NORTHSTAR: “CHANGING THE WAY WE SEE THE WORLD”

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ABSTRACT

Remote sensing of the Earth is a mature, proven technology with important world-wide applications. These include: agriculture and food security; energy, pipelines, oil and gas; forestry; water resources; climate change; and natural resources management, as well as in remote, harsh and inaccessible areas such as polar regions with high environmental and cultural sensitivities and new economic prospects. NorthStar will be a constellation of advanced satellites that includes Earth Observation (EO) and Space Situational Awareness (SSA) modules for extracting actionable information for its global client base. NorthStar’s Space Segment will be comprised of 40 low-Earth orbit (LEO) satellites in the several hundred-kilogram class, currently designated as a near-polar (86.4° inclination) Walker configuration of four planes of 10 vehicles in circular orbits at 550 km altitude. Multispectral, contiguous detailed hyperspectral (VNIR,SWIR: 400-2500nm), and thermal infrared (TIR) sensors will provide imaging at high resolutions including during the extended darkness of polar winters (TIR). The large number of satellites coupled with converging polar-descending orbits at high latitudes results in unprecedented coverage and revisit rates. In addition to these hardware, orbital and system advances, a key element of NorthStar will be its image and data processing modules. This represents the next step in global information data mining that reduces/eliminates the gap between EO and client requirements, all based on NorthStar’s advanced systems integration and geospatial analytics capacity. Further, through our world-wide Applications for Global Innovation and Leadership (AGILE) Centres, organizations will collaborate with NorthStar, access data, perform post-processing, and create client-based information products. Collectively, NorthStar will be a powerful EO system unlike any other, launched or contemplated. The NorthStar enterprise has put in place the concept, strategy and team to generate the most comprehensive and timely EO information products that will be needed for assessing the state of the planet for many decades to come.


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