**Supporting information: The roles of celestine and barite in modulating strontium and barium water column concentrations in the northeast Pacific Ocean**

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**Figure S1:** Comparison of the CDisK-IV dissolved barium data with adjacent stations from the GEOTRACES GP15 section (GEOTRACES Intermediate Data Product Group, 2023). A) CDisK-IV Station 2 (27.75°N 155.25°W) with GP15 Station 16 (27.03°N 152.00°W). B) CDisK-IV Station 3 (35.27°N 151.00°W) with GP15 stations 13 (34.61°N 152.00°W) and 12 (37.02°N 152.00°W). C) CDisK-IV Station 5 (49.67°N 149.60°W) with GP15 stations 8 (47.02°N 152.00°W), 7 (49.53°N 152.00°W) and 6 (52.03°N 152.02°W).



**Figure S2:** Comparison of CDisK-IV TEOS-10 salinity normalized strontium data with data from previous studies in the North Pacific. The figure presents CDisK-IV Stations 4 (41.72°N 148.30°W) and 5 (49.67°N 149.60°W) compared to stations from de Villiers, 1999 (45°N 179°E), and Bernstein et al., 1987 (49.97°N 145.06°’W).

**Table S1:** Calcium and strontium concentrations measured in the preservation solutions of the plankton net samples. Data are from cruises CDisK-IV (KM1712) and KM1713, which was the return cruise from Alaska to Hawaii and revisited some of the stations. bdl- below detection limit. Counts of calcareous organisms in the same samples are provided in <https://doi.pangaea.de/10.1594/PANGAEA.948504>.

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| **Cruise** | **Station** | **Net** | **Solution** | **Ca (ppm)** | **Sr (ppm)** | **Sr/Ca (mmol/mol)** | **Comments** |
| CDisK-IV | 1 (supernatant) | NEUSTON | Original | 1.33 | 0.046 | 16 |  |
| CDisK-IV | 1 | NEUSTON | Original | bdl | 0.010 |  | Ca bdl |
| KM1713 | 2 | TRV90 | Original | 0.13 | 0.076 | 264 | High Sr |
| KM1713 | 2 | TRV90 | Ethanol | bdl | bdl |  | Ca and Sr bdl |
| CDisK-IV | 2.5 | NEUSTON | Original | bdl | 0.508 |  | Ca bdl, high Sr |
| CDisK-IV | 2.5 | TRV90 | Ethanol | bdl | 0.085 |  | Ca bdl, high Sr |
| CDisK-IV | 3.5 | TRV90 | Ethanol | 0.01 | 0.001 | 24 |  |
| KM1713 | 4 | TRV90 | Original | 0.09 | 0.016 | 77 |  |
| KM1713 | 4 | TRV90 | Ethanol | bdl | bdl |  | Ca and Sr bdl |