sFDvent: Building the first global functional trait database for hydrothermal vent species

(co-authors shown in bold have already contributed to the database, while other co-authors have agreed to contribute)

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Hydrothermal vent communities differ dramatically in their taxonomic composition on a global scale, forming distinct biogeographic provinces. A functional trait approach offers a common currency to compare vent communities across these provinces (using species traits like body size, nutritional source, and others, alongside taxonomic and genetic information). The sFDvent working group aimed to build a freely available, global functional trait database for hydrothermal vent ecosystems, using data collected since hydrothermal vents were first discovered forty years ago. Traits were selected that characterized a species' performance and contribution to ecosystem function and best matched those in well-established trait databases (e.g., BIOTIC, The Coral Trait Database, and Marine Species Traits), to ensure cross-ecosystem comparability and consistency. After being scored by a global pool of experts, the traits were then reduced (and modalities refined) to those that could be scored for the majority of species with a high degree of certainty, to ensure data quality. These cleaned and quality assessed trait scores comprise the 17 trait sFDvent database to be presented at CBE6, currently encompassing species from 5 ridges, 4 back-arc basins and one cold seep. This database is an open resource that will expand through time with contributions from the global community of deep-sea scientists, many of whom are in attendance at CBE6. The goal of sFDvent is to improve our understanding of the functional biodiversity and biogeography of chemosynthetic ecosystems, to enable us to: quantitatively assess spatiotemporal functional diversity patterns; identify environmental and evolutionary drivers and conservation hotspots; and develop indicators of resilience.