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Surface and Subsurface Manifestations of Gas Movement Through a North-south Transect of the Northern Gulf of Mexico - an Overview

Large volumes of gas appear to have vented through a north-south transect of the offshore northern Gulf of Mexico. Even though very large quantities of gas appear to be involved, the specific sites of venting are generally highly localized at faults and fractures in the seafloor and may also be episodic making the actual hydrocarbon fluxes involved difficult to estimate. This venting gas causes significant changes in compositions of reservoir oils, both in the past and at the present time. This upward gas movement produces a number of interesting effects at the seafloor, including support of a prolific and diverse biological community, formation of seafloor gas hydrates, and sometimes massive disruption of the subsurface and surface sediments including ejection of fossils from older deeper sediments to the modern seafloor. In some cases, methane bubbles issuing from the seafloor appear visually to be venting directly into the atmosphere, possibly providing a deep sea source of the greenhouse gas, methane. Venting is accompanied by natural oil slicks at the sea surface and can be followed for miles. An overview and initial evaluation of surface and subsurface manifestations of this gas will be presented focusing on its possible sources and influences on various oil parameters commonly used in petroleum exploration in the offshore Gulf Coast.