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• **Education**

Ph.D., Earth and Planetary Sciences, 2001

Department of Earth & Planetary Sciences, University of New Mexico, Albuquerque, NM.

Dissertation advisors: Dr. Maya Elrick and Dr. Karl Karlstrom

Dissertation topic: Basin analysis and carbon-isotope stratigraphy of the Neoproterozoic Chuar Group, Grand Canyon, Arizona

MS, Geology, 1995

Geology Department, Northern Arizona University, Flagstaff, AZ.

Thesis advisor: Dr. David K. Elliott

Thesis title: Paleoenvironmental and stratigraphic analysis of the Lower Devonian Beartooth Butte Formation and associated strata, central-eastern Idaho

BA, Geology, 1991

Geology Department, Humboldt State University, Arcata, CA.

Undergraduate research: Biostratigraphic analysis of the Alturas Fm., Modoc County, CA.

• **Research Interests**

Sedimentology and stratigraphy integrated with geochemistry and paleontology, field geology, Precambrian geology, regional tectonics

Current research: Basin analysis and C-, O-, Sr, and S-isotope geochemistry of Meso- and Neoproterozoic strata in the Arizona, Utah, Idaho, and California. Basin analysis of Great Basin Devonian strata and related vertebrate evolution. Field mapping and aquifer characterization of Permian Reef and KT boundary, New Mexico.

• **Teaching Interests**

Historical Geology, Earth Systems Science, Introductory Geology, Sedimentology/ Stratigraphy, Sedimentary Geochemistry, Paleontology, Field Geology, Precambrian Geology, Sedimentary Petrography, Basin analysis. Teaching Philosophy: The integration of field geology and hands-on lab experience into geology courses is essential. Active research brought into the classroom provides a fresh spark for both the teacher and the student. Enthusiasm is a key ingredient for engaging students.

• **Professional Experience**

Visiting Professor. Idaho State University, Fall 2002-current. Job includes teaching

Sedimentology/Stratigraphy, Physical and Historical Geology, Grand Canyon Field Seminar, Graduate course on Tectonics and Sedimentation, Graduate course on advanced General Geology, mentoring undergraduate and graduate students, and maintaining a research program.

Contract geologic-field mapper. New Mexico Bureau of Mines and Geology, Socorro, New Mexico, 2001-current. Field mapping and production of 1:24,000 scale geologic maps in New Mexico.

Lecturer/Research Assistant Professor. Utah State University, 2001-2002. Job includes teaching Earth System Science, Geologic Field Methods, and Earth Through Time courses, mentoring undergraduate and graduate students, and maintaining a research program.

Field camp coordinator and instructor. Utah State University, 2001. Job includes all planning (logistics, academics) for field camp and participation in instruction of field projects.

Research Assistant. University of New Mexico, 1997-2001. Worked on research related to Ph.D. project. Assistantship was funded by NSF EAR-9706541, which I was a contributor to.

Geology Instructor. University of New Mexico, 1996-1997. Instructed Physical Geology courses. Prepared/delivered full-semester, college-level lecture courses and field trips.

Teaching Assistant. University of New Mexico, Northern Arizona University, Humboldt State University, 1991-2000. Instructed undergraduate-level geology laboratory and field courses including Structural Geology, Advanced Field Methods, Paleontology, Sedimentology and Stratigraphy, Physical Geology, Historical Geology, and five summer field camps.

Elderhostel Instructor. Elderhostel Programs, Northern Arizona University & University of New Mexico, 1994-1999. Presented classroom and field lectures to non-geologists about the geology, ecology, and environmental problems of the southwestern U.S.

Geologist. United States Geological Survey, Flagstaff, Arizona /Albuquerque, New Mexico, 1994-1996. Mapped Tertiary and Quaternary deposits in northern Arizona and southern Utah and generated Open-file reports.

Backcountry Guide/Geologic Interpreter. Grand Canyon Field Institute, Grand Canyon, Arizona, 1995. Guided backpackers/non-geologists along trails in Grand Canyon emphasizing geologic history, ecology, environmental protection, and outdoor safety.

Carbonate Petrography consultant. Indian Peaks Exploration, Golden Hill, Colorado, 1994-1995. Analyzed carbonate thin sections and produced professional reports for oil companies.

Sedimentologist. Glen Canyon Environmental Studies, Flagstaff, Arizona, 1993-1994. Contributed to beach erosion field studies along the Colorado River, Grand Canyon.

Geologic Assistant. Busch Geotechnical Consulting, Arcata, California, 1989-1991. Assisted geologists with various tasks in the field and office such as fault studies, soils studies, library research, and computer work.

Temporary Geologist. United States Forest Service, Sequoia National Forest, California, 1989. Mapped the geology of South Creek Watershed (1:24,000 scale) and produced a geologic report.

- ***Publications in preparation or review***

Dehler, C.M., Elrick, M.E., Karlstrom, K.E., Crossey, L.J., DesMarais, D., Sharp, Z., Smith, G.A., in review. C-isotopic composition of organic carbon and carbonates from the mid-Neoproterozoic Chuar Group, Grand Canyon: A long-term record of sediment-modulated global climate change. Submitted to GSA Bulletin.

Dehler, C.M., Prave, T.P., Crossey, L.J., Karlstrom, K.E., and Bloch, J., in prep. Linking mid-Neoproterozoic successions in the western U.S.: The Chuar Group-Uinta Mountain Group-Pahrump Group connection (CHUMP): For submittal to Geology.

- ***Publications***

Dehler, C.M., and Ford, T.D., 2002. Grand Canyon Supergroup: Nankoweap Formation, Chuar Group, and Sixtymile Formation. In: Beus and Morales (eds.), Grand Canyon Geology, Oxford Press, Edition 3.

Wiley, B.H., Dehler, C.M., Ghazi, S.A., Kuo, L-C., Rauzzi, S.L., 2002. Geologic description, sampling, and petroleum source rock potential of the Awatubi and Walcott members, Kwagunt Formation, Chuar Group, Sixtymile Canyon section, Grand Canyon, Arizona. Arizona Geological Survey Open-file report 02-01, 84 p.

Dehler, C.M., Elrick, M.E., Karlstrom, K.E., Smith, G.A., Crossey, L.J., and J.M. Timmons, 2001. Neoproterozoic Chuar Group (~800-742 Ma), Grand Canyon: A record of cyclic marine deposition during global cooling and supercontinent rifting. *Sedimentary Geology*, v. 141-142, p. 465-499.

Karlstrom, K.E., Bowring, S. A., Dehler, C.M., Knoll, A.H., DesMarais, D.J., Weil, A.B., Sharp, Z.D., Geissman, J.W., Elrick, M.B., Timmons, M.J., Crossey, L.J., Davidek, K.L., 2000. Chuar Group of the Grand Canyon: Record of breakup of Rodinia, associated change in the global carbon cycle, and ecosystem expansion by 740 Ma. *Geology*, v. 28, no. 7, p. 619-622.

Timmons, J.M., Karlstrom, K.E., Dehler, C.M., Geissman, J.W., and Heizler, M.T., 2001. Proterozoic multistage (~1.1 and ~8.0 Ga) extension in the Grand Canyon Supergroup and establishment of northwest and north-south tectonic grains in the southwestern United States. *GSA Bulletin*, v. 113, no. 2, p. 163-180.

- Dehler, C.M., Porter, S., and Karlstrom, K.E., 1999. Along the Shores of Chuar Beach. *Boatman's Quarterly Review*, v. 12, no. 3, p. 31-36.
- Grader, G., and Dehler, C.M., 1999. Devonian Stratigraphy in east-central Idaho: New perspectives from the Lemhi Range and Bayhorse area, *Geological Society of America 1999 Rocky Mountain Section Guidebook*, 31-56.
- Timmons, J.M., Karlstrom, K.E., and Dehler, C.M., 1999. Grand Canyon Supergroup: Six unconformities makes one "Great Unconformity"—a record of supercontinent assembly and disassembly, *Boatman's Quarterly Review*, v. p. 28-32.
- Lucchitta, I., Dehler, C.M., Davis, M.E., Basdekas, P.G., and Burke, K.J., in press. Quaternary geologic map of the Tanner Creek-Unkar Creek area, eastern Grand Canyon, AZ.; U.S. Geological Survey Open-File Report, 96-scale 1:5000.
- Elliott, D.K. and Dehler, C.M., in press. Nonmarine-marine microvertebrate correlation in the Lower Devonian of the western United States; *Geological Society of France*.
- Lucchitta, I., Smith, S.J., Dehler, C.M., Finkel, R.C., Hanks, T.C., Davis, S.W., and M.E. Davis, 1997. Late-Pleistocene to Early Holocene deposits, processes, vegetation, and climate from Oak Cave, southern Utah. *Open-File Report*, 22 p.
- Lucchitta, I., Dehler, C.M., Davis, M.E., Basdekas, P.G., and Burke, K.J., 1995. Quaternary geologic map of the Palisades Creek-Comanche Creek area, eastern Grand Canyon, AZ.; U.S. Geological Survey Open-File Report, 95-832, scale 1:5000.
- Lucchitta, I., Basdekas, P.G., Bohannon, R.G., Rieck, H.J., and Dehler, C.M., 1995. Geologic map of the Cane Springs quadrangle, Mohave County, AZ.; U.S. Geological Survey Open-File Report, 95-86, scale 1:24,000.
- Lucchitta, I., Dehler, C.M., and Basdekas, P.G., 1995. Geologic map of the Cane Springs southeast quadrangle, Mohave County, AZ.; U.S. Geological Survey Open-File Report, 95-48, scale 1:24,000.
- ***Abstracts in last 5 years (students in italics)***
- Langenburg, E.S.*, Liddell, D.W., and Dehler, C.M., 2002. Geochemistry and sequence stratigraphy of the Middle Cambrian Wheeler Formation: Support for trilobite chronostratigraphy. *Annual GSA Meeting*, v. 34, no. 6, p. 414.
- Dehler, C.M., Crossey, L.J., Atudorei, V., Karlstrom, K.E., and Bloch, J.B., 2002. Characterization of the Red Pine Shale, Uinta Mountain Group, northeastern Utah. *Annual GSA Annual Meeting, Abstracts with Programs*, v. 34, no. 6, p. 272.
- Dehler, C.M., Elrick, M.E., Crossey, L.J., Karlstrom, K.E., 2002. Lithostratigraphic and chemostratigraphic relationships in the Neoproterozoic Chuar Group, Grand Canyon: Implications for controls on C-isotope variability of Neoproterozoic Oceans? *GSA Rocky Mountain Section Meeting, Abstracts with Programs*, v. 34, no. 4, p. A-18.
- Langenburg, E.S.*, Liddell, D.W., Dehler, C.M., and Atudorei, V., 2002. High-resolution chemostratigraphic correlation within and beyond the Middle Cambrian Wheeler Formation. *Rocky Mountain GSA Meeting, Cedar City, Utah, Abstracts with Programs*, v. 34, no. 4, A-50.
- Crossey, L.J., Dehler, C.M., Bloch, J.B., *Dodson, Crystal*, and Atudorei, V., 2002. Stratigraphic, mineralogical and geochemical analysis of the Red Pine Shale, Uinta Mountain Group, NE Utah. *Rocky Mountain GSA Meeting, Cedar City, Utah, Abstracts with Programs*, v. 34, no. 4, p. A-18.
- Dehler, C.M., and Elliott, D.K., 2002. Marine-to-non-marine microvertebrate correlation in Lower Devonian strata of central-eastern Idaho. *Rocky Mountain GSA Meeting, Cedar City, Utah, Abstracts with Programs*, v. 34, no. 4, p. A-52.
- Dehler, C.M., Elrick, M.E., DesMarais, D., Karlstrom, K.E., and Sharp, Z., 2001. A high-resolution C-isotope record from the mid-Neoproterozoic (~800-742 Ma) Chuar Group, Grand Canyon. *Earth Systems International Meeting, Edinburgh, Scotland*.
- Crossey, L.J., Timmons, M.J., Ashby, J., Rampe, J., Tyson, A., Johnson, S., Marshall, K., Dehler, C.M., and Prave, A., 2001. Petrologic approaches to correlate Late Mesoproterozoic to Neoproterozoic stratigraphic successions in western North America. *Geological Society of America, Abstracts with Programs, South-Central/Rocky Mountain Sectional Meeting, Albuquerque, New Mexico*, v. 33, no. 5, p. A-42.
- Langenburg, E.S.*, and Dehler, C.M., 2001. Interfacing geochemical and petrographic data from the Chuar Group dolomites: was mid-Neoproterozoic seawater chemistry preserved during early

diagensis/dolomitization? Geological Society of America, Abstracts with Programs, South-Central/Rocky Mountain Sectional Meeting, Albuquerque, New Mexico, v. 33, no. 5, p. A-43.

McKenney, D., and Dehler, C.M., 2001. Petrographic analysis of the Carbon Canyon and Carbon Butte sandstones, Chuar Group, eastern Grand Canyon: Possible provenance changes. Geological Society of America, Abstracts with Programs, South-Central/Rocky Mountain Sectional Meeting, Albuquerque, New Mexico, v. 33, no. 5, p. A-43.

Dehler, C.M., Prave, A., Crossey, L.J., Karlstrom, K.E., 2001. Linking Mid-Neoproterozoic successions in the western United States: The Chuar Group-Uinta Mountain Group-Pahrump Group connection (CHUMP). Geological Society of America, Abstracts with Programs, South-Central/Rocky Mountain Sectional Meeting, Albuquerque, New Mexico, v. 33, no. 5, p. A-20.

Bloch, J., Crossey, L.J., and Dehler, C.M., 2001. Lithostratigraphic variations in the Neoproterozoic Chuar Group, Grand Canyon- Insights into provenance from geochemical and petrographic analysis of shales, 2001. Geological Society of America, Abstracts with Programs, South-Central/Rocky Mountain Sectional Meeting, Albuquerque, New Mexico, v. 33, no. 5, p. A-21.

Dehler, C.M., Elrick, M.B., Karlstrom, K.E., Crossey, L.J., and G.A., Smith, 2000. Cyclostratigraphy of the mid-Neoproterozoic Chuar Group (~800-742 Ma), Grand Canyon: A record of climatic and tectonic transitions into the Sturtian glacial and during Rodinia breakup. Geological Society of America, Abstracts with Programs, National Meeting, Reno, Nevada, v. 32, n0. 7, p. A-375.

Crossey, L.J., Dehler, C.M., Atudorei, V., 2000. Paleoenvironmental and C-isotope analysis of the Red Pine Shale, Uinta Mountain Group, NE Utah: Offshore deposition in a Neoproterozoic Sea. Geological Society of America, Abstracts with Programs, National Meeting, Reno, Nevada, v. 32, n0. 7, p. A-375.

Dehler, C.M., DesMarais, D. J., Bowring, S., Sharp, Z., Karlstrom, K.E., Elrick, M.E., 1999. Chuar Group (1.1-0.74 Ga), Grand Canyon: Carbon-isotope systematics at the onset of Sturtian glaciation. GSA Abstracts with Programs, National Meeting, Denver.

Dehler, C.M., 1998. Facies analysis and environmental interpretation of the middle Chuar Group (Proterozoic): Implications for the timing of Rodinian breakup. AAPG Abstracts with Programs, Annual Meeting: 12.

Dehler, C. M. and Elrick, M.E., 1998. Implications for paleoenvironments and areal extent of the Chuar basin from facies analyses of the middle Chuar Group (Neoproterozoic), Grand Canyon. GSA Abstracts with Programs, Rocky Mountain Section, v. 30, no. 6, p. 7.

Timmons, M.J., Karlstrom, K.E., and Dehler, C.M., 1998. Structure and sedimentary tectonics of the Chuar Group and Butte Fault, Grand Canyon: Evidence for a Neoproterozoic growth fault. GSA Abstracts with Programs, Rocky Mountain Section, v. 30, no. 6, p. 38.

- ***Grants and Awards***

USGS EDMAP grant, Reston, VA., 2002-2003, \$12,000. "Geologic Map of the Warren Draw Quadrangle: Understanding the Neoproterozoic Uinta Mountain Group, Uinta Mountains, northeastern Utah".

Graduate Research Support: Fellowship, Office of Graduate Studies, UNM, 1999-2001; Regents Scholarship, University of New Mexico, 1998-1999; GSA, 1999; 1998, 1997, 1992; Colorado Scientific Society, 1999; Society of Sedimentary Geology, 1999; Donegan Consultants, 1998; Wanek Award, UNM, 1998, 1999; AAPG Merit Award, 1998; Regents Financial Aid Grant, Arizona Trust Fund, 1993-1994; Wyoming Geological Association, 1993; Friday Lunch Clubbe, 1993, 1992.

Teaching awards: Outstanding Teaching Assistant Award, UNM, 1998-99; Teacher of the Year Scholarship, NAU, 1991-1992.

- ***Student advisement***

Master's thesis advisor

--Laura DeGrey, 2002-present. Idaho State University, Department of Geosciences. Project title: Geologic map and stratigraphic characterization of the Neoproterozoic eastern Uinta Mountain Group.

Masters thesis mentor

--various graduate students at ISU and USU, 2002-current.

Masters thesis committee member

--various graduate students at ISU and USU, 2001-current.

Masters thesis committee member/"co-advisor"

--Liz Langenburg, 2000-2002. Utah State University, Department of Geology. Project title: Sequence stratigraphy and geochemistry of the Middle Cambrian Wheeler Formation.

Senior thesis advisor

--Maggie Olson, 2001-2002. Utah State University, Department of Geology. Project title: Detailed investigations of Lower Devonian strata, southeastern Idaho

--Danette McKenney, 2000-2001. Utah State University, Department of Geology. Project title: Petrographic analysis of the middle Chuar Group sandstones, eastern Grand Canyon: Possible provenance changes.

Independent study advisor

--Liz Langenburg, MS-level project, 2000-2001. Utah State University, Department of Geology. Project title: Interfacing geochemical and petrographic data from the Chuar Group dolomites: was mid-Neoproterozoic seawater chemistry preserved during early diagenesis/dolomitization?

NASA-PURSUE mentor

--Liz Langenburg's Senior thesis project, 1999-2000. University of New Mexico, Department of Earth and Planetary Sciences. Project title: The depositional and diagenetic history of the Chuar Group dolomites, eastern Grand Canyon, Arizona.

• ***Courses taught***

Physical Geology and Field Camp (University of New Mexico); Earth Systems Science, Geologic Field Methods, Earth Through Time, and Field Camp (Utah State University); Physical Geology, Sedimentology/Stratigraphy, Historical Geology, Grand Canyon Geology Seminar, Graduate-level Tectonics and Sedimentation, and Graduate-level Advanced General Geology (Idaho State University).

• ***Geo-Community Contributions and invited talks***

GSA Geoventures field trip leader, Grand Canyon river trip, April 2002 (see November 2001 and August 2002 GSA Today).

Chairperson

--*Symposium*, GSA Rocky Mountain Meeting, Cedar City, UT, 2002. Proterozoic Paleogeography and Paleoclimate. Co-chair: Paul Link

--*Theme session*, GSA Rocky Mountain Meeting, Cedar City, UT, 2002. Devonian correlations in the Great Basin. Co-chair: Dave Elliott

--*Symposium*, GSA Rocky Mountain/South Central Meeting, Albuquerque, NM., 2001. Meso- to Neoproterozoic of the Western US: Record of Supercontinent Assembly and Breakup, and a Snowball Earth? Co-chair: Karl Karlstrom

--*Technical Session*, GSA National Meeting, Reno, NV, 2000.

Invited talks

--Idaho State University, 2003. Talk title: C-isotope anomalies in the Chuar Group and Neoproterozoic paleoclimate.

--*Utah State University, 2002*. Talk title: Permianland: News from the backreef of New Mexico.

--*Idaho State University, 2002*. Talk title: Neoproterozoic Uinta Mountain Group and correlative successions: Windows into Neoproterozoic Earth History.

--*Idaho State University, 2000*. Talk title: Neoproterozoic Chuar Group (~800-742 Ma), Grand Canyon: A record of cyclic marine deposition during global cooling and supercontinent rifting.

--*Utah State University, 2000*. Talk title: Is there evidence in Proterozoic rocks of Grand Canyon of an Earth covered in ice?

--*Utah State University, 2000*. Talk title: From supercontinent rifting to a "snowball" Earth? Insight from the Chuar Group (~800-742 Ma), Grand Canyon

• ***Professional Societies***

Geological Society of America, American Association of Petroleum Geologists, Wyoming Geological Association, Association of Women Geoscientists, Society for Sedimentary Geology, National Association of Geoscience Teachers, Utah Geological Association, American Geophysical Union