

***Interactive comment on “Dissolved methane during hypoxic events at the Boknis Eck Time Series Station (Eckernförde Bay, SW Baltic Sea)” by H. W. Bange et al.***

**Anonymous Referee #1**

Received and published: 18 January 2010

Coastal hypoxic events are steadily increasing over the past few decades, especially in nearshore waters and estuaries that are subject to high loading of nutrients and/or organic matter from terrestrial sources. O<sub>2</sub> content in the bottom water is expected to influence the production of methane in the sediments as well as its oxidative loss in surface sediments and in the water column itself. Hence hypoxia may influence the emission of methane from coastal waters. This paper present dissolved CH<sub>4</sub> in the water column at the Boknis Eck (BE) time series station in the Eckernförde Bay, which suffered from seasonally occurring hypoxic events. Since there are few reports on methane emission during hypoxia, this work presents a valuable contribution to the scientific literature.

C4021

I only have a few comments.

1. Some additional information on sampling strategy would be welcome. For example, how often is the sampling? When were the samples collected at each month? How long was the water samples stored before analysis?

2. Page 11470, lines 1-4: The author draw a conclusion that additional source or sink terms such as advection or aerobic CH<sub>4</sub> oxidation in the water column seem to be negligible at BE. However, there is insufficient detail on the source or sink strength of advection or aerobic CH<sub>4</sub> oxidation in the water column, it seems unreasonable to draw such a conclusion only based on the balance between CH<sub>4</sub> release from the sediments and the CH<sub>4</sub> release to atmosphere.

3. Since the CH<sub>4</sub> in the water column of the studied region mainly come from in situ methanogenesis in the sediments, I would like to suggest the authors pay more attention to the seasonal variation of sedimentary CH<sub>4</sub> release as well as its oxidative loss in future research.

---

Interactive comment on Biogeosciences Discuss., 6, 11463, 2009.

C4022