

Preliminary report of IODP EXP 395C and the plan of EXP395: Reykjanes Mantle Convection and Climate

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International Ocean Discovery Program Expeditions 395C and 395 “Reykjanes Mantle Convection and Climate: Mantle Dynamics, Paleooceanography and Climate Evolution in the North Atlantic Ocean” were designed for three objectives: (1) to test contrasting hypotheses for the formation of V-Shaped Ridges (VSRs) and their relation to the Iceland Plume, (2) to understand temporal changes in ocean circulation and explore connections with plume activity, and (3) to reconstruct the evolving chemistry of hydrothermal fluids with increasing crustal age and varying sediment thickness and crustal architecture (Parnell-Turner et al., 2020 and 2022). To achieve these objectives a transect of five sites is planned between 20°-30°W at a latitude of 60°N, in the eastern part of the Reykjanes Ridge in the North Atlantic. Because of the potential infection spreading of Covid-19, Expedition 395 was postponed in 2020, and separated into Expedition 395C conducted from 5th June to 6th August 2021 and Expedition 395 scheduled from 12th June to 12th August 2023. The Expedition 395C drilled part of the five sites. The age depth plot was also constrained using the nannofossil and magnetostratigraphy. Here, we will present an overview of the preliminary ages of the cores from Expedition 395C, obtained from the analyses of the foraminifera found in the sedimentary units, on which the Age-Depth plots are based. The upper part of sediments is composed of hemipelagic sediments including calcareous fossils with good preservation, and chalk sediments are obtained near the sediment/basement boundary. We will discuss the implications of these results in terms of sedimentation rates, and thus ocean circulation in the North Atlantic in the last 15 M.y. We will include a discussion of the future research plan of Expedition 395.

Keywords: IODP, North Atlantic, Reykjanes Ridge, Drift Sediment, Stratigraphy, Foraminifera