

## **A modified temporal approach to meta-optimizing an Extended Kalman Filter's parameters**

B. P. Salmon ; W. Kleynhans ; J. C. Olivier ; W. C. Olding ; K. J. Wessels ; F. van den Bergh

### **Abstract:**

**It has been shown that time series containing reflectance values from the first two spectral bands of the MODerate-resolution Imaging Spectroradiometer (MODIS) land surface reflectance product can be modelled as a triply modulated cosine function. A meta-optimization approach has been proposed in the literature for setting the parameters of the non-linear Extended Kalman Filter (EKF) to rapidly and efficiently estimate the features for these triply modulated cosine functions using spatial information. In this paper we modify this approach to utilize temporal information instead of spatial information to greatly reduce the processing time and storage requirements to process each time series. The parameters derived from the newly proposed method is classified with a support vector machine and compared to the original approach. Performance of the methods is tested on the Limpopo province in South Africa.**