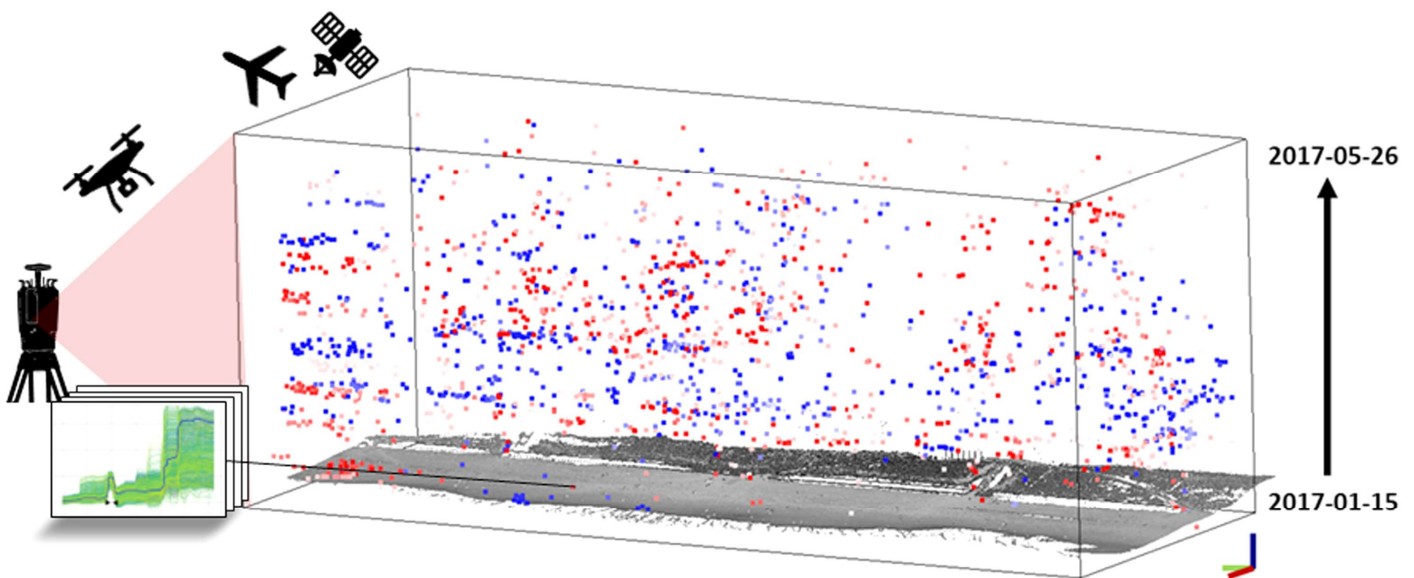


Prof. Dr. Katharina Anders

Technische Universität München

Time changes everything: New approaches to 4D Earth observation with near-continuous topographic data



High-frequency acquisitions of 3D data have revolutionized our capabilities to observe surface dynamics at detailed spatiotemporal ranges. Applications of such 4D Earth observation (3D+time) span a multitude of geomorphic settings, for example, rockfalls and slope movement, riverbank processes, and coastal dynamics. This talk addresses the potential of these data to increase our insight into the characteristics of surface processes that drive the shaping of landscapes at the interface of human action and the environment. The focus is on requirements and challenges to new methods that enable automatic and high-accuracy information extraction. Beyond bitemporal acquisitions or single-epoch analysis, the integration of the time series information was already shown to improve the detectability of relevant surface processes and the accuracy of their quantification. Finally, it will be discussed how more comprehensive observation of surface processes may integrate multi-source and multi-scale data from ground-based LiDAR and photogrammetry to satellite imagery in the context of understanding geomorphic landscape evolution and climate change consequences.

Mittwoch

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