

CONTENTS TO VOLUME 305

NUMBER 1

- Dating Plio-Pleistocene glacial sediments using the cosmic-ray-produced radionuclides ^{10}Be and ^{26}Al
Greg Balco, John O.H. Stone, and Carrie Jennings 1
- Pattern of Mesozoic thrust surfaces and Tertiary normal faults in the Sevier Desert subsurface, west-central Utah
Stewart Wills, Mark H. Anders, and Nicholas Christie-Blick 42

NUMBER 2

- Stable isotope records of Cenozoic climate and topography, Tibetan plateau and Tarim basin
Stephan A. Graham, C. Page Chamberlain, Yongjun Yue, Bradley D. Ritts, Andrew D. Hanson, Travis W. Horton, Jacob R. Waldbauer, Michael A. Poage, and X. Feng 101
- Multiple length-scale kinetics: an integrated study of calcite dissolution rates and strontium inhibition
Michael D. Vinson and Andreas Lüttge 119
- Implications of the evolution of organic acid moieties for basalt weathering over geological time
Alexander Neaman, Jon Chorover, and Susan L. Brantley 147

NUMBER 3

- Stable isotope geochemistry and formation mechanisms of quartz veins; extreme paleoaltitudes of the Central Alps in the Neogene
Z. D. Sharp, H. Masson, and R. Lucchini 187
- Sea level, sediments and the composition of seawater
Heinrich D. Holland 220
- Sediment carbon, nitrogen and phosphorus cycling in an anoxic fjord, Effingham Inlet, British Columbia
Ellery Ingall, Lauren Kolowith, Timothy Lyons and Matthew Hurtgen 240

NUMBER 4

- (U-Th)/(He-Pb) double dating of detrital zircons
*P. W. Reiners, I. H. Campbell, S. Nicolescu, C. M. Allen,
J. K. Hourigan, J. I. Garver, J. M. Mattinson, and D. S. Cowan* 259
- An empirically derived kinetic model for albitization of detrital plagioclase
Renee J. Perez and James R. Boles 312

NUMBER 5

- Late Quaternary history of the Chemehuevi Mountain piedmont, Mojave Desert, deciphered using ^{10}Be and ^{26}Al
Kyle K. Nichols, Paul R. Bierman, M. C. Eppes, Marc Caffee, Robert Finkel, and Jennifer Larsen 345
- Asymmetric growth of the Pyrenees revealed through measurement and modeling of orogenic fluxes
H. D. Sinclair, M. Gibson, M. Naylor, and R. G. Morris 369
- Chronological constraints on the pre-orogenic history, burial and exhumation of deep-seated rocks along the eastern margin of the Variscan Orogen, Bohemian Massif, Czech Republic
Karel Schulmann, Alfred Kröner, Ernst Hegner, Immo Wendt, Jiří Konopásek, Ondrej Lexa, and Pavla Štípská 407

NUMBERS 6, 7, 8

Preface	ix
Introduction and overview: What do we know for sure? <i>Kenneth H. Nealson and Radu Popa</i>	449
Biogeochemical signatures through time as inferred from whole microbial genomes <i>Aubrey L. Zerkle, Christopher H. House, and Susan L. Brantley</i>	467
Mineralogical footprints of microbial life <i>Susanne Douglas</i>	503
The co-evolution of the nitrogen, carbon, and oxygen cycles in the Proterozoic ocean <i>Katja Fennel, Mick Follows, and Paul G. Falkowski</i>	526
The conundrum of marine N ₂ fixation <i>Claire Mahaffey, Anthony F. Michaels, and Douglas G. Capone</i>	546
Biogeochemical cycling of phosphorus: Insights from oxygen isotope effects of phosphoenzymes <i>Ruth E. Blake, James R. O'Neil, and Aleksandr V. Surkov</i>	596
Computational chemistry applied to studies of organic contaminants in the environment: Examples based on benzo[<i>a</i>]pyrene <i>James D. Kubicki</i>	621
Multiple-sulfur isotope fractionations in biological systems: A case study with sulfate reducers and sulfur disproportionators <i>David T. Johnston, James Farquhar, Boswell A. Wing, Alan J. Kaufman, Donald E. Canfield, and Kirsten S. Habicht</i>	645
Modeling apatite nucleation in the human body and in the geochemical environment <i>Nita Sahai</i>	661
Spectromicroscopy at the organic-inorganic interface in biominerals <i>Gelsomina De Stasio, Margaret A. Schmitt, and Samuel H. Gellman</i>	673
Putative mineral-specific proteins synthesized by a metal reducing bacterium <i>Brian H. Lower, Michael F. Hochella, Jr., and Steven K. Lower</i>	687
Biogenic dissolution of a soil cerium-phosphate mineral <i>Javiera Cervini-Silva, David A. Fowle, and Jillian Banfield</i>	711
Quantifying the relationship between microbial attachment and mineral surface dynamics using vertical scanning interferometry (VSI) <i>K. J. Davis and A. Lüttge</i>	727

Directed natural forces of affinity between a bacterium and mineral	
	<i>Steven K. Lower</i> 752
Mineral surfaces and their implications for microbial attachment: Results from Monte Carlo simulations and direct surface observations	
	<i>A. Lüttge, L. Zhang, and K. H. Nealson</i> 766
Interactions between mineral surfaces and dissolved species: From monovalent ions to complex organic molecules	
	<i>Udo Becker, Subhashis Biswas, Treavor Kendall, Peter Risthaus, Christine V. Putnis, and Carlos M. Pina</i> 791
A universal surface complexation framework for modeling proton binding onto bacterial surfaces in geologic settings	
	<i>David Borrok, Benjamin F. Turner, and Jeremy B. Fein</i> 826
Review of the surface chemical heterogeneity of bacteriogenic iron oxides: Proton and cadmium sorption	
	<i>Raul E. Martinez and F. Grant Ferris</i> 854
A different look at biogeochemistry	
	<i>Robert A. Berner</i> 872

NUMBER 9

- Coastal ocean and carbonate systems in the high CO₂ world of the Anthropocene
Andreas J. Andersson, Fred T. Mackenzie, and Abraham Lerman 875
- Quantitative interpretation of pH distributions in aquatic sediments: A reaction-transport modeling approach
Parisa Jourabchi, Philippe Van Cappellen, and Pierre Regnier 919
- Early chromite mining and agricultural clearance: Opportunities for the investigation of agricultural sediment dynamics in the eastern piedmont (USA)
Daniel J. Bain and Grace S. Brush 957

NUMBER 10

- Leaf architectural profiles of angiosperm floras across the Cretaceous/
Tertiary boundary
W. A. Green and L. J. Hickey 983
- The timing of paleoenvironmental change and cause-and-effect relationships
during the early Jurassic mass extinction in Europe
Paul B. Wignall, Robert J. Newton and Crispin T.S. Little 1014
- Stable isotope paleoaltimetry: A critical review
Peter M. Blisniuk and Libby A. Stern 1033