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John H. Dilles

Year hired: 1989

Specialty: Geology and geochemistry of mineral deposits, field geology

Research interests: Economic geology (origin of metallic mineral deposits, especially porphyry copper and related deposits of western North America and South America), structural geology, igneous petrology, stable isotopes, isotopic ages

Recent Publications: Chambefort, I., Dilles, J.H., and Kent, J.R., 2008, Anhydrite-bearing andesite and dacite as a source for sulfur in magmatic-hydrothermal mineral deposits: *Geology*, vo. 36, no. 9, p. 719-722.

Gonsior, Z.J. and Dilles, J.H., 2008, The Timing and Evolution of Cenozoic Extensional Normal Faulting and Magmatism in the Southern Tobin Range, Nevada: *Geosphere*, Vol 4, Issue 4, p. 687-712.

Rusk, B., Reed, M.H., and Dilles, J.H., 2008, Fluid inclusion evidence for magmatic-hydrothermal fluid evolution in the porphyry copper-molybdenum deposit, Butte, Montana: *Economic Geology*, v. 103, p. 307-334.

Proffett, John M., and Dilles, John H., 2008, Lower Mesozoic sedimentary and volcanic rocks of the Yerington region, Nevada, and their regional context: *in* editors, Wright, J.E., and John Shervais, J.W., eds., *Ophiolites, Arcs, and Batholiths: A Tribute to Cliff Hopson*; *Geol. Soc Amer Spec Paper* 438, p. 251-288.

Brimhall, G.H., Dilles, J.H., and Proffett, J.M., Jr., 2006, The role of geologic mapping in modern mineral exploration: *in*, Doggett, M.D., and Parry, J.R., eds., *Special Publication 12, Society of Economic Geologists*, p. 221-241.

Rusk, Brian G., Reed, Mark H., Dilles, John H. and Kent, Adam J. R., 2006, Intensity of quartz cathodoluminescence and trace element content in quartz from the porphyry copper deposit in Butte, Montana, USA: *Amer. Mineralogist*, v. 91, p. 1300-1312.

Seedorff, E., Dilles, J.H., Proffett, J.M., Jr., Einaudi, M.T., Zurcher, L., William J. A. Stavast, W. J.A., Johnson, D.A., Barton, M.D., 2005, Porphyry-Related Deposits: Characteristics and Origin of Hypogene Features: *in* Hedenquist, J., Thompson, J.F., Richards, J., eds., 100 th Anniversary Volume, *Society of Economic Geologists*, p. 251-298.

Simeone R., Dilles J. H., Padalino G. and Palomba M., 2005, Mineralogical and stable isotope studies of kaolin deposits: shallow epithermal systems of western Sardinia (Italy):



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C.W. Field, Zhang, L., Dilles, J.H., Rye, R.O., and Reed, M.H., 2005, Sulfur and oxygen Pre-Main Stage Porphyry Cu-Mo and Late Shallow Main Stage Base Mineral Deposits, Butte District, Montana : .Chemical Geology (Robert Rye volume); v. 215, p. 61-93

Rusk, B., Reed, M.H., Dilles, J.H., Klemm, L., and Heinrich, C.A., 2004, Compositions of magmatic hydrothermal fluids determined by LA-ICP-MS of fluid inclusions from the porphyry copper-molybdenum deposit at Butte, Montana : Chemical Geology, vol. 210, p. 173-199.

Geiger, S., Haggerty, R., Dilles, J. H., Reed, M.H., and Matthäi, S.F., 2002, The Evolution Of The Early Hydrothermal Alteration At Butte, Montana : New Insights From Reactive Transport Modeling: Geofluids, v. 2, p. 185-201

Tomlinson, A.J., Dilles, J.H., and Maksaev, V., 2001, Application Of Apatite (U-Th)/He Thermochronometry To The Determination Of The Sense And Amount Of Vertical Fault Displacement At The Chuquicamata Porphyry Copper Deposit, Chile A Discussion: Economic Geology, v. 96, No. 5, 1307-1309.

Streck, M.J., and Dilles, J.H., 1998, Sulfur content of oxidized arc magmas as recorded in apatite from a porphyry copper batholith: Geology, v. 26, no. 6, p. 523-526.

Recent Graduate Student Titles: Robert Lee (PhD, 2008). Genesis of the El Salvador Porphyry-Copper Deposit, Chile and Distribution of Epithermal Alteration at Lassen Peak, California.

Zachary Gonsior (MS, 2006). Timing and evolution of Cenozoic extensional normal faulting in the southern Tobin Range, northwestern Nevada.

Greg Brennecka (MS, 2006). Petrology of magmatic sulfides in ore-forming silicic igneous rocks, Yanacocha, Peru and Yerington, Nevada.

Joanna Lipske (MS, 2002). Advanced argillic and sericitic alteration in the Buckskin Range, Nevada: A product of ascending magmatic fluids from the deeper Yerington porphyry copper environment.

Tony Longo (PhD, 2005), (co-advisor with Grunder). Volcanology, igneous petrology, and geochronology of the Yanacocha Volcanic Complex, Cajamarca, Peru, and relation to mineralization.

Robert A. Houston (MS, 2001). Geology and structural history of the Butte district, Montana.

Alexander Raab (MS, 2001). Geology of Fe-oxide-Cu-Au mineralization at Cerro Negro Corte, Coastal Cordillera, northern Chile.

Lihua Zhang (PhD, 2000) Stable isotope investigation of a hydrothermal alteration system: Butte porphyry copper deposit, 182 p.

Courses taught: Geo 440/540 Economic Geology (4 cr)
Geo 495 Advanced Field Geology (6 cr)
Geo 497/597 Field Mapping of Ore Deposits (3 cr)
Geo 310 Earth Materials I: Mineralogy (4 cr)

Geo 646 Magmatic and Hydrothermal Ore Deposits (4 cr)
Geo 694 Topics in Ore Genesis (1-3 cr)

Degrees: PhD Geology, Stanford University, 1984
MS Geology, California Institute of Technology, Pasadena, 1976
BS Geology, California Institute of Technology, Pasadena, 1975

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