

# Outline of model products from New Seasonal Forecast System at CPD/JMA

Kiyotoshi Takahashi

Climate Prediction Division  
Japan Meteorological Agency

# New seasonal forecast EPS system

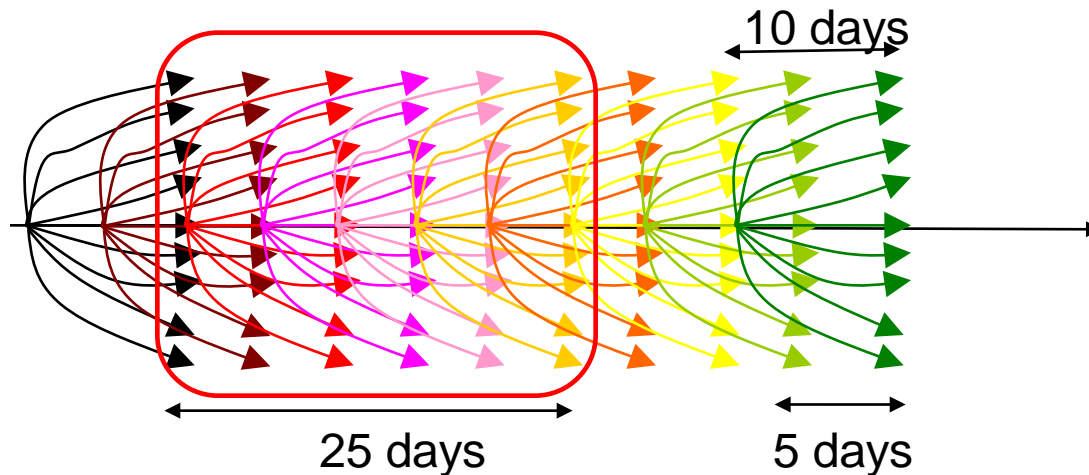
- Model specification is the same as the current El-Nino prediction model (atmosphere-ocean coupled model).
- Much improvement of forecast performance can be expected compared with the current two-tiered system.
- The details will be shown in the presentation at the symposium.

# Model specification

<b>AGCM</b>	<b><a href="#">JMA/MRI Unified AGCM</a></b> <ul style="list-style-type: none"><li>• TL95L40 (horizontal resol. ~ 180km)</li><li>• CO2 trends</li></ul>
<b>OGCM</b>	<b><a href="#">MRI.COM</a></b> Ishikawa <i>et al.</i> (2005) <ul style="list-style-type: none"><li>• 75S-75N, 0-360E</li><li>• horizontal resolution: lon 1.0° , lat 0.3-1.0°</li><li>• vertical resolution : 50 levels (23 levels in the upper 200m)</li></ul>
<b>Coupler</b>	<ul style="list-style-type: none"><li>•flux adjustment for heat and momentum flux</li><li>•coupling interval : 1 hour</li></ul>
<b>Perturbation method</b>	Atmosphere: BGM Ocean: driven with BGM (wind stress, heat flux) for preceding 10 days to the initial) 5 days LAF 51 members per month (out of 54=9 x 6)

# Configuration of ensemble for New system

- Atmosphere: BGM method with TL95L40
- Ocean: driven with wind-stress and heat-flux from atmospheric BGM for preceding 10 days
- 9 members are carried out at an initial time.
- Such a run is carried out every 5 days (LAF).
- One-month product is composed of 51 members (out of 54members=9x6).



# Specification of GPV

GPV	Current	New
Ensemble method	SV: 51 members at an initial	BGM+LAF: 51 members out of 9 x 6 =54 members
File format	GRIB2(12bit)	GRIB2(16bit)
Ensemble mean (3 month mean, monthly mean)	(10 items) SURF: SLP, 2mT, RAIN, SST 850hPa: U, V, T 500hPa: Z 200hPa: U, V	(10 items) SURF: SLP, 2mT, RAIN, SST 850hPa: U, V, T 500hPa: Z 200hPa: U, V
Monthly mean for each member (1-3 month lead)	Nothing	(23 items) SURF: SLP, 2mT, RAIN, SST 1000hPa: T, RH 850hPa: Z, U, V, T, RH, Q 500hPa: Z, U, V, T, RH 300hPa: Z 200hPa: Z, U, V, T 100hPa: Z
Summer/winter seasonal forecast Monthly mean for each member (1-4/5/6 lead time)	(20 items) SURF: SLP, 2mT, RAIN, SST 850hPa: Z, U, V, T, RH, Q 500hPa: Z, U, V, T 300hPa: Z 200hPa: Z, U, V, T 100hPa: Z	(23 items) SURF: SLP, 2mT, RAIN, SST 1000hPa: T, RH 850hPa: Z, U, V, T, RH, Q 500hPa: Z, U, V, T, RH 300hPa: Z 200hPa: Z, U, V, T 100hPa: Z

# Specification of hindcast GPV

Hindcast specification	Current	New
Ensemble method	SV: 11 members on 10 <sup>th</sup> every month	BGM: 5 members on the last day and 15 <sup>th</sup> every month
Hindcast period	1984-2005 (22 years)	1979-2008 (30 years)
File format	GRIB2 (12bit)	GRIB2 (16bit)
Daily 0-120 days	<b>【6 items】</b> SURF: RAIN 850hPa: U, V 500hPa: Z 200hPa: U, V	TBD
Monthly mean	<b>【12 items】</b> SURF: SLP, 2mT, RAIN, SST 1000hPa: Z 850hPa: U, V, T 700hPa: T 500hPa: Z 200hPa: U, V	TBD