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Corals: Past & Future

James Falter, Malcolm McCulloch

ARC Centre of Excellence for Coral Reef Studies

The Oceans Institute at UWA

This project is funded by the Gorgon Barrow Island Net Conservation Benefits Fund, which is administered by the WA Department of Parks and Wildlife.

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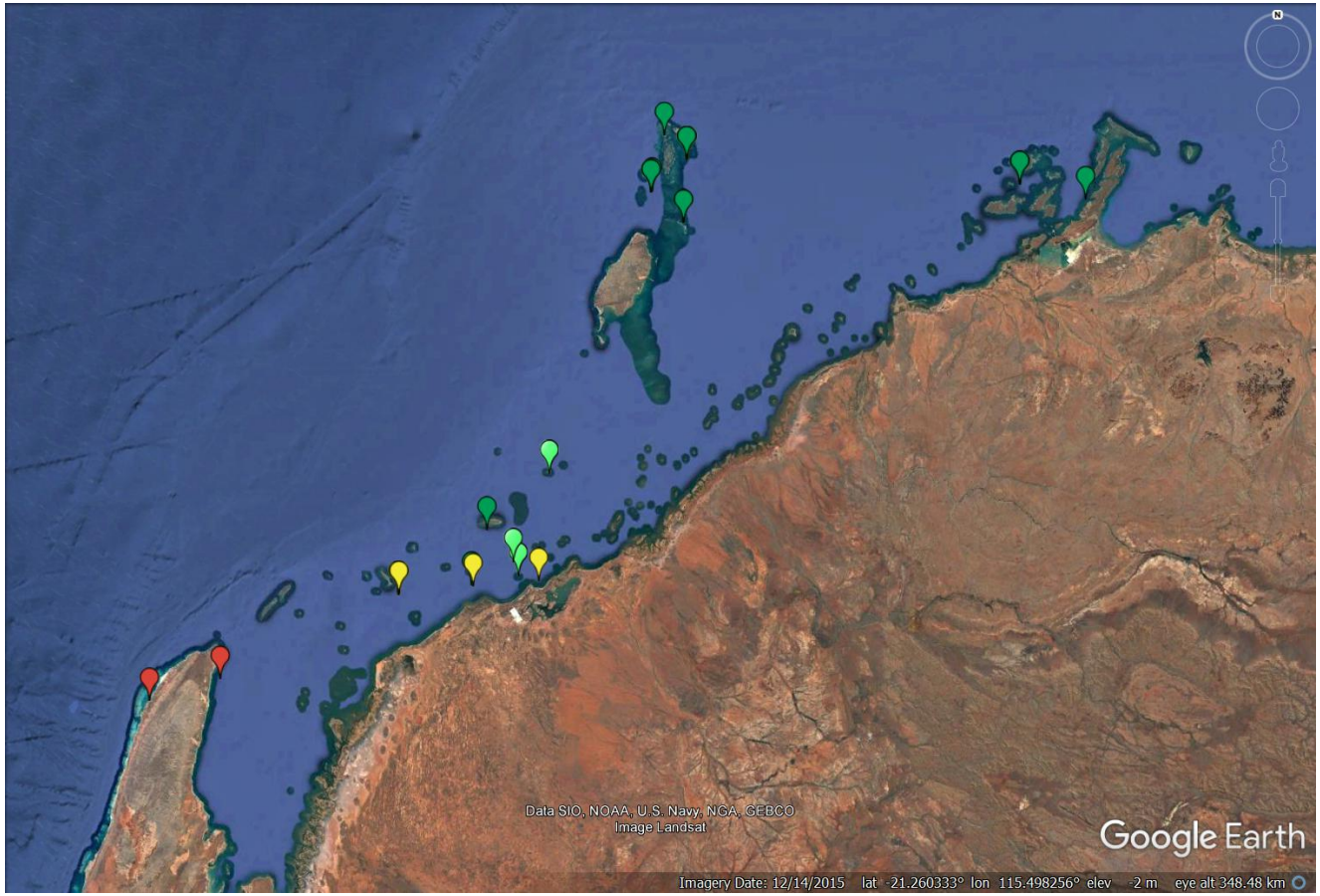
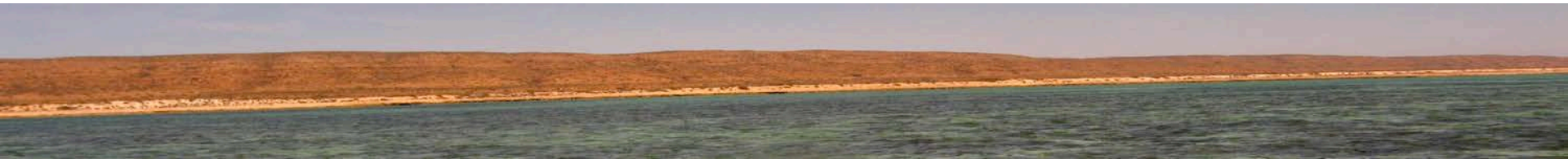
Pilbara & Ningaloo





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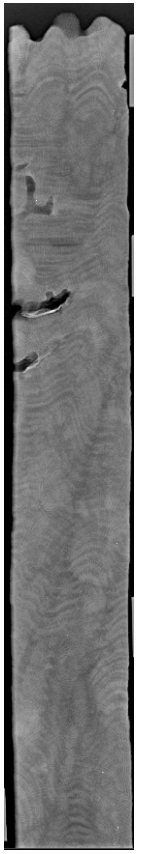
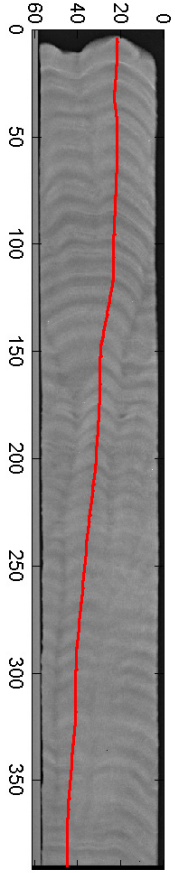
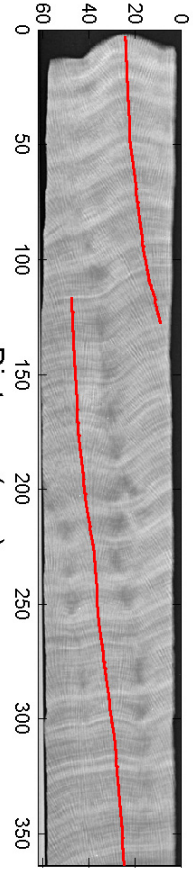
The Great, the Good, and the Ugly



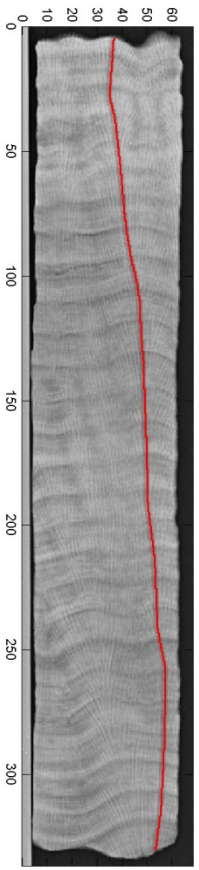
THV14-01→UGLY



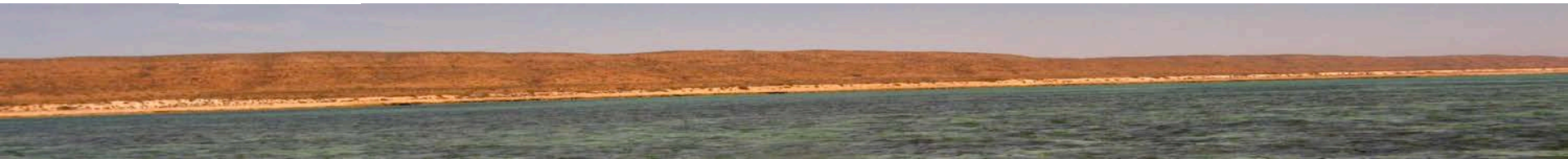
MONT14-08→ GOOD



MONT14-02→ GOOD



TNT13-01 → GREAT



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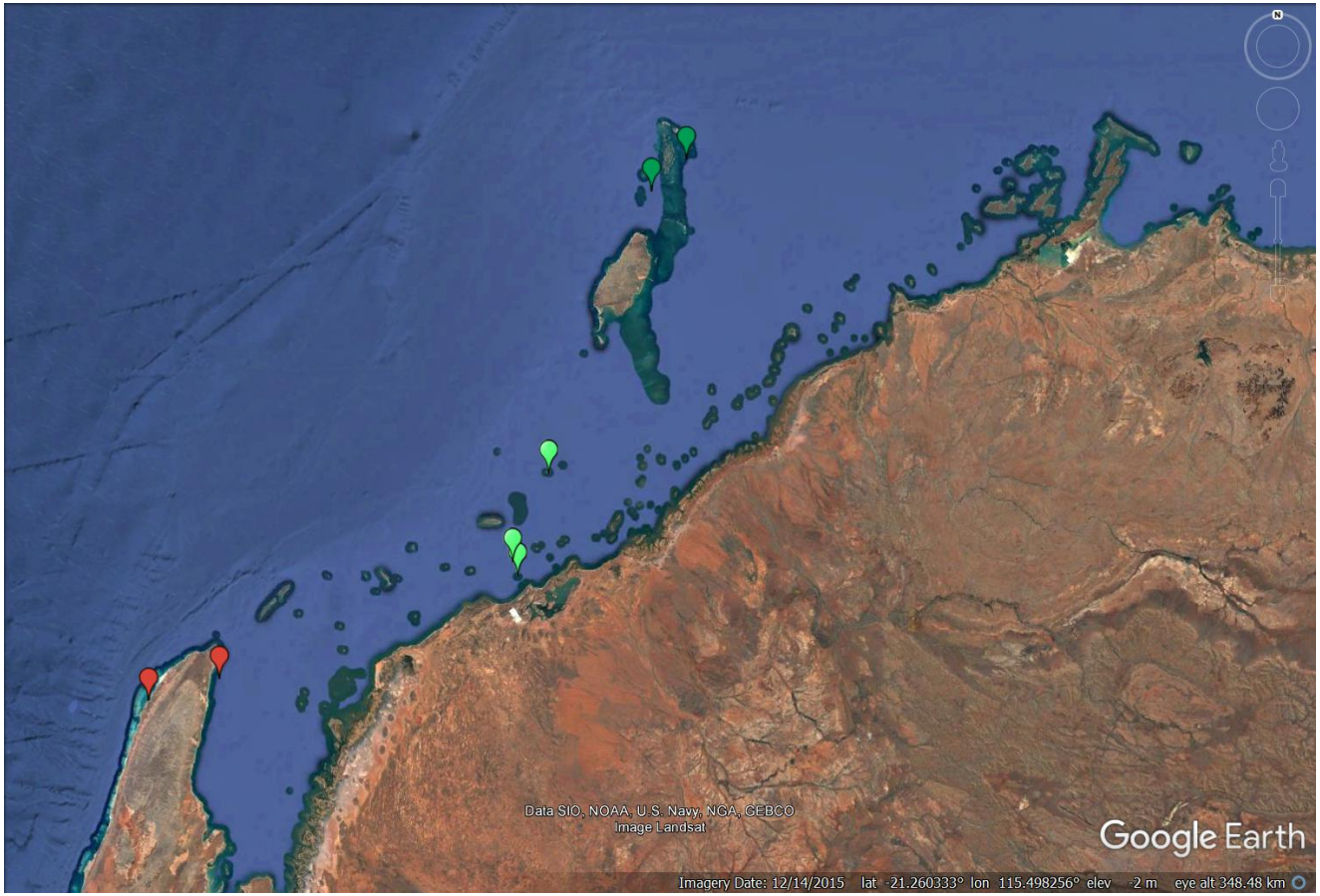

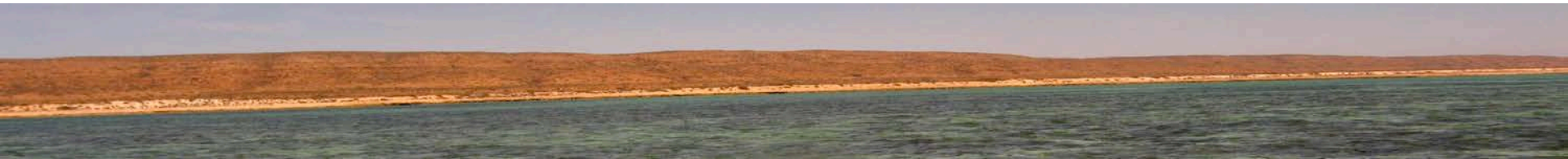

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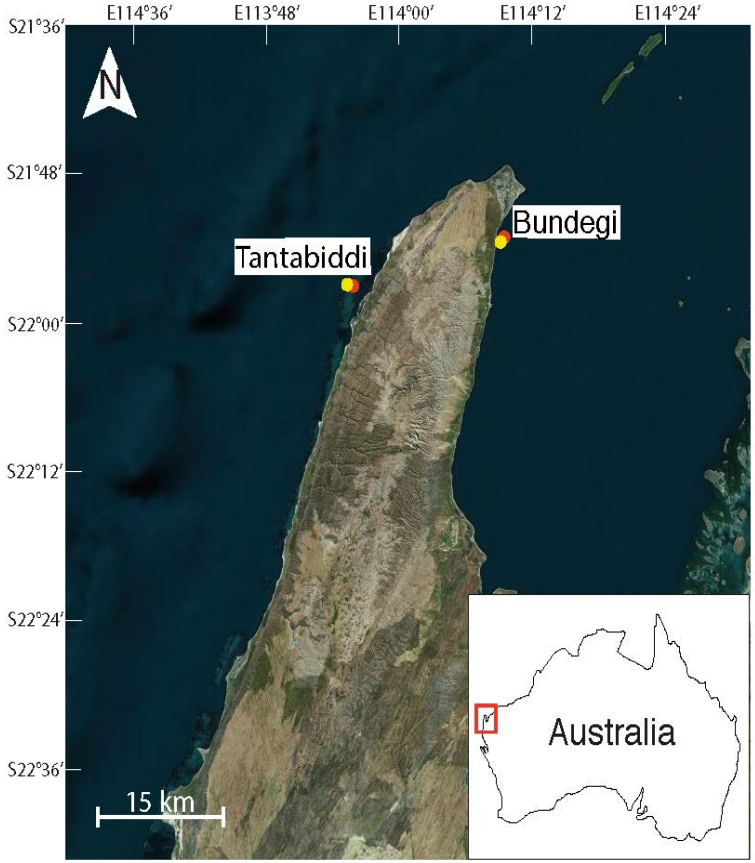
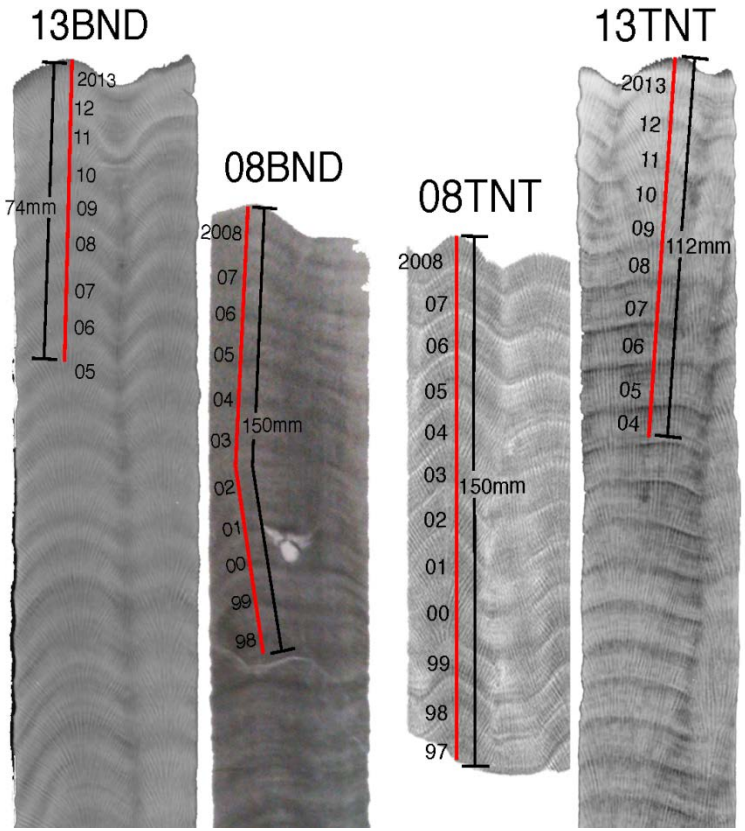
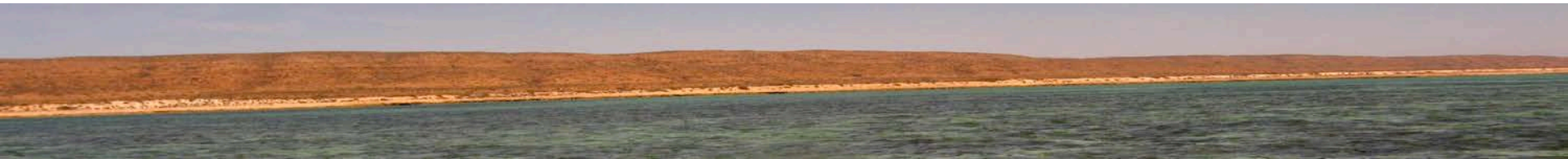
Differential response of corals to anomalous ocean warming as evident from skeletal Sr/Ca and Mg/Ca ratios

Harry Clarke[1,2], Juan Pablo D'Olivo[1,2], James Falter[1,2], Jens Zinke[3], Ryan Lowe[1,2] and Malcolm McCulloch[1,2]

(In)Effects of 2010-2011 heat wave







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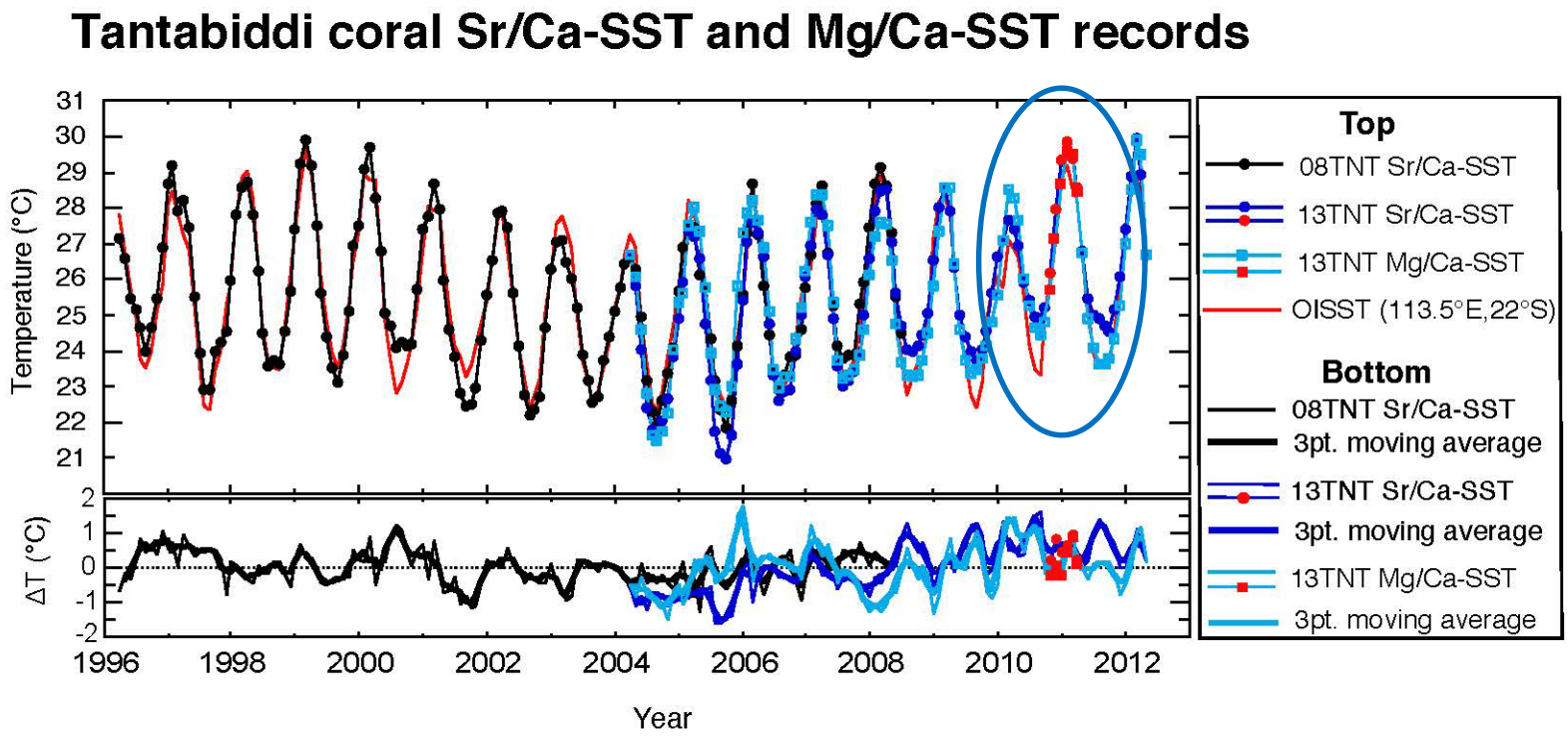
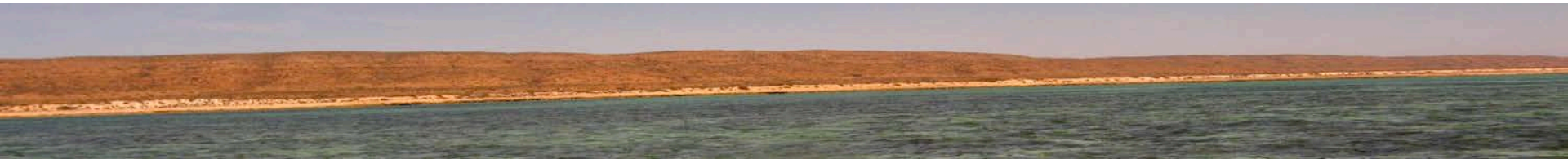
Little impact at Tantabiddi





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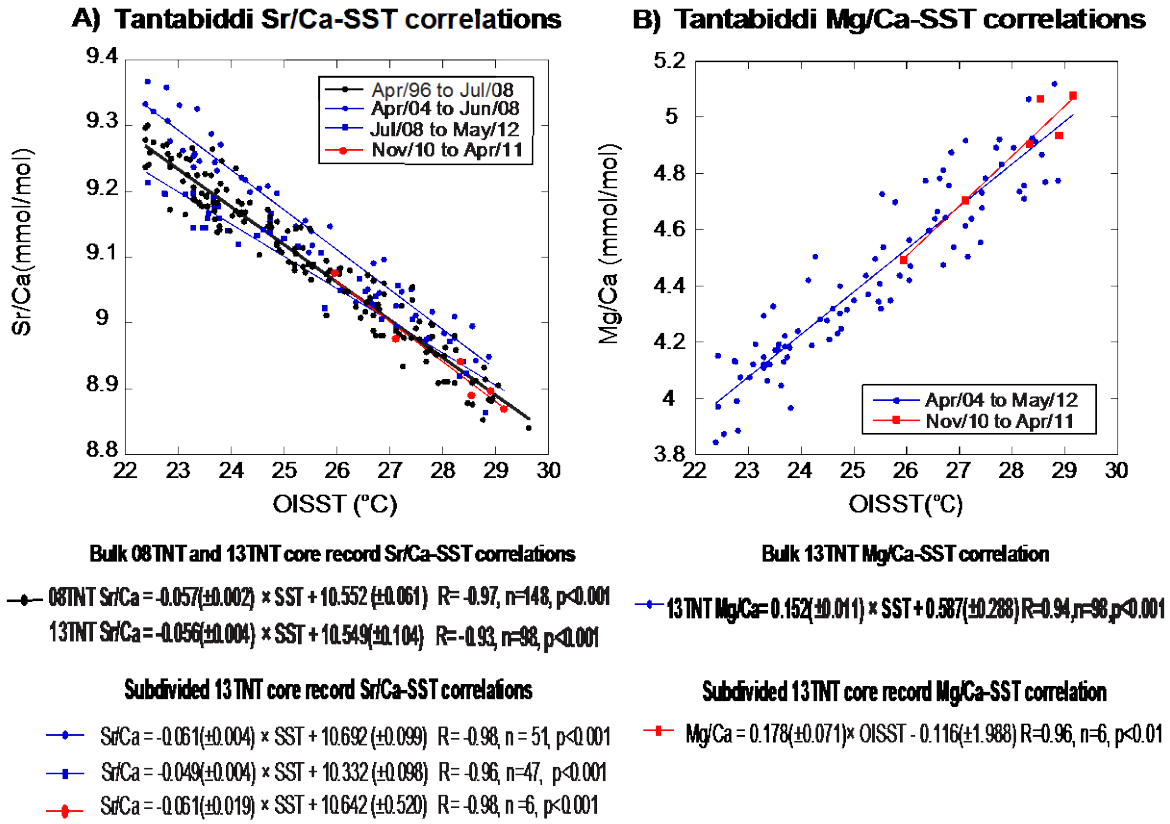

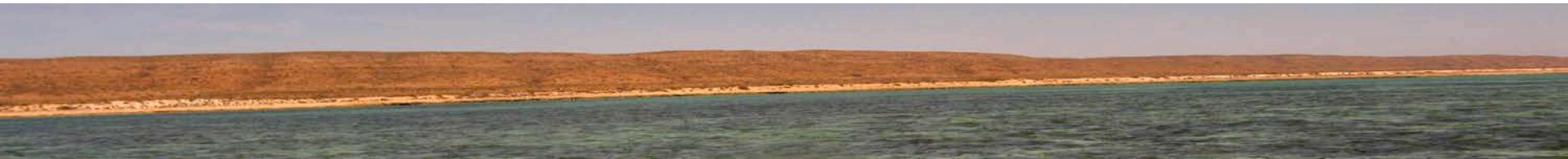

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Trace elements show Bundegi felt the heat

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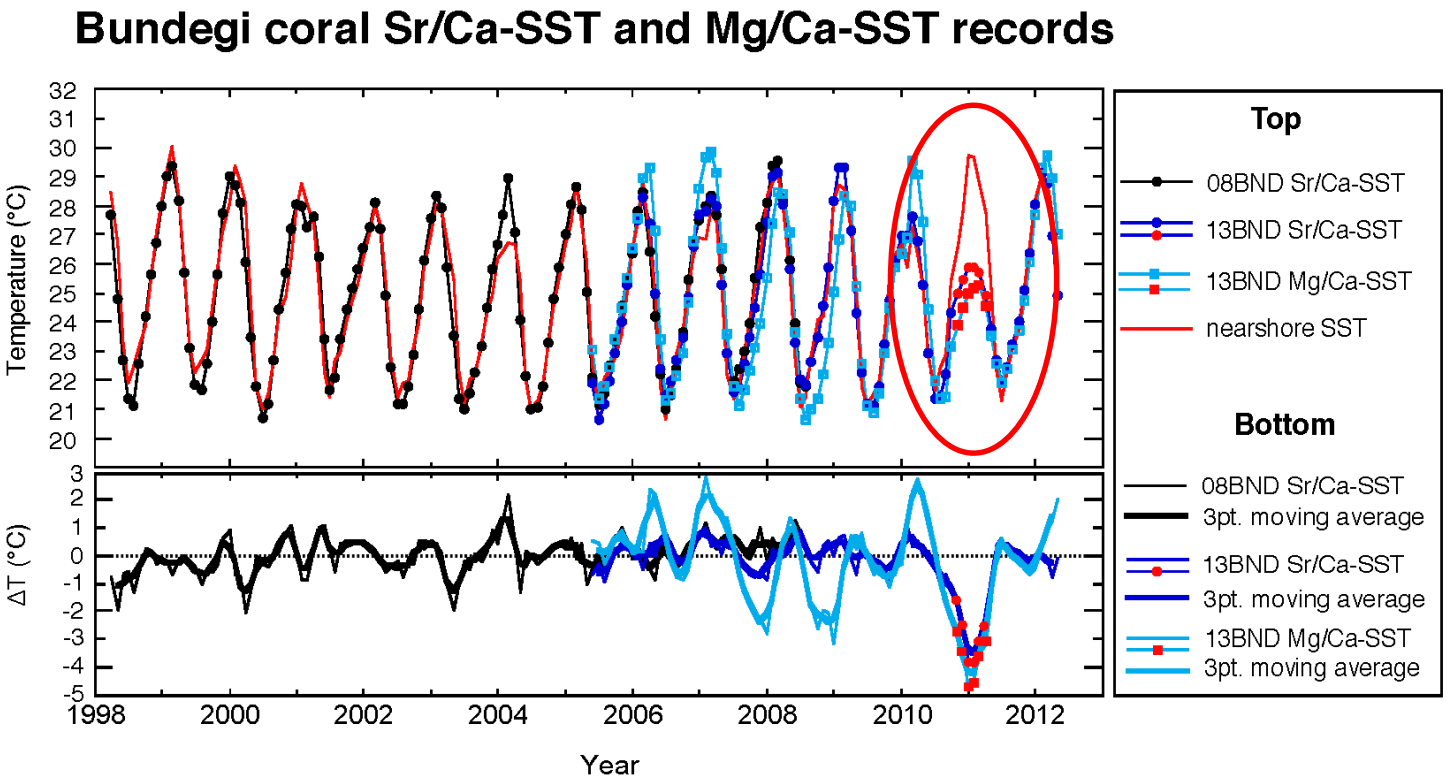

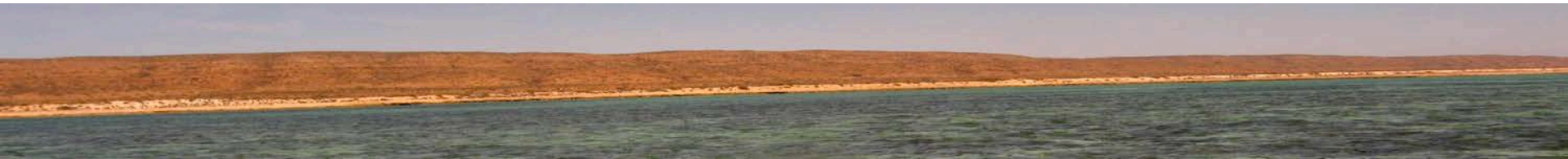

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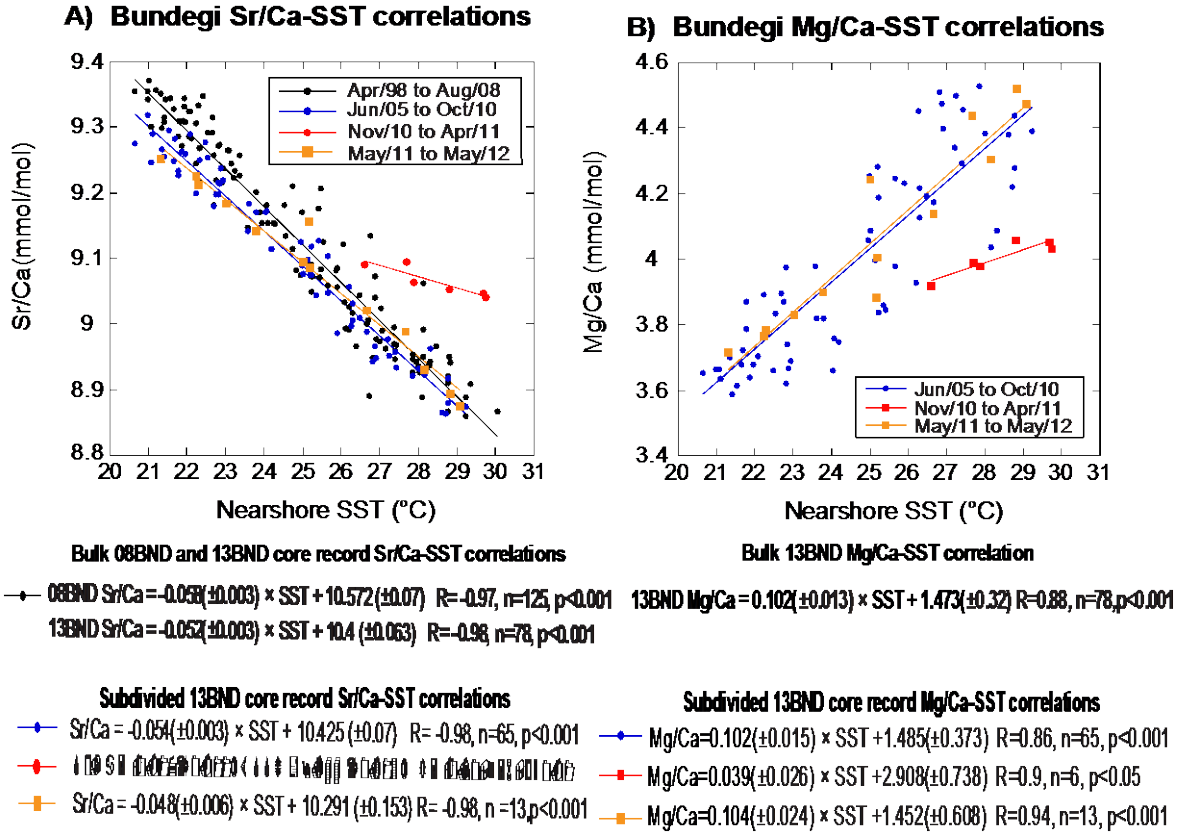
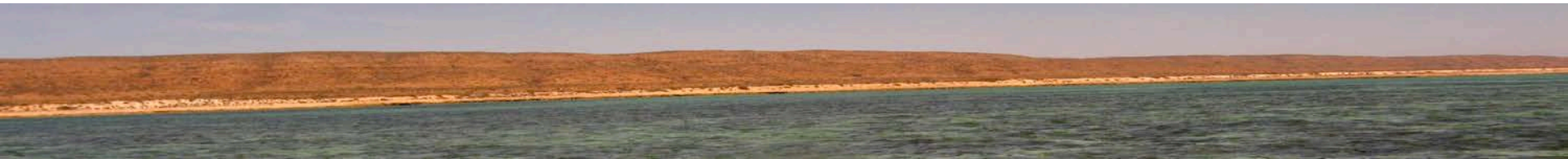
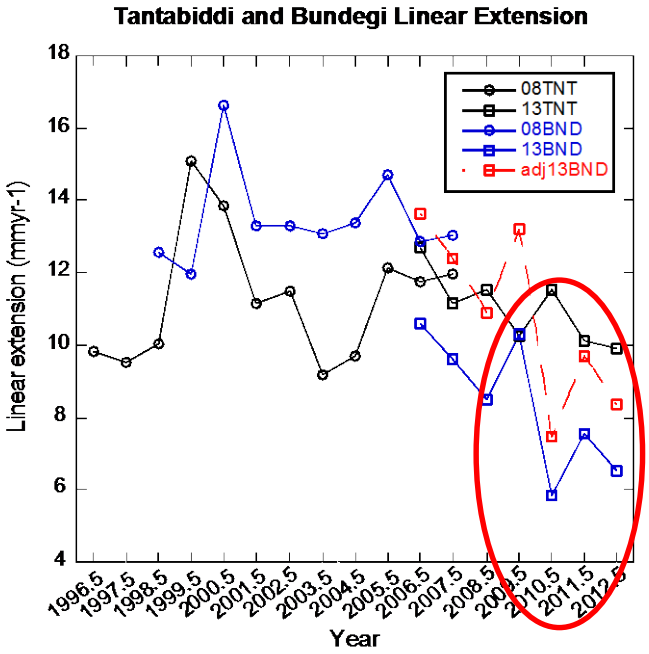
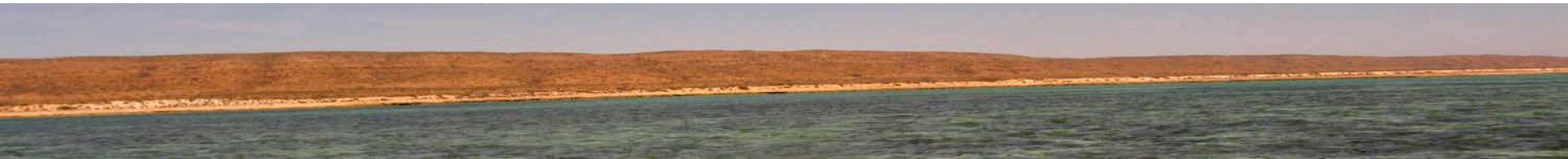


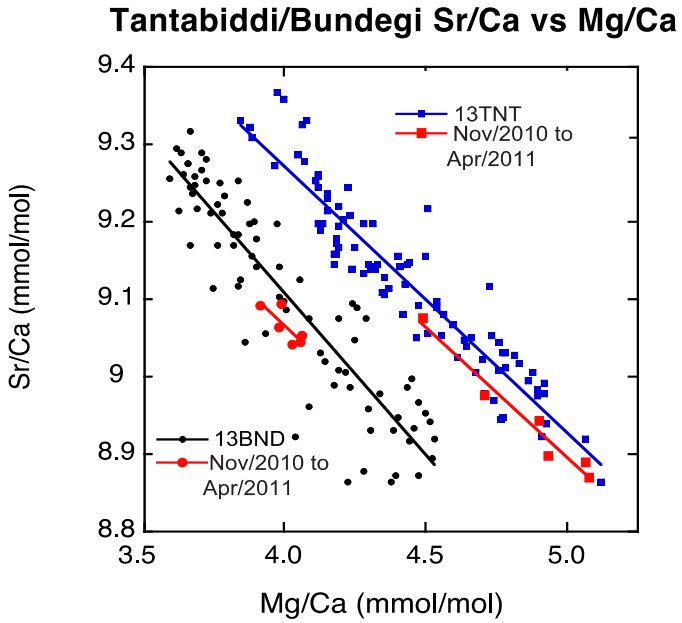


Slowdown in coral growth at Bundegi





Symmetric disruption suggests physiological breakdown in coral calcification

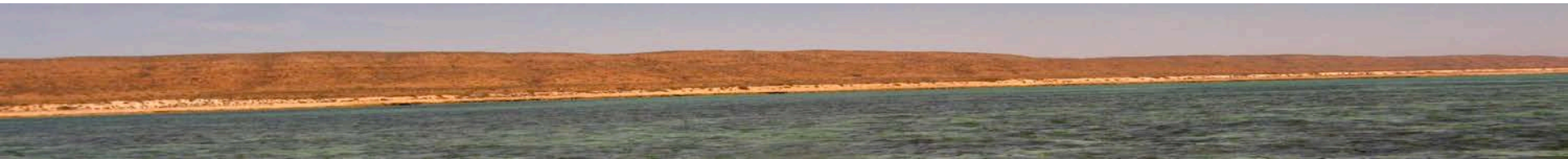


13BND Sr/Ca= -0.417(±0.043) * (Mg/Ca) + 10.774 (±0.171) R=-.91, n=84, p<0.001

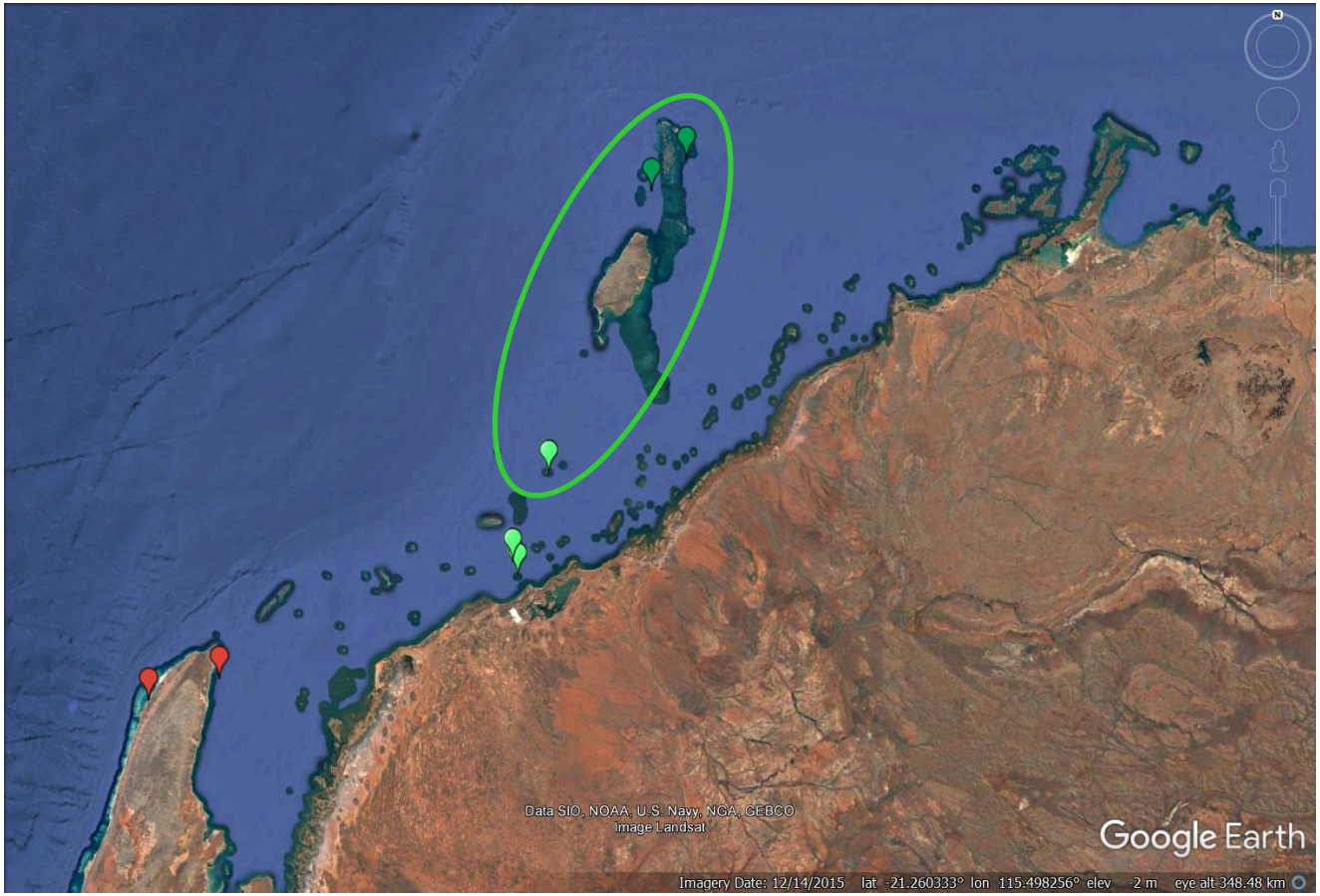
13BND Sr/Ca= -0.348(±0.359) * (Mg/Ca) + 10.461 (±1.437) R=-.80, n=6, p>0.05

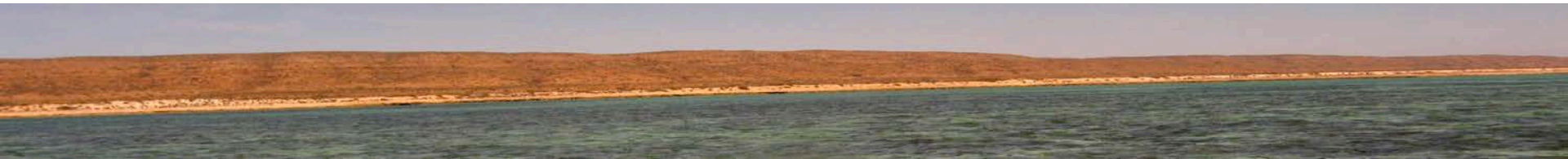
13TNT Sr/Ca= -0.354(±0.024) * (Mg/Ca) + 10.688 (±0.107) R=-.95, n=98, p<0.001

13TNT Sr/Ca= -0.329(±0.098) * (Mg/Ca) + 10.540 (±0.479) R=-.98, n=6, p<0.001



Past evidence of thermal stress in the central Pilbara?





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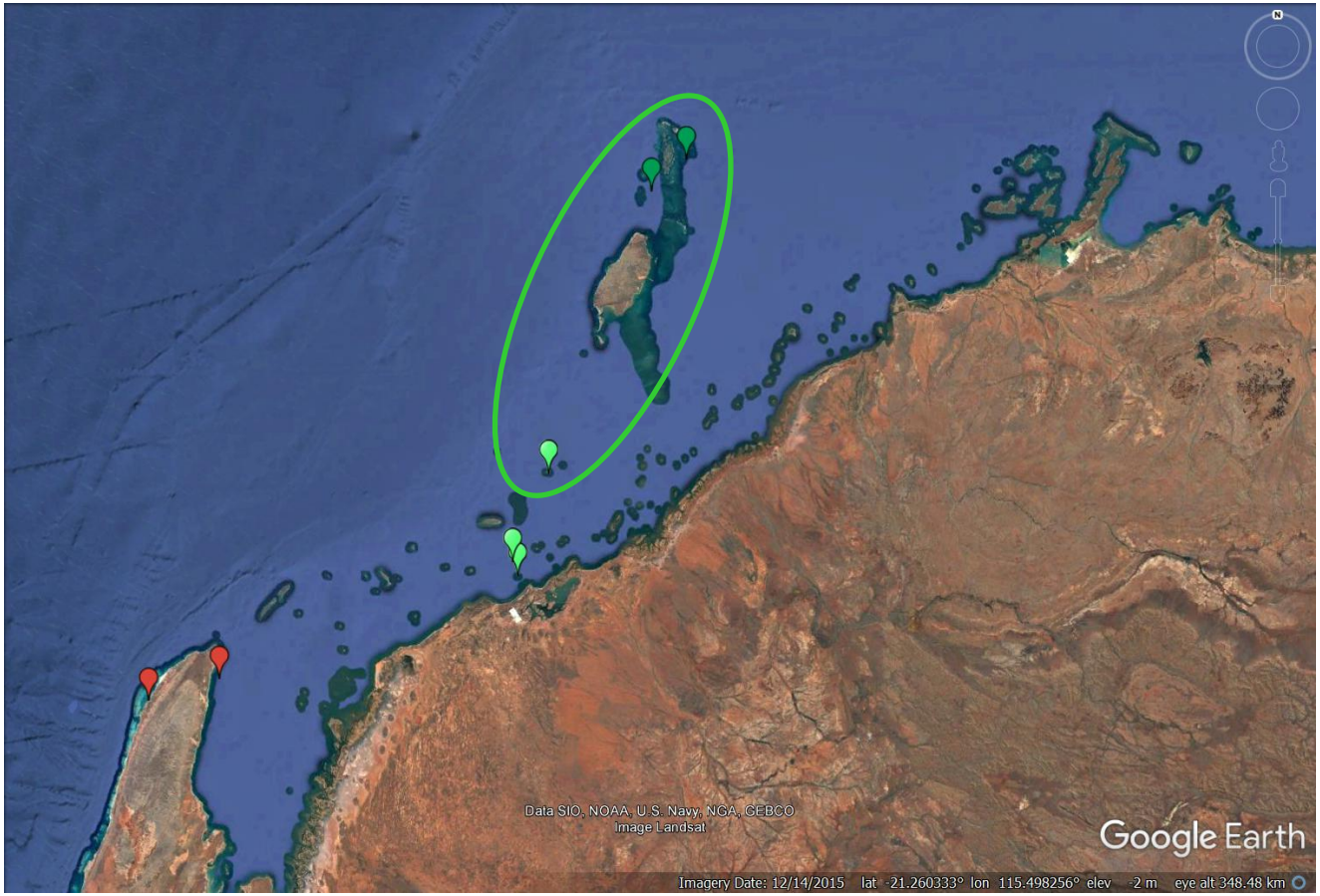
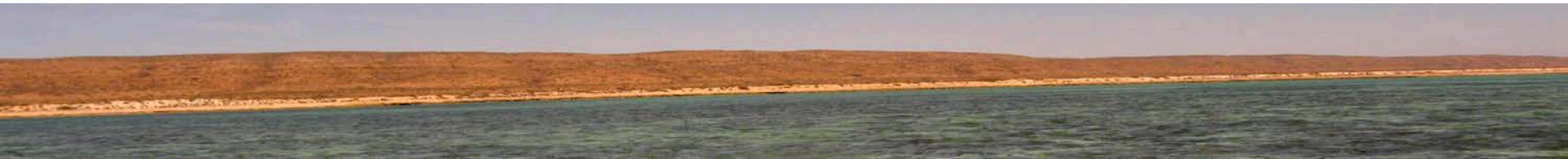
Long-term trends in coral calcification throughout the central Pilbara?





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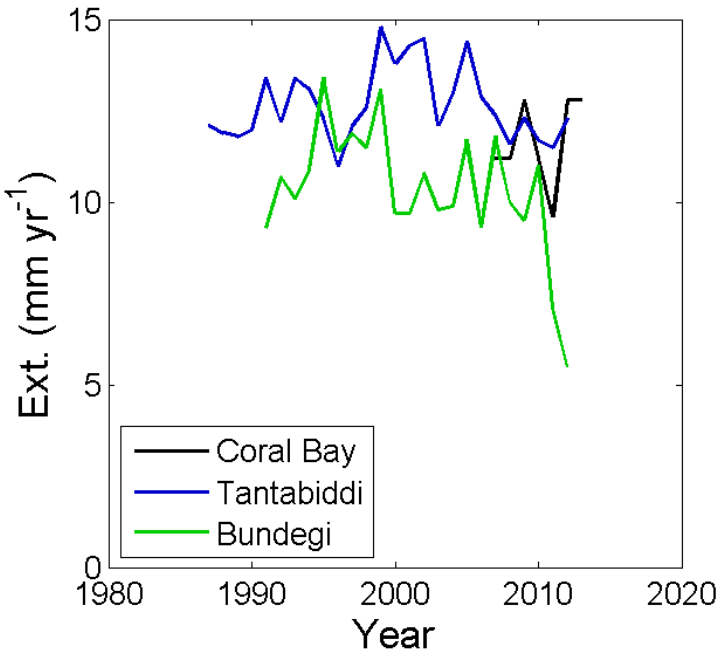
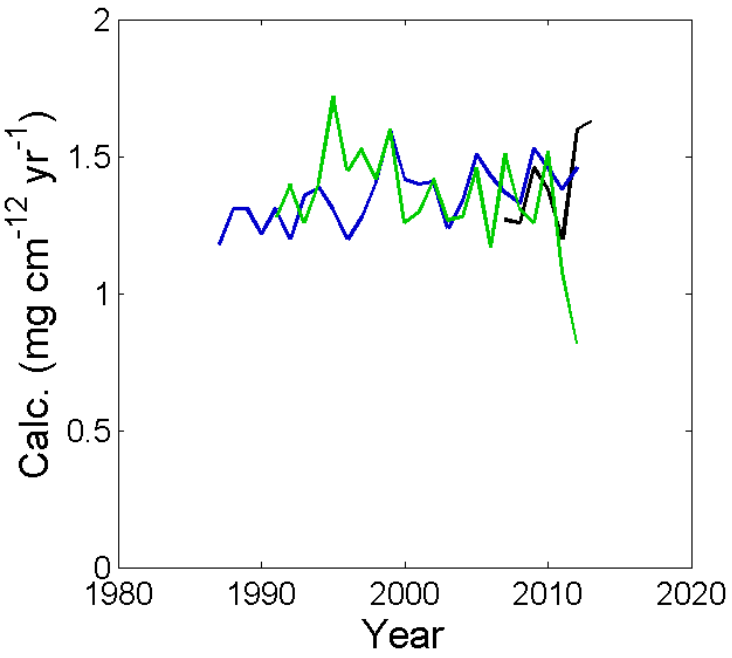
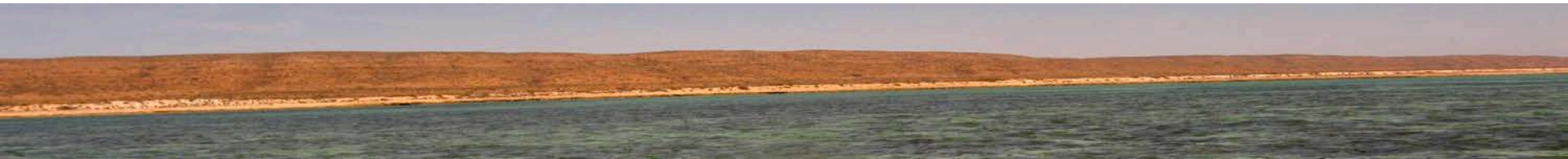
First evidence: growth rates







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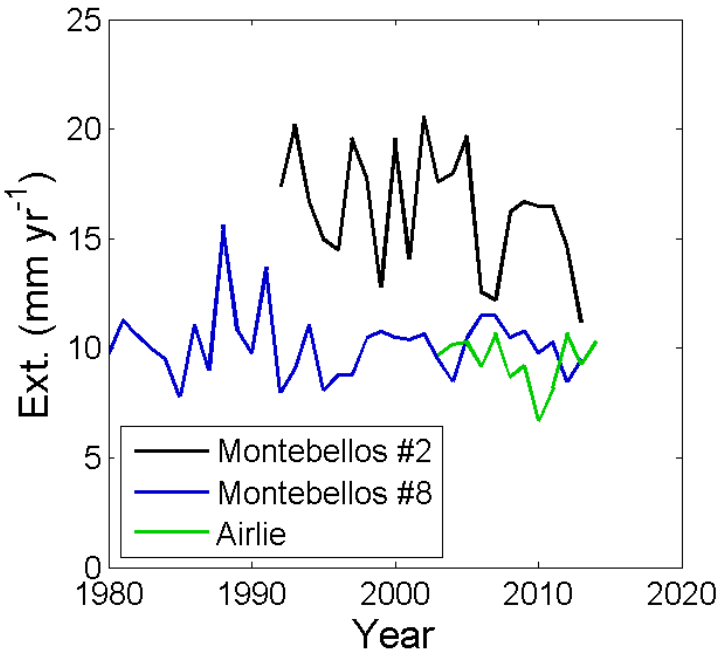

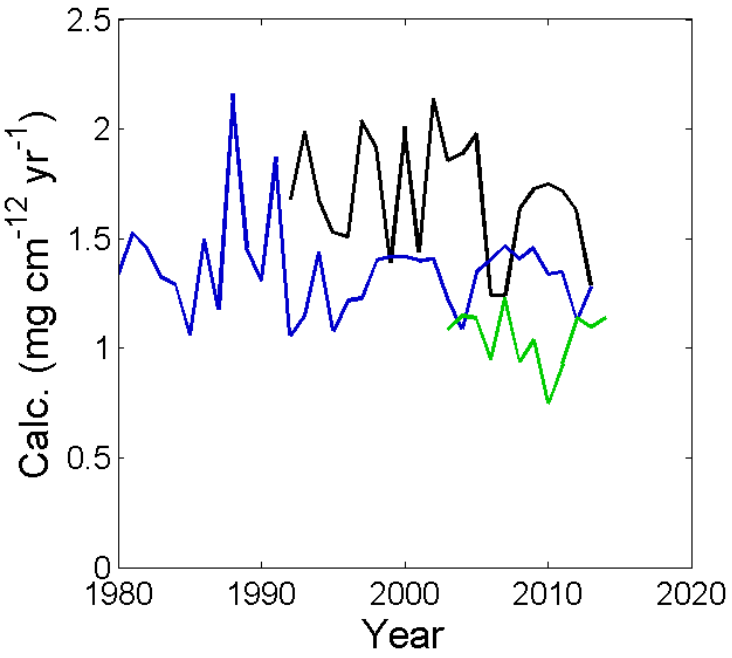

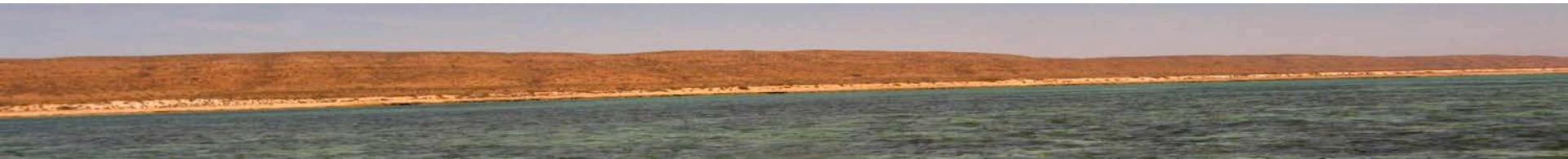

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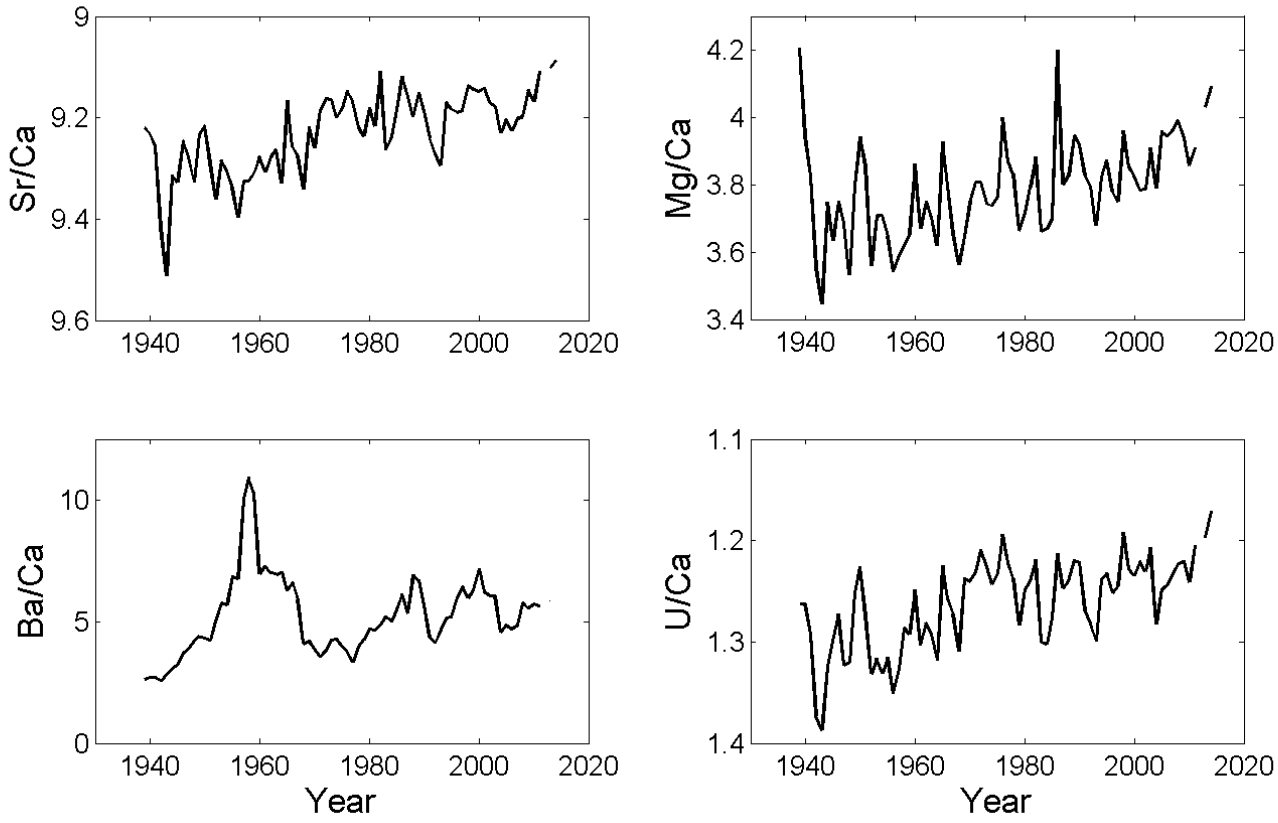
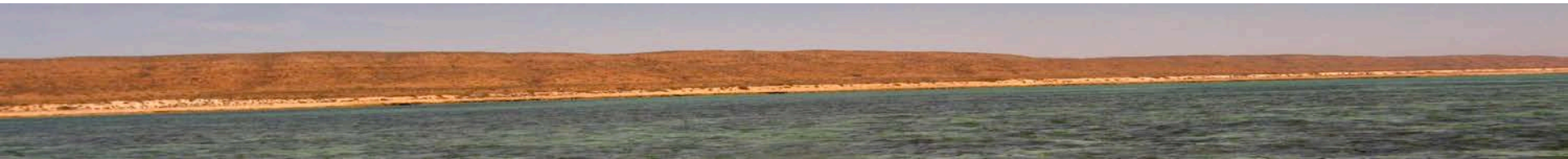
More refined evidence: trace elements





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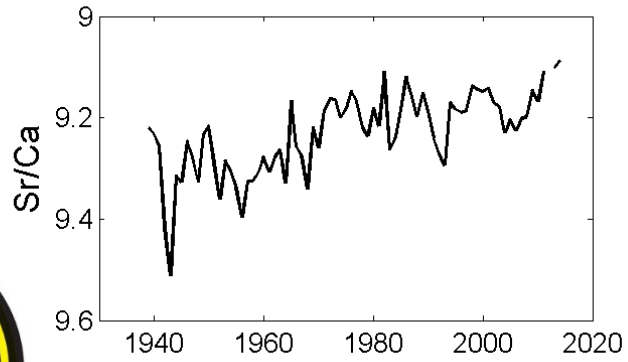

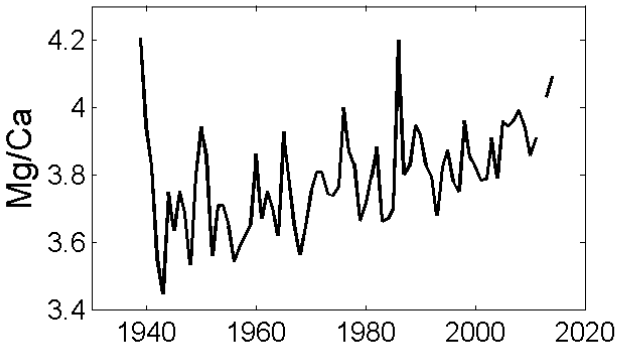

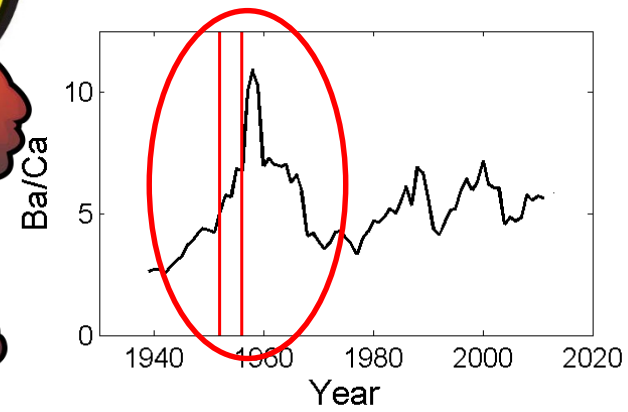

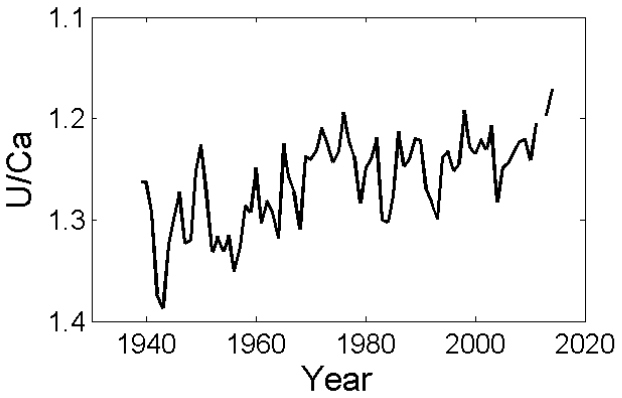

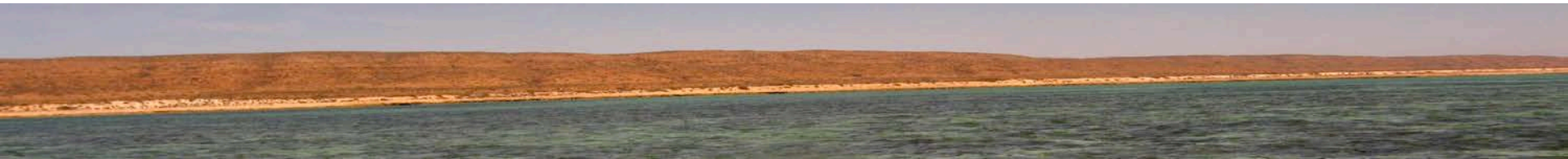

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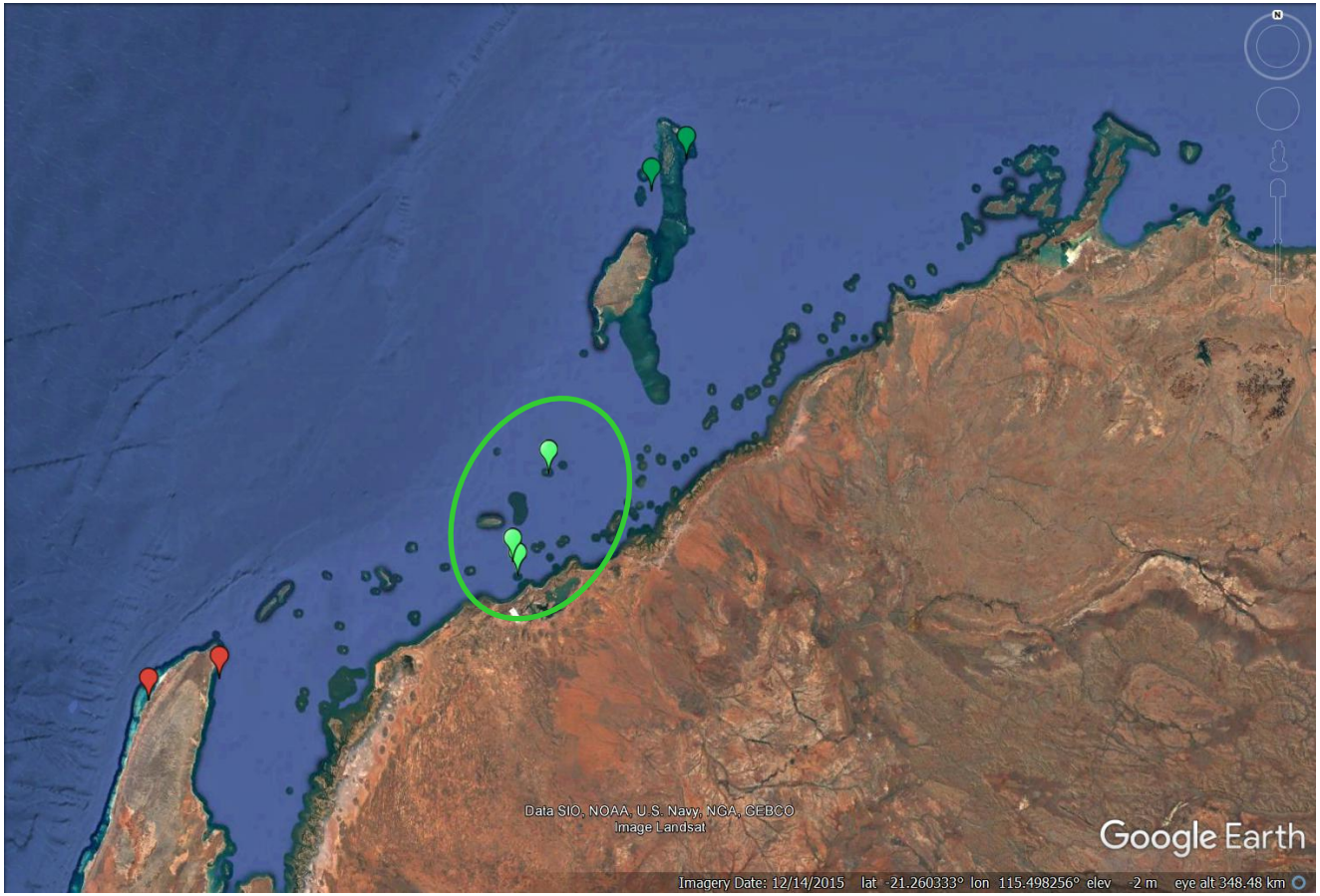
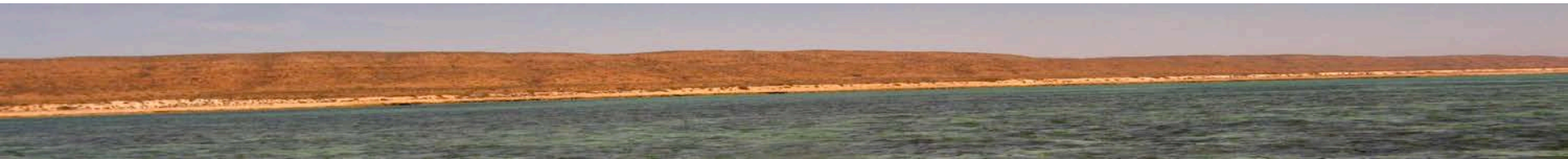
Have corals in the recorded major runoff and dredging events in the Pilbara?





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Acknowledgements

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