

UNB Physics Department Seminar

Data Science and a New Scientific Frontier in Geospace: Addressing the full data lifecycle

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The hallmarks of the geospace system, which extends from the near Earth space environment, through the magnetosphere and interplanetary space, to the Sun, are variability and complexity. To unravel the critical variabilities and complexities and to evolve beyond current approaches to understand geospace, new data-driven approaches and data analysis technologies are required. These data-driven methods are taking on new importance in light of the shifting data landscape of the geospace system. The geospace community faces both an exciting opportunity and an important imperative to create a new frontier built at the intersection of traditional approaches and state-of-the-art data-driven sciences and technologies. This talk will first discuss the meaning of data science in the context of geospace, highlighting data science as the *actionable exploration of the full data lifecycle*, covering collection, through storage, to analysis and decision-based communication of the analysis. This talk will reveal efforts from a Jet Propulsion Laboratory Data Science Working Group pilot project to leverage data science innovation to utilize a powerful data set for geospace science – Global Navigation Satellite Systems (GNSS) signals. We will detail the outcomes of this investigation, focusing particularly on the broader lessons for data science innovation in geospace. We will share even more recent progress to incorporate additional geospace data and to explore the full space of machine learning methods for geospace prediction. This talk is intended to provide insight to and spark discussion around the trends in space science research associated with data science and machine learning.

Thursday Jan. 17, 2019, 1:15--2:15 pm in
P204. Colloquium tea in P203 beforehand