

## CURRICULUM VITAE

### Thomas Gebrenegus

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### EDUCATION

- 2003 - Ph.D., Soil Physics**  
Soil and Land Resources Division, University of Idaho  
**Dissertation:** Application of X-ray Computed Tomography to Study Initiation and Evolution of Surface Cracks in Sand-Bentonite Mixtures
- 1999 - 2001 M.Sc. in Water Resources in Tropical and Subtropical Regions**  
Suderburg University, Germany
- 1992 - 1995 BS in Soil and Water Conservation**  
Asmara University, Asmara, Eritrea.

### PROFESSIONAL EXPERIENCE

- 2008 - In Charge of the X-ray CT Lab in Washington State University under Dr. Muhunthan Balasingam**
- 2005 Teaching Assistant for Soil and Environmental Physics**  
University of Idaho, Moscow
- 1997 - 1999 Expert in Irrigation, Soil and Water Conservation and Forestry Activities**  
Eritrea Ministry of Agriculture, Department of Land Resource and Protection
- 1991 - 1992 Science Teacher**  
Arbaete Asmara Junior School, Asmara, Eritrea

### TECHNICAL SKILLS & QUALIFICATIONS

- Excellent Knowledge of Image Analysis Software: MATLAB, Image-Pro Plus, and VISILOG 5
- Certified X-Ray CT Operator, Washington State University, since 2003 up to present.
- Water Management Certificate, USAID and USDA/NRCS, Eritrea, 1997
- Participatory Learning and Action (PLA) Certificate, Ministry of Education of Eritrea and UNICEF, Eritrea, 1995
- German Language Training for six months, Bremen Goethe Institute, Bremen, Germany.

## PUBLICATIONS

### **Refereed Conference Proceedings**

- (1) GEBRENEGUS, T., M. TULLER, and B. MUHUNTHAN, 2006. The Application of X-ray Computed Tomography for Characterization of Surface Crack Networks in Sand-Bentonite Mixtures. In: J. Desrues, G. Viggiani, and P. Besuelle (Eds.), *Advances in X-ray Tomography for Geomaterials*, pp. 207-212. ISTE Publishing Company, ISBN:1905209606.

### **Theses**

- (1) GEBRENEGUS, T., 2001. Risk assessment of heavy metals in top soils and fodder plants of flood plains along the Middle Elbe River. M.Sc. Thesis. Suderburg University, Germany.
- (2) GEBRENEGUS, T., 1995. The application of soil amendments to control water erosion. BS Thesis, Asmara University, Eritrea.

### **Conference Presentations & Published Abstracts**

- (1) TULLER, M., and T. GEBRENEGUS. 2008. Polypropylene Fiber Amendments to Alleviate Initiation and Evolution of Desiccation Cracks in Bentonite Liners. SSSA International Annual Meeting. Houston, TX. October 5-9, 2008.
- (2) IASSONOV, P., M. TULLER, and T. GEBRENEGUS. 2008. Segmentation of X-ray Tomography Images: A Crucial Step for Quantitative Analysis of Porous Structures. SSSA International Annual Meeting. Houston, TX. October 5-9, 2008.
- (3) GEBRENEGUS, T., B.E. LASSITER, N. ARAKI, and M. TULLER, 2007. Evaluation of Global and Local Image Binarization Techniques for Quantitative Analysis of X-ray CT Images of Geological Materials. SSSA International Annual Meeting. New Orleans, LA. November 4-8, 2007.
- (4) TULLER, M., and T. GEBRENEGUS, 2007. Assessment of the Impact of Physico-Chemical Factors on Initiation and Evolution of Desiccation Cracks in Bentonite-Sand Mixtures with X-ray Computed Tomography. SSSA International Annual Meeting. New Orleans, LA. November 4-8, 2007.
- (5) GEBRENEGUS, T., M. TULLER, and B. MUHUNTHAN, 2006. The Application of X-ray Computed Tomography for Characterization of Surface Crack Networks in Sand-Bentonite Mixtures. Abstracts of the 2<sup>nd</sup> International Workshop on X-Ray CT for Geomaterials, October 4-7, 2006 - Grenoble & Aussois, France.
- (6) GEBRENEGUS, T., and M. TULLER. 2006. Initiation and Evolution of Surface Crack Networks in Sand-Bentonite Mixtures Observed with X-Ray Computed Tomography. 48<sup>th</sup> Annual Idaho Academy of Science Meeting & Symposium, March 23-25, 2006, Moscow, ID.
- (7) GEBRENEGUS, T., and M. TULLER, 2005. X-Ray Computed Tomography for Qualitative and Quantitative Characterization of Surface Crack Networks in Clay Soils. SSSA Annual Meeting Abstracts, Nov. 6-10, Salt Lake City, UT.
- (8) GEBRENEGUS, T., and M. TULLER, 2005. Quantitative Characterization of Surface Crack Networks in Sand-Bentonite Mixtures with X-Ray Computed Tomography. INRA Environmental & Subsurface Science Symposium, September 19-21, 2005, Big Sky, MT.

- (9) GEBRENEGUS, T., M. TULLER, and B. MUHUNTHAN, 2004. Visualization and Quantification of Spatial Phase Arrangement in Bentonite-Sand Mixtures with X-Ray Computed Tomography. SSSA Annual Meeting Abstracts, Oct. 31 - Nov. 4, Seattle, WA.
- (10) GEBRENEGUS, T., M. TULLER, and B. MUHUNTHAN, 2004. Visualization of Spatial and Transient Phase Distributions in Porous Materials with X-Ray Computed Tomography. INRA Environmental & Subsurface Science Symposium "Environmental and Subsurface Science Applied to Energy, Nuclear, and National Security Research", September 20-22, 2004, Spokane, WA.

### SCHOLASTIC HONORS AND AWARDS

- 2007** Nomination for Gamma Sigma Delta the Honor Society of Agriculture
- 2007** Nomination for Golden Key International Honor Society
- 2006** Easton Scholarship
- 2006** 3<sup>rd</sup> Place, Poster Competition, Idaho Academy of Sciences Meeting, March 23-25, 2006. Moscow, ID.
- 2004** Top 6 Finalist, Poster Competition, INRA Environmental & Subsurface Symposium "Environmental and Subsurface Science Applied to Energy, Nuclear & National Security Research". September 20-22, 2004, Spokane, WA.
- 2003 - 2005** Inland Northwest Research Alliance (INRA) Fellowship
- 1999 - 2001** German Academic Exchange Service Fellowship (DAAD)
- 1990** Great Distinction – National Organization for Examinations, Ethiopian School Leaving Certificate Examination (ESLCE)

### PROFESSIONAL AFFILIATIONS

- American Geophysical Union (AGU)
- Soil Science Society of America (SSSA)

### PROFESSIONAL SERVICE

- Peer review service for Soil Science Society of America Journal

### VOULANTRAY EXTRACURRICULAR ACTIVITIES

- **1992-1995** Summer works in soil and water conservation activities with farmers
- **1996** Researcher in a project sponsored by UNICEF with the Ministry of Education in Eritrea to assess the participation of women in education
- **1991** Documentation work for one month with the ministry of health in Eritrea