

San Diego Astronomy Association

Celebrating Over 50 Years of Astronomical Outreach



April 2020

<https://www.sdaa.org/>

A Non-Profit Educational Association
P.O. Box 23215, San Diego, CA 92193-3215

Next SDAA Business Meeting

April 10th at 7:00pm
10070 Willow Creek Rd
San Diego, CA 92131

Next Program Meeting

April 18th at 7:00pm
Mission Trails Regional Park
Visitor and Interpretive Center
1 Father Junipero Serra Trail

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April 2020, Vol LVIII, Issue 4

Published Monthly by the

San Diego Astronomy Association

Incorporated in California in 1963

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Newsletter Deadline

The deadline to submit articles
for publication is the
15th of each month.

Message from SDAA President Dave Wood

I hope all our members and your families are safe. These are extraordinary times for all of us.

In keeping with state and local mandates in regards to social distancing, the **SDAA has cancelled all public outreach and club events** for the foreseeable future. These include our regularly scheduled monthly meetings at Mission Trails Regional Park.

The LIPP telescope will also be closed until further notice.

Since TDS is private space there is no reason to lock down the facility but there are actions you can take to help keep the site safe for all of us. If you plan to visit and use the facility, please bring along some disinfectant wipes or disinfectant spray cleaner. When you finish using the restrooms or the warming room, please wipe down the areas that you touched in order to help prevent the spread of any viruses. As much as we love sharing the views of the night sky, try to maintain the recommended 6-foot social distance guideline.

The Board of Directors will be working on ways to reach out to the membership. Our monthly meetings will most likely happen via the web on a platform such as MS Teams, Zoom or Skype until it's deemed safe to meet as a group. We'll send out additional information on how you can join the meetings once we have the details established.

Above all, stay safe, stay healthy and enjoy the time spent with your families.

SDSU had to postpone the Schopp lecture for this year.
They will try rescheduling for fall.

[Link to Outreach Calendar](#)

<https://calendar.google.com/calendar/embed?src=g-calendar@sdaa.org&ctz=America/Los>



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San Diego Astronomy Association Board of Directors Meeting

10 March 2020 – Unapproved and subject to revision

1. Call to Order

The meeting was called to order at 7:05pm with the following board members in attendance: Dave Wood, President; Melany Biendara, Treasurer; Gene Burch, Recording Secretary; Dave Decker, Director; Hiro Hakozaiki, Director; Mike Chasin, Director; Pat Boyce, Director. Members/visitors in attendance: Dan Kiser (JSF), Gracie Schutze.

2. Approval of Last Meeting Minutes

February meeting minutes were approved

3. Priority / Member Business – none

4. Treasurer's & Membership Report

a. Report approved.

b. Mel is still looking at various options for increasing the return on our investments, but with the current rates so low, we're reluctant to lock too much money into long term accounts. Membership remains steady.

5. Standard Reports

a. Site Maintenance Report: No Report

b. Observatory/Loaner Scope Report: No report

c. Private Pad Report: No Report

d. Program Meetings Report:

19 Feb 2020 - Speaker: Dr. Steve Levin, Juno Project Scientist

Presentation: NASA Juno at Jupiter

Attendees: 65 (New High)

Current Program Meeting Petty Cash as of 20 Feb 20 \$524

Previous Report (2 Feb 20): \$493

Mini Merch Store: No Sales

Expenses Since Previous Report (as of 20 Feb 20)

Coffee & Cookies \$69.8

\$25 OPT Gift Card

e. AISIG Report:

Meeting went well with about 20 in attendance. Received three new invite requests. March AISIG meeting will feature a tandem demonstration of DSLR imaging and CMOS astro-camera imaging by Kin Searcy and Scott using real equipment

f. Newsletter Report: Looks good and as always great work by Andrea!

g. Website Report:

Link to the SDSU presentation "Capturing the Image of a Black Hole" was added to the home page. Contacts

(<https://sdaa.org/contacts.htm>) and forwarding addresses were updated last month but Jeff hasn't received any corrections.

h. Social Media Report: No report

i. Outreach Report:

In spite of a few cancellations and a short month, February enjoyed regular attendance for both the public and school events. Regarding the effect of the COVID-19 investigation, we are currently monitoring the recommendations of both the US Center for Disease Control, and the World Health Association. As of this report, on March 8, we are not aware of any health agency requests or local parks or school districts actions that would impact the SDAA Outreach program. If the situation changes, it could seriously curtail our public contacts at schools and parks. Let's hope this health risk is contained quickly.



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Here are the numbers for February:

Totals for Month:	Events Completed:	12.0
	Events Cancelled:	3.0
	Public Attendance:	555.0
	Private Attendance:	505.0
	Total Attendance:	1060.0
	Mem Support:	74.0
Average:	Mem/Event:	6.2

Year to Date since January 1

Completed Events since January 1:	25.0
Cancelled Events since January 1:	7.0
Events Scheduled since January 1:	32
Public Attendees since Jan 1:	727.0
Private Attendees since Jan 1:	1592.0
Total Attendees since Jan 1:	2319.0

j. TARO Report:

New data added to the TARO cloud drive:

- M-81 (15 hours)
- NGC 2359 (27 hours)
- NGC 1579 (15 hours)

During a recent Exo-planet run the camera and filter wheel became “detached” from the imaging train and hit the floor. We got VERY LUCKY. The impact was absorbed by the power and data cables on the filter wheel. Jeff Herman was on site last Saturday to assess the damage. He reassembled the imaging train and bench tested electronics. The weather has been uncooperative for “live” testing, but Jeff is confident that the system will function properly.

k. Merchandise Report: A few items, mostly hats, have been sold.

l. Cruzen Report: Dennis Ritz ordered a replacement power supply for the south motor, also ordered new roof control switches and boxes to mount them in. The big Cassegrain is mounted and running, but it needs polar alignment. We have a digital setting circle system very similar to Lipp’s that Brian will install next time he’s out there. Both doors have combo locks on them, and Dave W will control access for now. Dave W, Brian M, Melany B, Jim T, Dennis R, and Ed R have the combo. Both doors have hooks and latches to keep the doors from swinging shut in the wind. Two new floor mats, two new tables, and a cabinet are installed. There is water intrusion under the southeast corner. There is currently spray foam there which needs to be dug/scraped out and replaced with actual sealant.

m. Astronomical League Report: No report

n. JSF Report:

Dan K reported that planning and preparation for JSF 2020 continues with permits, insurance and sponsorships in the works. It will again be at the Menghini Winery from August 13-16. The website and links to reserve camp sites are up and running.



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6. Old Business

- a. Still looking for a contractor to repair the warming room roof and a grading company to do some grading on the roads at TDS.
- b. The spring clean-up has been rescheduled to May 16th – a notice will be sent out and information published in the newsletter.
- c. Bill N has resigned his position as Corresponding Secretary and we're looking for a replacement.
- d. Mike C, John Downing and Dennis Ritz are still gathering information about the possibility of a Grid Tie Solar System at TDS. They will continue their efforts and report again in the next month or two.

7. New Business

- a. A low-cost summer fund raising social event tentatively scheduled for July at the Natural History museum. We've received a quote from the Natural History Museum and are waiting for details regarding refreshments. We have several nice raffle items for the event.

8. Adjournment

Adjourned at 8:16pm.

Grid Tie Solar at TDS

Progress Report March 10, 2020

Three SDAA members, Dennis Ritz, Mike Chasin and John Downing, met to discuss grid tie solar at TDS.

The federal solar tax credit of 26% may not be available to SDAA. John had experience with installation of grid tie solar on the Balboa building and difficulty with lessors wanting to file a lien on city property to insure payment. To allow a lien on TDS, SDAA Article IXa might require a majority vote of the membership. The alternative is to forgo the tax credit and purchase a grid tie system. Not having a tax credit will extend the break-even time/return on investment (ROI) but simplify financing.

We also discussed the availability of net energy metering (NEM) aggregation; all of the solar would be located east of the new north pole power drop while most of the usage would be from the southwest drop. NEM is an application to SDGE but TDS looks acceptable. Mike wondered about usage among public, private pads and observatories, John and Dennis thought club goodwill and dues more than pay for TDS expenses. After the grid tie is paid for, electric costs will be reduced. 'Big uses' would be encouraged to make voluntary tax deductible contributions of money or solar panels. SDAA members are fortunate if they can use TDS frequently.

TDS' SDGE average usage for 6 month average July-Dec 2019 was about 804kWh/mo. John wanted to review the detailed electrical usage at TDS to determine what portion of this is offsettable by daytime solar generation, as TDS usage is probably mostly at night. Dennis provided a SDGE spreadsheet for 1 year usage in 15-minute intervals. As TDS grid tie solar is a financial decision, we will review the financials, energy usage, cost of grid tie systems and installation providing a detailed analysis and ROI. As the north power drop is still in progress, solar installation may be a Fall project, but TDS will be used for many years and grid tie solar power looks promising.



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SDAA MEMBERS RECOGNIZED IN A NEW SCIENTIFIC PAPER

The Astronomy Society of the Pacific just published the paper lead by our November 2019 speaker, Dr. Rob Zelle from JPL. The paper covers the topics he presented in our meeting. Note that four SDAA members are included as co-authors. They provided observations and analyses for the program.

Utilizing Small Telescopes Operated by Citizen Scientists for Transiting Exoplanet Follow-up

Robert T. Zelle, Kyle A. Pearson, Ethan Blaser, Martin Fowler, David R. Ciardi, Anya Biferno, Bob Massey, Franck Marchis, Robert Baer, Conley Ball, [Mike Chasin](#), Mike Conley, [Scott Dixon](#), Elizabeth Fletcher, Saneyda Hernandez, Sujay Nair, Quinn Perian, Frank Sienkiewicz, Kalee Tock, [Vivek Vijayakumar](#), Mark R. Swain, Gael M. Roudier, Geoffrey Bryden, Dennis M. Conti, Dolores H. Hill, Carl W. Hergenrother, Mary Dussault, Stephen R. Kane, Michael Fitzgerald, [Pat Boyce](#), Laura Peticolas, Wilfred Gee, Lynn Cominsky, Rachel Zimmerman-Brachman, Denise Smith, Michelle J. Creech-Eakman, John Engelke, Alexandra Iturralde, Diana Dragomir, Nemanja Jovanovic, Brandon Lawton, Emmanuel Arbouch, Marc Kuchner, Arnaud Malvache

Congratulations to our new SDAA authors. They and others with BRIEF are continuing the program work. Opportunities to participate as observers are still available. The full program will be launched this year for citizen scientists around the world. Contact info@boyce-astro.org if you want to participate. You can download a copy of the full paper here: <https://arxiv.org/abs/2003.09046v1>

Attention Amazon shoppers!

Did you know that you and your family's purchases on amazon.com can give back to the San Diego Astronomy Association? Bookmark this link on your family's devices and, when you shop, the AmazonSmile Foundation will donate 0.5% of the purchase price to the SDAA:



<https://smile.amazon.com/ch/51-0183640>

The AmazonSmile Foundation sends donations quarterly and to-date we've received over \$500 from member purchases since the beginning of our participation. It's a great way to support the SDAA's outreach programs.



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Annual TDS Clean-up

SDAA again needs volunteers to maintain our observing site at Tierra del Sol, SDAA's most valuable asset. Having a dark sky site with utilities, pads, and a warming room is a luxury that most other astronomy clubs can only dream about. SDAA has always relied on our legendary volunteers to develop and maintain this facility. In May, if the public health emergency is over, SDAA will host a working party to rejuvenate the site. Work will commence at 09:00 and run into the early afternoon. There will be breaks for water, rest, and lunch (bring your own) and a festive BBQ for the workers will be provided by SDAA at the end of the day. Objectives for this year are the removal of brush and cactus, cleaning of the warming room, etc. No specialized skills are required. There are a wide variety of tasks that can be matched to your physical capabilities. We hope to muster 30 individuals who want to make a lasting impact on the site and thereby enhance the experience for future TDS visitors. We promise that at the end of the day you will be well fed, and that you will feel a real sense of accomplishment.



Hubble Gazes at Fluffy-Looking Galaxy

NGC 4237 is classified as a flocculent spiral galaxy. This means that its spiral arms are not clearly distinguishable from each other, as in “grand design” spiral galaxies, but are instead patchy and discontinuous. This gives the galaxy a fluffy appearance, somewhat resembling fluffy cotton.



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Galaxies and Asteroids in Leo Constellation

By Hunter Harling



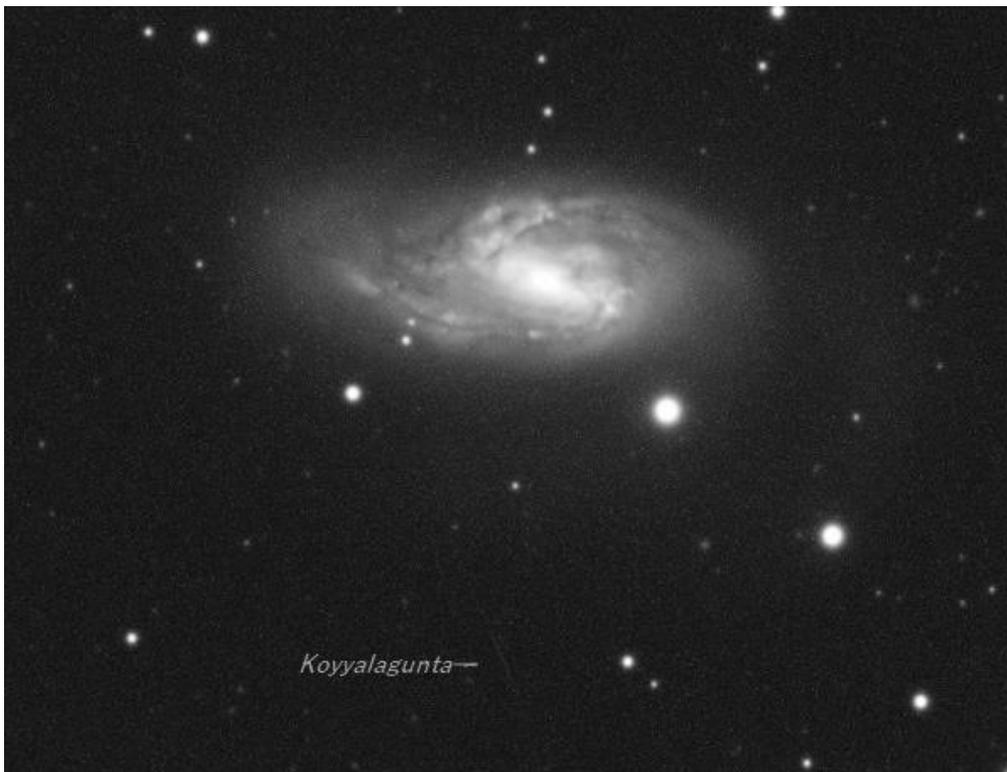
Now that the Milky Way is setting in the west, constellations such as Leo, Virgo, and Coma are rising in the East. Not only do these parts of the sky bring faint galaxies, but some constellations (like Leo) present unique opportunities for astronomy. Because of Leo's position on the ecliptic, many solar system objects appear to pass through this constellation and can be detected during regular deep sky imaging sessions. Leo is a particularly good constellation for detecting asteroids since it is far from the bright belt of the Milky Way so that the asteroids appear brighter against the background sky. In the above image of NGC 2903, nearly 11 known asteroids crossed the field of view within 3 hours.



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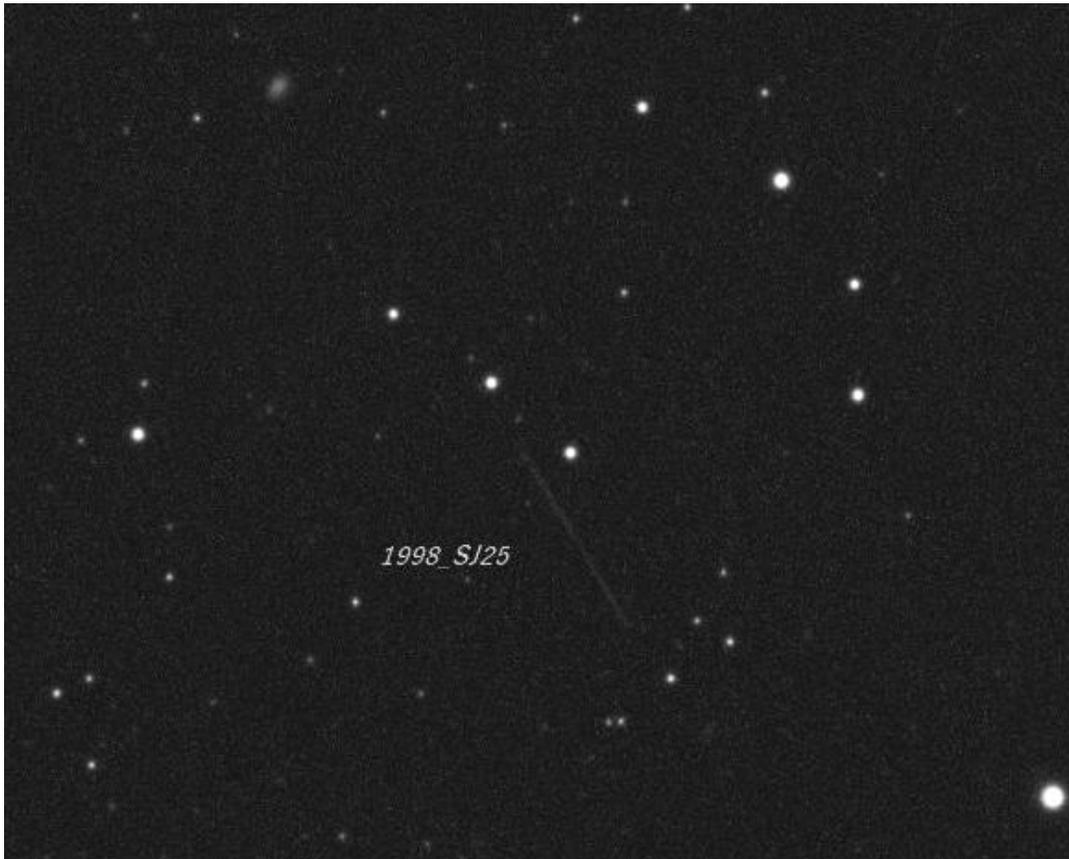


Leo constellation also contains some of the most well known galaxies in the night sky, such as the Leo Triplet. In this image of the Leo Trio, I found several asteroids including 1998 SJ25 and Koyyalagunta, both of which are shown below.





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Both of these asteroids appeared as lines in this stacked image since they traveled at different speeds than the stars. This makes it easy to tell if there are asteroids in your image because you can simply see if there are lines in either the stacked image or the rejection map if you use Pixinsight for stacking. It is also worth noting that these asteroids appear to move very slowly, the above asteroid (1998 SJ25) represents over 4 hours of movement. Because of this, you may need to capture images for at least a few hours to get a reasonable movement of the asteroid. Also, some software can use databases to determine the names of these asteroids. One such piece of software is called Tycho-Tracker, and it is capable of detecting several asteroids in an image. While it can be hard to find asteroids just by looking at the images, software like this can help automate the process and make it much easier.

In conclusion, not only does Leo contain many beautiful galaxies to photograph, it also presents unique opportunities for detecting asteroids at the same time. And if you are lucky, you may even discover your own asteroid in the process.



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2020 Star Party Schedule

Date	Hours	Type	Sunset	Twilight	Moonrise(set)	Illumination
5/16/2020	8:30 to 11:30 PM	Public	7:41 PM	9:17 PM	3:23 AM	31%
5/23/2020	8:30 to 11:30 PM	Member	7:46 PM	9:23 PM	(8:56 PM)	1%
6/13/2020	8:30 to 11:30 PM	Public	7:57 PM	9:39 PM	1:52 AM	47%
6/20/2020	8:30 to 11:30 PM	Member	7:59 PM	9:41 PM	5:59 AM	0%
7/11/2020	8:30 to 11:30 PM	Public	7:58 PM	9:37 PM	12:21 AM	64%
7/18/2020	8:30 to 11:30 PM	Member	7:55 PM	9:33 PM	4:42 AM	5%
8/8/2020	8:30 to 11:30 PM	Public	7:40 PM	9:11 PM	10:49 PM	79%
8/15/2020	8:30 to 11:30 PM	Member	7:32 PM	9:01 PM	3:25 AM	14%
9/12/2020	7:30 to 10:30 PM	Public	6:57 PM	8:21 PM	2:09 AM	28%
9/19/2020	7:30 to 10:30 PM	Member	6:48 PM	8:10 PM	(8:42 PM)	9%
10/10/2020	7:00 to 10:00 PM	Public	6:20 PM	7:42 PM	12:55 AM	44%
10/17/2020	7:00 to 10:00 PM	Member	6:12 PM	7:34 PM	(7:13 PM)	2%
11/7/2020	5:30 to 8:30 PM	Public	4:52 PM	6:16 PM	10:46 PM	61%
11/14/2020	5:30 to 8:30 PM	Member	4:47 PM	6:12 PM	6:48 AM	0%
12/5/2020	5:30 to 8:30 PM	Public	4:42 PM	6:09 PM	9:42 PM	76%
12/12/2020	5:30 to 8:30 PM	Member	4:43 PM	6:11 PM	5:34 AM	0%



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SDAA Contacts

Club Officers and Directors

President	Dave Wood	President@sdaa.org	(858) 735-8808
Vice President	Steve Hallman	VicePresident@sdaa.org	(858) 371-9706
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Treasurer	Melany Biendara	Treasurer@sdaa.org	(619) 213-9887
Corresponding Secretary	Bill Nguyen	Corresponding@sdaa.org	(619) 751-6621
Director Alpha	Pat Boyce	DirectorAlpha@sdaa.org	(619) 227-9614
Director Beta	Mike Chasin	DirectorBeta@sdaa.org	(858) 210-1454
Director Gamma	Dave Decker	DirectorGamma@sdaa.org	(619) 972-1003
Director Delta	Hiro Hakozaiki	DirectorDelta@sdaa.org	(858) 869-9507

Committees

Site Maintenance	Bill Quackenbush	TDS@sdaa.org	(858) 395-1007
Observatory Director	Ed Rumsey	Observatory@sdaa.org	(858) 722-3846
Private Pads	Mark Smith	Pads@sdaa.org	(858) 484-0540
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N. County Star Parties	-Vacant-	NorthStarParty@sdaa.org	
S. County Star Parties	-Vacant-	SouthStarParty@sdaa.org	
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Amateur Telescope Making	-Vacant-		
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newsletter@sdaa.org

Assistant Editor: Craig Ewing

Have a great new piece of gear? Read an astronomy-related book that you think others should know about? How about a photograph of an SDAA Member in action? Or are you simply tired of seeing these Boxes in the Newsletter rather than something, well, interesting?

Join the campaign to rid the Newsletter of little boxes by sharing them with the membership. In return for your efforts, you will get your very own byline or photograph credit in addition to the undying gratitude of the Newsletter Editor. Just send your article or picture to Newsletter@SDAA.Org.



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NASA Night Sky Notes

April 2020



This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

Hubble at 30: Three Decades of Cosmic Discovery

David Prosper

The **Hubble Space Telescope** celebrates its 30th birthday in orbit around Earth this month! It's hard to believe how much this telescope has changed the face of astronomy in just three decades. It had a rough start -- an 8-foot mirror just slightly out of focus in the most famous case of spherical aberration of all time. But subsequent repairs and upgrades by space shuttle astronauts made Hubble a symbol of the ingenuity of human spaceflight and one of the most important scientific instruments ever created. Beginning as a twinkle in the eye of the late Nancy Grace Roman, the Hubble Space Telescope's work over the past thirty years changed the way we view the universe, and more is yet to come!

We've all seen the amazing images created by Hubble and its team of scientists, but have you seen Hubble yourself? You actually can! Hubble's orbit -- around 330 miles overhead -- is close enough to Earth that you can see it at night. The best times are within an hour after sunset or before sunrise, when its solar panels are angled best to reflect the light of the Sun back down to Earth. You can't see the structure of the telescope, but you can identify it as a bright star-like point, moving silently across the night sky. It's not as bright as the Space Station, which is much larger and whose orbit is closer to Earth (about 220 miles), but it's still very noticeable as a single steady dot of light, speeding across the sky. Hubble's orbit brings it directly overhead for observers located near tropical latitudes; observers further north and south can see it closer to the horizon. You can find sighting opportunities using satellite tracking apps for your smartphone or tablet, and dedicated satellite tracking websites. These resources can also help you identify other satellites that you may see passing overhead during your stargazing sessions.

NASA has a dedicated site for Hubble's 30th's anniversary at bit.ly/NASAHubble30. The Night Sky Network's "Why Do We Put Telescopes in Space?" activity can help you and your audiences discover why we launch telescopes into orbit, high above the interference of Earth's atmosphere, at bit.ly/TelescopesInSpace. Amateur astronomers may especially enjoy Hubble's images of the beautiful objects found in both the Caldwell and Messier catalogs, at bit.ly/HubbleCaldwell and bit.ly/HubbleMessier. As we celebrate Hubble's legacy, we look forward to the future, as there is another telescope ramping up that promises to further revolutionize our understanding of the early universe: the James Webb Space Telescope!

Discover more about the history and future of Hubble and space telescopes at nasa.gov.



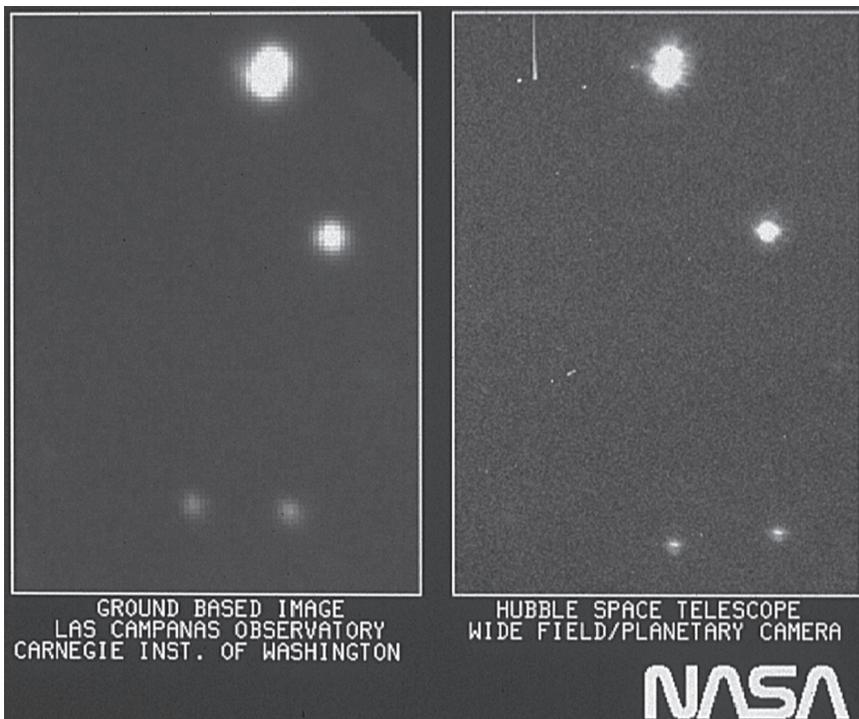
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NASA Night Sky Notes

April 2020



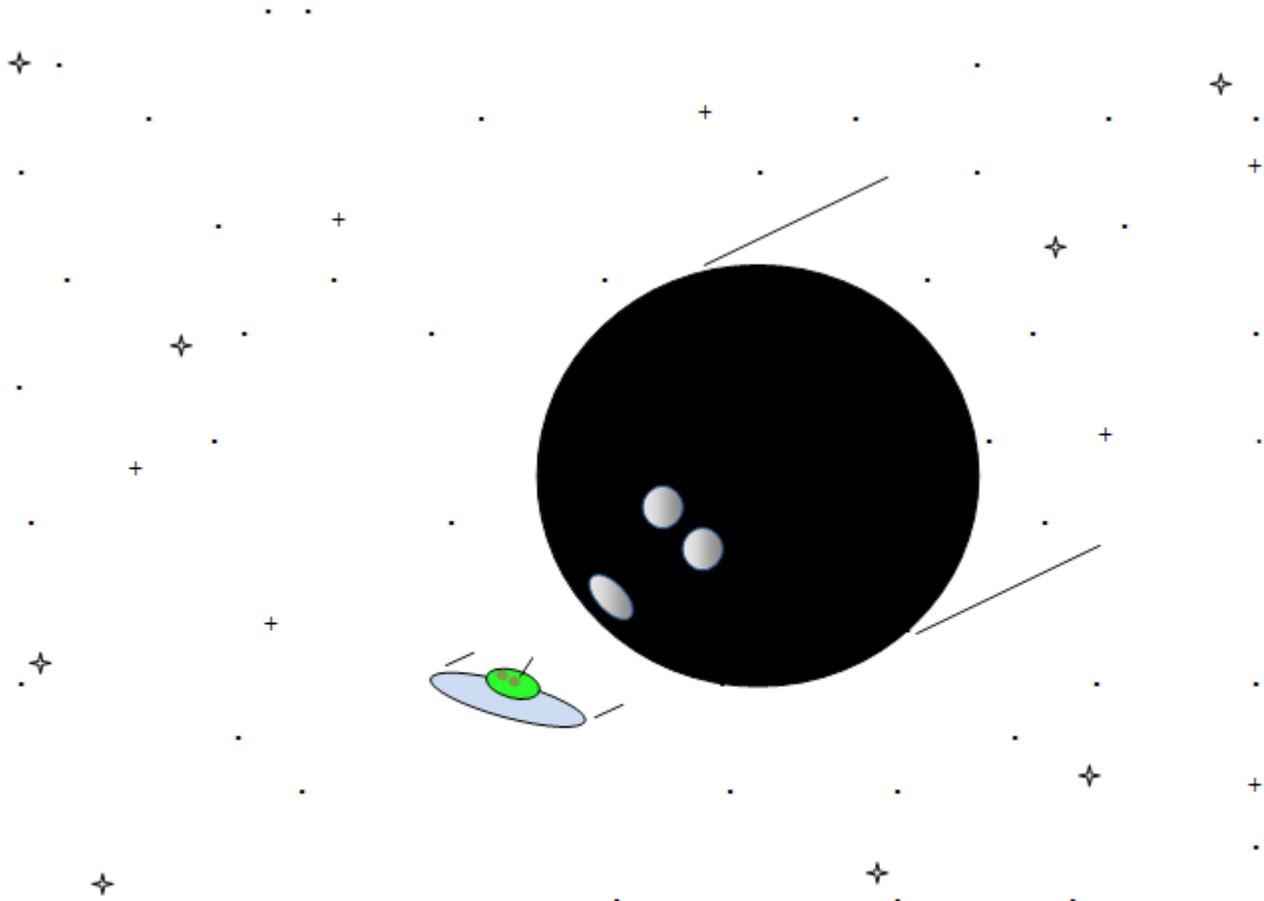
Image Credit: NASA



Hubble's "first light" image. Even with the not-yet-corrected imperfections in its mirror, its images were generally sharper compared to photos taken by ground-based telescopes at the time. Image Credit: NASA



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“Whatever it is...it’s not happy”

© Norm Butler

MEMBERSHIP INFORMATION

Send dues and renewals to P.O. Box 23215, San Diego, CA 92193-3215. Include any renewal cards from Sky & Telescope or Astronomy magazine in which you wish to continue your subscription. The expiration date shown on your newsletter's mailing label is the only notice that your membership in SDAA will expire. Dues are \$60 for Contributing Memberships; \$35 for Basic Membership; \$60.00 for Private Pads; \$5 for each Family membership. In addition to the club dues the annual rates for magazines available at the club discount are: Sky & Telescope \$32.95 and Astronomy \$34. Make checks payable to S.D. Astronomy Assn. PLEASE DO NOT send renewals directly to Sky Publishing. They return them to us for processing.