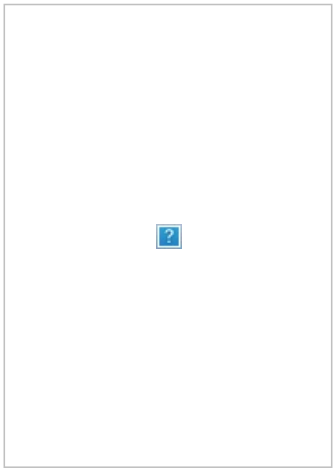
Mapping from Space



In *High Resolution Optical Satellite Imagery*, four renowned photogrammetrists have joined forces to provide a step-by-step account of mapping from space. The book, published by Whittles (2012), is aimed at students, map producers and geoscientists. Its eight chapters emphasise the extraction of geometric information for map production and (automatic) generation of digital elevation models (DEM). In Chapter 1, co-author Ian Dowman defines 'high resolution' as a ground sample distance (GSD) of less than 16m. This number does not correspond to the usual subdivision, in which 'high resolution' refers to images with a GSD of between one and five metres and images with a GSD of less than one metre are classed as 'very high resolution'. In order to include some medium resolution imagery (≥ 5m but <30m), particularly SPOT and ASTER, the threshold has been set at 16m for the purpose of this book.

After an overview of the history of film cameras and optical digital sensors in space written by Gottfried Konecy (Ch. 2; pp. 27-41), Rainer Sandau handles geometric and radiometric sensor models, along- and across-track stereo, transmission of the data to the ground and compression methods to reduce data volume (Ch. 3; pp. 43-73). With 145 of the 230 pages to his name, co-author Karsten Jacobsen has made the largest contribution. In Chapter 4, he and Ian Dowman cover medium and high resolution sensors, and in Chapter 5 he elaborates on the features of the very high resolution sensors Ikonos-2, Quickbird-2, OrbView-3, Kompsat-2, WorldView 1 and 2, GeoEye-1 and Cartosat-2. In Chapter 6, he emphasises geometric calibration and orientation, also touching briefly on radiometric calibration. He then moves on to focus on the generation of DEMs, orthoimages and orthoimage mosaics (Ch. 7). Area-based and feature-based matching are treated extensively, including formulas. In Chapter 8, Jacobsen hands over the baton to Dowman who discusses the maturity of high resolution optical sensor technology, concluding that current trends are towards lower costs, faster access and more frequent global coverage.

It is inevitable that texts written by four co-authors, one Englishman and three Germans, will treat certain subjects twice. For example, the formulas for the precision of the height generated from stereo images, which basically depends on the base-to-height ratio, land cover, contrast and matching method, are covered on both page 17 and page 176 using differing symbols and without reference to each other. Furthermore, pages 42 and 172 both display full-page advertisements, one from the European Space Agency and the other from Scanex, while it remains unclear whether these companies contributed as sponsors.

At a time when academic staff are massively absorbed by writing papers to avoid a scientific sunset, it is a relief to see former teachers and scientists who are retired but not yet tired filling the gap by writing textbooks for the benefit of students and anyone else actively involved in the use of geoinformation. The text is accompanied by many full-colour illustrations, clarifying sketches and tables.

High Resolution Optical Satellite Imagery, Ian Dowman, Karsten Jacobsen, Gottfried Konecny, Rainer Sandau, High Resolution Optical Satellite Imagery, 2012, XVIII, 230 p. Whittles Publishing, hardcover, ISBN 978-184995-046-6, EUR99.95.