The authors express their thanks to the two reviewers for the positive evaluation of the article

"Numerical implementation and oceanographic application of the thermodynamic potentials of water, vapour, ice, seawater and air – Part 1: Background and equations",

by R. Feistel, D. G. Wright, D. R. Jackett, K. Miyagawa, J. H. Reissmann, W. Wagner, U. Overhoff, C. Guder, A. Feistel, and G. M. Marion,

and for the helpful suggestions.

We agree with your suggestion regarding the title and we will change it to "Numerical implementation and oceanographic application of the thermodynamic potentials of liquid water, water vapour, ice, seawater and humid air – Part 1: Background and equations ".

Regarding the suggestions of Dr. Nycander we have the following comments:

1. We will add the usual definitions of potential temperature and potential density to the revised paper, for clarity.

2. Conservative temperature is potential specific enthalpy expressed in terms of an arbitrarily defined temperature unit. As such, it belongs to level 5 where non-SI units and user-defined functions are implemented. By contrast, potential enthalpy is defined at a core level of the SIA library. We will add a hint on this to section 4.3 in association with eq. (4.19) of the revised paper.

3. The function `sea_eta_entropy_si` provides entropy as a function of salinity, enthalpy and pressure, but it does not provide the partial derivatives of entropy with respect to those variables, nor does it take any orders of derivatives as input parameters. As such, the thermodynamic potential "entropy" is not explicitly implemented in the present SIA library version in the same form as the other potential functions that are summarised in Table 1. The last paragraph of section 4.3 says that even though the thermodynamic potential "entropy" is not explicitly implemented, various properties derived from it are implemented at level 3 and evaluated from indirect algorithms, just "as if" the potential "entropy" were available.
We will outline this specific issue in more detail in the revised manuscript, although it is essentially an implementation question which belongs to Part II rather than to Part I.

4. We shall unify those details of the table captions in the revised version.

5. Because of their key role in the SIA library, the potential functions themselves are summarised in Table 1 of the paper rather than the supplement.