

ALPO COMET NEWS FOR MARCH 2020

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

By Carl Hergenrother – 2020-March-3

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/696741-alpo-comet-news-for-march-2020/>). All are encouraged to join the discussion over at Cloudy Nights.

2020 was not predicted to be an exciting year for comets. Luckily some recent discoveries are making for a more interesting year. March will definitely see two comets brighter than 10th magnitude [C/2017 T2 (PANSTARRS) and C/2019 Y1 (ATLAS)] and possibly a third [C/2019 Y4 (ATLAS)]. All three are only visible from the northern hemisphere. This report also presents a number of fainter comets. While still faint in March, some of these may become bright enough for visual observers later in the year.

Bright Comets (magnitude < 10.0)

C/2017 T2 (PANSTARRS) – Slow has been the story of C/2017 T2 during the first few months of 2020. Its motion has been slow through the dense Milky Way star fields of Perseus and Cassiopeia. The same can be said for its rate of brightening which has been steady at a few tenths of a magnitude per month. In both cases the slowness is due to the comet's distant perihelion (1.62 au) and distance from Earth (~1.75 au this month).

In February, ALPO observers J. J. Gonzalez and Carl Hergenrother observed the comet to be between magnitude 8.9 and 9.2 with a coma diameter between 2.5 and 3.5'. This month, C/2017 T2 brightens a further ~0.4 magnitude from 8.8 to 8.4 as it continues to move inwards towards an early May perihelion at 1.62 au.

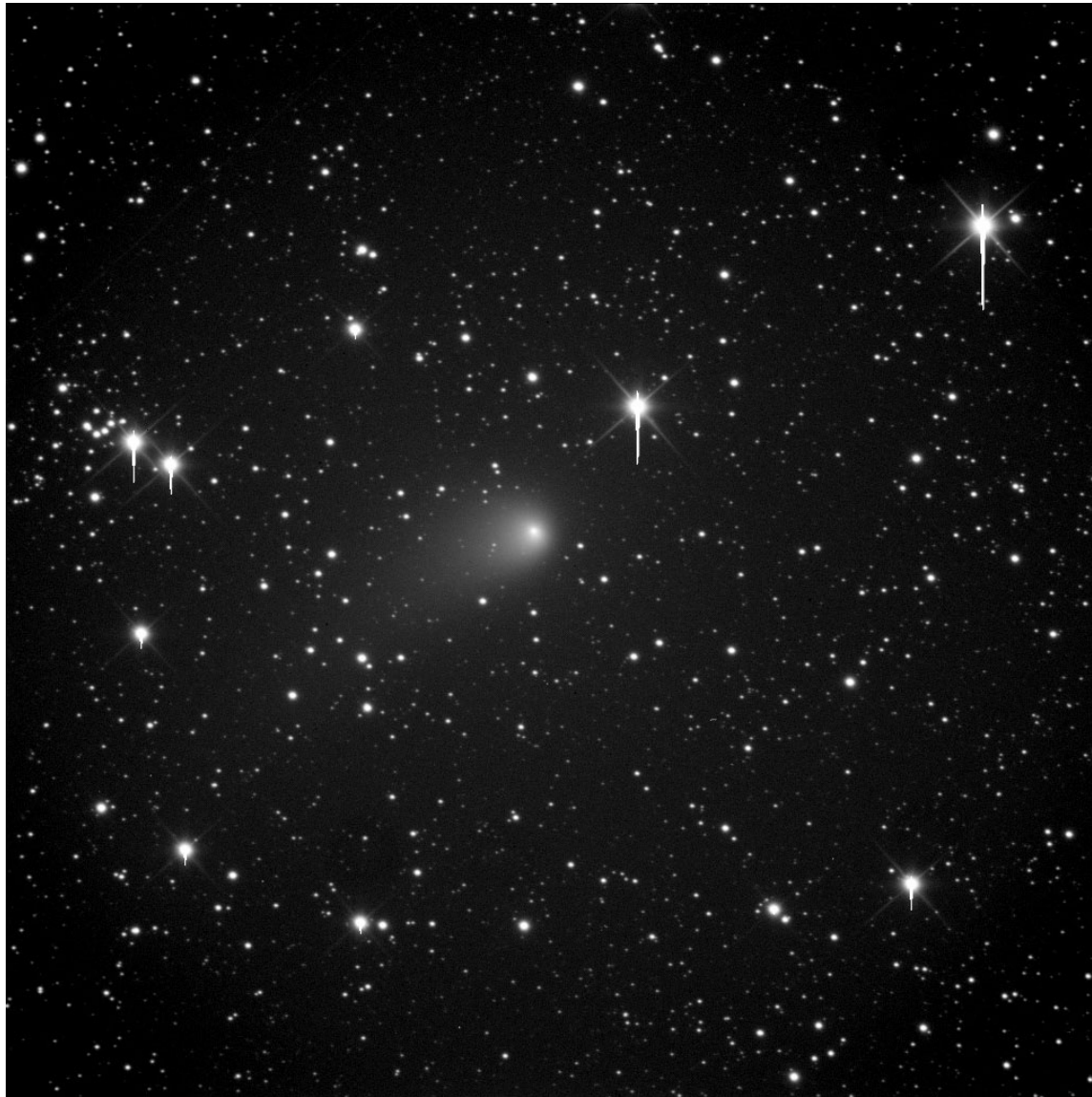
As has been the case for the last couple of months, the comet is well placed high in the evening sky for northern observers as it moves through Cassiopeia. Southern observers will have to wait till late June or July to catch another glimpse of PANSTARRS. The comet should still be between 8-9th magnitude at that time.

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 (deg)	
								40N	40S
2020-03-01	8.8	02 09	+61 21	1.834	1.741	79	Cas	49	0
2020-03-06	8.8	02 13	+62 16	1.804	1.753	76	Cas	47	0
2020-03-11	8.7	02 18	+63 18	1.776	1.763	74	Cas	45	0
2020-03-16	8.7	02 25	+64 27	1.749	1.769	72	Cas	43	0
2020-03-21	8.6	02 34	+65 43	1.725	1.772	70	Cas	41	0
2020-03-26	8.6	02 45	+67 04	1.702	1.772	69	Cas	40	0
2020-03-31	8.5	02 59	+68 30	1.683	1.769	68	Cas	39	0
2020-04-05	8.4	03 15	+69 59	1.665	1.763	67	Cas	39	0



Thomas G. Cupillari Observatory - I17

Fleetville, PA USA

RCOptics 20 inch (0.5 m) f/8.1

SBIG STL-1001E 1.2"/pixel

C/2017 T2 PANSTARRS

CK17T020 C2020 02 23.02826 02 06 13.20 +60 14 08.8 I17

1 x 180 seconds

John D Sabia

**Keystone
College**

C/2019 Y1 (ATLAS) – *C/2019 Y1 (ATLAS)* was discovered on 2019 December 16 with the Asteroid Terrestrial-Impact Last Alert System (ATLAS) 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)*. The other family members include *C/1996 Q1 (Tabur)* and *C/205F3 (SWAN)*. Tabur peaked at 5th magnitude before experiencing a catastrophic disruption event a few weeks before perihelion resulting in a rapid fade. 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.

This is a tough month for observing *C/2019 Y1* with its elongation dropping to 24 degrees. It is only visible from the northern hemisphere and barely so. For observers at +40 latitude, the comet will be a paltry ~5-10 degrees above the horizon at the end of astronomical twilight as it moves through Pegasus (Mar 1-17) and Andromeda (17-31). Those with a nice clear horizon should still make an attempt as this comet could become brighter than 9th magnitude. Considering what happened to Tabur, it is a good idea to keep a close eye on *C/2019 Y1* in case it also experiences a disintegration event.

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 (deg)	
								40N	40S
2020-03-01	9.8	00 19	+07 33	1.007	1.781	27	Peg	9	0
2020-03-06	9.6	00 23	+11 32	0.961	1.755	25	Peg	7	0
2020-03-11	9.4	00 27	+15 37	0.920	1.725	24	Peg	6	0
2020-03-16	9.2	00 32	+19 50	0.887	1.689	24	Peg	5	0
2020-03-21	9.1	00 37	+24 13	0.862	1.649	25	And	5	0
2020-03-26	8.9	00 42	+28 45	0.847	1.603	27	And	4	0
2020-03-31	8.9	00 49	+33 28	0.842	1.554	29	And	5	0
2020-04-05	8.8	00 56	+38 24	0.847	1.502	32	Cas	6	0



Image of *C/2019 Y1 (ATLAS)* by Tenho Tuomi with a 0.3-m f/5 reflector on 2020 Feb. 11.

C/2019 Y4 (ATLAS) – Another late 2019 ATLAS discovery, C/2019 Y4 was found on December 28 at 19th magnitude. The comet shares an orbit with C/1844 Y1, the Great Comet of 1844. The 1844 comet was discovered 3 days after perihelion at 0th magnitude when only 11 degrees from the Sun and was primarily observed from the southern hemisphere.

Since discovery the comet has brightened rapidly and developed a large coma. Recent visual observations submitted to COBS show Y4 as bright as magnitude 11.6 with a 3' coma. CCD observers are detecting a much larger coma, with the largest estimate at 20'. Those same CCD observers are finding the comet to be as bright as magnitude 9.5!

The rapid brightening begs the question, is the comet intrinsically brightening at a fast pace or is it an observational effect, i.e., a large low surface brightness gas coma is becoming easier to detect due to the comet's decreasing range? Either way, the comet may become a brighter object than was predicted at discovery.

This month, the comet will be well placed in the evening sky for northern hemisphere observers as it moves through Ursa Major (Mar 1-29) and Camelopardalis (29-31). If its recent brightening trend continues, March should see C/2019 Y4 come into the range of small aperture visual observers. This should give us a better idea of how bright the comet really is and whether it will become a decent visual object in the weeks before its May 31 perihelion. As a possible component of the 1844 comet, C/2019 Y4 may be prone to disintegrating as it approaches its small perihelion distance of 0.25 au.

The predicted magnitudes given below are very uncertain. Warning... expect lots of updates on this comet this month.



C/2019 Y4 (ATLAS)

T = 2020-May-31 $q = 0.25$ au

Long-Period comet - dynamically old

Date	Mag	R.A.	Decl.	r	d	Elong	Const	Max El (deg)	
								40N	40S
2020-03-01	11.4	11 02	+58 34	2.002	1.225	128	UMa	72	0
2020-03-06	11.1	10 43	+61 21	1.922	1.180	124	UMa	68	0
2020-03-11	10.8	10 19	+63 52	1.839	1.143	118	UMa	66	0
2020-03-16	10.6	09 50	+65 56	1.755	1.112	112	UMa	64	0
2020-03-21	10.3	09 16	+67 27	1.670	1.087	106	UMa	62	0
2020-03-26	10.0	08 39	+68 18	1.582	1.066	100	UMa	62	0
2020-03-31	9.7	08 02	+68 30	1.493	1.048	93	Cam	61	0
2020-04-05	9.4	07 27	+68 06	1.401	1.032	87	Cam	59	0

Faint Comets (between magnitude 10.0 and 13.0)

C/2020 A2 (Iwamoto) – C/2020 A2 is yet another recent 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 fourth discovery. His other three comets were C/2013 E2 (Iwamoto), C/2018 V1 (Machholz-Fujikawa-Iwamoto), and C/2018 Y1 (Iwamoto). [Note, in last month's report I erroneously stated that Iwamoto had discovered only three comets. I had forgotten about C/2013 E2.]

Perihelion occurred at 1.01 au back on January 8, its discovery date. It made its closest approach to Earth on February 21 at 0.92 au. Similar to Y1 and Y4, C/2020 A2 also became brighter than expected and was seen by visual observers as bright as magnitude 10.0 in early February. The comet is now moving away from the Sun and Earth and should start the month a little brighter than 11th magnitude. It is solely a northern object and should fade to 13th magnitude as it moves through Cepheus (Mar 1-4), Cassiopeia (4-10), Camelopardalis (10-25), and Auriga (25-31).



Image of C/2020 A2 (Iwamoto) by Tenho Tuomi with a 0.3-m f/5 reflector on 2020 Feb. 3.

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
2020-03-01	10.8	23 02	+77 48	1.324	0.961	85	Cep	38	0
2020-03-06	11.1	02 06	+76 36	1.379	1.027	86	Cep	46	0
2020-03-11	11.4	03 43	+71 04	1.435	1.116	85	Cam	52	0
2020-03-16	11.7	04 29	+65 07	1.493	1.225	83	Cam	56	0
2020-03-21	12.1	04 55	+59 48	1.552	1.346	81	Cam	58	0
2020-03-26	12.4	05 13	+55 16	1.612	1.477	78	Aur	58	0
2020-03-31	12.7	05 26	+51 25	1.672	1.614	75	Aur	56	0
2020-04-05	13.0	05 36	+48 09	1.732	1.755	72	Aur	54	0

Fainter Comets of Interest (fainter than magnitude 13.0)

88P/Howell – Short-period comet 88P/Howell is making its 9th observed return. 88P was discovered on photographic plates taken with the 0.46-m Palomar Schmidt by then Caltech student, and currently my fellow University of Arizona OSIRIS-REx team member, Ellen Howell in August 1981. In addition to being found in pre-discovery observations from 1955, 88P has been observed at every return since 1981. The comet's perihelion distance has gradually fallen over its period of observations from 1.92 au in 1955, to 1.62 au in 1981, to 1.41 au in 1993 to its current 1.35 au. As a result, comet Howell often peaks brighter than 10th magnitude. Its brightest return was in 2009 when it peaked at 8th magnitude. This year it comes to perihelion on September 28 and should again peak around 8-9th magnitude.

This month, 88P is a faint object but very doable for CCD observers as it brightens from around magnitude 15.9 to 14.4. Its location in Virgo near the celestial equator makes it a good target for both hemispheres.

88P/Howell

T = 2020-Sep-28 $q = 1.35$ au

Jupiter-family comet

Date	Mag	R.A.	Decl.	r	d	Elong	Const	Max El (deg)	
								40N	40S
2020-03-01	15.9	13 43	-05 32	2.439	1.641	134	Vir	44	56
2020-03-06	15.6	13 43	-05 25	2.407	1.564	139	Vir	44	56
2020-03-11	15.4	13 42	-05 14	2.374	1.492	144	Vir	45	55
2020-03-16	15.2	13 40	-05 00	2.341	1.425	150	Vir	45	55
2020-03-21	14.9	13 37	-04 42	2.308	1.363	155	Vir	45	55
2020-03-26	14.7	13 34	-04 22	2.275	1.307	161	Vir	46	54
2020-03-31	14.4	13 30	-03 59	2.242	1.257	167	Vir	46	54
2020-04-05	14.2	13 25	-03 35	2.209	1.213	172	Vir	46	54

249P/LINEAR – While most comets originate in the Kuiper Belt or Oort Cloud, orbital and spectral evidence suggests that some may originate closer to the inner solar system in the Main Belt. 249P may be an example of one of these objects. For starters, most comet nuclei are red and resemble D-type asteroids. 249P's nucleus is slightly blue and is classified as a B-type similar to the Geminid parent (3200) Phaethon and the OSIRIS-REx target (101955) Bennu.

In June/July, 249P may become a faint visual object at low elongation. This month, the comet is expected to be inactive as it reaches opposition. This is a nice opportunity for CCD observers to

directly image the nucleus of an inactive comet, or active asteroid. On February 29.66, I was able image 249P at magnitude 18.8 in a 600-second unfiltered exposure with a 0.43-m telescope.

249P/LINEAR

T = 2020-Jun-26 $q = 0.50$ au

Jupiter-family comet? / Active Asteroid?

Date	Mag	R.A.	Decl.	r	d	Elong	Const	Max El (deg)	
								40N	40S
2020-03-01	19.3	11 57	-15 29	1.989	1.062	151	Crt	34	66
2020-03-06	19.0	11 50	-15 22	1.933	0.982	156	Crt	35	65
2020-03-11	18.6	11 41	-15 04	1.876	0.909	160	Crt	35	65
2020-03-16	18.4	11 31	-14 32	1.818	0.842	163	Crt	35	65
2020-03-21	18.2	11 19	-13 46	1.759	0.782	162	Crt	36	64
2020-03-26	18.0	11 06	-12 44	1.698	0.729	158	Crt	37	63
2020-03-31	18.0	10 52	-11 24	1.637	0.683	152	Crt	39	61
2020-04-05	17.9	10 37	-09 49	1.574	0.645	145	Sext	40	60

A/2019 U6 – This object was discovered on a long-period cometary orbit back on October 31 with the University of Arizona's 1.5-m Mount Lemmon reflector. Since there was no report of cometary activity at the time of announcement, the object was designated with the A/ prefix. While the object is still officially an A/ object, a number of observers have reported cometary activity. The object has also been brightening at a $n \sim 4$ rate similar to comets.

If it continues to brighten at a $n \sim 4$ rate, it may peak at around 11th magnitude this June/July when it passes 0.91 au from the Sun and 0.83 au from Earth. It should brighten from magnitude 17 to 16 this month. This month, A/2019 U6 provides a nice CCD target for southern hemisphere observers. Northerners will have to find a clear SW horizon and even that will be of little help towards the end of the month.

A/2019 U6

T = 2020-Jun-18 $q = 0.91$ au

Dynamically old long period comet

Date	Mag	R.A.	Decl.	r	d	Elong	Const	Max El (deg)	
								40N	40S
2020-03-01	17.0	03 56	-25 54	2.005	2.019	74	Eri	18	50
2020-03-06	16.9	03 58	-25 31	1.941	2.005	71	Eri	16	48
2020-03-11	16.7	04 00	-25 08	1.878	1.988	69	Eri	14	47
2020-03-16	16.6	04 03	-24 46	1.814	1.966	66	Eri	11	45
2020-03-21	16.4	04 07	-24 24	1.751	1.940	64	Eri	9	44
2020-03-26	16.2	04 12	-24 03	1.688	1.909	61	Eri	6	42
2020-03-31	16.0	04 17	-23 44	1.624	1.873	60	Eri	3	41
2020-04-05	15.8	04 23	-23 26	1.562	1.832	58	Eri	0	40

New Discoveries, Recoveries and Other Comets in the News

12P/Pons-Brooks – 12P/Pons-Brooks is a Halley-family comet with a period of ~ 71 years. Renowned French visual comet hunter Jean-Louis Pons discovered 12P in 1812. The comet was re-discovered at its next return in 1883 by prolific American visual comet hunter William R. Brooks. The comet was also observed at its only 20th century return in 1954 when it reached 5th magnitude.

CBET 4727 reports the work of Maik Meyer who used Bill Gray's Find_orb software to identify comets C/1385 U1 and C/1457 A1 with past returns of 12P. The observations in 1385 were based on Chinese and Korean records while those in 1457 came from the work of Paolo dal Pozzo Toscanelli. Past research suggested that C/1457 L1 was associated with 12P but that has been determined to be incorrect.

12P/Pons-Brooks is currently inbound to a perihelion on 2024 April 20 at 0.78 au. While this comet may have peaked around 2nd-3rd magnitude in 1385 and 1457, it will only pass within 1.58 au of Earth in 2024 resulting in a fainter but still impressive 4-5th magnitude.

C/2020 B2 (Lemmon) – Rich Kowalski picked up this comet with the University of Arizona's 1.5-m Mount Lemmon reflector on January 19 at 21st magnitude. C/Lemmon is a long-period comet which came to perihelion last month on February 11 at 2.80 au. As March begins it should be as bright as it will get at a paltry 20th magnitude.

C/2020 B3 (Rankin) – David Rankin makes his first comet discovery. Like Kowalski, Rankin used the 1.5-m Mount Lemmon reflector. C/Rankin was found on January 29 at 19th magnitude. It is a long-period comet and passed perihelion back on 2019 October 19 at 3.35 au. 19th magnitude is as bright as this comet will get.

2020 DN2 – This Centaur object was found by Pan-STARRS on January 25 at 22nd magnitude. It travels from between the orbits of Mars and Jupiter ($q = 3.31$ au) to almost as far as Saturn ($Q = 8.88$ au) with an orbital period of 15.0 years. March will see this object at its brightest at 20th magnitude.

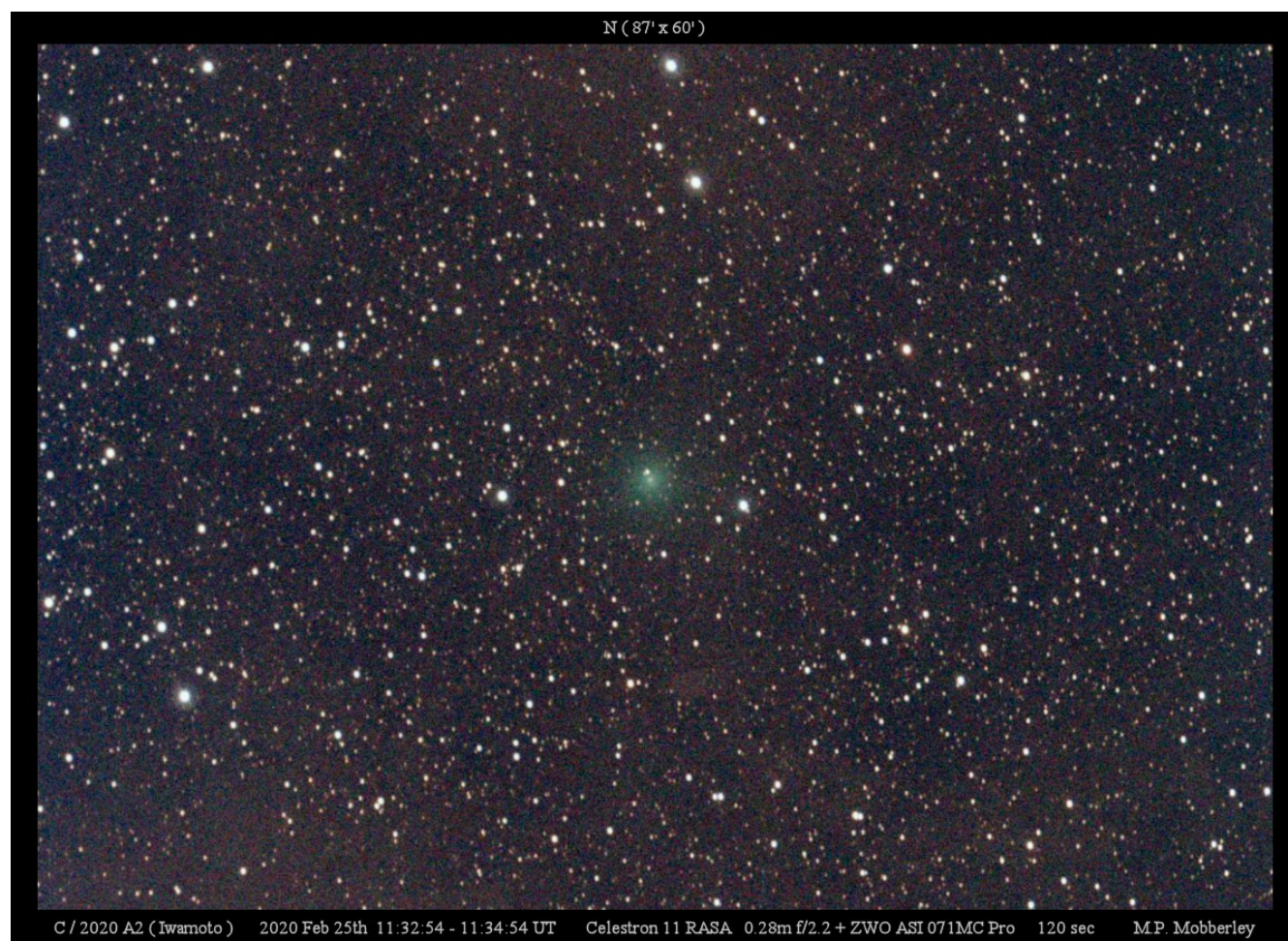
As always, the Comet Section is happy to receive all comet observations, whether textual descriptions, images, drawings, magnitude estimates, or spectra. Please send your observations via email to <carl.hergenrother@alpo-astronomy.org>.

- Carl Hergenrother (ALPO Comet Section Coordinator)

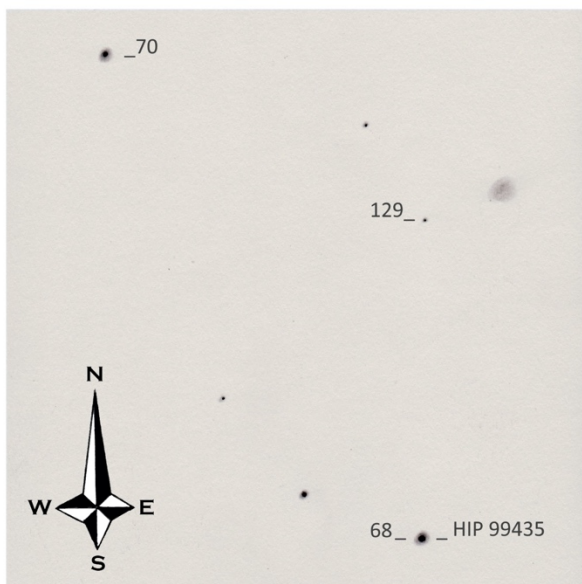
Recent Magnitude Measurements Contributed to the ALPO Comet Section

Comet Des	YYYY MM DD.DD (UT)	Mag	SC	APER	FL	POW	COMA Dia DC	TAIL LENG PA	ICQ CODE	Observer Name
2020A2	2020 02 06.54	S 10.0	TK	12.5B	30	2 2			ICQ xx HER02	Carl Hergenrother
2020A2	2020 02 03.19	S 9.6	TK	20.3T10	77	5 3			ICQ XX GON05	J. J. Gonzalez Suarez
2019Y4	2020 02 19.94	S 11.7	TK	20.3T10	77	3 2			ICQ XX GON05	J. J. Gonzalez Suarez
2019Y4	2020 02 17.27	C 13.8	U4	25.0H	3A200	4.4			ICQ xx HER02	Carl Hergenrother
2019Y1	2020 02 19.81	S 9.6	TK	20.3T10	77	4 3			ICQ XX GON05	J. J. Gonzalez Suarez
2018F4	2020 02 19.43	xM 13.9	AQ	40.0L	4 108	1.1 5/			ICQ XX WYA	Christopher Wyatt
2017T2	2020 02 19.95	S 9.2	TK	20.3T10	77	4 4			ICQ XX GON05	J. J. Gonzalez Suarez
2017T2	2020 02 19.11	S 9.2	TK	12.5B	30	3 5			ICQ xx HER02	Carl Hergenrother
2017T2	2020 02 13.10	S 9.1	TK	12.5B	30	3 5			ICQ xx HER02	Carl Hergenrother
2017T2	2020 02 03.14	S 8.9	TK	20.3T10	77	4 3/			ICQ XX GON05	J. J. Gonzalez Suarez
249	2020 02 29.66	C 18.8	U4	43.0Y	7a600	0.3			ICQ xx HER02	Carl Hergenrother
29	2020 02 19.82	S 11.3	TK	20.3T10	133	1.5 4			ICQ XX GON05	J. J. Gonzalez Suarez

Recent Select Images and Sketches Contributed to the ALPO Comet Section



Sketch by Michel Deconinck

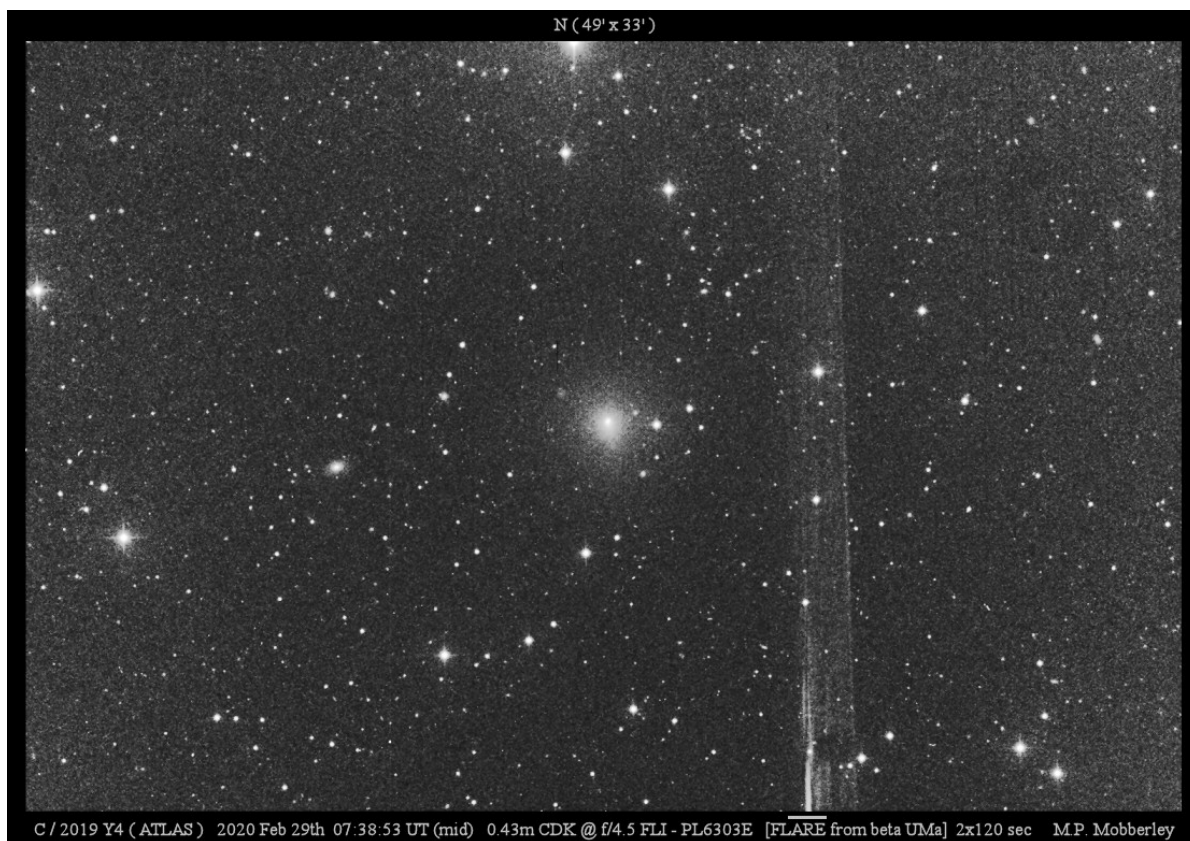


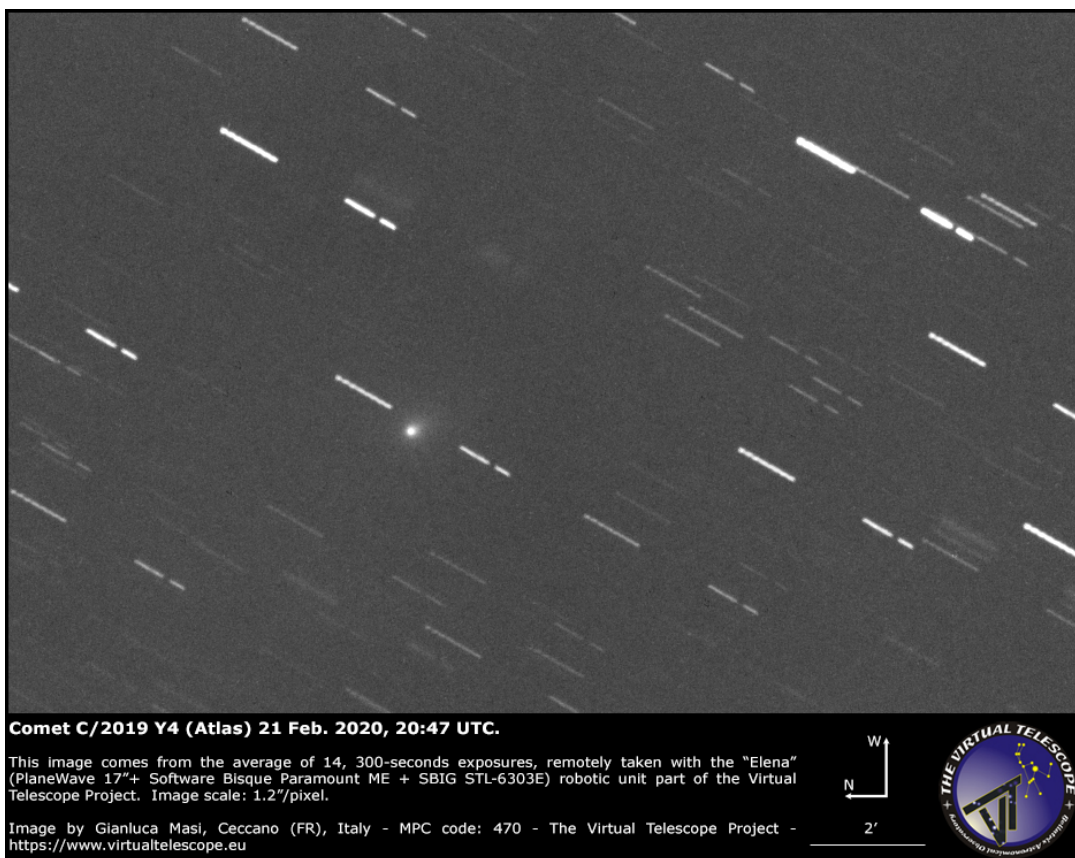
C/2020 A2 (Iwamoto)
Mewlon 250CRS f15 - EP 145x

2020/02/23 - 4h50 UTC
F.O.S.: 23'

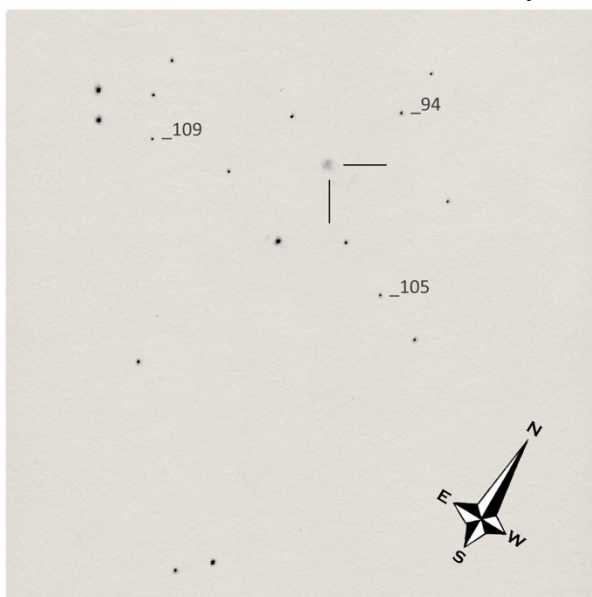
Magn.: +10,3 - Tail : N/A - Coma : 2' (?) - DC: N/A

Aquarellia.com





Sketch by Michel Deconinck



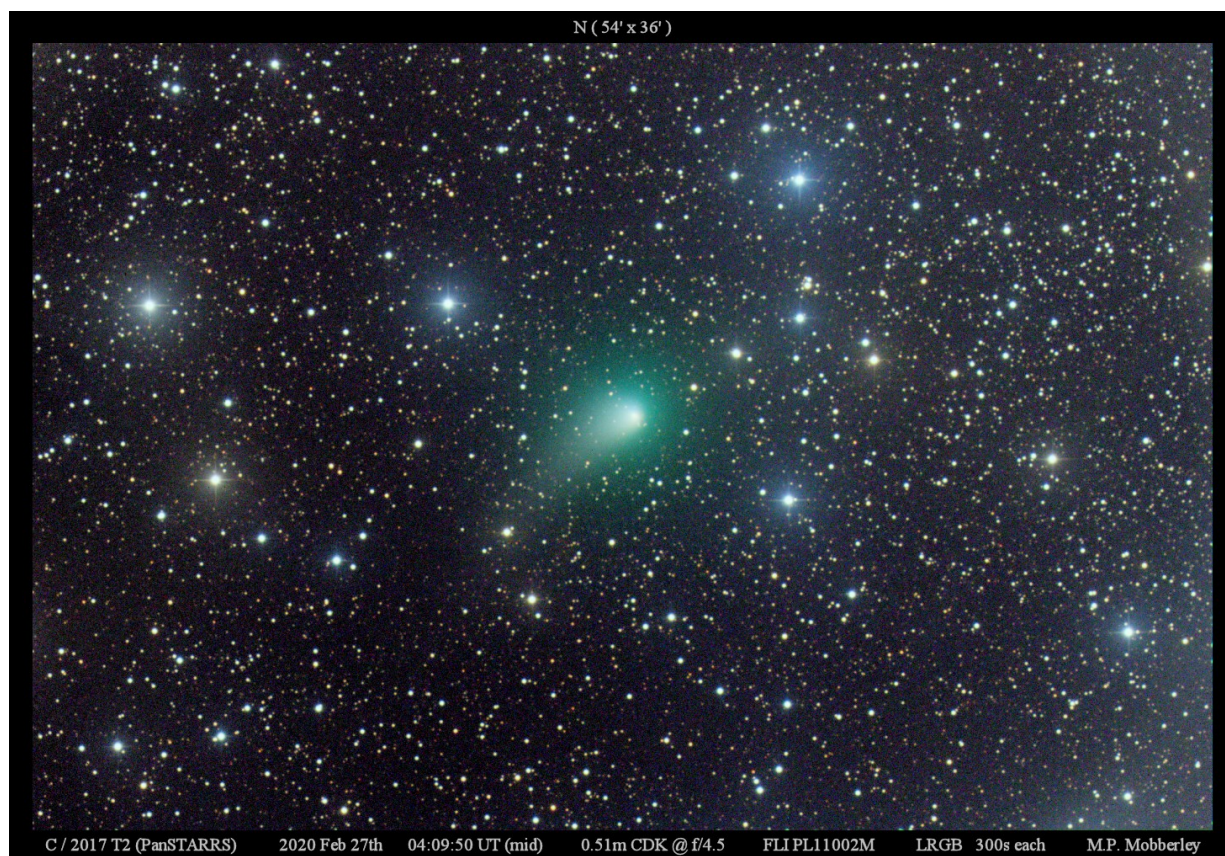
Comet C/2019 Y1 (Atlas)
Binocular Vixen 2x126mm - 72x

2020/02/14 - 18h30 UTC

F.O.S.: 1.7°

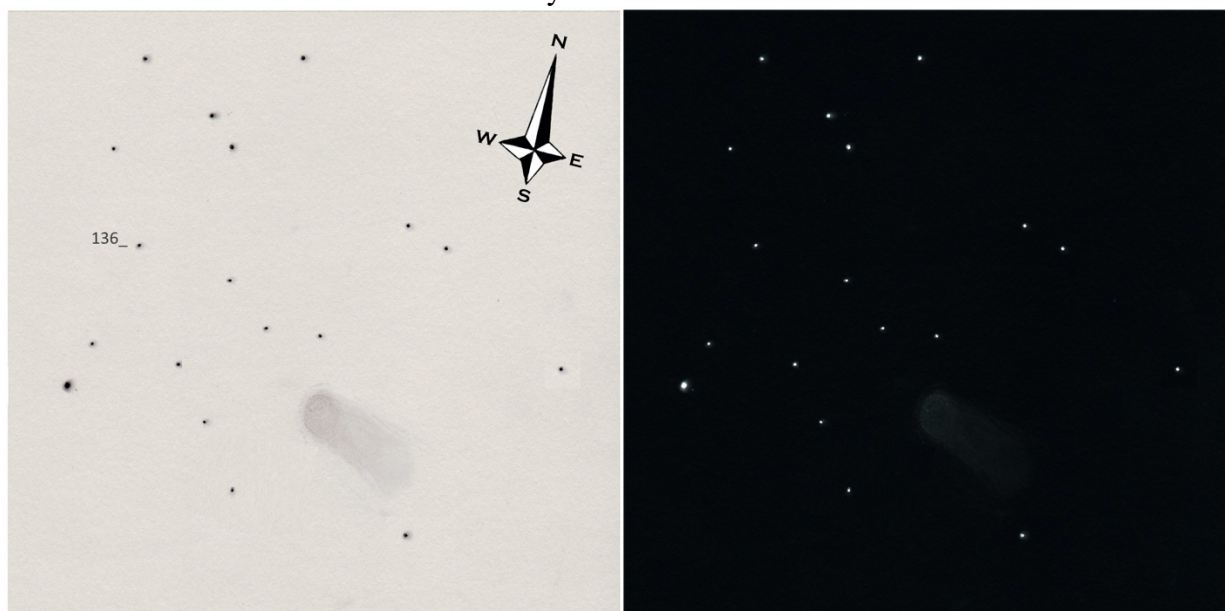
Magn.: +9.5 - Tail : N/A - Coma : 3' ? - DC : N/A

<https://astro.aquarellia.com>





Sketch by Michel Deconinck



Comets C/2017 T2 (PanSTARRS)

Mewlon 250 CRS f15 - EP: 13mm (300x)

2020/02/14 - 19h35 UTC

F.O.S.: 15'

Magn.: +9.4 - Tail : 4' - Coma : 90" - DC : 5

<https://astro.aquarellia.com>