OC04 - Seasonal nature of the river network linking ponds located in the moraine plateaus of Northern Poland: A postglacial or Mediterranean landscape?

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The ponds located in Northern Poland are water bodies commonly considered typical elements of the postglacial landscape. They are regarded as elements of the water network that are associated with areas devoid of surface outflow. They are therefore water bodies that are not included, by the river network, in the main drainage system. Field observations covering the period from December 2008 to May 2010 have, however, shown that most ponds in this area are lotic for at least some of the year.

Monthly observations of changes in the water network of a small moraine plateau catchment (1.45 km^2) have shown that this area, between June and October, forms an endorheic area in which the river network completely disappears. The only permanent element of the network are ponds, which do not dry out even during the dry period. From November to the end of April a river network forms as a result of increased precipitation and decreased evaporation.

A certain pattern in the formation and disintegration of the water network may be observed. The "formation" of the drainage network starts from the lowest terrains. Ponds situated in valleys are the first to be included in the drainage network, followed by ponds situated on slopes, while the highest situated ponds, close to the watershed, usually remain endorheic. Inclusion of the latter ponds in the river network is, however, occasionally observed during the thaw period. Disappearance, or reduction, of the river network starts from the highest situated parts of the catchment. The network that includes the highest ponds in the runoff disappears first, while the lowest situated ponds take the longest to disappear.

The river network of the moraine plateaus of Northern Poland resembles water networks in the Mediterranean climate to a greater degree than it resembles water networks typical of Western or Northern Europe. As a result, the seasonal nature of the river network has the major impact on the circulation of water between the ponds that interconnect it.