

EARTH OBSERVATION SYMPOSIUM (B1)
Future Earth Observation Systems (2)

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NOT JUST BIG CUSTOMERS WITH BIG BUCKS: HOW TO GET SUB-METRE IMAGERY FROM A
SMALL SATELLITE

Abstract

Sub-metric resolution imagery is no longer only available to big customers with big bucks. Advances in technology mean that this kind of performance is now possible on smaller platforms at lower costs. Building on the recently constructed NigeriaSat-2 spacecraft, which is due to be launched later this year, this paper will discuss how a new, agile sub-metre imaging platform will be able to deliver an Earth Observation capability close to the limit of what is currently available in the commercial market.

Achieving this level of performance within the constraints of a small satellite creates new challenges in maintaining the quality of image products. The paper will discuss how the interaction between the attitude control system and the mechanical design of the payload isolation system both help and hinder achieving the mission requirements. The emerging technologies used to meet these challenges and the ways in which they are combined into a small satellite solution is also described. These technologies vary from novel mechanical design solutions to compact, low-power high-performance attitude sensors.

Finally, the paper will give a description of how the throughput of the mission is achieved. Whilst not able to provide the same coverage statistics as its bigger, more expensive brothers, the satellite can still provide more than enough square kilometres to keep even demanding customers happy.