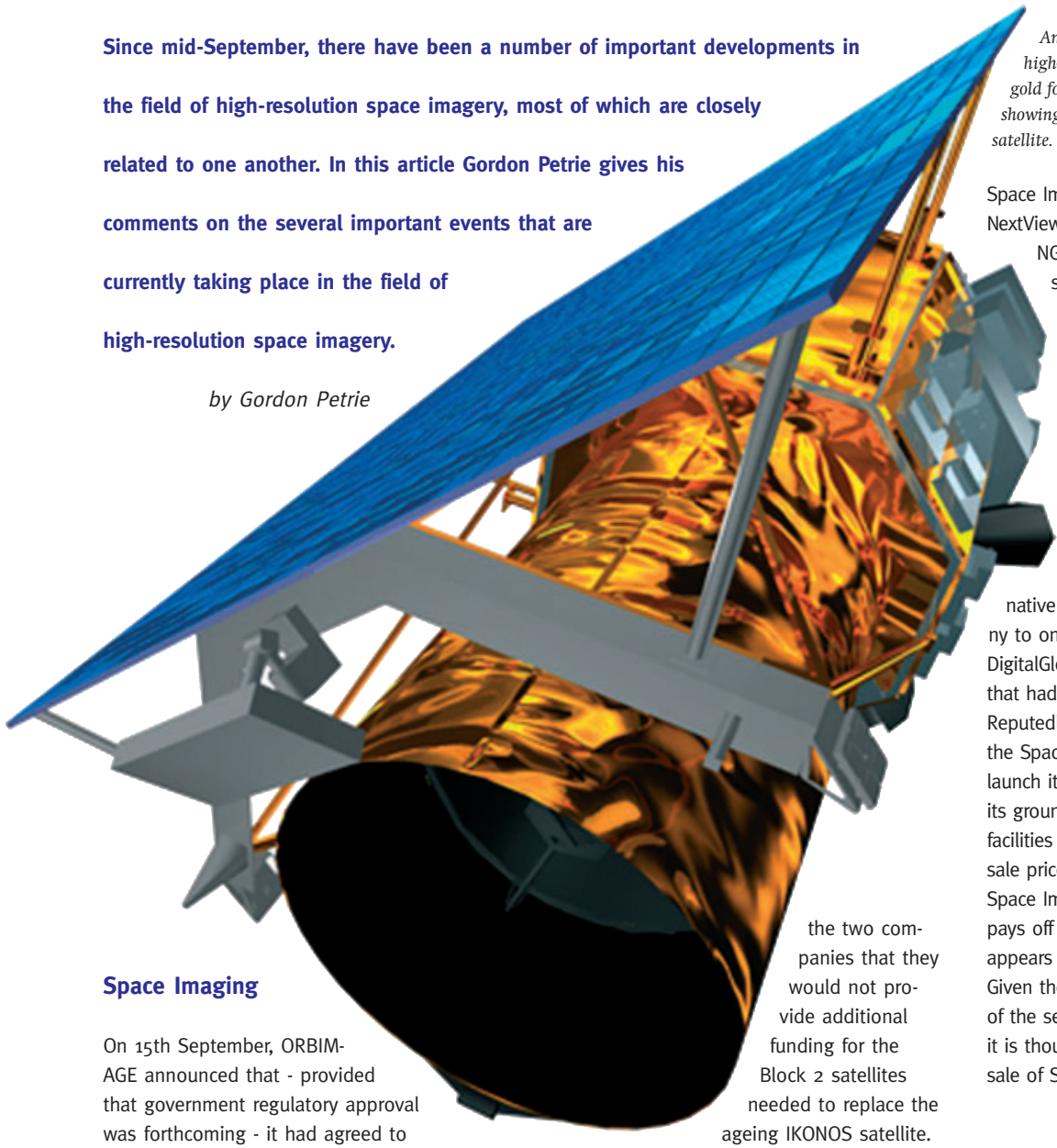
Plenty of Action on the High-

Important Events Are Taking Place

Since mid-September, there have been a number of important developments in the field of high-resolution space imagery, most of which are closely related to one another. In this article Gordon Petrie gives his comments on the several important events that are currently taking place in the field of high-resolution space imagery.

by Gordon Petrie



An artist's impression of the OrbView-5 high-resolution satellite in orbit wrapped in its gold foil protective cover and with its solar panel showing prominently attached to the side of the satellite. (Source: ORBIMAGE)

Space Imaging

On 15th September, ORBIMAGE announced that - provided that government regulatory approval was forthcoming - it had agreed to purchase the assets of the Space Imaging company. This news came as little surprise to most observers of the space remote sensing scene. As I pointed out in my previous article on high-resolution imagery published in the January/February 2004 issue of GeoInformatics [see pages 22 and 23], Space Imaging has been in a poor situation for some time.

In 2003, its principal shareholders - Lockheed Martin and Raytheon - had to write off $163 million and $175 million respectively in respect of the guarantees that they had given to underwrite the financial credits (loans) taken out by the Space Imaging company and which it could not repay. This was followed by a statement by the two companies that they would not provide additional funding for the Block 2 satellites needed to replace the ageing IKONOS satellite. In parallel with these and other subsequent events, the staff at Space Imaging has been cut down to its current level of 175 instead of the 400 or so persons employed by the company three years ago. The down-sizing included the sale of its Federal Civil & Commercial Solutions unit (employing 45 people) to the Sanborn mapping company.

What has become increasingly clear is that there is simply insufficient demand for high-resolution space imagery from customers outside the defence/intelligence sector to sustain a viable or profitable commercial industry based on this imagery. Furthermore, given the refusal of further support by Lockheed Martin and Raytheon, the failure of Space Imaging to win either of the two NextView contracts awarded by NIMA (now NGA) in 2003 and 2004 for the future supply of high-resolution space imagery to the defence mapping agency was a disaster for the company. Rumours had been rife for some time about the possible sale of the Space Imaging company to L3 Communications (another large defence contractor), However this possibility seems to have disappeared with the loss of the NextView contracts. Since then, the main alternative possibility was the sale of the company to one or other of its main competitors, DigitalGlobe or ORBIMAGE, the two companies that had won the NextView contracts. Reputedly it had cost $700 million to establish the Space Imaging company, to build and launch its IKONOS satellites and to establish its ground receiving stations, data processing facilities and commercial sales network. At a sale price of $58.5 million for the assets of Space Imaging - or less while Space Imaging pays off some of its debts - this acquisition appears to be a real coup for ORBIMAGE. Given the backing of NGA through the award of the second NextView contract to ORBIMAGE, it is thought that government approval of the sale of Space Imaging is fairly assured.

ORBIMAGE

Of course, this acquisition represents a quite remarkable turn-round for the much smaller ORBIMAGE company. It has had its own financial traumas following the failure at launch of its OrbView-4 satellite in September 2001 and the long delays in the delivery of the OrbView-3 satellite. The company only emerged from Chapter 11 bankruptcy protection on 31st December 2003 following on from the successful launch of OrbView-3 in June 2003. However once the proposed take-over of Space Imaging has been approved, ORBIMAGE will be operating the six-year old IKONOS and the two-year old OrbView-3 satellites.

Besides which, on the back of its huge

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NextView contract from NGA, it has been able to finance the design and construction its new OrbView-5 satellite. This is currently being constructed by Spectrum Astro (now part of the General Dynamics corporation) with the pushbroom scanner imager being built by ITT Industries in collaboration with Kodak. OrbView-5 is scheduled for launch early in 2007. It is designed to deliver panchromatic imagery with a ground sampled distance (GSD) of 0.4m and 4-channel (RGB + NIR) multi-spectral imagery with a GSD of 1.64m. The swath width will be 15.2km.

DigitalGlobe

Over the last two months, there have been articles in the local (Denver) press and various items posted on the Web mentioning that the construction of DigitalGlobe's new WorldView high-resolution satellite had been somewhat delayed. This was said to be due to difficulties encountered by ITT Industries who are building the imager that will be operated on WorldView. These difficulties were reported (variously) to be due either to an accident at ITT's facility or to a shortage of certain vital components. As a result, DigitalGlobe was expecting a delay of some months in the delivery and launch of the satellite, resulting in a change in the launch timetable.

However, on 4th October, there was much more definite and positive news about the WorldView programme in the form of a press release from DigitalGlobe. This announced the expansion of the programme to two satellites - WorldView-I and -II - instead of the single satellite that had been announced and discussed previously - e.g. in my interview with Herb Satterlee (DigitalGlobe's CEO) that was published in the October/November 2004 issue of GeoInformatics.

In fact, it is now apparent that the satellite that he described in the interview with its dual panchromatic (with 0.5m GSD) and 8-channel multi-spectral (with 1.8m GSD) imaging capabilities producing images with a swath width of 16km will in fact be WorldView-II. This is scheduled to be launched "no later than 2008". Whereas the first of the pair - WorldView-I - will now have the panchromatic capability only and will be launched "no later than 2006".

An artist's impression of a WorldView high-resolution satellite orbiting the Earth. (Source: DigitalGlobe)

Future Imagery Architecture (FIA)

The day after the announcement that ORBIMAGE was proposing to buy the assets of Space Imaging, an article appeared in Aviation Week & Space Technology (AWST) reporting that the U.S. government had decided to shift a substantial part of its FIA contract with Boeing for the supply of its advanced high-resolution reconnaissance satellites to Lockheed Martin. As discussed in my previous article mentioned above, the FIA project comprises a small number of satellites equipped with optical imagers along with a larger number of all-weather radar satellites. The AWST article reported that the part of the FIA contract for the satellites equipped with optical imagers would now be transferred to Lockheed Martin, while Boeing would retain the part covering the radar satellites. Since this report was published, there have been dozens of articles in the press giving more details of the proposed transfer and discussing its implications both for the U.S. government intelligence and mapping agencies and for the companies and communities that would be affected by it.

If all these various reports prove to be correct, then the loss of a substantial part of the FIA contract will be a huge blow to Boeing. The company is already suffering from the loss of several large defence aerospace contracts due to various ethical improprieties at Boeing.

However, once again, the news about the FIA contract is not unexpected. For some time, there has been a stream of leaks and reports that technical problems had been encountered with the design and construction of the new satellites. This has resulted in big delays and huge cost over-runs on the FIA contract, which - depending on which source is being consulted - is now estimated to cost between $15 to 25 billion over the next decade. Ironically this FIA(SCO) resulted in the U.S. defence and intelligence agencies turning to the commercial high-resolution space imagery companies to fill some of the gaps and shortfalls in coverage caused by the failure to launch the FIA military reconnaissance satellites. In turn, this resulted in the massive ClearView and NextView contracts from NGA. These have proven to be such a vital support to the commercial companies who have found it difficult to create or find a substantial market for their high-resolution space imagery outside the American and foreign government defence and intelligence sector.

SSTL

A final piece of news is that the launch of the two new high-resolution micro-satellites - China DMC+4 (now to be called BLMIT-1) and TopSat (for the U.K. government) - built by SSTL has been postponed. Their launch was scheduled to be carried out on a Russian Cosmos rocket from Plesetsk Cosmodrome on 30th September. However, at the last moment, a fault was detected on another of the five micro-satellites that were to be launched on this rocket. So this last micro-satellite - built in Russia for Iran - has had to be demounted and sent for repair and further testing. It is thought that a delay of several weeks will now occur before the launch can take place. ■

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