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The Nothal Jurassic record as preserved in sequences of Zealandia

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In the Nothal Southern Hemisphere (opposite of Boreal), New Zealand and New Caledonia may be regarded as the largest emergent land areas within the largely submerged 'continent' of Zealandia [1, 2, 3, 4]. Fossil-bearing Jurassic sedimentary sequences are known from a number of accretionary basement terranes that formed along the eastern margin of Gondwana prior to Cretaceous-Paleogene rifting of Zealandia from Gondwana. Crustal extension associated with this long-lived rifting event is considered responsible for the formation of the Tasman Sea floor (oceanic crust, 83-53 Ma) as well as the substantial thinning and submergence of Zealandia.

The Murihiku Terrane of New Zealand is especially notable for its well-documented, well-preserved marine record [5, 6]. It offers considerable potential for age correlation with terrestrial Jurassic sequences from elsewhere in Nothal Gondwana, and especially Australia, because of its associated palynomorph record and primary volcanic ash (tuff) content [7, 8].

New Zealand Murihiku Terrane Jurassic sequences also offer potential for new research on both the Triassic-Jurassic and Jurassic-Cretaceous boundaries.

References:

[1] Luyendyk BP (1995) Geology 23: 373-376
[2] Mortimer N (2008) Arizona Geological Society Digest 22: 1-7
[3] Campbell HJ et al (2012) Episodes 35: 51-71
[4] Mortimer N & Campbell HJ (2014) Zealandia: our continent revealed Penguin Publishers 1-280
[5] Grant-Mackie JA et al (2000) Memoirs of the Association of Australasian Paleontologists 23: 311-154
[6] Campbell HJ & Raine JI (2004) Institute of Geological & Nuclear Sciences Monograph 22: 89-102
[7] Raine JI et al (2015) New Zealand Journal of Geology & Geophysics
[8] Mortimer N et al (2014) New Zealand Journal of Geology & Geophysics