



Modelling contrasted yearly rainfall impacts on sahelian vegetation via a bi-objective data assimilation scheme (biomass and LAI *in situ* data)

S. Mangiarotti (1,2), F. Baup (1,3), L. Jarlan (1), P. Mazzega (2) and E. Mougin (1).

(1) Centre d'Etudes Spatiales de la BIOSphère (CESBIO), (2) Laboratoire des Mécanismes de Transferts en Géologie (LMTG), (3) Antennes Dispositifs et Matériaux Micro-onde, (1) & (2): CNRS-CNES-IRD-UPS 18, av. E. Belin, 31401 Toulouse Cedex 09, France

A realistic modelling of the vegetation does not only rely on the quality of the forcing information (especially the rainfall in our case). It also depends on the knowledge of the processes and on the validity of its parametrization. External data have to be used to fix the unknown model parameters. What is investigated here is the ability of a simple land surface model devoted to Sahelian grasslands (the 'STEP' model) to model contrasted yearly rainfall impacts through a bi-objective assimilation scheme.

Six model parameters are fitted using biomass and Leaf Area Index (LAI) *in situ* data, thanks to a complete set of data for two years (2004 and 2005), at the Agoufou site located in the Gourma region (Mali) as defined in the AMMA project.

The vegetation model is then tested with likely values of these parameters providing an estimate of the observable variables on the same site, for contrasted yearly rainfall (2002: dried year, 2001 & 2003: rainy year) for which we only have a partial constraining data set. Biomass measured *in situ* data are thus compared with the model output.