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# Brominated VSLS and tetrachloroethene in the tropical boundary layer of the maritime continent in 2008/2009

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We report measurements of bromoform (CHBr3) and tetrachloroethene (C2Cl4) made by gas chromatography during the OP3 campaign in 2008. Measurements were made simultaneously for a few days at the World Meteorological Organization (WMO) Global Atmospheric Watch (GAW) site in the Danum Valley, a rainforest location in Sabah, Borneo, and at a nearby coastal site at Kunak. Background values at Kunak were higher than those measured in the rainforest (2–5 ppt compared with 1 ppt) and excursions away from the background were very much higher, reaching 10 s of ppt. Measurements of C2Cl4, an industrial tracer, showed no significant difference in background at the two sites. Modelling using two different models can reproduce a number of the observed features. The data are consistent with a strong, local coastal source of bromoform in eastern Sabah and can be used to infer the strength of the source of bromoform in South East Asia. However, they provide only a very weak constraint on global emissions. The global model results highlight the difficulty for short-lived species of extrapolating limited duration, local measurements to a global source.

After the OP3 campaign one instrument continued to measure at Danum Valley and the other was sited on the coast 85 km away at Tawau. We use data from this deployment extension to explore further the findings of the OP3 deployment. Using a longer dataset, evidence of a seasonality in the background for tetrachloroethene appears both inland and at the coast. We report evidence that the bromoform background inland can occasionally be higher than at the coast. In addition to bromoform and tetrachloroethene we report combined observations of dibromomethane+bromodichloromethane (CH2Br2 + CHBrCl2) which together with bromoform account for >90 % of the total bromine arising from short-lived species in the region.