Supporting Information for

**Quantifying the time lag between organic matter production and export in the surface ocean: Implications for estimates of export efficiency**

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 Table S1

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Chl a build-up [days]* | 4 | 2 | 1 | 8 | 8 | 14 | 10 | 10 | 2 | 3 |
| *PSed [µmol/kg]* | 1.01 | 0.54 | 0.70 | 4.23 | 3.94 | 3.67 | 5.11 | 4.10 | 3.99 | 3.42 |
| *PChl [µg/l]* | 0.43 | 0.27 | 1.34 | 3.46 | 2.10 | 2.90 | 3.60 | 4.49 | 1.72 | 4.24 |
| *time lag**[days]* | 8 | 12 | 5 | 6 | 4 | 2 | 6 | 4 | 15 | 13 |
| *mesocosm**ID* | M3 | M7 | M4 | M1 | M3 | M5 | M9 | M10 | M1 | M9 |
| *avg. in situ T* *[° C]* | 3 | 9 | 3 | 24 |
| *mesocosm**length**[m]* | 15 | 25 | 19 | 15 |
| *dates* | Jun - Jul 2010 | May - Jun 2011 | Mar - Jun 2013 | Sep – Nov 2014 |
| *mooring position of the mesocosms* | Kongsfjord (Svalbard) 78.93667°N 11.89333°E | Raunefjord (Norway) 60.265°N, 5.205°E | Gullmar Fjord (Sweden) 58.26635°N 11.47832°E | Gando Bay(Gran Canaria, Spain) 27.92798° N 15.36540° W |
| *ID* | SB2010 | N2011 | S2013 | GC2014 |

**Table S1.** Overview of all experiments and the key measured and calculated parameters included in this study. Mesocosm length includes the sediment trap and is given in meters below sea surface. *In situ* temperature is averaged over time and the entire water column of the mesocosms.