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ACTIVITIES (D5)

Cyber-security threats to space missions and countermeasures to address them (4)

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MAPPING AND OPTIMIZING BIG SPACE DATA - AN INTERNATIONAL, INTERDISCIPLINARY
AND INTERCULTURAL PERSPECTIVE ON THE SPACE RELATED DATA PROCESSES**Abstract**

In recent years the global data volume growth has been 40 percent each year, the number of bytes created daily is 10 to the power of 18 and the number of servers used by big data companies ranges up to millions. Space related research and space based observations are great contributors of big data. For example, satellite telemetry, sensor data, observation logs and manned space mission studies all produce enormous amounts of information that can be examined again and again to understand more about our universe, our solar system, our planet and our body. The International Space University (ISU) Space Studies Program (SSP) "Big Space Data" Team Project (TP) held in summer of 2016 examined the world of big data through the eyes of the space community; the Team Project mapped the data creators, the data depositories, the data managers and data consumers related to space and space based activities. The TP discussed ways to better the data flow from sensor to processor to general public. The leading question for the TP was "how do we make new conclusions on different matters from all the data available to me", and by it the TP evaluated ways of using and reusing data acquired by space based and terrestrial sensors to learn as much as possible about the universe around us. The TP examined both the technological challenges in data management as well as the legal and ethical considerations of balancing privacy, data security and intellectual property with the socioeconomic benefits of global information sharing and openness for the general good. This paper summarizes the findings and conclusions of the ISU SSP 2016 Big Space Data Team Project.