

# The 7<sup>th</sup> Monsoon Forum

Phnom Penh – 3-4 June 2019

## Climate information and Early Warning System in Cambodia: *Current Status and Destination*

***Muhibuddin Usamah***

Project Manager, Strengthening Climate Information  
and Early Warning System in Cambodia



# Strengthening Climate Information and Early Warning System in Cambodia to support climate resilient development and adaptation to climate change



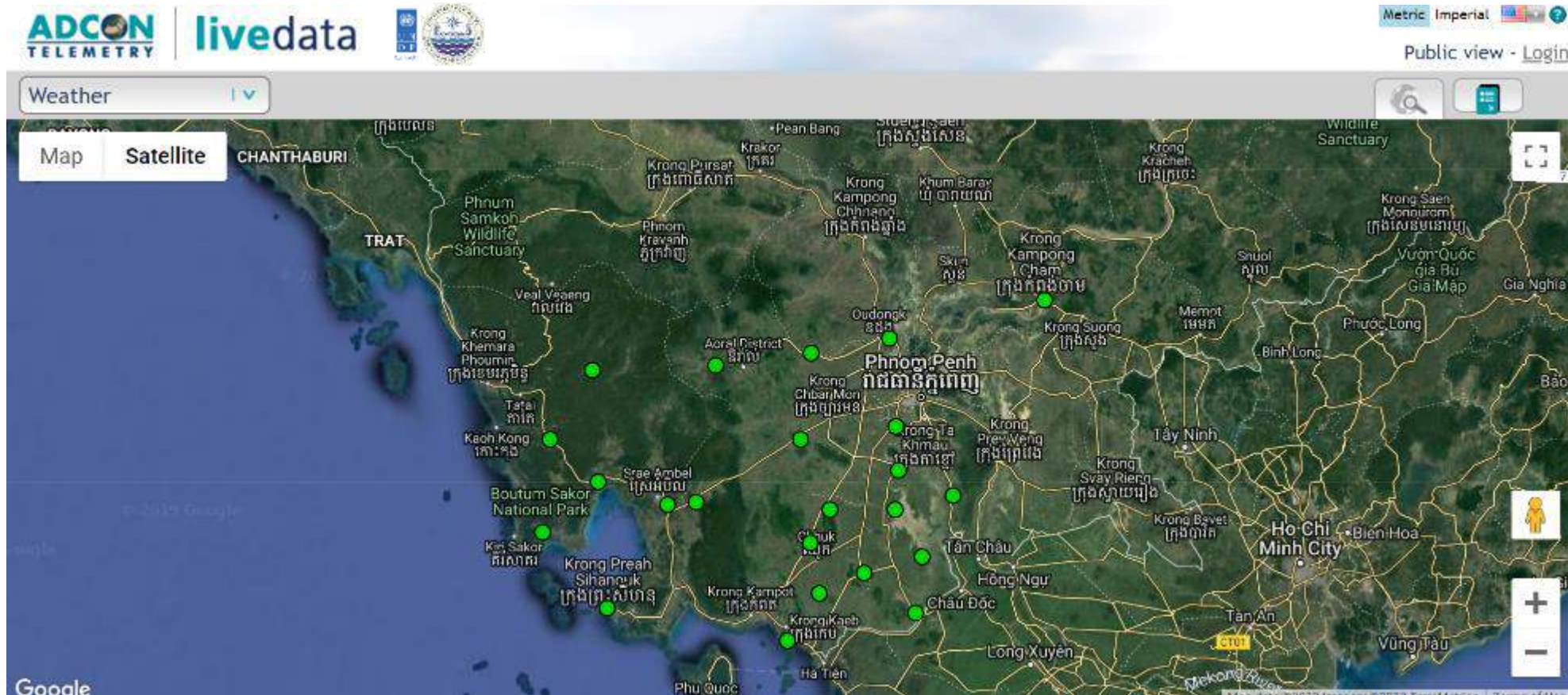
## Outcome / activities:

1. Installation of Automatic Weather Stations and Automatic Hydro Stations, climate data management
2. Capacity building on forecasts on weather, hydrological and climate data management
3. Rapid and slow onset forecasting, application of climate and weather information for national, sectoral and sub-national planning as well as for transboundary communication in the region



# Strengthening Climate Information and Early Warning System in Cambodia

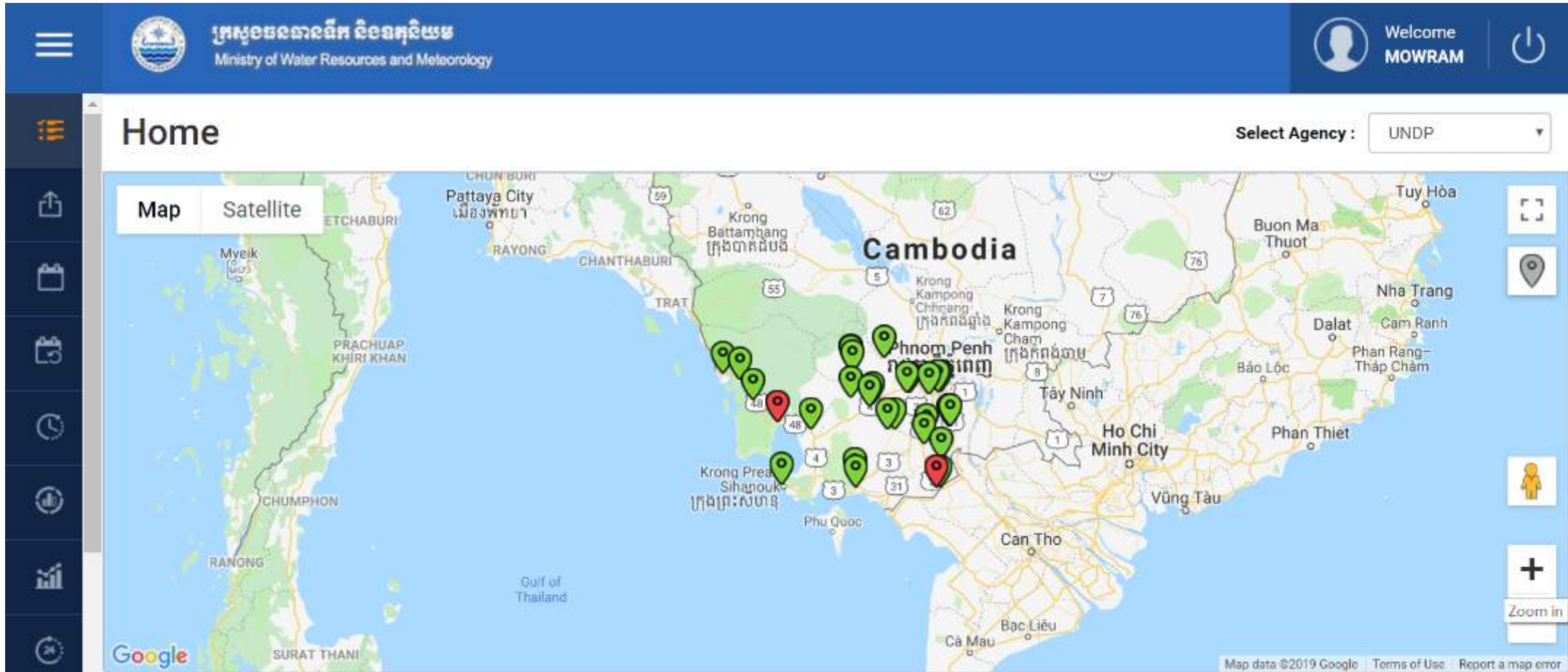
## 24 Automatic Weather Stations



<http://110.74.207.107:8080/livedata/map.jsf?template=weather&units=metric>

# Strengthening Climate Information and Early Warning System in Cambodia

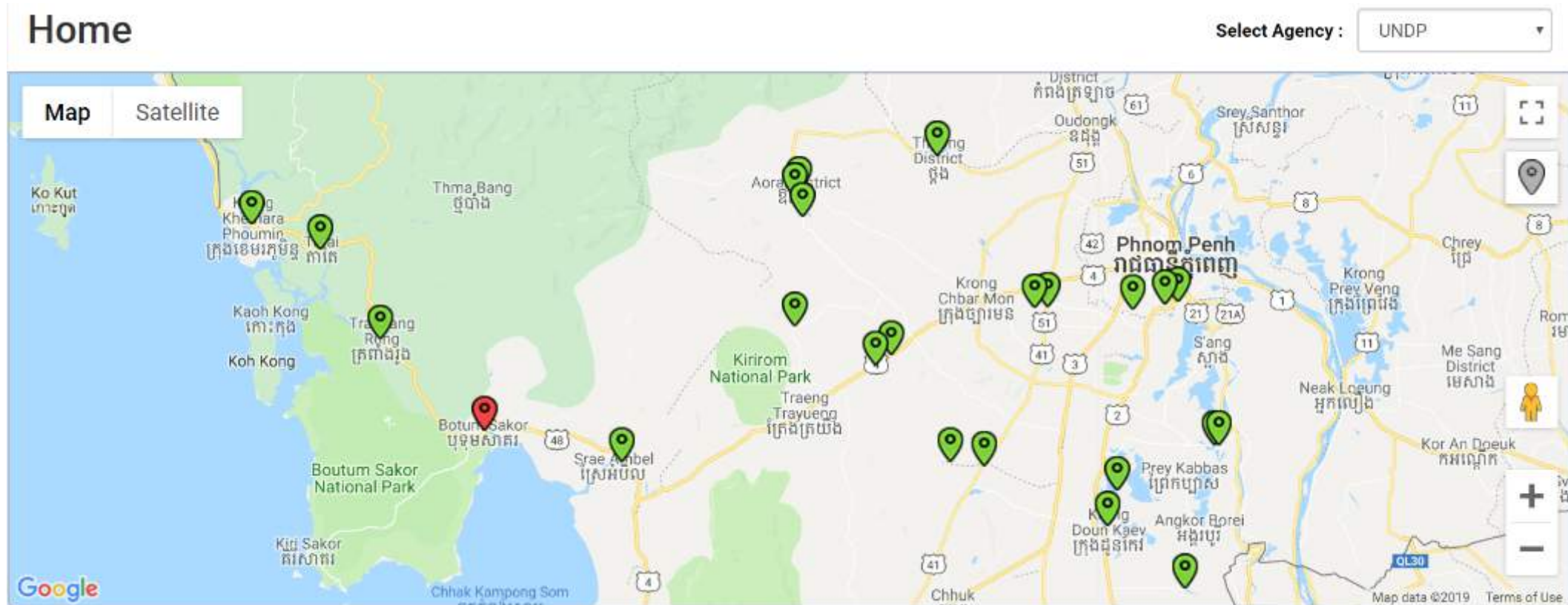
## 29 Automatic Hydro Stations (24 Surface Water + 5 Ground Water)





# Strengthening Climate Information and Early Warning System in Cambodia

## 29 Automatic Hydro Stations (24 Surface Water + 5 Ground Water)



# Strengthening Climate Information and Early Warning System in Cambodia

## Stations Handed over to MOWRAM in March 2019

UNDP-supported project hands over 53 hydrological and meteorological stations to Cambodia, revolutionising climate and disaster preparedness



New Automated Weather Station installed in Koh Kong Province, 2018. Early warning systems, supported by such infrastructure, are paramount not only in emergency situations, allowing timely responses to

**Phnom Penh, 22 March 2019** – In commemoration of World Meteorological Day 2019, the United Nations Development Programme (UNDP) in Cambodia has handed over 24 automatic weather stations and 29 automatic hydrological stations to the Ministry of Water Resources and Meteorology in Phnom Penh. The handover of the stations brings the Cambodian government one step closer to adapting to climate change, in line with Sustainable Development Goal 13: Take urgent action to combat climate change and its impacts.

Reliable climate information and forecasting is important in any country but is particularly so in a country like Cambodia in which around 80 per cent of the population live in rural areas, with many reliant on weather-dependent livelihoods in agriculture and fisheries.

With the financial backing of GEF-Least Developed Countries Fund, the project 'Strengthening Climate Information and Early Warning Systems in Cambodia to Support Climate Resilient Development and Adaptation to Climate Change' has been supporting the Royal Government of Cambodia since 2015 to address the gaps and challenges, boosting climate information and early warning systems.

"Our aim is to equip Cambodia with reliable infrastructure, including new and upgraded weather and hydrological stations, for improved data capture, forecasting and sharing of information for planning as well as disaster preparedness", said Project Manager Muhibuddin Usamah. "Real-



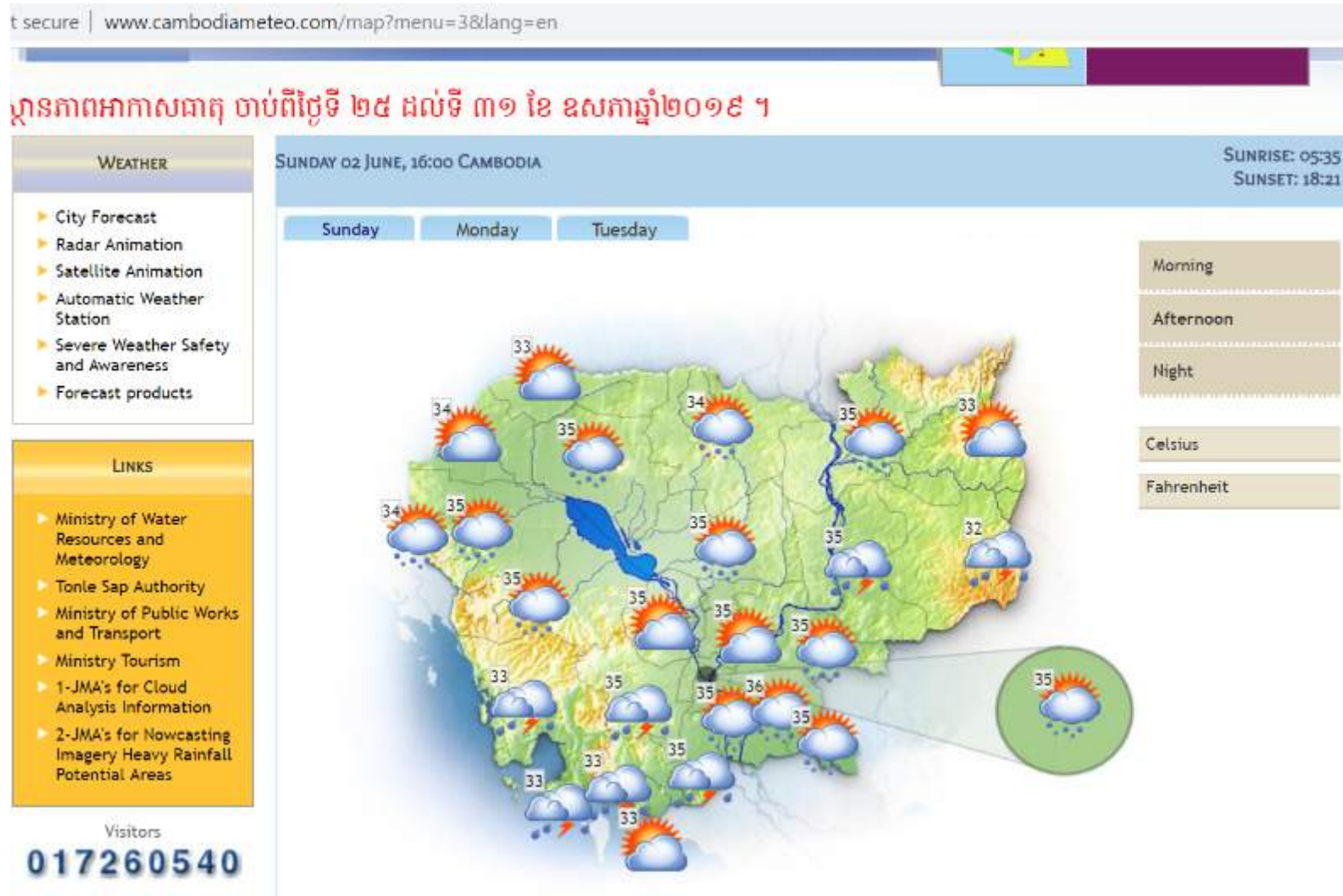
# Strengthening Climate Information and Early Warning System in Cambodia

**Stations Handed over to MOWRAM in March 2019**



# Current Status - Climate Information and Early Warning System in Cambodia

## 3-day City Forecast in Cambodia

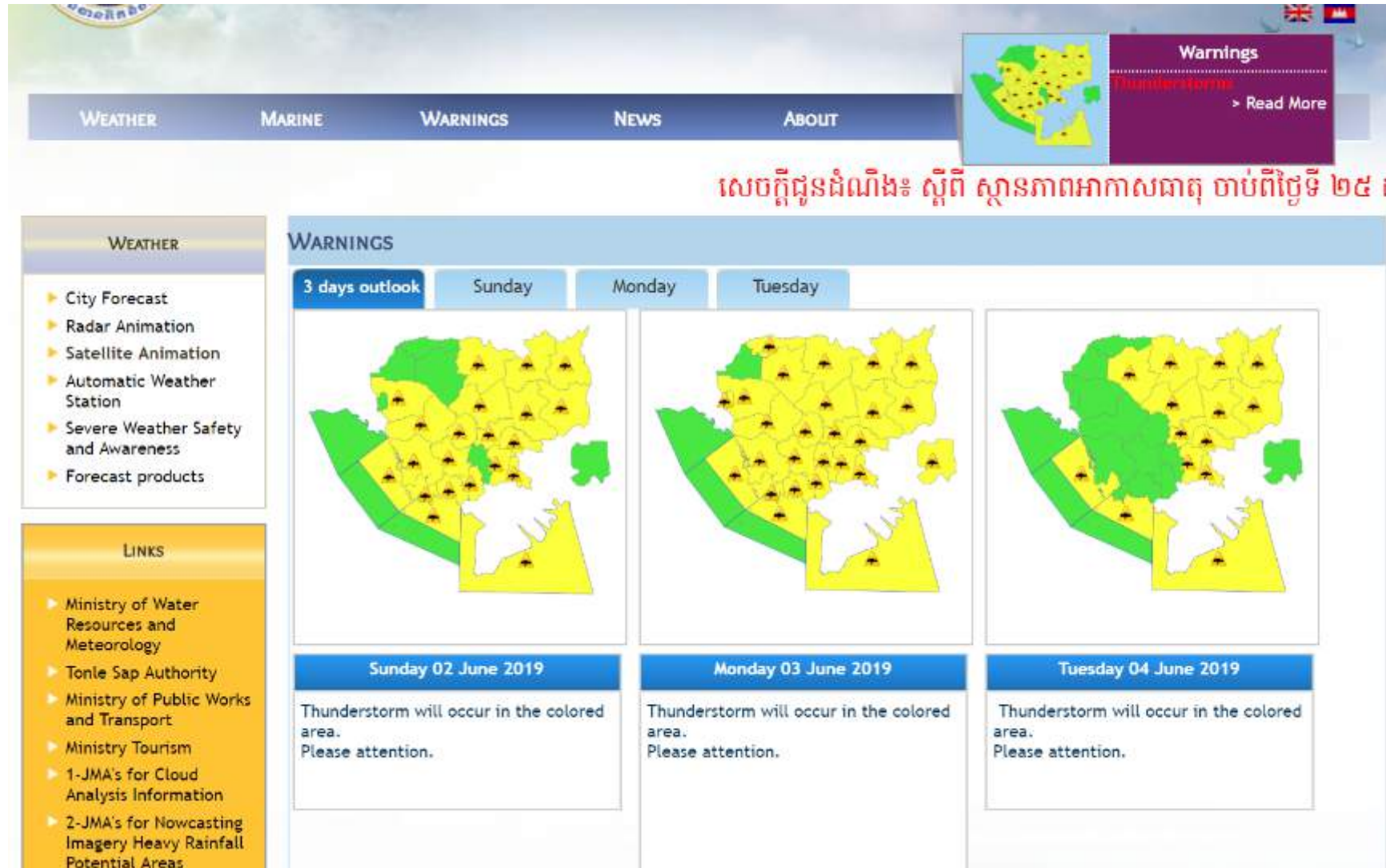


<http://www.cambodiameteo.com/map?menu=3&lang=en>



# Current Status - Climate Information and Early Warning System in Cambodia

## 3-day Warning



# Current Status - Climate Information and Early Warning System in Cambodia

## Forecast Product



The screenshot displays the official website of the Ministry of Water Resources and Meteorology of Cambodia. The header features the ministry's logo on the left and the text "MINISTRY OF WATER RESOURCES AND METEOROLOGY DEPARTMENT OF METEOROLOGY CAMBODIA" in the center. A navigation bar below the header includes links for WEATHER, MARINE, WARNINGS, NEWS, and ABOUT. On the right side of the header, there is a map of Cambodia with weather icons and a "Warnings" section with a "Read More" link. Below the navigation bar, the "WEATHER" section lists various forecast products: City Forecast, Radar Animation, Satellite Animation, Automatic Weather Station, Severe Weather Safety and Awareness, and Forecast products. The "FORECAST PRODUCTS" section lists: D TV, D1 TV, D2 TV, Fisheries, Road and Railways, and Tourism. A "LINKS" section at the bottom left provides links to the Ministry of Water Resources and Meteorology, Tonle Sap Authority, and Ministry of Public Works and Transport. The website also features a small "Warnings" box with a map of Cambodia and a "Read More" link, and a red text overlay in Khmer script.

**MINISTRY OF WATER RESOURCES AND METEOROLOGY**  
**DEPARTMENT OF METEOROLOGY**  
**CAMBODIA**

**WEATHER** **MARINE** **WARNINGS** **NEWS** **ABOUT**

**Warnings**  
> Read More

**WEATHER**

- ▶ City Forecast
- ▶ Radar Animation
- ▶ Satellite Animation
- ▶ Automatic Weather Station
- ▶ Severe Weather Safety and Awareness
- ▶ Forecast products

**FORECAST PRODUCTS**

- ▶ D TV
- ▶ D1 TV
- ▶ D2 TV
- ▶ Fisheries
- ▶ Road and Railways
- ▶ Tourism

**LINKS**

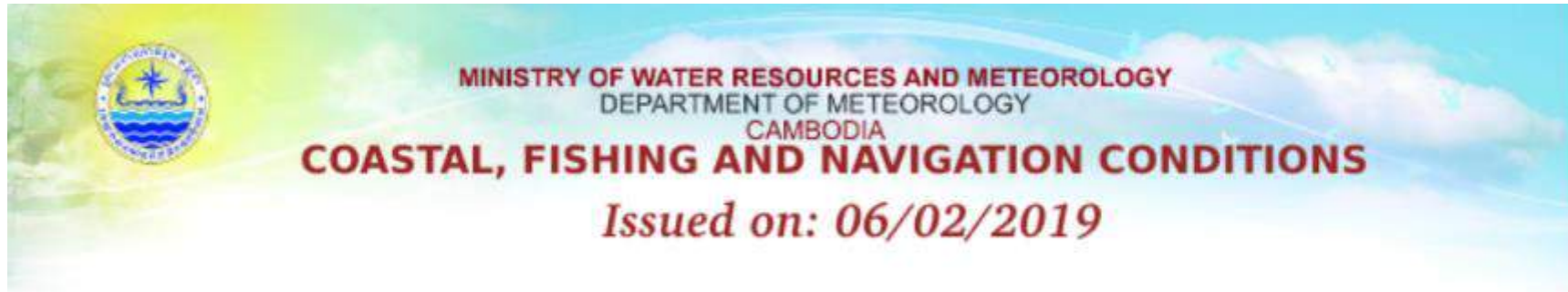
- ▶ Ministry of Water Resources and Meteorology
- ▶ Tonle Sap Authority
- ▶ Ministry of Public Works and Transport

សេចក្តីជូនដំណឹង

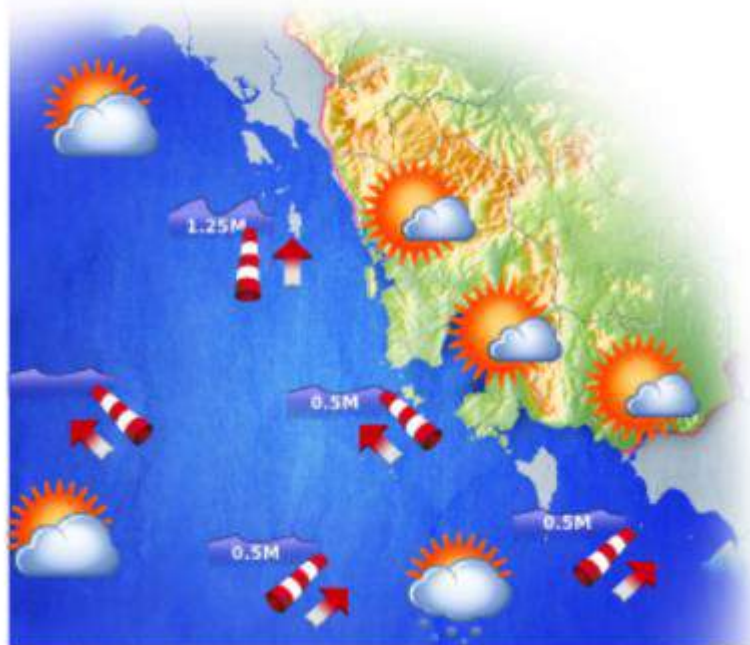


# Current Status - Climate Information and Early Warning System in Cambodia

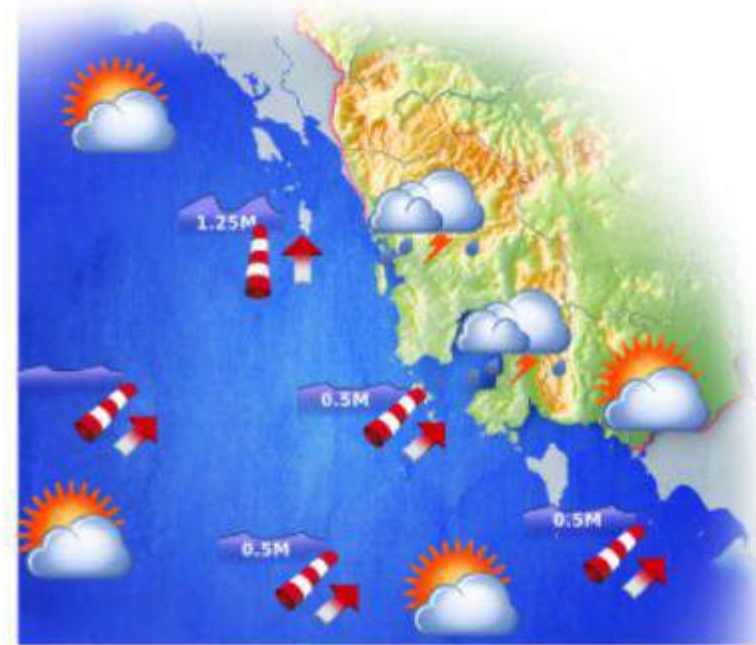
## Fisheries Advisory



Morning







Afternoon



# Current Status - Climate Information and Early Warning System in Cambodia

## Fisheries Advisory

### Trend for the next 2 days

Area	Day +1 (day automatic)	Day +2 (day automatic)	
Coastal			Significant weather
Fishing	 5.0m/s 0.5M	 TT m/s 0.5M	Significant weather Wind Sea state / Wave height

#### Current alert level:

	No severe weather
	Be aware
	Be prepared
	Take action

#### Weather phenomena symbols:

				
Bad visibility	Strong wind	Rough Sea	Heavy rain	Thunderstorm
				
Cold Wave	Acid rain	Lightning	Flood	Cyclone
				
Heat Wave	Air pollution	Earthquake	Flash Flood	Tsunami

### Today warning



This forecast and warnings has been issued by  
the Department of Meteorology  
Ministry of Water Ressources and Meteorology, CAMBODIA  
For more information check our web site at :  
[www.cambodiameteo.com](http://www.cambodiameteo.com)



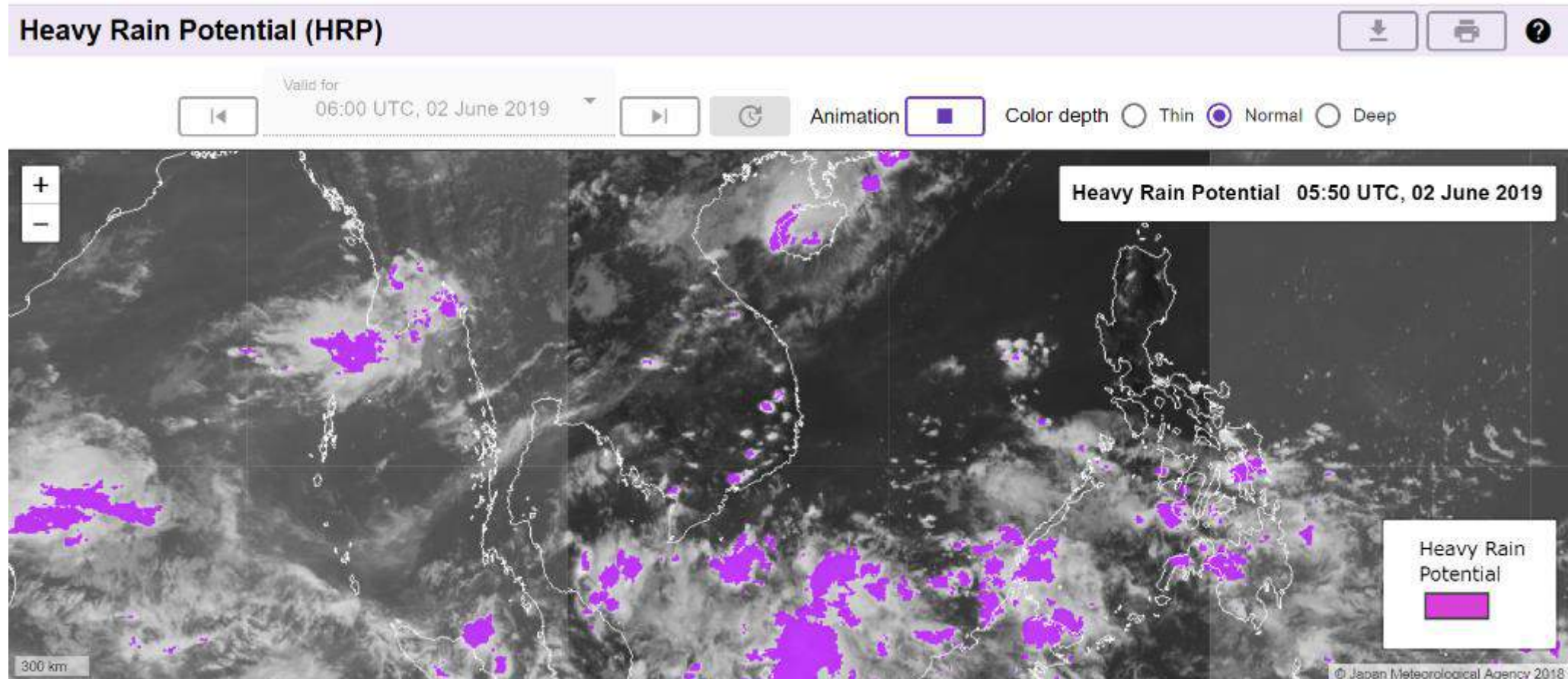
# Current Status - Climate Information and Early Warning System in Cambodia

## Tourism Advisory



# Current Status - Climate Information and Early Warning System in Cambodia

## Satellite Information (**NOW**cast)



[http://www.data.jma.go.jp/omoad/rsmc\\_nowcast/en/hrp/#zoom:5/lat:12.847509/lon:108.997271/colordepth:normal/elements:hrp](http://www.data.jma.go.jp/omoad/rsmc_nowcast/en/hrp/#zoom:5/lat:12.847509/lon:108.997271/colordepth:normal/elements:hrp)



# Current Status - Climate Information and Early Warning System in Cambodia

## Climate Information / Climate Buletin

<http://www.cambodiameteo.com/articles?menu=114&lang=en>

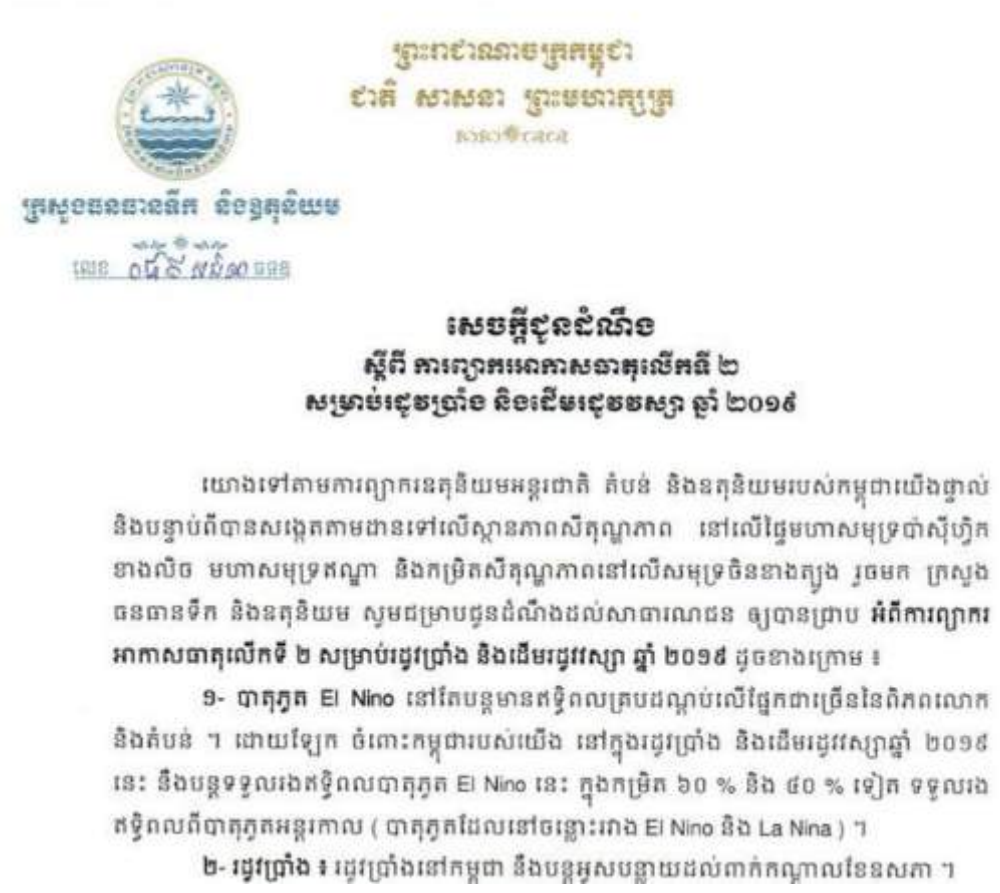



  
ក្រសួងធនធានទឹក និងឧតុនិយម

**សេចក្តីជូនដំណឹង**  
**ស្តីពី ស្ថានភាពអាកាសធាតុ**  
(ចាប់ពីថ្ងៃទី ២៥ ដល់ថ្ងៃទី ៣១ ខែឧសភា ឆ្នាំ ២០១៩)

តាមរយៈការតាមដានជាប្រចាំ លើការវិវត្តនៃអាកាសធាតុ បង្ហាញឱ្យឃើញថា ជ្រលងសម្ពាធទាបគួបផ្សំនឹង ខ្យល់មូសុងនិរតី បាន និងកំពុងបន្តបង្កើនឥទ្ធិពលមកលើ ព្រះរាជាណាចក្រកម្ពុជា ដែលជាហេតុធ្វើឱ្យ ៖

**១- ចាប់ពីថ្ងៃទី ២៥ - ៣១ ខែឧសភា ភ្លៀងនៅតែបន្តធ្លាក់ក្នុងបរិមាណ កើនឡើងជាលំដាប់ក្នុងកម្រិតពីមធ្យមទៅបង្គរ ។ ទន្ទឹមនោះ ក៏អាច**



  
ព្រះរាជាណាចក្រកម្ពុជា  
ជាតិ សាសនា ព្រះមហាក្សត្រ  
ក្រសួងធនធានទឹក និងឧតុនិយម  
លេខ ០៧៩ អនកម  
២០១៩

**សេចក្តីជូនដំណឹង**  
**ស្តីពី ការព្យាករណ៍អាកាសធាតុលើកទី ២**  
**សម្រាប់រដូវប្រាំង និងដើមរដូវវស្សា ឆ្នាំ ២០១៩**

យោងទៅតាមការព្យាករណ៍ឧតុនិយមអន្តរជាតិ តំបន់ និងឧតុនិយមរបស់កម្ពុជាយើងផ្ទាល់ និងបន្ទាប់ពីបានសង្កេតតាមដានទៅលើស្ថានភាពសីតុណ្ហភាព នៅលើផ្ទៃមហាសមុទ្រប៉ាស៊ីហ្វិក ខាងលិច មហាសមុទ្រឥណ្ឌា និងកម្រិតសីតុណ្ហភាពនៅលើសមុទ្រចិនខាងត្បូង រួមមក ក្រសួង ធនធានទឹក និងឧតុនិយម សូមជម្រាបជូនដំណឹងដល់សាធារណជន ឲ្យបានជ្រាប អំពីការព្យាករ អាកាសធាតុលើកទី ២ សម្រាប់រដូវប្រាំង និងដើមរដូវវស្សា ឆ្នាំ ២០១៩ ដូចខាងក្រោម ៖

១- បាតុភូត El Nino នៅតែបន្តមានឥទ្ធិពលគ្របដណ្តប់លើផ្នែកជ្រៅនៃពិភពលោក និងតំបន់ ។ ដោយឡែក ចំពោះកម្ពុជាយើង នៅក្នុងរដូវប្រាំង និងដើមរដូវវស្សាឆ្នាំ ២០១៩ នេះ នឹងបន្តទទួលរងឥទ្ធិពលបាតុភូត El Nino នេះ ក្នុងកម្រិត ៦០ % និង ៩០ % ទៀត ទទួលរង ឥទ្ធិពលពីបាតុភូតអន្តរកាល ( បាតុភូតដែលនៅចន្លោះរវាង El Nino និង La Nina ) ។
















២- រដូវប្រាំង ៖ រដូវប្រាំងនៅកម្ពុជា នឹងបន្តទទួលបានបន្ទាយដល់ពាក់កណ្តាលខែឧសភា ។

# Current Status - Climate Information and Early Warning System in Cambodia

## Climate Information

<http://www.cambodiameteo.com/forecast?menu=116&lang=en>

- 3-day forecast
- 7-day forecast
- Medium-range (10-day)
- Long-range: 30-day
- Extended range, and
- Seasonal Climate outlook (3-month)


HOURLY FORECAST									
Select area: Phnom Penh ▼									
Hourly Forecast									
	Sunday			Monday			Tuesday		
	Morning	Afternoon	Night	Morning	Afternoon	Night	Morning	Afternoon	Night
Humidity (%)	70	65	75	70	70	75	75	50	75
Temperature (C)	26	35	26	26	33	26	26	35	26
Weather (Picto)									
Wind direction (Degrees)									
Wind speed (Kph)	9	9	9	9	9	9	9	9	9

DAILY FORECAST			
	Sunday	Monday	Tuesday
Max humidity (%)	70	70	75
Max temperature (c)	35	34	35
Min humidity (%)	40	40	40
Min temperature (c)	26	26	26



# Destination - Climate Information and Early Warning System in Cambodia

## Long-range: 30-day / Monthly Weather Bulletin



กรมอุตุนิยมวิทยา  
www.tmd.go.th

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### Monthly Weather Summary

Previous :

April 2562

Under the influence of the heat low pressure cell and the southerly winds, the weather of upper Thailand induced average temperature of April higher than normal and the new highest record of maximum temperature was established in some places. Generally hot weather and very hot weather in several areas which hot weather almost the areas of the southern part. For rainfall, the high pressure area from China extended its ridge to cover upper Thailand during the beginning and the end of the month in addition with the passage of the westerly trough from Myanmar over the northern and northeastern parts during late month. Moreover, the easterly wind prevailed over the southern part throughout the month. These conditional caused thundershower, gusty wind and hail occurred in some places especially during the beginning and the end of the month. Monthly rainfall was below normal in all parts i.e. northern part 42.7 mm (60%), northeastern part 27.4 mm (32%), central part 43.6 mm (55%), eastern part 12.9 mm (13%), southern part (east coast) 55.4 mm (73%) and southern part (west coast) 13.4 mm (8%). The average amount of rainfall in April was lower than normal with the deviation of 34.4 millimeter or about 39%.

[more detail](#)

<https://www.tmd.go.th/en/climate.php?FileID=4>

# Destination - Climate Information and Early Warning System in Cambodia

## - Extended range (3-month)



[https://www.tmd.go.th/en/3month\\_forecast.php](https://www.tmd.go.th/en/3month_forecast.php)



## Destination - Climate Information and Early Warning System in Cambodia

### - Extended range, and Seasonal Climate outlook (3-month)

#### Seasonal climate outlook June-August 2019

Although El Niño is forecast to continue during the upcoming three-month period, it may weaken later in 2019. Winter temperatures are forecast to be above average in the east of the South Island and to be above average or near average in all remaining regions.

#### Seasonal climate outlook - May-July 2019

A weak, central Pacific El Niño continued during April, as patterns of enhanced rainfall persisted in the vicinity of the International Dateline. More westerly quarter winds than normal. Tasman Sea surface temperatures may influence several spells of unseasonable warmth through the season, particularly in eastern areas, contributed to by frequent westerly air flows.

#### Seasonal climate outlook - April – June 2019

A central Pacific El Niño event continued during March as the ocean and atmosphere remained weakly coupled. Sea surface temperatures warmed across the equatorial Pacific during March and El Niño is expected to continue during the upcoming three-month period.

#### Seasonal climate outlook - March – May 2019

A central Pacific El Niño is now occurring as the ocean and atmosphere have been weakly coupled for a third consecutive month. Traditionally, this occurs farther east toward South America and during the early summer season. Mean temperatures are forecast to

#### Seasonal climate outlook - February - April 2019

The atmospheric circulation around New Zealand is forecast to be characterised by slightly higher than normal pressure to the southwest and southeast of New Zealand and lower pressure than normal to the northeast of the country. Weak easterly-

#### Seasonal climate outlook - January - March 2019

The atmospheric circulation around New Zealand is forecast to be characterised by pressures slightly higher than normal over and to the north of the country. For New Zealand, this pressure pattern will be accompanied by weak south-westerly

<https://www.niwa.co.nz/climate/seasonal-climate-outlook>

## **Aim** – Strengthening Climate Information and Early Warning System in Cambodia

- 3-day forecast
- 7-day forecast
- Medium-range (10-day)
- Long-range: 30-day
- Extended range, and
- Seasonal Climate outlook (3-month)





## **Opportunities and Challenges**

### **- Climate Information and Early Warning System in Cambodia**

- Climate Forecasting and Analysis**
- Availability of Climate Information online (on MOWRAM's webpage)**
- Regularity of Climate Information (Consistency)**
- Realtime weather and hydro stations are available online**
- Application of climate information for slow-onset (drought management)**

# Opportunities and Challenges

## - Climate Information and Early Warning System in Cambodia

- Ownership of existing product / innovation on EWS
- Integrating groundwater monitoring for drought management





# The 7<sup>th</sup> Monsoon Forum

Phnom Penh – 3-4 June 2019

## Climate information and Early Warning System in Cambodia: *Current Status and Destination*

***Muhibuddin Usamah***  
Project Manager, Strengthening Climate Information  
and Early Warning System in Cambodia

