



The Mason-Dixon Astronomer

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Star Points for August 2012

“Mars Threads the Needle”

by Curtis Roelle

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August is an interesting month for Mars. Curiosity, NASA’s one-ton roving vehicle, is scheduled to land on Mars in the early hours of Monday, August 6 (Eastern Time). If all goes as planned, Curiosity and the Mars Science Laboratory (MSL) will come to rest in Mars’ Gale crater.

All Mars landers since 1997 have employed a system of airbags during landing. The airbags, inflating moments before landing, cushion the payload as it bounces and bounds across the Martian landscape before rolling to a stop. Not so with MSL — it’s too heavy for airbags.

MSL will employ a heat shield, parachute, and a rocket-powered disposable descent stage. Once it’s through protecting MSL during its entry into Mars’ thin atmosphere, the heat shield separates shortly after the parachute deploys. Powered descent begins after releasing the parachute as eight rockets ignite on the descent stage, or “sky crane.” Shortly before touchdown the lander is lowered to the surface with lanyards. After touchdown the lanyards are cut and the sky crane flies off to a crash landing.

A similar plan was once considered in the early 1960s for the Apollo Moon-landing mission. A descent stage would have slowed the lunar module to a low hover then would separate, go off, and crash. The “lunar crasher” concept was described as “dicey” by NASA engineer Caldwell Johnson and the idea was discarded. Seems the notion of intentionally crashing a piece of equipment near a soft landing site rubbed some engineers the wrong way. That is apparently no longer the case.

For more information about MSL and Curiosity, visit NASA’s website at nasa.gov/msl.

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August Meeting: Wednesday, August 8, 2012, 7:30 p.m., at Bear Branch Nature Center

Speaker: Mark “Indy” Kochte will discuss time-lapse photography. (Read a description on page 3.) Please join our speaker for a pre-meeting dinner at 6 p.m. at Harry’s in Westminster.

Star Points, *cont.*

During August, two planets and a bright star form an ever-changing triangle low in the western sky. On the evening of August 6 they form an equilateral triangle. The triangle's top point is the planet Saturn. The corners of the base are, from left to right, the star Spica and the planet Mars. Spica is the brightest star in the constellation Virgo and is 260 light-years away.

During the next few days Mars continues eastward and passes between Saturn and Spica from August 13 to 14. The trio is joined by the crescent moon on August 21, posing for a unique group photo opportunity.

"Star Points" by Curtis Roelle appears in the Carroll County Times on the first Sunday of each month. Visit the website at <http://www.starpoints.org> or send email to StarPoints@gmail.com.

Welcome, New WASI Members!

WASI extends a warm welcome to the following new members.

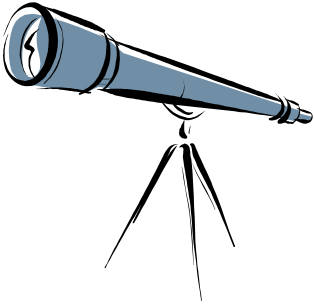
Sharon Baker of Westminster, Maryland

Greg McCarty of Mt. Airy, Maryland

Christian Ready of Westminster, Maryland

Francis Whittington, Jr. of Taneytown, Maryland

Upcoming WASI Observing and Events



Monthly Meeting August 8, 7:30 p.m., at Bear Branch Nature Center (BBNC)

Soldiers Delight Public Stargazing August 11, 8 p.m., at Soldiers Delight Natural Environment Area in Owings Mills

WASI Annual Picnic August 12, at BBNC; bring a dish to share and enjoy the company of your fellow members, then stick around to observe the Perseid Meteor Shower

Almost Heaven Star Party August 17-21, at Spruce Knob, West Virginia; for more information, visit <http://www.ahsp.org/>

Planetarium Show August 25, 7:30 p.m., at BBNC

AUGUST MEETING PROGRAM

Indy will be discussing time-lapse photography, with an emphasis on night sky time-lapse (astrolapse) sequencing, and his experiences and “lessons learned” adventures while pursuing this aspect of photography. He will be covering the how-to's and many, but by no means all, of the possible resources available to the photographer interested in tackling this challenging but rewarding photographic adventure. A sample of his work can be found here:

<https://vimeo.com/33280344>.

Born and raised in northeast Ohio, Mark “Indy” Kochte received a degree in astronomy from the Ohio State University in 1987. In 1988 he joined the Hubble Space Telescope project at the Space Telescope Science Institute in Baltimore, doing the acquisition, processing, and archiving of Hubble data. After 17 years with Hubble he moved on to the Far Ultraviolet Spectroscopic Explorer project (FUSE) as a Mission Planner, taking on the immense challenges of how to deal with a satellite that has only one remaining reaction wheel. In the fall of 2006 he was offered the opportunity to join the MESSENGER team at the Johns Hopkins University Applied Physics Lab as a Payload Operations Specialist for the Mercury Atmospheric and Surface Composition Spectrometer instrument (MASCS). Here he supported two successful flybys of Venus and three exciting flybys of Mercury during the Cruise Operations of the spacecraft. In March 2011 he and the rest of the team transitioned to Mercury Orbital Operations when MESSENGER became the first ever spacecraft to orbit the planet Mercury.

Minutes of Meeting on July 11, 2012

Called to order at 7:45 by Vanessa Thomas (1st Vice President)

Observations called for:

Sergy reported on International Space Station observation from West Virginia.

The Mason-Dixon Star Party was announced and publicized, dates are: July 18 – 22, 2012.
Our members Steve Conrad and Wayne (Skip) Bird are both scheduled as presenters.

The Annual Picnic is scheduled for August 11, 2012. Bring Deserts and Side Dishes. See Note: ¹⁾

Tom's video from space shuttle transportation to Dulles was shown.

Skip's photos from Green Bank (Radio Observatory) and Cass Scenic Railway were shown.

Photos collected by Curt of Transit of Venus activity by club members outside Maryland were shown.

Adjourned 9:00 PM

1) Later became known that the date & time selected is not available. After much email ado the picnic has been rescheduled to the following day (August 12, 2012 – Bear Branch)

Respectively Submitted,
Robert L. Clark, Secretary, Westminster Astronomical Society

Teaching a Week-long Astronomy Course at Launch Pad 2012 by Christian Ready

From July 22 to July 29, twenty-two science fiction and fantasy writers gathered in Laramie, Wyoming, for a 6-day university-level astronomy course. The event, known as Launch Pad, was the brainchild of Dr. Mike Brotherton, associate professor of Astronomy at the University of Wyoming and Dr. Jim Verley who holds a PhD in science education.

Brotherton — a science fiction author himself — started Launch Pad six years ago as a way of helping authors, writers, filmmakers, and other storytellers gain a working knowledge of astronomy to help inspire their audiences with realistic depictions of astronomical phenomena. The event, including travel, breakfast, lunch, and lodging, is funded by a grant from NASA and the National Science Foundation. The goal is to teach writers of all types about modern science, specifically astronomy, and in turn reach their audiences whose number far exceeds that of university students taught over the course of two semesters.

I met Mike at a science fiction convention in November 2011. Both of us were guests and greatly enjoyed each other's presentations and teaching styles. When he invited me to be a guest instructor at Launch Pad, I jumped at the chance.

The students of this year's Launch Pad were as diverse in their literary accomplishments (from beginners to bestsellers) as they were in their knowledge of science (from never having read a popular science book to being a nuclear reactor technician). Teaching such a diverse group was challenging but very enjoyable.

Launch Pad is a "firehose" of astronomical concepts; nearly two semesters worth of a university introductory astronomy course are compressed into a single week. We split the lectures and activities between Mike Brotherton, Jim Verley, Dr. Geoffrey A. Landis (a physicist at NASA's Glenn Space Center and author of *Mars Crossing* — a Locus award-winning book for first science fiction novel), and myself. As the only instructor without a PhD, I was given the "grunt" assignments of teaching the Solar System and Stars in two two-hour lectures (thankfully, with breaks). The remaining topics covered by Drs. Brotherton, Verley, and Landis included light and telescopes, Mars, interplanetary and interstellar travel, stellar end states, black holes, exoplanets, galaxies, quasars, and cosmology.

In addition to lectures, students were given hands-on activities such as examining emission spectra with spectroscopes in the lab and creating beautiful images of nebulae and galaxies from raw FITS files using IRAF. In this manner, students were given an idea of how astronomers spend most of their time — analyzing spectra and processing images.

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But the most memorable activity was a visit to the University of Wyoming's Infrared Observatory (WIRO). The 2.3-meter telescope is located 25 miles southwest of Laramie at the summit of Jelm Mountain and at an altitude of 9656 feet (2943 meters). During our visit, Launch Pad attendees were given a tour of the observatory, a chance to take a direct look at the telescope's mirror, and the opportunity to watch undergraduate students take spectra of a quasar. Afterward, we filed outside to gaze upward at the most memorable night sky I have seen since my visit to Kitt Peak 25 years ago.

It wasn't all lectures and activities, however. There were dinners at great restaurants and a hike through Vedauwoo, a picturesque area near Laramie famous for its rock climbing.

For the students, it was an opportunity to learn a great deal about the universe in a relatively short amount of time. Misconceptions were dispelled and eyes were opened wide. For myself, it was an opportunity to teach at a level I haven't been able to enjoy in my public talks, not to mention re-familiarizing myself with some concepts I haven't had to think about in my professional career. :)

Mike was generous enough to extend an invitation to return as a guest instructor next summer, and I gladly accepted.

For more information about Launch Pad, visit <http://www.launchpadworkshop.org/>. Pictures of this year's workshop are available on Flickr at <http://www.flickr.com/groups/launchpad12>.



Launch Pad 2012 students and instructors (Photo courtesy Christian Ready)