# Article information:

Remote Sensing | Free Full-Text | Seasonal Comparisons of Himawari-8 AHI and MODIS Vegetation Indices over Latitudinal Australian Grassland Sites  
<https://www.mdpi.com/2072-4292/12/15/2494>

# Article summary:

1. The Advanced Himawari Imager (AHI) on board the Himawari-8 geostationary satellite offers comparable spectral and spatial resolutions as low earth orbiting (LEO) sensors such as the Moderate Resolution Imaging Spectroradiometer (MODIS) and Visible Infrared Imaging Radiometer Suite (VIIRS) sensors, but with hypertemporal image acquisition capability.

2. Strong cross-sensor differences in vegetation index (VI) patterns were found due to the year-round smaller phase angles and backscatter observations from AHI, in which the sunlit canopies induced a positive enhanced vegetation index (EVI)/ EVI2 response and negative normalized difference vegetation index (NDVI) response.

3. BRDF adjustments of MODIS VIs to solar noon and to the oblique view zenith angle of AHI resulted in strong cross-sensor convergence of VI values, suggesting that a denser time series can be formed through combined GEO and LEO measurement synergies.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article "Seasonal Comparisons of Himawari-8 AHI and MODIS Vegetation Indices over Latitudinal Australian Grassland Sites" presents a study that aims to evaluate the compatibility of vegetation indices (VIs) between the Himawari-8 AHI and Terra/Aqua MODIS associated with their unique sun-sensor observation geometries. The authors compare actual cross-sensor datasets from MODIS and AHI VIs over four grassland sites along a subtropical to temperate latitudinal gradient in eastern Australia.

The article provides a detailed description of the methodology used, including the selection of study sites, data collection, and analysis. The authors investigate diurnal variations in AHI reflectances and VIs in relation to sun angle variations, construct seasonal VI profiles from daily composites, and compare the seasonal AHI VIs with MODIS standard VI products and BRDF-corrected VIs.

Overall, the article is well-written and provides valuable insights into the potential differences between GEO and LEO satellite data for monitoring highly dynamic ecosystems such as grasslands. However, there are some potential biases and limitations that should be considered.

One limitation is that the study only focuses on grassland sites in eastern Australia. While this provides valuable insights into these specific ecosystems, it may not be representative of other regions or ecosystems. Additionally, the study only compares two specific sensors (AHI and MODIS), so it is unclear how generalizable these findings are to other sensors or platforms.

Another potential bias is that the article primarily focuses on the advantages of using GEO satellites for monitoring grasslands. While there are certainly benefits to using these sensors (such as their fine temporal resolution), it is important to also consider potential drawbacks or limitations. For example, GEO sensors may have lower spatial resolution than LEO sensors or may be more susceptible to atmospheric interference.

Finally, while the article does provide some discussion of potential sources of cross-sensor differences (such as radiometric performance, band configurations, and sun-view geometry), it does not fully explore all possible factors that could impact VI time series. For example, the authors do not discuss potential differences in calibration or data processing between the two sensors.

Overall, while the article provides valuable insights into the use of GEO satellites for monitoring grasslands, it is important to consider potential biases and limitations in interpreting these findings. Further research is needed to fully understand the advantages and limitations of different satellite platforms for ecosystem monitoring.

# Topics for further research:

* Comparison of vegetation indices from different satellite sensors
* Limitations of using GEO satellites for ecosystem monitoring
* Factors affecting cross-sensor differences in vegetation indices
* Calibration and data processing differences between satellite sensors
* Spatial and temporal resolution trade-offs between GEO and LEO satellites
* Comparison of different satellite platforms for ecosystem monitoring

# Report location:

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