High-performance and Real-time Processing of Sensing Data via NICT Science Cloud

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In many scientific fields, most data are digitized and handled on computers and networks. The data files are getting larger in size and numbers. Science clouds, which are equipped with both flexibility and specialty applicable for countless scientific studies, are called upon to play important roles as an infrastructure of big-data sciences and inter-disciplinary studies. The NICT Science Cloud is designed to work with functions of data crawling and transfer, data preservation and management, and data processing and visualization. We have developed applications, tools, systems and services designed for these three functions (especially for Earth and space environmental sciences) installed on the NICT Science Cloud. By applying these functions to each sensing project, researchers are able to advance their studies. In this paper, we first introduce the NICT Science Cloud. We next report our 2-years applications of the cloud system based on several long durational satellite data processing. Finally, I propose a design to make progress of various types of sensing projects; real-time data processing and archived data processing of remote sensing and satellite observations.

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