

CHANGES SINCE THE WORKSHOP:

The sea level reconstruction of Church and White was updated at about the time of the Workshop (see Ref. 2). The change was quite significant and resulted in a change of all numbers in my presentation. Calculated thermosteric contribution to the sea level now agrees very closely with the result obtained from the *in situ* data. A revised version will be posted soon, the new abstract follows.

Contributions and outlook for the sea level rise

The change in sea level includes a thermal expansion (thermosteric) component determined by the past global sea surface temperatures. We develop a simple model of the average upper ocean warming, where heat flux depends linearly on the varying temperatures of both the surface and the interior. Model parameters are determined from the information available in the decadal variations in global sea surface temperature and sea level data, and in particular from the ocean response to the global cooling period 1940-1970. The thermosteric sea level rise calculated here from the average global sea surface temperature agrees closely with the estimates based on *in situ* data recorded with several methods during the period 1950-2003. The model estimates an average response time of about 20 years for upper ocean equilibration, extends our knowledge of the thermosteric rise back to 1880 and determines the value for the total thermosteric sea level contribution in the past 129 years as 66 mm.