General comments:

Falk and co-authors used EMAC model to investigate brominated VSLS and their influence on ozone under a changing climate. The IPCC scenario RCP6.0 was chosen to represent the future climate. The emission of VSLS for the 21st century was calculated based on fixed VSLS concentrations in the ocean surface layer. Through carefully designed experiments, they attempted to separate the individual contribution from each of the key factors (T, dynamical transport, [OH] chemistry, tropopause, AOA, etc) that may affect bromine supply from VSLS in both the troposphere and the stratosphere. This manuscript highlights some interesting insights of how these factors may affect VSLS as a source of bromine in a changing climate and the corresponding ozone change due to the VSLS is well in line with previous simulations. Although there are a few 'flaws', e.g. in model setup (see below), the manuscript is well written and fluent to read, and the model conclusions sounds robust. As a conclusion, I support publication in ACP, but some clarifications are needed (see below).

Specific comments:

The assumption of constant oceanic concentrations for VSLS under RCP6.5 scenario is obviously a source of bias. It is true that we have very limited information about the possible responses of marine ecosystem to a warming climate. However, the manuscript could benefit from inclusion of discussions about how sensitive the VSLS emission could be to water concentrations (as well as to SST or wind). What are the responses of stratospheric ozone to the emission perturbations, in a linear or non-linear way? Could the authors derive something from their long-term integrations (without making any further experiment)? If not, then what the literatures say on the same question?

My second concern is about chlorine (Cly) effect. In the introduction section, the authors have clearly addressed the importance of mixed halogen reactions (Br-Cl) to the stratospheric ozone. However, this topic was not explicitly touched or discussed in the main text. The Cly difference from its peak to that at the end of the 21st century could be a few ppbvs. Is it not enough to make any difference in the Br-Cl-ozone system? Is the Cl-effect in the model result un-detectable? If so, why? Please supply the Cly curves in the revision.

P1 Line 1: Traditionally, the abbreviation 'VSLS' represents 'Very short-lived substances', not 'very short-lived source'. How about change the first sentence to 'Source gases of very short-lived substances (VSLS) contribute significantly to... '. A same problem is also spotted in P2 Line 4.

P2 Line 6-7: the '(C_w)' following 'atmosphere' should be '(C_{air})'. Since both C_w and C_{air} are not used here (they are later re-defined on Page 5 in equation 1), thus they can be removed from the text here.

P5 Line 12-15: the equation 1 is not fully described. For example, K_w and K_{air} are not clearly defined; 'temperature T' in line 15 should be 'air temperature T_{air}'