



# ***Interactive comment on “Coastal upwelling fluxes of O<sub>2</sub>, N<sub>2</sub>O, and CO<sub>2</sub> assessed from continuous atmospheric observations at Trinidad, California”***

**by T. J. Lueker**

**Anonymous Referee #1**

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Review of TJ Lueker, "Coastal upwelling fluxes of O<sub>2</sub>, N<sub>2</sub>O, and CO<sub>2</sub> assessed from continuous atmospheric observations at Trinidad, California"; Biogeosciences Discussions, 1, 335-365, 2004

The ms under review deals with an important aspect of trace gas biogeochemistry in coastal waters. Especially the questions of identification and quantification of fluxes of O<sub>2</sub>, N<sub>2</sub>O and CO<sub>2</sub> from the coastal upwelling off California are addressed. The author presents a (partly) new data set of high quality atmospheric data from the time period 2000-2002.

The ms is well written and is more or less concise in its presentation. Unfortunately, I can recommend publication in Biogeosciences only after major revisions (see general comment)

General comment

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**Interactive  
Comment**

1) My main concern is about the data and conclusions presented: Although the author presents some new data (for 2002), it mainly describes data and conclusions already published in Lueker et al. 2003 (GRL, 30(6), 1292, doi:10.1029/2002GL 016615). The value of ms would be strengthened considerably when the author focuses on his new findings and conclusions (i.e., sections 5 and 6).

**Minor comments**

2) Fig. 2 caption: Please give a definition/explanation of the Bakun and upwelling indices. Most of the readers are not familiar with it. 3) Figure 3 caption: I could not find the data for 2003. 4) Please avoid overcitation! In most cases, two citations should be appropriate. 5) Figure 6: There is no word on the fact that the data presented are partly from cruises in 1990 and 1998, however, the atmospheric data cover a period from 2000-2002. What about changes in the temperature regime, maybe caused by warming of the coastal ocean? How representative are these data then? What does it mean for the error of the computations? The author should discuss this point. 6) Figure 6c: Given that the author used the same data for his 2003 GRL publication and the ms under review, I wonder why temperatures up to 16°C are given in the 2003 publication (Fig 3c) but not in the ms under review (max. temp. about 12°C). I could not find any explanation for this discrepancy.

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Interactive comment on Biogeosciences Discussions, 1, 335, 2004.

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