

## THE MADEIRA RIVER BASIN WATER LEVEL VIRIABILITY - AN ASSESSMENT OF DAMAGES UNDER EXTREME HYDROLOGICAL CONDITIONS – BRAZIL

MUNIZ, Luciana da Silva

Master Degree Student (FAPEAM's Scholarship) - Department of Geography -

Universidade Federal do Amazonas – UFAM, Manaus, AM, Brazil

[munizluciana1@gmail.com](mailto:munizluciana1@gmail.com)

FILIZOLA, Naziano Pantoja Jr -

Potomology Lab. - Department of Geography

Universidade Federal do Amazonas – UFAM, Manaus, AM, Brazil

[naziano.filizola@gmail.com](mailto:naziano.filizola@gmail.com)

The Madeira River is the main tributary of the Amazon River from its right side. Its basin covers an area of nearly 1.4 million km<sup>2</sup>, representing 23% of the entire area of the Amazon Basin. This area involves portions of three South American countries: Bolivia, Brazil and Peru, which comprise a huge drainage network. This study presents the first results of a simplified analysis on the variability of water levels gradient under going in the Brazilian part of that basin. It makes a comparison between the patterns of hydrologic variability, especially in their up and down limit conditions (droughts and floods) and its effects on human occupation. The works is more concentrated in the last 30 years and mostly in years under extreme hydro-climatic events. The authors used data from hydrological stations of the Brazilian National Water Agency - ANA ([www.ana.gov.br](http://www.ana.gov.br)) and the Environmental Observatory for Hydrology, geochemistry and Geodynamics of the Amazon Basin - ORE / HYBAM ([www.ore-hybam.org](http://www.ore-hybam.org)). The results of hydrologic variability on the basis outlined above are being compared with the damage assessment reports of the Brazilian National Civil Defense database ([www.defesacivil.gov.br](http://www.defesacivil.gov.br)). With this type of analysis the authors intended to carry out a mapping of the effects of extreme events. This result will be part of baseline studies for future comparisons with new patterns on the Madeira River basin. These new patterns of hydrological variability will be imposed on the basin as a consequence of the future hydro-power plants reservoir operations. Actually two hydro-power plants are under construction in Brazil, on the Maderia River, near the Brazilian and Bolivian border. Two others are planned: one in Bolívia, on the Beni River and another one at the border itself.

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