

November 2008

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Edited by: Ahmad & Hanna Jrad



November's Meeting

The next meeting of S*T*A*R will be on Thursday, November 6. Our program will be "*An Idea That Would Not Die*" by Robert Zimmerman. All are welcome. The meeting will begin promptly at 8:00pm at the Monmouth Museum on the campus of Brookdale Community College.

Editor's Corner

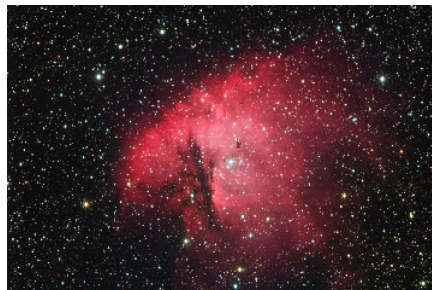
Thanks to Gavin Warnes, Steve Fedor, & Randy Walton for contributing to this month's Spectrogram.

Reminder to pay membership dues \$25/individual, \$35/family. Donations are appreciated. Make payments to Paul Nadolny at the November 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

December Issue

Please send articles and contributions for the next *Spectrogram* by November 25. Please email to stargaze07@verizon.net.



NGC281
Credit: Jason Boyce

Calendar

Sep 4, 2008 – "*Past Saturn and 7 More Years to Pluto:*" New Horizons Mission, Michael Lewis, NASA Solar System Ambassador

Oct 2, 2008 – "*An Idea That Would Not Die*" by Robert Zimmerman

Nov 6, 2008 – "*TBD*"

Dec 4, 2008 – "*Low Energy Routes to the Moon and Beyond*" by Dr. Edward Belbruno, Innovative Orbital Design, Inc., Princeton University

Jan 8, 2009 – "*Celestial Navigation*" by Justin Dimmell, Island School, Eleuthera, Bahamas

Feb 5, 2009 - "*TBD*"

Mar 5, 2009 - "*Solar Telescopes*" by Alan Traino of Lunt Solar Systems

Apr 2, 2009 – "*TBD*"

May 7, 2009 – "*TBD*"

Jun 4, 2009 – AGM



Saturn on Halloween Morning 2008
Credit: Jim Phillips

President's Corner

By Gavin Warnes

Back in January 2004 Steve Walters held a party to watch the landing of the Spirit rover on Mars. Andy Zangle, Steve and I stayed up to watch the streaming video from NASA TV over the Internet. Little could anybody imagine then how spectacularly successful the rovers would be and that nearly five years later the mission continues, way beyond the original 90-day design goal. On Sunday night the National Geographic Channel aired a fantastic documentary on the story of the rovers entitled 'Five Years on Mars'. Hopefully they will re-run it and make it available as a DVD. The program focused on the challenges of operating the rovers, how the Gusev site was initially a huge disappointment as they only found volcanic rocks and how spectacularly successful the Meridiani site that Opportunity visited was. It gave a great insight into how touch and go it has been – struggling with Spirit's broken wheel, both rovers getting stuck in sand and frantic efforts to tilt Spirit at an angle towards the sun to survive the Martian winter. Opportunity is still roving and Spirit is waiting for the sun to get higher in the sky. Try to watch one for the repeats or ask Santa for the DVD.

Thanks to everybody who turned out for the fund raiser at the museum. A good number of the great and the good came out to look through our telescopes. It was also a pleasant night to spend out with free food and wine being brought to us. We did find something we need to be careful of – the grass outside the museum is littered with gopher holes! There was a nasty fall so please be careful! I'll see if we can get the college to resolve the problem.

This month's meeting will be a little unusual. We will have a tour of the Blast Off! exhibit and a demo of the planetarium. It should be fun.

Keep looking up,

Gavin

September Meeting Minutes

By Steve Fedor

The October 2008 meeting of S*T*A*R Astronomy Club began at 8:10 pm on 10/2. 42 members and non-members attended the meeting. President Gavin Warnes chaired the meeting and began by discussing the speakers for the upcoming meetings and urging all members to pay their dues.

At 8:16 the evening's presentation began. It was titled "Hubble – An Idea That Would Not Die" which was presented by journalist Robert Zimmerman.

This fascinating talk began with the earliest concepts of a space-based telescope as proposed by Linus Spitzer of Princeton University in 1946. The talk continued with the Hubble's history all the way up to the present including the launch, corrections of the optics and the present state of Hubble's systems. The talk concluded at 9:21 at which time coffee break began.

At 9:43 the meeting resumed with a display of stunningly beautiful H-alpha astro-photographs taken by former S*T*A*R president Steve Walters with his 16 inch RCOS.

The meeting resumed with Nancy McGuire presenting "Object of the Month." This month Nancy presented multiple stars. She also presented a great web site, which contains information on the orbits of multiple stars and an atlas of the universe. Visit www.atlasoftheuniverse.com.

Dave Britz presented a video of the earth as viewed from space and discussed an occultation of a star by an asteroid on 10/10.

Gavin then discussed the following:

- Thanked Rob Nunn for doing an astronomy presentation for the Colts Neck Recreation Department. 15 people attended including S*T*A*R members Mike Lindner and Russ Drum.
- Possible club outing with ASTRA
- Mercury flyby by Messenger
- Asked members to give some consideration to starting the meetings at 7:30. This will be put to a vote at some later date.

Randy Walton announced ASTRA will be having a bulk sale of Calendars and guides from the Royal Astronomical Society. He also announced a star party at the OCC planetarium and an astronomy expo at Skies unlimited in Pottstown, Pa. on 10/11.

Jay Respler made note of an error made by a previous speaker who indicated that Pluto would be leaving its orbit in 1000 years. Jay investigated this and found it to be untrue.

Dennis O'Leary discussed project Astronova at Raritan Valley Community College. They are looking for people willing to partner with teachers of young children to educate them about astronomy. Contact Dennis for further information.

The meeting was adjourned.

The Chemical Weather Report

“Sunny tomorrow with highs in the mid-70s. There’s going to be some carbon monoxide blowing in from forest fires, and all that sunshine is predicted to bring a surge in ground-level ozone by afternoon. Old and young people and anyone with lung conditions are advised to stay indoors between 3 and 5 p.m.”

Whoever heard of a weather report like that?

Get used to it. Weather reports of the future are going to tell you a lot more about the atmosphere than just how warm and rainy it is. In the same way that satellite observations of Earth revolutionized basic weather forecasting in the 1970s and 80s, satellite tracking of air pollution is about to revolutionize the forecasting of air quality. Such forecasts could help people plan around high levels of ground-level ozone—a dangerous lung irritant—just as they now plan around bad storms.

“The phrase that people have used is chemical weather forecasting,” says Kevin Bowman of NASA’s Jet Propulsion Laboratory. Bowman is a senior member of the technical staff for the Tropospheric Emission Spectrometer, one of four scientific sensors on NASA’s Aura satellite.

Aura and other NASA satellites track pollution in the same way that astronomers know the chemical composition of stars and distant planetary atmospheres: using spectrometry. By breaking the light from a planet or star into its spectrum of colors, scientists can read off the atmosphere’s gases by looking at the “fingerprint” of wavelengths absorbed or

emitted by those chemicals. From Earth orbit, pollution-watching satellites use this trick to measure trace gases such as carbon monoxide, nitrogen oxide, and ozone.

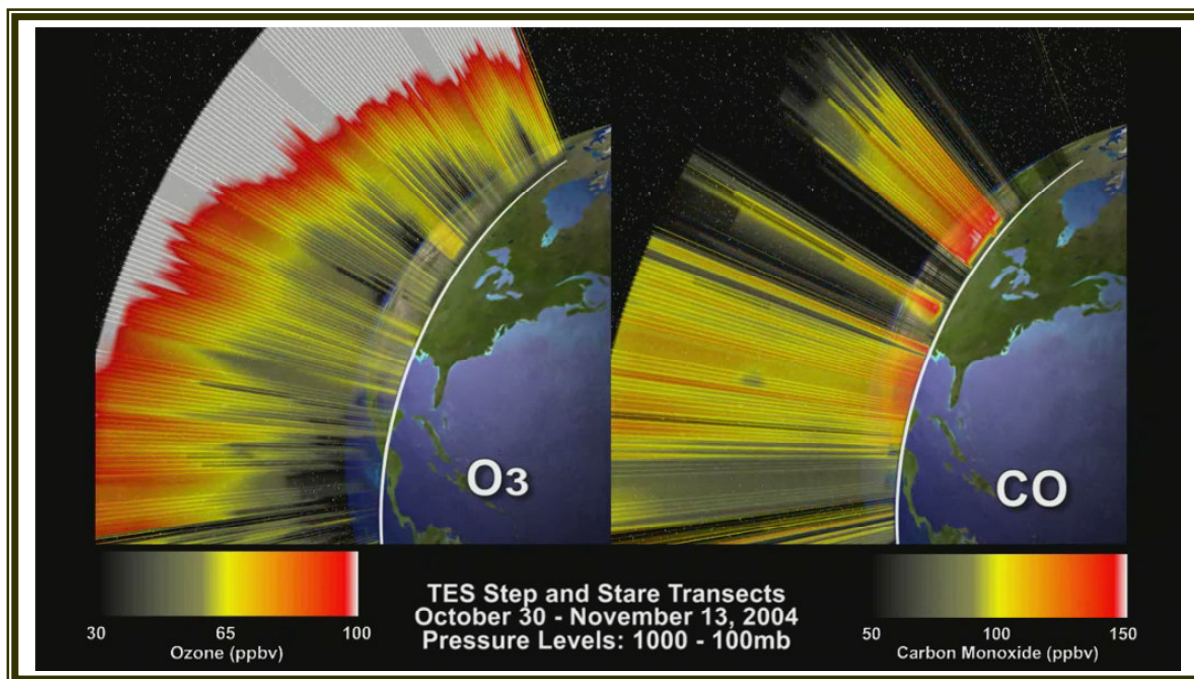
However, as Bowman explains, “Polar sun-synchronous satellites such as Aura are limited at best to two overpasses per day.” A recent report by the National Research Council recommends putting a pollution-watching satellite into geosynchronous orbit—a special very high-altitude orbit above the equator in which satellites make only one orbit per day, thus seeming to hover over the same spot on the equator below. There, this new satellite, called GEOCAPE (Geostationary Coastal and Air Pollution Events), would give scientists a continuous eye in the sky, allowing them to predict daily pollution levels just as meteorologists predict storms.

“NASA is beginning to investigate what it would take to build an instrument like this,” Bowman says. Such a chemical weather satellite could be in orbit as soon as 2013, according to the NRC report. Weather forecasts might never be the same.

Learn more about the Tropospheric Emission Spectrometer at tes.jpl.nasa.gov.

Kids can learn some elementary smog chemistry while making “Gummy Greenhouse Gases” out of gumdrops at spaceplace.nasa.gov/en/kids/tes/gumdrops.

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



Caption: Example of visualization of data from the Tropospheric Emission Spectrometer. These frames are from an animation that steps through transects of the atmosphere profiling vertical ozone and carbon monoxide concentrations, combining all tracks of the Aura satellite during a given two week period.

Nearby Solar System Looks Like Our Own at Time Life Formed

By Alexis Madrigal

A nearby solar system bears a striking similarity to our own solar system, raising the possibility it could harbor Earth-like planets.

Epsilon Eridani, located about 10.5 light-years from our sun, is surrounded by two asteroid belts that are shaped by planets, astronomers at SETI Institute and Harvard-Smithsonian Center for Astrophysics announced today.

But it's the possibility that currently undetected smaller planets could lie within the innermost asteroid belt that make the solar system intriguing to astrobiologists.

"This system probably looks a lot like ours did when life first took root on Earth," said SETI's [Dana Backman](#), lead author of a paper on the 850-million-year-old star that will appear next year in *The Astrophysical Journal*, [in a release](#).

Back then, the [Kuiper Belt](#) of space objects beyond Neptune was much larger. Over time, many of those objects fell into the inner solar system during a period about four billion years ago known as the [Late Heavy Bombardment](#). The barrage of large asteroids pockmarked the rocky planets and possibly created our moon when a large object collided with Earth, expelling a huge amount of material into space.

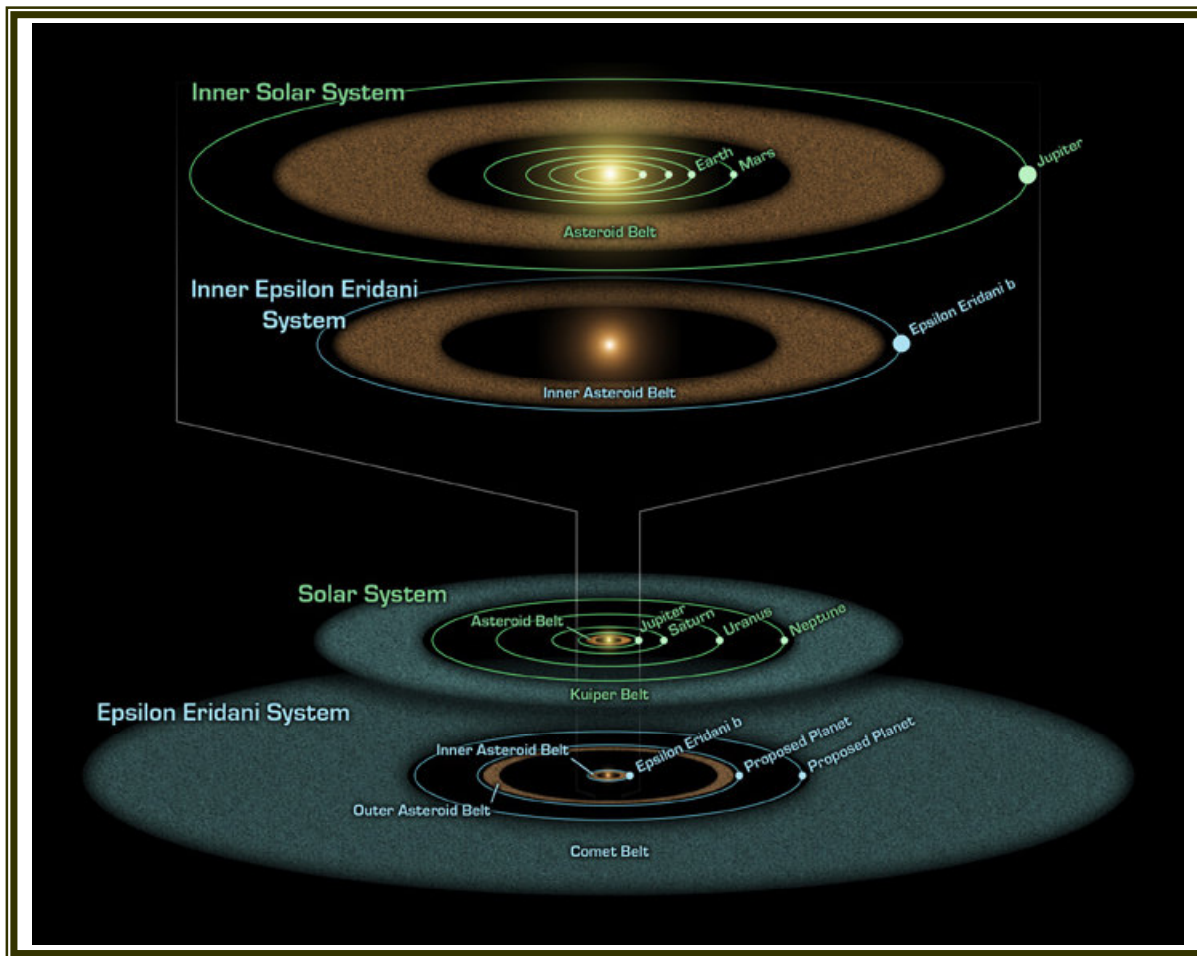
Epsilon Eridani's evolution could provide insight into how universal these processes are. That's important because our solar system contains a planet — Earth — just far enough from the sun not to be fried but close enough to capture enough energy to support life as we know it. Similar systems could end up with planets orbiting in the same biological sweet spot.

"Epsilon Eridani looks a lot like the young solar system, so it's conceivable that it will evolve similarly," said astronomer [Massimo Marengo](#) of the Harvard-Smithsonian Center for Astrophysics, a co-author of the paper.

Right now, Epsilon Eridani is surrounded by three asteroid rings that scientists believe are held in formation

by large planets, the first of which is theorized to sit about half the distance from Mars to Jupiter. In the new paper, two other large planets, slightly farther from their star than Uranus and Neptune are proposed to explain the shape of the outer belts.

It will take more sensitive instruments — perhaps like [the next-generation of planet-hunting telescopes](#) — to determine whether any would-be Earths lurk inside the habitable zone near the star.



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



2008 November Celestial Events

Supplied by J. Randolph Walton (Randy)

Day	Date	Time (EDT)	Event
Sat	1	03:10	Saturn Rises
		06:20	Mercury Rises
		07:30	Sunrise
		17:57	Sunset
		18:25	Mars Sets
		19:51	Venus Sets
		20:06	Moon Set
	22:05	Jupiter Sets	
Sun	2	02:00	Daylight Saving Time ends
Tue	4	23:00	S. Taurid meteors peak (ZHR=10)
Wed	5	23:03	First Quarter Moon
		23:05	Moon Set
Sat	8	01:50	Saturn Rises
		05:50	Mercury Rises
		06:38	Sunrise
		14:04	Moon Rise
		16:50	Sunset
		17:10	Mars Sets
		18:55	Venus Sets
	20:45	Jupiter Sets	
Tue	11	23:00	N. Taurid meteors peak (ZHR=15)
Thu	13	01:17	Full Moon
		15:00	Moon 0.7 deg. N of Pleiades (M45)
		16:46	Moon Rise
Sat	15	01:25	Saturn Rises
		06:15	Mercury Rises
		06:46	Sunrise
		16:43	Sunset
		17:00	Mars Sets
		18:51	Moon Rise
		19:05	Venus Sets
	20:25	Jupiter Sets	
Mon	17	05:00	Leonid meteors peak (ZHR=15)
Wed	19	16:31	Last Quarter Moon
		23:45	Moon Rise
Sat	22	01:00	Saturn Rises
		01:56	Moon Rise
		06:54	Sunrise
		16:39	Sunset
		16:50	Mars Sets
		19:15	Venus Sets
		20:05	Jupiter Sets
Thu	27	11:55	New Moon
		16:15	Moon Set
Sat	29	00:35	Saturn Rises
		07:01	Sunrise
		16:36	Sunset
		17:55	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
Iota Cas	Multiple Star	Cassiopeia	02h29m04.0s	+67°24'09"	4.5
6 Tri	Multiple Star	Triangulum	02h12m22.3s	+30°18'11"	4.9
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Moon Phases

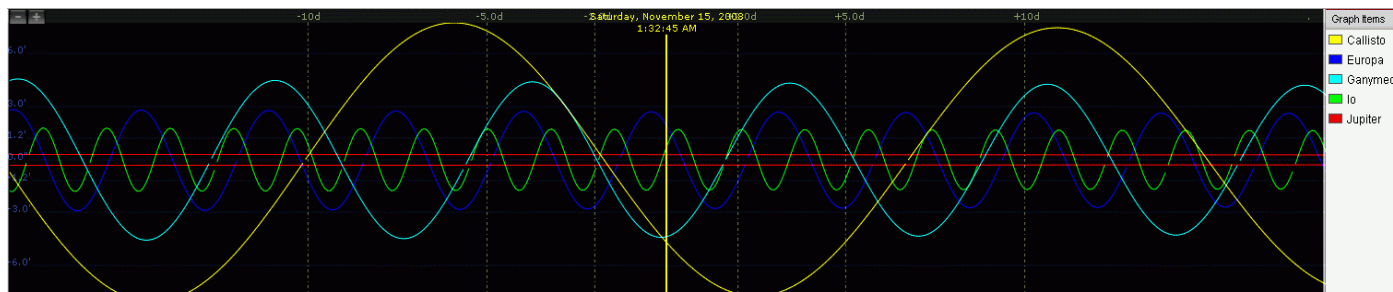


AstroPuzzle Solution for October 2008

1	2	3	4	5	6	7	8	9	10						
B	A	C	H	E	L	K	D	O	E						
11	O	B	O	E	12	K	E	Y	13	A	A	R	P		
14	S	O	M	A	15	E	G	O	16	R	H	E	A		
17	O	V	E	R	18	S	A	T	20	M					
21	N	E	T	22	U	P	T	O	N	24	P	E	Z		
			27	I	N	T	O	28	E	D	E	M	A		
30	P	A	G	O	D	A	33	S	N	A	P	U	P		
34	E	N	N	U	I	35	O	B	E	Y					
36	G	Y	P	37	A	N	T	E	S	39	E	R	A		
			42	S	L	A	T	43	S	44	S	Y	N	O	D
45	C	O	M	A	48	D	A	D	50	A	R	I	D		
51	U	N	I	T	52	I	W	O	53	L	O	L	L		
54	R	E	D	55	R	A	G	56	E	L	S	E			

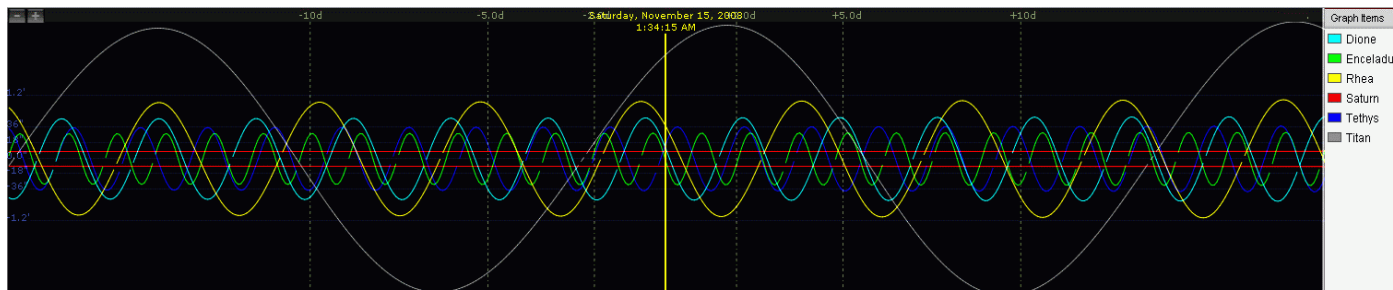
Jupiter Moon Calendar

Here is a graphical depiction of the visible moons of Jupiter for the month of November 2008.

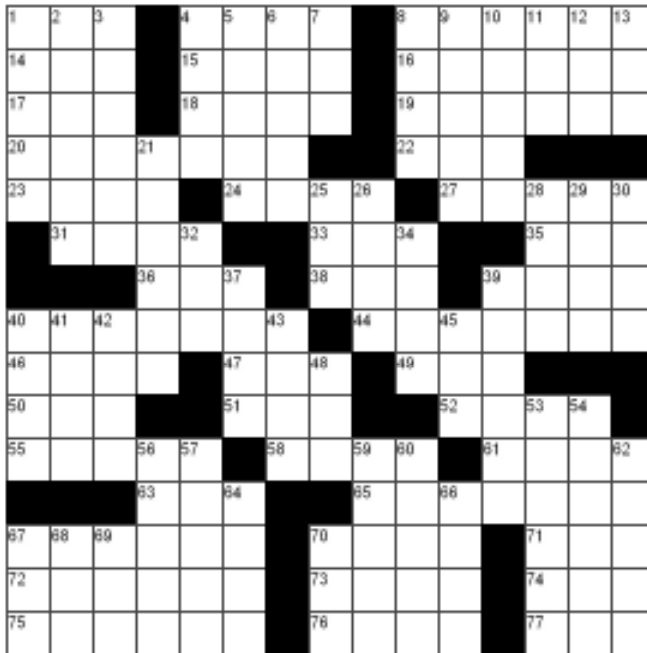


Saturn Moon Calendar

Here is a graphical depiction of the visible moons of Saturn for the month of November 2008.



AstroPuzzle - November 2008



www.CrosswordWeaver.com

ACROSS

- 1 Pressure unit
- 4 *gamma Cygni*
- 8 Take out of suitcases
- 14 Type of partnership
- 15 Comply
- 16 Adsorb (2 wds.)
- 17 Peeper
- 18 Harvard's rival
- 19 *beta Tauri*
- 20 *gamma1 Andromedae*
- 22 Radiation dose
- 23 Skirt
- 24 Egg-shaped fruit
- 27 Having to do with the navy
- 31 Slave
- 33 Business abbr.
- 35 Flightless bird
- 36 Zig's partner
- 38 Football assoc.
- 39 Excited
- 40 President James ____
- 44 Flat baked oatmeal
- 46 Object
- 47 *epsilon Scorpii*

- 49 Doctor (slang)
- 50 Sun's name
- 51 Neither's partner
- 52 Ode
- 55 *alpha Virginis*
- 58 Come close to
- 61 Bang down
- 63 Lyric poem
- 65 *delta Orionus*
- 67 Social occasion
- 70 Big
- 71 Wooden leg
- 72 Volcanic depression
- 73 Wields
- 74 *The brightest star in the sky*
- 75 *The brightest star in the night sky*
- 76 Snaky fish
- 77 Environmental protection agency (abbr)

DOWN

- 1 Ruffle
- 2 Writing tool

- 3 Envisage
- 4 Soybean
- 5 Taken __ (shocked)
- 6 Headquarters of British India
- 7 Grain
- 8 Exploiter
- 9 Mr. Ryan
- 10 Bear
- 11 Also known as (abbr.)
- 12 Notch
- 13 Rate
- 21 *beta Canis Major*
- 25 Beat
- 26 Information (abbr.)
- 28 *The 5th brightest star in the night sky*
- 29 Crazed
- 30 Sled
- 32 Foreign Agricultural Service
- 34 Garbed
- 37 Mantua
- 39 Approach hostilely
- 40 Desire
- 41 On top
- 42 Restaurant
- 43 Element
- 45 Highest point
- 48 Wrath
- 53 Pass
- 54 Cosmetics
- 56 Raccoon-like animal
- 57 Adios
- 59 Entertain
- 60 *The 7th brightest star in the night sky*
- 62 __ cum laude
- 64 Goofs
- 66 Loch __ monster
- 67 American Cancer Society (abbr.)
- 68 Friday (abbr.)
- 69 Further
- 70 Tint