

Central European Transnational Road Weather Information System

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ABSTRACT

The considerable increase of road traffic after the new countries joined the EU demands application of sophisticated telematic data systems to ensure fluent and safe transport flow. Meteorological data acquired by numerous road weather stations installed along the highways and motorways are essential source for creation of the specialized road weather forecasts as well as for optimization of the road maintenance in an international scale. Collaboration of meteorologists and road maintenance specialists from Czech Republic and Germany resulted in establishing the unified road weather data code SH70 and development of the BUFR template for road weather data.

The following contribution will present the data format and discuss the experience with the mutual exchange, dissemination and presentation. Moreover introduce the basis of the future “Central European Road Weather Information System”.

The flags of participating countries symbolize current status of international co-operation in the region of the project.



Keywords: International co-operation, CERWIS, Road weather data code, Sophisticated telematic system.

1. INTRODUCTION

The beginnings of the mutual international co-operation on exchange of road weather information are dated back in 2001 [1], when the project Šumava between Czech Republic and Germany (Bavaria) was launched.

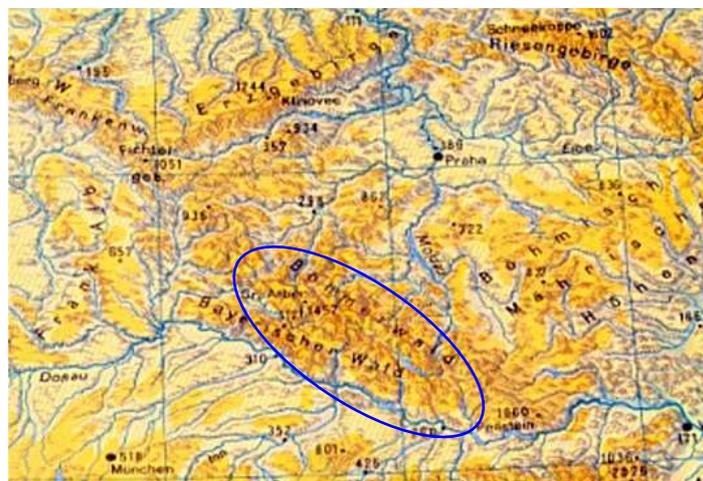


Fig. 1. Geographical region of the project Šumava.

This initial project named the main tasks in this field and built up several working groups of meteorologists, road maintenance authorities and IT experts from state and the private sphere.

2. THE MAIN REASONS FOR THE PROJECT EXIGENCY

One of the main reasons is the recent massive increase of road traffic on the main international routes crossing the concerned countries. This phenomenon escalated after accession [2] of the “new countries” to the European Union in 2004.

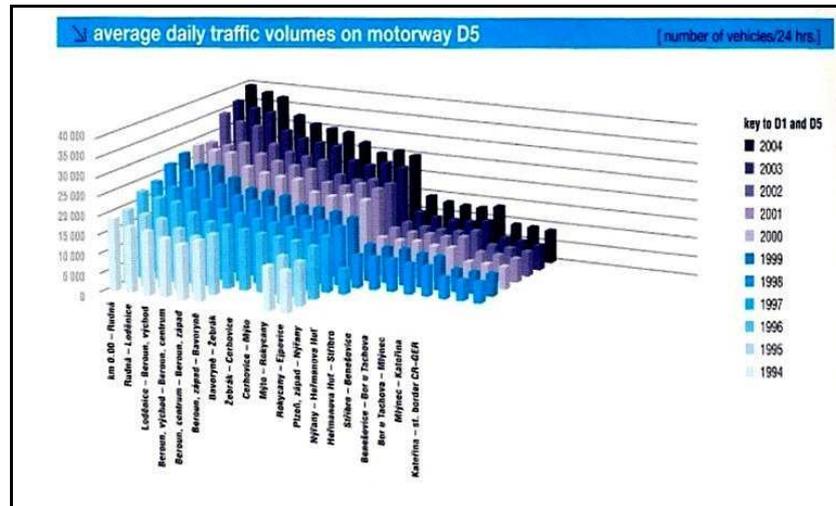


Fig. 2. Traffic density on motorway D5.

Another arguments is possible to find in the following facts:

- The road weather information is a basic support for winter road maintenance
- The information to public has a significant effect on the traffic safety
- Information about the weather conditions on planned routes is a support for transportation logistics

3. THE BASIC TASKS OF THE INTERNATIONAL CO-OPERATION

The evaluation of the primary results [1-3] of the working groups following main tasks were stated:

- Creation of road weather stations network in the region
- Unification of data acquisition into one large database
- Mutual exchange of data and forecast products
- Definition of access to information for large variety of users on multimedial basis

4. THE CURRENT STATUS OF THE PROJECT

Currently we have achieved to establish an information exchange platform among specialists from the states who joined the initiative: Germany, Czech Republic, Austria, Slovakia and partly with Poland.

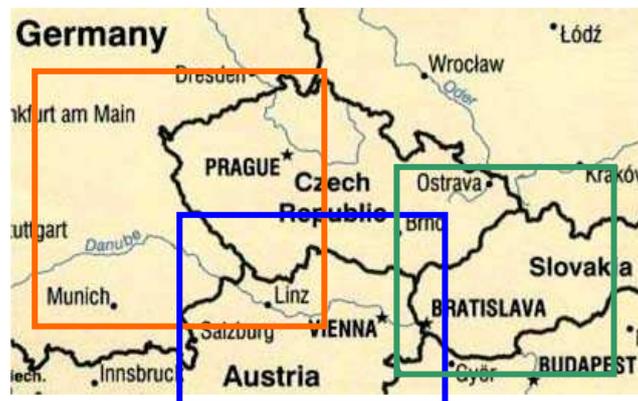


Fig. 3. Geographical scale of the project.

We have organized several international seminars and workshops attended by participants from national weather services, road authorities and other interested parties from the mentioned countries. This enabled the possibility of sharing data, information and experiences on a large scale. One of the most important results is creation and acceptance of international standards on road weather data.

With a bit of exaggeration we can speak about

CERWIS

Central European Road Weather Information System – mutual project of the Central European countries.

5. ATTAINED RESULTS

5.1 Standardization and optimization

One of the basic results was standardization of the remote road weather stations from the technological point of view. This means standards in the application of different weather and road surface sensors. Optimization of the weather station sites as a compromise of climatological and traffic standpoints along the international routes in the border regions in particular.

5.2 SH70

The data exchange would have been impossible without a unified data code. Meteorologists from CHMI and DWD in close collaboration with the national road authorities in both countries developed a road weather data code SH70 [4] that is now being applied in the mutual data exchange.

5.3 BUFR

The further developments will result in BUFR [5] based road weather data code meeting the standards of WMO [6] for data exchange. This will enable to work with much broader scale of road specific data resulting in a more accurate knowledge about road surface status and weather conditions on the diverse remote sites.

SH70 report (Germany)	SH70 report (Czech Republic)
SHDL70 DWDD 302345	SHCZ70 OKPR 301130
SWIS 3023451	SWIS 3011301
O252 111 10034 21026 3//// 50000 70///	A004 111 10104 21019 32000 7000/
222 10032 2//// 30101 4//// 5//// 620/0=	222 10233 20234 640/0=

Table. 1. SH70 data code.

5.4 Data exchange

The frequency of data exchange was stated four times in hour in specialized bulletins (similar to the DWD routine). The data transfer is supported by the WMO GTS network applying the WMO FTP format. So there is an analogy to SYNOP and METAR codes and we believe, that the SH70 or some enhanced form of it could become an internationally accepted standard for road meteorology. At the present time, this exchange is running between Czech Republic and Germany on a routine basis.

5.5 Specialized information

The important part of the co-operation is exchange of the specialized road weather forecasts for the selected regions. This includes the alerts and warnings on severe weather conditions with respect to the roads traffic safety conditions. In the near future we will introduce special bulletins with classified information.

6. THE FUTURE SOPHISTICATED TELEMATIC SYSTEM

The traffic effective control in the region demands a sophisticated tool in form of a working telematic system with integrated outputs of CERWIS. This information will include:

- The general traffic conditions on selected routes
- Traffic density and congestions
- Traffic information from border crossings

The weather conditions from the routes will be included in a dynamic database so that panning a route will be possible with respect to the current and predicted weather conditions. There is a large scale of interpretation and disseminating methods (including GPS navigations systems, RDS, SMS, MMS etc.).

7. CONCLUSION

This project truly increased the interest in road meteorology generally in the participating countries.

The international scale helped to increase the interest of several governmental institutions and EU activities, which are essential in funding.

The economical benefits are clear and the effect on the traffic safety is conclusive.

8. REFERENCES

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