APPLICATION TO PARTICIPATE IN AN IODP EXPEDITION

ESSAC Office ECORD Science Support & Advisory Committee
GEOMAR | Helmholtz Centre for Ocean Research Kiel
Wischhofstrasse 1-3
24148 Kiel, Germany
Hanno Kinkel (ESSAC Science Coordinator):
Tel: +49 431 600 2418
Fax:+49 431 600 2922
Web Page: http://www.essac.ecord.org Email: **essac@geomar.de**

Please type information

Apply to Sail Application Form

Expedition Number 374: Ross Sea West Antarctic Ice Sheet History

1. PERSONAL INFORMATION

Family name: Gales

First name: Jenny

Current Position: Post Doctoral Research Fellow (Early Career Scientist)

Institution: National Oceanography Centre / British Geological Survey

[I am currently on a three year Post Doctoral Research Fellow secondment from the British Geological Survey (BGS), Edinburgh and will return to BGS in May 2018].

Address: National Oceanography Centre, European Way

City, Postcode, Country: Southampton, SO14 3ZH, UK

Tel. work: +44 (0) 238059 6395
Tel. home: +44 (0) 77718 67746
Fax: -
Email: jgales@noc.ac.uk

Country of citizenship: United Kingdom

Place of birth/date of birth: United Kingdom, 10/03/1987

Gender: Female

Education (highest degree, including year PhD was received / is expected): PhD (received September 2013) from the British Antarctic Survey & University of Manchester in Antarctic Submarine Slope Geomorphology.

Are you currently a student? YES/**NO** Expected Graduation Date: -

2. EXPEDITION INFORMATION

Summary of proposed participation, including area of scientific interest, current research and participation plan (maximum 250 characters with space – more detail should be included in the Letter of Interest):

Full participation to use wireline log, core and geophysical data to constrain past and present processes on the continental slope contributing to key aims by reconstructing seafloor geometry and evaluating the influence of climate-induced factors.

Prior involvement with DSDP/ODP/IODP and nature of involvement (expedition number, shipboard/shore-based participation, co-chief, etc):

ECORD/IODP/ESSAC Scholarship to attend Impacts of the Cryosphere dynamics from Land to Ocean Summer School (ECORD Summer School in Montreal, Canada) in 2012.

Involvement in Antarctic ice Sheet Stability from continental Slope processes investigation (ANTSSS; CI: Stocchi) and WHISPERS (PI: De Santis) planned for January 2017 to the Eastern Ross Sea for which the main priority of the cruise is to collect further site survey information for IODP Exp.374.

Post-cruise science support to achieve the proposed scientific objectives 1) future funding scheme and 2) support from host institution (e.g. staff, facilities)

I will apply for an IODP Moratorium Award (Post-doc) to cover costs of expedition time and to support post-cruise analysis (planned for 6 months).

Post-cruise science support is also available from the host institution (e.g. staff time for data analysis) from the National Oceanography Centre and the British Geological Survey. This includes staff time allocated to this research by the British Geological Survey on return from Secondment at the National Oceanography Centre.

All facilities required for data analysis are available at the National Oceanography Centre and British Geological Survey.

Three scientific and/or personal references

Dr Rob Larter
Email: rdla@bas.ac.uk
Phone: +44 1223 221400

British Antarctic Survey
Madingley Road
Cambridge
CB30ET
United Kingdom

Professor Peter Talling
Email: peter.j.talling@durham.ac.uk
Phone: +44 7803581666

Departments of Earth Sciences and Geography
University of Durham
Science Labs
Durham DH1 3LE

United Kingdom

Dr Veerle Huvenne
Email: vaih@noc.ac.uk
Phone: +44 2380 596575

National Oceanography Centre
University of Southampton Waterfront Campus
European Way, Southampton
SO14 3ZH
United Kingdom

3. SCIENTIFIC EXPERTISE

For Scientist Jobs Descriptions visit: http://iodp.tamu.edu/participants/scientist_jobs.html

Please indicate your area(s) of expertise (maximum 3)

Discipline	Mark with X	Speciality
microbiologist		
organic and inorganic geochemist/biogeochemist		
physical properties specialist	X	Geophysics background (including BGS well-log interpretation course)
sedimentologist	X	Sediment core analysis
structural geologist		
paleontologist		
paleomagnetist		
petrologist		
hydrogeologist		
Other	X	Geophysics; Seafloor and sub-seafloor imaging (marine geophysical data collection, processing & analysis)

4. ADDITIONAL DOCUMENTS

Please, provide the following documents:

- Letter of interest, including details about area of scientific interest, current research, expedition participation plan and post-cruise research
- CV and Publication list
- Letter of recommendation (for PhD students)
- See also: http://www.essac.ecord.org/flyer/Guidelines_for_Applying_to_sail.pdf

Please, send your application form as *a MS Word document* and the additional documents in *PDF format* (preferably as one file) by email to Jan Behrmann and Hanno Kinkel at the ESSAC office: essac@geomar.de.

In addition to the ESSAC application, all applicants *must inform their national office* (if applicable) *and national delegate* and send a copy of the application documents. ECORD does not provide funds for participation; the national offices or national delegates can provide information regarding travel support, post-cruise funding opportunities, etc.

See http://www.essac.ecord.org/index.php?mod=about&page=ESSAC for a list of the national contact persons.

National Oceanography Centre
European Way
Southampton SO14 3ZH
United Kingdom
http://noc.ac.uk

26/07/2016

Re: Full participation request for IODP Exp.374: Ross Sea West Antarctic Ice Sheet History

Proposed research: Influence of ice sheet change on submarine slope processes

I am writing to apply for Full Participation in IODP Exp.374. I am a postdoctoral research fellow and early career scientist at the National Oceanography Centre. My research includes the analysis of geophysical (multibeam, subbottom profiler, seismic), geological (sediment core), oceanographic (Acoustic Doppler Current Profiler) and marine robotic (video) data to constrain glacial, sedimentary and oceanographic processes operating on high-latitude continental margins and the influence these processes have on seafloor morphology. My recent research includes analysis of one of the few known landslides to occur on the Antarctic margin[1], analysis of the geomorphology over >4000 km along Arctic and Antarctic slopes, and detailed analysis of the geomorphic signature of cascading flows of cold, dense water on Antarctic slopes[2].

My research uses multidisciplinary datasets to infer past processes from quantitative analysis of seafloor morphology. More recently, this has involved analysis of in-situ measurements of active processes within canyons (e.g. sediment gravity flows) using deep-sea moorings housing Acoustic Doppler Current Profilers, sediment traps, and repeat bathymetric surveys to understand directly the influence of these events on the seafloor. A major driver of my research is understanding how climate affects these processes, such as the influence of climate on large-scale mass wasting on Antarctic slopes. I have a strong interest in understanding the links between landslide triggering, sedimentary processes and the influence of glaciation on the stability of Antarctic margins. This involves understanding past ice sheet history, frequency and timing of landslides, triggering factors, tsunami risks and likelihood of future slides associated with climate change.

I have comprehensive seagoing experience, having participated in seven research cruises (including two polar cruises) and the capacity to collect, process, interpret and analyse geophysical data. In the last two years I have spent 19 weeks on geological research cruises and have experience in sediment core collection, logging and analysis and well as post-cruise analysis. Most recently (Aug. 2015), I acted as Co-PI during a six week cruise to the Whittard Canyon, Celtic margin where I had responsibility for conducting Remotely Operated Vehicle – Vibrocoring activities, Autonomous Underwater Vehicles and traditional coring methods.

As an early career researcher, I have not yet been involved in a DSDP/ODP/IODP scientific expedition, although in 2012 I was awarded an ECORD scholarship to attend the three-week ECORD/ESSAC/IODP 'Impacts of the Cryosphere dynamics from Land to Ocean' Summer School in Montreal, Canada. Next year, I hope to participate in the Site Survey cruise for the above IODP exp.374 to the Eastern Ross Sea planned for January 2017 through involvement in the ANTSSS (Antarctic ice Sheet Stability from continental Slope processes investigation; CI: Stocchi) and the WHISPERS (West Antarctic Ice Sheet History from Slope Processes – Eastern Ross Sea; PI: De Santis) projects. A key aim of the expedition is to improve understanding of the context of the proposed exp.374 drill sites by collecting multichannel seismic profiles. My role in the projects are to provide expertise on modern and past Antarctic slope processes, and their expression on seafloor morphology including the occurrence of submarine gullies and submarine slides on the continental slope.

My work is increasingly being recognised at an international level, exemplified by multiple first-author publications, involvement in international grants, multiple invited international conference presentations, selected talks at international department seminars, competitively won conference travel and fieldwork grants, invitations to review manuscripts in high-impact journals, and multiple invited first-author contributions to a seminal Atlas on glacial submarine geomorphology. I am extremely passionate about and consistently active in marine research, having also undertaken two international research stays during my PhD.

I have support (staff time and available facilities for data analysis) from my host institution (National Oceanography Centre) and from the British Geological Survey on return from my three year post-doctoral secondment for data analysis and will apply for a six month IODP Moratorium Award (Post-Doc) to cover further post-cruise analysis. I also plan on submitting proposals in the near future for early career awards (e.g.

International Association of Sedimentology grant, NERC New Investigator Scheme) to support further post-cruise analysis.

Plan for post-cruise analysis: <u>Influence of ice sheet change on submarine slope processes</u>

i) Overview

The need to substantially improve knowledge about the future behaviour of the West Antarctic Ice Sheet has taken on a new urgency with rates of ice loss doubling in recent years around Antarctica[3]. Oceanographic observations show significant changes in water masses in the Ross Sea, potentially warning of future larger changes. Thus, knowledge of how the ice sheets responded to past climate changes and its sensitivity to future warming, and the associated contribution to sea-level rise, is essential. Geological archives and seafloor geophysical data, outlined in the IODP Exp.374 proposal, will provide key insights into past ocean circulation, ice sheet dynamics and climate change and thus are critical for future ice sheet and sea level predictions. Slope processes modify these records through erosion, remobilisation and deposition, limiting our ability to interpret past processes and ice dynamic histories from the depositional record. Understanding the processes operating on the Antarctic continental margin is therefore essential for interpreting ice-sheet change including seafloor erosion patterns, continental margin and canyon evolution, large-scale slope instability and sediment core records from the continental slope and rise.

A major factor influencing high-latitude slope processes is the extent, duration and behaviour of ice-sheets which can affect subglacial meltwater discharge, production of cascading flows of cold, dense water, the location and volume of sediment deposited at the shelf edge and sediment gravity flows and mass-wasting associated with this. The effects of large-scale mass wasting can be hazardous with generated tsunamis and turbidity currents posing significant risk to coastal populations, seafloor installations and infrastructure. The factors that precondition a slope to failure, trigger landslide initiation, and control the timing and frequency of landslides, remain poorly tested and widely debated. Central to this is the influence of glaciation on the stability of high-latitude slopes, and in particular, the influence of sediment-laden subglacial meltwater. Previous seismic records show that subglacial meltwater was abundant during the middle Miocene (~14 Ma)[4], likely leading to erosion of extensive channel-levee systems on the Ross Sea margin[5]. Miocene mass wasting features have been likened to landslides observed on the NW European margin[6] which were formed during a warmer period when glacial meltwater was likely to be abundant and sea level higher, leading to interbedded sequences of glaciomarine and open-marine sediments. The difference in landslide incidence between northern and southern polar margins, with Antarctic landslides uncommon, provides a unique opportunity to examine the factors influencing landslide occurrence by evaluating if and why Antarctic mass-wasting were more abundant in the geological past, their paucity in the Quaternary record and the primary factors and key processes influencing landslide occurrence. Constraining the influence of climate-induced factors on slope processes remains a major challenge, with significant implications for predicting and mitigating risks associated with future slope instability, tsunami generation and sea level rise.

ii) Primary research goals, scientific approach and contribution to Exp.374 objectives

The primary research goals are to examine past and present processes operating on the Eastern Ross Sea margin and the influence these processes have on the seafloor morphology, slope and rise sedimentation. A key aim is to assess how these processes are influenced by changing climate through changes in WAIS timing, extent and meltwater abundance. IODP Exp.374 provides a unique opportunity to examine the record of past processes, including submarine mass-wasting, from the Eastern Ross Sea continental margin to the rise through depth transects of drill sites through the Neogene to Quaternary providing wireline logging and sedimentological data. Combined with new bathymetric and seismic data, this provides a unique dataset to study past and present processes influencing the Eastern Ross Sea margin. See Table 1 for details.

This research will contribute to the key science objectives of IODP Exp.374 (Table 1) by providing constraints on past and present processes operating on the Eastern Ross Sea slope. More specifically, the research will provide a significant contribution to Objective 5 (and also 1 and 3): 'Reconstruct Eastern Ross Sea bathymetry to examine relationship between sea-floor geometry, ice sheet stability/instability, and global climate' by investigating the effect of climate / oceanic change, WAIS evolution and the influence of past and present slope processes on seafloor morphology and sedimentology.

Table 1. Primary research goals, post-cruise analysis and contribution to expedition objectives.

Primary Objective	**Key questions**	**Scientific approach for post-expedition analysis**	**Contribution to IODP Exp.374 objectives**
Objective 1: To constrain recent slope	1) Is there evidence of mass-wasting on the Eastern Ross Sea	i) New **geophysical data** (multibeam, subbottom profiler, seismic) from the Eastern Ross Sea continental margin and	Contribution to *Objective 5*: by reconstructing + evaluating outer shelf /

processes on the Eastern Ross Sea margin and the influence of these processes on seafloor morphology.	margin and slope? 2) Is there geomorphic evidence for cascading flows of cold, dense water e.g. submarine gullies? 3) What are the main processes influencing Eastern Ross Sea sedimentation and seafloor morphology?	slope will allow processes that are operating, or have operated in the past, to be inferred from quantitative analysis of seafloor morphology (e.g. cascading flows of cold, dense water, turbidity currents, debris flows, mass-wasting, contour currents). ii) Comparison of slope morphology in analogous areas of Antarctica, including the southern Weddell Sea margin (one the most important areas of cold, dense water production).	slope morphology; relationship to ice extent (+global climate). Contribution to *Objective 1*: by constraining ice advance limits by evaluating outer shelf / slope morphology. Contribution to *Objective 3*: by assessing geomorphic signal of cold, dense water overflow on slope.
Objective 2: To analyse past slope processes, including the timing and frequency of turbidites within sedimentary sequences along a depth transect of drill sites from the outer shelf to continental rise with the aim of identifying the influence of ice sheet variability and subglacial meltwater.	1) What is the occurrence, frequency and timing of turbidites along depth transect of drill sites from the outer shelf to rise e.g. do turbidites relate to glacial / climate cycles? Were turbidites more frequent during periods of ice retreat? Is this linked to subglacial meltwater? Is there evidence of mass-wasting? 2) Is there evidence of meltwater discharge and other processes operating on the slope? 3) How does the Ross Sea compare to turbidite records in existing Antarctic / Arctic DSDP/ODP/IODP sites?	i) Analysis of **wireline logging data** and **sediment analysis** of cores to identify occurrence, frequency + timing of turbidites and to evaluate evidence of slope processes (e.g. particle grain size analysis; lithology): 1) *Target 1*. *EBOCS-03B (555m water depth).* Located at shelf edge during mid Miocene so core + wireline log would contain sedimentary sequences providing evidence of slope processes spanning to the Pleistocene. 2) *Target 2*. *EBOCS-04B (480m water depth).* Located at the outer shelf, this site will provide evidence of Plio-Pleistocene sequences. 3) *Target 3*. *RSCR-01B (1400m water depth); (or alternatively RSCR-04A, 06A, 05A, 07A, 03A, 08A).* Located on the slope so will provide evidence of slope processes. 4) *Target 4. RSCR-02B (2400m water depth); (or alternatively RSCR-09A, 010A, 11A, 12A).* Located on the continental rise. ii) Comparison of turbidite record with existing DSDP/ODP/IODP sites (e.g. Weddell Sea (IODP leg 113); Prydz Bay (ODP leg 188); Wilkes Land (IODP leg 318)).	Contribution to *Objective 1*: Wireline logging / sedimentological analysis of EBOCS 3+4, RSCR1+2; evaluation of processes influencing sedimentology. Contribution to *Objective 3*: Wireline logging / sedimentological analysis of EBOCS 3+4, RSCR1+2. Contribution to *Objective 5*: Wireline logging / sedimentological analysis of EBOCS 3+4, RSCR1+2; evaluation of processes influencing sedimentology.

The proposed contribution to IODP Exp.374 presents a timely and important opportunity to substantially improve our understanding of past and present high-latitude processes, the behaviour of the West Antarctic Ice Sheet and risks associated with future ice sheet and sea level change and slope instability which is of significant global importance. I believe my research interests and experience could greatly benefit the objectives of IODP Exp.374.

Yours sincerely,
Jenny Gales

1. Gales, J.A., Leat, P.T., Larter, R.D., Kuhn, G., Hillenbrand, C.-D., Graham, A.G.C., Mitchell, N.C., Tate, A.J., Buys, G.B., Jokat, W., 2014. Large-scale submarine landslides, channel and gully systems on the southern Weddell Sea margin, Antarctica. Marine Geology 348, 73-87.

2. Gales, J.A., Larter, R.D., Mitchell, N.C., Hillenbrand, C.-D., Østerhus, S., Shoosmith, D. 2012. Southern Weddell Sea shelf edge geomorphology: Implications for gully formation by the overflow of high-salinity water. Journal of Geophysical Research - Earth Surface 117, F04021, doi:10.1029/2012JF002357.

3. McMillan, M., Shepherd, A., Sundal, A., Briggs, K., Muir, A., Ridout, A., Hogg, A., Wingham, D. 2014. Increased ice losses from Antarctica detected by CryoSat-2. Geophysical Research Letters 14, 3899-3905.

4. Anderson, J., and L.R. Bartek 1992. Cenozoic glacial history of the Ross Sea revealed by intermediate resolution seismic reflection data combined with drill site information. Pp. 213–263 in The Antarctic Paleoenvironment: A Perspective on Global Change. J.P. Kennett and D.A. Warnke, eds, Antarctic Research Series, vol. 56, American Geophysical Union.

5. De Santis, L., Anderson, J.B., Brancolini, G., and Zayatz, I., 1995. Seismic record of late Oligocene through early Miocene glaciation on the central and eastern continental shelf of the Ross Sea. In Cooper, A.K., Barker, P.F., and Brancolini, G., (Eds.), Geology and Seismic Stratigraphy of the Antarctic Margin. Antarctic Research Series, 68:235–245.

6. Nielsen, T., De Santis, L., Dahlgren, K.I.T., Kuijpers, A., Laberg, J.S., Nygård, A., Praeg, D., Stoker, M.S., 2005. A comparison of the NW European glaciated margin with other glaciated margins. Marine and Petroleum Geology 22, 1149-1183.

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Please type information

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Expedition Number 374: Ross Sea West Antarctic Ice Sheet History

1. PERSONAL INFORMATION

Family name: Hernández Almeida

First name: Iván

Current Position: Postdoctoral Researcher

Institution: MARUM-University of Bremen

Address: Leobener Strasse 2

City, Postcode, Country: Bremen, 28359, Germany

Tel. work: 0421 218 - 65975
Tel. home:
Fax:
Email: ihernandez@marum.de

Country of citizenship: Spain

Place of birth/date of birth: Salamanca, Spain/24.10.1981

Gender: Male

Education (highest degree, including year PhD was received / is expected): PhD

Are you currently a student? NO Expected Graduation Date:

2. EXPEDITION INFORMATION

Summary of proposed participation, including area of scientific interest, current research and participation plan (maximum 250 characters with space – more detail should be included in the Letter of Interest):

I intend to establish a radiolarian biostratigraphy for the Ross Sea, and to to develop a radiolarian-based transfer function to reconstruct sea-surface temperatures to identify the sensitivity of the West Antarctic Ice-Sheet to oceanic conditions.

Prior involvement with DSDP/ODP/IODP and nature of involvement (expedition number, shipboard/shore-based participation, co-chief, etc):

IODP Exp. 349: (Shipboard) I participated as micropaleontologist (radiolarian specialist). Currently working on a project with material recovered during this expedition.

IODP Exp. 344: (Shore-based) I studied of planktonic foraminifera assemblages from Site U1381C, in collaboration with Dr. Paula Diz Ferreiro (PI of the project).

IODP Exp. 306: (Shore-based) I studied material recovered during this expedition as part of my PhD.

Post-cruise science support to achieve the proposed scientific objectives 1) future funding scheme and 2) support from host institution (e.g. staff, facilities)

I am a postdoctoral researcher at the MARUM-University of Bremen, funded by the Swiss National Science Foundation until May 2017. I have just applied for another 20 months of funding within the program (Swiss SNF), until December 2018. Moreover, during the next year I intend to apply for several additional fellowships (DFG, SPP-527 IODP, IF-Marie Curie) to continue my research.

MARUM is an internationally distinguished research institution, with a special focus on the study of Ocean and Climate. The lab infrastructure at MARUM allows performing a variety of highly sophisticated analyses of marine sediments (e.g. micropaleonotology, core scanning and logging, mass spectrometry). Moreover, MARUM hosts the IODP Bremen Core Repository, the IODP Micropaleontological Reference Center (MRC), and the World Data Center for Marine Environmental Sciences (PANGAEA).

Three scientific and/or personal references

Francisco Javier Sierro. Professor at University of Salamanca, Spain (sierro@usal.es)

Michal Kucera. Professor at MARUM-Dean of the University of Bremen, Germany (mkucera@marum.de)

Gabriel M. Filippelli. Professor at Indiana University-Purdue University of Indianapolis (gfilippe@iupui.edu)

3. SCIENTIFIC EXPERTISE

For Scientist Jobs Descriptions visit: http://iodp.tamu.edu/participants/scientist_jobs.html

Please indicate your area(s) of expertise (maximum 3)

Discipline	Mark with X	Speciality
microbiologist		
organic and inorganic geochemist/biogeochemist		
physical properties specialist		
sedimentologist		
structural geologist		
paleontologist	x	Radiolaria, planktonic foraminifera
paleomagnetist		
petrologist		
hydrogeologist		
Other		

4. ADDITIONAL DOCUMENTS

Please, provide the following documents:

- Letter of interest, including details about area of scientific interest, current research, expedition participation plan and post-cruise research
- CV and Publication list
- Letter of recommendation (for PhD students)
- See also: http://www.essac.ecord.org/flyer/Guidelines_for_Applying_to_sail.pdf

Please, send your application form as *a MS Word document* and the additional documents in *PDF format* (preferably as one file) by email to Jan Behrmann and Hanno Kinkel at the ESSAC office: essac@geomar.de.

In addition to the ESSAC application, all applicants *must inform their national office* (if applicable) *and national delegate* and send a copy of the application documents. ECORD does not provide funds for participation; the national offices or national delegates can provide information regarding travel support, post-cruise funding opportunities, etc.

See http://www.essac.ecord.org/index.php?mod=about&page=ESSAC for a list of the national contact persons.

Dr. Jenny A. Gales

PERSONAL DETAILS

National Oceanography Centre
European Way
Southampton
Email: jgales@noc.ac.uk

Nationality: British
Gender: Female
Date of birth: 10/03/1987
Phone: +44 (0)777 186 7746

EDUCATION

2009 - 2013	British Antarctic Survey; University of Manchester	PhD; Antarctic submarine slope geomorphology.
2008 - 2009	University of Southampton	Master of Research (73%); Marine Geology & Geophysics.
2005 - 2008	University of Southampton	BSc (First Class Hons); Oceanography with Physical Geography.

WORK EXPERIENCE

July 2016 – Present	National Oceanography Centre, Southampton	Manager of Malvern Mastersizer sediment laboratory
March 2015 – Present	National Oceanography Centre, Southampton	Postdoctoral Research Fellow (Secondment from BGS)
June 2013 – Mar 2015	British Geological Survey, Edinburgh	Marine Geoscientist
Sept - Dec 2012	University of Tromsø, Norway	Three month Research Stay
June - Aug 2010	Statoil ASA, Trondheim, Norway	Two month Research Internship
2008 - 2009	Dorset Wildlife Trust; The University of Southampton	Geophysical Research Technician

ACADEMIC PRIZES, AWARDS AND GRANTS

2016	EGU Travel Grant.
2014	EUROFLEETS Scholarship for proposal-writing workshop, Tallinn, Estonia.
2012	ECORD/IODP/ESSAC Scholarship for international Summer School (EU 1000).
2012	Research Council of Norway- *YGGDRASIL* (Young Guest and Doctoral Researchers' Annual Scholarship for Investigation and Learning) Grant (NOK 41,000) for three month research stay at the University of Tromsø, Norway.
2012	Prize for 'Best Presentation', Student Science Symposium, British Antarctic Survey.
2010	American Association of Petroleum Geologists (AAPG) Grant. (*Marta S. Weeks Named Grant*; $3000) for Antarctic fieldwork.
2010	Antarctic Funding Initiative (AFI) Grant for Antarctic Fieldwork.
2009	University prize 'Best Master of Research Project', University of Southampton.
2008	Scholarship for Master of Research year, University of Southampton.

FIELDWORK, TRAINING AND RESEARCH EXPERIENCE

April 2016	Monterey Canyon – Coordinated Canyon Experiment, MBARI, California. *2 week turbidity current monitoring research cruise (ROV, mooring, ADCP)*
Aug 2015	Whittard Canyon research cruise on RRS *James Cook (Co-PI)*. *6 week marine robotics (AUV, ROV, glider) + marine geology cruise; 3 days Co-Principal Investigator (testing ROV-operated vibrocorer; ROV, AUV planning and deployment; piston core planning and deployment).*
Jul 2015	BRITICE-CHRONO II research cruise on RRS *James Cook*. *5 week marine geology research cruise.*
Jun 2015	Active Turbidity Current Monitoring Field Experiment, Squamish, Canada. *Two week field experiment using two small vessels, geophysical survey, ADCP moorings and sediment cores to monitor submarine sediment flows*

	(Talling, Hughes Clarke, Canadian Geological Survey).
Aug 2014	BRITICE-CHRONO I research cruise on RRS *James Cook.*
	6 week marine geology research cruise (3 weeks working as marine engineer; 3 weeks science party).
Feb 2014	EUROFLEETS ship-time and proposal-writing workshop, Tallinn, Estonia.
	5 day workshop on cruise planning and proposal writing.
Jan 2014	Well-log interpretation course, British Geological Survey, Edinburgh.
Nov 2013	Seismic interpretation course (5 day), British Geological Survey, Edinburgh.
Sept 2012	Norwegian Fjords Research Cruise, northern Norway.
	1 week geophysical research cruise to Norwegian fjords and slope.
Jul 2012	ECORD/ESSAC/IODP Impacts of the Cryosphere Summer School, Canada.
	3 week summer school in Montreal and Lac Walker, Quebec (Seismic, multibeam, sediment coring, ROV, water column sampling).
Jan - Mar 2011	Antarctic research cruise, southern Weddell Sea, Antarctica.
	11 week research cruise on RRS *James Clark Ross to South Orkney Islands and southern Weddell Sea, Antarctica.*
June - Aug 2010	Internship at Statoil ASA, Trondheim, Norway.
	2 month internship involving 3D seismic data processing and analysis of the Angolan continental margin.
May 2010	ArcGIS for scientific research training course (5 day), British Antarctic Survey.
April 2010	NERC public engagement course (2 day), Swindon.
2006 - 2007	Oceanographic training, Solent and Falmouth.
	3 weeks inshore and offshore survey training on range of working vessels using range of scientific equipment.

ELECTED OFFICES AND PROFESSIONAL MEMBERSHIPS

2015 -	Co-organiser and co-chair of Geology, Geochemistry & Geophysics seminar series
2010 - 2012	Treasurer of UK Polar Network (UKPN)
2010 - 2011	Student Representative, British Antarctic Survey
2008 - 2009	MRes. Student Representative, Southampton University

Geological Society of America; Quaternary Research Association; International Glaciological Society.

ENG1 Seagoing Medical certificate; STCW 95 Personal Survival Techniques; OGUK medical.

TEACHING EXPERIENCE

May 2016	Invited guest lecturer on Glaciers and Glaciation 3rd year module (University of Southampton).
2015 -	Primary and Co-supervisor of three University of Southampton MSci Students. • Bonnie Pickard: *Processes influencing Canadian fjord geomorphology*. • Paul Shawyer: *Down-canyon changes in the character and timing of submarine flow events in Whittard Canyon.* • Harry Eady: *Sediment analysis of Monterey Canyon cores.*
Sept 2012	Teacher on Norwegian fjords research cruise (3rd year research methods module for University of Tromsø, Norway).
Sept 2011	Chair of mentoring panel for early career researchers at International Glaciological Society meeting.
2009	Demonstrator on Seafloor Exploration and Surveying course (University of Southampton 3rd year module).

PUBLICATIONS

Gales, J.A., Leat, P.T., Larter, R.D., Jokat, W. 2016. Components of an Antarctic trough mouth fan: examples from the Crary Fan. In: Dowdeswell, J.A., Canals, M., Jakobsson, M., Todd, B.J., Dowdeswell, E.K., Hogan, K.A. (Eds). Atlas of Submarine Glacial Landforms: Modern, Quaternary and Ancient. Geological Society, London, Memoirs.

Gales, J.A., Larter, R.D., Leat, P.T. 2016. Iceberg scours and associated sediment ridges on the southern Weddell Sea margin. In: Dowdeswell, J.A., Canals, M., Jakobsson, M., Todd, B.J., Dowdeswell, E.K., Hogan, K.A. (Eds). Atlas of Submarine Glacial Landforms: Modern, Quaternary and Ancient. Geological Society, London, Memoirs.

Gales, J.A., Leat, P.T., Larter, R.D. 2016. Submarine gullies on the southern Weddell Sea slope. In: Dowdeswell, J.A., Canals, M., Jakobsson, M., Todd, B.J., Dowdeswell, E.K., Hogan, K.A. (Eds). Atlas of Submarine Glacial Landforms: Modern, Quaternary and Ancient. Geological Society, London, Memoirs.

Forwick, M., Laberg, J.S., Husum, K., **Gales, J.A.** 2015. Submarine mass wasting on Hovgaard Ridge, Fram Strait, European Arctic. In: Lamarche, G., Mountjoy, J. (Eds) et al. Submarine Mass Movements and Their Consequences. Springer International Publishing, pp. 253-263.

Gales, J.A., Leat, P.T., Larter, R.D., Mitchell, N.C., Hillenbrand, C.-D., Tate, A.T., Buys, G.B., Jokat, W., Kuhn, G. 2014. Large-scale submarine landslides, channel and gully systems on the southern Weddell Sea margin, Antarctica. Marine Geology 348, 73-87.

Gales, J.A., Forwick, M., Larter, R.D., Laberg, J.S., Vorren, T., Graham, A.G.C., Baeten, N.J., Amundsen, H. 2013. Arctic and Antarctic submarine gullies - a comparison of high latitude continental margins. Geomorphology 201, 449-461.

Gales, J.A., Larter, R.D., Mitchell, N.C., Dowdeswell, J.A. 2013. Geomorphic signature of Antarctic submarine gullies: Implications for continental slope processes. Marine Geology 337, 112-124.

Gales, J.A., Larter, R.D., Mitchell, N.C., Hillenbrand, C.-D., Østerhus, S., Shoosmith, D. 2012. Southern Weddell Sea shelf edge geomorphology: Implications for gully formation by the overflow of high-salinity water. Journal of Geophysical Research - Earth Surface 117, F04021, doi:10.1029/2012JF002357.

Larter, R.D., Graham, A.G.C., Hillenbrand, C.-D., Smith, J.A., **Gales, J.A**. 2012. Late Quaternary grounded ice extent in the Filchner Trough, Weddell Sea, Antarctica: new marine geophysical evidence. Quaternary Science Reviews 53, 111-122.

Gales, J.A. 2011. The Geology, Substrate and Habitats of the Dorset Seabed. Dorset Wildlife Trust, Channel Coast Observatory publication.

PUBLICATIONS IN PREPERATION

Gales, J.A., Talling, P., Hughes Clarke, J., Stacey, C. 2016. Major controls on turbidity current systems and delta morphology: insight from Canadian fjords (*In prep*.).

Gales, J.A., Talling, P., Mitchell, N., Huvenne, V. 2016. Active processes influencing the fine-scale morphology of submarine canyons – new insights from marine robotics (*In prep*.).

PRESENTATIONS

Paull, C.K., Anderson, K., Barry, J., Caress, D.W., Chaffey, M., **Gales, J.,** Gwiazda, R., Kieft, B., Lundsten, E., Maier, K.L., McGann, M., McCann, M., Parsons, D., Talling, P., Rosenberger, K., O'Reilly, T., Xu, J. & Monterey Coordinated Canyon Experiment Team. 2016. Most detailed direct measurements yet of turbidity currents in the deep ocean: Monterey Coordinated Canyon Experiment. *AGU Fall Meeting, San Francisco*.

Gales, J.A., Larter, R.D., Talling, P., Mitchell, N., Huvenne, V. 2016. Active processes operating on submarine canyon flanks – insights from marine robotics. *Geological Society of America Annual Meeting (Invited Talk).*

Gales, J.A., Larter, R.D., Talling, P., Mitchell, N., Huvenne, V. 2016. Active processes influencing fine-scale gully morphology in submarine canyons – new insights from marine robotics. *Martian Gullies and their Earth Analogues, London.*

Gales, J.A., Bradwell, T., Stoker, M. 2014. Glacier fluctuations and sediment architecture in the fjords of western Scotland: evidence from the subsurface. *EGU General Assembly Conference.*

Gales, J.A., Larter, R.D., Mitchell, N., Leat, P., Laberg, J.S., Forwick, M. 2014. Processes influencing gully formation on high-latitude continental margins. *International Network for Submarine Canyon Investigation and Scientific Exchange.*

Gales, J.A., Larter, R.D., Mitchell, N., Leat, P., Laberg, J.S., Forwick, M. 2014. High-latitude submarine slope instability: gully forming mechanisms. *Eurofleets Preparatory Workshop, Tallinn, Estonia*.

Gales, J.A., Forwick, M., Laberg, J.S., Larter, R.D., Mitchell, N. 2013. High-latitude continental slope geomorphology: a comparison of some Arctic and Antarctic gullies. *EGU General Assembly Conference.*

Gales, J.A., Leat, P.T., Larter, R.D., Mitchell, N.C., Tate, A.T., Buys, G.B., Jokat, W., Kuhn, G. 2013. Submarine landslides on the Crary trough mouth fan, Antarctica. *6th International Symposium on Submarine mass movements and their consequences, Kiel, Germany.*

Gales, J.A., Leat, P.T., Larter, R.D., Mitchell, N.C., Tate, A.T., Buys, G.B., Jokat, W., Kuhn, G. 2013. Slides, gully and channel systems of the southern Weddell Sea. *International Association of Sedimentology Meeting, Manchester.*

Gales, J.A., Larter, R.D., Forwick, M., Laberg, J.S. 2012. High-latitude continental slope geomorphology- a comparison of submarine gullies. *Invited speaker at National Oceanography Centre, Southampton.*

Gales, J.A, Larter, R.D., Forwick, M., Laberg, J.S. 2012. High-latitude continental slope geomorphology- a comparison of submarine gullies. *Invited speaker at University of Tromsø, Norway.*

Gales, J.A, Larter, R.D., Mitchell, N.C., Hillenbrand, C.-D., Østerhus, S., Shoosmith, D. 2011. Southern Weddell Sea shelf edge geomorphology. *Antarctic Funding Initiative Conference, Cambridge.*

Gales, J.A, Larter, R.D., Mitchell, N.C., Hillenbrand, C.-D., Østerhus, S., Shoosmith, D. 2011. Geomorphic signature of cold, dense water overflow. *International Symposium on Antarctic Earth Sciences, Edinburgh.*

APPLICATION TO PARTICIPATE IN AN IODP EXPEDITION

ESSAC Office ECORD Science Support & Advisory Committee
GEOMAR | Helmholtz Centre for Ocean Research Kiel
Wischhofstrasse 1-3
24148 Kiel, Germany
Hanno Kinkel (ESSAC Science Coordinator):
Tel: +49 431 600 2418
Fax:+49 431 600 2922
Web Page: http://www.essac.ecord.org Email: **essac@geomar.de**

Please type information

Apply to Sail Application Form

Expedition Number 374: Ross Sea West Antarctic Ice Sheet History

1. PERSONAL INFORMATION

Family name: Hernández Almeida

First name: Iván

Current Position: Postdoctoral Researcher

Institution: MARUM-University of Bremen

Address: Leobener Strasse 2

City, Postcode, Country: Bremen, 28359, Germany

Tel. work: 0421 218 - 65975
Tel. home:
Fax:
Email: ihernandez@marum.de

Country of citizenship: Spain

Place of birth/date of birth: Salamanca, Spain/24.10.1981

Gender: Male

Education (highest degree, including year PhD was received / is expected): PhD

Are you currently a student? NO Expected Graduation Date:

2. EXPEDITION INFORMATION

Summary of proposed participation, including area of scientific interest, current research and participation plan (maximum 250 characters with space – more detail should be included in the Letter of Interest):

I intend to establish a radiolarian biostratigraphy for the Ross Sea, and to to develop a radiolarian-based transfer function to reconstruct sea-surface temperatures to identify the sensitivity of the West Antarctic Ice-Sheet to oceanic conditions.

Prior involvement with DSDP/ODP/IODP and nature of involvement (expedition number, shipboard/shore-based participation, co-chief, etc):

IODP Exp. 349: (Shipboard) I participated as micropaleontologist (radiolarian specialist). Currently working on a project with material recovered during this expedition.

IODP Exp. 344: (Shore-based) I studied of planktonic foraminifera assemblages from Site U1381C, in collaboration with Dr. Paula Diz Ferreiro (PI of the project).

IODP Exp. 306: (Shore-based) I studied material recovered during this expedition as part of my PhD.

Post-cruise science support to achieve the proposed scientific objectives 1) future funding scheme and 2) support from host institution (e.g. staff, facilities)

I am a postdoctoral researcher at the MARUM-University of Bremen, funded by the Swiss National Science Foundation until May 2017. I have just applied for another 20 months of funding within the program (Swiss SNF), until December 2018. Moreover, during the next year I intend to apply for several additional fellowships (DFG, SPP-527 IODP, IF-Marie Curie) to continue my research.

MARUM is an internationally distinguished research institution, with a special focus on the study of Ocean and Climate. The lab infrastructure at MARUM allows performing a variety of highly sophisticated analyses of marine sediments (e.g. micropaleonotology, core scanning and logging, mass spectrometry). Moreover, MARUM hosts the IODP Bremen Core Repository, the IODP Micropaleontological Reference Center (MRC), and the World Data Center for Marine Environmental Sciences (PANGAEA).

Three scientific and/or personal references

Francisco Javier Sierro. Professor at University of Salamanca, Spain (sierro@usal.es)

Michal Kucera. Professor at MARUM-Dean of the University of Bremen, Germany (mkucera@marum.de)

Gabriel M. Filippelli. Professor at Indiana University-Purdue University of Indianapolis (gfilippe@iupui.edu)

3. SCIENTIFIC EXPERTISE

For Scientist Jobs Descriptions visit: http://iodp.tamu.edu/participants/scientist_jobs.html

Please indicate your area(s) of expertise (maximum 3)

Discipline	Mark with X	Speciality
microbiologist		
organic and inorganic geochemist/biogeochemist		
physical properties specialist		
sedimentologist		
structural geologist		
paleontologist	x	Radiolaria, planktonic foraminifera
paleomagnetist		
petrologist		
hydrogeologist		
Other		

4. ADDITIONAL DOCUMENTS

Please, provide the following documents:

- Letter of interest, including details about area of scientific interest, current research, expedition participation plan and post-cruise research
- CV and Publication list
- Letter of recommendation (for PhD students)
- See also: http://www.essac.ecord.org/flyer/Guidelines_for_Applying_to_sail.pdf

Please, send your application form as *a MS Word document* and the additional documents in *PDF format* (preferably as one file) by email to Jan Behrmann and Hanno Kinkel at the ESSAC office: essac@geomar.de.

In addition to the ESSAC application, all applicants *must inform their national office* (if applicable) *and national delegate* and send a copy of the application documents. ECORD does not provide funds for participation; the national offices or national delegates can provide information regarding travel support, post-cruise funding opportunities, etc.

See http://www.essac.ecord.org/index.php?mod=about&page=ESSAC for a list of the national contact persons.

Dr. Iván Hernández Almeida
MARUM-University of Bremen
Leobner Strasse, 2
28359 Bremen
Germany
E-mail: ihernandez@marum.de

ESSAC Office
GEOMAR
Helmholtz Centre for Ocean Research Kiel
Ostufer Wischhofstrasse 1-3
24148 Kiel
Germany

Bremen, July 12th, 2016

Dear Dr. Jan H. Behrmann and Dr. Hanno Kinkel,

I am a marine geologist specialized in micropaleontology. During my scientific career, I have been involved in different IODP projects. During my PhD at the University of Salamanca, I studied samples from IODP Exp. 306 (North Atlantic Climate), using a multi-proxy approach, with focus on micropaleontological analysis (radiolarians and planktonic foraminifera). During January-March 2014, I joined the IODP Exp. 349 (South China Sea Tectonics) as **radiolarian specialist**. At present, I hold a Post-doc position at MARUM, at University of Bremen. My current project, funded by the Swiss National Science Foundation (SNSF), focuses on the quantitative reconstruction of sea surface temperatures and productivity in the South China Sea using radiolarian assemblages and geochemical proxies.

My main research interest is the study of radiolarian assemblages and their paleoecological response to oceanographic/climatic changes at millennial and at glacial/interglacial timescales. For this, I develop radiolarian-based transfer functions for its application to fossil assemblages. The consistent and often abundant occurrence of radiolarians in marine sediments in Antarctic continental shelves provides a rare opportunity to undertake quantitative analysis of high-latitude radiolarian population changes through the Neogene and Quaternary. Moreover, radiolarian biostratigraphy is an important tool for synchronizing climate and environmental events at global scale, especially at high latitudes.

My post-expedition research plans include establishing an improved high-resolution Antarctic biostratigraphy using radiolarians that will help to understand the mechanisms controlling West Antarctic Ice Sheet (WAIS) evolution through the Neogene and Quaternary. In addition, I intend to develop quantitative reconstructions of environmental variables. Regional transfer functions will be applied to the fossil radiolarian assemblages recovered during the Expedition 373 to reconstruct sea surface temperatures, which will provide direct evidence role of temperature on WAIS instability.

Besides this, I will use abundance, diversity and preservation indices of radiolarians as an indicator of paleonvironemntal changes on longer time-scales that evidence the sensitivity of the WAIS under different boundary conditions.

I am currently funded by the SNSF, until May 207. I recently have submitted a follow-up proposal to extend this funding until December 2018 (near 50% of success at the 2015 call). During the next year I also intend to apply for other funding schemes, such as Marie Curie, DFG and Schwerpunktprogramm 527 Bereich Infrastruktur - IODP fellowships. I have access at the MARUM at University of Bremen to all the facilities and instruments I will need for the optimal study of the sediments recovered in this Expedition, and I benefit from my collaboration with other scientists/research groups at my home institution. For all those reasons I consider that sailing on the IOPD 374 Expedition: Ross Sea West Antarctic Ice Sheet History will be of great benefit to my scientific career.

I hope I have convinced you that I my expertise can be of benefit to IODP Exp. 373. I look forward to hearing from you.

Yours sincerely,

Iván Hernández Almeida

CURRICULUM VITAE
IVÁN HERNÁNDEZ ALMEIDA

MARUM-University of Bremen
Leobener Str. D-28359 Bremen

PERSONAL

E-Mail: ihernandez@marum.de
Phone: +41 78 972 32 33; +49 152 55 618 873
Date of birth: 24/10/1981, Salamanca, Spain

I am a young, active geologist with a strong record of mobility. I have studied and carried out research in Spain, the US, Norway, Switzerland and Germany. Currently I work as a post-doctoral researcher at the Center for Marine and Environmental Sciences (MARUM) at the University of Bremen. My research interest is the understanding of Paleoclimate, Paleoceanography and Paleoenvironmental conditions in both terrestrial and oceanic systems, mainly through the study of Microfossils. I have been involved in several projects related to IODP and participated in the Expedition 349 (South China Sea Tectonics) as the radiolarian especialist. I use biostratigraphy, quantitative methods (transfer functions) and multi-proxy approaches (e.g. biogeochemistry, stable isotopes) to reconstruct past conditions during the Cenozoic, with particular interest in the Climate evolution during the Neogene and Quaternary, forcing factors and feedbacks.

EDUCATION AND RESEARCH

Since 03/2016	Postdoctoral researcher funded by a Swiss National Science Foundation Advance Postdoc Mobility fellowship (P300P2_164634) at the MARUM, University of Bremen, Germany. Project title: Sensitivity of East Asian Winter Monsoon to changes in sea surface temperature and productivity in the South China Sea on millennial time scales.
03/2012-02/2016	Post-doctoral research within the CLIMPOL project (Swiss Contribution to the enlarged EU PSPB-086/2010), Institute of Geography and Oeschger Centre for Climate Change Research, University of Bern, Switzerland.
10/2014-09/2015	M.Sc. in Advanced Statistics. National Distance Education University (UNED), Spain. 60 ECTS credits.
07/2011-01/2012	Research assistant. Department of Geology, University of Salamanca, Spain.
07/2007-06/2011	Ph.D. research at the Department of Geology, University of Salamanca, Spain. Thesis title: *'Orbital and sub-orbital climate variability in the North Atlantic during the Pleistocene (1070-780 ka)'*. (Defended on 10/06/2011) Main supervisor: Prof. Dr. Francisco Javier Sierro Honoured with *Summa Cum Laude* and 'European Doctor' Mention

06/2005-06/2007	M.Sc. in Geology. University of Salamanca, Spain.
01/2005-06/2005	Certificate of Advanced Studies in Higher Education (CAS). University of Salamanca, Spain
09/1999-01/2005	B.Sc. Degree in Geology. University of Salamanca, Spain.

STAYS AT RESEARCH CENTERS

03/2010-06/2010	Natural History Museum-University of Oslo, Norway. Supervisor: Prof. Dr. Kjell R. Bjørklund
03/2009-06/2009	Natural History Museum-University of Oslo, Norway. Supervisor: Prof. Dr. Kjell R. Bjørklund
08/2008-12/2008	Indiana University-Purdue University of Indianapolis (IUPUI), USA. Supervisor: Dr. Gabriel M. Filippelli
09/2007-12/2007	University of Barcelona, Spain. Supervisor: Dr. Isabel Cacho

PARTICIPATION IN RESEARCH PROJECTS

03/2016-present	'Sensitivity of East Asian Winter Monsoon to changes in sea surface temperature and productivity in the South China Sea on millennial time scales' (P300P2_164634) PI:Iván Hernández-Almeida
03/2012-02/2016	'CLIMPOL: Constraining the future with the past' (PSPB-086/2010) PI: Wojtek Tylmann and Martin Grosjean
8/2013-11/2014	'Environment variability in the Eastern Equatorial Pacific (Costa Rica continental margin) during the Pleistocene'' (EM2013/012) PI: Paula Diz Ferreiro
2009-2011	'Abrupt Climate Changes in the North Atlantic during the Plio-Pleistocene' (CGL2009-08651) PI: Francisco Javier Sierro and José-Abel Flores
2007-2011	'GRACCIE: Multidisciplinary Research Consortium on Gradual and Abrupt Climate Changes, and their Impacts on the Environment' (CONSOLIDER-INGENIO CSD 2007-00067) PI: Joan O. Grimalt and Francisco Javier Sierro
2007-2011	'Earth sciences and Society' (CT-09-1402) PI: Mª Ángeles Bárcena Pernía
2005-2008	'Orbital and Suborbital Climate Variability in the North Atlantic and Western Mediterranean during the last 500 ka' (CGL2005-00642/BTE) PI: Francisco Javier Sierro

TEACHING AND SUPERVISING

2014-2015	Teaching and lab assistant for M.Sc. in Climate Sciences, Methods in Paleolimnology (5 hours per semester). University of Bern.
11/2014	Workshop *'Quantitative methods in paleoclimate'*. M.Sc. in Oceanography, University of Vigo, Spain.
05/2014-07/2014	Co-supervisor short research stay by Ph.D student Blanca Ausín, from University of Salamanca, Spain
2014	Co-supervisor M.Sc. project by P.A.J. Pinninghoff, Graduate School of Climate Sciences, University of Bern. Thesis title: *'Climatic and environmental history of the past 1700 years recorded in the sediments of Laguna Espejo (39˚S) south-central Chile.'*
2009-2010	Teaching assistant for B.Sc. Degree in Geology courses: 'Paleobiology and metazoan evolution' (1 hour per week, winter semester), 'Micropaleontology' (2 hours per week, winter semester); and for B.Sc. Degree in Biology course: 'Geology' (1 hour per week, summer semester), University of Salamanca.

GRANTS AND AWARDS

Personal Fellowships and Awards

- Outstanding Doctoral Thesis Award 2011 in Geological Sciences. University of Salamanca, Spain.
- Ph.D. funding from the Spanish Ministry of Education and Science (4 years).
- Scholarship for B.Sc. studies from the Spanish Ministry of Culture, Sport and Education, University of Salamanca (5 years).

Travel Grants

- Travel grant to participate in the 12th International NCCR Climate Summer School. 1- 6 September 2013. Grindelwald, Switzerland (1200 CHF).
- IGBP-PAGES Travel grant to participate in the 2nd Young Scientists Meeting/4th Open Science Meeting. 11-16 February 2013. Goa, India (2000 CHF).
- University of Bern Travel grant to participate in the 12th International Paleolimnology Symposium. 21-24 August 2012. Glasgow, United Kingdom (1000 CHF).
- Spanish Ministry of Education and Science Travel grants for four research stays during PhD. Spanish Ministry of Education and Science (17250 €).
- Marie Curie action-Travel grant to participate in the course 'Proxies in Paleoclimatology: Education and Research. Paleoclimate II: orbital forcing, data and models'. 07-14 October 2005. University of Bratislava, Slovakia (1100 €).

WORKSHOPS AND TRAINING

09/2014	CLIMPOL IV milestone meeting IV and workshop. Gdansk, Poland
06/2014	13th Young Researchers Meeting 'Science and Communication'. Spiez, Switzerland
09/2013	CLIMPOL III milestone meeting IV and workshop. Gdansk, Poland
09/2013	12th International NCCR Climate Summer School, Grindelwald, Switzerland
10/2012	CLIMPOL II milestone meeting IV and workshop. Gdansk, Poland
09/2012	Course 'Analysing Palaeolimnological Data with R', lecturer: Steve Juggins and Gavin Simpson, University of Glasgow, United Kingdom
08/2012	Course 'Multivariate statistical methods in palaeoenvironmental research: ordination, hypothesis testing and quantitative reconstruction', lecturer: Oliver Heiri, University of Bern, Switzerland.
02/2008	Course 'Thematic Mapping and GIS'. Spanish Geographical Institute (online).
02/2007	Course 'Geographic Information Systems (GIS)'. Spanish Geographical Institute (online).
07/2006	Course 'Advanced data analysis with SPSS'. University of Salamanca, Spain
04/2006	Course 'Statistics using SPSS'. University of Salamanca, Spain
10/2005	Course 'Proxies in Paleoclimatology: Education and Research. Paleoclimate II: orbital forcing data and models'. University of Bratislava, Slovakia.

INVITED PRESENTATIONS

18/06/2015	A chrysophyte-based transfer function as a tool for winter severity reconstructions in NE Poland during the past millennium. IGBP-PAGES International Conference on "Climate variability and human impacts in Central and Eastern Europe during the last two millennia", Gdansk, Poland
25/11/2014	'The secrets of the South China Sea: results of IODP Expedition 349'. Faculty of Marine Sciences, University of Vigo, Spain.
02/12/2010	'Research methods in Paleoceanography: a window for understanding the climate change (past, present, and future?)'. Department of Philosophy, University of Salamanca, Spain.

CONFERENCES PRESENTATIONS (only first author)

28-30/09/2015	'Radiolarian-based transfer functions as proxy for reconstruction of East Asian Winter Monsoon in the South China Sea' (poster). 1st Post-cruise meeting IODP Expedition 349, Shanghai, China
09/09/2015	'Sensitivity of East Asian Winter Monsoon to changes in sea surface temperature and productivity in the South China Sea on millennial time scales' (oral). IODP 2nd Swiss Drilling Day, Bern, Switzerland.

17-19/06/2015 ‘Chrysophyte cyst-inferred variability of warm season lake water chemistry and zonal wind in northern Poland’ (poster). IGBP-PAGES International Conference on Climate variability and human impacts in Central and Eastern Europe during the last two millennia, Gdansk, Poland.

17-19/06/2015 ‘Chrysophyte cysts population dynamics in northern Poland: a two-years sediment trap experiment’ (poster). IGBP-PAGES International Conference on Climate variability and human impacts in Central and Eastern Europe during the last two millennia, Gdansk, Poland.

27/02-03/03/2014 ‘Subsurface warming in the subpolar North Atlantic during rapid climate events in the Early and Mid-Pleistocene’ (poster). European Geosciences Union General Assembly, Vienna, Austria.

27/02-03/03/2014 ‘Chrysophyte cyst-inferred variability of warm season lake water chemistry and climate in northern Poland: training set and downcore reconstruction’ (oral); ‘Subsurface warming in the subpolar North Atlantic during rapid climate events in the Early and Mid-Pleistocene’ (poster). European Geosciences Union General Assembly, Vienna, Austria.

26-28/08/2013 ‘Coupling of millennial-scale events in surface and deep water in the subpolar North Atlantic during the early and mid-Pleistocene’ (oral). UniBern-Pages Open Science Conference on Isotopes of Carbon, Water, and Geotracers in Paleoclimate Research, Bern, Switzerland.

10-19/02/2013 ‘Developing a chrysophyte-based cold-season temperature transfer function and a calibration-in-time model to reconstruct environmental variables in Polish lakes’ (poster); ‘Suborbital ice-sheets variability in the subpolar North Atlantic during the Early and Mid-Pleistocene (MIS 31–19) as a response of low-latitude forcing’ (poster). PAGES 4th Open Science Meeting & 2nd Young Science Meeting, Goa, India.

21-24/08/2012 ‘Lake selection and design of a training set to develop climate transfer functions for biological proxies in Polish lakes’ (oral). 12th International Paleolimnology Symposium, Glasgow, United Kingdom.

25-29/03/2012 ‘Pleistocene Radiolarian assemblages as indicators of paleoceaonographic changes in the subpolar North Atlantic (Gardar Drift, IODP Leg 306, Site U1314)’ (poster). 13th InterRad. International Conference on Fossil and Recent Radiolarians, Cádiz, Spain.

21-23/04/2011 ‘Ice-sheet dynamics and ocean circulation variability in the North Atlantic during the Mid-Pleistocene Transition (1069-779 ka)’ (oral). 1st Joint RCMNS-RCANS Interim Colloquium, Salamanca, Spain.

19-20/09/2011 ‘Climate variability at orbital and sub-orbital scale during the Early Pleistocene (1070-779 ka)’ (oral). 4th Multidisciplinary Research Consortium on Gradual and

	Abrupt Climate Changes, and their Impacts on the Environment (GRACCIE), Salamanca, Spain.
07-09/09/2011	'Ice-sheet surges in the subpolar North Atlantic during the Pleistocene: Impact on surface circulation patterns' (poster). VIII Symposium of Polar Studies, Mallorca, Spain.
27/05/2011	'Characterization and interpretation of the detrital-rich layers at Site U1314 (North Atlantic) during marine isotope stages (MIS) 21-19 (830-779 ka)' (oral). 50th Meeting of the Geological Society of Spain. Vigo, Spain.
29/08-03/09/2010	'The Middle Pleistocene palaeoclimatic record of North Atlantic deep-sea sediments (IODP Site U1314) revealed by faunal and geochemical Proxies' (poster). 10th International Conference on Paleoceanography. San Diego, USA.
14-18/12/2009	'Glacial/Interglacial Variability in Terrigenous Input and Paleoproductivity in the North Atlantic during the Middle Pleistocene (MIS 19 to MIS 31)' (poster). American Geophysical Union Fall meeting. San Francisco, USA.
14-19/12/2008	'A 220-ka history (MIS 19-31) of ice sheet variability, primary productivity and sea surface temperature in the North Atlantic' (poster). American Geophysical Union Fall meeting. San Francisco, USA.
15-17/05/2008	'North Atlantic Climate Change during the Mid-Pleistocene (MIS 19 to MIS 31) based on foraminifer and isotopes studies in IODP site 1314' (poster). The Micropalaeontological Society's Foraminifera and Nannofossil Groups Joint Spring Meeting. Tübingen, Germany.
28-31/03/2007	'Seasonal variability of biogenic fluxes in the Alboran Sea (Western Mediterranean) as response to global climatic events' (poster). International Symposium in Marine Sciences. Valencia, Spain.
25-28/05/2006	'Materials and techniques in sediment trap analyses: tools for the paleoceanographic record' (oral). 4th Young Researchers on Palaeontology Meeting. Salamanca, Spain.
04-06/10/2005	'Seasonal dynamic of the coccolithophore assemblages in the Albora Sea (Western Mediterranean) and its relationship with the water column structure' (oral). 21th Meeting of the palaeontological society of Spain. Sevilla, Spain.
27/05/2005	'Influence of 1997-98' El Niño Event on the planktonic communities from the Alboran Sea (Western Mediterranean)' (oral). 39th Meeting of the Geological Society of Spain. Ciudad Real, Spain.

FIELD EXPERIENCE

26/01-30/03/2014	Expedition scientist (radiolarian specialist) at the IODP Expedition 349: South China Sea Tectonics
18-29/07/2012	Fieldwork assistant in Poland, sampling lakes and collecting sediment traps, as part of the CLIMPOL project.

LABORATORY AND ANALYTICAL SKILLS

- Experience with the R-language and SPSS software, data analyses and statistics
- Experience with Geographic Information Systems and ArcGIS software
- Optical microscope and scanning electron microscope handling, image analyses
- Microfossil preparation, classification and analyses (foraminifera, radiolarians, coccolithophores, diatoms, chrysophytes)
- Analyses of stable isotopes and trace metals on foraminifers
- Mass spectrometers for elemental and stable isotope ratio analyses, and geochemical analyses (CHNS Analyzer, biogenic silica)

OTHER PROFESSIONAL ACTIVITIES

Organizing committee in scientific events

12-21/11/2010	1st Latin-American Science and Technology Fair; *Empirika*. Salamanca, Spain.
18-23/10/2007	1st Polar Meeting, Salamanca, Spain.
25-28/05/2006	4th Young researchers on palaeontology meeting. Salamanca, Spain.
24-27/10/2005	EUROSTRATAFORM Final Meeting and PROMESS 2nd Annual Meeting, Salamanca, Spain.

Membership and working groups

- European Geoscience Union
- Geological Society of Spain

Refereeing for international scientific journals

- Global and Planetary Change
- Journal of Paleolimnology
- Palaeogeography, Palaeoclimatology, Palaeoecology
- Paleoceanography
- The Holocene

Review editor

- Frontiers in Ecology and Evolution (Paleoecology)

LANGUAGE SKILLS

- Spanish: native
- English: fluent in speaking and writing
- French: basic in speaking and writing

PUBLICATION LIST

PUBLISHED (peer-reviewed journals)

* 1st authored by co-supervised PhD student

- *Postdoctoral*

Witak, M**., Hernández-Almeida, I.**, Grosjean, M., Tylmann, W. Diatom-based reconstruction of past trophic status recorded in varved sediments of Lake Żabińskie, AD 1888-2010 (2016). Accepted in Oceanological and Hydrobiological Studies (on 7th June 2016) *(Data/statistical analyses and interpretation)*

Hernández-Almeida, **I.,** Grosjean, M., Gómez Navarro, J.J., Larocque-Tobler, I., Enters, D., Piotrowska, N, Gabryś, A., Wacnik, A., Witak, M., Bonk, A., Tylmann, W. Land-use changes, climate and ecosystem dynamics of Lake Żabińskie (NE Poland) during the last millennium: the CLIMPOL project (2016). The Holocene , in press. doi: 10.1177/0959683616658529

Sanchez Goñi, M.F., Rodrigues, T., Hodell, D., Polanco, J., Alonso-Garcia, M., **Hernandez-Almeida, I.** Dominant 5-kyr cyclicity in the atmosphere of southwestern Europe during Marine Isotopic Stage 19, a period of low eccentricity modulation (2016). Submitted to Earth and Planetary Science Letters 448, 81-9, doi:10.1016/j.epsl.2016.05.018 *(Data/statistical analyses and interpretation)*

de Jong, R., Schneider, T., **Hernández-Almeida, I.**, Grosjean, M. Recent temperature trends in the south Central Andes reconstructed from sedimentary chrysophyte stomatocysts in Laguna Escondida (1742 m.a.s.l., 38°28 S, Chile) (2016). Global and Planetary Change, 137, 24–34, doi:10.1016/j.gloplacha.2015.12.006 *(Data/statistical analyses and interpretation)*

Ding, W., Lia, J., Clift, P. and IODP Expedition 349 (**Hernández-Almeida, I.** as co-author). Scientists Spreading dynamics and sedimentary process of the Southwest Sub-basin, South China Sea: Constraints from multi-channel seismic data and IODP Expedition 349 (2016). Journal of Asian Earth Sciences 115, 97-113, doi:10.1016/j.jseaes.2015.09.013 *(Biostratigraphy and data analyses)*

* Ausín, B., **Hernández-Almeida, I.**, Flores, J.A., Sierro, F.J., Grosjean, M., Francés, G., Alonso, B. Development of coccolithophore-based transfer functions in the Western Mediterranean Sea: a sea surface salinity reconstruction for the last 15.5 kyr (2015c). Climate of the Past 11, 1635-1651, doi:10.5194/cp-11-1635-2015 *(Supervision of the first author, data/statistical analyses and interpretation)*

Hernández-Almeida, I., Grosjean, M., Tylmann, W., Przybylak, R., (2015b). A chrysophyte-based quantitative reconstruction of winter severity from varved lake sediments in NE Poland during the past millennium and its relationship to natural climate variability, Quaternary Science Reviews, 122:74-88, doi:10.1016/j.quascirev.2015.05.029

Li, C.-F., Li, J., Ding, W., Franke, D., Yao, Y., Shi, H., Pang, X., Cao, Y., Lin, J., Zhu, J., Kulhanek, D. K., Williams, T., Bao, R., Briais, A., Brown, E. A., Chen, Y., Clift, P. D., Colwell, F. S., Dadd, K. A., **Hernández-Almeida, I.**, Huang, X.-L., Hyun, S., Jiang, T., Koppers, A. A. P., Li, Q., Liu, C., Liu, Q., Liu, Z., Nagai, R. H., Peleo-Alampay, A., Su, X., Sun, Z., Tejada, M. L. G., Trinh, H. S., Yeh, Y.-C., Zhang, C., Zhang, F., Zhang, G.-L., and Zhao, X. (2015). Seismic stratigraphy of the central South China Sea basin and implications for neotectonics, Journal of Geophysical Research, 120(3): 1377–1399, doi: 10.1002/2014JB011686 *(Biostratigraphy and data analyses)*

* Ausín, B., Flores, J. A., Sierro, F. J., Cacho, I., **Hernández-Almeida, I.**, Martrat, B., and Grimalt, J. O. (2015b). Atmospheric patterns driving Holocene productivity in the Alboran Sea (Western Mediterranean): A multiproxy approach, The Holocene 25, 1–13, doi: 10.1177/0959683614565952 *(Co-supervision of the first author, design and drafting the article and interpretation of data)*

* Ausín, B., Flores, J. A., Sierro, F. J., Bárcena, M. A., **Hernández-Almeida, I.**, Francés, G., Gutiérrez-Arnillas, E., Martrat, B., Grimalt, J. O., and Cacho, I. (2015a). Coccolithophore productivity and surface water dynamics in the Alboran Sea during the last 25 kyr, Palaeogeography, Palaeoclimatology, Palaeoecology, 418, 126-140, http://dx.doi.org/10.1016/j.palaeo.2014.11.011 *(Co-supervision of the first author, data/statistical analyses and interpretation)*

Hernández-Almeida, I., Sierro, F. J., Cacho, I., and Flores, J. A. (2015a). Subsurface North Atlantic warming as a trigger of rapid cooling events: evidences from the Early Pleistocene (MIS 31–19), Climate of the Past, 11, 687–696, doi: 10.5194/cpd-10-4033-2014.

Li, C.-F., Xu, X., Lin, J., Sun, Z., Zhu, J., Yao, Y., Zhao, X., Liu, Q., Kulhanek, D. K., Wang, J., Song, T., Zhao, J., Qiu, N., Guan, Y., Zhou, Z., Williams, T., Bao, R., Briais, A., Brown, E. A., Chen, Y., Clift, P. D., Colwell, F. S., Dadd, K. A., Ding, W., **Hernández-Almeida, I.**, Huang, X.-L., Hyun, S., Jiang, T., Koppers, A. A. P., Li, Q., Liu, C., Liu, Z., Nagai, R. H., Peleo-Alampay, A., Su, X., Tejada, M. L. G., Trinh, H. S., Yeh, Y.-C., Zhang, C., Zhang, F., and Zhang, G.-L. (2014). Ages and magnetic structures of the South China Sea constrained by deep tow magnetic surveys and IODP Expedition 349, Geochemistry, Geophysics, Geosystems, 15, 4958-4983, doi: 10.1002/2014gc005567 *(Biostratigraphy and data analyses)*

Hernández-Almeida, I., Grosjean, M., Tylmann, W., and Bonk, A. (2014). Chrysophyte cyst-inferred variability of warm season lake water chemistry and climate in northern Poland: training set and downcore reconstruction, Journal of Paleolimnology, 1-16, doi: 10.1007/s10933-014-9812-4

Saavedra-Pellitero, M., Baumann, K. H., **Hernández-Almeida, I.**, Flores, J. A., and Sierro, F. J. (2013). Modern sea surface productivity and temperature estimations off Chile as detected by coccolith accumulation rates, Palaeogeography, Palaeoclimatology, Palaeoecology, 392, 534-545, doi: http://dx.doi.org/10.1016/j.palaeo.2013.10.010 *(Data/statistical analyses, and interpretation)*

- *PhD*

Hernández-Almeida, I., Sierro, F. J., Flores, J.-A., Cacho, I., and Filippelli, G. M. (2013b). Palaeoceanographic changes in the North Atlantic during the Mid-Pleistocene Transition (MIS 31–19) as inferred from planktonic foraminiferal and calcium carbonate records, Boreas, 42, 140-159, doi: 10.1111/j.1502-3885.2012.00283.x

Hernández-Almeida, I., Bjørklund, K. R., Sierro, F. J., Filippelli, G. M., Cacho, I., and Flores, J. A. (2013a). A high resolution opal and radiolarian record from the subpolar North Atlantic during the Mid-Pleistocene Transition (1069–779 ka): Palaeoceanographic implications, Palaeogeography, Palaeoclimatology, Palaeoecology, 391, Part A, 49-70, doi: http://dx.doi.org/10.1016/j.palaeo.2011.05.049

Hernández-Almeida, I., Sierro, F. J., Cacho, I., and Flores, J. A. (2012). Impact of suborbital climate changes in the North Atlantic on ice sheet dynamics at the Mid-Pleistocene Transition, Paleoceanography, 27, PA3214, doi: 10.1029/2011pa002209

Hernández-Almeida, I., Bárcena, M. A., Flores, J. A., Sierro, F. J., Sanchez-Vidal, A., and Calafat, A. (2011). Microplankton response to environmental conditions in the Alboran Sea (Western Mediterranean): One year sediment trap record, Marine Micropaleontology, 78, 14-24, doi: http://dx.doi.org/10.1016/j.marmicro.2010.09.005, 2011.

Hernández-Almeida, I., Sierro, F. J., Suárez, M., Filippelli, G. M., and Flores, J. A. (2011). Characterization and interpretation of the detrital-rich layers at Site U1314 (North Atlantic) during marine isotope stages (MIS) 21-19 (830-779 ka), Geogaceta, 50(2), 157-160.

Rigual-Hernández, A. S., Bárcena, M. A., Sierro, F. J., Flores, J. A., **Hernández-Almeida, I.**, Sanchez-Vidal, A., Palanques, A., and Heussner, S. (2010). Seasonal to interannual variability and geographic distribution of the silicoflagellate fluxes in the Western Mediterranean, Marine Micropaleontology, 77, 46-57, doi: http://dx.doi.org/10.1016/j.marmicro.2010.07.003 *(Acquisition of data and interpretation)*

Hernández-Almeida, I., Bárcena, M. A., Sierro, F. J., Flores, J. A., and Calafat, A. (2005). Influence of 1997-98' El Niño event on the planktonic communities from The Alboran Sea (Western Mediterranean), Geogaceta, 183-186, 2005.

REPORTS

Li, C.-F., Lin, J., Kulhanek, D.K., Williams, T., Bao, R., Briais, A., Brown, E.A., Chen, Y., Clift, P.D., Colwell, F.S., Dadd, K.A., Ding, W., **Hernández Almeida, I.**, Huang, X.-L., Hyun, S., Jiang, T.,

Koppers, A.A.P., Li, Q., Liu, C., Liu, Q., Liu, Z., Nagai, R.H., Peleo-Alampay, A., Su, X., Sun, Z., Tejada, M.L.G., Trinh, H.S., Yeh, Y.-C., Zhang, C., Zhang, F., Zhang, G.-L., and Zhao, X. (2015). Proceedings of the International Ocean Discovery Program (IODP), 349: South China Sea Tectonics. College Station, TX. http://dx.doi.org/10.14379/iodp.proc.349.2015 *(Scientist in IODP Expedition 349 and analyses of radiolarians onboard)*

Expedition 349 Scientists (**Hernández-Almeida**, **I.** as co-author) (2014). South China Sea tectonics: opening of the South China Sea and its implications for southeast Asian tectonics, climates, and deep mantle processes since the late Mesozoic, Preliminary Report Expedition 349. International Ocean Discovery Program, 1-109, doi:10.14379/iodp.pr.349.2014. *(Scientist in IODP Expedition 349 and analyses of radiolarians onboard)*

Sierro, F.J., **Hernandez-Almeida, I.**, Alonso-Garcia, M., Flores, J.A. (2009). Data report: Pliocene–Pleistocene planktonic foraminifer bioevents at IODP Site U1313. In: Channell, J.E.T., Kanamatsu, T., Sato, T., Stein, R., Alvarez Zarikian, C.A., Malone, M.J., the Expedition 303/306 Scientists (Eds.), Proceedings of the Integrated Ocean Drilling Program, Volume 303/306. College Station, TX. doi:10.2204/iodp.proc.303306.205.2009 *(Acquisition of data and interpretation)*

CONTRIBUTION TO BOOKS

Alonso-García, M., Álvarez, M., **Hernández-Almeida, I.**, Saavedra-Pellitero, M. (2009). La paleoclimatología y el Cambio Climático. In: J. A. Flores (Ed.).'Cambio Climático y Sociedad'. International University of Andalusia Ed. pp: 122-141. ISBN 978-84-7993-090-5.

IN PREPARATION

Diz, P., Bernardez, P., Perez-Arlucea, M. and **Hernández Almeida, I**. Paleoceanographic evolution of the East Pacific Equatorial margin off Costa Rica over the last six glacial cycles (Hole U1381C, IODP Expedition 344).

Saunders, K., **Hernández-Almedia, I.**, Hodgson, D., Curran, M., Vance, T., Zawadzki, A., Goralewski, J. and Grojsean, M. High-resolution Southern Hemisphere westerly wind reconstructions using sub-Antarctic lake sediments: an example from Macquarie Island (54°S).

APPLICATION TO PARTICIPATE IN AN IODP EXPEDITION

ESSAC Office ECORD Science Support & Advisory Committee
GEOMAR | Helmholtz Centre for Ocean Research Kiel
Wischhofstrasse 1-3
24148 Kiel, Germany
Hanno Kinkel (ESSAC Science Coordinator):
Tel: +49 431 600 2418
Fax:+49 431 600 2922
Web Page: http://www.essac.ecord.org Email: **essac@geomar.de**

Please type information

Apply to Sail Application Form

Expedition Number 374: Ross Sea West Antarctic Ice Sheet History

1. PERSONAL INFORMATION

Family name: Hochmuth

First name: Katharina

Current Position: Postdoctoral Researcher

Institution: Alfred-Wegener-Institut, Helmholtz-Zentrum für Polar- und Meeresforschung

Address: Am Alten Hafen 26

City, Postcode, Country: Bremerhaven, 27568, Germany

Tel. work: +49-471-4831-1041
Tel. home: +49-17621985155
Fax: +49-471-4831-1149
Email: Katharina.Hochmuth@awi.de

Country of citizenship: Germany

Place of birth/date of birth: Würzburg, Germany

Gender: female

Education (highest degree, including year PhD was received / is expected):
PhD received in 2016 at the University of Bremen

Are you currently a student? NO Expected Graduation Date:

2. EXPEDITION INFORMATION

Summary of proposed participation, including area of scientific interest, current research and participation plan (maximum 250 characters with space – more detail should be included in the Letter of Interest):

Integration of cores into reflection seismic network via measured physical properties and down-hole logging, paleobathymetric modelling, connection to the adjacent Antarctic sectors and drill sites

Prior involvement with DSDP/ODP/IODP and nature of involvement (expedition number, shipboard/shore-based participation, co-chief, etc):

- Core Laboratory assistant during onshore science parties of IODP 313 and IODP 325
- Assistance in preparation IODP Full Proposal 839 "Amundsen Sea West Antarctic Ice Sheet History", now scheduled as IODP 379
- Participation in IODP workshop " Antarctica's Cenozoic Ice and Climate History:New science and new challenges of drilling in Antarctic waters" in May 2016, College Station USA

Post-cruise science support to achieve the proposed scientific objectives 1) future funding scheme and 2) support from host institution (e.g. staff, facilities)

1) DFG proposal + support from institution 2) Lab infrastructure at AWI

Three scientific and/or personal references

Dr. Karsten Gohl (PhD supervisor, Chief Scientist on research cruise So-246)

Alfred-Wegener-Institut, Helmholtz-Zentrum für Polar- und Meeresforschung

Am Alten Hafen 26

D-27568 Bremerhaven

e-mail: karsten.gohl@awi.de

Dr. Bryan Davy (Senior Scientist on research cruise So-246)

GNS Science

1 Fairway Drive, Avalon 5010
PO Box 30-368, Lower Hutt 5040
New Zealand

bdavy@gns.cri.nz

Dr. Gabriele Uenzelmann-Neben (PhD advisor, Chief Scientist on research cruise So-224)

Alfred-Wegener-Institut, Helmholtz-Zentrum für Polar- und Meeresforschung

Am Alten Hafen 26

D-27568 Bremerhaven

Gabriele.Uenzelmann-Neben@awi.de

3. SCIENTIFIC EXPERTISE

For Scientist Jobs Descriptions visit: http://iodp.tamu.edu/participants/scientist_jobs.html

Please indicate your area(s) of expertise (maximum 3)

Discipline	Mark with X	Speciality
microbiologist		
organic and inorganic geochemist/biogeochemist		
physical properties specialist	X	synthetic seismograms
sedimentologist		
structural geologist		
paleontologist		
paleomagnetist		
petrologist		
hydrogeologist		
Other downhole measurements	X	core-down-hole seismic integration

4. ADDITIONAL DOCUMENTS

Please, provide the following documents:

- Letter of interest, including details about area of scientific interest, current research, expedition participation plan and post-cruise research
- CV and Publication list
- Letter of recommendation (for PhD students)
- See also: http://www.essac.ecord.org/flyer/Guidelines_for%20Applying_to_sail.pdf

Please, send your application form as *a MS Word document* and the additional documents in *PDF format* (preferably as one file) by email to Jan Behrmann and Hanno Kinkel at the ESSAC office: essac@geomar.de.

In addition to the ESSAC application, all applicants *must inform their national office* (if applicable) *and national delegate* and send a copy of the application documents. ECORD does not provide funds for participation; the national offices or national delegates can provide information regarding travel support, post-cruise funding opportunities, etc.

See http://www.essac.ecord.org/index.php?mod=about&page=ESSAC for a list of the national contact persons.

Dear Madam or Sir,

I hereby apply as a shipboard scientist for IODP Expedition 374 “Ross Sea West Antarctic Ice Sheet History”.

Based on my current research focus on sedimentary patterns and their development through time within the Southern Ocean, I think I can significantly contribute to the upcoming expedition to the Ross Sea. The expedition IODP-374 will highly compliment my postdoctoral project on paleobathymetric modeling of the Southern Ocean.

I have been involved in the preparation and realization of multiple scientific voyages through my work at the Alfred-Wegener-Institute Helmholtz-Center for Polar and Marine Research, where I acquired the skills in teamwork, management and reporting required for the cruise. I have been involved in the selection of possible drill sites for a seafloor drill rig (MeBo) campaign, which will be conducted in early 2017 on the German icebreaker RV Polarstern in the Amundsen Sea Embayment, Antarctica. One of the main focuses of this expedition, on which I will sail as part of the geophysical team, is the acquisition of physical property data and the subsequent integration of the drilled cores into existing and newly acquired reflection seismic data.

I participated in the onshore sampling parties of two IODP expeditions (IODP 313 and IODP 325) as a core laboratory assistant at the IODP Bremen Core Repository, where I was involved in the splitting, sampling and curation of the cores. I also assisted in preparing the successful IODP Proposal 839 “Amundsen Sea West Antarctic Ice Sheet History” (Gohl et al.) which is now scheduled for 2019. As part of my MSc thesis, I processed and interpreted reflection seismic data, which serve as part of the site survey data. The thesis results led to a publication. In the spring of this year, I attended the IODP workshop “Antarctica’s Cenozoic Ice and Climate History: New science and new challenges of drilling in Antarctic waters” hosted at College Station TX, USA, where I had the great opportunity to meet the proponents of IODP proposal 751, participated in the discussion on the challenges of drilling in Antarctica, and enjoyed an exclusive guided display of the existing drill cores from around Antarctica.

My current research, which is funded under the Priority Program (SPP 527) “International Ocean Discovery Program (IODP)” of the German Science Foundation (DFG), focuses on the integration of DSDP, ODP and IODP core data, such as physical properties and age dating, into seismic reflection data grids of the Southern Ocean. The main step of the project is to derive paleobathymetric and

paleotopograhic grids to analyze and interpret the sediment distribution in the Southern Ocean from the Eocene to the Quaternary with the aim to improve modeling of paleo-ocean current development and ice sheet history. To be able to produce accurate maps of the paleobathymetric and paleotopographic conditions, it is crucial to include the ages of the reflectors, but also the physical parameters of the sediments to be able to calculate their deposition characteristics such as decompaction and alteration.

My main interest in the upcoming expedition to the Ross Sea is in the evolution of the sedimentary basins and the continental rise of the Ross Sea and their contribution to the development of the deepwater formation and circulation of the Ross Sea Gyre. The Ross Sea is a unique setting, where the interaction between the West Antarctic Ice Sheet and the Eastern Antarctic Ice Sheet as well as their connection to the adjacent sectors of the Amundsen Sea and Wilkes Land can be studied. The correlation between the different Antarctic sectors is also an important part in the development of circum-Antarctic paleobathymetric models.

In particular I would like to

- combine high resolution, non-destructive corelogging data sets with a detailed age model and calibration measurements at discrete samples in order to produce synthetic seismograms as cornerstones for high-resolution seismic stratigraphic mapping.
- use the acquired corelogging and down-hole measurement data to calibrate and enhance the paleobathyhmetric and paleotopographic calculations of the extended Ross Sea area.

On top of these interests, I would like to continue research on the paleoclimatic connection between the various Antarctic sectors and their differences in glacial and oceanic behavior during the Cenozoic (e.g. Lindeque et al., 2014 and 2016). This will include the correlation of boreholes from the Ross Sea Expedition 374 with that of the Wilkes Land IODP Expedition 318 and with that of the scheduled Expedition 379 to the Amundsen Sea to understand the differences in the interaction between the ocean and the ice sheet dynamics along the Antarctic margins.

I am applying to sail as a physical properties specialist or as a downhole-logging scientist. I am looking forward to hearing from you.

Sincerely yours,

K. Hochmuth

(Dr. Katharina Hochmuth)

Katharina Hochmuth

Curriculum Vitae

Am Alten Hafen 26
27568 Bremerhaven
Germany
☎ *+49 471 4831-1041*
✉ *Katharina.Hochmuth@awi.de*

Professional Experience

Feb. 2016 - Present
Postdoctoral Researcher, *Alfred-Wegener-Institute, Helmholtz Center for Polar and Marine Research*, Bremerhaven, Germany,
Paleobathymetric reconstruction of the Southern Ocean based on seismic reflection data and borehole data
- Intergration of DSDP, ODP and IODP bore hole data in seismic reflection grids
- Calculation of paleobathymetric grids of the Southern Ocean (Eocene to Quarternary)

Oct. 2012 - Feb. 2016
PhD candidate, *Alfred-Wegener-Institute, Helmholtz Center for Polar and Marine Research*, Bremerhaven, Germany,
Interpretation of deep crustal seismic data of the Manihiki Plateau and their integration in plate kinematic reconstructions of the Cretaceous Pacific Ocean
- Processing and Interpretation of refraction/wide-angle reflection seismic data from the Manihiki Plateau (central Pacific Ocean)
- Interpretation of reflection seismic data
- Plate kinematic modelling of the Cretaceous Pacific Ocean

May 2012 - Sept. 2012
Scientific researcher, *Alfred-Wegener-Institute, Helmholtz Center for Polar and Marine Research*, Bremerhaven, Germany
- Processing and Interpretation of reflection seismic data from the Amundsen Sea Embayment, West Antarctica
- Assistence in preparing IODP 784 full proposal (Amundsen Sea West Antarctic Ice Sheet History)

Nov. 2009 July 2010
Core laboratory assistent, *IODP core repository, Bremen*,
onshore sampling parties **IODP 313** and **IODP 325**
- core splitting and sampling

Education

Oct. 2012 - Apr. 2016
Doctorate, *University of Bremen*,
PhD Thesis: *From crustal structure to plate kinematics - the role of Large Igneous Provinces in the Pacific Ocean*

Oct. 2009 - Jan. 2012
M.Sc. Marine Geosciences, *University of Bremen*,
Electives: Geophysics, Sedimentology, Petrology, Geotechnology,
Master Thesis: *Glacial processes on the continental shelf of the Amundsen Sea Embayment, West Antarctica* at Alfred-Wegener Institute, Helmholtz Center for Polar and Marine Research, Bremerhaven

Oct. 2006 - Sept. 2009
B.Sc. Geosciences, *University of Bremen*,
Electives: Geophysics, Marine Geology, Sedimentology

Expedition Participation

Feb. 2016 - Mar. 2016
SO-246: Chatham Rise Expedition onboard the German research vessel RV Sonne
- Leader of the seismic reflection team
- Heatflow measurements

Nov. 2013 - Dec. 2013 **ANT XXIX-8 SWEAP Southwest Indian Ridge Earthquake and Plumes**
Expedition onboard the German research vessel RV Polarstern
- Refraction/wide-angle reflection seismic measurements
- recovery of long-term oceanbottom seismometers
- gravity coring

Oct. 2012 - Nov. 2012 **SO-224: Manihiki Plateau Leg 1**
Expedition onboard the German research vessel RV Sonne
- Refraction/wide-angle reflection seismic measurements

Languages

German native speaker
English fluent
Spanish intermediate knowledge
French intermediate knowledge
Norwegian basic knowledge

Software skills

seismic data handling Paradigm Epos, Kingdom Suite, Seismic Unix, rayinvr
Geographical information Systems GMT, GPlates, Arc GIS, QGIS
programming UNIX, AWK
PC/MAC Software Office Application, Adobe Creative Suite, Matlab, LaTex

Certificates and Courses

Attendance of **"Environmental Awareness Seminar Antarctica"** by the German environmental agency (Umweltbundesamt)

international PhD Elite Course **"Linking Seismic Imaging to Geodynamic Modelling: Using Seismology and Geodynamics to Quantify Earth's Internal Processes"**, University of Copenhagen

PhD course **"Electronics & Interfaces"**, FIELAX Gesellschaft für wissenschaftliche Datenverarbeitung GmbH, Bremerhaven Germany

Stipends

Dec. 2014 full stipend of the German academic exchange program (DAAD) for the attendance of the AGU Fall Meeting 2014, San Francisco CA, USA

May 2016 full stipend by ECORD/MagellanPlus to attend IODP workshop "Antarctica's Cenozoic Ice and Climate History", College Station TX, USA

other Interests

Traveling (Europe, South America, Oceania, South Africa, USA), Gardening, Cooking, Literature, International Film, Swimming, Knitting

Katharina Hochmuth

Publication list

Am Alten Hafen 26
27568 Bremerhaven
Germany
☎ *+49 471 4831-1041*
✉ *Katharina.Hochmuth@awi.de*

Peer-Reviewed Publications

Hochmuth, K. , Gohl, K., Uenzelmann-Neben, G., *Playing jigsaw with Large Igneous Provinces - A plate tectonic reconstruction of Ontong Java Nui, West Pacific*, 2015, Geochemistry, Geophysics, Geosystems, 16,(11), pp. 3789-3807
doi:10.1002/2015GC006036

Hochmuth, K.and Gohl, K., *Glaciomarine sedimentation dynamics of the Abbot glacial trough of the Amundsen Sea Embayment shelf, West Antarctica*, 2013, Hambrey, M. J., P. Barker, P. Barrett, V. Bowman, B. Davies, J. Smellie, M. Tranter (editors) In: Antarctic Palaeoenvironments and Earth-Surface Processes, Geological Society, London, Special Publications ; 381, London, Geological Society of London, ISBN: 2041-4927
doi:10.1144/SP381.21

Gohl, K. , Uenzelmann-Neben, G. , Larter, R. D. , Hillenbrand, C. D. , Hochmuth, K. , Kalberg, T. , Weigelt, E. , Davy, B. , Kuhn, G. and Nitsche, F. O, *Seismic stratigraphic record of the Amundsen Sea Embayment shelf from pre-glacial to recent times: Evidence for a dynamic West Antarctic ice sheet*, 2013, Marine Geology, 344 , pp. 115-131
doi:10.1016/j.margeo.2013.06.011

Manuscripts under Review

Hochmuth, K. , Gohl, K. , Uenzelmann-Neben, G. and Werner, R., *Multi-phase magmatic and tectonic evolution of a Large Igneous Province - evidence from the crustal structure of the Manihiki Plateau, western Pacific*, Tectonophysics

Hochmuth, K. and Gohl, K., *Dispersal of a Large Igneous Province fragments alter subduction regime of the Pacific rim*, Tectonics

Theses

Hochmuth K., *From crustal structure to plate kinematics - the role of Large Igneous Provinces in the Pacific Ocean*, 2016, PhD Thesis, University of Bremen

Hochmuth, K., *Glacial processes on the continental shelf of the Amundsen Sea Embayment, West Antarctica*, 2011, Master Thesis, University of Bremen

Conference Contributions as First Author

Hochmuth, K. and Gohl, K., *Paleobathymetry of the Southern Ocean and its role in paleoclimate and paleo-ice sheet variations – A call for a sequence of community paleobathymetric grids* , 2016, SCAR Open Science Conference, Kuala Lumpur, Malaysia, 20 August 2016 - 30 August 2016
Poster Presentation

Hochmuth, K. , Gohl, K. , Uenzelmann-Neben, G. and Werner, R., *2015*, How can a "Super-LIP" break apart? – Indications from the crustal structure of the Manihiki Plateau, GeoBerlin, Berlin, Germany, 4 October 2015 - 7 October 2015
Conference Talk

Hochmuth, K. , Gohl, K. , Uenzelmann-Neben, G. and Werner, R., *Playing jigsaw with large igneous provinces – a plate-tectonic reconstruction of Ontong Java Nui* , 2015, EGU General Assembly, Wien, 12 April 2015 - 17 April 2015
PICO Presentation

Hochmuth, K. , Gohl, K. , Uenzelmann-Neben, G. and Werner, R., *The break-up of Ontong Java Nui - the dispersal of a super large igneous province over the central Pacific*, 2015, 75. Jahrestagung der DGG, Hannover, 23 March 2015 - 26 March 2015
Conference Talk

Hochmuth, K. , Gohl, K. , Uenzelmann-Neben, G. and Werner, R., *Untersuchung der Krustenstruktur des Manihiki Plateaus im Rahmen der Expedition SO-224*, 2015, Statusseminar 'Meeresforschung mit FS Sonne', Universitaet Bremen, Germany, 12 February 2015 - 13 February 2015
invited Conference Talk

Hochmuth, K. , Gohl, K. , Uenzelmann-Neben, G. and Werner, R., *The fragmented Manihiki Plateau – Key region for understanding the break-up of the "Super" Large Igneous Province Ontong Java Nui*, 2014, AGU Fall Meeting, San Francisco, USA, 15 December 2014 - 19 November 2014
Poster Presentation

Hochmuth, K. , Gohl, K. and Uenzelmann-Neben, G., *Insights into the crustal structure and magmatic evolution of the High and Western Plateau of the Manihiki Plateau, Central Pacific*, 2014, General Assembly of the European Geosciences Union, Wien, 27 April 2014 - 3 May 2014
PICO Presentation

Hochmuth, K. , Gohl, K. and Uenzelmann-Neben, G., *The tectonic and magmatic evolution of the Manihiki Plateau, Central Pacific*, 2014, DGG 2014, Karlsruhe, 10 March 2014 - 13 March 2014
Conference Talk

APPLICATION TO PARTICIPATE IN AN IODP EXPEDITION

ESSAC Office ECORD Science Support & Advisory Committee
GEOMAR | Helmholtz Centre for Ocean Research Kiel
Wischhofstrasse 1-3
24148 Kiel, Germany
Hanno Kinkel (ESSAC Science Coordinator):
Tel: +49 431 600 2418
Fax:+49 431 600 2922
Web Page: http://www.essac.ecord.org Email: **essac@geomar.de**

Please type information

Apply to Sail Application Form

Expedition Number 374: Ross Sea West Antarctic Ice Sheet History

1. PERSONAL INFORMATION

Family name: Pérez

First name: Lara

Current Position: Post-doctoral fellow

Institution: Geological Survey of Denmark and Greenland (GEUS)

Address: Øster Volgade 10

City, Postcode, Country: Copenhagen, DK-1350, Denmark

Tel. work: +45 91333940
Tel. home: +45 28688445
Fax:
Email: lfp@geus.dk // larafperez@gmail.com

Country of citizenship: Spain

Place of birth/date of birth: Zamora (Spain), 27-01-1986

Gender: Female

Education (highest degree, including year PhD was received / is expected): PhD in 2014

Are you currently a student? NO Expected Graduation Date:

2. EXPEDITION INFORMATION

Summary of proposed participation, including area of scientific interest, current research and participation plan (maximum 250 characters with space – more detail should be included in the Letter of Interest):

Areas of scientific interest on board: Geophysical basin analysis, physical properties, borehole geophysics and sedimentology Influence of tectonic, oceanographic, climatic, and cryospheric processes in the West Antarctic margin evolution from Miocene

Prior involvement with DSDP/ODP/IODP and nature of involvement (expedition number, shipboard/shore-based participation, co-chief, etc):

Participation in the elaboration of the IODP proposal 868: *Drake-Scotia Seaways* Co-proponent in the reviewed proposal 868 currently in elaboration

Post-cruise science support to achieve the proposed scientific objectives 1) future funding scheme and 2) support from host institution (e.g. staff, facilities)

- Aims related to projects TASMANDRAKE (CTM2014-60451-C2-1-P) and GLANAM (Marie Curie Initial Training Network: ITN– FP7-PEOPLE-2012-ITN) where the applicant is involved - The applicant has applied to Newton International Fellowship and a Marie Skłodowska Curie Action – Global Fellowship which aims are related to the Expedition 374 objectives - The applicant is going to apply to NERC, Royal Society fellowships, Starting Grants, European lectureships in the near future

Three scientific and/or personal references

1. Dr. F. Javier Hernández-Molina
Earth Sciences Department
Royal Holloway University of London (RHUL)
TW20 0EX Egham, Surrey, UK
Tel.: +44 1784 443 581
Email: javier.hernandez-molina@rhul.ac.uk

2. Dr. Robert D Larter
Palaeo Environments, Ice Sheets and Climate Change Team
British Antarctic Survey (BAS)
High Cross, Madingley Road
CB3 0ET Cambridge, UK
Tel.: +44 1223 221 573
Email: r.larter@bas.ac.uk

3. Dr. Paul C. Knutz
Geophysical Department
Geological Survey of Denmark and Greenland (GEUS)
Øster Volgade 10
DK-1350 Copenhagen, Denmark
Tel.: +45 9133 3925
Email: pkn@geus.dk

3. SCIENTIFIC EXPERTISE

For Scientist Jobs Descriptions visit: http://iodp.tamu.edu/participants/scientist_jobs.html

Please indicate your area(s) of expertise (maximum 3)

Discipline	Mark with X	Speciality
microbiologist		
organic and inorganic geochemist/biogeochemist		
physical properties specialist	x	
sedimentologist	x	
structural geologist		
paleontologist		
paleomagnetist		
petrologist		
hydrogeologist		
Other	x	Geophysical basin analysis

4. ADDITIONAL DOCUMENTS

Please, provide the following documents:

- Letter of interest, including details about area of scientific interest, current research, expedition participation plan and post-cruise research
- CV and Publication list
- Letter of recommendation (for PhD students)
- See also: http://www.essac.ecord.org/flyer/Guidelines_for%20Applying_to_sail.pdf

Please, send your application form as *a MS Word document* and the additional documents in *PDF format* (preferably as one file) by email to Jan Behrmann and Hanno Kinkel at the ESSAC office: essac@geomar.de.

In addition to the ESSAC application, all applicants *must inform their national office* (if applicable) *and national delegate* and send a copy of the application documents. ECORD does not provide funds for participation; the national offices or national delegates can provide information regarding travel support, post-cruise funding opportunities, etc.

See http://www.essac.ecord.org/index.php?mod=about&page=ESSAC for a list of the national contact persons.

Dr. **Lara F. Pérez**
Geological Survey of Denmark and Greenland
Geophysical Department
Øester Voldgade 10
DK-1350 Copenhagen K (Denmark)
Phone: +4528688445
lfp@geus.dk

6 August 2016

ESSAC Office ECORD Science Support & Advisory Committee
Jan Behrmann (ESSAC Chair)
Hanno Kinkel (ESSAC Science Coordinator)
GEOMAR Helmholtz Centre for Ocean Research Kiel
Wischhofstr. 1-3
D-24148 Kiel, Germany

APPLICATION TO SAIL
IODP Expedition 374: Ross Sea West Antarctic Ice Sheet History

1) *Letter of interest outlining your expertise, previous involvement in DSDP/ ODP/IODP expeditions, research interests, primary research goals of your proposed participation*

BACKGROUND AND EXPERTISE

I finished my degree in Marine Sciences at *University of Vigo* (Spain) in 2009 (with BSc. reconnaissance). During the last year of my degree I was awarded with a collaboration scholarship in the *Geosciences Department* and started to work in sedimentary processes of Antarctic continental margins within the *Spanish Antarctic Research Group*. The following two years I completed a Master in Geology at *University of Granada* (Spain). I finished it in June 2011 with the dissertation of my master thesis consisting in a detailed study that illuminated the stratigraphic architecture of the Protector Basin (Scotia Sea, Antarctica).

In March 2011 I obtained a PhD studentship by the *Spanish Research Council (CSIC)* and started my research project entitled "**Onset and Evolution of the Scotia Sea Basins, Antarctica: Tectonic, Sedimentary and Palaeoceanographic Implications**" and supervised by *Prof. Dr. Andrés Maldonado* (CSIC-UGR, Granada, Spain) and *Dr. F. Javier Hernández-Molina* (RHUL, London, UK). I obtained the PhD degree in December 2014 with top honours by *Granada University* (*Cvm Lavde*). A key objective of my thesis was to carry out a seismic stratigraphy analysis of the Scotia Sea (Antarctica) with the aim to improve current knowledge on the tectonics, morphology, stratigraphic architecture and sedimentary processes of the regional sedimentary basins. Particularly, I focussed on the depositional and erosional features generated by bottom currents and their evolution through time. I established a regional stratigraphic and evolutionary model correlated to the scarce age models available in the study area. Moreover, I proposed a paleo-environmental reconstruction by integrating tectonic, climate, sea-level and palaeoceanographic information, and expanded the regional understanding to a wider Southern Hemispheric context.

Since March 2015 I am a postdoctoral researcher at the *Geophysical Department* of the *Geological Survey of Denmark and Greenland (GEUS)*. I am studying the seismic and stratigraphic architecture of the northeast Greenland margin in the framework of the "**Glaciated North Atlantic Margins (GLANAM)**" project (Marie Curie Initial Training Network: ITN–FP7-PEOPLE-2012-ITN), supervised by *Dr. Tove Nielsen* (GEUS, Copenhagen, Denmark). The main objective is to study the seismic architecture of ice-stream-related depositional wedges, glacial morphology and sedimentary processes, with the scope to generate new understandings of the Greenland Ice Sheet history. Having taken the opportunity to gain working experience on both Arctic and Antarctic polar margins, I hope to achieve a global perspective on the Cenozoic evolution, and the controlling factors globally involved.

My keen interest in multi-disciplinary approaches to research of deep oceanic basins and continental margins has fostered a network of international collaborators with expertise in tectonics, paleoceanography and paleoclimate studies. Much of this network was formed during short-term secondments (see details in the CV document) at *Institute of Petroleum Engineering - Heriot Watt University* (Edinburgh, UK, 2012); ''*Daniel Valencio*'' *Geophysics Institute - Buenos Aires University* (Argentina, 2012); *Istituto Nazionale di Oceanografia e Geofisica Sperimentale - OGS* (Trieste, Italy, 2013); *Earth Sciences Department - Royal Holloway University of London* (UK, 2014); *Volcanic Basin Petroleum Research - VBPR* (Oslo, Norway, 2016) and *Centre for Arctic Gas Hydrate, Environment and Climate (CAGE) – University of Tromsø (UiT): The Arctic University of Norway* (Tromsø, Norway, 2016). In addition I have participated and collaborated as a marine geophysicist on several international oceanographic and geophysical cruises. I also took part in the elaboration and submission of several scientific projects and contributed later to their achievement. I have attended several international conferences, and for some of them, partaking in the organization committees (see CV for details).

My field of expertise involves basin analysis, mainly focuses on the correlation of tectonic, sedimentary, paleoceanographic and climatic processes. My publications cover a range of marine geophysical topics, from structural analysis and fluid migration to sequence stratigraphy and depositional facies analyses (see publication list document). Recently I have contributed as a reviewer to *Global and Planetary Change, American Geological Society Bulletin* and *Marine Geology*.

I have recent experience in the procedure for **IODP** drilling proposals. In 2014 I was involved in formulating a proposal for drilling in the Scotia Sea (*IODP-868: Drake-Scotia Seaways*). The IODP evaluation panel encouraged the resubmission of this proposal after several modifications and, at present, I am co-proponent of the new revised version. Therefore, I am very familiar with the current IODP Science Plan **Illuminating Earth's Past, Present and Future**.

FUTURE PERSPECTIVES

Looking further I have applied for a *Newton International Fellowship* and a *Marie Skłodowska Curie Action – Global Fellowship* with the aim of continue and improve my scientific career. The target of my future research is to reveal the evolution of the West Antarctic margin considering the interaction between tectonic, oceanographic, climatic and cryospheric processes. The research

area of these proposals extends from the Antarctic Peninsula to the Ross Sea. Therefore the IODP expedition 374 is understand as the perfect opportunity to reach new insights in the Ross Sea area.

In addition to the already submitted proposals I would be able to apply for larger research funding schemes such us NERC, Royal Society fellowships, Starting Grants or European lectureships. The new career perspectives tentatively provided by these schemes would allow deeper research of the IODP 374 expedition results, as for example the correlation with future IODP expeditions as 839 and 732 through the seismic project that I will generate in the incoming years. As result, maps for palaeobathymetric reconstruction would be providing in relation to the Past Antarctic Ice Sheets (PAIS) SCAR project.

RESEARCH INTEREST

The main reasons of my interest in participating in Expedition 374 are:

1.- Most of the objectives of the Expedition 374 are related to my research activities. So, I have a direct scientific interest and implication.

2.- Most of my scientific career has been focus on Antarctic margins evolution and I am collaborating in several projects in Antarctic areas.

3.- I am applying to different founding programs to continue my research in Antarctica, in particular about the evolution of the West Antarctic margin that includes the Ross Sea.

PRIMARY RESEARCH GOALS

Regarding to the ***Pre-cruise*** aims of my implication in Expedition 374, I would like to have access to the dataset available in Ross Sea, in particular the multichannel seismic profiles, in order to reconstruct the stratigraphic architecture of the area determining key stratigraphic discontinuities. My ***on board*** objectives are based on the seismic-drilling tie and the correlation of the sedimentary hiatus with the stratigraphic discontinuities. The major changes in the stratigraphic patterns would be tie with the chronology obtained through the drilling sites determining their timing and causes. In addition I would use synthetic seismograms from the logging data for correlating seismic horizons with stratigraphic layers in the drill sites. I am also interested in take samples of levels determined by oceanographic events, i.e. contourites.

My ***Post-cruise*** work will related to: 1) the response of the stratigraphic architecture to tectonic, oceanographic, cryospheric and eustatic changes; and b) the influence of water mass circulation on continental margins. Both objectives are specific targets in *IODP Initial Science Plan*. I will be focus on determine the influence of tectonic, oceanographic, climatic, and cryospheric processes in the West Antarctic margin evolution from Miocene to Present. Key questions in the West Antarctic margin evolution are:

- The conditioning factors of the transition from a non-polar to a polar margin in Antarctica
- The existence of a stable ice sheet over the continental shelf of the Ross Sea by mid-Miocene
- The tentative collapses of the ice sheet during the warm intervals of the recent past, such us the Pliocene warmth.

lfp@geus.dk

▪ The relation between the ice sheet variability and the regional and global eustatic changes.

These aims of my future research are directly related with the Expedition 374 objectives: (1) understand the ice sheet variability; (2) asses the roll of the oceanic forcing on West Antarctic Ice Sheet (WAIS) stability/instability; (3) evaluate the contribution of the WAIS to the sea level.

According to my background, skills and objectives I qualify to be involved in the **IODP Expedition 374**, and provide expertise advice to the scientific team on board in specific areas such as: *Geophysical basin analysis, physical properties, stratigraphic correlation, borehole geophysics and sedimentology*.

Please do not hesitate to contact me for any further information.

Yours sincerely,

Lara F. Pérez

lfp@geus.dk

***2)** CV and publication list*

LARA F. PÉREZ MIGUEL
Geological Survey of Denmark and Greenland (GEUS)
Øster Volgade 10, 1350 København K, Denmark
Phone number: +34 606068160 // +45 28688445
Birth date: 27/01/1986
ID: 71019956-G
larafperez@gmail.com
lfp@geus.dk

Research ID: H-3572-2015
ORCID ID: orcid.org/0000-0002-6229-4564
Scopus Author ID: 55801130800

PRESENT SITUATION

Postdoctoral position at the Geophysical Department of the Geological Survey of Denmark and Greenland (GEUS). Study of the seismic architecture of the northeast Greenland margin in the framework of the "Glaciated North Atlantic Margins (GLANAM)" project (Marie Curie Initial Training Network: ITN–FP7-PEOPLE-2012-ITN). Supervisor: Tove Nielsen (GEUS, Copenhagen, Denmark).

UNIVERSITY GRADES

Marine Sciences Degree, speciality: Oceanography and Marine Geology. Vigo University June 2009. *Honors: Very Good (2.21/4)*

Geology Master Degree. Granada University June 2011
Estratigrafía de las cuencas Protector y Pirie, Mar de Scotia Meridional (Antártida): Implicaciones tectónicas y paleoceanográficas. Doctoral Program of Earth Sciences. Supervisors: Andrés Maldonado López and F. Javier Hernández-Molina. 21 June 2011 Sciences Faculty. Granada University. Honors: Excellent (10/10)

Bachelor of Sciences Degree in Marine Sciences. Vigo University November 2011
Las cuencas oceánicas Protector y Pirie (Mar de Scotia, Antártida): arquitectura estratigráfica e implicaciones tectónicas y paleoceanográficas. Supervisors: F. Javier Hernández-Molina and Andrés Maldonado López. 15 November 2011. Marine Sciences Faculty. Vigo University. Honors: Excellent (10/10)

Doctor by Granada University December 2014
Onset and evolution of the Scotia Sea basins, Antarctica: Tectonic, sedimentary and palaeoceanographic implications. Doctoral Program of Earth Sciences. Supervisors: Andrés Maldonado López and F. Javier Hernández-Molina. 12 December 2014, IACT (CSIC-UGR). Honors: Cvm Lavde

SCIENTIFIC PROJECTS

2009-2011	Antarctic oceanic gateways & global change (CTM2008-06386 C02-01/ANT). PI: Andres Maldonado. Funded by The Spanish Government
2009-present	CASP Project Progress on circum-Antarctic paleobathymetric reconstructions (tectonics, lithosphere, sediments), ANTScape Workshop, ACE Subcommittee on Antarctic Paleotopographic Maps, LeedsApril 2009. Chair: Karsten Gohl
2010-2014	IGCP-585: Earth's Continental Margins: assessing the geohazard from submarine landslide (E-Marshall). Chair: Roger Urgeles. Funded by UNESCO
2012-2014	Pacific-Atlantic connection: geodynamic evolution of oceanic basins and palaeoceanography (CTM2011-30241-C02-01/ANT). PI: Andres Maldonado. Funded by The Spanish Government
2012-2015	INQUA 1204: The Quaternary contourite log-book: a deep-water record(er) of variability in palaeoclimate, palaeoceanography and deep-water ecosystems. Chair: F. Javier Hernández-Molina. Funded by UNESCO

2012-2016 IGCP-619: Contourites: geological record of ocean-driven palaeoclimate, accomplice of submarine landslides and reservoir of marine geo-resources. Chair: F. Javier Hernández-Molina. Funded by UNESCO

2013-2015 Erosive features and associated sandy deposits generated by the Mediterranean Outflow Water around Iberia: paleoceanographic, sedimentary & economic implications (CTM2012-39599-C03-02). PI: Gemma Ercilla. Funded by The Spanish Government

2014-2017 Glaciated North Atlantic Margins (GLANAM) (Marie Curie Initial Training Network: ITN– FP7-PEOPLE-2012-ITN). Chair: Tove Nielsen. Funded by EU H2020

2015-2017 The Tasman and Drake gateways and the Antarctic Circumpolar Current: origin, evolution, and its effect on climate and Antarctic ice sheet evolution (CTM2014-60451-C2-1-P). Co-chair: Carlota Escutia; F. Jose Lobo. Funded by The Spanish Government

2015-2019 MIGRATE Action ES1405: Marine gas hydrate - an indigenous resource of natural gas for Europe. Chair: Klaus Wallmann. Funded by COST

2015-2020 IGCP-640: Significance of Modern and Ancient Submarine Slope LandSLIDEs (S4SLIDE). Chair: Lorena Moscardelli. Funded by UNESCO

MARINE GEOPHYSICS CRUISES

MOUNDFORCE: EUROMARGINS project. Gulf of Cadiz 23/08/2007-9/07/2007

MVSEIS: EUROMARGINS project. Gulf of Cadiz 16/05/2008-1/06/2008

ESPOR 08: Spanish Continental Shelf Extension. Galicia Bank 11-19/11/2008

4º B/O Sarmiento de Gamboa. Galicia Margin 21-25/02/2009

ST0914a GENESIS ORTEGAL. Galicia Margin 5-15/05/2009

GAROÉ: Spanish Continental Shelf Extension. Canarias Islands 2-31/08/2010

CONTOURIBER-1: CONTOURIBER - CTM2008-06399-C04-01 & 04. South Spain 29/07/2010-14/08/2010

CONTOURIBER-2: CONTOURIBER - CTM2008-06399-C04-01 & 04. Northwest Spain 25/07/2011-9/08/2011

SCAN2013: CTM2008-06386 C02/ANT & CTM2011-30241-C02. Scotia Sea, Antarctica 29/01/2013-2/03/2013

JCR298: UK-IODP Programme site survey cruise. NERC Grant Ref: NE/J006548/1 (IODP Proposal 732). West Antarctic Peninsula Margin 24/01/2015-1/03/2015

SHORT-TERM STAYS

Instituto Geológico y Minero de España (IGME), Madrid (Spain), 1/06/2011-1/08/2011. Supervisor: *Dr. Fernando Bohoyo*

Institute of Petroleum Engineering - Heriot Watt University, Edinburgh (UK), 1/04/2012-1/10/2012. Supervisor: *Prof. Dorrik A. V. Stow*

Buenos Aires University, Department of Geology: ‘‘Daniel Valencio’’ Geophysics Institute, Buenos Aires (Argentina), 8-28/10/2012. Supervisor: *Dr. Alejandro Tassone*

Istituto Nazionale di Oceanografia e Geofisica Sperimentale (OGS), Trieste (Italy), 2/06/2013-2/11/2013. Supervisor: *Dr. Emanuele Lodolo*

Earth Sciences Department - Royal Holloway University of London (RHUL), London (UK), 3/02/2014-8/09/2014. Supervisor: *Dr. F. Javier Hernández-Molina*

Geophysical Department - Geological Survey of Denmark and Greenland (GEUS), Copenhagen (Denmark), 5-20/01/2015. Supervisor: *Dr. Tove Nielsen*

Volcanic Basin Petroleum Research (VBPR), Oslo (Norway), 1-4/01/2016. Supervisor: *Sverre Planke*

Centre for Arctic Gas Hydrate, Environment and Climate – University of Tromsø: The Arctic University of Norway, Tromsø (Norway), 15/02-19/03/2016. Supervisor: *Dr. Karin Andreassen*

AWARDS & FELLOWSHIPS

Research introduction grant: *Accumulation and transport of anthropogenic carbon in the oceans.* Instituto de Investigaciones Marinas - CSIC, Vigo (Spain). July & September 2008

Spanish Ministry of Education collaboration grant: *Recent geological process in Protector Basin (Scotia Sea, Antarctica).* Department of Geosciences, Vigo University. September 2008 - June 2009

JAE-Predoctoral studentship from Spanish Research Council (CSIC) for the PhD project: *Onset and Evolution of the Scotia Sea Oceanic Basins (Antarctica): Tectonic, Sedimentary and Palaeoceanographic Implications.* March 2011 - March 2015

JAE short-stays open-call program: 6 months stay at Institute of Petroleum Engineering - Heriot Watt University. April-September 2012

IAS 2011 Grant Scheme: *Contourites at the northern Scotia Sea: sedimentary and oceanographic implications.* Department of Geology: ''Daniel Valencio'' geophysics institute Buenos Aires University. October 2012

IAS 2013 Grant Scheme: *Sedimentary evolution of the soutwestern Scotia Sea (Antarctica): tectonic and palaeoceanographic implications*. Earth Sciences Department - Royal Holloway University of London (RHUL). March – May 2014

COMPASS Group award: Short-stay at Earth Sciences Department - Royal Holloway University of London (RHUL). February-September 2014

Postdoctoral position in *Seismic architecture of the northeast Greenland margin* as part of the Marie Curie Initial Training Network GLANAM (Glaciated North Atlantic Margins) ITN–FP7-PEOPLE-2012-ITN. Geological Survey of Denmark and Greenland (GEUS). March 2015 – March 2017

Travel grants

Research Council of Norway stipend for the International Polar Year Oslo Science Conference. June 2010

IAS travel grant for 28th IAS Meeting of Sedimentology. July 2011

Steering Committee of ISAES XI & APECS association grant for 11th ISAES. July 2011

Scientific Committee on Antarctic Research (SCAR) for XXXII SCAR Science Week & 5th Open Science Conference. July 2012

IAS travel grant for 2nd Deep Water Circulation Congress: The Contourite Log-book. September 2014

Financial support towards travel to attend the XII-International Symposium on Antarctic Earth Sciences 2015. July 2015

IAS travel grant for EGU General Assembly 2016. April 2016

TEACHING EXPERIENCE

Venia Docendi 2012-2013 Granada University: Degree in Geology, 3.5 ECTS in Introduction to Geophysics Prospection and Geophysics Prospection.

Venia Docendi 2013-2014 Granada University: Degree in Geology, 3.5 ECTS in Geophysics Prospection and Geophysics.

Kingdom Suite: Introduction to 2D seismic interpretation. *Geological Survey of Ireland*, 40 h. October 2015.

Participation in the students-orientation group of the University of Granada 2012-2015

Collaboration in the Science Week 2014 at University of Granada 3-11/11/2014

ORGANIZATION OF SCIENTIFIC ACTIVITIES

50th Scientific Meeting of the Spanish Geological Society 27-28/05/2011

Scotia Arc Symposium: Geodynamic Evolution and Global Implications 13-16/05/2013

Convener of *S5. Past Antarctic climate and ice sheet dynamics: Integrating models and observations from the deep ice to the deep sea* **SCAR 2016 Open Science Conference** to be held in Kuala Lumpur, Malaysia from 22-26 August 2016

REVIEWER ACTIVITY

Global and Planetary Change
Geological Society of America Bulletin
Marine Geology

COURSES AND CONGRESS PARTICIPATION

II International Symposium of Marine Sciences, Vigo (Spain) 27-30/04/2009

First Climate Evolution Symposium, Granada (Spain) 7-11/09/2009

Scientific Writing and Presentation Skills & Some tips/rules for Scientific Writing in English (35h), Granada University (Spain) 02/2010

Macros for Excel (15h), Granada University (Spain) 1-5/02/2010

Sub-bottom Geology Course (40h), Official College of Geologists Madrid (Spain) 12-16/04/2010

International Polar Year – Oslo Science Conference, Oslo (Norway) 8-12/06/2010

International Congress of Deep-Water Circulation: Processes and Products, Baiona (Spain) 16-18/06/2010

50th Scientific Meeting of the Spanish Geological Society, Vigo (Spain) 27-28/05/2011

28th IAS Meeting of Sedimentology, Zaragoza (Spain) 5-8/07/2011

11th International Symposium on Antarctic Earth Sciences, Edinburgh (UK) 10-16/07/2011

Stratagem EH4 (40h), Geometrics, University of Granada (Spain) 12-15/12/2011

Introduction to ArcGIS application to geosciences (45h), Granada University (Spain) 20/02/2012-02/03/2012

Deep-Water Continental Margins Conference, The Geological Society of London (UK) 1-2/10/2012

Scotia Arc Symposium: Geodynamic Evolution and Global Implications, Granada (Spain) 13-16/05/2013

How to write and publish a scientific paper (20h), Consejo Superior de Investigaciones Científicas (Granada, Spain) 12-15/11/2013

Passive Margins & Petroleum Systems: The Roberts Conference, Royal Holloway University of London, London (UK) 14-15/04/2014

Eurofleets2 Practical Onboard Training (Using New Technologies for Multidisciplinary Oceanographic Research), Tallinn University of Technology (Tallinn, Estonia) 17-23/08/2014

GLANAM scientific writing course, UNIS (Svalbard) 17-19/06/2015

XII International Symposium on Antarctic Earth Sciences, Goa (India) 13-17/07/2015

Atlantic Ireland 2015, Dublin (Ireland) 27/10/2015

P-Cable annual workshop, Oslo (Norway) 3/01/2016

Rifts III: catching the wave, The Geological Society of London, London (UK) 22-24/03/2016

The Roberts Conference: Passive Margins 2016. Department of Earth Sciences, Royal Holloway University of London, London (UK) 6-8/04/2016

EGU2016: European Geosciences Union General Assembly, Vienna (Austria) 17-22/04/2016

GLANAM media training course, Durham University (UK) 4-5/05/2016

William Smith Meeting 2016 - Glaciated Margins: The Sedimentary & Geophysical Archive, The Geological Society of London, London (UK) 2-3/06/2016

MISCELLANEOUS

- Planning of marine geophysical surveys
- Acquisition and interpretation of High-Resolution, Single- and Multi-Channel Seismic
- Acquisition and processing of swath bathymetry and acoustic sub-bottom profiles
- Deep ocean sampling
- Analytical experience:
  - *Seismic interpretation*:
    - ∴ Kingdom Suite
    - ∴ Petrel
  - *High-resolution acoustic sub-bottom profiles acquisition and processing*:
    - ∴ Kongsber TOPAS
  - *Swath bathymetry processing and interpretation*:
    - ∴ CARIS
    - ∴ MB System
    - ∴ CARIBES
    - ∴ NEPTUNE
    - ∴ Fledermaus
  - *General mapping*:
    - ∴ ArcGIS
    - ∴ Golden Software Surfer
    - ∴ Global Mapper
    - ∴ MapViewer
  - *Hydrography*:
    - ∴ Ocean Data View
    - ∴ GeoMapApp
- Languages:
  - Spanish (mother tongue)
  - English
  - Italian
  - German
  - Danish
- Membership of *national* and international associations:
  - American Geophysical Union (AGU)
  - European Geosciences Union (EGU)
  - Association of Polar Early Career Scientists (APECS)
  - European Association of Geoscientists and Engineers (EAGE)
  - International Association of Sedimentologists (IAS)
  - *Sociedad Geológica de España (SGE)*

lfp@geus.dk

LIST OF PUBLICATIONS

International Journals

Martos, Y.M., Maldonado, A., Lobo, F.J., Hernández-Molina, F.J., Pérez, L.F. (2013). Tectonics and palaeoceanographic evolution recorded by contourite features in southern Drake Passage (Antarctica). Marine Geology, 343(0), 76-91. ISSN: 0025-3227

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1. PERSONAL INFORMATION

Family name: Baranwal

First name: Soma

Current Position: Post-doctoral researcher

Institution: Centre for Arctic Gas Hydrate, Environment and Climate
CAGE, University of Tromsø, Norway (Lab at the Geological survey of Norway NGU, Trondheim , Norway)

Address: Leiv Eirikssons vei 39

City, Postcode, Country: Trondheim, 7040, Norway

Tel. work: +47 73 90 4000
Tel. home: +47 96887493
Fax:
Email: soma.baranwal@ngu.no

Country of citizenship: Indian

Place of birth/date of birth: Burdwan, India; 17.12.1979

Gender: Female

Education (highest degree, including year PhD was received / is expected):

Ph.D. (08.08.2009) from the Department of Geology and Geophysics, I.I.T. Kharagpur, India.

Are you currently a student? ~~YES~~/NO Expected Graduation Date:

2. EXPEDITION INFORMATION

Summary of proposed participation, including area of scientific interest, current research and participation plan (maximum 250 characters with space – more detail should be included in the Letter of Interest):

The polar sea-ice covers are responding rapidly to various processes of global climate change. My present work is on teleconnections of Arctic sea-ice and monsoonal intensity. IODP 374 will be crucial in developing a better future outlook of warming.

Prior involvement with DSDP/ODP/IODP and nature of involvement (expedition number, shipboard/shore-based participation, co-chief, etc):

I have participated as a shipboard scientist (Planktonic foraminifera) on the 'Indonesian Throughflow Expedition 356', IODP, Northwestern Australian Shelf, 31 July to 30 September, 2015 with co-chiefs Stephen Gallagher and Craig Fulthorpe. I have personally visited the IODP Core repository at Texas A&M University, College Station, Texas, USA, 19-26 February, 2016 for sample collection (sample request no: #25396IODP). My current work as Post-Doctoral researcher with CAGE is to examine the cause of abrupt millennial scale changes and changes in intensity of the monsoon-induced productivity on glacial-interglacial time scales. I will be using foraminiferal assemblage and isotope studies from U1463 and U1461 to infer Mid-Pliocene sea surface conditions and if this can be related to expectations of future warming. The results will be compared to our ongoing work from ODP Hole 910C to find possible clues of a Monsoon-Arctic teleconnection.

My work as Post-Doctoral researcher with the Geological survey of Norway (NGU) on the Project "Glacibar - Glaciations in the Barents Sea" included study of paleoclimatic changes from Yermak Plateau, Leg 151, Ocean Drilling Program (ODP) Hole 910C and 912A (sample request no: #21631F). I have personally visited the ODP Core repository at Bremen University, Germany, 10-12 October, 2011 for sample collection. These cores were studied for the determination of past sea ice coverage and glaciation history in the Arctic Ocean based on foraminiferal assemblages and their isotopic composition. This work has been published in Knies et al., (2014 a EPSL, b Nature Communications) and Grøsfjeld et al., (2014 Palaeogeography, Palaeoclimatology, Palaeoecology). I have been the recipient of the 2015 *W. Storrs Cole Memorial Research Award* and received a grant worth $7400 from the Geological Society of America (GSA) for my project *''Revisiting Arctic Pleistocene-Holocene (~2 Ma to present) from ODP 912A*''.

At NOCS, Southampton, I worked on the large-amplitude glacial-interglacial cycles and inferred ice-volume changes during intensification of the northern hemisphere glaciations based on Late Pliocene planktic and benthic foraminiferal isotopes from the subpolar North Atlantic (IODP Site U1313 in the subpolar North Atlantic which is a reoccupation of the classic DSDP Site 607; IODP Expeditions 303 and 306). The work is published in Bolton et al., (2010 Paleoceanography).

My doctoral work contributes to the understanding of the role of paleoenvironmental factors (e.g. monsoon activity, food availability, surface productivity, deep-sea oxygenation etc.) on the spatial and temporal distribution of Latest Pleistocene to Holocene benthic and planktic foraminifera from the Indian Ocean (ODP Hole 716A studied in detail; various core-tops from different ODP sites in the Indian Ocean were additionally studied to determine the general overview of present-day assemblage and if the summer or winter monsoon plays greater role in productivity changes; sample request no: #14876A). The most important publications from this work are published in De, Sarkar and Gupta, (2010, Geological Society, London, Special Publications) and De and Gupta, (2010, Palaeogeography, Palaeoclimatology and Palaeoecology) among several others. Radiocarbon dating and spectral analyses substantiated the findings while detailed taxonomy was studied for all species of foraminifera. In addition, benthic foraminifera *Uvigerina proboscidea* was used as a proxy for winter monsoon (late Pliocene to Recent) interpretation from DSDP Site 219, northwestern Indian Ocean.

Post-cruise science support to achieve the proposed scientific objectives 1) future funding scheme and 2) support from host institution (e.g. staff, facilities)

1) Our ongoing project 'Pliocene Arctic Climate Teleconnections' (PACT) project number 248793/E10 approved by The Research Council of Norway, brings together an excellent cluster of Indo-Norwegian researchers teamed-up with leading scientists in Arctic sea ice variability and Pliocene climate modelling to improve our understanding of Mid-Pliocene Warmth in the Arctic and its teleconnection to Monsoon variability in the Indian Ocean. PACT includes multi- and interdisciplinary scientific exchange, secondments at Indian and Norwegian research institutions, a publication and dissemination plan as well as exposure to a large international network of collaborators (IODP, International Ocean Discovery Program) through active participation of two PACT members on Expedition 355 and 356 to the Indian Ocean in 2015. The project runs through June 2020 with a rough balance of 3 million Norwegian Kroner available for the remaining period (2018 to 2020). The present funding can cover the cruise participation and post-cruise meeting costs. Additional funding can be applied in continuation to compare our results from the Arctic to the latest IODP 374 drilling from Antarctica.

2) The micropaleontology facility with CAGE specializes in calcareous fossils such as planktic and benthic foraminifera, processing and extraction. These include sample preparation facilities (sample washing and cleaning), access to a variety of microscopy (9 Leica div MZ, Wilde Heerbrugg M 400, M 38, M 8 and double microscope), reference collections of microfossil species and an extensive micropalaeontological reference library. The CAGE laboratory also gives access to modern scanning electron microscopes, including a Hitachi Analytical TableTop Microscope / benchtop SEM TM3030, a ZEISS Merlin Compact VP and a Zeiss Sigma as well as a new MAT253 stable isotope ratio mass spectrometry for oxygen and carbon isotopes.
The NGU laboratory analysis facilities for soil and sediments include XRF; XRD; ICP-MS with laser ablation option, Combustion Analyser for total organic carbon; SEM and EPMA scanning electron microscopy and micro-analysis. Core logging, cold storage for sediment samples, sample preparation facilities (sample washing and cleaning), access to microscopy (Leica Wilde Heerbrugg TYP 376788) are also available. In addition NGU collaborates with the industry and a number of universities worldwide and provides access to a number of online science journals.
The above mentioned facilities will ensure a smooth running of analysis post-cruise.

Three scientific and/or personal references

Jurgen Mienert
Professor, CAGE Director
NTF/IG - Centre for Arctic Gas Hydrate, Environment and Climate (CAGE)
NATURF 3139 Tromsø
Norway
Phone: +47 776 44446
Email: jurgen.mienert@uit.no

Jochen Knies
Marine Geology
Geological Survey of Norway (NGU)
Leiv Eirikssons vei 39
7040 Trondheim
Norway
Phone: +47 73904116
T-Fax: +47 73921620
Email: jochen.knies@ngu.no

Kari Grøsfjeld
Marine Geology
Geological Survey of Norway (NGU)

Leiv Eirikssons vei 39
7040 Trondheim
Norway
Phone: +47 73904102
T-Fax: +47 73921620
Email: kari.grosfjeld@ngu.no

3. SCIENTIFIC EXPERTISE

For Scientist Jobs Descriptions visit: http://iodp.tamu.edu/participants/scientist_jobs.html

Please indicate your area(s) of expertise (maximum 3)

Discipline	Mark with X	Speciality
microbiologist		
organic and inorganic geochemist/biogeochemist		
physical properties specialist		
sedimentologist		
structural geologist		
paleontologist	X	Micropalaeontology (benthic and planktic foraminifera) and application of stable isotope geochemistry to palaeoclimatic and palaeoceanographic changes.
paleomagnetist		
petrologist		
hydrogeologist		
Other		

4. ADDITIONAL DOCUMENTS

Please, provide the following documents:

- Letter of interest, including details about area of scientific interest, current research, expedition participation plan and post-cruise research
- CV and Publication list
- Letter of recommendation (for PhD students)
- See also: http://www.essac.ecord.org/flyer/Guidelines_for%20Applying_to_sail.pdf

Please, send your application form as *a MS Word document* and the additional documents in *PDF format* (preferably as one file) by email to Jan Behrmann and Hanno Kinkel at the ESSAC office: essac@geomar.de.

In addition to the ESSAC application, all applicants *must inform their national office* (if applicable) *and national delegate* and send a copy of the application documents. ECORD does not provide funds for participation; the national offices or national delegates can provide information regarding travel support, post-cruise funding opportunities, etc.

See http://www.essac.ecord.org/index.php?mod=about&page=ESSAC for a list of the national contact persons.

Soma Baranwal
Centre for Arctic Gas Hydrate, Environment and Climate
University of Tromsø
NO-9037 Tromsø, Norway

15.08.16

ESSAC Office
ECORD Science Support & Advisory Committee
Jan Behrmann and Hanno Kinkel
Wischhofstr. 1-3
D-24148 Kiel, Germany
http://www.essac.ecord.org

"IODP EXPEDITION 374: Ross Sea West Antarctic Ice Sheet History Expedition" (Jan-Feb 2018): Specialist in foraminifera biostratigraphy.

Letter of Interest

The Arctic and Antarctic sea-ice covers and polar ecosystems are responding rapidly to processes influenced by global climate change. The decreasing areal coverage of Arctic sea ice is in line with the Arctic warming (e.g. Hartmann et al., 2013) and increased flow of warmer waters from the North Pacific and North Atlantic to the Arctic (Walsh, 2013). The highest thinning rates of Antarctic ice sheets have been linked to warm water influx (e.g. Pritchard et al., 2012) and wind forcing that drives melting through ocean upwelling in the Amundsen (Thoma et al., 2008) and Bellingshausen (Holland et al., 2010) seas and atmospheric warming on the Antarctic Peninsula (Marshall et al., 2006) resulting in the collapse of Antarctic ice shelves. The proposed drilling by IODP 374 will investigate the West Antarctic Ice Sheet (WAIS) evolution through the Neogene and Quaternary to help understand the sensitivity of Antarctic Ice Sheet mass balance during warmer-than present climates (e.g. the early Pliocene and middle Miocene). The planned drilling by IODP Expedition 374 will be crucial in investigating the correlation between changes in polar sea-ice coverage and changes in other major components of the climate system that drives Antarctic and Arctic climate during warmer phases towards developing a better outlook of future global warming.

I am currently working as a Post-Doctoral Research Scientist at the University Of Tromsø, Norway. My research interest includes application of micropaleontology (foraminifera) and stable isotope geochemistry to paleoclimatic changes. My present work on comparison of the Mid-Pliocene Warmth in the Arctic Ocean (ODP 910) with the variation of monsoonal intensity (IODP U1463) will be useful in improving our understanding of how ocean and atmospheric

circulation patterns operate in the Arctic and its teleconnection to Monsoon variability in the Indian Ocean. I have participated in our University Cruise in the Arctic and also IODP 356.

Following are the main scientific objectives of the present study:

1. To examine the cause of abrupt millennial scale changes in sea-ice coverage during the warmer phases of Miocene and Pliocene on glacial-interglacial time scales based on planktic and benthic foraminiferal studies.
2. More complete knowledge of Miocene-Pliocene sea ice variability and sea surface temperature changes in the Antarctic through combined isotopic and micropaleontological studies.
3. To decipher foraminiferal assemblages which are directly related to nutrition supply and thus a proxy for productivity changes due to changes in oceanic watermass properties.
4. Improved understanding of large-scale teleconnections between the Polar ice and monsoon variability.

The main proxies and tools for the study:

The oxygen and carbon isotope composition in shells of planktic and benthic foraminifera ($\delta^{18}O_{shell}$, $\delta^{13}C_{shell}$) provides one of the most widely used tools for reconstructing past changes in sea surface temperature and salinity (King and Howard, 2005). Factor and cluster analyses help to reduce post-mortem noise from the dataset for better paleoceanographic reconstructions while time series analysis are used to detect and quantify periodic fluctuations in benthic and planktic foraminifera.

Previous work in Antarctica based on foraminiferal studies:

Fluctuations in eurytopic (e.g. *Trochammina, Cassidulinoides, Epistominella*) and stenotopic taxa (e.g. *Quinqueloculina, Pyrgo, Triloculina*) from the Oligocene-Lower Miocene strata of the margin of Victoria Land Basin suggest sea level variations in the order of 50 m (Webb and Strong, 2006). Lower-to-middle Miocene sequence (from ~21 to 13.7 Ma) recovered at Site 744 on the southern Kerguelen Plateau is interrupted by a series of hiatuses in the middle Miocene (Florindo et al., 2013). These sediments contain abundant and diverse planktonic foraminiferal assemblages (Majewski, 2002). Their analysis led to the identification of the interval between 17.0 and 14.2 Ma as a time of mid-Miocene warmth. A study on latest Quaternary benthic and planktonic foraminifera from the Lützow-Holm Bay, East Antarctica by Igarashi et al. (2001) indicates the incursion of warm, high-nutrient, and

$CaCO_3$-saturated Circumpolar Deep Water (CDW) during the Holocene which contributed to peripheral retreat of the ice sheet. Foraminiferal assemblage studies have been used to interpret Holocene glacial retreat (~9400 yr BP) from Firth of Tay, Weddell Sea (Majewski and Anderson, 2009). Barbieri et al. (1999) investigated benthic foraminiferal preservation in the Upper Pleistocene sediments of the Ross Sea while Bergami et al. (2009) reported the distribution of living planktonic foraminifera in the Ross Sea.

References:

Barbieri et al., 1999. Palaeogeography, Palaeoclimatology, Palaeoecology, 149, 41-57.
Bergami et al., 2009. Marine Micropaleontology, 73, 37-48.
Florindo et al. 2013. Global and Planetary Change, 110, 434-454.
Hartmann et al., 2013. Cambridge University Press, 159-254.
Holland et al., 2010 . Journal of Geophysical Research, 115, C05020.
Igarashi et al. 2001. Marine Micropaleontology, 42, 3-4, 125-162.
King and Howard, 2005. Marine Micropaleontology, 56, 1-24.
Majewski, 2002. Marine Micropaleontology, 46, 59-81.
Majewski and Anderson, 2009. Marine Micropaleontology, 73, 135-147.
Marshall et al., 2006. Journal of Climate,19, 5388-5404.
Pritchard et al., 2012. Nature, 484, 502-505.
Thoma et al., 2008. Geophysical Research Letters, 35, L18602.
Walsh, 2013. Oceanography, 26, 171-181.
Webb and Strong, 2006. Palaeogeography, Palaeoclimatology, Palaeoecology, 231, 1-2, 71-100.

Previous publications of Soma Branwal relevant to the topic:

1. Jochen Knies, Patricia Cabedo-Sanz, Simon Belt, **Soma Baranwal**, Susanne Fietz, Antoni Rosell-Melé, 2014. *The emergence of modern sea ice cover in the Arctic Ocean*. Nature Communications, 5, 5608. doi:10.1038/ncomms6608.

2. **Soma De**, Sudipta Sarkar and Anil K. Gupta, 2010. *Orbital and suborbital variability in the equatorial Indian Ocean as recorded in sediments of the Maldives Ridge (ODP Hole 716A) during the past 444 ka*. In: Clift, P. D., Tada, R. and Zheng, H. (eds) Monsoon Evolution and Tectonics–Climate Linkage in Asia. Geological Society, London, Special Publications, 342, 19-29 pp.

3. **Soma De**, Anil K. Gupta, 2010. *Deep-sea faunal provinces and their inferred environments in the Indian Ocean based on distribution of Recent benthic foraminifera.* Palaeogeography, Palaeoclimatology and Palaeoecology, 291, 429-442 pp.

CURRICULAM VITAE

Soma Baranwal
Centre for Arctic Gas Hydrate, Environment and Climate (CAGE)
University of Tromsø
Tromsø, Norway (Lab at NGU, Trondheim, Norway)
Ph: +47 7390 4110 (Office);
Ph: +47 9688 7493 (Mobile)
Fax:+47 7392 1620
email: soma.baranwal@ngu.no

RESEARCH INTERESTS

Micropaleontology, Stable isotope biogeochemistry, Stratigraphy.

EDUCATION

Ph.D. (2009) from Department of Geology and Geophysics, I.I.T. Kharagpur, India. Dissertation: "High resolution record of monsoon variability from biogenic sediments of the Maldives Ridge (ODP Hole 716A) during the past 151 Kyr".

FELLOWSHIPS/GRANTS

1. Recipient of the 2015 W. Storrs Cole Memorial Research Award meant essentially to support research in "invertebrate micropaleontology" to a GSA Member. The grant is worth $7400 from Geological Society of America (GSA) for her project "*Revisiting Arctic Pleistocene-Holocene (~2 Ma to present) from ODP 912A: A new record from the Arctic-Atlantic gateway."*
   https://cage.uit.no/news/soma-baranwal-receives-award/#more-2508

2. Granted $1900 from the European Consortium for Ocean Research Drilling (ECORD). This is to sponsor merit-based awards for outstanding PhD or post-doc program at any institution from ECORD countries to conduct innovative research related to the International Ocean Discovery Program on the project *"Timing of the onset of weakening of the Australasian rainfall in response to the global thermohaline circulation from the northwest shelf of Australia: IODP Expedition 356"*.

3. Recipient of $365, from the Geological Society of America (GSA) International travel grant for GSA, Baltimore, 1-4 November, 2015.

4. Student support grants from committee of the International Conference on Paleoceanography (ICP), DST fund from Government of India and student fund from I.I.T. Kharagpur to attend the 9th ICP, Shanghai, China, September 3-7, 2007.

5. Student grant from AAPG to attend 'Annual Convention and Exhibition, Long Beach, California, USA, April 1-4, 2007.

6. Junior and Senior research fellowship (CSIR-JRF and SRF) through NET, India, in 2004.

7. GATE scholarship, India, in 2003.

8. National Scholarship holder for ranking *FIRST* in B. Sc., Geology Honors (First class First) from Burdwan University, India, in 2001.

CRUISE EXPERIENCE

1. Onboard JOIDES Resolution 'Indonesian Throughflow Exp. 356', IODP, Northwestern Australian Shelf, 31 July to 30 September, 2015.

2. Onboard Helmer Hanssen, Cruise in and around Longyearbyen; 7-21 July, 2014.

3. Onboard Helmer Hanssen, Cruise from Tromsø along Jan Mayen upto Greenland coast; 23 June - 7 July, 2013.

MEMBERSHIP TO SOCIETIES

1. North American Micropaleontology Section (NAMS) of the Society for Sedimentary Geology (SEPM).

2. Integrated Ocean Drilling Program with the International Continental Scientific Drilling Program.

3. Cushman Foundation for Foraminiferal Research.

4. Geological Society of America (GSA).

5. European Geosciences Union (EGU).

TRAININGS/WORKSHOPS ATTENDED

1. “IODP sample collection from Expedition 356”, Texas A&M University, College Station, Texas, USA, 19-26 February, 2016.

2. 2 Days Safety Course in FalckNutec, Trondheim including Immersion suit courses, Survival at sea (no helicopter rescue), Fire, First-aid; 10 - 11 March, 2014.

3. 5 Hours First-aid Course by Red Cross, Trondheim; 11, June, 2013.

4. Introduction and training in Pollen and Spores under the supervision of Prof. Maria Fernanda Sanchez Goni; UMR EPOC, Universite Bordeaux 1/CNRS, France, 01-28 February, 2013.

5. International School on Foraminifera 5th Course “Taxonomy, Ecology, Biodiversity and Geological History of Benthic and Planktonic Foraminifera”, Urbino, Italy, 10-20 June, 2012.

6. “ODP sample collection from Core repository”, Bremen University, Bremen, Germany, 10-12 October, 2011.

7. Refresher Course on “Marine Geology and Geophysics” sponsored by the Indian Academy of Sciences (Bangalore), the Indian National Science Academy (New Delhi) and the National Academy of Sciences, India (Allahabad) and organized by National Institute of Oceanography, Goa, India, 22 October to 2 November, 2007.

8. “Interactive Meet of Indian Research Scholars and Students with European and Indian Science Icons” with meeting the Indian President Mr. Abdul Kalam on February, 8, 2007; arranged by DST, Delhi, India.

9. Department of Science and Technology (DST) Contact Programme on “Petroleum System: Geological and Geophysical approach” conducted at Executive Development Center, ISM University, Dhanbad, India, 12-21 January, 2007.

SPECIAL ACHEIVEMENTS

Recipient of the 2015 W. Storrs Cole Memorial Research Award from the Geological Society of America (GSA).

In the Editorial panel of http://sci-edit.net/

In the Reviewer panel of http://www.earthscienceindia.info/enrollas_reviewer.php

Reviewer of publications to various journals.

Guided graduate students in summer training at NGU.

Ranking first in B. Sc., Geology Honors (First class First) from Burdwan University, India, in 2001.

Stood second in zonal drawing competition (W.B., India) in 1990.

LANGUAGES KNOWN

English, Bengali, Hindi, Norwegian (completed 250 hours training at EVO, Trondheim and qualified A2/B1 level).

HOBBIES

Yoga, Drawing, Painting, Traveling.

Soma Baranwal
Centre for Arctic Gas Hydrate, Environment and Climate (CAGE)
University of Tromsø
Tromsø, Norway (Lab at NGU, Trondheim, Norway)
Ph: +47 7390 4110 (Office);
Ph: +47 9688 7493 (Mobile)
Fax:+47 7392 1620
email: soma.baranwal@ngu.no

PUBLICATIONS (peer reviewed with ISI Web of Science)

1. Jochen Knies, Patricia Cabedo-Sanz, Simon Belt, **Soma Baranwal**, Susanne Fietz, Antoni Rosell-Melé, 2014. *The emergence of modern sea ice cover in the Arctic Ocean*. Nature Communications, 5, 5608. doi:10.1038/ncomms6608. WoS-ID:000346082500002.

2. Kari Grosfjeld; Stijn De Schepper; Karl Fabian; Katrine Husum; **Soma Baranwal**; Karin Andreassen; Jochen Knies, 2014. *Dating and palaeoenvironmental reconstruction of earliest Pliocene sediments at Yermak Plateau ODP Hole 911A using marine palynology*. Palaeogeography, Palaeoclimatology, Palaeoecology; 414, 382-402 pp. WoSID:000345202500032.

3. Shyam Chand, Jochen Knies, **Soma Baranwal**, Henning Jensen, Martin Klug, 2014. *Structural and stratigraphic controls on subsurface fluid flow at the Veslemøy High, SW Barents Sea*. Marine and Petroleum Geology, 57, 2014, 494-508 pp. WoSID:000342530100032.

4. Jochen Knies; Rune Mattingsdal; Karl Fabian; Kari Grøsfjeld; **Soma Baranwal**; Katrine Husum; Stijn De Schepper; Christoph Vogt; Nils Andersen; Jens Matthiessen; Karin Andreassen; Wilfried Jokat; Seung-Il Nam; Carmen Gaina, 2014. *Effect of early Pliocene uplift on late Pliocene cooling in the Arctic-Atlantic gateway*, Earth and Planetary Science Letters, 387, 132-144 pp. WoS-ID:000331156900016.

5. Clara T. Bolton, Paul A. Wilson, Ian Bailey, Oliver Friedrich, Christopher J. Beer, Julia Becker, **Soma Baranwal** and Ralf Schiebel, 2010. *Millennial-scale climate variability in the subpolar North Atlantic Ocean during the late Pliocene*, Paleoceanography, 25, PA4218, 2010, doi:10.1029/2010PA001951, 16 pp. WoS-ID:000285020200002.

6. **Soma De** and Anil K. Gupta, 2010, *Deep-sea faunal provinces and their inferred environments in the Indian Ocean based on distribution of recent benthic foraminifera*, Palaeogeography, Palaeoclimatology and Palaeoecology, 291, 429-442 pp. WoSID:000278782400021.

7. Anil K. Gupta, Sudipta Sarkar, **Soma De**, Steven C. Clemens and Angamuthu Velu, 2010, *Mid-Brunhes Strengthening of the Indian Ocean Dipole triggered increased equatorial East African and decreased Australasian rainfall*. Geophysical Research Letters, vol. 37, L06706, doi:10.1029/2009GL042225, 1-6 pp. WoS-ID:000276025100002.

8. Sudipta Sarkar, **Soma De** and Anil K. Gupta, 2009, *Late Quaternary benthic foraminifera from Ocean Drilling Program Hole 716A, Maldives Ridge, southeastern Arabian Sea*. Micropaleontology, vol. 55, no.1, 23-48 pp. WoS-ID:000264542200002.

9. Anil K. Gupta, M. Sundar Raj, K. Mohan and **Soma De**, 2008, *A major change in Foraminiferal faunal and isotopic data represents multiple paleoclimatic events in tropical Indian Ocean during ca 1.2-1.0 Myr*, Palaeogeography, Palaeoclimatology and Palaeoecology, 261, 234-245 pp. WoS-ID:000256289000003.

10. Ajoy K. Bhaumik, Anil K. Gupta, M. Sundar Raj, K. Mohan, **Soma De** and Sudipta Sarkar, 2007, *Paleoceanographic evolution of the northeastern Indian Ocean during the Miocene: evidence from deep-sea benthic foraminifera (DSDP Hole 216A)*, Indian Journal of Marine Sciences (Micropaleontology), 36, 4, 332-341 pp. WoS-ID:000253359500007.

11. Sabyasachi Shome, Subhendu Bardhan and **Soma De**, 2005, *Record of Tithopeltoceras arkell (ammonoidea) from the Late Tithonian of Kutch, India: its stratigraphic and paleobiogeographic significance.* Journal of Palaeontology, 79, 3, 619-624 pp. WoSID:000228613300017.

12. Sabyasachi Shome, **Soma De**, Pinaki Roy, Shiladri S. Das, 2004, *Ammonites as biological stopwatch and biogeographical black box - a case study from the Jurassic - Cretaceous boundary (150 Ma) of Kutch, Gujarat*, Current Science, 86, 197-202 pp. WoSID:000188395500039.

Book/Chapters

1. Expedition 356 Scientists (**Baranwal S.**), 2015. *IODP Expedition 356: Indonesian Throughflow JOIDES Resolution daily reports, weekly reports, and site summaries*. https://iodp.tamu.edu/scienceops/sitesumm/356/

2. **Soma De**, Sudipta Sarkar and Anil K. Gupta, 2010, *Orbital and suborbital variability in the equatorial Indian Ocean as recorded in sediments of the Maldives Ridge (ODP Hole 716A) during the past 444 ka.* In: Clift, P. D., Tada, R. and Zheng, H. (eds) Monsoon Evolution and Tectonics–Climate Linkage in Asia. Geological Society, London, Special Publications, 342, 19-29 pp.

3. **Soma De**, 30 November, 2010. *Monsoon variability record from the Indian ocean*, project number 13530, ISBN 978-3-8433-7766-9. LAP Lambert Academic Publishing GmbH & Co. KG, 236 pp.

4. M. Sundar Raj, **Soma De** and Anil K. Gupta, 2009, *Benthic Foraminifera as Effective Tools for Exploration of Gas Hydrate Rich Zones at Blake Ridge, Northwest Atlantic Ocean*, Exploration Geology and Geoinformatics, Macmillan publishers India Ltd., 31-44 pp.

5. M. Sundar Raj, **Soma De**, K. Mohan and Anil K. Gupta, 2009, "*Benthic foraminifer Uvigerina proboscidea as a proxy for winter monsoon (late Pliocene to Recent): DSDP Site 219, northwestern Indian Ocean*", Geo-Environment: Challenges Ahead, Macmillan publishers India Ltd., 311-318 pp.

Conferences/Symposia (first author)

1. **Soma Baranwal,** 26 November, 2015: *"A 5 million year record of the Northwest Australian Shelf during IODP Expedition 356 (31 July-30 September, 2015): Science and life onboard the JOIDES Resolution"*. Kjerulf Seminar at NGU, Trondheim, Norway.

2. **Soma Baranwal**, Jochen Knies and Kari Grøsfjeld, 1-4 November 2015: *"Revisiting Arctic PleistoceneHolocene (~2 Ma to present) from ODP 912A: a new record from the Arctic-Atlantic gateway"*. Geological Society of America Annual meeting, Baltimore, Maryland, U.S.A.

3. **Soma Baranwal**, Jochen Knies and Simone Sauer, 2 - 4 June, 2015. *"Foraminiferal communities of hydrocarbon seeps from the continental shelf offshore Vesterålen, Northern Norway"*. 7th International Conference on Arctic Margins ICAM VII, Trondheim, Norway.

4. **Soma Baranwal**, Simone Sauer and Jochen Knies, 10 - 11 December, 2014. *"Preliminary results from foraminiferal communities of cold hydrocarbon seeps, Hola-Vestrålen, Northern Norway"*. CAGE year end seminar, CAGE -Centre for Arctic Gas hydrate, Environment and climate, UiT, Tromsø, Norway.

5. **Soma Baranwal**, 11-13 June, 2014. *"Benthic foraminifera from methane-rich environments of the Veslemøy High, Bjørnøya and Hola-Vesterålen areas of the Barents Sea" AMGG (Arctic Marine Geology and Geophysics) research school symposium "Methane-rich marine environments: ecology and geochemistry"*; CAGE -Centre for Arctic Gas hydrate, Environment and climate, UiT, Tromsø, Norway.

6. **Soma Baranwal**, Simone Sauer, Jochen Knies, Shyam Chand, Henning Jensen, and Martin Klug , 27 April-2 May, 2014. "*Benthic foraminifera as tools in interpretation of subsurface hydrocarbon fluid flow at Veslemøy High and Hola-Vesterålen areas of the Barents Sea."* European Geosciences Union General Assembly, Vienna, Austria. EGU2014-1843.

7. **Soma Baranwal**, 14 March, 2014. *"Benthic foraminifera as tools in interpretation of subsurface hydrocarbon fluid flow at Veslemøy High and Hola-Vesterålen areas of the Barents Sea."* Marine Geology seminar, NGU, Trondheim, Norway.

8. **Soma Baranwal**, Simone Sauer and Jochen Knies, 19 - 24 January, 2014. "*Foraminiferal communities of modern hydrocarbon seeps from fjord settings of Northern Norway, HolaVesterålen: A taxonomic and ecologic study*". FORAMS-2014 - International Symposium on Foraminifera, Concepción, Chile.

9. **Soma Baranwal** and Jochen Knies, 3-6 September, 2012. *"Late Pliocene-Pleistocene paleoceanography from ODP Hole 912A, Yermak Plateau"*, 10-year Anniversary Conference on Climate Change in High Latitudes, Bergen, Norway.

10. **Soma Baranwal** and Jochen Knies, 22-27 April 2012. *"Quarternary record of carbonate preservation and paleocenographic changes from the Yermak Plateau (Hole 912A)"*, Z8 EGU2012-6595, EGU General Assembly 2012, Climate: Past, Present, Future, Vienna, Austria.

11. **Soma Baranwal**, Katrine Husum, Jochen Knies, Kari Grøsfjeld, 30 August-2 September 2011. *"Benthic foraminiferal carbonate preservation from the Late Miocene - Pliocene, northwest Svalbard continental shelf (ODP Hole 910C) "*. 3P ARCTIC, The Polar Petroleum Potential Conference & Exhibition, Halifax, Nova Scotia, Canada.

12. **Soma De** and Anil K. Gupta, January 7-11, 2008, *"Paleoclimate time series extracted from planktonic foraminifera of the Maldives Ridge: Leg 115, Hole 716A"*, International Conference on Geology, Indian Scenario and Global Context, Kolkata, India.

13. **Soma De**, Sudipta Sarkar and Anil K. Gupta, 16-17 November, 2007, *"Glacial-interglacial variability of the Indian monsoon during the past 440 Kyr"*, XXI Indian Colloquium on micropaleontology and stratigraphy, Lucknow, India.

14. **Soma De** and Anil K. Gupta, 3-7 September, 2007, *"Distribution of Latest Holocene deep-sea benthic foraminiferal assemblages in the core top sediments across the Indian Ocean"*, The 9th International Conference on Paleoceanography, Shanghai, China.

15. **Soma De** and Anil K. Gupta, 1-4 April, 2007, *"Effect of Water mass Properties on the Distribution of Recent Deep-sea Benthic Foraminifera across the Indian Ocean"*, AAPG Annual Convention and Exhibition, Long Beach, California, USA.

16. **Soma De** and Anil K. Gupta, 24-26 October, 2005, *"High Resolution record of climatic variability during the Pleistocene-Holocene: Deep-sea benthic foraminiferal fauna from the Maldives Ridge (ODP Hole 716A, Leg 115)"*, XX Indian Colloquium on micropaleontology and stratigraphy, Visakhapatnam, India.

Conferences/Symposia (contributor)

1. Castañeda I.S., Gilchrist S., Salacup J., Bogus K., Fulthorpe C., Gallagher S.J. and the Expedition 356 Scientists (**Baranwal S.**) 12-16 December, 2016, *"Mid-Pliocene to Early Pleistocene sea surface temperature history of the NW Australian Shelf (160251)"*, in PP023: Paleoclimate variability in the Indo-Pacific region: AGU Fall meeting, San Francisco, USA.

2. De Vleeschouwer D., Bogus K., Auer G., Christensen B.A., **Baranwal S.**, Fulthorpe C., Gallagher S.J, Groeneveld J., Henderiks J., Mamo B.L., Petrick B. and the Expedition 356 Scientists, 12-16 December, 2016, *"Timing and pacing of Pliocene climate and paleoenvironmental change in southwestern Australia (IODP Exp. 356, Site U1459). (131306)"*, in PP023: Paleoclimate variability in the Indo-Pacific region: AGU Fall meeting, San Francisco, USA.

3. Gallagher S.J., Reuning L., Himmler T., Henderiks J., Vleeschouwer D. De, Groeneveld J., Lari A.R., Fulthorpe C.S., Bogus K. and the Expedition 356 Scientists (**Baranwal S.**) 12-16 December, 2016, *"The oldest Quaternary ooids and young reefs in the eastern Indian Ocean, evidence from the Northwest Shelf of Australia, IODP Expedition 356"*, in PP023: Paleoclimate variability in the Indo-Pacific region: AGU Fall meeting, San Francisco, USA.

4. Iwatani H., Yasuhara M., Angue Minto'O C.M., Bassetti M.A., and the Expedition 356 Scientists (**Baranwal S.**) 12-16 December, 2016, *"Temporal changes in Quaternary paleoenvironment and ostracode fauna in the eastern Indian Sea off Western Australia (IODP, Exp. 356, site U1461)"*, in PP023: Paleoclimate variability in the Indo-Pacific region: AGU Fall meeting, San Francisco, USA.

5. Mamo B.L., Renema W., Auer G., Groeneveld J., Gallagher S.J., Fulthorpe C., Bogus K. and the Expedition 356 Scientists (**Baranwal S.**) 12-16 December, 2016, *"Palaeobathymetric Interpretations using Foraminiferal Data from the North-west Continental Shelf off Western Australia, IODP Expedition 356 (132816)"*, in PP023: Paleoclimate variability in the Indo-Pacific region: AGU Fall meeting, San Francisco, USA.

6. McHugh, C.M., Groeneveld, J., Henderiks, J., Renema, W., De Vleeschouwer, D., Christensen, B.A., Potts, D., Fulthorpe, C.S., K. Bogus, Gallagher S.J. and the Expedition 356 Scientists (**Baranwal S.**) 12-16 December, 2016, *"Miocene wet and extreme arid climatic conditions revealed by the lithology of Roebuck and Perth Basins, Western Australia"*, in PP023:Paleoclimate variability in the Indo-Pacific region: AGU Fall meeting, San Francisco, USA.

7. Petrick B.F., Auer G., Vleeschouwer D. De, Christenson B.A., Reuning L., Martinez-Garcia A., Haug G., Gallagher S.J., Fulthorpe C.S., Bogus K., and the Expedition 356 Scientists (**Baranwal S.**) 12-16 December, 2016, *"Linking changes in Indonesian Throughflow*

dynamics with the Middle Pleistocene Transition", in PP023: Paleoclimate variability in the Indo-Pacific region: AGU Fall meeting, San Francisco, USA.

8. Stolfi C., Christensen B.A., Groeneveld J., Henderiks J., Petrick B., Pacelli L., Thapa D., De Vleeschouwer D., Bogus K., Fulthorpe C., Gallagher S.J., and the Expedition 356 Scientists (**Baranwal S.**) 12-16 December, 2016, *"Late Pleistocene Leeuwin Current Variability: Multi-Species Foraminiferal Isotope Records from IODP Site U1460, SW Australian Shelf (149844)"*, in PP023: Paleoclimate variability in the Indo-Pacific region: AGU Fall meeting, San Francisco, USA.

9. Tagliaro, G., Fulthorpe, C.S., Lavier, L., Gallagher, S.G., and the Expedition 356 Scientists (**Baranwal S.**) 12-16 December, 2016, *"Middle-late Miocene siliciclastic influx on the Australian Northwest Shelf: origins and potential links to global events"*, in PP023: Paleoclimate variability in the Indo-Pacific region: AGU Fall meeting, San Francisco, USA.

10. Lee, E.Y., Kominz, M., Gurnis, M., Gallagher, S., Fulthorpe, C., Bogus, K., Levin, E., and the Expedition 356 Scientists (**Baranwal S.**) 25-28 September, 2016, *"IODP Expedition 356 Indonesian Throughflow and subsidence analysis from the preliminary results"*, GeoTirol, Innsbruck, Austria.

11. Fulthorpe, C.S, Gallagher, S.G., Bogus, K., Christensen, B.A., Groeneveld, J. and the Expedition 356 Scientists (**Baranwal S.**) 27 August - 4 September, 2016, *"Miocene to Recent Oceanographic and Climatic Histories from the Australian Northwest Shelf: Results from IODP Expedition 356"*. 35th International Geological Congress IGC; Cape Town, South Africa.

12. Christensen, B.A., Renema, W., Henderiks, J., De Vleeshouwer, D., Groeneveld, J., Bogus, K., Gallagher, S.G., Fulthorpe, C.S and the Expedition 356 Scientists (**Baranwal S.**). 27 August - 4 September, 2016.,*"Decoupled So Hemisphere and No Hemisphere processes controlled by the Maritime continent: insights from a continuous Pliocene NW Australian shelf borehole (and decades of previous Ocean Drilling)"*. 35th International Geological Congress IGC; Cape Town, South Africa.

13. Groeneveld, J., Henderiks J., Renema W., McHugh C.M., De Vleeschouwer D., Christensen B.A., Fulthorpe C.S., Reuning L., Gallagher S.J., Bogus K., Ishiwa T., Potts D.C., Himmler T., Kominz M.A., Korpanty C.A., Auer G., Mamo B.L., McGregor H.V., and the Expedition 356 Scientists, (**Baranwal S.**) 29 August - 2 September, 2016, *"Australian climate during the Miocene controlled by Antarctic dynamics"*. 12th International Conference on Paleoceanography (ICP12); Utrecht, Netherlands.

14. Petrick B.F., Auer G., Christenson B.A., De Vleeschouwer D., Reuning L., Martinez-Garcia A., Haug G., Gallagher S.J., Fulthorpe C.S., Bogus K. and the Expedition 356 Scientists, (**Baranwal S.**) 29 August - 2 September, 2016, *"The Plio-Pleistocene record of climate change from Western Australia"*. 12th International Conference on Paleoceanography (ICP12); Utrecht, Netherlands.

15. Gallagher, S.J., Fulthorpe, C., Bogus, K., and the Expedition 356 Scientists, (**Baranwal S.**) 31 July-5 August, 2016, *"A Miocene-Pleistocene record of reefs, oceans and climate off Northwest Australia: preliminary results from international ocean Discovery Program Expedition 356"*. Asia Oceania Geosciences Society (AOGS), Beijing, China.

16. Lee, E.Y., Gallagher, S.J., Fulthorpe, C.S., Bogus, K., and the Expedition 356 Scientists (**Baranwal S.**) 27-30 July, 2016, *"IODP Expedition 356: Insights into a 5 million year history*

of the Indonesian Throughflow, Australian monsoon, and subsidence on the northwest shelf of Australia". Europe-Korea Conference on Science and Technology, Berlin, Germany.

17. Gallagher S.J., Gurnis M., Kominz M.A., Fulthorpe C., Bogus K., Lee E.Y. and the Expedition 356 Scientists, (**Baranwal S.**) 26-30 June, 2016, *"10 million years of subsidence on the Northwest Shelf of Australia: preliminary results from International Ocean Discovery Program Expedition 356"*. Uncover earth's past to discover our future: Australian Earth Sciences Convention AESC, Adelaide, Australia.

18. Gallagher S.J., Fulthorpe C., Bogus K. and the Expedition 356 Scientists, (**Baranwal S.**) 26-30 June, 2016, *"A Miocene-Pleistocene record of reefs, oceans and climate off Northwest Australia: initial results from international ocean Discovery Program Expedition 356"*. Uncover earth's past to discover our future: Australian Earth Sciences Convention AESC, , Adelaide, Australia.

19. Korpanty C. and the Expedition 356 Scientists, (**Baranwal S.**) 26-30 June, 2016, *"Ecological assessment of a Late Miocene coral assemblage near Rowley Shoals, Roebuck Basin, Western Australia"*. Australian Conference of Earth Sciences; Adelaide, Australia.

20. Gallagher S.J., Fulthorpe C., Bogus K. and the Expedition 356 Scientists, (**Baranwal S.**) 5-8 June, 2016, *"IODP Expedition 356 reveals 5 million years of carbonate and subsidence history on the Northwest Shelf of Australia"*. APPEA 2016, 56th conference and exhibition, , Brisbane, Australia.

21. Gerald Auer, Stephen J. Gallagher, Craig S. Fulthrope, Kara Bogus and the Expedition 356 Scientists (**Baranwal S.**) 30 May, 2016, *"IODP Expedition 356: Indonesian Throughflow – A 5 million year history of the Indonesian Throughflow, Australian monsoon, and subsidence on the northwest shelf of Australia"*. Austria in ICDP- und IODP-Programs,.

22. Takayanagi, H., Iwatani, H., Ishiwa, T., Jatiningrum, R.S. and the Expedition 356 Scientists, (**Baranwal S.**) 22 - 26 May, 2016, *"Preliminary report of International Ocean Discovery Program Expedition 356- What can we learn from carbonates off northwest Australia?"* Japan Geoscience Union meeting,; Tokyo, Japan.

23. Reuning L., Back S. and the Expedition 356 Scientists, (**Baranwal S.**) 14-16 March, 2016, *"Reefs, drifts and carbonate slopes - Integrating seismic and core data on the North West Shelf of Australia"*. Gemeinsames IODP/ICDP Kolloquium 2016, Bremen, Germany.

24. Himmler T., and the Expedition 356 Scientists, (**Baranwal S.**) 14-16 March, 2016, *"Deciphering the impact of the Indonesian Throughflow on the Australian climate during the Pliocene: A proposed Nd and Sr isotopic study"*. Gemeinsames IODP/ICDP Kolloquium 2016, Bremen, Germany.

25. Groeneveld J., and the Expedition 356 Scientists, (**Baranwal S.**) 14-16 March, 2016, *"Impact of the Indonesian Throughflow on northwestern Australian biochronology (5-1.8 Ma)"*. Gemeinsames IODP/ICDP Kolloquium 2016, Bremen, Germany.

26. Kari Grøsfjeld, Stijn De Schepper, Karl Fabian, Katrine Husum, **Soma Baranwal**, Karin Andreassen, Jochen Knies, 12-15 January, 2015.*"New age constraints and palaeoenvironmental reconstruction of the sediments around the Miocene/Pliocene boundary in Yermak Plateau ODP Hole 911A using marine palynology"*. Vinter konferansen, Stavanger, Norway.

27. Jochen Knies, Patricia Cabedo-Sanz, Simon T. Belt, **Soma Baranwal**, Susanne Fietz, Antoni Rosell Mele, 15-19 December, 2014. *"The Pliocene Sea Ice Cover in the Arctic Ocean"* . PP21G-05 AGU Fall Meeting, San Francisco, USA.

28. Shyam Chand, Jochen Knies, Henning Jensen, **Soma Baranwal**, and Martin Klug, 27 April - 2 May, 2014. *"An integrated approach to evaluate gas hydrate prospects in SW Barents Sea. European Geosciences Union General Assembly"*, Vienna, Austria. EGU2014-9497.

29. Shyam Chand, Jochen Knies, Henning Jensen, **Soma Baranwal**, Martin Klug, Morten Bergan, 15-18 October, 2013, *"Subsurface fluid flow and surface anomalies at Veslemøy high, SW Barents Sea – What do they tell us about Gas Hydrate prospects in Barents Sea?"* 3P Arctic, AAPG, Stavanger, Norway.

30. Jochen Knies, **Soma Baranwal**, Karl Fabian, Kari Grøsfjeld, Karin Andreassen, Katrine Husum, Rune Mattingsdal, Stijn De Schepper and Christoph Vogt, 17-18 October, 2012. *"Early Pliocene uplift and intensification of the Northern Hemisphere Glaciation in NW Europe – New inferences from an old Arctic drill site"*. Onshore-Offshore relationships on the North Atlantic Margin, Trondheim, Norway.

31. Jochen Knies, **Soma Baranwal**, Karl Fabian, Kari Grøsfjeld, Karin Andreassen, Katrine Husum, Rune Mattingsdal, Carmen Gaina, Stijn De Schepper, Christoph Vogt, and Nils Andersen, 22-27 April, 2012. *"New insights into late Neogene glacial dynamics, tectonics, and hydrocarbon migrations in the Atlantic-Arctic gateway region"*. EGU2012-2384, EGU General Assembly 2012, Climate: Past, Present, Future, Vienna, Austria.

32. Katrine Husum, **Soma Baranwal**, Chiara Consolaro, Jochen Knies, Kari Grøsfjeld, Karl Fabian, and Morten Hald, 8 December, 2011. *"Late Miocene – Pliocene biostratigraphy from Arctic Norwegian Continental Margin: foraminifera from ODP Hole 910C and ODP Hole 911A, Yermak Plateau"*. Applications of biostratigraphy to the Norwegian Continental Shelf, Stavanger, Norway.

33. Jochen Knies, **Soma Baranwal**, Karl Fabian, Carmen Gaina, Kari Grøsfjeld, Karin Andreassen, Katrine Husum, Rune Mattingsdal, Morten Hald, Monica Winsborrow, Stijn De Schepper, Christoph Vogt, Nils Andersen, 30 August - 2 September 2011. *"Neogene climate dynamics and hydrocarbon migrations on the Yermak Plateau, NW Spitsbergen – New evidence from borehole and seismic data"*. 3P ARCTIC, The Polar Petroleum Potential Conference & Exhibition, Halifax, Nova Scotia, Canada.

34. Katrine Husum, **Soma Baranwal**, Chiara Consolaro, Jochen Knies, Kari Grøsfjeld, Karl Fabian, and Morten Hald, 30 August - 2 September, 2011. *"Late Miocene - Pliocene foraminifera from ODP Hole 910C and ODP Hole 911A, Yermak Plateau: new evidence"*. 3P ARCTIC, The Polar Petroleum Potential Conference & Exhibition, Halifax, Nova Scotia, Canada.

35. Jochen Knies, **Soma Baranwal**, Karl Fabian, Carmen Gaina, Kari Grøsfjeld, Karin Andreassen, Katrine Husum, Rune Mattingsdal, Morten Hald, Monica Winsborrow, Stijn de Schepper, Christoph Vogt, Nils Andersen, 1-4 June 2011. *"Fresh news from an old ODP record – Neogene climate dynamics and hydrocarbon migrations on the Yermak Plateau, NW Spitsbergen"*. APEX Fifth International Conference and Workshop: Quaternary Glacial and Climate Extremes, Longyearbyen, Svalbard, Norway.

36. Jochen Knies, **Soma Baranwal**, Karl Fabian, Carmen Gaina, Kari Grøsfjeld, Katrine Husum, Rune Mattingsdal, Stijn De Schepper, Christoph Vogt, 29 August-3 September, 2010, *"The Paleoceanography of the Atlantic – Arctic gateway during the late Cenozoic – Revisited"*, The 10th International Conference on Paleoceanography, San Diego, California, USA.

37. Anil K. Gupta, Sudipta Sarkar, **Soma De**, Steven C. Clemens and Angamuthu Velu, 22-26 February, 2010, "*Mid-Brunhes Strengthening of the Indian Ocean Dipole triggered precipitation change in East Africa and Australasia"*, PAGES Open Science Meeting, Portland, Oregon, USA.

38. Anil K. Gupta, Sudipta Sarkar, K. Mohan, Steven C. Clemens, Rajesh K. Uttam, **Soma De**, Moumita Das, David M. Anderson and Baidehi Mukherjee, 8-11 July, 2009. "*Centennial to millennial scale rhythms in the Indian monsoon as observed in the eastern and western Arabian Sea during the late Quaternary and the Holocene"*, PAGES Open Science Meeting, Corvallis, USA.

39. M. Sundar Raj, Anil K. Gupta, **Soma De** and K. Mohan, 5-7 February, 2009; "*Surface upwelling driven by intensification of Southwest monsoon during Late Pleistocene in DSDP Site 219, Northwestern Indian Ocean"*, Earth Resources, Environment and Earth Sciences for Society" and 12th National Convention of South Asian Association of Economic Geologists, Periyar University, Salem, India.

40. Anil K. Gupta, Sudipta Sarkar, **Soma De**, S.C. Clemens, D.M. Anderson, Moumita Das and Baidehi Mukherjee, 4-5 July, 2008, "*Spatial and temporal changes in the Indian monsoon system during the past 450 kyr"*, 19th Mid-Year Meeting, Indian Institute of Science, Bangalore, India.

41. Anil K. Gupta, Sudipta Sarkar and **Soma De**, 11-14 September, 2007, "*Glacial-interglacial control of the Indian monsoon during the past 440 Kyr"*, Asian Monsoon Variability during the Past Global Changes", Nainital, India.

42. M. Sundar Raj, **Soma De**, K. Mohan and Anil K. Gupta, 24-28 July, 2007, "*Switch in monsoon pattern from winter dominated to summer dominated at ~1.2 Ma: DSDP Site 219, Leg 23"*, Proceedings of Celebrating the Monsoon Conference, IISc, Bangalore, India.

43. M. Sundar Raj, **Soma De**, K. Mohan and Anil K. Gupta, 23-25 April, 2007, "*Benthic foraminifer Uvigerina proboscidea as a proxy for winter monsoon (late Pliocene to Recent): DSDP Site 219, northwestern Indian Ocean*", Geo-Environment: Challenges Ahead, Jammu, India.

44. M. Sundar Raj, **Soma De**, and Anil K. Gupta, 7-9 March, 2007, "*Benthic foraminifera as effective tools for exploration of Gas hydrate rich zones at Blake Ridge, Northwest Atlantic Ocean*", Recent Developments and Opportunities in Exploration Geology & Geoinformatics", Explore G2 – 2007, Salem, India.

15.08.16

ESSAC Office
ECORD Science Support & Advisory Committee
Jan Behrmann and Hanno Kinkel
Wischhofstr. 1-3
D-24148 Kiel, Germany
http://www.essac.ecord.org

"IODP EXPEDITION 374: Ross Sea West Antarctic Ice Sheet History Expedition, (Jan/Feb 2018): Specialist in foraminifera biostratigraphy."

Letter of Support

Dr. Soma Baranwal is currently working as a Post-Doctoral Research Scientist at "CAGE – Center for Arctic Gas Hydrate, Environment, and Climate" at The Arctic University of Norway (UiT) in Tromsø, Norway. Her present laboratory is based in the Geological Survey of Norway (NGU), Trondheim, Norway.

The NGU laboratory analysis facilities for soil and sediments include XRF; XRD; ICP-MS with laser ablation option, Combustion Analyser for total organic carbon; SEM and EPMA scanning electron microscopy and micro-analysis. Core logging, cold storage for sediment samples, sample preparation facilities (sample washing and cleaning), access to microscopy (Leica Wilde Heerbrugg TYP 376788) are also available. At CAGE, the micropaleontological laboratory is specialized in calcareous fossils such as planktic and benthic foraminifera, processing and extraction. These include sample preparation facilities (sample washing and cleaning), access to a variety of microscopy (9 Leica div MZ, Wilde Heerbrugg M 400, M 38, M 8 and double microscope), reference collections of microfossil species and an extensive micropalaeontological reference library. The CAGE laboratory also gives access to modern scanning electron microscopes, including a Hitachi Analytical TableTop Microscope / benchtop SEM TM3030, a ZEISS Merlin Compact VP and a Zeiss Sigma as well as a new MAT253 stable isotope ratio mass spectrometry for oxygen and carbon isotopes.

The above mentioned facilities will ensure a smooth running of analysis post-cruise. Soma wishes to concentrate her work within the climate research team and she is very much looking forward to this exciting opportunity. We hope that her application will be favorably reviewed.

Sincerely,

Jochen Knies, Senior Researcher at NGU Trondheim and Teamleader at CAGE in Tromsø