NEWSLETTER

MARCH 2022

Water and Development Research Group

WDRG is a multi- and interdisciplinary research group, working rigorously on various aspects of water. Our research themes vary from "water for food" to the "role of power and politics in water management". WDRG has a strong modeling knowledge on big data and spatial analysis from local to global scale.

Papers

See next page for the full list of our recent publications!

People



<u>Maija Taka</u> started as an academic coordinator in January. She focuses on research-based doctoral education development across the levels from water engineering to the School of Engineering. Additionally, she's currently running a doctoral supervision course for professors in all Aalto.

In February, our Phd Candidate <u>Matias Heino</u> defended his thesis <u>Susceptibility of global crop production to climate variability and change</u> in Aalto University (Doctoral Programme in Water and Environmental Engineering), his thesis is available <u>here</u>. Now, he started as a postdoc researcher in our lab, which is focused on food security and resilience under climate change.





<u>Yean Jye Ng</u>, a new MSc thesis worker, is working on her master's thesis with the title "Climate change effects on the climatic space and macronutrients of maize, wheat, rice and soybean.", under the supervision of Associate prof. Matti Kummu. She is interested in anything related to agriculture and food security, especially in the Global South

Project

Our group are convening a interactive session titled "Strategies for supporting education and research impact in interdisciplinary doctoral programmes" in EGU2022, aiming to be a place for exploring the elements and features needed for success in interdisciplinary programmes and projects. More information could be found <u>here</u>



Podcasts



Our Professors <u>Varis Olli</u> and <u>Keskinen Marko</u> interviewed by YLE's science radio programme 'Tiedeykkönen' on the topic of the melting of Himalayan and Alpine glaciers, Live is available <u>here</u>.

Award

<u>Meeri Karvinen</u> was granted the Aalto ENG Dean's Award for Achievements in Teaching 2021 for designing and implementing studentcentered and societally relevant engineering education, more information is here.



Latest blog post

<u>Global migration and the</u> <u>complex</u> interplay <u>between</u> environmental and social factors

Venla Niva shared her insights about the interplay between environmental and social factors behind human migration.

Next newsletter in June!

Prof Marko Keskinen shares Finland's experience in water diplomacy and water cooperation with IHEdelft students and participants of the Young Water Diplomats Program



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This study combines the strengths of historical studies and

establish an historical process perspective on transboundary

waters. We presents a detailed case study on the development and

transformation of Finnish-Russian transboundary water interactions

over the last 100 years, with an emphasis on Finland and its

We studied the spatio-temporal patterns of stormwater metal (Al, V,

Cr, Mn, Fe, Cu, Zn, and Pb) concentrations and loads in five

urbanized and one rural catchment in Southern Finland. The two-

year continuous monitoring revealed a non-linear seasonal

relationship between catchment urban intensity and metal export.

Our catchment-scale analysis revealed a mosaic of mainly diffuse

pollutant sources and calls for catchment-scale management

Emergency managers such as civil protection authorities rely on

flood forecasts to make informed decisions. They monitor several

separate forecasts, each one of them covering a different type of

flooding, which can be time-consuming and confusing, ultimately

compromising the effectiveness of the emergency response. This

work illustrates how the automatic combination of flood type-

specific impact forecasts can improve decision support systems.

relationship with the Soviet Union/Russia after World War II.

New publications

See full list at Aalto Research

Haapala, J. & Keskinen, M (2022) Exploring 100 years of Finnish analytical approaches on transboundary water interactions to transboundary water interactions with Russia: A historical analysis of diplomacy and cooperation Water alternatives. 15, 1, 93-128

Taka. M et al. (2022)

Heavy metals from heavy land use? Spatio-temporal patterns of urban runoff metal loads

Science of the Total Environment. 152855

desians.

Láng-Ritter, J et al. (2022)

Compound flood impact forecasting: Integrating fluvial and flash flood impact assessments into a unified system

Hydrology and Earth System Sciences, 26, 689-709

Huggins. X et al. (2022)

Hotspots for social and ecological impacts from freshwater stress and storage loss Nature Communications. 13, 439.

The impacts of hydrological change on social and ecological systems are infrequently evaluated together at the global scale. Here, we focus on the potential for social and ecological impacts from freshwater stress and storage loss. We find basins with existing freshwater stress are drying (losing storage) disproportionately, exacerbating the challenges facing the water stressed versus non-stressed basins of the world









Chen. A et al. (2022)

Large net forest loss in Cambodia's Tonle Sap Lake protected areas during 1992-2019 Ambio, 389

it remains unclear if this deforestation trend had continued since 2001 when the land was designated as protected areas. Using satellite imagery, we investigated forest conversion flows and fragmentation patterns in the TSLA for 1992-2001, 2001-2010, and 2010-2019, respectively. Results show substantial forest losses and fragmentations occurring at the lower floodplain where the protected areas are located until 2010, with some forest regain during 2010-2019.

