

New Observational Methods for Water, Weather and Climate in Africa with Results from the TWIGA Project

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SUMMARY

Africa lacks behind most of the rest of the world when it comes to environmental observations. Only about sixty meteorological stations deliver operational data that are fed into forecast systems. No wonder that rainfall predictions for tomorrow in most of Africa are about as (un)reliable as ten day forecasts in Europe. The good news is that new sensors, cheap electronics, and extensive cell phone coverage could very well facilitate an environmental observation revolution in Africa. The European TWIGA project (www.twiga-h2020.eu) tries to accomplish exactly that. Here, some examples are presented that may be of interest to a broader public. For example, GPS/GNSS receivers for consumers have much improved over the past years as a result of the quest for self-driving cars. These receivers now use two frequencies, which was previously only done by expensive geodetic stations. We use these receivers to estimate atmospheric water content with near-millimeter accuracy and to make accurate flood hazard maps. Although no panacea for the continent's massive challenges, these and similar instruments will support sustainable development of its human and natural resources.

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FIG Working Week 2020
Smart surveyors for land and water management
Amsterdam, the Netherlands, 10–14 May 2020