

CWRR on bus tour to SANCIAHS

Tuesday 9 October 2018

The 19th SANCIAHS Symposium recently held in the Kruger National Park, 17-20 September, was well attended by several CWRR members including staff, postgraduate students, and the hydrology honours class of 2018. After surviving a long 11 hour bus trip, the "tent people", i.e. the students, settled into their tented village, while the "elders" headed towards their rondavels. That evening the event kicked-off with an informal meet and greet session, where all the delegates were welcomed, and enjoyed a few beverages and a wonderful spread of appetizers. Later that evening several of the CWRR members congregated at what become known as "134 on main", this remained the place to be for several delegates, post conference proceedings of course. The theme of the Symposium was centered on drought, with several interesting presentations and discussions regarding this topic, where it was highlighted that droughts are difficult to predict and that climate change adds additional uncertainty. Consequently, it is clear that there is still much work to be done, however, progress is being made and several experts are leading the charge. In addition to the topic of droughts a range of hydrological topics were presented including Ecohydrology, Uncertainty & Modelling, Water Resources Planning, Remote Sensing and Process Hydrology. The CWRR students made the Centre and UKZN proud, by winning all three student prizes, where the competition was tough. Thomas Rowe won first prize and Keanu Singh and Tasmiyah Peerbhai jointly got 2nd prize. All the students presented extremely well and are commended for their efforts. A huge note of thanks is extended to Mr Mark Horan, who did a lot of the organizing and ensured that everyone



had a place to stay, food to eat, and a bus trip to remember. By Thomas Rowe and Stefanie Schutte.



The CWRR Newsletter

You are now reading the ninth issue of CWRR's Newsletter 2018. Your input to the Newsletter is welcome! Please send stories and photos of your field trips, project updates, interesting courses, links to publications, and more, to MalingaR@ukzn.ac.za

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Spring Graduation 2018

The CWRR is happy and proud to congratulate two new Doctors and one new Master of Science! Dr. Catherine Hughes and Dr. Bruce Scott-Shaw graduated with their PhD's in Hydrology and Mlungisi Shabalala with his MSc in Hydrology, during UKZN Spring Graduation on 13 September 2018. We congratulate you all for your achievements and wish you great success in your future careers!

Latest publications

- ◆ Assessing the State of the Water-Energy-Food (WEF) Nexus in South Africa. [WRC Research Report 2018](#). Tafadzwanashe Mabhaudhi, Gareth Simpson, Jessica Badenhorst, Maqsooda Mohammed, Trylee Motongera, Aidan Senzanje, and Graham Jewitt.
- ◆ A predictive management tool for blackfly outbreaks on the Orange River, South Africa. [River Research and Applications 2018](#). Nick Rivers-Moore, and Trevor Hill.
- ◆ Long-term trends and variability in the dryland microclimate of the Northern Cape Province, South Africa. [Theoretical and Applied Climatology 2018](#). Shaeden Strydom, Michael Savage, and Alistair Clulow.
- ◆ Assessing, with limited resources, the ecological outcomes of wetland restoration: a South African case. [Restoration Ecology 2018](#). Donovan C Kotze, Farai Tererai, and Piet-Louis Grundling.



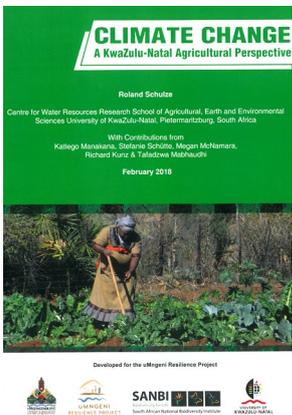
South African miniSASS in the Indian Himalayers

A Telepresence conference on citizen science was organized by Tata Communications in New Delhi, India, on July 30. Participants were amongst many others, CWRR Associate member Dr. Jim Taylor and his colleague Chantal Janks, an entomologist at [Plant Health Products](#) – who specialise in bio-control. Taylor and Janks share an interest in water-related citizen science tools. Taylor shared with the others his experiences from the biomonitoring technique called mini Stream Assessment Scoring System ([miniSASS](#)), which was developed in South Africa

by CWRR Associate member Mark Graham at [GroundTruth](#). The remarkable feature of the miniSASS biomonitoring technique is that just 13 species of macro-invertebrates are used to calculate a river health index (RHI) applicable in most perennial rivers and streams of the world. This is because these macro-invertebrates are able to cope in wide ranges of altitude as well as warm and cold conditions. Interestingly, macro-invertebrates pre-date the dinosaurs, and were present on Gondwanaland before the continents split up.

Chantal Janks, also a fresh-water stream specialist, conducted a miniSASS in the Ladakh region of the northern Himalayers of India. At one spot, close to the Manali Leh highway, she found more large stonefly nymphs than she had ever seen before in one place. Stoneflies are highly sensitive to water pollution so their presence in a stream is an indication that the water is of a good or excellent quality. The results of miniSASS's over the world can be found at www.minisass.org. By Jim Taylor and Chantal Janks

KZN climate change booklet



The uMngeni Resilience Project recently published a 95 page glossy booklet titled "Climate Change: A KwaZulu-Natal Agricultural Perspective" under the lead authorship of Prof. Roland Schulze of the Centre for Water Resources Research.

Covering initial chapters on broader aspects of climate change and agriculture, and questions on vulnerabilities of small- and large-scale farmers, the publication then assesses projections of changes to key climate variables across the province

from maximum and minimum temperatures to frost occurrences, heat units, potential evaporation, seasonal rainfall as well as wet and dry spells. Those chapters are followed by ones on farm sector case studies on potatoes and climate change, soybeans, sugarcane, taro (amadumbe) and bambara nuts and climate change, in each case assessing projected yield changes and addressing adaptation options. The publication concludes with a chapter on "Where to from here?" by looking at economic perspectives and asking other key questions going forward.

Contributions to the booklet came from the CWRR members Stefanie Schütte, Megan McNamara, Katlego Manakana, Richard Kunz and Dr. Tafadzwa Mabhaudhi. By Prof. Roland Schulze

Southern African Region developed a Manifesto on Rivers

On September 27, thirteen Southern and Eastern African countries were represented at a World Rivers Day event in Johannesburg, which included a River Health Assessment, Turbidity measurement, Bio-monitoring and a Velocity and discharge measure. The delegates, also part of a four day SADC WaterNet course on Monitoring and Communication, discovered that although compromised by pollution, the river was not in too bad a state. The delegates further developed a Change project, through which all learnings on the course could be implemented to enhance their work and commitments in their country of origin. On the final day of the course a Regional River Manifesto was developed by the course participants. The manifesto is thus providing a focus, vision and strategic direction for cooperation at a regional level. By Dr. Jim Taylor and Patsy Hampson

SADC Groundwater Conference

CWRR associate member Dr. Eddie Riddell attended the [1st SADC conference on Groundwater](#) in Johannesburg 26-28 September. This was the first official coming together of geohydrologists across the SADC region and focused discussions on Transboundary Aquifers; the role of groundwater in the food-energy-water nexus mix; and as a resilient resource in the context of climate change. Riddell presented the conceptual understanding of the Limpopo Transboundary Aquifer shared between South Africa, Zimbabwe and Mozambique in a panel discussion on shared international aquifers. The main outcomes of the conference were to further strengthen the role of groundwater with the establishment of River Basin Organizations for international co-operation and the SADC Protocol on Shared Water Courses; promoting the research and implementation of Managed Aquifer Recharge; developing the economic value understanding of groundwater as a resource; and transboundary knowledge sharing and standardization. By Dr. Eddie Riddell