

Interactive comment on “The effect of temperature and salinity on the stable hydrogen isotopic composition of long chain alkenones produced by *Emiliana huxleyi* and *Gephyrocapsa oceanica*” by S. Schouten et al.

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Received and published: 10 February 2006

In our final response we commented that terms such as PSU may be used for salinity. However, recently Frank J. Millero drew attention to the wrong usage of the term PSU by oceanographers and marine chemists in published articles. He noted that the term is apparently used to denote the use of the Practical Salinity Scale and is an abbreviation for Practical Salinity Unit. As a member of the Joint Panel on oceanographic Tables and Standards that was instrumental in the development of the international equation of state of sea water and the practical salinity scale, he criticized the practice adopted by oceanographers in using PSU. The practical salinity scale was defined as conductivity ratio with no units. A seawater sample with a conductivity ratio of 1.0 at 15°C with a KCl solution containing a mass of 32.4356 g in a total mass of 1 kg of solution has a

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salinity of 35.000 (no units or L' are needed). The salinity (0.1 to 40) and temperature (0 to 40°C) dependence of this ratio for seawater weight evaporated or diluted with water led to the full definition of the practical salinity scale. This definition was adopted by all the National and International Oceanographic Organizations. Somewhere along the line oceanographers started to use the term PSU (practical salinity unit) to indicate that the practical salinity scale was used to determine conductivity salinity. This apparently resulted from the previous use of L' to represent parts per thousand which some oceanographers felt was a unit. Some authors use the PSU term for salinity that has not been measured by conductivity or is outside of the salinity range of the original measurements. The bottom line is that salinity has always been a ratio and does not have physical units. The use of the term PSU should not be permitted in the field and certainly not used in published papers. Whenever the practical salinity scale is used to determine salinity this should be stated some where in the paper. The use of the term PSS can be used to indicate that the Practical Salinity Scale is used, but it should not be used as a physical unit. One certainly does not have to use the term PSU or PSS on all the figures showing TS data.

Based on these comments we will drop the use of PSU in the revised version of our manuscript.

Interactive comment on Biogeosciences Discussions, 2, 1681, 2005.

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