Ocean Oxygen Literature Review:

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| Paper: | Type: | Main Points: | Relevant Points |
| Ito, T. et al, 2017. “Upper ocean O2 trends: 1958-2015”. *GRL*. | Observational Study:  World Ocean Atlas | Widespread negative O2 trend is beginning to emerge from the envelope of interannual variability.  The global ocean O2 inventory is negatively correlated with the global ocean heat content.  Variability and trends in the observed upper ocean O2 concentration are dominated by the AOU. | Significant trends in global upper ocean O2 and AOU. Indicates the changes are predominately driven by changing ocean ventilation and/or biological O2 consumption. |
| Deutsch et al., 2005. “Fingerprints of climate change in North Pacific oxygen”. *GRL.* | Hindcast ocean circulation/biogeochemical model | Decadal North Pacific O2 variations in the lower ventilated thermocline primarily reflect changes in the basin’s large-scale circulation.  A southward expansion of the model subtropical gyre explains the observed subtropical O2 increase from the 80s-90s.  The simultaneous O2 decreases seen in the mid-latitude Pacific are driven largely by reduced communication between the atmosphere and ocean interior. | Observed changes in oceanic O2 provide a unique fingerprint of the response of ocean circulation and biology to climate change. |
| van Aken et al., 2011. “Decadal and multi-decadal variability of Labrador Sea Water in the north-western North Atlantic Ocean derived from tracer distributions: Heat budget, ventilation and advection. ” *Deep-Sea Research I* | Observational Study:  Hydrographic sections cutting the sub-arctic North Atlantic.  Highly simplified heat-budget model. | Long-term temperature variability in the Labrador Sea mainly reflects the long-term variation of the net heat flux to the atmosphere.  Analysis of the data on dissolved oxygen and planetary potential vorticity show that convective ventilation events occur on decadal or shorter time scales. |  |
| Smith et al., 2016 “Time series measurements of transient tracers and tracer-derived transport in the Deep Western Boundary Current between the Labrador Sea and the subtropical Atlantic Ocean at Line W”. *Journal of Geophysical Research: Oceans* | AR7 and Line W Observations  and boundary current model. | Time series measurements (2004 2014) of 129I and CFC-11 in DSOW in DWBC on Line W were compared to upstream values in DSOW in Labrador Sea  Model simulations of tracer levels in the boundary current were used to determine parameters governing advection and mixing  DSOW is transported to Line W with a flow velocity of 2.7 cm/s and mixing between core and interior occurs with a time constant of 2.6 years. |  |
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