

## ***Interactive comment on “Ozone reservoir layers in a coastal environment – a case study in Southern Taiwan” by C.-H. Lin et al.***

**Anonymous Referee #2**

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This study is done based on the Tethersonde measurements. Findings are interesting and worthy to be published. Some suggestions are listed below to make the paper more readable.

1.If the measurement site is at coast, will there be an ozone reservoir layer? Also, if the measurement site is located downwind of those major emission plumes, will there be an ozone reservoir layer? Further, if the prevailing wind is strong, from surface up to the top of the boundary layer, will there be an ozone reservoir layer? Clearly, all these matter. A discussion on these possibilities is necessary when describing the experimental design and the selection of the study site. 2.The assumption of ozone coming downward from the ozone reservoir layer to contribute on the build-up of ozone concentration next-day is interesting. However, as the wind observation data indicates

C23

a significant land-sea breeze happening locally. The horizontal extent of the ozone reservoir layer has to be identified to support such assumption. The air is not stagnant or only moving upward or downward. The trajectory plot in Fig. 9 supports this point. By the way, how these trajectories are plotted. There is no spatially-dense measurement data to allow such calculation. 3.How reliable is the calculation given in Fig. 11, after following Eq. 4-9? It should be expressed in a statistical manner. The equations do not consider the effects of horizontal and vertical transport and diffusion, but taking the mixing of upper and lower layers as the major dynamic process. The complexity of the local circulation has been simplified in Eq. 4-9. Discussion on the uncertainty and possible errors embedded is needed. 4.The plot in Fig. 10 is useful. Some caution is needed. Sea breeze happening in the evening is questionable. From Fig. 6a, it stops around sunset. Also, a relative sense of magnitude is needed. Otherwise, the comparison of Fig. c with respect to Figs. a,b will lead to a misconception that the ozone level in the early morning is the highest in one day. Same consideration is needed for U and PT. 5.The description of events and related figures can be shortened to make the paper much more concise, while discussions suggested above can be elaborated.

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C24