



HOT NEWS

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HOT NEWS

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CONTENTS

The WASWAC 4th International Youth Forum on Soil and Water Conservation (IYFSWC)	01-03
2024 Application for International Students of China Institute of Water Resources and Hydropower Research	04-08
Soil Bulk Density Assessments	09-12
Sign the Soil Mission Manifesto	13-14
Chinese prosecutors target Yellow River Protection in New Initiative	15

Editor: Pengfei DU

The WASWAC 4th International Youth Forum on Soil and Water Conservation (IYFSWC)



TIME & VENUE

September 21-23, 2024, Shenyang Agricultural University, Shenyang, China

THEME

Bringing Youth Together - Leading the Future of Soil and Water Conservation

TOPICS

Soil and water conservation under climate change

Soil erosion mechanisms and modeling

Evaluation of soil erosion at regional scale

New technology of soil and water conservation

Soil and water conservation in production and construction projects

Intelligent soil and water conservation

Soil and Water Conservation Policy, Education and Popularization of Science

PROGRAM

Plenary Lectures by Keynote Speakers

Oral and Poster Sessions

Field Excursion

Special Activities for the Youth

Outstanding Youth Paper Evaluation

KEY DATES

Registration Opening	March 1, 2024
Abstract and registration form Submission Deadline	March 31, 2024
Outstanding Youth Paper Application (with full paper inclusive) Deadline	April 30, 2024

◇ Participants who do not want to apply for the Outstanding Youth Paper, do not need to submit full paper

◇ Abstract and registration form Template can be downloaded in :

<http://www.waswac.org.cn/waswac/uploadfile/2024/03/06/20240306142112517.doc>

Or scan the following QR code:



INFORMATION

<http://www.waswac.org.cn/waswac/LatestNews/webinfo/2024/01/1707278857530013.htm>

The Forum special website will be available soon.

Beautiful Shenyang:



2024 Application for International Students of China Institute of Water Resources and Hydropower Research

GRADUATE EDUCATION

IWHR started its graduate education in the 1950s and has excellent research facilities and equipment, a large number of cutting-edge research projects, adequate research funding, numerous literature resources, a top-notch team of graduate supervisors (257 master's supervisors and 127 doctoral ones). After more than 6 decades of exploration and development, IWHR has established a complete and unique system of graduate education.



DEGREE PROGRAMS IN ENGLISH

8 programs for master's degree and doctoral degree:

- ◇ Geotechnical Engineering
- ◇ Hydrology and Water Resources
- ◇ Hydraulics and River Dynamics
- ◇ Hydraulic Structure Engineering
- ◇ Hydraulic and Hydropower Engineering
- ◇ Hydro-Environment
- ◇ Hydro-informatics
- ◇ Water Disaster and Security

Duration of Study

Standard duration 3 years for master's degree and 4 years for doctoral degree.



GENERAL INFORMATION

Application is open only to non-Chinese citizens who are in good health.

Educational Background and Age Limit

The applicant for a master's program must be under the age of 35 and has a bachelor's degree.

The applicant for a doctoral program must be under the age of 40 and has a master's degree.

Language Requirements

- ◇ Graduates from universities of English-speaking countries;
- ◇ Graduates from universities where English is the official language;
- ◇ IELTS: overall grade of 6.0 or above;
- ◇ TOEFL: overall score of 80 or above.

FEES

Application Fee: Free in 2024;

Annual Tuition: CNY 26,000-CNY 39,000;

Annual Accommodation: CNY 24,000;

Annual Insurance: CNY 800.



SCHOLARSHIPS

IWHR Scholarships for International Students

In 2024, scholarships of up to CNY 113,600 per year are available for outstanding applicants, including all or part of the following items:

- ◇ Waiver of the fees of tuition, accommodation and medical insurance;
- ◇ Living stipend of up to CNY 49,800 per person per year.

Category	Scholarship Grade	Waiver of Tuition	Waiver of Accommodation	Waiver of Medical Insurance	Living Stipend	Total
Master	I	26000	24000	800	38400	89200
	II	26000	24000	800	19200	70000
	III	26000		800		26800
Ph.D.	I	39000	24000	800	49800	113600
	II	39000	24000	800	24900	88700
	III	39000		800		39800

Unit: CNY (1 USD = 7.3 CNY), in Nov.2023



HOW TO APPLY

Application Methods

Applicants for academic degree programs shall submit application documents to graduateoffice@iwhr.com.

Required Application Documents

See details at http://gs.iwhr.com/skyyjsy/en/Admission/How/A06110303index_1.htm

Important Dates

Application Deadline:

Applicants for academic degree programs shall submit their acceptable application materials before **31st May 2024**.

Admission Notice Time:

Between **10th June and 15th July 2024**.

Beginning of the Semester:

In early September 2024(See the specific date on the admission notice).

CONTACT US

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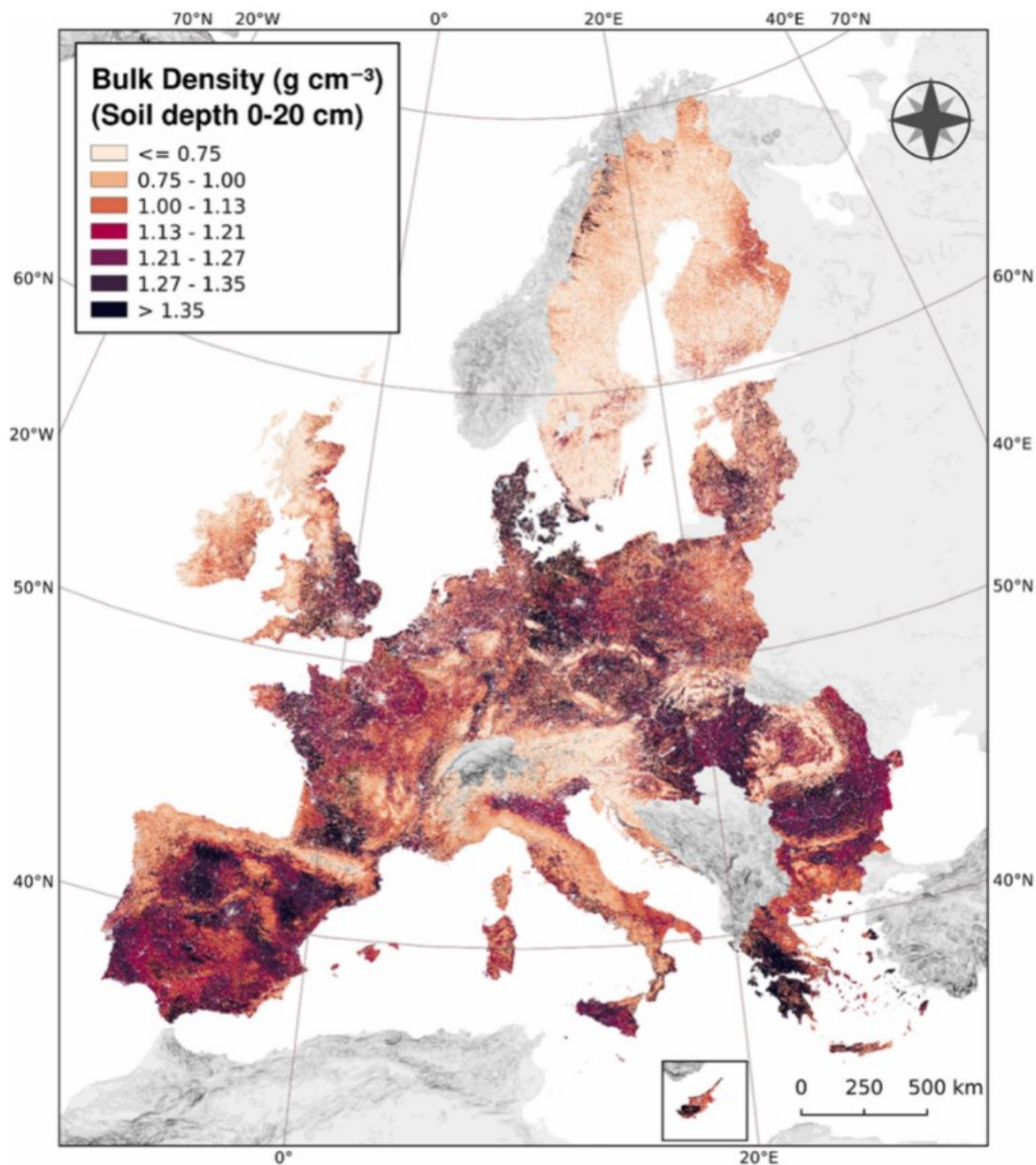
E-mail: graduateoffice@iwhr.com.



Beautiful Beijing



Soil Bulk Density Assessments



Bulk density is an important parameter for understanding the physical, chemical and biological soil properties. Dry bulk density and total porosity are the most frequently used indicators to characterize the state of compactness of a topsoil.

Accurate bulk density data is important for

the determination of soil porosity and soil moisture. Bulk density is inversely related to soil porosity which shows the space left in the soil for air and water movement. Bulk density is used as a proxy indicator to determine the soil compaction stress in topsoils. In addition, the bulk density can be determinant for

penetration stress and therefore influence the availability of fertilizers to plants and their efficiency. Accurately measuring bulk density is crucial for refining estimates of soil organic carbon stocks and their changes in time and space. The precise determination of soil bulk density holds particular significance in carbon crediting schemes, where farmers receive credits based on the absolute amount of carbon sequestered. However, it is important to acknowledge that measurements of soil bulk density are prone to random errors, which can reach up to 40%. Moreover, in soils with high rock fragment content (> 30 vol%), this error is further exacerbated, reaching up to 100% if gravel content is not taken into account. Bulk density is calculated as the ratio of dried soil mass to its volume (Blake, 1965; Hillel, 1980):

$$\rho_b = M_s / V_s$$

ρ_b is estimated as Mg m^{-3} while M_s is the weight (Mg) and V_s the volume of the sampled dry soil (in m^3). In many other cases bulk density is reported as g cm^{-3} .

Data inputs: The LUCAS topsoil survey includes ~20,000 points in the EU with measured physical, chemical, and biological properties. The LUCAS 2018 was the 3rd topsoil sampling campaign following the 2009 and 2015. The LUCAS 2018 soil introduced new modules for analysis in a limited number of

samples due to budget restrictions. Those new modules include the assessment of soil biodiversity, pesticides residues, assessment of soil erosion features and bulk density. For the 2018 LUCAS campaign, bulk density was measured on approximately 6000 locations across EU+UK. Even if the total LUCAS topsoil surveyed samples are almost 20,000, the bulk density analysis was limited to the 6000 points due to budget constraints. Bulk density was determined at various depth levels: 0–10 cm (6246 points), 10–20 cm (5786 points), and 20–30 cm (140 points, only for Portugal). Moreover, for locations where measurements were available for both 0–10 cm and 10–20 cm depths, the bulk density (BD) at the 0–20 cm stratum was computed by averaging the measurements from the 0–10 cm and 10–20 cm depths across 5659 points.

The spatial interpolation of soil bulk density was performed using the Cubist regression trees.

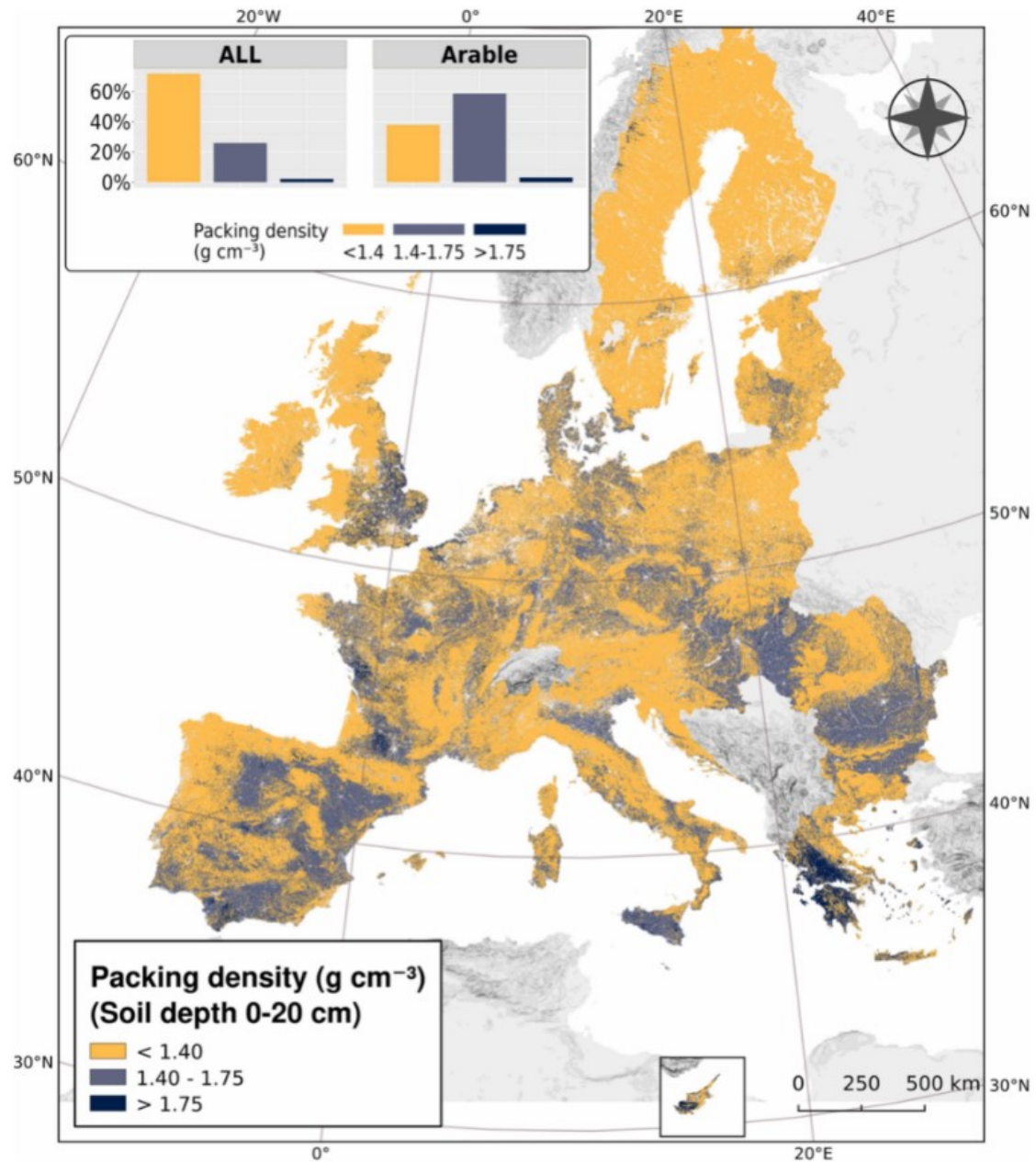
The median bulk density for the 0–10 cm is 1.1 g cm^{-3} (mean: 1.04 g cm^{-3}) with the 25th percentile at 0.85 g cm^{-3} and the 75th percentile at 1.29 g cm^{-3} . The median bulk density for the 10–20 cm is 1.18 g cm^{-3} (mean: 1.13 g cm^{-3}) which is 7% higher compared to the 0–10 cm. This layer has the 25th percentile at 0.95 g cm^{-3} and the 75th percentile at 1.36 g cm^{-3} .

The main driver for bulk density variation is the land cover type. Croplands have almost 1.5 times higher bulk density compared to woodlands. Arable lands have the highest mean BD at 1.26 g cm^{-3} followed by permanent crops (BD= 1.23 g cm^{-3}), heterogeneous agricultural areas (BD= 1.14 g cm^{-3}), pastures (BD= 1.08 g cm^{-3}), shrublands (BD= 1.01 g cm^{-3}) and woodlands (BD= 0.84 g cm^{-3}). In most cases, forest soils have much lower values in their upper layer (0–10 cm) due to its richness in organic matter and biotic activity. Compared to past estimates of bulk density which were based on pedotransfer rules, we found an overestimation of bulk density in woodlands (~25%) compared to the measured bulk density in LUCAS 2018 survey.

The pan European assessment of bulk density does not challenge any local or regional assessment which have developed with higher density of analysed samples. We acknowledge that the LUCAS topsoil database of 6000 samples is limited for a pan European study but this is the most comprehensive EU survey till now. Some issues with non-accessibility of points did not allow to have a much higher number of samples for the analysis. The sampling time is also an important factor which may add uncertainties to the bulk density values. The management practices of a farmer

(tillage, harvesting) may influence the composition of the sample and the derived BD values. Also, in grasslands, the livestock density and grazing are important missing information for better interpreting bulk density in LUCAS. The size of the coring cylinder (rings) used, the operator experience, and in-situ soil moisture content significantly affect BD accuracy.

Bulk density is mainly driven by land cover type with croplands having the highest BD and woodlands the lowest in all depths. As the soil BD is the mass of dry soil per unit volume, then the relationship between soil compaction and its capacity to store and transport water or air is obvious. As the vertical stress in soils is part of modelled soil compaction, the bulk density can estimate this vertical stress to topsoil. Soil compaction is a major threat to soils particularly in intensively agricultural systems. Soil compaction is known to reduce agricultural productivity, decrease crop yields, decrease water infiltration and accelerate run-off and risk of soil erosion. We estimated the packing density (PD) using the pedotransfer rule and as inputs the bulk density map and the clay content. The Packing Density (PD) is a measure of compactness of the soil and can be a useful parameter for the spatial interpretation of the degree of soil compaction



Reference: Panagos, P., De Rosa, D., Liakos, L., Labouyrie, M., Borrelli, P., Ballabio, C., 2024. [Soil bulk density assessment in Europe](https://doi.org/10.1016/j.agee.2024.108907). *Agriculture, Ecosystems & Environment* 364: 108907. <https://doi.org/10.1016/j.agee.2024.108907>

Sign the Soil Mission Manifesto

Life on Earth depends on healthy soils. To ensure a healthy and green future for our current and future generations, we need to protect and restore soils. The Mission Soil Manifesto calls for action to respond to the urgent

need to protect and improve soil health in Europe and beyond and bring together regional and local policymakers, stakeholders and citizens into a vibrant community that cares for soil health.

Mission Soil Manifesto

1. Soil is essential for the life of humans and nature. 95% of our food comes from soil. Healthy soils provide us with clean water, good air, sequester carbon thus mitigating and increasing the ability to adapt to climate change, and support biodiversity. Soils also sustain our landscape and cultural heritage and are the basis of our economy and prosperity. We acknowledge that soil is the basis of our well-being. With this Manifesto, we are creating a community that takes care of soils.
2. We need to protect and restore soils. Soils are a fragile resource that need to be carefully managed and safeguarded for future generations. More than 60% of soils in the EU are considered to be in an unhealthy state due to unsustainable management practices, pollution or sealing. Climate change puts further pressure on soils and accelerates land degradation. All types of soil are concerned. No soil should be left behind.
3. Soil protection and restoration need to be embedded in all human activities that have an impact on land. Protecting and improving soils is crucial to sustain the well-being and prosperity of everyone. We can all contribute to halting soil degradation and building a sustainable future based on healthy soils for food, people, nature, and climate. Actions are encouraged at all levels: global, national, regional and local.
4. We support the Mission 'A Soil Deal for Europe' (Mission Soil) and its goal to create 100 living labs and lighthouses by 2030 to promote soil protection and restoration in Europe. We also welcome activities under the Mission to address its specific objectives: reduce desertification, conserve soil organic carbon stocks, stop soil sealing and increase the re-use of urban soils, reduce soil pollution and enhance soil restoration, prevent erosion, improve soil structure to enhance soil biodiversity, reduce the EU global soil footprint, and improve soil literacy in society.
5. We are committed and motivated to contribute to the protection and restoration of soil health in our capacity, sector, and territory as this is a fundamental resource for the place where we live and for our well-being. We will contribute to raise awareness on the importance of soil and enlarge the community actively involved in caring for this precious resource.

Who can sign?

The voluntary document can be signed by representatives of municipalities, regions, private or public companies and organisations, NGOs and philanthropic organisations, schools and education institutions, as well as by research institutions, to become a 'Signatory'.

Individuals can also sign the Manifesto and become 'Friends of the Mission Soil'.

If you care about soil health, please sign and further promote the Mission Soil Manifesto.

What's in there for me?

By signing the Mission Soil Manifesto, you voice your support to the European Mission 'A Soil Deal for Europe' and its objectives. You become part of a community of practice which stands up for the importance of soil health and cares for the future of European and global soils.

As a Signatory or Friend of the Mission Soil, you:

- ◇ Get first-hand access to knowledge on soil health and Mission Soil activities.
- ◇ Become easily connected to the soil community and able to receive and exchange information through various communication channels.
- ◇ Learn about the latest research results, along with the opportunity to take part in various events to share best practices for our soils.
- ◇ Automatically register to receive the Mission newsletter providing information on Mission progress, the latest calls for proposals, events, and policy developments.
- ◇ Receive visibility for your organisation. Names of legal entities that sign will be published here: Signatories and Friends.

Sign here:

<https://ec.europa.eu/eusurvey/runner/mission-soil-manifesto>



Chinese Prosecutors Target Yellow River Protection in New Initiative



Migratory birds rest at the Yellow River Delta national nature reserve in Dongying, Shandong province, in December. [Photo by Zhou Guangxue/For China Daily]

China's Supreme People's Procuratorate has announced a year-long campaign to strengthen public interest litigation in protecting the Yellow River.

The campaign, running from February 2024 to January 2025, focuses on key areas including water resources conservation, soil erosion control, industrial pollution, and cultural heritage protection, the SPP said in a statement.

The SPP demands that procuratorates at all

levels in the regions along the Yellow River, in collaboration with administrative organs, to make targeted efforts in facilitating public interest litigation concerning the Yellow River protection based on local features, the statement read.

It added that cases with prominent public interest damages will be handled under the SPP's supervision and guidance.

<https://www.chinadaily.com.cn/a/202402/13/WS65cb387ea3104efcbdaeac1a.html>

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