Research on seafloor volcanism focuses on active lithospheric plate boundaries, such as mid-ocean ridges. The seafloor away from these areas remains largely unexplored, despite such volcanism accounting for 5-10% of Earth's volcanic activity. Intraplate volcanism and associated submarine mountains provide insights into magmatic processes in the mantle and upper lithosphere.

The Vesturdjúp Basin, located between Iceland and Greenland, contains tectonically controlled seamounts, whose origin and connection to the Icelandic hotspot and ancient rift systems remain unresolved.

The project's goals are to determine the origin of the volcanoes and their relationship to the Snæfellsnes volcanic zone (in Iceland), the Icelandic hotspot, or another source, and to establish the timing of this activity. If the magma origin of the studied volcanoes shows no influence from the Icelandic hotspot, it would indicate an independent intraplate volcanic field.

The project is based on data collected during the M201 expedition aboard the RV Meteor in June/July 2024. The combination of seafloor mapping, video observations, and rock and sediment samples will provide a comprehensive dataset for studying the age and origin of these volcanoes. The geochemistry of rock samples will be determined using various analytical methods, including X-ray fluorescence analysis, electron microprobe, inductively coupled plasma mass spectrometry with laser ablation, and radiogenic isotope measurements. The absolute age of the rocks will be determined by argon dating (Ar/Ar), and the minimum sediment accumulation rate by ^{14}C or $\delta^{18}O$ dating on foraminifera microfossils. Photogrammetric reconstructions will be performed on films collected as summit-to-base profiles. The project involves national and international collaboration, including scientists and specialized analytical infrastructure from laboratories in Saudi Arabia and Germany, and dating in Poland, Norway, and the USA.

The results will contribute to understanding the origin and geological evolution of volcanoes in deep-sea basins, which is important for geological, oceanographic, socio-economic, ecological, and climate change research.