

Kimberly Terri Tait

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Education

- Present Ph.D., Geology, Department of Geosciences, University of Arizona, Tucson, Arizona.
GPA 4.0/4.0, Expected graduation date: December, 2006.
- 2002 MSc., Geology, Department of Geological Sciences, University of Manitoba, Winnipeg,
Manitoba, Canada. GPA 4.5/4.5, Thesis: *Crystal chemistry of the alluaudite-group
minerals*.
- 1999 BSc. (1st Class Honours), Geology, Department of Geological Sciences, University of
Manitoba, Winnipeg, Manitoba, Canada. Thesis: *Rare amphiboles and associated
minerals from the Kajlidongri and Tirodi manganese mines of Central India*.

Scholarships and Awards

- 2005 P.E.O. Scholar Award- Norah I. Wallace Named Grant
2005 International Centre for Diffraction Data, Ludo Frevel Scholarship
2004 Tucson Gem and Mineral Society Scholarship
2004 American Assoc. of Petroleum Geologists: Marta Sutton Weeks Named Grant
2004 International Centre for Diffraction Data, Ludo Frevel Scholarship
2002 Best poster, Western Inter-University Geological Conference, Edmonton, Alberta
2001 George Brownell Memorial Prize, University of Manitoba
2001 Rita Wadien Memorial Scholarship, University of Manitoba
1999 Best undergraduate hard rock talk, Western Inter-University Geological Conference,
Vancouver, B.C.
1999 Dean's Honour List

Teaching Experience

Teaching Assistant:

- Spring 2004: Natural Science for non-science majors, 1st year course, Dr. Robert Downs
- Fall 2002: Petroleum Geology, 4th year course, Dr. William Last
- Fall 2002: Mineral Deposits, 4th year course, Bill Manziuk
- Spring 2002: Optical Mineralogy, 2nd year course, Bill Manziuk
- Spring 2002: Basin Analysis, 4th year course, Dr. William Last
- Spring 2002: Field Mapping, 4th year course, Jeff Young
- Fall 2001: Petroleum Geology, 4th year course, Dr. William Last
- Fall 2001: Mineral Deposits, 4th year course, Bill Manziuk
- Spring 2001: Field Mapping, 4th year course, Dr. George Clark
- Spring 2001: Optical Mineralogy, 2nd year course, Dr. Barbara Sheriff
- Fall 2000: Introduction to Physical and Historical Geology, 1st year course, Dr. Bob Elias
- Fall 2000: Introductory Mineralogy, 2nd year course, Christine Clark-McCracken
- Spring 2000: Sedimentology Petrology and Stratigraphy, 2nd year course, Dr. N. Chow
- Spring 2000: Metamorphism, Structure and Tectonics, 3rd year course, Dr. N. Halden
- Spring 1999: Field Mapping, 4th year course, Dr. Lorne Ayres
- Fall 1998: marker: Structural Geology, 2nd year course, Jeff Young
- Fall 1998: Natural Sciences for Education Students, 1st year course, Dr. Peter Laznicka

Field trip leader:

- Fall 2001: Black Hills field trip, (with Dr. Chakhmouradian and Christine Clark)

- Fall 2000: Dryden field trip, (with Bill Manziuk and Jeff Young)

Tutor ACCESS program:

- 4 students September 2000 - May 2001

Work Experience

Graduate Research Associate, Los Alamos National Laboratory, Los Alamos, New Mexico

January 2003-present

- Conducting graduate research at the Los Alamos Neutron Scattering Center (LANSCE). Neutron diffraction and synthesis of clathrate hydrates.

Junior Geologist, Edge Energy Inc., Calgary, Alberta

May 2000 – September 2000

June 1999 - December 1999

- Geological mapping and prospect evaluation of several formations in British Columbia, Alberta and Saskatchewan. Evaluations included map and cross-section construction, well-log copying, interpretation of seismic data, and examination of core. Presentation of project to exploration staff, as well as upper management frequently.

Field Geologist/Sampler, Broken Hill Proprietary (B.H.P.) N.E. Manitoba/N.W. Ontario

June 1998 - August 1998

- Collected samples of glacial sediment and bedrock by helicopter that was used for a multimedia geochemical survey in the Superior province of northern Manitoba and northern Ontario. The project was oriented towards diamond, gold, and base metal exploration in this region.

Underground/Surface Geological Tech., Broken Hill Proprietary (B.H.P.) Nunuvut

May 1998 - June 1998 and May 1997 – August 1997

- Detailed logging and geotechnical work of surface and underground core. Mapping of structural features (faults, fractures etc.) to determine competency of rock while senior geologist mapped lithologies. Bulk sampling of ore piles and chip sampling in mine.

Membership in Professional Societies

- Mineralogical Association of Canada (MAC)
- Mineralogical Society of America (MSA)
- American Association of Petroleum Geologists (AAPG)

Student Representation

- **Graduate student representative**, LUG committee, January 2005-present
- **Student Association Executive**, Los Alamos National Lab, November 2004-present
- **Graduate student representative**, SHUG committee, January 2004-January 2005
- **President**, Geological Sciences Graduate Student Assoc., September 2000 – April 2002
- **Vice-President**, Student Chapter AAPG, May 2001- April 2002
- **GIT Representative**, MIT Committee, APEGM, October 2001 – December 2002
- **Secretary**, Geoscience Issues Task Force APEGM, September 2001 – December 2002
- **Graduate Student Representative**, Department Council, September 2000 – Dec. 2002
- **Treasurer**, Student Chapter AAPG, September 2000 - May 2001
- **Fundraising Chair**, WIUGC conference, January 2000 - January 2001
- **Geology Representative**, Science Students' Association, Sept. 1997 - April 1999
- **Vice President**, Geology Club, September 1998 - April 1999
- **Treasurer**, Geology Club, September 1997 - April 1998

Volunteer Work/Certificates

- Spring 2005: Manager flag football team, YMCA co-ed recreation league
- Winter 2004: Women's hockey association secretary for- Santa Fe Skating Association
- Winter 2003, 2004: Coach ATOMS hockey team, Los Alamos, NM
- Fall 2003, 2004: Manager Co-ed softball team, Los Alamos Slo-pitch league
- 2002: Volunteer Winnipeg Humane Society
- Spring 2002: Volunteer "Paws-in-Motion", Humane Society walk-a-thon
- Spring 2001-2002: Volunteer Manitoba Marathon
- Spring 2000 - 2002: Winnipeg South Science Fair Judge (Gr. 4-6)
- Spring 2001: Standard First Aid Certificate
- Summer 2000: Volunteer Alberta Science Foundation (demo. science to children)
- Spring 1999: Geoscience awareness (U of M) assist with school tours
- Fall 1999: Calgary Food Bank Volunteer
- Spring 1998: Spill Response Training
- Fall 1996: Big Sister's Association of Manitoba

New Mineral Species to the International Mineralogical Association

Approved:

Potassic-carpholite IMA No. 2002-064 $(K, \square)(Li, Mn^{2+})Al_4Si_4O_{12}(OH)_4(F, OH)_4$
Dellaventuraitite IMA No. 2003-061 $NaNa_2(MgMn_2TiLi)Si_8O_{22}O_2$

In preparation:

"elephantite" $(Na, \square)_{13}(MnFe^{2+}Fe^{3+}Al)_{35}P_{30}O_{122}$
"Mn-apatite" $(Mn, Ca)_5(PO_4)_3Cl$
"Mn-Mn wyllieite" $NaNaN_2Mn^{2+}_2Mn^{2+}_2Al_2(PO_4)_6$
"ferroqingheite" $NaNaN_2Fe^{2+}_2Mg_2Al_2(PO_4)_6$
"ferrohagendorfite" $CaNaFe^{2+}Fe^{2+}_2(PO_4)_3$

X-ray synchrotron and Neutron Scattering Facility Experience

Los Alamos Neutron Scattering Center (LANSCE), Los Alamos, NM (January 2003-present)
-High Pressure Preferred Orientation (HIPPO), Neutron Powder Diffractometer (NPDF)

Argonne National Laboratory (Advanced Light Source and Intense Pulsed Neutron Source)
-HPCat BL16, GSECars BL13 (APS); GPPD (IPNS)

Cornell High Energy Synchrotron Source (CHESS)
-Beamline B2, High Pressure Diamond Anvil Cell work

Brookhaven National Laboratory- National Light Source (NLS)
- Beamline X3B1- X-ray absorption spectroscopy, extended fine structure (EXAFS)

Publications

Tait, K.T., & Hawthorne, F.C. (2001): Al-Mg disorder in a gem-quality pargasite from Baffin Island, Nunavut, Canada. *Canadian Mineralogist* **39**(6), 1725-1732.

Tait, K.T., Sokolova, E., Hawthorne, F.C & Khomyakov, A.P. (2003): The crystal chemistry of end-member nepheline. *Canadian Mineralogist*, **41**(1), 61-70.

Tait, K.T. & Hawthorne, F.C. (2003): The crystal chemistry of arsenioleite. *Canadian Mineralogist* **41**(1), 71-77.

- Tait, K.T.**, Hawthorne, F.C., Grice, J. & Jamor, J.: Potassic-carpholite, a new mineral from the Sawtooth Batholith, Boise County, Idaho. *Canadian Mineralogist* **42**(1), 121-124.
- Tait, K.T.**, Hawthorne, F.C., Cerný, P.C. & Galliski, M.A. (2004): Bobfergusonite from the Nancy pegmatite, San Luis Range, Argentina. *Canadian Mineralogist* **42**(3), 705-716.
- Tait, K.T.** & Hawthorne, F. C. (2004): Johillerite from Tolbachik, Kamchatka Peninsula, Russia: Crystal-structure refinement and chemical composition. *Canadian Mineralogist* **42**(3), 717-722.
- Bobev, S. & **Tait, K.T.** (2004): Methanol- inhibitor or promoter of the formation of gas hydrates from deuterated ice? *American Mineralogist* **89**, 1208-1214.
- Wang, Z., **Tait, K.**, Zhao, Y., Schiferl, D., Zha, C.S., Uchida, H., & Downs, R.T. (2004): Size-induced reduction of transition pressure and enhancement of bulk modulus of AlN nanocrystals. *J. Phys. Chem. B*, **108**(31), 11506-11508.
- Wang, Z., Zhao, Y., **Tait, K.**, Liao, X., Schiferl, D., Zha, C.S., Downs, R.T., Qian, J., Zhu, Y., & Shen, T.D. (2004): Harder than diamond: A new quenchable hexagonal carbon polymorph synthesized by cold-compression of carbon nanotubes P. Nat. Acad. Sci. USA 101(38), 13699-13702.
-Highlight in Nature: September 16, 2004: Vol. 431
- Tait, K.T.**, Hawthorne, F.C., Grice, J.D., Ottolini, L. & Nayak, V.K.(2005): Dellaventuraite, $\text{NaNa}_2(\text{MgMn}_2\text{TiLi})\text{Si}_8\text{O}_{22}\text{O}_2$, a new anhydrous amphibole from the Kajlidongri manganese mine, Jhabua district, Madhya Pradesh, India. *American Mineralogist*, **90**, 304-309.
- Williams, D.J., Park, S., **Tait, K.T.** & Daemen, L.L. Synthesis, structural, and infrared analysis of the orthorhombic phase of silver dicyanamide, $\text{AgN}(\text{CN})_2$, Acta Cryst. B (*submitted*).
- Tait, K.T.** & Hawthorne, F.C.: Nomenclature of the alluaudite-group minerals: Proposal to the IMA commission on mineral classification. (*submitted*).
- Tait, K.T.** & Hawthorne, F.C.: The crystal chemistry of the wylleite-group minerals. *In prep.*
- Tait, K.T.** & Hawthorne, F.C. & Raudsepp, M: Alluaudite, hagendorfite and varulite from various localities. *In prep.*
- Tait, K.T.**, Hawthorne, F.C., Galliski, M. & Cerný, P.C.: The crystal structure of ernstite. *In prep.*

Conference Contributions:

- Tait, K.T.**, Zhao, Y., Downs, R.T., Stern, L.A., & Kirby, S. (2005): Investigations into the stability, morphology and the crystal structure of structure I and II methane-ethane clathrate hydrates. International Conference on Gas Hydrates, June 13-16, 2005.
- Tait, K.T.** & Hawthorne, F.C. (2005): Compositional variations in alluaudite-group minerals, Geological Association of Canada/Mineralogical Association of Canada meeting, Halifax, Nova Scotia, Canada, May 15-18, 2005.
- Zhao, Y., Daemen, L., Zhang, J., Lokshin, K., Qian, J., Pantea, C., Williams, D., **Tait, K.**, Xu, H., & Vogel S. (2005): Scientific Advancements and Technological Developments of High P-T Neutron Diffraction at LANSCE Geophysical Research Abstracts, Vol. 7, 10364, European Geophysical Union, Vienna, Austria, April 24-29, 2005

- Tait, K.T.**, Hartl, M., Williams, D., Pantea, C., Daemen, L.L., Zhao Y., & Downs, R.T. (2005): Diffraction and spectroscopy of thorite and huttonite (ThSiO_4), Geophysical Research Abstracts, Vol. 7, 10957, European Geophysical Union, Vienna, Austria, April 24-29, 2005.
- Tait, K.T.** & Hawthorne, F.C. (2002): The crystal chemistry of the alluaudite-group minerals. Western Inter-University Geological Conference, Edmonton, Alberta, Canada, January 2002.
- Tait, K.T.**, Nayak, V.K. & Hawthorne, F.C. (2000): Rare amphiboles from the Kajlidongri manganese mine of Central India. Annual Meeting of the Geological Society of America, Reno, Nevada, November 2000.
- Tait, K.T.**, Nayak, V.K. & Hawthorne, F.C. (1999): Rare amphiboles and associated minerals from the Kajlidongri and Tirodi manganese mines of Central India. Western Inter-University Geological Conference, Vancouver, British Columbia, Canada, January 1999.