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Dear Reviewer #4,

Please find below our response to your comments on “Characterising terrestrial influences on Antarctic air masses using radon-222 measurements at King George Island”, by Chambers et al.

Thank you for your time and constructive feedback on this manuscript.

Kind regards,

Scott Chambers

In '3.1 Seasonal and diurnal variability' section; "The seasonal KSG radon cycle is characterised by a broad summer-autumn maximum and winter-spring minimum (Table 2; Fig. 4a)." If possible, it's better for authors to shortly describe the reason why summer-autumn maximum and winter-spring minimum is as observed at Cape Grim.

The authors apologise for this ambiguity, it has been addressed in the text. While the **range** of radon concentrations in the least terrestrially influenced air masses is similar between KSG and Cape Grim, their radon **seasonal cycles** are, in fact, **completely out of phase** (this was implied in the ordering of the values stated in the manuscript, but it was not specifically mentioned). As is the case for many Southern Ocean stations (Crozet, Kerguelen, Amsterdam Island, Cape Point), Cape Grim baseline air masses exhibit minimum radon concentrations in summer, and maximum concentrations in winter. An earlier draft of the manuscript also reviewed the seasonality of radon concentrations at sub-Antarctic sites, but it was subsequently considered that this was too far from the primary study aims.