

A NEW BIVARIATE EXPONENTIAL DISTRIBUTION BUILT FROM THE GUMBEL-BARNETT COPULA WITH AN APPLICATION TO THE MODELING OF RAINFALL

Jailson de Araujo RODRIGUES¹
Ana Paula Coelho Madeira SILVA¹
Lucas Monteiro CHAVES²
Fredy CASTELLARES³

- **ABSTRACT:** *The exponential models are the most widely used in the analysis of hydrological processes. In this context it is used the Gumbel-Barnett copula to construct a bivariate exponential distribution and apply it in data analysis of rainfall occurring in cities in the state of Sergipe. The main properties of this distribution are deduced, the expressions obtained make use of several special functions.*
- **KEYWORDS:** *Gumbel-Barnett copula; bivariate exponential distribution; hydrologic modeling.*

¹ Universidade Federal de Lavras – UFLA, Programa de Pós-Graduação em Estatística e Experimentação Agropecuária, CEP: 37200-000, Lavras, MG, Brasil. E-mail: jailsondearaujo@yahoo.com.br / apcmadeira@hotmail.com

² Universidade Federal de Lavras – UFLA, Departamento de Ciências Exatas – DEX, CEP: 37200-000, Lavras, MG, Brasil. E-mail: lucas@dex.ufla.br

³ Universidade Federal de Minas Gerais – UFMG, Departamento de Estatística – ICEX, CEP: 31270-901, Belo Horizonte, MG, Brasil. E-mail: fredy@est.ufmg.br