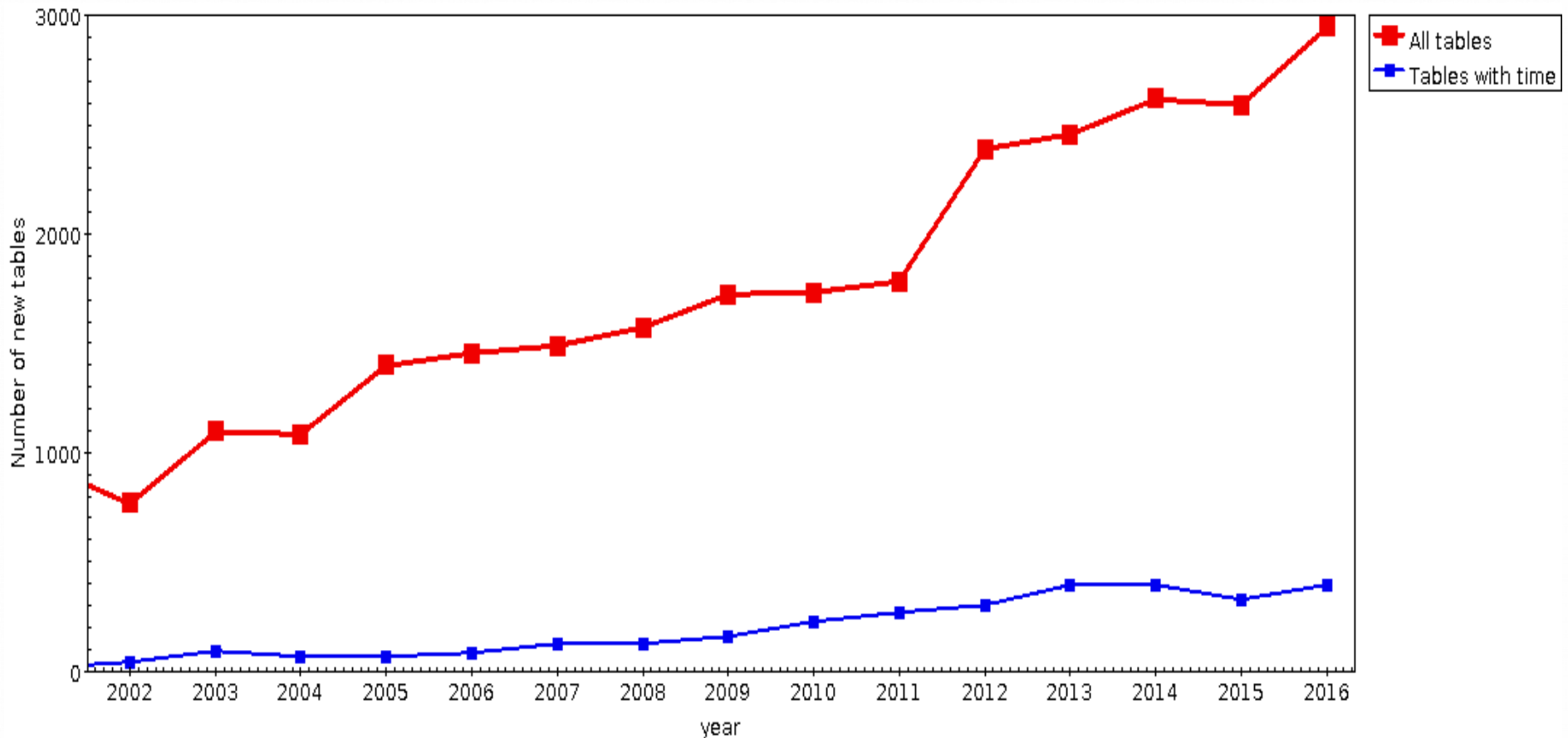
Radius  Box size

Wavelength	Mission	Astronomy
Radio	AKARI	Abundances
IR	ANS	Ages
optical	ASCA	AGN
UV	BeppoSAX	Associations
EUV	CGRO	Atomic_Data
X-ray	Chandra	Binaries:cataclysmic
Gamma-ray	COBE	Binaries:eclipsing

[More about VizieR](#) ~ 1790 matching catalogs Find Catalogs

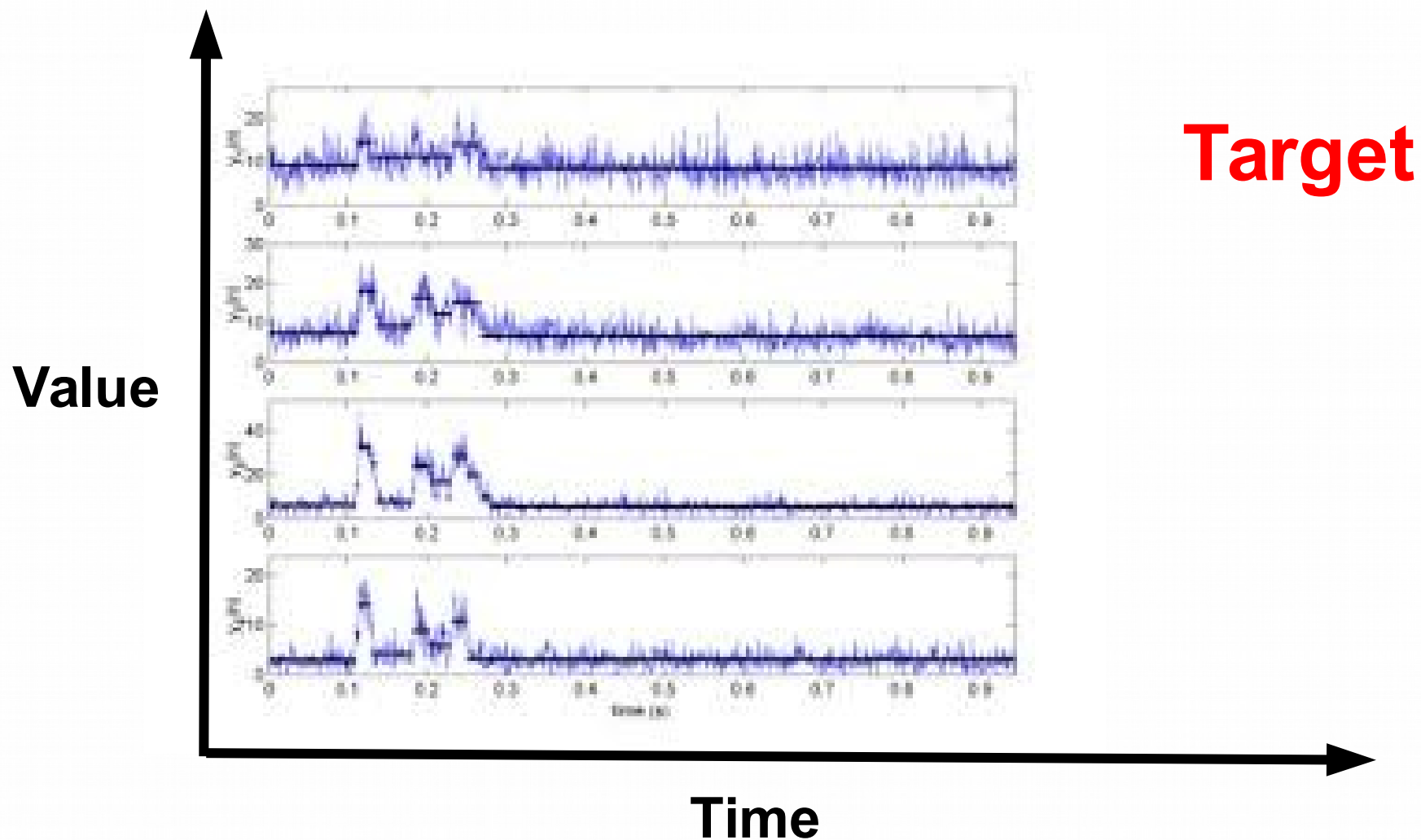
# □ The context : VizieR

- Fast growing number (and fraction) of tables and catalogues with timeSerie flag (+250 cats/year)

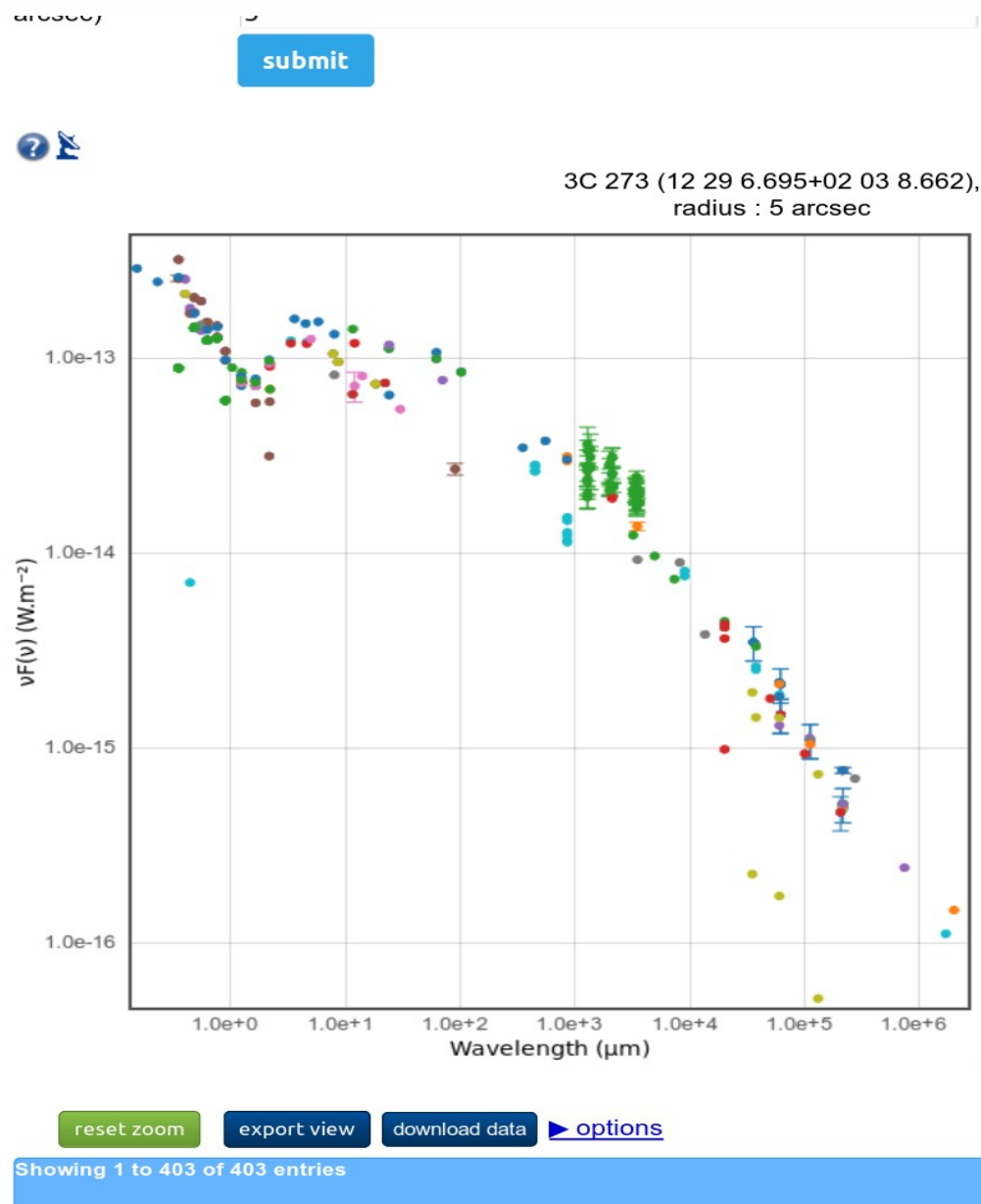


# □ Time series : basic need

- Value =  $f(\text{Time})$  for some target



# VizieR photometry viewer



Extract photometry points from many catalogues

- Huge characterization work for each catalogue : filters, photometric systems, measurements (flux, mag)
- Simple VOTable output
- Provided « as is » : not an SED (different spatial resolutions) ; might not be complete, but saves a lot of time

# □ Characterization needed

- Homogenize various formats
- Dataset **discovery**
  - Time series data for gamma Cas
  - Radial velocity curves for an object in 2015
- Dataset **retrieval**
  - Convert to pivot format
  - Parameters conversion

# □ Time description

- JD, MJD, HJD, JD-xxxxxxx, Phase
- Very often : no reference position, scale
  - Take these into account with systematic errors
- Need to describe for each table :
  - time\_scale
  - time\_ref\_position
  - time\_uncertainty
  - time\_sys\_error
  - timestamp + format/unit + offset + description
  - → mapping to pivot format

# □ Dependent axis description

- Mostly : photometry and radial velocity
  - But not only !
- Make use of UCDs (+photometric description)
- Keep original values **and descriptions** whenever possible !



# □ Target

- Not as easy as it seems !
  - Object names carry more information than coordinates
  - Name resolver needed : Vega ↔ alpha Lyr
- 3 possible cases
  - Table deals with only one target
    - Description in dedicated META table
    - Allow spatial search on tables which contain no coordinates
  - Table deals with multiple targets, identified by (partial) identifier
    - `SELECT ... WHERE target='gamma Cas'`
    - And rules in dedicated META table
  - Table has one target per row
    - Link to dedicated FITS (or other) file

# Trust the scientist

- Help identify/locate relevant datasets
- Retrieve datasets
  - Homogenized contents plus original data and description
- Science will be done !

