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ATV JULES VERNE MISSION: AN INNOVATIVE DESIGN AND OPERATIONS CONCEPT

Abstract

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On the 3rd of April, 2008, the Automated Transfer Vehicle Jules Verne (ATV-JV) successfully docked to the International Space Station (ISS). After 6 months of almost continuous operations at the station ATV has undocked on the 5th of September and performed a destructive re-entry over the South Pacific Ocean on the 29th September 2008. With the success of this first ATV mission, ESA proved its full capacity to safely perform rendezvous and docking with a manned Space Station using new technologies for the first time. The Jules Verne has been the first of its kind, due to its innovative concept and complexity, but also because it is the first and unique ISS visiting vehicle operated by simultaneous co-ordination of 3 control centres: ATV-CC in Toulouse as the main executive centre throughout the entire mission, Moscow Control Centre as the mission authority during the rendezvous part, and Houston control centre as overall ISS integrator and for all cargo operations during the attached phase. This paper recalls the general ATV concept and its major design features, and then addresses the first mission and its achievements, as well as the peculiarities of the operations set-up with particular emphasis on: • The mission preparation activities, the challenges of establishing a full trilateral operations concept and its implementation • The operations set-up and the distribution of roles and responsibilities between ESA, industry and the National Agencies • The mission implementation and its achievements • An assessment of the overall operations activities and an outlook of the future activities

The paper will also briefly address the potentials for future evolution based on the ATV design.