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HUMAN AGENCY AND AUTONOMY IN LONG DURATION HUMAN EXPLORATION

Abstract

A complex and innovative project like long duration human exploration of Mars and beyond calls for a stable international contribution from dierent communities of knowledge and expertise. If we are looking for a safe autonomous exploration system where the human plays the primary role, the astronaut's training and the design of the technical system must be integrated into a paradigm that accepts fertile diversity protected by a humanizing ethic. In our communication we will describe the foundations of a process of synergistic selection and training of astronauts that aims to avoid being locked into a culture of eciency that has the eect of devaluing or even negating the human species qualities. The hyper rationalization of our way of life, the technicization of medicine have inuenced our thinking and ways of living towards a path to much lead by eectiveness (it gives: clones, genome manipulation, articial procreation). For long-term missions that require autonomy, pro-activeness with a decision-making centre on board, selection and training will integrate the social dynamics of the crew and behavioural aspects as key factors for the success of exploration missions. Based on extensive operational research experience in the eld of human reliability (University of Technology of Compiègne) as well as the results of an experiment conducted in cooperation with the French Space Agency (CNES), we will present some research results and a curriculum aimed at developing the skills and resilience of astronauts in unpredictable and potentially hostile environments. We will focus on the need to activate "natural hapsis" and emotional intelligence to succeed in the project of inhabited exploration. This progressive path requires sensitivity, mutual listening and shared responsibility of partners lead by subjective and objective risks perception with co-constructed common reference frameworks,