

CWB Global Forecast System

Dec. 2013

** Data assimilation*

1. **Scheme: 3-dimensional variational method (derived from NCEP Gridpoint Statistical Interpolation scheme) (Wu. et al. 2002) ◦**

Update cycle: 6-hourly

** Dynamics*

Horizontal resolution: Triangle truncation 319 waves

Vertical resolution: 40 sigma levels

Time step: 225 sec

Diffusion: 8th order horizontal diffusion

**Prognostic variables: vertical vorticity, horizontal divergence,
surface pressure, virtual potential temperature
specific humidity, cloud water(ice)**

** Physics*

Soil model : Noah land surface model-4 layer (Ek et al. 2003)

**Vertical turbulence mixing : a first order closure of nonlocal
scheme(Troen and Mahrt 1986; Hong and Pan
1996)**

**Shallow convection : turbulent diffusion-based approach (Li
1994)**

**Cumulus convection : Simplified Arakawa-Schubert scheme
(Pan and Wu 1995)**

**Grid scale precipitation : Predict cloud water(pcw) and diagnose
precipitation with cloud physics
(Zhao and Carr 1997)**

Gravity wave drag : Palmer et al.(1986)

**Radiation : Unified two-stream calculation with k-correlated
method (Fu and Liou 1992;1993 and Fu et al.
1997)**

Operational Procedure:

Now the global model is running four times a day.

For the 00Z and 12Z run, model performs a 384 hours forecast.

For the 06Z and 18Z, model performs a 384 hours forecast.

Future task:

Enhance the use of new radiance data of new satellites.

Increase the resolution from T319L40 to T512L60.

Reference:

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