

June 9, 2011 -- China re-directs moon probe into deep space -- 'steals march' on US man-to-deep-space plans

1. In an unexpectedly innovative and far-reaching maneuver, Chinese space scientists have fired the engines of their moon-orbiting Chang-E-2 probe to depart the Moon's orbit and fling it much deeper into space.

2. The maneuver was announced this morning in Beijing but has not been reported so far in the Western news media. Xinhua stories

here: <http://english.cri.cn/6909/2011/06/09/189s641808.htm> and http://news.xinhuanet.com/english2010/china/2011-06/09/c_13920425.htm

3. The target of this maneuver, which uses fuel left over after completion of the probe's planned six-month photo survey of the lunar surface, is a point in space a million miles 'down sun' -- directly away from the sun -- from Earth.

4. This is one of the so-called "neutral points" predicted more than two hundred years ago by the French mathematician Lagrange. The exact point is called "Sun-Earth Lagrange Point #2", or SEL2. Do not confuse this with the Earth-Moon L2 point (EML2) 40,000 miles out on the far side of the Moon, another useful point for future moon communication relay and navigation satellites.

5. The SEL2 location allows probes to float in a stable relationship with Earth (for long-range radio contact) but well beyond the Earth's magnetic field and radiation belts. Earth as seen from that spot perfectly eclipses the Sun, with the atmosphere a bright blue ring from backlighting.

6. It is four times as far away as the distance to the Moon. It will take ten days to get there.

7. A number of scientific satellites already have used this point for observations of deep space. They include GEOTAIL, Hiten, WIND, and the European Planck and Herschel observatories. NASA hopes to send the Webb space telescope -- now struggling with massive cost overruns -- there sometime in the future.

8. Far more significant is that this point is a 'dynamic gateway' to far more distant destinations. In a space strategy privately outlined ten years ago by a team led by Wesley Huntress, this point is the FIRST "stepping stone" of an efficient path leading ultimately to human Mars visits. I profiled him and his team's work here:

<http://spectrum.ieee.org/aerospace/space-flight/wesley-t-huntress-author-of-nasas-new-strategy>

9. That 'Huntress plan' was the theoretical underpinning of the new White House space strategy to bypass a manned moon landing and send humans deeper into space. I described it here: http://www.msnbc.msn.com/id/32767421/ns/technology_and_science-space/ and in greater detail in a 2007 book chapter here:

http://www.jamesoberg.com/Stepping_Stones.pdf

10. So far that new US plan has been all talk -- more accurately, all bitter argument. The lack of consensus has helped deepen the depression and malaise among space workers as the last shuttle mission prepares to launch next month.

11. The Chinese space activity announced today suggests that the talk is over, and that China has 'stolen a march' on the US on the road into deep space. It might be the 'wake up call' that space policy experts have been desperately awaiting.

12. Official Chinese statements merely describe the mission as a test of their deep-space tracking networks and of distant navigation and control techniques. They do not explicitly mention the destination's implications for deeper space missions.

13. But the SEL2 point, and the ability to operate reliably there, are key capabilities that are directly on a pathway that the US has forecast that we will follow in the years to come.

14. If we ever do follow that path, we will now for the first time be following -- and not leading -- a Chinese space accomplishment.