

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

G. van der Werf

guido.van.der.werf@falw.vu.nl

Received and published: 6 March 2011

Guido R. van der Werf (VU University, Amsterdam, Netherlands)

Robert D. Field (NASA Goddard Institute for Space Studies, NY, US)

Aljosja Hooijer (Deltares, Delft, Netherlands)

The authors present a new satellite-derived time series of active fires in Borneo using Advanced Very High Resolution Radiometer (AVHRR) data, and they link variability in fire activity to ENSO-induced drought conditions. Their work allows for an important backwards extension of the fire record compared to Along Track Scanning Radiometer (ATSR) or Moderate Resolution Imaging Spectroradiometer (MODIS) data, and complements earlier studies focusing on atmospheric indications of fire activity (e.g., Kita

C152

et al. [2000] for 1994 and 1997 and Duncan et al. [2003] for the 1979 – 2001 period but with a gap from mid 1993 – mid 1996). We wrote this comment to prevent confusion on the causes of these fires.

The human role is very much acknowledged in the introduction and at several points throughout the paper. An uninformed reader, however, paying most attention to the abstract could easily think that only the smaller fires occurring every year are anthropogenic, while the larger fires coinciding with El Niño episodes are natural and caused somehow by drought, which is not the case. We hope this can be acknowledged more clearly in the final manuscript. This is especially important in light of current policy discussions on ways to reduce carbon and haze emissions from SE Asia's burning peatlands and forests. The argument of fires resulting inevitably from El Niño or climate change is often made as an excuse for inaction in land use planning, forest conservation, and fire prevention. In its current form, there is a real risk of the results being inappropriately applied to that end.

A key reference showing that human pressure through deforestation, degradation, and drainage is the root cause for fires -also the severe ones burning during drought years- could be Field et al. (2009). They developed a 1960-2006 time series of fire activity exploiting visibility data from airports, and found that in Borneo, droughts were only accompanied by large fire events after large-scale human settlement began in the late 1970, early 1980s. In other words, in this area humans cause almost all fires and during El Niños they take advantage of drought episodes to use fire more effectively as a tool in the deforestation process. We suggest this point is more clearly made in the paper. It would be helpful if some of the discussion of anthropogenic causes from section 2.3 would come back in conclusions and abstract, to avoid misinterpretation.

References:

Duncan, BN; Martin, RV; Staudt, AC; Yevich, R; Logan, JA, 2003, Interannual and seasonal variability of biomass burning emissions constrained by satellite observations,

C153

JGR-Atmospheres, 108, doi: 10.1029/2002JD002378

Field, RD; van der Werf, GR; Shen, SSP, 2009, Human amplification of drought-induced biomass burning in Indonesia since 1960, Nature Geoscience, 2, doi: 10.1038/NGEO443

Kita, K; Fujiwara, M; Kawakami, S., 2000, Total ozone increase associated with forest fires over the Indonesian region and its relation to the El Nino-Southern oscillation, Atmospheric Environment, 34 (17): 2681-2690 2000

Interactive comment on Biogeosciences Discuss., 8, 975, 2011.