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AASO02-P02 Room: Convention Hall Time: May 27 17:15-18:45

## Characteristics of the kinetic energy spectrum of NICAM in the arctic

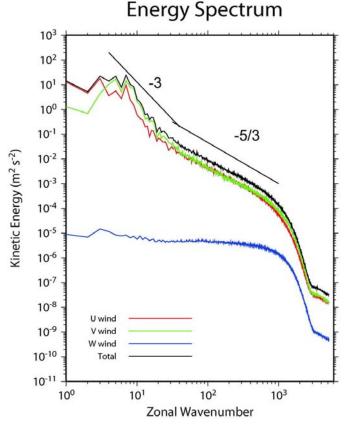
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In this study, characteristics of the energy spectrum in the zonal wavenumber domain are examined for the cloud resolving global model NICAM. A series of numerical experiments are conducted for NICAM with various horizontal resolutions from 224 km (glevel-5) to 7.0 km (glevel-10) using the T2K-Tsukuba System and 3.5 km (glevel-11) using the Earth Simulator (ES). The energy spectra of most of horizontal resolutions obey k<sup>-3</sup>power law in synoptic and sub-synoptic scales (wavenumbers k = 5 to 30).

However, the energy slope for glevel-5 becomes much steeper around zonal wavenumber k=10. Nastrom et al. (1985) explained that the energy spectrum near the tropopause at wavelengths below 400 km appears to follow the k<sup>-5/3</sup> power. This scale corresponds to about k=70 near 45 ¥deg N. It is found that the energy spectra for k >

It is found that the energy spectra for k > 30 for glevel-10 and 11 follow the k<sup>-5/</sup> <sup>3</sup>power law.



These results agree quite well with the observational studies.

It is also found that the kinetic energy of the vertical wind is white noise spectrum.