

BEREKET HAILEAB

Carleton College
Department of Geology
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EDUCATION

Ph.D., Department of Geology & Geophysics University of Utah, Salt Lake City, Utah
Masters of Science in Geology, University of Utah, Salt Lake City, Utah
Bachelor of Science in Geology, Addis Ababa University, Addis Ababa, Ethiopia

HONORS

AFMS Scholarship, 1992, AFMS Scholarship Foundation, Inc.
Teaching Assistantship Award, 1991-92, College of Mines and Earth Sciences
Teaching Assistantship Award, 1989-90, Department of Geology and Geophysics
Certificate of Excellence from *Who is Who is Among American Colleges*, 1988
United Nations Development Program Scholarship, 1986 - 1988

PROFESSIONAL SOCIETIES AND SERVICES

Member of the American Geophysical Union
Member of Geological Society of America
Member of Sigma Xi

TEACHING EXPERIENCE

Fall 2008: Program Director, Associated Colleges of the Midwest, Studies in Human Evolution and Ecology Program, Tanzania

CARLETON COLLEGE—Associate professor, *September 1994-present*. Duties include teaching mineralogy, petrology, geochemistry, introductory geology, environmental geology. Geodynamics of the East Africa Rift System, and methods in analytical geology. Supervised undergraduate senior thesis.

UNIVERSITY OF UTAH DEPARTMENT OF GEOLOGY & GEOPHYSICS—Associate Instructor, *January 1989- June 1993*. Taught introductory geology class for undergraduate students. Taught field camp for eight weeks.

UNIVERSITY OF UTAH DEPARTMENT OF GEOLOGY & GEOPHYSICS—Teaching Assistantship & Research Assistant, University of Utah, Salt Lake City, Utah, *January 1988 - 1993*. Taught geological and geophysical mapping, Planned and organized an eight week field-camp, Managed field camp for maximizing learning experience and safety maintenance. Assistant teacher for Physical Geology, Historical Geology, Environmental Geology, Geochronology, Oceanography, Stratigraphy, Optical Mineralogy, Petrology, Advance Igneous Petrology and Advance Metamorphic Petrology. Assisted in gravity measurements in the Yellowstone area and mapped using GPS to determine the nature and rate of deformation of the Wasatch Fault in Utah.

KOABI FORA FIELD SCHOOL—Instructor, Nairobi, Kenya AFRICA, Harvard University Summer School and National Museums of Kenya, *June 1990 - September 1990*. Instructor of field geology for approximately 60 undergraduate students.

PROFESSIONAL INDUSTRY POSITIONS

WEMBERE MONANGA PALEONTOLOGICAL EXPEDITION, TANZANIA —Field Geologist, *June 1992- September 1992*. Conducted geological mapping and fossil collection of an archaeological site in Tanzania.

UTAH GEOLOGICAL & MINERALOGICAL SURVEYS—Consultant, *July 1988*. Petrology consultant

BHP-UTAH INTERNATIONAL—Field Geologist, *July 1991 - September 1991*. Duties include geochemical and geological mapping and petrology consulting

ETHIOPIAN INSTITUTE OF GEOLOGICAL SURVEYS—Field Geologist, Addis Ababa, Ethiopia AFRICA, *September 1983 - December 1985*. Supervisor for a 6 month project trench digging a quartz vein for gold. Conducted integrated Geological, Geophysical and Geochemical survey. Interpreted Geological, Geophysical and Geochemical data gathered in the field and laboratory. Prepared written report.

ADDIS ABABA UNIVERSITY– Addis Ababa, Ethiopia AFRICA, *September 1980 - August 1983*.
Drafted for the Departments of Geology, Pharmacy and Biology.

REFEREED JOURNAL ARTICLES (*undergraduate students)

- F. H. Brown, **Bereket Haileab** and Ian McDougall, 2006. Sequence of tuffs between the KBS Tuff and the Chari Tuff in the Turkana Basin, Kenya and Ethiopia. *Journal of Geological Society*, London, Vol. 163, p. 185-204.
- Benjamin Harrison*, **Haileab, Bereket**, Douglas G. Pyle 2005 (in review). Geochemical Tracing of Basalt Provinces in the Early History of the Yellowstone Hot Spot.
- Haileab, Bereket**, Francis H. Brown, Ian McDougall, Patrick N. Gathogo, 2004. Gomba Group basalts and initiation of Pliocene deposition in the Turkana depression, northern Kenya and southern Ethiopia. *Geological Magazine*, V. 141, p. 41-53.
- Davidson, C., **Haileab, B.**, 2003, Metamorphism of silicious dolostone: An Example from Alta Stock, Utah. On the Cutting Edge. Serc.Carleton.edu/NAGTworkshops/petrology/teaching_examples/2227.html
- Haileab, Bereket** and Brown, F.H., 1994. Tephra correlations Between Gadeb Prehistoric Site, Ethiopia, and the Turkana Basin. *Journal of Human Evolution*. v.26, pp. 167-173.
- Haileab, Bereket** and Feibel, C. S., 1993. Tephra from Fejej, Southern Ethiopia. *Journal of Human Evolution*. v. 25, p. 515-517.
- Haileab, Bereket and T. Harrison, 1993. Stratigraphy and mammalian paleontology of Neogene sites in the Manonga Valley, north-central Tanzania, East Africa (in *Society of Vertebrate Paleontology*, 53rd annual meeting) *Journal of Vertebrate Paleontology* (1993), 13(3, Suppl.):39
- Haileab, Bereket** and Brown, F.H., 1992. Turkana Basin-Middle Awash Valley Correlation and the Age of Sagontole and Hadar Formations. *Journal of Human Evolution*. v. 22, p. 453-468.
- Francis H., Brown, Andrei M. Sarna-Wajcicki, Chalers E. Meyer and **Bereket Haileab**. 1992. Correlation of Pliocene and Pleistocene tephra layers between the Turkana Basin of East Africa. *Quaternary International*. v. 13/14, p. 55-67.
- Martin Picford, Brigitte Senut, Gerard Poupeau, Francis H. Brown, and **Bereket Haileab**. 1991. Correlation of tephra layers from the western Rift Valley (Uganda) to the Turkana Basin (Ethiopia/Kenya) and the Gulf of Aden. *C. R. Acad. Sci. Paris t. 313, Serie II*, p. 223-229.

Laboratory manual

- Haileab, Bereket**. Optical mineralogy laboratory manual. 66 pages, 300 thin-sections, with more than 60 minerals, and several problem sets and laboratory activities.

THESES

- Haileab, Bereket**, 1995 Geochronology, Geochemistry and Tephrostratigraphy of the Turkana Basin, Southwestern Ethiopia, Northern Kenya. Ph.D. Thesis University of Utah. 369 p.
- Haileab, Bereket**. 1988. Characterization of tephra from the Shungura Formation, Southwestern Ethiopia. M. Sc. Thesis University of Utah. 130 p.

ABSTRACTS AND PRESENTATIONS

- GIBBONS*, Jack, MCGUIRE*, Zack, BARRET*, Michael, MITCHELL*, William, and **HAILEAB, Bereket**, 2007 GEOCHEMISTRY OF SERICITE FROM A SAPROLITE OF THE PRECAMBRIAN MORTON GNEISS IN THE MINNESOTA RIVER VALLEY OF SOUTHWESTERN MINNESOTA. GSA Abstracts with Programs Vol. 39, Paper No. 10-6
- ANDREWS*, Lauren, BERGMAN*, Sarah, JIMENEZ*, Gloria, TAKESHITA*, Yuichiro, ULBERG*, Carl, and **HAILEAB, Bereket**, 2007 CARBON AND OXYGEN ISOTOPE ANALYSIS OF MODERN FRESHWATER MOLLUSK SHELLS: APPLICATIONS FOR CLIMATE RECONSTRUCTION. GSA Abstracts with Programs Vol. 39, Paper No. 117-28.
- Meyer*, K. J., , Ward*, M. E., and Haileab, B, 2006. TRACING NITRATE-N FROM A DRAINAGE TILE THROUGH SURFACE WATERS OF THE CANNON RIVER WATERSHED: GSA Abstracts with Programs Vol. 38, No. 7.
- Haileab, Bereket 2006. INTRODUCTORY COURSE PROJECTS AS AN OPPORTUNITY FOR WATER QUALITY MONITORING AND EDUCATION. GSA Abstracts with Programs Vol. 38, No. 7.
- Woldehaimanot, Beraki, Haileab, Bereket, Seismo-tectonics of the Red Sea region in Eritrea: the case of the "transform faults". Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract S21C-02-7230, 2005.
- BROWN, Francis H, MCDOUGALL, Ian and **HAILEAB, Bereket** 2005. TEPHROSTRATIGRAPHY OF THE OKOTE COMPLEX, OMO-TURKANA BASIN, KENYA AND ETHIOPIA. Geological Society of America, Abstracts with Program. Annual meeting in Salt Lake City Paper No. 14-13
- ROOT*, Ellen, GIBBONS, Jack, JONES, Whit, SCHWARZ, Bessie, HYNEK, Scott, and **HAILEAB, Bereket**. 2005. NATIONAL TRENDS IN RAINWATER CHEMISTRY Geological Society of America, Abstracts with Program North-Central Section - 39th Annual Meeting in Minneapolis. Paper No. 24-16.
- STALKER*, Kathryn, KNUDSON, Karla, RUTHENBURG, Travis, SCHMITT, Alexandra, JAMES, Kristen, MURPHY, Brandon, and **HAILEAB, Bereket**. 2005. CHARACTERIZATION OF GROUNDWATER FROM RICE COUNTY, MINNESOTA, USING CFC DATING, HYDROGEN AND OXYGEN ISOTOPE ANALYSIS, AND ION CONCENTRATIONS Geological Society of America, Abstracts with Program. North-Central Section - 39th Annual Meeting in Minneapolis. Paper No. 24-19.
- Haileab, Bereket 2004. PLIO-PLEISTOCENE VOLCANIC CENTERS IN THE ETHIOPIAN HIGHLANDS, DISTINGUISHED USING MAJOR AND TRACE ELEMENT ABUNDANCES FROM TEPHRA LAYERS IN THE TURKANA BASIN: HAILEAB, BEREKET. Geological Society of America, Abstracts with Program. Annual Meeting in Denver. Paper No. 209-9.
- Haileab, Bereket**, 2004. Watershed studies of the Cannon River and its tributaries, Rice County, Minnesota. Minnesota Water 2004: Policy and Planning to Ensure Minnesota's Water Supplies. Abstract no. 25.p37.
- Haileab, Bereket**, James, Kristen E., Knudson, Karla P., Murphy, Brandon H., Ruthenburg, Travis C., Schmitt, Alexandra M., and Stalker, Kathryn E. 2004. Characterization of groundwater from Rice County, MN using CFC dating, H and O isotope analysis and ion concentrations. Minnesota Water 2004. v. p.
- Benjamin Harrison* and **Haileab, Bereket**, 2003, Chemical Stratigraphy of the Weiser Embayment Columbia River Basalt. Eos Trans. AGU, 84(46), Fall Meet. Suppl., Abstract V31E-0980, 2003.
- Davidson, C and **Haileab, Bereket** The Alta Stock, Utah: An Exemplar Rock Suite for Learning Metamorphic Concepts. Eos Trans. AGU, 84(46), Fall Meet. Suppl., Abstract ED41C-1177, 2003.
- Benjamin Harrison* and **Haileab, Bereket**, 2003. Geochemical tracing of basalt provinces in the early history of the Yellowstone Hot Spot. Geological Society of America, Abstracts with Program Seattle Annual Meeting. Paper No. 152-26
- Savina, Mary E. and **Haileab, Bereket**, 2003. Building community through group projects. Geological Society of America, Abstracts with Program. Seattle Annual Meeting. Paper No. 29-10.

- Tangalos*, George Eric, Farris, David W, Valley, John, Haeussler, Peter, and **Haileab, Bereket**, 2003. Genesis and contamination of the Kodiak Batholith, Kodiak Island, Alaska: Using d18O to quantify the assimilated component of the batholith. Geological Society of America, Abstracts with Program. Seattle Annual Meeting. Paper No. 152-39.
- Benjamin Harrison* and **Bereket Haileab**, 2002. Trace Element Analysis of Basalt Provinces in the Early History of the Yellowstone Hot Spot. Eos Trans. American Geophysical Union Abstract, 83(47) Fall Meet.
- Savina, Mary and **Haileab, Bereket**, 2002. GEOMORPHOLOGY AND Water quality of PRAIRIE CREEK and Valley Grove Creek. Keck Geology Consortium, 15th Annual Undergraduate Research Symposium.
- Savina, Mary, Gardner, Thomas and **Haileab, Bereket**, 2001. GEOMORPHOLOGY AND WATERSHED STUDIES OF THE CANNON RIVER AND ITS TRIBUTARIES: Wolf Creek, Rice Creek and Heath Creek. Keck Geology Consortium, 14th Annual Undergraduate Research Symposium.
- Buchwald, C. Edward, Bice, David M., Savina, Mary E., Boardman, Shelby J., **Haileab, Bereket**, Cowan, Clinton A., Vick, Timothy D., 2001, Values Statement and "robustly useful ideas" as geology department planning tools: Geological Society of America, Abstracts with Program, v. 33, p. 191.
- Woldehaimanot, Beraki. and **Haileab, Bereket**. 2000. The geology and geochemistry of Cenozoic volcanic rocks in Eritrea. J. Afr. Earth Sci., 30 (4a): 89
- Haileab, Bereket** and Brown, F.H., 1999 (Submitted). Geochemistry of widespread Silicic Tephra in East Africa. Journal of African Earth Sciences.
- Woldehaimanot, Beraki and **Haileab, Bereket**, 1997. New Geochemical Data from the Cenozoic volcanic rocks of Eritrea. Geological Society of America, abstracts and programs, v 29, no. 6, no. 16227.
- Reitan, Paul H. Woldu, Amanuel, Skysseth, Trond, **Haileab, Bereket**, 1997. Geology and Proterozoic Tectonics of the Central Eritrean Part of the Nubian Shield. Geological Society of America, abstracts and programs, v. 29, no. 1, p. 74.
- Haileab, Bereket**, Reitan, H. Paul, and Woldu, Amanuel, 1996. Geology of northern Eritrea. Geological Society of America, abstract and programs, v28, no. 7 p.110.
- Woldu*, Amanuel, Reitan, H. Paul, and **Haileab, Bereket**, 1996. Proterozoic Tectonic Environment of Central Eritrean, Part of the Arabian-Nubian Shield. Geological Society of America, abstract and programs, v 28, no.7 p.112.
- Haileab, Bereket**, 1996, Tephrostratigraphy of the Turkana Basin and Interbasinal Tephra correlation in East Africa. GSA abstract and programs, March 1996.
- Haileab, Bereket** , 1994. Melt inclusions in phenocrysts of late Neogene tuff from east Africa – key to correlation of altered tuffs and Magma composition: Geological Society of America, abstract and programs, v. 26, no. 7, p. 483.
- Haileab, Bereket** and Francis H., Brown. 1993. Chemical grouping of tephra from the Turkana Basin. Geological Society of America, v. 25, no. 6, p. 327.
- Haileab, Bereket** and Harrison, Terry 1993. Stratigraphy and Biostratigraphy of the fossiliferous beds of Monanga Valley, Tanzania, Society of Vertebrate Paleontology.
- Petersen, Eric and **Haileab, Bereket**, 1993. Application of Artificial Neural Networks (ANN's) to Geological problems. Geological Society of America, v. 25, no. 6, p. 248.
- Francis H., Brown, Andrei M. Sarna-wajcicki, Chalers E. Meyer and **Bereket Haileab**. 1990. New Correlation of Pliocene and Pleistocene tephra layers between the

Turkana Basin of East Africa. Abstract. Meeting of the INQUA intercongress Committee on Tephrochronology.

Haileab, Bereket. July 1985. Geological, Geochemical and Geophysical Report on Abetseloi Area. Ethiopian Institute of Geological Surveys, U. N. Mineral Exploration Training Project, Addis Ababa. 42 pages with Maps.

Haileab, Bereket. August 1984. Preliminary Geological Report on Mestefinfin Area. Ethiopian Institute of Geological Surveys, U. N. Mineral Exploration Training Project, Addis Ababa. 23 pages with Maps.

In preparation

Haileab, Bereket, James, Kristen E., Knudson, Karla P., Murphy, Brandon H., Ruthenburg, Travis C., Schmitt, Alexandra M., and Stalker, Kathryn E. 2006. Characterization of groundwater from Rice County, MN using CFC dating, H and O isotope analysis and ion concentrations.

Haileab, Bereket, and Brown, F. H., 2006. Tephrostratigraphy of the Turkana Basin, Southwestern Ethiopia, Northern Kenya.

Haileab, Bereket and Woldehaimanot, Beraki 2006. New Geochemical Data from the Cenozoic volcanic rocks of Eritrea.

Haileab, Bereket and et al., 2006. Geology and Proterozoic Tectonics of the Central Eritrean Part of the Nubian Shield.

Haileab, Bereket 2006. Silicic volcanism in East Africa, chemical grouping of tephra from the Turkana Basin.

FIELD EXPERIENCE

United State of America

Columbia River Flood Basalts, summer 2002 and 2003 Mapped and sampled basaltic rocks from Oregon, Washington and Wyoming. This work resulted in a senior thesis of a Carleton student. In which three abstracts were published and two papers are in review.

Wyoming and Utah, summer of 1987, 1989, and 1991. Mapped and taught geology in different locations of these states where about 50 students were involved during field camp.

Wyoming, Montana, Utah and Colorado, summer 1999. Mapped and taught a Carleton geology student where it resulted a senior thesis.

Eastern Oregon, 1991. Mapped and collected samples for gold exploration, BHP-International. This work resulted in further exploration of the area because enough gold quantity was found as a result of the pilot study.

Northern Minnesota, South Dakota, Northern Michigan, Wisconsin, and Missouri. From 1994-present. Learned local geology, contributed to various undergraduate educations at Carleton College.

Wyoming, Yellowstone National Park, 1987. Mapped using Gravity and GPS to monitor magmatic activity within the park.

Ethiopia:

Western Ethiopia, 1983, 1984 and 1985. Mapped and collected samples for gold exploration. This field experience was one of the longest times spent in the field, a total of 24 months, where lots of mapping and sample collection and analysis were done in the field as well as in the laboratory.

Lower Omo River Valley, summer 1985, 1986. Mapped and sampled tephra from the Omo group of the Turkana Basin. This work resulted in mapping the Shungura Formation and Usno Formation. The outcome of this field work was M.Sc. thesis.

Middle Awash, North Eastern Ethiopia, summer 1988. Mapped and sampled tephra from the Middle Awash Valley of the East African rift valley. This field work resulted in understanding between the different hominid bearing sites in East Africa and an article that reports the correlation between the different sites was the outcome of the work

Main Ethiopian Rift Valley, summer 1988, 1995. Mapped and sampled tephra layers from the Gadeb Prehistoric site and many locations in the central section of the East Africa Rift System.

Melka Konture, archeological site. Mapped and sampled tephra layers.

Kenya:

Koobi Fora Formation, Nachukui Formation, Kenya. Summer 1985, 86, 88, 90, 92. Mapped and sampled tephra from the Turkana Basin in northern Kenya. This work resulted in collecting and analyzing many tephra from the region and a dissertation.

Eritrea:

Summer of 1995, 1996, 1997, 2003. Mapped and sampled Proterozoic, Cenozoic age rocks from the entire part of Eritrea. Three abstracts have been published and a paper is in preparation.

Danakil depression: Mapped and collected basalts for analysis. A paper is in preparation.

Tanzania:

Summer 1990. Wember Monanga, mapped and sampled Pliocene age of rocks from the region for paleontological studies. This work resulted in two abstracts. Fall 2008: Program Director, Associated Colleges of the Midwest, Studies in Human Evolution and Ecology Program, Tanzania

Selected Undergraduate senior theses that I have supervised at Carleton College. Most of these, either I went to the field, was involved in formulating and planning of the field work, helped with chemical analysis as well as supervised the final product.

KNIGHT, KIMBERLY B., 1997. The tectonomagmatic evolution of the Coastal Dyke Swarm, Western Deccan Traps, Maharashtra, India: A dyke swarm in context. PHD candidate Berkeley, California

KORHONEN, FAWNA J., 1997. A petrographic and chemical analysis of the Panda Hill Carbonatite Complex, Southwest Tanzania. PHD candidate, University of Minnesota

MAXWELL, NICOLE C., 1997. Assimilation and fractional crystallization in post tectonic stocks from the Wabigoon Subprovince, Ontario, Canada. MSC student, University of Utah

MCGEE, DAVID, 1997. Isotopic and trace element data from Lanai, Hawaii: Implications for magmagenesis in the Hawaiian plume. MSC student, Tulane University

COLGAN, JOSEPH, 1998. Heart Mountain faulting and the emplacement of intrusive rocks at Painter Gulch, near White Mountain, northwest Wyoming. PHD candidate, Stanford, California

JARVIS, SARAH, 1998. Petrographic and geochemical analysis of igneous rocks on the Island of Vis, Croatia. PHD student, Ann Arbor, Michigan

MALOOF, ADAM, 1998. Superposed folding at the junction of the inland and coastal belts, Damara Orogen, NW Namibia. Assistant Professor

Pike, William, 1999. Melting relations in the Fe-Ni-S system at high pressures: Implications for the state of the Martian core

Michael Rhodes, 1999. The mafic and silicic magma interaction and plutonic stratigraphy on the Southeastern Coast of Vinalhaven Island, Maine: Mafic injections into a silicic magma chamber. Medical Doctor

Gustafson, Zachary, 1999. Mixing and mingling magmas at the Tenpeak Pluton Margin in the North Cascades, Washington: An example from the Twin Lakes agmatite complex. MSc Student, New York

Hynek, Scott, 2001. The Middle Eocene Bridger Formation, SW Wyoming: A volcanoclastic record of regional tectonism and volcanism. PHD student, University of Utah

Harrison, Benjamin, 2002. Geochemical tracing of basalt provinces in the early history of the Yellowstone Hot Spot. PHD student Cal tech

Tangalos, George, 2002. Genesis and contamination of the Kodiak Batholith, Kodiak Island, Alaska: Using $\delta^{18}O$ to quantify the assimilated component of the batholith. PHD student, Madison Wisconsin

Invited Seminars at Universities, Colleges, Industry and Conferences

Michigan Technological University Dept of geology, September 1, 2009

Beloit College, Dept of geology March 17 2009

University of Minnesota, dept of Anthropology, March 2002

Macalester College, October 2000

Utah State, Logan, Utah, April 2000

University of Utah, March 2000

University of California at Fullerton, October 1999

University of Wisconsin, at Oshkosh

Union College, January 1998

Tetra Tech EM Inc, San Francisco, December 1998

Ball State University

State University of New York, Buffalo, New York November 1996

University of Asmara, Eritrea July 1996

University of Minnesota, department of geology in Minneapolis 1997

University of Minnesota, department of geology in Duluth 1995

Minnesota geological society 1996

Union College, Schenectady, NY 1998

Geological Society of America, Regional meeting, Aims Iowa, 1996

Geological Survey of Ethiopia, 1986, 1988, 1990

TECHNICAL EXPERTISE/BACKGROUND

Operation of Cameca SX 50 electron Microprobe

Operation of Philips XL30 scanning electron Microscope

Operation of Philips X-ray Fluorescence

Operation of Philips, X-ray Diffractometer

Operation of Atomic Absorption Spectrometers

Operation of Dionex 600, Ion Chromatography

Operation of LC2500 Ion Chromatography

Application of cathodoluminescence methods to petrologic studies

Extensive experience of petrographic analysis of rocks and rock-forming minerals

Expert in mineral separation for various studies

Glass blowing

PERSONAL

work well unsupervised, communicate ideas and concepts effectively, able to supervise others. 50 years old. Speak fluent Tigrinya, Amharic and English and speak some Kswahili, Arabic and Italian. Enjoy traveling.