

PUBLICATIONS (* indicates refereed publications):

Articles in journals and books/published maps:

- * Coleman, R. G., Helper, M. A., and Donato, M. M., 1983, Geologic Map of the Condrey Mountain Roadless Area, Siskiyou County, California: U.S. Geological Survey Miscellaneous Field Study Map MF-1540-A, Scale 1:50,000.
- * Helper, M. A., 1986, Deformation and high P/T metamorphism in the central part of the Condrey Mountain window, north-central Klamath Mountains, California and Oregon, *in* Evans, B. W., and Brown, E. H., eds., *Blueschists and Eclogites: Geological Society of America Memoir 164*, p. 125-142.
- * Mosher, S., and Helper, M. A., 1988, Chapter 16: Interpretation of polydeformed terranes, *in* Marshak, S. and Mitra, G. eds., *Basic Methods of Structural Geology: Prentice-Hall, New Jersey*, p. 361-384.
- * Folk, R. L., Pursell, V., Greenberg, J., Mosher, S., Helper, M. A., and Carter, K., 1989, Inverted tectonic veins in the Triassic Portoro Limestone, Portovenere Area (La Spezia), Italy: *Annales Tectonicae*, v. 2, p. 25-33.
- * Bauer, P. W., Helper, M. A., 1994, Geologic Map of Trampas quadrangle, Picuris Mountains, Taos and Rio Arriba Counties, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Geologic Map 71, Scale 1:24,000.
- Dalziel, I. W. D., Helper, M. A., Hutson, F., and Grimes, S., 1994, Geologic investigations in the Shackleton Range and Coats Land Nunataks, Antarctica: *Antarctic Journal of the United States*, v. 29, p. 4-6.
- Barnes, C. G., Donato, M. M., Barnes, M. A., Yule, J. D., Hacker, B. R., and Helper, M. A., 1995, Geochemical compositions of metavolcanic and metasedimentary rocks, western Jurassic and western Paleozoic and Triassic Belts, Klamath Mountains, Oregon and California: U. S. Geological Survey Open File Report 95-227-A, 63 p.
- Helper, M. A., 1995, Valley Spring Gneiss at Spring Creek, Inks Lake State Park, *in* Mosher, S., ed., *Guide to the Precambrian geology of the southeastern Llano Uplift*, Fieldtrip guide for the 12th International Basement Conference, Norman, Oklahoma, p.17-19.
- Hutson, F., Helper, M. A., Dalziel, I. W. D., 1995, Geologic investigations in the Shackleton Range and Coats Land Nunataks, Antarctica: *Antarctic Journal of the United States*, v. 30.
- Helper, M. A., 1996, Valley Spring Gneiss at Spring Creek, Inks Lake State Park, *in* Mosher, S., ed., *Guide to the Precambrian geology of the eastern Llano Uplift*, central Texas: Fieldtrip guide for the Geological Society of America 30th annual south-central section meeting, Austin, TX, p. 30-31.
- *Gose, W. A., Helper, M. A., Connelly, J. N., Hutson, F. E., and Dalziel, I. W. D., 1997, Paleomagnetic data and U-Pb isotopic age determinations from

Coats Land, Antarctica: Implications for late Proterozoic plate reconstructions: *Journal of Geophysical Research*, v. 102, no. B4, p. 7887-7902.

*Reed, R. M., Roback, R. C., and Helper, M. A., 1998, Nature and age of ductile deformation associated with the "anorogenic" Town Mountain Granite, Llano Uplift, Central Texas: *in* Hogan, J. P. and Gilbert, M. C. (eds.), *Basement Tectonics* 12, p. 291-292.

*Roback, R. C., Hunt, B. B., and Helper, M. A., 1999, Mesoproterozoic tectonic evolution of the western Llano uplift, central Texas: the story in an outcrop: *Rocky Mountain Geology*, v. 34, p. 275-287.

Helper, M. A., 2000, Geology of the eastern Llano uplift: *in* Kyle, J. R. (ed.), *Geology and Historical Mining, Llano Uplift Region, Central Texas*, *Austin Geological Society Guidebook* 20, p. 33-47.

Barnes, C. G., Donato, M. M., Yule, J. D., Thomlinson, S. L., Harper, G. D., Thompson, A. G., and Helper, M. A., 2002, Correlation of Mesozoic terranes in the northern and central Klamath Mountains: Geochemical and geochronological constraints, *Bulletin of the Geological Society of America*.

Helper, M. A., Connelly, J. and Dalziel, I. W. D., in prep., Archean protoliths and Paleoproterozoic orogeny in the East Antarctic craton: evidence from the Shackleton Range.

Helper, M. A., Connelly, J. and Dalziel, I. W. D., in prep., Crustal tracers and Precambrian isotopic provinces in the Shackleton range, East Antarctica.

Papers presented With Published Abstracts

Helper, M. A., 1983, Deformation-metamorphism relationships in a regional blueschist-greenschist facies terrane, Condrey Mt. Schist, north central Klamath Mts., N. California: *Geological Society of America Abstracts with Programs*, v. 15(5), p. 427.

Helper, M. A., 1983, Subduction related deformation and metamorphism in the regional blueschist-greenschist terrain of the Condrey Mountain Window, Klamath Mts., northern California: *Geological Society of America Abstracts with Programs*, v. 15(6), p. 594.

Coleman, R. G., and Helper, M. A., 1983, The significance of the Condrey Mountain Dome in the evolution of the Klamath Mountains, California and Oregon: *Geological Society of America Abstracts with Programs*, v. 15(5), p. 294.

Helper, M. A., 1986, The age and direction of thrusting along the western margin of the Condrey Mountain Window, Klamath Mts., California: *Geological Society of America Abstracts with Programs*, v. 18(2), p. 116.

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Helper, M. A., Walker, N. W., and McDowell, F. W., 1988, U-Pb and K-Ar age constraints for Late Jurassic-Early Cretaceous deformation in the central Klamath Mtns., NW Calif. and SW Oregon: Geological Society of America Abstracts with Programs, v. 20, p. 231.

Thompson, A., Barnes, C. G., Helper, M. A., and Walker, N., 1988, Correlation of melange terranes, Klamath Mtns., CA and OR: Geological Society of America Abstracts with Programs, v. 20.

Helper, M. A., Walker, N. W., and McDowell, F. W., 1989, Early Cretaceous metamorphic ages and Middle Jurassic U-Pb zircon protolith ages for the Condrey Mountain Schist, Klamath Mtns., NW Calif. and SW Oregon: Geological Society of America Abstracts with Programs, v. 21, p. 92.

Fuqua, A., Behrens, E. W., Helper, M. A., and Wilson C. W., 1991, Seismic structural analysis of the Perdido Fold Belt, implications for deep water hydrocarbon potential: Spring Mtg., Society of Exploration Geophysics, Gulf Coast Section.

Helper, M. A., 1992, Evidence for successive Late Jurassic-Early Cretaceous underplating during High P/T metamorphism of the Condrey Mountain Schist, Central Klamath Mtns., Calif. and Oregon: Geological Society of America Abstracts with Programs, v. 24, no. 5, p. 33.

Carter, K. E., Reese, J., and Helper, M. A., 1993, Precambrian extension in the Llano Uplift, Texas: Geological Society of America Abstracts with Programs, v. 25.

Chernoff, C. B., Helper, M. A. and Mosher, S., 1993, Evidence for fourth generation structures in the Piedre Lumbre Region, western Picuris Mtns., New Mexico: Geological Society of America Abstracts with Programs, v. 25, p. 86.

Reed, R. M., and Helper, M. A., 1994, Evidence for solid-state deformation of 1.1 Ga "Anorogenic" granites in the Llano Uplift, central Texas: Geological Society of America Abstracts with Programs, v. 26, p. 25.

Gose, W. A., Dalziel, I. W. D., Helper, M. A., Hutson, F., and Grimes S., 1994, A positive test of the SWEAT hypothesis: New paleomagnetic data from the Grenville rocks of Coats Land, Antarctica: Geological Society of America Abstracts with Programs, v. 26, no. 7.

Gose, W. A., Dalziel, I.W.D., Helper, M. A., Hutson, F., and Grimes, S., 1994, The East Antarctica-North America connection: New paleomagnetic results from 1 Ga old rocks from Coats Land, Antarctica: EOS, Transactions of the American Geophysical Union, v. 75, no. 44, p. 199.

Reed, R. M., Roback, R. C., and Helper, M. A., 1995, Nature and age of deformation associated with the "anorogenic" Town Mountain Granite, Llano Uplift, Central Texas: Proceeding of the 12th International Conference on Basement Tectonics, Norman, OK.

Gose, W. A., Dalziel, I. W. D., Helper, M. A., Hutson, F., and Connelly, J., 1995, Paleomagnetic data and U-Pb Isotopic ages from Coats Land,

Antarctica: a test of the Laurentia-East Antarctica (“SWEAT”) connection: Proceedings of the International Symposium on Antarctic Earth Sciences, Siena, Italy.

Helper, M. A., Grimes, S. W., and Dalziel, I.W.D., 1995, Basement-cover relations and fabrics in the central Read Mountains, Shackleton Range, Antarctica (abst.), Proceedings of the International Symposium on Antarctic Earth Sciences, Siena, Italy.

Helper, M. A. and Gose, W. A., 1996, Virtual geomagnetic pole positions from 1.1 Ga intrusive rocks of the Llano Uplift, central Texas (abst.), Geological Society of America Abstracts with Programs, v. 27.

Hunt, B. B., Helper, M. A., and Roback, R. C., 1996, Structural relationships among Precambrian granite, gneiss and amphibolite in an outcrop of Packsaddle Schist, western Llano Uplift, Central Texas, Geological Society of America Abstracts with Programs, v. 27.

Helper, M., Roback, R., and Connelly, J., 1996, Comparison of Proterozoic basement provinces of the Southwestern US and East Antarctic craton: implications for Neoproterozoic plate reconstructions: Geological Society of America Abstracts with Programs, v. 28, no. 6, p.

Helper, M. A., Connelly, J. C., and Dalziel, I. W. D., 2000, Isotopic provinces and Mesoproterozoic tectonism in the Shackleton Range, Antarctica: comparisons with Mojavia, Geological Society of America Abstracts with Programs, v. 32, no. 7, p. 397.

Schmid, D. and Helper, M.A., 2005, Geological mapping with a tablet PC; Lessons from the Llano Uplift, central Texas (abst.), Geological Society of America Abstracts with Programs, v. 37, no. 3.

Schmitt, H.H., Helper, M.A., Muehlberger, W., and Snoke, A. W., 2006, Field Exploration Science for a return to the Moon, Eos Transactions, American Geophysical Union, Fall Meeting, Supplement, Invited Abstract U42B-01.

Choi, E.M., Helper, M.A. and Ghafour, N., 2007, M.U.L.E. – A Robotic Field Assistant for Lunar Astronauts, 11th International Space University Annual Symposium: “Why the Moon?”; Strasbourg, France.

Helper, M. A., Schmitt, H. H., Muehlberger, W. R., and Snoke, A. W. 2007, Astronaut Geological Training for Lunar Exploration, NASA Advisory Council Lunar Workshop, Tempe, AZ: HYPERLINK
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Knoop, P. and the Geopad website authoring team, 2007, Using Digital Information Technologies in Geoscience Field Courses (abst.), Geological Society of America Abstracts with Programs, v. 40.

J. Heldmann¹, J. Levine, J. Garvin, D. Beaty, M.S. Bell, T. Clancy, C.S. Cockell, G. Delory, J. Dickson, R. Elphic, D. Eppler, D. Fernandez-Remolar¹, J. Gruener, J.W. Head, **M. Helper**, V. Hipkin, M. Lane, J. Levy, R. Millikan, J. Moersch, G. Ori, L. Peach, F. Poulet, J. Rice, K. Snook, S. Squyre⁶, and J. Zimbelman, 2007, Interim Results From The MEPAG Human Exploration Of Mars Science Analysis Group (HEM-SAG), Lunar Exploration Analysis Group (LEAG) Biannual Meeting, Houston, TX, Abstract #3018.

Helper, M.A, and Snoke, A.W., 2007, Field Exploration and Astronaut Training Activities and Goals: The FEAT Perspective. Invited, Lunar Exploration Analysis Group (LEAG) Biannual Meeting, Houston, TX. **HYPERLINK**

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J. E. Bleacher, **M.A. Helper**, C.R. Neal, G.R. Osinski, M.S. Robinson, C.K. Shearer, A.W. Snoke, P.D. Spudis, 2008, Lunar Field Geology and EVA Planning Based on Science Rationale, N. Lunar Science Conference.

CDROMS

Helper, M. A., 2000, True Gems: Origins and Identification, Department of Geological Sciences Outreach Lecture Series, v. 5.

PUBLISHED BOOK REVIEWS

Helper, M. A., 1992, Review of Planning for Field Safety: Geoscience Information Society Newsletter, No. 135, p. 8.

Helper, M. A., 1998, Structural Geology and Map Interpretation: EOS, Transactions, American Geophysical Union, v.79, p. 261.

INVITED LECTURES

“Field work in Antarctica”, UT Deans Scholars, Fall, 2006

“Geologic Mapping in the 21st Century”, Austin Geological Society, Spring, 2005.

“Geological Exploration of the American West, 1868-1880: The Great Western Surveys”, Fall 2004, 2005, University of Texas Freshman Forum Seminar.

"Isotopic provinces and Mesoproterozoic tectonism in the Shackleton Range, Antarctica: comparisons with Mojavia", GSA annual meeting, Reno, NV, October, 2000

"Testing S.W.E.A.T.: Were Antarctica and the S.W. US once contiguous?", Baylor University, September, 1999.

"Tectonic significance of Early Cretaceous blueschists in the northern Klamath Mountains, California", Baylor University, October, 1992.

"Age, origin and tectonic significance of greenschists and blueschists in the Condrey Mountain Window, Klamath Mts., N. California", Texas Tech University, November, 1992.

"Deformational, metamorphic, and isotopic age constraints on the origin of the Condrey Mountain Schist: An inlier of Franciscan in the Klamath Mountains?", University of New Orleans, May, 1989.

UT DGS LECTURES

“Geologic Mapping in the 21st Century”, Hard Rock Seiminar, Spring, 2005.

“Proterozoic geology of the Shackleton Range, Antarctica; Implications for the SWEAT Hypothesis”, Technical Sessions, January 25, 2001

"Precambrian crystalline rocks of western Dronning Maud Land, Antarctica, and the hows, whys and wheres of an unusual trip around the world", Hard Rock Seminar with J. Connelly, March 19, 1997.

"A reappraisal of paleomagnetic and U-Pb data from Coats Land, Antarctica: New implications from late Proterozoic plate reconstructions", Hard Rock Seminar, Nov. 27, 1996.

"Paleomagnetic data and isotopic ages from Coats Land, Antarctica: implications for late Proterozoic plate reconstructions", Hard Rock Seminar with I.W.D. Dalziel and W. Gose, Nov. 27, 1994.

"Fieldwork at 80° South", Hard Rock Seminar, Feb., 1993

"A Klamath window with a Franciscan view? Geochronometry in the Condrey Mountain window, northern California and southwestern Oregon", Hard Rock Seminar, Sept. 27, 1989.

PUBLIC SERVICE

Served as a mentor for students in the gifted and talented program of Leander Independent School District.

"Coach" for Pflugerville middle school Science Olympiad rocks and mineral team.

Lectures to Austin Gem and Mineral Society: "Gemstone Enhancement", "Research in Antarctica".

Lectures to Williamson Country Gem and Mineral Society: "What can we learn by studying the geology of Antarctica?", "Initial results of research on the Precambrian rocks of the Shackleton Range, Antarctica"

Lecture to Austin Bead Society: "Properties and identification of bead materials"

1996 Field guidebook "Geology of central Texas" for the Austin Gem and Mineral Society, for free distribution to area K-12 teachers.

1999 "Meet the UT Scientist", Austin Science Fun Day lecture and demonstration.

2000 Public lecture and educational CDROM "True Gems: Origins and identification" for UT CNS/DGS Outreach program.

2001 Mentor for Pflugerville highschool and middle school Science Olympiad national team

Presenter at UT-BEG sponsored Earth Science Week

1988-present: 1) Respond to inquires from the public to UT and the BEG regarding gemstones and minerals.
3) Talks on geology to grade school and middle school classes in the A.I.S.D.
4) Judge for A.I.S.D. high school science fair.
5) "Science expert" for A.I.S.D. Math and Science Hotline.