

Review on **“Importance of seasonally resolved oceanic emissions for bromoform delivery from the tropical Indian Ocean and west Pacific to the stratosphere “**

General comments:

Based on two monthly resolved bromoform emission inventories and the atmospheric transport of bromoform modeled with the particle dispersion model FLEXPART, this study highlights that the seasonal and spatial variations of bromoform emissions are of importance for resolving the stratospheric entrainment, which contributes to the stratospheric halogen loading and ozone depletion. The paper presents important results. The approach and arguments are valid and the conclusions are reasonable. This manuscript is in good shape for publication in ACP. I recommend its publication after revision or answer towards the points below.

1. Overall, the introduction is comprehensive. However, some words about the importance of Asian monsoon in troposphere to stratospheric transport (TST) and previous related studies are necessary since this point is one of the main results. I suggest the author to cite some important works, especially some work about convective transport during ASM. Here are some recommendations for TST associated with ASM and its transport pathways.

Overview:

Randel, William J., et al. "Asian monsoon transport of pollution to the stratosphere." *Science* 328.5978 (2010): 611-613.

convective transport:

Orbe, Clara, Darryn W. Waugh, and Paul A. Newman. "Air-mass origin in the tropical lower stratosphere: The influence of Asian boundary layer air." *Geophysical Research Letters* 42.10 (2015): 4240-4248.

Tissier, Ann-Sophie, and Bernard Legras. "Convective sources of trajectories traversing the tropical tropopause layer." *Atmospheric Chemistry and Physics* 16.5 (2016): 3383-3398.

2. Section 3.1, Line 278-285: another difference between the two inventories is also worth to mention: the hot spot in the central Bay of Bangle is pronounced the whole year in Ziska updated but not clear in Stemmler Scaled. This hot spot of emission is important for the delivered mass shown in Fig.4 (a). I also suggest to explain the formation of emission hot

spot.

3. Towards Figure 4, I am confused why the transport efficiency is independent of the emission distribution. According to the method (line 258-260),

$$\text{Transport efficiency} = M_{\text{strat. entrain}} / M_{\text{emission}}$$

Thus, it should not be independent. Meanwhile, Fig. 6 (b) also shows different seasonality of transport efficiency from two inventories.

4. Figure 6 (a), why it show slightly different annual cycles from the red and blue solid lines in Fig.1? For example, the blue line is larger than the red in Jan.- Feb. but they are almost the same in Fig.1. Are these two figures showing the same quantity or not?

Specific comments:

1. what wind speed is used in Figure 1? Is it the monthly mean surface wind speed averaged in the IO/WP region? Please specify this either in the text or in the figure caption.
2. Page 10, line 265: ... IO/WP release area are shown in **the top panel of** Figure 2.
3. Page 11, line 287-289: **Global mean** emissions are high....for both inventories (**see also Fig.1**).
4. Figure 3, I recommend to use legends separately for each sub-figure, i.e. IO (Ziska updated) red solid line; IO (Stemmler Scaled) blue solid line and so on for (a).
5. Page 20, line 446: please specify ODP (ozone depletion potentials) since it is used for the first time.
6. Figure 5: please add statements that how the locations of the plotted quantity are decided.