



Influence of small river derived sediment on the Northeastern South China Sea sedimentation processes in the last 40 K years

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Small rivers derived particles are major source of sediment to the ocean in the present time. Small rivers in Taiwan are subjected to fast tectonic activity, high precipitation rate and erosion rate. The combined annual river particle load from small rivers on the Island of Taiwan is higher than that of the Mississippi River. A large fraction of those rivers particle may finding its way into the surrounding seas and ocean, e.g. South China Sea, East China Sea, and the Philippine Sea. Furthermore, due to the nature of particle transportation off rivers from Taiwan were connected by a number of canyon systems close by the river mouth, majority of those river particles were facilitated in delivering and deposited later further into the South China Sea deep basin. The objectives of this study are to understand spatial variations in sedimentation rates and to resolve the temporal differences in sedimentation in the Northeastern South China Sea region, and to evaluate influence of small river particles to the marginal sea. A set of cores was collected in overlying water depth within 1600 – 3300 m for mutisensor core logging of magnetic susceptibility, density, and porosity. Foraminifera (*G. sacculifer*, *G. conglobatus*, *O. universa*) were picked and AMS C14 analyses for age determination. Grain size, organic carbon, carbonate and biogenic silica content were measured.

The results show that large sedimentation rates difference existed in the study area. Earlier studies on sedimentation rate in the region west of our study area were in range of about 10 cm/kyr while our rates are about 20-40 cm/kyr and much higher near Taiwan. Bulk sedimentation rate were higher during the transition period between LGM and Holocene and lower during Holocene. Our results demonstrated that large quantity of particles from small rivers in Taiwan are and were major source of particle and are the dominating factor in controlling sediment deposition in the northeastern South China Sea.