

# ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

Vol. 57, No. 8 – August 2009

*Wednesday, August 19, 2009 – General Meeting*

Randall Museum . 199 Museum Way . San Francisco

7:00 pm Doors Open . 7:30 pm Announcements . 8:00 pm Speaker

*SFAA's General Meetings take place on the 3<sup>rd</sup> Wednesday of each month (except January)*

## **How Do We Know What Time It Is, Anyway?**

*A Presentation by Jack Welch*  
**From the Robert Ferguson Observatory**

Jack Welch of the Robert Ferguson Observatory in Sonoma gives a presentation on how we measure time and how time measurement is handled in various astronomy and space situations. Welch will explain how our understanding of time measurement has changed as technology and theory have developed, and will explore some of the special challenges satellites and spacecraft have when it comes to timekeeping.

Welch currently teaches the Robert Ferguson Observatory's longstanding and popular "Night Sky" series of classes; and created and runs the unique "Observing Lab" programs that provide intensive telescope observing experiences on specific topics.

## 2009 CLUB OFFICERS & CONTACTS

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## CLUB TELESCOPES

The SFAA owns eight very fine, easy to use, loaner telescopes well-suited for deep sky, planets, and star parties. All scopes are available to any SFAA member. The loaner custodians for the majority of our fleet are Pete & Sarah Goldie. Please contact them at [telescopes@sfaa-astronomy.org](mailto:telescopes@sfaa-astronomy.org) for details if you are interested in borrowing a scope or if you have items you can donate for the loaner program (eyepieces, star maps/books, red flashlights, collimator, etc.). Please contact the appropriate member indicated below if you are interested in borrowing one of the telescopes.

- 1) 6" f/10.3 Dobsonian/Ken Frank [ken@sfaa-astronomy.org](mailto:ken@sfaa-astronomy.org)
- 2) 8" f/7 Dobsonian/Pete Goldie
- 3) 8.5" f/6 Dobsonian/Pete Goldie
- 4) 10" f/8 Dobsonian/Pete Goldie
- 5) 114mm f/4 Newtonian StarBlast/Pete Goldie
- 6) 8" f/10 Celestron SCT/Annette Gabrielli/ [annette@sfaa-astronomy.org](mailto:annette@sfaa-astronomy.org)
- 7) 8" f/10 Meade SCT/Stefanie Ulrey/[treasurer@sfaa-astronomy.org](mailto:treasurer@sfaa-astronomy.org)
- 8) 9.5" f/5.6 Celestron Newtonian/Ken Frank/ [ken@sfaa-astronomy.org](mailto:ken@sfaa-astronomy.org)

## CLUB ASTRONOMY VIDEOS

The SFAA owns a series of astronomy videotapes featuring Alex Filippenko, a world-renowned professor of astronomy at UC Berkeley. The videotapes provide an introduction to astronomy and cover topics such as the Solar System, the lifecycles of stars, the nature of galaxies, and the birth of the Universe. The SFAA loans the tapes free to all members. If you are interested in viewing these tapes, you may check them out at any of the SFAA General Meetings. These tapes were kindly donated to the SFAA by Bert Katzung. For information on the course tapes themselves:

<http://www.teach12.com/ttc/assets/coursedescriptions/180.asp>

## MEMBERSHIP DUES

Membership is billed for each upcoming year on June 30. Members may receive no more than one bulletin after the expiration of membership.

## SFAA WEBSITE AND ONLINE SERVICES

The SFAA web site at [sfaa-astronomy.org](http://sfaa-astronomy.org) is provided to our members and the general public for the sharing of club information and services. The web site contains links for club [star parties](#), [events](#), [newsletters](#), [lectures](#) and [meetings](#). If you wish to interact with other people who are interested in astronomy, the SFAA web site offers public and members only [bulletin board forums](#). If you wish to remain up-to-date on club activities, then we encourage you to subscribe to one or both of our public [mailing lists](#), which will allow you to receive our newsletter and/or club announcements via email. Other useful and interesting information and services are available on the site such as [observing location reviews](#), member [astronomy photos](#), and [members only telescope loans](#). Information about SFAA's membership, organization and by-laws are available at the club's online public document [archive](#). If you need to contact a representative of the SFAA, then please visit our [contacts](#) page to help in finding the right person to answer your questions.

*Above the Fog* is the official bulletin of the San Francisco Amateur Astronomers. It is the forum in which club members may share their experiences, ideas, and observations. We encourage you to participate by submitting your articles, announcements, letters, photos and drawings. We would also like to hear from our new members. Tell us about yourself – what you have done in the past and what other clubs you have joined. **The deadline for the next issue is the 20th day of the month.** Send your articles to [Editor@sfaa-astronomy.org](mailto:Editor@sfaa-astronomy.org)

# IMPORTANT DATES

## SFAA GENERAL MEETINGS & LECTURES - AUGUST 19 . SEPTEMBER 16 . OCTOBER 21

*Third Wednesday of each month: 7:00 p.m. Doors open. 7:30 p.m. Announcements. 8:00 p.m. Speaker  
Randall Museum, 199 Museum Way (Near 14<sup>th</sup> Street and Roosevelt)*

## SFAA BOARD MEETINGS - AUGUST 11 . SEPTEMBER 8 . OCTOBER 13

*Second Tuesday of each month: 7:00 p.m. – 8:30 p.m.  
Randall Museum, 199 Museum Way (Near 14<sup>th</sup> Street and Roosevelt)*

## CITY STAR PARTIES - AUGUST 29/7:30 P.M. . (NO SEPT.) . OCTOBER 24/6:30 P.M.

### **TELESCOPE CLINIC ONE HOUR BEFORE SUNSET**

*Land's End (Point Lobos) - Map and directions:*

<http://www.sfaa-astronomy.org/clubarchive/directions-pointlobos.php>

NOTE: While City Star Parties WILL ALWAYS be held on Saturdays, some will be close to the last quarter phase of the moon; others will be close to first quarter. This is so we can work around dates for Mt. Tam public star parties as well as our Mt. Tam members-only events.

## MT TAM SPECIAL USE PERMIT STAR PARTIES - MEMBERS ONLY

### AUGUST 15 . SEPTEMBER 26 (SFAA PICNIC) . OCTOBER 17

**GATEKEEPERS: Aug-Babara, Elan ; Sep – 2 needed; Oct – 2 needed**

Special Use Permit observing nights on Mount Tamalpais are private and open *only* to SFAA members. Please arrive by sunset (times listed below). A permit is required for each car. We must vacate the mountain by 2:00 a.m. except on specially approved nights (such as Messier Marathon).

## MT TAM PUBLIC STAR PARTIES - AUGUST 22/7:53 P.M. . SEPTEMBER 19/7:11 P.M.

SEPTEMBER 24/6:20 P.M.

**GATEKEEPERS: Aug-Vivian + 1 needed; Sep – Ken+1needed; Oct – Ken+1 needed**

Public nights on Mount Tamalpais start with a lecture in the Mountain Theatre, followed by public viewing in the Rock Springs parking lot. SFAA members may view privately after crowd departs from approx. 11 pm-2 am.

For more information go here: <http://www.sfaa-astronomy.org/starparties/>

## UPCOMING GENERAL MEETING LECTURES & EVENTS

SEPTEMBER 16: Dr. Robert P. Johnson, UC Santa Cruz, will be speaking about NASA's Fermi Gamma-ray Space Telescope. In addition to presenting early science results, this talk includes an introduction to astronomy with gamma rays, descriptions of the instruments and their fabrication, and descriptions of the mission operations.

NOVEMBER 18: This meeting will feature the movie BLAST!, about the Balloon-Borne, Large-Aperture, Submillimeter Telescope.






DECEMBER 16: MEMBERS' NIGHT. ASTROPHOTOGRAPHY, ASTRONOMICAL ART AND LITERARY CONTESTS.

## August 2009 Almanac for San Francisco (Pacific Daylight Time)





(Source: US Naval Observatory)




By SFAA Board Member Dave Wilton

### Sun and Moon Data:

Date	Astronomical Twilight Begins	Sunrise	Sunset	Astronomical Twilight Ends	Moon	Moonrise	Moonset
<b>1 Aug</b>	4:31 am	6:14 am	8:18 pm	10:01 pm		5:41 pm	2:07 am
<b>8 Aug</b>	4:39 am	6:20 am	8:11 pm	9:50 pm		9:21 pm	8:53 am
<b>15 Aug</b>	4:48 am	6:26 am	8:02 pm	9:39 pm		0:48 am 14 Aug	4:24 pm
<b>22 Aug</b>	4:57 am	6:32 am	7:53 pm	9:27 pm		10:24 am	9:29 pm
<b>29 Aug</b>	5:05 am	6:38 am	7:43 pm	9:15 pm		3:23 pm	0:49 am 30 Aug

### Planetary Data:

	Mercury		Venus		Mars		Jupiter	
								
	Leo 1-20/Virgo 21-31		Gem 2-24/Can 25-31		Taur. 1-25/Gem. 26-31		Capricornus	
Date	Rise	Set	Rise	Set	Rise	Set	Rise	Set
<b>1 Aug</b>	7:44 am	9:15 pm	3:15 am	5:47 pm	2:03 am	4:37 pm	8:55 pm	7:31 am
<b>8 Aug</b>	8:14 am	9:13 pm	3:22 am	5:55 pm	1:53 am	4:31 pm	8:25 pm	6:59 am
<b>15 Aug</b>	8:36 am	9:04 pm	3:31 am	6:01 pm	1:44 am	4:25 pm	7:55 pm	6:27 am
<b>22 Aug</b>	8:50 am	8:52 pm	3:42 am	6:05 pm	1:35 am	4:18 pm	7:25 pm	5:55 am
<b>29 Aug</b>	8:54 am	8:33 pm	3:55 am	6:07 pm	1:27 am	4:11 pm	6:55 pm	5:23 am

	Saturn		Uranus		Neptune	
						
	Leo 1-29/Virgo 30-31		Pisces		Capricornus	
Date	Rise	Set	Rise	Set	Rise	Set
<b>1 Aug</b>	9:31 am	10:12 pm	10:17 pm	10:11 am	8:57 pm	7:41 am
<b>8 Aug</b>	9:07 am	9:46 pm	9:49 pm	9:43 am	8:29 pm	7:12 am
<b>15 Aug</b>	8:43 am	9:21 pm	9:21 pm	9:14 am	8:01 pm	6:44 am
<b>22 Aug</b>	8:20 am	8:55 pm	8:53 pm	8:46 am	7:33 pm	6:15 am
<b>29 Aug</b>	7:56 am	8:30 pm	8:25 pm	8:17 am	7:05 pm	5:47 am

### August Phenomena:

- 3 August, 6:00 pm: Moon at apogee, 252,294 miles (406,028 km)
- 5 August, 5:39 am: Weak penumbral lunar eclipse (midtime)
- 12 August, 10:00 am: Perseids meteor shower peak
- 14 August, 1:00 pm: Jupiter at opposition
- 17 August, 2:00 pm: Neptune at opposition
- 18 August, 10:00 pm: Moon at perigee, 223,469 miles (359,638 km)
- 24 August, 11:00 am: Mercury at greatest elongation, 27.4° east of Sun
- 26 August, 2:00 am: Mercury at greatest illuminated extent 31 August, 4:00 am: Moon at apogee, 251,823 miles (405,2

**!!!! SAVE THE DATE !!!!**

**Saturday . September 26, 2009**

**SAN FRANCISCO AMATEUR ASTRONOMERS  
ANNUAL BOOTJACK STAR-B-Q**



This is the biggest opportunity during the late summer months for members to meet, greet, eat, and retreat to dark skies. Our annual Star-B-Q will be held at Bootjack Campground on Mt Tam.

The Star-B-Q starts in the afternoon with a picnic. SFAA supplies the basic main course protein (hamburgers, hot dogs) -- you bring whatever you like to drink and share. Immediately following, the group repairs to our Rock Springs permit area behind locked gates for a night of members-only stargazing.

RSVP to Stephanie at [vicepresident@sfaa-astronomy.org](mailto:vicepresident@sfaa-astronomy.org)

## Just a heads up –

Time is ticking away and, unbelievable though it may seem, we have just four or so months left to prepare our astrophotography, astro art, and literary submissions for our December Members' Night contests!

So while YOU are “cooking up” your creations, I will be working on revamping this contest announcement so you don't have to read the *same* words in the *same* paragraphs and look at the *same* format for yet another year!

## ANNUAL AWARDS .....

### THE CONTEST IS ON DECEMBER 17

MEMBERS WILL CAST VOTES AT THE DECEMBER 17 MEMBERS' NIGHT MEETING.  
PRIZES FOR FIRST, SECOND AND THIRD PLACE WINNERS WILL BE AWARDED.

ASTRONOMICAL ART AND LITERARY SUBMISSIONS RECEIVED WILL BE INCLUDED IN THE DECEMBER NEWSLETTER. WE LOOK FORWARD TO SEEING MANY MORE ENTRIES AT THE MEMBERS' NIGHT MEETING.

### Astrophotography



Members are encouraged to submit astrophotographs (up to three entries per member) for judging. All entries will be accepted and exhibited at the December meeting and voted upon by the general membership. Entries *must have been taken this year (2009)* and be of an astronomical theme. Size should be reasonable (11' x 14' or less), mounted or unmounted.

### Astronomical Arts

This contest is open to all members and will be judged by the membership at the December General Meeting. Any art related to astronomy is welcome. Your drawings of astronomical objects are worth sharing with other club members, as well as craftwork, sculpture, jewelry, and paintings -- there are almost no restrictions here. Size is a consideration since we have to fit all entries, and club members, in the museum, alongside the Astrophotography Award entries. Also, no living critters, please. The museum may frown upon any living, breathing things that are not part of official exhibits. Live acts are restricted to the human kind. Please bring your entries to the December meeting. Any questions can be directed to club officers listed on page two in this bulletin.

### Literary



Submissions may be fact or fiction, humor or opinion. You may have a favorite story about an observing experience, a trip, or about people who have crossed your astronomical path in one memorable way or another. Share the stories of your astronomy observing and/or travel experiences, maybe an article you have written, and enable us to appreciate them with you.



*Opportunity to Help and Get Free Admission*

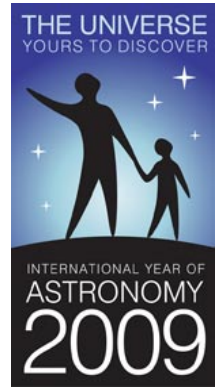
**VOLUNTEERS NEEDED  
TO HELP WITH ASP MEETING  
IN SEPTEMBER  
Near SF Airport**

The 2009 Meeting of the Astronomical Society of the Pacific will be held Sat. Sept. 12 through Wed. Sept. 16, at the Westin Hotel in Millbrae, near the SF Airport. The topic will be education and outreach for astronomy.

The Society needs at least six volunteers for each day of the conference. If you work a day as a volunteer, you get registration for that day plus another day at the conference free. Volunteers assist with registration, message boards, audio-visual needs, checking badges, and other meeting-related tasks.

To get on the volunteer list, please email Cindy Hart with your name, contact information, and days of availability, at: <[chart@harteventmarketing.com](mailto:chart@harteventmarketing.com)>

For more information about the meeting, see the web site:  
<http://www.astrosociety.org/events/meeting.html>



**Saturday,  
September 12, 2009  
Westin Hotel at San Francisco  
Airport, Millbrae**

Astronomy enthusiasts of all ages are invited to join a gathering of local professional and amateur astronomers for an exciting day of:

- [Astronomy Lectures](#) from NASA and SETI Institute astronomers, astrophotographers, filmmakers, science historians, and more
- [Brown Bag Lunch Workshops](#) for amateur astronomers and the technically-inclined public
- [Daytime Sun Viewing](#) through safe solar telescopes
- [Astronomy Conversation](#) with representatives from local astronomy clubs and dealers
- [A Night of Stargazing](#) with expert interpretation, through an impressive array of telescopes.



There will also be an [Astronomy Raffle](#) offering dozens of cool prizes!

[Registration is now open!](#) Please check the [Register](#) page for more details.

*Sponsors*

This gathering is sponsored by the [Astronomical Association of Northern California](#) (AANC), in collaboration with the [Astronomical Society of the Pacific](#) (ASP). It is an opening event of the ASP Annual Meeting, September 12-16.

Download the [press release](#) (PDF, view with [Adobe Reader](#))





**Science Education and Outreach:  
Forging a Path to the Future  
September 12-16, 2009  
Westin SFO, Millbrae, California**

[Registration is now open](#) for the 2009 ASP meeting to be held in the San Francisco Bay Area at the Westin San Francisco Airport Hotel, 1 Old Bayshore Highway in Millbrae, California.

The ASP's annual meeting will be held in Northern California where the ASP was founded 120 years ago. The meeting will be located at the Westin SFO in Millbrae, California. In addition to the EPO symposia, there will be additional weekend hands-on workshops designed specifically for educators, as well as special sessions targeted to non-astronomy science practitioners.

<a href="#">How to Present</a>	<a href="#">Registration</a>	<a href="#">Proceedings</a>	<a href="#">Meeting Schedule</a>
<a href="#">Exhibitors</a>	<a href="#">Lodging</a>	<a href="#">Committee</a>	<a href="#">Co-Sponsors</a>

**September 12-16, 2009  
Westin SFO, Millbrae, California**

Save the date for the Astronomical Society of the Pacific's 120th Anniversary celebration!

**Registration is now open** for the 2009 ASP meeting to be held in the San Francisco Bay Area at the Westin San Francisco Airport Hotel, 1 Old Bayshore Highway in Millbrae, California. The theme of the 2009 gathering will be "Science Education and Outreach: Forging a Path to the Future."

The meeting proper begins on Sunday evening, September 13, with the annual members' meeting and the opening reception. Meeting sessions begin on Monday, September 14, with the annual awards banquet held on Tuesday evening, September 15. The meeting will conclude the early evening of Wednesday, September 16.

In addition, the meeting will be preceded by hands-on workshops scheduled on Saturday and Sunday, September 12-13, for formal and informal educators, with a separate daily workshop registration fee from the meeting registration fee -- watch for specific information and an announcement of scholarships for workshop attendees shortly. (If you would like to propose a weekend workshop, contact the ASP separately at [asilva {at} astrosociety.org](mailto:asilva@astrosociety.org).) Additional special events for the weekend are in the offing -- watch for announcements shortly.

Click on the links to find information and details on [hotel reservations](#), [meeting registration](#), [exhibiting](#), submitting [poster and presentation abstracts](#), and submitting [proceedings write-ups](#). Be sure to [sign up](#) to receive more information and meeting alerts, and check back frequently as information is added.

Please join us in September in the San Francisco Bay Area, during the International Year of Astronomy, the International Year of Science, and the 120th anniversary of the founding of the Astronomical Society of the Pacific, as we look forward and consider how, working together, we can advance a future of science literacy, enlightenment and achievement!

[Sign up to be notified](#) as additional meeting program events are announced.

# Apollo 11 –The Main Event & My First Rocket Launch

**Jim Cottle**

*There has been so much written on the launch and mission of Apollo 11, and its historic significance. On this, the fortieth anniversary of its mission, I have chosen to share with you my personal experiences around the launch of Apollo 11, the first rocket launch I ever saw, rather than repeat a lot of what has previously been said. The following article therefore is deeply felt and I hope that you enjoy it as much as I have enjoyed my recollections.*



I begin writing this article upon my return from Splashdown 2009, the U.S.S. Hornet's 40<sup>th</sup> Anniversary celebration of the recovery of the Apollo 11 Command Module. Today, SFAA President, Dirk Lammerts and I met Apollo 11's Lunar Module Pilot, Buzz Aldrin at a book signing on the Hornet of his newly released autobiography, *Magnificent Desolation*. While I am certain many of our club colleagues are today lounging around the Bridal Veil campground in Yosemite

National Park and tonight will be enjoying nice clear, dark skies at Glacier Point, Dirk and I fought the thousands of people present today on the U.S.S. Hornet in appreciation and celebration of the pivotal achievement of Apollo 11, possibly the most poignant shared scientific event of the 20<sup>th</sup> Century. It was a fitting tribute today to be on the ship that ended the Apollo 11 mission, since I was there at Kennedy Space Center on July 16<sup>th</sup>, 1969 for its beginning (the launch). For me today was a very satisfying convergence of the beginning of the mission, the successful end of the mission and years of reflection on that most important event, 40 years ago, an event that had a profound impact for me personally, the nation and the watching world. I think that Dirk and I share the opinion that Buzz's presentation was, how can we say, less than what we could consider inspiring. Indeed the presentation by Bob Fish on the Splashdown was significantly better, although there is no escaping the "Buzz factor" and "star power" of a true American Hero. Dirk and I were doing a different type of "star-gazing" on July 25<sup>th</sup>.

Sometime toward the first part of 1969, one of my colleagues working with me at the radio station at WQXM in Clearwater, Florida asked me if I would like to attend the Apollo 11 launch as a member of the accredited news media, representing the radio station at the event. I remember casually saying *sure!*, not stopping to think of how important an historical event this really was. Surprisingly, I was the only person at the station with the desire or the time to drive over to the Cape, stay with a friendly stranger (who worked for the Apollo program) and attend the launch. I had very little camera equipment (basically a regular 8mm film camera of the wind-up type), but was very well equipped to tape record any launch audio that might come my way, so I also requested a vehicle pass for my 1968 Chevrolet Camaro in order to facilitate carting my Sony 350 tape deck, microphones and other recording hardware to the LC-39 Press Site. Most of the media would not be issued the Vehicle Pass, and would travel to the launch by Shuttle-Bus from the Apollo News Center in Cocoa Beach.



**Figure 1 - The coveted Press Accreditation required to access the Launch Complex 39 Press Site. On the left, the Press Pass, good for KSC and MSC and on the right, the limitedly issued, vehicle pass.**

The night before the launch, I decided to do a test run to the Press site, so that I could scope out the terrain, learn my way to the LC-39 Press Site Parking lot and plan out the location for my recording equipment, to be deployed early the following morning. First I arrived at the Press Media Center in Cocoa Beach, attained my badges, a map and a Apollo 11 Press kit. Then it was off to the north, through the gates of Cape Canaveral Air Force Station to make my way to the Apollo 11 launch site. I was a child of the 50's and I grew up with the television images of launches from the ground I was about to traverse and it was a very interesting drive for an impressionable 16 year-old about to enter engineering school at the University of South Florida. So, driving from the Trident Submarine turning basin past the ASUZA radar site, Mercury Redstone Complex 5 and 6 and their blockhouses (historically preserved), the old Mercury Mission Control Center and all of the other rich industrial archeological sites that Cape Canaveral had to offer in 1969 was an incredibly engrossing experience. I found myself having to share glimpses of very interesting space hardware, and safe driving (and staying out of trouble), as I drove past Polaris, Snark, Matador, Navaho, Thor, Redstone, Atlas, Delta and Gemini launch sites. Somehow, however, in the CCAFS Industrial Area, I missed my turn to cross over the Banana River to the Merritt Island Launch Area (NASA calls it MILA). I continued on toward the Saturn 1B and Saturn 1 Launch Complexes 34 and 37 and was blissfully unaware of my mistake as I drove up the manned space flight food chain and was skirting along the Atlantic coastline (up what is now called the Samuel Phillips Parkway) when I first ran into Apollo 11. Less than a football field away, to my left, there she was: Apollo 11, Apollo-Saturn 506, at T minus 15 hours with the Launch Tower, Mobile Service Structure and the setting Sun! My jaw literally dropped open, to what seemed to be the floor of the Camaro, and I nearly drove off the side of the road. I remember thinking, *how was this possible?* I would surely be arrested and taken to some other country (unnamed) today.



Figure 2 - The CCAFS Industrial area. On the upper right is the road I should have taken to cross over the Banana River to MILA (the causeway). On the upper left is the tall hanger AF, a hanger I would eventually get to know intimately and to its immediate right is the famous Hanger S of the Mercury program. North is to the right in this photo, pointing to Saturn 1, Titan III and Saturn 5 sites.



Figure 3 - My view to the left as I drove up to Apollo 11, an incredible feat that I marvel at today. Since the launch crew was just starting to move the Mobile Service Structure back for final propellant loading, the Crawler way road was closed and I had to go back the long way around to make it to the Press Site. Curiously, my driving up to Apollo 11 was no big deal. My how times have changed.

Although I had never seen one, the Saturn V rocket, towering 36 stories high above the Atlantic, was unmistakable. Unfamiliar to me, but, like encountering a shark while snorkeling, it had a distinctive and unmistakable look – you just know. The sun was setting in the west over the Florida mainland and it was quite a beautiful site. I remember thinking, this thing is going to be taking off tomorrow and marveling at how in the world such a *beast* could ever get off the ground? Even from the LC-39A perimeter road, AS-506 was *big* and I

knew I had better turn around and get to where I should be before the sun set. With the crawler way road closed, even Dirk's GPS lady couldn't have helped me back then (turn right and proceed was not an option).

When I finally arrived at the press site, it was bustling with activity. Even though the launch would take place the next morning, many news crews were setting up, doing live inserts to the evening news and contributing to the sense that *this was the main event*,

*they were really gonna do it.* The Press bleachers were terraced with rows of reporters with IBM Selectric typewriters, lots of dial telephones ringing constantly and, periodically, a launch control announcement coming over the press-site PA loudspeakers. I decided that one of those PA loudspeakers would be the setup site for my microphone and spent the rest of the evening roaming around the portable trailers to the right of the bleachers. Looking up at the CBS trailer, I could see the back head and torso of Walter Cronkite on the second floor, the only two-story network structure at the site. He was unmistakable even from the rear with his distinctive grey-haired quaff. It was very exciting to be just below the lights and cameras that I know were, right then, doing live feeds to New York in preparation for the next day's launch.<sup>1</sup>



**Figure 4 - The LC39 Press Site Bleacher, with its tiers of newsprint and radio reporters. In front were video monitors and PA loudspeakers with important launch control and other announcements. Periodically, NASA Shuttle Busses would load up to take people to other parts of the space center and back to the public affairs offsite office in Cape Canaveral. Off to the right and out of view were the major networks, NBC, CBS, ABC and Mutual News and other radio trailers.**

Since I was always interested in radio and television, this was extremely exciting to me. I was at “ground zero” and all the best remote crews were there, mostly from New York, LA and from all over the world. The accredited press for Apollo 11 would top 3500 people. It was a virtual United Nations of voices to the ear, Italian, French, Portuguese, you name the language and it was there. The press bleacher site was quite an exciting place and you could feel the sense of excitement in the members of the press present. It sounds like a lot of people but paled in comparison to the nearly one million people gathered along the beaches of Titusville, Cocoa Beach and surrounding areas. I definitely had an “A ticket” to the launch.

I glanced over and took a long look at the immense Vertical Assembly Building and Launch Control Center. Less than a year later I would be up and down in those buildings

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<sup>1</sup> In fact, Walter Cronkite was such an Apollo program enthusiast (indeed the *entire space program*), he would conduct the entire CBS Evening News from the vantage point of Launch Complex 39, with the Apollo 11 stack as a backdrop, bathed in spotlights.

doing the work of an Engineer in Ground Support Equipment as a NASA trainee, although I didn't know it at the time.

The next morning, I arrived very early to the press site and set up my recording equipment. I ended up recording nearly 3 hours of press site sounds from around 6:30am through Apollo 11 achieving orbit. In 2001, I was able to digitally re-master this recording and have one of the only known high fidelity recordings of the liftoff of a Saturn V. Also that morning, I snapped what I thought was a pretty well composed picture of the VAB and LCC in the early morning sunlight. You can tell by the unblemished, "pre-corporate-ized" side of the VAB and the automobiles that truly this was from the late 1960s.



**Figure 5 - The Vertical Assembly Building, Launch Control Center and Press site parking lot as seen from the LC-39 Press Site circa 1969. Note the lone Wackenhut security guard and his NASA issued Dodge Dart at the entrance to the Parking lot.**

At 6am, the press site had all of the familiar sounds and environment of a humid, Florida swamp. Crickets peppered the air in competition with the IBM selectric typewriters. I rode a Shuttle bus to the Manned Spacecraft Operations Building to watch the Apollo 11 Astronauts take the traditional walk outside, board the Transfer Van and begin what must have been a spiritual ascent to the 320 foot level of the Launch Tower, swing-arm number nine. One at a time, Gunter Wendt beckoned to each of them to enter the White Room and they entered the Command Module, already prepped for their arrival by Pete Conrad.

Kennedy Space Center is not unlike Nashville, or Los Alamos, with its juxtaposition of disparate elements. The swamp is pretty desolate, bare, and full of wildlife and mosquitoes. It is a quiet place and pretty sleepy, that is, unless there is a launch going on. Then it comes alive with all of the hoopla that one imagines, for a day, and returns to its sleepy Central Florida State. I often wonder what the seagulls and pelicans do when a Shuttle or Saturn takes off, I know they scatter, I can see it in pictures, but they are definitely part of the protected class that are not subject to being evacuated to the three and one half mile boundary.

Not knowing what to expect, I stuffed my microphone into the bell of an Atlas PA loudspeaker on the grounds of the LC-39 press site. I had to turn the input control way down so as not to overload the tape from the launch control announcements. I had no idea what I would end up with and took an educated guess at microphone placement and level. The countdown proceeded with the normal hiccups, but no major difficulties, a stuck hydrogen valve that was fixed, periodic inserts from the Manned Spacecraft Center wanting to get in on the action and the unmistakably Bostonian accent of Jack King, the Kennedy Space Center Public Affairs Officer in Firing Room 1 of the Launch Control Center across the street.

At 9:32am, as the five Rocketdyne F-1 engines were ignited (in alternating sequence), it was as though the fire of the Sun was brought to the base of the rocket. The rocket seemed to tip over for a second, as an intentional yaw program, programmed into the flight trajectory of the instrument unit, gimballed the engines to get the stack slightly out and away from the launch tower. Charlie Duke in *Shadow of the Moon* likens this motion to feeling as though you are in the car of a "Nervous Nellie Novice" driver going down a narrow road. Up in the Command Module, the subtle engine gimbaling is amplified by the 360 feet of leverage. The only sound I heard was the voice of Jack King and the jubilant applause of the press as he announced "Tower-Cleared!". Then, I started to hear the engines, a 4.5 Gigawatt sound system with a fundamental frequency of about 6 or 7 hertz positioned 3.5 miles away. Neil Armstrong announced the initiation of the roll program, pitch over and Bruce MacCandless, the Capcom responded from mission control with the various Saturn V abort control modes, One Bravo, One Charlie, Mode Four to COI capability, etc. The Saturn was a magnificently designed tow-truck for the Apollo stack to achieve orbit quickly and on July 16<sup>th</sup>, 1969 Werner Von Braun would be photographed as the smiling father, demonstrating the pitch-over with his hand. Like Walter Cronkite, his enthusiasm for launches was electric, charismatic and contagious. True to his early days, he preferred to watch the early stages of flight through his binoculars, a ritual that began with A-4s at the Peenemunde (mouth of the Peene river) launch site in Usedom and is easy for any astronomer to understand.



**Figure 6 - Wernher Von Braun, the proud father of Saturn and his ubiquitous binoculars at the launch of Apollo 11.**

Now the “sound” of the engines was passing the point in audio called the “threshold of feeling” at about 130 decibels, SPL. The corrugated metal roofing on the bleachers behind me was flapping in response to the buffeting sound waves, unable to stay rigid on its support structure. The sound of Apollo 11 was unlike anything I had ever experienced, a loud raging fire that overloaded the air itself. As it approached a small cloud layer at about 10,000 feet, the sound got more intense, raised in pitched, then lowered as the stack passed through, the Doppler effects all mixing in with the vibrating structures of the press area. My bones were literally resonating with the 70,000 brake horsepower turbo pumps pumping 14 tons of fuel and oxidizer through each of those F-1 engine bells each second. This means that 70 tons of weight were being thrown out the back of that stack each second in the early phases of the flight to get the beast off of the ground.





**Figure 7 - The view from the press bleachers of Apollo 11 at the "Tower-Cleared" announcement. This is where the sound of the rocket first started to reach the press site, 3 and half miles away. I am in the photo, somewhere near the flag pole.**



**Figure 8 - Apollo 11 was a summer 1969 attraction of central Florida. Over a million people flocked to the general area, clogged roadways, camped out on beaches and staked their claim to the history making launch of Apollo 11. Their vantage point was a little less desirable than the press site, but richly rewarding.**

After the launch, I stayed at the Space Center and took a number of organized tours in the arranged NASA Shuttles from the Press Site waiting for the traffic to die down before driving back to the west coast and my family. We all know the end of the story. Like most others, 4 days later I would be watching the *front* of Walter Cronkite late at

night eastern time for those blurry TV images coming from Honeysuckle Creek, Australia as Neil stepped off the Lunar Module's ladder. I had caught launch fever, and looked forward to the Press Accreditation Process of Apollo 12, as Apollo was the best rock and roll show that Florida had to offer for a 16-year-old Science Nerd.



**Figure 9 - On the left, the Astronauts, in their BIGs, enter the Mobile Quarantine Facility. On the right, it is transferred off the U.S.S. Hornet in Pearl Harbor to be flown to Houston's Lunar Receiving Laboratory.**

The Apollo 11 achievements do not really port well into today's fast paced, cellular phone, twitter-based and risk-averse world. When the astronauts returned there was a hyper-vigilant worry over the presence of biological organisms and they were greeted with a throw through the hatch of the BIGs, the Biological Isolation Garments and welcomed with a wipe down of Sodium Hypochlorite Solution (Bleach). Confined to the Mobile Quarantine Facility, a special Airstream trailer designed to transport them and their support crew in isolation, they were beyond the reach of even the President when they returned. Neil Armstrong would later be quoted as saying he had little belief in Moon Germs but loved the thought of the 21 days of isolation following the mission. The Hornet leisurely steamed its way from the recovery area toward Pearl Harbor, with its Captain *under orders to scuttle the entire ship with everyone aboard* if anything suspicious broke out in transit. This is an amazing little piece of trivia that is seldom reported in discussions of the recovery of Apollo 11.

We had the world. We had done it. The Americans had landed Men on the Moon. Apollo 11 changed us. Science Fiction had become Science Fact, and, in 1969, this was extremely moving and poignant for someone that had grown up watching TV with the Thunderbirds, SuperCar, Science Fiction Theater and movies like Destination Moon, Forbidden Planet, and all the others. I was that kid and at 17, Apollo 11 changed me also. Little did I know, I would find myself working in the NASA headquarters building at Kennedy Space Center as an Engineering Trainee, less than a year later – one week before the launch of Apollo 13.



**Figure 10 - A jubilant crew. Apollo 11 had achieved John F. Kennedy's goal of placing an American on the Moon by the end of a decade.**



**Figure 11 - Forty years later, a convergence of sort, the beginning and the end of the mission as we celebrate Apollo 11's splashdown in 2009. Although both Buzz and I have aged a bit since 1969, we regularly carry electronics thousands of times more powerful than the Apollo Guidance Computer. Buzz is twittering on his social network while book signing (therealBuzz). I still am a twitter hold-out, although I do have both a PDA and IPOD Nano on me.**

# SFAA Yosemite Star Party at Glacier Point Held Friday, July 24 & Saturday, July 25, 2009

For those of you unfamiliar with this event, we are given free, reserved admission to Yosemite National Park and shared camping space at Bridalveil Group Campground. The campsite is 8.5 miles away from Glacier Point.

In exchange, we give two public star parties at Glacier Point, on Friday and Saturday night. We have the public (about 200 - 300 people) from twilight for a few hours, and then the rest of the night (and all day) to ourselves; this is a mighty good deal, considering how some folks come 12,000 miles to see these rocks. The National Park Service limits astronomy clubs to a maximum of 30 SFAA campers.







FROM NASA.GOV ...



**Ground and Space Based Observations**  
Lunar CRater Observation and Sensing Satellite (LCROSS)

## Strategy & Astronomer Observation Campaign



**Observe the LCROSS impacts!**

**Date & Time:**

Projected lunar impact is on October 9, 2009 at 11:30 UT (7:30 a.m. EDT, 4:30 a.m. PDT), +/- 30 minutes.

The impact time will be refined as the mission progresses. Two weeks prior to impact, the impact time will be known to within a second.

Check back on this webpage for the most up-to-date timing information.

**Location:**

LCROSS will impact at the south pole of the Moon. The final site selection will be made 30 days prior to impact.

Check back on this webpage for the most up-to-date impact location information:

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On Monday, June 29, 05:23 UT

LCROSS flyby captured by Paul Mortfield, Backyard Astronomer  
Sierra Remote Observatories. [See animation of LCROSS in flight.](#)

26 June 2009:

From Dan Andrews:

[The latest shots that show the LCROSS mission continuing on its journey.](#)

June 23:

**LCROSS executed a swingby of the Moon.**

[See Recap Video and Additional Images!](#)

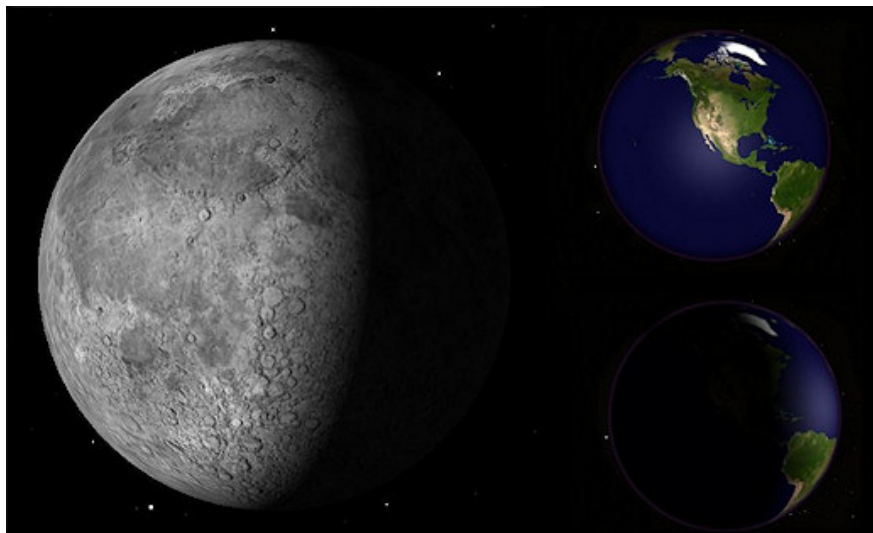
There are a variety of ground-based and orbital observatories that can observe the dust and water plumes caused by the

LCROSS impacts. The LCROSS team encourages observations of the impacts to further our understanding of impact physics, lunar resources (water), and lunar geology and origins (polar soil and regolith), and thereby support scientific and exploration objectives. The LCROSS Project is committed to working with the observational scientists to provide mission information that is critical to the planning and proposal of observations. In this way the LCROSS Project aims to develop a coordinated observation campaign utilizing ground-based and space-based observational assets.

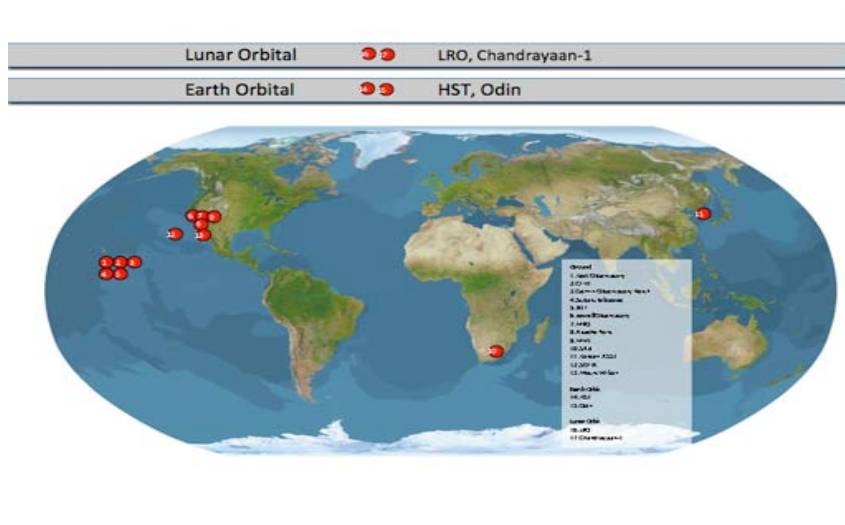
With the impacts of the Centaur and Shepherding Spacecraft occurring within a permanently-shadowed crater near one of the lunar poles, the impacts themselves may be obscured by the crater rim as seen from Earth and Earth orbit. However, ground-based and orbital observatories will observe the dust and water vapor plume caused by the two impacts into the lunar surface. The impact ejecta cloud should be in view of Earth assets just several seconds after impact and will peak in brightness around 30-100 seconds after impact.

You may download the [Astronomer Justification](#) document. This text describes information relevant to the LCROSS mission. Astronomers may use this sample text in support of writing observing proposals to observe the LCROSS impacts and thereby participate in the LCROSS mission. Specific sections of this document include: Introduction, The LCROSS Mission, Mission Relevance and Impact to State of Knowledge, LCROSS Science Goals, LCROSS Shepherding Spacecraft (S/S-C) Measurement Goals, LCROSS Shepherding Spacecraft Payload, Impact Characterization, Lunar Polar Hydrogen - What we Know and Don't Know, The History of Lunar Volatiles: Sources and Sinks, Additional Sample Text: Experimental Design, Description of Experiment.

For additional information regarding the LCROSS Observation Campaign, please contact Jennifer Heldmann, Observation Campaign Coordinator ([Jennifer.Heldmann@nasa.gov](mailto:Jennifer.Heldmann@nasa.gov)).



Earth and Moon lighting conditions at the expected time of impact (October 9, 2009, 11:30 UTC). Click image for more detail.



Map showing locations of planned professional observatories participating in the LCROSS Observation Campaign.



Observing Asset	Observing Location
<b>Hubble Space Telescope</b>	LEO
<b>Canada-France-Hawaii Telescope (CFHT)</b>	Hawaii
<b>Apache Point Observatory</b>	Sunspot, New Mexico
<b>IRTF (Infrared Telescope Facility)</b>	Hawaii
<b>MMT</b>	Tucson, Arizona
<b>Odin</b>	Low Earth Orbit
<b>Lunar Reconnaissance Orbiter (LRO)</b>	Lunar Orbit
<b>Chandrayaan-1</b>	Lunar Orbit
<b>MRO (Magdalena Ridge Observatory)</b>	Socorro, New Mexico
<b>Keck</b>	Hawaii
<b>Gemini North</b>	Hawaii
<b>Subaru</b>	Hawaii
<b>South Africa Large Telescope (SALT)</b>	South Africa
<b>Korea Astronomy and Space Science Institute</b>	South Korea
<b>Mt Wilson</b>	Southern California
<b>AMOS (Air Force Maui Optical and Supercomputing Site)</b>	Maui, Hawaii
<b>Automated Lunar and Meteor Observatory</b>	Marshall Space Flight Center, Huntsville, Alabama
<b>Allen Telescope Array</b>	Hat Creek, California

Listing and Status of Planned Observatories



## **LEAD FORMAL EDUCATOR POSITION ASTRONOMICAL SOCIETY OF THE PACIFIC (ASP)**

The ASP is looking for a creative person with good knowledge of astronomy and experience in K-12 education to work on a number of existing and developing programs in astronomy education. Current duties include coordinating Project ASTRO (a program that links volunteer astronomers with 4th - 9th grade teachers), managing a web-based quarterly newsletter for teachers, conducting training programs for school districts interested in hands-on astronomy, helping with grant writing, and assisting with other initiatives in education.

More detailed information about the position and specific instructions for applying can be found at the Society's website at: <http://www.astrosociety.org/about/career.html>

More information about the education programs of the 120-year old international Society, headquartered in San Francisco, can be found at: <http://www.astrosociety.org/education.html>

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## **WHAT'S UP FOR AUGUST**

**Jane Houston Jones**

Hi everyone! This is the week of the Perseid meteor shower and the month of the "Mars Spectacular" email hoax and I have something to say about both of them!

The Perseids are the topic of my August What's Up Podcast from JPL. Here it is in a couple easy formats;

- \* YouTube is a fast download for a lot of people - my parents like this format to get their JPL podcasts . :- ) <http://is.gd/2bg2K>
- \* Here is the main archive: <http://solarsystem.nasa.gov/news/whatsup.cfm>

The Mars email hoax is out there again this year, even though Mars is not big or bright right now - I know many of you have received it or answered questions about it. I was asked to write a blog for JPL about both the hoax and how you CAN see Mars this month! <http://blogs.jpl.nasa.gov/?p=51>. I also have updated my Mars Hoax website since 2003, which is full of facts, images and more: <http://www.otastro.org/Mars2005/>

Jane

-- Jane Houston Jones

Monrovia, CA

Website: [www.whiteoaks.com](http://www.whiteoaks.com)

Old Town Astronomers: <http://www.otastro.org>

My NASA JPL What's Up podcast: <http://solarsystem.nasa.gov/news/whatsup.cfm>

Twitter: <http://twitter.com/jhjones> <http://twitter.com/CassiniSaturn> Blog: <http://jane.whiteoaks.com/>



**Sunday . September 27, 2009 . 2:00 p.m. . McBean Theater**

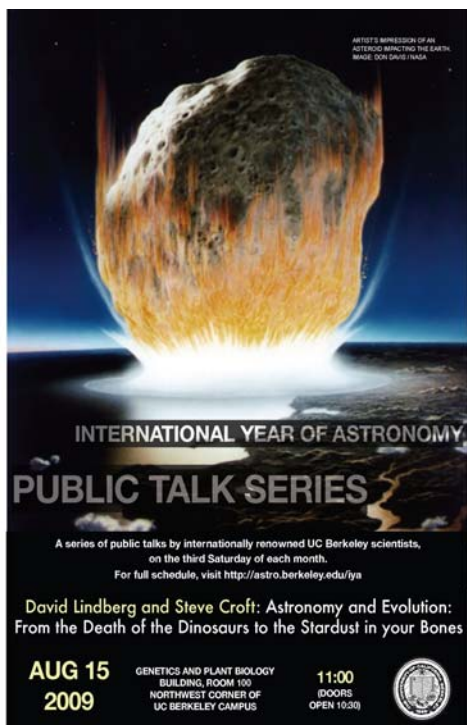
**TO THE MOON: A LOOK AT NASA'S LUNAR IMPACT MISSION AND THE  
HISTORY OF MOON  
EXPLORATION**

**A TALK WITH SPACE HISTORIAN ANDREW CHAIKIN**



Take a trip to our nearest neighbor in space with renowned science journalist and space historian Andrew Chaikin. Coinciding with the 40th anniversary of the first moon landing, Chaikin's talk will introduce the past, present, and future of lunar exploration and include a visual tour of the moon's surface—from Apollo landing sites to the planned Lunar Impact point. Relive the achievements of Apollo lunar astronauts and learn about the ambitious LCROSS (Lunar CRater Observation and Sensing Satellite) mission, which will send a rocket crashing into the moon's permanently shadowed regions to kick up huge plumes of debris in the hopes of uncovering deposits of ice. In addition, Exploratorium physicists will give an entertaining and interactive overview of moon science. This event is included in the price of admission to the Exploratorium.

Go to: <http://press.exploratorium.edu/moon-webcast-september-2009/>



**UC Berkeley, Astronomy Department  
INTERNATIONAL YEAR OF  
ASTRONOMY  
PUBLIC TALKS**

**Saturday, August 15, at 11 a.m. - 12:00 Noon  
100 Genetics & Plant Biology Building**

**PROFESSOR DAVID LINDBERG  
and  
PROFESSOR STEVE CROFT  
UC Berkeley**

**ASTRONOMY AND EVOLUTION: FROM  
THE DEATH OF THE DINOSAURS TO  
THE STARDUST IN YOUR BONES**

David Lindberg, UC Berkeley professor of biology, and Steve Croft, postdoctoral researcher in astronomy, give a public talk about the impact of astronomical events on the evolution of life on Earth, as well as the evolution of the Universe as a whole.

**Schedule of Monthly Talks**

<b>Date</b>	<b>Venue</b>	<b>Speaker</b>	<b>Topic</b>
September 19	100 GPB	<a href="#">Nathan Smith</a>	Live Fast - Die Young: Monster Stars and their Temper Tantrums
October 17	100 GPB	<a href="#">Imke de Pater</a>	Fascinating Objects in our Solar System
November 21	100 GPB	<a href="#">Maryam Modjaz</a>	Cosmic Fireworks: The Explosive Deaths of Massive Stars
December 19	TBA	<a href="#">Dick Plambeck</a>	Star Formation through Radio Eyes



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\$75 Supporting \_\_\_\_\_

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