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Characteristics and background tectonics of the Mud Volcanism in the Kumano Basin, Nankai Trough subduction zone, central Japan

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Mud volcano (MV) is geological feature that are observed all over the world, especially along plate convergent margins. MVs bring fluid and sediment to the surface from depth. Original depths of mud volcanoes are often at several meters $\sim$ a dozen kilometers below the surface.
MVs along Japan Islands are mostly found on ocean floor, at forearc basins along southwest Japan, although they are a few loci on land. The offshore MVisms are mostly confirmed by seismic profiles which show truncated BSR below a small topographic feature at seafloor. Shipboard acoustic investigation shows that some of them emits gas seep from their summit. They are often lied by accretionary prism in this area, thus are expected as a transporter of information from deeper part of the accretionary prism, hopefully from shallow portions of the seismogenic zone.
In case of the Kumano Basin, at least 14 MVs are reported. YK15-10 and $SO_2$51b cruises acoustically investigate the MVs in the Kumano Basin and detect gas release from top of some MVs and around them. Most of MVs in the Kumano Basin are exist at the northern sedimentary basin floor, and are lied by larger conduit below them. On the other hand, a 14th MV exist at intersection of two differently trending fault systems, normal faults and the Kumano Basin edge fault zone (KBEFZ). The 14th MV thought to be develop at a local extensional stress field and may connect to a splay fault (at a few km below seafloor) and plate boundary via normal and faults and/or KBEFZ.
DONET (Dense Oceanfloor Network system for Earthquakes and Tsunamis) is submarine cabled real-time seafloor observation infrastructure which is designed for precise monitoring of earthquakes and tsunamis in the Nankai area. The system is constructed by 2 loops of observatories, developed in the western Kumano Basin (DONET-1) and off-Shikoku area (DONET-2), those also use for a part of earthquake early warning managed by government. Most of the 14 MVs in the Kumano Basin locate within laying area of the DONET-1. An approach searching signals of MV's activity into the DONET data is just starting.