



## DigitalGlobe Imagery Tracks Environmental Impact of Mine

Located in the southwest Pacific Ocean, New Caledonia is widely known for its rich biodiversity. Its rare landforms and micro-climates make it home to a variety of one-of-a-kind botanical species that are unique to the island. New Caledonia is also the world's fifth largest producer of nickel, a valuable mineral extracted primarily by environmentally hazardous strip mining techniques.

### The impact of nickel mining

Accounting for nearly 10 percent of the country's GDP and representing over 90 percent of its exports, the mining of nickel is crucial to the New Caledonian economy. But nickel mining has had an adverse impact on the country's fragile environment, resulting in a significant loss of wetlands and the choking of rivers and streams from the waste and sediment produced by the mines. Thio, a rural region that covers 1,000 square kilometers and is home to four villages with just over 3,000 inhabitants, is experiencing the impact.

"Thio's economy is almost exclusively dependent on nickel mining," says Rémi Andreoli, head of space applications for DigitalGlobe information partner Bluecham SAS. "The Thio Town Council approached us for a solution to track the environmental impact of the open air nickel mine that spans a number of mountaintops just outside the town center."

### WorldView-2 imagery procured

High-resolution satellite imagery was the ideal solution to monitor the status of mine waste discharges and sediment patches damaging the Thio River, as well as to identify areas prone to natural landslides and erosion. Bluecham SAS provided the Town Council with WorldView-2 imagery and analysis services for the task.

"WorldView-2 provides several distinct advantages in this environment," Andreoli explains. "The high resolution imagery is able to both identify underwater sediment banks in the Thio River and all its small creeks and tributaries, as well locate areas where mountain slides have taken place or could be prone to future slides."

### Company information

Working in concert with the University of Strasbourg and the France-based National Center for Spatial Studies, DigitalGlobe information partner Bluecham SAS is a science and engineering firm specializing in making knowledge related to a territory through data interfacing and integration using real-time satellite data analysis.



[www.bluecham.net](http://www.bluecham.net)

## Tracking change over time

WorldView-2 high-resolution imagery of the region was captured in January 2013. Bluecham then processed and analyzed the imagery and compared it against historical images provided by the Topographic Mapping Service of New Caledonia.

“The first task was to monitor the Thio River just north of the city center to determine if discharges were going down river and through the town,” Andreoli says. “The next area of interest is mountain slides. With WorldView-2 we were able to identify about 50 slides that have the potential to cause danger and cross main roadways. Without high-resolution satellite imagery those areas would be very difficult to locate.”

## An environmental plan for the future

With fresh data in hand, the Town Council plans to work with the mining company and government officials to execute a broad study of the region and put a plan in place to mitigate the environmental impact of the mine.

*“With ready access to satellite imagery, the Town Council now has the ability to receive regular updates of the status of the Thio River discharges and sediment patches that are endangering populated areas along the river, as well as areas experiencing natural landslides and erosion. Today, the Council is in discussions to create a much larger study of the region and work directly with the mining company to put long-term protection plans in place to preserve the natural environment and populations.”*

RÉMI ANDREOLI, HEAD OF SPACE APPLICATIONS FOR BLUECHAM SAS

### INDUSTRIES

- » Utilities
- » Environmental Services
- » Government

### USES

- » Mapping
- » Cadastral
- » Elevation Data
- » Water Mapping
- » Water Pipeline Network Design

### Challenge

Provide the Thio Town Counsel, the local government body, the ability to continuously monitor the environmental impact of a large nickel strip mining operation in the mountain tops just outside the community.

### Solution

WorldView-2 imagery proved to be the ideal tool with the ability to identify both underwater sediment patches and mountainsides that have experienced potentially dangerous landslides.

### Results

With current data detailing river sediment patches, natural landslides and erosion, the Thio Town Counsel is working with Bluecham SAS to create a long-term solution to mitigate the mine’s environmental impact.

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