Call for Interest in Becoming a Co-Author for a New IGUR Publication Project

The last book project undertaken by IGUR, which was highly successful, was completed over 10 years ago. IGUR is now proposing to produce a follow-up book and expressions of interest are now open for our members to join this publication project as a co-author. Contributions are sought under the *Working Title* and *Potential Topics* identified below, although please feel free to suggest alternative related topics. This expression of interest will remain open until 30 June 2023 as IGUR plans to discuss this project at the Novatech Conference in early July 2023. Potential co-authors are requested to submit a one or two-page summary of their proposed contribution. It will be helpful if attention is also paid to how your potential written contribution fits into the topics and scope identified below. Proposed contributions are welcome from both individuals and groups of co-authors. As background information, our 2012 book was titled *Impacts of Climate Change on Rainfall Extremes and Urban Drainage Systems*. This book had eight co-authors and was 226 pages in length, which will give potential co-authors an idea of the extent of contribution that we are seeking. As in 2012, we are also planning to produce a companion paper summarising the new book and this will be published in an Open Access journal. If you have any questions on this *Call for Interest,* these can be directed to either Thomas Einfalt, Simon Beecham or Daniel Schertzer. Please submit your final expression of interest to Thomas Einfalt by 30/6/23.

Publication type: Book and/or Open Access journal

Proposed publisher: IWA Publishing

Working Title: *Rainfall-related Consequences of Climate Change on Applications for the Urban Population*

Potential Topics

Potentially an update of the 2012 IGUR Climate Change book with a new focus on extreme events and end users who have a mitigation and adaptation mindset:

- Food production/agriculture
- Water management/Groundwater management
- Water markets
- Environmental water
- Emergency management (including floods, wildfires, etc.)

Focus will be on both ends of the spectrum:

- Extreme rainfall/floods
- Extreme droughts
- Emphasis on communicating to end users the consequences of climate change, noting for example that even simple estimates of PMP increase with increasing temperature.

IGUR recognises the need to update/refer to IPCC6

Monitoring

- New abilities to monitor (remote sensing, including drones, higher resolution LIDAR and much higher resolution and more available satellite data)
- Open data strategy/shared purpose such as Copernicus and GPM
- Microwave, satellite communication and other emerging opportunistic measurements and citizen science
- Satellite-based gravity measurements
    - Enables assessment of water presence over large-scale grids (e.g. 300 x 300 km)
    - Grace Mission by German and US space agencies

- Radar techniques to be included in this new publication
    - There is now 20 years+ of radar data, which allows us to make assessments of spatial distribution and frequency of events
    - The ground station network may not be dense enough to pick up small-scale convective events: For example, the German meteorology bureau (DWD) estimates that ground networks only pick up perhaps 15% of these events
    - Historical event analysis/Event databases using radar data including statistical analysis and attribution of return periods/ARIs

Potential role of AI and machine learning using big data analysis

Mitigation and adaptation possibilities in countries and regions that are currently under-represented in IGUR, such as Central and South America, Asia and Africa.