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Enhancing drought monitoring and assessment capability in India through high-resolution (250 m) data

Recommendation – Major revision

This manuscript focuses on drought monitoring system at sub-district level. For this purpose high spatial resolution of about 250 m agriculture drought indices are developed using co-kriging method for downscaling the required input data sets. The authors claim that high resolution drought indices at district and sub-district levels effectively represent the drought conditions. However, it is to be noted that unlike the flood conditions droughts not highly localized and generally occur over larger areas. In this manuscript the advantages of co-kriging over other well established downscaling methods to overcome the limitations of coarse resolution data sets. Also the quantitative assessment of high resolution drought indices in effective representation of drought conditions at district and sub-district level. In the view of above this manuscript cannot be accepted in the present form and needs major revision before final acceptance. Following are the major and line by line comments

Abstract: The inclusion of advantage of co-kriging method, high resolution drought index and Quantitative description of will enhance the scientific credentials of this manuscript.

Introduction: line no. 78-81, is it not that local level drought monitoring will lead to more confusion, unlike floods?

Methods: The quantitative validation of downscaling using co-kriging method shall uplift the scientific credentials and value of the high resolution drought indices.

Quantitative description of role of soil moisture in understanding of land-atmosphere interaction in drought modulation could be supportive for value addition through downscaling methods.

Rest of the analysis, results, discussion and conclusion though are appropriate, but can add a good scientific value if quantitative description at each stage is included.

I hope the authors may be able to enhance the readability and scientifice credentials by adding quantitative description appropriately section by section.