10. Glossary

Accuracy: The success in closeness of estimating the true value in a measurement process.

Above-ground biomass: all living biomass above the soil including stem, stump, branches, bark, seeds, and foliage.

Biomass: Biomass is defined as mass of live or dead organic matter.

Below-ground biomass: all living biomass of live roots.

Database: A collection of data, usually stored as single or multiple files, associated with a single general category.

Carbon sequestration: The removal and storage of carbon from the atmosphere by green plants through the process of photosynthesis.

Carbon Sink: An area where the rate of carbon intake exceeds the rate of carbon release, so that carbon is sequestered in organic or inorganic forms.

Classification: The process of assigning individual pixels of a multispectral image to categories, generally on the basis of spectral reflectance characteristics.

Climate: General Pattern of atmospheric or weather conditions, seasonal variations, and weather extremes in a region over a long period- at least 30 years; average weather of an area.

Co-Kriging: estimation of a regionalized variable using observations of that variable supplemented by observations of one or more additional variables from within the same geographical area, thereby reducing the estimation variance if the original variable has been undersampled.

Closed forest: Forests with a minimum of 30% tree canopy cover.

Deterministic interpolation: A spatial interpolation method that provides no assessment of errors with predicted values.

Ecology: Study of the interactions of living organisms with one another and with their nonliving environment of matter and energy.
**Extrapolation:** The estimation of the values of an attribute at unsampled points outside an area covered by existing measurements.

**Ecosystem:** An ecosystem is defined as fundamental functional unit occupying spatial dimension of ‘earth space ship’ characterized by total assemblage of biotic community and abiotic components and the mutual interactions within a given time unit.

**Evergreen plants:** Plants that keep some of their leaves throughout the year.

**Forest:** Biome with enough average annual precipitation (at least 76 centimeters) to support growth of various species of trees and smaller forms of vegetation.

**Forest degradation:** A reduction in the biomass, productivity or biodiversity of a forest, and alterations in ecological functions such as habitat, climate regulation and soil and water protection.

**Filtering:** In analysis, the removal of certain spectral or spatial frequencies to highlight features in the remaining images.

**Global Positioning System:** A system of orbiting satellites used for navigational purposes and capable of giving highly accurate geographic co-ordinates using hand held receivers.

**Geographical Information system:** A set of computer tools for collecting, storing, retrieving at will, transforming and displaying spatial data from the real for a particular set of purposes.

**Interpolation:** The estimation the values of an attribute at unsampled points from measurements made at surrounding sites.

**Kriging:** A mathematical interpolation method based on the use of a generalized least-squares algorithm.

**Kyoto protocol:** Is a treaty negotiated in Kyoto, Japan in 1997 between 159 countries setting out legally binding reduction targets for six greenhouse gases increasing 5% emissions below 1990 levels for industrialized countries between 2008 and 2012.

**Latitude:** Angular measurement north and south of the equator. Represented on the globe as parallel lines circling the globe perpendicular to the lines of longitude.
Longitude: Angular measurement east and west of the prime or Greenwich meridian, Represented on the globe as a series of great circles intersecting at both poles.

Mosaicking: The assembling of photographs or other images whose edges are cut and matched to form a continuous photographic representation of a portion of the earth’s surface.

Map projection: A mathematical and/or geometric method used to transfer the spherical surface of the Earth onto a flat surface such as map. Many different map projection exist, each with its own advantages and disadvantages.

Multispectral: Generally used for remote sensing in two or more spectral bands, such as visible and infrared.

Model: A simplified representation of a phenomenon or a system.

Predictive model: A model that can extrapolate beyond the scope of the experiment, and provides results that extend beyond the current observations.

Pixel: A single cell in a raster data model.

Spatial: Anything pertaining to the concepts of space, place and locations.

Sampling: The process of determining or selecting features to be used as samples in measurement.

Spatial interpolation: The process of using points with known values to estimate unknown values at other points.

Spatial model: A model that is applied to represent differences in physical space.

Spatial autocorrelation: Tobler’s law of Geography(1976), which states that points close together in space are more likely to have similar characteristics than those that are further apart.

Stochastic interpolation: A spatial interpolation method that offers assessment of prediction errors with estimated variances.
**Spatial Data**: Data that have some form of spatial or geographical reference that enables them to be located in two or three dimensional space.

**Satellite image**: Graphical image (usually in digital form) taken of the earth’s surface using electromagnetic sensors on board an orbiting satellite or spacecraft.

**Semivariogram model**: one of a series of mathematical functions that are permitted for fitting the points on an experimental variograms (linear, spherical, exponential, Gaussian, etc.).

**Scale**: The size relationships or ratio between the map document and the area of the earth’s surface that it represents.

**Slope**: The steepness or gradient of a unit of terrain, usually measured as an angle in degrees or as percentage.

**Ordinary Kriging** A method for interpolating data values from sample data using regionalized variable theory in which the prediction weights are derived from a fitted variogram model.

**Open forests**: Forest with between 10 and 30% tree canopy cover.

**REDD**: is the global endeavour to create an incentive for developing countries to protect, better manage and save their forest resources, thus contributing to the global fight against climate change.

**Landsat**: An orbiting satellite that provides repeat images of the Earth’s surface.

**Root mean square (RMS) error**: A measure of the deviation between the actual location and the estimated location of the control points in geometric transformations.

**Regression Model**: A GIS model that uses a dependent variable and a number of independent variables in a regression equation for prediction or estimation.

**Remote sensing**: The science of observation without touching. Often used to refer to Earth observation from satellite platforms using electromagnetic sensors.
**Resolution**: The size of the smallest recording unit or the smallest feature that can be mapped or measured.

**Thematic maps**: Maps pertaining to one particular theme or subject.

**Topographic maps**: Maps whose primary purpose is to indicate the general lie of the land. These maps generally show terrain, basic landuse, transport networks, administrative boundaries, settlements and other man-made features.

**Trend Surface analysis**: A routine that interpolates a complex surface or series of data points to produce a much-simplified surface showing the overall trend in the data.

**Universal Kriging**: A kriging method that assumes that the spatial variation of an attribute has a drift or a structural component in addition to the spatial correlation between sample points.