

Starscan

Johnson Space Center Astronomical Society

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Abell 2218: A Galaxy Cluster Lens Credit: Andrew Fruchter (STScI) et al., WFPC2, HST, NASA *Digitally reprocessed:* Al Kelly



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CONNIE HAVILAND

Un mensaje del Presidente (A message from the President)

Greetings:

OK Folks... I'm very pleased to have Al Kelly's processed image make APOD be our cover shot. Big time kudos!

I was very pleased with the May 22nd star party and how that turned out. Jim Wessel's idea of a an award for the kids was a big hit. We had a good night even if we viewed through many sucker holes. Then again, we had an impromptu star party asked of us in June from the NASA/HQ for JSC engineers that were taking an astronomy course. During the course of the evening the number of participants crept up a bit but was still fun.

Again, on July 14th the LPI needs our help. They are hosting 20-30 (mainly) local teachers for an educational event and they have asked for a star party starting around 8:30pm.

For those that made Friday's meeting, fear not... the directions to the astronomical chair that Jim Wessel presented will be coming in future editions of the Starscan.



Clear skies, David Haviland

LETTER FROM THE EDITOR By Connie Haviland

Hey Everyone!!!

I have been out exploring a different kind of space, *Inner Space*, preparing for not only our daughter's SeaBase trip in Florida this month, but possibly our trip in July. In addition, I have been swamped with embroidery work for the David's BSA unit. To top it off, Sarah has been a horsecamp out near San Marcos and we've had to make a few trips out this way to visit. This has taken up a lot of my time and mental strength (long story, don't want to go there) so my time has been there. Now Dave has done a great job and I will be back after the trip. Enjoy this edition.

Connie Haviland

LETTER TO THE EDITOR

Like many, I have been watching Becky and Shane's observatory come together in stages with excitement and envy. With permission I'd like to summarize it's assembly for the next edition!

David





Star Parties for 2010 Bob Taylor

July 14th "Teachers Education Day" Star Party—LPI Oct 7-10th Fort McKavett!!! Oct 15th – All Clubs Meeting (?) Oct 16th – Astronomy Day at the George Observatory November 20th, 7p.m. LPI—Jupiter



What's Happening at the George!!!



Need volunteers



July 03: Building Managers - Wilson/Wilson gobserve@consolidated.net

July 10: Building Managers - McCollum/Sexton carlsexton@hotmail.com / justinmccollum@hotmail.com

July 17: Building Managers, McKaye/Sexton jemckaye@comcast.net / carlsexton@hotmail.com

July 24: Building Managers, Knauss/Rivich <u>birdbarn2000@yahoo.com</u> / <u>icgalaxies@cs.com</u>

July 31: Building Managers, Knauss/Lockwood <u>birdbarn2000@yahoo.com</u> / <u>mplockwood@att.net</u>

Lunar and Planetary Institute

July 17th - 10 a.m. - 1 p.m. - Comets

For more information e-mail Spaceday@lpi.usra.edu or call 281-486-2106.

For more information, go to http://www.lpi.usra.edu/education/space_days/ Or call Katy at (281) 486-2106 3600 Bay Area Boulevard, Houston, Texas



About Our Front Cover Picture... This was June 20th, 2010 APOD (Astronomy Picture of the Day) (It would seem that AI Kelly has been busy!!)

Abell 2218: A Galaxy Cluster Lens

Credit: Andrew Fruchter (STScI) et al., WFPC2, HST, NASA Digitally reprocessed: Al Kelly

Explanation: What are those strange filaments? Background galaxies. Gravity can bend light, allowing huge clusters of galaxies to act as telescopes, and distorting images of background galaxies into elongated strands. Almost all of the bright objects in this Hubble Space Telescope image are galaxies in the cluster known as Abell 2218. The cluster is so massive and so compact that its gravity bends and focuses the light from galaxies that lie behind it. As a result, multiple images of these background galaxies are distorted into long faint arcs -- a simple lensing effect analogous to viewing distant street lamps through a glass of wine. The cluster of galaxies Abell 2218 is itself about three billion light-years away in the northern constellation of the Dragon (Draco). The power of this massive cluster telescope has allowed astronomers to detect a galaxy at the distant redshift of 5.58.

AND

Hubble Remix: Active Galaxy NGC 1275 (APOD June 4th, 2010_



Credit: Data - Hubble Legacy Archive, ESA, NASA; **Processing - Al Kelly**

Explanation: Active galaxy NGC 1275 is the central, dominant member of the large and relatively nearby Perseus Cluster of Galaxies. Wild-looking at visible wavelengths, the active galaxy is also a prodigious source of x-rays and radio emission. NGC 1275 accretes matter as entire galaxies fall into it, ultimately feeding a supermassive black hole at the galaxy's core. This color composite image, recreated from archival Hubble Space Telescope data, highlights the resulting galactic debris and filaments of glowing

gas, some up to 20,000 light-years long. The filaments persist in NGC 1275, even though the turmoil of galactic collisions should destroy them. What keeps the filaments together? Observations indicate that the structures, pushed out from the galaxy's center by the black hole's activity, are held together by magnetic fields. Also known as Perseus A, NGC 1275 spans over 100,000 light years and lies about 230 million light years away.

Strange Martian Spirals Explained

http://science.nasa.gov/science-news/science-at-nasa/2010/16jun_martianspirals/

June 16, 2010: Almost 40 years ago, NASA's Mariner 9 spacecraft relayed to Earth the first video images



of Mars' northern polar ice cap, revealing a strange pattern of spiral swirls that has puzzled scientists ever since. Using new data from the Mars Reconnaissance Orbiter (MRO), researchers have finally uncovered the secrets of the troughs that snake through the ice cap like a spiraled maze.

Figure 1:Mariner 9 image of the north polar cap of Mars. The image was taken on 12 October 1972, about one-half Martian month after summer solstice, at which time the cap had reached its minimal extent. The cap is about 1000 km across.

Jack Holt of the University of Texas and his graduate student Isaac Smith used radar data from MRO's Shallow Subsurface Radar to crack the case. Examining the details of this new data set has laid open the ice cap's internal structure, revealing clues to the massive ice troughs' formation.

Apparently, the wind did it. "Radar cross sections reveal layers of ice deposited throughout the ice cap's history," says Holt. "The size and shape of those layers indicate that wind has played a key role in creating and shaping the spiral troughs." Not only does wind shape the spirals, but also it causes them to move. They rotate around the north



pole, turning like an excruciatingly slow pinwheel, curiously enough, against the wind.

Smith explains the process: "Cold air from the top of the ice cap sweeps down the slope, gaining speed and picking up water vapor and ice particles along the way. As this wind blows across the trough and starts up the other slope (the cooler side, facing away from the sun), it slows and precipitates the ice it holds. All of this ice is deposited on this cool slope, building it up, so the trough actually grows and migrates, over time, against the wind." Alan Howard of the University of Virginia first suggested the ice trough migration model based on Viking spacecraft data back in 1982. His theory, that wind erosion and sunlight shape and move the troughs, was never widely accepted, but the new data supports it. The Coriolis force generated by Mars' rotation twists the winds sweeping down from the ice cap.



"That explains the troughs' spiral design," says Smith.

Similar formations can be found in Antarctic regions of Earth, but without the spiral shape. Mystery of the Martian Spirals (Antarctic Megadunes, 200px) Icy megadunes in Antarctica do not spiral like the ice troughs of Mars. [more]

"You don't see spirals in Earth's Antarctic ice sheet because local topography there prevents the winds from being steered by the Coriolis force."

The radar data have solved another icy mystery, too--the origin of Chasma Boreale. Chasma Boreale is a Grand Canyon-sized chasm that slashes through the midst of the spiraled troughs. Theories to date suggested that either wind erosion or a single melt event excavated Chasma Boreale within the past 5 to 10 million years.

"Not so," says Holt. "The MRO data clearly show the chasm formed [long before the spirals did] in a much older ice sheet dating back billions of years. Due to the shape of that ancient sheet, the chasm grew deeper as newer ice deposits built up around

it. Winds sweeping across the ice cap likely prevented new ice from building up inside the chasm [so it never filled up]."

The radar data also revealed a second chasm matching Boreale in size. "This chasm's never been seen before -- unlike Boreale, it did fill up with ice, probably because it's in a different location. Boreale is closer to the highest points of the ancient ice cap, where the winds are stronger and more consistent." By discovering that both Chasma Boreale and the ice troughs were shaped by similar processes over different timescales, Holt and Smith answer some questions about Martian climate history. But they're also sparking new ones. "For a long stretch of Martian history the ice layers were regular and uniform, then there was a distinct period when the



spiral ice troughs got started," says Smith. "Something changed. There must have been a very fast (relatively speaking) and powerful change in climate. We still don't know what that change was."

"To figure that out, we need to look at the rest of Mars for evidence of other changes at that same time," says Holt. "This is just the tip of the ice berg."

Author: Dauna Coulter | Editor: Dr. Tony Phillips | Credit: Science@NASA

JSCAS Star Parties, May 22nd, and June 24th. On May 22nd at the request of the LPI, JSCAS hosted a star party behind the theatre building. To attract the kids, and hopefully their parents, a noble idea of giving the kids a certificate for viewing was handed out if the kids has collected 8 or more stamps. This was a very successful star party for us as we estimated 125 plus people in attendance.



PHASES OF THE MOON FOR THE MONTH OF JUNE-2010

«« July 2010									
Sun	Mon	Tue	Wed	Thu	Fri	Sat			
				1		3			
	5	⁶ (⁷ (۴(۹(10			
1	12	13		15	16	17			
*		20	21	22	23	24			
5		27	28	29	30	31			

and mining, unless you want a specific month.

Want more moon details? Click Here To Learn About OuickPhase Pro



SUNRISE AND SUNSET SCHEDULE FOR JULY

Sunday		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 Twi A: 4:48 Sunise: 6:24 Sunset: 20:26 Twi A: 22:02 Moonste: 23:39 Moonset: 11:01	2 Twi A: 4:49 Sunise: 6:24 Sunset: 20:26 Twi A: 22:02 Moonrise: none Moonset: 11:53	3 Twi A: 4:49 Sunrise: 6:25 Sunset: 20:26 Twi A: 22:01 Moonrise: 0:07 Moonset: 12:46
4 0	•	5	6	7	8	9	10
Twi A: 4:50 Sunrise: 6:25 Sunset: 20:26 Twi A: 22:01 Moonsit: 0:36 Moonset: 13:40 Last Qtr: 8:36am		Twi A: 4:50 Sunrise: 6:26 Sunset: 20:26 Twi A: 22:01 Moonrise: 1:07 Moonset: 14:36	Twi A: 4:51 Sunrise: 6:26 Sunset: 20:26 Twi A: 22:01 Moonrise: 1:42 Moonset: 15:35	Twi A: 4:51 Sunrise: 6:26 Sunset: 20:25 Twi A: 22:00 Moonrise: 2:21 Moonset: 16:37	Twi A: 4:52 Sunrise: 6:27 Sunset: 20:25 Twi A: 22:00 Moonrise: 3:08 Moonset: 17:39	Twi A: 4:53 Sunrise: 6:27 Sunset: 20:25 Twi A: 22:00 Moonrise: 4:02 Moonset: 18:40	Twi A: 4:53 Sunrise: 6:28 Sunset: 20:25 Twi A: 21:59 Moonrise: 5:04 Moonset: 19:38
11	•	12	13	14	15	16	17
Twi A: 4:54 Sunrise: 6:28 Sunset: 20:25 Twi A: 21:59 Moonrise: 6:12 Moonset: 20:29 New Moon: 1:41pm		Twi A: 4:55 Sunrise: 6:29 Sunset: 20:25 Twi A: 21:59 Moonrise: 7:23 Moonset: 21:16	Twi A: 4:55 Sunrise: 6:29 Sunset: 20:24 Twi A: 21:58 Moonrise: 8:34 Moonset: 21:57	Twi A: 4:56 Sunrise: 6:30 Sunset: 20:24 Twi A: 21:58 Moonrise: 9:43 Moonset: 22:35	Twi A: 4:57 Sunrise: 6:30 Sunset: 20:24 Twi A: 21:57 Moonrise: 10:50 Moonset: 23:11	Twi A: 4:58 Sunrise: 6:31 Sunset: 20:23 Twi A: 21:57 Moonrise: 11:55 Moonset: 23:46	Twi A: 4:58 Sunise: 6:32 Sunset: 20:23 Twi A: 21:56 Moonise: 13:00 Moonset: none
18	0	19	20	21	22	23	24
Twi A: 4:59 Sunrise: 6:32 Sunset: 20:23 Twi A: 21:55 Moonrise: 14:03 Moonset: 0:23 First Qtr: 4:11am		Twi A: 5:00 Sunrise: 6:33 Sunset: 20:22 Twi A: 21:55 Moonrise: 15:06 Moonset: 1:02	Twi A: 5:01 Sunrise: 6:33 Sunset: 20:22 Twi A: 21:54 Moonrise: 16:08 Moonset: 1:45	Twi A: 5:02 Sunrise: 6:34 Sunset: 20:21 Twi A: 21:53 Moonrise: 17:06 Moonset: 2:32	Twi A: 5:02 Sunrise: 6:34 Sunset: 20:21 Twi A: 21:53 Moonrise: 18:00 Moonset: 3:23	Twi A: 5:03 Sunrise: 6:35 Sunset: 20:20 Twi A: 21:52 Moonrise: 18:48 Moonset: 4:18	Twi A: 5:04 Sunrise: 6:35 Sunset: 20:20 Twi A: 21:51 Moonrise: 19:31 Moonset: 5:15
25	0	26	27	28	29	30	31
Twi A: 5:05 Sunrise: 6:36 Sunset: 20:19 Twi A: 21:50 Moonset: 6:11 Full Moon: 7:37pm		Twi A: 5:06 Sunrise: 6:37 Sunset: 20:19 Twi A: 21:50 Moonrise: 20:42 Moonset: 7:07	Twi A: 5:07 Sunrise: 6:37 Sunset: 20:18 Twi A: 21:49 Moonrise: 21:12 Moonset: 8:02	Twi A: 5:07 Sunrise: 6:38 Sunset: 20:17 Twi A: 21:48 Moonrise: 21:41 Moonset: 8:55	Twi A: 5:08 Sunrise: 6:38 Sunset: 20:17 Twi A: 21:47 Moonrise: 22:09 Moonset: 9:47	Twi A: 5:09 Sunrise: 6:39 Sunset: 20:16 Twi A: 21:46 Moonrise: 22:38 Moonset: 10:39	Twi A: 5:10 Sunise: 6:40 Sunset: 20:15 Twi A: 21:45 Moonrise: 23:08 Moonset: 11:32

July 2010 Houston, Texas

Daylight Saving/Summer Time is in effect for the entire month. Courtesy of www.sunrisesunset.com Copyright © 2001-2006 Steve Edwards



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









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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

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<u>SIGS</u>

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





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 goal has been achieved. Enjoy!!



LEARN YOUR CONSTELLATIONS







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

