MDA delivers a suite of information products that include Interferometric Synthetic Aperture Radar (InSAR) analysis to detect and measure surface movement, surface change detection, vegetation monitoring, and weather services.

**Surface Asset Monitoring**
MDA exploits the power of remote sensing satellites to provide mine operators with monitoring programs and accurate information that support operations.

Surface Asset Monitoring (SAM) using InSAR is a means of detecting millimetre-level changes in surface deformation that could represent safety and operational issues at the mine site, and areas surrounding the operations. InSAR is also valuable for monitoring Tailings Storage Facilities (TSF) to detect potentially unstable situations well in advance without risk to personnel or the environment.

MDA’s Life of Mine (LOM) suite of products and services include two industry-leading surface change solutions: A patented two-date change product and Persistent Change Monitoring (PCM™). Two-date change uses high-resolution imagery to evaluate changes that may have occurred over time. PCM™ is a multi-date 5 m or 30 m change product that eliminates most false positives. Together, these information products address site encroachment and cover change that can impact a mine or indicate concerns during its operational phase.

**Accurate Information**
InSAR accurately detects and measures surface movement at the millimetre-level and is an effective stand-alone or complementary monitoring solution to existing methods. It has been proven as a vital resource for managing and operating open pit and underground mines, and supporting tailings management and mine infrastructure health assessment and reporting.

Inaccurate or insufficient monitoring creates the potential to miss critical risk factors that, in turn, can result in losses due to temporary shutdown.

MDA InSAR-detected elevation change at a large open-pit mine operation. Areas in yellow, orange, and red visually indicate locations with the greatest amount of surface elevation change, providing intuitive information for response programs.
Cost-effective Strategy
InSAR delivers very large numbers of data points over broad areas, typically in the tens of thousands, for a single image product. More data points equates to greater accuracy of measurement across an entire operation and its surrounding environment. InSAR data coverage can reach up to 300 square kilometres, and with a data archive dating to 1995, generating products to analyze historical surface changes as well as current movement trends is fast and cost-effective.

The density of data contained in a single InSAR image product is very cost-effective when compared to acquiring a similar amount of information using traditional data collection methods, which still don’t yield the level of accuracy derived from using MDA’s routine InSAR monitoring products.

MDAs monitoring solutions deliver accurate millimetre-level measurements of surface change as shown in the image above. Red indicates movement and green is stable.

Global Operations
Coming to terms with a myriad of regulatory frameworks and environmental standards requires a common baseline of information on each operation, regardless of its location. InSAR monitoring enables regular, dependable information for multiple operations that can be used to support companies, as well as asset management, liability reduction, and risk mitigation.

Weather
MDA’s global weather forecasting service supports more than 400 business clients, providing short-term and long-term forecasts, as well as weather impact assessments that allow clients to plan in advance when weather may affect operations or transport of product or materials.

MDA can also provide cleaned historical weather data needed for operations and transportation planning, especially along severe weather prone transportation routes.

Weather products can be customized as needed. This example shows a long-term forecast for the start of the rainy season in Vichada, Colombia, and contains a discussion (at right) regarding the factors that could affect this forecast over time.

CUSTOMER SATISFACTION
For more than four decades, MDA has worked with its worldwide customer base to provide information solutions that leverage advanced technologies and improve business efficiency.