

# The Objective View

January 2004

Newsletter of the Northern Colorado Astronomical Society

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**Next Meeting: January 8 7:30 PM**  
**Apollo 13 Incident: Failure is Not an Option**  
**Jess Huguley**

**NCAS Business with Officer Elections 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.

## Starwatch at Discovery Science Center

January 30 6:30 pm  
February 27 6:30 pm

## NCAS Dark Sky Star Party Dates

**January 16, 17, 23, 24**

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 Hi School  
January 16 Star Night 7 – 10 pm  
Bryan White, Comets and Aurora in 3D Landscapes  
In the High School Auditorium  
<http://www.starkids.org>

Cheyenne Astronomical Society, Cheyenne Botanical Garden  
Lunar and Planetary Observing  
January 16 7 pm  
<http://home.bresnan.net/~curranm/>

Open House, Chamberlain Observatory, dusk to 10 pm  
Jan 24, Feb 28, Mar 27, Apr 24 303 871 5172  
<http://www.du.edu/~rstencel/Chamberlin/>

Longmont Astronomical Society  
Jan 15? 7 pm Longmont Christian School, 550 Coffman St  
<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.

### Abstract:

### Apollo 13 Incident

“Gentlemen-Failure is not an option”-Gene Kranz-

### Apollo 13 Flight Director

By spring of 1970, America had won the race to the Moon. Capitalism had triumphed over Communism.. The political goals expounded by President Kennedy had not only been met but exceeded. Apathy towards the Space Program was pervasive. The major network carrying the Johnny Carson show had wearied of the repetitive footage of Astronauts eating water bubbles in weightlessness and refused to carry the 5 minute segment from Apollo 13 on the live show. The events that followed, occurring during the show, demonstrated the dedication, skill, genius and brilliance that the human race is capable of exercising. The prime objective was the return of the crew “safely to Earth.” Resources world wide lead by the Apollo team united in this effort. We know today the results were successful.

Once the crew was safely home, the “ground rats” came out of their holes to find out what happened; answer all questions and get the program flying again. This brief presentation will narrate those sequence of events thirty three years plus ago.

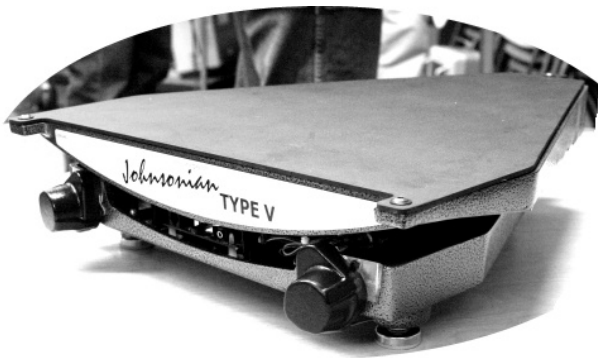
## About Our Speaker: Jess Huguley

BSEE, Auburn University\  
Master of Science, University of Houston  
Retired Manager-Lockheed Martin  
Adjunct Instructor in Colorado Community College System  
Independent Consultant with the Center for Error Management

I graduated from Auburn University with a degree in Electrical Engineering and joined Northrup Services at the Johnson Space Center in November 1967. I was part of the test team, albeit a young engineering supervisor that qualified the Apollo Command and Lunar Module re-designs following the Pad

tragedy that took the lives of Virgil Grissom, Ed White and Roger Chaffee in January of 1967.

I was again part of the test team that following the Apollo 13 near tragedy, reconstructed the events in a test environment at the center. I attended graduate school at the University of Houston, Clear Lake where I obtained a graduate degree in Physical Science with research in Astrophysics. I left the Johnson Space Center in 1980 to pursue consulting work, but returned to the aerospace industry becoming a member of the Martin Marietta team that developed, tested, flew and eventually retired the Peacekeeper ICBM from F.E. Warren AFB deployment. My last activity with the now Lockheed Martin Company was to serve as program review analyst and auditor to oversee adherence to process including monitoring the test activities of the integration of the Russian Designed RD-180 main engine propulsion system for the Atlas V next generation Launch vehicles that comprise one of two Launch Vehicles in the United States inventory. I am now an adjunct instructor in the Colorado Community College system teaching Physical Science, Astronomy, and Engineering.



## December 4 Program Johnsonian Platforms and Telescopes By Sam Johnson and company

Johnsonian platforms and telescopes are designed to address shortcomings in several familiar telescope systems. A Dobsonian telescope on an equatorial platform is the most cost-effective platform for large, driven telescopes. Typical equatorial platforms will track acceptably within a few degrees of their home latitude. The first equatorial telescopes, used by Herschel, were the German equatorial design. These are simple, but require a massive counterweight. Expense and weight rapidly increase with telescope size. John Dobson had the fantastic idea to mount large telescopes on a pair of lazy susans, and dispensed with the need for a large counterweight. Smooth bearings relieved the need for motorized tracking, in the eyes on many observers. A Dobsonian telescope can be converted to equatorial tracking by tipping the base so the azimuth axis points to the North Celestial Pole. The side boards then become fork arms, and need considerable reinforcement. The mount becomes big and heavy, and is prone to vibrate. A motor is needed for drive. Poncet was among the first to recognize that a portion of the German equatorial mount was sufficient for many applications. Amateur telescopes can perform without slewing 180 degrees. Modern equatorial platforms ride on conic surfaces, and rotate around a virtual polar axis. An hour of

tracking is typical, and the drive is reset. Mr. Johnson wished to update the platform design to more rugged metal construction. He is most excited about the modified bearing surface which accommodates latitude adjustment. The surface is a summation of the latitude bearings for latitudes from about 25 to 55 degrees. There is a channel allocated for each 4-degree step in latitude, and adjustable feet allow fine adjustment. The platform is ideal for snowbird astronomers with large Dobsonians, up to 16 inches. A different design which is also adjustable will carry 18 inch to 25 inch Dobsonians. The second design challenge for the company is producing ultralight, GOTO Newtonians. The target was cutting the weight to about 50% of current designs. The prototype 18 inch is constructed of aluminum, and the bearings are modified wheelchair rims. The large bearing radius gives smoothness. Other parts are machined from 6061 solid aluminum. The primary is 1.5 inch thickness to limit weight. Mirrors will come from Torus, Intermountain Optics and Galaxy. The 18-point mirror cell has motors for remote collimation, so the Airy disk in the eyepiece is the final collimation test. The mirror end of the telescope has about 5 inches of travel, for rapid accommodation of binocular viewers. More challenging than the mechanicals was writing 7500 lines of C code for the GOTO system. It is now possible to control the scope with a Pocket PC, running The Sky. A free-wheeling GOTO system is a nontrivial problem, but Johnson believes he has preserved the Dobsonian feel in this computerized scope. It also uses the resilience of carbon fiber for extreme lightness and portability. Fiber structures can be twisted into a pretzel, and will spring back. Johnson demonstrated assembly and collapse of the scope in a few minutes, allowed by the transition from a truss with a triangular cross section, to a flat ribbon. Projected price for the 18 inch structure is \$3600, optics are additional. The goto system adds \$2500. More details are available at [www.johnsonian.com](http://www.johnsonian.com)

For a review of a recent Type V platform see:

<http://www.cloudynights.com/mounts2/johnsonian.htm>



Next, members enjoyed a sparkling Tesla coil demonstration from charter members of the fledgling Fort Collins Amateur (Mad?) Scientists Association. Gerry Reynolds will keep us posted.

#### **NCAS Business, December 4 2003**

President Dan Laszlo called the meeting to order. Officer nominees for 2004 were: Dan Laszlo, President; Max Moe, Vice President, Kimon Berlin, Secretary; Nate Perkins, Treasurer. Other nominees may be submitted until elections are held in January 2004. Max Moe announced upcoming NCAS programs.

#### **From Randy Moench: Comet 2002 T7**

See a cool movie at:

<http://home.att.net/~dpersyk/new.htm>

#### **Mars Landers and Dust Storms**, via Andrea Schweitzer:

----- Forwarded message -----

Date: Wed, 17 Dec 2003 09:08:58 -0700 (GMT-07:00)

From: Mike Hotka <deepskymike@earthlink.net>

To: front-range-tac@seds.org

Subject: Re: [FRAC] Digest Number 325

All...

On a JPL conference call last night, I asked about the logistics of the missions and if they might be delayed in the event that these dust storms affect the landing areas.

I was told that there is no way to stop the landers. They are on a flight path where they MUST land on their scheduled time.

I then asked if the MERs could stay in their cocoon of airbags and the clam shell protecting the rovers. I was also told that this deployment is automatic. The airbags deflate, the lander rights itself with respect to what is down and what is up, and the clam shell unfolds to expose the rovers on their pads.

The same is true for the Beagle 2 lander. It will land on Mars Christmas Eve, no matter what. If you have seen pictures of this, it will lay a grid of solar panels on the Martian surface to power itself. Being covered by dust will reduce the power the lander will receive and the 12 "ovens" may not be able to do their work.

Let's all hope that the dust storms stay local and don't affect these 3 missions. Mike H

#### **Fate of Beagle 2, and Candidate Space Policy, from Brad Jarvis**

Could the Beagle have crashed into a crater? This is the latest explanation proposed for its silence.

<http://www.cnn.com/2003/TECH/space/12/29/beagle.missing.ap/index.html>

Wesley Clark Asks Input from Space community  
December 31, 2003

For further information about the Mars Society, visit our website at

[www.marssociety.org](http://www.marssociety.org).

The campaign of Democratic presidential candidate Wesley Clark has extended an invitation to Mars Society members and the space community at large to post their opinions and thoughts about space policy at <http://space.forclark.com>, with the express understanding that such input will be taken very seriously as the Clark campaign prepares an official policy statement regarding the future of the space program. Those who do not want to take the time to officially register on the site or be seen as Clark supporters by doing so can take a quick poll there on space issues and the presidential campaign, instead.

This opportunity builds on previous Mars Society political outreach work in which candidates Howard Dean, Richard Gephardt, Dennis Kucinich, and Wesley Clark have all expressed support for human Mars exploration. In addition, the Bush White House continues to prepare a space policy that is likelier to support Mars as the goal for America's space program due to the delay of its release until after the arrival of the NASA Spirit rover in Gusev Crater on the night of January 3rd.

The Mars Society is a non-partisan organization and does not endorse any candidates. We urge all candidates and political parties to support human Mars exploration. Supporters of other candidates should contact their campaign offices and urge them to prepare specific Mars-friendly space policies or make higher-profile statements of support for space and Mars exploration, especially as Spirit and Opportunity reach the Red Planet.

#### **Listening for the International Space Station**

Half an hour ago, ISS made a high pass here, and I managed to hear some radio-traffic from it for 2-3 minutes around 8:57 UTC. A quiet voice in Russian (which I cannot understand, except the word "tak"; but receipt was very clear) at 143.625 Mhz. Also, as was the case during the previous pass, a beacon-like periodic signal at 145.800 Mhz.

This is the first time ever I've heard ISS, after several failed attempts last summer, so for me this was a 'first' and exiting. It was cool to see the dot of ISS move on the map in "Orbitron", while hearing the radio communications: and experience the loss of signal as ISS went out of sight.

I used a quite average handheld scanner ('Realistic Pro-38' - the old scanner of my dad) with a home-brew dipole antenna.

- Marco :-)

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Dr Marco Langbroek

Leiden, the Netherlands

52.15896 N, 4.48884 E (WGS 84)

meteorites@dmsweb.org

#### **New Mac Astro Software**

I am a member of the Roanoke Valley Astronomical Society, and I would like to briefly tell you about two resources that may be of value to your local membership. If you agree, please tell

others. Kindly pay a visit to my site. It is not fancy, just functional. It works very well with slow Internet connections.

<http://members.cox.net/clarkt7/astronomylinks>

Secondly, even though most astronomers use Windows software, a growing number of us also have access to Macintosh computers. I have had the pleasure of collaborating with an exceptional astronomer and programmer in Canada to help refine his elegant Mac shareware program, **EquinoX**. I asked Darryl Robertson to include several lists of objects that are in the Astronomical League's observe award programs. You can precisely find and view individually or together (even with DSS images) double stars, variable stars, stars with planets, Messier objects, Caldwell objects, the Herschel 400, the Herschel II, the Arp 338, and all of the NGCs. EquinoX accurately tracks planets, asteroids, comets, and the major moons of Jupiter and Saturn. It controls, even by voice alone, several types of Meade and Celestron telescopes, and it works with webcams. The trial download is free; the full program is \$29. I recently used custom maps that I prepared with EquinoX, and a red dot finder, to complete my Messier list without any go-to assistance <http://www.microprojects.ca/MPjEquinoxPage.html>

Clear skies, Clark M. Thomas, clarkt7@cox.net

#### From DSW:

##### **Fantastic Jupiter Image by Cassini**

NASA/JPL just released a fantastic, detailed image of Jupiter, a mosaic, from Cassini's flyby in late 2001. You may want to put this in the newsletter and announce at the club meeting. I'm the webmaster and calibration engineer on the imaging team for Cassini (a way cool job!) so i'm up on these things ;-)

<http://www.ciclops.org/>

A direct link to the release page:

<http://ciclops.lpl.arizona.edu/PR/2003K13/PR2003K13A.html>

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

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)

Also from Tom:

Greetings all,

I've added some new weather links, a little technical and some climatological.

<http://ncastro.org/weather.html>

(If you have any other weather links you think would be of a benefit to the group please drop me a line.)

##### **URL for 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 Saturn 1/6 By Jupiter 1/12 By Venus 1/24 By Mars 1/27
Mercury	Low in SE at dawn, midmonth
Venus	low in SW at sunset
Mars	Bright in SW after sunset
Jupiter	High in S predawn
Saturn	Overhead around midnight
Uranus	In Aquarius evenings
Neptune	In Capricornus evenings

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

**TO:**

A boost is scheduled for Jan 8 2004!

Date	Mag	Starts			Max. Altitude			Ends		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
06 Jan	1.0	05:59:23	20	NNW	06:00:37	26	NNE	06:03:15	10	E
07 Jan	2.5	04:58:23	12	NE	04:58:23	12	NE	04:58:46	10	ENE
07 Jan	-0.7	06:30:19	14	NW	06:32:50	80	NE	06:35:53	10	SE

Some Iridium flares for Lemay and Trilby, Fort Collins, from [www.heavens-above.com](http://www.heavens-above.com)

Date MST	Mag	Alt.	Az	Distance to flare centre	Mag at centre	Satellite
07 Jan 17:09:41	-2	21°	212° (SSW)	24.1 km (W)	-6	Iridium 58
07 Jan 18:36:28	-5	31°	169° (S)	7.9 km (W)	-7	Iridium 7
08 Jan 17:03:47	-2	22°	212° (SSW)	29.4 km (E)	-6	Iridium 55
08 Jan 17:50:56	-2	13°	282° (WNW)	82.0 km (E)	-6	Iridium 95
08 Jan 17:59:41	-1	10°	284° (WNW)	108.1 km (W)	-6	Iridium 96
08 Jan 18:30:36	-1	31°	169° (S)	29.7 km (E)	-7	Iridium 37
09 Jan 17:58:22	-3	11°	283° (WNW)	76.3 km (E)	-5	Iridium 60
10 Jan 17:29:16	-6	17°	278° (W)	5.4 km (E)	-6	Iridium 96
10 Jan 17:43:39	-3	14°	280° (W)	50.7 km (E)	-5	Iridium 28
10 Jan 17:52:55	-0	11°	282° (WNW)	141.8 km (W)	-5	Iridium 29
11 Jan 17:28:06	-0	18°	277° (W)	108.3 km (E)	-6	Iridium 31
11 Jan 17:37:15	-1	14°	278° (W)	80.0 km (W)	-6	Iridium 30
11 Jan 18:21:01	-0	32°	179° (S)	31.1 km (W)	-7	Iridium 4
12 Jan 17:22:19	-6	18°	275° (W)	8.8 km (W)	-6	Iridium 33
12 Jan 18:15:41	-7	32°	179° (S)	5.4 km (W)	-7	Iridium 19