

What the future ocean has in common with an asthma attack

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Ocean acidification and ocean deoxygenation are consequences of anthropogenic CO₂ emissions that are unfamiliar to the general public. Mostly, because lay audiences cannot understand the complex chain of physical and chemical processes that drives these phenomena. This demands that communicators find clear, simple and psychologically effective language to frame ocean health issues in familiar terms. From antiquity to the Renaissance, and independently across multiple cultures, premodern thinkers have conceptualized the Earth in terms of the human body. This is not surprising given that metaphor lies at the core of human understanding. Building on this premodern tradition, I found a system of mathematical equations that calculates the chemical composition of the human body or the ocean, when forced by human physiological or oceanographic parameters, respectively. Based on this result, I use structural similarities between the human body and the ocean to build an extended analogy that introduces the basic functioning of the oceanic CO₂ and O₂ cycles to the general public. The analogy extends to ocean acidification and deoxygenation, that have parallels in the acidification and deoxygenation of the human body caused by an asthma attack. These analogies, and their corresponding metaphors, provide ocean health communicators with an array of statements that provoke interest in, and explain the origin of, declining ocean health.