

Vol 30 No. 1

From the President

By Chris Angelos

The 2013 season of FPOA public programs is now in full swing. I hope we see that it is even more successful than the 2012 season.

The season starts on the first Saturday in April and continues with up to 20 programs on the most suitable Saturday evenings through the last week of October. In addition there are 8 monthly solar viewing programs on New Moon Saturday afternoons from March to October.

FPOA members are free to come enjoy the public programs like everyone else. However, with your FPOA membership you can also join in presenting astronomy programs at the observatory. You get the use of observatory equipment without having to purchase the Observer Class membership. I would like to encourage all FPOA members to get more involved with our public programs. There are at least three ways to take part in bringing astronomy to the public at FPOA public nights. (1) Come operate one of the observatory's portable telescopes on the observing pads at the observatory. You have the pick of four telescopes stored in the observatories classroom. There are scopes from 4 to 16 inches in aperture to choose from. If you are more comfortable running your own telescope then set it up on one of the observing pads at the observatory. Park visitors have a great time looking through different scopes. (2) Members are also needed to operate 30 inch Challenger telescope on Just complete the certification public nights. course and you are eligible to operate the 30 inch. The 30 inch is the premier telescope on the Peak. It shows excellent images for objects that are difficult to see in smaller scopes. (3) If you are really ambitious then why not develop an astronomy lecture to give to the public. Every public night at the observatory includes an astronomy lecture and our regular lecturers often need a brake.

To schedule your participation call Ron Dammann at 408 255-1863 or email at schedule at fpoa.net. Ron can advise you on what activity and date will work best for you. **Observer** Bringing Astronomy to the Public

Spring 2013

FPOA Programs 2013

Saturday Evening Programs Apr 6, 13, 20 May 4, 11, 18 Jul 6, 13 Jun 1, 8, 15, 29 Aug 3, 10, 31 Sept 7, 28 Oct 5, 12, 26 Solar Programs Mar 9 Apr 13 May 11 Jun 8 Jul 6 Aug 10 Sept 7 Oct 5 **Board Meetings** Feb 9 Jan 12 Mar 9 Apr 13 Mav 11 Jun 8 Jul 6 Aug 10 Sept 7 Oct 5 Nov 2 **Special Events** Star-B-Que Aug 10 **Member Appreciation Night** Sept 7

Please check <u>http://www.fpoa.net/schedule.html</u> for changes or updates to this schedule.

Globular Clusters of Late Spring

By Rob Hawley

By early June the winter sky has fully set. The summer Milky Way will rise after midnight. Spring is galaxy season, but by now the main area of galaxies is near the meridian at dusk. During June a different type of object is rising in the east – Globular Clusters. There are many globular clusters in the Summer and Winter Milky Ways, but for the this article will focus only on the ones west of the Summer Milky Way

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Globular Clusters

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and precede its rising.



The sky in the east at 11 PM PDT on June 1.

This map only includes globular clusters that I have personally observed. Note that most, but not all are Messier Objects. This is one opportunity to observe interesting non- Messier Objects.

What are Globular Clusters

Globular Clusters are interesting in their own right. They are fossils of the first structures that formed in the universe. The Spring Clusters are outside of the plane of the Milky Way about 10,000 to 30,000 light years from earth. The stars making up the cluster are very old. Their "metal" content (non-hydrogen/ helium in astronomer speak) is very low indicating they are among the first generation of stars. The globular cluster is basically a mini galaxy that orbits the Milky Way. In fact, the current theory is they are dwarf galaxies that the Milky Way sucked up and will eventually rob of their stars.

How their appearance differs.

Compare the appearance of two of the Spring Globs. Notice how M13 has a distinct center that is surrounded by a dimmer halo. NGC 5466 lacks any halo. Also notice the NGC is distinctly oval when compared to the more circular M 13.

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Globular Clusters



M13 <u>Rawastrodata</u> Wikipedia



NGC 5466 <u>Martin Germano</u> seds.org

The observed density of the clusters also changes. My list only includes relatively bright globulars that I have observed. If you include dimmer ones then you will also notice a distinct difference in the density of stars. For example, distant PAL 5 in Serpens (76kly) met my filter criteria with regards to total magnitude, but its surface brightness is so small that I have never been able to observe it.

М 3

M3 in Bootes is one of the first globulars to make its appearance. It is easy to locate being about 1/3 of the way from Arcturus to Cor Caroli. It is finder or binocular visible. M3 is almost a circle with a dense core.

M 5

M5 in Serpens is the next glob that rises. It also has a dense core, but the core is not in the middle. One side is noticeably flattened.

M 13

M 13 in Hercules is the king of spring globs (or at least so for those are too far north to see omega Centauri). It is the largest in the sky until M 22 rises later in the night. It brightness is amazing considering it is 22,000 light years away.

While you are looking at M 13 don't forget nearby M 92 and NGC 6229. The latter is probably less familiar since it is not a Messier. I have observed it with a wide variety of scopes. It is a nice tight structure with a dimmer halo of stars.

Ophiuchus Globs

Right before the bright part of the Milky Way makes its appearance there are several bright globs in Ophiuchus. Technically this is the bulge of the Milky Way, but seeing the bulge requires an exceptionally dark sky. M 10, 12, and 14 are all an easy star hop from each other. There are also several bright NGC's one of which is used as a mid-way point when hopping from 10-12 to 14.

See them for real

So come up to the peak this spring and summer and get a view of these with your own eyes.

For Further Reading

http://en.wikipedia.org/wiki/Globular_cluster http://online.itp.ucsb.edu/online/clusters_c03/ http://astroprofspage.com/archives/140 http://www.peripatus.gen.nz/Astronomy/GloClu.html http://www.spacetelescope.org/news/heic0815/ http://www.spaceref.com/news/viewpr.html?pid=514 http://www.pnas.org/content/95/1/13.full http://www.jpac.caltech.edu/2mass/gallery/images_globs.html

The Pole Star

By Patrick Donnelly

This star is known by many names – Alpha Ursae Minoris, Cynosura, The Pole Star, the North Star, the Lodestar, Stella Polaris, or Polaris. The importance of Polaris cannot be emphasized enough. Its proximity to the North Celestial Pole (NCP) provides a ready-made beacon for navigation and latitude determination in the Northern Hemisphere of the Earth. Its location on the celestial sphere does not vary by much, and hence, the direction North and one's approximate latitude is easily obtainable any time of night on clear nights in the Northern Hemisphere. With an apparent magnitude of +1.98 it is easy to find. Polaris is one of the 50 brightest stars in the sky, but it is not the brightest. In fact, it is only the 49th brightest fixed star on the celestial sphere.

At this time (May 2013) Polaris is about 40' (40 arcminutes) from the North Celestial Pole (NCP). In the course of 24 hours Polaris makes a 1° (1 degree) circle around the NCP. It is somewhat difficult to believe, but at the present time, Polaris is more than one Moon width from the NCP. In addition, Polaris is getting closer to the NCP. Polaris will be closest in the year 2102 AD, and at that time it will be 27'31" (27 arc-minutes 31 arc-seconds) from the NCP.

Polaris is supergiant star, Spectral Type F7II. It is located approximately 434 light-years from the Earth, but this distance is still in question. Its distance is important because Polaris is also a Cepheid Variable. As a Cepheid Variable Polaris varies by about 0.1 magnitudes every 3.97 days. Polaris is both the closest Cepheid and the only Cepheid capable of having a detectable geometric parallax. To some extent the distances to the rest of the worlds and stars farther out in the universe depend on the distance to Polaris. If one knows the distance to Polaris accurately, the errors Cepheid variable period –luminosity relationship are reduced.

In addition to being a Cepheid Variable Star, Polaris is also a spectroscopic variable with an F6v dwarf about 0.17" from Polaris, approximately 40 Astronomical units (40 AU). The companion, Polaris Ab, orbits around Polaris approximately every 29 1/2 years. Finally, Polaris is also a visual binary with a magnitude +9.2 companion, Polaris b, about 18" from Polaris. With such a comfortable separation this visual double can be found with almost any amateur telescope. Polaris b has the same proper motion through space as Polaris, which means the Polaris is actually a triple star system.

The visual companion appears to revolve about Polaris every 24 hours due to its nearness to the NCP. The visual companion is about 2,400 AU from Polaris and has a period of revolution of about 100,000 years.

The next time you are out observing the stars check out Polaris. Since it is located in the same place on the Celestial Sphere every clear night, it should be easy to find.



2013 FPOA Hartnell Interns

On a sunny and warm June 1st afternoon a group of students participating in the Hartnell Community College STEM(Science, technology, engineering, and math) program were trained in the operation of the use of the Challenger telescope and the observatory building.



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2013 FPOA Hartnell Interns

Pictured on the preceding page standing next to our new white light solar scope from left to right are: Christian Millian, Jesus Cardenas, Fausto Precisdo, Edwin Levin, Jared Wolfe, Adonis Pedrialva, Jose Lopez. Not pictured: Ruth Puga and Tyler Hooks. They will be participating in the Solar and Public Program on Saturdays through August.

Spring Work Party

The Spring Work Party was held May 11th and headed by Loren Dynneson. The East Deck/ ADA Ramp was sanded and refinished with a coating that the manufacturer claimed would last 10 years. The clock is running. Past coatings have had a hard time getting past two years.



Loren (right) and Chris Angelos (left) sanding before painting.

Also present were John Parker, Rob Hawley, Michael Connally, Dave Samuels and Pat Donnelly. The building receives a lot of weather and has survived well thanks to the hard work of our dedicated volunteers over the years. We encourage our members to help out in the Spring and the Fall when Work Parties are announced on the Website. It's that time again and the FPOA Board is busy planning for Star-B-Que. If you've every thrown a party for 150 - 200 people, you known what fun it can be! Why let the Board members have all fun? Join in and help with planning, setup, participation in activities and clean up. We have many activities that FPOA members can assist with to make the Annual General Meeting and Star-B-Que run smoother.

It's also a time when members get to meet with the nine FPOA Board Members to discuss the future of FPOA and vote for 3 prospective Board members who serve three year terms. The three Board members up for re-election this year are Doug Brown, Pat Donnelly, and Rob Hawley.

Any FPOA member in good standing can also run for a Board seat. If you are interested in becoming a Board member and can attend Board meetings at the Observatory on New Moon weekends, please contact Ron Dammann to have your name placed on the ballot. Voting is conducted during the dinner time at Star-B-Que and results announced during the Raffle.

Please see our website at www.fpoa.net for more information on Star-B-Que.

Photos from 2012 Star-B-Que



Star-B-Oue 2012





2013 Membership Renewal

Renewals are easy. You can use the forms on the membership page http://www.fpoa.net/ membership.html to pay with either PayPal or via a credit card. For those preferring paper you can just send a check (that has your current correct address) to : FPOA Membership, c/o Rob Hawley, 1233 Hillcrest Dr, San Jose CA 95120

If you email has changed then please be sure to include that in either the PayPal payment as a comment or a note with your check.

EMAIL DELIVERY OF THE OBSERVER

Dear FPOA Members,

We have been delivering the Observer via email for the past several years. This obviously saves the Association postal expenses, and assures the quickest delivery to you. However, several of you no longer have valid email addresses, due to ISP changes, moves, etc. If you would like to continue to receive, or begin to receive, notification of the Observer via email, please send your current email address to membership at fpoa.net

Fremont Peak Observatory Association PO Box 1376, San Juan Bautista, Ca. 95045

Officers and Directors—2013

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The Fremont Peak Observer is published four times a year (Winter, Spring, Summer, Fall). Articles from members are encouraged and should be emailed to <schedule at="" fpoa="" net=""></schedule>	

Articles should be in plain text or MS Word format. Deadlines are Feb. 1, May 1, Aug. 1 and Nov 1, respectively.

FPOA on the Internet

Phone Number: Email Address: Website: Members Only Page:

831-623-2465 info at fpoa.net www.fpoa.net members.fpoa.net Members List Signup: http://fpoa.net/mailman/listinfo/ fpoa-members