Towards data interchangeability in paleomagnetism

Christian Zeeden\textsuperscript{1}, Christian Laag\textsuperscript{1,2}, Pierre Camps\textsuperscript{3}, Yohan Guyodo\textsuperscript{2}, Ulrich Hambach\textsuperscript{4}, Janna Just\textsuperscript{5}, Pontus Lurcock\textsuperscript{6}, Christian Rolff\textsuperscript{1}, Sara Satolli\textsuperscript{7,8}, Stephanie Scheidt\textsuperscript{9}, and Sebastien Wouters\textsuperscript{10,11}

\textsuperscript{1}LIAG, Leibniz Institute for Applied Geophysics, S5, Hannover, Germany (christian.zeeden@leibniz-liag.de)
\textsuperscript{2}Palaeomagnetism Research Group, Institut de Physique du Globe de Paris, Paris, France
\textsuperscript{3}Géosciences Montpellier, Université de Montpellier, Montpellier, France
\textsuperscript{4}BayCEER & Chair of Geomorphology, University of Bayreuth, Bayreuth, Germany
\textsuperscript{5}Fachbereich Geowissenschaften, Universität Bremen, Bremen, Germany
\textsuperscript{6}Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy
\textsuperscript{7}Dipartimento di Ingegneria e Geologia, Università “G. d’Annunzio” di Chieti-Pescara, Chieti, Italy
\textsuperscript{8}ClMaN-ALP – Alpine Laboratory of Paleomagnetism, Peveragno, Italy
\textsuperscript{9}Institut für Geologie und Mineralogie, University of Cologne, Cologne, Germany
\textsuperscript{10}Sedimentary Petrology, Liege University, Liège, Belgium
\textsuperscript{11}O.D. Earth and History of Life, Royal Belgian Institute of Natural Sciences, Brussels, Belgium

Paleomagnetic data are used in different data formats, adapted to data output of a variety of devices and specific analysis software. This includes widely used openly available software, e.g. PMag.py/MagIC, AGICO/\texttt{.jr6} & \texttt{.ged}, and PuffinPlot/\texttt{.ppl}. Besides these, individual software and data formats have been established by individual laboratories.

Here we compare different data formats, identify similarities and create a common and interchangeable data basis. We introduce the idea of a paleomagnetic object (pmob), a simple data table that can include any and all data that would be relevant to the user. We propose a basic nomenclature of abbreviations for the most common paleomagnetic data to merge different data formats. For this purpose, we introduce a set of automatization routines for paleomagnetic data conversion. Our routines bring several data formats into a common data format (pmob), and also allow reversion into selected formats. We propose creating similar routines for all existing paleomagnetic data formats; our suite of computation tools will provide the basis to facilitate the inclusion of further data formats. Furthermore, automatized data processing allows quality assessment of data.