

GHE024-14

Room:301A

Time:May 22 17:45-18:00

## Science as enterprise: a case study of geosciences

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Scientific research is not just a dynamic system of scientific statements. It does not only aim to accumulate journal articles. It is an actively operating system to organize research members and their abilities. Research on science, however, tends to focus on "objective" data such as bibliometric statistics or budgetary trends although it is not necessary to be anthropology or sociology on science. Philosophy of science, thus, should be reviewed, with the following questions for example: What should philosophy of science target as its research subject? What should be called "scientific methodology" now? It should be noticed that the notion of "scientific methodology" here is taken wider than the traditional usage, in the sense that it includes not only justification of scientific truth and theories but also management of a research community.

The question on scientific methodology in a wider sense applies to every field of research. Each field of humanities and social sciences, as well as natural science, is also to equip with a set of methodologies which characterize the research area. In the current context of shrinking economy which tends to behave against higher education and scientific research, scientific communities should overcome difficulties such as miscommunication among professionals of different backgrounds to collaborate each other.

To capture collaborative projects among professionals, geoscience seems to provide a nice case to the analysis from the current issue of research methodology. The research community of geosciences about 30 years ago used to have tremendous diversity in (1) aims, (2) methods and (3) also backgrounds of individual researchers. while it has been established within several decades as one discipline in educational institutions, i.e. independent departments in universities and a high school subject. How can the subject work as a title of research fields, while approaches diverse?

This presentation will summarize oral histories of leading geoscientists on the following topics in the three levels (1) of individual research projects, (2) of research management at research institutes, and (3) of operation of the research community itself: decision making and scope setting, project management (long-term and short-term, in particular cases of interdisciplinary projects i.e. communities with different approaches jointly work on a single subject), personnel training and allocation, development and maintenance skills of research infrastructure (research facilities and applications/database, maintenance technicians, or even workspace), and evaluation of research outputs and outcome. In the current context of shrinking economy which tends to behave against higher education and scientific research, scientific communities should overcome difficulties such as miscommunication among professionals of different backgrounds to collaborate each other. Such studies would also provide humanities and social sciences with useful references for their coming reforming and restructuring to adapt the next age.

Keywords: philosophy of science, science communication, management of science