

Interactive comment on “Development of a standard database of reference sites for validating global burned area products” by Magí Franquesa et al.

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As burned perimeters of reference files were retrieved using semi-automatic classifications techniques, all the reference files were visually inspected by an experienced interpreter and double checked (or triple checked in the case of the BAECV CONUS (1988-2013) dataset) by another independent interpreter and the errors detected in the initial classification were manually edited until no errors were found. We mentioned this procedure throughout the manuscript in lines 76, 107, 177, 201-204, 218, 258 and 294. There are two main situations where you can find ‘no-data/unobserved labels without a clear reason’: the first one, is when the pre- or post-image (or both of them) used to

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retrieve the burned area has a region covered by clouds and shadow clouds, and the cloud/shadow mask applied to the images does not properly mask them. This situation makes difficult the correct classification of the pixels located near the clouds and could lead to an incorrect classification. To avoid this issue, cloudy regions of the image are excluded by using a mask manually created when necessary. This does not imply a reduction of the quality of the reference perimeters but a reduction of the interpreted area. The second one, is related mainly with crop areas, where harvested areas could be classified as burned areas as you point out in your comment. In some regions, especially those with dark soils, is very hard to differentiate between harvested crops and burned areas. Despite this issue, we made a great effort to interpret those areas and used some strategies to minimize the errors in those cases. In this sense, active fires from MODIS and observable flames on the images can help to identify which crops have burned and use only those pixels to train the classifier. However, there are situations where the classification results are quite uncertain and masking those areas as unobserved is preferable. Respect the water pixels labelled as ‘unburned’ issue, it has to do more with the established criteria in the validation methodology and not with labelling errors. Masking water as unobserved or no data could hide commission errors of coarse resolution BA products, especially in those regions where a large number of small water bodies surface cover a significant part of the validation area (e.g. Boreal and Tundra biomes). Labelling water as unburned was the criterion adopted in the FireCCI datasets and others reference datasets of BARD, we are aware that may this criterion is not the optimal for all the regions of the world but this is a question that requires further research to know exactly the impact of such decisions.

We acknowledge that reference files will have always a certain degree of uncertainty due to the remote sensing limitations but we consider that the reference files compiled in BARD are the best approximation to the ground truth that allows the current technology.

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