



Surface runoff evaluation on a flat salt NATURA 2000 habitat site

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Modeling of runoff conditions with traditional geodetic instruments is sometimes time consuming. To define watershed of flat areas, where the vertical heterogeneity is very small, it could be sometimes uncertainty elaborated. These shallow-water areas provide ideal conditions for abundant vegetation and richness species of fauna. The "Hortobágy" SPA (HUHN1002) NATURA 2000 site is alkaline grassland (Puszta), which has great biodiversity, special habitat and ecological value. Nevertheless, to determine the predictability of the runoff conditions on this area this method is even insufficient. To model the flow directions, airborne laser scanning (LiDAR) technique was used. The full-waveform LiDAR system (RIEGL LMS-Q680i) analyzed the return echoes, thus provided the separation of different habitat levels. The full point cloud contained almost 530 million of points. To create the digital elevation model (DEM) and surface runoff of the area, last echoes (ground level) were used in ArcGIS 10.2 software environment. The surface of DEM was optimized in the course of TIN vector-raster conversion. On the other hand, to prove the continuous flow in the model, a special pit (low elevation areas) removal operation was carried out. D8 model based on the adjacent or diagonal neighborhood-calculation has not provided usable results. The best model was resulted by D-infinity flow method, which used the steepest slope of a triangular facet. Our researches were made in the frame of FP7 IAPP Marie Curie CHANGEHABITATS_2 project supported by European Union.