

Precious Metals from Deep-Sea Vents: General Background Information

Background information on deep-sea hydrothermal vents

Hydrothermal vents on ChEss website

Information on the distribution, geology, and biology of deep-sea hydrothermal vents from our workshop sponsor, the ChEss (Chemosynthetic Ecosystems) program of the Census of Marine Life.

» [Visit Website](#)

Hydrothermal vents on Dive and Discover website

The Dive and Discover website includes basic information about hydrothermal vents, videos, podcasts, and interactive graphics.

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Generation of seafloor hydrothermal vent fluids and associated mineral deposits

Article in Oceanography magazine, Vol. 20, No. 1, March 2007, by Margaret K. Tivey.

» [Visit Website](#)

Hydrothermal vent ecosystems

Article in Oceanography magazine, Vol. 20, No. 1, 2007, by C. Fisher, K. Takai, and N. Le Bris.

» [Visit Website](#)

Biogeography of life at hydrothermal vents

Article titled "The Evolutionary Puzzle of Seafloor Life," from Oceanus magazine, Mar. 2004, by Tim Shank.

» [Visit Website](#)

Hydrothermal vents on Extreme 2008 cruise website

Includes interactive graphics to explain how a hydrothermal vent works.

» [Visit Website](#)

Hydrothermal vents on Ridge 2000 SEAS website

Students Experiments At Sea (SEAS) is a free web-based science education program for middle-and high-school students interested in learning about the deep sea.

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Known sites of hydrothermal venting along mid-ocean ridges, in back-arc basins, rifted arcs, and at submerged island-arc volcanoes (red), and areas of activity as indicated by mid-water chemical anomalies (yellow). (Fig. 1 from Tivey, Oceanogr. magazine, Vol. 20, No. 1, 2007)

Background information on Seafloor Massive Sulfide (SMS) deposits

Brochure describing polymetallic sulphides

Brochure prepared by the International Seabed Authority, March 2008

» [Visit Website](#)

Wikipedia description of SMS

» [Visit Website](#)

Wikipedia description of volcanogenic massive sulfide ore deposits

» [Visit Website](#)

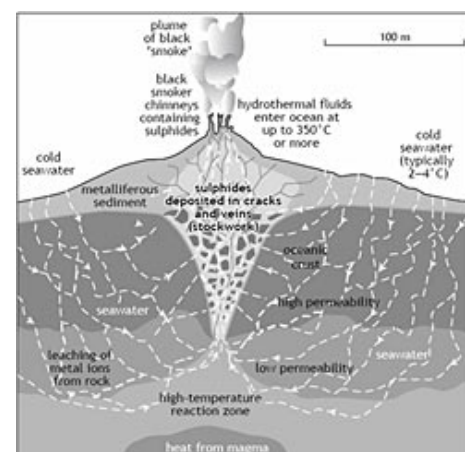
Basic description of SMS from Neptune Minerals website

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Overview on potential deep-sea mining of SMS

This is a report from a student Group Project at UCSB Bren School of Environmental Science and Management.

» [Visit Website](#)



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Schematic diagram to illustrate the environment in which massive sulfide deposits are formed within the ocean crust and at the sea-bed. (Courtesy M. Baker, NOC, UK - Fig. 1a in Baker and German, Ocean Challenge magazine, 2008)

Background information on deep-sea mining, in general

[Deep sea mining, including political and legal aspects](#)

Lecture in Geological Oceanography by Jack Morelock (Univ. Puerto Rico)

[Lessons learned from deep-sea mining](#)

Glasby, G.P. (2000) Lessons learned from deep-sea mining. Science 289: 551-553. Policy Forum article.

[Deep-sea mining and exploration](#)

TechnoMine article, 6 Nov. 2006

[Precautionary mangagement of deep sea mining](#)

Report by Halfar and Fujita, related to their article published in Science in 2007

Last updated: January 14, 2009

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