Weather Information for Traffic Management

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INTRODUCTION

• TMC User Groups
• Wx Observation Data Sets
• Caveats
• Forecasts
• Role of Meteorologists
• Integrating Date into TMCs
• Operational Pontifications
TMC User Groups

- Traffic Engineers
- Signal Timing Engineers
- Operators
- Maintenance
- Incident Management
- ITS Maintenance
- Public Information Officers
- Traveler Information
- Weather Operations
Weather Data Types:

• Surface Observations
  – RWIS-ESS
  – ASOS/AWOS
  – SNOTEL
  – RAWS
  – Co-op

• Remote Sensing
  – Satellite-based
  – Radar

• Numerical Models
  – Atmospheric
  – Surface/Road
  – Traffic

• Traffic Data
  – Cameras
  – TMD

• Field Observations
  – Govt personnel
  – Citizen reporting
  – Social Media

• Mobile Observations
  – CAN bus
  – Wx Instrumentation

BOTTOM LINE
There is so much information from more sources than you can imagine that it is mind-boggling.
For Example:
Surface Weather Data

- More than just RWIS
- Know where your data come from
  - Location, elevation, purpose, ground cover, site history, instrumentation suite, etc.
  → Metadata
- Use traffic data as proxy for weather/road conditions
  - e.g., traffic radar, travel times, incidents

- RWIS, ASOS, AWOS, SNOTEL, RAWS, CO-OP, etc.
Weather Data Types, Cont’d: Caveats

- **Surface Obs**
  - Need extensive metadata
  - Maintenance-intensive

- **Remote Obs**
  - Difficult to interpret
  - High band width
  - Difficult to archive
  - Alias readings

- **Numerical Models**
  - Need specialized staff

**BOTTOM LINE**

Interpreting wx data for **operational purposes** appears simple, but in fact it takes very specific skill sets.
Myriad of Forecast Options

- National Weather Service
  - WFO
  - Storm Prediction Center
  - Hurricane Center
- Private Sector
- Academia
- Television
- Radio
- Internet (gazillions)
- Phone apps
- Printed media
Operational Significance

Temporal Specificity

- Months
- Days
- Hours

Forecast Relevancy

- Low
- High

- Media 7-day Outlook
- Seasonal Outlook
- NWS Point Forecast
- NWS WWA*
- Road Weather Forecasts

*Watches, Warnings, Advisories
Role of The Meteorologist

• Interpret data
• Interpolate between model grid points and correct for model bias
• Define and identify impacts to operations
• Communicate impacts directly to personnel and provide decision support
  – Forecasts by themselves have little intrinsic value
• Provide training to personnel
• Develop RWIS deployment plans
• QC/QA data sets

Overall, add value to TOC weather-related operations
Integrating Wx Data and Forecast Information into your TMC

• Give the public access to your RWIS data.
• Use graphics to show impacts (red-yellow-green is simple yet effective).
• Your Meteorology group needs to be fully engaged in all aspects of operations.
• Conduct pre- and post-event briefings no matter how small the event.
• Every level of staffing needs to have access to meteorological support.
• Phase out proprietary data systems that your IT staff can’t work on.
ROP

• As you deploy new weather technology, make sure you have the capabilities to maintain it, the knowledge to calibrate it understanding of what it means, and financial fortitude to upgrade and maintain.
• If you need weather data and forecast information (and you do) bring on the proper staff. Your operators and engineers should not be expected to shoulder the burden of misinterpreting data.
• Data are as data does, keep extensive metadata on your devices.
• All Meteorologists are not the same, make sure you know your needs.
• Perform a needs analysis (see above).
• Develop and maintain a plan for RWIS deployment and maintenance, IMO integration, as well as data collection, archiving and dissemination.
• Update the plan on an annual basis but stick to the plan.
• Develop performance measures and a performance management plan.
• Communicate.
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