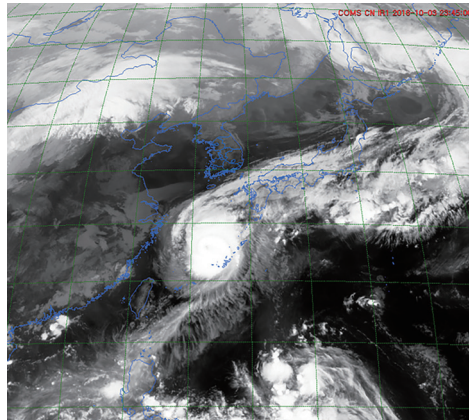
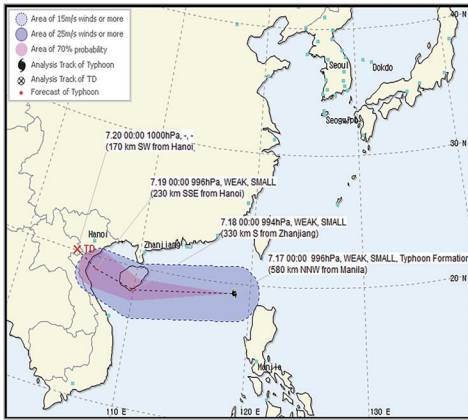


Enhanced Severe Weather Response utilizing an Integrated Typhoon Monitoring and Forecasting Platform in Lao PDR



Project Background

Floods, droughts, and typhoons are the dominant hazards in Lao PDR, posing serious challenges to water resources management and poverty alleviation in the country.

Lao PDR is still predominantly rural with most of the population being subsistence farmers. With risks being particular high for the poor and vulnerable, the floods and droughts cause loss of life, damage agricultural production, and threaten livelihoods. In the absence of a well-functioning monitoring and forecasting system, extreme weather events have been increasing over the years.

In particular, typhoons can cause severe flooding with intense rainfall and storm surges. Therefore, typhoon monitoring and forecasting is a priority for sustainable future development in Lao PDR.

Project Objectives

The objectives of the project are to enhance response capacity to typhoon hazards, reduce economic damage, and improve safety of people in Lao PDR by monitoring and forecasting typhoons with Typhoon Operation System (TOS) and GEO-KOMPSAT-2A (GK2A) receiving and analysis system. GK2A is Korea's second geostationary meteorological satellite launched in 2018.

Key Activities

- Investigating the meteorological status and relevant infrastructure for integrated typhoon monitoring and forecasting platform in Lao PDR
- Selecting a service provider for the installation of TOS and GK2A receiving and analysis system

Project Summary

Duration: 2020-2023 (4 years)

Overall Management Agency:
Korea Meteorological Administration (KMA)

Implementing Agency:
Korea Meteorological Institute (KMI)

Beneficiary Agency:
Department of Meteorology and Hydrology of Lao PDR (DMH), Ministry of Natural Resources and Environment (MONRE)

Funding Source: KMA

Target Location: Lao PDR (Vientiane)

Project Budget: 3.4 M USD

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- Installing TOS and GK2A receiving and analysis system
- Supporting the operation and management (O&M) of the systems and data analysis through capacity building such as training programs and experts secondment

Expected Results

Key weather-dependent and water-related sectors in Lao PDR will significantly benefit from the improved lead times and reliability of severe weather forecasts, and the issuing of warnings. The economic benefits will be significant considering the fact that Lao PDR's economy is based on agricultural and natural resources. Improved disaster warnings and increased opportunity for improved disaster risk management by this project will significantly enhance the security of property, livelihoods, and well-being of the population. The project is expected to produce the following outputs:

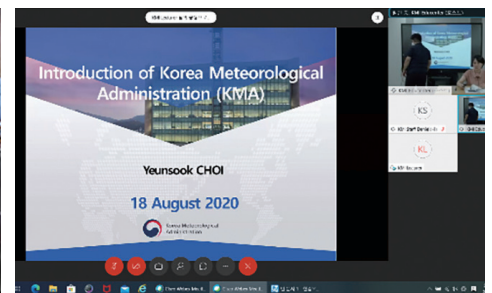
- Significant improvement in lead times for issuing severe and extreme weather warnings
- Significant improvement in the quality and reliability of forecasts and its impacts
- A greater respect and appreciation from government agencies, business sectors and the public for the services and role of DMH in Lao PDR

- Enhancement in regional collaboration and capacity as well as improvements in regional high impact weather forecasts
- Expansion and improvements in technology through greater use and application at the regional level
- Significantly reduced impacts and losses caused by natural disaster-driven weather events thanks to much quicker recovery time

Implementation Status

The Korea Meteorological Administration (KMA), the Korea Meteorological Institute (KMI) and the Department of Meteorology and Hydrology of Lao PDR (DMH) signed a MoU on August 19, 2020. KMA and KMI provided a capacity building program from August 17 to 21, 2020 for 10 policy makers of the Ministry of Natural Resources and Environment (MONRE) in Lao PDR to enhance their understanding of the project as well as capacity of meteorological services and disaster management. Due to COVID-19, the training was held online.

As a preliminary technical survey has been delayed due to the spread of COVID-19, online survey was conducted to identify the current status of meteorological infrastructure in DMH.



▲ Online training for 10 policy makers from August 17 to 21, 2020



"On average, 2-3 tropical cyclones a year affect LAO PDR directly and indirectly. The country needs modernized forecast system to monitor those cyclones. DMH hopes to enhance forecast accuracy through this project."

- Outhone Phetluangsy, the director-general of DMH -

What is Typhoon Operation System (TOS)?

Typhoon Operation System (TOS) is an integrated platform for typhoon operation procedures including Analysis, Forecast, Statistics and Training.

Analysis Module	Forecast Module	Statistics Module	Training Module
<p>Aggregate observation data Real-time analysis → Forecast initial value</p>	<p>Refer to ensemble model predictions Produce curved forecast track</p>	<p>Administrate statistical information Monitor TC genesis, intensification & decay Auto alarming recordbreaking events</p>	<p>Theory-Case bilateral training Register training TC case at forecast operation</p>

Tropical cyclone 'SON-TIHN' analysis by TOS

KMA analyzed tropical cyclone 'SON-TIHN' by TOS. SON-TIHN is tropical cyclone that devastated Vietnam and Lao PDR in July 2018.

