

# **Supplemental material for “New methods for retrieval of chlorophyll red fluorescence from hyper-spectral satellite instruments: simulations and application to GOME-2 and SCIAMACHY”**

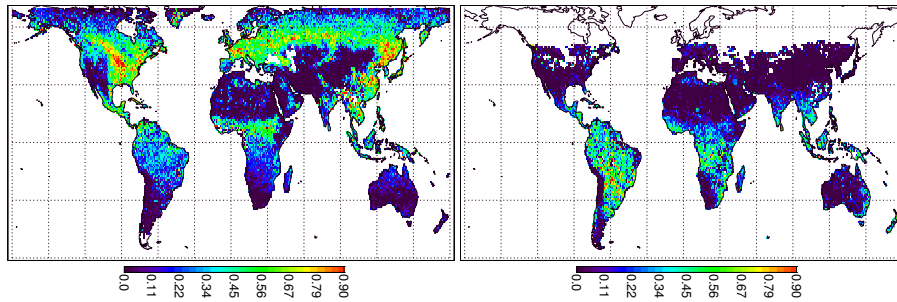
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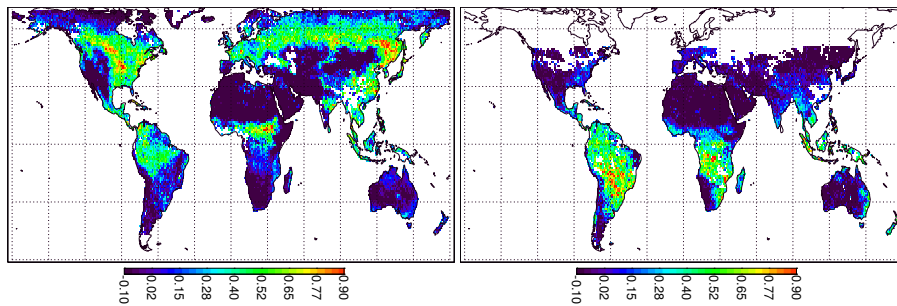
<sup>2</sup>Science Systems and Applications, Inc., Lanham, MD, USA

<sup>3</sup>Helmholtz Centre, Potsdam, Germany

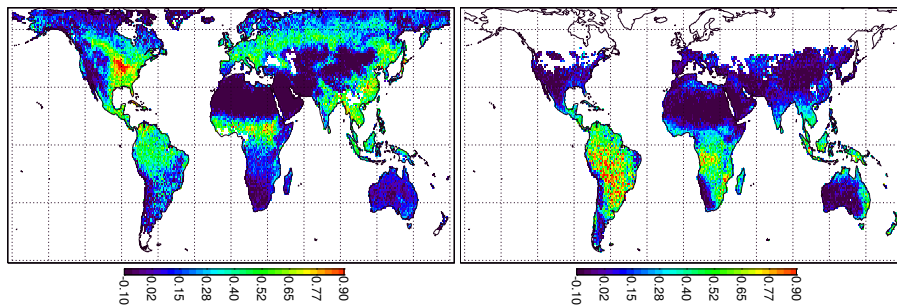
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(a) SCIAMACHY retrievals using fitting window 682-686.6 nm

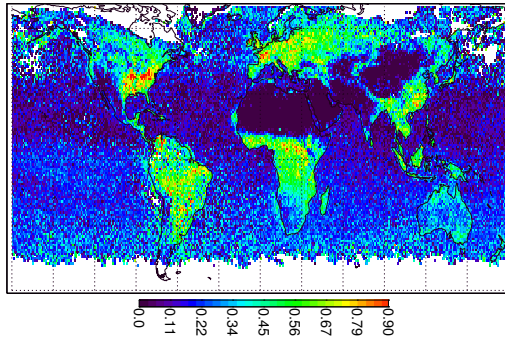


(b) Similar to (a) but using fitting windows in  $O_2$   $\gamma$ - and B-bands.

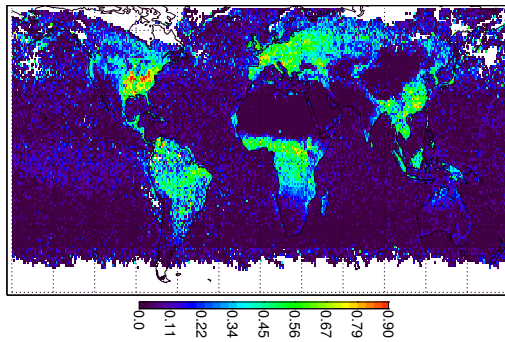


(c) Similar to (b) but using GOME-2.

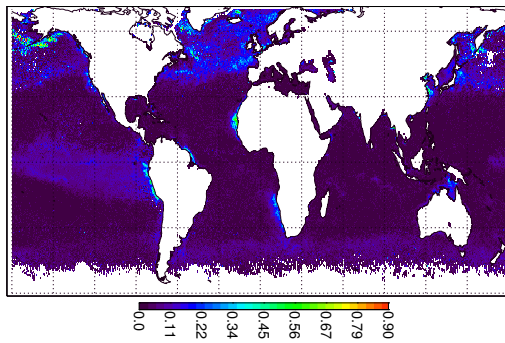
**Figure 1.** Global composites of red SIF from SCIAMACHY and GOME-2 binned in  $1^\circ$  cell boxes with zero-level adjustment for July (left) and December (right) 2007.



(a) GOME-2 uncorrected O<sub>2</sub> band red SIF retrievals.



(b) GOME-2 corrected O<sub>2</sub> band red SIF retrievals.



(c) GOME-2 full band ocean FLH retrieval (no correction).

**Figure 2.** Monthly mean fluorescence from different retrievals with and without corrections as noted in  $\text{mW/m}^2/\text{sr/nm}$  for May 2007 gridded to spatial resolutions of  $0.5^\circ$  in (c) and  $1^\circ$  resolution in (a) and (b).