Introduction

The Helioseismic and Magnetic Imager (HMI) proposal was submitted to NASA on 24 April 2002 in response to the Solar Dynamics Observatory Announcement of Opportunity AO 02-OSS-01, and this investigation was accepted by NASA on 15 August 2002. A pre-award spending authorization letter was signed between Stanford University and Goddard Space Flight Center on 27 August to allow negotiation of the development contract. Members of the HMI team from Stanford University and Lockheed Martin Solar and Astrophysics Laboratory attended the SDO Kickoff Meeting at Goddard Space Flight Center on 5 and 6 September.

The primary effort for the month of September involved updating and negotiating the Phase A and Bridge Phase cost proposal with Goddard. Stanford signed the HMI contract with NASA on 27 September, and had a letter contract in place the next day with the prime instrument development subcontractor Lockheed Martin Space System Company.

Status and Activities during October

The details of the Lockheed subcontract including the cost plus fixed fee and the statement of work have been completed. The subcontract is in final review, and is anticipated to be signed the first part of November. Weekly HMI meetings at the LMSAL facilities started at the beginning of October. Initial tasks included reviewing action items from the SDO Kickoff meeting and assigning engineer contacts for the major subsystems. C. J. Wolfson was assigned as the interim Lockheed HMI project manager. L. Springer will take over these duties in December of this year after he hands over responsibility for his current role as manager for the EUVI development for the STEREO/SECHHI project.

Both Stanford and Lockheed personnel have participated in weekly SDO spacecraft and instrument team telecons. The Stanford personnel responsible for the design and costing of the HMI Science Operations Center and data processing participate in several SDO ground data system telecons. Initial discussions with the project resulted in the organization of an HMI Interface Meeting with the project at GSFC on 17 and 18 October. Technical and programmatic topics were covered, and the HMI engineers met with their spacecraft counterparts to discuss accommodation and interface issues. In addition, weekly HMI specific telecons with agreed to by the SDO project office, and the first one was held on 24 October.

The recent technical work at Stanford has primarily involved reviewing the observing line choice for the HMI instrument. We are investigating using the Fe 6173 Å line instead
of the Ni 6768 Å line because the former is more sensitive to magnetic field. This change will enhance the HMI vector magnetic field observing capability was included as part of the HMI selection. We have been working with both Lockheed and the HAO group on a technical note detailing the observing line choice. A preliminary version of this write-up was presented to HMI Co Investigators attending the SOHO 12 conference the week of 28 October.

**Planned Activities during November**

The HMI Observing Line technical note will be finished in preparation for making a final decision on the observing line by the end of November. The SDO Mission Definition Review is scheduled from 3 to 5 December for which we are preparing input to the SDO level 1 requirements. In addition, technical notes on the HMI Data Coverage and Completeness Requirements, and the HMI Mission Operations Concept are planned to be finished prior to the MDR. Finally, the baseline instrument resources are being reviewed including mass and power estimates; thermal and radiation protection requirements and preliminary interface specifications.

**Attachment**

Lockheed Martin Solar and Astrophysics Laboratory HMI progress report for October 2002.