



The relevance and legibility of radio/TV weather reports to the Austrian public



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ABSTRACT

The communicative quality of media weather reports, especially warnings, can be evaluated by user research. It is an interdisciplinary field, still uncoordinated after 35 years. The authors suggest to shift from a cognitive learning model to news processing, qualitative discourse and usability models as the media audience is in an edutainment situation where it acts highly selective. A series of field surveys 2008–2011 tested the relevance and legibility of Austrian radio and television weather reports on fair weather and in warning situations. 247 laypeople heard/saw original, mostly up-to-date radio/TV weather reports and recalled personally relevant data. Also, a questionnaire on weather knowledge was answered by 237 Austrians. Several research hypotheses were tested. The main results were (a) a relatively high level of meteorological knowledge of the general population, with interest and participation of German-speaking migrants, (b) a pluralistic media usage with TV, radio and internet as the leading media, (c) higher interest and attention (also for local weather) after warnings, but a risk of more false recalls after long warnings, (d) more recall problems with radio messages and a wish that the weather elements should always appear in the same order to facilitate processing for the audience. In their narrow time windows, radio/TV weather reports should concentrate on main features (synoptic situation, tomorrow's temperature and precipitation, possible warnings), keep a verbal "speed limit" and restrict show elements to serve the active, selective, multioptional, multicultural audience.

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1. Introduction

"There was a depression over the Atlantic. It was travelling eastwards, towards an area of high pressure over Russia, and still showed no tendency to move northwards around it. The isotherms and isotheres were fulfilling their functions. The atmospheric temperature was in proper relation to the average annual temperature, the temperature of the coldest as well as of the hottest month, and the a-periodic

monthly variation in temperature. .. The vapour in the air was at its highest tension, and the moisture in the air was at its lowest. In short, to use an expression that describes the facts pretty satisfactorily, even though it is somewhat old-fashioned: it was a fine August day in the year 1913" (Musil, 1995, translation).

Robert Musil starts his novel "The man without qualities" with this ironic comment. Why give a lengthy academic description for something that can be summed up very simple in everyday language? This paradox still exists in the communicative field between synoptic meteorology, media weather reports, and its audience.

...Weather warning: today, tonight, tomorrow morning severe gusts around 130 kmh, on mountains 180... in the

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afternoon increasing wind speed, widespread damage possible, wind speed will decrease tomorrow afternoon ... (parts of an Austrian radio severe weather warning)

It is highly relevant information, but was it understood by the listeners so that they can take the right precautions? Weather forecasting has to send intelligible messages via the mass media. In their Austrian news analysis, [Holzinger et al. \(1973\)](#) found the weather report better than the political news, because it illustrates causes and effects of the weather and shows the actual situation in-between history and prognosis.

There was no specific user research on record about Austrian media weather reports. An early report ([Keul, 1980](#)) dealt with an expert content analysis of different European TV weather report formats. Infratest scores of Austrian TV and radio usage count the number of switched-on TV/radio sets, not the attention of users: In 2011, Austrian ORF TV programs [channel one called ORF1 and channel two ORF2] had a daily coverage of 31% for ORF1 and 39% for ORF2 ([Teletest, 2011](#)). It is known that evening news programs have top coverage (e.g. July 11, 2012: 7:00 PM ORF2 regional news and weather 15%, 7:49 PM ORF2 weather after primetime news 11%, 8:07 PM ORF1 weather after news flash 8%; [AGTT/GfK, 2012](#)). In 2011, Austrian ORF radio programs reached a daily Austrian coverage of 9% for “classical music” information program Oe1 and 37% for the entertainment program Oe3 ([Radiotest, 2011](#)).

To review international research and to initiate applied research for ORF, the Austrian radio and television broadcasting corporation, an expert working group constituted by the authors of this paper and Thomas Wostal was formed in 2008. With the support of ORF and student work of Salzburg University, several field surveys and experiments took place between 2008 and 2011 and the first results were presented at ECSS and EMS meetings ([Keul et al., 2009a, 2009b, 2010, 2011](#)). Most data sets of the 2010 and 2011 surveys have not been published before.

The following paper starts with a theoretical overview on five main perspectives or models used in previous research. Four Austrian surveys 2008–2011 with their methods are outlined. Nine research hypotheses have been tested by the Austrian surveys, and the results are described in detail with references to the relevant survey results. The conclusions give a synthesis of lessons to be learned for the benefit of future media weather forecasts and sum up subsequent discussions with the Austrian media meteorologists.

2. Disciplines, theoretical viewpoints, previous research

At first sight, research on media weather reports seems to be a controversial and even obscure field. Analyzing the first authors of 47 publications quoted in the references according to their published academic disciplines, it becomes clear that meteorology (9) and psychology (8) lead the research field before communication science/journalism (6), geography (4), linguistics/literary studies (4), and sociology (4). Other contributing disciplines are engineering (3), economy (2), medicine (2), political science (1), and miscellaneous (4). The open interdisciplinary research field has not discussed explicit theoretical foundations for the empirical process which leads to a wide variety of methodology and methods.

In Spain, the newspapers “Diario” of Madrid (e.g. [Nipho, 1787](#)) and Barcelona carried front-page meteorological data under the title “Afecciones Meteorológicas (de antes de ayer)” (Meteorological features of the two days before) during a long period of the late 18th century. On March 30, 1875, The Times (UK) printed Francis Galton’s first weather observation map. On October 14, 1941, cartoon character Woolly Lamb sang a lead-in to the next day’s on-screen weather forecast at WNBT-TV, New York City ([Monmonier, 2000](#)). Opinion polls found out the basic facts about media weather reports and their audience: TV and radio are the most frequently used weather reporting channels ([Tan, 1976](#)), weather is the most frequently recalled TV news story ([Neumann, 1976](#)), and whereas the amount of weather information retained from radio and television forecasts was minimal, most people were satisfied with the weather reports ([Hyatt et al., 1978](#)). Early critics said that the aesthetic-rhetorical quality of TV weather programs was more important than information ([Mohr, 1971](#)).

Whereas practically, meteorology and the social sciences have plenty of interrelations (i.e. hydrometeorological risk analysis, communication and perception, societal impacts), the academic interrelations are more scarce (and there are, with rare exceptions, no researchers with double qualifications). Media audience research itself is a broad field with rival positions ([Livingstone, 1988](#)). It is not easy to design experimental research with practical consequences, as (a) the weather changes rapidly, (b) the most influential media radio and television are fast media, (c) the mass media audience is anonymous and disperse, and (d) reception of the weather report happens in private situations, often at home, in a social context not accessible to researchers. Similar to [Musil’s \(1995\)](#) criticism, lay reception is said to ask simple questions like “do I need a coat tomorrow or not?” (as in a sketch by German comedian Wolfgang Trepper; [Feuerstein, 2011](#)).

Theoretical viewpoints, perspectives or models that give orientation and methodological guidelines in this context are as follows:

1. *The historical perspective*—Media weather reports to the public are described and commented, taking into account the economic, social and political conditions, the state of technology and means of communication ([Batten, 2002](#); [Henson, 1990](#); [McAllen, 1979](#); [Meyer, 2000](#); [Monmonier, 2000](#); [Schlaak and Jankiewicz, 2004](#); [Singer and Endreny, 1993](#); [Travis and Riebsame, 1979](#)).
2. *The cognitive learning model*—Cognitive research deals with a media weather report as a teaching/learning situation which should result in an optimum information transfer from expert to audience. Thus, [Wagenaar and Visser \(1979\)](#) criticized a standard forecast as too long for an effective storage in memory. Out of 12–32 items per message, only a maximum of 5–9 could be reproduced. Selective listening further reduced recalled items. [Wagenaar et al. \(1985\)](#) also compared radio with TV weather presentations. The radio presentation modus had “quite low” recall scores (22–29%) which were not improved by a visual newscaster performance or geographical maps. With animated pictograms or written summary statements, recall reached 34%. [Berry \(1986\)](#) and [Ayton \(1988\)](#) took a similar position. [Gigerenzer et al. \(2005\)](#) pointed out problems

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