# Maintenance Decision Support System (MDSS) ASFiNAG / Austria - Experience of a Comprehensive Winter Maintenance Management System

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Paper ID 0078

# Introduction



- Increase of traffic volumes
- Growing mobility
- High level of winter road maintenance
- Complexity of meteorological, traffic and winter service processes


# Introduction



Need of comprehensive Winter Maintenance Management System

 Maintenance Decision Support System (MDSS)

# Winter Service in Austria



ASFINAG

Established in 1982

Owned by the Austrian Federal Government

Plans, finances, maintains and tolls the entire motorway and highway network

# Motorway and highway network in Austria:




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ASFINAG Service GmbH (SG) and ASFINAG Alpenstraßen GmbH (ASG):

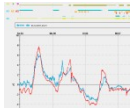
Responsible for ensuring the operation of the motorways and highways

Traffic Control Center and Tunnel Control Centers for Monitoring and Managing

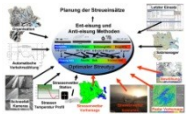
1,500 staff on duty 24 hours a day

# MDSS ASFiNAG - Overview

**RWP** Road Weather Measurement & Forecast

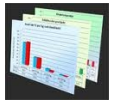
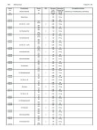
**DSA** Maintenance Decision Support & Alerting



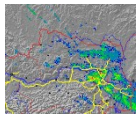
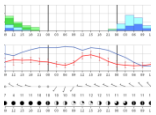

**IAI** Intervention Data Acquisition & Information Processing


**eSP** Electronic Road Service Intervention Protocol


**eAR** Electronic Analysis & Reporting

**iMD** Infopoint @ Maintenance Depots


# MDSS ASFiNAG - Overview



In recent years MDSS ASFiNAG has developed into a comprehensive IT service platform supporting our road service business in the core area of winter road maintenance.

Wether it´s about monitoring road weather, automated hazards detection, provision of information supporting in road service intervention planning and control or documentation and reporting –

# MDSS Maintenance Decision Support System

Weather office

Road weather forecast

Traffic Management Systems

Weather / Traffic related data

Maintenance vehicles

Vehicle data

RWIS

Measured road condition and atmospheric data

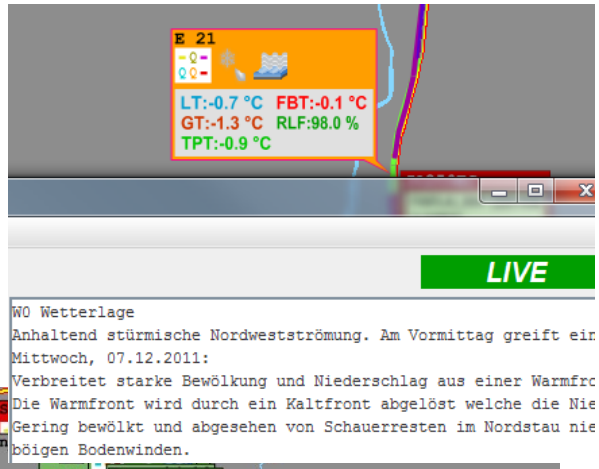
**BORRMA-web**

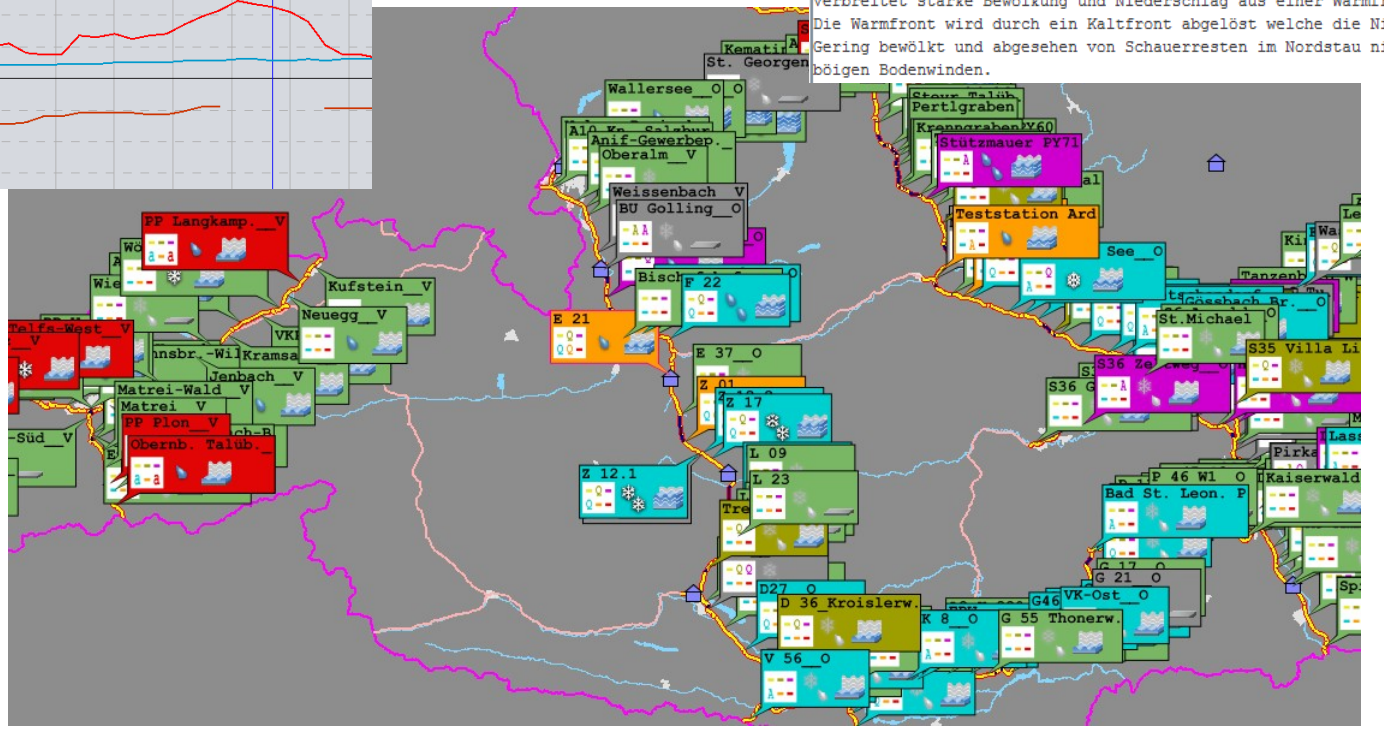
Fixed Automated Spray Technology (FAST)

Measured road condition and atmospheric data

**Information for educated decision making**

# Visualisation of RWIS – Data:

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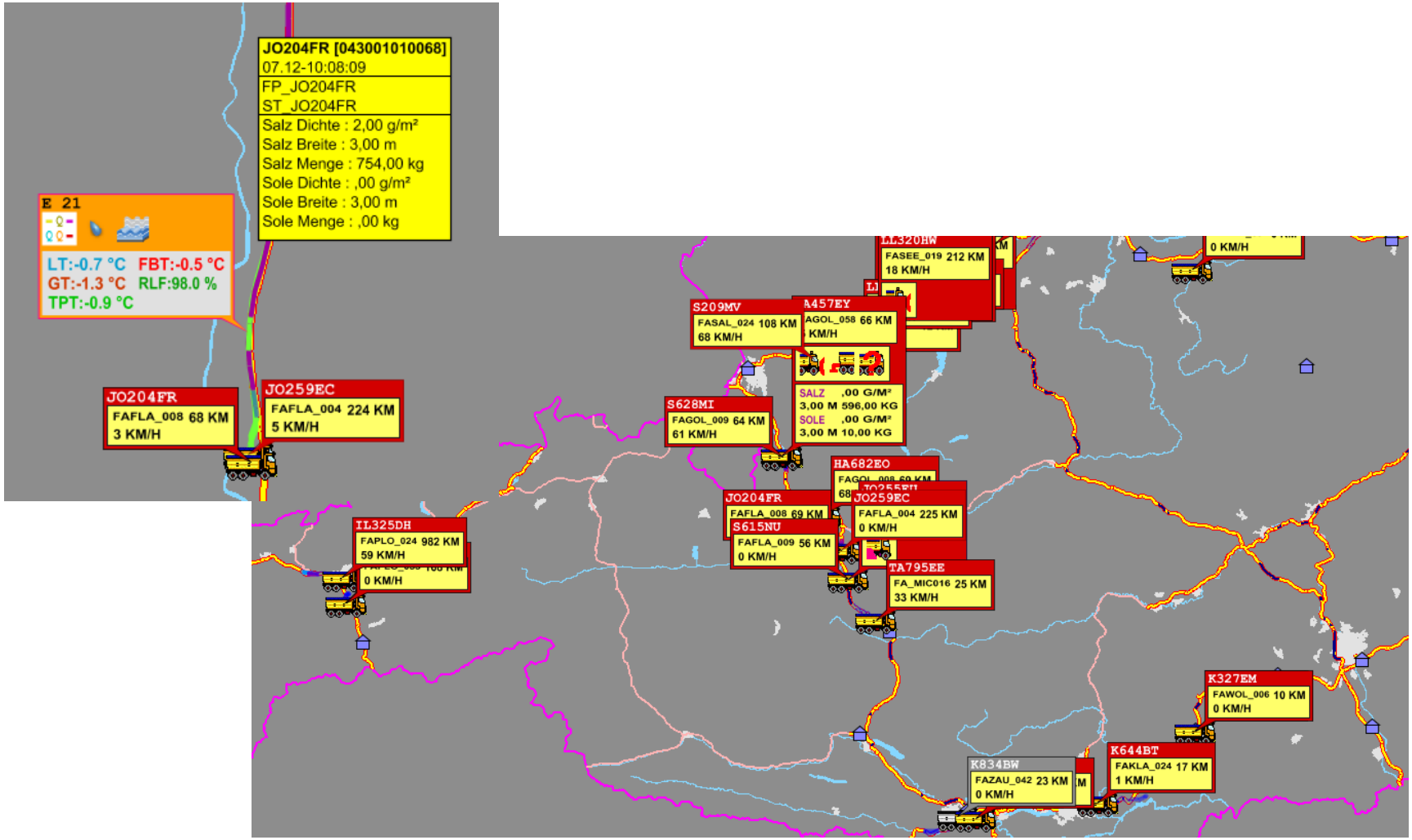
# Integration Vehicle and RWIS - Data:



# Experience of MDSS in Austria



Development of MDSS in close cooperation with winter service professionals

Integration of all information / data into a single cockpit (road weather forecast, early warnings, point measurements, vehicle intervention data)

Role-specific cockpits

# Experience of MDSS in Austria

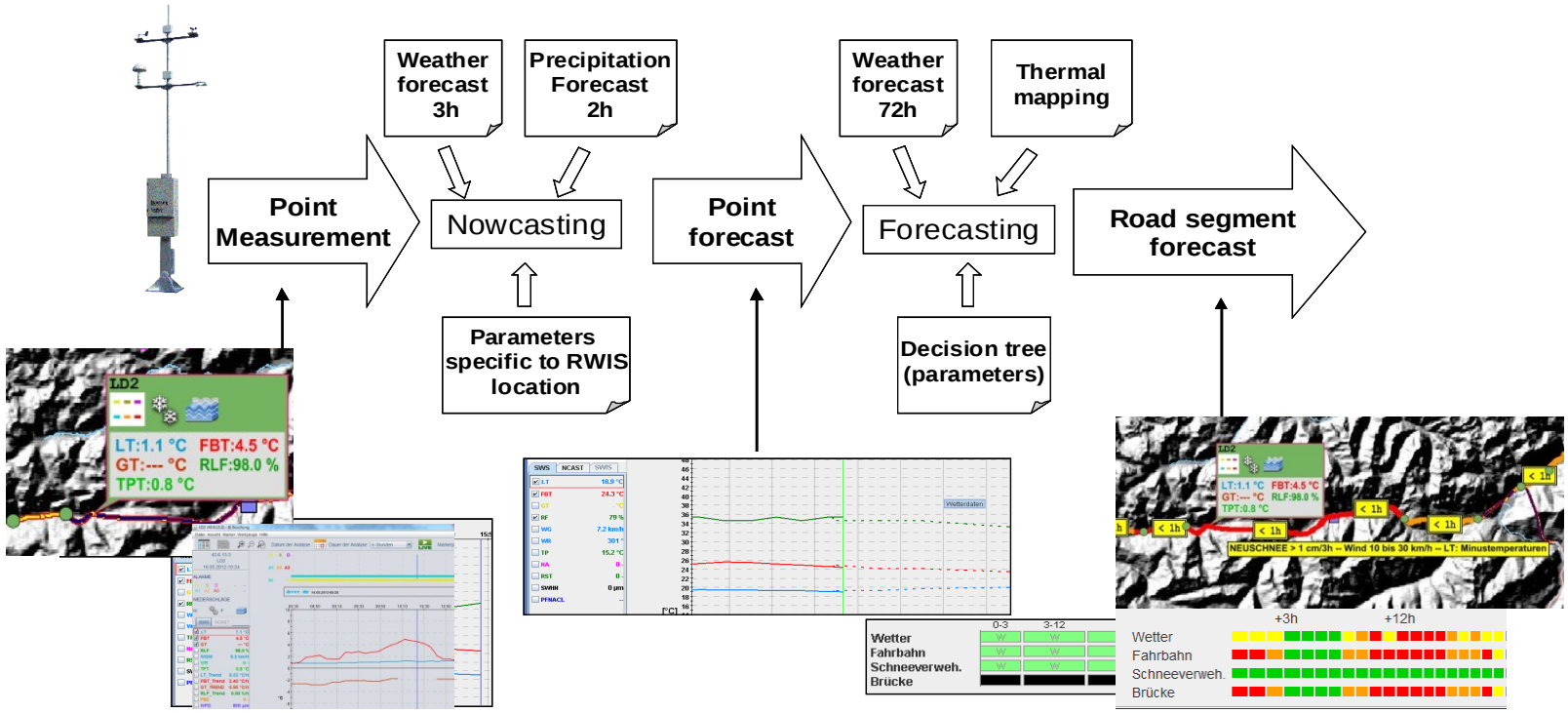


MDSS delivers predictions for Road Weather Segments with risk levels and early warnings for tactical and planning decisions (up to 72 hours)

Ongoing optimization of prediction model for all forecast areas (around 250) incl. review of data sources

System provides high degree of flexibility

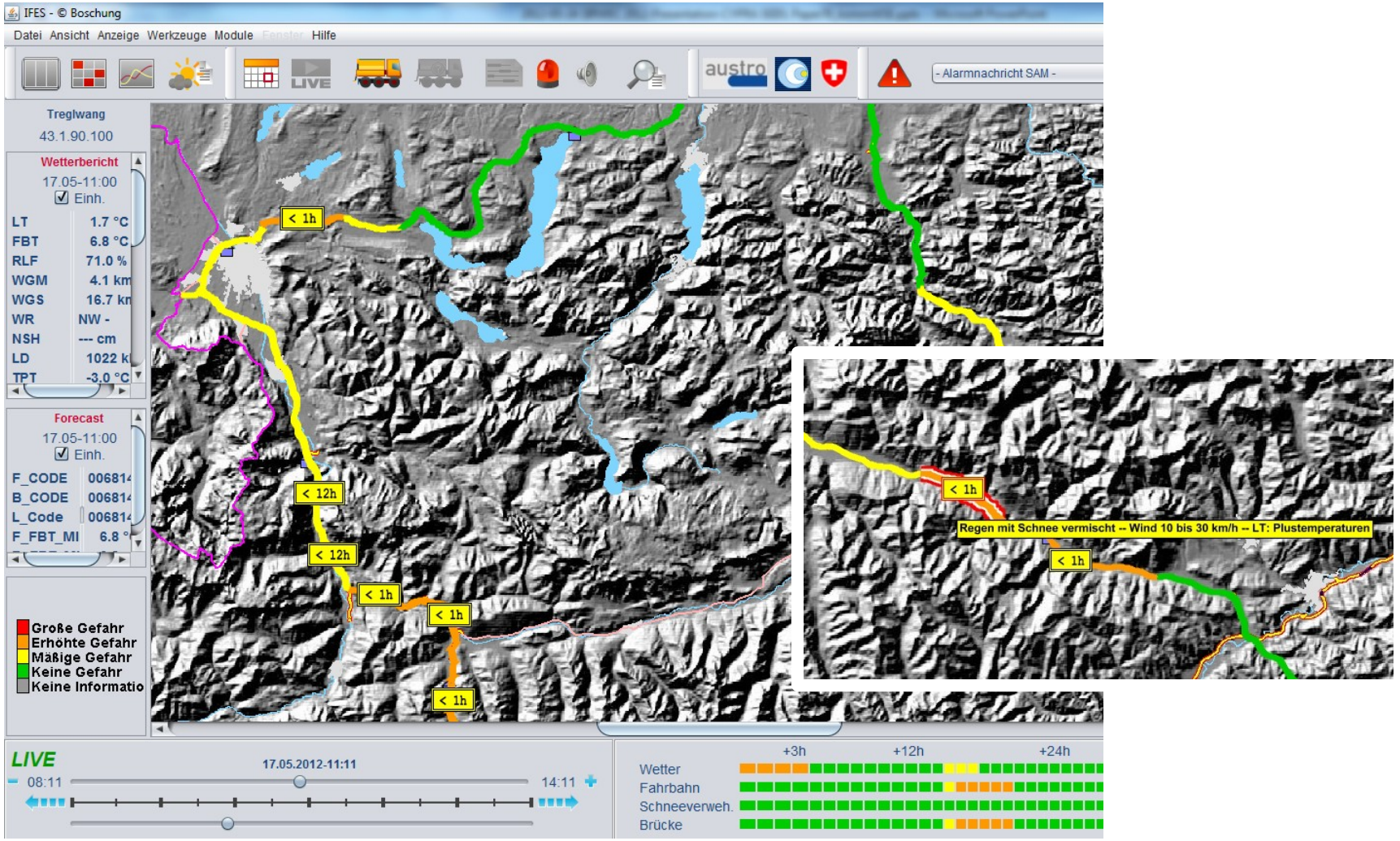
# Principle of Nowcasting / Forecasting of MDSS:



# Experience of MDSS in Austria



## MDSS situation map with risk levels:



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# Conclusion

Complex decision-making situations require reliable data, sophisticated and transparent information processing as well as smart, decision-oriented HMI´s

Differentiated knowledge is necessary

Geographically distributed organizational forms need to be supported

Different information channels and user groups need to be served

MDSS offers a comprehensive suite of IT services to monitor weather and road conditions and to control, manage and log operational maintenance deployments

# Thank you for your attention!

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