



Gully and channel erosion dynamics - a medium term assessment for an undisturbed catchment in Northern Australia

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Understanding dynamic landscape features such as gullying is an important issue in the long-term evolution of both natural, agricultural and rehabilitated (i.e. post-mining) landscapes. Much research has been undertaken examining the initiation, movement and overall dynamics of such features. This study reports on a series of gully heads and other erosion features such as scour holes located in channels over a five year period (2002-2007) in a catchment largely undisturbed by European activity in the Northern Territory, Australia. The area has a tropical monsoonal climate and is subject to high intensity rainfall events during the wet season. The 2006-2007 wet season was the largest rainfall season on record with some storms having return periods of 1:500 to 1:1000 years. During this period the erosion features were monitored for their headward advance/retreat, enlargement or in-filling. Hillslope erosion was also monitored. The catchment was subject to a range of rainfall regimes and was burnt on an almost annual basis so that all grass cover was removed. The results of this monitoring show that the erosion features have changed little during this period. They appear to be resilient landscape features. Depth change of the monitored erosion features appears to be related to hillslope erosion and deposition indicating a strong hillslope-channel coupling.