

Project acronym: MIRECASA

Project title: Response of terrestrial microbial communities to environmental changes in Arctic, Sub-Arctic, and Alpine regions

Project leader: Stefano Ventura, CNR-Institute of Ecosystem Study, Sesto Fiorentino (Italy)

Discipline: Earth Sciences & Environment

Station(s): Aktru Research Station (Russia)

The proposed research will give a contribute to the establishment and activities of (INTERACT-sponsored) SecNet, an international consortium for understanding and predicting societally-relevant changes in Siberia in a global context. SecNet is developing a strategy aimed to link international and Russian institutions on developing world-class research on Siberia by linking multiple disciplines and approaches. The proponent will develop the project in tight connection with the research team of Tomsk State University (Sergey Kirpotin, Roberto Cazzolla Gatti).

For the summer 2017, the proposed research will address the characterisation of the microbial community in bare or poorly vegetated grounds in the most typical habitats that can be found around Aktru Station. Primarily, the research will approach the colonization and early successions of the microbial community along chronosequences in front of retreating glaciers, from the ice front to the tree line. This study will be the continuation of a long term study of the proponent team on glacier forelands in Svalbard. This proposal thus, will extend the investigation to the high mountain environment of the Altai, a region far away from those studied up to now, with different geomorphology and climate constrains. In the next years, the user group will extend the study by applying to visit other INTERACT TA Stations in Siberia, and other alpine or High Arctic stations for comparative purposes. The objective of the proposal is to elucidate the structure of the pioneer microbial community and its modifications in areas subjected to primary colonization and early successions in the high mountain environment, by the application of NGS techniques. Other study habitats that will be taken into account are those where geo-climatic characters dramatically limit water availability, making the habitat dry and hostile. For the present application, the study will be focused on the chronosequences in front of receding glaciers on the Altai mountains and to desert habitats reachable from the Aktru station.