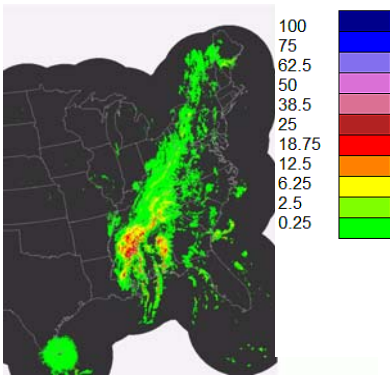


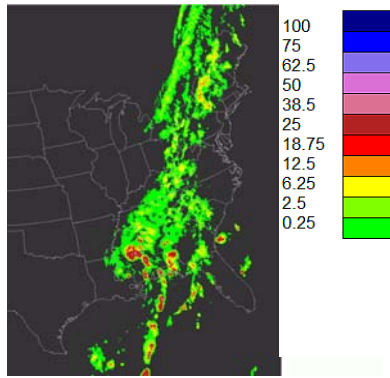
Initial radar precip rate

a



Initial satellite precip rate

b

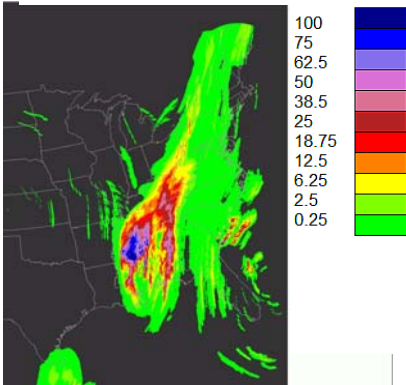


T.S. "Lee"
1200-1800 UTC
5 Sep 2011



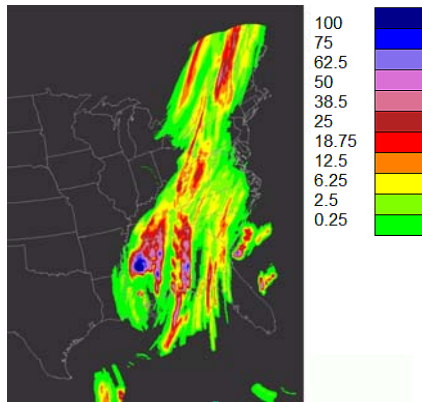
6-hQPF by extrapolation

c



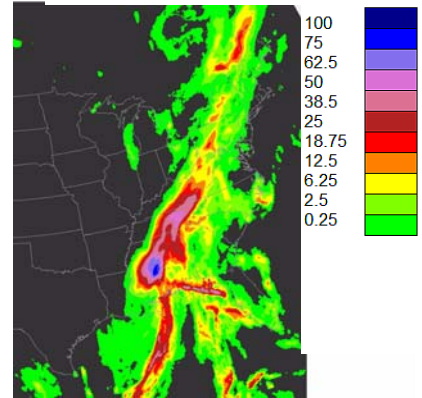
6-hQPF by extrapolation

d



6-h RUC Forecast

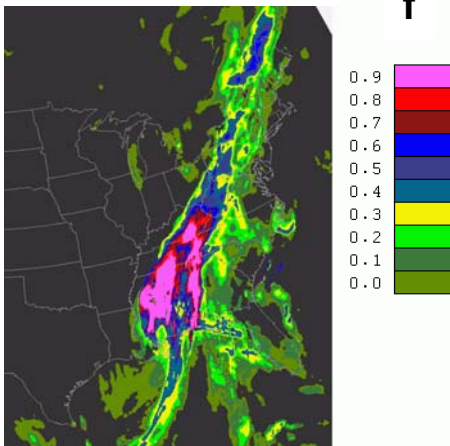
e



Probability equations relate extrapolation and RUC QPFs to precipitation probabilities

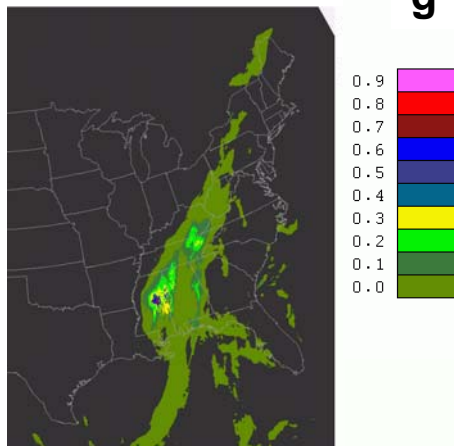
Probability >2.5mm

f



Probability >25mm

g



Probability >50mm

h

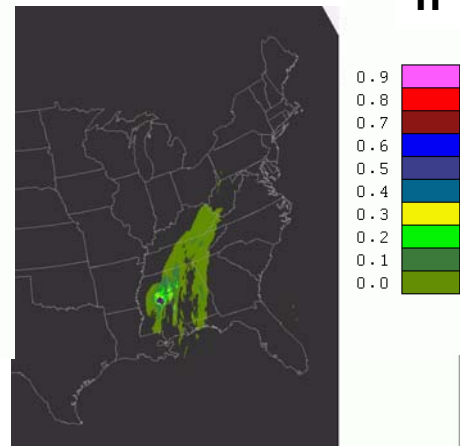


Figure 2. Input and RS-REG forecasts valid 1200-1800 UTC, 5 September 2011. Radar (a) and satellite (b) input are extrapolated to produce 6-h precipitation forecasts (c,d) which are statistically merged with the RUC numerical forecast (e). Probability forecasts (f-h) are derived from the extrapolation and RUC forecasts. Amounts are in mm, probabilities range 0-1; see color scales.

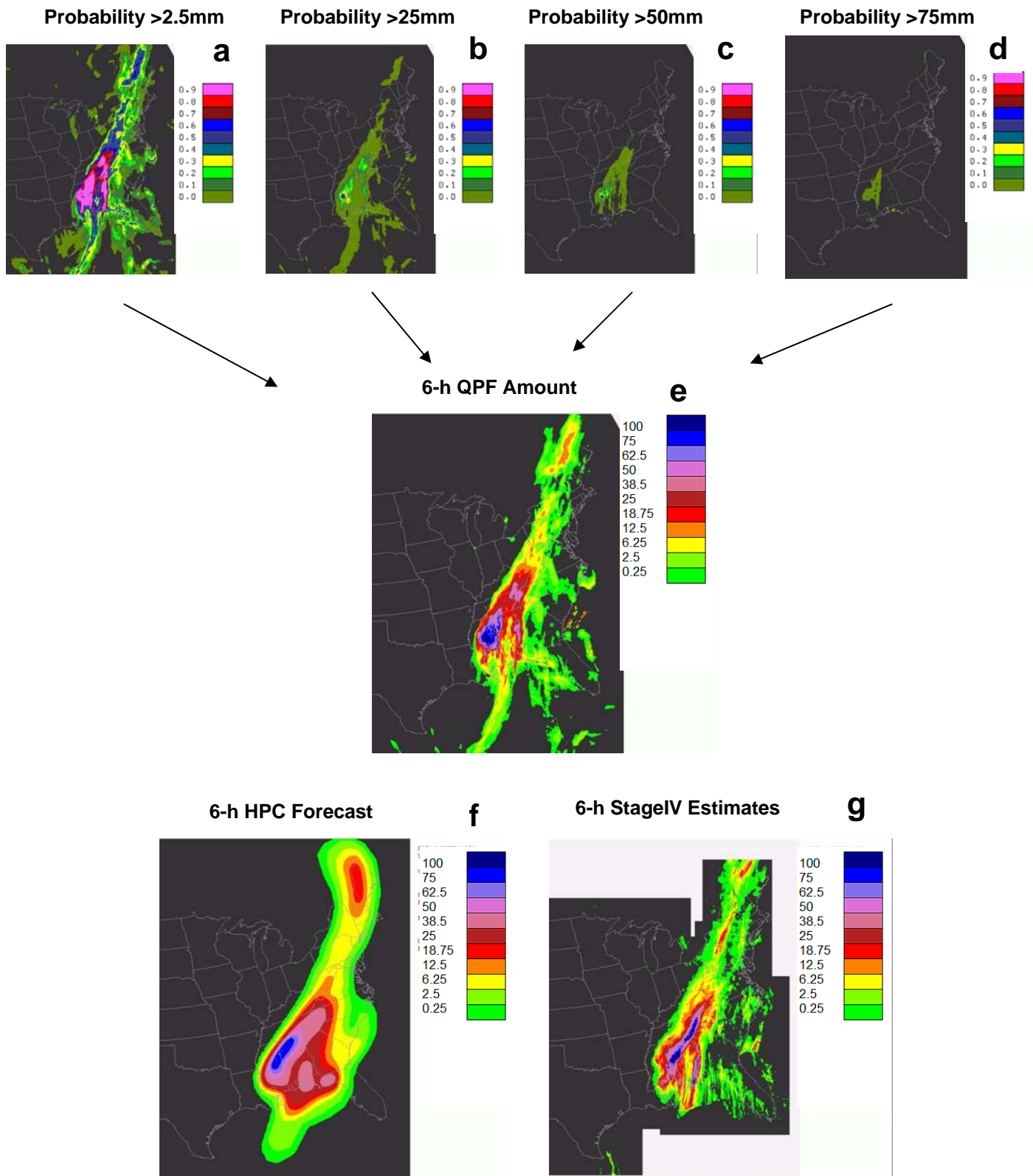


Figure 3. RS-REG forecasts valid 1200-1800 UTC, 5 September 2011, corresponding HPC forecast, and StageIV gauge-radar verification. Probability of exceeding thresholds of 2.5, 25, 50, and 75mm (a-d), and QPF amount (mm) (e). HPC forecast (f) has pattern similar to RS-REG. Some amounts in excess of 100mm were observed (g). Amounts and rates are in mm; probabilities 0-1 (see color scales).

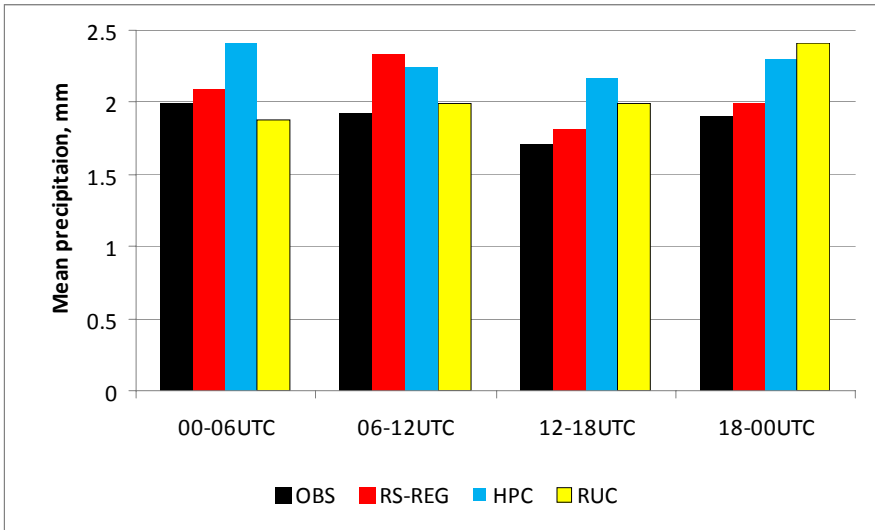


Figure 4. Mean observed and forecasted precipitation amounts. Values are for the period April-June 2011.

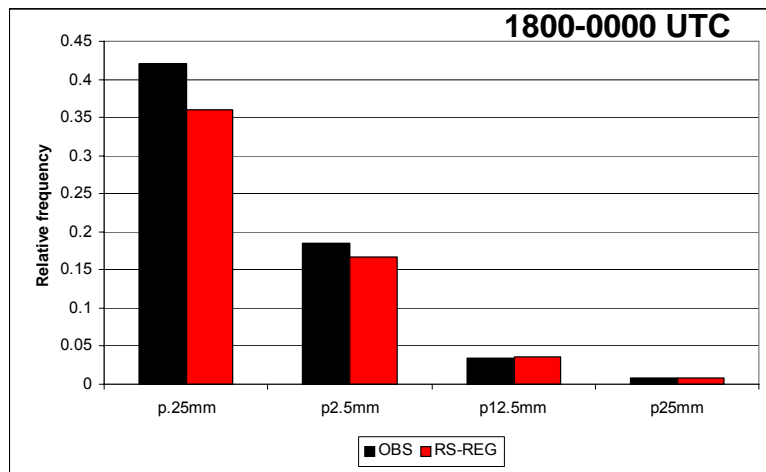


Figure 5. Relative frequency of observed precipitation events (black bars) and mean RS-REG probability forecasts (red bars) for valid periods (a) 0000-0600 and (b) 1800-0000 UTC.

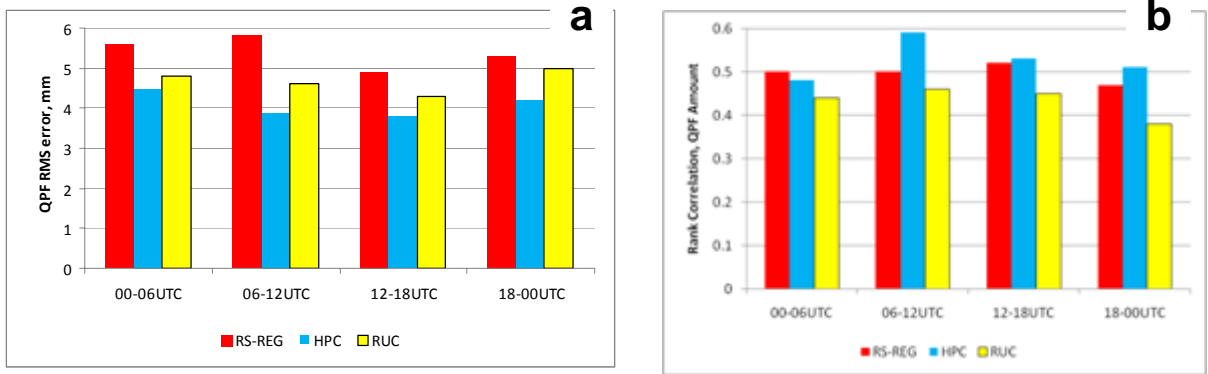


Figure 6. Root-mean squared error (a) and rank correlation (b) for precipitation amount forecasts; statistics are relative to StageIV verification, April-June 2011.

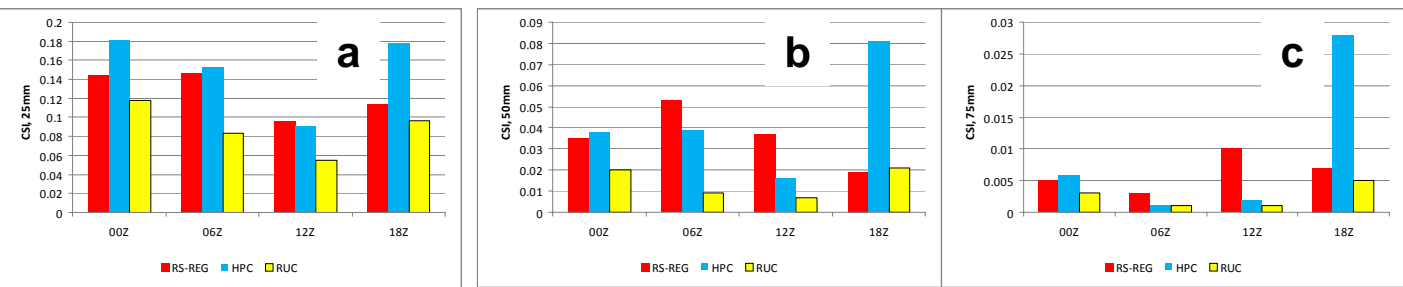


Figure 7. Maximum Critical Success Index (CSI) for RS-REG, HPC, and RUC forecasts, for (a) 25-mm events, (b) 50-mm events, and (c) 75-mm events. Maximum CSI value is subject to detection of at least 0.25 of the observed events.

Table 1. Fraction of cases with observed precipitation ≥ 25 mm, for different ranges of RS-REG QPF, given that HPC forecast was ≥ 25 mm. Within this sample, there is a clear relationship between the RS-REG QPF and event relative frequency, implying information independent of the HPC forecast.

Relative frequency of observed precipitation ≥ 25 mm	0.26	0.35	0.43
Precipitation amount forecasted by RS-REG	0-15mm	15-25mm	>25mm