

Exercise – Part II
Production of climate analysis information

Objective and Schedule

- Acquire skills for analyzing climate system and making climate analysis information.

Schedule

Lecture/practice

<28 November>

2:00 – 6:00 p.m.

Analyze your selected event

<29 November>

9:30 a.m. – 0:30 p.m.

Analyze your selected event
Prepare for your presentation; making information

2:00 – 3:30 p.m.

Prepare for your presentation; making information

3:50 – 6:00 p.m.

Presentation (6 persons; 25 min for each)

<30 November>

9:30 a.m. – 0:30 p.m.

Presentation (7 persons; 25 min for each)
Submitting information

0:30 – 0:45 p.m.

Wrap up and closing

2:00 – 6:00 p.m.

Technical tour

Procedure of the exercise

You are requested to:

- At first, decide a past climate event with impact on your country. A targeted event is monthly/seasonal-scale event (not a particular weather event such as a tropical cyclone);
- Analyze your selected climate event, using TCC products and tools (ClimatView and ITACS) and referring to lecture materials;
- Make climate analysis information (one or more pages);
- Make a PPT material (10 or less slides);
- Present your PPT material and discuss it with the others.
(20 minutes for presentation and 5 minutes for Q&A and discussion)

Climate analysis information

Structure

1: Surface climate conditions

Assess surface climate conditions, and if possible related impacts referring to official information source.

2: Characteristic atmospheric circulation

Identify atmospheric circulation directly contributing to the targeted surface climate conditions.

3: Factor analysis (if possible)

Investigate the possible factors associated with the identified atmospheric circulation directly contributing to the targeted surface climate conditions.

Other points

- Make information as a MS-Word file with one or more pages.
- Submit your-making information on the last day (30 Nov.) (send email to tcc3167@hotmail.co.jp)

PPT material

Structure

- 1: Surface climate conditions
- 2: Characteristic atmospheric circulation
- 3: Factor analysis (if possible)

Other points

- Prepare 10 or less slides, considering 20 min. presentation.

TCC website (home page)

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

Japan Meteorological Agency *気象庁*

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

WMO

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HOME

What are WMO RCCs?

WMO RCCs (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

What's New

15 November 2012 NEW
TCC News No. 30 (Autumn 2012; PDF)

13 November 2012 NEW
New Contents available; Animation Maps (Climate System Monitoring)

15 November 2012 NEW
Updated Information: Climate System Monitoring
- Monthly Highlights on Climate System (October 2012, PDF, 458KB)
- Monthly Report (October 2012)

14 November 2012 NEW
Updated Information: Global Average Surface Temperature Anomalies
- Monthly Anomalies (October 2012)

14 November 2012 NEW
Updated Information: World Climate
- Monthly Report (October 2012)

9 November 2012 NEW
Updated Information: El Niño Outlook (November 2012 - May 2013)

9 November 2012 NEW

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

International Organization

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


World Climate

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



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HOME > World Climate

World Climate

JMA monitors the global climate with CLIMAT and SYNOP reports from NMHSs through the Global Telecommunication System (GTS) of WMO. Quality-checked data on temperature and precipitation are assembled to assess extreme climate events. Weekly, monthly and seasonal monitoring reports on extreme climate events with brief descriptions of disastrous events are available on this page, along with world distribution maps of temperature and precipitation. Climatological normals for temperature and precipitation are based on the period 1981-2010.

Main Products

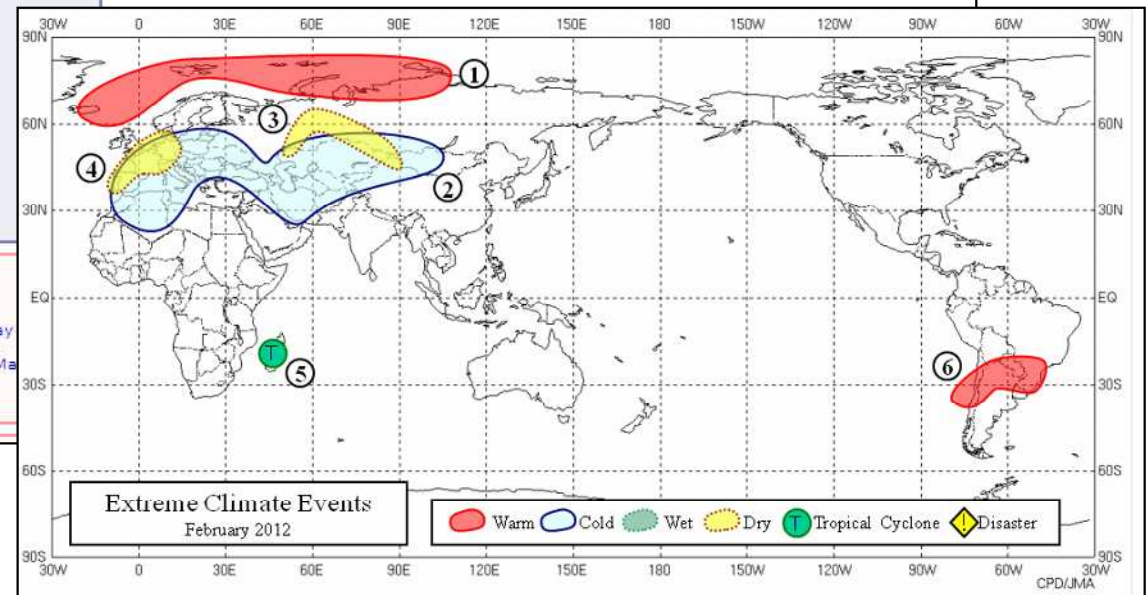
Extreme Climate Monitoring

- Weekly Report (14 Nov 2012)
- Seasonal Report (14 Sep 2012)
- Weekly Anomaly (14 Nov 2012)
- Annual Report (17 Jan 2012)
- Monthly Report (14 Nov 2012)

- Weekly circulations & convective activities in the Tropics (18 Nov 2012)
- Weekly atmospheric field in the extra-tropics (15 Nov 2012)


Normal & Historical Data

- ClimatView: Monthly Historical & Normal Data (All available stations) (18 May)
- Normals of Monthly Mean Temperature and Precipitation (Global Map) (18 May)
- Monthly Normals Data (Principal Stations) (8 Dec 2011)




ClimatView

<http://ds.data.jma.go.jp/gmd/tcc/climatview/>



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HOME > World Climate > ClimatView

ClimatView --- tool to see monthly climate data

Please click on the area of the following map that you would like to see. [Explanation >](#)
Detailed historical monthly data in Japanese stations are available at: <http://www.data.jma.go.jp/obd/stats/data/en/smp/index.html>

Notice (18 May 2011)
JMA has started to use new climatological normals 1981-2010.

Notice (2 April 2012) 
Some bugs in this tool were fixed. If you have used this tool, please check the data.

◆Select year/month

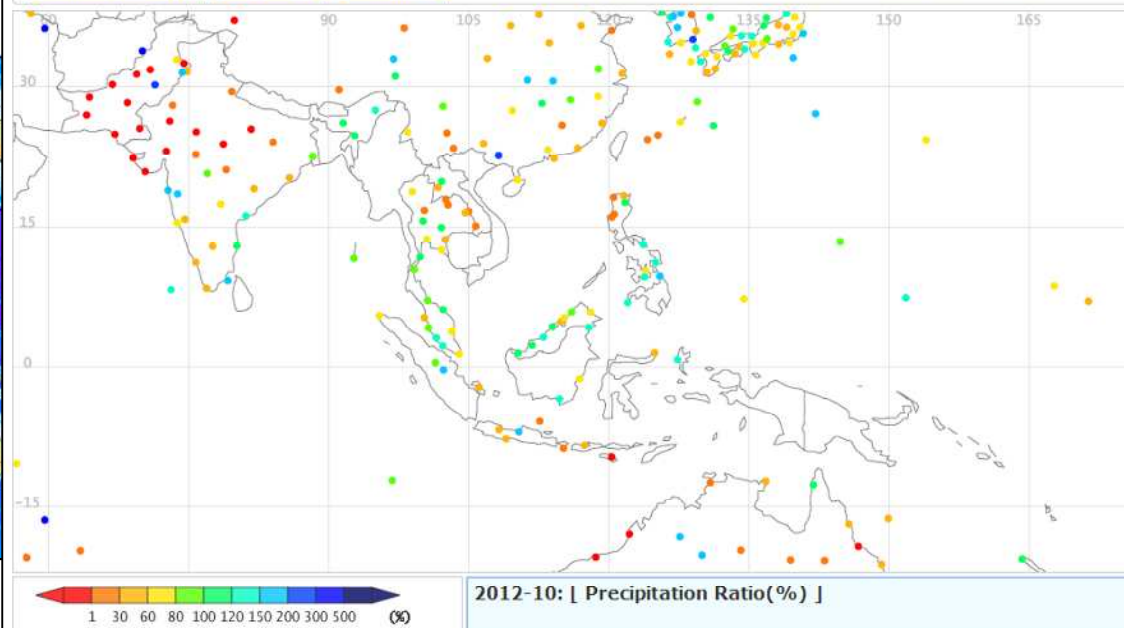
year month

Monthly data --- map

If you move your mouse to the observation points on the map, the point's name and data which you chose in "Search form" are shown. Please click the point to see the chart of monthly data.

◆Search Form
Region: Element: Year/Month:

[ClimatView TOP](#) [Data List >](#) [Printable >](#) "Data List" and "Printable" buttons are available after pushing "Show" button.



2012-10: [Precipitation Ratio(%)]

Asian monsoon monitoring

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

Asian Monsoon Monitoring

Reports on specific events

16 November 2012 **NEW**

› Summary of the 2012 Asian summer monsoon

16 November 2012 **NEW**

› Extremely hot late-summer conditions in northern and eastern Japan in 2012

10 May 2012

› Asian Winter Monsoon Summary for 2011/2012

6 February 2012

› Cold wave over the Eurasian continent

28 November 2011

› Summary of the 2011 Asian summer monsoon

31 October 2011

› Heavy rainfall over the Indochina Peninsula for June - September

Analysis charts and monitoring indices

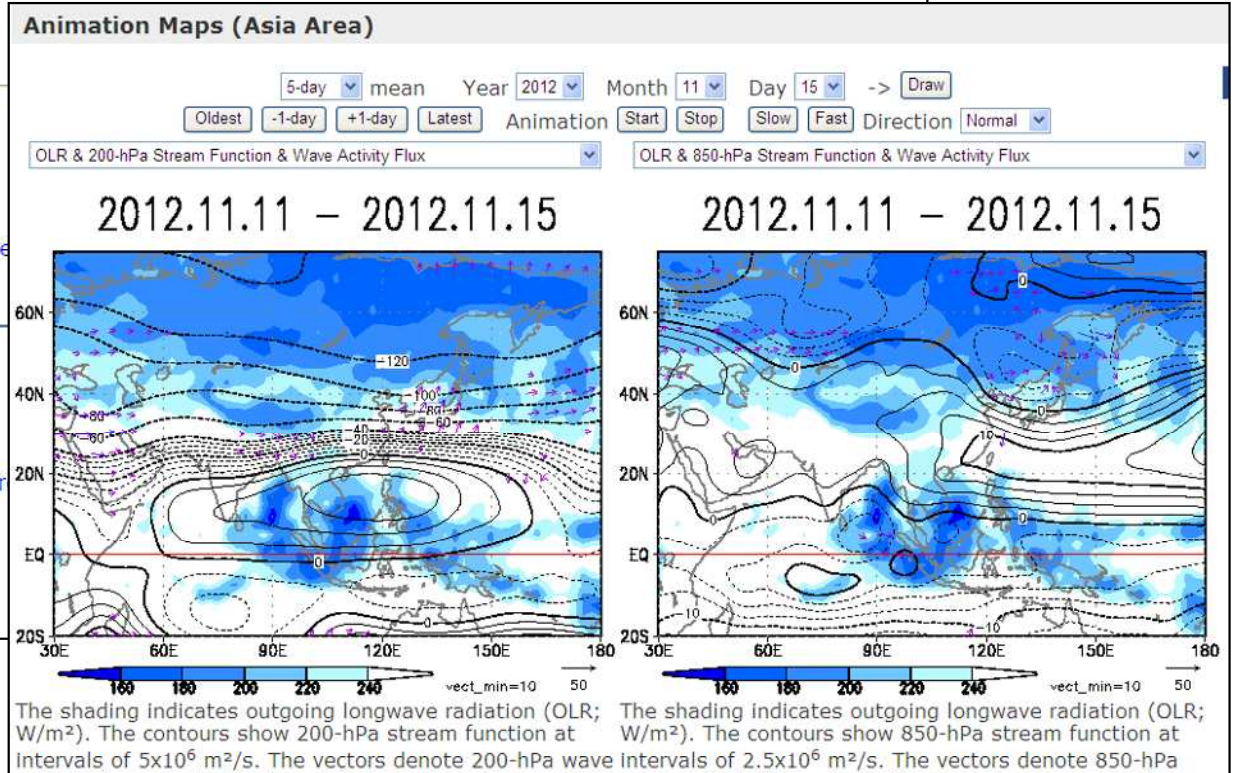
› Explanation of Data and Figures

Animation maps

› Asia, Global, Northern Hemisphere, Southern Hemisphere


Monitoring Indices

› ENSO and Asian monsoon monitoring indices




Analysis charts and monitoring indices

<http://ds.data.jma.go.jp/tcc/tcc/products/clisys/acmi.html>



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HOME > Climate System Monitoring > Analysis Charts and Monitoring Indices

Analysis Charts and Monitoring Indices

Analysis Charts

- ▶ 5-day Mean Figures
- ▶ 10-day Mean Figures
- ▶ Monthly Mean Figures
- ▶ 3-month Mean Figures
- ▶ Time Cross Section and Indices
- ▶ Oceanic Figures and Tables

Monitoring Indices

- ▶ ENSO and Asian Monsoon Monitoring Indices



Tokyo Clim Copyright(C) JRA/JGDAS

- ▶ ENSO Monitoring Indices
- ▶ Oceanographic Indices
- ▶ Gridded Data



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HOME > Climate System Monitoring > Analysis Charts and Monitoring Indices > Monthly Mean Figures

Monthly Mean Figures of Atmospheric Circulation and Snow Cover

Field: Tropics | Hist: Hist & Anom

Element & Pressure Surface: Outgoing Longwave Radiation (OLR) Anomaly

Year: 2012 | Month: 9 | Draw

Oldest | -1 month | -11 month | Latest | Animation: Start | Stop | Slow | Fast | Direction: Normal



MONTHLY MEAN OUTGOING LONGWAVE RADIATION (OLR) ANOMALY
The base period for the normal is 1981-2010. Original data provided by NOAA. (Sep. 2012)

Other figures

- ▶ 5-day Mean
- ▶ 10-day Mean
- ▶ Monthly Mean
- ▶ 3-Month Mean
- ▶ Time Cross Section & Indices
- ▶ ENSO Monitoring Indices
- ▶ Oceanographic Conditions
- ▶ Gridded Data (text format)

ITACS

<http://extreme.kishou.go.jp/tool/itacs-tcc2011/>

ITACS : Interactive Tool for Analysis of the Climate System

Announcement

31 October 2011

ITACS version 4.0 has been launched. This new version of ITACS has more graphic options than its version 3.0 and makes available one-month prediction dataset experimentally. The user IDs and passwords for ITACS version 3.0 can be used to access the new version. Please note that any IDs left unused for more than one year have been disabled and that new [application](#) is required in such a case.

Tools and documents

[ITACS ver 4.0](#)

[ITACS ver 3.0](#)

[Sample images for ITACS ver.4.0](#)

[Tutorial for ver.4.0](#)

[Sea surface temperature\(SST\)](#)

[Average of SST anomaly](#)

[Stream function of historical data on 850hPa](#)

[Stream function of historical data and anomaly data on 850hPa](#)

[Subtraction of monthly SST](#)

[500-hPa height and anomaly](#)

[Time-longitude cross section of 200-hPa velocity potential](#)

[Water vapor flux\(vector\) anomaly and specific humidity anomaly](#)

[Interannual variation of monthly mean 850-hPa air temperature](#)

[SST composite of La Nina years](#)

[Regression Analysis : NINO.3 SST and 850hPa Stream Function / Correlation analysis](#)

[boundaries](#)


[Tutorial of the ITACS ver 3.0 \(2.85MB\)](#)

Please use ver. 4.0

Sample images


MJO products

http://ds.data.jma.go.jp/tcc/tcc/products/clisys/mjo/moni_mjo.html



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Madden-Julian Oscillation (MJO)

[Explanatory Notes](#)

MJO Monitoring

- Phase and Amplitude monitor (last 40-day)
- Time-longitude cross section of phase and amplitude
- Time series of RMM1 and RMM2

Principal components of EOF (1980-2003)

- 1st (RMM1), 2nd (RMM2)

Composite, Regression and Correlation map of anomalies

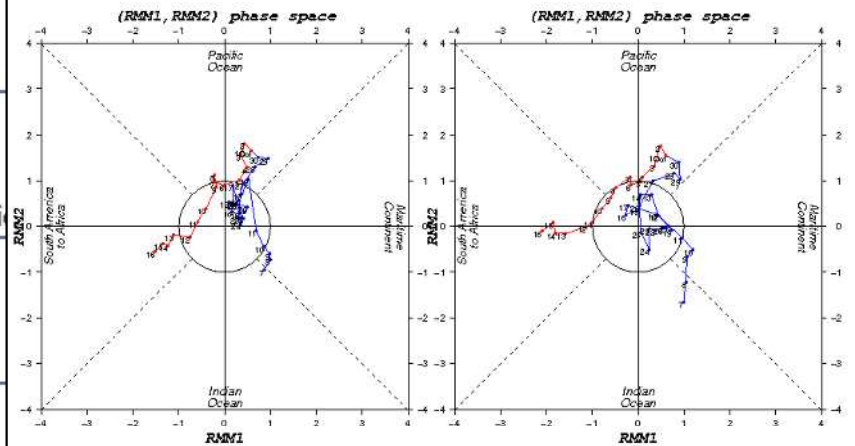
- 8-phase (1980-2003)

CSV file (1980-)

- RMM1, RMM2, phase and amplitude (OLR+u850+u200)
- RMM1, RMM2, phase and amplitude (chi200+u850+u200)

Phase and amplitude monitor (last 40-day)


Year: 2012 Month: 10 [-1 Month] [+1 Month]



MJO phase monitor based on multivariate EOF analysis (Left: OLR+U200+U850, Right: CHI200+U200+U850)
Data period for normal is from 1979 to 2004. Seasonal, interannual and ENSO variations were subtracted from the tropical variations (Wheeler and Hendon, 2004). JRA-25 and JCDAS are used for the atmospheric data. OLR data are provided by NOAA. COBE-SST data were used for calculating ENSO variation. Each figures show the last 40 days trajectory from the final day of each month.


El Niño monitoring

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



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El Niño Monitoring and Outlook

JMA operates the Ocean Data Assimilation System and the El Niño Prediction System (an ocean-atmosphere coupled model) for monitoring and prediction of El Niño-Southern Oscillation (ENSO). Monthly diagnosis reports, ENSO monitoring products, ENSO indices and El Niño outlooks are available on this page.

Main Products

Latest Products

last updated : 09 Nov 2012

- El Niño Outlook
- Figures and Tables
- Download El Niño Monitoring Indices
- Model forecast of SST anomalies for Niño regions

Animations

- SST and Anomaly
- Longitude-Depth Cross Section along the Equator

Gridded Data

- Download SST (COBE-SST from 1891 to the latest month)

ENSO Impacts

- Global Climate Monitoring
- Atmosphere

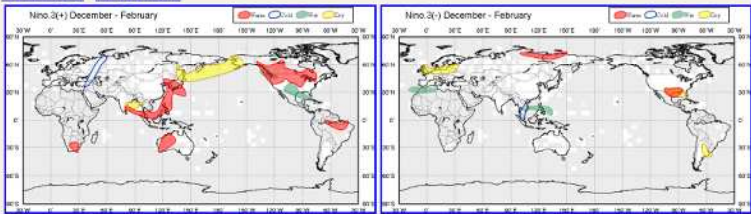
Model Descriptions & Analysis Procedures

- Explanation of El Niño Monitoring Indices
- Description of Coupled Ocean-Atmosphere General Circulation Model (JMA/MOCSM)
- Description of Ocean Data Assimilation System (MOVE/MRI.COM-G) since March 2002

World Climate associated with El Niño / La Niña events

Schematic View

- El Niño Phase / La Niña Phase



El Niño events in December to February

La Niña events in December to February

Schematic views show the areas to some degree in width with any consistent tendency for four seasons (DJF, MAM, JJA and SON) in El Niño / La Niña events.

Composite Analysis

- Composite Map

Composite maps with 5 x 5 degree grid data show the tendencies of temperature and precipitation in El Niño / La Niña phase in comparison with the neutral phase.

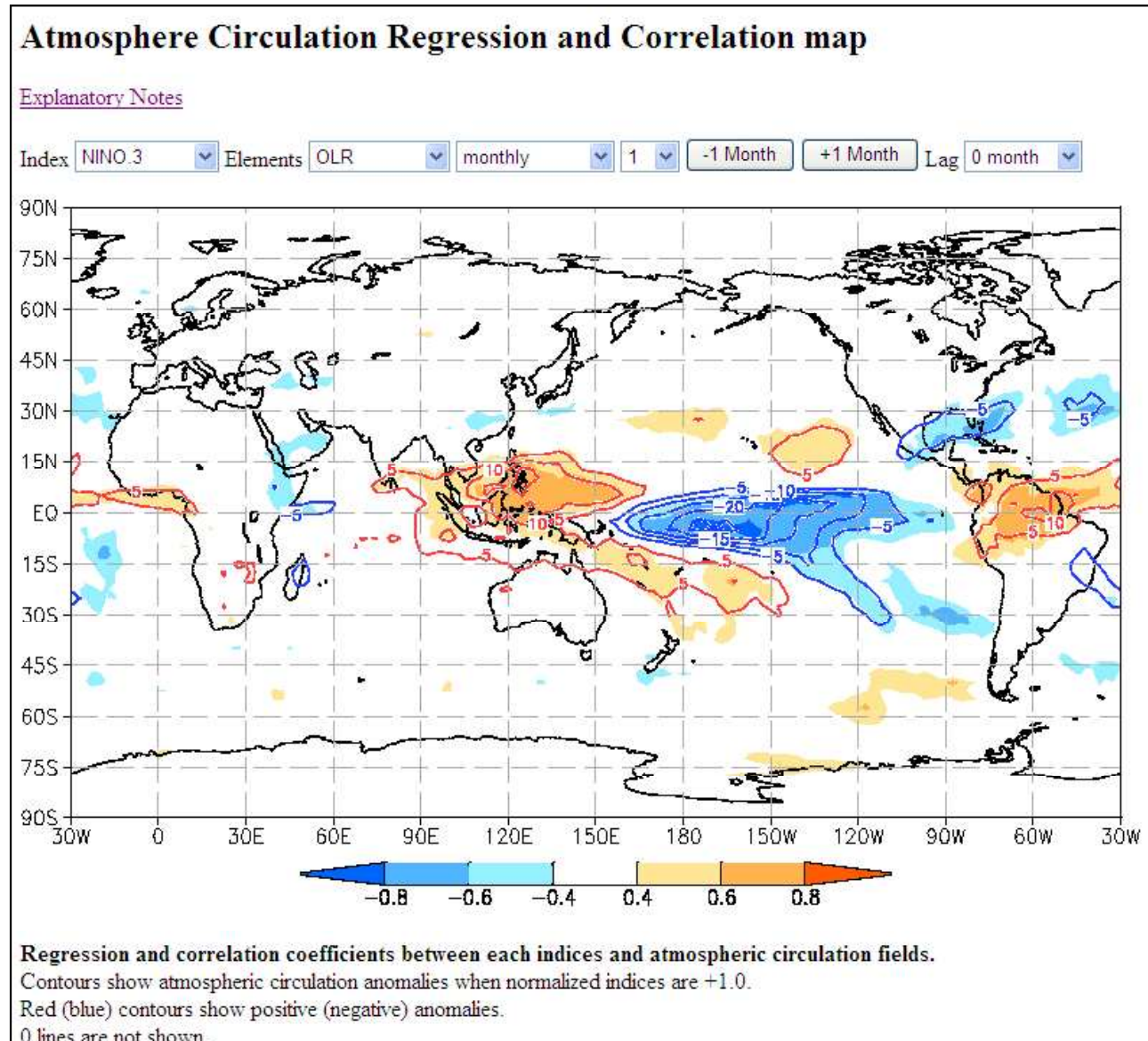
- Data Source / Calculating Method / Niño 3 Index

World Climate associated with other monitoring indices

- World Climate associated with Niño West SST variation
- World Climate associated with IORW SST variation

Statistical analysis related to ENSO

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



Information on specific climate events

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



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Asian Monsoon Monitoring

Reports on specific events

- 10 May 2012 NEW
 - ▶ [Asian Winter Monsoon Summary for 2011/2012](#)
- 6 February 2012
 - ▶ [Cold wave over the Eurasian continent](#)

- 28 November 2011
 - ▶ [Summary of the 2011 Asian summer monsoon](#)
- 31 October 2011
 - ▶ [Heavy rainfall over the Indochina Peninsula for June](#)

Asian Winter Monsoon Summary for 2011/2012

Many parts of East and Central Asia experienced significantly below-normal temperatures throughout winter (December – February) 2011/2012. This report summarizes the related surface climate characteristics, atmospheric circulation and primary factors contributing to the cold conditions observed. The relevant factors were clarified based on investigation by JMA's Advisory Panel on Extreme Climate Events.

Note: JRA/JCDAS (Onogi et al. 2007) atmospheric circulation data and COBE-SST (JMA 2006) sea surface temperature data were used for this investigation. The outgoing longwave radiation flux and outgoing convective activity were originally provided

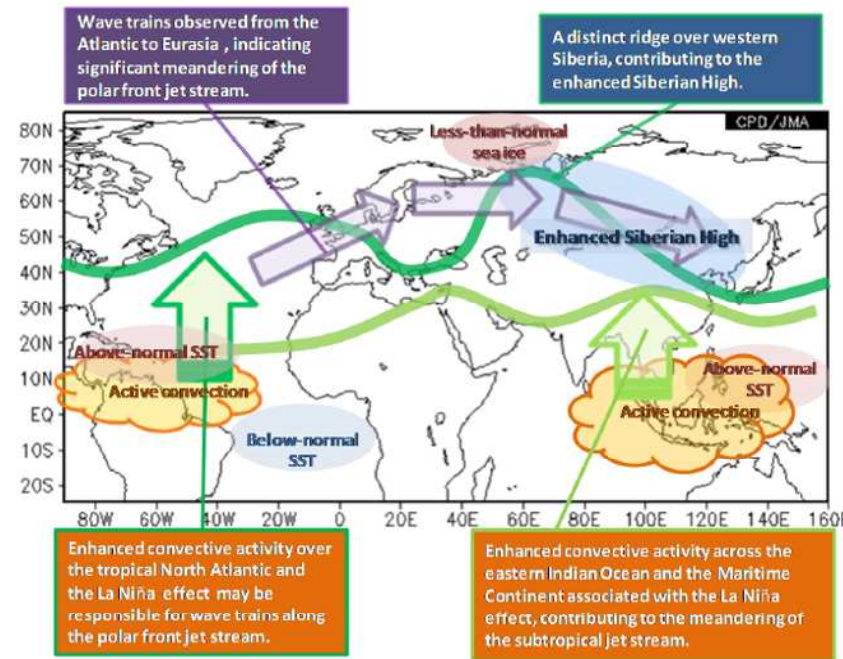


Figure 4.1 Primary factors contributing to the cold winter conditions of 2011/2012 in Central and East Asia

mid-latitudes experienced significantly low, while the northern part of Siberia and temperatures (Figure 1.1). from December 2011 to February 2012. In addition, eastern Mongolia and southern Central Siberia to northern Western

Monthly, seasonal and annual reports on climate system

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

The screenshot displays the Tokyo Climate Center (TCC) website. At the top left is the Japan Meteorological Agency (JMA) logo. The header identifies the Tokyo Climate Center as the WMO Regional Climate Center in RA II (Asia). Navigation links include 'TCC home', 'About TCC', 'Site Map', and 'Contact us'. A menu bar contains categories like '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 'Climate System Monitoring' and contains text about JMA's monitoring efforts and data assimilation systems. A 'Main Products' section is highlighted with a red box and contains a list of reports: 'Report on Climate System', 'Monthly Highlights on the Climate System (September 2012)', 'Seasonal Highlights on the Climate System (Summer, June 2012 - August 2012)', 'Annual Report on the Climate System (2011)', and 'Analysis Charts and Monitoring Indices'. A red arrow points from a dark red box on the right, labeled 'Monthly, seasonal, and annual reports', to the 'Report on Climate System' section.

Report on Climate System

- › Monthly Highlights on the Climate System (September 2012)
- › Seasonal Highlights on the Climate System (Summer, June 2012 - August 2012)
- › Annual Report on the Climate System (2011)
- › Analysis Charts and Monitoring Indices

Monitoring and Statistical Analysis

- › Asian monsoon monitoring (24 Oct 2012)

Monthly, seasonal, and annual reports