Calibration and Application of FOREST-BGC in NorthWestern of Portugal

M.A. Rodrigues (1,2), D.M. Lopes (3), M.S. Leite (1), V.M. Tabuada (1,4)

(1) Physics Department, University of Trás-os-Montes e Alto Douro, Vila Real, Portugal, (2) ESSJE - Escola Secundária de S. João do Estoril, Cascais, Portugal, (3) Forest Sciences Department, University of Trás-os-Montes e Alto Douro, Vila Real, Portugal, (4) IM, I.P. - Meteorological Institute of Portugal

Net primary production (NPP) is one of the most important variables in terms of ecosystems inventory and management, because it quantifies its growth and reflects the impact of biotic and abiotic factors, which could affect it. Interest in NP has increased recently because of the increasing interesting in climate change and the need in understanding its impact on the environment. There are ecophysiologic models, as Forest-BGC that allow for estimating NPP. The types of models offer a possible methodology to test these phenomena, beyond temporal and spatial scales, not available with tradicional inventory methodologies. To analyze the Forest-BGC performance, NPP data obtained with model were compared with collected data in the field, in the same sampling plots. For a parameterization and validation of the FOREST-BGC, this study was carried on based on 500m2 sampling plots from the National Forest Inventory 2006 and are located in several County Halls of the district of Vila Real, Portugal (Montalegre, Chaves, Valpaços, Boticas, Vila Pouca de Aguiar, Murça, Mondim de Basto, Alijó, Sabrosa and Vila Real). In order to quantify Biomass dinamics, we have selected 45 sampling plots: 19 from Pinus pinaster stands, 17 from Quercus pyreneica and 10 from mixed of Quercus with Pinus. Adaptation strategies for climate change impacts can be proposed based on these research results.