

GEOSPATIAL DATA IN EARTH'S STUDIES

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The rapid development of modern technologies for acquiring geospatial data (that combines location information, attribute information and increasingly also temporal information) resulted in their use for monitoring and understanding of numerous aspects that are involved in the Earth's system science. In recent years, the Earth's system science focuses more on multi-disciplinary areas that bring together researchers across both the natural and social sciences, from fields including ecology, economics, geography, geology, glaciology, geophysics, geodesy, meteorology, oceanography, climatology, palaeontology, sociology, space science, and many more relevant research disciplines. In this presentation, we briefly summarize some most significant research areas where geospatial data are crucial for better understanding of various subjects and processes. We then demonstrate the use of geodetic, geophysical, geological and remote-sensing data in studies of Earth's surface processes, particularly addressing the monitoring of tectonic motion, sea level change, hydrological cycle, glacial mass balance and climate. We also provide examples how these data are used in studies of Earth's inner structure and sub-surface processes that are necessary for modelling and mitigating geo-hazard (such as earthquake sources and mechanisms), allocation of natural resources (such as prospecting of oil and natural gas reach sedimentary basins), and many other commercial and non-commercial purposes.

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