



**WORLD ASSOCIATION OF SOIL AND WATER CONSERVATION**

# **HOT NEWS**

Issue 03, 2016



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## WASWAC HOT NEWS No. 03, March, 2016

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Cover photo: Green park near Vienna International Center.

Editors: Dr. Du Pengfei, Contributors include Prof. Li Rui, Dr. Panos Panagos and Dr Amir Kassam.

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For ISWCR paper submission:

<http://www.journals.elsevier.com/international-soil-and-water-conservation-research/>

WASWAC Website: [www.waswac.org](http://www.waswac.org)

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## Welcome to Belgrade to Attend The WASWAC World Conference III in This Coming August

**WASWAC World Conference III**

**August 22-26, 2016**

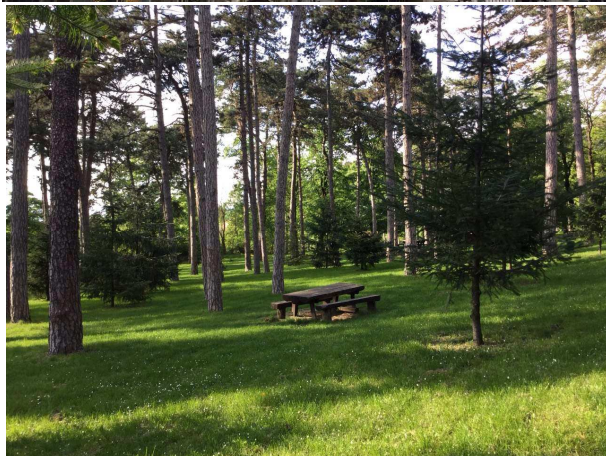
**Belgrade, Serbia**

**WASWAC Outstanding**

**Youth Paper Award 2016 (DATUM)**

### CONFERENCE VENUE

The Conference is planned to be held in the capital of Serbia, in Belgrade.



Beautiful Belgrade

### DEADLINES

- **Abstract Submission Extend to: May 10, 2016.**

- **Full paper submission: May 31, 2016.**
- **Registration fee** (Registration fee up to May 31, 2016; after May 31, 2016):
  - For non WASWAC and ESSC members: 300 EUR; after May: 350 EUR
  - For WASWAC and ESSC members: 200 EUR; after May: 250 EUR
  - For students: 100 EUR; after May: 150 EUR
  - For accompanying persons: 100 EUR; after May: 150 EUR

### GLOBAL CONFERENCE TOPICS

- New challenges to soil and water resources in condition of climate change
- Land degradation processes and mechanism
- Soil and water conservation strategies to adapt and mitigate climate change
- Soil and water conservation measures benefits assessment
- Sustainable watershed management
- Social and economic aspects and policies related to soil and water conservation
- Inovations and implemented global/regional/national projects in land conservation
- Education in soil and water conservation

### CONTACTS

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Ms. Natalija Momirovic, [natalijamomirovic@rocketmail.com](mailto:natalijamomirovic@rocketmail.com)

### DETAILS

English Announcement here:

<http://www.waswac.org/newsShow.asp?id=302&fileSort=20>

Chinese Announcement here:

<http://www.waswac.org/newsShow.asp?fileSort=20&id=307#>

WASWAC Outstanding Youth Paper Award Announcement here:

<http://www.waswac.org/newsShow.asp?fileSort=20&id=303>

WASWAC World Conference III official website here:

<http://3rdwaswacconference.sfb.bg.ac.rs/index.html>



## **No soil is too wet or cold for no-till**

No-till doesn't work here. That was the message Carl Oberholtzer heard from new neighbors when he moved to west-central Wisconsin from the Chesapeake Bay area in 2000. Soils were too wet and too cold for no-till to work, they said, and he saw little reason to doubt them.

For five years he practiced rotational grazing and watched as fields with less than 1% organic matter doubled and then doubled again, with some fields reaching as much as 5.5% organic matter. When he returned to crop farming, he didn't want to lose that gain, so he began experimenting with no-till.

### **Tough no-till transition**

"We haven't increased the organic matter, but we've maintained it," says Oberholtzer. "As we add cover cropping, we hope to begin increasing it again."

With no one to turn to in the area for advice, making the transition wasn't easy. Oberholtzer set up his own planter, sharing it with another farmer interested in trying no-till. It was a learning experience and one that gave neighbors something to laugh at, he recalls.

"Some of what we had for crops early on was worth laughing at," he admits. "As we refined our weed control and fertilizer applications and saw improved results, we had more interest."

What he learned was the need to plant into a clean field with no growing weeds and fertilizing early and heavy. As interest grew, requests for help led to opening The Planter Shop, where he modifies planters for no-till. He also serves as a resource to other farmers and collaborates with Jason Cavadini, agronomist, University of Wisconsin Marshfield Agriculture Research Station, Marshfield, Wis.

Cavadini had seen the benefits of no-till on his family's farm in western Wisconsin and in graduate school at Purdue. He found resistance to the concept in the Marshfield area, but began to transition the research station to no-till, demonstrating equipment and holding field days for a growing number of farmers in transition.

### **Surrounded by culture of no**

"There was a group of people interested in making it work, but the general culture was that it doesn't work," recalls Cavadini. "Our no-till farmer group is a support group. Rather than argue if it is worth doing, we are looking for the best way to make it work."

Cavadini describes the region as hosting the largest concentration of dairy farms in the world, mostly small dairies with many growing in size. Manure-fed soils are productive silt loam at the surface with a

dense and increasingly clay layer 8-12 inches down, resulting in poor drainage. Subsurface tiles haven't worked well in the past due to the tight soils; however, tiling is now on the upswing.

Cavadini suggests that no-till and cover crops may negate the need to invest in tile, and Oberholtzer agrees. When 5 inches of rain fell this past September, Cavadini recalls sinking to his ankles in conventionally tilled fields two days later, while being able to chop corn silage in a no-till field across the road.

"Normally, an inch of rain delays field work for a week in this area," he says. "We've had a few cases where after even one year of no-till, we see major benefits in soil health and water infiltration."

Oberholtzer is excited at similar benefits he has seen with no-till. He hopes to see more as he adds cover crops, such as more beneficial and timely manure applications. "Manure management is critical, and there is no better time to apply than on a growing crop," says Oberholtzer. "My goal is to apply all our manure on a growing cover crop in the fall and then stay off in the spring. We aren't there yet."

### Finding right cover crops

Like his initial attempts at no-till, making cover crops work with such a short post-harvest period before freeze-up has had mixed success. Rye planted in fall 2014 didn't do well, but Oberholtzer blames his own half-hearted attempt with it. He has higher hopes for triticale planted after cutting corn for silage this past fall.

"I hope to make feed out of it late spring and then follow with soybeans," he says. "I would like to get three crops in two years with a good rotation."

Making any new practice in an area work is challenging, notes Oberholtzer. He hopes Cavadini's efforts will make a difference. "We've helped Jason get his planter set up so he can document no-till benefits on the research farm. With depressed crop and milk prices, we are seeing more interest as a way to save money with less fuel. However, we have to be able to show a good yield, like we had this past year. It was our best crop ever."

In his no-till and cover crop program, Cavadini isn't necessarily shooting for publishable data. "The farmers I work with don't care about that," he says. "They just want to be able to walk through fields or plots and observe no-till benefits with their own eyes."

Copy from: <http://cornandsoybeandigest.com/tillage/no-soil-too-wet-or-cold-no-till?page=2>

# COMING MEETINGS

**1st World Conference on Soil and Water**

**Conservation under Global Change**

**(CONSOWA)**

**Sustainable Life on Earth through Soil and Water Conservation**



A joint Conference of the “International Soil Conservation Organization” (19th ISCO Conference), the “World Association for Soil and Water Conservation” (Conference on Soil and Water Conservation of WASWAC), the

“European Society for Soil Conservation” (8th ESSC Congress), the “International Union of Soil Science (IUSS-Commissions 3.2, 3.6), the Soil and Water Conservation Society (SWCS), the “International Erosion Control Association” (IECA) and the “World Association for Sedimentation and Erosion Research” (WASER), in parallel with the VIII Simposio Nacional sobre Control de la Degradación y Restauración de Suelos (SECS). This event will be held during 12-16 June 2017, Lleida (Spain).

### SCIENTIFIC TOPICS

Climate-change induced soil and water degradation processes

Hydrological approaches to agricultural land management under global change

Interaction of soil and water degradation processes

Contribution of mass movement and surface erosion to sediment production in natural and anthropogenized watersheds

Use, degradation and rehabilitation of organic soils

Eutrophication issues and protection strategies of water bodies (artificial reservoirs and natural lakes/rivers)

Sediment yield, landscape evolution and global change

Empirical approaches for evaluation and modeling soil and water degradation processes

Prediction and prevention of catastrophic landslides, sedimentation and flooding

Relations between hydrological and soil erosion processes

Identification and evaluation of surface and mass erosion processes

Application of agricultural conservation practices

Reclamation of degraded lands by agricultural, mining, and similar anthropogenic activities

Treatment and management of low quality residual waters used for irrigation

Advances in modeling soil and water salinization and sodification processes

Social, economical and political factors in soil and water conservation and degradation

Irrigation and drainage practices for saving water

Methodological problems and advances for evaluating soil and water degradation processes.

Soil and sediment tracers for geomorphological applications and soil erosion research

National and multi-national scale erosion and erosivity mapping

Barriers and promotion options for implementing soil and water conservation practices.

Use and application of products and materials to control soil and water degradation



Climate change, land management and erosion effects on soil C stocks

Education in soil and water conservation and related topics

## DISCUSSION TOPICS

(based on previously written documents by a selected international group of experts)

- 1) Analysis and recommendations to change present limitations for the study and research of soil and water degradation processes and in the application of prevention and remediation practices.
- 2) Analysis of present and future previewed effects of global changes on soil and water degradation processes and effects on food and water supply to the increasing world population, and on the environmental degradation and natural disasters.

## ABSTRACTS

Abstracts have to be originally submitted in a short version (see instructions).

The short abstracts are only intended to select the communications, allocate them to the appropriate sessions and assign them as poster or oral communication.

One presenting author may submit two abstracts

The short abstracts must be submitted online no later than 30/11/2016.

The presenting author will be notified the final decision regarding the acceptance or rejection of the abstract, and the form of presentation, latest 15/01/2017.

Each accepted abstract will be assigned a number. Please refer to this number in any correspondence.

The presenting authors of the accepted abstracts must proceed to write extended version of the abstracts (see instructions).

The extended abstracts must be submitted online the latest 31/03/2017, to be included in the program of the conference.

Linguistic accuracy is the responsibility of the author, and the abstracts will be reproduced exactly as submitted.

Previous or simultaneous payment of registration fees will be required for the extended abstracts to be accepted and included in the program of the conference.

## IMPORTANT DATES

Short Abstract submission: 30/11/2016

Letter of acceptance: 15/01/2017

Extended Abstracts submission: 31/03/2017

(Previous payment of registration fees required to be accepted and included in the program of the conference)

Early registration (400 €): 31/12/2016

(Students\*: 200 €)

Regular registration (500 €): 31/03/2017

(Students\*: 250 €)

Late registration (550 €): after 31/03/2017

(Students\*: 275 €)

Pre-Conference field trip: 15/02/2017

(pre-paid registration)

Post-Conference field trip: 15/03/2017

(pre-paid registration)

(\*Certification of the Institution is required)

CONTACT	
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<b>Scientific Program:</b> Ildefonso Pla	<fundacio@udl.cat>
<b>Field Trips:</b> J. Carles Balasch	<fundacio@udl.cat>
<b>Exhibitions:</b> Josep M. Villar	<fundacio@udl.cat>
<b>Abstracts:</b> Rosa M. Poch	<fundacio@udl.cat>
<b>Sessions:</b> Àngela-D. Bosch	<fundacio@udl.cat>
<b>Publications:</b> Rosa M. Poch	<fundacio@udl.cat>
<b>Accommodations:</b> Mariona Puigdevall	<fundacio@udl.cat>

 <b>ISCO</b> International Soil Conservation Organization <b>19TH ISCO CONFERENCE</b> 12-16 June 2017, Lleida (Spain) <hr/>  <b>WASWAC</b> World Association of Soil and Water Conservation <b>CONFERENCE OF WASWAC</b> 12-16 June 2017, Lleida (Spain) <hr/>  <b>ESSC</b> EUROPEAN SOCIETY for SOIL CONSERVATION <b>8TH ESSC CONGRESS</b> 12-16 June 2017, Lleida (Spain)	 <b>IUSS</b> International Union of Soil Sciences <b>IUSS CONFERENCES</b> Commission 3.2: Soil and Water Conservation Commission 3.6: Salt Affected Soils 12-16 June 2017, Lleida (Spain) <hr/>  <b>SWCS</b> SOIL AND WATER CONSERVATION SOCIETY <b>SWCS CONFERENCE</b> 12-16 June 2017, Lleida (Spain) <hr/>  <b>IECA</b> International Erosion Control Association <b>IECA CONFERENCE</b> 12-16 June 2017, Lleida (Spain)	 <b>WASER</b> WORLD ASSOCIATION FOR REMEDIATION AND EROSION RESEARCH <b>WASER CONFERENCE</b> 12-16 June 2017, Lleida (Spain) <hr/>  <b>SECS</b> <b>VIII SIMPOSIO NACIONAL SOBRE CONTROL DE LA DEGRADACIÓN Y RESTAURACIÓN DE SUELOS</b> 12-16 Junio 2017, Lleida (España)
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REGISTRATION HERE:

<http://www.consowalleida2017.com/registration/>

## 2016 International SWAT Conference



The 2016 International SWAT Conference in Beijing will provide an opportunity for the community to meet and exchange ideas, summarize the results of studies and mutual problems, as well as share innovations and developments with SWAT.

### When

Early bird registration deadline May 15, 2016

Abstract submission deadline June 1, 2016

SWAT Workshops July 25-26, 2016

SWAT Conference July 27-29, 2016

### Where

The conference will be held at the Beijing Normal University, Beijing - China. Beijing Normal University is located in No. 19, Xin Jie Kou Wai Street, HaiDian District, Beijing and about 23 kilometers from Beijing Capital International Airport.



## Conference Topics

Large Scale Applications

Climate Change Applications

Sensitivity Calibration and Uncertainty

Biofuel & Plant Growth

Environmental Applications

BMPs

Hydrology

Sediment, Nutrients, and Carbon

Pesticides, Bacteria, Metals, and Pharmaceuticals

Model Development

Database and GIS Application and Development

Urban Processes and Management

Landscape Processes and Landscape / River Continuum

InStream Sediment and Pollutant Transport

EPIC/APEX Modeling System

SWAT Applications Incorporating Rice Production

SWAT Review Papers

Workshops

## Workshops

Introductory SWAT (ArcSWAT)

This is a beginner course designed to introduce new users to the SWAT model, review necessary and optional inputs, and familiarize the user with the ArcGIS interfaces. It is assumed that attendees have a working knowledge of ArcGIS. The two-day course will not review basic concepts on ArcGIS usage prior to covering the SWAT/ArcGIS interface.

Introductory SWAT (QSWAT)

This is a beginner course designed to introduce new users to the SWAT model, review necessary and optional inputs, and familiarize the user with the QGIS interfaces. It is assumed that attendees have a working knowledge of QGIS. The two-day course will not review basic concepts on QGIS usage prior to covering the

SWAT/QGIS interface.

#### Advanced SWAT (SWAT-CUP)

This course will cover sensitivity analysis, model calibration with SWAT-CUP, and uncertainty analysis using the 2012 version of SWAT with the ArcGIS interface. SWAT-CUP is a computer program for calibration of SWAT models. Participants are encouraged to bring their own laptop with projects for debugging.

#### About Beijing

Beijing is the capital of the People's Republic of China (PRC) and the second largest city in terms of population. It was formerly known in English as Peking. Beijing is the political, educational, and cultural center of the People's Republic of China. It has been selected to host the 2008 Summer Olympics. Because of its political, educational and cultural role in China, a larger number of international organizations are located here than in any other city in China.

Information about Beijing can be found at [www.ebeijing.gov.cn](http://www.ebeijing.gov.cn).

#### About Beijing Normal University

Beijing Normal University, a key university under the administration of the Ministry of Education, is a renowned institution of higher education known for teacher education, education science and basic learning in both the arts and the sciences. The university's predecessor, the Normal College of the Imperial University of Peking, was founded in 1902. Beijing Normal University is a staunch force in the nation's research effort in the humanities and social sciences and in technology innovation. The university houses four key state laboratories (2 joint ones), 8 Ministry of Education key laboratories, 9 Beijing Municipality key laboratories, 5 Ministry of Education engineering research centers, 2 Beijing Municipality engineering and technology centers, and 7 key research bases in the humanities and social sciences of the Ministry of Education.

Information about Beijing Normal University can be found at [english.bnu.edu.cn](http://english.bnu.edu.cn).

#### Contact

Email [swatmodelconference@gmail.com](mailto:swatmodelconference@gmail.com) with any questions. Please add this email address to your contacts to ensure you receive our messages.

Chinese participants may visit the Chinese conference website, or contact [swat2016\\_bnu@163.com](mailto:swat2016_bnu@163.com)

#### Website

<http://swat.tamu.edu/conferences/2016/>



## **Agricultural Land Classification Course**

### **Event date:**

Tuesday, June 14, 2016 to Wednesday, June 15, 2016

### **Event venue:**

Birmingham, United Kingdom

### **Event description:**

This training course offers you a unique opportunity to refresh your skills or learn how to conduct and present an agricultural land classification survey.

It is the only course available and has been designed and will be taught by agricultural land classification (ALC) experts from Natural England and the Welsh Government.

ALC has a formal role in the planning system in England and Wales and is designed to prevent the loss of our best and most versatile land in line with the principles of sustainable development. We have launched this course in response to criticism of the standard of many ALC reports currently being submitted with applications for land development.

By the end of the two days you will learn;

about how the ALC system has developed over time, its underlying principles and its role within the planning system - the WHAT, WHY and WHEN of ALC

all the details of how land is graded - the HOW of ALC

how to present ALC results as an expert witness

As well as taught sessions, you will carry out a group ALC grading desk exercise to further enhance your ability and confidence.

You will receive a detailed, comprehensive course book and cd versions of the ALC Guidelines and

Meteorological Office ALC climatic data

Booking is now OPEN:

Details at: <http://soils.org.uk/event/909>

Booking here: <http://soils.org.uk/catalog/training-courses>

## VACANCIES

### **1. Environmental and Biochemical Sciences (EBS) TB Macaulay - Post-doctoral Researcher in Digital Soil Mapping**



The James Hutton Institute is an international research centre based in Scotland where we are tackling some of the world's most challenging problems including the impact of climate change and threats to food and water security; the Institute has a global reputation for soil and water research. This post represents an exciting opportunity to take a lead in the development and improvement of an existing soil hydrological classification (HOST) using advanced digital soil mapping techniques, with the goal of better predicting water flow through soils, and so enhance our ability to predict river flows and flood risks.

Our ideal applicant will already possess some digital soil mapping skills relevant to the prediction of soil hydrological properties and an awareness of recent developments in this field. They will have a background in either soil science or hydrology and be developing as an independent researcher in their own right through peer review publications and external funding applications. They will be willing to engage in interdisciplinary research, be an excellent team player and communicator.

The postholder must have a willingness to learn techniques associated with digital soil mapping and will therefore be expected to attend appropriate training courses to expand their knowledge to enable contribution to the development and implementation of digital soil mapping techniques within the Institute. This will be achieved by working in collaboration with existing members of staff and postgraduate students and will interact with elements of the Scottish Government Strategic Research Programme.

This post is fully-funded for three years in the first instance and comes with additional start up funding to allow for expenditure on equipment and training courses.

This post will be based at our Aberdeen site, although there may be a requirement to travel to our Dundee site on occasion. All individuals wishing to work within the UK must be entitled to do so before they can be employed.

Further information is available from [www.hutton.ac.uk/careers](http://www.hutton.ac.uk/careers) or, for informal enquires, contact Dr Allan

Lilly (email [allan.lilly@hutton.ac.uk](mailto:allan.lilly@hutton.ac.uk) ).

To apply please submit a covering letter and CV (including the names and addresses of 3 referees, one of which must be your current or most recent employer) by e-mail to [vacancies@hutton.ac.uk](mailto:vacancies@hutton.ac.uk) or by post to HR Office Aberdeen, Craigiebuckler, Aberdeen, AB15 8QH **by 18th May 2016.**

Please quote reference number Hutton-24-16 in all correspondence.

The James Hutton Institute

T: 0844 928 5428

Details at: <http://www.earthworks-jobs.com/water/hutton16041.html>

## **2. Graduate Assistantships in Watershed Science, Fluvial Geomorphology, and GIS**



**Missouri State**  
UNIVERSITY

Assistantships including stipend and full tuition waiver are available for students in the Master's degree program in Geospatial Science in the fields of physical geography (geomorphology, hydrology, and soils), environmental geology (geochemistry and karst), and GIS/remote sensing at

<http://geosciences.missouristate.edu/>

The Ozarks Environmental and Water Resources Institute and Department of Geography, Geology, and Planning have openings for teaching and research assistants for Fall 2016 to complete the following projects (<http://oewri.missouristate.edu/> )

- Assessment of engineered large wood structures to mitigate channel instability in Ozarks Rivers.
- Effect of forest management and prescribed burning on hydrologic processes, sedimentation, and channel morphology in Mark Twain National Forest, Missouri Ozarks.
- Water quality monitoring and BMP load reduction assessments for nutrients, bacteria, sediment, and other nonpoint pollutants in urban and mixed use watersheds using SWAT modeling.
- Spatial and geostatistical analysis of sediment/geochemical properties on urban- and mining-contaminated floodplains.
- Ozarks water atlas project- development and analysis of historical imaging data sets to evaluate land use and management effects on hydrological networks and water resources.

Interested students should contact:

Bob Pavlowsky, physical geography & fluvial geomorphology: [Bobpavlowsky@Missouristate.edu](mailto:Bobpavlowsky@Missouristate.edu)

Xiaomin Qiu, GIS & geostatistics: [Qiu@missouristate.edu](mailto:Qiu@missouristate.edu)

### 3. PhD position in marine geohazards



Sogn & Fjordane University College invites applicant with interests and skills in marine geosciences/ engineering geology to apply for a PhD-position on the project “Continental slope stability under a changing climate”. The PhD-candidate will follow an approved plan for a doctoral degree within a period of three years from 2016-2019 and the PhD degree will be awarded by UiT – The Arctic University of Norway.

Sogn & Fjordane University College with its 3,800 students and 330 employees can offer an exciting professional environment within higher education and research. The college has campuses in Sogndal and Førde, offering education in health and social care, sports, business administration, engineering and sciences, teacher education and social sciences.

Sogn & Fjordane University College has an active research group in glacial geology and geohazards in Sogndal, which the PhD student will be affiliated to. Close collaboration with the Centre of Arctic Gas Hydrate, Environment and Climate (CAGE) at UiT in Tromsø, Institute of Marine Sciences (ICM) in Barcelona and Centre for Marine Environmental Sciences (MARUM) in Bremen ensures that the PhD student will be part of an international research environment. Therefore, applicants will be expected to stay for periods at the collaborating institutions at UiT, ICM and/ or MARUM in relation to laboratory work and experiments.

#### Information and application

If you want more information about the position, please contact the project leader Dr. Denise Røther (phone: +47 96693575; [denise.christina.ruther@hisf.no](mailto:denise.christina.ruther@hisf.no) ).

The application must be submitted electronically via the application form available on [www.jobbnorge.no](http://www.jobbnorge.no)

All documentation that is to be evaluated must be certified and translated into English or a Scandinavian language.

Information and material to be considered during the assessment must be submitted by the stipulated deadline.

Details at: <http://www.earthworks-jobs.com/marine/hisf16041.html>

## Monthly R-factor and Conversion factors for different time resolutions

As a follow up and an advancement of the recently published Rainfall Erosivity Database at European Scale (REDES) and the respective mean annual R-factor map, the monthly aspect of rainfall erosivity has been added to REDES. Rainfall erosivity is crucial to be considered at a monthly resolution, for the optimization of land management (seasonal variation of vegetation cover and agricultural support practices) as well as natural hazard protection (landslides and flood prediction). We expanded REDES by 140 rainfall stations, thus covering areas where monthly R-factor values were missing (Slovakia, Poland) or former data density was not satisfactory (Austria, France, and Spain). REDES includes 1675 stations with R-factor values in European Union & Switzerland. The different time resolutions (from 5 to 60 min) of high temporal data require a conversion of monthly R-factor based on a pool of stations with available data at all time resolutions. The coefficients of different resolutions for monthly rainfall erosivity allow normalizing the monthly R-factor values to a common 30-min resolution for all the REDES stations.

### Calibration factors for different temporal resolutions (Annual basis)

The term 'calibration factor' is used below to represent this conversion between the R-factor at different resolutions and the R-factor at 30-min. The different time resolutions (from 5 to 60 min) of high temporal data require a conversion of monthly R-factor based on a pool of stations with available data at all time resolutions.

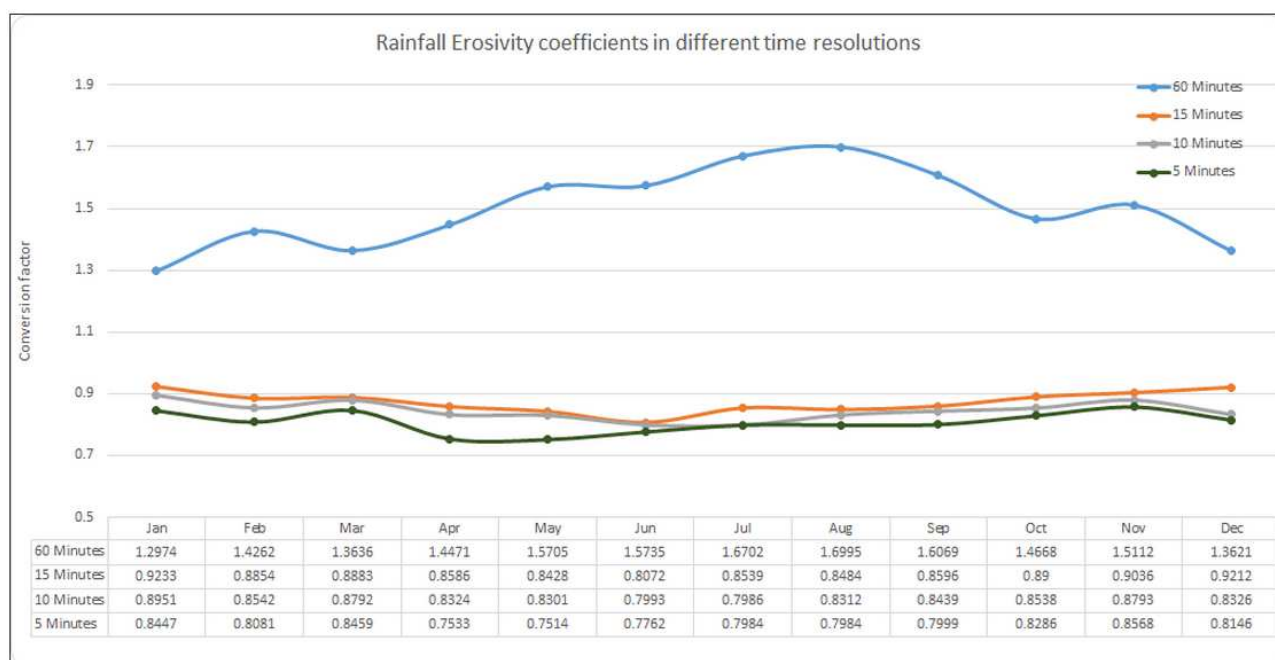
Resolutin of source data	Target resolution	Conversion factor
1-min	30-min	0.7496
5-min	30-min	0.7984
10-min	30-min	0.8205
15-min	30-min	0.8716
60-min	30-min	1.5597

### Monthly calibration factors for different temporal resolutions

The 'calibration factor' on monthly basis shows high variability. For example this factor using the 60-min data ranges from 1.2974 (January) to 1.6995 (August). For the 10-min data, the calibration factor ranges between from 0.7986 (July) to 0.8951 (January). (August). The smallest calibration factors are estimated in winter, while the largest ones are found. Compared with using one single calibration factor for the whole year,



the option to apply monthly calibration factors is recommended, as there is 25% variability in the monthly conversion factors.



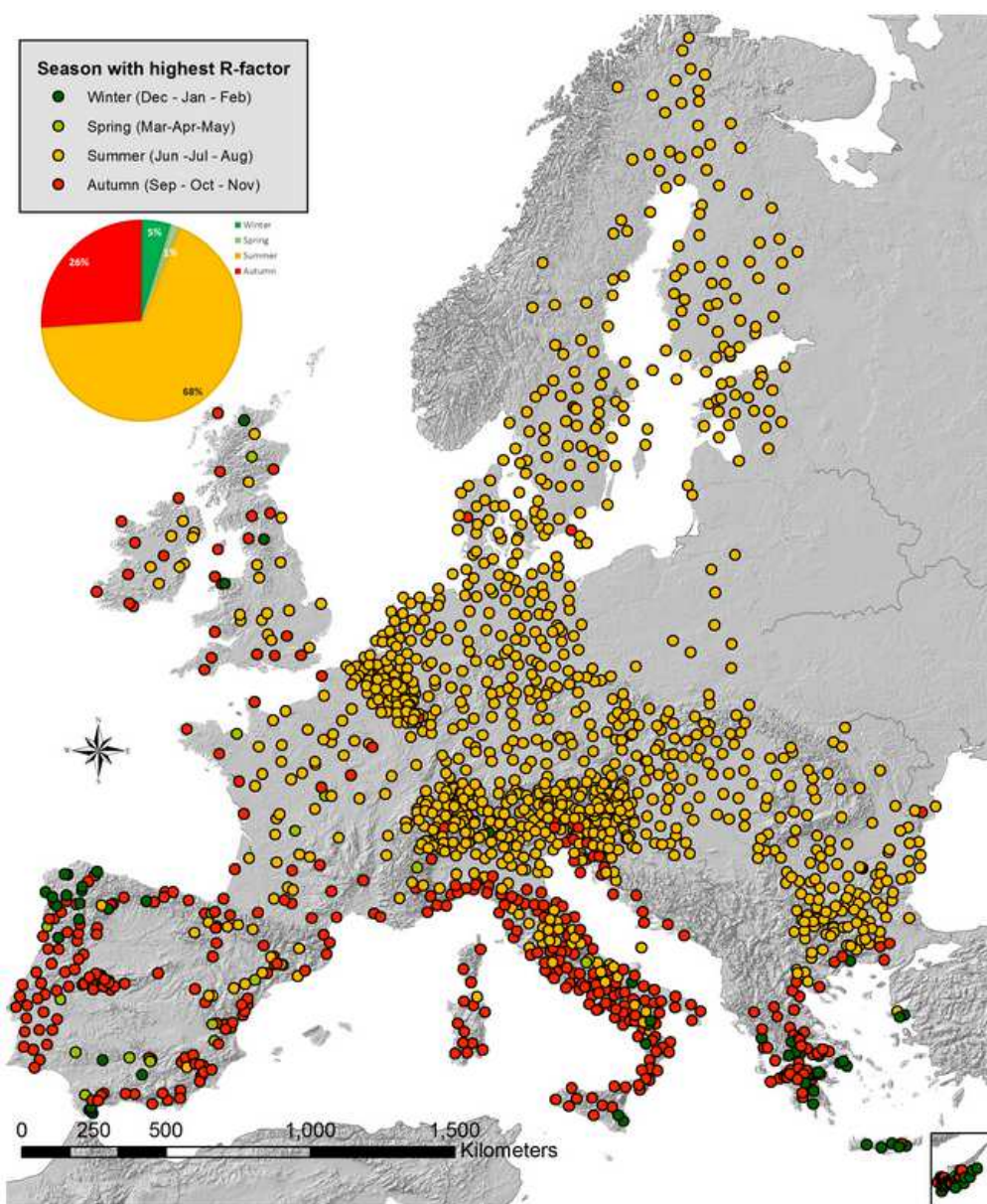
### Seasonal Rainfall Erosivity

Within Europe, geographic differences exist in the seasonal patterns of rainfall erosivity. The stations with the absolute largest R-factor value in a single month (for instance July, August, September or October) are located mostly in Italy and Slovenia. For each REDES station, the season (spring, summer, autumn, winter) with the largest R-factor has been selected (Figure below). For 94% of the REDES stations, the most erosive period is either summer (68%) or autumn (26%). For only 22 REDES stations, mainly located in South Spain and France, the most erosive period is spring.

The June to September period contributes to 53% of the annual rainfall erosivity in Europe, with different spatial and temporal patterns depending on the region. The R-factor shows the largest monthly values in autumn across most of the Mediterranean region, where the precipitation amount is generally larger in October–November and summers are frequently hot and dry. The R-factor is largest in summer in Central Europe, Northern Europe, Eastern Europe and the Alps. This pattern might have different explanations, as Central Europe is generally affected by large-scale extreme precipitation events in summer, while the Alps are usually affected by local summer thunderstorms and rain showers, due to the remarkable temperature gradients between hot and moist lowlands and cool and windy mountains. Similar patterns can be found in

the Carpathians and Eastern Europe. The Atlantic regions do not show distinctive patterns, probably because the monthly precipitation variability is smaller than in the continental regions, especially in the British Islands. Scandinavia shows higher variability in summer, but one should not forget that in winter, the precipitation events at high-latitudes are often in the form of snowfall and so we expect much fewer erosive events in winter compared to summer.

Monthly maps of rainfall erosivity in European Union & Switzerland have been developed and will be available soon.



Details at: <http://esdac.jrc.ec.europa.eu/themes/monthly-r-factor-and-conversion-factors-different-time-resolutions>

## Metadata for "Pan-European SOC stock of agricultural soils"

**Format:** Polygon cover (shape file)

**Fields:** a) [y2010] = Soil organic stock (t C ha<sup>-1</sup>) in the layer 0-30 cm at 2010 , b) [agr\_ha] = hectares under agricultural land use

**Projection:** ETRS\_1989\_LAEA\_L52\_M10

**Coverage:** pan-European scale (EU + Serbia, Bosnia and Herzegovina, Croatia, Montenegro, Albania, Former Yugoslav Republic of Macedonia and Norway)

**Notes:** values = 0 in the field[y2010] are units not simulated; the agricultural land use includes arable land, pasture and permanent croplands

**Methodology** - Metadata: Application of CENTURY model.

The future EU policy in agriculture will utilize SOC as indicator, both as a main parameter of soil quality and as a strategy to offset CO<sub>2</sub> emission by C sequestration. However a consistent picture of agricultural SOC stock is missing as well as tools to orient the future policymaker decisions. To fill this gap, the JRC developed a comprehensive modelling platform with comparable and harmonised European geographical and numerical datasets. We estimated a current top SOC stock of 17.63 Gt in EU agricultural soils, by an unprecedented model application running about 164,000 combination of climate, soil and land use/management.

A comprehensive model platform was established at a pan-European scale (EU + Serbia, Bosnia and Herzegovina, Croatia, Montenegro, Albania, Former Yugoslav Republic of Macedonia and Norway) using the agro-ecosystem SOC model CENTURY. The model was implemented with the main management practices (e.g. irrigation, mineral and organic fertilization, tillage, etc.) derived from official statistics. The model results were tested against inventories from the European Environment and Observation Network (EIONET) and approximately 20,000 soil samples from the 2009 LUCAS survey, a monitoring project aiming at producing the first coherent, comprehensive and harmonized top-soil dataset of the EU based on harmonized sampling and analytical methods. A detailed explanation of the methodology and the platform of simulation developed could be found in: Lugato E., Panagos P., Bampa, F., Jones A., Montanarella L. (2014). A new baseline of organic carbon stock in European agricultural soils using a modelling approach. *Global change biology*. 20 (1), pp. 313-326.

This work is part of the CAPRESE project (Carbon PREServation and SEquestration in agricultural soils), an administrative arrangement between the JRC and the Commission - DG AGRI undertaken to develop policies addressing climate change soil-related aspects in European agriculture.

Available at: <http://esdac.jrc.ec.europa.eu/content/pan-european-soc-stock-agricultural-soils>



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