

Interactive comment on “Testing gridded land precipitation data and precipitation and runoff reanalyses (1982–2010) between 45 S and 45 N with Normalized Difference Vegetation Index data” by S. O. Los

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General Comments: The paper provides an interesting insight into the performance of rainfall and runoff products from both observed and reanalyses. The approach is novel and offers an independent verification of rainfall products using NDVI data. A proxy to NDVI was calculated from the rainfall and runoff called the derived "Net Primary Productivity" (NPP). The consideration of runoff had little overall effect on the relation between NDVI and NPP. Areas over Africa in particular were found to have a

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relatively poor relation between NDVI and NPP. Also for high altitudes, the assumption that water is a limiting factor to vegetation growth breaks down so a poorer performance is expected here. The authors found a variable performance of products. CRU and TRMM data performed better than the GPCP data and MERRA, NCEP and ERA reanalyses. The authors suggest that their results indicate a need for further improvement of reanalysis rainfall and runoff series in particular.

Specific Comments: The authors have considered both temporal and spatial correlations for NPP and NDVI for each rainfall product. Performance over Africa in particular is found to be relatively poor, with reanalysis products in particular unable to represent the 1984 drought. The separate consideration of temporal and spatial correlations is interesting and provides a useful insight. Correlations were calculated on an annual basis which also helps to understand what conditions are associated with poor representation of rainfall. The authors do not consider limiting factors to vegetation growth other than water (e.g. solar radiation, temperature, groundwater storage) and acknowledge that in some regions this may increase the error in NPP. A further analysis of correlations between altitude (e.g. from SRTM) and NPP error for example would be interesting and could form a useful extension.

In addition to meteorological reasons for the variable temporal correlations between NPP and NDVI for the various products, it would also be interesting to note changes to algorithms within the products. The temporal correlation of TRMM is not shown but given that the product has changed significantly since its inception it would be interesting to hear a comment on whether we can see changes in correlation attributed to the launch of new versions etc.

The authors note that their approach could be used to test other aspects of the water balance. This paper therefore represents a novel first step towards an improved quantification of the global water cycle. Ensuring there is an independent verification (NDVI) is useful as it moves away from the need for ground-based observations, which are frequently difficult to obtain. Over the global scale this therefore represents an interesting

and useful study.

Technical Comments: 1. Merge sections 2.2.1, 2.2.2, 2.2.3 and 2.3.1, 2.3.2,2.3.3 2. Section 3 line 2- suggest the method bit is written in past tense, for agreement with Section 2 3. Suggest not to use sub-sub-sections; suggest- 4.1 NPP derived precipitation; spatial comparison with NDVI 4.2 NPP derived precipitation; temporal comparison with NDVI or similar

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