

GCDkit goes platform independent!

V. JANOUŠEK^{1*}, J.F. MOYEN², V. ERBAN¹, J. HORA¹

¹ Czech Geological Survey, 118 21 Prague, Czech Republic
(*correspondence: vojtech.janousek@geology.cz,
erban@sopky.cz, john.hora@geology.cz)

² Université de Lyon, Laboratoire Magmas et Volcans, 42023
Saint Etienne, France (jfmoyen@gmail.com)

More than 15 years have passed since the *Geochemical Data Toolkit (GCDkit)* was released at the Goldschmidt Conference in Kurashiki [1]. This freeware, written in the potent R language [2; <http://www.r-project.org>] evolved into an established standard for plotting and recalculation of whole-rock geochemical data from magmatic rocks [3]. It can be downloaded for free from www.gcdkit.org.

Apart from its original, Windows-based graphical user interface (GUI), *GCDkit* can be fully controlled from the command line or programmed from a batch file. Python-driven notebooks represent a versatile tool integrating text, programming code and its results into a single, well-formatted document. *Jupyter* (<http://jupyter.org>) has proved to be an especially useful tool for reproducible research and teaching.

Over the years, *GCDkit* became an ideal platform for petrogenetic modelling of igneous processes [4, 5]. It is also used to interpret the output of the powerful R-Crust software that serves for phase equilibria modelling of partial melting using the promising combination of *Perple_X* and R [6].

Just unleashed *GCDkit* version 6 is the first with platform-independent (Tcl/Tk) GUI. Thus the program should run, *inter alia*, on Mac or Linux systems. Routines for recalculation of electron-microprobe mineral data, thermodynamic modelling in P–T grid (utilizing *Perple_X* [7] output [5] or interfacing to the *Melts* web service [8, 9]), and rudimentary GIS facilities are actively being developed.

This research was supported by the Czech Grant Agency project 18-24378S (to VJ).

[1] Janoušek *et al.* (2003) *Geochim. Cosmochim. Acta* **67**, 186. [2] Ihaka & Gentleman (1996) *J. Comp. Graph. Stat.* **5**, 299-344. [3] Janoušek *et al.* (2006) *J. Petrol.* **47**, 1255-1259. [4] Janoušek *et al.* (2016) Springer-Verlag, 346 pp. [5] Janoušek & Moyen (in print) In: *Geol. Soc. London Spec. Pub* **491**. [6] Mayne *et al.* (2016) *J. Metamorph. Geol.* **34**, 663-682. [7] Connolly & Petrini (2002) *J. Metamorph. Geol.* **20**, 697-708. [8] Ghiorso & Sack (1995) *Contrib. Mineral. Petrol.* **119**, 197-212. [9] Gualda & Ghiorso (2015) *Geochem. Geophys. Geosyst.* **16**, 315-324.