

ALPO COMET NEWS FOR FEBRUARY 2020

By Carl Hergenrother - 2020-February-1

The monthly ALPO Comet News PDF can be found on the ALPO Comet Section website (<http://www.alpo-astronomy.org/cometblog/>). A shorter version of this report is posted on a dedicated Cloudy Nights forum (<https://www.cloudynights.com/topic/692887-alpo-comet-news-for-february-2020/>). All are encouraged to join the discussion over at Cloudy Nights.

Long period comet C/2017 T2 (PANSTARRS) continues to be well placed for northern observers in the evening sky at ~9th magnitude. Two recently announced discoveries, C/2019 Y1 (ATLAS) and C/2020 A2 (Iwamoto), are fainter (10-11th magnitude) but within range of visual observers with large apertures.

Bright Comets (magnitude < 10.0)

C/2017 T2 (PANSTARRS) – The brightest comet in the sky continues to be C/2017 T2 (PANSTARRS). Observations were submitted to the ALPO Comet Section in January from Salvador Aguirre, John Chumack, Michel Deconinck, J. J. Gonzalez, Carl Hergenrother, Martin Mobberley, John D. Sabia, and Tenho Tuomi. ALPO contributors made the following magnitude estimates: 9.6 on January 5.12 UT (J. J. Gonzalez, 0.20-m SCT), 10.4 on Jan. 10.07 (Salvador Aguirre, 0.20-m SCT), 9.7 on Jan. 12.07 (Carl Hergenrother, 30x125 B), 10.2 on Jan. 12.76 (Michel Deconinck, 0.25-m SCT), 9.7 on Jan. 14.10 (Hergenrother), 9.8 on Jan. 18.85 (Deconinck), and 9.7 on Jan. 19.14 (Hergenrother). The comet remains a compact object with a visual coma of 1-4'. CCD images show evidence of a larger, low surface brightness gas coma (see image below by Chris Schur).

The estimates presented above placed the comet around magnitude ~9.6 to 9.8 for much of January. A number of observations submitted to the COBS site had a larger scatter with estimates as bright as ~9.0. PANSTARRS has been moving through dense star fields in Perseus. While this has made for some amazing views and images, I wonder if the dense stellar background is complicating the determination of accurate magnitude estimates. At least that has been my experience when observing with my 30x125 binoculars. Often there are too many stars in or near the comet's coma.

C/2017 T2 (PANSTARRS) is still inbound to an early May perihelion at 1.62 au. It will continue to slowly brighten by another few tenths of a magnitude this month. It starts February within a few degrees of the Double Cluster and spends the rest of the month slowly moving from Perseus into Cassiopeia.

C/2017 T2 (PANSTARRS)

T = 2020-May-04 $q = 1.62$ au

Long-Period comet - dynamically new

Date	Mag	R.A.	Decl.	r	d	Elong	Const	Max El	
								40N	40S
2020-02-01	9.1	02 16	+57 58	2.038	1.627	99	Per	69	0
2020-02-06	9.1	02 11	+58 21	2.000	1.650	95	Per	65	0
2020-02-11	9.0	02 07	+58 48	1.963	1.672	91	Per	62	0
2020-02-16	9.0	02 06	+59 19	1.927	1.693	87	Cas	59	0
2020-02-21	8.9	02 05	+59 57	1.893	1.712	84	Cas	56	0
2020-02-26	8.9	02 07	+60 40	1.859	1.729	81	Cas	53	0
2020-03-02	8.8	02 09	+61 31	1.828	1.744	78	Cas	50	0



C/2017 T2 (PANSTARRS) and the Double Cluster on 2019 December 25 by Chris Schur

Faint Comets (between magnitude 10.0 and 13.0)

C/2018 N2 (ASASSN) - Comet C/2018 N2 (ASASSN) was discovered back in July 2018 by the All-Sky Automated Survey for Supernovae (ASAS-SN) program. It is now well past its November perihelion. Thanks to a large perihelion distance of 3.12 au, the comet is slow to fade. Still, it is reaching the point where it will become a difficult object for visual observers even with large apertures as it fades to around 13th magnitude. It is well placed for northern observers in the evening sky as it traverses Andromeda.

C/2018 N2 (ASASSN)

T = 2019-Nov-11 q = 3.12 au

Long-Period comet - dynamically old

Date	Mag	R.A.	Decl.	r	d	Elong	Const	Max El	
								40N	40S
2020-02-01	12.7	23 36	+42 18	3.224	3.419	70	And	47	0
2020-02-06	12.7	23 39	+42 56	3.237	3.482	67	And	44	0
2020-02-11	12.8	23 42	+43 39	3.250	3.543	64	And	40	0
2020-02-16	12.9	23 45	+44 24	3.263	3.601	62	And	37	0
2020-02-21	12.9	23 49	+45 13	3.277	3.655	60	And	34	0
2020-02-26	13.0	23 53	+46 06	3.292	3.707	58	And	31	0
2020-03-02	13.1	23 57	+47 01	3.308	3.755	56	And	28	0

C/2019 Y1 (ATLAS) – *C/2019 Y1 (ATLAS)* was discovered on 2019 December 16 UT with Asteroid Terrestrial-Impact Last Alert System 0.5-m f/2 astrograph at Haleakala on Maui, Hawaii. It is a long-period comet with perihelion on 2020 March 15 at 0.84 au. *C/2019 Y1 (ATLAS)* appears to be the 4th member of a comet family associated with *C/1988 A1 (Liller)*. Liller was a nice well-observed binocular comet that reached 5th magnitude in April 1988 even though the comet only approached within 1.22 au of Earth. As the brightest member of the “Liller” family observed so far, it is possible that Liller is the parent comet with the other objects resulting from one or more splitting events.

Eight years after Liller, *C/1996 Q1 (Tabur)* was found on a similar orbit. Tabur came closer to Earth with a minimum Earth-comet distance of 0.42 au. It also peaked at 5th magnitude but then experienced a catastrophic disruption event a few weeks before perihelion and rapidly faded from view. The third comet in the group, *C/2015 F3 (SWAN)* was discovered 12 days after its perihelion at around 10th magnitude. Though it rapidly faded as well, whether it also disintegrated is in question.

Currently, *C/2019 Y1* is a low evening object. Southern hemisphere observers will lose sight of it this month. Northern observers will be able to observe it for the coming months though it will drop to low elongations over the next few weeks. Based on it being a small fragment from a past splitting event and the past behavior of comets Tabur and SWAN, it is possible *C/2019 Y1* will disintegrate. If it survives, it may brighten to around magnitude 9.5 in March and April. This month, *C/2019 Y1* is moving through Aquarius (Feb 1-4), Pisces (4-18), Pegasus (18-28).



C/2019 Y1 (ATLAS)

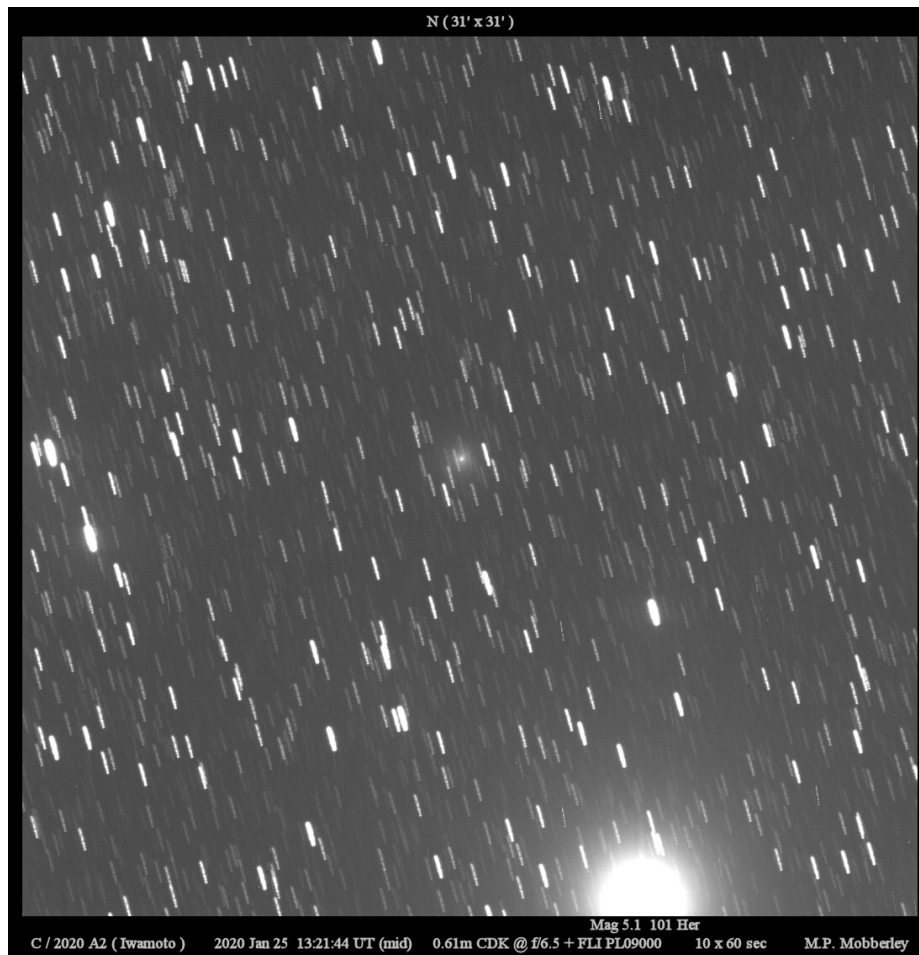
T = 2020-Mar-15 $q = 0.84$ au

Long-Period comet - dynamically old

Date	Mag	R.A.	Decl.	r	d	Elong	Const	Max El	
								40N	40S
2020-02-01	11.7	23 59	-13 48	1.347	1.859	44	Aqr	18	12
2020-02-06	11.5	00 02	-10 16	1.283	1.853	40	Psc	17	8
2020-02-11	11.3	00 05	-06 41	1.221	1.844	37	Psc	16	4
2020-02-16	11.1	00 08	-03 02	1.161	1.832	34	Psc	14	0
2020-02-21	10.9	00 12	+00 39	1.103	1.817	31	Peg	13	0
2020-02-26	10.7	00 15	+04 27	1.048	1.799	28	Peg	11	0
2020-03-02	10.5	00 19	+08 20	0.998	1.776	26	Peg	9	0

C/2020 A2 (Iwamoto) – *C/2020 A2* is yet another recent, bright discovery. Japanese amateur Masayuki Iwamoto found *C/2020 A2* on January 8 at magnitude 12.8 with a 10-cm Pentax 400-mm f/4.0 lens and a Canon EOS 6D camera. This is his third discovery. His other two comets were also found low in the morning sky [*C/2018 V1 (Machholz-Fujikawa-Iwamoto)* and *C/2018 Y1 (Iwamoto)*].

Perihelion occurred at 1.01 au on the same day as discovery. The comet should be at its brightest this month (~magnitude 11) as it makes its closest approach to Earth on February 21 at 0.92 au. It is solely a northern object as it heads north through the constellations of Hercules (Feb 1-2), Lyra (2-12), Draco (12-24), and Cepheus (24-28).



C/2020 A2 (Iwamoto)

T = 2020-Jan-08 $q = 1.01$ au

Long-Period comet

Date	Mag	R.A.	Decl.	r	d	Elong	Const	Max El (deg)	
								40N	40S
2020-02-01	11.2	18 19	+28 15	1.062	1.147	59	Her	40	0
2020-02-06	11.2	18 29	+35 40	1.098	1.060	64	Lyr	45	0
2020-02-11	11.1	18 43	+44 18	1.138	0.988	70	Lyr	47	0
2020-02-16	11.2	19 05	+53 58	1.183	0.939	75	Dra	48	0
2020-02-21	11.2	19 43	+64 06	1.231	0.918	80	Dra	45	0
2020-02-26	11.4	20 59	+73 16	1.282	0.929	83	Cep	40	0
2020-03-02	11.7	23 42	+78 11	1.335	0.972	85	Cep	38	0

Fainter Comets of Interest (fainter than magnitude 13.0)

29P/Schwassmann-Wachmann – *29P/Schwassmann-Wachmann* was discovered photographically in 1927 by German astronomer Arnold Schwassmann and Arno Arthur Wachmann. Observations to COBS over the past few weeks had this outburst prone object between magnitude 13 and 15.

A reminder that Richard Miles at the British Astronomical Society (BAA) is leading an effort to continually monitor 29P and its outbursts via CCD photometry. You can find more information at <https://britastro.org/node/18562>.

29P/Schwassmann-Wachmann

T = 2019-Mar-07 $q = 5.77$ au

Centaur comet – 14.8-yr orbital period

Date	Mag	R.A.	Decl.	r	d	Elong	Const	Max El (deg)	
								40N	40S
2020-02-01	13-15	00 41	+13 36	5.787	6.151	63	Psc	45	2
2020-02-06	13-15	00 44	+13 49	5.788	6.223	59	Psc	41	0
2020-02-11	13-15	00 47	+14 02	5.789	6.291	55	Psc	37	0
2020-02-16	13-15	00 50	+14 17	5.789	6.356	51	Psc	33	0
2020-02-21	13-15	00 54	+14 34	5.790	6.417	47	Psc	30	0
2020-02-26	13-15	00 57	+14 51	5.791	6.475	43	Psc	26	0
2020-03-02	13-15	01 01	+15 09	5.791	6.528	39	Psc	22	0

2I/2019 Q4 (Borisov) – The first bona fide interstellar comet, *2I/2019 Q4 (Borisov)*, was discovered by Gennady Borisov on August 30 with a 0.65-m f/1.5 astrograph of his own making at MARGO observatory near Nauchnij, Crimea. The comet passed perihelion on December 8 at 2.01 au. With an eccentricity of 3.36, Borisov is rapidly moving away from the Sun now. Imagers in the southern hemisphere can watch the comet fade from around magnitude 16 to 17 as it moves through Centaurus (Feb 1-2, 22-25), Crux (2-22), and Musca (25-28).

2I/2019 Q4 (Borisov)

T = 2019-Dec-08 $q = 2.01$ au

Interstellar comet

Date	Mag	R.A.	Decl.	r	d	Elong	Const	Max El (deg)	
								40N	40S
2020-02-01	15.8	12 44	-55 05	2.341	2.076	92	Cen	0	73
2020-02-06	16.0	12 49	-57 26	2.400	2.113	94	Cru	0	72
2020-02-11	16.1	12 52	-59 34	2.461	2.153	96	Cru	0	70
2020-02-16	16.2	12 55	-61 30	2.526	2.196	97	Cru	0	68
2020-02-21	16.4	12 57	-63 13	2.594	2.240	99	Cru	0	67
2020-02-26	16.5	12 58	-64 45	2.665	2.287	101	Mus	0	65
2020-03-02	16.7	12 58	-66 04	2.737	2.335	103	Mus	0	64

New Discoveries, Recoveries and Other Comets in the News

P/2019 X2 (PANSTARRS) – This comet was observed by Pan-STARRS on 2019 November 25, 29, and December 4 before finally being recognized as a comet on images taken on December 31. The comet may have experienced a small outburst as it was imaged at 21st-22nd magnitude on the first three dates but 20th magnitude on December 31. P/2019 X2 is a short-period comet with an orbital period of 6.95 years. It is only a few weeks passed its 2019 December 9 perihelion at 1.82 au. It has likely already obtained its peak brightness.

P/2019 Y2 (Fuls) – D. Carson Fuls found this short-period comet on 2019 December 21 with the University of Arizona's Mount Lemmon 1.5-m reflector. The comet was 18th magnitude at discovery and should brighten to 16th magnitude at opposition in March/April. Perihelion is on 2020 January 31 at 2.13 au. With an orbital period of 6.58 years, its next return will be in 2026.

P/2019 Y3 (Catalina) - Kacper W. Wierzechos used the University of Arizona's Catalina Sky Survey 0.68-m Schmidt reflector to find this 18th magnitude comet on 2019 December 17. Perihelion was on 2019 December 13 at 0.91 au. Despite a perihelion distance within Earth's orbit and minimum Earth-comet distance of 0.91 au, the comet will get no brighter than 18th magnitude. At its next return in 2025, P/2019 Y3 will pass 0.29 au from Earth and brighten to 15-16th magnitude.

C/2019 Y4 (ATLAS) - ATLAS discovered this comet on December 28 at 19th magnitude. Perihelion is on 2020 May 31 at a small 0.25 au. The comet shares an orbit with C/1844 Y1, the Great Comet of 1844. Note that while this comet is not a return of the Great Comet of 1844, it may be a fragment of that comet.

The 1844 comet was discovered at 0th magnitude only 3 days after perihelion when only 11 degrees from the Sun. C/2019 Y4 is running 7-8 magnitudes fainter than the 1844 comet. Currently the comet is around 16th magnitude and may brighten to ~15.0 by the end of February. Depending on how rapidly it brightens, its peak could be anywhere between 6th or 8th magnitude. But that's a 6th to 8th magnitude at perihelion when the object is only 11 degrees from the Sun. It will be even fainter when still far enough from the Sun to be easily observed.

As a faint (and presumably small) object, it is likely that C/2019 Y4 will disintegrate on its approach to perihelion. The comet has three things going against it. It is small, it makes a close approach to the Sun, and it is a cometary fragment. All three increase the likelihood that the object will fall apart. While not expected to be a bright object, C/2019 Y4 should be a very dynamic object and one worth keeping a constant eye (or detector) on for the next few months.

A/2019 Y5 – Pan-STARRS discovered this object on 2019 December 28. A number of pre-discovery observations were found back to September. This object came to perihelion back on 2019 August 18 at a distant 4.91 au when it peaked at 19th magnitude. Its orbital period is ~20,000 years.

2019 YJ6 – Pan-STARRS found 2019 YJ6 on December 30 at 21st magnitude. The object was also observed on four nights going back to last November. It is unclear why some objects get A/ designations while others, like 2019 YJ6, get regular asteroid designations. YJ6 is on a 233-year

orbit with perihelion on 2020 June 7 at 2.56 au. It is unlikely to get any brighter than its discovery magnitude.

A/2020 A1 – The NEOWISE spacecraft in low Earth orbit detected this 21st magnitude inactive object on January 1. The object passed perihelion on 2019 December 3 at 1.67 au. Its orbit is retrograde with a 149-degree inclination. The MPC puts the object on a parabolic orbit while JPL has it on an elliptical orbit with a period of a few hundred years. It will peak in brightness this month at a faint 20th magnitude.

C/2020 A2 (Iwamoto) – This 11th magnitude comet was discussed above.

C/2020 A3 (ATLAS) – ATLAS discovered C/2020 A3 on January 3 at 19th magnitude with its Mauna Loa 1.0-m f/2 astrograph. Perihelion occurred back on 2019 June 26 at 5.76 au. The comet should slightly brighten to ~18th magnitude at its next opposition in March.

A/2020 B1 – This Pan-STARRS discovery from January 19 was at perihelion on December 25 at 1.75 au. Its orbital period is on the order of a few hundred years. It is unlikely to get much brighter than its current 22nd magnitude.

2020 BZ12 – Pan-STARRS discovered this object on January 19 at 21st magnitude. With a small perihelion distance of 0.60 au (T = 2020 April 26), 2020 BZ12 could, emphasis on “could”, become active and brighten rapidly. If it remains inactive, it will peak at magnitude 18.7 in mid-July when it approaches within 0.6 au of Earth.

2020 BF12 – This Centaur object was found by Pan-STARRS on January 25 at 22nd magnitude. It travels from between the orbits of Jupiter and Saturn (q = 6.76 au) to just beyond Saturn (Q = 14.02 au) with an orbital period of 33.5 years.

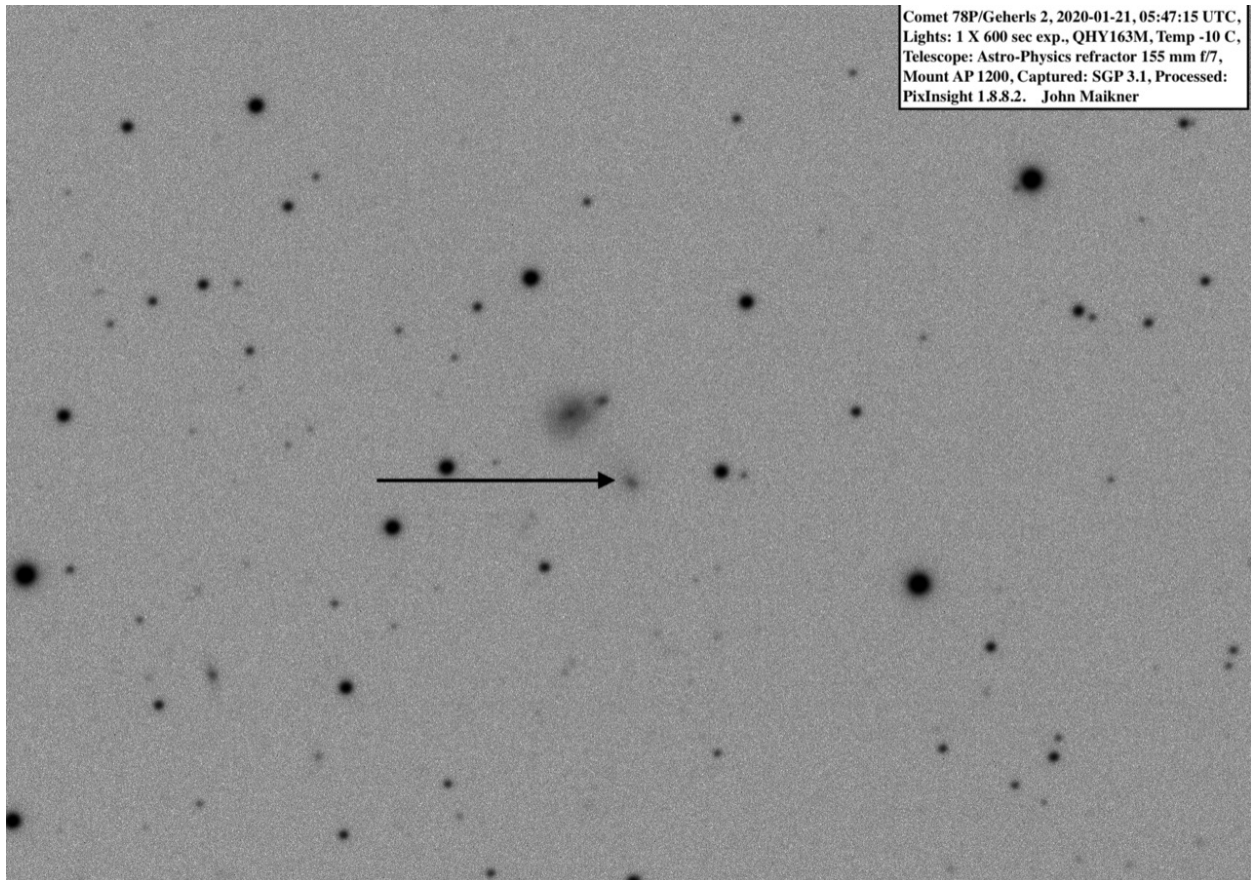
As always, the Comet Section is happy to receive all comet observations, whether textual descriptions, images, drawings, magnitude estimates, or spectra. Please send your observations via email to < carl.hergenrother @ alpo-astronomy.org >.

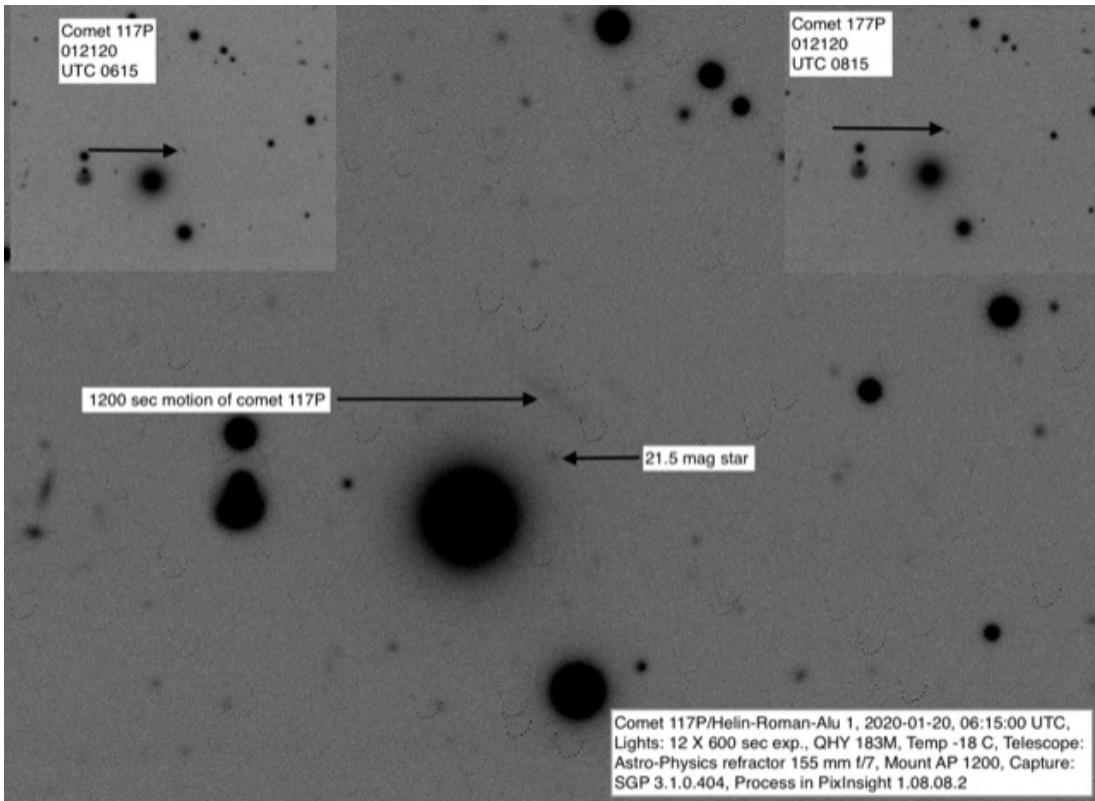
- Carl Hergenrother (ALPO Comet Section Coordinator)

Recent Magnitude Measurements Contributed to the ALPO Comet Section

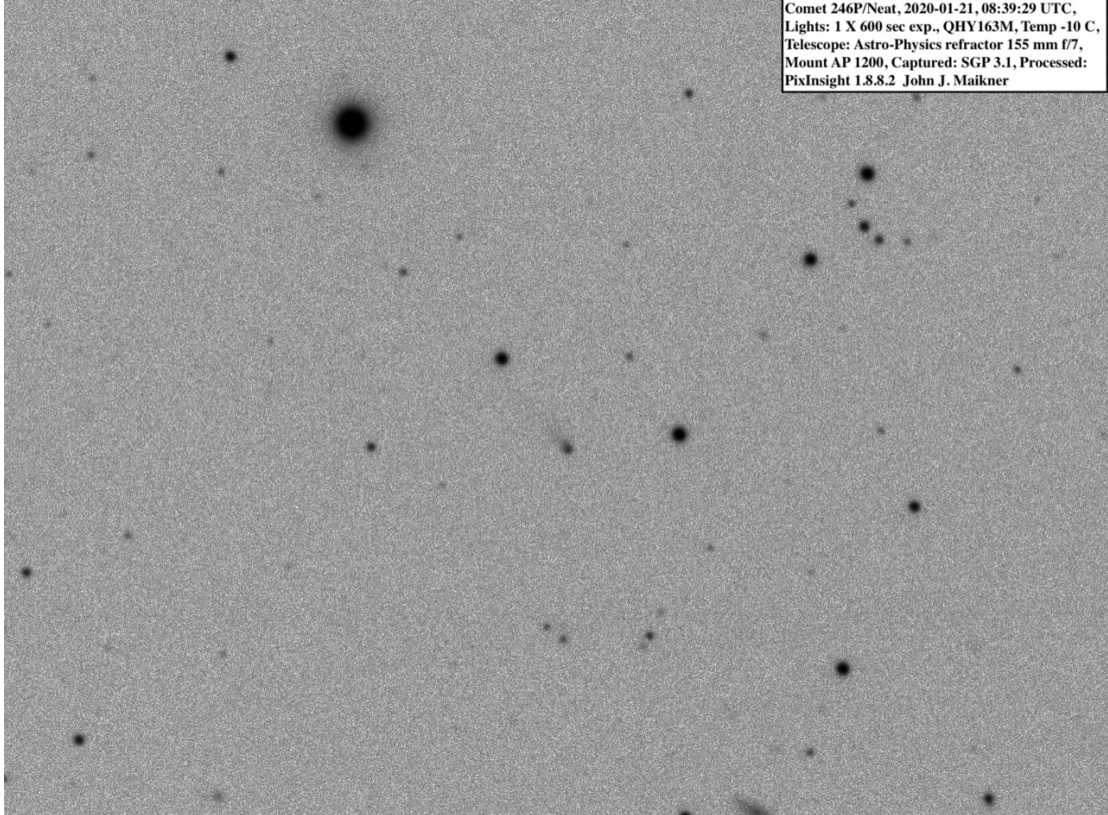
Comet Des	YYYY MM DD.DD (UT)	Mag	SC	APER	FL	POW	COMA		TAIL		ICQ CODE	Observer Name
							Dia	DC	LENG	PA		
2019Y4	2020 01 03.22	C 18.6	U4	41.7Y	7A200		0.2				ICQ xx HER02	Carl Hergenrother
2019Y1	2020 01 19.08	C 12.0	U4	10.6R	5a600		3.5				ICQ xx HER02	Carl Hergenrother
2017T2	2020 01 24.09	I[9.4	AC	15.0T10	38						ICQ XX AGUxx	Salvador Aguirre
2017T2	2020 01 19.14	S 9.7	TK	12.5B	30		2.5	5			ICQ xx HER02	Carl Hergenrother
2017T2	2020 01 18.85	9.8		25.0T15	200		1.2	4	2.5m		ICQ xx DECxx	Michel Deconinck
2017T2	2020 01 14.10	S 9.7	TK	12.5B	30		2.5	5			ICQ xx HER02	Carl Hergenrother
2017T2	2020 01 12.76	10.2		25.0T15	200		1.5	4/	3.0m		ICQ xx DECxx	Michel Deconinck
2017T2	2020 01 12.07	S 9.7	TK	12.5B	30		4	4			ICQ xx HER02	Carl Hergenrother
2017T2	2020 01 10.07	S 10.4	AC	20.0T10	81		1.18	3/			ICQ XX AGUxx	Salvador Aguirre
2017T2	2020 01 05.12	S 9.6	TK	20.3T10	100		4	4/			ICQ XX GON05	J. J. Gonzalez Suarez

Recent Select Images and Sketches Contributed to the ALPO Comet Section

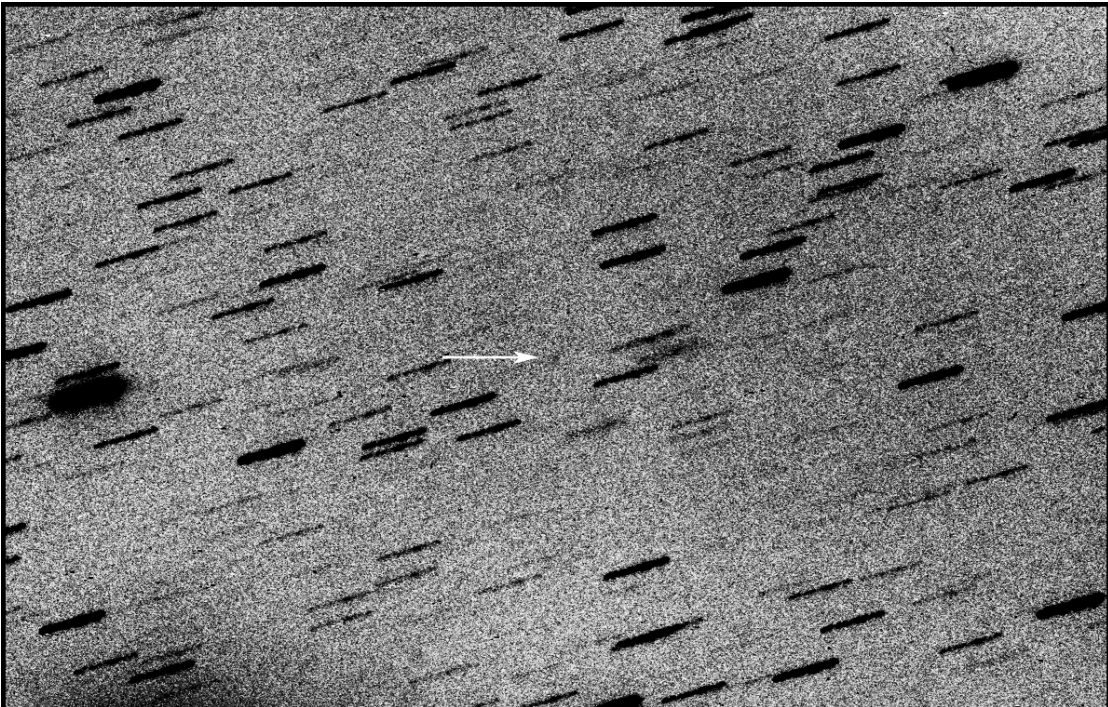




155P/Shoemaker on 2019 December 30 by Tenho Toumi



Comet 246P/Neat, 2020-01-21, 08:39:29 UTC,
 Lights: 1 X 600 sec exp., QHY163M, Temp -10 C,
 Telescope: Astro-Physics refractor 155 mm f/7,
 Mount AP 1200, Captured: SGP 3.1, Processed:
 PixInsight 1.8.8.2 John J. Maikner

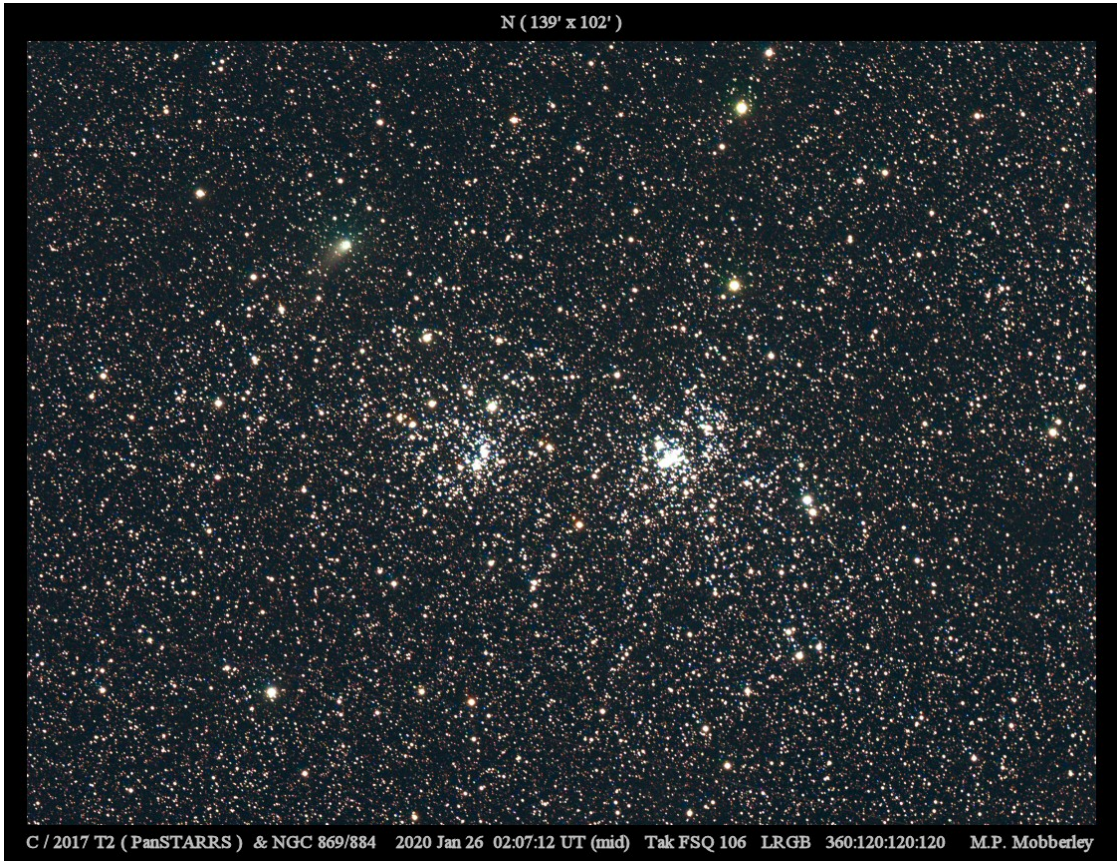
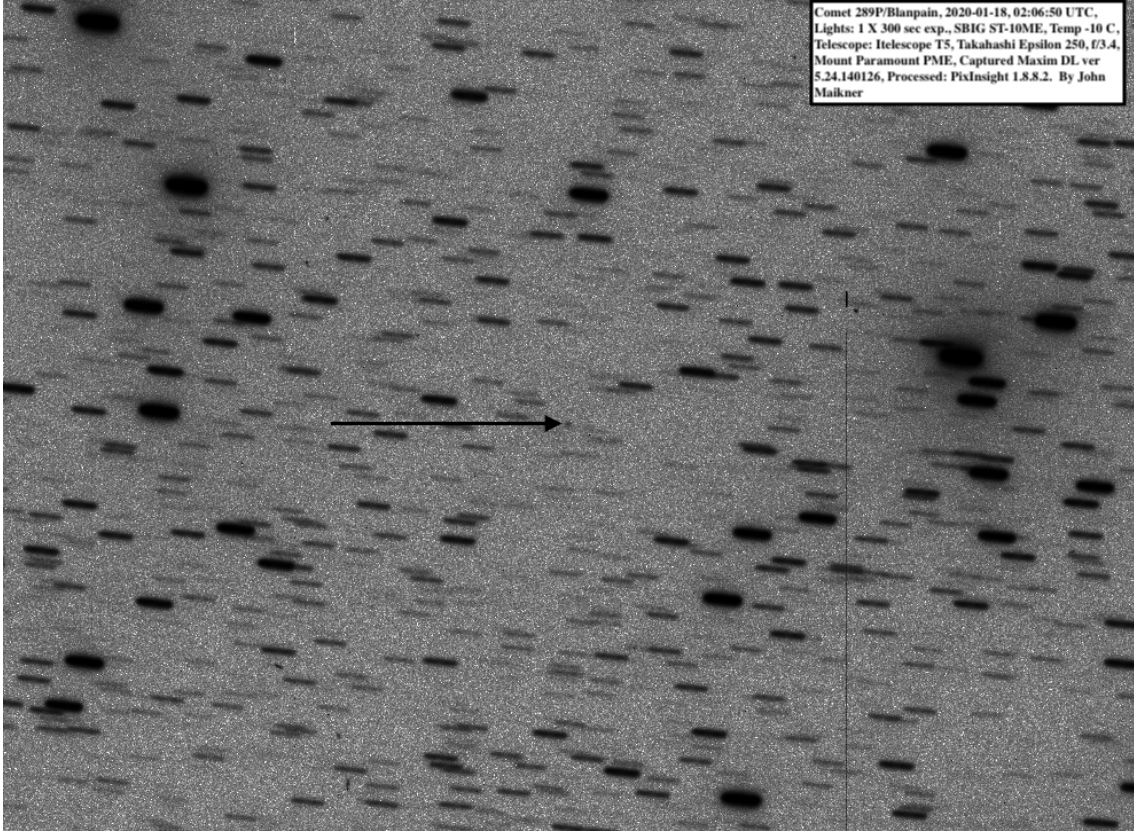


Comet 289P/Blanpain. 23 Dec. 2019, 17:50 UTC.

This image comes from the average of three, 300-seconds exposures, remotely taken with the "Elena" (PlaneWave 17"+ Software Bisque Paramount ME + SBIG STL-6303E) robotic unit part of the Virtual Telescope Project. The telescope tracked the apparent motion of the comet, this is why stars show long trails. The comet is quite faint, indicated by the white arrow. Image scale: 1.2"/pixel.

Image by Gianluca Masi, Ceccano (FR), Italy - MPC code: 470 - The Virtual Telescope Project - <https://www.virtualtelescope.eu>



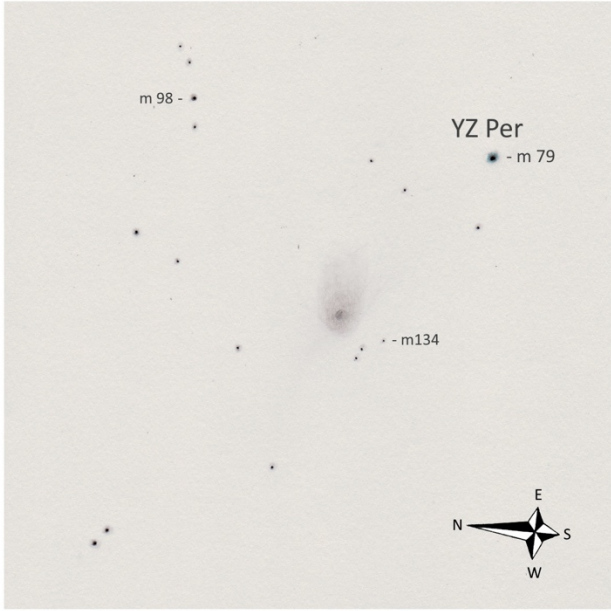




Comet PANSTARRS C/2017 T2 on 01-22-2020, Near Open Star Cluster NGC957 © 2020 John Chumack www.galacticimages.com



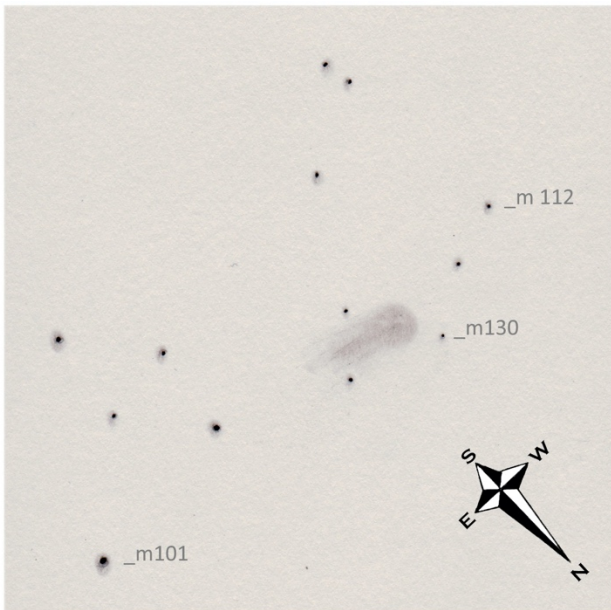
C/2017 T2 (PANSTARRS) on 2020 January 18 by Chris Schur



Comets C/2017 T2 (PanSTARRS)
Mewlon 250 CRS f10 - EP: 13mm (200x)

2020/01/18 - 20h30 UTC
F.O.S.: 15'

Magn.: 9.8 - Tail : 2'30" - Coma : 70" - DC : 4
<https://astro.aquarellia.com>



Comets C/2017 T2 (PanSTARRS)
Mewlon 250 CRS f10 - EP: 13mm (200x)

2020/01/12 - 18h20 UTC
F.O.S.: 25'

Magn.: 10.2 - Tail : 3' - Coma : 90" - DC : 4-5
<https://astro.aquarellia.com>

Sketches by Michel Deconinck



C/2017 T2 (PANSTARRS) on 2019 December 20 by Tenho Tuomi



