**Ocean Science
Discussions**

Interactive
Comment

Interactive comment on "Numerical implementation and oceanographic application of the Gibbs thermodynamic potential of seawater" *by* R. Feistel

Anonymous Referee #1

Received and published: 3 January 2005

In a number of previous papers (e.g. Feistel, Prog.Oceanogr. 2003), the author of this study has pioneered the precise determination of the Gibbs function of seawater by deriving an approximate but highly accurate expression, based on the observed physical properties of sea water. The formula can be used to calculate nearly all interesting thermodynamic quantities in an easy and consistent way. In the present manuscript, the author presents a source code for the numerical computation of the Gibbs function in several programming languages. While other, faster implementations exist, the main purpose of this code is to permit easy customization into a given programming environment. This constitutes a valuable service to the oceanographic community which deserves publication. The section "Related oceanographic quantities" contains a collection of well-known relations involving thermodynamic state variables. This would

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

EGU

be fine for a text book but is not appropriate for a research paper, and I recommend that this section be dropped. The section on phase equilibria gives a condensed discussion relating the Gibbs function of seawater with those of vapour and ice. While it contains little new relative to the author's previous papers, it is nevertheless useful as a short summary how to handle these important aspects. Technical: The notation is in some respects non-standard, a fact which makes reading unnecessarily difficult. E.g., a small "g" for the Gibbs-fct and capital "G" for gravity make an equation such as (22) confusing for the cursory reader. Likewise, the hydrostatic relation (20) is written such that either the gravity constant has to be negative or z is directed downwards, both of which is again non-standard.

Interactive comment on Ocean Science Discussions, 1, 1, 2004.

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

EGU