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APT

Automatic Picture Transmission, a way of transmitting analogue images, as used by NOAA and Meteosat for example. Higher quality digital images are transmitted on a different frequency, see HRPT and PDUS respectively.

AVHRR

Advanced Very High Resolution Radiometer, carried aboard the NOAA range of polar-orbiting satellites. The AVHRR is a very old instrument design, so the term "very high resolution" must be taken in that context! See our [AVHRR](#) document for more details.

Band

A single range of the electromagnetic spectrum as detected by a sensor. See also [Sensor](#) and [Channel](#).

Channel

A single range of the electromagnetic spectrum as detected by a sensor. The name Channel refers to the transmission to earth of the data sampled from that band. See also [Band](#).

Coverage

The area on the ground seen by a satellite at a particular position. [Polar-orbiting](#) satellites can in fact only see a single line going from left to right as the scanner rotates. The coverage is determined by the angles between which the scanner rotates (the *scanner angle*). The other determinant of the coverage is of course the movement of the satellite over the earth and the ability of the receiving station to receive its transmissions during that movement. Reception starts when the satellite comes over the station's horizon and ends on the opposite horizon. The coverage is the area seen by the satellite at each of those horizons plus the area in between. See also [pass](#) and [equator crossing angle](#). See also [projection](#). See also our [coverage document](#).

CZCS

Coastal Zone Colour Scanner, a scanner carried aboard the Nimbus-7 satellite. See our [CZCS](#) document for more details.

DMSP

The USA's Defense Meteorological Satellite Programme, a series of satellites notable for their ability to image city lights at night-time.

Equator crossing angle

The longitude (angle measured in degrees west from the Greenwich meridian) of the point directly below the satellite when it crosses the equator. An important reference point because, given that the orbital characteristics of the satellite are known, its position and thus the extent of its [coverage](#) can be calculated for any point along its path. Because the earth is rotating underneath the satellite, and the altitude has been chosen to give an orbit of nearly 24 hours, the angle at which the satellite crosses the equator will be different for each subsequent orbit. See also [Coverage](#).

GAC

Global Area Coverage is the term for one-quarter resolution (4km per pixel) [AVHRR](#) imagery recorded on tape recorders aboard the NOAA satellites. The limited resolution means that imagery from one full orbit can be recorded. It is later transmitted to one of the NOAA ground stations, in contrast to [HRPT](#) which is transmitted in real-time. See also [LAC](#).

Geostationary

A satellite which appears to remain at a fixed location above the earth, cf. Polar orbiting satellites. A satellite in a geostationary orbit is in fact orbiting the earth at the same rate at which the earth is rotating. Meteosat is a satellite in a geostationary orbit, the NOAA satellites received here at Dundee are polar orbiting.

GMS

Japanese geostationary satellite positioned over Japan / Australia; see also Meteosat and GOES.

GMT

Greenwich Mean Time. Now replaced by the term [UTC](#).

GOES

American geostationary satellites, GOES-E is positioned over the USA / South America and GOES-W is positioned over the Pacific Ocean. See also Meteosat and GMS.

HRI

High Resolution Imagery. A method of encoding high resolution image data from the [Meteosat](#) satellite along with all the satellite calibration and state-of-health data.

HRPT

High Resolution Picture Transmission. A method of encoding high resolution image data from the [AVHRR](#) scanner along with all the satellite calibration and state-of-health data.

IR

Infra-Red light, also known as thermal because it can give an indication of the temperature of the observed object. Wavelengths range from 10.5 to 12.5 μm . See also [Visible](#) and [Water Vapour](#).

IODC

Indian Ocean Data Coverage is the name given to an old satellite Meteosat-5 which has been moved from 0 degrees East to 63 degrees East in order to provide images centred over the Indian Ocean.

LAC

Local Area Coverage is the term for full-resolution [AVHRR](#) imagery recorded on tape recorders aboard the NOAA satellites. It is later transmitted to one of the NOAA ground stations, in contrast to [HRPT](#) which is transmitted in real-time. See also [GAC](#).

Meteosat

European Meteorological Satellite, in a geostationary orbit, administered by EUMETSAT. Meteosat is positioned over Africa / Europe; see also GMS and GOES.

METOP

A series of satellites for both US and European Meteorological Agencies, carrying scanners from both regions, including the AVHRR from the US. Replaces the NOAA series of satellites.

MODIS

Moderate Resolution Imaging Spectroradiometer, a scanner carried aboard the EOS range of NASA satellites. See [MODIS](#) for more details.

MVISR

Multichannel Visible and Infrared Scan Radiometer, a scanner carried aboard the Chinese FengYun series of satellites.

NASA

National Aeronautics and Space Administration (USA). See the [NASA](#) web site for more details.

NDVI

Normalised Difference Vegetation Index. Image data from channels 2 and 1 combined using an algorithm that is designed to indicate areas of vegetation.

NOAA

National Oceanic and Atmospheric Administration (USA). See the [NOAA](#) web site for more details.

NPOESS

The National Polar-orbiting Operational Environmental Satellite System in the USA. NPOESS is the name given to a series of satellites controlled by three US government agencies; NASA, and the departments of Commerce and Defense. Replaces the DMSP series of defense satellites, the NOAA satellites, and the NASA satellites. See the [NPOESS](#) page for more details.

NPP

The NPOESS Preparatory Project, a satellite to bridge the gap between the NOAA series of AVHRR satellites, the NASA series of EOS satellites, and the NPOESS joint mission series. See the [NPP](#) page for more details.

Pass

The reception of satellite data from the time it comes over the horizon of the receiving station to the time it disappears over the opposite horizon. The *pass* can refer to that particular part of the satellite's orbit or to the image received during that time.

PDUS

Primary Data User Station; the name for the equipment used to receive digital data from Meteosat. Analogue images are also transmitted by Meteosat (SDUS - Secondary DUS) but these are of lower quality, resolution and usefulness for scientific applications, and are not received at Dundee.

Polar-orbiting satellite

A satellite which orbits the earth, travelling roughly pole-to-pole. The orbit is in fact inclined so that it may go one side of the North Pole and the opposite side of the South Pole. Cf. [Geostationary](#) satellites. See also [projection](#).

Projection

A method used to flatten a 3-D object (the earth in this case) so that it can be viewed in two dimensions. See also our description of [projections used by the satellite station](#).

QuickLook

A reduced-resolution image of a [pass](#). The image may have a reduced pixel resolution or a reduced colour resolution. Dundee quicklooks are reduced by 6 in the former and by 1.25 in the latter for AVHRR. They are also linearised to remove the effects of the curvature of the earth. Quicklooks can be used to check for cloud or surface features before ordering high resolution ([HRPT](#)) data. Cf. [thumbnail](#).

Scanner

The instrument carried aboard the satellite which views the earth. Examples are [AVHRR](#), [CZCS](#), [SeaWiFS](#) and [MODIS](#). Typically the scanner is simultaneously sensitive to a number of parts (bands) of the visible and infra-red spectrum. It will rotate, scanning the earth directly underneath the satellite (the sub-satellite point) from left to right. The data will then be transmitted to earth as one scan-line, typically 1000 to 2000 points across, each point having values for the parts of the spectrum seen. By the time the scanner comes back to the start the satellite will have progressed so a different part of the earth is seen. See also [Sensor](#).

SeaWiFS

Sea-viewing Wide Field-of-view Sensor. See [SeaWiFS](#) for more details.

Sensor

The part of the satellite's scanner which is sensitive to light (visible or otherwise). Each scanner may carry multiple sensors, which may be used to sense different [bands](#) or to increase the spatial resolution. See also [Scanner](#). See also [sensor comparison](#).

Thumbnail

A reduced-resolution image of a [quicklook](#), small enough that many can be viewed on a page at once to allow comparisons to be made.

TIP

TIROS Information Processor, handles instrument data signals and status telemetry from NOAA satellites.

TIROS

Television Infra-Red Orbiting Satellite a fore-runner to the NOAA series.

UTC

Coordinated Universal Time. All satellite times are reported in UTC rather than in local time or daylight-saving (summer) time. See also [GMT](#).

VIIRS

The Visible/Infrared Imager/Radiometer Suite, a scanner carried aboard the NPP / NPOESS series of satellites.

Visible

Visible wavelengths range from 0.4 to 0.7 μm . If only one sensor receives from these wavelengths you will see greyscale, not colour. Colour requires scanners with sensors at each of the wavelengths for the colours to be combined. See also [IR](#) and [WV](#).

Water Vapour

Water Vapour absorption can be detected by scanning at wavelength from 5.7 μm to 7.1 μm . See also [IR](#) and [Visible](#).



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