

## PROGRAMME

International Conference of the CRC 1211

09-11 August 2023

### Wednesday, August 9th:

#### Session 1 (Chair: Christine Heim & Benni Ritter)

- 9.30-9.45 Welcome and Introductory Remarks
- 9.45-10.15 Laura Evenstar, Brighton: **KEYNOTE** When did the Andes get so high??
- 10.15-10.30 Sven Nielsen, Valdivia: The past of the Humboldt Current System: knowns and unknowns
- 10.30-10.45 Fatima Bouhdayad, Cologne: Stratigraphy and depositional environment of Neogene diatom-rich (Bahía Inglesa Formation) at Quebrada Tiburón, northern-central Chile
- 10.45-11.15 *Coffee break*

#### Session 2 (Chair: Joel Mohren & Klaus Reicherter)

- 11.15-11.30 Ari Matmon, Jerusalem: The age of the Kalahari sand sheet
- 11.30-11.45 Frank Eckart, Cape Town: Southern African Dust Sources
- 11.45-12.00 Bettina Weber, Graz: Biological soil crusts and their versatile roles in drylands around the world
- 12.00-12.15 Marco Pfeiffer, Santiago de Chile: The interplay of soil and badlands development in the hyperarid core of the Atacama Desert
- 12.15-12.30 Volker Wennrich, Cologne: Precipitation changes of the central Atacama Desert since the Miocene as reconstructed from clay pan records of the Coastal Cordillera/ N Chile
- 12.30-14.00 *Lunch break*

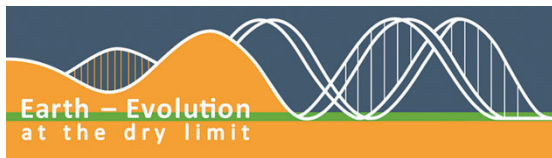
#### session 3 (Chair: Christoph Lenting & Daniel Herwartz)

- 14.00-14.30 Jason Rech, Miami: **KEYNOTE** Relict and fossil soils of the Atacama Desert and their paleoclimatic significance
- 14.30-14.45 Kathi Deußen, Cologne: Deciphering the sources of Atacama gypsum from Sr isotopes,
- 14.45-15.00 Aline Zinelabedin, Cologne: Calcium-sulphate wedges in the Atacama Desert as an indication of haloturbation processes
- 15.00-15.15 Carsten Münker, Cologne: Dating of gypsum from different depositional environments using U-Pb and U-series geochronology
- 15.15-15.45 *Coffee Break*

#### Session 4 (Chair: Ramona Möhrchen & Janek Walk)

- 15.45-16.00 Isabel Prater, Cologne: Microbial interactions with mineral matrices and biogeochemical traces in Atacama evaporite crusts and surface sediments
- 16.00-16.15 Christof Sager, Berlin: Polygonal soils in the Atacama Desert and their relevance as a microbial habitat
- 16.15-16.30 Alessandro Airo, Berlin: Cosmic dust records in the Atacama Desert
- 16.30-16.45 Sebastian Munoz Farias, Antofagasta: Geomorphological significance of the Atacama Pediplain as a marker for the climatic and tectonic evolution of the Andean forearc, between 26° to 28°S





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### Thursday, August 10th:

#### Session 5 (Chair: Julia Bechteler & Niklas Leicher)

- 9.30-10.00 Claudio Latorre, Santiago de Chile: **KEYNOTE** Late Quaternary ecological and environmental change in the Atacama Desert
- 10.00-10.15 Andres Quezada Jara, Santiago de Chile: Late Pleistocene lacustrine deposits in the salar de Llamara, Tarapacá, Chile: Evidence of wet periods from the hyperarid core of Atacama desert
- 10.15-10.30 Antonio Maldonado, La Serena: Pollen records obtained from rodent middens, lake and high Andean wetlands sediments from the Andes of northern Chile (18-21°S)
- 10.30-10.45 Thomas Wiehe, Cologne: A population genetic survey of *Carchares macer* and *Zygophyllum clavatum* from Namibia
- 10.45-11.15 *Coffee break*

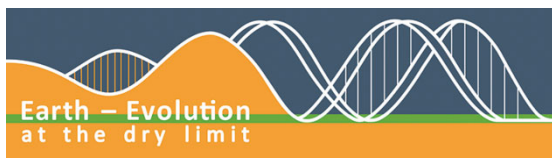
#### Session 6 (Chair: Ann-Marie Waldvogel & Philipp Schiffer)

- 11.15-11.30 Cecilia Demergasso, Antofagasta: The limit of life at extremely low water activity: Lithium-precipitation ponds in a solar saltern (Salar de Atacama, Chile)
- 11.30-11.45 Reinhard Predel, Cologne: The hyperarid core of the Atacama Desert from an organismal perspective
- 11.45-12.00 Laura Villegas, Cologne: Tiny invertebrates hidden in soil: biodiversity of nematodes in the desert
- 12.00-12.15 Laura Pettrich, Cologne: Persistence in high saline environments: Ecological tolerance ranges of desert nematodes
- 12.15-14.00 *Lunch break*

#### Session 7 (Chair: Olaf Bubbenzer)

- 14.00-14.15 Christoph Böhm, Cologne: Remote sensing of fog in the Atacama Desert using geostationary satellite data
- 14.15-14.30 Ulrich Löhnert, Cologne: Water vapor transport from the ocean into the Atacama desert from high resolution model runs
- 14.30-14.45 José V. Veloso, Cologne: The neglected role of Pacific originated humidity for summer rainfall in the Atacama desert in present climate
- 15.00-17.30 *Posters, Coffee, Nibbles & Beer*
- 17.30 *Departure in busses to Conference Dinner (Sonnendeck Bleibtreusee, swimming is possible)*
- 21.30/23.30 *Bus leaves location of conference dinner back to Cologne*





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### Friday, August 11th:

#### Session 8 (Chair: Tony Reimann)

- 10.00-10.30 Ronald Amundson, Berkeley: **KEYNOTE** Relict Soil Evidence for Post-Miocene Aridification in the Atacama Desert of South America
- 10.30-10.45 Janek Walk, Wien: Implications for Late Quaternary climate, weathering, and soil formation at Atacama's hyperarid coast drawn from trapped charge- and cosmogenic nuclide-dated alluvial fans
- 10.45-11.15 *Coffee break*

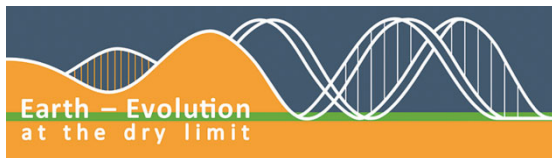
#### Session 9 (Chair: Bodo Bookhagen & Volker Wennrich)

- 11.15-11.30 Steven Binnie, Cologne: Transport of fluvial sediments through the Atacama Desert of northern Chile: insights from in situ-produced cosmogenic nuclides
- 11.30-11.45 Joel Mohren, Aachen: Spatio-temporal patterns of alluvial deposition at the dry limit
- 11.45-12.00 Klaus Reicherter, Aachen: Active Faults in hyperarid areas - possible migration pathways for life? - examples from the Atacama and Namib Deserts
- 12.00-12.15 Niklas Leicher, Cologne: TephATA: A Tephrostratigraphic Framework for the Atacama Desert and its Application on Regional Sedimentary Archives
- 12.15-12.30 Fabian Reddig, Cologne: Multiscale remote sensing of Tillandsia landbeckii using the SWIR domain in the Atacama Desert: investigation of a local study site in Oyarbide, Chile
- 12.30-14.00 *Lunch break*

#### Session 10 (Chair: Tibor Dunai)

- 14.00-14.15 Coral Pardo-Esté, Antofagasta: High-altitude hydrothermal systems: reservoirs for microbial life adapted to living on the edge
- 14.15-14.30 Pablo P. Chester, Antofagasta: Short-term characterization of climatic-environmental variables, microbial community diversity, and adaptation in a high-altitude Chilean Andean salt flat (Salar de Huasco)
- 14.30-14.45 Juan Castro Severyn, Antofagasta: Plants-microorganisms interactions on the Atacama Desert Hyperarid Core: facing climate change
- 14.45-15.00 Franko Arenas Dias, Antofagasta: Venturing into Atmospheric Deposition in the Atacama Desert: Wind-Transported Minerals and Life from the Pacific Ocean and the Central Andes
- 15.00-15.15 Michael Staubwasser, Cologne: Does rainfall determine hyperaridity in the Atacama desert?
- 15.15-15.30 Concluding Remarks





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### Posters (only first author given):

*Eduardo Acosta*: Insights into the dark matter of protists highlight unique community structures of cercozoans and amoebae in crusts and biofilms across the driest non-polar desert on Earth, the Atacama Desert

*Richard Albert*: Late Neogene terrestrial climate reconstruction of the Central Namib Desert. U-Pb silcrete and TCN exposure dating

*Hartmut Arndt*: Atacama Desert – a hot spot of protistan evolution

*Barbara Blanco-Arrue*: Subsurface sedimentary imaging using transient electromagnetic data for different prospects in the Atacama desert, Chile

*Pablo Paquis Chester*: Unraveling hydrogeochemistry and geomicrobiological relationships in a high-altitude Chilean Andean hot spring: A window to early Earth (Pampa Lirima)

*Alessandra Choque Regente*: Influence of Plants on a Hyperarid Soil

*Juan Cristoval Rios Contesse*: Supergene mineralisation in copper deposits as a proxy of the palaeoclimatic and geomorphological evolution of the Coastal Cordillera, Northern Chile'

*Khaoula Ferchichi*: Abiotic and biotic factors driving species borders in the desert shrub *Huidobria*

*Anna Hakobyan*: Selective activation of microbial taxa in Atacama Desert soils upon water availability

*Danilo Harms*: Predator adaptation to extreme aridity in the Atacama: soil structure and climate versus food webs

*Hannah Hartung*: The Integrated Research Training Group (IRTG) of CRC 1211

*Andrea Jaeschke*: Microbial activity and growth in hyperarid Atacama Desert soils after a simulated rainfall event

*Cong Jiang*: Model Characterization of Hydrological and Fluvial Sediment Transport Processes in the Present-day Climate

*Matthias May*: Terracettes in the hyperarid Atacama Desert – fog-driven landforms of Holocene age?

*Matthias May*: New data on the formation of the enigmatic zebra stripes in the Atacama Desert – a contribution to unravelling key mechanisms and time scales of geomorphic processes under extreme hyperaridity

*Rosa-Stella Mbulu*: Genetic variation and population structure based on RADseq data in Namib-adapted *Zygophyllum clavatum*

*Greg Michalski*: Using nitrate  $\delta^{17}O$  to trace aridity in desert ecosystems and paleosols

*Joel Mohren*: Application of  $^{239,240}Pu$  to resolve Anthropocene (sub-) surface processes in northern Chile

*Paloma Morales*: De-novo transcriptome analysis and differential gene expression of *Huidobria chilensis* across the Atacama Desert provides new insights into candidate genes and adaptive plasticity of plants in hyperarid ecosystems

*Ramona Mörchen*: Organic matter inventories of the Atacama Desert

*Frank Nitsche*: Gregarines from tenebrionid beetles of deserts – co-evolution and ecology

*Katja Palitzsch*: Identification of Odorant Receptor Genes in the Genome of *Carchares macer*

*Jassin Petersen*: Sclerochronology-based geochemical study of a bivalve from Quebrada Tiburón, Caldera (Atacama), Chile

*Rovina Pinto*: Dust Activity in the Atacama Desert

*Tony Reimann*: Hyper-arid landscapes in transition - developing new luminescence-based methods to decipher the formation of the upper Earth surface

*Camila Riffo Contreras*: Study of Nitrate Deposits in the Atacama Desert: Insights from  $\delta^{17}O$  and Sr Isotopes on Nitrate and Sulfates

*Benni Ritter*: The Atacama Desert's early way to hyperaridity since the Paleocene

*Diego Alfonso Rodriguez Contreras*: Alluvial events in the Aconcagua Valley since the late Pleistocene, causes and characteristics

*Fernando Sepúlveda Vásquez*:  $^{40}Ar/^{39}Ar$  and U-Pb ages of Cenozoic tephra from Precordillera, and its regional correlations (northern Chile, 21°30' S).

*Paulina Vasquez Illanes*: Evidence of ancient Groundwater in the Coastal Cordillera at ca. 5 Ma: new U-Pb ages in gypsum

*Ambrosio Vega-Ruiz*: Late Cenozoic strike-slip tectonics and drainage reorganization across the Andean Forearc of N-Chile

*Stefanie Velte*: *Tillandsia landbeckii* as a refugium for microbial life

Niklas Wehmann: Non-classical nucleation in calcium sulfates - Insights from the hyper-arid Atacama Desert

*Pritam Yogeshwar*: Geophysical and geological exploration of sedimentary archives for the reconstruction of long-term climatic and environmental history of the Namib Desert