**Biogeosciences
Discussions**

Interactive comment on "Analysis of vegetation and land cover dynamics in north-western Morocco during the last decade using MODIS NDVI time series data" *by* C. Höpfner and D. Scherer

Anonymous Referee #2

Received and published: 22 May 2011

General comments: This work studies the vegetation phenology and vegetation changes during the last decade in Morocco, using a time series of 16day NDVI composites acquired by the MODIS sensor. The subject is relevant to BG, and a great deal of work has been performed to study the influence of precipitation, as well as the inter-annual and itra-annual variability of vegetation. However, there are some scientific issues that need to be corrected or clarified. Also, the manuscript is not adequately presented. The text is too long for the contents, however some parts are not adequately explained. A clear definition of the aim and objectives at the end of the Introduction would help the readers a lot.

Specific comments: - The problem statement (p4, lines 25-27) needs to be enhanced to improve the originality of this work. After the problem statement, there is a short summary of the work. This part should be rewritten to formulate clearly the aim and objectives of this work.

- Some conclusions (or intermediate conclusions) are obvious: cropland is obviously rainfed if no irrigation systems are used; merging two classes which had high level of confusion of course will boost the overall classification accuracy. The latter is textbook knowledge.

- It does not appropriate to use GLC2000 and PFT as reference and then conclude that the produced classification is even better that the reference using as new reference visual interpretation of satellite images covering small subset of the area! It seems like PFT was discarded as reference because it only provided a 35.47% accuracy...

- Perhaps I have not understood correctly, but how is it possible to show such a big difference of land cover changes every year, and then conclude that 1.6% only has actually changed "systematically". Clearly there was something wrong with the classification, possibly the decision to use fix classification thresholds throughout the years. Authords need to review the results or discuss the issue adequately.

- Heading 1.2 is not reflecting the contents of the section. I would suggest to just remove headings 1.1 and 1.2, and just make Introduction a bit shorter by removing the lengthy description of vegetation indices.

- p6, lines 25-28: Authors should explain how reservoirs were masked from SRTM data.

- The statement supporting the selection of the decision tree classifier (p7 lines 18-20) should be enhanced with previously published literature.

- p9, line 19: What the authors refer as "systematic land cover change" is in fact an "actual land cover change", rather than an artifact from the methods used. I suggest

renaming it accordingly.

- p12, lines 22-24: The statement that the decision tree classification method is more appropriate in the study area could not have been concluded from this work, as no comparison with other method was made. It should be removed or reformed.

- p17, line 22, and p18, line 15: The statement that the other factors that could theoretically influence vegetation dynamics (except for rainfall) are less important, needs to be supported with analysis or relevant literature.

- Table 3: The land cover changes are between which years? Alltogether, not more than 1% of the study region has changed. So, practically, there have been no changes...

- Figure 13: I'm surprised there is such a high correlation with practically horizontal fit line. It seems like an artifact, considering that there is tiny increase of NDVI with a wide variation of daily rainfall.

Technical comments: - English is not bad, but is essential to be checked by a professional or a native english speaker. For instance (p2, line 29) "Representing the main part..." is grammatically correct, but is also incomprehensible. Similarly incomprehensible english appear on p8, lines 6-15.

- There is a "t" missing from the first term of Equation 1. It should read: "NDVIsmooth = Max(NDVIt, 0.25*..."

- Authors should use hyphens (" ") when the describe class names in the text.