

■ **China** hopes to send three astronauts on a seven-day mission in its second manned spacecraft, Shenzhou 6, scheduled for launch within the next two years, according to local reports. Alternatively, it may launch a shorter mission next year with two astronauts. ■ A US bankruptcy court has authorised Loral Space & Communications' subsidiary **Space Systems/Loral** to execute its contract to deliver the DirecTV 7S communications satellite and proceed with construction of DirecTV 8 and 9S and PanAmSat's Galaxy XVI, together valued at \$320 million. ■ The Euro-Russian **Starsem** company will launch **Israel's** Amos 2 communications satellite aboard a Soyuz FG booster from Baikonur on 18 December. The spacecraft was originally manifested for an Ariane 5 launch. ■ **Spacehab's** Astrotech subsidiary will receive \$17.5 million from **Boeing** for cancellation of a contract to prepare commercial satellites for launch from Cape Canaveral. The contract covered work to 2010. Astrotech's backlog has now been reduced from \$34.9 million to \$15 million. ■ Launch of **NASA's** Mercury Surface, Space Environment, Geochemistry and Ranging (Messenger) spacecraft will be delayed from March 2004 for two months after late deliveries of subsystems and technical difficulties with assembly of the **Johns Hopkins University**-built spacecraft. ■ Contact has been lost with **Japan's** Advanced Earth Observing Satellite (Adeos), Midori 2, launched in December 2002. Data indicates solar-panel power generation dropped from 6kW to 1kW before the blackout. Contact with Midori 1, launched in 1997, was lost due to a solar-array malfunction. ■ A new five-segment Space Shuttle solid rocket motor was tested by **Alliant Techsystems' Thiokol Propulsion** division on 23 October, operating for 128s and generating 3.6 million lb (16,000kN) of thrust. The fifth segment adds 25% of propellant, 300,000lb thrust and 5s burn time.

SPACE STATION TIM FURNISS / LONDON

# Congress urges NASA to put off OSP programme

Move comes as space agency works to return Shuttle to flight amid ISS equipment fears

NASA is coming under Congressional pressure to postpone its Orbital Space Plane (OSP) programme until the future direction of US human spaceflight is decided. Opposition to plans to accelerate the programme, to provide a crew rescue capability for the International Space Station (ISS) by 2008, comes as NASA works to return the Space Shuttle to flight by October next year amid concerns about ailing systems on the orbital base.

The new two-man ISS crew, which arrived on 20 October accompanied by Spain's Pedro Duque, is playing down the seriousness of failures among environmental monitoring devices and medical equipment on the station. Expedition crew 8 commander Michael Foale says some air and water purity monitoring devices are not working, but he expects to complete a 200-day stay on board with Russia's Alexander Kaleri. Priority will be given to monitoring the environment, he says.

Some exercise equipment is also malfunctioning. "We may have to return the crew if we can't provide the proper exercise, but again, we

are multiple failures [away] from a situation where we would have to return them," says Bill Gerstenmaier, ISS programme manager.

An air sample was to be brought back by expedition crew 7, Russia's Yuri Malenchenko and NASA's Ed Lu, when they returned to Earth in Soyuz TMA-2 on 27 October, with Duque. NASA and the Russian space agency plan to send replacement equipment on forthcoming Progress resupply flights.

■ NASA is increasing the number of ground-based cameras, used to

monitor Space Shuttle launches, from 13 to 23. Ultra-high-speed, long-range still cameras, a range of digital cameras and three types of high-resolution video cameras will be able to monitor the launch from the ground for 167s, from three viewing angles covering the whole structure. During later phases of the ascent, a Martin WB-57F reconnaissance aircraft will follow the launch. The new camera coverage will not allow night launches, which will halve the number of windows for launches to the ISS.



New camera coverage will not permit night launches of the Space Shuttle

## AGREEMENT

# Brazil/Ukraine in launcher venture

Two months after Brazilian space agency AEB endured its worst setback, the governments of Brazil and Ukraine have signed an agreement that will lead to the establishment of a joint-venture satellite launching enterprise using the Tsyklon-4 launch vehicle under the name Alcântara Cyclone Space. The agreement's guidelines were finalised on 23 August, the date that Brazil's indigenous VLS-1 launch vehicle exploded on the pad days before it was due to be launched from the Alcântara Launch Centre.

The agreement calls for invest-

ments of nearly \$105 million to be equally divided between the two governments. The Ukrainians are expected to invest \$40 million in further development of the Tsyklon-4 launch vehicle, while the Brazilian share will be assigned to developing and enlarging the Alcântara launch centre's facilities and infrastructure. The AEB is to spend an additional \$30 million reportedly earmarked for the purchase of support equipment.

Alcântara Cyclone Space will be tailored to satisfy the two countries' space programme requirements, although Brazilian and

Ukrainian sources indicate that the venture will actively offer its services to other countries. AEB president Luiz Bevilacqua says the first Tsyklon-4 launch from Alcântara has been tentatively set for 2007, with initial tests scheduled for no later than October 2006.

The Tsyklon-4 is a Tsyklon-2 booster with a third stage and restartable Fregat upper stage. The launcher will be able to place 1,800kg (3,965lb) into geostationary transfer orbit and 5,500kg into low-Earth orbit from Alcântara. The venture is aiming for six launches a year valued at \$240 million.