

# 農漁健康環境形塑計畫(II)-

## 極端天氣預警與精緻多元服務及應用(1/4)

### Create a Better Environment for Agriculture and Fisheries ( II)

#### - Applications on Extreme Weather Warning System and Delicate Multi-disciplinary Services

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#### 摘要

全國農業之天然災害年損失過去 25 年(85 至 109 年)平均為新臺幣 109 億元，近 15 年(95 至 109 年)平均為 112 億元，近 5 年(105 至 109 年)上升至平均 135 億元。損失金額雖有週期性波動，惟高峰值越來越高。有鑑於此，中央氣象局(以下簡稱氣象局)於執行「農漁業健康環境形塑-運用客製化天氣與氣候資訊」計畫(107 至 110 年)後，接續執行「農漁健康環境形塑計畫(II)-極端天氣預警與精緻多元服務及應用」計畫(111 年)。本計畫含 2 大主軸工作：

#### 1、高解析度衛星與預報模式在農、漁業災害性極端氣候事件預警之應用

以農、林、漁業需求為導向，利用高解析度預報模式產製寒害、熱浪及乾旱等災害性極端氣候指標，並結合高解析度衛星資料研發海洋葉綠素預報，透過氣候資料供應系統提供客製化預報資訊。

#### 2、精進農、漁業氣象應用效益與氣候服務推廣機制

依循全球氣候服務框架（Global Framework for Climate Services, GFCS），推動氣候服務在農業領域的跨域合作，從上層的技術研發到第一線的氣候服務推動，落實氣象資訊的傳遞，以符合世界氣象服務趨勢，凸顯氣候服務創造之社會經濟價值。

本計畫配合政府新農業施政理念執行，除著重於避免或減少因短期天氣與長期氣候變化導致之災害損失，亦聚焦於氣象及氣候資訊智慧化應用，以提升農漁業之收益，創造更高的經濟價值。

**關鍵詞：**極端天氣預警、高解析度衛星與預報模式、災害性極端氣候指標、海洋葉綠素預報、全球氣候服務框架（GFCS）

## Abstract

In the last 25 years (from year 1996 to 2020), the average annual loss by natural disaster in agriculture is NTD \$10.9 billion, while the average annual loss in the last 15 years (from 2006 to 2020) is around NTD \$11.2 billion, and the number increases to an average of NTD \$13.5 billion in recent 5 years (from 2016 to 2020). Although we can tell that amount of loss in each year can have fluctuations in a certain period, the peak loss value is getting higher. Therefore, after the first-phase period (2018-2021) of the implementation of the project - Create a Better Environment for Agriculture and Fisheries, Central Weather Bureau (CWB) switches the focus on using customized weather and climate information to the applications on extreme weather warning system and delicate multi-disciplinary services in the second-phase(2022~). This project is consisted of two main tasks:

1. *Using High-Resolution Satellite Image Technology and Forecast System in the Early Warning Applications in the Extreme Weather Event for Agriculture and Fishery*

For the demands from agriculture, forestry, and fishery, we using high- resolution satellite image technology and forecast system to produce the Expert Team on Climate Change Detection and Indices (ETCCDI) for the chilling damage, heatwave and drought events. This study also utilizes the High-Resolution Satellite Image Technology to invent the Marine Chlorophyll Forecast, and provides the tailored forecast information with the climate information supply system.

2. *Improving the Mechanism of Increasing Benefits with Better Weather Information Applications on Agriculture and Fishery and the Climate Services Extension*

To follow the concept and recent development of the Global Framework for Climate Services (GFCS), we promote the multi-disciplinary cooperation and climate services in agriculture. From the origins of producing technologies to the bottoms for reaching out the users and promoting climate services, we implement the effective dissemination of weather information to create more societal economic values by better use in climate services.

This project is to follow the government's new agricultural policy concept. In addition to avoiding or reducing the losses from the disasters caused by short-term weather changes and long-term climate changes, we also focus on smart applications of weather/climate information. By implementing this project, we expect to help increase the income of the users in agriculture and fishery, and create higher societal economic values.

**Keywords** : Warning System for Extreme Weather, High Resolution Satellite imagery and Forecast System, Expert Team on Climate Change Detection and Indices, Marine Chlorophyll Forecast, Global Framework for Climate Services(GFCS)