

Lunar tourists could be on their way in a few years

Fly me to the Moon

by Clive Simpson



Spacecraft have already been selected, a flight route worked out and a business plan compiled. All that is left to do is find someone wanting to take a two week trip to the Moon for \$100 million.

A wealthy tourist or two will spend the first seven days in Earth orbit aboard the International Space Station (ISS). After that, a Soyuz TMA spacecraft will carry a mission commander and two tourists for a flyby of the Moon, subsequently returning to the Earth.

The lunar tourism project – developed by the Russian spacecraft manufacturer Energia after an approach by Space Adventures, the Arlington, Virginia-based space tourism company – could also become the first step in the Moon's industrial development.

The mission will use a Soyuz spacecraft – piloted by a Russian cosmonaut – and could launch as early as 2008. Two commercial seats are available, priced at \$100 million each and, after a deal is signed, it would take 18 months or two years to manufacture all the required equipment and to implement the project.

Energia chief executive, Nikolai

Sevastyanov, told a press conference mid-August that space tourism was a financial means to an end. "What we're talking about here is the opportunity to open up new energy sources" he said.

"We realise that developing the Moon will be a step-by-step process – from circumnavigation, to landing, to the construction of an energy base. After that we'll go on to create a powerful electricity

Nikolai Sevastyanov, Energia.



An astronaut's view of the lunar farside showing Leonov crater (left foreground) taken by the Apollo 16 astronauts in April 1972.
NASA

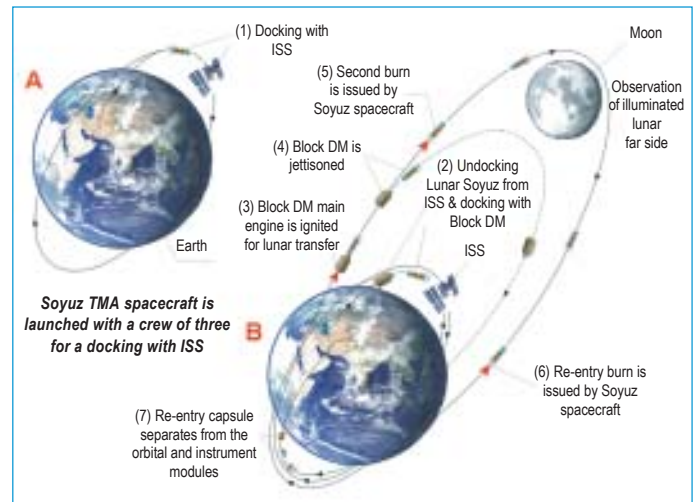
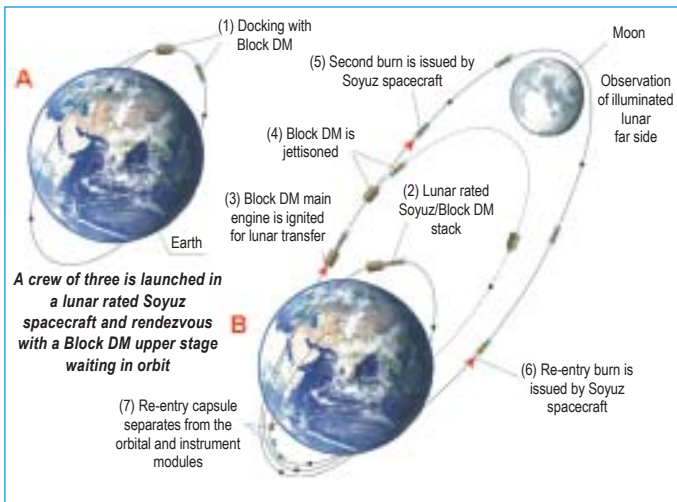
plant."

Sevastyanov said that he and his colleagues viewed space tourism not as a goal in itself but as something that could set the scene and provide financial seed money for the future industrial development of outer space. It's conceivable that the Moon's helium 3 gas could be used as a new source of energy.

"We're all aware helium 3 is a remarkable, environmentally friendly fuel and a highly efficient source of energy," said Sevastyanov. "Unfortunately, it doesn't occur on the Earth, but it is in abundance on the Moon."

Helium 3 can be used in thermal nuclear synthesis and, according to some scientists, this method of obtaining power could be one of the best solutions to the Earth's long term energy problems.

Lunar industrial development projects could initially rely on Energia's time-tested Soyuz launch vehicles and later employ its



Direct staged lunar mission profile.

ISS staged lunar mission profile.

Kliper spacecraft, now being developed.

According to Sevastyanov, many question the feasibility of manned space flights but in his view such missions could help build a future lunar base, paving the way for new energy sources that would bring huge benefits for humankind.

Sevastyanov was elected to head up Energia earlier this year amidst workers' protests of what they called his poor aptitude as an engineer. Some commentators say that is why he is backing 'sensational projects' that will win him acclaim and provide Energia with money.

There remains the rather big question, however, of where Energia plans to find anyone willing to splash \$100 million on a two week 'out of this world' holiday – so far Russia has only managed to attract three space tourists to date for seven day jaunts to the ISS.

Sevastyanov maintains that despite the high price of a two week lunar tour the project is "absolutely realistic".

In his view, the real economic benefits from development of the Moon will more than compensate for all the costs, both present and future. "Tourism is not an end in itself but one of the stimuli which will help promote the project," Sevastyanov said.

Russia's Roskosmos federal space agency agreed it was mulling the possibility of arranging a tourist trip to the Moon.

"We've received a proposal from the Energia for taking space tourists on a flight around the Moon," said deputy Roskosmos director Nikolai Moiseyev.

"We'll consider the risks and safety issues as part of a complete technical analysis of the proposal within the next four to eight weeks. Such flights can only be arranged if one is completely certain about the safety of people."

With the enormity of the issues

surrounding NASA's manned space programme, it is almost implausible to think that such a small company like Space Advnetures could realistically offer such a trip.

So it was perhaps no coincidence that the announcement came as the US Space Shuttle's heat shield tiles had barely cooled from the heat of re-entry following the huge sighs of relief that had greeted Discovery's touchdown at the remote Edwards Air Force Base in California on 8 August.

Space Adventures has worked closely with the Russians on the three tourist missions to the ISS to date and DSE-Alpha – as the lunar tourist flight has been named – builds on the company's long-standing partnership with Roskosmos and Energia.

Eric Anderson, president and CEO of Space Adventures, said: "We have identified over a thousand people around the world who have the financial resources to participate in an expedition to the Moon, but the question remains, who among this group has the sense of exploration and adventure to undertake such a historic mission?"

"We have recently spoken with a few of these prospective clients and they are interested and eager to learn more. With this level of interest and enthusiasm, I have no

Eric Anderson, Space Adventures.



doubt that we'll launch DSE-Alpha by 2010."

After being commissioned by Space Adventures to study the feasibility of a Soyuz manned mission to the Moon at the beginning of this year, Energia proposed two technically viable options.

The first is a lunar flight via a direct rendezvous and docking in low Earth orbit with an upper-stage booster, and the second would involve a multi-day visit to the Space Station followed by the upper-stage docking.

The direct-staged mission duration would range from eight to nine days and the ISS-staged mission duration would range from nine to 21 days.

"The long-standing reliability of the Soyuz is a testament to its continued evolution and modernisation which spans back to the first decade of manned spaceflight," said Anatoly Perminov, chief of Roskosmos.

"Knowing that the Soyuz was originally developed with manned lunar missions in mind, we were optimistic that our studies would conclude positive results on the vehicle's feasibility to go to the Moon.

"The required spacecraft modifications are well-understood and can be implemented so this commercially-funded mission is considered a valuable supplement to the agency's overall goals for the manned spaceflight programme."

Even the consideration of a private trip to the Moon for fare-paying passengers signals that the approach of the original space super powers is now more polarised than ever.

Whilst the US manned space programme wallows in technological complexity, the Soviet Union takes a more pragmatic and practical course. Future industrial exploitation is the name of the game for the former communist regime that now has a keen commercial eye. Time will tell whether either is right – or whether there is room for both.