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NASA TO LAUNCH GEOS-2 SATELLITE FOR ESA

The second Geostationary Scientific Satellite (GEOS-2) is scheduled for launching by NASA for the European Space Agency (ESA) from Cape Canaveral, Fla., no earlier than July 14. The planned launching time is between 6:43 and 7:49 a.m. EDT.

Under an agreement between the United States and ESA, the satellite will be launched by the Delta 2914 launch vehicle which is managed by NASA's Goddard Space Flight Center, Greenbelt, Md. ESA will reimburse NASA for cost of the Delta launch vehicle, launch services and other administrative costs totaling $16.5 million.

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Mailed:
June 26, 1978

The GEOS-2 launching will mark the 143rd flight mission for Delta. Of the previous 142 launchings, 131 were successful for a better than 90 per cent launch record.

GEOS-2 will study the magnetosphere, that region of near-Earth space where the magnetic field of the Earth still plays a dominating role. The magnetosphere prevents direct access of energetic solar particles to the Earth and thus protects our planet from the harmful effects of space radiation.

The satellite's position above the equator will be shifted between 9 degrees and 35 degrees east longitude during the first year of operation to maximize the correlation of satellite data with ground station, balloon and sounding rocket measurements made on the same magnetic longitude.

GEOS-2 will carry out the mission originally conceived for GEOS-1 which did not achieve a proper orbit April 20, 1977, due to a premature separation of the Delta second and third stages caused by a failure of the separation bolts. Different bolts with greater reliability are now used.

The GEOS-1 spacecraft was placed in a 12-hour elliptical orbit by the European Space Operations Centre at Darmstadt, West Germany. Thus the GEOS-1 mission was modified to achieve some scientific return.

The cylindrically-shaped GEOS-2 satellite will weigh 573 kilograms (1,263 pounds) at liftoff (including experiments, apogee boost motor and propellant). It has been designed for a two-year lifetime.

Except for minor modifications to certain spacecraft subsystems, the seven GEOS-2 experiments are the same as for GEOS-1. They were provided by 11 research institutes in eight ESA member countries (Denmark, France, Germany, Italy, Netherlands, Sweden, Switzerland and the United Kingdom).

The European Space Operations Centre at Darmstadt -- about 35 km (22 mi.) northwest of the Odenwald ground station -- will be responsible for all orbital operations of GEOS-2. This includes the firing of the satellite's solid propellant motor approximately 36 hours after liftoff, placing the satellite into its final stationary orbit 35,750 km (22,300 mi.) above the equator and the African continent.

The Delta Program is managed by the Goddard Center for NASA's Office of Space Transportation Systems. Launch operations are the responsibility of NASA's Kennedy Space Center Expendable Vehicles Directorate. Prime contractor for the Delta launch vehicle is McDonnell Douglas Astronautics Co. of Huntington Beach, Calif.

(END OF GENERAL RELEASE. BACKGROUND INFORMATION FOLLOWS.)

STRAIGHT EIGHT DELTA FACTS AND FIGURES

Height: 35.4 m (116 ft.) including shroud

Maximum Diameter: 2.4 m (8 ft.) without attached solids

Liftoff Weight: 131,895 kg (293,100 lb.)

Liftoff Thrust: 1,765,315 newtons (396,700 lb.) including strap-on solids

First Stage

(Liquid only) consists of an extended long-tank Thor, produced by McDonnell Douglas. The RS-27 engines are produced by the Rocketdyne Division of Rockwell International. The stage has the following characteristics:

Diameter: 2.4 m (8 ft.)

Height: 21.3 m (70 ft.)

Propellants: RJ-1 kerosene as the fuel and liquid oxygen (LOX) as the oxidizer

Thrust: 912,000 N (205,000 lb.)

Burning Time: About 3.48 minutes

Weight: About 84,600 kg (186,000 lb.) excluding strap-on solids

Strap-on solids consist of nine solid-propellant rockets produced by the Thiokol Chemical Corp., with the following features:

Diameter: 0.8 m (31 in.)

Height: 7 m (23.5 ft.)

Total Weight: 40,300 kg (88,650 lb.) for nine
4,475 kg (9,850 lb.) for each

Thrust: 2,083,000 N (468,000 lb.) for nine
231,400 N (52,000 lb.) for each

Burning Time: 38 seconds

Second Stage

Produced by McDonnell Douglas Astronautics Co., using a TRW TR-201 rocket engine; major contractors for the vehicle inertial guidance system located on the second stage are Hamilton Standard, Teledyne and Delco.

Propellants: Liquid, consists of Aerozene 50 for the fuel and nitrogen tetroxide (N_2O_4) for the oxidizer

Diameter: 1.5 m (5 ft.) plus 2.4 m (8 ft.) attached ring

Height: 6.4 m (21 ft.)

Weight: 6,118 kg (13,596 lb.)

Thrust: About 42,943 N (9,650 lb.)

Total Burning Time: 335 seconds

Third Stage

Thiokol Chemical Co. TE-364-4 motor.

Propellant: Solid

Height: 1.4 m (4.5 ft.)

Diameter: 1 m (3 ft.)

Weight: 1,152 kg (2,560 lb.)

Thrust: 61,855 N (13,900 lb.)

Burning Time: 44 seconds

STAR CONSORTIUM

GEOS/ESA was designed and constructed by the European STAR Consortium of companies under contract to ESA. British Aerospace Dynamics Group (formerly British Aircraft Corp.) as *prime contractor is responsible for project management*, systems engineering, attitude and orbit control, wire harness, assembly integration and test and launch support.

Other STAR Consortium team members are:

Belgium	ETCA - electrical ground support equipment
Denmark	ELECTRONIKCENTRALEN - power supply control, attitude and orbit control electronics
France	THOMSON-CSF - telecommunications; SEP - thrusters
Germany	DORNIER SYSTEM - structure, booms and mechanisms, and attitude measurements; AEG-TELEFUNKEN - solar panels
Italy	CGE FIAR - power supply; MONTEDEL LABEN SPA - data handling; OFFICINE GALILEO - attitude sensors; SNIA VISCOSA - apogee motor
Netherlands	FOKKER-VFW - thermal control and nutation damper
Spain	SENER SA - mechanical ground support equipment
Sweden	L.M. ERICSSON - antennae
Switzerland	CONTRAVES - structure

TYPICAL LAUNCH SEQUENCE FOR DELTA 143 MISSION

Event	Time	Altitude Kilometers/Miles		Velocity Km/Hr	Mph
Liftoff	0 sec.	0	0	0	0
Six Solid Motor Burnout	38 sec.	6	4	2,444	1,519
Three Solid Motor Ignition	39 sec.	6	4	2,446	1,520
Three Solid Motor Burnout	1 min. 17 sec.	22	14	4,232	2,629
Nine Solid Motor Jettison	1 min. 27 sec.	27	17	4,570	2,839
Main Engine Cutoff (MECO)	3 min. 43 sec.	96	60	19,279	11,960
First/Second Stage Separation	3 min. 51 sec.	103	64	19,297	11,990
Second Stage Ignition	3 min. 57 sec.	108	67	19,270	11,974
Fairing Jettison	4 min. 20 sec.	126	78	19,631	11,198
Second Stage Cutoff (SECO-1)	8 min. 53 sec.	217	135	27,968	17,378
Third Stage Spinup	22 min. 22 sec.	232	144	27,899	17,335
Second/Third Stage Separation	22 min. 24 sec.	232	144	27,899	17,335
Third Stage Ignition	23 min. 5 sec.	232	144	27,898	17,335
Third Stage Burnout	23 min. 49 sec.	233	145	36,767	22,846
Third Stage/Spacecraft Separation	25 min. 2 sec.	260	162	36,680	22,792

DELTA 143/GEOS-2/ESA LAUNCH TEAM

NASA Headquarters

John F. Yardley	Associate Administrator for Space Flight
Joseph B. Mahon	Director of Expendable Launch Vehicle Systems
Peter T. Eaton	Manager, Delta Program

Goddard Space Flight Center

Dr. Robert S. Cooper	Director
Robert E. Smylie	Deputy Director
Robert Baumann	Associate Director for Space Transportation Systems
David W. Grimes	Delta Project Manager
William R. Russell	Deputy Delta Project Manager, Technical
Robert Goss	Manager, Delta Mission Analysis and Integration
Frank J. Lawrence	GEOS-2 Mission Integration Manager
Ken McDonald	Mission Operations and Network Support Manager
Ray Mazur	Mission Support

Kennedy Space Center

Lee R. Scherer	Director
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George F. Page	Director, Expendable Vehicles
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Bert L. Grenville	Complex 17, Operations Manager
John Dunn	Spacecraft Coordinator

European Space Agency

Roy Gibson	Director General
Dr. Ernst Trendelenburg	Director of Scientific and Meteorological Programs
Dr. Edgar Page	Head of Space Science Department, European Space Technology Center (ESTEC)
Maurice Delahais	Head, Scientific Projects, ESTEC
Manfred Grensemann	ESA/GEOS-2 Launch Operations Manager

CONTRACTORS

British Aerospace Dynamics Group Bristol, England	Spacecraft
McDonnell Douglas Astronautics Co. Huntington Beach, Calif.	Delta launch vehicle

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