GEOLOGIAN TUTKIMUSKESKUS
ISY
Kuopio

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Guidelines for the geological content of "Kapalo mobile"

Version 2.1

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1 BACKGROUND

This document contains instructions for usage of Android based application for capturing bedrock data i.e. Kapalo mobile. Application was coded at the Geological Survey of Finland (GTK), Kuopio office, in 2015. This document contains only geological guidelines for the usage, technical instructions can be found from the internal help of the application. Structure of the used database is a simplified version from the full version of the ArcMap based Kapalo aplication used since 2007 in GTK. The available language versions if the application are English and Finnish, based on the language selection of the gadget. The up to date version can be found and installed from Google play under the name ”Kapalo”.

Highest hierarchical level in the data base structure is the observation point and the other points: rock observations, pictures, samples and tectonic measurements are linked to it. Under the Rock observation three subtables are used for minerals, structures and mineralization and alteration. Tectonic measurements are divided into five types: layering, foliation, fault, fold axis and lineation. Domain lists used by the program and the database can be found from here: http://gtkdata.gtk.fi/mobiili/kapalodomains.html.

If you have any suggestions for improving this document don’t hesitate to send an e-mail to pertu.mikkola@gtk.fi.

2 TARGET- AND TABLE-SPECIFIC INSTRUCTIONS

2.1 Settings

In addition to settings the setting window is used for changing certain default values used by the application (Figure 1)

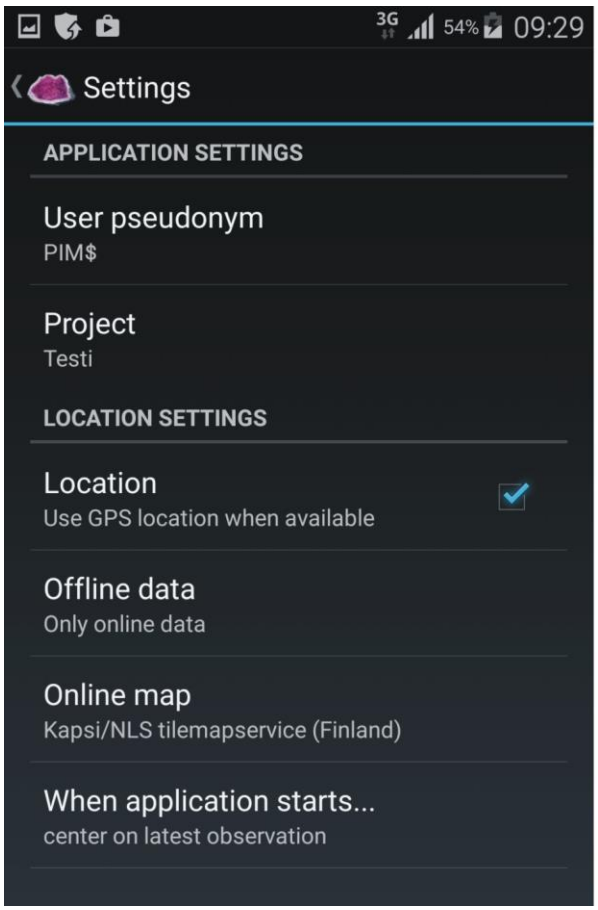
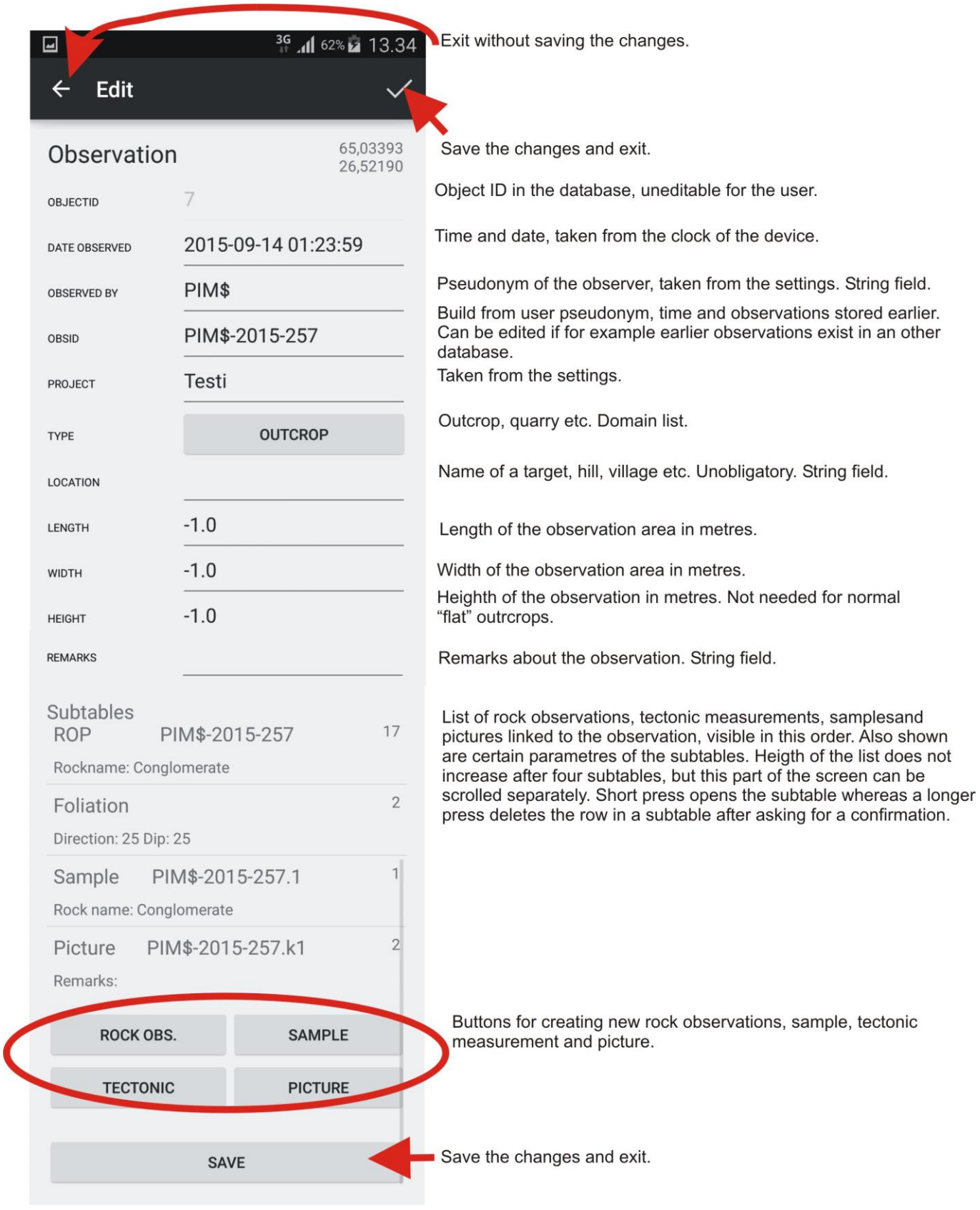


Figure 1. Settings window of Kapalo mobile.

2.2 Observation form

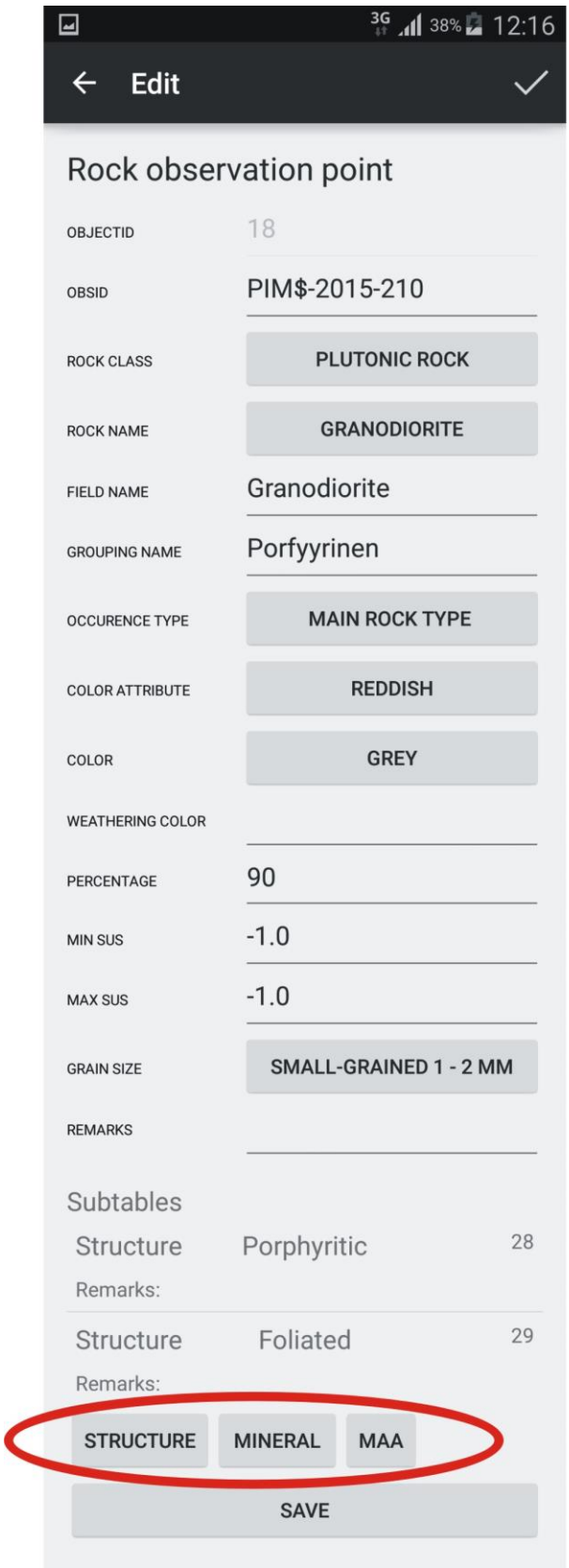
Observation form (Figure 2) contains information about the observation ID, observation type, size etc. and a list on linked subtables as well as buttons for creating them.



Kuva 2. The observation form of Kapalo mobile.

2.3 Rock observation

Rock observation(s) (Figure 3) are used for storing data about the rock type(s) of the observation. Stored attributes include rock name, percentage, colour, grain size etc.. Subtables are used for storing structures, minerals and mineralization signs and alteration.



Into which rock class the rock type belongs to. Is automatically filled if the rock name below is chosen first. Domain list.
Name of the observed rock type. If rock class above is chosen first only rock names belonging to that class are shown. Domain list.

Geologist or project specific rock name. String field.

Intrusion or other grouping name. String field.

How the rock in question occurs in the observation area: main rock type, dyke, enclave etc. Domain list.

Prefix of the color. Light, dark, greenish etc. Domain list.

Color of fresh rock surface. Domain list.

Color of the outcrop weathering surface. String field.

Proportion of the rock type inthe observation area. 100 % as default value for the first rock. For the next one reduced with the used-%.

Minimum of the measured susceptibility values. Device (and scale) are stored when moving the data into geodatabase.

Maximum of the measured susceptibility values. If values are homogeneous this field is used.

Grain size of the ground mass. Domain list.

Free description of the rock type in question. String field.

List of rock structures, mineralization signs and alterations and minerals linked to the rock observation. Also shown are certain parametres of the subtables. Heigth of the list does not increase after four subtables, but this part of the screen can be scrolled separately. Short press opens the subtable whereas a longer press deletes the row in a subtable after asking for a confirmation.

Buttons for creating new structure, mineral and mineralization signs and alteration (MAA).

Figure 3. The rock observation form of Kapalo mobile.

2.3.1 Stucture and texture form

Stucture and texture form (Figure 4) is used to store data concerning observed structures and textures of the rock type. Relationship to the rock observation is one to many.

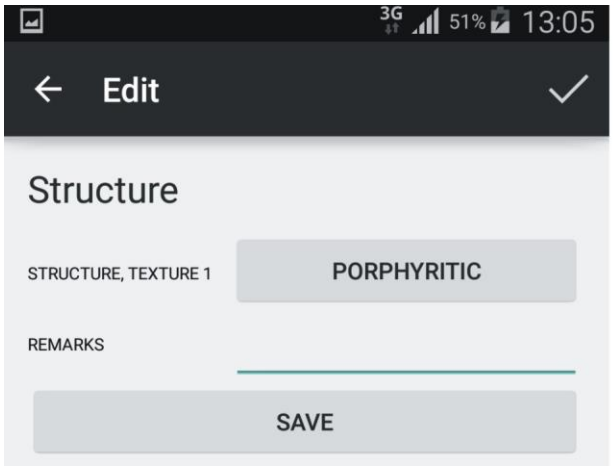


Figure 4. The structure and texture form of Kapalo mobile.

2.3.2 Mineral form

Mineral form (Figure 5) is used for storing data concerning the observed minerals of the rock, relationship to the rock observation is one to many. Self-evident minerals are not saved; i.e. granite by definition contains K-feldspar, plagioclase and quartz. Exception to this rule is made in respect to porphyritic rocks, where the porphyry minerals is stored. Normally only the so called index minerals are stored, for example staurolite and garnet in case of staurolite-garnet paraschist. The index minerals are numbered so that the most abundant one is assigned as number 1, second most abundant as number 2. The maximum number of index minerals per rock type is 3. In case of plutonic rocks the index minerals are the mafic minerals, in biotite granite for example the biotite. Appearance of the mineral is stored in subtable and more than one appearance can be stored per mineral, for example pyrite as disseminated and fracture filling.

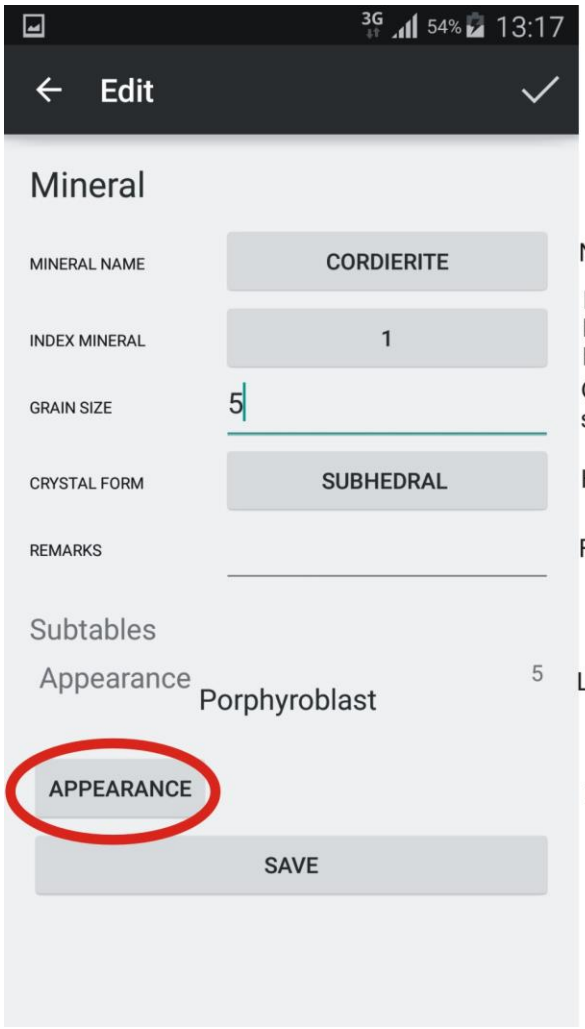


Figure 5. The mineral form of Kapalo mobile.

Mineral appearance subtable contains only data for the appearance type of the mineral (Figure 6).

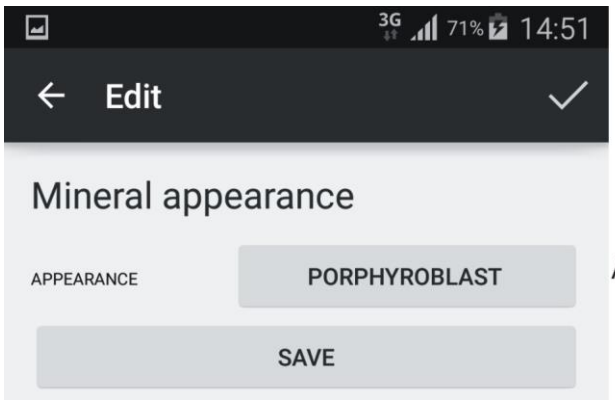


Figure 6. The mineral appearance form of Kapalo mobile.

2.3.3 Mineralization signs and alteration form

This form is used for data concerning whole rock alteration and observed signs of mineralization (Figure 7.), relationship of this table to the rock observation is of type one to many. User should note that the form contains data which is not always related to each other, thus the other half of the form often remains blank.

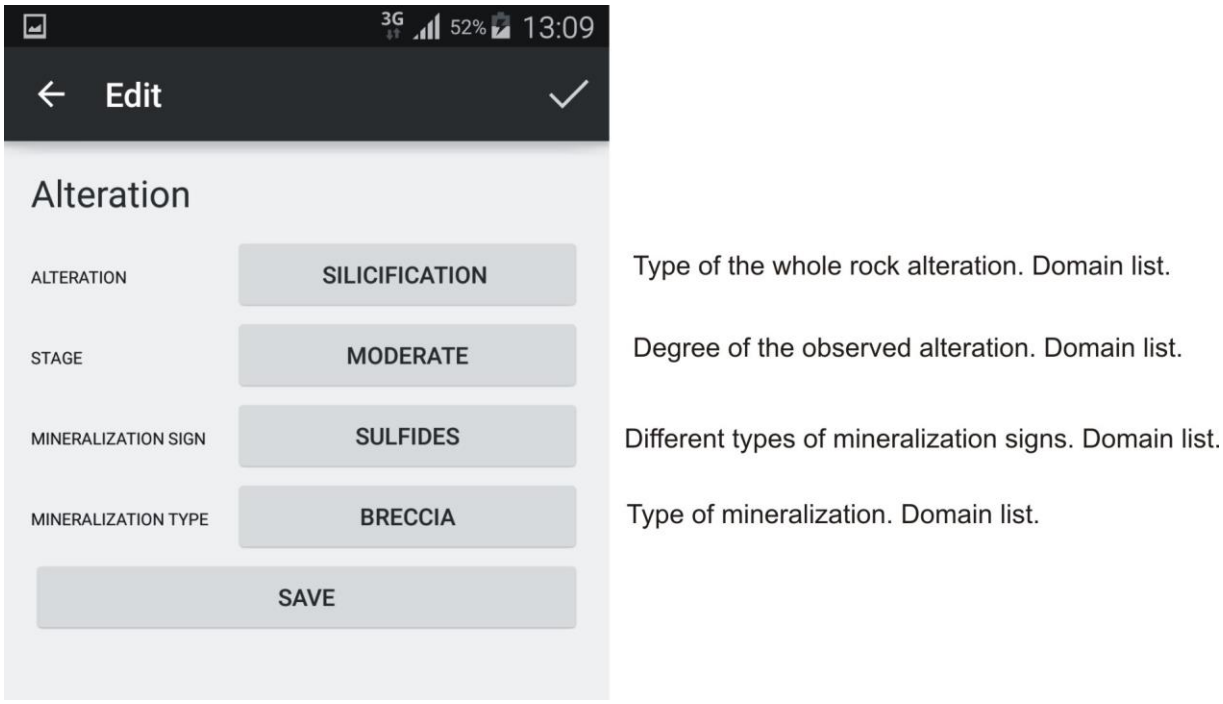


Figure 7. The mineralization signs and alteration form of Kapalo mobile.

2.4 Outcrop picture point

Outcrop picture form is used to store information about the pictures taken from the observation area. Camera symbol on the form (Figure 8) activates the camera of the device. Application names the taken picture files according to the GTK's convention: for example PIM$-2015-204.k1, .k2, .k3 etc. This standard name is followed by random number in order to enable taking of several shots for each picture point in the field and later saving the best one (Remember in this process to remove the random number). If you´re taking several pictures that you intend to save, each of these must be accompanied by their own outcrop picture point.

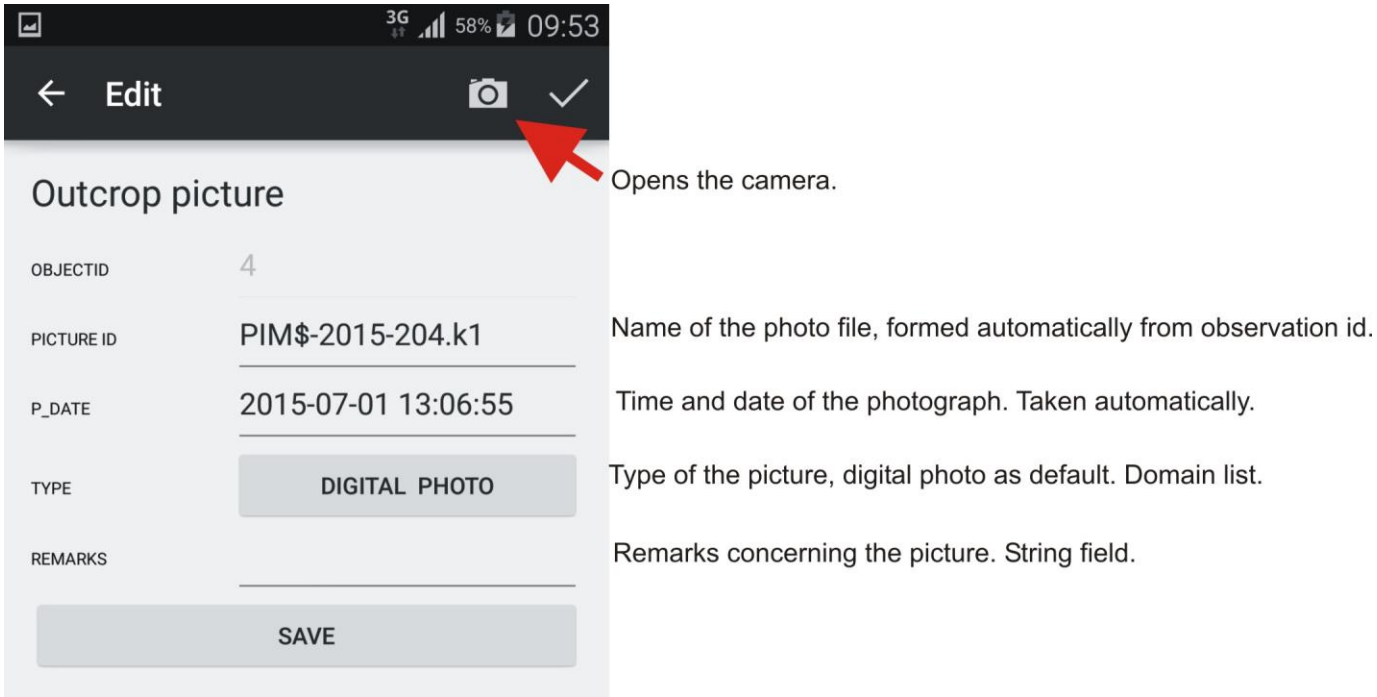


Figure 8. The outcrop picture form of Kapalo mobile.

2.5 Tectonic measurement

When the tectonic measurement button of the observation form is pressed the user is prompted to select one of the five possibilities: layering, foliation, fault, fold axel or lineation. Each tectonic measurement point contains one measurement and more than one can be stored for each observation.

2.5.1 Layering form

Layering form (Figure 9) is used for data concerning the measured layering: direction, dip, strike, type and thickness.

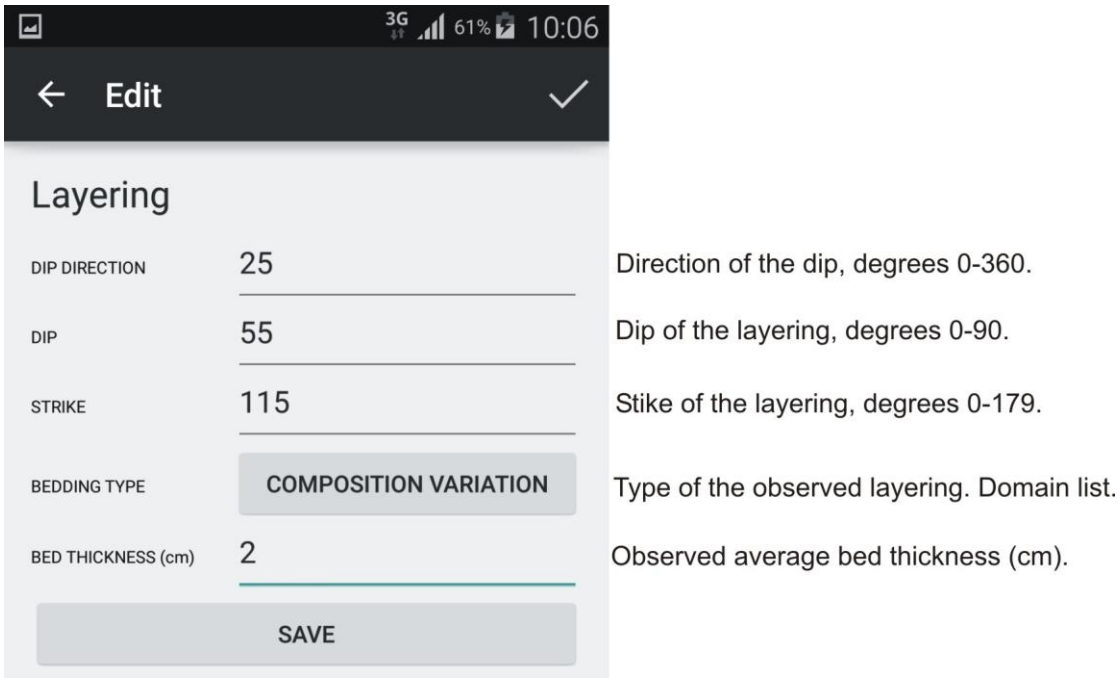


Figure 9. The layering form of Kapalo mobile.

2.5.2 Foliation form

Foliation form (Figure 10) is used for storing concerning the measured foliation: directions, type and grade.

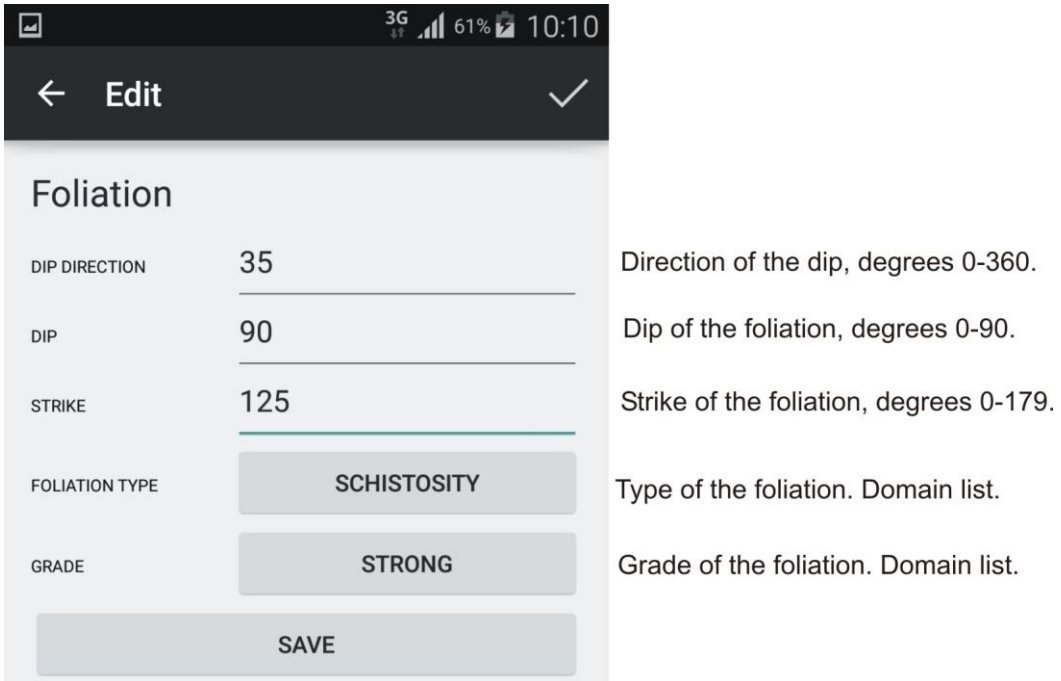


Figure 10. The foliation form of Kapalo mobile.

2.5.3 Fault form

Fault form (Figure 11) is used to store fault measurement(s) from the observation. International users should note that the application concentrates on strike slip faults as these are far more readily observable in low topography crystalline bedrock, characterizing Finland, than normal faults or thrust faults.

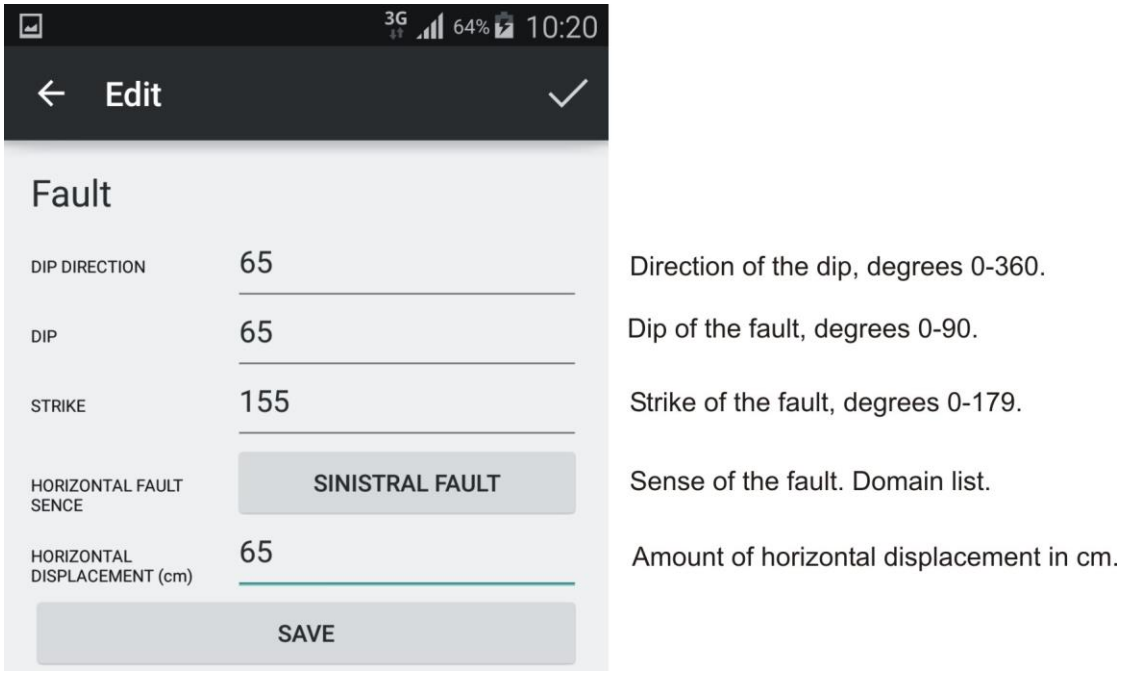


Figure 11. The fault form of Kapalo mobile.

2.5.4 Fold axel form

Fold axel form (Figure 12) is used for storing data about the observed fold axis.

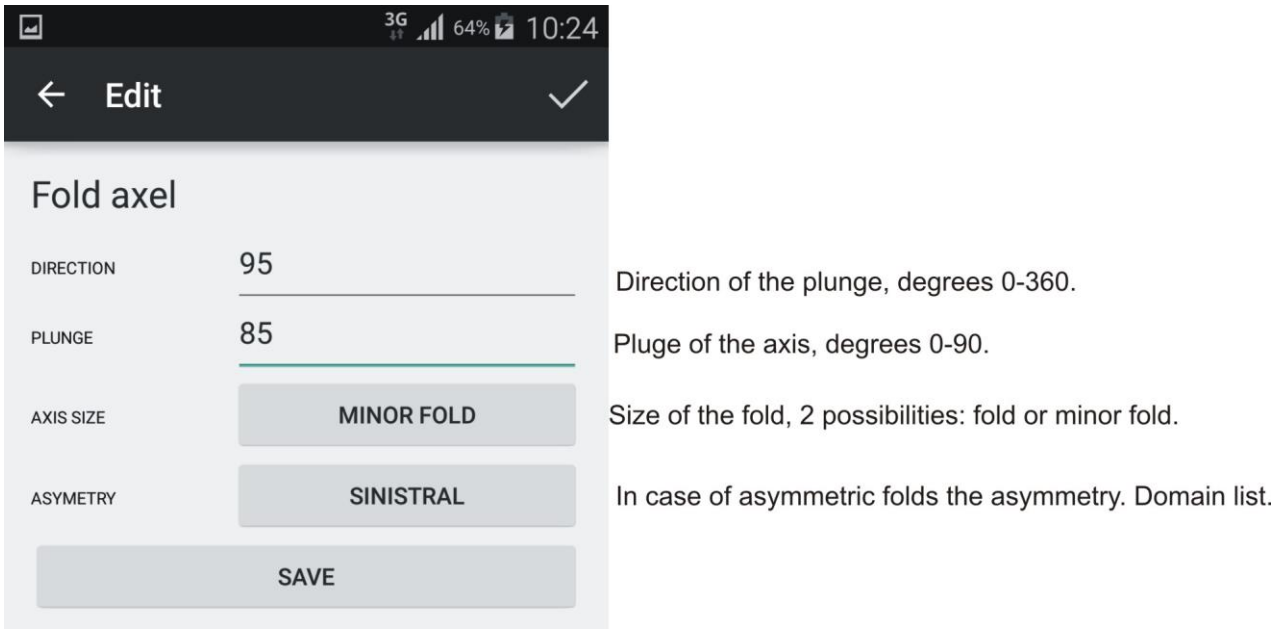


Figure 12.The fold axel form of Kapalo mobile.

2.5.5 Lineation form

Lineation form (Figure 13) is used for linear features other than fold axels.

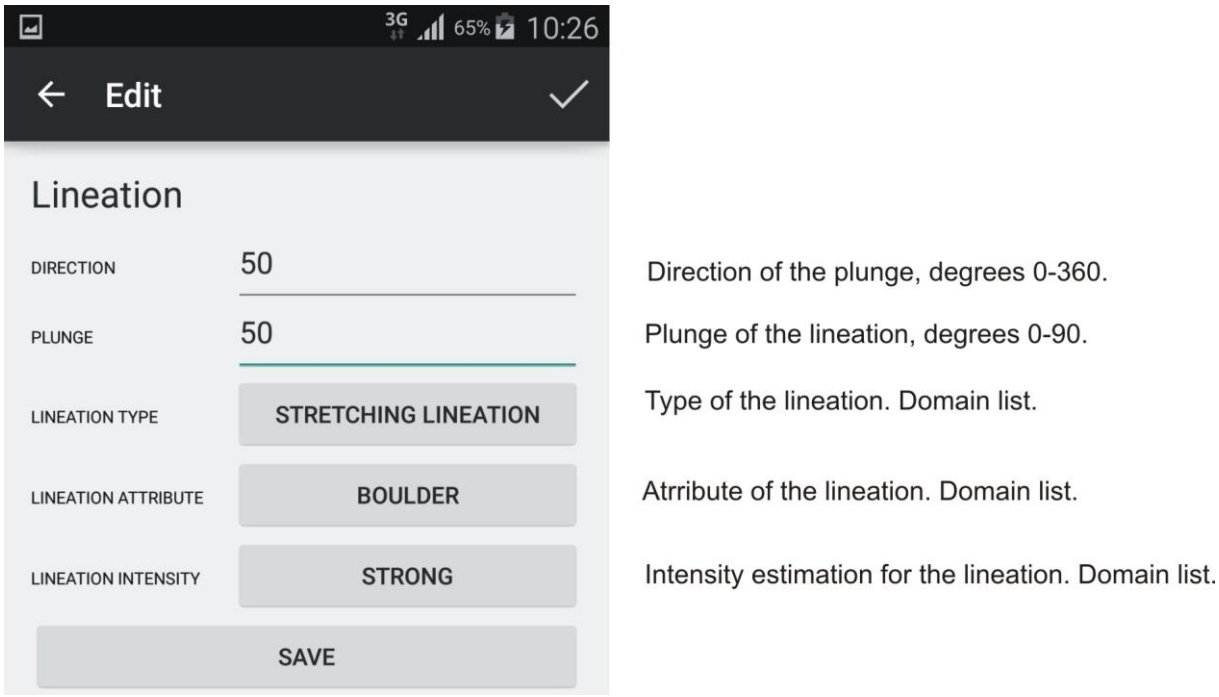


Figure 13. The lineation form of Kapalo mobile.

2.6 Sample point

Sample form (Figure 14) is used for storing data connected to taken samples. Sample numbering is done automatically according to GTK's convention: observation id followed by dot and running number. For example PIM$-2015-204.1, PIM$-2015-204.2, PIM$-2015-204.3 etc., but the field can be edited manually.

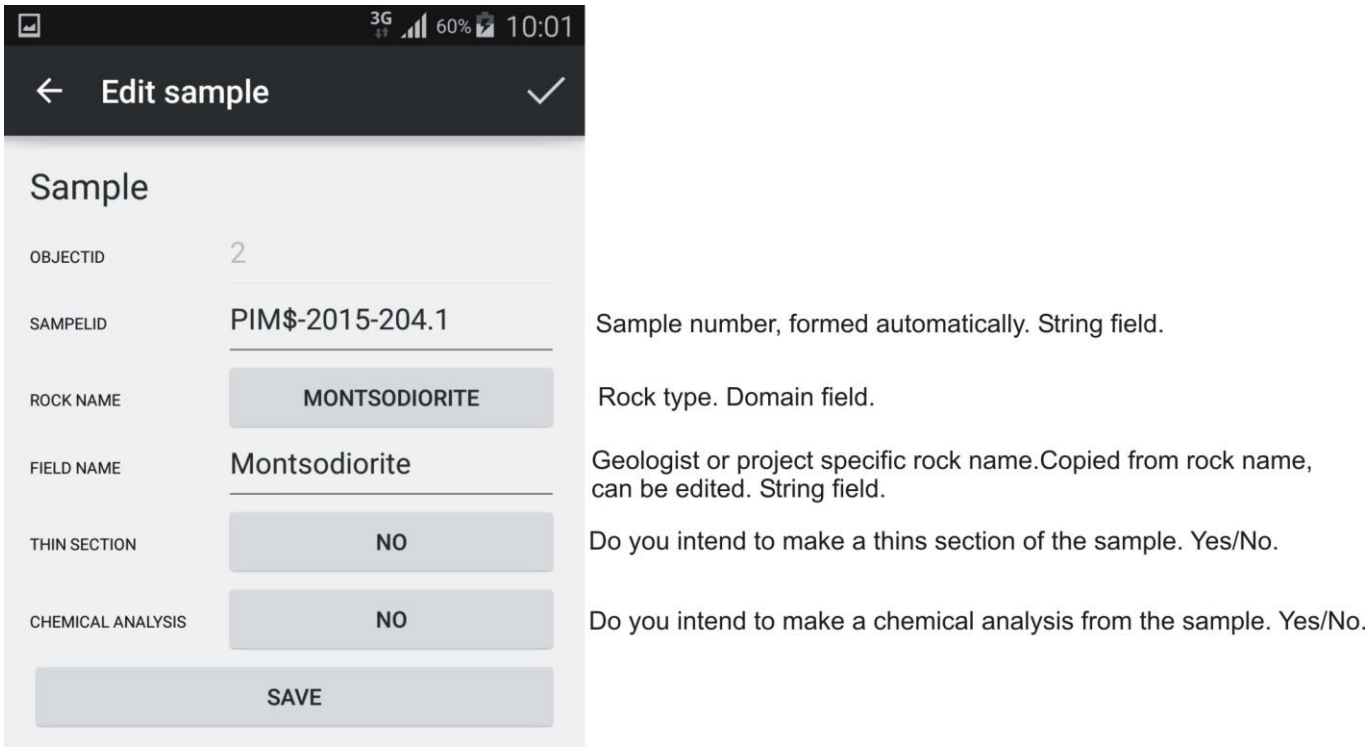


Figure 14. The sample form of Kapalo mobile.