

The Focal Point

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The Atlanta Astronomy Club
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Editor: Tom Faber

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May AAC General Meeting

Please join us for the next meeting of the Atlanta Astronomy Club, to be held on Saturday, May 21st at 3PM at the Fernbank Science Center. A short beginner's program will be presented at 2PM. Our featured speaker will be Dr. Misty Bentz with the Department of Physics and Astronomy at Georgia State University.

The Talk

Dr. Bentz writes, "One of the more unexpected results from 25 years of Hubble Space Telescope observations is the discovery that supermassive black holes inhabit the centers of all massive galaxies. Furthermore, these black holes appear to have a symbiotic relationship with their host galaxies, in which each regulates the growth of the other. One of the keys to understanding this relationship relies upon knowing the masses of the black holes involved. However, black hole masses are difficult measurements to carry out because they require directly observing the gravitational influence of the black hole on a luminous tracer (stars or gas). A few different techniques have been developed to meet these goals. Reverberation mapping, or echo mapping, is one of these techniques. While it is only applicable to active supermassive black holes, it may be used on even the most distant quasars in our universe, providing a way to study black holes across cosmic history. Furthermore, reverberation mapping provides an avenue to study the physics of the gas feeding these black holes on scales that can never be resolved with current or planned telescopes. Such studies are important for advancing the young field of supermassive black hole research and for finding some of the keys necessary to understand how our universe and our Milky Way came to be the way they are."

Speaker Bio

Misty Bentz was born and raised in Spokane, WA. She graduated from Mead High School as valedictorian in 1998. She was awarded a Space Grant Scholarship to attend the University of Washington, where she earned a double degree in physics and astronomy with a minor in mathematics in 2002. She then attended The Ohio State University for graduate

school, during which time she was awarded a National Science Foundation Graduate Fellowship. In 2007, she earned a PhD for her work with Prof. Bradley Peterson on black hole mass measurements and characteristics of their host galaxies. Dr. Bentz then moved to the University of California, Irvine for a postdoctoral research position, and in 2009 she was awarded a Hubble Fellowship for her continued research on supermassive black holes. In 2010, Dr. Bentz joined the faculty in the Department of Physics and Astronomy at Georgia State University. Since then she has earned a NSF CAREER grant, as well as multiple smaller grants from NASA, and has been recognized at GSU with the Dean's Early Career Award and the Outstanding Junior Faculty Award. She was also one of 20 US astronomers on the 2013 NASA Roadmap team tasked with charting a plan for the next 30 years of NASA astrophysics research. Dr. Bentz's research group continues to focus on studies of supermassive black holes and their role in the growth of structure throughout the universe.



March was Membership Renewal Month

The AAC has moved to a "one-date-for-all" membership renewal. ALL CLUB MEMBERS, with certain exceptions, should submit their \$30 dues for 2016 by the end of March. If you have not yet renewed please do so as soon as possible. Please send your renewals to AAC Treasurer Sharon Carruthers, renew online using PayPal, or you can bring your renewal to the April Meeting. For more information see: http://atlantaastronomy.org/?page_id=22

Thank You for your support of the AAC!

The 2016 Peach State Star Gaze

The 2016 Peach State Star Gaze will be held from Sunday, September 25 to Sunday October 2. Be sure to mark your calendars!

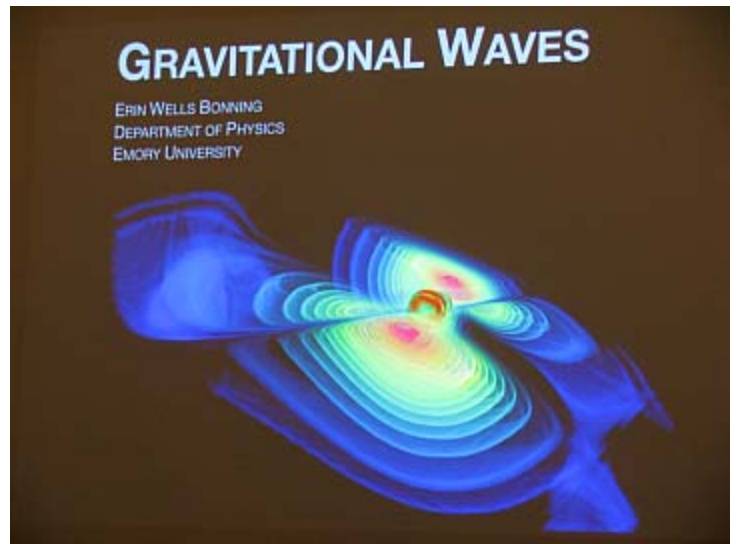
April AAC Meeting Report

Photos by Tom Faber.

The April general meeting was held beginning at 3PM on Saturday, April 16th in the planetarium in the Math & Science Building at Emory University.

There were about 60 members and guests present for the meeting. Our featured speaker was Dr. Erin Bonning of the Emory University Department of Physics. Dr. Bonning presented a very interesting talk about the recent detection of gravitational waves by the LIGO facilities in Livingston, Louisiana and Handford, Washington, the instruments used to detect them, and what information they can provide about the universe.

After her talk Dr. Bonning answered a number of questions. After the talk, there were announcements by Club officers about upcoming meetings, events, and activities.



From the President's Desk

By Mark Banks, AAC President

We have had a very busy year so far and I want to thank all of our volunteers for their dedication to our club mission to educate the public about the sky. We still have a lot to do before the school year ends so please keep an eye on our calendar and volunteer when you can. During the summer months our focus will shift to various summer camp programs and scout troops, so as you can see, we need help year round. You don't need to be an expert. Most of the people you will talk to know very little about what's up in the night sky. You will get a great sense of satisfaction from knowing that you are encouraging and inspiring the next generation of astronomers, scientists, and engineers. Sometimes you also get free stuff like pizza, hot dogs, cookies & ice cream!

Elections this year will be done on line so please be sure your information on the club roster is correct so you will get your ballot by email. Elections will be held during the month of May. You can find the roster by clicking on the night sky network from the club main web site. We also need nominations for all positions, so don't just sit there, do something!!! If you would like to run for any position please contact any of the club officers and let us know what you can do for the club.



The April Charlie Elliott Meeting

By Valorie Whalen, Charlie Elliott Chapter Recording Secretary

The April monthly meeting for the Charlie Elliott Chapter of the Atlanta Astronomy Club was held on April 9 in Building B at the Charlie Elliott Wildlife Management property in Mansfield, Georgia.

Jack Fitzmier, Chapter Director, called the meeting to order at 6:00 p.m. and welcomed everyone. There were thirty-four members and guests in attendance. Jack gave an update on the progression of the *Mercury transit of the Sun* Astronomical League program. The event will take place on May 9, 2016. Two sets of data from two different observation points are required to complete this program. If you are interested in completing it, please see Jack to have a partner assigned to you. He also presented an Astronomical League Basic Outreach certificate and pin to Thomas Whalen for completing 10 hours of outreach.



Photo courtesy of David Whalen

Our featured speaker this month was Dr. Erin Bonning, Director of the Planetarium at Emory University. She presented a discussion of the recent detection of a gravitational wave by the LIGO facility in Livingston, Louisiana. This detection, and subsequent confirmation of Albert Einstein's theory of relativity, was made on September 15, 2015, from the merger of two black holes taking place approximately 1.4 billion years ago. The event represented the collision of a black hole of approximately 36 solar masses with another black hole that was approximately 29 solar masses. This resulted in a new black hole of roughly 62 solar masses, and the immediate release of about 3 solar masses in energy radiating through the universe in waves. Quite an exciting discovery for the scientific community!

David Whalen, Observing Director, treated us to another exciting episode of "All of the Above", which gives a run-down of what you can expect to see in the sky in the coming weeks. The theme of this month's presentation was "Galaxy Season" with part of the musical score from the movie *Hitchhiker's Guide to the Galaxy*. Included were several graphics explaining the Earth's current position with respect to the Milky Way in April, and why we can see so many other galaxies at this time of year. It also included current weather conditions for the Jon Wood Astronomy Field, relative location of each of the planets, along with the sun and moon, and each of their respective rise and set times. He included H-alpha photos of the Sun as of 4/9/2016. Also discussed were several deep-sky targets in the categories of "Relaxing", "Intriguing", "Taxing" and a Challenge Object. The full list of targets for the month of April is available on the website.

Finally, Ken Poshedly handed out some current issues of the ALPO newsletter.

This month's astrophotography target is: M104, as known as the Sombrero Galaxy, in Virgo.

Upcoming Events:

Outreach Event: Solar viewing at Anna Ruby Falls, Anna Ruby Falls Road, Helen, GA 30545. Saturday, April 16, 2016 from 11:00 a.m. to 4:00 p.m.

Outreach Event: Solar viewing at Madison Spring Festival, Madison Town Park, W. Jefferson Street, Madison, GA 30650. Saturday, April 30, 2016 from 10:00 a.m. to 4:00 p.m.

Outreach Event: The Sun over McConnell Middle School, 550 Ozora Road, Loganville, GA 30052. Monday, May 2, 2016 from 9:30 a.m. to 4:30 p.m.

Outreach Event: Jakes Day at Charlie Elliott Wildlife Center, Brooke Ager Discovery Area, Murder Creek Church Road, Mansfield, GA 30055. Saturday, May 7, 2016 from 10:00 a.m. to 2:00 p.m.

The Next Charlie Elliott Meeting

The next meeting of the Charlie Elliott Chapter will be held on Saturday, May 7th, 2016 at 6:30 pm in Meeting Room B of the Charlie Elliott Conference Center. Tim Geib will present a talk on remote observing and imaging ("Stargazing from your Couch"). We will also hold our chapter board elections. The proposed slate of officers for 2016-2017 is Tim Geib (Director), David Whalen (Observing Chair), and Brian Tucker (Secretary). Other nominations may be taken from the floor.

At sunset we will head over to Jon Wood Astronomy Field (33.468865, -83.735319) for a night of observing, weather permitting. All are welcome. Bring your scopes, binoculars, or just bring yourself – we enjoy sharing the night sky with our guests! Be sure to arrive before 10 pm, as that is when the security gate on Elliott Trail locks to new entry.

Minutes and Handouts: The minutes, handouts, and presentations from past meetings of Charlie Elliott Astronomy are available for download on our Past Events web page, <http://ceastronomy.org/blog/events>. Monthly sky maps are available from skymaps.com.

2016 Meeting Schedule: June 4 (potluck), July 9, August 6, September 10 (potluck), October 29, November 19, December 10 (potluck).

Indoor meetings start approximately 2 hours before sunset. Monthly locations & details vary, so please check the web site (ceastronomy.org) for current specifics. Stargazing sessions on the Jon Wood Astronomy Field begin just after sunset on the above dates.

The Astronomical League

As a member of the **Atlanta Astronomy Club** you are automatically also a member of the **Astronomical League**, a nation wide affiliation of astronomy clubs. Membership in the AL provides a number of benefits for you. They include:

- * You will receive *The Reflector*, the AL's quarterly newsletter.
- * You can use the Book Service, through which you can buy astronomy-related books at a 10% discount.
- * You can participate in the Astronomical League's Observing Clubs. The Observing Clubs offer encouragement and certificates of accomplishment for demonstrating observing skills with a variety of instruments and objects. These include the Messier Club, Binocular Messier Club, the Herschel 400 Club, the Deep Sky Binocular Club, and many others.

To learn more about the Astronomical League and its benefits for you, visit <http://www.astroleague.org>

Deerlick Astronomy Village Memorial Weekend Picnic

It's time for the annual picnic at Deerlick Astronomy Village! Please join us in the pavilion on Grier's Field on Sunday, May 29th, 2016 at 5 PM for a great potluck meal. Picnic guests may enjoy free camping under the stars on Sunday evening. AAC members should be sure to check out our clubhouse & observatory on the field! This event is open to anyone interested in stargazing under dark skies at DAV. No membership is required.

Time: Grilling, socializing & set up will start at 4 PM. We hope to chow down about 5 PM. There will be an Open House from 7:30-8:30 PM after the picnic so that guests may tour some of the personal observatories before dark.

Where: The picnic will be held at the DAV pavilion on Grier's Field, Deerlick Astronomy Village, near Sharon, GA, located at the end of Aaron Grier Road SE 30631. Driving directions are available online at <http://www.deerlickgroup.com/PDF/DeerlickMap1.pdf>. You can also find Grier's Field on Google Maps at <http://bit.ly/DAVmap>.

Potluck RSVP: Please sign up for the picnic at <http://bit.ly/DAVpicnicRSVP>. The Deerlick Astronomy Village LOA will prepare fresh-grilled hamburgers for all who sign up by the Thursday before the picnic.

Camping: If guests would like to camp on Grier's Field during the weekend, camping after the picnic on Sunday night is free. There will be a \$5 camping fee per person per night for those who would like to come early & camp on Friday &/or Saturday night. A full bath house is located on site. Dark Sky Rules will apply while camping at DAV (see guidelines below). Campers will be asked to sign a personal liability waiver & dark sky rules agreement form. No DAV or AAC membership is required for camping this weekend.

Dark Sky Rules and camping guidelines are available at <http://www.deerlickgroup.com/PDF/DeerlickAstronomyVillageDarkSkyCamping.pdf>

Please contact Marie at DAVpicnic@yahoo.com if you have any questions or if you would prefer to RSVP via email.

The May 2016 Transit of Mercury

By Fred Espenak

Published in Observer's Handbook 2016, Royal Astronomical Society of Canada. This article is from Fred Espenak's web page: <http://eclipsewise.com>

On Monday, 2016 May 09, Mercury will transit the Sun for the first time since 2006. The transit or passage of a planet across the face of the Sun is a relatively rare occurrence. As seen from Earth, only transits of Mercury and Venus are possible. There are approximately 13 transits of Mercury each century. In comparison, transits of Venus occur in pairs with more than a century separating each pair.

The principal events occurring during a transit are conveniently characterized by contacts, analogous to the contacts of an annular solar eclipse. The transit begins with contact I, which is the instant when the planet's disk is externally tangent to the Sun. Shortly after contact I, the planet can be seen as a small notch along the solar limb. The entire disk of the planet is first seen at contact II when the planet is internally tangent to the Sun. During the next several hours, the silhouetted planet slowly traverses the brilliant solar disk. At contact III, the planet reaches the opposite limb and once again is internally tangent to the Sun. Finally, the transit ends at contact IV when the planet's limb is externally tangent to the Sun. Contacts I and II define the phase called ingress while contacts III and IV are known as

egress. Position angles for Mercury at each contact are measured counterclockwise from the north point on the Sun's disk.

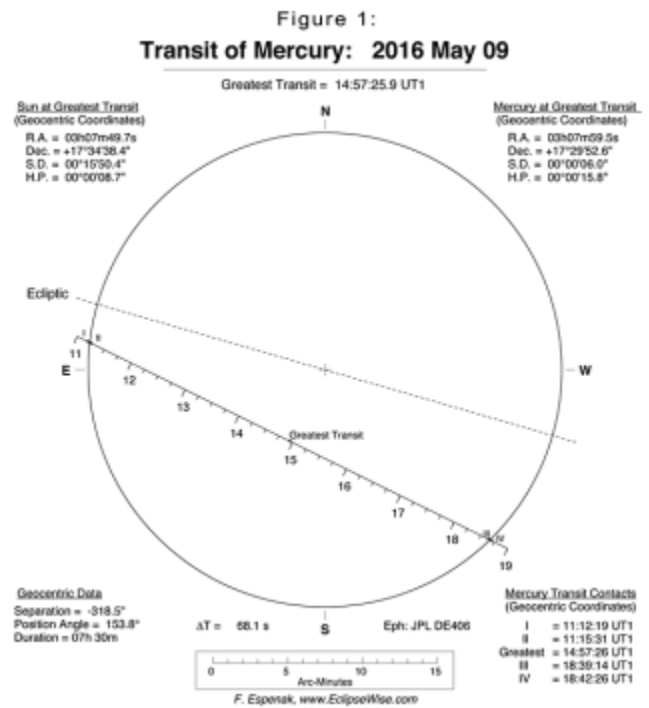
Table 1 below gives the times of major events during the 2016 transit in Universal Time (UT1). Greatest transit is the instant when Mercury passes closest to the Sun's center (i.e., minimum separation). At this time, the geocentric angular distance between the center's of Mercury and the Sun will be 318.5 arc-seconds. The position angle is the direction of Mercury with respect to the center of the Sun's disk as measured counterclockwise from the celestial north point on the Sun.

Table 1: Geocentric Phases of the 2016 Transit of Mercury

Event	Universal Time	Position Angle
Contact I	11:12:19	83.2°
Contact II	11:15:31	83.5°
Greatest Transit	14:57:26	153.8°
Contact III	18:39:14	224.1°
Contact IV	18:42:26	224.4°

Figure 1 above shows the path of Mercury across the Sun's disk and the scale gives the Universal Time of Mercury's position at any instant during the transit. The contact times are listed along with the equatorial coordinates of the Sun and Mercury at greatest transit. Since the contact times are geocentric they are only correct for an observer stationed at Earth's center. The contact times for any given location may differ from the geocentric times by up to a minute. This is due to the effect of parallax since Mercury's 10 arc-second diameter disk may be shifted up to nearly 13 arc-seconds from its geocentric coordinates depending on the observer's exact geographic position.

The transit will be widely visible from most of Earth including the Americas, the Atlantic and Pacific Oceans, Europe, Africa and much of Asia, as shown in Figure 2 above. None of the transit will be visible from eastern Asia, Japan, Indonesia, Australia and New Zealand.

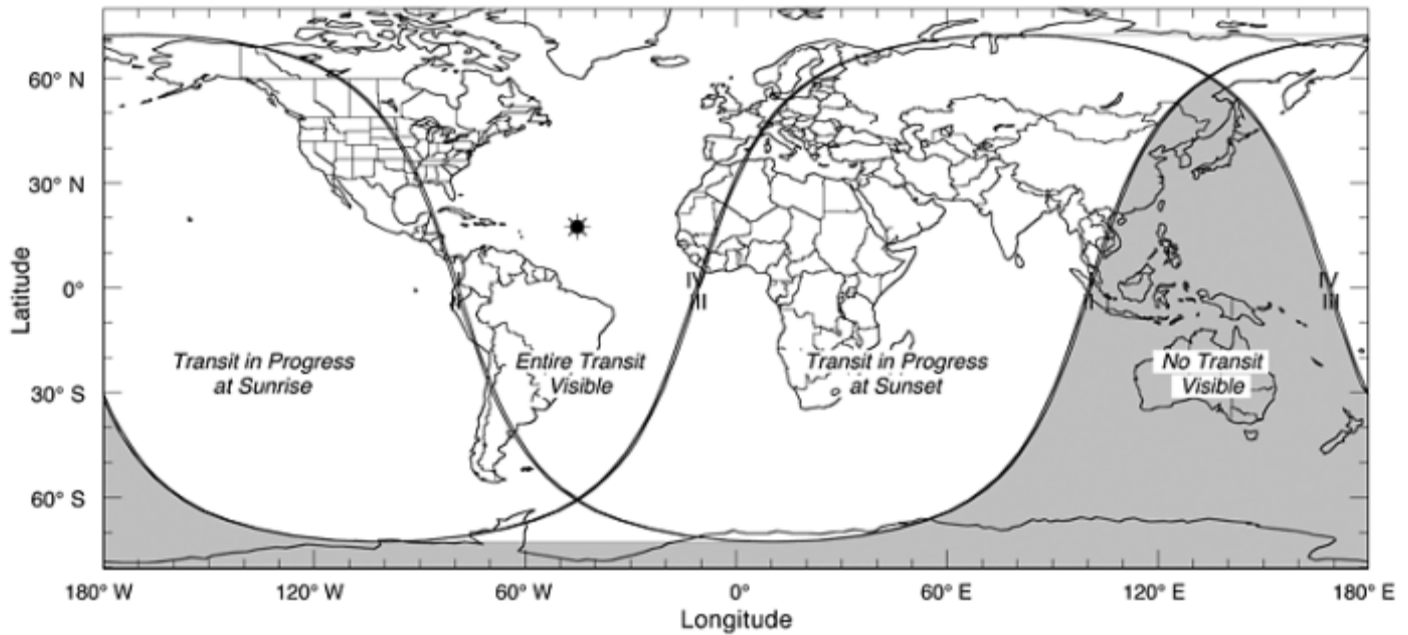


Path of Mercury Across the Sun During the Transit of 2016 May 09

Continued on next page

Figure 2

Transit of Mercury: 2016 May 09



Global Visibility of the Transit of Mercury on 2016 May 09

F. Espenak, www.EclipseWise.com

The transit begins before sunrise for observers in western North America. The transit ends after sunset for Eastern Europe, Asia and most of Africa. Regions where the entire transit is visible include eastern North and South America, the Atlantic Ocean, and Western Europe.

Additional information including tables of the transit times for a number of cities in North America are given here: <http://eclipsewise.com/oh/tm2016.html>

Transit Trivia

By Tom Faber, AAC Corresponding Secretary

Transits of Mercury aren't extremely rare. On average there are about 13 per century. Due to the alignment of Mercury's orbital plane with the Earth's, transits of Mercury currently occur when Mercury comes to inferior conjunction within a few days of May 8 or November 10. These are the dates when the Earth, in its yearly circuit around the sun, is lined up with the nodes of Mercury's orbit.

The periods between transits is somewhat irregular with May transits occurring at intervals of 13 or 33 years. The last May transit was in 2003 with the one before that in 1970. November transits happen more frequently, occurring at intervals of 7, 13, or 33 years. However just because Mercury transits occurs fairly often doesn't mean each one is visible from a particular location. Here in the Atlanta area both the 1970 and 1973 transits were visible and the weather was good for both. But after 1973 there was a long gap during which the 1986, 1993, 1999 (a grazing transit visible only from the extreme southern areas of the Earth), and the 2003 transits were not visible from the southeast United States. The 2006 one was visible from here but it was cloudy that day in Atlanta. So this is our first chance in Atlanta to see a Mercury transit in over 40 years! The next one occurs in 3.5 years, in November 2019, and will also be visible from the Eastern United States. Due to the precession of Mercury's orbit the dates of transits are gradually moving later in the year. Prior to the late 16th century they occurred in April and October.

Many of you observed the transits of Venus four years ago and the previous one in 2004. Since Atlanta was clouded out for the 2004 event

several of us from the AAC traveled north to the Chattanooga area to observe the 2012 transit because it was iffy as to whether the skies would clear in time for the event here in Atlanta. We were able to view and image the transit from its beginning at 6:05PM until sunset. Skies were clear except for an ill-placed cloud that blocked the sun for several minutes at second contact so we missed that part of the event. Transits of Venus are much rarer than Mercury transits and occur in pairs 8 years apart. The interval between these pairs can be either 121.5 or 105.5 years. The previous transits occurred in 1874 and 1882, and the next won't occur until 2117 and 2125, so if you missed the 2004/2012 events you are probably out of luck! The occurrences of Venus transits are also slowly moving later in the year, by about 2 days every 243 year transit cycle.

If you think transits of Venus are rare, what about a simultaneous transit of Mercury and Venus? These do occur but are so rare that we have a veritable flood of Venus transits by comparison. The last such event occurred about 375,000 years ago and the next won't occur for another 67,000 years! However in a little more than 11,000 years there will be a transit of Venus followed by a transit of Mercury a few hours later. Mark your calendars!

Transits can occur as seen from other planets too. From Mars, in addition to Mercury and Venus transits, there are also transits of the Earth. The next transit of Earth occurs in November 2084. Perhaps there will be humans on the Red Planet then to view this event. The previous one occurred in May 1984 and Arthur C. Clarke published a short story in 1971, called "Transit of Earth", that incorporated this event into the plot line. These events are doubly interesting because during most of the Earth transits both the Earth and moon will be visible crossing the solar disk at the same time. However this doesn't happen every time. Due to the geometry of some of these events one body completes its passage across the solar disk before the other one begins its transit.

Transits visible from other planets have been observed a couple of times by spacecraft. In December 2012 the Cassini spacecraft observed a transit of Venus as seen from its vantage point in orbit around Saturn, and in June

Continued on next page

2014 the Curiosity rover on Mars was able to image a transit of Mercury.

But for now the focus is on the May 9th Mercury transit. While Venus is big enough to be seen with the naked eye as it crosses the solar disk (with proper eye protection of course), Mercury is too small to be seen without magnification. So if you have a telescope with a safe solar filter and the skies are clear get out and view this event.

Hubble Discovers Moon Orbiting the Dwarf Planet Makemake

NASA/STScI News Release April 26, 2016

Peering to the outskirts of our solar system, NASA's Hubble Space Telescope has spotted a small, dark moon orbiting Makemake, the second brightest icy dwarf planet — after Pluto — in the Kuiper Belt.

The moon — provisionally designated S/2015 (136472) 1 and nicknamed MK 2 — is more than 1,300 times fainter than Makemake. MK 2 was seen approximately 13,000 miles from the dwarf planet, and its diameter is estimated to be 100 miles across. Makemake is 870 miles wide. The dwarf planet, discovered in 2005, is named for a creation deity of the Rapa Nui people of Easter Island.

The Kuiper Belt is a vast reservoir of leftover frozen material from the construction of our solar system 4.5 billion years ago and home to several dwarf planets. Some of these worlds have known satellites, but this is the first discovery of a companion object to Makemake. Makemake is one of five dwarf planets recognized by the International Astronomical Union.

The observations were made in April 2015 with Hubble's Wide Field Camera 3. Hubble's unique ability to see faint objects near bright ones, together with its sharp resolution, allowed astronomers to pluck out the moon from Makemake's glare. The discovery was announced today in a Minor Planet Electronic Circular.

The observing team used the same Hubble technique to observe the moon as they did for finding the small satellites of Pluto in 2005, 2011, and 2012. Several previous searches around Makemake had turned up empty. "Our preliminary estimates show that the moon's orbit seems to be edge-on, and that means that often when you look at the system you are going to miss the moon because it gets lost in the bright glare of Makemake," said Alex Parker of the Southwest Research Institute, Boulder, Colorado, who led the image analysis for the observations.

A moon's discovery can provide valuable information on the dwarf-planet system. By measuring the moon's orbit, astronomers can calculate a mass for the system and gain insight into its evolution.

Uncovering the moon also reinforces the idea that most dwarf planets have satellites.

"Makemake is in the class of rare Pluto-like objects, so finding a companion is important," Parker said. "The discovery of this moon has given us an opportunity to study Makemake in far greater detail than we ever would have been able to without the companion."

Finding this moon only increases the parallels between Pluto and Makemake. Both objects are already known to be covered in frozen methane. As was done with Pluto, further study of the satellite will easily reveal the density of Makemake, a key result that will indicate if the bulk compositions of Pluto and Makemake are also similar. "This new discovery opens a new chapter in comparative planetology in the outer solar system," said team leader Marc Buie of the Southwest Research Institute, Boulder, Colorado.

The researchers will need more Hubble observations to make accurate measurements to determine if the moon's orbit is elliptical or circular. Preliminary estimates indicate that if the moon is in a circular orbit, it completes a circuit around Makemake in 12 days or longer.

Determining the shape of the moon's orbit will help settle the question of its origin. A tight circular orbit means that MK 2 is probably the product of a collision between Makemake and another Kuiper Belt Object. If the moon is in a wide, elongated orbit, it is more likely to be a captured object from the Kuiper Belt. Either event would have likely occurred several billion years ago, when the solar system was young.

The discovery may have solved one mystery about Makemake. Previous infrared studies of the dwarf planet revealed that while Makemake's surface is almost entirely bright and very cold, some areas appear warmer than other areas. Astronomers had suggested that this discrepancy may be due to the sun warming discrete dark patches on Makemake's surface. However, unless Makemake is in a special orientation, these dark patches should make the dwarf planet's brightness vary substantially as it rotates. But this amount of variability has never been observed.

These previous infrared data did not have sufficient resolution to separate Makemake from MK 2. The team's reanalysis, based on the new Hubble observations, suggests that much of the warmer surface detected previously in infrared light may, in reality, simply have been the dark surface of the companion MK 2.

There are several possibilities that could explain why the moon would have charcoal-black surface, even though it is orbiting a dwarf planet that is as bright as fresh snow. One idea is that, unlike larger objects such as Makemake, MK 2 is small enough that it cannot gravitationally hold onto a bright, icy crust, which sublimates, changing from solid to gas, under sunlight. This would make the moon similar to comets and other Kuiper Belt Objects, many of which are covered with very dark material.

When Pluto's moon Charon was discovered in 1978, astronomers quickly calculated the mass of the system. Pluto's mass was hundreds of times smaller than the mass originally estimated when it was found in 1930. With Charon's discovery, astronomers suddenly knew something was fundamentally different about Pluto. "That's the kind of transformative measurement that having a satellite can enable," Parker said.



Credit: NASA, ESA, A. Parker and M. Buie (Southwest Research Institute), W. Grundy (Lowell Observatory), and K. Noll (NASA GSFC)



Comet 67P/Churyumov-Gerasimenko

From: http://www.esa.int/spaceinimages/Images/2016/04/Comet_on_27_March_2016_NavCam

Title Comet on 27 March 2016 – NavCam

Released 01/04/2016 5:00 PM

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This single frame enhanced NavCam image taken on 27 March 2016 by the Rosetta spacecraft when it was 329 km from the nucleus of Comet 67P/Churyumov-Gerasimenko. The scale is 28 m/pixel and the image measures 28.7 km across.

The original image and more information is available on the blog: <http://blogs.esa.int/rosetta/2016/04/01/cometwatch-27-march/>

The **Atlanta Astronomy Club, Inc.**, one of the South's largest and oldest astronomical society, meets at **3:00 P.M.** on the 2nd Saturday of each month at the Fernbank Science Center in Decatur, or occasionally at other locations or times. Membership fees are **\$30** for a family or single person membership. College Students membership fee is **\$15**. These fees are for a one year membership.

Magazine subscriptions to *Sky & Telescope* or *Astronomy* can be purchased through the club for a reduced rate. The fees are **\$33** for Sky & Telescope and **\$34** for Astronomy. Renewal forms will be sent to you by the magazines. Send the renewal form along with your check to the Atlanta Astronomy Club treasurer.

The Club address: Atlanta Astronomy Club, Inc., P.O. Box 76155, Atlanta, GA 30358-1155. AAC Web Page: <http://www.AtlantaAstronomy.org>. Send suggestions, comments, or ideas about the website to webmaster@AtlantaAstronomy.org. Also send information on upcoming observing events, meetings, and other events to the webmaster.

Atlanta Astronomy Club Online

While this newsletter is the official information source for the Atlanta Astronomy Club, it is only up to date the day it is posted. So if you want more up to date information, go to our club's website. The website contains pictures, directions, membership applications, events updates and other information. <http://www.atlantaastronomy.org> You can also follow the AAC on Facebook by joining the AAC group, and on Twitter at <http://twitter.com/atlastro>.

AAC Officers and Contacts

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PSSG Chairman: Peter Macumber pmacumber@nightsky.org

PSSG Co-Chair: Open

Sidewalk Astronomy: Brad Isley
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Light Trespass: Ken Edwards, Contact info TBA

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AAC Webmaster: Daniel Herron
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Calendar by Tom Faber (Times EDT/EST unless noted)

AAC Events are listed in BOLD

- May 5th, Thursday: Eta Aquariid Meteor Shower.
- May 6th, Friday: New Moon.
- May 7th, Saturday: **CE Chapter Meeting.** Moon thin crescent near Aldebaran.
- May 9th, Monday: Mercury at Inferior Conjunction - Transit of Mercury: 1st Contact 7:13:43AM, Greatest 10:58:15AM, Last Contact 2:41:42PM. See page 4.
- May 10th, Tuesday: Sidewalk event at Forest Park Library - see page 7.
- May 13th, Friday: Moon First Quarter.
- May 21st, Saturday: **AAC Mtg at Fernbank Science Center 3:00PM.** Full Moon.
- May 22nd, Sunday: Mars at Opposition.
- May 29th, Sunday: Moon Last Quarter.
- May 30th, Monday: Mars closest to Earth - 0.503 AU, 18.6" across.
- June 3rd, Friday: Moon near Mercury. Saturn at Opposition.
- June 4th, Saturday: **CE Chapter Meeting & Potluck.** New Moon.
- June 5th, Sunday: Mercury at Greatest Elongation East.
- June 6th, Monday: Venus at Superior Conjunction.
- June 10th, Friday: Jupiter near Chi Leonis.
- June 12th, Sunday: Moon First Quarter.
- June 14th, Tuesday: Earliest Sunrise (~6:25AM at Atlanta).
- June 18th, Saturday: **AAC Mtg at Fernbank Science Center 3:00PM.** Moon near Saturn.
- June 20th, Monday: Full Moon. Summer Solstice at 6:34PM.
- June 27th, Monday: Moon Last Quarter. Latest Sunset (~8:52PM at Atlanta).
- July 4th, Monday: New Moon.
- July 7th, Thursday: Pluto at Opposition.
- July 11th, Monday: Moon First Quarter.

For more event listings see the calendar at www.atlantaastronomy.org

Atlanta Astronomy Club Listserv

Subscribe to the Atlanta Astronomy Club Mailing List: The name of the list is: AstroAtlanta. The address for messages is: AstroAtlanta@yahoogroups.com . To add a subscription, send a message to: AstroAtlanta-subscribe@yahoogroups.com .

Focal Point Deadline and Submission Information

Please send articles, pictures, and drawings in electronic format on anything astronomy, space, or sky related to Tom Faber at focalpoint@atlantaastronomy.org. Please send images separate from articles, not embedded in them. Articles are preferred as plain text files but Word documents or PDFs are okay. You can submit articles anytime up to the deadline. **The deadline for June is Saturday, May 28. Submissions after the deadline will go in the following issue.**



FIRST CLASS



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We're here to help! Here's how to reach us:

Newsletter of The Atlanta Astronomy Club, Inc.



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