

Glossary#

ADS

The Archaeology Data Service.

Aerial Photography

Described by Lillesand and Kierfer (1994) as the "most common, versatile, and economical form of remote sensing."

AHDS

The Arts and Humanities Data Service.

ATI

Apparent Thermal Inertia. An approximation of thermal inertia calculated as one minus albedo divided by the difference between temperature at solar noon and pre-dawn.

Band

A discrete part of the electromagnetic spectrum at which a multi-spectral imaging device measures radiation.

BIL

Band Interleaved by Line. An image file format linked with satellite derived imagery.

BMP

Bit MaP. A file extension indicating a graphics file, common in Windows applications.

CAA

Computer Applications in Archaeology. An annual international conference that has been instrumental in developing GIS applications within archaeology.

CAD

Computer Aided Design. The design activities, including drafting and illustrating, in which information processing systems are used to carry out functions such as designing or improving a part or a product. (Walker 1993).

Calibration

Conversion of radiation measured by remote sensing into physical values such as radiance or temperature.

CGM

Computer Graphics Metafile. A standard (ISO 8632) file format specification for the storage and transfer of picture description information (Walker 1993).

CIDOC

The International Documentation Committee of the International Council of Museums.

Control Points

Sometimes referred to as ground control points or tie-points. Points visible on remote sensed data or aerial photographs for which an exact spatial reference is known. These points can be used to aid in the rectification of the image.

Cropmarks

Patterns in growing crops that appear as colour, height or reflectance differences that reveal buried features of archaeological or geological origin.

CUCAP

Cambridge University Committee for Aerial Photography.

Digitising

The process of capturing vector line data in a computer.

DXF

Digital eXchange Format. A format for transferring drawings between Computer Aided Design systems, widely used as a de facto standard in the engineering and construction industries (Walker 1993).

ECEF

Earth-Centred, Earth-Fixed. A Cartesian co-ordinate system used by satellite positioning systems, aligned with the WGS 84 reference ellipsoid.

EDM

Electronic Distance Measure. Digital measuring device used within terrestrial survey. It is based upon the transit time measurement of an electromagnetic beam emitted from a transmitter/receiver to a reflecting target prism and back again (Clancy 1991: 285). Often incorrectly used by archaeologists to identify Total Station Integrated survey instruments, one component of which is an integral EDM.

ESRC

Environmental and Social Research Council.

False Colour

The translation of visible or invisible wavelengths to colours within the visible spectrum to enhance visibility. Combination of discrete parts of the electromagnetic spectrum can be accomplished via computer or film.

FGDC

The United States Federal Geographic Data Committee. Composed of representatives of several federal agencies and GIS vendors, the FGDC has the lead role in defining spatial metadata standards, which it describes in the Content Standards for Spatial Metadata (ESRI 1996).

Flashpix

A Kodak-sponsored image format that stores hierarchically tiled images. Users can thus choose the resolution at which they would like to view an image. For example, viewing very detailed images over the Internet can take a long time so it might be desirable to view a very coarse image over the Web. With the Flashpix format the image detail would still be available for local users. More information is available at <http://www.image-assets.com/Pages/pyramid.html>

FTP

File Transfer Protocol. A common method for transferring files across the Internet.

GDOP

Geometric Dilution Of Precision. Used within satellite-based survey as a measure of the quality of the fix indicating the suitability of satellite positions for triangulation.

Geophysics

Collection of techniques for surveying buried archaeological features.

Geometric Transformation

Transformation to correct for spatial distortion; transformation into recognised map projection.

Geotiff

An extension to the TIF graphics standard to incorporate georeferencing information. Although currently supported by a limited number of proprietary GIS, many manufacturers have committed

to supporting the standard. It aims to provide a platform-independent method for archiving and transferring spatially referenced raster products.

GIF

Graphics Interchange Format. A bitmap graphics format from CompuServe which stores screen images economically and aims to maintain their correct colours even when transferred between different computers (Mobbs 1997).

GIS

Geographic Information System. A computer system for capturing, storing, checking, integrating, manipulating, analysing and displaying data related to positions on the Earth's surface. Typically, a Geographical Information System (or Spatial Information System) is used for handling maps of one kind or another. These might be represented as several different layers where each layer holds data about a particular kind of feature. Each feature is linked to a position on the graphical image of a map (Gillings and Wise 1998, Walker 1993).

GLONASS

GLObal'naya NAVigatsionnaya Sputnikovaya Sistema. The Russian Global Navigation Satellite System is currently a constellation of 53 spacecraft deployed in nearly semi-synchronous orbits established in 1990.

GNU

A file compression utility commonly found on UNIX workstations.

GPS

Global Positioning System. A satellite based navigational system allowing the determination of any point on the earth's surface with a high degree of accuracy given a suitable GPS receiver (Walker 1993).

Ground-based remote sensing

Ground-based geophysical and photographic techniques which are used to determine the location, nature and pattern of archaeological remains. The most common of these are magnetometry and resistivity.

Ground Control Point

See control points.

HRV

High Resolution Visible. This is a specific sensor carried aboard the SPOT satellite capable of achieving a spatial resolution of 10 metres (Walker 1993).

HTML

HyperText Markup Language. The general framework for defining document structure used with the World Wide Web facility of the Internet.

Infra-red

Beyond the red part (700 nanometres) of the electromagnetic spectrum.

JPEG

Joint Photographic Expert Group. The original name of the committee that designed the standard image compression algorithm. JPEG is designed for compressing either full colour or grey-scale digital images of 'natural', real-world scenes. It does not work so well on non-realistic images, such as cartoons or line drawings. JPEG does not handle compression of black-and-white (1-bit-per-pixel) images or moving pictures (Walker 1993).

Landsat

A series of satellites that produce images of the earth. The Landsat remote sensing satellite program was developed by NASA (National Aeronautics and Space Administration). Landsat data are provided in .BIL (band interleaved by line) or .BIP (band interleaved by pixel) formats.

LaTeX

A widely used document exchange format.

Mapping

Transcription and interpretation of features observed on aerial photographs.

MDA

Museums Documentation Association.

Metadata

Information about information.

MIDAS

Monument Inventory Data Standard.

Multispectral

Remote sensing instrument that acquires data at several different wavelength ranges simultaneously.

NAPLIB

National Aerial Photography LIBrary.

Near-infrared

That part of the electromagnetic spectrum between 700 and 1200 nanometres.

NERC

The Natural Environment Research Council.

NGDF

National Geospatial Data Framework. An Important co-operative initiative which aims to provide effective means of accessing geospatial data collected and held by government and the public/private sectors.

NMEA

National Maritime Electronics Association. An organisation involved in the development of output protocols for satellite receivers.

NMR

National Monument Record.

NTF

National Transfer Format. An implementation of British Standard BS7567, used for the transfer of geographic data. It is administered by the Association for Geographic Information.

Oblique

An aerial photography or other imaging device that is not aligned vertically to the ground surface.

ODA

A documentation exchange format.

OS

The Ordnance Survey. Great Britain's national mapping agency.

Panchromatic

Photographic black and white film or a single waveband image that is displayed with a greyscale.

PBM

Portable BitMap image format for black and white images.

PDF

Portable Document Format. A document standard promoted by Adobe.

PGM

Portable Grey Map image format. For grey scale images.

PhotoCD

An image exchange format promoted by Kodak.

Photogrammetric survey

Transcription and rectification of features observed on photographs. Typically used in archaeology for recording standing buildings and archaeological features in upland areas.

PKZip

A file compression utility usually found on PC systems.

PNG

Portable Network Graphics image format. Pronounced 'ping'. The PNG format provides an exchangeable, well-compressed, well-specified standard for bitmapped image files.

Polarimetry

Imagery acquired with different polarizations. Normally applied to synthetic aperture radar images that can transmit and receive a signal in either horizontal or vertical polarization.

PPM

Portable Pixel Map image format for colour images.

RADAR

Acronym for RAdio Detection And Ranging. An active sensor system that transmits its own energy to illuminate and receive back a signal from the ground. The system operates in the microwave and radio wavelength regions.

RAF

Royal Air Force.

Raster Data Model

Way of displaying spatial information as coloured grid cells.

RCAHMS

Royal Commission on the Ancient and Historical Monuments of Scotland.

RCAHMW

Royal Commission on the Ancient and Historical Monuments of Wales.

RCHME

The Royal Commission on the Historical Monuments of England, now English Heritage.

Rectification

Removal of geometric distortion from an image or map.

Remote Sensing

The science of acquiring information from a object without making physical contact with it. In archaeology this term is regularly applied to aerial photography, satellite-based sensors, and archaeological geophysics. In this guide only aerial photography and satellite imagery are discussed. Geophysics are handled in a separate Guide to Good Practice.

Resource Discovery

The process of finding data that is relevant to your research project.

RINEX

Receiver IN dependent EXchange Format. A widely used satellite receiver output protocol, not tied into any particular device or class of device.

RMS

Root Mean Square. This is an error measurement that most GIS report during geometric transformation of data sets. It is mathematically the spatial equivalent to the standard deviation. The RMS error is often used as a measure of the accuracy of tic points when registering a map to a digitiser, indicating the discrepancy between known point locations and their digitised locations. The lower the RMS error, the more accurate the digitising or transformation (Walker 1993). The fact that the RMS error is expressed as one simple figure (e.g. 5.67 m) unfortunately does not mean that any point in the transformed image will be within this distance from its 'real' coordinates. In fact, the actual error can vary across the image depending on the number, placement, and accuracy of the tiepoints used.

RTF

Rich Text Format. A widely used document exchange format.

SDTS

Spatial Data Transfer Standard. A United States Federal standard designed to support the transfer of different types of geographic and cartographic spatial data. This standard specifies a structure and content for spatially referenced data in order to facilitate data transfer between dissimilar spatial database systems. Also known as Federal Information Processing Standard (FIPS) 173.

SERC

Social and Economic Research Council.

SGML

Standard generalised mark-up language. An ISO Standard defining the general framework for describing a document structure. This method of coding text is used for the storage of information on CD-ROM (Mobbs 1997).

SIR

Shuttle Imaging Radar.

SMR

Sites and Monuments Record.

Spatial Resolution

The ability of a sensor to distinguish closely spaced objects. However, the term is often, incorrectly, taken to mean the pixel spacing of a digital image.

SPOT

Satellite Pour l'Observation de la Terre. A remote sensing satellite which has been developed by the French National Space Centre (CNES). The first SPOT (SPOT 1) was launched in February 1986, SPOT 2 was launched in 1988.

Stereo Imagery

The ability to produce three dimensional information from partially overlapping imagery.

Stuffit

A file compression utility commonly used on Macintosh platforms.

TAR

A file compression utility commonly used on UNIX workstations.

TeX

A widely used document exchange format.

Thermal Infra-red

The region of the electromagnetic spectrum between 3 and 50 micrometres where the radiance of an object is dominated by emittance rather than reflectance.

Thermography

Measurement of mid infra-red radiation.

TIFF

Tagged Interchange File Format. An industry-standard raster data format. TIFF supports black-and-white, gray-scale, pseudocolor, and true-color images, all of which can be stored in a compressed or uncompressed format. TIFF is commonly used in desktop publishing and serves as an interface to numerous scanners and graphic arts packages (ESRI 1996). The ADS recommends the TIFF format for images, but cautions that LZW compression should not be used with TIFF files.

TSIP

Trimble Standard Interface Protocol. A proprietary satellite receiver output protocol.

UUENCODED

A format used to facilitate the transfer of binary files via email.

Vector

A way of displaying spatial information as a series of points, lines, and polygons.

Videography

A remote sensing device that captures data using a video camera.

Wavelength

The distance between adjacent crests in a harmonic wave. A method of describing precise position along the continuum of the electromagnetic spectrum.

Word

A commonly used word-processing package.

WordPerfect

A commonly used word-processing package.

WWW

The World Wide Web facility of the Internet.