Supplementary material to:

**Summertime *in situ* chlorophyll *a* and particulate organic carbon standing stocks in surface waters of the Fram Strait and the Arctic Ocean (1991 – 2015)**

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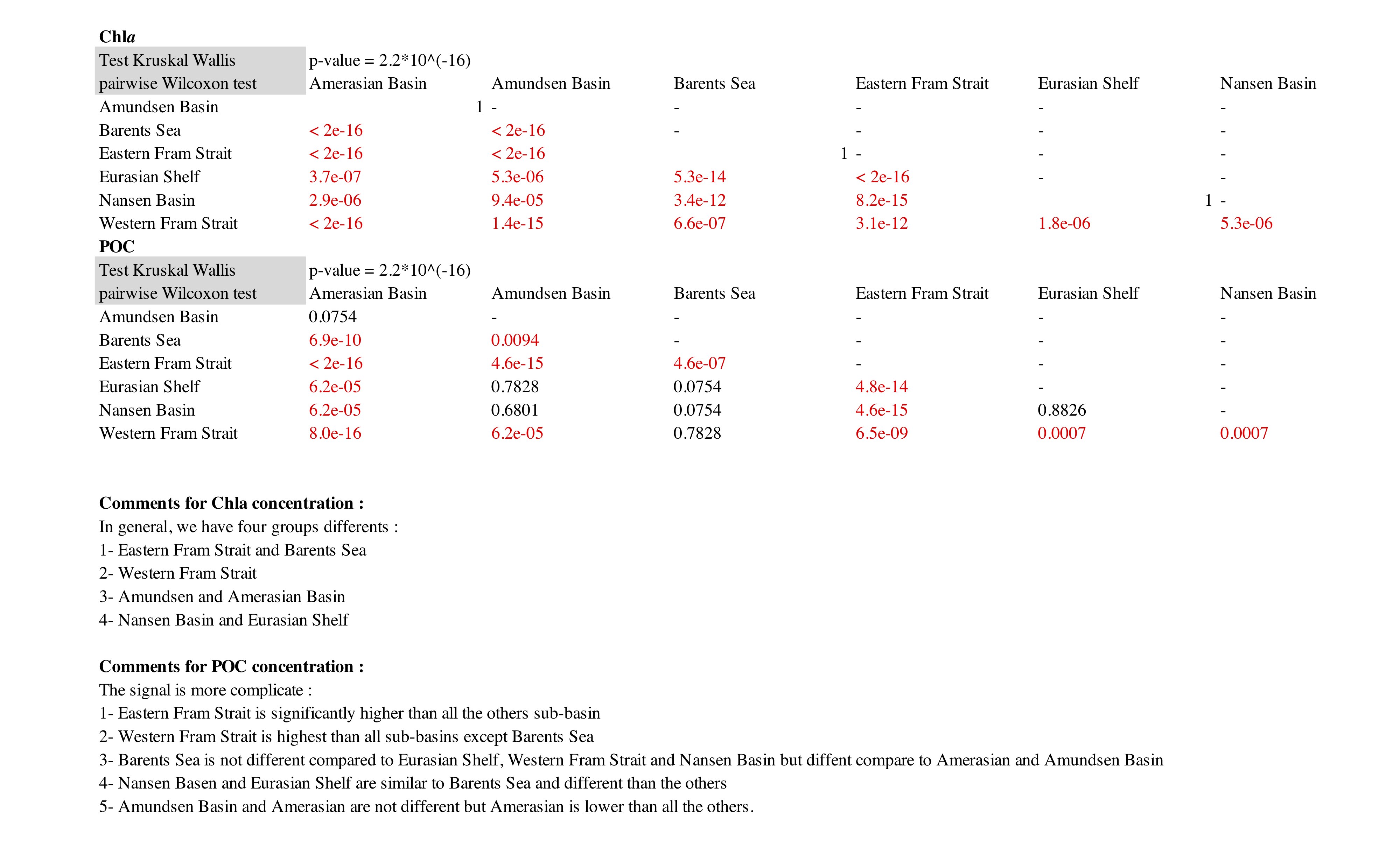
**Table S1:** List of the RV *Polarstern* expeditions carried out for sampling chlorophyll *a* (Chl*a*) and particulate organic carbon (POC) from the water column using a SEA-BIRD CTD system and 24 Niskin bottle (12 L), see also: <https://www.pangaea.de/expeditions/cr.php/Polarstern>

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| **Cruise label** | **Additional name/label** | **Area** | **Start** | **End** | **Cruise reports** |
| PS94 | ARK-XXIX/3 | Arctic Ocean, Central Basin | 2015-08-17 Tromsø | 2015-10-15 Bremerhaven | [Cruise report](https://doi.pangaea.de/10013/epic.48723.d001) |
| PS93.2 | ARK-XXIX/2.2 | Fram Strait/Greenland Sea | 2015-07-20 Tromsø | 2015-08-14 Tromsø | [Cruise report](https://doi.pangaea.de/10013/epic.46301.d001) |
| PS85 | ARK-XXVIII/2 | Gakkel Ridge, Arctic Ocean | 2014-06-06 Bremerhaven | 2014-07-03 Tromsø | [Cruise report](https://doi.pangaea.de/10013/epic.44988.d001) |
| ARK-XXVII/3 | PS80 | Arctic Ocean | 2012-08-02 Tromsø | 2012-10-08 Bremerhaven | [Cruise report](https://doi.pangaea.de/10013/epic.41622.d001) |
| ARK-XXVII/2 | PS80 | Fram Strait | 2012-07-15 Longyearbyen | 2012-07-30 Tromsø | [Cruise report](https://doi.pangaea.de/10013/epic.40768.d001) |
| ARK-XXVII/1 | PS80 | Fram Strait | 2012-06-14 Bremerhaven | 2012-07-15 Longyearbyen | [Cruise report](https://doi.pangaea.de/10013/epic.41150.d007) |
| ARK-XXVI/3 | PS78 | Arctic Ocean | 2011-08-05 Tromsø | 2011-10-06 Bremerhaven | [Cruise report](https://doi.pangaea.de/10013/epic.39934.d001) |
| ARK-XXVI/2 | PS78 | Fram Strait | 2011-07-13 Longyearbyen | 2011-08-03 Tromsø | [Cruise report](https://doi.pangaea.de/10013/epic.39468.d001) |
| ARK-XXVI/1 | PS78 | Fram Strait | 2011-06-15 Bremerhaven | 2011-07-13 Longyearbyen | [Cruise report](http://hdl.handle.net/10013/epic.39692.d001) |
| ARK-XXV/2 | PS76 | Fram Strait | 2010-06-30 Longyearbyen | 2010-07-29 Reykjavik | [Cruise report](https://doi.pangaea.de/10013/epic.36400.d001) |
| ARK-XXIV/2 | PS74 | Fram Strait | 2009-07-10 Longyearbyen | 2009-08-03 Reykjavik | [Cruise report](https://doi.pangaea.de/10013/epic.34196.d001) |
| ARK-XXIII/2 | PS72 | Fram Strait | 2008-07-04 Longyearbyen | 2008-08-10 Reykjavik | [Cruise report](https://doi.pangaea.de/10013/epic.32429.d001) |
| ARK-XXII/2 | PS70 | Arctic Ocean | 2007-07-28 Tromsø | 2007-10-07 Bremerhaven | [Cruise report](https://doi.pangaea.de/10013/epic.30947.d001) | |
| ARK-XXII/1c | PS70 | Fram Strait (HAUSGARTEN) | 2007-07-09 Longyearbyen | 2007-07-25 Tromsø | [Cruise report](https://doi.pangaea.de/10013/epic.36923.d001) | |
| ARK-XX/1 | PS66 | Greenland Sea/Fram strait | 2004-06-16 Bremerhaven | 2004-07-16 Longyearbyen | [Cruise report](https://doi.pangaea.de/10013/epic.10549.d001) | |
| ARK-XIX/4b | PS64 | Arctic Ocean | 2003-09-21 Longyearbyen | 2003-10-13 Bremerhaven | [Cruise report](https://doi.pangaea.de/10013/epic.10480.d001) | |
| ARK-XVII/2 | PS59 | Gakkel Ridge | 2001-07-31 Tromsø | 2001-10-07 Bremerhaven | [Cruise report](https://doi.pangaea.de/10013/epic.10426.d001) | |
| ARK-XVII/1 | PS59 | Fram Strait | 2001-06-19 Bremerhaven | 2001-07-30 Tromsø | [Cruise report](https://doi.pangaea.de/10013/epic.10438.d001) | |
| ARK-XVI/1 | PS57 | Arctic Ocean | 2000-06-30 Bremerhaven | 2000-07-30 Longyearbyen | [Cruise report](https://doi.pangaea.de/10013/epic.10393.d001) | |
| ARK-XV/3 | PS55 | Norwegian-Greenland Sea | 1999-09-08 Tromsø | 1999-10-14 Bremerhaven | [Cruise report](https://doi.pangaea.de/10013/epic.10353.d001) | |
| ARK-XIV/2 | PS52 | Norwegian-Greenland Sea | 1998-08-28 Tromsø | 1998-10-15 Bremerhaven | [Cruise report](https://doi.pangaea.de/10013/epic.10329.d001) | |
| ARK-XIII/2 | PS44 | Arctic Ocean | 1997-06-24 Tromsø | 1997-08-11 Tromsø | [Cruise report](https://doi.pangaea.de/10013/epic.10258.d001) | |
| ARK-XIII/1b | PS44 | Norwegian Sea | 1997-05-25 Longyearbyen | 1997-06-23 Tromsø | [Cruise report](https://doi.pangaea.de/10013/epic.10299.d001) | |
| ARK-XIII/1a | PS44 | Norwegian Sea | 1997-05-14 Bremerhaven | 1997-05-24 Longyearbyen | [Cruise report](https://doi.pangaea.de/10013/epic.10299.d001) | |
| ARK-XII | PS41 | Arctic Ocean | 1996-07-12 Bremerhaven | 1996-09-23 Bremerhaven | [Cruise report](https://doi.pangaea.de/10013/epic.10235.d001) | |
| ARK-XI/1 | PS36 | Laptev Sea | 1995-07-07 Bremerhaven | 1995-09-20 Tromsø | [Cruise report](https://doi.pangaea.de/10013/epic.10227.d001) | |
| ARK-X/1 | PS31 | Greenland Sea | 1994-07-06 Bremerhaven | 1994-08-16 Tromsø | [Cruise report](https://doi.pangaea.de/10013/epic.10182.d001) | |
| ARK-IX/4 | PS27 | Laptev Sea | 1993-08-06 Tromsø | 1993-10-06 Bremerhaven | [Cruise report](https://doi.pangaea.de/10013/epic.10150.d001) | |
| ARK-VIII/2 | PS19 | Barents Sea | 1991-06-20 Tromsø | 1991-07-31 Tromsø | |  |  | | --- | --- | |  | [Cruise report](https://doi.pangaea.de/10013/epic.10115.d001) | | |

**Table S2:** List of the RV *Lance* and *Maria S Merian* expeditions carried out for sampling chlorophyll *a* (Chl*a*) and particulate organic carbon (POC) from the water column using a SEA-BIRD CTD system and 24 Niskin bottle (12 L)

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| **Cruise label** | **Additional name/label** | **Area** | **Start** | **End** | **Cruise reports** |
| Lance 2000 | ARKTIEF I | Greenland Sea | 2000-09-11 Hamburg | 2000-10-02 Longyearbyen | <https://www.ifm.uni-hamburg.de/en/workareas/experimental/berichte/lance2000.pdf> |
| Lance 21-2001 | ARKTIEF II | Greenland Sea | 2001-09-07 Tromsø | 2001-10-02 Longyearbyen | <https://www.ifm.uni-hamburg.de/en/workareas/experimental/berichte/lance21_2001.pdf> |
| MSM02/04 | DAMOCLES | Fram Strait | 2006-08-20 Longyearbyen | 2006-09-17 Reykjavik | <https://epic.awi.de/id/eprint/37062/2/msm02-expeditionsheft.pdf> |
| MSM29 | HAUSGARTEN 2013 | Fram Strait | 2013-06-23 Tromsø | 2013-07-12 Tromsø | <https://epic.awi.de/id/eprint/37062/23/msm29-msm31-expeditionsheft.pdf> |

**Table S3:** Kruskal Wallis test for Chl*a* and POC standing stocks in the different regions of the AO



**Figure S1:** Vertical profiles of Chl *a* and POC for the different regions sampled; concentrations per 20 m depth intervals. **Upper)** Sub-regions for the comparison of regional differences. Western Fram Strait (WFS), eastern Fram Strait (EFS), Barents Sea (BS), Eurasian shelf (ESf), Nansen Basin (NB), Amundsen Basin (AmB), and Amerasian Basin (AB, including Makarov and Canadian basins)**; middle) mean** Chl*a* values (µg/l) and, **down) mean** POC values (µg/l), 0-100 m from 1991 to 2015. Black lines represent standard deviations.

