The Fremont Peak Observer
Bringing Astronomy to the Public

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From the President

By President Rick Morales

It's almost fall. The evening chill is not yet here. Last night at the observatory the air was warm and I was comfortable wearing shorts and a tee shirt until midnight. When I left, Ron Dammann was with a small crowd of visitors looking at Jupiter. You know, Ron is one of the unsung heroes of the FPOA who works quietly and tirelessly to keep the observatory open when there is no-one stepping forward to help out. The FPOA viewing program is a volunteer program and like most volunteer programs there are just a small group of people who always show up and make sure that the show goes on. The next time you see Ron or any of the board members, take a moment and say thanks for the effort to keep the FPOA and its programs operating.

Another group of volunteers are the Hartnell College students and their mentor, Tim Castellano, who worked the summer months putting on the series of public astronomy talks and operating the Challenger telescope. Actually, the students were Salinas High School graduates and they intend to attend Harnell in the fall. I heard only a few of the programs but I was impressed by the quality of the presentations these young students brought to the Observatory. A hearty thank you to: Alex Cota, Rizelle Legaspi, Cameron Schaeffer, Lillian Vaughn and Tim. We really appreciate your effort this summer.

Our Star-B-Que event this year went well. The turnout was not what we expected. It was a smaller turnout than we had expected and we wondered why. At our last board meeting much of the discussion centered on this subject. We have always had Star-b-que on a new moon weekend and the turnout was always large. This year we selected the weekend following the new moon because we did not want to conflict with our long time joint sponsor, the AANC, who were having a new moon gathering up in the north-east corner of our state. After a lengthy discussion we agreed that next summer we will have our annual event on the new moon

FPOA Programs 2010

Saturday Evening Programs
Oct 2,9,16

Solar Programs
Oct 2

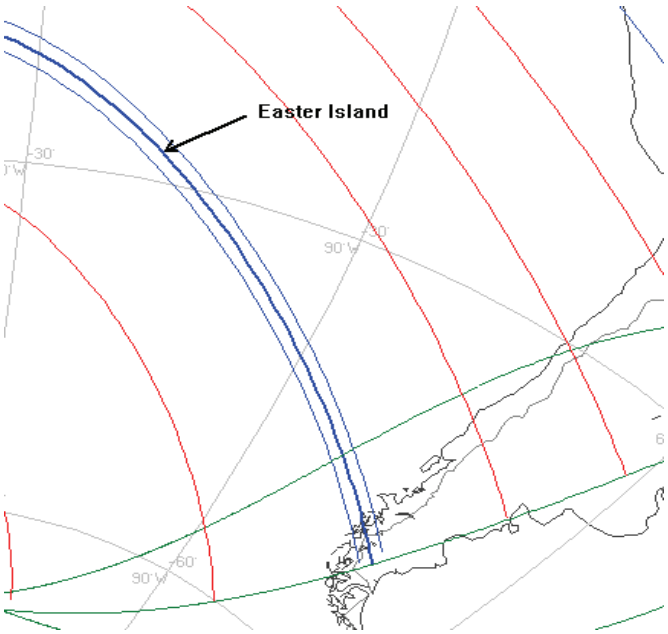
Board Meetings
Oct 2, Nov 13

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

Capturing The Beads

By Rob Hawley

Eclipses have taken me to the ends of the earth. Novosibirsk, Siberia, Russia and Zambia were hardly on my bucket list; however, Easter Island is someplace I have always wanted to go.



Continued page 2

Capturing The Beads *from page 1*

The natives bill *Rapa Nui* as “the most remote place on earth”. I supposed if the claim is based on the distance from others then it is safe as the nearest occupied land is Pitcairn Island. However, a place with regular ship and plane service as well as cell phone and internet is not “off the grid”. That distinction more correctly belongs to its neighbor.

You can reach the island from either Tahiti or Santiago. For our TravelQuest group it was a 5 hour flight from Chile. It’s winter there now. Santiago was surrounded by snow covered hills. Easter Island is in its rainy season - not ideal eclipse weather.

Easter Island is famous for its moai, which are monolithic human figures carved over 500 years ago. Almost all of the people now live in the southwest corner. Most of the island is a World Heritage Park which preserves a pastoral feel for the island as opposed to the suburban sprawl of Tahiti. All of the moai were toppled before first European contact due to internal fighting. The various sites in the park contain the moai in various states of well restored, badly restored, and left alone.

The weather prospects were not good , but since I was going to be doing some serious stargazing in the Atacama afterward (or so I thought) and since the air connections to Easter Island were better than my previous two trips, I decided to take my full eclipse gear (Televue-76 scope, Orion EQ-3 mount, and Canon 20Da camera). I left the computer at home this time since I did not want the weight and assumed I would probably get rained out anyway. As it turned out, the day before the eclipse was a “rivers in the streets” storm. We watched the satellite images of the clouds all night and could see that there was clear sky to the west. The question was whether it would reach us in time.

The morning of the eclipse looked hopeful. The weather was broken to scattered clouds, but with very high winds. As the morning progressed, clumps of clouds raced past. It was anyone’s guess whether totality would be in a cloud or a clear patch.

This was going to be a 4 minute plus eclipse so I thought it would not have as interesting a shadow as in Russia. In the similarly long Libya eclipse, I used a computer to execute a carefully scripted program. This snapped shots of the prominences at the start-slowing down to take a shot of the new moon in earthshine. In Libya the computer allowed me to observe with minimal interruptions. Since I wanted to actually look at the eclipse this time as well (as opposed to futzing with a camera), I decided on a simple plan, but one that would allow me to capture something that I have never seen before - Baily’s Beads.

Baily’s Beads occur in the seconds before 2nd contact and after 3rd contact (when the photosphere disappears and reappears). The moon is not a perfect sphere. The sun shining through valleys along the edge results in a beaded appearance, but only for a second or so. Since the bright surface of the sun is still visible you have to view these with a telescope using either a solar filter or with a camera using very fast shutter speed. Using a solar filter would not work since I wanted to see/capture the prominences that are visible for the few seconds after (before) contact. Thus I wanted to try with a camera on my telescope set to a fast speed (1/1250) controlled by a shutter release with me madly pushing the camera to get as many photos as possible.

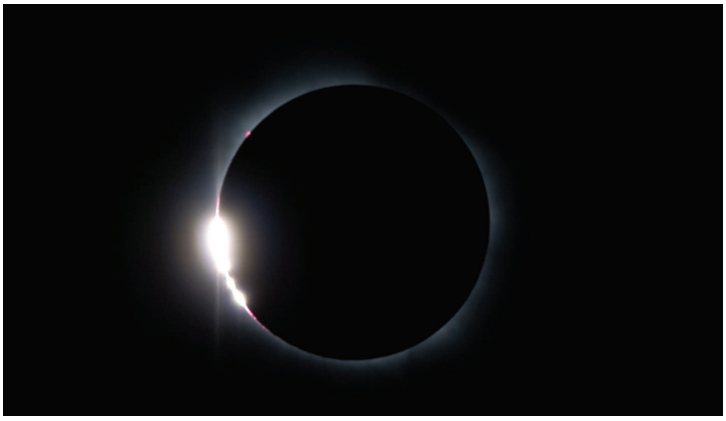
The warning on every telescope I have ever seen is to not point it at the sun. That is good advice and our safety briefing included many examples of the sun causing damage to optics. Thus taking these pictures without damaging my equipment was part of the challenge.

The technique I used was to stand in front of my scope about a minute before totality. I removed the solar filter and replaced it with a black plastic bag. I then sat down and watched the sun through solar glasses. As I could see totality approaching I removed the plastic bag. I later measured that it was about 51 seconds before 2nd contact which was earlier than I wanted to, but still OK. It was unsafe to look through the viewfinder so I snapped pictures using the shutter cable hoping I was getting something. As we got closer to totality I snapped faster.

The best picture was about 7 seconds before 2nd contact. It clearly shows the beads. At this point the sun was still too bright to observe unaided. I caught the sequence before and right after 2nd contact as well as some inner corona.

Continued on page 3

Capturing The Beads *from page 2*



I looked up once my 2nd contact and corona pictures were finished and was mesmerized. It was the most beautiful and detailed corona I have ever seen. I almost forgot that inches from my head was a 1000mm equivalent lens. After a minute or so I switched to my eyepiece. I studied the detailed magnetic lines in the corona. At that magnification I could not see the outer corona, but it was my best view ever of the inner. Eventually I started seeing the prominences emerge on the other side. When I saw the red chromosphere I moved my eyes from the eyepiece and shot my 3rd contact set.

One important last point. It does not make sense to go to an eclipse and not look at it. I thought I had only been messing with the camera for a couple of seconds after 2nd contact. Looking at the shot timings it was actually 43 precious seconds! That did give me another 3+ minutes to actually look, but many eclipses are shorter.

Eclipses are addicting. A community of people regularly travel to them. This was my eighth (fifth traveling with TravelQuest). The next two are on a boat and short (2012 and 2013) so I will leave the fancy equipment at home. Also in 2012 an annular eclipse comes to northern California. In 2017 totality comes to the states!

For the other pictures and a movie that combines by pre-2nd contact photos see my website www.robhawley.net/ei10.

Continued page 5

Stargazing in the Atacama

By Rob Hawley

While visiting Zambia was never on my bucket list, observing in the dark, high desert of Chile definitely was. For several years I have looked for such a trip and rejected at least one that seemed like a tourist trip. I was delighted when Aram Kaprielian of my long time eclipse travel company TravelQuest offered such a trip as an add-on to the 2010 Easter Island trip. After all I have been on the TravelQuest organized observing trip to Costa Rica three times and always found the arraignments outstanding. Several phone conversations with Aram convinced me that he was planning to put a lot of effort into making this a good star gazing experience.

The Atacama covers all of northern Chile and extends into Peru. It is one of the driest places on earth with an average rainfall of 0.5mm per year. Several of the world's major observatories are located there. Human life is confined to several large mining towns such as Calama and the smaller tourist town of San Pedro de Atacama. San Pedro was our destination.

At 2500m it certainly qualifies as high. The center of the city was mostly dirt roads (why bother paving if it rains only every couple of years). It was devoid of the large malls, auto dealers, street lights (in most places), and other banes of the astronomer's existence.

The plan was to shuttle every night to a dark site out of town. That was where the realities of running a trip started to conflict with the needs of serious observing. Our flight to the Atacama city of Calama

Continued page 4

Stargazing in the Atacama

required a 4 AM wake up call. Groan! Driving in the buses out to the site the first night everyone was yawning. The plan for the first night was that shuttle would run from the site to the hotel as they filled. We did not get to the site until nearly 9:30 and then had to hike into the observing area. The site was definitely as dark as the Australian Outback. The Milky Way through Ophiuchus virtually popped as did the coal sack in the southern Milky Way. The photo above is close to what you could see with your eyes.

The SMC was visible as soon as we got there. Unfortunately I was exhausted. After looking at some southern eye candy and dreading carrying my equipment back to the bus I had to quit about midnight. The next two nights were going to be a problem. Early departures on both the 2nd and 3rd mornings meant no all-night observing at the dark site. When I got back to the hotel I compared notes with a couple of serious Bay area observers who stayed put and observed from the hotel. I knew them through a common friend but we had never really met before this trip. They discovered some spots that were shielded from the hotel lights. With virtually no light dome from elsewhere that is all it took. While not as good as the dark site, the Milky Way was just as good if you stayed in the shadows and dark adapted. We opted to stay at the hotel the next two nights. With the help of Aram we got some additional lights turned out and made ourselves an acceptable dark area right outside our rooms.

The 2nd night was the best. Everyone was rested. With the moon not setting until 10 PM there was time for a leisurely dinner. Once we got back the equipment came out, we hunkered down in the dark corner of the hotel property. We had a better night than the previous one. I got some of the objects that I could not see in the February Costa Rica trips and did not see in my October 2006 Australia trip. I shared the 6 inch scope other Bay Area astronomers brought. We knocked off about 2 AM so we could catch the trip to the geysers at 5 AM.

The 3rd night presented a different set of challenges. The moon did not set until 11:30, there was a terrible dust storm all day, and finally we had a 6 AM departure. Sigh. Fortunately by dinner the wind stopped and the sky cleared. Since there was no way I could observe with my scope and pack, I suggested to Aram that we organize the third night as a star party. So at 3 AM several intrepid souls joined the local guide and me. Our guide brought a 12" Meade Lightbridge.

We had wonderful views of the LMC and SMC. We even (with some groaning from me) looked at northern stuff that I see all the time. Everyone had a good time.

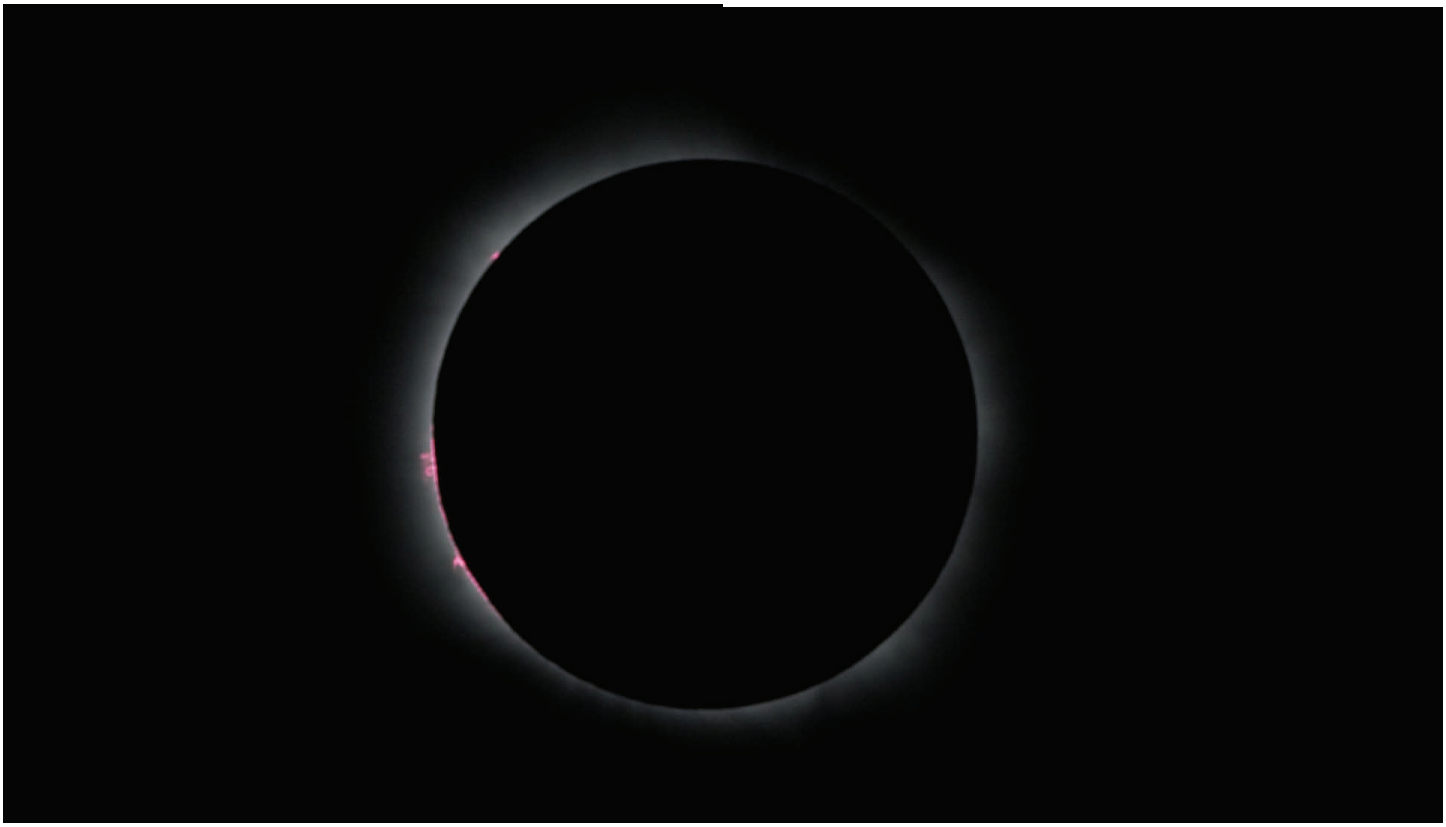
Did I mention it was cold? This was, after all, winter in the high mountains. I literally brought as much weight in winter parkas, boots, pants, fleece hats, gloves, etc. as I did in the equatorial tripod. Fortunately with all of that clothing (and some foot warmers) I was comfortable.

The next day we departed before dawn for Paranal and the VLT.

So would I go back? I think yes, but my other friends point the advantages of the Australian Outback site. Since I had crummy weather for most of my own Australia trip and a scary 8 hour drive on the wrong side of the road to get to the site I might try San Pedro again.

If you don't have the time, money, or tolerance for hassle required to set up an international observing trip, but want to see the southern sky, then I recommend TravelQuest's Costa Rica trip. It is the cheapest and easiest way to see the southern Milky Way.

Capturing The Beads *from page 3*



Prominences after second contact

Corona at 1/125 second at f 6.3 ISO 100

President's Column *from Page 1*

weekend and that we would get the word out well in advance to the amateur astronomical community that **Star-B-Que 2011 will be June 25, two-days past the third quarter moon. Mark your calendars now!**

Thanks for listening. Respectfully yours,
Rick Morales

FPOA Directors for 2010 and 2011

As you may know 3 FPOA Directors are elected by FPOA members at the Star-B-Que each year for a three year term(some use the word "sentence").

This year two incumbents were re-elected and one new member was elected. Congratulations to Doug Brown and Pat Donnelly, our returning Board members and to our newest Board member, Rob Hawley, who's term starts in January for three years. Rob also is our Membership Chairman taking over the duties of membership from Bob Black, who did a wonderful job of keeping track of membership information for many years.

Another active Board member, Ed Huston retired this year to leave more time for his other activities of helping young people. Replacing Ed is Chris Angelos, a former Board member, who is filling out Ed's remaining term. Chris is also a member of the Santa Cruz Astronomical Club.

EMAIL DELIVERY OF THE OBSERVER

Dear FPOA Members,

We have been delivering the Observer via email for the past several issues. 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 schedule@fpoa.net

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Officers and Directors—2010

The Fremont Peak Observer is published four times a year (Winter, Spring, Summer, Fall). Articles from members are encouraged and should be emailed to tatamark@ razzolink.com. 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

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