

CLIMATIC SIGNAL IN THE TROPICS BASED ON PLANT-TAPHONOMY DURING EARLY STAGES OF THE CARBONIFEROUS ICEHOUSE INTERVAL (NAMURIAN, LUBLIN BASIN, POLAND)

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The intensively drilled Lublin Coal Basin (eastern Poland, western Ukraine) is a pericratonic basin situated on the western margin of the East European platform/craton. The Namurian and Westphalian A (Langsettian) are developed in a paralic facies in which marine limestones alternate with terrestrial, coal-bearing units. Biostratigraphic and chronostratigraphic control is based on marine invertebrates, plant macrofossils, and palynomorphs.

The 20 observed transgressive-regressive cycles represent third order parasequences and are labeled A through S with two (Ha and S1) having sub-designations. All plant macrofossils were systematically collected in all cores originally for stratigraphic purposes. For this analysis the data from 25 cores were used because these cores cover the entire stratigraphic interval under consideration. 101 morphotaxa represented by 875 specimens were encountered that are meaningful for this analysis. The number of specimens found in each sequence shows a clear pattern of changing frequency throughout the section. There are groups of sequences with low specimen numbers and others with higher ones. We interpret these changes as a taphonomic signal of the degree of wetness versus dryness in this tropical depositional lowland setting in which plant fossils were encountered in each sequence in an isotaphonomic setting. As plant fossil preservation depends on reducing conditions in waterlogged sediments, the number of specimens preserved is a measure for the length of wet versus dry conditions. Tropical climate can be characterized by the number of wet versus the number of dry months and this aspect will influence even those areas with a generally very high water table in depositional lowlands. Thus, the number of specimens encountered in each sequence during a complete and systematic collection can be interpreted as a proxy for the ratio between wet and dry months during a given time interval. The Namurian is characterized by three dryer and two wetter intervals while the overlying Westphalian A (Langsettian) clearly had a wetter climate.