

PSYCHOLOGICAL SELECTION AS AN INTEGRAL PART OF THE ESA ASTRONAUT SELECTION CAMPAIGN 2008/2009

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The Department of Aviation and Space Psychology at the German Aerospace Center (DLR) deals with the selection of operational personnel (e.g. pilots, air traffic controllers) and conducts related research. Since 1977, DLR has regularly been involved in selecting astronaut candidates (AsCan) both, nationwide and throughout Europe.

In 2008/2009 the European Space Agency (ESA) performed its third selection campaign to enhance the European Astronaut Corps. 8413 applicants of various nationalities met the formal requirements. Finally, in September 2009 six AsCans started their basic training after passing several selection stages (including paper sifting, medical and psychological phases).

Methods: Phase 1 of the psychological selection focussed on operational aptitudes (basic cognitive and psychomotor functions), knowledge tests (English language, physics and mathematics) and personality traits (NEO-PI & (DLR in-house) TSS). Phase 2 concentrated on personality and team behaviour and consisted of interactive exercises and interviews (one-on-one and board interview).

Results: Out of 902 applicants, 192 candidates successfully completed Phase 1, and 46 also had positive results in Phase 2. Regarding personality traits, significant differences could be found between astronaut candidates and the normal population in the NEO-PI scales (e.g. astronauts scored lower in Neuroticism and higher in Agreeableness and Conscientiousness). Significant differences between astronaut candidates and licensed airline pilot candidates in the TSS scales could also be found (e.g. astronauts scoring higher in Emotional Stability, Mobility or Achievement Motivation). In performance tests, the astronaut candidates scored significantly higher in knowledge tests, but lower in operational tests compared to pilot candidates.

Conclusions: Due to the specific job requirements of astronauts, tailored tests which are based on those developed for highly qualified operational personnel (e.g. pilots, air traffic controllers) should be applied. However, the differences in personality and performance tests between pilot and astronaut applicants underline the need for specific norms.

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