

Variable	Source
Mixed layer depth (MLD)	Monthly climatology from Argo float data; Holte et al. (2017)
Sea surface temperature (SST)	Optimum Interpolation SST version 2: monthly climatology from 1981–2014; Reynolds et al. (2007)
Nitrate, phosphate, silicic acid	Monthly climatology from World Ocean Atlas 2013; Garcia et al. (2014a)
Surface total chlorophyll	Monthly climatology from MODIS Aqua NASA-OBPG (2014a); SO algorithm Johnson et al. (2013)
Net primary productivity (NPP)	Monthly climatology 2002–2016 from MODIS Aqua VGPM; Behrenfeld and Falkowski (1997); O’Malley (2016)
	Annually integrated NPP climatology 2002–2016 from Buitenhuis et al. (2013a)
Particulate organic carbon (POC) export	Monthly output from a biogeochemical inverse model from Schlitzer (2004) and a data-assimilated model from DeVries and Weber (2017)
Particulate inorganic carbon (PIC) export	Monthly output from standard simulation in Jin et al. (2006)
Coccolithophore biomass	MAREDAT, O’Brien et al. (2013) and Buitenhuis et al. (2013b); additional data from Balch et al. (2016), Saavedra-Pellitero et al. (2014), Tyrrell and Charalampopoulou (2009), Gravalosa et al. (2008), Cubillos et al. (2007)
Diatom biomass	MAREDAT, Leblanc et al. (2012) and Buitenhuis et al. (2013b); additional data from Balch et al. (2016)
Coccolithophore calcification	Monthly surface chlorophyll, SST, and particulate inorganic carbon (PIC) climatologies from MODIS Aqua NASA-OBPG (2014a, c, d); Eq. (1) from Balch et al. (2007)
HPLC	Monthly CHEMTAX climatology based on high-performance liquid tomography (HPLC) data; Swan et al. (2016)