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**STARS & SCOPES** 

The Newsletter of the  
Southern Colorado Astronomical Society (SCAS)

Web site : [www.rmastronomy.info](http://www.rmastronomy.info) 

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### Upcoming SCAS Events

Directions to areas are at the end of the newsletter.

### Club Star Watch

05/07 N. Fishing area #1,  
6/04 Club BBQ/ Raptor Center &  
CSUP-Observatory

07/09 Graneros Gorge

The following dates are to be announced: 08/06 , 09/03 , 10/01 , 11/05 , 12/03

### Public Star Watch

At the Raptor Center & CSUP  
Observatory.

05/14 , 06/11 , 07/16 , 08/13 , 09/10 , 10/08 , 11/12 , 12/10

### Observing Request

If anyone is interested in trying some astrophotography or would just like to get out and do some viewing, please contact Klaus Priebe at 719-240-0020 or e-mail me at [kpphoto7@hotmail.com](mailto:kpphoto7@hotmail.com) . Thanks!  
Klaus

Picture top left courtesy of : <http://antwrp.gsfc.nasa.gov/apod/archivepix.html>

Picture top left : Methusaleh Outcrop on Mars

Credit & Copyright: Mars Exploration rover Mission, JPL, NASA

Welcome and greetings from the SCAS Board & Editor. Regular SCAS Meetings start at 7 PM and meet in the **Physics/Math Building room #103**. SCAS meet every second Monday of the month. The SCAS Board meetings are in room # 244 at 6 PM.

### *Mars Polar Lander Found at Last? By the Editors of Sky Et Telescope*

In December 1999 NASA's Mars Polar Lander (MPL) was supposed to touch down near the red planet's south pole. But shortly after it entered the Martian atmosphere, the spacecraft disappeared without a trace. Only now, 5 ½ years later, do scientists think they may have finally located the lander's wreckage and confirmed what went wrong with the mission. The full report, by planetary scientist Michael C. Malin (Malin Space Science Systems), appears in the July 2005 issue of *Sky & Telescope*, now in press.

Malin used his company's Mars Orbiter Camera (MOC) aboard NASA's Mars Global Surveyor to search for the missing spacecraft in late 1999 and early 2000, but apparently came up empty. Shortly thereafter, a review board looking into the craft's disappearance reported what might have caused Mars Polar Lander's demise. The board suggested that MPL's landing rockets fired at the right time and altitude but cut off prematurely. They were suppose to continue firing until one of the craft's landing legs touched the surface. Apparently the onboard software mistook the jolt of landing-leg deployment for ground contact and shut down the engines, causing MPL to fall from a presumed height of 40 meters (130 feet).

Using information gained from observing the two Mars Exploration Rover landers last year, Malin reexamined the 1999 and 2000 images looking for similar features. This time he identified what looks to be a parachute located several hundred meters away from a disturbed bit of ground with a large mark in its center. The parachute-like feature closely matches the Mars Exploration Rover parachutes (which were made of the same materials), and Malin believes the disturbed ground matches what one would see if a rocket had blasted the surface from a height of tens of meters.

"It seems that the MPL investigation board may have been correct, writes Malin in *Sky & Telescope*. "MPL's descent proceeded more less successfully through atmospheric entry and parachute jettison It was only a few

**CSUP Observatory Open House**

Open house will continue on Tuesdays nights.  
 About 1 hour after sunset.  
 The observatory is run by volunteers & they may not be there always on time. Please be patient. The Observatory will not open during high winds (over 20 mph), rain, overcast, & snow.

**Celestial Events**

07/04/05 Deep impact 12Mid.  
 2AM EST.  
 Lunar Phases – 4<sup>th</sup> quarter 05/01/05,  
 new 05/08/05, 1<sup>st</sup> quarter 05/16/05,  
 full 05/23/05, 4<sup>th</sup> quarter 05/30/05.

**For a list of all Star Parties goto:**

<http://skyandtelescope.com>  
 goto resources then event calender

**Regional Star Parties**

06/01 to 06/04  
 5<sup>th</sup> Annual Bryce Canyon Astronomy Festival  
 contact Chad Moore  
[chad\\_moore@nps.gov](mailto:chad_moore@nps.gov)  
[www.nps.gov/brca](http://www.nps.gov/brca)  
 06/04 to 06/11  
 Grand Canyon Star Party  
 contact Dean Ketelsen  
[ketelsen@as.arizona.edu](mailto:ketelsen@as.arizona.edu)  
[www.tusconastronomy.org/gcsp.html](http://www.tusconastronomy.org/gcsp.html)  
 06/10 to 06/12  
 Grand Mesa Star Party  
 contact Carlo Godel  
[regiaero@acsol.net](mailto:regiaero@acsol.net)  
[www.coloradwestastronomy.org/SP05.html](http://www.coloradwestastronomy.org/SP05.html)

**Other Astronomy Organizations**

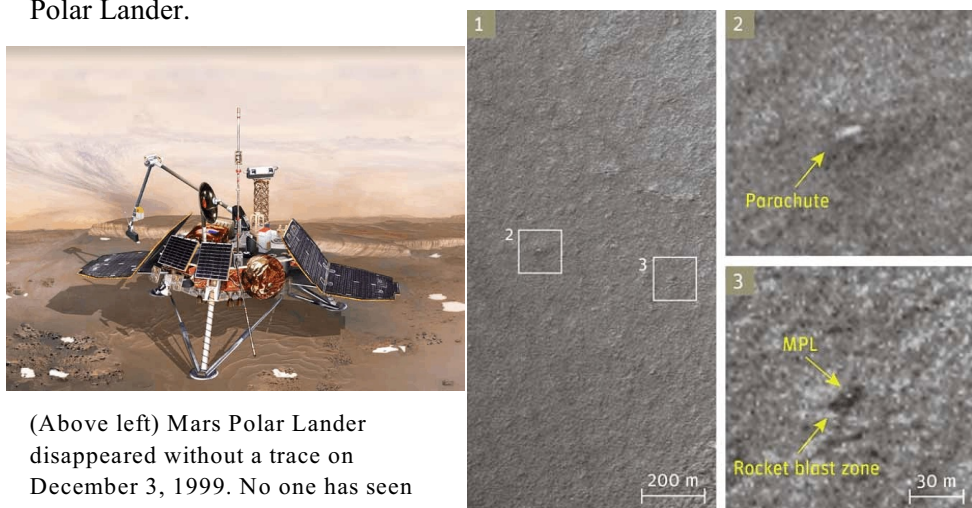
CO Springs Astronomical Society  
[www.csastro.org](http://www.csastro.org)  
 Denver Astronomical Society  
[www.denverastrosociety.org](http://www.denverastrosociety.org)  
 Longmont Astronomical Society  
[www.longmontastro.org](http://www.longmontastro.org)  
 Northern CO Astronomical Society  
[www.ncastro.org](http://www.ncastro.org)  
 Western CO Astronomical Club  
[www.coloradwestastronomy.org](http://www.coloradwestastronomy.org)

**For complete list of all astronomical organizations goto:**

[www.amsky.com/whitepages](http://www.amsky.com/whitepages)

short moments before touchdown that disaster struck."

Later this year NASA will direct Mars Global Surveyor to reexamine the MPL crash site using a special technique to improve the camera's resolution to 0.5 meter per pixel. Malin hopes the new observations will provide the conclusive evidence needed to officially close the case of the missing Mars Polar Lander.



(Above left) Mars Polar Lander disappeared without a trace on December 3, 1999. No one has seen any evidence of the ill-fated craft — until now. Courtesy NASA/JPL. (Above right) The search for Mars Polar Lander was hampered by inexperience: the team didn't know what a parachute should look like or how the ground would be disturbed by the landing rockets. Lessons Learned from observations of the Mars Exploration Rover landing sites helped team members identify what they think are the parachute (2), the rocket-blast zone, and ultimately the Lander itself (3). Courtesy NASA/JPL/MSSS

Science News 04/09/05 Vol 167 #15, article title "*Moon story waxes fuller*" by Erica Klarreich

The story of how the moon was born may finally be complete. According to the most widely accepted scenario, a Mars-size rock slammed into the Earth 4.5 billion years ago, spewing material that coalesced into the moon. But where this gigantic impactor came from has remained unclear.

The moon's chemical composition suggests that the impactor formed as close to the sun as Earth did, but another factor made that seem impossible: As Earth was forming, its gravity acted like a vacuum cleaner, gobbling up nearby debris. How the impactor could have grown to the size of Mars has been an enigma.

In the March *Astronomical Journal*, Edward Belbruno and J. Richard Gott of Princeton University propose that the giant impactor could have gradually formed at one of two gravitational sweet spots called L4 and L5, which are situated as far from the sun as is the Earth. At these two points, any object stays put relative to the sun and Earth.

In computer simulations, the researchers found that debris could have collected at either LA. or L5 into a Mars-size protoplanet and then been nudged away from its sweet spot by other gravitational pulls. Were that to happen, the protoplanet would then orbit the sun in a yo-yoing pathway smack in the middle of Earth's trajectory, with a chance of hitting Earth.

Editor note: # of moons so far for planets: Jupiter 8 regular 55 irregular, Saturn 19 reg 14 irreg, Uranus 18 reg 9 irreg, Neptune 6 reg 7 irreg. Irregular moon has orbit far from planet, highly tilted, elliptical paths and many orbit retrograde, opposite direction.

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Binocular & Small Telescope  
Objects – – Late Spring  
M 49, 58, 59, 60, 61, 84, 86, 87,  
89, 90, 104 in Virgo  
M 46 in Hydra  
M 53, 64, 85, 88, 91, 98, 99,  
100 in Coma Berenices

Science News 04/23/05 Vol 167 #17, article title "*Comet mission loses some focus*" by Ron Cowen

On July 4, the Deep Impact spacecraft is scheduled to fire a 1,800-kilogram projectile into the icy heart of comet Tempel-1. The craft remains on course for that encounter, but its main camera won't record the landmark event quite as sharply as astronomers had expected. Tests have revealed that the camera has only one-third to one-fourth the resolution it was designed to have, NASA announced March 25.

Mission scientists at first suspected that the problem was temporary, caused by condensation of water vapor in the barrel of the 11.8-inch telescope that houses the camera. But after heaters were turned on to bake out any water, the camera's focus improved only slightly. This suggests that the flaw originated during the telescope's construction, says mission scientist Lucy McFadden of the University of Maryland in College Park.

Even so, Deep Impact's pictures will be the sharpest ever taken of a comet, notes McFadden. By studying the material blasted into space when the projectile plows into Tempel-1, astronomers plan to learn about the composition of this comet and other frozen objects left over from the era of planet formation about 4 billion years ago.

Science News 04/16/05 Vol 167 #16, article title "*A moon with atmosphere*" by Ron Cowen

Saturn's tiny moon Enceladus has an atmosphere containing water vapor, observations by the Cassini spacecraft reveal. The source of the atmosphere could be icy volcanic eruptions, geysers, or gases escaping from the frigid moon's surface, NASA announced March 16.

Evidence for the atmosphere, which is too tenuous to be imaged, comes from measurements of Saturn's extensive magnetic field taken by Cassini as it flew past the moon on Feb. 17 and March 9. Near the moon, the craft detected oscillations at the exact frequency expected from ionized water molecules gyrating along magnetic field lines. The ions are presumably created when sunlight strikes water vapor emanating from the moon.

From the strength of the oscillations, Chris Russell of the University of California, Los Angeles calculates that the moon loses 125 kilograms of water each second. The moon is too tiny to retain an atmosphere for long, so it must be continuously replenishing the ions with new material.

The flybys gathered additional evidence for atmospheric ions. Cassini found that Saturn's magnetic field is bent near Enceladus, an indication that ions from the moon are being swept up and accelerated by the field. One of the possible sources of water vapor, icy volcanic eruptions from Enceladus, could explain why the moon has one of the most reflective surfaces of any object in the solar system.

**The Stargate Observatory,** located in Canon City, CO and owned by SCAS member Steve Abraas. The observatory houses a Sky Watcher 6-inch refractor with an 80mm finder scope and a Meade ETX-105, which Steve uses as a photographic tool while he guides through his refractor. RMAC members can contact Steve at [abraas610@netzero.net](mailto:abraas610@netzero.net) and can visit his website at [www.Stargateobservatory.com](http://www.Stargateobservatory.com). The observatory is open to other SCAS members for celestial viewing. His website contains information on the observatory and some celestial images.

[www.sciam.com](http://www.sciam.com) Scientific American online 02/24/05 article title "*Starless Galaxy Said Found*" by Kate Wong

Astronomers announced yesterday that they have discovered what is believed to be the first dark galaxy ever detected, a starless mass of spinning matter located some 50 million light-years away in the Virgo cluster of galaxies.

The initial sighting of this invisible object came in 2000, from radio wave observations made using the Lovell telescope in Cheshire, England, which sketched a cloud of hydrogen atoms a million times the mass of the sun rotating in the Virgo cluster. Subsequent data from Puerto Rico's Arecibo radio telescope confirmed the existence of the object, dubbed VIRGOHI21. "From the speed it is spinning, we realized that VIRGOHI21 was a thousand times more massive than could be accounted for by the observed hydrogen atoms alone," comments co-discoverer Robert Minchin of Cardiff University. This suggests that abundant dark matter is lurking in the cloud. "If it were an ordinary galaxy, then it should be quite bright and would be visible with a good amateur telescope," he continues. Previous claims for dark galaxies have crumbled after observations using optical telescopes ultimately revealed resident stars. But scrutinizing the region using the optical Isaac Newton telescope in La Palma, Spain, the team did

not spot any such signs of the ordinary.

Researchers have predicted the existence of unseen galaxies in recent years, based on indications that the universe contains far more matter than the visible variety can account for. Indeed, the astronomers involved in this new work note that future surveys may well turn up many more dark galaxies. "The universe has all sorts of secrets still to reveal to us, but this shows that we are beginning to understand how to look at it in the right way," remarks team member Jon Davies, also at Cardiff University. "It's a really exciting discovery." A report detailing these findings will be published in the *Astrophysical Journal*.

### **SCAS Board Highlights**

SCAS Board Meeting highlights: 1) The club is now part of the Astronomical League. 2) The club has sent in for an insurance quote and is waiting for a reply. 3) On 06/04, the Club will have the June meeting and club star watch at the Raptor center site. This is a BBQ & get together for all members. Bring a dish or snack. Contact Rose Marie knight at 547-3214 for more information. She is also requesting donations for supplies/food. Or tell her what you will bring.

The next Club Star Watch, on May 07<sup>th</sup>, will be at the N. Fishing Area #1, a new location to be tried out by the club members. Start time at least an hour after sunset. Viewing gets better after the twilight.

May 13<sup>th</sup> at the Pueblo Reservoir, at the end of the West Fishing Road is a special event for the campers at the Reservoir. Start time around sunset. Please come and support the club with this event and bring your telescope. Contact M Verry at 547-7957 for more information.

The next Public Star Watch, on May 14<sup>th</sup>, will be at the Raptor Center Parking Lot and at the CSUP Observatory. Start time at least an hour after sunset. Viewing gets better after the twilight.

May 17<sup>th</sup> at the Pueblo State Mountain Park baseball field is a special event for the Desert Sage School. A yearly event with different schools showing young people the celestial bodies. Please come and support the club with this event and bring your telescope. Contact John Larson at 547-3811 for more information. Also can contact Jeff Leyva at 647-8878 ext 115 (day) or home 547-7138. This is also a BBQ for the school event, you are also invited to join in the BBQ.

### **PLANET & OTHER OBJECT HIGHLIGHTS.** *(Information from Astronomy Magazine)*

Saturn is at a mag of 0.2 and will present good viewing of it's rings. Saturn is past opposition and the shadow is visible on the rings. Last month for good viewing of Saturn. Jupiter shines at a mag of -2.3 and is visible all night. On 05/19 & 05/26, two of Jupiter's moons will cast shadows on the planets surface. Pluto is at a mag of 14. Mars rises around 2 am. and shines at a mag of 0.5. Neptune is at a mag of 7.9 and can be seen in the early morning hours around 1AM. Mercury is viewable for the first two weeks of May and rises before sunrise.

Comet C/2004 Q2 (Machholz) is at a 9<sup>th</sup> mag and can be found crossing the Big Dipper's handle into Canis Venatici.

According to Sky & Telescope, Deep Impact can be seen on 07/04/05 around 12 midnight (MST) in North America. It is also listed at 6AM universal time and 2AM EST. That means when 07/03 turns into 07/04, midnight.

#### **A Call for Newsletter Submissions**

If you would like to contribute an article, observing report, astro-photo, etc. to be published in the Stars and Scopes Newsletter, then submit them to Michael Verry, 1580 N. Cheshire Dr., Pueblo West CO 81007 or e-mail them to rmacmikebrmmbr@yahoo.com. When sending photos, please send them in JPG format and as large as possible. Please note that I can scan photographs, negatives and slides. I will return your photo/slide/negative. If you would like to see something in the newsletter or would something changed, submit your request.

The dues for SCAS are as follows: Individual member - \$20.00/yr, Family member - \$25.00/yr, Senior Membership - \$15.00/yr, Junior membership - \$5.00/yr and College membership - \$15.00/yr. Membership descriptions are in the SCAS Bylaws. An additional fee of \$5.00 will be added to members who have their Newsletter mailed to them. Dues are pro-rated for new members by the quarter year. Regular member dues are due at the beginning of the year. Contact any of the Board members on page one for more information

#### **— Directions to various club meeting and viewing locations. —**

##### **— SCAS Meetings —**

Take Hwy. 47 to CSUP, Pueblo, CO. In the Technology building, room 244 at 6:00 pm for Board meetings and room #103 at 7:00 pm for Regular Club meetings. The Technology building is next to the radio station.

##### **— Raptor Center & CSUP Observatory—**

Take Pueblo Blvd. to 11th street. Turn west on to 11th street. About 0.6 mile & at the top of the hill turn left into the Raptor Center Parking lot. At the end of the parking lot is a trail leading up to the CSUP Observatory.

Please take a flashlight with you. The observatory is run by volunteers & they may not be there always on time. Please be patient. The Observatory will not open during high winds (over 20 mph), rain, overcast, & snow

##### **— So. Fishing Area #1 —**

From Pueblo Blvd., turn west on Hwy. 96 (toward Wetmore) and travel about 10.6 miles. Sign lake pueblo state park on right. Make a right turn. Stay on the paved road for 1.6 miles and take it till it ends.

— **N. Fishing Area #1** —

From Pueblo take Hwy 50 west to McCulloch Blvd. Turn south on McCulloch Blvd. About 5 1/4 miles, there is a green sign indicating the entrance to Lake Pueblo State Park, turn south on Nicholas Road. Just before the park entrance make a right hand turn onto a dirt road. This road also leads to Turkey Creek. Stay to the left after the going over the bridge, then stay on the main road till it ends, about 2 miles. This area also is good viewing of any eagles that happen to be around and the nesting poles are within view. There is a restroom facility at this area.

— **Graneros Gorge** —

From Pueblo, take I25 south to exit 71 Graneros Road. (Next exit past Colo. City.) Go over interstate & make left (north) on the frontage road. Pavement ends, make right over cattle guard onto dirt (&bumpy) road stay right, go 1 mile, road ends in a cul-de-sac.