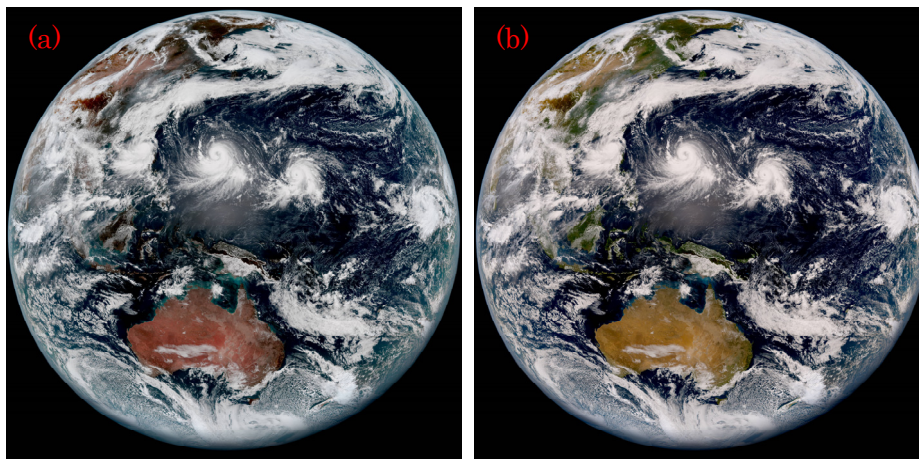
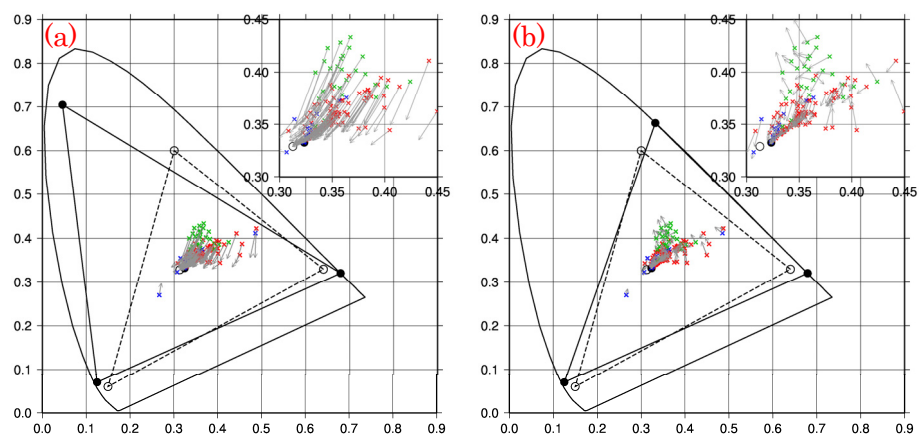


Murata, H., K. Saitoh, and Y. Sumida, 2018: True color imagery rendering for Himawari-8 with a color reproduction approach based on the CIE XYZ color system. *J. Meteor. Soc. Japan*, **96B**, 211-238.

<https://doi.org/10.2151/jmsj.2018-049>



←Figure 1. Himawari-8 full-disk true color imagery (7 July 2015, 0300 UTC). (a) Simple composition of AHI native RGB bands. (b) TCR imagery.



←Figure 2. Chromaticity diagram indicating the accurate and the obtained chromaticity coordinates. (a) Simple composition of AHI native RGB bands. (b) TCR imagery.

- A new type of true color imagery for Himawari-8, termed True Color Reproduction (TCR), was rendered by an approach, which aimed to reproduce colors seen by the human eye based on the CIE XYZ color system. In this approach, RGB signals observed by AHI are converted into XYZ tristimulus values and then reconverted into RGB signals for output devices via the application of  $3 \times 3$  conversion matrices.
- An objective technique developed for the evaluation of XYZ accuracy indicated that the combination of AHI native RGB bands (Fig. 1a) is suboptimal for obtaining accurate XYZ values as is (Fig 2a), whereas a combination in which the green band is replaced by a pseudo band with a central wavelength of around  $0.555 \mu\text{m}$  is optimal. The pseudo green band is generated via regression with existing visible and near-infrared bands as predictor variables.
- Figure 1b shows TCR imagery, which is rendered with the new RGB band combination and the matrix application, whose colors are dramatically improved and appear more realistic. There are no significant deviations in the evaluation results as a whole (Fig. 2b) and this imagery is considered to reproduce colors as accurately as possible with current best efforts.