Product Survey on Highresolution Satellite Imagery

The present product survey provides the main characteristics of today's high-resolution imagery acquired from orbiting platforms. A clear trend is the ongoing improvement of pixel size, also called Ground Sample Distance (GSD).

SPOT 5, Formosat from SPOT Image, Ikonos and Quickbird produce Very High-Resolution (VHR) images of GSD better than about 5metre. In the panchromatic (black and white) mode the GSD of SPOT 5 is 5m, of Ikonos 1m and Quickbird 0.60m. The GSD of the panchromatic band is typically four times better than that of the multispectral bands; for example, multispectal bands of QuickBird launched on 18th October 2001 have a GSD of 4m. Since 20th May 2004 Spot Image's Formosat-2 has been in orbit, with a GSD of 2m in the panchromatic mode and 8m in the multispectral mode.

Orbimage acquired Space Imaging in a deal announced on January 12th 2006. The name of the newly formed company is GeoEye and it flies the high-resolution Ikonos, Orbview-3 and Orbview-2 satellites and in 2007 will launch GeoEye-1. With a resolution of 0.41 metre in the panchromatic mode and 1.64 metre resolution in the multispectral mode, GeoEye-1 will be able to collect about 700,000kmÅ² per day (see interview). ImageSat International has announced the launch soon of EROS B, with a GSD of 70cm.

The geometric quality of satellite imagery depends large-ly upon the use of additional information, in particular Ground Control Points (GCP) and Digital Elevation Models (DEM). Of course, the quality of used GCPs and DEM will affect the final quality of the satellite imagery and products derived from them.

With the launch of Google Earth in June 2005 the general public can visit virtually every part of the globe from their armchair. Starting from an orbital view on the Earth, it is possible to zoom in from space right down to the place of interest. In this way millions are able to witness to what a high level of detail our planet is recorded from space today (for more information on Google Earth see the feature of Arie Duindam).

And if you are still wondering how it is possible from an altitude of around 500km to approximately 800km to derive image resolution of up to a few decimetres, our Technology in Focus on High-resolution may help.

Participating Companies

In the survey the following companies participated:

DigitalGlobe: QuickBird GeoEye: IKONOS, OrbView-2, OrbView-3 ImageSat International: EROS A Indian Remote Sensing Programme: IRS-1C/1D, P6 (Resourcesat) MDA Geospatial Services:RADARSAT-1 Spot Image: SPOT 5/ HRS, SPOT 5/ HRG, SPOT 4/ HRV, FORMOSAT-2 USGS:Terra/ASTER

https://www.gim-international.com/content/article/product-survey-on-high-resolution-satellite-imagery