

Taiwan Climate Change Projection Information and Adaptation Knowledge Platform-TCCIP

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TCCIP ?

- Taiwan Climate Change Projection Information and Adaptation Knowledge Platform



Science-policy-practice interaction

The national adaptation and TCCIP



Environmental Protection
Administration

FCCC
report

2003-2009



National Development
Council

National
Adaptation
phase I

2012-2017



Environmental Protection
Administration

National
Adaptation
phase II

2018-2022



National Science Council

Climate
Change
Study

Back to 1998



CliCS, **TCCIP**, TaiCCAT

2009-2017



TCCIP

2017-2022

Science-policy-practice interaction

science

policy

practice



**Ministry of Science
and Technology**

Scientific
development
and support
for climate
change risk
assessment and
adaptation



**Environmental
Protection
Administration**
Integrate and
manage the
national climate
change
adaptation plan
and result from
different ministry



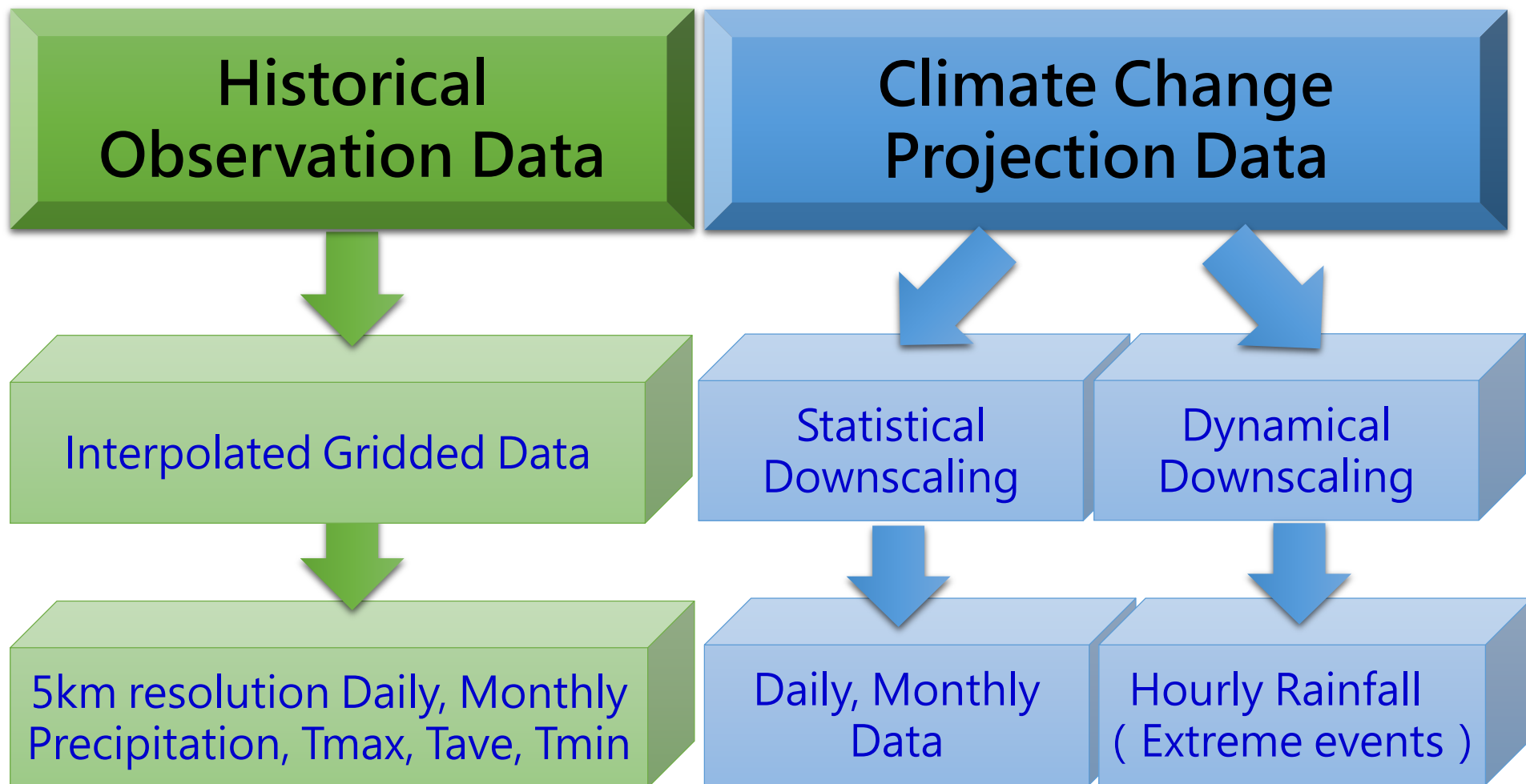
Ministry

Initiate climate
change risk
assessment
and
make/execute
adaptation Plan



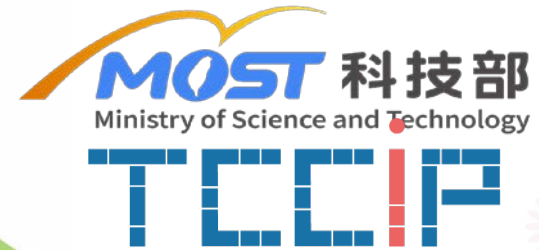
Climate Change Data,
Information, Knowledge, Tools

Data service in TCCIP



The growing service of TCCIP

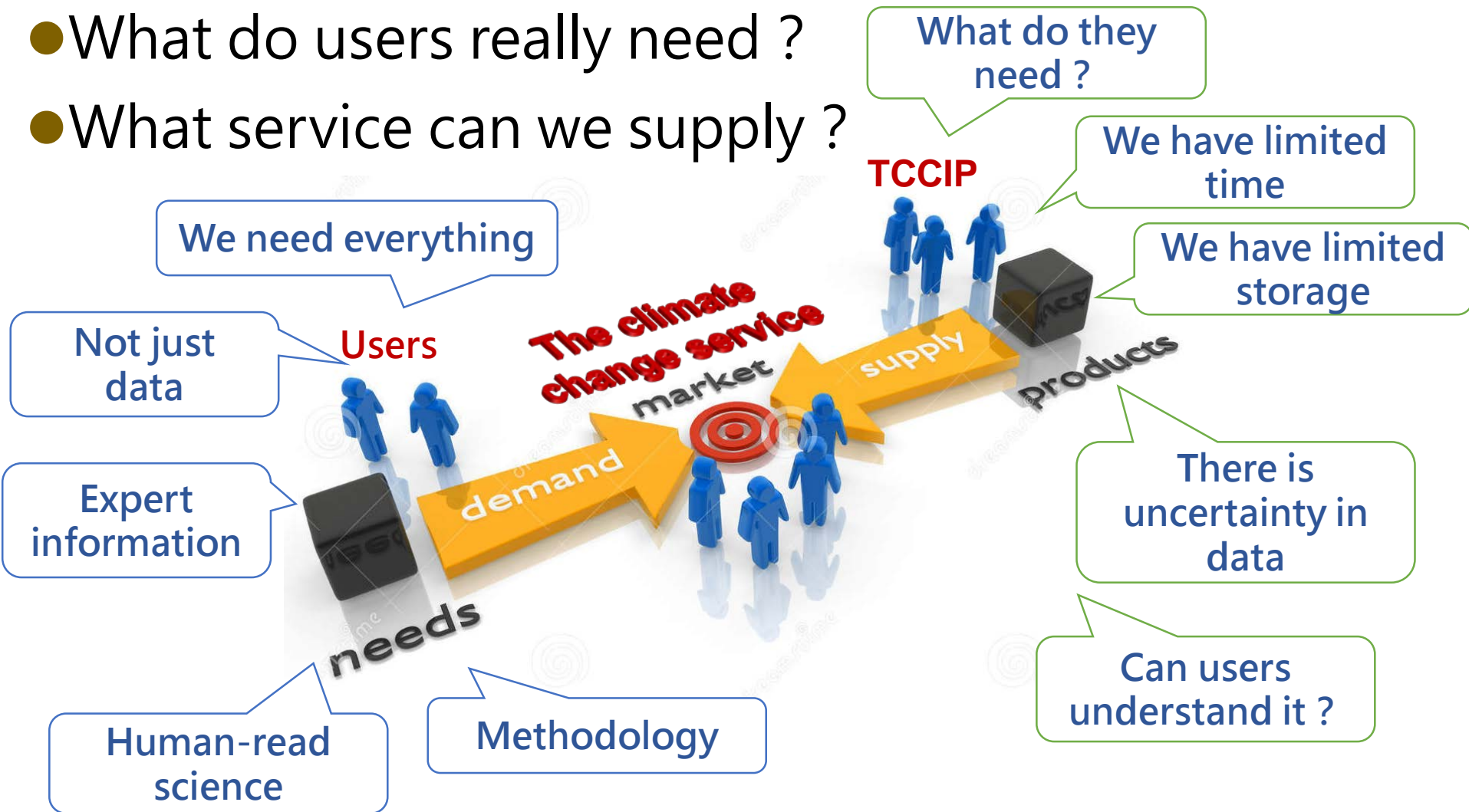
We've served for more than **450** cases and more than **14** research fields since **2012**



Expectation from platform to science

Design thinking : user oriented

- What do users really need ?
- What service can we supply ?

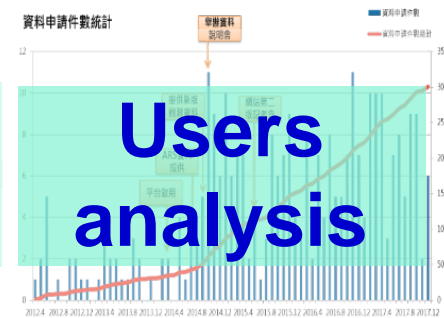
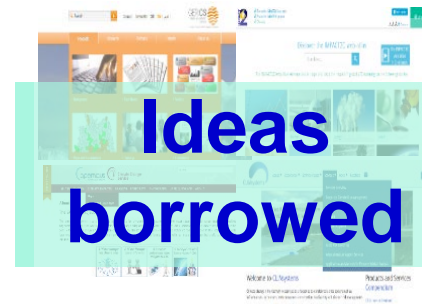


Diverge to create choices

What users need ?



What others do ? What we missed ?



Converge to make choices

- Expectation from platform to science

- [illegible]

**Knowledge and information
related to developing and
operating national climate change
adaptation information platforms**

Bring to you the brand-new TCCIP 3.0



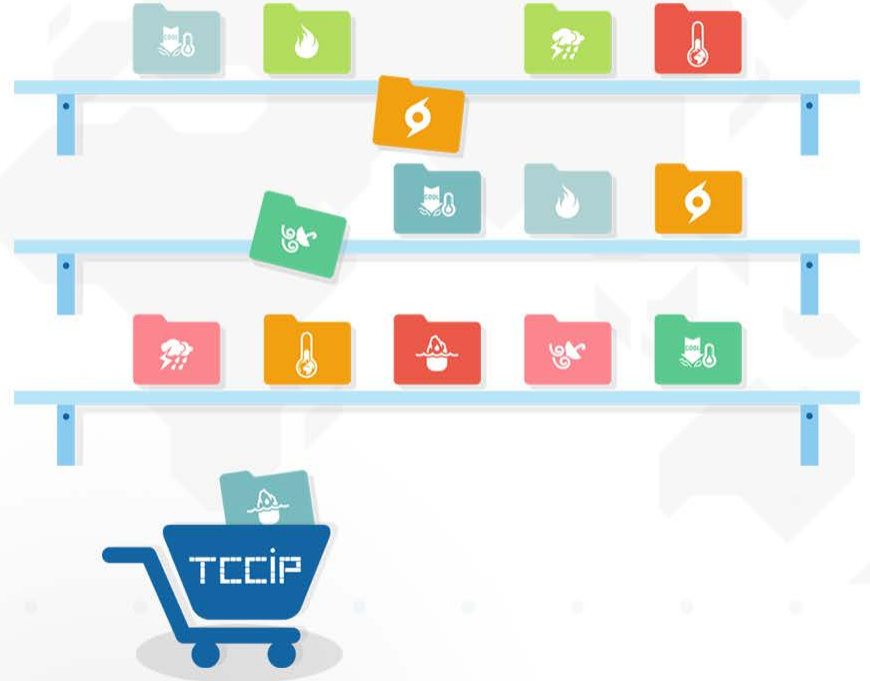
1. Interactive chart

Bring you to the past and future



2. Climate change data store

Easy data with the hardest work



Easy data : Climate Change Data Store



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資料服務站 / 氣候變遷資料商店

資料選單

資料車(0)

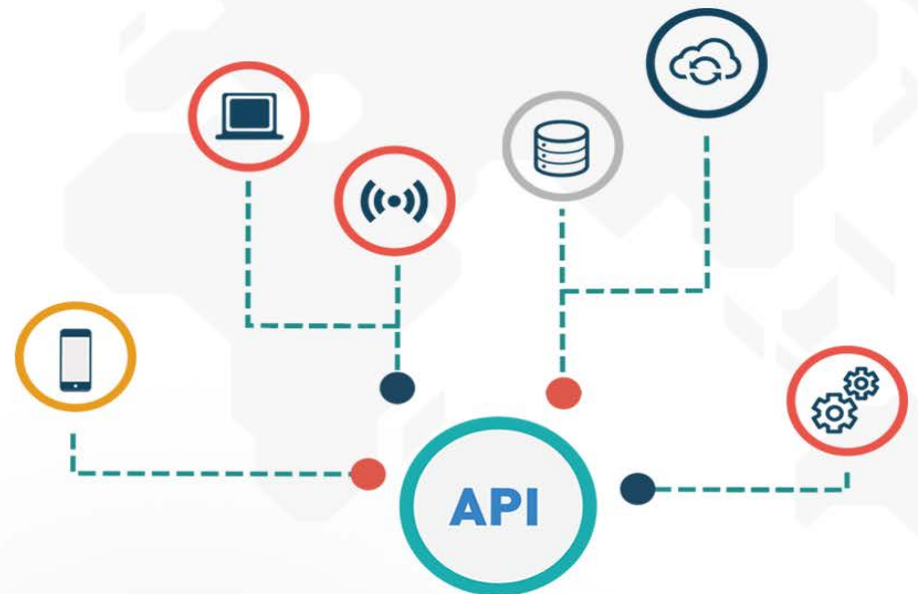
商品

AR5颱風降尺度模式輸出 全部 流域

<p>RAW DATA</p> <p>二仁溪</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>八掌溪</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>北海岸 河系</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>北港溪</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>卑南溪</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>南屏東 河系</p> <p>颱風 ALL</p> <p>加入資料車</p>
<p>RAW DATA</p> <p>南澳 沿海河系</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>南臺東 河系</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>大安溪</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>大甲溪</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>太魯閣 河系</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>彰化 沿海河系</p> <p>颱風 ALL</p> <p>加入資料車</p>
<p>RAW DATA</p> <p>後龍溪</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>急水溪</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>曾文溪</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>朴子溪</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>東港溪</p> <p>颱風 ALL</p> <p>加入資料車</p>	<p>RAW DATA</p> <p>林邊溪</p> <p>颱風 ALL</p> <p>加入資料車</p>

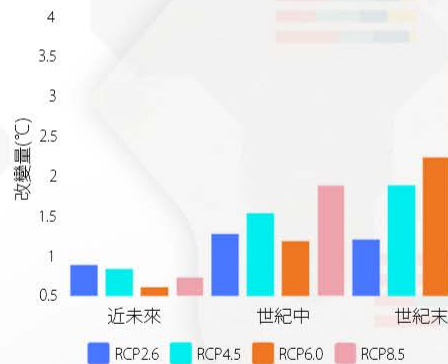
3. Data API service

More connections
More services



4. Climate change indices atlas

Not just an atlas
-Interactive indices chart



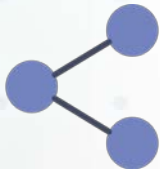
Climate change critical indices online atlas



5. Climate change news

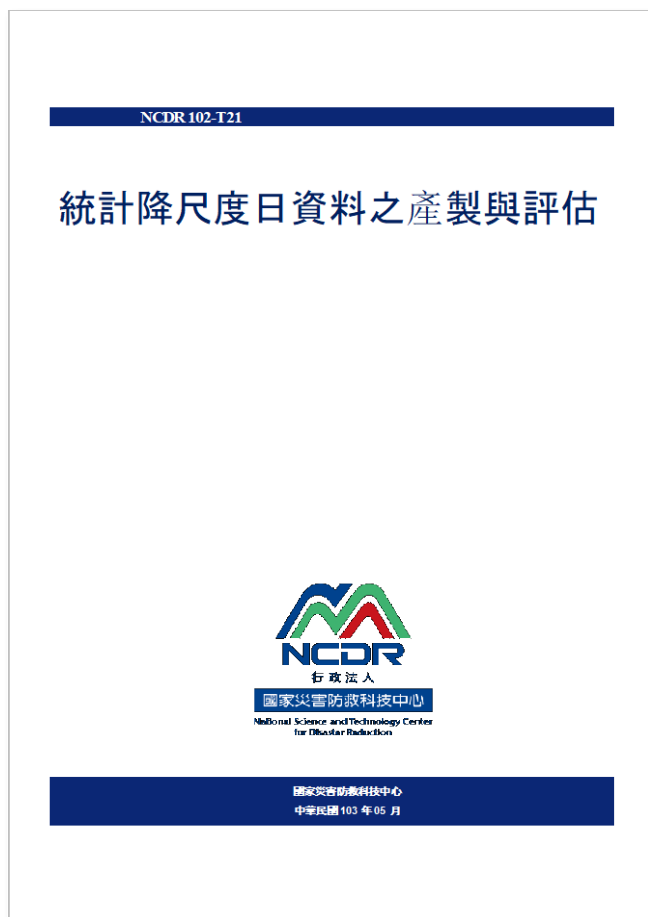
We provide 4 climate change news every week since 2015

Easily to browse and share climate change hottest news



6. Knowledge transform

Technical report



Knowledge transform...



Transform



Online publication

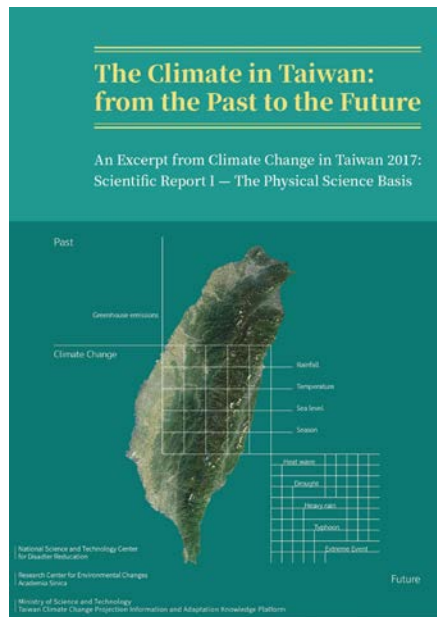
All you want is books?



Online TCCIP publications
and documents

2017 climate change science report

The most important reference to making adaptation plans



Temperature Change

Seasonal Changes

Temperature Change

Extreme High Temperature

Precipitation Change

Changes of Typhoons

Precipitation Change

Changes of Typhoons

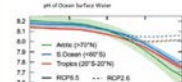
Changes in the Ocean

Extreme Precipitation

Changes in the Ocean

Extreme Precipitation

Besides sea level, changes also appear in the temperature and pH of ocean surface water.



Projected Ocean Acidification

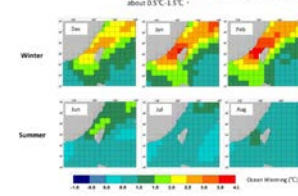
- The current pH of ocean surface water has decreased from 8.2 to 8.1 since the beginning of the industrial era.
- Based on the model projected results of air and ocean CO₂ concentration, the mean pH of ocean surface water is likely to decrease by 0.2 to 0.4 units.

Source: IPCC AR5 WGI

Ocean warming around Taiwan

1957-2011

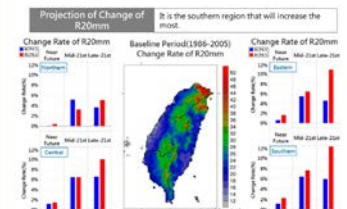
- The warming of Taiwan Strait was the fastest, followed by East China Sea and the sea area along China. The warming of South China Sea and Luzon Strait were less significant.
- Warming in the winter was more significant, increased about 0.3°C-0.4°C.
- Warming in the summer was moderate, slightly increased about 0.1°C-0.2°C.



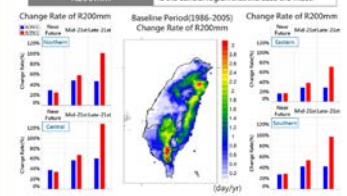
Source: The Climate in Taiwan: from the Past to the Future
Climate Change in Taiwan 2017: Scientific Report I – the Physical Science Basis

Ocean Acidification and Temperature

By the end of the 21st century, the most severe scenario (RCP 8.5) will lead us to the increase of days with more rainfall. The projection shows the increases of both R20mm and R200mm, pointing to the increasing probability of flood events.



It is the southern region that will increase the most.



While it increase over 70% among all regions, it is the central region that increase the most.

Extreme Precipitation-- Flood

臺灣氣候變遷科學報告 2017
- 物理現象與機制

臺灣氣候變遷科學報告 2017
- 衝擊與調適面向

MOST 科技部
Ministry of Science and Technology

臺灣氣候變遷推估資訊與調適知識平台
Taiwan Climate Change Projection Information and Adaptation Knowledge Platform

AS 中央研究院
Academia Sinica

MOST 科技部
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臺灣氣候變遷推估資訊與調適知識平台
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Academia Sinica

Future Work

Adaptation Resources Kit



Adaptation Resources Kit(ARK)

Key issues, adaptation knowledge, adaptation tool, case studies

調適百寶箱 / 調適百寶箱



ARK-adaptation knowledge and case studies



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調適百寶箱 / 調適案例

衝擊領域 全部 ▾ 降低風險手段 全部 ▾ 調適選項分類 全部 ▾



水稻旱田直播

新竹新豐鄉區域因過去一期作曾受到停灌影響，雖然政府會先通知一期作可能節水範圍，但1月初需開始決定是否...

[Read more...](#)

48 Views

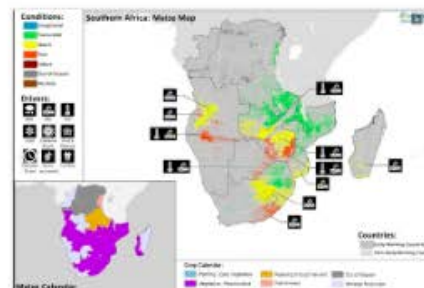


強化水稻用水栽培體系 (System of Rice Intensification, SRI)

1. 台灣因水源不足、灌溉系統不完善及其他用水(如工業和民生用水)競爭的缺水情況越來越頻繁。...

[Read more...](#)

31 Views



作物監測早期預警(Crop Monitor for Early Warning, CM4EW)

由於許多國家的農業以小規模農民為主，容易受到極端氣候變化的影響，並且部分國家內的氣候觀測網路也較不即...

[Read more...](#)

13 Views



育成硬質玉米台南29號

農委會自102年起推動休耕地活化計畫來維護國內糧食安全，為更有效提升我國糧食自給率，由農糧署及各農業...

[Read more...](#)

13 Views

**Recent activities in supporting
local government and other
stakeholders working on climate
change adaptation**

Climate change workshop

EPA

2019 climate change
adaptation workshop



TCCIP

2019 new platform and new
data release announcement



Stakeholder Interview(flood, landslide, coast, fishery,..)

Participatory Processes : understand the real needs from the interview of stakeholders

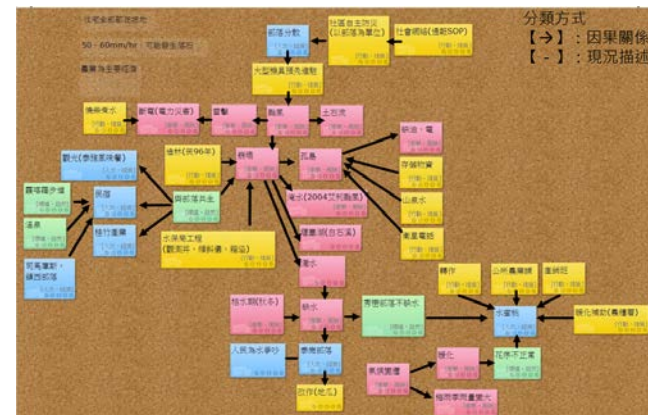
Chief of Xiuluan village



Principal of Xiuluan school



Dynamic System



Rainfall

- Landslide
- Landslide dam
- Isolated area
- School
- Resident
- Drought

Temperature

- Agriculture (not bloom)
- Tourist issue
- Health issue (Older people)

Agricultural adaptation option analysis

- TCCIP+ Council of Agriculture + Farmer

Rice direct seeding (replace transplanting rice seeding method to reduce water use)

科技部「臺灣氣候變遷推估資訊與調適知識平台計畫」

因應氣候變遷之 栽培制度調適示範田區

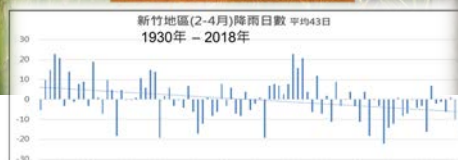
執行單位：國家災害防救科技中心
行政院農業委員會農業試驗所
合作單位：自創食代企業社

interview

Climate change
information

Monitoring

Efficiency analysis



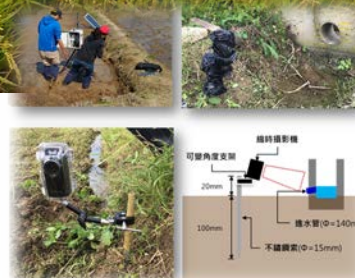
未來不降雨日數逐漸增加

北部地區不降雨日數
改變率(%)

1.71

2.83

6.02

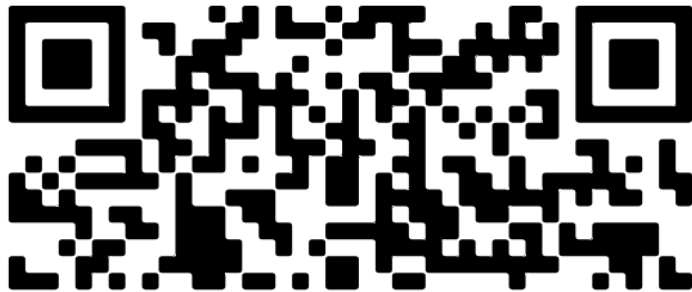


Summary

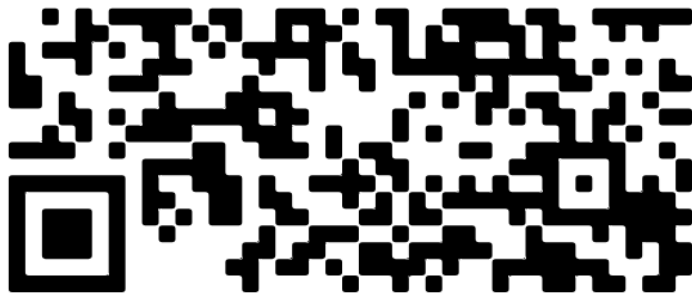
- Knowledge and information related to developing and operating national climate change adaptation information platforms.
 - TCCIP platform
 - Taiwan Climate Change Science Report 2017 (in Chinese)
- Recent activities in supporting local government and other stakeholders working on climate change adaptation.
 - 2019 climate change adaptation workshop (EPA)
 - TCCIP workshop
 - Stakeholder interview
 - Agriculture adaptation option monitoring
- Science-policy-practice interaction.
 - MOST/TCCIP-EPA-Ministry cooperation
- Expectation from platform to science
 - User oriented platform
 - Adaptation resources kit

Where is TCCIP platform ?

● TCCIP website



TCCIP 臺灣氣候變遷推估資訊與調適知識平台
Taiwan Climate Change Projection Information and Adaptation Knowledge Platform



● <https://tccip.ncdr.nat.gov.tw/>

● Facebook



● <https://fb.me/TaiwanClimateChange/>

TCCIP



**A better future with
better climate change services**