

SIM Documentation Methodology and Requirements Flow-down Process Using "DOORS"

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Abstract:

The Space Interferometry Mission (SIM) will be the first space-based optical interferometer designed for precision astrometry. As well as enabling forefront astronomical science, SIM will serve as a technology pathfinder for future missions, in NASA's Origins Program, such as the Terrestrial Planet Finder. Launch is currently planned for mid-2006, with a mission duration of 5 years.

SIM is primarily an astrometric instrument, measuring precise positions of stars as faint as 20 magnitude. It will surpass existing and planned ground based astrometry, and will open up a new era of space-based astrometry.

An integrated team of the Jet Propulsion Laboratory and industry has been formed to formulate a reference design to meet the SIM science objectives. Unique and formidable technical challenges have been encountered in numerous aspects of the system, from component development to system-level integration and test. Activities to develop and test the necessary enabling technologies are proceeding in parallel with, and are coupled to, the ongoing flight design.

The SIM project requirements documentation is complicated by the need to flow post-5-year processed science requirements to develop not only real time flight and ground system allocations, but also specifications for a technology development program and a set of integrated modeling tasks. A "tapestry" to assure the process is complete and correct is accomplished using the DOORS requirements documentation and tracing tool. The methodology and process will be described.

Summary:

The Space Interferometry Mission (SIM) will be the first space-based optical interferometer designed for precision astrometry. An integrated team of the Jet Propulsion Laboratory and industry has been formed to formulate a reference design to meet the SIM objectives. The SIM documentation is complicated by the need to flow post-5-year-processed requirements to develop real time allocations and integrated modeling tasks. The "tapestry" to assure that the process is complete and correct is accomplished using DOORS.