

Interactive comment on “Metrological traceability of oceanographic salinity measurement results” by S. Seitz et al.

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We agree that practical methods are strongly needed to estimate salinity. Moreover, we also agree that “any salinity measurement results conventionally can be adopted as SI-compatible ...”. We just want to add that the restrictions discussed in sec. 4 need to be considered. In particular, in case an “indirect salinity measurement” is intended to be given in “g/kg” by comparing such indirect measurement results with direct mass fraction measurements, the uncertainty of this comparison needs to be considered. In case this is not considered an indirect salinity measure might be very practical, but it misses the reliability that would be guaranteed by an SI reference and it cannot be used in calculations with other SI quantities without risking (probably unnoticed) inconsistencies. However, we don't think that the oceanographic community needs to

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make a choice between practical PSS-78 results and a few impractical Absolute Salinity results. Both options are possible and both are needed. It is important to emphasise that the applied kind of traceability and the corresponding uncertainty is determined by the intended use of the measurement result.

The work of Poisson, Dauphinee and Culkin are part of the PSS-78 background papers we have cited in the manuscript as (UNESCO 1981), however, we can cite them directly.

Strictly spoken SSW is indeed not “calibrated”, since its K15 value actually is the primary standard for all conductivity ratio measurements. As such it is not calibrated. Nevertheless, by building the ratio between the measured conductance of SSW and the measured conductance of the KCl solution the K15 of SSW is per definition given with respect to PSS-78 (in fact Standard Seawater Service also notes the corresponding Practical Salinity value on the ampoules). To our opinion the statement “Each Standard Seawater batch is directly traceable to the defined KCl solution” expresses the physical link of SSW to the KCl-solution, which is quantitatively given by the ratio.

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