

KURT SAMUEL PANTER

Associate Professor, Department of Geology
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Academic Degrees

- 1995 Ph.D. Geology, New Mexico Institute of Mining and Technology, Socorro
- 1990 M.S. Geology, New Mexico Institute of Mining and Technology, Socorro
- 1986 B.A. Geology, Western State College of Colorado, Gunnison, Colorado

Positions Held

- 2006- Associate Professor, Department of Geology, Bowling Green State University
- 2000-06 Assistant Professor, Department of Geology, Bowling Green State University
- 1998-00 Visiting Assistant Professor, Western State College of Colorado
- 1995-97 Postdoctoral Research Associate, New Mexico Tech (*refer to 1995 Award*)



Publications Related to Antarctic Volcanism (*denotes student)

- Antibus*, J., **Panter** K.S., Wilch, T., Dunbar, N., McIntosh, W., Tripathi, A., Bindeman, I., Blusztajn, J., 2014, Alteration of volcanoclastic deposits; geochemical insights on mineralizing environment and climate during the Late Miocene in Antarctica. *Geochemistry, Geophysics, Geosystems (G³)*, 15 (8), 3258-3280, DOI 10.1002/2014GC005422.
- Smellie, J.L., Rocchi, S., Wilch, T.I., Germelli, M., Di Vincenzo, G., McIntosh, W., Dunbar, N., **Panter**, K.S., Fargo, A., 2014, Glaciovolcanic evidence for a polythermal East Antarctic ice Sheet. *Geology* 42, 39-41.
- Nyland*, R.E., **Panter**, K.S., Rocchi, S., Di Vincenzo, G., Del Carlo, P., Tiepolo, M., Field, B., Gorsevski, P., 2013, Volcanic activity and its link to glaciation cycles: single-grain age and geochemistry of Early Miocene volcanic glass from ANDRILL AND-2A core, Antarctica. *Journal of Volcanology & Geothermal Research* 250,106-128.
- Di Roberto, A., Del Carlo, P., Rocchi, S., **Panter**, K.S., 2012, Early Miocene volcanic activity and paleoenvironment conditions recorded in tephra layers of the AND-2A core (southern McMurdo Sound, Antarctica). *Geosphere* 8(6), 1342-1355, doi:10.1130/GES00754.1
- Fielding, C.R., Browne G.H., Field, B., Florindo, F., Harwood, D.M., Krissek, L.A., Levy, R., **Panter**, K.S., Passchier S.A., Pekar, S.F., 2011, Stratigraphic cyclicity from the ANDRILL AND-2A drillcore, Antarctica: a long-term, ice-proximal record of Early to mid-Miocene climate, sea-level and glacial dynamism. *Palaeogeography, Palaeoclimatology, Palaeoecology (P³)* 305, 337-351.
- Passchier, S., Browne, G., Field, B., Fielding, C.R., Krissek, L.A., **Panter**, K., Pekar, S.F. and ANDRILL-SMS Science Team, 2011, Early and Middle Miocene Antarctic glacial history from the sedimentary facies distribution in the AND-2A drill hole, Ross Sea, Antarctica. *Geological Society of America Bulletin* 123 (11-12), 2352-2365.
- Di Vincenzo, G., Bracciali, L., Del Carlo, P., **Panter**, K., Rocchi, S., 2010, ⁴⁰Ar/³⁹Ar laser dating of volcanogenic products from the AND-2A core (ANDRILL Southern McMurdo Sound Project, Antarctica). *Bulletin of Volcanology* 27 (4), 487-505, doi: 10.1007/s00445-009-0337-z
- Del Carlo, P., **Panter**, K.S., Bassett, K., Bracciali, L., Di Vincenzo, G., Rocchi, S., 2009, The upper lithostratigraphic unit of ANDRILL AND-2A core (Southern McMurdo Sound, Antarctica): local volcanic sources, paleoenvironmental implications and subsidence in the western Victoria Land Basin. *Global and Planetary Change* 69, 142-161.
- Panter**, K.S., Talarico, F., Bassett, K., Del Carlo, P., Field, B., Frank, T., Hoffman, S., Kuhn, G., Reichelt, L., Sandroni, S., Tavini, M., Bracciali, L., Cornamusini, G., von Eynatten, H., Rocchi, R., 2008, Petrologic and Geochemical Composition of the AND-2A Core, ANDRILL Southern McMurdo Sound Project, Antarctica. In: Harwood, D.M., Florindo, F., Talarico, F., and Levy, R.H., (editors), Studies from the ANDRILL, Southern McMurdo Sound Project, Antarctica. *Terra Antarctica* 15, no. 147-192.
- Fielding C.R., Atkins C.B., Bassett K.N., Browne G.H., Dunbar G.B., Field B.D., Frank T.D., **Panter** K.S., Pekar S.F., Krissek L.A., Passchier S., 2008, Sedimentology and stratigraphy of the AND-2A core, ANDRILL Southern McMurdo Sound Project, Antarctica. In: Harwood, D.M., Florindo, F., Talarico, F., and Levy, R.H., (eds), Studies from ANDRILL, Southern McMurdo Sound Project, Antarctica. *Terra Antarctica* 15 (1), 77-112.
- Panter**, K.S., Winter*, B., 2008, Geology of the side crater of the Erebus volcano, Antarctica. In: P.R. Kyle & C. Oppenheimer (editors), Mt. Erebus Volcano, Antarctica: Observations, Models, Impacts. *Journal of Volcanology and Geothermal Research*, 177 (3), 578-588, doi:10.1016/j.jvolgeores.2008.04.019.
- Panter** K.S., Castillo P., 2007, Petrogenesis and source of lavas from seamounts in the Adare Basin, Western Ross Sea: Implications for the origin of Cenozoic magmatism in Antarctica, In Antarctica: A Keystone in a Changing World –

Online Proceedings of the 10th ISAES X, edited by A.K. Cooper & C.R. Raymond et al., *USGS Open-File Report* 2007-1047, 069. <http://pubs.usgs.gov/of/2007/1047/ea/of2007-1047ea069.pdf>

- Panter**, K.S., Blusztajn, J., Hart, S., Kyle, P., Esser, R., McIntosh W., 2006, The origin of HIMU in the SW Pacific: evidence from intraplate volcanism in southern New Zealand and subantarctic islands. *Journal of Petrology*, 47 (9), 1673-1704.
- Finn, C.A., Müller, R.D., **Panter**, K.S., 2005, A Cenozoic diffuse alkaline magmatic province (DAMP) in the SW Pacific without rift or plume origin. *Geochemistry, Geophysics, Geosystems (G³)*, 6 (1), Q02005, doi:10.1029/2004GC000723
- Panter**, K.S., Hart, S.R., Kyle, P.R., Blusztajn, J., Wilch, T., 2000, Geochemistry of Late Cenozoic basalts from the Crary Mountains: Characterization of mantle sources in Marie Byrd Land, Antarctica. *Chemical Geology*, 165, 215-241.
- Panter**, K.S., Kyle, P.R., Smellie, J. L., 1997, Petrogenesis of a phonolite-trachyte succession at Mount Sidley, Marie Byrd Land, Antarctica. *Journal of Petrology*, 38, 1225-1253.
- Panter**, K.S., McIntosh, W.C., Smellie, J.L., 1994, Volcanic history of Mount Sidley, a major alkaline volcano in Marie Byrd Land, Antarctica. *Bulletin of Volcanology*, 56, 361-376.
- Wilch T, McIntosh W., **Panter** K.S., Dunbar N, 1993, Preliminary report on field investigations and ⁴⁰Ar/³⁹Ar geochronology of the Crary Mountains volcanoes, Marie Byrd Land, West Antarctica. *Antarctic Jour. U.S.* 28, 7-9.
- Smellie, J.L., McIntosh, W., Gamble, J., **Panter**, K.[T.], Kyle P.R., Dunbar N.W., 1993, Preliminary lithofacies assessment and ⁴⁰Ar/³⁹Ar ages of Cenozoic volcanic sequences in eastern Marie Byrd Land. *Antarctic Science* 5, 105-106.
- McIntosh W.C., **Panter** K.S., Smellie J.L., Gamble J.A., 1990, Austral summer 1989-1990 at the Executive Committee Range, Marie Byrd Land, Antarctica. *Antarctic Jour. U.S.*, 25.
- Gamble J.A., Smellie J.L., McIntosh W.C., **Panter** K.S., 1990, West Antarctic Volcano Exploration (WAVE) - volcanoes of the Executive Committee Range, West Antarctica. *New Zealand Antarctic Record*, 10, 16-17
- Smellie, J.L., McIntosh, W.C., Gamble, J.A., **Panter**, K.S., 1990, Preliminary stratigraphy of volcanoes in the Executive Committee Range, central Marie Byrd Land. *Antarctic Science*, 2, 353-354.

Research Awards for the Study of Antarctic Volcanism (all funded by the U.S. National Science Foundation)

- 2015 P.I. *Investigating Early Miocene sub-ice volcanoes in Antarctica to provide boundary conditions for ice sheet dynamic models and improved understanding of a large diffuse alkaline magmatic province*. \$190,185 to BGSU for 2 years, NSF-PLR 1443576. Collaborator: John Smellie (Univ. Leicester)
- 2010 P.I. *Collaborative Research: Geochemical transect from oceanic Adare Basin to adjacent continental Adare Peninsula: implications for the origin of intraplate (HIMU-like) alkaline magmas*, \$131,796 to BGSU for 2 years, NSF ANT-0943274. Collaborator: Paterno Castillo (Scripps Institute of Oceanography-SIO).
- 2008 P.I. *A 20 million year record of volcanism in the AND-2A core: implications for the magmatic, tectonic and climate history of Antarctica*, \$71,942 to BGSU for 18 months. ANDRILL U.S. Science Support Program (AUSSP), a multi-national science initiative funded by the NSF, sub-award from Univ. Nebraska.
- 2007 P.I. *Petrology and Geochemistry of Miocene Volcanic Rocks Recovered from the Southern McMurdo Sound (SMS) Drillsites*, \$39,218 to BGSU for 1 year. ANDRILL (AUSSP).
- 2006 P.I. *Collaborative Research: Late Cenozoic Volcanism and Glaciation at Minna Bluff, Antarctica: Implications for Antarctic Cryosphere History*, \$116,833 to BGSU for 3 years. NSF OPP 05-38033. Collaborators: Thom Wilch (Albion College) and William McIntosh (New Mexico Tech).
- 2006 P.I. *Collaborative Research: Constraining the Petrogenesis and Mantle Source of Adare Basin Seamount Lavas*, \$32,750 to BGSU for 1 year. NSF OPP 05-38374. Co-PIs: P. Castillo and S. Cande (SIO).
- 2000 P.I. *Volcanism at the Antarctic Rift Margin*, NSF OPP 0003702, \$70,000 to BGSU for 2 years.
- 1995 Co-P.I. *Antarctic Rift and Hot Spot Volcanism*, NSF OPP-9419686, \$110,243 to New Mexico Tech for 2 years. Co-PIs: P. Kyle (NMT) and S. Hart (Woods Hole Oceanographic Institution).

Relevant Abstracts in Past 5 Years (* denotes student)

- Panter** K.S., Castillo, P., Krans*, S., McIntosh, W. (accepted), Melt origin across a rifted continental edge: ⁴⁰Ar/³⁹Ar geochronology, geochemistry and Sr-Nd-O isotope systematics of alkaline basalts, northwestern Ross Sea- SCAR Open Science Conference, 22-26 August 2016
- Smellie J., **Panter** K.S., Reindel*, J. (accepted), Early Miocene glacial and non-glacial Antarctic palaeoenvironments at 87°S deduced from the two southernmost volcanoes in the world - SCAR Open Science Conference, 22-26 August 2016
- Rocchi S., Smellie, J.L., Wilch, T.I., Gemelli, M., Di Vincenzo, G., McIntosh, W., Dunbar, N., **Panter**, K., Fargo*, A., 2014, Glaciovolcanic evidence for a polythermal Neogene East Antarctic Ice Sheet. *Goldschmidt Abstracts*, 2014, 2089, Sacramento, CA, June 8-12.
- Panter** K., Antibus*, J., Wilch, T. Dunbar, N., McIntosh, W., Tripathi, A., Bindeman, I., Blusztajn, J., 2014, Alteration of Volcaniclastic Deposits; Geochemical Insights on Mineralizing Environment and Climate during the Late Miocene in Antarctica. *Goldschmidt Abstracts*, 2014, 1899, Sacramento, CA, June 8-12.

- Krans*, S., **Panter**, K.S., Castillo, P., Deering, C., Kitajima, K., Valley, J., Hart, S., Kyle, P., 2013. Lithospheric mantle heterogeneity across the continental-oceanic transition, northwest Ross Sea, Antarctica: new evidence from oxygen isotopes. *Abstract V33A-2716 presented at the 2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.*
- Antibus*, J., **Panter**, K.S., Wilch, T., Dunbar, N., McIntosh, W., Blusztajn, J., Traipati, A., Bindeman, I., 2012. A petrographic, geochemical and isotopic (O, H, C and Sr) investigation of secondary minerals in volcanoclastic rocks at Minna Bluff, Antarctica: Petrogenesis of alteration and implications for paleoenvironmental conditions. *Abstract V21A-2758 presented at the 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.*
- Krans*, S.R., **Panter**, K.S., Castillo, P., Deering, C., McIntosh, W., Valley, J.W., Spicuzza, M.J., Kitajima, K., Hart, S., Kyle, P., Mortimer, N., 2012. New mineral chemistry and oxygen isotopes from alkaline basalts in the northwest Ross Sea, Antarctica: insights on magma genesis across rifted continental and oceanic lithosphere. *Abstract V43C-2853 presented at the 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.*
- Juda*, N.R., Castillo, P.R., Xu, J., **Panter**, K.S., Hart, S., Kyle, P., Mortimer, N., 2012. AGU. The petrology and source composition of alkaline basalts from the northwest Ross Sea, Antarctica inferred from Re-Os isotope systematic. *Abstract V23E-2885 presented at the 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.*
- Panter**, K.S., Dunbar, N., Scanlan*, M., Wilch, T., Fargo*, A., McIntosh, W., 2011. Petrogenesis of alkaline magmas at Minna Bluff, Antarctica: evidence for multi-stage differentiation and complex mixing processes. *Abstract V31f-2590 presented at the 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.*
- Castillo, P., **Panter**, K.S., McIntosh, W.C., 2011. Mantle flow deduced from geochemical variations in alkaline magmas of HIMU affinity from continent to ocean, northwestern Ross Sea, Antarctica. *Abstract T51h-2478 presented at the 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.*
- Wilch, I., McIntosh, W., **Panter**, K., Dunbar, N., Smellie, J., Fargo*, A., Ross*, J., Antibus*, J., Scanlan*, M., Zimmerer*, M., 2011. Two stage growth of the Late Miocene Minna Bluff Volcanic Complex, Ross Embayment, Antarctica: implications for glacial and volcanic history. *Abstract V31f-2591 presented at the 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.*
- Nyland*, R., **Panter**, K., Del Carlo, P., Di Vincenzo, G., Rocchi, S., Tiepolo, M., Field, B., 2011. Geochemistry of Miocene glass in sediments from the AND-2A Core, McMurdo Sound, Antarctica: magma petrogenesis and response to glacial unloading. *Abstract V31f-2592 presented at the 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.*
- Panter**, K.S., Castillo, P., McIntosh, W.C., 2011. Geochemical variations in alkaline magmas of HIMU affinity from continent to ocean, northwestern Ross Sea, Antarctica – constraints on mantle source, flow and melting for volcanism. *International Symposium on Antarctic Earth Science (ISAES) XI, Edinburgh, Scotland, July 10-15. Abstract PS5.9.*
- Nyland*, R., **Panter**, K., Del Carlo, P., Di Vincenzo, G., Rocchi, S., Tiepolo, M., Field, B., 2011. Evidence for early-phase explosive basaltic volcanism at Mt. Morning from glass-rich sediments in the ANDRILL AND-2A core and possible response to glacial cyclicity. *International Symposium on Antarctic Earth Science (ISAES) XI, Edinburgh, Scotland, July 10-15. Abstract PO5.9.*
- Del Carlo, P., Di Roberto, A., Rocchi, S., **Panter**, K.S., 2011. Early to Mid-Miocene tephra in the AND-2A core, ANDRILL Southern McMurdo Sound Project, Antarctica *International Symposium on Antarctic Earth Science (ISAES) XI, Edinburgh, Scotland, July 10-15. Abstract PO5.2.*
- Antibus*, J., **Panter**, K., Wilch, T., Blusztajn, J., Dunbar, N., McIntosh, W., 2011. A meteoric water source for the formation of hyaloclastites at Minna Bluff, Ross Sea, Antarctica: A petrographic, geochemical and isotopic (Sr & O) investigation. *International Symposium on Antarctic Earth Science XI, Edinburgh, Scotland, July 10-15. Abstract PO5.6*
- Dunbar, N.W., **Panter**, K.S., Scanlan*, M.K., Fargo*, A., McIntosh, W.C., Wilch, T.I., 2011. Petrogenesis of alkaline magmas at Minna Bluff, Antarctica: evidence for high pressure fractionation and complex mixing processes. *International Symposium on Antarctic Earth Science XI, Edinburgh, Scotland, July 10-15. Abstract PO5.10*
- Wilch, T.I., **Panter**, K.S., McIntosh, W.C., Dunbar, N.W., Smellie, J.L., Fargo*, A., Ross*, J., Antibus*, J., Scanlan*, M., Zimmerer*, M., 2011. Miocene evolution of the Minna Bluff Volcanic Complex, Ross Embayment, Antarctica. *International Symposium on Antarctic Earth Science XI, Edinburgh, Scotland, July 10-15. Abstract PS5.10.*

Recent Professional Activities Related to Antarctic Research

- 2016- Participant in Scientific Drivers & Future of Mt Erebus Volcano Observatory Feb 22-24, UNAVCO Boulder.
- 2015- Member of editorial advisory board for the journal *Antarctic Science*
- 2015 Participant in Antarctic Infrastructure Modernization for Science Design Charrette July 13-16, Arlington, VA.
- 2014- Organizing member of Expert Group in Antarctic Volcanism (ANTVOLC), a SCAR initiative
- 2012- Member of Polar Rock Repository Curatorial Advisory Board (Byrd Polar, Ohio State University)
- 2010-13 Member of U.S. ANDRILL (Antarctic Drilling) Steering Committee (USSC)
- 2009-14 Guest Associate Editor for the journal *Geosphere*, special theme issue on ANDRILL.