

# The Refractor

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

Volume 86  
 Number 08

June 2010

## June EAS Lecture Meeting

**Title: Blast from the Past: The Discovery of GRB 090423, the Universe's Most Distant Object**

**Speaker: Daniel Perley, University of California, Berkeley**

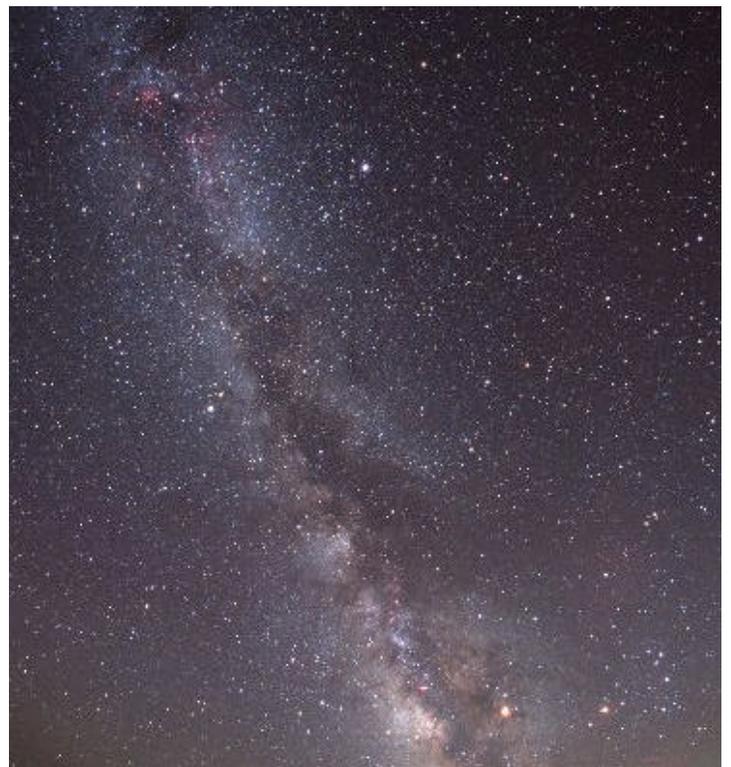
When: Saturday, June 26, 7:30pm

Location: Physics Lab, 2nd Floor, Dellums Building, Chabot Space & Science Center

inding the most distant objects in the cosmos is not just a novelty: because of the finite travel speed of light, looking far also means looking far back - in time. With modern telescopes, astronomers can see more than 90% of the way back to the Big Bang, an era in which objects were just emerging from the cosmic "fog" of hydrogen left by the Big Bang. The objects that fill the modern-day universe - stars, galaxies, quasars - all first began to form in this so-called "Dark Age", but the combination of distance, obscuration by the cosmic fog, and the fact that galaxies and quasars were still in the process of forming has made observations of more distant and earlier objects nearly impossible, and for many years the distance record stagnated. But just last year, the distance record was shattered by the discovery of a gamma-ray burst (the ultra-energetic explosion of an enormous star more than

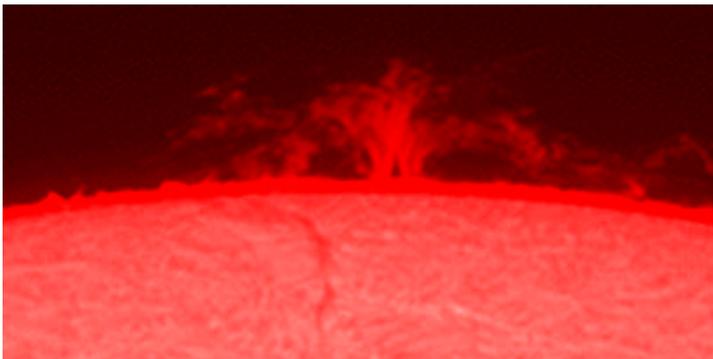
13 billion years away. I will describe how this burst was discovered, and the efforts of our multinational collaboration as we scrambled to collect the observations necessary to prove its immense distance - before the explosion faded back into the darkness.

## *Barcroft: The Shangri-La of dark sky sites*



Learn more about the annual Barcroft Star Party on page 3.

*Wide filed photo of the Milky Way shot by Carter Roberts during a Barcroft Star Party*



## **New Solar Cycle - Lots To See!**

Spectacular live video of the sun in H-alpha on the giant plasma screen in Rachel's Dome, every sunny Weekend.

Solar prominence in H-alpha photo by Jim Ferreira

**DINNER WITH THE SPEAKER**  
 5:30, Sat, June 26  
**RED BOY PIZZA**  
 4100 Redwood Rd.  
 (next to Safeway)  
 No need to confirm,  
 Just show up!

### Inside this issue:

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**EAS Library:** Hours, 3:00pm - 7:00pm every Friday, and immediately after monthly EAS lecture meetings. The library is located on the second floor of the Dellums Building, down the hall next to the interactive lunar lander exhibit.

Volunteer librarians are needed to expand library hours, if you'd like to help contact Barry Leska at [leska@alameda.net](mailto:leska@alameda.net)

**EAS Loaner Scope Program** has telescopes available for rental by EAS members. Scopes include 60mm and 80mm refractors, a C-90, two 10 inch Dobsonians, and ; 4 and 8 inch Schmidt-Cassegrains. Scope rental is \$15 a month, with a \$50 deposit. For information, contact Ray Wong at (510) 796-5748 or [qm7@yahoo.com](mailto:qm7@yahoo.com)



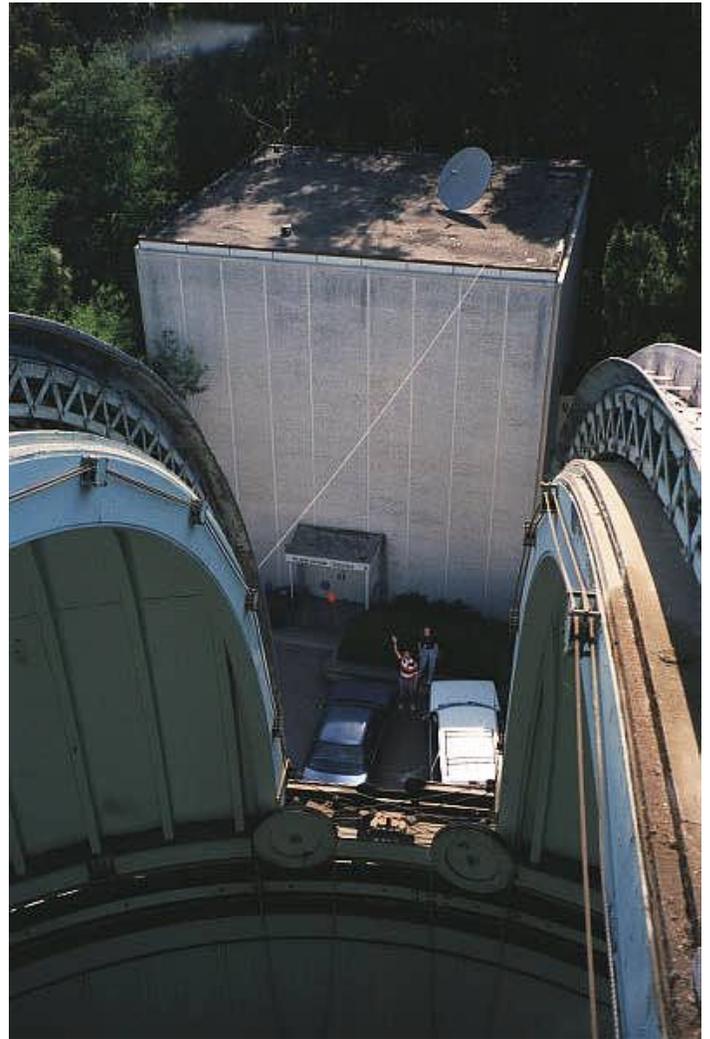
**WANTED: PHOTOS OF OLD CHABOT**

Do you have photographs of the Mountain Boulevard Chabot Observatory? If you do, pick out the best of the best and send a scanned image to the Newsletter editor. A new image will be posted in the newsletter each month.

**FUTURE CONJUNCTIONS—2010**

- Jun 26 EAS General Meeting, Chabot, Physics Lab, 7:30pm
- 10 Board Meeting, Chabot, Soda Board Rm, 7:30pm
- 13 EAS MOVN
- Jul 24 EAS General Meeting, Chabot, Physics Lab, 7:30pm
- 8 Board Meeting, Chabot, Soda Board Rm, 7:30pm
- 18 EAS MOVN
- Aug 28 EAS General Meeting, Chabot, Physics Lab, 7:30pm
- 12 Board Meeting, Chabot, Soda Board Rm, 7:30pm
- 15 EAS MOVN
- Sep 25 EAS General Meeting, Chabot, Physics Lab, 7:30pm
- 9 Board Meeting, Chabot, Soda Board Rm, 7:30pm
- 12 EAS MOVN

\*Please call Gerald McKeegan at (925) 926-0853 after 5pm on the date of the MOVN to verify that it has not



Mountain Blvd., Chabot Observatory : Courtesy Don Saito

**Chabot Space & Science Center Invites EAS Members to Volunteer with Us!**

- Share your knowledge of and passion for astronomy with thousands of CSSC visitors
- Experience the unique opportunity to operate Chabot's historical telescopes
- Share your own telescope at Chabot\*
- Inspire young astronomers and future scientists by assisting students in our astronomy education programs

**Explore these opportunities at our next Volunteer Orientation!**

For upcoming orientation dates, or for more information, please contact us at: [volunteers@chabotspace.org](mailto:volunteers@chabotspace.org) or, call our Volunteer Manager Megan Gray at (510) 336-7414

*\*EAS members who are only interested in sharing their own telescope at Chabot are required to attend a Chabot volunteer orientation and complete a self-guided training worksheet entitled "Getting to know Chabot." After completion, you may join us on deck and share your own telescope any Friday or Saturday night!*

*\*\*Full Chabot Volunteers must make the regular volunteer commitment and pursue official placement through the Volunteer Manager.*

## Barcroft: The Shangri-La of dark sky sites

Compiled by Don Saito

The EAS and Tri-Valley Stargazers are proud to offer the 2010 Barcroft High Altitude (Low Oxygen) Star Party from Saturday, September 4 through Sunday, September 12, which encompasses two weekends, and the week between them.

The Barcroft White Mountain Research Station is a scientific facility, run by the University of California, and located at a mind-boggling altitude of 12,435' above sea level (ASL), approximately 15 miles northeast of Bishop, CA.

Due to the level of research at Barcroft we are limited in the number of participants (usually about 20 but sometimes fewer). Priority will be given to those staying 3 nights or more. Send your check for \$65 per person, per night, payable to:

Dave Rodrigues  
1633 Graff Ct.  
San Leandro, CA 94577

Contact Dave at (510) 483-9191 or [davevrod@aol.com](mailto:davevrod@aol.com) for more info.

Amenities included in the fee: Hot meals (great food!), satellite TV, video, book and magazine library, pool table, a fully equipped kitchen (w/microwave), radiotelephone, showers, bathrooms, tool shop for equipment emergencies, oxygen, and helpful staff. They've got bunk beds, but for maximum warmth, bring a sleeping bag.

Driving instructions from the Bay Area: (approx 340 mi, 8.5 hrs drive time)

- Take Interstate 580 east to Interstate 205
- East on Interstate 205 past I-5 to Highway 120
- East on 120 to Highway 99
- North on 99 one mile to the Highway 120 exit
- East on 120 towards Yosemite.
- Take 120 over the Tioga Pass to U.S. 395 (just south of Lee Vining)
- If the 120-Tioga Pass Route is closed, take the Sonora Pass Route to the north via Calif. 108 to US 395
- South on Hwy 395 through Bishop to Big Pine. **REFUEL THERE!** Get premium grade
- Hwy 168 east towards Westgard Pass
- Approx 12.9 miles out of Big Pine, turn left onto White Mountain Road
- Goes to Grandview Campground, Schulman Grove Schulman Grove to Barcroft - approx 45 minutes

GPS: N37.583773 W118.236748 (If you copy/paste these coordinates into Google Maps and zoom in on the green arrow, you can see a satellite image of the facility.)

## Barcroft Good Advice:

Before attempting to go to Barcroft, begin acclimating to the high altitude for a day or two by spending the day at Glacier Point in Yosemite, and/or stopping overnight at places such as:

- Bridalveil Creek Campground in Yosemite (6964' ASL, GPS=N37.667253 W119.622605): located ~10 miles west of Glacier Point, where astronomy clubs from all over California come to hold weekend star parties for the public as part of an official Yosemite National Park function. This is a first-come-first-served campground, and can be quite tricky getting a campsite. If you show up fairly early (7 or 8am) on Friday morning, people often start to leave, to avoid the weekend crowds. That's a good time to try to grab a spot. Sometimes you can find another astronomy-minded camper willing to share their site. If you get up early, you can watch hang gliders launch from Glacier Point from 7-9am on Sat/Sun.
- Mammoth Lakes (8000' ASL, GPS=N37.640889 W118.960299): a small tourist and ski town with accommodations and restaurants. Make a reservation well in advance if you want to stay here.
- Grandview Campground (8600' ASL, GPS=N37.333935 W118.186957): located along the route to Barcroft about 17 miles east of Big Pine, approx 5 miles short of the Schulman Grove Visitor Center of the Bristlecone Pine Forest. There are toilets and campsites, but no water. The suggested fee is \$5 a night. **FILL YOUR GAS TANK WITH PREMIUM GRADE IN BIG PINE** before heading up into the mountains.
- Your car: It's a well-maintained dirt road, though it can get a little rough in spots. Most two-wheel drive vehicles in good shape can easily make it. Tire pressure should be checked at Grandview Campground to ensure the lower ambient air pressure at altitude isn't causing vehicle tires to become over-inflated. A good spare tire should be brought along. Make sure the air filter is in good shape, too.
- Hypoxia: A real concern at this altitude. It helps to acclimatize (get used to it) by staying at somewhat lower altitudes for a day or two before coming all the way up. Spending a day at Schulman Grove, and a night at Grandview Campground, will work. Or, spending time at Glacier Point in Yosemite and lodging in Mammoth can help, too. They've got oxygen at the station, for anyone in any discomfort or distress. Symptoms include euphoria, irritability, erratic or irrational behavior, dizziness, and headaches. Please cooperate if someone asks you to use the oxygen. Notify staff if you notice these symptoms in others.

(Continue Barcroft Page 4)

## BARCROFT (continued)

- Hydration: Be sure to drink plenty of (non-alcoholic) fluids, as the air at altitude is especially dry.
- Weather: Can be extremely variable. The longer your stay, the more likely you'll get nights with good weather conditions.
- Temperature: Can get extremely cold. Bring lots of comfortable, loose-fitting (non-constricting), warm clothing. Layering works well. Don't forget your hands, head, and feet. Fingerless gloves, caps or hats with ear or face covers, and extra socks are all helpful. Liquid rechargeable, or one-time use, powdered iron, heat packs are good to have, too.
- Sunburn: Wear liberal amounts of SPF 30 sun block on exposed skin, and a wide-brimmed hat.
- Seeing: It can be outstanding (sub-arc second), if the weather cooperates, thanks to the relative lack of interfering atmosphere at that altitude. Solar viewing should be excellent. It can be especially good for astrophotography.



White Mountain was the second choice for the Keck Telescope. You'll never forget your view of the Milky Way from Barcroft. For those of you who are interested, just off this route, north of Mono Lake, is the Bodie State Historic Park. Bodie was a legendary (or perhaps infamous is a better word) mining town that was famous for its bars, murder rates (at one point it had the highest per-capita murder rate in the world), and houses of ill repute. People used to say, "Goodbye God, I'm going to Bodie!" It's now a ghost town. Just thought I'd mention it.

In an emergency, feel free to call the White Mountain Research Station in Bishop at 760-873-4344. Make sure you take these numbers with you, just in case. The number up at Barcroft, if the phone is working, is at 760-937-5202. Often, one or more of the traditional roads up there is washed out due to weather or forest fires. For that reason, before heading up, it would be a good idea to confirm the roads are open at the CalTrans web site (type in the highway number) at <http://www.dot.ca.gov/hq/roadinfo> or call them at 800 427-7623. Also useful: the Mono Lake website has road and weather info, plus webcams at <http://www.monolake.org/>.

## AMATEUR AND PROFESSIONAL ASTRONOMERS PRESENT SMALL-TELESCOPE RESEARCH RESULTS AT "SYMPOSIUM ON TELESCOPE SCIENCE"

The 2010 Symposium on Telescope Science saw over one hundred amateur and professional astronomers gather in Big Bear, CA to share recent research results, methods, and instrumentation related to small-telescope astronomical science. This year's Symposium was a joint gathering of the Society for Astronomical Sciences (SAS) and the Center for Backyard Astrophysics (CBA). During two full days of technical presentations, the topics ranged from variable stars (of several different types) to asteroids to Jovian satellites, and included CCD photometry, video photometry, spectroscopy, polarimetry, and radar methods of observation. In addition, about fifty people attended the "day before" tutorial workshops on "Small-telescope Spectroscopy" presented by Olivier Thizy and "Calibrating CCD Imagers" presented by Richard Berry. Attendees were treated to new-product highlights from several of the sponsor companies, and quite a few impromptu networking discussions could be found surrounding the conference location. The event was rounded out by the traditional banquet and a wonderfully entertaining presentation by Chris Butler on "Our Little Corner of the Galaxy".



Videos of many of the technical presentations from the 2010 Symposium can be viewed on the SAS website: [www.SocAstroSci.org](http://www.SocAstroSci.org).

The 2010 Symposium provided a window into small-telescope science, and some of the opportunities for collaboration between amateur and professional astronomers. This was the 29<sup>th</sup> SAS Symposium, and the progress on display bodes well for the future of small-telescope astronomical science!

The 2011 Symposium will be held at Big Bear, CA on May 24-25-26, 2011.

**About the SAS:** The Society for Astronomical Sciences facilitates collaborative astronomical research between amateur, student, and professional astronomers. SAS workshops provide amateur and student astronomers with solid grounding in observational procedures and data-reduction methods. The annual "Symposium on Telescope Science" is the premier forum for presentation of the results of small-telescope research and professional-amateur astronomical collaborations. For more information, see: <http://www.SocastroSci.org>

## Increase Science Literacy: Share Your Love of Astronomy With Students

Partner with a local teacher to bring astronomy into a classroom and improve student understanding of science. Learn techniques to engage students and then visit a classroom four times over the next year. The time commitment is small and the effects can last a lifetime. Students love to have their “very own astronomer” and past participants claim they were treated like rock stars! Astronomy is a great way to inspire students and Project ASTRO gives you the tools to be effective in the classroom.

We are in particular need of astronomers in the following areas: Sonoma County north of Santa Rosa; the Napa Valley; eastside San Jose; the eastbay north of Berkeley; the Dublin/Pleasanton area; and Half Moon Bay. Astronomers from other areas are also welcome to apply.

Find out more and apply online here: <http://www.astrosociety.org/baprojectastro.html>

## Rachel’s Observing Chair Returns Just In Time For Summer Viewing



*Ken Swagerty putting finishing touches on Rachel’s repaired observing chair. Photo courtesy Don Saito*

Thanks to the skills and talents of EAS member Ken Swagerty, and tireless efforts by assistant newsletter editor Don Saito, Rachel’s long missed observing chair has been repaired and is now back in operation. Don finished painting the chair in early June and he and Conrad Jung successfully reinstalled the sliding seat on Rachel’s rolling observing platform.

## EAS Yahoo Forums

Did you know that EAS has two Yahoo forums to get news to the membership and to share astrophotos? In addition to the regular monthly newsletter, The Refractor, you can also get updates on EAS activities and find out what’s going on at CSSC and the greater bay area. Ken Lum posts his weekly comprehensive list of lectures, museum exhibits, star parties and more in the EAS Forum. You can also see recent astrophotos by EAS members in the EAS Imaging Forum - a good place for beginner astrophotographers to get information on equipment and image processing.

All members are encouraged to post astronomy and science related news, announce star parties and outreach projects, or ask for assistance with telescopes, cameras and computers, observing techniques, research projects. The list goes on and on.

EAS Forum: <http://tech.groups.yahoo.com/group/EastbayAstro/>

EAS Imaging Forum:  
<http://tech.groups.yahoo.com/group/EASImaging/>

*Stay up on the latest in EAS!*

## ASTRONOMY OUTREACH AT THE OAKLAND ZOO



Young visitors view Venus in daylight with Don Saito’s Questar telescope. Don and Gerald McKeegan recently participated in a CSSC sponsored astronomy outreach program at the Oakland Zoo. EAS and CSSC are always looking for volunteers to man scopes at similar events. If you’d like to help at future events, contact Don Saito at [donsaito@comcast.net](mailto:donsaito@comcast.net) or any EAS board member.

*[photo courtesy Don Saito]*



# Eastbay Astronomical Society

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

**June 2010**

*RETURN SERVICE REQUESTED*

## Eastbay Astronomical Society

President: Barry Leska leska@comcast.net

Treas: Richard Ozer (510) 532-5477 rozer@pacbell.net

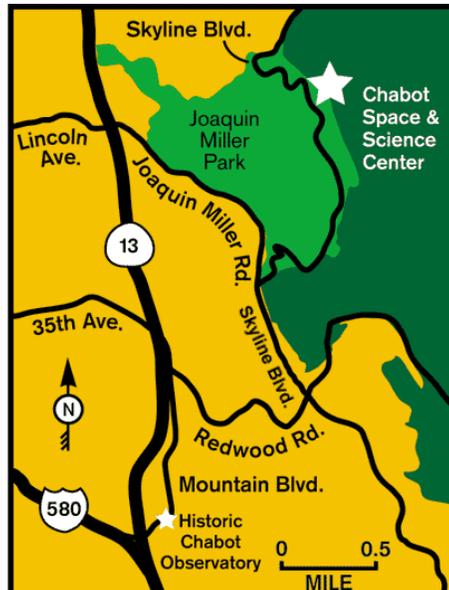
Secretary: Linda Lazzaretti (510) 633-2488

Articles and photos for *The Refractor* are encouraged. Deadline for the July 2010 issue is July 10, 2010. Items may be submitted by mail or E-mail to: Editor - Jim Ferreira, 753 Oriole Avenue, Livermore CA 94551 bakerst@comcast.net (925) 449-0107

Vice President: Ray Wong (510) 796-5748 qm7@yahoo.com

Membership Reg: Bruce Skelly EastbayAstro@gmail.com

Events Coord: Dave Rodrigues (510) 483-9191



### FUTURE CONJUNCTIONS

- June 26** General Meeting, Chabot, Physics Lab, 7:30pm  
**10** Board Meeting, Chabot, Soda Room, 7:30pm  
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\*Always call to confirm

### Join the Eastbay Astronomical Society

- Regular, \$24/year
- Family, \$36/year
- Contributing, \$40/year
- Student, \$15/year (digital news-letter, only)
- Sustaining, \$60/year or more

Contact: Gerald McKeegan, EAS Treasurer

Tele: (925) 926-0853 Email: geraldSPACE@earthlink.net

Mail: 1760 1st Ave, Walnut Creek, CA 94597-2561

Sign up online at <http://www.eastbayastro.org/>