Implementing EPN-TAP in VizieR

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EpnCore in VizieR

Context

~1090 Solar system or exoplanets catalogues are available in VizieR (6% of the VizieR catalogues)

- **Exoplanets catalogues:**
  - B/CoRoT
  - J/MNRAS/444/711(Triaud+, 2014)
  - J/A+A/509/A4 (Pietrukowicz+, 2010)
  - ...

indexed by **keywords**, first author, … , and by **positions**

- **Solar system catalogues:**
  - B/comets (IMCCE, updated weekly)
  - J/A+A/546/A72 (Kryszczynska+, 2012)
  - ...

indexed by **keywords**, first author, … **rarely** indexed by position !

EpnCore in VizieR

Context

Example of VizieR keywords applied for exoplanets or solar system catalogues :
Sun, asteroids, Planets, Minor Planets, Solar System, Jupiter, Saturn,..

Critical points

- Solar System visibility is clearly not optimized in VizieR for which the most popular types of queries are the positional search (ex: SCS in the VO)
- Tables coming from A&A must be stored in VizieR.

Example catalogues

e.g. Mars-crossing asteroids

Portal | Simbad | VizieR | Aladin | X-Match | Other | Help

VizieR

Send to VO

Show constraint information

Search Criteria
Save in CDSportal
Keywords: Back
J/A+A/603/A55
Tables: Add
J/A+A/603/A55
..table1
Choose
Modify Query

Preferences
max: 50
HTML Table
All columns
Compute
Submit

Mirrors
CDS, France

J/A+A/603/A55/table1 WISE/NEOWISE Mars-crossing asteroids (Ali-Lagoa+, 2017) 2017A&A...603A..55A ReadMe+ftp
Post annotation
Best-fitting values of size and infrared beaming parameter and corresponding geometric visible albedos of Mars-crossing asteroids observed by WISE/NEOWISE *(2399 rows)*

plot the output query using TAP/SQL

Full	Object	H mag	G	D km	pV	eta	nW2	nW3	nW4	r AU	Delta AU	alpha deg	MJD d
36	05230	13.20	0.15	5.43	0.314	1.07	0	13	14	1.57264	1.17487	38.64974	55209.1384
28	05251	13.80	0.15	5.41	0.182	1.45	0	4	3	2.93111	2.71044	19.57573	55208.4519
45	05682	13.70	0.15	7.33	0.109	2.12	0	8	4	2.96583	2.75189	19.34357	55209.5073
34	10984	14.60	0.15	3.29	0.235	-1.20	0	9	0	2.39427	2.12751	24.21679	55208.8772
49	15778	14.70	0.15	3.56	0.184	-1.20	0	5	0	2.84423	2.62382	20.20715	55209.8414
3	22601	13.30	0.15	5.57	0.272	1.27	0	8	8	2.17980	1.91344	26.80390	55203.1856
31	24806	14.90	0.15	6.53	0.045	1.06	0	15	15	2.01928	1.70770	29.10027	55208.6150
19	31318	15.40	0.15	2.04	0.293	1.02	0	7	6	1.69514	1.33946	35.42592	55205.0392
30	46773	15.10	0.15	3.02	0.177	-1.20	0	3	0	2.64653	2.40189	21.78302	55208.6121
11	56116	13.60	0.15	4.11	0.380	1.03	0	12	11	2.06823	1.74937	28.30412	55204.0805
46	58023	15.00	0.15	6.03	0.049	1.10	0	13	15	1.89450	1.56019	31.21829	55209.6699
39	90943	15.70	0.15	3.74	0.066	-1.20	0	11	0	2.53849	2.29276	22.76561	55209.2430
27	a0455	16.70	0.15	1.60	0.143	-1.20	0	11	0	1.79417	1.44452	33.18442	55208.3490
38	a0949	17.10	0.15	0.99	0.258	-1.20	0	14	0	1.63382	1.25487	36.96210	55209.2135
48	a8254	15.50	0.15	2.09	0.256	-1.20	0	6	0	2.11964	1.81968	27.59927	55209.8073
1	b0123	16.20	0.15	3.39	0.051	1.02	0	7	7	1.73616	1.40441	34.48776	55203.1812

No footprint

Example catalogues

Light curves of Flora region asteroids (Kryszczynska+, 2012) 2012A&A...546A..72K ReadMe+ftp

J/A+A/546/A72 timeSerie Similar Catalogs

Post annotation

1.J/A+A/546/A72/table Aspect data and observing information *(552 rows)*

Simple Constraint | List Of Constraints — Submit — Reset All

Query by Constraints applied on Columns *(Output Order:* + -*)*

Show	Sort	Column	Clear	Constraint		Explain (UCD)
☐	○	recno				Record number assigned by the VizieR team. Should Not be used for identification. (meta.record)
☑	○	Ast				Designation of the asteroid (meta.id;meta.main)
☑	○	Obs.date		"Y:M:D"	(n)	Date of observation (time.epoch)
☑	○	JD		d		Julian date of observation *(Note 1)* (time.epoch)
☑	○	r		AU		Asteroid-Sun distance
☑	○	Delta		AU		Asteroid-Earth distanc
☑	○	alpha		deg		Solar phase angle α *(N*
☑	○	ELon		deg		Ecliptic longitude *(Not*
☑	○	ELat		deg		Ecliptic latitude *(Note*
☑	○	F			(char)	[CBVRIL] Filter: clear
☑	○	Obs			(char)	Observatory *(Note 2)*
☑	○	LCN				Light curve number (m
☑	○	*LC*	LC			*Plot of the light curves*

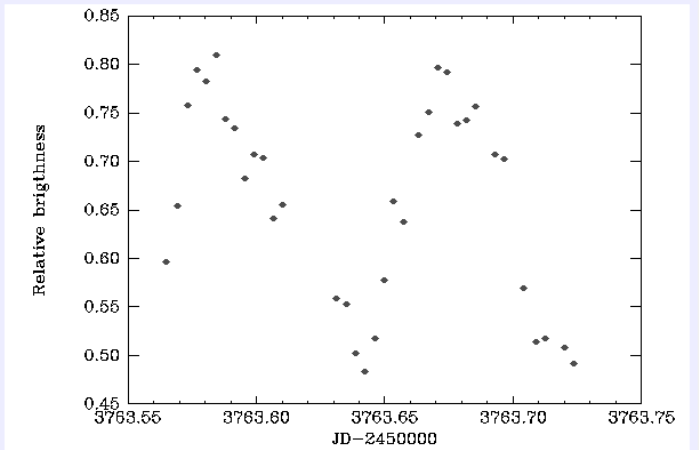
ALL cols — Reset All — Clear — (n) indicates a possible blan

Positions not included in the global positional index

cdsarc.u-strasbg.fr/viz-bin/vizExec/w/Vgraph?-plus=-+&J/A+A/546/A72/C/2/281&

Complement to J/A+A/546/A72 [Back] · [Forwd] · [Print] · [Close]

Light curve #2 of asteroid 281 in C B V R L (P=0)



Postscript Figure Data as a Table

Proposed solution for EpnCore

Proposals (from Baptiste Cecconi and Pierre Le Sidaner)

- Benefit from the (external) indexation of VESPA
- A new VizieR catalogue B/epn
  - A VizieR EpnCore table referring the VizieR catalogues having solar system or exoplanets topics
    → Each row is an input of one catalogue
  - regularly updated using the VizieR keywords with the current VizieR catalogues list

Proposed solution for EpnCore

Feedbacks

- A test-catalogue had been created (not available yet) from a catalogue list built by CDS documentalists.
- An appreciated help of Baptiste for the metadata population
- Difficulties to find metadata:
  - Only a small part of the Metadata can be assigned in VizieR
  - Information unknown or difficult in an automated process
    → metadata quality is directly related to human documentation
    (Nothing is decided today about the documentation strategy for this future catalogue)
  - Time homogenization needed (time_min, time_max)
    → homogenization planned in VizieR in agreement with the Time Domain interest group

EpnCore in VizieR

EPNCore	Mandatory	VizieR assignment
granule_uid	YES	catalogue name
time_min	SHOULD	???? no indexation today – limitted to JD columns
time_max	SHOULD	???? no indexation today – limitted to JD columns
spectral_range_min	SHOULD	???? from spectral range (keywords) Or photometry if exist
spectral_range_max	SHOULD	???? from spectral range (keywords) Or photometry if exist
dataproduct_type	YES	« catalogue »
spatial_frame_type	YES	« celestial » if (RA,DEC) columns
bib_reference		bibcode
publisher		CDS
target_name	YES	From a predefined list and taken from keywords, catalogue title
granule_gid	YES	from VizieR keywords
external_link		http://vizier.u-strasbg.fr/viz-bin/VizieR?-source=..
obs_id	YES	ivo://cds.vizier/…
creation_date	YES	ok
modification_date	YES	ok
release_date	YES	ok
target_class	YES	TODO : establish rules to find the class from VizieR metadata
internal_reference		VizieR catalogue name
service_title	YES	VizieR catalogue title

What else ?

- A first version of a VizieR catalogue EpnCore is planned with a minimum set of information
- Update the EpnCore extraction process to improve the meta-data
- Envisage the authors participation with an optional inline form during the VizieR submission process.