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Meiovent – hydrothermal vent meiobenthos along a vent flux gradient from the 9˚50'N East Pacific Rise region

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Catastrophic volcanic eruptions, tectonic disturbances, and hydrothermal fluid emissions with variable flux rates form transient environments at the midocean ridge system, the largest volcanic mountic chain on Earth. The deep-sea hydrothermal vent fauna is a largely distinct assemblage with global distribution adapated to unstable physico-chemical conditions such as high temperature and pH gradients and the toxicity of vent emissions. For the first time, the meiobenthic community of an entire hydrothermal vent region at the 9˚50´N East Pacific Rise axial summit collapse trough was studied quantitatively along a gradient of vent flux, ranging from high temperature and high sulfide emissions at black smoker chimneys hosting alvinellid polychaetes, to moderate emissions at tubeworm aggregations and low emissions at bathymodiolid mussel beds growing on basalt to bare basalt communities with ambient deep-sea temperatures. Despite the presence of *in situ* chemosynthetic primary production, but large differences in rates, the meiobenthic abundances were low (1 to 976 ind. 10 cm^{-2}) and statistically similar at all vent sites. All together, we identified 66 species, belonging to the dirivultid and harpacticoid copepods, nematodes, ostracods, acari, and foraminiferans. Species richness was low at all sites and the vent communities were dominated by almost two thirds of hard substrate generalists also living on cold bare basalt in the axial summit collapse trough. Only one third of species were vent endemics and even the majority of these endemics were vent generalists as they oc-

cured over a wide range of physico-chemical conditions. However, each habitat is characterized by a distinct community with similarities lower than 50% between each other. Species richness and diversity clearly decreased with increasing vent flux from alvinellid (3-7, H'$\log_e$ 0.18 – 0.46), tubeworm (S: 9 – 24; H´$_{loge}$: 0.44 – 2.00) to mussel assemblages (S: 28 – 32; H´$_{loge}$: 2.34 – 2.62). Bare basalt measures (S: 19 – 30; H´$_{loge}$: 1.53 – 2.71) were similar to the mussel communities. These data suggest that with an increase of temperature and toxic hydrogen sulfide and an increase of amplitude of fluctuations at hydrothermal vents, a decrease of species being able to cope with these extreme conditions and thus a less divers community will be found.