

May 2024

ALPO Comet News

A Publication of the Comets Section of the
Association of Lunar and Planetary Observers

The Evolution of 12P/Pons-Brooks



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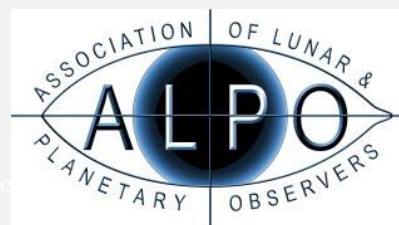


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On the Front Cover:

12P/Pons-Brooks has experienced an amazing evolutionary sequence over the past few months. Gianluca Masi used a Celestron C14 SCT and 10" f/4.5 astrograph, both part of the Virtual Telescope Project 2.0 in central Italy, to image Pons-Brooks between 2023 July 23 and 2024 April 6.

The monthly ALPO Comet News PDF can be found on the ALPO Comets Section website (<http://www.alpo-astronomy.org/cometblog/> and in the [Comets Section Image Gallery](#)). A shorter version of this report is posted on a dedicated Cloudy Nights forum (<https://www.cloudynights.com/topic/921215-alpo-comet-news-for-may-2024/>). All are encouraged to join the discussion over at Cloudy Nights. The ALPO Comets Section welcomes all comet-related articles, observations, images, drawings, magnitude estimates, or spectra. One does not have to be a member of ALPO to submit material, though membership is appreciated.

Please send your observations to the Comets Section at < comets@alpo-astronomy.org >, Coordinator Carl Hergenrother < carl.hergenrother@alpo-astronomy.org >, and/or Acting Assistant Coordinator Michel Deconinck < michel.deconinck@alpo-astronomy.org >.

To learn more about the ALPO, please visit us @ <http://www.alpo-astronomy.org>.

Summary

12P/Pons-Brooks reached its peak performance last month for northern hemisphere observers. The comet is still a 4th magnitude object as May begins but is only observable from the southern hemisphere, fading from 4th to 6th magnitude in the evening sky.

Northern observers currently have another Halley-type comet to themselves, as 13P/Olbers brightens from 8th to 7th magnitude in the evening sky. C/2023 A3 (Tsuchinshan-ATLAS) is observable by all in the evening sky as it continues brightening at 9th magnitude.

Two fainter objects between 10th and 12th magnitude are also visible. 479P/Elenin is having its best apparition in any of our lifetimes and should be at 10th to 11th magnitude in the evening sky. While in the morning sky, C/2021 S3 (PANSTARRS) is fading from 10th to 11th magnitude.

Last month, the ALPO Comets Section received 202 images and 109 magnitude estimates of 25 comets: C/2024 G1 (Wierzbos), C/2024 F2 (PANSTARRS), C/2024 C4 (ATLAS), C/2023 S3 (Lemmon), C/2023 A3 (Tsuchinshan-ATLAS), C/2022 L2 (ATLAS), C/2022 E2 (ATLAS), C/2021 S3 (PANSTARRS), C/2021 G2 (ATLAS), C/2020 S4 (PANSTARRS), C/2020 K1 (PANSTARRS), C/2019 U5 (PANSTARRS), C/2017 K2 (PANSTARRS), 479P/Elenin, 362P/(457175) 2008 GO98, 227P/Catalina-LINEAR, 144P/Kushida, 125P/Spacewatch, 65P/Gunn, 62P/Tsuchinshan, 37P/Forbes, 32P/Comas Sola, 29P/Schwassmann-Wachmann, 13P/Olbers, 12P/Pons-Brooks.

A big thanks to our recent contributors: Salvador Aguirre, Anthony Amato, Michael Amato, Dan Bartlett, Dan Crowson, Jose Guilherme de Souza Aguiar, J. J. Gonzalez Suarez, Christian Harder, Carl Hergenrother, Eliot Herman, Rik Hill, Michael Jäger, John Maikner, Gianluca Masi, Efrain Morales Rivera, Mike Olason, Uwe Pilz, Gregg Ruppel, Chris Schur, Greg T. Shanos, Willian Souza, Tenho Tuomi, and Chris Wyatt.

Request for Observations

As always, the Comet Section is happy to receive all comet observations, whether textual descriptions, images, drawings, magnitude estimates, or spectra. Please send your observations via email to the Comets Section < comets@alpo-astronomy.org >, Comets Section Coordinator Carl Hergenrother < carl.hergenrother@alpo-astronomy.org >.

Photometric Corrections to Magnitude Measurements

We include lightcurves for the comets discussed in these reports and apply aperture and personal corrections to the visual observations and only personal corrections to digital observations. Though we try to keep these lightcurves up to date, observations submitted in the days before publication may not be included in the lightcurves until next month's News. All magnitude estimates are affected by many factors, including instrumental (aperture, focal length, magnification, type of optics), environmental (sky brightness due to moonlight, light pollution, twilight, aurora activity, zodiacal light, etc.), cometary (degree of condensation, coma color, strength and type of gas emission lines, coma-tail interface) and personal (sensitivity to different wavelengths, personal technique, observational biases). The first correction used here corrects for differences in aperture [Charles S. Morris, On Aperture Corrections for Comet Magnitude Estimates. Publ Astron Soc Pac 85, 470, 1973]. Visual observations are corrected to a standard aperture of 6.78 cm by 0.019 magnitudes per centimeter for reflectors and 0.066 magnitudes per centimeter for refractors. After applying the aperture correction and if a sufficient number of visual observations are submitted for a particular comet, we also determine personal corrections for each observer for each comet; for digital observations, only a personal correction is applied. A single observer submitting both visual and digital magnitude measurements may also have separate corrections for each observing method. If the magnitudes shown in the text don't match those plotted in the lightcurves, it is because of the application of these corrections.

Acknowledgments

In addition to observations submitted directly to the ALPO, we occasionally use data from other sources to augment our analysis. Therefore, we acknowledge with thanks observations submitted directly to the ALPO and those submitted initially to the International Comet Quarterly, Minor Planet Center, and COBS Comet Observation Database. In particular, we have been using observations submitted to the COBS site by Thomas Lehmann for our analysis and would like to thank Thomas for his COBS observations. We would also like to thank the Jet Propulsion Laboratory for making their Small-Body Browser and Orbit Visualizer available and Seiichi Yoshida for his Comets for Windows programs that produced the lightcurves and orbit diagrams in these pages. Last but not least, we'd like to thank [Syuichi Nakano](#) and the Minor Planet Center for their comet orbit elements, the asteroid surveys and dedicated comet hunters for their discoveries, and all of the observers who volunteer their time to add to our knowledge of these fantastic objects.

Thank you to everyone who contributed to the ALPO Comets Section!

Clear skies!

- Carl Hergenrother

Comets Calendar

Lunar Phases (UTC)

May 01	- Last Quarter Moon
May 08	- New Moon
May 15	- First Quarter Moon
May 23	- Full Moon
May 30	- Last Quarter Moon

Comets at Perihelion

May 01	- 478P/ATLAS [q = 2.39 au, 7.0-yr period, V ~ 17, discovered in 2017, this is its 2 nd observed return]
May 05	- 479P/Elenin [q = 1.24 au, 13.3-yr period, V ~ 10-11, discovered in 2011, this is also its 2 nd observed return]
May 10	- 133P/Elst-Pizarro [q = 2.67 au, 5.6-yr period, V ~ 20, Main-Belt Comet, discovered in 1996, seen back to 1979, usually inactive but can show activity at and after perihelion]
May 12	- 50P/Arend [q = 1.92 au, 8.3-yr period, V ~ 17, discovered in 1951, seen at every return after perihelion, 10th observed return]
May 12	- 222P/LINEAR [q = 0.78 au, 4.8-yr period, V ~ 16, discovered in 2004, will be 5th observed return]
May 17	- 202P/Scotti [q = 3.07 au, 8.4-yr period, V ~ 20, discovered in 2001, also seen back in 1930, 5th observed return]
May 19	- 46P/Wirtanen [q = 1.05 au, 5.4-yr period, V ~ 10 though located to close to the Sun for observation, discovered in 1947, seen at every return since discovery except at 1980 return, 13th observed return, ~3 mag outburst in 2002, reached 4th mag during very close approach to Earth in 2019]
May 22	- P/2023 T1 (PANSTARRS) [q = 2.82 au, 8.7-yr period, V ~ 20, first observed return]
May 24	- 192P/Shoemaker-Levy [q = 1.46 au, 16.4-yr period, V ~ 14, discovered in 1990, 3rd observed return]
May 24	- C/2023 X4 (Hogan) [q = 3.66 au, V ~ 19]
May 27	- 349P/Lemmon [q = 2.51 au, 6.8-yr period, V ~ 17-18, discovered in 2010, 3rd observed return]
May 30	- C/2023 V4 (Camarasa-Duszanowicz) [q = 1.12 au, V ~ 12]

Photo Opportunities

May 17-18	- 12P/Pons-Brooks crosses the Witch Head Nebula
May 17-22	- 13P/Olbers passes through a crowded deep space field in Auriga that contains the Flaming Star and other nebula as well as open star clusters M36 and NGC 1893

Recent Magnitudes Contributed to the ALPO Comets Section

Comet Des	YYYY MM DD.DD (UT)	Mag	SC	APER	FL	POW	COMA Dia DC	TAIL LENG PA	ICQ CODE	Observer Name
C/2023 A3 (Tsuchinshan-ATLAS)										
2023A3	2024 04 30.91	S 10.8	TI	53.1L		113	1.2 4/	3 m100	ICQ XX HAR11	Christian Harder
2023A3	2024 04 30.15	S 10.2	TK	12.5B		30	2 6		ICQ XX HER02	Carl Hergenrother
2023A3	2024 04 30.14	Z 10.6	GG	5.0R	5a	180	3		OLAaa	Michael Olason
2023A3	2024 04 29.92	S 10.8	TK	32.0L	5	80	1 6/	0.05 100	PIL01	Uwe Pilz
2023A3	2024 04 29.42	&M 10.7	AQ	25.0L	5	40	1 6	3 m 96	ICQ XX WYA	Christopher Wyatt
2023A3	2024 04 29.12	10.7		35.0T11		163	2 5/		ICQ XX ROSxx	Michael Rosolina
2023A3	2024 04 28.42	&M 10.5	AQ	25.0L	5	40	1.6 6	3.2 m 97	ICQ XX WYA	Christopher Wyatt
2023A3	2024 04 28.12	M 10.0	TK	8.0B		20	1 7		ICQ XX SOU01	Willian Souza
2023A3	2024 04 26.89	S 10.4	TI	29.8L	4	65	1.6 4/	2 m100	ICQ XX HAR11	Christian Harder
2023A3	2024 04 26.15	S 10.3	TK	12.5B		30	2 6		ICQ XX HER02	Carl Hergenrother
2023A3	2024 04 19.25	M 10.6	AQ	30 L	5	65	2 4		ICQ XX DES01	Jose Guilherme de Souza Aguiar
2023A3	2024 04 18.73	xM 10.7	AQ	25.0L	5	40	1.5 6	4 m 83	ICQ XX WYA	Christopher Wyatt
2023A3	2024 04 11.46	xM 10.8	AQ	25.0L	5	40	1.2 7	1.5 m 68	ICQ XX WYA	Christopher Wyatt
2023A3	2024 04 10.88	S 10.6	TI	53.1L		113	2 4		ICQ XX HAR11	Christian Harder
2023A3	2024 04 10.25	M 10.8	AQ	30 L	5	65	3 4/		ICQ XX DES01	Jose Guilherme de Souza Aguiar
2023A3	2024 04 08.90	B 10.6	TK	20.3T10		77	1.2 7		ICQ XX GON05	Juan Jose Gonzalez Suarez
2023A3	2024 04 07.48	xM 11.1	AQ	40.0L	4	59	0.7 7	2 m 63	ICQ XX WYA	Christopher Wyatt
2023A3	2024 04 04.23	Z 11.0	GG	5.0R	5a	600	1.7		OLAaa	Michael Olason
2023A3	2024 04 03.24	M 11.5	AQ	30 L	5	65	2 5		ICQ XX DES01	Jose Guilherme de Souza Aguiar
C/2022 L2 (ATLAS)										
2022L2	2024 04 10.24	M 13.8	AQ	30 L	5	121	1 5/		ICQ XX DES01	Jose Guilherme de Souza Aguiar
2022L2	2024 04 07.46	xM 13.7	AQ	40.0L	4	108	1.6 5/		ICQ XX WYA	Christopher Wyatt
C/2022 E2 (ATLAS)										
2022E2	2024 04 30.90	S -	TI	53.1L		242	0.45 3		ICQ XX HAR11	Christian Harder
2022E2	2024 04 08.92	S 11.9	AQ	20.3T10		100	1.5 2/		ICQ XX GON05	Juan Jose Gonzalez Suarez
C/2021 S3 (PANSTARRS)										
2021S3	2024 04 30.96	S 10.7	TI	53.1L		139	2.5 2/		ICQ XX HAR11	Christian Harder
2021S3	2024 04 29.91	S 11.3	TK	32.0L	5	80	2 3		PIL01	Uwe Pilz
2021S3	2024 04 26.90	S 10.4	TI	29.8L	4	103	2.5 2		ICQ XX HAR11	Christian Harder
2021S3	2024 04 19.29	M 11.4	AQ	30 L	5	65	1 3/		ICQ XX DES01	Jose Guilherme de Souza Aguiar
2021S3	2024 04 18.76	xM 11.3	AQ	25.0L	5	74	2 4		ICQ XX WYA	Christopher Wyatt
C/2021 G2 (ATLAS)										
2021G2	2024 04 10.24	M 13.7	AQ	30 L	5	121	1 4		ICQ XX DES01	Jose Guilherme de Souza Aguiar
2021G2	2024 04 07.45	xM 13.7	AQ	40.0L	4	108	0.6 6		ICQ XX WYA	Christopher Wyatt
C/2020 K1 (PANSTARRS)										
2020K1	2024 04 07.44	xS 15.1	AQ	40.0L	4	261	0.3 3		ICQ XX WYA	Christopher Wyatt
C/2019 U5 (PANSTARRS)										
2019U5	2024 04 07.44	xM 14.4	AQ	40.0L	4	182	0.6 5/		ICQ XX WYA	Christopher Wyatt
C/2017 K2 (PANSTARRS)										
2017K2	2024 04 07.40	xM 14.2	AQ	40.0L	4	182	0.6 4		ICQ XX WYA	Christopher Wyatt
479P/Elenin										
479	2024 04 10.40	xS 11.3	AQ	40.0L	4	59	2.3 3		ICQ XX WYA	Christopher Wyatt
144P/Kushida										
144	2024 04 11.45	xS 11.5	AQ	25.0L	5	74	2.6 2		ICQ XX WYA	Christopher Wyatt
144	2024 04 10.82	S 11.1	TK	32.0L	5	80	2 2/		PIL01	Uwe Pilz
144	2024 04 07.46	xS 11.8	AQ	40.0L	4	108	3.2 3		ICQ XX WYA	Christopher Wyatt
144	2024 04 04.93	M 11.7	AQ	27 L	5	90	1 3		ICQ XX DES01	Jose Guilherme de Souza Aguiar
144	2024 03 31.94	M 11.6	AQ	27 L	5	90	1 3		ICQ XX DES01	Jose Guilherme de Souza Aguiar
144	2024 03 30.94	M 11.5	AQ	27 L	5	90	1 3		ICQ XX DES01	Jose Guilherme de Souza Aguiar
62P/Tsuchinshan										
62	2024 04 07.48	xS 11.4	AQ	40.0L	4	59	5 2		ICQ XX WYA	Christopher Wyatt
32P/Comas Sola										
32	2024 04 04.19	Z 14.6	GG	5.0R	4a	750	1		OLAaa	Michael Olason
29P/Schwassmann-Wachmann										
29	2024 04 07.41	xS 14.0	AQ	40.0L	4	182	1.2 2/		ICQ XX WYA	Christopher Wyatt
13P/Olbers										
13	2024 04 30.14	S 8.7	TK	12.5B		30	2 4		ICQ XX HER02	Carl Hergenrother
13	2024 04 25.14	Z 8.4	GG	5.0R	4a	180	5		OLAaa	Michael Olason
13	2024 04 20.91	&M 9.8	TK	10 B		25	1 5/		ICQ XX DES01	Jose Guilherme de Souza Aguiar
13	2024 04 19.91	&M 9.9	TK	10 B		25	1 5		ICQ XX DES01	Jose Guilherme de Souza Aguiar
13	2024 04 18.91	&M 9.9	TK	10 B		25	1 5		ICQ XX DES01	Jose Guilherme de Souza Aguiar
13	2024 04 12.86	S 9.2	TK	8.0B		20	3 3		ICQ XX GON05	Juan Jose Gonzalez Suarez
13	2024 04 11.37	&M 9.8	TK	25.0L	5	40	5.1 6		ICQ XX WYA	Christopher Wyatt
13	2024 04 10.81	S 9.9	TK	32.0L	5	80	1		PIL01	Uwe Pilz
13	2024 04 10.92	M 10.0	TK	27 L	5	55	2 4/		ICQ XX DES01	Jose Guilherme de Souza Aguiar
13	2024 04 08.89	S 9.5	TK	20.3T10		77	3 3/		ICQ XX GON05	Juan Jose Gonzalez Suarez

13	2024	04	06.92	M	10.2	TK	27	L	5	55	3	4				ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
13	2024	04	04.92	M	10.4	TK	27	L	5	55	3	4/				ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
13	2024	04	04.18	Z	9.9	GG	5.0R	4a240			4							OLAaa	Michael Olason
13	2024	04	02.92	M	10.4	TK	27	L	5	55	2	4				ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
13	2024	03	31.93	M	10.5	TK	27	L	5	55	2	4				ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
13	2024	03	30.93	M	10.5	TK	27	L	5	55	2	4/				ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12P/Pons-Brooks																			
12	2024	04	29.35	&M	4.7	TK	7.0B			15	6	6	3	107		ICQ	XX	WYA	Christopher Wyatt
12	2024	04	28.90	M	4.6	TK	8.0B			20	5	6				ICQ	XX	SOU01	Willian Souza
12	2024	04	28.35	&M	4.6	TK	7.0B			15	4	6	2.6	94		ICQ	XX	WYA	Christopher Wyatt
12	2024	04	27.91	M	4.6	TK	5.0B			7	5	7				ICQ	XX	SOU01	Willian Souza
12	2024	04	27.90	M	4.6	TK	8.0B			20	5	7	0.5	100		ICQ	XX	SOU01	Willian Souza
12	2024	04	27.36	&M	4.7	TK	7.0B			15	8	6	2	105		ICQ	XX	WYA	Christopher Wyatt
12	2024	04	26.12	Z	4.2	GG	5.0R	4a090			10							OLAaa	Michael Olason
12	2024	04	25.12	Z	4.2	GG	5.0R	4a240			10							OLAaa	Michael Olason
12	2024	04	24.35	&M	4.9	TK	7.0B			15	3.8	6	30	m	93	ICQ	XX	WYA	Christopher Wyatt
12	2024	04	24.12	Z	4.0	GG	5.0R	4a120			10							OLAaa	Michael Olason
12	2024	04	23.35	aM	4.7	TK	7.0B			15	3.9	6	19.5	m	90	ICQ	XX	WYA	Christopher Wyatt
12	2024	04	22.90	&M	4.6	TK	10	B		25	5	5/	0.50	95		ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12	2024	04	22.35	aM	4.8	TK	7.0B			15	3.7	6	22	m	90	ICQ	XX	WYA	Christopher Wyatt
12	2024	04	22.13	Z	4.4	GG	5.0R	4a120			10							OLAaa	Michael Olason
12	2024	04	21.91	M	4.4	TK	8.0B			20	5	5	0.25	90		ICQ	XX	SOU01	Willian Souza
12	2024	04	21.90	M	4.4	TK	4.2B			10	5	5				ICQ	XX	SOU01	Willian Souza
12	2024	04	21.90	&M	4.5	TK	10	B		25	6	5	0.60	90		ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12	2024	04	21.36	aM	4.5	TK	7.0B			15	2.3	6	9.2	m	89	ICQ	XX	WYA	Christopher Wyatt
12	2024	04	21.13	Z	4.4	GG	5.0R	4a120			10							OLAaa	Michael Olason
12	2024	04	20.90	&M	4.5	TK	10	B		25	6	4/	0.60	90		ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12	2024	04	20.13	Z	4.5	GG	5.0R	4a120			10							OLAaa	Michael Olason
12	2024	04	19.90	S	4.3	TK	5.0B			7	5	5				ICQ	XX	SOU01	Willian Souza
12	2024	04	19.90	&M	4.4	TK	10	B		25	5	5/	0.25	90		ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12	2024	04	19.36	aM	4.7	TK	7.0B			15	5	6	15	m	95	ICQ	XX	WYA	Christopher Wyatt
12	2024	04	18.90	&M	4.5	TK	10	B		25	5	5	0.20	90		ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12	2024	04	17.12	Z	4.5	GG	5.0R	4a180			10							OLAaa	Michael Olason
12	2024	04	16.12	S	4.6	TK	5.0B			10	5	6				ICQ	XX	HER02	Carl Hergenrother
12	2024	04	15.12	Z	4.5	GG	5.0R	4a180			10							OLAaa	Michael Olason
12	2024	04	14.12	Z	4.6	GG	5.0R	4a600			10							OLAaa	Michael Olason
12	2024	04	13.12	Z	4.7	GG	5.0R	4a600			10							OLAaa	Michael Olason
12	2024	04	12.90	&M	4.4	TK	10	B		25	3	5/				ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12	2024	04	12.84	B	4.2	TK	5.0B			10	5	7/	1.2	50		ICQ	XX	GON05	Juan Jose Gonzalez Suarez
12	2024	04	12.12	S	4.7	TK	5.0B			10	6	6				ICQ	XX	HER02	Carl Hergenrother
12	2024	04	10.90	&M	4.3	TK	10	B		25	4	6				ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12	2024	04	10.80	\$S	4.0	TK	5.0B	4		7								PIL01	Uwe Pilz
12	2024	04	10.12	Z	4.5	GG	5.0R	4a240			10							OLAaa	Michael Olason
12	2024	04	08.85	I	3.8	TK	E			1	5	8				ICQ	XX	GON05	Juan Jose Gonzalez Suarez
12	2024	04	08.84	B	3.9	TK	5.0B			10	5	7/	1.8	50		ICQ	XX	GON05	Juan Jose Gonzalez Suarez
12	2024	04	08.11	Z	4.4	GG	2.5R	4a600			10							OLAaa	Michael Olason
12	2024	04	07.11	Z	4.3	GG	2.5R	4a300			10							OLAaa	Michael Olason
12	2024	04	06.90	&M	3.7	TK	10	B		25		7				ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12	2024	04	05.12	S	4.4	TK	5.0B			10	7	6	0.5	50		ICQ	XX	HER02	Carl Hergenrother
12	2024	04	05.11	Z	4.3	GG	5.0R	4a600			10							OLAaa	Michael Olason
12	2024	04	04.11	S	4.5	AC	20.0T	10		50		6				ICQ	XX*	AGU01	Salvador Aguirre
12	2024	04	04.11	Z	4.2	GG	5.0R	4a300			10							OLAaa	Michael Olason
12	2024	04	03.12	Z	4.1	GG	5.0R	4a375			10							OLAaa	Michael Olason
12	2024	04	01.86	B	4.9	TK	5.0B			10	5	7/	1.6	40		ICQ	XX	GON05	Juan Jose Gonzalez Suarez
12	2024	04	01.85	I	4.8	TK	0.0E			1	5	8				ICQ	XX	GON05	Juan Jose Gonzalez Suarez
12	2024	03	30.11	Z	4.9	GG	5.0R	4a300			10							OLAaa	Michael Olason
12	2024	03	28.11	Z	4.9	GG	5.0R	4a300			10							OLAaa	Michael Olason

Comets News

Looking Ahead to the Next 12 Months

The chart below shows those comets expected to become brighter than magnitude 10 in 2024. The number in each date bin is the expected brightness for that date. Magnitudes are only shown for dates when the comet is above the horizon during the dark of night (between the end of astronomical twilight in the evening and the start of astronomical twilight in the morning). The only exceptions are the dates bolded in red for C/2023 A3 (Tsuchinshan-ATLAS), when the comet will only be above the horizon in bright twilight but may still be bright enough to be observed.

All brightness predictions are just that, predictions, and may be off by many magnitudes. Additionally, C/2023 A3 may be 1 or more magnitudes brighter than shown in early October due to forward scattering by dust.

	04/30/24	05/10/24	05/20/24	05/30/24	06/09/24	06/19/24	06/29/24	07/09/24	07/19/24	07/29/24	08/08/24	08/18/24	08/28/24	09/07/24	09/17/24	09/27/24	10/07/24	10/17/24	10/27/24	11/06/24	11/16/24	11/26/24	12/06/24	12/16/24	12/26/24	01/10/25	01/20/25	01/30/25	02/09/25	02/19/25	03/01/25	03/11/25	03/21/25	03/31/25	04/10/25	04/20/25	04/30/25				
Northern Hemisphere																																									
12P/Pons-Brooks																																									
13P/Olbers	8	8	7	7	6	6	6	6	6	6	6	6	7	7	8	8	9	9																							
C/2023 A3 (Tsuchinshan-ATLAS)	9	9	9	9	9	9	8	8	8	7	7	6	5	4	3	1	1	2	4	5	6	7	8	9	9																
333P/LINEAR																							9																		
Southern Hemisphere																																									
12P/Pons-Brooks	4	5	5	6	6	7	8	8	9	9																															
13P/Olbers											6	6	7	7	8	8																									
C/2023 A3 (Tsuchinshan-ATLAS)	9	9	9	9	9	9	8	8	8	7	7	6	5	4	3	1	1	2	4	5	6	7	8	9	9																
333P/LINEAR																							9																		

Figure 1 - Observability and brightness of comets expected to become brighter than magnitude 10 over the next 12 months.

Last 10 Periodic Comet Numberings (from WGSBN Bull. 4, #6)

483P/PANSTARRS = P/2016 J1 = P/2020 Y6 = P/2010 G7	MPC 171409
482P/PANSTARRS = P/2014 VF_40	MPC 171409
481P/Lemmon-PANSTARRS = P/2012 WA_34 = P/2024 C5	MPC 171409
480P/2014 A3 = P/2023 X6 (PANSTARRS)	MPC 169139
479P/2011 NO1 = P/2023 WM26 (Elenin)	MPC 169139
478P/2023 Y3 = P/2017 BQ100 (ATLAS)	MPC 169139
477P/2018 P3 = P/2023 V8 (PANSTARRS)	MPC 169139
476P/2015 HG16 = P/2023 W2 (PANSTARRS)	MPC 169139
475P/2004 DO29 = P/2023 V7 (Spacewatch-LINEAR)	MPC 169139
474P/2023 X5 = P/2017 O4 (Hogan)	MPC 169139

New Discoveries

C/2024 G3 (ATLAS) – The "Asteroid Terrestrial-Impact Last Alert System" (ATLAS) search program found a new 18th magnitude comet on 2024 April 5 at 18th magnitude deep in the southern sky at a declination of -74 degrees. ATLAS used their 0.5-m f/2 Schmidt reflector at Rio Hurtado, Chile. C/2024 G3 has attracted a little excitement due to its very small perihelion distance of 0.094 au on 2025 January 13. While an 8 log r rate of brightening results in a peak brightness of magnitude 1.5 to 2.0 at perihelion, the comet will be at a solar elongation of only 5 degrees at the time. Adding to the bad news, the comet will never be visible from the northern hemisphere, and even from the southern hemisphere will not be visible against a dark sky until a week after perihelion when it will be significantly fainter at 7th magnitude. And that's assuming that it isn't a

dynamically new comet, at which point its survival may be in question. Luckily, we have time to follow its development. [MPEC 2024-H22, CBET 5384]

C/2024 G2 (ATLAS) – The ATLAS program also found a new 18th magnitude comet on 2024 April 8 with a 0.5-m f/2 Schmidt reflector at Rio Hurtado, Chile. *C/2024 G2* passes perihelion on 2025 June 13 at a large distance of 5.34 au. At that time, it should be near a peak brightness of 17th magnitude. [CBET 5383, MPEC 2024-H20]

C/2024 G1 (Wierzchos) – Kacper Wierzchos (University of Arizona) discovered this 20th magnitude long-period comet on 2024 April 7 with the 2.3-m Bok telescope on Kitt Peak. *C/2024 G1* arrives at perihelion on 2024 October 22 at 3.93 au. It should peak at 19th magnitude during the middle months of 2024. [CBET 5381, MPEC 2024-H10]

C/2024 F2 (PANSTARRS) – Yudish Ramanjooloo (University of Hawaii) reported the discovery of a new Halley-type comet at 20-21st magnitude by the Pan-STARRS1 1.8-m on 2024 in March 21. *C/2024 F2* arrives at perihelion on 2024 August 3 at 3.96 au. It should reach a peak brightness of 19th magnitude when at opposition in May. It has an orbital period of 31 years. [CBET 5380, MPEC 2024-G103]

P/2024 F1 (PANSTARRS) - Rob Weryk (University of Western Ontario) reported the discovery of a new short-period comet at 20-21st magnitude by the Pan-STARRS1 1.8-m on 2024 March 18. *P/2024 F1* has an orbital period of 6.4 years and a perihelion distance of 1.86 au. With perihelion back on 2023 October 25, the comet is already fading. [CBET 5379, MPEC 2024-G102]

P/2022 U6 = P/2006 AH2 (Sheppard-Tholen) – Back on 2023 January 24, David Tholen of the University of Hawaii reported the discovery of a new comet made on images taken on 2022 October 28 with the Subaru 8.2-m telescope on Mauna Kea. The comet was 22nd magnitude at the time. The new object was linked by the Minor Planet Center with a Mount Lemmon Survey discovery from 2006, asteroid 2006 AH2, which was 20th magnitude. The comet is currently in orbit with an orbital period of 17.9 years and perihelion back on 2023 August 24, at 3.99 au. [CBET 5387]

Comets Brighter than Magnitude 6

12P/Pons-Brooks

Discovered visually on 1812 July 12 by Jean-Louis Pons and rediscovered visually on 1883 September 2 by William R. Brooks
Halley-type comet

Orbit (from Minor Planet Center, MPEC 2024-H91)

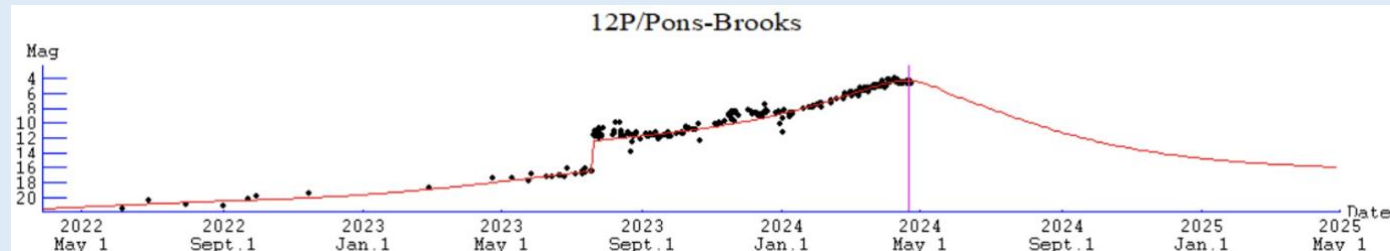
12P/Pons-Brooks
 Epoch 2024 Mar. 31.0 TT = JDT 2460400.5
 T 2024 Apr. 21.12393 TT Rudenko
 q 0.7807796 (2000.0) P Q
 n 0.01381015 Peri. 198.98909 +0.14510792 -0.32930067
 a 17.2056264 Node 255.85588 +0.98566267 +0.13016969
 e 0.9546207 Incl. 74.19152 +0.08609757 -0.93520956
 P 71.4
 From 7735 observations 2023 Feb. 27-2024 Apr. 19, mean residual 0".6.

Ephemerides (produced with Seiichi Yoshida's Comets for Windows program)

Date	R.A.	Decl.	r	d	Elong	Const	Mag	Max El (deg)	
								40N	40S
2024-May-01	04 01	+02 50	0.804	1.595	24E	Tau	4.5	0	7
2024-May-06	04 18	-00 43	0.830	1.587	27E	Eri	4.8	0	10
2024-May-11	04 34	-04 15	0.866	1.577	30E	Eri	5.0	0	13
2024-May-16	04 51	-07 45	0.910	1.568	33E	Eri	5.3	0	15
2024-May-21	05 08	-11 12	0.959	1.559	36E	Lep	5.7	0	17
2024-May-26	05 25	-14 37	1.014	1.552	40E	Lep	6.1	0	19
2024-May-31	05 43	-17 57	1.072	1.548	43E	Lep	6.4	0	21
2024-Jun-05	06 02	-21 14	1.132	1.548	46E	Lep	6.7	0	23

Comet Magnitude Formula (from ALPO and COBS data for the 1954 and 2023 returns)

$m_1 = 6.8 + 5 \log d + 11.6 \log r$ [between T-684 and T-275 days]
 $m_1 = 4.2 + 5 \log d + 7.2 \log r$ [between T-275 days and perihelion]
 $m_1 = 5.0 + 5 \log d + 15.5 \log r$ [between perihelion and T+30 days]
 $m_1 = 5.1 + 5 \log d + 11.4 \log r$ [after T+30 days]
 where "t" is date of perihelion, "d" is Comet-Earth distance in au, and "r" is Comet-Sun distance in au



Recent Magnitude Measurements Contributed to the ALPO Comets Section

Recent Magnitude Measurements in ICQ format:

Comet Des	YYYY MM DD.DD (UT)	Mag	SC	APER	FL	POW	COMA		TAIL		ICQ CODE	Observer Name
							Dia	DC	LENG	PA		
12	2024 04 29.35 &M	4.7	TK	7.0B	15	6	6	3	107	ICQ XX WYA	Christopher Wyatt	
12	2024 04 28.90 M	4.6	TK	8.0B	20	5	6			ICQ XX SOU01	Willian Souza	
12	2024 04 28.35 &M	4.6	TK	7.0B	15	4	6	2.6	94	ICQ XX WYA	Christopher Wyatt	
12	2024 04 27.91 M	4.6	TK	5.0B	7	5	7			ICQ XX SOU01	Willian Souza	
12	2024 04 27.90 M	4.6	TK	8.0B	20	5	7	0.5	100	ICQ XX SOU01	Willian Souza	
12	2024 04 27.36 &M	4.7	TK	7.0B	15	8	6	2	105	ICQ XX WYA	Christopher Wyatt	
12	2024 04 26.12 Z	4.2	GG	5.0R	4a090	10				OLAaa	Michael Olason	
12	2024 04 25.12 Z	4.2	GG	5.0R	4a240	10				OLAaa	Michael Olason	
12	2024 04 24.35 &M	4.9	TK	7.0B	15	3.8	6	30	m 93	ICQ XX WYA	Christopher Wyatt	
12	2024 04 24.12 Z	4.0	GG	5.0R	4a120	10				OLAaa	Michael Olason	
12	2024 04 23.35 aM	4.7	TK	7.0B	15	3.9	6	19.5	m 90	ICQ XX WYA	Christopher Wyatt	
12	2024 04 22.90 &M	4.6	TK	10 B	25	5	5/	0.50	95	ICQ XX DES01	Jose Guilherme de Souza Aguiar	
12	2024 04 22.35 aM	4.8	TK	7.0B	15	3.7	6	22	m 90	ICQ XX WYA	Christopher Wyatt	
12	2024 04 22.13 Z	4.4	GG	5.0R	4a120	10				OLAaa	Michael Olason	
12	2024 04 21.91 M	4.4	TK	8.0B	20	5	5	0.25	90	ICQ XX SOU01	Willian Souza	
12	2024 04 21.90 M	4.4	TK	4.2B	10	5	5			ICQ XX SOU01	Willian Souza	

12	2024 04 21.90	&M	4.5	TK	10	B	25	6	5	0.60	90	ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12	2024 04 21.36	aM	4.5	TK	7.0B		15	2.3	6	9.2	m	89	ICQ	XX	WYA Christopher Wyatt
12	2024 04 21.13	Z	4.4	GG	5.0R	4a120	10								OLAaa Michael Olason
12	2024 04 20.90	&M	4.5	TK	10	B	25	6	4/	0.60	90	ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12	2024 04 20.13	Z	4.5	GG	5.0R	4a120	10								OLAaa Michael Olason
12	2024 04 19.90	S	4.3	TK	5.0B		7	5	5				ICQ	XX	SOU01 Willian Souza
12	2024 04 19.90	&M	4.4	TK	10	B	25	5	5/	0.25	90	ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12	2024 04 19.36	aM	4.7	TK	7.0B		15	5	6	15	m	95	ICQ	XX	WYA Christopher Wyatt
12	2024 04 18.90	&M	4.5	TK	10	B	25	5	5	0.20	90	ICQ	XX	DES01	Jose Guilherme de Souza Aguiar
12	2024 04 17.12	Z	4.5	GG	5.0R	4a180	10								OLAaa Michael Olason
12	2024 04 16.12	S	4.6	TK	5.0B		10	5	6				ICQ	XX	HER02 Carl Hergenrother
12	2024 04 15.12	Z	4.5	GG	5.0R	4a180	10								OLAaa Michael Olason
12	2024 04 14.12	Z	4.6	GG	5.0R	4a600	10								OLAaa Michael Olason
12	2024 04 13.12	Z	4.7	GG	5.0R	4a600	10								OLAaa Michael Olason
12	2024 04 12.90	&M	4.4	TK	10	B	25	3	5/				ICQ	XX	DES01 Jose Guilherme de Souza Aguiar
12	2024 04 12.84	B	4.2	TK	5.0B		10	5	7/	1.2	50	ICQ	XX	GON05	Juan Jose Gonzalez Suarez
12	2024 04 12.12	S	4.7	TK	5.0B		10	6	6				ICQ	XX	HER02 Carl Hergenrother
12	2024 04 10.90	&M	4.3	TK	10	B	25	4	6				ICQ	XX	DES01 Jose Guilherme de Souza Aguiar
12	2024 04 10.80	\$\$	4.0	TK	5.0B	4	7								PIL01 Uwe Pilz
12	2024 04 10.12	Z	4.5	GG	5.0R	4a240	10								OLAaa Michael Olason
12	2024 04 08.85	I	3.8	TK		E	1	5	8				ICQ	XX	GON05 Juan Jose Gonzalez Suarez
12	2024 04 08.84	B	3.9	TK	5.0B		10	5	7/	1.8	50	ICQ	XX	GON05	Juan Jose Gonzalez Suarez
12	2024 04 08.11	Z	4.4	GG	2.5R	4a600	10								OLAaa Michael Olason
12	2024 04 07.11	Z	4.3	GG	2.5R	4a300	10								OLAaa Michael Olason
12	2024 04 06.90	&M	3.7	TK	10	B	25		7				ICQ	XX	DES01 Jose Guilherme de Souza Aguiar
12	2024 04 05.12	S	4.4	TK	5.0B		10	7	6	0.5	50	ICQ	XX	HER02	Carl Hergenrother
12	2024 04 05.11	Z	4.3	GG	5.0R	4a600	10								OLAaa Michael Olason
12	2024 04 04.11	S	4.5	AC	20.0T	10	50		6				ICQ	XX*AGU01	Salvador Aguirre
12	2024 04 04.11	Z	4.2	GG	5.0R	4a300	10								OLAaa Michael Olason
12	2024 04 03.12	Z	4.1	GG	5.0R	4a375	10								OLAaa Michael Olason
12	2024 04 01.86	B	4.9	TK	5.0B		10	5	7/	1.6	40	ICQ	XX	GON05	Juan Jose Gonzalez Suarez
12	2024 04 01.85	I	4.8	TK	0.0E		1	5	8				ICQ	XX	GON05 Juan Jose Gonzalez Suarez
12	2024 03 30.11	Z	4.9	GG	5.0R	4a300	10								OLAaa Michael Olason
12	2024 03 28.11	Z	4.9	GG	5.0R	4a300	10								OLAaa Michael Olason

On April 21st, 12P/Pons-Brooks finally arrived at perihelion at a distance of 0.78 au from the Sun. Prior to this, its last perihelion was 69.9 years ago, in May 1954. It will next be at perihelion in August 2095, 71.3 years from now.

Pons-Brooks started April as an object observable from the northern hemisphere and ended the month only observable from the southern hemisphere. Though, Mike Olason was still able to dig deep into the twilight sky to image Pons-Brooks as late a May 1 from near Tucson, Arizona.

Though the comet was located close to the horizon in April, many observers were able to image, sketch, and obtain brightness measurements. Its peak brightness appears to have been between magnitude 4.0 and 4.5, with a few observations coming in a little brighter. All observers found the comet to be moderately condensed, and many reported a tail. The longest visual tail measurements in ALPO data were over a degree in length, with Chris Wyatt reporting a 3-degree tail on April 29.

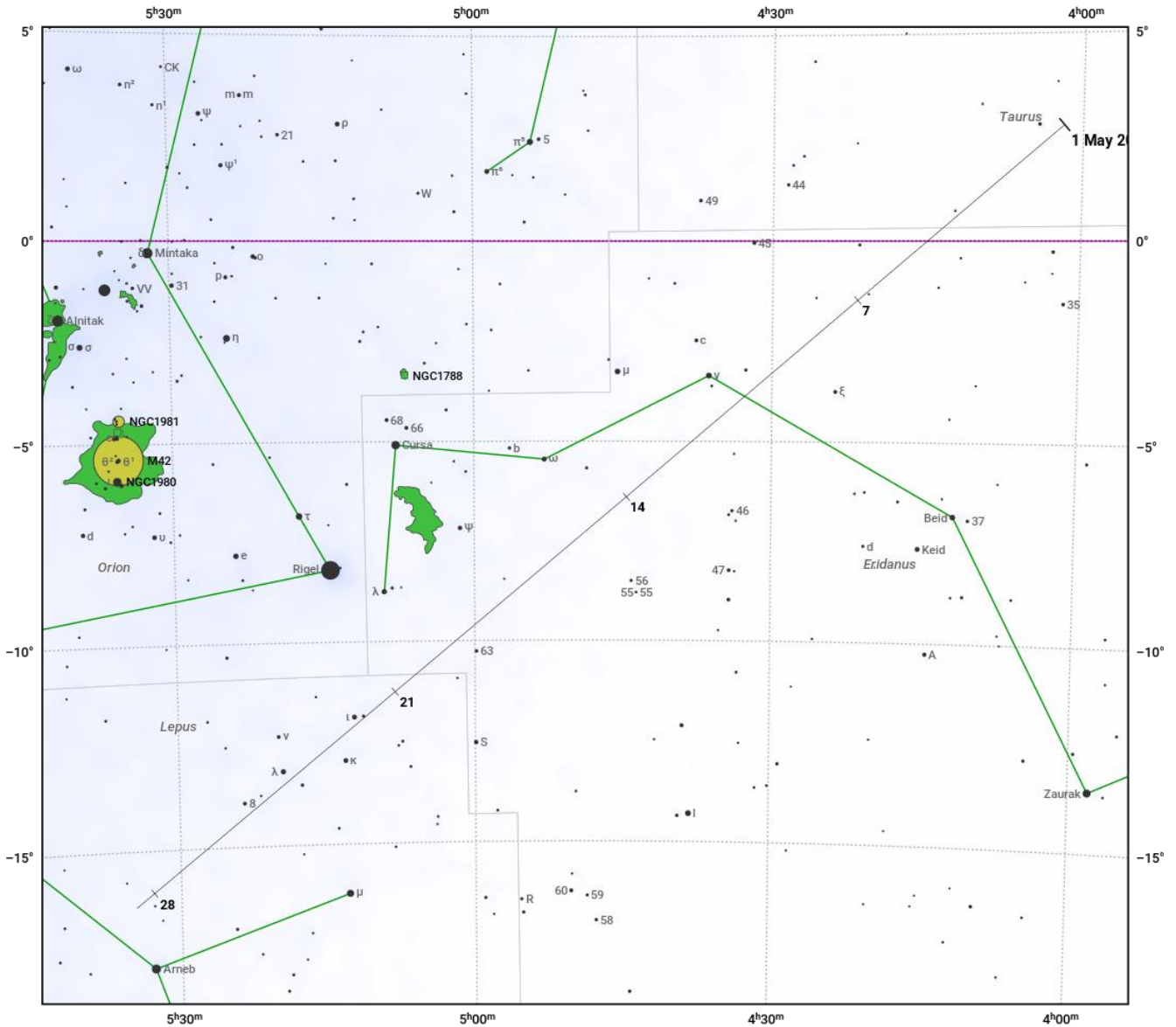
On the imaging side, Pons-Brooks continues to experience large outbursts. One that occurred between April 2 and 3, displayed an expanding shell that was tracked by imagers over the following week.

As has been the case for the past few months, Pons-Brooks is an evening object this month as it moves southward through Taurus (May 1-4), Eridanus (4-20), and Lepus (20-31). While not observable from the northern hemisphere, it is increasingly better placed for those south of the equator. Now past perihelion, it should fade from around magnitude 4.5 to 6.4 in May. The fading is slightly offset by a slowly decreasing Earth-comet distance, with the minimum of 1.55 au being reached on June 2.

Photo Ops:

May 17-18 - 12P/Pons-Brooks crosses the Witch Head Nebula

The path of 12P/Pons-Brooks from 2024 May 1



© Dominic Ford 2011-2024. Chart generated 22 Apr 2024. Date markers placed at midnight UTC. Downloaded from <https://in-the-sky.org>

Magnitude scale: -7.0 · 6.0 · 5.0 · 4.0 · 3.0 · 2.0 · 1.0 · 0.0

- The Equator
- Ecliptic Plane
- Galactic Plane
- Galaxy
- Bright nebula
- Open cluster
- Globular cluster

Figure 2 - Finder chart for 12P in May 2024 from in-the-sky.org.

Comets Between Magnitude 6 and 10

13P/Olbers

Discovered visually on 1815 March 6 by Heinrich Olbers in Bremen, Germany
Halley-type comet

Orbit (from Minor Planet Center, MPEC 2024-H91)

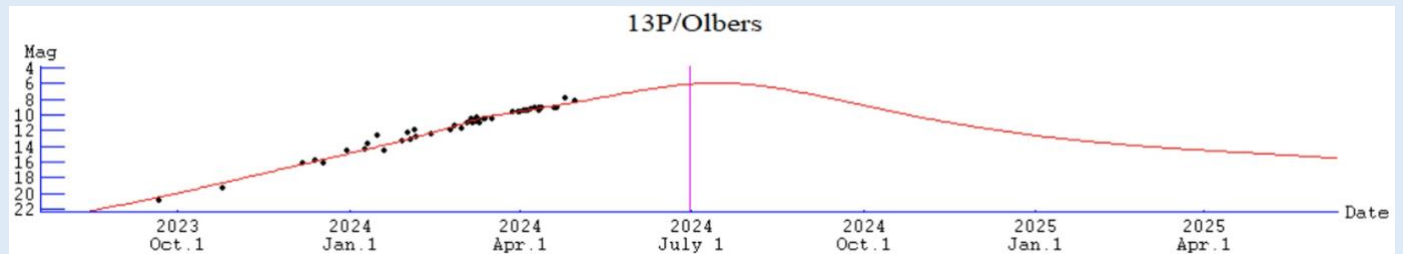
13P/Olbers
Epoch 2024 Mar. 31.0 TT = JDT 2460400.5
T 2024 June 30.04758 TT
q 1.1755818 (2000.0) P Q
n 0.01420581 Peri. 64.41099 -0.60849100 -0.37170348
a 16.8846472 Node 85.84642 +0.18565977 -0.92567825
e 0.9303757 Incl. 44.66583 +0.77153688 -0.07040106
P 69.4
From 1281 observations 2023 Oct. 8-2024 Apr. 23, mean residual 0".4.
Nongravitational parameters A1 = +2.92, A2 = +1.4453.

Ephemerides (produced with Seiichi Yoshida's Comets for Windows program)

Date	R.A.	Decl.	r	d	Elong	Const	Mag	Max El (deg)	
								40N	40S
2024-May-01	04 38	+26 31	1.479	2.243	31E	Tau	8.4	11	0
2024-May-06	04 51	+28 22	1.436	2.222	29E	Tau	8.1	10	0
2024-May-11	05 04	+30 11	1.396	2.199	28E	Aur	7.9	9	0
2024-May-16	05 18	+31 59	1.358	2.175	27E	Aur	7.7	8	0
2024-May-21	05 34	+33 43	1.322	2.149	26E	Aur	7.5	7	0
2024-May-26	05 51	+35 23	1.290	2.121	26E	Aur	7.3	7	0
2024-May-31	06 09	+36 58	1.261	2.093	25E	Aur	7.1	7	0
2024-Jun-05	06 28	+38 25	1.236	2.065	25E	Aur	6.9	7	0

Comet Magnitude Formula (from 1956 ICQ and 2023 ALPO data)

$m_1 = -1.4 + 5 \log d + 33.6 \log r$ [Up through T-110 days]
 $m_1 = 3.5 + 5 \log d + 15.1 \log r$ (T - 14) [After T-110 days]
 where "T" is date of perihelion, "d" is Comet-Earth distance in au, and "r" is Comet-Sun distance in au



Recent Magnitude Estimates submitted to the ALPO Comets Section

Recent Magnitude Measurements in ICQ format:

Comet Des	YYYY MM DD.DD (UT)	Mag	SC	APER	FL	POW	COMA Dia DC	TAIL LENG PA	ICQ CODE	Observer Name
13	2024 04 30.14	S 8.7	TK	12.5B	30	2	4		ICQ XX HER02	Carl Hergenrother
13	2024 04 25.14	Z 8.4	GG	5.0R	4a180	5			OLAaa	Michael Olason
13	2024 04 20.91	&M 9.8	TK	10 B	25	1	5/		ICQ XX DES01	Jose Guilherme de Souza Aguiar
13	2024 04 19.91	&M 9.9	TK	10 B	25	1	5		ICQ XX DES01	Jose Guilherme de Souza Aguiar
13	2024 04 18.91	&M 9.9	TK	10 B	25	1	5		ICQ XX DES01	Jose Guilherme de Souza Aguiar
13	2024 04 12.86	S 9.2	TK	8.0B	20	3	3		ICQ XX GON05	Juan Jose Gonzalez Suarez
13	2024 04 11.37	&M 9.8	TK	25.0L	5 40	5.1	6		ICQ XX WYA	Christopher Wyatt
13	2024 04 10.81	S 9.9	TK	32.0L	5 80	1			PIL01	Uwe Pilz
13	2024 04 10.92	M 10.0	TK	27 L	5 55	2	4/		ICQ XX DES01	Jose Guilherme de Souza Aguiar
13	2024 04 08.89	S 9.5	TK	20.3T10	77	3	3/		ICQ XX GON05	Juan Jose Gonzalez Suarez
13	2024 04 06.92	M 10.2	TK	27 L	5 55	3	4		ICQ XX DES01	Jose Guilherme de Souza Aguiar
13	2024 04 04.92	M 10.4	TK	27 L	5 55	3	4/		ICQ XX DES01	Jose Guilherme de Souza Aguiar
13	2024 04 04.18	Z 9.9	GG	5.0R	4a240	4			OLAaa	Michael Olason
13	2024 04 02.92	M 10.4	TK	27 L	5 55	2	4		ICQ XX DES01	Jose Guilherme de Souza Aguiar
13	2024 03 31.93	M 10.5	TK	27 L	5 55	2	4		ICQ XX DES01	Jose Guilherme de Souza Aguiar
13	2024 03 30.93	M 10.5	TK	27 L	5 55	2	4/		ICQ XX DES01	Jose Guilherme de Souza Aguiar

With Pons-Brooks departing the northern sky, those of us north of the equator have two other brightening comets to watch in the evening. The first is, like 12P/Pons-Brooks, a returning Halley-type comet. 13P/Olbers was discovered in 1815 when it reached 5th magnitude. A peak of 6-7th magnitude was reached at the next two returns, in 1887 and 1956. In 1887 it was re-discovered by Brooks, which brings up the question of why Olbers and not Olbers-Brooks. This year, Olbers arrives at perihelion on June 30 at 1.18 au, though it will come no closer to the Earth than 1.90 au (on July 20).

As of late April, Olbers has been consistently brighter than expected based on its last return in 1956. If this continues, it may reach a peak brightness of 6th magnitude rather than the expected 7th magnitude. By taking its photometric index (15.1 log r) and seasonal offset (brightest 14 days after perihelion) and scaling it to its current brightness, we predict that Olbers will start May around magnitude 8.4 and brighten to around magnitude 7.1 by the end of May. Visual observers have reported a small 1-3' coma with slight to moderate condensation (DC = 3 to 5.5). Images are already showing the development of a dust tail and an even longer and dynamic gas tail.

Like Pons-Brooks during the first half of April, Olbers will be an evening object at low elevations for northern observers. It won't be visible in May to those in the southern hemisphere. Its path through Taurus (May 1-6) and Auriga (6-31) will also pass through some cluster and nebula-rich star fields in Auriga on May 17-22.

Photo Op:

May 17-22 - 13P/Olbers passes through a crowded deep space field in Auriga that contains the Flaming Star and other nebula as well as open star clusters M36 and NGC 1893

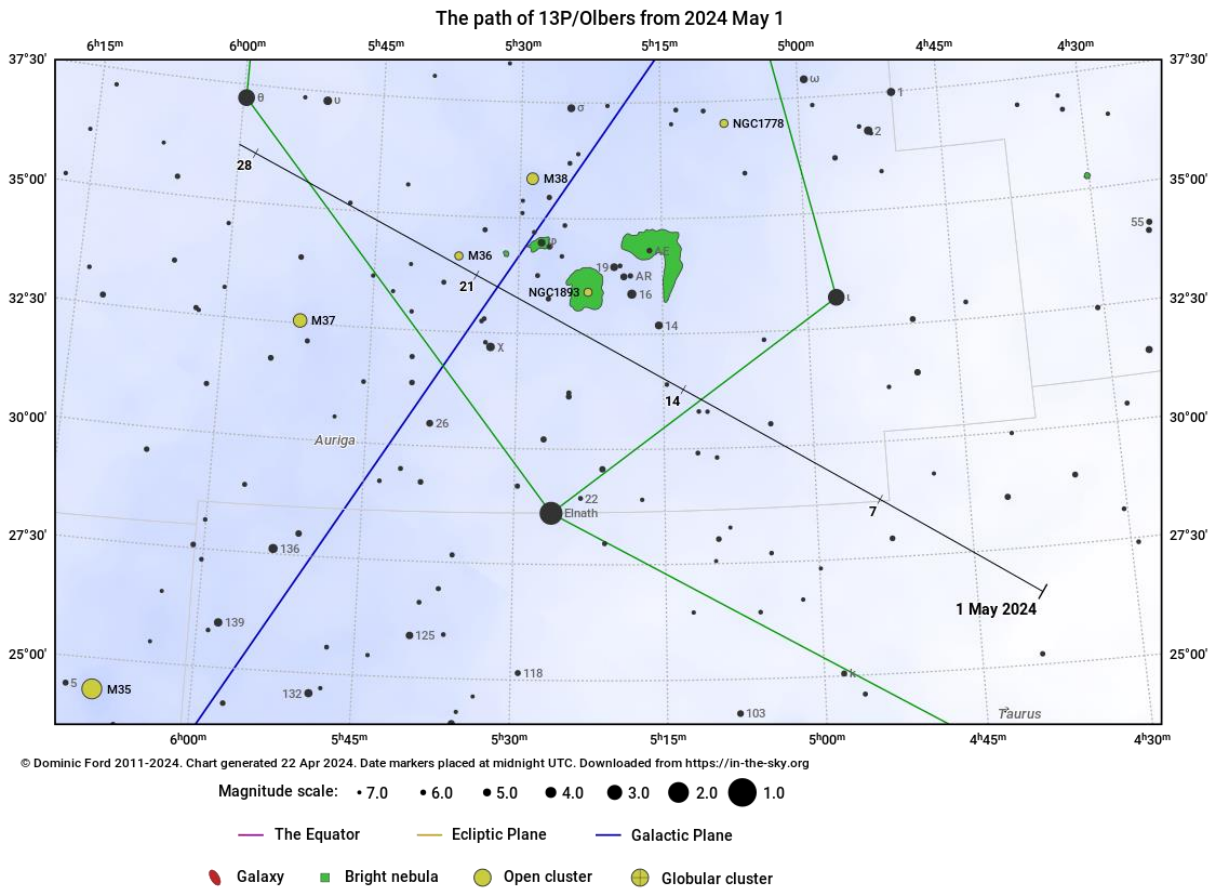


Figure 3 - Finder chart for 13P in May 2024 from in-the-sky.org.



Figure 4 – A deep image of 13P/Olbers by Dan Bartlett taken on 2024 April 28, with a Hyperstar equipped C14 and ZWO ASI2600MC camera. The image consists of 38 x 30 sec exposures.

C/2023 A3 (Tsuchinshan-ATLAS)

Discovered on 2023 January 9 at the Purple Mountain Observatory's XuYi Station and on February 22 by ATLAS
Dynamically new long-period comet

Orbit (from Minor Planet Center, MPEC 2024-H91)

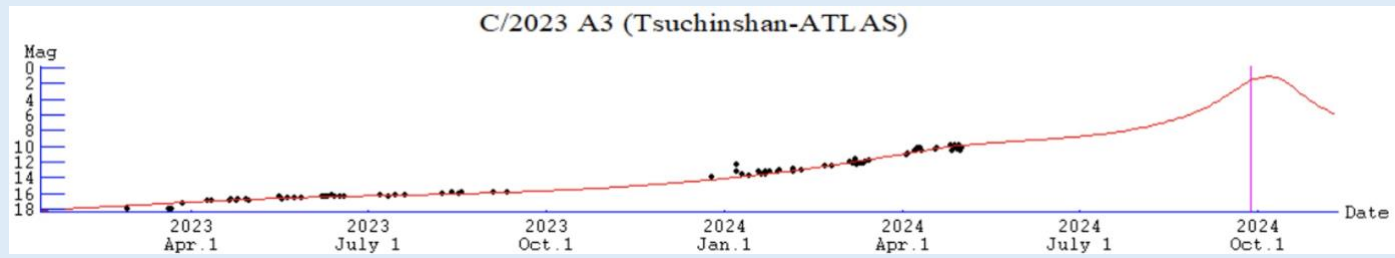
C/2023 A3 (Tsuchinshan-ATLAS)
Epoch 2024 Mar. 31.0 TT = JDT 2460400.5
T 2024 Sept. 27.74025 TT Rudenko
q 0.3914539 (2000.0) P Q
z -0.0002889 Peri. 308.48919 +0.36137961 +0.90086013
+/-0.0000056 Node 21.55942 +0.91855592 -0.29963956
e 1.0001131 Incl. 139.11291 -0.16018677 +0.31411329
From 3446 observations 2022 Apr. 9-2024 Apr. 29, mean residual 0".4.
1/a(orig) = -0.000231 AU**⁻¹, 1/a(fut) = -0.000203 AU**⁻¹.

Ephemerides (produced with Seiichi Yoshida's Comets for Windows program)

Date	R.A.	Decl.	r	d	Elong	Const	Mag	Max El	
								40N	40S
2024-May-01	13 22	-00 50	2.765	1.807	157E	Vir	9.9	49	51
2024-May-06	13 08	-00 06	2.696	1.777	149E	Vir	9.8	50	50
2024-May-11	12 55	+00 34	2.628	1.760	141E	Vir	9.7	50	50
2024-May-16	12 41	+01 11	2.558	1.754	133E	Vir	9.6	51	49
2024-May-21	12 28	+01 43	2.488	1.758	125E	Vir	9.5	51	48
2024-May-26	12 16	+02 10	2.416	1.771	117E	Vir	9.4	49	48
2024-May-31	12 04	+02 31	2.344	1.790	110E	Vir	9.3	45	48
2024-Jun-05	11 54	+02 47	2.271	1.815	103E	Vir	9.2	41	47

Comet Magnitude Formula (from ALPO, COBS, and MPC data)

$m_1 = -16.6 + 5 \log d + 35.0 \log r$ [Through T-650 days]
 $m_1 = 3.6 + 5 \log d + 11.3 \log r$ [Between T-650 and T-150 days]
 $m_1 = 5.1 + 5 \log d + 8.0 \log r$ [After T-150 days, assumed]
 where "t" is the date of perihelion, "d" is Comet-Earth distance in au, and "r" is Comet-Sun distance in au



Recent Magnitude Measurements Contributed to the ALPO Comets Section

Recent Magnitude Measurements in ICQ format:

Comet Des	YYYY MM DD.DD	Mag	SC	APER	FL	POW	COMA	TAIL	ICQ	CODE	Observer Name
	(UT)						Dia DC	LENG PA			
2023A3	2024 04 30.91	S 10.8	TI	53.1L	113		1.2 4/ 3	m100	ICQ XX	HAR11	Christian Harder
2023A3	2024 04 30.15	S 10.2	TK	12.5B	30		2 6		ICQ XX	HER02	Carl Hergenrother
2023A3	2024 04 30.14	Z 10.6	GG	5.0R	5a180		3			OLAaa	Michael Olason
2023A3	2024 04 29.92	S 10.8	TK	32.0L	5 80		1 6/ 0.05	100		PIL01	Uwe Pilz
2023A3	2024 04 29.42	&M 10.7	AQ	25.0L	5 40		1 6 3	m 96	ICQ XX	WYA	Christopher Wyatt
2023A3	2024 04 29.12	10.7		35.0T11	163		2 5/		ICQ XX	ROSxx	Michael Rosolina
2023A3	2024 04 28.42	&M 10.5	AQ	25.0L	5 40		1.6 6 3.2	m 97	ICQ XX	WYA	Christopher Wyatt
2023A3	2024 04 28.12	M 10.0	TK	8.0B	20		1 7		ICQ XX	SOU01	Willian Souza
2023A3	2024 04 26.89	S 10.4	TI	29.8L	4 65		1.6 4/ 2	m100	ICQ XX	HAR11	Christian Harder
2023A3	2024 04 26.15	S 10.3	TK	12.5B	30		2 6		ICQ XX	HER02	Carl Hergenrother
2023A3	2024 04 19.25	M 10.6	AQ	30 L	5 65		2 4		ICQ XX	DES01	Jose Guilherme de Souza Aguiar
2023A3	2024 04 18.73	xM 10.7	AQ	25.0L	5 40		1.5 6 4	m 83	ICQ XX	WYA	Christopher Wyatt
2023A3	2024 04 11.46	xM 10.8	AQ	25.0L	5 40		1.2 7 1.5	m 68	ICQ XX	WYA	Christopher Wyatt
2023A3	2024 04 10.88	S 10.6	TI	53.1L	113		2 4		ICQ XX	HAR11	Christian Harder
2023A3	2024 04 10.25	M 10.8	AQ	30 L	5 65		3 4/		ICQ XX	DES01	Jose Guilherme de Souza Aguiar
2023A3	2024 04 08.90	B 10.6	TK	20.3T10	77		1.2 7		ICQ XX	GON05	Juan Jose Gonzalez Suarez
2023A3	2024 04 07.48	xM 11.1	AQ	40.0L	4 59		0.7 7 2	m 63	ICQ XX	WYA	Christopher Wyatt
2023A3	2024 04 04.23	Z 11.0	GG	5.0R	5a600		1.7			OLAaa	Michael Olason
2023A3	2024 04 03.24	M 11.5	AQ	30 L	5 65		2 5		ICQ XX	DES01	Jose Guilherme de Souza Aguiar

With 12P/Pons-Brooks now past perihelion and invisible from northern skies, the attention of many is shifting to the next comet with a reasonable chance of becoming a bright object. C/2023 A3 (Tsuchinshan-ATLAS) is a little less than 5 months from its September 27 perihelion at 0.39 au. It is currently at 10th magnitude and should brighten to 9th this month. It will be observable in the evening sky till mid-July in the northern hemisphere (at 8th mag) and mid-August in the southern hemisphere (at 6-7th mag). We will then lose sight of it, at least from the ground against a dark sky, until early October, when it will pass nearly between the Earth and the Sun, possibly resulting in a few magnitudes of increased brightness due to forward scattering by dust in its tail and coma. After that, it rockets higher into the evening sky as it fades.

Tsuchinshan-ATLAS is a dynamically new long-period comet, presumably making its first pass through the inner solar system. This fact raises a number of red flags. Dynamically new comets are usually observed to be bright when far from the Sun as supervolatile ices sublimate, resulting in a large release of dust. As a result of this “head fake,” predictions based on their brightness when far from the Sun result in a brightness at perihelion that is too bright. These comets also have a habit of brightening at a slow rate as they get closer to perihelion or, in the worst case, completely disintegrating. History is full of examples of dynamically new comets that disappointed, like C/1973 E1 (Kohoutek), C/1989 X1 (Austin), and C/2012 S1 (ISON).

The lightcurve above is based on total magnitude photometry submitted to the ALPO as well as digital photometry submitted to the COBS site by Thomas Lehmann. Between early 2023 and late April, Tsuchinshan-ATLAS has been brightening at a healthy rate of 11.3 log r. This is unlikely to continue to perihelion, and many comets, like ISON and Austin, experienced episodes of slower brightening or even intrinsic fading. As if on cue, as I was working on this write-up, Thomas Lehmann and Nick James reported in comets-ml that photometry of the inner coma is showing a decrease in brightness ([see this BAA lightcurve](#)).

This doesn't mean the comet is falling apart, at least not yet, but as was the case with other dynamically new comets, it has entered a period of decreased dust and gas production. Since the Lehmann and BAA photometry measures the region near the nucleus, it is much more sensitive to short-term changes than measurements that involve the entire coma, like visual observations. The reason is that dust may only take hours or days to leave a small photometric aperture, while measurements of the entire coma are detecting dust that was released days to weeks or even months ago. If its production continues to decrease, then eventually, the brightness of the total coma will increase at a slower rate or even fade. For now, the predicted magnitudes in the above ephemerides assume an 8 log r rate of brightening.

This month, Tsuchinshan-ATLAS is in the evening sky in Virgo. The 8 log r rate has it brightening from around magnitude 9.9 on May 1 to 9.3 on June 1.

The path of C/2023 A3 (Tsuchinshan-ATLAS) from 2024 May 1

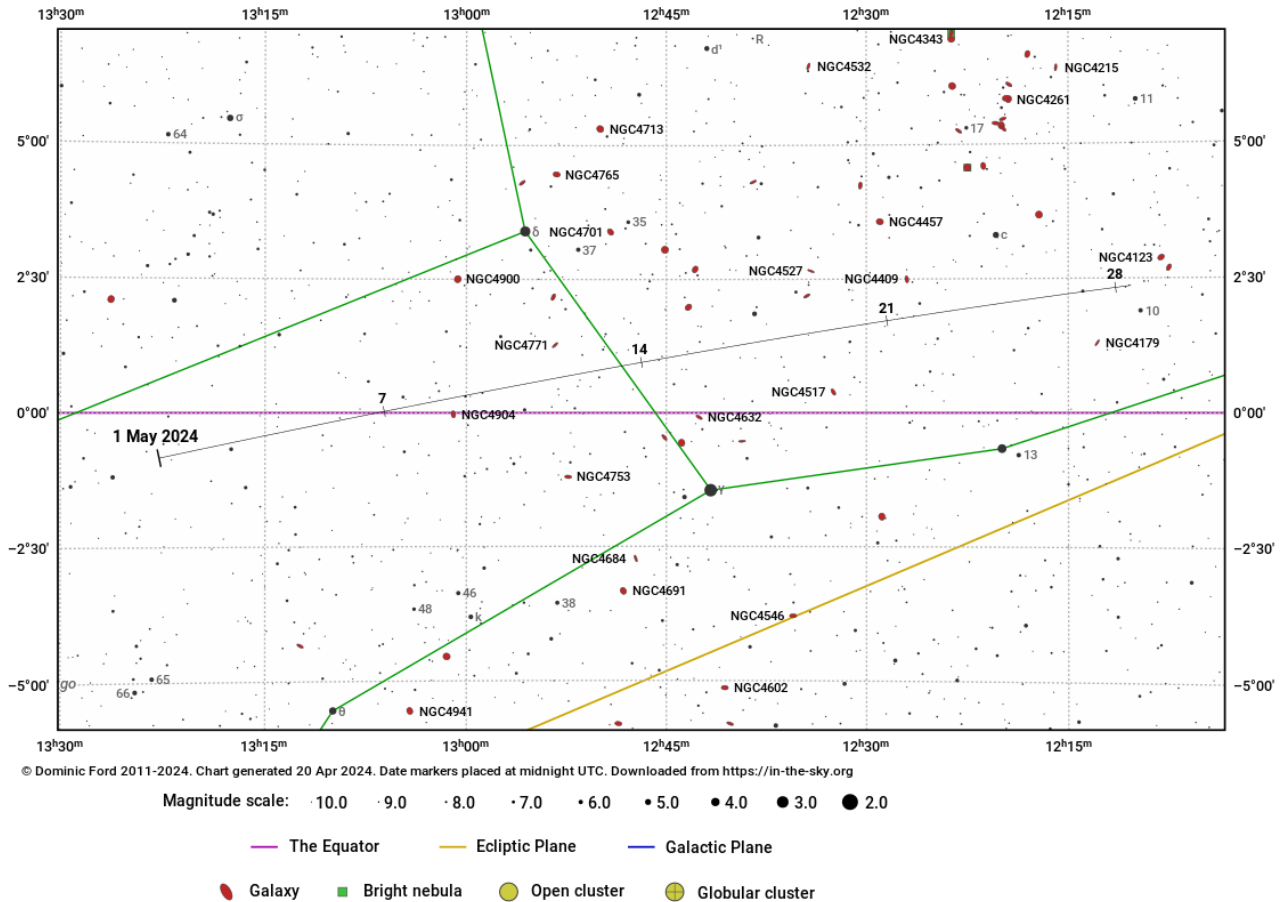


Figure 5 - Star chart for C/2023 A3 in May 2024. Chart produced at in-the-sky.org.

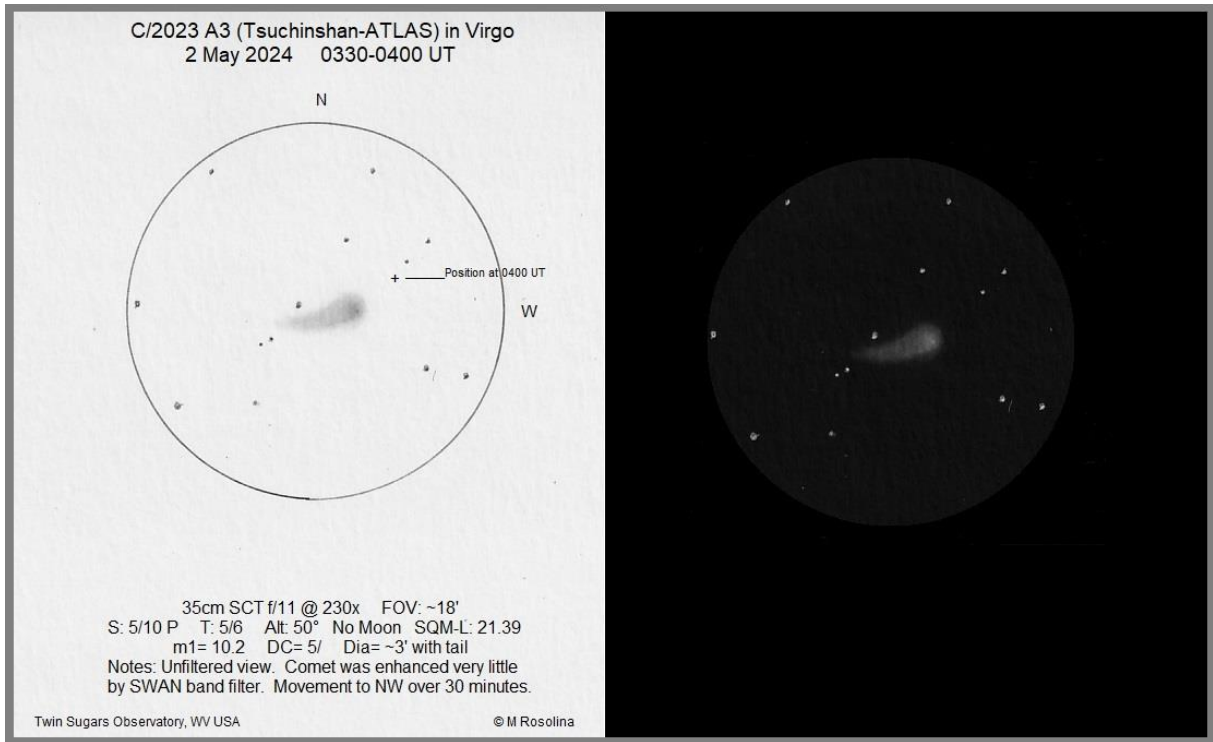


Figure 6 - C/2023 A3 on 2024 May 2, as sketched by Michael Rosolina with a 0.35-m SCT at f/11 and 230x.

Comets Between Magnitude 10 and 12

479P/Elenin

Discovered digitally on 2011 July 7 by Leonid Elenin and I. Molotov with a remote telescope in Mayhill, NM, USA
Short-period comet

Orbit (from Minor Planet Center, MPEC 2022-H91)

479P/Elenin
Epoch 2024 Mar. 31.0 TT = JDT 2460400.5
T 2024 May 5.24421 TT Rudenko
q 1.2437077 (2000.0) P Q
n 0.07392503 Peri. 263.52483 -0.91135992 +0.33512619
a 5.6226587 Node 295.83397 -0.18492596 -0.85207958
e 0.7788043 Incl. 15.39787 -0.36773018 -0.40205824
P 13.3
From 831 observations 2011 June 12-2024 Apr. 27, mean residual 0".5.

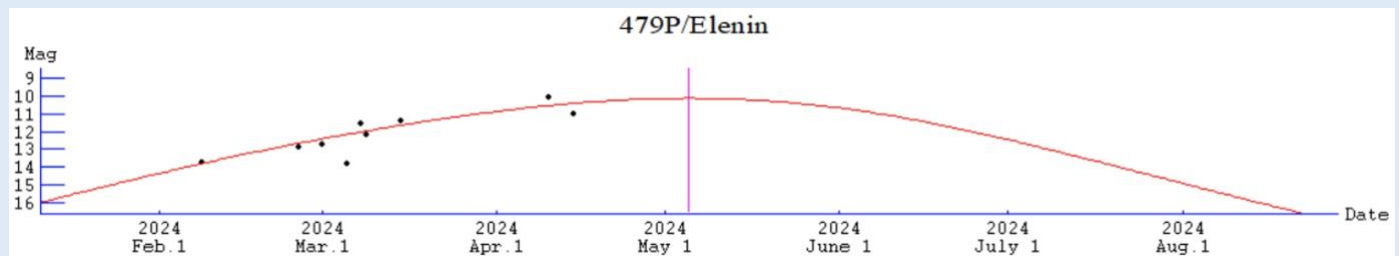
Ephemerides (produced with Seiichi Yoshida's Comets for Windows program)

Date	R.A.	Decl.	r	d	Elong	Const	Mag	Max El (deg)	
								40N	40S
2024-May-01	08 46	-14 55	1.245	0.621	96E	Hya	10.5	25	64
2024-May-06	09 01	-16 32	1.244	0.621	96E	Hya	10.5	23	66
2024-May-11	09 17	-18 10	1.246	0.622	96E	Hya	10.5	20	68
2024-May-16	09 35	-19 48	1.252	0.624	97E	Hya	10.6	17	69
2024-May-21	09 54	-21 22	1.262	0.629	97E	Hya	10.7	15	71
2024-May-26	10 14	-22 53	1.275	0.636	98E	Hya	10.8	13	73
2024-May-31	10 36	-24 16	1.292	0.647	99E	Hya	11.0	11	74
2024-Jun-05	10 59	-25 31	1.311	0.661	100E	Hya	11.2	10	76

Comet Magnitude Formula (from Seiichi Yoshida)

$$m_1 = 9.5 + 5 \log d + 21.7 \log r$$

where "t" is date of perihelion, "d" is Comet-Earth distance in au, and "r" is Comet-Sun distance in au



Recent Magnitude Measurements Contributed to the ALPO Comets Section

Recent Magnitude Measurements in ICQ format:

Comet Des	YYYY MM DD.DD (UT)	Mag	SC	APER	FL	POW	COMA	TAIL	ICQ CODE	Observer Name
				T	Dia	DC	LENG	PA		
479	2024 04 10.40	xS 11.3	AQ	40.0L	4	59	2.3	3	ICQ XX WYA	Christopher Wyatt

Here is an example of a relatively obscure short-period comet. 479P/Elenin was a CCD discovery by Leonid Elenin and I. Molotov at 19th magnitude in July 2011 with the ISON-NM 0.45-m f/2.8 astrograph near Mayhill, New Mexico. Since the comet was found nearly 7 months after perihelion, it was never observed at its brightest in 2011.

479P/Elenin is the discoverer of six comets, the other five comets were the disintegrated C/2010 X1 (Elenin), P/2014 X1 (Elenin), P/2015 PD229 (Cameron-ISON), C/2015 X4 (Elenin), and C/2017 A3 (Elenin).

2024 marks 479P's second observed return on its 13.3-year orbit, with the closest approach to Earth on May 4 at 0.62 au and perihelion on May 5 at 1.24 au. The comet has an interesting orbit. While its inclination isn't

very large at 15 degrees, the orbit is aligned in such a way that its perihelion is near its furthest point below the ecliptic (the plane of the planets), and its aphelion is near its furthest point above the ecliptic. As a result, approaches within 0.9 au of Jupiter are not possible, at least between 1900 and 2100. As a result, 479P has been in a similar orbit for many decades now. Surprisingly, though it can come within 0.38 au of Earth, it has had few good apparitions, with the last return better than 2024 back in 1903 (0.47 au from Earth).

This month, Elenin should be a diffuse, gassy 10th-magnitude comet in the evening sky. Though the ephemeris above shows the comet staying within the constellation of Hydra all month, remember that Hydra is the longest constellation at over 100 degrees long. Elenin will be moving along the length of Hydra for the next few months. With no better apparitions predicted before 2100, this may be our only chance to see 479P in a small aperture telescope.

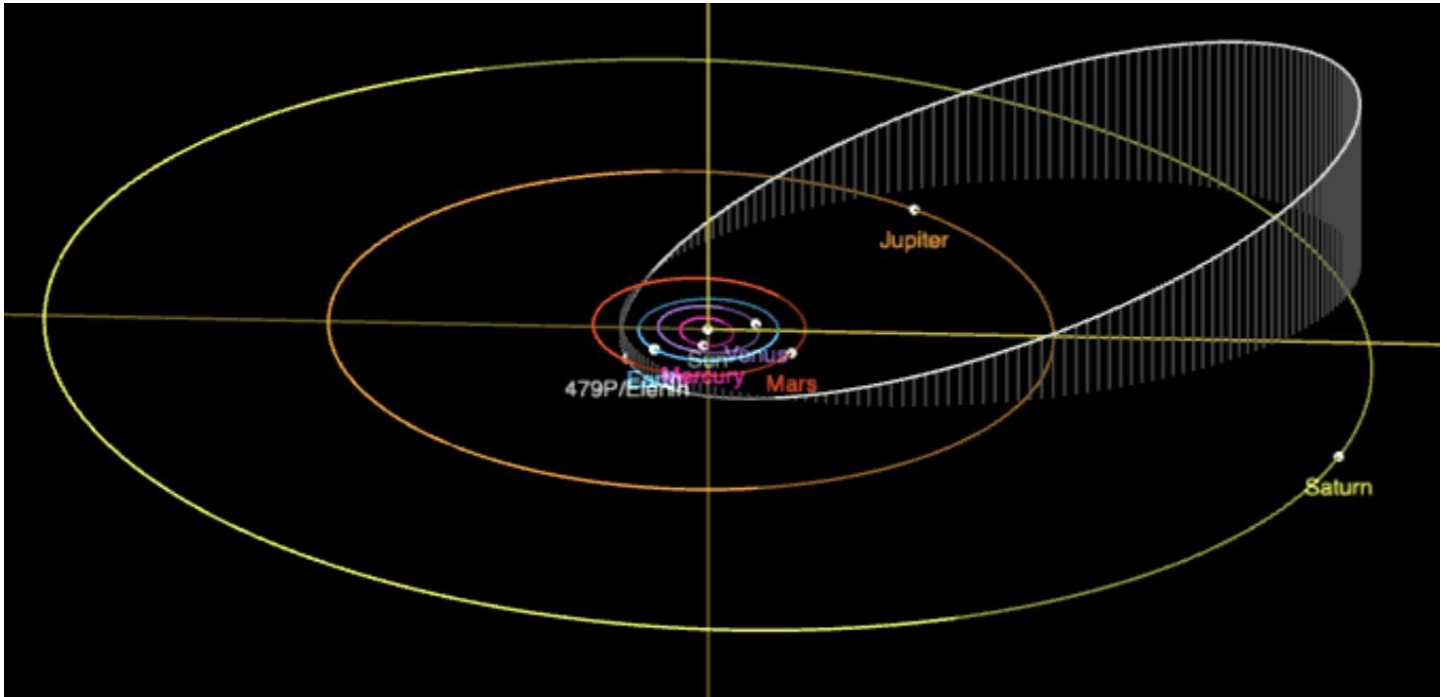


Figure 7 - Orbit of 479P/Elenin and the planets from the JPL Small Body Browser tool.

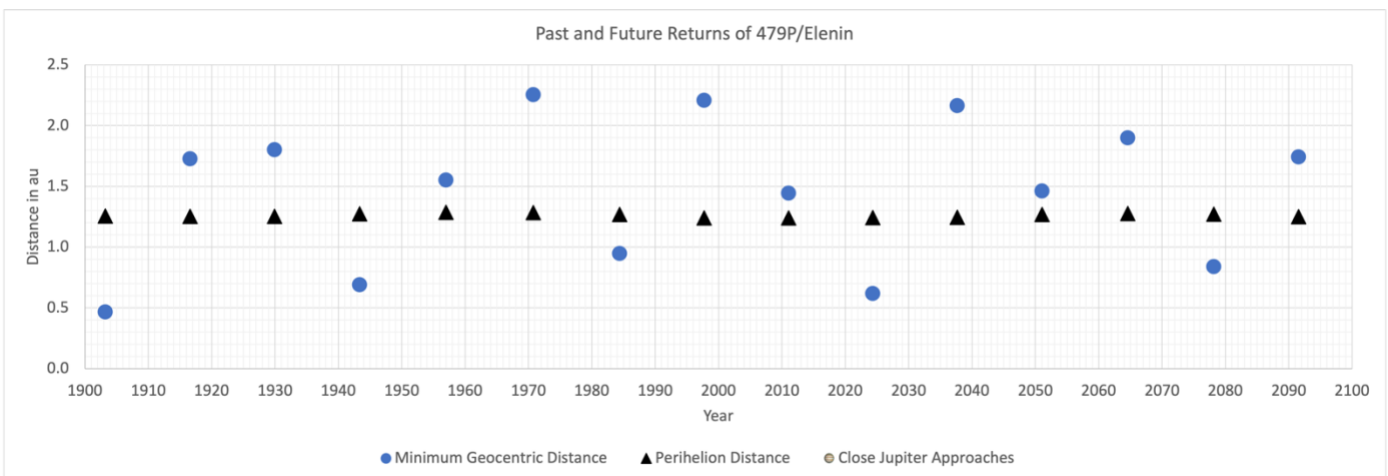


Figure 8 - Orbital evolution of 479P/Elenin from data from the JPL Horizons site.



Figure 9 - Image of 479P/Elenin taken by Tenho Tuomi on 2024 April 11.

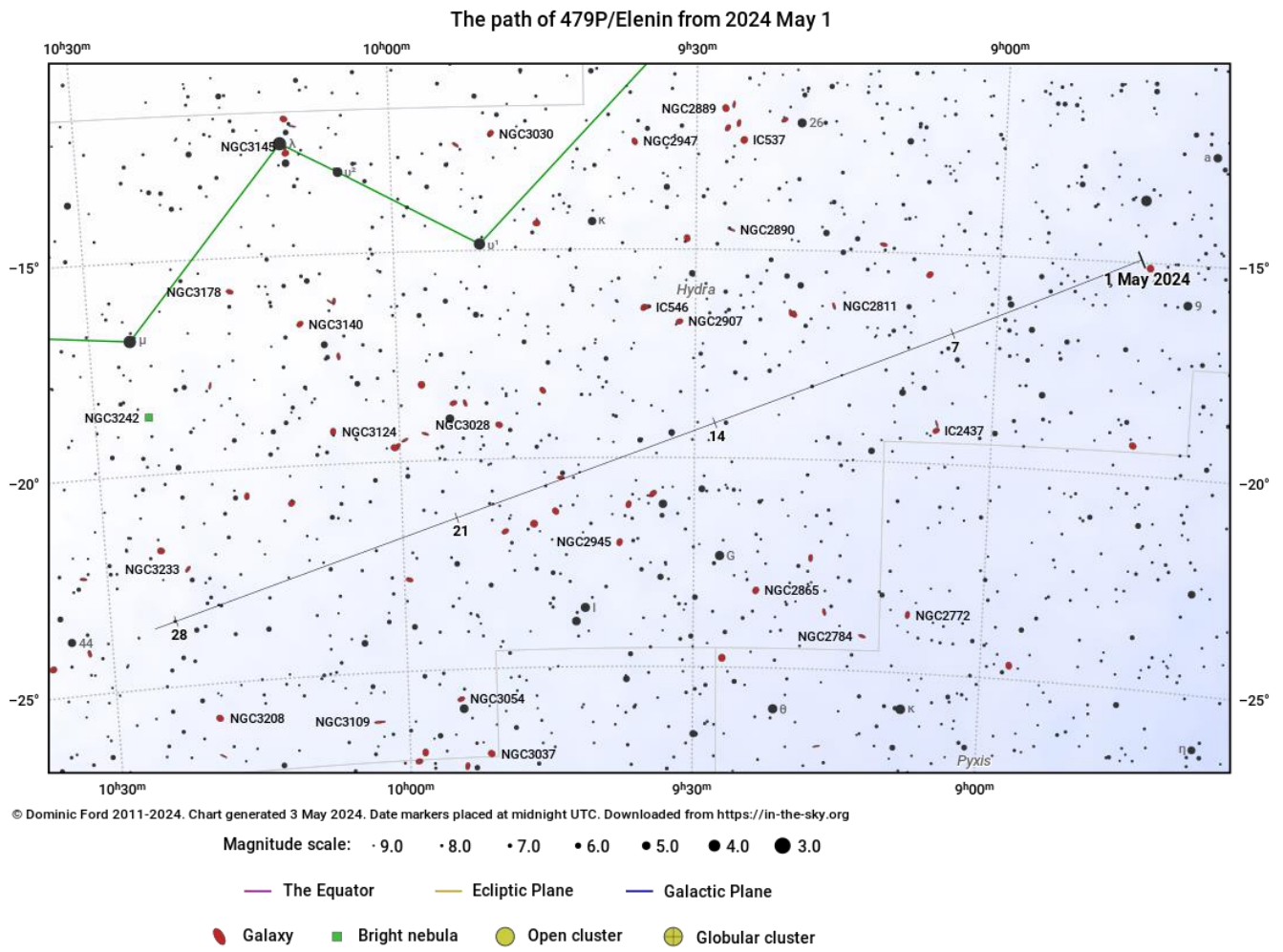


Figure 10 - Finder chart for 154P in May 2024 from in-the-sky.o.

C/2021 S3 (PANSTARRS)

Discovered 2021 September 24 by PANSTARRS with the Pan-STARRS2 1.8-m Ritchey-Chretien reflector at Haleakala Long-period comet

Orbit (from Minor Planet Center, MPEC 2024-H91)

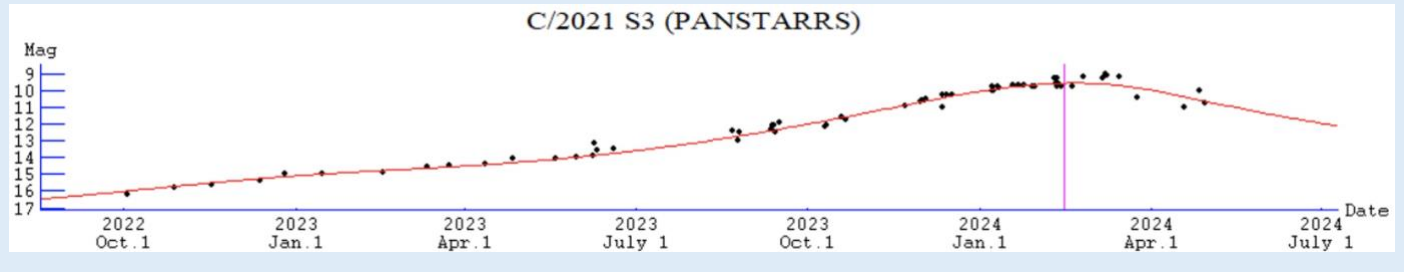
C/2021 S3 (PANSTARRS)
 Epoch 2024 Mar. 31.0 TT = JDT 2460400.5
 T 2024 Feb. 14.71121 TT Rudenko
 q 1.3202167 (2000.0) P Q
 z -0.0002143 Peri. 6.85469 -0.77078804 +0.39887556
 +/-0.0000009 Node 215.62123 -0.61750354 -0.65961195
 e 1.0002829 Incl. 58.53303 -0.15676470 +0.63703246
 From 1584 observations 2020 Dec. 6-2024 Apr. 29, mean residual 0".5.
 1/a(orig) = +0.000143 AU**⁻¹, 1/a(fut) = +0.000058 AU**⁻¹.

Ephemerides (produced with Seiichi Yoshida's Comets for Windows program)

Date	R.A.	Decl.	r	d	Elong	Const	Mag	Max El	
								40N	40S
2024-May-01	20 19	+42 60	1.726	1.542	82M	Cyg	10.7	63	6
2024-May-06	20 24	+45 43	1.772	1.585	83M	Cyg	10.8	64	4
2024-May-11	20 29	+48 14	1.819	1.628	83M	Cyg	10.9	65	1
2024-May-16	20 32	+50 32	1.866	1.672	84M	Cyg	11.0	66	0
2024-May-21	20 35	+52 38	1.915	1.716	84M	Cyg	11.1	67	0
2024-May-26	20 36	+54 32	1.964	1.760	85M	Cyg	11.2	68	0
2024-May-31	20 36	+56 15	2.014	1.804	86M	Cyg	11.4	68	0
2024-Jun-05	20 35	+57 46	2.065	1.847	87M	Cyg	11.5	69	0

Comet Magnitude Formula (from ALPO and COBS data)

$m_1 = 8.0 + 5 \log d + 5.6 \log r (T + 32) [\text{pre-T}]$
 Where "t" is the date of perihelion, "d" is Comet-Earth distance in au, and "r" is Comet-Sun distance in au.



Recent Magnitude Measurements Contributed to the ALPO Comets Section

Recent Magnitude Measurements in ICQ format:

Comet Des	YYYY MM DD.DD (UT)	Mag	SC	APER	FL	POW	COMA Dia	DC	TAIL LENG	ICQ CODE	Observer Name
2021S3	2024 04 29.91	S 11.3	TK	32.0L	5	80	2	3		PIL01	Uwe Pilz
2021S3	2024 04 26.90	S 10.4	TI	29.8L	4	103	2.5	2		ICQ XX HAR11	Christian Harder
2021S3	2024 04 19.29	M 11.4	AQ	30	L	65	1	3/		ICQ XX DES01	Jose Guilherme de Souza Aguiar
2021S3	2024 04 18.76	xM 11.3	AQ	25.0L	5	74	2	4		ICQ XX WYA	Christopher Wyatt

Most of the recent action has been in the evening sky, and May will be no different. Still, there has been one relatively bright comet in the morning sky: C/2021 S3 (PANSTARRS). Discovered nearly three years ago with observations going back to December 2020, C/2021 S3 has been an odd comet. Its lightcurve has been fairly steady for almost two years but brightened at an extremely slow rate. It will be interesting to see if it will fade at a slow rate as well.

This month, it will be a northern object in Cygnus in the morning sky, fading from around magnitude 10.7 to 11.4. With an orbit plane crossing at the end of April, imagers have been following the development of a neckline and long straight tail.



Figure 11 - Comet C/2021 S3 (PANSTARRS) and the DWB111 (Propeller Nebula) was imaged by Chris Schur from Payson, AZ on 2024 May 2 at 10:00 UT, 10" f/2.8 GSO Astrograph, Atik 16200 CCD, RGB = 3 hours total.

The path of C/2021 S3 (PANSTARRS) from 2024 May 1

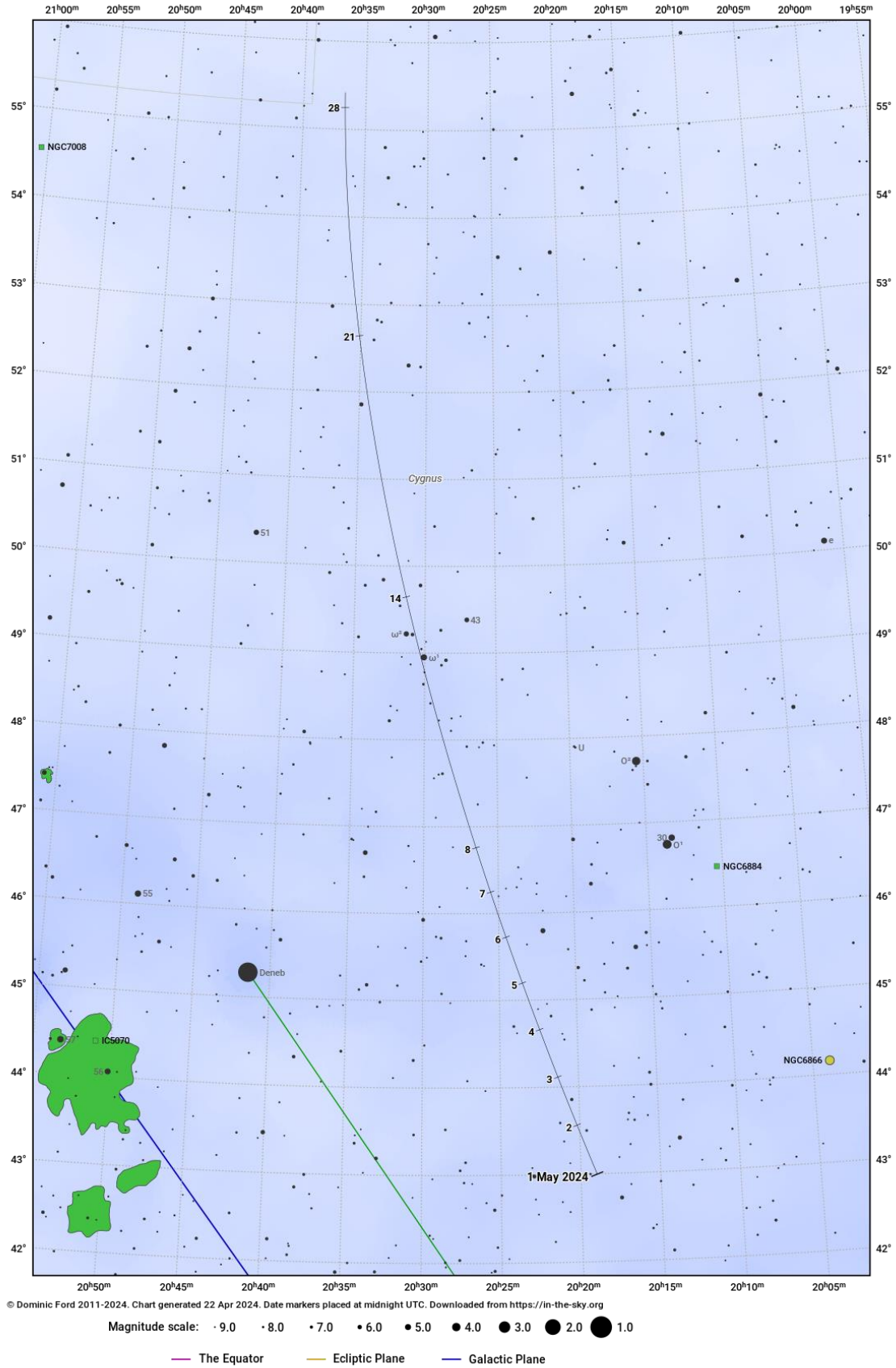


Figure 12 - Star chart for C/2021 S3 (PANSTARRS) for May 2024. Chart made at in-the-sky.org.

Fainter Comets of Interest

29P/Schwassmann-Wachmann

Discovered 1927 November 15 by Arnold Schwassmann and Arno Arthur Wachmann at the Hamburg Observatory in Bergedorf, Germany

Centaur comet with orbital period of ~14.9 years

Orbit (from Minor Planet Center, MPEC 2024-H50)

29P/Schwassmann-Wachmann
 Epoch 2024 Mar. 31.0 TT = JDT 2460400.5
 T 2019 May 2.75161 TT Rudenko
 q 5.7859627 (2000.0) P Q
 n 0.06618423 Peri. 51.95355 +0.98936628 -0.08207065
 a 6.0529402 Node 312.40588 +0.01231221 +0.86988468
 e 0.0441071 Incl. 9.35915 +0.14492332 +0.48637953
 P 14.9
 From 19004 observations 2018 June 18-2024 Apr. 20, mean residual 0".6.

Ephemerides (produced with Seiichi Yoshida's Comets for Windows program)

29P/Schwassmann-Wachmann									Max El (deg)	
Date	R.A.	Decl.	r	d	Elong	Const	Mag		40N	40S
2024-May-01	08 10	+20 34	6.198	6.303	79E	Cnc	12-14		47	28
2024-May-06	08 11	+20 25	6.199	6.383	75E	Cnc	12-14		42	27
2024-May-11	08 13	+20 15	6.201	6.461	70E	Cnc	12-14		37	26
2024-May-16	08 16	+20 05	6.202	6.536	66E	Cnc	12-14		32	25
2024-May-21	08 18	+19 54	6.203	6.610	62E	Cnc	12-14		28	24
2024-May-26	08 21	+19 42	6.204	6.680	58E	Cnc	12-14		23	23
2024-May-31	08 24	+19 29	6.206	6.748	53E	Cnc	12-14		18	21
2024-Jun-05	08 27	+19 16	6.207	6.812	49E	Cnc	12-14		14	20

Recent Magnitude Measurements Contributed to the ALPO Comets Section

Recent Magnitude Measurements in ICQ format:

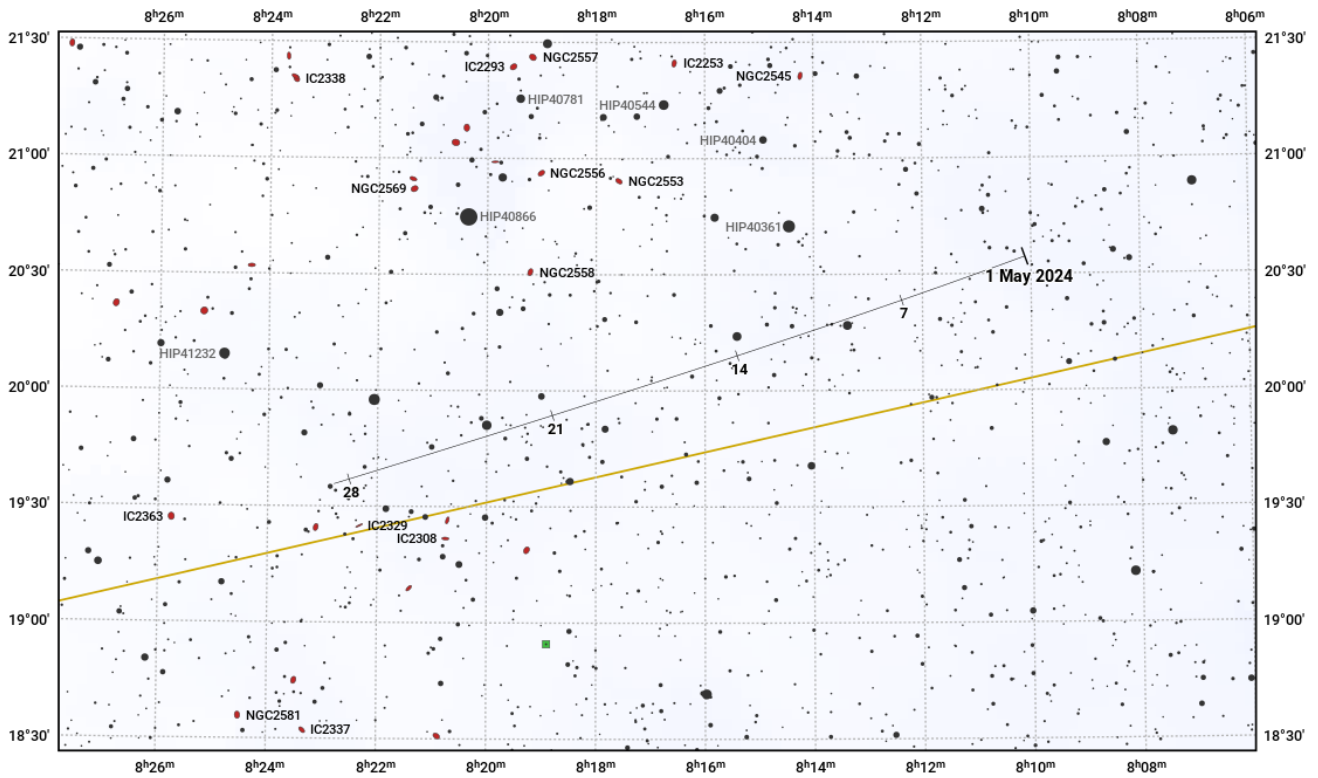
Comet Des	YYYY MM DD.DD (UT)	Mag	SC	APER	FL	POW	COMA Dia DC	TAIL LENG PA	ICQ	CODE	Observer Name
29	2024 04 07.41	xS 14.0	AQ	40.0L	4	182	1.2 2/		ICQ XX	WYA	Christopher Wyatt

Large Centaur comet 29P/Schwassmann-Wachmann is an object in a class of its own. While 12P/Pons-Brooks has experienced several multi-magnitude outbursts over the past few months, 29P has several multi-magnitude outbursts almost every year. What is even more amazing is that it currently never gets closer to the Sun than 5.79 au, that's just beyond Jupiter.

The BAA Comet Section is coordinating a monitoring program called Mission 29P (<https://britastro.org/node/18562> & <https://britastro.org/node/25120>). Mission 29P reported 5 new outbursts in April. Four minor ones on April 6, 14, 17, and 30, and a moderate one on April 20.

29P is nicely placed in the constellation of Cancer in the evening sky this month.

The path of 29P/Schwassmann-Wachmann from 2024 May 1



© Dominic Ford 2011-2024. Chart generated 22 Apr 2024. Date markers placed at midnight UTC. Downloaded from <https://in-the-sky.org>

Magnitude scale: ·13.0 ·12.0 ·11.0 ·10.0 ·9.0 ·8.0 ·7.0 ●6.0 ●5.0

- The Equator — Ecliptic Plane — Galactic Plane
- Galaxy ■ Bright nebula ● Open cluster ● Globular cluster

Figure 13 - Finder chart for 29P in May 2024 from *in-the-sky.org*.