

NOWCASTING AND SERVICE OF A RAINFALL EVENT DURING THE NATIONAL DAY CELEBRATION REHEARSALS

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ABSTRACT

Predicted rainfall in the area of the Tian' anmen Square, the site for the first-round grand National Day celebration rehearsal, had prompted Chinese authorities to postpone the date for the second round from 5th Sep. 2009 to the next day. By utilizing the monitoring data of FY 2C, the new generation weather radar net, automatic weather stations, wind profile, and microwave radiometer etc, with the combination of the products of BJ-RUC, the very short-range forecast for the rainfall event in the area of the Tian' anmen Square was produced, and the tailored service was provided, the good service effect had achieved. Through the forecasting service, it is proved that comprehensive monitoring data are very useful on the explanation and application for the status of atmospheric physics and making up the lack of temporal and spatial distribution of conventional data. The data are helpful on the determination of the position and the variation of the synoptic system, even the extrapolation beyond 2 hours.

1. WEATHER CONDITIONS

There was continuous rain from the morning of 4th to the 7th of September in Beijing. At 20:00 on the 5th, there was two significant shear line in 850hPa and 700hPa, and Beijing is located in the south side of the front. The sounding of 54511 station shows a almost saturated layer in the low level. The K index and CAPE did not reach up to convective standard and therefore there was no severe weather expected.

2. FORECAST AND SERVICE

According to time nodes of rehearsal's activities, we provided detailed weather forecasts and services to the preparatory committee in time (Table 1).

The real rainfall time series of Tian' anmen is shown in Figure 2 from which we can draw a conclusion that the forecast is very successful.

Table 1 The schedule of forecasts

Time	Forecast and Suggestions
20:00 5th	22:00-23:00, Tian' anmen will begin to rain, rainfall during tonight is about 3-5mm
10:00 6th	At day, intermittent light rain in Tian' anmen (2-5mm), there will be precipitation during the collection time, but no rain during the exercise
16:00 6th	16:00-20:00, intermittent light rain (1-3mm), rain during the collection time, but no rain during the exercise
18:00 6th	18:00-24:00, intermittent light rain (1-3mm) in Tian' anmen
19:00 6th	20:00-22:00, light rain (1-3mm) in Tian' anmen.
21:30 6th	The light rain will stop after 30 min., and then no rain in 5hrs.
23:35 6th	no rain during the exercise, mainly cloudy.
00:00 7th	no rain, T and RH is also suitable for exercises
02:00 7th	Rain will begin in 1-2hrs, please prepare for the withdrawing.

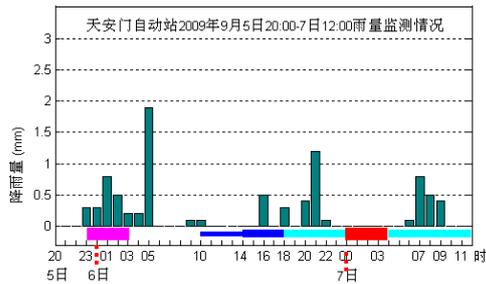


Figure 2 The hourly rainfall of Tian'anmen during the period from 20:00 BJT 5th to 07:00 7th Sep. 2009. (the pink short solid line presents the scheduled Rehearsal period, the blue one the adjusted rehearsal prepare-dness period, and the cyan one the assembling or withdrawing; the red one the rehearsal time.

3. NOWCAST TECHNOLOGY AND TOOLS

During this forecasting process, we take advantage several tools . VIPS,RUC(Rapid Update Cycle) and TITAN is proved to be very usefull in making nowcast .Moniting the direct and speed of radar echo and utilizing the distance tools in VIPS,we can estimate the location and rainfall of the rainband by extrapolation easily.

RUC is running in Beijing Institute of Urban Meteorology, and it provides 24 hours forecast (1 hour interval) every 3hours in a 3kmx3km resolution. Therefore, every time there are 7 forecasts for the weather status in 24 hours of Tian'anmen by interpolating the model output. Comparing all the forecasts and drawing an ensemble forecast is also a useful method to forecast the point weather status.

Some advanced sounding data , such as data from windprofiler, radiometric,is valueable in weatner monitoring.

4. CONCLUSIONS

Forecasting detailed weather on a point is not a easy job. It needs all you efforts ,as well as some new knowledge about weather status. Using some advanced tools, which allowed you to interactive with weat-her condition, is a efficient way to make forecasting. Some new sound- ing data on atmospheric physical condition, contribute to the unders- tanding of weather sys tems, such as satellite images, wind vector from windprofiler, temperature from radio- metric and so on.Learning and training to use these dataset is also necessary.

5. REFERENCES

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