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Space Highlights - 1989 Paris Air Show

Background. The following items represent brief descriptions of some of the more interesting and significant aerospace developments at the Paris Air Show from 9-18 June 1989.

OLYMPUS. The European Space Agency (ESA) is scheduled to launch the world's largest and most powerful civil communications satellite on 30 June 1989 on an Ariane 3 launch vehicle from Kourou, French Guiana. Built by British Aerospace for ESA, the OLYMPUS 1 is the precursor of a new class of large European communications satellites. Four distinct payloads will be carried:

- Two 230-watt channels for high power direct broadcasting, operating at 18/12 GHz through two steerable antennas. This payload is known as the Direct Broadcasting Satellite television. One channel will be allocated to Italy; the other will be steerable over Europe. Both channels will provide 27 MHz at 63 dbW peak EIRP.
- Four channel, 12/14 GHz specialized services payload, working through 5 beams steerable as a group, each channel providing 18 MHz at 44 dbW peak EIRP.
- Two steerable spot beams of 0.6° beamwidth, operating at 20/30 GHz, providing 53 dbW peak EIRP for advanced communications experiments.
- A 12/20/30 GHz beacon package for propagation experiments. Though the OLYMPUS is primarily a commercial telecommunciations spacecraft, the advanced communications experiments on board will be of interest to naval communications spacecraft designers.

EURECA. The European Retrievable Carrier (EURECA) is primarily a microgravity research free-flying platform. It will be launched on the Space Shuttle and deployed in low Earth orbit. EURECA will then boost itself to a higher orbit where payload operations will be carried out. After a nominal 6-month period of operations, EURECA will return to low Earth orbit for rendezvous and retrieval by the Space Shuttle. EURECA is currently scheduled for launch in August, 1991, and will be recovered the following year. It is an ESA funded program with MBB-ERNO as the prime contractor responsible for system design and integration.

The EURECA has five main microgravity experiments: (1) Automatic Mirror Furnace (AMF), (2) Protein Crystallization Facility (PCF), (3) Solution Growth Facility (SGF), (4) Exobiological Radiation Assembly (ERA), and (5) Multi-Furnace Assembly (MFA).

The EURECA has the following specifications:

Payload Mass: . . . . . 1000 Kg
Power: . . . . . 1000 W
Peak: 1500 W
Payload Volume: . . . . . 8.5 m^3

Data Management:
High Speed: 256 Kbps
Low Speed: 2 Kbps
Memory Capacity: 128 Mbits
Average Payload: 1.5 Kbps

Microgravity:
0.1 Hz : 3.7×10^{-6} g
1 Hz : 10^{-6} g

Cooling: 1000 W, Liquid Freon
Orbit: 525 Km/28.5°

The major new development in the EURECA program is the formation of a new commercial project called the Autonomous Microgravity Industrial Carrier (AMICA). The AMICA is the commercialization of EURECA after its qualification flights. The MBB-ERNO has signed a Memorandum of Understanding with the US company, General Electric ASTRO-SPACE to develop the AMICA.

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