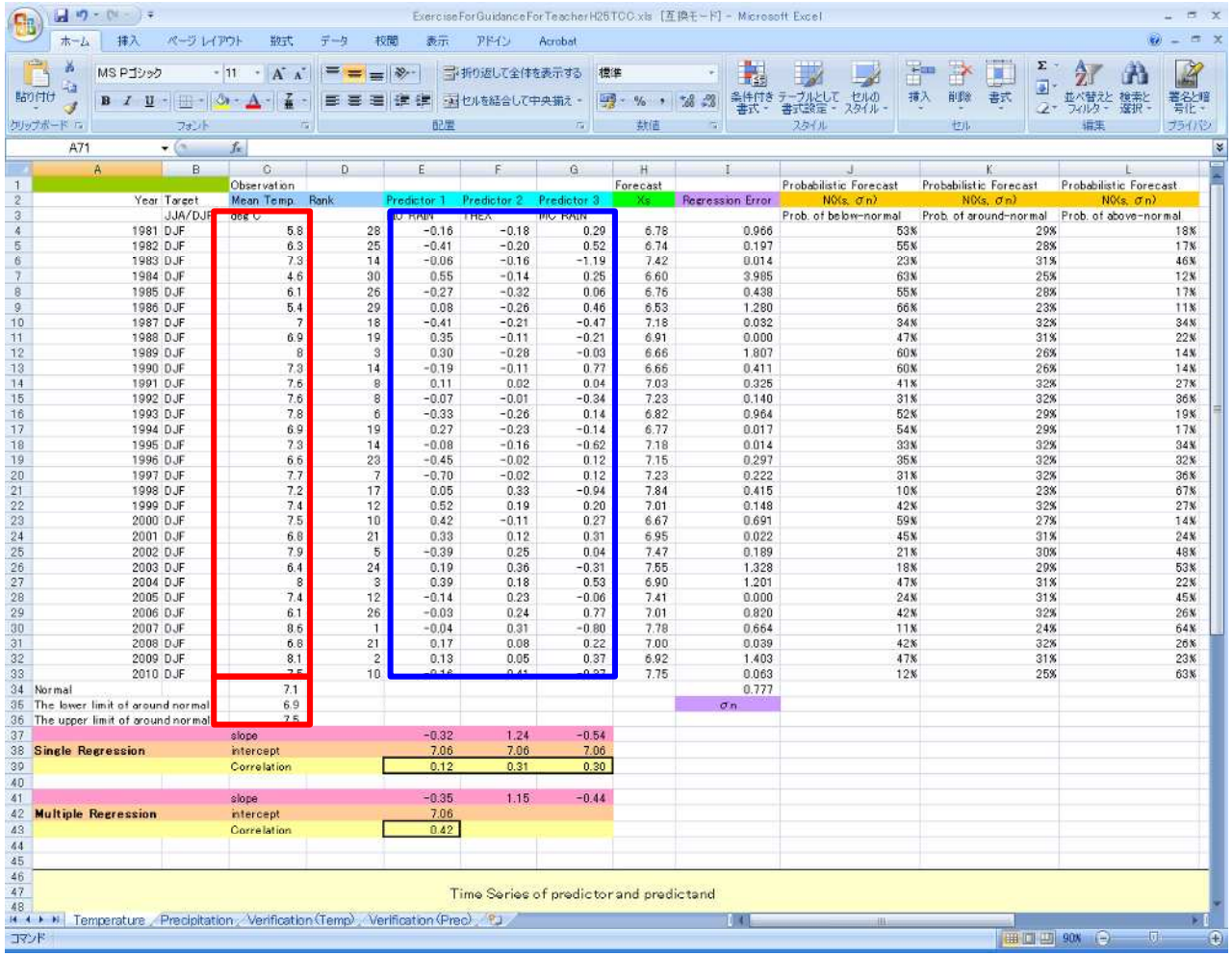
Q&A

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?

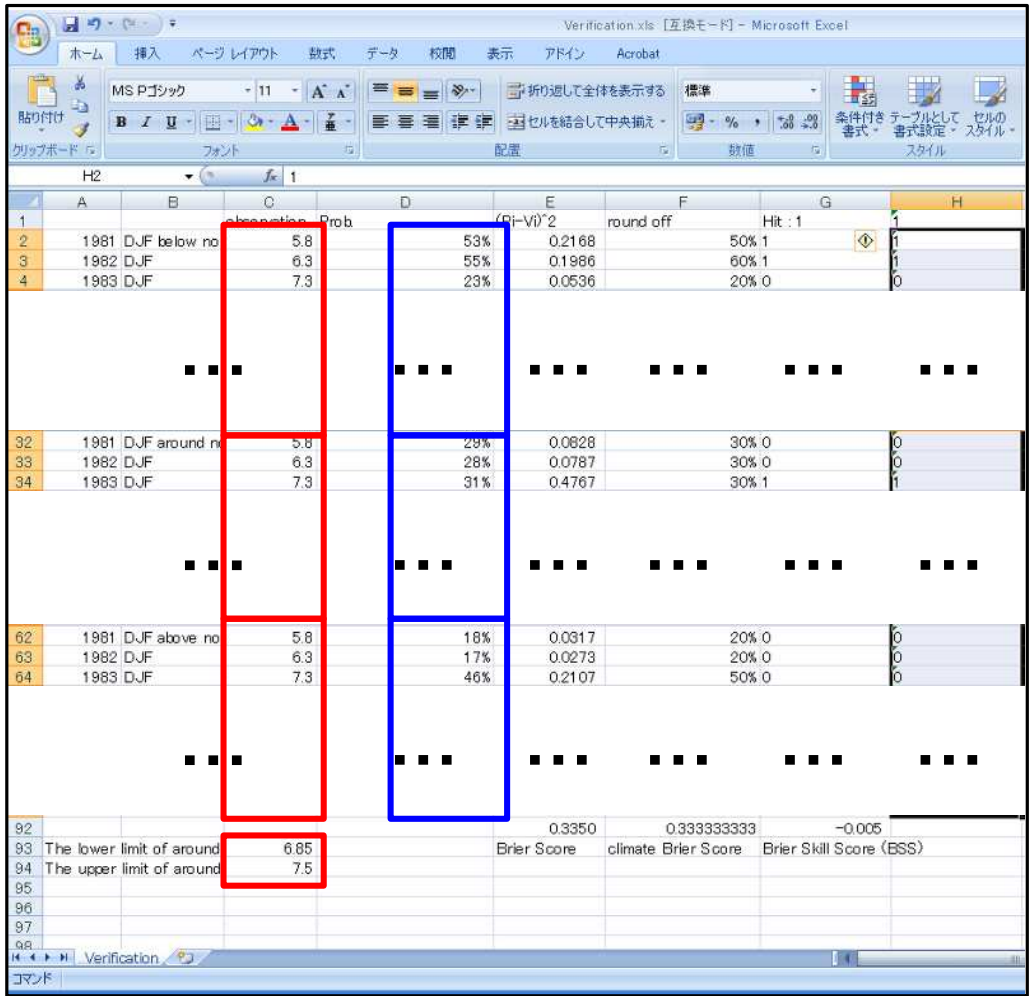
A: If you exchange observation data (including the values of normal, the lower limit of around normal, and the upper limit of around normal) and/or predictors, no change is necessary for other parts of ProducingGuidance.xls. The values of other cells and the graph are updated automatically.



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.

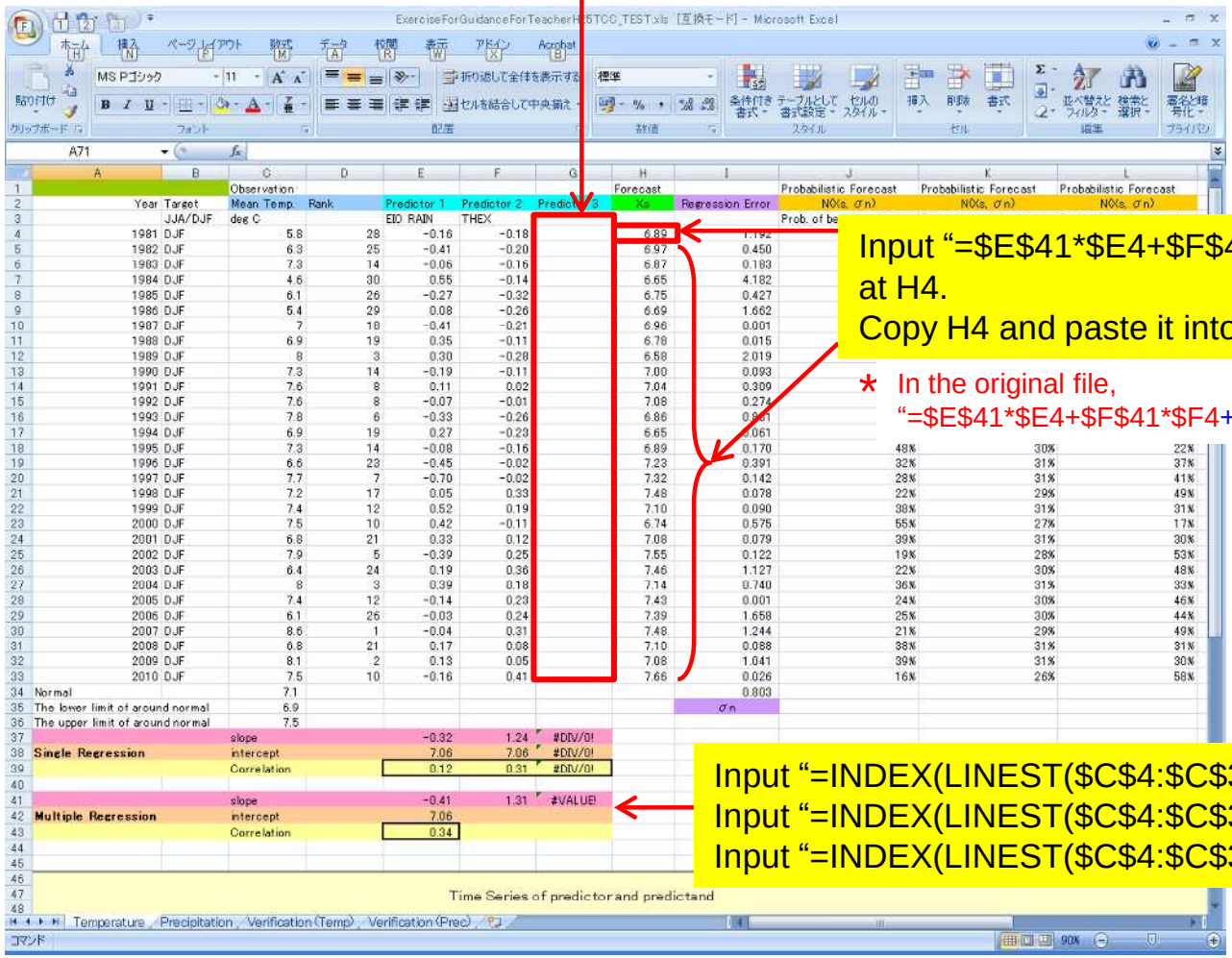


Copy G2:G91, and paste their values into H2:H91 (functions → values).

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”

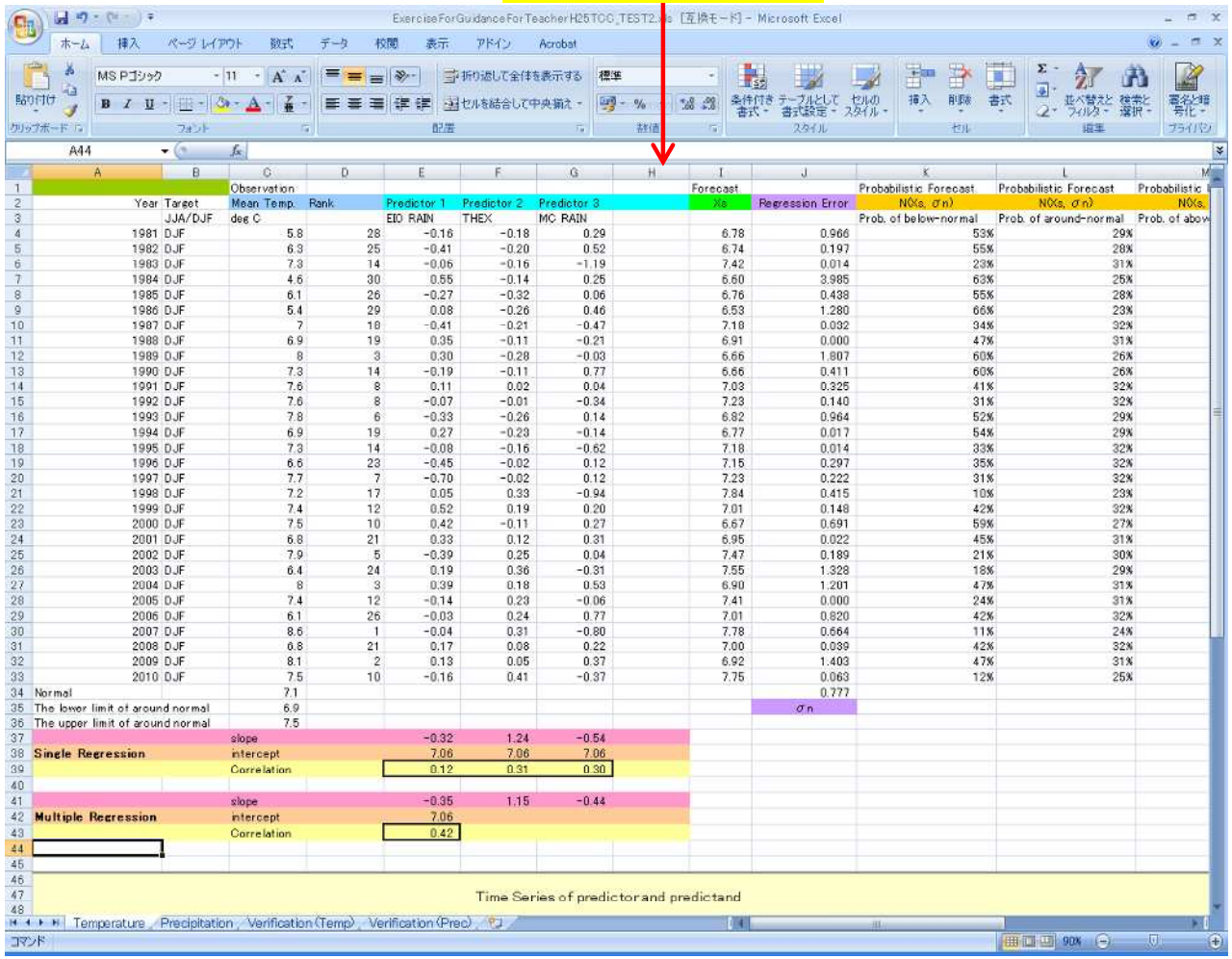
Input “=INDEX(LINEST($C$4:$C$33,$E$4:$F$33,TRUE,FALSE),2)” at E41.
Input “=INDEX(LINEST($C$4:$C$33,$E$4:$F$33,TRUE,FALSE),1)” at F41.
Input “=INDEX(LINEST($C$4:$C$33,$E$4:$F$33,TRUE,FALSE),3)” at E42.

* 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).

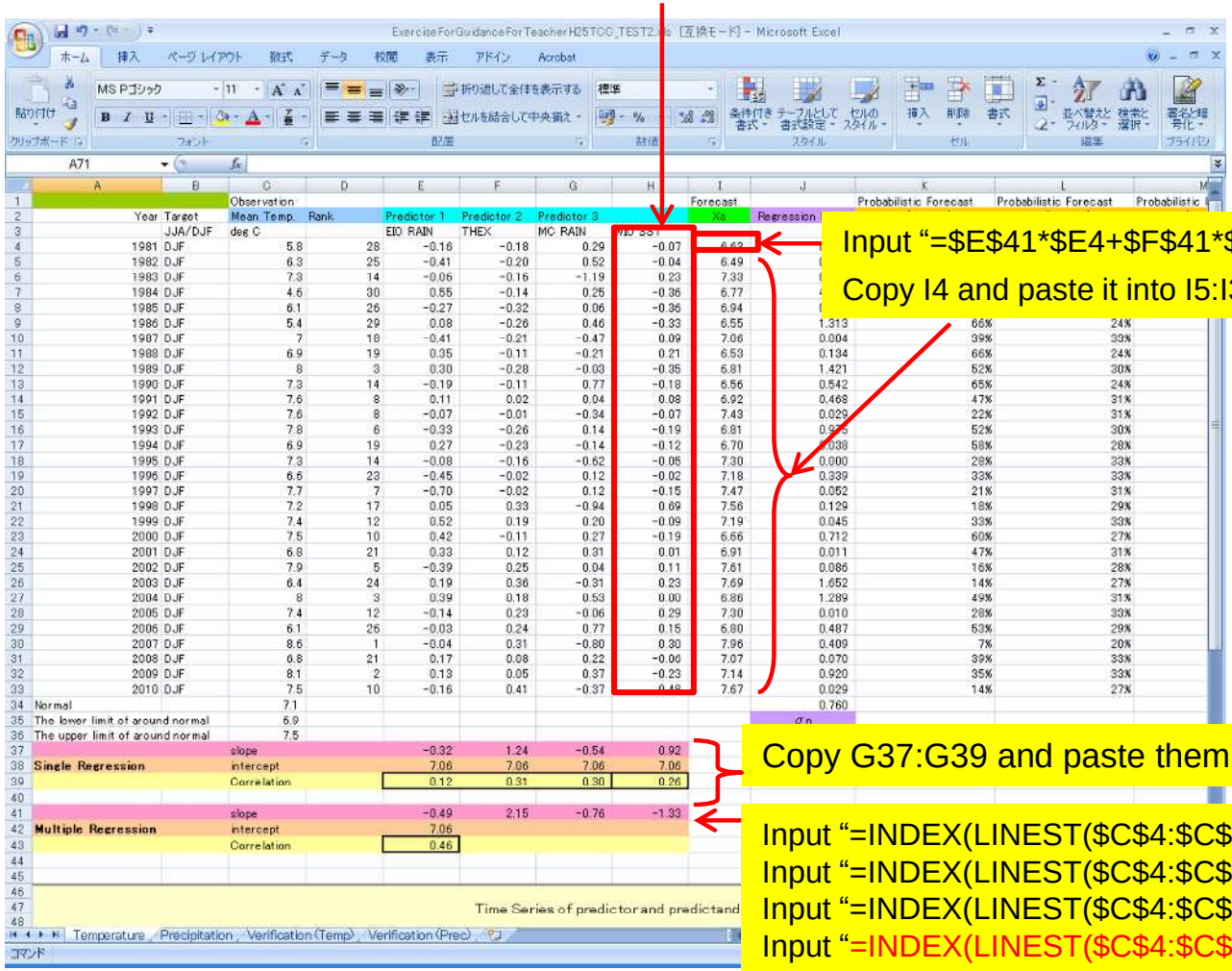


	A	B	C	D	E	F	G	H	I	J	K	L	M
1			Observation						Forecast		Probabilistic Forecast	Probabilistic Forecast	Probabilistic
2	Year	Target	Mean Temp.	Rank	Predictor 1	Predictor 2	Predictor 3		Xe	Regression Error	N(Xe, σ'n)	N(Xe, σ'n)	N(Xe,
3		JJA/DJF	deg C		EIO_RAIN	THEX	MC_RAIN				Prob. of below-normal	Prob. of around-normal	Prob. of abov
4	1981	DJF	5.8	28	-0.16	-0.18	0.29		6.78	0.966	53%	29%	
5	1982	DJF	6.3	25	-0.41	-0.20	0.52		6.74	0.197	55%	28%	
6	1983	DJF	7.3	14	-0.06	-0.16	-1.19		7.42	0.014	23%	31%	
7	1984	DJF	4.6	30	0.55	-0.14	0.25		6.60	3.985	63%	25%	
8	1985	DJF	6.1	26	-0.27	-0.32	0.06		6.76	0.438	55%	28%	
9	1986	DJF	5.4	29	0.08	-0.26	0.46		6.53	1.280	66%	23%	
10	1987	DJF	7	18	-0.41	-0.21	-0.47		7.18	0.032	34%	32%	
11	1988	DJF	6.9	19	0.35	-0.11	-0.21		6.91	0.000	47%	31%	
12	1989	DJF	8	3	0.30	-0.28	-0.03		6.66	1.807	60%	26%	
13	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%	
15	1992	DJF	7.6	8	-0.07	-0.01	-0.34		7.23	0.140	31%	32%	
16	1993	DJF	7.8	6	-0.33	-0.26	0.14		6.82	0.964	52%	29%	
17	1994	DJF	6.9	19	0.27	-0.23	-0.14		6.77	0.017	54%	29%	
18	1995	DJF	7.3	14	-0.08	-0.16	-0.62		7.18	0.014	33%	32%	
19	1996	DJF	6.6	23	-0.45	-0.02	0.12		7.15	0.297	35%	32%	
20	1997	DJF	7.7	7	-0.70	-0.02	0.12		7.23	0.222	31%	32%	
21	1998	DJF	7.2	17	0.05	0.33	-0.94		7.84	0.415	10%	23%	
22	1999	DJF	7.4	12	0.52	0.19	0.20		7.01	0.148	42%	32%	
23	2000	DJF	7.5	10	0.42	-0.11	0.27		6.67	0.691	59%	27%	
24	2001	DJF	6.8	21	0.33	0.12	0.31		6.95	0.022	45%	31%	
25	2002	DJF	7.9	5	-0.39	0.25	0.04		7.47	0.189	21%	30%	
26	2003	DJF	6.4	24	0.19	0.36	-0.31		7.55	1.328	18%	29%	
27	2004	DJF	8	3	0.39	0.18	0.53		6.90	1.201	47%	31%	
28	2005	DJF	7.4	12	-0.14	0.23	-0.06		7.41	0.000	24%	31%	
29	2006	DJF	6.1	26	-0.03	0.24	0.77		7.01	0.820	42%	32%	
30	2007	DJF	8.6	1	-0.04	0.31	-0.80		7.78	0.664	11%	24%	
31	2008	DJF	6.8	21	0.17	0.08	0.22		7.00	0.039	42%	32%	
32	2009	DJF	8.1	2	0.13	0.05	0.37		6.92	1.403	47%	31%	
33	2010	DJF	7.5	10	-0.16	0.41	-0.37		7.75	0.063	12%	25%	
34	Normal		7.1							0.777			
35	The lower limit of around normal		6.9							σ'n			
36	The upper limit of around normal		7.5										
37			slope		-0.32	1.24	-0.54						
38	Single Regression		intercept		7.06	7.06	7.06						
39			Correlation		0.12	0.31	0.30						
40													
41			slope		-0.35	1.15	-0.44						
42	Multiple Regression		intercept		7.06								
43			Correlation		0.42								
44													
45													
46													
47					Time Series of predictor and predictand								
48													

Temperature | Precipitation | Verification (Temp) | Verification (Prec)

(continued)

Input the data of the predictor you want to add.



	A	B	C	D	E	F	G	H	I	J	K	L	M
1			Observation						Forecast		Probabilistic Forecast	Probabilistic Forecast	Probabilistic
2	Year	Target	Mean Temp.	Rank	Predictor 1	Predictor 2	Predictor 3		Xe	Regression			
3		JJA/DJF	deg C		EIO RAIN	THEX	MC RAIN	MJJ SST					
4	1981	DJF	5.8	28	-0.16	-0.18	0.29	-0.07	6.63				
5	1982	DJF	6.3	25	-0.41	-0.20	0.52	-0.04	6.49				
6	1983	DJF	7.3	14	-0.06	-0.16	-1.19	0.23	7.33				
7	1984	DJF	4.6	30	0.55	-0.14	0.25	-0.36	6.77				
8	1985	DJF	6.1	26	-0.27	-0.32	0.06	-0.36	6.94				
9	1986	DJF	5.4	29	0.08	-0.26	0.46	-0.33	6.55	1.313	66%	24%	
10	1987	DJF	7	18	-0.41	-0.21	-0.47	0.09	7.06	0.004	39%	33%	
11	1988	DJF	6.9	19	0.35	-0.11	-0.21	0.21	6.53	0.194	66%	24%	
12	1989	DJF	8	3	0.30	-0.28	-0.03	-0.35	6.81	1.421	52%	30%	
13	1990	DJF	7.3	14	-0.19	-0.11	0.77	-0.18	6.56	0.542	65%	24%	
14	1991	DJF	7.6	8	0.11	0.02	0.04	0.08	6.92	0.468	47%	31%	
15	1992	DJF	7.6	8	-0.07	-0.01	-0.34	-0.07	7.43	0.029	22%	31%	
16	1993	DJF	7.8	6	-0.33	-0.26	0.14	-0.19	6.81	0.[illegible]	52%	30%	
17	1994	DJF	6.9	19	0.27	-0.23	-0.14	-0.12	6.70	0.038	58%	28%	
18	1995	DJF	7.3	14	-0.08	-0.16	-0.62	-0.05	7.30	0.000	28%	33%	
19	1996	DJF	6.6	23	-0.45	-0.02	0.12	-0.02	7.18	0.339	33%	33%	
20	1997	DJF	7.7	7	-0.70	-0.02	0.12	-0.15	7.47	0.052	21%	31%	
21	1998	DJF	7.2	17	0.05	0.33	-0.94	0.69	7.56	0.129	18%	29%	
22	1999	DJF	7.4	12	0.52	0.19	0.20	-0.09	7.19	0.045	33%	33%	
23	2000	DJF	7.5	10	0.42	-0.11	0.27	-0.19	6.66	0.712	60%	27%	
24	2001	DJF	6.8	21	0.33	0.12	0.31	0.01	6.91	0.011	47%	31%	
25	2002	DJF	7.9	5	-0.39	0.25	0.04	0.11	7.61	0.086	16%	28%	
26	2003	DJF	6.4	24	0.19	0.36	-0.31	0.23	7.69	1.652	14%	27%	
27	2004	DJF	8	3	0.39	0.18	0.53	0.00	6.86	1.289	49%	31%	
28	2005	DJF	7.4	12	-0.14	0.23	-0.06	0.29	7.30	0.010	28%	33%	
29	2006	DJF	6.1	26	-0.03	0.24	0.77	0.15	6.80	0.487	53%	29%	
30	2007	DJF	8.6	1	-0.04	0.31	-0.80	0.30	7.96	0.409	7%	20%	
31	2008	DJF	6.8	21	0.17	0.08	0.22	-0.06	7.07	0.070	39%	33%	
32	2009	DJF	8.1	2	0.13	0.05	0.37	-0.23	7.14	0.920	35%	33%	
33	2010	DJF	7.5	10	-0.16	0.41	-0.37	0.48	7.67	0.029	14%	27%	
34	Normal		7.1							0.760			
35	The lower limit of around normal		6.9							σn			
36	The upper limit of around normal		7.5										
37			slope		-0.32	1.24	-0.54	0.92					
38	Single Regression		intercept		7.06	7.06	7.06	7.06					
39			Correlation		0.12	0.31	0.30	0.26					
40													
41			slope		-0.49	2.15	-0.76	-1.93					
42	Multiple Regression		intercept		7.06								
43			Correlation		0.46								
44													
45													
46													
47							Time Series of predictor and predictand						
48													

Temperature | Precipitation | Verification (Temp) | Verification (Prec)

コマンド

Input “=$E$41*$E4+$F$41*$F4+$G$41*$G4+$H$41*$H4+$E$42” at I4.

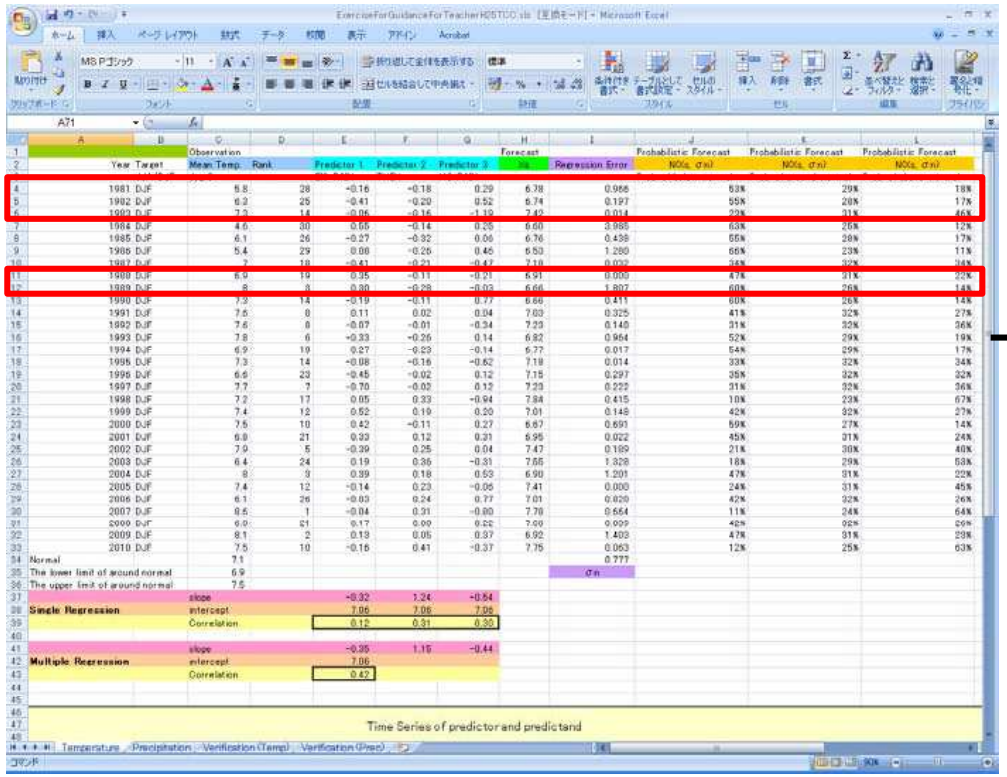
Copy I4 and paste it into I5:I33.

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

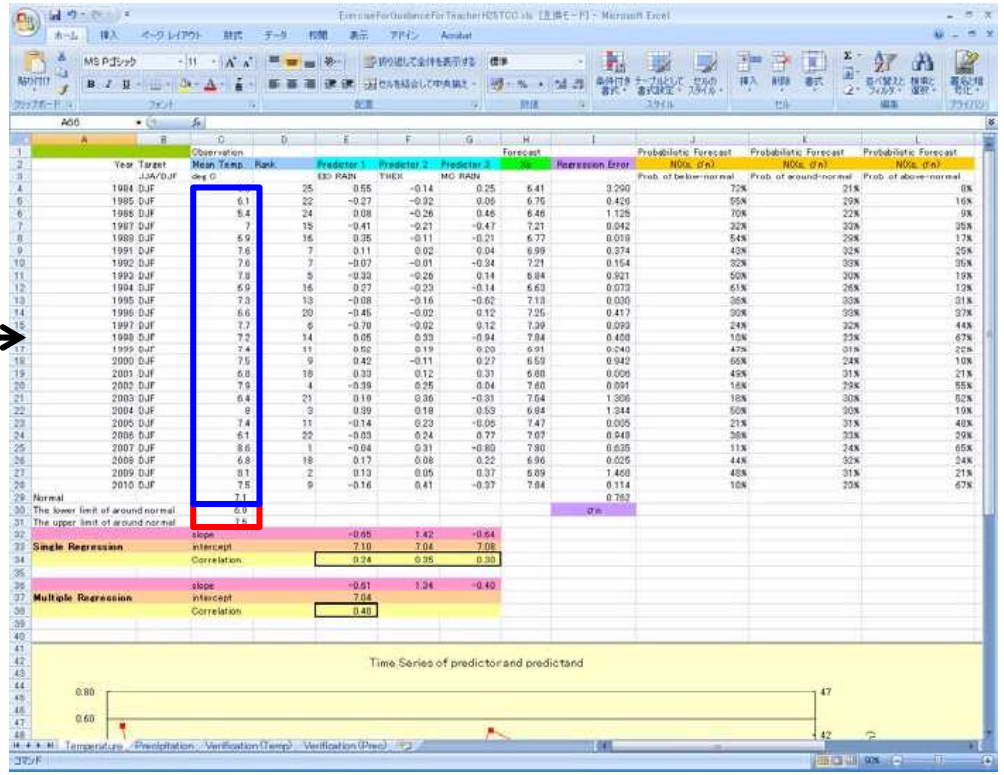
Input “=INDEX(LINEST($C$4:$C$33,$E$4:$H$33,TRUE,FALSE),4)” at E41.
Input “=INDEX(LINEST($C$4:$C$33,$E$4:$H$33,TRUE,FALSE),3)” at F41.
Input “=INDEX(LINEST($C$4:$C$33,$E$4:$H$33,TRUE,FALSE),2)” at G41.
Input “=INDEX(LINEST($C$4:$C$33,$E$4:$H$33,TRUE,FALSE),1)” at H41.
Input “=INDEX(LINEST($C$4:$C$33,$E$4:$H$33,TRUE,FALSE),5)” 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	r
22	2007	8.6	1	1
24	2009	8.1	2	2
19	2004	8.0	3	3
17	2002	7.9	4	4
8	1993	7.8	5	5
12	1997	7.7	6	6
6	1991	7.6	7	7
7	1992	7.6	7	8
15	2000	7.5	9	9
25	2010	7.5	9	10
14	1999	7.4	11	11
20	2005	7.4	11	12
10	1995	7.3	13	13
13	1998	7.2	14	14
4	1987	7.0	15	15
5	1988	6.9	16	16
9	1994	6.9	16	17
16	2001	6.8	18	18
23	2008	6.8	18	19
11	1996	6.6	20	20
18	2003	6.4	21	21
2	1985	6.1	22	22
21	2006	6.1	22	23
3	1986	5.4	24	24
1	1984	4.6	25	25

Upper limit of around normal:

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

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

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

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:

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

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

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

In this example, N=25. So,

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

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

(Corrected in 2013/12/11)

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.

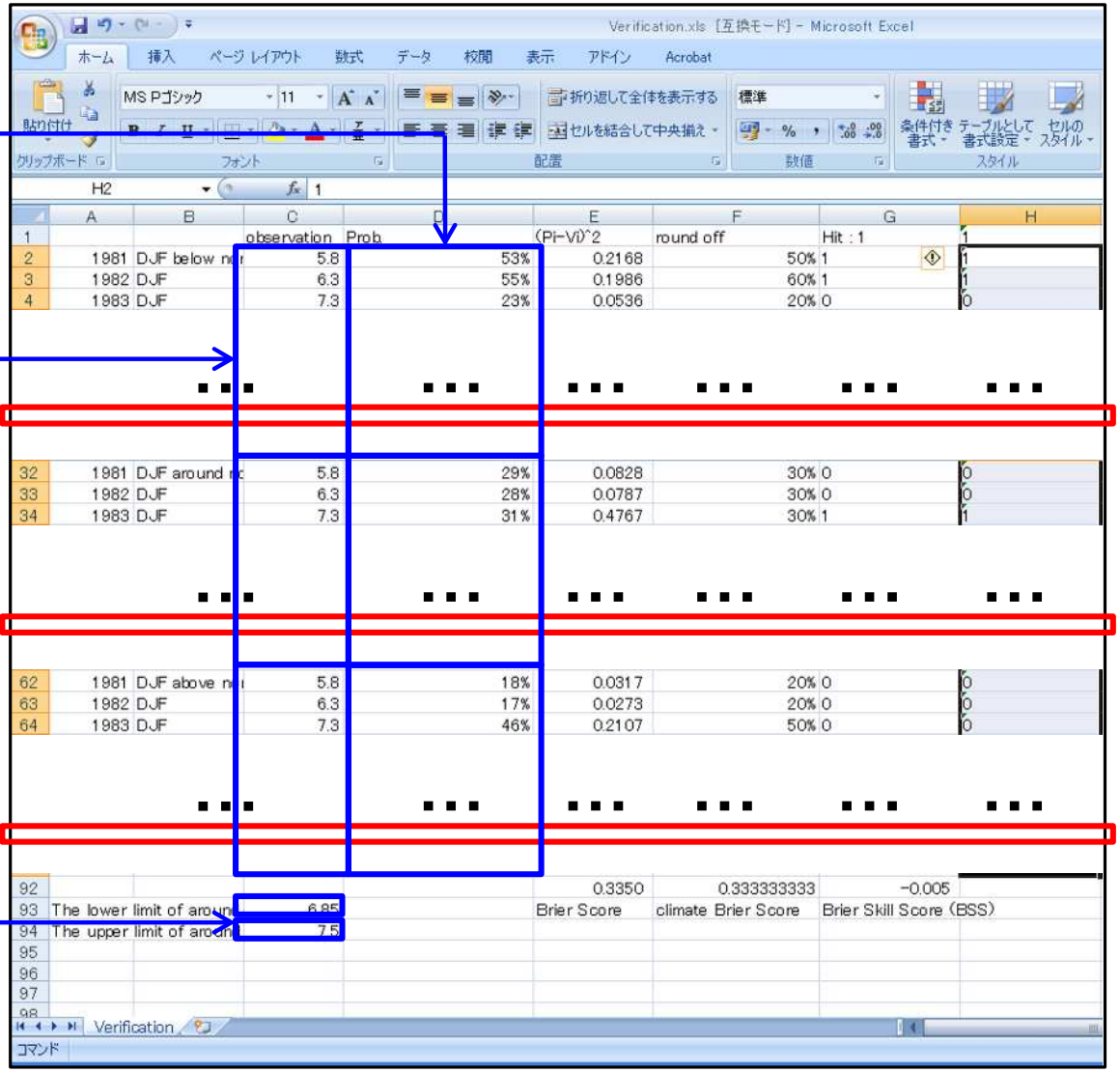
(1)

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.



(3)

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

(4)

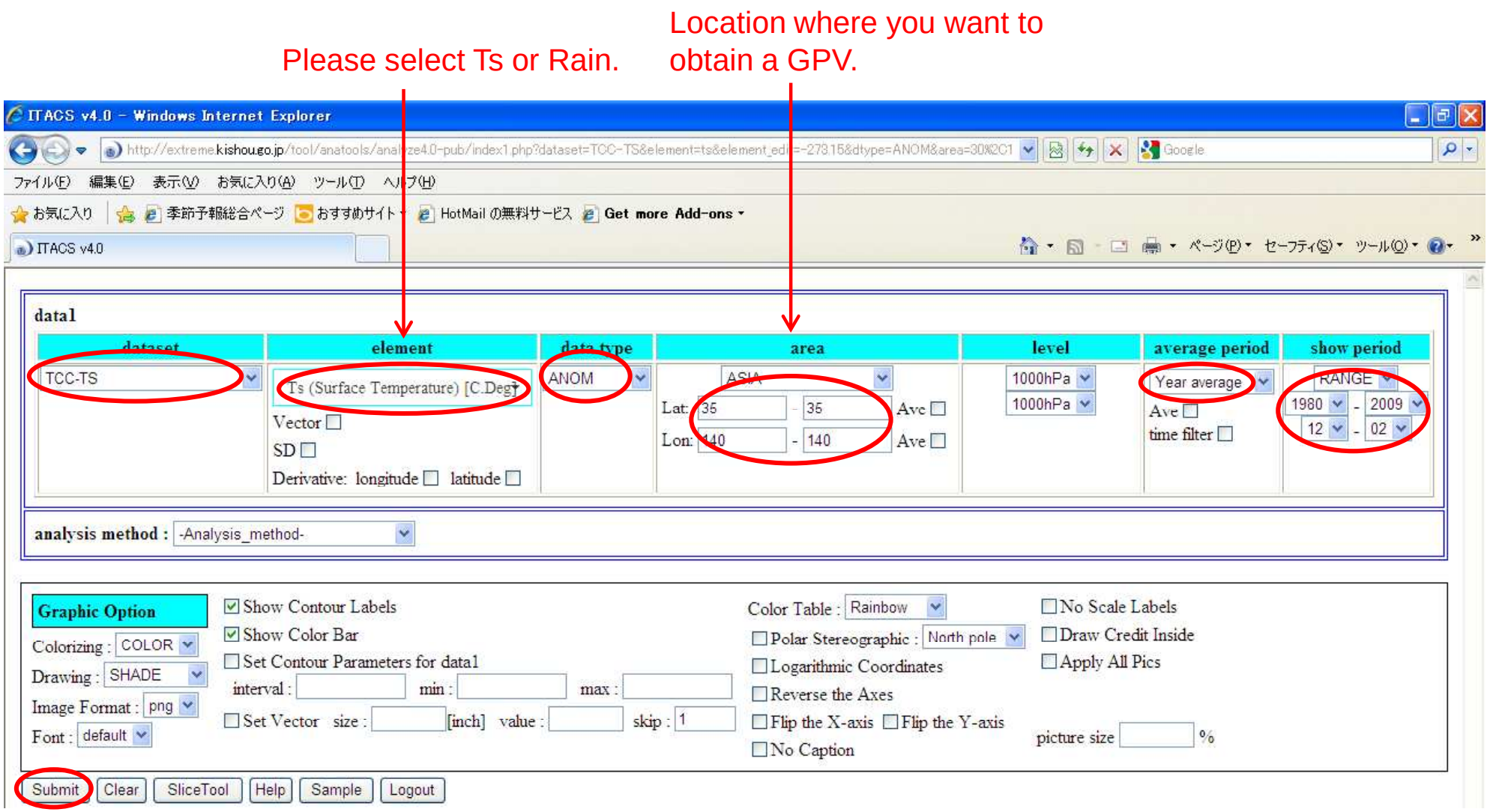
Input "=J3/*N*" at J6 .

(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.

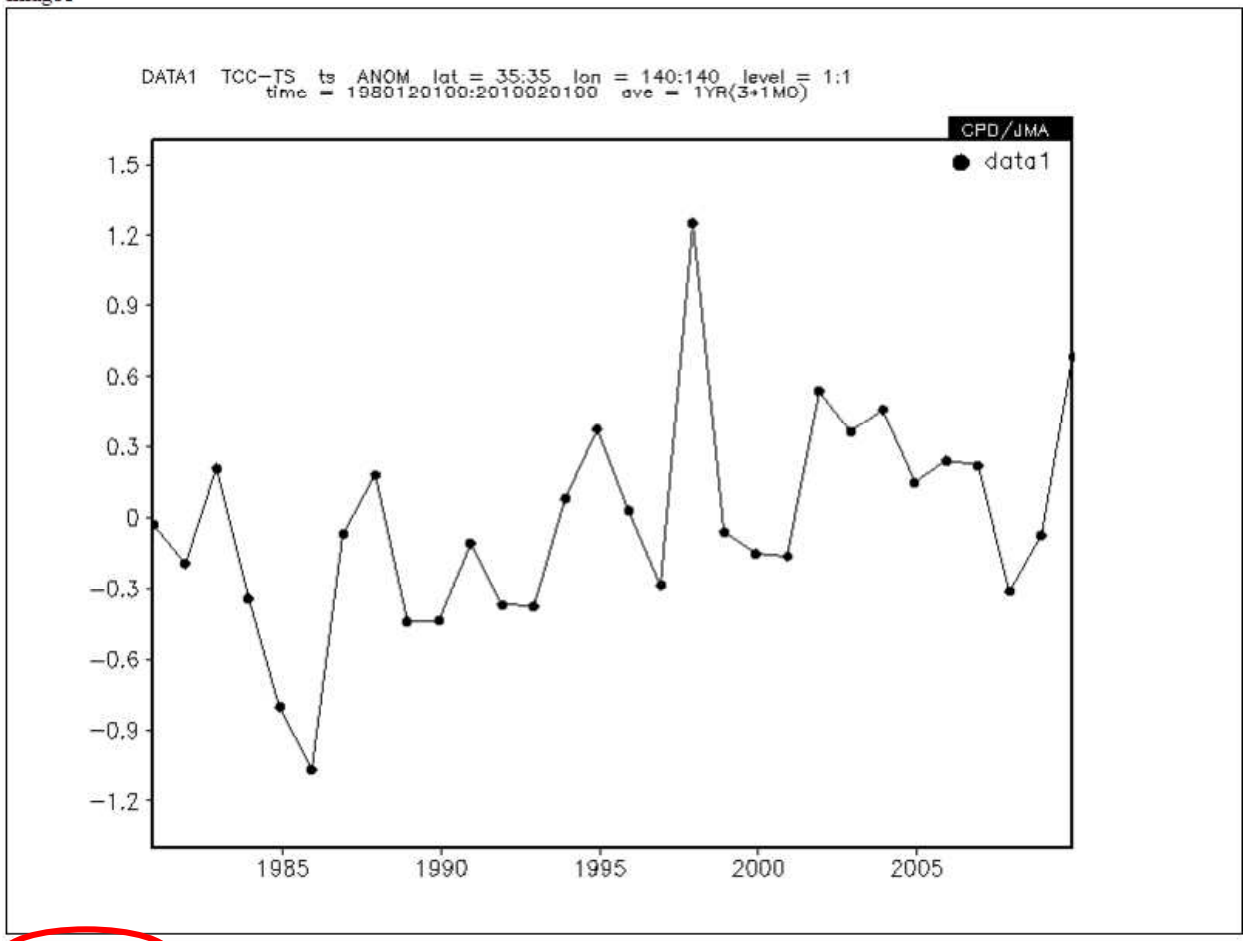


Left-click

(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

pi = 1 pj = 1 nk = 1 nt = 30
-0.029419
-0.195047
0.207296
-0.342061
-0.803446
-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
0.146963
0.239726
0.219351
-0.311238
-0.073465
0.684123
```

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

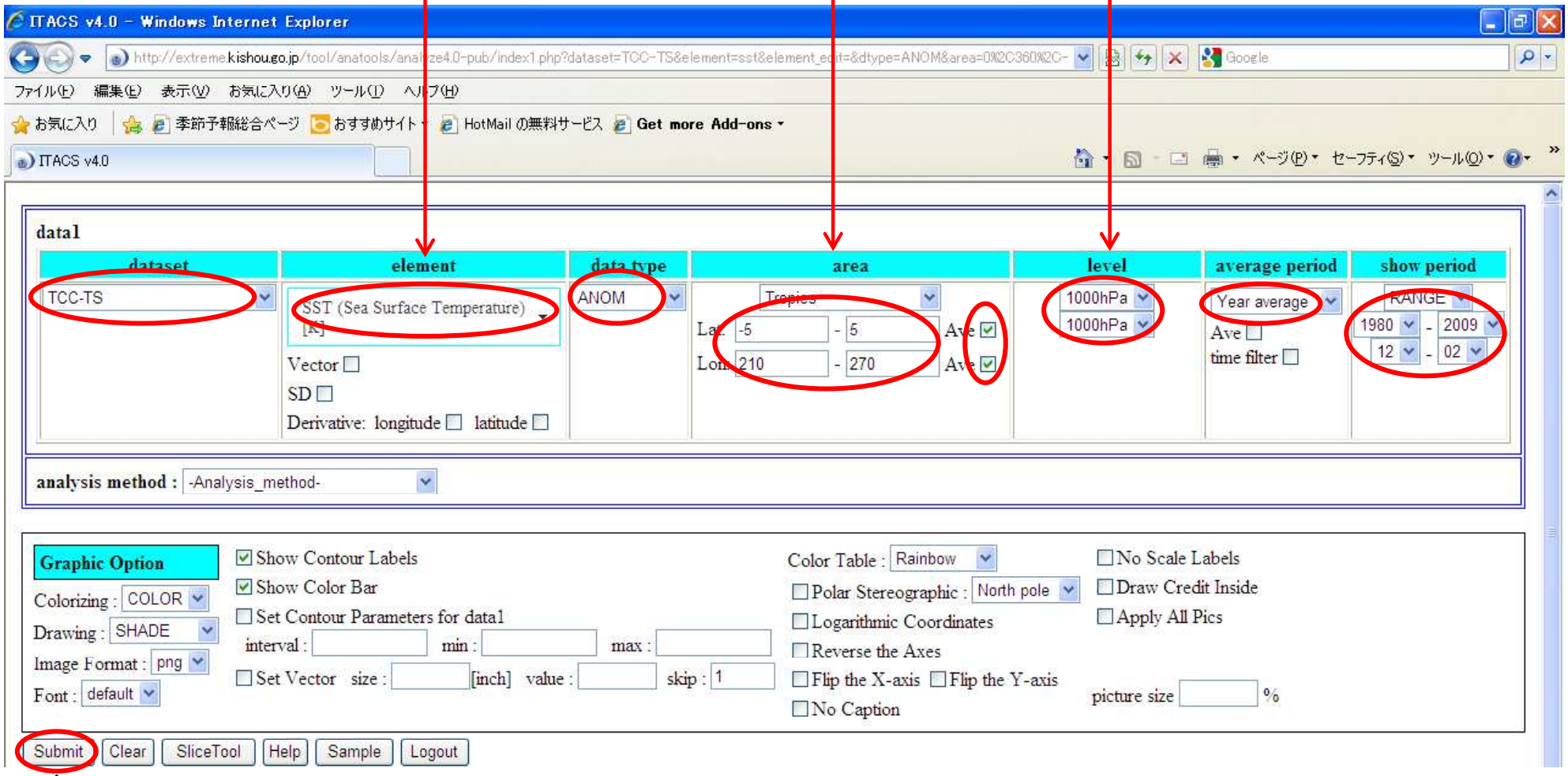
Q: I want to obtain hindcast index data other than those in Indices.xls. What should I do?

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

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

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

Area of the index you want to obtain.

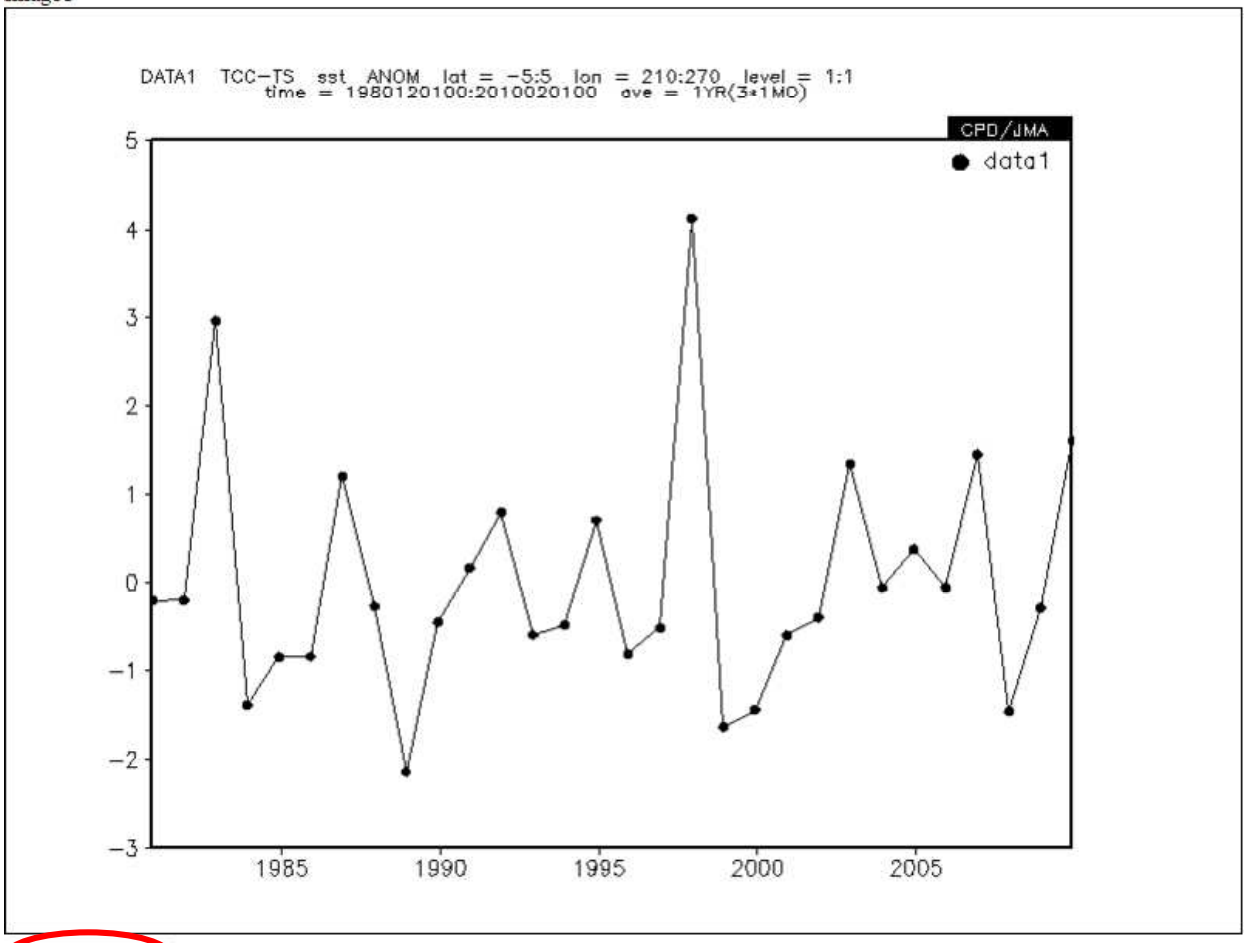


Left-click

(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 : 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

pi = 1 pj = 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
-0.282182
1.588976
```

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

(continued)

Thickness variables can be calculated by using the following equation:

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

γ_1, γ_2: Geopotential height anomalies averaged over the corresponding area

p_1, p_2: Pressure surfaces

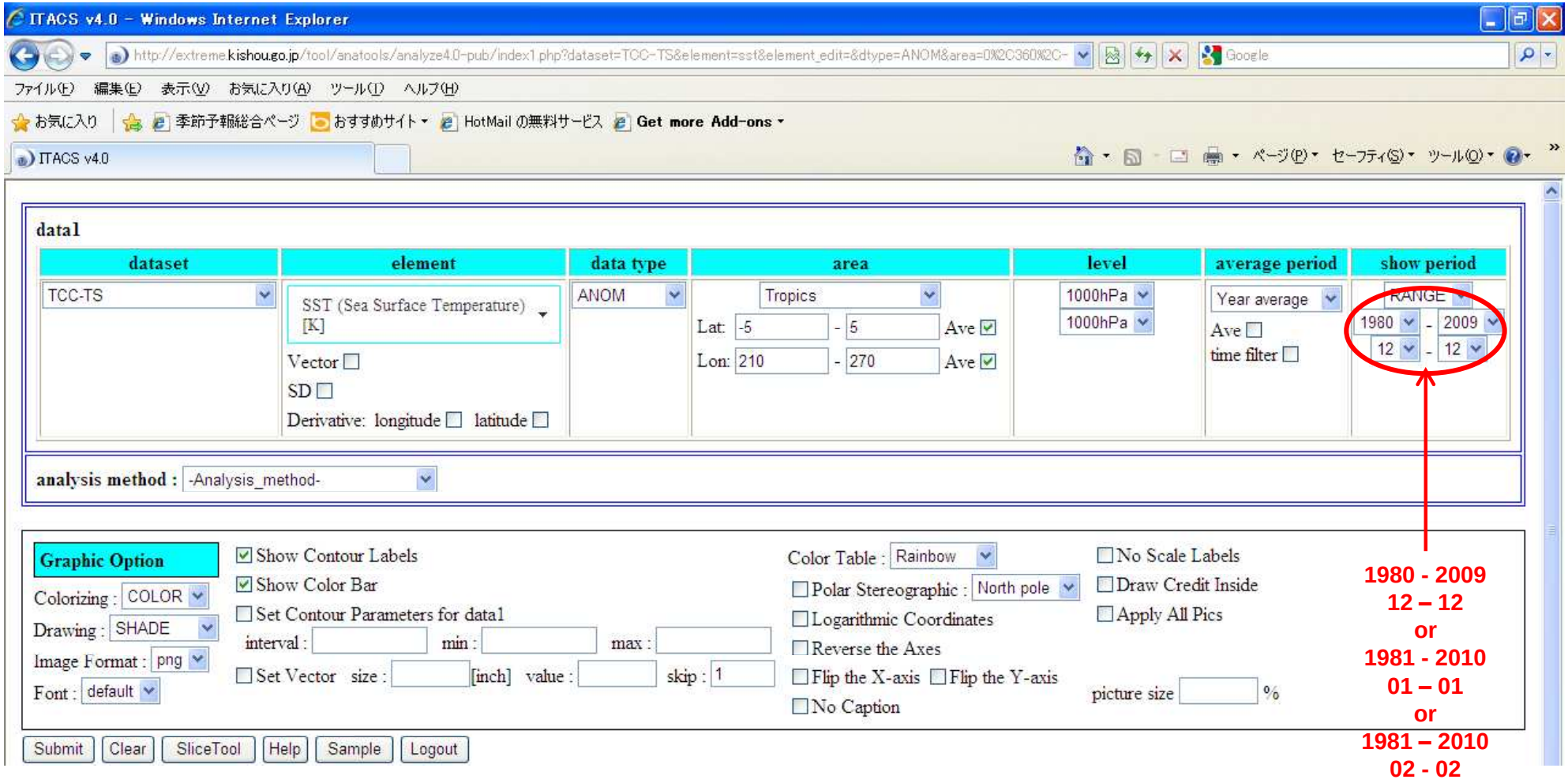
For example,

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 anomaly)-(Z850 anomaly)} *9.8/287/ln(850/300)
THEX ={(Z300 anomaly)-(Z850 anomaly)} *9.8/287/ln(850/300)
THTR ={(Z100 anomaly)-(Z850 anomaly)} *9.8/287/ln(850/100)

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

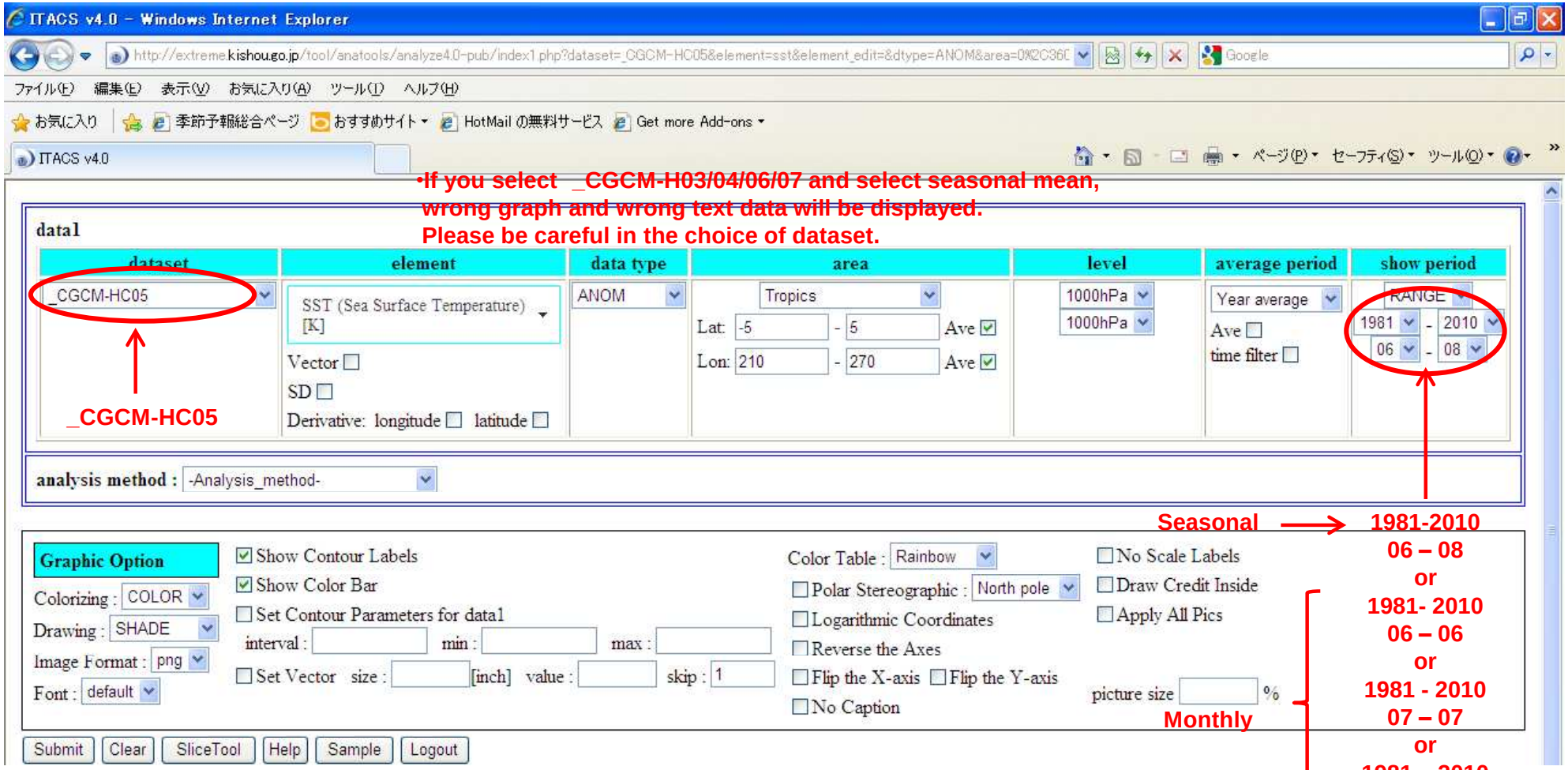
A: Please use ITACS. The procedure is as follows.



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

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

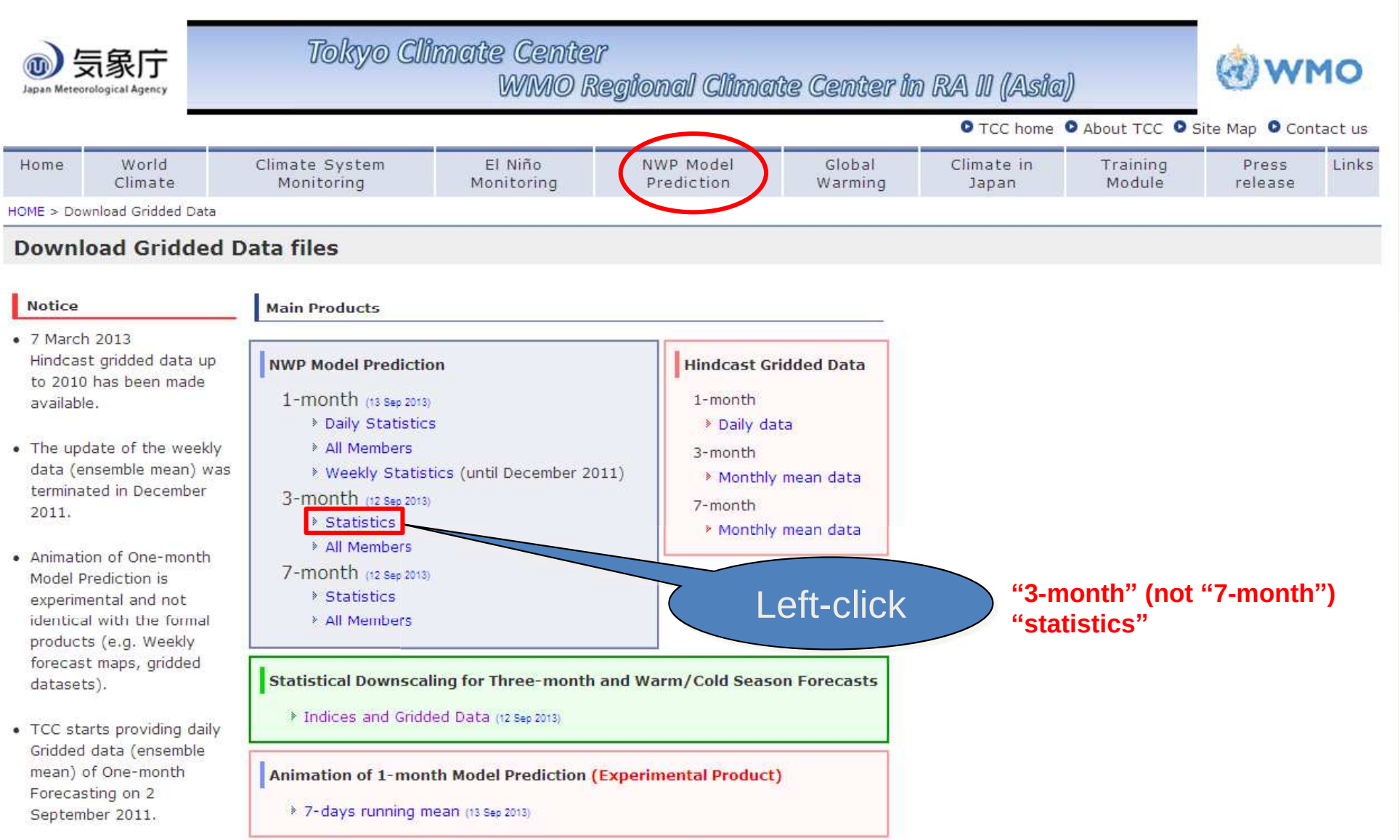
A: Hindcast data for all the 3-month forecasts are available. Please use ITACS. For example, the procedure for the June-July-August forecast (initial date: 1st May) is as follows.



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



(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 na 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° × 2.5°
  - 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://
  - 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	kg m^{-2} day^{-1}
211	Daily mean precipitation anomaly	kg m^{-2} day^{-1}
212	Specific humidity anomaly	kg kg^{-1}
213	Relative humidity anomaly	%

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

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

Index of /model/gpv/4mE/GPV

Name

Parent Directory
201309/
201308/
201307/
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201305/
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201303/
201302/
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201212/
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201210/
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201208/
201207/
201206/
201205/
201204/
201203/
201202/
201201/
201112/
201111/
201110/
201109/

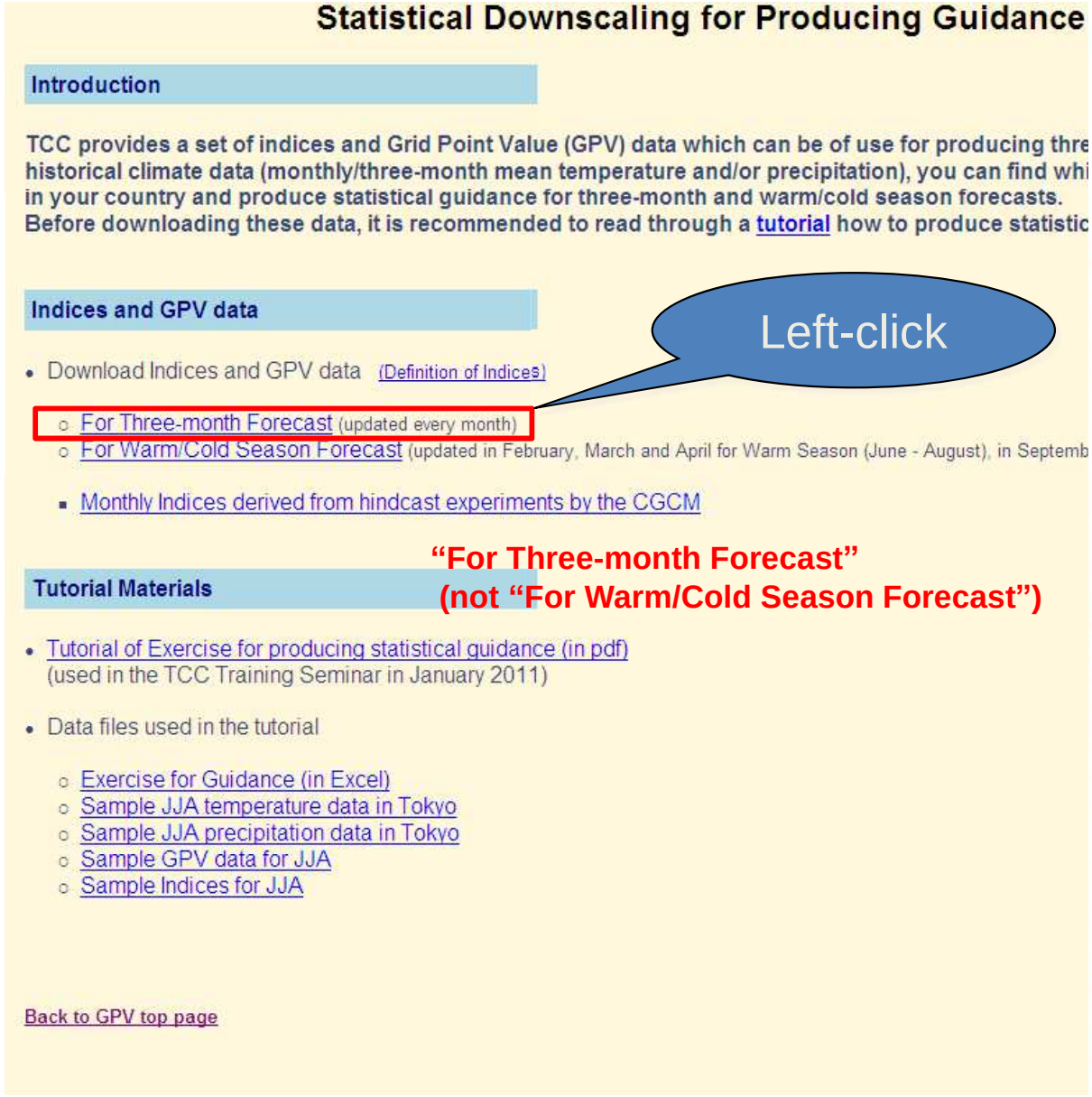
Left-click

“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.

(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 thre
historical climate data (monthly/three-month mean temperature and/or precipitation), you can find whi
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 statistic
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 Septemb
Monthly Indices derived from hindcast experiments by the CGCM
Left-click
"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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Name
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201301/
201212/
201211/
201210/
201209/
201208/
201207/
201206/
201205/
201204/
201203/
201202/
201201/
201112/
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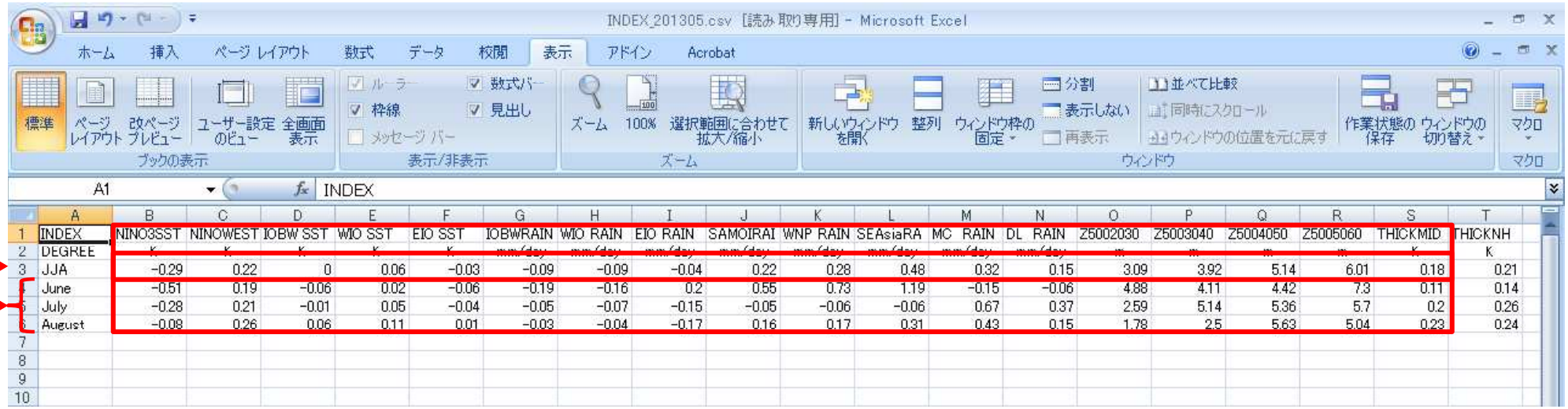
201110/
201109/
Left-click
"201105", "201205",
"201305", and so on.

(continued)

Seasonal

Monthly



INDEX	NINO3SST	NINOWEST	IOBW SST	WIO SST	EIO SST	IOBWRAIN	WIO RAIN	EIO RAIN	SAMOIRAI	WNP RAIN	SEAsiaRA	MC RAIN	DL RAIN	Z5002030	Z5003040	Z5004050	Z5005060	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
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

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