The Cretaceous rift basins of the tropical South Atlantic were globally significant sites of organic carbon production, biotransformation and burial. These conditions changed irreversibly with the opening of the Equatorial Atlantic Gateway in the late Cretaceous, a fundamental reconfiguration of the world’s oceans and climate. Large uncertainties still remain regarding the exact timing of the EAG opening, the tectonic and subsidence history of the tropical South Atlantic, and the effects of EAG opening on tropical South Atlantic climate and ecosystems.

On a global scale, tropical climate conditions are poorly constrained during the Cretaceous and Paleogene greenhouse intervals, with an urgent need for new high-quality multi-proxy climate data collection from continental margins and corresponding deep sea sites. Furthermore, the recovery of sedimentary sequences down to deep subsurface organic rich strata (black shale) provides new constraints on the deep biosphere biogeochemical processes that link microbial communities, organic carbon diagenesis and fluid migration into active petroleum systems.

To fill the critical shortfall in detailed and high-quality information from the Cretaceous EAG and the northern sub-basin of the South Atlantic two IODP pre-proposals have recently been developed, targeting these fundamental challenges from an African and tropical South American perspective;

- The Nigeria Transform Margin proposal (pre-840) linking comprehensive palaeo-environmental studies with cutting-edge research of an active petroleum system, and
- The Equatorial Atlantic Gateway proposal (pre-864) identifying the Pernambuco Plateau on the northeastern Brazilian continental shelf, as a strategic location immediately adjacent to the proposed final opening segment of the EAG.

Both drilling proposals investigate key periods of earth-ocean history, with a focus on global climate perturbations (OAEs, hyperthermals) within the context of the opening of the EAG and the flooding of the northern South Atlantic sub-basin, (ii) constrain the tectonic evolution of the EAG and its global implications for both the connectedness of Late Mesozoic oceans, as well as the geodynamic controls on the South Atlantic rift and passive margin development, and (iii) pioneer microbial studies that explore the biogeochemistry associated with petroleum systems, including source rocks and sediments charged with hydrocarbons.

With financial support from the ECORD/ICDP MagellanPlus Workshop Series Programme, a two-day workshop was hosted on 2-4 February 2015 at Newcastle University, UK.
experts from 8 countries, 14 research institutions and representatives from two major oil companies, Shell and BG, joined to evaluate and further improve the strategy and focus of both IODP pre-proposals, making this event an excellent example of an integrated and truly joined industry-academia partnership.

Building on a number of plenary sessions, the team split into breakout groups addressing central challenges including “paleoclimate and biogeochemistry”, “marine biota”, “deep biosphere”, “tectonic models”, and “site selection, drilling plans and risk assessment”. The constructive discussions and clearly defined action plans constitute a critical step towards the development of competitive full proposals, with submission dates targeted later in 2015 and 2016.

Contact: Thomas Wagner
Thomas.wagner@ncl.ac.uk
http://www.ecord.org/magellanplus.html

Group photo of the ECORD MagellanPlus workshop “Drilling the Cretaceous-Palaeogene tropical south Atlantic’ hosted in February 2015 at Newcastle, UK. Front (from left): José Magalhães (UFPE, BRA); Carlos D’Apolito (Birmingham, UK); Haydon Mort (UFPE, BRA); Obinna Chudi (Edinburgh, UK); Onos Esegbue (Newcastle, UK); Ignace Schmiermann (Shell NIGERIA); Christian Heine (Shell, NL); Jessica Whiteside (Southampton, UK); Claire Loptson (Bristol, UK); Kara Bogus (IODP-TAMU, USA); Sev Kender (Nottingham); Sandra Arndt
(Bristol, UK); Stephanie Grimshaw (BG Group, UK); Karlos G. D. Kochhann (Kiel, GER); Julia R. de Rezende (Newcastle, UK). Top row (from left): Mohammad Alaween (Newcastle, UK); Kirsty Edgar (Bristol, UK); Alex Dickson (Oxford, UK); Christian Maerz (Newcastle, UK); Tom Dunkley Jones (Birmingham, UK); Tom Wagner (Newcastle, UK); Tiago Alves (Cardiff, UK); David Naafs (Bristol, UK). Not on the group photo: Andrea Moscariello (Geneva, CH); Neil Mitchell (Manchester, UK); Ana Suárez-Suárez (Newcastle, UK); Ian Head (Newcastle, UK); Wen Shi (Manchester, UK); Pim Van Bergen (Shell U.K.); Sadat Kolonic (Shell NIGERIA); Colin Grant (Shell, NL); Maads Huuse (Manchester); Stephen Jones (Birmingham).

**AGENDA**

**1st February**

Venue: Atrium of Devonshire Building

Registration and icebreaker (5-7.30 pm)

**2nd February**

Venue: Old Library Building, 1st floor Research Beehive (rooms 2.20 and 2.22)

8.30-9.00  
Registration

9.00-9.45  
Welcome and introduction to workshop scope (Wagner, Dunkley Jones)

9.45-10.40  
Industry perspective on tropical South Atlantic drilling (20 mins + 5 mins discussion each)

Colin Grant, Sadat Kolonic (Shell) - Niger petroleum system perspective

Stephanie Grimshaw (BG UK/Brazil) – Brazil continental margin perspective

10.40-11.00  
IODP strategic dimension

Andrea Moscariello (Geneva), Chair of ECORD-ILP

11.00-11.30  
Coffee break

11.30-12.45  
Keynote presentations on main themes:

1. Microbiology/deep biosphere - Ian Head (Newcastle) – 30 mins
2. Tectonic models - Tiago Alves (Cardiff), Christian Heine (Shell), Mads Huuse (Manchester) - 45 mins

12.45-13.30  
Lunch buffet

13.30-15.00  
Keynote presentations - continued:

3. Modelling – Sandra Arendt (Bristol) – 30 mins
4. Marine biota – Kirsty Edgar (Bristol) – 30 mins
5. Sediment biogeochemistry & paleoclimate - **Alex Dickson (Oxford)** – 30 mins

15.00-16.30 Breakout groups – initial proposal review, identification of key challenges

16.30-17.00 Punch lines, new ideas, and cross-proposal synergies from breakout groups, and definition of next tasks for day 2

from 19.00 *Joined dinner in town*

**3rd February**

Venue: Old Library Building, 1st floor Research Beehive (rooms 2.20 and 2.22)

9.00-9.30 Brief summary of 1st day and allocation of tasks for day 2 (**Wagner, Dunkley Jones**)

9.30-10.00 Technical challenges to drill near active petroleum systems - **Kara Bogus (JR Operations-TAMU)**

10.30-13.00 Breakout groups, continued *incl coffee break* – proposal specific challenges

13.00-14.00 *Lunch buffet*

14.00-16.30 Summary from breakout groups followed by refining proposal text

16.30-17.00 Summary of day 2 and identification of tasks for day 3

from 19.00 *Joined dinner in town*

**4th February**

Venue: Old Library Building, 1st floor Research Beehive (rooms 2.20 and 2.22)

9.00-9.30 Brief summary of 2nd day and allocation of tasks for final morning (**Wagner, Dunkley Jones**)

9.30-11.30 Breakout groups, continued *incl coffee break* - refining existing proposal text

11.30-13.00 Summary of refined proposals, outstanding tasks, time lines for full proposals (to be followed up by proposal co-proponents), closing of workshop

13.00-14.00 *Lunch buffet (optional)*

14.00 Departure home
LIST OF PARTICIPANTS

Thomas Wagner (host)
School of Civil Engineering and Geosciences
Newcastle University, UK
E-mail: Thomas.wagner@newcastle.ac.uk

Tom Dunkley Jones (co-host)
School of Geography, Earth and Environmental Sciences
University of Birmingham, UK
Email: t.dunkleyjones@bham.ac.uk

Sandra Arndt
School of Geographical Sciences
Bristol University, UK
E-mail: s.arndt@bristol.ac.uk

Tiago M. Alves
School of Earth and Ocean Sciences
Cardiff University, UK
Email: alvest@cardiff.ac.uk

Kara Bogus
International Ocean Discovery Program
Texas A&M University, USA
Email: bogus@iodp.tamu.edu

Obinna Chudi
Institute of Petroleum Engineering,
Heriot Watt University Edinburgh, UK
E-mail: Obinna.Chudi@pet.hw.ac.uk

Carlos D’Apolito
School of Geography, Earth and Environmental Sciences
University of Birmingham
E-mail: cxd280@bham.ac.uk

Julia R. de Rezende
School of Civil Engineering and Geosciences
Newcastle University, UK
E-mail: Julia.Rezende@newcastle.ac.uk

Alex Dickson
Department of Earth Sciences
University of Oxford, UK
Email: alex.dickson@earth.ox.ac.uk
Kirsty Edgar  
School of Earth Sciences  
University of Bristol, UK  
E-mail: kirsty.edgar@bristol.ac.uk

Onos Esegbue  
School of Civil Engineering and Geosciences  
Newcastle University, UK  
E-mail: onoriode.esegbue1@newcastle.ac.uk

Colin J Grant  
Shell International Exploration & Production B.V.  
The Hague, The Netherlands  
Email colin.j.grant@shell.com

Stephanie Grimshaw  
BG Group plc  
Reading, UK  
Email: stephanie.grimshaw@bg-group.com

Ian Head  
School of Civil Engineering and Geosciences  
Newcastle University, UK  
E-mail: ian.head@newcastle.ac.uk

Christian Heine  
Shell Intl. Exploration and Production B.V.  
Den Haag, The Netherlands  
E-mail: Christian.Heine@shell.com

Karina Hernandez  
School of Earth, Atmospheric and Environmental Sciences  
University of Manchester, UK  
E-mail: khedzmaya@gmail.com

Mads Huuse  
School of Earth, Atmospheric and Environmental Sciences  
University of Manchester, UK  
E-mail: Mads.Huuse@manchester.ac.uk

Stephen Jones  
School of Geography, Earth and Environmental Sciences  
University of Birmingham, UK  
Email s.jones.4@bham.ac.uk

Sev Kender
School of Geography  
University of Nottingham, UK  
Email: sev.kender@nottingham.ac.uk

Karlos G. D. Kochhann  
Marine Micropaleontology  
Kiel University, Germany  
Email: k.kochhann@gmail.com

Sadat Kolonic  
Shell Petroleum Development Company of Nigeria  
Port Harcourt – Nigeria  
E-mail: Sadat.Kolonic@shell.com

Claire Loptson  
School of Geographical Sciences  
University of Bristol, UK  
Email: C.Loptson@bristol.ac.uk

Christian Maerz  
School of Civil Engineering and Geosciences  
Newcastle University, UK  
E-mail: Christian.maerz@newcastle.ac.uk

José Magalhães  
Laboratory of Geochemistry and Sedimentary Geology  
Universidade Federal de Pernambuco, UFPE  
E-mail: j.ricardo_magalhaes@hotmail.com

Neil Mitchell  
School of Earth, Atmospheric and Environmental Sciences  
University of Manchester, UK  
E-mail: Neil.Mitchell@manchester.ac.uk

Haydon Mort  
Laboratory of Geochemistry and Sedimentary Geology  
Universidade Federal de Pernambuco (UFPE), Brazil  
E-mail: haydon@ufpe.br

Andrea Moscariello  
Earth and Environmental Sciences  
University of Geneva, CH  
E-mail: andrea.moscariello@unige.ch

David Naafs  
Organic Geochemistry Unit, School of Chemistry, Cabot Institute  
University of Bristol, UK
E-mail: David.Naafs@bristol.ac.uk

Oluwatobi Olobay
School of Earth, Atmospheric and Environmental Sciences
University of Manchester, UK
E-mail: oluwatobi.olobayo@manchester.ac.uk

Ignace Schmiermann
Shell Petroleum Development Company of Nigeria
Port Harcourt – Nigeria
E-mail: Ignace.I.Schmiermann@shell.com

Pim van Bergen
Shell U.K. Ltd
Aberdeen, UK
E-mail: Pim.vanBergen@shell.com

Wen Shi
School of Earth, Atmospheric and Environmental Sciences
University of Manchester, UK
E-mail: wen.shi-2@postgrad.manchester.ac.uk

Ana Suárez-Suárez
School of Civil Engineering and Geosciences
Newcastle University, UK
E-mail: Ana.Suarez-Suarez@newcastle.ac.uk

Jessica H. Whiteside
National Oceanography Centre Southampton
University of Southampton, UK
E-mail: J.Whiteside@soton.ac.uk