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Ecological Marine Units: A three-dimensional mapping of the ocean based on environmental data

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Abstract:

Responding to an intergovernmental commission to produce a global, standardized, rigorous, and practical map of terrestrial, freshwater, and marine ecosystems, the U.S. Geological Survey, Esri, and a team of international marine scientists have produced a new map of ecological marine units (EMUs). The EMUs represent 37 physically and chemically distinct volumetric regions based on an environmental stratification of the global ocean by temperature, salinity, oxygen, nitrate, phosphate, and silicate. The work represents a first-of-its-kind, globally comprehensive, objective, and truly 3D mapping of marine ecosystems. Data from NOAA's World Ocean Atlas database were used to delineate the EMUs. The EMUs are an open data resource, and are intended to be useful for ecosystem accounting and other ecosystem assessments.