



Brief Description of NCUM-R (4-km)

Model Version	UM8.5
Model Dynamics	ENDGame (<i>Even Newer Dynamics for General Atmospheric Modelling of the Environment</i>)
Model Physics	Global Atmosphere 6.1
Governing Equations	Non-hydrostatic; Deep atmosphere (Model top at ~ 80 km)
Horizontal Resolution	4 km
Model Domain	5°- 40° N & 65°-100° E
Model Vertical Layers	70
Model Time Step	60 Seconds
IC/LBC	From 17-km global model (NCUM-G)
Spatial Discretization	Finite Difference method
Time Integration	Semi-implicit
Advection	Semi-Lagrangian scheme
Radiation Process	Spectral band radiation (general 2-stream) called at every hour
Surface Process	JULES land-surface scheme
PBL Process	JULES Revised PBL
Convection Process	No Convective parameterization. Explicit rain processes
Microphysics	Improved mixed-phase scheme based on Wilson and Ballard (1999)
Gravity Wave Drag	Based on orography drag and spectral gravity wave (Webster et al., 2003)
Forecast Length	75 hours
No. of Compute Procs	2368 (148 IBM iDataPlex nodes)
Wall Clock Time	115 Minutes