



Australia Revives Space Program With New Satellite

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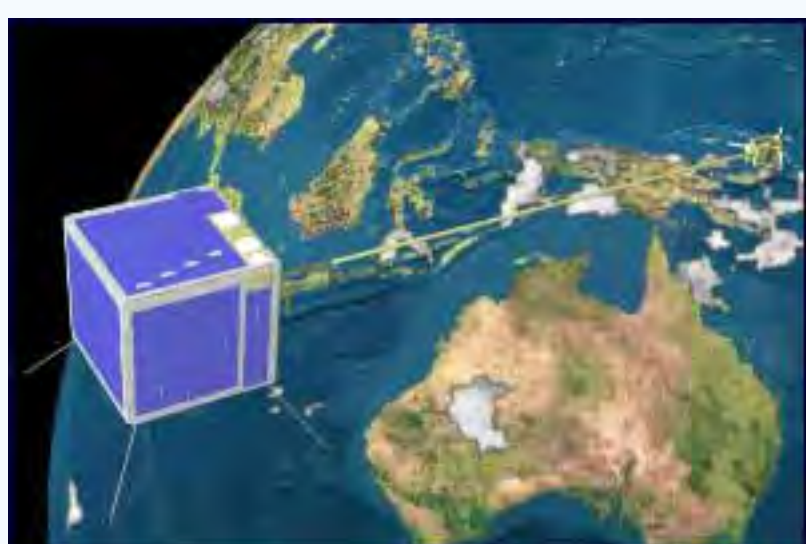
ET

SYDNEY, Australia -- When Australia launches a scientific satellite next year for the first time in three decades, the spacecraft will be crammed full of electronics -- but also the voices and thoughts of ordinary Australians.

Along with communications, remote sensing and engineering experiments, the 110-pound [FedSat](#) satellite will carry a CD full of the sounds of normal people: their ideas about space, life, the cosmos. The satellite is set for launch from Japan in November 2001.

"It may have been a long time between drinks, but the pace of local space development is increasing. Australia is back in space, make no mistake."

"We wanted the average Aussie to be part of this project, too" said Brian Embleton, executive director of the Cooperative Research Centre for Satellite Systems ([CRCSS](#)), a joint venture of several Australian companies, universities and government agencies. Between now and next August, Australians can dial a special telephone number to leave a message that will be burned onto a CD that will orbit aboard the satellite. Australian pop singer Paul Kelly will preface the CD with a recording of: "From Little Things, Big Things Grow."



In addition to its scientific mission of measuring Earth's magnetic field and performing GPS studies, Australia's FedSat satellite will carry recordings of the voices of ordinary Australians into orbit.

Fittingly, the song title represents a forward-looking metaphor for the industry. But it contrasts with a domestic space history that might best be summarized: "Squandered Opportunities."

In the 1960s, Australia stood at the forefront of global space flight research. Europe's fledgling space program launched rockets with names like "Eldo" and "Black Knight" from the huge, empty, flat expanses of South Australia.

But then, the Europeans packed up and moved to French Guiana and Australia decided against funding a space effort of its own. As a result, launch pads built in South Australia's Woomera Prohibited Area stood empty and eventually were used for commando training. Pockmarked and half-destroyed, the launch sites are now considered irreparable.

Now, 30 years later, Australia wants to make up for lost time. Its hoping its efficient national transport infrastructure, skilled workforce, political stability and freedom from many U.S. technology export restrictions will attract space-based industries here.

As such, FedSat marks only the first step, say boosters like Embleton. "It may have been a long time between drinks, but the pace of local space development is increasing," Embleton says. "Australia is back in space, make no mistake."

Orbiting 600 miles (965 kilometers) high, FedSat will test high-performance computing systems and communications technology, which should help in designing more robust spacecraft in the future. It will also gather atmospheric data and monitor Earth's magnetic field. It will be followed by two other Australian satellite projects: Aries 1, set for launch in 2001 and [JAESAT](#), set for launch in 2002.

When in orbit, the 990-pound (450-kilogram) Aries 1 is set to become the world's first commercial hyper-spectral satellite, orbiting 300 miles (480 kilometers) high and enhancing the science of mineral exploration, environmental management, forestry and agriculture. The roughly \$100 million (U.S. dollars) satellite project will allow terrestrial scanning in roughly 105 spectral bands, ranging from visible to short-wave infrared -- allowing much more detailed analysis of land masses and vegetated areas.

JAESAT is a communications and remote-sensing microsatellite. The 220-pound (100-kilogram) spacecraft is set to be launched in 2002 as a means of providing space-based engineering and project management to students from three Australian universities.

In other space-oriented technologies, major tests of oxygen-breathing "scramjet" engines are set to take place at Woomera later this year. The innovative engines will be flown aboard traditional rockets to an altitude of roughly 200 miles (320 kilometers), then dropped. The scramjets will draw in atmospheric oxygen during their fall to test the technology. Long-term, scramjets hold enormous promise for helping keep down the weight of rockets.

Finally, Australia is working hard to promote itself as a place for commercial rocket launches. Woomera is being dusted off and promoted as a place where private industry can safely test new and untried rocket technology away from the liability hazards of populated areas.

Perhaps the first company to take advantage of Woomera's newfound charms may be Sydney-based Spacelift Australia Ltd. It plans to use Russian launch vehicles based on the SS 25 series of Russian ballistic missiles to lift payloads of up to 1,700 pounds (770 kilograms) to orbits up to 600 miles (965 kilometers) high. Technical functions will be outsourced to Russian personnel who will travel to Australia for launch operations.

"We see ourselves not as rocket scientists, but as managers of a transport company taking payloads to space using reliable and competitively-priced launch vehicles," says Yuri Sokol, spokesman for Spacelift.

The company plans a demonstration launch from Woomera later this year followed by commercial launch services beginning next year. Others with plans for Woomera include Kistler Aerospace, a Kirkland, Washington company that aims to carry payloads to low earth orbit on reusable rockets that will return to Earth by means of parachutes and airbags. However, the company has suffered a series of launch delays.

Other entrepreneurs are looking at Queensland and Australia's remote Christmas Island in the Indian Ocean for private launch activities, but repeatedly delayed launch dates have dented their credibility.

For its part, the Australian government is working hard to encourage companies like Kistler and Spacelift by expediting federal and state approvals. One reason why Kistler chose Australia for its initial test launch was U.S.-government dithering over regulations governing reusable rockets.

For Bruce Middleton, head of the Canberra-based [Asia Pacific Aerospace Consultants Pty. Ltd.](#), greasing regulatory wheels and funding projects like FedSat represent a good start by Australia's government toward building a domestic space industry. But he believes the key will be the Australian government's willingness to remain involved financially in the domestic space industry over the longer term.

"The nature of this industry is that most companies develop their technology through government programs," he said. "Unless we have federal government commitment to stay involved over the long term, FedSat isn't going to lead anywhere."

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