

Nile River monitoring influences northeast Africa's future

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Curtin University research that monitors the volume of water in the Nile River Basin will help to level the playing field for more than 200 million North-East Africans who rely on the river's water supply.

Despite being arguably the longest river in the world, winding through nine different [countries](#), the Nile River is shallow and has a low volume, making its water precious, particularly to those countries located downstream.

Curtin Associate Professor Joseph Awange, Department of Spatial Sciences, has been monitoring extractions or additions of water to the Nile River, and reporting the results to affected countries to allow them to plan for sustainable use of its resources in the future.

"Water levels can be affected by both man-made and natural causes, and our research separates the effects of rain downpours, drought and environmental degradation, so that we can learn about the effects of human uses," Associate Professor Awange said.

"The difficulty is that human uses – including increased population and domestic water consumption, hydroelectric power and increased agriculture – are all tied to the economic growth of the country implementing it.

"Our project, which was undertaken with Associate Professor Michael Kuhn, also from Curtin's Department of Spatial Sciences, in conjunction with German researchers, has provided independent, factual understandings which the countries involved can then use to make better decisions, and hopefully plan for sustainable use of the river's resources for the whole region."

The project uses data from the Gravity Recovery and Climate Experiment (GRACE) satellite mission, which uses two satellites to detect spatio-

temporal changes in the Earth's gravity field, combined with mathematic techniques to isolate the total [water](#) storage (surface, groundwater, and soil moisture) of specific areas.

This technique is vital because traditional 'on the ground' measuring techniques are difficult due to poor access and high levels of political unrest in different countries, the size and scale of the area being measured, and lack of appropriate monitoring equipment in the area.

More information:

www.sciencedirect.com/science/.../S0309170814001274

Provided by Curtin University

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