

Atlas and Catalog of Dark Clouds Based on the Digitized Sky Survey I (ver 2.1.6 2017/04/01)

(1) Atlas and Catalog of Dark Clouds Based on the Digitized Sky Survey I

Here we release the first version of the atlas and catalog of dark clouds derived by using the optical database Digitized Sky Survey I (DSS). Applying a traditional star-count technique to 1043 plates contained in DSS, we have produced an A_V map covering the entire region in the galactic latitude range $|b_l| \leq 40$ deg. The map was drawn at two different angular resolutions of 6' and 18', and is released in FITS format on this website. Based on the A_V map, we identified 2448 dark clouds and 2841 clumps located inside them. Physical parameters, such as the position, extent, and optical extinction, were measured for each of the clouds and clumps. We also searched for counterparts among already known dark clouds in the literature. The catalog of dark clouds presented here lists the cloud parameters as well as the counterparts.

Printed version of the atlas and catalog has already been published in a special issue of Publications of the Astronomical Society of Japan (PASJ) in 2005 February (Dobashi et al. 2005, PASJ, vol.57 SP1, pp.S1-S386). Electronic version of the paper can be found at <http://pasj.asj.or.jp/v57/v57sp1.html>. Please look into the paper for detailed explanations of the data.

One can order a copy of the special issue of PASJ (printed version) from Maruzen Company in Tokyo at the following address:

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(2) Data released on this website

The atlas and catalog of dark clouds shown in the special issue of PASJ are released in FITS and text files on this website. We have drawn maps in the atlas at two different angular resolutions (6' and 18'), and refer to them as high- and low- resolution A_V map, respectively. The high-resolution A_V map is to identify well-defined and relatively small dark clouds, and the low-resolution A_V map is to find diffuse and extended clouds. For details, please read our paper in PASJ.

On this website, the lists of clouds summarized in Tables 7-10 in our paper are given in the text files (ascii), and the A_V maps displayed in Figures 7, 9-17, and 20 are released in FITS format. Simple explanations for these figures and tables are summarized in the following table. Column format of the ascii files (i.e., Tables 7-10) are given at the end of this document.

Catalog (ascii file) and atlas (FITS file) released on this website.

Table/Figure (The first page in the PASJ Special Issue):		Explanations
Table 7	(p.S68):	Catalog of dark clouds and clumps identified in the high-resolution Av map (hpbw=6').
Table 8	(p.S167):	List of associated dark clouds in the high-resolution Av map.
Table 9	(p.S193):	Catalog of dark clouds and clumps identified in the low-resolution Av map (hpbw=18').
Table10	(p.S198):	List of associated dark clouds in the low-resolution Av map.
Figure 7	(p.S9):	High-resolution Av map covering the entire surveyed region.
Figure 20	(p.S367):	Low-resolution Av map covering the entire surveyed region.
Figure 9	(p.S200):	High-resolution Av map for "Region 1".
Figure 10	(p.S202):	High-resolution Av map for "Region 2".
Figure 11	(p.S204):	High-resolution Av map for "Region 3".
Figure 12	(p.206):	High-resolution Av map for "Region 4".
Figure 13	(p.S208):	High-resolution Av map for "Region 5".
Figure 14	(p.S210):	High-resolution Av map for "Region 6".
Figure 15	(p.S212):	High-resolution Av map for "Region 7".
Figure 16	(p.S214):	High-resolution Av map for "Region 8".
Figure 17	(p.S216):	High-resolution Av map for "Region 9".

Note: A finding chart for Regions 1-9 is given in Figure 8b in p.S199 of the PASJ special issue as well as in the JPEG file named "Figure8b.jpg" on this website.

(3) Policy and Copyright

Copyright of the text and FITS data on this website entirely belongs to Tokyo Gakugei University. However, the data can be used by anyone for astronomical research and education purpose.

(4) Additional Information and Request to Users

We request users of the data released on this website to refer to our paper "Dobashi et al. 2005, PASJ, vol.57, SP1, pp.S1-S386" when they use the data for publications (papers or articles). This is important not only for us but also for users, because your referring to the paper would greatly encourage us to find a financial support to maintain and develop this website. We would very much appreciate your contribution.

We should note that there is an editorial error in the printed version of the data. Figure 13b in page S208 (Dobashi et al. 2005, PASJ, 57) was unfortunately replaced by Figure 13d by accident. An appropriate Figure 13b can be found in the erratum of PASJ (2005, Vol.57, No.2, p.417). The error has been already corrected in the electronic version of the paper (<http://pasj.asj.or.jp/v57/v57sp1.html>).

We have done our best to guarantee the high quality of the data, but there might be some errors. If you should find an error, please let us know via e-mail (dobashi@u-gakugei.ac.jp), so that we can revise the data immediately.

(5) Contact Address

If you have a question, suggestion, or request about the extinction data, please send an e-mail to me Kazuhito DOBASHI (dobashi@u-gakugei.ac.jp).

(6) Column Format of the Tables

Byte-to-byte explanations of the ascii files (Tables 7-10) are given in the following.

Table 7: Catalog of dark clouds and clumps identified in the high-resolution Av map.

Byte	Format	Unit	Label	Explanations
1- 4	I4	---	---	Sequential number for cloud name.
6-10	A5	---	---	Sequential number for clumps identified in each cloud.
12-17	F6.2	deg	L	Galactic longitude in degree of the clouds and clumps.
19-24	F6.2	deg	B	Galactic latitude in degree of the clouds and clumps.
26-30	F5.2	deg	dL	Extent of the clouds and clumps in galactic longitude in degree.
32-36	F5.2	deg	dB	Extent of the clouds and clumps in galactic latitude in degree.
38-45	E8.2	deg ²	S	Surface area of the clouds and clumps in square degree.
47-50	F4.1	mag	Av1	Peak Av value of the clouds and clumps in the original Av map.
52-55	F4.1	mag	Av2	Peak Av value of the clouds and clumps in the filtered Av map.
57-60	F4.2	mag	dAv	Noise level.
62-69	F8.2	mag deg ²	SAv1ds	Extinction integrated over the surface area in the original Av map.
71-78	F8.2	mag deg ²	SAv2ds	Extinction integrated over the surface area in the filtered Av map.
80-81	I2	---	Nassoc	Number of counterparts found in the literature.
83-83	I1	---	Flag	Flag for a large uncertainty due to a very small number of stars (≤ 2) found in the 6' resolution.

Table 8:List of associated dark clouds in the high-resolution Av map.

Byte	Format	Unit	Label	Explanations
1- 4	I4	---	---	Sequential number for cloud name.
6-10	A5	---	---	Sequential number for clumps identified in each cloud.
12- N	A	---	---	Names of associated dark clouds found in a list compiled by Dutra and Bica (2002).The largest record is N=1254.

Table 9: Catalog of dark clouds and clumps identified in the low-resolution A_v map.

Byte	Format	Unit	Label	Explanations
1- 3	I3	---	---	Sequential number for cloud name.
5- 7	A3	---	---	Sequential number for clumps identified in each cloud.
9-14	F6.2	deg	L	Galactic longitude in degree of the clouds and clumps.
16-21	F6.2	deg	B	Galactic latitude in degree of the clouds and clumps.
23-27	F5.2	deg	dL	Extent of the clouds and clumps in galactic longitude in degree.
29-33	F5.2	deg	dB	Extent of the clouds and clumps in galactic latitude in degree.
35-42	E8.2	deg ²	S	Surface area of the clouds and clumps in square degree.
44-46	F3.1	mag	A_v	Peak A_v value of the clouds and clumps.
48-55	F8.2	mag deg ²	SAvds	Extinction integrated over the surface area.
57-57	I1	---	Nassoc	Number of counterparts found in the literature.
59-59	I1	---	Flag	Flag for a large cloud extending outside the A_v map.

Table 10: List of associated dark clouds in the low-resolution A_v map.

Byte	Format	Unit	Label	Explanations
1- 4	I4	---	---	Sequential number for cloud name.
6-10	A5	---	---	Sequential number for clumps identified in each cloud.
12- N	A	---	---	Names of associated dark clouds found in a list compiled by Dutra and Bica (2002). The largest record is N=74.

(7) Acknowledgement

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