Use and Misuse of EFS data and Targets of Opportunities

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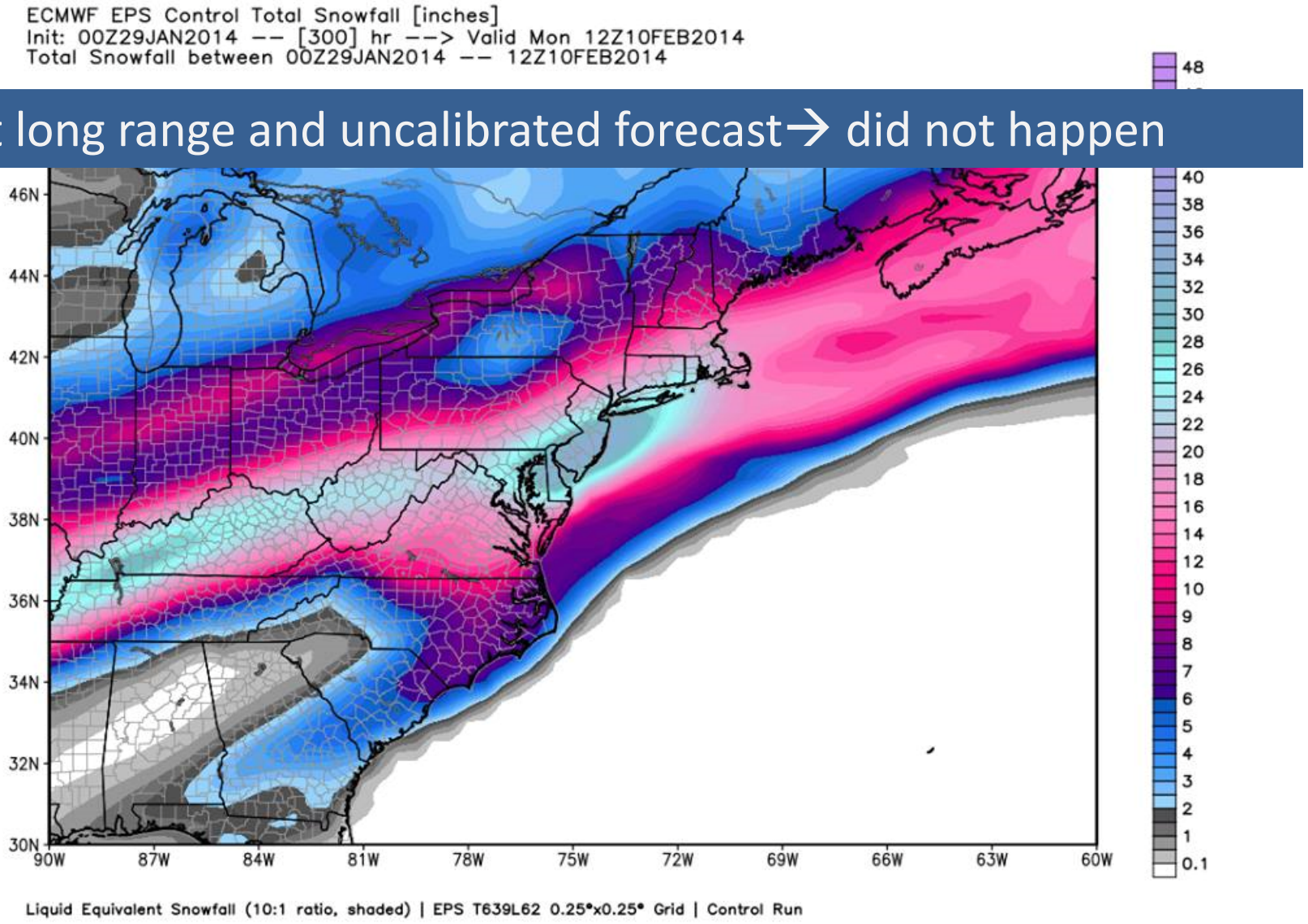
Overview

We may not be effectively training forecasters on how to use ensemble data

- ***Forecasting Deterministic in nature***
  - ***We have not made the complete paradigm shift***
- **Ensemble data in forecasting**
  - ***Under used and not well understood***
- **Targets of opportunity**
  - ***Training on basics***
  - ***Calibration***

Big Snow

at least as interpret as is



But long range and uncalibrated forecast→ did not happen

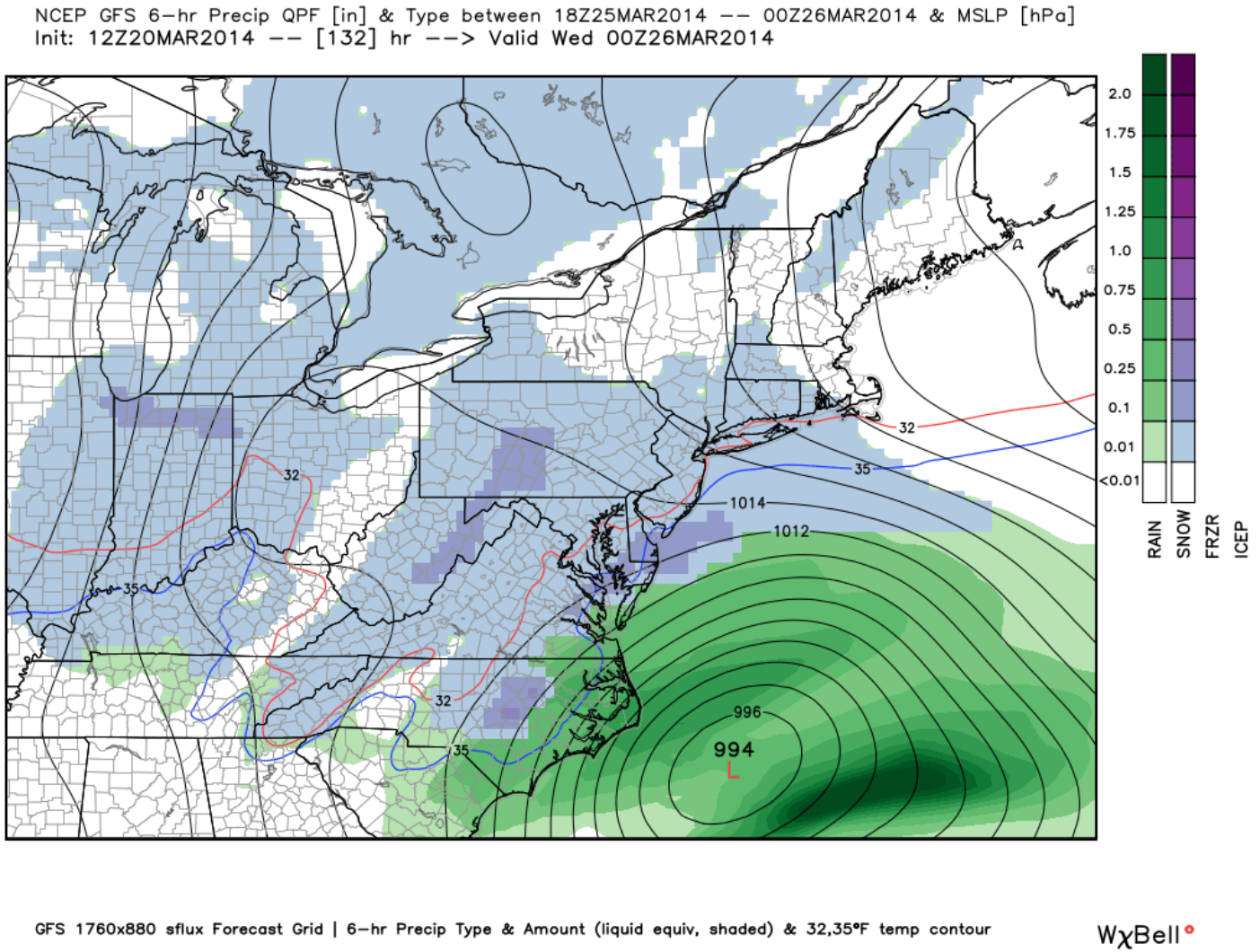
Calibration

- **Forecasters need to calibrate forecasts**
  - 30 inches of snow at day 8 verifies how often?
  - 80% chance 1 inch QPF at longer ranges verifies how often?
  - Simple but necessary→ learn how to calibrate
- **Forecaster need better access to**
  - Calibrated forecasts
  - calibration statistics local and/or centrally prepared
- **Training and Post-process opportunities**

Do you see a Parrot?

Do you see a snow storm?

Single models out on social media



Often output viewed as a Parrot

- **Little calibration going on**

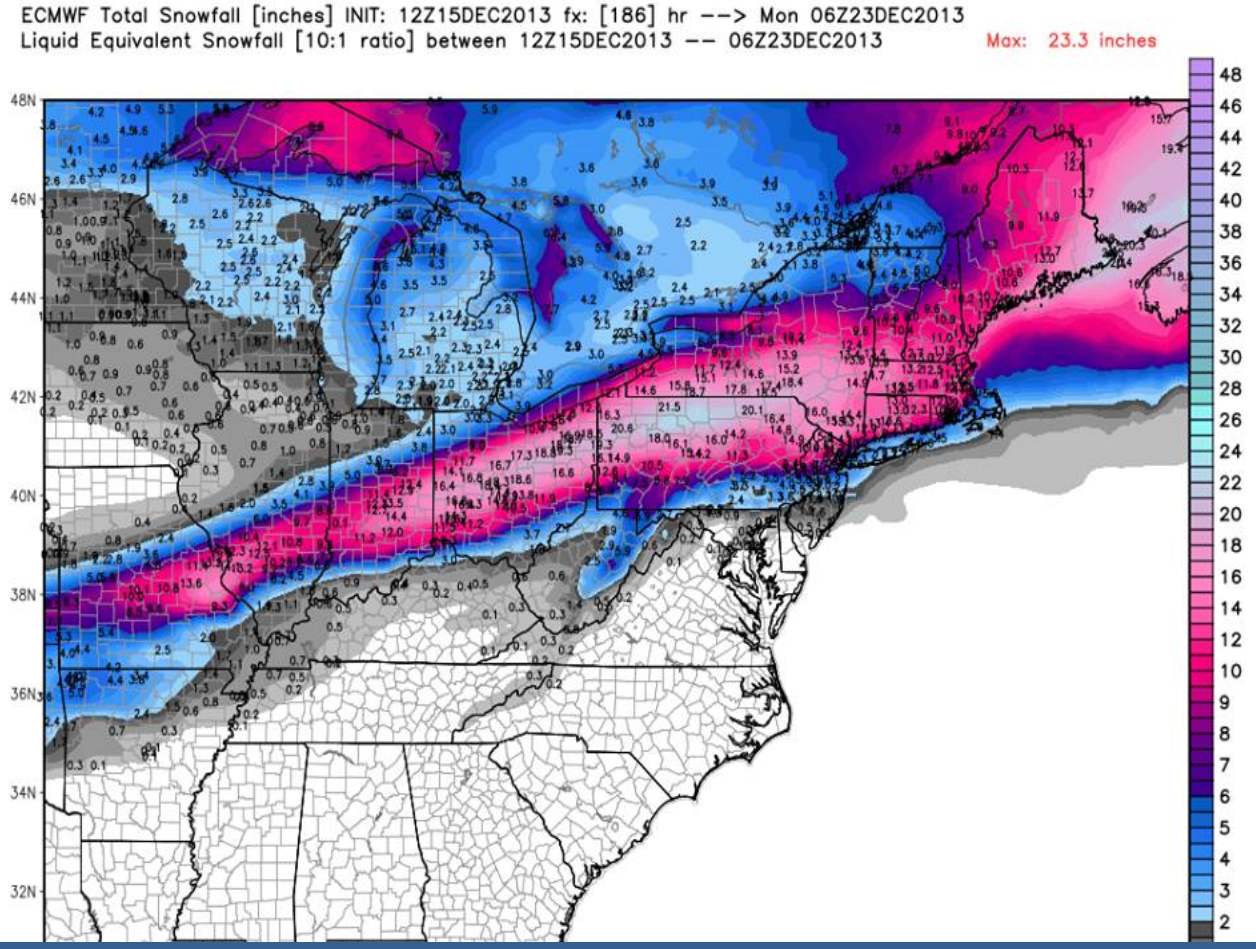
- ***80% chance of 1 inch QPF day 7 viewed as would will happen (High probability)***

- ***Outside influences →***
  - *You no longer control the message and can be biased by the message*
  - *Talk of big storms makes personal "calibration" harder*

- **Takes good training**
  - Overcome rumors of big storms on social media
  - Then treating forecast as what might occur not will occur

Pre-Christmas 2013 Snow→

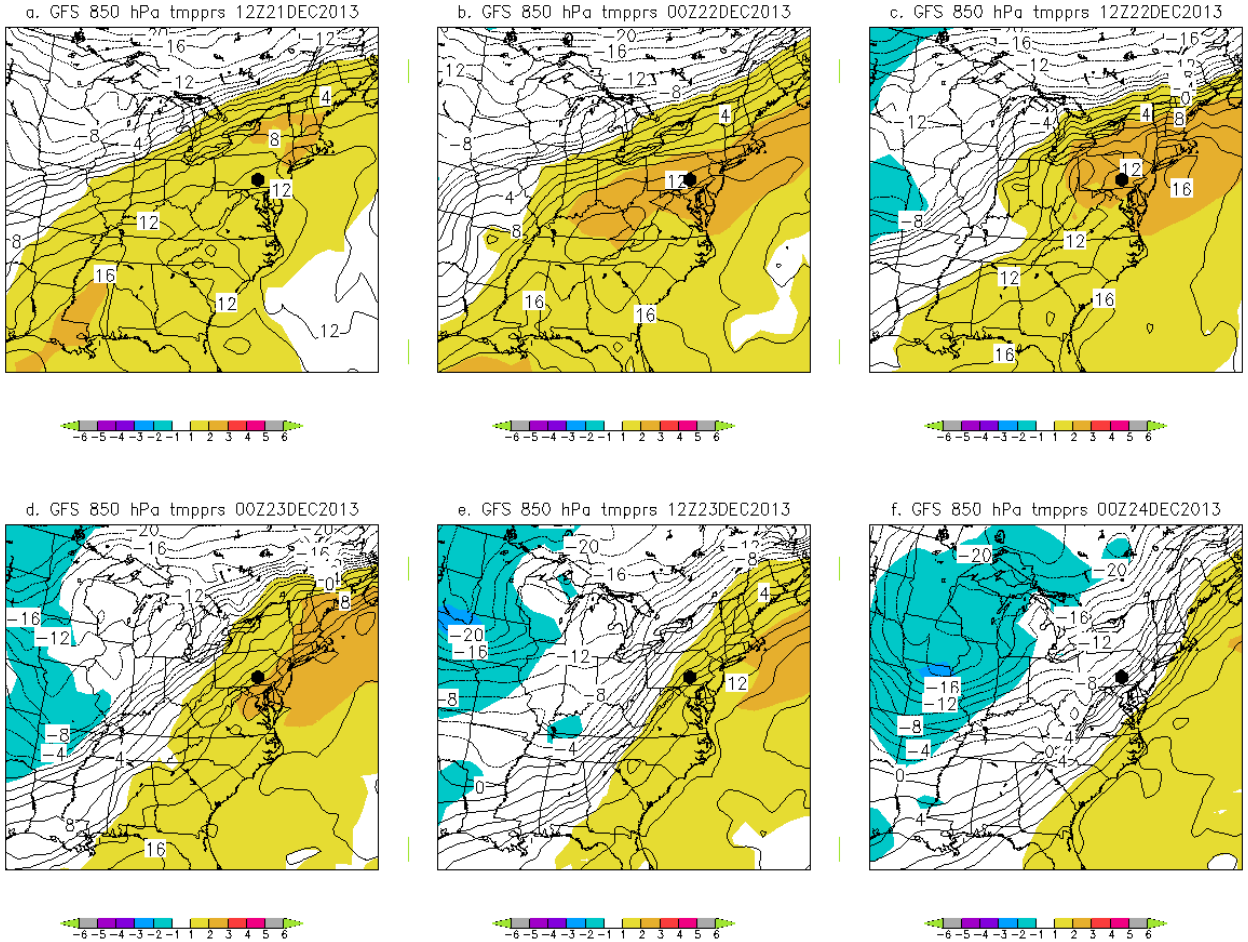
single EC forecast went viral



Social Media and forecasters keep seeing Parrots

Storm Track Wrong

Record warm in East-Ice in Quebec northern NY



Misuse of forecast data

- **Pretty ubiquitous**
  - *Longer range forecasts often used → with no accounting for* ***Predictability horizons***
- **Worse in social media**
  - *But impacts operational forecasters*
- **Requires better training of Professionals**
  - To be able to deviate from outliers
  - *Uncertainty and confidence training is critical*
  - *Training on Predictability horizons*

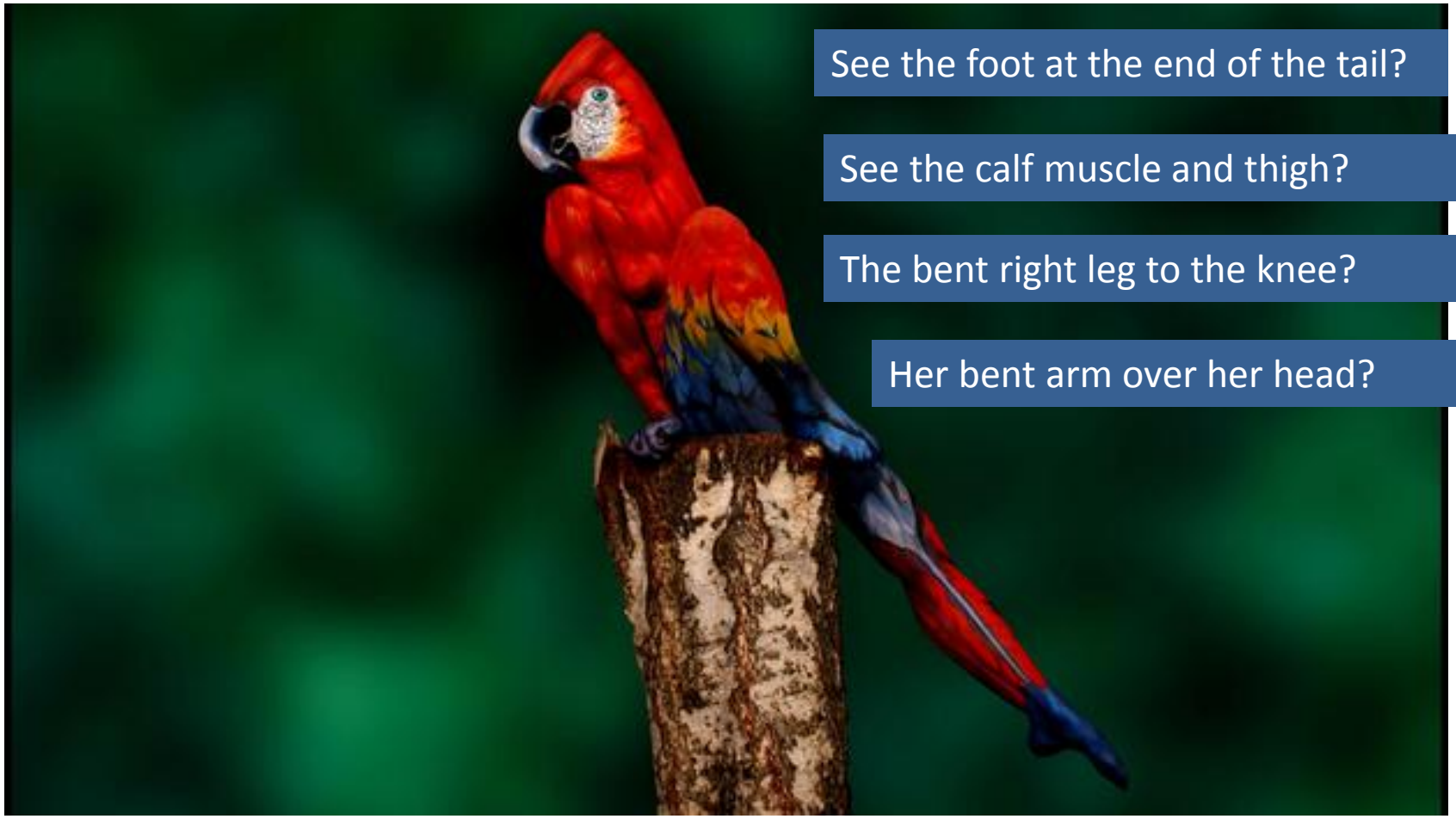
Deterministic world avoids uncertainty

We need to see that it is not a Parrot! REALLY!

- **Forecaster knows**
  - There are uncertainty issues
  - *identifying and leveraging, and implications of predictability horizons*
  - *Requires confidence and calibration*
- **But users and media are off and running**
  - *Go with the Force or leverage uncertainty?*
- **Takes patient expert or unfaltering machine**
  - *Takes time, effort, knowledge, and **training***

Who did not see a Parrot?

Can you see the woman?



See the foot at the end of the tail?

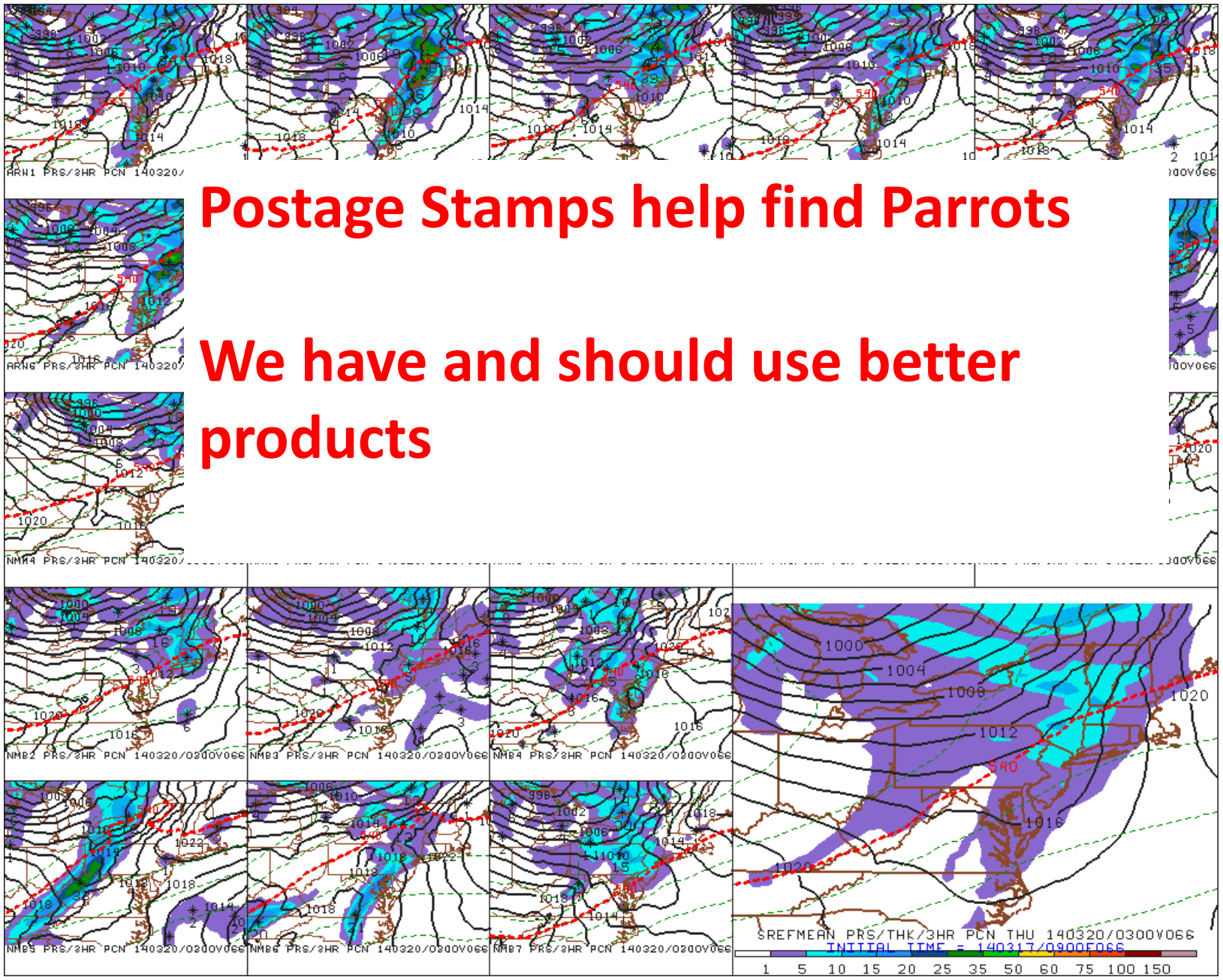
See the calf muscle and thigh?

The bent right leg to the knee?

Her bent arm over her head?

We clearly have not Turned the corner

- Forecasters still have difficulty with uncertainty
- We need better and more effective training
- Examples of these issues abound
  - Postage stamps help find parrots (next slide)
  - Issues dealing with large spread
- There are some positives we could address too
  - Need to leverage these better



Postage Stamps help find Parrots

We have and should use better products

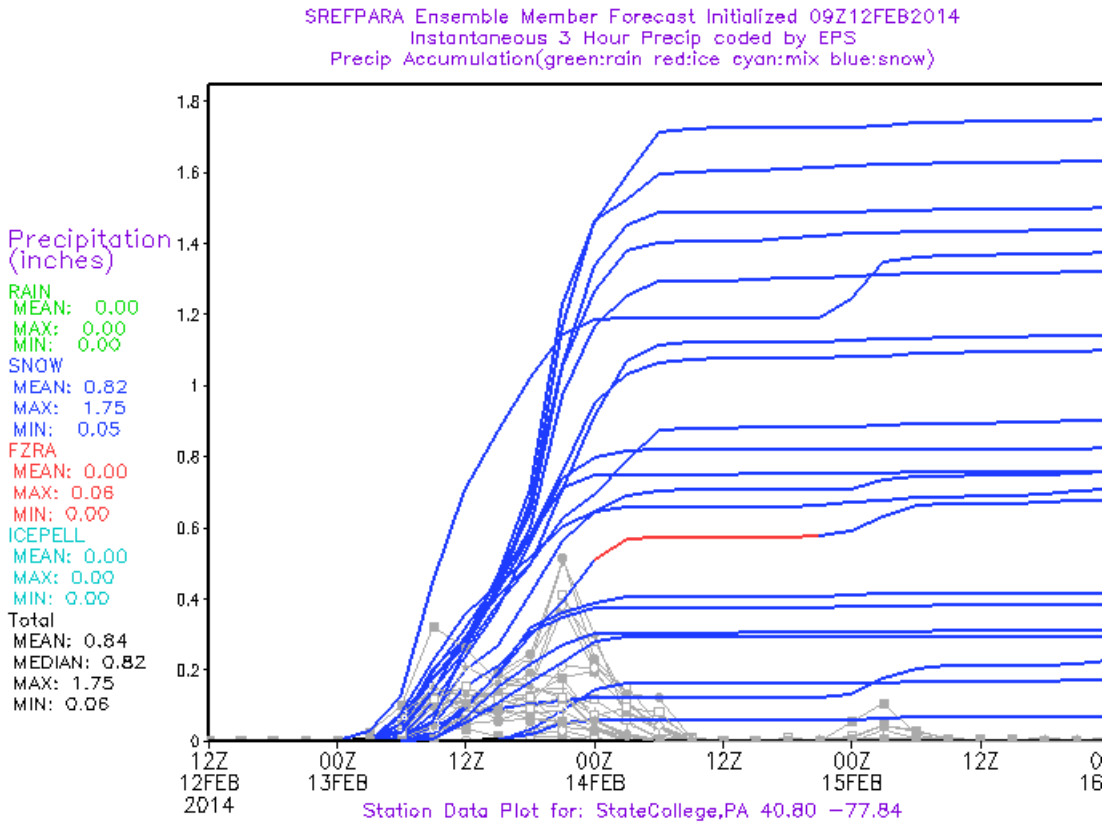
On the Understanding and use of Uncertainty

On the edge of major snow storm

This plume got 2 comments:

a. How much snow: choices were 2-4,4-6,6-8

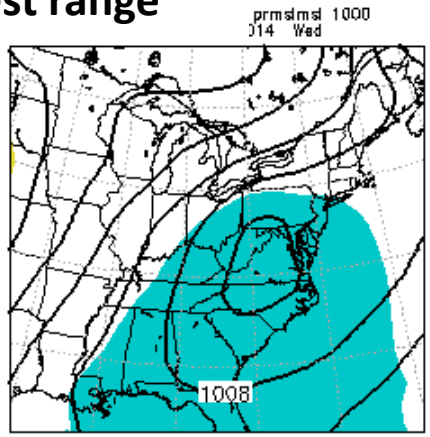
b. *"Too much spread, I cannot use this to make a forecast"*

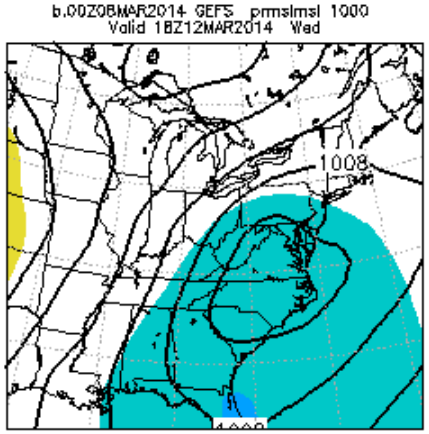


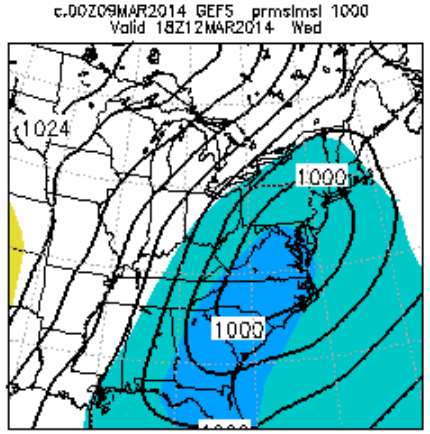
The range here was 0.05 to 1.75→ was on the western edge of QPF shield and 10 inches fell

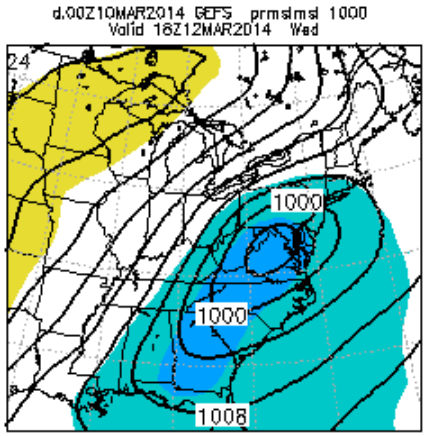
Leverage: RMOP-Standardized Anomalies and mean spread and probabilities (longer range need calibration)

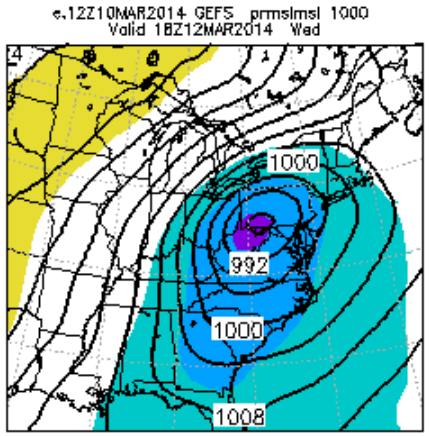
Longest range

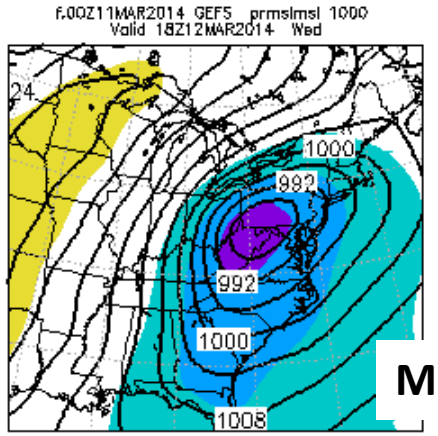












Most Recent

Training opportunities

if we fail we may have to automate

- **Leverage Current good→ Simple to accomplish**
  - EFS and Models
  - Better use of uncertainty
    - Mean-spread/ RMOP/ Standardized Anomalies
    - Probabilities still under used
  - Simple things too*: be wary in areas of sharp gradients small shifts big impacts!*

- **Training**
  - *Understanding Predictability horizons*
  - *Leveraging mean/spread probabilities in existence*
  - *Calibrating forecasts*

Products/Tools

- **Move toward better products**
  - *Mean-spread and confidence → less postage stamps*
  - *Better probability products and tools*
  - *Better access to calibration data and products*
- **Training**
  - *To use tools and products more efficiently*
  - *Not that we don't like parrots!*

Comments/Discussion

- Training
- Products