January/February 2025

ALPO Comet News

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

C/2024 G3 (ATLAS) vs. Bright Twilight

Comet C/2024 G3 (ATLAS) tail 0.5 degrees
50mm f/3.5 Refractor ASI178MC 2.8"/pixel
2025 January 16 0114UT 22x100ms
Altitude 1.5 degrees
FOV 2.4x1.6 degrees
Mike Olason, Tucson Arizona

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On the Front Cover:

C/2024 G3 (ATLAS) was at its perihelion on 2025 January 13 at 0.09 au. About two to three days after perihelion, Mike Olason imaged the comet from near Tucson, Arizona in bright evening twilight. Mike used a small 50mm f/3.5 refractor and ZWO ASI178MC camera. The image is a co-add of 22 x 100ms exposures taken hen the comet was at an elevation of only 1.5 degrees.

The monthly ALPO Comet News PDF can be found on the ALPO Comets Section website (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/953681-alpo-comet-news-for-february-2025/). 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

It's been a wild last few months for comet observers, with not one but two comets reaching negative magnitudes. Though both C/2023 A3 (Tsuchinshan-ATLAS) and C/2024 G3 (ATLAS) were at their brightest when within a few degrees of the Sun, both were observable in bright twilight and were still close to 0th to 1st magnitude as they entered a dark sky.

In February, C/2023 A3 (Tsuchinshan-ATLAS) fades from 10th to 11th magnitude for northern hemisphere observers. C/2024 G3 (ATLAS) is still a naked-eye object with a tail up to 10 degrees in length, but only for southern hemisphere observers. The comet's continued brightness and photogenicity are amazing since the nucleus of ATLAS disintegrated around January 19/20, about a week after perihelion.

The only other comet that is currently brighter than magnitude 12 is the outbursting Centaur comet 29P/Schwassmann-Wachmann, which is near opposition in Leo this month.

In December and January, the ALPO Comets Section received 201 magnitude estimates and 162 images of 53 comets: C/2025 B1 (PANSTARRS), C/2025 A3 (Tsuchinshan), C/2024 Y1 (Masek), C/2024 X1 (Fazekas), C/2024 V1 (Borisov), C/2024 N2 (Sarneczky), C/2024 M1 (ATLAS), C/2024 J2 (Wierzchos), C/2024 G3 (ATLAS), C/2024 A2 (ATLAS), C/2024 A1 (ATLAS), C/2023 X2 (Lemmon), C/2023 T3 (Fuls), C/2023 Q1 (PANSTARRS), C/2023 H5 (Lemmon), C/2023 A3 (Tsuchinshan-ATLAS), C/2022 R6 (PANSTARRS), C/2022 QE78 (ATLAS), C/2022 N2 (PANSTARRS), C/2022 L2 (ATLAS), C/2022 E2 (ATLAS), C/2021 G2 (ATLAS), C/2020 K1 (PANSTARRS), C/2019 U5 (PANSTARRS), C/2017 K2 (PANSTARRS), C/2014 UN271 (Bernardinelli-Bernstein), P/2025 A2 (PANSTARRS), P/2024 T2 (Rankin), P/2024 T1 (Rankin), P/2023 V2 (PANSTARRS), P/2023 S1, P/2015 CD60 (LINEAR), 496P/Hill, 492P/LINEAR, 487P/Siding Spring, 472P/NEAT-LINEAR, 450P/LONEOS, 404P/Bressi, 333P/LINEAR, 305P/Skiff, 276P/Vorobjov, 268P/Bernardi, 253P/PANSTARRS, 242P/Spahr, 195P/Hill, 130P/McNaught-Hughes, 95P/Chiron, 50P/Arend, 49P/Arend-Rigaux, 43P/Wolf-Harrington, 37P/Forbes, 33P/Daniel, and 29P/Schwassmann-Wachmann.

A big thanks to our recent contributors: Dan Bartlett, Michel Besson, Manon Bouchard, Denis Buczynski, José J. Chambó, Michel Deconinck, Jose Guilherme de Souza Aguiar, Juan Jose Gonzalez Suarez, Christian Harder, Carl Hergenrother, Eliot Herman, Rik Hill, Michael Jäger, Manos Kardasis, Patrice Lapointe, John Maikner, Gianluca Masi, Michael Mattiazzo, Frank J. Melillo, Martin Mobberley, Mike Olason, Andrew Pearce, Olivier Planchon, Ludovic Perbet, Nicolas Peyrus, Uwe Pilz, Michael Rosolina, Gregg Ruppel, Chris Schur, Tenho Tuomi, Clément Violette, and Christopher Wyatt.

Request for Observations

We welcome all comet observations, whether textual descriptions, images, drawings, magnitude estimates, or spectra. We'd love to hear from you! Please share your observations via email with the Comets Section Coordinator Carl Hergenrother and Assistant Coordinator Michel Deconinck at comets@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 are applied to digital observations. Though we try to keep these lightcurves up to date, observations submitted just 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 the observations submitted directly to the ALPO and those initially submitted 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)

Feb 02 - Last Quarter Moon
Feb 09 - New Moon
Feb 16 - First Quarter Moon
Feb 24 - Full Moon

Comets at Perihelion

Jan 01 - 18D/Perrine-Mrkos [q = 1.64 au, 7.8-year period, discovered in 1896, also seen in 1909, lost till rediscovered in 1955, see again in 1962 and 1968, not seen since, currently considered lost]
Jan 03 - 136P/Mueller [q = 2.96 au, 8.6-year period, V ~ 17-18, found in 1990, also seen at returns in 1999, 2007, 2016, and the current return]
Jan 09 - C/2024 N4 (Sarneczky) [q = 5.40 au, V ~ 18]
Jan 11 - 367P/Catalina [q = 2.53 au, 6.6-year period, V = ??, discovered in 2011 when it reached V = 16, seen at 018 return but only reached V = 20-21, yet to be observed during the current return]
Jan 13 - C/2024 G3 (ATLAS) [q = 0.09 au, V ~ -4, more below]
Jan 22 - 105P/Singer Brewster [q = 2.05 au, 6.5-year period, V ~ 16, discovered in 1986, also seen at returns in 1992, 1999, 2005, 2012, 2018, and the current return]
Jan 25 - C/2023 T3 (Fuls) [q = 3.55 au, V ~ 15]
Jan 30 - 366P/Spacewatch [q = 2.28 au, 6.6-year period, V ~ 19-20, discovered in 2005, missed at 2012 return, observed again at 2018 return, yet to be observed at current return]
Feb 01 - 249P/LINEAR [q = 0.50 au, 4.6-year return, V ~ 11-12, low activity comet that only becomes active when close to the Sun, found in 2006, also observed at returns in 2011, 2015, and 2020, yet to be observed during current return, 2025 is a poor return with the comet staying at small solar elongations]
Feb 03 - C/2023 F3 (ATLAS) [q = 5.19 au, V ~ 15-16]
Feb 03 - 236P/LINEAR [q = 1.83 au, 7.2-year period, V ~ 18, found in 2003, also seen at 2010, 2017, and current return]
Feb 10 - C/2024 G7 (ATLAS) [q = 6.03 au, V ~ 18]
Feb 15 - 497P/Spacewatch-PANSTARRS [q = 2.08 au, 13.3-year period, V ~ 19, found in 2011, 2025 is its 2nd observed return]
Feb 24 - P/2023 S1 [q = 2.62 au, 7.5-year period, V ~ 14, 2025 is its one and only observed return, the comet has yet to be officially named, though it is a PANSTARRS discovery]
Feb 27 - A/2024 W2 [q = 3.72 au, e = 1.00035, i = 116.6 deg, V ~ 22, apparently asteroidal object on long-period comet orbit, peaked at V ~ 21 when at opposition in December 2024]

Recent Magnitudes Contributed to the ALPO Comets Section

Comet Des	YYYY MM DD.DD (UT)	Mag	SC	APER	FL	POW	COMA Dia	COMA DC	TAIL LENG	TAIL PA	ICQ CODE	Observer Name
C/2024 Y1 (Masek)					T							
2024Y1	2025 01 15.61	C 16.9	AV	35.0T	5a	720	1.2				ICQ XX PEA	Andrew Pearce
2024Y1	2025 01 09.56	C 14.9	AV	35.0T	5a	720	1.6				ICQ XX PEA	Andrew Pearce
2024Y1	2025 01 05.55	C 15.3	AV	35.0T	5a	720	1.9				ICQ XX PEA	Andrew Pearce
C/2024 M1 (ATLAS)												
2024M1	2025 01 19.74	- 16.2:	TI	53.1L		242		9			ICQ XX HAR11	Christian Harder
2024M1	2024 12 26.83	I 14.4	AQ	20.3T	10	133		9			ICQ XX GON05	Juan Jose Gonzalez Suarez
2024M1	2024 12 22.90	- 15.4:	TI	25.2L		203		9			ICQ XX HAR11	Christian Harder
2024M1	2024 12 01.84	M 15.0	TI	53.1L		242		9			ICQ XX HAR11	Christian Harder
2024M1	2024 11 30.94	M 14.4:	TI	53.1L		242		9			ICQ XX HAR11	Christian Harder
C/2024 G3 (ATLAS)												
2024G3	2025 01 27.41	&M 4.6	TK	7.0B		15	7.5	2	8	87	ICQ XX WYA	Christopher Wyatt
2024G3	2025 01 23.95	S 3.5	TK	8.0B		20	8	3	3		ICQ XX SOU01	Willian Souza
2024G3	2025 01 23.95	S 3.2	TK	5.0B		10	8	4 >	3.5		ICQ XX SOU01	Willian Souza
2024G3	2025 01 16.12	aI -1.3:	TK	5.0B		10	1.5	7	0.5		ICQ XX HER02	Carl Hergenrother
2024G3	2025 01 15.74	$I -1.5:	TK	5.0B		10	1.2	8/	0.25	80	ICQ XX GON05	Juan Jose Gonzalez Suarez
2024G3	2025 01 15.12	aI -2.5:	TK	0.0E		1		8			ICQ XX HER02	Carl Hergenrother
2024G3	2025 01 12.29	- -1.0 -		5.0B		10		8/	5	m280	ICQ XX HAR11	Christian Harder
2024G3	2025 01 05.75	&M 1.5	TK	7.0B		15	1.8	7/	14.5	m252	ICQ XX WYA	Christopher Wyatt
2024G3	2025 01 05.31	M 2.1	TK	10 B		25	3	8			ICQ XX DES01	Jose Guilherme de Souza Aguiar
2024G3	2025 01 01.30	M 4.8	TK	10 B		25	2	6/	0.20		ICQ XX DES01	Jose Guilherme de Souza Aguiar
2024G3	2024 12 31.31	B 4.8	TK	5.0B		7	1	8			ICQ XX SOU01	Willian Souza
2024G3	2024 12 31.30	M 5.1	TK	10 B		25	2	6/	0.20		ICQ XX DES01	Jose Guilherme de Souza Aguiar
2024G3	2024 12 30.30	M 5.4	TK	10 B		25	2	6/			ICQ XX DES01	Jose Guilherme de Souza Aguiar
2024G3	2024 12 29.30	M 5.7	TK	10 B		25	2	6			ICQ XX DES01	Jose Guilherme de Souza Aguiar
2024G3	2024 12 28.36	C 5.8	GG	25.0L	4a	75	1.6		11	m229	ICQ XX MAT08	Michael Mattiazzo
2024G3	2024 12 27.36	C 5.9	GG	25.0L	4a	240	1.5		7.5	m227	ICQ XX MAT08	Michael Mattiazzo
2024G3	2024 12 26.72	xM 6.0	AQ	5.0B		15	2.3	7	10	m234	ICQ XX WYA	Christopher Wyatt
2024G3	2024 12 26.36	C 6.2	GG	25.0L	4a	75	1.3		10.7	m221	ICQ XX MAT08	Michael Mattiazzo
2024G3	2024 12 25.35	C 6.2	GG	25.0L	4a	75	1.3		10	m221	ICQ XX MAT08	Michael Mattiazzo
2024G3	2024 12 24.30	M 6.2	TK	10 B		25	2	6/	0.10		ICQ XX DES01	Jose Guilherme de Souza Aguiar
2024G3	2024 12 23.72	xM 6.5	TK	5.0B		15	2.2	7	15	m232	ICQ XX WYA	Christopher Wyatt
C/2024 A1 (ATLAS)												
2024A1	2025 01 31.63	C 16.3	AV	35.0T	5A	440	0.4				ICQ XX PEA	Andrew Pearce
2024A1	2025 01 18.58	C 16.3	AV	35.0T	5A	440	0.4				ICQ XX PEA	Andrew Pearce
2024A1	2025 01 16.62	C 16.4	AV	35.0T	5A	260	0.4				ICQ XX PEA	Andrew Pearce
2024A1	2025 01 15.59	C 16.1	AV	35.0T	5A	440	0.4				ICQ XX PEA	Andrew Pearce
2024A1	2025 01 10.58	C 16.1	AV	35.0T	5A	440	0.4				ICQ XX PEA	Andrew Pearce
2024A1	2025 01 09.65	C 17.1	AV	35.0T	5A	440	0.3				ICQ XX PEA	Andrew Pearce
2024A1	2025 01 06.58	C 15.7	AV	35.0T	5A	080	0.4				ICQ XX PEA	Andrew Pearce
2024A1	2025 01 05.75	C 16.0	AV	35.0T	5a	180	0.4				ICQ XX PEA	Andrew Pearce
C/2023 T3 (Fuls)												
2023T3	2025 01 30.84	C 16.7	AV	35.0T	5a	360	0.5				ICQ XX PEA	Andrew Pearce
2023T3	2025 01 17.74	C 16.7	AV	35.0T	5A	080	0.4				ICQ XX PEA	Andrew Pearce
2023T3	2025 01 09.77	C 16.5	AV	35.0T	5A	080	0.4				ICQ XX PEA	Andrew Pearce
C/2023 Q1 (PANSTARRS)												
2023Q1	2025 01 03.14	C 15.4	AV	43.0T	6a	720	0.6		1.1	m276	ICQ XX PEA	Andrew Pearce
2023Q1	2024 12 27.81	S 11.6	AQ	20.3T	10	77	6	1/			ICQ XX GON05	Juan Jose Gonzalez Suarez
C/2023 A3 (Tsuchinshan-ATLAS)												
2023A3	2024 12 27.77	S 9.5	TK	20.3T	10	77	1.7	5	0.3	60	ICQ XX GON05	Juan Jose Gonzalez Suarez
2023A3	2024 12 26.77	S 9.4	TK	20.3T	10	77	1.7	5	0.3	60	ICQ XX GON05	Juan Jose Gonzalez Suarez
2023A3	2024 12 26.07	V 9.5	GG	5.0R	4a	300	2.4				ICQ XX OLAaa	Mike Olason
2023A3	2024 12 23.78	S 9.4	TK	20.3T	10	77	1.7	5	0.15	60	ICQ XX GON05	Juan Jose Gonzalez Suarez
2023A3	2024 12 20.70	S 9.5	TI	25.2L		68	1.5	3/	6	m 65	ICQ XX HAR11	Christian Harder
2023A3	2024 12 06.82	B 8.7	TK	8.0B		20	1.5	7	0.2	60	ICQ XX GON05	Juan Jose Gonzalez Suarez
2023A3	2024 12 06.81	B 9.5	TK	20.3T	10	77	1.5	6/	0.3	60	ICQ XX GON05	Juan Jose Gonzalez Suarez
2023A3	2024 12 01.91	M 8.9	TK	10 B		25	1	5/			ICQ XX DES01	Jose Guilherme de Souza Aguiar
2023A3	2024 12 01.71	S 9.0	TI	53.1L		113	1.8	5	11	m 62	ICQ XX HAR11	Christian Harder
2023A3	2024 11 30.73	S 9.0	TI	25.2L		68	2	4	14	m 60	ICQ XX HAR11	Christian Harder
C/2022 R6 (PANSTARRS)												
2022R6	2025 01 30.77	C 16.1	AV	35.0T	5a	900	0.5				ICQ XX PEA	Andrew Pearce
2022R6	2025 01 29.80	C 16.8	AV	35.0T	5a	900	0.5				ICQ XX PEA	Andrew Pearce
2022R6	2025 01 27.78	C 16.0	AV	35.0T	6A	080	0.6				ICQ XX PEA	Andrew Pearce
2022R6	2025 01 19.69	C 16.0	AV	35.0T	5A	080	0.4		0.2	m144	ICQ XX PEA	Andrew Pearce
2022R6	2025 01 18.59	C 16.1	AV	35.0T	6a	360	0.2				ICQ XX PEA	Andrew Pearce
2022R6	2025 01 17.68	C 16.4	AV	35.0T	5A	080	0.5				ICQ XX PEA	Andrew Pearce
2022R6	2025 01 06.59	C 16.3	AV	35.0T	5A	080	0.5				ICQ XX PEA	Andrew Pearce

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   2022R6  2025 01 05.69  C 16.8 AV 35.0T 5A080   0.4               ICQ XX PEA   Andrew Pearce
C/2022 QE78 (ATLAS)
   2022QE782025 01 31.61  C 15.4 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2022QE782025 01 29.63  C 15.4 AV 35.0T 5A080   0.6       1.1m249 ICQ XX PEA   Andrew Pearce
   2022QE782025 01 28.58  C 15.1 AV 35.0T 6a540   0.7               ICQ XX PEA   Andrew Pearce
   2022QE782025 01 26.61  C 15.1 AV 35.0T 5A080   0.7               ICQ XX PEA   Andrew Pearce
   2022QE782025 01 20.62  C 15.6 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2022QE782025 01 19.64  C 15.3 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2022QE782025 01 18.56  C 15.3 AV 35.0T 5A080   0.6       1.2m242 ICQ XX PEA   Andrew Pearce
   2022QE782025 01 17.66  C 15.0 AV 35.0T 6A080   0.5       0.4m260 ICQ XX PEA   Andrew Pearce
   2022QE782025 01 16.60  C 15.4 AV 35.0T 5A080   0.4               ICQ XX PEA   Andrew Pearce
   2022QE782025 01 15.58  C 15.2 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2022QE782025 01 09.63  C 15.5 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2022QE782025 01 06.56  C 15.1 AV 35.0T 5A080   0.5       1.4m251 ICQ XX PEA   Andrew Pearce
   2022QE782025 01 05.68 xM 14.9 AQ 40.0L 4 261   0.4  5/           ICQ XX WYA   Christopher Wyatt
   2022QE782025 01 05.67  C 15.2 AV 35.0T 5A080   0.6       1.2m247 ICQ XX PEA   Andrew Pearce
   2022QE782024 12 27.78  C 15.3 AV 35.0T 5A080   0.4               ICQ XX PEA   Andrew Pearce
C/2022 L2 (ATLAS)
   2022L2  2025 01 30.81  C 17.5 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2022L2  2025 01 29.76  C 17.0 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2022L2  2025 01 17.69  C 17.1 AV 35.0T 5A080   0.4               ICQ XX PEA   Andrew Pearce
   2022L2  2025 01 09.67  C 16.3 AV 35.0T 5A080   0.4               ICQ XX PEA   Andrew Pearce
C/2022 E2 (ATLAS)
   2022E2  2025 01 27.75  S 14.0:TI 53.1L   194   0.7  4            ICQ XX HAR11 Christian Harder
   2022E2  2025 01 19.73  S 14.1 TI 53.1L   139   0.75 3/           ICQ XX HAR11 Christian Harder
   2022E2  2025 01 02.83  S 13.0 TI 25.2L   113   0.7  3            ICQ XX HAR11 Christian Harder
   2022E2  2024 12 26.87  S 12.1 AQ 20.3T10  77   1.5  4            ICQ XX GON05 Juan Jose Gonzalez Suarez
   2022E2  2024 12 23.87  S 12.2 AQ 20.3T10 133   1.3  4            ICQ XX GON05 Juan Jose Gonzalez Suarez
   2022E2  2024 12 22.93  S 12.8 TI 25.2L   145   0.8  3/           ICQ XX HAR11 Christian Harder
   2022E2  2024 12 20.73  S 12.5 TI 25.2L   113   0.6  4            ICQ XX HAR11 Christian Harder
   2022E2  2024 12 19.79  S 12.9 TI 25.2L   145   0.8  4            ICQ XX HAR11 Christian Harder
   2022E2  2024 12 06.83  S 12.0 AQ 20.3T10 100   1.3  4            ICQ XX GON05 Juan Jose Gonzalez Suarez
   2022E2  2024 12 01.74  S 12.7 TI 53.1L   194   1    4            ICQ XX HAR11 Christian Harder
   2022E2  2024 11 30.92  S 12.7 TI 53.1L   162   1.5  3            ICQ XX HAR11 Christian Harder
   2022E2  2024 11 30.76  S 12.6 TI 25.2L    92   1.3  3            ICQ XX HAR11 Christian Harder
C/2021 G2 (ATLAS)
   2021G2  2025 01 31.78  C 14.5 AV 35.0T 5a720   0.7               ICQ XX PEA   Andrew Pearce
   2021G2  2025 01 05.70 xM 13.6 AQ 40.0L 4 182   0.7  4/           ICQ XX WYA   Christopher Wyatt
C/2020 K1 (PANSTARRS)
   2020K1  2025 01 30.73  C 16.7 AV 35.0T 5A440   0.5               ICQ XX PEA   Andrew Pearce
   2020K1  2025 01 27.76  C 16.9 AV 35.0T 5A440   0.6               ICQ XX PEA   Andrew Pearce
   2020K1  2025 01 16.70  C 17.1 AV 35.0T 6A440   0.46              ICQ XX PEA   Andrew Pearce
   2020K1  2025 01 10.60  C 16.7 AV 35.0T 5A440   0.4               ICQ XX PEA   Andrew Pearce
   2020K1  2025 01 09.60  C 16.6 AV 35.0T 5A440   0.5               ICQ XX PEA   Andrew Pearce
   2020K1  2025 01 06.61  C 16.4 AV 35.0T 5A440   0.4               ICQ XX PEA   Andrew Pearce
   2020K1  2025 01 05.71  C 17.5 AV 35.0T 5A080   0.4               ICQ XX PEA   Andrew Pearce
C/2019 U5 (PANSTARRS)
   2019U5  2025 01 31.65  C 15.8 AV 35.0T 5A080   0.4               ICQ XX PEA   Andrew Pearce
   2019U5  2025 01 30.75  C 16.1 AV 35.0T 5A080   0.7               ICQ XX PEA   Andrew Pearce
   2019U5  2025 01 29.73  C 16.3 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2019U5  2025 01 26.61  C 16.1 AV 35.0T 5a960   0.8       0.5m 89 ICQ XX PEA   Andrew Pearce
C/2017 K2 (PANSTARRS)
   2017K2  2025 01 31.58  C 16.0 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2017K2  2025 01 29.60  C 16.0 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2017K2  2025 01 28.57  C 16.4 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2017K2  2025 01 26.55  C 16.2 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2017K2  2025 01 20.59  C 16.5 AV 35.0T 6A080   0.4               ICQ XX PEA   Andrew Pearce
   2017K2  2025 01 19.60  C 16.5 AV 35.0T 5a900   0.4               ICQ XX PEA   Andrew Pearce
   2017K2  2025 01 18.54  C 16.3 AV 35.0T 6A080   0.4               ICQ XX PEA   Andrew Pearce
   2017K2  2025 01 16.67  C 15.4 AV 35.0T 6a900   0.4               ICQ XX PEA   Andrew Pearce
   2017K2  2025 01 15.57  C 16.3 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2017K2  2025 01 08.56  C 15.9 AV 35.0T 5A080   0.4               ICQ XX PEA   Andrew Pearce
   2017K2  2025 01 07.56  C 15.9 AV 35.0T 5A080   0.4               ICQ XX PEA   Andrew Pearce
   2017K2  2025 01 06.55  C 15.9 AV 35.0T 5A080   0.5       0.2m 91 ICQ XX PEA   Andrew Pearce
   2017K2  2025 01 05.64  C 16.0 AV 35.0T 5A080   0.4               ICQ XX PEA   Andrew Pearce
   2017K2  2024 12 27.72  C 16.1 AV 35.0T 5a360   0.3               ICQ XX PEA   Andrew Pearce
   2017K2  2024 12 26.70  C 16.0 AV 35.0T 5A080   0.4               ICQ XX PEA   Andrew Pearce
C/2014 UN271 (Bernardinelli-Bernstein)
   2014UNR12025 01 29.71  C 15.7 AV 35.0T 5A080   0.7               ICQ XX PEA   Andrew Pearce
   2014UNR12025 01 28.54  C 15.6 AV 35.0T 6A080   0.8               ICQ XX PEA   Andrew Pearce
   2014UNR12025 01 26.64  C 15.9 AV 35.0T 5a720   0.8               ICQ XX PEA   Andrew Pearce
   2014UNR12025 01 25.55  C 15.9 AV 35.0T 5a180   0.8               ICQ XX PEA   Andrew Pearce
   2014UNR12025 01 18.68  C 15.6 AV 35.0T 5A080   0.8               ICQ XX PEA   Andrew Pearce
   2014UNR12025 01 17.70  C 16.3 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
   2014UNR12025 01 16.72  C 16.2 AV 35.0T 6a720   0.4               ICQ XX PEA   Andrew Pearce
   2014UNR12025 01 15.62  C 16.4 AV 35.0T 5A080   0.5               ICQ XX PEA   Andrew Pearce
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   2014UNR12025 01 09.58  C 16.3 AV 35.0T 5A080   0.5              ICQ XX PEA   Andrew Pearce
   2014UNR12025 01 05.74  C 16.3 AV 35.0T 5A080   0.6              ICQ XX PEA   Andrew Pearce
   2014UNR12024 12 26.67  C 15.9 AV 35.0T 5A080   0.4              ICQ XX PEA   Andrew Pearce

P/2023 S1
  P2023S1  2025 01 31.66  C 15.0 AV 35.0T 5A080   0.6              ICQ XX PEA   Andrew Pearce
  P2023S1  2025 01 30.60  C 14.8 AV 35.0T 6A080   0.9       1.6m292 ICQ XX PEA   Andrew Pearce
  P2023S1  2025 01 29.68  C 15.1 AV 35.0T 5A080   0.8       1.8m290 ICQ XX PEA   Andrew Pearce
  P2023S1  2025 01 20.64  C 15.8 AV 35.0T 5A080   0.5              ICQ XX PEA   Andrew Pearce
  P2023S1  2025 01 17.72  C 15.7 AV 35.0T 5A080   0.5              ICQ XX PEA   Andrew Pearce
  P2023S1  2025 01 09.68  C 16.1 AV 35.0T 5A080   0.6       0.4m305 ICQ XX PEA   Andrew Pearce
496P/Hill
496        2025 01 11.55  C 17.0 AV 35.0T 5A080   0.4              ICQ XX PEA   Andrew Pearce
496        2024 12 27.60  C 17.1 AV 35.0T 5A080   0.5              ICQ XX PEA   Andrew Pearce
496        2024 12 22.62  C 17.2 AV 35.0T 5A080   0.4       0.1m 67 ICQ XX PEA   Andrew Pearce
487P/Siding Spring
487        2024 12 01.80  S 14.5 TI 53.1L   242   0.3  5           ICQ XX HAR11 Christian Harder
487        2024 11 30.93  S 15.0:TI 53.1L   194   0.4  5           ICQ XX HAR11 Christian Harder
472P/NEAT-LINEAR
472        2025 01 30.68  C 16.0 AV 35.0T 6A620   0.4       0.3m 15 ICQ XX PEA   Andrew Pearce
472        2025 01 26.56  C 15.9 AV 35.0T 6A440   0.5              ICQ XX PEA   Andrew Pearce
472        2025 01 20.61  C 16.0 AV 35.0T 5A440   0.5              ICQ XX PEA   Andrew Pearce
472        2025 01 17.65  C 16.1 AV 35.0T 5A620   0.5              ICQ XX PEA   Andrew Pearce
472        2025 01 09.62  C 16.2 AV 35.0T 5A440   0.4              ICQ XX PEA   Andrew Pearce
472        2025 01 08.57  C 16.5 AV 35.0T 5a360   0.4              ICQ XX PEA   Andrew Pearce
472        2025 01 07.57  C 15.9 AV 35.0T 5a720   0.4              ICQ XX PEA   Andrew Pearce
472        2024 12 27.75  C 15.3 AV 35.0T 5a720   0.3              ICQ XX PEA   Andrew Pearce
472        2024 12 26.73  C 15.8 AV 35.0T 5a720   0.4              ICQ XX PEA   Andrew Pearce
333P/LINEAR
333        2024 12 26.85  S 11.0 TK 20.3T10  77   4    2           ICQ XX GON05 Juan Jose Gonzalez Suarez
333        2024 12 25.12  V 12.6 GG  5.0R 5a 90   1.5              ICQ XX OLAaa Mike Olason
333        2024 12 23.85  S 11.2 TK 20.3T10  77   4    2/          ICQ XX GON05 Juan Jose Gonzalez Suarez
333        2024 12 20.72  S 11.4 TI 25.2L    68   2.5  2           ICQ XX HAR11 Christian Harder
333        2024 12 19.80  S 11.6 TI 25.2L    92   2.5  2           ICQ XX HAR11 Christian Harder
333        2024 12 06.79  S  9.7 TK 20.3T10  77   5    3/          ICQ XX GON05 Juan Jose Gonzalez Suarez
333        2024 12 02.06  S 10.4 TK 32.0L 5  80   2    3           ICQ XX PIL01 Uwe Pilz
333        2024 12 01.02  S 11.2:TI 53.1L   139   1.8  3           ICQ XX HAR11 Christian Harder
305P/Skiff
305        2025 01 30.54  C 17.8 AV 35.0T 5A260   0.5              ICQ XX PEA   Andrew Pearce
305        2025 01 19.54  C 17.4 AV 35.0T 6A440   0.3              ICQ XX PEA   Andrew Pearce
305        2025 01 16.56  C 17.9 AV 35.0T 5a540   0.3              ICQ XX PEA   Andrew Pearce
305        2024 12 27.57  C 17.5 AV 35.0T 5A080   0.4              ICQ XX PEA   Andrew Pearce
276P/Vorobjov
276        2025 01 31.54  C 17.5 AV 35.0T 5A440   0.4              ICQ XX PEA   Andrew Pearce
276        2025 01 30.56  C 17.7 AV 35.0T 5a900   0.5              ICQ XX PEA   Andrew Pearce
276        2025 01 19.57  C 18.0 AV 35.0T 5A620   0.3              ICQ XX PEA   Andrew Pearce
276        2025 01 16.58  C 17.7 AV 35.0T 5A620   0.4              ICQ XX PEA   Andrew Pearce
276        2025 01 05.60  C 17.5 AV 35.0T 5A260   0.4              ICQ XX PEA   Andrew Pearce
276        2024 12 26.63  C 17.8 AV 35.0T 5A260   0.4              ICQ XX PEA   Andrew Pearce
253P/PANSTARRS
253        2024 12 22.60  C 18.0 AV 35.0T 5A260   0.4              ICQ XX PEA   Andrew Pearce
242P/Spahr
242        2025 01 26.61  C 18.1 AV 35.0T 5A200   0.5              ICQ XX PEA   Andrew Pearce
242        2025 01 16.66  C 18.1 AV 35.0T 5A440   0.4              ICQ XX PEA   Andrew Pearce
242        2025 01 10.67  C 17.2 AV 35.0T 5A440   0.4              ICQ XX PEA   Andrew Pearce
242        2025 01 05.61  C 18.0 AV 35.0T 5A080   0.4              ICQ XX PEA   Andrew Pearce
130P/McNaught-Hughes
130        2025 01 05.58  C 17.7 AV 35.0T 5A440   0.4              ICQ XX PEA   Andrew Pearce
130        2024 12 26.60  C 17.0 AV 35.0T 5a900   0.3              ICQ XX PEA   Andrew Pearce
130        2024 12 22.61  C 17.3 AV 35.0T 5A260   0.5              ICQ XX PEA   Andrew Pearce
49P/Arend-Rigaux
 49        2025 01 25.54  C 16.3 AV 35.0T 5a540   0.4              ICQ XX PEA   Andrew Pearce
 49        2025 01 16.55  C 16.7 AV 35.0T 5A260   0.4              ICQ XX PEA   Andrew Pearce
 49        2025 01 09.57  C 16.9 AV 35.0T 5A080   0.3              ICQ XX PEA   Andrew Pearce
 49        2024 12 27.55  C 17.2 AV 35.0T 5A080   0.4              ICQ XX PEA   Andrew Pearce
 49        2024 12 22.58  C 17.2 AV 35.0T 5A080   0.4              ICQ XX PEA   Andrew Pearce
43P/Wolf-Harrington
 43        2025 01 05.56  C 16.8 AV 35.0T 5A260   0.5              ICQ XX PEA   Andrew Pearce
 43        2024 12 27.58  C 16.7 AV 35.0T 5A080   0.5              ICQ XX PEA   Andrew Pearce
 43        2024 12 26.59  C 17.1 AV 35.0T 5a360   0.3              ICQ XX PEA   Andrew Pearce
29P/Schwassmann-Wachmann
 29        2025 01 31.67  C 11.7 AV 35.0T 6a720   2.1              ICQ XX PEA   Andrew Pearce
 29        2025 01 29.69  C 11.6 AV 35.0T 6a720   2.2              ICQ XX PEA   Andrew Pearce
 29        2025 01 20.72  C 11.6 AV 35.0T 6a720   2.6              ICQ XX PEA   Andrew Pearce
 29        2025 01 19.12  C 12.4 AV 36.0T 8a240   1.9              ICQ XX PEA   Andrew Pearce
 29        2025 01 18.87  S 11.5 TI 25.2L   113   1.5  2           ICQ XX HAR11 Christian Harder
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29	2025	01	17.89	S	10.8	TK	20.3T10	133	5	2/	ICQ	XX	GON05	Juan Jose Gonzalez Suarez
29	2025	01	11.12	C	14.1	AB	36.0Y	8a360	1.6		ICQ	XX	PEA	Andrew Pearce
29	2025	01	10.74	C	13.6	AV	35.0T	5a660	2.1		ICQ	XX	PEA	Andrew Pearce
29	2025	01	09.70	C	12.3	AV	35.0T	5a720	2.7		ICQ	XX	PEA	Andrew Pearce
29	2025	01	05.67	xM	11.5	AQ	40.0L	4 59	6	3/	ICQ	XX	WYA	Christopher Wyatt
29	2024	12	28.13	C	12.0	AB	36.0Y	8a 60	4		ICQ	XX	PEA	Andrew Pearce
29	2024	12	27.13	C	12.0	AB	36.0Y	8A200	3.6		ICQ	XX	PEA	Andrew Pearce
29	2024	12	27.00	S	11.1	AQ	20.3T10	77	4	2/	ICQ	XX	GON05	Juan Jose Gonzalez Suarez
29	2024	12	24.00	S	11.3	AQ	20.3T10	77	3.5	2	ICQ	XX	GON05	Juan Jose Gonzalez Suarez
29	2024	12	01.06	S	11.6	TK	32.0L	5 80	1	5	ICQ	XX	PIL01	Uwe Pilz
29	2024	12	01.02	S	11.4	TI	53.1L	139	1.5	3/	ICQ	XX	HAR11	Christian Harder

Comets News

Looking Ahead to the Next Year or So of Comets

The chart below shows those comets expected to become brighter than magnitude 10 over the next 12 months. 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).

All brightness predictions are just that—predictions and may be off by many magnitudes.

Northern Hemisphere	02/01/25	02/14/25	02/24/25	03/06/25	03/16/25	03/26/25	04/05/25	04/15/25	04/25/25	05/05/25	05/15/25	05/25/25	06/04/25	06/14/25	06/24/25	07/04/25	07/14/25	07/24/25	08/03/25	08/13/25	08/23/25	09/02/25	09/12/25	09/22/25	10/02/25	10/12/25	10/22/25	11/01/25	11/11/25	11/21/25	12/01/25	12/11/25	12/21/25	12/31/25	01/10/26	01/20/26	01/30/26
C/2024 G3 (ATLAS)																																				
210P/Christensen																														9						
24P/Schaumasse																															9	8	8	8	8	8
C/2024 E1 (Wierzchos)																																				
Southern Hemisphere																																				
C/2024 G3 (ATLAS)	4	7	8	9																																
210P/Christensen																											9									
24P/Schaumasse																															9	8	8	8	8	8
C/2024 E1 (Wierzchos)																																			7	7

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, #17)

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497P/2011 UA134 = P/2024 T4                (Spacewatch-PANSTARRS)
496P/2010 A3    = P/2024 S3                (Hill)
495P/2016 A2    = P/2024 RU145             (Christensen)
494P/2024 N2    = P/2010 T8    = P/2017 R2 (PANSTARRS)
493P/2005 SB216 = P/2004 Q2                (LONEOS)
492P/2010 WK    = P/2010 PB57  = P/2024 O3 (LINEAR)
491P/2014 MG4   = P/2024 K2                (Spacewatch-PANSTARRS)
490P/2019 M2    = P/2024 C6                (ATLAS)
489P/1894 F1    = P/2007 HE4               (Denning)
488P/2024 N6    = P/2002 QU151             (NEAT-PANSTARRS)
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New Recoveries & Discoveries

C/2025 B1 (PANSTARRS)

Discovered on 2025 January 20 at 20th magnitude with Pan-STARRS2 1.8-m reflector at Haleakala
Perihelion on 2025 June 26 at 3.53 au
Pre-discovery observations found back to December 2024
Currently near peak brightness
Ref. CBET 5497, MPEC 2025-B77

C/2025 A4 (PANSTARRS)

Discovered on 2025 January 3 at 21st magnitude with Pan-STARRS2 1.8-m reflector at Haleakala
Perihelion on 2025 January 14 at 3.82 au and aphelion at 18.1 au
Orbital period of 36.3 years

Pre-discovery observations found back to December 2024
Peak brightness of 20th magnitude around the time of opposition in early April 2025
Ref. CBET 5496, MPEC 2025-B11

C/2025 A3 (Tsuchinshan)

Discovered on 2025 January 5 at 19th magnitude with the 1.04-m f/1.8 Schmidt telescope at the Xuyi Observatory of Purple Mountain Observatory (Tsuchinshan) in the course of the "China Near Earth Object Survey Telescope" (CNEOST) search program
Pre-discovery observations found back to December 2024
Perihelion on 2026 March 27 at 5.76 au and aphelion at 14.6 au
Orbital period of 32.6 years
Pre-discovery observations found back to December 2024
Peak brightness at perihelion of 19th magnitude
Ref. CBET 5495, MPEC 2025-A178

P/2025 A2 (PANSTARRS)

Discovered on 2025 January 7 at 20th magnitude with the Pan-STARRS1 1.8-m reflector at Haleakala
Pre-discovery observations found back to November 2024
Perihelion on 2024 October 6 at 3.45 au and aphelion at 6.7 au
Orbital period of 11.5 years
Close approach to Jupiter of 0.32 au on 2022 October 30, perihelion was around 3.66 au before the close approach
Now past peak brightness
Ref. CBET 5494, MPEC 2025-A162

A/2025 A1

Apparently asteroidal object on a cometary orbit
Discovered on 2025 January 2 at 20th magnitude with the Mount Lemmon 1.5-m
Perihelion on 2027 March 12 at 5.35 au
If inactive, it should peak at 18th magnitude at perihelion, if active, it may be a few magnitudes brighter
Ref. CBET 5494, MPEC 2025-A108

C/2024 Y1 (MASEK)

Discovered on 2024 December 25 at 14-15th magnitude by Martin Masek (Liberec, Czechia) with a Canon 300-mm-f.l. f/2.8 F/(Ph)otometric Robotic Atmospheric Monitor (FRAM) robotic telephoto lens at the Pierre Auger Observatory in Argentina
Perihelion on 2024 November 26 at 0.83 au
Discovered near peak brightness
Ref. CBET 5487, MPEC 2024-Y250

C/2024 X4 (PANSTARRS)

Discovered on 2024 December 8 at 21st magnitude with the Pan-STARRS1 1.8-m reflector at Haleakala
Pre-discovery observations found back to September 2024
Perihelion on 2025 September 1 at 3.60 au and aphelion at 16.5 au
Orbital period of 32.0 years
Expected to peak at 19th magnitude in late 2025
Ref. CBET 5486, MPEC 2024-Y146]

P/2024 X3 (PANSTARRS)

Discovered on 2024 December 8 at 20-21st magnitude with the Pan-STARRS2 1.8-m reflector at Haleakala

Pre-discovery observations found back to October 2024
Perihelion on 2024 September 5 at 2.61 au and aphelion at 11.3 au
Orbital period of 18.4 years
Currently at peak brightness of 20th magnitude
Ref. CBET 5485, MPEC 2024-Y145

C/2024 X2 (ATLAS)

Discovered on 2024 December 12 at 18th magnitude with the ATLAS 0.5-m f/2 Schmidt telescope at Rio Hurtado, Chile
Perihelion on 2025 July 15 at 3.63 au
Peak brightness of 17th magnitude in April 2025
Ref. CBET 5483, MPEC 2024-Y71

C/2024 X1 (Fazekas)

Discovered by Jacqueline Fazekas of the University of Arizona's Catalina Sky Survey at 19-20th magnitude with the Mt. Lemmon 1.5-m reflector in Arizona on 2024 December 11

This is Jacqueline's first comet to bear her name, though she was also the discoverer of C/2023 V1 (Lemmon).

Perihelion on 2025 July 26 at 3.79 au and aphelion at 15.2 au
Orbital period of 29 years.
The comet is currently near its peak brightness
Ref. CBET 5480, MPEC 2024-Y20

C/2024 W1 (PANSTARRS)

Discovered on 2024 November 22 at 20th magnitude with the Pan-STARRS1 1.8-m reflector at Haleakala
Perihelion on 2025 March 16 at 2.58 au
Currently at its peak brightness of 19th magnitude
Ref. CBET 5478, MPEC 2024-X279

C/2024 PN7 (PANSTARRS)

Discovered on 2024 August 15 at 19-20th magnitude with the Pan-STARRS2 1.8-m reflector at Haleakala

Discovery and immediate follow-up observations did not detect any cometary activity, so it was designated as asteroid 2024 PN7

Alan Hale detected a slightly diffuse coma on 2024 October 30
Perihelion on 2024 December 6 at 1.52 au
Orbital period of ~550 years
Peaked at 17th magnitude in late 2024
Ref. CBET 5491, MPEC 2025-A145

C/2015 K7

A. Yamauchi discovered this comet in archival data from the Subaru 8.2-m telescope at Mauna Kea. Yamauchi is a member of the Japanese citizen-science "Small Solar System Bodies Search Project" (COIAS) and noticed the cometary nature of the object. At discovery on images taken on 2015 May 17 through 26, the comet was measured at 23rd magnitude.

Perihelion on 2013 February 20 at 9.94 au
Pre-discovery observations found back to March 2013
Peaked at 21st magnitude around the time of perihelion
The comet is currently unnamed.
Ref. CBET 5484, MPEC 2024-Y66

P/2015 CD60 (LINEAR)

Discovered as an asteroid on 2015 February 13 at 19-20th magnitude with the 3.5-m f/1 "Space Surveillance Telescope" (SST), then located at the White Sands Missile Range in New Mexico

Pre-discovery observations back to November 2014

Re-discovered as an asteroid on 2024 October 27 at 20th magnitude with the Mt. Lemmon Survey's 1.5-m reflector

Cometary activity noted after object posted on the MPC's PCCP page

Perihelion on 2024 December 18 at 1.96 au and aphelion at 7.2 au

Orbital period of 9.8 years

Peaked at 16-17th magnitude at start of 2025

Ref. CBET 5489, MPEC 2025-A142

Comets Brighter Than Magnitude 6

C/2024 G3 (ATLAS)

Discovered visually on 2024 April 5 by by the "Asteroid Terrestrial-Impact Last Alert System" (ATLAS) search program with their 0.5-m f/2 Schmidt reflector stationed at Rio Hurtado, Chile
Dynamically old long-period comet

Orbit (from Minor Planet Center, MPEC 2025-A40)

```
    C/2024 G3 (ATLAS)
Epoch 2024 Oct. 17.0 TT = JDT 2460600.5
T 2025 Jan. 13.42771 TT                                  Pike
q   0.0935311            (2000.0)            P               Q
z  -0.0001271      Peri.  108.12320     -0.04071401     +0.81537095
 +/-0.0000029      Node   220.33654     +0.14761042     +0.57655103
e   1.0000119      Incl.  116.84785     +0.98820723     -0.05252736
From 318 observations 2024 Apr. 5-Dec. 28, mean residual 0".7.
1/a(orig) = +0.000334 AU**-1, 1/a(fut) = +0.000162 AU**-1.
```

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

```
C/2024 G3 (ATLAS)                                                    Max El
                                                                      (deg)
    Date      R.A.    Decl.     r       d     Elong  Const  Mag  40N  40S
2025-Feb-01  22 24  -34 53   0.690   1.421    26E    PsA    4.9    0    9
2025-Feb-06  22 43  -36 32   0.821   1.547    28E    Gru    5.8    0   11
2025-Feb-11  22 59  -37 44   0.943   1.663    29E    Gru    6.6    0   12
2025-Feb-16  23 14  -38 38   1.059   1.771    31E    Gru    7.2    0   13
2025-Feb-21  23 27  -39 22   1.170   1.872    32E    Phe    7.7    0   14
2025-Feb-26  23 40  -39 59   1.275   1.964    34E    Phe    8.2    0   15
2025-Mar-03  23 52  -40 31   1.377   2.051    35E    Phe    8.6    0   15
```

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

```
m1 =  4.7 + 5 log d + 18.3 log r [until T-70 days]
m1 =  6.9 + 5 log d + 10.6 log r [between T-70 and T-12 days]
m1 =  3.7 + 5 log d +  6.1 log r [between T-10 and perihelion]
m1 =  5.0 + 5 log d +  7.9 log r [post-perihelion]
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     Mag SC APER FL POW    COMA     TAIL    ICQ CODE Observer Name
              (UT)                    T         Dia  DC  LENG  PA
   2024G3  2025 01 27.41 &M  4.6 TK  7.0B    15   7.5  2   8     87 ICQ XX WYA   Christopher Wyatt
   2024G3  2025 01 23.95  S  3.5 TK  8.0B    20   8    3   3        ICQ XX SOU01 Willian Souza
   2024G3  2025 01 23.95  S  3.2 TK  5.0B    10   8    4 > 3.5      ICQ XX SOU01 Willian Souza
   2024G3  2025 01 16.12 aI -1.3:TK  5.0B    10   1.5  7    0.5     ICQ XX HER02 Carl Hergenrother
   2024G3  2025 01 15.74 $I -1.5:TK  5.0B    10   1.2  8/  0.25  80 ICQ XX GON05 Juan Jose Gonzalez Suarez
   2024G3  2025 01 15.12 aI -2.5:TK  0.0E     1        8           ICQ XX HER02 Carl Hergenrother
   2024G3  2025 01 12.29  - -1.0 -   5.0B    10        8/   5  m280 ICQ XX HAR11 Christian Harder
   2024G3  2025 01 05.75 &M  1.5 TK  7.0B    15   1.8  7/  14.5m252 ICQ XX WYA   Christopher Wyatt
   2024G3  2025 01 05.31  M  2.1 TK 10  B    25   3    8           ICQ XX DES01 Jose Guilherme de Souza Aguiar
   2024G3  2025 01 01.30  M  4.8 TK 10  B    25   2    6/  0.20    ICQ XX DES01 Jose Guilherme de Souza Aguiar
   2024G3  2024 12 31.31  B  4.8 TK  5.0B     7   1    8           ICQ XX SOU01 Willian Souza
   2024G3  2024 12 31.30  M  5.1 TK 10  B    25   2    6/  0.20    ICQ XX DES01 Jose Guilherme de Souza Aguiar
   2024G3  2024 12 30.30  M  5.4 TK 10  B    25   2    6/          ICQ XX DES01 Jose Guilherme de Souza Aguiar
   2024G3  2024 12 29.30  M  5.7 TK 10  B    25   2    6           ICQ XX DES01 Jose Guilherme de Souza Aguiar
   2024G3  2024 12 28.36  C  5.8 GG 25.0L 4a 75   1.6      11  m229 ICQ XX MAT08 Michael Mattiazzo
   2024G3  2024 12 27.36  C  5.9 GG 25.0L 4a240  1.5       7.5m227 ICQ XX MAT08 Michael Mattiazzo
   2024G3  2024 12 26.72 xM  6.0 AQ  5.0B    15   2.3  7    10 m234 ICQ XX WYA   Christopher Wyatt
   2024G3  2024 12 26.36  C  6.2 GG 25.0L 4a 75   1.3      10.7m221 ICQ XX MAT08 Michael Mattiazzo
   2024G3  2024 12 25.35  C  6.2 GG 25.0L 4a 75   1.3       10 m221 ICQ XX MAT08 Michael Mattiazzo
   2024G3  2024 12 24.30  M  6.2 TK 10  B    25   2    6/  0.10    ICQ XX DES01 Jose Guilherme de Souza Aguiar
   2024G3  2024 12 23.72 xM  6.5 TK  5.0B    15   2.2  7   15  m232 ICQ XX WYA   Christopher Wyatt
```

For the second time in just a few months, a small-perihelion comet developed into a negative-magnitude object. Like C/2023 A3 (Tsuchinshan-ATLAS) did four months ago, C/2024 G3 (ATLAS) shone at its brightest when only a few degrees from the Sun. Nevertheless, the comet became bright enough to be captured in images

during the day and visible to observers in bright twilight in the morning sky before perihelion, as well as in the evening sky after perihelion.

C/2024 G3 (ATLAS) was discovered on April 5, 2024, by the "Asteroid Terrestrial-Impact Last Alert System" (ATLAS) search program using their 0.5-m f/2 Schmidt reflector located at Rio Hurtado, Chile. At the time of discovery, the comet was 4.6 au from the Sun and at 18th magnitude. At perihelion on January 13, 2025, the comet was only 0.09 au from the Sun, roughly one-third the distance of Mercury's perihelion.

Here's a quick summary of G3's behavior in December and January. On December 1, the comet was 1.27 au from the Sun and had a magnitude of about 9.9. When it crossed the 1 au mark on January 13, it had brightened to a range between magnitudes 8.0 and 8.5. As the year concluded, the comet was 0.5 au from the Sun and reached a brightness of around magnitude 5.0. Throughout December, the comet was only visible from the southern hemisphere, and even then, it was poorly positioned, hugging the morning horizon at dawn.

On January 1 or 2, a 2-magnitude outburst occurred, brightening the comet from approximately magnitude 4.5-5.0 to 2.5-3.0. By January 9, the comet had become a negative-magnitude object. Photometry from the SOHO LASCO C3 coronagraph indicated a peak brightness between magnitude -3.5 and -4.0 on January 13, around the time of perihelion. Although it was expected to be observable only from the southern hemisphere, the comet could be seen in bright dusk from the northern hemisphere on several evenings after perihelion. As the comet entered a dark sky for southern hemisphere observers, it displayed a tail of up to 15 degrees, although it had faded to between magnitude 0.0 and -1.0 by January 18/19. It was also around this time that images revealed clear signs of the complete disruption and disintegration of the comet's nucleus. While the nucleus may no longer exist, the significant amount of dust released in the preceding days and weeks has allowed the tail to remain visible. As of early February, the comet is still a naked-eye object with a tail nearly 10 degrees long.

While predictions for the brightness of C/2024 G3 are uncertain, and it's challenging to determine what should be measured since the comet no longer has a nucleus or coma, its remnant tail should remain visible through February as it moves across Pisces Austrinus (Feb 1-5), Grus (5-20), and Phoenix (20-28) in the evening sky. It will be fascinating to observe the remnant dust gradually disperse and be blown slowly in the anti-solar direction, away from where the nucleus would have been located.

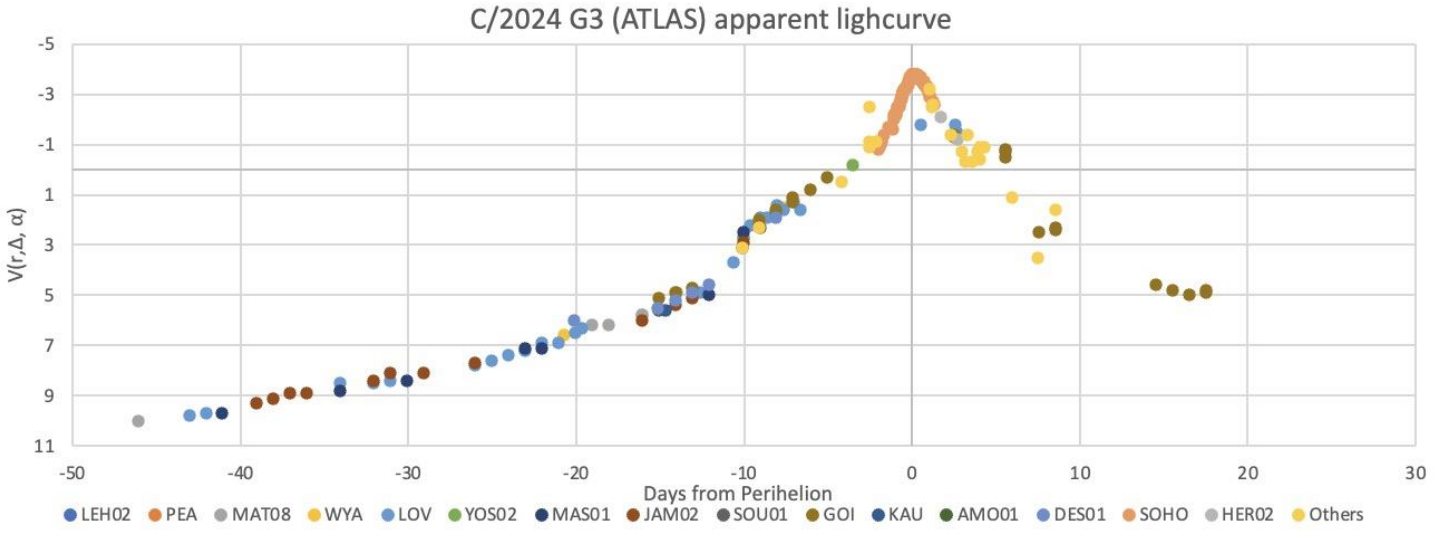

Figure 2 - Apparent lightcurve of C/2024 G3 (ATLAS). Photometry was obtained from the ALPO archives as well as the COBS database.

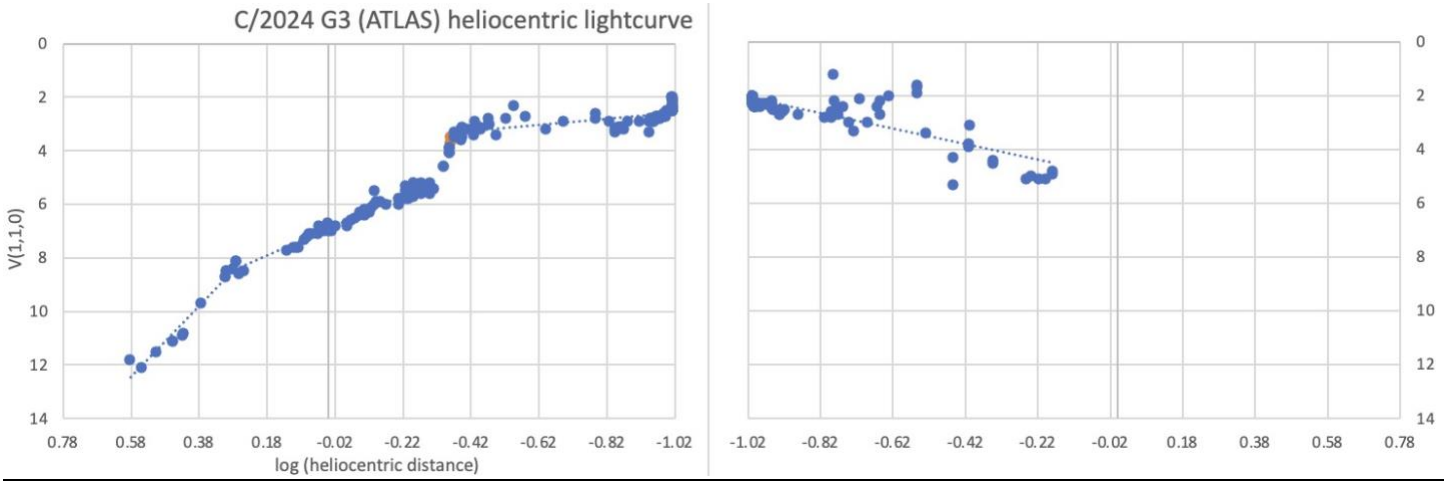

Figure 3 - Heliocentric lightcurve of C/2024 G3 (ATLAS). Apparent magnitude is normalized to 1 au from the Sun and Earth and to 0 deg phase angle.

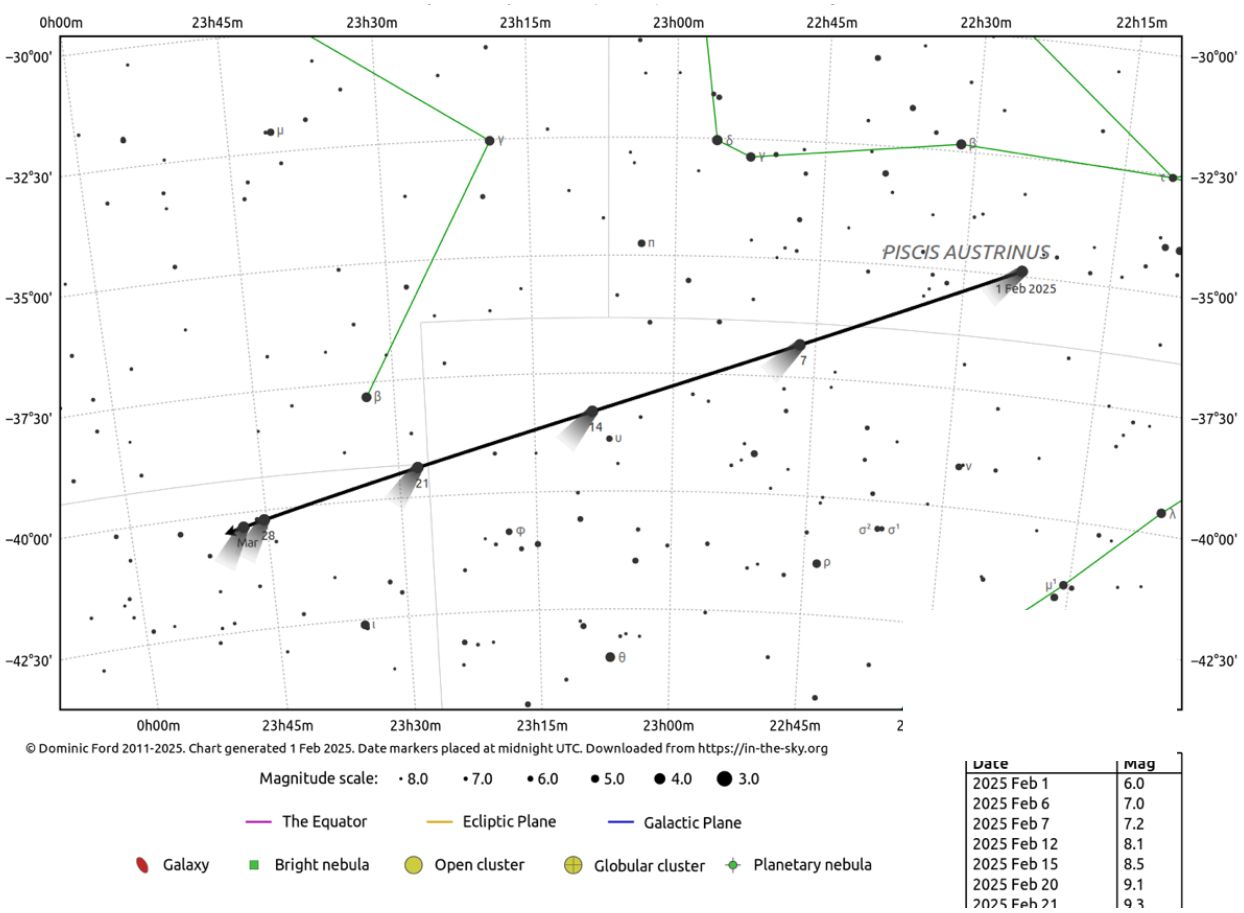

Figure 4 - Finder chart for C/2024 G3 (ATLAS) in February 2025 from in-the-sky.org.

Figure 5 – Daytime images of C/2024 G3 (ATLAS) by Chris Schur from Payson, AZ.

Figure 6 – Michael Mattiazzo imaged C/2024 G3 (ATLAS) on 2025 January 28 at 11:10 UT from Swan Hill in Victoria, Australia. He used a Canon 6D + Sigma lens at 75mm, f/2.8, iso 3200 to collect 13x30sec exposures.

Comets Between Magnitude 6 and 10

None.

Comets Between Magnitude 10 and 12

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-Y145)

```
    C/2023 A3 (Tsuchinshan-ATLAS)
Epoch 2024 Oct. 17.0 TT = JDT 2460600.5
T 2024 Sept. 27.74212 TT                                  Pike
q   0.3914379            (2000.0)            P               Q
z  -0.0002659      Peri.  308.49129     +0.36142105     +0.90084048
 +/-0.0000002      Node    21.55938     +0.91853623     -0.29966699
e   1.0001041      Incl.  139.11050     -0.16020619     +0.31414347
From 7504 observations 2022 Apr. 9-2025 Jan. 13, mean residual 0".7.
1/a(orig) = -0.000257 AU**-1, 1/a(fut) = -0.000229 AU**-1.
```

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

```
C/2023 A3 (Tsuchinshan-ATLAS)                                        Max El
                                                                      (deg)
    Date      R.A.   Decl.     r       d    Elong  Const  Mag  40N  40S
2025-Feb-01  20 06  +09 30   2.438   3.245    29M   Aql  10.5    9    0
2025-Feb-06  20 09  +10 08   2.509   3.302    30M   Aql  10.6   12    0
2025-Feb-11  20 12  +10 48   2.579   3.353    32M   Aql  10.7   15    0
2025-Feb-16  20 15  +11 29   2.648   3.397    34M   Del  10.8   17    0
2025-Feb-21  20 17  +12 12   2.717   3.435    37M   Del  11.0   20    0
2025-Feb-26  20 19  +12 57   2.785   3.466    40M   Del  11.1   22    0
2025-Mar-03  20 21  +13 43   2.852   3.492    43M   Del  11.2   25    0
```

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

```
m1 = -16.6 + 5 log d + 35.0 log r + dust phase_function [Through T-650 days]
m1 =   0.2 + 5 log d + 15.7 log r + dust phase_function [Between T-650 and T-309 days]
m1 =   5.3 + 5 log d +  8.4 log r + dust phase_function [Between T-309 and T-70 days]
m1 =   5.7 + 5 log d +  6.7 log r + dust phase_function [Between T-70 days and perihelion]
m1 =   6.4 + 5 log d +  8.4 log r + dust phase_function [After perihelion]
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)                    T         Dia  DC  LENG  PA
None.
```

C/2023 A3 (Tsuchinshan-ATLAS) passed through solar conjunction and entered the morning sky on January 16. The comet was positioned far enough north of the Sun (~28 degrees) that it remained observable, at least from the northern hemisphere, throughout the conjunction. However, the comet was also close enough to the Sun and horizon that few observations were submitted in January (none to the ALPO and only six to COBS).

Tsuchinshan-ATLAS's post-perihelion lightcurve could be modeled by the equation (m1 = 6.4 + 5 log d + 8.4 log r + dust_phase_function) until early November 2024 (about 40 days after perihelion). After early November and through December, the comet appeared to fade at a much slower rate. The brightness predictions for this month assume the comet resumed a "normal" 8 log r rate of fading during January. That prediction has the comet starting February at magnitude 10.5 and fading to 11.1 by the end of the month as it travels through Aquila (Feb 1-14) and Delphinus (14-28) in the morning sky.

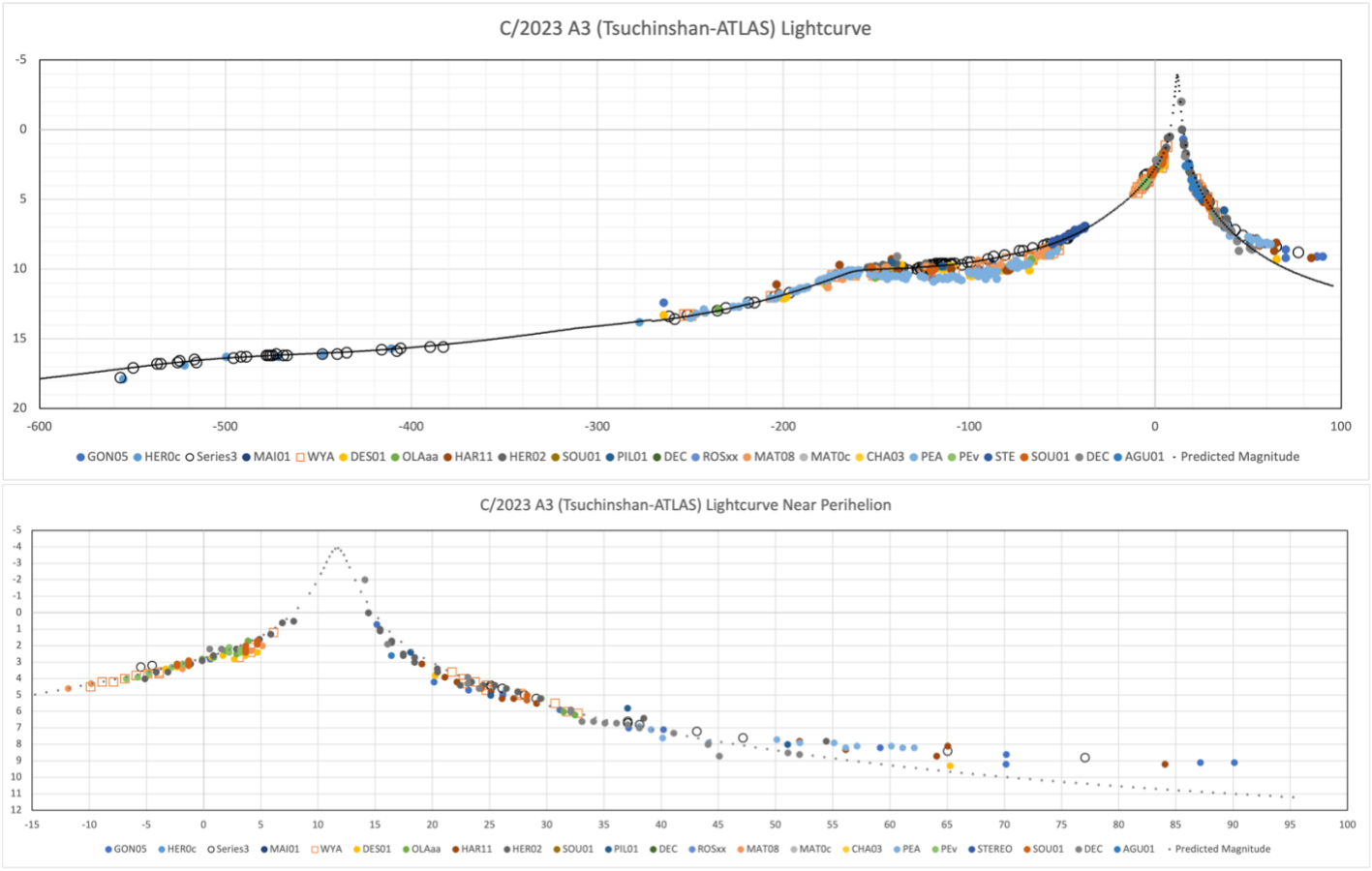

Figure 7 - Lightcurves of C/2023 A3 from data submitted to the ALPO Comets Section and photometry from Thomas Lehmann & the STEREO spacecraft.

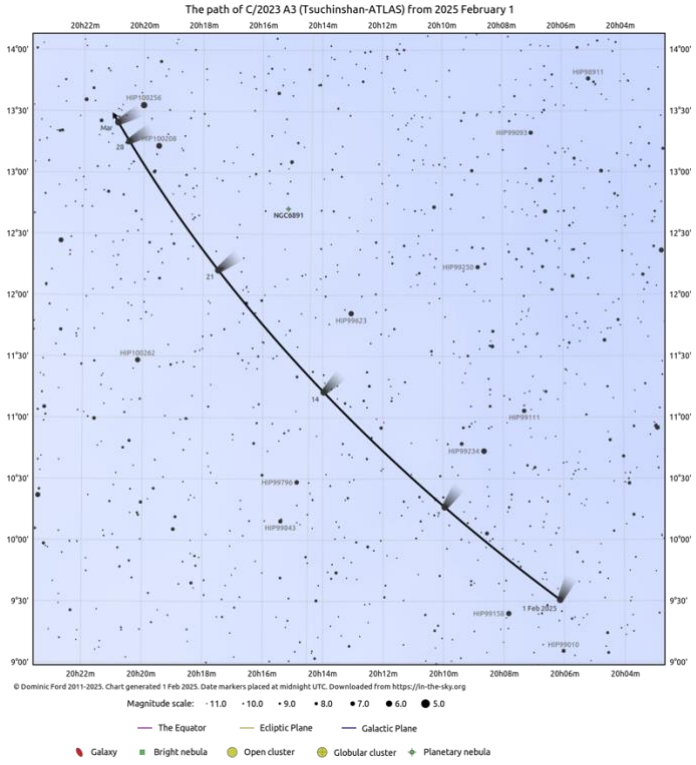

Figure 8 - Star chart for C/2023 A3 in February 2025. Chart produced at in-the-sky.org..

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 2025-A145)

```
  29P/Schwassmann-Wachmann
Epoch 2024 Oct. 17.0 TT = JDT 2460600.5
T 2019 May 4.13863 TT                                  Pike
q   5.7900393            (2000.0)            P             Q
n   0.06615259     Peri.   52.12985     +0.98911221     -0.08511050
a   6.0548698      Node   312.40577     +0.01499963     +0.86985246
e   0.0437384      Incl.    9.35732     +0.14639690     +0.48591450
P  14.9
From 47262 observations 1902 Mar. 4-2025 Jan. 14, mean residual 0".9.
```

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
2025-Feb-01  10 01  +09 16   6.259   5.311   162M   Leo  15.6    59    41
2025-Feb-06  09 58  +09 23   6.260   5.292   168M   Leo  15.6    59    41
2025-Feb-11  09 56  +09 31   6.261   5.279   173M   Leo  15.6    59    41
2025-Feb-16  09 54  +09 40   6.262   5.275   177E   Leo  15.6    60    40
2025-Feb-21  09 51  +09 49   6.263   5.279   173E   Leo  15.6    60    40
2025-Feb-26  09 49  +09 57   6.264   5.290   168E   Leo  15.6    60    40
2025-Mar-03  09 47  +10 06   6.265   5.310   163E   Leo  15.6    60    40
```

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)                    T         Dia  DC  LENG  PA
 29        2025 01 31.67  C 11.7 AV 35.0T 6a720   2.1                ICQ XX PEA   Andrew Pearce
 29        2025 01 29.69  C 11.6 AV 35.0T 6a720   2.2                ICQ XX PEA   Andrew Pearce
 29        2025 01 20.72  C 11.6 AV 35.0T 6a720   2.6                ICQ XX PEA   Andrew Pearce
 29        2025 01 19.12  C 12.4 AV 36.0T 8a240   1.9                ICQ XX PEA   Andrew Pearce
 29        2025 01 18.87  S 11.5 TI 25.2L   113   1.5  2             ICQ XX HAR11 Christian Harder
 29        2025 01 17.89  S 10.8 TK 20.3T10 133   5    2/            ICQ XX GON05 Juan Jose Gonzalez Suarez
 29        2025 01 11.12  C 14.1 AB 36.0Y 8a360   1.6                ICQ XX PEA   Andrew Pearce
 29        2025 01 10.74  C 13.6 AV 35.0T 5a660   2.1                ICQ XX PEA   Andrew Pearce
 29        2025 01 09.70  C 12.3 AV 35.0T 5a720   2.7                ICQ XX PEA   Andrew Pearce
 29        2025 01 05.67 xM 11.5 AQ 40.0L 4  59   6    3/            ICQ XX WYA   Christopher Wyatt
 29        2024 12 28.13  C 12.0 AB 36.0Y 8a 60   4                  ICQ XX PEA   Andrew Pearce
 29        2024 12 27.13  C 12.0 AB 36.0Y 8A200   3.6                ICQ XX PEA   Andrew Pearce
 29        2024 12 27.00  S 11.1 AQ 20.3T10  77   4    2/            ICQ XX GON05 Juan Jose Gonzalez Suarez
 29        2024 12 24.00  S 11.3 AQ 20.3T10  77   3.5  2             ICQ XX GON05 Juan Jose Gonzalez Suarez
 29        2024 12 01.06  S 11.6 TK 32.0L 5  80   1    5             ICQ XX PIL01 Uwe Pilz
 29        2024 12 01.02  S 11.4 TI 53.1L   139   1.5  3/            ICQ XX HAR11 Christian Harder
```

29P/Schwassmann-Wachmann was discovered photographically on 1927 November 15 by the German observing team of Arnold Schwassmann and Arno Arthur Wachmann. This comet experiences outbursts multiple times a year, with the largest resulting in a peak brightness of 10th magnitude, though the majority are fainter.

29P is at opposition this month in Leo, specifically on February 15, when it will be 6.26 au from the Sun and 5.28 au from Earth. Several observations have been reported in December and January, finding the comet at around 11th magnitude. The reason for the comet's brightness is a series of outbursts that have been occurring every few days to weeks.

Just since the start of the year, the BAA Mission 29P program has reported outbursts on:
Jan 02.4
Jan 06.7

Jan 16
Jan 18.4
Jan 21.7
Feb 01
Feb 02.4

If you image 29P, please consider contributing to two pro-am programs spearheading the effort to understand this amazing object better: the British Astronomical Society's (BAA) Mission 29P monitoring program coordinated by Richard Miles. (https://britastro.org/node/18562 & https://britastro.org/node/25120).

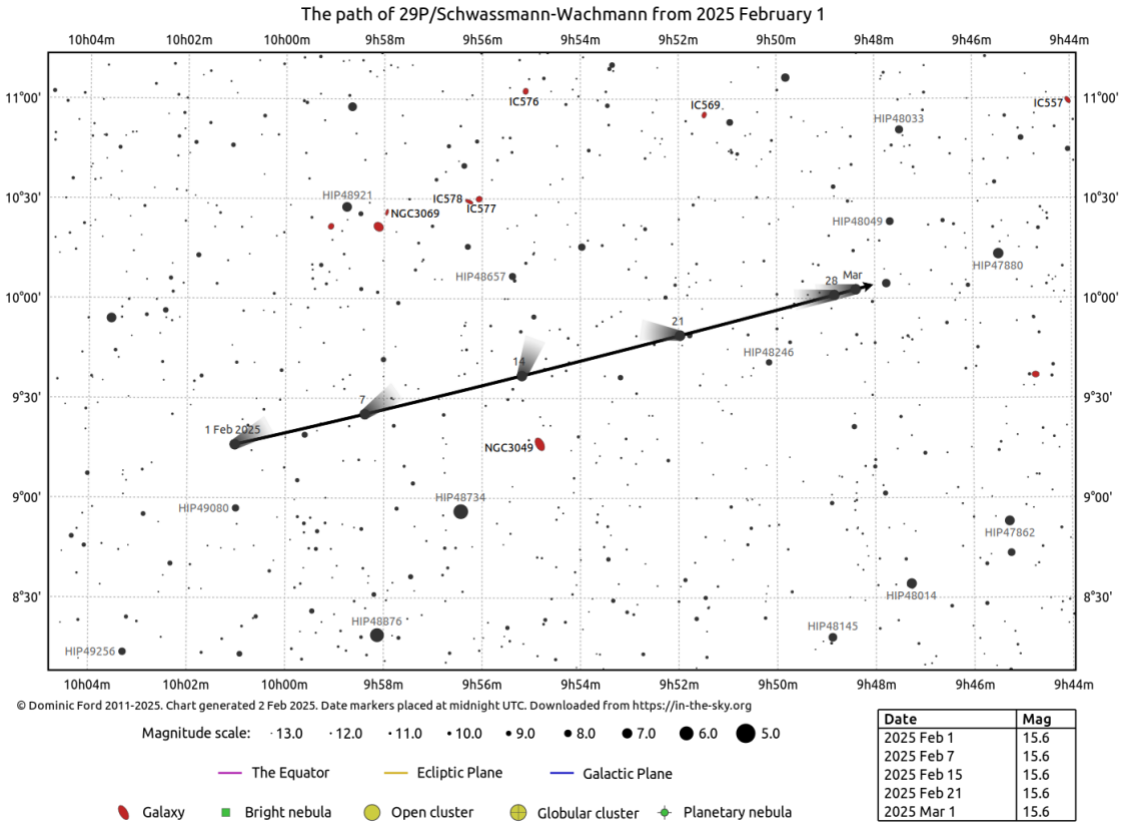

Figure 9 - Finder chart for 29P/Schwassmann-Wachmann in February 2025 from in-the-sky.org.

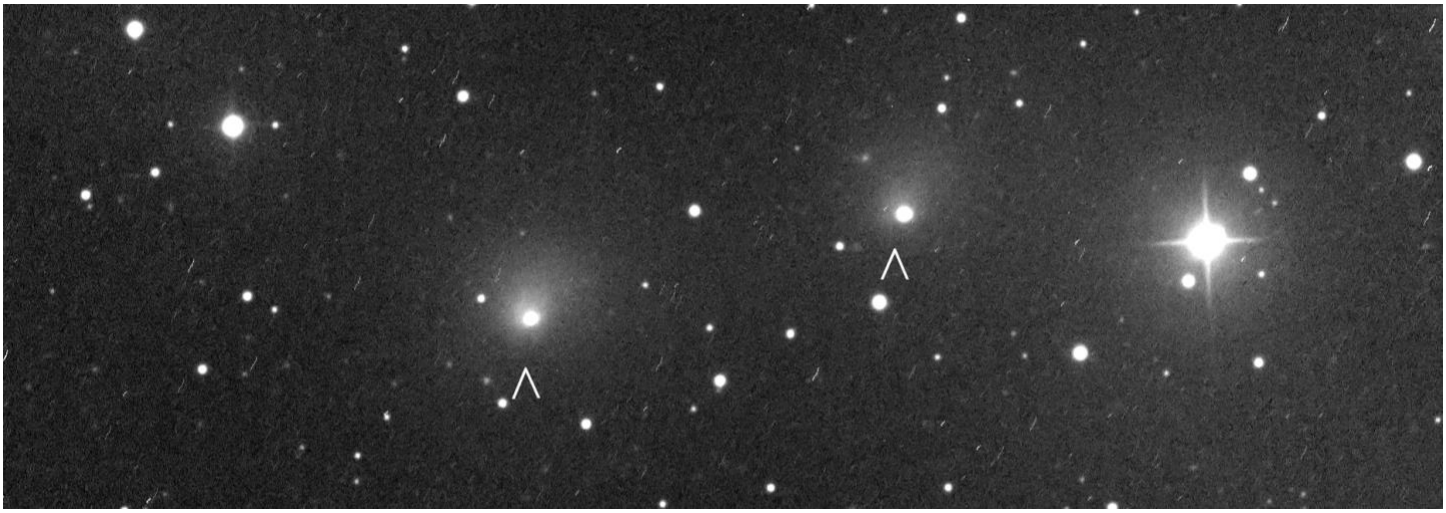

Figure 10 - 29P on two nights (Feb 2 and 3, 2025) as imaged by Eliot Herman with the iTelescopes T11 0.5-m f/4.5 reflector and FLI ProLine PL11002M camera in at the Utah Desert Remote Observatory.