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A mobile app for geological/geochemical field data acquisition

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We have developed a geochemical sampling application for use on Android tablets and phones. This app was developed together with the Field Acquired Information Management Systems (FAIMS) at Macquarie University and is based on the open source FAIMS mobile platform, which was originally designed for archaeological field data collection. The FAIMS mobile platform has proved valuable for hydrogeochemical, biogeochemical, soil and rock sample collection due to the ability to customise data collection methodologies for any field research.

The module we commissioned allows for using inbuilt or external GPS to locate sample points, it incorporates standard and incremental sampling names which can be easily fed into the International Geo-Sample Number (IGSN). Sampling can be documented not only in metadata, but also accompanied by photographic documentation and sketches. The module is augmented by dropdown menus for fields specific for each sample type and user defined tags. The module also provides users with an overview of all records from a field campaign in a records viewer. We also use basic mapping functionality, showing the current location, sampled points overlaid on preloaded rasters, and allows for drawing of points and simple polygons to be later exported as shape files.

A particular challenge is the remoteness of the sampling locations, hundreds of kilometres away from network access. The first trial raised the issue of backup without access to the internet, so in collaboration with the FAIMS team and Solutions First, we commissioned a vehicle mounted portable server (Figure 1). The server installed in our field vehicle allowed us to back up, completely automatically, any data we collected while in the field, it has an uninterruptible power supply that can run for up to 45 minutes when the vehicle is turned off, and a 1TB hard drive for storage of all data and photographs. The server can be logged into via any of the field tablets or laptop to download all the data collected to date or to just view it on the server.



Figure 1: Field app and portable server in use in the field

