Nation's Newest Advanced Polar Operational Environmental Satellite Being Readied For Launch

The NOAA-N Prime spacecraft, a Polar Operational Environmental Satellite (POES), is being prepared for launch from Vandenberg Air Force Base aboard a United Launch Alliance Delta 2 rocket on February 4, 2009. Lockheed Martin built NOAA-N Prime at its Space Systems Company Sunnyvale facility.

NOAA-N Prime is the latest and final spacecraft in the Advanced TIROS-N (ATN) satellite series. All have been designed and built for the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA) by Lockheed Martin since the first Television and Infrared Observational Satellite (TIROS) weather satellite launch in April 1960. Most of the spacecraft in the series have operated far longer than originally expected, earning them a reputation as the workhorse of the civil space Earth-imaging inventory.

"This team has been totally dedicated to providing NASA and NOAA with satellites to extend NOAA's ability to provide environmental data products to users, and reaching this milestone is always very satisfying," says Jeff Vanden Beukel, Lockheed Martin TIROS program director. "Our long-standing partnership with our NASA and NOAA customers is a source of genuine pride for Lockheed Martin."

A constellation consists of two POES satellites circling the planet in nearly north-south orbits. As the Earth rotates, the entire globe, one swath at a time rolls into view of the satellites' instruments. The instruments are continually sensing the entire depth of the atmosphere and report on the following environmental measurements:

-- Atmosphere Temperatures and Moisture Soundings
-- Sea-surface Temperatures
-- Land-surface Temperatures
-- Cloud Cover and Heights
-- Precipitable Moisture
-- Total Ozone
-- Clear Radiance
-- Incoming and Radiated Heat

Together these data comprise irreplaceable inputs to the numerical weather forecast model and are vital to weather and climate forecasting. Separately or in combination, the data are utilized to produce sea-surface temperature maps, ice condition charts, snow cover analysis, vegetation maps and other forecasting and management tools.

Additionally, NOAA-N Prime carries an enhanced complement of microwave instruments for the generation of temperature, moisture, surface, and hydrological products in cloudy regions where visible and infrared instruments have diminished capability. NOAA-N Prime also carries search and rescue instruments that are used internationally for locating ships, aircraft, and people in distress. The use of satellites in search and rescue has been instrumental in saving more than 24,500 lives since the inception of the Search and Rescue Satellite-Aided Tracking (SARSAT) system.

The NOAA-N Prime satellite will operate in a circular, near-polar orbit of 464 nautical miles above the Earth with an inclination angle of 98.73 degrees to the equator. Its orbital period, which is the time it takes to complete one orbit of the Earth, will be approximately 102.14 minutes.

The NOAA-N Prime orbit is sun-synchronous, rotating eastward about the Earth's polar axis 0.986 degrees each day, approximately the same rate and direction as the Earth's average daily rotation about the sun. The rotation keeps the satellite in a constant position with reference to the sun for constant scene illumination throughout the year.

NASA's Goddard Space Flight Center, in Greenbelt, Md., is responsible for the procurement, development, launch services, and verification testing of the spacecraft, instruments, and unique ground equipment. Following deployment of the spacecraft from the launch vehicle, Goddard is responsible for the mission operation phase leading to injection of the satellite into orbit and initial in-orbit satellite checkout and evaluation.

Following the launch and a comprehensive on-orbit verification period that lasts 45 days, NASA will turn operational control of the satellites over to NOAA. NOAA will operate the satellites from the Satellite Operations

Control Center in Suitland, Md., along with the nation's other environmental satellites that it operates.

NOAA's environmental satellite system is composed of two types of satellites: Geostationary Operational Environmental Satellites (GOES) for national, regional, short-range warning and "now-casting"; and Polar Operational Environmental Satellites (POES) for global, long-term forecasting and environmental monitoring. Both GOES and POES are necessary for providing a complete global weather monitoring system. Both also carry search and rescue instruments to relay signals from people in distress.

Lockheed Martin Space Systems Company, a major operating unit of Lockheed Martin Corporation, designs and develops, tests, manufactures and operates a full spectrum of advanced-technology systems for national security and military, civil government and commercial customers. Chief products include human space flight systems; a full range of remote sensing, navigation, meteorological and communications satellites and instruments; space observatories and interplanetary spacecraft; laser radar; ballistic missiles; and missile defense systems; and nanotechnology research and development. During its five decades of service to the international space community, Space Systems Company has produced some 900 spacecraft, including 380 classified missions and over 150 small satellites.

Headquartered in Bethesda, Md., Lockheed Martin Corporation is a global security company that employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2007 sales of $41.9 billion.

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