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## NDP-109 (2021)

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# Compilation of dissolved organic matter (DOM) data obtained from global ocean observations from 1994 to 2020 (NCEI Accession 0227166)

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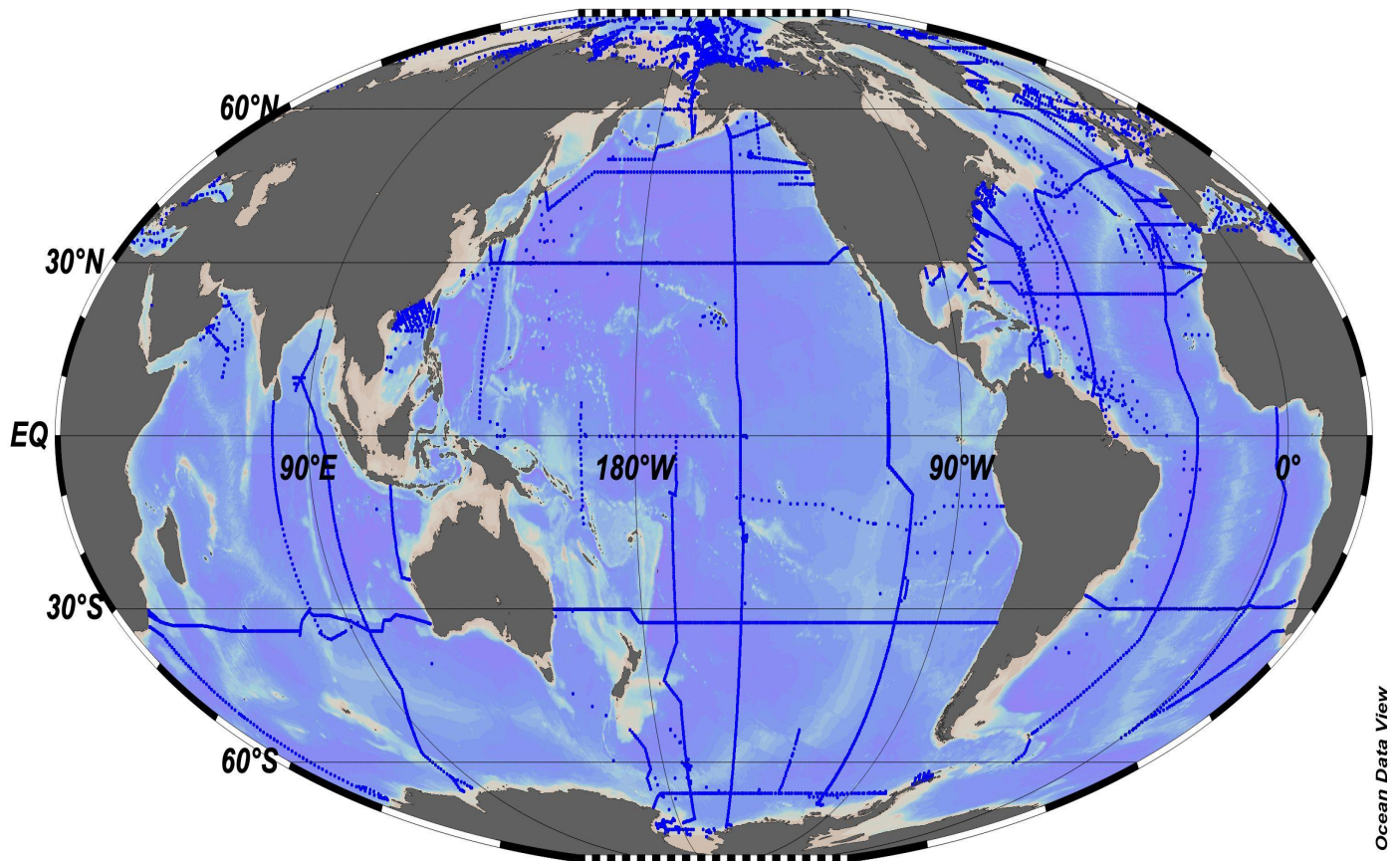
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## Abstract

This NCEI Accession consists of measurements of dissolved organic matter (DOM) and other chemical and hydrographic parameters obtained during the global ocean observations from 1994-01-01 to 2019-12-31. Measurements of dissolved organic matter (DOM) in the open ocean have increased greatly since the late 1980's, spurred by the growth in scientific interest directed at the ocean carbon cycle. Analytical quality for determining the elemental concentrations of DOM was commonly low in those early years, but through great effort and use of consensus reference materials its quality has improved with time. The data in this compilation should be used with the trajectory of improved analytical quality with time in mind. DOM data generated by many laboratories around the world are typically made available in diverse, regional data archives, making them less available than necessary for the data value to be maximized. The effort here was to make ship-collected bottle data accessible more directly and in uniform format. The emphasis was on spatial coverage of the global ocean, so the well-known and ongoing time-series data (such as the Bermuda Atlantic Time-series Study and Hawaiian Ocean Time-series) are not included; nor are coastal waters well represented in this first version. While the focus of this compilation is largely on dissolved organic carbon (DOC) and total dissolved nitrogen (TDN), we extended coverage to include the less frequently determined DOM isotopes (13C, 14C), select wavelengths and a single spectral slope of colored dissolved organic matter (CDOM), and DOM composition (i.e., dissolved combined neutral sugars). To the extent possible, the DOM data have been complemented with hydrographic data (e.g., temperature and salinity), other biogeochemical variables (e.g., oxygen, nutrients),



Ocean Data View

the inorganic carbon system [e.g., dissolved inorganic carbon (with isotopes when available), pH, and total alkalinity], and anthropogenic (chlorofluorocarbons, sulfur hexafluoride, carbon tetrachloride) and natural tracers (neon, helium, tritium). A very few data are included for biological variables such as bacterial abundance and chlorophyll a concentrations. These data are from all ocean basins taken from 230 cruises in the global ocean, providing 94324 measures of DOC (full water column where available) and 29113 measures of TDN (limited to the surface 250 m).

**Please cite this data set as:**

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**Variables description:**

- EXPOCODE: Expedition Code
- CRUISE: Cruise Name, Section
- STATION: Station Number
- CAST: Cast number
- BOTTLE: Bottle Number
- DATE: YYYYMMDD
- LATITUDE: DEGREES NORTH
- LONGITUDE: DEGREES EAST
- BOTTOM DEPTH: Meters
- CTD PRESSURE: dbar
- CTD TEMPERATURE Deg.C
- CTD SALINITY: PSS-78
- CTD OXYGEN:  $\mu\text{mol/kg}$
- CHLOROPHYLL A:  $\mu\text{g/kg}$
- BACTERIAL ABUNDANCE:  $\times 10^5/\text{ML}$
- SILICIC ACID:  $\mu\text{mol/kg}$
- NITRATE:  $\mu\text{mol/kg}$
- PHOSPHATE:  $\mu\text{mol/kg}$
- NITRITE:  $\mu\text{mol/kg}$
- AMMONIUM:  $\mu\text{mol/kg}$
- CFC-11: Dissolved Chlorofluorocarbon 11 in  $\text{pmol/kg}$
- CFC-12: Dissolved Chlorofluorocarbon 12 in  $\text{pmol/kg}$
- CFC-113: Dissolved Chlorofluorocarbon 113 in  $\text{pmol/kg}$
- SF6: Dissolved Sulfur Hexafluoride in  $\text{fmol/kg}$
- CCL4: Carbon tetrachloride in  $\text{pmol/kg}$

- DIC: Dissolved Inorganic Carbon in  $\mu\text{mol/kg}$
- ALKALINITY: Total Alkalinity in  $\mu\text{mol/kg}$
- PCO2: Discrete Partial Pressure of CO2 (pCO2)
- PH\_TOT: pH on Total Scale
- DOC: Dissolved Organic Carbon in  $\mu\text{mol/kg}$
- TDN: Total Dissolved Nitrogen in  $\mu\text{mol/kg}$
- POC: Particulate Organic Carbon in  $\mu\text{mol/kg}$
- PON: Particulate Organic Nitrogen in  $\mu\text{mol/kg}$
- N2O: Dissolved Nitrous Oxide in  $\text{nmol/kg}$
- DEL-13DIC: Delta 13C content of Dissolved Inorganic Carbon in permille
- DELTA-14DIC: Delta 14C content of Dissolved Inorganic Carbon in permille
- DEL13C-DOC: Delta 13C content of Dissolved Organic Carbon in permille
- DELTA14C-DOC: Del 14C content of Dissolved Organic Carbon in permille
- CDOM254: Absorption coefficient of dissolved organic matter at 254 nm in /meter
- CDOM280: Absorption coefficient of dissolved organic matter at 280 nm in /meter
- CDOM325: Absorption coefficient of dissolved organic matter at 325 nm in /meter
- CDOM350: Absorption coefficient of dissolved organic matter at 350 nm in /meter
- SpecSlope (275-295): Spectral Slope from 275 to 295 nanometers in /nanometer
- FUCOSE: Dissolved Fucoese in  $\text{nmol/kg}$
- GALACTOSE: Dissolved Galactose in  $\text{nmol/kg}$
- GLUCOSE: Dissolved Glucose in  $\text{nmol/kg}$
- MANOSE: Dissolved Manose in  $\text{nmol/kg}$
- RHAMNOSE: Dissolved Rhamnose in  $\text{nmol/kg}$
- ARABINOSE: Dissolved Arabinose in  $\text{nmol/kg}$
- TRITIUM: Dissolved Tritium in TU
- NEON: Dissolved Neon in  $\text{nmol/kg}$
- HELIUM: Dissolved Helium in  $\text{nmol/kg}$
- DELHE3: Helium isotope ratio anomaly relative to atmosphere in %

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