AUGUST 2006

HAC Welcomes New Members Ann Kuhl & son Ryan of Sierra Vista



HAC MONTHLY MEETING: FRIDAY, AUGUST 11, 2006

Guest Speaker: Ms. Delores H. Hill, Lunar & Planetary Laboratory, University of Arizona

Topic: Meteorites: Keys To Understanding the Solar System

7 pm, Cochise College, Sierra Vista, Rm. 305

PLUS our monthly Show-N-Tells, a POP Quiz, and a neat Door Prize

Celebrating 40 Years of Intent Listening

By Diane K. Fisher

In nature, adjacent animals on the food chain tend to evolve together. As coyotes get sneakier, rabbits get bigger ears. Hearing impaired rabbits die young. Clumsy coyotes starve. So each species pushes the other to "improve."

The technologies pushing robotic space exploration have been like that. Improvements in the supporting communications and data processing infrastructure on the ground (the "ears" of the scientists) have allowed spacecraft to go farther, be smaller and smarter, and send increasingly faint signals back to Earth—and with a fire hose instead of a squirt gun.

Since 1960, improvements in NASA's Deep Space Network (DSN) of radio wave antennas have made possible the improvements and advances in the robotic spacecraft they support.

"In 1964, when Mariner IV flew past Mars and took a few photographs, the limitation of the communication link meant that it took eight hours to return to Earth a single photograph from the Red Planet. By 1989, when Voyager observed Neptune, the DSN capability had increased so much that almost real-time video could be received from the much more distant Planet, Neptune," writes William H. Pickering, Director of JPL from 1954 to 1976, in his Foreword to the book, *Uplink-Downlink: A History of the Deep Space Network, 1957-1997*, by Douglas J. Mudgway.

Mudgway, an engineer from Australia, was involved in the planning and construction of the first 64-m DSN antenna, which began operating in the Mojave Desert in Goldstone, California, in 1966. This antenna, dubbed "Mars," was so successful from the start, that identical 64-m antennas were constructed at the other two DSN complexes in Canberra, Australia, and Madrid, Spain.

As Mudgway noted in remarks made during the recent observance of the Mars antenna's 40 years of service, "In no time at all, the flight projects were competing with radio astronomy, radio science, radar astronomy, SETI [Search for Extra-terrestrial Intelligence], geodynamics, and VLBI [Very Long Baseline Interferometry] for time on the antenna . . . It was like a scientific gold rush."

In 1986 began an ambitious upgrade program to improve the antenna's performance even further. Engineering studies had shown that if the antenna's diameter were increased to 70 m and other improvements were made, the antenna's performance could be improved by a factor of 1.6. Thus it was that all three 64-m DSN antennas around the world became 70-m antennas. Improvements have continued throughout the years.

"This antenna has played a key role in almost every United States planetary mission since 1966 and quite a few international space missions as well. Together with its twins in Spain and Australia, it has been a key element in asserting America's pre-eminence in the scientific exploration of the solar system," remarks Mudgway.

Find out more about the DSN and the history of the Mars antenna at http://deepspace.jpl.nasa.gov/dsn/features/40years.html. You can learn how pictures are sent through space at http://spaceplace.nasa.gov/en/kids/phonedrmarc/2003 august.shtml .

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Star Party Corner---Keith Mullen, Star Party Coordinator

Wow, did July come roaring back or what, with no observing happening in June what could we expect from a Monsoon soaked July? For starters we had our largest turnout for The Full Moon Telescope Workshop on the 8th; 31 members dropped by RGO for the controller upgrade class and several stayed late into the night and observed with almost a full moon. As New Moon approached we had a string of 4 outstanding evenings leading up to our Members Star Party at Gary Myers Desert Coyote Observatory, the second of Gary's three for the year. After scanning the heavens with Gary's 30" and 12.5" until after midnight, we decided that Gary had finally been graced with a "Successful event", now let's see what he can conjure up on September 23rd when we all come back out for another Members Star Party at DCO. Let's thank both Barry Nelson and Bob Kepple for setting up their fine scopes at Gary's also. The July 29th Public/Members Star Party at JBO was clouded out so we will have to wait until later next month the catch some views through Big blue. With the spectacular New Mexico rocket test firing early in the month, the week of observing we had around New Moon and the participation at all the scheduled events; July 2006 will be a contender for the one of the most active July's ever.

August Star Party Schedule

Saturday, August 12th:

Full Moon Telescope Workshop will take us on a "Road Trip" to visit Dean Koenig at his new Starizona location in Tucson. Dean has promised us some special treatment while we have run of the store from 7 pm until closing. The plan is to carpool down, so, if you can be one of the drivers, and we need several larger Cars or Vans, contact Keith to volunteer At 366-0049, I'll keep everyone posted via the HAC group as to our progress. This will be a fun trip as there are members who anticipate bringing home their FIRST new Scope that evening, so let's go and give some moral support and maybe pick up that sought after eyepiece, accessory, book or poster you've had your eye on!

Friday, August 18th:

Public/Members Star Party at JBO-as always, let's bring out some scopes, new and old. Dave can't handle the public and members by himself, let's keep up this participation.

Friday, August 25th:

Hans and Joanne again will open his Observatory (Alkira) AKO, and her kitchen for their second Members Star Party of the season, so there promises to be good views and great snacks at this Mid Summer event, last time here in February we had about a dozen scopes show up, I want to see no less this time around, especially those new scopes bought on the road trip to Starizona!

August Notes From The HAC President: Since there were no newsletter contributions from any HAC member other than our star party guy, including our Chief Observers and our Astronomical League Correspondent, you'll have to make do with the copy of the Evening Sky Map enclosed, which is a great asset for use with or without a telescope. Be fore-warned that, starting in September, there will be no further newsletters mailed out to members unless the 60+ members of HAC (which includes YOU), including the Officers and Board of Directors decide that this newsletter is a worthwhile forum to contribute to and support. Currently, it appears that no one does other than myself and the Star Party Coordinator. Every member, whether novice or veteran, should be able to come up with an astronomy related tidbit, item or article. It can be long or short, just submit it! The deadline for the September issue is Monday, August 28. In other news......August is the last month for donations to raise funds for Muscular Dystrophy and our T4T (Telescopes For Telethon). Please bring donations (cash or check made out to MDA) to the August meeting. Thanks! Hey, HighPoint Scientific (www.highpointscientific.com) is offering HAC some great incentives and there will be advantage cards handed out to all members who attend the August meeting. HPS carries product lines from many major manufacturers of astronomy equipment. Lastly, get to the monthly meetings, attend our clear sky events, and support the newsletter! The August meeting POP QUIZ deals with the Messier Catalog; better brush up!

Huachuca Astronomy Club P.O. Box 922 Sierra Vista, AZ 85636 http://c3po.cochise.edu/astro; email hac@palominas.com Yearly Membership: Individual: \$25; Family: \$35; Military: \$20; student:\$10 (with conditions)

President: Doug Snyder (520) 366-5788 (starhaven@palominas.com); Vice President: Wayne Johnson; Treasurer: Tim Doyle 378-5121;

Secretary: Jeanne Herbert; Star Party Coordinator: Keith Mullen 366-0049; repogazer@wavmax.com

Public Events Coordinator: Jeanne Herbert (jeanne_hrbrt@yahoo.com) 366-5690 (early evenings)

This issue of NightFall can also be found on-line at http://c3po.cochise.edu/astro. Click on the 'Newsletter' link. There is much more information about astronomy and our HAC activities on our club web site. *To join the HAC-LIST, send an email to <code>haclist-subscribe@yahoogroups.com</code>.