

# BULLETIN

volume 83, issue 2 *February 2009*

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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 Corner*

**D**ue to the technical glitch that prevented the Leonard Nimoy Event Horizon Theater from displaying any computer images, our Show and Tell night has been moved to the February 9th general meeting. I and the Griffith staff will work hard to make sure this time there won't be any problems.

Congratulations to Andee Sherwood on her acceptance as our new New Member Coordinator. Let's give her our support in introducing new members to our society and hobby.

The annual banquet went well. Richard Roosman's report on it appears later in the bulletin.

Tim Thompson returns with an article on just how fast we're travelling through the universe. For those who can't get enough speed, this might give you cause to slow down!

The meeting place for the executive board will permanently change soon. Please stay tuned for details.

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:

*(Continued on page 3)*

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. ✧

## *New Member Coordinator !*

Andee Sherwood has accepted the position of new member coordinator. Let's all wish her well, and give her all our support !

Please send any email to [Coordinator@laas.org](mailto:Coordinator@laas.org). ✧

## *Special Video*

Luis Ashelford sent me this alert.

"400 Years of the Telescope, A journey of science, technology and thought" documentary. Panoramic visuals, cutting-edge technologies and introspective contemplations position "400 Years of the Telescope" as the must-see cinematic feature for the International Year of Astronomy in 2009.

Overview of the Documentary is available at:  
<http://www.400years.org/documentary.php>

The trailer is available on YouTube at:  
<http://www.youtube.com/watch?v=UFm6gubuP2o>

## *Are We There Yet?*

*By Timothy Thompson*

Ever wonder where you are going? If that's a philosophical question, then I'm afraid it's your problem, not mine. But if it's a physical question, then I'm your man. It's one off those questions that crops up at public star parties all the time: How fast are we moving? Maybe as the Earth turns, or as we fly around the sun, or just careen through the universe, people want to know how fast. So here it is, all the way from a pace the snails would leave in the dust as the continents drift, to our need for speed through the cosmos. This month I offer up a synopsis of our journey through the universe. now you

*(Continued on page 4)*

can figure out for yourself where you are going and when you expect to get there, at least in the physical sense.

## **Continental Drift**

The surface of Earth is broken up into pieces called tectonic plates, which are more or less rigid pieces of crust moving around on top of the fluid mantle. They bash into each other, slide past each other, slide over each other, grind against each other, and tend to stick together and jerk apart. The jerking apart part usually leads to potentially devastating earthquakes, along the boundaries between plates. Each plate has its own peculiar motion, but generally speaking, they move along at an average annual rate of about an inch per year. So, as North America moves east at about an inch per year, Europe is heading this way at about an inch a year, and the Atlantic ocean is closing up at a rate of about 2 inches per year. So if Christopher Columbus, who sailed the ocean blue in 1492, sailed today, he would find his journey about 86 feet shorter. That's about 1.2 times the length of his largest ship, and flagship, the carrack Santa Maria. I don't think he would notice.

## **As the Earth Turns**

Earth spins around on its axis with a sidereal period of 23 hours 56 minutes 4.090530833 seconds (23.94469592 hours or one sidereal day). So a point on Earth's equator will travel one circumference of 24,901.55 miles in one sidereal day, which translates into 1039.961 miles per hour. But at higher latitudes the circumference is smaller. So, at the latitude of, say, Griffith Observatory (34 degrees 6 minutes 46.8 seconds north), we are whizzing around at the reduced speed of 861.018 miles per hour. And we don't feel dizzy.

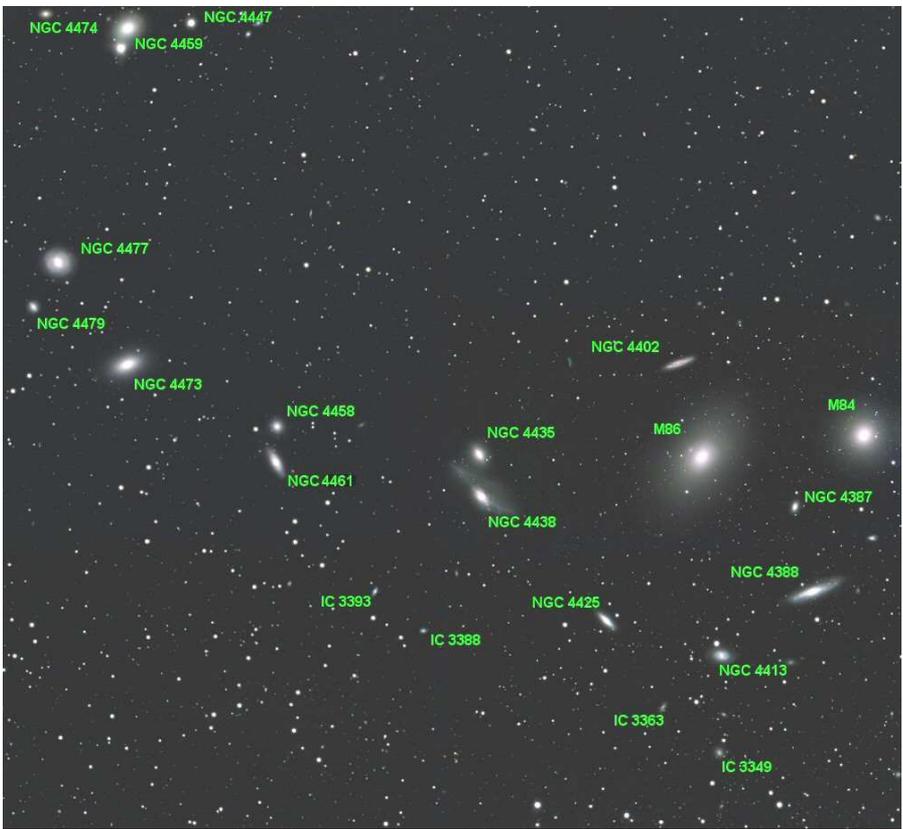
## **As the Years go by**

Aside from spinning around and getting dizzy, our Earth also cruises around the sun on an elliptical orbit with the sun at one focus of the ellipse. However, with an eccentricity of 0.0167, Earth's orbit is not terribly different from a circle. So I will just pretend it's a circle with a radius of 1 astronomical unit (92,958,349.79 miles). If you want a precise elliptical solution, do it and write your own article. So, as I was saying, in one sidereal year of 366.25636042 sidereal days, Earth will travel along an orbital path 584,074,531.4 miles long. That's 66,599.929 miles per hour. Now that's pretty fast. But fasten your seat belts, it gets better than that.

## **As the Galaxy Turns**

So as we spin & orbit, all the time imprisoned by the gravity of the sun, so is the sun imprisoned by the gravity of the vast Milky Way Galaxy. Just as Earth orbits the center of gravity of the solar system (and not the sun), the sun also

*(Continued on page 5)*



The conspicuous Markarian Chain of galaxies in the dense part of the Virgo Cluster. About 60,000,000 light years away, our own Local Group is falling into the much more massive Virgo Cluster at 537,000 miles per hour. So we can expect to arrive in a mere 76,000,000 years, give or take a few million.

orbits the center of gravity of the Galaxy, as we go along for the ride. Figuring out how fast we move around the sun is not too hard. But figuring out how fast we move around the Galaxy is quite a bit harder. The standard accepted velocity is 220 km/sec or 492,000 miles per hour. But be advised that, even as I write this, astronomers meeting in Long Beach for the annual meeting of the American Astronomical Society have announced that their group has revised that number upwards by a significant fraction of about 100,000 miles per hour or 45 km/sec. So depending on whether or not the announcement holds up, we swing around the Galaxy at either about 492,000 or 592,000 miles per hour.

*(Continued on page 6)*

## **Look Out Ahead!**

Our Milky Way is moving too, taking the sun & solar system along. The center of mass of the Milky Way is moving towards M31, the great galaxy in Andromeda, at about 100 km/sec or 224,000 miles per hour. In about 5,000,000,000 years, about the same time the sun becomes a red giant and consumes Earth, we will also plow head on into a collision of galaxies. It's going to be a honey of a show around here.

## **In the Local Group**

Both M31 and the Milky Way are imprisoned by the gravity of the Local Group, a gravitationally bound group of 60 some odd galaxies that we know of, with more to be discovered I'm sure. Our motion with reference to the center of gravity of the Local Group is somewhat different from our motion with reference to M31. Indeed, we are moving somewhat faster here in our Local Group, about 306 km/sec or 685,000 miles per hour.

## **Falling Towards Virgo**

Our local group is also a prisoner of gravity, in this case the gravity of the Virgo Supercluster of galaxies, which is itself dominated by the Virgo Cluster. The center of gravity of our Local Group of galaxies is falling headlong towards the Virgo Cluster at a pretty good clip: 240 km/sec or 537,000 miles per hour.

## **Falling into the universe**

Our Local Group is also moving relative to the universe at large, which we can measure relative to the rest frame of the ubiquitous Cosmic Microwave Background. At the moment, our own Milky Way is moving in the CMB rest frame at quick march: 369.5 km/sec or 826,600 miles per hour. But remember we are just milling around in the Local Group, and we might wonder what the rest of the group is doing. The center of gravity of the Local Group is stepping out towards the CMB rest frame in double time, a whopping 627 km/sec or 1,402,600 miles per hour.

## **Moving Right Along ...**

So, let's take all those speeds, and figure out how far we have gone in the last year. If you are sitting in our favorite Griffith Observatory, then every second you manage to tick off 786.68 miles, which amounts to 2,832,060.95 miles every year. So even if you are only 10 years old, you have already put over 28 million miles behind you. And us old folks are really racking up the frequent flyer miles. Now that's all not how far you really have gone, which would require a proper addition of velocities & all that jazz that physicists would want to do and you would fall asleep watching. But it is kind of cool anyway, isn't it? ✧



The colliding galaxies NGC 4038 & NGC 4039, also known as the Antennae Galaxies, due to the conspicuous tidal tails of stars seen in this image. In about 5,000,000,000 years, this is what M31 and the Milky Way will look like.



The official 2009 LAAS cake from the banquet. Pity it had to be eaten. Image courtesy of Stephen Dashiell.

# *Report on the Annual Banquet*

*By Richard Roosman*

The LAAS Annual Banquet at the Odyssey Restaurant on January 11 was great. There was plenty of good food. The speaker was outstanding. The door prize giveaway was fantastic (with an exception). The people who attended had an astronomical time.

The speaker was Dr. Matthew Golombek from JPL. He was lead project scientist for the Mars Pathfinder rover. The goal was to find sedimentary rocks on Mars using the Mars Rovers. Dr. Golombek is a geologist and he knew that sedimentary rocks would prove the existence of large bodies of surface water on Mars. After roaming the surface of Mars, the rovers did find evidence of water. His talk was informative, presented with humor.

Dave Sovereign presented the new board and officers. Then P. J. Goldfinger, awards chairman, started the awards program. Tom Drouet received a service award for public outreach. Shirley Sunada received the Garvey Ranch award. Sarah Shaw was presented with the Outstanding New Member Award. Don DeGregori received the Classic Galaxy Watchers Award. The Double Star Award went to Rick Silveira and Andee Sherwood. The Long Time Service Award went to Dave Pinsky. Mary Brown was presented with an award for her service as Vice-President. The award portion of the program was short and sweet.

The people who left before the door prizes were given out missed the best part. The prizes were calendars, LAAS mugs, four \$25 gift certificates to Scope City, two certificates for two people for a night of observation at Kitt Peak, telescope accessories, t-shirts, telescopes, and miscellaneous items. David Pinsky and David Beraru ran the door prize giveaway with help from Herbert Kraus. Almost everyone won a prize with an exception or two. Each person who attends is supposed to get one part of a ticket, and the other half goes in the ticket mug. Every ticket was pulled, so everyone should have received a prize. Tim Thompson, who booked the banquet room, booked the speaker, and planned the meal, was left with his half of the ticket and no prize. Surrounded by people who won prizes, Tim got nothing.

A lot of people worked to make the banquet a success. Most have been mentioned already. Many thanks to Mary Brown, who put together the table centerpieces. A special thanks to all those people who donated door prizes. Larry Steenhoek and Herbert Kraus donated calendars. Paul Wicker donated a telescope and tripod. Stephen Dashiell, Shirley Sunada, and David Sovereign deserved mention for acquiring and transporting some of the door prizes. Thanks to everyone who helped make the banquet a success.

◇



Dr. Mike Golombek gave a very interesting talk on the hunt for water on the Martian surface. Image courtesy of Stephen Dashiell.



David Pinsky and Herbert Kraus pass out the door prizes as David Beraru at far right announces the winning numbers. Image courtesy of Stephen Dashiell.



David Sovereign (below) takes to the podium, in part to announce the next person, Tim Thompson (above) who THEN introduces our speaker, Dr. Mike Golombek, shown on the previous page.



## *Donors to the 2009 Banquet*

The LAAS wishes to thank the following vendors for their contributions to the banquet raffle.

6" Pyrex Mirror Starter Kit  
Donated by Newport Glass Works  
<http://www.newportglass.com/>

Orion Aristocrat Executive 15-45x, 50mm brass tabletop zoom refractor telescope  
Donated by Orion  
<http://www.telescope.com>

42mm Superview 2" eyepiece  
Donated by OPT  
<http://www.optcorp.com>

One year subscription to Astronomy Magazine  
Donated by Kalmbach Publishing Co  
<http://www.astronomy.com>

Two Kitt Peak Nightly Observing Program Gift Certificates for 2 Adults  
Donated by National Optical Astronomy Observatory  
<http://www.noao.edu/outreach/kpvc/>

Four \$25.00 gift certificates  
Donated by Scope City  
<http://www.scopecity.com/>

# *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. Attendance is only granted once a confirmation email has been received. Most important though is to have fun and enjoy! ✧

*PJ Goldfinger*

# 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.

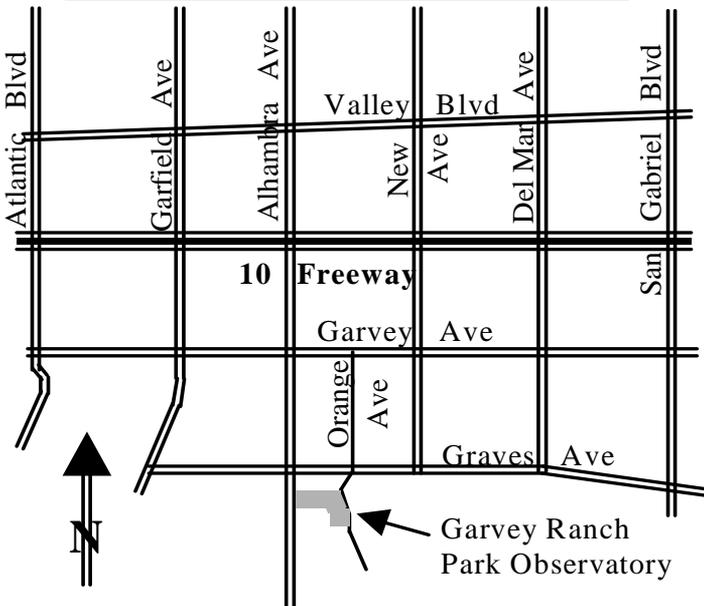
Thanks !                      Outreach@laas.org                      (818) 891-3087 ✧

(Editors Note: Be aware that often these requests come with very little advanced notice. Therefore, we won't post any events in the bulletin unless it is more than a month away. The best way to get news of these events is to use the Internet and either join the LAAS Yahoo group or access the LAAS website. To join the LAAS Yahoo group, see page)

*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 Polariscop 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-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-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*

LAAS-4

LAAS-2



# EVENTS CALENDAR

Date	Event	Location and Information
Feb 9th (Mon)	General Meeting	Griffith Observatory <b><u>Show and Tell</u></b> by LAAS members.
Feb 21st (Sat)	Dark Sky Night	Lockwood Valley
Mar 7th (Sat)	Public Star Party	Griffith Observatory. See pg 11 for details on how to attend.
Mar 9th (Mon)	General Meeting	Griffith Observatory Tentatively scheduled: The SOFIA project
Mar 28th (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.



This set of clouds appeared over the full moon on Jan 10th 2009. The image was taken just down east Observatory Ave from Griffith by David Nakamoto using a Canon Powershot S1 digital camera.

## 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@yahoo.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. ✧



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

### 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
<i>Additional fees:</i>	
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