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## Science & Technology

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# Budget cuts threaten the Landsat system

by Marsha Freeman

In 1979, then-President Carter decided to start the process of turning the U.S. Earth remote sensing system over to the private sector. This policy, accelerated by the Reagan administration, has already cut the use of Landsat data three-fold, and threatens to sabotage the U.S. remote sensing system.

Earth remote sensing, in conjunction with satellite weather forecasting, has saved millions of dollars and thousands of lives in the past 12 years. Now, due to budgetary constraints, these two systems are now functioning with half the number of satellites needed for comprehensive coverage, and increasing competition from overseas threatens to add remote sensing to the growing list of U.S.-developed technologies that will be taken over by superior foreign competition.

### Remote sensing

Remote sensing is a way of using sensors to gather information from great distances. Sensing instruments aboard aircraft still provide information to farmers on the state of crops today, but the use of satellites in Earth orbit permits large-scale coverage, regardless of the weather, covering the entire globe in a brief period of time.

Since 1972, NASA has launched five polar-orbiting Landsat satellites which return to the same place over the Earth once every 18 days. With two satellites, the same area can be photographed once every nine days.

The instruments aboard Landsat-5 can "look" at the Earth in a variety of wavelengths, including the non-visible infrared, and can provide data on crop growth, disease, hydrology, and environmental stress. Landsat data is used for mineral exploration, forest inventory, urban land planning and management, earthquake prediction, snow cover and flooding prediction, and has the potential for hundreds of other uses of great importance.

Dozens of developing nations that could not economically gather information about their countries in any other way have made significant investments to be able to use Landsat data.

Decisions based on the idea that remote sensing should be "commercialized" so that it does not have to be paid for by the federal government has produced a situation in which there is only incomplete Earth coverage due to unexpected satellite failures.

The early demise of Landsat 4, after only one year in orbit, required the early launch of NASA's only spare. A similar no-spare situation in the National Oceanographic and Atmospheric Administration's (NOAA) weather satellite program has left the United States with only one meteorological satellite over the country since July 29, and a replacement satellite will not be ready for launch until 1986.

### Budgetary sabotage

Budget cut-backs under the Reagan administration in 1981, in the amount of \$103 million, eliminated the funding for the next two follow-on satellites, under the guise of private sector ownership by the time the satellites were projected to be needed in the late 1980s.

Though the Congress went along with Landsat commercialization, they made clear that the government would assume responsibility for both a continuity of remote sensing data and research and development in more advanced technologies.

The most unconscionable budgetary sabotage of the Landsat program was the Office of Management and Budget's (OMB) decision a couple of years ago to make users pay for the full cost of operating the ground data collection stations and for processing the data.

This has brought about a tripling in the price for a Landsat image, with a concurrent three-fold drop in sales. This year, the Department of Agriculture, which has been the largest government Landsat user at a level of about \$7 million per year, is budgeting *nothing* for the purchase of this data.

This budget madness has helped *shrink* the market for Landsat data, just at the time that the private sector is supposed to commercialize the technology and make a profit—which can only occur if the market expands.

### The competition

In January 1985, France will start the deployment of its SPOT remote sensing system. SPOT's 20-meter resolution will offer increased accuracy to users, and its pointable sensor array will enable repeat observations in quick succession.

By 1990, Japan plans to have an operational Earth Resource Satellite, using advanced radar technology, and the Soviets already have an operational system which is offering data to the developing sector.

The United States pioneered remote-sensing technology as soon as the space program was technically ready to implement that program. Through past and current budget policies, the United States is in the process of wrecking the system it created, and could end up being eclipsed by other nations who are committed to develop this unlimited technology.