Sea-level rise distance of Permian Wordian-Capitanian: quantitative calculation

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Sea-level changes cause the changes in the fabric facies of reefs. So it is possible to calculate ancient (pre-Cenozoic) sea-level rise distances according to reefal deposits.

When the sea level rises at a speed equivalent to that of reef growth, a sequence of the same fabric facies will form, and the sea-level rise distance (R) is equivalent to the thickness of the sequence.

When the sea level rises at a speed greater than that of reef growth, a deepening sequence will form, and the sea-level rise distance can be calculated from $R = Td + (Db - Dt)$ where Td is the thickness of the sequence, Db the water depth of the facies of the sequence bottom, and Dt the water depth of the facies of the sequence top.

When the sea level rises at a speed less than that of reef growth, a shoaling sequence will form, and the sea-level rise distance can be calculated from $R = Ts - Db$ where Ts is the thickness of the sequence, and Db the water depth of the sequence bottom.

According to calculation from the Wordian-Capitanian reef of Xiangbo, China and the coeval reef of the Guadalupe Mountains, the sea level rose about 181 m during Permian Wordian-Capitanian (*Neoschwagerina* zone).