2017 AGTA Conference

Guide to Spatial Technology Apps for Geography Fieldwork

Prepared by Stephen Matthews (stephen.matthews@geointell.com.au)
for Session 8.1: Fieldwork using spatial technologies on personal mobile devices

The table provides a guide to linking the fieldwork needs of students to appropriate examples of spatial technologies that are freely accessible.

Multiple examples of applications are given, many of which have similar capabilities. A teacher should familiarise themselves with, and assess the applications according to their specific fieldwork task requirements.

Application examples also cater to both Android and Apple (iOS), the two predominant mobile device operating systems. Web-based applications are platform independent and are accessible on both mobile devices and desktop computers.

It is important to note that apps for mobile devices are often regularly updated by their developers. In some instances, this means the app will only work with more recent versions of device operating systems. Students receiving in incompatibility message should try alternative apps that achieve the same outcome. From time to time, apps might cease to be supported, therefore becoming unavailable.

I would like my students to…	I need an app/site that…	Example(s) of which is (are)…
have access to fieldwork site base maps	allows for the creation of custom base-maps of fieldwork sites	• http://fieldpapers.org • http://maps.google.com
find their current location using co-ordinates	provides location co-ordinates (if required, in different systems, e.g. latitude/longitude, or Universal Transverse Mercator)	• GPS Test, My GPS Coordinates, GPS Essentials, Get Geo-Coordinates (Android) • Compass, GPS Data, Gridder (iOS)

know exactly where they are taking images in the field and have the data available on the image	tags camera images with visible latitude and longitude co-ordinates (with elevation and bearing of the view, if required)	• Geocam Free, GPS Map Camera, Surveyor Tools Free, Dioptra (Android) • Altitude DC, Stamper (iOS)
access the encoded locational data on existing images	allows access to the location metadata on images, if available	• GPS Photo Viewer (Android) • Photo Investigator (iOS)
be able to record numerical or descriptive data with an accurate point location for export and mapping	allows for observational data to be recorded against useable latitude and longitude co-ordinates	• GPS Logger, GPS Essentials, (Android) • Simple Logger (iOS)
record the path they have taken on fieldwork for export and mapping	tracks and records students' location as they move	• My Tracks, GPS Logger, GPS Essentials (Android) • Simple Logger (iOS)
measure the physical area of Google Earth polygon(s) accurately	a) i) calculates the area of polygons manually created on a map and/or ii) imports a polygon from a KML file b) imports polygon data from Google Earth and exports it as a data file for further use	a) i) https://www.daftlogic.com/projects-google-maps-area-calculator-tool.htm ii) https://www.freemaptools.com/area-calculator.htm b) http://www.easymapmaker.com/
geocode street addresses and related data on a map	will import standard street address data from an Excel spreadsheet file, map the data and export the map link and KML file for further use	• http://www.easymapmaker.com/
convert a data point from one latitude and longitude format to another	converts between latitude and longitude formats (e.g. digital degrees to degrees and decimal minutes, or degrees, minutes and seconds)	• Convert Latitude and Longitude (Android) • Gridder, C&C Technologies Geodetic Converter (iOS) • http://www.earthpoint.us/Convert.aspx • http://www.directionsmag.com/site/latlong-converter/

convert multiple sets of latitude and longitude co-ordinates from one format to another	batch converts latitude and longitude co-ordinate sets (e.g. digital degrees to degrees and decimal minutes, or degrees, minutes and seconds)	• http://rustygreen.net/EasyLatLongConverter • http://www.earthpoint.us/BatchConvert.aspx • http://www.findlatitudeandlongitude.com/batch-geocode/#.Vv4_Nkf6V50
map multiple sets of latitude and longitude co-ordinates	imports a map co-ordinates spreadsheet file and plots the points on a digital map	• Microsoft Excel or Google Sheets, with Google Earth Pro (all platforms) • http://www.scribblemaps.com/ (desktop/mobile)
visualise the terrain and vistas of fieldwork locations in the classroom	utilises digital terrain modelling (DTM) and remotely sensed satellite images with control over the direction and tilt angle of view	• Google Earth (standard or Pro) with the 'Terrain' and '3D Buildings' layers enabled (all platforms)
associate photographic images taken on fieldwork to map locations	attaches images to mapped data points for viewing when the location placemark is clicked	• Google Earth (standard or Pro) with a free cloud-based image hosting service – examples below (all platforms) • http://tinypic.com (no sign-up, note and use 'Direct Link for Layouts') • http://imgur.com (no sign-up, note and use 'Direct Link') • http://imgsafe.org (no sign-up, right-click and copy image location)

Note: This material is from http://www.digipubs.vic.edu.au/vcaa/vce-geography-spatial-tech-fieldwork/vce-geography-spatial-tech-guide on the Victorian Department of Education and Training's DigiPubs site.