es on two assumptions. One is the well-known environmental scheme of the Gilbert Type Delta and the other is the regional structural context, evidently forced by the "topmost" tectonic schemes of the region. However, this model, as related to the Intrasudetic Basin, does not offer a satisfactory explanation for several important facts.

Controversial issues are: possibility of tides in the sedimentary basin, presence of the proximal tempestites and supposed feeding areas in relation to the paleogeographic and paleotopographic realities.

Points of disagreement are: volumetric balance of sediments, geometry of sandstone lithosoms in relation to possible shapes of macro forms of the "Gilbert Type Delta" and the model-derived formation time of sandstone lithosoms.

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Shear Zones in Unconsolidated Deposits as Indicators of Synsedimentary Tectonic Movements

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Syndepositional tectonic activity in sedimentary basins is usually indicated by deformation of layering in density-unstable sediment setting. Because the bed disturbance is attributed to earthquakes, the deformational structures appear in continuous horizons, which can be traced on large areas. Extremely rarely it is possible to point to synsedimentary activity when homogenous sediments are/were deposited within a basin. This is dominantly due to lack of distinct marker layers. Additionally, the rheological uniformity of such rocks causes different response of sediments to a tectonic pulse: the deformational structures have a spatially arranged pattern and their features are alike of tectonic structures originating in cemented rocks. These observations are supported by sets of fossil deformational structures which developed in unconsolidated sandstones in Intra-Sudetic Basin in the Cretaceous.

There are three sets of synsedimentary deformational structures observed in Cretaceous sandstones of Intra-Sudetic Basin, all interpreted as shear zones triggered by tectonic events. These are (i) feather-like shear zones, (ii) plain shear zones, (iii) complex shear zones. All of them are perpendicular to major sedimentary surfaces.

Feather-like shear zones are characterized by an en-echelon fracture pattern and only slight disturbance of layering. They occur in form of undulating zones of 15–20 cm width, without clear boundaries. The sets of small fractures have convergent orientation relative to shear zone planes.

Plain shear zones have sharp, straight boundaries and the width of about 5 cm. The material within the zone shows well developed fabric – wall-parallel arrangement of clastic material. Close to the plain shear zone walls, undulation of layering is also visible. Moreover, the sandstone bed as a whole may be displaced vertically along the shear zone by amount of a few centimetres.

Complex shear zones possess straight, sharp boundaries and are about 25 cm wide. Their typical feature is sedimentary breccia occurring within the zone. The breccia is formed of blocks of layered mother-beds surrounded by fluidized sand. The fluidized portion of material shows in places zone-wall-parallel arrangement. Occasionally, undulation of layering at shear zone boundary is also visible.

Syndepositional origin of these shear zones is indicated both by their discontinuity – they disappear either within a bed or on bed boundaries – as well as by their continuity in bottom portions of beds. All the structures were observed on an elongated area of Cretaceous sandstones occurrences, trending NWW-SEE. They show constant spatial orientation in the whole area of investigations. The above features, thus, suggest that the deformation of sand deposits was due to basement fault activity, which assisted sand sedimentation in Intra-Sudetic Basin during the Cretaceous.