# WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble

# WMO LC-LRFMME

**12 WMO Global producing Centres (GPCs) for Long-Range Forecasts**

- Beijing: China Meteorological Administration (CMA) / Bejing Climate Center (BCC)
- CPTEC: Center for Weather Forecasting and Climate Research / National Institute for Space Research (INPE), Brazil
- ECMWF: European Centre for Medium-Range Weather Forecasts
- Exeter: Met Office, United Kingdom
- Melbourne: Bureau of Meteorology (BOM), Australia
- Montreal: Meteorological Service of Canada (MSC)
- Moscow: Hydrometeorological Centre of Russia
- Pretoria: South African Weather Services (SAWS)
- Seoul: Korea Meteorological Administration (KMA)
- Tokyo: Japan Meteorological Agency (JMA) / Tokyo Climate Center (TCC)
- Toulouse: Météo-France
- Washington: Climate Prediction Center (CPC) / National Oceanic and Atmospheric Administration (NOAA), United States of America

## Goal

**Provide**
a conduit for sharing global prediction models

**Develop**
a well-calibrated MME system and user-friendly services

**Maximize**
the benefit from favorable climate conditions

## Background

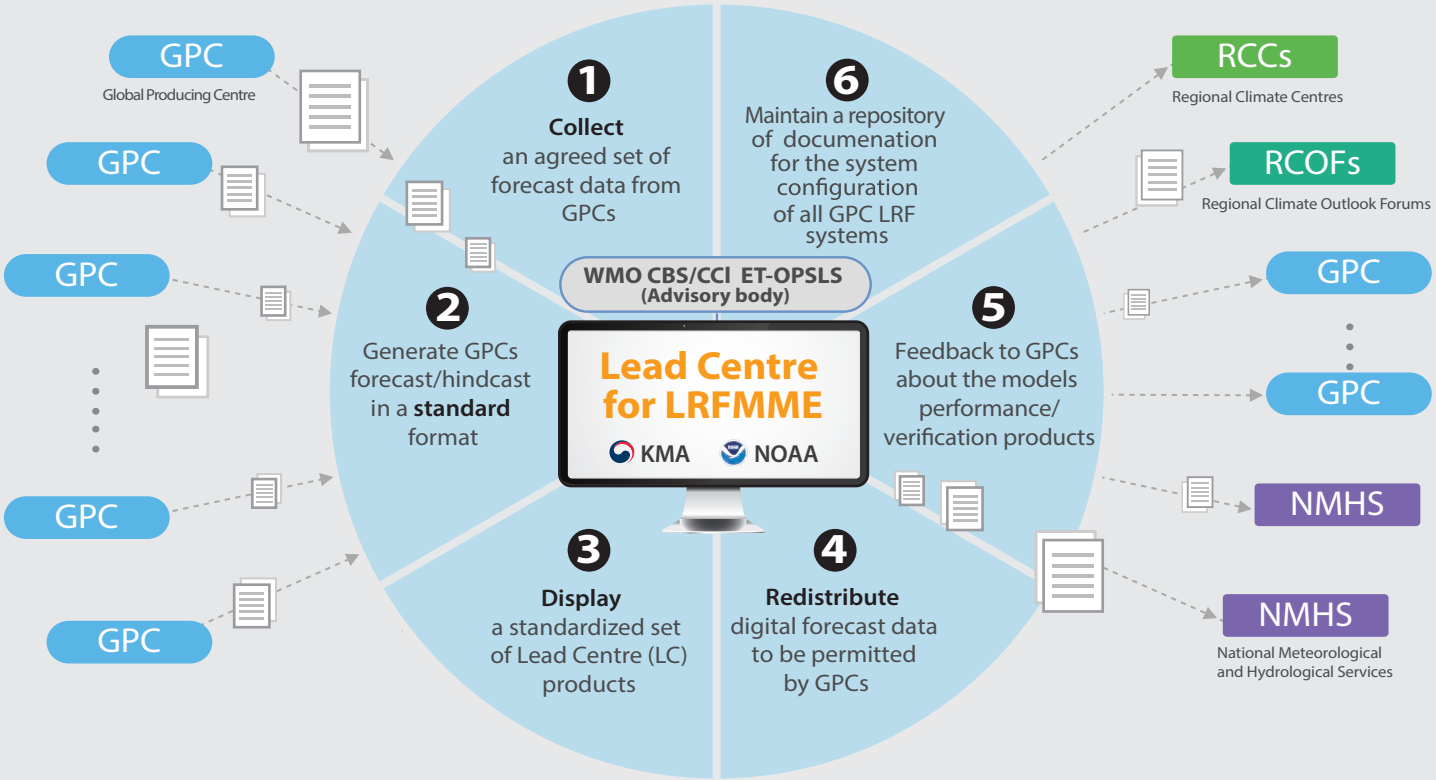
- 12 WMO-designated Global Producing Centres (GPCs) for long-range forecasts
  - adhering to agreed procedures/standards in delivery of global long-range forecasts (e.g. products, timeliness, verification/validation info, system documentation)
- Linkage is needed among GPCs and other organizations including NMHSs, RCCs and RCOFs to ensure wider and more effective use of LRF

## Objectives

- The LC-LRFMME aims to support collecting and sharing GPCs forecast information to increase the reliability of LRFs. Improved LRFs can help reduce socioeconomic losses associated with seasonal variability and protect life and property.

## Functions of WMO LC-LRFMME

LC-LRFMME provides a conduit between GPC and NMHS, RCC, RCOF etc.



# Available products of WMO LC-LRFMME

## Digital products

Both forecast and hindcast of monthly mean anomalies of the GPCs' ensemble mean for lead time of 1-3 months, following the month of submission

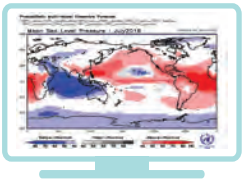
- 2m surface temperature
- Precipitation
- Mean sea level pressure
- 850hPa temperature
- 500hPa geopotential height
- Sea surface temperature



## Graphical products

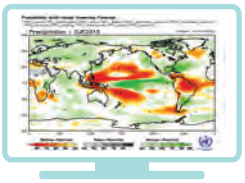
### Individual forecast

- Plots for each GPCs' forecast anomalies in common graphical format (Rectangular, Time series, Stereographic type, etc.)
- Consistency map
- SST Plume (Nino3.4 SST anomalies)



### Deterministic MME

- Simple composite mean (SCM)
- Regular Multiple Regression
- Sigular Value Decomposition (SVD)
- Genetic Algorithm (AG)



### Probabilistic MME

- Tercile-based categorical probabilities

### Verification

- Hindcast for both MME and Individual GPCs
- Forecast for MME

Click!

**http://www.wmolc.org**

## For more Information of WMO LC-LRFMME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