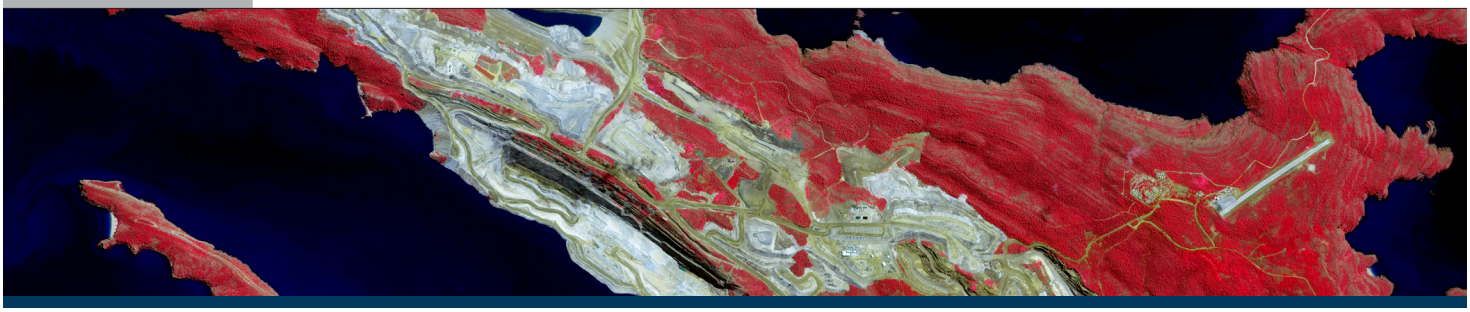
CASE STUDY

Product solution for: VALE Mining New Caledonia



DigitalGlobe 30 cm imagery monitors New Caledonia's largest mine

New Caledonia is a study of contrasts. On the one hand it has the richest biodiversity in the world with many unique plants and birds that can survive nowhere else. On the other hand, it is a treasure trove of natural resources, particularly nickel. In fact, New Caledonia is the world's fifth largest producer of nickel, accounting for nearly 10% of the country's GDP. This makes it both delicate and imperative to balance environmental protection with profitable nickel production.

Keeping tabs on mining waste

Vale is world's largest producer of nickel, a versatile metal found in everything from coins to mobile phones. Vale operates a number of mines in New Caledonia, including a site in the south of the Grande Terre, a region characterized by endemic vegetation and surrounded by UNESCO lagoon reserve zones. Committed to waste reduction, recovery and sustainability, Vale has been acquiring DigitalGlobe imagery since 2011 to monitor environmental changes surrounding the site over time.

"The Grande Terre site includes an open mine extraction site, a plant to extract the ore, a base camp, harbor and residue storage facility," explains Rémi Andreoli, head of space applications for DigitalGlobe information partner Bluecham SAS. "Since 2011 Vale has acquired 400 square kilometers of 50 cm imagery once each year and 5 m RapidEye imagery over their extended perimeters of 2,500 square kilometers twice a year."

Ramping up data collection

Home to the world's largest marine park and a number of protected UNESCO sites, Vale takes its commitment to sustainability in New Caledonia seriously. When DigitalGlobe made 30 cm imagery readily available with the launch of WorldView-3, Vale saw this as an opportunity to increase the scale and scope of its use of high-resolution satellite imagery.

"Vale uses the imagery to monitor changes to the endemic vegetation surrounding the site and as a base map to derive vegetation maps," Andreoli says. "In 2015 Vale saw the chance to increase the precision of its vegetation analysis as well as the opportunity to increase its overall scale and scope of satellite imagery usage with 30 cm data."

Company information

DigitalGlobe information partner Bluecham SAS is a science and engineering firm that specializes in data interfacing and integration, using real-time satellite data analysis. Bluecham SAS works with the University of Strasbourg and the France-based National Center for Spatial Studies to provide valuable information about various territories.

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VALE Mining New Caledonia

DigitalGlobe™

30 cm imagery increases data applications

First devoted to vegetation analysis, the acquisition of the 30 cm data received positive feedback from other divisions of Vale, including mining operations, planning, permitting, and hydrogeology that formerly did not deploy satellite data in their decision making.

Botanists and environmental services: Reports that details over tree crowns allows faster and better identification of species and reduces expensive field work.

Mining operations and planning: Reports that details over the open pit mine, now reaching 1:1100, is in full accordance with work plans and can be used to complement Vale's imagery acquired over small areas with high resolution.

Permitting: Buildings and infrastructures are now identified with a new level of detail that saves time to prepare reports and maps.

Hydrogeology: The scale of 1:1100 allows more precise details of water penetration to better monitor water retention basins and identify features that were previously unknown.

"The feedback from users across Vale has been extremely positive. The 30 cm data was readily accepted by end users across the organization, noting that the ratio, resolution, coverage and cost has no equivalent in the industry," Andreoli says.

Setting new standards

The availability of 30 cm imagery further cements the long term relationship between Vale and DigitalGlobe partner Bluecham SAS. The imagery presents Vale the opportunity to further refine its asset monitoring and control costs.

INDUSTRY

» Mining

USES

» Monitoring
» Change detection
» Mapping

PRODUCTS USED

» 30 cm Imagery

"Vale first selected DigitalGlobe imagery in 2011 because it provided them the most accurate data with the highest confidence in radiometry and resolution at a cost dramatically lower than aerial imagery. Today with 30 cm imagery, Vale sees Bluecham and DigitalGlobe as partners they can rely on well into the future to provide the tools and solutions they need to measure and minimize the impact of their operations on the surrounding environment."

RÉMI ANDREOLI, HEAD OF SPACE APPLICATIONS, BLUECHAM SAS

Challenge	Provide mining giant Vale the ability to continuously monitor the impact of its large nickel mining operation in the environmentally sensitive Grande Terre region of New Caledonia.
Solution	Relying on DigitalGlobe 50 cm imagery since 2011, Vale recently deployed DigitalGlobe 30 cm imagery to further refine and expand the use of satellite data to more precisely monitor mining operations.
Results	From botany, to planning, permitting and hydrogeology, Vale is setting new standards in measuring and minimizing the impact of their operations while controlling costs.

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