

Digitally engineered built environment: monitoring movements from space

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Forum topics	<input type="checkbox"/> Energy in 21st Century	<input type="checkbox"/> Cultural Heritage in Digital World
	<input type="checkbox"/> Engineering Capacity Building	<input checked="" type="checkbox"/> Disaster Risk Management & Governance for Resilient Communities
	<input type="checkbox"/> Construction 4.0	<input checked="" type="checkbox"/> BIM Lifecycle, Facility & Asset Management

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	<p>Ageing infrastructure and widespread deterioration as well as recent collapses of bridges, tunnels and other key services are problems which highlight:</p> <ul style="list-style-type: none"> The limitations of traditional monitoring of structure condition by visual inspection The importance of structural health monitoring as well as monitoring of environmental surroundings <p>Challenges include deriving value from large quantities of data and the implementation of early warning systems.</p>
Solutions - Methods / Results - Findings	<p>New insights and opportunities to support resilient infrastructure can be gained by leveraging new technologies such as:</p> <ul style="list-style-type: none"> 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 <p>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.</p>
Novelty - Value / Relevance to ...	<ul style="list-style-type: none"> 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 below and paste your graphics)

