Paper Number: 5253

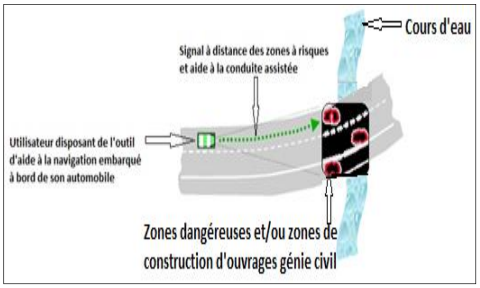
Development of assisted road navigation by the drainage network

COULIBALY Talnan Jean Honoré[1*] , COULIBALY Naga[1], DEROIN Jean Paul[2], SAVANE Issiaka[1], [1]Laboratoire Géosciences et Environnement, Université Nangui Abrogoua, *02 BP 801 Abidjan 02, Côte d'Ivoire, [2]Université de Reims, France, Correspnding author: ctalnan@yahoo.fr

Abstract

The objective of the research is to analyze the relationship between drainage and assisted navigation on the road. More specifically, to show how the drainage contributes to assisted road navigation. First, we extract the drainage of SRTM picture. In a second step, we integrated drainage and roads in a geographic information system (GIS). Finally, we processed in GIS, drainage and road network in order to highlight the characteristics of risk areas, construction sites of bridges, dams and computer aided navigation. The study shows that the drainage network and the road network integrated into a GIS leads to the production of an application that allows users and road managers to learn about the state of the road and help decision. The resulting application is an effective information on the state of the tool to help drive on-road driving and road network management

The obtained map shows points of intersection which are the joint areas of the hydrographic network and the road network. Wherever the crosses are materialized by the points in red, we encounter works of civil engineering such as bridges, nozzles, and flood risk areas. So, once integrated into a GPS embedded aboard an automobile or installed on a motorcycle or a bicycle to signal to the user, the approach to flood risk areas, areas of construction of bridges, nozzles, and therefore learn about the road to guide and assist in the conduct. The application is so to speak a driving assistance device displayed on screen better vehicles it is an intelligent navigation system on road.



The main cause of degradation at the intersection of roads of the road network and the drainage system, it is due to the effect of water. The tool allows to inform the user of the road to the probable presence of a degrading or dangerous area each time that it will be close to a major intersection area. We recall that the risk areas are mapped in GIS and are transferred to the GPS navigation. This tools allows monitoring and maintenance of the road network. The following pictures have areas of flooding and damage to the road drainage water. The application can also present as a management tool and maintenance of the road network for road management agencies. It is an information system of the road network.