

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)  
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## A REUSABLE LAUNCHER 1ST STAGE DEMONSTRATOR FOR EUROPE AND JAPAN: CALLISTO

**Abstract**

Japan successfully launch the new H3 vehicle and Europe is getting ready for the maiden flight of Ariane 6. Nevertheless, continues improvement, especially in term of cost, are necessary to continue to offer an affordable access to space. To prepare this next step, JAXA, CNES, and DLR have developed the CALLISTO system as a joint project. The system consists of a subscale, vertical-takeoff vertical landing (VTVL), reusable vehicle and a ground segment supporting the flight and ground operations of the vehicle. CALLISTO stands for “Cooperative Action Leading to Launcher Innovation for Stage Toss-back Operations”.

The project aims at developing, building and testing a prototype vehicle which shall, without a technological precursor, demonstrate the mastering of flights and operations representative to a reusable launch stage. Along all project phases, data and know-how are being gained about design, manufacturing, operations, flights, post-flight operations and maintenance solutions, which are essential for the development of future operational vehicles.

CALLISTO project is now in phase D, where manufacturing and subsystem test will take place and pave the way for the final assembly. In this paper recent development progresses will be highlighted and discussed in context of the upcoming steps towards the flight test campaign starting in 2025 at CSG in Kourou, Europe's Spaceport for commercial launches. Besides the maturation of the vehicle design, also the transformation of the former Diamant launch pad, close to the Ariane 5 and Vega launch pads, to the CALLISTO ground segment will be described.