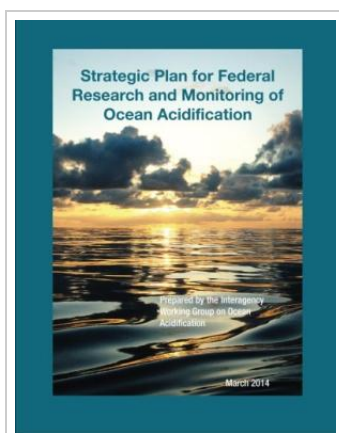




Strategic Plan for Federal Research and Monitoring of Ocean Acidification

By National Science and Technology Council, Interagency Working Group on Ocean Acidification, Subcommittee on Ocean Science and Technology

Createspace, United States, 2015. Paperback. Book Condition: New. 279 x 216 mm. Language: English . Brand New Book ***** Print on Demand *****.Human industrial, transportation, and agricultural activities have caused global atmospheric concentrations of carbon dioxide (CO₂) to increase from a pre-industrial average of 280 parts per million (ppm) to the current value of approximately 400 ppm (IPCC AR5 2013). Atmospheric CO₂ concentrations are now higher than experienced on Earth for more than 800,000 years (Luthi et al. 2008), and the rate of CO₂ release into the atmosphere is likely unprecedented in Earth history (Kump et al. 2009; Honisch et al. 2012). Ocean carbonate chemistry is a natural buffering system, but this buffering capacity is being compromised as a direct result of CO₂ absorption by the oceans and to a lesser extent by the absorption of nitric acid (HNO₃) and sulfuric acid (H₂SO₄) at the sea surface (Doney et al. 2007). The oceans have absorbed approximately half of the anthropogenic CO₂ emissions from fossil fuel use and cement manufacturing over the past 200 years (Sabine et al. 2004). This oceanic uptake of CO₂ causes changes to ocean chemistry (Figure 1), including decreases in pH and carbonate ion (CO₃²⁻) concentrations, collectively known...



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