

Interactive comment on “Anthropogenic carbon in the eastern South Pacific Ocean” by L. Azouzi et al.

L. Azouzi et al.

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Response to the Anonymous Referee 1:

General comments:

This paper is submitted for a publication as a part of special issue. A description of the oceanographic regimes of the region is given in the introduction of the issue. This paper, eventhough it is not our subject, gives a brief description of the circulation in agreement with the issue introduction. However, we took into account the suggestion concerning the OMZ. Comparison with distribution of DC^* and $CFCs$:

The comparison between $TrOC A$ and other method has been already discussed in a precedent paper (Touret et al., 2007) mention Page2, line16 : we don't say that the eastern equatorial pacific is a sink for CO_2 . It depends of the considered area because of the "The South Pacific Ocean (from the equator down to 600S) is globally considered as a sink area for anthropogenic carbon (Chen et al., 2007)

the term poorest is related to the trophic properties of the water. In this section we talk about oligotrophic areas (see Longhurst, 1998) we have already tested during previous cruises that transportation of the samples does not change the CT. We have measured CT at 20 : the anthropogenic CO₂ follows the water masses; however, its distribution is different from the East to the West basin, so there is no corresponding section. We have made the correction.

Response to the Anonymous Referee 2:

Specific comments: 1. This study contributes to the general understanding of the role of the oceans as a sink for anthropogenic CO₂. In order to participate to this understanding, one of the aims is to determine the distribution of carbon species in the ocean interior as well as the processes affecting the transport and storage of CO₂ taken up from the atmosphere. Here, we compare the results with those of tracer (CFC-11) distributions and with earlier estimates of the anthropogenic carbon in nearby areas. The estimates of anthropogenic CO₂ concentrations in the oceans are relatively recent and have to go through this type of approach (descriptive and comparative); most of the few concerned studies but important deal with this type of approach. 2. The correlation with AOU is studied in order to show the distribution of compared with the measured physicochemical parameters and to show also that this distribution is not random. A study of a relation of cause and effect between all parameters is off the subject. 3. The comparison between TrOCA and other methods has been already discussed in a precedent paper (Touratier et al. 2007) mentioned in this submitted paper. The distribution presented in the figures 5 and 6 are discussed in relation to the scale of the broad, slow nature of the currents within the gyre of the South Equatorial Current.

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