

JMA's New Nowcasting information debuts in record-rainy August 2014



The Japan Meteorological Agency (JMA) has operated Precipitation Nowcasts since summer 2004. On the 10th anniversary of their introduction in August 2014, a new generation of High-resolution Precipitation Nowcasts (HRPNs) became operational. The spatial grid point interval of the new nowcasts has been shortened from the conventional 1 km to 250 m in order to enhance observation and forecasting capacity for sudden and localized heavy rain.



HRPNs are characterized by the application of radars with different features, the X-band (10 GHz) multi-parameter RAdar Information Network (XRAIN) operated by Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLIT), and JMA's C-band (5 GHz) radars. Various types of JMA monitoring, such as Automated Meteorological Data Acquisition System (AMeDAS), upper-air radiosonde and wind profiler observation, also assist in determining the nationwide distribution of rainfall.



Short-term forecasting technology has developed from a kinetic approach involving the extrapolation of phenomenon movement trends to a dynamic approach involving a [high-resolution three-dimensional prediction technique](#) for the severe rain domain along with a convective initiation prediction technique. This new method also improves forecast accuracy for rain phenomena with a relatively large spatial scale, such as settled linear heavy rainfall and typhoon-related rain.



In HRPN generation, the high-resolution three-dimensional distribution of water content is produced as an intermediate for cumulonimbus rainfall forecasting. This distribution is applicable in monitoring for signs of tornadoes in or near cumulonimbus clouds based on automatic detection of hook-shaped or vault-like patterns on an experimental basis.



JMA also provides information on levels of HRPN uncertainty to help municipalities and other users estimate forecast error. Knowledge of this uncertainty is expected to be useful in applications such as river water level prediction. Users are also informed of possible error sources such as radar clutter to alert them to potential uncertainty in HRPN analysis.

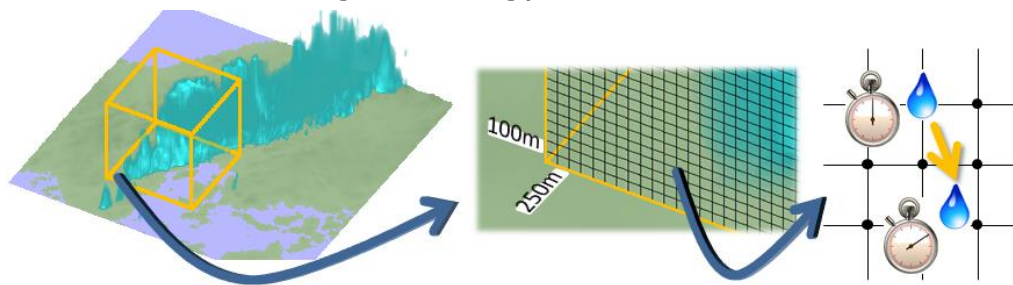


JMA's websites provide HRPN analysis and forecast information to the public in visual form. They are designed to require the minimum number of clicks or touches and to help users find the information they need easily. One feature in this regard is the display of yellow outlines in HRPN analysis images to mark areas where heavy rain could fall within the next 30 minutes. This is useful because it shows whether downpours are approaching without the need for time-consuming movie viewing. Based on this information, prompt action for safety can be taken.

More than two million page views were recorded on 22 August 2014, when rain and thundershowers hit the whole of Japan. Readers are invited to check out the resource at <http://www.jma.go.jp/en/highresorad/>.

More information: http://www.jma.go.jp/jma/en/Activities/highres_nowcast.html

Innovative forecasting technology



Support for self-protection actions

