

TRANSGRESSIVE SURFACE AS SEQUENCE BOUNDARY

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To delineate a sequence boundary (SB) by transgressive surface (TS), i.e., between transgressive sediments and the underlying sediments, is theoretically and practically better than traditionally between highstand (HST) sediments and subsequent lowstand (LST) or shelf margin (SMST) sediments. 1. During LST interval, remarkable reductions of the ecological space would aggravate survival competition and then largely extinguish the earlier organisms. New ecological space quickly enlarged with subsequent transgression and new biota originated, indicating the beginning of a new stage. Thus the bio- and chrono-stratigraphic boundary generally coincides with TS, and theoretically one LST or SMST higher than traditional SB. 2 In traditional SBs the positions of SB1 and SB2 in the curve of sea level change are different (compare fig.2 with fig.6 of Posamentier et al., 1988). On the other hand, the position of TS in the curve is relatively fixed. 3. In strata without important hiatus, the SBs, esp. SB2, is not a transforming surface of the strata structure, because SMST, also partly LST sediments, and the underlying HST sediments are both progradational. However, the TS is a distinct transforming surface of strata structure: retrogradational above and progradational or aggradational below. 4. On platforms and ramps where lack of LST and SMST, TS is the only possible choice to delineate a SB. Definition of SB by TS will promote the integration of sequence stratigraphy with bio- and chrono-stratigraphy.