

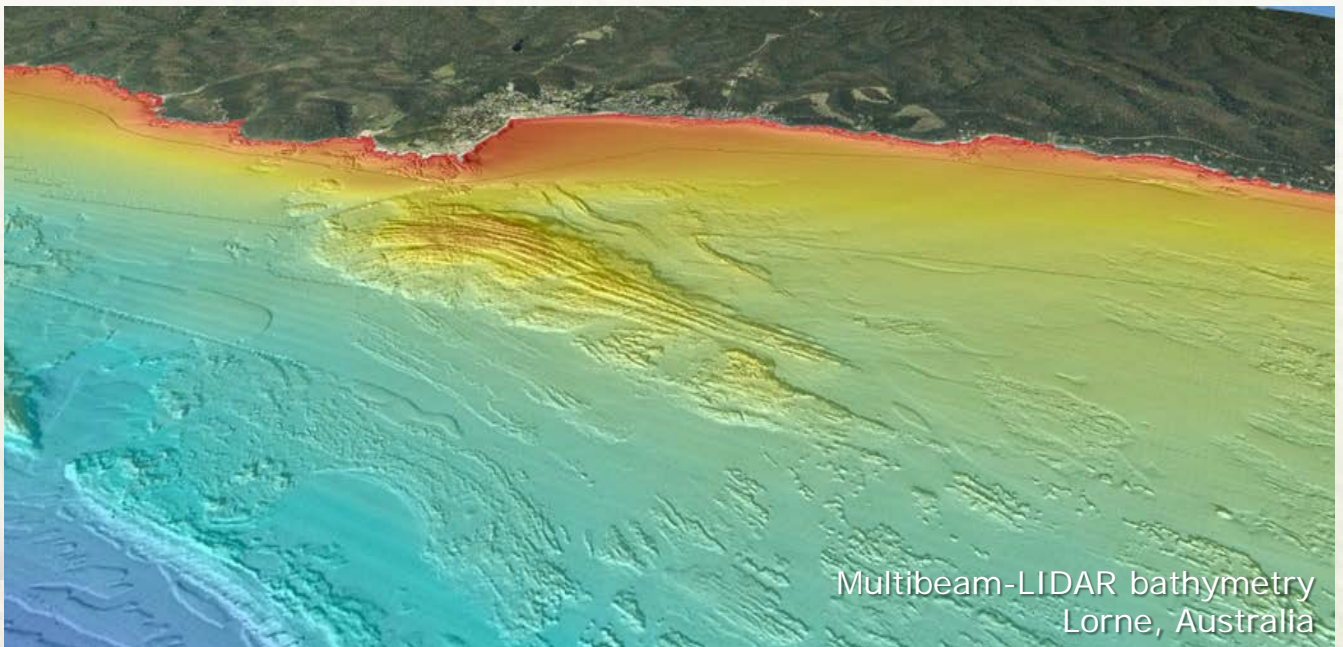


GEOHAB
Marine Geological and Biological Habitat Mapping



Australian Government
Geoscience Australia

LINKING PATTERN AND PROCESS IN MARINE SYSTEMS Second Circular



5th-9th May, 2014

LORNE, VICTORIA, AUSTRALIA

<http://www.geohab2014.org>

Hosted by Deakin University and Geoscience Australia

With the support of the Circum-Pacific Council



CIRCUM-PACIFIC COUNCIL

GEOHAB is an annual event bringing together marine biologists, geologists, acousticians, statisticians, spatial analysts and environmental managers sharing an interest in Marine Geological and Biological Habitat Mapping.

GEOHAB provides a truly multidisciplinary and exciting forum for the exchange of knowledge and ideas that underpin sustainable ocean management. The conference is organised as an informal, single-stream session, which encourages dialogue between delegates and exhibitors.

The themes of GeoHab 2014 are:

1. **Linking pattern and process in marine systems**
2. Habitat mapping for conservation and management purposes
3. Acoustic backscatter processing, classification tools and applications
4. Methods, innovations and approaches to mapping marine habitats
5. Open shelf and reef habitats
6. Marine terrestrial connections

VENUE: GeoHab 2014 will be hosted by Deakin University and Geoscience Australia from the 5th to the 9th of May, 2014, at the Cumberland Lorne Resort in [Lorne, Victoria, Australia](#).

Lorne is reached by a 2 hours drive along the Great Ocean Road from Victoria's state capital, [Melbourne](#). It is a popular beach resort situated between the cool temperate rainforest of the Great Otway National Park and the Southern Ocean.



IMPORTANT DATES:

<i>December 7th, 2013:</i>	Registration and Submission of abstracts OPEN.
<i>January 7th, 2014:</i>	Student support application CLOSES.
<i>February 28th, 2014:</i>	Abstract submission CLOSES.
<i>March 14th, 2014:</i>	Authors notified of acceptance of abstracts.
<i>April 4th, 2014:</i>	Early bird registration CLOSES.
<i>May 5th, 2014 (Mon):</i>	Pre-conference workshop. Registration OPENS. Icebreaker.
<i>May 6th, 2014 (Tues):</i>	Oral and Poster presentations.
<i>May 7th, 2014 (Wed):</i>	Oral and Poster presentations. Conference Dinner.
<i>May 8th, 2014 (Thurs):</i>	Oral and Poster presentations.
<i>May 9th, 2014 (Fri):</i>	Field trip.

Please visit the [GeoHab 2014 Agenda page](#) for a more detailed schedule.



Twelve Apostles Marine National Park

GEOHAB 2014 THEMES:

- 1. Linking pattern and process in marine systems:** Physical and biological processes influence biogeographic patterns in marine ecosystems at both ecological and geological timescales. This session is the overarching theme for the conference. It will explore multidisciplinary and multi-scalar approaches to habitat mapping, monitoring temporal change in benthic ecosystems and case histories.
- 2. Habitat mapping for conservation and management purposes:** Habitat mapping provides marine decision makers with information to make more informed choices. This session will explore applications in ecosystem-based and integrated ocean management, marine reserve design and performance, risk assessment, fisheries and other aspects of marine spatial planning. Presentations from research, industry and management are welcome.
- 3. Acoustic backscatter processing, classification tools and applications:** This session will focus on the technical aspects of acoustic backscatter signal processing and classification and advancements following from the backscatter workshop held in GeoHab 2013, Rome.
- 4. Methods, innovations and approaches to mapping marine habitats:** This session will explore predictive modeling, automated classification, and new techniques, technology and innovations for mapping habitats. Approaches for ground truthing techniques in habitat characterisation will also be welcomed including aspects such as survey design, optimisation and dealing with data issues such as spatial autocorrelation and uncertainty.
- 5. Open shelf and reef habitats:** Australia's marine jurisdiction and extensive latitudinal gradient supports diverse open shelf and reef habitats from the extensive coral reefs of the tropics to the macroalgae and sponge dominated communities on temperate reefs. This session invites presentations on habitats associated with distinct reef morphology. Investigations from shallow, mesophotic and deep reefs from Australia and abroad are welcomed.
- 6. Marine terrestrial connections:** Near shore marine zones are recognised as being most vulnerable to threats due to their proximity to anthropogenic activities. These include nutrient inputs, invasive marine pests, fisheries over-exploitation and climate change. This session invites speakers showcasing methodological approaches to map near shore zones including the application of shallow water acoustics, satellite and airborne sensors for habitat characterisation. The investigation of land-water interactions and effects on marine habitats are also welcomed.



Australian Fur Seals – Cape Otway

REGISTRATIONS are now open. Follow the instructions on the [GeoHab 2014 Registration page](#) to register. Please note that the abstract submission and registration processes are separate. Early bird fees close on **April 4th, 2014**.

FEES (Australian dollars AUD):

	Early Bird (before April 4th)	Late Registration
Students	\$200	\$250
Delegates	\$350	\$430
Workshop	\$70	\$70
Field Trip	\$70	\$70
Conference Dinner	\$80	\$80

PRESENTATIONS are possible in oral or poster mode. Choose a preferred mode of presentation and write your abstract considering that 15 minutes will be allowed for oral presentations (including question time at this stage to maintain GeoHab's organization as a single stream session). Posters should not exceed 150 cm (vertical) x 100 cm (horizontal).

ABSTRACTS should be written and submitted as a .doc file (MS Word format). Please download and use the abstract template on the [GeoHab 2014 Abstract page](#) for detailed formatting instructions.

Instructions summary: Text of abstracts should be formatted on a vertical A4 sheet, in Arial font, 10 character size and should not exceed one page, including figures at a resolution of 300 dpi minimum. The abstract document should be named after the presenting author last name, preferred mode of presentation (Oral, Poster or Nopref for no preference) and proposed session theme number (1-6), as listed on the conference themes page (eg. Brown_Oral_1.doc).

Abstracts must be submitted before **February 28th, 2014** to geohab2014@deakin.edu.au. Please include the same information in your email Subject line (eg. Abstract submission Brown_Oral_1). You will receive an acknowledgement of receipt within a few days.

The GeoHab 2014 Scientific Committee will consider all abstracts submitted before the due date, even if payment has not been completed. On **March 14th, 2014**, after all abstracts have been considered, the Scientific Committee will communicate to the authors whether their presentation has been accepted in the requested mode. Due to the limited number of oral presentations available, authors having requested this mode of presentation might be asked if they would consider converting to the poster presentation mode.



Lorne, Victoria

TRANSPORT:

Delegates are responsible for arranging their transport to the conference venue. The closest major city to Lorne is Melbourne. Melbourne has two airports: Tullamarine (1h50 drive to Lorne) and Avalon (1h15 to Lorne). We provide here some information on reaching Lorne from Melbourne Tullamarine airport. For more detailed information and information to reach Lorne from Melbourne Avalon airport or the Melbourne CBD, please visit the [GeoHab 2014 Getting There page](#).

Melbourne Tullamarine Airport to Lorne by Public Transport

Take the [Skybus](#) from Tullamarine Airport to Southern Cross Railway Station in Melbourne's city centre (AUS\$15 each way, 20min). Then use the [V-line train service](#) from Southern Cross Railway Station to Geelong and connect with coach services along the Great Ocean Road to Lorne (AUS\$19 each way, 2hrs 20min).

Melbourne Tullamarine Airport to Lorne by Car

Take the Western Ring Road (M80) south to the Princes Highway (M1), then toward Geelong. Take the Great Ocean Road turn off at Waurin Ponds (C134). This connects with the Great Ocean Road (B100). Continue along the B100 to Lorne (1hr 50min).

ACCOMMODATION:

Delegates are responsible for making their own reservations. Lorne has many beautiful places to stay. We have recommended a variety of styles and prices on the [GeoHab 2014 Accommodation page](#).

For other suggestions please visit <http://lornevictoria.com.au/> or wotif.com.

WEATHER:

Lorne is nearby the Great Otway range and its rainforest. The weather at this time of the year is quite unpredictable. Expect anything from a warm, late summer treat to heavy rainfalls. Temperatures range anywhere between 10 and 25°C (50 to 77°F). Water temperature at this time of the year is about 15°C (59°F).

STUDENT SUPPORT:

Each year, four to six students are supported by GeoHab's Ron McDowell Student Support Awards to attend GeoHab. This support is in the form of a small stipend to cover registration fee, conference dinner, travel costs and living expenses while attending the conference. Each recipient of the stipend is expected to present an oral paper at the conference and participate in the business meetings.

To apply for support, a student should be actively enrolled as an upper division B undergraduate majoring in marine science or a graduate student studying for a Masters or PhD degree in the marine sciences or associated field. Please visit the [GeoHab 2014 Student Support page](#) for more information on application requirements.

WORKSHOP: Monday 5th of May, 2014**Ground-validation for remotely sensed marine habitat mapping and species distribution modelling**

Background: The increased number of marine mapping programs around the world in recent years has resulted in the collection of a vast amount of spatial data that extend from intertidal habitats to the deep ocean. Despite the range of depths and habitats surveyed using a wide range of remote sensing tools from optical to acoustic sensors, there is a common need across mapping programs for *in-situ* ground-validation to characterise benthic habitats and allow predictions of species distributions. In part, this issue has also become more important in recent years due to an increasing focus on providing measures of error and uncertainty on predictions. Recent marine and terrestrial studies have identified the importance of understanding the underlying assumptions, characteristics and uncertainties associated with data availability and quality when choosing and applying habitat mapping approaches or species distribution models.

The issue of accurate and representative *in-situ* ground-validation is especially pertinent in the marine environment where researchers are often working in cross-disciplinary projects with multiple objectives (containing geologists, hydro-surveyors, acousticians and ecologists). With often multiple objectives there is a need to examine ways of optimising survey design in a variety of environmental conditions based on depth and clarity limitations, survey extent and habitat complexity. Questions that are logically challenging to answer with certainty include:

- Has a representative sample of habitats that occurs within a study locality been obtained?
- Have any species/habitats being overlooked or under-sampled?

The extent to which these issues can be reduced will largely depend on the availability of time and gear, logistics, expertise and availability of pre-survey data. It is clear that how these issues affect resultant habitat maps and predictions of species distributions warrants further discussion. Hence, these issues surrounding collecting adequate *in situ* ground-validation samples are highly relevant to the GeoHab community and will form the basis of a one-day pre-conference workshop.

Workshop Objective: The objective of this workshop is to provide attendees and contributors with an opportunity to present recent advances in acquisition tools, techniques and approaches to improve in-situ ground-validation of marine remote sensing data, including gear developments, statistical approaches and developing research activities within this field. It will provide contributors with a forum to discuss varying approaches, and provide attendees with a basis for discussion on optimising ground-validation design to reduce uncertainty in habitat classification and application of techniques such as species distribution modelling.

Workshop presenters who would like to talk about tools or techniques can base their presentation on a common datasets that will be made available.

WORKSHOP (CONT.):

Workshop Themes:

1. Issues with ground-validation

- New and emerging tools for in situ seafloor ground-validation of remote sensing data
- Sampling design methods for ground-validation
- Use of acoustic and optical data for stratifying biological surveys

2. Developments in habitat mapping and species distribution modelling

- Influences of ground-validation design and technique on modelling outputs
- Contrasting current approaches in habitat mapping and species distribution modelling
- Novel techniques and applications

Workshop Format: This workshop will consist of talks by invited speakers followed by presentations from individuals/groups who have accepted an invitation to present work based on either their own data or a common dataset. The morning sessions will cover topics relating to the application of in-situ ground-validation for the purpose of mapping seafloor habitats, while afternoon sessions will focus on the effects of ground-validation on habitat mapping and species distribution modelling outputs. We will be seeking contributions from individuals/groups working on tools, techniques and related research, especially new or emerging approaches.

Common Dataset: Ningaloo Marine Park, Western Australia. The Ningaloo Reef is Australia's largest fringing coral reef, extending across 300 kilometres of coastline between Exmouth and Carnarvon in northern Western Australia. In 2005 the WA Government initiated a major collaborative research effort to support management of Ningaloo Marine Park. The research was described as 'intense, coordinated and collaborative research that has produced an unprecedented wealth of knowledge about the iconic Ningaloo coastal region'. This data has since been made publically available to encourage its ongoing use by planning and management agencies, industries and other stakeholders to assist in making wise decisions about and for the region. The comprehensive datasets (including multibeam, towed video, benthic sled and baited camera) provide many opportunities to showcase the implementation of ground-validation techniques and the development of different applications of habitat mapping and species distribution modelling, offering a diversity of research questions and problems to examine in detail. [More information on the research and data can be found in the final PDF report](#) (5.8MB).

Venue & Abstracts: The workshop will take place in the Cumberland Lorne Resort in Lorne, Victoria, Australia. **The deadline for submission of abstracts is January 30th, 2014.** For more information and abstract submission, contact Alan (alan.jordan@dpi.nsw.gov.au) or Cordelia (cordelia.moore@uwa.edu.au).

Please visit the [GeoHab 2014 Workshop page](#) for details and updates.

FIELDTRIP: Friday 9th of May, 2014. Exploration of the Otway Coast**Itinerary: LORNE-APOLLO BAY-CAPE OTWAY-12 APOSTLES-LORNE**

Duration: 8am-7pm return to Lorne

The field trip will explore the Otway Coast via the Great Ocean Road, one of the world's most scenic coastal drives. Our journey will take us via sandy beaches, ancient rainforests, rocky platforms and heathlands fringed by a rugged coast. walking will be involved ~45 mins (with disabled access). Seats will be limited so book early to avoid disappointment.

Lorne to Apollo Bay

We will venture to the seaside town of [Apollo bay](#), at the foothills of the Otway Ranges, and explore the geology, ecology and history of the region. This will include a visit to the [Marengo Marine Sanctuary](#) where we will highlight the regions unique marine flora and fauna. We will visit an example of the regions rocky shore platforms and discuss micro erosion work and implications for rocky coast evolution.

Apollo Bay to Cape Otway

Our journey will then take us to Cape Otway where the Southern Ocean meets with Bass Strait. These often hostile seas supports prized Southern Rock lobster and Abalone fisheries and have claimed more [shipwrecks](#) than any other stretch of Australian Coast. We will visit the [Cape Otway Lightstation](#), which is the oldest, surviving lighthouse in mainland Australia. On the way, we will venture through manna gum forests where we will cross paths with some of Australia's iconic native fauna including koalas, kangaroos and wallabies.

Cape Otway to 12 Apostles

[The Twelve Apostles](#) is a iconic collection of limestone stacks towering up to 45m high above the Southern Ocean within a Marine National Park. We will discuss with Parks Victoria the role of habitat mapping and importance for understanding and communicating natural values within Marine National Parks and Sanctuaries. Palaeo connectivity across a now shallow sea (Bass Strait) will be discussed including mapping initiatives showing connectivity onto the shelf and drowned shorelines and river channels now submerged.

12 Apostles to Lorne

We will take the inland route back to Lorne through dense rainforests onto plains with evidence of a rich volcanic history with scattered remnant cones and craters that have shaped the region.

Organisers

David Kennedy (davidmk@unimelb.edu.au) & Daniel Ierodionou (iero@deakin.edu.au)

Cost: \$70pp (morning tea & lunch included)



FOR MORE INFORMATION:

As the conference organization progresses, many details may change and this circular may get out-dated. We will keep the [GeoHab 2014 website](#) updated, so make sure you pay us a visit there!

CO-CONVENERS:

Daniel Ierodiaconou (Deakin University). Contact: iero@deakin.edu.au
 Scott Nichol (Geoscience Australia). Contact: Scott.Nichol@ga.gov.au

LOCAL ORGANISING COMMITTEE:

David Kennedy (University of Melbourne)
 Andrew Heap (Geoscience Australia)
 Kim Picard (Geoscience Australia)
 Cordelia Moore (University Western Australia/ Australian Inst. of Marine Sc)
 Alan Jordan (New South Wales Fisheries)
 Chris Roelfsema (The University of Queensland)
 Vanessa Lucieer (University of Tasmania)
 James Daniell (James Cook University)
 Jacquomo Monk (Deakin University)
 Alexandre Schimel (Deakin University)
 Alex Rattray (Deakin University)
 Iain Parnum (Curtin University)

INTERNATIONAL SCIENTIFIC COMMITTEE:

Daniel Ierodiaconou (Australia)
 Alex Bastos (Geohab 2015 Chair, Brazil)
 Gary Greene (USA)
 Geoffroy Lamarche (New Zealand)
 Markus Diesing (United Kingdom)
 Margaret Dolan (Norway)
 Craig Brown (Canada)
 Andrea Fiorentino (Italy)
 Guy Cochrane (USA)
 Anthony Grehan (Ireland)
 Aarno Katilainen (Finland)
 Peter Harris (Australia)
 Alan Stevenson (United Kingdom)
 Terje Thorsnes (Norway)
 Mary Young (USA)



Childers Cove – Great Ocean Road

Thanks to our sponsors for making GeoHab 2014 possible! One GOLD, several BRONZE and other sponsorship options are still available to date. Sponsorship invitations can be downloaded from the [GeoHab 2014 General Information page](#).

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