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THE AFRICAN RESOURCE MANAGEMENT CONSTELLATION – THE IMPACT OF
TECHNOLOGY ADVANCES

Abstract

The African Resource Management Constellation represents a co-operative mission in remote sensing between South Africa, Algeria, Nigeria and Kenya. The multi-lateral agreement was signed in 2009, while the user requirements were agreed in 2006. The promise of the constellation was the benefit of coverage by four satellites in a coordinated way, for the price of one satellite per country.

It is nine years since the political agreement and there is an opportunity to review the impact of technology advances on possible implementations of ARMC satellites. One would expect a significant increase in the performance or a significant decrease in size of satellite, based on advances in satellite technology. Smaller satellites in turn would provide the potential for a greater number of satellites leading to an overall improved system performance.

In this same time frame, commercial constellations have been proposed and are now operating that would satisfy a number of the user requirements. The current implementation of the ARMC constellation could benefit from all the advances, leading to a unique solution that addresses key areas of concern for utilisation of remote sensing data with a priority for African applications.

The paper will review the user requirements against commercial constellations and the impact of technology advances on the current implementation of the ARMC first generation requirement satellites. The benefit of advances in technology means nations can now participate with mini-, micro- or nano-satellites in the ARMC constellation with a wide range of implications on the quality and availability of data for remote sensing applications.