EUROPEAN COMMISSION
JOINT RESEARCH CENTRE
Directorate D – Sustainable Resources
Land Resources Unit (D3)

EUROPEAN SOIL PARTNERSHIP

EUROPEAN NETWORK OF SOIL AWARENESS – JRC WORKSHOP

GIVING SOILS A VOICE 2017

Communication and education activities

Giving Soils a Voice

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GIVING SOILS A VOICE 2017

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Szent Istvan University, Hungary

International Decade of Soils 2015-2024

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EUROPEAN SOIL PARTNERSHIP

Communication and education activities

- Posters, calendars, soil monoliths
- Open days, researchers night
- Summer schools, contest
- Exhibitions in public museums

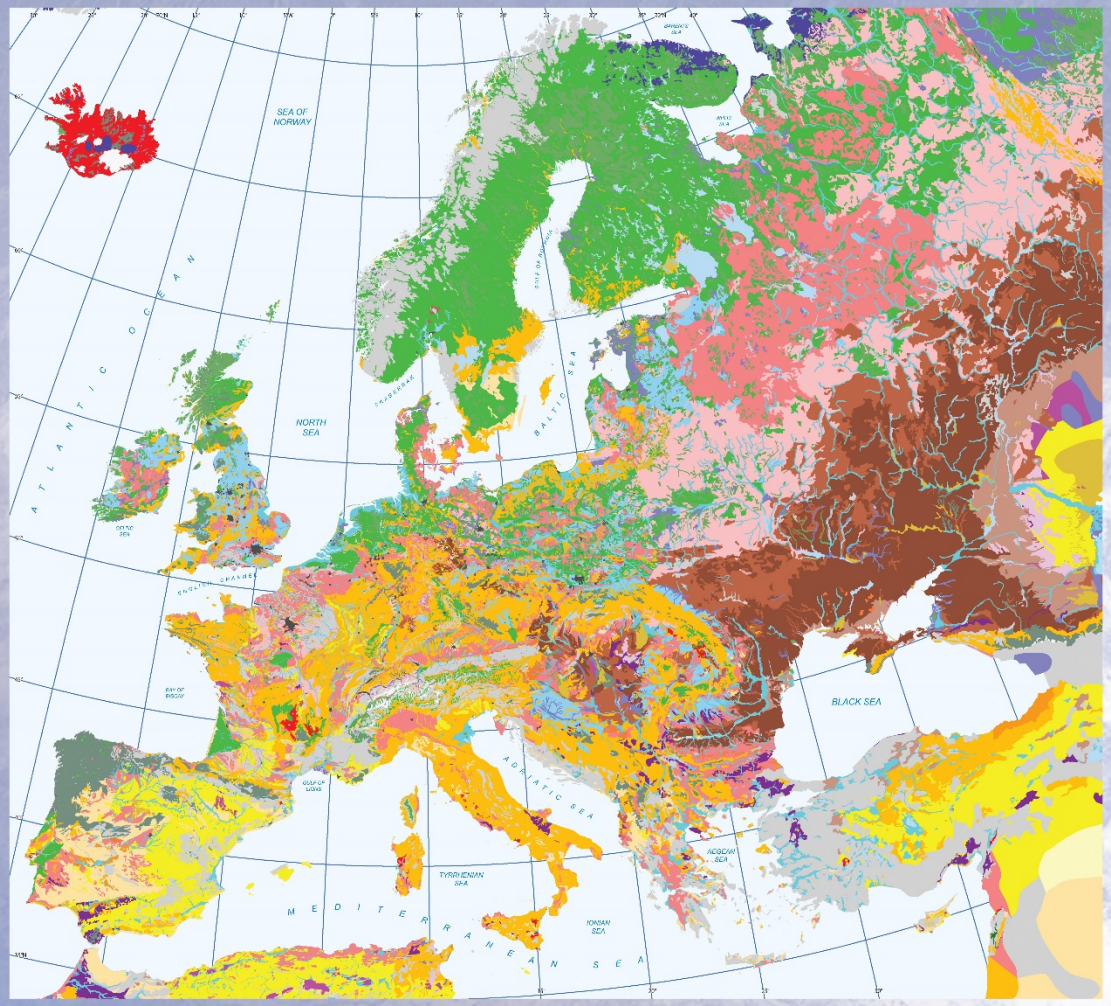
International Decade of Soils 2015-2024

Posters, calendars, soil monoliths

General public, professional

THE MAJOR SOIL TYPES OF EUROPE

Supporting the European Union's Thematic Strategy for Soil Protection



Albeluvisols

Acid soils with bleached topsoil material tonguing into the subsoil

Andosols

Young soils developed in porous volcanic deposits

Arenosols

Soils developed in quartz-rich, sandy deposits such as coastal dunes or deserts

Calcisols

Soils with significant accumulations of calcium carbonate

Cambisols

Young soils with moderate horizon development

Chernozems

Dark, fertile soils with organic-rich topsoil

Cryosols

Soil influenced by permafrost or cryogenic processes

Fluvisols

Stratified soils, found mostly in floodplains and tidal marshes

Gleysols

Soils saturated by groundwater for long periods

Gypsisols

Soils of dry lands with significant accumulations of gypsum

Histosols

Organic soils with layers of partially decomposed plant residues

Kastanozems

Soils of dry grasslands with topsoil that is rich in organic matter

Leptosols

Shallow soils over hard rock or extremely gravelly material

Luvisols

Fertile soils with clay accumulation in the subsoil

Phaeozems

Dark, moderately-leached soils with organic-rich topsoil

Planosols

Soils with occasional water stagnation due to an abrupt change in texture between the topsoil and the subsoil than impedes drainage

Podzols

Acid soils with subsurface accumulations of iron, aluminium and organic compounds

Regosols

Young soils with no significant profile development

Solonchaks

Soils with salt enrichment due to the evaporation of saline groundwater

Solonetz

Alkaline soils with columnar structure, shaped aggregates and a sodium-rich subsurface horizon

Stagnosols

Soils with stagnating surface water due to slowly permeable subsoil

Technosols

Soils containing significant amounts of human artefacts or sealed by impermeable material

Umbrisols

Young, acid soils with dark topsoil that is rich in organic matter

Vertisols

Heavy clay soils that swell when wet and crack when dry

What is soil?

Soil is composed of mineral particles, organic matter, water, air and living organisms. It is an extremely complex, variable and living medium. Soils are the result of six main factors: parent material (rocks and sediments), climate, position in the landscape, vegetation, living creatures, time and the effect of people. The patterns shown on the map reflect variations in the intensity of the various soil forming factors from one region to another and explain why there are so many different types of soils in Europe. From the photographs on this chart, it is clear that soils have distinct colours which are due to the varying proportions of organic and mineral matter. If the soil is rich in organic matter then the soil is dark and vice versa. If the soil is rich in a specific mineral, such as iron oxide (red) or calcium carbonate (white), then the soil will reflect that colour.

Soil functions

Soil is defined as the uppermost layer of the Earth's crust and is the interface between the ground, air and water. Soil performs many vital functions: food and other biomass production, storage, filtration and transformation of many substances including water, carbon, nitrogen. Soil has a role as a habitat and gene pool, serves as a platform for human activities, landscape and heritage and acts as a provider of raw materials. Given the slow rate of soil forming processes, soil must be considered as a non-renewable resource and highly susceptible to land degradation pressures. Given the life-critical, socio-economic and environmental importance of soil functions, the European Commission has adopted a Soil Thematic Strategy with the objective to protect soils across the EU.

http://ec.europa.eu/environment/soil/

The Soil Map of Europe

The Soil Map of Europe shown is the centre of this poster is derived from the 1:1,000,000 scale Soil Geographical Database of Eurasia. The database is the result of a collaborative project, involving all the European Union Member States and neighbouring countries through participation in the European Commission Joint Research Centre's European Soil Bureau Network (ESBN). The map shows a simplified representation of the diversity and geographical variability of the soil cover across Europe. The underlying database has been processed to extract the most dominant soil type for a particular unit of landscape. Each colour represents a specific type of soil (i.e. WRB Reference Group), examples of which are presented on this poster.

For more information on this map and how to find out more information about the soils of your area, please visit the JRC SOIL Action web site at:

http://eusoils.jrc.ec.europa.eu/

WRB Reference Soil Groups

The World Reference Base for Soil Resources (WRB) uses objective criteria derived from both field inspections and laboratory analysis to systematically classify different soil types into one of thirty two Reference Groups with specific characteristics denoted through the use of prefixes and suffixes. The WRB is meant to serve as a common denominator through which national soil classification systems can be correlated and correlated.

http://www.fao.org/ag/AGL/agll/wrb/

THE JOINT RESEARCH CENTRE

The mission of the JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies.

As a service of the European Commission, the JRC functions as a reference centre of science and technology for the Union. Close to the policy-making process, it serves the common interest of the Member States while being independent of special interests, whether private or national.

Soil Action
Land Management and Natural Hazards Unit
Institute for Environment and Sustainability
Joint Research Centre
European Commission
Via Fermi
21020 Ispra (VA)
Italy

http://eusoils.jrc.ec.europa.eu/

JRC EUROPEAN COMMISSION

ies Institute for Environment and Sustainability

European Soil Bureau Network


International Summer schools, soil contests
FOR STUDENTS AND YOUNG PROFESSIONALS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International Summer schools, soil contests
FOR STUDENTS AND YOUNG PROFESSIONALS

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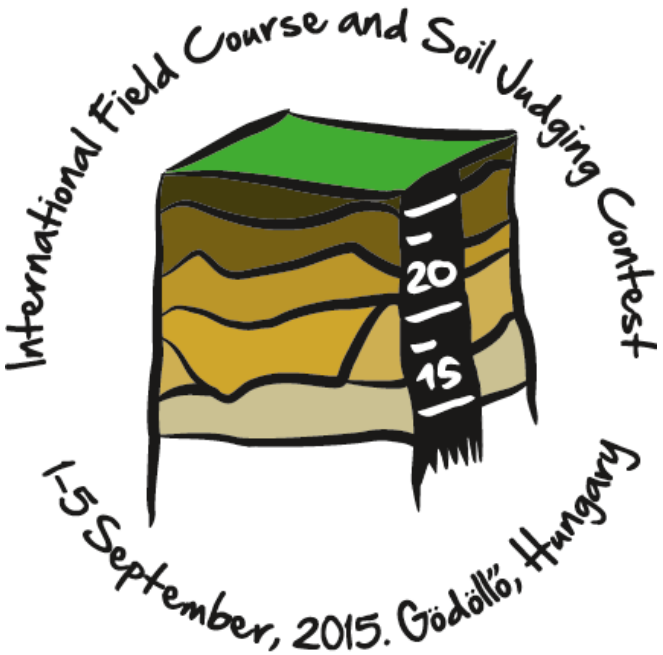
FUBU

2006

International Field Course and Soil Judging Contest

A celebration of the International Year of Soils

September 1-5, 2015, Hungary



2015
International
Year of Soils

Training: 2 half days indoor - overview of international standards of soil description and classification (WRB, Soil Taxonomy)
2 half days in the field in Gödöllő (University farm and forest)
2 days in countryside locations with various landscapes and soils
Instructors: International experts and coaches
1 day contest – team and individual contests


KITE
USDA
syngenta
SGS
INTERNATIONAL
FIELD COURSE AND
SOIL JUDGING
CONTEST
2015


KITE


INTERNATIONAL
FIELD COURSE AND
SOIL JUDGING
CONTEST


KITE
KITE

Important numbers

- **120 people** (including instructors, and local experts)
- **28 countries** (*Afghanistan, Albania, Australia, Bosnia and Herzegovina, Brazil, Croatia, Armenia, Germany, Hungary, Japan, Kenya, Kosovo, Laos, Montenegro, Nigeria, Philippines, Rwanda, Serbia, South Africa, South-Korea, Spain, Sudan, Tajikistan, Tunisia, Turkey, Uganda, United Kingdom, USA)*
- **16 teams** (national and multinational)
- **14 soil profiles** (Anthrosols, Calcisols, Chernozems, Gleysols, Leptosols, Luvisols, Regosols, Solonetz and Vertisols)

International Field Course and Soil Judging Contest
1-5 September, 2015. Gödöllő, Hungary

2015
International
Year of Soils



Team contest:

1. **Hakuna Matata, Africa:**
Ampurire Amias Aryampa (Uganda)
Osman Gaafer Abdelgufar (Sudan)
Nmerem Chukwuemeka (Nigeria),
Brenton Mabuza (South Africa)
Coach: Cornie van Huyssteen (South Africa)

Individual contest:

1. Kristen Pegues, USA

Overall contest:

1. **Team USA**,
Stephen Geib,
Kristen Pegue,
Erin Bush,
Adrienne Nottingham
Coach: Joey Shaw

http://soiljudging-iys2015.com/

https://www.facebook.com/soiljudging2015

RIO18
21st World Congress
of Soil Science

Riocentro August | 12 - 17

Expedition to the Oldupai Gorge
the cradle of mankind

Kenyatta University, Kenya, Sokoine University, Tanzania, **IUSS**

27 November- 2 December 2015

„Presidency soil” posters, monoliths

The European Soil Bureau Network and the Hungarian Soil Science Society, under the auspices of the 2011 Hungarian Presidency of the European Union, is proud to present,

The Soils of Hungary

Soils are amongst the most precious natural resources of Hungary. The favourable landscape, climate and soil conditions allowed the original Hungarians to settle in the Carpathian Basin. When looking at the soil map of Hungary (left), the various colours reflect how differences in environmental factors have determined the development of the soil cover.


Luvisol


Cambisol


Chernozems


Fluvisol


Arenosol


Solonetz

The main soils of Hungary (see map above)

In hillier or mountainous areas, higher precipitation and lower temperatures lead to the development of soils under forest vegetation. These fertile soils, known as Luvisols, were heavily influenced by percolating water which led to the accumulation of clay in the subsoil. In the area between the mountains and the Hungarian Great Plain, young soils without distinct profile development are found (Cambisols). In lowland areas, one can find dark Chernozems, the most fertile soil of Hungary that supports the country's agricultural production (see adjacent poster for more details). Soils in river valleys that have developed on stratified sediments and are called Fluvisols. Arenosols, soils that have developed on windblown sands deposited after the end of the last ice age, are extensive in certain parts of the country. In certain situations, ground water containing soluble salts can be found close to the surface. If evaporation is higher than precipitation, then salt-affected soils such as Solonchaks and Solonetzs can be found.

Use

The soils of Hungary have been used very intensively throughout history for the cultivation of crops, for animal grazing and supporting woodlands for construction material. Currently, 48% of land is used for crops (mostly wheat and corn), 21% are forests, 8% are grasslands and 20% is uncultivated.

Issues

The major limitation to agriculture in Hungary is precipitation. Climate change models predict that Hungary will experience extreme precipitation events in the future. The greatest challenge is to store rainfall within the soil through effective soil management practices. Such techniques will control erosion, minimise the loss of topsoil and maintain or even enhance organic carbon and the bio-diversity levels of the soils.

The Hungarian Soil Science Society (Magyar Talajtani Társaság) serves as common forum for Hungarian soil scientists in academia, research and practice. http://www.soil.hu/

European Soil Bureau Network

Soil performs many vital functions that are worthy of protection because of their socio-economic as well as environmental importance. For this reason, the European Commission has adopted a Soil Thematic Strategy with the objective to protect soils across the EU. For more information, please visit http://ec.europa.eu/environment/soil/index_en.htm

Located in Ispra (Italy), the SOIL Action of the JRC's Institute for Environment and Sustainability undertakes research to support European Union strategies and policies that are relevant to soil resources in the EU and beyond. For more information on the IES or specifically soil related activities please visit either : http://eusoils.jrc.ec.europa.eu/ or http://ies.jrc.ec.europa.eu

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The Soils of Hungary

Soils are among the most precious natural resources of Hungary. The favourable landscape, climate and soil conditions allowed the original Hungarians to settle in the Carpathian Basin. The most fertile soils are the dark Chernozems, that have developed predominantly in lowland areas in loess and loess-like sediments under ancient grasslands. They cover 21% of Hungary.

A highly productive soils that is used for agriculture, Chernozems have a deep, dark, surface horizon (0 – 50 cm in the photograph) that is rich in organic matter. They carry favourable physical chemical properties, such as a good granular structure, high porosity, good infiltration and water storage and nutrient holding capacity. These characteristics ensure good yields for almost any crop type that is grown in them. The only limitation to agricultural production is the availability of water. The major crops grown on Chernozems are winter wheat and corn. A typical Chernozem profile would exhibit 100-150 cm deep topsoil that is soft and rich organic matter, overlaying a subsoil containing calcium carbonate rich parent material. There is usually a transitional horizon in between the two.

Chernozems are sensitive to mismanagement and can lose several of the highly sought after properties mentioned above if care is not taken. Compaction, structural degradation and erosion are the most common issues. Compacted soils have reduced porosity and infiltration causing increased runoff, erosion and less storage of soil moisture. With appropriate soil management practices, the organic carbon content and the bio- diversity of the soils can be maintained or even enhanced.

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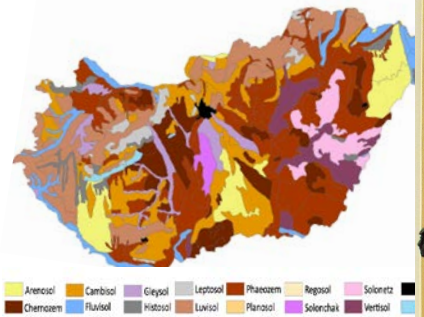
The European Soil Bureau Network and the Hungarian Presidency

The Soils



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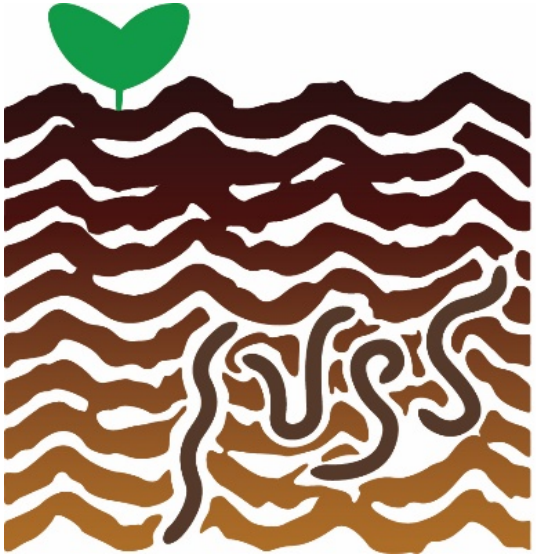
AZ ÉLTETŐ TALAJ

MISKOLCI EGYETEM
UNIVERSITY OF MISKOLC
INSTITUTE FOR ECOLOGICAL SUSTAINABLE DEVELOPMENT
HERMAN OTTÓ MÚZEUM
PANNON-TENGER

THE LIVING SOIL

For the local general public

YOU AND THE SOIL



International Decade of Soils
2015-2024

Giving Soils a Voice

Giving Soils a Voice

On their Own Voice !