



# ABSTRACT BOOK



## 9<sup>th</sup> International Soil Science Congress on "The Soul of Soil and Civilization"

Soil Science Society of Turkey Cooperation with  
Federation of Eurasian Soil Science Societies

14 - 16 October 2014, Side, Antalya / Turkey

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# PREFACE I

Dear Colleagues,

It is our great pleasure to welcome you to the 9<sup>th</sup> International Soil Science Congress on “The Soul of Soil and Civilization” in Antalya, Turkey. After the great success of the 8<sup>th</sup> International Congress on “Land Degradation and Challenges in Sustainable Soil Management” held in Çeşme, İzmir, Turkey in May 2012, scientists from over 66 countries have expressed their interest in participating in this International Soil Science Congress (ISSC) which was organized by the Soil Science Society of Turkey (SSST) collaborating with the Federation of Eurasian Soil Science Societies (FESSS).

This congress continues its tradition of being the premier forum for presentation of research results and experience reports on leading edge issues of soil science, including latest and technological developments for soil science, multidisciplinary approach to soil science, experiments, applications, surveys and theory. The mission of the congress is to share novel access control solutions that fulfill the needs of heterogeneous applications and environments and identify new directions for future research and development. ISSC gives researchers and practitioners a unique opportunity to share their perspectives with others interested in the various aspects of soil science. I hope that these proceedings will serve as a valuable reference for security researchers and developers.

The scientific programme was carefully chosen and many distinguished presenters have sent their contributions to present the most recent achievements and effective policies in mitigating the soil degradation. Highly competent scientists from five continents will present and give an overview of fundamental and applied aspects of soil science. The Congress is open to educators, NGO’s and policy-makers in order to be informed by experts in the field of application of a series of innovative measures for soil science. I also encourage participants to attend the keynote and invited talk presentations. These valuable and insightful talks can and will guide us to a better understanding of soil management;

- Stewardship to land of the Plenary lecture I, Professor Yakov Pachepsky (who is currently at USDA, ARS, Environmental Microbial and Food Safety Lab)
- Soils Sustaining Life of the Plenary lecture II, Professor Ahmet Mermut (who is currently at President, European Confederation of Soil Science Societies)

I hope that you will find this congress interesting and it will provide you with a valuable opportunity to share ideas with other researchers and practitioners from institutions around the world. I would like to express my sincere thanks to all members and reviewers who helped to organise this great event. Finally, I thank the hosting hotel, our sponsors, and our generous corporate supporters.

I hope that you will enjoy your stay in Turkey and have a memorable time during the congress.



**Dr. Ridvan KIZILKAYA**

The President of the Organizing Committee

## PREFACE II

This book contains the abstracts of papers selected for presentation at the 9<sup>th</sup> International Soil Science Congress on “The Soul of Soil and Civilization” Antalya-Turkey, October 14-16, 2014. Except of 2 abstracts invited presentations included in the beginning of the book, all were voluntary submissions for oral or poster sessions. In preparation for the congress, the response vastly exceeded our expectations: we received more than 847 voluntary submissions from 61 different countries of the world. The abstracts were sent to the respective ISSC scientific committee members for their scrutiny and decision on their acceptability for oral or poster presentations. The final selected abstracts were then edited for uniformity in length (maximum 400 words), presentation format, and language.

The abstracts in this book cover fundamental aspects, technical approaches and the related areas of soil science in the following topic categories;

- I. Soil Biology and Biochemistry
- II. Soil Physics & Mechanics
- III. Soil Chemistry
- IV. Soil Erosion & Conservation
- V. Soil Fertility
- VI. Soil Pollution & Remediation
- VII. Soil Hydrology
- VIII. Soil Management & Reclamation
- IX. Soil Health & Quality
- X. Soil Genesis, Classification & Mapping
- XI. Soil Mineralogy & Micromorphology
- XII. Geostatistics, Remote Sensing & GIS
- XIII. Plant Nutrition & Fertilization

This book will remain the only source of reference. Some selected presentations by the scientific committee will be developed as full-length journal articles for the special issues of Eurasian Journal of Soil Science, Kazakh Journal of Soil Science, Soil - Water Journal and The Journal of Ege University Faculty of Agriculture. But, for the majority of the full-length articles that may not be published in this journal, will be published after the congress. The proceedings book will also be made available to congress participants as a CD, and the full-length articles will be posted on the congress web-site, and retained for several months after the congress. This book represents the collective endeavor of hundreds of researchers, students and others interested in soil science and natural resources around the world. We trust that it will be useful as a source for the state of knowledge and practice of soil science.

Finally, we sincerely thank all the invited speakers, scientific committee members, authors and participants, without their cooperation and timely inputs this congress would not have been possible successfully.



**Dr. Coskun GÜLSER**  
Congress Secretary

## PREFACE III

Civilization is often influenced by the soil quality and the kinds and quality of plants and animals grown on them. As one of the most important natural resources, soils have almost led great civilizations. While soil destruction or mismanagement was associated with the downfall of some civilizations, good soils had helped to build them.

The Soil Science Society of Turkey (SSST) was founded by the leadership of Prof. Dr. Kerim Ömer Çağlar in 1964. The objectives of the SSST are to bring people together to share and support their knowledge, experiences in the soil science. The SSST as a member of the International Union of Soil Science has more than 850 members and organized 21 scientific meetings, national and international levels biennially. The International Symposium series was started with the first meeting "M. Şefik Yeşilsoy International Symposium on Arid Region Soil" organized by SSST in 1998. Since then, the SSST has been struggling with national and worldwide problems faced by the producers and researchers through 6 international scientific meetings organized in every two years. The goal of these symposiums stimulates international scientific interactions in soil science. 9<sup>th</sup> International Soil Science Congress on "The Soul of Soil and Civilization" in Antalya-Turkey, October 14-16, 2014.

SSST Board believes that the oral and poster presentations, discussions and recommendations given during this congress will support valuable information to soil scientists for their future activities. We would like to give special thanks to Organizing and Scientific committee for their excellent efforts to develop this Congress and Sueno Hotel, for hosting the Congress and for the immense facilities they have.

As President of Soil Science Societies (SSST), I am delighted to invite you to Istanbul to participate in the 5<sup>th</sup> EUROSOIL International Congress that will be held between 17 July and 22 July 2016. We are looking forward to receive participants from all over the world in Istanbul and to help us making all together the congress an unforgettable scientific event and feel the fascinating atmosphere of this world metropolis.



**Dr. Ayten NAMLI**

President, Soil Science Society of Turkey  
President, Federation of Eurasian Soil Science Societies

Up to now, all these international meetings organized by SSST are given with date and locations as follows;

### **8<sup>th</sup> International Soil Science Congress on "Land Degradation and Challenges in Sustainable Soil Management"**

May 15 – 17, 2012  
Çeşme, İzmir, Turkey



**7<sup>th</sup> International Soil Science  
Congress on “Management of Natural Resources to  
Sustain Soil Health and Quality”**

May 26 – 28, 2010  
Samsun, Turkey



**6<sup>th</sup> International Meeting on  
“Soil Fertility and Agroclimatology”**

29 October-1 November, 2008  
Kuşadası, Aydın, Turkey

**5<sup>th</sup> International Soil Meeting (ISM) on “Soil  
Sustaining Life on Earth, Managing Soil and  
Technology”**

May 22-26, 2006  
Şanlıurfa, Turkey



**4<sup>th</sup> International Soil Congress (ISC) on “Natural  
Research Management for Sustainable  
Development”**

June 7-10, 2004  
Erzurum, Turkey

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## CONTENTS

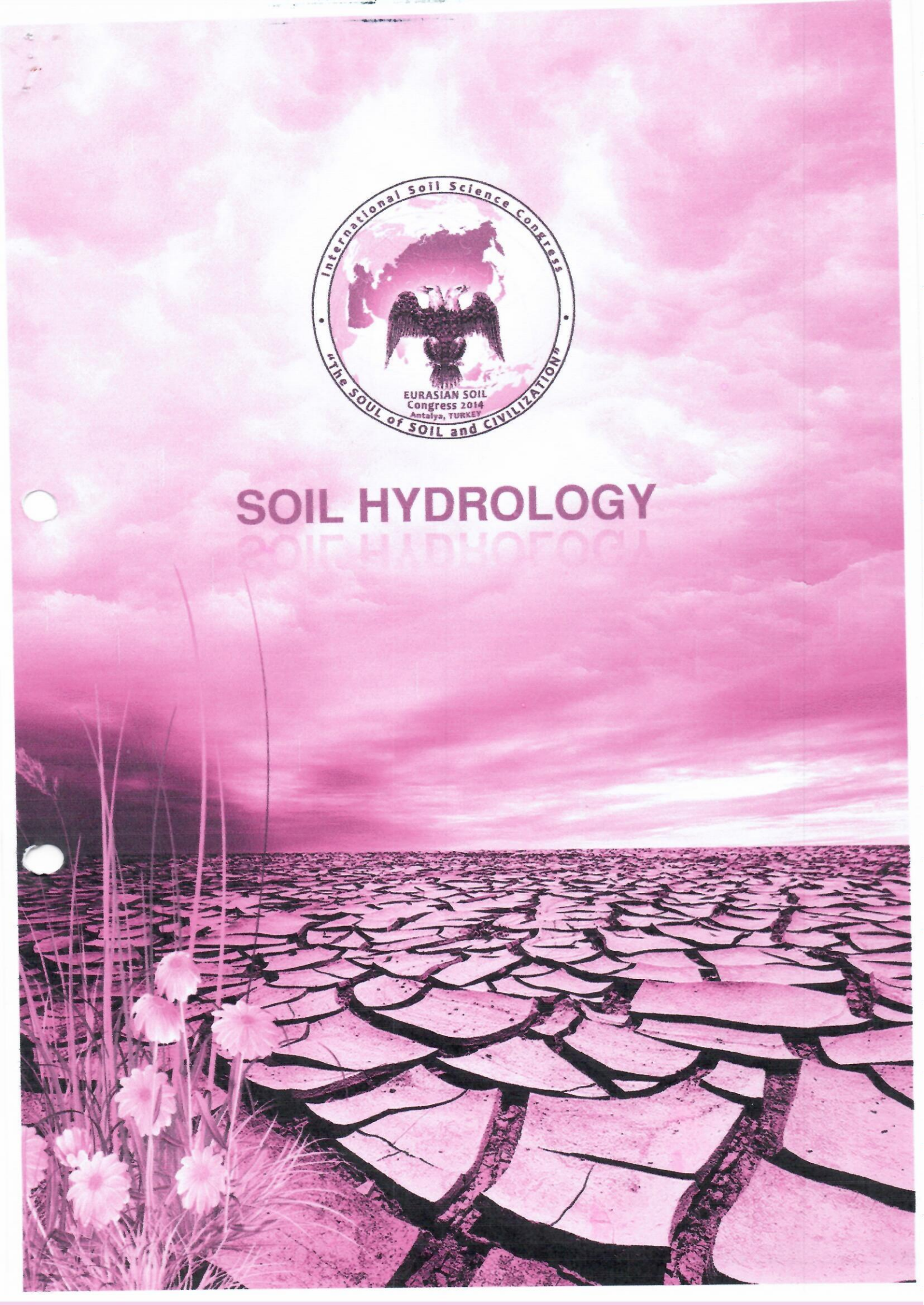
<b>Table of Sections</b>	<b>Pages</b>
Key Notes	1-4
Soil Biology & Biochemistry	5-84
Soil Physics & Mechanics	85-148
Soil Chemistry	149-198
Soil Erosion & Conservation	199-246
Soil Fertility	247-310
Soil Pollution & Remediation	311-406
Soil Hydrology	407-426
Soil Management & Reclamation	427-482
Soil Health & Quality	483-516
Soil Mineralogy & Micromorphology	517-526
Soil Genesis, Classification & Mapping	527-560
Geostatistics, Remote Sensing & GIS	561-610
Plant Nutrition & Fertilization	611-712





# SOIL HYDROLOGY

SOIL HYDROLOGU







9<sup>th</sup> International Soil Science Congress on  
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14 - 16 October, 2014  
Side, Antalya/ Turkey



## The quality of water used for irrigation of agricultural soil in the basin of river Kolubara

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### Abstract

This paper presents the results of testing the quality of water for irrigation during the growing seasons 2012/2013, in the basin of the Kolubara River, from Beloševac to Obrenovac, in three monitoring cycles on 16 selected sites belonging to agricultural area under irrigation. The determination of quantity of trace elements and heavy metals Cr, Ni, Pb, Cu, Zn, Cd, B, As, Fe, Hg was performed during mentioned period. The content of trace elements and heavy metals in the samples of water is generally below the MAC. In the samples no. 2, 3, 4, in the second series of sampling was recorded higher content of As above the MAC, which can be explained by drought, low water levels and potential anthropogenic pollution. In the other two cycles of monitoring are not registered concentrations of tested elements above MAC. Based on the presented and analyzed results of testing of hazardous and harmful substances in the water for irrigation of the Kolubara River, it can be concluded that it can be used for irrigation of crops and soil with restrictions and frequent quality checks during the summer months and control potential sources of pollution from industry.

**Key words:** Irrigation water, soil, harmful substances

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