

Weather Clim. Dynam. Discuss., community comment CC1 https://doi.org/10.5194/wcd-2022-43-CC1, 2022 © Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.

## Comment on wcd-2022-43

Adam Scaife

Community comment on "The role of Rossby waves in polar weather and climate" by Tim Woollings et al., Weather Clim. Dynam. Discuss., https://doi.org/10.5194/wcd-2022-43-CC1, 2022

A small comment to request clarification of upstream propagation.

It is suggested (line 122-128) that long waves have the potential for westward propagation relative to the ground. However, I think this is potentially misleading as the simple theory discussed here does not allow westward propagation if the waves are stationary. This is easily shown by deriving an expression for Cgx and using the condition  $\omega = 0$  as in Scaife et al, QJRMS, 2017.

Please could the discussion be clarified here to make it clear that, *irrespective of the values of k and l*, it is only *transient* waves that have any possibility for westward propagation relative to the ground? If this is not correct I would equally interested to know!

Many thanks