Skywatchers

Newsletter of the China Lake Astronomical Society

Volume 57 No. 04 April 01, 2020

NEXT MEETING 7:30 p.m., Monday, April 06th, 2020 - Cancelled
Maturango Museum, 100 East Las Flores Avenue, Ridgecrest, California.

PROGRAM FOR THE April 06, 2020 7:30 PM MEETING - Cancelled

President's Message
Ralph Paonessa

As astronomers we are fond of "Outreach," sharing with and spreading the word to the public about Astronomy and the wonders of the Universe at Star Parties and public viewing events. It's a pleasure to experiencing someone looking through your telescope and uttering a "wow" or "that's amazing!" as they gaze at the rings of Saturn or craters on the moon for the first time." I remember a child at one of our Maturango Star Parties who was too young to speak, but looked up from the eyepiece with a big smile!

These days, that's all on hold, as are our monthly CLAS meetings. We are all struggling to contain and defeat the coronavirus that is sweeping the planet. The young people of today will have quite a story to tell their grandchildren!

I am confident we will all get through this, and return to some sort of "new normal." Maybe we as a people will realize that our political difference, which have grown so bitter in recent years, are not as important as our commonality and our ability and need to work together for our common good. Let's hope.

I find it comforting that several things will in the end get us through this:

- The knowledge of scientists.
- A Free Press that passes on vital news to us so that we can respond.
- Brave service by our medical professionals in a time of need and peril.
- Actions by government to organize our response and reassure the public.
- Diligent actions by a public that is taking steps now that seemed unthinkable a month ago.

I hope you and your family are all well and stay, and that we can meet again soon!

In the meantime, take some time to look at the sky. Before dawn, there's a beautiful alignment of three major planets—Jupiter, Saturn, and Mars—that is quite rare. Catch it soon.

And Venus shines high and very bright in the evening sky.

Ralph

STAR PARTY SCHEDULE FOR THE 2020 SEASON:

Star Parties will be held on the dates listed below. Star Parties are an activity where members and guests come together to view the skies. If you have a telescope, bring it; if not, come and look through someone else's. They are held at a site in the open desert south of Ridgecrest. To reach the site from Ridgecrest, go south on China Lake Boulevard 6.5 miles from its intersection with Ridgecrest Boulevard. Continue straight across Highway 395 and you will be on Brown Road (Old Highway 395). Follow Brown Road as it curves to the right and goes west. After 2.3 miles, there will be a 30-inch orange cone on the left. Turn left and follow the dirt road marked by 12-inch cones. The CLAS star party is south 0.5 mile along this road. Signs and cones will be put out about a half hour before viewing starts. All viewing is weather dependent.

Call Roger Brower 760-446-0454, 760-677-1143 or Keith Weisz 760-375-9114, for more information.

All Star Parties at the Brown Road site and Red Rock Campground are postponed until further notification..

Next CLAS Meeting: May 04, 2020 at 7:30 PM. If conditions change for the better you will be notified if a meeting and program will be presented.

Comet ATLAS Another Hale-Bopp?

may soon be visible to the naked eye.

C/2019 Y4 (ATLAS) is racing toward the Sun — and possibly a place in the history books.

Like watching the final chapter of a show or movie series, you're almost trembling with excitement — but you don't know whether you'll have the experience of a lifetime, suffer a grand disappointment, or end up with something that's just OK.

Right now, odds are that Comet C/2019 Y4 (ATLAS) will be wonderful. Just maybe it will be the most amazing thing you will ever see — a great comet for the history books. Here's what we might be able to expect.

Past to present

Y4 was discovered on December 29, 2019, by the Asteroid Terrestrial-impact Last Alert System (ATLAS) search program, one of the several automated sky surveys looking for potential Earth-crossing asteroids. Discovering comets is essentially a byproduct of this endeavor. At the time, C/2019 Y4 was a feeble magnitude 19.6 and located at nearly 3 astronomical units from the Sun — almost twice as far from our star as Mars. (One astronomical unit, or AU, is the average Earth-Sun distance.)

In mid-March, Y4 ATLAS surged 4 magnitudes, fueling rumors that it will just keep getting brighter, peaking at magnitude –8. But back in 2000, C/1999 S4 (LINEAR) dropped the same amount on its approach and dissolved rapidly. David Levy wrote that "Comets are like cats. They have tails and they do whatever they want." Despite the best observations and understanding, these dirty snowballs can fizzle out with no notice even farther from the Sun than Mars' orbit, a distance Y4 ATLAS reaches at April's start.

The description here covers what we're likely to witness: a fantastic display like Comet C/1975 V1 West delivered in 1976. Stay hopeful for the comet of a generation and realize that, at worst, it will still be a nice binocular object. The Northern Hemisphere has great seats from now right up until the comet reaches perihelion on May 31, when ATLAS makes its closest approach to the Sun and performs a sharp turn around our star. Observers from 40 to 60 degrees north latitude are close to the stage, with those from 50 to 55 degrees north getting front-row seats. Equatorial and southern locations get one decent week starting May 28, but then Y4 stays low and fades quickly into the distance, like an object viewed out the back window of a fast-moving car.

By mid- to late April, which includes the New Moon on April 22, ATLAS is already large and diffuse for its distance. Note that reported magnitudes are integrated, which essentially crunches all its light into a point, rather than spreading it out between the coma and tails. Magnitude 2 is easy for the unaided eye, but from the city a big halo will be invisible through the light pollution. Streaking halfway between Polaris and brilliant

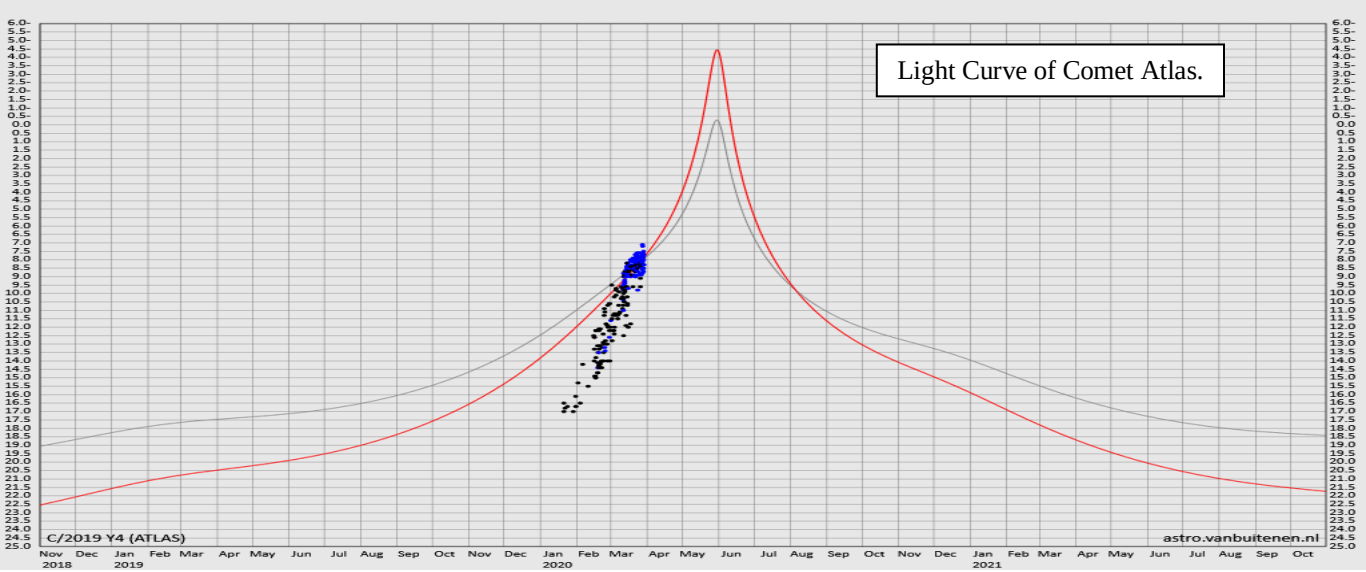
Capella, Y4 might resemble a lopsided Andromeda Galaxy. By mid-May, ATLAS is second in brightness only to Venus! During the deep blue of nautical twilight, it is only 15° high, dropping lower as the calendar ticks onward. Avoid observing from locations just south of a city — there's no point looking through a light dome. Instead, an open field to the north lets you observe as long as possible. A tail to remember?Our slanted view of the comet's evolving tails is perfect. The gas tail glows from atoms ionized by ultraviolet light and blows straight back (away from the Sun) in the solar wind. Appearing gray to the human eye at first, the familiar green hue in March's images effloresces into a brilliant emerald even in 8-inch scopes. It may transition to blue as ionization ramps up. Look for kinks in the turbulent flow and remain on the alert for the gas tail breaking during a "disconnection event," when the tail appears to break away and then reforms a short time later. Spaceweather.com may publish advance notice of the celestial barber cut.

The dust tail spreads out from the core in a narrow sail-shaped fan, curving away from Polaris and up toward the Big Dipper. A really dark sky can double the length compared to a typical observing site. Look for striations — streaks resulting from the periodic ejections of dust as active spots rotate to face the Sun, turning on and off with each spin. The big unknown: Is Y4 ATLAS a lightly powdered rubble pile that produces a meager tail that dissolves into nothingness? Or does luck strike us with a dust-choked snowball whose tail forms the magnificent sword we see in paintings of old? A touch of aurora or noctilucent clouds would really top off the light show.

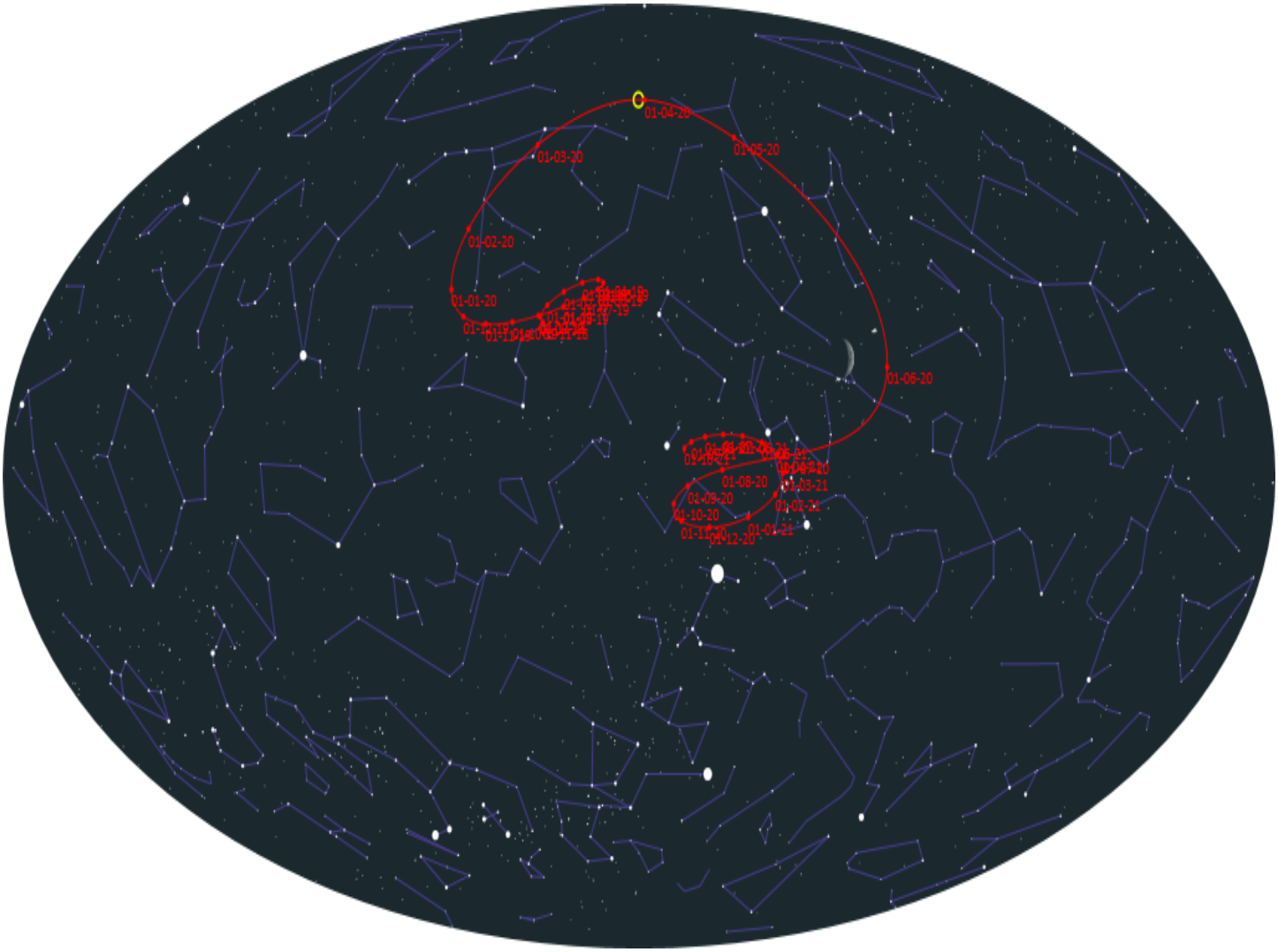
Use a range of magnifications. Crucially, zoom in to the core as much as the seeing conditions allow. Comet Hale-Bopp produced spiral jets that visibly changed in an hour for patient observers using high power. Grandparents' stories about a comet they saw when they were kids will be about the tail, not how bright the head was. Extra-bright tails happen when the dust lies between us and the Sun. That's because in such a configuration, the tail takes the sunlight from below the horizon and scatters it forward. In 2006, Comet McNaught's spectacular tail occurred with a low angle of 32°. For ATLAS, our viewing geometry of 48° gives a modest 1- to 2-magnitude enhancement — still mighty fine. Perihelion: Pushing past daylight?

The week of May 25 to 31 is the week when we take the iconic pictures of Y4 and forge our memories of a lifetime. ATLAS is literally diving past the Sun, brightening a magnitude per day. The top half of the tail remains above the horizon all night, drawing our view downward. As minutes flow by, the tail brightens, overcoming the rising oranges and yellows of dawn until it reaches the brilliant head of the comet, lifting off the horizon. Keep using that scope to pick out low-contrast details of the inner coma — past sunrise if possible. Even if the core of Y4 only rivals Venus, it is a daytime target for a whole week, never closer than 11° to the Sun. WARNING! Always take precautions against an unfiltered scope or binoculars accidentally pointing at the Sun and causing permanent blindness.

If the sky is a dark transparent blue and ATLAS exceeds our expectations, we might snag the elusive trophy of a historical daylight comet. Right now, only time will tell. **By Alister Ling | Published: Wednesday, March 25, 2020.**
https://astronomy.com/news/observing/2020/03/comet-atlas-may-soon-be-visible-to-the-naked-eye

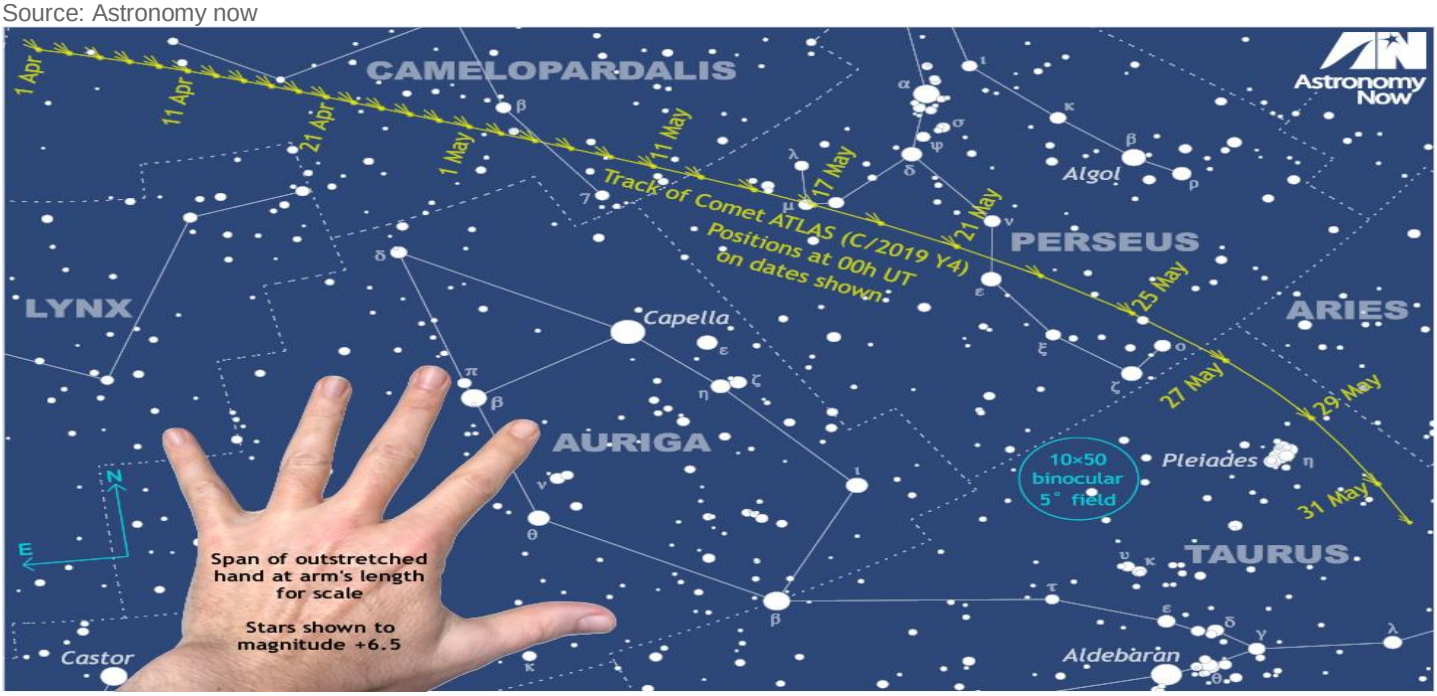


Source: http://astro.vanbuitenen.nl/comet/2019Y4



Source: http://astro.vanbuitenen.nl/comet/2019Y4

Source: Astronomy now



Year	mth	dy	UTC	R.A. (J2000)	Dec.	Delta	Mag.	°/dy	Cst
2020	Apr	01	00h	07h 54.6m	+68°31'	1.045	+7.8	0.67	Cam
2020	Apr	02	00h	07h 47.4m	+68°28'	1.042	+7.7	0.66	Cam
2020	Apr	03	00h	07h 40.4m	+68°23'	1.039	+7.7	0.65	Cam
2020	Apr	04	00h	07h 33.4m	+68°17'	1.035	+7.6	0.65	Cam
2020	Apr	05	00h	07h 26.6m	+68°09'	1.032	+7.5	0.64	Cam
2020	Apr	06	00h	07h 17.0m	+68°01'	1.029	+7.5	0.64	Cam
2020	Apr	07	00h	07h 13.5m	+67°51'	1.026	+7.4	0.63	Cam
2020	Apr	08	00h	07h 07.1m	+67°41'	1.022	+7.3	0.63	Cam
2020	Apr	09	00h	07h 01.0m	+67°29'	1.019	+7.3	0.62	Cam
2020	Apr	10	00h	06h 54.9m	+67°17'	1.016	+7.2	0.62	Cam
2020	Apr	11	00h	06h 49.1m	+67°03'	1.012	+7.1	0.61	Cam
2020	Apr	12	00h	06h 43.4m	+66°49'	1.009	+7.1	0.61	Cam
2020	Apr	13	00h	06h 37.8m	+66°34'	1.006	+7.0	0.60	Cam
2020	Apr	14	00h	06h 32.4m	+66°18'	1.002	+6.9	0.60	Cam
2020	Apr	15	00h	06h 27.2m	+66°01'	0.998	+6.8	0.60	Cam
2020	Apr	16	00h	06h 22.1m	+65°44'	0.995	+6.7	0.60	Cam
2020	Apr	17	00h	06h 17.1m	+65°26'	0.991	+6.7	0.59	Cam
2020	Apr	18	00h	06h 12.3m	+65°07'	0.987	+6.6	0.59	Cam
2020	Apr	19	00h	06h 07.6m	+64°48'	0.983	+6.5	0.59	Cam
2020	Apr	20	00h	06h 03.0m	+64°28'	0.979	+6.4	0.59	Cam
2020	Apr	21	00h	05h 58.6m	+64°08'	0.974	+6.3	0.60	Cam
2020	Apr	22	00h	05h 54.2m	+63°47'	0.970	+6.2	0.60	Cam
2020	Apr	23	00h	05h 49.9m	+63°25'	0.965	+6.1	0.60	Cam
2020	Apr	24	00h	05h 45.7m	+63°03'	0.961	+6.0	0.60	Cam
2020	Apr	25	00h	05h 41.6m	+62°39'	0.956	+5.9	0.61	Cam
2020	Apr	26	00h	05h 37.5m	+62°16'	0.951	+5.8	0.62	Cam
2020	Apr	27	00h	05h 33.5m	+61°51'	0.945	+5.7	0.63	Cam
2020	Apr	28	00h	05h 29.5m	+61°26'	0.940	+5.6	0.63	Cam
2020	Apr	29	00h	05h 25.6m	+61°00'	0.934	+5.5	0.65	Cam
2020	Apr	30	00h	05h 21.7m	+60°33'	0.928	+5.4	0.66	Cam

Source; https://astronomynow.com/2020/04/02/get-ready-for-bright-comet-atlas-c-2019-y4-in-the-northern-spring-sky/

Astronomy Column April Events

April 03	Venus passes near the Pleides
April 04	View Uranus close to the Western Horizon before sunset.
April 05	Waxing Moon near Regulas tonight.
April 06	Jupiter Saturn & Mars are visible in the morning sky.
April 07	Moon is full & at Perigee. 221,771 Miles. (Supermoon)
April 08	The Moon still being bright Venus & the Jupiter, Saturn, Mars are visible.
April 10	Venus at greatest Heliocentric latitude. N.
	Mercury at 0.2 Magnitude
April 14	Moon last quarter
	Jupiter 2 degrees north of the Moon
April 15	Saturn 2 degrees north of the Moon
April 16	Mars 2 degrees north of the Moon
April 21	Mercury 3 degrees north of the Moon.
April 22	Lyrid Meteor Shower Peak ZHR of 20 (Hourly Rate)

April 23	New Moon
April 26	Vesta Occultation
April 28	Venus at -4.7 Magnitude

2020 ROYAL ASTRONOMICAL SOCIETY HANDBOOKS AND CALENDARS

The group rate price for a single copy if you buy **in person** from CLAS is $27.00 for the handbook and $10.00 for the calendar. Calendar and Handbook are sold together for the combined price of $35.00. **Available NOW.**

MEMBERSHIP INFORMATION

Basic CLAS dues are $25.00 per year - due in January. Students and Skywatchers Newsletter are FREE. Members also receive discounted rates for Astronomy Magazine and /or Sky and Telescope Magazine.

The fee schedule is as follows: Verify current magazine prices with Roger!

Basic membership $25.00 per year.
Membership with Astronomy magazine is $59.00 per year.
Membership with Sky and Telescope magazine is $58.00 per year.
Membership with both S & T and Astronomy is $92.00 per year.

Send your Check or Money Order to:

Roger Brower, Treasurer, China Lake Astronomical Society, P.O. Box 1783, Ridgecrest, CA 93556.

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Meetings of the China Lake Astronomical Society are held at the Maturango Museum at 7:30 p.m. on the first Monday evening of each month, except when the first Monday is a holiday.

WESTERN AMATEUR ASTRONOMERS WEB SITE http://www.waa.av.org/
New! CHINA LAKE ASTRONOMICAL SOCIETY WEB SITE http://chinalakeastro.org/