

System Data Repository

Presenters: Serge Valera (ESA) & Yan Tang (ESA)

Requirement Engineering (RE) plays a key role in developing complex space systems successfully. Formal modelling methods based RE (e.g. ontology-based) can ensure *efficient* and *effective* information exchange between involved partners (i.e. domain experts, customers and suppliers). Software requirements, which are derived from high level system requirements, contain *semantics* that may come from data, structural information and function specifications. An on-board software uses a spacecraft database, which is designed for this particular software on the one hand, and can be reused by other software on the other hand. The former is also called "configuration" using a single set parameters. The latter is as well called "missionisation" when multi-mission vehicles are involved. The conceptual model of this spacecraft database of "configuration" is a domain ontology; while the one of "missionisation" corresponds to a local view in a multi-domain ontology. In this presentation, we will illustrate a formal modelling approach called Fact-based Modelling (FBM) to model an ontology, with which we can ensure 1) the *consistency* and *completeness* of the database; 2) the *verifiability* of relevant requirements; 3) a support of full database engineering cycle from *conceptual*, *logical* to *physical* models.