General comments

This paper present new measurements of bromoform in the tropics, a key source region for short lived halogen gases which may be transported to the stratosphere and contribute to ozone depletion. The authors find much higher concentrations at the coast than about 50km inland, which they could not explain at the resolution of the models used, nor were the absolute levels consistent with current emission scenarios. The manuscript represents an important data set, and is in scope for ACP, however I do not find that it reaches substantive or quantitative conclusions. For example, what are the general implications for bromoform source strengths? It is not made clear whether the mismatch is really due an overestimation of sources (by Warwick et al and others), or rather to a combination of coarse model resolution and local sources. If the latter – it would be good to show this using a higher resolution model, and more information on the local macroalgal densities.

Further, the model results are not described accurately. For example, in the conclusions the authors state "Both models show that, despite a lifetime of about two weeks, substantial gradients between the coast and inland can be expected for bromoform, with the coastal measurement variability being dominated by local emissions.". This is not the case – Fig 5 for example shows very little difference between the model predictions for the 2 sites. Further, there is no systematic analysis of variability to back up the latter statement.

The final point is that the derived global source strength for bromoform is clearly subject to a high level of uncertainty, which is not made clear.

Major comments:

p14978 and Fig 4.

Ln 20
"The results in Fig. 4 show some similarities to Fig. 1. First, the concentrations at Danum are usually less than at Kunak, sometimes by a factor of two or more."

This statement is rather confusing. The results in Fig. 4 seem to show no resemblance to those of Fig 1, in particular there appears to be little difference in Fig 4 between the Danum and Kunak model results. I think the caption means that the Danum results are scaled to the Danum measurements and the Kunak model results to the Kunak measurements, but this should be rewritten to make this much clearer – or even better – simply leave out the scaling altogether.

Ln 21
"The modelled difference increases if a coarser grid is used."

Can the authors comment on the reasons for this? As discussed in the previous paragraph, a lower resolution should degrade the difference between Danum and Kunak and thus result in a decreased difference.

p14979.
Ln 4. The authors seem rather coy about discussing reasons for the modelled and measured diurnal variation. If this is found in the model (as well as the measurements) then clearly they have the means to explore this (photolysis/meteorology?), and this should be discussed since in their previous paper (O'Brien et al.) they allude to diurnal cycles being indicative of photochemical sources.

Ln 25. The model also captures a concentration gradient between the coast and inland, consistent qualitatively with the differences in bromoform measured at our two sites.

I disagree: Figure 5 shows an insignificant difference between modelled bromoform at the two sites!

p14981.
" p-TOMCAT is able to reproduce the magnitude of the bromoform measurements but only if the emission strengths used by Warwick et al. (2006) are reduced.".

The model can only reproduce the measurements at one site, and only if current assumptions about bromoform sources are substantially changed. Thus this statement is rather arbitrary. Later on, the authors state "The difference serves to emphasise the difficulty with using local measurements of short-lived halocarbons to attempt to infer global emissions." I agree. In which case, I do not think it is appropriate to quote an estimated global source strength based on these measurements. Readers who only read the Abstract " the bromoform data are consistent with a lower global source (190 Gg Br yr^{-1}) than indicated by our recent measurements on Cape Verde (O'Brien et al., 2009)" may take this as a new CHBr3 global estimate.

Minor comments:

p14971

Ln 18: Law, Sturges et al., 2007).

>Law and Sturges

p14976

Ln 1-2 "We observed the bay at Kunak to be rich in macroalgae."

Please give some idea of the prevalent type of macroalgae.