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**Boschung's MDSS solution**

## **Issues in tactical weather support**

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## Issues in tactical weather support Objective

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**The objective of incorporating weather  
forecast in MDSS is to be able to predict  
future road dangers**



- Define a common grid between maintenance's perspective (road segments, RWIS location) and weather's perspective (micro-climatic regions)  
→ Road weather segments
- Define « bridges » between the measurement capabilities and the weather forecast  
→ Reference RWIS within Road weather segment
- Keep in mind the distinction between weather forecast (air) and pavement status (road) : these are two different worlds !  
→ Combination of expertise provides the best result



1. Determine the future pavement status
2. Have the system react correctly



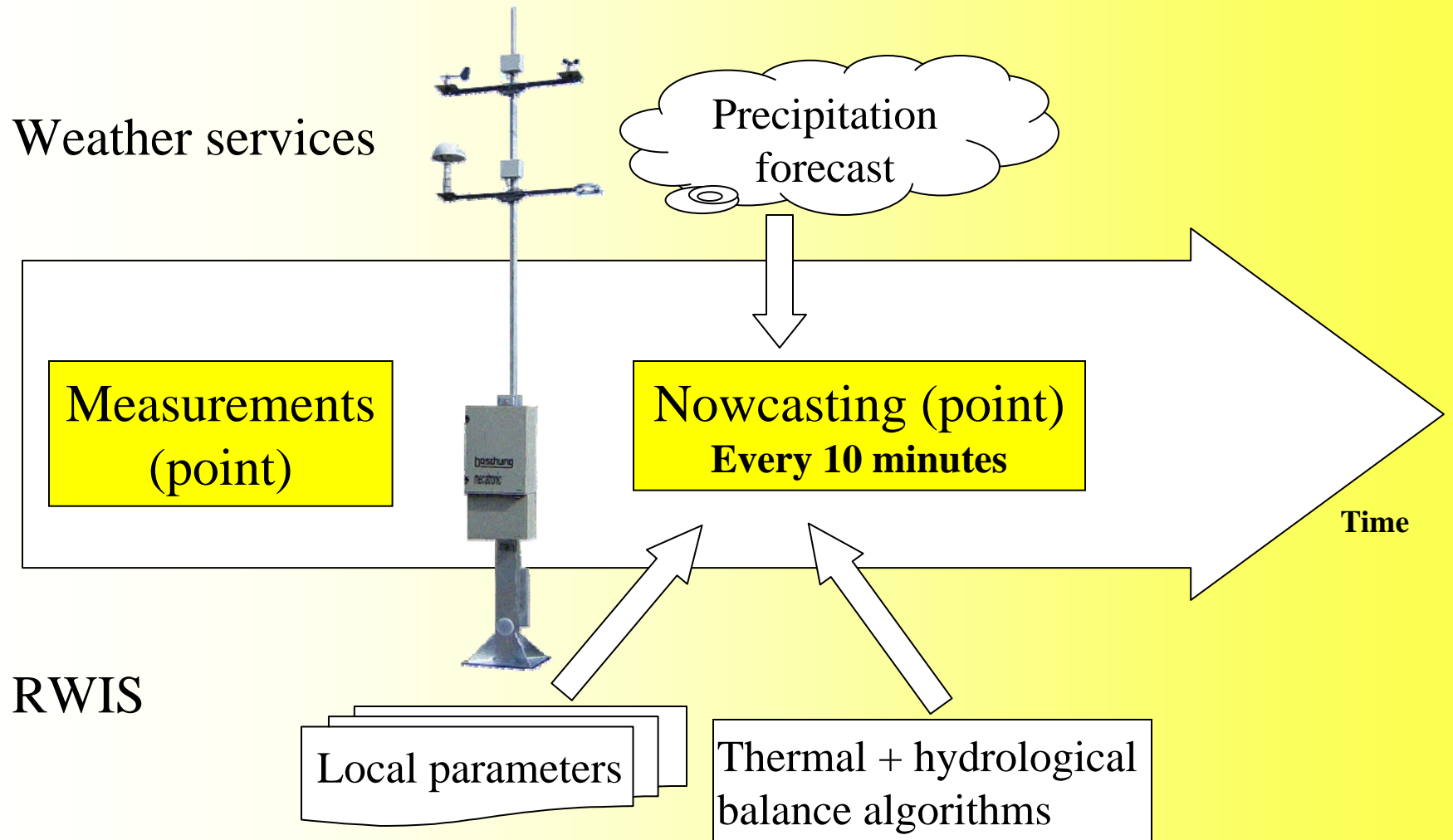
- First area of interest is the short term (2 – 3 hours) for deciding on road treatment
  - The evolution of the pavement conditions within that period of time is mostly influenced by the preceeding hours (inertia)
    - ➔ define this evolution for the location where measurements were performed (RWIS)
  - Precipitation can change the situation
    - ➔ use detailed precipitation forecast for the area (weather services)



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# Determine the future pavement stat. (first step : point forecast)





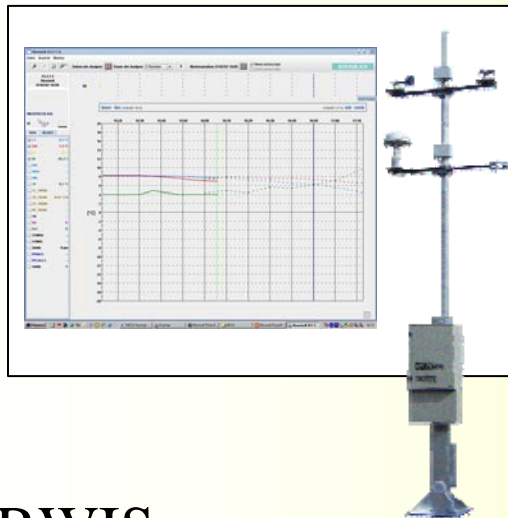
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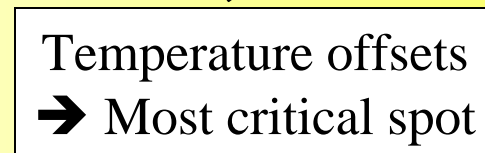
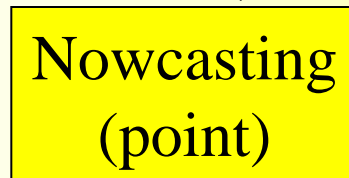
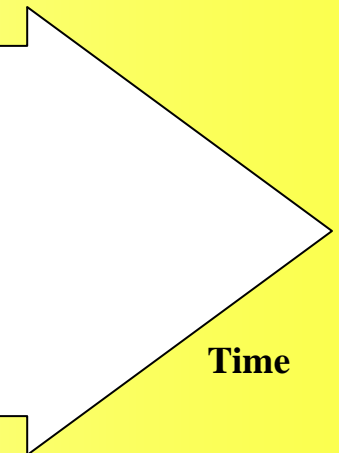
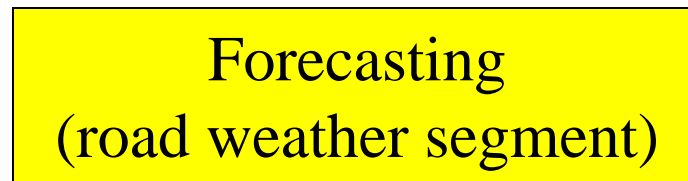
# Determine the future pavement stat. (second step : road segment forecast)



Weather services

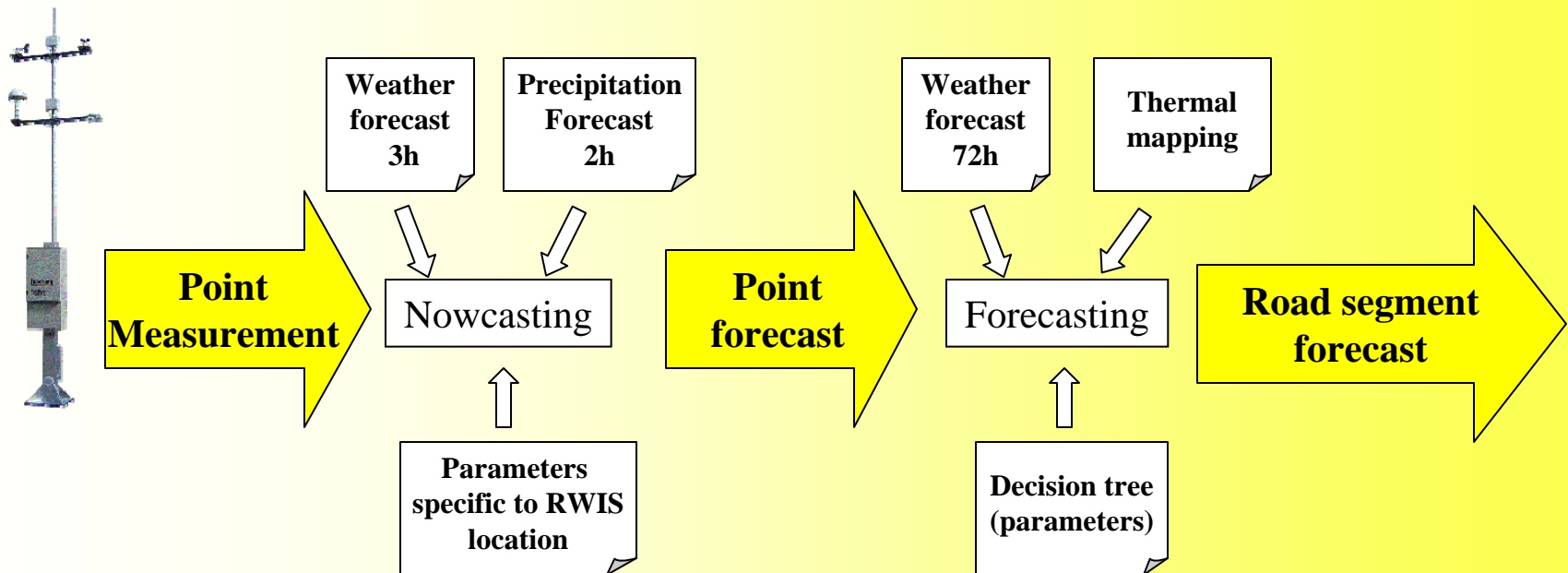


RWIS





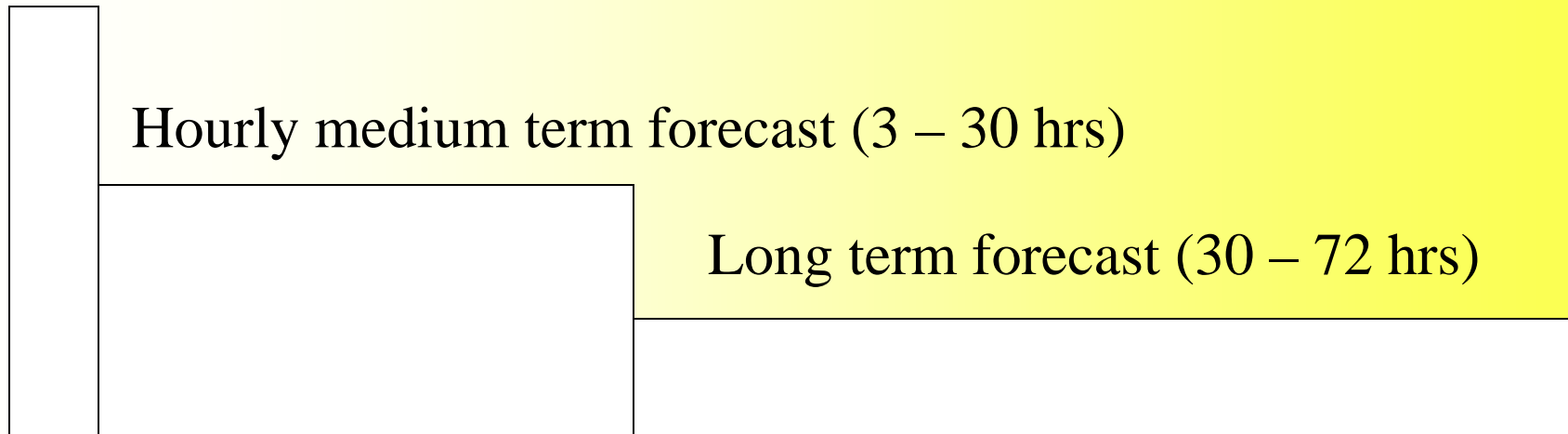
## Translation from point measurement to road forecast





➔ Available information for each individual road weather segment :

High accuracy short term forecast (0 – 3 hrs)

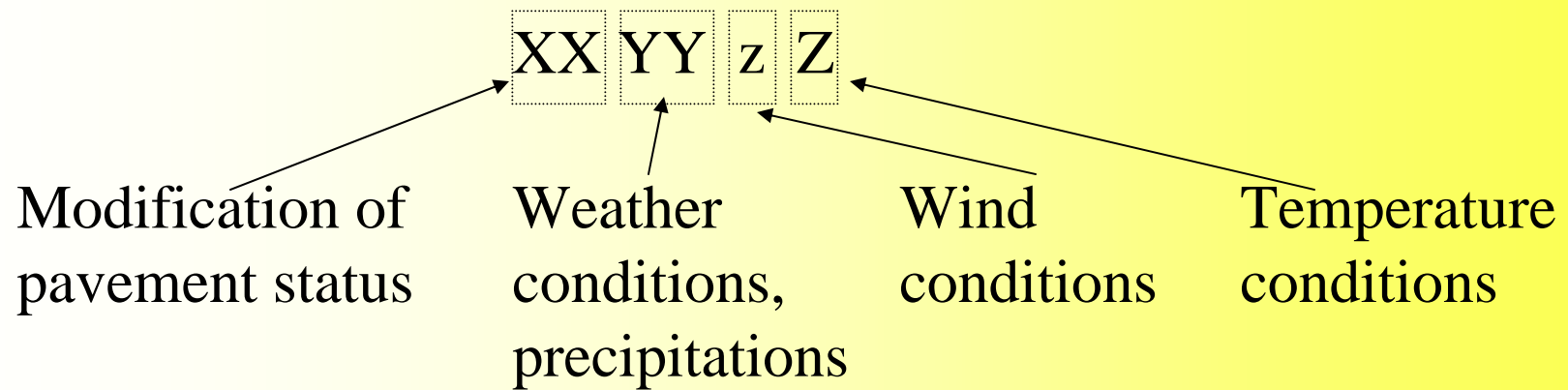




# Issues in tactical weather support

## Have the system react correctly

- Each road segment forecast period is summarized into a 6 digit code :





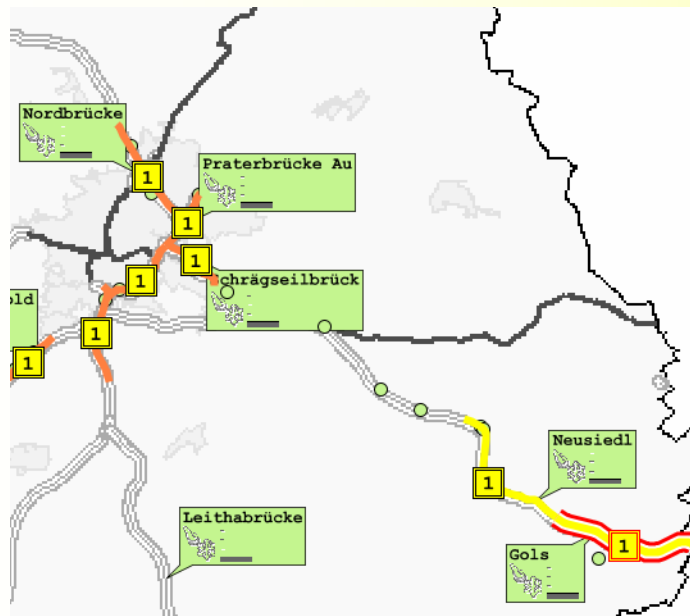
- Each individual code (up to about 2'800 combinations) can trigger a specific behavior of the system (coloring the corresponding road segment, alerting, etc.) by means of parameters : **decision tree**
- ➔ The system can be tuned to react the same way your most experienced expert would do.
- ➔ This reaction is no more depending on who is sitting in front of the screen



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# Issues in tactical weather support Have the system react correctly



	0-3	3-12	12-30	30-72	
Wetter	W	W	W	W	<input checked="" type="radio"/> SWA
Fahrbahn	W	W	W	W	<input type="radio"/> BB
Schneeverweh...	W	W	W	W	<input type="radio"/> ABM
Brücke	M	M	M	M	<input type="radio"/> SG

- Winter road segments are colored against 4 levels of danger
- Warnings about oncoming dangerous events are issued (escalation at -12h, -6h, -2h, -1h)
- Information is broken down into 4 areas (weather, pavement, snow drift, bridges)
- Information is summarized over 72 hours



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Thank you !