

**APPENDIX 2.2.12. CHARACTERISTICS OF THE NUMERICAL OCEAN WAVE PREDICTION SYSTEM (Updated on August 2019)**

<b>1. System</b>	
System name (Version)	GRAPES_WW3
Date of implementation	Jun 2019
<b>2. Configuration</b>	
Horizontal resolution of the model, with indication of grid spacing in km	0.5°×0.5° (55km)
Number of model frequency bands	29
Number of model directional bands	24
Forecast length and forecast step interval	240hr/6hr
Runs per day (times in UTC)	00UTC,12UTC
Is model coupled to ocean, atmosphere, sea-ice models? Specify which models	Not coupled
Integration time step	30s
<b>3. Initial conditions</b>	
Data assimilation method for control analysis	No wave data assimilation is performed, each run starts with 12-hour hindcasts.
<b>4. Surface boundary conditions</b>	
Surface forcing, briefly describe method(s)	The operational ocean wave predictions of NMC/CMA use the wave model WAVEWATCH III using operational GRAPES_GFS products as input.
Land boundary conditions (for example, sea-ice cover)? If yes, briefly describe method(s)	No input of sea- ice
<b>5. Other details of model</b>	
What kind, if any, of sea-swell splitting scheme is in use?	The method of Hanson and Phillips(2001) is used, implemented as described in Tracy et al. (2007).
Are wave observations, or spectra, assimilated? If so, describe method briefly	No wave data assimilation is performed
Does the model contain shallow water physics? What bathymetry database is used for shallow water areas?	Use Miche-style shallow water limiter in equation for maximum wave

	energy (MLIM). Use ETOPO-1 bathymetry database (Amante and Eakins, 2009).
Verification approach?	The buoy data is used to verify the forecasting results of the wave model system. Bias, rsme and scatter index are calculated.
<b>6. Further information</b>	
Operational contact point	sunmh@cma.gov.cn
URLs for system documentation	<a href="http://www.wmc-bj.net">http://www.wmc-bj.net</a>
URL for list of products	<a href="http://www.wmc-bj.net">http://www.wmc-bj.net</a>

**Note: WMO-NO.485 APPENDIX 2.2.12.**