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Image recognition of microplastic particles in marine sediments – planned activities

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Information about the distribution microplastics is crucial in marine environmental research. At present, plastic pollution is an environmental threat to the oceans and more than 90 % of microplastic particles are assumed to be deposited in the sediments on the ocean floor. An efficient way of identifying microplastic particles in marine sediments would result in improved understanding of microplastic distribution, inception, accumulation areas, and impact on marine ecosystems. Today, manual classification of microplastic particles using a microscope is time consuming. The goal of this study is to identify microplastic particles in marine sediment samples with the help of image recognition and machine learning. The possibility of using artificial microplastic particles will also be tested as a means of constructing comprehensive training sets. Existing algorithms already have been successful in classification of microfossils, which could be further developed for recognition of microplastic particles. Furthermore, hyperspectral analysis will be tested to determine the origin of the microplastic particles. Our overall goal is to train classifiers that in the future successfully can recognize different plastic objects in marine sediment samples and thereby replace the time-consuming manual classification task. Comparison between human based and machine based identifications for a large number of data sets will be made to test these classifiers.