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6.3 Orthoimagery

Definition:

(INSPIRE, 2007) Geo-referenced image data of the Earth's surface, from either satellite or airborne sensors.

Description:

An orthoimage is a raster image that has been geometrically corrected ("orthorectified") to remove distortion caused by camera optics, camera tilt, and differences in elevation. Source is either satellite or air-borne sensors. Data is orthorectified to achieve an accuracy commensurate with a given topographic map equivalent.

Scope, use examples:

Airborne or spaceborne orthoimagery can be considered:

- for the for extraction, mapping and updating of specific features on the surface of the Earth(e.g. Transport network, Hydrography, Land cover, Geology)
- for the production of thematic information (e.g. Land use, Production and industrial facilities, Agricultural and aquacultural facilities)
- to provide a synoptic view of a given territory.
- for display as a backdrop to other data
(INSPIRE RDM, 2002)

Other applications include:

- the localisation of other thematic data
- the localisation of earth observation image data itself
- the quick georeferencing and delivery of recently acquired images (dedicated to natural or industrial hazards e.g.) to be co-localised with other thematic interest data (geology, soil, old maps...)
- the continuous updating of rapidly evolving Reference Data layers

Different data already exists or is planned in the near future for pan-Europe, e.g. aerial photos, SPOT, IRS P6 data (for IMAGE2006) and Landsat 7 ETM+ (for IMAGE2000).

Efforts are made at national, European and Global level to implement efficient methods for Earth observation. The '**Global Monitoring for Environment and Security**' (**GMES**) represents a concerted effort to bring data and information providers together with users, so they can better understand each other and make environmental and security-related information available to the people who need it through enhanced or new services. At the World Summit on Earth Observation in Washington in July 2003, the Group on Earth Observations (GEO) was established, with the goal of addressing the information requirement for the environment on a global scale. This work was completed in Brussels in February 2005 by the adoption of a 10 year implementation plan of an integrated **Global Earth Observation System of Systems (GEOSS)**.

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Important feature types and attributes:

Usually, orthoimages are represented by a discrete rectified grid coverage. The coverage contains a set of values, i.e. the radiometric characteristic.

Overlaps and links with other themes:

- Elevation, because DEM is required for ortho-rectification
- Orthomages relate with many other themes in INSPIRE, as information can be extracted from orthoimages through computer analysis or visual interpretation

Reference documents:

IMAGE2000 and CLC2000, Products and methods EUR 21757 EN; ISBN 92-894-9862-5

Kay, S. et al, 2003: Guidelines for best practices and quality checking of ortho-imagery, JRC, Ispra

Institut Géographique National (France): BD Ortho version 2 descriptif de contenu

Institut Géographique National (France): Spécification de la composante orthophotographique du RGE

EuroGeographics: Report on Reference Data Sets and Feature types in Europe.

Agriculture and Fisheries Unit, JRC of the EC: Guidelines for Best Practice and Quality Checking of Ortho Imagery v2.5

Norwegian feature catalogue: <http://www.statkart.no/sosi/UMLfullmodell/FotoOgBilde/FotoOgBilde.htm>
The model is in the process of being translated to English and will be available autumn 2007