

HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)
ISS Utilisation (3)

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INDUSTRIALLY RELEVANT RESEARCH IN SPACE IN THE FRAMEWORK OF ESA'S ELIPS
PROGRAMME

Abstract

Within the European Programme for Life and Physical Sciences in Space (ELIPS) and the research implementation on ISS, ESA always looks into the potential industrial relevance of the knowledge to be acquired through space experiments. Whenever relevant, contacts with RD industry are taken and when possible industry is involved in the definition of project proposals. Proposals submitted to regular Announcements of Opportunity that involve RD industry can receive co-funding from ESA. These projects may span over several years and optimally use the various mission platforms in space available to ESA. A large number of projects eventually have dedicated instruments flown on ISS by ESA or other ISS partners. The fields, hitherto covering more than 30 Microgravity Application projects (MAP), include biotechnology, ageing, food and oil industry related fluids, new materials development and energy. Industries associated to the research teams running these projects have closely followed the projects and in many instances made valuable contributions to them. Currently, ESA stimulates the industrial participation to applied research projects by a dedicated co-funding of PhD students in relation to flight experiments which also leverages industrial RD investment and returns unique knowledge from the set of complementary expertises represented in the team. In several instances, ESA also capitalised on MAP projects to respond to calls for proposals of the Framework Programmes of the European Commission. Large industry driven projects including space research elements have been successfully submitted. The IMPRESS project that was completed in 2009 led to the development of a new Ti-Al based alloy for turbine blade applications. It also delivered a new process for Raney Nickel-based catalytic powders production. For both applications, microgravity experiments were instrumental in providing the 42 laboratories and industries strong team with so far unavailable thermophysical properties data and benchmark samples to support the validation of the various computer models developed in the project. Several large integrated RD projects following the same scheme were recently selected by the EC and are about to start in 2011. ESA believes that this scheme is the most efficient and credible path to pro-actively exploit space research on ISS for industry relevant applications on the ground. In addition, ESA is prepared to assess any demand from industry to perform RD experiments on the ISS, and will exploit synergies with existing ELIPS projects which can accelerate, strengthen and economize industrial research on ISS.