Geophysical Research Abstracts
Vol. 14, EGU2012-1334-2, 2012
EGU General Assembly 2012

Queensland 2010-2011: A Summer of Extremes

J. Maroulis

Australian Centre for Sustainable Catchments and Faculty of Education, University of Southern Queensland, Toowoomba, Australia (maroulis@usq.edu.au)

"I love a sunburnt country,
A land of sweeping plains,
Of ragged mountain ranges,
Of droughts and flooding rains.
I love her far horizons,
I love her jewel-sea,
Her beauty and her terror,
The wide brown land for me."
(Dorothea Mackellar OBE, 1885-1968).

This second stanza from Mackellar's famous poem "My Country", beautifully sums up the Australian environment. In late 2010-early 2011, the "droughts and flooding rains" were the perfect terms to describe the climatic variability and the resulting flooding impacts experienced in many parts of Queensland under an enhanced La Niña as part of the ENSO (El Niño-Southern Oscillation) climate pattern, with over 75% of Queensland being declared a disaster zone. This contrasts with the severe drought that had gripped many parts of Australia over the previous 8 years which saw water storage levels plummet, and resulted in 35% of Queensland being 'drought declared' as at April 2010.

On the Darling Downs in southern Queensland, over 100,000 ha of land was inundated by the Condamine River due to flooding in early 2011. The river which is generally <100 m wide was seven kilometres wide at the widest point during the floods. However, the erosive impacts of the floods on largely tilled floodplains was relatively low with most erosion confined to the bed and banks of the river. In Grantham, where 13 lives were lost, flooding was especially hazardous because of the combined depth and velocity of floodwaters and the rapid rise of floodwaters across the floodplain. Floodwaters were $\sim$2.0-2.5 m deep across the northern parts of the floodplain with a maximum velocity of $\sim$2-3 m/s. The rate of rise was estimated at $\sim$12 m/hour, indicating that it would have taken only 10-15 minutes to rise to full depth.

However, despite detailed river and flood gauging in the more urbanised catchments such as the Brisbane River valley, this is by far the exception rather than the rule throughout mainland Australia. The Queensland floods highlight the pressing and urgent need for an accurate and more intensive network of river gauging and sediment monitoring. In a country of "droughts and flooding rains" and in the face of climate change, this need is now imperative.