

Generic Documentation Tree for Science Ground Segments



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Abstract

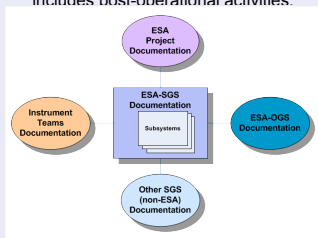
This poster presents a Generic Documentation structure applicable during the analysis, definition, implementation and operational phases of a Science Ground Segment, SGS. It is the conclusion of the analysis performed in the scope of the BepiColombo SGS development project and is also derived from the experience of ESA science missions. This generic documentation tree is aligned with the ESA standardization processes and has been written with the goal of being understandable and suitable for the science community. It represents a new approach for the development of future ESA science missions, providing an initial documentation structure that should be tailored depending on the specific scientific, engineering and managerial characteristics of each mission.

Introduction and Scope

- ❑ The SGS is responsible for writing and maintaining the specific ESA SGS documents and also contributing to other mission entities documentation.
- ❑ The SGS is composed of several subsystems, covering the following core competences: Science Operations Planning, Science Instrument Handling, Data Reception & Processing, and Archiving & Science Support.
- ❑ Subsystems could be developed by different teams. The resulting documents could be included as a part of the SGS documentation or separately, it depends on the specific managerial aspects of the mission.

ESA Science Mission follows the following lifecycle:

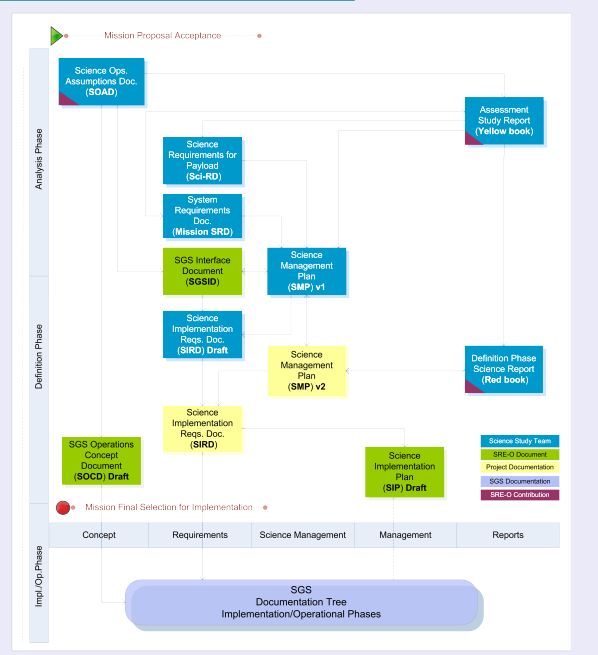
- ❑ Analysis Phase (phase 0/A)
- ❑ Definition Phase (phase A/B1)
- ❑ Implementation/Operational Phase (phase B2/C/D/E1/E2): This includes post-operational activities.



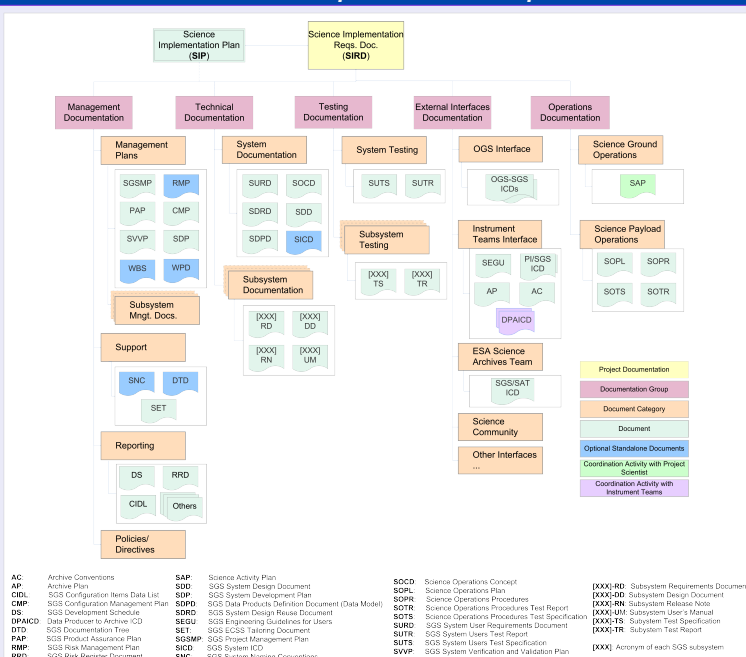
Analysis and Definition phases are the early periods from mission proposal to mission selection.

The SGS Documentation Tree covers the documentation generated by SRE-O during the ESA science mission lifetime.

Documents for the early phases

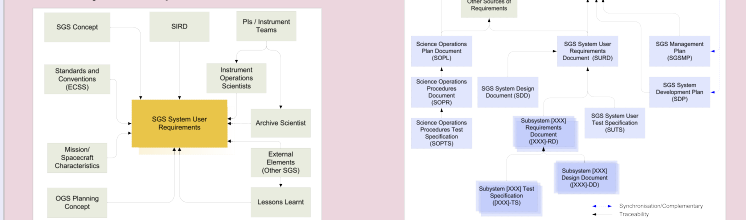


SGS Documentation Tree -- Implementation & Operational Phases



and more ...

Traceability and Requirements flow:



Authorization organized by levels:

	Level 1	Level 2	Level 3
Contents	High level, system driving information	Cost / Schedule Documentation	Rest of SGS Documentation
Authorized by	SRE Department Heads	SRE Division Heads / Mission Manager	Development / Operations Manager
Examples	Science Impl. Plan (SIP)	SGS Management Plan (SGSMP)	SGS System Design Document (SGSD)

Documentation Levels during Implementation and Operational Phases

Detailed Document Descriptions:

SGS Product Assurance Plan	RAI
Responsibility Level	Level 3
Purpose:	To describe the product assurance and quality assurance activities to be done during the development and the operation of the SGS. Its purpose is to describe the responsibilities, activities, and competences to be applied through all SGS phases in order to assure that the SGS meets its specified requirements and is fit for use.
Contents:	<ul style="list-style-type: none"> Product Assurance: programming, configuration, organization, responsibilities, resources, information, risk, quality, methods, risk management, supplier selection and management, testing, training, operations, maintenance, and support. Product Assurance: development cycle, project plan, plan for process and activities, software documentation and configuration management, process metrics, state of software, procedures and standards.
Applicable Teams:	SRE, SRE, SRE relevant documents
Comments:	--

Tailoring

The documentation tree can be tailored by document merging depending on the specific characteristics of the SGS development and operations. Please, contact us for further information.

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