

# Unfasten your seatbelts aboard the ZERO-G

June 23 2011, by Marlowe Hood

---



A handout photo from France's National Centre for Space Studies shows scientists, French MPs and journalists experiencing zero-gravity aboard an Airbus A300 at Le Bourget.

What child has not dreamed of breaking free from gravity's chains and floating, weightless, above Earth's surface?

That fantasy, long-since dismissed in the adult mind as a violation of Nature, came true this week for a small group of scientists, French parliamentarians and journalists, including this reporter.

The lucky few experienced a dozen 30-second episodes of pure, head-spinning [zero-gravity](#) aboard an Airbus A300, owned by French aeronautics firm Novespace and run by France's National Centre for Space Studies (CNES).

Make no mistake -- there's nothing like it, not even Frank Sinatra singing "Fly Me to the Moon".

Once available only to astronauts and scientists, the weightless experience is about to become a bit more accessible, provided you've got the cash.

Novespace managing director and ex-astronaut Jean-Francois Clervoy announced Tuesday that he plans to offer commercial flights, including one before the end of this year.

Final approval from France's civil aviation authority is pending, and the price tag -- provisionally set at 4,000 euros (5,700 dollars) -- has yet to be finalised.

But Clervoy envisions half-a-dozen sorties a year with 40 passengers each starting in 2012. It would be only the third such commercial service in the world, along with one in the United States and one in Russia.

So unfasten your seatbelts.

For this flight, which took off from the Paris Air Show in Le Bourget just north of the French capital, passengers were offered a needle in the arm to stave off air sickness. It was a good idea.

To understand how a so-called parabolic flight works, think [roller-coaster](#).

Ahead of each half-minute dose of weightless nirvana, the jumbojet sticks its nose in the air at a 47 degree angle and climbs, climbs, climbs.

This is when those on board -- mostly slumped against the padded floor and sides of the emptied fuselage -- experience "hyper-G", a sharp

intensification of gravity.



A handout photo from France's National Centre for Space Studies shows scientists, French MPs and journalists experiencing zero-gravity aboard an Airbus A300 at Le Bourget.

At it's maximum, the G-force reaches 1.8, enough to make it feel as if one's limbs have turned to lead and a 900-pound gorilla is parked on one's chest.

Try to imagine, then, a gravitational force of 10G, which is what fighter pilots endure during certain death-defying manoeuvres.

"Planes are designed to withstand 10G. The human body is not," said Captain Jean-Claude Bordenave, our pilot for the day and one of only a handful in France licensed to fly a jetliner as if it were a stunt plane.

"Injection!", says a voice over the loudspeakers as the Airbus hits the top of its arc.

Suddenly, the pressure is gone.

Indeed, a gentle push with a fingertip is enough to send one hurtling through space, spinning head over heels. Oddly, novices instinctively try to swim -- a French deputy attempts a breaststroke.

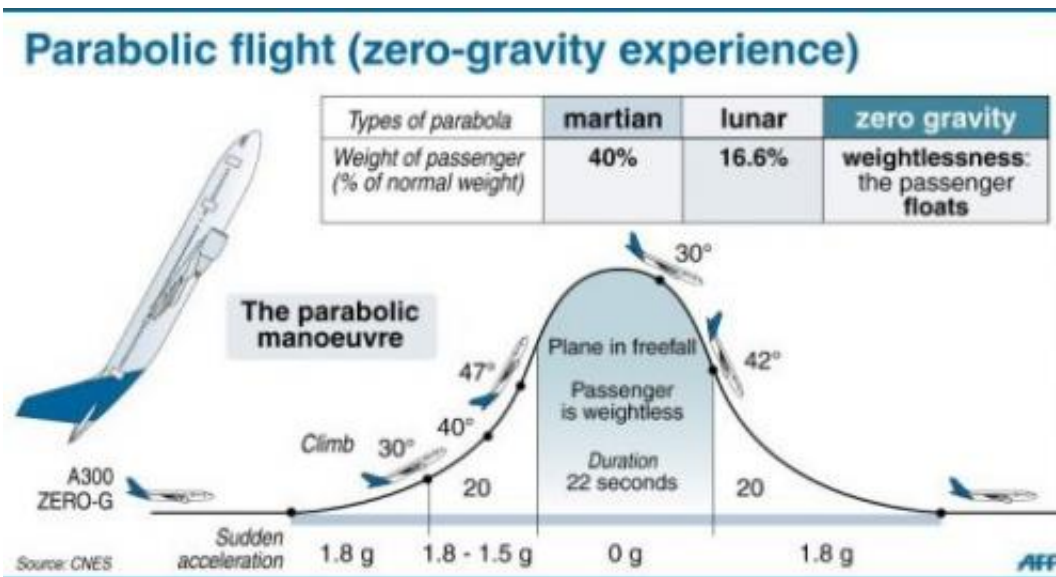
But air is not water, and there's not enough friction to generate any movement, just a silly grin.

With one's eyes closed, there is no up or down, no tugging sensation telling the body how to align itself before the gravity gets switched back on. One gentleman lying against the ceiling during zero-G, dropped with an alarming thud as the Airbus leveled out from its nosedive and prepared for the next up-and-down.

Since they began in 1997, CNES's Airbus zero-G flights have been reserved for experiments, along with the odd invited passenger.

International scientists will continue to have priority, said Clervoy, who has clocked hundreds of hours in space, including three trips on the US shuttles Discovery and Atlantis.

There were three teams of researchers on this flight.



Graphic showing the flight path of a zero-gravity flight. That fantasy, long-since dismissed in the adult mind as a violation of Nature, came true this week for a small group of scientists, French parliamentarians and journalists, including this reporter.

Medical doctor Paula Beck and a team from the University of Witten-Herdecke and the German Aerospace Centre tested how blood flow in the human body reacts to weightlessness.

The data could one day help prepare astronauts for the long flight to Mars, where humans weigh about 40 percent less than on Earth, she explained.

"Imagine after a year of no gravity you land on Mars. You start working, but maybe your body can't deal even with the reduced gravity," she said. "We just don't know."

There is no better way to prepare astronauts for weightlessness, said

Sebastien Rouquette, CNES's project manager for parabolic flights.

"Nothing else has this level of realism. The sensations are genuine, like being in space," he said during the flight.

Minutes later, as the plane headed back to Le Bourget, Rouquette broke out into full-throated song.

"Fly me to the moon, Let me play among the stars, Let me see what spring is like, On Jupiter and Mars," he crooned.

Ol' Blue Eyes couldn't have said it better himself.

(c) 2011 AFP

Citation: Unfasten your seatbelts aboard the ZERO-G (2011, June 23) retrieved 2 May 2024 from <https://phys.org/news/2011-06-seatbelts-aboard-zero-g.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--