



## **Deep-Sea and Sub-Seafloor Frontiers: WP6 report for Climate Change and Response of Deep-Sea Biota**

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DS3F brings together scientists from Europe's major ocean research centres and universities to identify the primary issues that need to be addressed in subseafloor drilling (with relevance to deep-sea ecosystem research) in the next 10-15 years. DS3F is a coordination action within Europe that is related to the use of drilling and subseafloor sampling in deep-sea ecosystem research, including a better predictive capacity of the response of deep-sea ecosystems to environmental change. The main focus of the DS3F initiative is the interface between the geosphere and the hydrosphere, comprised of the seafloor and the upper kilometer subseafloor. WP6 of this coordination action is related to Climate Change and Response of the Deep-Sea Biota, a topic at the forefront of current marine research activities within Europe and internationally. Here we will present the outcomes of a workshop that was convened in 2010 for WP6, identifying the major scientific themes for this working package. The working group identified the importance of palaeo-data for understanding present and future climatic changes. Specific challenges include the biotic response to perturbations on different time-scales and for different rates of change, Climate sensitivity + biotic impact, Ocean acidification, magnitudes and rates of sea-level change, Modes of climate variability, Ocean ventilation changes, ocean bio-geochemistry interactions, and the evolution of the hydrological cycle. This presentation will illustrate challenges identified, as well as laying out requirements for research infrastructure in order to address these challenges of societal relevance.