WESTERN NEVADA ASTRONOMICAL SOCIETY

DESERT SKY

Presidents Message – August, 2012

The Curiosity Rover is on the surface of Mars, landing on Sunday, August 5th. Eight years ago when the mission was approved for flight, it was called the "Mars Science Laboratory". The great success of the Mars rovers, Spirit and Opportunity, seemed to have motivated NASA to revisit inspirational names for spacecraft, so they called for name suggestions from science minded students. A 6th grade student from Kansas came up with the name "Curiosity" and the original mission name is pretty much only used within NASA, and then it is referred to as the "MSL". The Curiosity mission has a big act to follow, as the Opportunity rover is still operational eight plus years after landing on the Red Planet.

The Curiosity rover is three times larger than any previous rover, and is loaded with cameras, analysis technology, and a weather station in order to study climate. The primary mission goal is to look for signs of carbon, and other possible organic evidence, in the ongoing search for signs of life in the distant past of Mars. This mission will be the topic of the program at this month's membership meeting.
The atmospheric entry, descent, and landing of the rover was an amazing example of the capability of NASA. The rover's weight of almost one ton meant that it could not be "bounced" onto the surface in-cased in balloons like Spirit and Opportunity were, so its landing was composed of a series of risky events. Some science pundits said that the landing had less than a 50% chance of success.

The spacecraft took eight months to travel a 352 Million mile route to Mars, and then the fun began. The descent stage entered the thin atmosphere of Mars at 13,000 mph, with its heat shield enduring a temperature of 3,800 degrees Fahrenheit. A huge parachute deployed, the heat shield was ejected. The descent stage rocketed away, taking the parachute with it, and then the "sky crane" retro rockets fired. The sky crane is a platform that hovered above the surface, and lowered the rover with cables down to the surface, at 2 mph. Once the rover's six wheels touched the ground the cables were severed, then the retro rockets carried the sky crane about a half mile away where it crashed, safely away from Curiosity. That is a complicated procedure to perform with a $2.5 Billion mission at stake, but it worked!

The landing was on target in a 100 mile diameter crater, with a central mount. It is believed that this was once a large lake, perhaps having been a location conducive to life. The plan is for Curiosity to spend two years investigating the area. It is going to drive to the central mountain, drill into rocks, pick up rust-tinted soil, etc., and conduct an analysis of the samples in it's on board laboratory. After an initial systems check, Curiosity sent back color photographs of the landscape. They had a minor problem activating the weather station, but that is believed to have been solved. It will take a couple weeks to run through all the systems checks before the rover "puts it in gear" and heads off on its journey. How cool is that?

Mike Thomas

July, 2012

July 2012 Meeting Minutes

- Observatory maintenance was discussed.
- The membership was advised that there will be a JCDO cleanup day in September.
- Professor Collier gave his lecture, "Cosmic Rays to the God Particle, an Overview".

WNAS Officers

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Monthly Membership Meeting 7:00PM, Tuesday, August 21, 2012 Guest Speaker:

"Curiosity, the Mars Science Laboratory"

Presented by Mike Thomas

Events Calendar

~ August 2012 ~

Sun	Mon	Tue	Wed	Thu	Fri	Sat
August 5th/6th Curiosity Rover to land on Mars http://www.space.com/16465-mars-rover-curiosity-red-planet-landing.html			1	2 Full Moon 	3	4 Star Party
5 Curiosity Rover Landing on Mars?	6 Curiosity Rover Landing on Mars?	7	8	9 Moon Last Qtr 	10	11 Star Party
12 **Perseids meteors**	13 **Perseids meteors**	14	15	16	17 New Moon 	18 Dark Skies Star Party
19	20	21 ***WNAS Meeting 7pm JCDO***	22	23	24 Moon 1st Qtr  ***Neptune at opposition**	25 Star Party
26	27	28	29	30	31 Full Moon (Blue) 	**Notes:** *Neptune's closest approach to Earth

~ September 2012 ~

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1 Star Party
2	3	4	5	6	7	8 Star Party Moon Last Qtr 
9	10	11	12	13	14	15 Dark Skies Star Party
16 New Moon 	17	18 ***WNAS Meeting 7pm JCDO***	19	20	21	22 Star Party Moon 1st Qtr 
23	24	25	26	27	28	29 Star Party Uranus at opposition
30 Full Moon 	**Notes: 9/22-***Autumnal equinox* occurs at 14:49 UTC **9/29**-Uranus at Opposition; The blue-green planet will be at its closest approach to Earth					