

# The Objective View

October 2003

Newsletter of the Northern Colorado Astronomical Society

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**Next Meeting: October 2 7:30 PM**

**Very Low Frequency Radio as a Probe for Energetic Events, Gamma-Ray Bursters & More**  
**By Dr. Joseph DiVerdi**

**Discovery Center Skywatch on Oct 3**

**NCAS Business at 7 PM**

**Meeting directions Discovery Science Center**  
**703 East Prospect Rd, Fort Collins**  
<http://www.dcsm.org/index.html>

In Fort Collins, from the intersection of College Ave and Prospect Rd, head East about 1/2 mile. See the Discovery Center sign to the South. Enter the West Wing at the NE corner. From I-25, take Exit 268, West to Lemay Ave, continue West 1/2 mile, see Discovery Center on the left.

**On Thursday's Presentation:**  
**Probing the Ionosphere Using Radio Waves and Software Defined Radio**  
**Joseph DiVerdi, Ph.D. XTR Systems, LLC & NCSIDO**

Very Low Frequency radio waves emitted from detected by earth-bound transmitters and receivers can be used to probe the ionosphere and detect energetic, extra-terrestrial events, such as solar flares and even Gamma Ray Bursts (GRBs). The transmitter and receiver are located sufficiently far apart to permit only "over-the-horizon" communication where the radio waves are reflected and refracted by the ionosphere, hence revealing its structure.

Transmitters are provided by the major Navies of the world which take advantage of the unique propagation features of the VLF radio waves to communicate with submarines operating at depth. Receivers, based on analog circuitry and capable of monitoring a single frequency, are commonly set up by amateurs and variously forwarded to the AAVSO-SID group for compilation.

The Northern Colorado Sudden Ionospheric Disturbance Observatory (NCSIDO) was created to continuously monitor the ionospheric structure and dynamics by monitoring multiple radio transmissions using Software Defined Radio (SDR). SDR is a class of techniques which replace many of traditional analog functions with digital and software processing components. The VLF range (3-30kHz) is especially convenient for the application of these techniques.

Information and observations can be found at  
<http://xtrsystems.com/vlf>

## Starwatch at Discovery Science Center

Next dates and start times are:

October 3	7 pm
November 7	6:30 pm
January 30	6:30 pm
February 27	6:30 pm

## NCAS Dark Sky Star Party Dates

**October 17, 18, 24, 25**

Cactus Flats site is on undeveloped parcel of prairie about 6 miles West of Briggsdale. Take Colo Hwy 14 East from I-25 (Exit 269). Go 19 miles East to Ault. Continue 18 miles East of Ault. At County Rd 65 (Milepost 170), turn North, go one mile. Site is through the wire gate on the right, no road, close gate and set up. Beware of the cactus. Our standard nights are the weekend of the New Moon, sometimes a weekend before and after. The site is now officially wheelchair accessible, but there are no facilities so bring essentials. Call **Tom Teters**, [tomt@starmon.com](mailto:tomt@starmon.com), with questions about star party status or dates, 482-5702.

## Other Events

Little Thompson Observatory Star Night, Berthoud  
October 17 Star Night 7 – 10 pm  
Max Moe, ALCON Report  
<http://www.starkids.org>

Cheyenne Astronomical Society, Cheyenne Botanical Garden  
October 17, November 21 7 pm  
<http://home.bresnan.net/~curranm/>

Open House, Chamberlain Observatory, dusk to 10 pm  
Oct 4, Nov 8 eclipse, Dec 27 303 871 5172  
<http://www.du.edu/~rstencel/Chamberlin/>

Longmont Astronomical Society  
Oct 16 7 pm Longmont Christian School, 550 Coffman St  
Oct 4 Flanders Park Public Starwatch, sunset  
<http://laps.fsl.noaa.gov/cgi/las.cgi>

## Global Net of Astronomical Telescopes Needs You

Dr. Culver has short-period variable star candidates which need monitoring. If you can contribute CCD images of selected 15<sup>th</sup> to 18<sup>th</sup> magnitude stars, please call Dr. Culver in the Physics Dept, CSU, 491-6206 for more information.

## September 4 Program Mars Mythology and Mania By Dr. Roger Culver

Roger's favorite phenomenon in astronomy is "triple-point topics." These combine science fact, science fiction, and science speculation, closely entwined. Cosmology has long been one. Another is the planet Mars. The name conjures up all kinds of images and overtones. Mars can be appreciated from each of these approaches. How did Mars become the topic of myths and legends? It is named for the God of War of the Romans. Mars in a telescope is a reddish orange disk, with some dark markings and bright polar caps. A drawing by Sir William Herschel in the 1780s does not show remarkable features. But, in 1877, Giovanni Schiaparelli saw Mars in a close approach like our recent approach, and he reported seeing linear features crisscrossing the planet, called "canali." Literally translated, this means "channels." He did not mean to imply artificiality. The term was loosely translated into the English CANALS, which fired the imagination of the American Percival Lowell. He was independently wealthy, did not have to scare up grant support, and lived the life of a gentleman astronomer. He decided to build an observatory dedicated to observe the planets, especially Mars. Instead of building in a convenient spot, he looked for the best site possible. He looked for steady nights, cloudfree nights, in the West. Even today, Lowell Observatory is located on Mars Hill in Flagstaff, Arizona. Lowell looked at the surface of Mars and concluded that the canals were the deliberate work of Martians. He wrote several books around the turn of the century. Found on E-Bay now, they fetch a pretty penny. Lowell's sketches of Mars were quite different. They are strung with canals which look very artificial. Lowell Observatory has preserved his maps and globes. He sparked a controversy with his books and attitudes. Mars axial tilt is like the Earth's, so its seasons are similar, just twice as long. Lowell noted that the Martian Spring and Summer, he saw dark markings look green and blue, and in Fall and Winter they were gray and brown. He concluded that he was seeing vegetation changes. Unfortunately, the human eye can be easily fooled. We can see things we expect or wish to see. When Mars was initially photographed, unsteady air blurred the images too much to allow conclusions about tiny details like canals. The controversy was not settled until the first Mariner mission in the early 1960's. A few canals could be linked to surface features, but almost all of Lowell's network was illusion. Color differences were determined to be influenced by a monsoon season. In Spring and Summer, winds are at a lower altitude which uncovers dark surfaces. In Fall and Winter, winds go upslope and carry the sandy cover back. Lowell proposed a Martian civilization at the turn of the 19<sup>th</sup>-20<sup>th</sup> Century that was capable of making canals hundreds of miles across the surface. What else could they do? In 1898, H. G. Wells wrote *The War of the Worlds*, the Martians' conquest of the Earth. It was a classic of science fiction. This was the first story of a Martian invasion. They were cold, unsympathetic, rational beings with no mercy to Earthlings. The final irony was that humanity was saved by the littlest organisms on Earth, the bacteria in the atmosphere. Wells made the point that the Age of Imperialism was facilitated by the technological superiority of

the dominant nations. Mars invasion mythology is a 20<sup>th</sup> Century phenomenon. There have been multiple tales, plus the Earthlings-invade-Mars scenario of Ray Bradbury's *Martian Chronicles*. It is a modern, technological mythology. It has helped keep alive solar system astronomy. Many children were introduced to the mythology in Superman and Flash Gordon comics. A "W" shaped pattern of water ice clouds was said to be a message, an "M" which was accidentally inverted by Earth telescopes. Orson Welles is a favorite of Dr. Culver's. He was a boy genius. At 23 years old, he did a broadcast. He was the voice of The Shadow. He did the regular Mercury Theater broadcast. In 1941 he produced, directed and starred in Citizen Kane, one of the all-time best films. He unfortunately went after W. R. Hearst, and was blackballed. In 1938, they did a radio version of the War of the Worlds. Wells brought the Martians down in current-day US instead of Victorian England. The Depression continued. This was a month after the Czechs were sold out by the British and French, so there was international tension. He was diabolical in mixing music with "news" interruptions. An actor sounded like the voice of Roosevelt. By the end of an hour, over a million people at some level believed in the invasion. Welles had to rewrite the script on the fly to reassure a panicking audience. The New York Times featured a major story the next day. One reason this worked was involvement of Martians, not Venusians or Saturnians. Even the moons of Mars reflect the Martian mythology. In *Gulliver's Travels*, Gulliver is told about 2 satellites of Mars. This was written 150 years before discovery of the two moons by Asaph Hall, the same year Schiaparelli saw the canali. Carl Sagan coauthored a book called *Intelligent Life in the Universe*, with speculation about the Martian moons as artificial satellites, since they were not seen in 1862. Images show that they look like captured asteroids. There have been many movie references to Mars, starting from the 1920s. Roger reviewed such favorites as "Angry Red Planet" and "Abbott and Costello Go To Mars." He concluded with the story of the Face on Mars. Since no big cities have surfaced, the official hunt for microbial life continues. Richard C. Hoagland has acquired a large following promoting the Face and Pyramids on Mars as monuments. He has accused NASA of a coverup. Dr. Culver is skeptical about claims when there are significant dollars at stake. No one in Washington can keep a secret for any length of time. Another huge source of controversy is the Martian meteorite, proposed by some scientists to show signs of past microbial life. This controversy continues. In the meantime, we have opportunities to enjoy Mars views and wait for the new probes en route to the Red Planet.

### NCAS Business, September 4 2003

President Dan Laszlo called the meeting to order. Corey Radman circulated raffle tickets for the benefit of Discovery Science Center. Local Mars-watching events were announced, including Brad Jarvis' talk at Little Thompson Observatory in September.

### Marswatching with Gary G

Hi Steve, Dave D, Jim L, Tom T., Brian K, Bill P. and LAS Mars watchers. I have been waiting for clear night since closest

approach last Wednesday night. I did get out on Thursday to Front Range Community College with Roy and Monica and Terry Frazier and about 25 or so astronomy students. These Bozos wanted to set up on Pike road to view Mars as cars go zipping past at 50 miles an hour with constant steady stream of cars. I almost said lets set up right under this big parking lot lites, might be better than street with cars, totally against anything we ever do for star gazing event. Luckily Mars is so bright setting up at end of lot gave Roy and Me the best views with least amount of lights, away from the street in next lot east from College. All were amazed at views. Roy brought his 12 inch and I brought the 16 scope with Jerry W mirror.

I hope a lot of people got to go out Sunday night for best seeing in almost 3 weeks it seems, but the Dew was very , very , very wet. My telrad and finders were both totally dewed over and eyepieces were getting wet ,but despite it all my secondary and primary remained OK until about 1:30 am when dew was running down the light shroud and literally pouring water across my primary so I had to call it a night about 2 am. Chuck P and Ernie and Doug and Norm ,Alvena and my wife Carol got some of the best views yet . I of course took many pictures once again. I will email out some if they came out OK or not, I have not checked it out yet, bye, aperturemon

### **Gary G and Friends at Foxpark Sept 26-7**

Foxpark was awesome once again. Total clear sky for us both Friday and Saturday nights. Steve L and Dave D. showed up on Thursday for maybe last chance at viewing from over 9000 feet elevation this year. Judy and Tom, new friends from Loveland, Co., who just happened to show up back in May at Fox park and found Steve , Dave and myself on one of our new moon star parties and here we meet again. She set up her scope with us and stayed up late both nights, pretty tuff girl . We made up for the Weekend Under The Stars summer event which ended up weekend under the showers. I stayed up till 2:30 am on Friday and 3 am Saturday night. Terry Frazier came up on Saturday afternoon for the night and was not sorry for long drive. Terry who lost his two legs in Vietnam, but still gets out to star gaze with us.He is an inspiration to many with his letting nothing stop him. He even flew a glider, sail plane, coast to coast several years back and now is trying to figure out why we all stay up all night looking at faint little fuzzie's. He even climbed up my 10 foot ladder for 30 views, strong arms too. I brought my 8 inch from LAS club project and he used that thru the night.

Well as far as what we saw the list is long. We started about 7:30 pm , gets dark much earlier now, for very long night of viewing. We had low temperature of 24 degrees but not much frost because it was so dry. The seeing totally sucked Friday, despite the very transparent skies. but Saturday night was much better with transparent skies and good seeing, awesome combo at 9000plus feet elevation.The cold kept all bugs away, very nice after long summer of mosquitos, and listen to elk bugle several times in forest near us..Does it ever get any better than this??? Wow! The best Milky Way views all summer, working it's way down to ground through the trees branches. You can only do that at true dark sky places which is why we drive so far to Fox park. I am still a little star struck with so many photons still racing around in my brain.

Best views were probably NGC 253 galaxy, very big edge on Galaxy with views spreading out of eyepiece. New Comet was also found both nights now just a little east of Triangulum. Mars was very good at times and also made it to see Saturn which was rising in east along with great views of Orion nebula for parting shots. It's hard to do astronomy at Fox park then try to settle for less than perfect sky in my yard. Have scope will travel seems to work for me, bye, aperturemon

### **Fantastic Mars Site from Tom T:**

Got 15 mins?

I'd give this page \*\*\*\*, beauty & science The images look very artistic with scientifically valid data. Including Animations, these are Mars Orbiter Laser Altimeter (MOLA) renderings. These are visualizations of Mars in ancient, today's and future settings. Made with DEM15.6 and Terragen 8.11 and 8.44.

[http://www.space4case.com/mars/mars5/mars\\_5.html](http://www.space4case.com/mars/mars5/mars_5.html)

### **Make Your Own Mars Globe with USGS PDFs:**

<http://astrogeology.usgs.gov/Gallery/MapsAndGlobes/mars.html - Globes>

### **Tom T from Cactus Flats, September 26-7**

Greetings all,

Sounds like the folks at Fox Park had a great time. The weekend at Cactus Flats was also quite rewarding. The Sunspot 464 was huge, I counted 11 in the main cluster and 2 trailing above & behind. (Check SpaceWaeather for a neat little movie <http://spaceweather.com>) The Belt of Venus was very apparent and I photoed a lovely red & yellow sunset, to start out a very clear, slightly turbulent Friday night, M51 was visible in a twilight sky. Generally star hopping around the sky, 'catching' those favorite familiars until it clouded up just after midnight but it cleared up around 4 and the fall constellations were vivid!!

Ray & Max M, Greg Halec & three other hearty souls braving the elements that night. This was Max's first dark sky party with his new Meade 12" GoTo. NICE instrument!! Mars finally settled down just before the clouds rolled in & it is obviously smaller than it's conjunction a month ago, the ice cap has almost disappeared.

The Orion & Crab nebula are several impressive objects to view after midnight, later Saturn in Gemini, & don't miss M44 (we did) just before sunrise Jupiter & tiny Mercury in the haunches of Leo, I hope the photos turn out well.

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Sat/Sun night Gene S. showed up & we used his wonderful O2 filter to greatly improve the contrast in those nebula & planetaries, such as the Swan,Trifid, Dumbell & Helix.

My main complaint with nebula filters is that it appreciably decreases the maximum viewable magnitude. Although the new Orion catalog came out & it has a very interesting new? Filter called a Sky Glow Broadband that filters out skyglow, Mercury & Sodium lights & has a very wide band pass in the blue to green & orange to red bands, at \$75 for a 2", \$60 for a 1.25" it looks like a very good alternative to the UltraBlock (standard) nebula filter.

I've been concentrating on planetaries lately-those elusive blue 'ovals' of wonderment, this weekend I located N6572 in

Ophiuchus, N7662 in And. , N7009 Saturn Neb in W. Aqu. I have some slight coma in my favorite 1/2\* eyepiece & when on the edge, all those bright stars look like planetaries. So there are plenty of times I've been tricked with that Eureka feeling only to have to continue the search. Like Gary said earlier N253 (New Galactic Catalog) was glorious, this 'SAc' galaxy in Cetus is tilted on the diagonal with a longitudinal dust lane, almost 1/2\* (degree) in length and well worth the hunt. While you're in the area don't miss N247 (gal.) above; N288 (g.c.) below, right next to the South Galactic Pole!!

The dedicated search of the night was the comet in Taurus about 4\* north of Aldebaran, 1 1/2\* below N1746. After about 20 minutes of searching, "C/2001 HT50" a 12.5 mag. (my estimate) visitor from The ?Oort? was located.

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C/2001 HT50 LIN-NEAT (Tonight @ 1A.M.)

Distance from Earth: 2.363476 a.u.

Distance from Sun: 2.919509 a.u.

Magnitude: 11.0

RA:04h 46m 36.8s Dec:+18d 08' 59" From: TheSKY

Azm:96d 13' 29" Alt:+35d 31' 30"

Rise: 21:58 Transit: 05:09 Set: 12:17

RA:04h 46m 23.7s Dec:+18d 08' 35" Epoch 2000

From C/2001 HT50 LIN-NEAT:

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This dim arrowhead of dust & ices was quite a feat to 'discover' & while I made a drawing of the 1/2\* eyepiece view and the 4\* finder view, I really wish I would have taken a photo (long night, low brain power). A check of the fields of view with TheSKY matches star for star.

Visible was a very small 1" pinpoint nucleus in a diffuse mostly circular coma of about 2' diameter, with averted vision there was a 2' tail pointing from the nucleus to the south.

About 2 AM Gene & I argued- was that light we were looking at in the ENE, a false dawn, Aurora or Pine Springs.

SpaceWeather seems to indicate a false dawn. At 1:30AM a very slow, south moving 'polar satellite' (?D.o.D.) passed west of the comet. Hopefully I had good luck with a 50 min. guided exposure of The Pleiades, the system was functioning smoothly, there was no wind and VERY clear stable atmospheric conditions.

Have a great week!!

Tom Teters- Webmaster

### Issues of Sky & Telescope available

From tighome@verinet.com:

I am cleaning house. Is there any interest in the NCAS in my collection of S&T from 1989 to 2002? Free? Like to give them a good home rather than recycle. Thanks.

Mark

### Scope for Sale by lgm@charter.net

For Sale: Meade Instruments Corporation SATURN

Model DS-114. D=114 mm, F= 910 mm, f/8

Sells for \$400+ new. Asking \$190.

Call Estes Park 970-586-1959

lgm@charter.net

### Scope for Sale

Coulter 10 inch Dobsonian. Like new. Includes Kellner eyepiece, eyepiece rack, red-dot aiming device, aperture stop, dustcap. \$600. Call Gene, 970-568-0545.

**Telescope for Sale:** Meade LX200 10 Inch Schmidt-Cassegrain and heavy duty tripod.

	Original cost
10 inch f/10 LX 200	\$2695 (today = \$2495)
Super Wedge	\$ 380
Electronic Focuser #1206	\$ 145
Electronic DC Adapter #1812	\$ 90
LX200 Interface Cable	\$ 25
f/6.3 Focal reducer	\$ 125
Tube balance weight system	\$ 95
Telrad	\$ 37
shipping	\$ 245
GPS	\$ 110
Epoch 2000 Software	\$ 175
<b>TOTAL</b>	<b>\$4122</b>

Used about 2 years. Like new condition. Sacrifice for \$1995. Call Patrick Earhart (970) 898-1057

### Clear Sky Clocks for Colorado

[http://cleardarksky.com/csk/prov/Colorado\\_clocks.shtml](http://cleardarksky.com/csk/prov/Colorado_clocks.shtml)

### Best Looks

Moon	By Mars 10/5 and 6 By Saturn 10/17 By Jupiter 10/21 and 22
Mercury	Low in E Start of month
Venus	low in WSW at sunset
Mars	Bright in SE after sunset
Jupiter	Climbs in E predawn
Saturn	Near overhead predawn
Uranus	In Aquarius predawn
Neptune	In Capricornus predawn

From: Dan Laszlo  
2001 S Shields St Building H  
Fort Collins CO 80526

**TO:**

Date	Mag	Starts Time	Alt.	Az.	Max. Altitude Time	Alt.	Az.	Ends Time	Alt.	Az.
29 Sep	2.3	20:03:47	10	NNW	20:04:57	12	N	20:06:07	10	NNE
30 Sep	2.2	20:40:00	10	NNW	20:40:51	12	N	20:40:51	12	N
01 Oct	2.2	19:39:30	10	NNW	19:40:27	11	N	19:41:25	10	NNE
02 Oct	1.9	20:15:03	10	NNW	20:16:38	13	NNE	20:16:46	13	NNE
03 Oct	2.1	19:14:46	10	NNW	19:15:48	11	N	19:16:51	10	NNE
03 Oct	2.2	20:50:02	10	NNW	20:50:46	14	NNW	20:50:46	14	NNW
04 Oct	1.6	19:49:53	10	NNW	19:51:52	15	NNE	19:52:37	14	NNE
05 Oct	1.2	20:24:49	10	NW	20:26:37	25	N	20:26:37	25	N
06 Oct	1.2	19:24:33	10	NNW	19:26:55	19	NNE	19:28:30	14	ENE
06 Oct	2.5	20:59:59	10	WNW	21:00:38	15	WNW	21:00:38	15	WNW
07 Oct	-0.3	19:59:28	10	NW	20:02:31	47	NNE	20:02:33	47	NE
08 Oct	0.8	18:59:05	10	NNW	19:01:45	25	NNE	19:04:26	10	E
08 Oct	1.4	20:34:47	10	WNW	20:36:40	29	W	20:36:40	29	W
09 Oct	-0.7	19:34:02	10	NW	19:37:09	79	NNE	19:38:44	26	ESE
10 Oct	1.4	20:09:37	10	WNW	20:12:10	24	SW	20:13:03	21	SSW
11 Oct	-0.1	19:08:32	10	WNW	19:11:37	60	SW	19:14:41	10	SE
12 Oct	2.4	19:44:39	10	W	19:46:26	14	SW	19:48:13	10	SSW
13 Oct	1.1	18:42:59	10	WNW	18:45:52	34	SW	18:48:42	10	SSE
25 Oct	0.9	06:28:06	10	SSW	06:30:58	35	SE	06:33:50	10	ENE
26 Oct	2.3	04:28:26	11	SSE	04:29:55	15	SE	04:31:45	10	E
27 Oct	-0.3	05:02:36	25	SSW	05:04:10	61	SE	05:07:13	10	ENE
28 Oct	2.3	04:04:22	17	E	04:04:22	17	E	04:05:31	10	ENE
28 Oct	0.1	05:36:29	15	W	05:38:42	35	NNW	05:41:35	10	NE
29 Oct	0.2	04:38:02	46	NE	04:38:02	46	NE	04:40:21	10	N
30 Oct	0.7	05:11:31	25	NW	05:11:48	25	NNW	05:14:28	10	NNE
31 Oct	2.4	04:12:46	13	NE	04:12:46	13	NE	04:13:14	10	NE
31 Oct	1.6	05:44:56	10	NW	05:46:38	14	NNW	05:48:20		