

Project acronym: REACT

Project title: Growth-ring record of modern extreme weather phenomena in the Low Arctic

Project leader: Magdalena Opala-Owczarek, University of Silesia, Poland

Discipline: Earth Sciences & Environment

Station(s): Rif Field Station (Iceland), CEN Whapmagoostui-Kuujjuarapik (Canada)

Climate warming and changes in precipitation over the past several decades in the Arctic, as recorded in meteorological data, have caused shrub expansion and affected growth ring widths. Growth-ring records of the Low Arctic plants can help to better recognize the modern climate changes affecting the terrestrial ecosystems, especially in terms of extreme weather phenomenon, which amount is increasing dramatically. Our project was conducted at two stations: Rif Field Station (Iceland) and CEN Whapmagoostui-Kuujjuarapik Research Station (Canada). The main idea of the project was to recognize extreme climatic events in growth ring records of tundra plants and to construct chronologies for different tundra species. During the field work, in both research stations we have sampled different species of dwarf shrubs, shrubs and trees. The samples will be subjected to dendrochronological and dendroclimatological analysis. We expect to find linkage between modern climate changes and growth-ring variability in tundra plants, especially in terms of extreme climatic events that can have large impact on the different elements of very sensitive Arctic ecological system. The first observations of our wood material indicate the great potential for construction of long growth-ring-width chronologies and sound outcome. We expect that collected material will be a basis for future publication in high ranked scientific journals.