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A numerical simulation of lower Venus atmosphere

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Superrotation of Venus atmosphere is mysterious phenomena (i.e. cloud layer rotates 60 times faster than ground). Many theories about its generating mechanism have been proposed in the past, but observations and simulations are not enough to support them. Recently, many Venus-like AGCMs (atmospheric general circulation models) have tried to simulate Venus atmosphere. However, most of them are not successful to generate superrotation in lower atmosphere.

In the present study, superrotation in lower Venus atmosphere is simulated by a simple dynamical core AGCM (T21, $0<z<40$km) with simple grey-atmosphere radiation. For some condition, superrotation with sufficient strength is generated in lower levels by the mechanism proposed by Gierash(1975). Details will be shown in the poster.