Space Tourism: The Road Ahead

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When will space flight trips into Earth orbit be as safe and routine as flights on commercial planes today? Michel Van Pelt's 'Space Tourism' looks at the technological challenges that still need to be overcome. Principally the development of single-stage reusable space planes, and safe propulsion and guidance systems that are required to provide affordable transport for people wanting an out-of-this-world experience.

'This book is for those people who dream about circling the Earth every ninety minutes, freely floating in front of a large window, looking down at the blue planet beneath…and having holidays far from Earth', Van Pelt writes in the preface.

'Isn't it strange, he continues 'that after more than four decades, human space flight is still regarded as something very special? Space remains something only a small elite group of astronauts is allowed to experience'.

Van Pelt asserts that the face of space travel is changing rapidly, pointing to the growing number of private and well-funded organizations that are developing and testing new kinds of space vehicles, and even competing against each another in highly publicized space-flight contests.

Over the last few years, two private citizens have taken separate trips into space that they paid for with their own money. And even one commercial air carrier has begun to invest in the private development of spacecraft that will take travelers on flights to the edge of space.

Suddenly it seems that frequent if not routine space travel for ordinary citizens - long depicted as fantasy in movies and science fiction stories - may become a reality.

Van Pelt sees tourism as "one of the most powerful economic forces" for the development of new cheap, reusable space vehicles; in 'Space Tourism', he investigates the technology and costs of current vehicles, showing how these elements (the various rockets, fuels, spacecraft and space stations, that humans have so far designed and used) all fail for mass space tourism.

Interspersed with this historical critique, the author prepares the reader for a launch into Earth orbit as a tourist aboard The Jupiter, a space vehicle built by Orbital Destinations, an imaginary company owning a spaceport in Cape Canaveral, Florida.

Once in orbit, we are introduced to the effects of micro gravity on the human body, discovering how it feels to sleep in space, consume food and drinks, and how to go to the toilet.

We experience the docking and transfer from our spacecraft to a space hotel, breathless views of Earth and, after too-short-a-time, a moment-by-moment description of our vehicle's de-orbit and fiery re-entry through earth's atmosphere and final glide to the ground.

Descriptions of rough landings endured by Soviet and American astronauts (like Gagarin's, Grissom's, Glenn's, Komarav's, Titov's and Strekalov's) are recounted to contrast with our flawless, imaginary landing of the not-so-distant future.

Van Pelt says the new space vehicles will have to be far safer than today's Shuttle or Soyuz systems - able to be reused many times, and maintained and checked for damage as easily and quickly as commercial

planes are today.

The new craft would be able to safely abort at every stage of ascent after launch, unlike current rockets, which can't turn off their fuel flow once ignited.

Van Pelt believes the g-forces experienced by tourists on future space tourist vehicles will be about the same as those felt by astronauts today on the Shuttle - mild enough to make it safe for most people he says.

A lot has now been learnt about the effects of zero gravity on the human body, and a few days in space will not weaken the body so much as to make the g-forces dangerous during re-entry.

Van Pelt says the criteria for ordinary people going into space will never be as tough as it was for professional astronauts. Tourists will no longer have to undergo grueling tests to qualify, like being put in isolation chambers or starved of oxygen.

Tourists will not need to conduct scientific tests, build space stations or repair satellites, as astronauts have had to do. While the space trip flights will be largely automated, traditional commercial airline captains will still pilot them, adding an additional element of safety.

Van Pelt believes regulating people's trips in space to a maximum of three days is an effective way of minimizing the dangers and risks of radiation. Sun observation satellites could predict sun storms, giving planes enough time to come back to Earth.

People would have to wear radiation dose meters to constantly monitor their exposure levels (Van Pelt considers the radiation exposure levels of nuclear reactor plant workers to be a sensible level). The frequency of trips made by both pilots and passengers would be limited to minimize

radiation-poisoning levels.

Van Pelt believes certain rules would be introduced to screen out unsuitable and undesirable candidates; checks on people's behavior would be sought to make sure they met the 'crew code of conduct', language skills, drug and alcohol abuse, disgraceful military service, and psychological tests for dishonesty or instability would all be tested for.

While Van Pelt stresses that the technologies - not to mention the economic and political hurdles - to make space tourism a reality have not yet even been developed, he does describe how we are on the verge of creating such an industry.

The future created in Space Tourism is highly fanciful because we haven't developed the technologies yet to know if we can do these things. Nor does the book provide the means to attain this future.

But the author gives purpose and context to the direction of space travel development by showing how far current technologies must still go before the infrastructure and systems will be in place for tourists to go into space.