



Loup C., Oberto A., Lesteven S.

From 1972 to now

SIMBAD started in 1972, first devoted to stars

All astronomical objects included in 1982

Contains currently

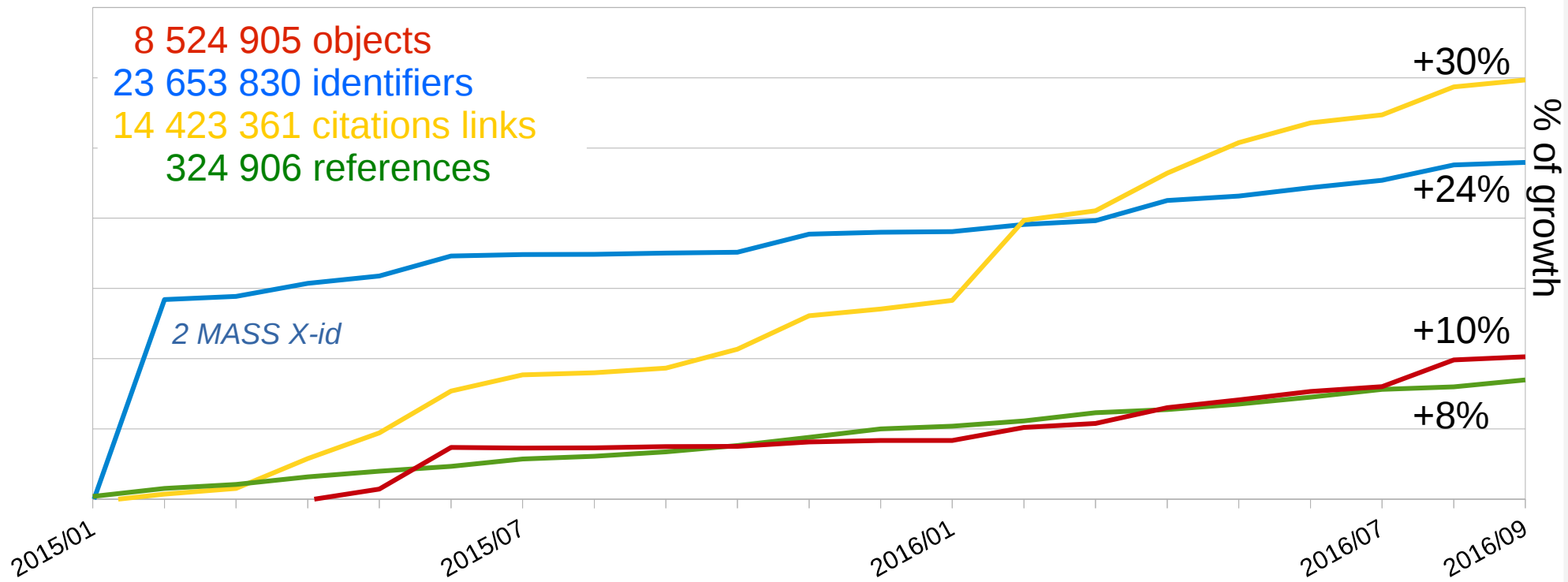
- 8.5 millions objects
 - 23.5 millions names (identifiers)
 - 324000 references
-
- SIMBAD is a meta-compilation based on scientific publications

Purposes of SIMBAD

- Provide the bibliography on objects of interest studied in the literature
- Provide « basic » or « fundamental » data on these objects
- Perform cross-identifications
- Help researchers to find out what is known, unknown, still debated

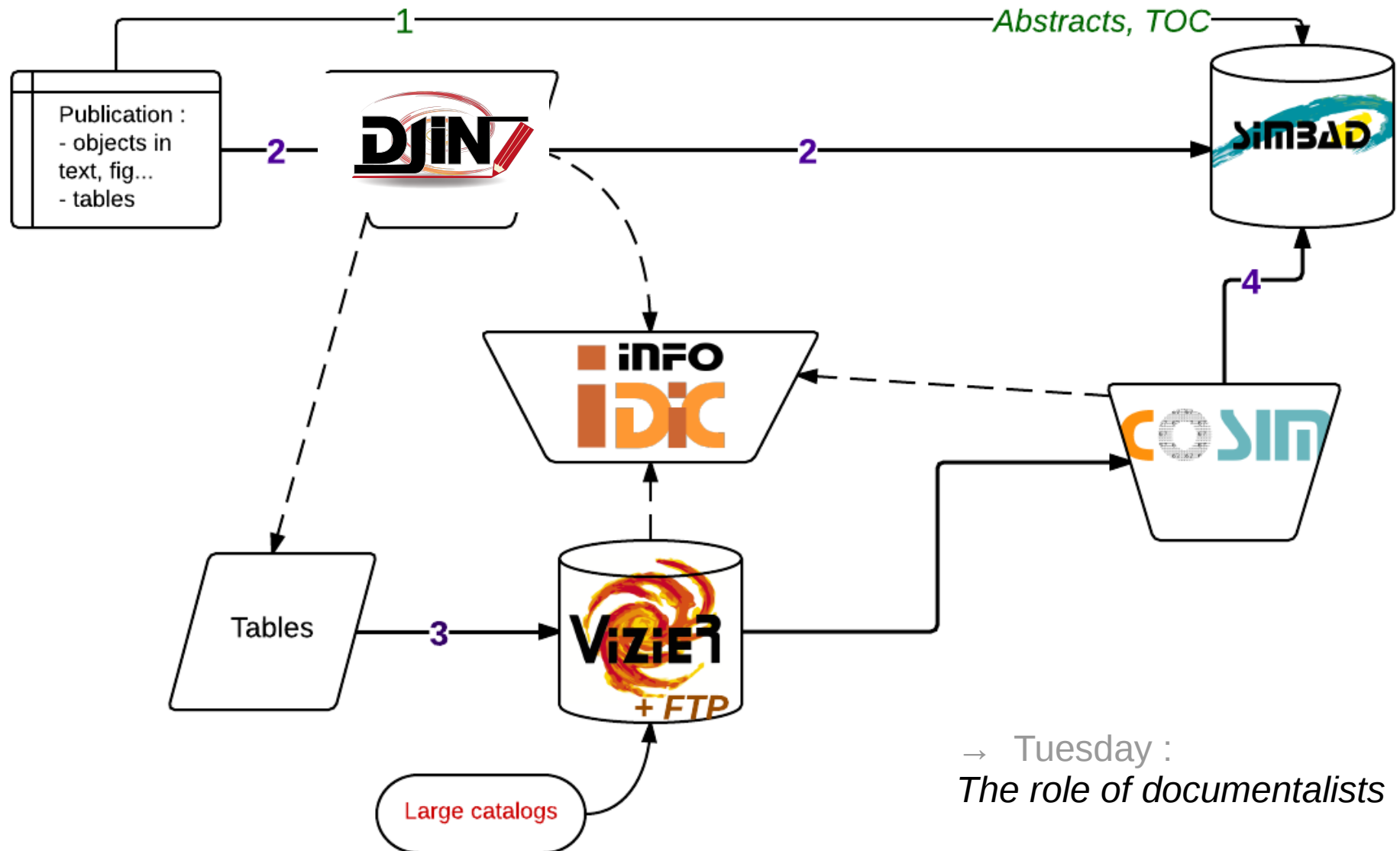
Content Evolution

SIMBAD content evolution



+ 1200 references / month
+ 37200 objects / month

Pipeline entry



→ Tuesday :
The role of documentalists

Bibliographical Team

Soizick Lesteven / Cécile Loup

References

Year, journal, volume, pages,
title, authors, abstract, keyword,
bibcode, copyright, DOI

From publishers to SIMBAD

Soizick Lesteven
Magali Neuville

Dictionary of Nomenclature



Creation of new acronyms
Dictionary update
Links to NED

Marianne Brouty
Fabienne Woelfel



SIMBAD update

Extraction of information from articles
Objects, identifiers, fundamental data,
measurements, references,

Aline Eisele : A&A, PASJ, PASP, ...
Magali Neuville : ApJ, ApJS, Sci, Natur, ...
Evelyne Son : AJ, MNRAS
Philippe Vonflie : MNRAS



Tables

VizieR

Standardization and
description of tables.
VizieR update

Marianne Brouty : ApJ
Sylvain Guéhéneux : AJ, ApJ
Emmanuelle Perret : ApJS, ApJ
Patricia Vannier : A&A, MNRAS, ...



=g=
Ingestion of
most important
tables in SIMBAD
(selections, extractions, scripts,
cross-identifications)

Catherine Brunet
Mihaela Buga
Emmanuelle Perret
Fabienne Woelfel



Scientific Expertise

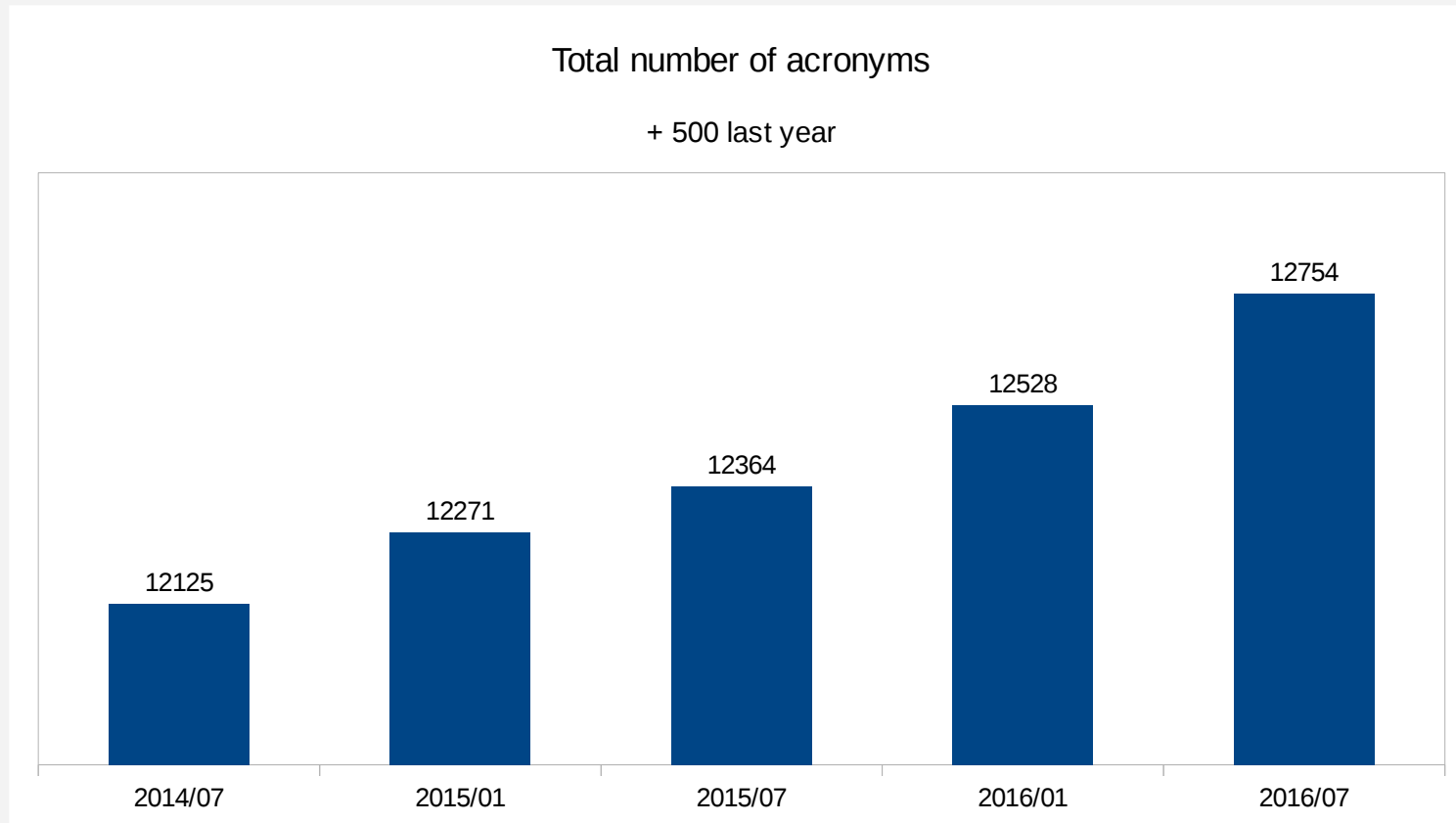
SIMBAD : **C. Loup, C. Bot, L. Cambrésy, A. Nebot, P. Ocvirk, A. Siebert, B. Vollmer**
Dictionary : **B. Vollmer**
VizieR : **P. Ocvirk, C. Bot**

IT Development

SIMBAD : **A. Oberto, S. Lesteven, T. Delacour, V. Kaestle**
Dictionary : **A. Oberto**
VizieR : **G. Landais, T. Boch, F.-X. Pineau**

Acronyms

- 12888 acronyms available in SIMBAD



22756 definitions in the dictionary from literature

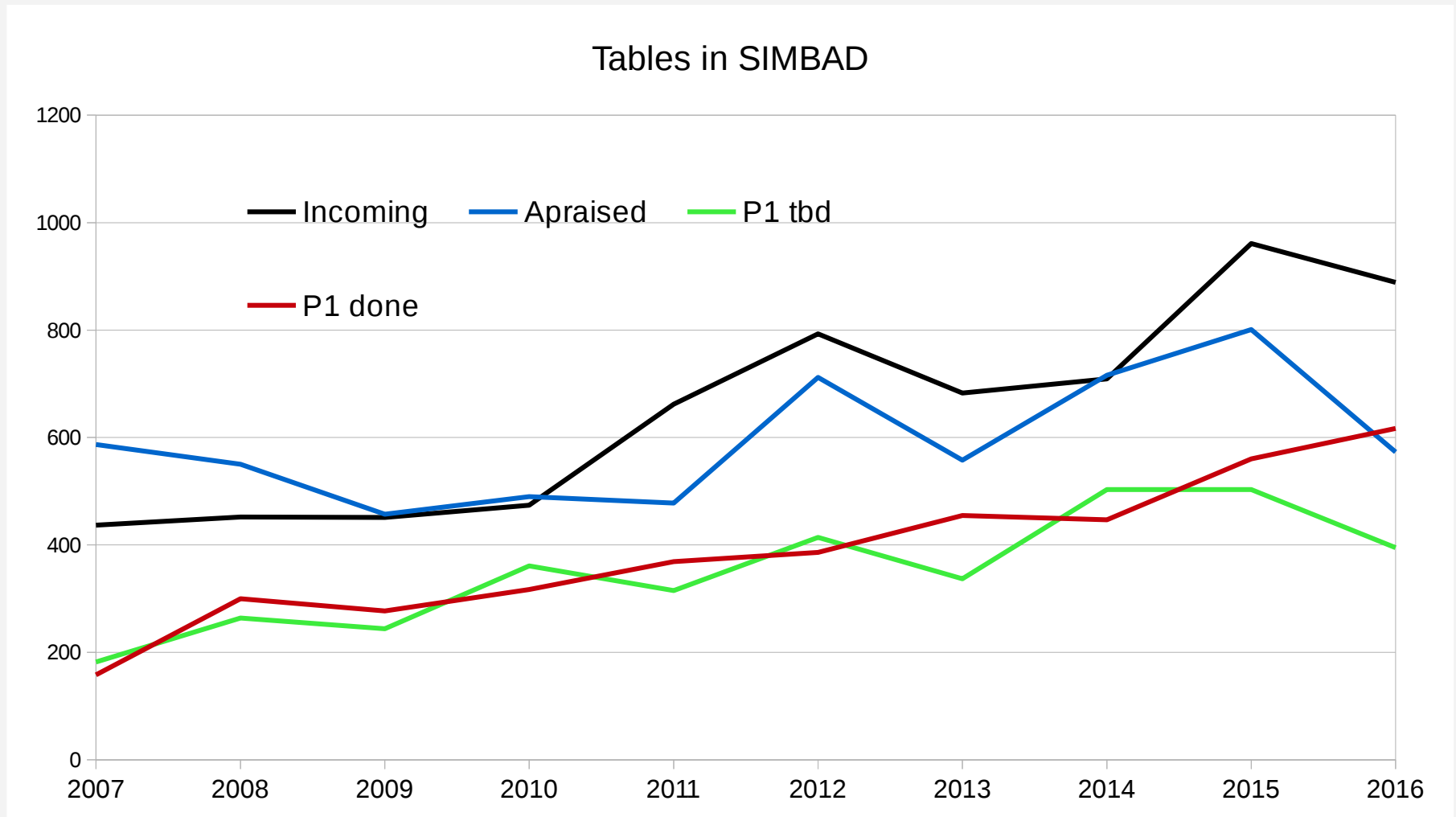
Prioritisation of lists of objects

- SIMBAD should be devoted to objects of interest
- SIMBAD and VizieR are complementary
- Approved by the Scientific Council in 2012
- Appraisal procedure : weekly meetings (2x1h)
 - Documentalists : M. Brouty, C. Brunet, M. Buga, E. Perret, F. Woelfel.
 - Astronomers : C. Bot, L. Cambrésy, C. Loup, A. Nebot, P. Ocvirk, A. Siebert, B. Vollmer.
- Detailed instructions for processing in SIMBAD

Scientific and technical criteria

- **High priority : 70 %**
spectroscopy, characterization, cross-identifications, membership, ...
- **Low priority : 15 %**
nature unclear, poor coordinates, incorrect or truncated names, ...
- **Not processed : 15 %**
no coordinates, uncharacterized in crowded regions, very large photometric surveys

Processing of lists of objects in SIMBAD



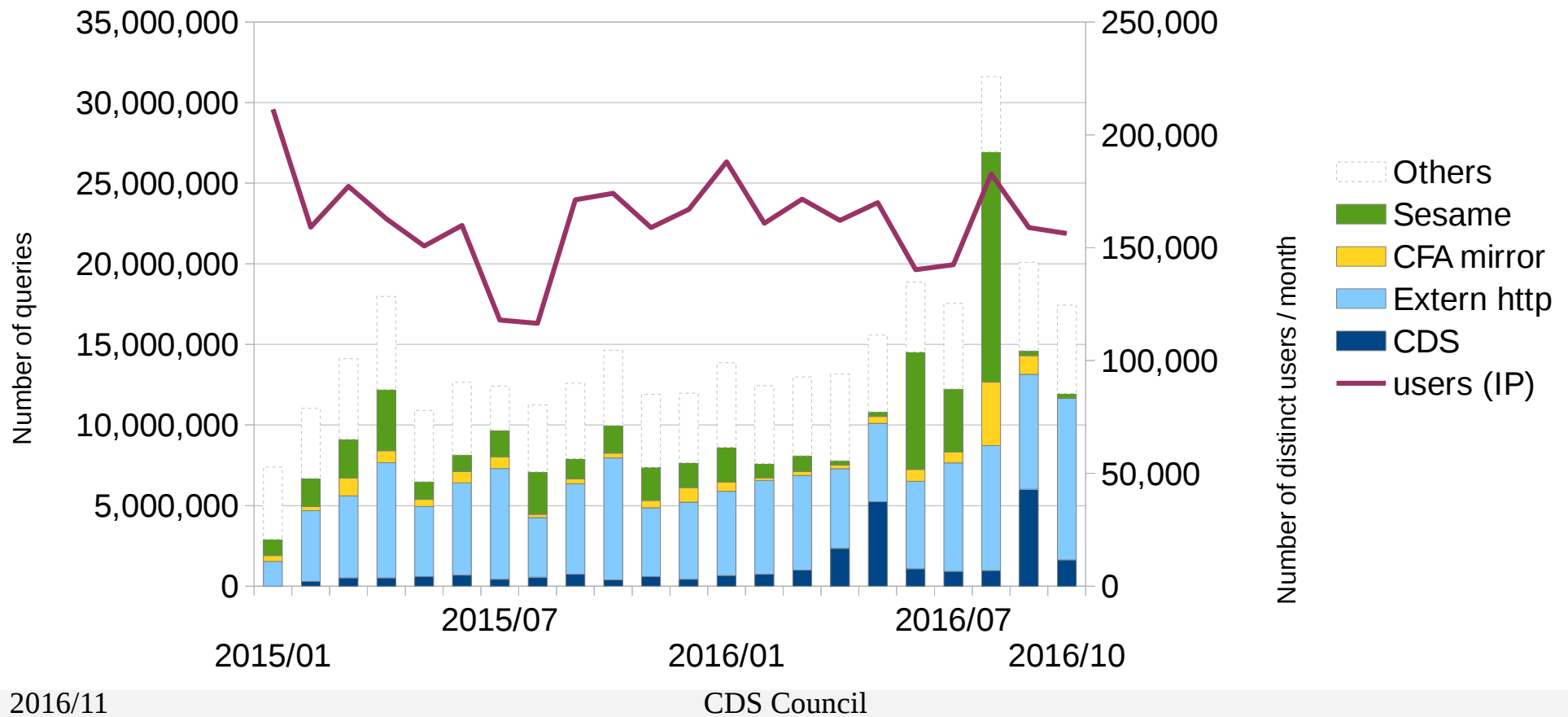
Improving quality

- Improving astrometry and magnitudes : joint effort from the SIMBAD and Xmatch teams
 - New iteration of the Xid SIMBAD-2MASS
 - Coming soon : Xid SIMBAD-UCAC4
- Historical burden : identification of objects with no coordinates or poor astrometry, especially rare types or many citations
 - Full cleaning of the white dwarfs and hot subdwarfs, required with the SDSS & LAMOST pipelines (23700 spectroscopically confirmed WD* in SIMBAD)
- Coming soon : update of astrometry from GAIA-TGASS + new magnitude G

SIMBAD Usage

Total ~ 510 000 queries / day

Usage of SIMBAD



2016/11

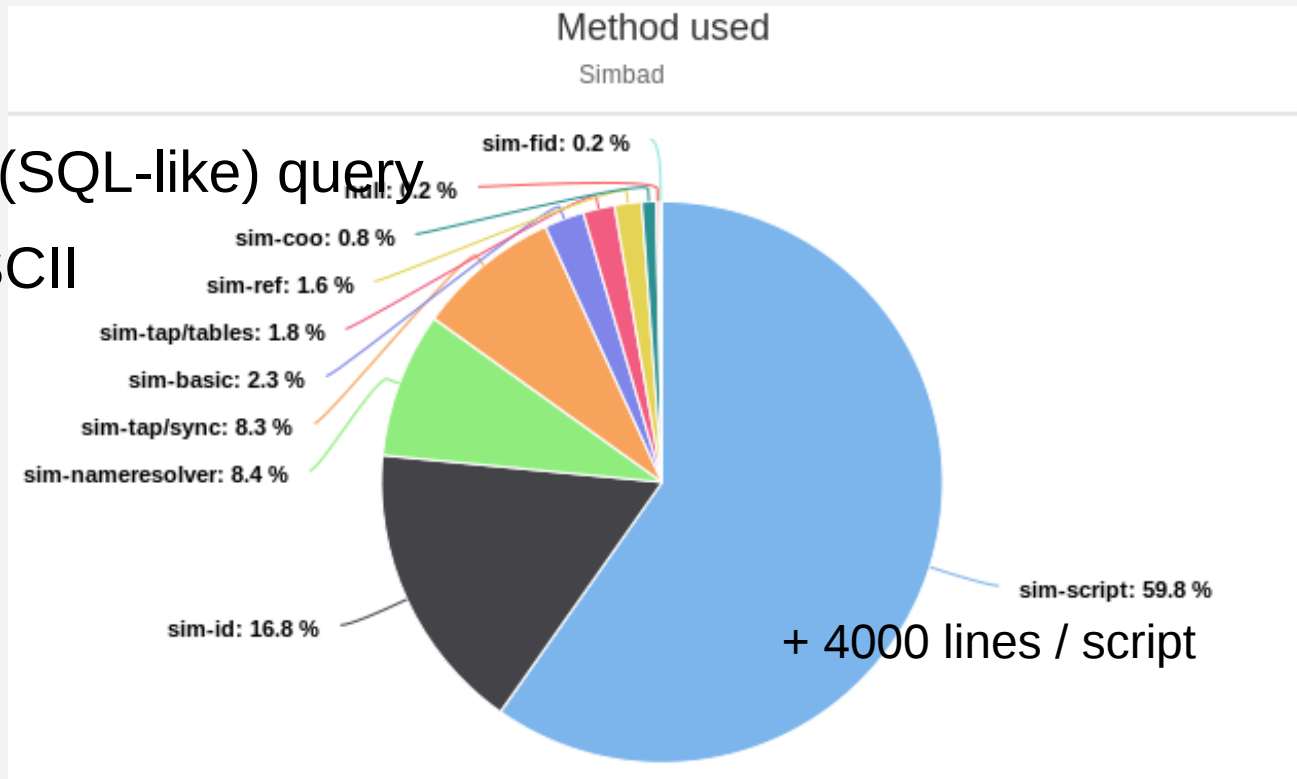
CDS Council

SIMBAD usage



Querying SIMBAD

- Several interfaces, several output formats
- Lists of objects/coordinates :
 - Identifier query, Coordinates query, Script query, Xmatch service
 - HTML, VOTable, ASCII
- Data mining :
 - Criteria query, TAP (SQL-like) query
 - HTML, VOTable, ASCII



Software evolutions

- SimWatch : 115 followers on 412 objects
 - 2 emails notifications / day
 - + 4 objects followed / day

New papers for Simbad objects

[Manage followed objects](#)

* **eta Car** has 1 new reference:

- [2016MNRAS.460..356L](#) (object found only in text)
Oscillator strengths for high-excitation Ti II from laboratory measurements
Lundberg H., Hartman H., Engstrom L., et al. (10 authors)

With collaboration with T. Boch

The screenshot shows the Simbad website interface. At the top, there is a navigation bar with links for Portal, Simbad, Vizier, Aladin, X-Match, Other, and Help. The main content area is titled "Latest references for * alf Cen" and displays a vertical timeline of new references. Each entry includes a date, a title, a brief description, the authors, and the reference ID. The references are:

- 5 October 2015** (12:41:33): "New reference for * alf Cen" - Hubble Space Telescope search for the transit of the Earth-mass exoplanet (alpha) Centauri B b. — Demory B.-O., Ehrenreich D., Queloz D., et al. (16 authors) [2015MNRAS.450.2043D](#)
- 29 September 2015** (13:14:50): "New reference for * alf Cen" - Calibrating gyrochronology using Kepler asteroseismic targets. — Angus R., Aigrain S., Foreman-Mackey D., Mcquillan A. [2015MNRAS.450.1787A](#)
- 25 September 2015** (13:31:20): "New reference for * alf Cen" - The epsilon Eridani system resolved by millimeter interferometry. — Macgregor M.A., Wilner D.J., Andrews S.M., et al. (5 authors) [2015ApJ...809...47M](#)
- 4 September 2015**: "New reference for * alf Cen" (partially visible)

CDS Council

Improving ingestion of the bibliography

- Evolution of the ingestion of the bibliography by S. Lesteven & T. Delacour (contractor) :
 - Resumption of the proceedings for the bibliographic data entry in SIMBAD
 - Extraction of bibliographical data collected from the different publishers in XML in a unique format.
 - Integration of all these data into SIMBAD (data migration from the bibliographical server to the SIMBAD database).
 - Improvement of the different tests to assure the consistency of these data
- lead to new user facilities on papers











Improving quality

- Internal versions of SIMBAD
 - (with T. Boch & F.X. Pineau):
 - Main database server
 - Duplication streamed database
 - Daily exported data for X-match service & Aladin (+HiPS)
 - Historical stored versions daily & montly
 - Work on duplication for new fast Sesame access

Software evolutions

- Improve new links to Vizier for web user :
 - Suggestions of VizieR search
 - Direct links

Identifiers (58) :

M 51	IRAS 13277+4727 
APG 85A 	ISSO J13299+4714
APG 85 	KHG 1-C 5
B3 1327+474C	KPG 379a 
BD+47 2063 	LEDA 47404
BWE 1327+4727 	2MASX J13295269+4711429 
4C 47.36A 	MCG+08-25-012
6C 132748+472801	NAME Whirlpool Galaxy
7C 132753.10+473032.00	NAME Whirlpool
7C 132746.79+472722.00	NAME Question Mark Galaxy
7C 132735.60+472604.00	NGC 5194 
GB1 1327+475	PLX 3084
GB6 B1327+4727	PLX 3084.00
87GB 132747.8+472723	PSCz Q13277+4727
IRAS F13277+4727 	RX J1329.8+4711

- Preparation of new magnitude for Gaia
- New field for LSR velocities

Evolutions in process

- More links to Vizier
- New name resolver version for Sesame
- ADS links to improve
- DJIN : new version in development by V. Kaestle (contractor)