# Starscan

## Johnson Space Center Astronomical Society

Volume 24, Number 11  November 2008

FORTY YEARS AND COUNTING!

# NOVEMBER SKIES ARE FOR STARGAZING

# TABLE OF CONTENTS

## Message from the el Presidente

Wow... what an October. Despite having to call off a JSCAS meeting (something I thought I'd never have to do), it was touch and go as far as damage at Brazos Bend State Park as to whether or not ADAY was even going to occur. But, with help, the park opened in the nick of time and we had a very successful Astronomy Day. The gate count was just short of about 2000 cars and about 3800 attendees. Hopefully no one missed the All Clubs meeting with David Levy. Other than dates, we have very little information about next years ADAY but I thought I heard rumors they were going to try and get Dr. Arp to be the speaker. Stay tuned!

Following the ADAY weekend, if you missed the trip to Ft. McKavett, unfortunately you missed a good one. Usually, when I've gone there is one night that is more suited to social activities and laser pointer wars but not this time. For this trip there was nothing short of three stellar nights of observing and I know we will have many images coming from this trip. If anyone missed a single night's observing, it was their loss.

On the plate for November we have a Haak wine star party, and on the 14th our regular meeting, where LPI's own Dr. Walter Kiefer is slated to be our speaker. On Saturday the 15th we have a star party at the LPI and I hope many will be able to make it.

Clear skies!
David Haviland

## LETTER FROM THE EDITOR
**By Connie Haviland**

**Hi Everyone!!**
**As our year comes closer to the end, we gather with friends and enjoy the stars together. First of all I have to give credit for our cover page. It was taken from Astronomy's Picture of the Day, Credit & Copyright to Vincent Jacques (Nov 17, 2007)**

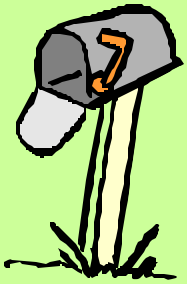
**This month's edition is full of pictures, since I feel pictures shows so much more..**
**Enjoy!!!!**

## LETTER TO THE EDITOR

In November, FSD will be held on the 15th from 7-10pm. We're having our night viewing (hopefully!) and would like to invite JSCAS folks to bring out their telescopes for the children to look through.

Cheers,
Matt.

..



## Star Parties for 2008
By John Erickson

**NOVEMBER**
November 01 - Haak Winery Star Party
Nov 15th at the LPI for an evening star party with refreshments (some wine and such) afterward...

**DECEMBER**
No Star Party on Record

**Galveston Stargazor Group**

**TBA**
**AFTER IKE HIT, THINGS NEED TIME TO GET BACK TO NORMAL, BU T THEY ARE STILL MEETING AT THE DONUT SHOP..**

I know this may seem like an extremely early post, but I feel that if we are aware of it now, we can get it put in motion in the cities that we are associated with.  So that is why it is here.

**EARTH HOUR 2009—March 28, 2009…8:30pm to 9:30 pm**

http://www.earthhour.org/

Join millions of people around the world in turning out the lights for one hour to symbolize that each of us can make a positive impact on climate change—no matter where we live.  Visit earthhourus.org to join the movement and register your support fo Earth Hour 2009

**A Bold Statement for the Earth**

On March 28, 2009 at 8:30 pm, tens of millions of people around the world will come together once again to make a bold statement about their concern about climate change by doing something quite simple-turning off their lights for one hour. Earth Hour symbolizes that by working together, each of us can make a positive impact in the fight against climate change. Here in the US, it sends a message that Americans care about this issue and stand with the rest of the world in seeking to find solutions to the escalating climate crisis.

**Leading the Charge**

Earth Hour was first celebrated two years ago in Sydney, Australia, when 2.2 million people and thousands of businesses turned out their lights, allowing the message about climate change to shine brightly.

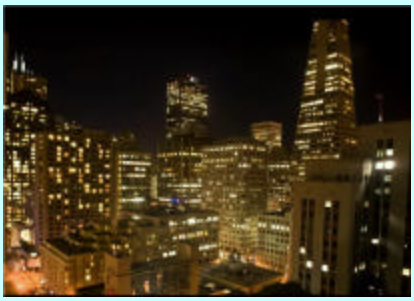
In March 2008, Earth Hour went global. More than 400 cities, thousands of businesses and over 50 million people around the world turned off their lights for one hour to demonstrate their commitment to slowing the effects of climate change. An estimated 36 million Americans reported participating.

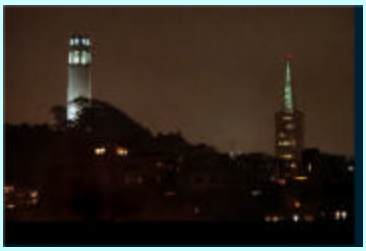
The movement captured the public's imagination with lights going out at some of the world's most iconic landmarks including the Sydney Opera House, Bangkok's Wat Arun Buddhist temple, the Coliseum in Rome, Stockholm's Royal Castle, London's City Hall, New York's Empire State Building, Sears Tower in Chicago and the Golden Gate Bridge in San Francisco. In Israel, President Shimon Peres personally turned the lights off in Tel Aviv. Other symbols going dark included Cola-Cola's famous billboard in Times Square and the Google homepage.

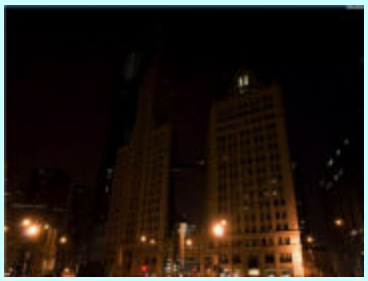
The event entered popular culture, with stories appearing on Oprah!, NBC Nightly News, Today Show, Good Morning America, CBS Evening News, CNN, NPR, The Washington Post, Chicago Tribune, Atlanta Journal-Constitution, Miami Herald, San Francisco Chronicle, Time.com, Yahoo.com and  more.
The Stakes are High..

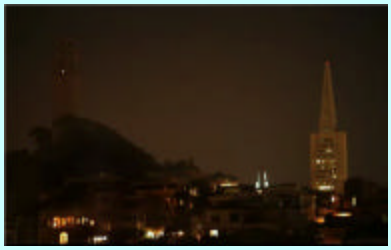
Climate change is perhaps the most significant issue facing our planet today. Average annual carbon dioxide emissions in the US alone measure over 20 tons per person. From melting glaciers to increasingly intense weather patterns, climate change is already impacting life on our planet.

To alter the course of climate change we must act now. One person committed to reducing energy consumption can make a difference, but millions working together can change the world. Turn out. Take action. Earth Hour.

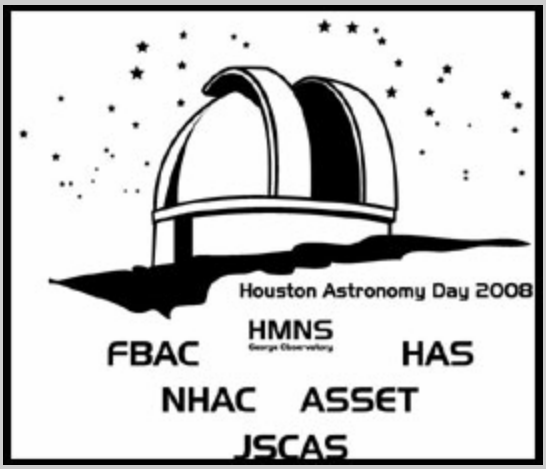




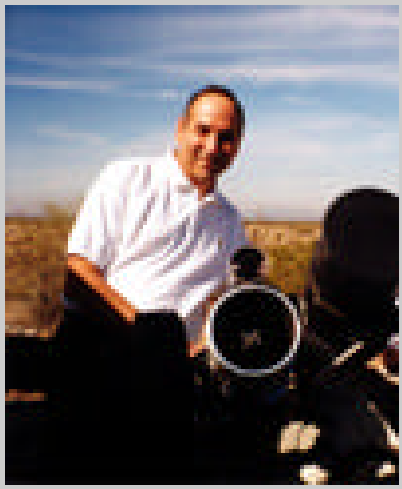



# A-DAY AND ALL-CLUBS MEETING


This is what was on the A-Day T-shirts. I wasn't there when they voted on this , so I don't know where it came from

David Levy, the speaker for the meeting and A-Day. David Haviland, Sarah Haviland and Connie Haviland met with David Levy that Sunday after A-Day at

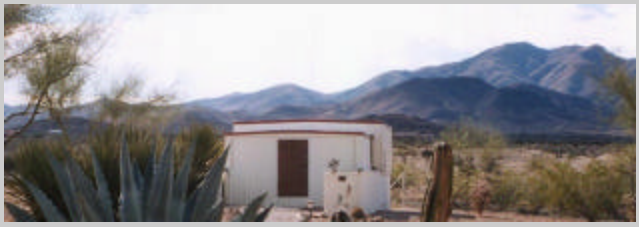


# A-DAY AND ALL-CLUBS MEETING
## The Speaker—David Levy

David H. Levy is one of the most successful comet discoverers in history. He has discovered 22 comets, nine of them using his own backyard telescopes. With Eugene and Carolyn Shoemaker at the Palomar Observatory in California he discovered Shoemaker-Levy 9, the comet that collided with Jupiter in 1994. That episode produced the most spectacular explosions ever witnessed in the solar system. Levy is currently involved with the Jarnac Comet Survey, which is based at the Jarnac Observatory in Vail, Arizona but which has telescopes planned for locations around the world.

Levy is the author or editor of 35 books and other products. He won an Emmy in 1998 as part of the writing team for the Discovery Channel documentary, "Three Minutes to Impact." As the Science Editor for Parade Magazine, he is able to reach more than 80 million readers, almost a quarter of the population of the United States. A contributing editor for Sky and Telescope Magazine, he writes its monthly "Star Trails" column, and his "Nightfall" feature appears in each issue of the Canadian Magazine Skynews.

David Levy has given more than 1000 lectures and major interviews, and has appeared on many television programs, such as the Today show (4 times), Good Morning America (twice), the National Geographic special "Asteroids: Deadly Impact", and ABC's World News Tonight, where he and the Shoemakers were named Persons of the Week for July 22, 1994. Also, Levy has done nationally broadcast testimonials for PBS (1995-present), and for the Muscular Dystrophy Association Telethon (1998-1999). He and his wife Wendee host a weekly radio show available worldwide at www.letstalkstars.com. In 2004 he was the Senator John Rhodes Chair in Public Policy and American Institutions at Arizona State University. He has been awarded five honorary doctorates, and asteroid 3673 (Levy) was named in his honor. Levy is President of the National Sharing the Sky Foundation, an organization intended to inspire new generations to develop an inquiring interest in the sciences, or in other words, to reach for the stars.



Levy resides in Vail, Arizona, with his wife, Wendee. After teaching Physical Education in the Las Cruces school district for 26 years, in 1996 Wendee became the manager of Jarnac Observatory, and was promoted to Director in 2004. Wendee is an integral part of our Jarnac Comet Survey, helping to organize the program and scan the images. As Secretary-Treasurer of the National Sharing the Sky Foundation, Wendee plays a vital role in its activities.

David graduated BA(English) from Acadia University in 1972 and MA (English) from Queen's University in 1979. David has been awarded five honorary doctorate degrees, one each from Queen's University (1994), Acadia University (1995), McGill University (2003), University of Tampa (2004) and State University of New York, Plattsburgh (2005). David has recently been accepted to the Hebrew University in Jerusalem, where he is writing a PhD dissertation for the Department of English on the topic of "TheSky in Early Modern English Literature: A study of Allusion to Celestial Events in Elizabethan and Jacobean writing, 1572-1610".

David Levy, the speaker for the meeting and A-Day. David Haviland, Sarah Haviland and Connie Haviland met with David Levy that Sunday after A-Day at

David is adjunct scientist and member of the National Advisory Board for the Flandrau Science Center in Tucson, on the campus of the University of Arizona, near the Lunar & Planetary Laboratory. David is Honorary President of the Kingston Centre and the Montreal Centre of the Royal Astronomical Society of Canada.

David began his telescopic comet search, called CN3, on December 17, 1965. It has resulted in 8 visual comet discoveries, 13 photographic comet discoveries shared with Gene and Carolyn Shoemaker, 7 books, and a catalogue of more than 300 deep sky objects found on the road to comets.

**Discoveries:**
The 22 comet discoveries tie David for third place in history for the largest number of comet finds by an individual. Also included is one comet independently discovered and two in which David aided in discovery.
Visually, with backyard telescope:

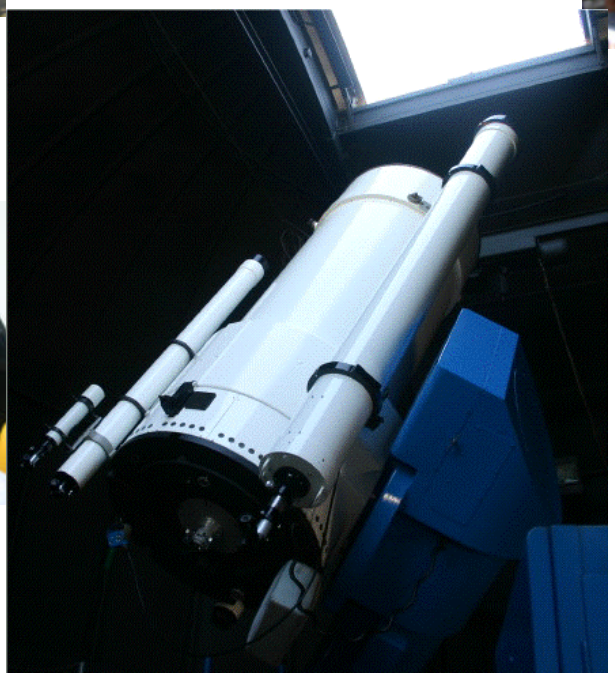
Comet Levy-Rudenko, 1984t, C/1984 V1, Nov 14, 1984
Comet Levy, 1987a, C/1987 A1, January 5, 1987
Comet Levy, 1987y, C/1987 T1, October 11, 1987
Comet Levy, 1988e, C/1988 F1, March 19, 1988
Comet Okazaki-Levy-Rudenko, 1989r, C/1989 Q1, August 25, 1989
Comet Levy, 1990c, C/1990 K1, May 20, 1990 (This widely visible object was considered the most spectacular since Halley in 1986)
Periodic Comet Levy, P/1991 L3, June 14, 1991
Comet Takamizawa-Levy, C/1994 G1, April 15, 1994

Periodic Comet Levy, P/2006 T1, October 2, 2006
Photographically, as part of team of Eugene and Carolyn Shoemaker and David Levy:
Periodic Comet Shoemaker-Levy 1, 1990o, P/1990 V1
Periodic Comet Shoemaker-Levy 2, 1990p, 137 P/1990 UL3
Comet Shoemaker-Levy, 1991d C/1991 B1
Periodic Comet Shoemaker-Levy 3, 1991e, 129P/1991 C1
Periodic Comet Shoemaker-Levy 4, 1991f, 118P/1991 C2
Periodic Comet Shoemaker-Levy 5, 1991z, 145P/1991 T1
Comet Shoemaker-Levy, 1991a1, C/1991 T2
Periodic Comet Shoemaker-Levy 6, 1991b1, P/1991 V1
Periodic Comet Shoemaker-Levy 7, 1991d1, 138P/1991 V2
Periodic Comet Shoemaker-Levy 8, 1992f, 135P/1992 G2
Periodic Comet Shoemaker-Levy 9, 1993e, D/1993 F2 (This comet crashed into Jupiter in 1994, resulting in the most dramatic events ever seen on another world)
Comet Shoemaker-Levy, 1993h, C/1993 K1
Comet Shoemaker-Levy, 1994d C/1994 E2

**Other discoveries**
Comet Hartley-IRAS, 1983v, P/1983 V1, November 1983 (independent discovery)
Comet Shoemaker 1992y, C/1992 U1 (aided in discovery)
Periodic Comet Shoemaker 4, 1994k, P/1994 J3 (aided in discovery)
Discovered Asteroid 5261 Eureka, the first Martian Trojan asteroid (shares Mars's orbit), with Henry Holt, June 1990
With Tom Glinos and Wendee, discovered more than 150 asteroids.


8th Annual Texas Gulf Coast Astronomy Meeting
Hosted by Fort Bend Astronomy Club
FORT BEND

# ASTRONOMY DAY 2008



This year's event was a huge success…thanks to the hard work of all of you! Thanks very much for your participation. Your building managers and ADay coordination team really appreciate all of you and what you do to make Astronomy Day so memorable for visitors to the George Observatory! And not just for our annual Astronomy Day event, but every Saturday night of the year!

If you didn't hear who won the Meade ETX80 AT Backpack Telescope donated by Meade, it was a family of five from Sugar Land: Sirish Dandamldi (father), Latha Dandamldi (mother), Rushil Dandamldi (son 9), Kushal Dandamldi (son 7), and Aria Sundar (daughter 6). With three children in the family, they will definitely enjoy owning and using the scope!

P.S. My personal thanks for the lovely jacket presented to me Friday night. I wore it last night after it started to get chilly. Very comfortable and very warm! You were so great to do that!

Cynthia Gustava


THE SPONSORS FOR A-DAY AND ALL-CLUBS MEETING PRIZES


FROM OUR YOUNGEST MEMBERS—TO OUR YOUNG ADULTS—TO THOSE WHO HAVE BEEN HERE FOR A WEE BIT LONGER

# FORT MAC AND BBQ's—BRINGS THE CLUB TOGETHER!!!

Fish Eye view of Fort McKavett.

Jupiter can be seen in Sagittarius just above the 'hangin' tree' and Venus shines brightly in the sky at the Fort.
From Becky Ramotowski

## BECKY RAMOTOWSKI
## IN FORT McKAVETT

Here's another pinhole photo from Fort McKavett.
This one was made from the porch of the visitor's center building.
I set the 4 x 5 homemade box directly on the porch and then let the exposure go for about 30 seconds.
This box is a custom built one I made to use 4 x 5 sheet film holders, 120 roll film back, and a Polaroid back. I really like this camera!
100 speed ERA 4 x 5 sheet film
ERA is made in China and has similar characteristics to Kodak T-Max for about a third of the price.

L/RGB image of irregular dwarf galaxy UGCA 444 in Cetus, made from images taken by Al Kelly with a Starlight Express MX916, Lodestar autoguider with SX AO unit, and a Celestron CGE 1400 at f5.5 on 10/24/08 from Fort McKavett, Texas, using Astrodon CRGB filters. Eleven 600-second clear-filtered subexposures, five 300-second subexposures in red, three 300-second subexposures in green, and four 300-second subexposures in blue were self-guided in Astroart and processed in AIP4WIN and Photoshop.

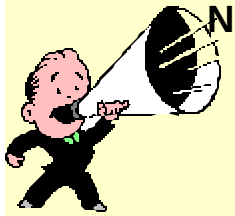
## AL KELLY FROM FORT McKAVETT

L/RGB image of globular cluster NGC 6943 in Delphinus, made from images taken by Al Kelly with a Starlight Express MX916, Lodestar autoguider with SX AO unit, and a Celestron CGE 1400 at f5.5 on 10/24/08 from Fort McKavett, Texas, using Astrodon CRGB filters. Twenty-sex 120-second clear-filtered subexposures, five 300-second subexposures in red, three 300-second subexposures in green, and four 300-second subexposures in blue were self-guided in Astroart and processed in AIP4WIN and Photoshop.

This is a lovely little galaxy pair in Pisces, NGC 7541/7537

# NOVEMBER OBSERVING

**Nothing was sent this month**
**But**
**You can go to the kids' section**
**And**
**Check out what is happening in November**
**Pages 26 & 27**



**Need volunteers**

## What's Happening at the George!!!

Cynthia Gustava

## George Observatory November Events

November George Observatory Events

Saturday Night Public Observing – 19:00-23:00
Nov 1 – Building Managers: Tracy Knauss/Leonard Ferguson
Nov 8 – Building Managers: Cynthia Gustava/Mary Lockwood
Nov 15 – Building Managers: Mary Lockwood/Joe Mills
Nov 22 – Building Managers: Barbara Wilson/Buster Wilson
Nov 29 – Building Managers: Justin McCollum/Carl Sexton

Friday Night Special Group Observing – 19:00-22:00
Nov 7 – JMelchor Group (100)
Nov 14 – HMNS Member's Night
Nov 21 – Aerospace Overnight

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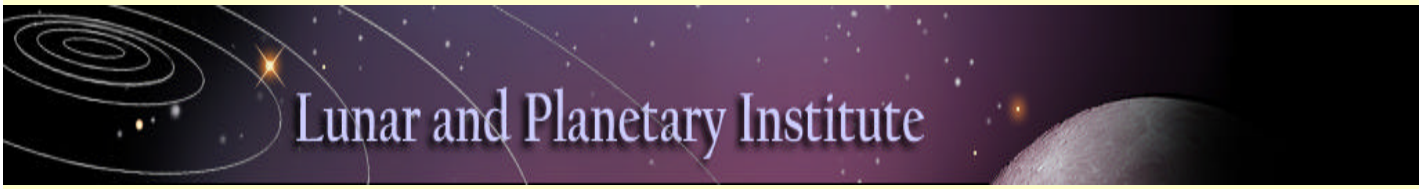



Due to a little damage at the Girl Scout House, the Girl Scout astronomy workshop is being rescheduled. It was planned to be on Oct 4 but is now being held on Saturday, Nov 15.

So we need scopes. This is for a girls scout astronomy workshop. There will be approximately 30 girls plus parents and siblings there and they will be working on their astronomy badges. This will be held at the Friendswood girls scout house (near the Friendswood library). It will be from 6:30-9:30. The girls will be working on other activities until it gets dark and they can look through the scopes.

Please let me know if you can bring a scope.

The Lunar and Planetary Institute Presents

# COSMIC EXPLORATIONS: A SPEAKER SERIES

November 13, 2008

## FROM THE BIG BANG TO BIG BRAINS: THE ORIGIN OF STRUCTURE IN AN EVOLVING UNIVERSE

Join us as we prepare for the International Year of Astronomy. Arizona State University astronomer Jeff Hester, best known for some of the most beautiful images taken with the Hubble Space Telescope, will describe the changing conception of our universe in this presentation on how galaxies, stars, and planets developed in the cosmos.

This FREE presentation at 7:30 p.m. is geared toward all inquisitive adults and will be followed by a light reception and an opportunity to meet Dr. Hester.

Speaker presentations held at
USRA's Lunar and Planetary Institute
3600 Bay Area Boulevard, Houston TX

For more information, please call
281-486-2135 or visit
www.lpi.usra.edu/education/lectures



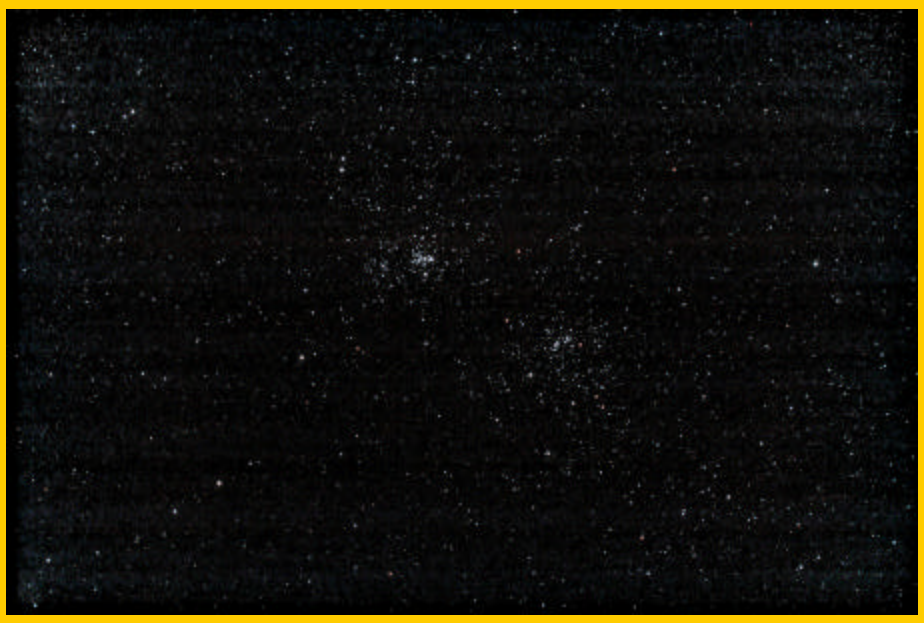
Folks:

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

## Members' Gallery—November 2008
## By
## CHRIS WELLS & AL KELLY



**Double Cluster - League City, TX**
**Chris Wells**

My second image with Hyperstar 3 lens.
Scope: Celestron C11 at f2 on PM1 Equatorial Mount
Image Camera: Canon XTi (non modified) using self timer
Processing: AIP4WIN and PS CS2
66 Images at 30secs each processed in AIP4WIN.

For this second hyperstar attempt, I spent well over an hour fine tuning my polar alignment using the drift align method. Worked great! Unfortunately, I couldn't get the MaxDSLR software and interface working (user error no doubt + I built the interface cable) so was limited to 30 sec images. So all 66 images (30 secs a piece), were taken with the Canon's in-built self timer. The weather is probably the best it gets for our local conditions but I still have to fight with background issues in the processing. The hyperstar lens seems to compound these issues since the field is not flat especially towards the edges. I did take sky flats but need to clearly work at this technique since they didn't appear to help much in the processing. There are still some background remnants at the corners. Using previously good advice from Al, I split the color channels in AIP4WIN after stacking and calibration, and used the sky background tool for the channels. Color channels were recombined in Photoshop. It definitely worked much better this way than simply trying to process the composite image.

**LRGB of NGC 7814**
**Al Kelly**

My first post-Hurricane Ike image (or, as Ed Grafton puts it, Hurricane Y(ike)s!). This was 3 hours of unbinned luminance and 2 hours of binned RGB chrominance from my light-polluted back yard (about 18 mag/arcsec^2). The new AO unit and Lodestar guider from Starlight Xpress work very well.

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

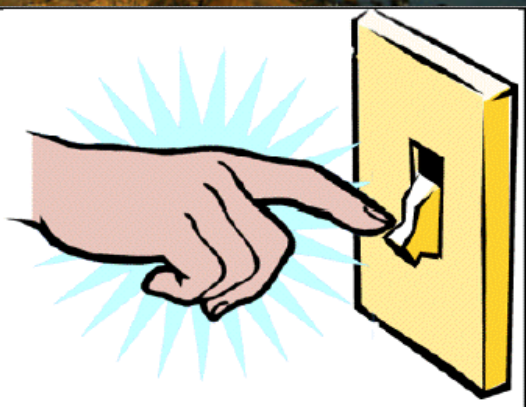
.Do you have a question about light pollution, protecting the night sky, or IDA's resources? **Get Help from IDA** http://www.darksky.org/mc/page.do?sitePageId=56399

Photograph © Phil Hart

IDA
THE LIGHT POLLUTION AUTHORITY

## Help turn off the lights...

Join the
**International Dark-Sky Association (IDA)**
http://www.darksky.org
"To preserve and protect the nighttime environment and our heritage of dark skies through quality outdoor lighting."



# 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

**Galveston Stargazers**
Meets the first Wednesday of the month At Home Cut Donuts, 6807 Stewart Rd, Galveston, TX
From 7PM to 9PM.
Contact: Jim Gilliam at Jim.Gilliam@dars.state.tx.us or
At (409)795-3620, M - F, 8AM to 5PM

**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

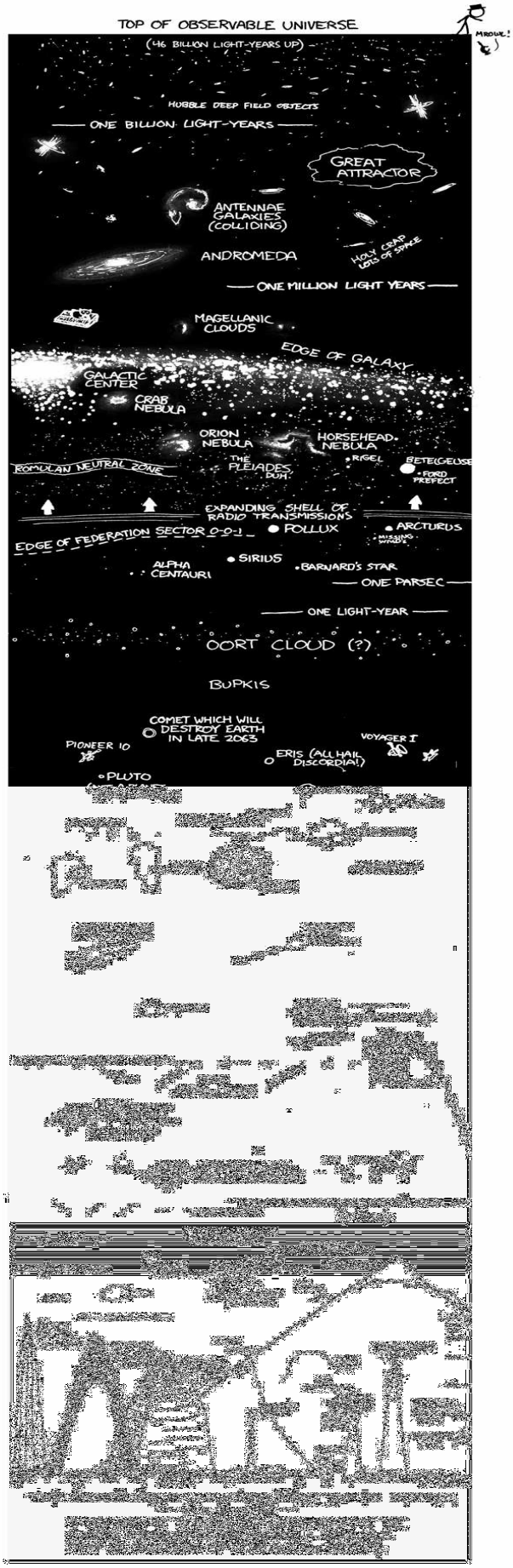
## Johnson Space Center Astronomical Society

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*




Courtesy of Andy "Yoda" Saulietis

# 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

## MEMO

**Question of the Month:**

**What mission is planned for NASA in the month of November and what is its purpose/goal? Give me the Date, Mission, Launch Vehicle Name, Launch Site/Pad, Launch Time, Landing Date and Time, Landing Site & Description**

# WORD SEARCH SOLUTION FOR OCTOBER

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| P | M | V | B | Q | R | L | J | Z | C | O | M | M | A | N | D | E | R | W | Y | T | I | E | M | T | X | W | K | L | V |
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| Y | M | I | N | T | G | X | N | K | U | B | I | U | T | Z | Z | M | C | M | B | X | F | J | A | M | R | E | F | T | R |
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| V | R | F | U | E | A | T | F | V | E | K | I | P | A | V | U | R | P | I | P | O | L | Y | X | P | T | W | J | Y | G |
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- ASTRONOMYDAY
- GOOD
- PILOT
- MCARTHUR
- HUBBLE
- TELESCOPE
- ATLANTIS
- MISSIONSPECIALIST
- ALTMAN
- GRUNSFELD
- PAYLOAD
- LAUNCH
- MASSIMINO
- JOHNSON
- COMMANDER
- FEUSTEL
- SPACEWALK
- DURATION

# SOLUTION TO OCTOBER'S WORD SCRAMBLE

1. ASTRONOMY DAY
2. GOOD
3. PILOT
4. MCCARTHUR
5. HUBBLE
6. TELESCOPE
7. ATLANTIS
8. MISSION
9. SPECIALIST
10. ALTMAN
11. GRUNSFELD
12. PAYLOAD
13. LAUNCH
14. MISSIMINO
15. JOHNSON
16. COMMANDER
17. FEUSTEL
18. SPACEWALK
19. DURATION

## MEMO

**Question of the Month:** Atlantis is scheduled to launch on October 14th. What do you know about this flight? What is its mission, who is going and how long will the team be up there?

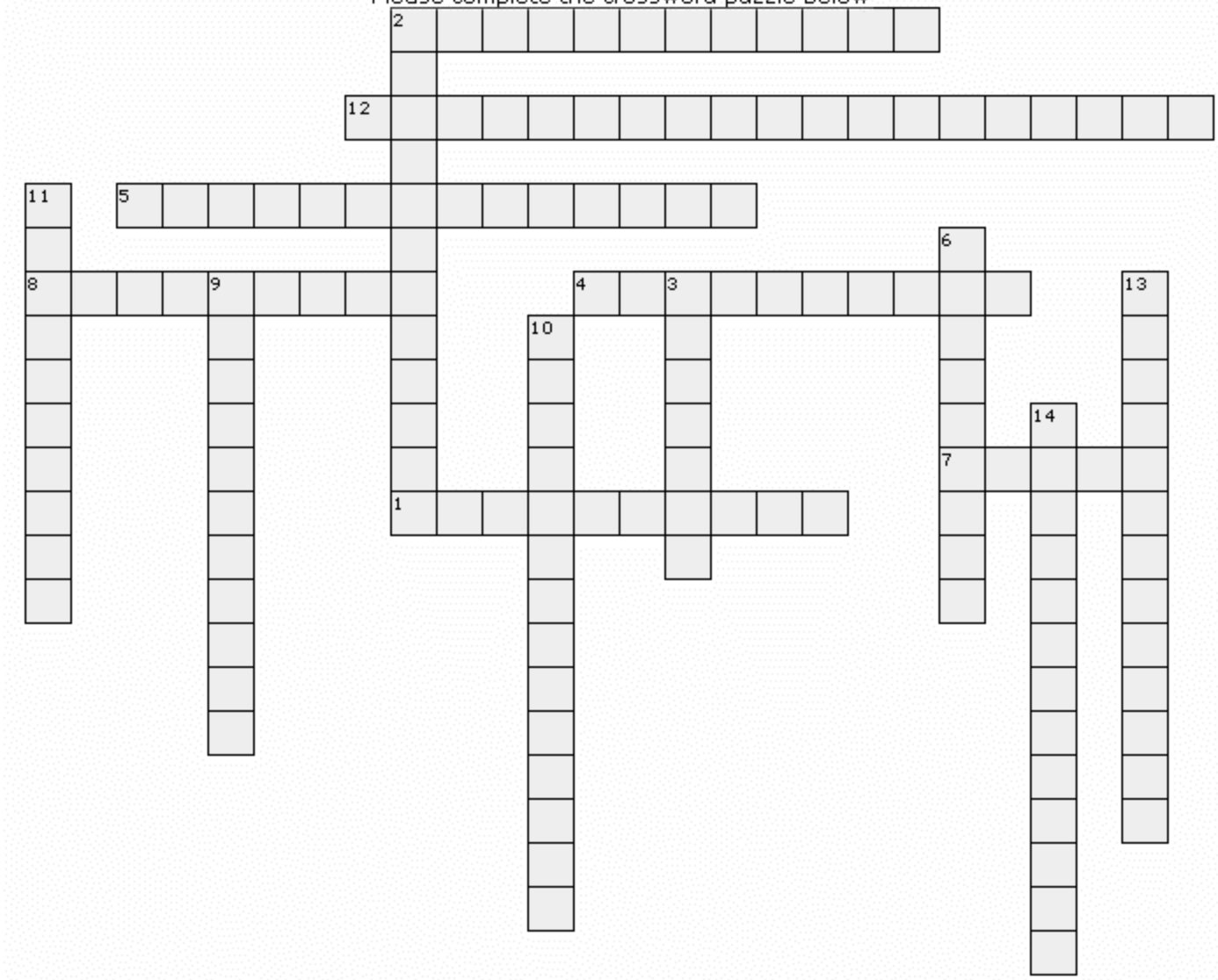
**Answer:** The final Hubble telescope servicing. Michael J. Massimino, Michael T. Good, both mission specialists; Gregory C. Johnson, pilot; Scott D. Altman, commander; K. Megan McArthur, John M. Grunsfeld and Andrew J. Feustel, all mission specialists. And the duration is 11 days. And it has been postponed until February 2009.

NAME _____

**DATE** _____

# FIRSTS

Please complete the crossword puzzle below




**Across:**

1. THE FIRST PERSON TO VISIT SPACE AS A TOURIST
4. THE FIRST AFRICAN AMERICAN WOMAN IN SPACE
5. THE FIRST REPEAT CIVILIAN TO VISIT THE ISS
7. THE FIRST EARTHLING IN SPACE
8. THE FIRST AMERICAN WOMAN IN SPACE
2. THE FIRST PERSON TO SPACE WALK
12. THE FIRST WOMAN IN SPACE

**Down:**

2. THE FIRST AMERICAN IN SPACE
3. THE FIRST AMERICAN TO WALK IN SPACE
6. THE FIRST AMERICAN TO ORBIT THE EARTH
9. THE FIRST HUMAN IN SPACE
10. THE FIRST AFRICAN AMERICAN IN SPACE
11. THE FIRST PERSON TO MAKE A SECOND TRIP INTO SPACE
13. THE FIRST MAN ON THE MOON
14. THE FIRST AMERICAN WOMAN TO PILOT A SPACECRAFT

## WHAT'S HAPPENING IN NOVEMBER

Nov 01 - Asteroid 19367 Pink Floyd Closest Approach To Earth (1.057 AU)
Nov 01 - Asteroid 8952 ODAS Closest Approach To Earth (1.749 AU)
Nov 02 - Daylight Saving - Set Clock Back 1 Hour (United States)
Nov 02 - Asteroid 2404 Antarctica Closest Approach To Earth (2.462 AU)
Nov 03 - Taurids Meteor Shower Peak
Nov 03 - Asteroid 2001 VG16 Near-Earth Flyby (0.056 AU)
Nov 03 - 35th Anniversary (1973), Mariner 10 Launch (Venus & Mercury Flyby Mission)
Nov 03-07 - IAU Symposium 259: Cosmic Magnetic Fields - From Planets, to Stars and Galaxies, Tenerife, Spain
Nov 04 - Comet P/2007 R1 (Larson) Closest Approach To Earth (3.747 AU)
Nov 04 - Asteroid 3356 Resnik Closest Approach To Earth (1.381 AU)
Nov 04 - Asteroid 2820 Robinwilliams Closest Approach To Earth (1.824 AU)
Nov 05 - Asteroid 3784 Chopin Closest Approach To Earth (2.351 AU)
Nov 06 - STS-119 Launch, Space Shuttle Discovery (International Space Station 15A)
Nov 07 - Asteroid 7231 Porco Closest Approach To Earth (2.088 AU)
Nov 08 - Cassini, Orbital Trim Maneuver #170 (OTM-170)
Nov 08 - Asteroid 9769 Nautilus Closest Approach To Earth (1.415 AU)
Nov 08 - Asteroid 3656 Hemingway Closest Approach To Earth (1.481 AU)
Nov 08 - Asteroid 17196 Mastrodemos Closest Approach To Earth (1.982 AU)
Nov 08 - 40th Anniversary (1968), Pioneer 9 Launch (Solar Orbiter)
Nov 09 - Asteroid 4179 Toutatis Near-Earth Flyby (0.050 AU)
Nov 09 - Asteroid 3753 Cruithne Closest Approach To Earth (0.396 AU)
Nov 09 - Asteroid 6775 Giorgini Closest Approach To Earth (1.993 AU)
Nov 09-14 - International Conference on Particles And Nuclei (PANIC08), Eilat, Israel
Nov 10 - Asteroid 2062 Aten Closest Approach To Earth (1.087 AU)
Nov 10 - 40th Anniversary (1968), Zond 6 Launch (USSR Moon Orbit & Return)
Nov 10 - 185th Anniversary (1823), Waseda Meteorite Fall (Hit House in Japan)
Nov 11 - Asteroid 2991 Bilbo Closest Approach To Earth (1.538 AU)
Nov 12 - Cassini, Orbital Trim Maneuver #171 (OTM-171)
Nov 12 - Asteroid 4702 Benclark Closest Approach To Earth (2.071 AU)
Nov 12 - Comet P/1999 XN120 (Catalina) Perihelion (3.304 AU)
Nov 13 - Asteroid 2000 Herschel Closest Approach To Earth (0.867 AU)
Nov 13 - Lecture: New Worlds - Exoplanet Discoveries from the Spitzer Space Telescope, Pasadena, California
Nov 13 - 30th Anniversary (1978), HEAO-2 Launch
Nov 14 - Kuiper Belt Object 90377 Sedna Closest Approach To Earth (86.999 AU)
Nov 14 - Lecture: New Worlds - Exoplanet Discoveries from the Spitzer Space Telescope, Pasadena, California
Nov 15 - Comet 193P/LINEAR-NEAT Closest Approach To Earth (1.900 AU)
Nov 15 - Asteroid 3130 Hillary Closest Approach To Earth (1.209 AU)
Nov 15 - 20th Anniversary (1988), Buran Launch (USSR Space Shuttle)
Nov 15 - William Herschel's 270th Birthday (1738)
Nov 16 - Cassini, Orbital Trim Maneuver #172 (OTM-172)
Nov 16 - Comet C/2007 G1 (LINEAR) Perihelion (2.647 AU)
Nov 16 - 35th Anniversary (1973), Skylab 4 Launch (Last Launch to Skylab)
Nov 17 - Leonids Meteor Shower Peak
Nov 17 - Asteroid 2006 TS7 Near-Mercury Flyby (0.033 AU)
Nov 17 - Asteroid 2074 Shoemaker Closest Approach To Earth (0.805 AU)

## WHAT'S HAPPENING IN NOVEMBER (cont'd)

Nov 18 - Alan Shepard's 85th Birthday (1923)
Nov 21 - Asteroid 4238 Audrey Closest Approach To Earth (1.525 AU)
Nov 21 - Asteroid 37452 Spirit Closest Approach To Earth (2.140 AU)
Nov 22 - Asteroid 2004 XK3 Near-Earth Flyby (0.042 AU)
Nov 22 - Asteroid 85236 (1993 KH) Near-Earth Flyby (0.099 AU)
Nov 22 - 10th Anniversary (1998), Galileo, Europa 18 Flyby
Nov 23 - Cassini, Orbital Trim Maneuver #173 (OTM-173)
Nov 23 - Asteroid 48300 Kronk Closest Approach To Earth (2.096 AU)
Nov 24 - Asteroid 5035 Swift Closest Approach To Earth (1.312 AU)
Nov 25 - Asteroid 2006 US216 Near-Earth Flyby (0.046 AU)
Nov 25 - Asteroid 17059 Elvis Closest Approach To Earth (1.283 AU)
Nov 26 - Comet 150P/LONEOS Perihelion (1.768 AU)
Nov 26 - Asteroid 2007 TL23 Near-Venus Flyby (0.030 AU)
Nov 26 - Asteroid 3000 Leonardo Closest Approach To Earth (1.081 AU)
Nov 26 - 45th Anniversary (1963), Explorer 18 Launch
Nov 27 - Cassini, Orbital Trim Maneuver #174 (OTM-174)
Nov 27 - Asteroid 2742 Gibson Closest Approach To Earth (1.747 AU)
Nov 28 - Asteroid 10799 Yucatan Closest Approach To Earth (1.249 AU)
Nov 29 - Christian Doppler's 205th Birthday (1803)
Nov 30 - Asteroid 2002 WQ4 Near-Mars Flyby (0.015 AU)
Nov 30 - Asteroid 11246 Orvillewright Closest Approach To Earth (1.196 AU)
Nov 30 - Asteroid 4149 Harrison Closest Approach To Earth (2.034 AU

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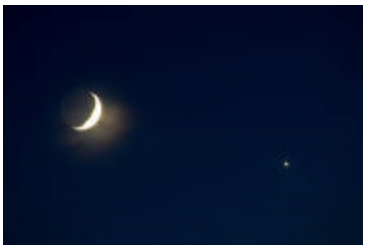

Image Credit: Piconb

## Moon and Jupiter pair up early November 2008

Earth & Sky Radio Series
with Deborah Byrd, Joel Block,
Lindsay Patterson and Jorge Salazar

The slim waxing crescent moon and blazing planet Jupiter can be found in the west, November 3, 2008, near the sunset point shortly after the sun goes down. At mid-northern latitudes – like those in the U.S. and Europe – the moon and Jupiter will stay out till mid-evening tonight. And at latitudes south of the equator, the moon and Jupiter will stay out even later. You'll be able to pick out Jupiter from almost everywhere worldwide, because this world will appear as an exceptionally brilliant star-like object near the moon. In fact, Jupiter ranks as the second-brightest point of light in all the heavens. Only Venus shines more brightly as seen from Earth. It's up after sunset, too, but you're not likely to mistake Venus for Jupiter this evening. Jupiter shines higher in the sky and closer to the moon. Throughout November, Venus will be climbing upward toward Jupiter, to catch up with it by the month's end. Depending on where you live on Earth's globe, Venus will be in conjunction with Jupiter on November 30 or December 1. It's the same moment for all of us but our clocks and calendars say different times. So look for Venus and Jupiter this month. Jupiter is the one near the moon tonight after sunset. Venus lurks near the horizon. Venus will appear very close to Jupiter by late November. You can also think of these two planets moving in their orbits around the sun. The closer a planet is to the sun, the faster it moves in orbit. Venus, the second planet outward from the sun, is the second-fastest planet to orbit the sun at 36 kilometers per second (about 21 miles per second). Jupiter, the fifth planet outward, is the fifth-fastest at 13 kilometers per second (about 8 miles per second). (courtesy: http://www.earthsky.org/radioshows/52745/moon-and-jupiter-pair-up-early-november-2008)

# WORD SEARCH

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| K | D | G | V | R | J | Y | N | H | J | P | C | O | I | J | X | I | U | Z | K | G | C | I | V | T | R | T | L | O | Z |
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| X | M | F | D | E | J | H | O | X | G | R | Z | A | A | R | I | D | Y | S | G | Y | N | G | V | L | W | V | G | M | H |
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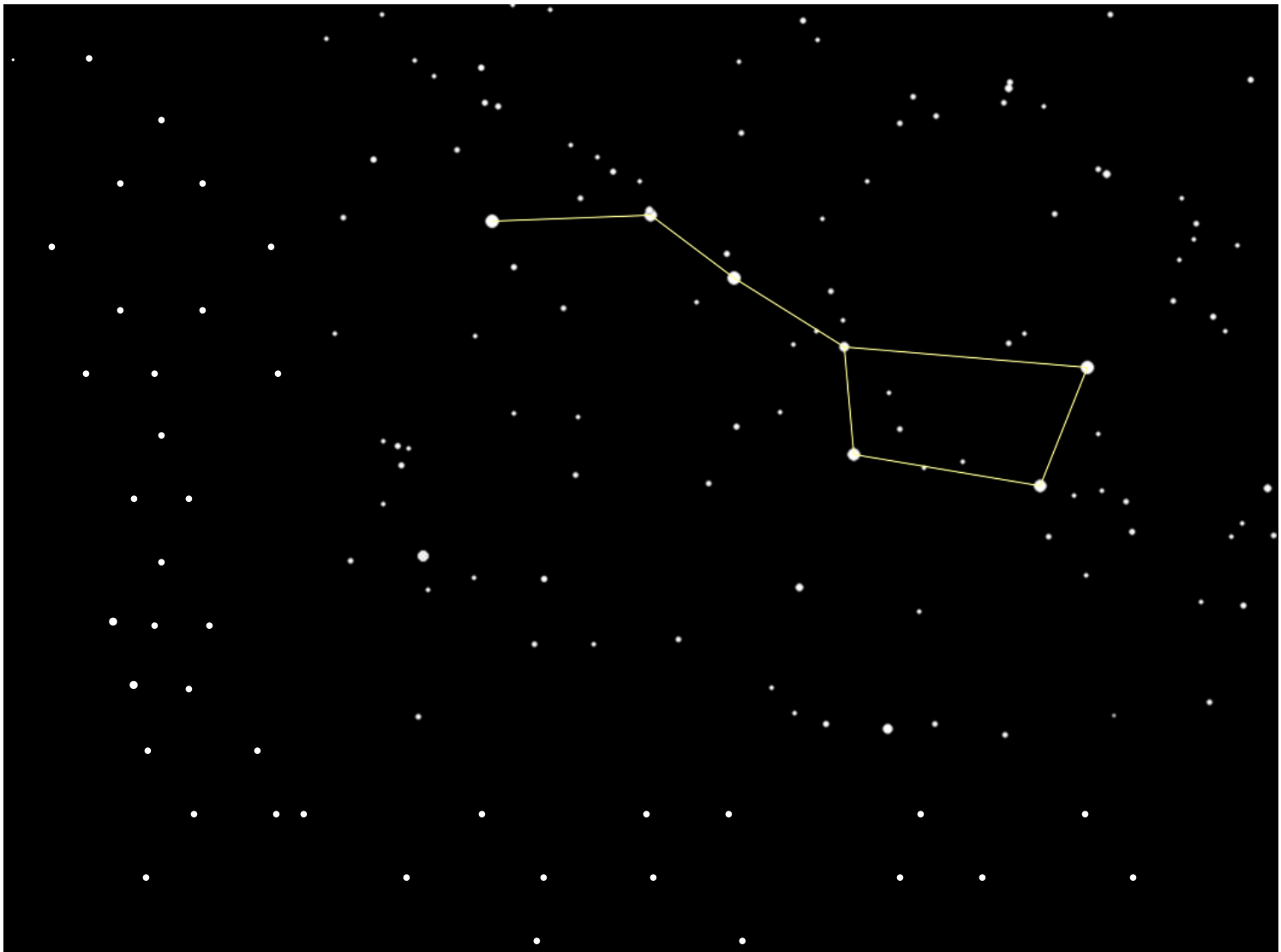
LAIKA
YURI GAGARIN
ALAN SHEPPARD
JOHN GLENN
VALENTINA ERESHKOVA
SALLY RIDE
VIRGIL GRISSOM
GUION BLUFORD JR

MAE JEMISON
ALEX EILEONOV
ED WHITE
EILEEN COLLINS
NEIL ARMSTRONG
BUZZ ALDRIN
DENNIS TITO
CHARLES SIMONYI



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