

Bulletin of the AAS

IBVS Data Files - Case Study of a Small Data Journal

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ABSTRACT

We describe the practices of a small - sadly no longer active - data journal: the Information Bulletin on Variable Stars. We review the publication policy, the editorial practices, and the visibility of the data files. Issues of Open Science/VO and FAIR-ness are discussed too. All these questions are shown in the historical context, from 1961 until the closure of the journal (2019) and beyond.

1 The IBVS

The Information Bulletin on Variable Stars (IBVS) was a small journal in the field of variable star research, published by Konkoly Observatory, Budapest, on behalf of the IAU. It appeared on the web early, and became an enhanced journal [1]. Though it was never referred as such, it did have a data journal aspect.

The first issue of the bulletin was published in 1961. It became a refereed journal in the beginning of 1990s, and appeared early on the web, in 1995. Enhanced features of the HTML version were introduced in the year 2000. The journal sadly ceased to publish new articles in 2019. The HTML version is no longer available, but the PDF articles and the data files are still downloadable from the journal's website¹.

2 Research data originating from small projects

The world of research data is immensely diverse. Data from Big Science projects (like data from astronomical space missions) is processed by pipelines, and as such, could easily be made FAIR, are often stored in big archives, and has a potential for reusability. Small projects data is usually less documented, could be found in repositories, or at journals like digital appendices, if it is archived at all. Though less reusable, still useful for verifying results, increasing reproducibility. Stahlman describes such data as "Dark Data in the Long Tail" [2]. IBVS published data files research papers were based on, and data papers too, shedding light to data in the long tail of research.

3 Data papers

The main purpose of a data paper is to make data available and citable. IBVS did publish such papers, like maxima or minima of variable stars, data on newly discovered variables, various observations and catalogues like the consecutive installments of the Name List of Variable Stars. Some of those papers were formatted

in form-like style, others were collective issues published at the end of volumes. Data papers published in IBVS are well cited, one of the Name-Lists gathering almost six hundred citations, and from the 25 top cited papers in the journal 19 are data papers.

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COLLECTION OF MINIMA OF ECLIPSING BINARIES, PART III.

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Observatory and telescope:

CCD photometry with various ground-based and automatic survey telescopes were used for the times of minima determination.

Method of data reduction:

The reduction of the CCD frames using the C-Munipack and IRAF routines.

Method of minimum determination:

The minima times were mostly computed with the Kwee - van Woerden method (Kwee & van Woerden, 1956), some of them with the polynomial fitting method, and the minima from the survey telescopes by the AFP method (Zasche et al. 2014).

Table 1: Times of minima of eclipsing binaries

Star Name	HJD 24.....	Error	Type	Filter	Instrument/Source	Observer
WZ And	56955.61616	0.00279	Sec	C	BOOTES-1	MM
BX And	56940.41838	0.00028	Sec	R	N200/1000	RU
BX And	56963.29642	0.00024	Prim	C	N150/750	RU
BX And	57387.31853	0.00027	Prim	C	RF34/135	RU
BX And	57646.61120	0.00025	Prim	C	RF34/135	RU
BX And	57754.29518	0.00059	Sec	C	RF34/135	RU
GZ And	56940.40108	0.00021	Sec	C	N150/750	RU
GZ And	56964.34424	0.00078	Prim	R	N200/1000	RU
V342 And	57234.42718	0.00069	Prim	C	RF34/135	RU
V389 And	57260.49447	0.00039	Prim	R	RF34/135	RU
V389 And	57660.39841	0.00068	Sec	C	RF34/135	RU

Figure 1. An example data paper

4 Editorial policies

Data submission is mentioned in Editorial Notes issued in 2004 and 2009. The (undated) instructions for authors state: "We ask authors to submit the observational data their manuscript is based on. We accept such data in plain text and/or FITS format. Clear description of the data (columns in the table) is a requirement. Data typeset in tables and plotted in figures should be submitted in plain text data files as well - this would facilitate data re-use, search and data mining."

Submission of the data were not strictly required, but encouraged. Editors occasionally insisted to see data, and the technical editor regularly solicited data submission.

5 Statistics, visibility

The number of data files available on the journal's website is around 1600. About 2500 auxiliary figures (identification images, mostly) were published as well - bona fide research data indeed.

Most of the files are in plain text, and of rather small size. There are a few FITS files, and a few bundled, compressed file collections as well, and the auxiliary figures are in JPEG (as well as PostScript or EPS). Some tables are in LaTeX format - these mostly just organize access to the data files.

Data files were reported to ADS and CDS, as part of the tagged metadata for the article:

```
%R 2014IBVS.6105....15
```

```
%f 6105-t2
```

```
%f 6105-t3
```

(where the reported data files denoted by the %f tags corresponds to the second and third table of IBVS No. 6105).

Data files were linked from the HTML version, and from the ToC file as well:

```
Serebryanskiy, A.V.; Gaynullina, E.R.; Khalikova, A.V.
```

16 May 2014

PDF [\[6105.pdf\]](#), TeX [\[6105.tex\]](#), Table [\[6105-t2.txt\]](#), [\[6105-t3.txt\]](#)

6 Simple data, simple format

The files were simple: textual columns, and a few header lines at the top. Metadata in the header included creators, institutional affiliation, instrumental details. The most important metadata items were a special data keyword (describing the nature of the data, like photometric or spectroscopic data etc.) and an object name, resolvable by CDS. The internal search tool of IBVS facilitated search for data files, using the metadata present in the header.

```
# IBVS 6243-t3.txt
```

```
#Author: Maciejewski, G. et al.
```

```
#Telescope: 0.6 m Torun
```

```
#Detector: SBIG STL-1001
```

```
#IBVSdataKey: photometry
```

```
#Object: GJ 436
```

```
#Filter: LP500
```

```
# BJD-2450000.0 flux flux_error
```

```
7839.40942629 1.00141913 0.00037508
```

```
7839.41012272 1.00025968 0.00037547
```

```
7839.41081804 0.99943333 0.00037470
```

```
7839.41151305 1.00140495 0.00037470
```

```
7839.41220772 0.99825269 0.00037392
```

7 Data visualization with CDS Aladin

Photometric sequences and finding charts in IBVS could be visualized using CDS Aladin. For this, data files were outfitted with special, VO features, like the column content description with UCDs. Following a link in the HTML version of the paper, the Aladin server were invoked, resulting in a pop-up Aladin window, displaying the IBVS data together with a background sky survey image of the field.

```
#ID: IBVS 3967
```

```
# IBVS 3967-t2.txt
```

```
#Author: Skiff, B.
```

```
#IBVSdataKey: sequence
```

```
#Title: PHOTOMETRY OF STARS IN THE FIELD OF THE MIRA
```

V418 CASSIOPEIAE

#UCD:ID_MAIN POS_EQ_RA_MAIN POS_EQ_DEC_MAIN

PHOT_JHN_V PHOT_STR_B-Y

#unit:--- h:m:s d:m:s mag mag

#name:Name _RAJ2000 _DEJ2000 V b-y

GSC_4034-0775 1:12:58.9 +62:06:56 10.91 0.44

GSC_4034-0673 1:13:34.3 +62:15:05 11.39 0.98

GSC_4034-0841 1:13:31.1 +62:09:56 11.63 0.71

GSC_4034-0873 1:12:19.4 +62:08:57 12.26 1.12

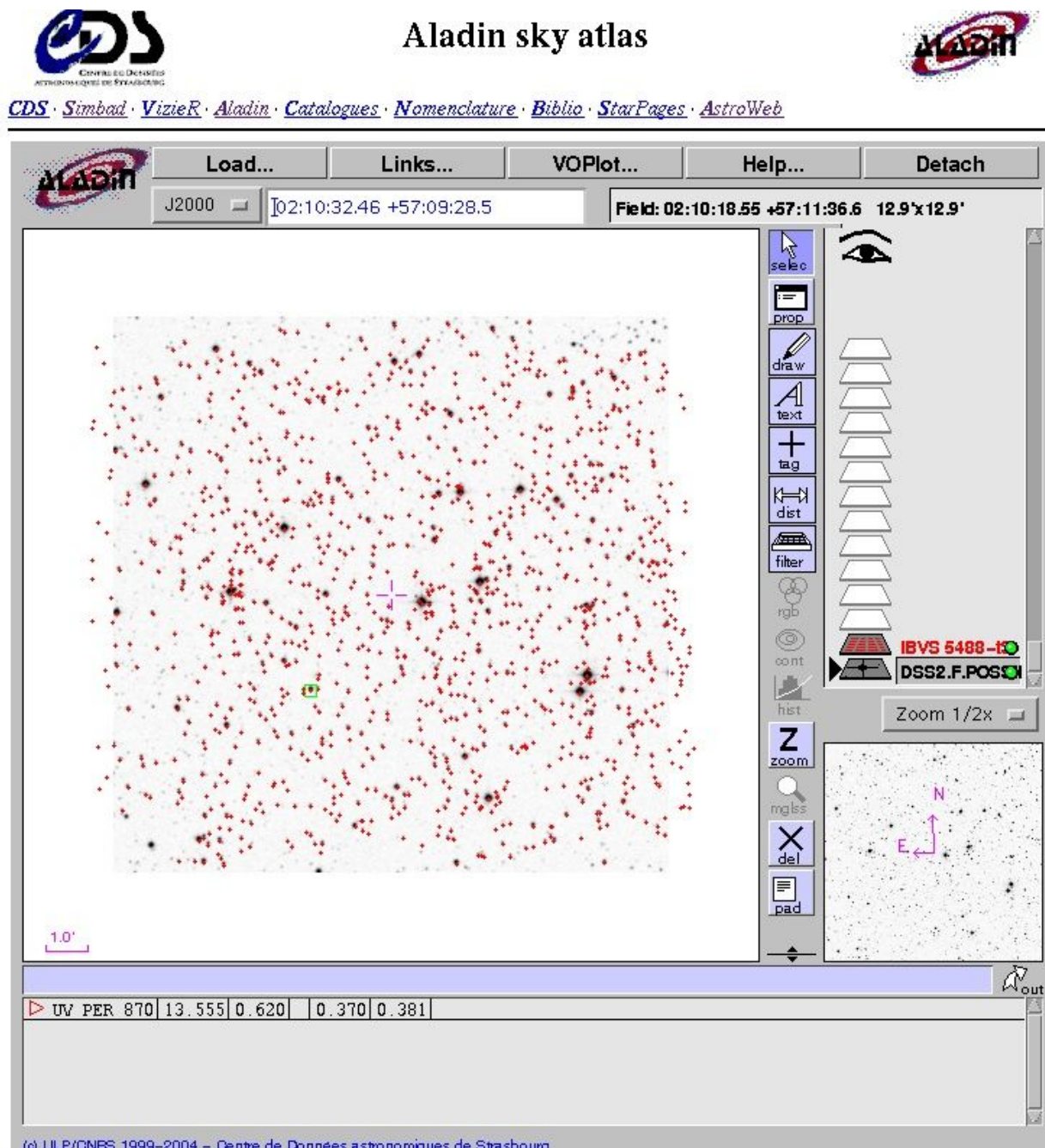


Figure 2. Visualization of IBVS data with CDS Aladin

8 IAU Archive for Unpublished Photoelectric Observations

The IAU has established a paper file archive for unpublished photoelectric observations of variable stars [3]. The files were kept at CDS Strasbourg, at the RAS Library in London, and in Odessa Astronomical Observatory. Status reports were often issued about the Archive, some of these were published in IBVS. We have managed to

obtain copies of the files and digitized some of them. 164 digitized text files were attached to IBVS No. 2446, in which a list of the first hundred files were originally listed.

```
# IBVS 2246-t0.txt
```

```
#IAU COMMISSION 27 UNPUBLISHED DATA FILES - CONTENTS
```

```
#IBVSdataKey: list
```

```
IAU27 receipt No 1st author star
```

```
1 28/08/95 26 Herbig G.H.+ V Sge
```

```
2 28/08/95 19 Walker M.F. AE Aqr
```

```
3 28/08/95 10 Williams J.O. BD +14 341 (TT Ari)
```

```
4 28/08/95 9 Krzeminski W.+ Nova WZ Sge
```

```
5 28/08/95 8 Chambliss C.R. HD 116994 (V743 Cen)
```

```
6 28/08/95 55 Krzeminski W.+ Z Cam
```

10 Thoughts about a data journal

Requirements for the authors were minimal, and with constant editorial attention numerous data files were collected. Regular authors did routinely submit observational data with their articles. Moreover, data papers were published since the start. A

modern feature IBVS lacked was assigning DOIs to the data files – though the articles had such PIDs in the last years. ADS reports the presence of data. As the journal is not active, long term archiving solutions are sought with ADS and CDS.

Footnotes

1. <https://konkoly.hu/IBVS/IBVS.html> ↵

Citations

1. Holl, A., 2012, Information Bulletin on Variable Stars - Rich Content and Novel Services for an Enhanced Publication, D-Lib Magazine 18, 5/6. ↵
2. Stahlman, G. 2021, June 17. LISA IX, Illuminating the Characteristics and Accessibility of Data Behind Papers in Astronomy. Zenodo.
<https://doi.org/10.5281/zenodo.4895777> ↵
3. Breger, M., 1988, IAU Archives of Unpublished Observations of Variable Stars: 1984-88 Data, PASP, 100(628), 751-753. ↵