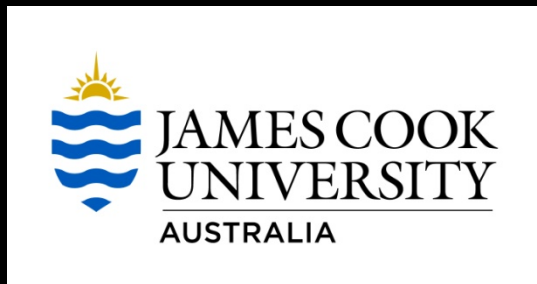


100/30 m-resolution bathymetry grids for the Great Barrier Reef

Robin Beaman

College of Science and Engineering

James Cook University



Media release 19 January 2018



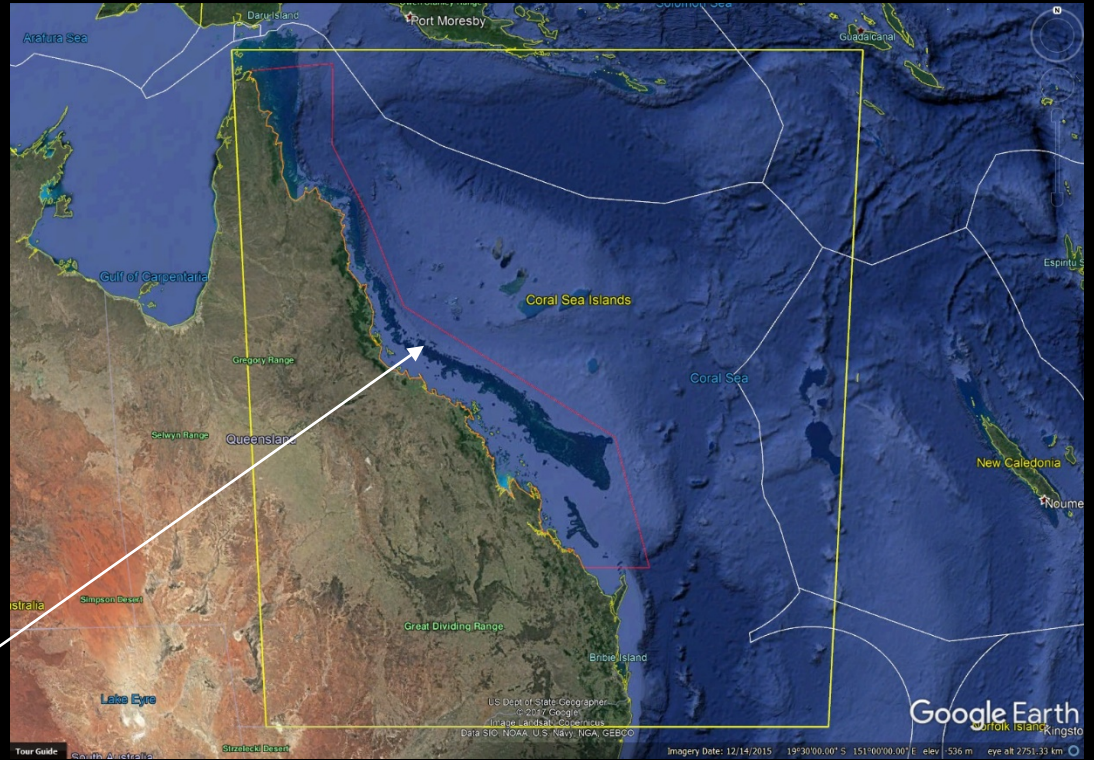
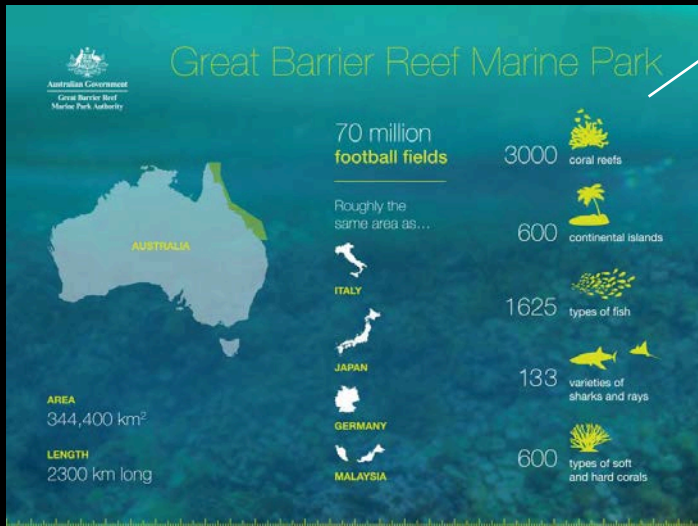
Australian Government
Geoscience Australia

THE GREAT BARRIER REEF

AUSTRALIA'S OCEAN WONDER FROM A NEW PERSPECTIVE

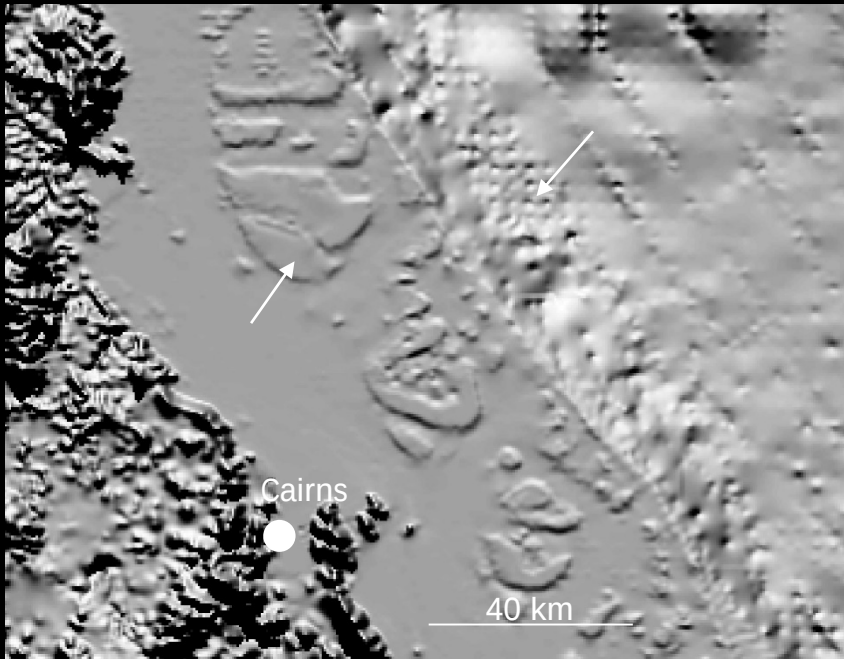
Project 3D-GBR

- Running since 2009
- ~3,000,000 km² in area
- Australia, PNG, Solomon Is, New Caledonia EEZs
- GBR Marine Park

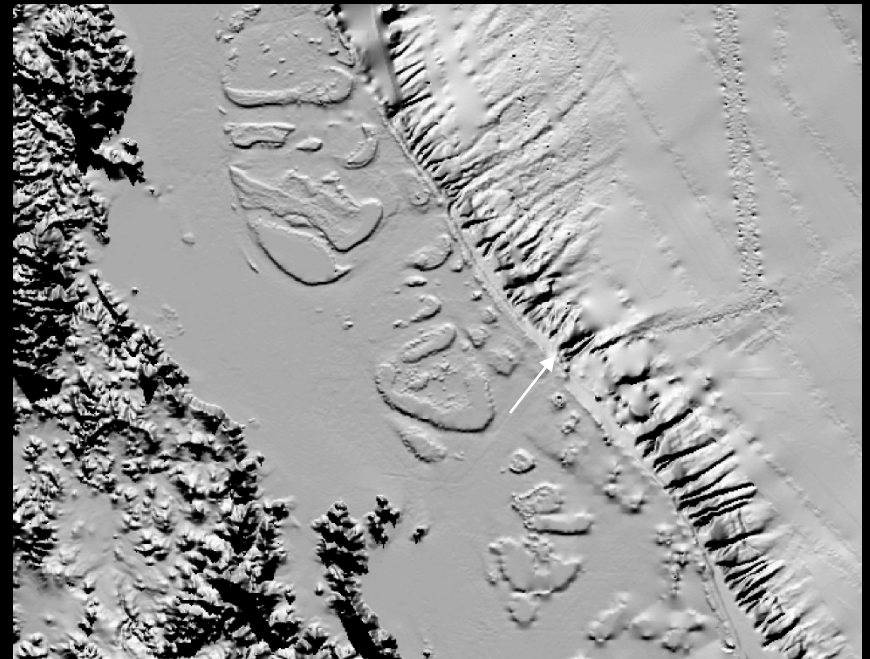


DEM history

GBRDEM @ ~250 m



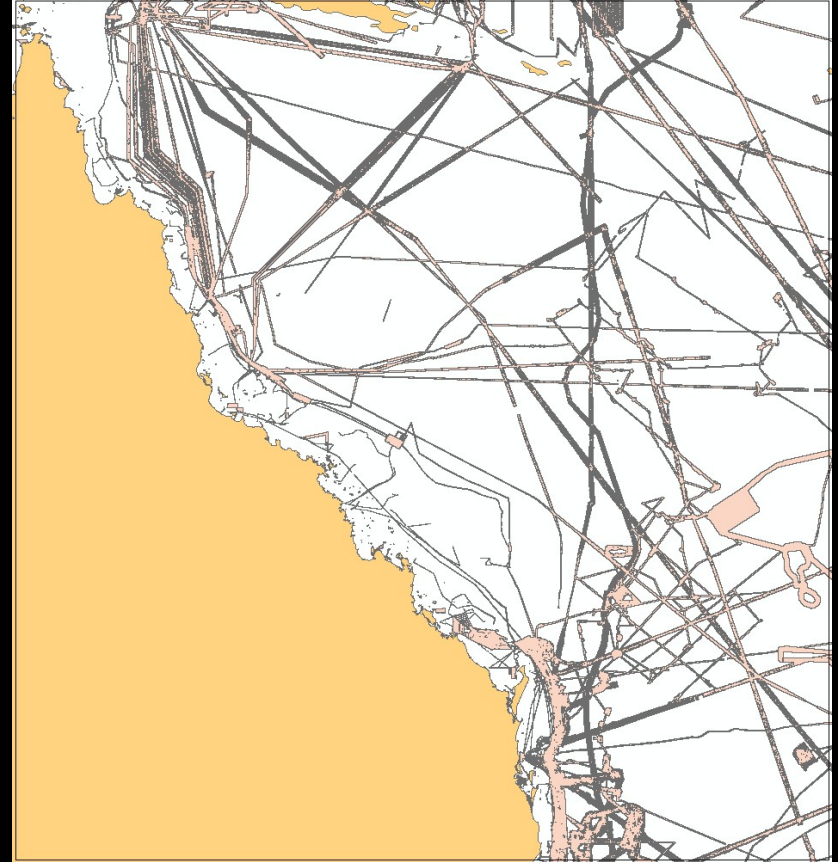
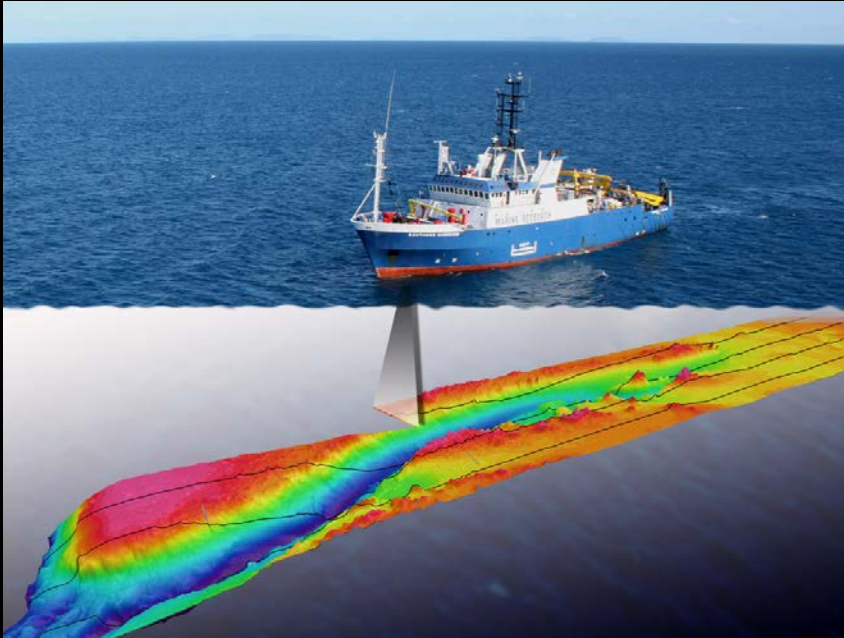
AusBathyTopo @ ~250 m



Lewis, A., 2001. Great Barrier Reef Depth and Elevation Model: GBRDEM. Technical Report No. 33, Townsville, Australia, pp. 58.

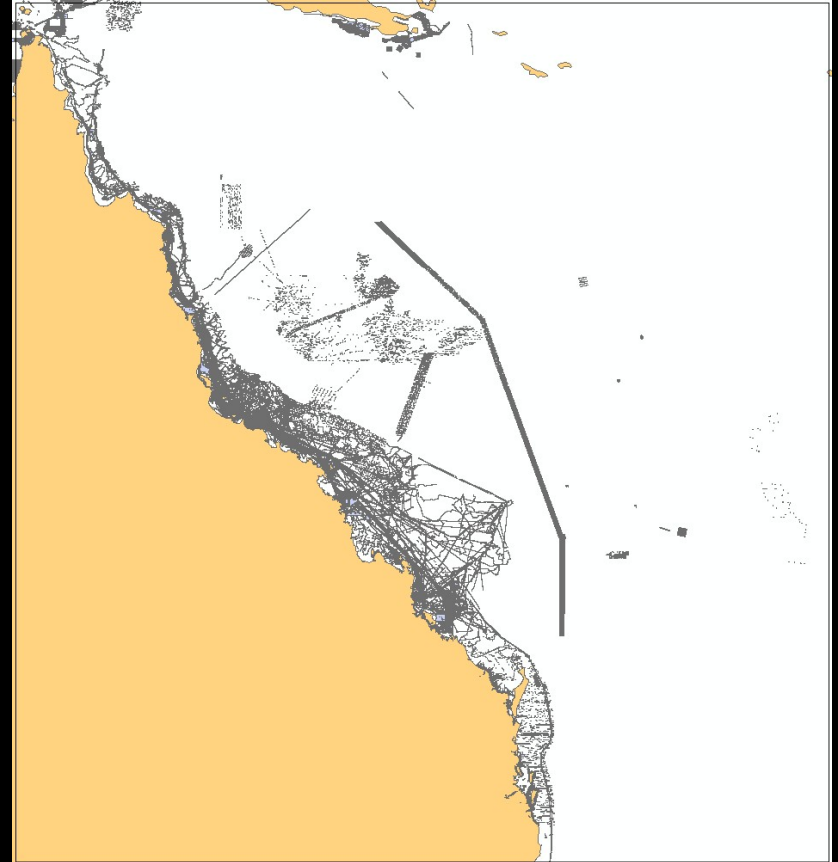
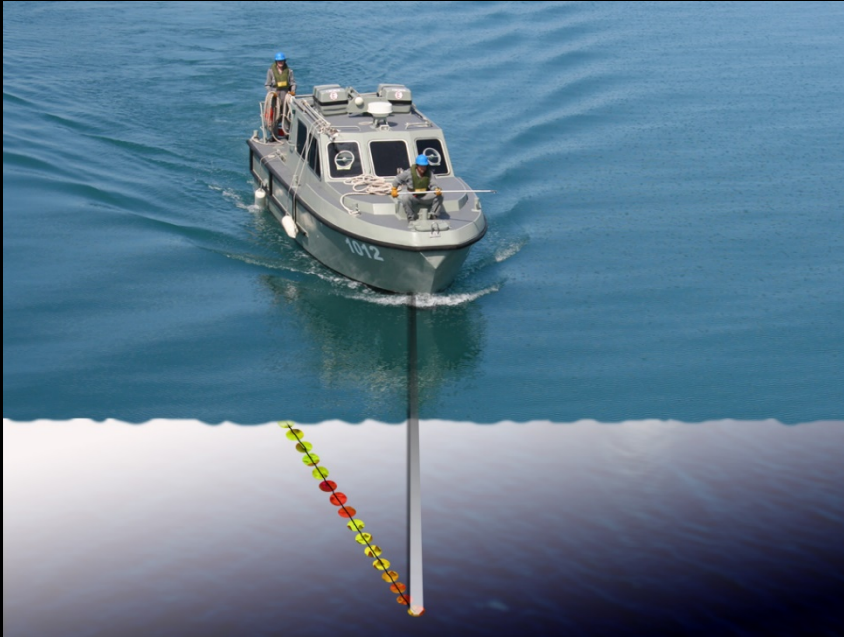
Whiteway, T.G., 2009. Australian Bathymetry and Topography Grid, June 2009. Geoscience Australia Record 2009/21, Canberra, Australia, pp. 46.

Multibeam



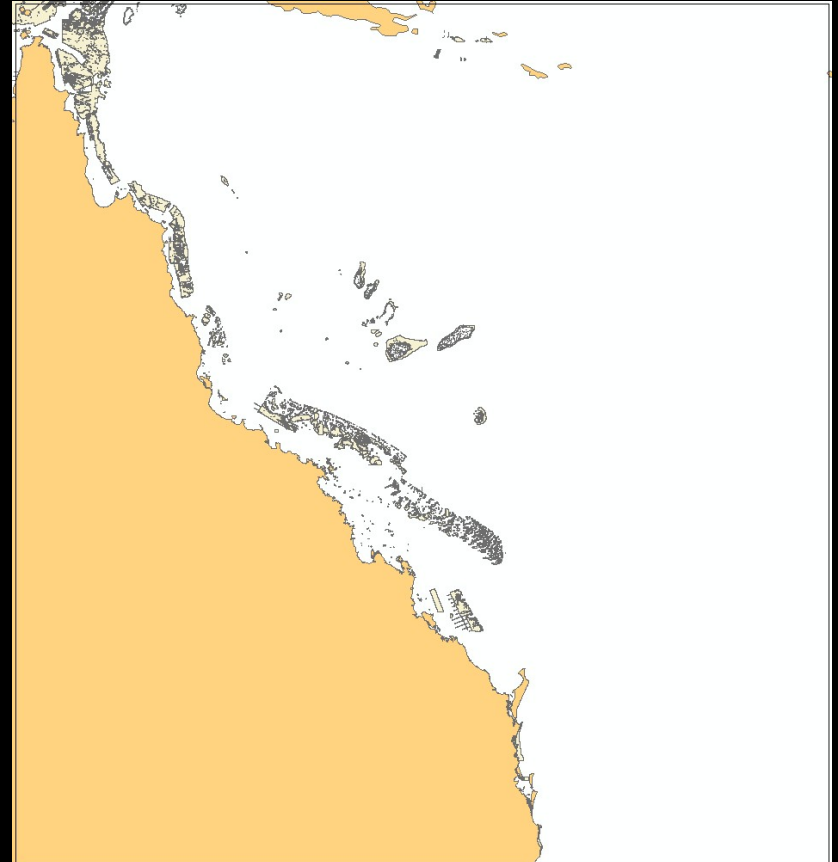
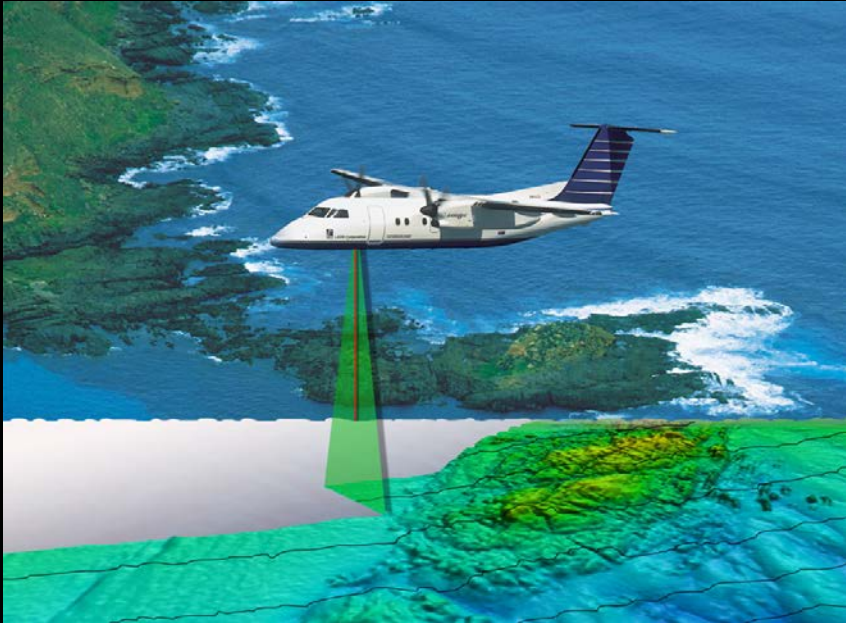
- 197 surveys total:
- 92 AHO/navy
- 97 institutes
- 4 other govt
- 3 industry
- 1 crowd source

Singlebeam



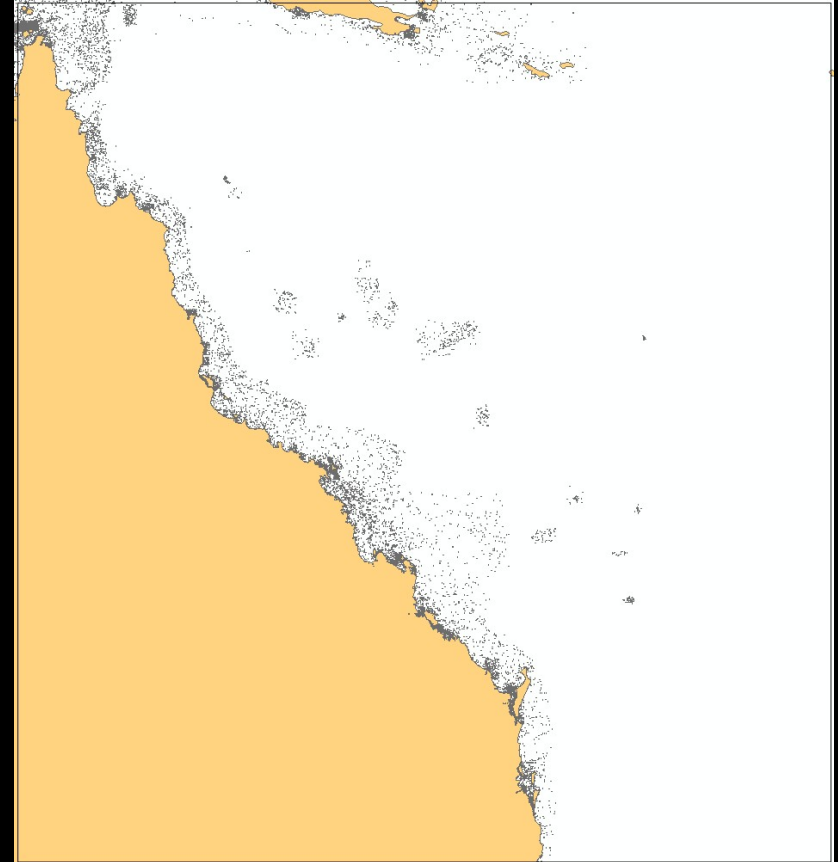
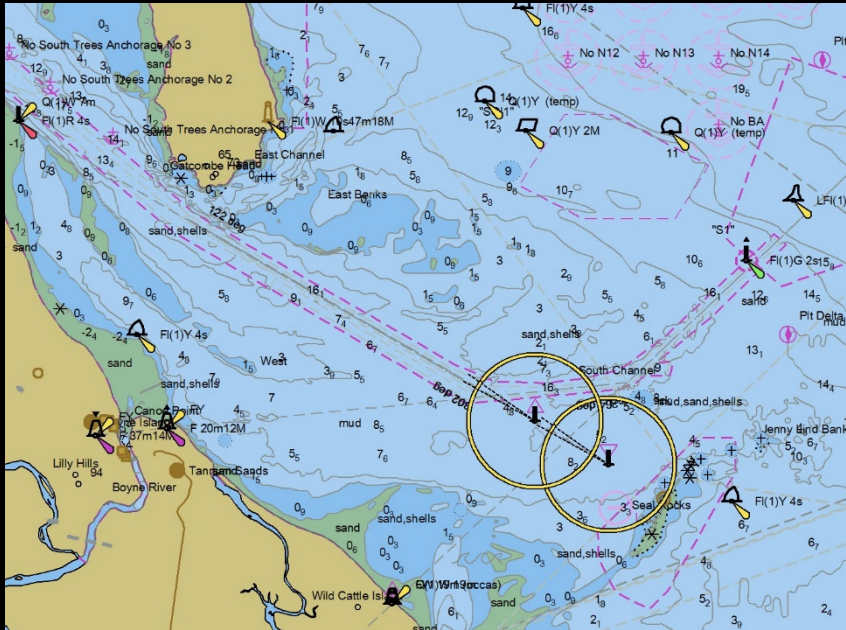
- 284 surveys total:
- 224 AHO/navy
- 5 institutes
- 52 other govt
- 2 industry
- 1 crowd source

Airborne lidar bathymetry



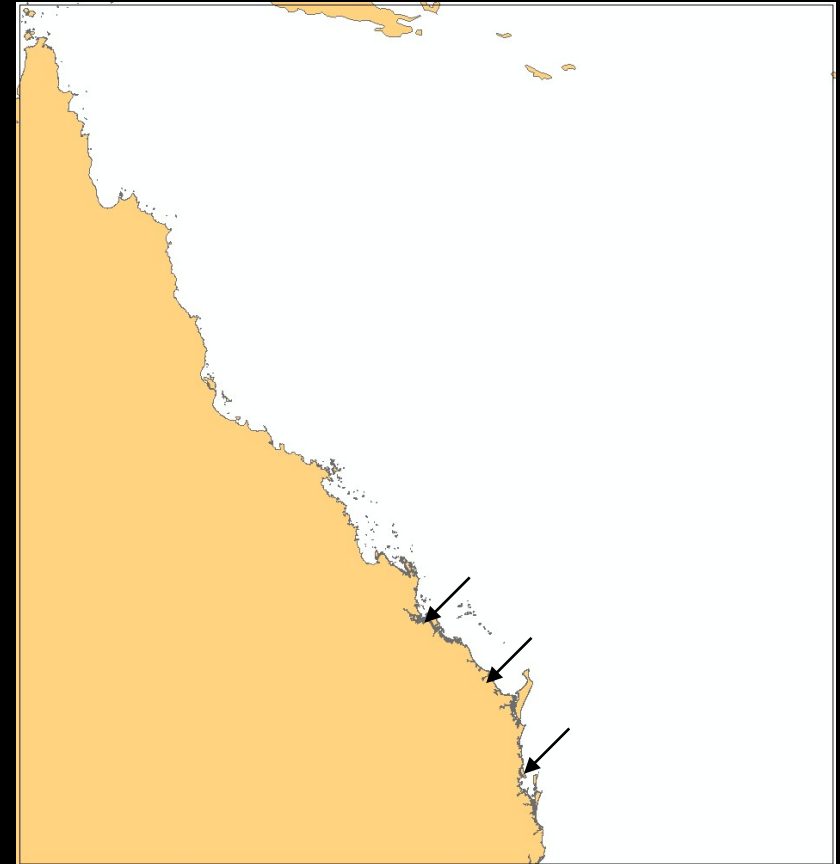
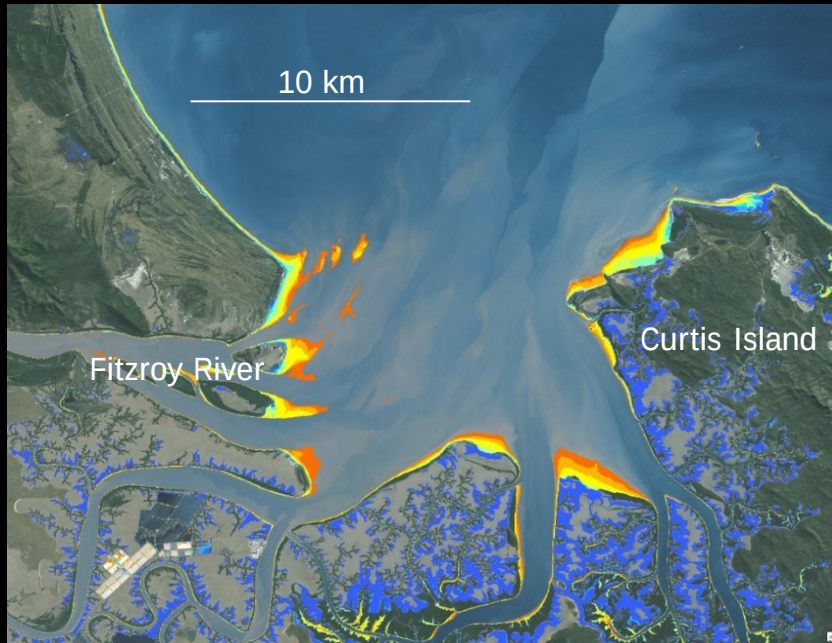
- 108 surveys total:
- 105 AHO/navy
- 0 institutes
- 3 other govt
- 0 industry
- 0 crowd source

ENC spot depths



- 136 tiles total:
- 136 AHO/navy
- 0 institutes
- 0 other govt
- 0 industry
- 0 crowd source

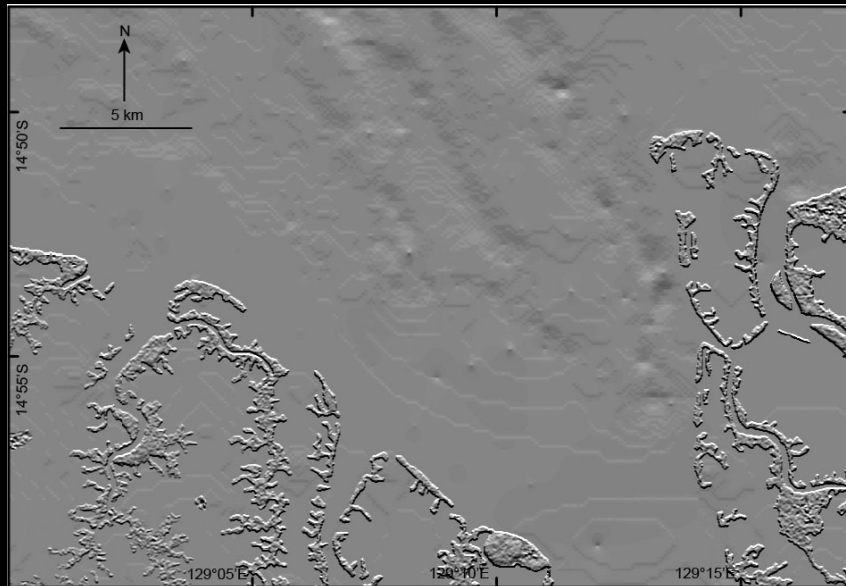
Intertidal Extents Model DEM



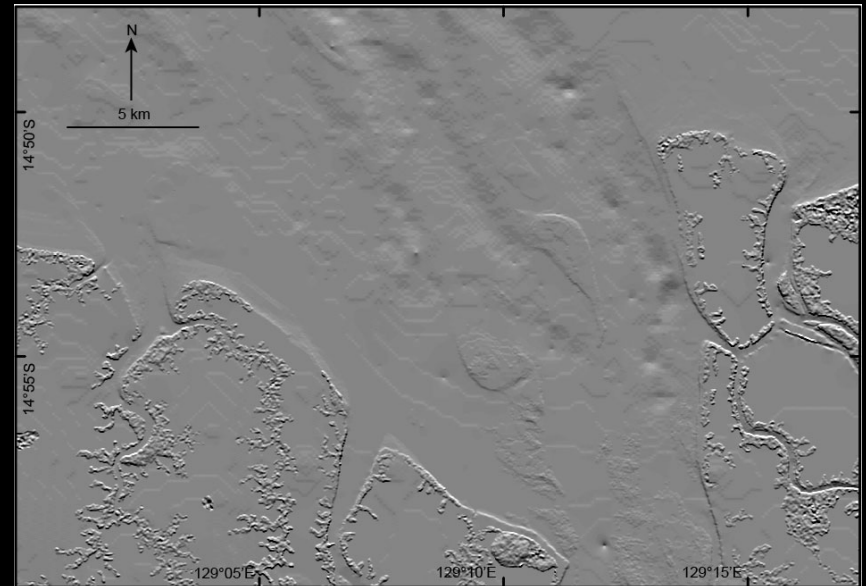
- 13 cells total:
- 0 AHO/navy
- 0 institutes
- 13 other govt
- 0 industry
- 0 crowd source

Example ITEM DEM

before



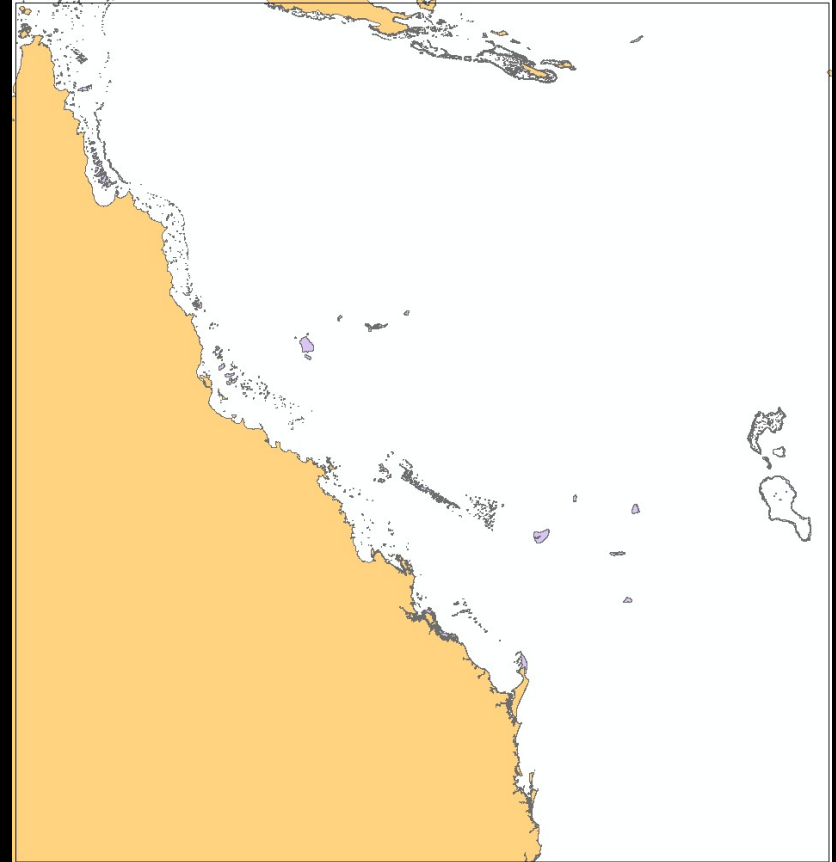
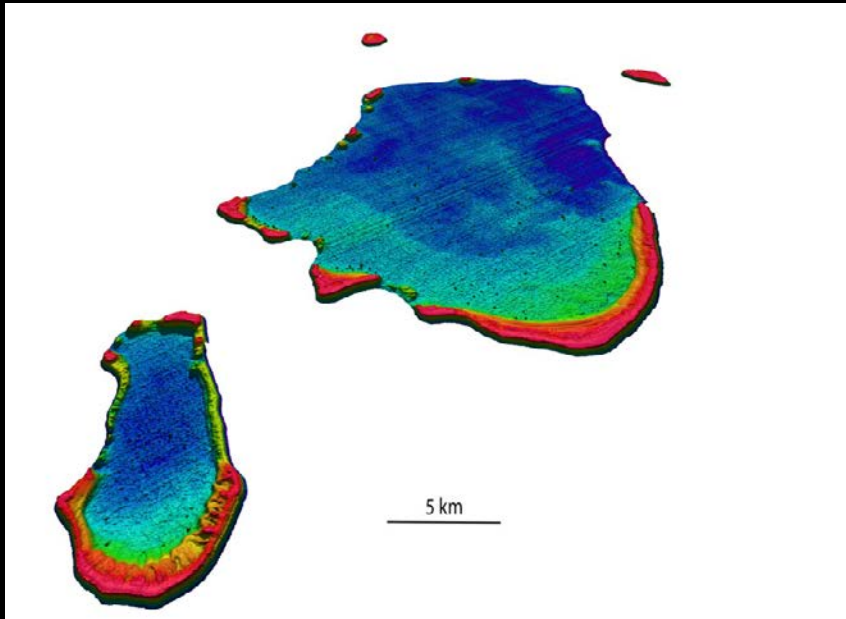
after



Digital Earth Australia: <http://www.ga.gov.au/about/projects/geographic/digital-earth-australia>

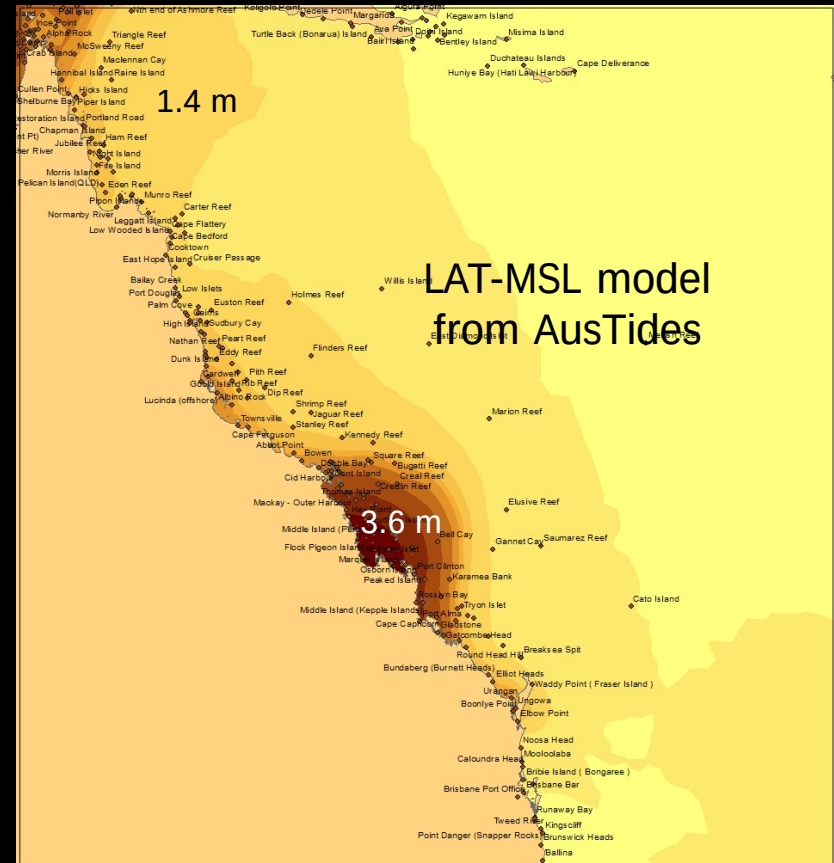
Sagar, S., Roberts, D., Bala, B., Lymburner, L., 2017. Extracting the intertidal extent and topography of the Australian coastline from a 28 year time series of Landsat observations. *Remote Sensing of Environment* 195, 153-169.

Satellite derived bathymetry



- 49 surveys total:
- 0 AHO/navy
- 48 institutes
- 1 other govt
- 0 industry
- 0 crowd source

Tides



AusCoastVDT: <http://www.crcsi.com.au/research/commissioned-research/auscoast-vdt/>

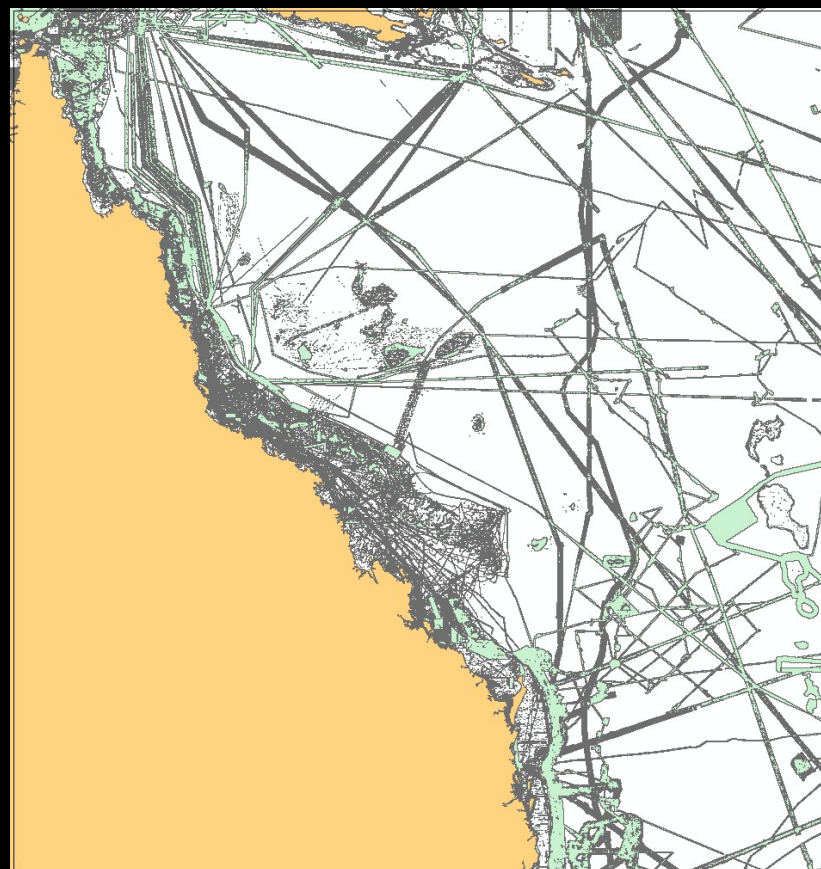
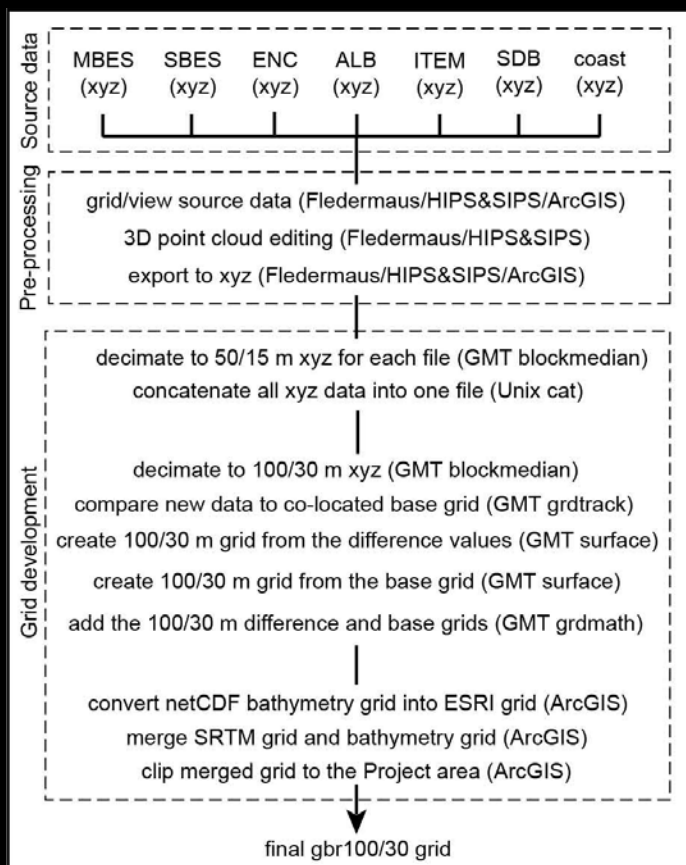
AusTides: <http://www.hydro.gov.au/prodserv/publications/ausTides/tides.htm>

Grid development

65.8 GB

22.3 GB

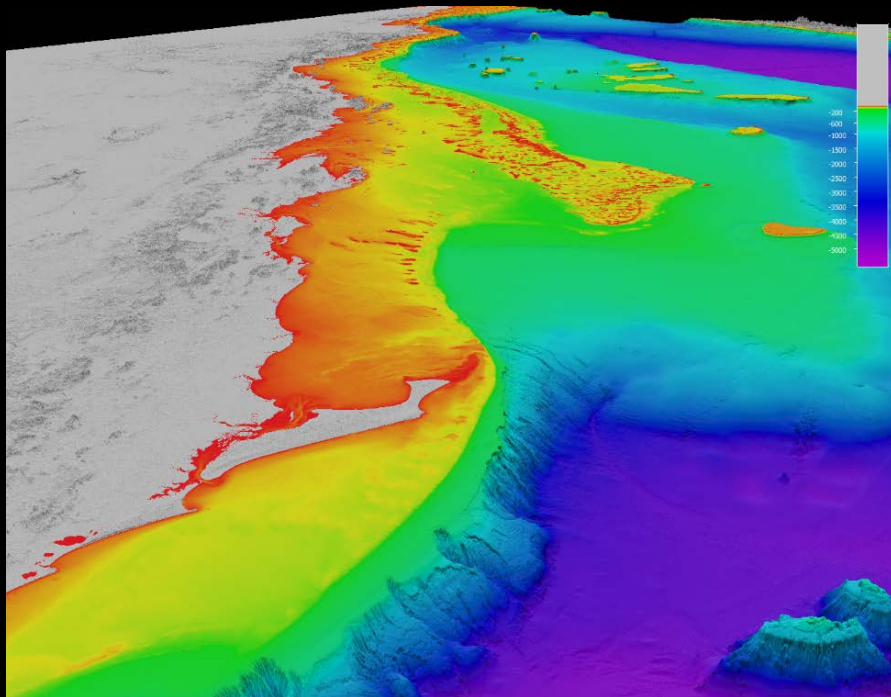
1.7 GB



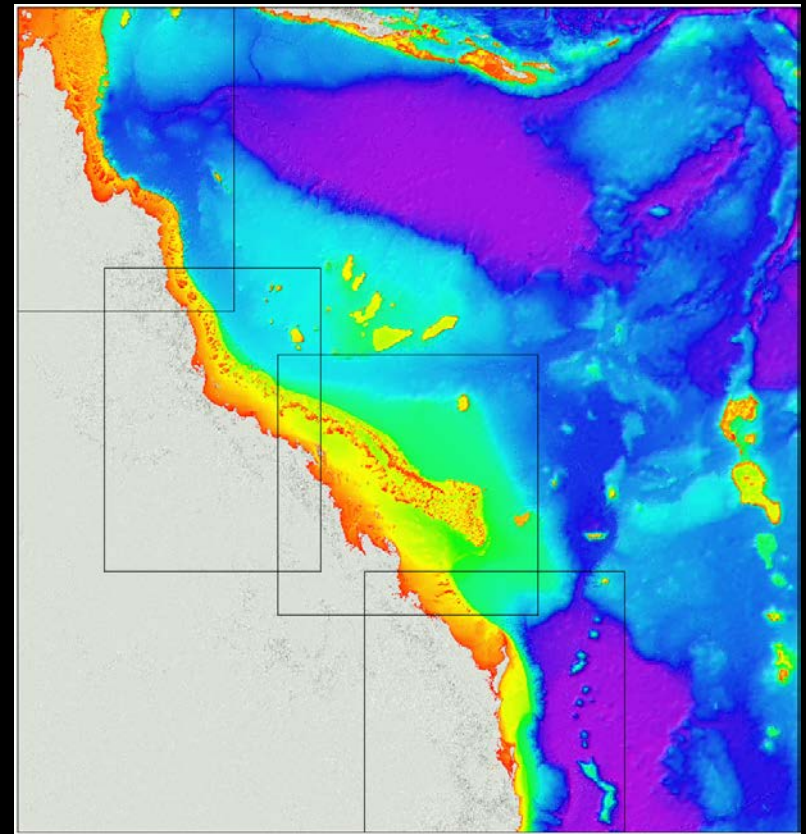
Becker, J.J., Sandwell, D.T., Smith, W.H.F., Braud, J., Binder, B., Depner, J., Fabre, D., Factor, J., Ingalls, S., Kim, S.-H., Ladner, R., Marks, K., Nelson, S., Pharaoh, A., Trimmer, R., Von Rosenberg, J., Wallace, G., Weatherall, P., 2009. Global bathymetry and elevation data at 30 arc seconds resolution: SRTM30 PLUS. *Marine Geodesy* 32(4), 355-371.

gbr100/30 grids

gbr100

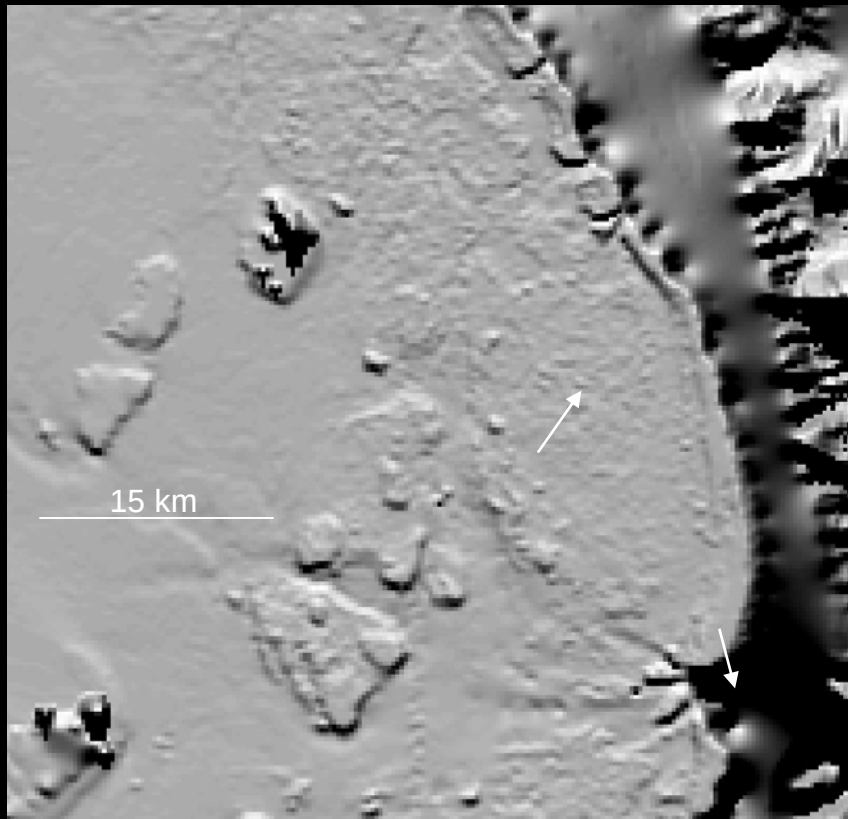


gbr30

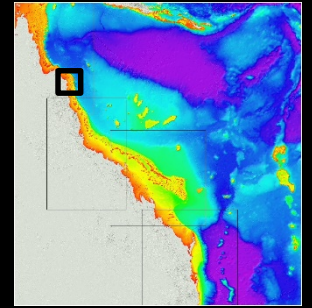


Comparison

AusBathyTopo (~250m)

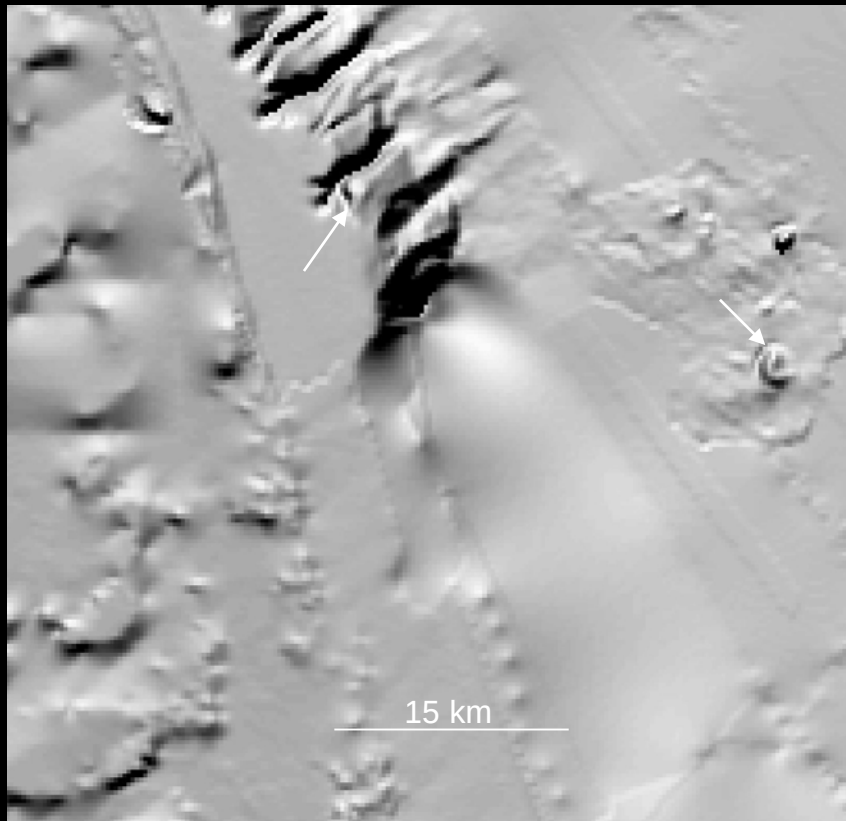


gbr30 (~30m)

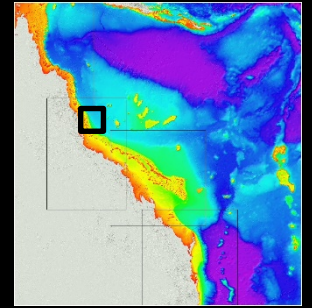


Comparison

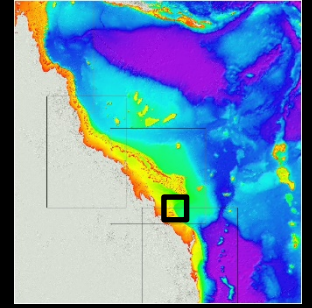
AusBathyTopo (~250m)



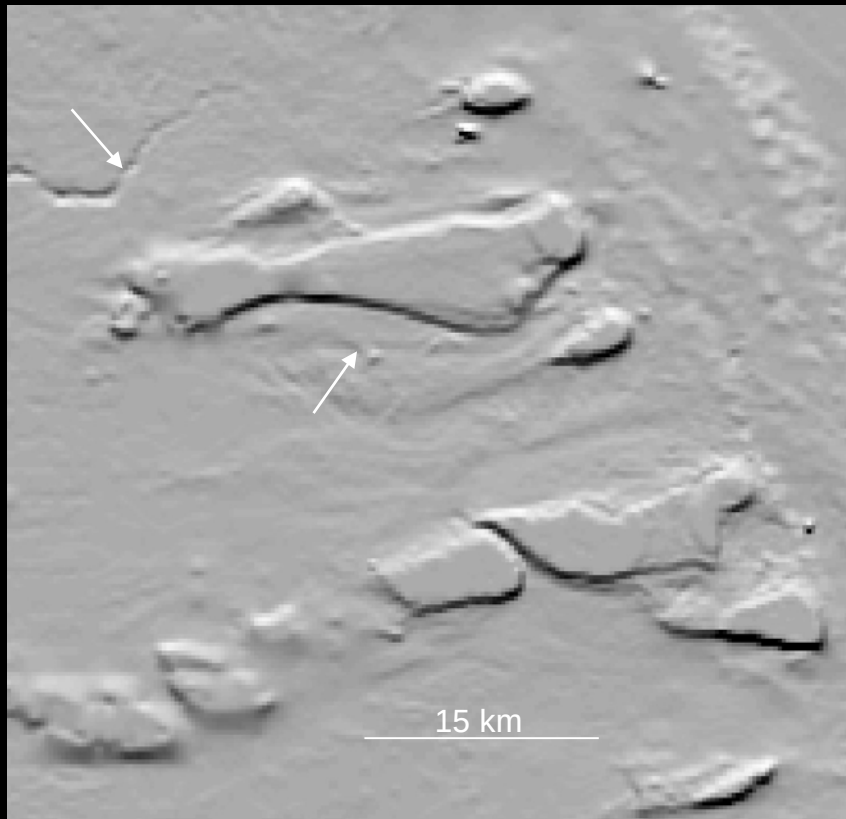
gbr30 (~30m)



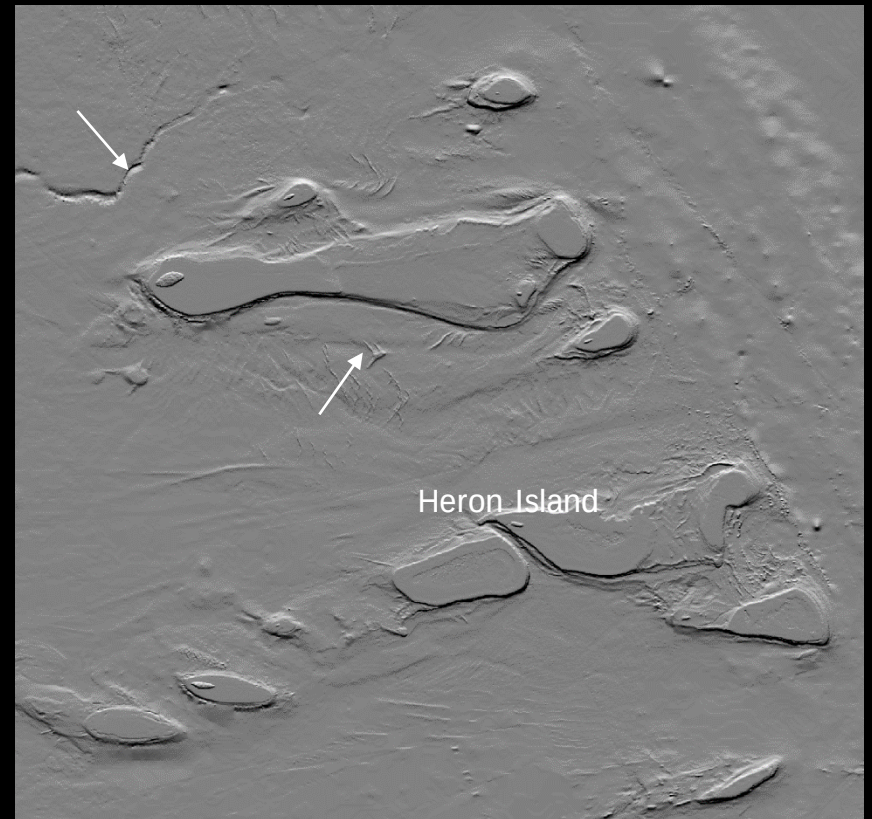
Comparison



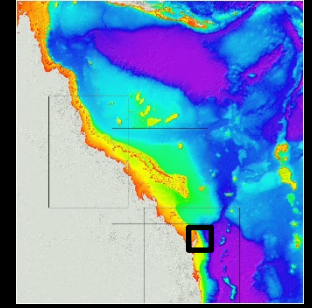
AusBathyTopo (~250m)



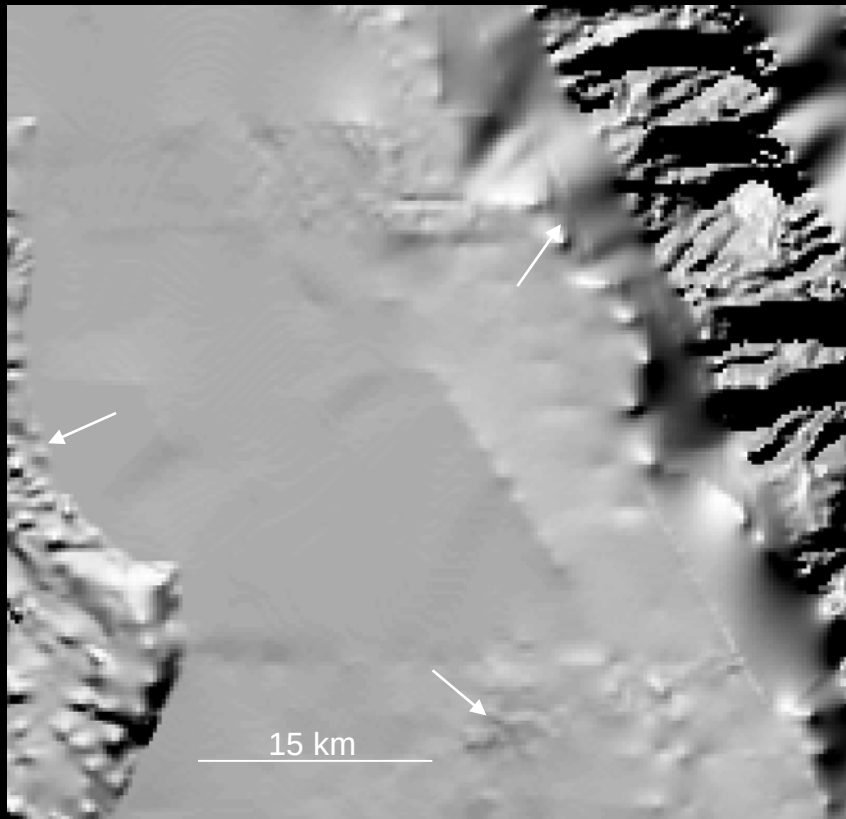
gbr30 (~30m)



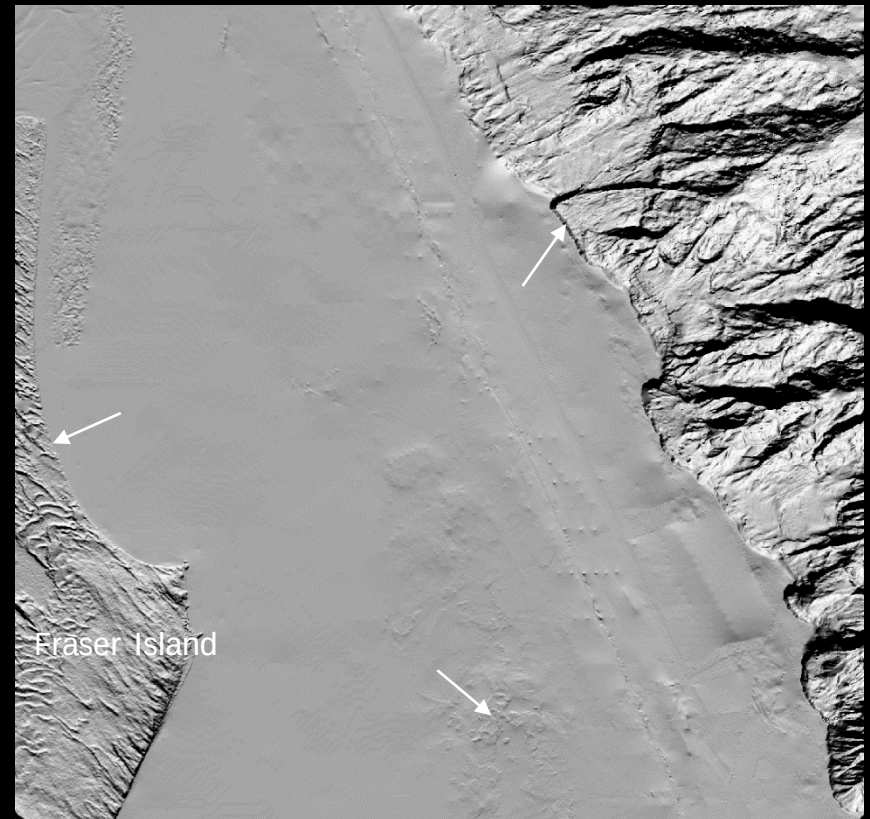
Comparison



AusBathyTopo (~250m)



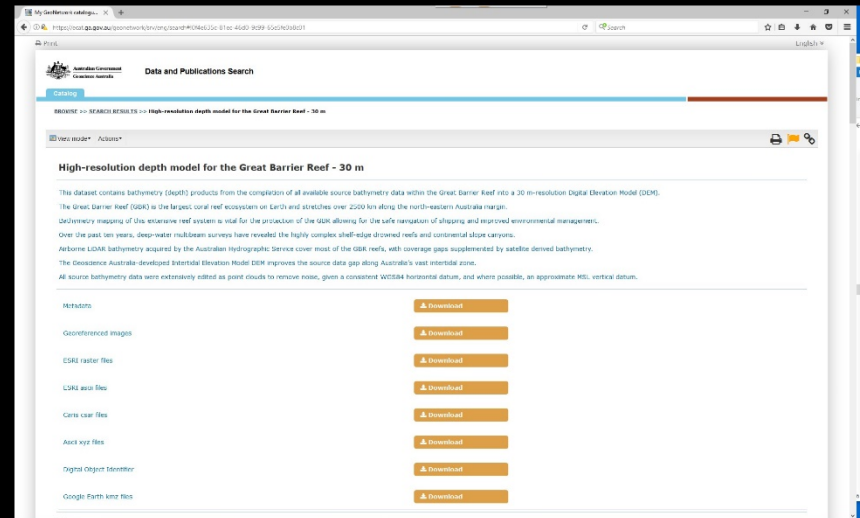
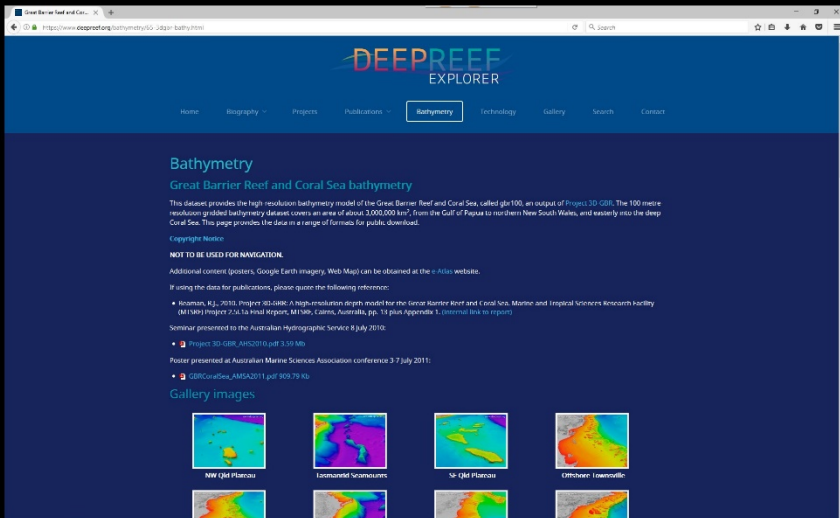
gbr30 (~30m)



Delivery

gbr100 – Deepreef Explorer

gbr30 – Geoscience Australia



gbr100: <https://www.deeprreef.org/bathymetry/65-3dgbr-bathy.html>

gbr30: <http://pid.geoscience.gov.au/dataset/115066>

Environmental management

Crown of thorns starfish



Image courtesy of Dr David Westcott, CSIRO

Map 'super spreader' reefs

