**Supporting information for:**

**Hotspot of Organic Carbon Export Driven by Mesoscale Eddies in the Slope Region of the Northern South China Sea**

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Figure S1. Sampling stations (a) and potential temperature θ-salinity S diagram (b) of June 2015. Red curve represented the potential temperature θ and salinity of SCS water observed by Argo at (113.71°E, 13.46°N) in (a), while blue line represented the θ-S characteristics of west Pacific Ocean at (130.35°E, 18.69°N) in (a). The Argo data was obtained from (http://www.argo.org.cn/).

Figure S2. EEM contours and excitation (black line) and emission (red line) of five PARAFAC components.

Figure S3. Distribution of Temperature (℃) (a), salinity (b), σt (c) in section C in summer 2015.

Figure S4. Potential temperature θ-salinity S diagram and three endmembers in the upper 120 m of SCS. The three endmembers are shw (Shelf water), sur (SCS surface water), and sub (SCS subsurface water).

Figure S5. The correlations between DOC, POC and temperature, salinity, σt in the upper 120 m.

Figure S6. The fraction of shelf water (a), SCS surface water (b), SCS subsurface water (c) on surface and section C in June 2015.

Table S1. The detail information of sampling stations

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Station | Latitude | Longitude | Bottom depth (m) | Date | Time |
| L01 | 20°21′N | 114°14′E | 123 | 2015.6.18 | 8:40 |
| L02 | 19°52′N | 114°28′E | 550 | 2015.6.17 | 5:17 |
| L03 | 19°25′N | 114°47′E | 1298 | 2015.6.16 | 10:20 |
| L04 | 18°56′N | 115°05′E | 3000 | 2015.6.15 | 1:00 |
| L05 | 19°09′N | 115°38′E | 3000 | 2015.6.15 | 4:21 |
| L06 | 19°38′N | 115°19′E | 2040 | 2015.6.14 | 8:30 |
| L07 | 20°07′N | 115°04′E | 480 | 2015.6.13 | 13:13 |
| L08 | 20°34′N | 114°45′E | 120 | 2015.6.18 | 19:00 |
| L09 | 20°46′N | 115°17′E | 190 | 2015.6.19 | 5:24 |
| L10 | 20°19′N | 115°34′E | 535 | 2015.6.19 | 15:20 |
| L11 | 19°47′N | 115°52′E | 1527 | 2015.6.20 | 7:30 |
| L12 | 19°25′N | 115°11′E | 1971 | 2015.6.21 | 5:21 |
| L13 | 19°40′N | 116°43′E | 1828 | 2015.6.22-24 |  |
| L14 | 20°08′N | 116°28′E | 975 | 2015.6.24 | 15:00 |
| L15 | 20°31′N | 116°08′E | 608 | 2015.6.24 | 21:15 |
| L16 | 20°59′N | 115°45′E | 225 | 2015.6.25 | 2:30 |
| L17 | 21°4′N | 114°25′E | 81 | 2015.6.29 | 20:50 |

Table S2. Salinity, temperature, DOC, POC of Endmembers

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Endmember | θ (℃) | S | DOC (μmol L-1) | POC (μmol L-1) |
| shw | 30.6±0.3 | 31.7±0.2 | 91±0.6 | 10.8±2.7 |
| sur | 30.2±0.6 | 33.9±0.1 | 77±6.3 | 4.5±2.2 |
| sub | 18.4±1.4 | 34.6±0.0 | 54±4.4 | 1.9±1.0 |

shw: Shelf water; sur: SCS surface water; sub: SCS subsurface water