



Report on the 2018 SoWaSe - ESSC International Conference

Soil and Water Security: Challenges for the next 30 years!

June 6th – 8th, 2018. Imola (Italy)

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To celebrate 30 years of activities, the ESSC organized the **ESSC International Conference: SoWaSe 2018 “Soil and Water Security: Challenges for the next 30 years!”** The conference has been hosted by the Department of Agricultural and Food Sciences of Alma Mater Studiorum-University of Bologna in Imola, on June 6th to 8th 2018.

The objective was to stimulate reflections on the importance of environmental resources for humankind, paying special attention to the new challenges and opportunities concerning Soil and Water Security and Conservation for the next 30 years.

The International Conference has been attended by 85 scientists from different EU and extra-EU countries, in particular from Austria, Belgium, Czech Republic, Germany, Hungary, Italy, India, Romania, Slovenia, Spain, Cameroon, China, Gambia, Georgia, Kazakhstan, Pakistan, Russia, Ukraine.

The conference hosted fifteen oral presentations four poster sections and two stand exhibitors, Elementar and Schweizerbart Science publishers.

The Conference has been supported by Global Soil Partnership (GSP), World Association of Soil and Water Conservation (WASWAC), European Commission (EC), International Union of Soil Sciences (IUSS), International Soil Conservation Organization (ISCO), World Agricultural Heritage Foundation (WAHF) Italian Society of Soil Science (SISS), Italian Society of Pedology (SIPe) National Academy of Agriculture (ANA), , RES Emilia Romagna, Regione Emilia Romagna, Imola Municipality, Comacchio Municipality, University of Ferrara, CREA, European Confederation of Soil Science Society (ECSSS). The event has been sponsored by Fondazione Cassa di risparmio Imola and Geolab onlus.

Prof. Carmelo Dazzi, president of the European Society for Soil Conservation (ESSC), delivered the opening speech of the Conference, followed by Prof. Li Rui, president of WASWAC, and Prof. Ildefons Pla Sentis, president of ISCO. Afterwards, Prof. José Luis Rubio, past president of ESSC, and Prof. Giorgio Cantelli Forti, president of ANA, brought their best wishes for the conference work. The opening ceremony was concluded by Prof. Livia Vittori Antisari, president of the Scientific Committee of the Conference that welcomed the conveners as a delegate of the hosting institution, University of Bologna (Fig.1).



Fig. 1 – From left to right: J. Rubio; Li Rui; L. Vittori Antisari; C. Dazzi; I. Pla Sentis.

Scientific Program

The International Conference was organized in four scientific sessions.

The first one (*Soil Degradation and Food Security: Learning from the past to the foresee the future*) was introduced by a lecture of Prof. Wim Cornelis (Department of Environment, Ghent University, Belgium), who gave a talk about how restoring soil structure, stressing that conserving soil and water are essential in the global struggle for food security (Fig. 2). To do so, we should

learn from good and less good soil-management practices from the past and improving them in order to deal with the challenges of the future. During the session, the following speakers explored a wide range of issues related to soil degradation such as soil desertification or pollution, in relation to food security and human health.



Fig. 2 – Carmelo Dazzi awards Wim Cornelis after his invited lecture.

The second session (*Soil functions monitoring and safeguard*) was presented by Prof. Edoardo Costantini (CREA-AA, Italy), who focused on the importance of monitoring soil functions as a way of maintaining or restoring soil fertility (Fig. 3). He presented some of the results of an important project on the restoration of soil functionality in degraded areas within organic vineyards. Presentations given after his speech followed the topic of monitoring soil functions as key to understand soil health. Great attention have been payed to soil organic carbon cycle and speciation.



Fig. 3 – José Rubio awards Edoardo Costantini after his invited lecture.

Prof. Ildefons Pla Sentis from University of Lleida (Spain) introduced the third session (*Soil and water management in a changing environment*) underling that soil and water security is a fundamental issue for the future of humankind on Earth (Fig.4). He presented some examples of integrated use and management of soil and water resources adapted to the new social and economic pressures around the World. The scientific session have been participated by a several presentations who explain different methodologies and models to monitor soil properties and processes and to predict soil evolution.



Fig. 4 – Adam Kertész awards Ildelfons Pla Sentis after his invited lecture.

In the last session (*Smart agriculture: modelling and prediction for the next 30 years*), the invited lecture by Prof. Pandi Zdruli (CIHEAM, Bari, Italy) highlighted the importance of sustainable soil management in order to ensure food security by investing in soil conservation and water, bio-engineering, agricultural research and alternative affordable sources of energy for irrigation (Fig.5). During this session most of dissertations talked about soil mapping and modelling, smart agriculture practices as examples of new sustainable techniques.



Fig. 5 – Wim Cornelis awards Pandi Zdruli after his invited lecture.

Closing session

Before the conference conclusion, the ESSC awarded three young researchers for their commitment with a grant of 500 € each. The winners were Eva Pažourková (Department of Hydraulics and Hydrology, Czech Technical University in Prague), for her study on *Soil conservation in a forested mountain catchment*, written with Josef Křeček, Jana Nováková, Ladislav Palán; Parvathy Chandrasekhar (Institute for Integrated Management of Material Fluxes and of Resources, United Nations University – Flores, Germany), for her work on *A modelling study on the temporal dynamics of soil hydraulic properties influenced by agricultural management practices*, written with Janis Kreiselmeier, Thomas Weninger, Karl-Heinz Feger, Stefan Julich, Andreas Schwen, Kai Schwärzel and Tara Čolović (Faculty of Forestry of Belgrade University, Serbia) for her study on *The influence of socio-demographic factors on the state of soil erosion in certain areas in Serbia*, written with Mi-odrag Zlatić (Figs 6, 7, 8).



Fig. 6 - Eva Pažourková



Fig. 7 - Parvathy Chandrasekhar



Fig. 8 - Tara Čolović

One poster for each scientific section was also awarded:

- *Slash and burn effect on Mozambican soils* by Dominique Serrani, Stefania Cocco, Valeria Cardelli, Marziyeh Hoseini, Rogério Borguete Alves Rafael, Giuseppe Corti for Session 1;
- *Discriminating the effects of forest management on litter and soil in a mediterranean pine forest by VisNIR* by Romina Lorenzetti, Cesar Guerrero, Erika Di Iorio, Alessandro Elio Agnelli, Claudio Colombo, Alessandra Lagomarsino for Session 2;
- *Soil conservation in a forested mountain catchment* by Eva Pažourková, Josef Křeček, Jana Nováková, Ladislav Palán for Session 3;
- *Spectral data for rapid characterization of compost-on-farm quality* by Romina Lorenzetti, Simone Priori, Giovanni L'Abate, Edoardo A.C. Costantini for Session 4.

Social Program

On Wednesday 6th, the evening ended with a cheerful social dinner at the Fortress of Riolo Terme, a small village close to Imola, admiring the Fortress, eating traditional food, and listening to a nice concert of the “Roaring Emily Jazz Band” offered by the organizing committee. The dinner also was a good chance to celebrate the 30 year of activity of the ESSC, together with the member of the council of the ESSC, with a special cake, dances and good food (Fig. 9).



Fig. 9 – A big cake with the ESSC logo.

Field and Cultural Excursion

On Friday 8th, it was organized a field excursion in Ostellato (FE), to visit the particular soils of the Azienda Vivai Maccanti, involved in a regional project “SaveSOC2”, funded by EU, which focuses on the study of best agricultural practices that minimize organic matter deterioration process. During the excursion, some researchers explained the particular origin of the area, resulted by a recent reclamation land (1960s).

A representative soil profile was excavated, in order to show to the participants the different alternation of buried organic horizons and the sedimentary history recorded by the soil (Fig. 10).



Fig. 10 – Discussions on the soil profile.

An interesting discussion occurred in front of the profile, where all the soil scientists could observe the pedological features of the soil, ask questions and curiosities, and give some suggestions.

In the afternoon, the attendees visited the ancient Delta Museum in Comacchio (FE), which narrates the history of the ancient Po delta through several dioramas and audio guides.

Closing Remarks

More information and a comprehensive programme of the Conference and the book of abstracts are available at: <https://events.unibo.it/sowase-essc-conference-imola2018/program>