



## Book of Abstracts



First International ECSA Conference 2016

# Citizen Science –

Innovation in Open Science,  
Society and Policy

19–21 May 2016 | Kulturbrauerei Berlin



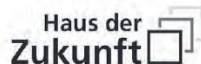


# Book of Abstracts

## First ECSA Conference 2016

# Citizen Science – Innovation in Open Science, Society and Policy

19–21 May 2016 | Berlin



## SUCCESSFUL EXAMPLES OF CITIZEN SCIENCE IN SLOVAKIA : ENVIRÓZA, BEAGLE & NA TÚRU S NATUROU

*Sylvia Baslarova (SK)*

1. Enviroza (Envirosis) is a school program and outdoor game designed to gather and spread information on contamination sites in Slovakia.

Intended for primary and secondary schools, the programme is implemented through website [www.enviroza.sk](http://www.enviroza.sk). Participants (teachers and pupils) seek out and identify localities of contaminated sites, publish data online and score points for doing so, and also inform the public about results. Envirosis is categorised as a citizen science programme; its practical role is to update information about selected contaminated sites registered in the Information system of Contaminated Sites (ISCS) and to identify new sites (known as “school-identified sites”) that display signs of serious contamination. The informations are further processed by Slovak Environmental Agency (SEA) staff, integrated into the ISCS and thus made available to state authorities as well as the professional and lay public.

Envirosis’s educational goal is to gain information about existing cases of contaminated sites and the state of their own environment based on first-hand observations in the field.

2. Beagle is a school program, where participants can choose one or more trees to follow throughout the year, they report dates of flowering, leaf burst and other phenological events along with photos to web site <http://www.beagleproject.org>. Later they can compare findings with other schools and see how the events took place across Europe throughout the year.

3. NA TÚRU S NATUROU is a school program focused on occurrence of plant and animal species. Activities in this program are divided into field surveys and web entries. Participants choose specific location and realize the field trip, where they seek out and identify and document the species (audio, video, and photo). The data are published online (website <http://snaturou2000.sk> – registration of the observation group, mapping the location, uploading the evidence of species appearance)

---

### Driven to Discover: A model for using citizen science in the classroom

*Robert Blair, Karen Oberhauser, Andrea Lorek Strauss, Nathan Meyer*  
*University of Minnesota, US*

“Driven to Discover – Citizen Science in the Classroom” is a program designed to show both formal and informal science educators how to use citizen science projects to engage middle- and high-school youth in independent science investigations. Our process consists of three major steps: 1) build the science skills of youth, 2) have them participate in a national or international citizen science project, and 3) have them conduct their own investigations based on their new knowledge. Throughout all of the materials, we emphasize that the process of science is an unending cycle of observing, questioning, testing, and concluding mixed in with ample opportunities to reflect and backtrack when necessary.

This project works. It was developed with funding from the National Science Foundation, which included a substantial amount of both formative and summative evaluation. The main conclusions of these evaluations were that students realize that they can contribute to national science efforts, that they can ask and answer their own questions, and that their research matters. You can find the full results at our website – [extension.umn.edu/citizenscience](http://extension.umn.edu/citizenscience).

Our curricula are paired with national and international citizen science projects that cover the topics of monarchs, birds, pollinators, dragonflies, and phenology, but our process will work with almost any citizen science project. We have completely developed curricula for the Monarch Larva Monitoring Project and eBird and these are available for free download at our web site. We are beta-testing curricula that pair with the Great Sunflower Project, the Migratory Dragonfly Partnership, and the National Phenology Network. These will be available in two years.

---

### The Swedish Mass Experiments – a Win-Win for Schools and Scientists

*Lotta Tomasson, Fredrik Brounéus*  
*Public & Science (VA), SE*

Since 2009, the Swedish non-profit organisation VA (Public & Science; in Swedish Vetenskap & Allmänhet) has been coordinating an annual national citizen science event for schools – a mass experiment. The mass experiment is part of ForskarFredag, the Swedish events on the European Researchers’ Night. Through the mass experiments, thousands of Swedish students from preschool to upper secondary school have contributed to the development of scientific knowledge on a diverse range of topics, such as the



acoustic environment in classrooms, storage of refrigerated foods, children's and adolescents' perception of hazardous environments and the development of autumn leaves in deciduous trees. In 2015 the "Tea Bag Experiment" studied the decomposition of organic material in soil and its relation to climate change, by means of a newly developed, standardised method built upon the burying and weighing of tea bags. Through the mass experiments the students get to participate in real research, while the researcher is provided with massive amounts of data. From the teachers' point of view, the mass experiments provide them with material and methods based upon state-of-the-art research to integrate into the curriculum. The mass experiments efficiently link education to research, establishing valuable contacts with researchers and giving students insights into research methods and scientific thinking.

---

### High school students as citizen's scientists in air quality research – lessons learned

Sverre Holøs<sup>1</sup>, Britt Ann Kåstad Høiskar<sup>2</sup>, Johanna Robinson<sup>3</sup>, Alena Bartonova<sup>2</sup>

<sup>1</sup>SINTEF Building and Infrastructure, NO

<sup>2</sup>Norwegian Institute for Air Research (NILU), NO

<sup>3</sup>Jožef Stefan Institute, SI

Bringing citizen science projects into the classroom can help students understand the relevance of curriculum objectives. As part of the ongoing CITI-SENSE project high-school students in Norway, Serbia, Slovenia and the UK were equipped with tools to study the air quality at their schools. The CITI-SENSE project (Development of sensor-based Citizens' Observatory Community for improving quality of life in cities) is a Collaborative Project under EU's Seventh Framework Programme, grant agreement no 308524) aims at developing citizen observatories related to environmental quality in cities. Results from the collaboration so far indicate that students and teachers are motivated to engage in these environmental studies, and able to perform studies of good quality. Students involved in such projects may be valuable collaborators with broader professional or citizen's science projects, as they can measure physical parameters, collect observations and perception or performance data while having a support network of experienced teachers. Furthermore, they can provide insight into the priorities and goals of the participants as well as the drivers and barriers for improving school environments. However, we have identified some challenges that need to be overcome to realize this potential. (1) Successful cooperation with schools requires adaptation to curricula and relatively strict schedules. A two-week delay may imply a full year lost. (2) Students are motivated when they are free to implement their own ideas and priorities into the projects. This may lead to datasets that are hard to reuse or compare with others. (3) Indoor environments vary widely between rooms and with usage and meaningful interpretation of measurements and other results often requires that a lot of context is recorded with the measurements. This is not always practicable/feasible. Despite the challenges, there is a tremendous potential of empowering the schools when providing them with tools to conduct research in their premises.

---

### Phénoclim : 12 years of citizen science in three Alpine countries

Charlotte Mader

CREA Mont-Blanc, FR

Phénoclim is one of the oldest French citizen science programs created in 2004, associating rigorous science with environmental awareness. Phénoclim studies, through participatory science and innovative technologies, the impact of climate change on the seasonal cycles of flora and fauna. This protocol is suitable in all mountain environments for a general public, to develop scientific skills and ecological knowledge.

For 12 years, 5,000 volunteers (individuals, schools, protected areas, associations) have been participating in Phénoclim. Phénoclim focuses its efforts on involving schools. It now works with 138 classes in three Alpine countries: France, Switzerland, Italy. The average age of the student ranges from 10 to 12 years.

Phénoclim is a scientific tool for teachers. Based on their approach, teachers can build a multidisciplinary project around the program; for instance associating the program with biology, mathematics, poetry, drawing, foreign languages, music or sport. With high school students, supervisors can address more advanced topics relying on the CREA\* studies of climate data: all data and analysis are available to all for free. Some exchanges have already been held between the classes of different participating countries. Phénoclim is also a way to raise students' awareness about other environmental initiatives.

The CREA speaker will present several key tools necessary to establish a sustainable participatory program, such as spurring interaction between researchers and participants, involving mediators at school, facilitating teachers' ownership over Phénoclim, and ensuring the quality and reproducibility of the protocols. Other questions for the future will be addressed such as fostering the

interactions between the various categories of Phenoclim observers (Protected areas, Schools, Environmental Education Centers, Mountain guide organisations) to create tools for young publics to be used in different settings.

\*The Research Center for Alpine Ecosystems is a scientific and educational NGO working on the ecology of mountain ecosystems.  
[www.phenoclim.org](http://www.phenoclim.org)

---

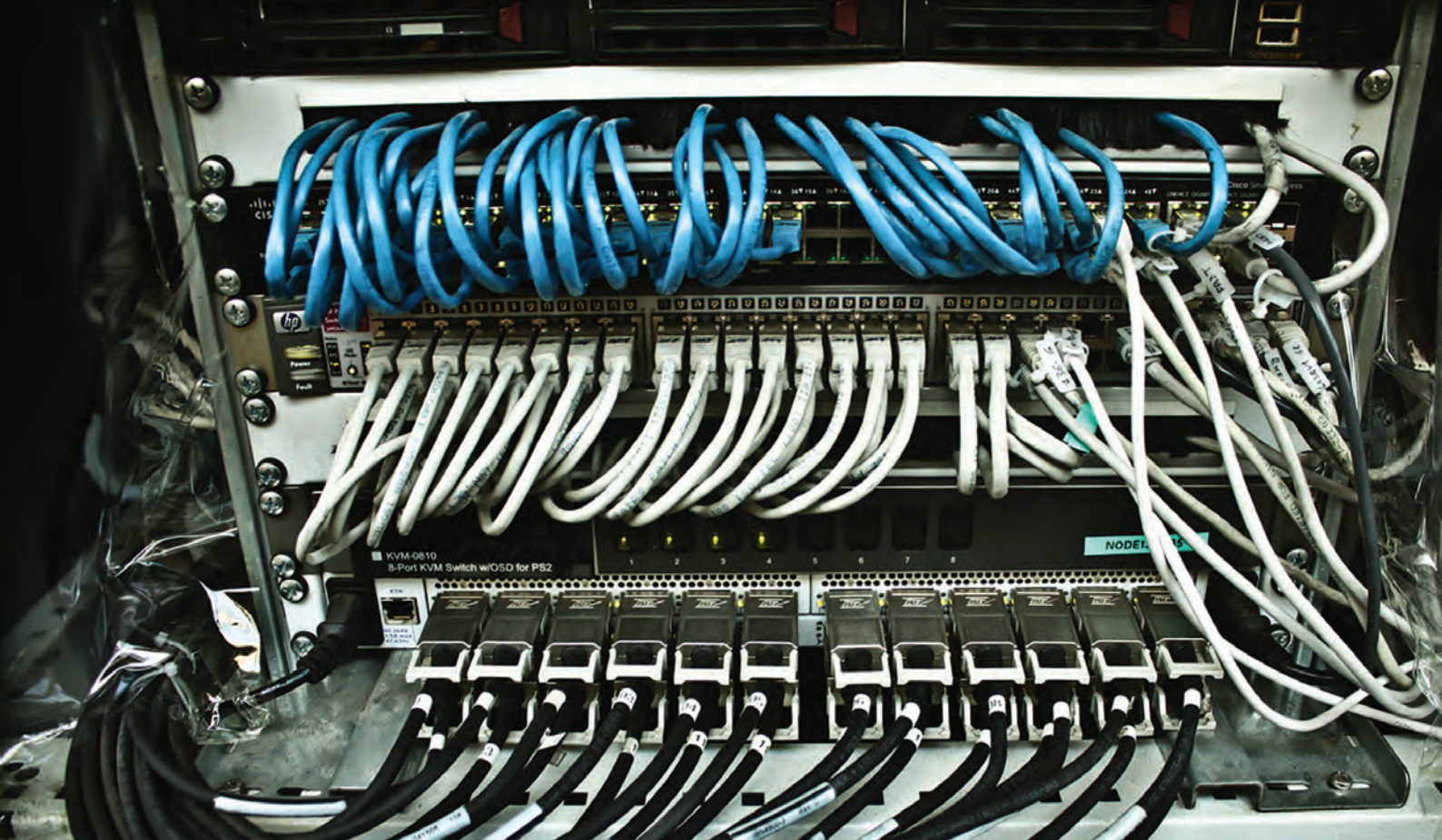
### **The use of the Open Air Laboratories (OPAL) surveys as a tool to promote science learning and engagement in schools**

*Gretta McCarron, Karen Kerr  
Queens University of Belfast, GB*

The Open Air Laboratories Network (OPAL) citizen science project began in England in 2007 and was extended to the rest of the UK in 2014. The project aims to engage members of the public of all abilities in environmental research and learning about local environments. Six surveys: Air Quality, Biodiversity of hedgerows; Bug counts; Soil and Earthworm; Tree health and Water Quality include field notebooks and identification guides to support this objective. Community scientists are employed to deliver training and facilitate surveying across the UK. The School of Education at Queen's University Belfast is a delivery partner and we work with schools to complete the OPAL surveys within school grounds and further afield. In order to assess the value of OPAL activities for learning science in schools we developed an online questionnaire covering topics including science in schools; attitude to science; working with others and care for the environment. We invited schools doing OPAL activities to participate in our research project. A total 253 students (8-14 years) completed the pre- activity online questionnaires and 71 completed the post-activity questionnaires between May and June 2015. Students reported if they learned science, developed new skills, improved their interest in science or care for the environment as result of participating in the OPAL survey activity. 73% of students reported learning science and enjoying the OPAL activity but although positive, there was no significant change in attitude towards science or the environment as result of completing OPAL activities. This result shows that Citizen Science activities have a positive impact on science learning in schools particularly as we only completed one survey with the students. We suggest an 'embedded' OPAL programme of activities within a science scheme of work involving repeated surveys over a sustained period could yield a more significant result.

---





[www.ecsa.citizen-science.net](http://www.ecsa.citizen-science.net)

