



The Refractor

The Bulletin of the Eastbay Astronomical Society
Founded in 1924 at Chabot Observatory, Oakland, California

Volume 89
Number 7
April 2013

This Month's Event:

Magnetism, Space Weather, and Climate Evolution at Mars

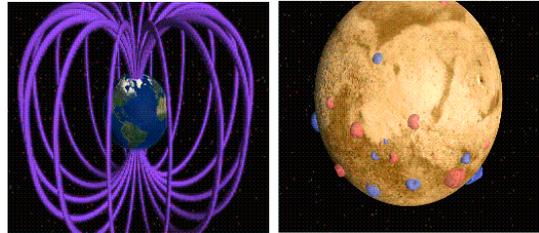
Speaker: Matthew Fillingim

When: Saturday, April 20, 7:30 PM

Where: Chabot Space and Science Center, Room: Hauben Rm

Topic Tidbits:

Unlike Earth, Mars does not have a consistent, planet-wide magnetic field. Earth's own magnetic field provides crucial shelter from radiation and solar wind. Come hear Matt speak on the latest research into Mars' climate, what may have



happened to the once-existing magnetic field, and in turn, how this has shaped the atmosphere.

Matt is currently an Assistant Research Physicist in the Space Physics Research Group at the Space Sciences Laboratory at the University of California, Berkeley. His research focuses on space plasma physics, particularly ionospheric, auroral, and magnetospheric physics. Sometimes he runs. <http://sprg.ssl.berkeley.edu/matt> ★

IT'S THE LYRID METEOR SHOWER! MAKE A WISH!

Earth is getting ready to swirl through the dusty comet trail of Comet Thatcher towards the end of April! This yearly passing yields bright sparks of showers with smoky after-trails spiraling out

from Vega as comet dust ignites and streaks through the atmosphere.

So if you find yourself stargazing April 22, turn towards Vega, and make a wish! Take a picture! ★



DINNER WITH THE SPEAKER THIS MONTH:

JOIN US FOR A CASUAL DINNER:
HUNAN YUNA
4100 REDWOOD RD. (LINCOLN SQ)
OAKLAND, CA
94619

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Don's News 'N Views!

Howdy Astro Fans! HUGE NEWS! Well, for me at least: we've got a new newsletter editor! Thanks to the nearly miraculous recruiting powers of EAS Board Member David Prosper, Ms. Navbalsinder "Navi" Sandhu has taken the reins of our little rag, and this will be her very first issue. I'll still write this column, but it will no longer be 'the editor's' news and views - just mine. Thanks, David, for finding her, and thanks Navi, for taking it. I think you'll find, just as I did, that it's a fun but vital job that, in the words of Obi-Wan Kenobi, "binds the galaxy together." The galaxy of EAS members, at any rate. Help her out and send her lots of stories, articles, pictures, reviews, poems, news, or whatever, just like you did for me!

So, on to the local stuff: We had our Annual Awards Dinner this month, and while it turned out well enough with the usual good food, great speaker, awards ceremony, door prizes, etc., I was disappointed by this year's low turnout. It was less than half of what we've gotten in the past, and I don't know why. Don't be surprised if you get an email, soon, asking just that.



◀ SETI
Astronomer Seth
Shostak giving his
talk

Fortunately, there were enough people to at least not be embarrassing to our speaker, but only just. Hopefully, we can do better in the future.

And speaking of just barely showing up: did you see the PanSTARRS comet? I did, and so did a few of our club's astrophotographers, too. I tried

taking a picture of it with my little point-and-shoot, but it didn't come out. There was one day where it was supposed to be our best chance to see it from the Bay Area at its brightest and highest around mid-March. The weather was clear, but I forgot to look (argh!) Then, the weather turned bad for several days, as it so often does in situations like this (double-argh!) After a little less than a week, the skies turned clear again, so I decided to ride my motorcycle up into the hills of eastern San Jose to see if I could catch a glimpse before it faded completely away. Boy, did I luck out! I only brought my little pair of mini-binoculars to try finding it, but another astro-geek happened to find the exact same spot I was viewing from, and he was much better prepared: bigger binoculars, a nice digital camera with a long lens, and a tripod. We introduced ourselves, and I found out he was a local SJAA member (Mark). As the sun set and the daylight faded, we looked in vain to see it, but the sky was still too bright. We were wondering if the comet would get too close to the light-polluted horizon before we'd be able to spot it, but just as the last band of light-blue light hovered over the western edge of the land, while the Moon and stars blazed overhead in the black of night, we spotted it way to the north north-west in my new best friend's big binoculars. Excellent! It's the first comet I'd seen since C/2001 A2 (Linear) (the one that looked like it was heading in our direction, and so had more of a halo instead of a side-viewed tail). Mark took a bunch of photos of it while I just watched it with both his and my binoculars. It wasn't really very spectacular; I could just see the head and a bit of a smudge for a tail, but after more than a decade of cometlessness, I was happy. After a short bit more, we parted company as it started getting pretty cold, which I wasn't really prepared for. Anyways, Mission Accomplished!

That's about it for now. It's Springtime, which means better weather for viewing, but also brought the scourge of Daylight Squandering Time (making it harder for us astro-geeks to do our evening view sessions). Time to start thinking about what to do for summer and vacation. Going anywhere astronomically interesting? Write it up, take pictures, share! Byefernow! ★

Your Daily Dose of Astonishment

Diane K. Fisher

As a person vitally interested in astronomy, you probably have the Astronomy Picture of the Day website at apod.nasa.gov set as favorite link. APOD has been around since practically the beginning of the web. The first APOD appeared unannounced on June 16, 1995. It got 15 hits. The next picture appeared June 20, 1995, and the site has not taken a day off since. Now daily traffic is more like one million hits.

Obviously, someone is responsible for picking, posting, and writing the detailed descriptions for these images. Is it a whole team of people? No. Surprisingly, it is only two men, the same ones who started it and have been doing it ever since.

Robert Nemiroff and Jerry Bonnell shared an office at NASA's Goddard Space Flight Center in the early-90s, when the term "World Wide Web" was unknown, but a software program called Mosaic could connect to and display specially coded content on other computers. The office mates thought "we should do something with this." Thus was conceived the Astronomy Picture of the Day. Now, in addition to the wildly popular English version, over 25 mirror websites in other languages are maintained independently by volunteers. See http://apod.nasa.gov/apod/lib/about_apod.html for links. An archive of every APOD ever published is at <http://apod.nasa.gov/apod/archivepix.html>. Dr. Nemiroff also maintains a discussion website at <http://asterisk.apod.com/>.

But how does it get done? Do these guys even have day jobs?

Dr. Nemiroff has since moved to Michigan Technological University in Houghton, Michigan, where he is professor of astrophysics, both teaching and doing research. Dr. Bonnell is still with NASA, an astrophysicist with the Compton Gamma Ray Observatory Science Support Center at Goddard. APOD is only a very small part of their responsibilities. They do not collaborate, but rather divide up the calendar, and each picks the image, writes the description, and includes the

links for the days on his own list. The files are queued up for posting by a "robot" each day.

They use the same tools they used at the beginning: Raw HTML code written using the via text editor in Linux. This simple format has now become such a part of the brand that they would upset all the people and websites and mobile apps that link to their feed if they were to change anything at this point.

Where do they find the images? Candidates are volunteered from large and small observatories, space telescopes (like the Hubble and Spitzer), and independent astronomers and astro-photographers. The good doctors receive ten images for every one they publish on APOD. But, as Dr. Nemiroff emphasizes, being picked or not picked is no reflection on the value of the image. Some of the selections are picked for their quirkiness. Some are videos instead of images. Some have nothing to do with astronomy at all, like the astonishing August 21, 2012, video of a replicating DNA molecule.



The January 20, 2013, Astronomy Picture of the Day is one that might fall into the "quirky" category. The object was found at the bottom of the sea aboard a Greek ship that sank in 80 BCE. It is an Antikythera mechanism, a mechanical computer of an accuracy thought impossible for that era. Its wheels and gears create a portable orrery of the sky that predicts star and planet locations as well as lunar and solar eclipses.

Among the many mobile apps taking advantage of the APOD feed is Space Place Prime, a NASA magazine that updates daily with the best of NASA. It's available free (in iOS only at this time) at the Apple Store. ★

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

EAS Awards Dinner: 2013 Edition

Dave Prosper

We had a smaller dinner than usual this year, but we still had a lovely time celebrating EAS! This year the venerable Harry's Hoffbrau provided our dinner (with some memorably spicy horseradish to go with their roast beef)! Our speaker was the always-entertaining Seth Shostak from SETI. Our special guest MC was the near-legendary EAS member David Rodriguez; despite traffic and many family obligations our intrepid former program director appeared in the nick of time to help us enjoy a thoroughly fantastic night.

I think my favorite moment from Seth Shostak's presentation, which was on SETI and what will happen if we find ET. Ancient Aliens fans often ask him, "Seth, who made the pyramids?" The answer, according to Seth, is simple. "The Egyptians!" Seth also proposed a timeline for when ET will be found, if the idea of ET using radio signals has merit: within twenty or thirty years! Personally I would love to find out that ET is a big fan of using the CB (Cosmic Band) radio.

Astronomy Outreach Award: Terry Galloway



As you all now, Terry has been an institution unto himself at EAS and Chabot. He is seemingly always around and has an encyclopedia-like knowledge of all things EAS, Chabot, and

astronomy. (I call him our oracle). From his start at Chabot in the Apollo observing days to helping shepherd Chabot to its current location to his current setup Sundays on the Telescope deck showing the sun to guests, Terry has been an invaluable member. Congrats, Terry!

Helen Pillans Award: Barry Leska



Barry has been working hard on many projects with EAS as our President. It's also not a normal Friday night if Barry is somehow missing from the Telescope Maker's Workshop. Barry has proactively endeavored to boost EAS with Chabot, as well as also helped find and install new advanced telescope-making equipment for use with the TMW, AND fixing up our scopes in the Telescope Lending Program, which he also runs with aplomb. Congratulations, Barry!

Betty Neall Award of Merit: Jim Ferreira

(come get your award, Jim! We missed you!) Jim was the Refractor newsletter editor for years, and has contributed greatly on many projects and efforts with the EAS and board. Congratulations Jim-I know our current editor in Chief will be working hard to keep up with your good work!

Also of note: **Everyone got prizes!** Hooray! See you next year! ★

**Software Review:
100 Year Starship Screensaver
Dave Prosper**



Available from:
<http://100yss.org/donate>
Suggested) Cost: \$5

I just recently installed this screensaver a couple of days ago, and have been spellbound by my computer's screen since. This screensaver comes from the 100 Year Starship Foundation, a group dedicated to finding a way to the stars. As you can tell by their name, they are taking a long view to the problem of interstellar flight. However, in the realm of the screensaver, voyages that may take centuries, or even millennia, take just a minute.

Once your computer decides to take a break, the screensaver pops up and throws you into a journey around the nearest stars in our little local group. Each "trip" to another star such as Sirius, Alpha Centauri, and Tau Ceti, includes tidbits on their distance from Earth, their magnitude and stellar type, and are rather nicely color-coded. If the stars are in a multiple system, they have been set to the correct proportions as well. (Ah, Sirius B, you are so tiny!)

One thing I do miss and hope they include in the next release: exoplanets! I did not see any sign of the planet in the Alpha Centauri system, or the cometary cloud around Tau Ceti. These items do get mentions in the descriptive text that accompanies each "voyage", but the completest in me wants to see more cool things orbiting our stars! After all, it's those planets that we will be checking out when we finally get that starship problem knocked out, eh? ★

Global Astronomy Month is here!

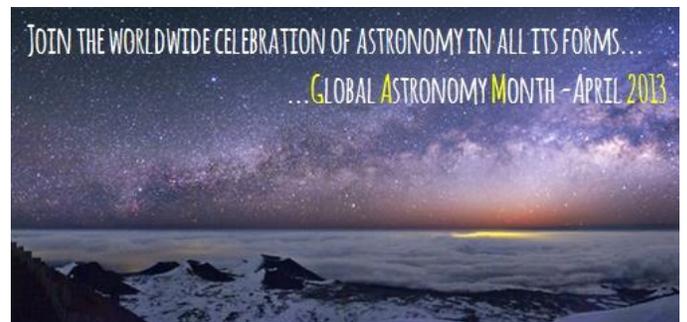
It's the best month, global astronomy month! Presented by the ever hard working Astronomers Without Borders, there are a myriad of fun activities being presented for people who love the sky, suitable for all age groups! There are too many goodies to list here but I will drop some favorites. Check out <http://astronomerswithoutborders.org/> for more details and to get involved.

The global star party is April 20th! As a matter of fact, we will be having a presentation on Mars that evening at Chabot by Space Sciences Lab member Matt Fillingim. Of course, afterwards will be Telescope Time on the observing decks!

This week is International Dark Sky Week (April 5-11), and you can participate in many ways. I bought a cheap shield for my outdoor lighting which has helped a lot in my little backyard in Mosswood. You can also measure the light pollution with the Globe At Night Program. I use it with my iPhone and this webapp URL: <http://www.globeatnight.org/webapp/>

The dates for GAN this month(ish) are March 31-April 9, and April 29-May 8.

Finally, check out the NightSkyNetwork website for more details on nearby Astronomy events- not just EAS and Chabot. We live in an area filled with amazingly rich opportunities for astronomy lovers, so check out their local calendar! Go to <http://nightsky.jpl.nasa.gov/> and click on "Calendar" to find events near you. Believe me, there are a ton! ★



Eastbay



Astronomical Society

At Chabot Space & Science Center
10000 Skyline Boulevard, Oakland, CA 94619

April 2013

RETURN SERVICE REQUESTED

Eastbay Astronomical Society

President: Barry Leska
Treasurer: Richard Ozer
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Vice President: Linda Lazzaretti
Membership Reg: Rod Simmons
Events Coordinator: David Prosper

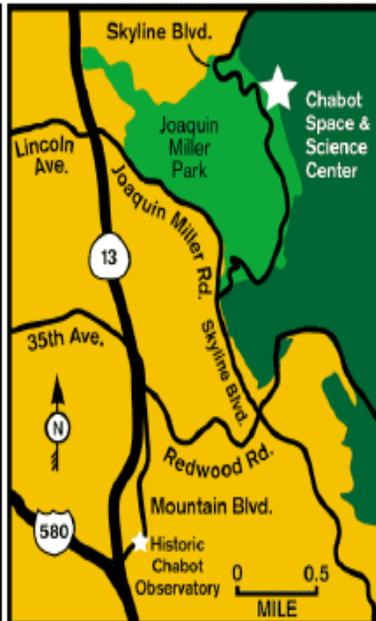
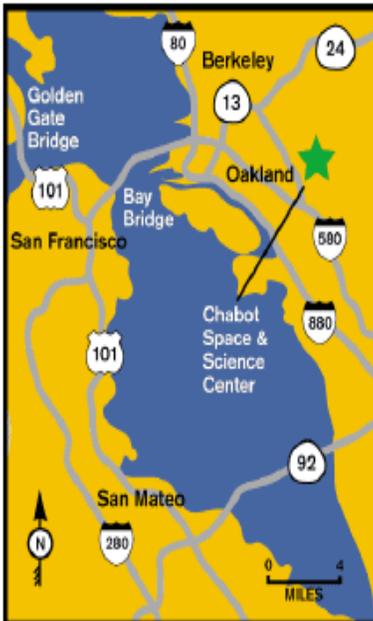
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Articles and photos for *The Refractor* are highly encouraged! Deadline for May 2013 issue is May 1, 2013. Items may be submitted by mail to: Editor – 2676 Poplarwood Way, San Jose, CA 95132-1083. Internet email address: NavbalsinderSandhu@gmail.com HM: (408)-705-7417



FUTURE CONJUNCTIONS

- | | |
|-----|---|
| APR | 11 Board Meeting, Chabot, 7:30 PM |
| | 14 EAS, MOVN, Wightman Plaza, 7:30 – 10:00 PM* |
| | 20 EAS Lecture: Magnetism, Space Weather, and Climate Evolution at Mars, Hauben Rm, 7:30 PM |
| MAY | 9 EAS Board Meeting, Chabot, 7:30 PM |
| | 12 EAS, MOVN, Wightman Plaza, 7:30 – 10:00 PM* |
| | 18 EAS Lecture: Solar Wind, Chabot, 7:30 PM |

*Always Call Gerald McKeagan to confirm: (925) – 926-0853

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