



Anabranching Channel Patterns: the Kingdom of Large Alluvial Rivers

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For a long time anabranching patterns were primarily restricted to “exotic and remote” zones in arid systems such as Australia. For that reason, they were not accepted as a major topic of discussion in our discipline, which was based on concepts principally derived from case studies in braided and meandering rivers of the Northern Hemisphere. However, anabranching alluvial patterns are widespread in a variety of environments and scales, from arid small rivers to alluvial reaches of giant rivers such as the Amazon, Congo, and Negro. The largest rivers of the world in water discharge are anabranching, and the majority of the forty-five largest rivers (water discharges $>5000\text{m}^3\text{s}^{-1}$) are dominantly anabranching systems. Only a small number of rivers with meandering patterns, or sinuous with branches (meandering-tendency to anabranch) are part of the largest rivers group.

The present large anabranching rivers flowing on lowlands and well developed floodplains have in common a characteristic very slow slopes, specific stream power of $< 25 \text{ Wm}^{-2}$ and sandy bed load with sand sizes dominantly ranging from $0.1 < D_{50} < 0.5 \text{ mm}$.

The diversity of planforms and island morphologies in large anabranching rivers result from autogenic adjustments to millennial scales in broad valleys and to century-decadal scale channel-floodplain processes. The variety of anabranching styles are not specifically related to a single explanatory “physically based theory” but to a variety of morphological processes, complex-channel floodplain interactions and the geologic characteristics of the valleys. Once considered a kind of oddity, anabranching rivers must be considered major and fundamental representatives of the fluvial world.