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Education

Sept. 2021 - Present	ETH Zürich, Zürich, Switzerland PhD in Physical Oceanography Supervisors: Prof. Dr. Núria Casacuberta-Arola & Dr. Marcus Christl
2019 - 2021	Christian-Albrechts-Universität zu Kiel, Kiel, Germany M.Sc in Marine Geoscience Supervisors: Prof. Dr. Martin Frank & Dr. Sascha Flögel
2018 - 2019	Macquarie University, Sydney, Australia B.Phil in Geoscience
2015 - 2018	Macquarie University, Sydney, Australia B.Sc in Geology and Geophysics
2014 – 2015	TAFE NSW, Sydney Australia Certificate III in Dental Assisting
2004 - 2012	Presdales School, Ware, United Kingdom A levels in Geology, Physics, Maths & Chemistry

Research Experience

Sept. 2021 - Present	PhD Investigating circulation pathways, timescales and ventilation of the Canadian Arctic Ocean by Transient Time Distributions and water mass composition analysis. Using Transient Tracers Uranium-236, Iodine-129, Carbon-14 and Argon-39. Combining novel anthropogenic tracers with “traditional” tracers (Nd & Hf isotope compositions). Methods include column chromatography, analysis carried out using AMS & MC-ICPMS (at ETHZ), and Atom Trap Trace Analysis (carried out by Uni Heidelberg).
Sept. 2024	ETH Zurich onboard the Norseman II <i>CTD watch</i> Ten days in Bering Strait, assisting with mooring deployment and water sampling.
Sept. 2022 – Oct. 2022	ETH Zurich onboard the CCGS Louis St. Laurent <i>CTD watch</i> Four weeks in the Canada Basin of the Arctic Ocean. Water sampling, ice coring, deployment of, and sampling Bongo nets.
Feb. 2021 – Aug. 2021	MSc Thesis (Thesis Grade 1.0, 1-5 scale) Early Cretaceous Evolution of weathering pathways – implications for the Southern Ocean Investigate changes to the terrigenous inputs to the Southern Ocean using a suite of geochemical tracers (Nd, Hf, Sr & Pb isotopes). Methods include Alkali fusion, column chromatography and analysis using MC-ICPMS.
Apr. 2020 – Feb. 2022	“Habitile - Greening the Kieler Förde” <i>CO-Founder / Principal Investigator</i> Investigating the effects of colonization of artificial structures in the Baltic Responsible for execution of the project, team role assignment, obtaining funding, building a collaborative partnership with the Sydney Institute of Marine Science in Australia and local stakeholders. Locating experiment sites and obtaining permissions, experiment design, sampling, and reporting.
Nov. 2019 – Aug. 2021	GEOMAR Helmholtz Centre for Ocean Research Kiel <i>Graduate Research Assistant</i> Duties: Preparation and analysis of P in deep-sea corals using LA-ICPMS. Preparation of sediment and seawater samples for separation of Hf isotopes

and ion-exchange chromatography columns. Picking foraminifera, cleaning and analysis using MC-ICPMS.

Jan 2018 –
June 2019

Macquarie University, Australia
Student Research Assistant
Project: “The influence of sediment composition on paleocirculation proxies over glacial – interglacial timescales”
Preparation of sediment samples for separation of Nd and Sr isotopes by acid digestion and ion exchange chromatography columns. Analysis using TIMS and MC-ICPMS.
Awarded High Distinction for the project.

Sept 2018 –
Oct 2018

Macquarie University on board RV Investigator
Student Research Assistant
Participate in research cruise IN2018_V04 (28 days at sea)
Logging deployment and recovery of equipment, sediment sampling from Kastern cores, porewater sampling from multicores in a nitrogen glove bag, CTD sampling.

Jan 2018 –
June 2018

Commonwealth Scientific and Industrial Research Organisation (CSIRO)
Intern
“Palaeomagnetic investigation of a suite of intrusive rocks near Mimili, South Australia” Measure remnant magnetisation and anisotropy of magnetic susceptibility. Successfully delineated possible ancient geomagnetic poles and the tectonic and thermal history of the region.
Completed the internship for third year PACE unit and awarded High Distinction for the project.

June 2017 –
July 2018

Macquarie University on board Akademik Sergey Vavilov
Student Research Assistant
Participate in research cruise No. 45 (7 days at sea).

Publications

2024

Payne, A., Wefing, A.- M., Christl, M., Vockenhuber, C., Williams, W., Smith, J.N., Casacuberta, N.
Circulation Timescales and Pathways of Atlantic Water in the Canada Basin: Insights from Transient Tracers ¹²⁹I and ²³⁶U.
JGR: Oceans

2021

Abbott, A.N., Löhr, S.C., **Payne, A.**, Kumar, H., Du, J.,
Widespread lithogenic control of marine authigenic neodymium isotope records? Implications for paleoceanographic reconstructions
Geochimica et Cosmochimica Acta

Grants

2022 - 2023

Swiss Polar Institute, Polar Access Grant, 7,690 CHF
Grant number PAF-2022-003

Conferences & Seminars

June 2024

1st Swiss Ocean Day
Poster: Circulation timescales and pathways of Atlantic Waters in the Arctic Canada Basin using novel tracers Iodine-129 and Uranium-236

April 2024

Laboratory of Ion Beam Physics, ETH Zürich, Switzerland
Seminar: 30 Years of Radionuclide Observations: Updates from the Canadian Arctic Ocean

April 2024

IBP PhD Congress, ETH Zürich, Switzerland
Poster: Circulation timescales and pathways of Atlantic Waters in the Arctic Canada Basin using novel tracers Iodine-129 and Uranium-236

February 2024	Ocean Sciences Meeting, New Orleans, USA <i>Early Career Chair:</i> Transient Tracers in the Ocean: Understanding Physical Processes and Biogeochemical Rates <i>Poster:</i> Circulation timescales and pathways of Atlantic Waters in the Arctic Canada Basin using novel tracers Iodine-129 and Uranium-236 <i>Poster:</i> Hafnium-Neodymium Isotope Compositions to Trace Freshwater Inputs to the Beaufort Gyre
July 2023	Goldschmidt Conference, Lyon, France <i>Poster:</i> Tracing sediment provenance in the Early Cretaceous Southern Ocean
May 2023	ASOF (Arctic and Sub-Arctic Ocean Fluxes) Conference, Las Palmas, Gran Canaria <i>Talk:</i> Circulation timescales in the Canada Basin: Insights from transient tracers Iodine-129 and Uranium-236
April 2023	IBP PhD Congress, ETH Zürich, Switzerland <i>Poster:</i> A new compilation of anthropogenic radionuclides & transit time distributions in the Canada Basin
March 2023	The Changing Beaufort Gyre Workshop, Woods Hole Oceanographic Institute, MA, USA <i>Poster:</i> A new compilation of anthropogenic radionuclides & transit time distributions in the Canada Basin
November 2022	Laboratory of Ion Beam Physics, ETH Zürich, Switzerland <i>Seminar:</i> Everything but the kitchen sink: Anthropo-, Cosmo- and Lithogenic radionuclides to trace water mass transport, mixing, and ventilation in the Canada Basin
April 2022	IBP PhD Congress, ETH Zürich, Switzerland <i>Poster:</i> A Multi-tracer investigation of ocean circulation and ventilation in the Canada Basin

Achievements & Awards

2024	First paper of PhD selected as research highlight at JGR:Oceans, featured on EOS.org
2023	IASC Travel Claim for Early Career Researchers to attend ASOF, 500 CHF
2022	Recognition for contribution to the local community "Greening the Kieler Foerde", Landhauptstadt, Kiel, Germany.
2021	Invited to exhibit at Kiel Waterkant Festival, "Greening the Kieler Foerde".
2021	Accepted to the competitive startup programme "MakerBooster", Kiel, Germany for "Greening the Kieler Foerde".
2020	DAAD Study Scholarship - Master Studies for All Academic Disciplines (€861 per month for ten months, relocation and study allowance, payment of insurance premiums).
2019	Selected for CAPSTAN 2019 (Australian Postgraduate Marine Research Training Program).
2019	Macquarie University Research Training Program Scholarship (Stipend) (AU\$8000).
2018	2018 Faculty of Arts highest achiever award for AHMG101 – Greek Heroes and Heroines.
2018	Telemachus Ancient History Mentor Program Greek Heroes and Heroines Prize for best essay.

- 2017 Macquarie University Summer Research Scholarship (AU\$3000).
- 2016 Selected for the IODP / ANZIC Masterclass (1 student from each university in Australia & New Zealand)

Teaching & Outreach

- 2024 - 2025 IBP PhD Congress, ETH Zürich, Switzerland
Organising Committee
- 2022 - 2024 Co-supervising undergraduate and masters students interning in the group.
- 2019 Australian Society of Exploration Geophysicists (NSW)
Student President
- 2018 Earth Sciences Student Symposium NSW
Organising Committee
- 2016 - 2019 Demonstrator at Maquarie University open days

Other Employment

- 2015 - 2019 Rose Bay Dentistry, Sydney, Australia
Senior Dental Assistant
- 2013 - 2015 Kissing Point Road Dental, Sydney, Australia
Dental Assistant
- 2012 Stanstead Abbots Dental Care, Stanstead Abbots, United Kingdom
Dental Assistant

Skills

Experienced in clean lab protocols and running column chromatography for seawater, sediments, and forams.

Running TIMS, MC-ICPMS and AMS.

Coding: MATLAB.

Proficient with Microsoft Office Suite, Adobe Illustrator, Photoshop and Lightroom.

Learning German at B1 level (conversational).

Emergency first aid certified (2023).

Qualified dental assistant (8 years experience in a clinical setting).