CLIK hands-on (PART IV):

Multi Model Downscaling Using CLIK

(http://clik.apcc21.org)

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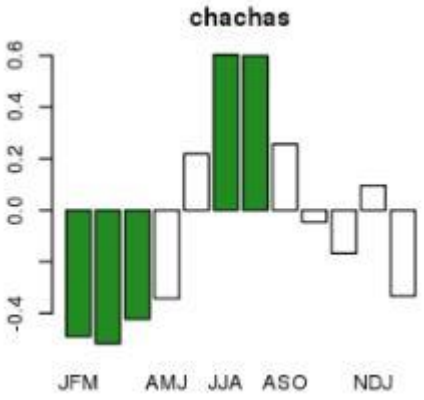
- ✓ **Downscaling the forecast for your station data which was uploaded in the ‘Data Processing Part’**

Downscaling procedure

Downscaling procedure in CLIK

- **Observation data**
  - Station: point (uploaded)
  - Reanalysis (NCEP 2; atmospheric variables), Satellite (CAMS_OPI; precipitation): global gridded (built-in)
- **Model data (hindcast by dynamical models)**
  - Global gridded (built-in)

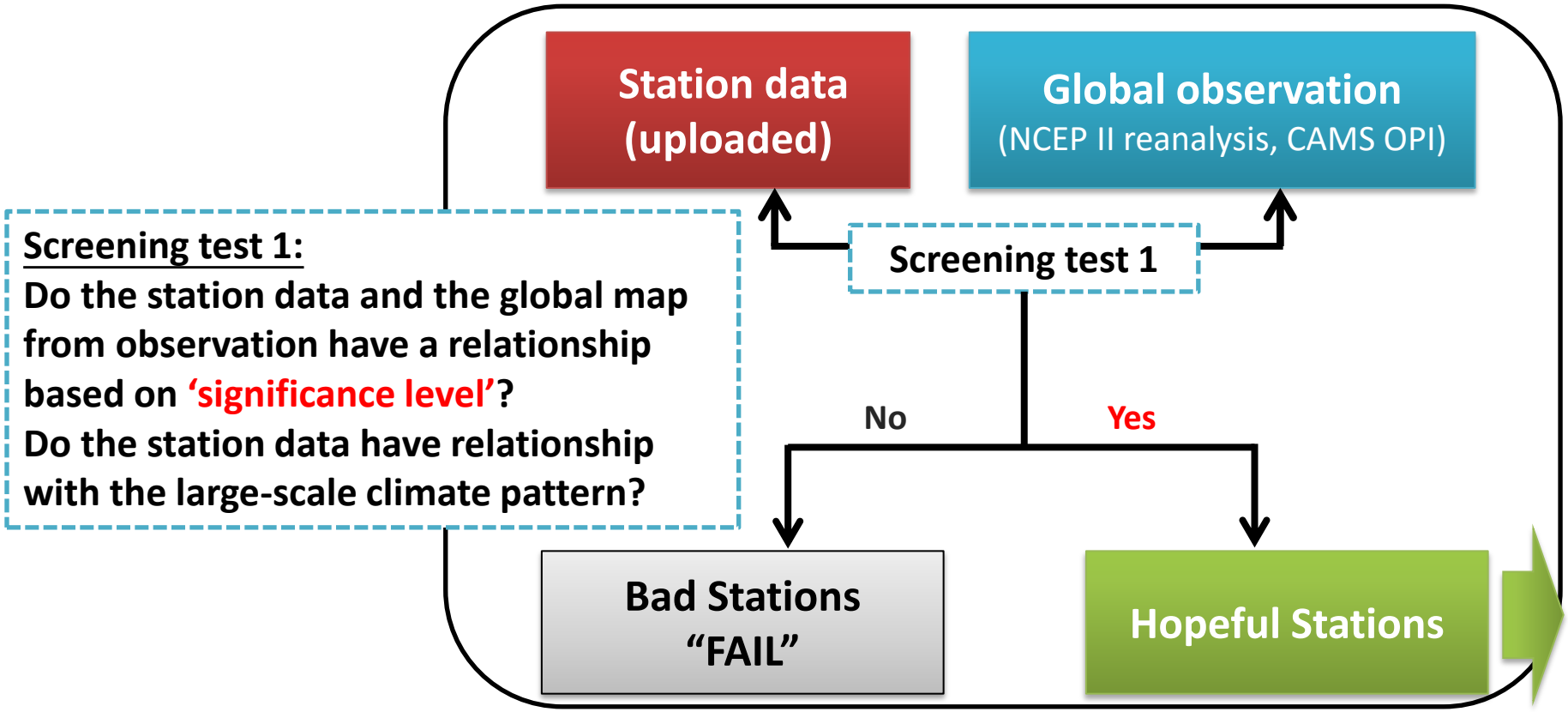
✓ **Target : Chachas JFM precipitation**



Downscaling procedure in CLIK

- **Step 1. Screening process**

(station vs. global observation)

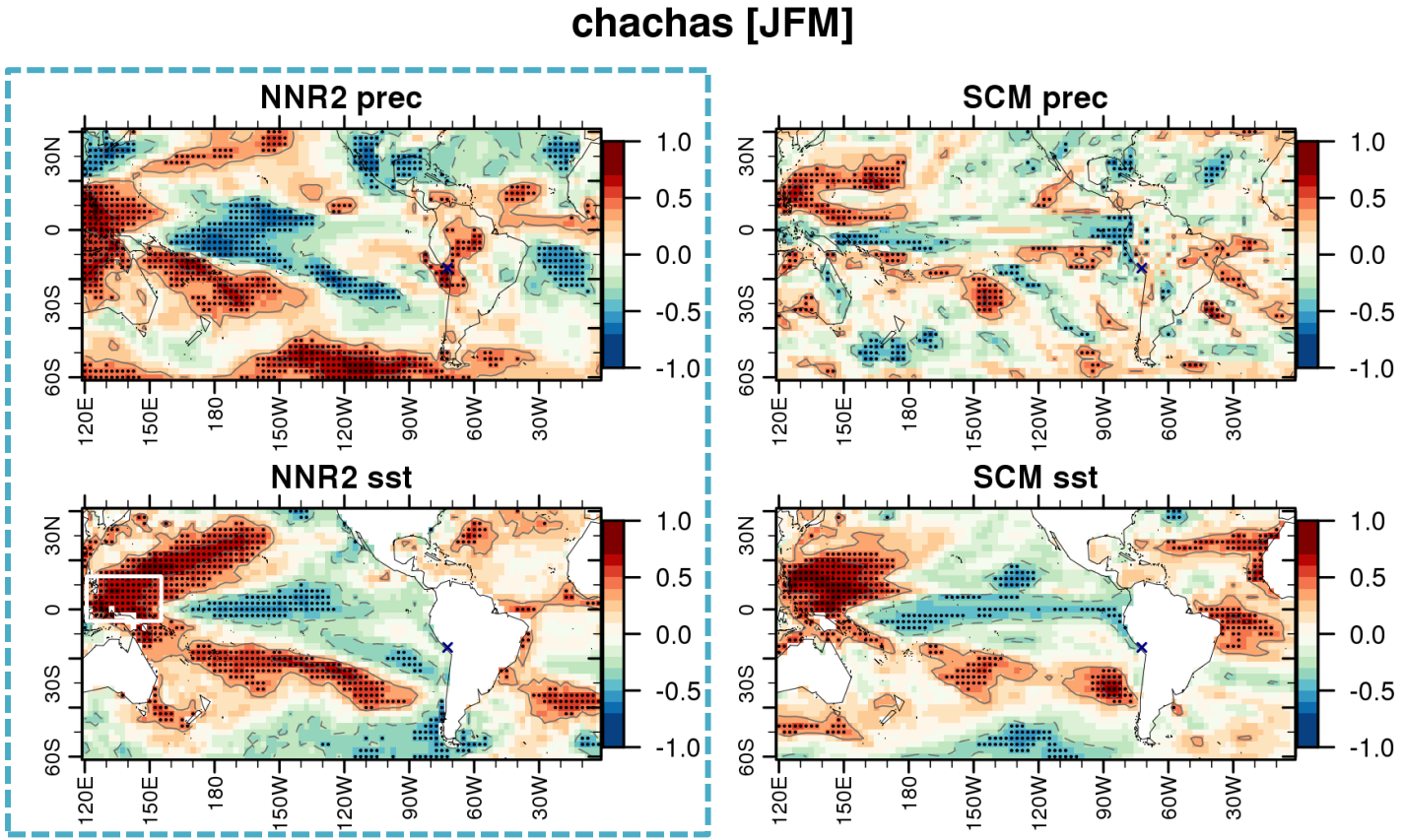


Downscaling procedure in CLIK

- **Step 1. Screening process (station vs. global observation)**

Correlation map of global observation vs. station (Chachas)

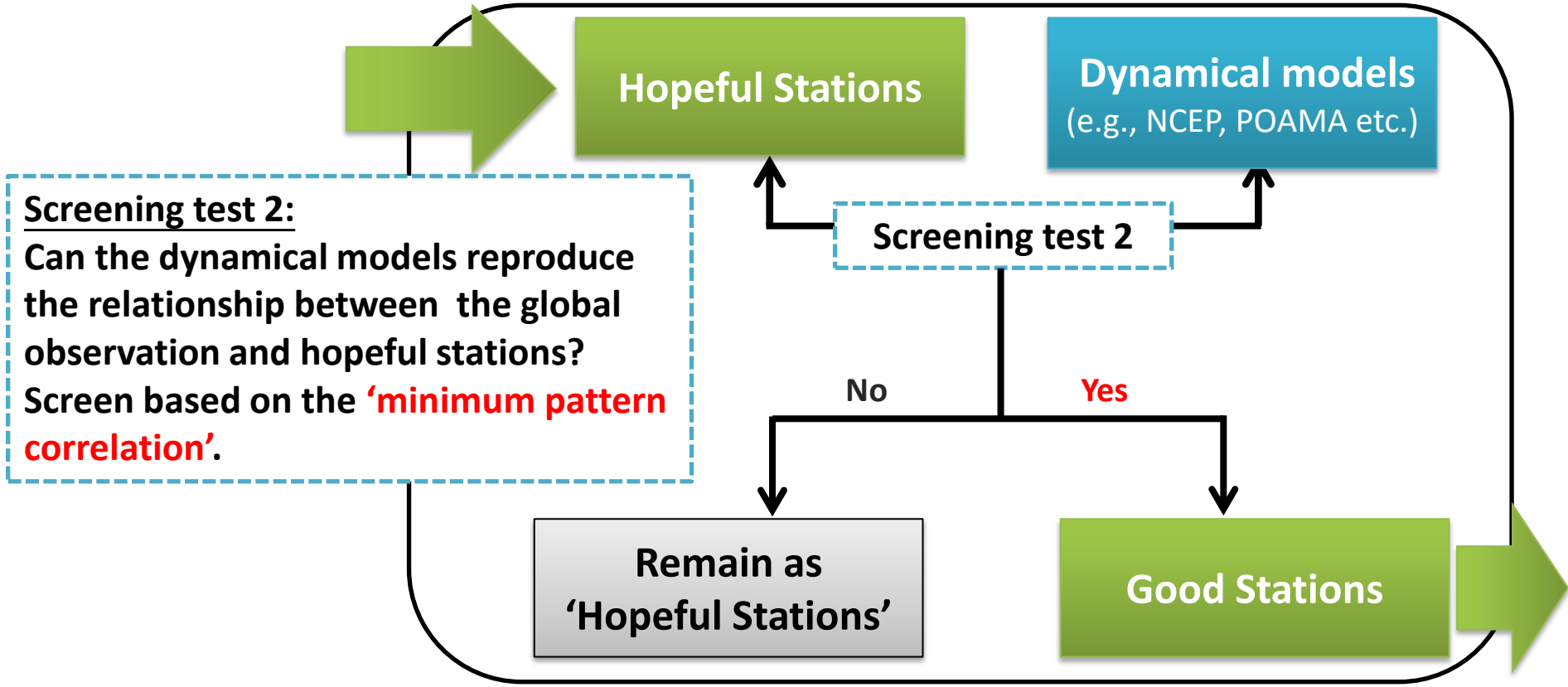
Hopeful station?



Downscaling procedure in CLIK

- **Step 2. Screening process**

(global observation vs. dynamical models)



Downscaling procedure in CLIK

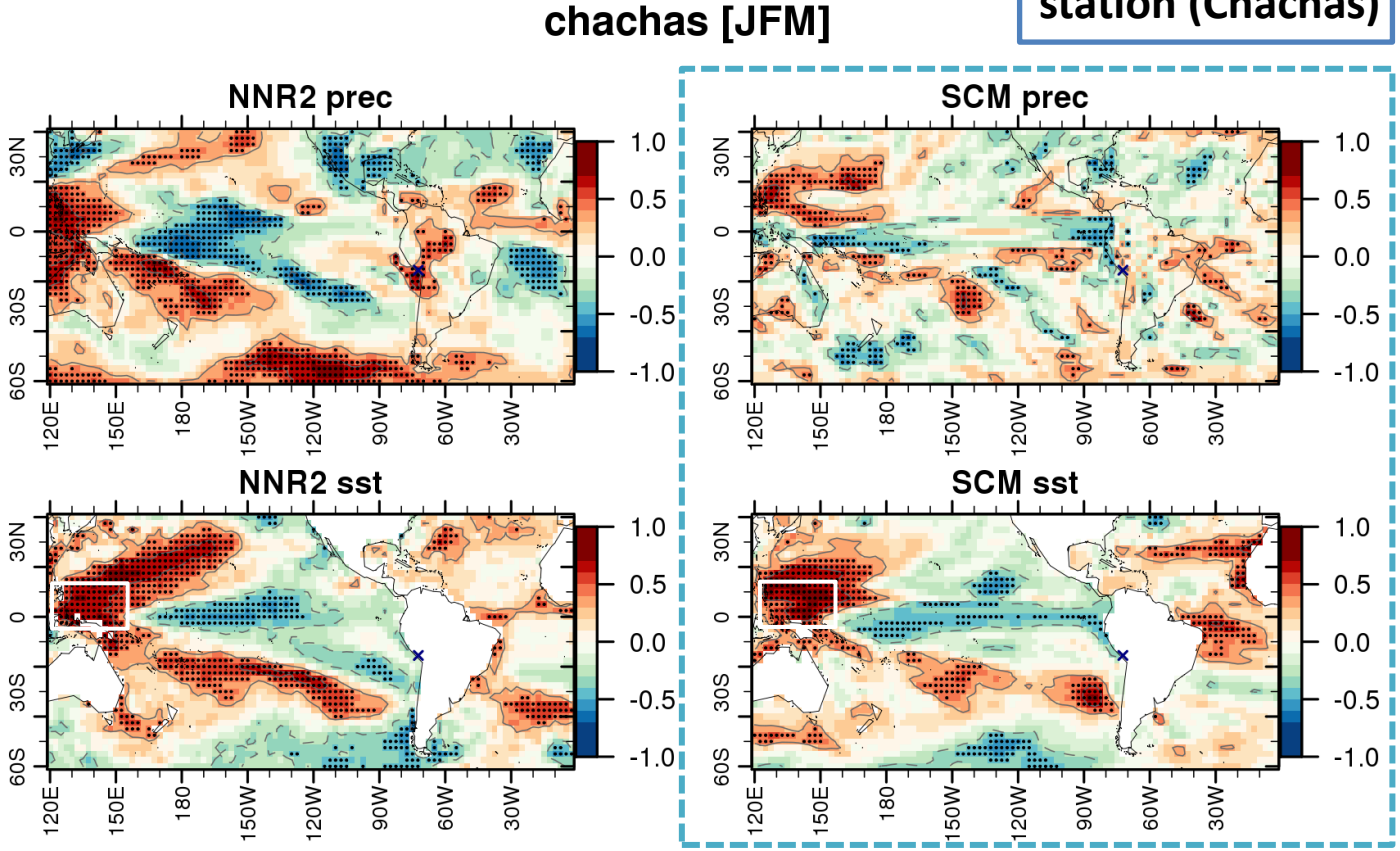
- **Step 2. Screening process**

(global observation vs. dynamical models)

Correlation map of model data vs. station (Chachas)

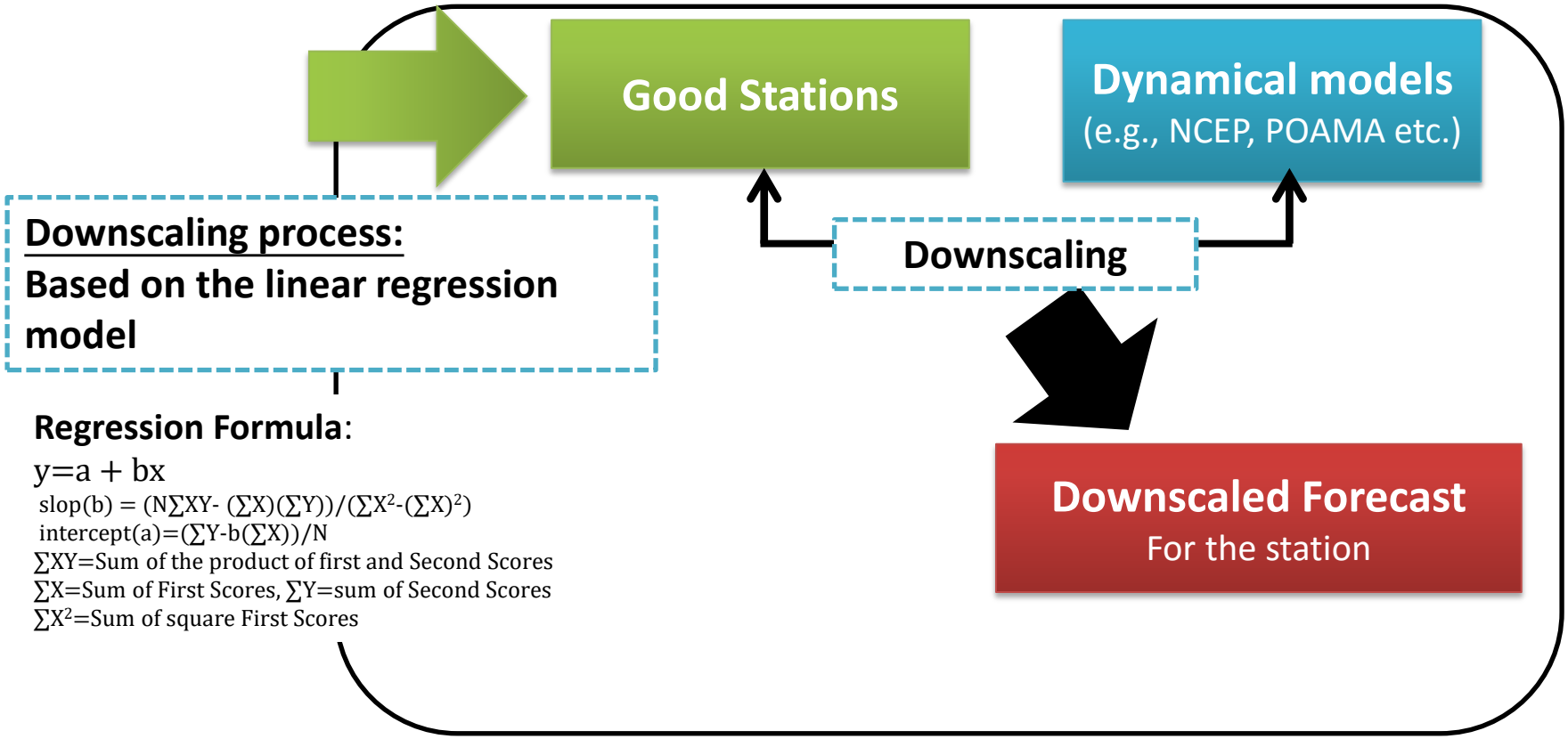
Correlation map of global observation vs. station (Chachas)

Good station?



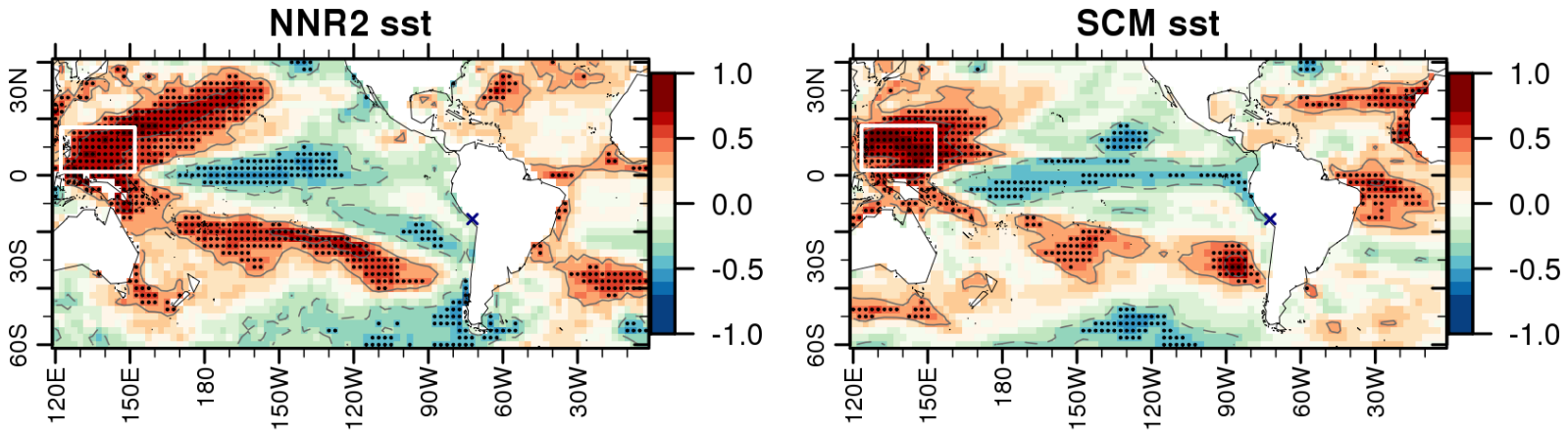
Downscaling procedure in CLIK

- **Step 3. Downscaling**

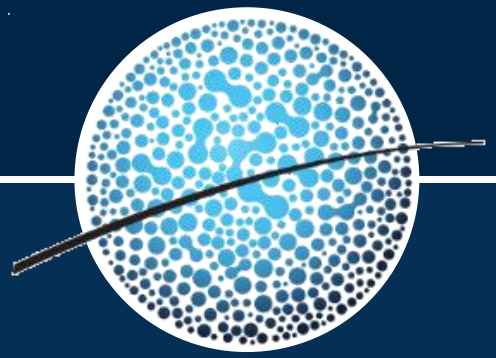


Downscaling procedure in CLIK

Relationship between Chachas station prcp. & …



- **The station data has relationship with the global observation SST in some areas.**
- **Dynamical models can reproduce the relationship between observation and station.**
- **We hope a successful downscaling by CLIK system...**



Let’s do it!

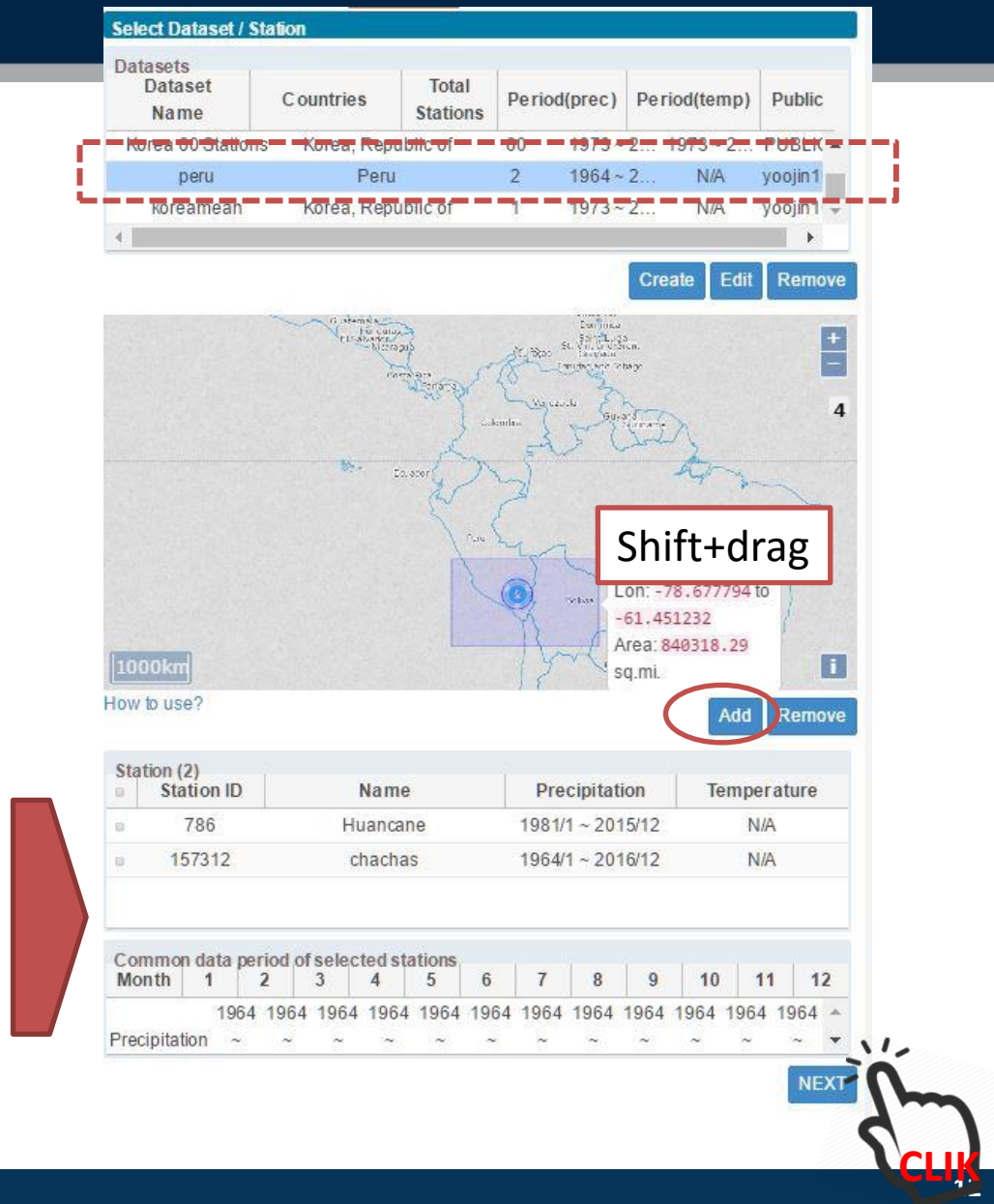
Entering station data into CLIK

a. **Follow my example step. (successful!)**
b. **Details of the downscaling procedure**
c. **Explaining the downscaling results**

d. **You can try other downscaling.**

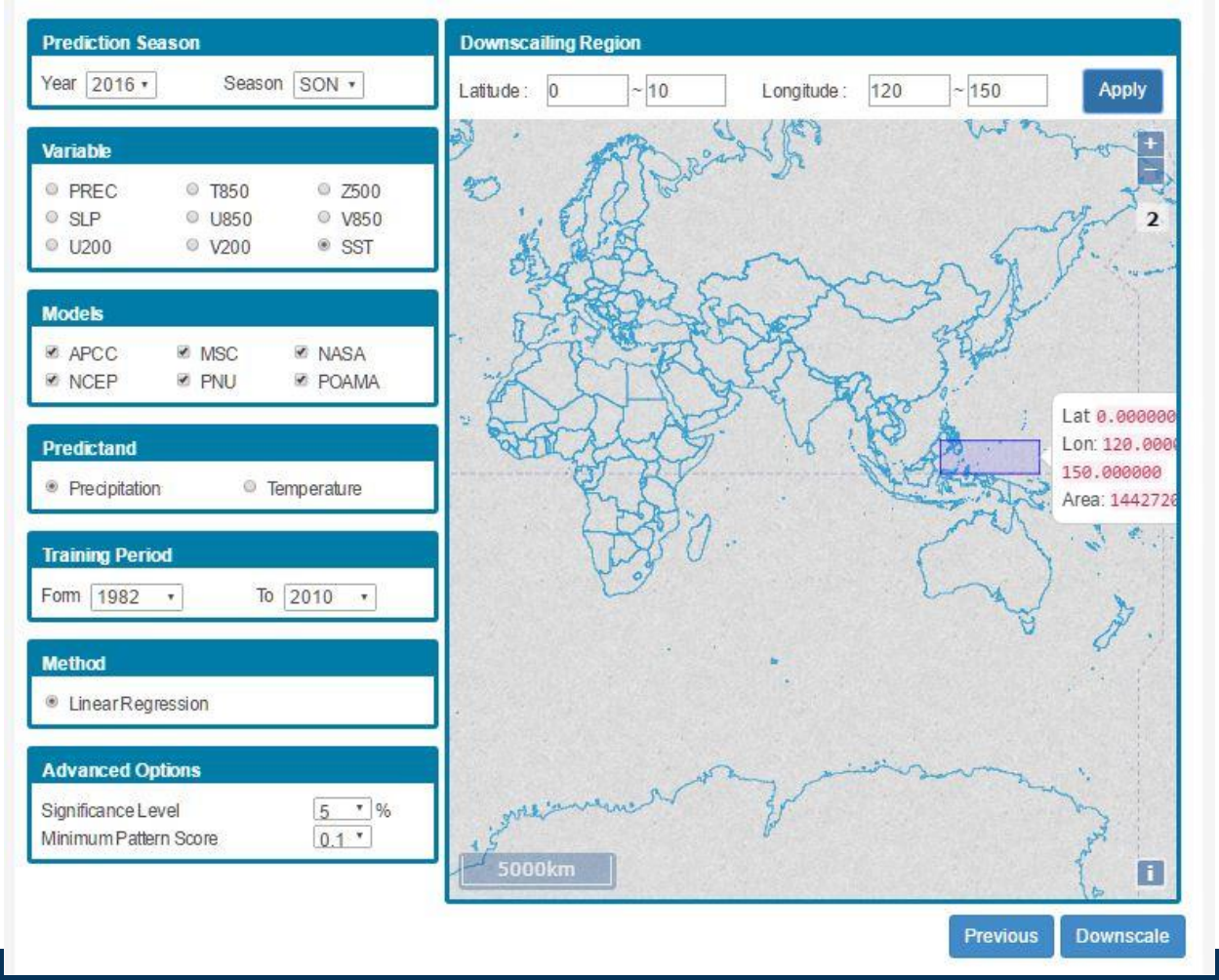
Then follow me.

Click NEXT



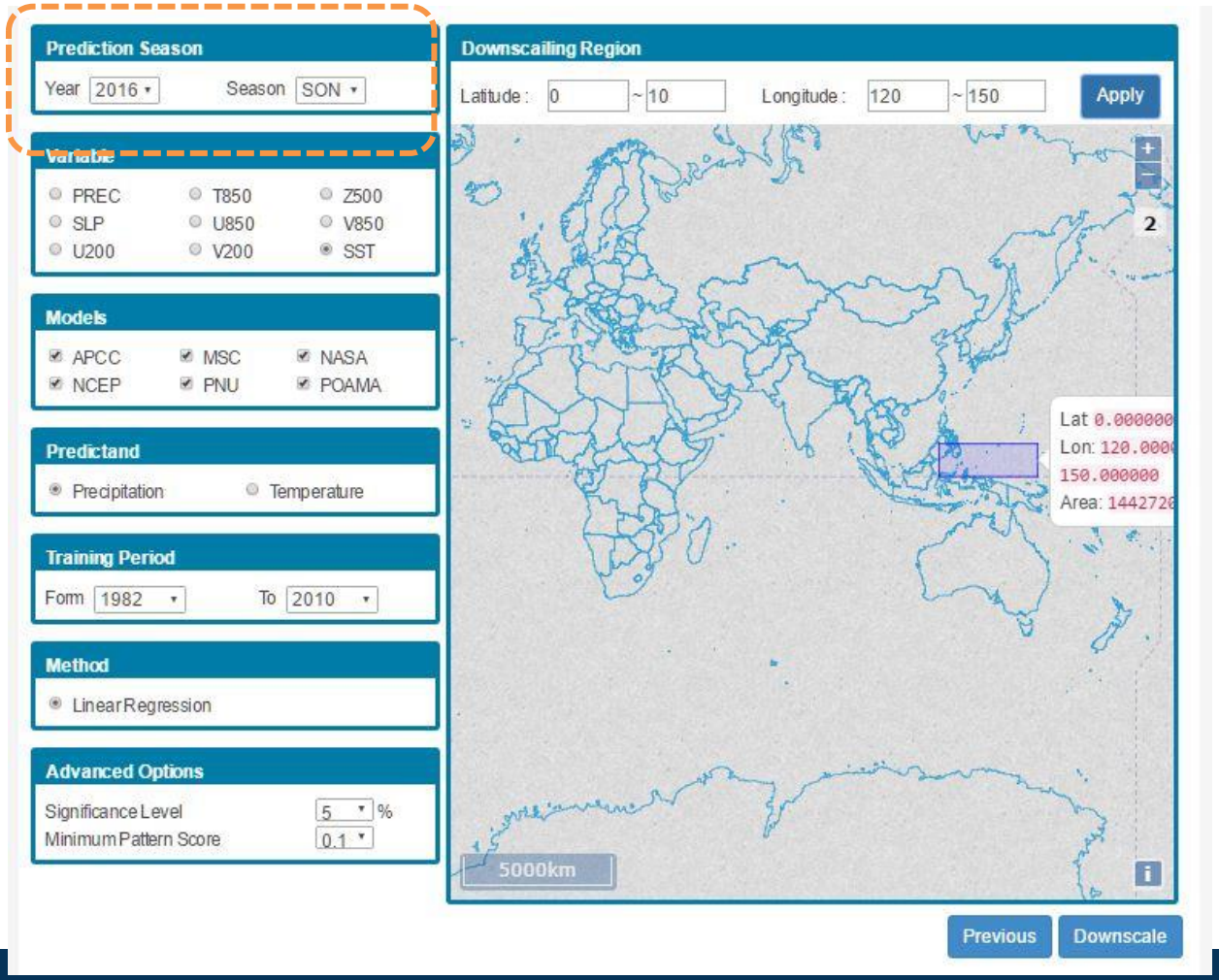
Produce a downscaled forecast

A. Select variables, models, training period, …,



Produce a downscaled forecast

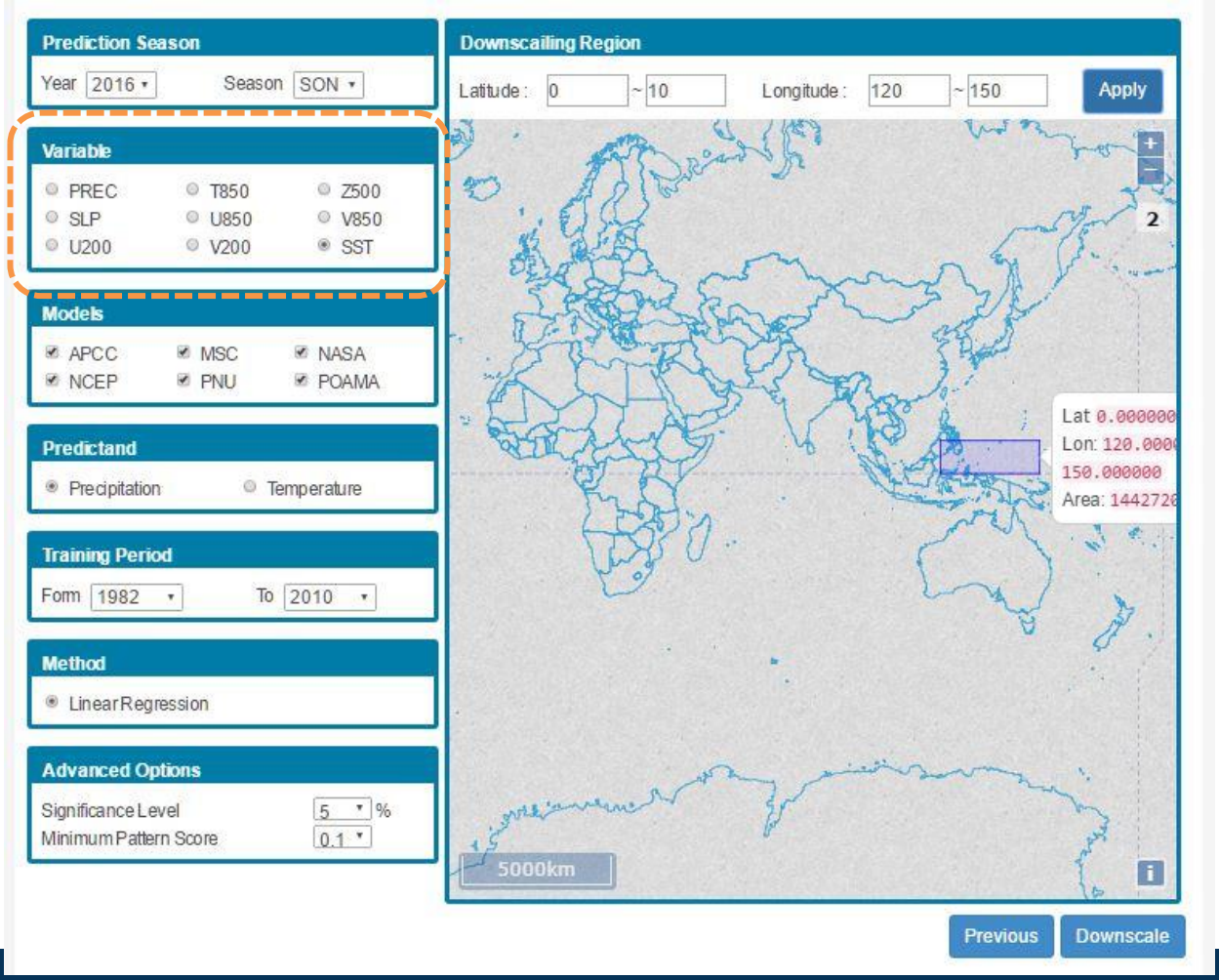
A. Select variables, models, training period, …,



Select prediction season
2016 JFM

Produce a downscaled forecast

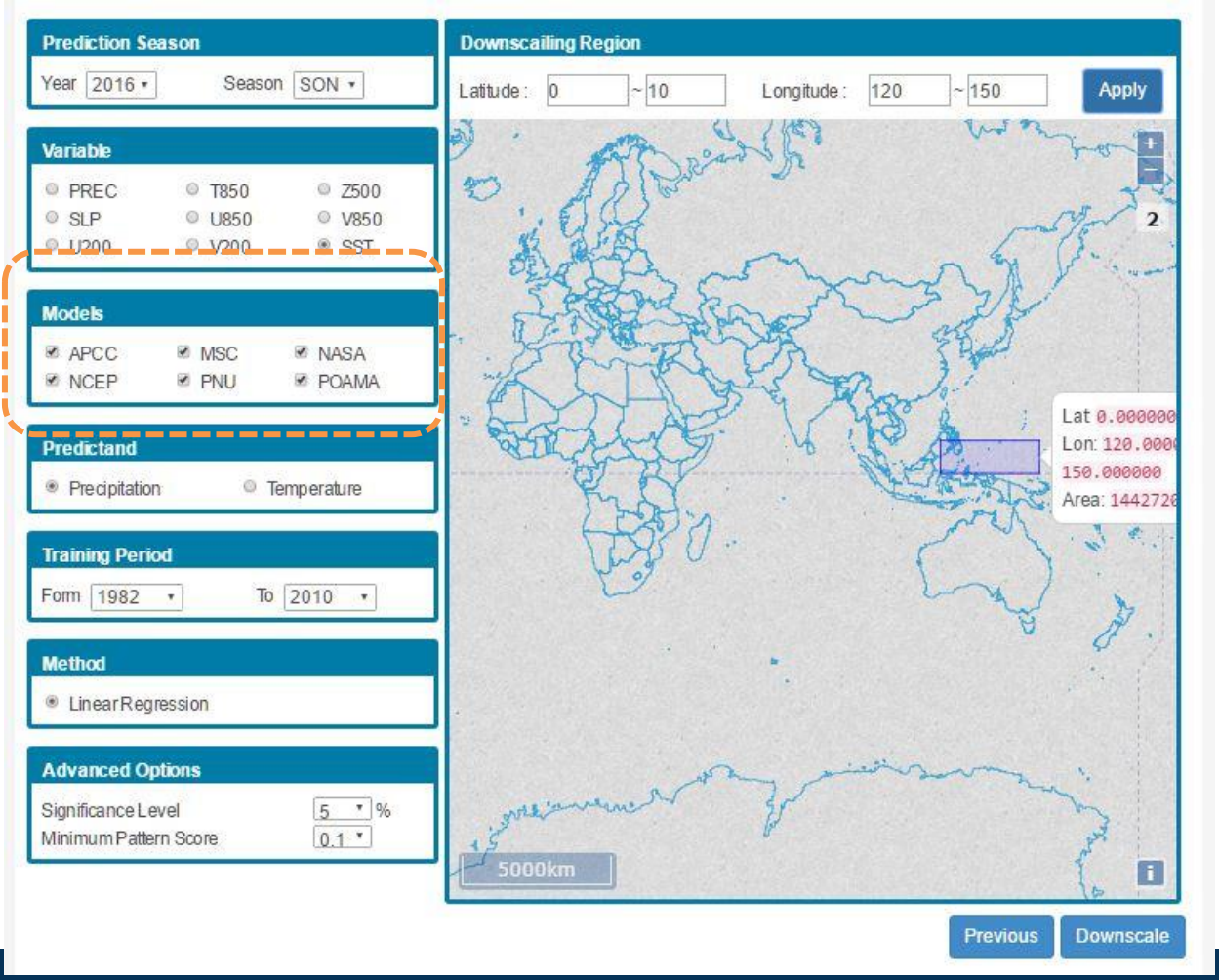
A. Select variables, models, training period, …,



Select predictor variable
SST

Produce a downscaled forecast

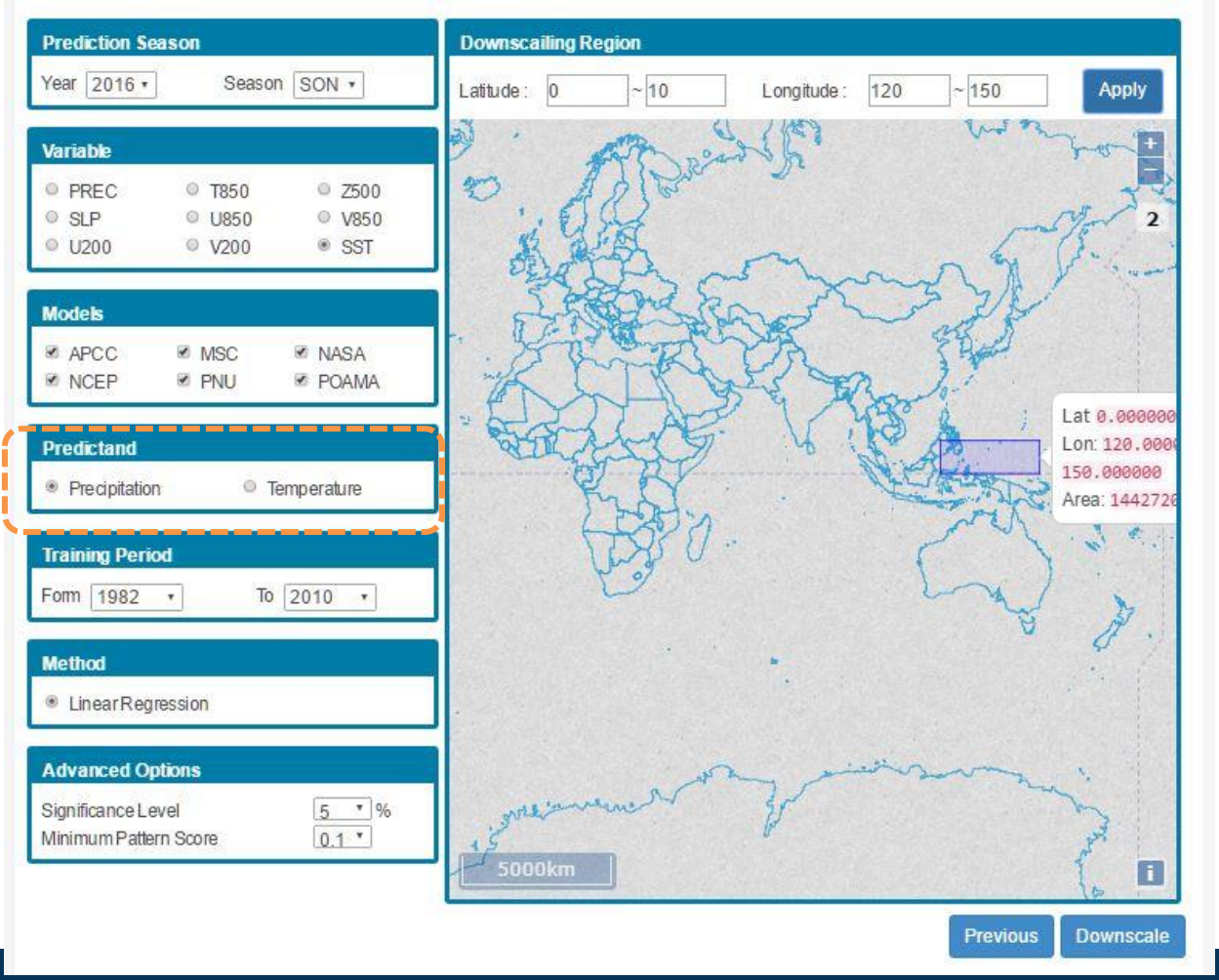
A. Select variables, models, training period, …,



Select predictor models NCEP, NASA, POAMA, APCC
(All the models have 2016 JFM SST are shown as default)

Produce a downscaled forecast

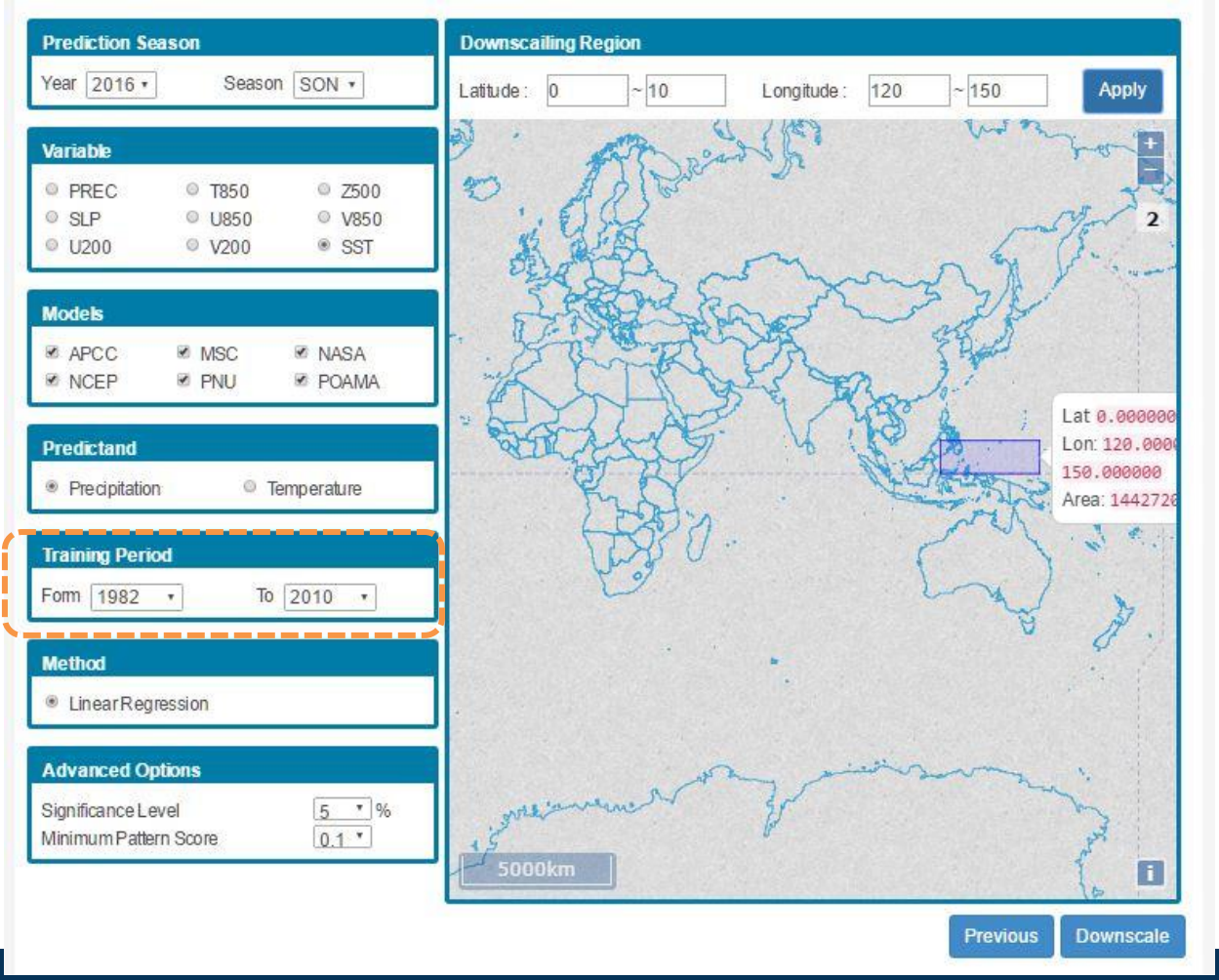
A. Select variables, models, training period, …,



Select predictand (two)
Precipitation

Produce a downscaled forecast

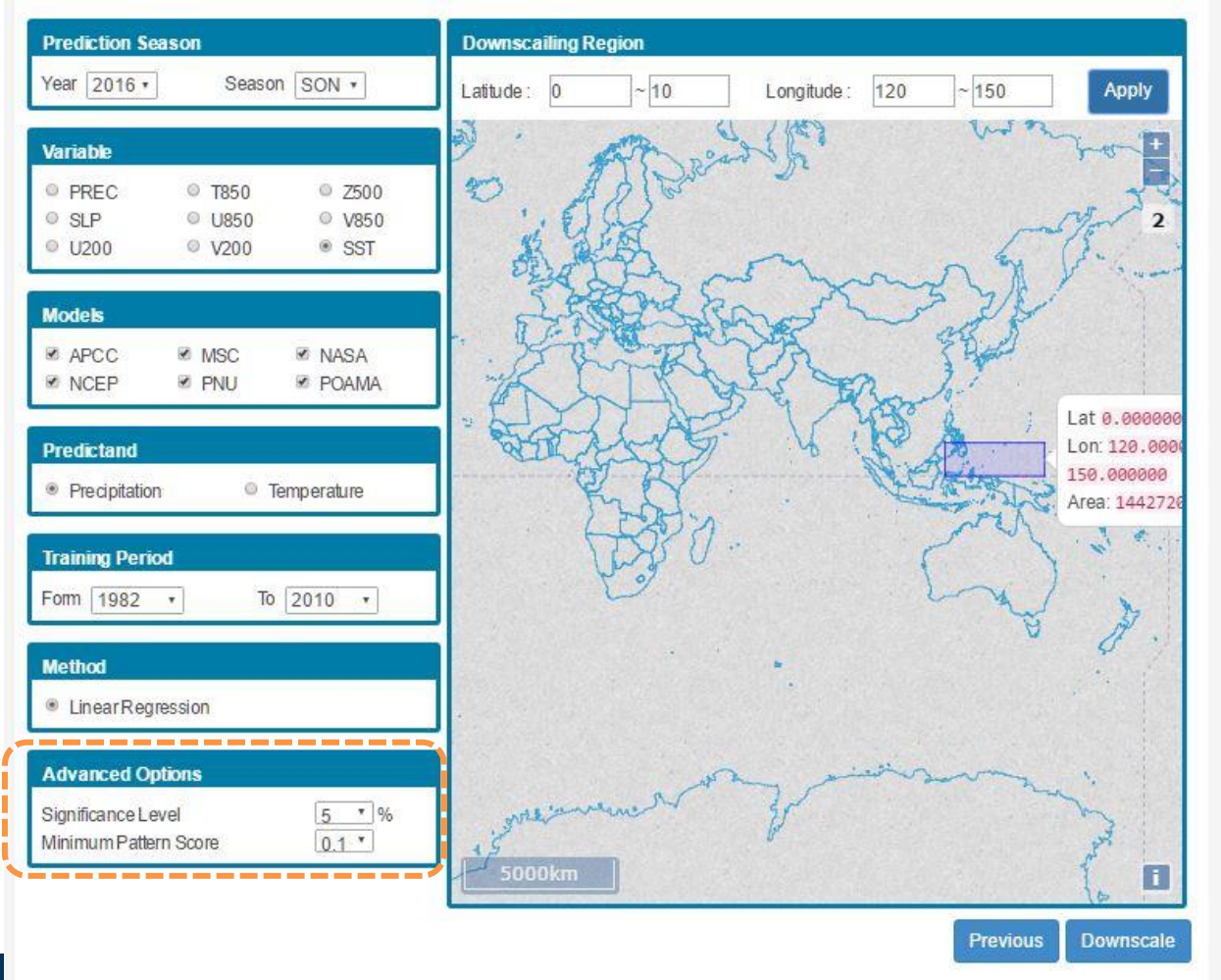
A. Select variables, models, training period, …,



Select training period
Common period of model and station data is shown as default.
1982-2010

Produce a downscaled forecast

A. Select variables, models, training period, …,



Select options for screening

Significance level 5%

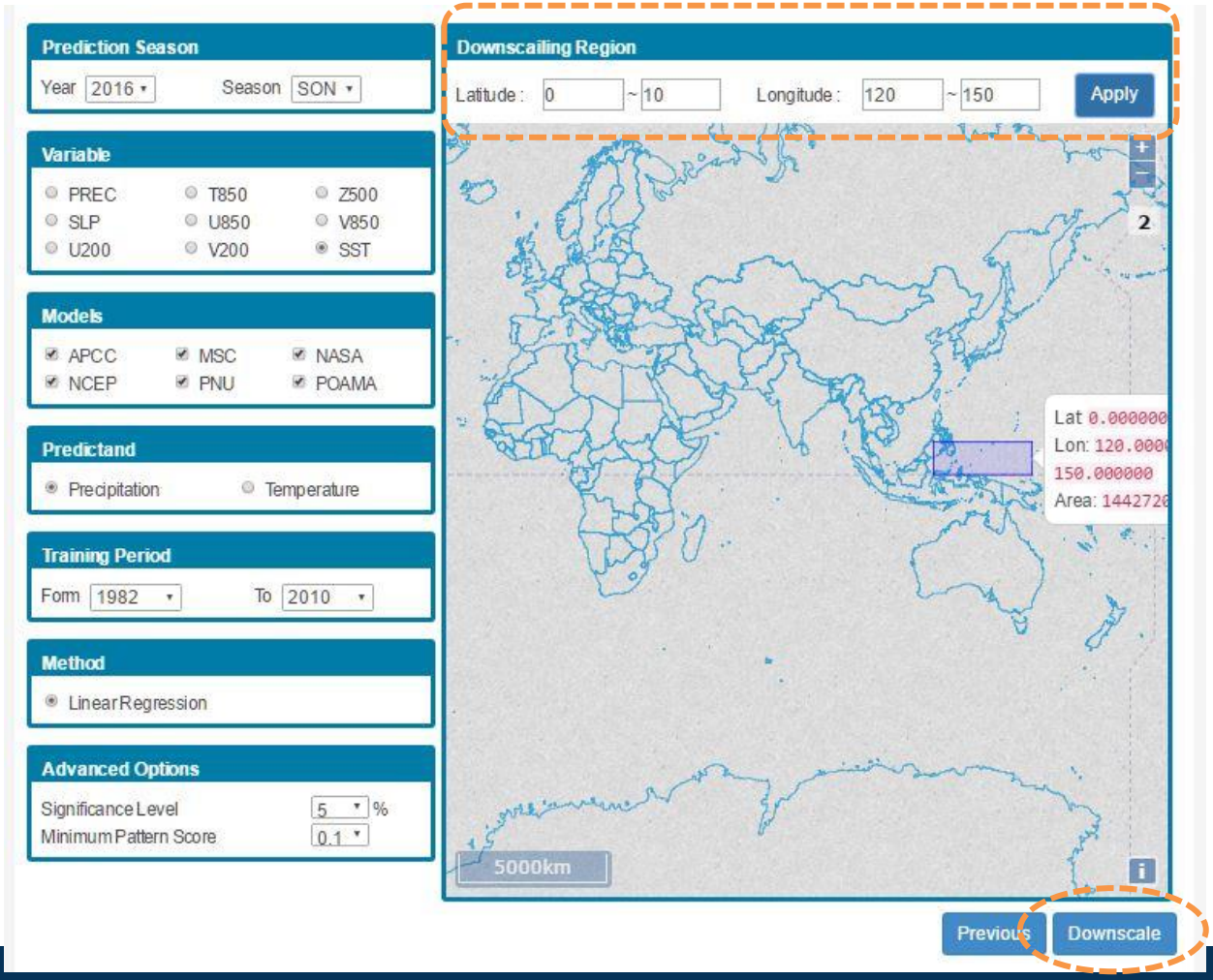
Test value for the screening test 1: relationship between station (Chachas prcp. and global observation (SST)

Minimum pattern score 0.1

Test value for the screening test 2: Resemblance of dynamical model pattern (SST) with the global observation (SST) over the predictor area

Produce a downscaled forecast

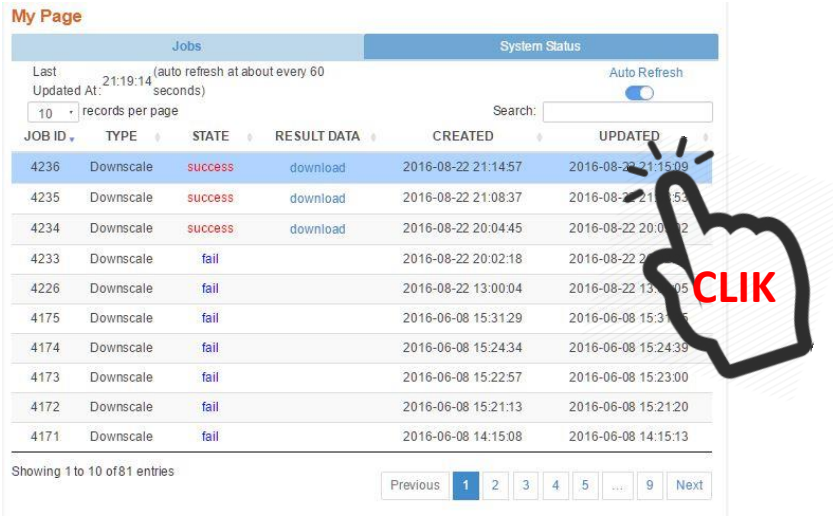
A. Select variables, models, training period, …,

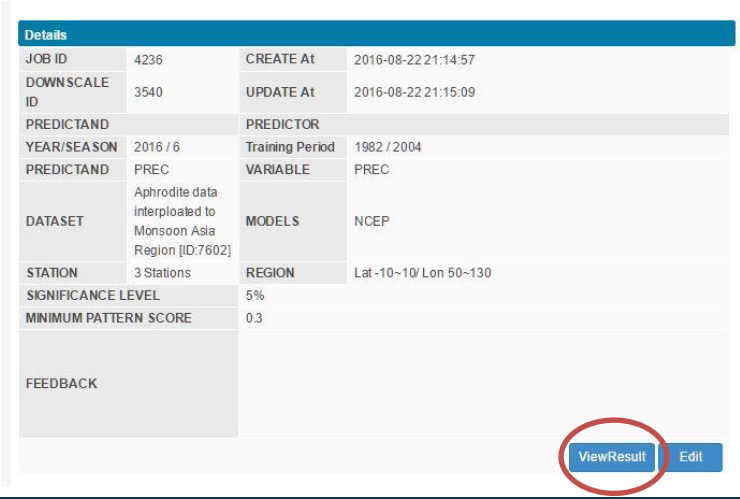


Downscaling region (predictor area)
0-10N, 120E-150E
Western Pacific region

Produce a downscaled forecast

B. Results





1. You will see the ‘state’ of the process. After the process is done, you will see ‘fail’ or ‘success’.

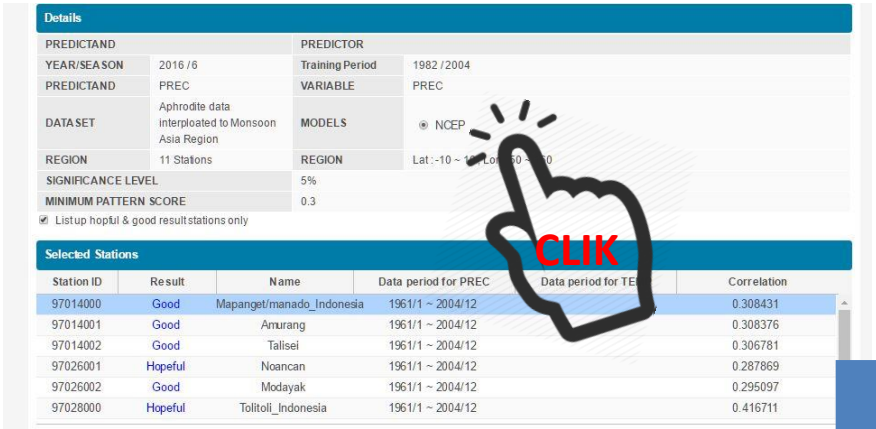
2. Click the job line to see the brief results.

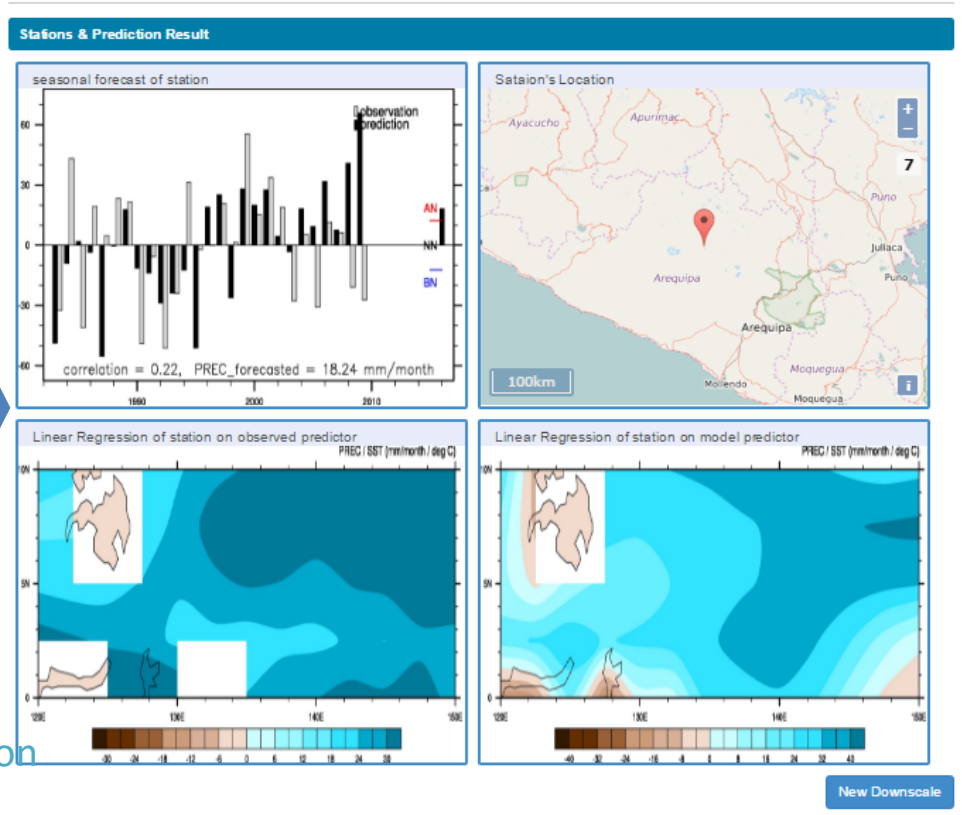
3. You can download the results anytime.

4. Click ‘ViewResults’ button to see the detailed results of downscaling.

Produce a downscaled forecast

B. Results



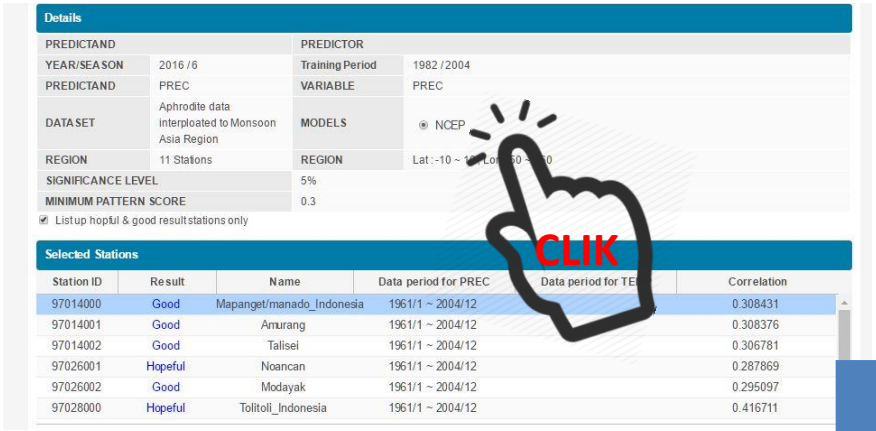


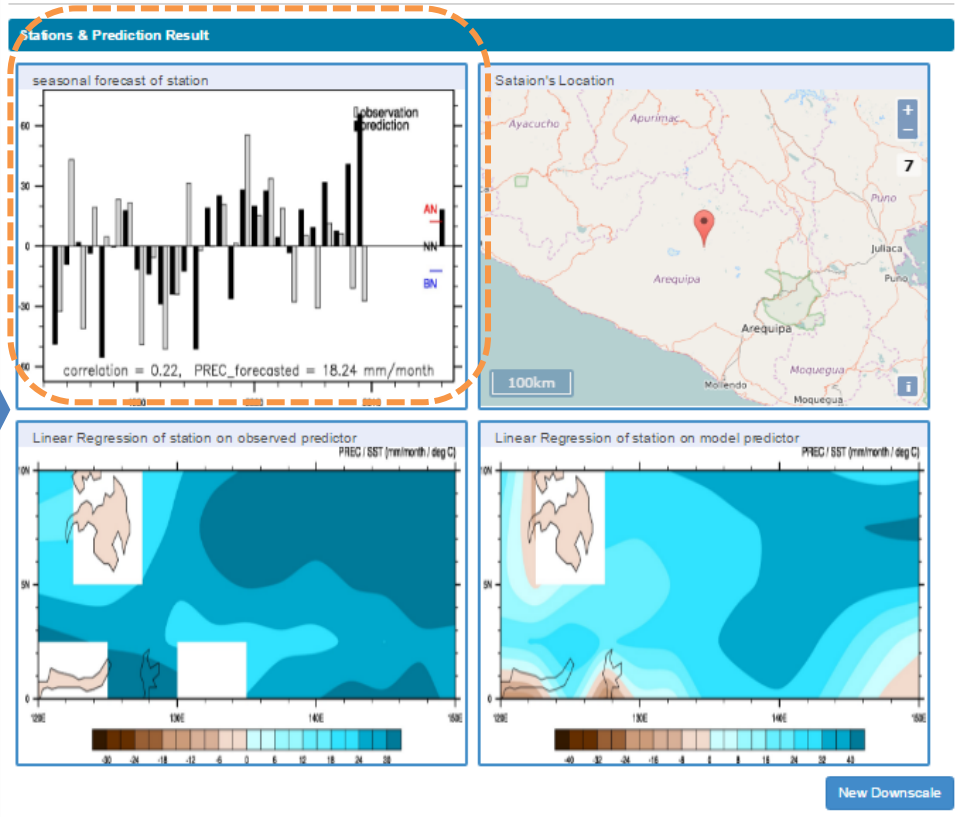
5. Select ‘MODELS’.
6. Click the station ID where you are interested in. Then you can see the prediction results for each station.

- Good: found relationship with global observation & dynamical models
- Hopeful: found relationship with global observation but not with dynamical models.

Produce a downscaled forecast

B. Results





Historical station time series & historical prediction time series (hindcast) for the station

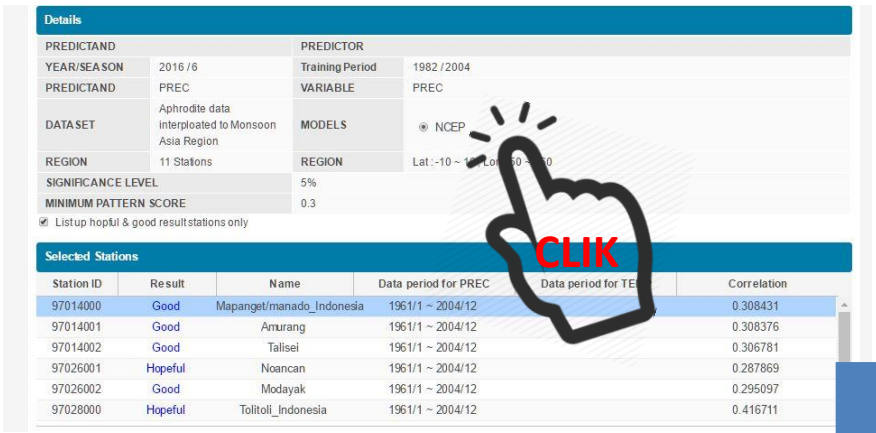
Correlation coefficient skill

Deterministic forecast

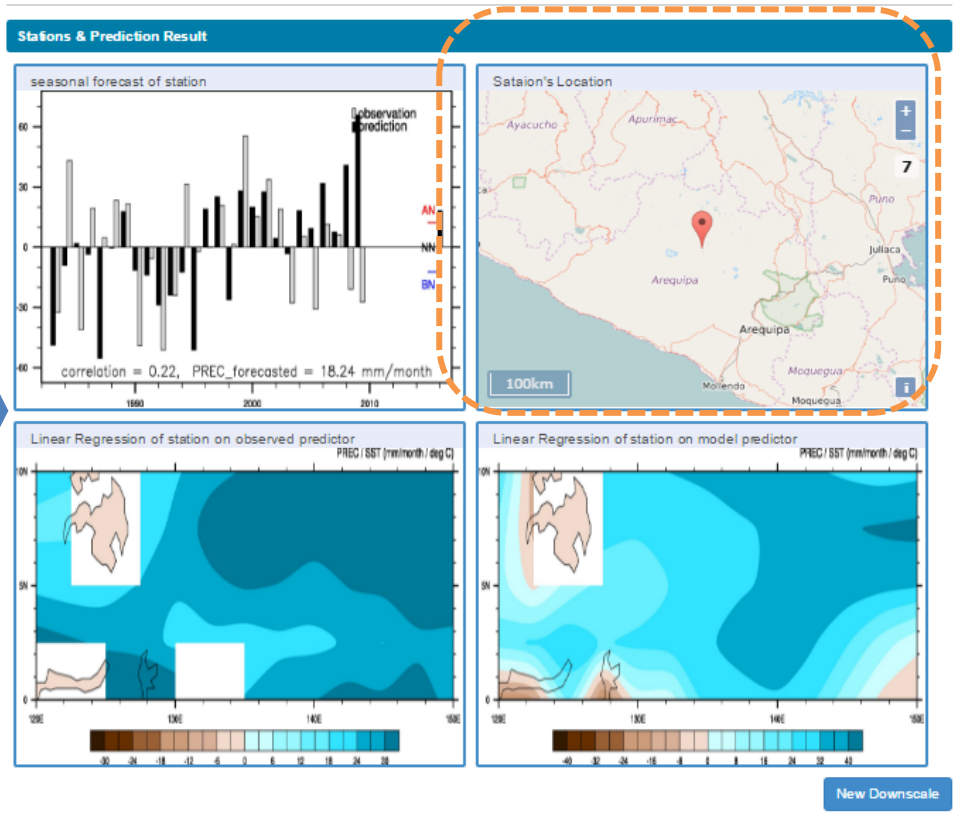
Tercile catefory of the forecast

Produce a downscaled forecast

B. Results

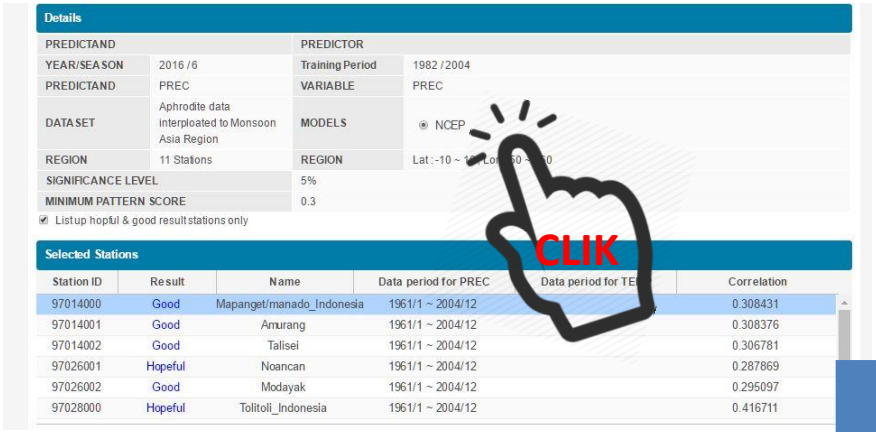


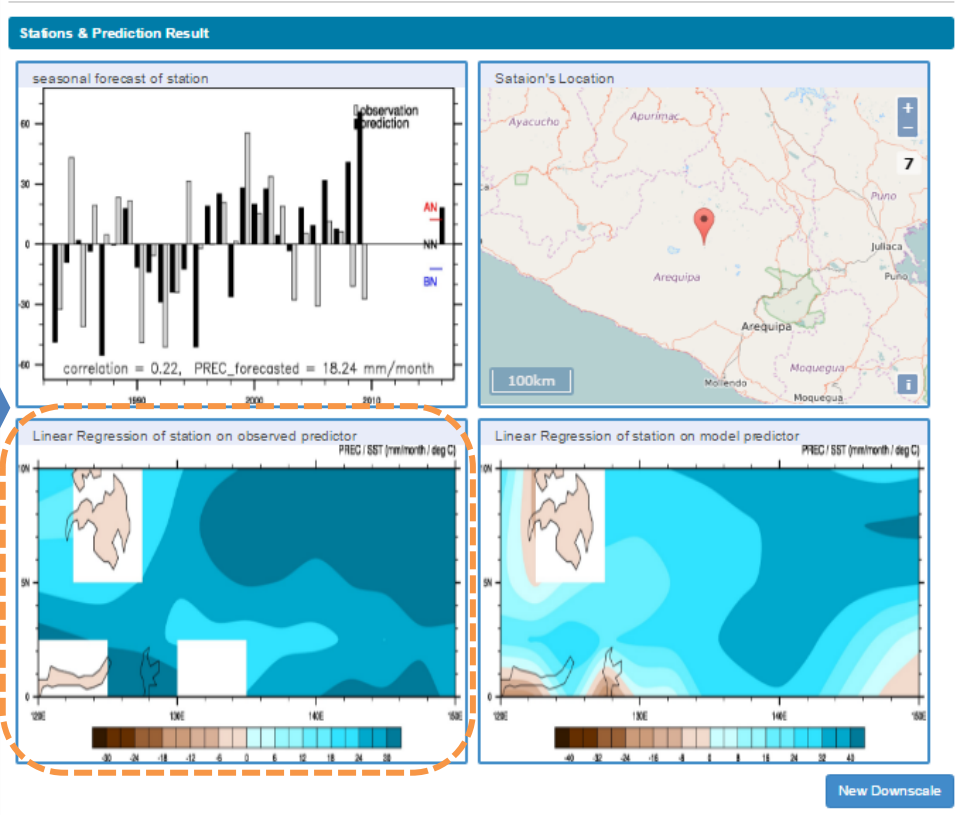
Location of the station



Produce a downscaled forecast

B. Results

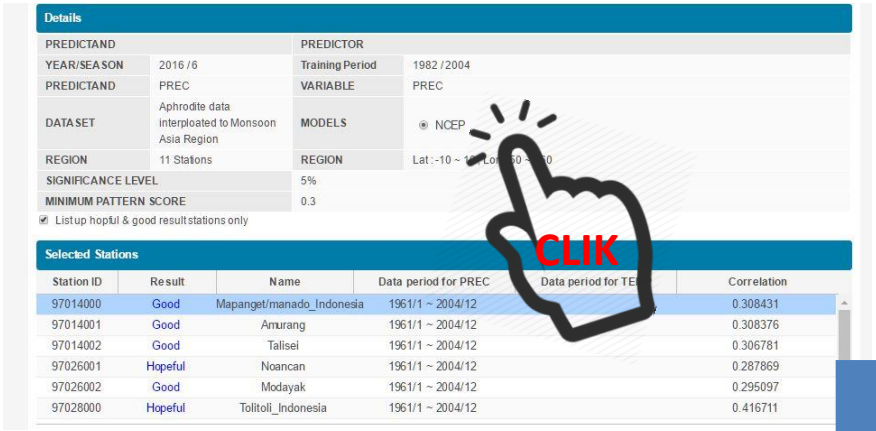


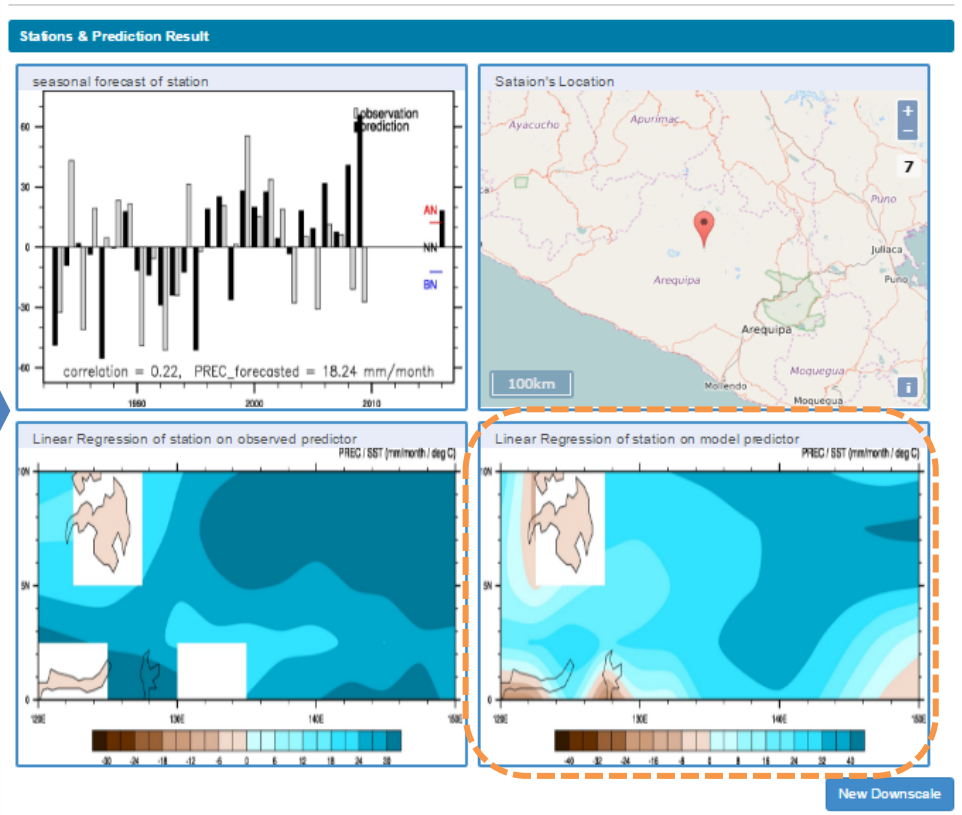


Relationship between the predictor, SST from the global observation data & the station data over the selected area (western Pacific)
(Test of the 1st screening)

Produce a downscaled forecast

B. Results

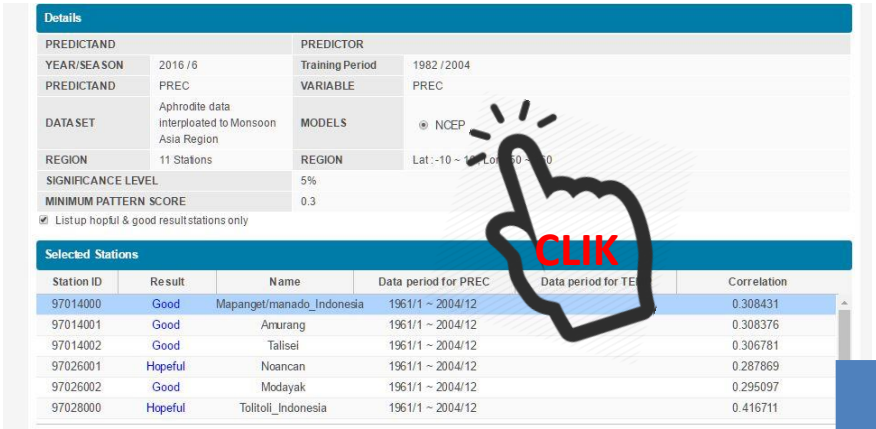


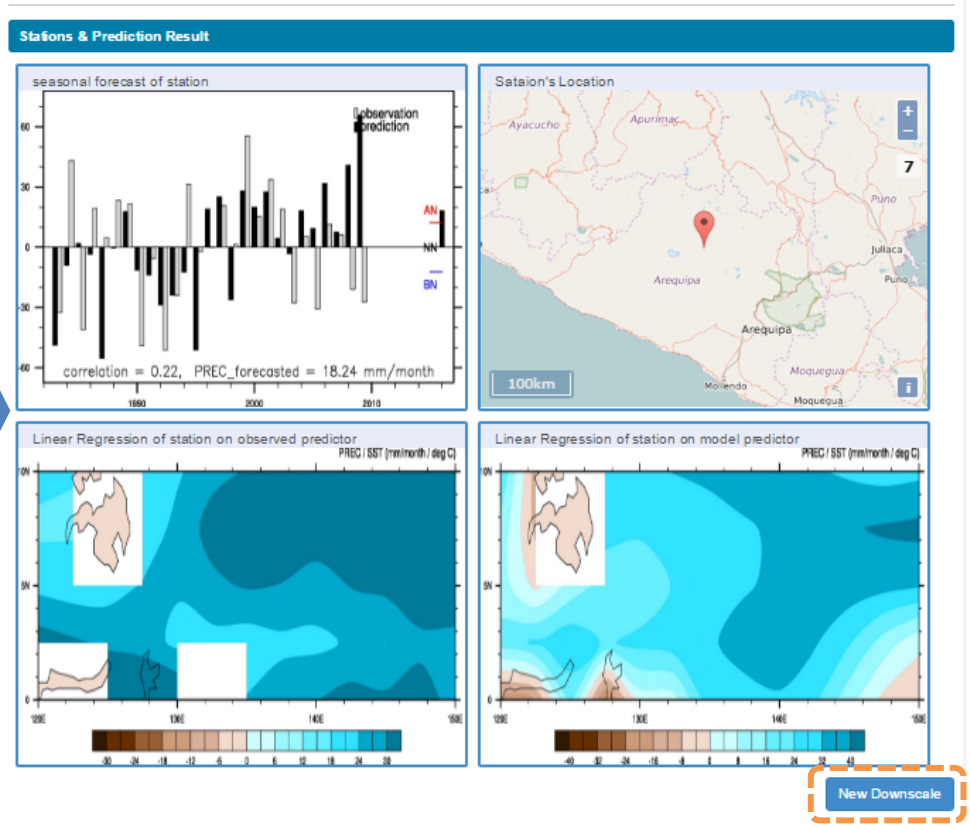


Relationship pattern between the model data & the station data over the selected area
(Test of the 2nd screening)

Produce a downscaled forecast

B. Results





New Downscale
Moves to selection page

Produce a downscaled forecast

- **If the downscaling fails,,,, be patient and try more!**
  - ✓ Find the large scale climate system (predictor) that affects local climate.
  - ✓ Tropical area can be good choice (dynamical models have good skill).
  - ✓ Find correlation maps that we provide you.


Thank you.