

ICCBMA 2024

SHM for Space structures and systems – D. Barnoncel (ArianeGroup, France) & M. Jacquesson (CNES, France)

ArianeGroup and CNES have, since long time, been looking at solutions and advantages of SHM for civil launchers with two main objectives: obtain a validation of the structural health during all life phases, and obtain a thermomechanical behavior of the structures during critical phases for either development validation or use in a HMS approach. The development of new sensing technologies with the emergence of reusability for launchers structures also brings a new interest for SHM solutions. We will present the application needs which are related to Ariane 6 integration assessment and the system integration constraints. Concerning the system, the presentation will deal with constraint and solution proposed to achieve high accuracy measurement at relatively low cost. We will present the results of a campaign test during A6 MAIT that has enable the validation of the system and helped to secure our stage integration process and some major ground life phases. A perspective of wireless system will be presented to propose an adapted SHM system for reusable structures.