INVESTMENT GRAHAM WARWICK / WASHINGTON DC

Agencies seek commercial input

NASA and ESA want to obtain innovative technologies from small private-sector companies and entrepreneurs

Space organisations are moving to engage entrepreneurial and non-traditional companies in a bid to gain access to innovative commercial technologies. NASA plans to create a venture-capital fund to sponsor new technologies, while the European Space Agency has launched an initiative aimed at fostering the participation of smaller companies in space technology programmes.

NASA's Mercury Fund plans to join with established private-sector venture capital firms to invest in young, privately held companies working on nanotechnology, robotics, intelligent systems and high-speed networks. The concept is similar to the US Central Intelligence Agency's government-backed venture capital fund, In-Q-Tel, which has taken strategic stakes in some 67 firms since being created in 1999.

ESA, meanwhile, has issued an invitation to tender aimed specifically at small and medium-sized enterprises (SMEs), particularly those not yet involved in space programmes. The agency is looking for innovations by companies active in fields other than space that can be used in renewing its technology base.

Under the Leading Edge Technology for SMEs programme, smaller firms will carry out feasibility studies or preliminary validations to demonstrate application of their technologies to space programmes. ESA has invited proposals in areas including design and engineering tools, inflatable structures, small electric thrusters and "green" rocket engines. ESA plans to award multiple 18-month, €50,000-200,000 ($60,000-$240,000) contracts.

Under pressure to give the private sector a role in its space exploration programme, NASA has included several smaller companies among those awarded contracts to study preliminary concepts for human lunar missions. One of these, Transformational Space (t/Space), is proposing that private industry builds and owns the lunar infrastructure and NASA buys services to support its explorers.

The t/Space team includes Scaled Composites, developer of the SpaceShipOne private-venture suborbital vehicle, and AirLaunch, which is designing a low-cost, air-dropped Quickreach launch vehicle. The two companies will collaborate on designing a crew exploration vehicle that can be developed affordably by private industry. Another team member is Constellation Services International, which is developing the LEO Express concept for low-cost cargo resupply and satellite servicing.

MONITORING

Satellites will check crops

Chinese crop information specialist Tuyuan Technologies has launched an international competition to build a five-satellite constellation to provide global monitoring of food crops. The first of the low-cost synthetic-aperture radar (SAR) satellites is due for launch in early 2007, and all five will be in place by 2009 at a cost expected to be less than $150 million.

In July, Beijing-based Tuyuan launched efforts to raise an initial $10 million to address the market for precise prediction of global grain harvests and the risks from floods and other events. The company has developed the SaStats system, which processes raw data from SAR Earth-observation satellites and broadcasts statistical crop information to users in near real-time over a broadband satellite network.

Tuyuan's planned Surveyor network will comprise five identical satellites carrying low-cost medium C-band SAR sensors.

FAILURE TIM FURNISS / LONDON

Launcher fault kills Ofeq 6

Launch of Israel's Ofeq 6 spy satellite failed on 6 September when the third stage of the Shavit launcher malfunctioned.

The Israeli-developed booster was launched from Palmachin airbase south of Tel Aviv. The first two stages functioned normally, but the Rafael-built third stage malfunctioned and the launcher plunged into the Mediterranean.

The $50 million Ofeq 6 reconnaissance satellite carried an electro-optical payload built by El-Op and designed to produce 0.5m-resolution monochrome and 1.5m colour images. Israel's ministry of defence and Israel Aircraft Industries are investigating the failure.

Israel is still receiving intelligence imagery from Ofeq 5, launched in 2002 and expected to remain operational until 2006, and from the Eros A1 civil remote-sensing satellite launched in 2000. Eros B is scheduled for launch by Russian rocket later this year, but the launch of Ofeq 7, scheduled for 2008 with the TechSAR synthetic-aperture radar demonstrator as a piggyback payload, may have to be brought forward.

IAI

Shavit's third stage failed

The Shavit three-stage solid-propellant rocket, developed by IAI's MLM division from Israel's Jerico 2 ballistic missile, was first launched in 1988 carrying Ofeq 1 and failed in 1998 with the loss of Ofeq 4. Analysts believe there was one other unannounced failure. The booster is launched eastwards across the Mediterranean to place the satellite in a 143°-inclination low Earth orbit.

ADDITIONAL REPORTING BY ARIE EGOZI

IN ORBIT

■ **Swedish Space Corp** is negotiating to make a "significant strategic investment" in Netherlands-based Orbital Recovery, which is developing the ConeXpress orbital life extension vehicle, or space tug. ■ Turkey has signed a co-operation agreement with **ESA**. Turkey already hosts a monitoring station for Europe's EGNOS satellite-navigation system and uses data from ESA's ERS and Envisat Earth-resources satellites. ■ **Forecast International** is projecting a "modest rebound" in the commercial communications market over the next 10 years, with 270 satellites worth $26.6 billion expected to be produced between 2004 and 2013. ■ Under US Air Force Research Laboratory funding, **SpaceDev** is developing a small satellite bus that is modular and scalable with standard interfaces enabling "plug-and-play" payloads to be launched within hours or days on a variety of vehicles. ■ **International Launch Services** launched a US National Reconnaissance Office satellite from Cape Canaveral, Florida, on 31 August on the last flight of the Lockheed Martin Atlas IIAS.