

Subglacial environments are located at the interface of glacier ice and bedrock. They represent one of the major ecosystems associated with glaciers and ice sheets. They contain liquid water and fine material including organic matter, accumulated during periods of glacier advance. It is well established that there are active microbial communities residing in these environments, which are adapted to living in extreme conditions. Subglacial ecosystems are mostly isolated from the atmosphere and thus their oxygen content is usually very low. Therefore, the organisms residing in these environments often employ anaerobic/anoxic strategies to ensure their survival. However, knowledge of these communities is limited due to practical constraints associated with subglacial ecology and biogeochemistry research. The activity of microorganisms beneath glaciers significantly influences carbon cycling. In recent years, this ecosystem is dynamically changing and may have important impact on regional and global carbon cycle. Therefore, it is important to better understand this ecosystem. This thesis summarizes recent knowledge of microbial communities and carbon cycling in this ecosystem and discusses suitable analogues, which could help us understand the fascinating subglacial ecosystem and formulate future research questions.