Dr. rer. nat. Sven Petersen
GEOMAR Helmholtz Centre for Ocean Research Kiel
Research Unit 4: Dynamics of the Ocean Floor
FE Magmatic and Hydrothermal Systems
Marine Mineral Resources Group (MMR)

Wischhofstrasse 1-3
D-24148 Kiel

spetersen(at)geomar.de

https://www.geomar.de/en/spetersen

Life at the Edge - Some like it hot!
Black Smokers and Hydrothermal Systems in the Deep Sea

Volcanically active areas in the deep sea have been shown to host extraordinary faunal communities in all oceans. The base of the food chain is formed by microbes that thrive because nutrients are supplied by hot (up to 400°C) hydrothermal fluids ascending from a magma chamber below. Volatiles and metals are derived from the magma or through chemical reactions between the rising fluids and the oceanic crust. The metals precipitate upon contact with cold seawater and form metal-bearing deposits at the seafloor that are of economic interest. This talk will describe the variability of such hydrothermal systems and their faunal communities on the modern ocean floor, their geological setting, and the possible threats by seafloor mining.

CV

Sven Petersen received his PhD in geosciences from Freiberg University (Germany) in 2000 after spending a number of years in Germany and Canada working on seafloor hydrothermal systems.
He remained in Freiberg until 2004 when he joined GEOMAR Helmholtz Centre for Ocean Research Kiel in Germany.
Major aims of his research are to understand the formation, distribution, and evolution as well as the resource potential of marine mineral resources. He uses mobile drilling techniques, various geophysical methods, and robotic vehicles for their exploration and assessment. He has participated in over 40 research cruises in all ocean basins.

Extended CV

- since Aug. 2004 Research scientist at the GEOMAR Helmholtz Centre for Ocean Research in Kiel
- 2002 – 2004 Research scientist at the Technical University Bergakademie Freiberg
- 2001 – 2002 Research scientist at the Umweltforschungszentrum Halle
- 2001 Postdoc at the Technical University Bergakademie Freiberg

- 1994 - 2000 PhD thesis at the Technical University Bergakademie Freiberg. Supervisor: Prof. Peter M. Herzig (TU Freiberg), Prof. Peter Stoffers (University Kiel) and Dr. Mark D. Hannington (Geological Survey of Canada)
  Subject: "The Geochemical and Mineralogical Evolution of the TAG Hydrothermal Field, Mid-Atlantic Ridge, 26°N"
  - 1993 - 1994 Grant of the DAAD for work at the Geological Survey of Canada (Ottawa)
  - 1993 Research scientist at the Geological Survey of Canada
  - 1988 - 1992 Studying mineralogy at the RWTH Aachen

  Degree: Diplom-Mineraloge
  Subject: "Mineralogy and Geochemistry of gold-bearing massive sulfides of the Lau Back-Arc (Southwest Pacific)" In German. Supervisor: Prof. Dr. G. Friedrich, PD Dr. W. Plüger
  - 1985 - 1988 Studying mineralogy at the Christian-Albrechts University Kiel (BSc)