

CLIK hands-on (PART IV):
**Multi Model Downscaling Using
CLIK**
(<http://clik.apcc21.org>)

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1 June 2016

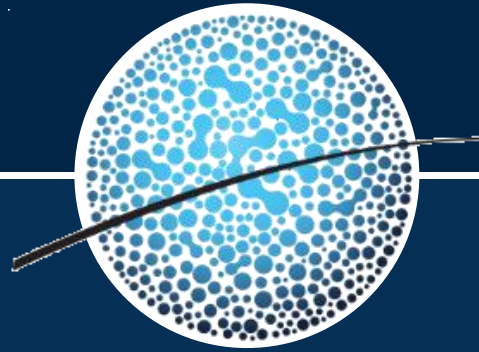


- 1. Downscaling using built-in station data (APHRODITE*)**
- 2. Downscaling using your station data which was uploaded in the 'Data Processing Part'**

*AHORODITE

Asian Precipitation – Highly-Resolved Observational Data integration Towards Evaluation of Water Resources

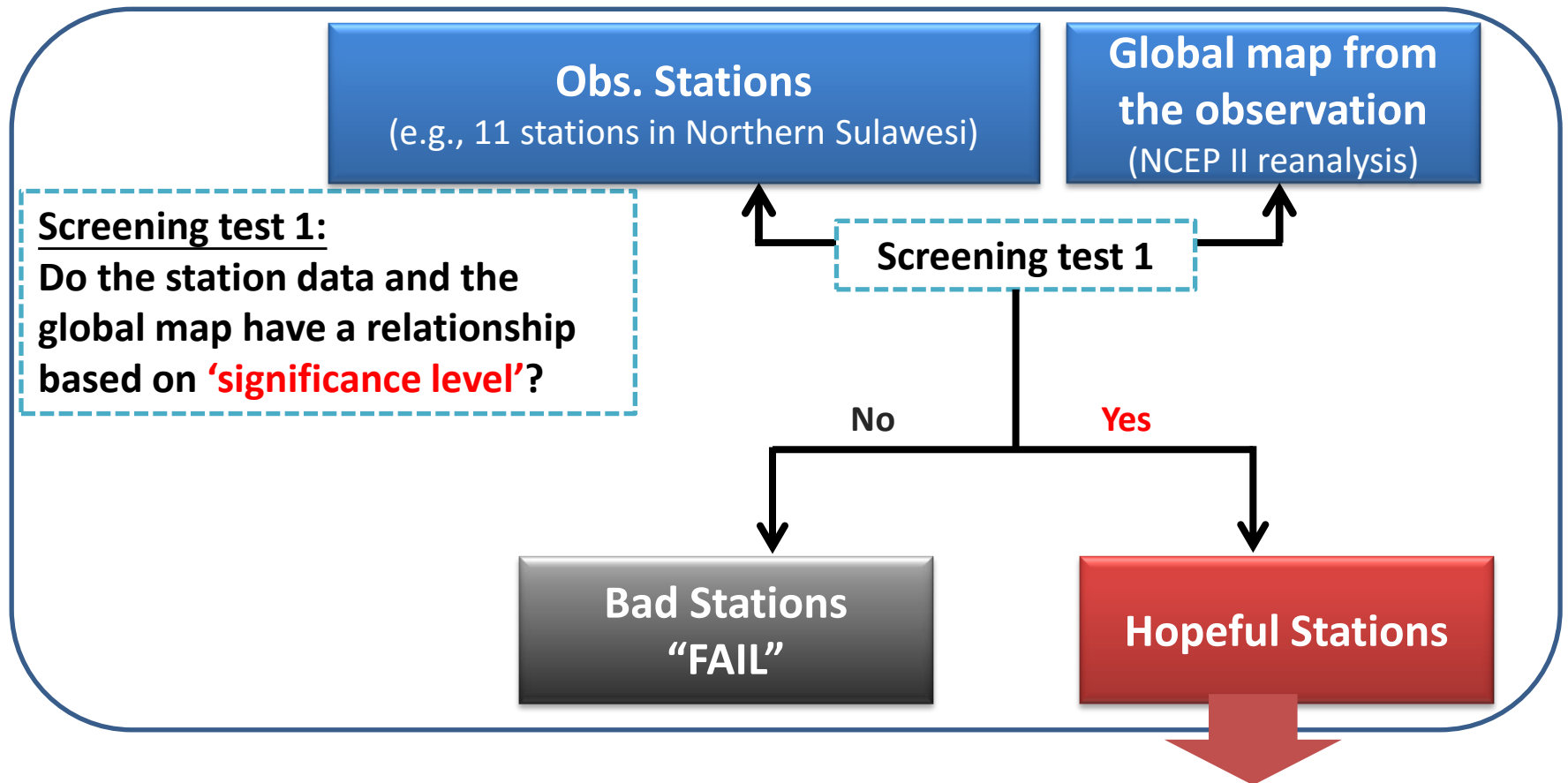
<https://climatedataguide.ucar.edu/climate-data/aphrodite-asian-precipitation-highly-resolved-observational-data-integration-towards.#sthash.42mDJsXJ.dpuf>



Downscaling procedure

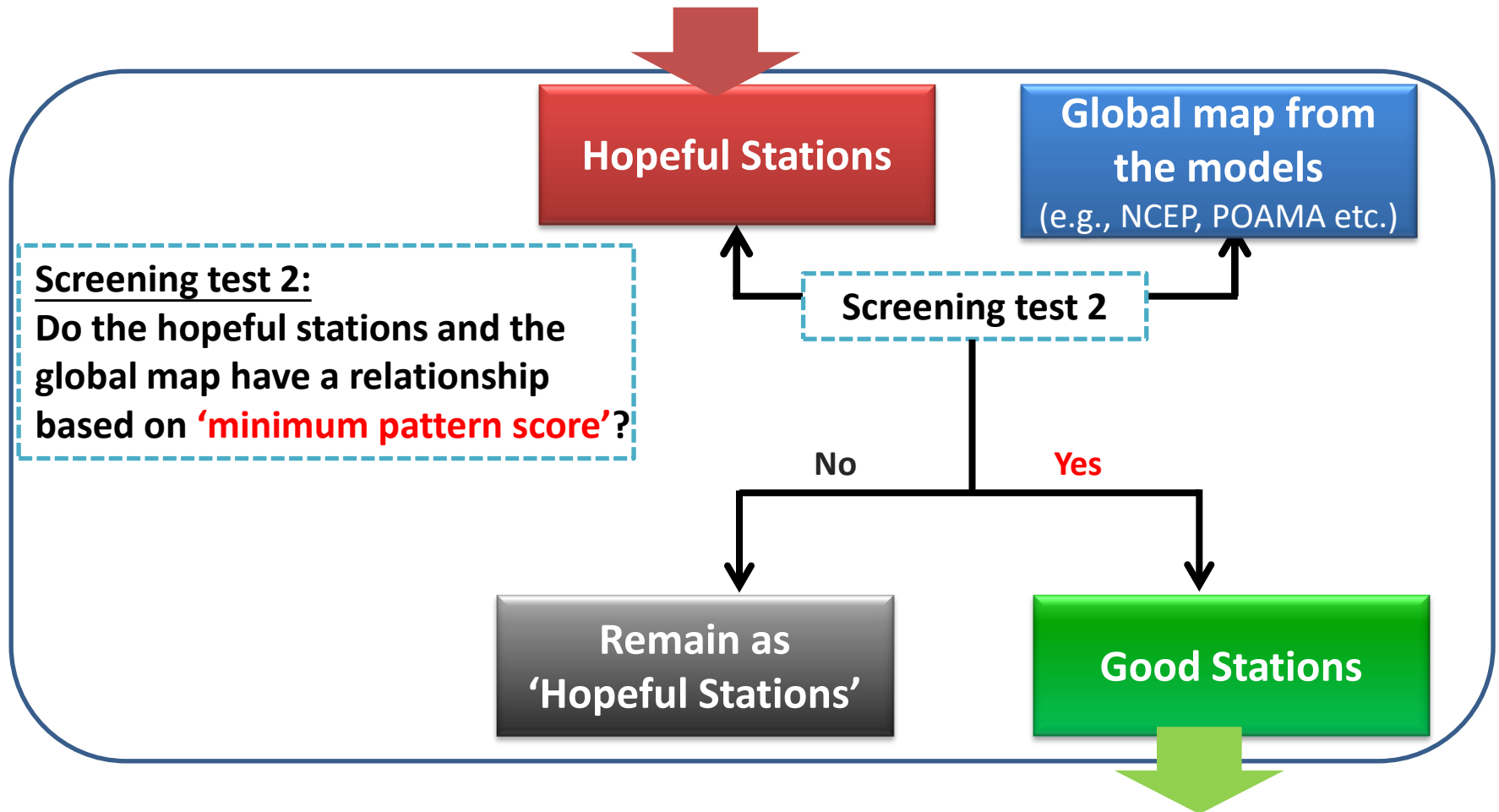
Downscaling procedure in CLIK

● Step 1. Screening process



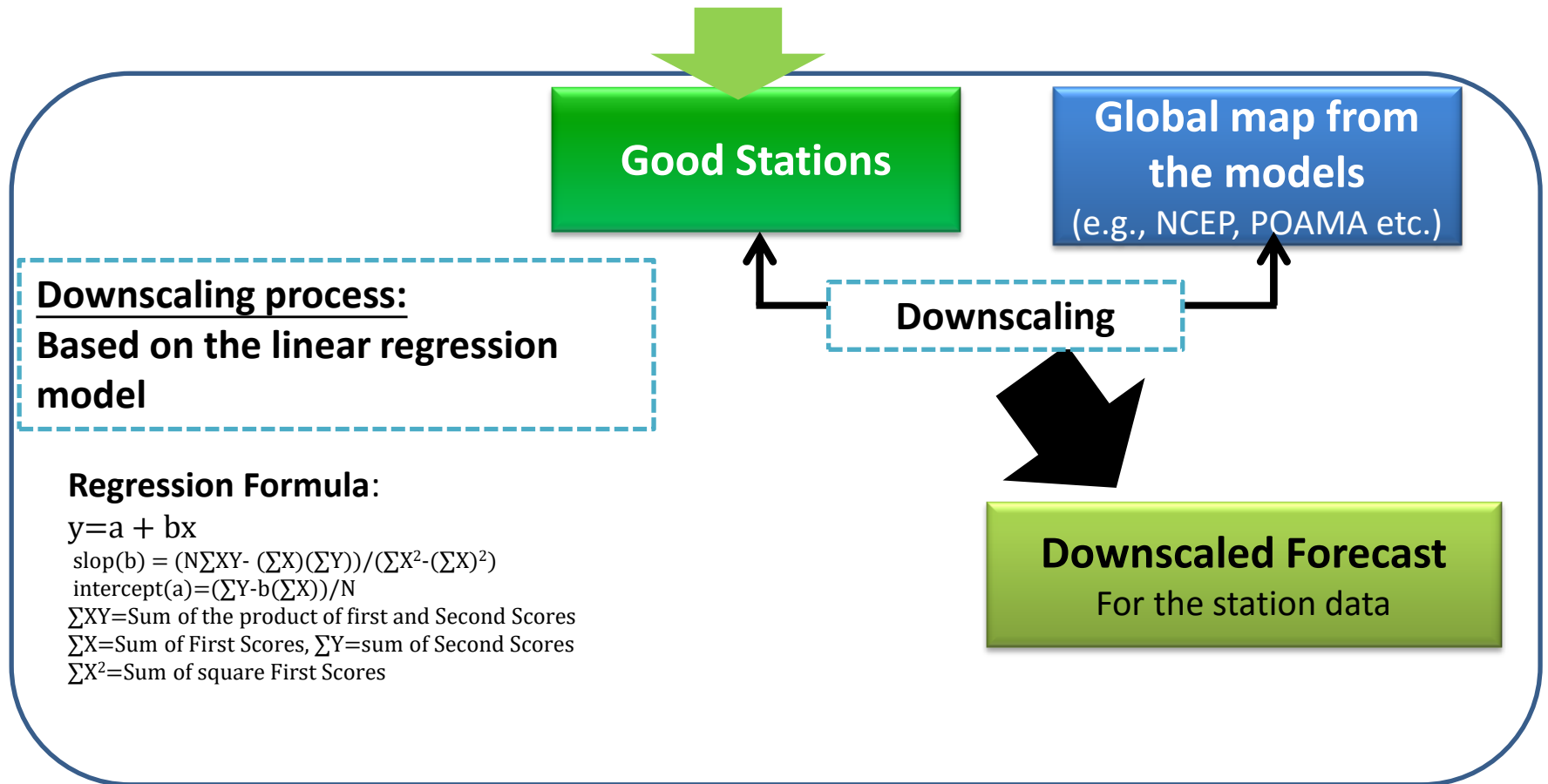
Downscaling procedure in CLIK

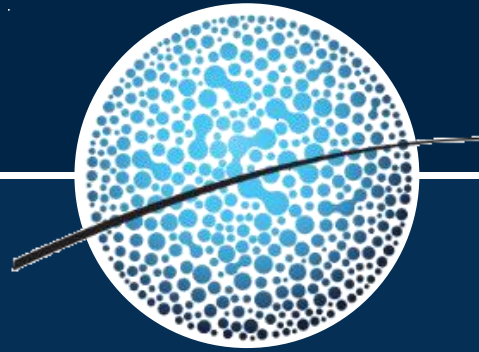
● Step 2. Screening process



Downscaling procedure in CLIK

● Step 3. Downscaling





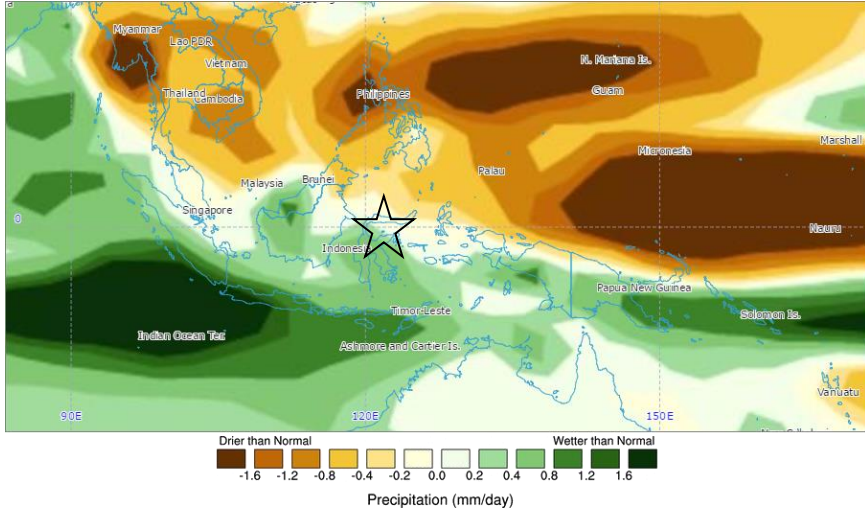
Let's do it!

1. Downscaling using built-in station data

Produce a downscaled forecast

Dynamical prediction for 2016 JJA

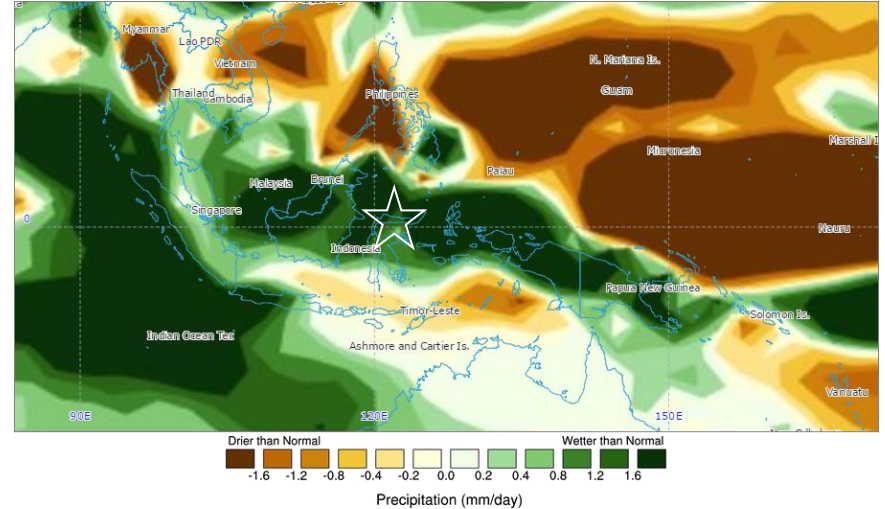
APCC-MME



Lead Month: 3, Year: 2016, Season: 6, Methods: SCM
Model: APCC, BCC, COLA, CWB, IRI, IRI_CA, MGO, NASA, NCEP, FNU, POAMA
created by CLIK(2016-05-29)

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NCEP



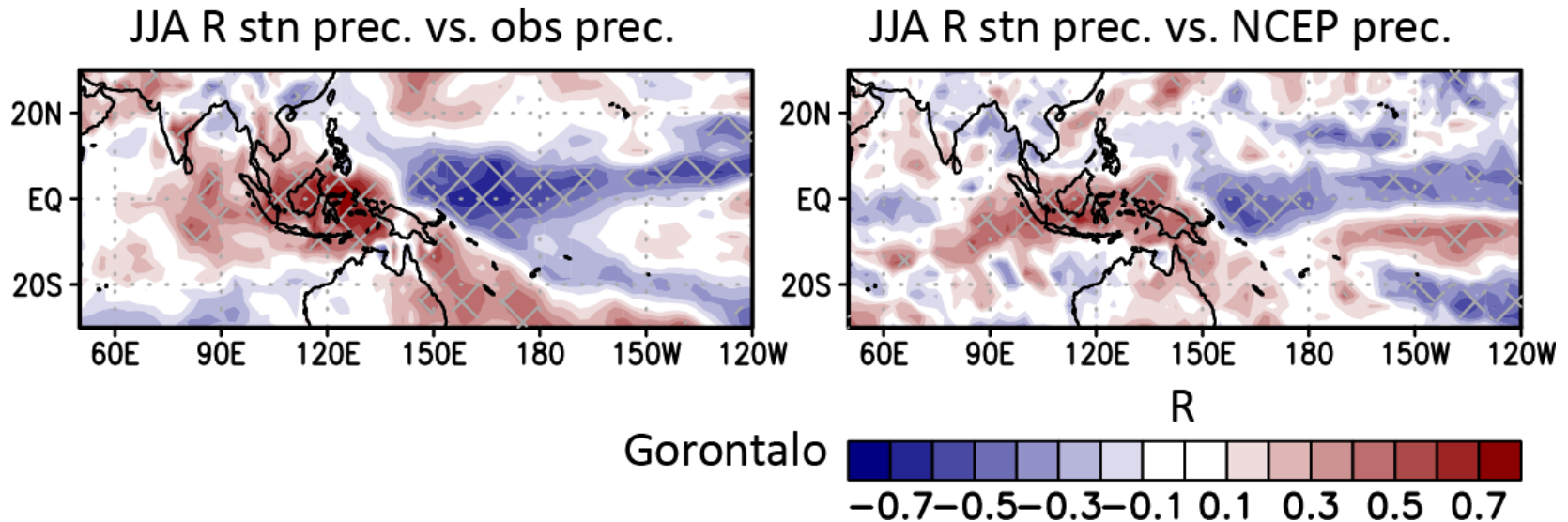
Lead Month: 3, Year: 2016, Season: 6, Methods: SCM
Model: NCEP
created by CLIK(2016-05-29)

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Northern part of Sulawesi

Produce a downscaled forecast

Relationship between Gorontalo station prcp. & ...



Produce a downscaled forecast

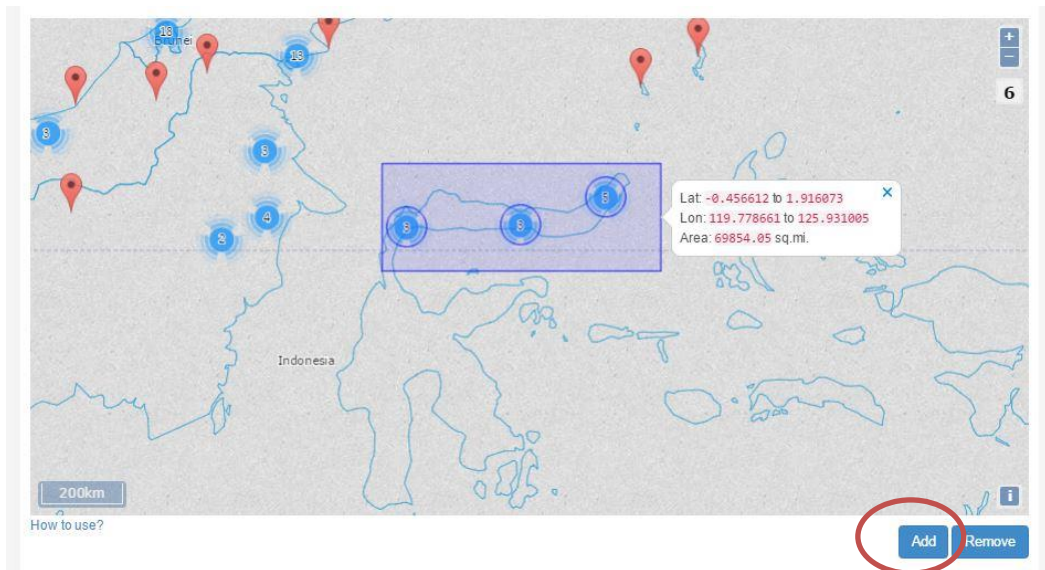
- A. Click 'Downscale' tab.
- B. Select the dataset (Aphrodite) in CLIK

The screenshot shows the CLIK interface with the 'Downscale' tab selected. The 'Aphrodite data interpolated to Mons...' dataset is highlighted in blue and enclosed in a red box. The table below lists the datasets available in the system.

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

Produce a downscaled forecast

C. Select stations on the map



1. On the map, you can choose stations where you are interested in. Press shift + left mouse button and drag to select stations.
2. Click 'Add'. Then you will see station's list and common data period.
3. Click 'Next'.

- 11 stations among Aphrodite dataset in Sulawesi island.

Station (11)												
<input type="checkbox"/>	Station ID	Name	Precipitation	Temperature								
<input type="checkbox"/>	97014000	Mapanget/manado_Indonesia	1961/1 ~ 2004/12	N/A								
<input type="checkbox"/>	97014001	Amurang	1961/1 ~ 2004/12	N/A								
<input type="checkbox"/>	97014002	Talisei	1961/1 ~ 2004/12	N/A								
<input type="checkbox"/>	97026001	Noancan	1961/1 ~ 2004/12	N/A								
<input type="checkbox"/>	97026002	Modayak	1961/1 ~ 2004/12	N/A								

Common data period of selected stations												
Month	1	2	3	4	5	6	7	8	9	10	11	12
Precipitation	1961 ~ 2004	1961 ~ 2004	1961 ~ 2004	1961 ~ 2004	1961 ~ 2004	1961 ~ 2004	1961 ~ 2004	1961 ~ 2004	1961 ~ 2004	1961 ~ 2004	1961 ~ 2004	1961 ~ 2004

NEXT

Produce a downscaled forecast

C. Select variables, models, training period, downscaling region

Set-up Downscaling

Prediction Season
Year: 2016 | Season: JJA

Variable
 PREC | T850 | Z500
 SLP | U850 | V850
 U200 | V200 | SST

Models
 APCC | BCC | COLA
 CWB | IRIF | IRI_CA
 MGO | NASA | NCEP
 PNU | POAMA

Predictand
 Precipitation | Temperature

Training Period
Form: 1982 | To: 2004

Method
 Linear Regression

Advanced Options
Significance Level: 5 %
Minimum Pattern Score: 0.3 %

Downscaling Region
Latitude: -10 ~ 10 | Longitude: 50 ~ 160 | Apply

Map showing the downscaling region (Indonesia) with coordinates: Lat: -10.00000 to 10.00000, Lon: 50.00000 to 160.00000, Area: 10579947.29 sq.mi.

5000km

Previous | Downscale

1. Select prediction season.
2. Select variable (predictor) for the downscaling.
3. Select models for the downscaling.
4. Select target variable (predictand) among precipitation and temperature.
5. Select training period.
6. Select method (currently we only provide linear regression).

- 2016 JJA
- PREC
- NCEP
- Precipitation
- From 1982-2004
- Linear Regression

Produce a downscaled forecast

C. Select variables, models, training period, downscaling region

Set-up Downscaling

Prediction Season
Year: 2016 Season: JJA

Variable
 PREC T850 Z500
 SLP U850 V850
 U200 V200 SST

Models
 APCC BCC COLA
 CWB IRIF IRI_CA
 MGO NASA NCEP
 PNU POAMA

Predictand
 Precipitation Temperature

Training Period
Form: 1982 To: 2004

Method
 Linear Regression

Advanced Options
Significance Level: 5 %
Minimum Pattern Score: 0.3 %

Downscaling Region
Latitude: -10 ~ 10 Longitude: 50 ~ 160 Apply

Lat: -10.00000 to 10.0000
Lon: 50.00000 to 160.0000
Area: 10579947.29 sq.mi.

5000km

Previous **Downscale**

7. Select advanced options for significance level and minimum pattern scores for screening.
 - The significance level is to find the relationship between station data and observation (NCEP reanalysis).
 - The pattern score is a screening value to find out the model pattern is similar to the observation or not.
8. Select the downscaling region: spatial range of the predictor's area. Or you can drag area in the map.
9. Click 'Downscale'.
 - Significance level: 5%
 - Minimum pattern score: 0.3
 - Region: 10S~10N, 50E-160E

Produce a downscaled forecast

D. Results

My Page

Jobs			System Status		
Last Updated At: 14:33:41 (auto refresh at about every 60 seconds)					
JOB ID	TYPE	STATE	RESULT DATA	CREATED	UPDATED
3945	Downscale	fail		2016-05-27 14:18:24	2016-05-27 14:22:16
3943	Downscale	success	download	2016-05-27 11:41:35	2016-05-27 11:42:04
3942	Downscale	success	download	2016-05-27 11:23:18	2016-05-27 11:23:52
3941	Downscale	fail		2016-05-26 17:22:28	2016-05-26 17:22:32
3940	Downscale	fail		2016-05-26 17:18:43	2016-05-26 17:18:58
3939	Downscale	fail		2016-05-26 17:16:06	2016-05-26 17:16:21
3938	Downscale	fail		2016-05-26 17:12:38	2016-05-26 17:12:49
3922	Downscale	success	download	2016-05-16 15:36:56	2016-05-16 15:37:05
3920	Downscale	fail		2016-05-16 14:58:53	2016-05-16 14:58:55
3919	Downscale	fail		2016-05-16 14:55:55	2016-05-16 14:56:04
3918	Downscale	success	download	2016-05-16 14:48:57	2016-05-16 14:49:50
3917	Downscale	success	download	2016-05-16 13:47:59	2016-05-16 13:48:37
3916	Downscale	success	download	2016-05-16 13:02:46	2016-05-16 13:03:19
3915	Downscale	success	download	2016-05-16 11:40:50	2016-05-16 11:41:34
3914	Downscale	fail		2016-05-16 11:03:43	2016-05-16 11:03:53

Details

JOB ID	3942	CREATE At	2016-05-27 11:23:18
DOWN SCALE ID	3281	UPDATE At	2016-05-27 11:23:52
PREDICTAND		PREDICTOR	
YEAR/SEASON	2016 / 6	Training Period	1982 / 2004
PREDICTAND	PREC	VARIABLE	PREC
DATA SET	Aphrodite data interpolated to Monsoon Asia Region [ID:7602]	MODELS	NCEP
STATION	11 Stations	REGION	Lat -10~10/ Lon 50~160
SIGNIFICANCE LEVEL			5%
MINIMUM PATTERN SCORE			0.3
FEEDBACK			

ViewResult

Edit

1. You will see the 'state' of the process. After the process is done, you will see 'fail' or 'success'. Then you can see the results by clicking the job line.
2. Click 'ViewResults' button to see the results of downscaling.

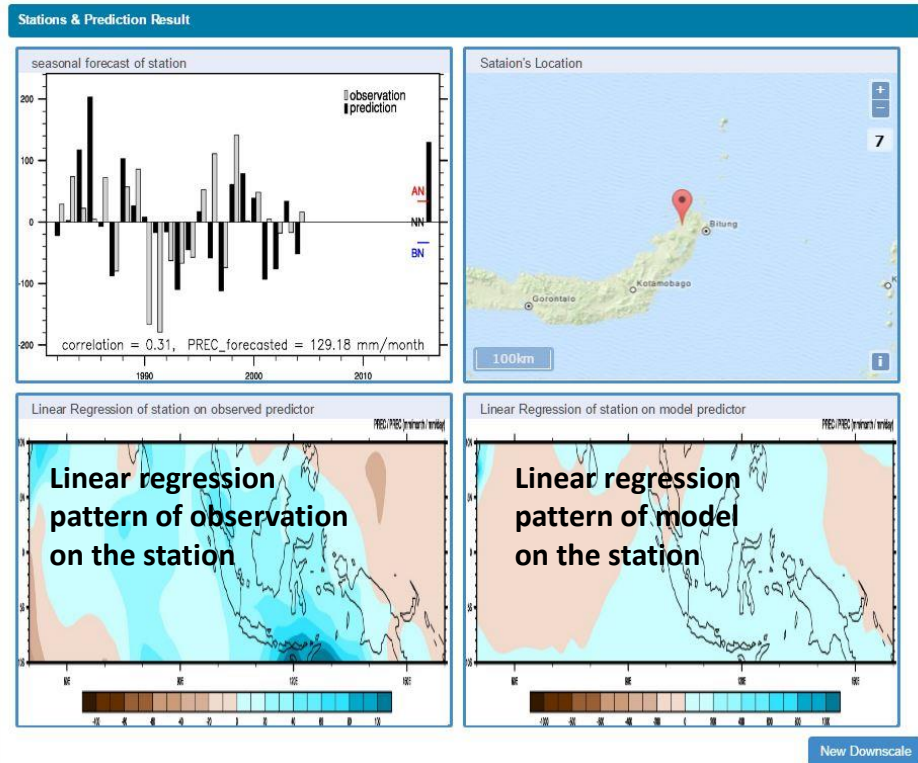
Produce a downscaled forecast

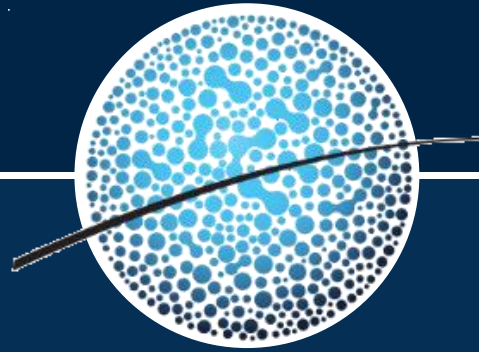
D. Results

Details					
PREDICTAND	2016 / 6		PREDICTOR	1982 / 2004	
YEAR/SEASON	2016 / 6		Training Period	1982 / 2004	
PREDICTAND	PREC		VARIABLE	PREC	
DATASET	Aphrodite data interpolated to Monsoon Asia Region		MODELS	☉ NCEP	
REGION	11 Stations		REGION	Lat: -10 ~ 10, Lon: 50 ~ 160	
SIGNIFICANCE LEVEL	5%				
MINIMUM PATTERN SCORE	0.3				
<input checked="" type="checkbox"/> List up hopeful & good result stations only					
Selected Stations					
Station ID	Result	Name	Data period for PREC	Data period for TEMP	Correlation
97014000	Good	Mapanget/manado_Indonesia	1961/1 ~ 2004/12		0.308431
97014001	Good	Amurang	1961/1 ~ 2004/12		0.308376
97014002	Good	Talisei	1961/1 ~ 2004/12		0.306781
97026001	Hopeful	Noancan	1961/1 ~ 2004/12		0.287869
97026002	Good	Modayak	1961/1 ~ 2004/12		0.295097
97028000	Hopeful	Tolitoi_Indonesia	1961/1 ~ 2004/12		0.416711



3. Select 'MODELS'.
4. Click the station ID where you are interested in. Then you can see the prediction results, forecast skill, station's location, linear regression pattern of observed predictor and model predictor.
5. Enjoy the downscaled forecast. You can download the graphic information also.





2. Downscaling using your station data



Produce a downscaled forecast

- **Same procedure with the built-in data, but with your station data which was uploaded in the previous part.**
- **If the downscaling fails,,,, be patient and try more!**
Find the large scale climate system that affects local climate.



Thank you.