

**THE DIGITAL WENKER ATLAS (WWW.DIWA.INFO):  
AN ONLINE RESEARCH TOOL FOR MODERN DIALECTOLOGY**

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**Abstract**

The principal goal of the Marburg Research Centre “*Deutscher Sprachatlas*” is the study of dialects, nonstandard varieties, and regional varieties of the German language. This expands upon the institute’s original purely dialectological research focus to completely encompass the spatial and social variation of spoken German language. The dominating research goal of such variation-linguistic dialectology is the investigation of the structure and change of the entire spectrum of regional linguistic variation between the poles of standard language and base dialect. Wenker’s historic *Sprachatlas des Deutschen Reichs* is of special importance for the study of language change in German. Comparing Wenker data collected over 100 years ago with more recent but equally detailed data such as that from modern regional atlases allows a systematic analysis of the transformation of spoken language over more than a century.

The *Digital Wenker Atlas* (DiWA) project in Marburg, which has just (2009) finished, is centred on the publication and academic analysis of Wenker’s linguistic atlas. The primary goal of this project has been the first complete publication of the 1,653 original maps of the *Sprachatlas des Deutschen Reichs*. The atlas has been made available online at <http://www.diwa.info> and is accessible for a broad public. This has also created a high-quality, searchable and navigable digital archive of the work.

*DiWA* is, however, far more than an online version of the *Sprachatlas des Deutschen Reichs*. One special feature is the integration of the maps into a geographic information system (GIS) with cartographic, biographic and sound archive databases. Together with a transparency and overlay function, georeferencing makes it possible to superimpose a Wenker map over any other electronic map and directly compare them, locality for locality, to reach conclusions about dialect regions and the co-occurrence of dialectal phenomena. This opens up a unique window onto language change, when the Wenker maps are compared with those from contemporary regional dialect atlases. The transparency function is not restricted to purely linguistic maps of course; topographic, cultural-historical, or sociodemographic cartographic material can also be compared point for point, offering insights into the complex web of relations between language, space, time, and society.

**Key words**

dialectology, online, Wenker, dynamics, change

**1. Introduction**

Since its beginnings at the outset of the 18<sup>th</sup> century, dialectology in Germany has developed into a broad academic discipline which has approached regional varieties from a number of angles of inquiry. Numerous language atlases, dialect dictionaries, monographs and finally a major internet publication are evidence of this comprehensive research activity. Such a long-established, wide-ranging, and strongly differentiated field of study cannot be adequately sketched in a brief presentation like this. For an overview I will have to refer you to the highly informative research literature (cf. Barbour/Stevenson (1990), Herrgen (2001), Niebaum/Macha (2006), Veith (2006a), Veith (2006b)). Instead, I would like to highlight a current, methodologically fascinating approach. For the past few years, this approach has been being developed in Marburg, at the Research Centre “*Deutscher Sprachatlas*” founded by Georg Wenker. It’s the “Digital Wenker Atlas” project (or DiWA). What is remarkable about this project is, firstly, the fact that dialectological findings from over a century are made accessible for anybody in an internet-based GIS (geographic information system). Secondly, however, this research instrument lets us investigate a previously very difficult line of inquiry, namely the dynamics of the dialects over a period of more than a century.

**2. The Research Centre “*Deutscher Sprachatlas*”**

The principal goal of the Research Centre “*Deutscher Sprachatlas*” is the investigation of dialects, nonstandard varieties, and regional varieties (*Regionalsprachen*) of the German language. To this end, the institute offers the scientific community a comprehensive range of research resources. These include extensive and largely unique collections and documentary material, a specialised library, linguistic data-collection and analysis facilities, and a linguistic geography

computer lab. The prominence that the research institute has enjoyed within dialectology and linguistic geography over more than 125 years, and currently enjoys for research into substandards, stems back to the Marburg librarian, Georg Wenker (1852-1911), who was responsible for both the very first linguistic atlas, the *Sprachatlas der Rheinprovinz* [Linguistic Atlas of the Rhine Province; 1878], and – his main contribution – the *Sprachatlas des deutschen Reichs*, which remains to this day the most comprehensive linguistic atlas ever assembled. With this work, Wenker laid the empirical foundation for the new scientific discipline of “linguistic geography” which developed rapidly in Marburg. In line with the prevailing linguistic theories (of the neogrammarians), he made the synchronic oral dimension of the German dialects the object of his empirical investigation and focused on the collection of phonological and morphological data. In contrast to the sharply focused, location-specific studies of the neogrammarians, Wenker was above all interested in systematically capturing the heterogeneous areal dimension of spoken language. With his readiness to explore new academic terrain and his remarkable methodological creativity, Wenker stands at the source of a “tradition of linguistic modernity”,<sup>1</sup> which can be traced through all the stations of the history of dialectology, and likewise through the history of the institute in Marburg in particular. “In the history of dialectology, the dialectal data, collected monodimensionally/diatopically over a long period, have been interrogated and interpreted according to ideas current at the time. Theoretical approaches in linguistics under discussion have at all times – and not least in doctoral dissertations – been tested on dialectal data, so that dialectology at the same time represents a dynamic linguistics laboratory.”<sup>2</sup>

The Research Centre’s specialist library in Marburg houses the most complete copy of Wenker’s *Sprachatlas des deutschen Reichs*. The original Wenker questionnaires are also stored and archived here. In addition, the institute library stocks extensive, regularly updated collections of (in part unique) linguistic atlases and dictionaries of German and other languages. The institute’s archives also house a collection of largely unpublished local monographs from the last two centuries. Further, almost 4000 sound recordings of the “Wenker sentences” dating from right across the twentieth century have been collected from various locations and regions. The research

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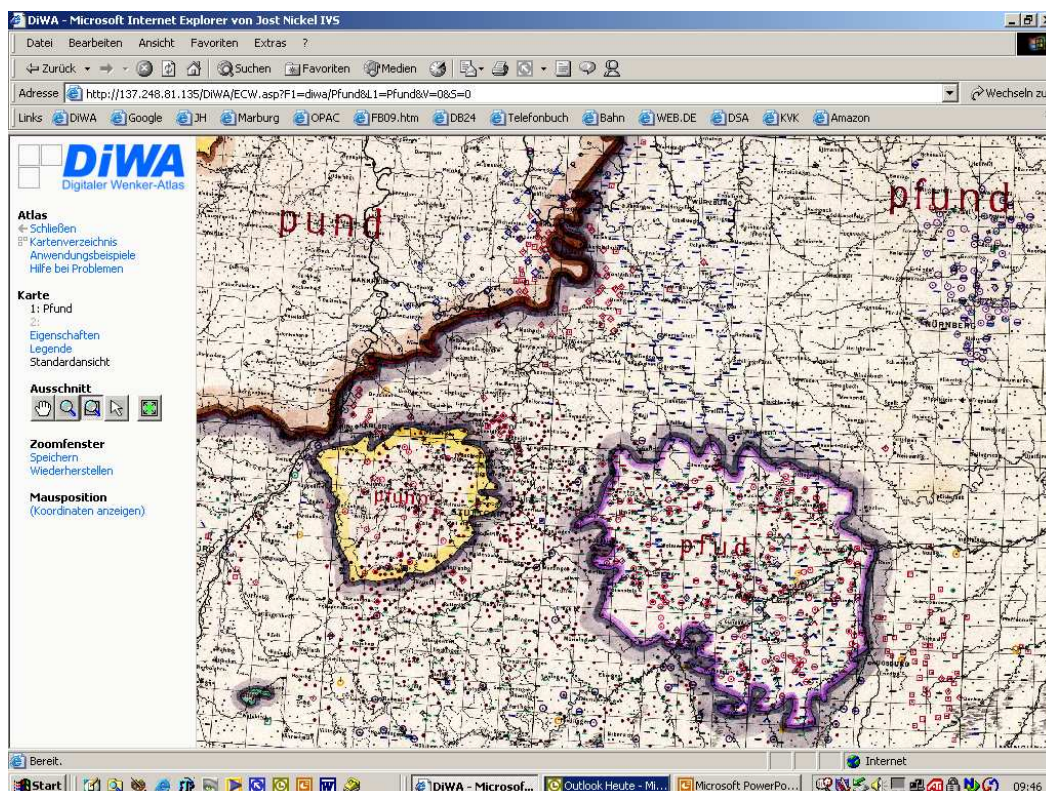
<sup>1</sup> Herrgen (2001: 1527).

<sup>2</sup> Herrgen (2001: 1527).

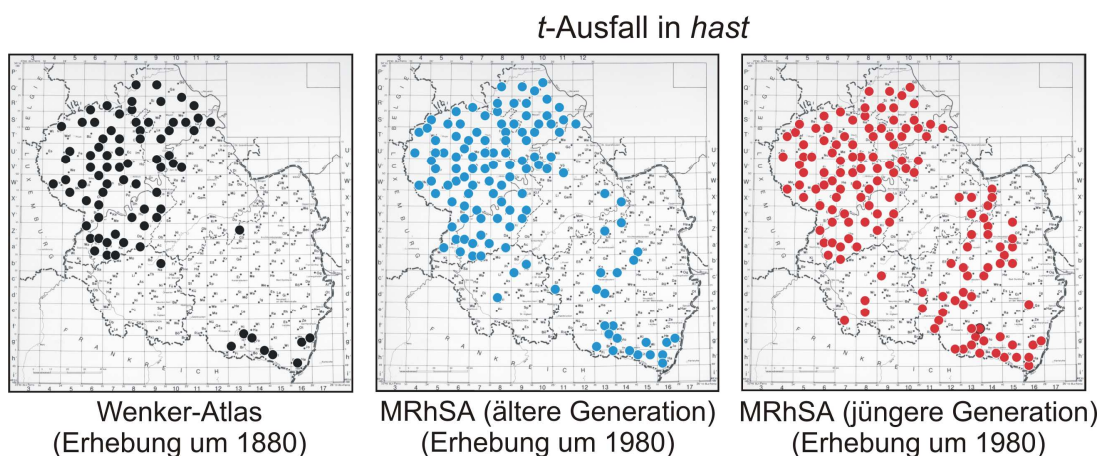
facilities at the institute include an ISSG (*Informationssystem Sprachgeographie*; linguistic geography information system) laboratory, technically equipped to handle enormous amounts of data. Here, geographic information systems (GIS) are employed to render and interlink a whole range of maps and documentary, bibliographic, and sound archive databases and make them available online.

### 3. The investigation of language dynamics – The *DiWA* project

The central purpose of the Marburg Research Centre “*Deutscher Sprachatlas*” is the study of dialects, nonstandard varieties, and regional varieties of the German language. Defining its role in this way expands upon the institute’s original, purely dialectological research focus to encompass the whole gamut of spatial and social variation of spoken German language. The dominating research goal of such variation-linguistic dialectology is the investigation of the structure and change of the entire spectrum of regional linguistic variation between the poles of standard language and base dialect.



Because of its uniquely comprehensive documentation of dialect data, Wenker's historic *Sprachatlas des Deutschen Reichs* is of special importance for the study of language change in German. A comparison of the Wenker data collected over 100 years ago with the more recent, but also very extensive data from surveys by other research institutions – such as that from modern regional atlases – for the first time allows a systematic analysis of the transformation of spoken language over more than a century. The *Digital Wenker Atlas* (DiWA) project currently in progress at Marburg is centred on the publication and academic analysis of Wenker's linguistic atlas. The first goal of this project was the complete publication of the 1,653 original maps of the *Sprachatlas des Deutschen Reichs*. Via the Internet, the atlas has been made available to a broad public of both scholars and interested nonacademics. With the digitalisation of the Wenker maps (at a resolution of 600 dpi) a high quality archive of the work has been created. *DiWA* is one of the most extensive humanities projects currently being conducted in Germany. All of the original maps can be individually selected and viewed via the *DiWA* web pages at <http://www.diwa.info>. A toolbar offers further viewing options functions including sliding-scale zoom and unrestricted navigation within each map.



*DiWA* is, however, far more than an online version of the *Sprachatlas des Deutschen Reichs*. One special feature is the integration of the maps into a geographic information system (GIS). Georeferencing<sup>3</sup> the maps is fruitful in a number of respects.

<sup>3</sup> The maps are processed using the *ER Mapper* graphics utility, employed in remote sensing for the analysis of satellite images and aerial photographs. In georeferencing the maps, predetermined coordinates are assigned to selected points of the image file.

Firstly, it allows an exact splicing of the three individual map sheets into a single map that covers the whole area. Georeferencing further makes it possible to superimpose a Wenker map over any other cartographic representation in electronic form and directly compare the two. A transparency function allows a continuously variable fade-in and out of the superimposed maps. Using this transparency tool, several Wenker maps can be compared directly one to one, locality for locality, allowing conclusions about dialect regions and the co-occurrence of dialectal phenomena to be drawn. But the Wenker maps can also be directly compared with any other georeferenced maps, opening up a unique window for the study of language change. The exact correspondence of the Wenker maps with those from contemporary regional dialect atlases based on data collected 100 years later allows the examination of trends in language change. The transparency function does not just deliver the possibility of purely linguistic interpretations of the maps in the atlas, however. It also opens up the opportunity to compare, point for point, the Wenker maps with topographic, cultural-historical, or sociodemographic cartographic material. Such a comparison can deliver insights into the complex web of relations between language, space, time, and society. For example, dialect-geographical and geophysical information can thus be directly related to each other and the connections between them examined.

The problem posed by the amount of data which arises when a combined map (approx. 1.4 GB in TIFF format) is offered across the Internet, is solved with the *Image Web Server*. This utility, with components based on the ECW (enhanced compressed wavelet) compression technique, makes it possible to extract and transmit only those image data currently required for the user's monitor and to thus significantly reduce loading times.<sup>4</sup>

Examples of potential applications can be seen on the *DiWA* web pages. Currently, alongside the maps of the *Sprachatlas des Deutschen Reichs*, an illustrative topographic map (digital elevation model) and selected maps from the *Mittelrheinischer Sprachatlas* (MRhSA), the *Sprachatlas von Bayerisch-Schwaben* (SBS), and the *Südwestdeutscher Sprachatlas* (SSA) are available online. For the purposes of linguistic dynamics research,<sup>5</sup> *DiWA* makes far more information available than has been mentioned so far. The system also contains material from recent regional atlases and maps of

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<sup>4</sup> For further technical information, see <<http://www.diwa.info>>.

<sup>5</sup> See Schmidt (2005), Lenz (2005), Herrgen (2006) and Herrgen/Schmidt (to appear).

sociodemographic, topographic and other information. Further, all of the tens of thousands of survey locations are clickable and linked with bibliographic information, digitalised copies of the original questionnaires, and – where available – with sound recordings of the Wenker sentences.<sup>6</sup> Wenker's opus has thus been transformed into a multidimensional dialectological information system and analytical instrument that, especially with its audio material, is also aimed at interested members of the general public.

#### 4. Bibliography

BARBOUR, Stephen / Patrick STEVENSON (1990) *Variation in German: A Critical Approach to German Sociolinguistics*, Cambridge: Cambridge Univ. Press.

BELLMANN, Günter (1986) "Zweidimensionale Dialektologie", in Bellmann, Günter (ed.), *Beiträge zur Dialektologie am Mittelrhein*, Stuttgart, 1-55.

DEUTSCHER SPRACHATLAS auf Grund des Sprachatlas des deutschen Reichs (DSA) (1927-1956) By Georg Wenker, begun by Ferdinand Wrede, continued by Walther Mitzka & Bernhard Martin. Marburg.

DIGITAL WENKER ATLAS (DiWA) First complete edition of Georg Wenker's "Sprachatlas des Deutschen Reichs" (1888-1923), hand drafted by Emil Maurmann, Georg Wenker and Ferdinand Wrede. Jürgen Erich Schmidt & Joachim Herrgen (eds.). Executed by Alfred Lameli, Alexandra Lenz, Jost Nickel & Roland Kehrein, Karl-Heinz Müller, Stefan Rabanus. Marburg.

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<sup>6</sup> Getting started (The short user's guide to DiWA):

1. Open DiWA at [www.diwa.info](http://www.diwa.info)
  2. On the DiWA launch page, in the navigation bar to the left is a link to the Wenker maps. Open the catalogue via Atlas/Kartenverzeichnis and select a map. Weiter reveals the various display options. It is easiest to choose: Diese Karte einzeln anzeigen ('Show this map alone'). The chosen map is then displayed at once.
  3. If this is the first time you are using DiWA, opening the first map automatically initiates the installation of a plug-in, i.e., a small application needed for your browser to display the map. (You will need administrator privileges to be able to install it.)
  4. Under **Atlas/Hilfe bei Problemen** in the navigation bar you can find tips on using the DiWA toolbar which lets you navigate within the map. To zoom in on a map for example, you should select the magnifying glass from the toolbar and then click in the centre of the area which interests you and drag the mouse towards you.
  5. Examples of further display options can be found under **Atlas/Anwendungsbeispiele**.
- Technical requirements: Essentially, DiWA should function on any "normal" PC. The best and fastest results, however, are obtained with a broadband network connection and Microsoft Internet Explorer as browser. If you do run into problems, the DiWA webmaster ([webmaster@diwa.info](mailto:webmaster@diwa.info)) should be able to help.

- HERRGEN, Joachim (2001) "Die Dialektologie des Deutschen", in Auroux, Sylvain et al. (eds.), *Geschichte der Sprachwissenschaften: Ein internationales Handbuch zur Entwicklung der Sprachforschung von den Anfängen bis zur Gegenwart. Part 2*, Berlin/New York: Handbücher zur Sprach- and Kommunikationswissenschaft 18.2, 1513-1535.
- HERRGEN, Joachim (2006) "Die Dynamik der modernen Regionalsprachen", in Gessinger, Joachim / Voeste, Anja (eds.), *Dialekt im Wandel: Perspektiven einer neuen Dialektologie*, (OBST 71), 119-142.
- HERRGEN, Joachim (2010) "A study on the emergence and spread of regional dialects: *The Linguistic Atlas of the Middle Rhine (MRhSA)*", in Peter Auer / Jürgen Erich Schmidt (Hrsg.): *Language and Space - An International Handbook of Linguistic Variation*. Vol. 1: Theories and Methods. Berlin, New York: de Gruyter.
- LENZ, Alexandra N. (2005) "Zur Struktur des westmitteldeutschen Substandards – Dynamik von Varietäten", in Eggers, Eckhard / Jürgen Erich Schmidt / Dieter Stellmacher (eds.), *Moderne Dialekte – Neue Dialektologie: Akten des 1. Kongresses der Internationalen Gesellschaft für Dialektologie des Deutschen (IGDD) am Forschungsinstitut für deutsche Sprache "Deutscher Sprachatlas" der Philipps-Universität Marburg vom 5.–8. März 2003*, Stuttgart: Steiner (Zeitschrift für Dialektologie und Linguistik Beiheft 130), 229-252.
- MACHA, Jürgen (1991) *Der flexible Sprecher: Untersuchungen zu Sprache und Sprachbewußtsein rheinischer Handwerksmeister*, Köln.
- MATTHEIER, Klaus J. / WIESINGER, Peter (eds.) *Dialektologie des Deutschen: Forschungsstand und Entwicklungstendenzen*, Tübingen: Reihe Germanistische Linguistik. 147, 393-411.
- MITTELREINISCHER SPRACHATLAS (MRhSA). 1994-2002. Ed. by Günter Bellmann, Joachim Herrgen and Jürgen E. Schmidt. Tübingen.
- NIEBAUM, Hermann / MACHA, Jürgen (1999) *Einführung in die Dialektologie des Deutschen*, Tübingen (Germanistische Arbeitshefte 37).
- RABANUS, Stefan (2003) "La geografia linguistica tedesca e la Scuola di Marburg", in *Bollettino dell'Atlante Linguistico Italiano. III Series Dispensa 26*.
- SCHMIDT, Jürgen Erich (2005) "Sprachdynamik", in Eggers, Eckhard / Jürgen Erich Schmidt / Dieter Stellmacher (eds.) *Moderne Dialekte – Neue Dialektologie: Akten des 1. Kongresses der Internationalen Gesellschaft für Dialektologie des Deutschen (IGDD) am Forschungsinstitut für deutsche Sprache "Deutscher Sprachatlas" der Philipps-Universität Marburg vom 5.–8. März 2003*, Stuttgart: Steiner (Zeitschrift für Dialektologie und Linguistik Beiheft 130), 15-44.
- SCHMIDT, Jürgen E. / Joachim HERRGEN (to appear) *Sprachdynamik: Eine Einführung in die moderne Regionalsprachenforschung*. Berlin: Erich Schmidt (Grundlagen der Germanistik).



SPRACHATLAS DER RHEINPROVINZ nördlich der Mosel sowie des Kreises Siegen (1878)  
Assembled, conceived and drafted on the basis of systematically collected material from  
c. 1500 locations by Dr. Georg Wenker, Marburg.

SPRACHATLAS DES DEUTSCHEN REICHS. Laut- and Formenatlas (1888–1923) By Georg  
Wenker. 1653 hand-drafted multicoloured maps in the archives of the Research Centre  
“Deutscher Sprachatlas” in Marburg and in the State Library Prussian Cultural Heritage  
Foundation in Berlin (2 exemplars).

SPRACHATLAS VON BAYERISCH-SCHWABEN (SBS) (1997–) Ed. by Werner König and Hans  
Wellmann, Heidelberg.

SÜDWESTDEUTSCHER SPRACHATLAS (1989–) Ed. by Hugo Steger, Eugen Gabriel and Volker  
Schupp, Marburg.