

COST STSM Reference Number: COST-STSM-ES1306-35648

Period: 2017-03-08 to 2017-03-24

COST Action: ES1306

STSM type: Regular (from Netherlands to Italy)

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STSM Topic: Sediment and carbon transport under wild fire conditions: testing the connectivity approach

Host: Agata Novara, Department of Agricultural and Forest Sciences, University of Palermo, Palermo (IT), agata.novara@unipa.it

1. Purpose of the STSM

The objective of this STSM was to study the effects of a wildfire in the island of Pantelleria on soil and erosion and carbon vertical distribution under different land use, slopes and fire severity.

The tasks planned in this STSM are **1)** determine different slope and vegetation characteristics and fire intensity in the study area; **2)** set up a measuring scheme according to the conceptual framework presented in the paper by Keesstra et al, which is under review in Earth Science Reviews; **3)** assess carbon storage, transport and distribution under different conditions of slope, fire severity and land use; **4)** determine the erosion of sediment and ash since the fire occurred; **5)** assess the carbon transport since the fire has occurred.

2. Description of the work carried out during the STSM

Due to a delay in travelling to Italy and an illness of dr. Novara during my visit we could not travel to Pantellaria. Therefore we in stead worked in the university of Palermo with dr. Novara and her colleagues, especially with dr. Luciano Gristina. We also visited the research sites of dr. Novara on the island of Sicily.

3. Description of the main results obtained

We worked on several issues: 2 papers that are in preparation already: one on long term organic matter measurements and one on nature based solutions. The one of organic matter measurments is lead by dr. Novara, the other my me. Both papers benefit from our complementaty expertises. We tried to combine the knowledge of sediment transport and connectivity of dr. Keesstra (with the knowledge of carbon storage and transfers of dr. Novara (to come to a more comprehensive knowledge of

how the characteristics of a hillslope and land use influences the carbon fluxes in landscapes.

In addition to the work on the papers we made a detailed plan that we want to do once I will go to visit dr. Novara later this year.

We have discussed new lines of research on Sicily and the island of Pantellaria to work together with stakeholders. Dr. Novara has close connections with owners of the vineyards she works on and actively works with them to come to sustainable practices both from a physical as well as from a socio-economic point of view

Lastly we worked on a proposal dr. Novara is leading that concerns research on vineyards in several regions in Europe (Spain, Italy, the Netherlands and Germany).

4. Description about how the results contribute to the Action aims

This STSM contributes to the goals of Connecteur (main objective of the Action is to form an EU-spanning network of Connectivity scientists, to share expertise and develop a consensus on the definition and scientific agenda regarding the emerging field of water and sediment connectivity within Europe (and the diversity of European environments), and to identify potential for synergy with other disciplines and research applications in practise." And especially worked for the secondary objective: 'The Action and Network will generate an inventory of i) different definitions and concepts of connectivity and will organize and report on a discussion to come to a consensus definitions and conceptual framework and ii) applications of different branches of science beyond Earth sciences, to identify potentially valuable connectivity related methodologies and theories through desk studies and workshops, and iii) gaps of knowledge and understanding related with connectivity, and will propose a prioritization for research, and report on this.'

Lastly we have discussed new lines of research on Sicily and the island of Pantellaria to work together with stakeholders and include connectivity research in the measures we would like to work with in the vineyards and in the burned areas. Both WG 2 and 5 will benefit from the collaboration that we have further established during this STSM.

5. Confirmation by the host institution of the successful execution of the STSM; in other document

6. Authorization to post the report at the Action website

I authorize the posting of this report on the Connecteur website.