

# Star Dust

National Capital Astronomers, Inc.

October 2008

Volume 67, Issue 2

<http://capitalastronomers.org>

## Next Meeting

**When:** Sat. Oct. 11, 2008

**Time:** 7:30

**Where:** UM Observatory

**Speaker:** John Grant, NASM

## Table of Contents

Preview of Oct. talk.....	1
Green Bank Star Quest.....	2
Science Fair Judging.....	3
Treasurer's Report.....	3
Occultations.....	4
Oct. 6 Occultation.....	5
Titan's Ocean.....	6
Missing Matter.....	6
Correction.....	7
Calendar.....	7

## Talk Reviews

We are still looking for a few more folks to help review presentations at the NCA meetings. Please contact John Hornstein.

[jshgwave@yahoo.com](mailto:jshgwave@yahoo.com)

301-593-1095

## Directions to Dinner/Meeting

Members and guests are invited to join us for dinner at the Garden Restaurant located in the UMUC Inn & Conference Center, 3501 University Blvd E. The meeting is held at the UM Astronomy Observatory on Metzert Rd about halfway between Adelphi and University Blvd.

## Oct. 2008: Dr. John A. Grant III, National Air and Space Museum Mars Exploration Rovers: Still driving after all these years

**Abstract:** The Mars Exploration Rovers landed on opposite sides of Mars in Meridina Planum and Gusev Crater in January, 2004. Expected to last 90 sols (Martian days) after landing, these intrepid rovers have persisted in their mission for nearly 5 years and continue to return stunning data detailing an ancient Mars that was different and wetter than today. An overview of the mission will include selected details of some of the science results that are changing our view of how the Red Planet has evolved over time.

**Biography:** Dr. John A. Grant, III joined the Smithsonian in the fall of 2000 as a Geologist at the Center for Earth and Planetary Studies at the National Air and Space Museum. He has been a member of the Science Team for the Mars Exploration Rovers since 2002 and is one of six Science Operations Working Group Chairs. Dr. Grant also co-chaired the science community process for selecting the landing sites for the Spirit and Opportunity Rovers and is co-leader of the process to select the landing site for NASA's next Mars rover, the 2009 Mars Science Laboratory. Currently, he is working day-to-day operations on the rovers, targeting the HiRISE camera on board the Mars Reconnaissance Orbiter, and helping to map possible future landing sites on the Red Planet. He has been interested in Mars ever since reading Ray Bradbury's The Martian Chronicles as a child.

Dr. Grant attended the State University of New York College at Plattsburgh and received his bachelor's degree, magna cum laude, in geology in 1982 and went on to earn a master's and doctorate in geology at the University of Rhode Island (1986) and Brown University (1990), respectively. His dissertation focused on the degradation of meteorite impact craters on Earth and Mars, and he remains interested in understanding the processes responsible for shaping planetary landscapes.

After a two-year position at NASA Headquarters, where he served as Program Scientist for the Mars Global Surveyor and now postponed Sample Return missions, Dr. Grant then accepted his current position at the Smithsonian Institution. Since 2001, he has also served as a Co-Investigator on the High Resolution Camera (HiRISE), which is flying on the 2005 Mars Reconnaissance Orbiter, and is currently developing a ground-penetrating radar for possible future deployment on a Mars rover.

**Need a Ride?**

Please contact Jay Miller, 240-401-8693, if you need a ride from the metro to dinner or to the meeting at the observatory. Please try to let him know in advance by e-mail at [rigel1@starpower.net](mailto:rigel1@starpower.net).

**Observing after the Meeting**

Following the meeting, members and guests are welcome to tour through the Observatory. Weather-permitting, several of the telescopes will also be set up for viewing.

**Star Dust** is published ten times yearly September through June, by the National Capital Astronomers, Inc. (NCA).

Editor: Michael Chesnes

Editorial Advisors:

- Elizabeth Warner
- Jeffrey Norman
- Wayne Warren
- Harold Williams
- John D. Gaffey, Jr.

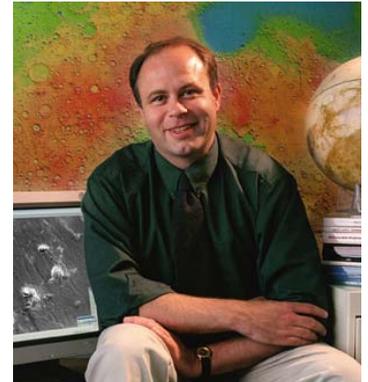
PDF Distributor: Jay Miller

**Please Get Star Dust Electronically**

NCA members able to receive Star Dust, the newsletter of the NCA, via e-mail as a PDF file attachment, instead of hardcopy via U.S. Mail, can save NCA a considerable amount of money on the printing and postage in the production of Star Dust (the NCA's single largest expense) and also save some trees. If you can switch from paper to digital, please contact Michael L. Brabanski, the NCA Sec-Treasurer, at [mbrabanski@verizon.net](mailto:mbrabanski@verizon.net) or 301-649-4328 (h).

Thank you!

- Dr. Grant also maintains a strong connection to the classroom and began as a
- lecturer at Brown University in 1990. Since then he has held several professorial
- posts at both Rhode Island College and SUNY College at Buffalo (New York),
- where he has served as Adjunct Associate Professor of Earth Science and
- Science Education since 2000. He has authored or contributed to numerous
- articles in many industry publications, including NASA's Geomorphology and
- Science magazine.



\*\*\*\*\*

**Green Bank Star Quest**

*Michael Chesnes*

- In addition to NCA members John and Jane Kuehn, I made the journey out to
- Green Bank, WV this Fourth of July weekend to participate in the annual Green
- Bank Star Quest. I arrived after the only clear night of the star party, but the
- speakers, the hospitality, the vendors, and the camaraderie all made the drive
- worth it. I especially recommend taking the hands-on tour of the Forty Foot Dish.
- I hope to see some more of you there next year.



**2008-2009 Officers**

**President:**

Elizabeth Warner  
[warnerem@astro.umd.edu](mailto:warnerem@astro.umd.edu)  
 301-405-6555 (w)

**Vice-President:**

John Hornstein  
[ishgwave@yahoo.com](mailto:ishgwave@yahoo.com)  
 301-593-1095 (h)

**Asst. V.P.:**

John Albers

**Secretary-Treasurer:**

Michael L. Brabanski  
[mlbrabanski@verizon.net](mailto:mlbrabanski@verizon.net)  
 301-649-4328 (h)

**Asst. Secretary-Treasurer:**

Jeffrey B. Norman  
[jeffrey.norman@att.net](mailto:jeffrey.norman@att.net)

**Trustees:**

- Benson Simon (2009)
- Jeffrey Norman (2010)
- Dr. Wayne Warren (2011)
- Dr. Walter Faust (2012)

**Appointed Officers and Committee Heads:**

*Exploring the Sky*  
 Joseph C. Morris

*Telescope Making*  
 Guy Brandenburg

*NCA Webmaster*  
 Dr. Harold Williams  
[Harold.Williams@montgomerycollege.edu](mailto:Harold.Williams@montgomerycollege.edu)  
 240-567-1463 (w)  
 301-565-3709 (h)

*Meeting Facilities*  
 Jay H. Miller  
 240-401-8693

*Star Dust Editor*  
 Michael Chesnes  
[m.chesnes@verizon.net](mailto:m.chesnes@verizon.net)  
 (301) 317-0937

**Science Fair Judging Opportunity**

• Thank you to Jay Miller for originally posting this message on our NCA  
 • Yahoo! Group. It has been edited for length.

• The Washington Academy of Sciences (W.A.S.)\*\* is expanding its "STARS"  
 • (Science and Technology Aptitude Recognition for Schools) youth-in-science  
 • outreach program. We are planning 9 major events in the 2009 school year. We  
 • will offer Challenge Cups, cash prizes, plaques, student memberships in  
 • Scientific Societies, certificates and other awards. Award winning student  
 • projects will also be listed in the W.A.S. Journal and Web site. Outstanding  
 • school teachers will also be recognized.

• I am writing to offer you the opportunity to participate as a judge in a  
 • school science project. You will not need any special preparation, and the  
 • Washington Academy of Sciences will provide everything needed on site at the  
 • school. Typically this will involve about a 4-hour commitment at a participating  
 • school (in the DC, MD or Northern VA area) sometime in the December 2008-  
 • March 2009 time frame.

• If you are interested, please \*e-mail me a one-liner by November 1<sup>st</sup> 2008,  
 • saying: "I would like to be included in the 2009 W.A.S. Judges' Roster" and  
 • include your name, e-mail, affiliation, address, and telephone number. You will  
 • be notified as soon as the schools give us their event dates (no later than  
 • December 31<sup>st</sup> 2008).

• Paul Hazan, Vice President for W.A.S. Jr. Academy Affairs  
 • \*e-mail: [pmhazan@comcast.net](mailto:pmhazan@comcast.net) Tel: (301) 603-0536 \*\*If you have already  
 • registered by e-mail, for 2009, you do NOT need to register again.

**Treasurer's Report**

• *Michael Brabanski*

• NCA TREASURER'S REPORT: 1 JULY 2007 - 30 JUNE 2008

• INCOME	
• Dues	1335.00
• Gifts	950.00
• Interest	358.82
• Sky&Telescope	462.00
• -----	
• TOTAL INCOME	3105.82
• EXPENSES	
• Star Dust	1918.90
• Astronomical League	730.00
• Liability Insurance	320.00
• Speaker's Dinners	304.94
• Administration	172.06
• IDA	100.00
• DC Filing Fee (2 Years)	75.00
• Sky&Telescope	461.30
• -----	
• TOTAL EXPENSES	4082.20
• BALANCE - 1 July 2007	11165.98
• NET CHANGE	-976.38
• BALANCE - 30 June 2008	10189.60

## Mid-Atlantic Occultations and Expeditions

*Dr. David Dunham*

Note the passage of the Moon through the Pleiades the morning of Oct. 17. We have one rather good grazing occultation, of Celaeno, during the passage, with the graze path crossing n. Va. and the MD suburbs just north and east of DC.

Unfortunately, the main action occurs just before sunrise in strong twilight for the Mid-Atlantic States; areas farther west will have a darker sky and better views of it.

D following the time denotes a disappearance, while R indicates that the event is a reappearance. When a power (x; actually, zoom factor) is given in the Notes, the event can probably be recorded directly with a camcorder of that power with no telescope needed. The times are for Greenbelt, MD, and will be good to within +/-1 min. for other locations in the Washington-Baltimore metropolitan areas unless the cusp angle (CA) is less than 30 deg., in which case, it might be as much as 5 minutes different for other locations across the region. Some stars in Flamsteed's catalog are in the wrong constellation, according to the official IAU constellation boundaries that were established well after Flamsteed's catalog was published. In these cases, Flamsteed's constellation is in parentheses and the actual constellation is given in the notes following a /.

Mag is the star's magnitude. % is the percent of the Moon's visible disk that is sunlit, followed by a + indicating that the Moon is waxing and - showing that it is waning. So 0 is new moon, 50+ is first quarter, 100+ or - is full moon, and 50- is last quarter. The Moon is crescent if % is less than 50 and is gibbous if it is more than 50. Cusp Angle is described more fully at the main IOTA Web site - see above. Sp. is the star's spectral type (color), O,B,blue; A,F,white; G,yellow; K,orange; M,N,S,C red. Also in the notes, information about double stars is often given. "Close double" with no other information usually means nearly equal components with a separation less than 0.2". "mg2" or "m2" means the magnitude of the secondary component, followed by its separation in arc seconds ("), and sometimes its PA from the primary. If there is a 3rd component (for a triple star), it might be indicated with "mg3" or "m3". Double is sometime abbreviated "dbl". Sometimes the Watts angle (WA) is given; it is aligned with the Moon's rotation axis and can be used to estimate where a star will reappear relative to lunar features. The selenographic latitude is WA -270. For example, WA 305 - 310 is near Mare Crisium.

Many more total occultations will be visible with 5" and larger telescopes than are listed here. If you want to try to observe some of these events, it is better to use predictions computed for your location, such as those given in the IOTA annual predictions that have been distributed to IOTA members, and are available to others upon request.

For Pleiades occultations, region of visibility maps and predictions for hundreds of N. American cities for the brightest 7 stars are at <http://www.lunar-occultations.com/iota/pleiades08/pleiades.htm> while predictions for all of 2008 for stars to mag. 6.0 for 40 of the larger N. American cities can be downloaded in .zip files from <http://www.lunar-occultations.com/bobgraze/index.html> .

=====  
Timing equipment and even telescopes can be loaned for most expeditions that we actually undertake; we are always shortest of observers who can fit these events in their schedule, so we hope that you might be able to. Information on timing occultations is at <http://iota.jhuapl.edu/timng920.htm> . Good luck with your observations.

Much information about observing occultations of all types is in "Chasing the Shadow: The IOTA Occultation Observer's Manual" available for free download at <http://www.poyntsource.com/IOTAMannual/Preview.htm> .

=====  
David Dunham, 2008 Sept. 26

Phones home 301-474-4722; office 240-228-5609; cell 301-526-5590

office e-mail [david.dunham@kinetx.com](mailto:david.dunham@kinetx.com) with Blackberry for mobile use

home e-mail: [dunham@starpower.net](mailto:dunham@starpower.net) .

### Maryland Occultation Monday, October 6

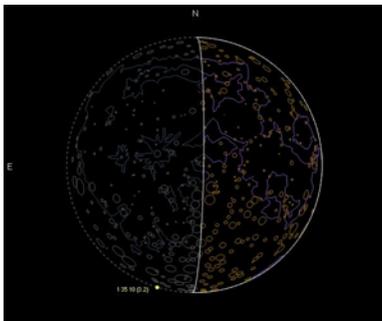
The star phi Sagittarii will appear to graze along the Southern limb of the Moon in an occultation visible along a path running through the Eastern United States roughly parallel with the Appalachian Mountains.

The graze path is passing through Virginia and Maryland locations close to Washington, D.C. At the September NCA meeting, Wayne Warren outlined an expedition that NCA members in the International Timing and Occultation Association (IOTA) are making near Frederick and Hagerstown, MD.

If you are along the graze path, you can observe this 3<sup>rd</sup> magnitude star blink on and off as it passes the high mountains near the lunar south pole at 9:35 P.M. (21h 35m 06s EDT or 1h 35m 06s UT).

For more information on this expedition, visit:  
<http://iota.jhuapl.edu/exped.htm>

*Below: A simulation of the upcoming lunar graze in the software package OCCULT. (Courtesy David Dunham.)*



### Mid-Atlantic Occultations and Expeditions

Dr. David Dunham

#### Asteroidal Occultations

2008	EDT/										
Date	Day	EST	Star	mag.	Asteroid	dmag	s	"	Location		
Oct 4	Sat	19:32	SAO 187533	8.9	Jupiter	0.0	93m	8?	e. N.America		
Oct 9	Thu	6:10	TYC07610630	9.4	2001 PG2	9.3	0.5	3	OH,WV,MD,VA?		
Oct 10	Fri	2:40	TYC00620096	10.4	Henrietta	3.5	9	4	ePA,MD,DC,eVA		
Oct 13	Mon	1:35	HIP 12926	7.9	1998 XC92	9.4	1	2	NJ,PA?,MD,nVA		
Oct 13	Mon	5:30	2UC31476649	12.9C	Artemis	1.0	6	10	PA,MD,neVA?,DE		
Oct 23	Thu	1:18	HIP 11793	9.8	Nancygreen	3.7	1	3	NJ,DE,eMD,seVA		
Oct 24	Fri	6:23	TYC47130652	11.5	Ninina	1.8	9	8	WV,nVA,nMD,sPA		

#### Lunar Grazing Occultations

DATE	Day	EDT/	EST	Star	Mag	% alt	CA	Location, Notes
Oct 6	Mon		21:35	phi Sgr	3.2	46+	14 16S	Rockland, VA; n.Frederick, MD
Oct 17	Fri		6:57	Celaeno	5.5	91-	40 13S	Bethesda,CollegePk,&s.BowieMD
Oct 22	Wed		6:01	X Cancri	6.3	40-	56 10S	Centreville & Alexandria, VA
*** Dates and times above are EDT, those below are EST ***								
Nov 4	Tue		21:02	ZC 2941	8.3	38+	10 17S	Newmarket, MD; Ladysmith, VA
Nov 6	Thu		20:38	X180642	8.1	58+	32 18S	LaPlata&KentIs,MD;Thornbrg,VA
Nov 6	Thu		22:18	ZC 3196	6.3	58+	19 15S	UprMrlbro&KentIs,MD;Dumfrs,VA

#### Total Lunar Occultations

DATE	Day	EDT/	EST	Ph Star	Mag	% alt	CA	Sp. Notes
Oct 7	Tue		19:44	D 51 Sgr	5.6	56+	26 62S	A1 ZC2861;1-line spec.bin.
Oct 8	Wed		21:13	D ZC 2988	7.1	66+	29 88S	A1
Oct 8	Wed		22:27	D SAO 189370	7.1	66+	24 77S	K2
Oct 9	Thu		21:56	D ZC 3118	6.9	75+	34 69N	K0
Oct 11	Sat		21:29	D ZC 3362	5.9	90+	43 39N	K0 mg2 7.7 sep".8,PA323dg
Oct 11	Sat		22:42	D ZC 3367	6.3	91+	46 83N	G9
Oct 13	Mon		0:55	D ZC 3507	6.5	96+	48 44N	F5 spectroscopic binary
Oct 13	Mon		2:10	D SAO 128417	7.0	96+	38 59S	G5 /51 Psc = ZC 68
Oct 13	Mon		19:33	D 51 Piscium	5.8	99+	21 85N	B9 Term.dist.18";closeDbl
Oct 15	Wed		2:47	R 101 Psc	6.2	100-	57 87N	B9 ZC233;termD7",closeDbl
Oct 16	Thu		1:06	R 26 Arietis	6.1	97-	68 53N	A9 ZC 370; close double?
Oct 17	Fri		6:40	D Taygeta	4.3	91-	43 -53S	B6 19Tau=ZC539;dbl;Sun-8
Oct 17	Fri		6:57	G Celaeno	5.5	91-	40 13S	B7 16Tau=ZC536;dbl;Sun-5
Oct 17	Fri		7:06	D Maia	3.9	91-	38 -23S	B8 20Tau=ZC541;dbl;Sun-3
Oct 17	Fri		7:40	R Taygeta	4.3	91-	32 81S	B6 19Tau=ZC539;dbl;Sun+3
Oct 17	Fri		7:45	R Maia	3.9	91-	31 51S	B8 20Tau=ZC541;dbl;Sun-3
Oct 18	Sat		23:14	R ZC 849	6.5	75-	20 72S	G9 close double?
Oct 20	Mon		1:56	R QU Gem	6.8	63-	37 87S	K0 SAO 78778;close dbl.
Oct 20	Mon		2:48	R ZC 1049	6.8	63-	47 45N	A2
Oct 20	Mon		3:32	R SAO 78827	7.4	62-	55 60S	A*
Oct 20	Mon		4:47	R 37 Gem	5.7	62-	68 90S	G0 ZC 1055
Oct 21	Tue		3:03	R 84 Gem	7.1	52-	37 82S	K0 ZC 1187
Oct 22	Wed		0:50	R delta Cnc	3.9	41-	1 53S	K0 Az.67;ZC1310=AsellusAus
Oct 22	Wed		3:32	R ZC 1321	6.9	40-	30 76N	G5 mag2 7.6,sep ".2, PA 84
Oct 22	Wed		5:26	R SAO 98204	7.2	40-	51 69S	A0
Oct 22	Wed		5:54	D X Cancri	6.3	39-	55 0S	n. VA, s. MD graze
Oct 22	Wed		6:01	R = ZC 1331	6.3	39-	58 20S	Var. mag. range 1.9
Oct 22	Wed		6:30	D ZC 1335	6.2	39-	61 -44S	K1 Sun alt. -11
Oct 23	Thu		2:15	R ZC 1427	7.0	30-	3 62N	F8 Az. 76 deg.
Oct 23	Thu		2:49	R SAO 98715	7.9	30-	10 76N	G5 Az. 81 deg.
Oct 24	Fri		4:23	R 48 Leonis	5.1	20-	15 12N	G8 Az. 93; double?
*** Dates and times above are EDT, those below are EST ***								
Nov 3	Mon		17:09	D psi Sgr	4.9	29+	25 59N	K0 ZC 2809; close dbl.
Nov 5	Wed		21:12	D 21 Cap	6.1	49+	19 77N	K3 ZC 3071; close dbl.
Nov 6	Thu		20:30	D X180642	8.1	58+	33 29S	A5 Graze in VA & s. MD
Nov 6	Thu		20:45	R X180642	8.1	58+	31 7S	A5 Dbl,mag2 9,sep 4",PA 81
Nov 6	Thu		22:12	D ZC 3196	6.3	59+	20 25S	A1 Graze in VA & s. MD
Nov 6	Thu		22:23	R ZC 3196	6.3	59+	18 6S	A1 In DC, D&R on dark side
Nov 8	Sat		0:18	D SAO 146232	7.2	69+	11 51S	G0 Az. 252 deg.

Explanations & more information is at <http://iota.jhuapl.edu/exped.htm> .  
David Dunham, [dunham@starpower.net](mailto:dunham@starpower.net), phone 301-474-4722

## ***A Deep Ocean – and Life?—for Titan***

By Richard A. Kerr  
ScienceNOW Daily News  
20 March 2008  
(Based on a release from JPL)

Throughout our solar system, only Earth has water sloshing on its surface. But three large moons of Jupiter have oceans of their own, lying beneath kilometers of globe-encasing ice. Now Saturn's huge moon Titan has joined the deep-sea club. Given the liquid water, astrobiologists are considering the chances of finding traces of Titan life.

These oceans are no great surprise to theorists. Deep-seated heat can keep hundreds of kilometers of water liquid beneath an insulating layer of ice that's tens of kilometers thick. The trick has been confirming their existence. Modelers have predicted that if Titan has a buried sea, the moon's seasonal shifts in wind direction would alternately slow and speed up its spin. That's because an outer ice shell--separated from the moon's rocky innards by liquid water--could slip easily enough to alter Titan's rotation rate noticeably.

When Ralph Lorenz and his colleagues checked the position of landmarks on the surface from one pass of Cassini's imaging radar to the next, they found that the landmarks had rotated as much as 30 kilometers farther than they would have if the rotation rate were constant. That means the outer shell has to be slipping, and there has to be an internal ocean, the team reports. This could mean the existence of life but the ocean is far below the surface and probably contaminated by ammonia.

## ***A Smattering of Missing Matter***

By Phil Berardelli  
ScienceNOW Daily News  
7 May 2008

*Thank you Nancy Grace Roman for finding the articles on this page.*

The heavens may be strewn with stars, galaxies, and nebulae, but the fact is astronomers don't know precisely where most of the ordinary matter in the universe is hiding. A new x-ray observation could help untangle that mystery: Astronomers have located a filament of hot gas stretching all the way from one cluster of galaxies to another. The filament is thought to be one thread in a vast web containing the missing ordinary matter, and, if confirmed, it could give scientists a better idea of where the rest of the stuff is lurking.

To borrow a phrase from former U.S. Defense Secretary Donald Rumsfeld, the universe is chock-full of "known unknowns." Exquisitely precise measurements of the lingering afterglow of the big bang and other studies show that the cosmos consists of 74% "dark energy," weird stuff that stretches space; 22% "dark matter," known only by its gravity; and just 4% ordinary matter, such as atoms, stars, planets, and people. Scientists don't know what dark energy and dark matter are, and even half of the ordinary matter eludes detection.

That's because after the first stars and galaxies began to shine about 13 billion years ago, their light started to ionize the gas in intergalactic space. The ionized gas absorbs and emits little light, making it hard to see across the cosmos. Researchers have seen some of it by studying how light from distant galaxies called quasars is absorbed by intervening clouds. But most of the gas remains undetected. Knowing exactly how such ordinary matter is distributed would help cosmologists test their models of how the universe took shape.

Now a team led by astrophysicist Norbert Werner of the Netherlands Institute for Space Research (NISR) in Utrecht has spied a portion of the missing matter in a different way, by looking at the faint x-rays it emits. The astronomers spotted a filament of hot gas stretching between two clusters of galaxies, located about 50 million light-years apart and 2.3 billion light-years away. The clusters, called Abell 222 and Abell 223, interact with and heat the gas in the intergalactic space between them--gas that vastly outweighs the matter in the clusters' galaxies. The hot gas then glows in x-rays.

Three years ago other researchers uncovered hints that the twin Abell clusters might contain some of the missing matter, but the observations were inconclusive. So a team from the Netherlands employed a sensitive instrument aboard the European Space Agency's XMM-Newton spacecraft. In *Astronomy & Astrophysics*, the researchers reported new observations they say clinch the case. "We believe that we see most of the gas in this filament," Werner says. "The temperature and the density of the gas indicate that it comes from the missing matter."

Astrophysicist and co-author Jelle Kaastra, also from NISR, adds that it might be difficult to tell how much more of the gas occurs in this form, "because models predict that there is a large variety of properties of the gas corresponding to the missing matter."

Werner's group has detected a component of the missing matter that is "much hotter and denser than the more pervasive and diffuse component," says astrophysicist Smita Mathur of Ohio State University in Columbus. "We expected such [x-ray] emissions from dense regions," she says, but "this is perhaps the first time we actually saw them." One question about the discovery is whether the location of the filament between the clusters somehow has created a special case, says astrophysicist Craig Sarazin of the University of Virginia, Charlottesville. "If it's a general result," he says, "then it's very important."

## Correction

Michael Chesnes

The article in last month's Star Dust on the StarryTelling Festival held in Kensington in July neglected to mention the contribution to the festival made by NCA member Joe Martin. Joe treated the public to filtered views of the Sun in Hydrogen alpha light, and was able to watch a weather balloon rise from near Dulles Airport in the evening.

## Calendar of Events

**NCA Mirror- and Telescope-making Classes:** Fridays, Oct. 3, 10, 17, 24, and 31, 6:30 to 9:30pm at the Chevy Chase Community Center, at the northeast corner of the intersection of McKinley Street and Connecticut Avenue, N.W. Contact instructor Guy Brandenburg at 202-635-1860 or email him at [gfbrendenburg@yahoo.com](mailto:gfbrendenburg@yahoo.com). In case there is snow, call (202) 282-2204 to see if the CCCC is open.

**Open house talks and observing** at the University of Maryland Observatory in College Park on the 5th and 20th of every month at 8:00pm (Nov-Apr) or 9:00pm (May-Oct). There is telescope viewing afterward if the sky is clear.

**Dinner :** Saturday, Oct. 11 at 5:30pm, preceding the meeting, at the [Garden Restaurant](#) in the University of Maryland University College Inn and Conference Center.

**Upcoming NCA Meetings** at the University of Maryland Observatory

Oct. 11, 2008

Dr. John Grant, NASM,

*Mars Exploration Rovers: Still driving after all these years*

Nov. 8, 2008

Dr. Steven Dick, NASA

*NASA's 50<sup>th</sup> Birthday*

### Yes, I'd like to join NATIONAL CAPITAL ASTRONOMERS!

Name: ..... Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Street address: .....

City/State/ZIP: .....

Telephone: \_\_\_\_ - \_\_\_\_ - \_\_\_\_ E-mail: .....

Would you prefer to get Star Dust by e-mail? \_\_\_\_\_

#### MEMBERSHIP CATEGORIES AND ANNUAL DUES RATES

All members receive Star Dust, the monthly newsletter announcing NCA activities. The basic dues cover an electronic copy of Star Dust; paper copies are \$10 extra. You may also choose to get Sky & Telescope magazine at the discounted rate of \$33.

Student Membership .....	\$ 5
Paper copy of Star Dust .....	\$10
Sky & Telescope .....	\$33
Total .....	_____

Individual/Family Membership .....	\$10
Paper copy of Star Dust .....	\$10
Sky & Telescope .....	\$33
Total .....	_____

Please mail this form with your check payable to National Capital Astronomers to:

*Mr. Michael L. Brabanski, NCA Treasurer; 10610 Bucknell Drive, Silver Spring, MD 20902-4254*

# National Capital Astronomers, Inc.

**If undeliverable, return to**

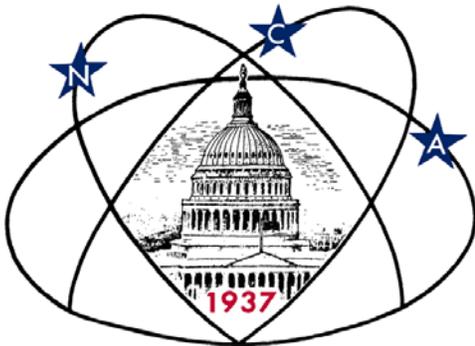
NCA c/o Michael L. Brabanski

10610 Bucknell Dr.

Silver Spring, MD 20902-4254

**First Class**

**Dated Material**



Next NCA Mtg:

**Oct. 11**

**7:30pm**

**@ UM Obs**

**Dr. John A. Grant III**

## Inside This Issue

Preview of Oct. Talk.....	1
Green Bank Star Quest.....	2
Science Fair Judging.....	3
Treasurer's Report.....	3
Occultations.....	4
Oct. 6 Occultation.....	5
Titan's Ocean.....	6
Missing Matter.....	6
Correction.....	7
Calendar.....	7