

STS-80 EVENTS TIMELINE

MAJOR EVENTS	FLIGHT DAY	MET*	CST**
FLIGHT DAY 1			
ASCENT		MIN:SEC	HR:MIN
SRB IGNITION		00:00	01:50 PM
MAX DYNAMIC PRESSURE (MAX Q)		01:04	01:51 PM
SRB SEPARATION		02:04	01:52 PM
MAIN ENGINE CUTOFF(MECO)		08:29	01:58 PM
ET SEPARATION		08:50	01:59 PM
OMS 2 IGNITION		40:25	02:30 PM
OMS 2 CUT-OFF		43:23	02:33 PM
ON-ORBIT		DAYS:HRS:MINS	
RMS CHECKOUT		00/02:25	04:15 PM
RGPS (RME 1311) & OSVS (DTO 700-11)		00/04:25	08:15 PM
ORFEUS-SPAS UNBERTH		00/04:45	08:35 PM
ORFEUS-SPAS RELEASE		00/07:00	08:50 PM
CMIX		00/08:25	10:15 PM
FLIGHT DAY 2			
VIEW-CPL		00/22:50	12:40 PM
WSF & PLB OSVS SURVEY		00/23:45	01:35 PM
FLIGHT DAY 3			
EMU CHECKOUT		02/00:15	02:05 PM
VIEW-CPL		02/06:50	08:40 PM
CMIX		02/07:00	08:50 PM
FLIGHT DAY 4			
WSF UNBERTH		03/01:05	02:55 PM
WSF RAM CLEANING		03/01:23	03:13 PM
WSF RELEASE		03/05:26	07:16 PM
FLIGHT DAY 5			
CMIX		04/02:35	04:25 PM
VIEW - CPL		04/04:15	06:05 PM
FLIGHT DAY 6			
CREW OFF DAY		05/08:00	09:50 PM
VIEW - CPL			
FLIGHT DAY 7			
WSF RENDEZVOUS BURN		06/03:54	05:44 PM
WSF GRAPPLE, OSVS		06/09:40	11:30 PM
WSF BERTH		06/10:00	11:50 PM
FLIGHT DAY 8			
WSF UNBERTH, OSVS		07/03:00	04:50 PM
VIEW-CPL		07/04:10	06:00 PM
WSF RMS ATTACHED OPS.		07/04:30	06:20 PM
WSF BERTH		07/08:05	04:55 PM
FLIGHT DAY 9			
CABIN TO 10.2 PSI		07/12:10	02:00 AM
EVA PREPARATION		08/05:40	07:30 PM
FLIGHT DAY 10			
AIRLOCK DEPRESS (EDFT-05)		09/06:20	08:10 PM
AIRLOCK REPRESS		09/13:00	02:50 AM
FLIGHT DAY 11			
EVA PREPARATION		11/06:10	08:00 PM

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MAJOR EVENTS	FLIGHT DAY	MET*	CST**
FLIGHT DAY 1 2			
AIRLOCK DEPRESS (EDFT-05)		11/06:50	08:40 PM
CABIN REPRESS 14.7 PSI		11/08:30	10:20 PM
AIRLOCK REPRESS		11/13:30	03:20 AM
FLIGHT DAY 1 3			
CREW OFF DAY			
WSF OSVS SURVEY		12/12:00	01:50 AM
FLIGHT DAY 1 4			
ORFEUS-SPAS RENDEZVOUS BURN		13/04:30	06:20 PM
RGPS (RME 1311) & OSVS (DTO 700-11)		13/10:45	12:35 AM
ORFEUS-SPAS GRAPPLE		13/14:45	4:35 AM
FLIGHT DAY 1 5			
FCS CHECKOUT		14/10:30	12:20 AM
CABIN STOW		14/13:45	03:35 AM
FLIGHT DAY 1 6			
DEORBIT PREP		15/07:30	09:20 PM
DEORBIT BURN		15/15:38	05:28 AM
KSC LANDING		15/16:44	06:34 AM

* MISSION ELAPSED TIME REFERENCED TO SRB IGNITION
 ** CENTRAL STANDARD TIME ASSUMES LIFTOFF 1:50 P.M. CST ON 11/15/96.

CARGO BAY PAYLOADS:

Orbiting, Retrievable Far And Extreme Ultraviolet Spectrometer-Shuttle Pallet Satellite II (ORFEUS-SPAS II) - This is the second flight of this RMS deployed, free-flying payload which is built and operated by Daimler-Benz Aerospace of Germany for the German Space Agency (DARA). The SPAS mounted instruments are the ORFEUS telescope with 2 spectrometers, the Interstellar Medium Absorption Profile Spectrograph (IMAPS), the Surface Effects Sample Monitor (SESAM), the Student Experiment on ASTRO-SPAS (SEAS), the ESA GPS receiver, the Loral GPS receiver, and the Interferometry Program Experiment (IPEX). The ORFEUS and IMAPS will observe the extreme and far ultraviolet spectral regions of hot, bright stars. These measurements will show how stars are born, evolve and die.

Wake Shield Facility (WSF-03) - An RMS deployed/retrieved, free-flying platform with experiments. While deployed, WSF creates a wake which provides a high vacuum environment essential to molecular beam epitaxy (MBE) and chemical beam epitaxy (CBE) thin film growth. A motorized carousel mounted in the center of the disk holds seven substrate samples used for epitaxial growth. Several cooperative experiments are mounted on the WSF free-flyer and carrier.

Midcourse Space Experiment (MSX) - The basis of MSX is to use the orbiter as a target for a DOD satellite located in a 889 km altitude orbit inclined 98 degrees. Orbiter thruster firings will be used as a sensor calibration and evaluation target for the space-based ultraviolet, infrared, visible sensors on the MSX satellite.

Space Experiment Module (SEM) - SEM provides modules that accommodate 10 small experiments designed and constructed by students. It is one of a number of NASA initiatives to increase educational access to space.

MIDDECK PAYLOADS:

Visualization In An Experimental Water Capillary Pumped Loop (VIEW-CPL) - Investigates the operation of a capillary pumped loop system in a microgravity environment through the use of a capillary evaporator with a window for flow visualization.

Physiological And Anatomical Rodent Experiment/National Institute Of Health-Rodents (PARE/NIH-R) - Consists of two animal enclosure modules (AEMs) containing 7 male adult rodents each. The primary objective is to do a food comparison to determine how different diets affect the rodent physiologically.

Commercial Materials Dispersion Apparatus (MDA) Instrumentation Technology Associates (ITA) Experiments (CMIX) - The MDA's are used to mix fluids for the production of high quality protein crystals, thin film membranes, biomedical materials and other science experiments. The CMIX payload also includes several devices called bioprocessing modules (BPM's) and liquid mixing apparatuses (LMA's). Both the BPM and the LMA are designed to mix fluids in microgravity.

Cell Culture Module - A (CCM-A) - The objective of CCM-A is to validate models of muscle, bone and endothelial biochemical and functional loss induced by microgravity stress.

Biological Research In Canisters (BRIC) - Will study the influence of microgravity of genetically altered arabidopsis and tobacco seedlings which have been modified to contain elements of auxin - induced genes from soybean (auxin is a plant hormone responsive to gravity). No inflight operations are required.

DEVELOPMENT TEST OBJECTIVES (DTO'S):

DTO 255	Wraparound DAP Flight Test Verification. Part 2 (DTO of Opportunity)
DTO 312	ET TPS Performance, (Method 1 with no maneuver; Method 3, the maneuver to OMS-2 will be performed early to reduce propellant usage)
DTO 687	Portable In-Flight Landing Operations Training (Pilot)
DTO 671	EVA hardware for future scheduled EVA missions, Test 13, End-to-end maintenance and assembly evaluation, EVA Development Flight Test (EDFT-05)
DTO 700-10	Orbiter Space Vision System (OSVS) Flight Video Taping
DTO 700-11	Orbiter Space Vision System (OSVS) Flight Unit Testing
DTO 833	EMU Thermal Comfort and EVA Worksite Thermal Environment (Thermal Glove Evaluation Only)
DTO 840	Handheld Lidar (HHL) Procedures

DETAILED SUPPLEMENTARY OBJECTIVES (DSO'S):

DSO 485	Interarms Tissue Equivalent Proportional Counter (ITEPC) Bay 3 Starboard, Aft
DSO 487	Immunological Assessment of Crewmembers

RISK MITIGATION EXPERIMENTS (RME'S)

RME 1311 GPS Relative Navigation Experiment (RGPS) - RGPS is a NASA RME in Collaboration with the European Space Agency (ESA) Autonomous Transfer Vehicle (ATV) Rendezvous Predevelopment Program (ARP).