

## SESSION 9:

# WATER AND BIG DATA: LESSONS FOR SETTING UP BIG DATA RESEARCH INITIATIVES

Chair: Shanna Nienaber (WRC) | Venue: Ballroom 4

This session attempts to consolidate some of the key lessons we are learning about setting up water related big data research initiatives in the water sector. Decision-making in the water and related fields depend on good quality, processed and interpreted data and information. This must be complemented by skilled professionals, who are able to work with data in advancing understanding of and decision support for efficient water supply, management and protection (taking into account complex land-water-air-people interactions). Currently South Africa, and indeed Southern Africa overall, faces widespread challenges in terms of water data quality, consistency, access and updating and this has effects on the quality of decision making.

The rise of big data analytics and advanced algorithms offer a good opportunity to start bootstrapping and improve data collection, availability, quality and costs. Big data analytics, machine learning and artificial intelligence are revolutionising decision-making at all levels. Coupled with remotely sensed information from satellite sensors, unmanned aerial systems (drones) and land-based radar we can develop intelligent data layers. However, there will still be a need for land-based observations. Data collection systems must be optimised in time and space, and cross-scaled, to give us the best available information using these technologies. The incorporation of data collected by ordinary citizens will become increasingly important.

The Transboundary Water and Big Data Analytics Programme is a partnership programme that is helping the regional water sector to learn about the challenges and opportunities of setting up big data research related initiatives in a transboundary context. The learning from this process will be one of the key springboards for this session.

This session will focus on:

- Unpacking the opportunity that big data analytics can bring to improving the quality, consistency and costs associated with water sector related data
- Understanding the requirements to drive big data research related programmes in the water sector
- Introducing the Transboundary Water & Big Data Analytics programme as an example of research led initiatives exploring this space
- Discussing some of the challenges and opportunities in shifting towards a sector that is more engaged with big data analytics.

### PROGRAMME

Welcome and session overview		Shanna Nienaber (WRC)
14:10 – 14:30	The opportunity of data analytics in the Southern African water sector	Wim Delva (SU)
14:30 – 14:40	Big Data Analytics and Transboundary Water Management Collaboration	Clara Bocchino (Programme coordinator)
14:40 – 15:25	Panel conversation	Sibusisiwe Makhanya (IBM Research Africa) Helen Seyler (Delta-H) Shafick Adams (WRC) Clara Bocchino (Programme Coordinator) Wim Delva (SU)
15:25	Closure	Shanna Nienaber (WRC)