Report on the use of Jason-2 IGDR in the Australian multi-mission sea level analysis system

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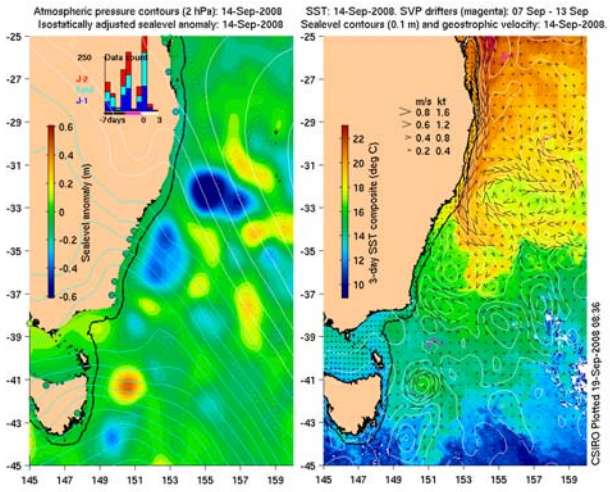
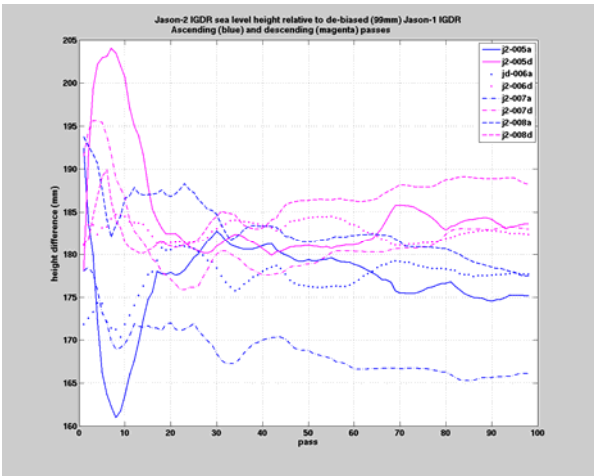
Jason-2 IGDR in daily use by September 2008



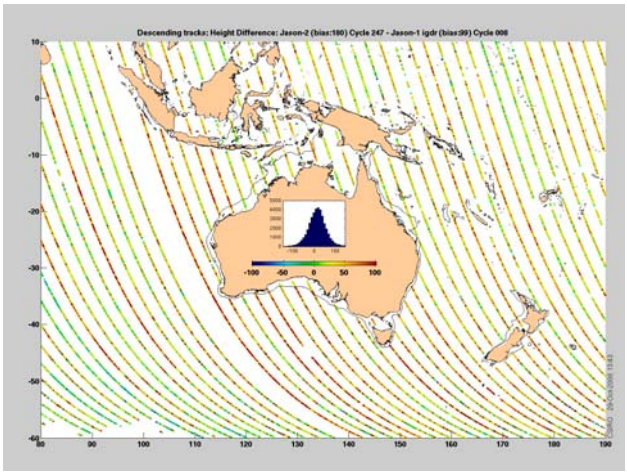
The Bluelink system for producing daily, high-resolution statistical (ie, model-independent) analyses of sea-level, sea surface temperature and surface current commenced trial use of the Jason-2 OGDR on 16 August 2008. When the IGDR became available shortly after that, we decided to use it exclusively rather than attempting to correct the large orbit errors in the OGDR.

How we estimated the Jason-2 bias

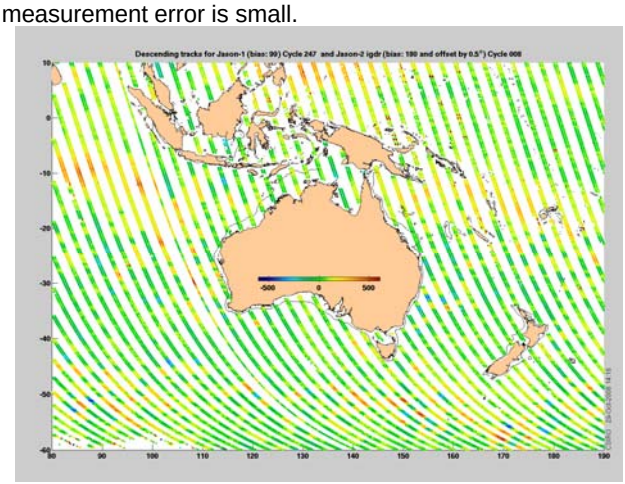


The J2-J1 SLA difference varies in both space (pass number) and time (cycle number) as shown above. For cycles 5-8, the J2 pass-mean bias is generally within 10mm of 175mm for ascending passes or 185mm for descending passes (assuming the absolute bias of Jason-1 is 99mm for both). For real-time applications this difference is small enough to ignore so we are presently using a constant 180mm.

Looks like uncorrelated orbit error is much of the difference



The difference is a mix of very long, and very short length-scales, as is clear from the above. The below, however, shows that compared with the total signal, the difference of the measurement error is small.



To interleave J1 in time, space or not at all ?

SLA %iles (global, cyc5-10)	50th	95th
|J2|	60mm	235mm
|J2 – J1|	25mm	75mm
|J2 – J2| (lag 150km)	50mm	240mm
|J2 – J2| (lag 10days)	45mm	165mm

Interleaving in space is more valuable than interleaving in time, as evidenced by the stats of height differences over 150km vs 10d. Either is much more valuable than re-sampling the same point.

Conclusion: Jason-2 IGDR data is excellent

Further information
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