

Climate watch and its importance

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FORECASTING the weather can still be a challenge, even with today's supercomputers. That the technology has advanced cannot be denied. During World War 2, the discovery that weather features were causing echoes on radar screens, masking potential enemy targets, triggered interest to study the phenomenon after the war.



An SM Hin Hua Klang guard looking at the flood last month, which raised questions of enforcement, non-compliance and inconsistencies.



Weather radars evolved, allowing the structure of storms and the potential to cause severe weather to be determined. Satellites not only monitor weather and climate, but can also track other changes including sand storms, smoke from fires as well as pinpointing pollution, man-made or otherwise.

Depending on the equipment, satellites provide more than just observations on atmospheric parameters from remote areas.

The use of numerical weather prediction (NWP) models depends on the observations received that must be processed. Programme equations will then run to provide a more accurate forecast.

Accuracy will be possible with advances in technology and computational procedures. In addition, as weather and climate recognise no national boundaries, international cooperation is crucial and made possible with the emergence of regional and global meteorological observation networks.

What are the benefits of accurate weather forecasting? History has indicated how an intense June storm bringing high seas and gales to the French coast had affected the Allied invasion of Normandy. But a break in weather provided by Colonel James Stagg (in consultation with forecasters), gave General Eisenhower the decision to land on June 6, 1944.

The economic benefits of accurate forecasts are immense. For example, accurate weather forecasts facilitate efficient planning of flight operations.

For the agriculture sector, production practices can be affected by climate conditions and hence, availability of agro-meteorological information is essential to optimise production and estimate related

risks. In the field of health, on-going research is trying to evaluate climate-based disease early warning as a means of improving preparedness for, and response to, epidemics. Malaysia, influenced by two monsoon regimes (Northeast Monsoon, November-March and Southwest Monsoon, May-September) is also subjected to climate variations largely due to El Nino Southern Oscillation events.

To be relatively more prepared for monsoonal floods, intensive monitoring is carried out especially during the Northeast Monsoon, with issuance of special forecasts to relevant agencies.

Warnings of heavy rainfall, strong wind and rough sea are normally issued within 24-48 hours before the impact of these severe events.

However, issuance of warnings for flash floods is a challenge. Flash floods, leading to massive disruptions, are caused by thunderstorms which occur throughout the year but are more marked in the inter-monsoon periods -- April to May and October to November. The recent floods in Klang, due to multiple factors, raised questions of enforcement, non-compliance and inconsistencies.

Weather warning systems have evolved over the years to meet the public's changing demand. Malaysia recognises that for disaster prevention and mitigation, capability in nowcasting systems must be further developed. (Nowcasting is a detailed description of current weather along with forecasts obtained by extrapolation for a period of zero to three or six hours depending on the technique.)

Nowcasting, for example, is able to extrapolate likely location of a moving storm, estimate rain intensity as well as indicate possible flooding. Merging of nowcasting with NWP model forecasts will further support weather-warning operations.

The frequency and cost of weather-related hazards/disasters has been increasing. Secondly, climate change is reported to trigger additional challenges. Moving forward includes:

BUILDING on weather/climate services. An appropriate budget to improve and maintain the infrastructure as well as develop capacity building is essential. Reports of budget cuts in 2011 have threatened the American National Oceanic and Atmospheric Administration's (NOAA's) weather forecasts. Although NOAA recognised the need for budgetary cuts, they have called for cuts to be made carefully as some programmes are worth more than others.

BUILDING trust and partnerships between climate-information users and providers. Climate information must be readily available and understandable to those who need it. This may require translating uncertain information into potential impacts and actions.

BUILDING on new dimensions in dissemination technology. Web-based information on forecasts or warnings is relatively well in place. However, mobile-based communication systems must be further enhanced for targeted groups.

BUILDING on conventional methods via radio or television but the timely broadcast is critical because of the nature of tropical storm build-up. Any information is useless until it is promptly delivered to the users.