



Students learning phenology for becoming citizen scientists: an example of Italian High School students and CNR researchers teamwork experience

Carla Cesaraccio, Annalisa Canu, Grazia Pellizzaro, Pierpaolo Masia, and Maria Leonarda Fadda
CNR IBE, Institute of BioEconomy, National Research Council, Sassari, Italy (carla.cesaraccio@ibe.cnr.it)

Citizen science is the scientific research that involves the participation of the public assisting professional scientists. This typically occurs in helping to data collection and/or data analysis, and an increasingly popular use of citizen science is the collection of phenological data, like wildflowers blooming in summer or leaves changing color in fall. Studying the life cycles of plants (phenology) reveals some consequences of climate change.

The PCTO (Percorsi per le Competenze Trasversali e per l'Orientamento) is a school-work alternation program and represent an innovative teaching method, introduced in 2015 by the Italian Ministry of Education, University and Research. This program, through practical experience, helps to consolidate the knowledge acquired at school and to enrich the student training. The school-work alternation is compulsory for all the students of the last three years of high school (13-17 years age). This program is a cultural change that incorporates good European practices, aimed at creating a synergy between school and work in order to encourage students to follow program learning inside of a public/private company.

The National Research Council of Italy is a partner of this program and each year students from high school are involved in technical and research activities. During the years 2015-2019, the Institute for the BioEconomy of Sassari, offered a School-Work learning program dedicated exclusively to Phenological and Pollen monitoring to groups of students of High School. While they employed their skills at work, they learnt to implement the specific protocols of a scientific project. These experiences increased their awareness of the essential role they can play by acquiring new knowledge of the environment and skills through scientific tools of citizen science. In this paper, results of the Phenological and Pollen monitoring program held at IBE-CNR Sassari are illustrated.

In the future, citizen scientists can provide reliable observations when following scientific methods and standardized protocols. Phenological monitoring programs based on volunteers support will become increasingly important in providing open access, standardized data sets capable of supporting the process of answering ecological and global change questions.