Anomalous active fault groups across the Ogasawara Plateau, the West Pacific region

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The Ogasawara Plateau on the western margin of the Pacific plate is a large submarine feature formed by Cretaceous intra-plate volcanism. Due to subduction of the Pacific plate beneath the Philippine Sea plate, the Plateau is now colliding with the Izu-Bonin forearc and parts of the Plateau are accreting to the lower forearc slope (Morishita et al., 2006). The western part of the Plateau underwent severe deformation resulting from collision with the Izu-Bonin forearc. There are two conspicuous groups of normal faults which extend from the trench outer wall to the north of junction of the Plateau and the forearc toward the east-southeast, deforming the Plateau and its adjacent abyssal plain. One extends for about 300 km in a WNW-ESE direction through the western part of the Plateau. To the north of it, the other extends across the northern margin of the Plateau and runs for about 150 km in an E-W direction. Their distribution and deformation indicates they are normal faults. This is supported by focal mechanism of earthquakes that occurred along the faults. They contrast with bending faults that typically occur in a domain up to about 100 km from the plate boundary and lie parallel to sub-parallel to the trench axes. A newly acquired series of multi-channel seismic reflection profiles illustrated subsurface structure of the faults. In this presentation, I will present distribution and mode of deformation on the groups of the faults based on the full-covered swath bathymetry as well as seismic reflection profiles.