

# Star Dust

National Capital Astronomers, Inc.

April 10, 2010

Volume 68, Issue 8

<http://capitalastronomers.org>

## Next Meeting

**When:** Sat. Apr. 10, 2010  
**Time:** 7:30 pm  
**Where:** UM Observatory  
**Speaker:** David Thompson,  
NASA Goddard

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## 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 Rd and University Blvd.

## 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,

April 2010: Dr. David J. Thompson  
NASA Goddard Space Flight Center  
Deputy Project Scientist  
Fermi Gamma-ray Space Telescope  
**Highlights from the Fermi  
Gamma-ray Space Telescope**

**Abstract:** Since August, 2008, the Fermi Gamma-ray Space Telescope has been scanning the sky, producing a full-sky image every three hours. The cosmic gamma-rays recorded by Fermi come from extreme astrophysical phenomena. Some key observations include:

- (1) Gamma-rays from pulsars appear to come from a region well above the surface of the neutron star;
- (2) Multiwavelength studies of blazars show that simple models of jet emission are not always adequate to explain what is seen;
- (3) Gamma-ray bursts can exhibit strong emission at high energies even from distant bursts, with implications for some models of quantum gravity;
- (4) Cosmic-ray electrons at energies approaching 1 TeV seem to suggest a local source for some of these particles.



**Biography:** Dave Thompson received his PhD in physics from the University of Maryland in 1973 and almost immediately started a job at NASA Goddard Space Flight Center with the high-energy gamma-ray astrophysics group. He has spoken to the NCA twice before, describing gamma-ray results from SAS-2 and from EGRET on the Compton Gamma Ray Observatory. He is now a Deputy Project Scientist for the Fermi Gamma-ray Space Telescope and is an active member of the team that built and operates the principal Fermi instrument, the Large Area Telescope (LAT). He serves as the Multiwavelength Coordinator for the LAT team.

several of the telescopes will also be set up for viewing.

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Thank you!

## Spectacular Spiral

### April, 2010

*By Tom Koonce*

*Antelope Valley Astronomy Club, Inc.  
Lancaster, California*

Every year around mid-April the Whirlpool galaxy is well placed for observation in the northern sky in Canes Venatici (The Hunting Dogs). The Whirlpool is also known as M51 and NGC 5194, but most people know it by the nickname that is obvious after your first view. It has a smaller, yellowish companion galaxy, NGC 5195 in the distance. The Whirlpool is the best spiral galaxy in the sky, in my opinion. It can be seen with a small telescope, the spiral arms detected in an 8" scope, and when it is viewed through a really large telescope it is a stunning sight that you'll never forget. It's always a star party favorite when it's visible higher in the sky. A friend once let me observe it through his 51" reflector and I could hardly tear myself away from the view after 15 minutes. I thought I had only been at the eyepiece for 30 seconds...

You will find it quickly by following the curved handle of the Big Dipper away from the dipper to the star Alkaid at the end of the handle. Then look 2 degrees (outer ring of your Telrad) lower to the south and west in declination at about a 90 degree angle to the handle of the dipper. Scan around the area at low powers and you'll spot it as a fuzzy patch of gray.

The more magnification that you apply to the view, the more of the galaxy's structure will be revealed. Under clear, dark skies you will easily be able to make out the spiral structure of the two tightly wound spiral arms, dust lanes and the illusion of a connecting bridge of material between the two galaxies that is not actually there, at least to the extent that it looks like through the eyepiece. The two galaxies interacted about 70 million years ago, with M51 coming out the winner, gaining mass and kick starting many regions of active star formation. While it certainly would have been an exciting (bad?) time to be living in the Whirlpool galaxy, the result today is a spectacular face-on spiral galaxy just 31 million light years away from us with plenty of interesting details, such as the pinkish knots of star forming regions and the radial wisps of interactions between the spiral arms. At medium power, sharp observers may be able to spot another much smaller edge-on galaxy, NGC 5229, to the northwest in the same field of view.

There are a few tricks to observing the Whirlpool galaxy and other 'faint fuzzies' like it. Obviously clear, dark skies and steady seeing are important. Filters will not enhance your views of galaxies, since galaxies are composed of stars emitting at all frequencies, filtering the view down to a particular band of frequencies will not increase the contrast of the view, like looking at the Ring Nebula with an OIII filter. The best way to visually observe extended, dim, magnitude 8.4 objects like the Whirlpool is to increase the amount of light getting to your eye... thus "bigger aperture is better." Please be careful when viewing awesome deep sky objects like M51 through really big telescopes, as it has been known to lead to serious infections of "Aperture Fever" in some observers. Sadly, there is no known cure for it and no known health insurance plans cover the cost of treatment. Trips to the Texas Star Party, Winter Star Party and other major deep sky events where big telescopes are present only offer temporary relief.

Now that the weather is warming up once again, take some time in April to get to know the spectacular Whirlpool galaxy, either for the first time or perhaps visit your old friend and study it in new detail.

Clear Skies,  
Tom

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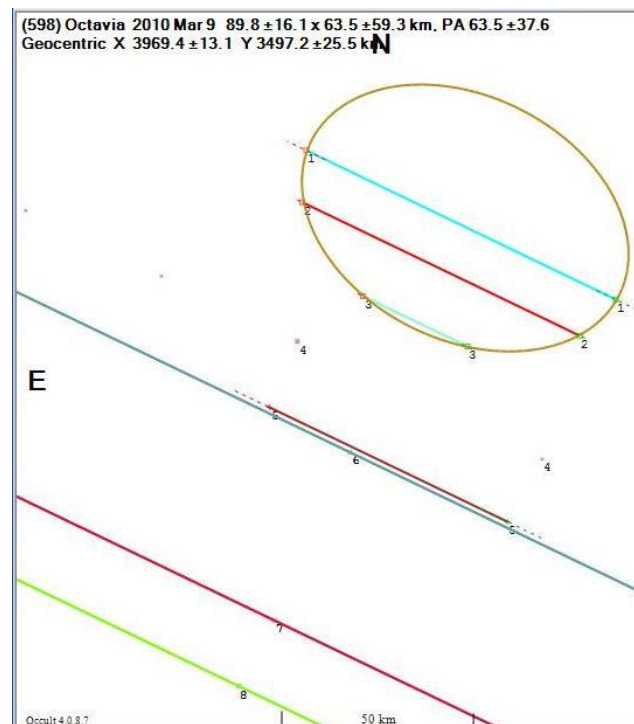
## Observation of the Occultation of SAO 93050 by (598) Octavia

Dr. David Dunham

During the afternoon of March 8, I drove north to Harrisburg, Pennsylvania, where I crossed the predicted central line for this occultation, and then drove about 15 miles farther north, stopping at a farm house on a hill north of Duncannon. The homeowner let me set up a 120mm refractor on his front lawn. I collimated the finder and focused the video camera on a distant mountain top, and did the same for an 80mm refractor while I waited for it to get dark enough to pre-point the first scope. Since the target star was 25 deg. above the western horizon, the twilight did not get dark enough in that direction to see fainter stars in the finder scope until nearly the end of astronomical twilight. By the time I had pre-pointed the 120mm scope and started a camcorder recording the image, there was only about 45 minutes until the occultation. I put the 80mm refractor in my minivan and hastily drove farther north, stopping about 12 miles away in Liverpool. I had to quickly find a site that had a suitable view, finally finding one in a suburban area on the north side of Liverpool. There was only one place where I could see the target area, a few deg. from alpha Ceti, between trees over a house across the street, and quickly got permission from the owner to set up at the needed place. The 80mm scope was easier to point to the distinctive star field than I expected, acquiring the target star less than two minutes from when I started trying to find it, and almost ten minutes before the occultation. I was near the predicted northern limit, knowing that other observers were covering the more southern parts of the occultation zone. A star catalog comparison indicated that the path might shift north of the prediction.

Sure enough, the 9.1-magnitude star disappeared for about 3 seconds, about the predicted central duration. I drove back to Duncannon, where I retrieved the 120mm scope, and played back the video recording made there. I was delighted to see that a short occultation also occurred there, only about half a second long, showing that the location was very close to the southern limit of the occultation; it was clear that the occultation path had shifted about 0.7 path-widths north of the prediction.

Later I learned that Aart Olsen, observing at Urbana, Illinois, also video recorded the occultation; his location was a little north of my Liverpool, PA location relative to the path. The figure shows our 3 chords, numbered 1 to 3 from north to south, behind the asteroid, our observed points projected into the sky plane at Octavia. An ellipse with dimensions 90 km by 64 km fits the observations well.



Richard Sauder, at his observatory in Narvon, PA, northwest of Philadelphia, recorded no observation (line 6 on the plot).

In northern Maryland, Steve Conard, a member of the Westminster Astronomical Society (WAS), for the first time also ran two stations himself, pre-pointing his 9-inch Schmidt-Cassegrain at his home in Gamber (line 8), then driving to Bear Branch Nature Center, the WAS's observing site (line 7), where he also recorded a miss with another small telescope.

Continued on Page 4



## Octavia Occultation

Continued from Page 3

Curiously, Joel Adams, observing visually with a 10-inch Dobsonian from Willow Grove, PA, claimed to have had an occultation (chord 5 on the diagram), but he was nearly in line with Sauder's miss observation. Both lines are well south of the ellipse fit to Olsen's and my chords. In any case, we'll be interested in future observations of occultations by Octavia.

The Octavia occultation occurred at 8:08pm EST, but it was just the beginning of the night's work for me. I drove down to Harrisburg, then took I-81 southwest to the Hagerstown, MD area, recharging batteries with an inverter plugged into my minivan's power socket on the way. I drove west from Hagerstown, setting up and pre-pointing 4 scopes near Williamsport, Hancock, Piney Grove, and finally Frostburg, all in western Maryland, from a few km east of the predicted eastern edge of the path for an occultation by the asteroid (816) Juliana that was predicted to occur in morning twilight, at 5:49am the morning of March 9th.

After setting them up, I drove back the 72 miles to Williamsport, putting recorders calibrated with a Kiwi, and removing light covers that minimized exposure to possible dew, arriving back at the Williamsport 20 min. before the Juliana occultation. Then I had to drive back to Frostburg, stopping at each telescope on the way to record a time calibration and determine the location with a Kiwi GPS, and collecting them. Altogether, I drove 637 miles from the time I left home the previous afternoon until I arrived at my office in Laurel about 1pm on March 9th.

In spite of spreading my four telescopes from just east of the eastern edge to half way from center to the western edge of the predicted path, analysis of the four video recordings showed that the target star was recorded at each at the right time, but no occultation occurred; the path must have shifted even farther west (Steve Conard and John Menke also observed misses from their homes farther east of the predicted path).

David Dunham

## Mid-Atlantic Occultations and Expeditions

Dr. David Dunham

### Asteroidal Occultations

Date	Day	EDT	Star	Mag.	Asteroid	dmag	s "	dur. Ap.	Location
Apr 10	Sat	22:56	SAO 114835	6.0	Sternberga	9.9	2 2	nKY,swv,cen.VA	
Apr 11	Sun	22:24	2UC39101067	12.3	Chicago	2.4	6 8	sNY,n&ePA,NJ,CT	
Apr 14	Wed	3:00	PPM 157767	9.7	Bernoulli	6.5	2 4	OH,MD,NJ;PA,nVA?	
Apr 15	Thu	3:31	PPM 719382	9.4	Auravictrix	5.5	2 4	neOH,sPA,nDE,sNJ	
Apr 17	Sat	3:12	TYC08820193	11.3	Cucula	3.9	4 7	neNC,sVA,WV,OH	
Apr 19	Mon	22:43	SAO 41728	7.7	1999 LUL	9.8	0.3 2	PA,DE;MD,nVA,NJ?	
Apr 24	Sat	0:00	2UC42223992	12.0	Tauntonia	3.6	3 8	OH,WV,nVA;MD,PA?	
Apr 24	Sat	0:30	2UC32699682	12.8	Nina	1.6	12 9	sOH,WV,MD;VA,PA?	
Apr 27	Tue	1:43	2UC35578457	11.7	Moguntia	3.7	8 7	sNJ,DE,eMD,n&wVA	
Apr 30	Fri	21:39	2UC42207926	12.7	Terpsichore	1.4	3 10	sNY,nePA,NJ;nMD?	
May 3	Mon	22:37	2UC32866673	12.9C	Nina	1.3	7 10	OH,PA,NJ,LI;MD?	

### Lunar Grazing Occultations (\*, Dunham plans no expedition)

Date	Day	EDT	Star	Mag.	% alt	CA	Location
Apr 9	Fri	5:53	SAO 164503	8.6	23- 18	62N	Carmel Church,VA; Dameron,MD
Apr 16	Fri	20:50	X 66145	10.5	6+ 16	17N	Gamber & Baltimore, MD
Apr 22	Thu	23:22	SAO 98583	8.8	65+ 43	15N	New Freedom, PA; Edgewood, MD

### Total Lunar Occultations

Date	Day	EDT	Ph	Star	Mag.	% alt	CA	Sp.	Notes
Apr 8	Thu	5:05	R	ZC 3036	7.0	31- 14	79N	F5	Azimuth 125
Apr 17	Sat	22:02	D	SAO 76651	7.8	13+ 14	72S	F0	Azimuth 290
Apr 18	Sun	22:10	D	ZC 835	7.0	21+ 23	83N	B8	
Apr 18	Sun	22:58	D	SAO 77276	6.8	22+ 14	35S	K0	Azimuth 290
Apr 18	Sun	23:23	D	SAO 77312	8.0	22+ 10	67S	K2	Azimuth 293
Apr 19	Mon	20:36	D	SAO 78452	8.3	31+ 51	88S	A0	Sun alt. -10 deg.
Apr 19	Mon	22:08	D	SAO 78493	8.4	31+ 34	56S	K0	
Apr 19	Mon	23:28	D	ZC 1014	7.0	32+ 19	88S	A0	
Apr 20	Tue	20:37	D	SAO 79443	7.6	41+ 59	74S	A0	Sun alt. -10 deg.
Apr 20	Tue	21:22	D	SAO 79451	7.2	42+ 51	16S	A0	
Apr 20	Tue	21:37	D	SAO 79459	7.5	42+ 48	12S	A2	
Apr 20	Tue	23:12	D	SAO 79526	8.3	42+ 31	83S	K	
Apr 21	Wed	0:05	D	ZC 1150	6.7	43+ 21	89S	K0	may be close double
Apr 21	Wed	1:06	D	SAO 79583	7.3	43+ 9	44N	F0	Az 288, close double
Apr 24	Sat	1:44	D	SAO 118293	8.0	77+ 22	60S	F5	
Apr 25	Sun	2:18	D	ZC 1639	7.1	86+ 21	73S	F8	mag2 7.9,sep.10",PA 254
Apr 25	Sun	22:49	D	RW Vir	7.1	92+ 44	76N	M5	ZC1745
Apr 26	Mon	20:24	D	ZC 1858	6.3	97+ 21	68S	K5	Sun alt. -6 deg.
Apr 30	Fri	1:20	R	ZC 2269	5.4	96- 25	87S	B5	WA 276, close double?
Apr 30	Fri	4:18	R	ZC 2286	5.4	96- 22	69S	B5	WA 257
May 1	Sat	1:04	R	ZC 2424	6.9	91- 18	54N	A0	
May 1	Sat	2:33	R	ZC 2427	7.2	91- 24	88S	G0	
May 1	Sat	4:53	R	SAO 184849	7.4	91- 22	40S	K5	
May 4	Tue	3:33	R	SAO 188422	7.9	67- 21	71N	B5	
May 4	Tue	3:43	R	SAO 188427	8.2	67- 22	63N	G5	
May 4	Tue	4:40	R	SAO 188478	8.2	67- 27	7S	K0	
May 5	Wed	2:00	R	pi Cap	5.1	58- 3	48S	B4	Az116,ZC2981,mg2 8,sp3"
May 5	Wed	3:12	R	rho Cap	4.9	58- 15	62N	F3	Az128,ZC2987
May 5	Wed	3:12	R	XL74647	6.8	58- 15	62N		companion of rho Cap
May 5	Wed	3:20	R	ZC 2990	6.6	58- 16	79N	K0	may be close double
May 6	Thu	5:20	R	SAO 164290	8.3	48- 30	54N	F8	Sun alt. -8 deg.
May 9	Sun	4:47	R	SAO 128208	8.0	21- 16	83N	G5	

David Dunham, Phones: home 301-220-0415; cell 301-526-5590  
e-mail: [dunham@starpower.net](mailto:dunham@starpower.net).

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 into their schedules, so we hope that you might be able to.

Explanations & more information are at: <http://iota.jhuapl.edu/exped.htm>.  
Information on timing occultations is at: <http://iota.jhuapl.edu/timng920.htm>.

Good luck with your observations.

### Brown Planetarium in Arlington may Close

Michael Chesnes

As reported in the Washington Post and elsewhere, Arlington Public Schools is planning to close the David M. Brown Planetarium as part of its FY 2011 Budget. If you are interested in joining the effort to save the planetarium, you can visit <http://www.thepetitionsite.com/1/save-the-arlington-va-david-m-brown-planetarium> or join the Facebook group: "Save the Arlington VA Planetarium!"

### Reminder

After the meeting, everyone is invited to join us at Plato's Diner in College Park. Plato's is at 7150 Baltimore Ave. (US Rt. 1 at Calvert Rd.), just south of the university's campus. This is very informal, and we fully expect people to wander in and out.

### Calendar of Events

**NCA Mirror- and Telescope-making Classes:** Tuesdays Apr. 6, 13, 20, 27 and Fridays, Apr. 2, 9, 16, 23, 30, 6:30 to 9:30 pm 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 [gbrandenburg@yahoo.com](mailto:gbrandenburg@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 8:00 pm (Nov.-Apr.) or 9:00 pm (May-Oct.). There is telescope viewing afterward if the sky is clear.

**Dinner:** Saturday, Apr. 10 at 5:30 pm, 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

Apr 10, 2010 **David Thompson** (GSFC)  
*Results from Fermi Gamma-ray Space Telescope*

May 8, 2010 **Sean O'Neill** (UMD) - *Simulations of Black Hole Mergers, Accretion Disks, Bubbles, and Jets*

Jun 12, 2010 **Science Fair Winners + Pizza**

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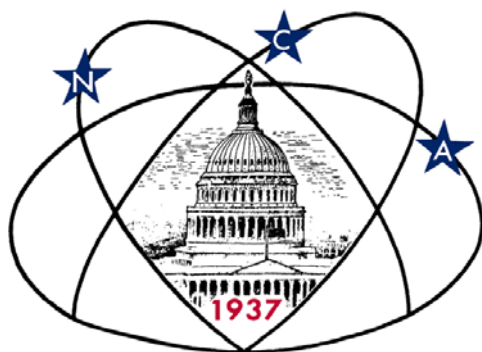
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**First Class**

**Dated Material**



Next NCA Mtg:

**Apr. 10**

**7:30 pm**

**@ UM Obs**

**Dr. David Thompson**

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