

COMPARISON OF THE RAINFALL AND WATER LEVEL VARIATIONS IN AMAZON  
BASING BY ENVISAT DATA.

*Leonardo Alves Vergasta<sup>1</sup>; Robson Azevedo de Oliveira<sup>1</sup>; Guilherme Cordeiro Figliuolo<sup>1</sup>; Aline Corrêa de Sousa<sup>1</sup>; Joecila Santos da Silva<sup>2</sup>; Francis Wagner Silva Correia<sup>3</sup>; Stéphane Calmant<sup>4</sup>; Frédérique Seyler<sup>5</sup>; Phillipe Arantes Pereira<sup>6</sup>*

1 Universidade do Estado do Amazonas – UEA; Bacharelado em Meteorologia; Escola Superior de Tecnologia– EST; Av. Darcy Vargas, 1200, 69065-020, Manaus-AM, Brasil; email: vergastinha@gmail.com; robsonaz@ig.com.br; guilhermecordeiro\_f@hotmail.com; alinecorrea.acs@gmail.com

2 Universidade do Estado do Amazonas – UEA; Centro de Estudos Superiores do Trópico Úmido – CESTU; Av. Djalma Batista 3578, Flores, 69050-010, Manaus-AM, Brasil; e-mail: jsdsilva@uea.edu.br

3 Universidade do Estado do Amazonas – UEA; Curso de Graduação em Meteorologia– EST; Av. Darcy Vargas, 1200, 69065-020, Manaus-AM, Brasil; email: francis.wagner70@gmail.com

4 Institut de Recherche pour le Développement – IRD ; UMR 5566 LEGOS CNES/CNRS/IRD/UT3; 14 av. Edouard Belin, 31400, Toulouse, France ; e-mail: stephane.calmant@ird.fr

5 Institut de Recherche pour le Développement – IRD ; UMR ESPACE-DEV ; 500 rue Jean François Breton, 34093, Montpellier Cedex 5, France ; e-mail: frederique.seyler@ird.fr.

6 Universidade Federal do Amazonas - UFAM ; Bacharelado em Engenharia da Computação ; Faculdade de Tecnologia - FT ; Avenida Gen. Rodrigo Otavio, 3000, Coroado I, 69077-000 Manaus - AM , Brasil; email: apphillipe@gmail.com

This research proposes to comparing MERGE rainfall and ENVISAT altimetry data for period 2002-2010 years in the Amazon River. MERGE rainfall data is a new technique to combine TRMM (Tropical Rainfall Measuring Mission) satellite precipitation estimates with surface observations (Surface Synoptic Observations-SYNOP data) over the South American continent (Vila et al., 2009). The combination of data estimated by TRMM and the precipitation of surface are interpolated to a regular grid interpolation method using as the objective analysis of Barnes (Barnes, 1973). The measures and estimates were compared at the virtual stations along the river. The satellite radar altimetry denote a good results of the water level for the period. The surface water level is measured within a terrestrial reference frame with a repeatability from 35 day. Using a 3D method (VALS Tool) for define the virtual station, were computed and analyzed time series of water stage together with the rainfall climatology series of MERGE rainfall data. The results show variations of the difference between the maximum and minimum rainfall, and water level, stations upstream has a gap lower than the stations located further downstream the river.