

# GIS & field mapping :: topics & technologies to get started

## 1. GPS



### Uses...

*Navigation: where are we, where next?*

*Research data locations: samples, observations, transects*

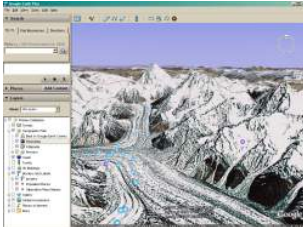
*Mapping: roads, bridges, building etc.*

### Practicalities...

How GPS works: good tutorial from [Trimble](#), and large collections of articles, reviews and links at [GPSinformation](#) and [GPSTracklog](#) – see the “buyers guide”.

Some recommended units from Garmin: [Etrex H](#) (£65, no data cable), [Etrex HC](#) (£150) and [Garmin 60Cx](#) (£275). Prices are from [GPS Warehouse](#).

## 2. Google Earth



*Location planning/recce*

*Graphics for reports*

*Distributing results: mapping, photos, research data (e.g. [ants, environmental](#))*

*Educational products*

[Google Earth](#) reports over 200 million downloads. Superb as a geographic viewer/visualiser, and although more are appearing, its GIS-like functions are very limited. Follow [GEBlog](#), [OgleEarth](#), [FreeGeographyTools](#).

A similar, non-commercial product is NASA's [World Wind](#), compatible with GE files.

## 3. GPS download and basic mapping



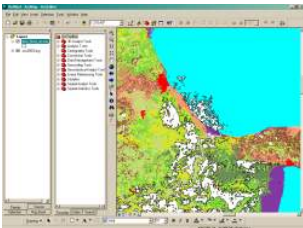
*Quick mapping products*

*Transfer to GIS software*

*Adding observations to points e.g. species records*

[GPS Utility](#) will import and export almost any data format, including KML, Shapefile, and MapInfo. The free version has some limitations; £30 to register the full version. [OziExplorer](#) and [Fugawi](#) have much greater mapping capability, although cost more.

## 4. GIS



*Overlay multiple data sets, different data sources*

*Thematic mapping*

*Editing and merging datasets*

*Analysis: clustering, correlations, trends, predictions, planning*

[ArcGIS](#), most used for research and conservation applications, available in most UK universities, or full-function 180-day trial version bundled with the book [Getting to Know ArcGIS Desktop](#). Retailers are listed on [BookBrain](#) (£30-40). Of free GIS we have seen, [MapWindow](#) is one of the best.

## 5. Remote Sensing



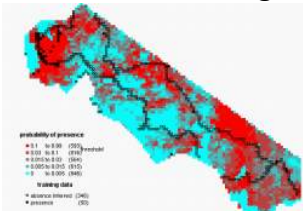
*Satellite imagery and aerial photography*

*Vegetation, geology, soils, geomorphology, flooding, erosion, land use*

*Analysis: hazard mapping, changes*

[ILWIS](#) is a very well-specified remote sensing and GIS package – and free. [ER Mapper](#) has a limited trial download and a free viewer. [ERDAS IMAGINE](#) and [ENVI](#) are also widely used in research and universities.

## 6. Habitat modelling



*Combines actual observations (of plants and animals) with environmental conditions, to describe and predict suitable habitats. A variety of statistical techniques are used to distinguish suitable habitats.*

Generally uses generic GIS and stats. software, although some free specialist software is available, e.g. [Domain](#) and [DMAP](#).

Refer to extensive refereed literature for techniques.

**Further links** [GIS with an emphasis on low cost and fieldwork](#), includes data sources (best in IE)

**Further workshop** [GIS for expeditions and fieldwork](#), 7-9 March, 2008, at the RGS

**Further reading:** Expedition Field Techniques: [GIS, GPS and Remote Sensing](#) (RGS-IBG)