

## HYDROMORPHIC PHENOMENA IN TROPICAL REGIONS WITH CONTRASTED SEASONS

### Application for a better characterization of concepts of gley and pseudogley

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After a brief review on hydromorphic phenomena and concepts of gley and pseudogley in literature, examples of these phenomena and their consequences are presented in soils affected by an excess of water in tropical regions.

Morphological features, water regime and iron dynamics have been studied in inundable soils of the plain of Logone-Chari (Chad Basin). In these soils excess of water occurs during the rainy season (may-october).

Characteristic features of gley and pseudogley are observed in different horizons. Seasonal dynamic is noted in these soils : variations of the porosity due to swelling and consolidation or compaction in saturated conditions — water regime with seasonal alternation of soil saturation and desiccation — iron dynamics.

In these acid soils, particular iron redistribution is the most visible consequence of hydromorphic phenomena. Iron dynamics is influenced by many factors : duration of the excess of water, continuity or discontinuity of the saturation, water movements in waterlogged soils, quantity and quality of organic matter, pH... Formation of the most visible morphological features can be explained by the intensity of different processes occurring in iron dynamics (reduction and mobilization, oxidation and immobilization — see table).

So, it appears that relationships can be easily established between morphological features and soil forming processes. The gley formation is particularly influenced by mobilization phenomena and the pseudogley formation by immobilization ones. On the other hand, relationships don't appear easy to establish between morphological features and one or several factors affecting iron dynamics, such as conditions in which soils are under excess of water and especially duration of the saturation.

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Ex 1

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LES PHÉNOMÈNES D'HYDROMORPHIE  
EN RÉGIONS TROPICALES A SAISONS CONTRASTÉES

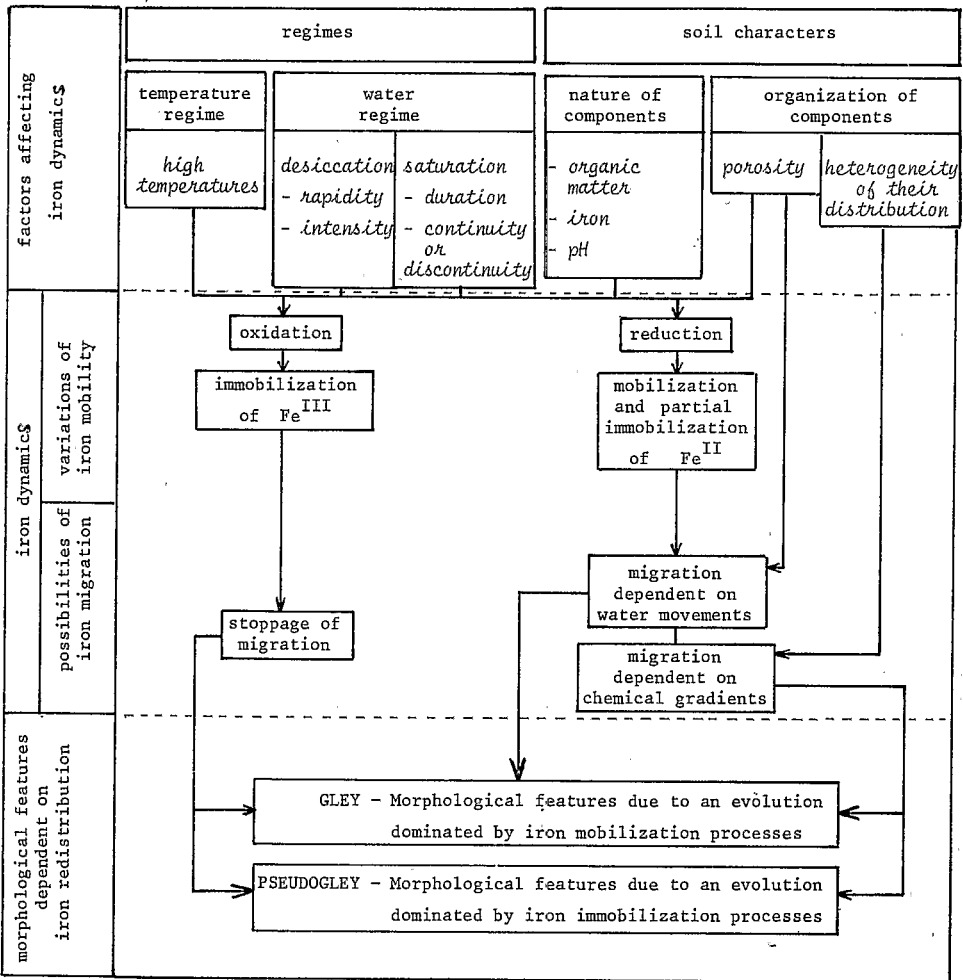


Table I : General scheme on relations between morphological features, iron dynamics and factors affecting this dynamics in waterlogged soils of tropical regions.