Global warming is an issue on which many researchers now focus their attention. One of the most spectacular effects of climate change is an intense recession and melting glaciers in the polar regions perceived. The recession of glaciers is accompanied by intensification of runoff melt and flow caring by mineral particles. The trend and the intensive changes of glaciers is therefore a good, sensitive indicator of climate change occurring both in the Arctic and globally. The amount and distribution of the suspension affects the underwater light field and thus photosynthetic organisms and organisms living on the bottom. Mineral matter close to the glacial front quickly sediments and affects the distribution and composition of glacial sediments in the bays. The scale and intensity of these processes depend on the glacier activity. In the respect of climate change, the special attention shall be given to the carbonate fraction of the suspended material. To suspended calcium carbonate had dissolved on the water must be sufficiently high concentration of carbonic acid, which results from the dissociation of atmospheric carbon dioxide in water. Moving glacier ripping calcium carbonate with a solid carbonate rocks found in its bedrock (marble, limestone, dolomite and other rocks containing its additives). This mechanism gives rise to the so-called. rock flour, which easily dissolves, inter alia due to the high content of the reactive particles having a diameter of microns as well as a high content of carbon dioxide in the cold arctic waters. In addition, the high viscosity of cold water flowing from the glaciers allows the persistence of suspension in water column and slow sedimentation. The ability to map the concentration of suspended calcium carbonate provided by the melting of glaciers introduces a new element to the knowledge about the circulation of carbon in nature. Studies conducted by many research groups have shown that marine organisms at early stages of life is particularly vulnerable the effects of ocean acidification. The results of the project can contribute to find a new relationship between the type of suspension and the condition of the shell.

The project aims at setting up an algorithm enabling remote detection of the concentration of carbonate mineral suspension in the surface layer in the glacial bays at Spitsbergen and the development of spectral characteristics for such suspensions which will enrich the knowledge about contribution of the calcium carbonate by melting glaciers. My project makes it possible to remotely determine what is the variability of calcium carbonate per year and over several years. If we know the spectral characteristics of a suspension of carbonate, formed algorithm can be applied to other areas of the Arctic.