

diablo Moonwatch

Mount Diablo Astronomical Society



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Dr. Ken Crowell: Lives of Stars

MDAS March Meeting - Main Speaker

Marni Berendsen

The stars that speckle the sky have long fascinated humanity. On March 23rd, Harvard-trained astronomer Dr. Ken Crowell shares his new book and describes the lives of stars and the alien worlds they may support.

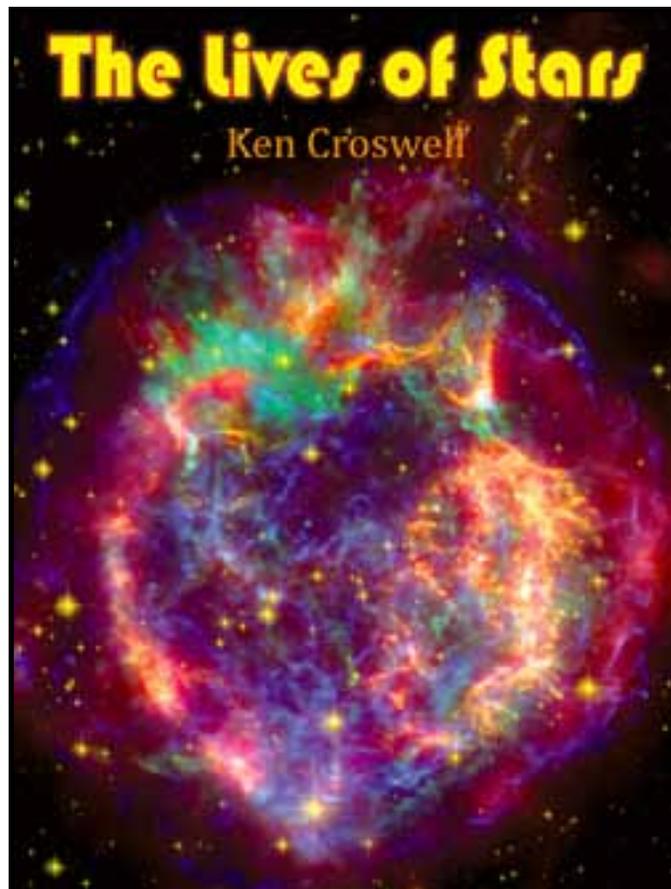
Only in the past century have astronomers figured out how stars are born, live, and die. Drawing on both the laws of stellar evolution and the latest discoveries of extrasolar planets, we can use this knowledge to address the question: Which stars near the Sun might have planets with intelligent life?

Revelations from Dr. Crowell's newest book, *The Lives of Stars*, include:

- Our Galaxy, the Milky Way, gives birth to ten new stars a year.
- Life-bearing planets may orbit Alpha Centauri, the nearest star system to the Sun.
- Drop a pebble just four feet above a neutron star and it will hit the star's surface at 5 million miles per hour.

BONUS: Dr. Crowell will be selling and signing his books at our meeting. He can accept cash or checks--but NO credit cards. All books are hardcover and in mint condition. Prices are:

- *The Lives of Stars*: \$22
- *Ten Worlds* (about the solar system): \$22
- *The Alchemy of the Heavens* (about the Milky Way): \$27
- *Planet Quest* (about extrasolar planets): \$27
- *Magnificent Universe* (beautiful gift book): \$66
- *Magnificent Mars* (about the red planet): \$66
- *See the Stars* (about finding constellations): \$19



Ken Crowell earned his Ph.D. in astronomy from Harvard University and is the author of eight highly acclaimed books, including *Magnificent Universe*, *Planet Quest*, *Ten Worlds*, and his latest, *The Lives of Stars*. His website is KenCrowell.com

Mark your calendar for March 23rd and hear about the book that Dr. James Kaler of the University of Illinois describes as "Well written, beautifully illustrated, it takes sophisticated modern concepts and makes them clearly accessible. I wish I could have had a book like this one when I was young."

Meeting information: https://nightsky.jpl.nasa.gov/event-view.cfm?Event_ID=14583

Upcoming programs:

April 27: Dr. Steven Beckwith, *The Dawn of Creation: The First Two Billion Years*

May 25: Dr. Delia Santiago: NASA Lunar Science Institute and the new citizen science project: Moon Zoo

Atmospheric and Optical Phenomena

MDAS March Meeting - What's Up?

Mike Harms

Who among us hasn't seen a rainbow? How about a halo around the Moon? Or the Sun? What about a "Zenith Rainbow? A "Sun Pillar?" Have you ever tried to see the Gegenschein? Unlike most things amateur astronomers pursue, atmospheric phenomena is usually a "catch it when it happens" pursuit because you seldom know in advance when one of them is going to occur.

Many of these common optical phenomena are due to the interaction of light with the sun, moon, sometimes a man-made object and the atmosphere interacting with clouds, water, dust and possibly other particulates. Other optical phenomena can also result from the effect of light on natural and man-made objects and take place in the atmosphere. These effects don't always have a nice physical explanation, but that makes them even more interesting.



Melting Glaciers and Global Warming

Jim Scala

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I don't pretend to know if the glacier melting will continue or if it's slowly starting to diminish. Indeed, in last Moonwatch I pointed out that snowfall on central Antarctica has increased by up to 30% in recent years. Since that's happening and can be measured some climate scientists have pointed out that a consequence of that would be drought in Australia. Guess what, there's a drought in Australia. In contrast, some argue that's because the atmosphere is warmer, it can hold more moisture and that's why Antarctica is experience increased snowfall. Others argue it's the beginning of the end of the current warming cycle and we'll see the glaciers slowly start increasing once again. What's more is that each group uses compelling arguments showing lots of graphs and charts. It's going to take some time to see whose right, but one thing we know for sure is that the rise in carbon dioxide isn't good for the oceans.

Rob Haitsma willing, I'll write next month about the changes I saw in my snorkeling adventures and observed from the ship's deck. While they say nothing about global warming they clearly indicate that we're abusing our oceans. My fear is that the scientists who say global warming isn't happening and that Al Gore's wrong are correct and we'll stop being concerned.

President's Corner

Mirror Bees: Deflecting an Oncoming Asteroid

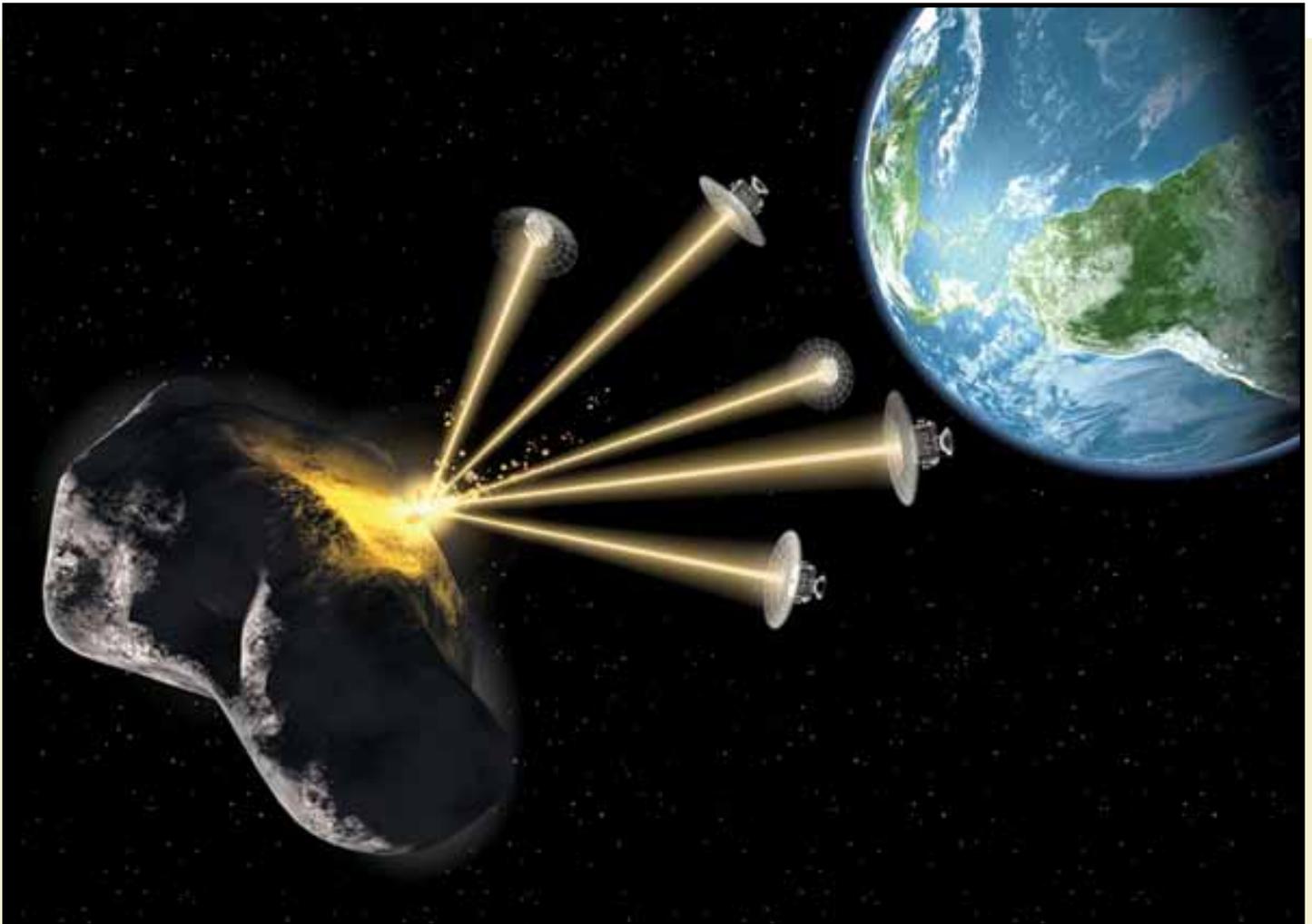
Liede-Marie Haitsma

The article in the current January/February 2010, *The Planetary Report*, caught my eye. The use of a swarm of Mylar-mirrored spacecraft termed "Mirror Bees".

Like a collective group of bees protecting the queen and hive, this group of small satellites, using the solar collector approach, worked not only more quickly and effectively but would not cause a nuclear warhead to be used. The swarm of spacecraft, 25 to 5,000 satellites depending on the size of the asteroid, fly around the asteroid and deploy Mylar-mirrors, 30 to 100 feet wide, which focus sunlight on a spot on the asteroid. It vaporizes the rock/ice that creates a jet plume of superheated gases/debris that gently push the asteroid over time, to a safer orbit.

This ablation technique is so new that it has no official name so the term "Mirror Bees" has been applied. The Planetary Society is helping to fund this study, due to the original funding having stopped, at the University of Glasgow in Scotland (Space Advanced Research Team or "SpaceART") under the leadership of Massimiliano Vasile, and Ian Watson and the laser lab of the University of Glasgow's Mechanical Engineering Department. The Planetary Society funding will aid in the laboratory experiments.

It has been suggested that an X Prize be established for Mirror Bee deployment systems study because an asteroid will inevitably come in Earth's path.



Melting Glaciers and Global Warming

Jim Scala

Our ship left Ushuaia Argentina, the southernmost city in the world and entered the Beagle Channel following in Charles Darwin voyage almost 177 years ago to the day. At about 55°south latitude in January; their summer, the sun shines late and it's quite bright about 20 hours daily. Beagle Channel scenery was breathtakingly beautiful even though the day was somewhat over-cast with a low cloud layer that would sometimes cover the mountain peaks. That didn't matter to me because I simply enjoyed following the footsteps of Charles Darwin and I was most interested in seeing the four extensive glaciers that captivated Darwin's attention.

Please look closely at each image I took which I have labeled simply as Glaciers one through four and explained in the legend below the picture how they have shrunk. Please look closely enough to see how they have been melting enough so that you can see how they have receded from where they were just three decades ago. You have a mission; as you study the images to try and see where the glaciers have receded. As you do, think about what caused the melting and what you think it predicts in our future. First, take a tour of the Beagle Channel glaciers.



Glacier 1 is magnificent coming right down to sea level. Look to the right of the glacier and notice how the rocks are colored different than the rocks of the mountains. Glacier 1 earlier in the last century went right up to the top of the brownish area. In short it has decreased by almost 20% in less than 50 years.

Glacier 2 extended over the entire mountain where it now doesn't reach the bottom in several places. In addition there are a few areas where the color of the hills is different because it was once covered in ice. Indeed, when Darwin visited the area this glacier came right to the foreground hills and there was a spectacular waterfall that he wrote about. This glacier has receded significantly.



Glacier 3 is similar to glacier one except the discoloration from receding ice is on the left side and not the right side. If you do some mental arithmetic making an estimate of the about the ice has disappeared you'll agree that it's considerable. Indeed, it's estimated by some at nearing 50%.



Glacier 4 has, according to some scientists, receded the most of all glaciers and doesn't no longer extending into the valley that forms the Beagle Channel by a large margin. It's not to difficult to see that it once extended down the valley and created a gushing stream that has left a rather spectacular scar that extends into the forest that is slowly covering the area over.

It's just too easy and probably incorrect to say "It's global warming." No, in fact the South American glacier melting probably started a decade before anyone even thought about global warming. In fact, when they started some of the same people including some scientists actually predicted global cooling. More during the Medieval Warm period most glaciers receded quite some time before the climate started getting warm enough to grow wheat in Norway and Scotland. More, places like Greenland and Iceland became sufficiently warm that settlements were established. That warming period wasn't caused by anything done by man; it was apparently a normal planetary cycles. The warm period ended when glacial melting had done its job on the Gulf Stream.

Some scientists teach that when the Greenland glaciers melting had put sufficient cold heavy fresh water into the North Atlantic causing the warm water gulf stream to diminish somewhat, shift slightly southward. Consequently, Europe slowly started cool-

ing down and the world slowly segued from the easy living warm period to a cold period. At about that time the sunspot cycle shifted into the Maunder Minimum and earth stayed cold until the extended minimum ended during the 19th century. Could history be repeating itself?

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It's Membership Renewal Time!

Marni Berendsen

NEW! Renew your MDAS membership and your magazines online!

ANNUAL MEMBERSHIP DUES OF \$25 ARE DUE BY APRIL 1, 2010.

To renew your club membership, you may either:

- Renew online using Paypal or your credit card at <http://mdas.net/membership/paypalreg.htm> and select the option for "Membership Renewal"
- Mail a check for \$25 made payable the M.D.A.S. to this address:
Mount Diablo Astronomical Society
P.O. Box 4889
Walnut Creek, CA 94596

BE SURE TO SEE THE IMPORTANT NOTICE FOR ALL MDAS MEMBERS REGARDING OUR NEW ONLINE MEMBERSHIP ROSTER!

NEW! Renew Your Magazines Online!

Marni Berendsen

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

The Astronomical Society of the Pacific has made arrangements with these magazines to allow members of the NASA Night Sky Network to renew at the club discount rate. All you need is a login for the Night Sky Network (NSN) through our club. If you haven't already registered your MDAS membership on NSN, complete the form here:

http://nightsky.jpl.nasa.gov/club-apply.cfm?Club_ID=51&ApplicantType=Member

Once you get your username and password, you can log into Night Sky Network and go to the Links page to find the "New and Renewal Subscriptions" link. Here's the direct page (you will be allowed to log in first when you click this link):

<https://nightsky.jpl.nasa.gov/club/links.cfm>

No more delays or uncertainties about getting your renewals in on time!



Other Astro Events



RTMC links

<http://www.rtmcastronomyexpo.org/general.html>

general info

<http://www.rtmcastronomyexpo.org/detailed.htm>

detailed info

<http://www.rtmcastronomyexpo.org/registration.html>

registration

<http://www.rtmcastronomyexpo.org/vendors.htm>

vendor info

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

A dark banner with the text 'Golden State Star Party 2010' in a white, serif font.

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

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Vice President:

Chris Ford, cford81@comcast.net

Treasurer:

Wil Roberge, wil@donahue.com

Secretary:

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MDAS

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Walnut Creek, CA 94596-3754

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



IMPORTANT NOTICE FOR ALL MDAS MEMBERS: YOU MAY NEED TO TAKE ACTION!

Marni Berendsen

MDAS is moving to online membership. Our club is moving our membership management to the online service offered at no cost through our participation in the NASA Night Sky Network (<http://NightSkyNetwork.org>).

Why are we doing this?

- It is easier for you and for our club to keep our member records up-to-date.
- You can update your own email address, phone, and mailing address online.
- You can check the status of your membership online – and notify us if anything is incorrect.
- Renew your magazine subscriptions online at the club discount rate.
- Renew your club membership dues online (you can still renew by check as well).
- Easily contact other MDAS members – as well as astronomy clubs all over the USA.
- Any time you volunteer at one of our public events, you can record your volunteer hours quickly and easily, as well as record miles driven for tax purposes.
- Have access to the details of all our events, including sky maps, sunset, and moon phase for the night of the event, weather reports, and driving directions.
- You have access to a vast repository of astronomy activities, resources, and videos to support your interest in astronomy – and how to share your interest with friends and family.
- Find out what events other astronomy clubs are holding – easily contact other astronomy clubs when you're traveling.
- Participate in teleconferences with NASA scientists to get the latest news.

What do I have to do?

You have a choice. You may either:

- Add yourself to our online member roster by **Monday, March 29, 2010** at: https://nightsky.jpl.nasa.gov/club-apply.cfm?Club_ID=51&ApplicantType=Member You only need to add your name, phone, and email address.
- Or do nothing: On April 1st we'll upload your member information for you – you don't have to do a thing!

NOTE: You may also choose not to be included in the online club membership roster.

Please notify us by leaving a message at 925-876-0272 or email (astroconcepts@aol.com) before March 29th and we will make arrangements to keep your membership information in a separate computer file – just as we do now.

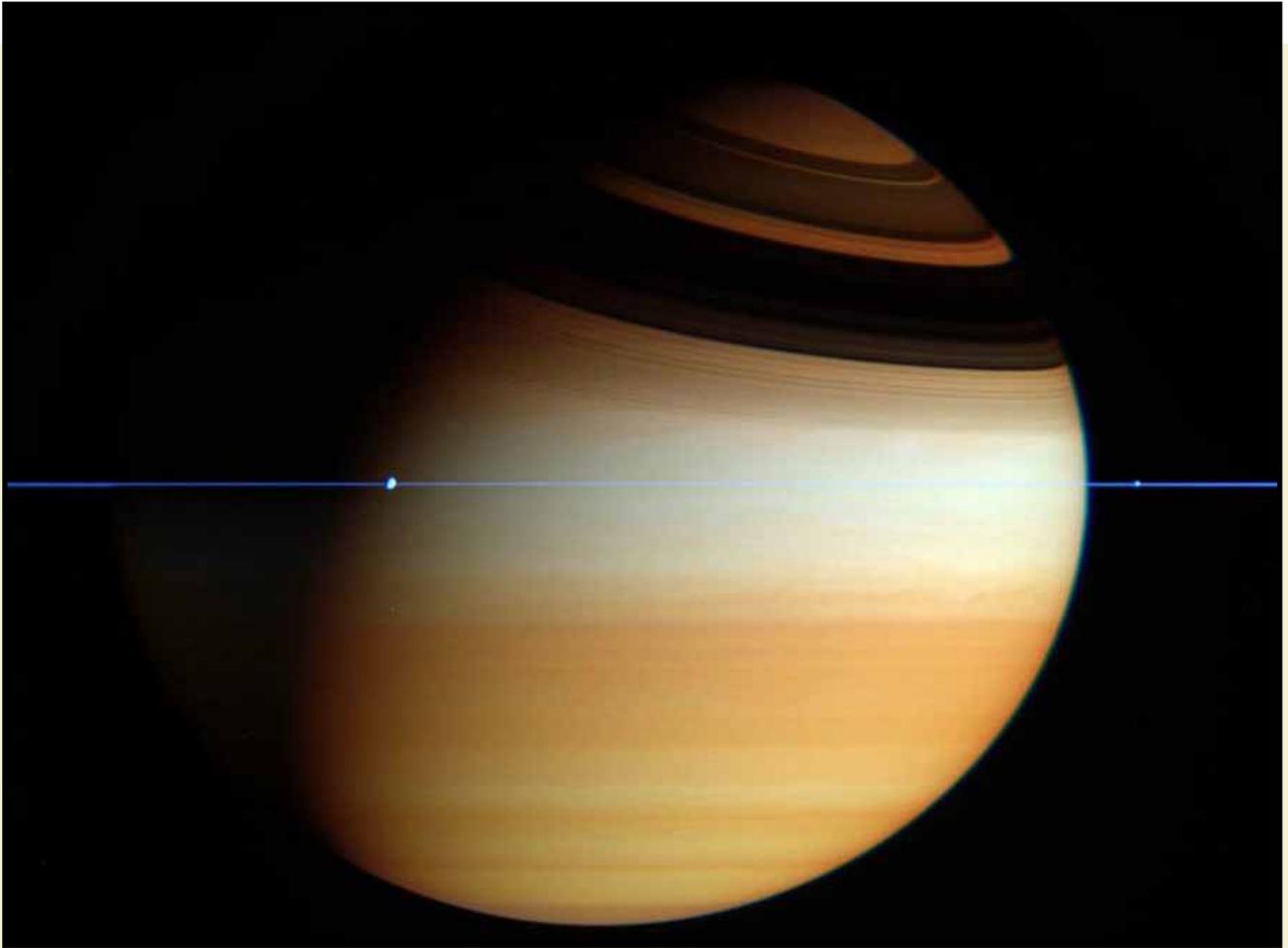
You have complete control over how your name and contact information is displayed on our online roster – or not displayed if you so choose! Detailed privacy information is available here: <https://nightsky.jpl.nasa.gov/docs/ParticipationPrivacy.pdf>

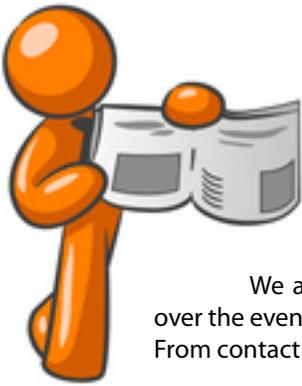
On **April 1, 2010**, all members who have not already registered on Night Sky Network (or notified us that they do not wish to be included) will have their member information placed on our online member roster. If you have a valid email address on file with us, you will receive an email with a username and password that gives you access to all the valuable Night Sky Network resources as well as your membership and MDAS club information.

No email? No problem. Our membership chair will keep your records updated for you.

Otherwise, take a minute now and add yourself to the online MDAS club roster:

https://nightsky.jpl.nasa.gov/club-apply.cfm?Club_ID=51&ApplicantType=Member





MDAS Meetings and Viewing Events in March 2010

We are utilizing the calendar of club events generated by the Night Sky Network. Simply run your mouse over the event (calendar entry) and click. Your computer will take you to more information about that particular event. From contact information, location maps to Clear Sky Clocks. We hope that you find this useful.

Sunday	Monday	Tuesday	Wednesday	Thursday
28	1	2	7:00 PM Globe at Night Campaign 3	7:00 PM Globe at Night Campaign 4
7:00 PM Globe at Night Campaign 7 	7:00 PM Globe at Night Campaign 8 7:30 PM Board Meeting	3 events: Click here to view 9	7:00 PM Globe at Night Campaign 10	7:00 PM Globe at Night Campaign 11
7:00 PM Globe at Night Campaign 14	7:00 PM Globe at Night Campaign 15 7:30 PM Troop 239 Observation Ses 	7:00 PM Globe at Night Campaign 16	17	7:30 PM Star viewing party 18
21	22	7:15 PM Gen Mtg: Lives of Stars 23 	24	6:00 PM Moon Zoo Telecon 25
28	29	6:30 PM Horizons Science Festival 30 	31	1

Friday	Saturday
7:00 PM Globe at Night Campaign 5	7:00 PM Globe at Night Campaign 6 Sunset: 6:07 PM
7:00 PM Globe at Night Campaign 12	7:00 PM Globe at Night Campaign 13 Society Observing Sunset: 6:14 PM
7:00 PM Eagle Peak Montessori Scho 19	6:30 PM STARS ON DIABLO 20 Sunset: 7:21 PM
26	27 Sunset: 7:27 PM
2	3

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