

# Exercise Part 2

- Producing Forecasts of Winter 2013/14 -

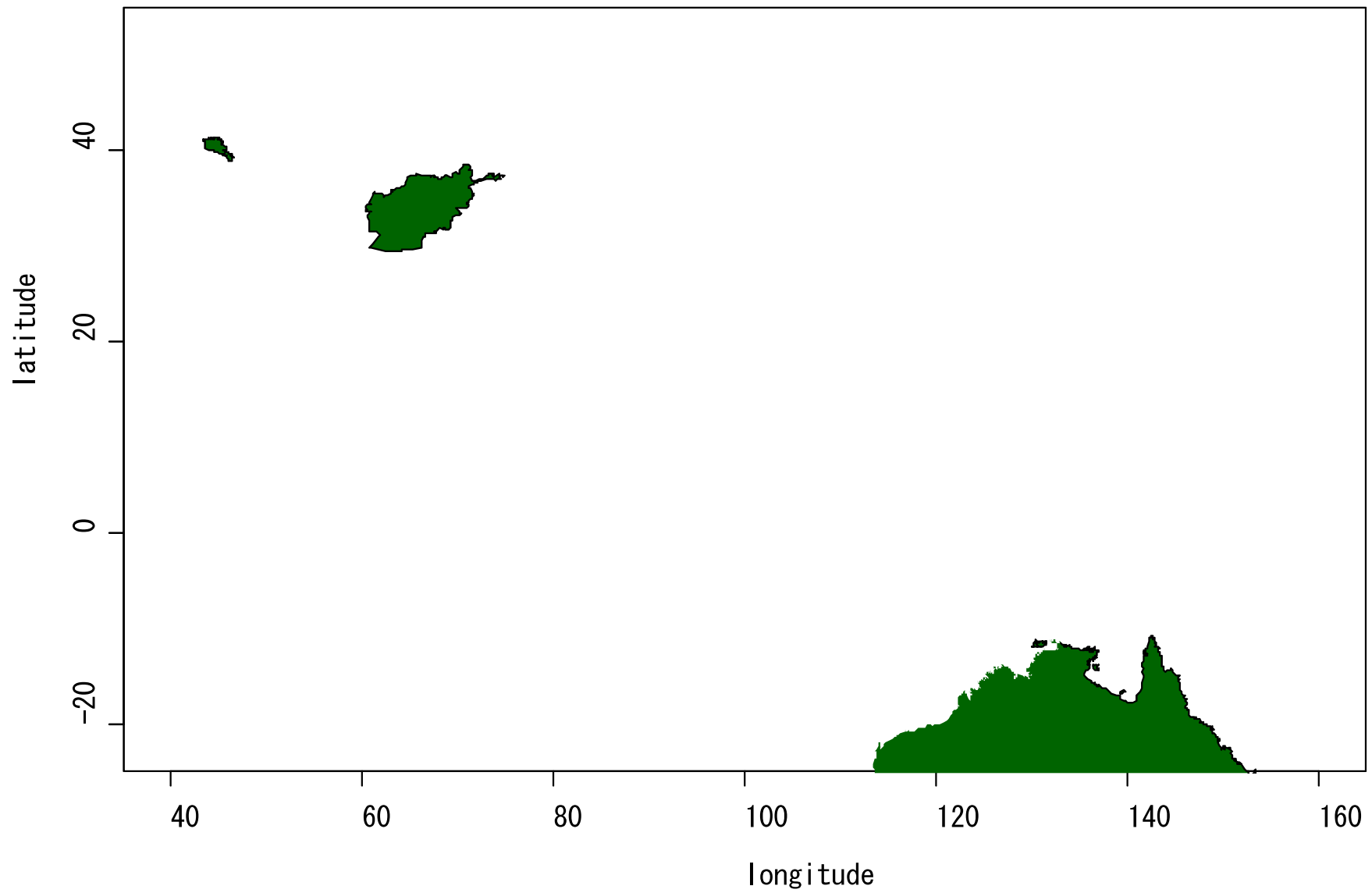
TCC Training Seminar on Seasonal Prediction Products  
11-15 November 2013

# Objectives

- To produce forecasts of stations in your country for winter 2013/14 using your guidance and the JMA's numerical prediction products.
- To give a presentation about your guidance and your forecast.

# Contents

1. Downloading the JMA's numerical prediction data for winter 2013/14
  - 1.1 GPVs
  - 1.2 Indices
2. Performing calculations of your guidance for winter 2013/14
3. Interpreting the JMA's numerical prediction products for winter 2013/14
4. Building a forecast for your country in winter 2013/14



# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.1 GPVs

TCC website

<http://ds.data.jma.go.jp/tcc/tcc/index.html>

Left-click

# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.1 GPVs

The screenshot shows a Windows Internet Explorer browser window displaying the JMA TCC website. The address bar shows the URL: <http://ds.data.jma.go.jp/tcc/tcc/products/model/index.html>. The page content includes a news section on the left, a 'Latest Products' section in the center, and a 'Download GPP Long range Forecast (LRF) Products' section at the bottom right. A blue callout bubble with the text 'Left-click. Then, enter ID and password.' points to the 'Download Gridded data File' link in the LRF section. A red oval highlights the vertical scroll bar on the right side of the page, with a red arrow pointing downwards and the word 'Scroll' written vertically next to it.

Ensemble Model Prediction / TCC - Windows Internet Explorer

http://ds.data.jma.go.jp/tcc/tcc/products/model/index.html

8 May 2013  
The model statistics for the forecast maps, such as model normal and systematic errors, were updated on 18 April 2013. The period for the model statistics are changed to 1981-2010.

7 March 2013  
Hindcast gridded data were available for the period up to 2009 for one-month forecast and up to 2008 for three-month and warm/cold season forecasts. Recently, hindcast gridded data up to 2010 for one-month, three-month and warm/cold season forecasts have been made available at <http://ds.data.jma.go.jp/tcc/tcc/gpv/index.html> (available only for registered NMHSs).

Gridded data for seasonal forecasts have been upgraded since 17 February 2010. Please refer to the top page of the "TCC News No. 19" for details.

**Latest Products**

**One-month Prediction**

- One-month Prediction (13 Sep 2013)
- Z500, T850 & SLP (Northern Hemisphere) (13 Sep 2013)
- Stream Function, Velocity Potential & Surface Air Temperature (60N-60S) (13 Sep 2013)
- Verification (15 Sep 2013)
- Hindcast
- One-month Probabilistic Forecasts at station points

**Three-month Prediction**

- Three-month Prediction (12 Sep 2013)
- Z500, T850 & SLP (Northern Hemisphere) (12 Sep 2013)
- Stream Function, Velocity Potential & Surface Air Temperature (60N-60S) (12 Sep 2013)
- Verification (08 Sep 2013)
- Hindcast
- Probabilistic Forecast and Verification (12 Sep 2013)

**Warm/Cold Season Prediction**

- Warm/Cold Season Prediction (12 Sep 2013)
- Z500, T850 & SLP (Northern Hemisphere) (12 Sep 2013)
- Stream Function, Velocity Potential & Surface Air Temperature (60N-60S) (12 Sep 2013)
- Verification (08 Sep 2013)
- Hindcast
- Probabilistic Forecast and Verification (12 Sep 2013)

**Model Descriptions**

- Model Outlines
- Operations for Extended-range Forecast Model
- Operations for Long-range Forecast Model

**Download GPP Long range Forecast (LRF) Products**

- Download Gridded data File (Only registered NMHSs can access this page)
- Application

If you have any questions about ID and/or password, please e-mail to: [tcc@met.kishou.go.jp](mailto:tcc@met.kishou.go.jp)

page top

Tokyo Climate Center, Climate Prediction Division, 1-3-4 Otemachi, Chiyoda-ku, Tokyo, Japan  
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インターネット 100%

# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.1 GPVs

The screenshot shows the Tokyo Climate Center website interface. At the top, there are logos for the Japan Meteorological Agency (JMA) and the World Meteorological Organization (WMO). The main navigation bar includes links for Home, World Climate, Climate System Monitoring, El Niño Monitoring, NWP Model Prediction, Global Warming, Climate in Japan, Training Module, Press release, and Links. Below the navigation bar, the page title is 'Download Gridded Data files'. The content is divided into two main sections: 'Notice' and 'Main Products'. The 'Main Products' section is further divided into several categories: 'NWP Model Prediction', 'Hindcast Gridded Data', 'Statistical Downscaling for Three-month and Warm/Cold Season Forecasts', and 'Animation of 1-month Model Prediction (Experimental Product)'. The 'NWP Model Prediction' category is expanded to show three time periods: 1-month, 3-month, and 7-month. Under the 7-month prediction, the 'Statistics' link is highlighted with a red box, and a blue callout bubble with the text 'Left-click' points to it. The 'Hindcast Gridded Data' category shows 1-month, 3-month, and 7-month data, with 'Monthly mean data' links for each. The 'Statistical Downscaling' category has a link for 'Indices and Gridded Data'. The 'Animation of 1-month Model Prediction' category has a link for '7-days running mean'.

**Notice**

- 7 March 2013  
Hindcast gridded data up to 2010 has been made available.
- The update of the weekly data (ensemble mean) was terminated in December 2011.
- Animation of One-month Model Prediction is experimental and not identical with the formal products (e.g. Weekly forecast maps, gridded datasets).
- TCC starts providing daily Gridded data (ensemble mean) of One-month Forecasting on 2 September 2011.

**Main Products**

**NWP Model Prediction**

- 1-month (13 Sep 2013)
  - Daily Statistics
  - All Members
  - Weekly Statistics (until December 2011)
- 3-month (12 Sep 2013)
  - Statistics
  - All Members
- 7-month (12 Sep 2013)
  - Statistics**
  - All Members

**Hindcast Gridded Data**

- 1-month
  - Daily data
- 3-month
  - Monthly mean data
- 7-month
  - Monthly mean data

**Statistical Downscaling for Three-month and Warm/Cold Season Forecasts**

- Indices and Gridded Data (12 Sep 2013)

**Animation of 1-month Model Prediction (Experimental Product)**

- 7-days running mean (13 Sep 2013)



# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.1 GPVs

### Grid point value products of Warm and Cold Season Outlook in GRIB2 format (Ensemble statistics)

[download](#) Grid point value (GPV) data (201002-present).

- Each file is located in a directory named as 'yyyymm', which indicates year(four-digit) and month(two-digit) of an initial time. Each file name is referred in the 'File description' of the following 'Data description'.
- The data made from old models is here: [2004-06](#)

Left-click

• WGRIB2 to read GPV in GRIB2 format : [for Linux](#)

• Data description

• Elements

- U200,V200,Z500,U850,V850,T850, mean sea level pressure,precipitation,2m temperature, and SST
- 1-month and 3-month mean and standard deviation
- Model normals based on hindcast from 1984 to 2005.

• Area and spatial resolution : global,  $2.5^\circ \times 2.5^\circ$

• Lead time (please refer to [operation of the EPS](#))

- Monthly mean forecast : June,July,August for Warm Season Outlook or December,January,February for Cold Season Outlook.
- Three-month mean forecast : average of JJA (for Warm Season Outlook) or DJF (for Cold Season Outlook).

• Ensemble size : 51 (9 BGM & 6 days with 5-day LAF)

• Issuance day : no later than 25th

• Format : Gridded numerical values encoded in GRIB2, which is explained at "FM92 GRIB - Edition 2" in the WMO website (<http://www.wmo.int/pages/prog/www/WMOCodes.html>)

• In addition to "FM 92 GRIB - Edition 2", some local parameters are used in this product. They are shown below.

(These parameters are supported by decoding program provided at TCC website )

Code Table 4.2 Parameter number by product discipline and parameter category

Product Discipline 0: Meteorological products, Parameter Category 1:Moisture

Number	Parameter	Units
210	Daily mean precipitation	$\text{kg m}^{-2} \text{ day}^{-1}$
211	Daily mean precipitation anomaly	$\text{kg m}^{-2} \text{ day}^{-1}$
212	Specific humidity anomaly	$\text{kg kg}^{-1}$
213	Relative humidity anomaly	%

Product Discipline 0: Meteorological products, Parameter Category 2:Momentum

210	u-component of wind anomaly	$\text{m s}^{-1}$
211	v-component of wind anomaly	$\text{m s}^{-1}$

Product Discipline 10: Oceanographic products, Parameter Category 3:Surface Properties

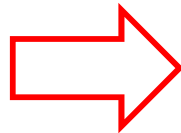


# 1. Downloading the JMA's numerical prediction data for winter 2013/14 1.1 GPVs

## Index of /model/gpv/7mE/GPV

Name
<a href="#">Parent Directory</a>
<a href="#">201310/</a>
<a href="#">201309/</a>
<a href="#">201304/</a>
<a href="#">201303/</a>
<a href="#">201302/</a>
<a href="#">201210/</a>
<a href="#">201209/</a>
<a href="#">201204/</a>
<a href="#">201203/</a>
<a href="#">201202/</a>
<a href="#">201110/</a>
<a href="#">201109/</a>
<a href="#">201104/</a>
<a href="#">201103/</a>
<a href="#">201102/</a>
<a href="#">201010/</a>
<a href="#">201009/</a>
<a href="#">201004/</a>
<a href="#">201003/</a>
<a href="#">201002/</a>

Left-click



## Index of /model/gpv/7mE/GPV/201310

Name	Size
<a href="#">Parent Directory</a>	
<a href="#">h2_Patt_em.201310</a>	83K
<a href="#">h2_Pstt_em.201310</a>	83K
<a href="#">h2_Ptt_em.201310</a>	83K
<a href="#">p200_Pawu_em.201310</a>	83K
<a href="#">p200_Pawv_em.201310</a>	83K
<a href="#">p200_Pswu_em.201310</a>	83K
<a href="#">p200_Pswv_em.201310</a>	83K
<a href="#">p200_Pwu_em.201310</a>	83K
<a href="#">p200_Pwv_em.201310</a>	83K
<a href="#">p500_Pahh_em.201310</a>	83K
<a href="#">p500_Phh_em.201310</a>	83K
<a href="#">p500_Pshh_em.201310</a>	83K
<a href="#">p850_Patt_em.201310</a>	83K
<a href="#">p850_Pawu_em.201310</a>	83K
<a href="#">p850_Pawv_em.201310</a>	83K
<a href="#">p850_Pstt_em.201310</a>	83K
<a href="#">p850_Pswu_em.201310</a>	83K
<a href="#">p850_Pswv_em.201310</a>	83K
<a href="#">p850_Ptt_em.201310</a>	83K
<a href="#">p850_Pwu_em.201310</a>	83K
<a href="#">p850_Pwv_em.201310</a>	83K
<a href="#">surf_Papp_em.201310</a>	83K
<a href="#">surf_Parr_em.201310</a>	83K
<a href="#">surf_Pass_em.201310</a>	59K
<a href="#">surf_Ppp_em.201310</a>	83K
<a href="#">surf_Prr_em.201310</a>	83K

Data type is "GRIB2".

# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.1 GPVs

\* Information of the GRIB2 data files on the second last page (see the slide 8).

- File description
  - \* The geopotential height, sea level pressure, temperature and SST are calibrated by subtracting systematic error from direct model output.
    - Systematic error data is [here](#).

File name	Element
surf_Ppp_em.yyyymm	sealevel pressure (Pa) *
surf_Papp_em.yyyymm	sealevel pressure anomaly (Pa)
surf_Pspp_em.yyyymm	standard deviation of sealevel pressure (Pa)
surf_Prr_em.yyyymm	precipitation (mm/day)
surf_Parr_em.yyyymm	precipitation anomaly (mm/day)
surf_Psrr_em.yyyymm	standard deviation of precipitation (mm/day)
h2_Ptt_em.yyyymm	2m temperature (K) *
h2_Patt_em.yyyymm	2m temperature anomaly (K)
h2_Pstt_em.yyyymm	standard deviation of 2m temperature (K)
surf_Pss_em.yyyymm	sea surface temperature (K) *
surf_Pass_em.yyyymm	sea surface temperature anomaly (K)
p850_Pwu_em.yyyymm	850 hPa wind velocity(U) (m/s)
p850_Pawu_em.yyyymm	850 hPa wind velocity(U) anomaly (m/s)
p850_Pswu_em.yyyymm	standard deviation of 850 hPa wind velocity(U) (m/s)
p850_Pwv_em.yyyymm	850 hPa wind velocity(V) (m/s)
p850_Pawv_em.yyyymm	850 hPa wind velocity(V) anomaly (m/s)
p850_Pswv_em.yyyymm	standard deviation of 850 hPa wind velocity(V) (m/s)
p850_Ptt_em.yyyymm	850 hPa temperature (K) *
p850_Patt_em.yyyymm	850 hPa temperature anomaly (K)
p850_Pstt_em.yyyymm	standard deviation of 850 hPa temperature (K)
p500_Phh_em.yyyymm	500 hPa geopotential height (m) *
p500_Pahh_em.yyyymm	500 hPa geopotential height anomaly (m)
p500_Pshh_em.yyyymm	standard deviation of 500hPa geopotential height (m)
p200_Pwu_em.yyyymm	200 hPa wind velocity(U) (m/s)
p200_Pawu_em.yyyymm	200 hPa wind velocity(U) anomaly (m/s)
p200_Pswu_em.yyyymm	standard deviation of 200 hPa wind velocity(U) (m/s)
p200_Pwv_em.yyyymm	200 hPa wind velocity(V) (m/s)
p200_Pawv_em.yyyymm	200 hPa wind velocity(V) anomaly (m/s)
p200_Pswv_em.yyyymm	standard deviation of 200 hPa wind velocity(V) (m/s)

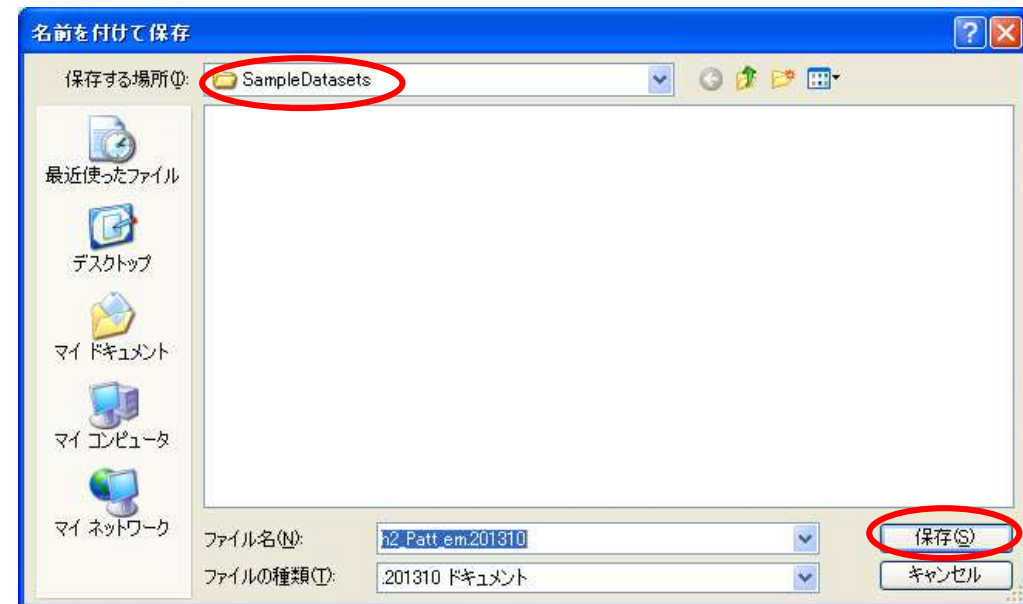
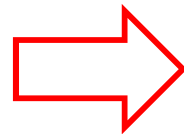
\* In this case, select the data of 2m temperature anomaly (h2\_patt\_em.yyyymm).

# 1. Downloading the JMA's numerical prediction data for winter 2013/14 1.1 GPVs

## Index of /model/gpv/7mE/GPV/201310

Name	Size
Parent Directory	
<a href="#">h2 Patt em.201310</a>	83K
<a href="#">h2 Pstt em.201310</a>	83K
<a href="#">h2 Ptt em.201310</a>	83K
<a href="#">p200 Fawu em.201310</a>	83K
<a href="#">p200 Fawv em.201310</a>	83K
<a href="#">p200 Fswu em.201310</a>	83K
<a href="#">p200 Fswv em.201310</a>	83K
<a href="#">p200 Fwu em.201310</a>	83K
<a href="#">p200 Fwv em.201310</a>	83K
<a href="#">p500 Pahh em.201310</a>	83K
<a href="#">p500 Phh em.201310</a>	83K
<a href="#">p500 Pshh em.201310</a>	83K
<a href="#">p850 Patt em.201310</a>	83K
<a href="#">p850 Pawu em.201310</a>	83K
<a href="#">p850 Pawv em.201310</a>	83K
<a href="#">p850 Pstt em.201310</a>	83K
<a href="#">p850 Pswu em.201310</a>	83K
<a href="#">p850 Pswv em.201310</a>	83K
<a href="#">p850 Ptt em.201310</a>	83K
<a href="#">p850 Pwu em.201310</a>	83K
<a href="#">p850 Pwv em.201310</a>	83K
<a href="#">surf Papp em.201310</a>	83K
<a href="#">surf Parr em.201310</a>	83K
<a href="#">surf Pass em.201310</a>	59K
<a href="#">surf Ppp em.201310</a>	83K
<a href="#">surf Prr em.201310</a>	83K

Right-click.  
Then, save the file.



Save the file to  
“C:¥OpenGrADS¥Contents¥Resources¥SampleDatasets¥”.

\* Install OpenGrADS to “C:¥” in advance (before saving the file).  
“Wgrib2” in OpenGrADS will be necessary in the next step.

# 1. Downloading the JMA's numerical prediction data for winter 2013/14 1.1 GPVs

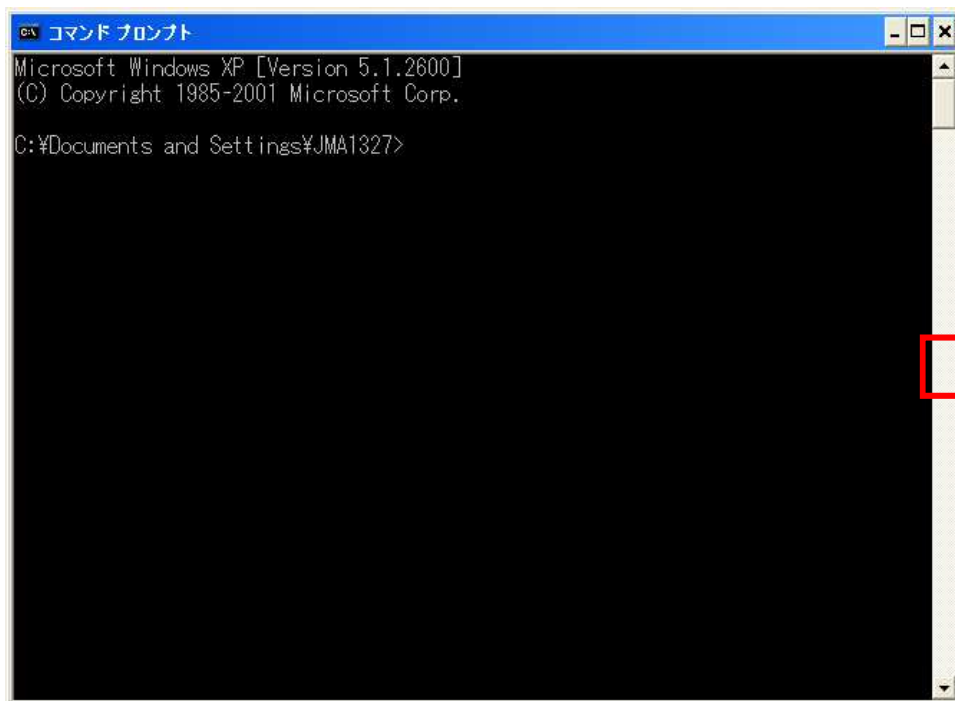
Select Windows “command prompt”.

Input

“cd c:¥OpenGrADS¥Contents¥Resources¥SampleDatasets”.

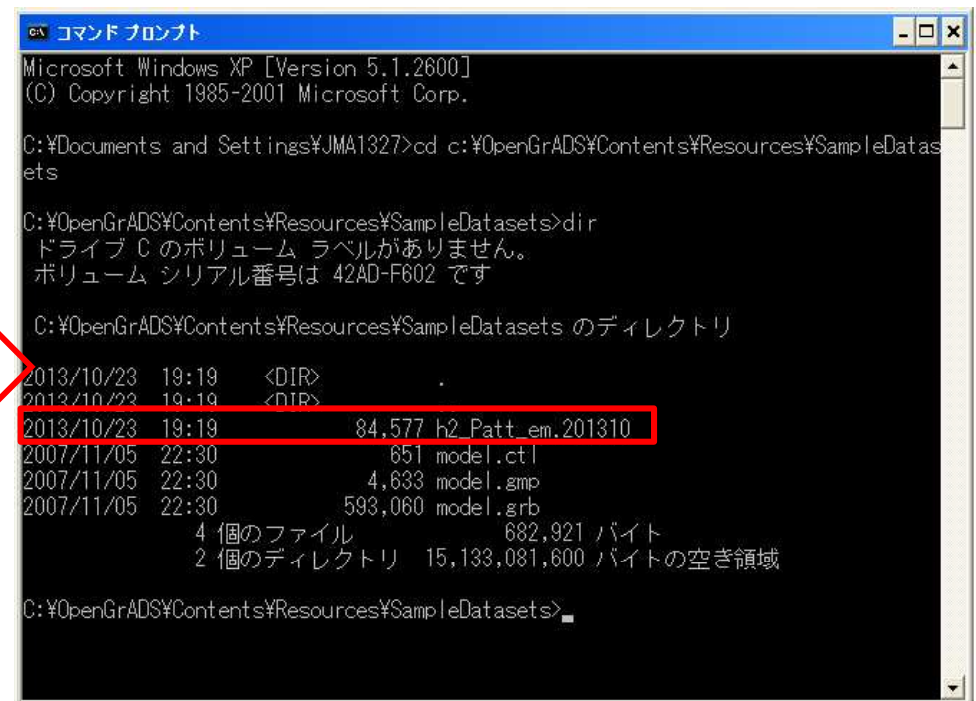
and input

“dir”.



```
コマンド プロンプト
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:¥Documents and Settings¥JMA1327>
```



```
コマンド プロンプト
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:¥Documents and Settings¥JMA1327>cd c:¥OpenGrADS¥Contents¥Resources¥SampleDaset
ets

C:¥OpenGrADS¥Contents¥Resources¥SampleDatasets>dir
ドライブ C のボリューム ラベルがありません。
ボリューム シリアル番号は 42AD-F602 です

C:¥OpenGrADS¥Contents¥Resources¥SampleDatasets のディレクトリ

2013/10/23  19:19    <DIR>          .
2013/10/23  19:19    <DIR>          ..
2013/10/23  19:19             84,577 h2_Patt_em.201310
2007/11/05  22:30              651 model.ctl
2007/11/05  22:30             4,633 model.gmp
2007/11/05  22:30            593,060 model.grb
               4 個のファイル             682,921 バイト
               2 個のディレクトリ  15,133,081,600 バイトの空き領域

C:¥OpenGrADS¥Contents¥Resources¥SampleDatasets>
```



# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.1 GPVs

Produce a text data file from the GRIB2 data file. That is to say, input  
“wgrib2 -undefine out-box \$lon:\$lon \$lat:\$lat -csv

\$lon : longitude (e.g. 140 for Tokyo)

\$lat : latitude (e.g. 35 for Tokyo, 10S => -10)

Then, check the new file has been created in the directory. That is to say, input “dir”.

```
コマンド プロンプト
ボリューム シリアル番号は 42AD-F602 です
C:\OpenGrADS\Contents\Resources\SampleDatasets のディレクトリ
2013/10/23 19:19 <DIR> .
2013/10/23 19:19 <DIR> ..
2013/10/23 19:19      84,577 h2_Patt_em.201310
2007/11/05 22:30        651 model.ctl
2007/11/05 22:30      4,633 model.gmp
2007/11/05 22:30     593,060 model.grb
4 個のファイル      682,921 バイト
2 個のディレクトリ 15,133,081,600 バイトの空き領域

C:\OpenGrADS\Contents\Resources\SampleDatasets>wgrib2 h2_Patt_em.201310 -undefine out-box 140:140 35:35 -csv h2_Patt_em.201310.txt
1.1:0:d=2013100100:TMPA:2 m above ground:2 month-(2 month+2160 hour ave@(6 hour fcst)++ ,missing=0:ens-mean
1.2:0:d=2013100100:TMPA:2 m above ground:2 month-(2 month+744 hour ave@(6 hour fcst)++ ,missing=0:ens-mean
1.3:0:d=2013100100:TMPA:2 m above ground:3 month-(3 month+744 hour ave@(6 hour fcst)++ ,missing=0:ens-mean
1.4:0:d=2013100100:TMPA:2 m above ground:4 month-(4 month+672 hour ave@(6 hour fcst)++ ,missing=0:ens-mean

C:\OpenGrADS\Contents\Resources\SampleDatasets>
```



```
コマンド プロンプト
fcst)++ ,missing=0:ens-mean
1.2:0:d=2013100100:TMPA:2 m above ground:2 month-(2 month+744 hour ave@(6 hour fcst)++ ,missing=0:ens-mean
1.3:0:d=2013100100:TMPA:2 m above ground:3 month-(3 month+744 hour ave@(6 hour fcst)++ ,missing=0:ens-mean
1.4:0:d=2013100100:TMPA:2 m above ground:4 month-(4 month+672 hour ave@(6 hour fcst)++ ,missing=0:ens-mean

C:\OpenGrADS\Contents\Resources\SampleDatasets>dir
ドライブ C のボリューム ラベルがありません。
ボリューム シリアル番号は 42AD-F602 です
C:\OpenGrADS\Contents\Resources\SampleDatasets のディレクトリ
2013/10/23 19:25 <DIR> .
2013/10/23 19:25 <DIR> ..
2013/10/23 19:19      84,577 h2_Patt_em.201310
2013/10/23 19:25      383 h2_Patt_em.201310.txt
2007/11/05 22:30        651 model.ctl
2007/11/05 22:30      4,633 model.gmp
2007/11/05 22:30     593,060 model.grb
5 個のファイル      683,304 バイト
2 個のディレクトリ 15,133,724,672 バイトの空き領域

C:\OpenGrADS\Contents\Resources\SampleDatasets>
```

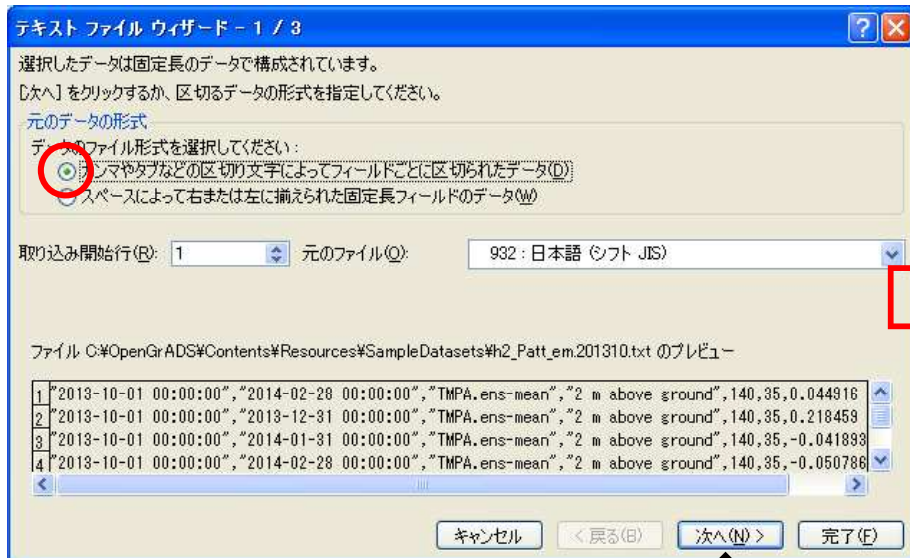
# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.1 GPVs

Start up Excel and open

“c:\OpenGrADS\Contents\Resources\SampleDatasets\”

”



Left-click!



Left-click!



# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.1 GPVs

Widen the columns "A", "B", "C", and "D".

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	#####	#####	TMPAens-2 m above		140	35	0.044916										
2	### 2013/10/1 0:00	#####	TMPAens-2 m above		140	35	0.218459										
3	#####	#####	TMPAens-2 m above		140	35	-0.04189										
4	#####	#####	TMPAens-2 m above		140	35	-0.05079										
5																	
6																	
7																	
8																	
9																	
10																	

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	2013/10/1 0:00	2014/2/28 0:00	TMPAens-mean	2 m above ground	140	35	0.044916						
2	2013/10/1 0:00	2013/12/31 0:00	TMPAens-mean	2 m above ground	140	35	0.218459						
3	2013/10/1 0:00	2014/1/31 0:00	TMPAens-mean	2 m above ground	140	35	-0.04189						
4	2013/10/1 0:00	2014/2/28 0:00	TMPAens-mean	2 m above ground	140	35	-0.05079						
5													
6													
7													
8													
9													
10													

1st-month data (Dec. of 2013)  
2nd-month data (Jan. of 2014)  
3rd-month data (Feb. of 2014)

You have been able to download the JMA's numerical prediction GPV data!

# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.2 Indices

TCC website

<http://ds.data.jma.go.jp/tcc/tcc/index.html>

Windows Internet Explorer

http://ds.data.jma.go.jp/tcc/tcc/index.html

Google

検索 共有 詳細

ログイン 設定

お気に入り 季節予報総合ページ おすすめサイト HotMailの無料サービス Get more Add-ons

Tokyo Climate Center Home Page

気象庁 Japan Meteorological Agency

Tokyo Climate Center WMO Regional Climate Center in RA II (Asia)

WMO

TCC home About TCC Site Map Contact us

Home World Climate Climate System Monitoring El Niño Monitoring **NWP Model Prediction** Global Warming Climate in Japan Training Module Press release Links

HOME

**What are WMO RCCs?**

WMO Regional Climate Centers (RCCs) are centres of excellence that create regional products including long-range forecasts that support regional and national climate activities, and thereby strengthen the capacity of WMO Members in a given region to deliver better climate services to national users.

**RCC Functions**

WMO RCCs perform the following set of mandatory functions covering the domains of long-range forecasting (LRF), climate monitoring, data services and training.

**Operational Activities for Long-range Forecasting**

**Operational Activities for Climate Monitoring**

**Operational Data Services, to support operational LRF and climate monitoring**

**Training in the use of operational RCC products and services**

**Main Products**

ClimatView

Introduction to ITACS

Interactive Tool for Analysis of the Climate System

GPC Tokyo (a Global Producing Center for

**What's New** RSS

17 September 2013

- Updated Information: Climate System Monitoring
  - Monthly Highlights: Climate System (August 2013, PDF, 535KB)
  - Monthly Report (August 2013)
  - Seasonal Report (June - August 2013)

17 September 2013

- Updated Information: Surface Temperature

13 September 2013

- Updated Information: World Climate
  - Monthly Report (August 2013)
  - Seasonal Report (June - August 2013)

10 September 2013 **NEW**

- Updated Information: El Niño Outlook (September 2013 - March 2014)

10 September 2013 **NEW**

- Updated Information: Climate in Japan
  - Monthly Report (August 2013)
  - Seasonal Report (June - August 2013)

2 September 2013 **NEW**

- Extreme summer conditions in Japan in 2013 - Summary of

**Links**

**Japan Meteorological Agency**

- Japanese 25-year ReAnalysis (JRA-25) and JMA Climate Data Assimilation System (JCDAS)
- JRA-25 Atlas
- Monthly Climate Statistics for Japan
- Tokyo Global Information System Centre (GISC Tokyo)
- World Data Center for Greenhouse Gases (WDCGG)
- Satellite Imagery of MTSAT-2
- RSMC Tokyo - Typhoon Center
- Meteorological Research Institute, JMA
- Meteorological Satellite Center, JMA

**Regional Climate Centers**

- RA II Regional Climate Center (RCC) Network Homepage
- Beijing Climate Center
- North Eurasian Climate Center (NEACC)
- WMO RA VI RCC-Network

**International Organization**

- World Meteorological Organization (WMO)
- GCOS Surface Network Monitoring Center (GSNMC)
- Severe Weather Information Center

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http://ds.data.jma.go.jp/tcc/tcc/products/model/index.html

# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.2 Indices

The screenshot shows a web browser window with the URL <http://ds.data.jma.go.jp/tcc/tcc/products/model/index.html>. The page content includes:

- 8 May 2013**: The model statistics for the forecast maps, such as model normal and systematic errors, were updated on 18 April 2013. The period for the model statistics are changed to 1981-2010.
- 7 March 2013**: Hindcast gridded data were available for the period up to 2009 for one-month forecast and up to 2008 for three-month and warm/cold season forecasts. Recently, hindcast gridded data up to 2010 for one-month, three-month and warm/cold season forecasts have been made available at <http://ds.data.jma.go.jp/tcc/tcc/gpv/index.html> (available only for registered NMHSs).
- Gridded data for seasonal forecasts have been upgraded since 17 February 2010. Please refer to the top page of the "TCC News No. 19" for details.

**Latest Products**

- One-month Prediction**
  - One-month Prediction (13 Sep 2013)
  - Z500, T850 & SLP (Northern Hemisphere) (13 Sep 2013)
  - Stream Function, Velocity Potential & Surface Air Temperature (60N-60S) (13 Sep 2013)
  - Verification (15 Sep 2013)
  - Hindcast
  - One-month Probabilistic Forecasts at station points
- Three-month Prediction**
  - Three-month Prediction (12 Sep 2013)
  - Z500, T850 & SLP (Northern Hemisphere) (12 Sep 2013)
  - Stream Function, Velocity Potential & Surface Air Temperature (60N-60S) (12 Sep 2013)
  - Verification (08 Sep 2013)
  - Hindcast
  - Probabilistic Forecast and Verification (12 Sep 2013)
- Warm/Cold Season Prediction**
  - Warm/Cold Season Prediction (12 Sep 2013)
  - Z500, T850 & SLP (Northern Hemisphere) (12 Sep 2013)
  - Stream Function, Velocity Potential & Surface Air Temperature (60N-60S) (12 Sep 2013)
  - Verification (08 Sep 2013)
  - Hindcast
  - Probabilistic Forecast and Verification (12 Sep 2013)

**Model Descriptions**

- Model Outlines
- Operations for Extended-range Forecast Model
- Operations for Long-range Forecast Model

**Download GPCP Long range Forecast (LRF) Products**

- Download Gridded data File (Only registered NMHSs can access this page)
- Application

If you have any questions about ID and/or password, please e-mail to: [tcc@met.kishou.go.jp](mailto:tcc@met.kishou.go.jp)

page top

Tokyo Climate Center, Climate Prediction Division, 1-3-4 Otemachi, Chiyoda-ku, Tokyo, Japan  
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Left-click.  
Then, enter ID and  
password.

Scroll



# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.2 Indices

The screenshot shows the Tokyo Climate Center website interface. At the top, there are logos for the Japan Meteorological Agency (JMA) and the World Meteorological Organization (WMO). Below the logos is a navigation menu with links: Home, World Climate, Climate System Monitoring, El Niño Monitoring, NWP Model Prediction, Global Warming, Climate in Japan, Training Module, Press release, and Links. The main content area is titled 'Download Gridded Data files' and is divided into two columns: 'Notice' and 'Main Products'. The 'Main Products' section contains several boxes: 'NWP Model Prediction' (with sub-links for 1-month, 3-month, and 7-month), 'Hindcast Gridded Data' (with sub-links for 1-month, 3-month, and 7-month), 'Statistical Downscaling for Three-month and Warm/Cold Season Forecasts' (with a sub-link for 'Indices and Gridded Data'), and 'Animation of 1-month Model Prediction (Experimental Product)' (with a sub-link for '7-days running mean'). A red box highlights the 'Indices and Gridded Data' link, and a blue callout bubble points to it with the text 'Left-click'.

**Notice**

- 7 March 2013  
Hindcast gridded data up to 2010 has been made available.
- The update of the weekly data (ensemble mean) was terminated in December 2011.
- Animation of One-month Model Prediction is experimental and not identical with the formal products (e.g. Weekly forecast maps, gridded datasets).
- TCC starts providing daily Gridded data (ensemble mean) of One-month Forecasting on 2 September 2011.

**Main Products**

**NWP Model Prediction**

- 1-month (13 Sep 2013)
  - Daily Statistics
  - All Members
  - Weekly Statistics (until December 2011)
- 3-month (12 Sep 2013)
  - Statistics
  - All Members
- 7-month (12 Sep 2013)
  - Statistics
  - All Members

**Hindcast Gridded Data**

- 1-month
  - Daily data
- 3-month
  - Monthly mean data
- 7-month
  - Monthly mean data

**Statistical Downscaling for Three-month and Warm/Cold Season Forecasts**

- Indices and Gridded Data (12 Sep 2013)

**Animation of 1-month Model Prediction (Experimental Product)**

- 7-days running mean (13 Sep 2013)

# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.2 Indices

### Statistical Downscaling for Producing Guidance for Seasonal Forecast

#### Introduction

TCC provides a set of indices and Grid Point Value (GPV) data which can be of use for producing three-month and warm/cold season forecasts. With the use of historical climate data (monthly/three-month mean temperature and/or precipitation), you can find which indices have good correlation with the observation data in your country and produce statistical guidance for three-month and warm/cold season forecasts.

Before downloading these data, it is recommended to read through a [tutorial](#) how to produce statistical guidance.

#### Indices and GPV data

- Download Indices and GPV data [\(Definition of Indices\)](#) ←
- [For Three-month Forecast](#) (updated every month)
- [For Warm/Cold Season Forecast](#) (updated in February, March and April for Warm Season (June - August), in September and October for Cold Season (December - February))
- [Monthly Indices derived from hindcast experiments of the CGCM](#)

#### Tutorial Materials

- [Tutorial of Exercise for producing statistical guidance \(in pdf\)](#)  
(used in the TCC Training Seminar in January 2011)
- Data files used in the tutorial
  - [Exercise for Guidance \(in Excel\)](#)
  - [Sample JJA temperature data in Tokyo](#)
  - [Sample JJA precipitation data in Tokyo](#)
  - [Sample GPV data for JJA](#)
  - [Sample Indices for JJA](#)

[Back to GPV top page](#)

Left-click

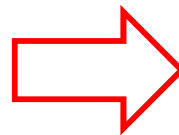
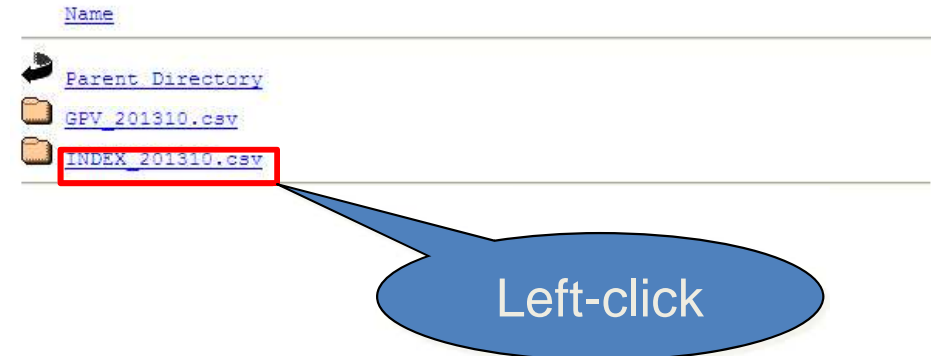
# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.2 Indices

### Index of /indices/gpv\_indices/7mE



### Index of /indices/gpv\_indices/7mE/201310





# 1. Downloading the JMA's numerical prediction data for winter 2013/14

## 1.2 Indices

INDEX	NINO3SST	NINOWEST	IOBW SST	WIO SST	EIO SST	IOBW RAIN	WIO RAIN	EIO RAIN	SAMOI RAIN	WNP RAIN	SEAsia RAIN	MC RAIN	DL RAIN	Z2030	Z3040	Z4050	Z5060	THICKMID	THICKNH
DEGREE	K	K	K	K	K	mm/day	mm/day	mm/day	mm/day	mm/day	mm/day	mm/day	mm/day	m	m	m	m	K	K
DJF	-0.01	0.18	0.08	0.03	0.04	0.05	-0.06	-0.01	0.12	0.12	0.28	0.03	0.08	0.35	2.12	2.22	1.76	0.08	0.08

indices	variables	areas
NINO3 SST	SST	(150W-90W, 5S-5N)
NINOWEST SST	SST	(130E-150E, EQ-15N)
IOBW SST	SST	(40E-100E, 20S-20N)
WIO SST	SST	(40E-70E, 0-20N)
EIO SST	SST	(70E-100E, 0-20N)
IOBW RAIN	RAIN	(40E-100E, 20S-20N)
WIO RAIN	RAIN	(40E-70E, 0-20N)
EIO RAIN	RAIN	(70E-100E, 0-20N)
SAMOI RAIN	RAIN	(80E-140E, 5N-25N)
WNP RAIN	RAIN	(110E-160E, 10N-20N)
SEAsia RAIN	RAIN	(115E-140E, 10N-20N)
MC RAIN	RAIN	(110E-135E, 5S-5N)
DL RAIN	RAIN	(170E-170W, 5S-5N)
Z2030	500hPa Height	(0-360, 20N-30N)
Z3040	500hPa Height	(0-360, 30N-40N)
Z4050	500hPa Height	(0-360, 40N-50N)
Z5060	500hPa Height	(0-360, 50N-60N)
THMD	Thickness Middle	(0-360, 30N-50N, 300hPa-850hPa)
THEX	Thickness extratropic	(0-360, 30N-90N, 300hPa-850hPa)
THTR	Thickness tropic	(0-360, 25S-25N, 100hPa-850hPa)

Please use the following values, if necessary.

**THEX: 0.09**

**THTR: 0.23**

Sorry, not available now.

## 2. Performing calculations of your guidance for winter 2013/14

- Open your ProducingGuidance.xls.
- Select the line 34.

Year	Target	Observation	Mean Temp	Rank	Predictor 1	Predictor 2	Predictor 3	Forecast	Regression Error	Probabilistic Forecast	Probabilistic Forecast	Probabilistic Forecast
JJA/DJF	deg C				EID RAIN	THEX	MO RAIN	%		NO(s, $\sigma$ )	NO(s, $\sigma$ )	NO(s, $\sigma$ )
1981 DJF	5.8	28	-0.16	-0.18	0.29	6.78	0.966			53%	29%	18%
1982 DJF	6.3	25	-0.41	-0.20	0.52	6.74	0.197			55%	28%	17%
1983 DJF	7.3	14	-0.06	-1.19	7.42	0.014				23%	31%	46%
1984 DJF	4.6	30	0.55	-0.14	0.25	6.60	3.985			63%	25%	12%
1985 DJF	6.1	26	-0.27	-0.32	0.06	6.76	0.438			55%	28%	17%
1986 DJF	5.4	29	0.08	-0.26	0.46	6.53	1.280			66%	23%	11%
1987 DJF	7	18	-0.41	-0.21	-0.47	7.18	0.032			34%	32%	34%
1988 DJF	6.9	19	0.35	-0.11	-0.21	6.91	0.000			47%	31%	22%
1989 DJF	8	3	0.30	-0.03	6.66	1.807				60%	26%	14%
1990 DJF	7.3	14	-0.19	-0.11	0.77	6.66	0.411			60%	26%	14%
1991 DJF	7.6	8	0.11	0.02	0.04	7.03	0.325			41%	32%	27%
1992 DJF	7.6	8	-0.07	-0.01	-0.34	7.23	0.140			31%	32%	36%
1993 DJF	7.8	6	-0.33	-0.26	0.14	6.82	0.964			52%	29%	19%
1994 DJF	6.9	19	0.27	-0.23	-0.14	6.77	0.017			54%	29%	17%
1995 DJF	7.3	14	-0.08	-0.16	-0.62	7.18	0.014			33%	32%	34%
1996 DJF	6.6	23	-0.45	-0.02	0.12	7.15	0.297			35%	32%	32%
1997 DJF	7.7	7	-0.70	-0.02	0.12	7.23	0.222			31%	32%	36%
1998 DJF	7.2	17	0.05	0.33	-0.94	7.84	0.415			10%	23%	67%
1999 DJF	7.4	12	0.52	0.19	0.20	7.01	0.148			42%	32%	27%
2000 DJF	7.5	10	0.42	-0.11	0.27	6.67	0.691			59%	27%	14%
2001 DJF	6.8	21	0.33	0.12	0.31	6.95	0.022			45%	31%	24%
2002 DJF	7.9	5	-0.39	0.25	0.04	7.47	0.189			21%	30%	48%
2003 DJF	6.4	24	0.19	0.36	-0.31	7.55	1.328			18%	29%	53%
2004 DJF	8	3	0.39	0.18	0.53	6.90	1.201			47%	31%	22%
2005 DJF	7.4	12	-0.14	0.23	-0.06	7.41	0.000			24%	31%	45%
2006 DJF	6.1	26	-0.03	0.24	0.77	7.01	0.820			42%	32%	26%
2007 DJF	8.6	1	-0.04	0.31	-0.80	7.78	0.664			11%	24%	64%
2008 DJF	6.8	21	0.17	0.08	0.22	7.00	0.039			42%	32%	26%
2009 DJF	8.1	2	0.13	0.05	0.37	6.92	1.403			47%	31%	23%
2010 DJF	7.5	10	-0.16	0.41	-0.37	7.75	0.063			12%	25%	63%
Normal		7.1					0.727					
The lower limit of around normal		6.9										
The upper limit of around normal		7.5										
Single Regression	slope		-0.32	1.24	-0.54							
	intercept		7.06	7.06	7.06							
	Correlation		0.12	0.31	0.30							
Multiple Regression	slope		-0.35	1.15	-0.44							
	intercept		7.06									
	Correlation		0.42									

In this case, the predictand is temperature and the station is Tokyo.

Select!



## 2. Performing calculations of your guidance for winter 2013/14

- Select “Insert”      Select “Insert-line”

Insert

The screenshot shows the Microsoft Excel interface with the 'Insert' ribbon selected. The spreadsheet contains data for 'ProducingGuidance.xls'. The data is organized into columns: A (Year), B (Target), C (Observation), D (Mean Temp), E (Rank), F (Predictor 1), G (Predictor 2), H (Predictor 3), I (Forecast), J (Regression Error), K (Probabilistic Forecast), and L (Probabilistic Forecast). The data spans from row 2 to row 33. A new line has been added at row 34, indicated by a red arrow. The 'Insert' button in the ribbon is also highlighted with a red circle and a red arrow.

Year	Target	Observation	Mean Temp	Rank	Predictor 1	Predictor 2	Predictor 3	Forecast	Regression Error	Probabilistic Forecast	Probabilistic Forecast	Probabilistic Forecast
JJA/DJF	deg C	deg C			EID RAIN	THEX	MO RAIN	%		N(μ, σ)	N(μ, σ)	N(μ, σ)
1981	DJF	5.8	28	-0.16	-0.18	0.29	6.78	0.966		53%	29%	18%
1982	DJF	6.3	25	-0.41	-0.20	0.52	6.74	0.197		55%	28%	17%
1983	DJF	7.3	14	-0.06	-0.16	-1.19	7.42	0.014		23%	31%	46%
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1987	DJF	7	18	-0.41	-0.21	-0.47	7.18	0.032		34%	32%	34%
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1991	DJF	7.6	8	0.11	0.02	0.04	7.03	0.325		41%	32%	27%
1992	DJF	7.6	8	-0.07	-0.01	-0.34	7.23	0.140		31%	32%	36%
1993	DJF	7.8	6	-0.33	-0.26	0.14	6.82	0.964		52%	29%	19%
1994	DJF	6.9	19	0.27	-0.23	-0.14	6.77	0.017		54%	29%	17%
1995	DJF	7.3	14	-0.08	-0.16	-0.62	7.18	0.014		33%	32%	34%
1996	DJF	6.6	23	-0.45	-0.02	0.12	7.15	0.297		35%	32%	32%
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1998	DJF	7.2	17	0.05	0.33	-0.94	7.84	0.415		10%	23%	67%
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2000	DJF	7.5	10	0.42	-0.11	0.27	6.67	0.691		59%	27%	14%
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2003	DJF	6.4	24	0.19	0.36	-0.31	7.55	1.328		18%	29%	53%
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2005	DJF	7.4	12	-0.14	0.23	-0.06	7.41	0.000		24%	31%	45%
2006	DJF	6.1	26	-0.03	0.24	0.77	7.01	0.820		42%	32%	26%
2007	DJF	8.6	1	-0.04	0.31	-0.80	7.78	0.564		11%	24%	64%
2008	DJF	6.8	21	0.17	0.08	0.22	7.00	0.039		42%	32%	26%
2009	DJF	8.1	2	0.13	0.05	0.37	6.92	1.403		47%	31%	23%
2010	DJF	7.5	10	-0.16	0.41	-0.37	7.75	0.063		12%	25%	63%
2011	DJF	7.1						0.777				
2012	DJF	6.9						σ <sub>n</sub>				
2013	DJF	7.5										
Single Regression	slope				-0.32	1.24	-0.54					
Single Regression	intercept				7.06	7.06	7.06					
Single Regression	Correlation				0.12	0.31	0.30					
Multiple Regression	slope				-0.35	1.15	-0.44					
Multiple Regression	intercept				7.06							
Multiple Regression	Correlation				0.42							

← A new line has been made!



## 2. Performing calculations of your guidance for winter 2013/14

- Input the values of the downloaded predictor data into the cells E34, F34, and G34.
- The predicted value and probabilities are automatically shown at H34 and from J34 to L34.

Year	Target JJA/DJF	Observation Mean Temp deg C	Rank	Predictor 1 EID RAIN	Predictor 2 THEX	Predictor 3 MC RAIN	Forecast °C	Regression Error	Probabilistic Forecast NO(s, σn)	Probabilistic Forecast NO(s, σn)	Probabilistic Forecast NO(s, σn)
									Prob. of below-normal	Prob. of around-normal	Prob. of above-normal
1981 DJF		5.8	28	-0.16	-0.18	0.29	6.78	0.966	53%	29%	18%
1982 DJF		6.3	25	-0.41	-0.20	0.52	6.74	0.197	55%	28%	17%
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2010 DJF		7.5	10	-0.16	0.45	0.32	7.35	0.063	12%	25%	63%
2013 DJF				-0.01	0.09	0.03	7.16	0.777	35%	32%	33%
Normal		7.1									
The lower limit of around normal		6.9									
The upper limit of around normal		7.5									
σn											
Single Regression	slope			-0.32	1.24	-0.54					
	intercept			7.06	7.06	7.06					
	Correlation			0.12	0.31	0.30					
Multiple Regression	slope			-0.35	1.15	-0.44					
	intercept			7.06							
	Correlation			0.42							

# 3. Interpreting the JMA's numerical prediction products for winter 2013/14

## How to obtain forecast maps of warm/cold season prediction

The screenshot shows a web browser window with the URL <http://ds.data.jma.go.jp/tcc/products/model/index.html>. The navigation menu at the top includes: Home, World Climate, Climate System Monitoring, El Niño Monitoring, **NWP Model Prediction** (circled in red), Global Warming, Climate in Japan, Training Module, Press release, and Links. Below the menu, the page title is "JMA's Ensemble Prediction System (Products of GPC Tokyo)". A notice section on the left contains three bullet points: 8 May 2013 (model statistics update), 7 March 2013 (hindcast data availability), and a general update on gridded data. The "Main Products" section on the right lists "Latest Products" under three categories: "One-month Prediction", "Three-month Prediction", and "Warm/Cold Season Prediction". Under "Warm/Cold Season Prediction", the item "Stream Function, Velocity Potential & Surface Air Temperature (60N-60S) (17 Oct 2013)" is highlighted with a red box. At the bottom, there are sections for "Model Descriptions" and "Download GPC Long-range Forecast (LRF) Products".



# 3. Interpreting the JMA's numerical prediction products for winter 2013/14

## How to obtain forecast maps of warm/cold season prediction

### forecast map

initial date

2013.10.13.00Z

Forecast range : 3 months mean  
 [initial : Feb,Mar,Apr  
 => average of JJA (for warm season outlook)]  
 [initial : Sep,Oct  
 => average of DJF (for cold season outlook)]

area

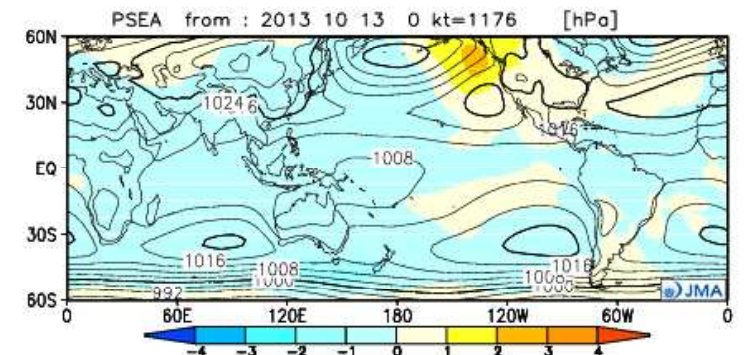
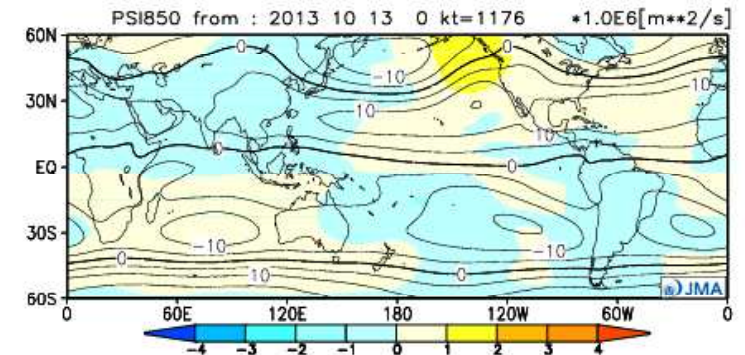
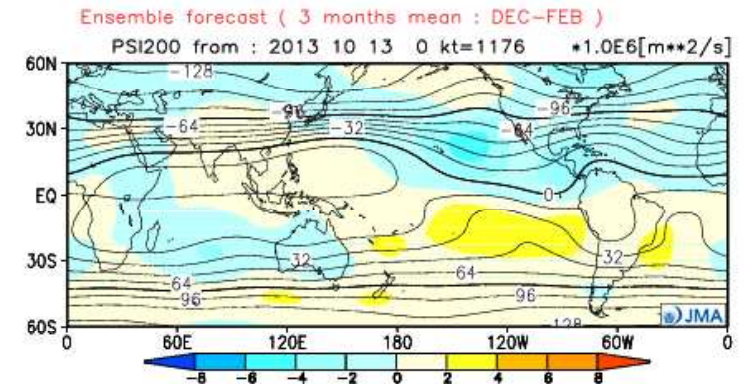
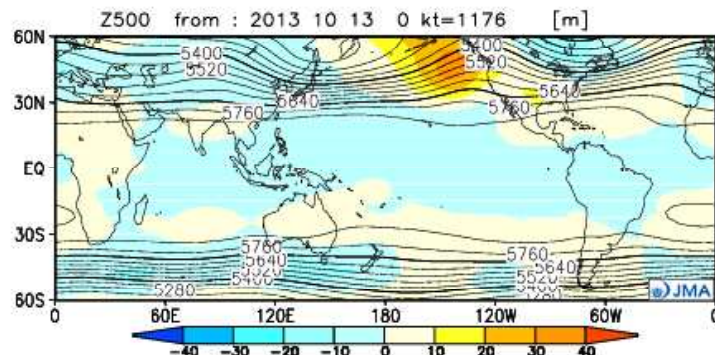
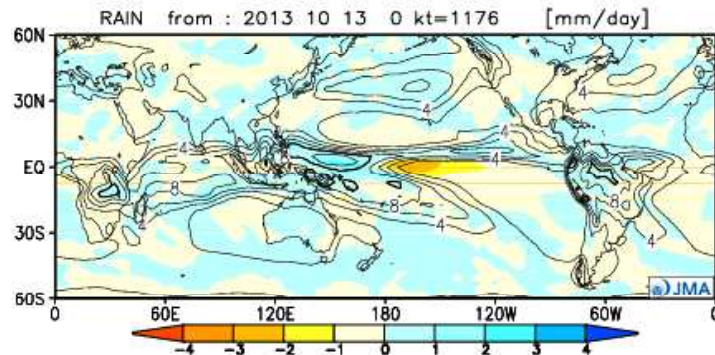
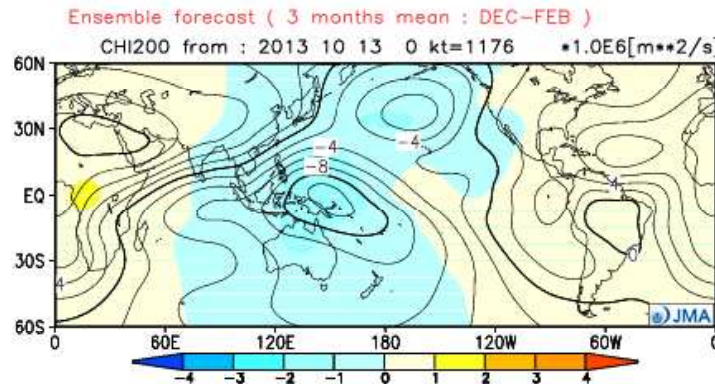
- 60N-60S
- Asia

data

- ensemble mean forecast
- ensemble mean forecast (mask [msss < 0] area)
- msss : Mean Square Skill Score
- spread and anomaly

### coresponding verification

[forecast]  
 Contour show forecast, and shaded pattern show anomalies. Contour interval  
 CHI200 :  $2 \times 1.0E6 m^2/s$   
 RAIN : 2mm/day  
 Z500 : 60m (area: 60N-60S), 20m (area: Asia)  
 TS : 4C  
 SST : 2C





### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

How to obtain verification maps of warm/cold season prediction (hindcast)

The screenshot shows a web browser window with the URL <http://ds.data.jma.go.jp/tcc/products/model/index.html>. The page title is "Ensemble Model Prediction / TCC". The navigation menu includes: Home, World Climate, Climate System Monitoring, El Niño Monitoring, **NWP Model Prediction** (circled in red), Global Warming, Climate in Japan, Training Module, Press release, and Links. Below the menu, the page content is titled "JMA's Ensemble Prediction System (Products of GPC Tokyo)". A "Notice" section on the left contains three bullet points: 8 May 2013 (model statistics update), 7 March 2013 (hindcast data availability), and a general update on gridded data. The "Main Products" section on the right lists "Latest Products" under three categories: "One-month Prediction", "Three-month Prediction", and "Warm/Cold Season Prediction". Under "Warm/Cold Season Prediction", the "Hindcast" link is highlighted with a red box. At the bottom, there are sections for "Model Descriptions" and "Download GPC Long-range Forecast (LRF) Products".

### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

How to obtain verification maps of warm/cold season prediction (hindcast)

SVS - Windows Internet Explorer

http://ds.data.jma.go.jp/tcc/tcc/products/model/hindcast/7mE/index.html

Forecasting maps and Verifications from Hindcast

[Forecasting Maps](#)

[Time-series Circulation Index](#)

Verification of Deterministic forecasts

- [Maps](#)
  - Variables to be Assessed: RAIN, T2m, PSEA, Z500, T850, SST
  - Diagnostic Measures:
    - Mean Square Skill Score(MSSS)
    - Anomaly Correlation(ACOR)
    - Root Mean Squared Error(RMSE)
    - Bias
    - Standard Deviation(SD)
    - Correlation

Verification of Probabilistic forecasts

- [Diagrams](#)
  - Variables to be Assessed: RAIN, T2m, PSEA, Z500, T850, SST
  - Diagnostic Measures:
    - Reliability diagrams (Aggregated verification)
    - Relative Operating Characteristics(ROC) curve (Aggregated verification)
  - Event: Anomaly > 0, Below Normal, Near Normal, Above Normal
- [Maps](#)
  - Variables to be Assessed: RAIN, T2m, PSEA, Z500, T850, SST
  - Diagnostic Measures:
    - Relative Operating Characteristics(ROC) areas (Grid point verification)
  - Event: Anomaly > 0, Below Normal, Near Normal, Above Normal

[Verification data](#)

ページが表示されました

インターネット 100%

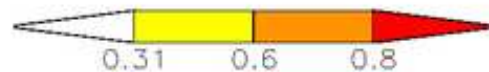
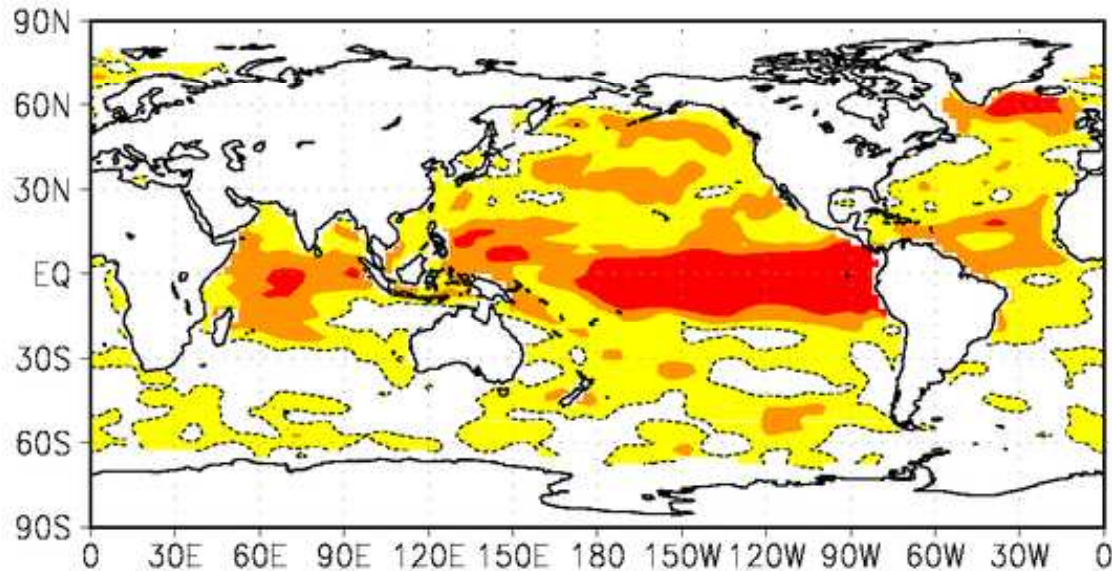
### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

How to obtain verification maps of warm/cold season prediction (hindcast)

#### Verification for JMA/MRI-CGCM

Verification: **ACOR** Parameter: SST Period: **2-4 month mean** Initial: **Oct (09/28)** Area: Global

<Cgcm3(30yr;10mem)>  
SST anomaly (ens-se)  
Anomaly Correlation for 30 years (1979-2008)  
Initial : 09.28 , Lead time : 2 (Dec to Feb)



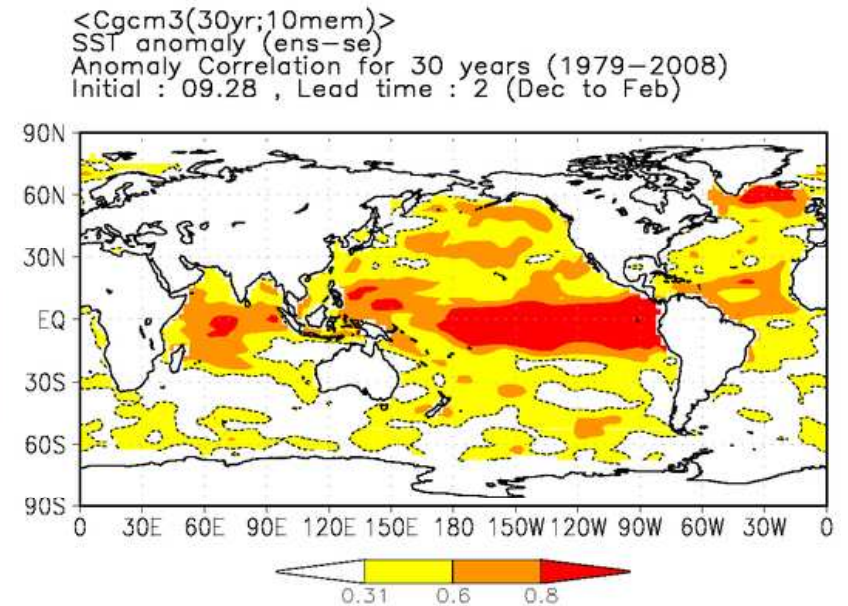
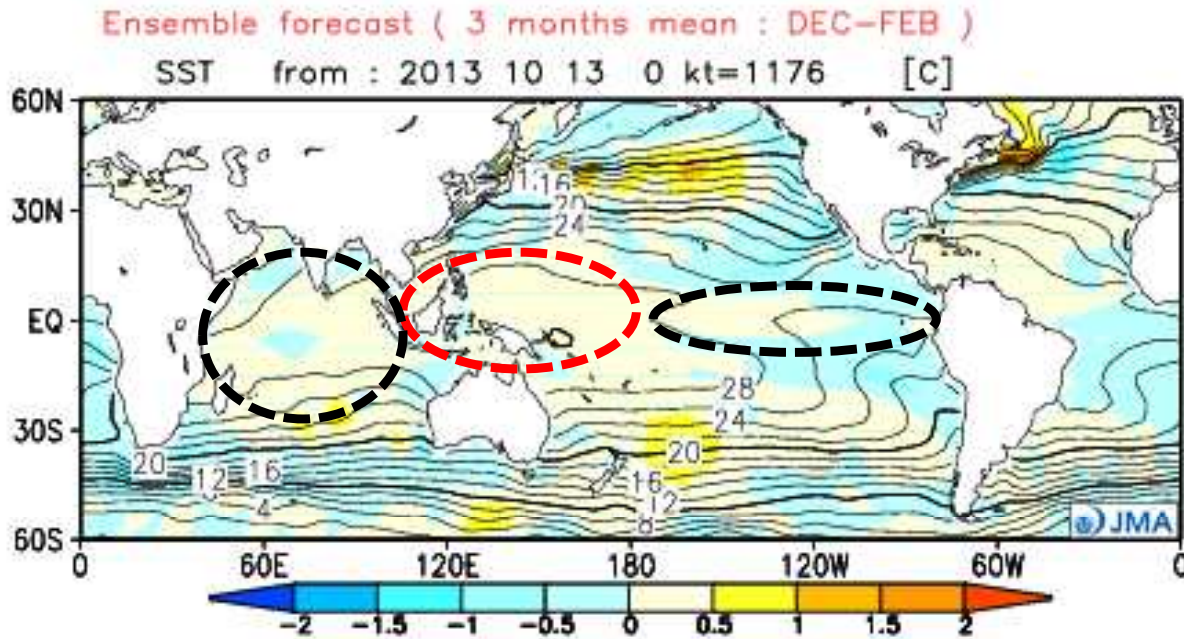
NH	TRP	SH	EU	PAC	JPN	N34
0.451	0.623	0.292	0.382	0.500	0.423	0.906

- NH : 20N-90N,all inclusive
- TRP: 20S-20N,all inclusive
- SH : 20S-90S,all inclusive
- EU : 20N-90N, 0E-180E
- PAC: 20N-90N, 90E- 90W
- JPN: 20N-60N,100E-170E
- N34: 5S- 5N,170E-120W



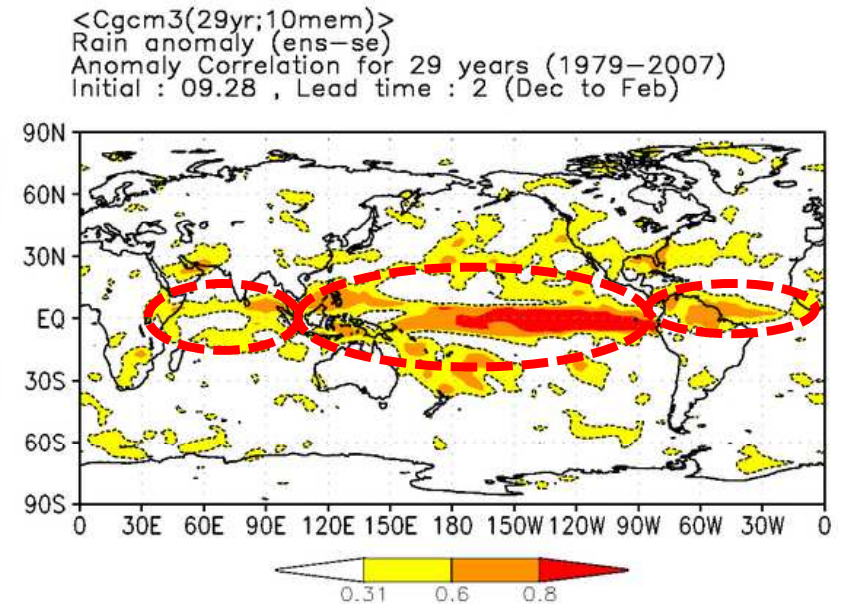
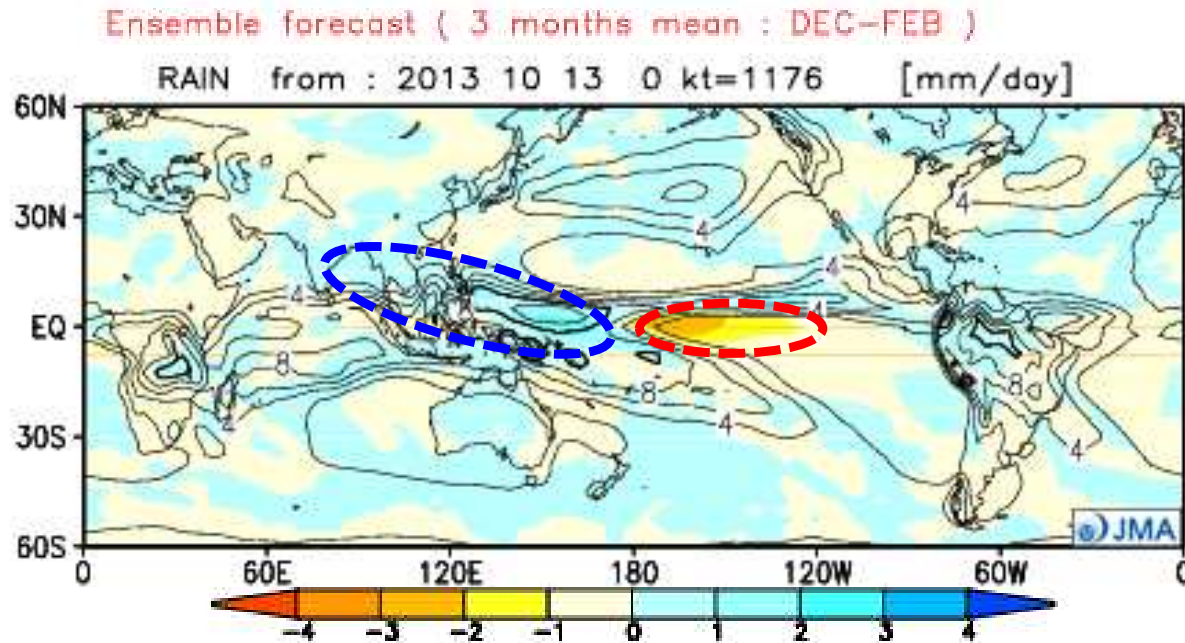
### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

- \* What are distinctive features of them?
- \* Do they have enough skill?



### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

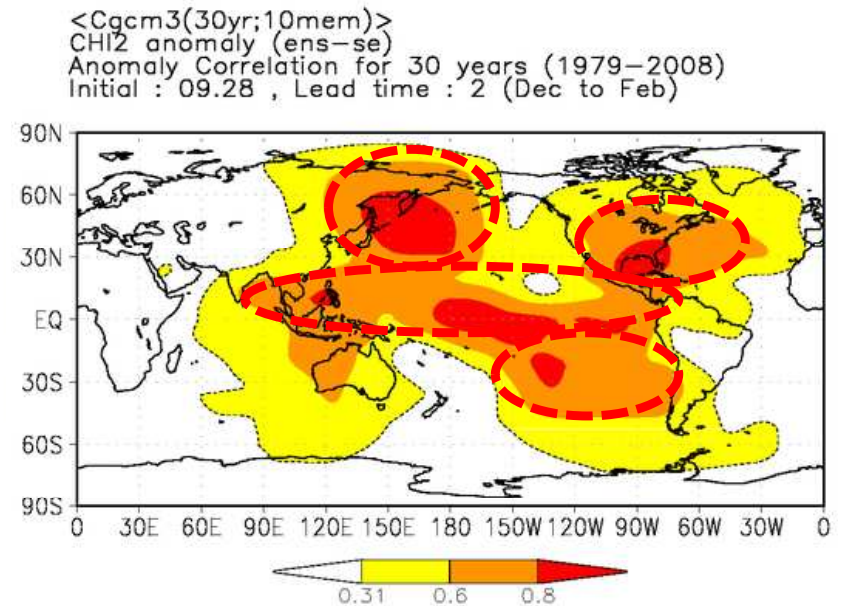
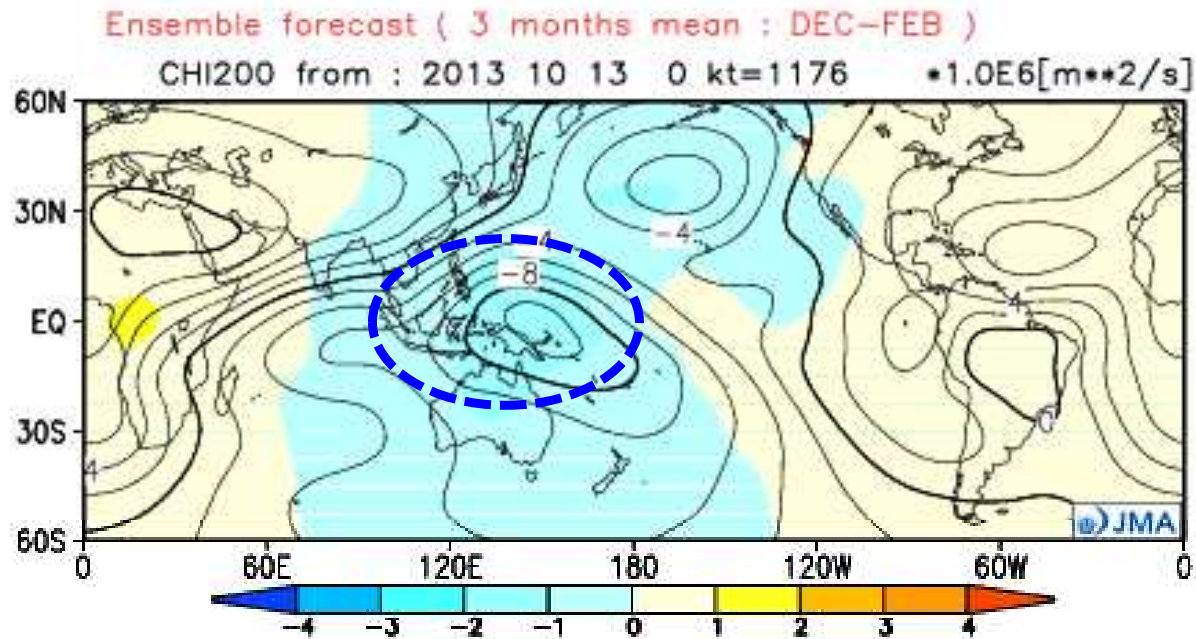
- \* What are distinctive features of them?
- \* Do they have enough skill?





### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

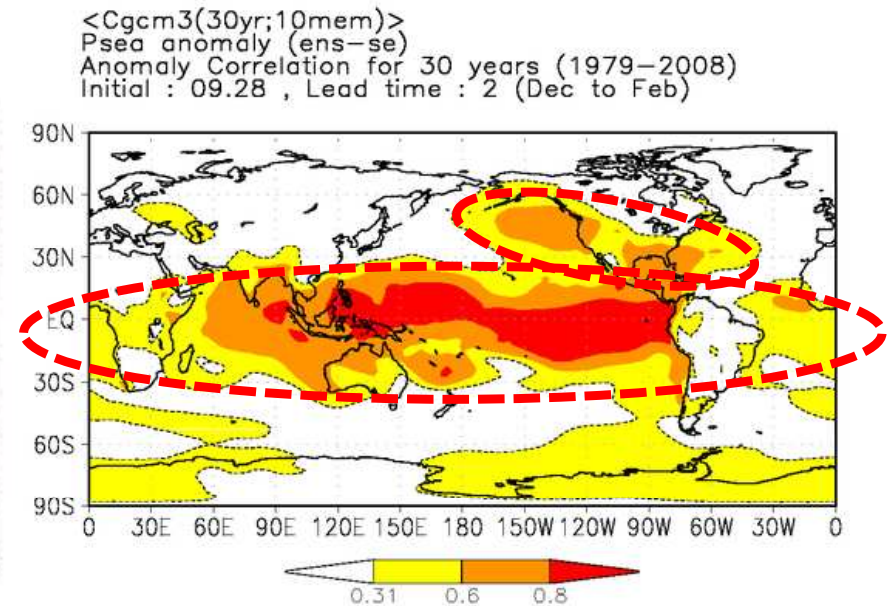
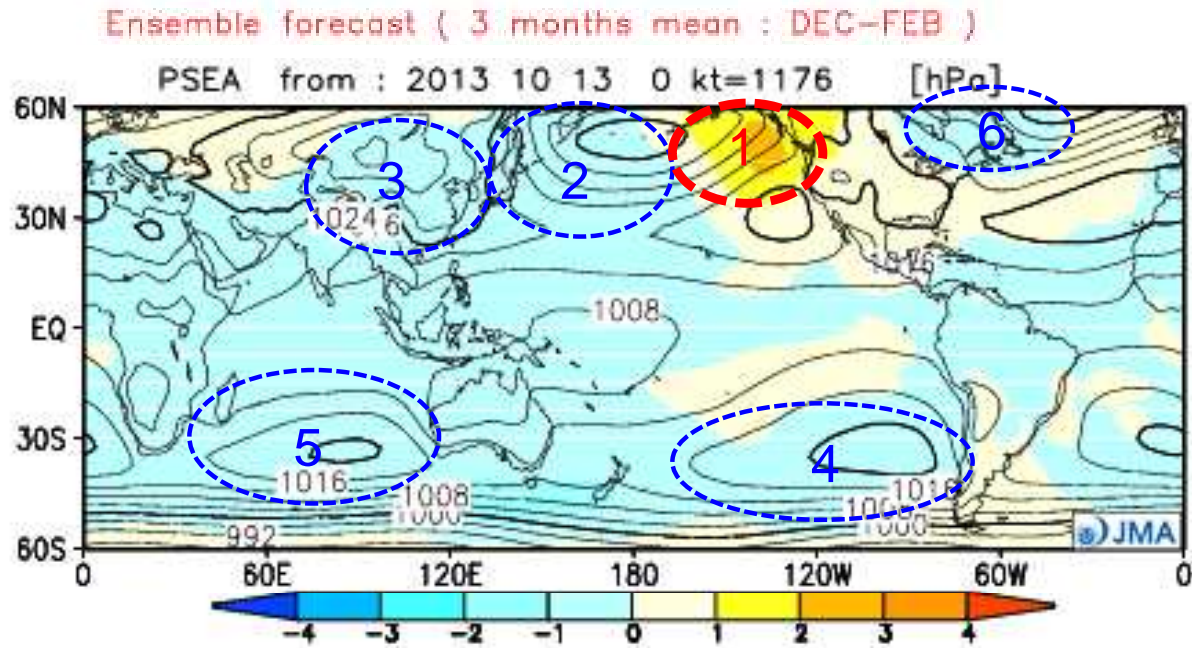
- \* What are distinctive features of them?
- \* Do they have enough skill?





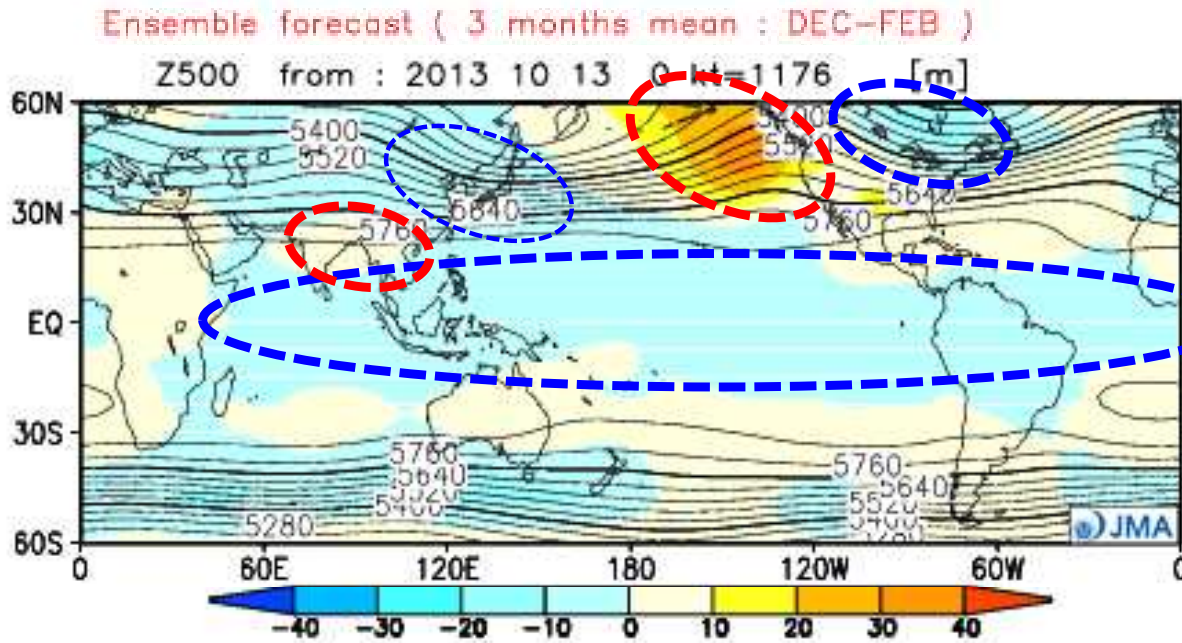
### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

- \* What are distinctive features of them?
- \* Do they have enough skill?

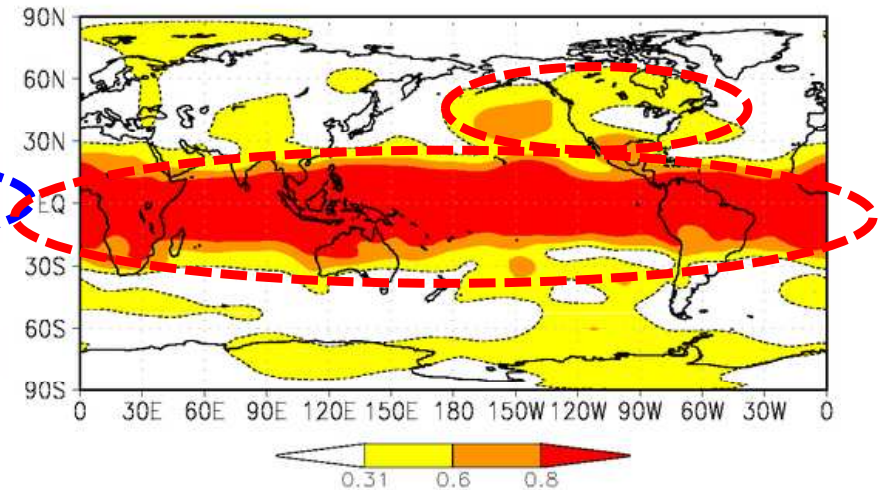


### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

- \* What are distinctive features of them?
- \* Do they have enough skill?



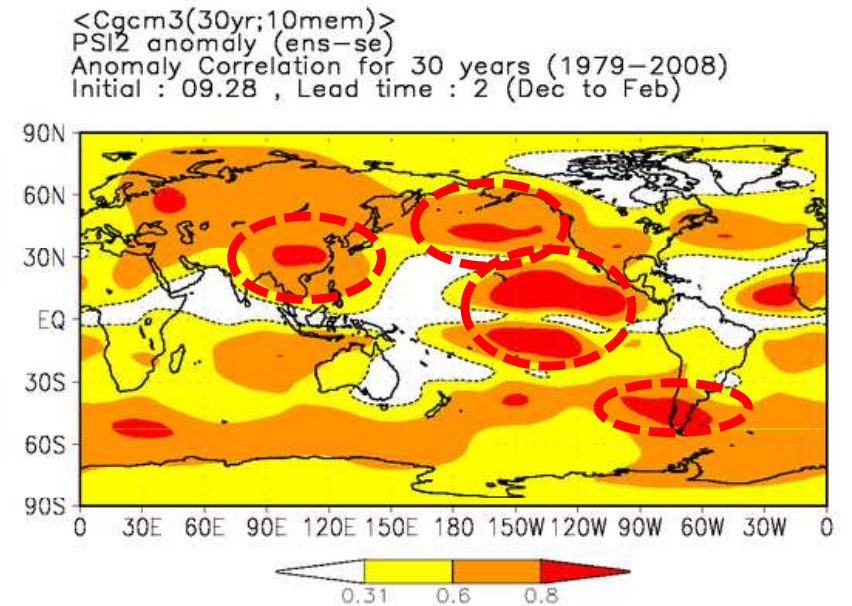
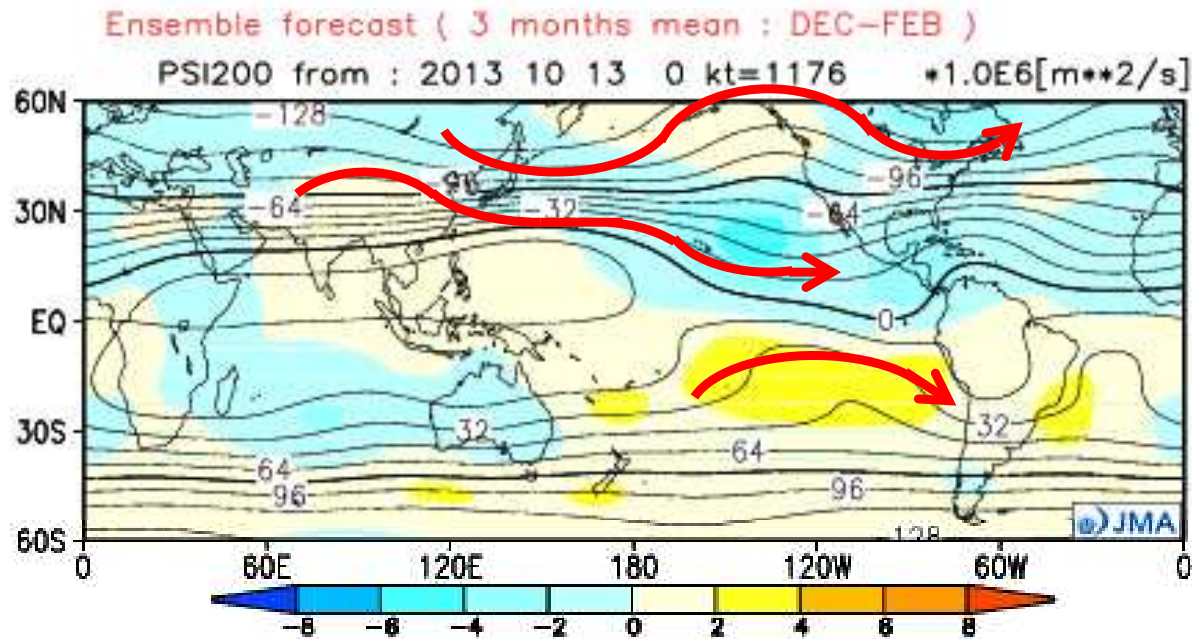
<Cgcm3(30yr;10mem)>  
Z500 anomaly (ens-se)  
Anomaly Correlation for 30 years (1979-2008)  
Initial : 09.28 , Lead time : 2 (Dec to Feb)





### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

- \* What are distinctive features of them?
- \* Do they have enough skill?



### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

SST anomalies affect the distribution of precipitation anomalies.



Precipitation anomalies affect the circulation anomalies (sea level pressure, 500hPa height, and so on).



If the circulation in and around your country is statistically well correlated with the surface temperature (precipitation) in your country, you can have the perspective of the surface temperature (precipitation) (\*).

\* If the prediction skill of the 2-m height temperature (precipitation) anomaly in your country is good, you can use it.

However, if the prediction skill of the circulation anomalies in and around your country is not good, you can't use them without more examination.



### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

Confirm the observational relationship between the circulation in and around your country and an element for which the model has good skill with using ITACS.

In this case, the observational relationship between SLP / Z500 in and around Japan and OLR from the northeastern Indian Ocean to the western tropical Pacific...

data1						
dataset	element	data type	area	level	average period	show period
JRA-JCDAS	SLP (Sea Level Pressure) [hPa]	ANOM	ASIA Lat: -10 - 85 Ave <input type="checkbox"/> Lon: 30 - 130 Ave <input type="checkbox"/>	1000hPa 1000hPa	Year average Ave <input type="checkbox"/> time filter <input type="checkbox"/>	1980 - 2009 12 - 02

analysis method: REGRESSION\_COEFFICIENT

data2							
dataset	element	data type	area	level	average period	lag	significance
SAT	OLR (W/m <sup>2</sup> )	ANOM	ASIA Lat: 10 - 20 Ave <input checked="" type="checkbox"/> Lon: 70 - 140 Ave <input checked="" type="checkbox"/>	1000hPa 1000hPa	Year average Ave <input type="checkbox"/> time filter <input type="checkbox"/>	0 YEAR	90%(two side)

Graphic Option

Drawing: CONTOUR



Left-click

Submit

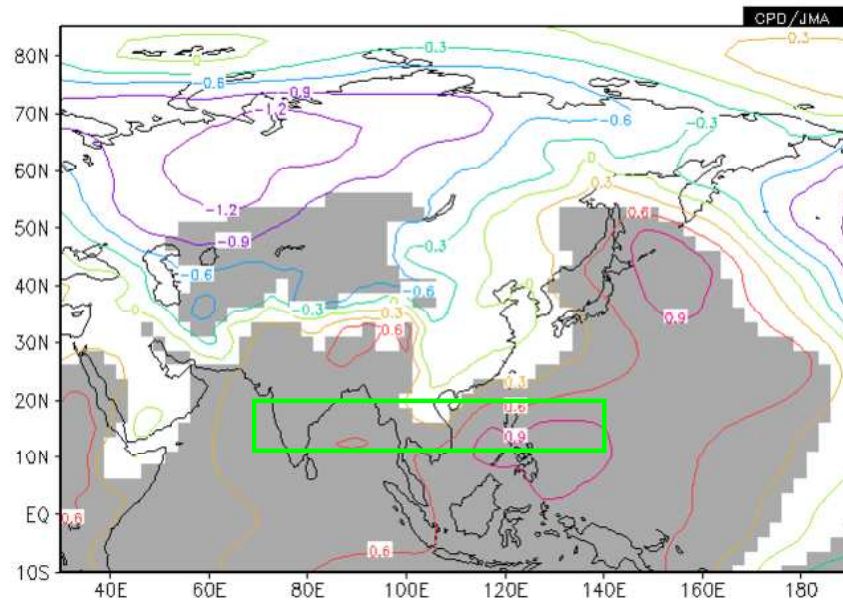
### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

The observational relationship between SLP / Z500 and OLR from the northeastern Indian Ocean to the western tropical Pacific

SLP

DATA1 JRA-JCDAS **slp** ANOM lat = -10:85 lon = 30:190 level = 1:1  
time = 1980120100:2010020100 ave = 1YR(3+1MD)

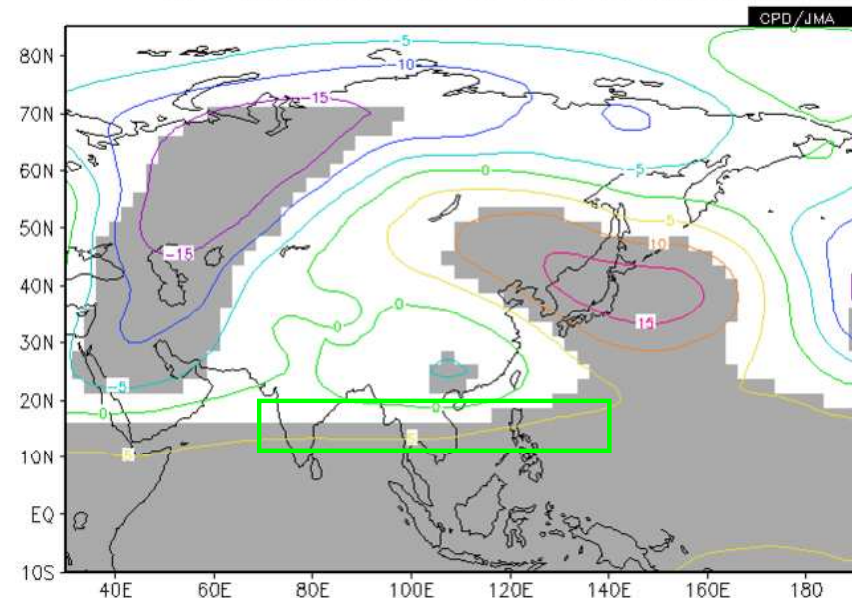
DATA2 SAT **olr** ANOM lat = 10:20 lon = 70:140 level = 1:1  
time = 1980120100:2010020100 analysis method = REGRESSION



Z500

DATA1 JRA-JCDAS **z23** ANOM lat = -10:85 lon = 30:190 level = 6:6  
time = 1980120100:2010020100 ave = 1YR(3+1MD)

DATA2 SAT **olr** ANOM lat = 10:20 lon = 70:140 level = 1:1  
time = 1980120100:2010020100 analysis method = REGRESSION\_COEFFICIENT



These figures show surface low pressure systems (the western part of the Aleutian low) and upper cold air masses tend to prevail in and around Japan when convection is active (OLR anomalies are negative) from the northeastern Indian Ocean to the western tropical Pacific.

The model prediction is valid at least for the circulation in and around Japan (though the model rainfall prediction skill in the northeastern Indian ocean is not good).

### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

Is the circulation in and around your country (\*) statistically well correlated with the surface temperature / precipitation in your country?

\* predicted by the model or deduced from an observational relationship

**data1**

dataset	element	data type	area	level	average period	show period
JRA-JCDAS	SLP (Sea Level Pressure) [hPa]	ANOM	ASIA	1000hPa	Year average	RANGE

analysis method : REGRESSION\_COEFFICIENT

**data2**

dataset	element	input txt	average period	lag	significance
USER INPUT	LAST_USED 2013/10/24 16:55:39	1980,12,1,5.8 1981,1,1,5.8 1981,2,1,5.8 1981,12,1,6.3 1982,1,1,6.3 1982,2,1,6.3 1982,12,1,7.3 1983,1,1,7.3 1983,2,1,7.3 1983,12,1,4.6 1984,1,1,4.6 1984,2,1,4.6 1984,12,1,6.1 1985,1,1,6.1 1985,2,1,6.1 1985,12,1,5.4 1986,1,1,5.4 1986,2,1,5.4	Year average	0 YEAR	90%(two side)

Select UPLOAD\_TXT

Graphic Option  
Drawing: CONTOUR

Left-click Submit

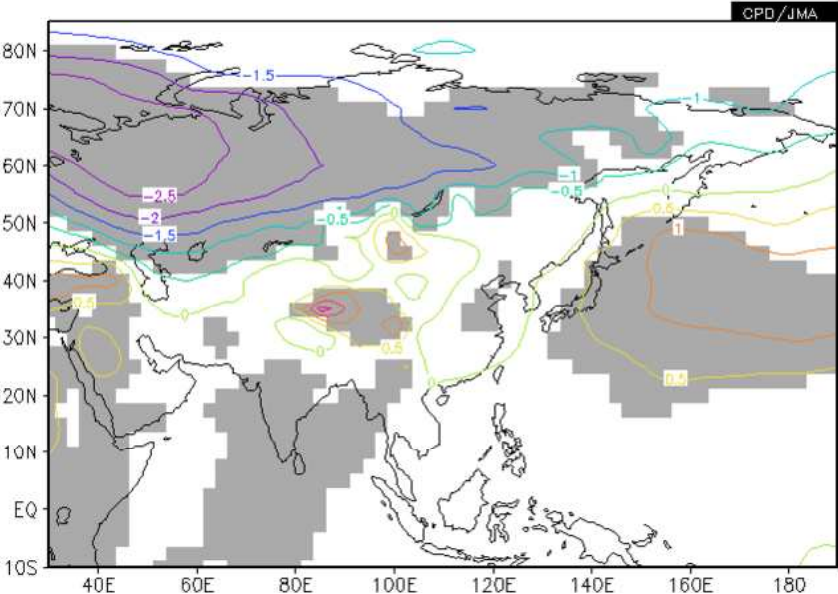
Upload the observation data  
(In this case, TokyoDJFTemp.csv / TokyoDJFPrec.csv)

### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

The observational relationship between SLP / Z500 and the surface temperature in Tokyo

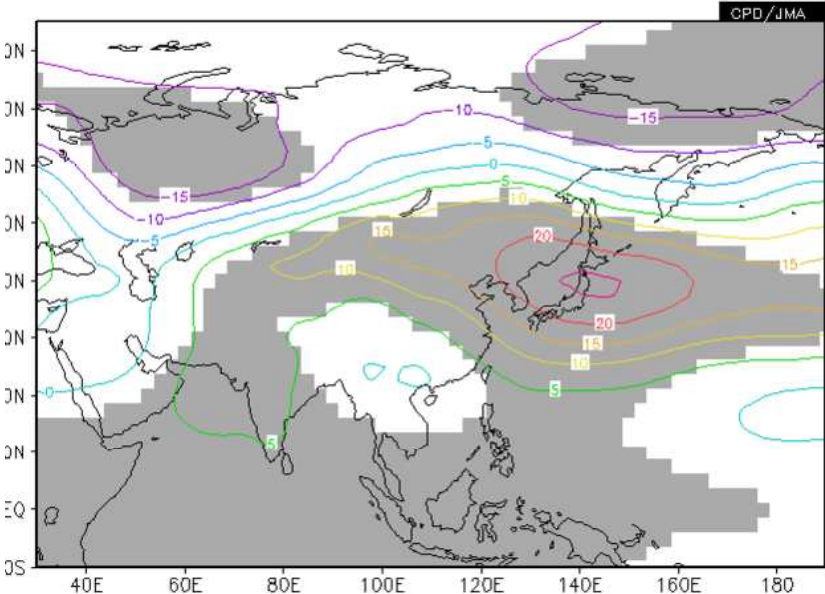
**SLP**

DATA1 JRA-JCDAS **slp** ANOM lat = -10:85 lon = 30:190 level = 1:1  
time = 1980120100:2010020100 ave = 1YR(3+1MD)  
DATA2 INPUT lastused HIST lat = -90:90 lon = 0:360 level = 1:1  
time = 1980120100:2010020100 analysis method = REGRESSION\_COEFFICI



**Z500**

DATA1 JRA-JCDAS **z23** ANOM lat = -10:85 lon = 30:190 level = 6:6  
time = 1980120100:2010020100 ave = 1YR(3+1MD)  
DATA2 INPUT lastused HIST lat = -90:90 lon = 0:360 level = 1:1  
time = 1980120100:2010020100 analysis method = REGRESSION\_COEFFICI



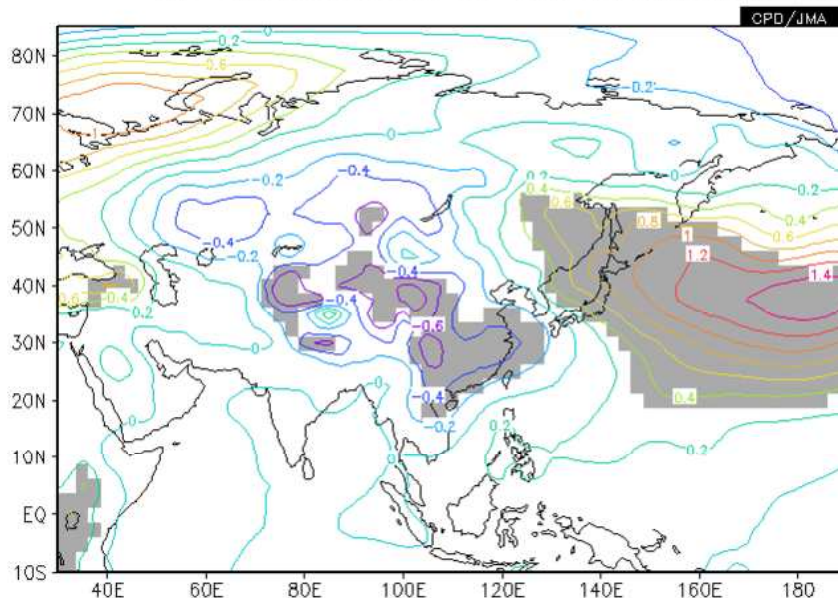


### 3. Interpreting the JMA's numerical prediction products for winter 2013/14

The observational relationship between SLP / Z500 and the precipitation amount in Tokyo

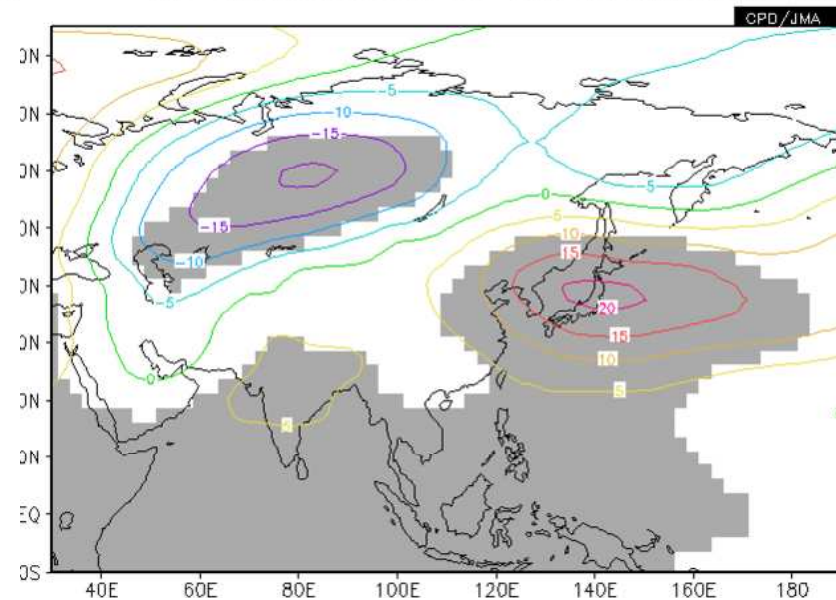
**SLP**

DATA1 JRA-JCDAS **slp** ANOM lat = -10:85 lon = 30:190 level = 1:1  
time = 1980120100:2010020100 ave = 1YR(3+1MD)  
DATA2 INPUT lastused HIST lat = -90:90 lon = 0:360 level = 1:1  
time = 1980120100:2010020100 ave = 1YR(3+1MD) analysis method = REGRESSION\_COEFFICI



**Z500**

DATA1 JRA-JCDAS **z23** ANOM lat = -10:85 lon = 30:190 level = 6:6  
time = 1980120100:2010020100 ave = 1YR(3+1MD)  
DATA2 INPUT lastused HIST lat = -90:90 lon = 0:360 level = 1:1  
time = 1980120100:2010020100 ave = 1YR(3+1MD) analysis method = REGRESSION\_COEFFICI



**Cold and dry conditions are expected for Tokyo in winter 2013/14!**

Please note that such analysis provides only the representative circulation pattern. In general, it is necessary for you to grasp various circulation patterns which bring hot/cold/wet/dry condition to your country.

#### 4. Building a forecast for your country in winter 2013/14

**Please build a forecast for your country in winter 2013/14.**

- What predictors did you select for your guidance?
- How did the guidance predict the hottest/coldest/wettest/driest year in your country?
- Is the guidance skillful from the viewpoints of deterministic forecast and probabilistic forecast?
- Is the guidance result for winter 2013/14 considered to be valid? Does the model predict distinct anomalies of the predictors?

**We will hold the presentation session from 3PM. Please make a short (17 minutes) presentation on your forecast.**

### 4. Building a forecast for your country in winter 2013/14

## Summary of Tokyo guidance

Station	Tokyo
Season	DJF
Predictand	Temperature
Predictors	EIO RAIN, Extratropical Thickness, MC RAIN
Correlation	0.42
Brier Skill Score	0.00

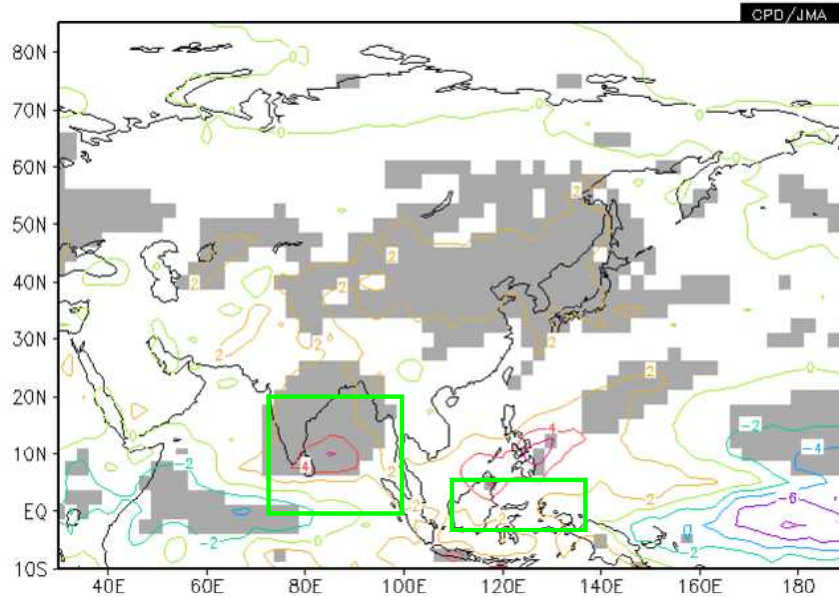


	slope	-0.35	1.15	-0.44
<b>Multiple Regression</b>	intercept	7.06		
	Correlation	0.42		

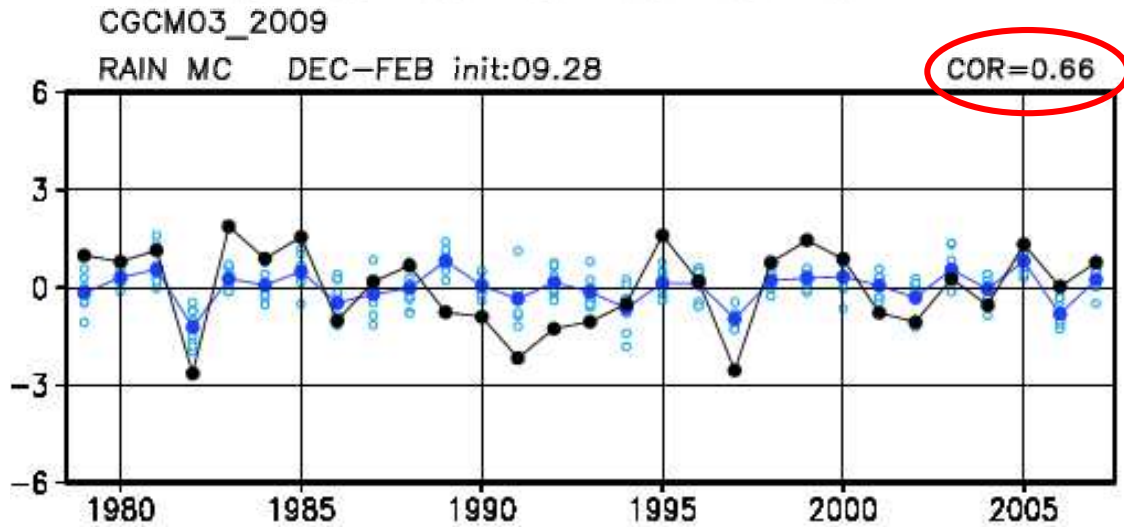
### 4. Building a forecast for your country in winter 2013/14

# The reason I have selected these predictors

```
DATA1 SAT olr ANOM lat = -10:85 lon = 30:190 level = 1:1  
time = 1980120100:2010020100 ave = 1YR(3+1MD)  
DATA2 INPUT lastused HIST lat = -90:90 lon = 0:360 level = 1:1  
time = 1980120100:2010020100 ave = 1YR(3+1MD) analysis method = REGRESSION_COEFFICI
```



This is the relationship between OLR and DJF temperature in Tokyo. The OLR (convective activity) in Maritime Continent and that in the eastern Indian Ocean look possible predictors.



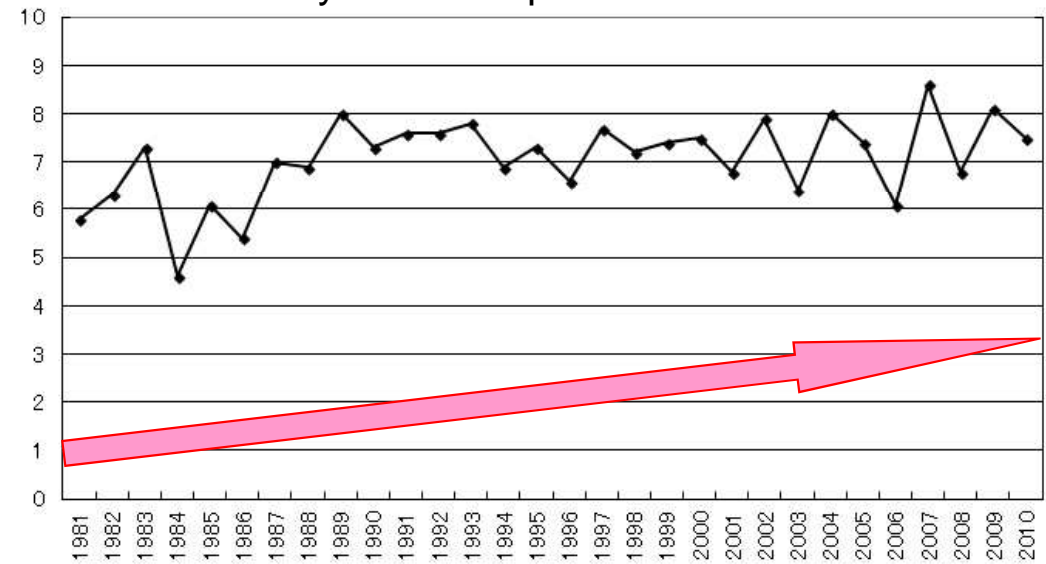
Anomaly correlation between the observed and forecasted DJF rainfall amounts in Maritime Continent is more than 0.6. Prediction skill is good.



### 4. Building a forecast for your country in winter 2013/14

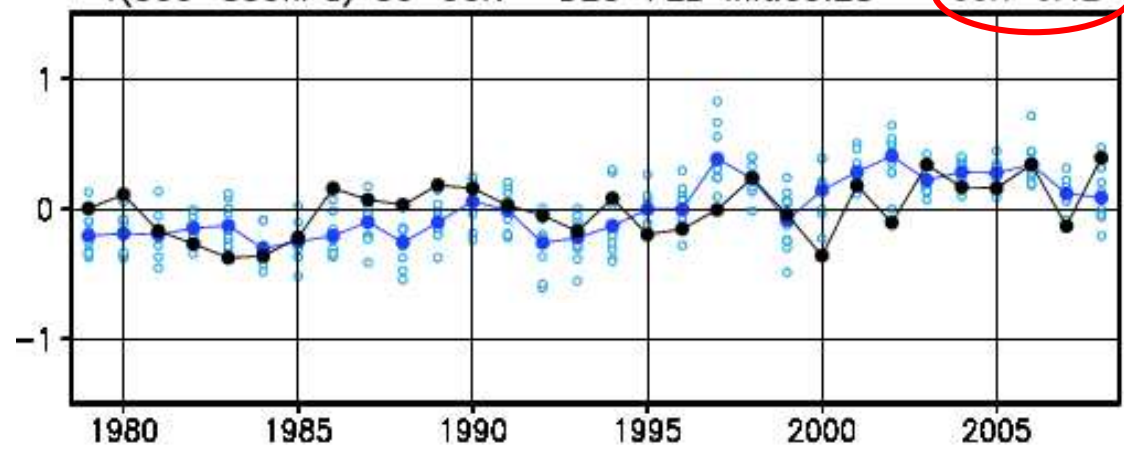
# The reason I have selected these predictors

Observed Tokyo DJF temperature



Observed Tokyo DJF temperature has upward long-term trend.

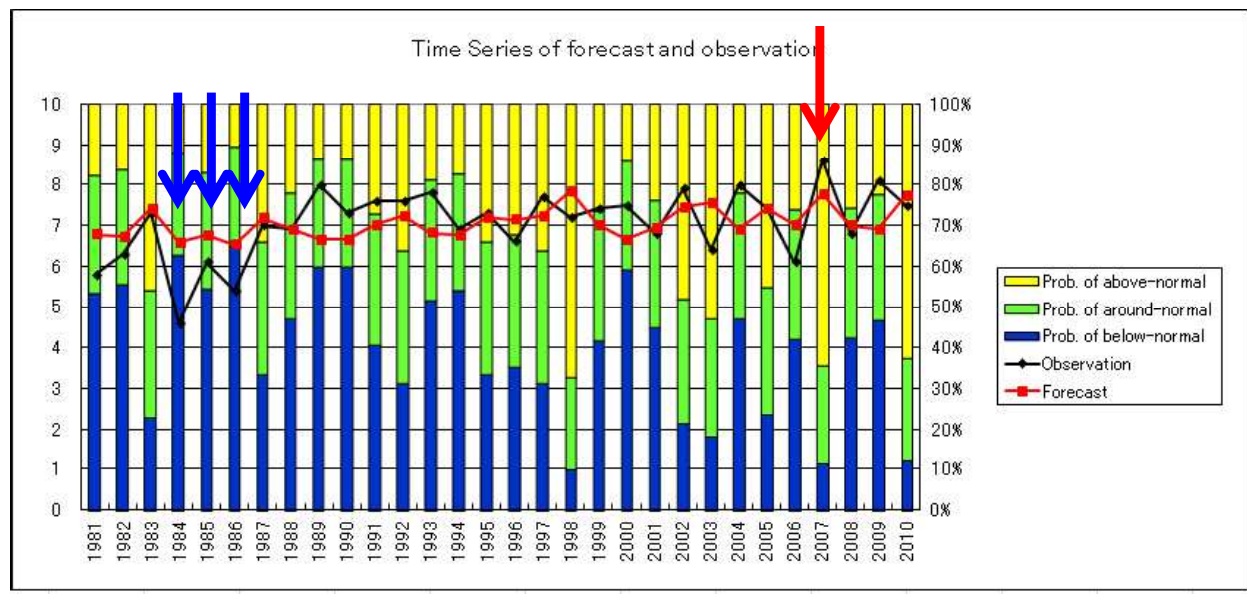
CGCM03\_2009  
T(300-850hPa) 30-90N DEC-FEB init:09.28 **COR=0.42**



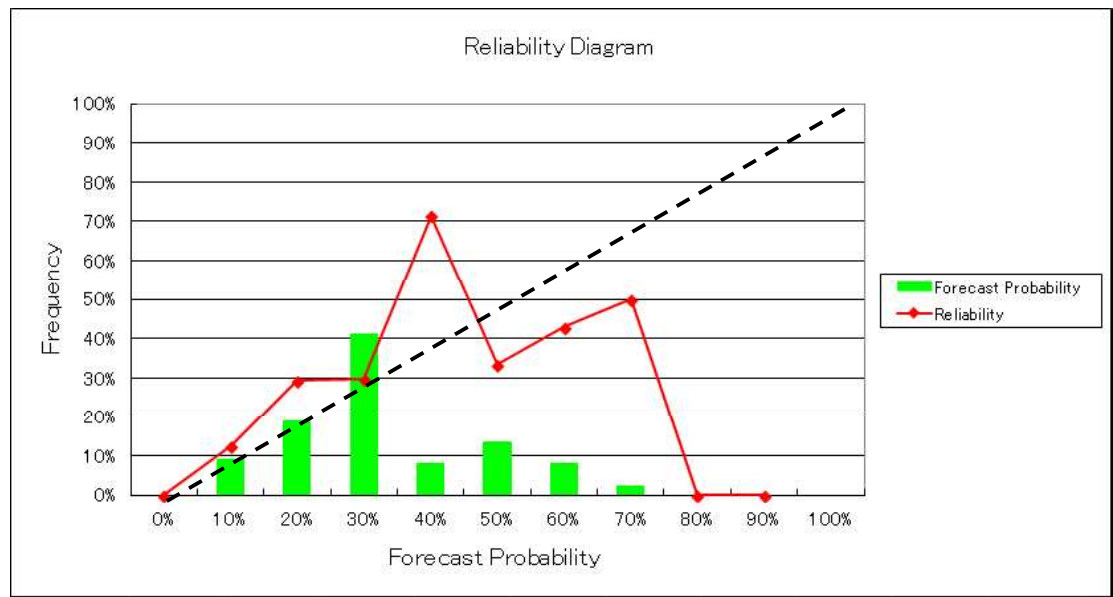
Extratropical thickness is a good indicator of global warming.  
Its prediction skill is good (tolerable).

# 4. Building a forecast for your country in winter 2013/14

## Verification



The upward trend is well predicted. Moreover, the guidance can predict extreme cold winters from 1984 to 1986 and extreme warm winter in 2007.



The figure shows reliability diagram of DJF temperature in Tokyo. The forecast probability is reliable for the forecasts 10% - 50%.

## 4. Building a forecast for your country in winter 2013/14

## Forecast of winter 2013/14

Temperature			
	-		+
	40	40	20

The Tokyo temperature guidance predicts 35%, 32%, and 33% for below-normal, around-normal, and above-normal, respectively.

The model predicts that convection will be active from the northeastern Indian Ocean to the western tropical North Pacific. The area of EIO RAIN index used in the guidance covers not only the northeastern Indian Ocean but also the eastern equatorial Indian Ocean, where the model predicts that convection will be inactive.

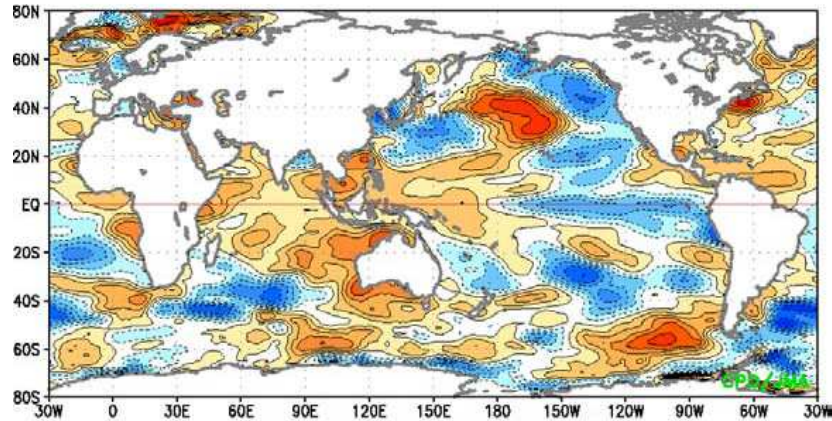
In fact, the OLR from the northeastern Indian Ocean to the western tropical North Pacific is correlated with the SLP and Z500 in and around Japan. The SLP and Z500 in and around Japan, which are good indicators of northwesterly surface cold winds and upper cold airs over Japan respectively, are well correlated with Tokyo temperature.

Therefore, we correct the guidance result, and expect Tokyo temperature in winter 2013/14 will be near or below normal, both with a 40% probability.

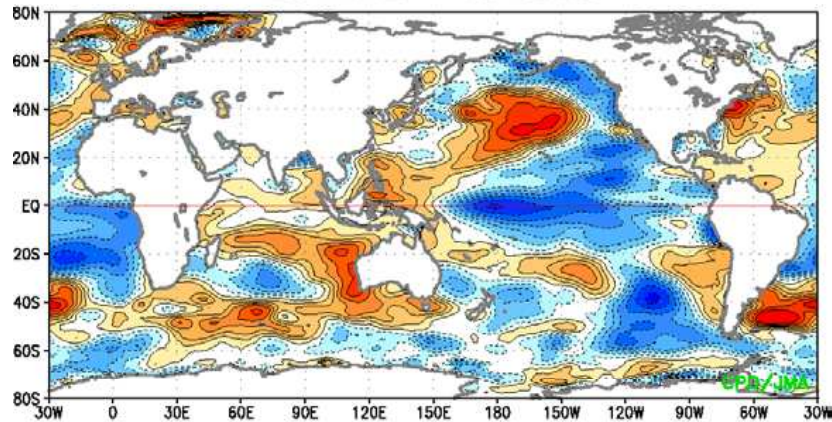


# Observed SST anomaly

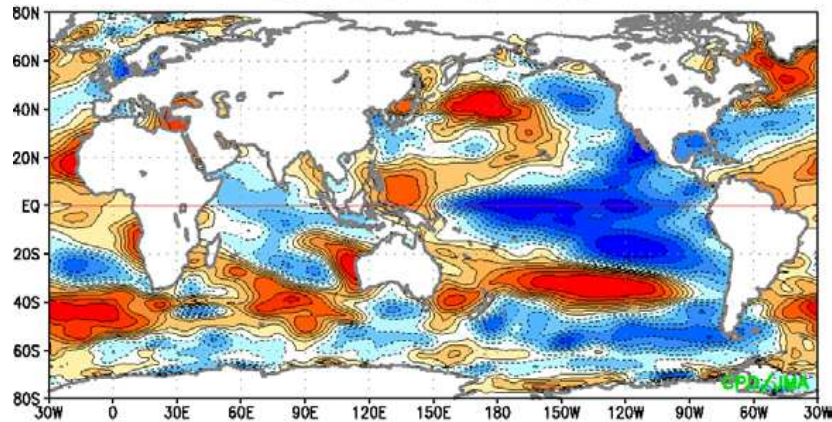
2012.12 - 2013.02



2011.12 - 2012.02



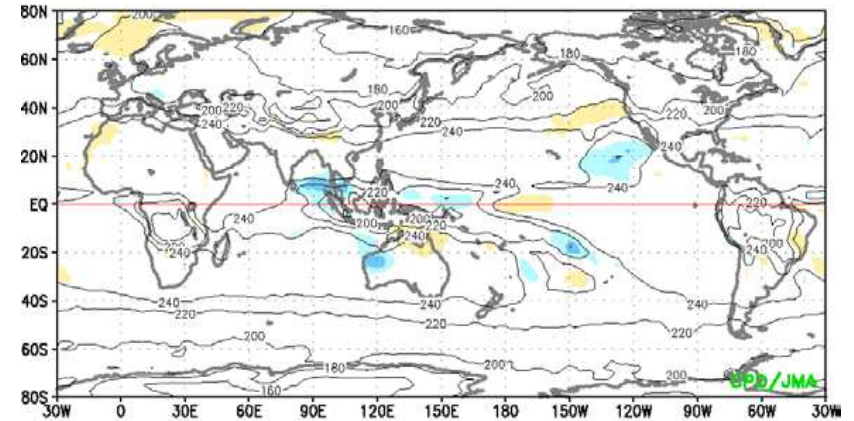
2010.12 - 2011.02



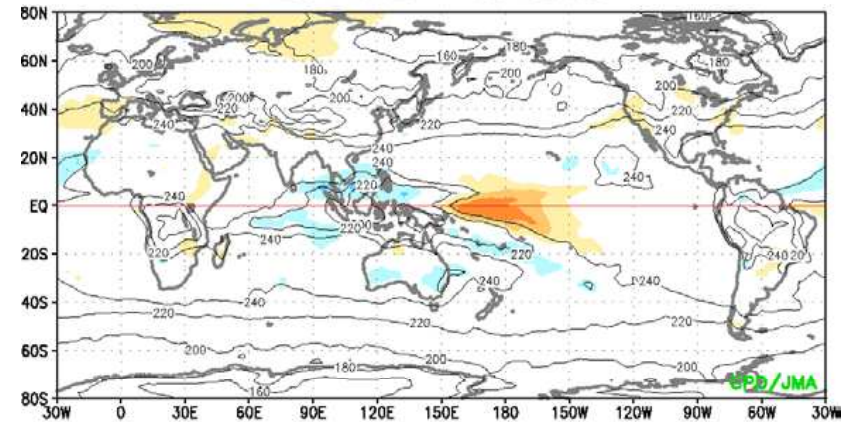
-1.5 -1.2 -0.9 -0.7 -0.5 -0.3 -0.1 0.1 0.3 0.5 0.7 0.9 1.2 1.5 (°C)

# Observed OLR and its anomaly

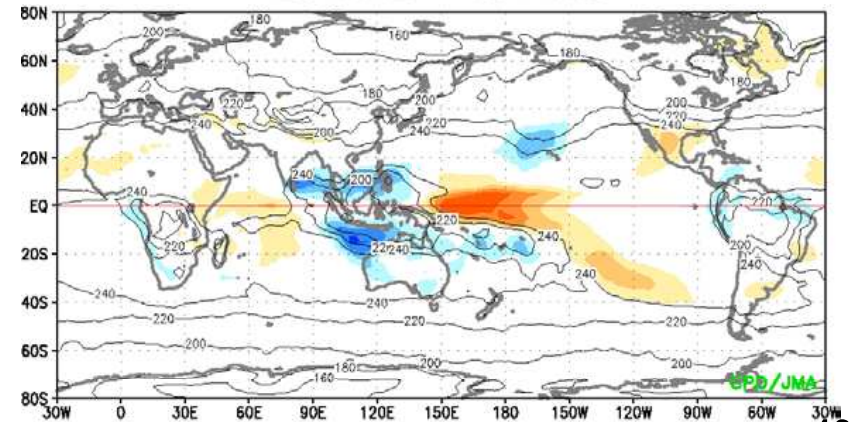
2012.12 - 2013.02



2011.12 - 2012.02

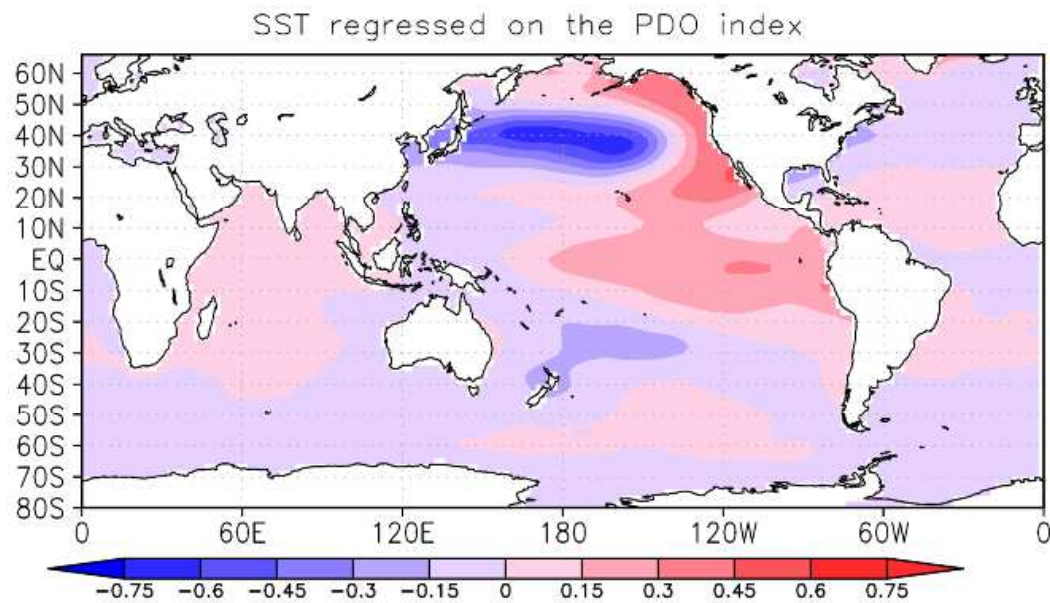


2010.12 - 2011.02

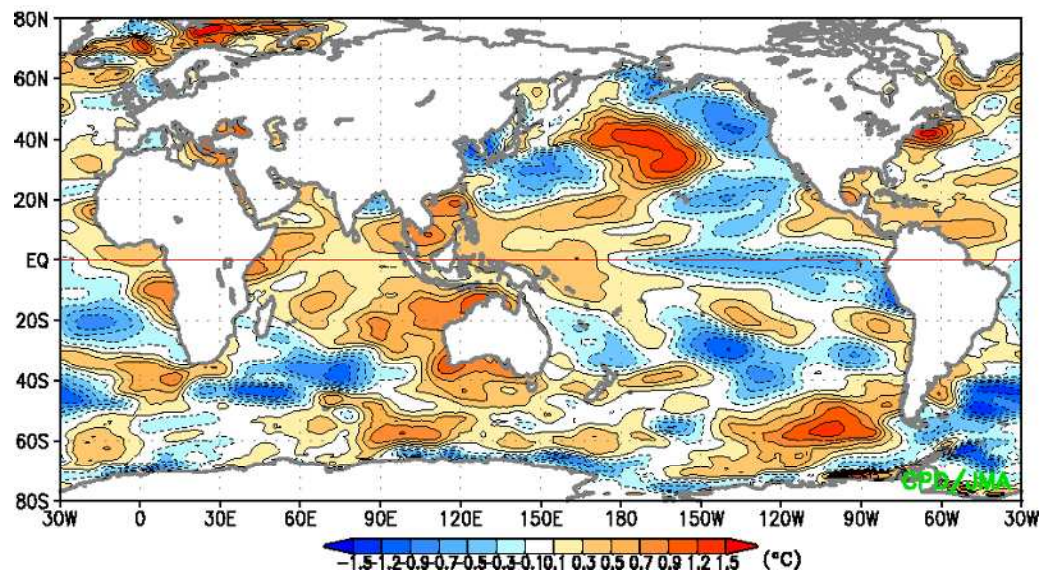


-40 -30 -20 -10 10 20 30 40 (W/m²)





2012.12 – 2013.02



In recent years, the spatial pattern of the negative phase of PDO (Pacific Decadal Oscillation) prevails (including 2010/11 La Niña). Warm SST and active convection in and around the western tropical Pacific are expected also in the view point of decadal oscillation.

# Appendix



# OpenGrADS Download page

<http://sourceforge.net/projects/opengrads/files/>

sourceforge

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## Open Grid Analysis and Display System

OpenGrADS provides extensions and interfaces for GrADS.  
Brought to you by: dasilva, mike\_fiorino

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Looking for the latest version? [Download OpenGrADS Bundle 2.0.1.oga.1 \(29.7 MB\)](#)

Home

Name	Modified	Size	Downloads
python-grads	2013-01-28		
wgrib2	2011-10-29		
Legacy	2011-10-27		
supplibs	2011-10-08		
grads2	2011-10-08		
tcl-grads	2009-03-05		
php-grads	2008-10-18		
perl-grads	2008-02-06		
README	2011-11-18	507 Bytes	5

Left-click!

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Senior Java Developer (Job Title) Find

Automated Test Engineer: Longmont, CO  
Gorilla Logic, Inc. - Longmont, CO

Senior DW / BI Consultant  
Tallan, Inc. - Rocky Hill, CT

Network Engineer  
NORTHROP GRUMMAN - Chester, VA

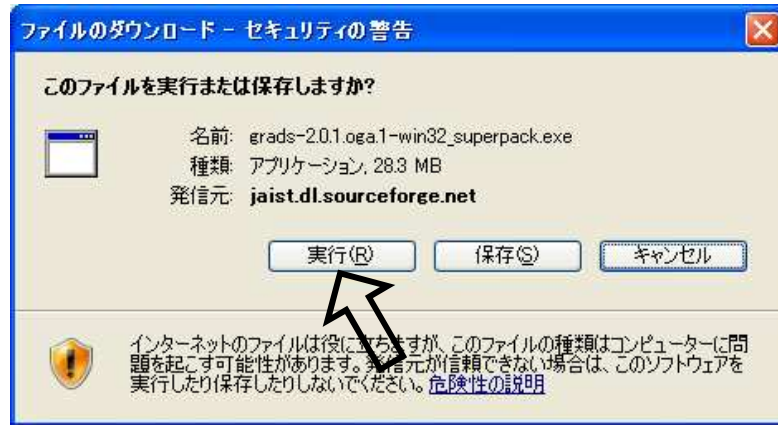
Java Developer III  
Dotcom Team, LLC - Lowell, MA

ページが表示されました

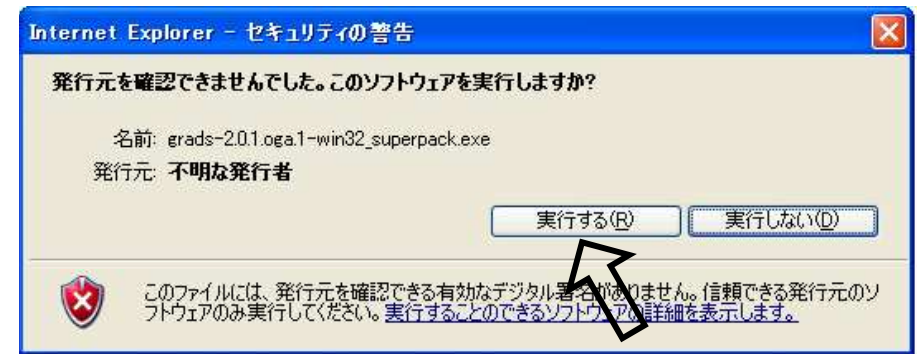
インターネット 100%

(If the yellow message bar is not shown, go to the next step.)

The screenshot shows a Windows Internet Explorer browser window with the address bar displaying `http://sourceforge.net/projects/opengrads/files/latest/download?source=files`. The page content includes the SourceForge logo, a search bar, and navigation links. A yellow security message bar is present at the top of the page content, stating: "セキュリティ保護のため、このサイトによる、このコンピューターへのファイルのダウンロードが Internet Explorer によりブロックされました。オプションを表示するには、ここをクリックしてください。". Below this, the main heading is "Open Grid Analysis and Display System" with a sub-message "Your download will start in 0 seconds...". A "Left-click!" annotation with a black arrow points to the search bar. The page also features a "Recommended Projects" section with links to "Java GRIB reader", "mexcdf", and "Xming X Server for Windo...", and a "Keep Me Updated" section with a subscription form for "Open Grid Analysis and Display System" updates. The footer of the browser shows a status bar with the text "ページが表示されました" and "インターネット".



Left-click!



Left-click!



Left-click!



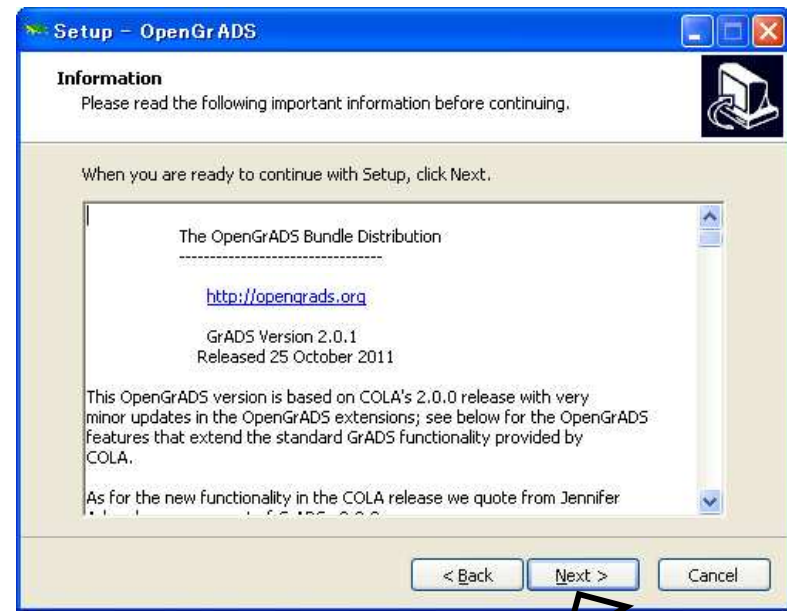
Left-click!



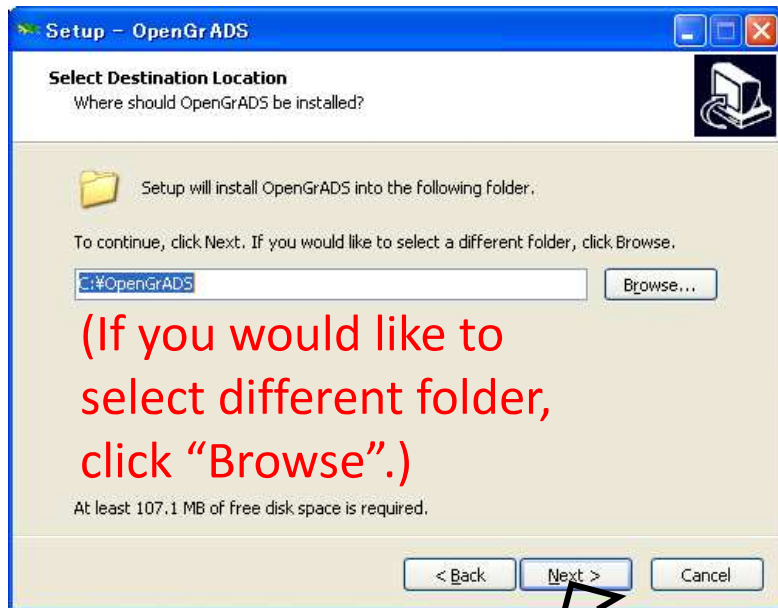


First,  
check here.

Then,  
Left-click here.

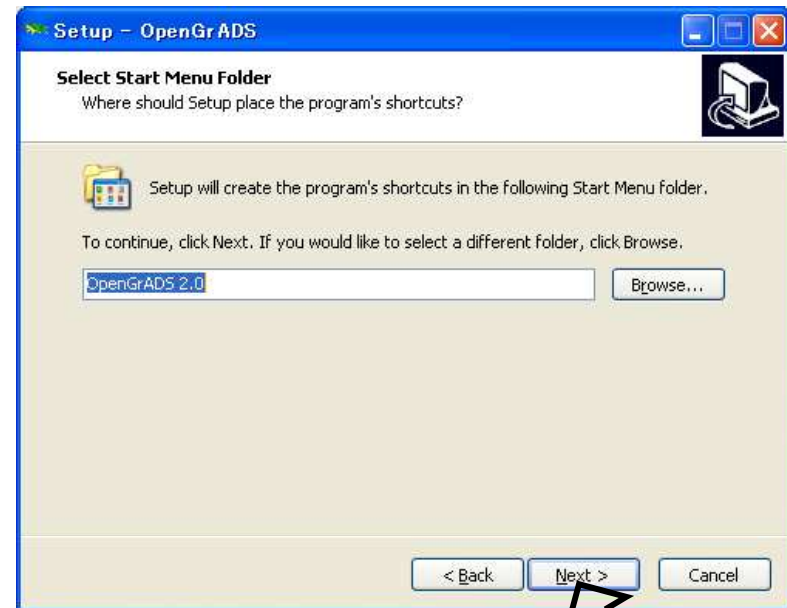


Left-click!

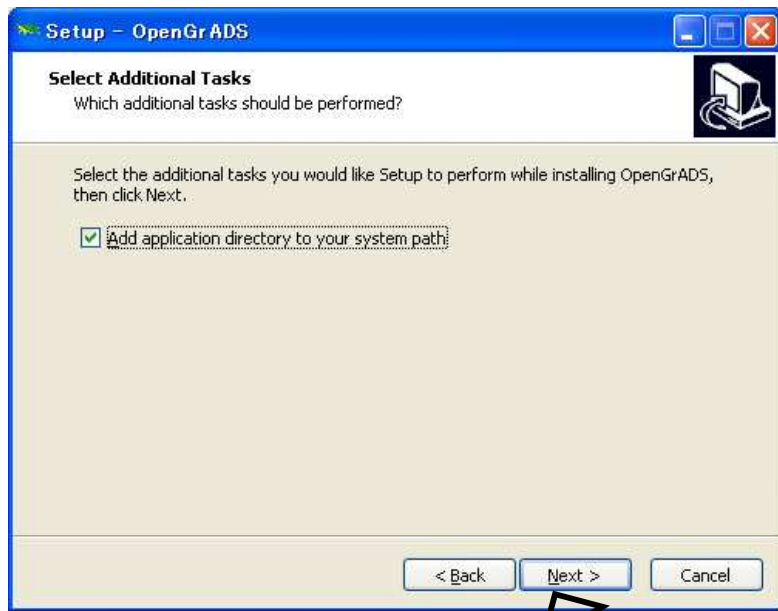


(If you would like to  
select different folder,  
click "Browse".)

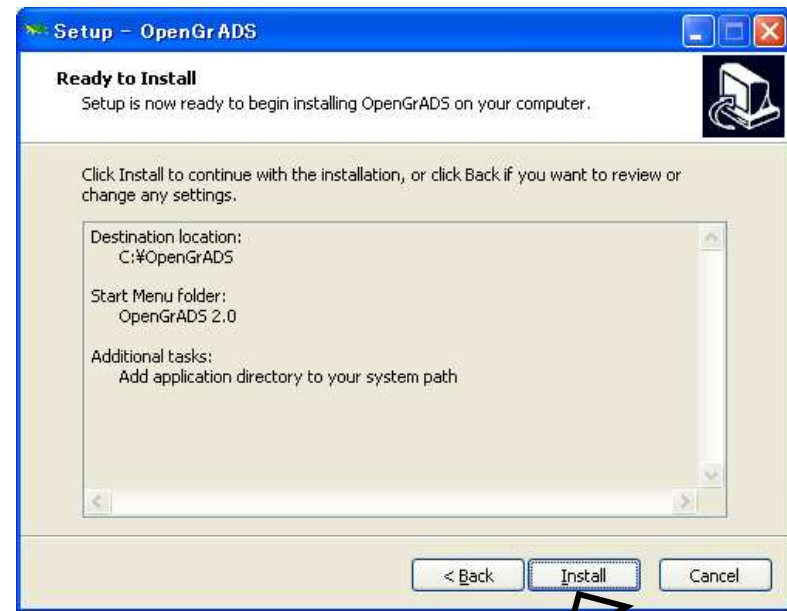
Left-click!



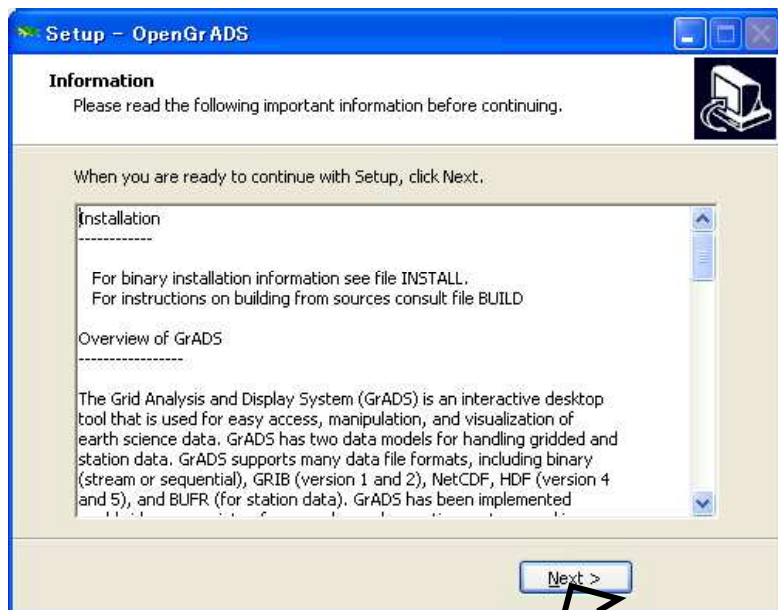
Left-click!



Left-click!



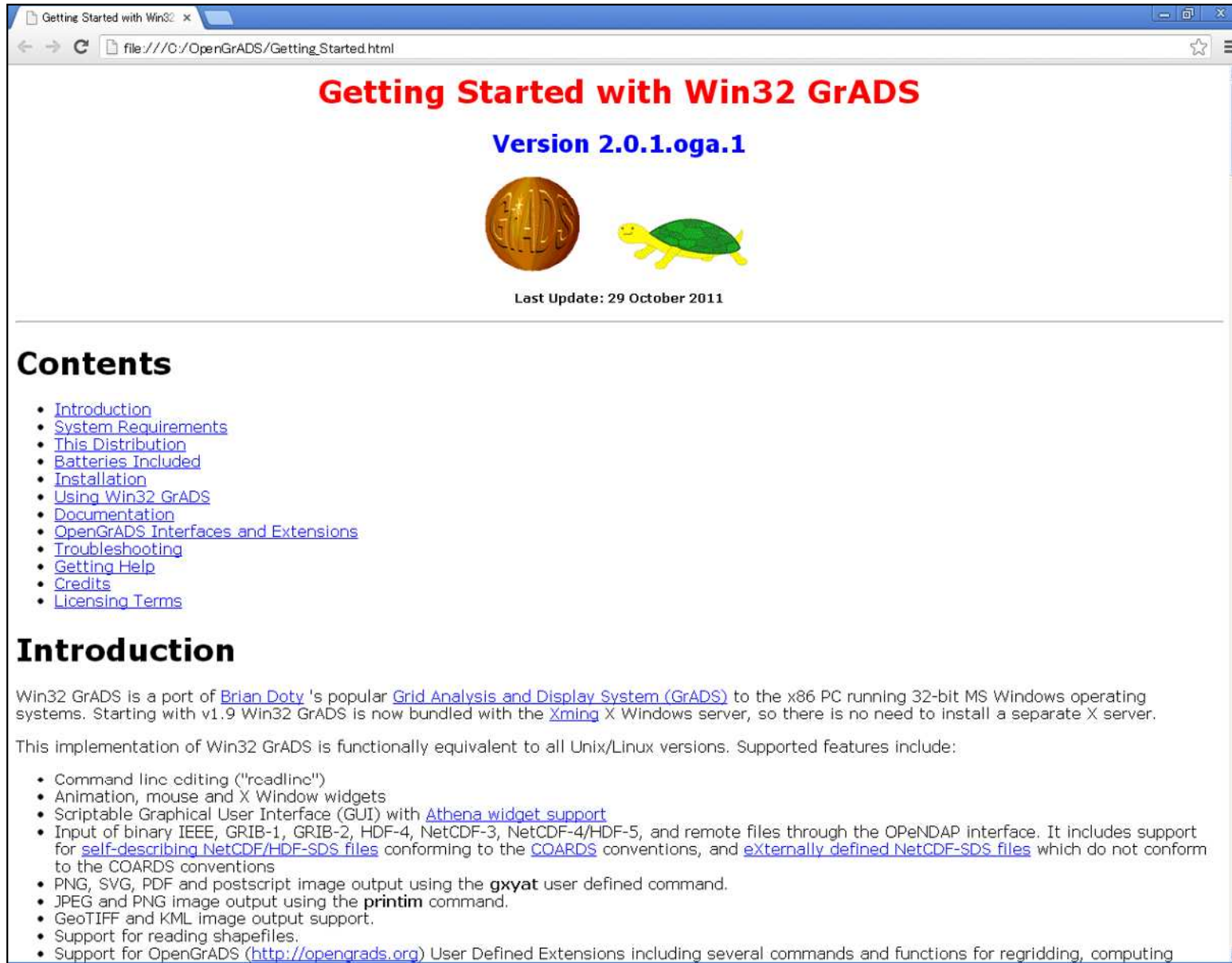
Left-click!



Left-click!




Left-click!



Getting Started with Win32 GrADS

Version 2.0.1.oqa.1

Last Update: 29 October 2011

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## Contents

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- [Troubleshooting](#)
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## Introduction

Win32 GrADS is a port of [Brian Doty](#)'s popular [Grid Analysis and Display System \(GrADS\)](#) to the x86 PC running 32-bit MS Windows operating systems. Starting with v1.9 Win32 GrADS is now bundled with the [Xming](#) X Windows server, so there is no need to install a separate X server.

This implementation of Win32 GrADS is functionally equivalent to all Unix/Linux versions. Supported features include:

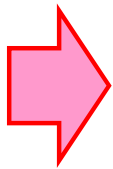
- Command line editing ("readline")
- Animation, mouse and X Window widgets
- Scriptable Graphical User Interface (GUI) with [Athena widget support](#)
- Input of binary IEEE, GRIB-1, GRIB-2, HDF-4, NetCDF-3, NetCDF-4/HDF-5, and remote files through the OPeNDAP interface. It includes support for [self-describing NetCDF/HDF-SDS files](#) conforming to the [COARDS](#) conventions, and [externally defined NetCDF-SDS files](#) which do not conform to the COARDS conventions
- PNG, SVG, PDF and postscript image output using the **gxyat** user defined command.
- JPEG and PNG image output using the **printim** command.
- GeoTIFF and KML image output support.
- Support for reading shapefiles.
- Support for OpenGrADS (<http://opengrads.org>) User Defined Extensions including several commands and functions for regridding, computing



# Start-up of GrADS



CLICK  
(OpenGrADS)



```

OpenGrADS
Starting X server under C:\OPENGR\1\Contents\Resources\Xming
Starting OPENGR 1 under C:\OPENGR\1\Contents\Oywin\Versions\2010GA1\1\1686 ...

Grid Analysis and Display System (GrADS) Version 2.0.1 (beta)
Copyright (c) 1988-2011 by Brian Doty and the
Institute for Global Environment and Society (IGES)
GrADS comes with ABSOLUTELY NO WARRANTY
See file COPYRIGHT for more information

and use of it is subject to the permission of the author. If you wish to
reproduce or distribute this software, please get in touch with
the author for more detailed and specific information.
Loading User Defined Extensions table C:\oadrive/c/OPENGR/1/Contents/Oywin/Vers
ions/2010GA1/1/1686/gev/udbt ... ok.
Language mode: 1 (1 for portrait)
  
```

Opening message of  
GrADS

Push "Return" key



```

GrADS 2.0.1 (beta)
Starting X server under C:\OPENGR\1\Contents\Resources\Xming
Starting OPENGR 1 under C:\OPENGR\1\Contents\Oywin\Versions\2010GA1\1\1686 ...

Grid Analysis and Display System (GrADS) Version 2.0.1 (beta)
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and use of it is subject to the permission of the author. If you wish to
reproduce or distribute this software, please get in touch with
the author for more detailed and specific information.
Loading User Defined Extensions table C:\oadrive/c/OPENGR/1/Contents/Oywin/Vers
ions/2010GA1/1/1686/gev/udbt ... ok.
Language mode: 1 (1 for portrait)

quit
Command Initialization: Size = 11 8.5
Command line history in %Documents and Settings\KMA224\...
  
```

Two windows open.

Input command "quit"  
for exit GrADS.