



HOT NEWS

01, 2025



CONTENTS

Chinese New Year Message of WASWAC	01
International Soil and Water Forum held in Bangkok to Tackle Water Scarcity and Soil Degradation	02
International workshop on Social and Participatory Approaches in Soil and Water Conservation Held Successfully	03
Submission of Abstracts for the 6th WASWAC World Conference is Now Open	04
Maps Show How Dry Southern California is, as L.A. Wildfires Burn	05-08
UNCCD Report: Planetary Boundaries - Confronting the Global Crisis of Land Degradation	09
Decades-Long Efforts Turn North China Deserts into Oases	10-13
Changes in Global Fluvial Sediment Concentrations and Fluxes Between 1985 and 2020	14
Contents of Issue 1, 2025 for ISWCR	15-18

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Chinese New Year Message of WASWAC

*The time of Chinese New Year changes
every year according to the Gregorian calendar.*

*But our Chinese New Year wishes
remain unchanged.*

*The Secretariat of the WASWAC wishes
every member, friends and partners who
have long been concerned about and supported
us a happy and prosperous Chinese New Year!*

Submission of Abstracts for the 6th WASWAC World Conference is Now Open



IMPORTANT DATES

- ◆ [Abstract submission begin: January 1, 2025](#)
- ◆ Last date of abstract submission: **May 30, 2025**
- ◆ Intimation of acceptance of abstracts: **June 30, 2025**
- ◆ Registration fee payment begin: **January 1, 2025**
- ◆ Training Program: **September 18-19, 2025**

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International Soil and Water Forum held in Bangkok to Tackle Water Scarcity and Soil Degradation

The International Soil and Water Forum 2024, a joint initiative by the Food and Agriculture Organisation (FAO) and the Thai government, was held in Bangkok in December, 2024.

This Forum maps out concrete measures to boost global efforts in managing water scarcity and reversing soil degradation – both critical for global food security and environmental health.

In opening speeches, QU Dongyu, Director General of the Food and Agriculture Organization of the United Nations (FAO), indicated that "The world's natural resources, including soil, water and land, are being depleted at an alarming rate, while climate-induced natural disasters are occurring more frequently and with more intensity."

The forum was organized along four themes: Managing water scarcity; Reversing land degradation, Boosting land restoration; Sustainable soil management; and Integrated climate resilient land, soil and water management.

Its objectives include to reinforce commitments to sustainable and integrated land, soil and water management; champion

technological, institutional, governance and social innovations; deliberate on the challenges and opportunities; identify technical and knowledge gaps and research priorities; and promote partnerships and collaboration.

The "Global Status of Salt-affected Soils" report, was release. It is the first major assessment of global salt-affected soils in 50 years. The report is available here:

<https://openknowledge.fao.org/handle/20.500.14283/cd3044en>

And also, the two critical progress reports on Sustainable Development Goal (SDG) indicators – 6.4.1 "Change in water-use efficiency" and 6.4.2 "Level of water stress", for which FAO is the custodian agency, were released. Both indicators are critical for agricultural productivity and resilience, as well as for food security, ecosystem balance, and enhanced climate resilience. These two reports are available here:

<https://doi.org/10.4060/cd2023en>

<https://doi.org/10.4060/cd2179en>



International workshop on Social and Participatory Approaches in Soil and Water Conservation Held Successfully

International workshop on Social and participatory approaches in soil and water conservation held successfully on December 24, 2024. Approximately 77 professors, experts, and researchers attend this webinar. All experts discussed global approaches, experiences, and lessons learned related to participatory water and soil resource management, along with the obstacles and challenges to implementing participatory management and community-based models. In this workshop, the indicators and criteria for participatory evaluation and the methodology for data production and analysis of community-based models were outlined, alongside practical examples and experiences gained in this area.

At the end of the workshop, a comprehensive conclusion about the importance and significance of participatory approaches in soil and water conservation was drawn by Prof. SHR Sadeghi, Prof. Duihu Ning, Prof. Miodrag Zlatic, and Prof. A. Sadoddin. Dr. H. Nouri pointed out the necessity of a think tank on SWC. Accordingly, launching a "Think Tank on Participatory Approaches in SWC" under the affiliation of UNESCO and in collaboration with other related think

tanks and a consortium of WASWAC, ICIMWB, Tarbiat Modares University, and Gorgan University of Agricultural Science and Natural Resources was proposed, and approved initially. This think tank has the potential to significantly advance the field of SWC through collaborative research and knowledge sharing.

This workshop was hosted by the International Centre for the Integrated Management of Watershed and Bio-resources in Arid and Semi-arid regions (ICIMWB). Many representatives from WASWAC, such as Prof. Duihu Ning, Prof. Seyed Hamidreza Sadeghi, and Prof. Miodrag Zlatic attended this workshop.



Prof. Duihu Ning attended this workshop

This news was provided by Prof. Seyed Hamidreza Sadeghi, the deputy president of WASWAC.

Maps Show How Dry Southern California is, as L.A. Wildfires Burn

Dry conditions across Southern California set the stage for a series of deadly wind-driven wildfires that burned thousands of homes and other structures in the Los Angeles area in early January 2025.

Ming Pan, a hydrologist at the University of California-San Diego's Center for Western Weather and Water Extremes, tracks the state's water supplies. He put Southern Cali-

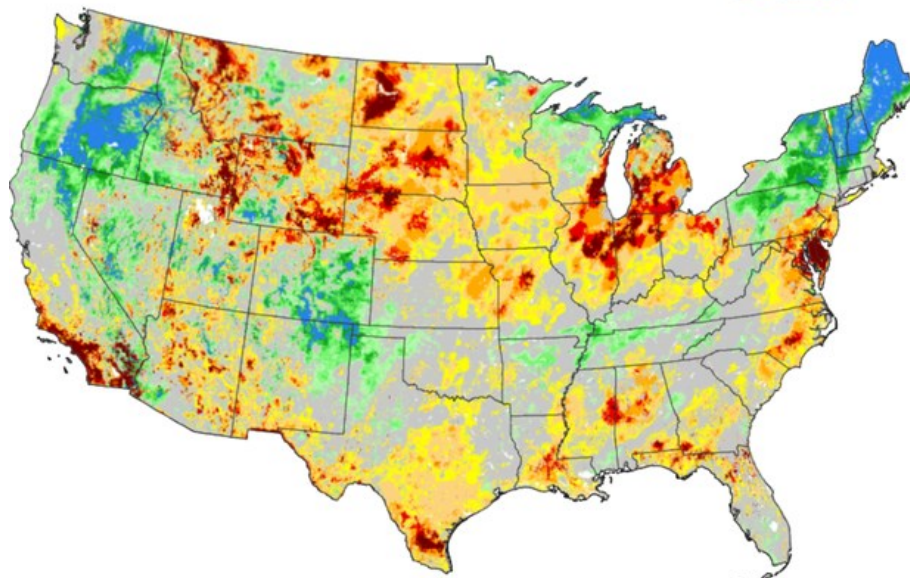
fornia's dryness into perspective using charts and maps.

How dry is Southern California right now?

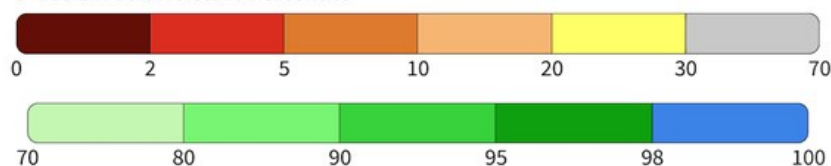
In early January, the soil moisture in much of Southern California was in the bottom 2% of historical records for that day in the region. That's extremely low.

Hydrologists in California watch the sky

Soil Moisture Percentile



0-100 cm Soil Moisture Percentile



Source(s): NASA
Data Valid: 01/08/25

Drought.gov

very closely starting in October, when California's water year begins.

The state gets very little rain from May through September, so late fall and winter are crucial to fill reservoirs and to build up the snowpack to provide water. California relies on the Sierra snowpack for about one-third of its freshwater supply.

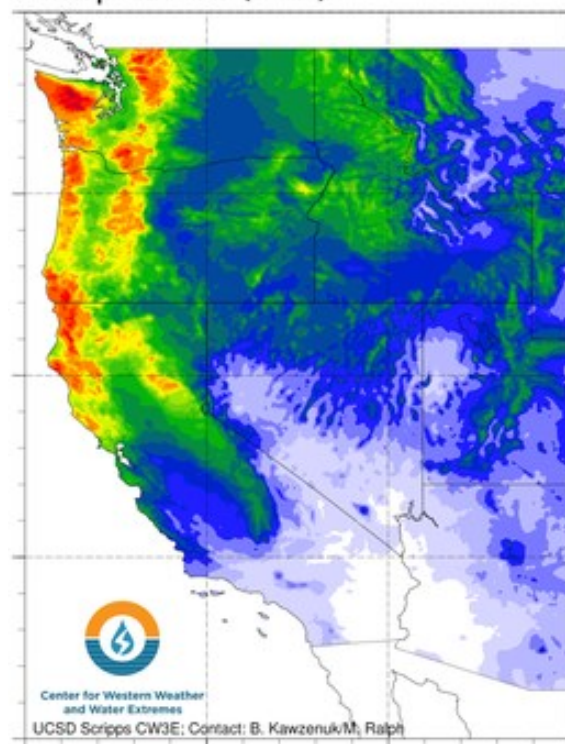
However, Southern California started out the 2024-25 water year pretty dry. The region got some rain from an atmospheric river in No-

vember, but not much. After that, most of the atmospheric rivers that hit the West Coast from October into January veered northward into Washington, Oregon and Northern California instead.

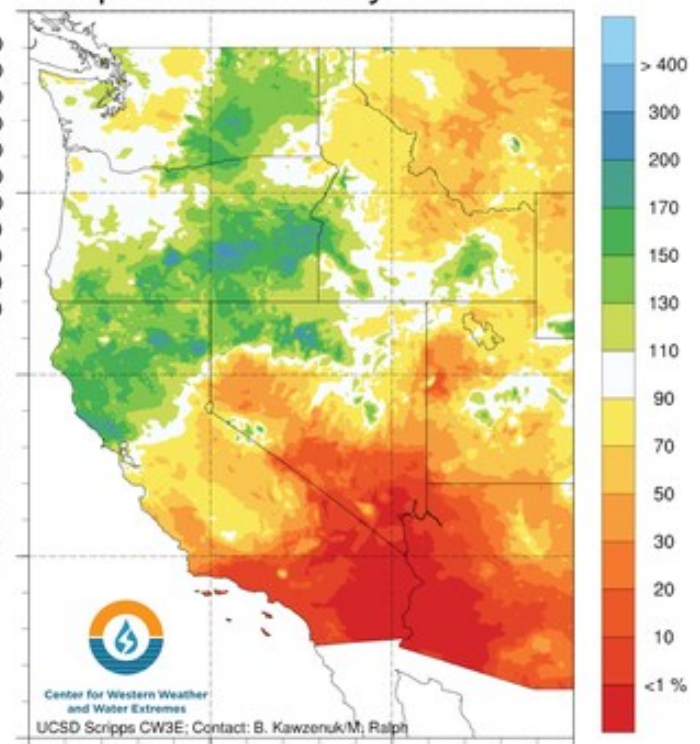
When the air is warm and dry, transpiration and evaporation also suck water out of the plants and soil. That leaves dry vegetation that can provide fuel for flying embers to spread wildfires, as the Los Angeles area saw in early January.

PRISM water year to date (through Jan. 7, 2025)

Precipitation (mm)



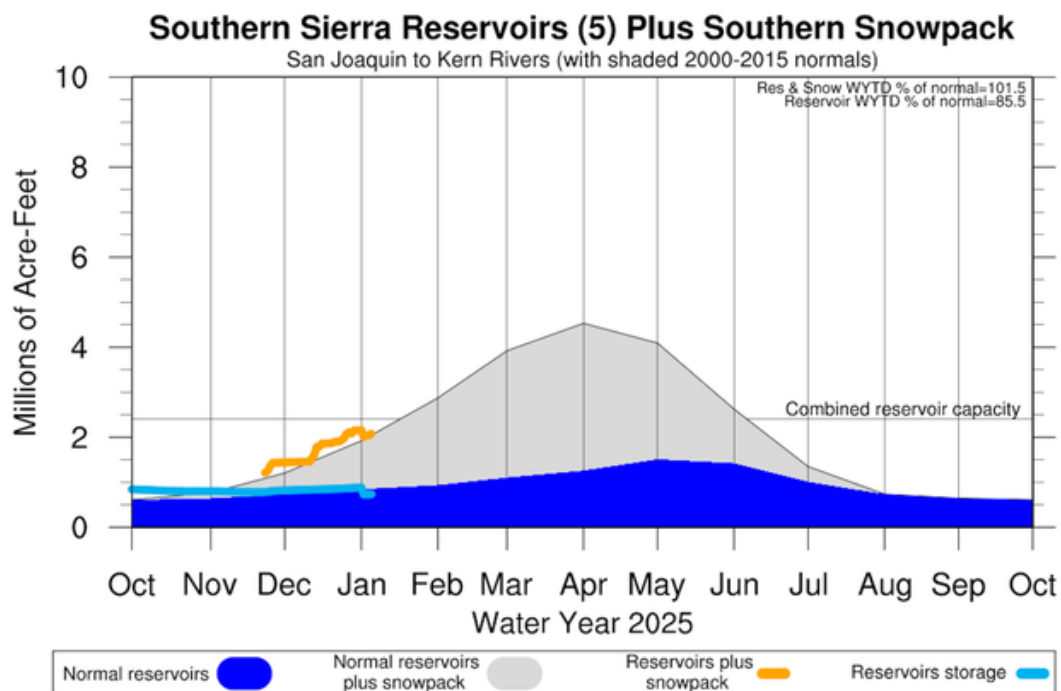
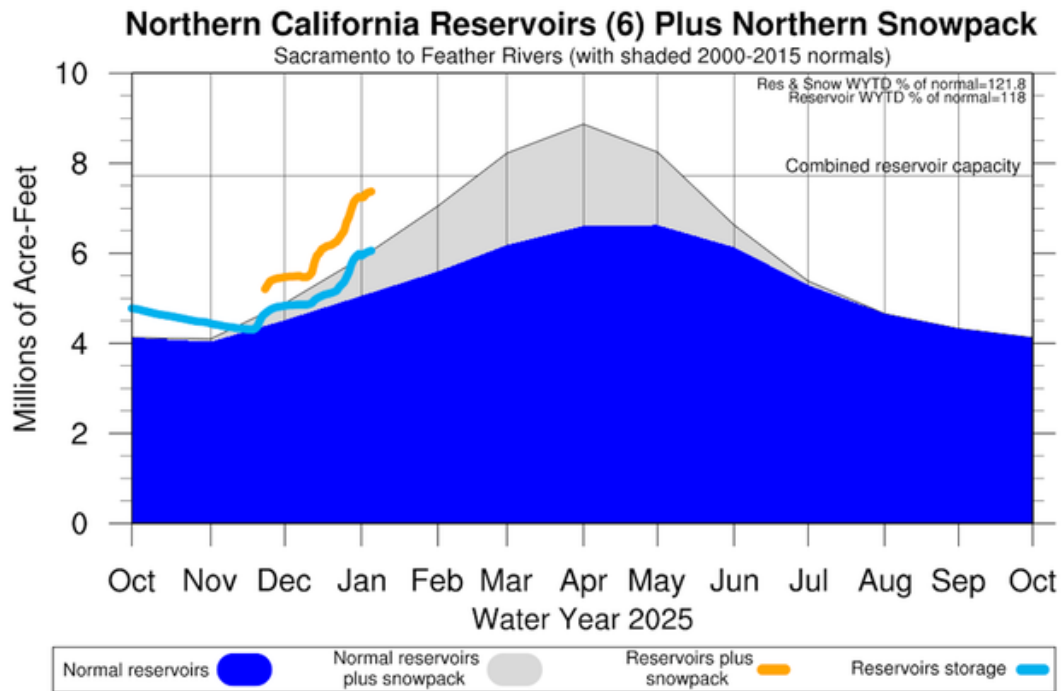
Precipitation anomaly %



So, while Northern California's water and snowpack conditions are in good shape, Southern California is much drier and its

water storage is not doing so well.

The Southern Sierra snowpack was starting to dip below normal in early January.



SWE dailes from <https://cdec.water.ca.gov/querySWC.html>
SWE volume conversion factor based on Margulis et al., JHM, 2016, SWE reanalysis
Reservoir storage from <https://cdec.water.ca.gov/queryDaily.html>
Reservoirs: MIL PNF TRM SCC ISB
Image updated: 01/08/2025



What can California expect for the rest of 2025?

The U.S. Climate Prediction Center's seasonal outlook through March suggests that drought is likely to develop in the region in the coming months.

The outlook takes into account forecasts for La Niña, an ocean temperature pattern that was on its way to developing in the Pacific Ocean in early 2025. La Niña tends to mean drier conditions in Southern California. However, not every La Niña affects California in the same way.

One or two big rain events could completely turn the table for Southern California's water situation. In 2023, California saw atmospheric rivers in April.

So, it's hard to say this early in the season how dry Southern California will be in the coming months, but it's clear that people in dry areas need to pay attention to the risks.

News source: <https://www.cbsnews.com/news/southern-california-maps-dry-drought-la-wildfires-fire-risk/?intcid=CNM-00-10abd1h>

UNCCD Report: Planetary Boundaries - Confronting the Global Crisis of Land Degradation

A major new scientific report charts an urgent course correction for how the world grows food and uses land in order to avoid irretrievably compromising Earth's capacity to support human and environmental well-being.



The report, “Stepping back from the precipice: Transforming land management to stay within planetary boundaries”, has been produced under the leadership of Prof. Dr. Johan Rockström at the Potsdam Institute for Climate Impact Research (PIK) in collaboration with the UN Convention to Combat Desertification (UNCCD).

Land degradation is being accelerated through extreme weather events, prolonged droughts, and intensified floods. Melting mountain glaciers and altered water cycles heighten vulnerabilities, especially in arid regions.

Human activity is putting great strain on land and water around the world. For example, agriculture has contributed to 80 per cent of global deforestation and accounts for 70 per cent of freshwater use.

Land, and the way it is used, affects the climate, preserves biodiversity, maintains freshwater systems and provides life-giving resources including food, water and raw materials.

This new report details the transformative action needed to combat land degradation and ensure a return to the safe operating space for the land-based planetary boundaries.

Explore the report here: <https://www.unccd.int/news-stories/press-releases/planetary-boundaries-confronting-global-crisis-land-degradation>

Decades-Long Efforts Turn North China Deserts into Oases

HOHHOT -- In the freezing winter, on the fringes of the Kubuqi Desert in North China's Inner Mongolia autonomous region, dedicated sand control workers are busy mending and reinforcing defenses in the form of straw checkerboards -- featuring straw placed in a checkerboard pattern on the desert surface to secure dunes.



The workers are racing against time to complete their tasks before the spring winds arrive to once again test the success of their efforts. Farmer Zhang Yong, 50, is one of these workers. He meticulously arranges wheat straw along pre-marked square lines on the

sandy ground, before firmly tamping them down with a shovel.

"Straw checkerboards serve as a method to prevent wind erosion and retain moisture. By repairing them each winter, we ensure

they can firmly hold the shifting sand in the coming spring," Zhang said.

The Kubuqi Desert, China's seventh-largest desert also known as Hobq Desert, spans an area of more than 14,000 square kilometers. For Urgen, another local who grew up deep within the desert, his childhood memories are dominated by a single color -- yellow. "There was an endless supply of sand on our stoves and cabinets, and all we saw outside were sand dunes," Urgen recalled.

In the 1950s and 1960s, with strong government support, Inner Mongolia began constructing sand control stations and initiated afforestation efforts along the northern edge of the Kubuqi Desert. Since then, Urgen's hometown has gradually turned green.

"Back then, people treated afforestation in the Kubuqi Desert as a sacred mission," Urgen said.

Inner Mongolia, as one of the regions in China most severely affected by desertification and sandification, has long prioritized sand control as a key task in combating these

threats. It has continuously implemented the Three-North Shelterbelt Forest Program and promoted other ecological projects including afforestation and enforcement of grazing bans.

According to the third session of the 14th People's Congress of Inner Mongolia Autonomous Region, which opened on Tuesday, the region in 2024 exceeded its annual targets for desert control, afforestation and grass planting, completing 113 percent, 220 percent and 148 percent of its goals, respectively.

Today, Inner Mongolia boasts the largest forest area in the country, at some 23.8 million hectares, while its grassland vegetation cover has reached 45 percent, the best level since 1990, local authorities said.

In the Hunshandake sandy land in the region's Xilingol League, herder Wangjil's more than 666-hectare pasture is now a sea of green, with shrubs covering the ground. Occasionally, a series of slender, angular footprints can be seen on the ground -- tracks probably left by roe deer, according to Wangjil.



Starting in 1998, Wangjil began planting grass and trees in the sandy sections of his pasture. Through relentless experimentation, he managed to establish sand barriers on shifting dunes, while planting drought-resistant vegetation on fixed dunes.

The herdsman said sand control is a long-term endeavor that requires great perseverance. Over the past 27 years, he has planted greenery on more than 153 hectares of dunes and sandpits, with plants including over

22,000 drought-resistant saplings.

It is through many years of persistent efforts of both local residents and the government that the Hunshandake sandy land managed to achieve a historic transformation, with 252,000 hectares of sand land controlled in 2024.

"During sand control efforts, China has contributed its wisdom to the global endeavor of sand control," said Lu Qi, chief scientist at

the Chinese Academy of Forestry.

Currently, Inner Mongolia's desert control methods, technologies and achievements have been replicated in other Chinese regions like Xinjiang, Xizang, Qinghai and Gansu, and are promoted to countries like Saudi Arabia and Mongolia.

In 2024, Inner Mongolia provided sand control skills training to Mongolia and exported more than 2.8 million saplings to support Mongolia's sand control efforts.

News source: [Decades-long efforts turn North China deserts into oases - Chinadaily.com.cn](http://www.chinadaily.com.cn)

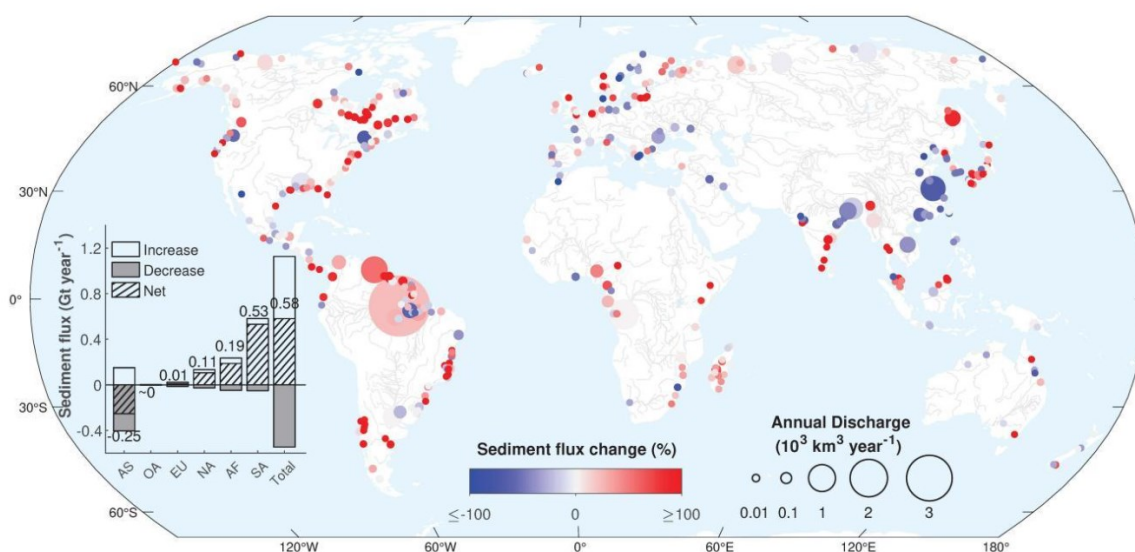
Changes in Global Fluvial Sediment Concentrations and Fluxes Between 1985 and 2020

ABSTRACT

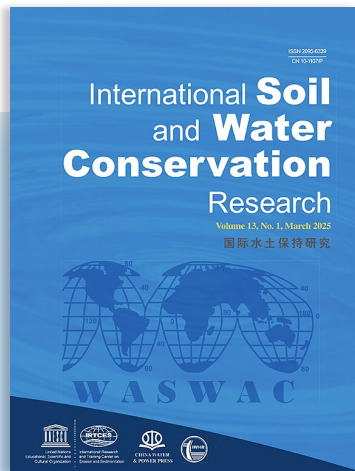
Fluvial sediment transport, a key pathway for global biogeochemical cycling, has changed markedly in the Anthropocene. However, disaggregating the compound effects of anthropogenic stresses on fluvial sediment transport at the global scale remains a challenge. Here we map the suspended sediment concentrations for global river channels, based on satellite observations, between 1985 and 2020, and estimate long-term changes in land–ocean sediment transfer. We find significant ($P < 0.05$) changes in suspended sediment concentrations in 67.8% (3.2×10^5 km) of the examined river channel length, with 43.4% (2.05×10^5 km)

displaying a significant increasing trend, driven mainly by rising rainfall erosion and climate warming. Consequently, a global net increase ($+0.58 \text{ Gt year}^{-1}$) in land–ocean sediment flux has been observed over the past four decades, despite sediment trapping by recently constructed dams, mostly in Asia. Our study provides a new baseline for source-to-sink fluvial transport in the Anthropocene that can inform global water resource management and delta management and protection.

Read more: <https://www.nature.com/articles/s41893-024-01476-7>



Contents of Issue 1, 2025 for ISWCR



International Soil and Water Conservation Research

12.0
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7.3
Impact Factor

Effects of initial soil moisture on rill erodibility and critical shear stress factors in the WEPP model across diverse soil types

Fikret Ari, Selen Deviren Saygin, Cagla Temiz, Sefika Arslan, ... Dennis C. Flanagan

Pages 1-14

<https://www.sciencedirect.com/science/article/pii/S2095633924000704>

Assessing the declining trend in soil erodibility across China: A comparison of conventional and digital K-factor maps

Zhiyuan Tian, Yan Zhao, Longxi Cao, Yuan Zhao, Yin Liang

Pages 15-26

<https://www.sciencedirect.com/science/article/pii/S2095633924000297>

Rainfall intensity profile induced changes in surface–subsurface flow and soil loss as influenced by surface cover type: A long-term in situ field study

Jian Duan, Haijin Zheng, Lingyun Wang, Yaojun Liu, ... Jie Yang

Pages 27-42

<https://www.sciencedirect.com/science/article/pii/S2095633924000273>

An integrative analysis of hydroclimatic elements in the three-river source region for historical and future periods: Shift toward an intensified hydrological cycle

Rashid Mahmood, Shaofeng Jia, Aifeng Lv, Mukand S. Babel

Pages 43-66

<https://www.sciencedirect.com/science/article/pii/S2095633924000054>

Wind and rainfall erosion energy in large sediment generating and coarse sediment class areas of the middle Yellow river

Tao Yang, Jianzhi Niu, Dengxing Fan, Di Wang, ... Ronny Berndtsson

Pages 67-79

<https://www.sciencedirect.com/science/article/pii/S2095633924000479>

HOTSED: A new integrated model for assessing potential hotspots of sediment sources and related sediment dynamics at watershed scale

Manuel La Licata, Alberto Bosino, Seyed Hamidreza Sadeghi, Mattia De Amicis, ... Michael Maerker

Pages 80-101

<https://www.sciencedirect.com/science/article/pii/S2095633924000492>

The effectiveness of alluvial gully remediation in Great Barrier Reef catchments

Andrew P. Brooks, John Spencer, Nicholas J.C. Dorian, Robin Thwaites, ... Justin Stout

Pages 102-121

<https://www.sciencedirect.com/science/article/pii/S2095633924000510>

Estimation of soil moisture of a high Andean wetland ecosystem (Bofedal) with geo-radar data and *In-Situ* measurements, Ayacucho - Peru

Wilmer Moncada, Alex Pereda, Manuel Masías, Manuel Lagos, ... Edwin Saavedra

Pages 122-133

<https://www.sciencedirect.com/science/article/pii/S2095633924000480>

Feedback mechanism between gully landforms and sediment trapping efficiency in a check dam

Jiangang Chen, Xi'an Wang, Huayong Chen, Wanyu Zhao, ... Xiaoqing Chen

Pages 134-144

<https://www.sciencedirect.com/science/article/pii/S2095633924000522>

Nutrient transport by overland sheet flow on sites containing swine slurry

John E. Gilley

Pages 145-151

<https://www.sciencedirect.com/science/article/pii/S2095633924000236>

Why we should revitalize indigenous water harvesting systems: Lessons learned

Musaed Aklan, Charlotte de Fraiture, Laszlo G. Hayde

Pages 152-163

<https://www.sciencedirect.com/science/article/pii/S2095633924000285>

Exploring coupling effects of rainfall and surface roughness on the sheet flow velocity

Enshuai Shen, Gang Liu, Qiong Zhang, Chenxi Dan, ... Xining Zhao

Pages 164-176

<https://www.sciencedirect.com/science/article/pii/S2095633924000662>

Evaluation of the effectiveness of an expressway sand protection system in a gobi region – case study of the Ceke–Ejina expressway, Ejina banner, China

Zhengyi Yao, Jianhua Xiao, Xixi Ma, Jianjun Qu, Xuefeng Hong

Pages 177-188

<https://www.sciencedirect.com/science/article/pii/S2095633924000686>

Maize crop residue cover mapping using Sentinel-2 MSI data and random forest algorithms

Jia Du, Pierre-Andre Jacinthe, Kaishan Song, Longlong Zhang, ... Dapeng Jiang

Pages 189-202

<https://www.sciencedirect.com/science/article/pii/S2095633924000698>

Visible, near-infrared, and shortwave-infrared spectra as an input variable for digital mapping of soil organic carbon

Vahid Khosravi, Asa Gholizadeh, Radka Kodešová, Prince Chapman Agyeman, ... Luboš

Borůvka

Pages 203-214

<https://www.sciencedirect.com/science/article/pii/S2095633924000716>

Impact of vegetation greening on soil erosion needs more attention

Xuchao Zhu, Huiyun Xu, Longxi Cao, Pasquale Borrelli

Pages 215-216

<https://www.sciencedirect.com/science/article/pii/S2095633924000674>

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