

## RESUME

Assefa M. Melesse, Ph.D., P.E., D. WRE  
Associate Professor  
Department of Earth and Environment, ECS 339  
Florida International University  
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### EDUCATION

- **Ph.D.**, Agricultural and Biological Engineering  
Concentration: Hydrologic Sciences  
Minor 1: Environmental Engineering  
Minor 2: Remote Sensing  
University of Florida, 2002  
  
*Dissertation:* Spatially Distributed Storm Runoff Modeling using Remote Sensing and GIS. *Chair:* Prof. Wendy Graham
  - **M.E (Master of Engineering)**, Agricultural and Biological Engineering  
Concentration: GIS (Geographic Information Systems)  
Minor: Civil Engineering  
University of Florida, 2000.
  - **M. Eng. Sc (Master of Engineering Science)**., Agricultural Engineering  
National University of Ireland, 1991.
  - **B.Sc.**, Agricultural Engineering  
Alemaya University, 1986.
  - **Graduate Certificates**
    - Interdisciplinary GIS  
University of Florida, 2002
    - GPS for Planners  
University of Florida & TRIMBLE, 2001
- 2004/05:** Listed in „**Who is Who in Science and Engineering**“ 8<sup>th</sup> Edition, 2004  
**2006/07:** Listed in, „**Who is Who in Science and Engineering**“ 9<sup>th</sup> Edition, 2006  
Selected for “ **Who is Who in America**”, 2007  
Selected for “**Who is Who in American Education**”, 2007

**REGISTRATION/CERTIFICATION:** Professional Engineer (Civil)

- Florida: License#: 58699
- North Dakota: License#: 4980

Diplomate, Water Resources Engineer (D. WRE)

## WORK EXPERIENCE

1. **2008-**
  - Associate Professor, Department of Earth and Environment  
Florida International University
2. **2004 – 2008**
  - *Assistant Professor*, Department of Earth and Environment  
Florida International University
3. **2002 - 2004**
  - *Research Assistant Professor & Assistant Professor*, Earth System Science  
Institute, School of Aerospace Sciences, University of North Dakota
  - *Adjunct Asst. Professor*, Department of Civil Engineering, School of  
Engineering and Mines, University of North Dakota.
4. **1998 - 2002: Research Assistant**, Department of Agricultural and Biological  
Engineering, University of Florida.
5. **March 1995 - May 1998: Assistant Professor II**, Department of Agricultural  
Engineering, Alemaya University, Ethiopia.
6. **Sep. 1986 - March 1995:**
  - *Lecturer II (1991-95)*
  - *Asst. Lecturer (1988-89)*,
  - *Graduate Assistant (1986-88)*,Department of Agricultural Engineering, Alemaya University.

### **Affiliated Faculty with:**

- Department of Civil and Environmental Engineering, FIU
- Honors College (Research), FIU

### **RESEARCH/EDUCATION GRANTS:**

1. NASA (2009-2014) WaterSCAPES: Science of Coupled Aquatic Processes in  
Ecosystems from Space,\$5,000,000, F. Miralles (PI), R. Price, A. Melesse (Co-PI),  
H. Fuentes, R. Garcia, D. DeAngelis, D. Fuller, M. Potts, I. Rodriguez-Iturbe, S.  
Wdowinski.
2. Internationalization of Biofuel Research, Curriculum and Business, USDA,  
\$100,000, M. Bhat (PI), Jayachandran, A. Melesse (Co-PI) ( 2008-20119)
3. Curriculum Enrichment, Instrumentation and Experiential Learning in Agroecology,  
USDA, \$292,000, M. Bhat (PI), Jayachandran, A. Melesse (Co-PI), and S. Kopter, J.  
Onsted. (2008-2011).
4. Geospatial and remote sensing application in mapping hotspots of soil erosion in the  
Minnesota River basin, University of Minnesota, NCED, \$34, 155 ( 2008-2009) PI

5. Transboundary Water for Biodiversity and Human Health in the Mara River Basin, Kenya and Tanzania, USAID: (2008-2010), (\$1,200,000) (Renewal).  
M. McClain (PI), A. Melesse
6. Nile Basin Hydrology and Ecology under Extreme Climatic Conditions.  
NSF, (2007-2008), (\$38,048), Melesse, A. (PI), Senay, G.
7. Multicultural Undergraduate Scholars in Agroecology and Urban Landscape at Florida International University: An Interdisciplinary Approach, USDA, (2007-2012) (\$150,000)  
Jayachandran (PI), M. Bhat, A. Melesse (Co-PI)
8. Limits to Growth in Agriculture and Emerging Sustainable Farming Systems in Developing Countries, USDA (2006-2008), (\$100, 000).  
M. Bhat (PI), Jayachandran, A. Melesse (Co-PI), M. Allen and A. Ravinet
9. Caribbean Coastal Scenarios, IAI (2006-2010), (\$427,426).  
A. Melesse (PI), M. McClain, J. FU, D. Webber, J. Ortiz,
10. Transboundary Water for Biodiversity in the Mara River Basin, Kenya and Tanzania, USAID: (2005-2007), (\$700,000).  
M. McClain (PI), A. Melesse
11. Planning visit to study the effects of vegetation and cropping pattern on soil moisture dynamics and river flow in the Upper Blue Nile Basin, Ethiopia, NSF, (2005-2006) (\$9,896). A. M. Melesse (PI), G. Senay
12. Curricular Development and Capacity Building in Agroecology Sciences, USDA, (2005-2007), (\$229,839).  
M. Bhat (PI), Jayachandran, A. Melesse (Co-PI), and S. Kopter
13. Global Water for Sustainability (GLOWS), USAID (PI: McClain), 2004-2009, \$3,750,000.  
Melesse: Lead Investigator for hydrological modeling component
14. Northern Great Plains Center for People and the Environment - Year 3, NASA (2003- 04), (\$2,700,000)  
Seielstad, G.A (PI), O. Beeri, A. Melesse, P. Carter, R. Hanley, , G. Johnson, S. Laguette, R. Phillips, S. Seelan, X. Zhang
15. Northern Great Plains Center for People and the Environment - Year 4. NASA (2004-05), (\$2,149,000)  
Seielstad, G.A (PI), O. Beeri, A. Melesse, P. Carter, R. Hanley, , G. Johnson, S. Laguette, R. Phillips, S. Seelan, X. Zhang
16. Quantifying Environmental Benefits from Precision Agriculture, USDA-ARS: (2003-2004) (\$347, 000)

Seielstad, G.A, R. Phillips (PI) and A. Melesse

17. Team Express: Crop Range Alert System-Phase 4, Raytheon, 2003 (\$ 688,265)  
Seielstad, G.A (PI), O. Beeri, P. Carter, A. Melesse, R. Hanley, G. Johnson, S. Laguette, R. Phillips, S. Seelan, X. Zhang

18. Team Express: Crop Range Alert System-Phase 5, Raytheon, 2004 (\$275,000)  
Seielstad, G.A (PI), O. Beeri, P. Carter, R. Hanley, A. Melesse, G. Johnson, S. Laguette, R. Phillips, S. Seelan, X. Zhang.

### Graduate Students

	<b>Name</b>	<b>Degree</b>	<b>Dept./University</b>	<b>Graduation</b>
1	Jason Oberg✓	M.Sc	Civil Engineering (UND)	2004
2	Pavel Terselich✓	M.Sc	Earth and Environment (FIU)	2007
3	John Stiefel✓	M.Sc	Earth and Environment (FIU)	2007
4	Himadri Biswas✓	M.Sc	Earth and Environment (FIU)	2008
5	Christina Hoffman✓	M.Sc	Earth and Environment (FIU)	2007
6	Nenpan Tukunda✓	M.Sc	Earth and Environment (FIU)	2009
7	Liya Mango ✓	M.Sc	Earth and Environment (FIU)	2010
8	Fukhrudin Khalif Maalim✓	M.Sc	Earth and Environment (FIU)	2010
9	Sirikanth Pilli*✓	M.Sc	Civil and Env. Engineering	2009
10	Luam Azmera*✓	M.Sc	Civil and Env. Engineering	2009
11	Sejal Kunchwar*✓	M.Sc	Civil and Env. Engineering	2009
12	Matilde Dugue ✓	M.Sc	Earth and Environment (FIU)	2010
13	Genevieve Diamond	M.Sc	Earth and Environment (FIU)	2010
14	Yirgalem Assegid	Ph. D	Earth and Environment (FIU)	2011
15	Shimelis Behailu	Ph. D	Earth and Environment (FIU)	2012
16	Mengistu Balew	M.Sc	Earth and Environment (FIU)	2010
17	Yonatan Sahle	Ph. D	Earth and Environment (FIU)	2013

\* Co-Advisor      ✓ Graduated

### **Committee member for**

Diana K. Ter-Ghazaryan	Ph. D	International Relations (FIU)
Celeste Diaz-Consul	Ph. D	Civil and Environment Engineering (FIU)
Mauro Nalesso✓	Ph. D	Civil and Environment Engineering (FIU)
Adelaide Hummel	Ph. D	Civil and Environment Engineering (FIU)
Beth McCarthy✓	M.Sc	Earth and Environment (FIU)
George Atisa✓	M.Sc	Earth and Environment (FIU)
Erin Hanan✓	M.Sc	Earth and Environment (FIU)
Mehrnoosh Mahmoudi	Ph. D	Civil and Env. Engineering (FIU)

### **Graduate students advised at Bahir Dar University, Ethiopia**

Mulate Mekonnen✓	M.Sc	Graduated (2009)
Tigist Bekele✓	M.Sc	Graduated (2009)
Meaza Tefera✓	M.Sc	Graduated (2009)

### **Supervised Research/Independent study projects**

#### **Graduate Students**

- Genevive Diamond, 2008. Rainwater Harvesting for Agriculture in the Bahamas – A Feasibility Study
- Nenpan Tunkuda, 2008, Utilizing GIS and Remote Sensing for Watershed Analysis in the Milk River basin, Jamaica
- Sejal Kuchwar, 2008., Statistical Downscaling for simulating climate change using SDSM
- Sirikanth Pilli, 2008, Estimation of Evapotranspiration using SEBAL Model for the Landsat 7 ETM+ Imagery of South Florida
- Matilde Dugue, 2008, Evaluation of wildlife’s habitat restoration in the Lake Apopka.
- Luam Azmera, 2009. GIS-based estimation of ravines sediment load from upland agricultural field for Le Seur River watershed in Minnesota.
- Yirgalem A. Chebud, 2009. Lake Tana Stage Level and Volumetric Simulation Using Stochastic Approaches

### **Undergraduate students**

- Debra Deras Coastal Flooding mapping using GIS (2006)
- Imrul Hack Climate change and water resources of South Florida (2006)
- Melisa Miano Land-use change analysis of South Florida (2006)
- Ashley Thomas Sediment analysis and estimation in the Le Suer River, Minnesota (2008)

### **International Research Scientists, Visiting Scholars and Interns hosted**

- Shimelis G. Setegn, Royal Institute of Technology, Sweden, March –Nov. 2009
- Flavio Lupia, Italian National Institute for Agricultural Economics, Italy, July-August, 2009
- P. K. Singh (Fulbright Scholar) , Maharana Pratap University of Agriculture and Technology, India, Sep. 2009-Jan. 2010

### **Courses developed/taught at FIU**

GIS 5050/EVR 4934 Environmental GIS  
EVR 3010 Energy Flow  
EVR 4211 Water Resources  
EVR 5215 Water Resources Assessment  
EVR 7056 GIS in Water Resources  
EVR 6268 Remote Sensing in Hydrology

### **Courses taught at University of North Dakota**

GLY 427 Groundwater Modeling Fall 2003

### **Courses taught at Alemaya University**

Ag En 201	Int. to Agricultural Engineering	(1986-87)
Ag En 211	Descriptive Geometry	(1986-87)
Ag En 222	Technical Drawing	(1987-89)
Ag En 331	Engineering Materials	(1991-92)
Ag En 561	Design of Farmstead Structures	(1992-96)
Ag En 332	Strength of Materials	(1994-96)
Agri 162	Int. to Agri. and Forestry	(1995-96)

## RESEARCH EXPERIENCE AND INTERESTS

- Spatially distributed hydrologic modeling and scaling
- Integration of hydrological models and remote sensing data into GIS
- Surface and groundwater interactions modeling
- Sediment transport
- Spatial and temporal land cover dynamics and scaling, spatial analysis
- Watershed characterization and modeling using Remote sensing and GIS
- Ecohydrology
- ANN, Neuro-fuzzy and data fusion techniques
- Water, carbon and energy flux coupling
- Evapotranspiration estimation using satellite imagery

## PROFESSIONAL AND UNIVERSITY SERVICE

- Editor-in-Chief, [Sensors](#), Remote Sensor section
- Editor, Nile River: Climate, land use and hydrology, Springer Science Book
- Guest Editor, Special Issue: Climate, weather and hydrology of East African Highlands" as part of the journal [Hydrology and Earth System Sciences \(HESS\)](#)
- Guest Editor, Special Issue: Climate change, land-use dynamics and ecohydrology of the Nile River basin, [Hydrological Processes](#)
- Member, Editorial Advisory Board, [J. of Spatial Hydrology](#), 2009-
- Editor-in-Chief, [J. of Spatial Hydrology](#) (2006-2009)
- Guest Editor, *Special Issue: [Remote Sensing of Natural Resources and the Environment](#)* for [Sensors](#) journal
- Editor, Proceedings of the [Nile workshop](#) on the hydrology and ecology of the Nile River under extreme conditions.
- Guest Editor, Special issue [Land surface Fluxes](#), Remote Sensing journal
- Member, Editorial Advisory Board for [Sensors](#) journal (RS section)
- Member, Editorial Board, [Remote Sensing](#) journal
- Member, Southwest Florida Water Management District (SWFWMD) Agricultural Advisory Committee
- Member, Graduate Admission Committee (EVR) (2004-2008), 2009-
- Chair, Curriculum Committee (EVR) 2008-2009
- Member, Curriculum Committee (EVR) (2007-2008)
- Secretary, Departmental Faculty Meeting (2005/06)
- Member, Science Task Force (EVR) (2005-2006)
- Member, University-wide Remote Sensing and GIS Advisory Committee (FIU)2004-
- Member of College-wide School of the Environment exploratory Committee (2005)
- Member, Faculty Advisory Council for Center for African New World Studies
- Chair, Coordinating Committee for Graduate Certificate in Water, Environment, and Development Studies (WEDev), (EVR)
- Member, Coordinating Committee for Certificate in Agroecology, (EVR)
- Member, Coordinating Committee for Certificate in GIS (FIU)
- Florida Chapter Representative in SWFWMD, American Society of Agricultural

- and Biological Engineers (ASABE).
- Alternate FIU Representative, Consortium of Universities for the Advancement of Hydrological Science (CUAHSI)

### **PROFESSIONAL MEMBERSHIP**

- Member, American Geophysical Union (AGU), (1999 - present)
- Member, American Society of Agricultural Engineers (ASAE), (1999 - present)
- Member, Gamma Beta Chapter of Alpha Epsilon, (2000 - present)

### **JOURNAL/BOOK CHAPTER REVIEWER**

- Water Resources Research
- Advances in Water Resources
- Journal of Hydrology
- Remote Sensing of Environment
- Hydrological Processes
- Journal of Environmental Management
- Sensors
- Journal of American Water Resources Association
- Transactions of American Society of Agricultural Engineers: Soil and Water Division
- Transactions of American Society of Agricultural Engineers: Information & Electrical Technologies Division
- Hydrobiologia
- Hydrological Sciences Journal
- Journal of Water Resources Management
- Atmospheric Research
- Photogrammetric Engineering and Remote Sensing (PE&RS)
- Journal of Coastal Research
- Journal of Environmental Quality
- CRC Press/Taylor & Francis Group
- Conference of Southern Graduate Schools Thesis Award

### **PROPOSALS REVIEWED FOR**

- NSF (Panel Review), Environmental Sustainability Program
- U.S. Civilian Research & Development Foundation, Cooperative Grants Program
- National Institute for Space Research Program, Bureau External Research (The Netherlands), Earth Observation Research
- Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET)
- BARD, the United States - Israel Binational Agricultural Research & Development Fund
- NIWR-USGS National Competitive Grants Program
- NSF, Geography and Regional Science Program
- USDA

## PUBLICATIONS

155+ journal articles, book, book chapters, proceedings, edited special issues, conference abstracts/presentations and reports)

### Peer-reviewed published/in-press/accepted journal articles

\* Supervised graduate student

\*\* undergraduate student advised

\*\*\* Post-doctoral

1. Melesse, A., Abtew, W., Desalegn, T. 2009. *Evaporation estimation of Rift Valley Lakes in Ethiopia: Comparison of Models*, *Sensors* 9(12), 9603-9615; doi:10.3390/s91209603.
2. Xixi Wang, Shiyong Shang, Zhongyi Qu, Tingxi Liu, Melesse, A. 2010 *Simulated Wetland Conservation-Restoration Effects on Water Quantity and Quality at Watershed Scale*, *J. of Environmental Management*, accepted
3. Xixi Wang, Tingxi Liu, Shiyong Shang, Dawen Yang, and Melesse, A. 2010 *Estimation of Design Discharge for an Ungauged Overflow Receiving Watershed Using One-Dimensional Hydrodynamic Model*, *Journal of River Basin Management (JRBM)*, accepted
4. Melesse, A., Athanasios G. Loukas, Gabriel Senay, Muluneh Yitayew, 2009. *Climate change, land-cover dynamics and ecohydrology of the Nile River Basin*, *Hydrological Processes*, Special Issue: Nile Hydrology 23(26): 3651-3652.
5. Melesse, A., Abtew, W., Desalegn, T. and Wang, X. 2009. *Low and High Flow Analysis and Wavelet Application for Characterization of the Blue Nile River System*, *Hydrological Processes*, 24(3): 241 – 252.
6. \*Chebud, Y.A., Melesse, A., 2009. *Numerical Modeling of the Groundwater Flow System of the Gumera Sub-Basin in Lake Tana Basin, Ethiopia*, *Hydrological Processes*, Special Issue: Nile Hydrology 23(26): 3694-3704.
7. \*\*\*Setegn, S.G., Srinivasan, R., Dargahi, B., Melesse, A., 2009. *Spatial Delineation of Soil Erosion Prone Areas: Application of SWAT and MCE Approaches in the Lake Tana Basin, Ethiopia*, *Hydrological Processes*, Special Issue: Nile Hydrology 23(26): 3738-3750.
8. \*\*\*Setegn, S.G., Bijan Dargahi, B., Srinivasan, R., 2009. Melesse, A. M. *Modelling of Sediment Yield from Anjeni Gauged Watershed, Ethiopia Using SWAT*, JAWRA, in press

9. Abtew, W., Melesse, A., Desalegn, T. 2009. *El Niño Southern Oscillation link to the Blue Nile River Basin hydrology*, *Hydrological Processes*, Special Issue: Nile Hydrology, 23(26): 3653-3660.
10. \*\*\*Setegn, S.G., Srinivasan, R., Melesse, A., Dargahil ,B., 2009. *SWAT model application and prediction uncertainty analysis in the Lake Tana Basin, Ethiopia* *Hydrological Processes*, 24(3): 357 – 367.
11. \*Stiefel, J., Melesse, A., McClain, M., Price, R.M., Anderson, A.P., Chauhan, N.K. 2009. *Effects of rainwater harvesting induced artificial recharge on the groundwater of wells in Rajasthan, India*, *Hydrogeology Journal* 17(8): 2061-2073.
12. \*Chebud, Y.A., Melesse, A., 2009. Modeling Lake Stage and Water Balance of Lake Tana, Ethiopia, *Hydrological Processes*, 23(25): 3534-3544.
13. Abtew, W., Melesse, A., Desalegn, T 2009. *Spatial, inter and intra-annual variability of the Blue Nile River Basin Rainfall*, *Hydrological Processes*, 23(21): 3075-3082.
14. Wang, X., Shang, S. Yang,W., and Melesse, A., 2008. *Simulation of an Agricultural Watershed Using an Improved Curve Number Method in SWAT*, *Tans. of American Society of Agri. and Bio. Engineers*, **51(4)**: 1323-1339.
15. Wang, X., Yang, W., Melesse. A., 2008. *Using hydrologic equivalent wetland concept within SWAT to estimate streamflow in watersheds with numerous wetlands* *Tans. of American Society of Agri. and Bio. Engineers*, Vol. 51(1): 55-72
16. Melesse, A., Weng, Q., Thenkabail, P., Senay,G. 2008.. *Remote Sensing Sensors and Applications in Environmental Resources Mapping and Modeling*, Special Issue: Remote Sensing of Natural Resources and the Environment, *Sensors*, 7, 3209-3241.
17. Senay, G.B, J.P. Verdin, R. Lietzow , A.M. Melesse 2008. *Global Daily Reference Evapotranspiration Modeling and Validation* *Journal of the American Water Resources Association (JAWRA)* 44(4):969-979.
18. Melesse, Jayachandran, K., Zhang, K. 2008. *Modeling Coastal Eutrophication at Florida Bay using neural networks*. *Journal of Coastal Research*, 24:190–196
19. Melesse, A., Frank, A, Nangia, V, Liebig, M and Hanson, J. 2008. *Analysis of Energy Fluxes and Land Surface Parameters in Grassland Ecosystem: Remote Sensing Perspective* *Int. Journal of Remote Sensing*, 29(11): 3325 – 3341.

20. Melesse, A, Nangia, V. Wang, X., McClain, M. 2007. ***Wetland Restoration Response Analysis using MODIS and Groundwater Data***  
Special Issue: Remote Sensing of Natural Resources and the Environment, SENSORS, 7: 1916-1933
21. Senay, G.B, , M. Budde, J.P. Verdin, **A.M. Melesse** 2007. ***A Coupled Remote Sensing and Simplified Energy Balance Approach to Estimate Actual Evapotranspiration from Irrigated Fields***  
Special Issue: Remote Sensing of Natural Resources and the Environment, SENSORS journal 7, 979-1000
22. Wang, X., **Melesse, A.M.** McClain, M. 2007. ***Water quality changes as result of coalbed methane development in a Rocky Mountain watershed***, J. of American Water Resources Association 43 (6): 1383-1399
23. Wang, X., **Melesse, A.M** and Yang, W. 2006. ***Influences of Potential Evapotranspiration Estimation Methods on SWAT's Hydrologic Simulation in a Northwestern Minnesota Watershed***. Transactions of theASAE. 49(6): 1755-1771.
24. Wang, Xixi, **Melesse, A.M.** Kelsch, S.W., and Yang, W 2006. ***DISCUSSION: "Adapting Existing Models to Examine Effects of Agricultural Conservation Programs on Stream Habitat Quality," by F. Douglas Shields, Jr., Eddy J. Langendoen, and Martin W. Doyle***.  
J. of American Water Resources Association 42(6):1711-1713.
25. Wang, Xixi, **Melesse, A.M.**, Yang, W., 2006. ***Development of a Multivariate Regression Model for Soil Nitrate-Nitrogen Content Prediction*** J. of Spatial Hydrology 6(2): 38-56
26. Melesse, A.M., Wang X. 2006. ***Multi-temporal scale hydrograph prediction using Artificial Neural Networks***, J. of American Water Resources Association 42(6) 1647-1657.
27. Melesse, A.M., Nangia, V., Wang, X. 2006, ***Hydrology and Water Balance of Devils Lake Basin: Part 1. Hydrometeorological Analysis and Lake Surface Area Mapping***, J. of Spatial Hydrology, 6(1): 120-132.
28. Melesse, A. M., Nangia, V., Wang, X., 2006., ***Hydrology and Water Balance of Devils Lake Basin: Part 2. Grid-Based Spatial Surface Water Balance Modeling*** J. of Spatial Hydrology, 6(1): 133-144.
29. \*Oberg, J., **Melesse, A. M.** 2006. ***Evapotranspiration Dynamics at an Ecohydrological Restoration Site: An Energy Balance and Remote Sensing Approach***, J. of American Water Resources Association 42(3): 565-582.

30. Wang, Xixi, **Melesse, A.M** 2006. *Effects of STATSGO and SSURGO as Inputs on SWAT Model's Snowmelt Simulation*, J. of American Water Resources Association Vol. 42 (5): 1217-1236.
31. Melesse, A.M., J. Oberg, O. Beeri, Nangia, V., Baumgartner, D.2006, *Spatiotemporal Dynamics of Evapotranspiration and Vegetation at the Glacial Ridge Prairie Restoration*, Hydrological Processes, 20(7): 1451-1464.
32. Wang, Xixi, **Melesse, A.M**. 2005 *Evaluations of the SWAT Model's Snowmelt Hydrology in a Northwestern Minnesota Watershed*. Trans. of ASAE 48(4): 1359 –1376.
33. Melesse, A. M., Hanley, R. 2005. *Artificial Neural Network Application for Multi-Ecosystem Carbon Flux Simulation*, Ecological Modeling 189, 305–314
34. Melesse, A., Nangia, V., 2005. *Spatially distributed surface energy flux estimation using remotely-sensed data from agricultural fields*. Hydrological Processes 19 (14): 2653-2670.
35. Melesse, A. M., Hanley, R., 2005, **Energy and Carbon Flux Coupling: Multi-ecosystem Comparisons Using Artificial Neural Network** American Journal of Applied Sciences 2 (2): 491-495.
36. Melesse, A. M., W. D. Graham 2004. *Storm runoff prediction using spatially distributed travel time concept utilizing remote sensing and GIS*. J. of American Water Resources Association 40(4): 863-879.
37. Melesse, A. 2004. *Spatiotemporal Dynamics of land surface parameters in the Red River of the North Basin*. Physics and Chemistry of Earth, 29: 795-810. (Special Issue: Anthropogenic impacts on catchment processes)
38. Melesse, A. 2004. *DEM-RS-GIS based storm runoff response study of Heart River sub-basin, Missouri River Basin*. J. of Environmental Hydrology, No. 4, Vol. 12.
39. Melesse, A. M., J. D. Jordan 2003. *Spatially Distributed Watershed Mapping and Modeling: Land Cover and Microclimate Mapping using Landsat Imagery Part 1*, J. of Spatial Hydrology (e-journal), Vol. 3, No. 2.
40. Melesse, A. M., W. D. Graham 2003. *Spatially Distributed Watershed Mapping and Modeling: GIS-Based Storm Runoff Response and Hydrograph Analysis Part 2*, J. of Spatial Hydrology (e-journal), Vol. 3, No. 2.
41. Melesse, A. M., S. F. Shih, 2002. *Spatially Distributed Storm Runoff Depth Estimation using Landsat Images and GIS*. Computers and Electronics in Agriculture, Vol. 37: 173 – 183.
42. Melesse, A. M., J. D. Jordan, 2002. *A Comparison of Fuzzy vs. Augmented-*

*ISODATA Classification Algorithm for Cloud and Cloud-Shadow Discrimination in Landsat Imagery*. Photogrammetric Engineering and Remote Sensing, Vol. 68(9): 905-911.

43. Melesse, A. M., S. F. Shih, 2000. *Remote Sensing and GIS Database for Runoff Curve Number Change Assessment*. Soil and Crop Science Society of Florida Proceedings, Vol. 59: 141-146.

**Peer-reviewed in review**

44. Melesse, A.M., Ahmad, S., McClain, M., Wang, X., Lim, H., Nangia, V. *Sediment Load prediction in Large Rivers: ANN Approach*. (in review)
45. \*\*\*Setegn, S., David Rayner, Assefa M Melesse, Bijan Dargahi, Ragahavan Srinivasan, 2010 *Impact of Changing Climate on Water Resources Variability in the Lake Tana Basin, Ethiopia*, Water Resources Research, (in review)
46. Wang, X., Pacchai, S. Melesse, A., *Analysis of Depression Storage in a Glaciated Watershed Using Topographic Datasets With Different Resolutions* (in review)
47. \*Defersha, M., S. Quraishi, and A. Melesse **Evaluation of interrill erosion models and slope steepness factors using laboratory rainfall simulator data, Special Issue: Climate, weather and hydrology of East African Highlands, HESS, (in review)**
48. \*Defersha, M., S. Quraishi, and A. Melesse **Interrill erosion, runoff and sediment size distribution as affected by slope steepness and antecedent moisture content, Special Issue: Climate, weather and hydrology of East African Highlands, HESS, (in review)**
49. \*Mango, L., A. M. Melesse, M. E. McClain, D. Gann, and S. G. Setegn **A modeling approach to determine the impacts of land use and climate change scenarios on the water flux of the upper Mara River, Kenya, Special Issue: Climate, weather and hydrology of East African Highlands, HESS, (in review)**
50. \*Chebud, Y., and A. Melesse **Stage Level, Volume, and Time-frequency change information content of Lake Tana using Stochastic Approaches, Special Issue: Climate, weather and hydrology of East African Highlands, HESS, (in review)**
51. \*Chebud, Y., and A. Melesse **Operational Prediction of Groundwater Fluctuation in South Florida using Sequence based Markovian Stochastic Model**, Water Resources Management, (in review)

52. Wondie, M., Schneider, W., **Melesse, A.M.**, and Teketay, D. 2010. Spatial and Temporal Land Cover Changes in the Simen Mountains National Park, a World Heritage Site in Northwestern Ethiopia, Remote Sensing, (under review)
53. Wondie, M., Schneider, W., **Melesse, A.M.**, and Teketay, D. 2010. Relationship among Environmental Variables and Land Cover in the Simen Mountains National Park, a World Heritage Site in Northern Ethiopia. Remote Sensing, (under review)

### Books

54. Melesse, A., *Nile River: Hydrology, climate and land use*, Springer Science Publisher (coming soon)
55. Abteu, M, and **Melesse, A.** 2008, *Proceedings of the Nile workshop on the hydrology and ecology of the Nile River under extreme conditions*, Aardvark Global Publishing, 387pp.

### Book Chapter

56. Wang, X., Garza, J. Whitney, M. **Melesse, A.M.**, and Yang, W. 2008. *Prediction of Sediment Source Areas Within Watersheds as Affected by Soil Data Resolution*, In Environmental Modelling: New Research (ed. Paul N. Findley; ISBN: 978-1-60692-034-3), Ch. 7, Nova Science Publishers, Inc., Hauppauge, NY 11788.
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### **Professional Trainings offered**

1. Advanced GIS, Bureau of Water Resources, ANRS, SWHISA, 2010, Bahir Dar, Ethiopia.
2. GIS in Water Resources, Bureau of Water Resources, ANRS, SWHISA, 2010, Bahir Dar, Ethiopia.
3. Image Analysis, Bureau of Water Resources, ANRS, SWHISA, 2010, Bahir Dar, Ethiopia.
4. Principles of GIS, Bureau of Water Resources, ANRS, SWHISA, 2009, Bahir Dar, Ethiopia
5. SWAT application to watershed modeling in the Mara River basin, June 26-27, 2006, Kissimu, Kenya.
6. SWAT: Theory and application, May 17-18, 2008, Quito, Ecuador.
7. SWAT application in the Caribbean Islands. May 26-27, 2009, Santa Domingo, Dominican Republic.
8. SWAT application in the Caribbean Islands. May 29-30, 2009, Kingston Jamaica.

### **Invited Seminars/Lectures**

1. **Understanding the ecohydrological response of impacted watersheds to restoration: Remote sensing and GIS application**, National Center for Earth-Surface Dynamics, An NSF Center of Excellence, Oct. 30, 2006: University of Minnesota.
2. **Evapotranspiration mapping using remote sensing** (Video conference Lecture), April 2005, Department of Earth Systems and Policy, University of North Dakota.
3. **Evapotranspiration mapping using remote sensing** (Video conference Lecture), April 2006, Department of Earth Systems and Policy, University of North Dakota.
4. **The role of science in integrated water resources management**, July 2006, Alemaya University, Ethiopia.
5. **Water Resources Research: Challenges and opportunities**, 2006, Civil and Environmental Engineering, FIU.

6. **The role of GIS and remote sensing in water resources Research**, 2006, Honor's College, FIU.
7. **GIS and remote sensing in water resources research: Application examples**, Feb. 2006, GIS day, FIU.
8. **Impervious surface area dynamics and storm runoff response**, Sep. 2006, Environmental Studies, FIU.
9. **Impervious surface Dynamics in South Florida**, Oct. 2006, Applied Research Center, FIU.