

# Q&A

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

Q: I want to try to exchange predictors in single or multiple regression model.

What should I do for ProducingGuidance.xls?

A: If you exchange **observation data (including the values of normal, the lower limit of around normal, and the upper limit of around normal)** and/or **predictors**, no change is necessary for other parts of ProducingGuidance.xls. The values of other cells and the graph are updated automatically.

1	A	B	C	D	E	F	G	H	I	J	K	L
2	Year	Target	Mean Temp	Rank	Predictor 1	Predictor 2	Predictor 3	Forecast	Regression Error	Probabilistic Forecast	Probabilistic Forecast	Probabilistic Forecast
3	JJA/DJF	deg C	NO	THICK	THICK	THICK	NO	NO	NO	NO(s, σn)	NO(s, σn)	NO(s, σn)
4	1981	DJF	5.8	28	-0.16	-0.18	0.20	6.78	0.966	53%	29%	18%
5	1982	DJF	6.3	25	-0.41	-0.20	0.52	6.74	0.197	55%	28%	17%
6	1983	DJF	7.3	14	-0.06	-0.16	-1.19	7.42	0.014	23%	31%	46%
7	1984	DJF	4.6	30	0.55	-0.14	0.25	6.60	3.985	63%	25%	12%
8	1985	DJF	6.1	26	-0.27	-0.32	0.06	6.76	0.438	56%	28%	17%
9	1986	DJF	5.4	29	0.08	-0.26	0.46	6.53	1.280	66%	23%	11%
10	1987	DJF	7	18	-0.41	-0.21	-0.47	7.18	0.032	34%	32%	34%
11	1988	DJF	6.9	19	0.35	-0.11	-0.21	6.91	0.000	47%	31%	22%
12	1989	DJF	8	3	0.30	-0.28	-0.03	6.66	1.807	60%	26%	14%
13	1990	DJF	7.3	14	-0.19	-0.11	0.77	6.66	0.411	60%	26%	14%
14	1991	DJF	7.6	8	0.11	0.02	0.04	7.03	0.325	41%	32%	27%
15	1992	DJF	7.6	8	-0.07	-0.01	-0.34	7.23	0.140	31%	32%	36%
16	1993	DJF	7.8	6	-0.33	-0.26	0.14	6.82	0.964	52%	29%	19%
17	1994	DJF	6.9	19	0.27	-0.23	-0.14	6.77	0.017	54%	29%	17%
18	1995	DJF	7.3	14	-0.08	-0.16	-0.62	7.18	0.014	33%	32%	34%
19	1996	DJF	6.6	23	-0.45	-0.02	0.12	7.15	0.297	35%	32%	32%
20	1997	DJF	7.7	7	-0.70	-0.02	0.12	7.23	0.222	31%	32%	36%
21	1998	DJF	7.2	17	0.05	0.33	-0.94	7.84	0.415	10%	32%	67%
22	1999	DJF	7.4	12	0.52	0.19	0.20	7.01	0.148	42%	32%	27%
23	2000	DJF	7.5	10	0.42	-0.11	0.27	6.67	0.691	59%	27%	14%
24	2001	DJF	6.8	21	0.33	0.12	0.31	6.95	0.022	45%	31%	24%
25	2002	DJF	7.9	5	-0.39	0.25	0.04	7.47	0.189	21%	30%	48%
26	2003	DJF	6.4	24	0.19	0.36	-0.31	7.55	1.328	18%	29%	53%
27	2004	DJF	8	3	0.39	0.18	0.53	6.90	1.201	47%	31%	22%
28	2005	DJF	7.4	12	-0.14	0.23	-0.06	7.41	0.000	24%	31%	45%
29	2006	DJF	6.1	26	-0.03	0.24	0.77	7.01	0.820	42%	32%	26%
30	2007	DJF	8.6	1	-0.04	0.31	-0.80	7.78	0.664	11%	24%	64%
31	2008	DJF	6.8	21	0.17	0.08	0.22	7.00	0.039	42%	32%	26%
32	2009	DJF	8.1	2	0.13	0.05	0.37	6.92	1.403	47%	31%	23%
33	2010	DJF	7.5	10	0.16	0.41	-0.37	7.75	0.063	12%	25%	63%
34	Normal		7.1						0.777			
35	The lower limit of around normal		6.9									
36	The upper limit of around normal		7.5									
37	Single Regression		slope		-0.32	1.24	-0.54					
38			intercept		7.06	7.06	7.06					
39			Correlation		0.12	0.31	0.30					
40												
41	Multiple Regression		slope		-0.35	1.15	-0.44					
42			intercept		7.06							
43			Correlation		0.42							
44												
45												
46												
47												
48												

No change is necessary for other parts of ProducingGuidance.xls.

Q: I want to try to exchange the probabilities of guidance in Verification.xls (BriefVerification.xls). What should I do for Verification.xls (BriefVerification.xls)?

A: If you have exchanged both **observation data (including the values of the lower limit of around normal and the upper limit of around normal)** and **the probabilities of guidance** or only **the probabilities of guidance**, please copy G2:G91, and paste their values into H2:H91 (functions → values). Then, the graph is updated.

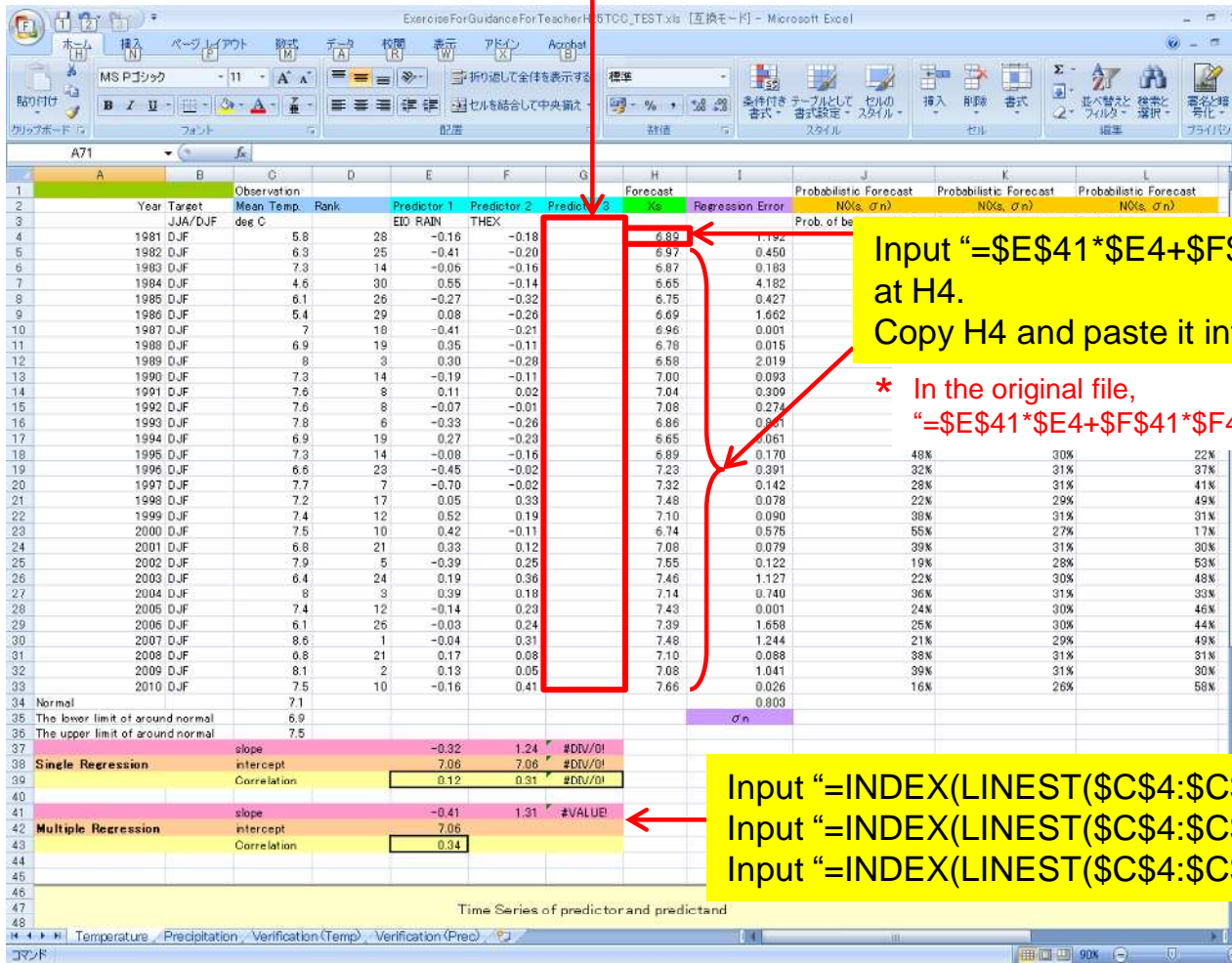
	A	B	C	D	E	F	G	H
1			observation	Prob.	$(O_i - V_i)^2$	round off	Hit : 1	
2	1981	DJF below no	5.8	53%	0.2168	50% 1	1	
3	1982	DJF	6.3	55%	0.1986	60% 1	1	
4	1983	DJF	7.3	23%	0.0536	20% 0	0	
	...							
32	1981	DJF around n	5.8	29%	0.0828	30% 0	0	
33	1982	DJF	6.3	28%	0.0787	30% 0	0	
34	1983	DJF	7.3	31%	0.4767	30% 1	1	
	...							
62	1981	DJF above no	5.8	18%	0.0317	20% 0	0	
63	1982	DJF	6.3	17%	0.0273	20% 0	0	
64	1983	DJF	7.3	46%	0.2107	50% 0	0	
	...							
92					0.3350	0.33333333	-0.005	
93		The lower limit of around	6.65		Brier Score	climate Brier Score	Brier Skill Score (BSS)	
94		The upper limit of around	7.5					

Copy G2:G91, and paste their values into H2:H91 (functions → values).

Q: I want to try 2 predictors in multiple regression model. What should I do for ProducingGuidance.xls?

A: The procedure is as follows.

Clear G3:G33.



Input “= \$E\$41\*\$E4+\$F\$41\*\$F4+\$E\$42” at H4.  
Copy H4 and paste it into H5:H33.

\* In the original file,  
“= \$E\$41\*\$E4+\$F\$41\*\$F4+\$G\$41\*\$G4+\$E\$42”

Input “=INDEX(LINEST(\$C\$4:\$C\$33,\$E\$4:\$F\$33,TRUE,FALSE),2)” at E41.  
Input “=INDEX(LINEST(\$C\$4:\$C\$33,\$E\$4:\$F\$33,TRUE,FALSE),1)” at F41.  
Input “=INDEX(LINEST(\$C\$4:\$C\$33,\$E\$4:\$F\$33,TRUE,FALSE),3)” at E42.

\* In the original file,  
F→G 2→3  
1→2  
3→4

Q: I want to try 4 or more predictors in multiple regression model. What should I do for ProducingGuidance.xls?

A: The procedure is as follows (though I cannot recommend many predictors).

Insert line (Line H).

Observation	Year	Target JJA/DJF	Mean Temp. dec C	Rank	Predictor 1 EIO RAIN	Predictor 2 THEX	Predictor 3 MC RAIN	Forecast %	Regression Error	Probabilistic Forecast NOCs, $\sigma_n$	Probabilistic Forecast NOCs, $\sigma_n$	Probabilistic Forecast NOCs, $\sigma_n$
1	1981	DJF	5.8	28	-0.16	-0.18	0.29	6.78	0.966			
2	1982	DJF	6.3	25	-0.41	-0.20	0.52	6.74	0.197		53%	29%
3	1983	DJF	7.3	14	-0.06	-0.16	-1.19	7.42	0.014		23%	31%
4	1984	DJF	4.6	30	0.55	-0.14	0.25	6.60	3.985		63%	25%
5	1985	DJF	6.1	26	-0.27	-0.32	0.06	6.76	0.438		55%	28%
6	1986	DJF	5.4	29	0.08	-0.26	0.46	6.53	1.280		66%	23%
7	1987	DJF	7	18	-0.41	-0.21	-0.47	7.18	0.032		34%	32%
8	1988	DJF	6.9	19	0.35	-0.11	-0.21	6.91	0.000		47%	31%
9	1989	DJF	8	3	0.30	-0.28	-0.03	6.66	1.807		60%	26%
10	1990	DJF	7.3	14	-0.19	-0.11	0.77	6.66	0.411		60%	26%
11	1991	DJF	7.6	8	0.11	0.02	0.04	7.03	0.325		41%	32%
12	1992	DJF	7.6	8	-0.07	-0.01	-0.34	7.23	0.140		31%	32%
13	1993	DJF	7.8	6	-0.33	-0.26	0.14	6.82	0.964		52%	29%
14	1994	DJF	6.9	19	0.27	-0.23	-0.14	6.77	0.017		54%	29%
15	1995	DJF	7.3	14	-0.08	-0.16	-0.62	7.18	0.014		33%	32%
16	1996	DJF	6.6	23	-0.45	-0.02	0.12	7.15	0.297		35%	32%
17	1997	DJF	7.7	7	-0.70	-0.02	0.12	7.23	0.222		31%	32%
18	1998	DJF	7.2	17	0.05	0.33	-0.94	7.84	0.415		10%	23%
19	1999	DJF	7.4	12	0.52	0.19	0.20	7.01	0.148		42%	32%
20	2000	DJF	7.5	10	0.42	-0.11	0.27	6.67	0.691		59%	27%
21	2001	DJF	6.8	21	0.33	0.12	0.31	6.95	0.022		45%	31%
22	2002	DJF	7.9	5	-0.39	0.25	0.04	7.47	0.189		21%	30%
23	2003	DJF	6.4	24	0.19	0.36	-0.31	7.55	1.328		18%	29%
24	2004	DJF	8	3	0.39	0.18	0.53	6.90	1.201		47%	31%
25	2005	DJF	7.4	12	-0.14	0.23	-0.06	7.41	0.000		24%	31%
26	2006	DJF	6.1	26	-0.03	0.24	0.77	7.01	0.820		42%	32%
27	2007	DJF	8.6	1	-0.04	0.31	-0.80	7.78	0.664		11%	24%
28	2008	DJF	6.8	21	0.17	0.08	0.22	7.00	0.039		42%	32%
29	2009	DJF	8.1	2	0.13	0.05	0.37	6.92	1.403		47%	31%
30	2010	DJF	7.5	10	-0.16	0.41	-0.37	7.75	0.063		12%	25%
31	Normal		7.1						0.777			
32	The lower limit of around normal		6.9									
33	The upper limit of around normal		7.5									
34	Single Regression	slope			-0.32	1.24	-0.54					
35		intercept			7.06	7.06	7.06					
36		Correlation			0.12	0.31	0.30					
37	Multiple Regression	slope			-0.35	1.15	-0.44					
38		intercept			7.06							
39		Correlation			0.42							

(continued)

Input the data of the predictor you want to add.

Observation	Year	Target	Mean Temp	Rank	Predictor 1	Predictor 2	Predictor 3	Regression	Forecast	Probabilistic Forecast	Probabilistic Forecast	Probabilistic Forecast
JJA/DJF	JJA/DJF	dec C	dec C		EIO RAIN	THEX	MC RAIN	%				
1												
2	1981	DJF	5.8	28	-0.16	-0.18	0.29	-0.07	6.62			
3	1982	DJF	6.3	25	-0.41	-0.20	0.52	-0.04	6.49			
4	1983	DJF	7.3	14	-0.06	-0.16	-1.19	0.23	7.33			
5	1984	DJF	4.6	30	0.55	-0.14	0.25	-0.36	6.77			
6	1985	DJF	6.1	26	-0.27	-0.32	0.06	-0.36	6.94			
7	1986	DJF	5.4	29	0.08	-0.26	0.46	-0.33	6.55	1.313	66%	24%
8	1987	DJF	7	18	-0.41	-0.21	-0.47	0.09	7.06	0.004	39%	33%
9	1988	DJF	6.9	19	0.35	-0.11	-0.21	0.21	6.53	0.194	66%	24%
10	1989	DJF	8	3	0.30	-0.28	-0.03	-0.35	6.81	1.421	52%	30%
11	1990	DJF	7.3	14	-0.19	-0.11	0.77	-0.18	6.56	0.542	65%	24%
12	1991	DJF	7.6	8	0.11	0.02	0.04	0.08	6.92	0.468	47%	31%
13	1992	DJF	7.6	8	-0.07	-0.01	-0.34	-0.07	7.43	0.029	22%	31%
14	1993	DJF	7.8	6	-0.33	-0.26	0.14	-0.19	6.81	0.575	52%	30%
15	1994	DJF	6.9	19	0.27	-0.23	-0.14	-0.12	6.70	0.038	58%	28%
16	1995	DJF	7.3	14	-0.08	-0.16	-0.62	-0.05	7.30	0.000	28%	33%
17	1996	DJF	6.6	23	-0.45	-0.02	0.12	-0.02	7.18	0.339	33%	33%
18	1997	DJF	7.7	7	-0.70	-0.02	0.12	-0.15	7.47	0.052	21%	31%
19	1998	DJF	7.2	17	0.05	0.33	-0.94	0.69	7.56	0.129	18%	29%
20	1999	DJF	7.4	12	0.52	0.19	0.20	-0.09	7.19	0.045	33%	33%
21	2000	DJF	7.5	10	0.42	-0.11	0.27	-0.19	6.66	0.712	60%	27%
22	2001	DJF	6.8	21	0.33	0.12	0.31	0.01	6.91	0.011	47%	31%
23	2002	DJF	7.9	5	-0.39	0.25	0.04	0.11	7.61	0.086	16%	28%
24	2003	DJF	6.4	24	0.19	0.36	-0.31	0.23	7.69	1.652	14%	27%
25	2004	DJF	8	3	0.39	0.18	0.53	0.00	6.86	1.289	49%	31%
26	2005	DJF	7.4	12	-0.14	0.23	-0.06	0.29	7.30	0.010	28%	33%
27	2006	DJF	6.1	26	-0.03	0.24	0.77	0.15	6.80	0.487	53%	29%
28	2007	DJF	8.6	1	-0.04	0.31	-0.80	0.30	7.96	0.409	7%	20%
29	2008	DJF	6.8	21	0.17	0.08	0.22	-0.06	7.07	0.070	39%	33%
30	2009	DJF	8.1	2	0.13	0.05	0.37	-0.23	7.14	0.920	35%	33%
31	2010	DJF	7.5	10	-0.16	0.41	-0.37	0.18	7.67	0.029	14%	27%
32												
33												
34	Normal		7.1						0.760			
35	The lower limit of around normal		6.9									
36	The upper limit of around normal		7.5									
37	Single Regression	slope			-0.32	1.24	-0.54	0.92				
38		intercept			7.06	7.06	7.06	7.06				
39		Correlation			0.12	0.31	0.30	0.26				
40												
41	Multiple Regression	slope			-0.49	2.15	-0.76	-1.33				
42		intercept			7.06							
43		Correlation			0.46							
44												
45												
46												
47												
48												
49												
50												

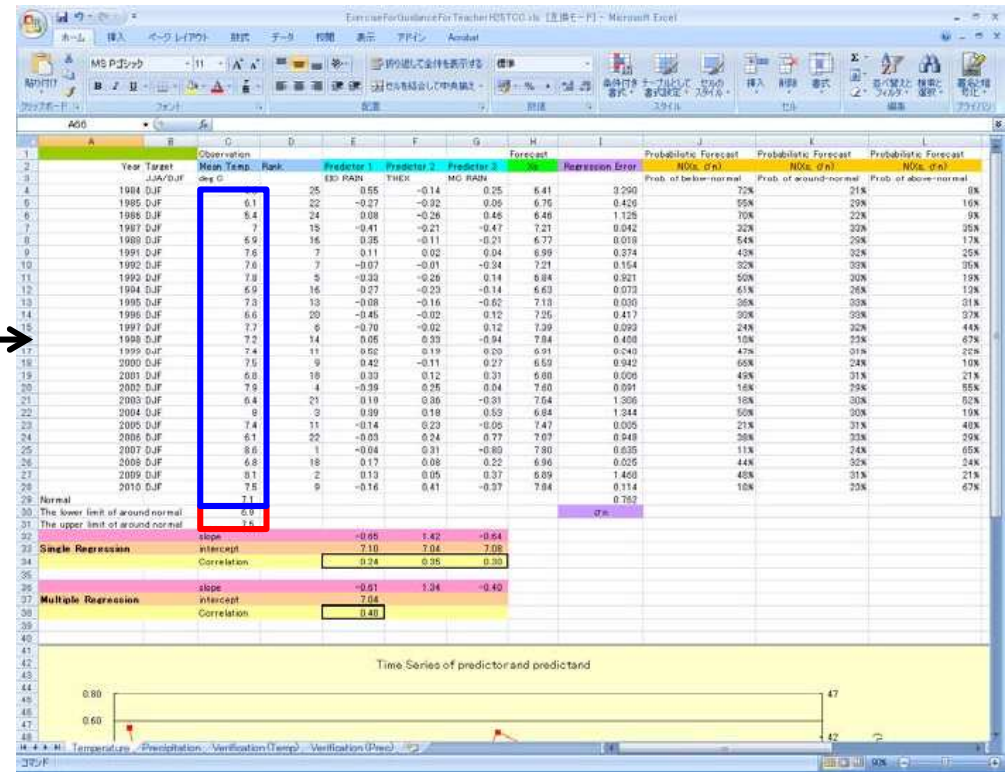
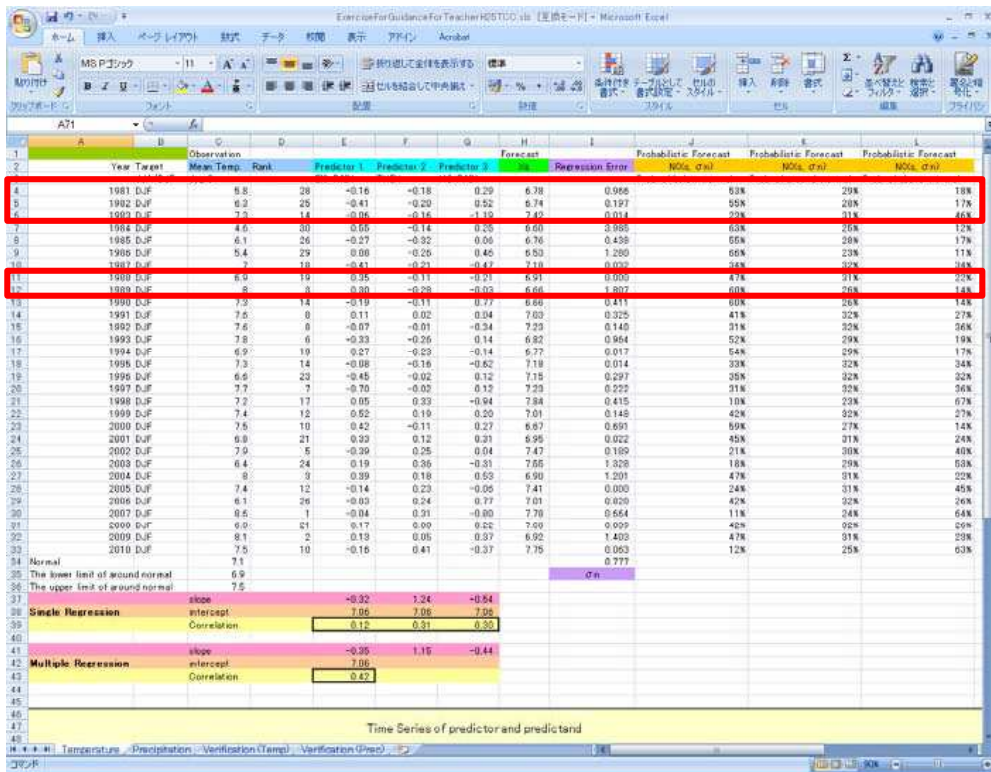
Input “= \$E\$41\*\$E\$4+\$F\$41\*\$F\$4+\$G\$41\*\$G\$4+\$H\$41\*\$H\$4+\$E\$42” at I4.  
Copy I4 and paste it into I5:I33.

Copy G37:G39 and paste them into H37:H39.

Input “=INDEX(LINEST(\$C\$4:\$C\$33,\$E\$4:\$H\$33,TRUE,FALSE),4)” at E41.  
Input “=INDEX(LINEST(\$C\$4:\$C\$33,\$E\$4:\$H\$33,TRUE,FALSE),3)” at F41.  
Input “=INDEX(LINEST(\$C\$4:\$C\$33,\$E\$4:\$H\$33,TRUE,FALSE),2)” at G41.  
Input “=INDEX(LINEST(\$C\$4:\$C\$33,\$E\$4:\$H\$33,TRUE,FALSE),1)” at H41.  
Input “=INDEX(LINEST(\$C\$4:\$C\$33,\$E\$4:\$H\$33,TRUE,FALSE),5)” at E42.

Q: The observation period of Station XXX is less than 30 years. What should I do for ProducingGuidance.xls?

A: The procedure is as follows (though I cannot recommend short-term data).



Delete the lines for the years with no data.

Input the observation data of Station XXX. Calculate the lower and upper limits of around normal (see the next slide). Then, input these values into the corresponding cells.

(continued)

Original line number	Year	Mean Temp	Rank
22	2007	8.6	1
24	2009	8.1	2
19	2004	8.0	3
17	2002	7.9	4
8	1993	7.8	5
12	1997	7.7	6
6	1991	7.6	7
7	1992	7.6	7
15	2000	7.5	9
25	2010	7.5	9
14	1999	7.4	11
20	2005	7.4	11
10	1995	7.3	13
13	1998	7.2	14
4	1987	7.0	15
5	1988	6.9	16
9	1994	6.9	16
16	2001	6.8	18
23	2008	6.8	18
11	1996	6.6	20
18	2003	6.4	21
2	1985	6.1	22
21	2006	6.1	22
3	1986	5.4	24
1	1984	4.6	25

$r$   
↓

Upper limit of around normal:

$$X(r) = X(r_{\text{integer}}) * (1 - r_{\text{decimal}}) + X(r_{\text{integer}} + 1) * r_{\text{decimal}}$$

$$r = \{10 * N / 30 + (10 + 1) * N / 30\} / 2$$

N: Data Number,  $r = r_{\text{integer}} + r_{\text{decimal}}$

In this example,  $N = 25$ . So,

$$r = \{10 * 25 / 30 + (10 + 1) * 25 / 30\} / 2 = 8.75$$

$$X(8.75) = X(8) * (1 - 0.75) + X(9) * 0.75 = 7.6 * 0.25 + 7.5 * 0.75 \approx 7.53$$

Lower limit of around normal:

$$X(r) = X(r_{\text{integer}}) * (1 - r_{\text{decimal}}) + X(r_{\text{integer}} + 1) * r_{\text{decimal}}$$

$$r = \{(10 + 10) * N / 30 + (10 + 10 + 1) * N / 30\} / 2$$

N: Data Number,  $r = r_{\text{integer}} + r_{\text{decimal}}$

In this example,  $N = 25$ . So,

$$r = \{(10 + 10) * 25 / 30 + (10 + 10 + 1) * 25 / 30\} / 2 = 17.083 \dots$$

$$X(17.08) = X(17) * (1 - 0.08) + X(18) * 0.08 = 6.9 * 0.92 + 6.8 * 0.08 \approx 6.89$$



Q: The observation period of Station XXX is less than 30 years. What should I do for Verification.xls (BriefVerification.xls)?

A: The procedure is as follows (though I cannot recommend short-term data).

The order of the steps is important!

(2)

Paste the values of the probabilities of the guidance.

(2)

Input the observation data of Station XXX.

(1)

Delete the lines for the years with no data.

\* Do not delete the Lines 1-6!

(2)

Paste the values of the lower and upper limits of around normal into the corresponding cells, respectively.

	A	B	C	D	E	F	G	H
1			observation	Prob	(P-VI) <sup>2</sup>	round off	Hit : 1	1
2	1981	DJF	below n	5.8	53%	0.2168	50% 1	1
3	1982	DJF		6.3	55%	0.1986	60% 1	1
4	1983	DJF		7.3	23%	0.0536	20% 0	0
			...					
32	1981	DJF	around n	5.8	29%	0.0828	30% 0	0
33	1982	DJF		6.3	28%	0.0787	30% 0	0
34	1983	DJF		7.3	31%	0.4767	30% 1	1
			...					
62	1981	DJF	above n	5.8	18%	0.0317	20% 0	0
63	1982	DJF		6.3	17%	0.0273	20% 0	0
64	1983	DJF		7.3	46%	0.2107	50% 0	0
			...					
92						0.3350	0.33333333	-0.005
93			The lower limit of around	6.85	Brier Score	climate Brier Score	Brier Skill Score (BSS)	
94			The upper limit of around	7.5				

(3)

Copy G2:G91, and paste their values into H2:H91 (functions → values).

(4)

Input “=J3/N” at J6 .

(N: Number of years x 3)

Copy J6 and paste it into K6:T6.

Q: I want to obtain hindcast GPV data other than those in GPV.xls. What should I do?

A: Please use ITACS. The procedure is as follows.

Please select Ts or Rain.

Location where you want to obtain a GPV.

ITACS v4.0 - Windows Internet Explorer

http://extreme.kishou.go.jp/tool/anatools/analyze4.0-pub/index1.php?dataset=TCC-TS&element=ts&element\_edit=-273.15&dtype=ANOM&area=30%2C1

data1

dataset	element	data type	area	level	average period	show period
TCC-TS	Ts (Surface Temperature) [C.Deg]	ANOM	ASIA	1000hPa	Year average	RANGE
	Vector <input type="checkbox"/>		Lat: 35 - 35 Ave <input type="checkbox"/>	1000hPa	Ave <input type="checkbox"/>	1980 - 2009
	SD <input type="checkbox"/>		Lon: 140 - 140 Ave <input type="checkbox"/>		time filter <input type="checkbox"/>	12 - 02
	Derivative: longitude <input type="checkbox"/> latitude <input type="checkbox"/>					

analysis method : -Analysis\_method-

**Graphic Option**

Show Contour Labels  
 Show Color Bar  
 Set Contour Parameters for data1  
 interval :  min :  max :   
 Set Vector size :  [inch] value :  skip : 1

Color Table : Rainbow  
 Polar Stereographic : North pole  
 Logarithmic Coordinates  
 Reverse the Axes  
 Flip the X-axis  Flip the Y-axis  
 No Scale Labels  
 Draw Credit Inside  
 Apply All Pics  
 picture size  %

Submit Clear SliceTool Help Sample Logout

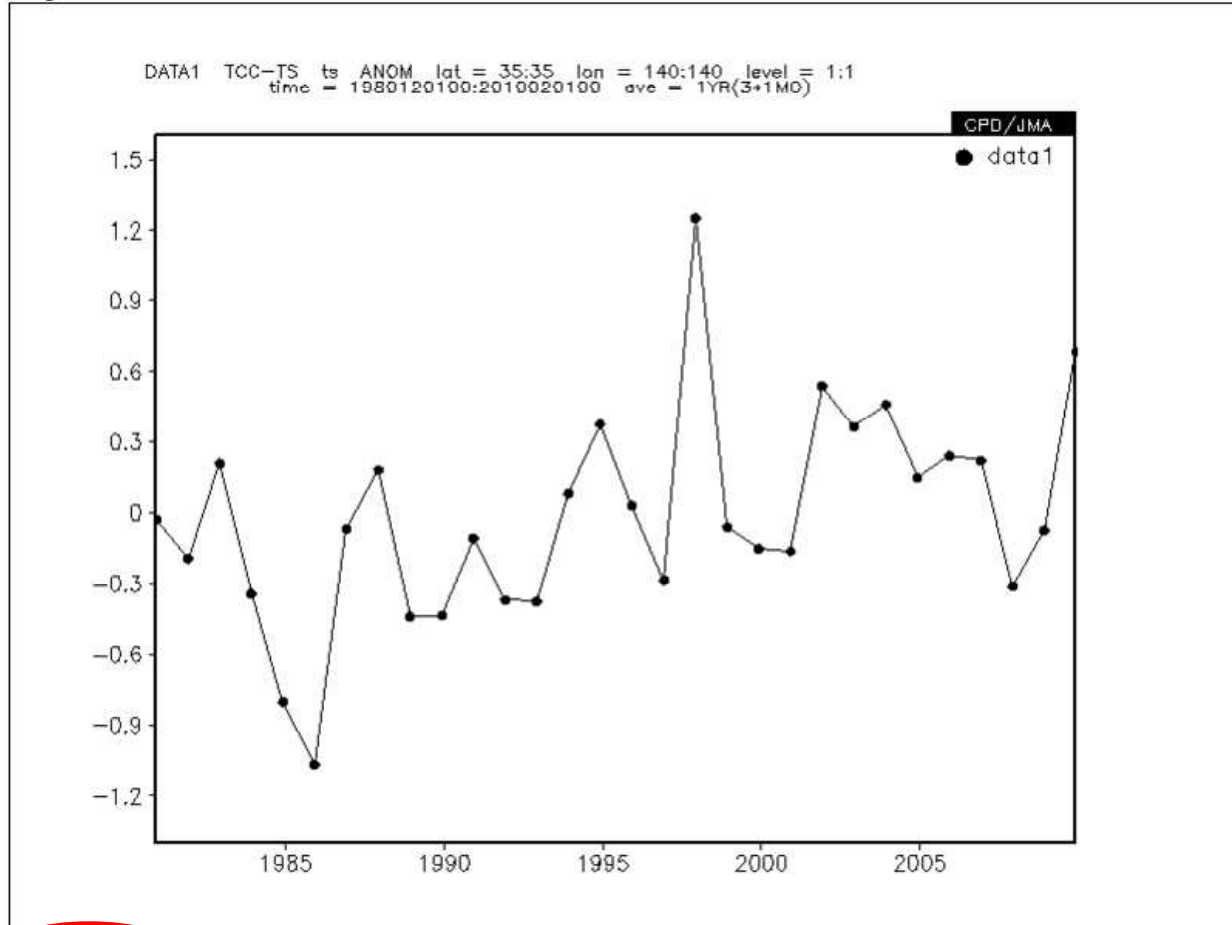


Left-click

(continued)

Submit Clear SliceTool Help Sample Logout

Image1



< output txt file > [detailed options](#)

< download data (ctl file and 4byte data) >



Left-click

```

data_set : TCC-TS
element : ts
dset work/528028c7b493c_ts_0.grd
title
undef -9.99e+08
xdef 1 linear 0 1
ydef 1 linear 0 1
zdef 1 linear 1000 1
tdef 30 linear 00Z01DEC1980 12mo
vars 1
ts 1 99 Ts (Surface Temperature) [C.Deg]
endvars

```

```

Default file number is: 1
X is fixed Lon = 0 X = 1
Y is fixed Lat = 0 Y = 1
Z is fixed Lev = 1000 Z = 1
T is varying Time = 00Z01DEC1980 to 00Z01DEC2009 T = 1 to 30
E is fixed Ens = 1 E = 1

```

ni = 1 ni = 1 nk = 1 nt = 30

```

-0.029419
-0.195047
0.207296
-0.342061
-0.803448
-1.067515
-0.069692
0.179749
-0.439534
-0.435719
-0.110250
-0.369435
-0.373993
0.078857
0.372314
0.030182
-0.286142
1.253723
-0.061554
-0.152710
-0.163696
0.538493
0.362814
0.457774
0.146983
0.239726
0.219351
-0.311238
-0.073465
0.684123

```



Please select this part, copy it (right-click), and paste it into your file.

Q: I want to obtain hindcast index data other than those in Indices.xls. What should I do?

A: Please use ITACS. The procedure is as follows.

Please select SST/Rain/y  
(Geopotential Height).

Area of the index  
you want to obtain.

1000hPa - 1000hPa / ← SST/Rain  
850hPa - 850hPa  
500hPa - 500hPa  
300hPa - 300hPa  
100hPa - 100hPa  
...  
Y  
(Geopotential Height)

The screenshot shows the ITACS v4.0 web interface. The 'datal' section contains the following settings:

- dataset: TCC-TS
- element: SST (Sea Surface Temperature)
- data type: ANOM
- area: Tropics (Lat: -5 to 5, Lon: 210 to 270)
- level: 1000hPa
- average period: Year average
- show period: RANGE (1980 - 2009, 12 - 02)

The 'Graphic Option' section includes:

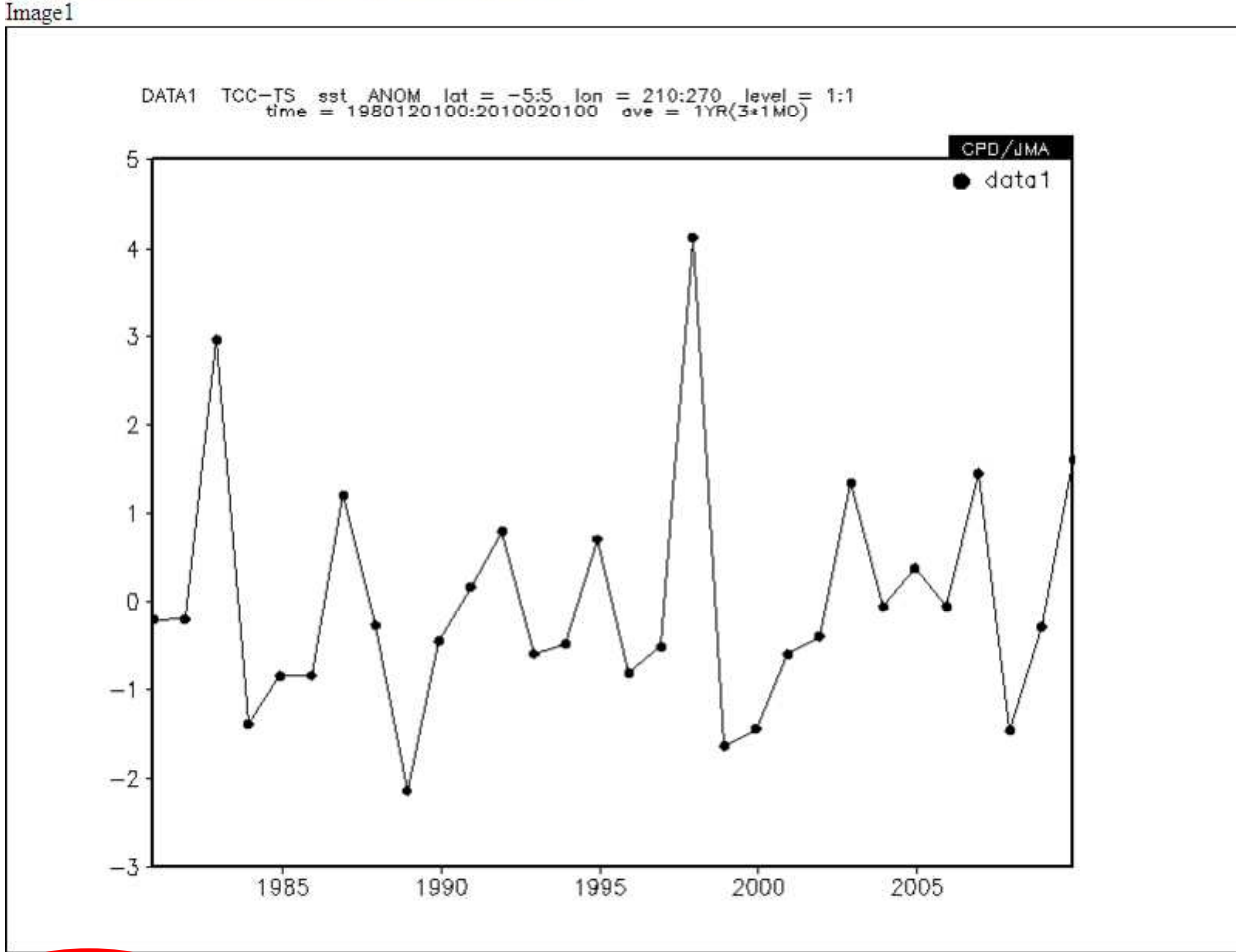
- Colorizing: COLOR
- Drawing: SHADE
- Image Format: png
- Font: default
- Color Table: Rainbow
- Polar Stereographic: North pole
- Logarithmic Coordinates: unchecked
- Reverse the Axes: unchecked
- Flip the X-axis: unchecked
- Flip the Y-axis: unchecked
- No Scale Labels: unchecked
- Draw Credit Inside: unchecked
- Apply All Pics: unchecked
- No Caption: unchecked
- picture size: %

At the bottom, the 'Submit' button is circled in red, with an arrow pointing to it from the text 'Left-click' below the image.

Left-click

(continued)

Submit Clear SliceTool Help Sample Logout



```
data_set : TCC-TS
element : sst
dset work/5292e2fc78948_sst_0.grd
title
undef -9.99e+08
xdef 1 linear 0 1
ydef 1 linear 0 1
zdef 1 linear 1000 1
tdef 30 linear 00Z01DEC1980 12mo
vars 1
sst 1 99 SST (Sea Surface Temperature) [K]
endvars
```

```
Default file number is: 1
X is fixed Lon = 0 X = 1
Y is fixed Lat = 0 Y = 1
Z is fixed Lev = 1000 Z = 1
T is varying Time = 00Z01DEC1980 to 00Z01DEC2009 T = 1 to 30
E is fixed Ens = 1 E = 1
```

```
ni = 1 nj = 1 nk = 1 nt = 30
```

- 0.202925
- 0.194814
- 2.960139
- 1.384117
- 0.840727
- 0.838417
- 1.194377
- 0.264856
- 2.145285
- 0.449250
- 0.163337
- 0.788459
- 0.594480
- 0.481949
- 0.698067
- 0.806306
- 0.513973
- 4.120615
- 1.635706
- 1.438897
- 0.596735
- 0.397267
- 1.335024
- 0.055730
- 0.380145
- 0.056113
- 1.443749
- 1.459311
- 0.282132
- 1.588976



< output txt file > [detailed options](#)  
< download data (cdf file and 4byte data) >



Left-click

(continued)

Please select this part, copy it (right-click), and paste it into your file.

Thickness variables can be calculated by using the following equation:

$$TH = (\gamma_1 - \gamma_2) * 9.8 / 287 / \ln(p_2 / p_1)$$

$\gamma_1, \gamma_2$ : Geopotential height anomalies averaged over the corresponding area

$p_1, p_2$ : Pressure surfaces

For example,

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)

$$THMD = \{(Z300 \text{ anomaly}) - (Z850 \text{ anomaly})\} * 9.8 / 287 / \ln(850 / 300)$$

$$THEX = \{(Z300 \text{ anomaly}) - (Z850 \text{ anomaly})\} * 9.8 / 287 / \ln(850 / 300)$$

$$THTR = \{(Z100 \text{ anomaly}) - (Z850 \text{ anomaly})\} * 9.8 / 287 / \ln(850 / 100)$$

Q: I want to obtain monthly (not seasonal) hindcast data. What should I do?

A: Please use ITACS. The procedure is as follows.

The screenshot shows the ITACS v4.0 web interface. The 'show period' section is highlighted with a red circle. A red arrow points from the '12 - 12' option to the text below.

**show period**

RANGE

1980 - 2009

12 - 12

1981 - 2010

01 - 01

1981 - 2010

02 - 02

**Graphic Option**

Show Contour Labels

Show Color Bar

Set Contour Parameters for data1

interval:  min:  max:

Set Vector size:  [inch] value:  skip: 1

Color Table: Rainbow

Polar Stereographic: North pole

Logarithmic Coordinates

Reverse the Axes

Flip the X-axis  Flip the Y-axis

No Scale Labels

Draw Credit Inside

Apply All Pics

picture size  %

Submit Clear SliceTool Help Sample Logout

The other procedures are the same as those for seasonal hindcast data (see the slides 10-11 and the slides 12-14).

Q: I want to obtain hindcast data for spring, summer, and autumn (target seasons).  
What should I do?

A: Hindcast data for all the 3-month forecasts are available. Please use ITACS. For example, the procedure for the June-July-August forecast (initial date: 1st May) is as follows.

**ITACS v4.0 - Windows Internet Explorer**

http://extreme.kishou.go.jp/tool/anatools/analyze4.0-pub/index1.php?dataset=\_CGCM-HC05&element=sst&element\_edit=&dtype=ANOM&area=0%2C36C

ファイル(F) 編集(E) 表示(V) お気に入り(A) ツール(T) ヘルプ(H)

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

ITACS v4.0

**-If you select \_CGCM-H03/04/06/07 and select seasonal mean, wrong graph and wrong text data will be displayed. Please be careful in the choice of dataset.**

dataset	element	data type	area	level	average period	show period
<u>_CGCM-HC05</u>	SST (Sea Surface Temperature) [K]	ANOM	Tropics Lat: -5 - 5 Ave <input checked="" type="checkbox"/> Lon: 210 - 270 Ave <input checked="" type="checkbox"/>	1000hPa 1000hPa	Year average Ave <input type="checkbox"/> time filter <input type="checkbox"/>	<u>RANGE</u> 1981 - 2010 06 - 08

**analysis method** : -Analysis\_method-

**Graphic Option**

Colorizing: COLOR  
Drawing: SHADE  
Image Format: png  
Font: default

Show Contour Labels  
 Show Color Bar  
 Set Contour Parameters for data1  
interval: min: max:  
 Set Vector size: [inch] value: skip: 1

Color Table: Rainbow  
 Polar Stereographic: North pole  
 Logarithmic Coordinates  
 Reverse the Axes  
 Flip the X-axis  Flip the Y-axis  
 No Caption

No Scale Labels  
 Draw Credit Inside  
 Apply All Pics

picture size %

**Seasonal** → **1981-2010**  
**06-08**  
or  
**1981-2010**  
**06-06**  
or  
**1981-2010**  
**07-07**  
or  
**1981-2010**  
**08-08**

**Monthly**

Submit Clear SliceTool Help Sample Logout

The other procedures are the same as those for hindcast data for winter (see the slides 10-11 and the slides 12-14).

(continued)



You can download the corresponding operational forecast data from “NWP Model Prediction” page at TCC website.  
The method of downloading GPV data is as follows.

The screenshot shows the Tokyo Climate Center website header with the Japan Meteorological Agency and WMO logos. The navigation menu includes 'NWP Model Prediction', which is circled in red. Below the menu, the page title is 'Download Gridded Data files'. The main content area is divided into 'Notice' and 'Main Products'. Under 'Main Products', there are four sections: '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' section lists '1-month', '3-month', and '7-month' forecasts. Under the '3-month' forecast, the 'Statistics' link is highlighted with a red box and a blue callout bubble pointing to it with the text 'Left-click'. To the right of the callout, red text reads '3-month (not 7-month) statistics'.

**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)

(continued)

### Grid point value products of Three month Outlook in GRIB2 (Ensemble statistics)

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

- Each file is located in a folder named as 'yyyymm', which indicates year(four-digit) and month(two-digit) of an initial time. Each file name has a 'description'.
- The data made from old models is here:  
([200309-200708](#))  
([200709-201001](#))

Left-click

- WGRIB2 to read GPV in GRIB2 format : [for Linux](#) [for windows](#)
- 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 1979 to 2008.
  - Area and spatial resolution : global,  $2.5^\circ \times 2.5^\circ$
  - Lead time (*please refer to [operation of the EPS](#)*)
    - Monthly mean forecast : about 0.5, 1.5, and 2.5 months
    - Three-month mean forecast : about 0.5 month
  - Ensemble size : 51 (9 BGM & 6 days with 5-day LAF)
  - Issuance day : no later than 22nd
  - Format : Gridded numerical values encoded in GRIB2, which is explained at "FM92 GRIB - Edition 2" in the WMO website (<http://www.wmo.int>)
  - 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	$\text{m s}^{-1}$

### Index of /model/gpv/4mE/GPV

Name

[Parent Directory](#)

[201309/](#)

[201308/](#)

[201307/](#)

[201306/](#)

[201305/](#)

[201304/](#)

[201303/](#)

[201302/](#)

[201301/](#)

[201212/](#)

[201211/](#)

[201210/](#)

[201209/](#)

[201208/](#)

[201207/](#)

[201206/](#)

[201205/](#)

[201204/](#)

[201203/](#)

[201202/](#)

[201201/](#)

[201112/](#)

[201111/](#)

[201110/](#)

[201109/](#)

Left-click

“201105”, “201205”,  
“201305”, and so on.

(continued)

You can download the corresponding operational forecast data from “NWP Model Prediction” page at TCC website.  
The method of downloading index data is as follows.

The screenshot shows the Tokyo Climate Center website interface. At the top, there are logos for the Japan Meteorological Agency and WMO. A 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 title is 'Download Gridded Data files'. The main content area is divided into '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 data), 'Hindcast Gridded Data' (with sub-links for 1-month, 3-month, and 7-month data), 'Statistical Downscaling for Three-month and Warm/Cold Season Forecasts' (with a sub-link 'Indices and Gridded Data' circled in red), and 'Animation of 1-month Model Prediction (Experimental Product)'. A blue callout bubble with the text 'Left-click' points to the 'Indices and Gridded Data' link.

(continued)

## Statistical Downscaling for Producing Guidance

### Introduction

TCC provides a set of indices and Grid Point Value (GPV) data which can be of use for producing three historical climate data (monthly/three-month mean temperature and/or precipitation), you can find which 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

### 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)
  - [Monthly Indices derived from hindcast experiments by the CGCM](#)

**“For Three-month Forecast”  
(not “For Warm/Cold Season Forecast”)**

### 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](#)

## Index of /indices/gpv\_indices/4mE

Name
<a href="#">Parent Directory</a>
<a href="#">201309/</a>
<a href="#">201308/</a>
<a href="#">201307/</a>
<a href="#">201306/</a>
<a href="#">201305/</a>
<a href="#">201304/</a>
<a href="#">201303/</a>
<a href="#">201302/</a>
<a href="#">201301/</a>
<a href="#">201212/</a>
<a href="#">201211/</a>
<a href="#">201210/</a>
<a href="#">201209/</a>
<a href="#">201208/</a>
<a href="#">201207/</a>
<a href="#">201206/</a>
<a href="#">201205/</a>
<a href="#">201204/</a>
<a href="#">201203/</a>
<a href="#">201202/</a>
<a href="#">201201/</a>
<a href="#">201112/</a>
<a href="#">201111/</a>
<a href="#">201110/</a>
<a href="#">201109/</a>

Left-click

Left-click

**“201105”, “201205”,  
“201305”, and so on.**

(continued)

Seasonal

INDEX	NINO3SST	NINOWEST	IOBW SST	WIO SST	EIO SST	IOBWRain	WIO RAIN	EIO RAIN	SAMOI RAIN	WNP RAIN	SEAsia RAIN	MC RAIN	DL RAIN	Z5002030	Z5003040	Z5004050	Z5005060	THICKMID	THICKNH
JJA	-0.29	0.22	0	0.06	-0.03	-0.09	-0.09	-0.04	0.22	0.28	0.48	0.32	0.15	3.09	3.92	5.14	6.01	0.18	0.21
June	-0.51	0.19	-0.06	0.02	-0.06	-0.19	-0.16	0.2	0.55	0.73	1.19	-0.15	-0.06	4.88	4.11	4.42	7.3	0.11	0.14
July	-0.28	0.21	-0.01	0.05	-0.04	-0.05	-0.07	-0.15	-0.05	-0.06	-0.06	0.67	0.37	2.59	5.14	5.36	5.7	0.2	0.26
August	-0.08	0.26	0.06	0.11	0.01	-0.03	-0.04	-0.17	0.16	0.17	0.31	0.43	0.15	1.78	2.5	5.63	5.04	0.23	0.24

Monthly

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)

Sorry, not available now.

(continued)

# List of 3-month forecasts of JMA

Target Period	Initial Date (Hindcast)	Dataset of Hindcast (in ITACS)	Directory Names of Operational Forecast	Initial Date (Operational Forecast)
Jan-Feb-Mar	2nd Dec	CGCM-HC12	YYYY12/	12th Dec
Feb-Mar-Apr	1st Jan	CGCM-HC01	YYYY01/	11th Jan
Mar-Apr-May	31st Jan	CGCM-HC02	YYYY02/	10th Feb
Apr-May-Jun	2nd Mar	CGCM-HC03	YYYY03/	7th Mar
May-Jun-Jul	1st Apr	CGCM-HC04	YYYY04/	11th Apr
Jun-Jul-Aug	1st May	CGCM-HC05 (TCC-TS2)	YYYY05/	11th May
Jul-Aug-Sep	31st May	CGCM-HC06	YYYY06/	10th Jun
Aug-Sep-Oct	30th Jun	CGCM-HC07	YYYY07/	10th Jul
Sep-Oct-Nov	30th Jul	CGCM-HC08	YYYY08/	9th Aug
Oct-Nov-Dec	29th Aug	CGCM-HC09	YYYY09/	8th Sep
Nov-Dec-Jan	28th Sep	CGCM-HC10	YYYY10/	13th Oct
Dec-Jan-Feb	28th Oct	CGCM-HC11	YYYY11/	12th Nov

\* YYYY: Year