

REFERENCES

- Arnold, M. L., 2006. *Evolution Through Genetic Exchange*. Oxford, Oxford University Press, 272.
- Avise, J.C., 2004. *Molecular Markers, Natural History, and Evolution*, 2nd edition. Sinauer Associates Inc., Sunderland, MA.
- Baljinnyam, I., Bayasgalan, A., Borisov, B. A., Cisternas, A., Dem'yanovich, M. G., Ganbaatar, L., Kochetkov, M., Kurushin, R. A., Molnar, P., Philip, H., and Vashchilov, Y. Y., 1993. Ruptures of major earthquakes and active deformation in Mongolia and its surroundings. *Geological Society of America Memoir* 181, 62.
- Barruol, G., Deschamps, A., Déverchère, J., Mordvinova, V., Ulziibat, M., Perrot, J., Artemiev, A.A., Dugarmaa, T., and Bokelmann, 2008. Upper mantle flow beneath and around the Hangay dome, Central Mongolia. *Earth and Planetary Science Letters*, 274, 221-233.
- Barry, T. L., Saunders, A. D., Kempton, D., Windley, B. F., Pringle, M. S., Dorjnamjaa, D., and Saandar, S., 2003. Petrogenesis of Cenozoic basalts from Mongolia. evidence for the role of asthenospheric versus metasomatized lithospheric mantle sources. *Journal of Petrology*, 44, 55-91.
- Barry, T.L., Ivanov, A.V., Rasskazov, S.V., Demonterova, E.I., Dunai, T.J., Davies, G.R., Harrison, D., 2007. Helium isotopes provide no evidence for deep mantle involvement in widespread Cenozoic volcanism across Central Asia. *Lithos*, 95, 415-424.
- Bayasgalan, A., Jackson, J., and McKenzie, D., 2005. Lithosphere rheology and active tectonics in Mongolia. relations between earthquake source parameters, gravity and GPS measurements. *Geophysical Journal International*, 163, 1151-1179.
- Bayasgalan, A., Carson, R., Jordon, B., and Wegmann, K., 2007. Geology of the Hangay Nuruu, Central Mongolia. *In* Bettison-Varga, L., ed., *Twentieth Annual Keck Research Symposium in Geology Proceedings*. Wooster, OH, Keck Geology Consortium, 2-9.
- Belmont, P., Pazzaglia, F. J., and Gosse, J. C., 2007. Cosmogenic ¹⁰Be as a tracer for hillslope and channel sediment dynamics in the Clearwater River, western Washington State. *Earth and Planetary Science Letters*, 264, 123 -135.
- Berlin, M. M., Anderson, R. S., and Larson, E., 2008. Late Cenozoic incision rates of the upper Colorado River, Western Colorado, constrained by burial of gravels by basalt debris-flows. *Geological Society of America Abstracts with Programs*, 40, no. 1, 35.
- Bierman, R., 1994. Using in situ produced cosmogenic isotopes to estimate rates of landscape evolution. A review from the geomorphic perspective. *Journal of Geophysical Research*, 99, 13,885-13,896.
- Bierman, P.R. and Steig, E.J., 1996. Estimating rates of denudation using cosmogenic isotope abundances in sediment. *Earth Surface Processes and Landforms*, 21, 125-139.
- Bird, P., 1979. Continental delamination and the Colorado Plateau. *Journal of Geophysical Research*, 84, 7561-7571.
- Bondre, N. R., 2003. Analysis of Vesicular Basalts and Lava Emplacement Processes for Application as a Paleobarometer/Paleoaltimeter: A Discussion. *Journal of Geology*, v. 111, no. 4, 499-502.
- *Booth, A.L., P.K. Zeitler, W.S.F. Kidd, J. Wooden, Y. Liu, B. Idleman, M. Hren, and Chamberlain, C.P., 2004. U-Pb Zircon constraints on the tectonic evolution of southeastern Tibet, Namche Barwa area. *American Journal of Science*, 304, 889-929. *GIC*
- *Booth, A.L., Chamberlain, C.P., Kidd, W.S.F., Zeitler, P.K., 2009. Constraints on the metamorphic evolution of the eastern Himalayan syntaxis from geochronologic and

- petrologic studies of Namche Barwa. *Geological Society of America Bulletin*, 121, 385-407, doi.10.1130/B26041.1. *GIC*
- Boyd, O. S., 2006. An efficient MATLAB script to calculate heterogeneous anisotropically elastic wave propagation in three dimensions. *Computers & Geosciences*, v. 32, no. 2, 259-264.
- Brown, E. T., Stallard, R. F., Larson, M. C., Raisbeck, G. M., and Yiou, F., 1995. Denudation rates determined from the accumulation of in situ-produced ^{10}Be in the Luquillo Experimental Forest, Puerto Rico. *Earth and Planetary Science Letters*, 129, 193-202.
- Brozović, N., Burbank, D. W., and Meigs, A. J., 1997. Climatic Limits on landscape development in the northwestern Himalaya. *Science*, 276, 571-574.
- Burbank, D. W., Leland, J., Fielding, E., Anderson, R. S., Brozovic, N., Reid, M. R., and Duncan, C., 1996. Bedrock incision, rock uplift and threshold hillslopes in the northwestern Himalayas. *Nature*, 379, 505-510.
- Calais, E., Vergnolle, M., San'kov, V., Likhnev, A., Miroshnitchenko, A., Amarjargal, S., and Déverchère, J., 2003. GPS measurements of crustal deformation in the Baikal-Mongolia area (1994-2002). Implications for current kinematics of Asia. *Journal of Geophysical Research*, 108, no. B10, 2501, doi.10.1029/2002JB002373.
- Carlson, R. W., 2005. Application of the Pt-Re-Os isotopic systems to mantle geochemistry and geochronology. *Lithos*, 82, 249-272.
- Carlson, W. D., 2006. Three-dimensional imaging of earth and planetary materials. *Earth and Planetary Science Letters*, v. 249, no. 3-4, 133-147.
- *Carlson, R. W., and R. O. Moore, 2004. Age of the eastern Kaapvaal mantle. Re-Os isotope data for peridotite xenoliths from the Monastery kimberlite. *South African Journal of Geology*, 107, 81-90, doi: 10.2113/107.1-2.81. *RC*
- *Carlson, R. W., A. J. Irving, and B. C. H. Jr., 1999a. Chemical and isotopic systematics of peridotite xenoliths from the Williams kimberlite, Montana. Clues to processes of lithosphere formation, modification and destruction., paper presented at Proceedings of the 7th International Kimberlite Conference, Red Roof Design, Cape Town. *RC*
- *Carlson, R. W., D. G. Pearson, F. R. Boyd, S. B. Shirey, G. Irvine, A. H. Menzies, and J. J. Gurney, 1999b. Re-Os systematics of lithospheric peridotites. implications for lithosphere formation and preservation, paper presented at Proc. 7th Int. Kimberlite Conf., Red Roof Design, Cape Town. *RC*
- *Carlson, R. W., D. G. Pearson, and D. E. James, 2005. Physical, chemical, and chronological characteristics of continental mantle, *Reviews of Geophysics*, 43, doi.2004RG00156. *RC*
- *Carroll, A.R., Doebbert, A., Booth, A.L., Chamberlain, C.P., Rhodes-Carson, M., Smith, M., Johnson, C.M., and Beard, B.L., 2008. Capture of high-altitude precipitation by a low-altitude Eocene lake, western U.S., Wyoming. *Geology*, 36, 791-794. *CPC*
- Chamberlain, C.P., Poage, M.A., Craw, D., Reynolds, D.C., 1999. Topographic development of the Southern Alps recorded by the isotopic composition of authigenic clay minerals, South Island, New Zealand. *Chemical Geology*, 155, 279-294.
- Chevrot, S., and van der Hilst, R. D., 2000. The Poisson ratio of the Australian crust; geological and geophysical implications. *Earth and Planetary Science Letters*, v. 183, no. 1-2, 121-132.
- Chow, S., and Hazama, K., 1998. Universal PCR primers for S7 ribosomal protein gene introns in fish. *Molecular Ecology*, v. 7, no. 9, 1255-1256.
- Conrad, C. and Molnar, P., 1997. The growth of Rayleigh-Taylor-type instabilities in the lithosphere for various rheological and density structures. *Geophysical Journal International*, 129, 95-112.

- Coggan, B. D., 2007, Glaciations of the Davaatiin Region of the Hangay Nuruu, Central Mongolia [B.A. Thesis]: Walla Walla, Whitman College, 31.
- *Craw, D., O. Koons, K. Zeitler, and Kidd, W.F.S., 2005. Fluid evolution and thermal structure in the rapidly exhuming gneiss complex of Namche Barwa-Gyala Peri, eastern Himalayan syntaxis. *Journal of Metamorphic Geology*, 23, 829-845, doi:10.1111/j.1525-1314.2005.00612.x. *GIC*
- Craw, D., and Waters, J., 2007. Geological and biological evidence for regional drainage reversal during lateral tectonic transport, Marlborough, New Zealand. *Journal of the Geological Society*, v. 164, 785-793, doi:10.1144/0016-76492006-064.
- Craw, D., Burrige, C., Norris, R., and Waters, J., 2008. Genetic ages for Quaternary topographic evolution: A new dating tool. *Geology*, v. 36, no. 1, 19-22.
- Cyr, A. J., and Granger, D. E., 2008. Dynamic equilibrium among erosion, river incision, and coastal uplift in the northern and central Apennines, Italy. *Geology*, 36, 103-106, doi. 10.1130/G24003A.1.
- Cunningham, W. D., 2001. Cenozoic normal faulting and regional doming in the southern Hangay region, Central Mongolia. implications for the origin of the Baikal rift province. *Tectonophysics*, 331, 389.
- Cunningham, D., 2005, Active intracontinental transpressional mountain building in the Mongolian Altai. Defining a new class of orogen. *Earth and Planetary Science Letters*, 240, no. 2, 436-444.
- D'Agostino, N., Jackson, J. A., Dramis, F., and Funiciello, R., 2001. Interactions between mantle upwelling, drainage evolution and active normal faulting; an example from the Central Apennines (Italy). *Geophysical Journal International*, v. 147, no. 2, 475-497.
- *Davis, S.J., Mix, H.T., Wiegand, B.A., Carroll, A.R., and Chamberlain, C., 2009. Synorogenic evolution of large-scale drainage patterns. Isotope paleohydrology of sequential Laramide Basins. *American Journal of Science*, 309, 549-602. *CPC*
- *Davis, S.J., Mulch, A., Carroll, A. and Chamberlain, C., 2009. Paleogene landscape evolution of the Laramide foreland. Stable isotopic evidence of topographic and hydrologic development in the central North American Cordillera. *Geological Society of America Bulletin*, 121, 100-116. *CPC*
- *Davis, S.J., Wiegand, B.A., Carroll, A.R., and Chamberlain, C.P., 2008. The effect of drainage reorganization on paleoaltimetry studies. An example from the Paleogene Laramide foreland. *Earth and Planetary Sciences Letters*, 275, 258-268. *CPC*
- Devyatkin, E. V., 1975. Neotectonic structures of western Mongolia (in Russian). *Mesozoic and Cenozoic Tectonics and Magmatism of Mongolia*. Moscow, Nauka, 264-282.
- Devyatkin, E. V., 1981. The Cenozoic of Inner Asia, the joint Soviet-Mongolian scientific research geological expedition. *Transactions vol. 27*, Nauka, Moscow, 196.
- Devyatkin, Y. V., and Smelov, S. B., 1979. Position of basalts in the Cenozoic sedimentary sequence of Mongolia. *International Geology Review*, 22, 307-317.
- Drummond AJ, Rambaut A., 2007. "BEAST. Bayesian evolutionary analysis by sampling trees." *BMC Evolutionary Biology*, 7, 214.
- Dueker, K. G., and Sheehan, A. F., 1997. Mantle discontinuity structure from midpoint stacks of converted P to S waves across the Yellowstone hotspot track. *Journal of Geophysical Research*, v. 102, no. B4, 8313-8327.
- Dulmaa, A., 1999, Fish and fisheries in Mongolia, in Petr, T., ed., *Fish and fisheries at higher altitudes*. Asia □ Technical Paper No. 385. New York, F.A.O. of the U.N.

- Egholm, D. L., Nielsen, S. B., Pedersen, K., and Lesemann, J. E., 2009. Glacial effects limiting mountain height. *Nature*, 460, 884-887.
- Farmer, G. L., Glazner, A. F., and Manley, C. R., 2002. Did lithospheric delamination trigger late Cenozoic potassic volcanism in the southern Sierra Nevada, California? *Geological Society of America Bulletin*, 114, 754-768.
- Fedotov, A., Sankov, V., De Batist, M., Kazansky, A., Parfeevets, A., and Miroshnitchenko, A., 2006. Chronology of Baikal rift system. *EOS Trans. AGU*, 87, no. 25, 246.
- *Finnegan, N.J., Hallet, B., Montgomery, D.R., Zeitler, P.K., Stone, J.O., Anders, A.M., and Liu Yuping, 2008. Coupling of rock uplift and river incision in the Namche Barwa-Gyala Peri massif, Tibet. *Geological Society of America Bulletin*, 120(1/2); 142-155; doi. 10.1130/B26224.1. *GIC*
- Forte, A.M., Moucha, R., Simmons, N.A., Grand, S. and Mitrovica, J.X., in press. Deep-mantle contributions to the surface dynamics of the North American continent. *Tectonophysics*. doi.10.1016/j.tecto.2009.06.010.
- Flower, M.F.J., Tamaki, K. and Hoang, N., 1998. Mantle extrusion: a model for dispersed volcanism and DUPAL-like asthenosphere in east Asia and the western Pacific. In M.F.J. Flower, S.-L. Chung, C.-H. Lo and T.-Y. Lee (Editors), *Mantle Dynamics and Plate Interactions in East Asia*. American Geophysical Union, Washington, pp. 67-88.
- Froufe, E., Knizhin, I., and Weiss, S., 2005. Phylogenetic analysis of the genus *Thymallus* (grayling) based on mtDNA control region and ATPase 6 genes, with inferences on control region constraints and broad-scale Eurasian phylogeography. *Molecular Phylogenetics and Evolution*, v. 34, 106-117.
- Gao, S., Davis, P.M., Liu, H., Slack, P.D., Zorin, Y.A., Mordvinova, V.V., Kozhevnikov, V.M., and Meyer, R.P., 1994. Seismic anisotropy and mantle flow beneath the Baikal rift Zone. *Nature*, 371, 149-151.
- Gao, S., Liu, H., Davis, P.M., Slack, P.D., Zorin, Y.A., Mordvinova, V.V., Kozhevnikov, V.M., 2003, Evidence for small-scale mantle convection in the upper mantle beneath the Baikal rift zone. *Journal of Geophysical Research*, 108, B4, 2194, doi: 10.1029/2002JB002039.
- Garziona, C.N., Quade, J., DeCelles, P.G., and English, N.B., 2000. Predicting paleoelevation of Tibet and the Himalaya from $d^{18}O$ vs. altitude gradients in meteoric water across the Nepal Himalaya. *Earth Planetary Science Letters*, 183, 215-229.
- Garziona, C.N., Dettman, D.L., and Horton, B.K., 2004. Carbonate oxygen isotope paleoaltimetry: Evaluating the effect of diagenesis on paleoelevation estimates of the Tibetan Plateau. *Palaeogeography Palaeoclimatology, Palaeoecology*, 212, 119-140.
- Gillespie, A.R., Huneke, J.C., and Wasserburg, G.J., 1984. Eruption age of ~100,000-year-old basalt from ^{40}Ar - ^{39}Ar analysis of partially degassed xenoliths. *Journal of Geophysical Research*, 89, 1033-1048.
- Gosse, J. C., and Phillips, F. M., 2001. Terrestrial in-situ cosmogenic nuclides: Theory and application. *Quaternary Science Reviews*, 20, 1475-1560.
- *Grove, T. L., S. W. Parman, and J. C. Dann, 1999, Conditions of magma generation for Archean komatiites from the Barberton Mountainland, South Africa, in *Mantle Petrology. Field Observations and High Pressure Experimentation. A tribute to Francis R. (Joe) Boyd*, edited by Y. Fei, C. M. Bertka and B. O. Mysen, p155-167, The Geochemical Society, Special Publication 6, Houston. *RC*
- Gurrola, H., Minster, J. B., and Owens, T., 1994. The use of velocity spectrum for stacking receiver functions and imaging upper mantle discontinuities. *Geophysical Journal International*, v. 117, no. 2, 427-440.

- Hack, J. T., 1979. Rock control and tectonism—Their importance in shaping the Appalachian highlands. U.S. Geological Survey Professional Paper 1126-B, 17.
- Hales, T. C., and Roering, J. J., 2009. A frost "buzzsaw" mechanism for erosion of the eastern Southern Alps, New Zealand. *Geomorphology*, 107, 241-253.
- Hancock, G., and Kirwan, M., 2007. Summit erosion rates deduced from ^{10}Be : Implications for relief production in the central Appalachians. *Geology*, 35, 89-92.
- Harrison, R. G., 1989. Animal mitochondrial DNA as a genetic marker in population and evolutionary biology. *Trends in Ecology & Evolution*, v. 4, no. 1, 6-11.
- Hewitt, G., 2000. The genetic legacy of the Quaternary ice ages. *Nature*, v. 405, no. 6789, 907.
- Hey, J. and Nielsen, R. 2007. Integration within the Felsenstein equation for improved Markov chain Monte Carlo methods in population genetics. *Proceedings of the National Academy of Sciences*, 104, 2785-2790.
- Höck, V., Daxner-Hock, G., Schmid, H.P., Badamgarav, D., Frank, W., Furtmüller, G., Montag, O., Barsbold, R., Khand, Y., and Söndov, J., 1997. Oligocene-Miocene sediments, fossils and basalts from the Valley of the Lakes (Central Mongolia) – An integrated study. *Mitteilungen der Österreichischen Geologischen Gesellschaft*, 90, 83-125.
- Huelsenbeck, J. and Ronquist, F., 2001. MRBAYES: Bayesian inference of phylogeny. *Bioinformatics*, 17, 754-755.
- Huneke, J.C. and Smith, S.P., 1976. The realities of recoil. ^{39}Ar recoil out of small grains and anomalous age patterns in ^{39}Ar - ^{40}Ar dating. *Geochimica et Cosmochimica Acta*, Supplement, 7, Proceedings, 7th Lunar Planet. Sci. Conf., 1987-2008.
- Ionov D.A., 2002. Mantle structure and rifting processes in the Baikal-Mongolia region: Geophysical data and evidence from xenoliths in volcanic rocks. *Tectonophysics*, 351, 41-60.
- Ionov, D. A., 2007. Compositional variations and heterogeneity in fertile lithospheric mantle. peridotite xenoliths in basalts from Tariat, Mongolia. *Contributions to Mineralogy and Petrology*, 154, 455-477.
- Ionov, D. A., and Wood, B. J., 1992. The oxidation state of subcontinental mantle. oxygen thermobarometry of mantle xenoliths from central Asia. *Contributions to Mineralogy and Petrology*, 111, 179-193.
- Ionov D. A., Hoefs, J. Wedepohl, K. H., and Wiechert, U., 1992. Content and isotopic composition of sulfur in ultramafic xenoliths from central Asia. *Earth and Planetary Science Letters*, v. 111, 269-286.
- Ionov, D. A., and Hofmann, A.W., 2007. Depth of formation of subcontinental off-craton peridotites. *Earth and Planetary Science Letters*, 261, 620-634.
- Ionov, D. A., Hofmann, A. W. , and Shimizu, N., 1994. Metasomatism-induced melting in mantle xenoliths from Mongolia. *Journal of Petrology*, 35, 753-785.
- Ionov, D. A., O'Reilly, S. Y. , and Griffin, W. L., 1998. A geotherm and lithosphere section for Central Mongolia (Tariat region), in *Mantle Dynamics and Plate Interactions in East Asia*, edited by M. Flower, S.-L. Chung, C.-H. Lo and T.-Y. Lee, 127-153, *American Geophysical Union Monograph, Geodynamic Series*, Washington.
- Jacoby, G., D'Arrigo, R., and Davaajamts, T., 1996. Mongolian tree rings and 20th century warming. *Science*, 273, 771-773.
- *James, D. E., Fouch, M. J., VanDecar, J. C., and Lee, S.D., 2001. Tectospheric structure beneath southern Africa. *Geophys. Res. Lett.*, 28, 2485-2488. *RC*

- *James, D. E., Boyd, F. R., Schutt, D., Bell, D. R., and Carlson, R. W. , 2004. Xenolith constraints on seismic velocities in the upper mantle beneath southern Africa. *Geochemistry, Geophysics, Geosystems*, doi. 10.1029/2003GC000551. *RC*
- Jolivet, M., Brunel, M., Seward, D., Xu, Z., Yang, J., Roger, F., Tapponnier, P., Malavielle, J., Arnaud, N., and Wu, C., 2001. Mesozoic and Cenozoic tectonics of the northern edge of the Tibetan plateau: Fission track constraints. *Tectonophysics*, 343, 111–134.
- Jolivet, M., Ritz, J.-F., Vassallo, R., Larroque, C., Braucher, R., Todbileg, M., Chauvet, A., Sue, C., Arnaud, N., De Vicente, R., Arzhanikova, A., and Arzhanikov, S., 2007. Mongolian summits: An uplifted, flat, old but still preserved erosion surface. *Geology*, v. 35, no. 10, 871-874.
- Jull, M. and Kelemen, P.B., 2001. On the conditions for lower crustal convective instability. *Journal of Geophysical Research*. 106, 6423–6446.
- Karlstrom, K. E., Crow, R. S., Peters, L., McIntosh, W., Raucchi, J., Crossey, L. J., Umhoefer, P., and Dunbar, N., 2007. $^{40}\text{Ar}/^{39}\text{Ar}$ and field studies of Quaternary basalts in Grand Canyon and model for carving Grand Canyon: Quantifying the interaction of river incision and normal faulting across the western edge of the Colorado Plateau. *Geological Society of America Bulletin*. 119, 1283-1312.
- Kay, R. W. and Kay, S.M., 1991. Creation and destruction of lower continental crust. *Geologische Rundschau*. 80, 259–278.
- Kay, R. W. and Kay, S.M., 1993. Delamination and delamination magmatism. *Tectonophysics*, 219, 177–189.
- *Kent-Corson, M.L., Ritts, B.D., Zhuang, G., Bovet, P.M., Graham, S.A., and Chamberlain, C.P., 2009. Stable isotope constraints on the tectonic, topographic and climatic evolution of the northern margin of the Tibetan Plateau. *Earth and Planetary Science Letters*, 282, 158-166. *CPC*
- Kessler, K. T., 1879. Beitrage zur Ichthyologie von Central-Asien. *Bulletin St. Petersburg Academy of Sciences*, 25, 282–310.
- Ketcham, R., and Carlson, W., 2001. Acquisition, optimization and interpretation of X-ray computed tomographic imagery: Applications to the geosciences. *Computers & Geosciences*, v. 27, 381-400.
- Khilko, S. D., et al., 1985. Strong earthquakes, paleoseismogeological and macroseismic data, *in* Earthquakes and the basis for seismic zoning of Mongolia. *Transactions 41, The Joint Soviet-Mongolian Scientific Geological Research Expedition. Moscow, Nauka*, 19–83.
- King, S.D. and Anderson, D.L., 1998. Edge-driven convection. *Earth Planetary Science Letters*, 160, 289-296.
- *Koons, O., Zeitler, P.K., Chamberlain, C.P., Craw, D., Meltzer, A.S. 2002. Mechanical links between erosion and metamorphism in Nanga Parbat, Pakistan Himalaya. *American Journal of Science*, 302, 749–773. *GIC*
- Koskinen, M.T., Piironen, J., and Pimmer, C.R. 2001. Interpopulation genetic divergence in European grayling (*Thymallus thymallus*, *Salmonidae*) at a microgeographic scale. implications for conservation. *Conservation Genetics*, 2, 133-143.
- Lal, D., 1991. Cosmic-ray labeling of erosion surfaces. In situ nuclide production-rates and erosion models. *Earth and Planetary Science Letters*, 104, 424-439.
- Lebedev, S., Meier, T., van der Hilst, R.D., 2006. Asthenospheric flow and origin of volcanism in the Baikal Rift area. *Earth and Planetary Science Letters* 249 415–424.

- Lehmkuhl, F., 1998. Quaternary glaciations in Central and Western Mongolia, *in* Owen, L. A., ed., *Mountain Glaciation*: Chichester, John Wiley & Sons Ltd, 153-167.
- *Li, C., Van der Hilst, R.D., Meltzer, A.S., and England, E.R., 2008. Subduction of the Indian lithosphere beneath the Tibetan Plateau and Burma. *Earth and Planetary Science Letters*, 274, 157-166, doi. 10.1016/j.epsl.2008.07.016. *GIC*
- Lithgow-Bertelloni, C. and Silver, P.G., 1998. Dynamic topography, plate driving forces and the African Superswell. *Nature*, 395, 269-272.
- Logatchev, N. A., and Zorin, Y. A., 1987. Evidence and causes of the two-stage evolution of the Baikal rift. *Tectonophysics*, 143, 225-234.
- López, J. A., Chen, W., and Ortí, G., 2004. Esociform Phylogeny. *Copeia*, v. 2004, no. 3, 449-464.
- Marshall, J. S., Idleman, B. D., Gardner, T. W., and Fisher, D. M., 2003. Landscape evolution within a retreating volcanic arc, Costa Rica, Central America. *Geology*, v. 31, no. 5, 419-422.
- McGetchin, T.R., Burke, K.C., Thompson, G.A., and Young, R.A., 1980. Mode and mechanisms of plateau uplifts, *in* Bally, A.W. et al., (Eds.), *Dynamics of Plate Interiors*, AGU Geodynamic Series, vol. 1, 99-110.
- McKenzie, D., 1984. A possible mechanism for epeirogenic uplift. *Nature* 307, 616 – 618, doi.10.1038/307616a0.
- Meisel, T., Walker, R.J., Irving, A.J., and Lorand, j., 2001. Osmium isotopic compositions of mantle xenoliths: A global perspective. *Geochimica et Cosmochimica Acta*, 65, 1311-1323.
- Moore, W. S., 1995. Inferring phylogenies from mtDNA variation: Mitochondrial-gene trees versus nuclear-gene trees. *Evolution*, v. 49, no. 4, 718-726.
- Mordvinova, V., Deschamps, A., Dugarmaa, T., Déverchère, J., Ulziibat, M., Sankov, V.A., Artem'ev, A.A., and J. Perrot, J., 2007. Velocity Structure of the lithosphere on the 2003 Mongolian-Baikal Transect from SV waves. *Physics of the Solid Earth*, 43, 119-129.
- Moucha, R., Forte, A. M., Rowley, D. B., Mitrovica, J. X., Simmons, N. A., and Grand, S. P., 2008. Mantle convection and the recent evolution of the Colorado Plateau and the Rio Grande Rift valley. *Geology*, v. 36, no. 6, 439-442.
- *Mulch, A., Sarna-Wojcicki, A.M., Perkins, M.E., and Chamberlain, C., 2008. A Miocene to Pleistocene climate and elevation record of the Sierra Nevada. *Proceedings to the National Academy of Sciences*, 105, 6819-6824. *CPC*
- *Mulch, A., and Chamberlain, C.P., 2007. Stable isotope paleoaltimetry in orogenic belts – The silicate record in surface and crustal geological archives. *Reviews in Mineralogy and Geochemistry*, 66, 89-118. *CPC*
- *Mulch, A., Teyssier, C., Cosca, M.A., and Chamberlain, C., 2007. Stable isotope paleoaltimetry of Eocene core complexes in the North American Cordillera, *Tectonics*, 26, TC4001, doi.10.1029/2006TC001995. *CPC*
- Mulch, A., Teyssier, C., Cosca, M.A., Vanderhaeghe, O., and Vennemann, T., 2004. Reconstructing paleoelevation in eroded orogens. *Geology*, 32, 525-528.
- Molnar, P., and Tapponnier, P., 1975. Tectonics of Asia: Consequences and implications of a continental collision. *Science*, 189, 419-426.
- Niemi, N. A., Oskin, M., Burbank, D. W., Heimsath, A. M., and Gabel, E. J., 2005. Effects of bedrock landslides on cosmogenically determined erosion rates. *Earth and Planetary Science Letters*, 237, 480-498.

- Parker, E. V., 2007. Movement of the Egiin Davaa Fault, Hangay Mountains, Mongolia [B.A. thesis]. Colorado Springs, Colorado College, 54.
- Parker, E. V., and Williams, J. M., 2007. Timing and Movement of the Egiin Davaa Fault, Hangay Mountains, Mongolia. *In* Bettison-Varga, L., ed., 20th Annual Keck Research Symposium in Geology Proceedings: Wooster, OH, Keck Geology Consortium, 30-38.
- Pazzaglia, F. J., and Brandon, M. T., 2001. A fluvial record of rock uplift and shortening across the Cascadia forearc high. *American Journal of Science*, 301, 385-431.
- Peng, Z., Ho, S. Y. W., Zhang, Y., and He, S., 2006. Uplift of the Tibetan plateau. Evidence from divergence times of *glyptosternoid* catfishes. *Molecular Phylogenetics and Evolution*, 39, 568-572.
- Peters, J.L., Zhuravlev, Y.N., Fefelov, I., Humphries, E.M., and Omland, K.E., 2008. Multilocus phylogeography of a holarctic duck: Colonization of North America from Eurasia by Gadwall (*Anas strepera*). *Evolution*, 1469-1483.
- Petit, C., Déverchère, J., Calais, E., San'kov, V., and Fairhead, D., 2002. Deep structure and mechanical behavior of the lithosphere in the Hangai-Hovsgol region, Mongolia: New constraints from gravity modeling. *Earth and Planetary Science Letters*, 197, 133-149.
- Petit, C., Tiberi, C., Deschamps, A. and Déverchère, J., 2008, Teleseismic travel times, topography and the lithospheric structure across central Mongolia. *Geophysical Research Letters*, 35, doi. 10.1029/2008GL033993.
- Pierce, K. L., Morgan, W. J., Link, P. K., Kuntz, M. A., and Platt, L. B., 1992. The track of the Yellowstone hot spot; volcanism, faulting, and uplift. *Geological Society of America Memoir* 179, 1-53.
- Poage, M.A., and Chamberlain, C.P., 2001. Empirical relationships between elevation and the stable isotope composition of precipitation and surface waters. considerations for studies of paleoelevation change. *American Journal of Science*, 301, 1-15.
- *Proussevitch, A., Sahagian, D., and Kutolin, V.A., 1993. Stability of foams in silicate melts. *Journal of Volcanology and Geothermal Research*, 59, 161-178. *DS*
- *Proussevitch, A., Sahagian, D., and Anderson, A., 1993. Dynamics of diffusive bubble growth in magmas: Isothermal case, *Journal of Geophysical Research*, 98, 22283-22308. *DS*
- *Proussevitch, A., and Sahagian, D., 1996. Dynamics of coupled diffusive and decompressive bubble growth prior to volcanic eruption. *Journal of Geophysical Research*, 101, 17447-17156. *DS*
- *Proussevitch, A., and Sahagian, D., 1998. Dynamics and energetics of bubble growth in magmas: Analytical formulation and numerical modeling, *Journal of Geophysical Research*, 103, 18223-18251. *DS*
- *Proussevitch, A. and Sahagian D., 2001. Recognition and separation of discrete objects within complex 3D voxelized structures. *Computers and Geosciences*, 27, 441-454. *DS*
- *Proussevitch, A., D. Sahagian, D., and Tsentalovich, E., 2007. Statistical analysis of bubble and crystal size distributions: Formulations and procedures. *Journal of Volcanology and Geothermal Research*, 164, 95-111. *DS*
- *Proussevitch, A., Sahagian, D., and Carlson, W.D., 2007. Statistical analysis of bubble and crystal size distributions: Application to Colorado Plateau basalts. *Journal of Volcanology and Geothermal Research*, 164, 112-126. *DS*
- Quade, J., Garzzone, C., and Eiler, J., 2007. Paleoelevation reconstruction using pedogenic carbonates. *In* Kohn, M.J. ed. *Paleoaltimetry. Geochemical and Thermodynamic Approaches*, *Reviews in Geochemistry*, 66, 53-87.

- Restivo, A., and Helffrich, G., 1999. Teleseismic shear wave splitting measurements in noisy environments. *Geophysical Journal International*, v. 137, no. 3, 821-830.
- Ronquist, F. and Huelsenbeck, J., 2003. MRBAYES 3. Bayesian phylogenetic inference under mixed models. *Bioinformatics*, 19, 1572-1574.
- Rowley, D.B., and Currie, B.S., 2006. Paleo-altimetry of the late Eocene to Miocene Lumpola basin, central Tibet. *Nature*, 439, 677-681.
- Rowley, D.B., Pierrehumbert, R.T., and Currie, B.S., 2001. A new approach to stable isotope-based paleoaltimetry: Implications for paleoaltimetry and paleohypsometry of the High Himalaya since the Late Miocene. *Earth and Planetary Science Letters*, 188, 253-268.
- Sahagian, D. L., 1985. Bubble migration and coalescence during the solidification of basaltic lava flows. *Journal of Geology*, v. 93, 205-211.
- Sahagian, D. L., Anderson, A. T., and Ward, B., 1989. Bubble coalescence in basalt flows: Comparison of a numerical model with natural examples. *Journal of Volcanology and Geothermal Research*, v. 52, no. 49-56.
- *Sahagian, D., and Proussevitch, A., 1992. Bubbles in volcanic systems. *Nature*, 359, 485. *DS*
- *Sahagian, D., Proussevitch, A., and Anderson, A., 1994. Reply to comment by S. Sparks, *Journal of Geophysical Research*, 99, 17829-17832, 1994. *DS*
- *Sahagian, D. and Maus, J., 1994. Basalt vesicularity as a measure of atmospheric pressure. *Nature*, 372, 449-451. *DS*
- *Sahagian, D., and A. Proussevitch, A., 1996. Thermal effects of magma degassing. *Journal of Volcanology and Geothermal Research*, 74, 19-38. *DS*
- *Sahagian, D., and Proussevitch, A., 1998. 3D particle size distributions from 2D observations: Stereology for natural applications. *Journal of Volcanology and Geothermal Research*, 84, 173-196. *DS*
- *Sahagian, D. and A. Proussevitch, A., 1999. Reply to comment on "Dynamics and energetics of bubble growth in magmas: Analytical formulation and numerical modeling." *Journal of Geophysical Research*, 104, 5129. *DS*
- *Sahagian, D., 1999. Magma fragmentation in eruptions. *Nature*, 402, 589-591. *DS*
- *Sahagian, D., Proussevitch, A., and Carlson, W., 2002a. Timing of Colorado Plateau uplift. Initial constraints from vesicular basalt-derived paleoelevations. *Geology*, 30, 807-810. *DS*
- *Sahagian, D., Proussevitch, A., and Carlson, W.D., 2002b. Analysis of vesicular basalts and lava emplacement processes for application as a paleobarometer/paleoaltimeter, *Journal of Geology*, 110, 671-685. *DS*
- *Sahagian, D., 2005. Paleoelevation measurement: Combining proxies and approaches. *EOS Trans. AGU*, 86 (48), 500. *DS*
- *Sahagian, D. and Proussevitch, A., 2007. Paleoelevation measurement on the basis of vesicular basalts. *In* Kohn, M.J. ed. *Paleoaltimetry. Geochemical and Thermodynamic Approaches, Reviews in Geochemistry*, 66, 195-214.
- *Schmitz, M. D., Bowring, S.A., d. Wit, M. J. , and Gartz, V., 2004. Subduction and terrane collision stabilize the western Kaapvaal craton tectosphere 2.9 billion years ago. *Earth and Planetary Science Letters*, 222, 363-376. *RC*
- Schotterer, U., Frohlich, K., Gaggeler, H.W., Sandjordj, S., and Stichler, W., 1997. Isotope records from Mongolian and Alpine ice cores as climate records. *Climatic Change*, 36, 519-530.

- Schlupp, A., 1999. Neotectonique de la Mongolie occidentale analysée à partir de données de terrain, sismologiques et satellitaires [Ph.D. thesis]. Strasbourg, Université Louis Pasteur, 270.
- Sherrington, H. F., Zandt, G., and Frederiksen, A., 2004. Crustal fabric in the Tibetan Plateau based on waveform inversions for seismic anisotropy parameters. *Journal of Geophysical Research*, v. 109, no. B2, doi:10.1029/2002JB002345.
- Shirey, S. B. and Walker, R.J., 1998. The Re-Os isotope system in cosmochemistry and high-temperature geochemistry. *Annual Review of Earth and Planetary Sciences*, 26, 423-500.
- *Shirey, S. B., Harris, J.W., Richardson, S.H., Fouch, M.J., James, D.E., Cartigny, P., Deines, P., and F. Viljoen, F., 2002. Diamond genesis, seismic structure, and evolution of the Kaapvaal-Zimbabwe craton. *Science*, 297, 1683-1686. *RC*
- Shuster D. L. and Farley K. A., 2004. $^4\text{He}/^3\text{He}$ thermochronometry. *Earth and Planetary Science Letters*, 217, 1-17.
- Shuster D. L., Ehlers, T. A., Rusmore, M. E., Farley, K. A., 2005. Rapid glacial erosion at 1.8 Ma revealed by $^4\text{He}/^3\text{He}$ thermochronometry. *Science*, 310, 1668-1670.
- Shuster D. L., Flowers R. M., Farley K. A., 2006. The influence of natural radiation damage on helium diffusion kinetics in apatite. *Earth and Planetary Science Letters*, 249, 148-161.
- Silver, P. G., and Chan, W. W., 1991. Shear wave splitting and subcontinental mantle deformation. *Journal of Geophysical Research*, v. 96, no. B10, 16,429-16,454.
- Sjostrom, D.J., Hren, M.T., Chamberlain, C.P., 2004. Oxygen isotope records of goethite from ferricrete deposits indicate regionally varying Holocene climate change in the Rocky Mountain region, U.S.A. *Quaternary Research*, 61, 64-71.
- Small, E. E., Anderson, R. S., Repka, J. L., and Finkel, R., 1997. Erosion rates of alpine bedrock summit surfaces deduced from in situ ^{10}Be and ^{26}Al . *Earth and Planetary Science Letters*, 150, 413-425.
- Smith, G. R., 1992. Introgression in fishes: significance for paleontology, cladistics, and evolutionary rates. *Systematic Biology*, v. 41, 41-57.
- *Sol, S., Meltzer, A., Burgmann, R., Van der Hilst, R.D., King, B., Chen, Z., Koons, P., Lev, E., Liu, Y.P., Zeitler, P.K., Yuping, L., Zhang, X., Zhang, J., and Zurek, B., 2007. Geodynamics of the southeastern Tibetan plateau from seismic anisotropy and geodesy. *Geology*, 35, 563-566, doi. 10.1130/G23408A.1. *GIC*
- *Song, S., Jones, K., Lindquist, W., Dowd, B., and Sahagian, D., 2001. Synchrotron X-Ray computed microtomography: Studies on vesiculated basaltic Rocks. *Bulletin of Volcanology*, 63, 252-263, 2001. *DS*
- Spasojevic, S., Liu, L., and Gurnis, M., 2009. Adjoint models of mantle convection with seismic, plate motion and stratigraphic constraints. North America since the Late Cretaceous. *Geochemistry, Geophysics, Geosystems*, 10, Q05W02, doi.10.1029/2008GC002345, 24.
- *Stewart, R.J., Hallet, B., Zeitler, P.K., Malloy, M.A., Allen, C.M., and Trippett, D., 2008. Brahmaputra sediment flux dominated by highly localized rapid erosion from the easternmost Himalaya. *Geology*. *Geology*, 36(9), 711-714 (10.1130/G24890A.1). *GIC*
- Stone, J. O., 2000. Air pressure and cosmogenic isotope production. *Journal of Geophysical Research*, 105, no. B10, 23,753-23,759.
- Stosch, H.-G., Lugmair, G.W., and Kovalenko, I., 1986. Spinel peridotite xenoliths from the Tariat Depression, Mongolia. II. Geochemistry and Nd and Sr isotopic composition and their implications for the evolution of the subcontinental lithosphere. *Geochimica et Cosmochimica Acta*, 50, 2601-2614.

- Stosch, H.-G., D.A. Ionov, I.S. Puchtel, S.J.G. Galer, A. Sharpouri, 1995. Lower crustal xenoliths from Mongolia and their bearing on the nature of the deep crust beneath central Asia. *Lithos* 36, 227-242.
- Stuwe, K., and Hintermueller, M., 2000. Topography and isotherms revisited; the influence of laterally migrating drainage divides. *Earth and Planetary Science Letters*, 184, 287-303.
- Tiberi, C., Deschamps, A., Déverchère, J., Petit, C. Perrot, J., Appriou, D., Mordvinova, V., Dugaarma, T., Ulzibaat, M., and Artemiev, A.A., 2008. Asthenospheric imprints on the lithosphere in Central Mongolia and Southern Siberia from a joint inversion of gravity and seismology (MOBAL experiment). *Geophysical Journal International*, 175, 1283-1297.
- Tielke, J. A., Kastl, B. C., and Otgonhuu, J., 2007. Genesis and evolution of Tertiary lavas of the central Hangay Mountains, Mongolia. *In* Bettison-Varga, L., ed., Twentieth Annual Keck Research Symposium in Geology Proceedings: Wooster, Oh, 14-24.
- Tomurtogoo, O., ed., 1999. Geological Map of Mongolia. Mongolian Academy of Sciences, 1:1,000,000.
- Tsujimuraa, Yutaka, A., Tanakac, T., Shimadac, J., Satoru, H., Tsuomu, Y., Gombo, D., and Dambaravjass, O., 2007. Stable isotopic and geochemical characteristics of groundwater in Kherlen River basin, a semi-arid region in eastern Mongolia. *Journal of Hydrology*, 333, 47-57.
- Vanderhaeghe, O., Medvedev, S., Fullsack, P., Beaumont, C, and Jamieson, R.A., 2003. Evolution of orogenic wedges and continental plateaux: Insights from crustal thermal-mechanical models overlying subducting mantle lithosphere. *Geophysical Journal International*, 153, 27 – 51. doi 10.1046/j.1365-246X.2003.01861.x.
- Vassallo, R., Jolivet, M., Ritz, J. F., Braucher, R., Larroque, C., Sue, C., Todbileg, M., and Javkhlanbold, D., 2007. Uplift age and rates of the Gurvan Bogd system (Gobi-Altay) by apatite fission track analysis. *Earth and Planetary Science Letters*, v. 259, no. 3-4, 333-346.
- Villasenor, A., Ritzwoller, M.H., Levshin, A.L., Barmin, M.P., E.R. Engdahl, E.R., Spakman, W., Trampert, J., 2001. Shear velocity structure of central Eurasia from inversion of surface wave velocities. *Physics of the Earth and Planetary Interiors*, 123, 169-184.
- Walker, R. J., Carlson, R.W., Shirey, S.B., and Boyd, F. R., 1989. Os, Sr, Nd, and Pb isotope systematics of southern African peridotite xenoliths: Implications for the chemical evolution of subcontinental mantle, *Geochimica et Cosmochimica Acta*, 53, 1583-1595.
- Walker, R. T., Nissen, E., Molor, E., and Bayasgalan, A., 2007. Reinterpretation of the active faulting in central Mongolia. *Geology*, 35, 759-762.
- Wegmann, K. W., Zurek, B. D., Regalla, C. A., Bilardello, D., Wollenberg, J. L., Kopczynski, S. E., Ziemann, J. M., Haight, S. L., Apgar, J. D., Zhao, C., and Pazzaglia, F. J., 2007. Position of the Snake River watershed divide as an indicator of geodynamic processes in the greater Yellowstone region, western North America. *Geosphere*, 3, 272-281.
- Wegmann, K. W., and Pazzaglia, F. J., 2009. Late Quaternary fluvial terraces of the Romagna and Marche Apennines, Italy. Climatic, lithologic, and tectonic controls on terrace genesis in an active orogen. *Quaternary Science Reviews*, 28, 137-165.
- Wilde, S. A., Zhou, X. H., Nemchin, A. A. and Sun, M., 2003. Mesozoic crust-mantle interaction beneath the North China craton: A consequence of the dispersal of Gondwanaland and accretion of Asia. *Geology*, 31, 817-820.
- Willett, S. D., 1999, Orogeny and orography. The effects of erosion on the structure of mountain belts. *Journal of Geophysical Research-Solid Earth*, 104, B12, 28957-28981.

- *Wilson, A. H., Shirey, S.B., and Carlson, R.W., 2003. Archaean ultra-depleted komatiites formed by hydrous melting of cratonic mantle, *Nature*, 423, 858-861. *RC*
- Windley, B. F., and Allen, M. B., 1993. Mongolian plateau: Evidence for a late Cenozoic mantle plume under central Asia. *Geology*, 21, 295-298.
- Won, Y.-J., Wang, Y., Sivasundar, A., Raincrow, J., and Hey, J., 2006. Nuclear gene variation and molecular dating of the Cichlid species flock of Lake Malawi: *Molecular Biology and Evolution*, v. 23, no. 4, 828-837.
- Yanovskaya, T.B., and Kozhevnikov, V.M., 2003. 3D S-wave velocity pattern in the upper mantle beneath the continent of Asia from Rayleigh wave data. *Physics of the Earth and Planetary Interiors*, 138, 263-278.
- Yarmolyuk, V., Zhuravlev, D. Z., Ivanov, G., and Kovalenko, I., 1996. Isotope composition of Sr and Nd in basic volcanites at the South Khangay hot spot, Central Asia. *Transactions (Doklady) of the Russian Academy of Sciences. Earth Science Sections*, 344, 208-212.
- Yarmolyuk, V., Kudryashova, E. A., Kozlovsky, A. M., and Lebedev, A., 2008. Late Cenozoic Volcanism of Khangai (Central Mongolia). Evidence for recent orogeny in Central Asia. *Doklady Earth Sciences*, 422, 1032-1036.
- Yarmolyuk, V., Kudryashova, E. A., Kozlovsky, A. M., and Savatenkov, M., 2007. Late Cretaceous-Early Cenozoic Volcanism of Southern Mongolia. A Trace of the South Khangai Mantle Hot Spot. *Journal of Volcanology and Seismology*, 1, 1-27.
- Young, R. W., 1989. Crustal constraints on the evolution of the continental divide of eastern Australia. *Geology*, v. 17, 528-530.
- *Zeitler, P.K., Meltzer, A.S., Koons, P.O., Craw, D., Hallet, B., Chamberlain, C.P., Kidd, W.S.F., Park, S., Seeber, L., Bishop, M. L., Shroder, J., 2001. Erosion, Himalayan geodynamics, and the geology of metamorphism. *GSA Today*, 11, 4-8. *GIC*
- Zhang, H., and Thurber, C., 2006. Development and applications of double-difference seismic tomography. *Pure and Applied Geophysics*, v. 163, no. 2-3, 373-403.
- Zhu, L., and Kanamori, H., 2000. Moho depth variation in Southern California from teleseismic receiver functions. *Journal of Geophysical Research*, v. 105, no. B2, 2969-2980.
- Zorin, Y. A., 1999. Geodynamics of the western part of the Mongolia-Baikal collisional belt, Trans-Baikal region (Russia) and Mongolia. *Tectonophysics*, 306, 33-56.
- Zorin, Y. A., Novoselova, M.R., Turutanov, E.K., and Kozhevnikov, V.M., 1990. Structure of the lithosphere in the Mongolia-Siberian mountainous province. *Journal of Geodynamics*, 11, 327-342.
- Zorin, Y.A., Turutanov, E.K., and Kozhevnikov, V.M., 2003. Mantle plumes beneath the Baikal rift zone and adjacent areas: Geophysical evidence. *Doklady Earth Sciences*, 393A, 1302-1304.
- Zorin, Y. A., Turutanov, E.K., Kozhevnikov, V.M., Rasskazov, S.V., and Ivanov, A.V., 2006. Cenozoic upper mantle plumes in East Siberia and Central Mongolia and subduction of the Pacific plate. *Doklady Earth Sciences*, 409, 723-726.
- *Zurek, B.D. (2008) The Evolution and Modification of Continental Lithosphere, Dynamics of 'Indenter Corners' and Imaging the Lithosphere across the Eastern Syntaxis of Tibet, PhD Dissertation. Lehigh University 250. *GIC*
- Zurek, B., and Dueker, K., 2005. Lithospheric stratigraphy beneath the Southern Rocky Mountains. In Karlstrom, K., and Keller, G. R., eds., *The Rocky Mountain Region: An Evolving Lithosphere*, Geophysical Monograph Series 154: Washington, D.C., American Geophysical Union, 317-328.