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INTEGRATED GROUND SEGMENT FOR GREENHOUSE GAS EMISSIONS MONITORING
CONSTELLATION

Abstract

Four years ago, GHGSat and KSAT started conversations for a potential collaboration on ground segment services for their initial satellites to augment existing capabilities and prepare for constellation growth. GHGSat, headquartered in Montreal, Canada, provides actionable greenhouse gas emissions data and insights using satellite and aircraft sensors. KSAT, a world leader in providing ground station services, has expanded its service offering to include satellite operations from the newly established Tromsø Spacecraft Operations Centre in Norway. On the 24th of February of 2023, Amund Nylund - Chief Operating Officer - sent KSAT's first ever command to a GHGSat satellite. In-depth training on the satellite platform and ground software, integration with Application Programming Interfaces (APIs), and a cross functional approach were key elements to the success of the joint mission. Today, KSAT provides a seamless integrated ground service to GHGSat including both ground station network support and satellite operations for the constellation in orbit.

In this paper, we review the collaboration and its evolution, hurdles encountered on the technical, contractual, and regulatory sides and lessons learned from both the space and ground segment owners. As KSAT grows its offering of integrated ground services and as GHGSat continues to expand their constellation, this paper will inspire and serve as reference for new and traditional space business on how full externalization of ground services is not only possible but can actually be an optimal solution technically and business wise.