

# BULLETIN

volume 82, issue 11 *November 2008*

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**OUR 82nd YEAR OF  
ASTRONOMY IN LOS  
ANGELES**

**Los Angeles Astronomical Society**  
Griffith Observatory  
2800 East Observatory Road  
Los Angeles, CA 90027

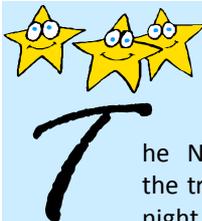
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**Editor's  
Message**

The November meeting is the traditional nomination night for officer and board members. If you cannot attend the meeting, you can submit your nominations via email and regular mail. ALL nominations need to be received by November 20th so we can try and get the ballots out to everyone on time through the bulletin. Send write-in nominations to the LAAS secretary.

The annual banquet is on Sunday January 11th at the Odyssey restaurant in Mission Hills in the San Fernando Valley. See the map on page 9 for directions. The cost has gone up due to increases in the fees charged by the restaurant; it's \$60.00 per person. Reserve early, as this is usually a well attended event. The speaker has not been announced. Send your reservation and check to the LAAS Treasurer.

My thanks to all who have contributed to the success of the bulletin. Please consider writing or submit images. Articles need to be 1,500 words or less. Submit only a few images at one time, each with its own caption. The deadline for submitting bulletin material is the 10th of each month. If possible, please submit electronically to:  
BulletinEditor@laas.org

Material may be sent to the LAAS address listed at the top of the column at left, but timely reception and publication cannot be guaranteed. ✧

# *Griffith Observatory*

## *Public Star Party Procedure*

PJ Goldfinger handles our Griffith Observatory Public Star Party List. As patrons may drive up freely and reservations are no longer needed, we will continue to keep a sign up list for this event. Please note changes may occur in future PSP events and to read the policy below each month.

LAAS Members must still sign up on time - Deadline is no later than the Tuesday night prior to the Saturday GO Public Star Party each month. The list information required is:

- Your name, any LAAS Members and Non members in your car.
- Bring Telescope y/n.

**NOTE: Those attending without a telescope as a favor will be required to be of some assistance if asked, needed and able.**

It is primarily the main focus of any LAAS member who attends this event to be of Public Service with their telescopes in showing the patrons of Griffith Observatory the delights of the nighttime sky. New Members are not expected to adhere to this policy. Please feel free to come up and enjoy the event given you are signed up.

Parking will be on the east side of the Griffith Observatory Hill designated for GO employees. A guard will be stationed with the LAAS GO PSP list. It is always wise to have one's LAAS name badge and/or club ID on them just in case. Unloading telescope and equipment will remain the same procedure as well, with a drive up , drop off and park down hill routine.

The list currently has been updated to 30 spots for LAAS members. First come, first serve.

Please check the LAAS website and Yahoo list for changes and updates in any LAAS event, as there are many communication mediums and some are missed.

To sign up for the Griffith Observatory Star Party the email address is: [laas.starparty@gmail.com](mailto:laas.starparty@gmail.com). Attendance is only granted once a confirmation email has been received. Most important though is to have fun and enjoy! ✧

*PJ Goldfinger*

## *President's Message*

We would encourage you to attend the general meeting on November 10th. This will be an important meeting since we will be accepting nominations for the officers and board members who will be serving you during 2009. This will be a special year since 2009 will be the International Year of Astronomy. ✧

*David Sovereign*

## *The Great Nebula*

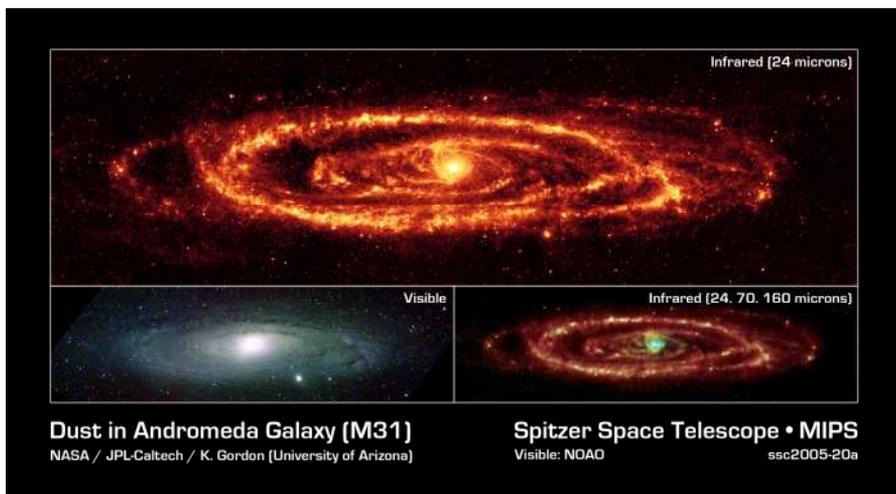
*By Timothy Thompson*



Dave Jurasevich, who spoke on CCD imaging at the September general meeting, made this image of M31 on 22 October 2006 at the Kofa Wildlife Refuge in SW Arizona, using a Takahashi FSQ-106 refractor and an SBIG STL-11000M CCD camera. The image shows the two conspicuous companions, the small round M32, and the extended oval M110. Curiously, Messier clearly saw & drew pictures of M110 but never put it on his list. It was added to the Messier list in 1966 by Kenneth Glyn Jones.

Back in the days before we knew what galaxies were they were called spiral nebulae, and the biggest of them all was the Great Spiral Nebula in Andromeda. Nowadays we call it “M31” or the “Andromeda Galaxy”.

Of course the first galaxy anybody ever saw must be our own Milky Way, considering that it’s hard not to notice it in a dark sky. But M31 is also conspicuously naked eye, in a dark sky, and must have been known to prehistoric astronomers. Nevertheless, there is no written record of it until the Persian astronomer Abd-al-Rahman Al Sufi wrote the “Book of Fixed Stars” in 964 A.D. He called it the “Little Cloud”. The idea must have stuck; our modern word “nebula” is a Greek word meaning “cloud”. So, when Charles Messier graced the list of objects he never wanted to see again with entry 31, he was not the original discoverer.



This Spitzer Space Telescope image of M31 is a mosaic of 11,000 individual images. The long 24-micron wavelength shows dust-light instead of star-light. The dust reveals the true spiral structure of the galaxy and is made to glow by the heat of stars embedded in it.

## The Spiral Nebulae

It was William Parsons, the 3rd Earl of Rosse who discovered the spiral structure in M51 with his great 72 inch, speculum mirror Leviathan of Parsonstown, in April 1845. That was the first of the spiral nebulae. But M31 was not identified as a spiral nebula until it was first photographed by Isaac Roberts in 1887, from his observatory in Sussex, England. Meanwhile, the spectrum of M31 had already been observed by William Huggins in 1864 and found to be surprisingly stellar in appearance. So astronomers knew

then that M31 had to be in some way stellar in nature, but they had no idea how far away it was. They believed M31 to be a forming planetary system in our own galaxy, maybe 2000 times as far away as Sirius. They were in for a surprise.

## Island universes

In 1917 Heber Curtis had observed a nova in M31, and found 11 more by searching old photographs. They were on average 10 magnitudes dimmer than other novae, so Curtis decided that M31 must be about 500,000 light years away. He became the principle proponent of the “island universe” theory, that M31 and other spiral nebulae were independent and distant stellar systems not unlike our own Milky Way, contrary to the prevailing view. Edwin Hubble, from Mt. Wilson Observatory, proved that Curtis was right when he published “A spiral Nebula as a stellar system: Messier 31” in the March 1929 issue of *The Astrophysical Journal*. Using the 100-inch



This is the first picture ever taken of M31. Isaac Roberts made the long exposure from his private observatory in Sussex, England. It was this picture that revealed the spiral arms of M31, which were not previously known. Roberts used a 20-inch reflector (Newtonian I presume) with a silver on glass mirror, at prime focus. He had a collection of camera portrait lenses with apertures ranging from 3/8 to 8 inches, but I don't know which lens he used for this picture.

Hooker telescope on Mt. Wilson Hubble had observed Cepheid variable stars in M31, and derived a distance of 275,000 parsecs or 896,500 light years. Since he underestimated the distance, he also underestimated the size and guessed that M31 was only about a fifth of the width of the Milky Way and a few percent of its mass. Still Hubble had convincingly shown for M31, and previously for M33, that the spiral nebulae were extragalactic stellar systems, not local objects, and that they were much farther away than most astronomers had thought. Hubble's observations of the distances to spiral nebulae radically altered the prevailing view of the universe, which had suddenly gotten a lot bigger.

## **King of the Local Group?**

We now know that M31 and the Milky Way are the dominant members of a group that includes M33 and about 60 (so far as we know for now) small dwarf spheroidal & irregular galaxies, which we call the Local Group. Naturally we want to know where the bragging rights go. Who is King of the Local Group? This is a moving target, constantly changing as we learn more about both galaxies. The current best estimate for the mass of M31 is  $8.2 \times 10^{11}$  (820 billion) solar masses, whereas the best current estimate for the mass of the Milky Way is  $1.0 \times 10^{12}$  (1000 billion or 1 trillion) solar masses. So for the time being it looks like we get to brag again, at least for a while.

## **Slow Train Coming**

There's a slow train heading this way. Its name is M31. Vesto Slipher was measuring radial velocities for the spiral nebulae from Lowell observatory, in Flagstaff, Arizona, during the early 1900's. It was Slipher, and not Hubble, who had made most of the redshift measurements from which Hubble later demonstrated the expanding universe cosmology (which, ironically, Hubble himself never accepted as valid). But in the case of M31 the shift was not red, it was blue, which means, "coming this way" not "going that way". Slipher had measured M31 heading this way at 300 km (188 miles) per second. But that includes the rotation of the Sun around the Milky Way; we now know that the centers of mass of the two galaxies are approaching each other at a more leisurely pace of about 100 km (63 miles) per second. That's 226,800 miles (9 times around Earth's equator) per hour or here to New York in 39 seconds. In a few billion years, while the Sun is still alive, M31 and our Milky Way will collide, swing around each other, and then merge into a single large elliptical galaxy. For astronomers in the far distant future, it will be a honey of a show.

# Observing M31

The visible size of M31 is about 3x1 degrees, under normal circumstances. Working carefully to trace the dimmer parts of the galaxy in binoculars reveals that it is about 6 degrees across. Telescopes rarely have a field of view large enough to take in the whole galaxy, but they can reveal dust lanes in the spiral arms. M32 is right next to M31 and is probably a satellite of M31, though this is not definite, and there is evidence to suggest that it is a larger dwarf galaxy at twice the distance to M31. M32 and the core of M31 are good objects in the 60-inch telescope on Mt. Wilson and in most telescopes. But the spiral arms don't show up well in the 60-inch, which is really too big for the low surface brightness of such an extended object. Binoculars are best for catching the full width of the galaxy. And it is of course a favorite object of all astrophotographers & CCD imagers. ✧



This image of M31 was taken by David Nakamoto during the Nightfall star party at Borrego Springs on September 14th 2001. It shows what you can do with modest equipment and modern CCD cameras. The telescope was a 5-inch diameter f/5 refractor and a medium resolution cooled CCD camera, a Starlight Xpress MX5-C model. Eight 30-second exposures were summed to produce the image.

## FOR SALE

8" f/6 Newtonian reflector in a fiberglass tube.  
Equatorial mount with AC clock drive.  
25mm Super Plossl from Meade.  
8X50 finder.

This instrument seems to be an older Optical Craftsman telescope.  
Asking price is \$400 and money goes to support LAAS functions.  
Contact David Sovereign at (626) 794—0646.

## *A little story from the August GO star party*

Thought I would relate an interesting thing that happened during the August Griffith Observatory star party.

The wife and kid went to get dinner down in the cafe' so I got to man the telescope (a 4.5" reflector... It's my daughters tele' . . . she wants me to remind everyone!). An elderly man came to view and made gestures that he wanted to know what the telescope was pointed too.

Well, it was immediately evident that he was both deaf and completely mute so I a gestured in silence that our telescope was then pointed at the solar telescope towers on Mt. Wilson (everyone else was looking at the moon, so I thought it would be fun to look at another observatory)

He then silently looked into the eyepiece, and then pointed over at the mountains and gestured the number 'TWO'. I nodded "yes" and made two fingers for the two towers. I then pointed to the mountain, made the number two, then pointed to my eye and then up-an-over to the sun in the west. He got the idea and nodded and smiled very happily!

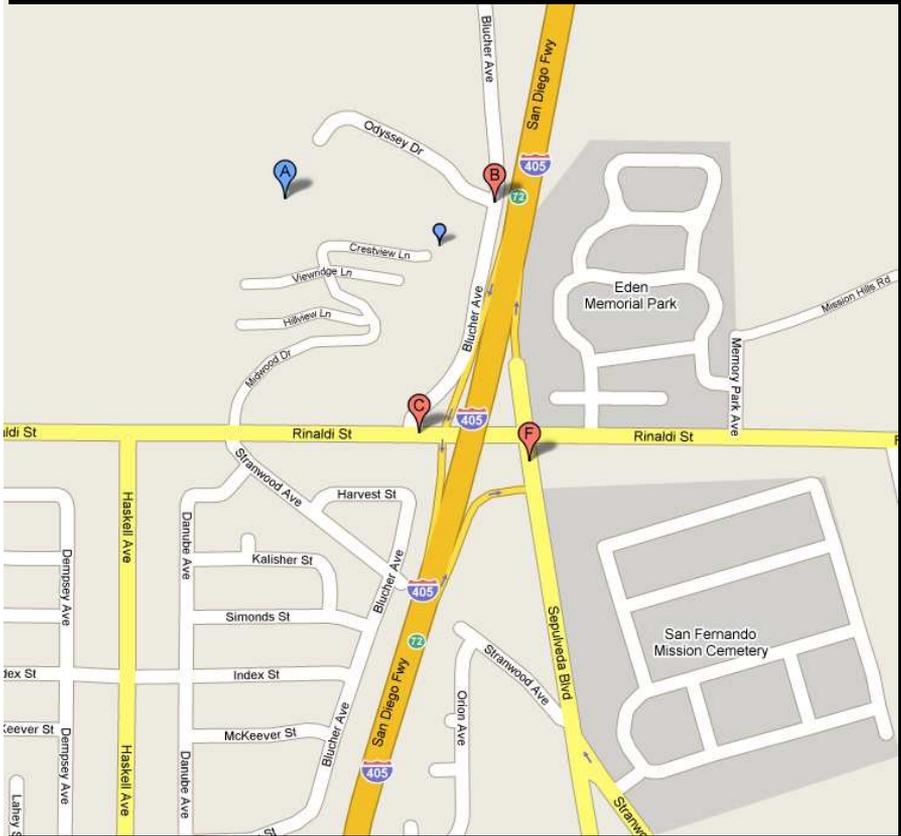
We like to hand out our homemade "planet trading cards", and he gestured for two, so I gave him two Jupiter cards.

He motioned that he wanted to shake my hand and held out his. He took my hand and gave it a firm grasp, then with a warm friendly smile he brought my hand to his heart and pressed it against his chest. He then moved his arm out to press his hand against my heart, all the while looking me straight in the eye with his gleaming blue eyes and warm smile.

I'll always remember that little deaf man, and his warm smile. Now this is what our Griffith star parties are all about ! ✧

Russell Rucker  
Jasmin Rucker  
Zoe Rucker  
(4.5" reflector telescope)

# Directions to 2009 Annual Banquet



The annual banquet will be held at the Odyssey Restaurant on Sunday January 11th, happy hour starting around 5:00 pm. No speaker is announced yet. Reservations are \$60.00 per person. To reserve, send your name, the number of reservations, and a check made out to the LAAS to the LAAS Treasurer.

To get there, take the 405 freeway north past the 118 freeway and get off at Sepulveda, then turn left then left again to get on Rinaldi St. If you get on the 5 freeway you went too far. Those heading south on the 5 should get off on the 405 freeway and the next offramp should be Rinaldi, then turn right.

Head west. The FIRST street past the 405 is Blucher. Turn right on that and the signs should direct you to the Odyssey. I believe it's the first street on the left.

## Equipment for Sale

Meade AR-5 LX555 ..... \$550.00

OTA

German Equatorial Mount

#930 diagonal mirror

Autostar control

Standard tripod

Standard finder scope

Ten pound balance weight

Manual

Original box w/foam

Meade Super Plossl eyepieces,  
multicoated ..... \$140.00

6.4 mm 1.25 in

9.4 mm 1.25 in

12.4 mm 1.25 in

15 mm 1.25 in

20 mm 1.25 in

26 mm 1.25 in

32 mm 1.25 in

40 mm 1.25 in

56 mm 2 in

Meade Nebula filter #908N (1.25 in.)  
..... \$89.00

Meade Nebula filter #910B (2 in)

..... \$119.00

Meade Plossl 9mm Illuminated reticle,  
wireless ..... \$77.00

Meade Electronic Eyepiece..... \$70.00

Meade 929 Diagonal Mirror UHTC, 2  
in ..... \$119.00

Meade #932 45 deg erecting prism  
..... \$47.00

Meade 2x Teleneegative Amplifier,  
model 140 ..... \$20.00

Meade #905 Variable Polarizing Filter  
..... \$48.00

Meade Universal AC Adapter. \$59.00

Meade Battery Pack (8 D-  
cells).....\$0.00  
\$1338.00

The scope and peripherals are in  
excellent condition - used a half dozen  
times. I no longer have space to set up.  
If you're interested, contact:

**Rick Smith**

951-849-7640

Banning, CA (1)

## Equipment for Sale

Backyard Observatory

Meade EXT-80AT Telescope - New  
in the Box with tripod, backpack, self  
guiding electronics

Retail \$300. Offered at \$240

Sunspotter The safe way to view the  
sun. - Brand New

Retail \$350

Offered at \$275

Celestron Skyscout Personal  
Planetarium

Retail \$399

Offered \$310

Coronado PST Personal; Solar  
Telescope

Retail \$500

Offered \$500

Celestron Giant 20x80 binoculars

Retail \$348

Offered at \$150

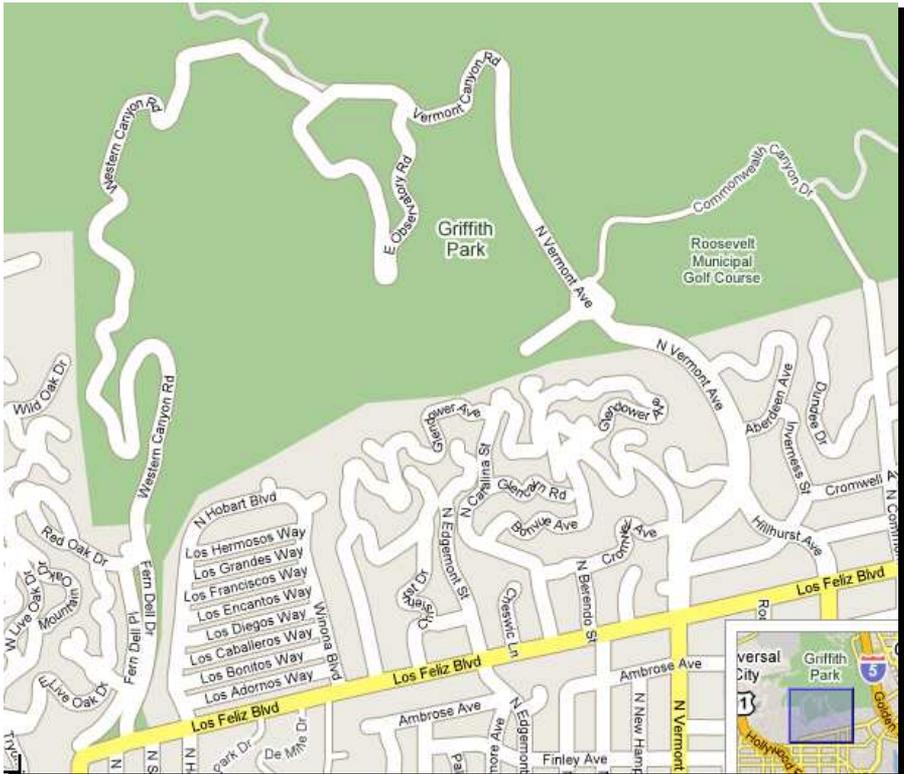
Celestron Tripod

\$40

Paul Wicker – TheGalileoGuy

310 546-1437

(1)



Greek theater events cause closure of Vermont Ave. to through traffic. Please save this map for future reference. I will post it in the bulletin from June to September, and then not for the rest of the year.

Use Ferndale, which changes into Western Canyon Road. Ferndale is about 1 mile further west on Los Feliz than either Hillhurst or Vermont. Ferndale becomes Western Canyon Road once you enter the park. Western Canyon Road is very windy, so drive carefully. You will have to go through the tunnel at the top of the road and turn right onto East Observatory Road. ✧

## Outreach Program

Come on out to the school and show all the enthusiastic kids, parents, and teachers the night sky. They always appreciate it. And if you get WOW's when they look through you scope, you'll feel good. If no scope, come out anyway and help up set up or answer questions from the kids. So, Outreach volunteers, let's pitch in. I'm sure the kids and adults will appreciate our effort.

Thanks !

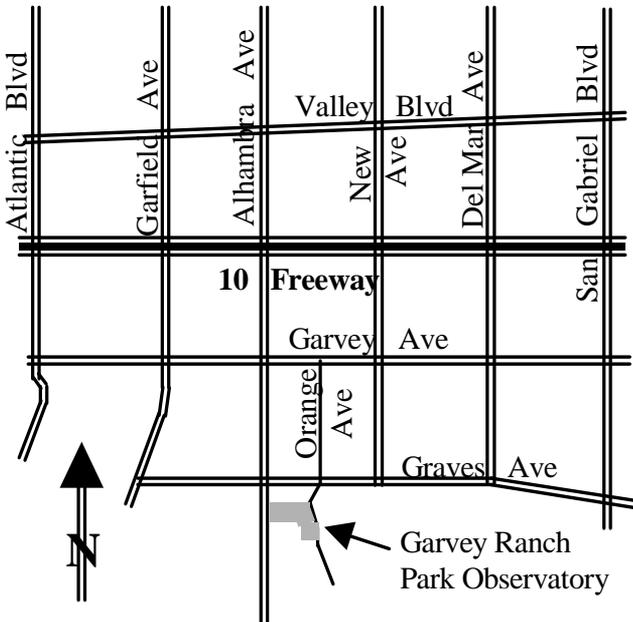
Outreach@laas.org

(818) 891-3087 ✧

*Don DeGregori*

## Map to Monterey Park Observatory

(The place to build your telescope)



# LOANER CORNER



It might not look like it, but the spring and summer star parties are just around the corner. Now is the time for new members and existing members that would like to try out something new to check out one of the LAAS loaner telescopes. At the present time there are several available. All are fully equipped with a set of eyepieces. A simple collimating tool is included with all reflectors and a star diagonal is included with refractors.

LAAS-1: 4.5" f/8 Celestron reflector on a Polaris mount.



LAAS-2: 4.5" f/8 Tasco reflector on an Edmund equatorial mount with a clock drive. This telescope has been upgraded with a 1.25" focuser and 6x30 finder.

LAAS-4: 6" f/5 Telescopic reflector on a Dobsonian mount.

LAAS-6: 10" f/4.5 Discovery reflector on a Dobsonian mount. This fast telescope is also equipped with a Tele View Paracorr to correct off axis coma common with fast paraboloids.

LAAS-4

LAAS-7: 80mm f/15 Meade refractor on an Orion Sky View Deluxe equatorial mount. This is an excellent instrument for the Moon and planets.

LAAS-2

LAAS-8: 80mm f/11.4 Selsi refractor on an equatorial mount.

LAAS-9: 80mm f/6.25 refractor with University Optics objective on an equatorial mount. This fine Rich Field Telescope is good for going through the Messier Catalog.



For more information call: David Sovereign at (626) 794-0646. ✧

*David Sovereign*

# EVENTS CALENDAR

Date	Event	Location and Information
Nov 1st (Sat)	Dark Sky Night	Lockwood Valley
Nov 8th (Sat)	Public Star Party	Griffith Observatory. See pg 3 for details on how to attend.
Nov 10th (Mon)	General Mtg Board Nominations	Griffith Observatory. The speaker is Dr. John Schwarz, Harold Brown Professor of theoretical physics at Caltech. The topic is String Theory. Dr. Schwarz is one of the founding fathers of string theory, and co-author of the recent book "String Theory and M-Theory: A Modern Introduction" and published in 2007 by Cambridge University Press.
Nov 29th (Sat)	Dark Sky Night	Lockwood Valley
Dec 6th (Sat)	Public Star Party	Griffith Observatory. See pg 3 for details on how to attend.
Dec 8th (Mon)	General Meeting Board Elections	Griffith Observatory. ELECTION NIGHT! Matthew Golombek will speak on the exploration of Mars.
Dec 27th (Sat)	Dark Sky Night	Lockwood Valley

The board meeting is held at 8pm on the Wednesday night prior to the general meeting, at Garvey Ranch Park. The Monday general meetings start at 7:30 pm unless otherwise noted. See each month's bulletin for updates.



LAAS Home Page: <http://www.laas.org>  
 LAAS Bulletin Online: [http://www.laas.org/Resources\\_Newsletter.htm](http://www.laas.org/Resources_Newsletter.htm)

## LAAS Yahoo Group—how to join

The group is private, and therefore does not come up in a search. To join, send email to: LAAS-subscribe@yahoogroups.com. Include your full name so the moderator can verify your LAAS membership. Your full name is necessary so we can check our records to see if you really are a LAAS member. If approved, you will receive further instructions via email. ✧

## Sky and Telescope Subscriptions

Sky and Telescope subscriptions renewals should be sent directly to Sky Publishing. To start a Sky and Telescope subscription, contact the LAAS Treasurer (see the contact information on page 2) directly to get the club rates, then thereafter send the renewal bills directly to Sky Publishing. ✧

## Astronomy Magazine Subscriptions

For those that subscribe to Astronomy Magazine through the LAAS, the rate has gone up to \$34 a year, \$60 for two years. ✧

## NEEDED

### *New Members Coordinator*

We need a New Members Coordinator. If you're interested, please contact Tim Thompson at [timthompson3@verizon.net](mailto:timthompson3@verizon.net). ✧

#### Membership Annual Dues:

Youth	\$ 20.00
Regular (18-65)	\$ 45.00
Senior Citizen (65 and up)	\$ 30.00
Senior Family	\$ 40.00
Family	\$ 60.00
Life	\$ 500.00

#### Additional fees:

Charter Star member	\$ 30.00
Star member, with pad	\$ 70.00
Star member, no pad	\$ 60.00
Printed Bulletin	\$ 15.00

**(Membership due date is indicated on the mailing label)**

### HANDY PHONE LIST



LAAS Answering Machine .....	(213) 673-7355
Griffith Observatory	
Program.....	(213) 473-0800
Sky Report.....	unavailable for now
Lockwood Site .....	(661) 245-2106
(not answered, arrange time with caller.)	
Outgoing calls – collect or calling card)	
Mt. Wilson Institute.....	(626) 793-3100