

Integration of Panoramic High Resolution Images with Slope Monitoring Radar Data

Two Eagle-Vision Cameras were commissioned and integrated with the IBIS-FM Slope Monitoring radar systems at the Ok Tedi Mine in Papua New Guinea in November 2014.

High resolution visual information is correlated with radar data in support of geotechnical investigations.



Ok Tedi mine is a copper and gold mine located in the Western Province of Papua New Guinea, near the headwaters of the Ok Tedi River.

Two IBIS-FM radars in Full Pit Monitoring configuration (FPM360) were deployed to monitor the walls of the entire mine. The two IBIS systems are installed in fixed positions on opposite sides of the pit, east and west.

The full pit FPM360 Radar configuration is complimented by two Eagle-Vision Cameras. This unique high resolution addition provides high quality images, panoramic coverage and photo-geocoding capability in harsh mining environments.

The two cameras were installed adjacent to each of the IBIS-FM radars, at a distance of approximately 1500 m from the monitored slopes. Pan and tilt capability enables Eagle-Vision to capture panoramic images of the entire pit whilst powerful zoom stitch functionality enables the user to focus on bench scale images at distances exceeding 1500 m.

The Eagle-Vision Camera is fully integrated into IBIS Radar analysis software, providing panoramic images of mine walls that can be navigated across and directly cross referenced to the Digital Terrain Model of the mine.

Panoramic images of the entire scanned scenario are used as a visual reference for full situation awareness and for comparison with radar data, especially useful in the event of rapid displacement events.

Thanks to its high resolution capability, the Eagle-Vision Camera plays a key role in identifying and tracking movements in critical areas at Ok Tedi mine.

Fig. 1 shows an example of how the Eagle-Vision Camera can be used as a powerful tool to support the monitoring activity of the mine's west wall. Real-time visual information provides evidence of the evolution of displacement as in the active chasm (zoom in fig. 2).

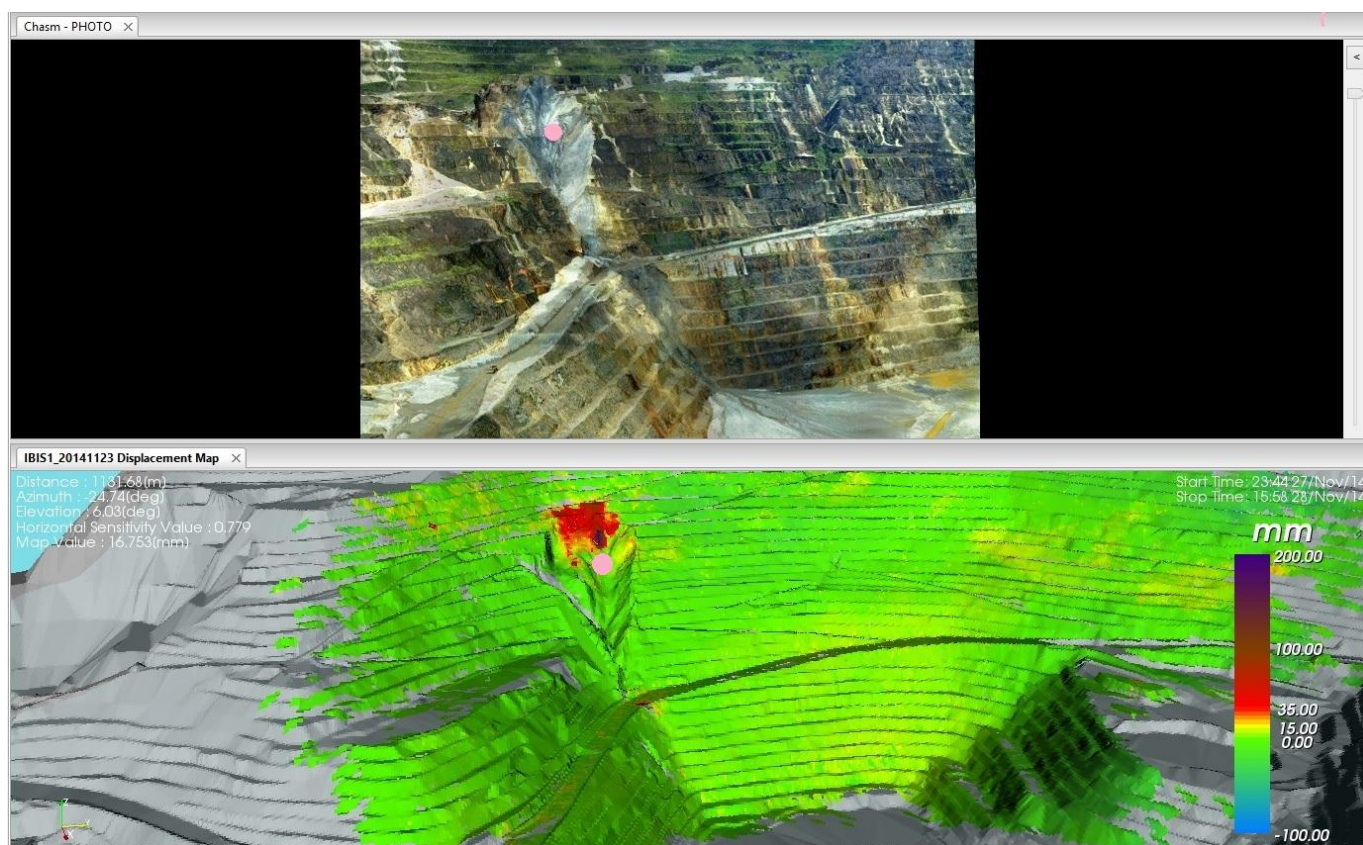


Fig. 1. Visual information from the Eagle-Vision Camera directly linked to the IBIS's displacement map, Ok Tedi Mine.

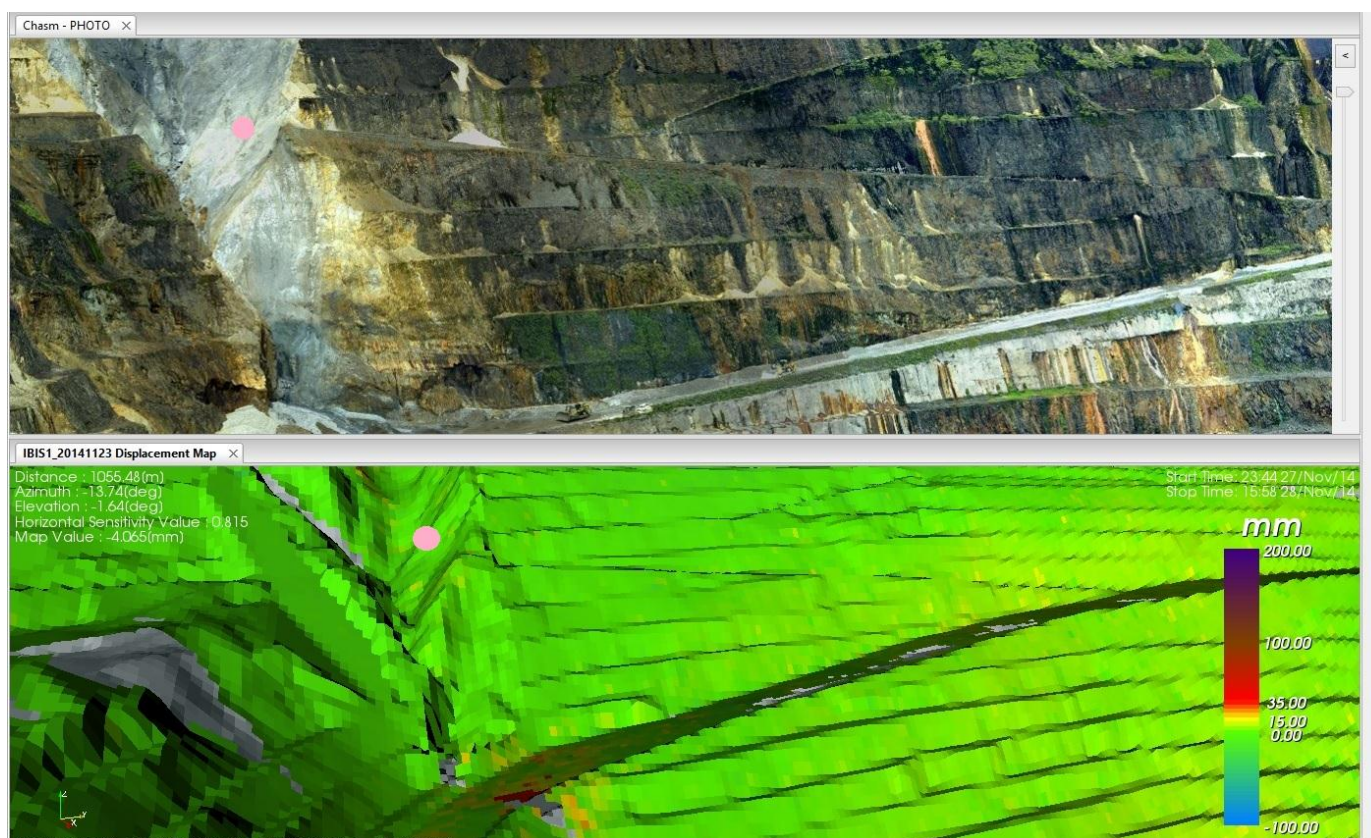


Fig. 2. Zoom stitch image of a selected area from Fig.1