APPLICATION OF HABITAT TYPES IN BATHYMETRIC RECONSTRUCTION

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Because temperature, light, salinity, oxygen saturation, CCD, tide and wave are all related to water depth, one of the most important controlers of biotic habitat types is water depth. Water depth is also an essential factor of depositional systems, thus enable direct correlation to certain degree between ecostratigraphy and basin analysis. A classification of habitat types from supratidal to abyssal consisting of 7 divisions and 19 subdivisions was applied to Late Permian-Middle Triassic ecostratigraphy of South China. The criteria include traditional approaches and mathematical methods, e.g., (planktonic + nectonic)/benthic (%), endobenthic/epibenthic (%), algae content (%). Fidelity tests of the established communities and tests of intercommunity and community-environment relationship are used. A series of sections perpendicular to paleo-shorline was arranged and from them a series of ecostratigraphic curves reflecting water depth changes-relative sea level changes was obtained. Correlation of this series of curves leads to establishment of transverse framework of ecostratigraphic curves of the basin, which coincides with and compliments fairly well the sea level change of the basin. Our attempt proves that ecostratigraphic method may help to achieve higher resolution in subdivision and correlation of marine deposits, especially carbonates, than by sedimentology alone, thus useful in basin analysis.