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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(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 $O_2$ band red SIF retrievals.

(b) GOME-2 corrected $O_2$ 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 mW/m$^2$/str/nm for May 2007 gridded to spatial resolutions of 0.5° in (c) and 1° resolution in (a) and (b).