

## Space Colonization

### Will Space Tourism drive Space Colonization? What's the timeline?

By Mark Moidel

NASA is going back to the Moon and eventually to Mars. At least that's the plan. The steps are to try to live off-world at the International Space Station (as we are currently doing); then to go back to the Moon sometime in the next 12 years and set up a small lunar base; then off to our next destination, Mars. What is the timeline of these events and what will be the driving forces behind Space Colonization?

Arthur C. Clarke and Stanley Kubrick's "2001: A Space Odyssey" vision of a beautiful spinning International Space Station clearly has not come to pass by that year. That vision is a roadmap to what we as a human race will undoubtedly accomplish, potentially in the near future, with the right incentives. The questions are 'when' and 'what incentives'?

#### **If you build it they will come!**

To get there they need an affordable way. The X-Prize competition, a \$10 million prize won by Space Ship One, was designed to get people to space and back, safely and affordably. Space Ship One was designed by Burt Rutan of Scaled Composites and funded by Virgin Galactic, owned by Sir Richard Branson. But where would we go to?

#### **Space Tourism**

Space is very close, only 62 miles, up. Imagine flying 62 miles and actually leaving Earth. Space Tourists need a place to go, but where? A Space Cruise Ship, complete with a casino and a zero–g pool? A Space Hotel is another obvious choice. If you are rich, well connected and have the intestinal fortitude, the Russian’s are always willing to add a few Space Tourists to the list of visitors to the International Space Station.

In April of 2001, Dennis Tito, an American, became the first fare–paying Space Tourist at a cost of \$20 million. He flew to the International Space Station and remained for 7 days. His visit was followed by four others; the first African in Space, Mark Shuttleworth (South African/British) in April and May of 2002; Gregory Olsen (American) in October 2005; Anousheh Ansari (Iranian/American) in September 2006; and Charles Simonyi (Hungarian/American) in April 2007. Other scheduled Space Tourists: Francisco Navarro–Grau (Peru) is expected to fly in August 2008. Richard Garriott (American) is expected to fly on Soyuz TMA–2 in October 2008. Vladimir Gruzdev (Russian) is expected to fly in 2009. In the vision of Space Travel we get from the film “2001: A Space Odyssey”, the orbiting, glistening, white Space Station is used as a launch site to a Moon colony. When will we have a Moon Colony?

## **Driving Forces**

In late 2009, Virgin Galactic hopes to start daily trips for paying customers, into Space aboard their Space Ship Two. The return flights into low Earth orbit will last just over two hours at a cost of \$100 000 per traveler; five minutes of weightlessness included. They hope to have four flights a day. As of November 2007, the company had already pre–sold nearly 200 seats.

In September 2007, the Japanese launched the Kaguya spacecraft which is mapping the Moon in great detail. Both the Chinese and Indian governments, in an attempt to demonstrate their space–faring capabilities have publicly

announced that they have their eyes set on the Moon. This in turn has prompted a little Space Race. Not wanting to have another country gain the high-ground, President Bush [announced](#) in 2004, that US probes to the Moon will once again commence in 2008; the International Space Station will be finished in 2010; that Americans will be returning to the Moon by 2020 and intends on establishing a basic colony on the Moon by 2024. Ultimately, he spoke of going to Mars.

Regardless what drives us, Space Tourism or a Space Race, it does seem that a reasonable first place to set up camp would be on the Moon. It's relatively close, it's stable and could be useful for scientific research, and can be mined for fuels, oxygen and hydrogen, which can be used as water and life support and to be used as fuels to launch us further afield. Mars is the likely next destination.

Mars poses different challenges however. It's further away which in case of emergency means greater autonomy must be achieved. That autonomy will be gained from lessons learned by our experiences on the International Space Station and on our future Lunar base. Unlike the Moon whose day lasts two weeks in the Sun and two weeks in the Dark, Mars has a similar day to that of Earth's twenty four hours. Unlike the Moon, Mars also has weather which means everybody can have a very pleasant or a very bad Martian day. Some targets for colonizing Mars have been set as early as 2037 to 2057.

From there, the solar system and the galaxy as a whole will be eventually colonized if we can survive long enough to get all our eggs off of this one basket, Earth! Survival refers to both terrestrial threats, ourselves, catastrophes and extra terrestrial events such as comet or asteroid impacts.

Our civilization needs to live long enough to develop the technologies to be self sustaining and self sufficient if we are to become, as Arthur C. Clarke said, “Guardians of the Galaxy”.

## Learn More

### Video

For a glimpse into the future, our roadmap to the Moon and Mars, watch the film “Odyssey of Survival”. It features Sir Arthur C. Clarke (author of “2001: A Space Odyssey”); Buzz Aldrin (Apollo 11 astronaut); Gerald Soffen (who headed the NASA Viking Missions to Mars in the 1970’s); and Tobias Owen (a renowned Space Researcher, Scientist and Professor at the University of Hawaii). The film is narrated by Mark Moidel in English and by Robert Lepage in French. “Odyssey of Survival” runs 48 minutes, has great music and is thoroughly enjoyable as it reviews where we’ve been, when we were there and how we got there.

Find out more about the films [Odyssey of Survival](#) and [l’Odyssée de la survie](#) (the French version).

### Online

The X-Prize <http://www.xprize.org>

Space Tourism Society <http://www.spacetourismsociety.org/>

The National Space Society <http://www.nss.org/tourism.html>

## About the Author

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Mark Moidel is a film maker, musician, editor, interviewer and author, based on Earth, with a planet to save.

He has a Science background and a Fine Arts degree. He is a science buff, an amateur astronomer and speaks at Special 'Science' Events throughout the world. He is often invited to speak (or Key Note Address) to the general public-at-large in a succinct, educational and entertaining way about astronomical phenomena. His advice is sought after by the local media and press.

Mark's special interests and expertise also include dogs (and pets in general); music composition and publishing; and independent film production and distribution.