

## ***Interactive comment on “Recovery of GPP monthly pattern in a eucalypt site in Portugal after felling” by A. Rodrigues and G. Pita***

**Anonymous Referee #1**

Received and published: 25 May 2011

The manuscript presents the effects of drought stress as well as felling at a eucalypt forest in Portugal. The authors conducted a long-term measurement of carbon flux and estimated seasonal and year-to-year changes in the gross primary production (GPP) during the study period of nine years. Results and discussions are mainly focused on how drought and felling affected temporal variations of GPP in the forest.

The topic is important for better understandings of long-term changes in forest carbon sequestration under the influence of natural and artificial disturbances. However, discussions and interpretations presented in this paper seem to be too simple to draw meaningful conclusions.

The authors showed daily, monthly, and year-to-year changes in GPP from 2002 to 2010 in Figures 1-4. The dataset seems to be valuable and may have a potential to be

C1256

used in future studies to make clear the mechanism of temporal variations of carbon cycle processes and to improve terrestrial ecosystem models. However, the manuscript does not include enough scientific findings and new hypotheses at present. More thorough analyses would be obviously necessary. For example, the dependence of carbon budget components on relevant environmental factors as well as biological conditions should be analyzed and discussed. If the authors show appropriate hypotheses on the recovery process from drought and felling, and test the hypotheses using the observational data, the value of the paper would be much more improved.

I would like to encourage the authors to revise the manuscript sufficiently to present important scientific issues or new hypotheses in the first part of the paper, and then show how to solve or test them. The authors need to present not only the numerical values of GPP and related parameters, but also new scientific findings and meaningful suggestions for the future studies.

Specific comments:

Pages 4002-4003, Material and methods: The description of measurement methods and condition of study site (strength of drought, felling, thinning, etc.) is too simple. Please indicate more quantitatively on the felling in October 2006 as well as the thinning in October-December 2008. How many trees (how much carbon) were removed from the study site? How much carbon was remained as aboveground and belowground residues?

Table 1: Please check the number of significant digits in each variable. Is the numerical value in the second decimal place really significant?

Page 4005, line 26: The meaning of the sentence 'Monthly pattern of the GPP... was almost opposite' is not clear to me.

---

Interactive comment on Biogeosciences Discuss., 8, 3999, 2011.

C1257