



CHAPMAN CONFERENCE

Washington, D.C., USA • 5-9 January 2020

Chapman Conference on the Evolution of the Monsoon, Biosphere and Mountain Building in Cenozoic Asia

Conveners

Peter D. Clift

Louisiana State University
Baton Rouge, Louisiana, United States

Christian France-Lanord

CRPG CNRS-Université de Lorraine
Vandœuvre-lès-Nancy, France

Ann Holbourn

University of Kiel
Kiel, Germany

Hongbo Zheng

Yunnan University
Yunnan, China

Program Committee

Pallavi Anand

Open University
Milton Keynes, United Kingdom

Ana Barros

Duke University
Durham, North Carolina, United States

Simona Bordoni

California Institute of Technology
Pasadena, California, United States

Program Committee *(continued)*

Steve Clemens

Brown University
Providence, Rhode Island, United States

Sarah Feakins

University of Southern California
Los Angeles, California, United States

Stephen Gallagher

University of Melbourne
Melbourne, Australia

Liviu Giosan

Woods Hole Oceanographic Institution
Falmouth, Massachusetts, United States

Yoshimi Kubota

National Museum of Nature and Science
Tokyo, Japan

Yani Najman

University of Lancaster
Lancaster, United Kingdom

Sunil Singh

National Institute of Oceanography
Goa, India

Shiming Wan

Chinese Academy of Science
Qingdao, China

Scientific Program

SUNDAY, 5 JANUARY

5:00 p.m.– 7:00 p.m. **Ice Breaker**
AGU Conference Center – Lobby Level

MONDAY, 6 JANUARY

8:15 a.m.– 8:30 a.m. **Introduction**
AGU Conference Center – Lobby Level

8:30 a.m.– 9:20 a.m. **Keynote: Climate Dynamics**
Chairs: Stephen Gallagher, Sarah Feakins
AGU Conference Center – Lobby Level

Matt Huber | Mountains Mostly Move the Monsoon Rain Around

9:20 a.m.– 10:00 a.m. **Climate Dynamics I**
Chairs: Stephen Gallagher, Sarah Feakins
AGU Conference Center – Lobby Level

9:20 a.m. –9:40 a.m. **Michael R Gipp** | Hierarchy of Paleomonsoon Climate Dynamics Extracted from Geological Time Series

9:40 a.m. –10:00 a.m. **Anta-Clarisse Sarr** | A modeling study of physical and biogeochemical changes occurring in the tropical Indian Ocean during Miocene times.

10:00 a.m.– 11:00 a.m. **Poster Session and Coffee Break**
Chairs: Peter Clift, Christian France-Lanord, Ann Holbourn, Hongbo Zheng
AGU Conference Center – Lower Level

- Board 4 **Ryo Yamaoka** | Kochi Core Center, the house of core samples from the Indian Ocean to the western Pacific
- Board 5 **Simona Bordoni** | Northern Hemisphere Monsoon Response to Mid-Holocene Orbital Forcing and Greenhouse Gas-Induced Global Warming
- Board 6 **Stephen J Gallagher** | East Asian Monsoon History and Paleoceanography of the Japan Sea Over the Last 460,000 Years
- Board 7 **Christian Betzler** | The Neogene Indian Ocean Record of Asian Monsoon Driven Ocean Currents and Winds from the Maldives (IODP Exp. 359)
- Board 8 **Ann Holbourn** | A 10 Myr record of Australian Monsoon variability
- Board 9 **Gerald Auer** | Pacing the Miocene Monsoon System – Are there links to Indian Ocean circulation and migrating southern hemisphere climate belts?
- Board 10 **Takuya Sagawa** | Orbital-scale thermocline variability in the western Pacific warm pool
- Board 11 **Tomohisa Irino** | Temporal Variability of the Depth Distribution of Organic Carbon Burial in the Japan Sea During the Last 1.5 M.Y. Based on IODP Exp. 346 Sediment Cores
- Board 12 **Katrina Nilsson-Kerr** | Location, location, location & proxies! Disentangling Indian Summer Monsoon dynamics across Marine Isotope Stage 5
- Board 13 **Xiaoqing Liu** | Sea Surface Temperatures in the Western Pacific Warm Pool over the Past 10 Million Years
- Board 14 **Kaustubh Thirumalai** | Deglacial-to-Holocene evolution of Indian monsoon rainfall
- Board 15 **Gregor Paul Eberli** | Is the Simultaneous Onset of the Florida, East Australia, and Indian Ocean Currents Related to Himalayan tectonics?

- Board 17 **Yasmin Bokhari Friberg** | Plio-Pleistocene Evolution of Indian Summer Monsoon Runoff and Productivity
- Board 19 **Andrew C G Henderson** | Palaeoceanography of the Japan Sea since the late Miocene: exploring the links to regional tectonism and global climate change
- Board 20 **Jeroen van der Lubbe** | Invigoration of Indian Ocean Walker Cell circulation drove Pleistocene eastern African aridification
- Board 21 **Xiao-Ming Liu** | Are lithium isotopes good tracers of continental weathering over Cenozoic?
- Board 22 **Petra Dekens** | Pliocene-Pleistocene Sea Surface Temperature records from the southern Bay of Bengal (IODP Exp 354)
- Board 23 **Stephen C Phillips** | Consistency of weathering and productivity records in the Bay of Bengal and western Andaman Sea
- Board 24 **Kara Cowan** | The Bay of Bengal through the Pliocene-Pleistocene cooling
- Board 25 **Drew Alexander Lowdermilk** | Sea surface conditions in the Bay of Bengal since the early Pliocene
- Board 26 **Gowtham Subbarao** | Organic Matter Degrading Bacteria Dominate the Deep Sedimentary Subsurface Biosphere of the Indus Fan at IODP Hole U1456B in the Eastern Arabian Sea, but as a Function of Climatic Oscillations
- Board 27 **Joshua David Bridges** | Intensification of the East Asian Monsoon as Defined by Environmental Magnetism
- Board 28 **Ivano W Aiello** | Climate, Sea Level and Tectonic Controls on Sediment Discharge from the Sepik River, Papua New Guinea during the Mid- to Late Pleistocene
- Board 29 **Stéphanie Desprat** | Changes in vegetation and summer monsoon rainfall in eastern India over the last 70 000 years

- Board 30 **Yani Najman** | Lateral variations in vegetation in the Himalaya since the Miocene and implications for climate evolution
- Board 32 **Zhaojie Yu** | Sediment Transport to the Eastern Arabian Sea over the past 600 kyr
- Board 33 **Zhaokai Xu** | The role of Indian summer monsoon in controlling silicate erosion/weathering and sediment transport in the eastern Arabian Sea since 3.8 Ma
- Board 34 **Volkhard Spiess** | Reconstruction of sediment fluxes in channel-levee depositional settings - the impact of channel sinuosity on overspill deposition
- Board 35 **Uri Ryb** | Clumped Isotope Compositions of Detrital Carbonates in the Himalayan River System – 2) The Cenozoic River
- Board 36 **Aswin Pradeep Tachambalath** | Erosion, Alteration and Paleoweathering in Himalaya from IODP Exp. 354 in the Bengal Fan.
- Board 37 **Christian France-Lanord** | Bengal Fan Sediment Characteristics and Implications on the Erosion Regime in Himalaya
- Board 38 **Samantha Carter** | Clay fraction strontium and neodymium isotopes in the Indus Fan: implications for provenance and sediment transport
- Board 40 **Yuting Li** | Differential Signal Propagation of Muddy and Sandy Sediments in the Indus Submarine Canyon
- Board 41 **Peter Dominic Clift** | A Marine Record of Exhumation of the Western Himalaya since the Mid Miocene
- Board 42 **Feng Cheng** | Climate-driven erosion and sedimentation in Asia during the Late Cenozoic
- Board 43 **Yani Najman** | The Bengal Fan: a sediment record of Himalayan tectonics, climate, and/or autogenic processes?
- Board 44 **Paul M Betka** | Quantifying Stratigraphic Correlations and Provenance within the Ancestral Brahmaputra Delta, a

Record of Eastern Himalayan Exhumation and the Onset of the Indian Monsoon

- Board 45 **Camilo Ponton** | Clumped isotope compositions of detrital carbonates in the Himalayan River system – 1) The modern Ganga basin
- Board 46 **Ryan Sincavage** | Feeding the Bengal Fan: The Shallow Marine to Fluvial Transition of the Prograding Ancestral (Neogene) Brahmaputra Delta
- Board 47 **Trevor Williams** | Sediment provenance in the Bay of Bengal, IODP Site U1452, 0-200 ka
- Board 48 **Alexander Farnsworth** | The impact of increased spatial resolution on Cenozoic climates
- Board 49 **Ed Hathorne** | Persistent South Asian Monsoon induced erosion over the past 26 million years inferred from clay radiogenic isotopes of Bay of Bengal sediments
- 11:00 a.m.– 12:40 p.m.** **Climate Dynamics II**
Chairs: Stephen Gallagher, Sarah Feakins
AGU Conference Center – Lobby Level
- 11:00 a.m. –11:20 a.m. **Jane Wilson Baldwin** | The Direct and Ocean-Mediated Influence of Asian Orography on Tropical Precipitation and Cyclones
- 11:20 a.m. –11:40 a.m. **Christoff Andermann** | Modern seasonal stable water isotope patterns in the Nepal Himalayas
- 11:40 a.m. –12:00 p.m. **Ana Paula Barros** | The Orographic Waterwheel
- 12:00 p.m. –12:20 p.m. **Delphine Tardif** | History of the Asian Monsoons Onset During the Cenozoic: Critical Features and Remaining Uncertainties
- 12:20 p.m. –12:40 p.m. Questions and Summary
- 12:40 p.m.– 2:00 p.m.** **Lunch**
- 2:00 p.m.– 2:50 p.m.** **Keynote: Palaeoceanography Records**

Chairs: Shiming Wan, Pallavi Anand
AGU Conference Center – Lobby Level

Steven C Clemens | Pleistocene Seawater $\delta^{18}\text{O}$ reconstructions from the Indian and East Asian Monsoon Regions

2:50 p.m.– 3:30 p.m.

Palaeoceanography Records I

Chairs: Shiming Wan, Pallavi Anand
AGU Conference Center – Lobby Level

2:50 p.m. –3:10 p.m.

Clara T Bolton | Paleooceanographic evolution of the equatorial Indian Ocean during the late Miocene (9-5 Ma)

3:10 p.m. –3:30 p.m.

Christopher William Kinsley | Westerly Jet-Asian Monsoon Coupling Reconstructed Using Radiogenic Neodymium Isotopes in Eolian Dust from Japan Sea Sediments

3:30 p.m.– 4:30 p.m.

Poster Session and Coffee Break

Chairs: Peter Clift, Christian France-Lanord, Ann Holbourn, Hongbo Zheng
AGU Conference Center – Lower Level
See full list of poster presenters on pages 2-6.

4:30 p.m.– 6:15 p.m.

Palaeoceanography Records II

Chairs: Shiming Wan, Pallavi Anand
AGU Conference Center – Lobby Level

4:30 p.m. –4:50 p.m.

Samantha Claudia Bova | Orbital-scale variability in Western Pacific Warm Pool rainfall over the last 1.5 My

4:50 p.m. –5:10 p.m.

Masanobu Yamamoto | Sedimentary soil organic matter records of the Indian Summer Monsoon variability during the last 1,460,000 years

5:10 p.m. –5:30 p.m.

Wolfgang Kuhnt | Northeastern Indian Ocean paleoceanography and Indian monsoon variability reconstructed from Miocene sediment archives (IODP Expedition 353)

5:30 p.m. –5:50 p.m. **Stephan Steinke** | Middle Miocene freshening of the Eastern Arabian Sea

5:50 p.m. –6:15 p.m. Questions and Summary

TUESDAY, 7 JANUARY

8:30 a.m.– 9:20 a.m. Keynote: Continental Environments

Chairs: Hongbo Zheng, Ann Holbourn

AGU Conference Center – Lobby Level

Sarah J Feakins | Did monsoon precipitation drive C₄ expansion in the late Miocene?

9:20 a.m.– 10:00 a.m. Continental Environments I

Chairs: Hongbo Zheng, Ann Holbourn

AGU Conference Center – Lobby Level

9:20 a.m. –9:40 a.m. **Andreas Mulch** | From Past Topography to Understanding the Evolution of Landscapes and Life

9:40 a.m. –10:00 a.m. **Marissa M Tremblay** | A Warm, Productive Environment at the India-Asia Suture Zone During a Warm, Productive Oligocene-Miocene World?

10:00 a.m.– 11:00 a.m. Poster Session and Coffee Break

Chairs: Peter Clift, Christian France-Lanord, Ann Holbourn, Hongbo Zheng

AGU Conference Center – Lower Level

See full list of poster presenters on pages 2-6.

11:00 a.m.– 12:40 p.m. Continental Environments II

Chairs: Hongbo Zheng, Ann Holbourn

AGU Conference Center – Lobby Level

11:00 a.m. –11:20 a.m. **Sarah Madeline McGrath** | The Indian Summer Monsoon Over the Past 640,000 Years: Reconstructed from $\delta D_{\text{leafwax}}$

- 11:20 a.m. –11:40 a.m. **Bradley Opdyke** | Paleo-Lake George records, the Tectonics of New Guinea, and the subsequent Drying of the Southern Hemisphere in the Late Pleistocene
- 11:40 a.m. –12:00 p.m. **Guangsheng Zhuang** | Tibetan Plateau interrupted C₄-grassland expansion
- 12:00 p.m. –12:20 p.m. **Hongbo Zheng** | From Desert to Monsoon in SE Tibetan Plateau: Orography-driven Climatic Transition at ~36 Ma
- 12:20 p.m. –12:40 p.m. Questions and Summary
- 12:40 p.m.– 2:00 p.m. Lunch**
- 2:00 p.m.– 2:50 p.m. Keynote: Records of Continental Erosion**
Chairs: Takuya Sagawa, Christian France-Lanord
AGU Conference Center – Lobby Level
- Albert Galy** | New mineralogical and geochemical constrains on the erosion of the Himalayas during the Neogene inferred from IODP exp 354
- 2:50 p.m.– 3:30 p.m. Records of Continental Erosion I**
Chairs: Takuya Sagawa, Christian France-Lanord
AGU Conference Center – Lobby Level
- 2:50 p.m. –3:10 p.m. **Andrew Carter** | Implications for Forcing Mechanisms derived from Sediment Flux and Provenance Changes in the Nicobar Fan and their Relationships to the Bengal Fan
- 3:10 p.m. –3:30 p.m. **Liviu Giosan** | How Did the Mud Cross the Shelf? The Monsoon Erosional Pump at Orbital and Tectonic Timescales
- 3:30 p.m.– 4:30 p.m. Poster Session and Coffee Break**
Chairs: Peter Clift, Christian France-Lanord, Ann Holbourn, Hongbo Zheng
AGU Conference Center – Lower Level
See full list of poster presenters on pages 2-6.

- 4:30 p.m.– 6:15 p.m.** **Records of Continental Erosion II**
 Chairs: Takuya Sagawa, Christian France-Lanord
AGU Conference Center – Lobby Level
- 4:30 p.m. –4:50 p.m. **Shiming Wan** | Cenozoic Sedimentary Record in the Northern South China Sea Indicates Long-term Evolution of East Asian Monsoon
- 4:50 p.m. –5:10 p.m. **Fenna Bergmann** | Himalayan Erosional Fluxes Reconstructed from Core-Seismic Integration across the lower Bengal Fan Drilling Transect (IODP Exp 354)
- 5:10 p.m. –5:30 p.m. **Pallavi Anand** | Evolution of Indian Monsoon since the late Miocene
- 5:30 p.m. –5:50 p.m. **Valier Galy** | Organic Carbon Burial in the Bengal Fan over the Last 20 Ma
- 5:50 p.m. –6:15 p.m. Questions and Summary

WEDNESDAY, 8 JANUARY

- 8:30 a.m.– 9:20 a.m.** **Keynote: Modeling and Links to Continental Tectonics**
 Chairs: Peter Clift, Yani Najman
AGU Conference Center – Lobby Level
- Alexander Webb** | The monsoon, biosphere, and mountain-building across the mid-Cenozoic Himalaya interpreted as a mantle-driven series of interactions
- 9:20 a.m.– 10:00 a.m.** **Modeling and Links to Continental Tectonics I**
 Chairs: Peter Clift, Yani Najman
AGU Conference Center – Lobby Level
- 9:20 a.m. –9:40 a.m. **Rasmus C Thiede** | Middle Miocene rise of the Greater Himalaya and the disruption of transverse drainage in northwest India

- 9:40 a.m. –10:00 a.m. **Yongyun Hu** | Evolution of the monsoon system over the past 250 million years
- 10:00 a.m.– 11:00 a.m. Poster Session and Coffee Break**
 Chairs: Peter Clift, Christian France-Lanord, Ann Holbourn, Hongbo Zheng
AGU Conference Center – Lower Level
See full list of poster presenters on pages 2-6.
- 11:00 a.m.– 12:40 p.m. Modeling and Links to Continental Tectonics II**
 Chairs: Peter Clift, Yani Najman
AGU Conference Center – Lobby Level
- 11:00 a.m. –11:20 a.m. **Alexander Farnsworth** | The Cenozoic Evolution of Tibetan Orography, Climate and Biodiversity
- 11:20 a.m. –11:40 a.m. **David B Rowley** | Paleoaltimetry estimates of High Himalayan and Tibetan Plateau paleotopographic evolution since the Paleocene
- 11:40 a.m. –12:00 p.m. **Ellen A. Lamont** | Pre-Quaternary frontal accretion and subsequent distributed deformation indicates structural control of exhumation of the Himalayan orogenic wedge
- 12:00 p.m. –12:20 p.m. **Alexander Farnsworth** | Modelling the Interaction between Tibet and Climate and Biosphere during the Cenozoic
- 12:20 p.m. –12:40 p.m. Questions and Summary
- 12:40 p.m.– 2:00 p.m. Lunch**
- 2:00 p.m.– 3:30 p.m. Break-Out Groups: Identify key advances and identify areas of future research**
AGU Conference Center – Lower Level
- 3:30 p.m.– 4:30 p.m. Poster Session and Coffee Break**
 Chairs: Peter Clift, Christian France-Lanord, Ann Holbourn, Hongbo Zheng
AGU Conference Center – Lower Level

See full list of poster presenters on pages 2-6.

4:30 p.m.– 5:30 p.m. Break-Out Groups: Identify key advances and identify areas of future research

AGU Conference Center – Lower Level

5:30 p.m.– 6:30 p.m. Plenary Session: Presentation of sub-group results

AGU Conference Center – Lobby Level

THURSDAY, 9 JANUARY

8:30 a.m.– 10:00 a.m. Break-Out Groups: How the meeting has tested the hypotheses laid out at the start

AGU Conference Center – Lower Level

10:00 a.m.– 11:00 a.m. Poster Session and Coffee Break

Chairs: Peter Clift, Christian France-Lanord, Ann Holbourn, Hongbo Zheng

AGU Conference Center – Lower Level

See full list of poster presenters on pages 2-6.

11:00 a.m.– 12:30 p.m. Plenary Session: Discussion of how the recent coring campaign has advanced the understanding of climate-tectonic interactions in the global type area and what key issues remain

AGU Conference Center – Lobby Level