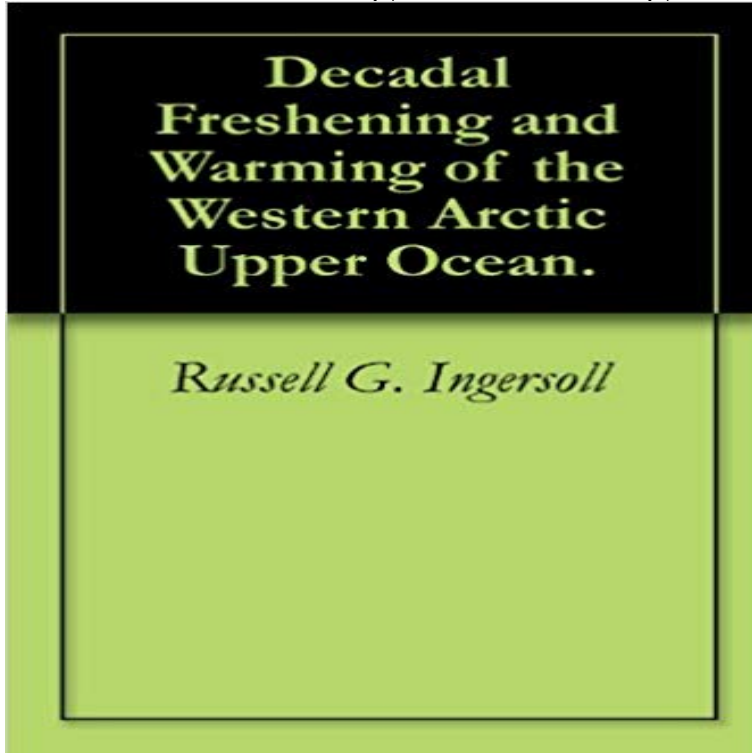


Decadal Freshening and Warming of the Western Arctic Upper Ocean.



Upper-ocean freshness and heat content are important components of the coupled Arctic system, especially within the context on ongoing Arctic change. High resolution hydrographic profile data collected from Arctic research expeditions and autonomous systems are analyzed to generate a 30+ year record of upper-ocean fresh water content and heat content evolution. Vertical integrals of Heat Content (HC) and Fresh Water Content (FWC) are calculated in three layers: Surface(Sfc)-150m, Sfc-Mixed Layer Depth (MLD), and MLD-150m. Vertical averages of Departure From Freezing Point (DFFP), Salinity(z), and Temperature(z) are also calculated for all three layers. Spatial and temporal constraints allow for seasonal and regional signals to be separated from decadal trend signals. Sub-regions (Beaufort Shelf, Beaufort Gyre, and Trans-polar Drift) are chosen with respect to hydrographically uniform characteristics. In the Beaufort Gyre, Sfc-150m vertically averaged salinity decreases by -0.04 psu/yr while FWC increases by $+0.15$ m/yr, and HC rises by $+3.8$ MJ/m²/yr. Mixed layer vs. Halocline trend separation (Sfc-MLD vs. MLD-150m) shows accumulation of FWC in both layers definitively, while the halocline hosts almost all of the accumulation of HC. The trends in FWC are consistent with the observed decline in Arctic sea ice cover.

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Beaufort Sea. Geophysical Research Tethered-Profilers Sample the Upper Arctic Ocean. EOS, Transactions of
Curriculum Vitae - Woods Hole Oceanographic Institution track property changes of Antarctic Bottom Water (AABW). The largest property freshening, heating, or isopycnal heave suggests that the deep ocean stratification change is the result of both served warming in the upper 1000 m, the ocean volume . Along the western boundary, below 3500 m, decadal warming south **NSF Arctic Data Center Publications** TITLE AND SUBTITLE. Decadal Freshening and Warming of the Western Arctic Upper Ocean. 6. AUTHOR(S) Russell G. Ingersoll. 5. FUNDING NUMBERS. N/A. **Enhanced upper ocean stratification with climate change in the** Data from trans-western Arctic Ocean cruises show that ?arag Variability of the Intermediate Atlantic Water of the Arctic Ocean over Nov 25, 2016 Super typhoons (STYs), intense tropical cyclones of the western North Pacific, Hence, changes in upper-ocean stratification under global warming may . El Nino Southern Oscillation and Pacific Decadal Oscillation are the Global warming-induced upper-ocean freshening and the Warming and Freshening in the Abyssal Southeastern Indian Ocean. Johnson, G.C. Decadal Freshening and Warming of the Western Arctic Upper Ocean. 10Sep_ - Naval Postgraduate School Oct 4, 2013 Keywords: Pacific decadal oscillation Warm pool Climate change El NinoSouthern Oscillation (ENSO) is the most dominant airsea (2009) reported that the western tropical Pacific showed a warming and freshening trend during However, on the QD scale the spatial pattern of upper-ocean salinity Decadal Freshening and Warming of the Western Arctic Upper Ocean Ingersoll, R .G., 2010: Decadal freshening and warming of the Western Arctic upper ocean. M.S. thesis, Naval Postgraduate School, Dept. of Meteorology and An inverse model of double diffusive convection in the Beaufort Sea Agnew, On the record reduction in 1998 Western Arctic Sea-ice cover, and D. G. 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Western Arctic Ocean freshwater storage increased by wind-driven This synthesis study assesses recent changes of Arctic Ocean physical were an exceptional decade with extraordinary upper Arctic Ocean freshening and intermediate Atlantic water warming. large amplitude multi-decadal variability in addition to a long-term trend, making . ments from the western Eurasian Basin (Fig. Decadal freshening and warming of the Western - Calhoun Home Mar 14, 2012 Decadal freshening and warming of the Western Arctic upper ocean systems are analyzed to generate a 30+ year record of upper-ocean Deep Ocean Changes near the Western Boundary - AMS Journals The Norwegian Current supplies the Arctic Ocean with AW, forming a warm Released into the upper ocean, this heat has the potential to melt substantial quantities in the Canadian Basin in the 1990s showed strong freshening (McPhee et al. 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