

# Helios Mission Support

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*Project Helios is a joint space endeavor between the United States and West Germany, whose objective is to place two unmanned spacecraft into heliocentric orbits whose perihelion distance will come closer to the Sun than any previously or presently planned free-world deep space undertaking. The West German government is designing and fabricating the spacecraft and will conduct Mission Operations. NASA will provide the launch vehicle, the launch facilities, and the major portion of the tracking with respect to this program. The launch of the first spacecraft is planned for mid-1974 and the second in late 1975. This article deals with the DSN support activities to Project Helios during the months of March and April 1972.*

## I. Introduction

DSN activity in support of Project *Helios* continued at a heavy pace during the past reporting period. Much of this effort, particularly that associated with the Compatibility Test Program, has already been published as part of the JPL 613-series interface documents and therefore will not be repeated in this article. However, it is of interest to highlight the following two significant topics.

## II. Preparations for the Sixth *Helios* Joint Working Group Meeting

The Jet Propulsion Laboratory continued its preparations to support the Sixth *Helios* Joint Working Group Meeting to be held April 26 through May 3, 1972. These preparations cover both technical subject matter and Host Committee activities to accommodate an anticipated 150 attendees. In the technical area, the TDS organization has prepared a formal report of its activities during the past six months (i.e., since the Fifth *Helios* Joint Working Group Meeting); agenda material for its multiple meetings with other subgroups; and, of course, the actual presentation material that will be discussed during these sessions. In parallel with this activity, the Host Committee has been very active regarding all of the administrative

details associated with conducting a meeting of this magnitude. These latter activities range from such matters as transportation and hotel accommodations to providing conference rooms, secretarial services, and literature of general interest to the participants. It is hoped that each of these activity areas will result in a very successful Sixth *Helios* Joint Working Group Meeting.

## III. *Helios* Engineering Model Transponder Compatibility Tests

As of this writing, the *Helios* Engineering Model Transponder/DSN Compatibility Tests have just been completed at DSS 71, Cape Kennedy. The results of these tests are just now undergoing evaluation; however, preliminary indications are that no catastrophic problems were discovered. Some minor difficulties were encountered in starting the tests due to damage received by the *Helios* transponder support equipment in its shipment from Germany to Cape Kennedy. However, this damage was either repaired at Cape Kennedy or "workaround" techniques were employed in order to proceed with the test schedule. During the tests themselves, certain problems were discovered—particularly around threshold level measurements—but these are of a correctable nature and are not

anticipated to interfere with the development of the prototype spacecraft. Such problems are normal in the development of any flight project spacecraft, which is the reason for early compatibility testing with the Engineering Model Radio System. Both the *Helios* Project Office and the DSN therefore feel that these Engineering Model Compatibility Tests that have just been completed represent an important milestone towards the successful launch of *Helios-A* in the summer of 1974.

#### **IV. Conclusion**

Aside from the continuing activity in response to action items generated in previous Joint Working Group Meetings, the above activities represent the major *Helios* effort during the past reporting period. Further details on the above subjects and other activities that will be conducted during the Sixth *Helios* Joint Working Group Meeting will be reported in the official minutes of the meeting which will be published during the next reporting period.