

National Polar-Orbiting Operational Environmental Satellite System (NPOESS)

The National Polar-orbiting Operational Environmental Satellite System (NPOESS) is a tri-agency program jointly administered by DoD, the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), and the National Aeronautics and Space Administration (NASA). The program is managed by an NPOESS Executive Committee through an Integrated Program Office (IPO) and is being acquired under Air Force acquisition authority. NPOESS will provide a national remote sensing capability to acquire and disseminate global and regional environmental data for a period of at least ten years.

NPOESS Milestone I occurred in FY97. During the Program Definition and Risk Reduction Phase, The IPO awarded multiple contracts for each higher-risk sensor and/or suite of sensors, and for system studies. In 2002, the Secretary of Defense appointed the Secretary of the Air Force as the DoD Executive Agent for Space, and the IPO is now acquiring NPOESS under new DOD National Security Space Policy directives tailored for space programs. Following a Key Decision Point-C in August 2002, the IPO selected an integration contractor and the program entered into the Acquisition and Operations Phase. A key risk reduction activity is the NPOESS Preparatory Project (NPP), which is a joint Integrated Program Office/NASA space flight of selected critical imaging and sounding sensor systems. In 2003, the IPO restructured the program in response to funding constraints. As part of their restructuring, the IPO delayed the Critical Design Review (CDR), NPP, and the first NPOESS launch by up to a year.

TEST & EVALUATION ACTIVITY

The Air Force Operational Test and Evaluation Center (AFOTEC) completed the first part of an operational assessment and issued an Interim Summary Report in July 2002.

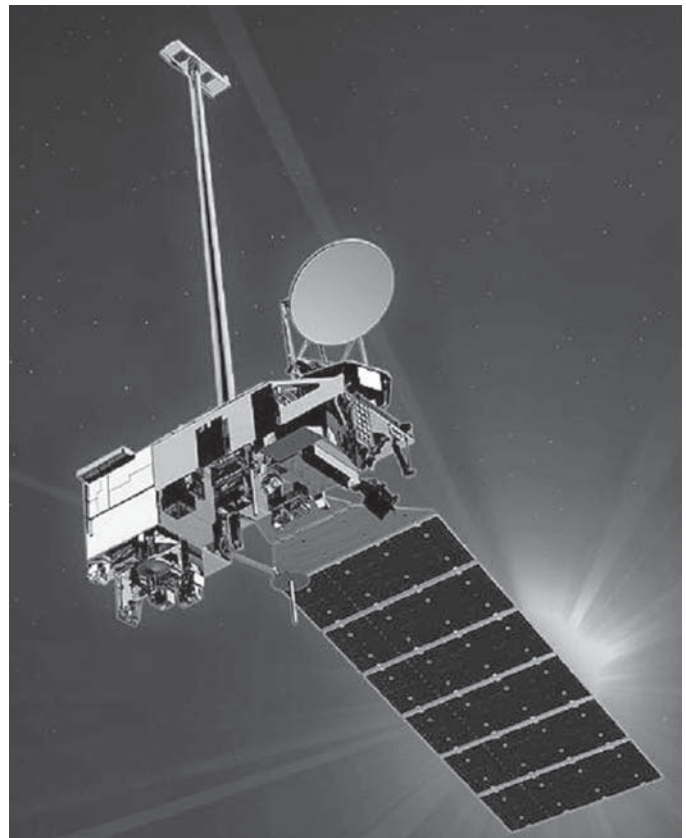
This operational assessment is being updated in 2003 with a final report expected in spring 2004.

Test and evaluation and risk reduction activities in 2003 included further definition of roles and responsibilities for a Combined Test Force, and creation of a users' forum to foster dialogue between the IPO and the Services' field terminal offices on field terminal development and testing.

The NPOESS Test Plan Working Group (TPWG) refined the concept of a Tri-Agency Combined Test Force to correspond with the current acquisition strategy and to better define AFOTEC's role in the overall NPOESS operational test concept.

The TPWG reached agreement with the IPO regarding user field terminal testing with NPOESS satellites both in the factory and on-orbit. A plan under development will minimize shortfalls in the contractors' baseline relative to the field terminals. The plan calls for the development of high-rate data (HRD) and low-rate data (LRD) demonstration terminals, a field terminal calibration and validation effort, and a field terminal test bed.

Individual agencies will fund, procure, and manage their own field terminals to satisfy their user needs.



The National Polar-orbiting Operational Environmental Satellite System is making satisfactory progress, but potential issues with Environmental Data Record quality and field terminal acquisition strategies must be resolved prior to the Critical Design Review.

AIR FORCE PROGRAMS

TEST & EVALUATION ASSESSMENT

AFOTEC will be the lead agency for all operational test and evaluation events, but will combine efforts with other Service operational test agencies, NOAA, and NASA during multi-Service OT&E (MOT&E) to make the most efficient use of expertise and resources.

NPOESS is making satisfactory progress, but potential issues with Environmental Data Record (EDR) quality and field terminal acquisition strategies must be resolved prior to CDR. Furthermore, there is schedule risk with the planned 2006 NPP flight, and the impact on risk reduction of any delays or changes to NPP must be reassessed at CDR.

EDR quality is directly tied to algorithm and sensor performance, and to quality control. Algorithm performance has been identified as a leading risk to EDR quality. Three key sensors that represent major advances over legacy sensors each face a tight development schedule and technical challenges. Quality control of the data processing string in the Interface Data Processor Segment must ensure that erroneous data is properly filtered and that operators are alerted whenever error conditions arise.

Any lack of synchronization between the NPOESS program and the Services' field terminal acquisition programs would put two key test events at risk. The first is a combined developmental test/operational test event, which AFOTEC will conduct in FY06 to verify interoperability by connecting at least one of each type of field terminal directly to the satellite in the factory. The second event is MOT&E, the primary system-wide operational test, scheduled for late FY11. The IPO has been hosting field terminal user meetings and they are starting to recognize the need for integrating the individual Service field terminal programs with the overall NPOESS acquisition. DOT&E is concerned that more progress has not been made in developing a Field Terminal Closure Plan to aid in synchronizing and tracking NPOESS and terminal programs to ensure test events stay on schedule.

NPP, with a planned launch in October 2006, is the primary risk reduction flight for NPOESS. It will carry three key NPOESS sensors and generate 93 percent of the NPOESS data volume. There is significant risk in the schedule delivery of the three sensors for the NPP launch. Furthermore, the command, control, and communications segment for NPP is substantially different from that planned for NPOESS, resulting in reduced risk mitigation from the NPP ground segment.