Flood Cross Cut

SESSION 2 | REPORT OUT

Spatiotemporal Variability of Flooding

SEP 22, 2023 | Online
GEWEX
1st Global Flood Crosscutting Project Workshop

Science Question	What changes in atmospheric and landscape systems control spatiotemporal variability of flooding?			
Priorities	Understanding if big floods are fundamentally different from small floods or are they just bigger versions of the small ones? • Differences in storm types • Runoff mechanisms • Antecedent moisture conditions • Sequencing of atmospheric patterns • Multiscale interactions of atmospheric processes • Catchment interaction • Role of natural variability vs climate warming	Need to better collaborate between atmospheric science and hydrology community, and engineers Need to bridge activities between weather and climate community • Translate information from large ensembles to local scale impacts • Understand connecting processes	Translation science to better understand flood hazards (e.g., flood mapping, engineering standards • Need new methods/approaches • Better translation of science methods into practise • Consider spatial extent of precipitation in storms in flood prediction • Changes in temporal profile of storm	Activities to improve collection of observational datasets • global runoff observations • gauge observations or rainfall and other variables • Soil moisture observations • Improve quality in global gridded precipitation products • Blended rainfall datasets for sub-daily precipitation • Use of citizen science observations
Existing Efforts	• Convection permitting modeling in combination with ESMs • Satellite observations	Special interest groups exist which do this interdisciplinary work (e.g. Royal Met Soc have SIs on energy, transport, insurance)	Updates of flood guidance in UK/US/Australia Recent FUTURE-DRAINAGE project climate uplifts from Convection-permitting models for UK - used in EA/SEPA guidance	# The Global Streamflow Indices and Metadata Archive (GSIM)? # CAMELS/CARAVAN https://eartharxiv.org/repository/view/3345/ https://github.com/kratzert/Caravan # http://www.bom.gov.au/water/hrs/ (very high quality Australian streamflow data for climate change studies) GSDR and GSRD-I (Indices)
Designated			Dan Wright	Gerbrand Koren