

Siv K. Lauvset, Nico Lange, Toste Tanhua, Henry C. Bittig, Are Olsen, Alex Kozyr, Marta Álvarez, Susan Becker, Peter J. Brown, Brendan R. Carter, Leticia Cotrim da Cunha, Richard A. Feely, Steven van Heuven, Mario Hoppema, Masao Ishii, Emil Jeansson, Sara Jutterström, Steve D. Jones, Maren K. Karlsen, Claire Lo Monaco, Patrick Michaelis, Akihiko Murata, Fiz F. Pérez, Benjamin Pfeil, Carsten Schirnack, Reiner Steinfeldt, Toru Suzuki, Bronte Tilbrook, Anton Velo, Rik Wanninkhof, Ryan J. Woosley and Robert M. Key

Abstract - The **Global Ocean Data Analysis Project (GLODAP, www.glodap.info)** data product provides access to quality controlled surface to bottom ocean biogeochemical data, with an emphasis on seawater inorganic carbon. **GLODAPv2.2021** is an update of the previous version. GLODAPv2.2021 includes measurements from more than 1.3 million water samples from the global oceans collected on 989 cruises. The data for the 12 core variables have undergone extensive quality control, especially systematic evaluation of bias. Data are available at https://www.nodc.noaa.gov/ocads/oceans/GLODAPv2_2021/

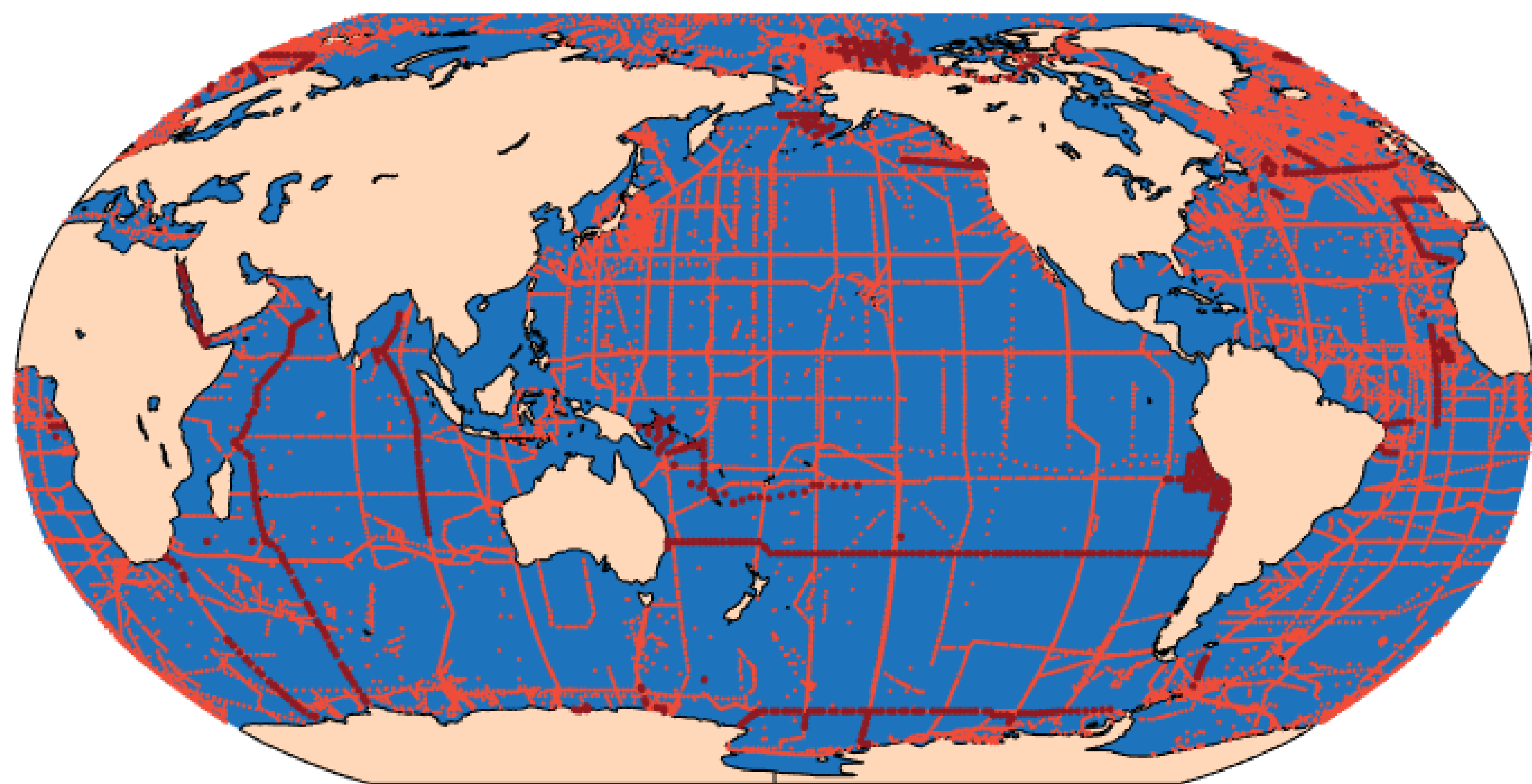


Figure 1. Station locations of all stations in GLODAPv2.2021. Stations in dark red indicate stations new to this edition.

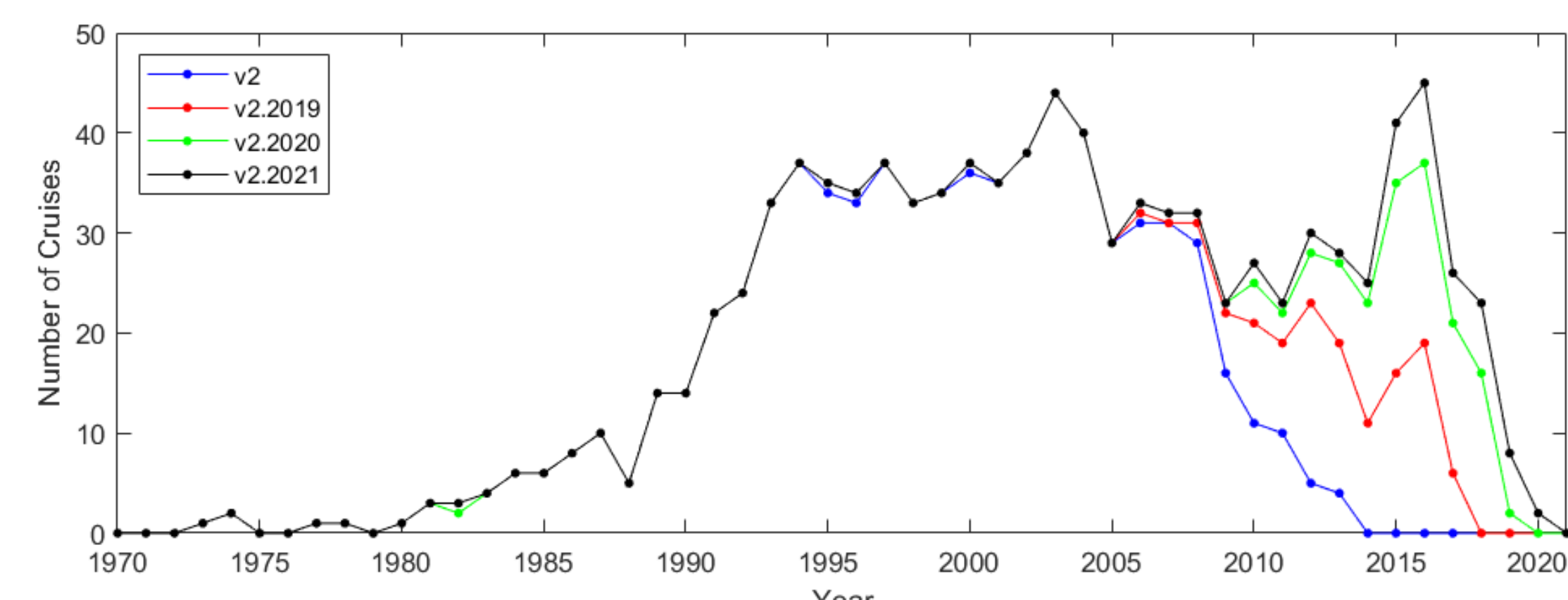


Figure 2. Number of cruises per year in GLODAPv2, GLODAPv2.2019, GLODAPv2.2020 and GLODAPv2.2021.

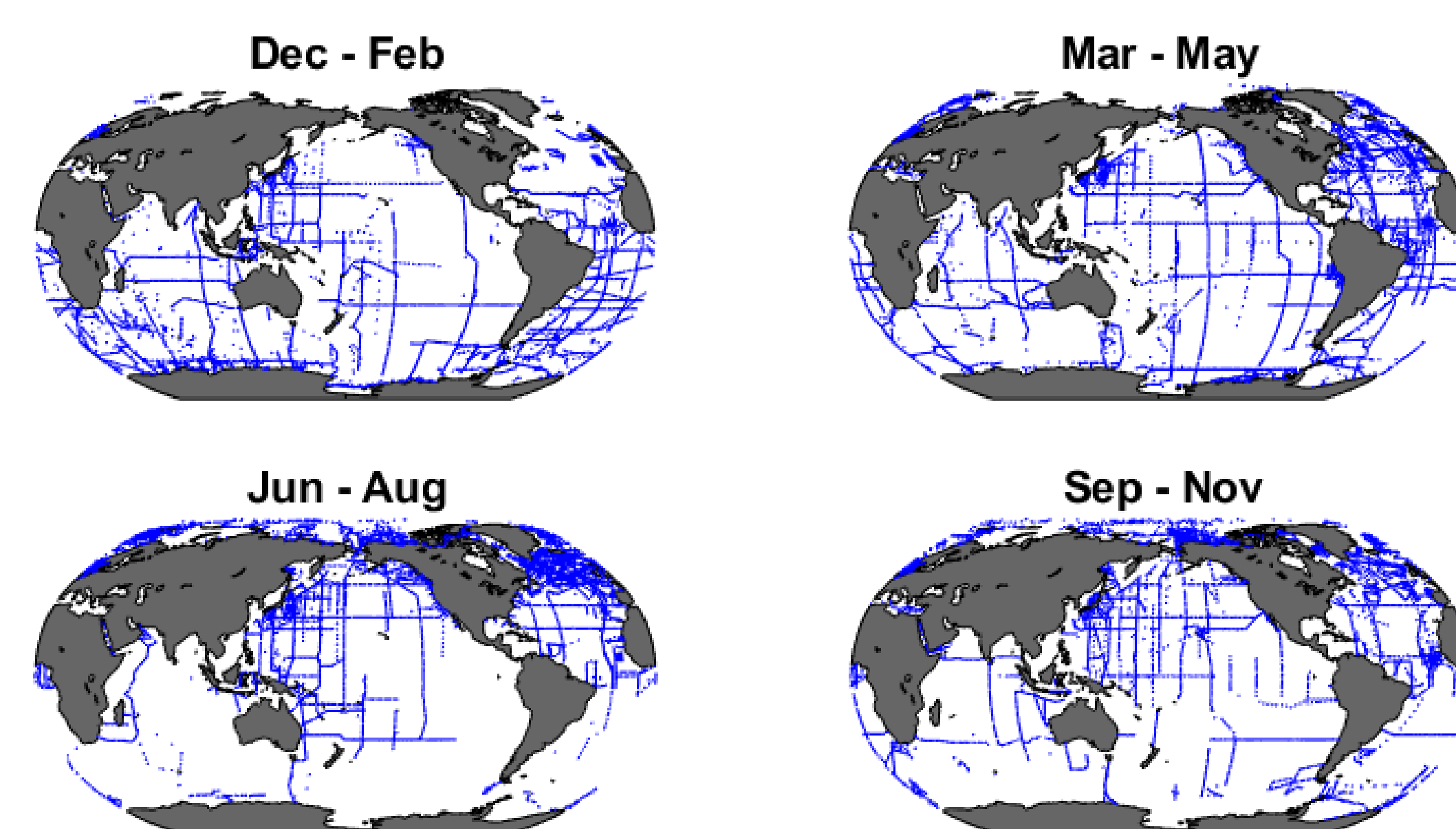


Figure 3. Seasonal distribution of data in GLODAPv2.2021.

Key features of GLODAPv2.2021

- A total of 989 cruises in v2.2021
- Includes more than 1.3 million water samples
- The data for the 12 core variables (salinity, oxygen, nitrate, silicate, phosphate, dissolved inorganic carbon, total alkalinity, pH, CFC-11, CFC-12, CFC-113, and CCl4) have undergone extensive quality control, especially systematic evaluation of bias.
- The data are available as:
 - Single files as submitted by the data originator but updated to WOCE exchange format
 - Merged data product with adjustments applied to minimize bias.
- The data product is estimated to be consistent to better than
 - 0.005 in salinity,
 - 1% in oxygen,
 - 2% in nutrients
 - 4 $\mu\text{mol kg}^{-1}$ in dissolved inorganic carbon and total alkalinity
 - 0.01–0.02 in pH
 - 5% in the halogenated transient tracers.

Key NEW features of GLODAPv2.2021

- 43 additional cruises
- Extension of time coverage until 2020
- Inclusion of a DOI for each cruise

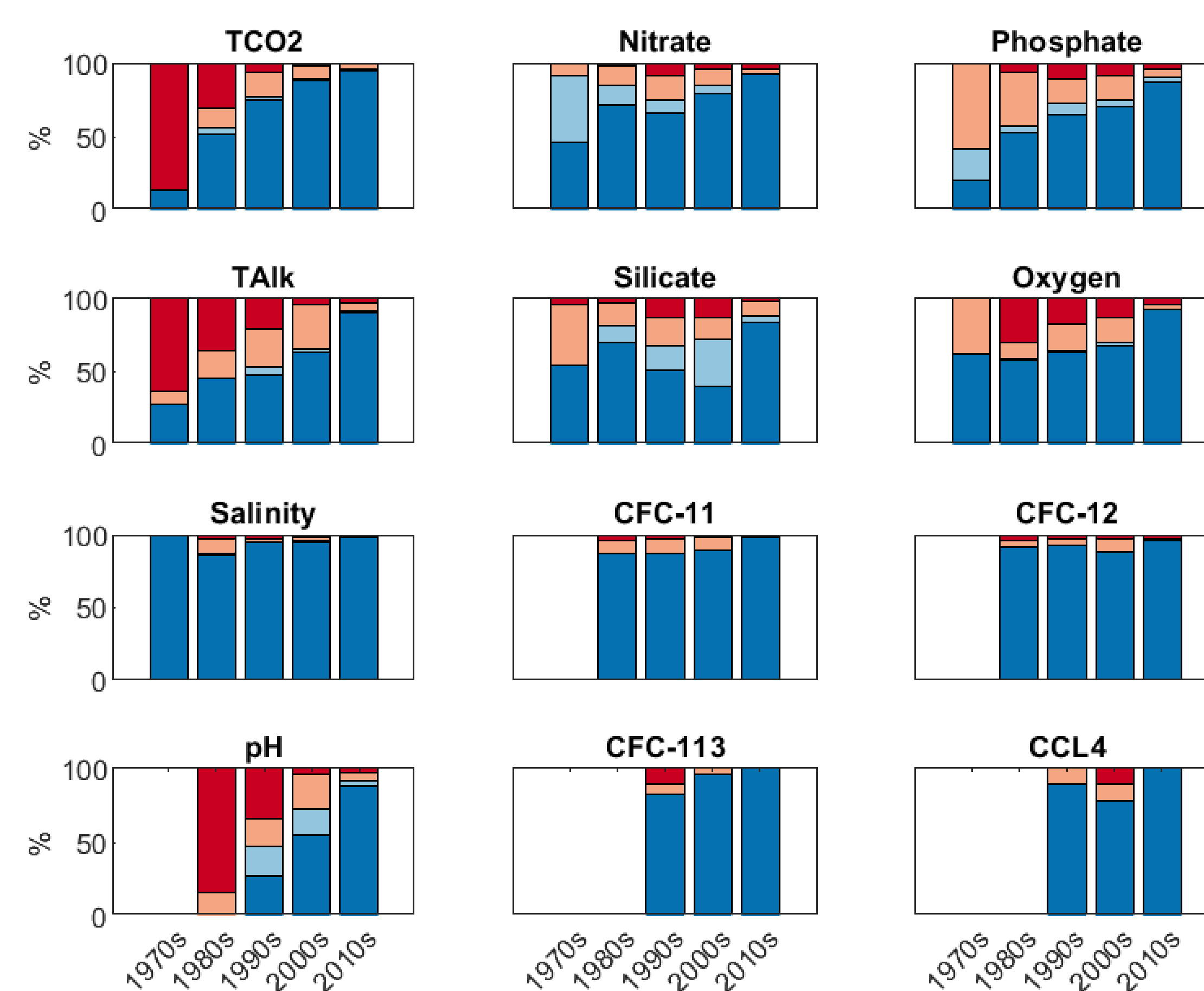


Figure 4. Distribution of applied adjustments per decade; Dark blue - not adjusted; Light blue - adjustment < minimum; Orange - adjustment between limit and 2 times limit, Red - adjustment > 2 times limit.

FAIR Data Use Statement: If you make heavy use of data from a single cruise or a limited set, please contact the PIs for possible collaboration. Always cite the latest ESSD article on GLODAP when using the data, see below.

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References: Lauvset, S., Lange N., et al., 2021., Earth Syst. Sci. Data, submitted; Olsen, A., Lange N., et al., 2020., Earth Syst. Sci. Data, 10.5194/essd-2020-165.; Olsen, A., Lange, N., et al., 2019. Earth Syst. Sci. Data, 10.5194/essd-11-1437-2019; Olsen, A., Key, R.M. et al., 2016. Earth Syst. Sci. Data, 10.5194/essd-8-297-2016; Lauvset, S. K, Key R.M et al., 2016. Earth Syst. Sci. Data, 10.5194/essd-8-325-2016; Key, R.M., Olsen A., et al., 2015., 10.3334/CDIAC/OTG.NDP093_GL0DAPv2