

1999 Fall Meeting**Search Results:**

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HR: 0830hAN: **OS21B-05**TI: [Geological and Hydrogeologic Interrelationships Around Seep and Gas Vent Regions on Hydrate Ridge: Seabed Observations](#)AU: * **Brown, K M**EM: *kmbrown@ucsd.edu*AF: *Scripps Institution of Oceanography, University of California , La Jolla, CA 92093-0220 United States*AU: **Goldfinger, C**AF: *College of Ocean and Atmospheric Sciences, Oregon State University, Corvallis, OR 97331 United States*AU: **Bohrmann, G**AF: *GEOMAR Research Center for Marine Geosciences, Dept. of Environmental Geology, 24148 Kiel, Germany*AU: **Torres, M**AF: *College of Ocean and Atmospheric Sciences, Oregon State University, Corvallis, OR 97331 United States*AU: **Tryon, M**AF: *Scripps Institution of Oceanography, University of California , La Jolla, CA 92093-0220 United States*AU: **Jung, C**AF: *GEOMAR Research Center for Marine Geosciences, Dept. of Environmental Geology, 24148 Kiel, Germany*AU: **Suess, E**AF: *GEOMAR Research Center for Marine Geosciences, Dept. of Environmental Geology, 24148 Kiel, Germany*AU: **Sahling, H**AF: *GEOMAR Research Center for Marine Geosciences, Dept. of Environmental Geology, 24148 Kiel, Germany*AU: **Trehu, A M**AF: *College of Ocean and Atmospheric Sciences, Oregon State University, Corvallis, OR 97331 United States*

AB: ROPOS, Alvin, and OFOS investigations conducted during TECFLUX 98 and 99 at two localities on N. and S. Hydrate Ridge revealed a wide variety of evidence for paleo and active fluid seepage in regions of high backscatter, as observed in deep-towed sidescan sonar data. Surface manifestations of flow include active gas vents, substantial aqueous-seep-related biologic communities, and locally substantial chemoherm development. Active seepage and venting are confined to localized regions within larger carbonate structures, suggesting temporal evolution of local flow patterns. In South Hydrate Ridge, active seepage is confined to two regions within an approx. 800 x 400m region of high reflectivity near the crest. An impressive, hydrogeologically-active 30-50m high pinnacle-like chemoherm occurs SW of the crest. It is internally stratified subparallel to its surface, apparently growing by external deposition of carbonates. Hydrologically active tensional fissures on its flanks suggest a structural

control. At the summit, hummocky pock-marked topography is associated with substantial seep communities and underlying shallow hydrates (see Sonne grab results). Vigorous local gas venting was observed to occur here. In N. Hydrate Ridge, venting of gas bubbles also appears to be associated with local topographic highs, suggesting that buoyant updip migration of gas controls vent locations even at local scales. Aqueous seep locations, on the other hand, do not have a strong topographic dependence, suggesting that their locations may be

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