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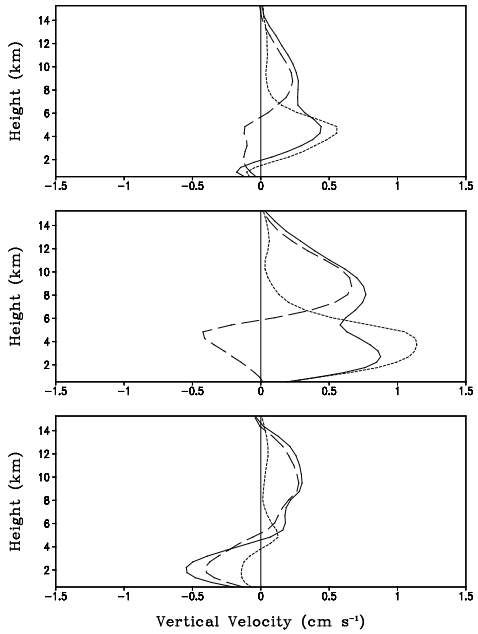

Fig. 1 Vertical profiles of time and model domain mean vertical velocity (cm s^{-1}) in rain types (a) net rain source and rain hydrometeor loss/convergence (solid) with dominant water (short dash) and ice (long dash) microphysical processes, (b) net rain source and rain hydrometeor gain/divergence (solid) with dominant water (short dash) and ice (long dash) microphysical processes, and (c) Net rain sink and rain hydrometeor loss/convergence (solid) with dominant water (short dash) and ice (long dash) microphysical processes.

- Over 67% of total rainfall is associated with net rain source in which collection of cloud water by rain is larger than melting of precipitation ice to rain in the presence of upward motions throughout the troposphere.
- Over 26% of total rainfall is related to downward motions in the lower troposphere that leads to melting of precipitation ice as a major term in production of precipitation.
- About 15% of total rainfall corresponds to dynamic hydrometeor advection only.