
Glossary

Active remote sensing- Remote sensing methods that provide their own source of electromagnetic radiation to illuminate the terrain. Radar is one example.

Altimeter- The TOPEX/Poseidon uses this instrument to measure the height of the sea surface.

Antenna- Device that transmits and receives microwave and radio energy in radar systems.

Apollo- US lunar exploration program of satellites with crews of three astronauts.

AVHRR- Advanced Very High Resolution Radiometer, a multispectral imaging system carried by the TIROS-NOAA series of meteorological satellites.

Band- A wavelength interval in the electromagnetic spectrum. For example, in Landsat images the bands designate specific wavelength intervals at which images are acquired.

Beam- A focused pulse of energy

Coriolis Force- Force that arises when air moves with respect to the rotating Earth. It causes the wind or water to turn to the right in the Northern Hemisphere and to the left in the Southern Hemisphere.

El Niño- The warm ocean current that appears along the Pacific coast of South America every year around Christmas. Recently, the term has been applied to those years when there is a change in this annual pattern.

Electromagnetic Spectrum- Continuous sequence of electromagnetic energy arranged according to wavelength or frequency.

False Color Image- A color image where parts of the non-visible EM Spectrum are expressed as one or more of the red, green and blue components, so that the colors produced by the Earth's surface do not correspond to normal vision.

Geoid- Surface within or around the Earth that is everywhere normal to the direction of gravity and coincides with mean sea levels in the oceans

Geostationary- Refers to satellites travelling at the angular velocity at which the Earth rotates; as a result, they remain above the same point on Earth at all times (at 41,000km).

HIRIS- High Resolution Imaging Spectrometer, carried by the Space Shuttle.

Image- Pictorial representation of a scene recorded by a remote sensing system.

JPL- Jet Propulsion Laboratory, a NASA facility at Pasadena, California.

Ka Band- Radar wavelength region from 0.8 to 1.1 cm.

Landsat- A series of unnamed Earth-orbiting NASA satellites that acquire multispectral images in various visible and IR bands.

Nadir- Point on the ground directly in line with the remote sensing system and the center of the Earth.

NASA- National Aeronautical and Space Administration

NOAA- National Oceanic and Atmospheric Administration

NSSDC- National Space Science Data Center

Ocean Surface Winds- These are measured by a scatterometer. Microwave radiation from the satellite returns a weak signal from a rough ocean surface, but it returns a strong signal from a smooth surface. A radiometer measures radiation reflected from Earth's surface. Strong winds with white caps on the ocean reflect back more radiation than do calmer conditions.

Ocean topography- The study of and graphical charting of the ocean to show the relative positions and elevations

Orbit- Path a satellite around a body such as the Earth, under the influence of gravity.

Physical Oceanography- The study of the movements of the ocean.

Radiometer- Device for quantitatively measuring radiant energy, especially thermal radiation.

Remote Sensing- Collection and interpretation of information about an object without being in physical contact with the object.

Resolution- Ability to separate closely spaced objects on an image or photograph.

Sea surface height- This is measured by radar altimeters on the TOPEX/Poseidon satellite on the European Remote sensing Satellite (ERS-1). Heights greater than normal in areas such as coastal Peru indicate decreased upwelling.

Sea surface temperatures- These are measured by the Advanced Very High Resolution Radiometer. (AVHRR) on NOAA polar orbiters. They determine temperatures by sensing infrared radiation coming from the sea surface. Current temperatures are updated for four-day periods.

Sea surface variability- Any change in sea level relative to some average sea level, usually a multi-year average

Sensor- Device that receives electromagnetic radiation and converts it into a signal that can be recorded and displayed as either numerical data or an image.

Shuttle imaging radar (SIR)- L-band radar system deployed on the Space Shuttle.

Surface phenomenon- Interaction between electromagnetic radiation and the surface of a material.

Thermocline- Transition zone in a body of water where the temperature profile changes from warm top water to cold bottom water.

Tracking and Data Relay Satellite (TDRS)- Geostationary satellite used to communicate between ground receiving stations and a satellite such as Landsat.

UV- Ultraviolet region of the electromagnetic spectrum ranging in wavelengths from 0.01 to 0.4m.

Wavelength- Distance between successive wave crests or other equivalent points on the wave.

References and Acknowledgements

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