

February 2009

Inside this Issue

- 1 ● February's Meeting
● 2008-2009 Calendar
- 2 ● President's Corner
● January Meeting Minutes
- 3 ● Severe Space Weather
- 4 ● Comet Impact Theory Disproved
- 5 ● Comet Lulin
- 6 ● S*T*A*R Membership
● Celestial Events
- 7 ● In the Eyepiece
- 8 ● Moon Phases
● Jupiter Moons Calendar
● Saturn Moons Calendar
- 9 ● Astro Crossword Puzzle
Special theme: Messing with the Messiers

S*T*A*R
P.O. Box 863
Red Bank, NJ 07701
On the web at:
<http://www.starastronomy.org>

Edited by: Ahmad & Hanna Jrad



February's Meeting

The next meeting of S*T*A*R will be on Thursday, February 5. Our program will be "*ATM Night*" where S*T*A*R members will bring and talk about their homemade telescopes. All are welcome. The meeting will begin promptly at 8:00pm at the Monmouth Museum on the Brookdale Community College campus.

Editor's Corner

Many thanks to Gavin Warnes, Mike Lindner, 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 our treasurer Rob Nunn at the February 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

March Issue

Please submit articles and contributions for the next *Spectrogram* by February 23. Please email to stargaze07@verizon.net.



Solar Prominence of May 1, 2008 compared to earth (Spain).
Credit: Jesus Carmona

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 – "*Tour of Monmouth Museum & Demonstration of Planetarium*" by S*T*A*R's own Dennis O'Leary
- ❖ Dec 4, 2008 – "*Why does the sun shine for billions of years?*" by S*T*A*R's own Arturo Cisneros
- ❖ Jan 8, 2009 - "*Celestial Navigation*" by Justin Dimmell, Island School, Eleuthera, Bahamas
- ❖ Feb 5, 2009 - "*ATM Night*"
S*T*A*R Members will bring and talk about their home made telescopes
- ❖ Mar 5, 2009 - "*Solar Telescopes*" by Alan Traino of Lunt Solar Systems
- ❖ Apr 2, 2009 – "*Low Energy Routes to the Moon and Beyond*" by Dr. Edward Belbruno of Innovative Orbital Design
- ❖ May 7, 2009 – "*TBD*"
- ❖ Jun 4, 2009 – AGM



Perseids - Aug 11, 2008 (22:50-23:58UT),
Canon EOS400D, ISO1600, F=18mm, exp. 20s
Credit: Astronominsk team

President's Corner

By Gavin Warnes

I'm really looking forward to this week's meeting on amateur telescope making. We have some very talented people in the club, plus friends from other clubs who are also active telescope makers. There will be a selection of home made telescopes to look at and learn how they were made. Each scope maker will give a short talk on their scope, plus there will be demonstrations on making and testing a mirror, solar filters and building an equatorial platform. Please come along! We'll be in the main galley so there will be plenty of space.

We decided to keep our old discussion board when we moved to our new website. It's a great source of advice on all aspects of the hobby and I really encourage you to register. Many club members are active participants plus guests from other clubs and elsewhere in the world. If you are interested in going out observing it's the place to find out what is going on.

On the subject of observing, our new observing group has been discussing how to get started. Initially we may do some back yard sessions while it is still cold. Please keep an eye on the Events and Observing Plans section of the discussion board to find out what is going on.

I've been sending out emails regarding the trip to the Rose Center & Hayden Planetarium in New York City on March 28th. Unfortunately the level of interest is not high enough to justify hiring a bus, even a smaller one. We've decided to use the train instead. The group discount for the museum is minimal (\$2 for an adult, \$1 for a child/senior) so it makes little sense to buy tickets in advance – easier to buy at the door. This way people can decide to join or drop out at the last minute. We'll choose a train we can all catch. This also has the advantage that people can meet at the New Jersey Transit station closest to them and if they wish to spend the evening in NYC they are not tied to a return bus time.

It's the annual Holmdel Village School star party on Tuesday February 10th between Newman Springs Road (520) and McCampbell Road at Middletown Road. This is always a big event so we need lots of volunteers. Please setup before 6.45pm. Please contact Rich Gaynor via the discussion board or at richg870@aol.com if you can help.

Keep looking up!

Gavin

January Meeting Minutes

By Steve Fedor

The January 2009 meeting of S*T*A*R Astronomy Club began at 8:06 pm on 1/8. It was a well-attended meeting with 55 members and non-members. President Gavin Warnes chaired the meeting and began by discussing the evening's agenda and urging all members to pay their dues since the grace period for membership has expired.

The evening's presentation was "Celestial Navigation at the Island School." This was presented by Justin Dimmel. He teaches applied mathematics to high school students in the Bahamas.

Justin presented an overview of celestial navigation and how it is taught. He also gave examples of the types of calculations students perform while attending the school along with a demonstration of a sextant. The talk concluded at 9:20 at which time coffee break began.

The meeting resumed at 9:52 with Nancy McGuire presenting "Object of the Month." This month's objects were M41 and galaxy 2782 in Lynx.

V.P. Dennis O'leary discussed the Night Sky Network, which is a program for astronomy outreach from NASA. He showed a video and discussed what materials are provided and how they could be useful for the club. He urged members to consider becoming involved and to contact him if interested.

Gavin discussed that 2009 is "The International Year of Astronomy" and the ways this could benefit the club. He indicated the club should consider doing a public stargazing event to attract new members. The issue will be discussed further. Visit astronomy2009.org for further details.

Next Gavin discussed the upcoming trip to the American Museum of Natural History on Sat. March 28th. Issues such as the bus rental and the possibility of teaming with ASTRA to increase attendance were discussed. At the time of this writing the details are:

S*T*A*R Astronomy and ASTRA are planning a joint trip to the Rose Center in New York City on Saturday March 28th. The trip will include the Cosmic Collisions planetarium show and access to the Rose Center and American Museum of Natural History. There is also a free exhibit of photos of Saturn. In order to determine how large a bus we should hire we'd like to get a definite count of the number of people who would come. Please can you reply to this message by Jan 24th if you are sure you would like to go and saying how many people there will be in your party. If we get a good response we will then make a booking and sell tickets for the bus and museum entrance at the next two

meetings. The bus would leave from the commuter parking lot at exit 109 on the Garden State Parkway at 8.30am and return around 5pm. We anticipate that the cost of the bus will be \$25 per head (same cost if you used public transport) plus entrance to the museum at the following group rates.

Adult	\$22.00
Senior	\$16.50
Child under 11	\$13.00

Outreach chairman Rich Gaynor announced a star party at the Village School, which will be on 2/10/09. Rich also discussed an Earth Day event scheduled for 4/26/09 at Bayonet Farms.

At 10:33 the 50/50 was drawn and the meeting was then adjourned.

Severe Space Weather

By Dr. Tony Phillips

Did you know a solar flare can make your toilet stop working?

That's the surprising conclusion of a NASA-funded study by the National Academy of Sciences entitled *Severe Space Weather Events—Understanding Societal and Economic Impacts*. In the 132-page report, experts detailed what might happen to our modern, high-tech society in the event of a “super solar flare” followed by an extreme geomagnetic storm. They found that almost nothing is immune from space weather—not even the water in your bathroom.

The problem begins with the electric power grid. Ground currents induced during an extreme geomagnetic storm can melt the copper windings of huge, multi-ton transformers at the heart of power distribution systems. Because modern power grids are interconnected, a cascade of failures could sweep across the country, rapidly cutting power to tens or

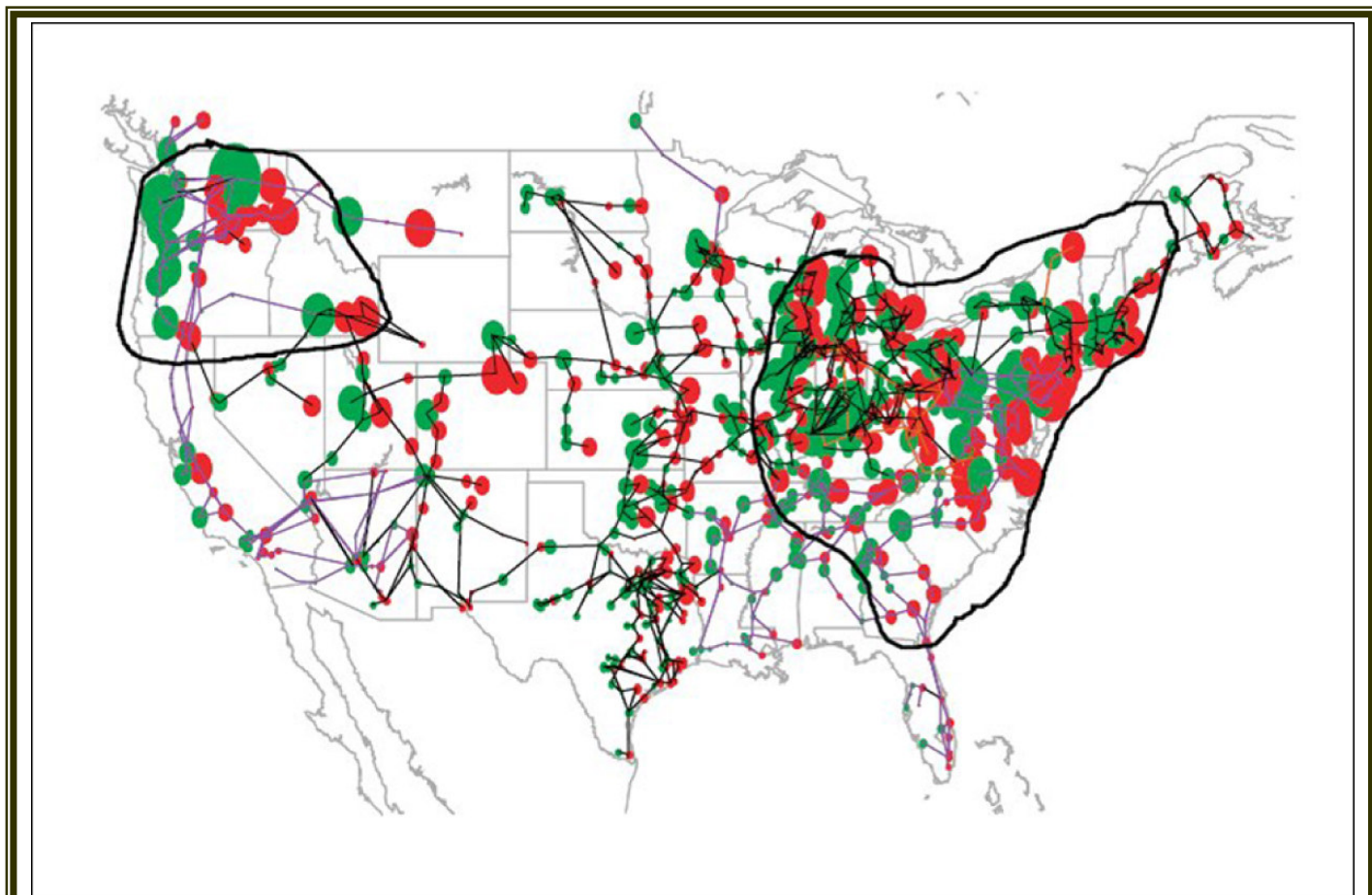


Figure 1. On this power-grid map of the United States, the black-circled areas are regions especially vulnerable to collapse during an extreme geomagnetic storm. Inside those boundaries are more than 130 million people. Credit: National Academy of Sciences report on severe space weather.

even hundreds of millions of people. According to the report, this loss of electricity would have a ripple effect with “water distribution affected within several hours; perishable foods and medications lost in 12-24 hours; loss of heating/air conditioning, sewage disposal, phone service, fuel re-supply and so on.”

“The concept of interdependency,” the report notes, “is evident in the unavailability of water due to long-term outage of electric power—and the inability to restart an electric generator without water on site.”

It takes a very strong geomagnetic storm to cause problems on this scale—the type of storm that comes along only every century or so. A point of reference is the “Carrington Event” of August-September 1859, named after British amateur astronomer Richard Carrington who witnessed the instigating solar flare with his unaided eye while he was projecting an image of the Sun on a white screen. Geomagnetic storms triggered by the flare electrified telegraph lines, shocking technicians and setting their telegraph papers on fire; Northern Lights spread as far south as Cuba and Hawaii; auroras over the Rocky Mountains were so bright, the glow woke campers who began preparing breakfast because they thought it was morning!

“A contemporary repetition of the Carrington Event would cause ... extensive social and economic disruptions,” the report warns. Widespread failures could include telecommunications, GPS navigation, banking and finance, and transportation. The total economic impact in the first year alone could reach \$2 trillion (some 20 times greater than the costs of Hurricane Katrina).

The report concluded with a call for infrastructure designed to better withstand geomagnetic disturbances and improvements in space weather forecasting. Indeed, no one knows when the next super solar storm will erupt. It could be 100 years away or just 100 days. It’s something to think about ... the next time you flush.

One of the jobs of the Geostationary Operational Environmental Satellites (GOES) and the Polar-orbiting Operational Environmental Satellites (POES) operated by NOAA is to keep an eye on space weather and provide early warning of solar events that could cause trouble for Earth.

You can keep an eye on space weather yourself at the National Weather Service's Space Weather Prediction Center, www.swpc.noaa.gov. And for young people, space weather is explained and illustrated simply and clearly at the SciJinks Weather Laboratory, scijinks.gov/weather/howwhy/spaceweather.

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

Comet Impact Theory Disproved

New data, published on January 26, 2009, disproves the recent theory that a large comet exploded over North America 12,900 years ago, causing a shock wave that traveled across North America at hundreds of miles per hour and triggering continent-wide wildfires.

Sandy Harrison from the University of Bristol and colleagues tested the theory by examining charcoal and pollen records to assess how fire regimes in North America changed between 15 and 10,000 years ago, a time of large and rapid climate changes.

Their results provide no evidence for continental-scale fires, but support the fact that the increase in large-scale wildfires in all regions of the world during the past decade is related to an increase in global warming.

Fire is the most ubiquitous form of landscape disturbance and has important effects on climate through the global carbon cycle and changing atmospheric chemistry. This has triggered an interest in knowing how fire has changed in the past, and particularly how fire regimes respond to periods of major warming.

The end of the Younger Dryas, about 11,700 years ago, was an interval when the temperature of Greenland warmed by over 5°C in less than a few decades. The team used 35 records of charcoal accumulation in lake sediments from sites across North America to see whether fire regimes across the continent showed any response to such rapid warming.

They found clear changes in biomass burning and fire frequency whenever climate changed abruptly, and most particularly when temperatures increased at the end of the Younger Dryas cold phase. The results are published January 26 in the Proceedings of the [National Academy of Science](http://www.nationalacademies.org).

Understanding whether rapid changes in climate have caused wild fires in the past will help understand whether current changes in global temperatures will cause more frequent fires at the present time. Such fires have a major impact on the economy and health of the population, as well as feeding into the increase in global warming.



Comet Lulin: How bright will Comet Lulin become? No one knows for sure. Although it is notoriously difficult to accurately predict the brightness of newly discovered comets, Comet Lulin could well become visible to the unaided eye later this month. As Comet Lulin moves into the northern sky in mid February to rise around midnight, it should at least be spotted by comet watchers with binoculars and a good sky chart. Tracking observations indicate that the comet officially designated C/2007 N3 (Lulin) has now swung by the Sun and is approaching Earth on a trajectory that will bring it within half the Earth-Sun distance in late February. Comet Lulin's orbit indicates that this is likely the comet's first trip into the inner Solar System. The comet was discovered by Quanzhi Ye of Sun Yat-sen University on images obtained by Chi-Sheng Lin at the Lu-Lin Observatory of National Central University. In this picture, taken from Italy last Friday, are Comet Lulin's coma and tails, one tail pointing away from the Sun, and an anti-tail -- dust that trails the comet in its orbit and may appear to point toward the Sun.

The image below can help you find Comet Lulin throughout the month of February 2009.



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 Monmouth Museum on the Brookdale Community College campus. Meetings generally consist of lectures and discussions 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 _____

Email _____

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



2009 February Celestial Events

Supplied by J. Randolph Walton (Randy)

Day	Date	Time (EDT)	Event
Mon	2	10:21	Moon Rise
		18:13	First Quarter Moon
Tue	3	10:59	Moon Rise
		22:00	Moon 0.9° N of Pleiades
Sat	7	05:40	Mercury Rises
		06:20	Mars Rises
		06:35	Jupiter Rises
		07:02	Sunrise
		15:15	Moon Rise
		17:27	Sunset
		19:50	Saturn Rises
		21:13	Venus Sets
Mon	9	06:55	Moon Sets
		9:00 to 10:20	Penumbra lunar eclipse (not in NJ)
		9:49	Full Moon
Thu	12	18:20	Zodiacal light W for 2 weeks
Sat	14	05:37	Mercury Rises
		06:10	Mars Rises
		06:12	Jupiter Rises
		06:54	Sunrise
		17:35	Sunset
		19:20	Saturn Rises
		21:12	Venus Sets
		23:39	Moon Rise
Mon	16	10:11	Moon Sets
		16:37	Last Quarter Moon
Tue	17	06:05	Mars 0.6° S of Jupiter
Sat	21	04:55	Moon Rise
		05:40	Mercury Rises
		05:45	Jupiter Rises
		05:55	Mars Rises
		06:45	Sunrise
		17:43	Sunset
		18:55	Saturn Rises
		21:05	Venus Sets
Sun	22	About 06:00	Cr. Moon, Mercury, Jupiter, and Mars in a group
Mon	23	05:43	Mercury 0.7° right of Jupiter
Tue	24	05:38	Jupiter Rises
		05:42	Mercury Rises 0.7° below Jupiter
		17:38	Moon Sets
		20:35	New Moon
Sat	28	05:25	Jupiter Rises
		05:44	Mercury Rises
		05:46	Mars Rises
		06:35	Sunrise
		17:51	Sunset
		18:22	Saturn Rises
		20:50	Venus Sets
		22:02	Moon Sets

In the Eyepiece

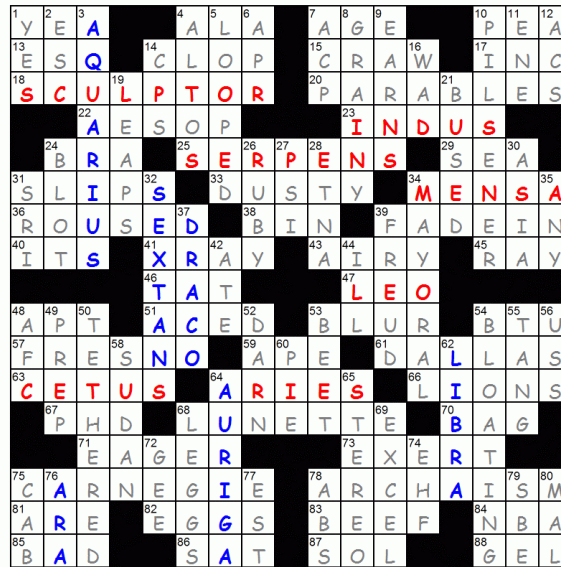
Here is a list of objects for this month. This is reproduced from www.skyhound.com with the kind permission of its creator and author of SkyTools Greg Crinklaw.

Object(s)	Class	Con	RA	Dec	Mag
M35 & NGC 2158	Open Cluster	Gemini	06h08m51.9s	+24°20'28"	5.6
M 38	Open Cluster	Auriga	05h28m39.4s	+35°50'24"	6.8
Sigma Ori	Multiple Star	Orion	05h38m44.8s	-02°36'00"	3.8
M37	Open Cluster	Auriga	05h52m22.3s	+32°32'40"	6.2
The Trapezium	Multiple Star	Orion	05h35m16.5s	-05°23'23"	5.1
NGC 2017/HR 1944	Multiple Star	Lepus	05h39m16.2s	-17°50'58"	6.4
Beta Mon	Multiple Star	Monoceros	06h28m49.1s	-07°01'59"	3.8
NGC 2112	Open Cluster	Orion	05h53m52.2s	+00°23'32"	9.1
IC 418	Planetary Nebula	Lepus	05h27m28.2s	-12°41'50"	10.7
NGC 1931	Open Cluster	Auriga	05h31m24.8s	+34°15'12"	10.1
IC 2149	Planetary Nebula	Auriga	05h56m23.9s	+46°06'17"	11.2
NGC 1893 & IC 410	Open Cluster in Nebula	Auriga	05h22m41.1s	+33°23'49"	7.8
M 50	Open Cluster	Monoceros	07h03m12.3s	-08°19'28"	7.2
Crab	Diffuse Nebula	Taurus	05h34m30.0s	+22°01'00"	8.4
NGC 2022	Planetary Nebula	Orion	05h42m06.2s	+09°05'10"	12.4
Hubble's Variable Nebula	Diffuse Nebula	Monoceros	06h39m12.0s	+08°44'00"	--
H 3-75	Planetary Nebula	Orion	05h40m44.8s	+12°21'16"	13.9
IC 421	Galaxy	Orion	05h32m14.8s	-07°55'01"	12.3
NGC 1999	Diffuse Nebula	Orion	05h36m24.0s	-06°43'00"	--
Focus on The Horsehead	Diffuse/Dark Nebula	Orion	05h41m00.0s	-02°27'00"	--
Abell 12	Planetary Nebula	Orion	06h02m21.4s	+09°39'07"	13.9
IC 443	Diffuse Nebula	Gemini	06h17m48.0s	+22°49'00"	12.0
Focus on the Cone Nebula	Open Cluster	Monoceros	06h41m03.2s	+09°53'07"	4.1
NGC 2242	Planetary Nebula	Auriga	06h34m07.4s	+44°46'37"	15.2

Moon Phases



AstroPuzzle Solution for January 2009



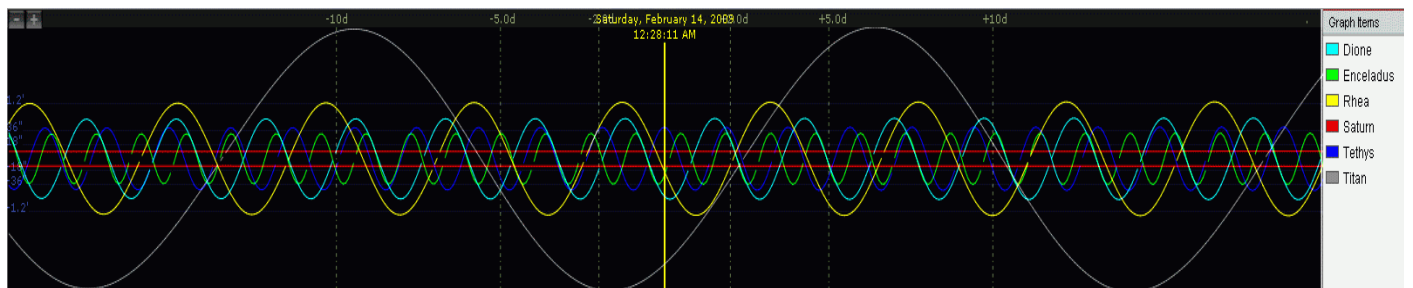
Jupiter Moon Calendar

Here is a graphical depiction of the visible moons of Jupiter for the month of February 2009.

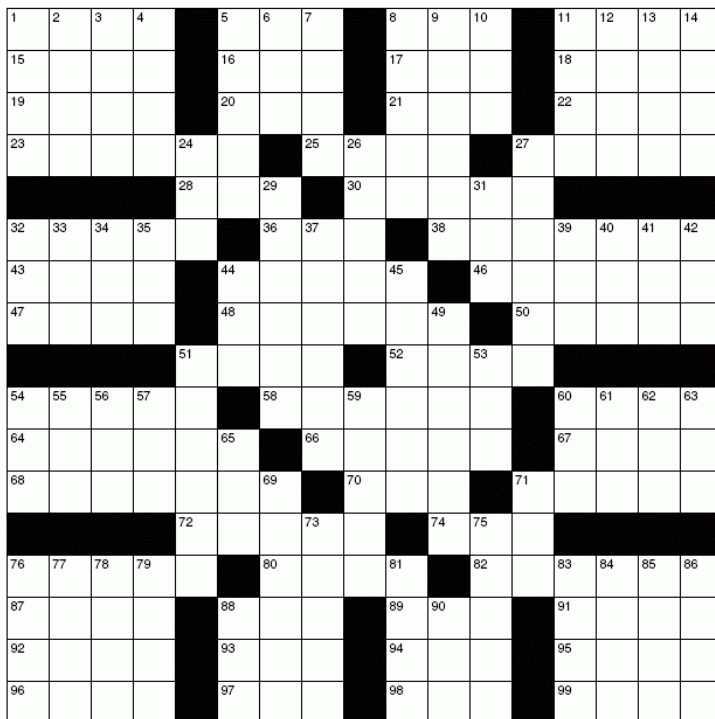


Saturn Moon Calendar

Here is a graphical depiction of the visible moons of Saturn for the month of February 2009.



February 2009 – Messing with the Messiers



www.CrosswordWeaver.com

ACROSS

- 1 Cliff
 5 Bawl
 8 Clock time
 11 Coffee shop
 15 Wander
 16 Cash with order (abbr.)
 17 Roberto's yes
 18 Excited
 19 A fox's hole (2 wds.)
 20 Olden
 21 Central Intelligence Agency
 22 **Common Name for M57**
 23 Deprived
 25 Economics abrv.
 27 Defends
 28 I want my ____
 30 **Common Name for M16**
 32 Small bunch of flowers
 36 Feed
 38 **M5 is in this Constellation**
 43 What tourists take
 44 Overturn
 46 Talks
 47 Dole out
 48 Teeter-totter
 50 Excite
 51 Not us
 52 Inflammatory disease
 54 Lowest point
 58 Hardships
 60 Ocean Spray's drink starters
 64 Gum tree

- 66 Scent
 67 Brand of coffee alternative
 68 Behalf
 70 East northeast
 71 One who paves
 72 Mental sight
 74 Tiny mark
 76 Combine
 80 Ruin
 82 Reckless
 87 Greek stringed instrument
 88 Lingerie
 89 North by east
 91 Part to play
 92 Middle East dweller
 93 Possessive pronoun
 94 Tooth
 95 On
 96 Baseball plate
 97 American sign language
 98 Environmental protection agency (abbr)
 99 Contest

DOWN

- 1 **Common Name for M1**
 2 Traveled by horse
 3 Affirm
 4 Heredity component
 5 Composer Francis __ Key
 6 **Common Name for M97**
 7 **Common Name for M81**
 8 Powdered chocolate

- 9 Hurt arm holders
 10 British drink
 11 Feel concern
 12 Against
 13 Tender
 14 Omelette ingredient
 24 Madagascar franc (abbr.)
 26 **M77 is in this Constellation**
 27 Pet
 29 Press board need
 31 **M65 is in this Constellation**
 32 Short-term memory
 33 Poet Edgar Allen
 34 Track
 35 Anger
 37 Blood disease
 39 Friend
 40 Airport abbr.
 41 Mesh
 42 South southeast
 44 Tree
 45 **Common Name for M8**
 49 Squirmed away
 51 **Common Name for M20**
 53 North American nation
 54 Catch
 55 Genius
 56 Newsman Rather
 57 Winter hazard
 59 Selfish desire
 60 Accountant
 61 Pastor (abbr.)
 62 To be
 63 Neither's partner
 65 Place
 69 **M1 is in this Constellation**
 71 School group
 73 Tree knot
 75 **Common Name for M17**
 76 Babble
 77 **M56 is in this Constellation**
 78 Long time periods
 79 Northeast by east
 81 One time
 83 Gather support
 84 Manage
 85 Lotion ingredient
 86 Penned
 88 Constrictor snake
 90 Hit

Note: All clues in bold (13 total) are Related to and/or derived from the Messier objects.