

Figure EA9a. Structural characterization and assessment of diagenetic alteration in optical, transmitted light (A-D) and cathodoluminescence (D, E) microscopes. Thin section of the skeleton of the K2 specimen. Arrow in A indicate pits of ion microprobe primary beam (enlarged in B, C). Zoomed-in area (D, E) show corresponding optical light (D) and cathodoluminescence (E) images: red luminescence corresponds to regions composed of calcite (mostly sediment/secondary infilling of interseptal space), whereas the absence of luminescence corresponds to the well preserved aragonite skeleton.

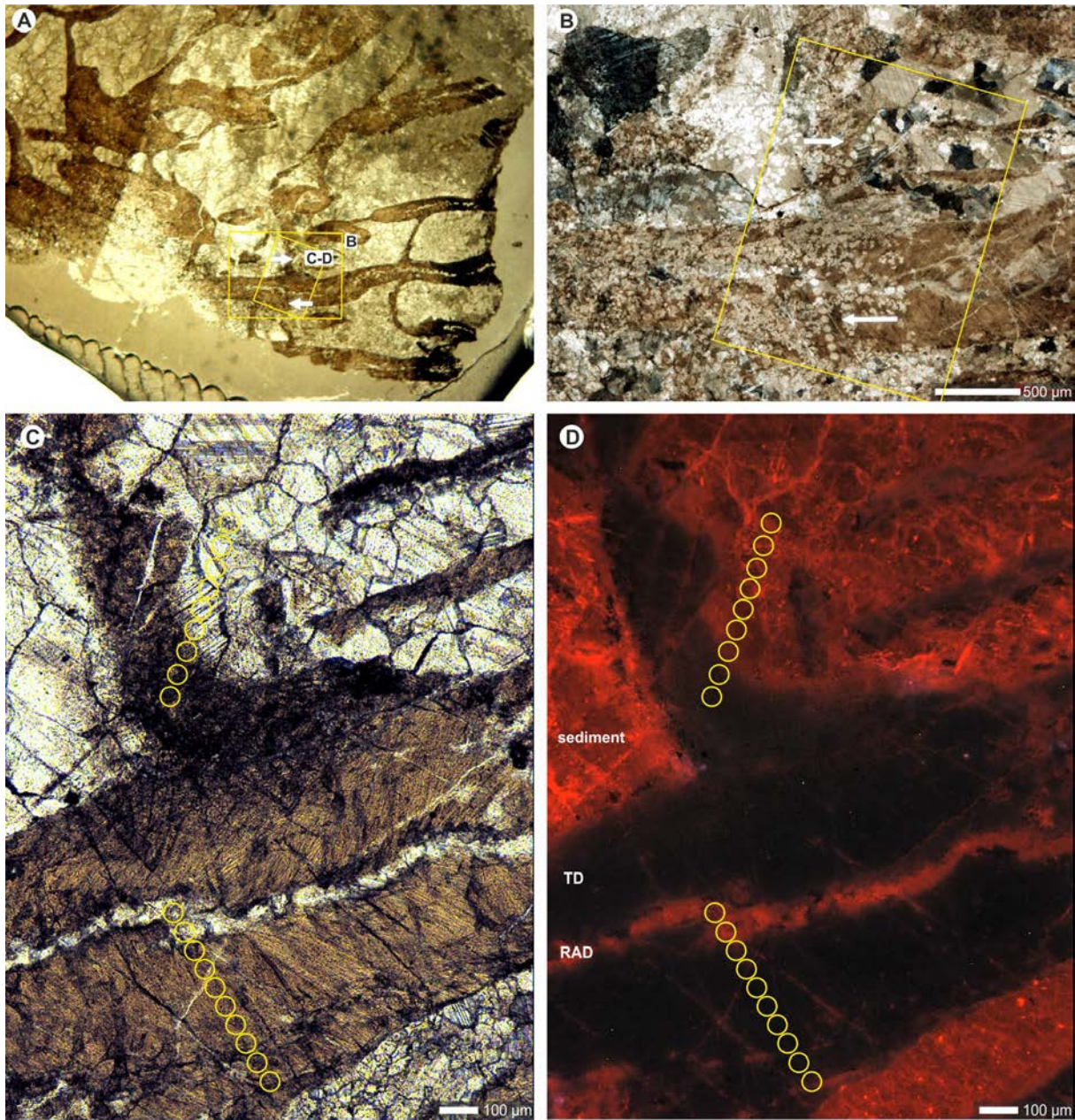


Figure EA9b. Structural characterization and assessment of diagenetic alteration in optical, transmitted light (A-C) and cathodoluminescence (D) microscopes. Thin section of the skeleton of the Upper Triassic (Rhaetian) *Stylophylloopsis rudis*, Fischerwiese, Austria (Tr1 specimen). Arrows in A, B indicate pits of ion microprobe primary beam (yellow circles in C, D). Zoomed-in areas (C,D) show corresponding optical light (C) and cathodoluminescence (D) images: red luminescence corresponds to regions composed of calcite (secondary infilling of COCs/Rapid Accretion Deposits (RAD) and sediment/sparry calcite), whereas the absence of luminescence corresponds to well preserved coral fibers (Thickening deposits, TD).

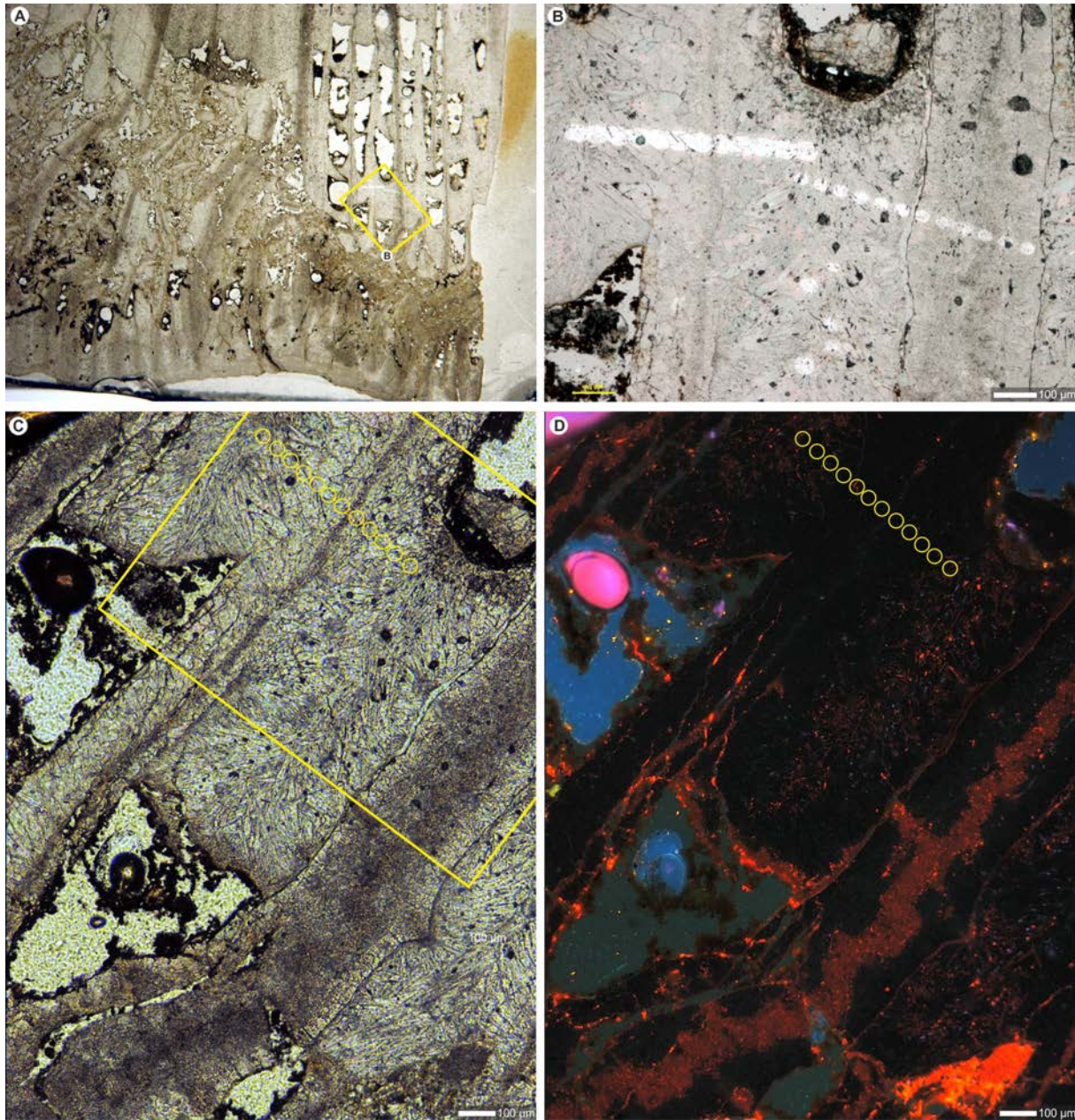


Figure EA9c. Structural characterization and assessment of diagenetic alteration in optical, transmitted light (A-C) and cathodoluminescence (D) microscopes. Thin section of the skeleton of *Rennensismilia complanata* (K3 specimen). B Pits of ion microprobe primary beam (in yellow in C, D). Zoomed-in area (C, D) shows corresponding optical light (C) and cathodoluminescence (D) images: red luminescence corresponds to regions composed of calcite (mostly sediment/secondary infilling of COC/RAD), whereas the absence of luminescence corresponds to the well preserved aragonite skeleton.

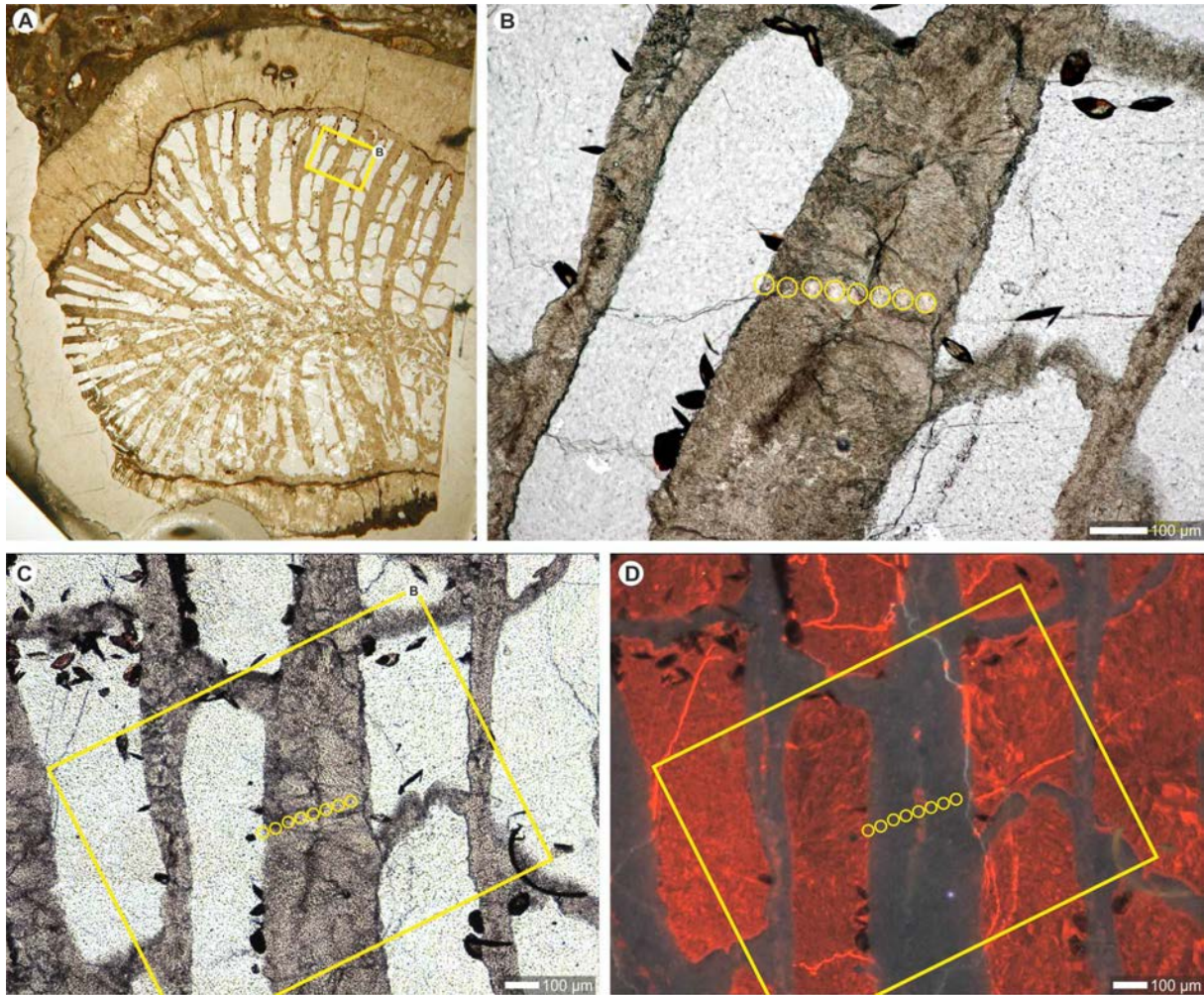


Figure EA9d. Structural characterization and assessment of diagenetic alteration in optical, transmitted light (A-C) and cathodoluminescence (D) microscopes. Thin section of the skeleton of *Volzeiidae* ident. (R3). B Pits of ion microprobe primary beam (in yellow in B-D). Zoomed-in area (C, D) shows corresponding optical light (C) and cathodoluminescence (D) images: red luminescence corresponds to regions composed of calcite (mostly sediment/secondary infilling of COC/RAD).