Transition of accretionary wedge structures around the up-dip limit of the seismogenic subduction zone

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Accretive margins are generally divided into three segments: outer and inner wedges and their transition zone. These wedges reflect different aspects of wedge taper, internal deformation, and basal plate boundary fault. The outer wedge is characterized by narrow critical taper, internal deformation by in-sequence-fold and thrust and aseismic decollement. The inner wedge represents a stable narrow taper, weakly deformed internal structure with extensional deformation and seismic plate boundary fault along its base. The transition zone between the two wedges shows large critical taper with steep surface slope, internal structure of out-of-sequence thrusts, and step-down of decollement into the sediment-oceaninc basement interface or switch to a shallower new plate boundary fault bounding the underthrust sediments and hanging wall accretionary prism. These common aspects might be related to the lothification of both accrreted and underthrust sediments and the resultant switch of the plate boundary fault. Deformation and lithification process recorded in exhumed on-land melange of accretionary complexes suggest that the switch of the plate boundary fault occurs around the up-dip limit of seismogenic subduction zone.