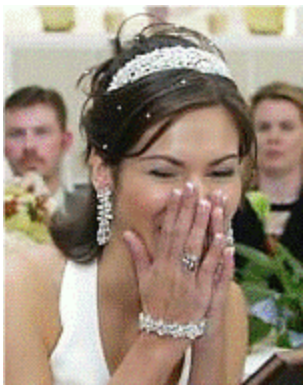
Starscan

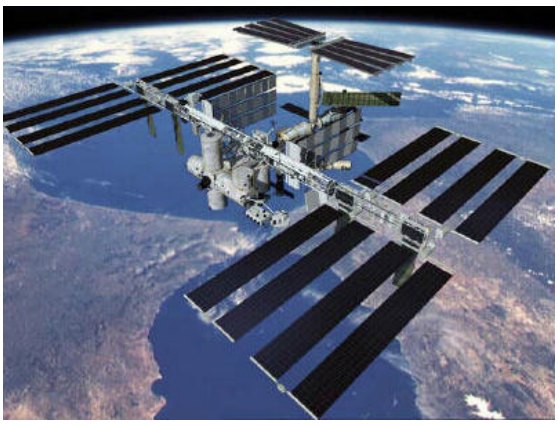
Johnson Space Center Astronomical Society

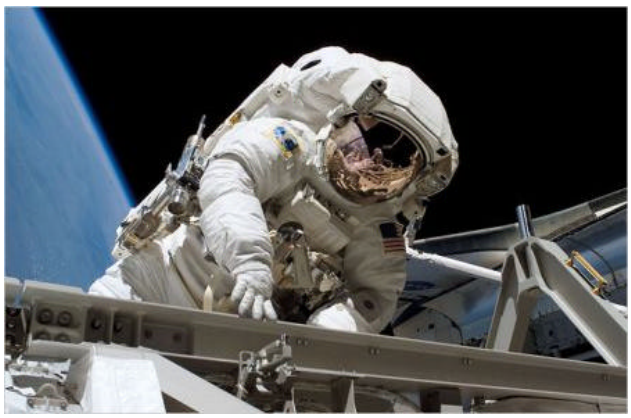
Volume 24, Number 8 August 2008

FORTY YEARS AND COUNTING!



FIVE YEARS AGO—THIS MONTH-THERE WAS A WEDDING ON THE ISS
HAPPY ANNIVERSARY
YURI AND EKATERINA "Kat" MALENCHENKO





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Message from the el Presidente

Hi Everyone;

I can't say a lot has been happening on the local astronomy front -- just look out side. Most, nights have been absolutely dreadful. Most of the local activity seems to be at the George Observatory and I can only hope, because of geography they may have somewhat better skies but a humid sky is still a humid sky. Every now and then I'll take a look up and see a star or two and take note of the fuzz around them. Like many, our family has the big scopes stored, but they are ready when time comes where we can pull them out and leave them out for a couple of days. We also have our share of scopes we can pull out in a moment's notice and set them on the deck and be observing within 5 minutes. Well, I don't know about you but I haven't seen any nights where that has happened yet. When I come home from work, at best I'm looking at sucker holes here in Pearland. I look at our trailer that Connie and I have and I've wondered "the Fort must have better skies than we do right now". But then reality sets in, the day job is always in the way, minimal vacation time, and although the Fort may be drier, it is probably pretty warm there too. Maybe this is a round about way of saying that I'm really looking forward to the October trip to Ft. McKavett more than I know. I'm hungry for the heavens and this Summer's weather pattern isn't doing anything to satiate any celestial cravings.

Of course some will tell you I have a history of taunting Mother Nature and paying for it. You know the adages… "if you wash your car, it will rain" or "If you are in the water and look defiantly toward an overcast sky, it thunders back at you"? Maybe if we bellyache more about not having stars most nights, maybe Mother Nature will listen and take pity with a run of clear skies. Think so?.....David Haviland

LETTER FROM THE EDITOR

By Connie Haviland

Hi Everyone!!

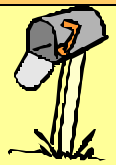
Well, as we come to the end of the summer, the kids are getting ready to go back to school, only one more month and we are back to doing our star-parties, vacations are over and we are looking forward to cooler and dryer weather.

I will be heading off for my occasional trip to Galveston State Park, to get some time to rejuvenate myself, pull those creative thoughts together and prepare myself for all the wonderful things that lie ahead for my family and our club.

This month's Starscan is packed with a variety of things and should be interesting reading. Enjoy!!!

JUST A REMINDER: Don't forget to check out the **TOTAL** solar eclipse. We don't get to see it, but it happens on August 1st –from Canada->Greenland->Russia

LETTER TO THE EDITOR



Greetings All!

This morning I received a letter from Rickey Ainsworth, assistant Astronomy Day coordinator, stating that the 6 organizational groups of our Astronomy Day event:

Astronomical Society of South East Texas
Fort Bend Astronomy Club
George Observatory
Houston Astronomical Society
Johnson Space Center Astronomical Society
North Houston Astronomy Club

Have received the 1st place award in its international competition for best Astronomy Day of 2007 (the Iranian Astronomical Society won last year's award).

Congratulations to all for a job well done and some deserved international recognition…..Bill Leach

Editor's Note: you can check out more about this award and the organization @ http://www.astroleague.org/al/astroday/astrowinners.html or http://www.astroleague.org/al/astroday/astroday.html

Star Parties for 2008

By John Erickson

AUGUST
August –No Star Party

SEPTEMBER
September 06 - Moody Gardens Star Party
September 27 - Haak Winery Star Party

OCTOBER
October 18 - Astronomy Day @ George Observatory
October 23 to 26 - Fort Mckavett StarParty

NOVEMBER
November 01 - Haak Winery Star Party

DECEMBER
December 12 - No Star Party

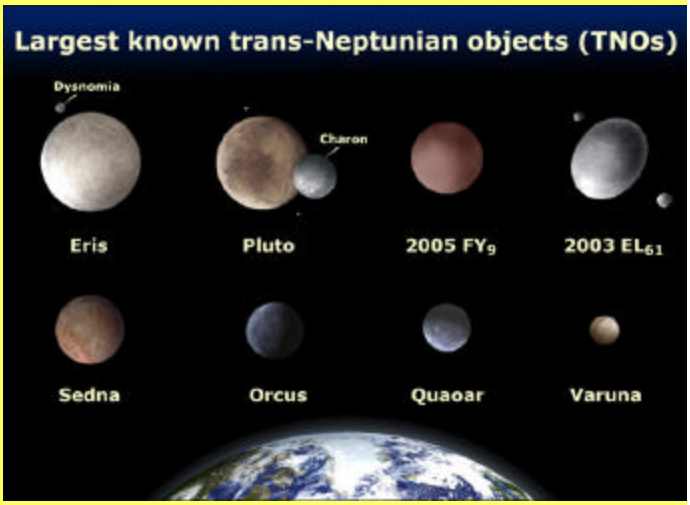
Dwarf Planets R Planets 2

By Siobhan Elias

Organizations members:

As we all know, the IAU has really made a mess of the definition of the word "planet". My reason for writing your organization is to ask for your help. Take action, get involved and explore this site: http://dwarfplanetsRplanets2.com

This is a site dedicated primarily to contacting the IAU president regarding the IAUs planet definition. It's a way for us all to unite and make an impact through an "email protest" of the current definition....OR we can call it, "A quest for rationality in distinguishing planets from rocks".



Also included are links to government resolutions regarding planet Pluto, astronomy sites, observatories, petitions, group events and even a "rock ballad" tribute song called "New Horizons". Make sure you bookmark this site to check for "newly added items".

I urge you to distribute this letter to your organization members, so they may also "take action" & "get Involved"

I appreciate your help and welcome your thoughts!

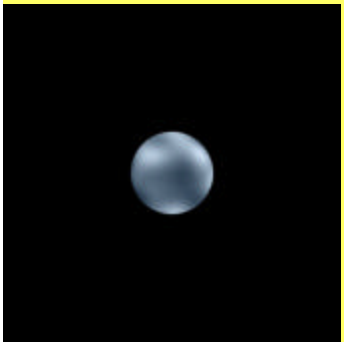
Thanks for your help,
Siobhan Elias

email: Siobhan@dwarfplanetsRplanets2.com

www.nightskynation.com/objects/planets

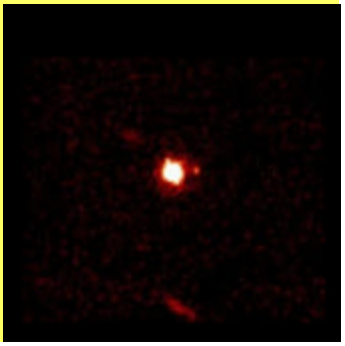
mage : NASA

Ceres



Pluto

Xena aka Eris



Pictures are added by the editor

JSCAS EXPEDITION TO BOSNIA
Paul Maley

I traveled to Bosnia and Herzegovina to attempt the first asteroid occultation observation from this former Yugoslav republic. Sarajevo has been the site of some unfortunate conflicts in the past, more specifically the location where the catalyst for World War II began as a result of the assassination of Archduke Ferdinand and his wife Sofie in 1914. Sarajevo underwent the longest siege in modern military history during the Bosnian War. Today the city is recovering and adjusting to a post-war reality, as a major center of culture and economic development in Bosnia and Herzegovina. Sarajevo was also the first city in Europe and the second city in the world to have a full-time operational electric tram network running through the city, the first being San Francisco. Figure 1 shows the bright yellow Holiday Inn where I stayed for 2 nights in Sarajevo.


Figure 1

The occasion was an occultation of a 9th magnitude star by the asteroid Astraea on June 6. The path of this event was centered over Sarajevo and passed also over parts of central Europe. I had made contact with the local university through a colleague in the UK and found that astronomy had almost been destroyed since the war years. The sole observatory in the country was located on a hill above Sarajevo and was part of the front line. It had featured a 24-inch telescope and library. They are no longer in existence and the few telescopes that are in Bosnia are basically small. The largest is a 10-inch Meade Cassegrain reflector which I was allowed to use for the occultation.

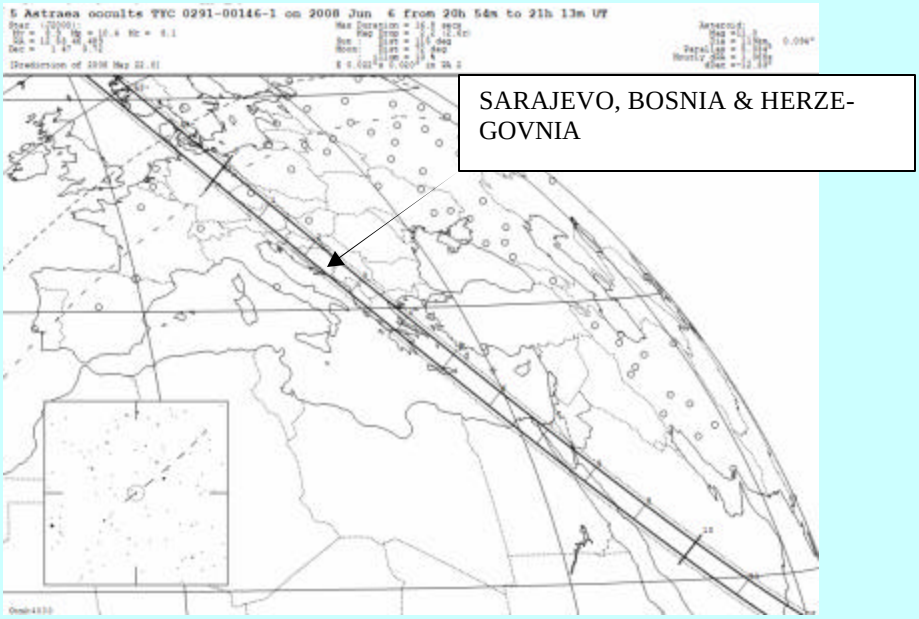


Figure 1A. Occultation path map.

Our teams consisted of 12 persons shown in the figure below, composed mostly of students. I provided extensive briefings to the team on what to expect and how to recover from standard potential failures. Instructor Nedim Mujic (left) coordinated the local effort along with his colleague Bakir Sadovic (not shown) who works with the Ministry of Foreign Affairs. I brought 3 video cameras to be used at our three observing sites.

Figure 2 The Team:
Emin Skopljak, Professor on Faculty of Electrotechnics
Zoranic Irma, Physics student
Glamocic Adnan, Physics student
Causevic Naida, Physics student
Lejlic Ajla, Physics student
Subasic Adela, Physics student
Tahirovic Elvedin, Physics student
Avdic Damir, Physics teacher
Sadovic Bakir, Physics teacher
Valentina Mindoljevic, Physics teacher
Lagumdija Armin, Teaching assistent - Departmant of Physics
Mujic Nedim, Teaching assistent - Departmant of Physics
Paul Maley (3rd from left)- JSCAS

Valentina Mindoljevic (2nd from right), age 38, had driven up from the town of Mostar just to take part in this activity. Everyone was highly motivated and had high hopes for success.

Thunderstorms pervaded over the country for days prior to the event and the chance of rain on occultation day was predicted at 100%. The night before the occultation we traveled outside of Sarajevo to a site 4400 feet above sea level where we found a hole in the clouds and easily found the target star. There we tested equipment setup and the local amateurs discovered how tough it would be to set up video at night on a faint star. The next night was to be the big occultation night. On June 6 the sky was mostly cloudy and the local forecasters predicted that if we drove south toward the coast we might get good weather at the predicted time of occultation.

Although the plan was deploy early, not everyone was ready and we ended up leaving later than planned. As Bakir drove his car with me in it out of the university, he made an illegal u-turn only to be flagged down moments later by police who gave him a ticket. Nedim got lost on the way to our midway rendezvous point and we waited an additional 30 minutes for him. The teams traveled in a caravan of cars (gas is over $8 per gallon) through the Ivan Tunnel separating Bosnia from Herzegovina and after 2.5 hours reached Konjic, a small town in Herzegovina. We had to drive upward to avoid expected fog toward a popular lake where people go on holiday. The overcast sky gave way to a few cloud patches which started to dissipate but the humidity began to rise. I settled on a hillside for our main site while the other parts of the team headed for their respective locations. The sky cleared perfectly and the star was easy to find; all of my equipment was configured and waiting at 945pm. A heater had been constructed from local parts and wrapped around the corrector plate of the Meade scope to keep dew away and that worked well even though it pulled a reported 3 amps while the telescope drive was said to pull 1 amp.

Because of the lack of resources, amateur astronomy could be considered almost primitive. A few persons in the country have 3 or 4 inch scopes. That is it. They could use assistance in every possible way. It took me months just to coordinate this effort and getting three good size scopes in the same place was not a trivial accomplishment for the local group. I brought a c-mount to 1.25 inch adapter because such parts were not possible to find there. To repair electronics, they rely on their wits and the limited resources available there. It is not much but in my case, it was not possible to work around a power supply failure which luckily was not critical to the operation. But the video camera worked and it was anticipated we could easily see the star with the 10-inch f/5 system. Two other scopes were deployed: an 8-inch f/4 Dob and a Meade ETX 90 at f/14. Video was useless on this scope as the f number and camera response was not suitable. But we were working the largest telescopes in the entire country!

At 10.50pm I activated the video equipment and made sure we had the star in sight. Then I turned on the GPS time inserter which worked perfectly. The event time was supposed to occur at 11.02:20. The video image of the star appeared on the camcorder monitor and at approximately 11:01 it began to turn white as if electronic interference was smearing the image. The star gradually was swallowed up by the pattern. At 11:01:30 I pulled the plug from the time inserter to see if that had any effect. Yes, the star appeared and the

noise vanished. It looked like victory had been plucked from the jaws of defeat. Then, 30 seconds later the pattern appeared again and nothing was visible. By the time I pulled the camera off and reinserted the eyepiece, the occultation would have been over. The apparent cause of this problem was due to rapid onset of humidity for which there was no forecast. It impacted the time inserter and video camera to the point of making them unusable. Even at 2600 feet altitude the problem was acute. However, later I found out that the path had shifted east and all of our teams would have missed it anyway. Team 2 headed by Nedim experienced a set up problem. He did not get his video system up and running in time. Team 3 with Bakir and his uncle (who offered us a place to stay that night) found the star but from 11.02 to 11.05 a cloud blocked the view. It was not to be a successful event. However, this was a most enjoyable trip for me and the next day we congregated at the university to discuss the results and lessons learned. Then we headed for the local market where I bought a few souvenirs. By that afternoon I was on my way back to London for an overnight and then to Houston.

FIGURE 3

Figure 3 (right) is called ”the rose” and marks the fragments of part of the single mortar shell that killed a number of people in the main street of town. Today the street itself is a modern shopping avenue.

The Siege of Sarajevo was the longest siege in the history of modern warfare, conducted by the Serb forces of self-proclaimed Republika Srpska and Yugoslav People's Army (later transformed to the Army of Serbia and Montenegro), lasting from April 5, 1992 to February 29, 1996. It was fought during the Bosnian War between poorly equipped defending forces of the Bosnian government, who had declared independence from Yugoslavia, and the Yugoslav People's Army (JNA) and Bosnian Serb forces (Army of Republika Srpska) (VRS) located in the hills around Sarajevo, who sought to destroy the newly-independent state of Bosnia and Herzegovina and create the Serbian state of Republika Srpska (RS). It resulted in large scale destruction and dramatic population casualties. It is estimated that of the more than 12,000 people who were killed and the 50,000 who were wounded during the siege, 85% of the casualties were civilians. Because of killing and forced migration, by 1995 the population decreased to 334,663 - 64% of the prewar population. By 2003, most of the city had been rebuilt or repaired, with only a few remaining visible ruins in the city centre. Many of the WWII shell casings that were used during the attacks have been carved and polished in Sarajevo tradition and are sold as art.

These two pictures from **www.galenfrysinger.com/bosnia.htm**

A Telescope Made of Moondust

(Assembled by David Haviland, all figures and text courtesy of NASA. I figured all you home built types and "mirror grinders" would get a kick out of this article!)
http://science.nasa.gov/headlines/y2008/09jul_moonscope.htm?list1089931

July 9, 2008: A gigantic telescope on the Moon has been a dream of astronomers since the dawn of the space age. A lunar telescope the same size as Hubble (2.4 meters across) would be a major astronomical research tool. One as big as the largest telescope on Earth—10.4 meters across—would see far more than any Earth-based telescope because the Moon has no atmosphere. But why stop there? In the Moon's weak gravity, it might be possible to build a telescope with a mirror as large as 50 meters across, half the length of a football field—big enough to analyze the chemistry on planets around other stars for signs of life.

That's the dream of Peter C. Chen, astrophysicist at NASA Goddard Space Flight Center. And he wants to build it using lunar dust—because that might just be the most economical approach.

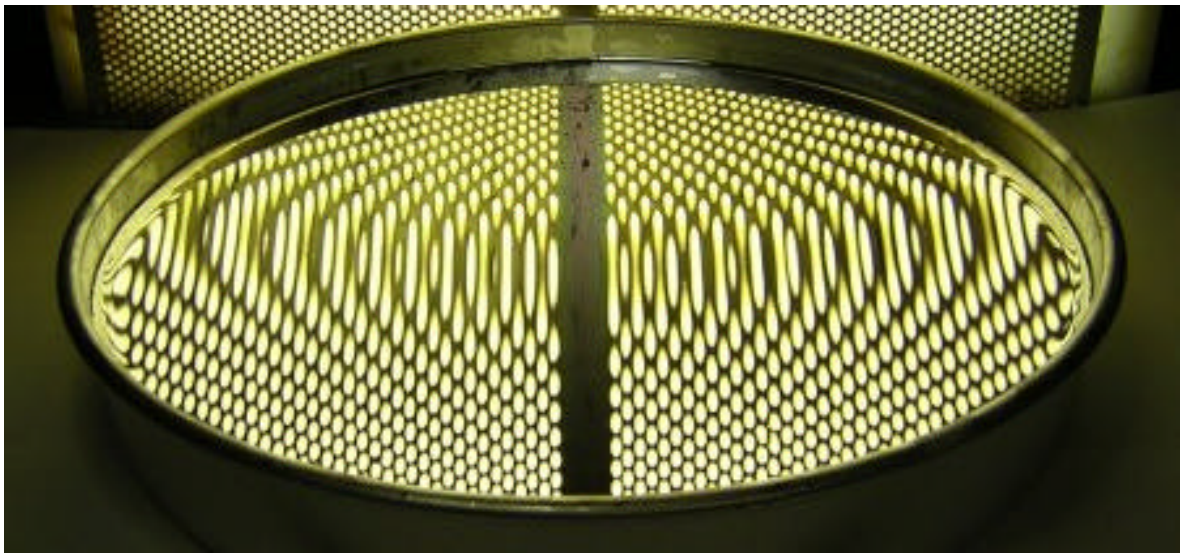
"If we lift all materials from Earth, we're limited by what a rocket can carry to the Moon," Chen explains. "But on the Moon, you're absolutely surrounded by lunar dust"—a prized natural resource in the eyes of Chen, an expert in composite materials.

Right: Astronauts erect a telescope on the Moon, an artist's concept.

Composite materials are synthetic materials made by mixing fibers or granules of various materials into epoxy and letting the mixture harden. Composites combine two valuable properties: ultralight weight and extraordinary strength. On Earth, for example, bicycle frames made of a composite of carbon fibers and epoxy are favorites of racing cyclists.

"Why not make a composite using lunar dust?" asks Chen, who is also adjunct research professor at the Catholic University of America in Washington, D.C. So in his laboratory, he mixed NASA's simulated lunar dust called JSC-1A Coarse Lunar Regolith Simulant with epoxy and a small quantity of carbon nanotubes, a relatively recently discovered form of carbon that has many unusual and useful properties. The result? "It came out as hard, dense, and strong as concrete."

Excited, Chen made a small telescope mirror using a long-known technique called spincasting. First he formed a 12-inch (30-cm) diameter disk of lunar-simulant/epoxy composite. Then he poured a thin layer of straight epoxy on top, and spun the mirror at a constant speed while the epoxy hardened. The top surface of the epoxy assumed a parabolic shape—just the shape needed to focus an image. When the epoxy hardened, Chen inserted it into a vacuum chamber to deposit a thin layer of reflective aluminum onto the parabolic surface to create a 12-inch telescope mirror.



Above: A 12-inch parabolic moondust mirror made by spincasting. The mirror consists of a bottom layer of lunar soil simulant JSC-1A Coarse mixed with a small quantity of carbon nanotubes and bonded with thinned epoxy. Photo credit: Peter C. Chen, NASA/GSFC

The carbon nanotubes make the composite a conductor. Conductivity would allow a large lunar telescope mirror to reach thermal equilibrium quickly with the monthly cycle of lunar night and day. Conductivity would also allow astronomers to apply an electric current as needed through electrodes attached to the back of the mirror, to maintain the mirror's parabolic shape against the pull of lunar gravity as the large telescope was tilted from one part of the sky to another.

To make a Hubble-sized moondust mirror, Chen calculates that astronauts would need to transport only 130 pounds (60 kg) of epoxy to the Moon along with 3 pounds (1.3 kg) of carbon nanotubes and less than 1 gram of aluminum. The bulk of the composite material—some 1,300 pounds (600 kilograms) of lunar dust—would be lying around on the Moon for free.

Right: A moondust parabolic mirror. Sisters Sandra (left) and Sunry (right) Yen holding a 12 inch spincast 'moondust mirror.' The mirror reflects camera flashlight into a light

"I think we've discovered a simple method of making big astronomical telescopes on the Moon at 'non-astronomical' prices," Chen declares. "Building a large space-based astronomical observatory using locally available material is something that is possible only on the Moon. That capability can be a major scientific justification for a return to the Moon."

"It's a great idea in principle, but nothing is simple on the Moon," cautions physicist James F. Spann, who leads the Space and Exploration Research Office at Marshall Space Flight Center. "Launching a big spinning table to the Moon would be a challenge. If we got the machine spinning in the Moon's dusty environment, how long would it take the dust to settle?" he asks.

Sputtering aluminum vapor onto a large mirror in the presence of ambient dust would be another challenge, because "coating mirrors on Earth is done in a clean environment. There are practical issues about manufacturability that must be resolved."

Despite his concerns, Spann sees real promise in Chen's work and he's enthusiastic about starting out to make simple composite structures on the Moon, such as casting basic blocks from epoxy and lunar dust. "The blocks could be useful for building igloos or habitats for the lunar astronauts," he points out. Then astronauts could work up to making rods, tubes, and other composite structures, to learn how epoxy cures in the Moon's vacuum, and how robust the composites are under solar ultraviolet light. In the end, telescopes might prove practical. "We have a lot of work to do to find out what's possible," he says.

One thing is clear: The sky's the limit, especially when you have so much moondust to work with.

Pictures courtesy of NASA.

★ SSO: (Solar System Objects) Summary for the 11 August 08

Object	Const	Mag	% Ill	Rise Time	Transit	Set Time
Sun	Leo	-26.7	100	06:46	13:26	20:03
Mercury	Leo	-0.7	91	07:51	14:19	20:52
Venus	Leo	-3.9	95	08:11	14:36	21:05
Mars	Vir	1.7	97	09:34	15:41	21:53
Jupiter	Sgr	-2.6	100	17:49	22:59	04:06
Saturn	Leo	0.9	100	08:19	14:43	21:11
Uranus	Aqr	5.7	100	21:38	03:31	09:23
Neptune	Cap	7.8	100	20:13	01:41	07:10
Pluto	Sgr	13.9	99	16:29	21:55	03:16

Highlighted times denote daylight events.

Lunar phases for August 08

New	First	Full	Third	New
01st 05:13	08th 15:20	16th 16:16	23rd 18:50	30th 14:58

Central Daylight Time

Meteor showers for August 08

2008 Meteor Shower	Activity Period	Peak	Radiant R.A.	Radiant Dec.	Velocity km/sec	r (Population index)	ZHR	Class	Moon
Piscis Austrinids (PAU)	Jul 15-Aug 10	27-Jul	22:44	-30°	35	3.2	5	II	23
Delta Aquarids (SDA)	Jul 12-Aug 19	27-Jul	22:36	-16°	41	3.2	20	I	23
Alpha Capricornids (CAP)	Jul 03-Aug 15	29-Jul	20:28	-10°	23	2.5	4	II	25
Perseids (PER)	Jul 17-Aug 24	12-Aug	03:04	+58°	59	2.6	100	I	11
Kappa Cygnids (KCG)	Aug 03-Aug 25	17-Aug	19:04	+59°	25	3	3	II	15
Alpha Aurigids (AUR)	Aug 25-Sep 08	31-Aug	05:36	+42°	66	2.6	7	II	1

★ Explanation of the Meteor Shower Calendar

From: The **American Meteor Society @ http://www.amsmeteors.org/showers.html#2008**

AUGUST OBSERVING

Shower: named for the constellation or closest star within a constellation where the radiant is located at maximum activity.

Activity Period: the dates when the ZHR (Zenith Hourly Rates) are equal to or greater than one.

Maximum: the date on which the maximum activity is expected to occur.

Radiant: the area in the sky where shower meteors seem to appear from. This position is given in **right ascension** (celestial longitude) and **declination** (celestial latitude).

Velocity: the velocity at which shower meteors strike the Earth's atmosphere. The velocity depends on the angle meteoroids (meteors in space) intersect the Earth. Meteoroids orbiting in the opposite direction of the Earth and striking the atmosphere head-on are much faster than those orbiting in the same direction as the Earth. This velocity is measured in kilometers per second.

r: The **Population Index,** An estimate of the ratio of the number of meteors in subsequent magnitude classes. Simply stated: the lower the "r" value, the resulting overall mean magnitude of each shower will be brighter. "r" usually ranges from 2.0 (bright) to 3.5 (faint).

ZHR: **Zenith Hourly Rate,** the average maximum number of shower meteors visible per hour if the radiant is located exactly overhead and the limiting magnitude equals +6.5. Actual counts rarely reach this figure as the zenith angle of the radiant is usually less and the limiting magnitude is usually lower. ZHR is a useful tool when comparing the actual observed rates between individual observers as it sets

Class: A scale developed by Robert Lunsford to group meteor showers by their intensity:
Class I: the strongest annual showers with ZHR's normally ten or better.
Class II: reliable minor showers with ZHR's normally three or better.
Class III: showers with widely variable rates. They may be strong one year and totally inactive the next.
Class IV: weak minor showers with ZHR's rarely exceeding three. The study of these showers is best left to experienced observers who use plotting and angular velocity estimates to determine shower association. Observers with less experience are urged to limit their shower associations to showers with a rating of I to III. These showers are also good targets for video and photographic work.
Moon: the age of the moon in days where 0 is new, 7 is first quarter, 14 is full, and 21 is last quarter. Meteor activity is best seen in the absence of moonlight so showers reaching maximum activity when the moon is less than 10 days old or more than 25 are much more favorably observed than those situated closer to the full moon.

CDMP: (Chris' Don't Miss Pick) 2008 Perseid Meteor Shower

The source of the shower is long period comet 109P Swift-Tuttle. Although the comet is far away, currently located beyond the orbit of Uranus, a trail of debris from the comet stretches all the way back to Earth. Crossing the trail in August (Although the crossing begins in mid July, On the morning of August 12th the activity will be at it's maximum), Earth will be pelted by specks of comet dust hitting the atmosphere at 132,000 mph. At that speed, even a flimsy speck of dust makes a vivid streak of light when it disintegrates--a meteor! Because, Swift-Tuttle's meteors streak out of the constellation Perseus, they are called "Perseids."

Serious meteor hunters will begin their watch early, on Monday evening, August 11th, around 9 pm when Perseus first rises in the northeast. This is the time to look for Perseid Earthgrazers--meteors that approach from the horizon and skim the atmosphere overhead like a stone skipping across the surface of a pond.

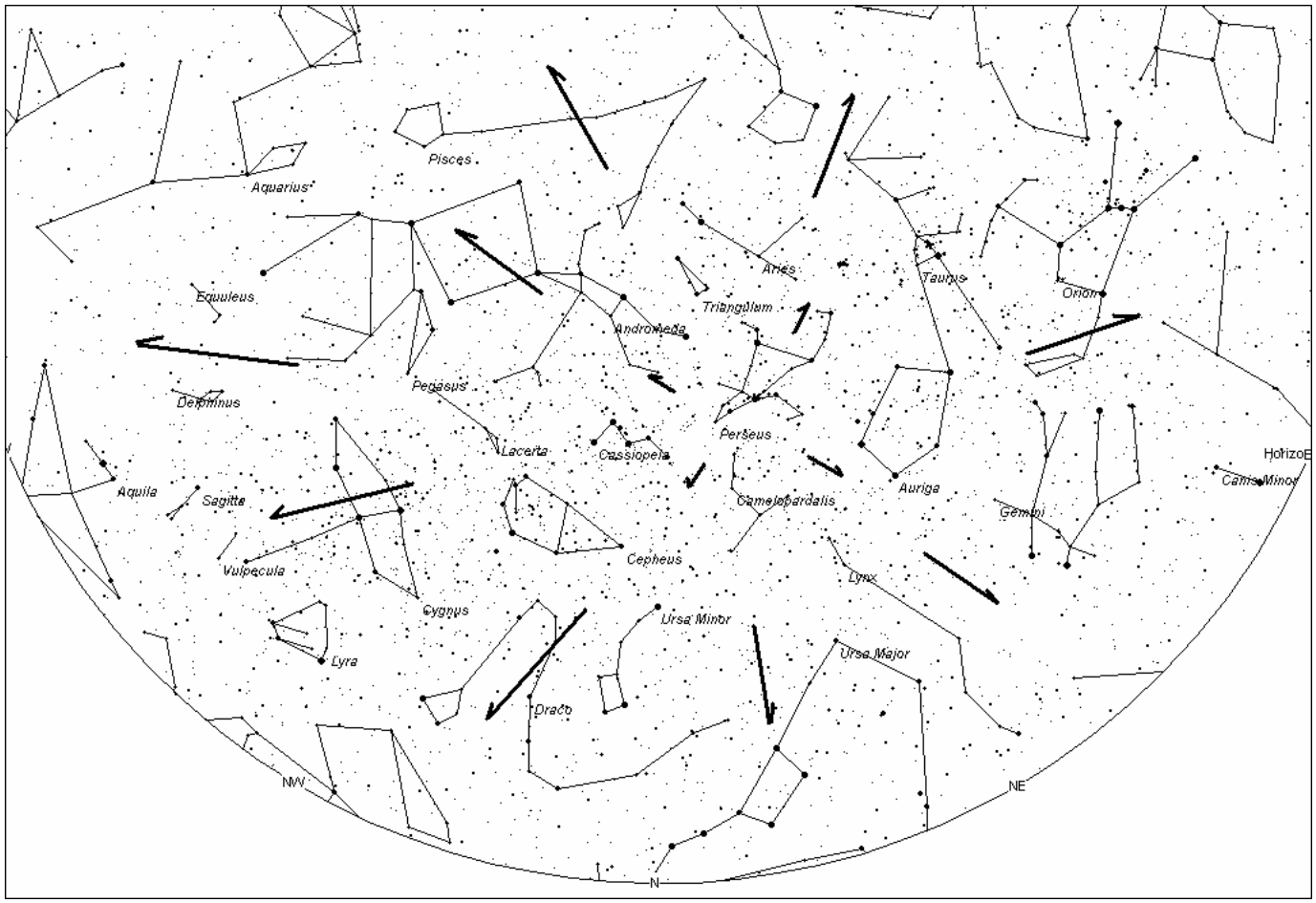
For a while the Moon will interfere with the Perseids, lunar glare wiping out all but the brightest meteors. The situation reverses itself at 2 am on Tuesday morning, August 12th, when the Moon sets and leaves behind a dark sky for the Perseids. The shower will surge into the darkness, peppering the sky with dozens and perhaps hundreds of meteors until dawn.

The best Perseid activity, no matter the date or location, is usually seen during the last hour before the start of morning twilight, when Perseus lies highest above the horizon in a dark sky. This is usually between the hours of 0400 and 0500 local daylight time for most of us. While gazing high into the sky, one must be comfortable in order to avoid neck strains and fatigue. A folding lounge chair is the perfect solution. It is easily portable and comfortable. Be sure to also have a blanket or sleeping bag too, even if temperatures seem balmy. It's surprising how the inactive body can become chilled even though the air temperatures seem warm.

For maximum effect, "get away from city lights," Cooke advises. The brightest Perseids can be seen from cities, he allows, but the greater flurry of faint, delicate meteors is visible only from the countryside. (Scouts, this is a good time to go camping.)

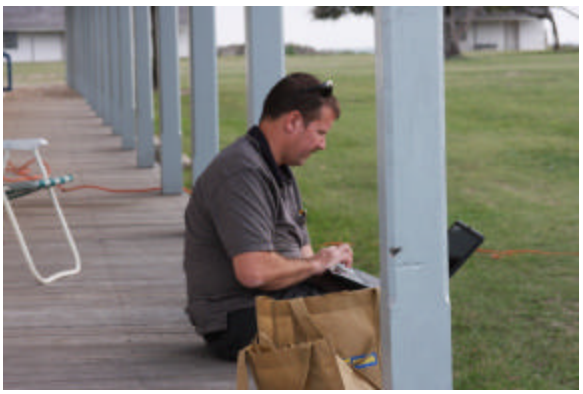
This is the last time you will be able to view the Perseids under moonless skies until 2010. Next year's shower will peak with a bright last quarter moon in the morning sky, which will dampen the display.

Here is a Chart showing the radiants for the Perseid shower



Sources: NASA @ http://science.nasa.gov/headlines/y2008/22jul_perseiddawn.htm
International Meteor Organization @ http://www.imo.net/
The American Meteor Society @ http://www.amsmeteors.org

Well, Hernan needed a little more time to get started. So, I'll try it again this month to pass the baton. Hopefully this will be my last Visual SIG Article. Hernan has agreed to take it over. I will still be available for help with your observing. Thanks a lot for your viewer ship. Clear dark skies. Hernan, I hope you recover soon. Chris.



HEY HERNAN...

WE MISS YA!!!

THE JSCAS GANG!!!

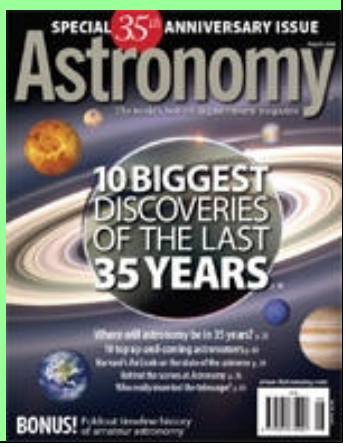
Folks:

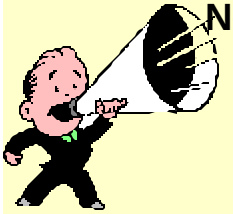
In times past, people that have wanted to take advantage of the club discount have had to write their check, put it in with the renewal slip, and then either mail it to me at my home or chase me down at a meeting. In most cases, within a week, I have sent out the renewal. Sometimes, and I don't really mind, the renewals have gone out at my expense for the postage. Without hesitation, question, or fail, it is not the most efficient means to maintain club subscriptions. So as secretary, I'd like to try something new...

You get all your stuff ready for the subscription, whether it be Astronomy or Sky & Telescope, you keep it - you hang on to it. Email (most reliable) or tell me when you see me that you want to take advantage of the club discount for either or both of these publications and that you need a supporting letter. What I'll do is get the letter together and email the "letter from the treasurer/secretary" back to you as a PDF. You print it off, and enclose it with your renewal. For this to work your computer must have Adobe Reader (which is free) and a means to print it. I would like this procedure to become the "Standard Operating Procedure" for Astronomy/S&T discounts through JSCAS. For those still not in the computer age, we can process things as we have in the past.

Clear skies,

David Haviland





Need volunteers

What's Happening at the George!!!

Cynthia Gustava

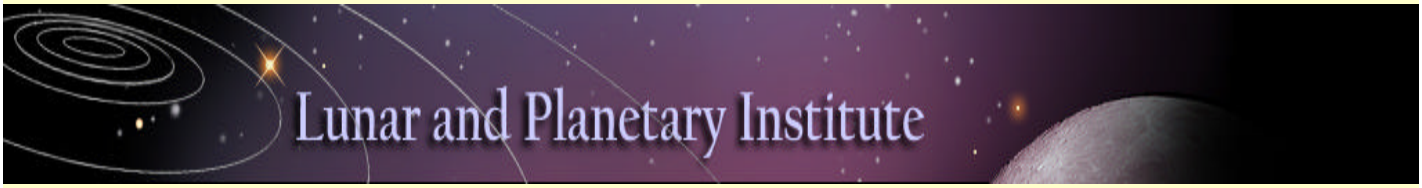
George Observatory August Events

Friday Night Groups (all times are 20:30 to 22:30)…Volunteers for domes and deck scopes are needed. Contact Cynthia Gustava at cynm31@comcast.net.

Aug 1 – United Space School (Building Manager: Cynthia Gustava cynm31@comcast.net)
Aug 8 – HMNS Member's Night – Third of the year! (Building Manager: Barbara Wilson bwilson@hmns.org)

Saturday Night Public Viewing (dusk to 23:00)…Volunteers for domes and deck scopes are needed. Contact the building manager teams below.

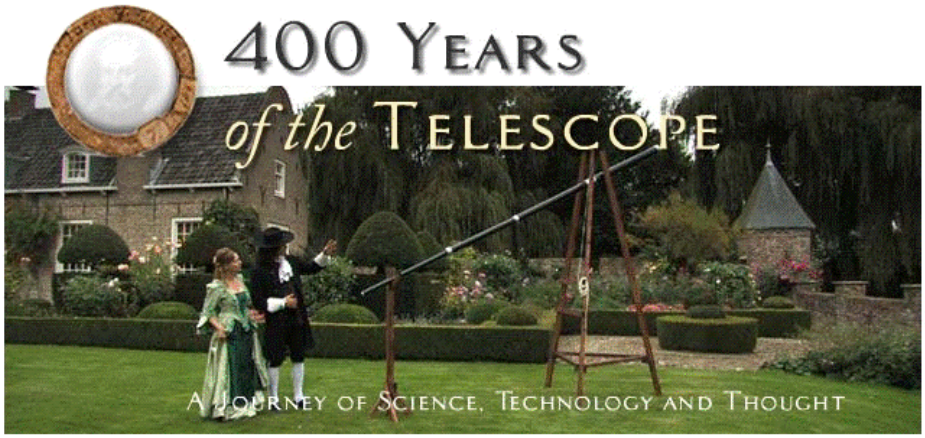
Aug 2 – Mary Lockwood and Joe Mills mplockwood@att.net or k5jmm@yahoo.com
Aug 9 – Mary Lockwood and Joe Mills mplockwood@att.net or k5jmm@yahoo.com
Aug 16 – Barbara and Buster Wilson bwilson@hmns.org
Aug 23 – Justin McCollum and Carl Sexton justinmccollum@hotmail.com or carlsexton@hotmail.com
Aug 30 – Leonard Ferguson and Cynthia Gustava leonardferguson@mac.com or cynm31@comcast.net



Family Space Day is a free family event geared for families with children ages 5-8. The event focuses on space science topics with activities that are parent-driven. Each month we will explore a different space science topic. We will provide hands-on activities, information, books and resources to those who attend. The event is come-and-go and does not require an RSVP. For questions, please contact Katy Buckaloo at 281.486.2106 or Buckaloo@lpi.usra.edu. Visit our website at www.lpi.usra.edu/education/space_days/.

Our upcoming schedule (dates, times, topics subject to change)

August 16th	10am-1pm	Gas Giants
September 20th	10am- 1pm	Robotics
October 18th	10am - 1pm	The moon and the Lunar Reconnaissance Orbiter
November	Date and time TBA	tentative telescope observing session



Overview
400 Years of the Telescope (working title)
A two-hour HD documentary

Background
The year 2009 marks the 400th anniversary of the astronomical telescope. In 1609, Galileo's improved view of the moon and the Milky Way launched humanity along a new road toward understanding our cosmic environment. No other scientific instrument has had such a profound impact on our view of the universe. The telescope's influence continues to dominate our attempts to perceive the cosmos, as astronomers struggle to decode the mysteries of newly discovered dark energy and matter in an accelerating universe.

Synopsis
The first act will explore humanity's pre-telescopic observations of the skies, and the philosophies they inspired, from ancient times, until Hans Lipperhey's invention of the lens spyglass, and Galileo's inauguration of telescopic astronomy. The program's account of different cultural views of the universe will culminate with Galileo's 1632 work "Dialogue Concerning the Two Chief World Systems," which he based on his telescopic observations, and how that book led to his confrontation with the Church about the true nature of the cosmos.
The second act will open with the story of Sir Isaac Newton's invention of the reflecting telescope, of his studies of light, and of the paradigm shift in astronomy that this work initiated. The program will feature two parallel thematic threads: the continued improvement of telescopes and the changes in western philosophies that arose from these technological advances. The program will close with Edwin Hubble's discovery that our solar system resides within just one of the billions of galaxies that populate an expanding universe.
The final act will look through the present to the future, to see how our ability to send instruments beyond the obscuring veil of atmosphere has opened our eyes to a previously unglimpsed cosmos. Emerging advances in space-borne and ground-based instruments should reveal new phenomena, as well as Earth-like planets orbiting other stars, the likeliest sites for future explorers to detect signs of life beyond the solar system. The series will conclude with astronomers and philosophers contemplating the impacts on our civilizations if and when we determine we are not alone in the universe—and how our journey of discovery began with two small polished pieces of glass.

The International Year of Astronomy 2009
The vision of the International Year of Astronomy 2009 is to help the citizens of the world rediscover their place in the Universe through the day- and night time sky, and thereby engage a personal sense of wonder and discovery. All humans should realize the impact of astronomy and basic sciences on our daily lives, and understand better how scientific knowledge can contribute to a more equitable and peaceful society.

For more on this subject, visit this website: http://www.astronomy2009.org/

FORT (Forward Observing Recon Team)
By Ken Lester (special operations team)

Hi all! We have set the date for the Spring 2009 Fort McKavett Star Party. The dates are Thursday, March 19 – Sunday, March 22, 2009. I'm sorry that we didn't have a couple of dates to choose from the Scout Groups were calling up the fort wanting to set dates and other sites that do Living History Events were wanting to double check the date for Fort McKavett's Event. We had to check when the school districts were having their Spring Breaks and we had to check new Moon. The fort can't hold their event when schools are on Spring Break because their event is two days and the Friday portion of it is an Education Day. The fort holds their event in March since that's the anniversary of the opening of the fort. Also, it works out well with other sites who also have traditional months for their events.

All of this is to say that we will be at the Fort the weekend before New Moon. We will not need to schedule a school visit since most of the schools in the area will be on Spring Break . We will work out the date for the Fall event in August or September. For those we haven't heard, TSP will be April 19 – 26, 2009 so we couldn't move our event to April. As most of you know the weather is not that reliable in February, so we did not consider that month.

For those who might also want to come out for Fort McKavett's West Texas Heritage Days, the dates are: Friday, March 27, 2009—Education Day—Home Schoolers are welcome and Saturday, March 28, 2009 General Public Day. If you have any questions or want to put your name on the list for the Spring Fort McKavett event, email me at : lisa@riverofstars.net

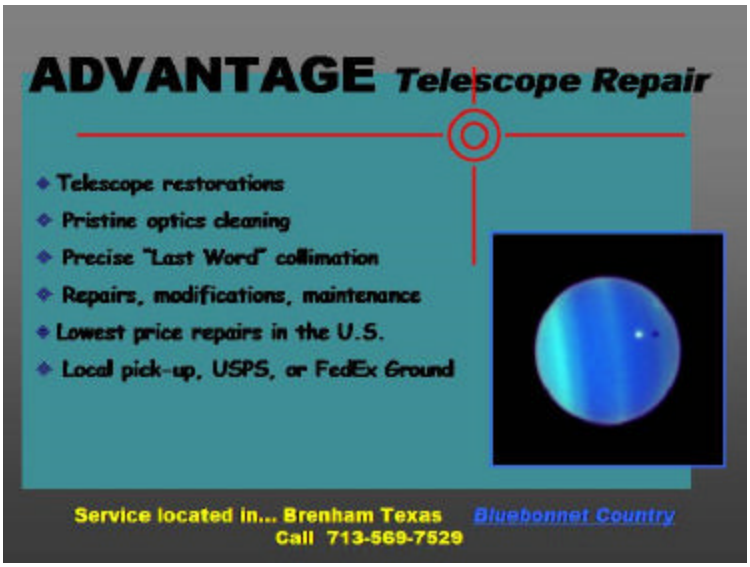
So far, I have Becky & Shane Ramotowski, Becky's Friend Helen, Lynn Dipple, Dave and Aldora Louw, Steve and Sonia Scott, Helen Baffes, David Haviland (and maybe family), Al Kelley and Jack Petersen, Andy and Susan Saulietis (with a couple guests), Ann Micklos, Bob and Karen Taylor, Glenn And Shirley Schaeffer, (YOUR NAME HERE) are signed up and reserved for the October 2008 Fort McKavett Trip—Thursday, October 23-Sunday, October 26th.

I have a Celestron NexStar 5 Scope for sale with:

Pelican Case
Tripod
Rigel Finder
Accessories include 10 MM and 25 mm Lenses

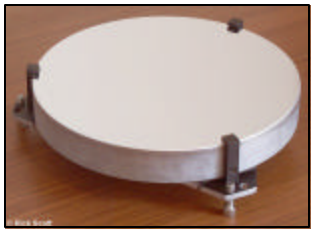
I am asking $750.00 OBO

Contact: Frank L. Bittinger
281-316-1240 Home
832-545-7828 Cell
FrankBittinger@yahoo.com



JSCAS Mirror Lab

Matt Hommel



NOTHING THIS MONTH
THE SUN IS TOO BRUTAL
AND THE HEAT
TOO MUCH TO TAKE ON,
IN THE MIRROR LAB,
IN THE SUMMER.

Members' Gallery—August 2008
By
Becky Ramotowski

THIS MONTH WE MENTIONED MOON-DUST AND IT ISN'T ALWAYS WE POST SOMETHING THAT SHOWS THE MARVELOUS SURFACE OF THE MOON. SO IT HAS BEEN DECIDED TO PUT SOME VERY INTERESTING VIEWS OF OUR OWN NATURAL SATELLITE—THE MOON.

WANING MOON
TAKEN JULY 24, 2008

Nikon 5000 hand held to 3 inch telescope with 26mm eyepiece

LUNAR II
TAKEN JULY 25, 2008

This one is a closeup of craters Deslandres near the upper left, (it looks like an Angelfish with an eye), and Clavius, Maginus, Tycho, Longomontanus, and Wilhelm just to name a few near the bottom or south end of the Moon.

Mare Nubrium is the dark area of the Moon in the upper center.
Nikon 5000
hand held to 3 inch refractor
19 mm eyepiece

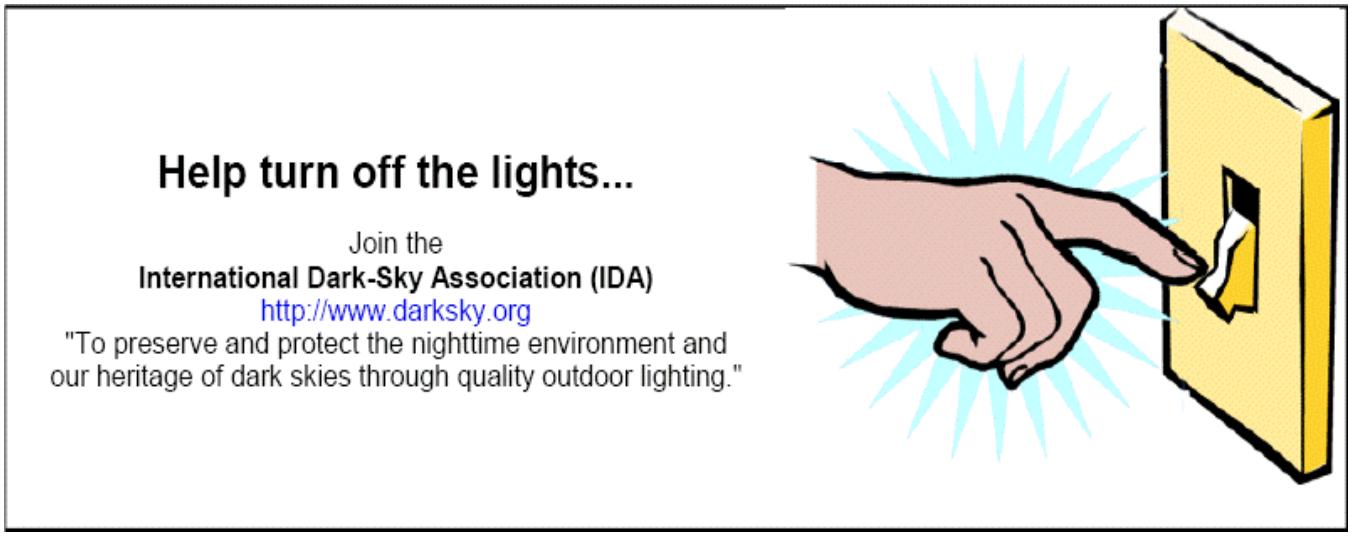
IDA
THE LIGHT POLLUTION AUTHORITY

Light pollution:
Any adverse effect of artificial light including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste.

Photograph © Phil Hart

.Do you have a question about light pollution, protecting the night sky, or IDA's resources? **Get Help from IDA**

http://www.darksky.org/mc/page.do?sitePageId=56399



Houston Area Astronomy Clubs

Brazosport Astronomy Club
Meets the Third Tuesday of the month, 7:45p.m.
At the Planetarium
400 College Drive
Clute, Texas (For more information, contact Judi James at the Planetarium 979-265-3376)

Fort Bend Astronomy Club http://www.fbac.org
Meets the third Friday of the month, 7:00 p.m.
First Colony Conference Center
3232 Austin Pkwy
Sugarland, Texas

Houston Astronomical Society http://spacibm.rice/edu/~has
Meets the first Friday of the month, 8:00 p.m.
University of Houston, University Park
Science and Research Building, Room 117

North Houston Astronomy Club http://www.astronomyclub.org
Meets the fourth Friday of the month, 7:30 p.m.
In the Teaching Theatre at Kingwood College
20000 Kingwood Drive
Kingwood, Texas

Johnson Space Center Astronomical Society

2008-Club Officers

President – David Haviland
Vice President – Chris Randall
Secretary – David Haviland
Starscan Editor – Connie Haviland
Star Party Chairperson – John Erickson
Librarian – Bob and Karen Taylor
Historian – Chris Randall
Scientific Expeditions – Paul Maley
Web Master—Chris Randall

SIGS

Observing Awards – Triple Nickel
Astronomy 101 — Triple Nickel
CCD Imaging – Al Kelly
Binocular Observing – "OPEN"
Telescope Making – Bob Taylor
Deep Sky Observing – Hernan Contreras

Starscan Submission Procedures

Original articles of some relation to astronomy will be accepted up to 6 p. m. (18:00 hrs) on the 25th of each month. THE most convenient way to submit articles or a Calendar of Events is by email and is preferred, but hard copies (CD, disk) are also accepted. All articles must include author's name and phone number. Also include any picture credits. Word, WordPerfect, and text files will be accepted. I have set up a special email account so that I can keep all of the Starscan articles, pictures, information, etc, separate from all of the other email I get. This makes is much easier to edit and set up the Starscan

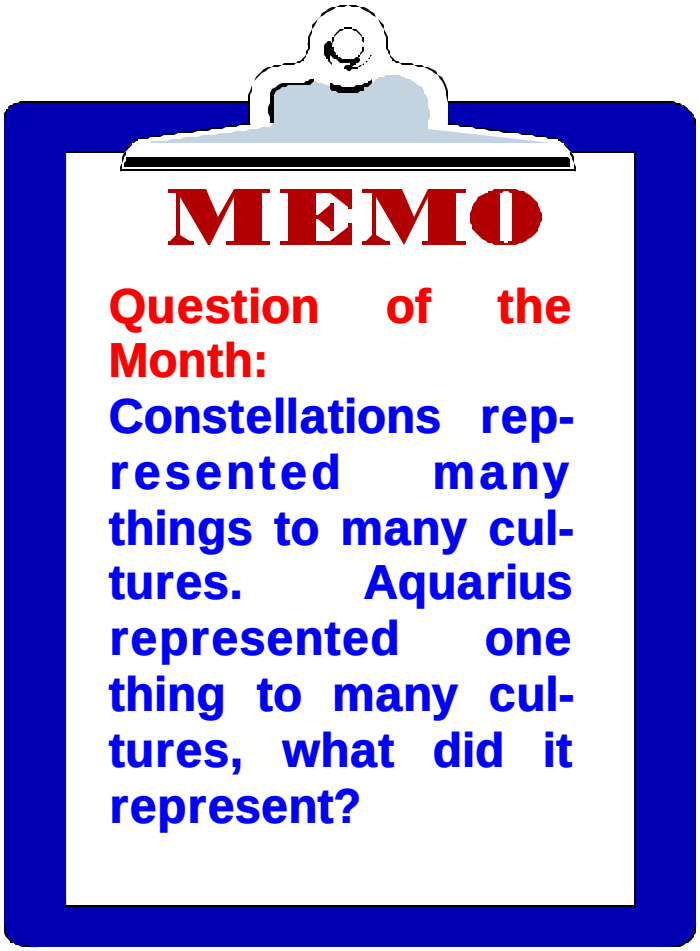
Please send all submissions to:
conniesstarscanaccount@gmail.com

The author of individual articles bears all responsibility for publishing any e-mail addresses in the article on the World Wide Web

The Anal Retentive Astronaut.

Astronomy and Kids

This is the section strictly for kids (or kids at heart). We will be including information, stories, ideas, puzzles or anything that has to do with astronomy. The only difference here is, it will be directed for children. We don't discourage parents or any other adult to get involved. In fact, we encourage it strongly. So we hope you enjoy this section and if it touches a child's interest in astronomy, our

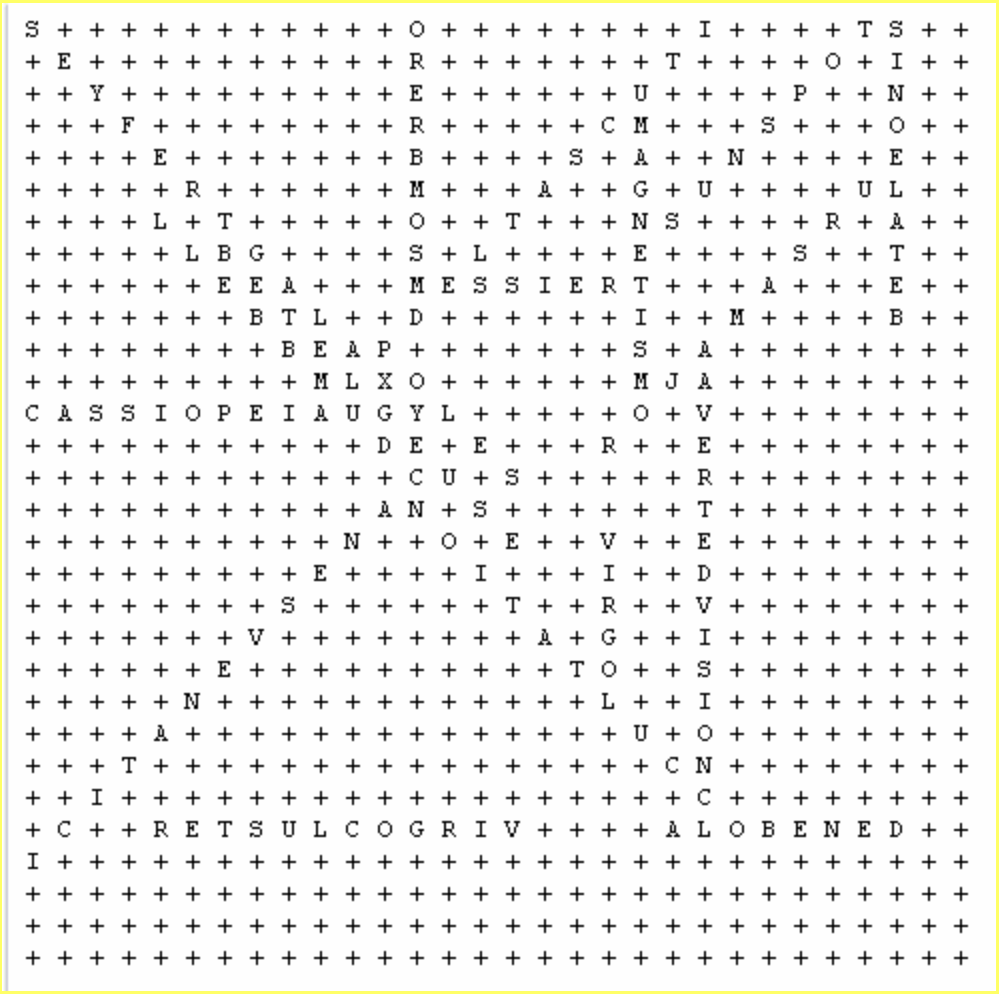


WORD SEARCH SOLUTION

N

W

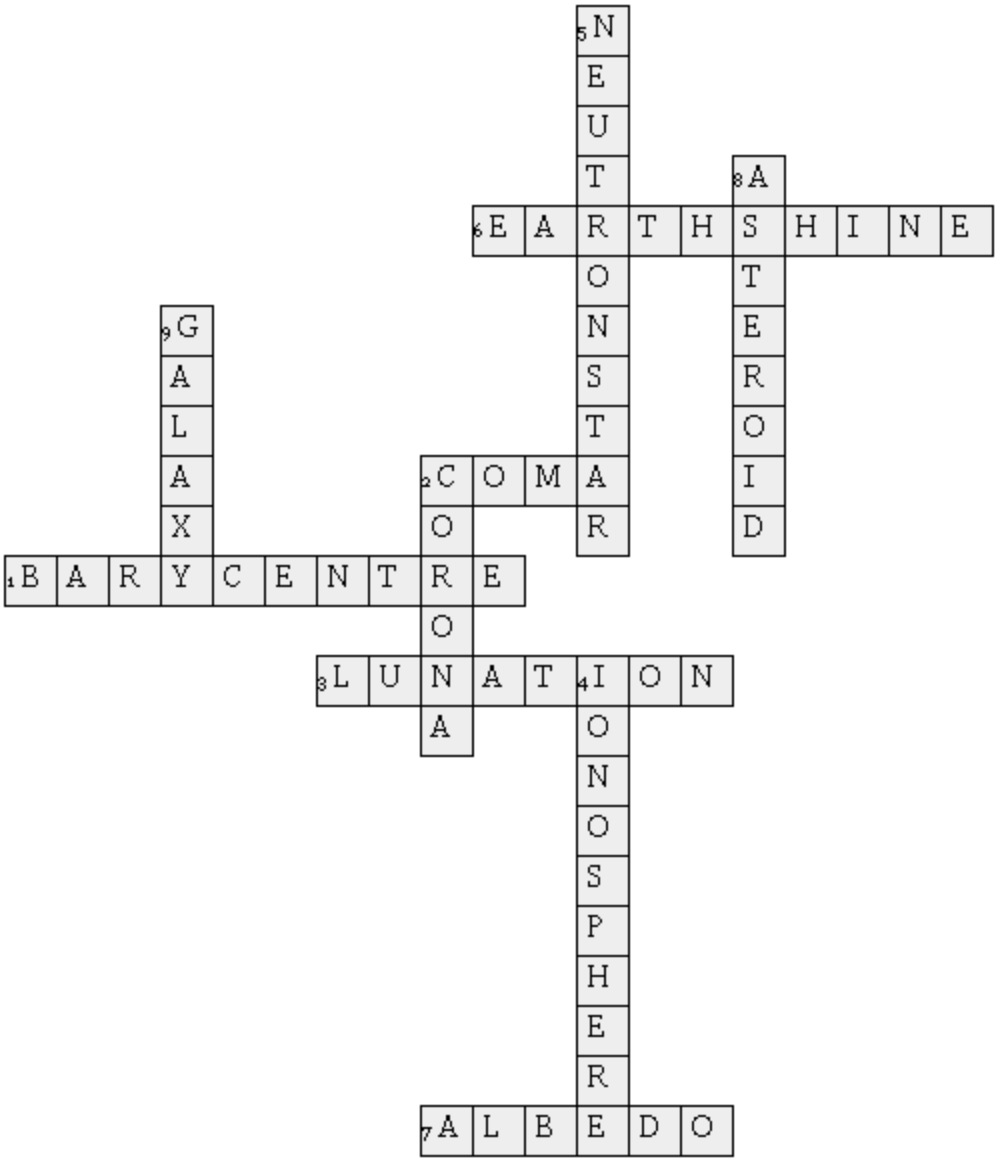
E



S

(Over,Down,Direction)
AVERTEDVISION(22,12,S)
BETALEONIS(28,10,N)
BETELGEUSE(7,8,SE)
CANESVENATICI(13,15,SW)
CASSIOPEIA(1,13,E)
DELTASCUTI(13,10,NE)
DENEBOLA(28,26,W)
DUMBBELL(12,14,NW)
MAGNETISM(20,4,S)
MESSIER(13,9,E)
OCCULTATION(23,26,NW)
POLES(12,11,SE)
SEYFERTGALAXY(1,1,SE)
SOMBRERO(13,8,N)
SUNSPOT(21,7,NE)
URSAMAJOR(27,6,SW)
VIRGO(19,17,S)
VIRGOCLUSTER(16,26,W)

SOLUTION TO JULY'S CROSSWORD PUZZLE



Across:

1. The center of gravity of the Earth, and moon.
3. Period between new moons. 29 days 12 hours 44 minutes
2. The hazy-looking patch surrounding the nucleus of a comet.
6. The faint glow of the moon when the side facing Earth is dark
7. The _____of an object is how much light it reflects

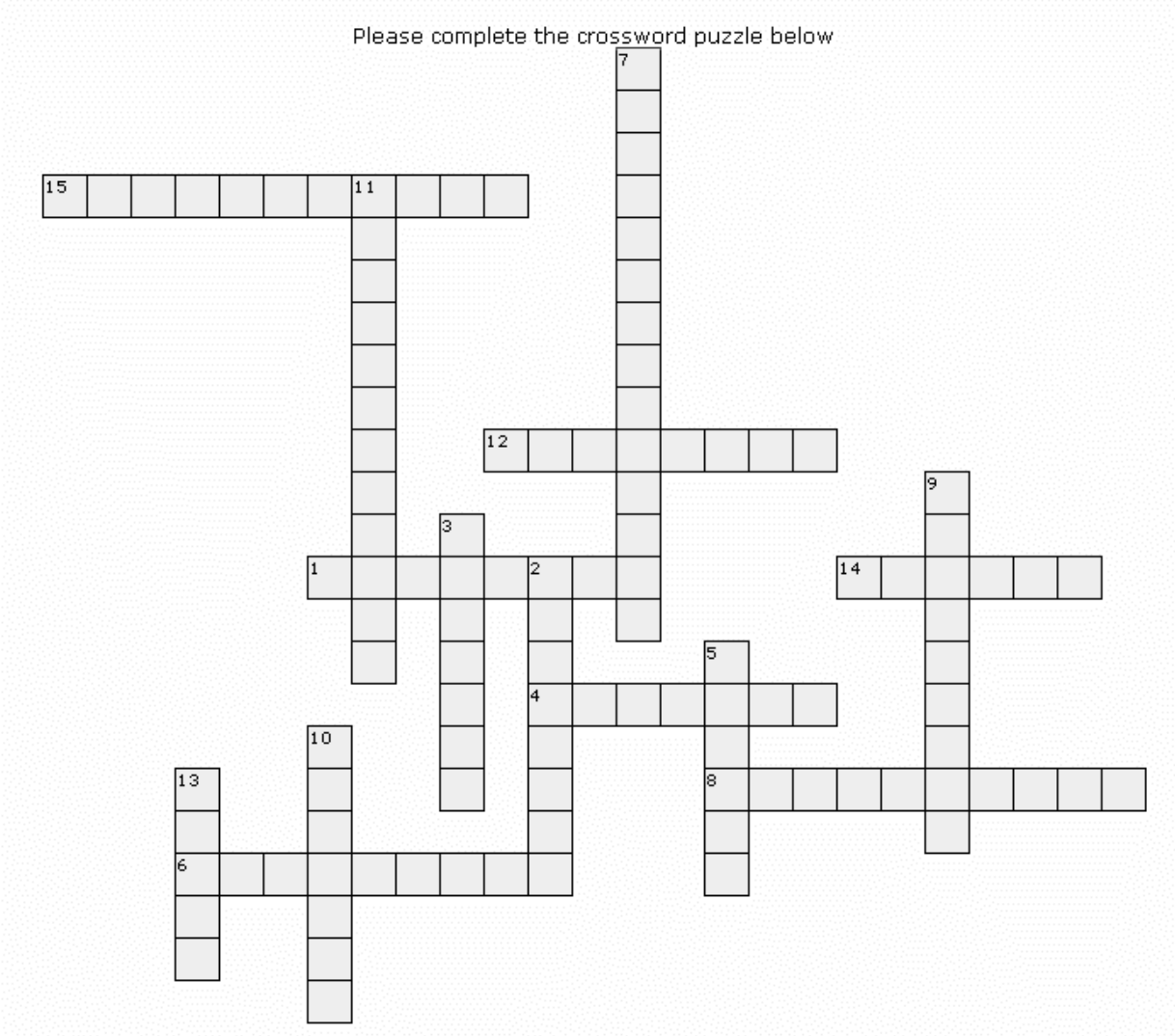
Down:

2. The outermost part of the Sun's atmosphere
4. Region of the Earths atmosphere
5. The remnants of an a dead star, they are incredibly compact, and spin very quickly, some spin 100 times a second.
8. A rock, or Minor Planet orbiting the Sun.
9. A group of stars, gas and dust held together by gravity

NAME _____

DATE _____

Please complete the crossword puzzle below



Across:

1. The point in an objects orbit around the Sun when it is furthest from the Sun.
4. When our view of one object in the sky is blocked by either another object, or the Earths shadow.
6. A sensitive radiation detector.
8. Simply means the Earth in the Center.
12. A group or stars, or galaxies which are held together by their common gravity.
14. A brilliant meteor, which may explode during its descent through the Earth's atmosphere.
15. The system of planets and other objects orbiting the star Sol, which happens to be our Sun.

Down:

2. Mercury and Venus which lie closer to the Sun than the Earth are called _____ planets.
3. A variable star that scientists can use to determine how distant a galaxy, or star cluster is.
5. The point in an objects orbit around the earth when it is furthest from the Earth.
7. The relationship between the distance of an object, and the speed at which it is traveling away from us.
9. A steady flow of particles streaming out from the Sun in all directions.
10. Glowing, dancing curtains of light in the upper atmosphere of a planet
11. The study of the Moon's surface
13. The path one object takes around another

Aquarius

Transit Date of principal star:
23 August

In Greek mythology Aquarius was Ganymede, "cup-bearer to the gods". Ganymede's story is told in "Aquila". His position was essentially to pour wine for all the gods on Olympus, a function far removed from the initial importance of the Water Bearer, as it first rose in Babylonia. In fact, the constellation seems to have represented water in a number of ancient cultures. In Egypt, for instance, the constellation was thought to cause the Nile to give forth its annual floods. The waters of the Nile, far to the south, would start to rise in June as the rains from the Ethiopian highlands began to run off into the Blue Nile. The night sky, in June, would show Aquarius at its zenith: the bringer of water.

Even if alpha Aquarii is a supergiant, perhaps a hundred times the size of the Sun, since it's a thousand light years away it only shines with a 2.96 visual magnitude. Alpha Aquarii ("Sadalmelik") and beta Aquarii ("Sadalsuud") are twin supergiants with nearly identical names. The names mean, respectively, "The Lucky One of the King" and "The Luckiest of the Lucky". Gamma Aquarii shares in the good fortune: "Sadachbia": "The Lucky Star of Hidden Things".

"Why is so much luck found in Aquarius", you may ask. When the sun entered Aquarius the new year was about to begin, Spring was on the horizon and the watery season would assure abundant crops. One can therefore appreciate the importance of the Water Bearer. Incidentally, if the "Age of Aquarius" was celebrated in the 1960s, the real event is still some 600 years off: at that time Aquarius will contain the vernal equinox, marking the return of the Sun into the northern celestial hemisphere.

Aquarius has a few nice binaries, a unique variable, and a few deep sky objects of some interest (but the Messiers here are generally sub-par). The stars are generally fourth magnitude.
The most notable asterism is of the water jug itself, tipped and pouring water. This small asterism, which fits nicely into a binocular field of view, is just west of alpha Aquarii and made up of zeta Aqr and three other stars.

Double stars in Aquarius:
Zeta2 Aquarii and zeta1 Aquarii form a binary of two equal white stars with an orbit of 760 years.
Zeta2 Aquarii is the primary: 4.4, 4.6; current PA 266º and separation: 2.3".
Struve 2944 is a nice triple system, with all three in a neat line.
AB: 7.0, 7.5; PA 276º, separation 2.5".
C: 8.4; PA 106º, separation 50".
The binary is 2º due east of kappa Aquarii.
Struve 2988 is a very attractive pair of equal stars: 7.2, 7.2; PA 101º, separation 3.5".
The binary is 3º SW of psi1 Aquarii. _____

Variable stars in Aquarius:
The most remarkable variable in the constellation is R Aquarii, usually listed as a "Mira variable". Yet this red giant isn't your normal long-period variable; it is a 'symbiotic star', resembling Z Andromedae.
"Z Andromedae" stars are those which show two separate spectra, indicating two quite different temperatures, one cool, the other very hot. This phenomenon is caused by a very close binary system, which the larger star the cooler one, the small star(perhaps a white dwarf) the hot one.
And in fact, R Aquarii has a small blue companion, which is encircled by a gas cloud. When this small star eclipses the giant, the visual magnitude of the primary drops several degrees.
The star has a period of 386.96 days and a range from 5.8 to 12.4; the best time to view this star after the year 2000 is in 2005, in the first week of September.

Deep Sky Objects in Aquarius:

M2 (NGC 7089) is a globular cluster, compact and bright, about 50,000 light years away.
The cluster is 5º N of beta Aquarii.
M72 (NGC 6981 is also a globular cluster, about 3º WSW of the Saturn Nebula (see below). It is one of Messier's least attractive objects.
M73 (NGC 6994) is another uninteresting Messier, a ‘cluster’ comprised of four unrelated stars about 1.5º east of M 72.
NGC 7009, "Saturn Nebula" is a planetary nebula quite spectacular in large instruments. It has ‘rays’ which extend from both sides of the main disc.
The nebula is 1º west of nu Aqr. Burnham (p. 190) has a location chart.
NGC 7293, "Helix Nebula" (or the "Helical Nebula"), is another planetary nebula, given its name apparently because it is said to resemble the DNA double helix. It really is a ring nebula, only much larger and fainter than the more notable Ring Nebula in Lyra.
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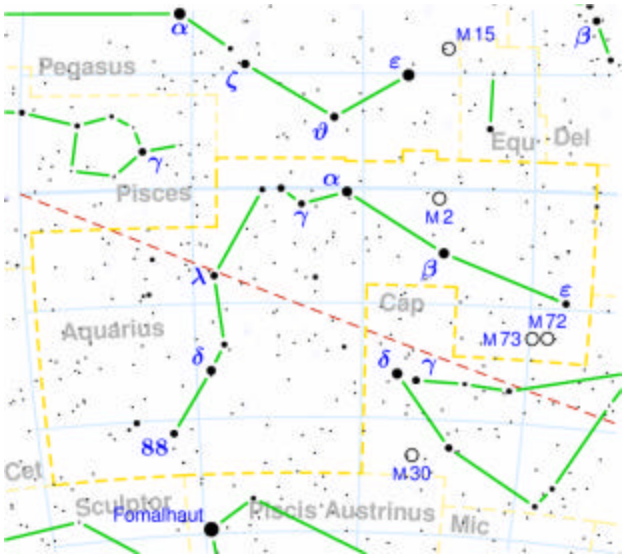
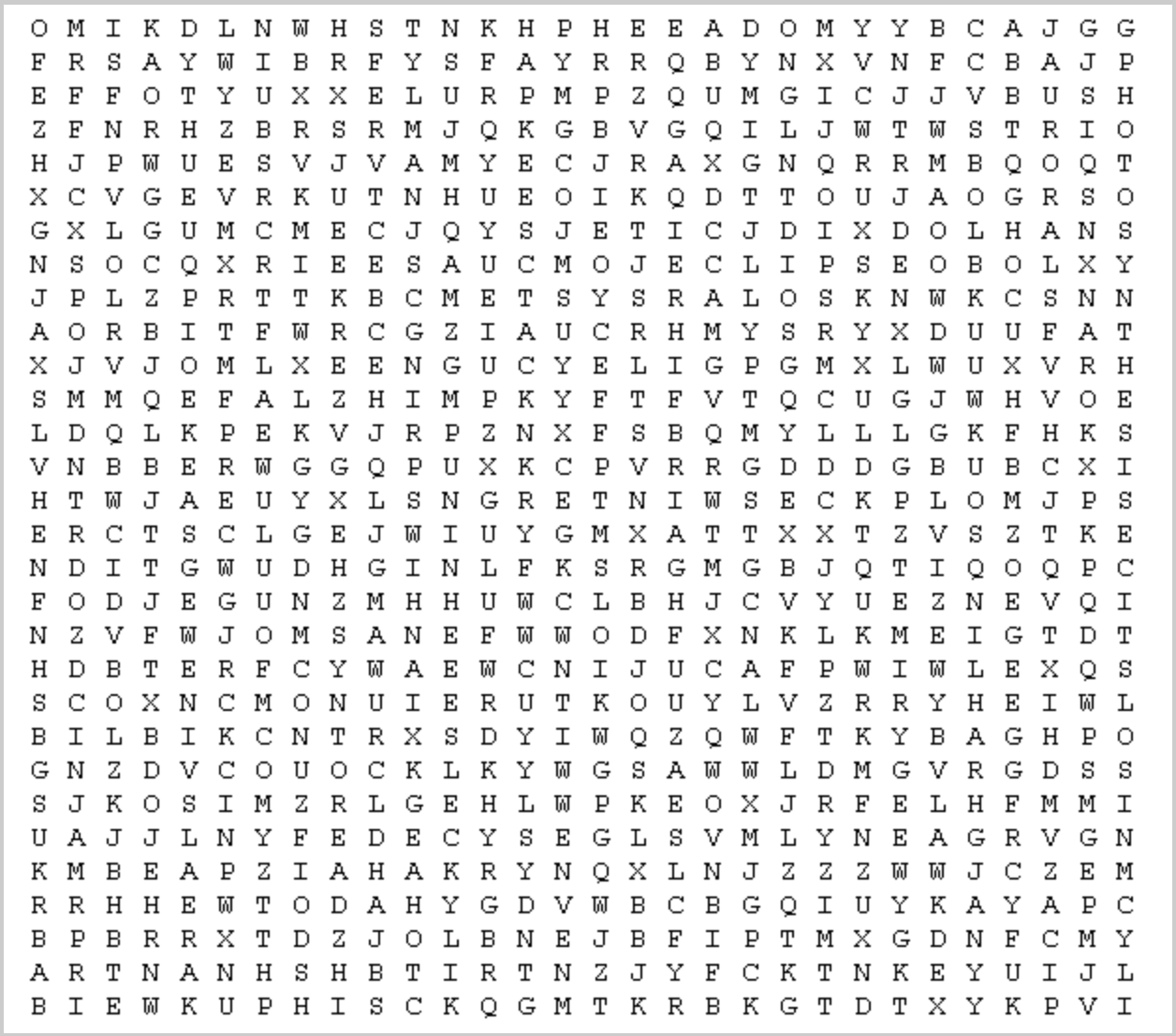
The nebula is 1.5º W of upsilon Aquarii, or 21º due south of zeta Aquarii

www.biochem.szote.u-szeged.hu/astrojan/aqua.htm



WORD SEARCH



ORBIT
PHOTOSYNTHESIS
SOLARSYSTEM
SOLARWIND
EQUINOX

ACCELERATION
APHELION
APOGEE
AURORA
ECLIPSE

SPRING
SUMMER
AUTUMN
WINTER
SOLSTICE

Snoopy says, never stop looking up..reach for the stars and may you always have clear skies!!!!