Reconstructing NLC variability in CMAM30

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The nudged and extended version of the Canadian Middle Atmosphere Model (CMAM30) is used to reconstruct and investigate observed variability in noctilucent cloud (NLC) occurrence frequency and brightness. In CMAM30, a parameterization is made for these ice clouds, for which it is assumed that the ice content is solely controlled by the local temperature and water vapor volume mixing ratio, both provided by the CMAM30 model. The effect of the solar cycle on the cloud occurrence frequency and brightness is studied. Composite analysis is used to study the effect on of high and low planetary wave activity on the NLCs. It is also investigated whether the model can reconstruct the influence of the solar cycle and global dynamics on the NLC onset.

It is found that this simple parameterization of NLC using CMAM30 captures the observed variability in NLC occurrence frequency and brightness rather well.