The Astronews

HUI KILOLANI

Volume 59, Issue 7

JULY 2011

www.hawastsoc.org

President's Message

by Chris Peterson

Stars are basic components of the universe. Most ordinary matter is, was, or will be part of a star someday. Our understanding of stars has increased greatly in modern times, but there's still a lot we don't know.

Even before telescopes were invented, sunspots were noticed and cataloged. Galileo examined the Sun with his first telescopes, and the real science began.

Sunspots clued us in to an 11-year cycle of solar activity. Longer cycles of solar variability have also been noticed, but we are only beginning to understand why the Sun behaves as it does. From about 1645 to 1715, a period known as the Maunder Minimum, few sunspots were observed. A cooler than normal period (at least in the northern hemisphere) known as the Little Ice Age that was most extreme during the Maunder Minimum may be related. In a time of global climate change, it would

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Inside this issue:

☆ Upcoming Star Parties ☆

Kahala/Ewa Party** **July 9**

Club Party-Dillingham **July 23**

Public Party-Dillingham 7/2 & 7/30

Upcoming Events:

☆The next meeting is 7:30PM on **Tues., July 5** at the Bishop Museum Planetarium.

☆Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **July 1 & 15** at 8:00 p.m.
www.bishopmuseum.org/calendar

☆The next Board Meeting is Sun., **July 3** at 3:30 p.m. at the POST building at UH.

Closer Look...

Adopt-A-Constellation

At our last club meeting ***Barry Peckham*** suggested another "astro game" of sorts--having club members "adopt" a constellation for the summer. The idea is to pick your favorite area of the sky and observe it in detail, with the intention of sharing new sights with others.

Immediately several members took up the challenge. Here is the first group:

- Sue Girard - Crux
- Paul Lawler - Lynx
- Mel Levin - Cygnus
- Clare Levin - Sagittarius
- Barry Peckham - Scutum

We look forward to getting more participation from other club members, plus heaing or reading of their discoveries.

Consider joining in the summer fun!

More Accolades For Travis

If you hear a voice whining, "Travis, Travis, Travis! ...always Travis ...!", you're not having a Brady Bunch flashback, nor does the Le family pay me for writing about their son. Rather Travis Le has again managed to shine in the spotlight and make the club proud of its young member.

Check out the recent Midweek article: http://www.midweek.com/ (Search for "Science Whiz Kids" if you don't see it on homepage). Midweek has a substantial aricle on Travis and his win at the International Science and Engineering Fair in LA this year. And this month's Reflector Magazine has an article on Travis and his recent victory earning 2nd place in the Astronomical League's 2011 National Young Astronomomer Awards. Travis earns a complementary membership in the International Dark-Sky Association, an expense-paid trip to the Astronomical League's Conference (ALSonExpo) in Bryce Canyon, UT, and a lifetime pass to McDonald Observatory.

Congratulations again, Travis!

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The Astronews is a monthly newsletter of the Hawaiian Astronomical Society. Some of the contents may be copyrighted. We request that authors and artists be given credit for their work. Contributions are welcome. Send them to the Editor via email. The deadline is the 16th of each month. We are not responsible for unsolicited artwork.

Meeting Minutes

by Gretchen West

H.A.S. President ***Chris Peterson*** called the June 7, 2011 meeting of the Hawaiian Astronomical Society to order at 7:30 p.m. The meeting was held at the Planetarium on the grounds of the Bishop Museum. There were seventeen members and two visitors in attendance.

Sue Girard presented Chris Peterson with a birthday lei.

Associated Lectures: The next free Hawaii Space Lecture Series talk will take place at 7:30 p.m. on Tuesday June 21. This month the Hawaii Space Lecture Series presents Dr Jeffrey Bennett. Dr. Bennett, an astrobiologist and author, will speak on "Beyond UFO's: The Search for Extraterrestrial Life and its Astonishing Implications for Our Future." Contact NASA PRPDC at 808-956-3132 or on the Web go to http://www.higp.hawaii.edu/prpdc for more information. Regular lectures usually take place at the NASA Pacific Regional Planetary Data Center, room 544 in the Pacific Ocean Science and Technology Building on the Manoa campus of the University of Hawaii.

Big Island Trip: Plans have been finalized and members of the club will be visiting the telescopes at the summit of Mauna Kea on the Big Island of Hawaii on June 25. Making the trip with club members will be author Stephen O'Meara. Club members are urged to be sure to bring cold weather gear and to layer clothing, as the temperatures at the summit are forecast to be in the thirties.

Bishop Museum: The Hawaiian Astronomical Society and the Bishop Museum have had a long and positive relationship. H.A.S. is greatful to the Bishop Museum for their continued kindness. We would like to pay back that kindness by purchasing a desktop computer for use in the Planetarium to enhance what they already have. At-Large Board member ***Paul Lawler*** will be researching computer prices, and will report back to the general membership before any purchase is made. As the purchase will be greater than $200, the general membership will be asked to vote on the expenditure at a future meeting.

Star Light Reserve: ***Harry Zisko*** reported that a meeting of the Star Light Reserve Recommendation Committee took place on June 2nd. He reported that the majority of discussion was about Bill 493 regarding light pollution and related shielding for street light fixtures. It appears that the committee is concentrating on Governor Abercrombie signing a measure that will extend the life the committee until June of 2013.

Donation to be Sold: The first edition copy of Rugal's Atlas of the Moon, donated by ***Jay Wrathall***, is to be sold and the proceeds to be donated to the H.A.S. ***Paul Lawler*** has researched previous upset prices for comparable books and suggests that we set a reserve price of $50 and an upset price of $200 for sale on eBay. Members who are interested in this first edition book can contact ***Chris Peterson***.

Lacy Veach Day: The club will participate in the next Lacy Veach Day event at Punahou on Saturday, October 29. This day of science and discovery for students, parents and teachers celebrates the life of the late U.S. Astronaut Lacy Veach. ***Gretchen West*** will coordinate the club's exhibit and will be asking for willing members to sign up to help man the table.

News Items: Chris Peterson spoke about a recent article in the Star Advertiser regarding the use of green lasers. Our members are aware of the dangers inherent in the use of these tools. However, some recent events involving lasers in and around airports where pilots were distracted have caused the FAA to crack down on pranksters. Chris wants to stress to our members that we all must be careful and vigilant in the proper use of these tools.

A supernova, Supernova 2011dh, has appeared on one of the outer arms of the Whirlpool Galaxy (M51). The exploding star is the second supernova to appear in M51 in

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NASA's Space Place

Finding Planets among the Stars

by Dr. Tony Phillips

Strange but true: When it comes to finding new extra-solar planets, or exoplanets, stars can be an incredible nuisance.

It's a matter of luminosity. Stars are bright, but their planets are not. Indeed, when an astronomer peers across light years to find a distant Earth-like world, what he often finds instead is an annoying glare. The light of the star itself makes the star's dim planetary system nearly impossible to see.

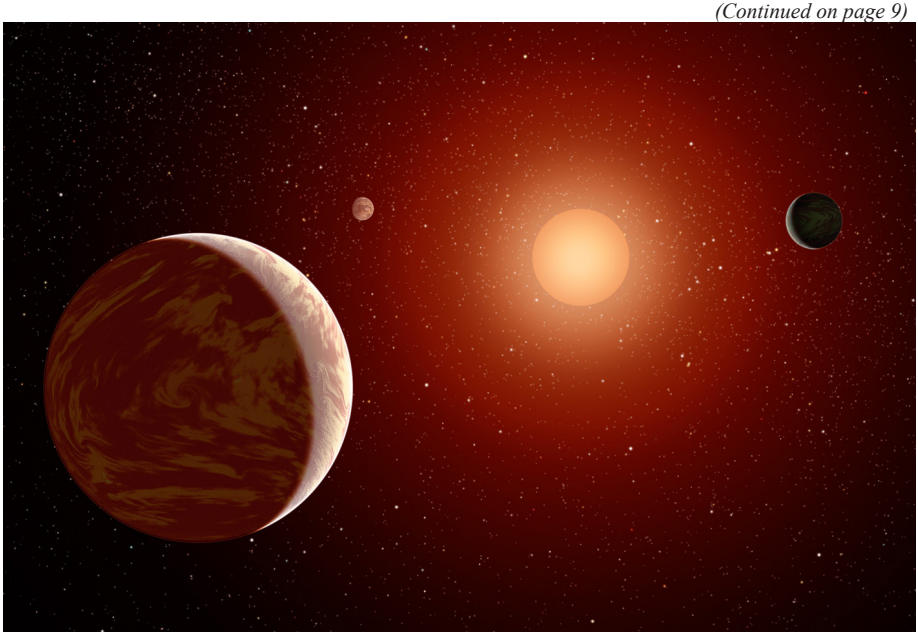
Talk about frustration! How would you like to be an astronomer who's constantly vexed by stars?

Fortunately, there may be a solution. It comes from NASA's Galaxy Evolution Explorer, an ultraviolet space telescope orbiting Earth since 2003. In a new study, researchers say the Galaxy Evolution Explorer is able to pinpoint dim stars that might not badly outshine their own planets.

"We've discovered a new technique of using ultraviolet light to search for young, low-mass stars near the Earth," said David Rodriguez, a graduate student of astronomy at UCLA, and the study's lead author. "These M-class stars, also known as red dwarfs, make excellent targets for future direct imaging of exoplanets."

Young red dwarfs produce a telltale glow in the ultraviolet part of the electromagnetic spectrum that Galaxy Evolution Explorer can sense. Because dwarf stars are

(Continued on page 9)



Exoplanets are easier to see directly when their star is a dim, red dwarf.
Artwork courtesy: NASA

Meteor Log — by Tom Giguere

This month we have one minor shower and two nearly insignificant meteor showers! The South. δ-Aquariids (SDA) are often faint, thus are suitable targets for telescopic observing, although enough brighter members exist to make visual and imaging observations worth the effort too, primarily from more southerly sites. Careful visual plotting is advised, to help with accurate shower association.

The SDA/PAU/CAP radiants are well above the horizon for much of the night, and the SDA enjoys identical dark-sky conditions in the second half of the nights near its maximum to the PAU. Its peak may not be quite as sharp as the single date here might imply, with perhaps similar ZHRs from July 28–30. Its rates have been suspected of some variability at times too, though not in the more recent investigations. As always, if you observer a shower, please forward any observations to your fellow observers below…

New Moon	*First Quarter*	*Full Moon*	*Last Quarter*
July 8	**July 8**	**July 15**	**July 23**

Shower	Activity	Max Date	λ 2000	Radiant α	Radiant δ	V∞ km/s	*r*	ZHR
Piscis Austranids (PAU)	7/15 - 8/10	Jul 28	125°	341°	-30°	35	3.2	5
So., δ-Aquariids (SDA)	7/12 - 8/23	Jul 30	127°	340°	-16°	41	3.2	16
α -Capricornids (CAP)	7/03 - 8/15	Jul 30	127°	307°	-10°	23	2.5	5

Many thanks to the IMO for their detailed shower factoids.
For more information on observing meteors, please contact ***Tom Giguere,*** 808-782-1408, Thomas.giguere@yahoo.com or ***Mike Morrow***, PO Box 6692, Ocean View, HI 96737.

Shooting the Moon (for Dummies Like Me) — by Barry Peckham

This is not about astrophotography. Rather, it is about what anyone with a simple digital camera can do at the eyepiece of a telescope when it is pointed at the #2 most popular celestial object. Now that I have several years worth of attempts under my belt, and in my computer's image folder, I feel compelled to cover the basics, and to note that lunar photography in the digital imaging age is good for us all.

What's so good about it? Answer: it makes sense to know your Moon and the Moon has a lot to know: hundreds upon hundreds of features that change their appearance with the ever-changing illumination. An hour at the eyepiece will help you to learn, but there is more in view than you or I can study in an hour, or two. By the next night, everything on the Moon will look different. A frozen record of the ever-changing lunar

Planets Close To the Moon

Times are Hawaii Standard Time

July 2, 13h, M 4.9º SSW *Mercury* (20º from sun in evening sky)

July 7, 13h, M 7.5º SSW *Saturn* (85º from sun in evening sky)

July 17, 19h, M 5.4º NNW of *Neptune* (145º from sun in morning sky)

July 20, 15h, M 5.9º NNW of *Uranus* (113º from sun in morning sky)

July 23, 18h, M 4.9º NNW of *Jupiter* (82º from sun in morning sky)

July 27, 09h, M 1.0º ESE *Mars* (38º from sun in morning sky)

Venus is closer than 15º from the sun when near the moon in July.

Other Events of Interest

Times are Hawaii Standard Time

June 30, 22:53h, Moon New

July 2, 12h, Midpoint of the year in Hawaii

July 4, 05h, *Earth* at aphelion (farthest from sun, Distance = 1.01674 a.u.)

July 12, *Neptune* completes its first orbit since discovery in 1846

July 14, 20:38h, Moon Full

July 19, 19h, *Mercury* at greatest elongation (26.8º East of the sun in evening sky)

July 28-30, Delta Aquarid meteors (south) (Very favorable year for this shower.)

☿ Mercury

Has an evening apparition the lasting most of July with greatest elongation on July 19.

♀ Venus

Venus is too close to the sun to be observed in July.

♂ Mars

Rises a couple of hours before the sun and is the dimmest of the year - magnitude about +1.4.

♃ Jupiter

Rises just after midnight and shines brightly in the morning sky .

♄ Saturn

Still well placed for viewing just after sunset in the southwestern sky.

♅ Uranus

Uranus is visible in the morning sky after midnight.

♆ Neptune

Neptune is visible in the morning sky, above Uranus.

♇ Dwarf Planet Pluto

Reached opposition on June 27. June and July are the best months to try to observe this very dim dwarf planet.

Asteroid 4 Vesta

Opposition on Aug 5 - the brightest of the asteroids will be at +6.0 mag in June. The Dawn spacecraft will arrive near Vesta in July.

(Minutes continued from page 3)
the past six years. It was noticed as early as May 31, 2011 and brightened considerably. H.A.S. members reported that the light has faded a bit, but you might want to take a chance and look for yourself.

NASA reports that it has decided to give up on the Mars rover, Spirit. Spirit has not responded to commands since March 22, 2010. The rover was originally intended to last three months but has lasted for over six years. The rover traveled 7.7 kilometers (4.8 miles) and returned over 124,000 images. However, NASA will continue communications with rover, Opportunity. The second rover continues to move and is journeying to Mars crater "Endeavor." A next Mars rover will use telephoto and wide-angle full color cameras will be able to record aspects of the Martian surface in detail. This latest rover is scheduled to launch later this year.

The Messenger mission to Mercury continues to gather data as it orbits the closest planet to our sun. NASA's Lunar Reconnaissance Orbiter continues conduct investigations and scout out locations for lunar habitation. The Cassini mission to Saturn continues to send NASA data on the ringed planet. The New Horizons mission to Pluto and the Kuiper belt is more than halfway to Pluto. NASA reports that its Voyager spacecraft is passing through the Sun's magneto shield and Heliopause.

NASA's second to the last space shuttle mission completed the International Space Station. As a result, the six-man crew can now settle down to doing more science in space.

Help for the Treasurer: ***Jim MacDonald*** reports that an update of the QuickBooks software has been purchased and installed.

School Star Party Report: MDA Event at Camp Erdmann – The Muscular Dystrophy Association star party at Camp Erdmann took place the evening of May 30th. ***Ort Vanapruks*** and ***Sue Girard*** served as astronomers for this event. Sue indicated that the star party was "semi-successful", as the majority of individuals were wheelchair bound and unable to move high enough to the see through the eyepieces. The helpers endeavored to hold the chair-bound kids up to view at the eyepieces. Sue brought along visual aids to show the kids.

We have only one star party scheduled during June:

June 10 – Girl Scouts – Hoomaluhia Botanical Gardens in Kaneohe.

Visitors: We had three visitors to this month's meeting; Charlie Rykken, Albert Kanno and April. Recent views through a telescope and a yen to become reacquainted with the night sky drew these visitors to our group. We hope to see more of them.

Slide Presentation: ***Chris Peterson*** presented a series of slides summarizing recent astronomy discoveries provided by the American Astronomical Society. Slides included views from the Kepler mission, which is monitoring 150,000 in the area of Cygnus and @1,200 probable exoplanets. Of the @1,200 probable exoplanets, only five appear to be in the "Goldilocks Zone," the habitable zone similar to Earth.

Discussions with Barry: Vice President ***Barry Peckham*** acquainted or reacquainted everyone present with Porrima, in the constellation of Virgo. Barry assures us that this double star, which is extremely hard to split, is visible at high power this season. Barry gave the Latin derivation of the name along with the Chinese, as well as its magnitude and orbital period. Barry challenged everyone to adopt a summer constellation. He urged people to learn all there is to know about that particular constellation, thereby expanding their base of knowledge and their enjoyment of the night sky.

As there was no further business, the meeting was adjourned at 9:10 p.m. Light refreshments were served.

Respectfully Submitted,
Gretchen West
H.A.S. Secretary

Hawaiian Astronomical Society
Event Calendar

<	July 2011	>				
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
26	27	28	29	30	**1**	**2** 6:30 PM Public Star Party(D) Sunset: 7:19 PM
3	**4** Independence Day	**5** 7:30 PM Club Meeting	**6**	**7**	**8** 7:00 PM Pack 564 Star Party	**9** 7:00 PM Public Star Party(K) 7:00 PM Public Star Party(G) Sunset: 7:19 PM
10	**11**	**12**	**13**	**14**	**15**	**16** Sunset: 7:18 PM
17	**18**	**19**	**20**	**21**	**22**	**23** 6:30 PM Club Star Party (D) Sunset: 7:16 PM
24	**25**	**26**	**27**	**28** 3:00 PM NSN Teleconference	**29**	**30** 6:30 PM Public Star Party(D) Sunset: 7:13 PM
31	1	2	3	4	5	6

☆ ☆ Upcoming School Star Parties ☆ ☆

Fri.	**7/8**	Boy Scout Pack 564
Fri.	**9/2**	Mililani Uka Elementary
Fri.	**9/23**	Niu Valley Middle

Night Sky Network News

by John Gallagher

Telecon with Dr David Morrison on Astrobiology will take place on Thursday, July 28, 2011 at 3:00 pm. Details can be found on the Night Sky Network (NSN) on the clubs calendar for month. Just click on the "Telecon" for date and you will be taken to a page that will show additional information, sign on procedures, and link to the power point slides.

(Space Place continued from page 4)
so numerous—as a class, they account for more than two-thirds of the stars in the galaxy—astronomers could reap a rich bounty of targets.

In many ways, these stars represent a best-case scenario for planet hunting. They are close and in clear lines-of-sight, which generally makes viewing easier. Their low mass means they are dimmer than heavier stars, so their light is less likely to mask the feeble light of a planet. And because they are young, their planets are freshly formed, and thus warmer and brighter than older planetary bodies.

Astronomers know of more than five hundred distant planets, but very few have actually been seen. Many exoplanets are detected indirectly by means of their "wobbles"—the gravitational tugs they exert on their central stars. Some are found when they transit the parent star, momentarily dimming the glare, but not dimming it enough to reveal the planet itself.

The new Galaxy Evolution Explorer technique might eventually lead to planets that can be seen directly. That would be good because, as Rodriguez points out, "seeing is believing."

And it just might make astronomers feel a little better about the stars.

The Galaxy Evolution Explorer Web site at http://www.galex.caltech.edu describes many of the other discoveries and accomplishments of this mission. And for kids, how do astronomers know how far away a star or galaxy is? Play "How Old do I Look" on The Space Place at http://spaceplace.nasa.gov/whats-older and find out!

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration. ☆

(MOON continued from page 5)
appearance lets you learn it longer, with reference charts in daylight hours at desktop comfort.

Yes, I know: photos of the Moon have already been taken! The Internet is thick with them. You will want to take your own Moon pics because the process is an eye witness event, it fosters ownership and makes what you have captured easier to notice. 90% of the lunar photos you will find on the Internet are WORSE than those you can take yourself, with a little practice.

I've been practicing. This is what I've found out so far:

Not all cameras are created equal. Very few camera phones are up to the task of lunar photography (but some are!) Expensive digital SLR cameras have too much vignetting to be useful at the eyepiece. Both eyepiece and camera have focal planes that must play well together. If it doesn't work, it ain't always your fault. Be careful that your camera lens doesn't scratch your eyepiece, or vice versa. Make a protective O-ring using your thumb and index finger. This helps to steady the camera too.

Not all eyepieces are created equal. Low power, wide field and long eye relief eyepieces work best with most cameras. Of those 3 qualities, long eye relief seems most important. My new (used) Ethos eyepiece is no good for lunar photography. Radian eyepieces work very well, due in part to their retractable barrels.

Not all nights are created equal. Atmospheric turbulence, like doodoo, happens. You will not get a decent photo of the Moon on a night with indecent seeing. Avoid windy nights, not just because the scope shakes but also because the thermal properties of the air between you and the Moon are most stirred up on windy nights. Also, keep the Moon away from clouds, not only because of their veiling effect but also because condensation creates heat as well as clouds. Fear not the hazy night! Haze is often a sign of stable air, and a steady lunar image. Shoot the Moon at the highest altitude possible.

Play with your camera settings (if you dare!). Turn off the flash. Autofocus is okay.

(Continued on page 10)

Treasurer's Report

by Jim MacDonald

HAS Financial Report for the month ending as of June 15, 2011

Initial Balance:	**$6,501.55**
Receipts:	
Donations	3.00
Dues Received	62.00
Magazine Payments	34.00
Mauka Kea Trip Deposit	200.00
Total Income:	**$299.00**
Expenses:	
Astro League Dues	665.00
Magazine Subscription	66.95
Astronews (2 mo.)	232.85
Postage	2.48
Accounting Software	99.99
Total Expenses:	**$1,067.27**
Final Balance	**$5,733.28**

The club's membership remained unchanged this month. Thanks also to all those renewing their membership this month. Come join us under the spring skies.

☆ ☆ ☆

(MOON continued from page 9)

A fast shutter speed is good. A low ISO (the digital version of ASA) number is also good. I often stop down my camera when the moon phase is gibbous (try minus 2/3). Shoot and shoot and shoot. Less than 1 in 10 shots are worth keeping. Check light levels across the image of the moon as you prepare to snap the picture. Camera/eyepiece mis-alignments will show up as darker regions at the edge of the field-of-view. A bit of optical zoom on your camera often helps to capture more lunar pixels (enhancing resolution).

Please process the images! There is no award given to unprocessed lunar images. I use an old version of Photoshop and also a low cost program called ACDSee, but free online image processing is also available. Most important are contrast and sharpening. Adjust levels to get a black sky. Burning and dodging are great if you can find those tools. I like to burn in the Terminator and dodge at the lunar limb, making the image closer to what the eye sees in the eyepiece. Sometimes your image will look sharp in one area and less sharp in another. Selective sharpening is a nice feature, if you can find it. Crop the bad parts out and limit blank space around the Moon. Center it! Also consider tossing out the image's color info. Your reward will be a much larger image/smaller file size for emailing to friends.

While you work with the image, you can't help studying it. This is the point of the exercise: quality time with your amazing Moon.

Barry

(President ontinued from page 1)

be good to know more about how the Sun affects the Earth's weather. Solar activity can also affect satellites and electronics on Earth as well as posing dangers to any humans outside Earth's magnetic field.

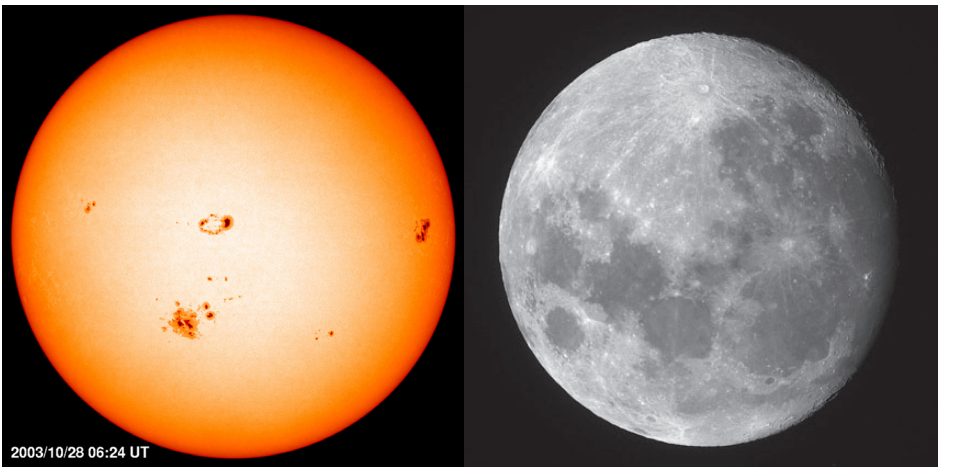
The most recent solar minimum was unusual. Some scientists at the National Solar Observatory predict continued low numbers of sunspots in coming years.

Fortunately, we have several spacecraft that are now studying the Sun. One you're probably familiar with is SOHO, the Solar and Heliospheric Observatory, launched in 1995. It orbits at the L1 point between the Earth and Sun and continually observes the Sun. In addition to doing basic research and space weather monitoring, it has discovered thousands of sun-grazing comets.

A newer mission is STEREO, the Solar Terrestrial Relations Observatory Twin spacecraft were launched in 2006 to observe the Sun from different angles simultaneously. They orbit the Sun at different speeds, so the angle between them continually changes. They recently became separated by 180 degrees to provide the first coverage of the entire Sun at once by identical instruments. Now they are drawing closer together, increasing stereo coverage of the side of the Sun opposite Earth.

These and other spacecraft, combined with ground-based observations, should lead to a much greater understanding of the Sun, the nearby stellar companion that makes life on Earth possible.

Chris



Solar Image credit: SOHO (ESA & NASA)/ Moon Image Credit: Barry Peckham
(*on right*) Active region 10486 became the largest sunspot seen by SOHO, It unleashed a spectacular show on 28 October 2003. An X 17.2 flare, the second largest flare observed by SOHO and the third largest ever recorded, blasted off a strong high energy proton event and a fast-moving Coronal Mass Ejection. The spot occupied an area equal to about 15 Earths, a size not seen since 1989. It later fired off the largest X-ray flare recorded, on 4 November 2003.

(*on left*) Not to be outdone, HAS VP Barry Peckham uses his more "down to Earth" instrument to image our closer neighbor with nice results. For more information, see his accompanying article beginning on page 5.

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At the Dillingham public star party on May 21, 2011, club member Travis Le talks with an interested group before dark.
Image credit: Barry Peckham