



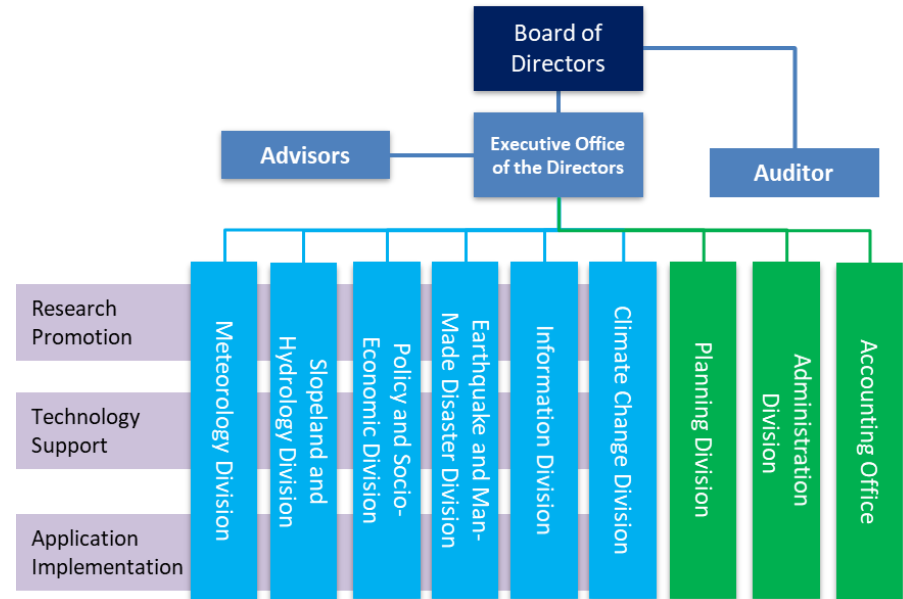
# Taiwan Climate Change Projection Information and Adaptation Platform (TCCIP): an Integrated Climate Change Platform

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## National Science and Technology Center for Disaster Reduction (NCDR)

- Disaster Prevention and Protection Act was introduced after “Chi-Chi Earthquake” in 1999
- NCDR was established under article 7 of the Act in 2003
- NCDR then serves as a national think-tank to promote research, provide technological support and in-dept recommendations to the government on disaster mitigation



\* Conducting interdisciplinary approaches for research promotion, technology support and application.



# An Integrated Climate Change Service Platform



Data Services ARK Knowledge sharing



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**MOST 科技部**  
Ministry of Science and Technology

## 氣候變遷整合服務平台

提供氣候科學與調適知識整合服務

AR5 全球最新資料模式

100,000 幅 氣候圖片

150 部 線上影音紀錄

資料服務  
線上資料申請與服務

180 份 歷年研討會報告

1,500,000,000 筆 氣候資料

出版品  
企劃出版品

1

## Slideshow

displays the latest update on the website. All slides contain an accessible link directly to the content page, giving visitors an opportunity to explore the latest development of our work.

資料商店 Data store

過去變遷 Historical records

未來推估 Future projections

氣候圖集 Climate change index

氣候專欄 Climate change Column

摘要報告 Special Report

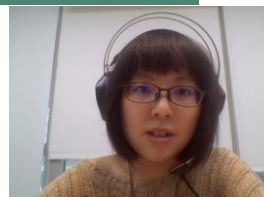
技術文件 Technical document

TCCIP粉絲頁 TCCIP Facebook Fan page

2

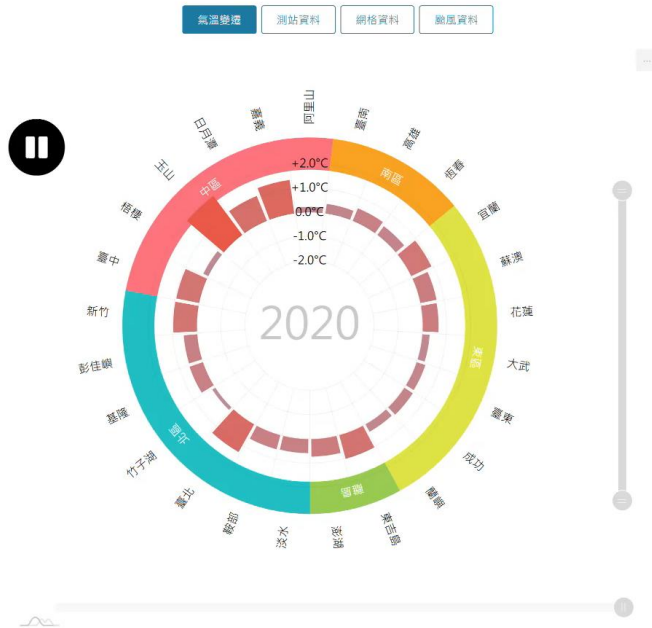
## Shortcuts to

the most popular functions/contents on the website.

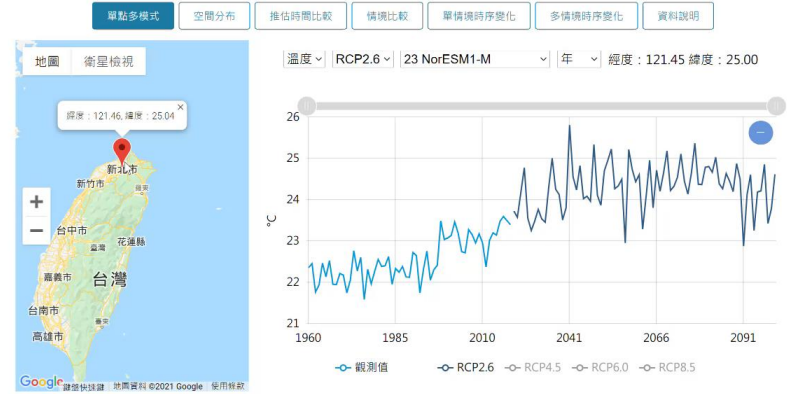


# Climate change data services

## 1 Animated historical trends (temperature)



## 2 Future trend (Temperature and precipitation)



## 3 Climate Change Data Store (10 Data sets)



Offer the gridded observation data, AR4 and AR5 downscaled data of Taiwan for different time scale (daily and monthly)

4 areas, 20 cities & 33 river basins



# Adaptation Resources Kit (ARK) - A toolkit that assists in carrying out adaptation action



## Records of adaptation experiment conducted by the TCCIP team

Impact Assessment Map

Hazard Map



1

2



Adaptation Knowledge

Adaptation Simulator

3





# ARK : Hazard and Impact Assessment Map



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調適百寶箱 / 調適領域 / 淹水危害圖資

## 調適領域

### 淹水危害圖資

本危害圖資為科研之階段性成果，代表氣候變遷情境下，各地氣候條件（如雨量、溫度、風速）的改變情形。

#### 情境 Scenario

RCP8.5世紀中 ▾

#### 指標 Index

總累積雨量變化率 前30%場次 ▾

#### 區域 Area

全臺 ▾

危害圖資 衝擊圖資 調適示範

1

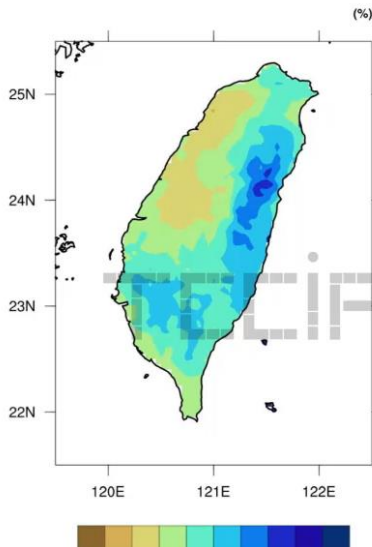
2

Users can easily select their index and area of interest.

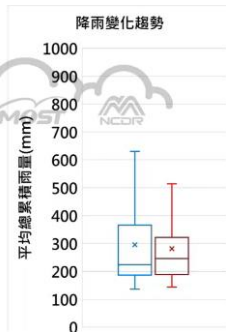
Main control panel to shift between hazard, impact assessment map and the adaptation experience sharing page.

### 淹水全臺RCP8.5世紀中情境總累積雨量變化率 前30%場次

相較於基期，在RCP8.5世紀中情境下，可看出全臺灣總累積雨量排序前30%場次降雨變化率北部及中部地區呈現減少的趨勢，南部及東部地區較呈現增加的情況；由降雨趨勢來看，平均值基期落在約296mm、世紀中約281mm左右，整體來說有些微減少之趨勢，在總累積雨量值整體範圍上基期較世紀中廣。



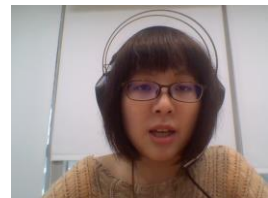
模式基期：1979-2008  
未來推估：2039-2065 (世紀中)  
模式數量：1 (動力降尺度)  
資料版本：V3.3



3

All maps come with brief notes on important findings that need special attention.

All indicators and maps are sector-specific



# ARK : Records of Adaptation Experiment



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調適百寶箱 / 調適領域 / 農業調適示範

The left side panel is the background information section, where we explain what this page contains and how these information can help the users.

1

## 調適領域 農業調適示範

透過各領域示範區，展示TCCIP團隊如何運用氣候變遷調適知識、氣候變遷推估科學數據、利害關係者溝通與配合，將理論與業務操作扣接，供執行調適計畫的單位進行參考。



2

Exact location of our experimental site.

## 故事背景

Background

## 操作流程

Procedure

## 調適方法

Method

## 操作紀實

Adaptation Logs

一陣帶著清甜醬香的肉燥被老闆攪揚起，熟練地放到被堆疊到八分滿的米飯上，醬汁隨著大約邊緣緩緩滲入晶瑩透白的米粒間，將大片的白飯上了金黃的顏色，一碗夢幻滷肉飯就此上桌。肉燥是滷肉飯的精髓，但它的「飯」卻是能決定顧客是否鍾情於此店家的致勝關鍵，從粳米到秈米，各店家用的種類、品質、比例都不相同，但因顧客對米的口感需求不一，擁護者也各自有之。台灣人這項對「吃米」的執著，透過滷肉飯就能看見端倪。



■

受米食文化影響極深的台灣，傳統農業自古就緊扣著稻米種植，據估計，全台灣每年可生產約140萬公噸的稻米，總種植面積約27萬公頃(2018年)，栽培地區遍布全台各地，成為了農業人口的主要經濟來源，也是保證台灣糧食安全的重要作物。平時耳熟能詳的台東池上鄉、雲林大埤鄉等地，更是種植高品質稻米的代表性鄉鎮。

較少人提及的北部稻米產區—新竹縣新豐鄉，是新竹縣稻米的最大產區，這個西臨台灣海峽，南與竹北接壤的鄉鎮，粗估每年產量約1萬公噸，放到全台尺度上來看，雖是個不起眼的數字，但新豐鄉在種植時所面臨的挑戰，卻比其他地區在稻米種植上嚴峻的許多。



3

Top row icons allow instant switch among pages without interrupting the left-side information panel.

4

Content usual involves a combination of pictures, graphs, videos and news links (when applicable).



# ARK : Adaptation knowledge (Case studies)



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調適百寶箱 / 調適知識

## 調適知識

方法 工具 參考案例

1

### UKCIP

英國風險決策框架 2003  
Adaptation Wizard

### UNDP

調適政策框架 2004  
APF

### UNFCCC

國家調適計畫 2011  
NAP

### TaiCCAT

支援決策系統 2014  
TaiCCAT

### ISO

調適標準 2019  
14090

### TCCIP

調適構面 2020  
TCCIP

This is the control panel with tabs that can quickly jump around pages, which includes adaptation framework, tools and international/local case studies.

## UKCIP

### 英國風險決策框架 (2003)

英國政府在1997年成立了氣候變遷衝擊計畫 (Climate Impact Programme, UKCIP)，以契約方式將統籌英國氣候變遷研究的權力交付給了牛津大學環境變遷研究所，滾動修正至今共分為三大重點推動：調適決策、知識交流及創新調適。

除了亮眼的科研推估成果外，UKCIP也配合政策需求於2003年5月公布技術報告，提出氣候變遷風險不確定性決策框架 (Climate change risk-uncertainty-decision-making framework)，並陸續將一系列開發出的指引、工具等綜整後推出調適精靈 (Adaptation Wizard) 供各界應用推廣。

該風險框架共有4個面向，並細分為8個階段，可協助決策者判斷何處應實際考量氣候變遷，如有議題將遭遇顯著衝擊，則提出包容不確定性的調適選項，並建議應將所有利害關係人納入決策過程中，或透過該框架檢視評估進行中的決策程序。

🔗 調適精靈 風險框架技術報告



2

In case studies, cases that fit the set condition will be display on the right, allowing user to quickly filter information according to their needs.





# ARK : Adaptation Simulator

1

This panel lists 5 adaptation actions that are most often used in combating urban flooding. Users can drag the button on the selection bar, to see the probable changes of the flooded area when action is used separately and in combination with other actions.

## 調適模擬器

### 淹水

#### 流量分洪



#### 滯洪池增設



#### 堤防增高



#### 河道拓寬



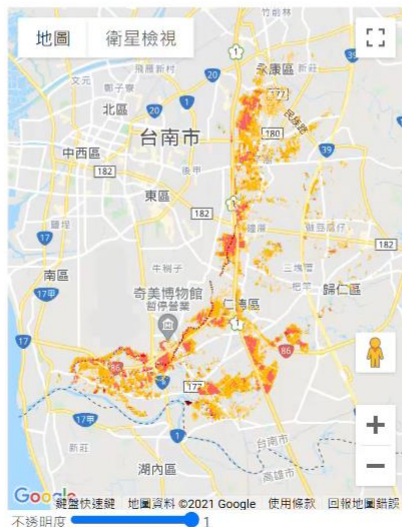
#### 下水道導流



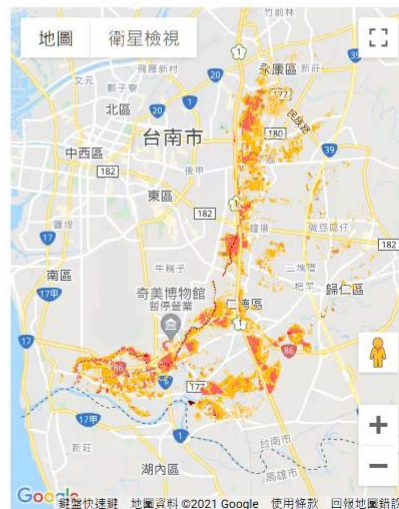
## 三爺溪示範區 21 世紀末最劣淹水境況場

針對不同調適方法修改所使用之SOBEK淹水模組，進行不同調適作為之淹水境況模擬，藉此了解在不同調適作為情況下，所達成之調適目標與效益。

現有調適狀況淹水模擬境況



新增調適作為淹水模擬成果



2

This part explains what this simulator does.

3

Map on the left-hand side shows the flooded area under climate change scenario without any additional adaptation action. The map of the right-hand side shows how flooded area might change when additional adaptation option is applied (adding new facilities etc.).



# Knowledge curation and sharing



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知識服務 / 國際新知

不指定 ▾  搜尋

## 全球將面臨升溫臨界點的風險

發表日期：2021-06-17

作者：David Shukman；翻譯：李宣融

觀看：16 次

引用來源：BBC

一項來自世界氣象組織(WMO)的報告顯示，到2025年，有40%的機會出現一年氣溫會比工業化前水平高1.5°C；而在十年之前，這項估計只有20%的機率。英國氣象局的科學家Leon Hermanson說，與1850-1900年的溫度比較，顯示現今氣溫有明顯的上升。他補充說道：「這代表著我們正在接近巴黎協定所訂定的1.5°C標準——雖然我們還沒有到達，但已經很接近...」



## 歷史上最前一宗因氣候變遷而引發的戰爭

發表日期：2021-06-16

作者：Katie Hunt；翻譯：李宣融；校稿：孫天祥

觀看：10 次

引用來源：CNN

研究人員在蘇丹北部的尼羅河旁的傑貝爾-薩哈巴 (Jebel Sahaba) 遺跡中發現了13,000多年前的長矛和箭等武器造成創傷的遺骸，然而科學家利用最新的方法重新檢查了遺骸，發現這並不是像早期普遍認為地大規模的屠殺行為，而是在幾年之間發生多起的零星暴力事件，而且主要原因很可能是受當時氣候和環境變遷所引發的。來自法國和英國的研究人員發現，這些骨骼上的傷痕在之前的研究中都沒有...



## 七大工業國(G7)同意將共同抑制化石燃料使用

發表日期：2021-06-15



1

International News on Climate change

2

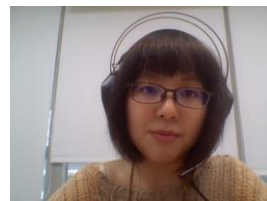
Summary of Special Report on Climate Change

3

Climate Change Column

4

TCCIP Newsletter



# Workshops and International Conferences

1

## Develop research capacity and maintain quality

Apart from close partnerships with international research communities, TCCIP hosts international workshop or conference every two years to keep updated on newest research methods.



2

## Gain users' feedbacks and facilitate communication

TCCIP hosts at least 2 workshops or seminars each year to maintain close communication with users so that design of the website can reflect the expectations and needs of users.





# Linking across Asia-pacific region: benefits

1

## Small/island countries share the need of downscaled data

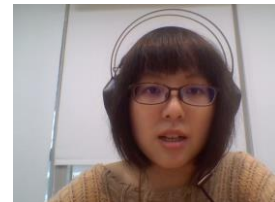
Development of downscaled data is critical for small countries and small island states in assessing local climate change impacts. The downscaling techniques and skills can be exported from one country to the next.



2

## Peer sharing and learning of best practices

Many countries in the region share similar climate change challenges and social structure (e.g. Taiwan, Japan, Philippines). Close collaboration and experience sharing among these peers may yield great result for capacity building.



1

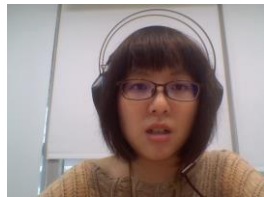
## How to make sure we are talking about the same thing?

Language barrier, definition of terms, technical jargons contribute to the existing difficulty of knowledge sharing. Platforms and documents are mostly tailored for local users, how can we ensure the essence of the adaptation knowledge and experience is not lost in translation? how can cultural-specific content be properly interpreted?

2

## Where to start?

Majority of the countries are at different phases of adaptation and climate change service. How to align our goal and make sure all parties are benefitting from the sharing process?





# Thank you!

## Knowledge Exchanges



Bi-Lateral Knowledge Exchange Events



Virtual Knowledge Exchanges



Global Exchanges



Survey



Establishment of a Workspace



weADAPT

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Home ▾ Learn ▾ **Articles** ▾ Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP)

### Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP)

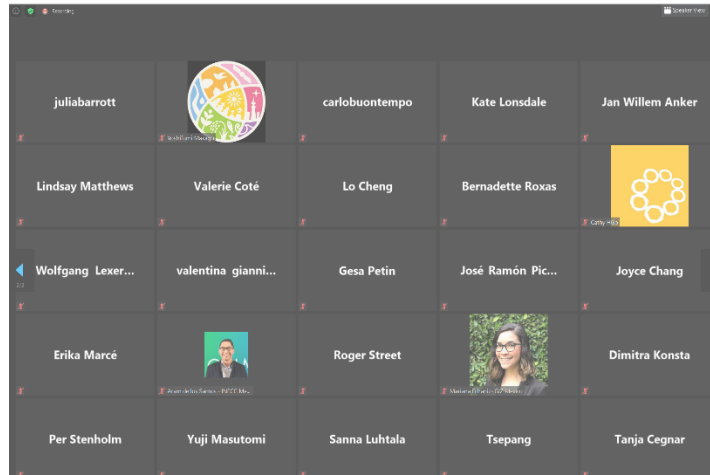
Submitted by Rubin Hoqueer | published 4th Dec 2020 | last updated 17th May 2021

**Theme Content**

- KECAP Project Outputs
- Climate Adaptation Platforms

**Network**

- Climate Change Adaptation Knowledge Platforms
- Community of Practice



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