

Part 3: Jabiluka

Monitoring sediment movement in Ngarradj

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Background

During the 2007–08 wet season, continuous rainfall, runoff and turbidity data were collected from JSC, the gauging station located downstream of Jabiluka within the Ngarradj catchment. Baseline suspended sediment and hydrology data have now been monitored at this site over a 10 year period. Data collection at two stations upstream of Jabiluka (ET and UM) ceased after the 2006–07 wet season. The locations of all three monitoring stations are shown in Figure 1.

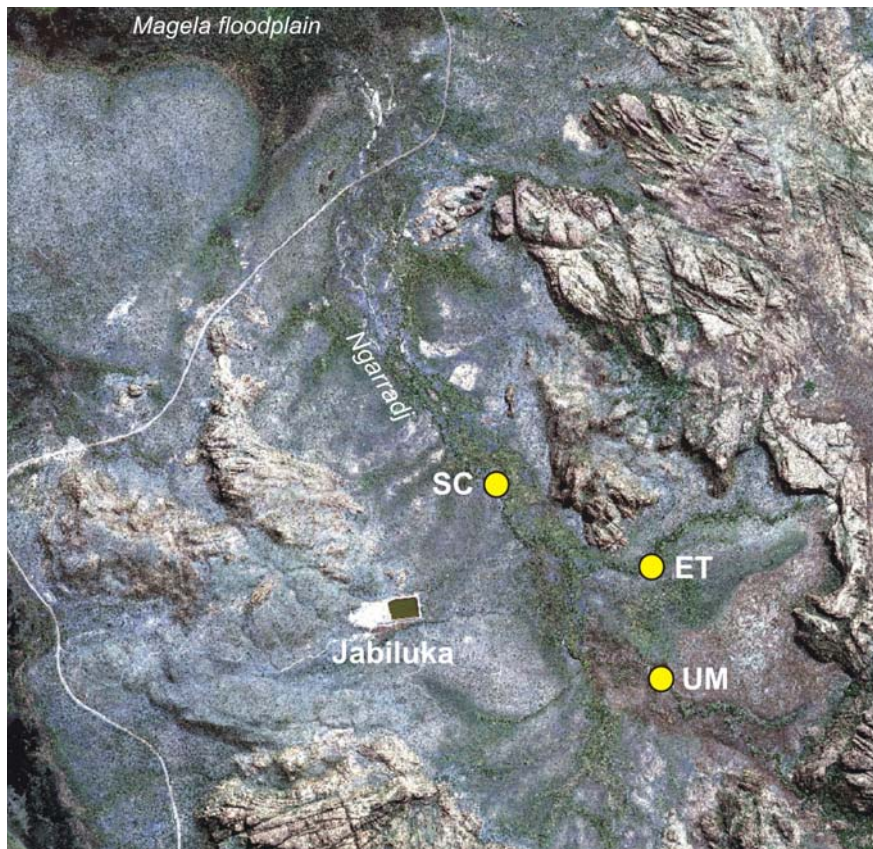


Figure 1 Location of the monitoring stations along Ngarradj

The fine suspended sediment (FSS) data, measured indirectly from turbidity, and hydrology data collected from the site will be used to derive indicators for minesite impact in the event that the Jabiluka project proceeds. The FSS data collected since the 2006–07 wet season will be especially important in the context of Cyclone Monica, which occurred in April 2006. In particular, comparison between the suspended sediment load data collected before and after this event to indicate whether there has been a change in ‘pre-mining’ sediment transport characteristics as a result of this catchment wide impact.

Progress

As discussed in the ARRTC 20 meeting paper for this project, an extraordinary rainfall event occurred over a 3-day period between 27 February and 2 March 2007, which resulted in the highest flood levels recorded within the Ngarradj catchment since 1998. Equipment at the downstream station was submerged by floodwaters, resulting in damage to equipment and data loss during the peak and subsequent recession of the flood. Consequently, the instrument platform at SC was elevated late in the 2007 Dry season at least 1 m above the peak water level height recorded during the March 2007 flood. Similar to that at the Gulungul Creek stations (see companion paper under this KKN – ‘Development of catchment geomorphic characteristics of Gulungul Creek – gauging station upgrades’), the station was equipped with the same new type of datalogger. However, remote dial in access was not possible at this site since it is outside the coverage of the mobile phone network.

Data collected at SC during the 2007–08 wet season has not yet been analysed. It is planned that event FSS load data collected during the 2007–08 wet season will be plotted against the relationship between mud load and discharge characteristics derived from previous years data (Moliere & Evans 2008) to assess the sediment load characteristics for that season.

References

Moliere D & Evans KG 2008. Using trigger levels to assess mining-related impacts on stream mud loads in the wet-dry tropics of northern Australia. *Hydrological Processes* in review.

