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Elizabeth H. Shadwick
Virginia Institute of Marine Science

Olivia A. De Meo
Virginia Institute of Marine Science

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CO₂-system observations from a mooring on the West Antarctic Peninsula continental shelf

Elizabeth H. Shadwick, Virginia Institute of Marine Science

Olivia A. De Meo, Virginia Institute of Marine Science

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Abstract:

These are CO₂-system data from a mooring deployed on the continental shelf of the West Antarctic Peninsula (latitude: 66.5S, longitude: 69.9W), at station 300.100 of the Palmer Long-Term Ecological Research (PAL-LTER) sampling grid (<https://pal.lternet.edu>). Temperature, salinity, and pH were acquired by using an SBE SeapHOx sensor ~18m below the surface with 3-hourly resolution from January 2018 to January 2019. Sensor data were averaged to 24-hour resolution. The salinity sensor failed in May 2018, and mean value between the start of the deployment and the last observation is used to populate the remainder of the record. The pH data were combined with salinity and the relationship between alkalinity and salinity of Hauri et al., 2015 to compute the partial pressure of CO₂ (pCO₂). The data are in comma-separated (csv) format with units in the first row of the file.

Also available are discrete dissolved inorganic carbon (TCO₂) and alkalinity samples from CTD profiles collected at the mooring station and analysed following standard procedures at the Virginia Institute of Marine Science. A detailed description of sample collection and analytical methods is given in Shadwick et al., (under review). There is one comma separated file (csv) per cruise; variable names and units are in the first row.

References:

Hauri, C., Doney, S. C., Takahashi, T., Erickson, M., Jiang, G., & Ducklow, H. W. (2015). Two decades of inorganic carbon dynamics along the west Antarctic peninsula. *Biogeosciences*, **12**, 6761-6779. doi: 10.5194/bg-12-6761-2015

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Keywords:

CO₂-system, West Antarctic Peninsula, SeapHOx, ocean acidification, Southern Ocean

Associated Publications:

Shadwick, E.H., De Meo, O.A., Schroeter, S., Martinson, D., Arroyo, M.C., and Ducklow, H.G. (under review), Sea ice suppression of CO₂ outgassing in the West Antarctic Peninsula: implications for the evolving Southern Ocean Carbon Sink, *Geophys. Res. Lett.*

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