



## Page Chamberlain

Professor of Earth and Planetary Sciences and of Earth System Science  
Earth & Planetary Sciences

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### Bio

#### ACADEMIC APPOINTMENTS

- Professor, Earth & Planetary Sciences
- Professor, Earth System Science
- Member, Bio-X
- Affiliate, Stanford Woods Institute for the Environment

#### ADMINISTRATIVE APPOINTMENTS

- Faculty, Dept. Geological Sciences, (2017- present)
- Faculty Affiliate, Woods Institute for the Environment, Stanford University, (2009- present)
- Courtesy Professor, Department of Geological and Environmental Sciences, Stanford University, (2008- present)
- Faculty, Environmental Earth System Science, Stanford University, (2008- present)
- Visiting Professor, ETH Zurich, Switzerland, (2008-2009)
- Faculty, IPER Program, Stanford University, (2005- present)
- Chair, Department of Geological and Environmental Sciences, Stanford University, (2004-2007)
- Faculty, Earth Systems Program, Stanford University, (2002- present)
- Professor, Stanford University, (2001- present)
- Co-Director, Stanford/USGS SHRIMP RG ion-microprobe facility, (2001-2004)
- Short term Visitor, Smithsonian Institute, (1997-1997)
- Visiting Investigator, Carnegie Institution of Washington Geophysical Laboratory, (1997-1997)
- Professor, Dartmouth College, (1994-2001)
- Chair, Dartmouth College Department of Earth Sciences, (1992-1996)
- Associate Professor, Dartmouth College, (1989-1994)
- Assistant Professor, Dartmouth College, (1987-1989)
- Postdoctoral Fellow, Geophysical Laboratory, (1985-1987)

#### HONORS AND AWARDS

- Gustav Steinman Medal, German Geological Society (2019)
- Senckenberg Research Award, Senckenberg Institute, Germany (2015)
- Elected Fellow, American Geophysical Union (2013)

- Alexander Winchell Distinguished Alumni Award, Syracuse University (2012)
- Alexander von Humboldt Research Award, Germany (2012)
- Elected Fellow, Geochemical Society (2009)
- Frederick Hall Professor of Mineralogy and Geology, . (1997)
- Elected Fellow, Mineralogical Society of America (1994)
- Pat and John Rosenwald Professorship, . (1992-1997)
- Presidential Young Investigator Award, National Science Foundation (1989-1994)
- Jerry Goldstein Award for Research, . (1989)
- Achievement Medal, United States Coast Guard (1978)

## **BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS**

- Editor, American Journal of Science (2009 - present)
- Co-director, Environmental Measurements Laboratory, SES (2008 - present)
- Co-director, Stanford/USGS Ion Microprobe Facility (2001 - 2004)
- Associate Editor, Geological Society of America Bulletin (1993 - 1996)
- Associate Editor, Geology (1992 - 1995)
- Associate Editor, American Journal of Science (1989 - 2009)

## **PROGRAM AFFILIATIONS**

- Center for East Asian Studies

## **PROFESSIONAL EDUCATION**

- Ph.D., Harvard University , Geology and Geophysics (1985)
- M.A., Dartmouth College , Earth Sciences (1981)
- B.S., Syracuse University , Earth Sciences (1979)

## **LINKS**

- Terrestrial Paleoclimate Group: <https://paleoclimate.stanford.edu>

## **Research & Scholarship**

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### **CURRENT RESEARCH AND SCHOLARLY INTERESTS**

#### Research

I use stable and radiogenic isotopes to understand Earth system history. These studies examine the link between climate, tectonics, biological, and surface processes. Projects include: 1) examining the terrestrial climate history of the Earth focusing on periods of time in the past that had CO<sub>2</sub>-levels similar to the present and to future projections; and 2) addressing how the chemical weathering of the Earth's crust affects both the long- and short-term carbon cycle. Field areas for these studies are in the Cascades, Rocky Mountains, Sierra Nevada, the European Alps, Tibet and the Himalaya and the Southern Alps of New Zealand.

#### International Collaborations

Much of the research that I do has an international component. Specifically, I have collaborations with: 1) the Senckenberg Biodiversity and Climate Research Center in Frankfurt Germany as a Humboldt Fellow and 2) the Chinese University of Geosciences in Beijing China where I collaborate with Professor Yuan Gao.

## Teaching

I teach courses at the undergraduate and graduate level in isotope biogeochemistry, Earth system history, and the relationship between climate, surface processes and tectonics.

## Professional Activities

Editor American Journal of Science; Co-Director Stanford Stable Isotope Biogeochemistry Laboratory (present); Chair, Department of Geological and Environmental Sciences (2004-07); Co-Director Stanford/USGS SHRIMP Ion microprobe facility (2001-04)

## PROJECTS

- Research project - Stanford
- Research project - Stanford
- Research project - Stanford
- Research project - Stanford
- Research project - Stanford
- Research project - Stanford

## Teaching

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### COURSES

#### 2025-26

- Research Proposal Development and Delivery: EPS 307, ESS 307 (Spr)
- Senior Seminar: Issues in Earth Sciences: EPS 150 (Win)

#### 2024-25

- Research Proposal Development and Delivery: EPS 307, ESS 307 (Spr)
- Senior Seminar: Issues in Earth Sciences: EPS 150 (Aut)

#### 2023-24

- Research Proposal Development and Delivery: EPS 307, ESS 307 (Spr)
- Senior Seminar: Issues in Earth Sciences: EPS 150, GEOPHYS 199 (Aut)

#### 2022-23

- Research Proposal Development and Delivery: ESS 307, GEOLSCI 307 (Spr)
- Senior Seminar: Issues in Earth Sciences: GEOLSCI 150, GEOPHYS 199 (Aut)

## STANFORD ADVISEES

### Doctoral (Program)

Xueyao Cheng, Emily Nigro

## Publications

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### PUBLICATIONS

- **Clumped isotope constraints on warming and precipitation seasonality in Mongolia sue to Altai uplift.** *American Journal of Science* Caves Rugenstein, J., Methner, K., Kukla, T., Mulch, A., Lüdecke, T., Wacker, U., Feibig, J., Meltzer, A., Wegmann, K., Zeitler, P., Pazzaglia, F., Chamberlain, P.

2022; 322: 28-24

- **Drier winters drove Cenozoic habitat expansion in North America.** *AGU Advances*  
Kukla, T., Rugenstein, J., Ibarra, D., Winnick, M., Stromberg, C., Chamberlain, P.  
2022; 3
- **The PATCH Lab v.1.0: A database and workspace for Cenozoic terrestrial paleoclimate and environmental reconstruction** *American Journal of Science*  
Kukla, T., Rugenstein, J., Driscoll, E., Ibarra, D., Chamberlain, P.  
2022; 322: 1089-1123
- **Triple oxygen isotope systematics of diatom opal-A to opal-CT to microquartz in deep sea sediments.** *Geochimica Cosmochimica Acta*  
Ibarra, D., Yanchilina, A., Lloyd, M., Methner, K., Chamberlain, P., Yam, R., Shemesh, A., Stolper, D.  
2022; 320: 304-323
- **Warm high-elevation Mid-latitudes during the Miocene Climatic Optimum: Paleosol clumped isotope temperatures from the Northern Rocky Mountain USA.** *Paleoceanography and Paleoclimatology*  
Methner, K., Mulch, A., Feibig, J., Krsnik, E., Loffer, N., Bajnai, C., Chamberlain, P.  
2021; 36
- **High-resolution paleotopography of the John Day region, Oregon, USA.** *Frontiers in Earth and Planetary Sciences.*  
Kukla, T., Ibarra, D., Caves Rugenstein, J., Gooley, J., Mullins, C., Kramer, S., Moragne, D., Chamberlain, P.  
2021
- **Reconstructing past elevations from triple oxygen isotopes of lacustrine chert: Application to the Eocene Nevadoplano, Elko Basin, Nevada, USA.** *Frontiers in Earth and Planetary Sciences,*  
Ibarra, D., Kukla, T., Methner, K., Mulch, A., Chamberlain, P.  
2021; 9: 633687
- **Triple oxygen isotope paleoaltimetry of crystalline rocks** *Frontiers in Earth and Planetary Sciences,*  
Chamberlain, P., Ibarra, D., Kukla, T., Methner, K., Gao, Y.  
2021; 9: 633687
- **Terrestrial climate in mid-latitude East Asia from the latest Cretaceous to the earliest Paleogene: A multiproxy record from the Songliao Basin in northeastern China** *Earth Science Reviews*  
Gao, Y., Ibarra, D., Caves Rugenstein, J., Chen, J., Kukla, T., Methner, K., Gao, Y., Huang, H., Lin, Z., Zhang, I., Dangpeng, X., Carroll, A., Graham, et al  
2021; 216: 103572.
- **Amazon resilience to past and present drying** *Global and Planetary Change*  
Kukla, T., Ahlstrom, A., Maezum, S., Chevalie, M., Lu, Z., Winnick, M., Chamberlain, P.  
2021; 202: 103520
- **Triple oxygen isotopes of meteoric hydrothermal system – implications for paleoaltimetry** *Geochemical Perspective Letters*  
Chamberlain, P., Ibarra, D., Lloyd, M., Kukla, T., Sharp, Z., Gao, Y., Sjostrom, D.  
2020; 15: 6-9
- **Constraints on surface temperatures 3.4 billion years ago based on triple oxygen isotopes of cherts from the Barberton Greenstone Belt South Africa, and the problem of sample selection.** *American Journal of Science*  
Lowe, D., Ibarra, D., Drabon, N., Chamberlain, P.  
2020; 320: 790-814
- **Modeling the evolution of land plants and the silicate weathering feedback.** *American Journal of Science*  
Ibarra, D., Caves, J., Bachan, A., Lau, K., Thomas, D., Lee, J., Boyce, K., Chamberlain, P.  
2019; 318: 1-43
- **The sensitivity of terrestrial  $\delta^{18}\text{O}$  gradients to hydroclimate.** *Journal of Geophysical Research – Atmospheres*  
Kukla, T., Winnick, M., Maher, K., Ibarra, D., Chamberlain, P.  
2019; 124: 563-582
- **Atmospheric flow deflection in the late Cenozoic Sierra Nevada** *Earth and Planetary Science Letters*

- Mix, H., Caves Rügenstein, J., Winnick, M., S, R., Kukla, T., Rich, A., Chamberlain, P.  
2019; 518: 76-85
- **Sedimentary and isotopic data reveal Paleogene topographic and climatic evolution of the Northern Rocky Mountains** *Geological Society of America Bulletin*  
Schwartz, T., Methner, K., Mulch, A., Graham, S., Chamberlain, P.  
2019; 131: 1203-1223
  - **The potential for metamorphic thermal pulses to develop during compaction-driven fluid flow** *Geochemistry, Geophysics, and Geosystems*  
Meng, T., Ague, J. J., Chu, X., Baxter, E. F., Sullivan, N., Chamberlain, C. P., Rumble, D.  
2018; 19: 232-256
  - **The evolution of hydroclimate in Asia over the Cenozoic: A stable-isotope perspective** *Earth Science Reviews*,  
Caves, J., Chamberlain, P.  
2018; 185: 129-156
  - **Lacustrine biogeochemical cycling and Ocean Anoxic Event 3 in the Turonian-Coniacian Qingshankou Formation Songliao Basin of northeast China.** *Earth and Planetary Science Letters*  
Jones, M., Ibarra, D., Gao, Y., Sageman, B., Selby, D., Chamberlain, P., Graham, S.  
2018; 484: 41-52
  - **Testing for rapid thermal pulses in metamorphism by modeling garnet growth-diffusion-resorption profiles in a UHT metamorphic “hot spot”, New Hampshire** *Journal of Petrology*,  
Chu, X., Ague, J., Tian, M., Baxter, E., Rumble, D., Chamberlain, P.  
2018; =59: 1939-1964
  - **Dual wet-states in western North America during the Plio-Pleistocene** *Geology*,  
Ibarra, D., Oster, J., Winnick, M., Caves, J., Chamberlain, P.  
2018; 46: 355-358
  - **Late Miocene uplift of the Tian Shan and Altai and reorganization of Central Asia Climate** *GSA Today*  
Caves, J., Bayshashov, B., Zhamagara, A., Ritch, A., Ibarra, D., Sjöstrom, D., Mix, H., Winnick, N., Chamberlain, P.  
2017; 26: 20-26
  - **Concentration-discharge patterns of weathering products from global rivers** *Acta Geochimica*  
Ibarra, D., Moon, S., Caves, J., Chamberlain, P., Maher, K.  
2017; 36: 405-409
  - **Stable isotope paleoaltimetry: Paleotopography as a key element in the evolution of landscapes and life** *Mountains, climate and biodiversity*  
Mulch, A., Chamberlain, P.  
Wiley, 2017
  - **A hot and high Eocene Sierra Nevada** *Geological Society of America Bulletin*  
Mix, H., Ibarra, D., Mulch, A., Graham, S., Chamberlain, C. P.  
2016; 16: 531-542
  - **The Neogene de-greening of Central Asia.** *Geology*  
Caves, J., Moragne, D., Ibarra, D., Bayshashov, B., Gao, Y., Jones, M., Zhamangara, A., Arzhannikova, A., Chamberlain, P.  
2016; 44: 887-890
  - **Differential weathering of basaltic and granitic catchments from concentration-discharge relationships** *Geochimica Cosmochimica Acta*  
Ibarra, D., Caves, J., Moon, S., Thomas, D., Hartman, J., Chamberlain, P.  
2016; 190: 265-293
  - **Eo-Oligocene proto-Cascades topography revealed by clumped ( $\Delta 47$ ) and oxygen isotope ( $\delta 18O$ ) geochemistry (Chumstick Basin, WA, USA)** *Tectonics*  
Methner, K., Feibig, J., Umhoefer, P., Chamberlain, P., Mulch, A.  
2016; 35: 546-564
  - **Rapid Middle Eocene temperature change in western North America** *Earth and Planetary Science Letters*  
Methner, K., Mulch, A., Fiebig, H., Wacker, A., Graham, S., Chamberlain, C. P.

2016; 450: 132-139

- **Paleogene surface uplift and its impact on terrestrial paleoenvironments and mammalian communities in western North America** *Paleobios*  
Eronen, J. T., Janis, C. M., Chamberlain, C. P., Mulch, A.  
2015; 282
- **A mechanistic analysis of Early Eocene latitudinal gradients of isotopes in precipitation** *Geophysical Research Letters*  
Winnick, M., Caves, J., Chamberlain, P.  
2015; 42
- **Quantifying closed-basin lake temperature and hydrology by inversion of oxygen isotope and trace element paleoclimate records** *American Journal of Science*  
Ibarra, D., Chamberlain, C. P.  
2015; 315: 781-808
- **Eocene and Miocene extension, meteoric fluid infiltration, and core complex formation in the Great Basin (Raft River Mountains, Utah)** *Tectonics*  
Methner, K., Mulch, A., Teyssier, C., Wells, M., Cosca, M., Gottardi, R., Geblin, A., Chamberlain, C. P.  
2015; 34: 680-693
- **Mid-latitude terrestrial climate of East Asia linked to global climate in the Late Cretaceous** *Geology*  
Gao, Y., Ibarra, D., Wang, C., Caves, J., Chamberlain, C. P., Graham, S., Wu, H.  
2015; 43: 287-290
- **Role of the westerlies in Central Asia over the Cenozoic** *Earth and Planetary Science Letters*  
Caves, J. K., Winnick, M. J., Graham, S., Sjostrom, D., Mulch, A., Chamberlain, C. P.  
2015; 428: 33-43
- **Rapid change in western North American high-elevation rainfall patterns during the Mid Eocene Climatic Optimum (MECO)** *American Journal of Science*  
Mulch, A., Chamberlain, C. P., Cosca, M., Teyssier, C., Methner, K., Graham, S. A.  
2015; 315: 317-336
- **New estimates of silicate weathering rates and uncertainties in global rivers** *Geochimica Cosmochimica Acta*  
Moon, S., Chamberlain, C. P., Hilley, G. E.  
2014; 134: 257-274
- **Heavy metals in produce from urban farms in the San Francisco Bay area.** *Food Additives and Contaminants – Part B*  
Kohrmann, H., Chamberlain, C. P.  
2014
- **Quantifying the isotopic “Continental Effect”** *Earth and Planetary Science Letters*  
Winnick, M., Chamberlain, P., Caves, J., Welker, J.  
2014; 406: 123-133
- **Stable isotopic records of hydrologic change and paleotemperature from smectite in Cenozoic Western North America** *Geochimica Cosmochimica Acta*  
Mix, H. T., Chamberlain, C. P.  
2014; 141: 532-546
- **The role of Neogene grassland expansion and aridification on the isotopic composition of continental precipitation** *Global Biogeochemical Cycles*  
Chamberlain, C. P., Winnick, M., Mix, H. T., Chamberlain, S. D., Maher, K.  
2014
- **Aridification of Central Asia and uplift of the Altai and Hangay Mountains: Stable Isotope Evidence** *American Journal of Science*  
Caves, J. K., Sjostrom, D. J., Mix, H. T., Winnick, M. J., Chamberlain, C. P.  
2014; 314: 1171-1201
- **Hydrologic regulation of chemical weathering and the geologic carbon cycle** *Science*  
Maher, K., Chamberlain, C. P.

2014; 343: 1502-1504

- **Possible regional tectonic controls on mammalian evolution in western North America** *Palaeogeography, Palaeoclimatology, Palaeoecology*  
Kent-Corson, M. L., Barnosky, A. D., Mulch, A., Carrasco, M. A., Chamberlain, C. P.  
2013; 387: 17-26
- **Hydrothermal alteration of the Ediacaran Doushantuo Formation in the Yangtze Gorges area (South China)** *Geochimica Cosmochimica Acta*  
Derkowski, A., Bristow, T. F., Wampler, J. M., Srodon, J., Marynowski, L., Elliott, W. C., Chamberlain, C. P.  
2013; 107: 279-298
- **Stable isotopic evidence of background El-Nino circulation in Pliocene Western United States** *Climates of the Past*  
Winnick, M., Welker, J. M., Chamberlain, C. P.  
2013; 9: 903-912
- **Discovery of an ultrahigh-temperature metamorphic blister in the Southern Acadian Orogen, USA** *Geology*  
Ague, J. J., Eckert, J. O., Xu, C., Baxter, E. F., Chamberlain, C. P.  
2013
- **Stable isotopic evidence for climate and basin evolution of the Late Cretaceous Songliao Basin, China** *Palaeogeography, Palaeoclimatology, Palaeoecology*  
Chamberlain, C. P., Wan, X., Graham, S. A., Carroll, A. R., Doebbert, A. C., Sageman, B., Blisniuk, P., Kent-Corson, M., Wang, Z., et al  
2013; 385: 106-124
- **Grassland expansion as an instrument of hydrologic change in Neogene Western North America** *Earth and Planetary Science Letters*  
Mix, H. T., Winnick, M. J., Mulch, ..., Chamberlain, C. P.  
2013; 377-378: 73-83
- **Evolution of Early Cenozoic topography, climate and stable isotopes of precipitation in the North America Cordillera** *American Journal of Science*  
Feng, R., Poulson, C. J., Werner, M., Chamberlain, C. P., Mix, H. T., Mulch, A.  
2013; 313: 613-648
- **Discovery of an ultrahigh-temperature metamorphic blister in the Southern Acadian Orogen, USA** *Geology*  
Ague, J. J., Eckert, J. O., Xu, C., Baxter, E. F., Chamberlain, C. P.  
2013
- **Early Cenozoic topography, morphology, and tectonics of the northern Sierra Nevada and western Basin and Range** *GEOSPHERE*  
Cassel, E. J., Graham, S. A., Chamberlain, C. P., Henry, C. D.  
2012; 8 (2): 229-249
- **Coupled basin-detachment systems as paleoaltimetry archives of the western North American Cordillera** *Earth and Planetary Science Letters*  
Gebelin, A., Mulch, A., Teyssier, C., Chamberlain, C. P.  
2012; 335-336: 36-47
- **Cenozoic climatic and topographic evolution of the Western North America Cordillera** *American Journal of Science*  
Chamberlain, C. P., Mix, H. T., Mulch, A., Hren, H. T., Kent-Corson, M. L., Davis, S. J., Horton, T. W., Graham, S. A.  
2012; 312: 213-262
- **Climatic control of denudation in the glaciated landscape of the Washington Cascades** *Nature Geoscience*  
Moon, S., Chamberlain, C. P., Blisniuk, K., Levine, N., Rood, D. H., Hilley, G.  
2011; 4: 469-473
- **Cenozoic migration of topography in the North American Cordillera** *GEOLOGY*  
Mix, H. T., Mulch, A., Kent-Corson, M. L., Chamberlain, C. P.  
2011; 39 (1): 87-90
- **Diachronous isotopic and sedimentary responses to topographic changes as indicators of mid-Eocene hydrologic reorganization in western United States** *Basin Research*  
Kent-Corson, M. I., Mulch, A., Graham, S. A., Carroll, A. R., Ritts, B. D., Chamberlain, C. P.  
2010: 1365-2117

- **Stable isotope records of late Miocene precipitation and elevational patterns in the central Andean foreland** *Earth and Planetary Science Letters*  
Mulch, A., Uba, C. E., Strecker, M., Schoenberg, R., Chamberlain, C. P.  
2010; 290: 173-182
- **Competition between erosion and reaction kinetics in controlling silicate weathering rates** *Earth and Planetary Science Letters*  
Hilley, G. E., Chamberlain, C. P., Moon, S. G., Willet, S. D.  
2010; 293: 191-199
- **$\delta^{18}\text{O}$  and  $\delta\text{D}$  of streamwaters across the Himalaya and Tibetan Plateau: Implications for moisture sources and paleoelevation reconstructions** *Earth and Planetary Science Letters*  
Hren, M. T., Bookhagen, B., Blisniuk, P., Booth, A., Chamberlain, C. P.  
2010; 288: 20-32
- **Geomorphic controls on lacustrine isotopic compositions: Evidence from the Laney Member, Green River Formation (Wyoming)** *Geological Society of America Bulletin*  
Doebbert, A., Carroll, A., Mulch, A., Chetel, L., Chamberlain, C. P.  
2010; 122: 236-252
- **Pedogenic carbonate carbon isotopic constraints on paleoprecipitation: Evolution of desert in the Pacific Northwest, USA, in response to topographic development of the Cascade Range** *Chemical Geology*  
Takeuchi, A., Hren, M. T., Smith, S. V., Chamberlain, C. P., Larson, P. B.  
2010; 277: 323-335
- **SYNOROGENIC EVOLUTION OF LARGE-SCALE DRAINAGE PATTERNS: ISOTOPE PALEOHYDROLOGY OF SEQUENTIAL LARAMIDE BASINS** *AMERICAN JOURNAL OF SCIENCE*  
Davis, S. J., Mix, H. T., Wiegand, B. A., Carroll, A. R., Chamberlain, C. P.  
2009; 309 (7): 549-602
- **Cenozoic tectonic and topographic evolution of the northern Sierra Nevada, California, through stable isotope paleoaltimetry in volcanic glass** *GEOLOGY*  
Cassel, E. J., Graham, S. A., Chamberlain, C. P.  
2009; 37 (6): 547-550
- **Stable isotopic constraints on the tectonic, topographic, and climatic evolution of the northern Tibetan Plateau** *Earth and Planetary Science Letters*  
Kent-Corson, M. L., Ritts, B. D., Zhuang, G., Bovet, P. M., Graham, S. A., Chamberlain, C. P.  
2009; 282: 158-166
- **Detecting changes in habitat-scale bee foraging in a tropical fragmented landscape using stable isotopes** *Forest Ecology and Management*  
Brosi, B. J., Daily, G. C., Chamberlain, C. P., Mills, M.  
2009; 258: 1846-1855
- **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*  
Davis, S. J., Mulch, A., Carroll, A., Chamberlain, C. P.  
2009; 121: 100-116
- **Stable isotope foodweb analysis and mercury biomagnification in polar bears (*Ursus maritimus*)** *Polar Research*  
Horton, T. W., Blum, J. D., Xie, Z., Hren, M., Chamberlain, C. P.  
2009; 28: 443-454
- **Constraints on the metamorphic evolution of the eastern Himalayan syntaxis from geochronologic and petrologic studies of Namche Barwa** *Geological Society of America Bulletin*  
Booth, A. L., Chamberlain, C. P., Kidd, W. F., Zeitler, P. K.  
2009; 121: 385-407
- **Oxygen and hydrogen isotope evidence for a temperate climate 3.42 billion years ago** *Nature*  
Hren, M. T., Tice, M., Chamberlain, C. P.  
2009; 462: 205-208

- **Geochemical traces of CO<sub>2</sub>-rich fluid flow along normal faults in central Italy** *GEOPHYSICAL JOURNAL INTERNATIONAL*  
Agosta, F., Mulch, A., Chamberlain, P., Aydin, A.  
2008; 174 (2): 758-770
- **A Miocene to Pleistocene climate and elevation record of the Sierra Nevada** *Proceedings of the National Academy of Science*  
Mulch, A., Sarna-Wojcicki, A. M., Perkins, M. E., Chamberlain, C. P.  
2008; 19: 6819–6824
- **Capture of high-altitude precipitation by a low-altitude Eocene lake, western U. S., Wyoming** *Geology*  
Carroll, A. R., Doebbert, A., Booth, A. L., Chamberlain, C. P., Rhodes-Carson, M., Smith, M., Johnson, C. M., Beard, B. L.  
2008; 36: 791-794
- **The effect of drainage reorganization on paleoaltimetry studies: An example from the Paleogene Laramide foreland** *Earth and Planetary Science Letters*  
Davis, S. J., Wiegand, B. A., Carroll, A. R., Chamberlain, C. P.  
2008; 275: 258-268
- **The relationship between tectonic uplift and chemical weathering rates in the Washington cascades: Field measurements and model predictions** *AMERICAN JOURNAL OF SCIENCE*  
Hren, M. T., Hilley, G. E., Chamberlain, G. P.  
2007; 307 (9): 1041-1063
- **Uplift, erosion and phosphorous limitation in terrestrial ecosystems** *Ecosystems*  
Porder, S., Vitousek, P. M., Chadwick, O. A., Chamberlain, C. P., Hilley, G. E.  
2007; 10: 158-170
- **Stable isotope paleoaltimetry in orogenic belts - The silicate record in surface and crustal geological archives** *Reviews in Mineralogy and Geochemistry*  
Mulch, A., Chamberlain, C. P.  
2007; 66: 89-118
- **Stable isotope paleoaltimetry of Eocene Core Complexes, northern North America Cordillera** *Tectonics*  
Mulch, A., Teyssier, C., Cosca, M. A., Chamberlain, C. P.  
2007; 26
- **Major ion chemistry of the Yarlung Tsangpo/Brahmaputra river: Chemical weathering, erosion, and CO<sub>2</sub> consumption in the southern Tibet Plateau and Eastern Syntaxis of the Himalaya** *Geochimica Cosmochimica Acta*  
Hren, M. T., Chamberlain, C. P., Hilley, G. E., Bookhagen, B.  
2007; 71: 2207-2235
- **Historic decline in primary productivity in western Gulf of Alaska and eastern Bering Sea: isotopic analysis of northern fur seal teeth** *Marine Ecology Progress Series*  
Newsome, S. D., Etnier, M. A., Kurle, C. M., Waldbauer, J. R., Chamberlain, C. P., Koch, P. L.  
2007; 332: 211-224
- **Reconstructing grassland vegetation and paleotemperatures using carbon isotope ratios of bison tooth enamel** *GEOLOGY*  
Hoppe, K. A., Paytan, A., Chamberlain, P.  
2006; 34 (8): 649-652
- **Hydrogen isotopes in Eocene river gravels and paleoelevation of the Sierra Nevada** *SCIENCE*  
Mulch, A., Graham, S. A., Chamberlain, C. P.  
2006; 313 (5783): 87-89
- **Rising mountain ranges** *SCIENCE*  
Poage, M. A., Chamberlain, C. P.  
2006; 311 (5760): 478-479
- **Ammunition is the principal source of lead accumulated by California Condors re-introduced to the wild** *Environmental Science and Technology*  
Church, M. E., Roberto, G., Risebrough, R. W., Sorenson, K., Chamberlain, C. P., Farry, S., Heinrich, W., Rideout, B. A., Smith, D. R.

2006; 40: 6143-6150

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