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# KlimaCampus Kolloquium

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## **An interplay of Rossby waves and gravity waves in the general circulation of the middle atmosphere**

The meridional circulation of the middle atmosphere is maintained by angular momentum deposition associated with waves. The summer-to-winter circulation in the mesosphere is mainly driven by gravity-wave forcing (GWF). However, GWF is not uniformly distributed, reflecting source distribution and filtering by Rossby waves. As a result, the GWF frequently causes anomalous potential vorticity gradient and radiates Rossby waves. Such in-situ Rossby wave radiation gives additional wave forcing and modulates the meridional circulation. In contrast, the two-celled circulation in the stratosphere is mainly driven by planetary-scale and synoptic-scale Rossby waves.

However, the summer hemispheric part of the winter cell is expected to be driven by GWF, because mean easterly wind in summer prohibits Rossby-wave upward propagation. In this seminar, an interplay of Rossby waves and gravity waves in the middle atmospheric is discussed based on recent studies using models and reanalysis data.

*Kaoru Sato from the University of Tokyo is invited by Eliza Manzini, MPI-M.*

**Bundesstraße 53, Room 22/23 (ground floor)**