



# PHYSPROP — A data base for physical property data from samples registered in TASROK (Revision 1)

by R. G. Richardson

## Abstract

The program suite described provides a storage and retrieval method for physical property data (density, magnetic susceptibility, resistivity, chargeability, sonic velocity, magnetic remanence and natural radioactivity) measured on oriented specimens and the outcrop from which they came. The samples must be registered with TASROK as all location, rock type, etc. details reside there.

## INTRODUCTION

As part of the Mt Read Volcanics Project physical property, chemical and petrological studies were made on a number of samples. At each sample site three samples were taken — one for physical property and petrological studies, one for chemical studies, and one with accurate orientation details for magnetic remanence. Magnetic susceptibility readings were made on the outcrop and averaged to produce a representative value. A gamma-ray spectrometer (measuring TC1, TC2, K, U, Th) was used to determine the count over 40 second intervals, and this was used to produce an average count rate (counts per second). Magnetic remanence measurement was performed by the Geology Department, University of Tasmania, which returned tables of inclination, declination and magnetisation (amp/metre).

## DATA BASE MAINTENANCE

### Data entry

Data are entered by typing PROPADD and responding to the program prompts. For several items (registered number, inclination, declination and magnetisation) a previous value is displayed and may be accepted by typing a return.

#### (a) Collection

- entered only once.
- a valid collection abbreviation from TASROK (Richardson, 1989).

#### (b) Registered number

- the TASROK registered number of the sample. Type END to finish adding data.

- leave blank to increment the previous value by 1.

#### (c) Density

- the density in  $t/m^3$
- enter -1 if not known.

#### (d) Susceptibility

- the magnetic susceptibility (the units are  $10^{-3}$  SI)
- enter -1 if not known.

#### (e) Resistivity

- the galvanic resistivity ( $\Omega$  metres)
- enter -1 if not known

#### (f) IP

- the induced polarisation chargeability in %
- enter -1 if not known

#### (g) Sonic

- the sonic velocity in metres/second
- enter -1 if not known

#### (h) Inclination

- the inclination of the remanent magnetisation in degrees (integer)
- leave blank to use the previous value
- enter 999 if not measured
- enter -999 if not measurable

#### (i) Declination

- the declination of the remanent magnetisation in degrees (integer)
- leave blank to use the previous value
- enter 999 if not measured
- enter -999 if not measurable

#### (j) Magnetisation

- the intensity of the remanent magnetisation in amp/metre (real)
- leave blank to use the previous value
- enter 999 if not measured
- enter -999 if not measurable

#### (k) TC1

- the TC1 value from the spectrometer (integer)
- enter -1 if not known

- (l) TC2
  - the TC2 value from the spectrometer (integer)
  - enter -1 if not known
- (m) K
  - the K value from the spectrometer (real)
  - enter -1 if not known
- (n) U
  - the U value from the spectrometer (real)
  - enter -1 if not known
- (o) Th
  - the Th value from the spectrometer (real)
  - enter -1 if not known

At the end of input a proof sheet is output on the printer.

#### *Correction of new data*

The temporary file PROPNEW1.DAT may be corrected using the standard system editing facilities.

#### *Data merging*

After checking and correction data are merged with the main file by typing PROPMERGE.

#### *Data sorting*

The main file should be maintained in registered number order by typing PROPSORT.

#### *Data searching*

(a) The direct search phase is entered by typing PROPSRCH. Prompts are:

- (i) Collection
  - a valid TASROK collection abbreviation must be entered here.
- (ii) Starting reg. no.
  - the registered number to start dumping from
  - leave blank to dump all values.
- (iii) Final reg. no.
  - the registered number to finish dumping at
  - leave blank to dump all entries after the starting registered number.

Output is to a file of name "USER".DMP. The format of this file is:

REGN,DENS,SUSC,RESIST,IP,SONIC,INCLIN,DECLIN,  
MAGNET,TC1,TC2,K,U,TH

FORMAT—  
(A10,F5.2,F7.2,E10.3E2,F5.2,I4,I4,I4,F8.3,2I5,3F7.1)

- (b) To search using TASROK (Richardson, 1989) as the reference data base type PHYSSRCH. Search parameters are then entered as specified for TASROK. Instead of the option of a printer, the currently selected subject may be dumped to disk.

Output of the physical property data is to a file of name "USER".PHY which has the same format as output from PROPSRCH.

Output of the TASROK data is to a file of name "USER".RCK and each entry occupies three records. The format is:

#### *Record 1:*

REGN,GENERIC,SNAME,MINRL,MODF,AGE,  
RCKCODE,RCKNAME,ISTATE,QUAD

FORMAT—  
(A10,1X,C5,1X,C12,3(1X,C3),4(1X,C4),1X,C6,1X,C10,  
1X,I1,1X,C5)

#### *Record 2:*

If ISTATE = 0  
COORDE,COORDN,LOCAL,COLECT,IYEAR

FORMAT—  
(1X,I6,'mE',1X,I6,'mN',1X,C12,1X,C3,1X,I4)

otherwise

ILATD,ILATM,LATS,ILOND,ILONM,LONS,LOCAL,  
COLECT,IYEAR

FORMAT—  
(2(I4,'d',I2,'m',A1),1X,C12,1X,C3,1X,I4)

where ILATD is the latitude in degrees  
ILATM is the latitude in minutes  
LATS is N or S  
ILOND is the longitude in degrees  
ILONM is the longitude in minutes  
LONS is E or W

#### *Record 3:*

TRTMNT,REF,KWORDS,COMMENT,FIELDNO

FORMAT—  
(6(1X,C2),1X,C30,2(1X,C24),1X,C6)

#### **REFERENCE**

RICHARDSON, R. G. 1989. TASROK — A computer-based catalogue for Tasmanian rocks (Revision 3). *Rep. Dep. Mines Tasm.* 1989/21.

[16 March 1992]