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

Takeshi Horinouchi[1], Masato Shiotani[2], Kentaro GOTO[3], Tsuyoshi KOSHIRO[4], Naoki Kawanabe[5]

[1] RASC, Kyoto Univ., [2] RASC, [3] Notwork, [4] Fujitsu FIP Corp., [5] RASC,Kyoto Univ

Data used in earth and planetary fluid sciences are in many casesphysical quantities that are discretely sampled or discretized on agrid. Since there are more than a few data formats even if we limitour scope to widely used ones, it is useful to take object-orientedapproaches to handle them. Meanwhile, to analyze data it is needed fora researcher to do programming rather than to use GUI in order toflexibly develop and apply new techniques and to accumulatethem. Therefore, since the end users (researchers) program daily, itwould be needed a language that is suitable for rapid development aswell as being object-oriented. However, such a language is rarely usedin the present research activities. In order to make Ruby, anobject-oriented scripting language, suitable for such activities wehave ported basic libraries such as mathematical and graphic ones andare developing a library based on a class of 'discretized physicalquantities'. The class hides realization of data on computers and isdevised to cover a wide variety of physical quantity data in thefield. It is shown with examples that research program developmentbecomes efficient by using the class even when using only one dataformats and that to adopt a program to different data formats becomeseasy. A future development will be directed to build a basis for rapidprogramming of distributed huge datasets.