

Application of Remote Sensing and GIS Technologies in Flood Monitoring and Warning Systems for Northern Australia: A Review.

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Although there are ongoing and expanding economic development in Northern Australia, including natural resources, agriculture and tourism with associated dependency on transport infrastructure, significant areas in this part of Australia have little to no surface based hydrological and meteorological data to provide the information needed in real or near real-time flood assessment, monitoring and mitigation. Regional centres and remote homesteads and communities in this region may be isolated for days to several weeks each year as water levels rise as a results of the intense monsoon lows and tropical cyclones during the wet season. Engendering a collective commitment within the context of multidisciplinary collaborative research, multi-sector planning and community participation is viewed as fundamental in addressing the many factors of flood risk reduction including emergency management response. These relationships and strategies of engagement will also ensure or at least facilitate the incorporation of local needs, capacities, cultural perceptions and traditional knowledge in local, regional and national initiatives.

An NDMP project *Remote Sensing Technologies in an Emergency Risk Management Approach to Flooding in Northern Australia through Inter-Organisational Collaboration* seeks to mitigate the impact of floods on these communities and industries by providing tools that integrate existing meteorological, hydrological and geospatial information with remote sensing data and GIS technologies to provide timely flood intelligence and forecasting capabilities. The intent of the project is to seek out the very best of “*what is*” in terms of the application of remote sensing and GIS knowledge and expertise with respect to flood monitoring and warning systems, to help ignite the collective imagination of “*what could be*”. This article is a review of the outcomes of this networking and collaborative relationships and the inherent value of satellite remote sensing approach during recent flooding of the Murchison River and Gascoyne Rivers in Western Australia during March 2006. The subtleties and complexities of strategies of engagement into disaster risk reduction using remote sensing are also explored in the article, both as a governance framework and to develop collaborative thought and coordinated action.