Paper ID: 77996
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IAF HUMAN SPACEFLIGHT SYMPOSIUM (B3)
Astronaut Training, Accommodation, and Operations in Space (5)

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ASTRONAUTS WITH DISABILITIES: RESEARCH AND EXPERIMENT ON THE DISABILITY INCLUSION IN THE HUMAN SPACE PROGRAM

Abstract

Since 1961 with Yuri Gagarin's first flight, humanity has seen around 600 astronauts leaving the Earth for orbital adventures of short or long duration. While at the time it was considered as the most dangerous and inaccessible place, today it is the playground of more and more private and public agencies. This is well illustrated by the recent growing space tourism activity, and the new opportunities it opens thanks to the more frequent flights and the financial difference of a crewed launch compared to a few years in the past. Diversity increased a lot recently, in terms of gender, culture, age, nationalities and even disabilities. This later is the aspect this study is focusing on.

After ESA's parastronaut feasibility project and Inspiration 4 crew launch with SpaceX, a brand new image of astronauts was born, allowing a wider part of humanity to participate to the Space adventure too. But how, after 60 years of human spaceflights, can it really be inclusive to people with certain disabilities? What are the necessary adaptations? What are the "acceptable" disabilities for a safe mission? How does society impact that revolution and also what will this giant leap have on society itself?

This research project was made in the frame of the DIVersity in Astronaut Selection (DIVINAS) project which is part of the Diversity and Gender Equality Project Group from the Space Generation Advisory Council (SGAC). The team is composed of 10 space enthusiasts from very diverse backgrounds, with a common interest in discovering the possibility of sending people with disabilities to space. After more than a year since its creation, the project is now proposing some experiments on the topic of astronauts with disabilities to analog astronaut simulations. The paper will show the outcomes of this first experiment about how to adapt space habitat for people with deafness and hearing loss. Combining the results of practical experiments with background research, this study will highlight the challenges that the industries, agencies and every entity involved in this ambitious project must face to improve diversity in human space flights programs.