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OCB-OA: The name "ocean acidification"

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Why call it ocean acidification, when the ocean is not acidic?

Basic: The word “acidification” refers to lowering the ocean’s pH by any amount. Using this name is similar to how people say it is “warming” when the air temperature goes from -20?C to 0?C, even though they still would be happy wearing a warm coat and hat!

Intermediate: Ocean acidification refers to the process of lowering the oceans’ pH (that is, increasing the concentration of hydrogen ions) by dissolving additional carbon dioxide in seawater from the atmosphere, or by other chemical additions either caused by natural processes or human activity. The word “acidification” refers to lowering pH from any starting point to any end point on the pH scale. This term is used in many other scientific areas (including medicine and food science) to refer to the addition of an acid to a solution, regardless of the solution's pH value. For example, even though seawater's pH is greater than 7.0 (and therefore considered “basic” in terms of the pH scale), increasing atmospheric CO_2 levels are still raising the ocean's acidity and lowering its pH. In comparison, this language is similar to the words we use when we talk about temperature. If the air temperature moves from -20°C to -0°C (-4°F to 32°F), it is still cold, but we call it “warming.” — J. Orr, C.L. Sabine, R. Key

Is ocean acidification the same as climate change?

Basic: No. Ocean acidification and climate change are both caused by rising CO_2 in the atmosphere, but their mechanisms and effects are different. Both changes do happen globally, though.

Intermediate: No. While ocean acidification and climate change share a common cause (increases in CO_2 in the atmosphere), climate change encompasses the effects associated with changes in the Earth’s heat budget (due to the greenhouse effect of CO_2 and to a lesser extent other climate reactive gases), which cause global warming and changes in weather patterns. Ocean acidification specifically refers to the lowering of ocean pH resulting from its absorption of human-released CO_2 from the atmosphere or by other chemical additions either caused by natural processes or human activity. Ocean acidification does not include the warming of the ocean. — C.L. Sabine

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