

GNC and AOCS functional chains engineering and verification

Presenter: Massimo Casasco (ESA) & Benedicte Girouart (ESA)

Verification of the GNC and AOCS functional chains is a challenging process. Not only these subsystems are characterised by both SW and HW elements interfacing with each other and subject to effects that are difficult to predict and to model, but also the on-ground reproducibility of the in-flight behaviour is clearly limited. The presence of industrial setups where the responsibility of the composing elements is split across several companies also adds to the challenge.

This presentation will provide an overview of the typical concepts and processes used in GNC and AOCS functional chains engineering, highlighting the relationships with the project life-cycle, including in particular OBSW development, the normative background, and the typical outputs and deliverables. The scope of test benches utilisation for GNC and AOCS functional chains verification and performance verification will also be presented.

Finally, some return of experience from past projects and the challenges raised by the latest trends observed in recent projects will be analysed.