

Sent: Wednesday, June 27, 2012 3:52 PM

Chinese astronauts to land Thursday night [EDT]; what comes next?

1. China's latest human space mission is winding up its visit to their Tiangong-1 'space lab' and will land on Friday after a 13-day flight.
2. Xinhua story says the weather in the recovery zone looks to be good.
3. Western observers have estimated a landing time of about 02:00 GMT on Friday, or 10 AM Beijing Time. Based on past Chinese navigation into the landing zone.
4. This comes out to be 10 PM Thursday night, EDT.
5. This is consistent with the official NOTAMS warning period of 29 JUN 01:36 UNTIL 02:17 GMT [attached below].
6. The same warning message defined the "VERTICAL LIMITS" as "SFC-UNL", which means "surface to unlimited". That's reserved for missile and space events.
7. There ought to be live TV coverage from the landing zone with lots of video coming out very soon afterwards.
8. The Tiangong-1 will remain in orbit through next year, and a second visit by another astronaut team [on Shenzhou-10] will be made sometime in that time.
9. An improved Tiangong-2 is expected to be launched and visited in the 2014-5 period, before a heavier space station is launched on a new booster still under development.
10. Sometime in the 2015-2016 period it would be technically feasible to perform a docking of a Shenzhou craft to the International Space Station.
11. Such a mission, in that time period, would justifiably be considered a prudent demonstration of a backup or emergency option for crew access or retrieval from ISS if problems develop in the commercial crew transportation vehicles now under development.
12. As a "safety-related activity" it would probably be exempted from congressional constraints on US-Chinese "space cooperation" projects.
13. Seems like a good idea to me. The hardware mods to ISS and

Shenzhou would be minimal.

14. The Tiangong-1 mission and the flight of China's first woman-in-space have made this current flight an impressive new leap forward for China's astronaut program.

15. The 'Tiangong' class module clearly is much MORE than an interim 'docking target'. In expanded form, it may constitute the core section of the 2020-era large space station.

16. But it also could serve as a 'mission module' for extended human expeditions beyond Low Earth Orbit [LEO], carrying Chinese astronauts around the Moon and to the deep-space Lagrange points in the Earth-Moon system well before 2020. Docked to an upgraded Shenzhou and launched by a heavy booster, it could embark on months-long sorties to the edges of interplanetary space.

17. For the first time, this new module's presence gives China not merely equivalent capabilities to do things the US and Russia did long ago. It promises to provide NEW capabilities that neither of the 'big boys' have or even are building.

18. It opens the door to original "first-in-history" missions for Chinese astronauts in the years to come. The time for playing 'catch-up' may be ending.

19. China recognizes that space technology demonstrates to the world their capabilities in the very hardest engineering and scientific challenges. This awareness brings with it profound diplomatic, commercial, and military credibility. This desire fuelled the original 'Space Race' in the 1960s. It provides profound justification for Beijing to pursue new space missions that could soon be beyond anything the US or Russia have gotten around to doing.

20. I'll be awake for the landing to monitor and advise.