

SEQ_POINTER: NEXT GENERATION, PLANETARY SPACECRAFT REMOTE SENSING SCIENCE OBSERVATION DESIGN TOOL

Jeffrey S. Boyer
Jet Propulsion Laboratory
California Institute of Technology
4800 Oak "Grove Drive
Pasadena, California 91109
USA

Phone: (818) 354-3944 Fax: (81 8) 393-5074

ABSTRACT

Since the Mariner Missions, NASA-JPL planetary missions have been supported by ground software to plan and design remote sensing science observations. The software used by the science and sequence designers, to plan and design observations, has evolved with mission and technological advances. The original program, PEGASIS (Mariners 4, 6, and 7), was re-engineered as POGASIS (Mariner 9, Viking, and Mariner 10), and again later as POINTER (Voyager and Galileo). Each of these programs were developed under technological, political, and fiscal constraints which limited their adaptability to other missions and spacecraft designs.

Implementation of a multi-mission tool, SEQ_POINTER, under the auspices of the JPL Multi mission Operations Systems Office (MOSO) is in progress. This version has been designed to address the limitations experienced on previous versions when being adapted to a new mission and spacecraft. The tool has been modularly designed with subroutine interface structures to support interchangeable celestial body and spacecraft definition models. The computational and graphics modules have also been designed to interface with data collected from previous spacecraft, or on-going observations, which describe the surface of each target body. These enhancements make SEQ_POINTER a candidate for low-cost mission usage, when a remote sensing science observation design capability is required.

The current and planned capabilities of the tool and cost estimates for adaptation to a range of missions will be discussed. The presentation will also include a 5-10 minute video presentation demonstrating the capabilities of the proto-Cassini Project version adapted to test the tool.

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Keywords: remote sensing science observation, adaptable tool, interchangeable models, data-defined celestial body surface