

Conference schedule

Saturday 24th July 2010

15:00 – 18:00 Registration

18:00 – 21:00 *Icebreaker Party (The Mussel, Campus, University of Mainz)*

Sunday 25th July 2010

08:40 – 09:00 Introductory notes

09:00 – 09:10 Official welcome

Session 1A Proxy Development

Conveners: David P Gillikin, Christopher S Romanek

09:10 – 09:40 Christopher S Romanek – **Trace element and stable isotope profiles of accretionary biological tissues** – Keynote

09:40 – 10:00 Cyril Giry, Felis T, Kölling M and Scheffers S – **Geochemistry and skeletal structure of *Diploria strigosa*, implications for coral-based climate reconstruction**

10:00 – 10:30 *Coffee Break (refreshments will be provided)*

Session 1B Proxy Development

Conveners: Andrew LA Johnson, Claire E Lazareth, Christopher S Romanek

10:30 – 10:50 Craig A Grove, Nagtegaal R, Zinke J, Scheufen T, Koster B, Kaper S, McCulloch MT, van den Bergh G and Brummer G-JA – **River runoff reconstructions from novel spectral luminescence scanning of massive coral skeletons**

10:50 – 11:10 Max Wisshak, López Correa M, Marali S and Freiwald A – **A quest for long-lived geochemical archives in the deep sea (Azores)**

- 11:10 – 11:30 Soraya Marali, Wisshak M, López Correa M, Montagna P, McCulloch MT and Freiwald A – **Skeletal and geochemical properties of scleractinian cold-water corals from the Azores**
- 11:30 – 11:50 Matthias López Correa, Sherwood O, Roark B, Montagna P, Edinger E, Rüggeberg A and McCulloch MT – **Patterns of elemental and stable isotopic ($\delta^{13}\text{C}$ and $\delta^{18}\text{O}$) variability in deep-sea bamboo corals of Newfoundland and Labrador**
- 11:50 – 12:10 Dave J Reynolds, Wanamaker AD Jr, Brocas WM, Richardson CA and Butler PG – **The dog cockle, *Glycymeris glycymeris*: a new annually resolved multi-centennial marine palaeoenvironmental archive**
- 12:10 – 12:30 Schwartzmann C, Durrieu G, Sow M, Ciret P, Claire E Lazareth, and Massabuau JC – **One year of giant clam growth: a combined HFNI valvometry and sclerochronology study**
- 12:30 – 14:20 Lunch**

Session 1C Proxy Development

Conveners: David P Gillikin, Christopher S Romanek

- 14:20 – 14:40 Laurent Chauvaud, Thébault J, Clavier J, Lorrain A and Strand Ø – **What's hiding behind ontogenetic $\delta^{13}\text{C}$ variations in mollusk shells? New insights from the great scallop (*Pecten maximus*)**
- 14:40 – 15:00 Maite Bauwens, Beelaerts V, Dehairs F and Schoukens J – **Which proxies should be integrated in the multi-proxy model?**
- 15:00 – 15:20 Marco BA Hatch, Schellenberg SA, McGowan JA and Carter M – **Ba/Ca variations in the modern intertidal bean clam *Donax gouldii*: an upwelling proxy?**
- 15:20 – 15:40 David P Gillikin, Haveles AW, Lorrain A, Ivany LC, Versteegh EAA and Dehairs F – **Barium in mollusk shells: a dual proxy of environmental conditions**
- 15:40 – 16:00 Leon J Clarke, Wanamaker Jr AD, Kreutz KJ, Borns Jr HW and Introne DS – **Can calcite bivalve shell B/Ca be used as a palaeosalinity proxy?**
- 16:00 – 16:30 Coffee Break (refreshments will be provided)**

Session 1D *Proxy Development*

Conveners: Thomas Tütken, Bernd R Schöne, Christopher S Romanek

- 16:30 – 16:50 Julien Thébault, Schöne BR, Chauvaud L, Hallmann N, Richard M, Barth M, Nunn EV and Bassoullet C – **Investigation of Li/Ca ratio temporal variations in shells of two marine bivalves: *Arctica islandica* (Iceland) and *Pecten maximus* (France)**
- 16:50 – 17:10 Poulain C, Anne Lorrain, Thebault J, Gillikin, DP, Munaron JM, Bohn M, Robert R and Paulet Y-M – **The impact of solution chemistry on the incorporation of Mg, Sr and Ba in the aragonite shell of *Ruditapes philippinarum*: results from a laboratory study**
- 17:10 – 17:30 Bernd R Schöne, Zhang Z, Radermacher P, Thébault J, Jacob DE, Nunn EV and Maurer A-F – **Sr/Ca and Mg/Ca ratios of ontogenetically old, long-lived bivalve shells (*Arctica islandica*) and their function as paleotemperature proxies**
- 17:30 – 17:50 Kotaro Shirai and Radermacher P – **Micro scale elemental distribution in shells of *Arctica islandica***
- 17:50 – 18:10 Claire E Lazareth, Le Cornec F, Candaudap F and Freydier R – **Trace element high-resolution distribution in bivalve isochronous growth layers**

Monday 26th July 2010

Session 2 *Environmental Monitoring and Pollution*

Conveners: Kazushige Tanabe, Christopher A Richardson

- 08:30 – 09:00 Christopher A Richardson – **Mollusc shells: archives of environmental and anthropogenic change** – Keynote
- 09:00 – 09:20 Andrew LA Johnson, Schöne BR and Chenery SRN – **Influences on the trace-element content of freshwater bivalve shells**
- 09:20 – 09:40 Christopher A Richardson, Jones NJE, Butler PG, Scourse JD, Chenery SRN and Hartley JP – **Assessing the history of trace element concentrations in the northern North Sea through Laser Ablation-ICP-MS of *Arctica islandica* shells**
- 09:40 – 10:00 Lisa A Friedrich, Halden NM and Palace VP – **Using otolith microchemistry to delineate environmental effects of mining**
- 10:00 – 10:30 *Coffee Break (refreshments will be provided)*

Session 3 Invertebrate (Paleo)ecology and Evolution

Conveners: Kazushige Tanabe, Christopher A Richardson

- 10:30 – 11:00 Rob Witbaard – **Sclerochronology and Ecology: They need each other!**
– Keynote
- 11:00 – 11:20 David H Goodwin, Anderson LC, Roopnarine PD and Kercher PM – **New sclerochronological constraints for ontogenetic patterns in tropical American bivalves: heterochronic evolution associated with the emergence of the Central American Isthmus**
- 11:20 – 11:40 Melita Peharda, Ezgeta-Balić D, Richardson CA, Vrgoč N and Isajlović I – **Sclerochronology and population structure of a commercially important bivalve: the smooth clam *Callista chione* in the eastern Adriatic Sea**
- 11:40 – 12:00 Rob Witbaard and Hippler D – **Following seasonal shell growth in *Arctica islandica***
- 12:00 – 12:20 Silvia Santos, Cardoso JFMF, Nieuwland G, Guimarães F, Witbaard R, Luttikhuisen PC, van der Veer HW and Machado JP – **Validation of the seasonality in growth bands in the bivalve *Macoma balthica* using stable isotope and trace element analysis**
- 12:20 – 12:40 Miyaji T, Kazushige Tanabe, Matsushima Y, Sato S, Yokoyama Y and Matsuzaki H – **Response of daily and annual shell growth patterns of a shallow marine bivalve to Holocene coastal climate change in Japan: a case study on *Phacosoma japonicum* (Veneridae)**
- 12:40 – 13:00 Alexander Arkhipkin and Shcherbich ZN – **A new increment bearing structure for age estimation in jumbo squid *Dosidicus gigas* (Ommastrephidae)**

13:00 – 14:30 Lunch

14:30 – 17:30 Poster Session

18:30 onward Mid-conference Dinner (Eisgrub Bräu, Microbrewery)

Tuesday 27th July 2010

Session 4A *Paleoclimate & Paleoenvironmental Reconstructions*

Conveners: Andrew LA Johnson, Bryan A Black

- 08:30 – 09:00 Bryan A Black – **Sclerochronology and the potential for multi-species perspectives on past climate and ecological variability** – Keynote
- 09:00 – 09:20 Ulrike Wacker, Munnecke A and Joachimski MM – **Fossil brachiopod shells: reliable archives of seawater temperatures?**
- 09:20 – 09:40 Alexander Nützel, Joachimski MM and López Correa M – **Seasonality in the Late Triassic tropics – High-resolution oxygen and carbon isotope records from aragonitic bivalve shells (Cassian Formation, northern Italy)**
- 09:40 – 10:00 Elizabeth V Nunn and Price GD – **High-latitude seasonality during the Early Cretaceous greenhouse**
- 10:00 – 10:30 Coffee Break (refreshments will be provided)**

Session 4B *Paleoclimate & Paleoenvironmental Reconstructions*

Conveners: Dorrit E Jacob, Kazushige Tanabe, Bryan A Black

- 10:30 – 10:50 Steffen Hetzinger, Halfar J, Keenlyside N, Mecking J, Kronz A, Steneck R, Adey W and Lebednik PA – **A link between North Pacific and North Atlantic climate on multidecadal time scales: new insights from coralline algae**
- 10:50 – 11:10 Jochen Halfar, Williams B, Hetzinger S, Steneck R and Adey W – **Skeletal density trends in coralline algae suggest ocean acidification impacts in the North Pacific and North Atlantic**
- 11:10 – 11:30 Kristine L DeLong, Quinn TM, Shen C-C and Lin K – **A snapshot of climate variability at Tahiti 9.5 ka using a fossil coral from IODP expedition 310**
- 11:30 – 11:50 David Storz and Gischler E – **Skeletal extension-rate record of a coral from the Maldives tracks ENSO and Indian monsoon variability**
- 11:50 – 12:10 Jens Zinke, Pfeiffer M, Crueger T, Wassenburg J and Hardman E – **Indo-Pacific teleconnections on decadal time-scales assessed by multiple Sr/Ca and oxygen isotope records from the southwestern Indian Ocean**
- 12:10 – 12:30 Miriam Pfeiffer, Zinke J, Dullo W-C, Timm O, Cahyarini SY and Weber ME – **Evaluating twentieth century warming trends with *Porites* corals from the Indian Ocean**
- 12:30 – 14:00 Lunch**

Session 4C *Paleoclimate & Paleoenvironmental Reconstructions*

Conveners: Bernd R Schöne, Bryan A Black

- 14:00 – 14:20 Keziah J Stott, Austin WEN, Sayer MDJ and Wilson RJS – **The investigation of growth rates, environment and climate signals in *Arctica islandica* from NW Scotland**
- 14:20 – 14:40 Paul G Butler, Wanamaker AD Jr, Richardson CA, Scourse JD and Reynolds DJ – **A 1350-year crossdated sclerochronology for the North Icelandic shelf based on growth increments from shells of *Arctica islandica***
- 14:40 – 15:00 James D Scourse, Wanamaker AD Jr, Weidman C, Heinemeier J, Reimer PJ, Butler PG and Richardson CA – **The marine radiocarbon bomb-pulse across the temperate North Atlantic: $\Delta^{14}\text{C}$ inventories from *Arctica islandica* growth increments**
- 15:00 – 15:20 Michael L Carroll, Ambrose WA Jr, Levin BS, Henkes GA, Hop H, Ryan S, Locke W, Renaud PE, Cottier F and Berge J – **Growth rate and geochemical variability in the Arctic bivalve *Serripes groenlandicus*: a multi-scale Pan-Svalbard proxy**
- 15:20 – 15:40 Emma AA Versteegh, Blicher ME, Troelstra SR and Dehairs F – **The application of bivalve sclerochemistry in reconstructing past Greenland meltwater runoff**
- 15:40 – 16:10 Coffee Break (refreshments will be provided)**

Session 4D *Paleoclimate & Paleoenvironmental Reconstructions*

Conveners: C Fred T Andrus, Meghan Burchell, Bryan A Black

- 16:10 – 16:30 Dorrit E Jacob, Soldati AL, Schöne BR, Bianchi MM and Hajduk A – **Climate signals in shells of *Diplodon chilensis patagonicus* bivalves, Northern Patagonia, Argentina**
- 16:30 – 16:50 Tsuyoshi Watanabe, Komoto Y and Shirai K – **Comparison of daily and seasonal changes in shell microstructures and trace elemental signals for river bivalve *Margaritifera laevis* with in-situ environmental parameters**

Session 5 *Shell midden archaeology*

Conveners: Elizabeth V Nunn, C Fred T Andrus, Meghan Burchell

- 16:50 – 17:20 C Fred T Andrus – **Sclerochronology in archaeology: beyond season of capture analysis** – Keynote

- 17:20 – 17:40 Meghan Burchell, Cannon A, Hallmann N, Schöne BR and Martindale A – **Understanding ancient shellfish use in British Columbia, Canada through high-resolution sclerochronology and oxygen isotope profiles**
- 17:40 – 18:00 Nadine Hallmann, Burchell M, Martindale A, Cannon A and Schwarcz HP – **Holocene climate changes in British Columbia and seasonality estimates reconstructed from the bivalve *Saxidomus gigantea* using high-resolution isotope sclerochronology**

Wednesday 28th July 2010

Session 6A *Paleobiology and Life history of vertebrates (sclerochronology)* **Conveners: Anne-France Maurer, Thomas Tütken**

- 08:30 – 09:00 Thomas Tütken – **Fossil bones and teeth: geochemical and histological archives for life history and palaeobiology** – Keynote
- 09:00 – 09:20 Daniel Gerdeaux and Dufour E – **Contribution of intra-otolith variations in stable carbon and oxygen isotopes to age validation of pike (*Esox lucius*) scales and otoliths**
- 09:20 – 09:40 Carsten Witzel, Kierdorf U, Frölich K and Kierdorf H – **A study of the periodicity of incremental markings in dental enamel of sheep**
- 09:40 – 10:00 Antoine Zazzo, Balasse M, Passey BH, Moloney AP, Monahan FJ and Schmidt O – **The isotope record of short- and long-term dietary changes in sheep tooth enamel: implications for quantitative reconstruction of paleodiets**
- 10:00 – 10:30 Coffee Break (refreshments will be provided)**

Session 6B *Paleobiology and Life history of vertebrates (sclerochronology)* **Conveners: Anne-France Maurer, Thomas Tütken**

- 10:30 – 10:50 Kathlyn M Smith, Fisher DC and Rountrey AN – **Use of tusk growth and stable isotope records to assess an unusual all-female American mastodon (*Mammot americanum*) assemblage**
- 10:50 – 11:10 Timothy G Bromage, Juwayeyi YM, Smolyar IV, Gomez S, Hu B and Chisi J – **Incremental lamellar bone rhythms revealed on multi-annual timescales in humans**
- 11:10 – 11:30 Lena Hänsel and Alt KW – **Incremental lines in human teeth: a reliable method for biological age determination?**

Session 7 *Biom mineralization: Processes & Crystal Fabrics*
Conveners: Kotaro Shirai, Anders Meibom

- 11:30 – 12:00 Anders Meibom – **New tools to study paleoenvironmental proxy precision and biological effects** – Keynote
- 12:00 – 12:20 Robin M Cobb, Andrus CFT, Pérez-Huerta A and Olson JB – **Analysis of skeletal growth in stylasterid corals**
- 12:20 – 12:40 Pascal Radermacher, Shirai K and Zhang Z – **Heterogeneity of Sr/Ca and crystal fabrics in the shell of *Arctica islandica*: developing a reliable paleothermometer**
- 12:40 – 14:00 Lunch**

Session 8 *Cross-links and Visions*
Conveners: Alan D Wanamaker Jr, Gerrit Lohmann, Bernd R Schöne

- 14:00 – 14:30 Gerrit Lohmann, Brey T, Lomovasky B and Schöne BR – **Marine-biological proxies and climate circulation: methods and applications** – Keynote
- 14:30 – 14:50 Vasile Ersek, Clark PU, Mix AC, Cheng H and Edwards L – **Response of the Pacific Northwest to Holocene climate forcings**
- 14:50 – 15:10 Denis Scholz, Hoffmann D, Spötl C, Hopcroft P, Mangini A and Richter DK – **Decoupled evolution of temperature and precipitation in western Germany during the Last Interglacial reconstructed from a precisely dated speleothem**
- 15:10 – 15:30 Frank DC, Jan Esper, Raible CC, Büntgen U, Trouet V, Stocker B and Joos F – **Sensitivity of the carbon cycle estimated from ensemble climate reconstructions**
- 15:30 – 16:00 Alan D Wanamaker Jr – **Visions: the future of sclerochronology** – Keynote
- 16:00 – 16:30 Coffee Break (refreshments will be provided)**

16:30 – 17:15 Ballot: 3rd ISC (ISC2013) & Awards

18:30 onward Farewell Dinner (Proviantmagazin; free drinks until 20:30)

Poster presentations

- | Poster # | Author(s) – Title |
|----------|---|
| 51 | <u>Konstantina Agiadi</u> and Girone A – Sclerochronological examination, Sr/Ca spectral analysis and signal processing of two <i>Ceratoscopelus</i> otolith morphotypes from the Quaternary Ionian Sea |
| 20 | <u>Jessica R Bean</u> and Hill TM – Intermittent growth in gastropod shells: seasonal changes in apertural morphology and shell oxygen isotope records |
| 21 | <u>Jessica R Bean</u> and Jacobs LM – Seasonal and tidal influences on gastropod shell oxygen isotope records |
| 52 | <u>Veerle Beelaerts</u> , Bauwens M, Versteegh EAA, Pintelon R and Dehairs F – Periodic time-series modeling with guaranteed positive growth rate estimation for environmental records |
| 54 | <u>Lars Beierlein</u> – Investigating climatic archives from archaeological sites in East Germany: a calibration study on <i>Unio crassus</i> |
| 15 | <u>Erin C Beirne</u> and Wanamaker AD Jr – Experimental calibration of <i>Arctica islandica</i> shell carbonate as a geochemical proxy for environmental dissolved inorganic carbon |
| 26 | Bellamy E, Mahé K, de Rafélis M and <u>Frank Lartaud</u> – Growth of the common cockle <i>Cerastoderma edule</i>: validation of the periodicity of increment deposition by Calcein marker |
| 42 | <u>Annemarie Bird</u> , Johnson ALA, Leng M and Balson PS – Pliocene climate of the Southern North Sea Basin: a sclerochronological approach |
| 38 | <u>Peter Bisling</u> , Theopold F, Krause-Nehring J and Brey T – First results on lead in <i>Arctica islandica</i> shells using laser ablation and resonance ionization |
| 47 | <u>Thomas Brey</u> , Lohmann G, Jenkins K, Ahn IY, Lomovasky B and Voigt M – Does the Antarctic Circumpolar Current isolate high-latitude bivalves from ENSO forcing? |
| 27 | <u>William M Brocas</u> , Ridgway ID, Reynolds DJ, Butler PG, Richardson CA, Scourse JD and Ramsay K – Developing the use of the dog cockle, <i>Glycymeris glycymeris</i>, shell as a new scleroclimatological proxy species |
| 45 | Chan P, <u>Jochen Halfar</u> , Hetzinger S, Steneck R, Zack T and Jacob DE – Is the Alaska Coastal Current becoming less saline? An example using coralline algal Ba/Ca ratios |

- 58 Elise Dufour, Vernet R, Tous P, Borges C and Saliège JF – **Stable isotopic profiles of meagre (*Argyrosomus regius*): reconstruction of environment and fishing practises at Cansado, Mauritania**
- 23 Nicolas Duprey, Lazareth CE, Butscher J, Dupouy C, Maes C, Farman R and Cabioch G – **The giant clam *Tridacna maxima*, a high-resolution proxy for past climate reconstruction in the South-West Pacific: first stages of the calibration**
- 59 Teresa CB Franco – **Coastal hunter-gatherers in Northern Chile: archaeological and paleoecological approach**
- 39 Lisa A Friedrich – **Establishing a chemical baseline for a mining-impacted area using otolith microchemistry**
- 35 Christoph S Füllenbach – **Distribution patterns of *Arctica islandica* shells in the North Sea: ontogenetic and radiometric ages**
- 48 Jose R Garcia-March, Surge D, Lees J and Kersting D – **Stable isotope ratios in *Pinna nobilis* shells record ecological information and water mass properties in the Mediterranean**
- 24 David P Gillikin, Goodwin DH and Kesler DH – **Periodicity of growth lines in freshwater mussels: a stable isotope study**
- 43 Shelly M Griffin and Wanamaker AD Jr – **Assessing shell growth records from *Arctica islandica* in the Gulf of Maine as indicators of environmental change**
- 3 Tobias Grützner – **Sectorial dark field: the best lightning technique for etched thick-sections?**
- 57 F Igor Gutiérrez-Zugasti, Delgado-Huertas A, Ortiz JE, González-Morales MR, Torres T and Reyes E – **How good is *Patella vulgata* Linnaeus 1758 reflecting changes in sea surface temperatures (SST)? First results using living and archaeological samples from Northern Spain**
- 4 Sabine Hahn, Rodolfo-Metalpa R, Griesshaber E, Schmahl WW, Buhl D, Hall-Spencer JM and Immenhauser A – **Possible ocean acidification during the PETM: analogue for future ocean acidification?**
- 46 Nadine Hallmann, Burchell M, Tanabe K, Irvine GV, Cannon A, Miyaji T and Martindale A – **Reconstruction of North Pacific Holocene climate using marine bivalve shell midden deposits**
- 5 Agnes Heinemann, Fietzke J, Thomsen J, Eisenhauer A and Melzner F – **The influence of increased $p\text{CO}_2$ on the calcification of *Mytilus edulis***

- 29 Lars Heller – **Estimating periods of extended shell closure from bivalve growth patterns: a potential new proxy for seasonally hostile environmental conditions**
- 49 Steffen Hetzinger, Kulfan CM, Mallela J, Halfar J, Dullo W-C, Macrander A, Grove CA, Zinke J and McCulloch MT – **Tobago coral record as a high-resolution archive of Amazon and Orinoco River outflow and tropical climate variability**
- 60 Ruth M Higgins, Ferreira AF and Isidro E – **Validation of growth increment periodicity and the position of the first annulus in Blackspot Seabream (*Pagellus bogaraveo*) otoliths**
- 28 Hilmar A Holland – **Is it possible to construct long master chronologies from the fossil shells of *Margaritifera falcata* (British Columbia, Canada)?**
- 44 Joel W Hudley and Surge D – **Reconstructing the variability of shelf water bottom temperatures in the Middle Atlantic Bight from annual growth increments**
- 31 Kurin Imura, Tohse H, Ura K and Takagi Y – **Molecular mechanisms of cellular differentiation in teleost fish scales**
- 17 Hisato Izumida, Yoshimura T, Ishimura T, Nakashima R, Kawahata H, Shikazono N and Suzuki A – **Freshwater mussel shells (*Hyriopsis* sp.) as archives of environmental information**
- 34 Jones NJE, Christopher A Richardson, Grigoriou P and Kennedy H – **Distribution, age and growth of the fan mussel *Atrina fragilis* from around the UK and Ireland**
- 6 Jacqueline Krause-Nehring, Brey T, Klügel A and Nehrke G – **Bleaching of biogenic carbonates: beware of changes in trace element concentrations!**
- 40 Labonne M, Oudard C, Bassoulet C, Morize E and Lae R – **Test of Marine Protected Area source-sink hypothesis on fishes using otolith microchemistry (presented by Anne Lorrain)**
- 7 Le Callonnec L, Lartaud F and Marc de Rafélis – **Trace elements and stable isotopes from unionid bivalve shells: proxy records of environmental conditions and pollution events. Experimental approach in situ (Ile-de-France) and in laboratory**
- 13 Matthias López Correa, Rüggeberg A, Montagna P, McCulloch MT, Taviani M and Freiwald A – **Microstructure, trace elements and stable isotopes of recent and Holocene bathyal Mediterranean *Corallium rubrum* (Strait of Sicily)**

- 55 Anne-France Maurer, Knipper C, Galer S, Beierlein L, Peters D, von Freden U, Alt KW and Schöne BR – **Strontium isotope ratios of bivalve shells and tree cores in past migration studies**
- 12 Tsuzumi Miyaji, Shirai K and Tanabe K – **Extraction of sea surface salinity proxy by means of high resolution minor trace element analysis in venerid bivalve shells**
- 8 Vincent Mouchi, Lartaud F and de Rafélis M – **Environmental vs. physiological control of the Mg/Ca and Sr/Ca distribution in oyster shells**
- 36 Roel Nagtegaal, Brummer G-JA, Grove CA, Zinke J and van den Bergh G – **High-resolution *Porites* coral proxy records as indicators of climatic and environmental change in East Kalimantan Indonesia**
- 30 Kozue Nishida, Nakashima R, Majima R, Suzuki A and Hikida Y – **Shell microstructural changes in shell layers of the chemosynthetic bivalve, *Conchocele bisecta***
- 33 Elizabeth V Nunn, Price GD and Schöne BR – **Sclerochronological analysis of the Early Cretaceous Boreal Realm belemnite *Arcroteuthis lateralis***
- 37 Kazuto Ohmori, Watanabe T, Tanimizu M, Matuoka J and Shirai K – **Pb concentration and isotopes in Pacific sclerosponge**
- 22 Pascal Radermacher, Gischler E, Oschmann W, Thébault J and Fiebig J – **Sclerochronology: a highly versatile tool for mariculture and reconstruction of life history traits of the queen conch, *Strombus gigas* (Gastropoda)**
- 16 Magnus Reutter, Radermacher P, Beierlein L and Maus M – **Generating growth and calcification in freshwater mollusks in closed-system tank ecosystems: a starting point for climatic and ecological proxy calibration**
- 56 Gabriella Schöll-Barna, Demény A, Sümegi P, Serlegi G, Fábíán S, Cserny T, Fórizs I and Bajnóczi B – **Variations in stable isotopic composition of shell Unionidae from Lake Balaton (Hungary): recent and archaeological studies**
- 63 Angelina Siebert, Oelze VM, Ulrich N, Nicklisch N, Ganslmeier R and Alt KW – **“Neither fish nor fowl?” Significant increase of animal protein in human diet during the Neolithic in Central Germany**
- 62 Smolyar IV, Timothy G Bromage and Wikelski M – **Incremental patterns in nature: a model of 2D cyclic structure**
- 1 Kohki Sowa, Sakamoto T, Nakamura T, Sakai S, Iijima K and Watanabe T – **A new method for estimating calcification rate of coral skeletons using a transparent X-ray 2D-imaging scanner (TATSCAN-X1) in conjunction with geochemical analyses**

- 10 Hélène Tabouret, Carlier A, Thébault J, Pécheyran C, Chauvaud L and Amouroux D – **Isotopic approach to assess dissolved Mo and Ba uptake in scallop shells: new insights into the use of Mo/Ca and Ba/Ca ratios as proxies in temperate coastal environments**
- 61 Hélène Tabouret, Lord C, Pécheyran C, Monti D and Keith P – **Do freshwater gobies move along the river system? Investigations of freshwater habitat use of two Sicydiine species *Sicydium punctatum* (Carribean) and *Sicyopterus lagocephalus* (Indo-Pacific)**
- 32 Yasuaki Takagi, Tohse H, Ogawa N and Nagasawa H – **Proteomic and mRNA expression analyses in the teleost fish otolith and scale suggest organic control of rhythmic growth and biomineralization**
- 18 Isabelle Taubner, Böhm F, Eisenhauer A, Garbe-Schönberg D and Erez J – **Temperature and pH proxies in cultured scleractinian corals**
- 19 Sebastian Teichert and Freiwald A – **Polar coralline red algae as potential environmental recorder**
- 11 Julien Thébault, Chauvaud L, L’Helguen S, Clavier J, Barats A, Pécheyran C and Amouroux D – **Barium and molybdenum records in shells of *Comptopallium radula* (Bivalvia; Pectinidae): high-resolution proxies for phytoplankton dynamics in the coral reef lagoon of New Caledonia**
- 2 Felix Theopold, Bisling P, Brey T and Krause-Nehring J – **A novel approach for the determination of growth increments of *Arctica islandica***
- 53 Stefanie Thiele – **High-frequency oscillations in annual shell growth of bivalves: physiological rather than climatic control?**
- 25 Trotter J, Montagna P, Matthias López Correa, Vertino A, McCulloch MT, Goldstein S, Ritt B, Henry P and Taviani M – **Longevity and growth rates of *Desmophyllum dianthus* in the Marmara Sea and its potential as high-resolution geochemical deep-sea archive**
- 50 Emma AA Versteegh, Vonhof HB, Troelstra SR and Kroon D – **A molluscan perspective on hydrological cycle dynamics in northwestern Europe**
- 14 Toshihiro Yoshimura, Izumida H, Suzuki A, Ishimura T, Nakashima R and Kawahata H – **Small metabolic carbon contribution to shell carbonates of cultured freshwater pearl mussel *Hyriopsis* sp.**
- 9 Zengjie Zhang, Radermacher P, Maurer A-F, Nunn EV, Hallmann N and Tütken T – **Controls of ontogenetic age and growth rate on trace elements in marine aragonitic bivalve shells: implications for the development of trace elemental proxies**
- 41 Jessica Zirkel – **Seasonal to decadal climate variability during the late Oligocene (‘Kasseler Meeressand’ unit, Germany)**