

Space Imaging EOSAT: An update

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1. INTRODUCTION

Space Imaging has been the source of much activity in the remote sensing industry since the organization's inception in late 1994. During the past year, the company has been expanding its global operations as it draws closer to the launch of its first one-meter resolution imaging satellite. In November 1996, Space Imaging Inc. acquired the Earth Observation Satellite Company (EOSAT), making the company the world's largest, most comprehensive supplier of earth imagery and derived geographic information products and services. Space Imaging EOSAT has exclusive marketing rights to earth imagery collected by the Indian Remote Sensing (IRS) and Landsat satellites, and also distributes imagery derived from Japan's JERS, the European Space Agency's ERS, and other satellites. The IRS-1C satellite allows Space Imaging EOSAT to supply its customers with 5.8 meter resolution imagery, the highest resolution satellite-based imagery available to commercial markets today.

2. IKONOS 1

Earlier this year, news announcements showed Space Imaging EOSAT naming its new high-resolution satellite IKONOS 1, IKONOS coming from the Greek word for "imagery". IKONOS 1 will collect one-meter resolution panchromatic and four-meter resolution multispectral imagery. In February of this year, Space Imaging EOSAT announced that IKONOS 1 reached a significant testing milestone. Lockheed Martin Missiles & Space, the prime contractor for IKONOS, completed compatibility verification testing, during which the satellite's flight systems were installed and tested within the spacecraft for the first time. This critical milestone confirmed that the satellite was still on schedule for a December 1997 launch, as first announced over two years ago. A second satellite, IKONOS 2, is already under construction, in preparation for launch in 1998.

In March 1997, Space Imaging EOSAT announced significant progress in the development of its three U.S. satellite operations centers – located in Thornton, Colorado; Norman, Oklahoma; and Fairbanks, Alaska. In May 1997, installation and testing began on the primary operations center in Thornton, which will serve as the company's main command and control, data collection and image processing facility for the IKONOS satellites.

With the IKONOS satellites and their associated ground operations centers, Space Imaging EOSAT is introducing a new standard of high-quality, high-accuracy earth information, based on photogrammetric processing of one-meter resolution panchromatic imagery collected simultaneously with four-meter resolution multispectral imagery. IKONOS 1 will be capable of collecting up to two 10000-square-kilometer areas in a single 10-minute pass – at a level of detail and accuracy that is unsurpassed in the commercial satellite arena.

Image products collected from IKONOS 1 will be processed in a largely automated fashion to produce GIS-ready information with a positional accuracy of 1.5 - 2.0 meters. The digital terrain model (DTM) necessary for the ortho-rectification processing, which corrects for terrain and scale-related displacements in the imagery, can be derived using the in-track stereo collection capabilities of IKONOS 1, or from other locally available sources.

IKONOS 1 will be placed in a sun-synchronous, near-polar orbit, at an altitude of 680 km, allowing repeat visits to the same region on cycles as short as 48-72 hours. In practice, coverage providing updates of the same geographic area will happen on a variable basis, according to market demands or specific application needs. However, the ability to revisit areas either to update or extend the area of coverage will change the way in which mapping projects can be implemented and maintained.

3. PARTNERS AND INVESTORS

Space Imaging EOSAT recently added to its investor list Van Der Horst Ltd of Singapore, and Halla Business Group of Korea. These companies' equity partnerships with Space Imaging EOSAT put them in the ranks of the company's existing investors, Lockheed Martin Corp., Raytheon's E-Systems Inc. and Mitsubishi Corp. The new partnerships demonstrate the interest of these companies to become competitive in a global economy that, more than ever before, is being fueled by information. The addition of these companies represents Space Imaging EOSAT's further commitment to developing relationships that help the company serve the global marketplace.

The creation of strategic partnerships with several leading aerial mapping firms in the U.S., many of whom serve both U.S. and European markets, has contributed to Space Imaging EOSAT's ability to serve a variety of earth information needs. This coalition of companies, called the Mapping Alliance Program (MAP), is a first-of-its-kind alliance. MAP has enabled Space Imaging EOSAT to add a broader market presence and provide customers with unprecedented access to new digital information sources. MAP products and services cover a broad range of earth information offerings, including software products, GIS consulting, data collection, processing and conversion services, and applications development and support. For applications requiring images with sub-meter resolution – such as mapping activities in local and regional mapping, utilities and infrastructure – MAP provides unlimited opportunities for Space Imaging EOSAT customers.

4. DISTRIBUTORS AND REGIONAL OPERATIONS

Space Imaging EOSAT currently has a comprehensive network of over 160 distributors located worldwide to efficiently serve the global market for earth information. In Europe, the company continues its relationships with two primary representatives, Eurimage and Euromap. Eurimage, based in Rome Italy, is a long-standing distributor for Space Imaging EOSAT's Landsat products, and operates through a "sub-distributor" network of 40 distributors in 28 countries throughout Europe, North Africa and the Middle East. In addition to distributing Landsat products, Eurimage distributes information products collected from other satellites in Space Imaging EOSAT's constellation, including those of the European Space Agency and the Japanese Earth Remote Sensing system. Euromap, Space Imaging EOSAT's newest representative in Europe, is based in Neustrelitz, Germany and is the subsidiary of GAF, the Company for Applied Remote Sensing. Through an agreement with Space Imaging EOSAT and ANTRIX – the commercial marketing arm of the Indian Space Research Organization – Euromap has the right to receive and distribute IRS products in Europe.

The network of multiple operations centers is another component of Space Imaging EOSAT's global design. Regional Centers are located worldwide, and operate as independent "franchises" capable of serving their own local customer bases. Thailand recently signed an agreement to receive and process imagery collected by the IRS satellites.

5. GLOBAL BUSINESS

By design, the creation of strategic partnerships, coupled with the aggressive development of its worldwide operations centers and satellite systems, supports Space Imaging EOSAT with one goal in

mind: to build a class of earth information products and services unrivaled by any other such collection of products in the world. Providing the most diverse array of earth imagery possible – featuring resolutions ranging from sub-meter to 188 meter, a wide range of spectral capabilities, high revisit frequencies and the capacity to support numerous applications in a variety of markets – Space Imaging EOSAT has positioned itself as the most comprehensive “one-stop shop” for remote sensing needs. Its products serve industries as diverse as agriculture, civil government, environment, exploration, exploitation, forestry, insurance, mapping, media, real estate, telecommunications, transportation and utilities.

6. CARTERRA™ EARTH INFORMATION ARCHIVE

Space Imaging EOSAT is investing in the development of its line of CARTERRA™ products which are housed in a globally distributed, digital CARTERRA archive. The archive provides a central repository of images collected via satellite and by airborne methods, as well as geographic information products derived from these images. The CARTERRA archive is available for browsing via Space Imaging EOSAT's Web site: www.spaceimage.com/home/browse.

CARTERRA products offer a range of levels of sophistication, depending on the user's needs, including precise orthophotos that are useful as digital base maps and as principal data sources for manual and automated feature extraction and exploitation; “quick-look” images that are radiometrically and geometrically processed and useful in visual interpretation and exploitation where accurate metric measurements are not necessary; and digital terrain models, three-dimensional imagery products and stereo images. In addition, the company offers high-precision information products that are derived from CARTERRA image products and enhanced through value-added processing techniques to show details of specific man-made and cultural features of the earth's surface. Such products provide information about streets, land cover classifications, property boundaries, utility networks and other earth features, and can be used to monitor changes over time.

7. FURTHER INFORMATION

Further information about Space Imaging EOSAT, its products and service offerings can be found on the company's Web site: www.spaceimage.com.