Assoc. Prof. Tristan Salles

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Madsen Building F09, Rm 454,
The University of Sydney, NSW,
2006, Australia

Professional Appointments

2023 – on **Associate Professor**
School of Geosciences, Faculty of Science
The University of Sydney
Sydney, Australia

2019 – 2023 **Senior Lecturer**
School of Geosciences, Faculty of Science
The University of Sydney
Sydney, Australia

2015 – 2019 **Lecturer**
School of Geosciences, Faculty of Science
The University of Sydney
Sydney, Australia

2012 – 2015 **Senior Research Scientist**
CSIRO – Earth Sciences & Resources Engineering
Technical Algorithms
Perth, Australia

2009 – 2012 **Research Scientist**
CSIRO – Earth Sciences & Resources Engineering
Computational Geoscience Group
Perth, Australia

2007 – 2009 **Postdoctoral Research Fellow**
CSIRO – Earth Sciences & Resources Engineering
Wealth from Ocean Flagship
Perth, Australia

Education

2017 – 2018 **Graduate Certificate in Educational Studies (Higher Education)**, The University of Sydney, Australia

2003 – 2006 **PhD in Geophysics**, University of Bordeaux | Institut Français du Pétrole IFPEN, France

2002 – 2003 **Honours in Physical Oceanography**, University Aix-Marseille, France

2000 – 2003 **MSc in Marine Science**, University Aix-Marseille, France
MEng in Applied and Engineering Physics, Ecole Centrale, Marseille, France
BSc in Physics, Ecole Centrale, Marseille, France

Internal/External Grants

2024 – 2026 "Hominins dispersion in the East African Rift". Funder: CNRS. **MITI PRIME**.

2022 – 2025 "The Great Barrier Reef in 2100". Funder: Australian Research Council. **Discovery Project** – Grant number: DP220101125.

2022 – 2025 "Tectonic reshaping of the biosphere". Funder: ISTerre – The University of Grenoble. **ANR Project** – Grant number: : G7H-IRG22B76.

2021 – 2024 "Spatio temporal exploration for resources". Funder: BHP. **Industry Project**. earthbyte.org/stellar

2020 – 2024 "Data Analytics in Resources and Environments". Funder: Australian Research Council. **Training Centre** – Grant number: IC190100031. darecentre.org.au

2020 – 2023 "Kinematica: Inference-Based Rapid Resource Exploration Scenario Testing". Funder: Australian Research Council. **Linkage Project** – Grant number: LP190100176.

2020 – 2024 "Evolution of Proterozoic multistage rift basins – key to mineral systems". Funder: Australian Research Council. **Linkage Project** – Grant number: LP190100146. mriwa.wa.gov.au/research-projects

2017 – 2021 "Modelling of deep Earth and surface processes". Funder: The University of Sydney – DVC-R. **HPC Grand Challenge**. earthbyte.org/the-basin-genesis-hub

2019 – 2020 "Fluid flow modelling in coupled lithospheric and surface process models". Funder: Office of the Chief Scientist and Engineer, NSW Department of Industry. **National Collaborative Research Infrastructure Strategy | NCRIS**

2018 – 2019 "The Deep Carbon Cycle (DCC) through geological time". Funder: Alfred P. Sloan Foundation. **Deep Carbon Observatory**.

2018 – 2018 "Predicting the future of the Great Barrier Reef: the impact of climate change". Funder: University of York. **Research Project**.

2017 – 2018 "Understanding the deep carbon cycle from icehouse to green-house climates". Funder: The University of Sydney | DVC Research. **Sydney Research Excellence Initiative 2020 (SREI)**.

2015 – 2016 "Jupyter-based ocean data resources". Funder: NeCTAR Research Cloud. **HPC allocation grant**.

2015 – 2021 "Basin geodynamics and evolution of sedimentary systems". Funder: Australian Research Council. **Research Hub** – Grant number: IH130200012. earthbyte.org/the-basin-genesis-hub

2013 – 2015 "Targeting channel iron deposits in the Pilbara". Funder: MRIWA | BC Iron Ltd. **Industry Project**.

2012 – 2013 "Stratigraphic modelling for South West Collie Hub". Funder: ANLEC R&D. **Research Project**. anlecrd.com.au/projects

2011 – 2012 "Interactions between continental rifting & surface processes". Funder: CSIRO. **Innovative Science Fund**.

2010 – 2012 "Stratigraphic modelling of Gippsland basin". Funder: Victoria Department of Planning & Infrastructure.

2009 – 2011 "Controls on confined mini basins filling by eustatic and halokinetic mechanisms". Funder: ConocoPhillips. **Industry Project**.

2009 – 2011 "Fluvial & Aeolian stratigraphic forward modelling of Unayzah formation". Funder: Saudi Aramco. **Industry Project**.

2009 – 2010 "Carbonate reservoir facies prediction in the Sichuan Basin". Funder: PetroChina. **Industry Project**.

2007 – 2010 "Impact of Climate Change on Australian Exclusive Economic Zone". Funder: CSIRO Wealth from Ocean Flagship & BlueLink. **National Research Flagship**. data.csiro.au/WfO-EEZ

Software

Open-source Software

2019 – on **goSPL** | gospl.readthedocs.io
Global scalable paleo-landscape evolution.
Role: Creator, main developer, project leadership

2017 – 2019 **radWave** | radwave.readthedocs.io
Wave analysis from altimeter data.
Role: Creator, main developer, project leadership

2017 – 2020 **eSCAPE** | escape.readthedocs.io
Long-term surface evolution model across spatiotemporal scales.
Role: Creator, main developer, project leadership

2017 – 2018 **bioLEC** | biolec.readthedocs.io
Understanding how biodiversity formed and evolved from a landscape dynamic perspective.
Role: Creator, main developer, project leadership

2016 – 2017 **pyReefCore** | pyreefcore.org
Deterministic 1D model to simulate vertical coralgal growth patterns.
Role: Creator, main developer, project leadership

2015 – on **Badlands** | badlands.readthedocs.io
Python tools for basin, carbonates and stratigraphy modelling.
Role: Creator, main developer, project leadership

Proprietary Software

2012 – 2015 **SGFM** | csiro.au/model.sgfm
Stratigraphic and geomorphic forward modelling framework.
Role: Creator, main developer, project leadership

2007 – 2012 **Sedsim** | csiro.au/model.sedsim
Multiscale stratigraphic forward modelling.
Role: Core team, main developer.

2003 – 2006 **CATS** | ifpenergiesnouvelles/cats.jip
Cellular automata model for turbidite system characterisation.
Role: Creator and main developer.

Academic Service

Editor

2023 – on Editorial Board Member Earth & Environment, *Scientific Reports* – Nature Portfolio

School & Faculty Roles

2024 – on Member of the Academic Promotion Unit, The University of Sydney.

2024 – on Member of the Student Academic Appeals Panel, The University of Sydney.

2022 – on Member of the Executive Committee, School of Geosciences, The University of Sydney.

2021 – on Chair of the Indigeneous Strategy & Services and Equity Diversity and Inclusion Committee, School of Geosciences | Member of ISS-EDI committee, Faculty of Science, The University of Sydney.

2020 – on Member of the WHS and Technical Committee, School of Geosciences, The University of Sydney.

2019 – on Equity & Diversity Officer, School of Geosciences, The University of Sydney.

2017 – on IT Representative, School of Geosciences, The University of Sydney.

2020 Deputy Chair - School Meeting, School of Geosciences, The University of Sydney.

2020 Deputy Associate Head (Education) / First Year Director, School of Geosciences, The University of Sydney.

2019 Member of the Student Life Committee, Faculty of Science, The University of Sydney.

2018 – 2022 Member of the Research Committee, School of Geosciences, The University of Sydney.

2018 Associate Head of Education, School of Geosciences | Member of the Education Committee, Faculty of Science, The University of Sydney.

2017 Member of the Academic Advisory Group, Artemis Supercomputer, Faculty of Science, The University of Sydney.

2017 Research Representative, ICT Committee, Faculty of Science, The University of Sydney.

2016 – 2019 Member of the Education Committee, School of Geosciences, The University of Sydney.

2016 – 2018 Member of the Sydney Scholars Group, Faculty of Science, The University of Sydney.

2016 – 2018 Third year coordinator for Undergraduates Studies, School of Geosciences, The University of Sydney.

Reviewer (main journals)

- Earth Surface Dynamics (ESurf)
- Geoscientific Model Development
- Geochemistry, Geophysics, Geosystems
- Journal of Geophysical Research: Earth Surface
- Marine Geology
- Frontiers in Earth Science
- PLoS ONE
- Computers & Geosciences
- Journal of Open Source Software

Proposal Examiner

- Australian Research Council (**ARC**)

- Dutch Research Council (**NWO**)
- Israel Science Foundation (**ISF**)
- US National Science Fundation (**NSF**)
- French Research Assocation (**ANR**)

Thesis Examiner

2023 Honours thesis examiner (Harriet Harper | Marine Science).

2022 Honours thesis examiner (Eric Wang | Geophysics), MSc dissertation examiner (Francesca Roncolato | Marine Science), The University of Sydney.

2021 Honours thesis examiner (James Bakis | Geomorphology), The University of Sydney.

2019 MSc dissertation examiner (Hang Luong | Engineering), Honours thesis examiner (Youseph Ibrahim | Geophysics), The University of Sydney.

2018 Honours thesis examiner (Zhehua Zhou | Marine Geology, Shikun Yang | Marine Geology), The University of Sydney.

2017 Honours thesis examiner (Rebecca Riggs | Geophysics), The University of Sydney.

2016 Honours thesis examiner (Serena Yeung | Marine Geophysics, Susan Warner | Marine Science, Dominique Shuttleworth | Marine Science), The University of Sydney.

2015 Honours thesis examiner (Jordan Gacutan | Marine Science, Tiago Uchoa Passos | Marine Geophysics), The University of Sydney.

Awards

2023 Nominated by the School of Geosciences for the **Vice-Chancellor's Awards for Excellence in Research**, The University of Sydney.

2020 **Outstanding Teaching & Research Award**, Faculty of Science, The University of Sydney.

2017 Mobility Fund, **Research Travel Grant**, University of Bergen, Norway.

HPC Grand Challenge winner **Computation Allocation Grant**, The University of Sydney.

2016 Mobility Fund, **Research Travel Grant**, University of Bergen, Norway.

Computational literacy in the classroom, **Strategic Education Grant**, The University of Sydney.

2015 Jupyter for Teaching & Learning, TechLab Contest, **Teaching Grant**, The University of Sydney.

2011 – 2012 Innovation Science Fund recipient, **Research Award**, CSIRO.

2008 – 2009 John Stocker Postdoctoral Fellowship, **Research Grant**, CSIRO.

2003 – 2006 French Ministry of Education CIFRE, **PhD Research Scholarship**, The University of Bordeaux.

Teaching

Postgraduate

2023 – on MARS5507: Marine Research Project
Coursework to design and undertake a research project in Marine Science
Module coordinator
The University of Sydney

2021 – on ENVI5809: Environmental Simulation Modelling
Approaches to understand and predict behaviour of natural systems (100% of module)
Module coordinator
The University of Sydney

2016 – on MARS5001: Coastal Processes & Systems
Teaching numerical modelling applied to coastal environments (50% of module)
The University of Sydney

2016 – 2019 GEOS4000: Honours coursework Geology
Developing modelling expertise in landscape evolution (100% of module)
The University of Sydney

Undergraduate

2016 – on GEOS3009: Coastal Environments and Processes
Teaching numerical modelling applied to coastal environments (33% of module)
Module coordinator in 2020
The University of Sydney

2018 – 2020 GEOS2116: Earth Surface Processes
Teaching lectures on how landscapes are produced and evolve (33% of module)
The University of Sydney

2016 – 2020 GEOS3103: Environmental and Sedimentary Geology
Teaching sequence stratigraphy applications in deltaic system (∼25% of module)
Module coordinator in 2019
The University of Sydney

2015 – 2019 GEOS3104: Geophysical Methods
Teaching tectonic geomorphology (33% of module)
The University of Sydney

2015 – 2018 GEOS3102: Global Energy and Resources
Teaching evolution of sedimentary basins and geo-history analysis (33% of module)
The University of Sydney

Fieldwork Studies

2016 – on MARS3888: Marine Science Interdisciplinary Project. Maroubra Beach, Jimmys Beach, Kioloa Beach, NSW, Australia.
The University of Sydney.

2016 – 2020 MARS5007: Coral Reefs and Climate Change. One Tree Reef – Great Barrier Reef, QLD, Australia.
The University of Sydney.

2005 Geological mapping: Field mapping in deep marine environments. Bay of Biscay (SW Pyrenees, France & Spain).
The University of Bordeaux.

2004 – 2006 Geological mapping: Field mapping of submarine lobes deposits. Seismic-scale outcrops: Lauzanier area (SE Alps, France).
The University of Bordeaux.

Workshops & Short Courses

2024 Modelling landscapes and stratigraphic evolution. *School of Geosciences, The University of Sydney*

2021 Introduction to Badlands model. *Institute of Geological Sciences, Freie Universität Berlin*

2019 Carbonate platforms modelling with Badlands model. *Basin Genesis Hub Annual meeting, The University of Sydney*

2018 Using Badlands model for Exploration. *Australasian Exploration Geoscience Conference, Sydney*

Stratigraphic evolution modelling with Python. *Basin Genesis Hub Annual meeting, University of Melbourne*

2017 Landscape and catchment dynamic across scales. *Department of Earth Science, University of Bergen*

Introduction to Badlands model. *Australian Society of Exploration Geophysicists, Sydney*

2016 Introduction to Badlands model. *Department of Earth Science, University of Bergen*

2012 Practical Stratigraphic Forward Modelling. *International Geological Congress, University of Queensland.*

2009 Using Sedsim for basin exploration. *International Association for Mathematical Geosciences, Stanford University*

2008 Numerical tools for Stratigraphic Forward Modelling. *China University of Geosciences, Beijing.*

Supervision

PostDoctoral fellow (advisor)

2024 – on Dr Valentin Rime – The University of Sydney – Funding: PostDoc Mobility Fund Swiss National Foundation | University of Fribourg

2024 – on Dr Amando Lasabuda – The University of Sydney – Funding: Marie Sklodowska-Curie Global Postdoc Fellow | University of Oslo

2020 – on Dr Claire Mallard – The University of Sydney– Funding: BHP Industry funded Stellar Project

2016 – 2019 Dr Gilles Brocard – The University of Sydney – Funding: Australian Research Council Basin Genesis Hub

PhD (main supervisor)

2022 – on Beatriz Hadler Boggiani – The University of Sydney – Co-advisor: Claire Mallard

2016 – 2020 Rhiannon Garrett – The University of Sydney – Co-advisors: Patrice Rey, Gilles Brocard

2015 – 2019 Xuesong Ding – The University of Sydney – Co-advisors: Patrice Rey, Nicolas Flament

PhD (co-supervisor)

2024 – on Addison Tu – The University of Sydney – Advisor: Sabin Zahirovic

2023 – on Rafael Pinto Cherene Viana – The University of Sydney – Advisor: Sabin Zahirovic

2023 – on Caesar Rigoti – The University of Sydney – Advisor: Sabin Zahirovic

2022 – on Manon Lorcery – Grenoble Alpes University – Advisor: Laurent Husson

2022 – on Yousuf Gazi – The University of Sydney – Advisor: Ana Vila Concejo

2022 – on Lachlan Perris – The University of Sydney – Advisor: Ana Vila Concejo

2021 – on Ratneel Deo – The University of Sydney – Advisor: Jody Webster

2021 – on Carra Williams – The University of Sydney – Advisor: Jody Webster

2021 – on Jonathon Leonard – The University of Sydney – Advisor: Sabin Zahirovic

2020 – 2024 Weijing Liu – China University of Petroleum – Advisor: Keyu Liu

2016 – 2020 Amanda Thran – The University of Sydney – Advisor: Adriana Dutkiewicz

2015 – 2018 Li Wan – The University of Queensland – Advisor: Suzanne Hurter

2011 – 2014 Valeria Bianchi – The University of Padova – Advisor: Massimiliano Ghinassi

Master's

2023 – 2024 Thanh Trung Nguyen – The University of Sydney

2023 – 2024 Eda Dagli – The University of Sydney

2020 – 2024 Matthew Boyd – The University of Sydney

2018 – 2020 Lindsey Gilbert – The University of Sydney

2017 – 2018 Kile Manley – The University of Boulder Colorado

Honours

2024 Xavier Zuccon, Matthew Haynes, and Gabrielle King – The University of Sydney

2022 Lachlan Perris – The University of Sydney

2020 Christopher Alfonso (University Medal), and Sue Chan – The University of Sydney

2019 Cian Clinton-Gray (University Medal), and Courtney Smith – The University of Sydney

2018 Maddison East (University Medal), and Louis Johansson (University Medal) – The University of Sydney

2017 Samantha Ross (University Medal), Lauren Harrington, and Samuel Colbourn – The University of Sydney

2016 Luke Hardiman – The University of Sydney

2014 Olivia Jobin – University of New Hampshire

2013 Marlene Woligroski – University of Western Australia.

2011 Xiu Huang – China University of Geosciences.

Media & Outreach

2024 We reconstructed landscapes that greeted the first humans in Australia around 65,000 years ago – The Conversation

Landscape constrains drove the first peopling of Australia – Behind the paper, Nature Ecology & Evolution Community.

First arrivals to Australia populated the continent very quickly – Cosmos Magazine

Evolving landscapes impacted First Peoples' early migration patterns into Australia – Archaeology News Report

Sediment from rivers correlates with marine biodiversity – Cosmos Magazine

Going with the flow – Exploration from the rivers to the open ocean – Ocean Lovers Festival

2023 Scientists just revealed the most detailed geological model of Earth's past 100 million years – The Conversation

One Surface Model to Rule Them All? EOS Science news by AGU, eos.org/articles

Most detailed geological model reveals Earth's past 100 million years – Science Daily, Phys.org - full list of media coverage (Altmetrics)

Threads of Life: Unravelling Biodiversity's Complexity Across Disciplines – National Biodiversity Month at the University of Sydney

New unified theory shows how past landscapes drove the evolution of Earth's rich diversity of life – The Conversation

Landscape dynamics determine the evolution of biodiversity on Earth – Science Daily, Phys.org - full list of media coverage (Altmetrics)

Ancient life thrived after supercontinents trapped nutrient-rich soil – NewScientist

2022 ABC interview for *Our Changing Earth* science program – National and International Broadcast – Wildbear TV

Primary to High School Seminars *the Future of Oceans* – International French School Lycée Condorcet, Sydney

Les migrations de l'Homo erectus javanais il y a 1,8 millions d'années environ – INSU CNRS news

2021 A migration superhighway across now-flooded Southeast Asia Nature Portfolio Ecology & evolution blog, ecoevocommunity.nature.com/posts

2020 Squeaky or sticky sand shows beaches most at risk, SMH & WAToday newspapers, smh.com.au/environment

Could we run out of sand? Scientists adjust how grains are measured, phys.org/news

Do we think enough about sand? cosmosmagazine.com/earth

Visualizing the Deep Carbon Cycle, EOS Science news by AGU, eos.org/articles

Model links patterns in sediment to rain, uplift and sea level change, phys.org/news

New view of Tweed valley's attraction, cosmosmagazine.com/earth

How do mountainous landscapes influence species distribution and richness? EGU Highlights

2019 Combining ideas on Earth systems modelling for good, auscope.org.au/posts

Explorers unpack Earth's sedimentary basins , auscope.org.au/posts

2018 Great Barrier Reef case study estimates evolution over the past 14,000 years, sciencedaily.com/releases

Untangling the role of climate on sediment and reef evolution over millennial timescales, phys.org/news

2017 Modelling the deep Earth to predict climate change, informatics.sydney.edu.au/news

2013 Back to the future to uncover hidden riches: blog.csiro.au

2009 Predicting Seabed Response To Climate Change, sciencedaily.com/releases

Publications

Peer-reviewed Papers

2024 **Salles T.**, Joannes-Boyau R., Moffat I., Husson L., Lorcery M. *Physiography, foraging mobility, and the first peopling of Sahul.* **Nature Communications**, 15, 3430. doi:10.1038/s41467-024-47662-1

Deo R., Webster J., **Salles T.**, Chandra R., *ReefCoreSeg: A clustering-based framework for multi-source data fusion for segmentation of reef cores.* **IEEE**, doi:10.1109/ACCESS.2023.3341156

Polanco S., Blum M., **Salles T.**, Frederick B., Farrington R., Ding X., Mather B., Mallard C., Moresi L. *The flexural isostatic response of climatically driven sea-level changes on continental-scale deltas*, **Earth Surface Dynamics**, doi:10.5194/esurf-12-301-2024

2023 **Salles T.**, Husson L., Lorcery M., Boggiani B., *Landscape dynamics and the Phanerozoic diversification of the biosphere.* **Nature**, doi:10.1038/s41586-023-06777-z

Smith C., Vila-Concejo A., **Salles T.** *Offshore wave climate of the Great Barrier Reef.* **Coral Reefs**, doi:10.1007/s00338-023-02377-5

Salles T., Husson L., Rey P., Mallard C., Zahirovic S., Boggiani B., Coltice N., Arnould M. *Hundred million years of landscape dynamics from catchment to global scale*. **Science**, 379, 918-923. Link. doi:10.1126/science.add2541

Petit C., **Salles T.**, Godard V., Rolland Y., Audin L. *River incision, ^{10}Be production and transport in a source-to-sink sediment system (Var catchment, SW Alps).* **Earth Surf. Dynam.**, 7, 895–910. doi:10.5194/esurf-11-183-2023

Williams C., Paumard V., Webster J., Leonard J., **Salles T.**, O'Leary M., Lang S. *Environmental controls on the resilience of Scott Reefs since the Miocene (North West Shelf, Australia): Insights from 3D seismic data.* **Marine and Petroleum Geology**, 106188. doi:10.1016/j.marpetgeo.2023.106188

2022 Rey P., **Salles T.**, Zahirovic S., Liss K. *A glimpse into a possible geomorphic future of Tibet*. **Nature Review Earth & Environment**, 3, 613-615. doi:10.1038/s43017-022-00355-z

Husson L., **Salles T.**, Lebatard AE., Zerathe S., Braucher R., Noerwidi S., Aribowo S., Mallard C., Carcaillet J., Natawidjaja D., Bourlès D., ASTER team. *Javanese Homo erectus on the move in SE Asia circa 1.8 Ma*. **Nature Scientific Reports**, 12, 19012. doi:10.1038/s41598-022-23206-9

Bahadori A., Holt W.E., Feng R., Austermann J., Loughney K., **Salles T.**, Moresi L., Beucher R., Lu N., Flesch L., Calvelage C., Rasbury E., Davis D., Potochnik A., Ward B., Hatton K., Haq S., Smiley T., Wooton K., Badgley C. *Coupled influence of tectonics, climate, and surface processes on landscape evolution in southwestern North America*. **Nature Communications**, 13, 4437. doi:10.1038/s41467-022-31903-2

Liu J., Webster J., **Salles T.**, Wang S., Ma Y., Xu W., Li G., Yan W. *The formation of atolls: New insights from numerical simulations*. **Journal of Geophysical Research: Earth Surface**, 127, e2022JF006812. doi:10.1029/2022JF006812

Wan L., Hurter S., Bianchi V., **Salles T.**, Zhang Z. and Yuan X. *Combining stratigraphic forward modeling and susceptibility mapping to investigate the origin and evolution of submarine canyons*. **Geomorphology**, 398, 108047. doi:10.1016/j.geomorph.2021.108047

Puzyrev V., **Salles T.**, Surma G., Elders C. *Geophysical model generation with generative adversarial networks*. **Geoscience Letters**, 9(32). doi:10.1186/s40562-022-00241-y

Wan L., Bianchi V., Hurter S., **Salles T.**, Zhang Z. and Yuan X. *Morphological controls on delta-canyon-fan systems: Insights from stratigraphic forward models*. **Sedimentology**, 69, 864-890. doi:10.1111/sed.12930

Liu J., Liu K., **Salles T.**, Li C. *Factors controlling carbonate slope failures: Insight from stratigraphic forward modelling*, **Earth-Science Reviews**, 232, 104108. doi:10.1016/j.earscirev.2022.104108

Wan L., Hurter S., Bianchi V., Li P., Wang J., **Salles T.** *The roles and seismic expressions of turbidites and mass transport deposits using stratigraphic forward modeling and seismic forward modeling*. **Journal of Asian Earth Sciences**, 232, 105110. doi:10.1016/j.jseaes.2022.105110

Lee K., Webster J., **Salles T.**, Mawson E., Hill J. *Tidal dynamics drive ooid formation in the Capricorn Channel since the Last Glacial Maximum*. **Marine Geology**, 454, 106944. doi:10.1016/j.margeo.2022.106944

Wan L., Bianchi V., Hurter S., **Salles T.**, Zhang Z. and Yuan X. *Comparison between the depositional systems on ramp type and S type of passive margins: Insights from stratigraphic forward models*. **Natural Gas Geoscience**, 33(2), 243-255. doi:10.11764/j.issn.1672-1926.2021.07.009

2021 **Salles T.**, Mallard C., Husson L., Zahirovic S., Sarr A.-C., Sepulchre P. *Quaternary landscape dynamics boosted species dispersal across Southeast Asia*. **Nature Communications Earth & Environment**, 2, 240. doi:10.1038/s43247-021-00311-7

Brocard G., Willenbring J., **Salles T.**, Cosca M., Guttiérez-Orrego A., Cacao Chiquìn N., Morán-Ical S., Teyssier C. *Tectonically and climatically driven mountain-hopping erosion in central Guatemala from detrital ^{10}Be and river profile analysis*. **Earth Surf. Dynam.**, 9, 795–822. doi:10.5194/esurf-9-795-2021

Talavera L., Vila-Concejo A., Webster J., Smith C., Duce S., Fellowes T., **Salles T.**, Harris D., Hill J., Figueira W., Hacker J. *Morphodynamic Controls for Growth and Evolution of a Rubble Coral Island*. **Remote Sensing**, 13(8), 1582. doi:10.3390/rs13081582

Brocard G., Meijers M., Cosca M., **Salles T.**, Willenbring J., Teyssier C., Whitney D. *Fast Pliocene integration of the Central Anatolian Plateau drainage: Evidence, processes, and driving forces*. **Geosphere**, 17(3), 739-765. doi:10.1130/GES02247.1

Braz C., Zahirovic S., **Salles T.**, Flament N., Harrington L., Müller D. *Modelling the role of dynamic topography and eustasy in the evolution of the Great Artesian Basin*. **Basin Research**, 33(6), 3378-3405. doi:10.1111/bre.12606

2020 **Salles T.**, Mallard C., Zahirovic S. *gospl: Global Scalable Paleo Landscape Evolution*. **Journal of Open Source Software**, 5(56), 2804. doi:10.21105/joss.02804

Pall J., Chandra R., Azam D., **Salles T.**, Webster J., Cripps S. *BayesReef: A Bayesian inference framework for modelling reef growth in response to environmental change and biological dynamics*. **Environmental Modelling & Software**, 125, 104610. doi:10.1016/j.envsoft.2019.104610

Riazi A., Vila-Concejo A., **Salles T.**, Türker U. *Improved drag coefficient and settling velocity for carbonate sands*. **Nature Scientific Reports**, 10, 9465. doi:10.1038/s41598-020-65741-3

Smith C., **Salles T.**, Vila-Concejo A. *RADWave: Python code for ocean surface wave analysis by satellite radar altimeter*. **Journal of Open Source Software**, 5(47), 2083. doi:10.21105/joss.02083

Thran A., East M., Webster J., **Salles T.**, Petit C. *The influence of carbonate platforms on the geomorphological development of a mixed carbonate-siliciclastic margin (Great Barrier Reef, Australia)*. **Geochemistry, Geophysics, Geosystems**, 21, e2020GC008915. doi:10.1029/2020GC008915

Manley Kyle M., **Salles T.**, Müller D. *Modeling the Dynamic Landscape Evolution of a Volcanic Coastal Environment Under Future Climate Trajectories*. **Frontiers in Earth Science**, 8, 50312. doi:10.3389/feart.2020.550312

Wan L., Bianchi V., Hurter S., **Salles T.** *Evolution of a delta-canyon-fan system on a typical passive margin using stratigraphic forward modelling*, **Marine Geology**, 429, 106310. doi:10.1016/j.margeo.2020.106310

2019 Ding X., **Salles T.**, Flament N., Mallard C., Rey P. *Drainage and sedimentary responses to dynamic topography*. **Geophysical Research Letters**, 46, 14385-14394. doi:10.1029/2019GL084400

Chandra, R., Müller, D., Azam, D., Deo, R., Butterworth, N., **Salles T.**, Cripps, S. *Multicore parallel tempering Bayeslands for basin and landscape evolution*. **Geochemistry, Geophysics, Geosystems**, 20, 5082– 5104. doi:10.1029/2019GC008465

Salles T. *eSCAPE: Regional to Global Scale Landscape Evolution Model v2.0* **Geosci. Model Dev.**, 12, 4165-4184. doi:10.5194/gmd-12-4165-2019

Salles T., Rey, P. *bioLEC: A Python package to measure Landscape Elevational Connectivity*. **Journal of Open Source Software**, 4(39), 1530. doi:10.21105/joss.01530

Ding X., **Salles T.**, Flament, N., Rey, P. *Quantitative stratigraphic analysis in a source-to-sink numerical framework*. **Geosci. Model Dev.**, 12, 2571–2585. doi:10.5194/gmd-12-2571-2019

Salles T., Rey, P. *Mapping landscape connectivity under tectonic and climatic forcing*. **Earth Surf. Dynam.**, 7, 895–910. doi:10.5194/esurf-7-895-2019

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Presentations

Invited & Keynotes

2024 **Salles T.** Landscape Dynamics Dictate the Evolution of Biodiversity on Earth, *CSDMS Spring Webinar Series*, University of Colorado Boulder, USA

Salles T. What can we learn from surface processes when evaluating the diversification of Life on Earth?, *School of Earth, Atmospheric and Life Sciences*, University of Wollongong, Australia

2023 **Salles T.** Could landscape dynamics predict optimal superhighways for species migration?, *ETH Zürich Earth Surface Dynamics Seminars*, Virtual

2022 **Salles T.**, Husson L., Zahirovic S. Quaternary landscape dynamics: a driver for species migration across Southeast Asia, *Workshop on Ecological drivers of Pleistocene hominin and faunal dispersal across Southeast Asia*, Bangkok, Thailand

Salles T., Zahirovic S. Importance of landscapes dynamics on long-term sedimentation rates: a global scale perspective, *Landscape Live Pacific*, EGU-GM Online Seminars in Geomorphology

Salles T. Landscape Dynamics from Catchment to Global Scale: Insights on Long Term Sediment Transport and Species Migration, *DARE Centre Seminar Series*, Virtual

2021 **Salles T.** A geomorphic perspective on Quaternary biogeographic connectivities across South East Asia, *CSDMS 2021 Annual Meeting: Changing Landscapes and Seascapes: Modeling for Discovery, Decision-making and Communication*, Boulder, US

2017 **Salles T.** Responses of reefs to climatic forcing – A numerical perspective, *Centre for Coral Reef Studies*, Sydney, Australia

Salles T., Flament N., Müller D., Rey P. Influence of dynamic topography on the evolution of the Australian landscape since the Late Jurassic, *Petroleum Systems Modeling Workshop*, Paris, France

2016 **Salles T.** Continental-Scale Landscape Dynamic, *Department of Earth Science Seminar Series*, University of Bergen, Norway

Salles T. Regional to continental scale model of Earth surface evolution, *Granular Forum*, Sydney, Australia

2013 **Salles T.** Source-to-sink model apply to iron ore placer deposits in the Hamersley Region (WA), *Geochemical Evolution and Metallogeny of Continents Seminar Series*, Macquarie University, Australia

2012 **Salles T.** 3D stratigraphic and geomorphic modelling from source to sink, *34^{th} IGC Symposium 13.7 Modelling sedimentary systems*, Brisbane, Australia

2010 **Salles T.** SedSim model challenges and developments apply to Ore Deposits R&D, *Les Rencontres Scientifiques de l'IFP*, Paris, France

2008 **Salles T.**, Li F., Griffiths C. Climate Change Impact on seabed sediment transport in the Australian Exclusive Economic Zone, *ANZIAM*, University of Western Australia, Australia

2007 **Salles T.** Cellular Automata paradigm applied to gravity flows modelling, *Exxonmobil Upstream Research Seminar*, Houston, USA

2006 **Salles T.** Sedimentary filling: Modelling of sub-marine canyons and meandering channels using a genetic approach, *DIONISOS JIP Consortium*, Paris, France

Other Presentations

2024 Lorcery M., Husson L., **Salles T.**, Hagen O., Skeels A., Lavergne S. 125 Ma of physiographic changes and mammal macroevolution, *EGU General Assembly 2024*, Vienna, Austria.

Husson L., Lorcery M., **Salles T.** On the time and space scales of geological, climatic, and biological changes, *EGU General Assembly 2024*, Vienna, Austria.

Zahirovic S., Schmaltz T., Tu A. et al. Silicate weathering estimates from paleogeographic and biogeochemical cycling models of orogens and ophiolite obduction during the Phanerozoic, *EGU General Assembly 2024*, Vienna, Austria.

Alfonso A., Müller T., Mather B., **Salles T.** Predicting global porphyry copper prospectivity using positive-unlabelled machine learning, *EGU General Assembly 2024*, Vienna, Austria.

Williams C., Webster J., Humblet M. et al. Coral reef response since the Mid-Pleistocene Climate Transition on the North West Shelf, Australia: Insights from fossil coral reef cores, *EGU General Assembly 2024*, Vienna, Austria.

2023 Mallard C., **Salles T.**, Husson L., Rey P., Zahirovic S., Hadler Boggiani B., Coltice N., Arnould M. Earth's Changing Landscapes: Insights from a Global High-Resolution Landscape Evolution Model, *AGU*, San Francisco, CA, USA

Husson L., **Salles T.**, Lorcery M., Hadler Boggiani B. Global Physiography Dynamics and the Phanerozoic Diversification of the Biosphere, *AGU*, San Francisco, CA, USA

Polanco S., Blum M. D., Wang H., Mallard C., **Salles T.**, Gurnis M. Decoding the formation and evolution of the ancestral trans–North American Bell River system, *AGU*, San Francisco, CA, USA

Hadler Boggiani B., **Salles T.**, Mallard C., Atwood N. Assessing Exhumation History and Emplacement Depth of Porphyry Copper Deposits Using a Global-Scale Landscape Evolution Model, *AGU*, San Francisco, CA, USA

Mallard C., **Salles T.**, Atwood N., Sweet M., Snedden J., Xu J. Quantifying the Impact of Climate and Tectonics on the Middle Miocene Gulf of Mexico Source-to-Sink System, *AGU*, San Francisco, CA, USA

Husson L., **Salles T.**, Lebatard AE., Zerathe S., Braucher R., Noerwidi S., Aribowo S., Mallard C., Carcaillet J., Natawidjaja D., Bourlès D., ASTER team. Javanese Homo erectus on the move in SE Asia circa 1.8 Ma, *XXI INQUA Congress*, Roma, Italia

Husson L., **Salles T.**, Lorcery M., Hadler Boggiani B. Global physiography dynamics controled the Phanerozoic diversification of the biosphere, *EGU General Assembly 2023*, Vienna, Austria.

Perris L., Vila-Concejo A., **Salles T.**, Duce S., Johansson L. The Influence of Coral Reef Spur and Groove Morphology on Wave Transformation and Attenuation, *EGU General Assembly 2023*, Vienna, Austria.

Leonard J., Zahirovic S., **Salles T.**, Mallard C. Exploring the role of Mantle and Paleomagnetic Reference Frames with Intermediate Complexity Climate Models, *EGU General Assembly 2023*, Vienna, Austria.

Boyd M., **Salles T.**, Polanco S. Landscape modelling, sediment supply and basin evolution of the Crayfish Sub-group, Otway Basin, *AEGC 2023*, Brisbane, Australia.

2022 Husson L., Sepulchre P., **Salles T.** Geophysical Biogeography, *Ada Lovelace Workshop*, Hévíz, Hungary 2022

2021 Vila-Concejo A., Perris L., Johansson L., Duce S., **Salles T.** The Present and Future Function of Spurs and Grooves in Coral Reef Systems, *AGU Fall Meeting 2021*, New Orleans, USA

Moron Polanco S., Blum M., **Salles T.**, Frederick B., Farrington R., Ding X., Mallard C., Mather B., Moresi L. Isostasy amplifies relative sea-level change on continental-scale deltas, *EGU General Assembly 2021*, Virtual

2020 Garrett R., **Salles T.**, Rey P. The Impact of Lithology on Upland Erodibility: Source-to-Sink Sediment Transfer and Composition in the Gulf of Papua, *AGU Fall Meeting 2020*, Virtual

Mallard C., **Salles T.**, Zahirovic S., Ding X. Dynamic topography controls on source-to-sink systems: Example of the last 40 Ma in South Africa, *EGU General Assembly 2020*, Munich, Germany.

Clinton-Gray C., Zahirovic S., Mallard C., **Salles T.**, Garrad D. Example of the interplay of Tectonics, Eustasy and Surface Processes on the North Slope of Alaska Since the Jurassic, *EGU General Assembly 2020*, Munich, Germany.

2019 Petit C., **Salles T.**, Rolland Y., Duclaux G., Mariotti A. Erosion and sedimentation in the Var aerial catchment and submarine basin (Southern French Alps - Mediterranean) using Badlands, *EGU General Assembly 2019*, Vienna, Austria.

Mallard C., Chan Y., **Salles T.**, Beucher R. Influence of break-up obliquity on the sedimentation of rift margins, *EGU General Assembly 2019*, Vienna, Austria.

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Pechlivanidou S., Duclaux G., **Salles T.**, Nixon C., Cowie P., Gawthorpe R., Huismans R. Evaluating key controls on sediment flux to the Gulf of Corinth over the last 130 kyrs using a forward modeling approach, *EGU General Assembly 2018*, Vienna, Austria.

Alac R., Brocard G., **Salles T.**, Müller D., Rochette P. Modeling the timescale of landscape response to the instantaneous excavation of a large meteorite impact crater in wet tropical mountains, *EGU General Assembly 2018*, Vienna, Austria.

Beucher R., Moresi L., **Salles T.**, Giordani J., Farrington R., Moron S., Mansour J. Interactions and feedback between tectonics, erosion and sedimentation during rifting: 2D and 3D thermo-mechanical Models with surface processes, *Geomod*, Barcelona, Spain.

2017 Moresi L., Beucher R., Moron S., Rey P., **Salles T.**, Brocard G., Farrington R., Giordani J., Mansour J. 3D Thermomechanical Modeling of Rifted Margins with Coupled Surface Processes: the structural evolution of the North West Shelf, Australia, *AGU Fall Meeting 2017*, New Orleans, USA.

Willenbring J., Brocard G., **Salles T.**, Harris E. Tool-effect: Controls on Landscape Persistence, *AGU Fall Meeting 2017*, New Orleans, USA.

Ding X., **Salles T.**, Flament N., Rey P. Influence of dynamic topography on landscape evolution and passive continental margin stratigraphy, *EGU General Assembly 2017*, Vienna, Austria.

Salles T., Flament N., Müller D. 150 Million years of landscape evolution of eastern Australian continent, *EGU General Assembly 2017*, Vienna, Austria.

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Ding X., **Salles T.**, Flament N., Rey P. Modeling Passive Margin Stratigraphy from the Interplay between Sea-level Change, Thermal Subsidence, Precipitation and Dynamic Topography, *AGU Fall Meeting 2016*, San Francisco, USA.

Moron S., Gallagher S., Moresi L., **Salles T.**, Rey P., Payenberg T. Investigating the effect of plate-mantle interaction in basin creation and associated drainage systems: insights from the North West Shelf of Australia, *AGU Fall Meeting 2016*, San Francisco, USA.

Flament N., **Salles T.**, Müller D. Influence of dynamic topography on the evolution of the eastern Australian landscape since the Late Jurassic, *AGU Fall Meeting 2016*, San Francisco, USA.

Müller D., Flament N., **Salles T.**, Matthews K., Gurnis M. The eastern Australian record of continental travel, dynamic topography and landscape evolution since Pangaea breakup, *Australian Earth Science Convention*, Sydney, Australia.

2015 Bianchi V., **Salles T.**, Esterle J. Stratigraphic Forward Modelling for investigating hidden reservoir geometries and connectivity: Springbok Formation, *ICE-SEG AAPG*, Melbourne, Australia.

Bianchi V., Esterle J. **Salles T.** Hidden geometry in Surat Basin depocenter: Springbok Formation, *AAPG Geosciences Technology Workshop: Opportunities and Advancements in Coal Bed Methane in the Asia Pacific*, Brisbane, Australia.

Müller D., Flament N., Matthews K., Williams S., Gurnis M., **Salles T.**, How Australian Plate Interaction With Subducting Slabs and the South Pacific Superswell Drove Multi-Phase Uplift and Paleogeography in Eastern Australia, *ICE-SEG AAPG*, Melbourne, Australia.

Flament N., **Salles T.**, Müller D., Gurnis M. Influence of subduction history and surface processes on continental-scale topography, *XIV International Workshop on Modelling of Mantle and Lithosphere Dynamics*, Oléron, France.

Müller D., **Salles T.**, Flament N., Gurnis M. Continental inter-superswell travel and landscape evolution, *GeoBerlin*, Berlin, Gemany.

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2013 Bianchi V., **Salles T.**, Duclaux G., Ghinassi M. Reconstruction of a syn-depositional cross-valley faulting through numerical modelling: the Plio-Pleistocene Ambra paleovalley (North Apennines, Italy), *GeoSed*, Roma, Italy.

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Upton P., Duclaux G., Craw D., **Salles T.**, Walcott R. Reconstructing the formation and in-filling of Lake Manuherikia, Otago: Linking geodynamics and surface processes, *AGU Fall Meeting 2013*, San Francisco, USA.

Duclaux G., **Salles T.** Four-Dimensional Detrital Iron Ore Deposit Exploration Using Surface Processes Modelling – Hamersley Province Example, *Iron Ore conference*, Perth, Australia.

Mondy L., Duclaux G., **Salles T.**, Thomas C., Rey P. Stratigraphic Modelling of Continental Rifting, *EGU General Assembly 2013*, Vienna, Austria.

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Bourget J., **Salles T.**, Ainsworth B., Duclaux G. Quantifying the Importance of Sediment Supply, Global Eustasy and Fault-Induced Accommodation in Controlling Delta Architecture, Shelf-Margin Growth and Deepwater Sediment Transfer: Insights from Stratigraphic-Forward Modelling in Northern Australia, *AAPG International Conference and Exhibition*, Denver, USA.

2012 Griffiths C., Dyt C., Xiu H., **Salles T.** Multiscalar Forward modelling of carbonate heterogeneity, *AAPG Annual meeting*, Provence, France.

Duclaux G., **Salles T.** Placer deposits: where should we look next? Surface Processes Modelling applied to mineral exploration, *34^{th} International Geological Congress*, Brisbane, Australia.

Salles T., Duclaux G. 3D Stratigraphic and geomorphic modelling from source to sink, *34^{th} International Geological Congress*, Brisbane, Australia.

Salles T., Duclaux G. Next generation of 3D stratigraphic and geomorphic modelling, *EGU General Assembly 2012*, Vienna, Austria.

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2010 **Salles T.**, McGee D., Griffiths C., Ryer M. SedSim modelling of controls on confined mini basin fill by eustatic and halo kinetic mechanisms, *ASF*, Bordeaux, France.

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2006 Granjeon D., Wolf S., Lopez S., **Salles T.** 3D Stratigraphic Modelling in Complex Tectonics Area at an Exploration to Reservoir Scale, *AAPG Annual Convention*, Houston, USA.

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2005 **Salles T.**, Cacas M.C., Mulder T. Simulating Turbidity Currents through a Cellular Automata Model, *AAPG International Conference*, Paris, France.

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2004 **Salles T.**, Cacas M.C., Mulder T. Cellular automata approach for simulated gravity flows, *Modelling of Turbidity Currents and Related Gravity Currents Workshop*, Santa Barbara, USA.

Miscellaneous

Professional society membership

2016 – on Australian-French Association for Research and Innovation

2015 – on American Geophysical Union

2015 – on European Geosciences Union

2015 – 2018 Coastal Education and Research Foundation

2009 – 2011 International Association for Mathematical Geosciences

2008 – 2010 Society of Exploration Geophysicists

Languages

French	Native
English	Proficiency

Others

Surf Life Saver	Volunteering in lifesaving operations – Awarded “Bronze Medallion / Certificate II in Public Safety” (Aquatic Rescue)
First Aid	Training Certificate