

December 2007

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Edited by: Ahmad & Hanna Jrad



December's Meeting

The next meeting of S*T*A*R will be on Thursday, December 6. Our program will be "*Adventures at Palomar*" by Alan Midkiff. All are welcome.

The meeting will begin promptly at 8:00pm at the King of Kings Lutheran Church, 250 Harmony Road, Middletown.

Editor's Corner

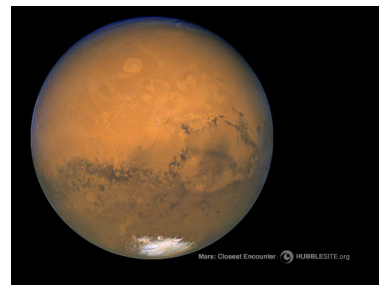
Thanks to Gavin Warnes, Steve Fedor, Ernie Rossi & Randy Walton for sending articles to this month's Spectrogram.

Reminder to pay membership dues \$25/individual, \$35/family. Donations are appreciated. Make payments to Paul Nadolny at the December meeting or mail a check payable to S*T*A*R Astronomy Society Inc to:

S*T*A*R Astronomy Society
P.O. Box 863
Red Bank, NJ 07701

January Issue

Please send articles and contributions for the next *Spectrogram* by Friday, December 22. Please email to stargaze07@verizon.net.



This image was taken within minutes of Mars' closest approach to Earth in 60,000 years, on Aug. 27, 2003. Courtesy of NASA (Hubble Space Telescope).

Calendar

Sep 6, 2007 – "*NASA's Deep Impact Mission*" by Elizabeth Warner, University of Maryland

Oct 4, 2007 – "*Webcam Astrophotography*" by Clif Ashcraft

Nov 1, 2007 – "*The Interstellar Medium*" by Dr Hector Arce, American Museum of Natural History

Dec 6, 2007 – "*Adventures at Palomar*" by Alan Midkiff

Jan 3, 2008 - "*NASA's Dawn Mission*" by Dennis O'Leary, S*T*A*R Astronomy

Feb 7, 2008 - "*Moons of the Solar System*" by David Britz, S*T*A*R Astronomy

Mar 6, 2008 - "*Our Changing Sun*" by Ken Legal, S*T*A*R Astronomy

Apr 5, 2008 – "*The Near Side Lunar Megabasin*" by Charlie Byrne, S*T*A*R Astronomy

May 4, 2008 – "*TBD*"

Jun 1, 2008 – AGM

M57-Ring Nebula



President's Corner

By Gavin Warnes

It's starting to turn chilly outside but the winter brings crisp transparent skies that are great for observing. It's also dark early in the evening so you don't have to be a night owl to get in a few hours at your telescope.

One thing you should stay up late for is Mars. The red planet comes close to Earth once every 26 months, but because the two orbits are different ellipses that do not lie in the same plane some approaches are closer than other. On December 19th Mars will be 16 arc seconds across – not nearly as big as 2003 and 2005, but your best chance to observe it until 2018. This time Mars is high in the sky though so although it is smaller you may be able to use more magnification. I was out taking photos of Mars on the Friday night after Thanksgiving. It was cold, windy and the seeing was bad so results were so so – I'll keep trying and share my results on the discussion board.

To squeeze the most out of a Mars observing session, make sure that your scope is perfectly collimated and cooled down. Mars is the only planet where you can see geological features. The period of rotation of Mars is very close to that of earth so it makes sense to go out at different times to see the different faces of Mars. You could leave your scope outside covered up, and take a look before dawn for example. Some people find colored filters useful to enhance the surface details. Give it a shot before the opportunity passes.

On November 16th we had a great star party at Bayonet Farm in Holmdel. About 100 members of the public showed up and spent an hour looking through 10 telescopes before the clouds rolled in. Thank you to all the members who came to help – Ahmad Jrad, Jay Boyarsky, Dennis O'Leary, Steve Fedor, Tim Tierney, Ken Legal, Rob Nunn, Larry Campbell & Dave Nelson. The organizers were delighted with the turn out for the first time and I think we can build a long term relationship with them. Here are some photos of the event,



I also held an 'Introduction to Star Gazing' class at Vonage in November. About 8 people attended and seemed to enjoy themselves. Hopefully some of them will join us. If anybody is interested in giving a similar class to local community groups I have a presentation you can use or modify.

One more thing. If you haven't already done so, please pay your dues. Technically your membership will expire on December 6th and I'm sure you don't want that to happen.

Clear skies,

Gavin

November Meeting Minutes

By Steve Fedor

The November 2007 meeting of S*T*A*R Astronomy began at 8:02 pm on 11/1/2007. Approximately 41 members and non-members attended the meeting. President Gavin Warnes chaired the meeting and began by greeting and introducing two first time attendees.

The evening's lecture was on "The Interstellar Medium and the Birth of Stars." It was presented by Hector G. Arce a research physicist at the American Museum of Natural History. The talk includes topics such as the process of star formation, interstellar dust and radio astronomy.

The talk ended at 8:59 at which time coffee break began. Dan Pontone was selling some of his personal equipment, books and magazines. At this time some of the people new to astronomy went outside to observe through the club's 8-inch telescope.

The meeting resumed with a presentation by Theresa Moody of Project Astro Nova. Theresa encouraged all S*T*A*R members to become involved with the program which is aimed at presenting astronomy to children. She can be reached at (908) 526-1200 X8942 or tmood@raritanval.edu.

After the meeting quite a few members did some observing behind the church.

In the second half of the meeting, and while some members continued to observe outside, Randy Walton announced the recent activities of the 'Save the Planetarium' Fund to reverse the closing of the Novins Planetarium in Toms River. A benefit concert will be held at the planetarium on December 1st at 2pm and 8pm. Full details and other ways in which you can donate and participate are at www.savetheplanetarium.org.

Gavin Warnes then announced that a star party would be held at Bayonet Farm, Holmdel at 7.30pm on November 16. Volunteers were asked to participate.

Note: my apologies for this shortened meeting minutes. Some of the notes were lost.

Going My Way?

by Diane K. Fisher

Not many endeavors require that you plan the mode of transportation before you even know what it is you are transporting. But weighing the physics and economics of getting any sort of cargo to space is a major part of designing a space mission.

It's one of the first issues that NASA's New Millennium Program (NMP) considers when planning a new mission. NMP has the forward-looking job to identify promising new technologies for space exploration. It then helps to mature the technology so it will be available to space missions of the future. If the technology cannot be tested adequately on Earth, the last part of this process is to actually send the technology into space. With carefully documented test results, future mission planners can confidently incorporate the new technology into their designs.

But where to begin? On call from the start, Linda Herrell is the New Millennium Program Architect. Given a list of proposed technologies, she has the job of figuring out the feasibility of wrapping a mission around them.

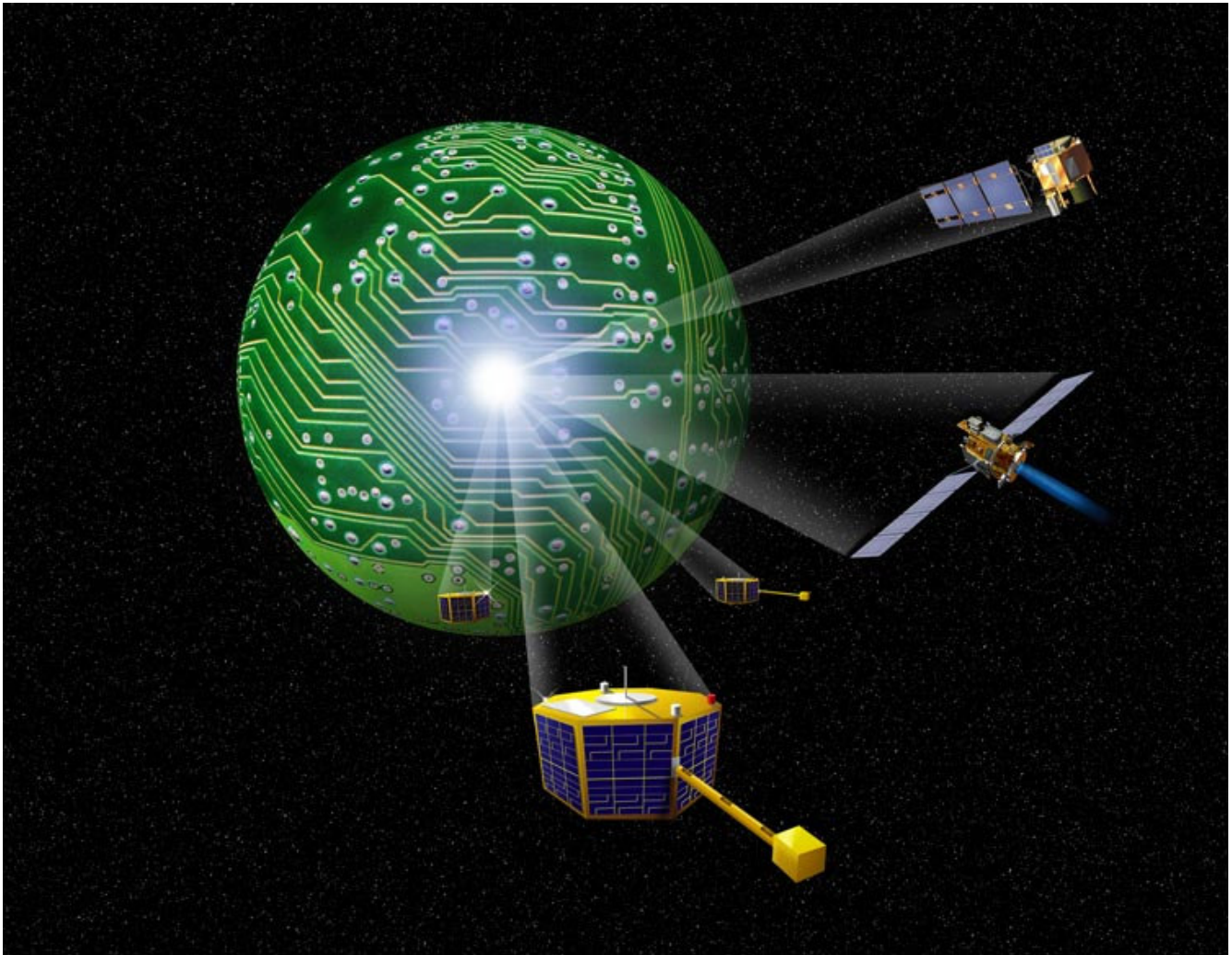
"We might be considering six or more technologies, anything from solar panels to imagers to masts for solar sails to more intelligent software. Of those, we may choose four. My job is to answer the question—can the selected technology be transported to and operated in space within the constraints of a low-cost technology validation project?"

Along with the list of possible mission payloads (the technologies), Linda also has a list of spacecraft to put them on, as well as a list of launch vehicle parameters. *All* she has to do is try them out in every possible combination (of which there are thousands) and see what might work.

"Fortunately, we have a software tool to help with this analysis," says Linda. When it comes down to it, her job is primarily to figure out how to get the technologies into space.

"Sometimes, it's like figuring out how to get across town when you don't have your own car. You have to get creative."

She keeps a database of all possible options, including riding piggyback on another spacecraft, hitching a ride on a launch vehicle as a secondary payload, or sharing a launch vehicle with other NASA, Department of Defense, or even commercial payloads.



NASA's New Millennium Program selects breakthrough technologies that will be of the greatest use to future space and Earth science missions and that are perceived to be risky to the first user.

Her assessment is but one of a gazillion factors to be considered in planning a mission, but it is indeed one of the very first "details" that forms the foundation for the rest of the mission.

Find out some of the technologies that NMP has already validated or is considering at nmp.nasa.gov/TECHNOLOGY/innovative-tech.html. Kids will enjoy watching Linda's cartoon alter-ego talk about her job at spaceplace.nasa.gov/en/kids/live.

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

ULTIMATE VIDEO CAMERA COMPARISON TEST

By Ernie Rossi

Video astronomy of our solar system has been around for more than 10 years and has enabled us to see detail never before possible. Deep sky video observing is relatively new. This is the ultimate shootout or comparison test comparing the two most popular deep sky video cameras on the market, the StellaCam 3 and the MallinCam HYPER Video CCD Colour Camera

Originally the contest was supposed to take place in April 2007, but the weather didn't cooperate. This shootout was

done at Chiefland under good conditions. Bob Schilling and I, along with other observers, reviewed some of the images.

I need to explain some of this in detail since the shootout is a little like comparing apples and oranges so you need to read carefully. What we saw on the monitors didn't go through any programs -- it was the raw data. I found both cameras to have their strengths and weaknesses, but this may also depend on personal preferences; I will go into that later.

The biggest difference is that all the controls for the Stellacam are on a pad or controller that's wired to the camera, and you hold the pad in your hand, while all the controls for the MallinCam are on the camera. The StellaCam is more user friendly since it has fewer controls, but the MallinCam has more selections and requires a longer learning curve.

1. Chiefland, Florida, Friday, September 7, 2007; we had very good skies all night, slight breeze, temperatures 65-75° F. We had light dew but not until after midnight.
2. Telescopes: 20" f/5 Obsession with a .5 Atik focal reducer vs. Star Master 20" f/4.3 with a .66 MFR-3 focal reducer. Both scopes had Servo-cat drives with go-to remotes.
3. Cameras: StellaCam 3 uncooled, unlimited integration setting; MallinCam HYPER Video CCD Colour Camera; mild Peltier cooled Hyper mode 28 seconds.
4. Monitors: Stellacam 3 used a 12" black and white with 800 lines of resolution, and the Mallincam a 3.5" color monitor. The monitors made a big difference and were brought to my attention by Joe Mize. A 3.5" monitor will have tighter pixels; however, the 12" will show a larger image. The question was, would the Mallincam images be as tight as the Stellacam if the Mallincam had a 12" screen. Both cameras had excellent images with the Mallincam possibly a little sharper because of the smaller screen.
5. We tried to keep the same amount of exposure time per object. We first looked at the planetary and emission nebula, M 27, M 8, M 20, M 17, M 16, M 57, M 42, NGC 246 and probably a few more. Winner overall was the MallinCam because of its color. Actual detail if you looked closely was about the same, but because of the color, details jumped out at you more easily. Even then, the difference was slight. Most everyone watching said they would go with the color camera. The images were jaw dropping and that literally was everyone's reaction. I wanted to compare images of M 57 to see if both cameras would show the little IC 1296

galaxy. I also wanted to see about how deep we were going since I have a map showing magnitude limits all around M 57. Here is the problem: if you try exposing for too long, you overexpose M 57 since the camera finds it too bright and whites it out. It even shows it that way in my picture, which goes down to magnitude 20. Both cameras showed IC 1296 including its structure and arms, plus several dimmer galaxies. You can see the central star, the one next to it, and stars in the ring very easily.



M57 with color MallinCam mounted on C11 SCT.



M17 (Swan) with B/W StellaCam3 on Ernie's 20" Dob.

6. Galaxies: M 74, M 77, NGC 6946, NGC 7331, NGC 253, NGC 891, NGC 7479, NGC 7814, M 33, Stephan Quintet, and it could have been even more. All of the galaxies looked as good as most *good* CCD images. They are so spectacular it almost knocks you off your feet. Arms, swirls, dust lanes, wisps -- just fabulous images almost in real time. Example: around NGC 7331 at least another 3-4 galaxies were visible within a tiny area of the sky.



NGC891 in StellaCam3 courtesy of Ernie's Observatory

7. The Winner? It was a draw! Larger galaxies like NGC 253, 891 filled up the screen and looked better on the StellaCam 12" monitor and that was the opinion of some of the other observers. Both cameras showed about the same detail and went just as deep. Bob was limited to 28 seconds on his MallinCam, and if I went past 28 seconds, I got some smearing due to my drive accuracy and light wind.

In my opinion, color is hard to beat when you're comparing objects, even if they are showing the same detail because the contrast is better and most people like color. This of course only applies to objects that show lots of color; otherwise there is almost no difference. It would have been nice to have the same size screen. Would the MallinCam images be as sharp as the images if displayed on the 12" black/white monitor? The MallinCam monitor was just 3.5" and cost \$425.

If the Stellacam 3 had the thermal cooled unit, would it have done better? If my drive was smoother and we had no wind and I could have gone 60 seconds in the integrated mode, would I have been able to go deeper and pull out more detail? Probably so.

The newest MallinCam units have 56 seconds. What did I think of the MallinCam? It's one terrific camera, but I think the camera needs a remote pad more than the StellaCam since all the controls are on the camera. This would eliminate climbing up a ladder on a large telescope pointed toward zenith to make any changes.

The MallinCam has a lot more settings to play with than the Stellacam. If you have a smaller scope and could easily reach the camera without climbing, it wouldn't make that much difference. One other thing that was missing was the MallinCam doesn't have a freeze frame like the StellaCam, but continues to upload the image according to your setting. If you have it set on 7 seconds, it keeps changing that image every 7 seconds. Freezing the image on the monitor makes for a great

educational tool. However, in my opinion it's the best color deep sky video camera around.

My opinion on the StellaCam 3 is that it's a wonderful camera. I think it costs slightly less than the MallinCam, but it's only available in black and white. The camera also needs a remote box to eliminate the wire, but I also give it the advantage over the MallinCam especially if you use a ladder when the telescope is pointed toward zenith. Since it has less options and controls, I think it's more user friendly. The other thing I like about the StellaCam over the MallinCam is that you can freeze the picture and show it to everyone watching. You can also take that freeze picture and, using a frame grabber, move it over to your laptop or PC. when you think you have the best image.

The MallinCam HYPER Video CCD Colour Camera offers a larger WOW factor for most people. I'm thinking of adding this camera to my inventory in the near future. Both cameras are a terrific value when you realize their capability of showing objects 10 times the scope's size visually, and not being bound by long exposures and tedious processing like most CCD cameras.

Since I last wrote this article I received my MallinCam Color Hyper Plus zero chip (special chip) with 56 seconds integration and a 30: Round Table Equatorial platform so in the coming months I will be able to test many scopes of different sizes both larger and far smaller. I will also be using 13-14" high quality color monitors and will write a review in the coming months, plus upgraded frame grabbers for improved images to my Laptop. I'm hoping my articles make an impact on the manufacturers that produce these exciting video cameras. I know for a fact both Rock Mallin and Watec (StellaCam 3) are working on remote pads and additional upgrades and they should be out to the public in the near future.

Are you a S*T*A*R Member?

S*T*A*R is the proud owner of a **monstrous 25" Dobsonian Obsession reflector** – which members can gain access to!

Meetings are the first Thursday of each month, except July and August, at 8:00 PM at the King of Kings Lutheran Church, 250 Harmony Rd. in Middletown. Meetings generally consist of lectures and discussion by members or guest speakers on a variety of interesting astronomical topics. S*T*A*R is a member of United Astronomy Clubs of New Jersey (UACNJ), the Astronomical League (AL), and the International Dark Sky Association (IDA).

Memberships: () Individual....\$25 () Family...\$35

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____

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Make checks payable to: S*T*A*R Astronomy Society, Inc. and mail to P.O. Box 863, Red Bank, NJ 07701



2007 December Celestial Events

Supplied by J. Randolph Walton (Randy)

Day	Date	Time (EDT)	Event
Sat	1	03:20	Venus Rises
		06:15	Mercury Rises
		07:02	Sunrise
		07:44	Last Quarter Moon
		12:31	Moon Set
		16:35	Sunset
		17:40	Jupiter Sets
		18:27	Mars Rises
		23:20	Saturn Rises
Sat	8	03:32	Venus Rises
		06:45	Mercury Rises
		07:09	Sunrise
		15:28	Moon Set
		16:35	Sunset
		17:20	Jupiter Sets
		17:45	Mars Rises
		22:55	Saturn Rises
Sun	9	12:40	New Moon
		16:12	Moon Set
Fri	14	12:00	Geminid meteors peak (ZHR 120)
		21:24	Moon Set
Sat	15	03:45	Venus Rises
		16:36	Sunset
		17:00	Jupiter Sets
		17:10	Mars Rises
		22:30	Saturn Rises
		22:32	Moon Set
Mon	17	05:17	First Quarter Moon
		12:03	Moon Rise
Tue	18	16:36	Sunset
		16:55	Mars Rises
		tonight	Mars 15.9" across, nearest Earth
Sat	22	01:08	Winter Solstice
		04:00	Venus Rises
		15:01	Moon Rise
		16:35	Mars Rises
		16:38	Sunset
		20:00	Ursid meteors peak (ZHR 10)
		22:03	Saturn Rises
Sun	23	16:04	Moon Rise
		20:16	Full Moon
Sat	29	04:17	Venus Rises
		07:03	Jupiter Rises
		07:15	Mars Sets
		07:21	Sunrise
		16:43	Sunset
		22:03	Saturn Rises
		23:07	Moon Rise
Mon	31	02:51	Last Quarter Moon
		11:36	Moon Set

In the Eyepiece

Here is a list of objects for this month. This is reproduced from www.skyhound.com with the kind permission of its creator and author of SkyTools Greg Crinklaw.

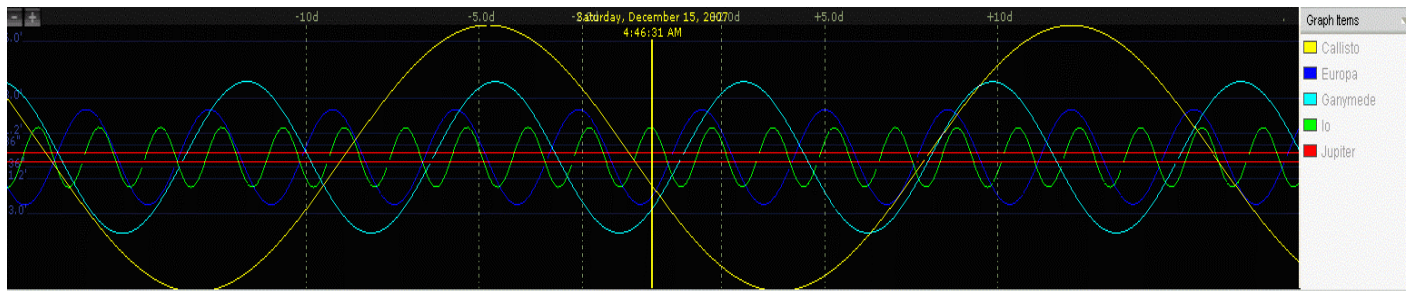
Object(s)	Class	Con	RA	Dec	Mag
Iota Cas	Multiple Star	Cassiopeia	02h29m04.0s	+67°24'09"	4.5
6 Tri	Multiple Star	Triangulum	02h12m22.3s	+30°18'11"	4.9
Almaak	Multiple Star	Andromeda	02h03m53.9s	+42°19'47"	2.1
h and Chi Perseus	Open Clusters	Perseus	02h19m01.8s	+57°08'47"	4.3
NGC 1097	Galaxy	Fornax	02h46m18.9s	-30°16'21"	10.2
M 103	Open Cluster	Cassiopeia	01h33m13.8s	+60°42'23"	6.9
Little Dumbbell (M76)	Planetary Nebula	Perseus	01h42m19.3s	+51°34'30"	12.2
NGC 891	Galaxy	Andromeda	02h22m32.9s	+42°20'46"	10.8
NGC 1023	Galaxy	Perseus	02h40m27.7s	+39°04'04"	10.2
AGC 347	Galaxy Group	Andromeda	02h25m48.0s	+41°52'00"	--
IC 1747	Planetary Nebula	Cassiopeia	01h57m35.8s	+63°19'19"	13.6
NGC 470 & 474	Interacting Galaxy Pair	Pisces	01h19m44.9s	+03°24'35"	12.6
NGC 925	Galaxy	Triangulum	02h27m16.8s	+33°34'45"	10.9
NGC 784	Galaxy	Triangulum	02h01m16.8s	+28°50'14"	12.5
NGC 1501	Planetary Nebula	Camelopardus	04h06m59.4s	+60°55'14"	13.3
Cleopatra's Eye	Planetary Nebula	Eridanus	04h14m15.8s	-12°44'21"	9.6
The California Nebula	Diffuse Nebula	Perseus	04h03m12.0s	+36°22'00"	5.0
NGC 1664	Open Cluster	Auriga	04h51m04.4s	+43°42'04"	7.2
MSH 04-12	Quasar	Eridanus	04h07m48.4s	-12°11'36"	14.8
NGC 1360	Planetary Nebula	Fornax	03h33m14.6s	-25°52'18"	9.6
Crystal Ball	Planetary Nebula	Taurus	04h09m17.0s	+30°46'33"	10.0
Palomar 2	Globular Cluster	Auriga	04h46m06.0s	+31°22'54"	13.0
K 2-1	Planetary Nebula	Auriga	05h07m07.1s	+30°49'18"	13.8
NGC 1624	Open Cluster	Perseus	04h40m25.4s	+50°26'49"	11.8

Moon Phases



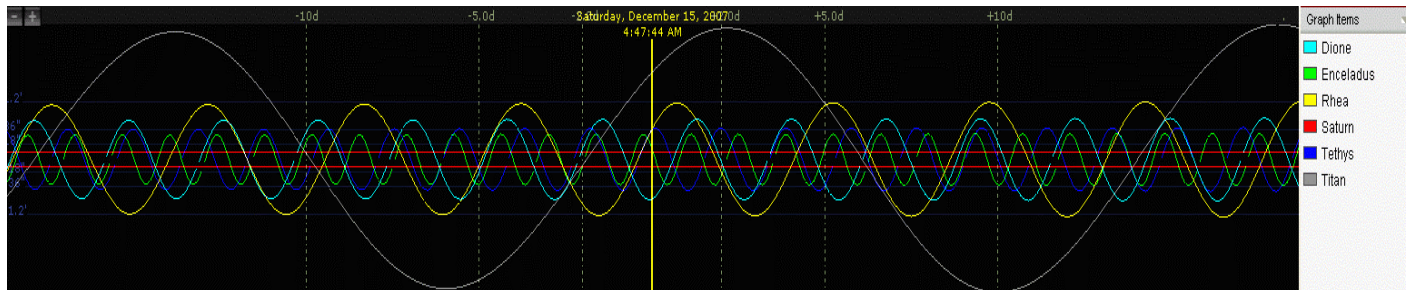
Jupiter Moon Calendar

Here is a graphical depiction of the visible moons of Jupiter for the month of December 2007.

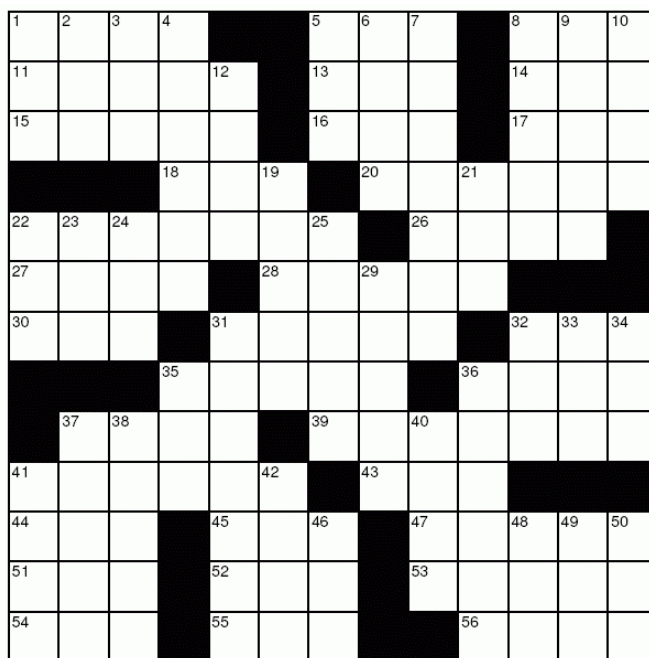


Saturn Moon Calendar

Here is a graphical depiction of the visible moons of Saturn for the month of December 2007.



AstroPuzzle - December 2007



ACROSS

- 1 Pear type
- 5 Escudo
- 8 Lysergic acid diethylamide
- 11 Previous
- 13 Lavatory
- 14 Expression of surprise
- 15 Elite intellectuals' society
- 16 Statute
- 17 Amount of time it takes the Earth to spin on its axis.
- 18 Miles per hour
- 20 Sacred poems
- 22 Southern Mexican Indian
- 26 Joint
- 27 An imaginary straight line on which an object rotates.
- 28 Legitimate
- 30 Animal
- 31 Second largest moon in the solar system.
- 32 Foreign Agricultural Service
- 35 Tiny dot
- 36 Tiny body part
- 37 Root vegetable
- 39 Balk
- 41 Shopping centers
- 43 Pro
- 44 Toupee
- 45 North northwest
- 47 A frozen mass of dust and gas revolving around the sun.
- 51 Elver
- 52 Three
- 53 Seasoner makers
- 54 Compass point
- 55 Clever
- 56 Lopsided

DOWN

- 1 Metronome marking
- 2 Miner's goal
- 3 Goof
- 4 The universe.
- 5 Wing
- 6 Day time TV show
- 7 Used for leather (2 wds.)
- 8 Scoop
- 9 Defile
- 10 24 hour periods
- 12 Attentive
- 19 DNA is a double one
- 21 Picnic visitor
- 22 Bomb
- 23 Hatchet
- 24 Pock
- 25 Given a ticket
- 29 Islam's head
- 31 Largest moon of Uranus.
- 32 Valentine mo.
- 33 Lager
- 34 Shifty
- 35 Brand of dispensable candy
- 36 The outermost part of the Sun's atmosphere.
- 37 Sad music
- 38 Name of Appolo 11 Lunar module used to land on the moon.
- 40 Foot wear
- 41 V.P.'s boss
- 42 Nip off
- 46 Intelligence
- 48 Cut grass
- 49 Goof
- 50 Attempt

Solution at mysite.verizon.net/vzescqc2/astropuzzle/id7.html