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A Metamorphosed Early Cambrian Crust-Mantle Transition in the Eastern Alps, Austria

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<http://petrology.oupjournals.org/cgi/content/abstract/45/8/1689?ct>

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3{middle dot}0 Ga Mallina Basin, Pilbara Craton, NW Australia R. H. SMITHIES, D. C. CHAMPION, and S.-S. SUN J. Petrology 1 August 2004; 45(8): p. 1515-1537

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Abundance and Partitioning of OH in a High-pressure Magmatic System: Megacrysts from

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Incongruent Patterns of Local and Global Genome Size Evolution in Cotton Corrinne E. Grover, HyeRan Kim, Rod A. Wing, Andrew H. Paterson, and Jonathan F. Wendel *Genome Res.* published 15 July 2004, 10.1101/gr.2673204 <http://www.genome.org/cgi/content/abstract/gr.2673204v1?ct>

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<http://rpd.oupjournals.org/cgi/content/abstract/109/3/217?ct>

Practical Handbook of Soil, Vadose Zone, and Ground-Water Contamination: Assessment, Prevention and Remediation, Second Edition Ken Killham J. Environ. Qual. 1 July 2004; 33(4): p. 1579 <http://jeq.scijournals.org/cgi/content/full/33/4/1579?ct>

Phosphorus Runoff from Incorporated and Surface-Applied Liquid Swine Manure and Phosphorus Fertilizer I. C. Daverede, A. N. Kravchenko, R. G. Hoefl, E. D. Nafziger, D. G. Bullock, J. J. Warren, and L. C. Gonzini J. Environ. Qual. 1 July 2004; 33(4): p. 1535-1544 <http://jeq.scijournals.org/cgi/content/abstract/33/4/1535?ct>

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Colloidal Phosphorus in Surface Runoff and Water Extracts from Semiarid Soils of the Western United States Benjamin L. Turner, Mary A. Kay, and Dale T. Westermann J. Environ. Qual. 1 July 2004; 33(4): p. 1464-1472 <http://jeq.scijournals.org/cgi/content/abstract/33/4/1464?ct>

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Rachel Caspari and Sang-Hee Lee Proc. Natl. Acad. Sci. USA published 13 July 2004, 10.1073/pnas.0402857101  
<http://www.pnas.org/cgi/content/abstract/0402857101v1?ct>

ZL Li, HL Chen, SF Yang, CW Dong, and WJ Xiao Petrology, geochemistry and geodynamics of basic granulite from the Altay area, North Xinjiang, China. J Zhejiang Univ Sci 1 Aug 2004 5(8): p. 979.  
<http://highwire.stanford.edu/cgi/medline/pmid:15236485>

J Bang and D Hesterberg Dissolution of trace element contaminants from two coastal plain soils as affected by pH. J Environ Qual 1 May 2004 33(3): p. 891.  
<http://highwire.stanford.edu/cgi/medline/pmid:15224925>

PP Motavalli, RJ Kremer, M Fang, and NE Means Impact of genetically modified crops and their management on soil microbially mediated plant nutrient transformations. J Environ Qual 1 May 2004 33(3): p. 816.  
<http://highwire.stanford.edu/cgi/medline/pmid:15224915>

PM Sheehan and MT Harris Microbialite resurgence after the Late Ordovician extinction. Nature 1 Jul 2004 430(6995): p. 75.  
<http://highwire.stanford.edu/cgi/medline/pmid:15229600>

CN Ciampaglio Measuring changes in articulate brachiopod morphology before and after the Permian mass extinction event: do developmental constraints limit morphological innovation? Evol Dev 1 Jul 2004 6(4): p. 260.  
<http://highwire.stanford.edu/cgi/medline/pmid:15230966>

ZI-QIANG Wang A New Permian Gnetalean Cone as Fossil Evidence for Supporting Current Molecular Phylogeny. Ann Bot (Lond) 30 Jun 2004.  
<http://highwire.stanford.edu/cgi/medline/pmid:15229124>

VA Nzungung, H Penning, and W O'Niell Mechanistic changes during phytoremediation of perchlorate under different root-zone conditions. Int J Phytoremediation 1 Jan 2004 6(1): p. 63. <http://highwire.stanford.edu/cgi/medline/pmid:15224776>

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