



Supplement of

AIGD-PFT: the first AI-driven global daily gap-free 4 km phytoplankton functional type data product from 1998 to 2023

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Table S1 Reference and website for the publicly available in situ HPLC phytoplankton pigment dataset utilized in this study.

No.	Coverage	Period	Number	Website
1	Global	Aug 2000 – Apr 2018	4481	https://doi.pangaea.de/10.1594/PANGAEA.938703
2	South Atlantic Ocean	Nov 2000 – Mar 2012	2173	https://doi.pangaea.de/10.1594/PANGAEA.848591
3	Global	Nov 2004 – Sep 2012	146	https://doi.pangaea.de/10.1594/PANGAEA.937536
4	Global	Jul 2002 – Feb 2012	484	https://doi.pangaea.de/10.1594/PANGAEA.930087
5	Global	Dec 1988 – Aug 2012	15216	https://doi.pangaea.de/10.1594/PANGAEA.875879
6	Kuroshio region	Oct 2009	206	https://doi.pangaea.de/10.1594/PANGAEA.819108
7	Peruvian upwelling zone	Dec 2012	239	https://doi.pangaea.de/10.1594/PANGAEA.864786
8	Fram Strait	Jul 2017 – Aug 2017	534	https://doi.pangaea.de/10.1594/PANGAEA.894860
9	Australian Waters	Dec 1997 – present	6951	https://portal.aodn.org.au/search?uuid=97b9fe73-ee44-437f-b2ae-5b8613f81042
10	Eastern China seas	2015-2022	405	-

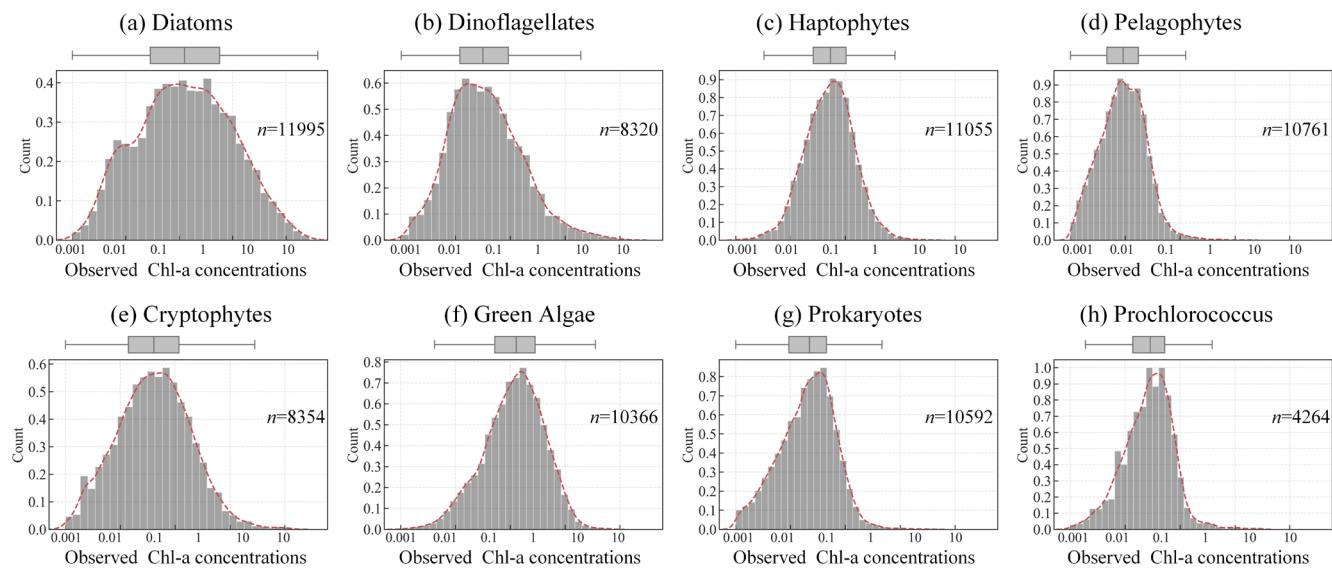


Figure S1 Log-scale histogram of Chl-a concentrations for eight PFTs and the number of in situ data points.

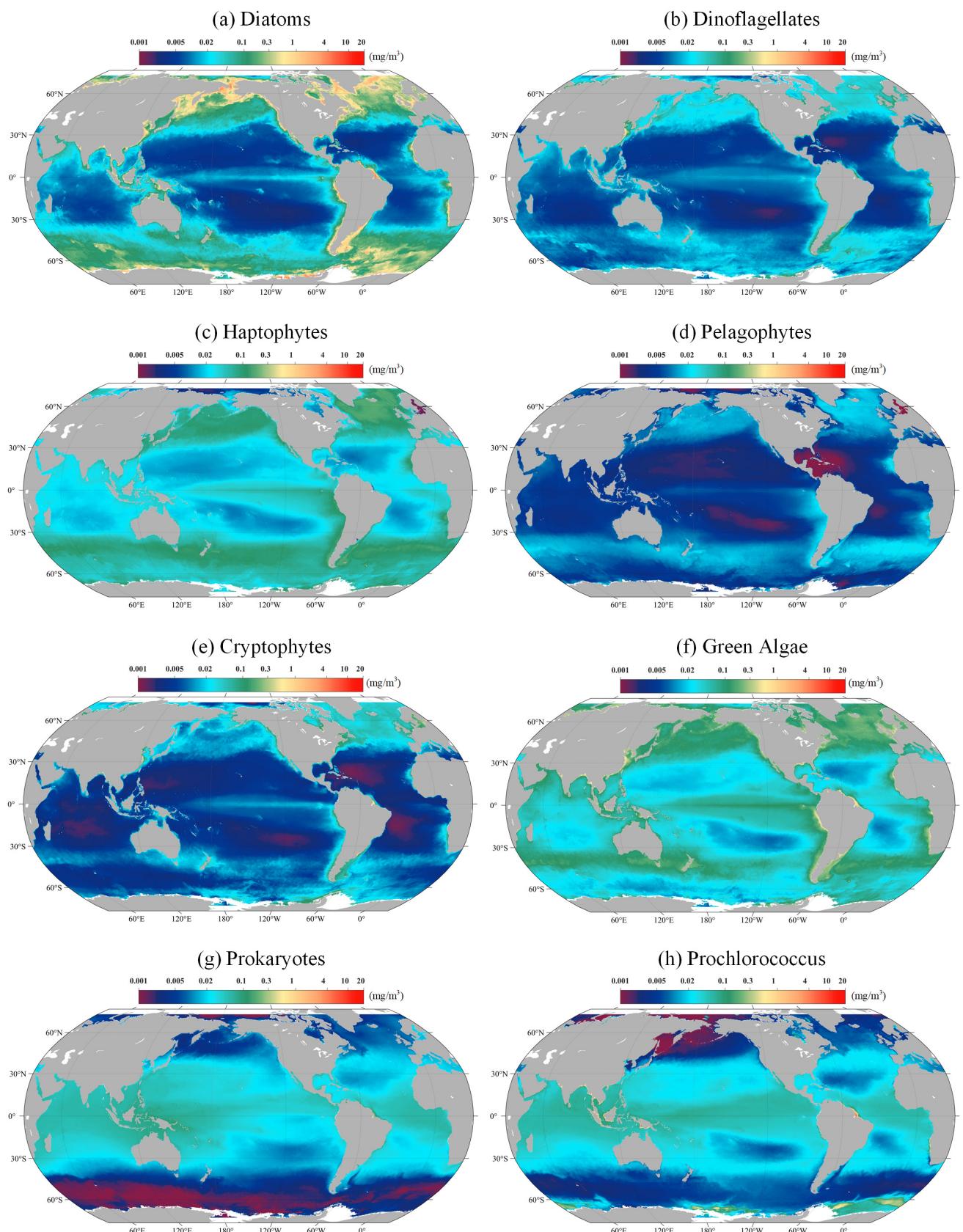


Figure S2 The yearly mean global distribution of Chl-a concentration in 2020 for (a) Diatoms, (b) Dinoflagellates, (c) Haptophytes, (d) Pelagophytes, (e) Cryptophytes, (f) Green Algae, (g) Prokaryotes and (h) Prochlorococcus. The grey areas represent lands.

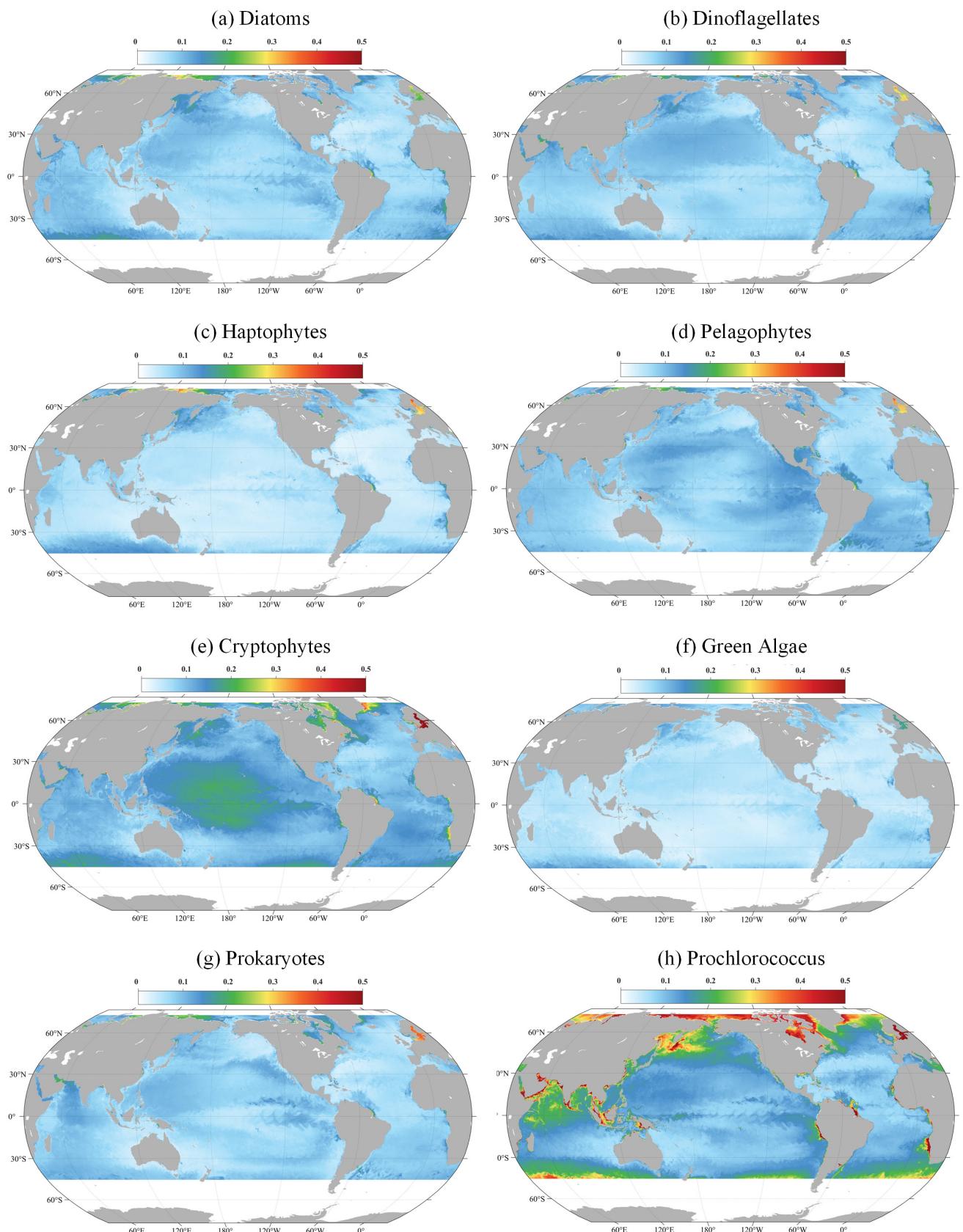


Figure S3 The global distribution (2020-07-10) of the uncertainties for (a) Diatoms, (b) Dinoflagellates, (c) Haptophytes, (d) Green Algae, (e) Prochlorococcus, (f) Prokaryotes, (g) Pelagophytes and (h) Cryptophytes.