

Satellite remote sensing



Research Projects

BlueLink II/III - ocean forecasting for Australia: Bluelink Global Program, Centre for Australian Weather and Climate Research, Bureau of Meteorology, Helen Beggs, Gary Brassington, D Griffin, Peter Oke, Eric Schulz, 2003-2013

Reef Rescue Marine Monitoring Program, Reef and Rainforest Research Centre, Britta Schaffelke, 2005-2013, Partner Institution(s): GBRMPA, AIMS, James Cook University, CSIRO, the Northern Fisheries Centre of the Queensland Department of Employment, Economic Development and Innovation and the National Research Centre for Environmental Toxicology at the University of Queensland, Funding: Caring For Our Country

Reef Temp Project – GBRMPA web tool for predicting coral bleaching, University of Melbourne, Jeffrey Maynard

Transient Coastal Upwelling Along Ningaloo Reef Project, University of Western Australia, Ryan Lowe

Animations of raw temperature and anomalies for all Commonwealth Marine Reserves to inform the review and revision, in particular, of management plans for the following Reserves: Ashmore, Cartier, Ningaloo, and Mermaid, University of Melbourne, Jeffrey Maynard

Predictive tool for the improved monitoring of the onset and outbreak of coral disease (White Syndrome) in northern Australia, University of Melbourne, Jeffrey Maynard

CSIRO Marine and Atmospheric Research SST products - Testing use of IMOS HRPT AVHRR L2P products for production of CMAR SST composite products, Commonwealth Scientific Industrial Research Organisation, D Griffin, Partner Institution(s): Bureau of Meteorology

Reef Rescue Marine Monitoring Program, Commonwealth Scientific Industrial Research Organisation, Vittorio Brando, 2010-2010, Partner Institution(s): AIMS, JCU, Funding: Great Barrier Reef Marine Park Authority

Ultra high-resolution SST analysis over the Great Barrier Reef - Testing use of IMOS HRPT AVHRR L2P products in the SST analysis system, French Research Institute for Exploration of the Sea, Jean-Francois Poille, Partner Institution(s): Ifremer, Funding: European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT)

Including IMOS HRPT AVHRR L2P SST in Global 1 km SST Analysis (G1SST), North American Space Agency Jet Propulsion Laboratory, Yi Chao, Partner Institution(s): NASA JPL, Funding: North American Space Agency (NASA)

Postgraduate Research Projects

Doctor of Philosophy (PhD), Transient Coastal Upwelling Along Ningaloo Reef Project, University of Western Australia; Sohelia Taebi, Supervisor(s): Charitha Pattiaratchi

Doctor of Philosophy (PhD), Implications of climate change for the oceanography of the Great Barrier Reef Ecosystem, University of Queensland; Ana Redondo-Rodriguez, Supervisor(s): Scarla Weeks, J Lough, Ray Berkelmans; Partner Institution(s): AIMS

Doctor of Philosophy (PhD), Numerical modelling of Tasman Sea eddy field, University of New South Wales; Helen MacDonald, 2009-2012, Supervisor(s): Moninya Roughan, John Wilkin, Mark Baird

Doctor of Philosophy (PhD), Diurnal variability in shallow waters of coral reefs, University of Miami; Xiaofang Zhu, Supervisor(s): Peter Minnett

Honours degree, Macquarie Island Sea Level Extremes, University of Tasmania; Anna Hill, 2011-2011, Supervisor(s): Chris Watson

Book

Book Chapters

Beggs, H 2010, Use of TIR from Space in Operational Systems, in V Barale, JFR Gower, L Alberotanza (eds.), *Oceanography from Space Revisited*, Springer, pp.249-271

Lough, JM, Bainbridge, S, Berkelmans, R, Steinberg, C 2010, Physical monitoring of the Great Barrier Reef to understand ecological responses to climate change, in Y You, A Henderson-Sellers (eds.), *Climate Alert: Climate Change Monitoring and Strategy*, Sydney University Press, Sydney, pp.66-110

Bonnefond, P, Haines, BJ, Watson, C 2011, In situ Absolute Calibration and Validation - A link from Coastal to Open-Ocean Altimetry, in S Vignudelli, AG Kostianoy, P Cipollini, J Benveniste (eds.), *Coastal Altimetry*, Springer, Berlin, pp.259-296

Community White Papers / Technical Papers

Conference Proceedings

Bainbridge, S, Steinberg, C, Heron, M, Rigby, P 2009, The role of observation systems in coral reef monitoring and management, Proceedings of the 2009 Joint Assembly of the American Geophysical Union, Toronto 2009, Toronto

Beggs, H, Verein, R, Paltoglou, G 2010, Calibration and Validation of AVHRR Sea Surface Temperatures using Observations from Ships of Opportunity, Proceedings "Oceans from Space" Venice 2010, Venice

Brando, V, Keen, R, Daniel, P, Baumeister, A, Nethery, M, Baumeister, H, Hawdon, A, Swan, G, Mitchell, R, Campbell, S, Schroeder, T, Park, Y-J, Edwards, R, Steven, A, Allen, S, Clementson, L, Dekker, A 2010, The Lucinda Jetty Coastal Observatory's role in satellite ocean colour calibration and validation for Great Barrier Reef coastal waters, Proceedings of the IEEE Oceans 2010 Conference, Sydney, May 2010, Sydney

Malthus, T, Brando, V, Jones, S, Held, A, Dekker, A 2010, Australian activities in calibration and validation for Hyperspectral sensors, Proceedings of Hyperspectral Workshop 2010, 17th-19th March, Frascati, Italy, Frascati

Bainbridge, S, Steinberg, C, Heron, M, Furnas, M 2010, Integrating Observation Systems: An Example from the Great Barrier Reef, Proceedings of the IEEE Oceans 2010 Conference, Sydney, May 2010, Sydney

Paltoglou, G, Beggs, H, Majewski, L 2010, New Australian High Resolution AVHRR SST Products from the Integrated Marine Observing System, Extended Abstracts of the 15th Australian Remote Sensing and Photogrammetry Conference, Alice Springs, 13-17 September, 2010, Alice Springs

Beggs, H, Majewski, L, Paltoglou, G, Schulz, E, Barton, I, Verein, R 2010, Report to GHRSS11 from Australia - BLUElink and IMOS, Proceedings of the 11th GHRSS1 Science Team Meeting, Lima, 21-25 June 2010, Lima, Presenter: Ian Barton

Beggs, H, Sandery, PA, Barras, V, Steinle, P 2011, Australian Bureau of Meteorology SST Requirements for NWP and Atmosphere-Ocean Coupled Models, Proceedings of the 12th GHRSS1 Science Team Meeting, Edinburgh, 27 June - 1 July 2011, Edinburgh, Presenter: Helen Beggs

Beggs, H, Majewski, L, Paltoglou, G, Verein, R, Zhong, A 2011, Report to GHRSS12 from Australia – BLUElink and IMOS, Proceedings of the 12th GHRSS1 Science Team Meeting, Edinburgh, 27 June - 1 July 2011, Edinburgh, Presenter: Helen Beggs

In Press

Baird, ME, MacDonald, HS, Roughan, M, Oke, PR 2009, Downscaling an eddy-resolving global ocean model for the continental shelf off South-East Australia, Ocean Modelling

Journals

Maynard, J, Turner, P, Anthony, KR, Baird, A, Berkelmans, R, Eakin, CM, Johnson, J, Marshall, P, Packer, G, Rea, A, Willis, B 2008, An interactive monitoring system for coral bleaching using high-resolution SST and improved stress predictors, Geophysical Research Letters, vol. 35, doi:10.1029/2007GL032175

Schiller, A, Ridgway, K, Steinberg, C, Oke, PR 2009, Dynamics of Three Anomalous SST Events in the Coral Sea, Geophysical Research Letters, vol. 36, doi:10.1029/2008GL036997

Weeks, S, Bakun, A, Steinberg, C, Brinkman, R, Hoegh-Guldberg, O 2010, The Capricorn Eddy: a prominent driver of the ecology and future of the southern Great Barrier Reef, Coral Reefs, vol. 29, no. 4, pp. 975-985, doi:10.1007/s00338-010-644-z

Berkelmans, R, Weeks, S, Steinberg, C 2010, Upwelling linked to warm summers and bleaching on the Great Barrier Reef, Limnology and Oceanography, vol. 55, no. 6, pp. 2634-2644, doi:10.4319/10.2010.55.6.2634.

Heron, SF, Steinberg, C, Heron, M, Mantovanelli, A, Jaffres, JBD, Skirving, WJ, McAllister, F, Rigby, P, Wisdom, D, Bainbridge, S 2010, Advancing Ocean Monitoring near Coral Reefs, EOS Transactions, vol. 91, no. 41, pp. 369-380, doi:10.1029/2010E0410001

Watson, C, White, N, Church, JA, Burgette, R, Tregoning, P, Coleman, R 2011, Absolute Calibration in Bass Strait, Australia: TOPEX, Jason-1 and OSTM/Jason-2, Marine Geodesy, vol. 34, no. 3-4, pp. 242-260, doi:10.1080/01490419.2011.584834

Reports

Van der Linden, LTM 2009, Field and remote sensing observations of transient upwelling along Ningaloo Reef, Comments: Data Report, School of Environmental Systems Engineering, UWA, 65 pp

Thesis

Public Seminars

Paltoglou, G, Majewski, L, Beggs, H; New Australian SST Products from the Australian Bureau Of Meteorology and the Integrated Marine Observing System; North American Space Agency Jet Propulsion Laboratory Seminar, 04/03/2011 - 04/03/2011, North American Space Agency Jet Propulsion Laboratory, Los Angeles, Presenter(s): G Paltoglou

Conferences, Symposia or Workshops

Conference Oral Presentation

Turner, P; Distributed Gridded Data Delivery for Marine Research; eResearch Australasia, 28/09/2008 - 03/10/2008, Melbourne, Presenter(s): Peter Turner

Ridgway, K, Steinberg, C, Herzfeld, M, Schiller, A, Feng, M; Downscaling Climate Change to Heron Island on the GBR; Marine and Tropical Sciences Research Facility (MTSRF) Conference, 28/04/2009 - 30/04/2009, Townsville

Steinberg, C, Weeks, S, Berkelmans, R; East Australian Current and Upwelling influences on the Thermal Environment of the Great Barrier Reef; Marine and Tropical Sciences Research Facility (MTSRF) Conference, 28/04/2009 - 30/04/2009, Townsville

Steinberg, C, Heron, SF, Herzfeld, M, Weeks, S, Bainbridge, S, Heron, M, Skirving, WJ; Observing and Modelling the Circulation of the Capricorn Bunker Group, Southern Great Barrier Reef; Australian Marine Science Association Conference, 05/07/2009 - 09/07/2009, Adelaide

Steinberg, C, Heron, SF; Oceanography, mechanical damage and wave-induced upwelling; NOAA Coral Reef Watch/UQ Workshop - Satellite monitoring of reef vulnerability in a changing climate, 15/02/2010 - 18/02/2010, Brisbane

Brando, V, Schroeder, T, Dekker, A, Schaffelke, B, Devlin, M; Delivering accurate water quality information for the Great Barrier Reef lagoon using regionally valid satellite remote sensing data; Marine and Tropical Sciences Research Facility (MTSRF) Conference, 18/05/2010 - 20/05/2010, Cairns

Congdon, BC, Weeks, S, Steinberg, C; Whirlpools and weight loss: linking seabird foraging success and oceanography in the southern Great Barrier Reef; Marine and Tropical Sciences Research Facility (MTSRF) Conference, 18/05/2010 - 20/05/2010, Cairns

Beggs, H, Majewski, L, Paltoglou, G; Satellite Sea Surface Temperature Products for the Australian Region from IMOS and BLUElink; Australian Marine Science Association Conference, 05/07/2010 - 08/07/2010, Woolongong

Brando, V, Schroeder, T, Dekker, A, Schaffelke, B, Devlin, M; Management relevant satellite based water quality information for the Great Barrier Reef lagoon using regional optical parameterisation; Australian Marine Science Association Conference, 05/07/2010 - 08/07/2010, Woolongong

Steinberg, C, Heron, SF, Heron, M, Mantovanelli, A, Rigby, P, Weeks, S, Jaffres, JBD, Brinkman, R, Herzfeld, M, Wisdom, D; Advances in Observing Physical Oceanographic Impacts on the Southern Great Barrier Reef, Australia; Australian Marine Science Association Conference, 05/07/2010 - 08/07/2010, Woolongong

Wild-Allen, K; Trends in Remotely Sensed Chlorophyll Concentration in Tasmanian Coastal Waters; Australian Marine Science Association Conference, 05/07/2010 - 08/07/2010, Woolongong, Presenter(s): K Wild-Allen

Steinberg, C, Brinkman, R, Mantovanelli, A, Herzfeld, M, Heron, M, Weeks, S, McAllister, F, Heron, SF, Wisdom, D, Revelard, A; Advances in Observing and Modelling Physical Oceanographic Impacts on the Southern Great Barrier Reef, Australia; 85th Annual Australian Coral Reef Society (ACRS) Conference, 10/09/2010 - 12/09/2010, Coffs Harbour, Presenter(s): Craig Steinberg

Brando, V, Schroeder, T, Dekker, A, Devlin, M; Spatial and Temporal Assessment of Exceedance of Water Quality Guidelines for the Great Barrier Reef Lagoon using Remote Sensing Data,; 34th International Symposium on Remote Sensing of the Environment, 11/04/2011 - 15/04/2011, Sydney

Brinkman, R, Herzfeld, M, Steinberg, C, Andrewartha, J, Condie, S; Simulation of 3-D hydrodynamics, flood plumes and connectivity on the Great Barrier Reef; Australian Marine Science Association Conference, 03/07/2011 - 07/07/2011, Fremantle, Presenter(s): Richard Brinkman

Clementson, L, Brando, V, Keen, R, Daniel, P; The Lucinda Jetty Coastal Observatory - an example of a single point observation site; Australian Marine Science Association Conference, 03/07/2011 - 07/07/2011, Fremantle

Jones, N; Internal wave climatology at Ningaloo Reef; Australian Marine Science Association Conference, 03/07/2011 - 07/07/2011, Fremantle, Presenter(s): N Jones

Steinberg, C, Rigby, P, McAllister, F, Spagnol, S, Brinkman, R, Jones, N; Current Observations from the Continental Shelves of the Arafura and Timor Seas; Australian Marine Science Association Conference, 03/07/2011 - 07/07/2011, Fremantle, Presenter(s): Craig Steinberg

Conference Poster

Turner, P, King, E; The Australian Oceans DAAC; eResearch Australasia, 26/06/2007 - 28/06/2007, Brisbane

Majewski, L; New and Enhanced Satellite Sea Surface Temperature Products Over the Australian Region; 9th International Conference on Southern Hemisphere Meteorology and Oceanography (9ICSHMO), 09/02/2009 - 13/02/2009, Melbourne, Presenter(s): L Majewski

Bainbridge, S, Steinberg, C, Heron, M, Rigby, P; The role of observation systems in coral reef monitoring and management; 2009 Joint Assembly, 24/05/2009 - 27/05/2009, Toronto

Steinberg, C, McAllister, F, McLean, CM, Brinkman, GW, Pitcher, C, Luetchford, J, Rigby, P; The Great Barrier Reef Ocean Observing System: Monitoring the Western Boundary Currents of the Coral Sea and Impacts on the Great Barrier Reef; Australian Marine Science Association Conference, 05/07/2009 - 09/07/2009, Adelaide

Beggs, H, Gentemann, C, Steinle, P; Real-time skin sea surface temperature analyses for quality control of data assimilated into NWP models; 5th World Meteorological Organisation Symposium on Data Assimilation of Observations in Meteorology, Oceanography and Hydrology, 05/10/2009 - 09/10/2009, Melbourne

Beggs, H, Verein, R, Paltoglou, G; Calibration and Validation of AVHRR Sea Surface Temperatures using Observations from Ships of Opportunity; Oceans from Space, 26/04/2010 - 30/04/2010, Venice

Suber, K, King, E, Smith, G, Paget, M, Blain, P; Building the semantic web for gridded data ; eResearch Australasia, 08/11/2010 - 12/11/2010, Gold Coast, Presenter(s): Edward King

Kelly, SM, Jones, N, Ivey, GN, Brinkman, R, Lowe, R; Internal tides in the Timor Sea and on the Australian North West Shelf ; Australian Marine Science Association Conference, 03/07/2011 - 07/07/2011, Fremantle, Presenter(s): Samuel Kelly

Key Note Speaker

Beggs, H, Majewski, L, Paltoglou, G; Use of Thermal Infrared from Space in Operational Systems; Oceans from Space, 26/04/2010 - 30/04/2010, Venice

Meeting Presentation

Beggs, H; Report from the Australian Regional Data Assembly Centre; 9th GHRSS-PP Science Team Meeting, 09/06/2008 - 13/06/2008, Perros-Guirec, Presenter(s): Helen Beggs

Majewski, L; Status of SSES at the Bureau of Meteorology; 9th GHRSS-PP Science Team Meeting, 09/06/2008 - 13/06/2008, Perros-Guirec, Presenter(s): L Majewski

Beggs, H, Majewski, L, Andreu-Burillo, I, Paltoglou, G, Verein, R; Report to GHRSS10 from Australia - BLUElink and IMOS; 10th GHRSS Science Team Meeting, 01/06/2009 - 01/06/2009, Santa Rosa, Presenter(s): Helen Beggs

Brando, V, Dekker, A, Schroeder, T, Blondeau-Patissier, D, Park, Y-J, Clementson, L, Cherukuru, N, Daniel, P; Optical complexity of the coastal waters of the Great Barrier Reef: Strategies to incorporate regional and seasonal knowledge of optical properties; Ocean Sciences Meeting, 22/02/2010 - 26/02/2010, Portland

Watson, C, White, N, Church, JA, Burgette, R, Tregoning, P, Coleman, R; In-situ Calibration: The Potential Benefits of Single-Pass, Multi-Site, Data Collection; Ocean Surface Topography Science Team (OSTST) Meeting, 18/10/2010 - 22/10/2010, Lisbon

Watson, C, White, N, Church, JA, Burgette, R, Tregoning, P, Coleman, R; Updated Results from the In situ Calibration site in Bass Strait, Australia; Ocean Surface Topography Science Team (OSTST) Meeting, 18/10/2010 - 22/10/2010, Lisbon

Brando, V; Overview of the AERONET-OC LICO site and IMOS SRS-OC cal/val activities; 23rd CEOS Calibration and Validation Working Group Meeting, 19/10/2010 - 19/10/2010, Ispra, Presenter(s): Vittorio Brando

Brando, V; Use of Overview of the AERONET-OC LICO data for cal/val activities; Hyperspectral Imager for the Coastal Ocean (HICO), First Users Meeting, 22/02/2011 - 22/02/2011, Alexandria, Presenter(s): Vittorio Brando

Beggs, H, Majewski, L, LeBorgne, P, Harris, A, Merchant, C, Paltoglou, G; GHRSS Tropical Warm Pool Diurnal Variability Project (TWP+); 12th GHRSS Science Team Meeting, 27/06/2011 - 01/07/2011, Edinburgh, Presenter(s): Helen Beggs

Symposium Presentation

Paltoglou, G, Majewski, L, Beggs, H; New Australian SST Products from the Australian Bureau Of Meteorology and the Integrated Marine Observing System; 34th International Symposium on Remote Sensing of the Environment, 11/04/2011 - 15/04/2011, Sydney, Presenter(s): G Paltoglou

Workshop Presentation

Steinberg, C; Climate change in the Australian marine environment; Climate change simulations workshop - Simulations for CMIP5 (IPCC AR5) and the data requirements for Queensland and the wet tropical regions, 20/07/2009 - 21/07/2009, Port Douglas, Presenter(s): Craig Steinberg

King, E; The Australian Oceans DAAC - Distributed Gridded Data Delivery for Marine Research; IMOS Collaboration Workshop, 19/08/2009 - 19/08/2009, Hobart, Presenter(s): Edward King

Dekker, A; Earth Observation for Marine Aquatic Ecosystems in Australia, Overview of Current and Near Future Capabilities; India-Australia Workshop on Remote sensing of Marine ecosystems, 18/03/2010 - 19/03/2010, Ahmedabad, Presenter(s): A Dekker

Schroeder, T, Brando, V, Cherukuru, N, Park, Y-J, Clementson, L, Blondeau-Patissier, D, Dekker, A, Steven, A; CSIRO's new remote sensing algorithms for quality assessment in optically complex waters; Indian-Australian Ocean Colour Workshop, 18/03/2010 - 19/03/2010, Ahmedabad, Presenter(s): T Schroeder

King, E; IMOS Satellite Remote Sensing; Optical Remote Sensing Workshop, AMSA, 08/07/2010 - 08/07/2010, Woolongong, Presenter(s): Edward King

King, E; IMOS Satellite Remote Sensing; CSIRO Earth Observation Workshop, 31/08/2010 - 31/08/2010, Canberra, Presenter(s): Edward King

Brando, V; Past, current and planned activities in Ocean Colour Cal/Val in Australia; IOCCG Ocean Colour Radiometry-Virtual Constellation (OCR-VC) workshop, 21/10/2010 - 21/10/2010, Ispra, Presenter(s): Vittorio Brando

Watson, C, White, N, Church, JA, Burgette, R, Tregoning, P, Coleman, R; Absolute Calibration in Bass Strait, Australia: Methods Applied and Lessons Learnt; Deformation Monitoring & Satellite Altimetry Workshop GNSS, 20/01/2011 - 21/01/2011, Chania

Brando, V; Overview of the AERONET-OC LICO site; AERONET-OC: 1St Workshop Overview and Future Developments, 23/02/2011 - 24/02/2011, Greenbelt, Presenter(s): Vittorio Brando

Beggs, H, Majewski, L, LeBorgne, P, Harris, A, Merchant, C, Paltoglou, G; GHRSSST Tropical Warm Pool Diurnal Variability Project (TWP+); 6th GHRSSST Diurnal Variability Working Group Workshop, 28/02/2011 - 28/02/2011, Boulder, Presenter(s): Helen Beggs

Beggs, H, Verein, R, Paltoglou, G, Thomas, A; Using IMOS Ship SST Observations for Validation of Satellite SST Observations; GHRSSST SST Validation Working Group Workshop, 01/03/2011 - 01/03/2011, Boulder, Presenter(s): Helen Beggs

Paltoglou, G, Majewski, L, Beggs, H; New Australian SST Products from the Australian Bureau Of Meteorology and the Integrated Marine Observing System; GHRSSST SST Validation Working Group Workshop, 01/03/2011 - 01/03/2011, Boulder