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On the Circulation in the Equatorial Trough Zone

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Dr. Berson of the Division of Meteorological Physics, CSIRO, Aspendale, stated that the mean meridional circulations in the tropical (Hadley) cell have been examined from soundings in the summer monsoonal regime of the Australia-Indian Ocean sector.

Calculations, he said, show that convergence of transport of zonal angular momentum required to maintain the monsoonal westerlies is closely linked with the high tropospheric easterly jet near the equator; whereas in the energy balance low-level transport of latent heat southward across the equator is an important factor. The strengths of both zonal and meridional circulations are thus likely to affect seasonal rainfall amounts.

The data indicate, Dr.Berson continued, that the ascending limb of the mean circulation is too weak to account for the required vertical transfer of momentum and heat energy. This is in agreement with the concept of selective transfer in "protected cores" within the large convective systems of the trough zone, proposed by Riehl and Malcus in a study of heat energy balance on the winter side of the Equatorial Trough Zone.

References

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