



Making a difference - One drop at a time.

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## CWRR graduate receives prestigious Oxford-Weidenfeld and Hoffmann Scholarship

The Centre for Water resources Research would like to acknowledge and congratulate Nalin Singh on being awarded the prestigious Oxford-Weidenfeld and Hoffman Scholarship to continue his academic journey at the University of Oxford. The Oxford-Weidenfeld and Hoffmann Scholarships form part of the Oxford Graduate Scholarships. These scholarships are awarded to applicants who have demonstrated excellent academic ability, who will contribute to the University's ground-breaking research, and who will go on to contribute to the world as leaders in their field, pushing the frontiers of knowledge.



[The Oxford-Weidenfeld and Hoffmann Scholarships and Leadership Programme](#) aims to cultivate the leaders of tomorrow, mostly from developing and emerging economies, by providing outstanding university graduates and early career professionals with the opportunity to pursue fully-funded graduate studies at the University of Oxford, in combination with a comprehensive programme of leadership development, long-term mentoring and networking. The Leadership Programme aims to build the Scholars' capacity to contribute positively to public life in their countries and regions of origin upon their return.

### The CWRR Newsletter

Welcome to the Fourth issue of the CWRR Newsletter 2021. The Newsletter carries news and updates of the achievements and endeavors of CWRR's members, staff, associates and students.



The Newsletter is also available online at [CWRR.ukzn.ac.za](http://CWRR.ukzn.ac.za)  
For suggestions and queries, please email [HenrikssonR@ukzn.ac.za](mailto:HenrikssonR@ukzn.ac.za)



Nalin, who was the top graduate in the School of Agricultural, Earth and Environmental Science for both his undergraduate (Bsc) and postgraduate (Bsc Hons) degrees in Hydrology (graduating both summa cum laude) intends on pursuing a MSc in Water Science, Policy and Management at the University of Oxford. The one-year programme which he will undertake consists of several different teaching components, but his research focus will center on Southern Africa and/or the Global South. Nalin states that, "he aims to build upon the solid foundation of the education he received at the CWRR and UKZN and will be structuring his academic activities around bringing back knowledge applicable to solving the challenges facing water security in Southern Africa". He also plans to engage and learn as much as possible during the Leadership Development Programme activities and from his fellow Scholars. Nalin is particularly excited about the journey ahead and everyone at the CWRR wishes you the greatest of success on your upcoming venture.

By Nalin Singh, Shaeden Gokool and Kershani Tinisha Chetty

## Latest Publications

- ◆ Africa's Restoration Economy: Insights from South Africa's Wetlands. [SAIIA Policy Briefing No 236, May 2021](#). South African Institute for International Affairs. D Kotze.
- ◆ Impacts of soil carbon on hydrological responses—a sensitivity study of scenarios across diverse climatic zones in South Africa. [South African Journal of Science 2021](#). S Schütte, RE Schulze and M Scholes.
- ◆ Use of biological and water quality indices to evaluate conditions of the Upper uMngeni Catchment, KwaZulu-Natal, South Africa. African [Journal of Aquatic Science 2021](#). R van Deventer, CD Morris, TR Hill and N Rivers-Moore.
- ◆ Assessment of a Ground-Based Lightning Detection and Near-Real-Time Warning System in the Rural Community of Swayimane, KwaZulu-Natal, South Africa. [Weather, Climate, and Society 2021](#). M Mahomed, AD Clulow, S Strydom, T Mabhaudhi and MJ Savage.

## Raising awareness and saving lives: Preparing for lightning hazards

'Preparing for ILSD2021' conference was a two day virtual conference (27-28 May) planned by the African Centres for Lightning and Electromagnetics (ACLENet), the Advanced Lightning, Power and Energy Research Centre (ALPER) and the South Asian Lightning Network (SALNet) for networking and training for advocacy groups around the world in preparation for commemorating Lightning Safety Day (ILSD). International Lightning Safety Day, 28 June 2021, marks the tenth anniversary of the day 18 children were killed and another 38 injured by a single lightning strike at Runyanya Primary School in Uganda. Meteorage, a France based firm, has proposed to take a lead on this year's activities on 28th June 2021, which will be the first international day dedicated to Lightning Safety. CWRR colleagues Dr Alistair Clulow and Dr Maqsooda Mahomed were amongst the attendees at the conference. Speakers included worldwide lightning experts from countries such as USA, Uganda, Malaysia, China and Brazil. Along with South Africa's lightning expert Ryan Blumenthal, Dr Maqsooda Mahomed presented her recent research which was titled, "Lightning Warning System for Small Rural Areas in South Africa". *By Maqsooda Mahomed*

## CWRR's latest PhD Graduate

The CWRR would like to congratulate Dr Maqsooda Mahomed for successfully completing her PhD. Dr Mahomed, now with a PhD in Hydrology, completed her thesis titled "Detection and early warning of lightning and extreme storm events in KwaZulu-Natal, South Africa.", supervised by Dr Alistair Clulow, Prof Tafadzwanashe Mabhaudhi, Prof Michael Savage, Ms Kershani Chetty and Dr Sheldon Strydom. Mahomed's research focused on developing and evaluating a near-real time lightning warning system, which provided the first insights into the use of South African Lightning Detection Network (SALDN) for localized applications. To date, her research has received widespread recognition with several articles being published in the media and traditional academic channels, accompanying the multiple awards she has garnered at conference presentations. Since graduating, Mahomed has been occupying herself with ad-hoc research, as well as lecturing and is hoping to continue her academic journey as a postdoctoral researcher. The CWRR would like to wish Mahomed the greatest success in all her future endeavours.



## Flood studies research groups successfully complete 2 WRC projects

At the end of March two Water Research Commission projects were successfully completed and accepted for publication. K5/2925: Impacts of Floods and Data Availability, Data Quality and Data Screening on the Estimation of Design Floods, was led by Katelyn Johnson and contributed to by Prof Smithers, Nelisiwe Khusi and Keanu Singh. This project had two main aims: (a) An Assessment of The Socio-Economic Impacts of Floods in South Africa, and (b) An Assessment of Data Availability, Quality and Screening on the Estimation of Design Floods in South Africa. Results indicate that data screening and outlier detection should be adopted as regular practice in SA and that additional national resources must be directed towards maintaining and improving the hydrological monitoring networks in South Africa.

K5/2926: Further Development, Updating and Assessment of the SCS-SA Model for Design Flood Estimation in South Africa using a Continuous Simulation Approach, was led by Prof Smithers and contributed to by Dr Thomas Rowe, Prof Schulze, Nkululeko Mabila, Nkosinathi Dlamini, Udhav Maharaj and Ryshan Ramlall. The key focus areas of the project were: (a) the identification and assessment of methods to calculate curves numbers and disaggregate daily rainfall, (b) further refinement of the ACRU model as a Continuous Simulation Model (CSM), (c) the development of an ensemble approach for the SCS-SA model, and (e) the development of a SCS-SA CSM system. Results indicate that both the ensemble SCS-SA and SCS-SA CSM approaches developed in the study performed well in terms of estimating design peak discharges, and both the ensemble SCS-SA and SCS-SA CSM approaches should be refined and are recommended for use to improve design flood estimation in practice.

Notable achievements during the projects: TJ Rowe awarded a PhD; K Singh, N Mabila, NS Dlamini, and R Ramlall awarded MSc degrees; U Maharaj completed MSc-Eng degree and N Khusi awarded BSc Hons. *By Katelyn Johnson and Udhav Maharaj*