



香港天文台
HONG KONG OBSERVATORY

Update on ACNF Web Portal

P Cheung, Hong Kong Observatory

WMO VCP Training Workshop

8-11 December 2020

ACNF

◆ **Asian Consortium for NWP Forecast**

◆ **WMO RA II Pilot Project**

◆ **to Develop Support for NMHS**

◆ **in Numerical Weather Prediction**

Project Background

◆ Project Aims

- ◆ To develop a consortium comprising NWP operators and product providers to support and assist NMHSs in their full use of NWP products
 - ◆ To foster development of NWP activities in provision of weather services, including forecasts and warnings.
-
- ◆ Steered by a Coordination Group comprising experts from participating Members, with experts of Hong Kong, China (HKO) and Republic of Korea (KMA) serving as coordinators.
-
- ◆ A web portal called the “Asian Consortium for NWP Forecasts” (ACNF) being developed by HKO

VCP Training Workshops to introduce NWP development and knowledge sharing on use and interpretation of NWP models



ACNF Web Portal (acnf.weather.gov.hk)

- ◇ On-line resources and information
 - ◇ Realtime prognostic products from RAII Members (HKO, KMA, CMA, and JMA)
 - ◇ NWP charts
 - ◇ City-specific NWP websites
 - ◇ Resources of community NWP models
 - ◇ Source codes, case data, use guide
 - ◇ Pointers of software packages for use with NWP

ACNF Web Portal Update



World
Meteorological
Organization

Asian Consortium for NWP Forecast (ACNF)

WMO RA II Pilot Project to Develop Support for NMHS in Numerical Weather Prediction

News

Real-time NWP Products

Community NWP Models

Tools for NWP

ACNF Training Materials

ACNF Training Materials

Courses

- [WMO VCP Training Workshop on Use and Interpretation of Mesoscale NWP for High-impact Weather Forecasting, 2016](#)
- [WMO VCP Training Workshop on Data Assimilation and Mesoscale Ensemble Forecasting, 2014](#)
- [WMO VCP Training Workshop on the Latest Developments on the Use and Interpretation of Numerical Weather Prediction \(NWP\) Models, 2012](#)

ACNF Web Portal Update



World
Meteorological
Organization

Asian Consortium for NWP Forecast (ACNF)

WMO RA II Pilot Project to Develop Support for NMHS in Numerical Weather Prediction

News

Real-time NWP Products

Community NWP Models

Tools for NWP

ACNF Training Materials

Community NWP Models

- JMA Non-Hydrostatic Model (JMA-NHM)
 - [Model Documentation](#)
 - [User Guide and Tutorial](#)
 - [Download Area \(source code and case data\)](#)
- CMA GRAPES
 - [User Guide and Tutorial](#)
 - [Download Area \(source code and case data\)](#)

ACNF Web Portal Update



World
Meteorological
Organization

Asian Consortium for NWP Forecast (ACNF)

WMO RA II Pilot Project to Develop Support for NMHS in Numerical Weather Prediction

News

Real-time NWP Products

Community NWP Models

Tools for NWP

ACNF Training Materials

Tools for NWP

Plotting

- [PANDAH](#)
- [NCAR Graphics Command Language\(NCL\)](#)
- [GrADS](#)
- [OpenGrADS](#)
- [McIDAS-V](#)

Software Libraries

- [wgrib and wgrib2](#)
- [NCEP GRIB-1 and GRIB-2 decoding/encoding libraries](#)
- [NetCDF](#)

ACNF Web Portal Update



World
Meteorological
Organization

Asian Consortium for NWP Forecast (ACNF)

WMO RA II Pilot Project to Develop Support for NMHS in Numerical Weather Prediction

News

Real-time NWP Products

Community NWP Models

Tools for NWP

ACNF Training Materials

Real-time NWP Model Products

Prognostic Charts

- [Prognostic Charts from HKO, KMA, CMA and JMA](#)
- External Sites
 - EPS Products
 - [JMA medium-range EPS Web site](#)
 - Tropical Cyclone Forecast Products
 - [TIGGE Tropical Cyclone Ensemble Forecast Information](#)

SWFDP Products

- [KMA](#)
- [CMA](#)
- [JMA](#)

RAII City-Specific NWP Forecast

- Hong Kong, China
 - [Bhutan](#)
 - [Cambodia](#)
 - [Hong Kong](#)
 - [Kazakhstan](#)
 - [Kyrgyz Republic](#)
 - [Laos](#)
 - [Mongolia](#)
 - [Myanmar](#)
 - [Nepal](#)
 - [Vietnam](#)
 - [Thailand](#)
- [Japan](#) (Password required)
- [Korea](#) (Select Meteogram or EPSgram)

Model Data Download

- [HKO NWP Data Download](#) (Password required)
- [JMA High Resolution GSM Data Service](#)
- [JMA NWP GPV Products \(GRIB and Map Image\)](#)
- [NOMADS at NCEP](#)
- [CMA Data Service](#)

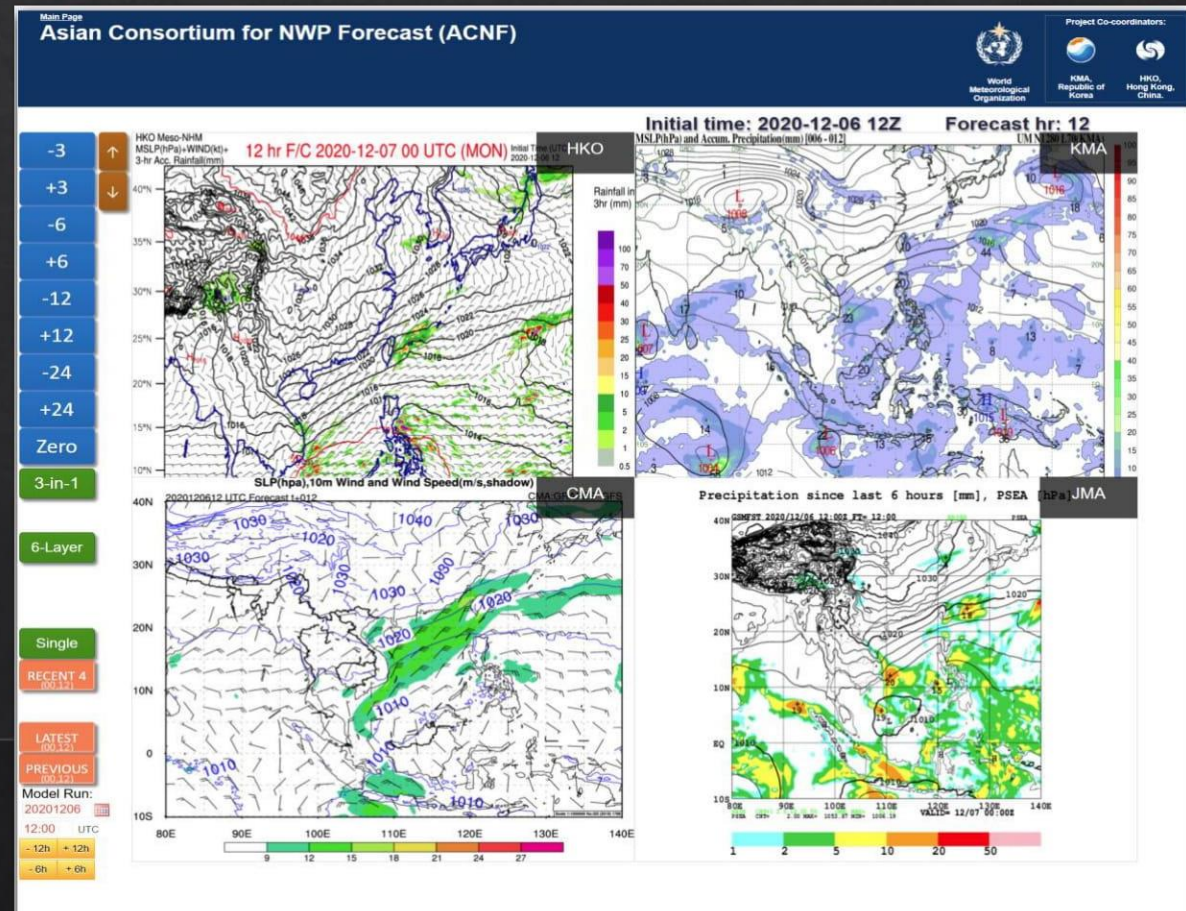
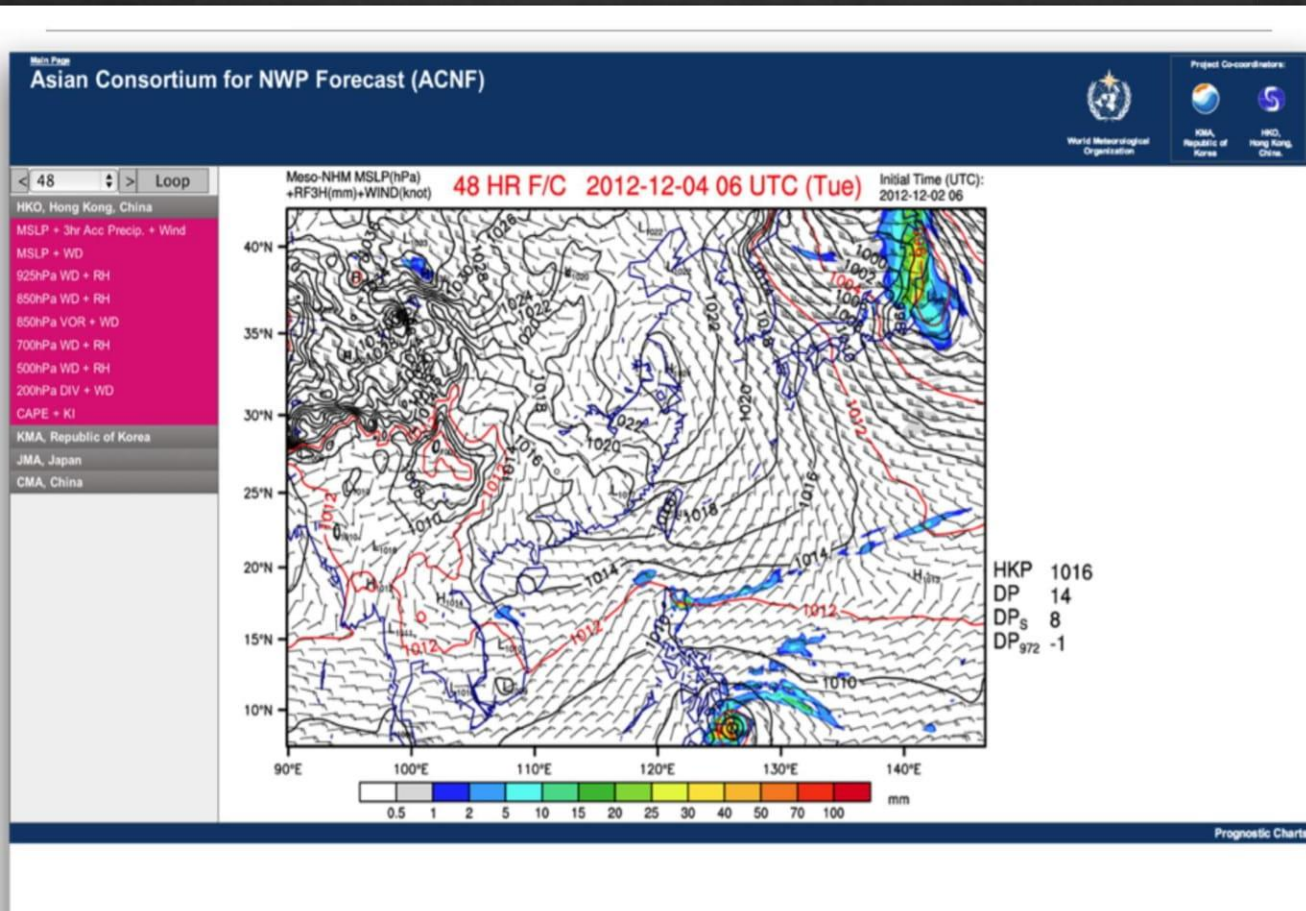
Hosted by the
Hong Kong Observatory
of Hong Kong, China



NWP Charts, a facelift

Old

New

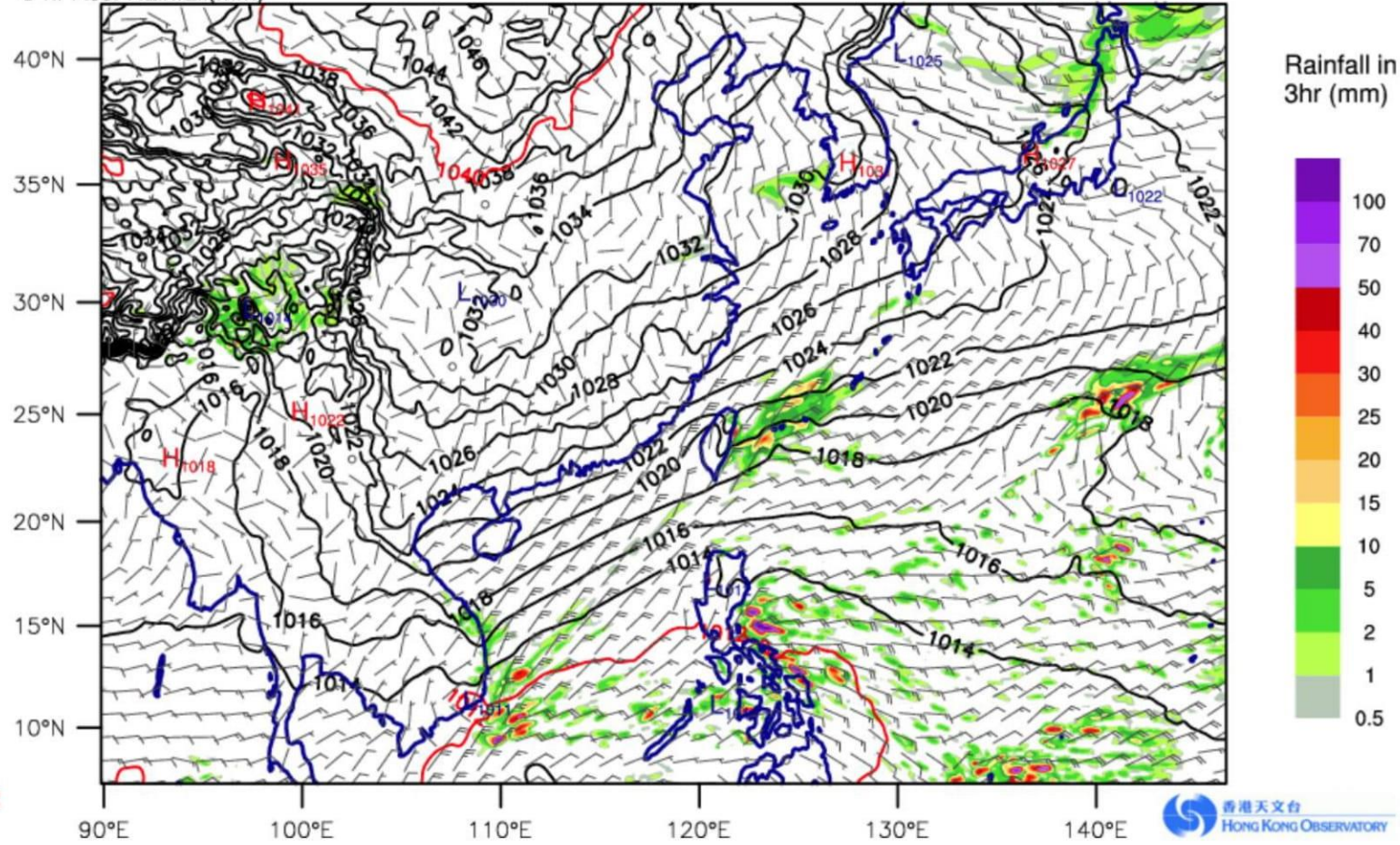


-3
+3
-6
+6
-12
+12
-24
+24
Zero
3-in-1
6-Model
6-Layer
RECENT 4
(00:12)
LATEST
(00:12)
PREVIOUS
(00:12)
Model Run:
20201206
12:00 UTC
-12h +12h
-6h +6h

Initial time: 2020-12-06 12Z Forecast hr: 12

HKO Meso-NHM
MSLP(hPa)+WIND(kt)+
3-hr Acc. Rainfall(mm)

12 hr F/C 2020-12-07 00 UTC (MON) Initial Time (UTC):
2020-12-06 12



Single chart view

- 3
- +3
- 6
- +6
- 12
- +12
- 24
- +24
- Zero

- 6-Model
- 6-Layer

Single

RECENT 4
(00,12)

LATEST
(00,12)

PREVIOUS
(00,12)

Model Run:
20201206

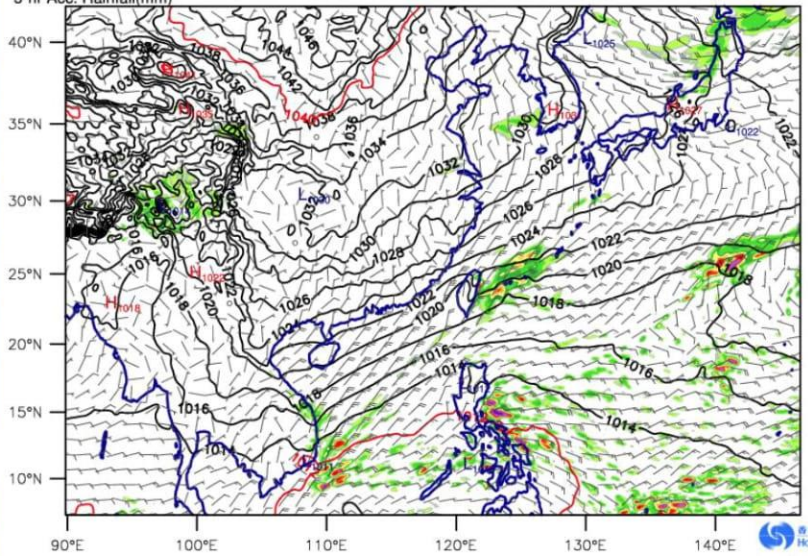
12:00 UTC

-12h +12h

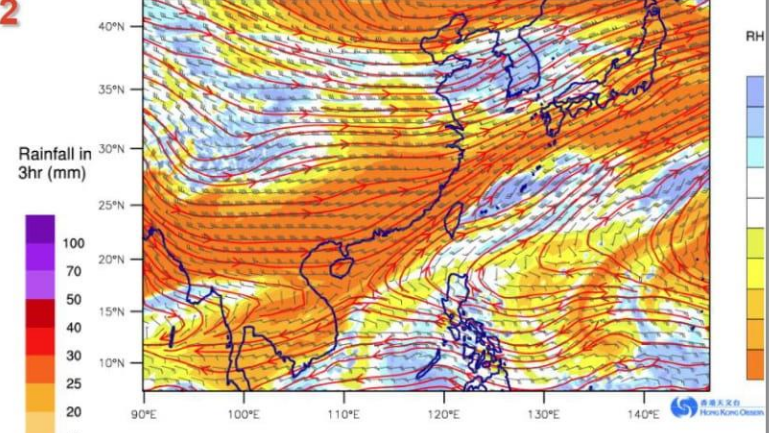
-6h +6h

Initial time: 2020-12-06 12Z Forecast hr: 12

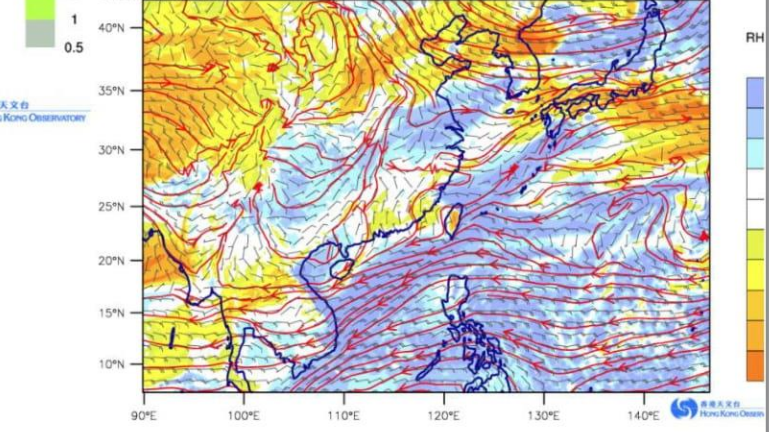
HKO Meso-NHM
MSLP(hPa)+WIND(kt)+
3-hr Acc. Rainfall(mm) **12 hr F/C 2020-12-07 00 UTC (MON)** Initial Time (UTC):
2020-12-06 12



HKO Meso-NHM
WIND(kt) + RH(%)
Forecast at 500 hPa **12 hr F/C 2020-12-07 00 UTC (MON)** Initial Time (UTC):
2020-12-06 12



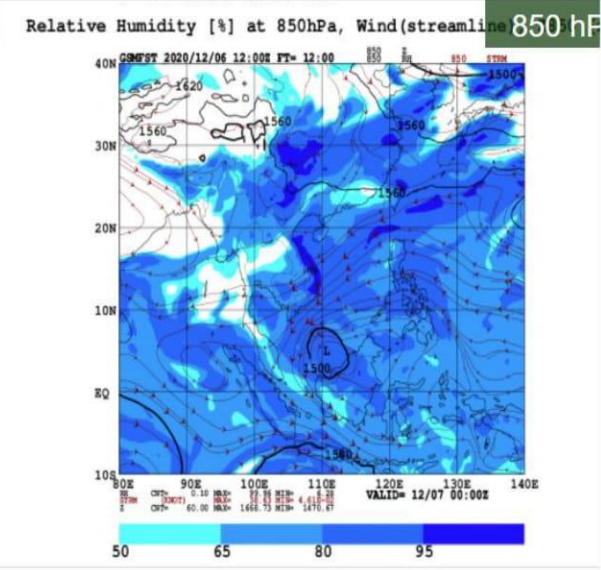
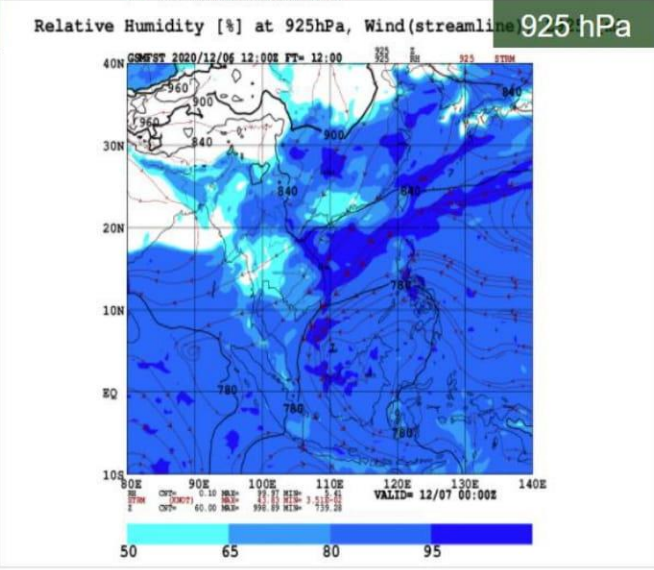
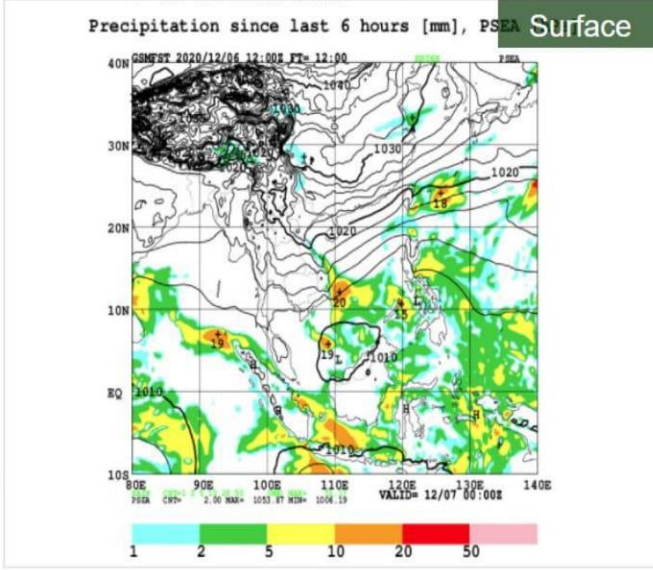
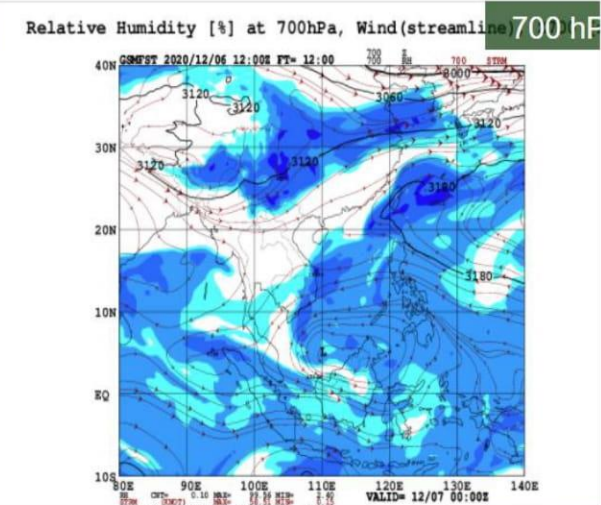
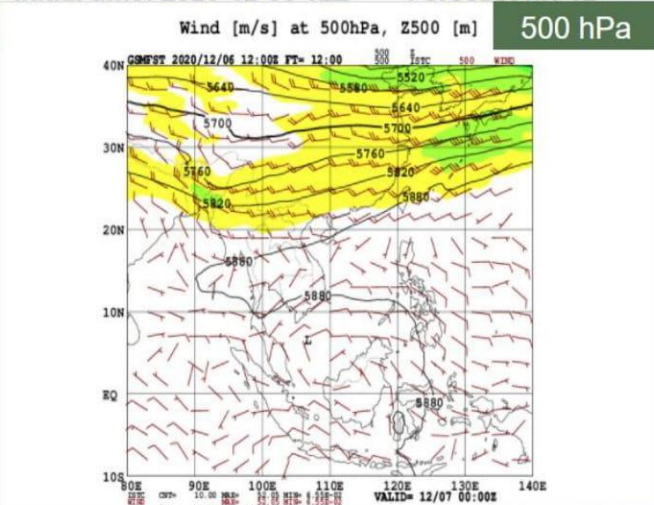
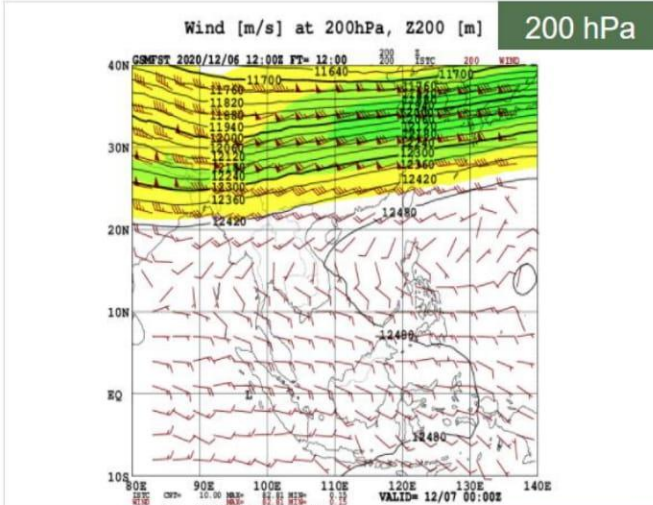
HKO Meso-NHM
WIND(kt) + RH(%)
Forecast at 850 hPa **12 hr F/C 2020-12-07 00 UTC (MON)** Initial Time (UTC):
2020-12-06 12



3 layer view

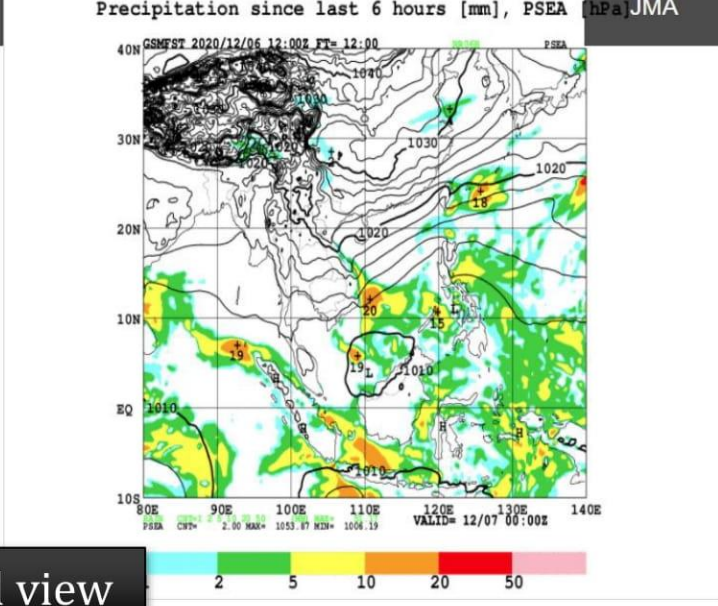
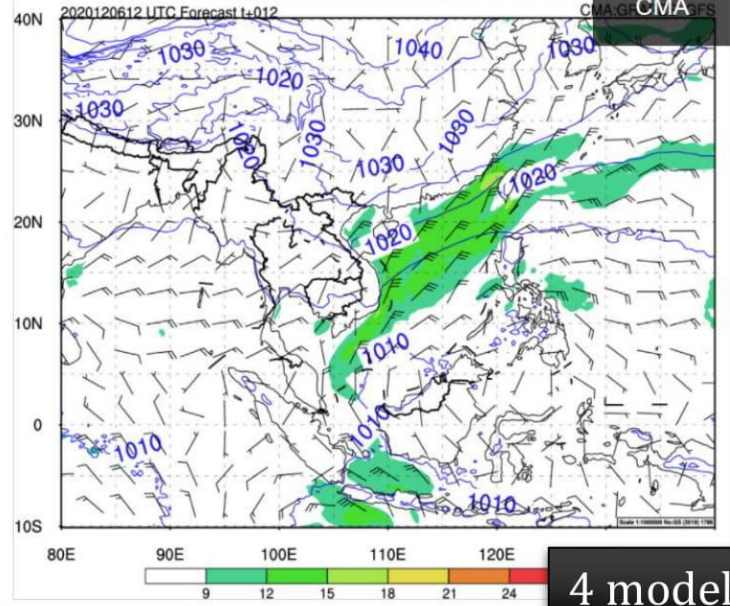
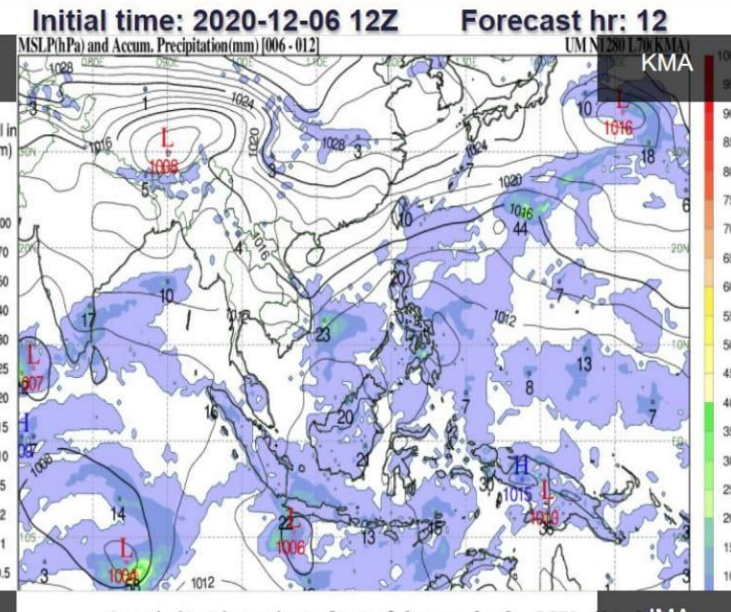
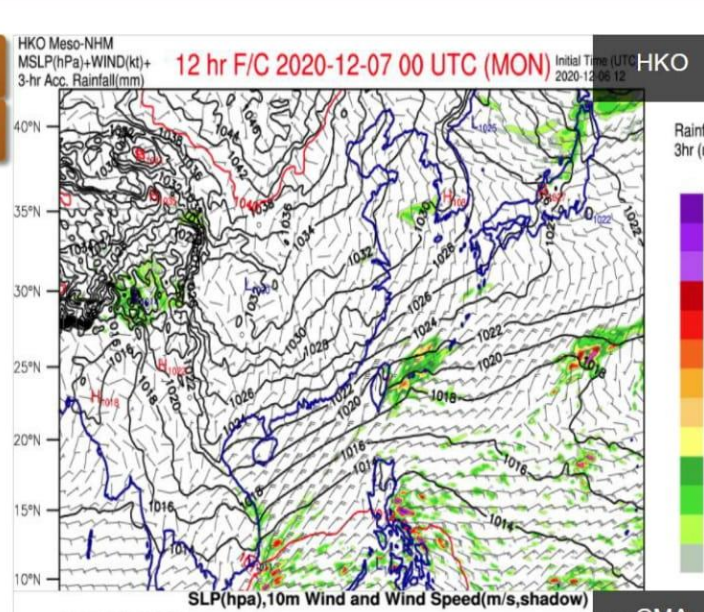
Initial time: 2020-12-06 12Z Forecast hr: 12

- 3
- +3
- 6
- +6
- 12
- +12
- 24
- +24
- Zero
- 3-in-1
- 6-Model
- Single
- RECENT 4 (00,12)
- LATEST (00,12)
- PREVIOUS (00,12)
- Model Run: 20201206
- 12:00 UTC
- 12h +12h
- 6h -6h



6 layer view

- 3 ↑
- +3 ↓
- 6
- +6
- 12
- +12
- 24
- +24
- Zero
- 3-in-1
-
- 6-Layer
-
- Single
- RECENT 4
(00,12)
- LATEST
(00,12)
- PREVIOUS
(00,12)
- Model Run:
20201206
- 12:00 UTC
- 12h +12h
- 6h +6h



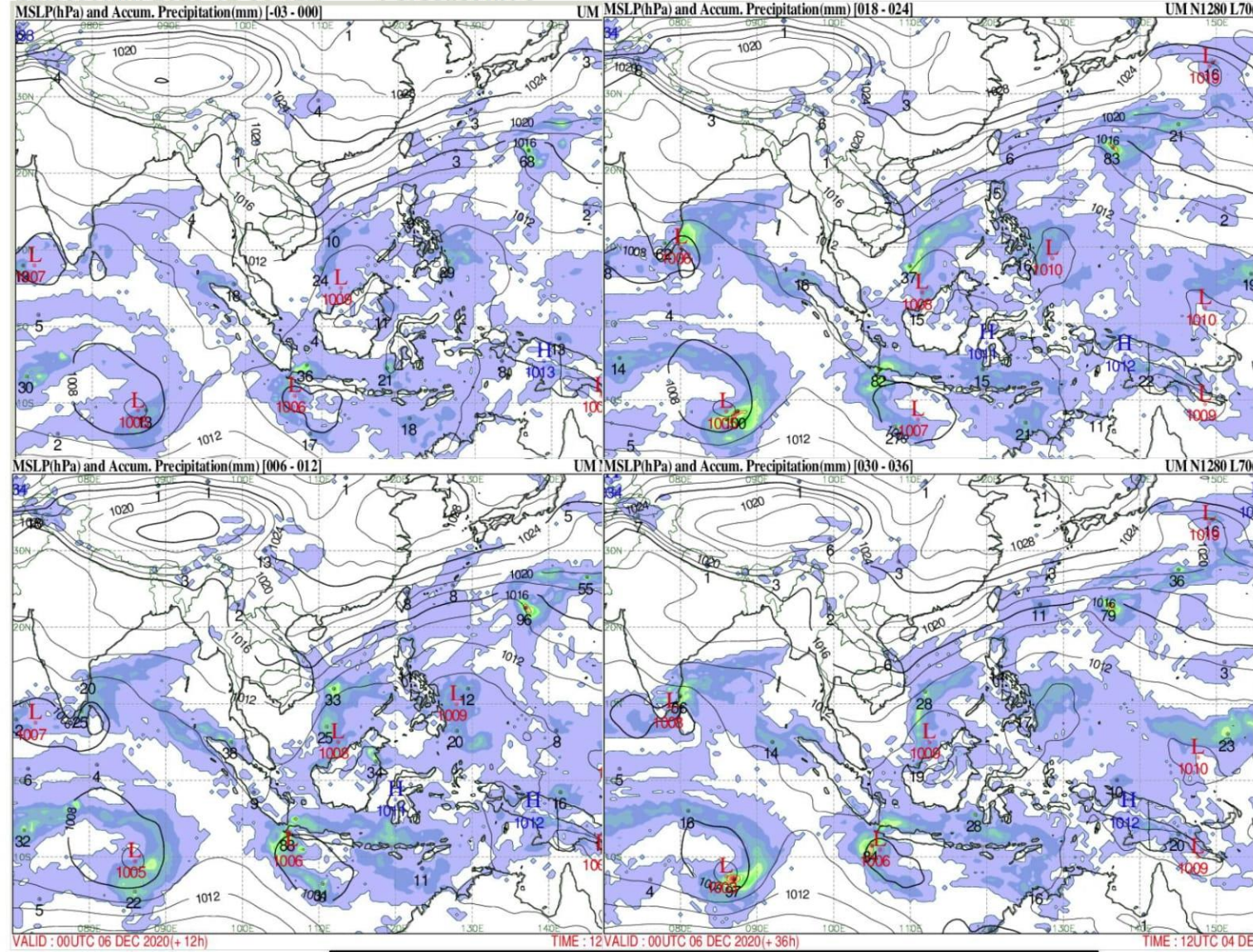
4 model view

Latest Run: 2020-12-06 12Z Forecast hr: 0

- 3
- +3
- 6
- +6
- 12
- +12
- 24
- +24
- Zero
- 3-in-1
- 4-in-1
- 6-Model
- 6-Layer

Single
RECENT 4
(00,12)

Model Run:
20201206
12:00 UTC
-12h +12h
-6h +6h



Recent 4 model runs at the same valid time

Time control

Layout control

Model run control

The screenshot shows a vertical control panel for a weather model. It is divided into three sections by orange brackets on the left:

- Time control:** A vertical stack of blue buttons with values: -3, +3, -6, +6, -12, +12, -24, +24, and Zero. Above these are two brown buttons with up and down arrows.
- Layout control:** A vertical stack of green buttons: 3-in-1, 6-Layer, and Single.
- Model run control:** A vertical stack of orange buttons: RECENT 4 (00,12), LATEST (00,12), and PREVIOUS (00,12). Below these are orange buttons for Model Run: 20201206, 12:00 UTC, -12h +12h, and -6h +6h.

On the right side of the panel, there are two weather maps. The top map is titled "HKO Meso-NHM" and shows "MSLP(hPa)+WIND" and "3-hr Acc. Rainfall". The bottom map is titled "20201206" and shows a pressure map with a "1030" isobar. The maps have a vertical axis from 10°N to 40°N and a horizontal axis labeled "80E".

Product Selection

User Guide

X	Primary	Additional		
Sync	HKO	KMA	CMA	JMA
200 ->	200 Div+UV	200 Div+UV	200 UV	200 UV
500 ->	500 RH+UV	500 GPH	500 UV	500 UV
700 ->	700 RH+T+UV	700 Div+UV	700 RH UV	700 RH+UV
850 ->	850 RH+T+UV	850 Conv	850 RH UV	850 RH+UV
850 ->	850 VT+T+UV			
925 ->	925 RH+T+UV		925 RH UV	925 RH+UV
SF-RF ->	SF RF+P+UV	SF Rain	SURF Rain	SURF Rain



X	Primary	Additional		
	HKO	KMA	CMA	JMA
	CAPE+KI			
	MFLUX 700			
	MFLUX 850			
	MFLUX 925			
	SFC WIND			
	SFC GUST			

◇ ACNF NWP Viewer

- ◇ A miniature version of HKO's NWPViewer
- ◇ Purely Javascript, less than 1 MB

The image displays a web browser window showing the ACNF NWP Viewer interface. The interface features several weather maps and a code editor. The top section shows a 12-hour forecast for HKO (Initial time: 2020-12-06 12Z, Forecast hr: 12) and a 12-hour forecast for KMA. Below these are maps for CMA (Precipitation since last 6 hours [mm], PSEA) and JMA (Precipitation since last 6 hours [mm], PSEA). The interface also includes a sidebar with navigation options like '3-in-1', '8-Layer', and 'Single'. The bottom section shows a code editor with the following JavaScript code:

```
122 // shared functions
123 //
124 //
125 //
126 //
127 function init() {
128 //
129 // check browser is IE or not (ie_ver = -1 and is_ie=false):
130 //ie_ver=check_IE();
131 //
132 //get url param of modelruntime OR calculate
133 var url = document.location.href;
134 var param = url.split("?")[1];
135 if (param) {
136 LatestRun = param;
137 } else {
138 var now = nowutc();
139 var hh = now.substring(8, 10);
140 var mn = now.substring(10, 12);
141 //
142 //if (parseInt(hh) > 5 && hh < 20) { LatestRun = now.substring(0, 8) + "00"; }
143 //else { LatestRun = sub_dtg(now, -24).substring(0, 8) + "12"; }
144 //
145 //alert(now);
146 if (str2Int(hh) -- 4 && mn > 24) {
147 LatestRun = now.substring(0, 8) + "00";
148 } else if (str2Int(hh) > 4 && hh < 18) {
149 LatestRun = now.substring(0, 8) + "00";
150 } else if (hh >= 18 && hh <= 23) {
151 LatestRun = now.substring(0, 8) + "12";
152 } else {
153 LatestRun = sub_dtg(now, -24).substring(0, 8) + "12";
154 }
155 }
156 //
157 //Datetime init
158 PreviousRun = sub_dtg(LatestRun, -12);
159 Previous2Run = sub_dtg(LatestRun, -24);
160 Previous3Run = sub_dtg(LatestRun, -36);
161 //
162 Previous0618Run = sub_dtg(LatestRun, -6);
163 Previous0618Run2 = sub_dtg(LatestRun, -18);
164
```

- ◇ Free source code available soon on ACNF web portal, for easy local adaptation

<https://acnf.weather.gov.hk>

Open Discussions and Sharing