

Obstacles and barriers in research work on historical tornadoes in Central Europe

Thilo Kühne¹, Georg Pistotnik¹, Emmanuel Wesolek², Pierre Mahieu², Artur Surowiecki³

1. *European Severe Storm Laboratory e.V. (ESSL), 82234 Wessling, Germany, thilo.kuehne@essl.org*

2. *KERAUNOS – Observatoire Français des Tornades et Orages Violents, 59000 Lille, France*

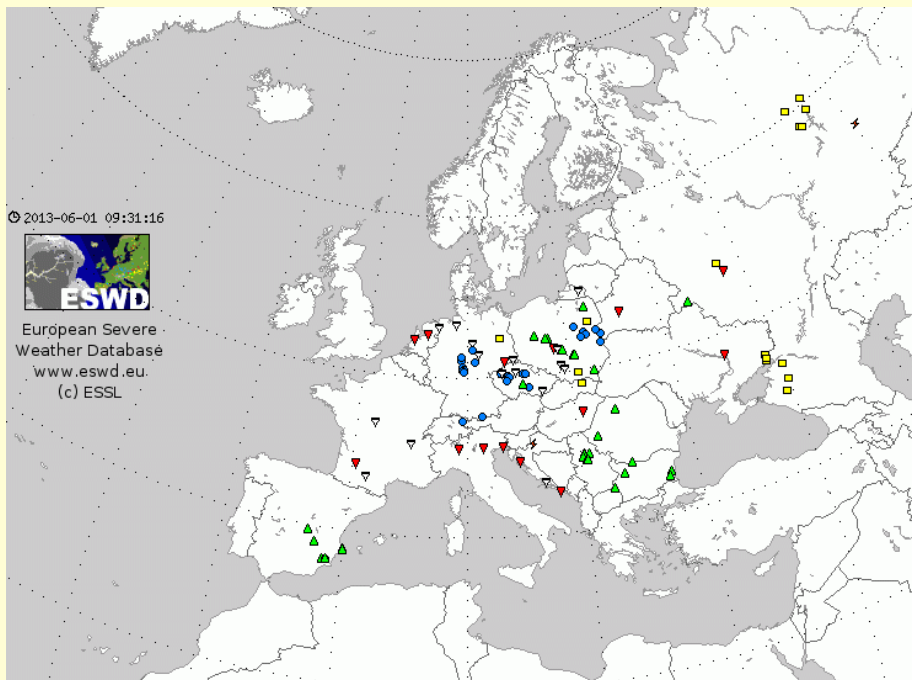
3. *Skywarn Polska, Warsaw, Poland*



Fig.1: Postcard showing tornado damage in Jablonnec nad Nisou (CZ) in the year 1915

Introduction

- European Severe Storm Laboratory (**ESSL**) – founded in 2006
- European Severe Weather Database (**ESWD**) – initiated in 2004



www.eswd.eu



Nikolai Dotzek (1966 - 2010)

Fig.2: European Severe Weather Database (ESWD), ESSL e.V.

Introduction

- Early European pioneers in the field of severe weather research:

Alfred Wegener (1880 – 1930)



Johannes Peter Letzmann (1885 – 1971)



- Wegener and Letzmann: Collected and analyzed severe weather events, e.g. tornadoes
- Developed the first theories in the field of tornado research in Europe
- Investigation area: All over Europe



Motivation

- Lack of information from the periods before the year 2000
- Large amount of missing information before the years 1990 / 1946 / 1919

Motivation

- Lack of information / large amount of missing information

→ Some Reasons:

- non-internet based media structure / archives / church records / etc.
- previously unknown or still unknown meteorological publications
- Different languages ↔ **lack of communication**
- Historical aspects I : Territorial changes (mostly caused by wars)
- Historical aspects II: Changes of regional languages / population

Motivation

- Lack of information / large amount of missing information

→ Some Reasons:

- non-internet based media structure / archives / church records / etc.
 - previously unknown or still unknown meteorological publications
 - Different languages ↔ **lack of communication**
 - Historical aspects I : Territorial changes (mostly caused by wars)
 - Historical aspects II: Changes of regional languages / population
-
- Expanding climatological knowledge regarding historical severe storm occurrence
(**Climatology** / **Meteorology**)
 - Finding out what details are given as “reasons” to explain the lack of communication
(**Media Studies** / **Cultural Studies** / **Social Studies**)

Methods

I. Define the severe weather event type

→ **Tornadoes:**

- **Rare event**
- **Individual coverage in historical media expected**
- **Individual local impacts on society expected**
- **More variety in reporting expected**

Methods

I. Define the severe weather event type

→ Tornadoes

II. Define the study area: Focus on areas and regions in Central Europe, which had minor or major political and social changes caused by wars, etc..

→ **Investigation areas:**

- **L'Alsace** (France)
- **Sudentenland / Sudety** (Czech Republic)
- **Post-WWII western and northern Poland** (Poland)
- **Kaliningradskaya oblast** (Russian Federation)

Methods

I. Define the severe weather event type

→ Tornadoes

II. Define the study area: Focus on areas and regions in Central Europe, which had minor or major political and social changes caused by wars, etc..

→ Investigation areas (FR / CZ / PL / RU)

III. Search and collect historical information

- **Previously unknown tornado events**
- **Further information / sources about known tornado events**

Methods

I. Define the severe weather event type

→ Tornadoes

II. Define the study area: Focus on areas and regions in Central Europe, which had minor or major political and social changes caused by wars, etc..

→ Investigation areas (FR / CZ / PL / RU)

III. Search and collect historical information

IV. Analyzing the potentials of obstacles and barriers, which may be responsible for a lack of information / communication

V. Presentation of the results / conclusion

General Results

- $n = 130$ events (1363 – 1940)
 - 104 events previously unknown
 - 26 events known before occ. these investigated areas

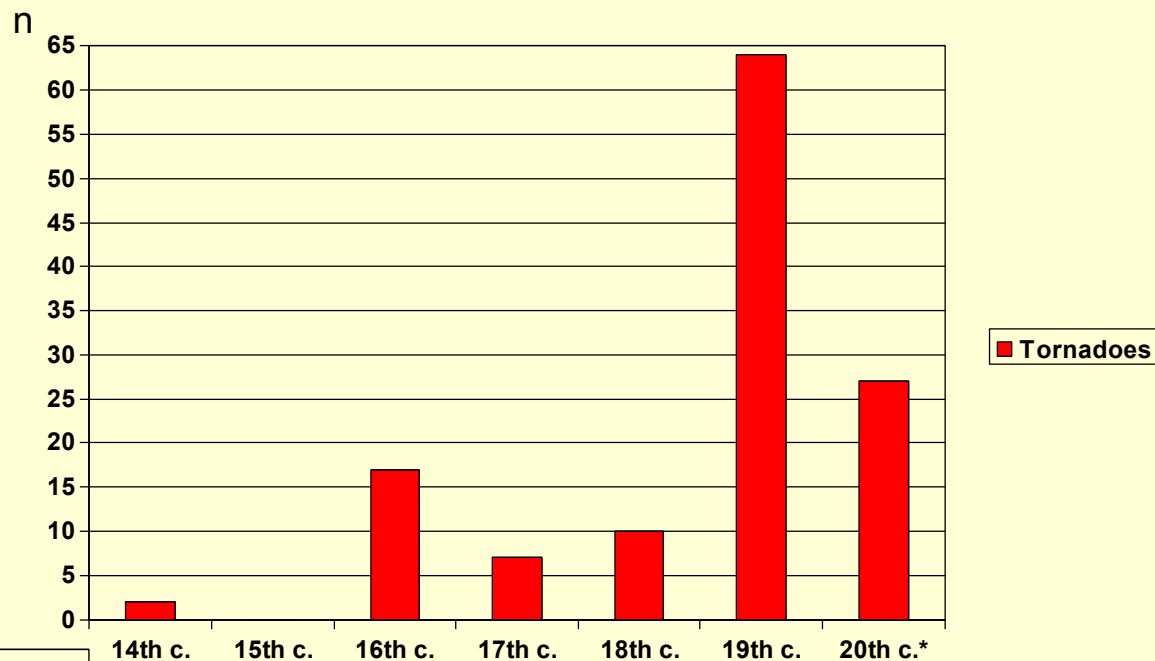


Fig.8: Tornado report distribution, 14th c. – 20th c., Kühne, ESWD. *: until 1940.

- maximum: 19th century ($n = 64$ events)
 - Founding of newspaper publishers
 - Scientific sources (since approx. 1850)

Oldest: (year) 1363 – Jelenia Góra (Poland)
 Youngest: July 1940 – Borzymy (Poland)

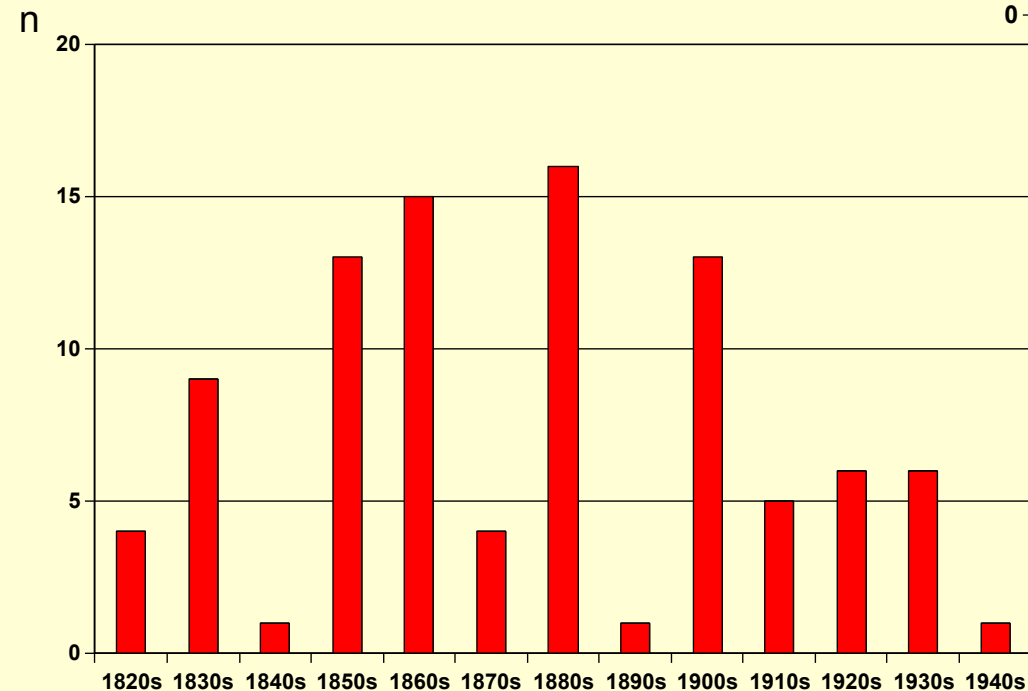


Fig.7: Tornado report distribution, 1820 – 1940, Kühne, ESWD

Results for L'Alsace (France)

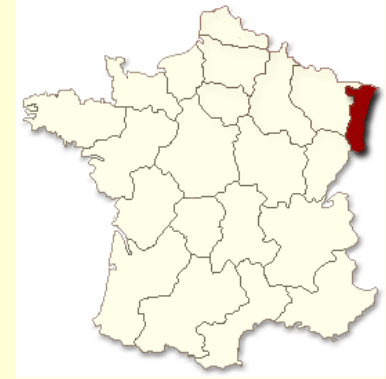
- $n = 3$ events (time period: 1865 – 1900)

In details:

14 08 1865 – Soultzmatt (Haut-Rhin), Région Alsace

24 05 1878 – Offendorf (Bas-Rhin), Région Alsace – **F3-Tornado**

18.06.1900 – Schirrhoffen (Bas-Rhin), Région Alsace



Source information:

- 2 newspaper reports + witnesses
- 1 observation by local weather station (incl. meteorological publication)

Language results:

- 1 report in French only (referring to the year 1865 event)
- 1 report in French and German available
- 1 report in German only

Places:

- all available in past and present maps

Results for Sudetenland / Sudety (Czech Rep.)

- n = 7 events (time period: 1818 – 1933)

Including a strong tornado in the Liberec district in 1915:

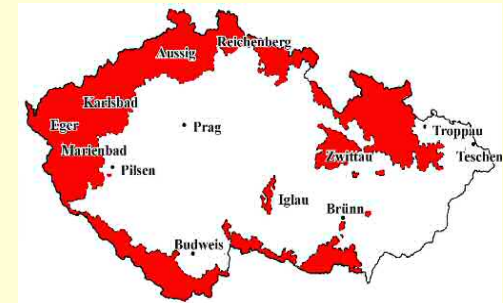


Fig.9: Postcard showing tornado damage in Jablonnec nad Nisou (CZ) in the year 1915

Results for Sudetenland / Sudety (Czech Rep.)

- n = 7 events (time period: 1818 – 1933)

In details (selected events):

16 08 1833 – Žatec / Saaz – Ústecký kraj

12 08 1915 – Jablonnec nad Nisou / Gablonz an der Neiße – Liberecký kraj – **F3-Tornado**

22 06 1933 – Janov nad Nisou / Johannesburg – Liberecký kraj



Source information:

- 7 newspaper reports + witnesses / postcards (1 event) / incl. 1 administrative report

Language results:

- 0 reports in Czech only
- 4 reports in Czech and German
- 3 reports in German only

Places:

- German sources referring to German place names, Czech sources referring to Czech place names
- Greatest difficulties in finding small villages by German place names only

Results for Sudetenland / Sudety (Czech Rep.)



22 06 1933 – Janov nad Nisou / Johannesburg – Liberecký kraj

III. volební období.

8. zasedání.

Tisk **1091.**

Původní znění.

Antrag

des Senators Pilz und Genossen

auf Gewährung einer Unterstützung für die durch eine Elementarkatastrophe geschädigten Einwohner der Gemeinde Johannesburg bei Gablonz a./N.

Donnerstag, den 22. Juni 1. J. raste eine Windhose von Süden kommend gegen Norden um 6 Uhr Nachmittag über das Gebiet von Johannesburg bei Gablonz a. N.

Es kamen lauter Häusler und Arbeiter dadurch zu grossen Schaden, da bei einzelnen der ganze Dachstuhl abgehoben oder zertrümmert wurde. Der Schaden des Einzelnen beträgt 10.000.- Kč bis 50.000.- Kč. Im gesamten konnten 16 beschädigte Häuser festgestellt werden mit einer Schadenssumme von über 100.000.- Kč. Das ganze Unglück trug sich in 2 Minuten zu.

Deshalb beantragen die Gefertigten:

Es wolle aus Mitteln des Staates eine sofortige und hinreichende Unterstützung bewilligt werden, damit die Betroffenen durch den entstandenen Schaden und durch die damit verbundene Belastung nicht um ihr Hab und Gut kommen.

Prag, am 28. Juni 1933.

Results for post-WWII western and northern Poland

(Opolskie, Dolnośląskie, Lubuskie, Zachodniopomorskie, Pomorskie, Warminsko-Mazurskie)



Aus dem Großherzogthum Posen, 1. Aug. Vorgestern Nachmittag um 4 Uhr hat sich über dem in unserer Provinz gelegenen Städtchen Bertow und dem angränzenden Dorfe Rafzewo eine sogenannte **Windhoje** entladen, und unsägliches Unglück angerichtet. Dreißig — freilich hölzerne — Häuser sind in Bertow niedergerissen und in Trümmerhaufen verwandelt; 11 andere sind stark beschädigt. Im Schloßpark und den Alleen sind die stärksten Bäume entwurzelt. In Rafzewo sieht es noch ärger aus, denn von dem ganzen Dorf ist nur ein massiver Speicher stehen geblieben; alle andern Gebäude liegen in Trümmern. Ein Mädchen von 14 Jahren wurde vom Sturm in die Höhe gehoben und eine Strecke fortgetragen, und ebenso erging es einem Mann, der eine weite Strecke fortgeschleudert wurde und dann in einem Graben niederfiel. Lebensgefährliche Verwundungen sind in Menge vorgekommen. Ein Mädchen wird noch vermißt. Das Städtchen Bertow ist dadurch um so härter heimgesucht, als es erst im vorigen Jahr einen großen Theil seiner Häuser durch einen umfassenden Brand verlor.

Ref.: Augsburger Neueste Nachrichten, Jahrgang 11, Nr. 121, 08.08.1862;
Jahrsammelbuch: Augsburger Neueste Nachrichten / Schwabischer Kurier, S. 1522.

Results for post-WWII western and northern Poland (Opolskie, Dolnośląskie, Lubuskie, Zachodniopomorskie, Pomorskie, Warmińsko-Mazurskie)

- n = 111 events (time period: 1363 – 1940)

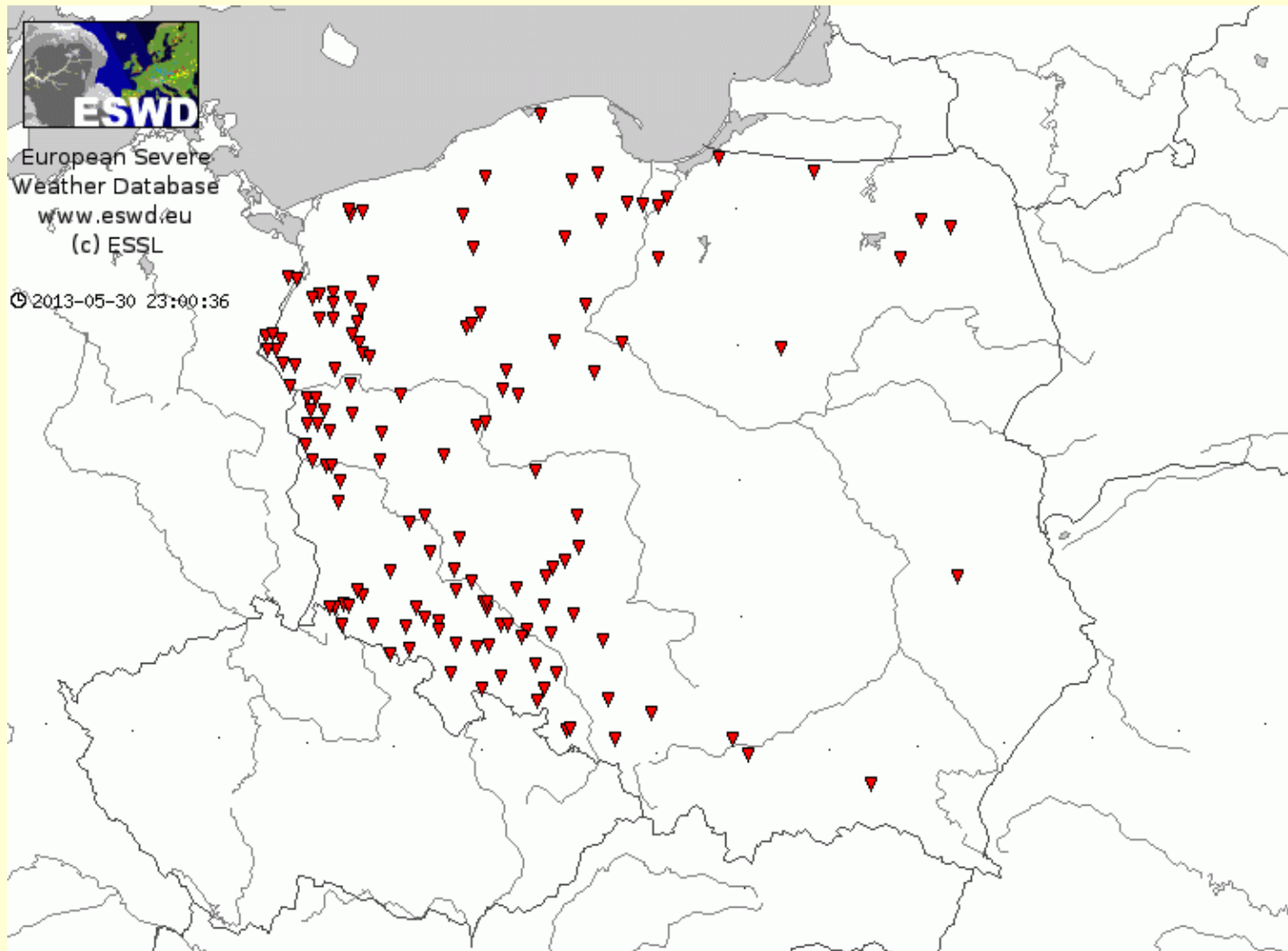


Fig.11: Tornado reports over Poland. Investigation area and time periods 1363 – 1940. ESWD.

Results for post-WWII western and northern Poland

(Opolskie, Dolnośląskie, Lubuskie, Zachodniopomorskie, Pomorskie, Warmińsko-Mazurskie)

- n = 111 events (time period: 1363 – 1940)

Some selected events:

30 07 1862 – Żerków, Raszewy / Zerkow, Raszewo – woj. Wielkopolskie – **F4-Tornado**

14 05 1886 – Krosno Odrzańskie / Crossen an der Oder – woj. Lubuskie – **F3-Tornado** / 8 people killed



Source information:

- 77 newspaper reports + witnesses; **all reports in German archives.**
- 34 reports in scientific publications (Dep. of Meteorology / Dep. of Agriculture)

Language results:

- 1 report in Polish only
- 6 reports in Polish and German
- 104 reports in German only

Places:

- German sources referring to German place names only
- Greatest difficulties in finding village and smaller towns by German place names only

Results for Kaliningradskaya oblast (Russia)

- n = 9 events (time period: 1701 – 1937)

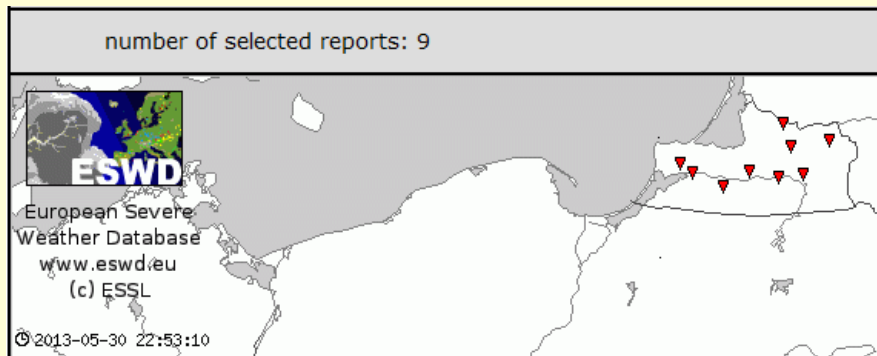


Fig.12: Tornado reports over Kaliningradskaya oblast. Investigation area and time period: 1701 – 1937. ESWD.



Source information:

- 7 newspaper reports + witnesses
- 2 reports in scientic publications (Dep. of Meteorology / Dep. of Agriculture)
- all reports in German archives**

Language results:

- 9 reports in German only
- 0 reports in Russian only or in Russia and German

Places:

- German sources refering to German place names only
- Mostly not possible to find Russian place names in modern media (except bigger towns)

Results for Kaliningradskaya oblast (Russia)

Further historical aspect: **WWII devastation** and **deserted areas**

→ Places can only be found using historical maps → German archives

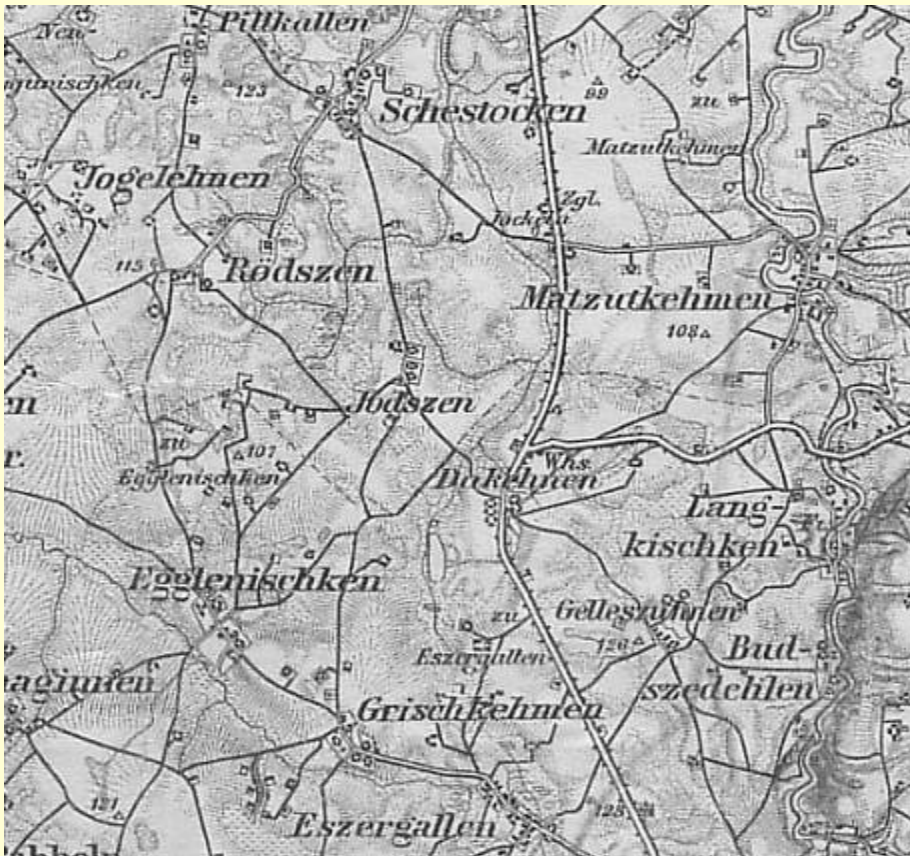


Fig.13: Top.map Ostpreußen, 1937. Bundesamt für Geodäsie, Deutschland

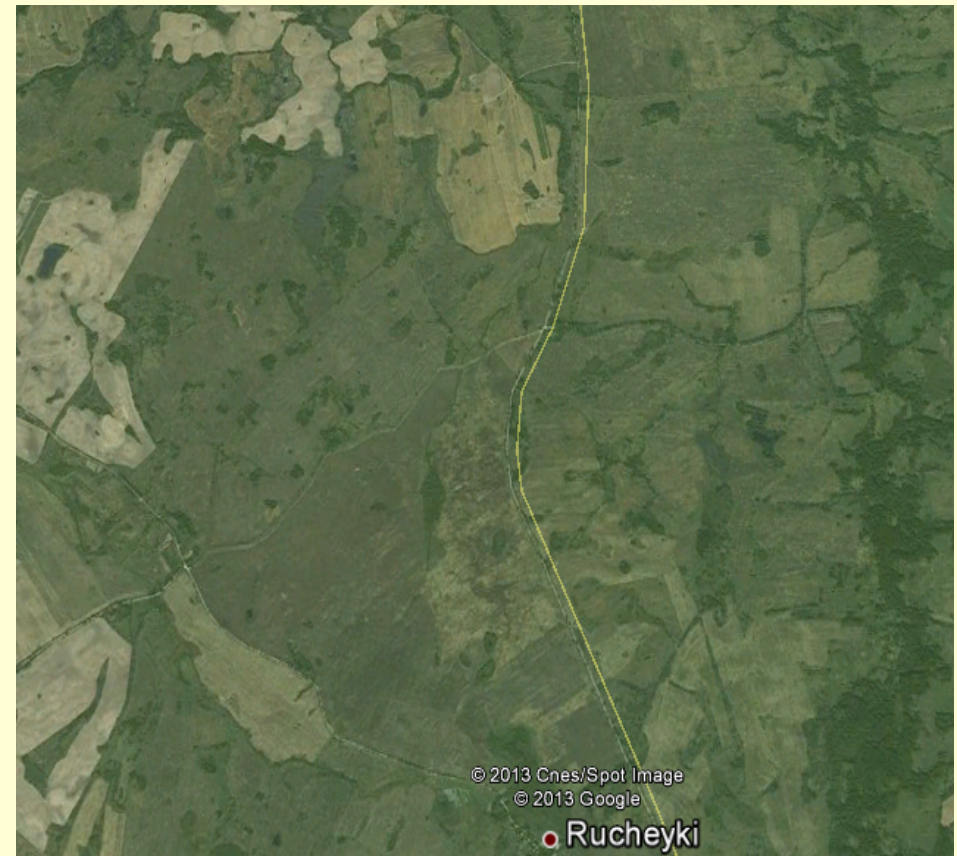
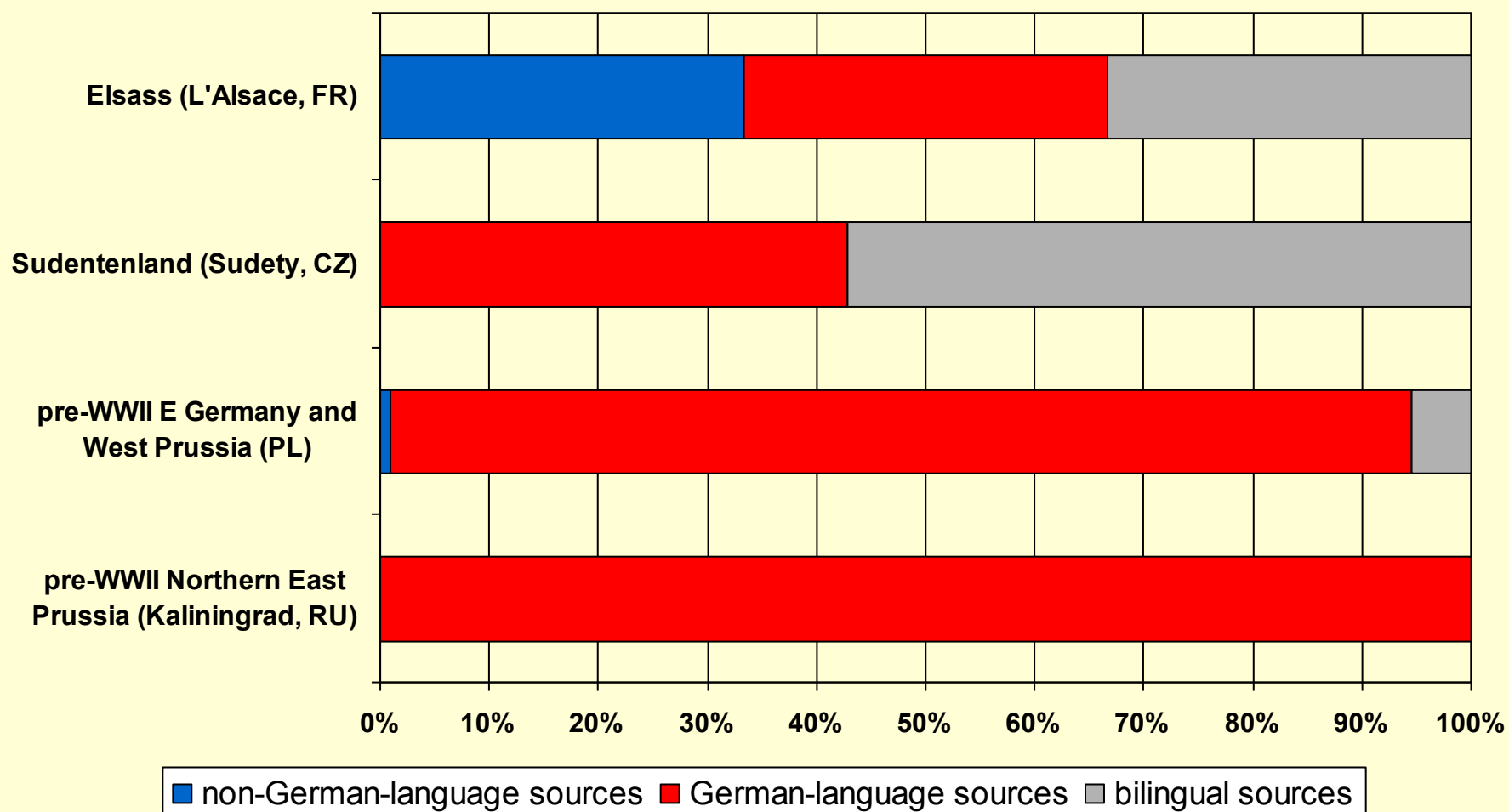


Fig.14: Satellite picture, 2009. Googel Earth, 2013

Results in terms of source languages



Summary

I. Source availability in terms of language:

- Bilingual areas (past and present time): Information available in both languages
- Bilingual areas (pre-1945): Availability depends on local reporting / on population
- Pre-1945 German areas: Availability predominantly in German language

II. Source availability in terms of archives:

- Bilingual areas (all): Sources available in local archives (county or town archives)
- Pre-1945 German areas: Predominantly in German archives in Germany

III. Local Places:

- | | |
|--------------------------|---|
| • L'Alsace: | Names of local places nearly unchanged |
| • Sudetenland: | Official pre-1945 Czech names used after 1945 |
| • W and N Poland: | Names modified or phonetically adapted to Polish |
| • Kaliningradskaya obl.: | Encompassing renaming / some local areas deserted |

Conclusion

1. The lack of information / communication for the post-1945 Polish and Russian areas can be explained by a lack of transfer of information from German into Polish or Russian language.
It must be assumed that a lot is still unknown or undiscovered in German archives.
2. The workload for individual events can be very comprehensive because of studying historical directories, maps and/or other local-historical features.
3. Productive cooperations are needed to accomplish access to information which is only given in German language and stored in German archives.
4. Emotional obstacles are rare, but are still a matter referring to individual war and post-war experiences and political changes (partly non-scientific factors)

Conclusion

1. The lack of information / communication for the post-1945 Polish and Russian areas can be explained by a lack of transfer of information from German into Polish or Russian language.
It must be assumed that a lot is still unknown or undiscovered in European archives.
2. The workload for individual events can be very comprehensive because of studying historical directories, maps and/or other local-historical features.
3. Productive cooperations are needed to accomplish access to information which is only given in German language and stored in European archives.
4. Information should be available in the form of databases, publications and instructions for own archival research. All events are European events.

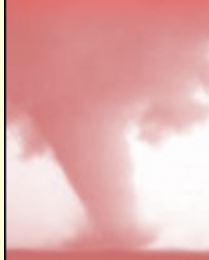
<p>tornado (edit) 2 revision (history)</p> 	<p>Dal'niy / Schillgallen Kaliningradskaya oblast / Ostpreußen Russian Federation (55.09 N, 21.83 E) 28-04-1836 (Thursday) 12:00 UTC (+/- 6 hrs.)</p>	<p>based on: information from a newspaper report occurring over: land intensity and characteristics: F2 the intensity rating was based on a damage survey by a severe weather expert, a written account of the damage (e.g. in a newspaper). The funnel cloud was observed. path length: 5 km direction of movement: SSW-NNE damage to property: 2 houses badly damaged. 12 barn houses destroyed damage to crops and forests: 14 cattle killed number of people injured: 3 source: Kühne, T. / Pistotnik, G.: , including Aschaffener Zeitung, 24.05.1839, Nr. 124; Band des Jahres 1836; S.584; report status: report confirmed (QC1) contact: Thilo Kühne (ESWD management) [e-mail]</p>
--	---	--

Fig.14:Tornado database report. ESWD.

