SPATIAL HETEROGENEITY IN THE MANGROVE VEGETATION STRUCTURE IN THE ZHANJIANG MANGROVE NATIONAL NATURE RESERVE (CHINA): AN APPROACH USING REMOTE SENSING (GEOEYE-1 IMAGERY) AND GIS-ANALYSES

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The Zhanjiang Mangrove National Nature Reserve (ZMNNR), established in 1990, is situated in the Guangdong province and has the largest mangrove area with the highest number of species in mainland China. It was included into the Ramsar list in 2002. Gaoqiao (21°33'520", 109°45'167") is the largest of those sites and has not been largely modified by man since its protection status was established.

The study is based on cartography (remote sensing and GIS) and field work. We used the PCQM and Plot-based method to describe the vegetation. We collected data on tree height, diameter, species name, number of stems and canopy surface. The mangrove species concerned are: *Aegiceras corniculatum*, *Avicennia marina*, *Bruguiera gymnorrhiza*, *Excoecaria agallocha*, *Kandelia candel*, *Rhizophora stylosa*, *Sonneratia apetala*.

The study emphasizes on the abiotic and biotic factors that are influencing the vegetation structure using a cartographic approach. The spatial heterogeneity will first be studied through classified maps of the vegetation. These maps will be developed with help of image-analysing software based on GeoEye-1 imagery and geographical information systems (GIS).
Data were collected on abiotic factors (pH, salinity, soil texture, depth of the anoxic layer surface, inundation class and tidal levels) and biotic factors (counts of propagules and leaves on the ground, crab burrows, and snails) to match the vegetation data through extrapolation of point data to the scale of maps.

This study is ongoing, but we aim at confirming or invalidating the hypotheses on the environmental factors underlying the mangrove vegetation structure, and we aim at establishing at which scale and through which extrapolation methods these factors can best be investigated. This will also involve landscape metrics.