

# Accepted Manuscript

Research papers

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PII: S0022-1694(16)30683-7

DOI: <http://dx.doi.org/10.1016/j.jhydrol.2016.10.038>

Reference: HYDROL 21599

To appear in: *Journal of Hydrology*

Received Date: 21 March 2016

Revised Date: 18 September 2016

Accepted Date: 22 October 2016



Please cite this article as: Naseem, B., Ajami, H., Liu, Y., Cordery, I., Sharma, A., Multi-objective assessment of three remote sensing vegetation products for streamflow prediction in a conceptual ecohydrological model, *Journal of Hydrology* (2016), doi: <http://dx.doi.org/10.1016/j.jhydrol.2016.10.038>

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# **Multi-objective assessment of three remote sensing vegetation products for streamflow prediction in a conceptual ecohydrological model**

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## **Abstract**

This study assesses the implications of using three alternate remote sensing vegetation products in the simulation of streamflow using a conceptual ecohydrologic model. Vegetation is represented as a dynamic component in this model which simulates two response variables, streamflow and one of the following three vegetation attributes: Gross Primary Productivity (GPP), Leaf Area Index (LAI) or Vegetation Optical Depth (VOD). Model simulations are performed across 50 catchments with areas ranging between 50 to 1600 km<sup>2</sup> in the Murray-Darling Basin in Australia. Moderate Resolution Imaging Spectroradiometer (MODIS) LAI and GPP products, passive microwave observations of VOD and streamflow are used for model calibration and/or validation. Single-objective model calibration based on one of the vegetation products (GPP, LAI and VOD) shows that GPP is the best vegetation simulating

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