The GIUH: a personal view

Riccardo Rigon
Dipartimento di Ingegneria Civile ed Ambientale e CUDAM
Università di Trento
I - 38050 Mesiano di Povo, TRENGT (ITALY)
e-mail: riccardo.rigon@ing.unitn.it

Abstract. Due to very imaginative minds, the GIUH is a beautiful synthesis of almost a century of studies on floods and has became one of the most used tools to analyze and forecast floods. This paper wants to show that in the GIUH there is much more than a tool for practitioner. In particular, it is often overlooked that it reveals the tight connection between geomorphology and flood production and that it is the best method to infer analytical and semianalitical results on the structure of the hydrologic response at catchment scale. It is also explicated how the original paper by Rodriguez-Iturbe and Valdes [1979] already contains the seeds for Rodriguez-Iturbe subsequent research on geomorphology and on rainfalls space-structure as well as on hydrological scales problems. In the last twenty years several papers followed the pathway traced by the GIUH theory and here it is presented a personal review of some interesting results which can bring light to the recent efforts in implementing all-comprehensive distributed models of the hydrological cycle. Recent achievements about flood peak determination and the inclusion in the theory of the initial soil moisture conditions are also presented.