Cory et al. Supplementary Information

Contents

Figure S1. Excitation correction factors as a function of wavelength

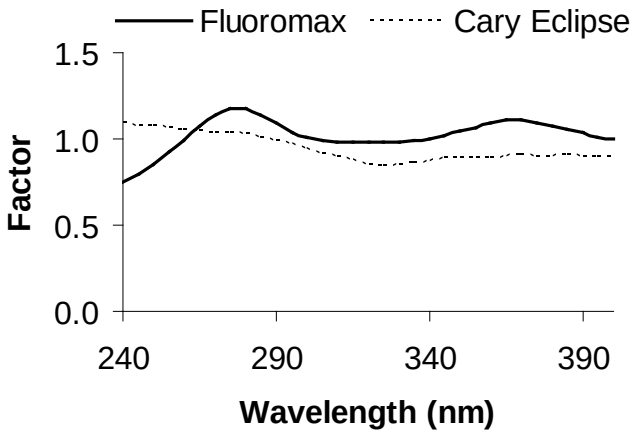
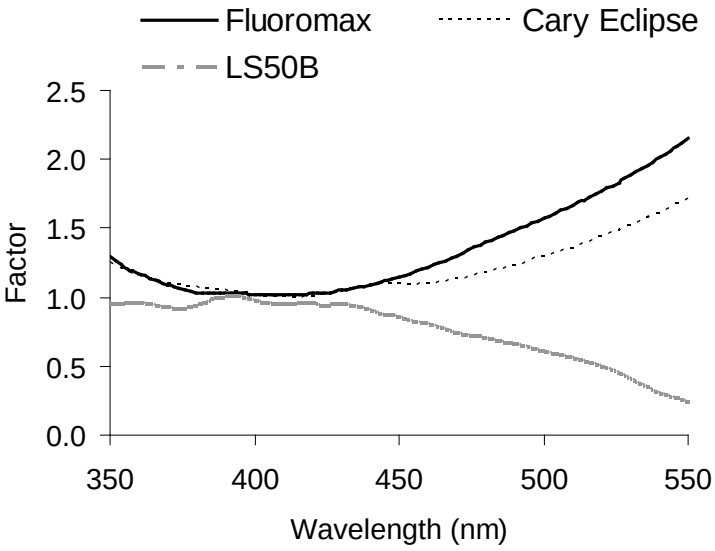


Figure S2. Emission correction factors as a function of wavelength



Effect of corrections on DOM EEMs

An uncorrected EEM of SRFA analyzed on the Fluoromax-3 fluorometer, collected in ratio mode, is shown in Figure S3A below. Note that the peak of greatest intensity is between 240-270 nm. Figure S3B shows an EEM of the correction factors at all EEM wavelengths. This EEM was generated by applying the Fluoromax correction factors to an EEM of ones, in order to visually see the combined effect of the correction factors on a sample EEM. Regions where the combined correction factors are greater than 1.0 are in dark blue and pink (Figure S3B), thus uncorrected SRFA intensities in this region should increase after correction. For example, comparing the region of ~Ex/Em 330/460 nm between uncorrected SRFA and corrected SRFA (Figure S3A and C), there is an increase in intensity in this region after the corrections were applied. This can be verified visually by noting that this region of the correction EEM (Figure S4B), has combined factors greater than 1.0. Additionally, comparing the correction EEM to the uncorrected SRFA EEM, it is clear why the most intense peak decreases in excitation wavelength after correction: the combined correction factors are greater than 1.0 between Ex=240-250 nm, while they are ≤ 1.0 between 260-270 nm, which serves to increase the intensities in the region of 240-250 nm relative to the 260-270 nm region.

Figure S3. Effect of Corrections on EEM of SRFA

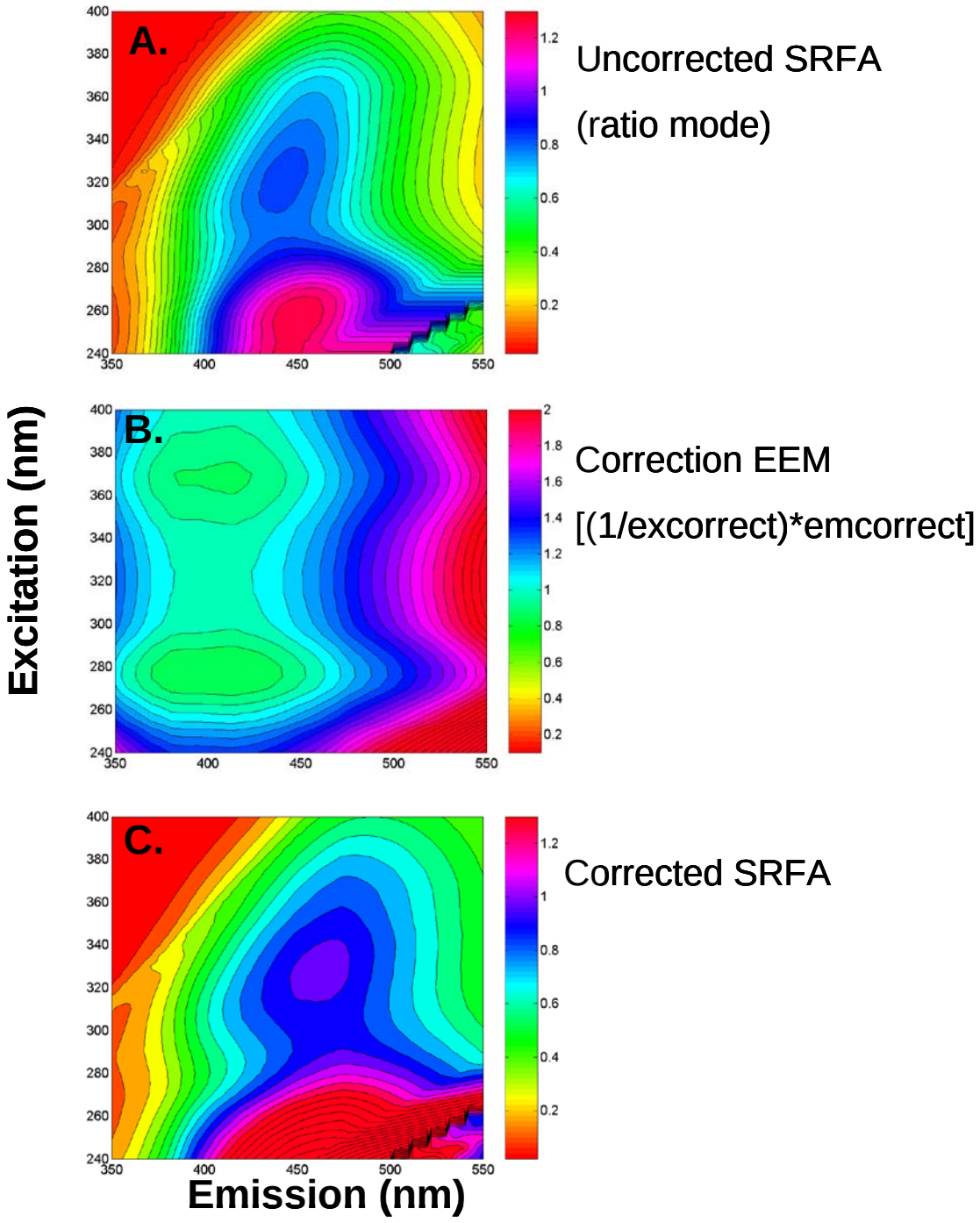


Figure S5 shows an EEM of SRFA collected on the Fluoromax-3 that has had the excitation correction factors (excorrect) applied incorrectly; the factors were multiplied rather than divided through the excitation axis (Eqn. 2-4 in manuscript text). This causes a shift in the excitation maximum of the most intense peaks to longer wavelengths for both peaks A and C. Peak A, instead of occurring at the lowest excitation wavelength (240 nm), is now at ~270 nm. Peak C is now at 370 nm, compared to roughly 330 nm in the properly corrected EEM (Figure S3C).

Figure S4. Effect of incorrect application of the excitation correction factors to SRFA