

Curriculum Vitae

Brent David Turrin

Personal

Born: 18 November 1955, Walnut Creek, California
Married, four children

Education

- A.A. Diablo Valley College, California, 1976
- B.A. University of California, Berkeley 1980
- M.S. Stanford University, California, 1984
- Ph.D. University of California, Berkeley 1996

Career experience

- Lab Technician, University of Calif., Berkeley 10/78 to 09/80
- Geologic Field Assistant, U.S. Geological Survey 06/79 to 10/80
- Research and Teaching Assistant, Stanford University 10/80 to 06/83
- Physical Science Technician, U.S. Geological Survey 10/83 to 09/85
- Operational Geologist, U.S. Geological Survey 10/85 to 10/88
- Research Geologist, U.S. Geological Survey 10/88 to 10/95
- Computer network and internet technical consultant 10/95 to 02/97
- Adjunct Research Associate, Berkeley Geochronology Center, 01/85 to 04/97
- Senior Staff Associate at Lamont-Doherty Earth Observatory 03/97 to 01/05
- Associate Research Professor Rutgers University 01/00 to present

Membership in professional societies.

- American Geophysical Union 12/83-present
- American Association for the Advancement of Science (AAAS) 6/89-present

Honors, awards, recognition, elected membership

- Sigma Gamma Epsilon Honorary Society of Earth Scientists (1980), Charter Member of Stanford University Chapter.
- Finalist, Science Category Computerworld Smithsonian Awards for the advanced computer technologies developed for fully computer-automated $^{40}\text{Ar}/^{39}\text{Ar}$ single-crystal laser-fusion microprobe and a resistance furnace dating systems, co-developed at the Berkeley Geochronology Center, 1993
- Adjunct Research Associate, Berkeley Geochronology Center, Berkeley, California, 1985-04/97

Committees/scientific review panels

- Technical consultant for Los Alamos National Lab Nuclear Chemistry Group on a helium noble-gas extraction system. 1987-1988
- Organizing Committee, Abstract/Editorial Committee, and Science Program Committee for the 8th International Conference on Cosmochronology and Geochronology (ICOG-8) June 1994.
- Technical reviewer for the Nuclear Regulatory Commission (NRC) NUREG report on "Guidelines for Quaternary geochronology methods as applied to the assessment of seismic hazards". May 1994
- Editorial committee for Ocean Drilling Program Leg-173 paleomagnetic studies Sites 1065, 1067, 1068, 1069, and 1070. Oct. 1997.

- Chair, Geophysical site survey study group, Lake Vostok Workshop, Lake Vostok: A Curiosity or a Focus for Interdisciplinary Study?: National Science Foundation Final Report, Nov. 1998.

Lectureships, Symposia, Invited Conferences

06/84--Invited by University of California, Berkeley, Geology Department to present class lecture and field trip on the Quaternary deposits in Saline and Eureka Valley, California

04/85--Co-convener GSA Penrose Conference on "Geomorphic and Stratigraphic indicators of Quaternary-Neogene Climatic change in Arid and Semiarid Environment", Lake Havasu, Arizona

11/85--field trip co-leader--Quaternary Geology of the eastern Mojave Desert, Geological Society of America, Annual Meeting, Reno, Nevada

01/86--Invited lecture and field trip co-leader by NASA (Jet Propulsion Laboratory) to present geochronology of subalkaline-alkaline basaltic rocks in the southwestern USA

06/87--Geological Society of America, Cordilleran Section Meeting, Hilo, Hawaii. Chair, session on volcanism and xenoliths

06/89--Invited by the Institute of Human Origins, Berkeley Geochronology Center to present techniques of $^{40}\text{Ar}/^{39}\text{Ar}$ dating on young (Pleistocene) basaltic volcanic rocks

12/89--Invited by the USGS Committee for the Advancement of Science in the Yucca Mountain Project (CASY) to present a paper in Menlo Park, CA and in Denver, CO (04/90) "Geochronology of the Lathrop Wells Volcanic Center, Nevada"

10/90--Invited speaker GSA Penrose Conference on "Surface Exposure Dating Techniques", Mammoth, California

03/91--Invited participant Nuclear Waste Technical Review Board on the assessment of the volcanic hazard studies at the proposed repository at Yucca Mountain, Nevada

09/91--Invited lecture University of California, Berkeley, " $^{40}\text{Ar}/^{39}\text{Ar}$ dating of Quaternary basaltic rocks from the Lathrop Wells volcanic center, Nevada"

12/91--Invited lecture Lawrence Livermore National Laboratory, " $^{40}\text{Ar}/^{39}\text{Ar}$ dating of Quaternary basaltic rocks from the Lathrop Wells volcanic center, Nevada and the Cima volcanic field, California: Implications to geomorphic age assignments of cinder cones"

04/92--Invited lecture University of California, Berkeley, " $^{40}\text{Ar}/^{39}\text{Ar}$ dating of Franciscan Terranes: Age of uplift of Franciscan terranes in the San Francisco Bay Area"

09/92--Invited participant Nuclear Waste Technical Review Board on the assessment of the volcanic hazard studies at the proposed repository at Yucca Mountain, Nevada

12/92--Invited lecture USGS Branch of Igneous and Geothermal Processes "Recent Advances in $^{40}\text{Ar}/^{39}\text{Ar}$ dating of Quaternary Rocks using a Resistance Furnace"

11/93--Invited lecture University of California, Davis " $^{40}\text{Ar}/^{39}\text{Ar}$ dating and paleomagnetic studies of Quaternary basaltic rocks"

03/94--Invited participant in Nuclear Regulatory Commission (NRC) sponsored workshop on "Quaternary geochronology as applied to seismic hazard assessments"

06/94--Invited participant International Union of Geology and Stratigraphy (IUGS) subcommission on geochronology conference on "Absolute Age Dating Standards" G.S. Odin, Chairman and A.J. Hurford, Secretary.

02/95--Invited participant Volcanic Hazard Analyses Elicitation; DOE/Geomatrix Inc.

01/96--Invited lecture University of California, Berkeley "Development and Application of $^{40}\text{Ar}/^{39}\text{Ar}$ Laser-Fusion Dating and $^{40}\text{Ar}/^{39}\text{Ar}$ Step-Heating Dating of Quaternary Basaltic Volcanic Rocks: A Comparison of Conventional K-Ar Dating and $^{40}\text{Ar}/^{39}\text{Ar}$ Methods".

01/96--Invited lecture Lamont-Doherty Earth Observatory, Columbia Univ. "The State of $^{40}\text{Ar}/^{39}\text{Ar}$ of Late Pliocene Volcanic Rocks".

01/96--Invited lecture Lamont-Doherty Earth Observatory, Columbia Univ. "Science and Journalism: Yucca Mountain a case study".

01/97--Invited lecture Lamont-Doherty Earth Observatory, Columbia Univ. "Science and Journalism: Yucca Mountain a case study".

08/98--Invited participant, Ocean Drill Program, Leg-173 post cruise meeting " $^{40}\text{Ar}/^{39}\text{Ar}$ Thermochronology of the Ocean-Continent Transition".

11/98--Invited participant, Lake Vostok Workshop. "Lake Vostok: A Curiosity or a Focus for Interdisciplinary Study?".

01/99--Invited lecture Lamont-Doherty Earth Observatory, Columbia Univ. "Science and Journalism: Yucca Mountain a case study".

06/99--International Workshop for a Climatic, Biotic, and Tectonic, Pole-to-Pole Coring Transect of Triassic-Jurassic Pangea

11/04--Invited lecture Hydrogeology of Newark Basin – A Regional Workshop Rutgers University Inn and Conference Center. "Introduction to $\text{T}/^3\text{He}$ dating of groundwater: Sampling and measurement methods (No dates No Rates)".

01/07--Invited participant Transformation of Oceanic Plateaus into Continents (TROPICS) NSF Earth Scope workshop.

Bibliography (papers)

- 1.) Turrin, B.D., 1982, Potassium-argon dates and stratigraphy of Pliocene volcanic domes near Mokelumne Hill, Calaveras County: California Geology, v. 35, p. 220-222.

- 2.) Dohrenwend, J.C., McFadden, L.D., Turrin, B.D., and Wells, S.G., 1984, K-Ar dating of the Cima volcanic field, eastern Mojave Desert, California: Late Cenozoic history and landscape evolution: *Geology*, v. 12, p. 163-167.
- 3.) Dohrenwend, J.C., McFadden, L.D., Wells, S.G., McKittrick, M.A., and Turrin, B.D., 1984, Quaternary geology of the eastern Mojave Desert, California; road log day one: Geological Society of America 1984 Annual Meeting Guidebook, Reno, Nevada, field trip 14, p. 1-24.
- 4.) Dohrenwend, J.C., McFadden, L.D., Wells, S.G., Turrin, B.D., Mahrer, K.D., and McKittrick, M.A., 1984, Quaternary geology of the eastern Mojave Desert, California; road log day two: Geological Society of America 1984 Annual Meeting Guidebook, Reno, Nevada, field trip 14, p. 25-43.
- 5.) Dohrenwend, J.C., Wells, S.G., Turrin, B.D., and McFadden, L.D., 1984, Rates and trends of Late Cenozoic landscape degradation in the area of the Cima volcanic field, eastern Mojave Desert, California: Geological Society of America 1984 Annual Meeting Guidebook, Reno, Nevada, field trip 14, p.101-115.
- 6.) McFadden, L.D., Wells, S.G., Dohrenwend, J.C., and Turrin, B.D., 1984, Cumulic soils formed in eolian parent materials on flows of the Cima volcanic field, Mojave Desert, California: Geological Society of America 1984 Annual Meeting Guidebook, Reno, Nevada, field trip 14, p. 134-149.
- 7.) Wells, S.G., Dohrenwend, J.C., McFadden, L.D., Turrin, B.D., and Mahrer, K.D., 1984, Types and rates of Late Cenozoic geomorphic processes on lava flows of the Cima volcanic field, Mojave Desert: Geological Society of America 1984 Annual Meeting Guidebook, Reno, Nevada, field trip 14, p. 116-133.
- 8.) Turrin, B.D., Dohrenwend, J.C., Wells, S.G., and McFadden, L.D., 1984, Geochronology and eruptive history of the Cima volcanic field, eastern Mojave Desert, California: Geological Society of America 1984 Annual Meeting Guidebook, Reno, Nevada, field trip 14, p. 88-100.
- 9.) Turrin, B.D., 1984, Potassium-argon age dates and thermal history of the Tower Peak quadrangle, central Sierra Nevada, California, from disparities in K-Ar mineral ages: M.S. thesis, Stanford University, 36 p.
- 10.) Turrin, B.D., 1984, Potassium-argon age dates and thermal history of the Tower Peak quadrangle, central Sierra Nevada, California, from disparities in K-Ar mineral ages: U.S. Geological Survey Open-File Report 84-151, 12 p.
- 11.) Montanari, A., Drake, R.E., Bice, D.M., Alvarez, W., Curtis, G.H., Turrin, B.D., and DePaolo, D.J., 1985, Radiometric dating of the Eocene-Oligocene boundary at Gubbio, Italy: in Terminal Eocene events, eds. Pomerol, C., Premoli-Silva, I., International Geological Correlation Program, Project No. 174, Elsevier Scientific Publication Company, Amsterdam, v. 9, p. 41-47.
- 12.) Montanari, A., Drake, R.E., Bice, D.M., Alvarez, W., Curtis, G.H., Turrin, B.D., and DePaolo, D. J., 1985, Radiometric time scale for the Upper Eocene and Oligocene based on K-Ar and Rb/Sr dating of volcanic biotites from the pelagic sequence of Gubbio, Italy: *Geology*, v. 13, p. 596-599.
- 13.) Turrin, B.D., Dohrenwend, J.C., Drake, R.E., and Curtis, G.H., 1985, Potassium-argon ages from the Cima volcanic field, eastern Mojave Desert, California: *Isochron West*, v. 44, p. 9-16.
- 14.) Wells, S.G., Dohrenwend, J.C., McFadden, L.D., Turrin, B.D., and Mahrer, K.D., 1985, Late Cenozoic landscape evolution on lava flow surfaces of the Cima volcanic field, Mojave Desert, California: Geological Society of America Bulletin, v. 96, p. 1518-1529.

- 15.) Dohrenwend, J.C., Wells, S.G., and Turrin, B.D., 1986, Degradation of Quaternary cinder cones in the Cima volcanic field, Mojave Desert, California: *Geological Society of America Bulletin*, v. 97, p. 421-427.
- 16.) Dorn, R.I., Bamforth, D.B., Cahill, T.A., Dohrenwend, J.C., Donahue, D.J., Jull, A.J.T., Long, A., Macko, M.E., Turrin, B.D., Well, E.B., and Whitley, D.S., 1986, Cation-ratio and accelerator-radiocarbon dating of rock varnish on archaeological artifacts and landforms in the Mojave Desert, eastern California: *Science*, p. 730-733.
- 17.) Dohrenwend, J.C., Wells, S.G., McFadden, L.D., and Turrin, B.D., 1987, Pediment dome evolution in the eastern Mojave Desert, California, in Gardner, V., ed., *International Geomorphology 1986, Part II* London, Wiley-Interscience, p. 1047-1062.
- 18.) Dorn, R.I., Turrin, B.D., Tanner, D., and Dohrenwend, J.C., 1987, Cation-ratio dating for the Cima volcanic field and vicinity, Mojave Desert: *Physical Geography*, v.8, p. 72-81.
- 19.) Renne, P.R., and Turrin, B.D., 1987, Constraints on timing of deformation in the Benton Range, southeastern California and implications to Nevadan orogenesis: *Geology*, v. 15, p.1031-1034.
- 20.) Dohrenwend, J.C., Abrahams, A.D., and Turrin, B.D., 1987, Drainage network development on basaltic lava flows, Cima volcanic field, southeast California, and Lunar Crater volcanic field, south-central Nevada: *Geological Society of America Bulletin*, v. 99, p. 405-413.
- 21.) Dorn, R.I., and Turrin, B.D., Jull, A.J.T., Linick, T.W., and Donahue, D.I., 1987, Radiocarbon and cation-ratio varnish on Tioga and Tahoe morainal boulders of Pine Creek, eastern Sierra Nevada in California, and paleoclimatic implications: *Quaternary Research*, v. 28, p. 38-49.
- 22.) Bergquist, J.R., Smith, J.G., and Turrin, B.D., 1987, Geologic map of the Blue Lakes Wilderness Study Area, Humboldt County, Nevada: 1:24000 scale, U.S. Geological Survey Miscellaneous Field Studies MF-1936.
- 23.) Dorn, R.I., Turrin, B.D., Tanner, D., and Dohrenwend, J.C., 1987, Cation-ratio dating of Quaternary materials in east-central Mojave Desert, California: *Physical Geography*, v. 8, p. 72-81.
- 24.) Turrin, B.D., Bergquist, J.R., Turner, R.L., Plouff, D., Ponader, C.W., and Scott, D.F., 1987, Mineral Resources of the High Rock Canyon Wilderness Study Area, Washoe County, Nevada: U.S. Geological Survey Bulletin 1707-D, 14 p.
- 25.) Bergquist, J.R., Plouff, D., Turrin, B.D., Smith, J.G., Turner, R. L., and Willett, S. L., 1987, Mineral resources of the Blue Lakes Wilderness Study Area, Humboldt County, Nevada: U.S. Geological Survey Bulletin 1726-D, 18 p.
- 26.) Turrin, B.D., Griscom, A., Turner, R.L., Lawson, W.A., Buehler, A., and Graham, D.E., 1988, Mineral Resources on the Alvord Desert and East Alvord Wilderness Study Areas, Harney County, Oregon: U.S. Geological Survey Bulletin 1739-B, 16 p.
- 27.) Crowe, B., Harrington, C., McFadden, L., Perry, F., Wells, S., Turrin, B., and Champion, D.C., 1988, Preliminary geologic map of the Lathrop Wells Volcanic Center, Los Alamos National Laboratory publication, LA-UR-88-4155, 7 p.
- 28.) Crowe, B.M., Turrin, B.D., Champion, D.C., Wells, S.G., McFadden, L.D., and Perry, F., 1988, Volcanic hazard studies for the Yucca Mountain Project: *Proceedings of the International High-*

Level Nuclear Waste Management Conference, Las Vegas, NV, American Society of Civil Engineers and American Nuclear Society, v. 89, p. 485-491.

- 29.) Geissman, J.W., Harlan, S.S., Brown, L., Turrin, B.D., and McFadden, L.D., 1989, Brunhes Chron geomagnetic excursion records during the latest Pleistocene, Albuquerque volcanos, New Mexico, USA, in F.J. Lowes, D.W. Collinson, J.H. Parry, S.K. Runcon, D.C. Tozer, and A. Soward, eds., *Geomagnetism and Paleomagnetism*, NATO Advanced Studies Institute Series C: Mathematical and Physical Sciences v. 261, p. 123-136.
- 30.) Turrin, B.D., Conrad, J.E., Plouff, D., King, H., Swisher, C.C., Mayerle, R.T., Raines, R.L., 1989, Mineral resources of the Hawk Mountain Wilderness Study Area, Harney County, Oregon: U.S. Geological Survey Bulletin 1740-F, 16 p.
- 31.) McKee, E. H., Conrad, J. E., and Turrin, B. D., 1989, Dinosaurs from northern Alaska are of latest Cretaceous age: Eos, (*Transactions, American Geophysical Union*), v. 70, no. 4, p. 74.
- 32.) Crowe, B.M., Harrington, C.D., Perry, F.V., Wells, S.G., McFadden, L.D., Renault, C.E., Turrin, B.D., and Champion, D.E., 1989, Polycyclic volcanism: a common eruption mechanism of small volume basaltic continental magmatism: IAVCEI abstracts., New Mexico Bur. of Mines, Bull, 131, p.
- 33.) Chao, E.C.T., Mitsunobu Tatsumoto, Erickson, R.L., Minkin, J.A., Back, J.M., Buden, R.V., Okita, P.M., Hou Zonglin, Meng Qingrun, Ren Yingchen, Sun Weijun, McKee, E.H., Turrin, B.D., Wang Junwen, Li Xibin, and Edwards, C.A., 1990, Origin and ages of mineralization of Bayan Obo, the world's largest rare-earth ore deposit, Inner Mongolia, China: U.S. Geological Survey Open-File Report 90-538, 11 p.
- 34.) Conrad, J.E., McKee E.H., and Turrin, B.D., 1990, K-Ar and $^{40}\text{Ar}/^{39}\text{Ar}$ ages of tuff beds at Ocean Point on the Colville River, Alaska, in J.H. Dover and J.P. Galloway, eds., *Geologic Studies in Alaska by the U.S. Geological Survey 1989*: U.S. Geological Survey Bulletin 1946, p. 77-82.
- 35.) Segall, P., McKee, E.H., Martel, S.J., and Turrin, B.D., 1990, Late Cretaceous age of fractures in the Sierra Nevada batholith, California: *Geology*, v. 18, no. 12, p. 1248-1251.
- 36.) Hausback, B.P., Deino, A.L., Turrin, B.D., and McKee, E.H., 1990, New $^{40}\text{Ar}/^{39}\text{Ar}$ ages for the Spearhead and Civet Cat Members of the Stonewall Flat Tuff, Nye Co., Nevada: *Isochron/West*, no. 55, p. 3-7.
- 37.) Wilshire, H.G., McGuire, A.V., Noller, J.S., and Turrin, B.D., 1991, Petrology of lower-crustal and upper-mantle xenoliths from the Cima volcanic field, California: *Journal of Petrology*, v. 32, p.169-200.
- 38.) Conrad, J.E., McKee, E.H., and Turrin, B.D., 1990, Age of tephra beds at the Ocean Point dinosaur locality, North Slope, Alaska, based on K-Ar and $^{40}\text{Ar}/^{39}\text{Ar}$ analyses: U.S. Geological Survey Bulletin 1990-C, 12p.
- 39.) Geissman, J.W., Brown, L., Turrin, B.D., McFadden, L.D., and Harlan, S.S., 1990, Brunhes Chron excursion/polarity episode records during the late Pleistocene, Albuquerque Volcanos, New Mexico, USA: *Geophysical Journal International*, v. 102, no. 1, p. 73-88.
- 40.) Turrin, B.D., and Champion, D.E., 1991, $^{40}\text{Ar}/^{39}\text{Ar}$ laser fusion and K-Ar ages from the Quaternary basaltic volcanic centers at Crater Flat, Nevada and Cima, California: implications for the age of the youngest volcanic activity in the Yucca Mountain area: *Proceedings of the International High-Level*

Nuclear Waste Management Conference, Las Vegas, NV, (American Society of Civil Engineers and American Nuclear Society), v.1, p. 68-75.

- 41.) Turrin, B.D., Champion, D.E., and Fleck, R.J., 1991, $^{40}\text{Ar}/^{39}\text{Ar}$ laser-fusion ages from the Lathrop Wells volcanic center: implications for volcanic hazards in the Yucca Mountain Radioactive Repository Site, southwestern Nevada: *Science*, v. 253, p. 654-657.
- 42.) Ach, J.A., Bateson, J.T., Turrin, B.D., Keith, W.J., Noble, D.C., and Swisher, C.C., 1991, Geologic map of the High Rock Lake Quadrangle, Washoe and Humboldt Counties, Nevada: 1:24,000 scale, U.S. Geological Survey Miscellaneous Filed Studies, MF-2157.
- 43.) Turrin, B.D., Champion, D.E., and Fleck, R.J., 1992, Reply to comment on " $^{40}\text{Ar}/^{39}\text{Ar}$ laser-fusion ages from the Lathrop Wells volcanic center: implications for volcanic hazards in the Yucca Mountain radioactive repository site, southwestern Nevada": *Science*, v. 257, p. 555-558.
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- 46.) Lanphere, M.A., Dalrymple, G.B., and Turrin, B.D., eds , 1994, Abstracts of the Eighth International Conference on Geochronology, Cosmochronology and Isotope Geology, U.S. Geological Survey Circular 1107, 384 p.
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- 48.) Fleck, R.J., Turrin, B.D., Sawyer, D.A., Warren, R.G., Champion, D.E., Hudson, M.R., and Minor, S.A., 1993, Age and character of basaltic rocks of the Yucca Mountain area, southern Nevada: *Journal of Geophysical Research*, v. 101, no. B4, p. 8205-8227.
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- 52.) Lucchitta, I., Curtis, G., Davis, M.E., Davis, S. W., and Turrin, B., 1995, Quaternary Geology of the Granite Park Area, Grand Canyon: Aggradation-downcutting cycles, calibration of soils stages, and response of fluvial system to volcanic activity: U.S. Geological Survey Open-File Report 95-xxx,

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- 60a.)----- Explanatory Notes: in Whitmarsh, et al., *Proceedings, Ocean Drilling Program, Initial Report 173: College Station, TX*, p. 25-47
- 60b.)----- Site 1065: In Whitmarsh, et al., *Proceedings, Ocean Drilling Program, Initial Report 173: College Station, TX*, p. 65-104
- 60c.)----- Site 1066: In Whitmarsh, et al., *Proceedings, Ocean Drilling Program, Initial Report 173: College Station, TX*, p. 105-106
- 60e.)----- Site 1067: In Whitmarsh, et al., *Proceedings, Ocean Drilling Program, Initial Report 173: College Station, TX*, p. 107-217
- 60f.)----- Site 1068: In Whitmarsh, et al., *Proceedings, Ocean Drilling Program, Initial Report 173: College Station, TX*, p. 163-218
- 60g.)----- Site 1069: In Whitmarsh, et al., *Proceedings, Ocean Drilling Program, Initial Report 173: College Station, TX*, p. 219-264

- 60h.)----- Site 1070: In Whitmarsh, et al., Proceedings, Ocean Drilling Program, Initial Report 173: College Station, TX, p. 265-296
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- 63.) Manatschal, G., Froitzheim, Rubenach, M., Turrin, B.D., (2001), The role of detachment faulting in the formation of an ocean-continent transition: insights from the Iberia Abyssal Plain. In "Non-volcanic rifting of continental margins: evidence from land and sea", Wilson, R. C. L., Whitmarsh, R. B., Taylor, B. and Froitzheim, N. (eds). Geol. Soc. London, Spec. Publ.,187, 405-428.
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