Facilitating Earth Science Research Using Virtual Globes

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Abstract:

Virtual Globes have been increasingly becoming a popular three dimensional infrastructure for professionals conducting their scientific research in Earth science community. The United States National Aeronautics and Space Administration (US NASA)'s Goddard Earth Science Data and Information Service Center (GES DISC) has been collecting and serving Earth Science data for many years and continuing to promote the wide use of NASA's Earth science data for scientific research and applications around the world. In this paper, the new ways of visualizing gridded vertical profiles and non-gridded (swath) two dimensional Earth science data are discussed and depicted. The successfully new ways are integrated with GES DISC's online analysis system – Giovanni to visualize and compare the outputs from Giovanni to facilitate the Earth science research. Several atmosphere and climate change-related research applications demonstrate the advantages of the new solutions based on Google Earth.

Keywords: Earth Science Data; AIRS; TRMM; CloudSat; CALIPSO; Data Synergy; Visualization; Google Earth