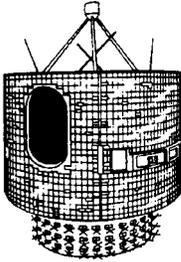


GOES 1

Geostationary Operational Environmental Satellite 1

Spacecraft Sketch	Mission Objective
	<p>The Geostationary Environmental Satellite 1 (GOES 1) is the first of a series of operational geostationary spacecraft designed to meet National Oceanic and Atmospheric Administration (NOAA) meteorological requirements. The GOES 1 objectives are to provide the operational capability for achieving the objectives set out for the predecessor Synchronous Meteorological Satellite (SMS 1 >); 2) mission. The primary goals are to provide basic up-to-the-minute weather information for large areas of the earth and to provide the basic data and/or prepared data to various users. Specific objectives are to: 1) view the evolution and motion of storms and other atmospheric phenomena; 2) contribute to development of a domestic and international in-situ environmental network; and 3) improve capability for forecasting and providing real-time warnings of solar disturbances.</p>

TYPE OF MISSION	PROGRAM OFFICE	PROJECT LEAD CENTER	MANAGEMENT APPROACH	S/C CONTRACTOR	I&T CONTRACTOR
METEORO-LOGICAL	SPACE & SCIENCE APPLICATIONS	GSFC	OUT-OF-HOUSE	FORD	FORD

Payload Description
<p>The Geostationary Operational Environmental Satellite (GOES 1,263) payload, a follow-on to the Synchronous Meteorological Satellite (SMS 162) payload, consists of a Visible and Infrared Spin-Scan Radiometer (VISSR) System for infrared (IR) and high-resolution visible photography, a Space Environment Monitor (SEM) System that includes various scientific sensors designed to continuously measure the solar emission activities, and a data collection system (DCS). The GOES 1,23 is a spin-stabilized and cylindrically shaped spacecraft with the support structure extending radially out from the thrust tube and affixed to solar panels which form the outer walls of the spacecraft and provide electrical power. Located between the thrust tube and solar panels are station keeping and dynamics control equipment, batteries, and most of the equipment for one of the instruments. The attitude and spin rate are maintained by two sets of thrusters which are mounted around the spacecraft equator and are ground command activated. The telemetry and command subsystems use both UHF and S-Band frequencies, plus VHF which is used during launch and as the backup for the primary subsystem after the spacecraft is in synchronous orbit.</p>

INSTRUMENT NAME	ACRONYM	PI AFFILIATION	PRINCIPAL INVESTIGATOR	I&T CONTRACTOR
SPACE ENVIRONMENT MONITOR	SEM	NOAH-ERL	H. LEINBACH	FORD
VISIBLE & INFRARED SPIN-SCAN RADIOMETER	VISSR	NOAH-NESS	NESS STAFF	SBRC

Instrument Descriptions

The GOES 1 Space Environment Monitor (SEM) consists of three sensors which monitor the energy level and quantity of energetic particles, the intensity of solar X-ray radiation, and the magnitude and direction of the magnetic field. The system consists of a solar energetic particle sensor, an X-ray sensor and a magnetometer sensor. The solar energetic particle sensor consists of one omnidirectional spectrometer and one directional spectrometer solid-state detector used in a multiple arrangement to monitor protons, alpha (flux) particles and electrons during both solar illumination and solar eclipse. The X-ray sensor is a simple type using ion chamber detectors which operate only during solar illumination to monitor solar X-ray emission. The magnetometer sensor consists of flux gate sensors that measure the direction and magnitudes of the three orthogonal magnetic field components external to the spacecraft. A calibration mode is provided to verify the basic operation of all three SEM sensors.

The GOES 1 Visible and Infrared Spin-Scan Radiometer (VISSR) is designed and built by SBRC using technology introduced in the Landsat 1 Multispectral Scanner. The instrument provides day and night observations of cloud cover and earth/cloud radiance measurements for use in operational weather analysis and forecasting. The spinning spacecraft provides the eastwest line scan motion while a step scan mirror provides north-south adjustment. A large optical system serves both visible and infrared channels. Cooling is provided by a two-stage radiative cooler.

Launch

10/16/75