

EGU21-5453

<https://doi.org/10.5194/egusphere-egu21-5453>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



Stationary Waves and Upward Troposphere-Stratosphere Coupling in Operational Subseasonal Forecasting Models

Chen Schwartz and **Chaim Garfinkel**

The Fredy & Nadine Herrmann Institute of Earth Sciences, Hebrew University of Jerusalem, Jerusalem, Israel
(chen.schwartz1@mail.huji.ac.il)

Realistic representation of large-scale stationary waves (SWs) in general circulation models is crucial, as they modulate the trajectories of mid-latitude storms, and shape the distribution of surface temperatures along comparable latitude bands over densely populated areas in the Northern Hemisphere.

In this work, we assess the fidelity of NH wintertime SWs in 5 operational subseasonal-to-seasonal models. In the troposphere, we found that biases in the North Pacific are more pronounced in NCEP, ECMWF and UKMO models compared to the North Atlantic, while in the CMA and BoM models, large biases in amplitude and phase are present in both sectors. These biases in tropospheric SWs directly affect the simulated SWs in the stratosphere.

Finally, we attribute the biases in the North Pacific sector, in part, to the mean state biases in the tropics. Longitudinal shifts in the time-mean tropical convection over the Maritime Continent and central Pacific, affect the longitudinal position of the North Pacific trough in the models.