

Interactive comment on “Fire, drought and El Niño relationships on Borneo during the pre-MODIS era (1980–2000)” by M. J. Wooster et al.

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It has been shown in various studies that fires in the humid tropics, and especially in tropical Southeast Asia with its vast areas of peat lands, contribute to large extents to CO₂ emissions, thus also affecting the global climate. And the island of Borneo is a notorious example regarding the amount and magnitude of annual fire events. To understand the climatic background of these devastating fires, this paper provides crucial information about the correlation between El Niño cycles, associated droughts and the magnitude of the fire events on that island. Covering a period from 1980 till 2000 and thus including five El Niño events, this paper extends our knowledge of El Niño related droughts into the past, which also helps to better understand the present situation and to make reliable future predictions. Due to the importance of detailed

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information in that field, which facilitates further research, I strongly recommend the publication of this paper.

However, in order to prevent or mitigate such severe fire disasters in the future, it is of utmost importance to understand all factors controlling fire activity in that area. As the authors focus their study on the correlation between El Niño episodes, rainfall deficit and fire activity, they totally omit the human factor as another important element influencing fire activity. The authors indeed raise the topic of human influence by mentioning that large-scale transformation processes from natural ecosystems to degraded, and managed land cover types, which took place in the last 40-50 years, resulted in a fragmented landscape with many man-made ignition events. However, further analysis or elaboration on that point has not been undertaken in the paper. In this context it has to be mentioned that the passage within the abstract (page 976, line 3-7) might additionally mislead the reader to conclude that the human factor is only marginal, which is not the case. In order to clarify this I would appreciate if the authors could stress the importance of the anthropogenic influence as main cause of the fires on Borneo by elaborating on this aspect within the discussion and conclusion section as well as also including it in the abstract.

Technical corrections:

Page 976 line 2: “Borneo (Indonesia) is Earth’s third largest island . . .” I would recommend removing the word “(Indonesia)” because it might be confusing as Borneo also consists of other nations. However, if the authors wanted to point out the larger share of peat lands on the Indonesian part of Borneo, it should be done using an additional sentence.

Page 976 line 15: “(CAC)” please change to “(GAC)”

Page 980 line 17 and line 28: “Langner and Seightner, 2009” please change to “Langner and Siegert, 2009”.

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Page 980 line 9-11: "The MODIS sensor flying on the EOS Terra and Aqua satellites (launched in 2000 and 2002, respectively) . . ." The Terra satellite has been launched in 1999. However, data collection started in 2000.

Page 981 line 21: "Robinson et al., 1991" please change to "Robinson, 1991"

Page 982 line 29: "AVHR" please change to "AVHRR"

Page 982 line 16: "Robel et al., 2009" please change to "Robel, 2009"

Page 983 line 26: "(Simard et al., 1985; Langner and Siegert, 2009)" Better remove the reference to Langner and Siegert, 2009 here.

Page 984 line 10-11: ". . . predictions of 0.6–0.8 for the best performing approaches" Do these numbers represent r values? Please specify.

Page 984 line 7: "Barnston et al., 1998" as well as line 8 "Barnston et al. (1998)" please change to "Barnston et al., 2010"

Page 984 line 17: "van der Werf et al., 1996" please change to "van der Werf et al., 2006"

Page 985 line 2: "Kirono et al., 2000" please change to "Kirono et al., 1999"

Page 985 line 19: "Schultz et al., 2002" please change to "Schultz, 2002"

Page 988 line 4: "Fuller and Fulk, 2009" please change to "Fuller and Fulk, 2000"

Page 993 line 24: "Fuller, 2006" please change to "Fuller, 2003"

Page 996 line 26: "Cochrane et al., 2003" please change to "Cochrane, 2003"

Page 998 line 24: Reference to Fuller and Fulk, 2000 is missing. Please insert: "Fuller, D. O. and Fulk, M.: Comparison of NOAA-AVHRR and DMSP-OLS for operational fire monitoring in Kalimantan, Indonesia, *International Journal of Remote Sensing*, 21, 181-187, 2000".

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Page 1000 line 10-11: "Legg, C. A. and Laumonier, Y.: Fires in Indonesia 1997: a remote sensing perspective, *Ambio*, 28, 479–485, 1997." The correct year is 1999.

Page 1002 line 13: Reference to "van Nieuwstadt and Sheil, 2005" is missing. Please insert at the appropriate position in the reference list: "Van Nieuwstadt, M. G. L. and Sheil, D.: Drought, fire and tree survival in a Borneo rain forest, East Kalimantan, Indonesia, *Journal of Ecology*, 93, 191-201, 2005".

Page 1008 figure 5: Mismatch between text and figure. The labeling in the figure is erroneous. The blue dotted line represents the Non-El Niño data while the black line shows the El Niño data.

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