

# Direct Tasking of VHR Optical Satellites

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## Abstract

From Single-Satellite to Constellation Planning and Operational Image Quality Assurance

This presentation provides an overview of past, present and near future optical high resolution satellites with local satellite tasking capabilities, data down-link and processing and how operational procedures ensure the highest possible image quality for end-users.

The year 1999 shifted the premises of remote sensing and gave way for new survey opportunities and commercial applications when Space Imaging, based in Thornton, Colorado, U.S., launched their satellite Ikonos. For the first time ever digitally acquired and processed imagery with a spatial ground cell size of one meter and below became commercially available.

Starting with Ikonos in 2003, European Space Imaging (EUSI) performs direct satellite tasking since 16 years. Since 2010, EUSI utilizes DigitalGlobe's (DG) constellation of various VHR optical satellites. From 2021 onward EUSI will be accessing the DG LEGION constellation of optical VHR satellites in polar and mid-latitude orbits. Beside the proven benefits of EUSI's local satellite tasking like fast feedback and reaction during collection planning, real-time weather integration and very detailed collection plan editing, constellation tasking additionally yields better collection through

- Higher repeat rates and improved site access
- Increased collection capacity
- Coordinated imagery collection

In a first part, the presentation provides a general overview of the company activities and the characteristics of the satellites used for various projects. After this introduction, the focus is set to the benefits of local tasking in combination with current constellation tasking. Using examples of real-life scenarios, information flows necessary for collection planning and production/delivery are illustrated, and how this integrates into ensuring highest image quality. The presentation's final part will address the newest developments regarding upcoming VHR satellite constellations with direct tasking capabilities and how they will improve access to timely satellite data specifically for emergencies.

**Keywords** - Operational quality control