2017 AGTA Conference

Spatial Technology Apps – Quick Guide for Teachers

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

This document provides a quick start guide to a sample range of free applications that will run on either Android or iOS mobile devices; smartphones or tablets. To find and install the apps, use your device to access the Google Play Store (Android) or Apple App Store (iOS) as required and search for the app title. Simply download, install and launch to experiment using the guide below.

A fuller range of apps and their uses is found at 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.

As these are all free apps, they often include advertisements. Some do offer modestly priced ad-free and more fully featured versions. There are also many alternative commercial apps.

Android devices

General instructions

The apps below can be freely downloaded from Google Play, the app for which should already be present on all Android devices.

Turning location features on

It is a good idea to advise students to turn their location services off when not using them for reasons of privacy and battery conservation. This will be under the main Settings of the device.
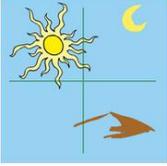
GeoCam Free

Purpose: To capture images on fieldwork with the location data visibly imprinted on the image itself.

Usage: Students can take pictures on their devices, ideally one with the standard camera and one with this app. This will allow students to map the locations of images and relate any observations to that location. As long as one location image is taken, multiple 'clean' images can be taken at that spot showing different levels of detail as required. A good replacement for field sketching. Clean images could be uploaded or linked to Google Earth or annotated and used in reports, again as a replacement for field sketches, using the data from the imprinted image.

Notes: Operation:

- Use 'CAM' (as opposed to 'VID') using the top left button.
- 'Shutter' button to the top right of the screen captures the image.
- Settings accessible via the gear icon to the lower right of the screen.
- Under Settings > Geo > Maps, a map visualisation of indicative position and scale is provided.

Surveyor Tools Free

Purpose: To capture images on fieldwork with the location data visibly imprinted on the image itself. This app is used in the same way as, and is an alternative to, GeoCam Free.

Usage: As for GeoCam Free.

Notes: Operation:

- Choose the highest resolution option at the opening window.
- 'Shutter' button to the centre right of the screen captures the image.
- Settings accessible via the slide-out menu to the lower left of the screen.
- Note that the other buttons to the right provide different compasses (not used for data collection).

GPS Test

Purpose: To provide latitude and longitude co-ordinates of a point.

Usage: Students can use this app to manually record where they are located. This is specifically useful when recording observational data or field measurements with the co-ordinates. This data can then be entered into a spreadsheet (e.g., Excel or Google Docs) and thereafter imported into Google Earth, which will map the data for further analysis.

Notes: To check/customise settings, use the following:

- Settings > 'Coordinate Grid Settings' > 'Grid' > DD.DDDDDDD˚ (sets to decimal co-ordinates).
- Settings > 'Coordinate Grid Settings' > 'Datum' > WGS84 (sets map datum for Google Earth compatibility).

GPS Logger

Purpose: To plot a user's path of travel, with the ability to place markers (waypoints), with text notations, at selected locations.

Usage: Students can track their path of movement, which is useful to recall later. Waypoints with text notations are useful for the recording of data or observational notes as they move. This app export to a GPX format file, which can be imported directly into Google Earth, mapping the path and waypoints.

Notes: Operation (for help use the '?' button, top right):

- Tap the 'Start Logging' button: the green light (top right) indicates operation.
- Views (simple, detailed, big and log) accessible from the top centre menu: use 'Simple' view.

Options (Accessible via the three stripes button, top left corner)

- Logging Details > 'Log to…' to set the log file format to GPX or KML (both will work with Google Earth).
- Logging Details > 'Save to folder' to set where the log file is stored.

To add a waypoint:

- Tap the 'annotate' (pencil) button, lower left and type the desired information for the location using only letters and numbers.
- The log file location is shown in fine print on the screen underneath the location information in simple view.

To export a data file:

- Tap the 'Share' button (bottom right) and select which file(s) to share. Click 'OK' to be taken to the sharing options.
- To upload a file click the 'up arrow' button (bottom, right of centre) and select.

Apple iOS devices

General instructions

The apps below can be freely downloaded from App Store, the app for which should already be present on all iPhones/iPods.

Image storage will need to be accessed.

Turning location features on

It is a good idea to advise students to turn their location services off when not using them for reasons of privacy and battery conservation. This will be under the main Settings of the device > Privacy > Location Services.

Altitude DC

Purpose: To capture images on fieldwork with the location data visibly imprinted on the image itself.

Usage: Students can take pictures on their devices, ideally one with the standard camera and one with this app. This will allow students to map the locations of images and relate any observations to that location. As long as one location image is taken, multiple 'clean' images can be taken at that spot showing different levels of detail as required. A good replacement for field sketching. Clean images could be uploaded or linked to Google Earth or annotated and used in reports, again as a replacement for field sketches, using the data from the imprinted image.

Notes: Operation:

- Large round central button takes the image.
- 'Pin' button under the capture image button allows for different maps of location.
- 'Colour' button allows change of the on-screen text to make it more clear.

GPS Data

Purpose: To provide latitude and longitude co-ordinates of a point.

Usage: Students can use this app to manually record where they are located. This is specifically useful when recording observational data or field measurements with the co-ordinates. This data can then be entered into a spreadsheet (e.g., Excel or Google Docs) and thereafter imported into Google Earth, which will map the data for further analysis.

Notes: Most of the settings on this app are changed by tapping various parts of the screen. For example, tap the latitude/longitude and it will alternate between decimal degrees (which we want) and degrees, minutes and seconds. Distance units can be changes by tapping the relevant box. The red 'light' in the centre flashes when the location is updated and the app gives you a count of the time since the last update. The following will be useful:

- To force a location update, tap 'Force Update' near the lower right corner of the screen.
- Set 'Desired Accuracy' to 'Best' and Distance Filter to '5 metres'.
- Location (GPS) can be set on or off by tapping the text at the lower left of the screen.

Simple Logger

Purpose: To plot a user's path of travel, with the ability to place markers (waypoints), with text notations, at selected locations.

Usage: Students can track their path of movement, which is useful to recall later. Waypoints with custom names and descriptions are useful for the recording positions as they move. This app exports to a format file, which can be imported directly into Google Earth Pro, mapping the path and waypoints.

Notes: The following settings should be used:

- Tap the 'Launch Logger' button.
- Under 'Settings' (cog icon), set 'GPS Accuracy' to 'High', and 'Interval of Point' > Time > 5 seconds.
- Tap the round 'REC' button (left side) to record (changes to pause once recording).
- The arrow button (right of REC) zooms the map to your current location.
- Tapping the grey information box switches between point, distance and time information, and latitude, longitude and elevation.

To add and export a way point:

- Tap the waypoint button (to the right of the camera button), name and describe the waypoint > '+' button (top right).
- Tap the save button (between the camera and settings cog) and 'Save to File' > New File (blue text button).
- To edit file names, Tap 'Edit' in the file view.
- To export, when starting the app, select the 'View Files' button > select the desired file name > select the date/time details > at the map display with the track and waypoints > tap the send button (left of the cog) to transfer GPX file for loading in Google Earth.