diablo Moonwatch

Mount Diablo Astronomical Society

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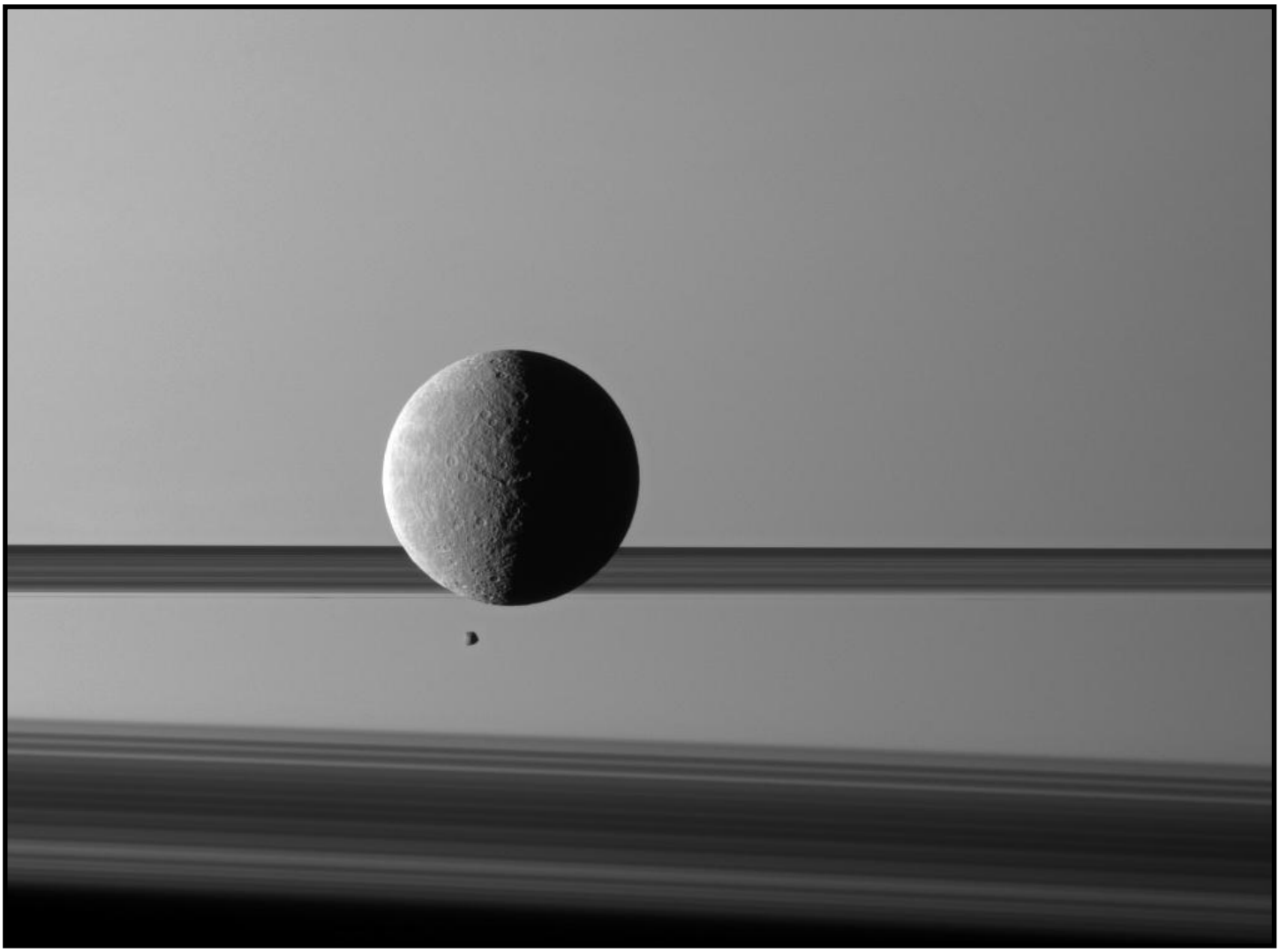


An Image from the Cassini-Huygens Mission

Saturn's moon **Rhea** looms "over" a smaller and more distant **Epimetheus** against a striking background of planet and rings. The two moons aren't actually close to each other. The view was obtained at a distance of approximately 1.2 million kilometers (746,000 miles) from Rhea and 1.6 million kilometers (994,000 miles) from Epimetheus.

Lit terrain seen here is in the area between the trailing hemisphere and anti-Saturn side of Rhea (1,528 kilometers, or 949 miles across). Lit terrain seen on Epimetheus (113 kilometers, or 70 miles across) is mostly on the Saturn-facing side. This view looks toward the sunlit side of the rings from just above the ringplane.

The image was taken in visible green light with the Cassini spacecraft narrow-angle camera on March 24, 2010. Image scale is 7 kilometers (4 miles) per pixel on Rhea and 10 kilometers (6 miles) per pixel on Epimetheus.

The Dawn of Creation: The First Two Billion Years

MDAS June Meeting - Main Speaker

Marni Berendsen

The beauty of the universe, the galaxies, clusters of galaxies, and most of the stars, got its start in the first billion years after the beginning of time, the Big Bang. Every deep picture of the sky reveals thousands of these galaxies, each made up of billions of stars like the Sun.

But did the universe always look like it does today? If we could have been there to witness it, what would the universe have looked like in its infancy?

Join us on Tuesday, June 22nd when **Dr. Steven Beckwith** will take us back to when the first galaxies were created and the universe started to develop the structure that has resulted in the patterns of galaxies we see today.

Modern technical wonders like the Hubble Space Telescope have made it possible to look back to a time when the universe looked very different than it does today. The intricate spiral structures of the Milky Way as well as the very smooth distributions of the larger elliptical galaxies took shape slowly, building up from many pieces in the detritus of the initial explosion. This development was governed by the dark matter that we can sense but still not see.

Dr. Steven Beckwith is the Vice President for Research and Graduate Studies for the University of California's ten campuses, and he is the immediate past Director of the Space Telescope Science Institute. His 30-year research career spans a wide spectrum of interests including the formation and early evolution of extra-solar planetary systems, the evolution of young stars, and the birth of galaxies in the early universe. In 2004, he led the team that created the Hubble Ultra Deep Field, the deepest visual image of the universe, resulting in the discovery of the most distant galaxies ever seen.

Mark your calendar for June 22nd: Don't miss what is certain to be an exciting trip back to our beginnings!

Dr. Steven Beckwith

For more information:

Johns Hopkins University
http://physics-astronomy.jhu.edu/people/faculty/svwb.html

University of California Office of Research
http://www.ucop.edu/research/beckwith.html

Space.com – Q&A with Hubble's Biggest Booster
http://www.space.com/businesstechnology/050307_beckwith_interview.html

Upcoming programs:
July 27: The Great Debate: Scala vs Harms: Manned or Robotic Space Exploration?
August 24: Dr. Thomas Berger of Lockheed Martin Solar and Astrophysics Laboratory
"Close-up of the Sun: Newest images from the Solar Dynamics Observatory"

What Galileo Did Under House Arrest

MDAS June Meeting - What's Up?

Nathaniel Bates

"The scientific world generally remembers Galileo for his discoveries in Astronomy and Physics. Galileo's contributions in Mathematics are not so well known. **Nathaniel Bates** will be discussing Galileo's contributions to mathematics and philosophy. In particular, he will be discussing Galileo's meditations on the nature of infinity. Of what nature is infinity? These questions inspired later generations of mathematics. They even had an influence on Mathematicians like Cantor and Godel. Come and understand how Galileo changed how we view 'forever'."

For more information:

The Galileo Project
http://galileo.rice.edu/

The Trial of Galileo Galilei
http://www.law.umkc.edu/faculty/projects/ftrials/galileo/galileo.html

Renewed Your Magazines Subscriptions Yet? Here's How

Marni Berendsen

Now all **Sky & Telescope** and **Astronomy** magazine subscriptions renewals will be handled online – AT THE CLUB DISCOUNT RATE!

All MDAS members have been added to our member roster on Night Sky Network.

Here are the easy steps to subscribe to magazines:

1. Go to the Night Sky Network magazine renewal link: http://www.astrosociety.org/magazine/
2. Select the magazine to which you wish to subscribe and follow the instructions on the form.

If you don't have access to a computer, any MDAS member can help you renew your subscription through the same link. Contact Marni Berendsen 925-930-7431 for assistance.

Eyes in the Sky:
Satellites and the Horrific Ongoing Oil Spill of April 20th

President's Corner

Liede-Marie Haitsma

On April 20th the British Petroleum oil rig, **Deepwater Horizon** in the Gulf of Mexico, caught fire and exploded causing terrible death and injury to those on board. The rig sank two days later. Oil has been emerging from the ripped open pipe 5,000 feet, nearly a mile (1.6 km) under water. Experts believe (and have now confirmed) that the ongoing leak is more then the oil spilled from the Exxon Valdez tanker in Alaska 1989.

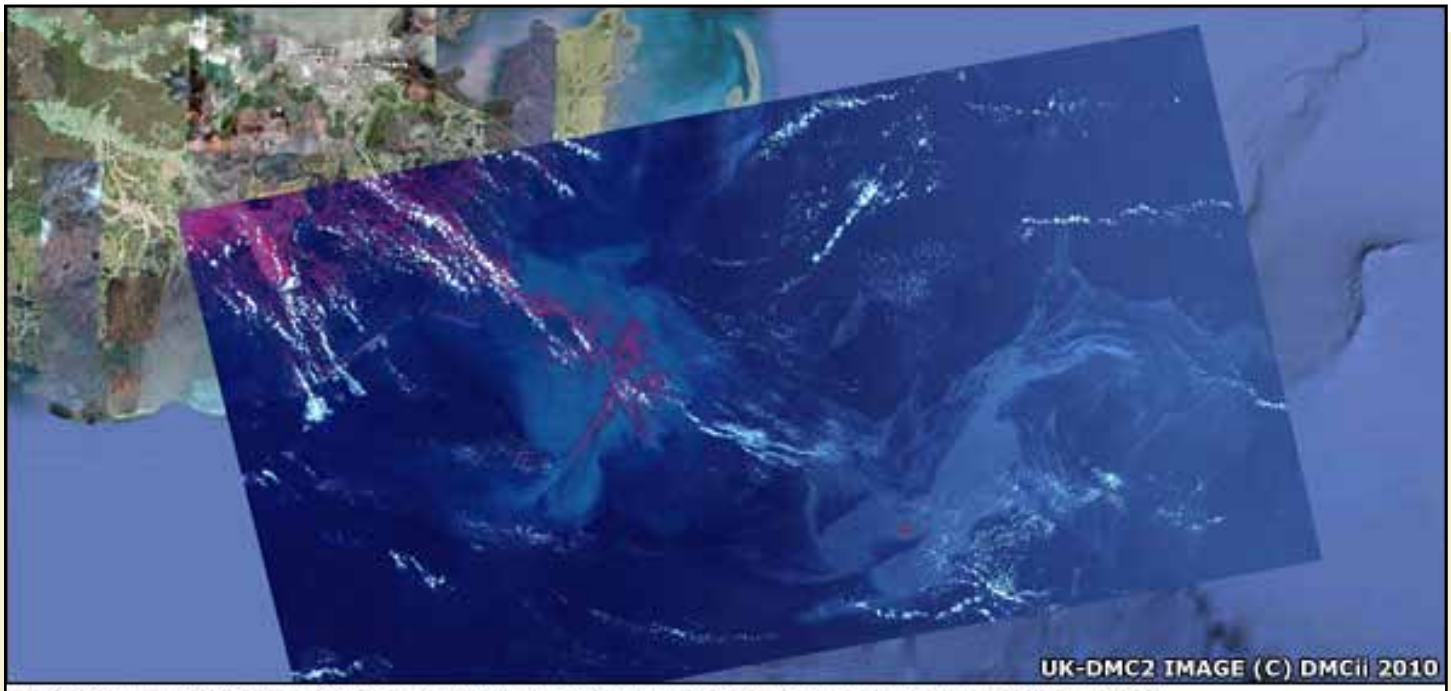
"The Gulf oil slick is a situation where access to satellite data is absolutely essential to the strategy for dealing with the problem" as stated by Jonathan Amos, BBC science correspondent with the BBC Science and Environment on Friday, May 20 2010.

The spill has reached the coast of Louisiana where jobs to those catching shrimp have stopped; oil has damaged and caused death to wildlife on the coastal marshes. The oil leak has already soiled more than 70 miles (110 km) of LA coastline; threatening fragile marshland and putting the fishing industry at risk.

The oil leak will threaten Florida, going north up the eastern seaboard and Cuba with the possibility (and this too has now been confirmed) that it has entered the "Loop Current", a powerful conveyor belt that flows clockwise around the Gulf of Mexico towards Florida.

These International Earth observers are keeping watch over the region day-to-day. International Charter (on) Space and Major Disaster-Providing a unified system of space data:

1. ESA (European)
2. CNES (Central Europe)
3. CSA (Canadian)
4. ISRO (Indian)
5. NOAA (Nat'l Oceanic/Atmospheric Admin)
6. CONAE (Argentina)
7. JAXA (Japan)
8. USGS (United States: US Geological Survey)
9. DMC (UK, Spain, Algeria, China and Nigeria-International)
10. CNSA (China)



An image acquired by Britain's UK-DMC2 satellite on Monday. The swirl of oil is very apparent

The Envisat platform from Europe (ESA) confirmed through its radar satellite that the oil was entering the Loop Current; and it was NOAA/USGS that called attention to this situation on behalf of the US Coast Guard.

The following satellites are using infrared and optical sensors:

1. Disaster Monitoring Constellation (DMC)-monitored the Gulf region after Hurricane Katrina 2005-they have now been requested by the USGS to continue to image the Gulf region for weeks to come.
2. Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER), NASA's Terra spacecraft showed oil at the Mississippi Delta mouth on May 24th.

The objective of the satellites is to analyze the imagery, detect the oil's movement and provide the authorities with a detection report and drift estimate.

**Note: New estimates as of May 28th by the US scientists report that at least 12,000 barrels (504,000 gallons) were leaking into the Gulf every day, far exceeding the 1989 Exxon Valdez disaster… and now hurricane season is coming.

For more information:

Time-Lapse Satellite View of Growing Oil Spill
http://www.universetoday.com/2010/05/27/time-lapse-satellite-view-of-growing-oil-spill/

MODIS Rapid Response System
http://rapidfire.sci.gsfc.nasa.gov/

Gulf Oil Slick Approaching Loop Current
http://earthobservatory.nasa.gov/IOTD/view.php?id=44036&src=eoa-iotd

Oil Slick in the Gulf of Mexico
http://earthobservatory.nasa.gov/IOTD/view.php?id=44006&src=eoa-iotd

Astro Classifieds

I have a **Konusmotor 114** (4.5", 900mm, f/8) equatorial reflector telescope with tripod available for sale. I got it in August 2008, but have never set it up or used it.

After attending some star parties, I realized rather quickly that I was more interested in stargazing with the naked eye.

I wonder if anyone might be interested in purchasing it.

Thanks for your help.

Nancy Brown - ndowdsbrown@hotmail.com

I am selling my **Celestron ASGT mount**.
It is lightly used (like new), and includes the usual "lighter 12v" power cord, 11lb weight. and a 11.5" heavy duty dovetail.

I am asking $450, and would be happy to deliver in the Diablo Valley area. I am moving to a heavier mount to handle a new larger scope.

Thank you.

Ron Sigourney - rsigourney@astound.net
Telephone - 925-686-9217

May I Disagree With Stephen Hawking?

Jim Scala

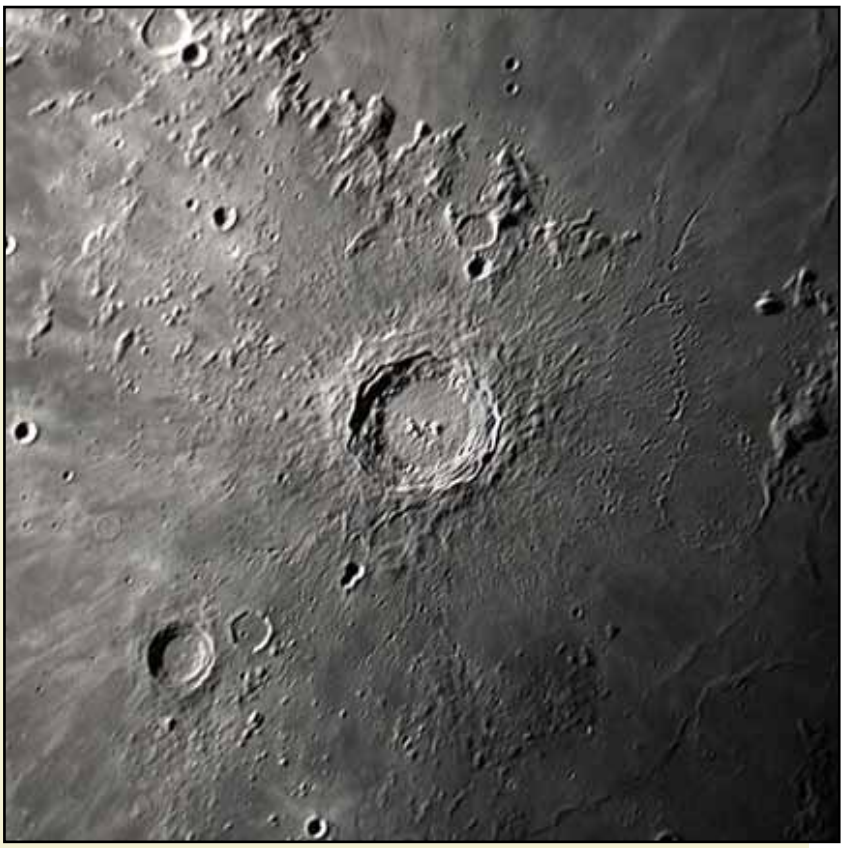
Recently the Discovery Channel carried an excellent program entitled "Stephen Hawking's Universe" which contained many interesting vignettes into how this great scientist thinks and how he interprets what is known about our universe. Among the many concepts included, he was asked the question, "Are we alone?" He observed the maxim; "If it can happen here, it can happen there." That, of course led to the obvious next question.

"Do you think there's intelligent life out there?" Asked the voice over and Stephen observed that he did think there is intelligent elsewhere in our galaxy. However, the next thing he said is where he and I disagree; that was, "If we are contacted by aliens, we should not reply." He went on to compare this possibility of how the North and South American Indians fared when the Europeans came to this continent. He said, "It wasn't very pretty from their standpoint." However, I submit this is a very poor comparison and my support comes from a modern preeminent scientist.

Earth's Moon, although considerably smaller than Earth itself makes our's a double planet system. The Moon gives Earth much stability and helped create a stable environment (with necessary tides) that nurtured intelligent, highly technological, soon to become space faring societies. That's rare.

In the recent debate between Dan Wertheimer (SETI fame) and Geoff Marcy (Planet discoverer) entitled "Are we alone." This same issue was raised and both eminent scientists agreed on this one point. If there is an intelligent, technologically advanced species in reasonable distance (say 100 light years) they know we're here. Indeed, the logic was very simple; if not intuitive. We are on the edge of finding earthlike planets and within less than 100 years we'll know if any of them are the abode of life. So, suppose there's another technological society just a few thousand years ahead of us which isn't quite an eye blink in astronomical oriented time. Indeed, their science would appear like magic to us.

Try and put yourself into the mind of someone who was rather technically sophisticated in 1010 (1000 years ago) and think of him or her seeing an airplane fly over, rocket be launched, speedboat go by or simply turn on a TV. Then take the person into a modern operating room and watch something simple. All that would be more like magic than anything else; then imagine someone from 0010, and 1010 BCE. Our science and technology would cease being magic and become something godlike. Now, suppose there's a society out there that's just 10,000 years ahead of us. Wouldn't they know where to look for intelligent species? Wouldn't they have found earth? At this point we have to invoke Fermi's paradox which did come up in the debate.



Copernicus, a favorite lunar crater by ever observer. The early inner solar system was bombarded by comets almost vaporizing Earth's oceans. However, the bombardment "cleaned" out the early inner solar system leaving earth with sufficient water, lunar tides and helped set the stage for life to become abundant.

In 1950, during lunchtime discussion with his colleagues (who were who's who in science of the time) who all agreed there were technologically advanced people out there Fermi simply said, "Okay, where are they?" He used the same logic that Geoff and Dan did in their debate. Even if science doesn't permit travel by men, their robotic probes (Bracewwell von Neumann probes) would have easily reached our planet letting us know someone's out there. Or, they could have directed radio or laser beams this way saying "Here we are." The fact that we've received no signals; not for want of listening nor seen any lasers is troubling to some and reassuring to others.

It's troubling because if anyone goes through the Fermi logic (he was considered the best) it's an indication there aren't many advanced civilizations around. In contrast, it's reassuring because there's a large and continually growing group who agree with the "Rare Earth" concept. That concept teaches that Earth, actually a double planet is very rare in our galactic neighborhood. It doesn't mean that there aren't rocky planets (one has already been found); it simply means that one like ours that supports intelligent, surface dwelling life with sufficient stability to achieve high technology is exceedingly rare. More, the planet must remain in its sun's continuously habitable zone for at least about 5 billion years. In our galaxies habitable zone that is probably very rare. Obviously Fermi couldn't have known what we know today, but his insight stands firm until proven otherwise.

So, returning to my original comment, I disagree vehemently with Stephen Hawking because if we are visited by other beings they will be sufficiently advanced over us that we couldn't hide if we wanted to. In contrast, if, at our elementary listening or watching level we either see or hear a signal it will mean they're at least about a century ahead technologically not to mention socially and the idea that we should hide is absurd. For example, if they've learned how to have a sufficiently stable society that they can mount large signally systems for upwards of over a few hundred if not thousand years, I suspect we could learn much from them. I think Stephen Hawking is wrong on this issue.

2010 Yosemite Star Party

LeRoy Wiens

The MDAS date for the annual Yosemite Star Party extravaganza is August 14-15th.

This is a third-quarter moon weekend with moonrise after midnight. The public star parties are scheduled for both Friday and Saturday evenings. The public usually thins out after about 10 or 11pm., so you can enjoy the dark skies as you wish after that.

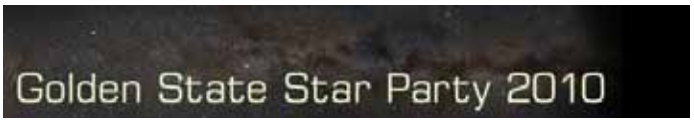
You can pick up a flier at the MDAS meetings, and I hope that you will take advantage of this opportunity to visit Yosemite with free entry to the park and free camping at Bridalveil Campground. It is a spectacular place for a Star Party, as you can see from this photo taken during set-up a couple of years ago.

Contact me at 925-689-9924 or email LDWiens@pacbell.net if you need more information.

Other Astro Events

GSSP links
http://www.goldenstatestarparty.org/
general info
http://www.goldenstatestarparty.org/home/2009-registration
registration
http://www.goldenstatestarparty.org/home/rules-guidelines
rules & guidelines
http://www.goldenstatestarparty.org/events-schedule
event schedule

Saturday, July 10 - Wednesday, July 14th



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Meetings are held:
Fourth Tuesday every month, except on the third Tuesday in November and December.
Refreshments and conversations are at 6:45pm.
Meetings begin at 7:15pm.
Where:
Concord Police Association Facility
5060 Avila Road, top of the hill.
Take Avila Road from Willow Pass Road.
Directions to facility:
http://nightsky.jpl.nasa.gov/club-view-directions.cfm?Address_ID=18

MDAS Meetings and Viewing Events in June 2010

Sunday	Monday	Tuesday	Wed
30	31	1	
6	7 7:30 PM Board Meeting	8 7:00 PM MDAS Imaging SIG	
13	14	15 10:00 AM VIP - Phase I Training	
20	21	22 7:15 PM GenMtg:1st 2 billion yrs	
27	28	29	

nesday	Thursday	Friday	Saturday
2	3	4	5 Sunset: 8:29 PM
9	10	11	12 Society Observing Sunset: 8:32 PM
16	17	18 Lick Obs Summer Prog	19 8:00 PM Lick Obs Summer Music 8:00 PM EXPLODING STARS Sunset: 8:35 PM
23	24	25	26 Sunset: 8:36 PM
30	1	2	3

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