Digitally engineered built environment: monitoring movements from space

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Abstract: (250 to 500 words: for each heading use the bullet points or narrative - the submission including graphics should not exceed one page)

Problems - Issues / Challenges-Needs

- The limitations of traditional monitoring of structure condition by visual inspection
- The importance of structural health monitoring as well as monitoring of environmental surroundings

Challenges include deriving value from large quantities of data and the implementation of early warning systems.

Solutions - Methods / Results - Findings

New insights and opportunities to support resilient infrastructure can be gained by leveraging new technologies such as:

- The latest in sensors and in-situ monitoring
- Rapid advancements in satellite observation and measurement technologies
- The integration of heterogeneous data sets
- The development of effective digital environments

Understanding the relevance, utilisation, and limitations of such systems to civil engineering applications can support civil engineers in monitoring for signs of failure, as well as support in recovery after disaster.

Novelty - Value / Relevance to ...

- Advances in satellite imagery resolution that can capture individual assets at measure millimetre-scale movement
- The fusion of satellite, in-situ surveying and monitoring could provide complementary systems to improve inspection
- Identification of possible precursors to disaster using such tools through the study of historical failures
- Digital models that can bring better value and understanding of ‘big data’ sets to aid better-informed decision making

Forum statement

Leveraging remote sensing, environmental and structural monitoring data can improve efficiency in asset management.

Keywords: (up to 5 keywords)

structural health monitoring; remote sensing; satellites; digital environments

Graphics: (please use the gray area below for representative graphics or graphical summary: select the gray area bellow and paste your graphics)