



Overview of research activities at the Gourma meso-scale site (Mali)

E. Mougin (1), F. Baup (1), E. Ceschia (1), C. Damesin (2), C. Delon (3), V. Demarez (1), P. De Rosnay (1), D. Epron (4), P. Hiernaux (1), L. Jarlan (1), L. Kergoat (1), F. Lavenu (1), V. Le Dantec (1), C. Lloyd (6), S. Mangiarotti (1), P. Mazzega (5), B. Mougenot (1), C. Lacaux-Galy (3), J. Seghieri (1), D. Serça (3), F. Timouk (1)

(1) CESBIO, 18 avenue Edouard Belin, BPI 2801, 31401 Toulouse Cedex 1, France, (2)

Laboratoire d'Ecologie Systématique et Evolution, 91405 Orsay Cedex, France, (3)

Laboratoire d'Aérologie, 14 avenue Edouard Belin, 31400 Toulouse, France, (4) Laboratoire d'Ecologie et Ecophysiologie Forestières, 54506 Vandoeuvre, France, (5) LEGOS, 18 avenue Edouard Belin, BPI 2801, 31401 Toulouse Cedex 1, France, (6) Centre for Ecology and

Hydrology, Wallingford, Oxfordshire, OX10 8BB, U.K.

Within the AMMA project, the Gourma site in Mali is one of the 3 densely instrumented meso-scale sites dedicated to the study of the climatic and vegetation gradient over West Africa. The Gourma belongs to the Sahel and represents the northernmost site of the sub-regional AMMA window. It is mainly a pastoral region bracketed by the isohyets 500 and 100 mm. The Gourma window (14.5 - 17.5°N; 1 - 2°W) was chosen to be representative of sahelian and saharo-sahelian conditions that can be observed in Sahel. Desert-like conditions prevail in its northern part whereas savannah grasslands are present in its southern part.

We present the overall strategy aimed at characterizing the vegetation dynamics, the spatio-temporal variation of soil moisture and the associated energy fluxes from the surface to the atmosphere, at different spatial scales from local- to meso-scale. Combined field measurements, modelling and assimilation of multi-spectral satellite data into a coupled vegetation - SVAT model is the chosen methodology to achieve this goal. This approach uses forcing variables that are acquired through a network of automatic systems (weather stations, raingauges) and/or derived from satellite remote sensing. Vegetation, soil moisture, sap flow measurements as well as radiation data are used for model evaluation and for the validation of available satellite products. For the

local intensive site, named 'Agoufou', automatic weather systems are complemented by the IDAF and AERONET stations allowing a long term survey of atmospheric chemistry and aerosols.

Compared to the two other meso-scale sites, emphasis is put on vegetation studies including long term monitoring of vegetation dynamics.