AL575

2nd Weekly Report

4 – 13 July 2022

GEOSTOR

The second week at sea started with two more hydroacoustic surveys across wells in the northern part of our UK working area, where we could confirm gas emissions observed on previous cruises as well as our predictions based on well locations relative to gas accumulations in the upper thousand metres of the seafloor. Due to another period of bad weather with strong winds and high waves, we had to suspend our work and seek shelter at the mouth of the Firth of Forth near Aberdeen for three full days. On Thursday evening, we could finally resume our work with a ROV dive at one of the wells, where we had observed a gas flare. We could quickly locate the gas bubble streams at the seafloor, which were covered by a lost fishing net. We managed to sample the gas and measure the emitted bubble flux. Over night, more well locations were targeted by another hydroacoustic survey, followed by two more ROV dives at well locations on Friday. Again, we were able to find the bubbling spots relatively quickly, and sampled the gas and surface sediments. In the evening we had to return to our familiar shelter spot at the coast of Scotland again, because of another depression system passing by.

Since the weather forecast indicated that wave heights of more than two metres would last until Sunday afternoon, on Saturday we decided to start our transit to the German Bight. In the West Schleswig block working area we will conduct a hydroacoustic survey across all well locations in the area, before we need to return to the locks of the Kiel canal in Brunsbüttel. We intend to enter the canal on Tuesday morning and to moor the vessel at GEOMAR's eastshore premises on late Tuesday evening.

Despite the loss of several working days due to bad weather conditions, we accomplished the main goals of the cruise and were able to double our existing gas bubble emission data at abandoned wells in the North Sea. We would like to express our gratitude to the captain and his crew for their professional support and the friendly working and living environment on ALKOR as well as the team of ROV Phoca for their skilled operations and enthusiasm.

On behalf of all AL575 participants,

Matthias Haeckel

Gas bubble stream at an abandoned well location. Bacterial mats have colonized a lost fishing net covering the bubble spot. (Photo: ROV Phoca team)

Deployment of ROV Phoca with the A-frame of RV ALKOR. (Photo: Mark Schmidt)