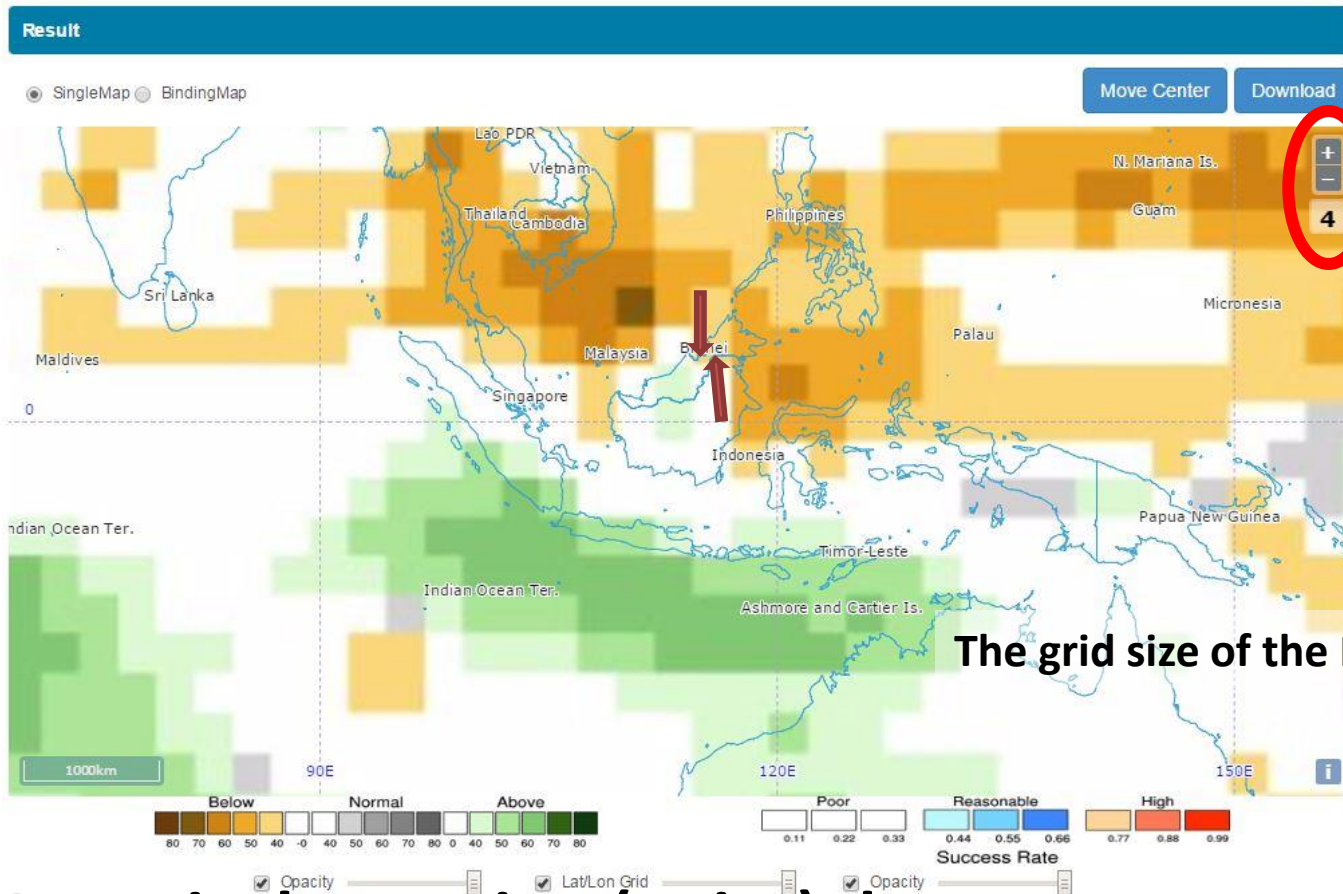


CLIK hands-on (PART III):
Data Processing for CLIK
(<http://clik.apcc21.org>)

Yoojin Kim
1 June 2016

Dynamical Forecast

- You've done seasonal forecast using CLIK in part 2.



ZOOM IN!

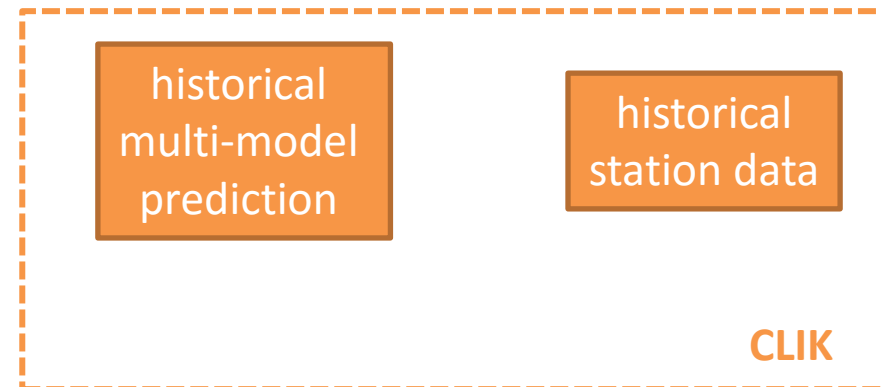
The grid size of the MME is 2.5° by 2.5°.

- A particular station (point) data

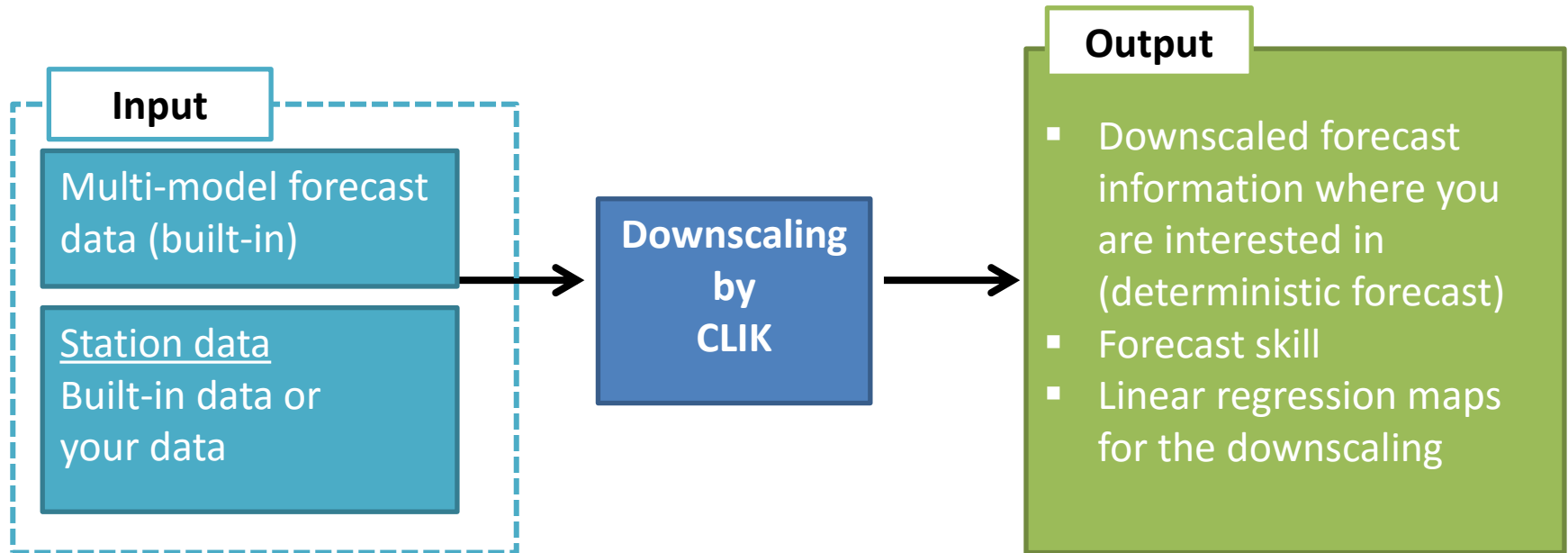
Post Processing, Downscaling

“Post-Processing” “Downscaling in CLIK”

- There are many approaches in downscaling, all of them share similar process.
- The relationships between forecast and observation



Data Processing



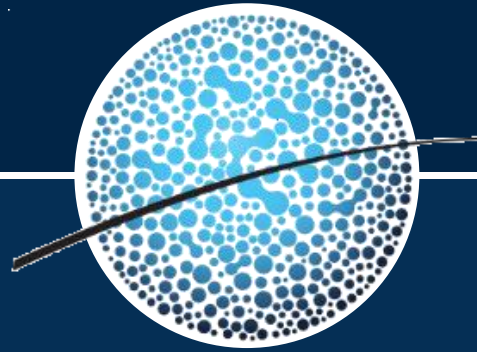
CLIK needs the information of the station for the downscale process.

Entering station data into the CLIK for customization



Data Processing

- **In the part 3, Data processing:**
Making and uploading your station data into the CLIK system.
- **In the part 4, Downscaling**



Then, let's make the station data for the downscaling.

Entering station data into CLIK

A. Preparing Input data

1. Only input monthly mean data (currently)
2. Format: ASCII files with delimited by comma, space, tab, or colon
3. File naming convention: '*.txt' or '*.csv'
4. Input two files: **metadata**, **observation** data
 - 1. metadata file contains information about station.
 - 2. observation data file is the station data itself.
 - You can input data only for one country at a time.
 - 'metadata.txt' & 'korprcp.txt'

Entering station data into CLIK

A. Preparing Input data

1. Metadata file

The first line of this file should contain the following headers:

Name, Station_id, WMO_id, Latitude, Longitude, Undefined, Public

- **Name:** name of the station (string or character array)
- **Station_id:** unique id for the station (integer)
- **WMO_id:** WMO_id for station (integer)
- **Latitude:** latitude for this station (float)
- **Longitude:** longitude for this station (float)
- **Undefined:** missing data (numeric)
- **Public:** true, if your data can be used by others
false, if your data can not be used by others

Entering station data into CLIK

A. Preparing Input data

1. Metadata file

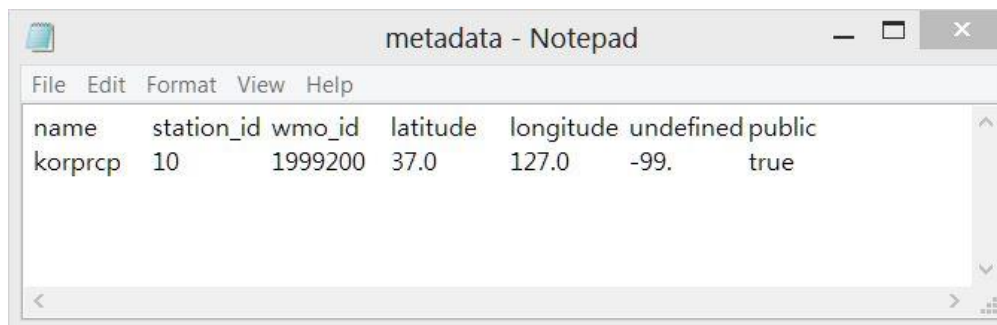
The first line of this file should contain the following headers:

Name, Station_id, WMO_id, Latitude, Longitude, Undefined, Public

Let's make a metadata file.

My example:

- Use Notepad.
- The filename is 'metadata.txt'.



```
File Edit Format View Help
name station_id wmo_id latitude longitude undefined public
korprcp 10 1999200 37.0 127.0 -99. true
```

Entering station data into CLIK

A. Preparing Input data

2. Station data file

The first line of this file should contain the following headers:

Station_id, year, jan, feb, mar, apr, may, jun, jul, aug, sep, oct, nov, dec

You can enter data for either all months of the year or for only available months.

For example, you can input data only for May and September by header of 'Station_id, year, may, sep' and followed appropriate data.

Entering station data into CLIK

A. Preparing Input data

2. Station data file

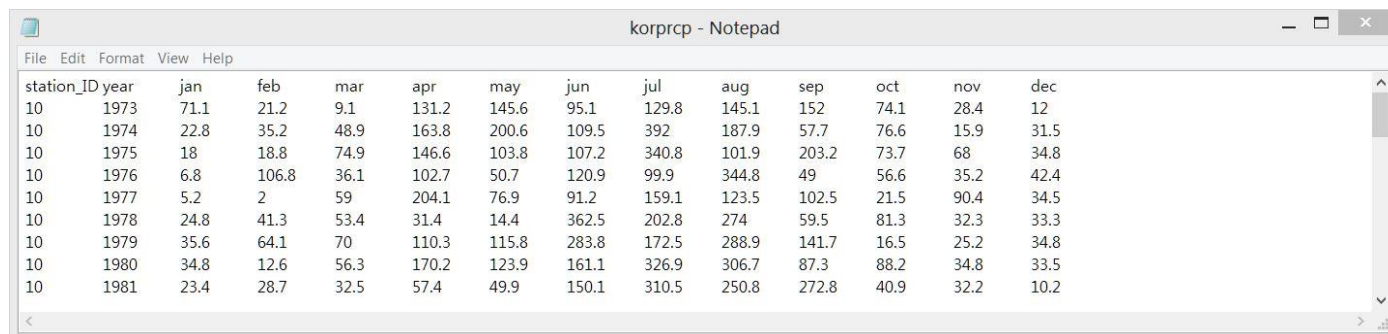
The first line of this file should contain the following headers:

Station_id, year, jan, feb, mar, apr, may, jun, jul, aug, sep, oct, nov, dec

Let's make a station data file.

My example:

- Use Notepad.
- The filename is 'korprcp.txt'.



station_ID	year	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
10	1973	71.1	21.2	9.1	131.2	145.6	95.1	129.8	145.1	152	74.1	28.4	12
10	1974	22.8	35.2	48.9	163.8	200.6	109.5	392	187.9	57.7	76.6	15.9	31.5
10	1975	18	18.8	74.9	146.6	103.8	107.2	340.8	101.9	203.2	73.7	68	34.8
10	1976	6.8	106.8	36.1	102.7	50.7	120.9	99.9	344.8	49	56.6	35.2	42.4
10	1977	5.2	2	59	204.1	76.9	91.2	159.1	123.5	102.5	21.5	90.4	34.5
10	1978	24.8	41.3	53.4	31.4	14.4	362.5	202.8	274	59.5	81.3	32.3	33.3
10	1979	35.6	64.1	70	110.3	115.8	283.8	172.5	288.9	141.7	16.5	25.2	34.8
10	1980	34.8	12.6	56.3	170.2	123.9	161.1	326.9	306.7	87.3	88.2	34.8	33.5
10	1981	23.4	28.7	32.5	57.4	49.9	150.1	310.5	250.8	272.8	40.9	32.2	10.2

Entering station data into CLIK

B. Station data upload module

1. Click “Downscale”. This brings a page list currently available data sets.
2. Click “Create” to create a new data set.
3. Fill up two fields in the new entry page.
 - Name: a identifying name of the dataset
 - Description: describe your dataset
 - Click “Create Dataset”
4. Choose the new data set and click “Edit” button.

The screenshot displays the CLIK Climate Information Toolkit interface. The top navigation bar includes 'Prediction', 'Downscale' (highlighted with a red circle), and 'My Page'. Below this is a 'Select Dataset / Station' section with a table of datasets. A modal window titled 'Dataset base information' is open, showing input fields for 'Name' and 'Description', and a 'Create Dataset' button (highlighted with a red circle). The 'Create' button in the bottom navigation bar is also highlighted with a red circle.

Dataset Name	Countries	Total Stations	Period(prec)	Period(temp)
MCDW(Monthly Climatic Data for th...	The World	6463	1998 ~ 2014	1998 ~ 2014
GHCN	GHCN	3707	1950 ~ 2009	N/A
new		0	N/A	N/A
Aphrodite data interpolated to Mons...	Afghanistan, Bangladesh, Brunei Da...	4918	1961 ~ 2004	N/A
Korea 60 Stations	Korea, Republic of	60	1973 ~ 2008	1973 ~ 2006
koreamean	Korea, Republic of	1	1973 ~ 2014	N/A

Entering station data into CLIK

B. Station data upload module

5. The new page allows you to add metadata and station data for one country at a time.
6. Check the 'Field Separator' and 'Country' for the metadata.
7. Upload the metadata file.
8. Check the 'Field Separator', 'Variable', 'Unit', and 'Country' for the station data.
9. Upload the station data file.
10. Click "Close".

Stations in korean

Station ID	Country	NAME	WMO ID	Latitude	Longitude	Undefined
10	Korea, Republic of	korprp	1999200	37	127	-99

Field Separator: Comma(,) Space() Tab() Colon(:)

Country:

Station definition file (example):

Observed Data of station 10 on Korea, Republic of

Year	Variable	Unit	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1973	PREC	mm/month	71.1	21.2	9.1	131.2	145.6	95.1	129.8	145.1	152	74.1	28.4	12
1974	PREC	mm/month	22.8	35.2	48.9	163.8	200.6	109.5	392	187.9	57.7	76.6	15.9	31.5
1975	PREC	mm/month	18	18.8	74.9	146.6	103.8	107.2	340.8	101.9	203.2	73.7	68	34.8
1976	PREC	mm/month	6.8	106.8	36.1	102.7	50.7	120.9	99.9	344.8	49	56.6	35.2	42.4
1977	PREC	mm/month	5.2	2	59	204.1	76.9	91.2	159.1	123.5	102.5	21.5	90.4	34.5
1978	PREC	mm/month	24.8	41.3	53.4	31.4	14.4	362.5	202.8	274	59.5	81.3	32.3	33.3

Field separator: Comma(,) Space() Tab() Colon(:)

Variable: Precipitation Temperature

Unit: mm/month mm/day

Country:

Observed data file (example):

Entering station data into CLIK

B. Station data upload module

11. After finish the data uploading, you can choose any station in the upper panel.

Select Dataset / Station

Dataset Name	Countries	Total Stations	Period(prec)	Period(temp)	Public
MCDW(Monthly Climatic Data for th...	The World	6463	1998 ~ 2014	1998 ~ 2014	PUBLIC
GHCN	GHCN	3707	1950 ~ 2009	N/A	PUBLIC
Aphrodite data interpolated to Mons...	Afghanistan, Bangladesh, Brunei Da...	4918	1961 ~ 2004	N/A	PUBLIC
Korea 60 Stations	Korea, Republic of	60	1973 ~ 2008	1973 ~ 2006	PUBLIC
koreamean	Korea, Republic of	1	1973 ~ 2014	N/A	yoojin10

Create Edit Remove

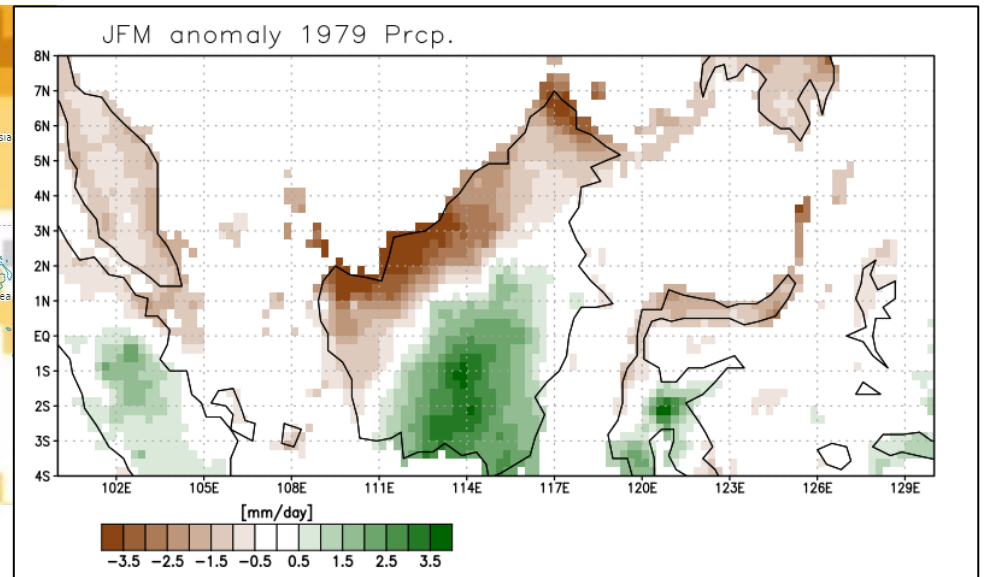
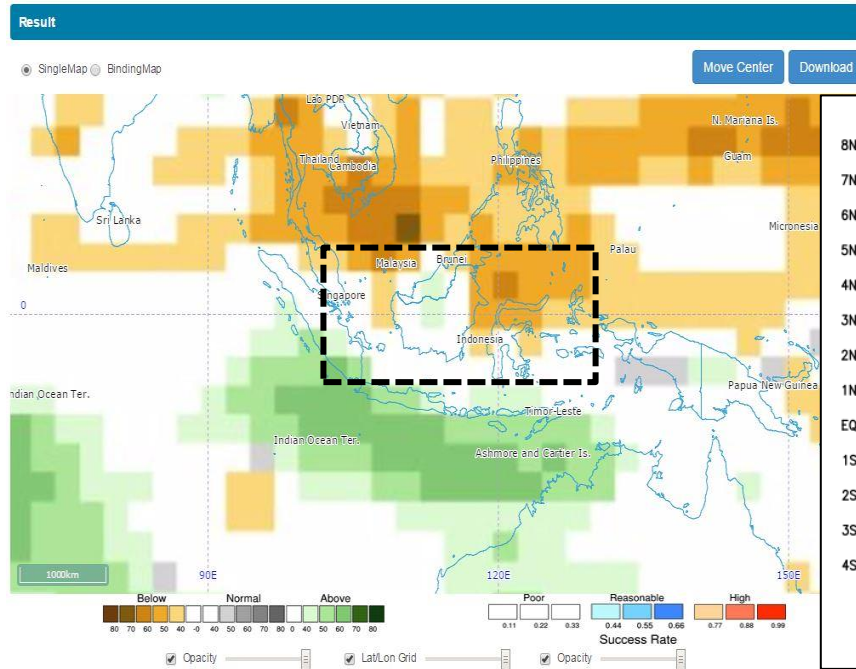
3



Thank you.

Post Processing

- **Real observation precipitation:**
APHRODITE gridded station precipitation (0.25 by 0.25)



Compare the grid size!