

Table 1. Sensitivity study on the impact of the resolution of the satellite extraction window of “HPLC” match-up. The number (N) and the percentage of valid match-ups, the median percent difference (MPD) between satellite and in-situ data as well as the determination coefficient ( $r^2$ ) of the regression performed between two data sets are reported.

<b>Temporal resolution</b>	<b>Spatial resolution</b>	<b>Percentage of valid match-ups</b>	<b>MPD</b>	<b><math>r^2</math></b>	<b>N</b>
8 days	$\pm 0.25^\circ$	80.5%	32%	0.62	267
8 days	$\pm 0.1^\circ$	77.5%	34%	0.63	256
1 day	$\pm 0.25^\circ$	18.5%	36%	0.43	56

Table 2. Quantity of fluorescence profiles available after each step of the data processing.

	<b>DYFAMED</b>	<b>BATS</b>	<b>HOT</b>
Raw data downloaded	184	2411	1912
Satellite Matchup	98	2027	1581
Quality Control	91	1963	1560
HPLC Matchup	54	105	102

Table 3. Comparison of “satellite-corrected” [Chl-a] with concomitant HPLC values.

The median “satellite-corrected” to HPLC [Chl-a] ratio, the semi-interquartile range (SIQR) measured on the previous series of ratio, the median percent difference (MPD) between “satellite-corrected” and HPLC data, as well as determination coefficient ( $r^2$ ) of the regression performed between “satellite-corrected” and HPLC data points are reported. N indicates the number of couples of data points available. \* refers to the variables which were calculated on log-transformed data.

	<b>Median ratio*</b>	<b>SIQR*</b>	<b>MPD (%)</b>	<b><math>r^2</math>*</b>	<b>N</b>
total	1.02	0.17	31.4	0.68	2591
DYFAMED	0.95	0.30	41.2	0.70	491
BATS	1.02	0.15	29.3	0.67	987
HOT	1.04	0.16	29.4	0.63	1113

Table 4. Impact of the satellite [Chl-a] accuracy on the error of final corrected profiles.

The satellite error was measured with the relative percent difference (rpd) between satellite extracted [Chl-a] and near surface [Chl-a] derived from HPLC profiles. The accuracy of the merging method was assessed with the median absolute percent difference (MPD) between “satellite-corrected” and HPLC data points.

Satellite error	rpd < -35		-35 < rpd < 35		rpd > 35		Total
	MPD	N	MPD	N	MPD	N	
DYFAMED	60.5	27	36.9	161	40.4	303	41.2
BATS	32.4	72	24.4	455	35.8	460	29.3
HOT	32.1	140	28.6	715	29.3	258	29.4

Table 5. Comparison, on a subset of DYFAMED data, of “satellite-corrected” and “Boss-calibrated” [Chl-a] with concomitant HPLC values.

See the caption of Table 3 for details about parameters.

	Median ratio*	SIQR*	MPD (%)	r <sup>2</sup> *	N
Boss et al. (2008)	0.97	0.23	42.1	0.86	213
Present paper	0.92	0.28	41.9	0.78	213

Table 6. Comparison between “satellite-corrected” [Chl-a] and concomitant HPLC values after having applied a monthly average filter

See the caption of Table 3 for details about parameters.

	Median ratio*	SIQR*	MPD (%)	r <sup>2</sup> *	N
total	1.03	0.11	21.6	0.82	432
DYFAMED	1.03	0.30	33.9	0.80	144
BATS	1.02	0.08	16.3	0.85	144
HOT	1.04	0.10	18.4	0.80	144