

A model for incorporated uncertainty in delimitation of tropical freshwater swamps. A case of study in Ayapel swamp- Colombia

A.C. Santos-R¹,

PhD Student. Civil Engineering PhD. Universidad Nacional de Colombia.
Research group GIREH, Bogotá, Colombia

N. Obregón-N²

Proffesor at Universidad Nacional de Colombia. Bogotá, Colombia

Correspondence Address: acsantosr@unal.edu.co

Abstract

The research proposes the development of an uncertainty model for the delimitation of tropical freshwater swamps, supported on scale analysis and environmental index. The process of delimitation begins with identifying the type of hydrosystem (lentic or lotic), where each one has their distinctive feature, and the natural processes are developed on different scales. Current the normative does not consider the proceeding of delimitation for different types of wetlands, due to they are aimed at rivers. It is realized the space of delimitation in rivers and wetlands is constituted for special attributes in their geomorphology, hydrodynamics, distribution and abundancy of species, and soil moisture. The principal factors which control the hydrology in Colombia are Interconvergence Tropical Zone (ITZ), El Niño/Southterm Oscillation (ENSO), join quasi-decadal climatic process, brings a variability in levels and discharges with biological implications. The study case is Ayapel swamp, located in the middle of San Jorge catchment in Colombia. Since the scale analysis on the swamp, its expected to obtain scale characteristic of the natural processes dominated for the biophysical factors mentioned, favoring the construction of environmental index which represent their relations and importance into the corridor of delimitation. The uncertainty associated to the records, the models used and the knowledge about dynamics of swamp, will be incorporated to an “uncertainty model”. The model will show the principal process which has a biggest impact, and indicates the hazards situations when ecosystems services cannot be suitably supplied. The model will be a tool for decision and management of swamps.

Keywords

Uncertainty, delimitation, scale issues, environmental index, tropical swamp.