

Vita: Danny M. Rye

(a) Professional Preparation

Occidental College, Los Angeles, CA: Geology, A.B. (Physics minor), June 67.
University of Minnesota, Minneapolis, MN: Geology, Ph.D. Aug. 72.
Purdue University, West Lafayette, IN: Geophysics (Heat flow) post-doc Summer 72
Yale University, New Haven, CT: Research Geologist (post-doc) Sep 72-Jun 75

(b) Appointments

Professor, Department of Geology and Geophysics, Yale Univ. (Jul 90-present).
Chairman, Department of Geology and Geophysics, Yale Univ. (Jul 97-Jun 03)
Associate Professor, Department of Geology and Geophysics, Yale Univ. (Jul 80-Jun 90).
WAE faculty appointment, U.S. Geological Survey (1981-1983)
Visiting Fellow, School of Earth Science, Australian National Univ. Research, (Summer 79)
Assistant Professor, Department of Geology and Geophysics, Yale Univ. (Jul 75-Jun 80).
Instructor of Geology, Department of Geology and Geophysics, Yale Univ. (Jul 74-Jun75).
Lecturer in Geology, Department of Geology and Geophysics, Yale Univ. (Jul 73-Jun74).
Research Staff Geologist, Department of Geology and Geophysics, Yale Univ. (Sep 72-Jun75).

(b1) Honors and Recognition

Lindgren Award of the Society of Economic Geologists, 1976.

(c) Publications

Wilkinson, J. J., Everett, C. E., Boyce, A. J., Rye, D. M., 2005, Intracratonic crustal seawater circulation and the genesis of subseafloor zinc-lead mineralization in the Irish orefield: *Geology*, v.33, no. 10, p. 805-808.

Felipe, M.A., Kubicki, S.D., and Rye, D.M., 2004, Oxygen isotope exchange kinetics between H₂O and H₂SiO₄ from *ab initio* calculations: *Geochimica et Cosmochimica Acta*, v. 68, p. 949-958.

Lüttge, A., Bolton, E.W., Rye, D.M., 2004, A Kinetic model of metamorphism: an application to siliceous Dolomites: *Contributions to Mineralogy and Petrology*, v. 146, p. 546-565.

Everett, C.E., Rye, D.M., and Ellam, R.M., 2003, Source or Sink? An Assessment of the Role of the Old Red Sandstone in the Genesis of the Irish Zn-Pb Deposits: *Economic Geology*, v. 98, p. 31-50.

Felipe, M.A., Kubicki, S.D., and Rye, D.M., 2003, Hydrogen isotope exchange kinetics between H₂O and H₂SiO₄ from *ab initio* calculations: *Geochimica et Cosmochimica Acta*, v. 67, p. 1259-1276.

Lasaga, A.C., Rye, D.M., Lüttge, A., and Bolton, E.W., 2001, Calculation of fluid fluxes in the Earth's crust: *Geochimica et Cosmochimica Acta*, v. 65, p. 1161-1185.

Lasaga, A.C., A. Lüttge, Rye, D.M., Bolton, E.W., 2000, Dynamic treatment of invariant and univariant reactions in metamorphic systems, *American Journal of Science*, v. 300, p. 173-221.

Masters, R.L., Ague, J.J., and Rye, D.M., 2000, An oxygen and carbon isotopic study of multiple episodes of fluid flow in the Dalradian and Highland Border Complex, Stonehaven, Scotland: *Journal of the Geological Society of London*, v. 157, p. 367-379.

Ague, J. J., Rye, D.M., 1999, Simple Models of CO₂ Release from Metacarbonates with Implications for Interpretation of Directions And Magnitudes of Fluid Flow in the Deep Crust: *Journal of Petrology*, v. 40, p. 1443-1462.

Bolton, E.W., Lasaga A.C., and Rye, D.M., 1999, Long-term flow/chemistry feedback in a porous medium with heterogeneous permeability: Kinetic control of dissolution and precipitation, *American Journal of Science*, v. 299, p. 1-68.

Everett, C.E., Wilkinson, J.J., and Rye, D.M., 1999, Fracture controlled fluid flow in the lower Paleozoic basement rocks Ireland: Implications for the genesis of Irish-type Zn-Pb deposits in McCaffrey, K. Longergan, L. and Wilkinson, J.(eds), *Fractures, fluid flow, and mineralization*, Geol. Soc. London, Special Publication v. 155, p. 245-276.

Everett, C.E., Wilkinson, J.J., Boyce, A.J., Ellam, R.M., Gleeson, S.A., Rye, D.M., and Fallick, A.E., 1999, The genesis of Irish-type Zn-Pb deposits: Characterisation and origin of the principal ore fluid: Joint SGA-IAGOD Symposium, London, 1999, *Proceedings: Mineral deposits: Processes to processing*, v. 2: Rotterdam, A.A. Balkema, p. 845-848.

Ague, J.J., Park, J., and Rye, D.M., 1998, Regional metamorphic dehydration and seismic hazard: *Geophysical Research Letters*, v. 25, p. 4221-4224.

Bolton, E.W., Lasaga, A.C., and Rye, D.M., 1997, Dissolution and precipitation via forced-flux injection in a porous medium with spatially variable permeability: Kinetic control in two dimensions: *Journal of Geophysical Research*, v. 102, p. 12159-12171.

Bolton, E.W.; Lasaga, A.C.; Rye, D.M., 1996, A model for the kinetic control of quartz dissolution and precipitation in porous media flow with spatially variable permeability; formulation and examples of thermal convection: *Journal of Geophysical Research, B, Solid Earth and Planets*, v. 101, P. 22,157-22,187.

van Haren, J.L.M., Ague, J.J., **Rye, D. M.**, 1996, Oxygen isotope record of fluid infiltration and mass transfer during regional metamorphism of pelitic schist, Connecticut USA: *Geochimica et Cosmochimica Acta*, v. 60, p. 3487-3504.

Tanaka, N., Rye, D.M., Rye, R, Avak, H., and Yoshinari, T, 1995, High precision mass spectrometric analysis of isotopic abundance ratios in nitrous oxide by direct injection of N₂O: *International Journal of Mass Spectrometry and Ion Processes*, v. 142, p. 163-175.

Landman, N.H., Cochran J. K., Rye, D.M., Tanabe, K and Arnold J.M., 1994, Early life history of

Nautilus; evidence from isotopic analyses of aquarium-reared specimens: *Paleobiology*, v. 20, p. 40-51.

Tanaka, N., Rye, D.M., Xiao, Y., and Lasaga, A.C, 1994, Use of stable sulfur isotope systematics for evaluating oxidation reaction pathways and in-cloud scavenging of sulfur dioxide in the atmosphere: *Geophysical Research Letters*, v. 21, p. 1519-1522,

Lasaga, A.C. and Rye, D.M., 1993, Fluid flow and chemical reaction kinetics in metamorphic systems: *American Journal of Science*, v. 293, p. 361-404.

Berner, R.A., Rye, D.M. 1992, Calculation of the Phanerozoic Strontium isotope record of the oceans from a carbon cycle model, 1992: *American Journal of Science*, v. 292, p. 136-148.

Canals, A., Cardellach, E., Rye, D.M. and Ayora C., 1992, Origin of the Atrevida Vein (Catalonian coastal ranges, Spain); mineralogic, fluid inclusion, and stable isotope study: *Economic Geology*, v. 87, p. 142 - 153.

Tanaka, N, Turekian, K.K., and Rye, D.M., 1991, The radiocarbon, $\delta^{13}\text{C}$, ^{210}Pb , and ^{137}Cs record in box cores from the continental margin of the Middle Atlantic Bight: *American Journal of Science*, v. 291, p. 90-105.

Johnson, Craig A., Rye, Danny M., and Skinner, Brian J., 1990, Petrology and stable isotope geochemistry of the metamorphosed zinc-iron-manganese deposit at Sterling Hill, New Jersey: *Economic Geology*, v. 85 p. 1133 - 1161.

Schiffries, C.M., and Rye, D.M., 1990, Stable isotopic systematics of the Bushveld Complex: II. Constraints on hydrothermal processes in layered intrusions: *American Journal of Science*, v. 290, p. 209-245: *American Journal of Science*, v. 291, p. 209-245.

Jansen, J.B.H., Van der Rijst, H., Rye, R.O., Andriessen. P.A.M., and Rye, D.M., 1989, High integrated fluid rock ratio during metamorphism at Naxos: evidence from carbon isotopes of calcite in schists and fluid inclusions: A discussion of the paper by Kreulin (1988): *Contributions to Mineralogy and Petrology*, v. 103, p. 123-126

Schiffries, C.M., and Rye, D.M., 1989, Stable isotopic systematics of the Bushveld Complex: I. Constraints of magmatic process in layered intrusions: *American Journal of Science*, v. 289, p. 841-873

Rye, D.M. and Bradbury, H.J., 1988, Fluid flow in the crust; an example from a Pyrenean thrust ramp: *American Journal of Science*, v. 288, p. 197-235.

LeHuray, A.P., Caulfield, J.B.D., Rye, D.M., and Dixon, P.R., 1987, Basement controls on sediment-hosted Zn-Pb deposits: A Pb isotope study of Carboniferous Mineralization in Central Ireland: *Economic Geology*, v. 82, p. 1695-1709.

Caulfield, J.B.D., LeHuray, A.P., and Rye, D.M., 1986, A review of lead and sulfur isotopic investigations of Irish sediment-hosted base-metal deposits, in Andre, C.J., Crowe, R.W.A., Finlay, S., Pennell, W.M., and Pyne, J.F., eds., *The geology and genesis of mineral deposits in Ireland*: Dublin, Irish Assoc. Econ. Geology, p. 591-615.

Shelton, Kevin L., So, Chil-Sup, Rye, Danny M., and Park, Maeng-Eon, 1986, Geologic, sulfur isotope, and fluid inclusion studies of the Sannae W-Mo Mine, Republic of Korea; comparison of sulfur isotope systematics in Korean W deposits: *Economic Geology*, v. 81 p. 430 - 446.

Tanaka, N., Monaghan, M., and Rye, D.M., 1986, Contribution of metabolic carbon to mollusk and barnacle shell carbonate: *Nature*, v. 320, p. 520-523.

Campbell, A, Rye, D., and Petersen, U., 1984, A hydrogen and oxygen isotope study of the San Cristobal Mine, Peru: Implications of the role of water to rock ratio for the genesis of wolframite deposits: *Economic Geology*, v. 79, p. 1818-1832.

Landman, N.H., Rye, D.M., and Shelton, K.L., 1983, Early ontogeny of *Eutrephoceras* compared to Recent *Nautilus* and Mesozoic ammonites; evidence from shell morphology and light stable isotopes: *Paleobiology* v. 9, p. 269-279.

So, Chil-Sup, Rye, Danny M., and Shelton, Kevin L., 1983, Carbon, hydrogen, oxygen, and sulfur isotope and fluid inclusion study of the Weolag tungsten-molybdenum deposit, Republic of Korea; fluid histories of metamorphic and ore-forming events: *Economic Geology*, v. 78. p. 1551 - 1573.

So, Chil-Sup, Shelton, Kevin L., and Rye, Danny M., 1983, Geologic, sulfur isotopic, and fluid inclusion study of the Ssang Jeon tungsten mine, Republic of Korea: *Economic Geology*, v. 78, p. 157 - 163.

Tracy, R.J., Rye, D.M., Hewitt, D.A., and Schiffries, C.M., 1983, Petrologic and stable-isotopic studies of fluid rock interactions, south-central Connecticut: I. The role of infiltration in producing reaction assemblages in impure marbles: *American Journal of Science*, v. 283-A, p. 589-616.

Shelton, Kevin Louis, and Rye, Danny M.. 1982, Sulfur isotopic compositions of ores from Mines Gaspé, Quebec: an example of sulfate-sulfide isotopic disequilibria in ore-forming fluids with applications to other porphyry-type deposits: *Economic Geology*, v. 77, p. 1688 - 1709.

Cochran, J.K., Rye, D.M., and Landman, N.H., 1981, Growth rate and habitat of *Nautilus pompilius* inferred from radioactive and stable isotope studies: *Paleobiology*, v. 7, p.469-480.

Rye, Danny M., and Williams, Neil, 1981, Studies of the base metal sulfide deposits at McArthur River, Northern Territory, Australia: III. The stable isotope geochemistry of the H.Y.C. Ridge, and Cooley deposits: *Economic Geology*, v. 76, p. 1 - 26.

Rye, Danny .M., and Williams, Neil, 1981, Studies of the base metal sulfide deposits at McArthur River, Northern Territory, Australia: III. The stable isotope geochemistry of the H.Y.C. Ridge, and Cooley deposits; reply: *Economic Geology*, v. 76, p. 2259 - 2260.

Lattanzi, P., Rye, D.M. and Rice J.M, 1980, Behavior of ^{13}C and ^{18}O in carbonates during contact metamorphism at Marysville, Montana: Implications for isotope systematics in impure dolomitic limestones: *American Journal of Science*, v. 280, p. 800-906.

Rye, D.M., and Sommer, M. A. II, 1980, Reconstructing paleotemperature and paleosalinity regimes with oxygen isotopes, in D.C. Rhoads, and R. A. Luttz editors: *Skeletal growth of aquatic organisms*, Plenum, New York, p. 169-202.

Sverjensky, D. A., Rye, D. M. and Doe, B. R., 1979, The lead and sulfur isotopic compositions of galena from a mississippi valley-type deposit in the New Lead Belt, Southeast Missouri: *Economic Geology*, v. 74, p. 149 - 153.

Nozaki, Y., Rye, D.M., Turekian, K.K., and Dodge, R.E., 1978, A 200 year record of carbon-13 and carbon-14 variations in a Bermuda coral: *Geophysical Research Letters*, v. 5, p.825-828.

Rye, D. M., and Roy, R. F., 1978, The distribution of thorium, uranium, and potassium in Archean granites from northeastern Minnesota: *American Journal of Science*, v. 278, p. 354-378.

Rye, R.O., Schuiling, R.D, Rye, D.M., and Jansen J.B.H., 1976, Carbon hydrogen, and oxygen isotope studies of the regional meamorphohic complxes at Naxos, Greece, *Geocheimica et Cosmochimica Acta*, v. 40, p. 1030-1049.

Sawkins, F.J, and Rye, D.M., 1975, On the relationship of certain Precambrian gold deposits to iron formation: *Institution of Mining and Metallurgy, Transactions, Section B: Applied Earth Science. V. 84*, p. B37-B38.

Rye, D.M., and Rye R.O., 1974, Homestake gold mine, South Dakota: I. Stable isotope studies: *Economic Geology* v. 69, p. 293-317.

Rye, Danny M., Doe, B. R., and Delevaux, Maryse H., 1974, Homestake Gold Mine, South Dakota; II, Lead Isotopes, Mineralization Ages, and Source of Lead in Ores of the Northern Black Hills: *Economic Geology*, Oct 1974; 69: 814 - 822.

Williams, N., and Rye, D.M., 1974, Alternative interpretation of sulphur isotope ratios in the McArthur lead-zinc-silver deposit: *Nature*, c. 247, p 535-537

(d) Synergistic Activities

- 1) Director and founder of the Earth System Center for Stable Isotopic Studies, in the Yale Institute for Biospheric Studies, Yale Univ. (2002-2010)
- 2) Editor (1987-present), Assoc Editor (1981-1986), *American Journal of Science*
- 3) Editorial board *Economic Geology*, (1982-1985)
- 4) Committees: Grants-in-Aid of Research Committee member for Sigma Xi. (1983-1986),

Chairman of the Nominations Committee, Geochemical Society. (1987-1988), Committee on Committees. Society of Economic Geologists. (1989-1990), Clarke Medal committee of the Geochemical Society (1993- 1995)

- 5) Invited short courses taught in stable isotope geochemistry at the USGS in Reston, and the University of Barcelona