The Objective View
Newsletter of the Northern Colorado Astronomical Society
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WWW Page: http://lamar.colostate.edu/~rmoench/ncasrdm.html
Meetings first Thursday of each Month
Next Meeting: October 3, 1996, 7:30 pm

Dr. Roger Culver, CSU’s Madison McDonald Observatory

Public Lunar Eclipse Viewing September 26
Meet from 7 to 10 PM at Fort Collins High School on the soccer fields North of the building, East of the corner of Timberline Road and Vermont Dr. Set up East of the parking lot.

October 3 NCAS Meeting Directions
CSU’s Madison McDonald Observatory, Fort Collins
From Loveland, take US 287 North. In Fort Collins, on College Ave, go 2 blocks North of Prospect Rd and turn left, (West) on Pitkin St. Cross the RR tracks, turn right on Mason St, go North 2 short blocks and turn left on A street. Go 1 block, turn left onto East Dr, and find the observatory on the right side of the street. Meet in the courtyard North of the building. You may wish to bring a chair. If the weather is questionable, call Brad Jarvis after 4 PM at 686-5369 for the meeting location.

If the weather is cloudy, Open Meeting at:
Aspen Medical Center, Spring Creek Medical Park
Building H, 2001 S Shields St
Fort Collins (north of Rolland Moore Park)
From Loveland, take Taft Ave, North. From W Drake Rd in Fort Collins, go about 0.5 mile North and turn left into Spring Creek Medical Park.
In Spring Creek Medical Park, turn left, then park in front of the building with the Pharmacy, Building H. Entrance is in the middle of the East side of the Building. Meet upstairs. An elevator is available.

Next NCAS Starparty
October 5 or 12: Pawnee Grasslands
The site is on undeveloped prairie about 8 miles west of Briggsdale. Take Colorado Highway 14 East from I-25. At 17 miles East of Ault, just after milepost 170, take Road 65 (dirt) North one mile. At the curve West, stop. Go through the gate on the right (no road), close gate and set up. Beware of the cactus! If the weather is bad on the 5th, we will try at this location on Oct 12th.
Call Gerry Reynolds with questions about the star party site or dates, 226-0705, or Email gerry@fc.hp.com.

Recent Events
September 5 Meeting: The Case for Mars, by Tom Meyer
Tom Meyer left a successful oceanographic company to pursue his interests in space. He came to Boulder 20 years ago, at the time of the LASP review of the Mars Viking lander data. He now belongs to BioServe Space Technologies, a NASA center for commercial development of space. He has an active personal interest in human Mars exploration. In 1989, a Bush administration study placed the cost of a human Mars program at $400-500 billion. Discouraged by the prospects of funding such a massive program, an independent network of interested parties formulated alternative proposals. Meyer is most intrigued by Mars as a new frontier for colonization. To cut costs, baggage from Earth must be minimized. Instead, Mars resources are tapped to generate fuel and building materials. For example, a crew of 5 would require 100 tons of fuel to return from Mars. Two hundred times that is required to initially launch the fuel from Earth. For 95% weight savings, hydrogen alone could be brought to Mars, and reacted with abundant CO2 in the atmosphere to yield CO and water. Oxygen could be generated by solar powered hydrolysis. Methane could be synthesized to fuel the trip home. Meyer envisions a robotic fuel depot which has supplies waiting for the first landing crew. This is dependent on finding water on Mars. There is water ice at the poles, but they are too cold, and far from sites of interest. Regions 40 degrees from the poles appear to harbor permafrost, but this must be confirmed. Locked in minerals, water of hydration is likely present everywhere. Water in the atmosphere is extremely scarce and would take 100 kWh to extract each kg. Lacking biomass and fossil fuels, the crew’s energy sources will most likely be solar and wind power. After illustrating these existing answers to technical problems, Meyer addressed the question, “Why go to Mars?” When NASA did not follow up Apollo with human space exploration, an independent forum materialized. Early participants included Ben Clark, a Martin-Marietta senior scientist who dubbed the conference “The Case for Mars.” Participants shared their various motivations, such as human curiosity, and the drive to explore and colonize. Pure science questions beckoned, regarding planet formation and evolution. Reconstruction of Mars’ past may shed light on the Earth’s limits. A Mars
mission would inspire students, and could help resolve international tensions by providing a unifying project. Isolation and new needs would likely spawn innovation on Mars. The unique human interest in the possibility of life elsewhere was proven by the response to evidence in the Martian meteorite. Before a colony can succeed, habitability studies must deal with cold, radiation, lack of water. There is no ozone layer to shield from UV. Reactive superoxides and peroxides likely coat the surface. The most difficult problem to avoid is radiation. A solar flare could easily deliver 50 rads, and even routine levels of radiation would expose the crew to a normal lifetime's dose in a single 3 year mission. A tunnel three to six feet below the surface is the simplest solution. The fabled Martian dust storms are not a significant threat, and would block the sun no more than a cloudy day here. To the contrary, the lack of weather is problematic, and must be dealt with mechanically, with controlled water and waste management. Budgetary constraints will drive international cooperation. With 11 objects to land on Mars by century's end, much of our conjecture will soon be replaced with answers. For more information, browse the Case For Mars web site at: http://spot.colo.edu/~marscase.

Members' Activities
Nancy Cox has enjoyed tracking Jupiter and its moons. Brad Jarvis, Mike McCarthy and Ken VanLew attended CU Boulder's symposium, "The Mars Meteorite: Scientific, Philosophical, and Religious Responses." Bob Carlson is converting his 6" scope to a Dobsonian mounting. Tom Fay watched Perseid meteors around their peak over three nights. Jerry Reynolds has been active with deep sky astrophotography. Jerry and Mary Dunn enjoyed the skies from Crystal Lakes. Harold Porter viewed the Perseids from the Pawnee Grasslands. Lee Youngblood is polishing an 8" mirror on his mirror machine. Dan Laszlo and Mike Prochoda toured Wyoming skies, courtesy of generous 20" and 25" scope owners, at the Cheyenne Astro Society's Weekend under the Stars. Jamie MacArthur and Randy Cunningham field tested 20" binoculars they are tuning.

Star Party assistance needed in October 19
Erin Handgen invites members to bring scopes to the Fort Collins Discovery Center, 703 E Prospect Rd. Program starts at 6:30.

Astronomical League Convention, July 1997, Copper Mtn
From Dr. Bob Stencil,
Current plan for the meeting program:
Date Day Events
6/27-29 Fr-Su RMSS97, Colo Springs club
7/1 Tu Conf. opens, AL Exec meet
7/2 We Papers, FRASC/MARS reception
7/3 Th Visits to Gates, Chamberlin, Mt.Evans
7/4 Fr Papers, FRASC show’n’tell, BBQ
7/5 Sa Papers, Banquet
7/6 Su ALCON97 ends

HOW CAN LOCAL CLUB MEMBERS HELP?
1. Sign up to staff registration tables
2. Sign up to host open houses at Chamberlin (7/3)
3. Join one of the subcommittees listed above
4. Reserve your rooms at Copper Mtn (800-458-8386, ext.1)
5. Plan to give a presentation about your observing
6. Tell your friends about it! See http://www.du.edu/~pryan/alcon97.html, or write to ALCON97, Chamberlin Observatory, Univ. Denver, Denver CO 80208.

Beginner's Corner, by Doug Moench
Another book oriented toward binocular viewing is "Binocular Astronomy" by Craig Crossen and Wil Tirion. Its most valuable assets are the expert level sky charts that are contained in its appendices. Taken from the Bright Star Atlas 2000.0 series, these are charts that will serve the astronomer long into the hobby. The Bright Star Atlas 2000.0 series is based upon the Uranometria 2000 series, the star gazers bible, in terms of charting. A more apt comparison would be the Cambridge Unabridged Dictionary, for the Uranometria series charts every object in the sky that is observable from ground based telescopes. And although you have to buy the 3 volume set to get all the U2000 charts, "Binocular Astronomy", gives you a taste by providing several of the charts which show broad expanses of the sky. If you plan to get serious about the hobby, you'll know what the expert hobbyists use by looking at these examples.

After a few late nights spent outside, or attending a star party or two, you will begin to discover that even the best star hunters rely upon such charts to help them in the hunt. Like contemporary, deep sea treasure hunters, astronomers rely upon a number of methods for charting the sky that they will be viewing at any one session. Personal computers, being the ubiquitous home appliance that they are, now provide many astronomers with the ability to print a sky chart according to precise longitude and latitude, day of the year and hour of the day. Taken to the viewing site, they are like having torn a page from Uranometria and taking it to your site. And, like Uranometria, this may be a little beyond the scope of beginner effort.

Best Looks
Mercury: In am, Greatest Elongation 10/3
Venus: In am, near Regulus 10/3 and 10/4
Mars: In am, near Regulus 10/29 and 10/30
Jupiter: In South, eves. Near M22
Saturn: Opposition 9/26
Asteroid 3 Juno magnitude 7.5 in Cetus

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TO: