



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

「 WMO Lead Centre for
Long-Range Forecast Multi-Model Ensemble 」

How to download data

2023. 7.

WMO LC-LRFMME(<http://www.wmolc.org>)

The screenshot displays the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble website. At the top, there is a navigation bar with links for 'Login', 'Sign up', 'Sitemap', and 'Contact us'. Below this is the WMO logo and the text 'WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble'. A secondary navigation bar includes 'Home', 'About us', 'News', 'Seasonal', and 'Retate'. The main content area features a world map titled 'Latest Forecast data' with callouts to various locations and their respective forecast periods: Offebach (2023 ASO), ECMWF (2023 JAS), Exeter (2023 JAS), Toulouse (2023 JAS), CMCC (2023 JAS), Pretoria (2022 DJF), Beijing (2023 JAS), Pune, Seoul (2023 JAS), Tokyo (2023 JAS), Washington (2023 JAS), Montreal (2023 ASO), and CPTEC (2023 JAS). A blue callout box on the right says 'LC-LRFMME Products (forecast, hindcast, Data exchange, etc.)'. Below the map is a row of logos for the participating Global Forecasting Centers (GFCs): BCC, CMCC, CPTEC, ECMWF, Exeter, Melbourne, Montreal, Moscow, Offebach, Pretoria, Pune, Seoul, Tokyo, Toulouse, and Washington. A blue callout box on the right says 'Link to 15 GPCs'. The 'Notice & News' section includes a 'Check! System Reg' notice and a 'WMO Global S' notice, with a table of GPC updates. A 'Links' section contains icons for PMME, DMME, and ENSO, along with statistics: 'today : 1010' and 'total : 3241414'. The footer contains the logos and contact information for the Korea Meteorological Administration and the National Oceanic and Atmospheric Administration (NOAA).

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

Home About us News Seasonal Retate

Latest Forecast data

Offebach 2023 ASO

ECMWF 2023 JAS

Exeter 2023 JAS

Toulouse 2023 JAS

CMCC 2023 JAS

Pretoria 2022 DJF

Beijing 2023 JAS

Pune

Seoul 2023 JAS

Tokyo 2023 JAS

Washington 2023 JAS

Montreal 2023 ASO

CPTEC 2023 JAS

Melbourne 2023 ASO

Link to 15 GPCs

BCC CMCC CPTEC ECMWF Exeter Melbourne Montreal Moscow Offebach Pretoria Pune Seoul Tokyo Toulouse Washington

Notice & News

Check! System Reg

WMO Global S

2023-06-28

2023-06-28

2023-05-26

2023-05-04

2023-03-28

More Links

PMME DMME ENSO

today : 1010

total : 3241414

Korea Meteorological Administration

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National Oceanic and Atmospheric Administration

U.S. Department of Commerce

Way 1: Search&Download

[① Seasonal > ② Data Exchange > ③ Search&Download > ④ forecast/hindcast/verification]

The screenshot displays the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble website. The navigation path is highlighted with red circles and numbers 1 through 4:

- ①** Seasonal: The 'Seasonal' menu item in the top navigation bar.
- ②** Data Exchange: The 'Data Exchange' option in the dropdown menu under 'Seasonal'.
- ③** Search/Download: The 'Search/Download' option in the left sidebar menu.
- ④** forecast/hindcast/verification: The 'forecast' button in the 'Search/Download' sub-menu.

The website header includes the WMO logo and the text 'WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble'. The top navigation bar contains links for 'Home', 'About us', 'News', 'Seasonal', 'Related Sites', and 'WMO Lead Centre for ADCP'. The main content area features a world map with various regional forecast centers marked, including Offenburg, Moscow, Seoul, Beijing, Tokyo, Washington, Melbourne, Pretoria, Pune, Toulouse, Exeter, and CMCC. A sidebar on the left lists categories like 'Information', 'Forecast', 'Verification', 'Observation', 'Data Exchange', 'System Configuration Information', and 'Global Seasonal Climate Update'. The 'Search/Download' section includes filters for 'Model', 'Year', 'Season', 'DataType', and 'Parameter', along with a 'Search' button. The footer contains a 'Notice & News' section with a 'Check! System Requirements' alert and a 'Links' section with icons for PMME, DMME, and ENSO.



Way 1: Search&Download

[Seasonal > Data Exchange > Search&Download > **forecast**]

Home > Seasonal > Data Exchange > Search/Download

Seasonal

- Information
 - Probabilistic MME
 - Deterministic MME
 - Climate Indices
 - References
- Forecast
 - Probabilistic MME
 - Deterministic MME
 - Individual Forecast
 - Indices
- Verification
 - Hindcast
 - Forecast
- Observation
- Data Exchange
 - Search/Download**
 - Direct Download
- System Configuration Information
- Global Seasonal Climate Update

Search/Download

forecast hindcast verification

Model All Year 2023 Season All DataType GRIB 1 Parameter All

5 Select each item

Beijing CMCC CPTEC Melbourne Montreal

2023 2022 2021 2020 2019 2018 2017 2016 2015 2014 2013 2012

All DJF JFM FMA MAM AMJ MJJ JJA JAS ASO SON OND NDJ

GRIB 1 GRIB 2 NC

All T2m SST PREC MSLP T850 H500

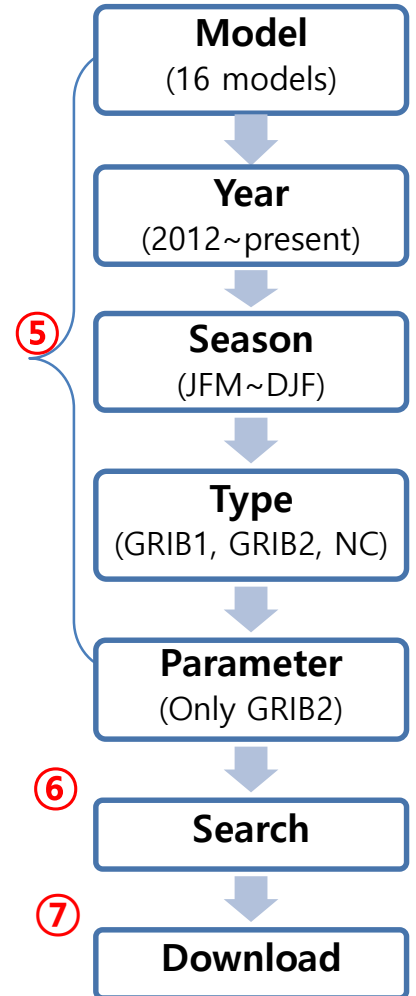
Model SCM Year 2023 Season JFM DataType GRIB 1 Parameter All

Region Global Longitude 0 ~ 360 Latitude -90 ~ 90

6 Search

<input type="checkbox"/>	No	Model	Casttype	Year	Season	Filename	Region
<input type="checkbox"/>	12934	SCM	forecast	2023	JFM	scm_202212_202301_202303.grb1	

7 Download



※ Forecast data: Anomaly(hindcast(1993-2009)) & spatial resolution(2.5°×2.5°)

Way 1: Search&Download

[Seasonal > Data Exchange > Search&Download > hindcast]

Search/Download

forecast hindcast verification

⑤ Select each item

Model: All, Year: 2023, Season: All, DataType: GRIB 1, Parameter: All

Model: All, Year: 2023, Season: All, DataType: GRIB 1, Parameter: All

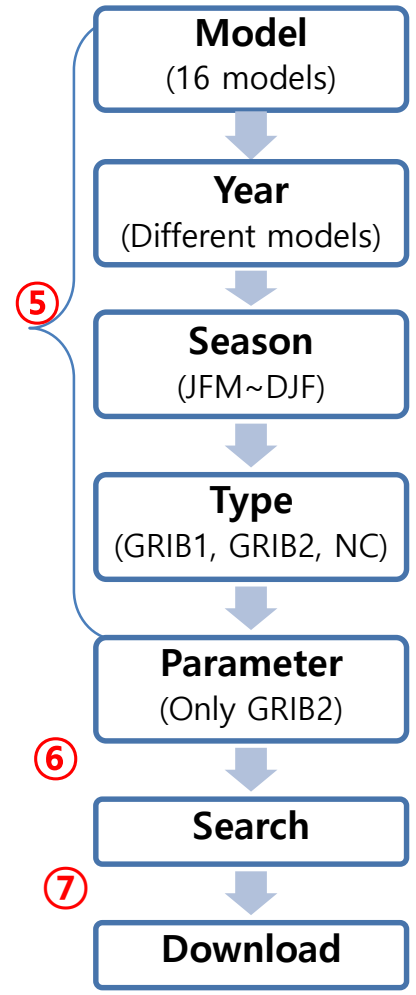
Model: Seoul, Year: 1998, Season: JFM, DataType: GRIB 1, Parameter: All

Region: Global, Longitude: 0 ~ 360, Latitude: -90 ~ 90

⑥ Search

<input type="checkbox"/>	No	Model	Casttype	Year	Season	Filename	Region
<input type="checkbox"/>	9371	Seoul	hindcast	1998	JFM	seoul_199712_199801_199803.grb1	

⑦ Download



※ Hindcast period of each model is different(see reference)



Way 1: Search&Download

[Seasonal > Data Exchange > Search&Download > **verification**]

- Seasonal
 - > Information
 - » Probabilistic MME
 - » Deterministic MME
 - » Climate Indices
 - » References
 - > Forecast
 - » Probabilistic MME
 - » Deterministic MME
 - » Individual Forecast
 - » Indices
 - > Verification
 - » Hindcast
 - » Forecast
 - > Observation
 - > Data Exchange
 - » Search/Download
 - » Direct Download
 - > System Configuration Information
 - > Global Seasonal Climate Update

Search/Download

forecast hindcast **verification**

⑤ Select each item

Search from existing data

Type forecast Year 2023 Season All Skill Score All

forecast hindcast

2023 2022 2021 2020 2019 2018 2017 2016 2015 2014 2013 2012 2011

All DJF JFM FMA MAM AMJ MJJ JJA JAS ASO SON OND NDJ

ACC RMSE ROC REL BS BSS

Search

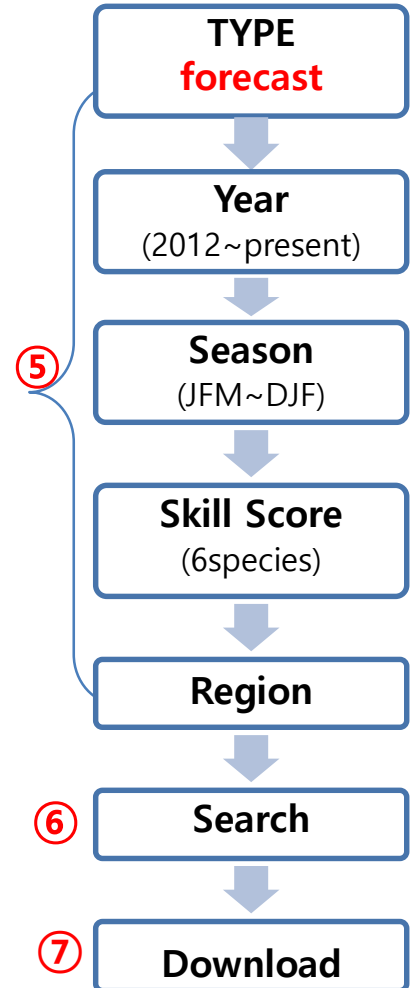
Type forecast Year 2022 Season FMA Skill Score All

Region Australia(80E-180, 50S-10N) Longitude 80 ~ 180 Latitude -50 ~ 10

⑥ Search

<input type="checkbox"/>	No	Model	Casttype	Year	Season	Filename	Region
<input type="checkbox"/>	-	-	forecast	2022	FMA	acc_fcst_202201_FMA_-50.0_10.0_80.0_180.0.nc	e-mail
<input type="checkbox"/>	-	-	forecast	2022	FMA	rmse_fcst_202201_FMA_-50.0_10.0_80.0_180.0.nc	e-mail
<input type="checkbox"/>	-	-	forecast	2022	FMA	roc_fcst_202201_FMA_-50.0_10.0_80.0_180.0.nc	e-mail
<input type="checkbox"/>	-	-	forecast	2022	FMA	rel_fcst_202201_FMA_-50.0_10.0_80.0_180.0.nc	e-mail
<input type="checkbox"/>	-	-	forecast	2022	FMA	bs_fcst_202201_FMA_-50.0_10.0_80.0_180.0.txt	e-mail
<input type="checkbox"/>	-	-	forecast	2022	FMA	bss_fcst_202201_FMA_-50.0_10.0_80.0_180.0.txt	e-mail

⑦ Download





Way 1: Search&Download

[Seasonal > Data Exchange > Search&Download > verification]

- Seasonal
 - Information
 - Probabilistic MME
 - Deterministic MME
 - Climate Indices
 - References
 - Forecast
 - Probabilistic MME
 - Deterministic MME
 - Individual Forecast
 - Indices
 - Verification
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 - Forecast
 - Observation
 - Data Exchange
 - Search/Download**
 - Direct Download
 - System Configuration Information
 - Global Seasonal Climate Update

Search/Download

forecast hindcast **verification**

⑤ Select each item Search from existing data

Type forecast Year 2023 Season All Skill Score All

Model All Type hindcast Season All Skill Score All

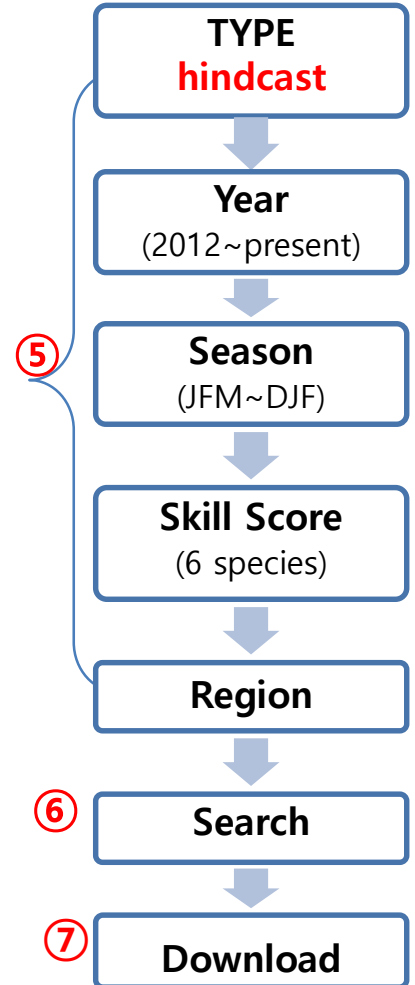
Region CPTEC (S-10N) Longitude ~ 180 Latitude -50 ~ 10

Region Australia(80E-180, 50S-10N) Longitude 80 ~ 180 , Latitude -50 ~ 10

⑥ Search

<input type="checkbox"/>	No	Model	Casttype	Year	Season	Filename	Region
<input type="checkbox"/>	6536	Beijing	hindcast	-	DJF	beijing_acc_hind_DJF_-50.0_10.0_80.0_180.0.nc	e-mail
<input type="checkbox"/>	6536	Beijing	hindcast	-	DJF	beijing_acc_hind_DJF_-90.0_90.0_0.0_360.0.nc	e-mail
<input type="checkbox"/>	6536	Beijing	hindcast	-	DJF	beijing_acc_hind_DJF_-50.0_10.0_80.0_180.0.nc	e-mail
<input type="checkbox"/>	12255	CMCC	hindcast	-	DJF	cmcc_acc_hind_DJF_-50.0_10.0_80.0_180.0.nc	e-mail

⑦ Download



Way 2: Direct Download

[① Seasonal > ② Data Exchange > ③ Direct Download > ④ forecast/hindcast]

The screenshot displays the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble website. The navigation path is highlighted with red circles and numbers 1 through 4:

- 1**: Home > About us > News > **Seasonal**
- 2**: **Data Exchange**
- 3**: **Direct Download**
- 4**: **forecast** / **hindcast**

The website header includes the WMO logo and navigation links: Home, About us, News, Seasonal, Subseasonal, Related Sites, WMO Lead Centre for ADCP. The breadcrumb trail is: Home > Seasonal > Data Exchange > Direct Download.

The main content area is titled "Direct Download" and shows the "Current directory - /" with a table of files and directories:

File / Directory	Size	Date
<input type="checkbox"/> forecast	2.87G	2022-12-21
<input type="checkbox"/> hindcast	7.15G	2022-12-21

A "Selection Download" button is located below the table.

The left sidebar contains a "Seasonal" menu with the following options:

- Information
- Forecast
- Verification
- Observation
- Data Exchange** (②)
- System Configuration Information
- Global Seasonal Climate Update

The "Data Exchange" menu is expanded, showing the following options:

- Search/Download (③)
- Direct Download** (③)
- System Configuration Information
- Global Seasonal Climate Update

The bottom of the page features a "Notice & News" section with a "Check! System Requirements" alert and a "Links" section with icons for PMME, DMME, and ENSO.



Way 2: Direct Download

[Seasonal > Data Exchange > Direct Download > **forecast**]

Seasonal

- Information
 - Probabilistic MME
 - Deterministic MME
 - Climate Indices
 - References
- Forecast
 - Probabilistic MME
 - Deterministic MME
 - Individual Forecast
 - Indices
- Verification
 - Hindcast
 - Forecast
- Observation
 - Data Exchange
 - Search/Download
 - Direct Download**
 - System Configuration Information
 - Global Seasonal Climate Update

Direct Download

Current directory - /

<input type="checkbox"/>	File / Directory	Size
<input type="checkbox"/>	forecast	2.87G
<input type="checkbox"/>	hindcast	7.15G

Selection Download

Direct Download

Current directory - / forecast/

<input type="checkbox"/>	File / Directory	Size	Date
<input type="checkbox"/>	..		
<input type="checkbox"/>	BOM	2.30M	2020-06-18
<input type="checkbox"/>	Beijing	195.13M	2023-01-18
<input type="checkbox"/>	Bologna	3.87M	2021-09-08
<input type="checkbox"/>	CMCC	40.62M	2023-01-13
<input type="checkbox"/>	CPTEC	197.07M	2023-01-13
<input type="checkbox"/>	Melbourne	191.85M	2022-01-04
<input type="checkbox"/>	Montreal	209.87M	2023-01-09
<input type="checkbox"/>	Montreal_cancm3	58.20M	2020-01-30
<input type="checkbox"/>	Montreal_cancm4	58.20M	2020-01-30

Direct Download

Current directory - / forecast/ Seoul/

<input type="checkbox"/>	File / Directory	Size	Date
<input type="checkbox"/>	..		
<input type="checkbox"/>	2012		
<input type="checkbox"/>	2013		
<input type="checkbox"/>	2014		
<input type="checkbox"/>	2015		
<input type="checkbox"/>	2016		
<input type="checkbox"/>	2017		
<input type="checkbox"/>	2018		
<input type="checkbox"/>	2019		
<input type="checkbox"/>	2020		
<input type="checkbox"/>	2021		
<input type="checkbox"/>	2022		
<input type="checkbox"/>	2023		

Direct Download

Current directory - / forecast/ Seoul/ 2023/

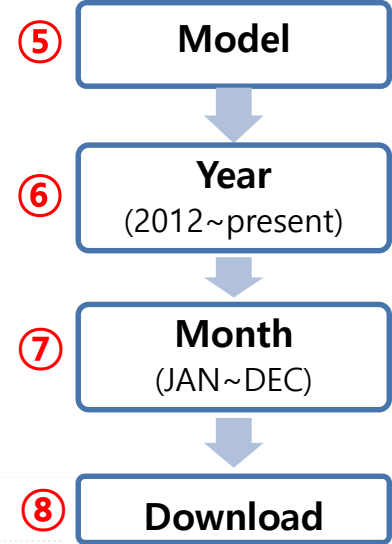
<input type="checkbox"/>	File / Directory
<input type="checkbox"/>	..
<input type="checkbox"/>	01
<input type="checkbox"/>	02
<input type="checkbox"/>	03
<input type="checkbox"/>	04
<input type="checkbox"/>	05
<input type="checkbox"/>	06

Direct Download

Current directory - / forecast/ Seoul/ 2023/ 06/

<input type="checkbox"/>	File / Directory	Size	Date
<input type="checkbox"/>	..		
<input checked="" type="checkbox"/>	seoul_202306_202307_202309.grb1	494.72K	2023-06-13
<input type="checkbox"/>	seoul_202306_202307_202309.nc	988.84K	2023-06-13
<input type="checkbox"/>	seoul_202306_202307_202309_h500.grb2	62.12K	2023-06-13
<input type="checkbox"/>	seoul_202306_202307_202309_mslp.grb2	62.12K	2023-06-13
<input type="checkbox"/>	seoul_202306_202307_202309_prec.grb2	62.12K	2023-06-13
<input type="checkbox"/>	seoul_202306_202307_202309_sst.grb2	62.12K	2023-06-13
<input type="checkbox"/>	seoul_202306_202307_202309_t2m.grb2	62.12K	2023-06-13
<input type="checkbox"/>	seoul_202306_202307_202309_t850.grb2	62.12K	2023-06-13
<input type="checkbox"/>	seoul_202306_202307_202309_u850.grb2	62.12K	2023-06-13
<input type="checkbox"/>	seoul_202306_202307_202309_v850.grb2	62.12K	2023-06-13

Selection Download





Way 2: Direct Download

[Seasonal > Data Exchange > Direct Download > hindcast]

Seasonal

- Information
 - Probabilistic MME
 - Deterministic MME
 - Climate Indices
 - References
- Forecast
 - Probabilistic MME
 - Deterministic MME
 - Individual Forecast
 - Indices
- Verification
 - Hindcast
 - Forecast
- Observation
- Data Exchange
 - Search/Download
 - Direct Download
- System Configuration Information
- Global Seasonal Climate Update

Direct Download

Current directory - /

<input type="checkbox"/>	File / Directory
<input type="checkbox"/>	forecast
<input type="checkbox"/>	hindcast

Direct Download

Current directory - / hindcast/

<input type="checkbox"/>	File / Directory	Size	Date
	--		
<input type="checkbox"/>	Beijing	503.00M	2019-01-22
<input type="checkbox"/>	Bologna	90.96M	2021-09-13
<input type="checkbox"/>	CMCC	281.62M	2022-09-13
<input type="checkbox"/>	CPTEC	351.48M	2019-05-14
<input type="checkbox"/>	Melbourne	652.27M	2019-01-22
<input type="checkbox"/>	Montreal	551.55M	2019-01-22
			2019-01-22
			2019-01-22
			2019-01-22

Direct Download

Current directory - / hindcast/ Seoul/

<input type="checkbox"/>	File / Directory	Size	Date
	--		
<input type="checkbox"/>	01		
<input type="checkbox"/>	02		
<input type="checkbox"/>	03		
<input type="checkbox"/>	04		
<input type="checkbox"/>	05		
<input type="checkbox"/>	06		
<input type="checkbox"/>	07		
<input type="checkbox"/>	08		
<input type="checkbox"/>	09		

Direct Download

Current directory - / hindcast/ Seoul/ 01/

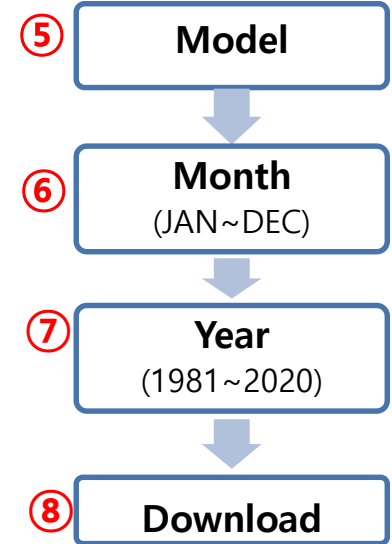
<input type="checkbox"/>	File / Directory
	--
<input type="checkbox"/>	1982
<input type="checkbox"/>	1983
<input type="checkbox"/>	1984
<input type="checkbox"/>	1985
<input type="checkbox"/>	1986
<input type="checkbox"/>	1987
<input type="checkbox"/>	1988

Direct Download

Current directory - / hindcast/ Seoul/ 01/ 1982/

<input type="checkbox"/>	File / Directory	Size	Date
	--		
<input checked="" type="checkbox"/>	A_seoul_198201_198202_198204.nc	988.34K	2020-01-30
<input type="checkbox"/>	seoul_198201_198202_198204.grb1	371.04K	2020-01-30
<input type="checkbox"/>	seoul_198201_198202_198204.nc	988.37K	2020-01-30
<input type="checkbox"/>	seoul_198201_198202_198204_h500.grb2	62.12K	2020-01-30
<input type="checkbox"/>	seoul_198201_198202_198204_mslp.grb2	62.12K	2020-01-30
<input type="checkbox"/>	seoul_198201_198202_198204_prec.grb2	62.19K	2020-01-30
<input type="checkbox"/>	seoul_198201_198202_198204_sst.grb2	62.12K	2020-01-30
<input type="checkbox"/>	seoul_198201_198202_198204_t2m.grb2	62.12K	2020-01-30
<input type="checkbox"/>	seoul_198201_198202_198204_t850.grb2	62.12K	2020-01-30

8 Selection Download



Reference

① Hindcast period of each model

model	Period
Beijing	1991-2015
CMCC	1993-2016
CPTEC	1981-2010
Melbourne	1981-2019
Montreal	1980-2020
Moscow	1990-2016
Offenbach	1993-2020
Seoul	1993-2017
Washington	1982-2011
Toulouse	1993-2018
ECMWF	1993-2016
Exeter	1993-2016
Tokyo	1993-2020
Pune	2003-2017

② Summary of digital data

1 st menu	2 nd menu	3 rd menu	
Search & Download	forecast, hindcast	Model	16 models (14 GPCs+ 2 MME*)
		Year	Forecast: 2012 ~ present Hindcast: Different for each GPCs
		Forecast Period	3 months
		Type	GRIB1, GRIB2, NetCDF
	Parameter	9 parameters (T2m, Prec, SST, MSLP, T850, 850U, 850V, H500, Sea Ice extent)	
	verification (forecast, hindcast)	Year	Forecast: 2012~ present Hindcast: 1993 ~ 2009 (for MME)
Skill Score		6 methods (DMME: ACC, RMSE PMME: ROC, REL, BS, BSS)	
Direct Download	forecast, Hindcast	Show the data list (each model → each year → each month) Check and download the data from the list	

* MME: Multi-Model Ensemble
DMME: Deterministic MME / PMME: Probabilistic MME