Class library for data analysis and visualization with the object-oriented Language Ruby

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Data used in earth and planetary fluid sciences are in many cases physical quantities that are discretely sampled or discretized on a grid. Since there are more than a few data formats even if we limit our scope to widely used ones, it is useful to take object-oriented approaches to handle them. Meanwhile, to analyze data it is needed for a researcher to do programming rather than to use GUI in order to flexibly develop and apply new techniques and to accumulate them. Therefore, since the end users (researchers) program daily, it would be needed a language that is suitable for rapid development as well as being object-oriented. However, such a language is rarely used in the present research activities. In order to make Ruby, an object-oriented scripting language, suitable for such activities we have ported basic libraries such as mathematical and graphic ones and are developing a library based on a class of ‘discretized physical quantities’. The class hides realization of data on computers and is devised to cover a wide variety of physical quantity data in the field. It is shown with examples that research program development becomes efficient by using the class even when using only one data format and that to adopt a program to different data formats becomes easy. A future development will be directed to build a basis for rapid programming of distributed huge datasets.