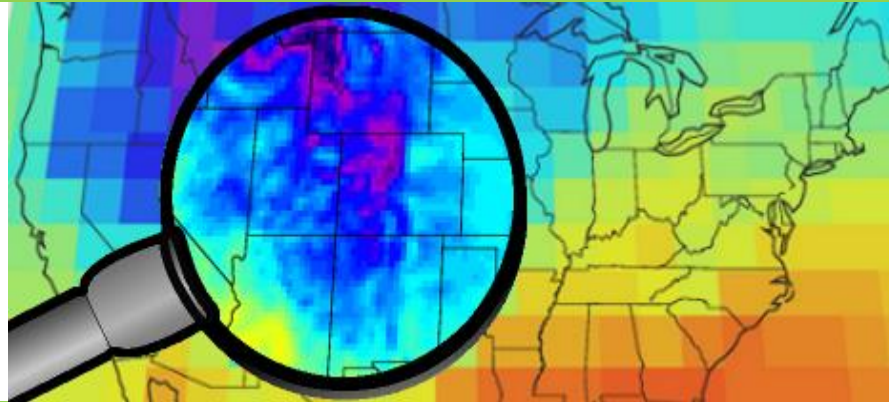


APCC
APEC CLIMATE CENTER

Hands-on Statistical Downscaling Training (III)

The screenshot shows the APCC AIMS sign-in interface. On the left, there is a blue header with the APCC logo and the text "Welcome to AIMS (APCC Integrated Modeling Solution). This software requires Internet access and user authentication." On the right, there is a white "Sign In" form with fields for "Email address" and "Password", a "Sign in" button, and links for "Sign up" and "Forgot your password?".



Jaepil Cho

2017/10/18

Overview

1. Raw GCM analysis for excluding worst GCMs



**Selection of
GCMs**

**2. Analysis of reproducibility and signal changes
using climate extreme indices**

**2.1 Evaluating reproducibility of climate extreme
indices for the historical period**

**2.2 Comparing signal changes in climate extreme
indices before and after downscaling**



**Selection of
downscaling
technique**

**3. Evaluating reproducibility of spatial correlations
among stations using variogram**

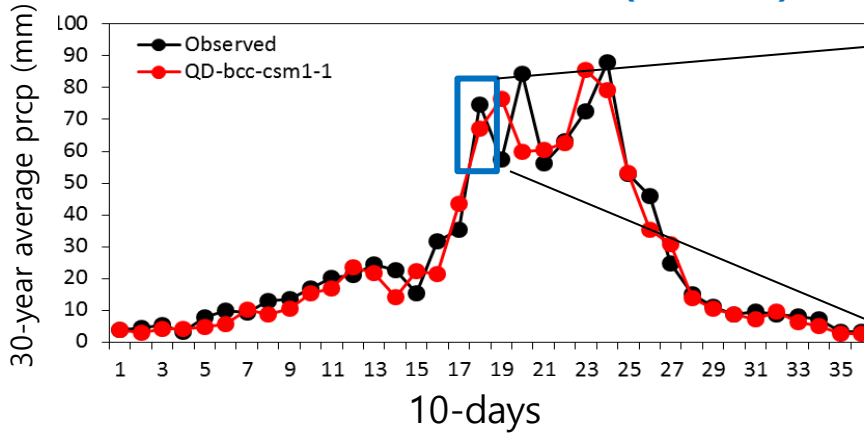
**4. Estimating multi-model ensemble (MME) mean
and providing uncertainty ranges according to
number of GCMs**



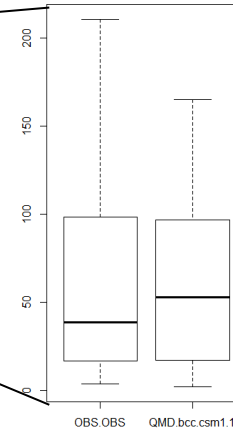
**User-centered
climate change
projections**

4. Calculating weight factor for GCMs and percent changes in future periods

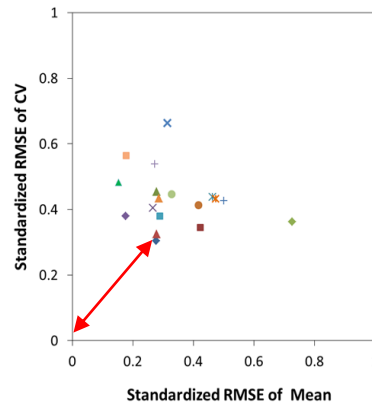
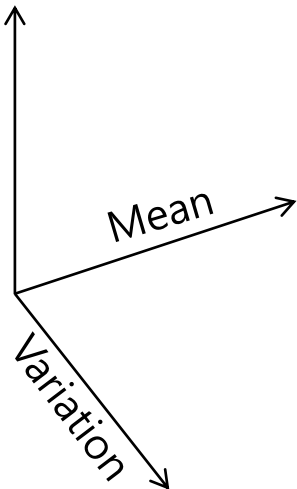
1. Mean difference (default)



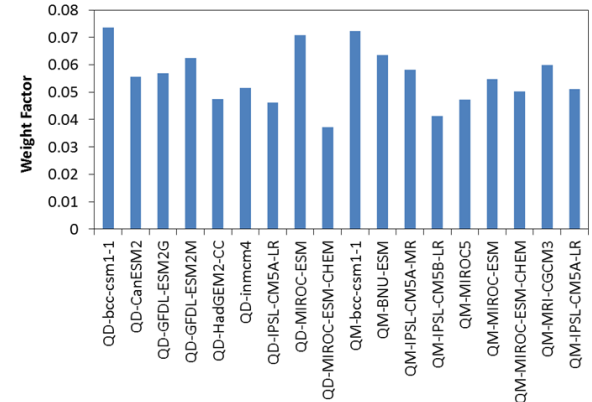
2. Variation difference (default)



3. User-selected climate index

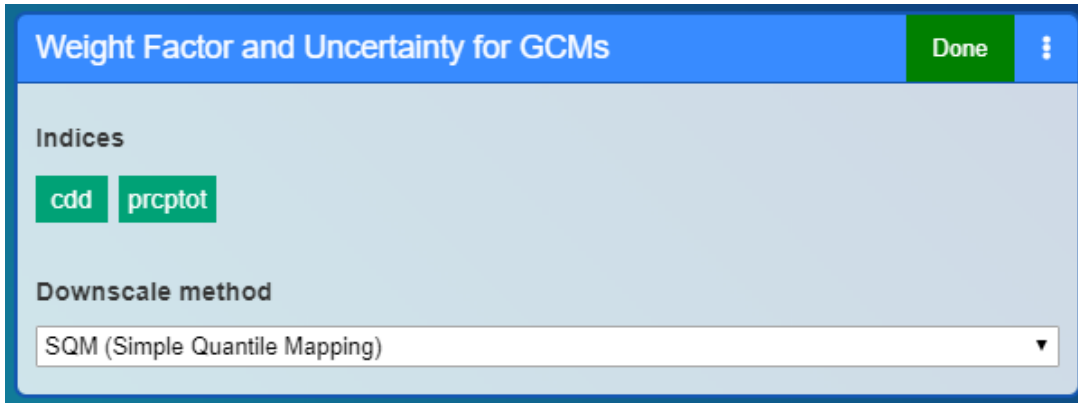


- ◆ QD-bcc-csm1-1
- QD-CanESM2
- ▲ QD-GFDL-ESM2G
- × QD-GFDL-ESM2M
- ▷ QD-HadGEM2-CC
- QD-inmcm4
- + QD-IPSL-CM5A-LR
- △ QD-MIROC-ESM
- ◇ QD-MIROC-ESM-CHEM
- ◆ QM-bcc-csm1-1
- QM-BNU-ESM
- ▲ QM-IPSL-CM5A-MR
- × QM-IPSL-CM5B-LR
- ▷ QM-MIROC5
- + QM-MIROC-ESM
- △ QM-MIROC-ESM-CHEM
- ◇ QM-MRI-CGCM3
- QM-IPSL-CM5A-LR



Calculating weight factor for GCMs

Weight factor for each GCM for calculating multi-model ensemble

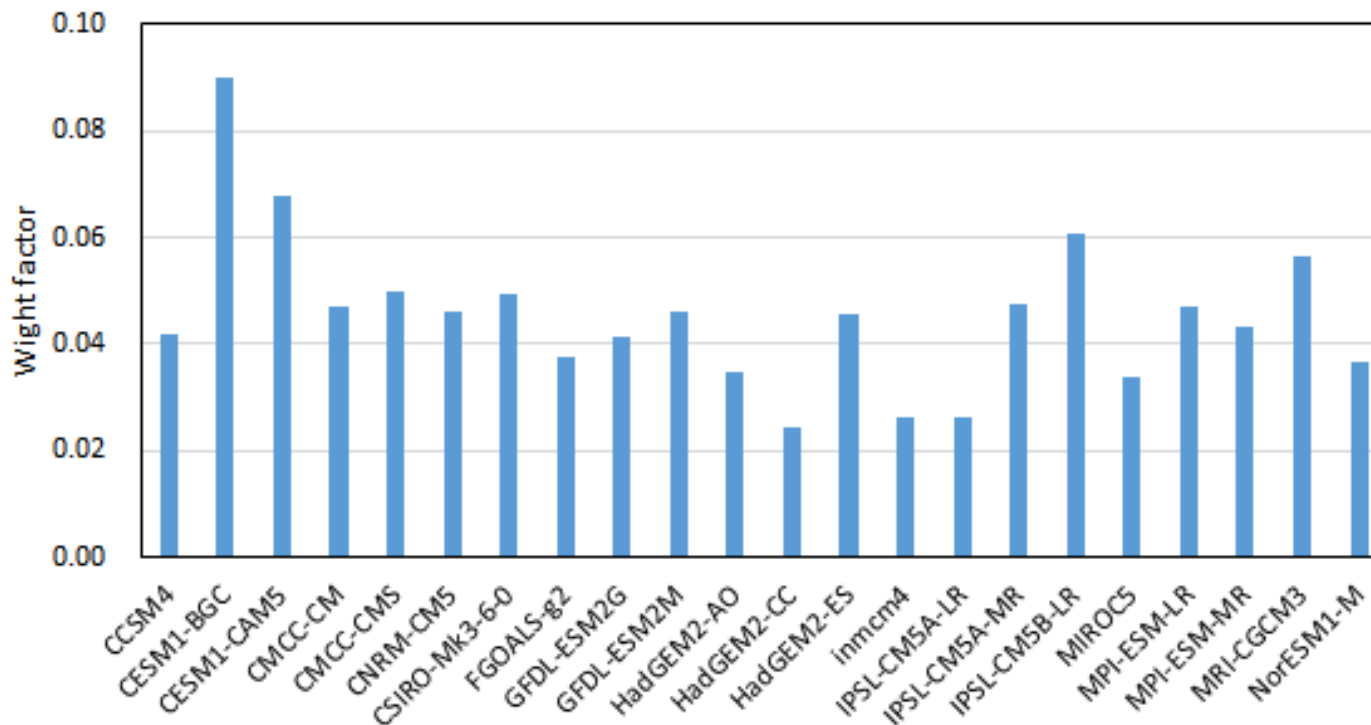


[project folder]/WeightFactorUncertainty

- Individual_distance_output.csv
- sqm_cdd_rcp45_WeightedFutureChange.csv
- sqm_cdd_uncertainty.png
- sqm_Distance_Summary.csv
- sqm_overall_uncertainty.png
- sqm_prcptot_rcp45_WeightedFutureChange.csv
- sqm_prcptot_uncertainty.png

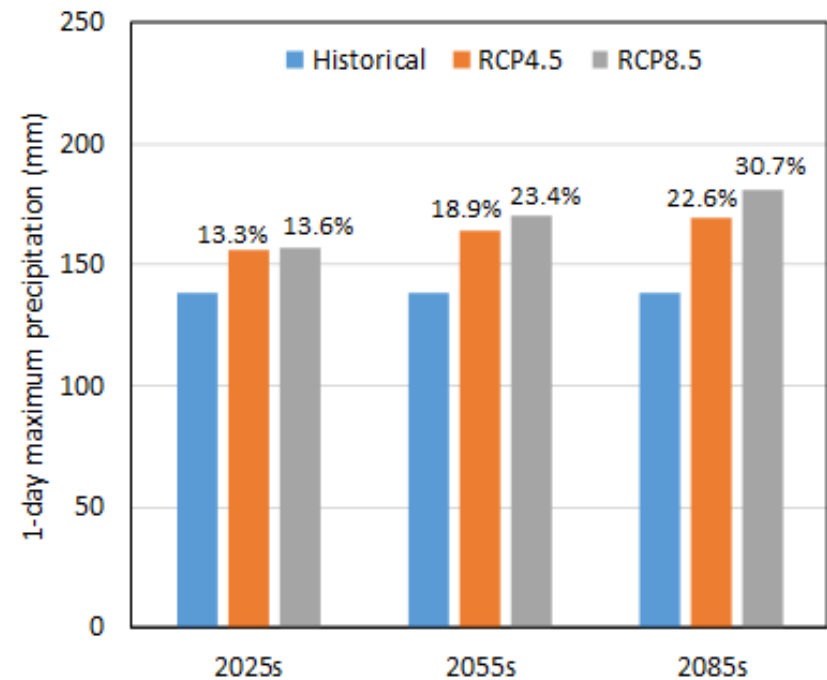
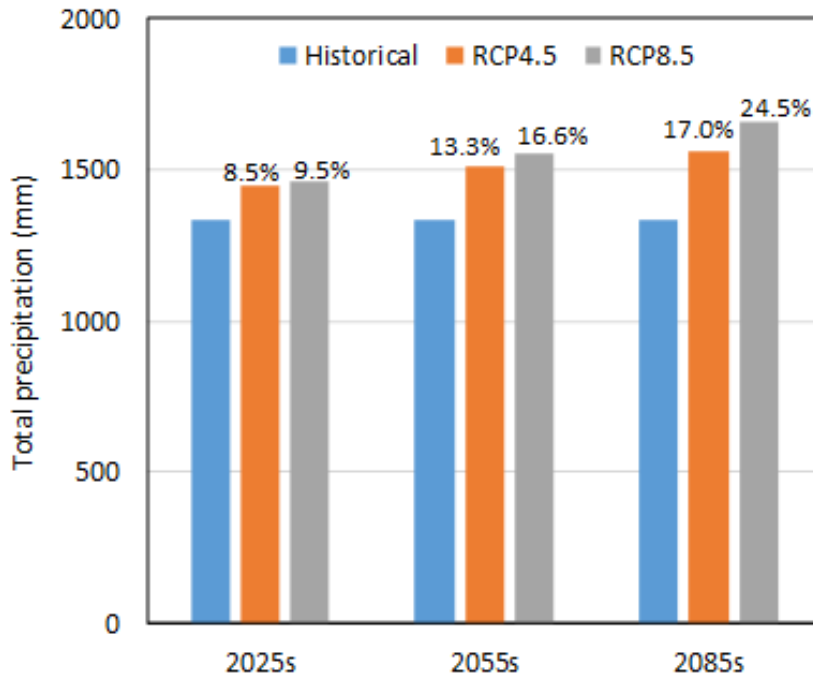
Calculating weight factor for GCMs

Weight factor for each GCM for calculating multi-model ensemble



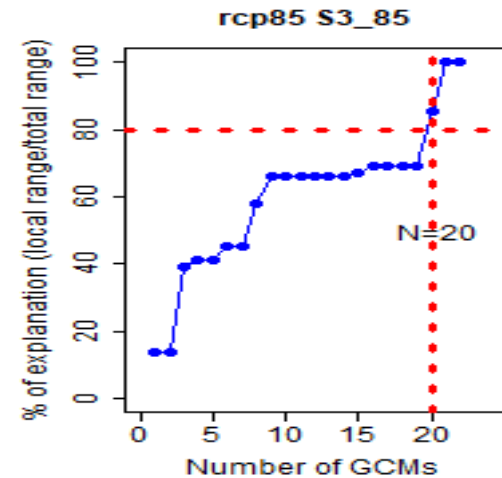
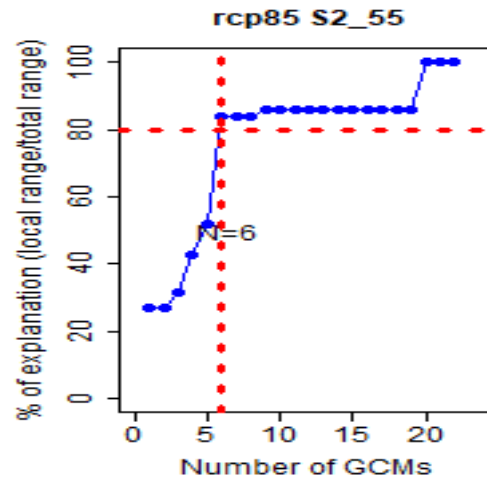
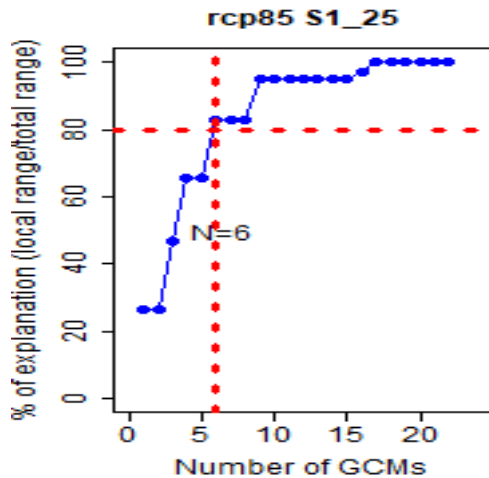
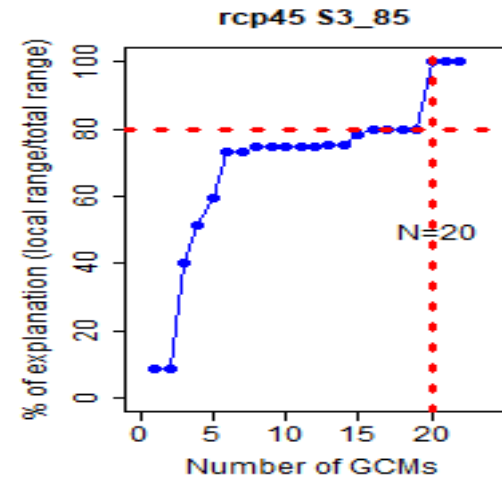
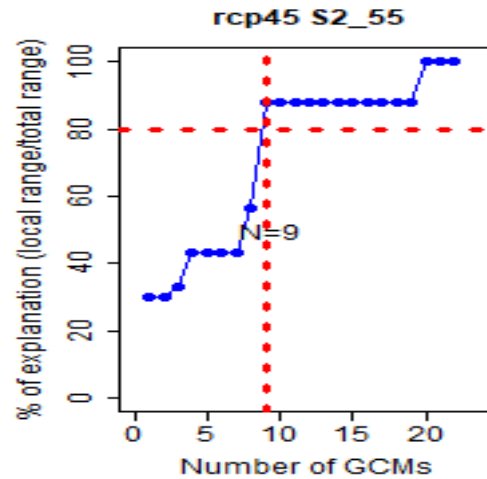
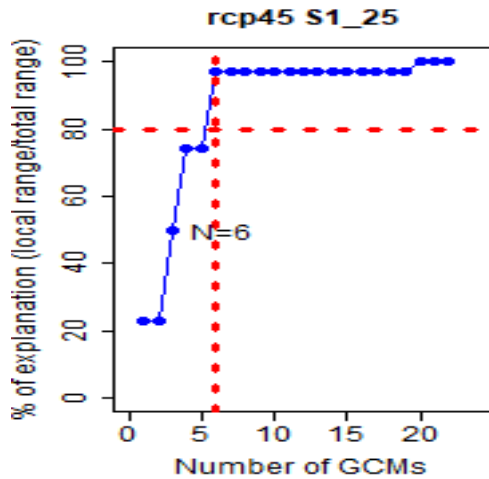
Overall summary (not included)

**Weighted average of changes in prcptot and rx1day
based on the downscaled data using 22GCM and SQM method**



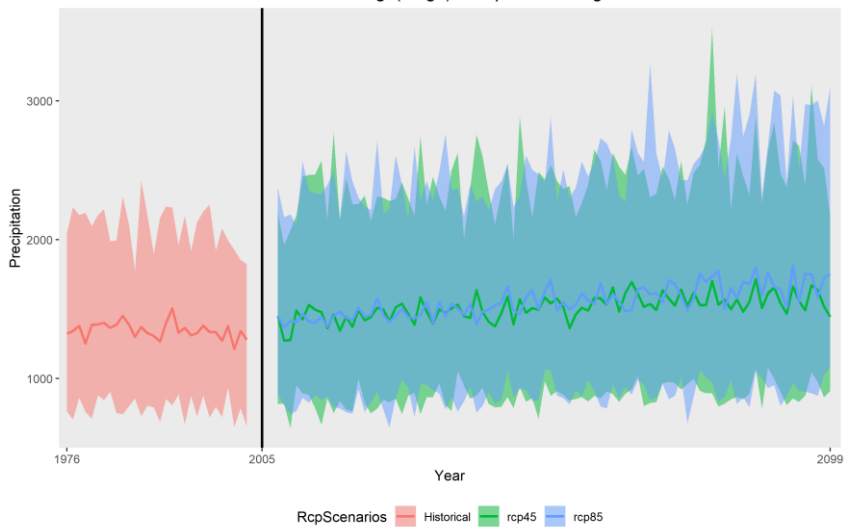
Uncertainty range covered according to the number of selected GCMs

Evaluation result of uncertainty explanation power due to increase of GCM number by SQM downscaling method (Overall)

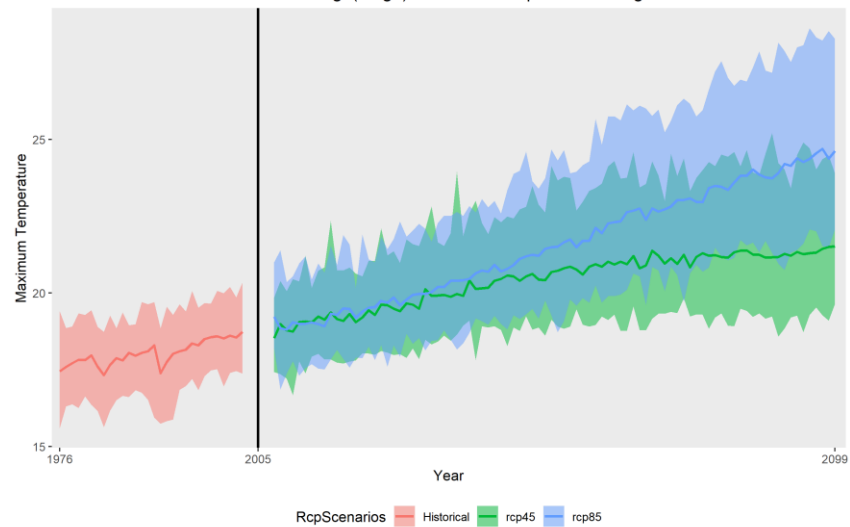


Annual changes (not included)

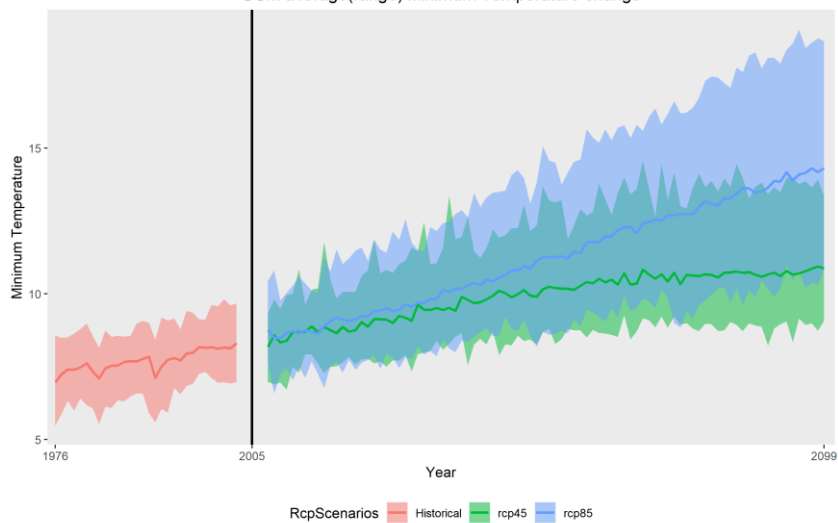
GCM average(range) Precipitation change



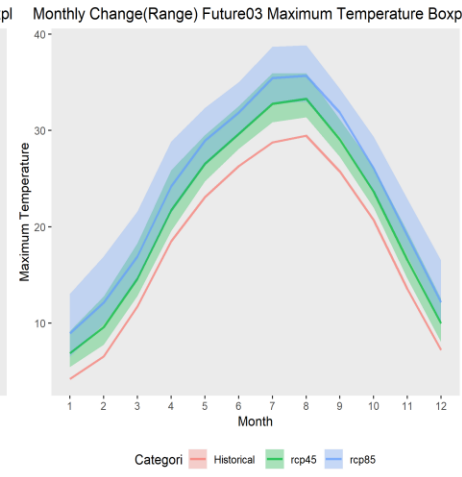
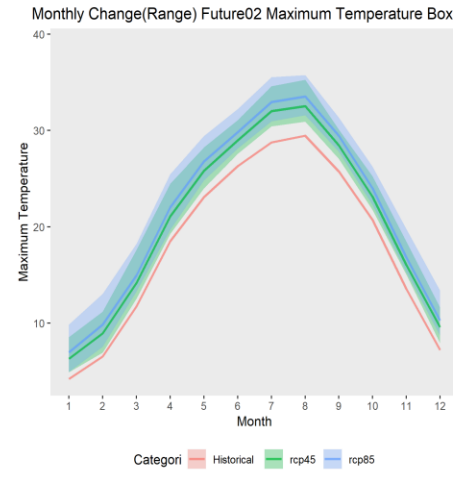
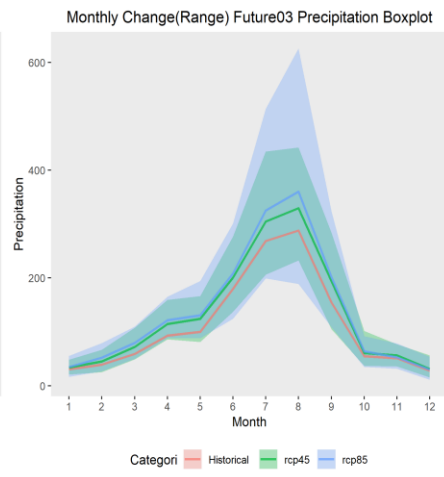
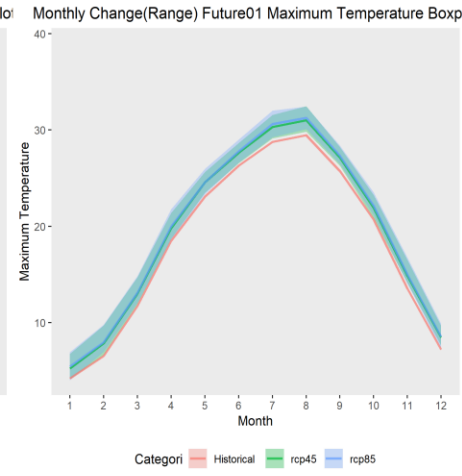
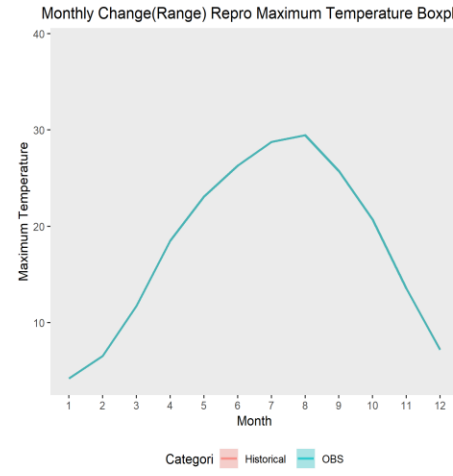
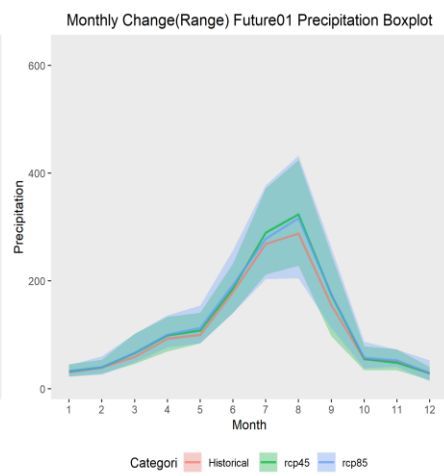
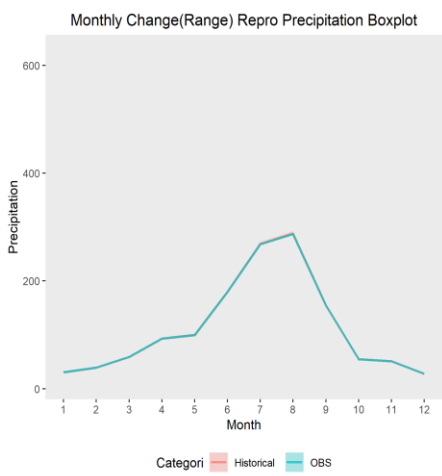
GCM average(range) Maximum Temperature change



GCM average(range) Minimum Temperature change

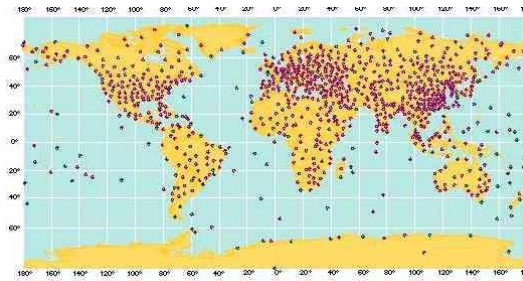


Monthly change (not included)

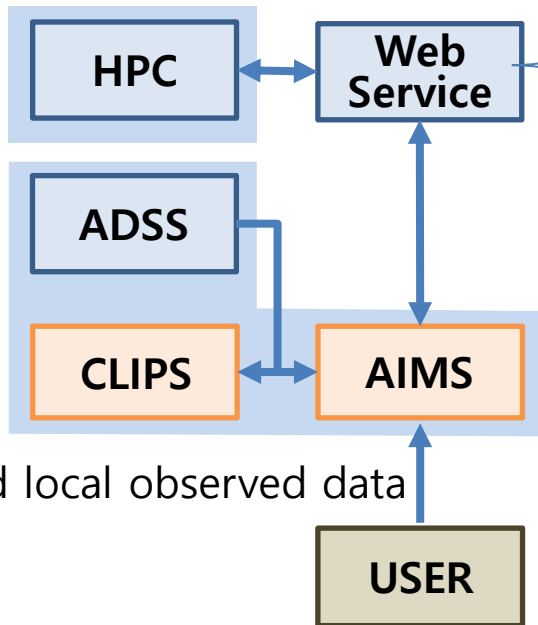
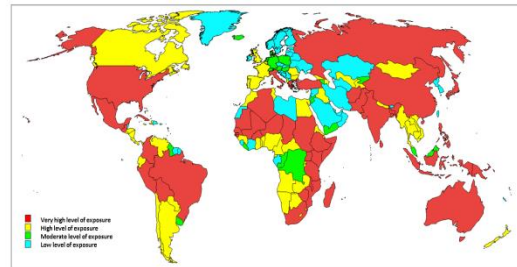


Web-based service

1 Sharing adaptation related information



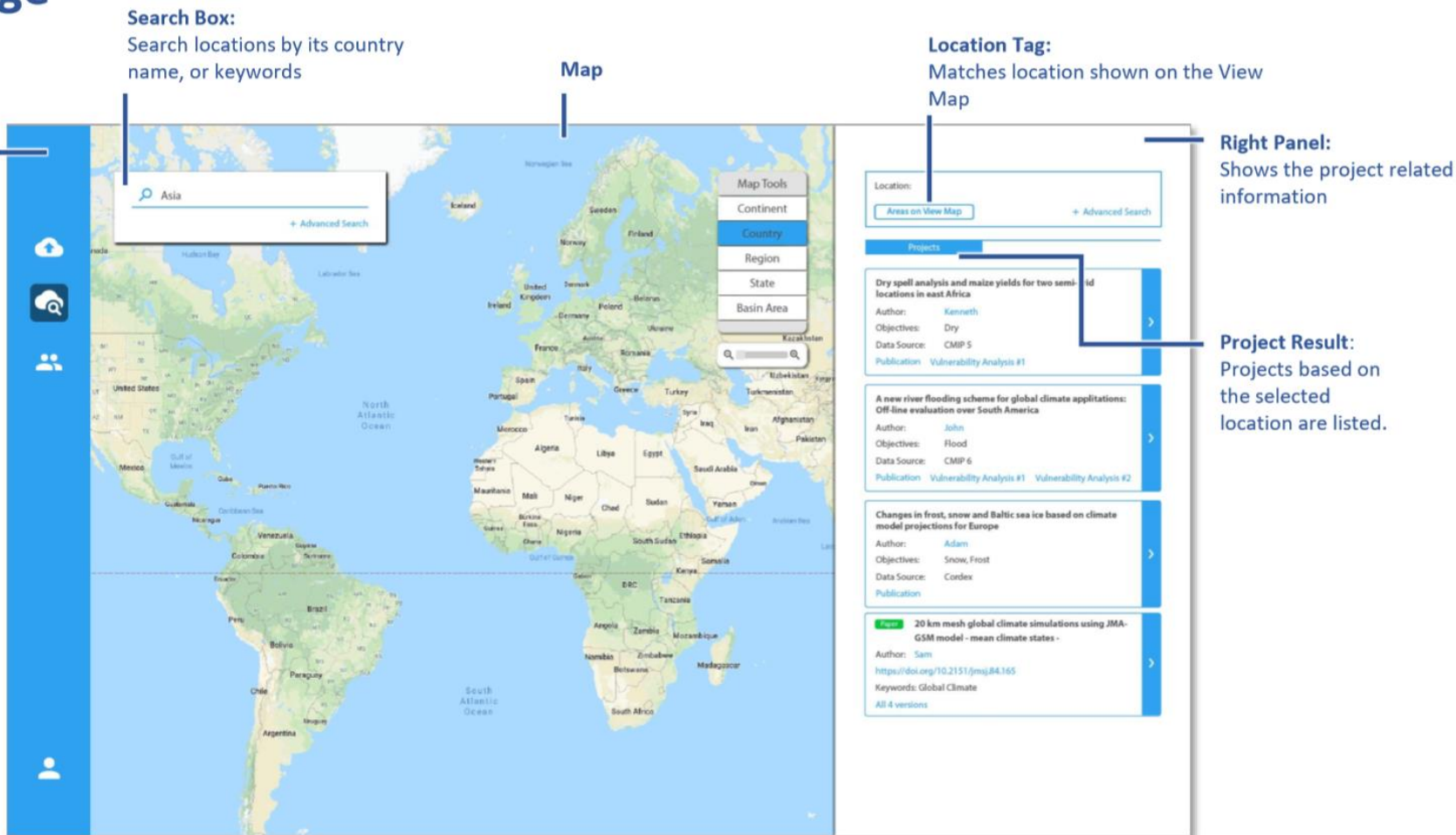
2 Providing climate exposure related information



Upload local observed data

Sharing adaptation related information (User interface)

First Page



Main Feature Tab

Search Box:
Search locations by its country name, or keywords

Map

Map Tools
Continent
Country
Region
State
Basin Area

Location Tag:
Matches location shown on the View Map

Right Panel:
Shows the project related information

Project Result:
Projects based on the selected location are listed.

Location: Asia + Advanced Search

Location: Areas on View Map + Advanced Search

Projects

Dry spell analysis and maize yields for two semi-arid locations in east Africa
Author: Kenneth
Objectives: Dry
Data Source: CMIP 5
Publication: Vulnerability Analysis #1

A new river flooding scheme for global climate applications: Off-line evaluation over South America
Author: John
Objectives: Flood
Data Source: CMIP 6
Publication: Vulnerability Analysis #1 Vulnerability Analysis #2

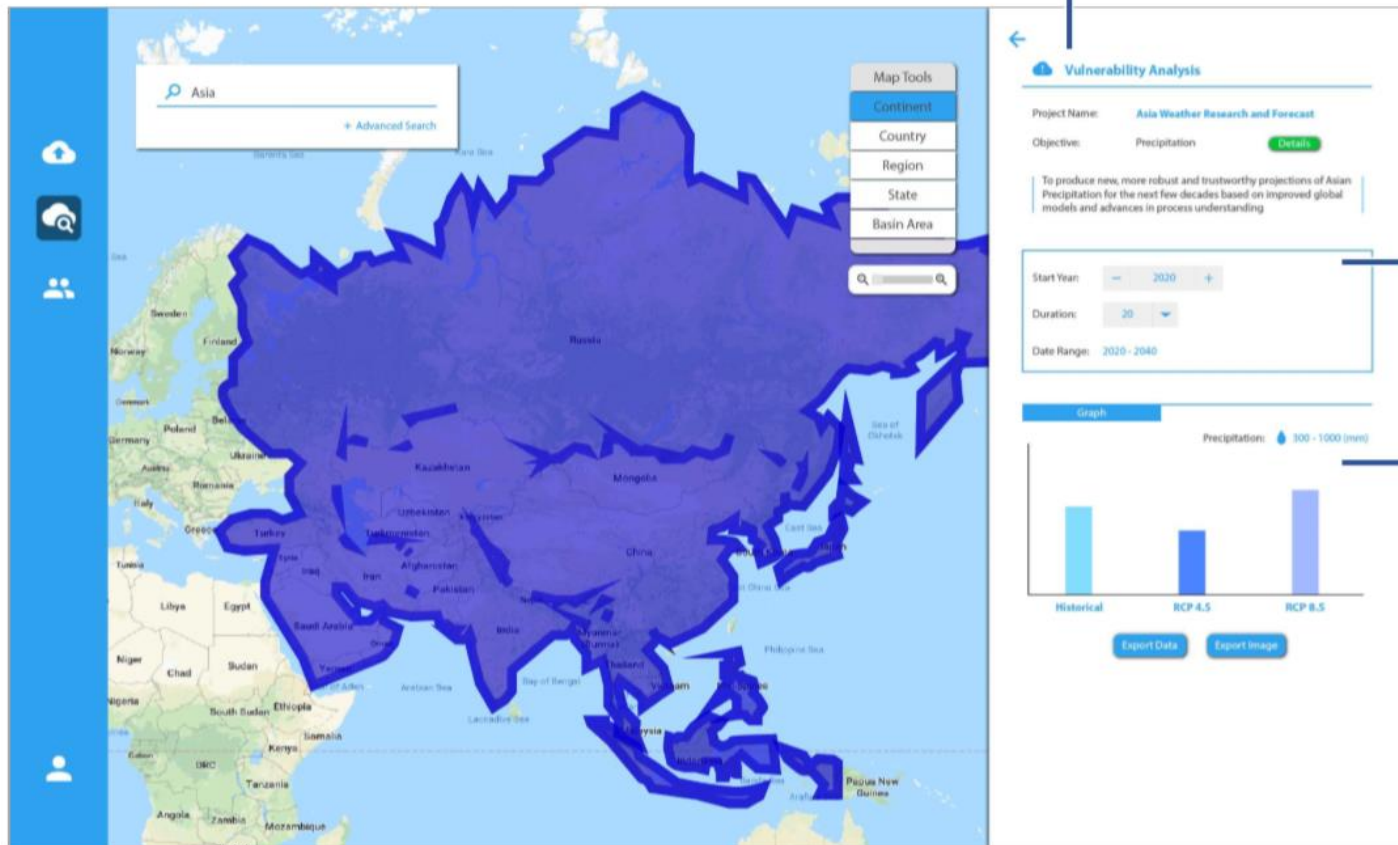
Changes in frost, snow and Baltic sea ice based on climate model projections for Europe
Author: Adam
Objectives: Snow, Frost
Data Source: CorDEX
Publication

20 km mesh global climate simulations using JMA-GSM model - mean climate states -
Author: Sam
<https://doi.org/10.2151/jmj.84.165>
Keywords: Global Climate
All 4 versions



Sharing climate exposure related information (user interface)

Vulnerability Analysis



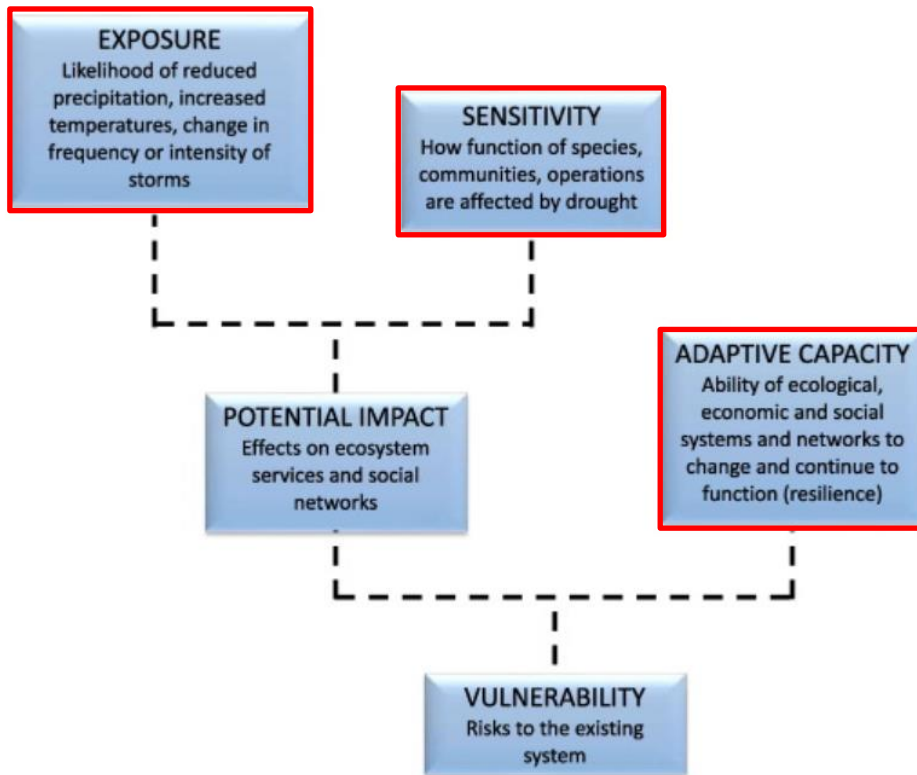
Vulnerability Analysis:
Provides vulnerability analysis details and related information

Year Range Selection Tool

Vulnerability Analysis Result

Exposure, Sensitivity, Impact, Vulnerability

Vulnerability: The quality or state of being exposed to the possibility of being attacked or harmed, either physically or emotionally.



Components	Case I	Case II
Exposure	100 mm/d	800 mm/d

Components	Case I	Case II
Exposure	800 mm/d	800 mm/d
Sensitivity	10 million citizens	60 thousand citizens

Components	Case I	Case II
Exposure	800 mm/d	800 mm/d
Sensitivity	10 million citizens	10 million citizens
Adaptive Capacity	Lots of money & experts	No money & experts



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Thank You!