

Contents

Plenary Session

- Ecohydrology and climate change science: A challenge and opportunity in understanding the Nile Basin System..... 1
Assefa M. Melesse, Wossenu Abteu and Gabriel Senay
- Scientific and Technological Interventions to Alleviate Transboundary Water Concerns in the Nile River Basin 4
Giday WoldeGabriel
- Securing Water for the Environment in the Mara River of Lake Victoria Catchment, Kenya and Tanzania 7
Michael McClain, Joseph Ayieko, Assefa Melesse, Praxedis Ndomba, Jay O’Keeffe, Leah Onyango, Rashid Tamatamah and D. Victor Wasonga
- Water Resources of the Nile Basin - Extreme Events, Climate Change, and Regional Security 10
G. L. Geernaert

Climate Change, Land-use Dynamics and Hydrology of the Nile River Basin

- Significance of Past Climatic Records in Terrestrial Sediments for Assessing Current and Future Conditions 12
Giday WoldeGabriel
- Analysis of Hydrology and Water Resources of the Upper Nile Basin under Climate Change 15
Ungtae Kim and Jagath Kaluarachch
- Assessment of Climate Change Impacts on the Hydrology of Gilgel Abbay Catchment in Lake Tana Basin, Ethiopia 38
Abdo K. S., Rientjes, T.H.M. and Gieske, A. S. M.
- Estimating Environmental Flow Requirements Downstream of the Chara Chara Weir on the Blue Nile River 57
Matthew P. McCartney, Abeyu Shiferaw and Yilma Seleshi
- Blue Nile Basin Hydrology Relationship to Climatic Indices 76
Wossenu Abteu, Assefa M. Melesse and Tibebe Dessalegne

Climate Change Predictions for East Africa – Certainty, Uncertainty, and Recommendations	90
<i>G. L. Geernaert</i>	

Hydrological Simulations and Modeling of Nile Hydrology

Application of a Physically-Based Water Balance Model on Four Watersheds throughout the Upper Nile Basin in Ethiopia	92
<i>Collick, Amy S., Easton, Zach M., Adgo, Enyew, Awulachew, Seleshi. B., Zeleke, Gete and Steenhuis, Tammo S.</i>	
Flow Analysis and Characterization of the Blue Nile River Basin System..	113
<i>Assefa M. Melesse, Wossemu Abtew and Tibebe Dessalegne</i>	
Non-Linear Parameterization of Lake Tana’s Flow System.....	127
<i>Ambro Gieske, Abeyou W.W., Getachew H.A., Alemseged T.H. and Tom Rientjes</i>	
Ground Water Flow Simulation of the Lake Tana Basin, Ethiopia	145
<i>Yirgalem A. Chebud and Melesse, A.M.</i>	
Hydrological Balance of Lake Tana, Upper Blue Nile Basin, Ethiopia	159
<i>Abeyou Wale, Tom Rientjes, Ambro Gieske, Remco Dost, and Seleshi Bekele</i>	
Hydrological Water Balance of Lake Tana, Ethiopia.....	181
<i>Yirgalem A. Chebud and Assefa Melesse</i>	
Modelling Erosion and Sedimentation in the Upper Blue Nile	199
<i>Steenhuis, Tammo. S., Collick, Amy S., Awulachew, Seleshi .B., Enyew Adgo, Ahmed, Abdassalam Abdalla and Easton, Zachary M.</i>	
Sediments Budget of the Nile System: A Geologic Perspective	212
<i>Mohamed G. Abdelsalam</i>	

Hydrometrological Analysis

Evaluation of Satellite Rainfall Estimates and Gridded Gauge Products over the Upper Nile Region.....	214
<i>Tufa Dinku, Steve Connor and Pietro Ceccato</i>	
Rainfall Estimation Using Satellite Remote Sensing and Ground Truth for Hydrologic Modeling over the Upper Blue Nile Region.....	228
<i>Fiseha B.M, Alemseged T.H., Rientjes, T.H.M. and Gieske, A. S. M.</i>	
Characteristics of Monthly and Annual Rainfall of the Upper Blue Nile River Basin.....	249
<i>Wossemu Abtew, Assefa M. Melesse and Tibebe Dessalegne</i>	

Simple Model and Remote Sensing Methods for Evaporation Estimation of Rift Valley Lakes in Ethiopia	262
<i>Assefa M. Melesse, Wossenu Abteu and Tibebe Dessalegne</i>	
Water Balance Dynamics in the Nile Basin	276
<i>Gabriel B. Senay, Kwabena Asante and Guleid Artan</i>	
Rainfall Intensity –Duration-Frequency Relationship for Selected Stations in Eastern Ethiopia	290
<i>Shimelis Birhanu and Tena Alamirew</i>	
River Basin Management and Water Use Issues (Part I)	
Hydrological Water Availability, Trends and Allocation in the Blue Nile Basin	291
<i>Seleshi Bekele Awulachew, Mathew McCartney, Yilma Seleshi Shiferaw and Yasir Mohammed</i>	
Blue Nile (Abay) Hydropower Potential, Prioritization and Tradeoffs on Priority Investments.....	292
<i>Desalegn, D.T., Awulachew, S.B., and Moges, S.A.</i>	
Critical Water Resources Management Issues and Challenges in the Nile River Basin	293
<i>Muluneh Yitayew</i>	
Building Resilience in Water Policy and Management: Integrated Strategies to Meet the Challenge of Climate Change.....	308
<i>Robert Wilkinson, Ph.D</i>	
River Basin Management and Water Use Issues (Part II)	
Enhancing Water Productivity in Crop-Livestock Systems of The Nile Basin: Improving systems and livelihoods	309
<i>Tilahun Amede, Katrien Descheemaeker, and Seleshi Bekele Awulachew</i>	
Wind Power-Water Equivalency for the Western US Region.....	311
<i>J. Doyle, D. Macuga, T. McTighe, M. Salazar and G. L. Toole</i>	
Impacts of Irrigation on Soil Characteristics in Selected Irrigation Schemes in the Upper Blue-Nile Basin	313
<i>Mekonnen Getahun, Enyew Adgo and Asmare Atalay</i>	
Flood Hazard and Risk Assessment in Fogera Woreda using GIS & Remote Sensing	331
<i>Dagnachew Legesse and Woubet Gashaw</i>	

Technical and Institutional Evaluation of Geray Irrigation Scheme in West Gojjam Zone, Amhara Region.....	362
<i>Gashaye Checkol and Tena Alamirew</i>	
The Blue Nile Pub: Knowledge Gaps in the Blue Nile Hydrology	364
<i>Y. A. Mohamed, T.S. Steenhuis, S. Uhlenbrook</i>	
Potential and Reliability of Small Hydropower in the Nile Basin.....	366
<i>Kwabena Asante, Gabriel Senay, Eugene Fosnight, Guleid Artan and Hussein Gadain</i>	