

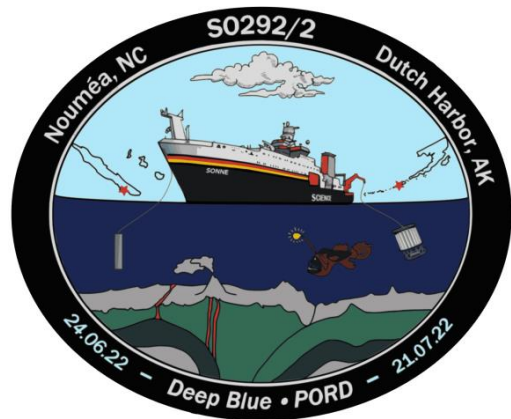
R/V SONNE

**Expedition SO292/2**

**DeepBlue / PORD**

24.06.2022 - 21.07.2022

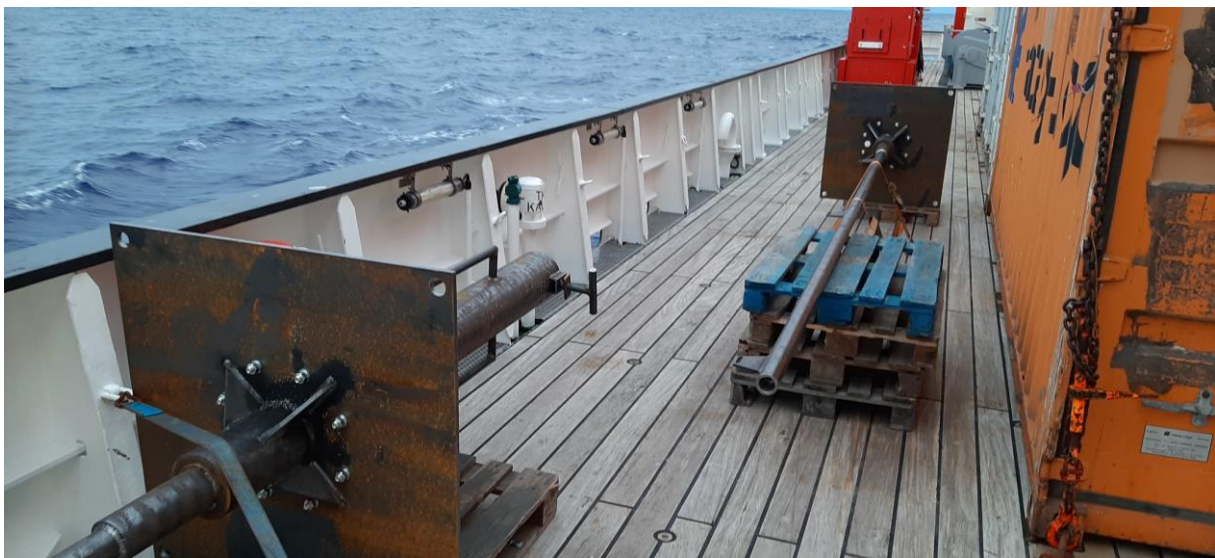
Nouméa (NC) – Dutch Harbor (USA)



### **1<sup>st</sup> Weekly report (24. - 26.06.2022)**

All the scientific participants of expedition SO292/2 boarded R/V SONNE in the early morning of the 23<sup>rd</sup> of June, after being tested for COVID before their respective flight, on land in Nouméa, and upon setting foot on the ship. The testing will continue during the following 5 days, in order to minimize the chances of contagion. The containers for the SO292/2 and the subsequent expedition (SO293) arrived as soon as the ship docked, on the 21<sup>st</sup>, and were consequently loaded. Due to the deferred arrival of several pieces of luggage the departure has been delayed to 22:00 on the 24<sup>th</sup>.

Currently, we are sailing between New Caledonia and the Solomon Islands, on our way to the Central-Western Pacific, where we are planning to investigate the geodynamic processes and geochemical cycles in the Mariana Trench subduction zone. Mud volcanoes, seafloor expulsion structures which are scattered through the forearc, are known features in the area and they have a crucial role in recycling of subducted sediments and even hydrated forearc mantle material to the seafloor. In the region, the nature of the emitted sediments (mostly clast-rich dark blue serpentinite mud) and fluids (high pH and variable composition with increasing distance from the deep-sea trench) is unique and revealing of the processes happening at plates interface depths. R/V SONNE will sample selected serpentinite mud volcanoes at varying distances from the trench in order to characterize the fluid and solid end members of the extrusives. Among the key goals of the cruise is also the deployment of two long-term instruments that will be measuring different physical parameter in the sediments of the Mariana mud volcanoes, and will be recovered during a subsequent expedition.



*Figure 1: i) R/V SONNE docked in Nouméa, and ii) frames of the seafloor observatories assembled on deck.*

Transit to the first working area will be approximately 2600 NM and last for about 9 days, in the meanwhile the scientific crew is and will be busy with unpacking all the scientific equipment, lashing the instruments for transit, equipping the laboratories and discussing about their own research during various scientific meeting. The scientists onboard are 22, between Professors, Postdocs, Technicians, undergrads and postgrads students from MARUM, University of Innsbruck, MPI-M, MPI-C, University of Szczecin, HafenCity University and Chiba University, representing a number of 7 different nationalities.

While the marine geologists are looking forward and very eager to start their research and sample the first sediments/rocks, the meteorologists and the hydroacoustics team started collecting data as soon as we were in open waters. This transit from S to N pacific will allow them to collect precious information on atmospheric properties of aerosol, clouds and trace-

gases, which will serve as i) calibration data for satellite remote sensing retrievals, and ii) evaluation data for (global) modeling.



*Figure 2: Stefan Kinne and Steffen Dörner measuring on the upper deck of RV Sonne with the Sunphotometer and the MAX DOAS, respectively.*

We send the best wishes from the Southern Pacific and take this opportunity to especially thank the BMBF, the PTJ, the German Research Fleet Coordination Centre, the shipping company Briese Research and the crew of the R/V SONNE for the tremendous support they have provided in preparing the cruise.

*On behalf of the entire SO292/2 Team  
Walter Menapace (Chief Scientist)*

*Walter Menapace*

*University of Innsbruck/ MARUM, University of Bremen*