



Desert Sky Observer

Volume 28 Issue 9

September 2008



NEWSLETTER OF THE ANTELOPE VALLEY ASTRONOMY CLUB, INC
P.O. BOX 8545, LANCASTER, CALIFORNIA 93539-8545
*The Antelope Valley Astronomy Club, Inc., is a 501(c)(3) Non-Profit Corporation.
Visit the Antelope Valley Astronomy Club website at www.avastronomyclub.org/
The A.V.A.C. is a Sustaining Member of The Astronomical League and the
International Dark-Sky Association.*



Up-Coming Events

- August 30:** Dark Sky Star Party @ [Mt. Pinos](#)
September 6: Beginner Class @ the [Sage](#)
September 12: Club Meeting @ the [Sage](#) Mystery Speaker
September 15: Executive Board Meeting @ [the Pedroza's](#) (6:30pm)
September 21: Lunar Club Party @ [the Riedhart's](#) 3:00am
September 27: Moon Walk and Star Party @ [Prime Desert Woodlands](#) (7:30pm)
September 27: Dark Sky Star Party @ [Pedroza Flats](#)

* Monthly meetings are held at the S.A.G.E. Planetarium on the Cactus School campus in Palmdale, the second Friday of each month. The meeting location is at the northeast corner of Avenue R and 20th Street East. Meetings start at 7 p.m. and are open to the public. *Please note that food and drink are not allowed in the planetarium*

Club President **Terry Pedroza**

I'm impressed with the nominations for club officers to this point, fine folks with a lot to offer the Antelope Valley Astronomy Club, however we are still a long way from having a race. Nominations officially opened at the last meeting, so if you have a certain someone that you would like to nominate for club office, now is the time. Elections are only a little over a month away!

P.A.T.S. is coming up soon; September 13th and 14th, have you got your tickets? See Tom Koonce for tickets if you have not. The antelope Valley Astronomy Club will be having a table setup and we need volunteers to man it for short periods of time, Please contact me or Karole if you would like to man the table for a couple of hours. I'd like to see a large turnout from the Antelope Valley Astronomy Club at this event much like that at RTMC. Leon Waller has suggested that maybe Saturday after the event we meet for dinner at the Spaghetti Factory. Any takers? I'm game. Contact me for more info or to confirm.

It's been a typically busy year for the Antelope Valley Astronomy Club and I would like to thank each and everyone one of our members for their help and support at our club events. I would like to thank the board members for their hard work and the many hours that they have put in to help the AVAC grow and prosper. Jenn Riedhart, thank you for working to get the AVAC to the next level with the long range plans and goals that you are tirelessly working on. Steve Trotta, thank you for the BEST astronomy website out there! A special thank you to my wife and her Y.E.A. crew for all their hard work on the Y.E.A. essay contest this year and in years gone by.

Vice President
Debora Pedroza

Fall is just around the corner which means our club members can look forward to a few of our annual events as well as a new look for an event to introduce our awesome astronomy club to the Antelope Valley.

Our guest for September remains a "mystery" guest at this time. There are a few irons in the fire and the possibilities are so diverse it will be very interesting to see just who this individual is.

The month of October is traditionally our annual business meeting highlighted by the election of new executive board members. This is also the time to take a look at the club by-laws and constitution, and for members to share their thoughts about the business aspects of our club. For an organization of any kind to continue to prosper, it needs the input and support of its members. When the business portion of the meeting has concluded, we will either be doing one of the following popular member presentations: **Ask The Experts or a Night Sky Network Demonstration**. Please plan on being at this meeting to help make a difference in your club.

In November we will be holding a very special event, which will held be on the club's regular meeting night. There will not be a business meeting. The club is calling this event, "Getting to Know the AVAC". We will be highlighting two astronomy events we are known for. We will be kicking off the **9th Annual Youth Exploring Astronomy Essay Contest** and we will be holding our **Astronomy Faire**. The club will be advertising and promoting this special night. Details will follow in the coming months.

It is time to start the planning process for next year's YEA Essay Contest. I will be holding the YEA Planning Committee Meeting at my home on Wednesday September 10 at 6:30PM. I desperately need help with any and all aspects of this contest. Please plan on attending and see how you can help. It can be ideas, calls, reading essays etc. Our students need you!

Until next time...take good care.

Director of Community Development
Karole Barker

We had a great turn out for the Prime Desert Woodlands event on Saturday, Aug. 16th with 97 people present, including club members. We have an upcoming event again at Prime Desert Woodlands on Sept. 27th @ 7:30 p.m. I need volunteers to bring out scopes that night to help make it a success. Please let me know if you can make it. In addition, the star party for September is also Saturday September 27th at Pedroza Flats, which is the same evening as Prime Desert Woodlands.

The "Lunar Club" star party at Pedroza Flat's on August 9th was a great night for viewing the moon and other night sky objects. Plus, we got to see the ISS fly by while viewing the moon.

On August 2nd we had a great turn out for our Club Picnic at Mt. Trotta. We had a lot of fun with the raffle and silent auction. Plus, we had a ton of food. The star party that night was awesome. The weather was perfect that night.

On August 7th we had Thursday Night on the Square in Palmdale and we were right next to NASA and it was a nice turn out for the event.

Our big star party this month is Labor Day Weekend on Saturday Aug 30th at Mt. Pinos. Get there early for a great spot for viewing that weekend.

Don't forget the new members class to learn how to use a telescope is Saturday, September 6th at 10:00 a.m. with Jeremy at the Planetarium.

On September 12th is the Lunar club at the Riedharts at 3:00 a.m.on Sunday morning.

Clear skies,
 Karole Barker



A Google for Satellites: Sensor Web 2.0

If you could see every satellite passing overhead each day, it would look like a chaotic meteor shower in slow motion.

Hundreds of satellites now swarm over the Earth in a spherical shell of high technology. Many of these satellites gaze at the planet's surface, gathering torrents of scientific data using a dizzying array of advanced sensors — an extraordinary record of our dynamic planet.

To help people tap into this resource, NASA researchers such as Daniel Mandl are developing a “Google for satellites,” a web portal that would make requesting data from Earth-observing satellites almost as easy as typing a search into Google.

“You just click on it and it takes care of all the details for you across many sensors,” Mandl explains.

Currently, most satellites are each controlled separately from the others, each one dauntingly complex to use. But starting with NASA's Earth Observing-1 (EO-1) satellite, part of the agency's New Millennium Program, Mandl and his team are building a prototype that stitches these satellites together into a seamless, easy-to-use network called “Sensor Web 2.0.”

The vision is to simply enter a location anywhere on Earth into the website's search field along with the desired information types — wildfire maps, vegetation types, floodwater salinity, oil spill extent — and software written by the team goes to work.

“Not only will it find the best sensor, but with proper access rights, you could actually trigger a satellite to take an image in the area of interest,” Mandl says. Within hours, the software will send messages to satellites instructing them to gather the needed data, and then download and crunch that raw data to produce easy-to-read maps.

For example, during the recent crisis in Myanmar (Burma) caused by Cyclone Nargis, an experimental gathering of data was triggered through Sensor Web 2.0 using a variety of NASA satellites including EO-1. “One thing we might wish to map is the salinity of flood waters in order to help rescue workers plan their relief efforts,” Mandl says. If the floodwater in an area was salty, aid workers would need to bring in bottled water, but if flood water was fresh, water purifiers would suffice. An early and correct decision could save lives.

Thus far, Mandl and his team have expanded Sensor Web 2.0 beyond EO-1 to include three other satellites and an unmanned aircraft. He hopes to double the number of satellites in the network every 18 months, eventually weaving the jumble of satellites circling overhead into a web of sensors with unprecedented power to observe and understand our ever-changing planet.

To learn more about the EO-1 sensor web initiatives, go to

<http://eo1.gsfc.nasa.gov/new/extended/sensorWeb/sensorWeb.html>. Kids (and grown-ups) can get an idea of the resolution of EO-1's Hyperion Imager and how it can distinguish among species of trees—from space at http://spaceplace.nasa.gov/en/kids/eo1_1.shtml.

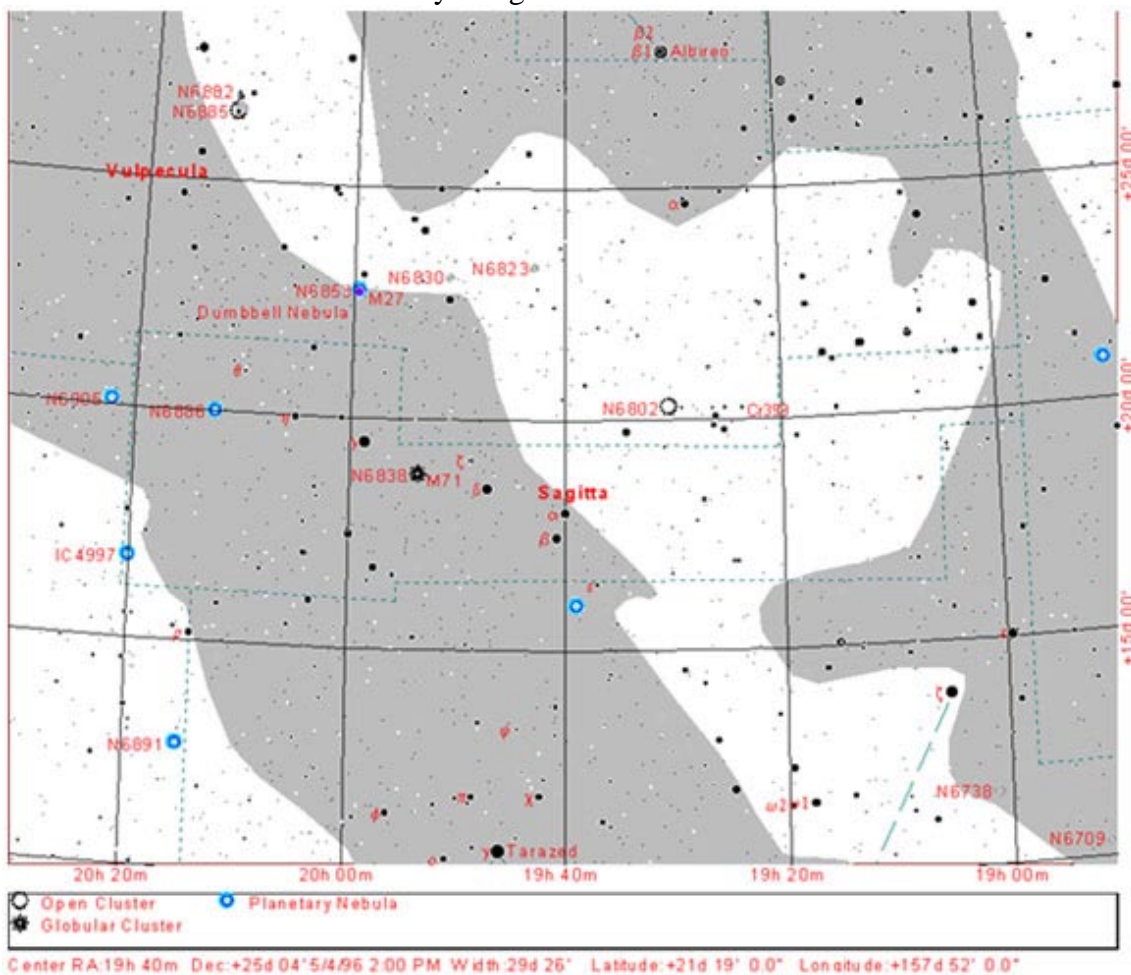
This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

AVAC Observing Challenge

Tom Koonce

Beginner's Challenge

Of the four Messier objects that are planetary nebulae which are big and bright enough to appear “non-stellar” in binoculars, my favorite is M27, the Dumbbell Nebula. Located in the small and hard to see (to me anyway) constellation Vulpecula, M27 is fairly bright and big at 350 arcseconds across. You should be able to see this magnitude 7.3 object in 7X and 10X binoculars. The difficulty in finding the Dumbbell is that it is located within a star-rich area of the Milky Way about 3 degrees north of the star at the tip of little Sagitta, the Arrow (north of Gamma Sagittae.) At 9:00 pm, it will be located nearly directly overhead. Use your star map out of one of the astronomy magazines to help guide you to your prize, just 1250 light years away. It will look like a small glowing disk under the middle star in a distinctive M-shaped asterism set against a field of fainter stars. After locating the Dumbbell, you’ll want to observe it with your telescope at a medium power of 75X to 100X for the best views. For an extra challenge, try borrowing a “nebula” filter from one of the other club members to really bring out the details.

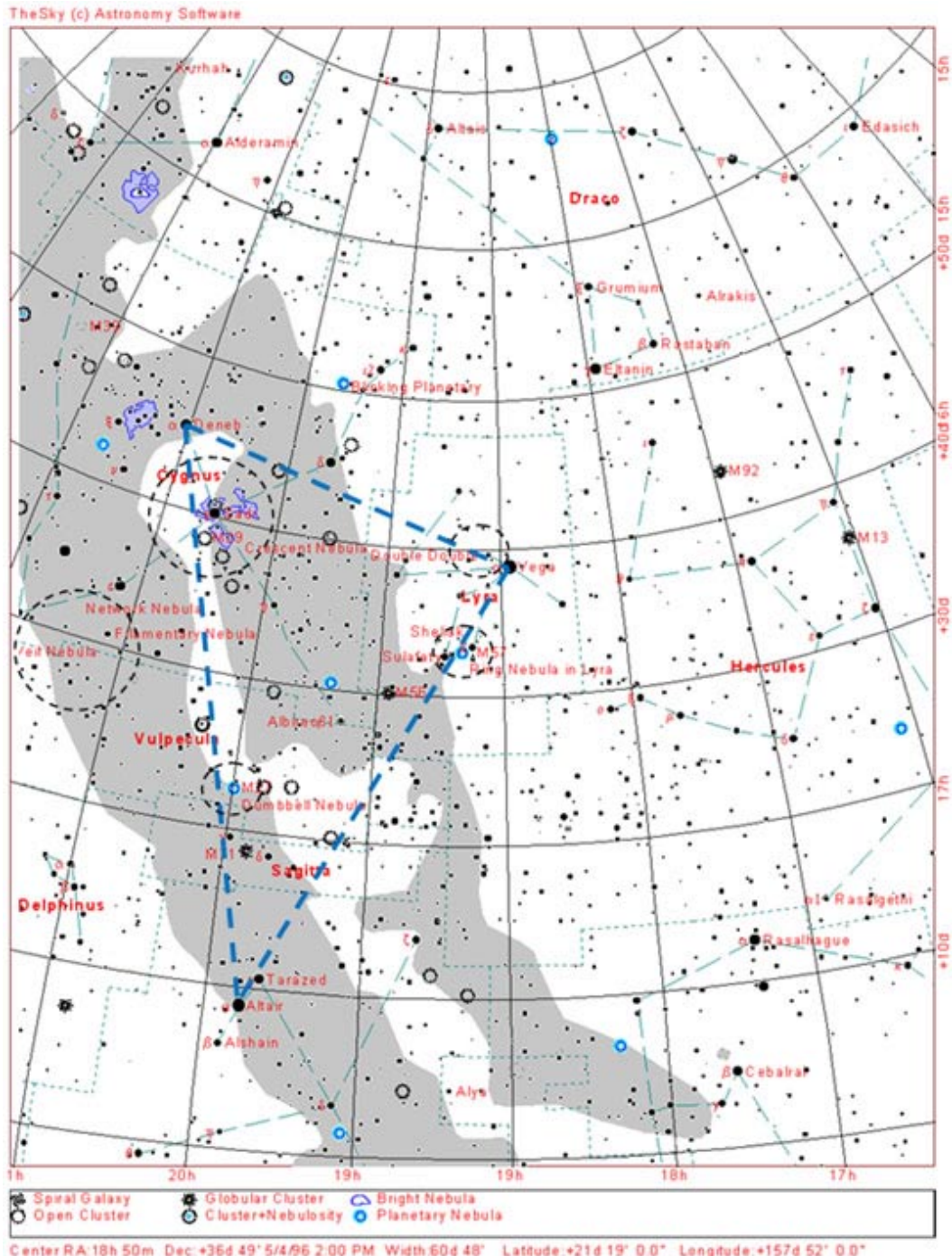


Created using “TheSky” software

Intermediate Challenge

It's the Fall, so of course it's the best time of year to see the Summer Triangle! It's funny but true – the Summer Triangle is placed overhead at a much more convenient hour for the next two months for those of us who have to get up the next morning, and the weather is beginning to cool down for a more enjoyable observing experience. Nearly directly overhead at 9:00 pm, look for the distinctive shape of Cygnus the Swan, and its brightest star, Deneb. Next look over at Lyra's beacon star Vega and then sweep south to Altair to complete the Summer Triangle.

Deep-sky wonders fill little Lyra. Try finding M57 with 10X or 15X binoculars mounted on a tripod. Next train your telescope on the Double Double star Epsilon Lyrae east of Vega. Low power will split the star easily into a double star, but crank up the power to 100X and you may catch a glimpse of each of these stars being a double star system. Consult the following star atlas page from "TheSky" software for the location of variable star Beta Lyrae.



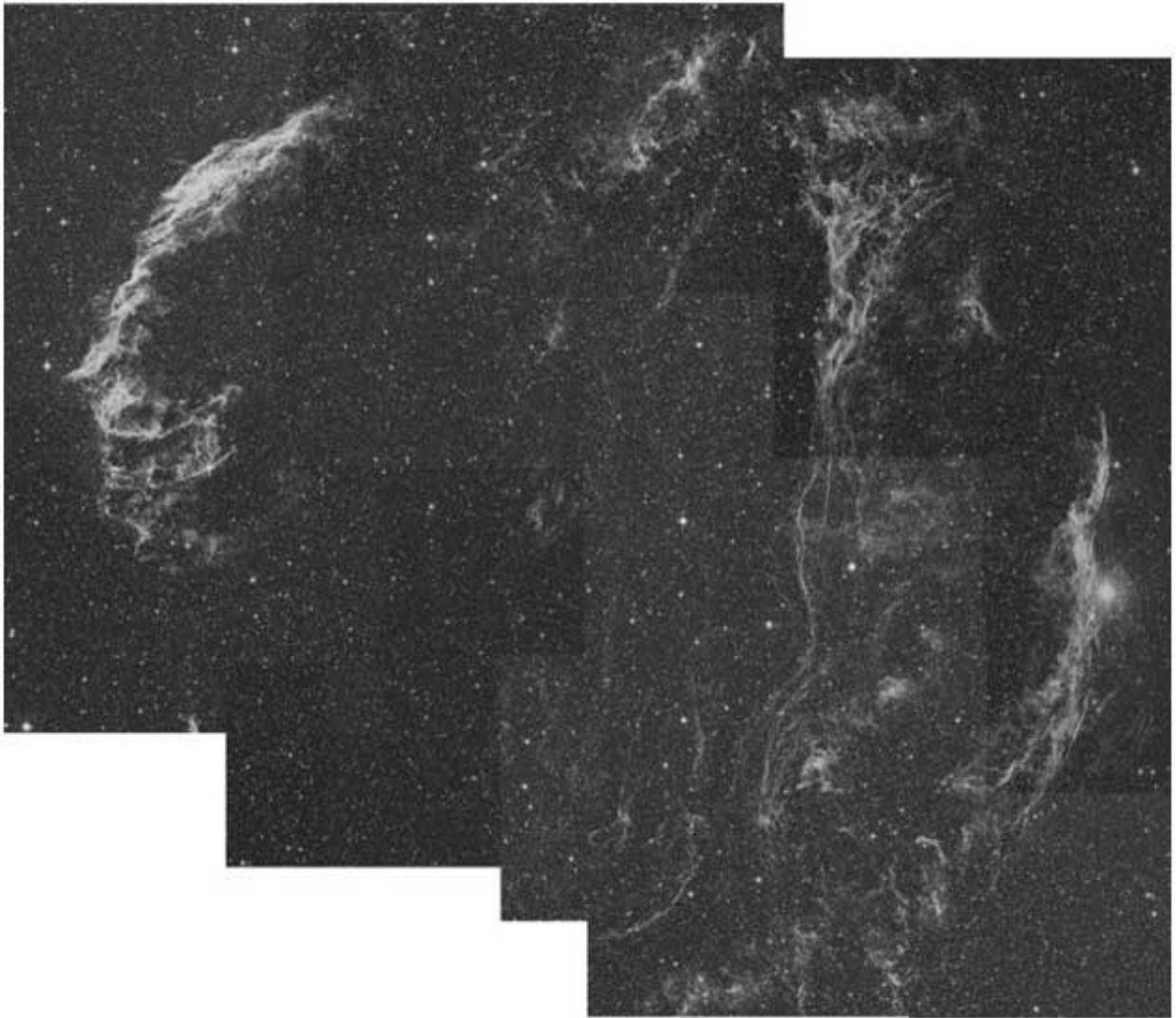
Advanced Challenge

The largest circles on the map above (Veil Nebula and North American Nebula) can be the most challenging objects to observe well. You must have an O-III filter in your eyepiece in order to see these in anything less than excellent skies. I have seen both without a filter from Mt. Pinos, but I knew what to look for. The second secret of observing these objects is that you need LOW power. Dig out the 40 mm or 50 mm Plossl. If you have one of these eyepieces in a 2" format, this is the time to put it in and even then, be prepared to physically move your telescope around the sky to be able to see all of the structure. These objects are BIG. Both objects are easy to locate because of their proximity to nearby bright stars. It is hard to study the details of both objects because of the same reason. A glimpse or two of one of these bright stars and the subtlety of the intertwining filaments of the Veil Nebula seems to vanish to my eye for a few seconds. Take your time and scan the sky surrounding each of the structures you can identify as the North America Nebula and the Veil.



*NGC7000 is an extremely large (roughly 2°), faint nebula located 3.2° east of Deneb (alpha Cygni).
Difficult in most scopes, it comes alive in an 11x80 finder with an OIII filter.*

You may be surprised to see numerous stunning nearby structures once you get used to seeing the slight variations in the low contrast images. The image below should help you keep track of your location in the Veil. I think once you spend some time with either of these objects you will want to return time and time again to explore.



NGCs 6992, 6995, and 6960 make up the eastern and western areas of the Veil Nebula, a supernova remnant in Cygnus. Traveling 3.3° south of epsilon Cygni, you come to 52 Cygni, which sits in the center of the western Veil. The Eastern Veil sits 2.5° WNW. An OIII filter at about 6X per inch of aperture transforms the object into a spectacular vision. It looks great in a 15x80mm spotting scope; the entire nebula is visible. A 6" easily will bring out the filamentary structure. A 12" produces awe inspiring views. This image is a mosaic of about 25 Mb of downloads from the Sloan Digital Sky Survey.

Clear Skies!

Did you know ? ? ?

The summer constellation Cygnus contains the remnants of a star that underwent a supernova explosion about 15,000 years ago. The shock waves are still expanding today and the explosive remnants have run into and interacted with some stationary gasses. The result is the beautiful Cygnus Loop, also known as NGC 6960 and NGC 6995.

Why is the time different around the Globe?

As you know, the Sun rises in the East and sets in the west because the Earth is really rotating about its axis from the west to the east. Also, remember that lines of longitude go from the North Pole to the South Pole and that the 24 major lines of longitude are spaced 15 degrees apart around the entire sphere of the Earth ($24 \times 15 \text{ degrees} = 360 \text{ degrees}$).

Now imagine that it is 12:00 Noon in New York City and the Sun is at its highest point for the day just as the clock strikes 12:00. At that moment, if you had a friend located 15 degrees away in longitude to the west, for example in Chicago, you would expect that it would take the Sun an extra hour for the Earth to turn another 15 degrees so that the Sun would be at its highest point there. Because it takes the Earth 1 hour to turn 15 degrees under the Sun, it would take another hour for the Sun to be located high overhead in Chicago. Suppose you had another friend at that moment living in Denver. They'd have to wait two hours for the Sun to rise to its highest point in the sky because Denver is about 30 degrees of longitude west from NYC.

Since the Earth rotates 15 degrees in one hour, it takes 24 hours for it to turn all the way around once, back to the point where the Sun is in the same point in the sky. (One day)

Wouldn't it be crazy if "12:00 Noon" meant that the Sun was at its highest point in New York City, but in Honolulu, Hawaii that the Sun wasn't even up yet? It would be really confusing, and everyone would have a different understanding of what "12:00 Noon" meant, but this isn't the case - people around the world understand that 12:00 Noon is when the Sun is at its highest point - for them.

Realizing this, the world's scientists divided the Earth up into 24 "Time Zones" approximately 15 degrees across in longitude, starting at Greenwich, England, and going around the world. About halfway around the world from Greenwich there is a line of longitude called "The International Date Line" which is the longitude where 'today' becomes 'tomorrow' (12:00 Midnight). I said approximately because there are plenty of cases where politicians have drawn the time zone lines artificially to go around a piece of land that juts out east or west into the next longitude, where a particular country wanted to be part of one time zone and not another, or to account for countries like Iran, Afghanistan, India, and Burma who have picked to be 1/2 hour off of the time that everyone else in their longitude. Time zone lines are artificial; arbitrarily decided by politicians but trying to match the Earth's major lines of longitude to a close extent.

The whole point of time zones is so that the Sun rises about 6:00 am local time, is at its highest at about 12:00 Noon local time and sets about 6:00 pm local time (on average), for each location on the Earth.

I have included Wikipedia references that will explain more, but if you want a surprisingly fascinating, well written account of how all of this was first envisioned and implemented, you might want to read Dava Sobel's excellent short book called "Longitude".

http://en.wikipedia.org/wiki/Time_zone



News and Headlines

First Light for the Fermi Space Telescope

NASA's newest space telescope, formerly known as GLAST, has passed its orbital checkout with flying colors, kicking off a mission to explore the violent and unpredictable gamma ray universe.

http://science.nasa.gov/headlines/y2008/26aug_firstlight.htm

NASA Phoenix Mission Conducting Extended Activities on Mars

NASA's Phoenix Mars Lander, having completed its 90-day primary mission, is continuing its science collection activities. Science and engineering teams are looking forward to at least another month of Martian exploration.

<http://www.spaceref.com/news/viewpr.html?pid=26315>

Shuttle Extension Assessment

The SSP program in conjunction with Cx and ISS have been asked by the administrator to put together some manifest options to assess extending shuttle flights to 2015. SSP would like to have some options developed for review by senior management by the end of September. The result of the review might be a formal budget assessment of a option(s).

<http://www.spaceref.com/news/viewpr.html?pid=28980>

NASA's Mars Rover Opportunity Climbing out of Crater

NASA's Mars Exploration rover Opportunity is heading back out to the Red Planet's surrounding plains nearly a year after descending into a large Martian crater to examine exposed ancient rock layers.

http://www.nasa.gov/mission_pages/mer/news/mer-20080826.html

NASA Mars Lander Digs Deeper as Third Month Nears End

The next sample of Martian soil being grabbed for analysis is coming from a trench about three times deeper than any other trench NASA's Phoenix Mars Lander has dug.

http://www.nasa.gov/mission_pages/phoenix/news/phoenix-20080825.html

Milky Way's Central Monster Measured

The past decade has seen so many incredible advances in astronomy that it would be hard to single out one as standing above the others. But near the top of my list is the work by Andrea Ghez (UCLA) and her colleagues to measure the mass of the Milky Way's central black hole. In a paper posted on the Web last week, they derive a new and improved mass for our galaxy's monster in the middle.

<http://www.skyandtelescope.com/news/home/27621359.html>

Understanding neutron stars

Another piece of the jigsaw in understanding how neutron stars work has been put in place following the discovery by scientists of the origin of the high energy emission from rotation-powered pulsars.

<http://www.astronomy.com/asy/default.aspx?c=a&id=7346>

A.V.A.C. Membership Information

Membership in the Antelope Valley Astronomy Club is open to any individual.

The Club has three categories of membership.

- Family membership at \$30.00 per year.
- Individual membership at \$25.00 per year.
- Junior membership at \$15.00 per year.

Membership entitles you to...

- Desert Sky Observer—monthly newsletter.
- The Reflector—the quarterly publication of the Astronomical League.
- The A.V.A.C. Membership Manual.
- To borrow club telescopes, binoculars, camera, books, videos and other items.

The Desert Sky Observer is available as a separate publication to individuals at a cost of \$10.00 per year. Subscription to the Desert Sky Observer does not entitle the subscriber to membership in the Antelope Valley Astronomy Club and its associated privileges.

A.V.A.C. Board Members**President:**

Terry Pedroza (661) 728-0130 president@avastronomyclub.org

Vice-President:

Debora Pedroza (661) 728-0130 vice-president@avastronomyclub.org

Secretary:

Tom Varden secretary@avastronomyclub.org

Treasurer:

Tom Koonce (661) 943-8200 treasurer@avastronomyclub.org

Director of Community Development:

Karole Barker (661) 940-3312 community@avastronomyclub.org

Newsletter Editor:

Errol Van Horne (661) 273-7646 newsletter@avastronomyclub.org

Equipment & Library:

Karol Barker (661) 940-3312 library@avastronomyclub.org

Club Historian:

Tom Koonce (661) 943-8200 history@avastronomyclub.org

Webmaster:

Steve Trotta (661) 269-5428 webmaster@avastronomyclub.org

Astronomical League Coordinator:

Steve Trotta (661) 269-5428 al@avastronomyclub.org

Thank you to our sponsors for your generous support!

Al's Vacuum and Sewing: 904 West Lancaster Blvd. (661) 948-1521. Stop by and say "hey" to Matt and Sue and run from Michael.

Woodland Hills Camera: 5348 Topanga Canyon Blvd., Woodland Hills. 888-427-8766. www.telescopes.net

Astro-tom.com: Tom is dedicated to amateur astronomy. <http://www.astro-tom.com>

High Desert Broadcasting: General Manager, Vicky Connors (661) 947-3107; they assist us in advertising our Club.

ActonAstro: Club Web space provided by <http://www.actonastro.com>

Al's Vacuum and Sewing

WOODLAND HILLS *Camera*

