Specification of CReSS model configuration (5-km, 48 CPUs) used for 2011 Typhoon season, running 4-times daily at Department of Earth Sciences, National Taiwan Normal University, Taipei, Taiwan. (prepared by Chung-Chieh Wang)

	Model domain
Domain size (km)	1080 × 900 × 20 (centered at 23.5°N, 121.0°E)
Grid size (km) and number	5 × 5, 200-663 m stretched (216 × 180 × 40)
Projection	Lambert Conformal, 120°E, secant at 10°N, 40°N
Initial and boundary conditions	NCEP/GFS analysis & forecast (1° × 1°, 26 levels, 3 h)
Topography and SST data	Real at (1/120)°, and observed at 1° resolution
Initial time and forecast length	00, 06, 12 & 18Z (08, 14, 20 & 02L), each for 72 h
Data output frequency	Every 15 min (289 output times, t_0 included)
	Model physics
Advection and diffusion	Forth order in H/V, forth order in H/V
Cloud microphysics	Bulk cold rain scheme (6 species: q_v, q_c, q_r, q_i, q_s, q_g)
Cumulus parameterization	None
PBL parameterization	1.5-order closure with TKE prediction
Surface processes	Energy and momentum fluxes, and shortwave and longwave radiation (no cloud radiation)
Soil (substrate) model	41 levels, every 5 cm to 2 m deep
	Numerical methods
Time steps (large/small)	Δt = 7.5 s, $\Delta\tau$ = 3.75 s (time splitting)
Time integration	Filtered leapfrog for Δt (HE-VE), and leapfrog and Crank-Nicolson for $\Delta\tau$ (HE-VI)
Number of PEs	48 CPUs (6 nodes)

Specification of CReSS model output (5-km, 48 CPUs) plots for 2011 Typhoon season, running 4-times daily at Department of Earth Sciences, National Taiwan Normal University, Taipei, Taiwan. (prepared by Chung-Chieh Wang)

Under normal conditions, four CReSS model runs, initialized at 0000, 0600, 1200, and 1800 UTC (0800, 1400, 2000, and 0200 LST, respectively), are executed daily, all for a forecast length of 72 h, and results typically become available (on the web) within 7.5 h after the time of initialization. Model outputs are produced at 15-min intervals, and for each time the following plots are made:

(A) Plots to depict precipitation systems and convection:

1. MSLP, *u*, *v*, and 15-min rainfall at surface: 15-min accumulated rainfall (mm, shading as indicated by color bar), MSLP (hPa, gray lines every 1 hPa, ocean only), *u* and *v* at 10 m (knots, wind barbs), terrain contour (gray lines at 1 and 2 km).
2. Streamline, convergence/divergence, and potential temperature (θ) at 591 m (near 600 m): Convergence (10^{-4} s^{-1}, shading as indicated by color bar) and divergence (10^{-4} s^{-1}, thin magenta lines at same levels as convergence), streamline (thin gray arrow lines), θ (°C, cyan lines every 1°C), terrain height at 591 m (gray lines).
3. Pressure (*p*), *u*, *v*, and mixing ratio of precipitating hydrometeors (q_p) at 1976 m (near 2 km): q_p (total mixing ratio of rain, snow, and graupel, i.e., $q_r + q_s + q_g$, g kg^{-1}, shading as indicated by color bar), *p* (hPa, purple lines every 0.5 hPa), *u* and *v* (knots, wind barbs), terrain height at 1976 m (gray lines).
4. Relative vorticity (ζ), *p*, *u*, *v*, and *w* at 3201 m (near 3.2 km): ζ (10^{-4} s^{-1}, shading as indicated by color bar), *p* (hPa, gray lines every 1 hPa), *u* and *v* (m s^{-1}, wind barbs), *w* (m s^{-1}, thin contours at levels of 0.1, 1, 2, 5, 10, 15, 20 m s^{-1}, upward only).
5. *p*, *u*, *v*, and divergence at 11718 m (near 12 km) and *w* at 4912 m (near 5 km): Divergence (10^{-4} s^{-1}, shading as indicated by color bar, positive only), *p* (hPa, purple lines every 1 hPa), *u* and *v* (m s^{-1}, wind barbs), *w* at 4912 m (m s^{-1}, thin contours at levels of 0.1, 1, 2, 5, 10, 15, 20 m s^{-1}, upward only).

(B) Plots at standard levels for comparison with other models:

6. MSLP, *T*, *u*, and *v* at surface: *T* at MSL (°C, shading as indicated by color bar, ocean only), MSLP (hPa, black lines every 1 hPa, ocean only), *u* and *v* at 10 m (knots, wind barbs), terrain contour (gray lines at 1 and 2 km).
7. *p*, mixing ratio of water vapor (q_v), *u*, and *v* at 896 m (near 925 hPa): q_v (g kg^{-1}, shading as indicated by color bar), *p* (hPa, black lines every 1 hPa), *u* and *v* (m s^{-1}, arrows), terrain height at 896 m (gray lines).
8. *p*, *T*, *u*, and *v* at 1594 m (near 850 hPa): *T* (°C, shading as indicated by color bar), *p* (hPa, black lines every 1 hPa), *u* and *v* (m s^{-1}, arrows), terrain height at 1594 m (gray lines).
9. *p*, *T*, *u*, and *v* at 3201 m (near 700 hPa): *T* (°C, shading as indicated by color bar), *p* (hPa, black lines every 1 hPa), *u* and *v* (knots, wind barbs), terrain height at 3201 m (gray lines).
10. *p*, *T*, *u*, and *v* at 5773 m (near 500 hPa): *T* (°C, shading as indicated by color bar), *p* (hPa, black lines every 1 hPa), *u* and *v* (knots, wind barbs).
11. *p*, *T*, *u*, and *v* at 9408 m (near 300 hPa): *T* (°C, shading as indicated by color bar), *p* (hPa, black lines every 1 hPa), *u* and *v* (knots, wind barbs).
12. *p*, *T*, *u*, and *v* at 12379 m (near 200 hPa): *T* (°C, shading as indicated by color bar), *p* (hPa, black lines every 1 hPa), *u* and *v* (knots, wind barbs).