CDR: New centennial station Klagenfurt

Paul A.[(1)], Albenberger J.[(1)] , Chimani B.[(1)], Galavics H.[(1)], Schmalhofer G. [(1)], Stefan C.[(2)], Stowasser R.[(1)]

(1) GeoSphere Austria - Vienna
(2) GeoSphere Austria - Klagenfurt

2025-11-04

Motivation

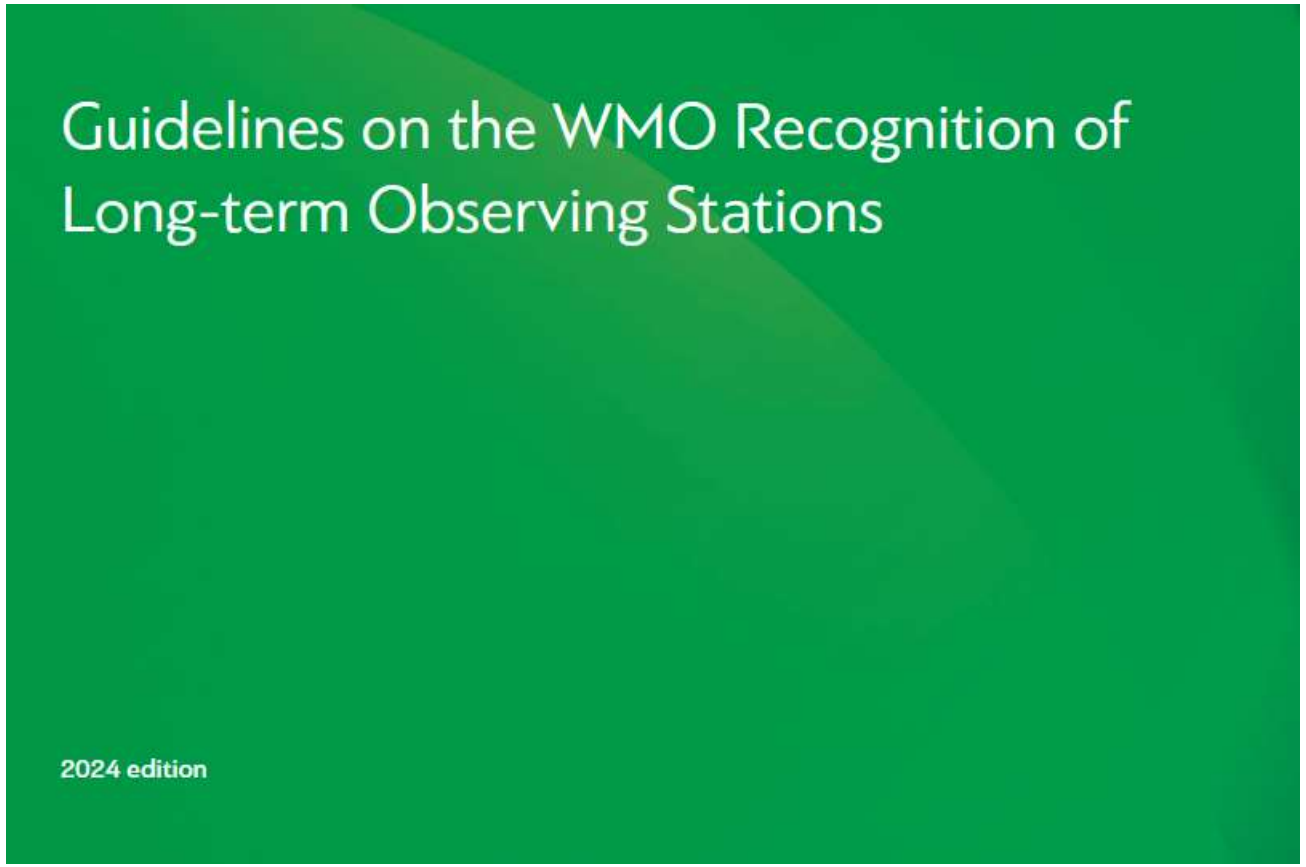
aim: long time series in WMO program centennial stations
https://public.wmo.int/en/our-mandate/what-we-do/observations/centennial-observing-stations

Motivation

aim: long time series in WMO program centennial stations
https://public.wmo.int/en/our-mandate/what-we-do/observations/centennial-observing-stations

Country	Region	Station Name	WMO Number	Institution	Start of Operation
Austria	6	Hohenau a.d. March		Federal Ministry for Agriculture	1893
Austria	6	Innsbruck University		Zentralanstalt für Meteorologie u...	1877
Austria	6	Sonnblick	11343		1886

Recognition criteria for centennial meteorological observing stations



Recognition criteria for centennial meteorological observing stations

GeoSphere Austria

(1) The observing station was founded **at least 100 years** ago, observing at least one meteorological element since then, and is in operation as an observing station at the date of nomination

(2) Periods of **inactivity** of the observing station shall not exceed 10%

(3) The **minimum historical station metadata** for the full duration of station operation shall contain actual or derived geographical coordinates including elevation, known changes of station name and/or station identifier, identified meteorological element(s) and its unit(s) as well as the observing schedule(s)

(4) Any known observing station **relocation or change** in the measurement technique have **not significantly affected** the climatological **time-series** data

(5) All historical observational data and metadata have been **digitally archived or will be rescued**. Members shall share their plans for data rescue, if applicable

(6) The observing station shall be **operated** according **to WMO observing standards** (…)

(7) The current environment of the observing station has been **classified** or will be classified according to the siting classification defined in the Guide to Instruments and Methods of Observation (…). Members shall share (i) the metadata attached to the siting classification in the appropriate WMO metadata repository (currently **OSCAR**) or (ii) their plans to classify the observing station

(8) The observed and measured data shall be subject to **routine quality control** procedures according to current WMO guidelines and practices. The quality control processes as well as its results shall be well documented.

(9) Members shall do their utmost to **maintain** nominated **stations** according to the above recognition criteria

(10) **Historical observation data and metadata** have been or will be **made available for scientific research** (…)

KLAGENFURT 1830 - 2025

Klagenfurt Fliegerhorst 1940

Klagenfurt Flughafen 2020

Overview – What we DID – DO – WILL DO

- Process of digitization
  - scan | imaging
  - conversion | formatting
  - first check
  - editing
  - second check

DID

- Insert/input into database
  - automatically | tests with AI software (transkribus)
  - manually | input | quality control | DCT Software
    - challenges
    - metadata

DO

- Outlook
  - in general | timetable
  - dataset | analysis | publishing | sharing via www (datahub, WIS2.0,….)
  - AI tools

WILL DO

Process of digitization - HISTORY

archive inventory @ RS KLA – discovery data treasure Klagenfurt (1830 -1938)

2020: Transfer historical documents to Vienna

2020: data material screening: first metadata information and documentation / FIRST CHECKS

2020 – 2024: imaging/scan-tailor/SECOND CHECKS

2020/21: Lockdowns, work interruptions and long breaks

2021: presentation @ 13th EUMETNET DMWS in Greece

2024: tests with transkribus

2024: input and quality control via DCT (insert into db with quality and metadata information)

climate data sheets/ books, © Anita Paul

Process of digitization - HISTORY

archive inventory @ RS KLA – discovery data treasure Klagenfurt (1830 -1938)

2020: Transfer historical documents to Vienna

data material: climate data sheets – bound into books

met. parameters:

- precipitation, temp, wind speed + direction, snow, pressure, rel. humidity
- sun duration (start 1883)

resolution: daily

climate data sheets/ books, © Anita Paul

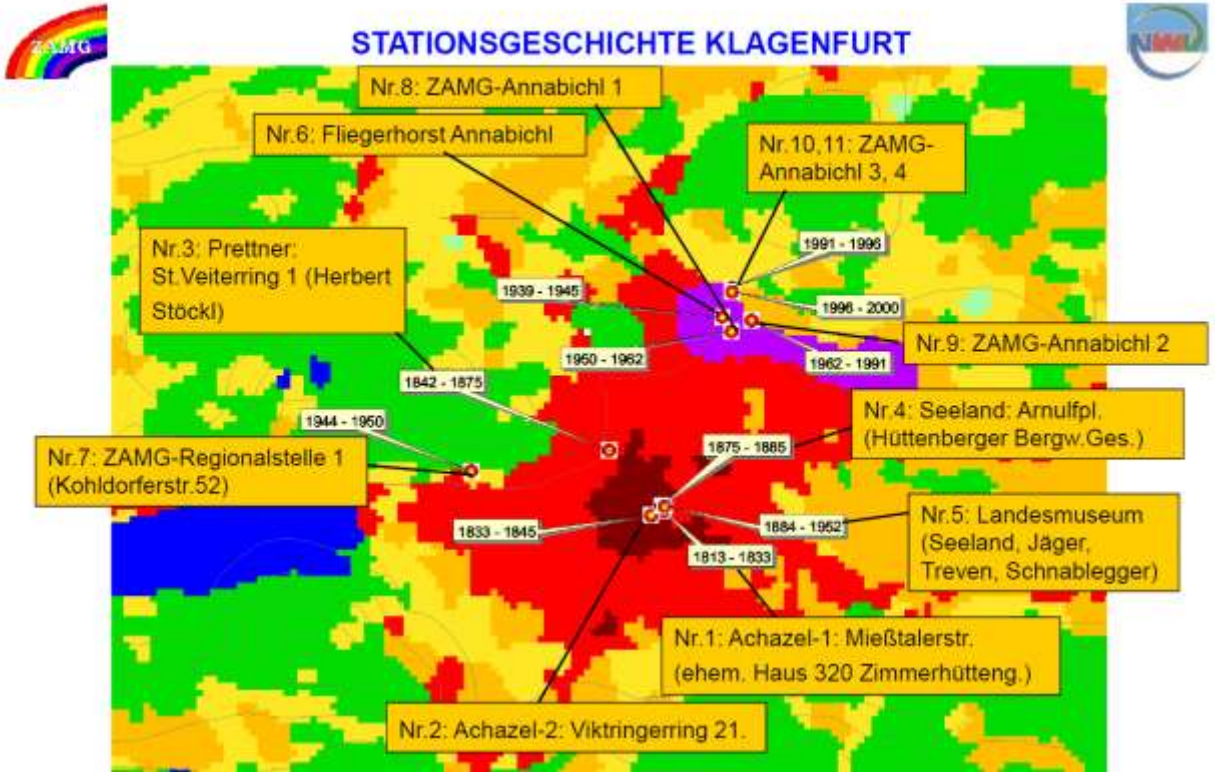
Process of digitization - HISTORY

archive inventory @ RS KLA – discovery data treasure Klagenfurt (1830 -1938)

2020: Transfer historical documents to Vienna

2020: data material screening: first metadata information and documentation / FIRST CHECKS

Klagenfurt state museum Landesmuseum (1830-1952)
Klagenfurt airfield/airport Flugplatz/Flughafen (1950-2025)
++ overlapping measurement period (1950-1952)



statnr	synnr	name	lon	lat	alt	bdate	edate	op
20214	0	KLAGENFURT/LANDESMUSEUM	141800	463700	449	18300101	19520630	2
20203	0	KLAGENFURT/STADTPFARRAMT	141800	464700	446	19360101	19401231	2
20204	0	KLAGENFURT/FLIEGERHORST	141937	463845	448	19390301	19450101	2
20205	0	KLAGENFURT/ST.MARTIN	141700	463800	454	19440601	19500331	2
20210	11231	KLAGENFURT-FLUGPLATZ	142000	463900	447	19500401	19910331	2
20211	11231	KLAGENFURT-FLUGHAFEN	142000	463900	447	19910401	19960903	2
20212	11231	KLAGENFURT-FLUGHAFEN	141906	463854	450	19960901	21001231	1

Process of digitization - HISTORY

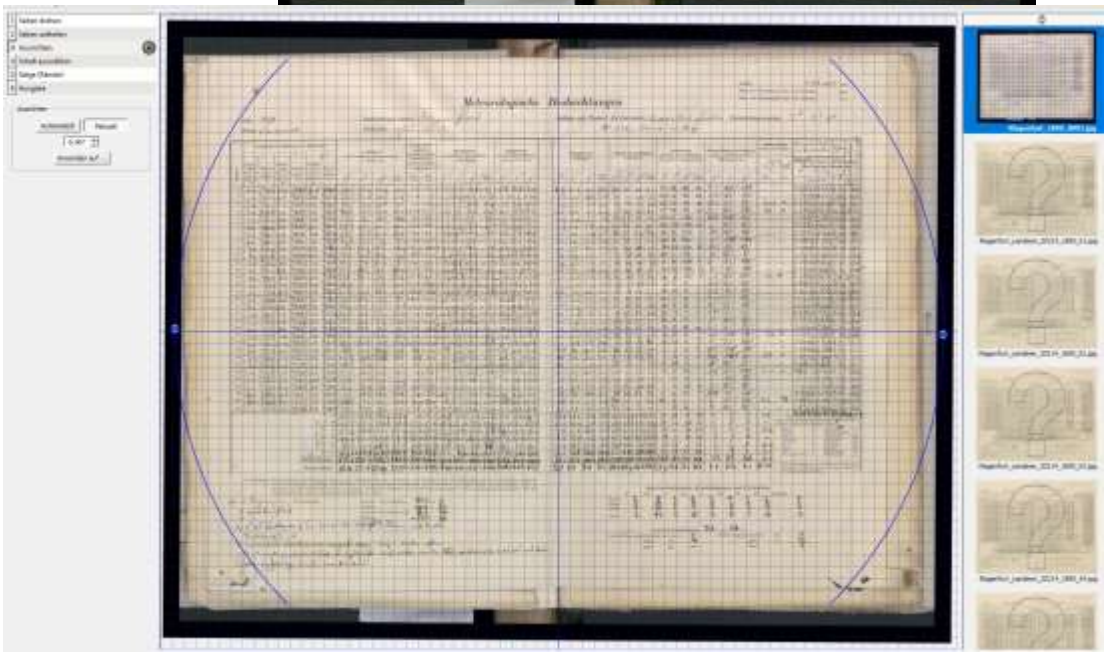
archive inventory @ RS KLA – discovery data treasure Klagenfurt (1830 -1938)

2020: Transfer historical documents to Vienna

2020: data material screening: first metadata information and documentation / FIRST CHECKS

2020 – 2024: imaging / scan-tailor /SECOND CHECKS

book scanner Microbox Mosquito A1, © Anita Paul



Process of digitization - HISTORY

archive inventory @ RS KLA – d
Klagenfurt (1830 -1938)

2020: Transfer historical docun

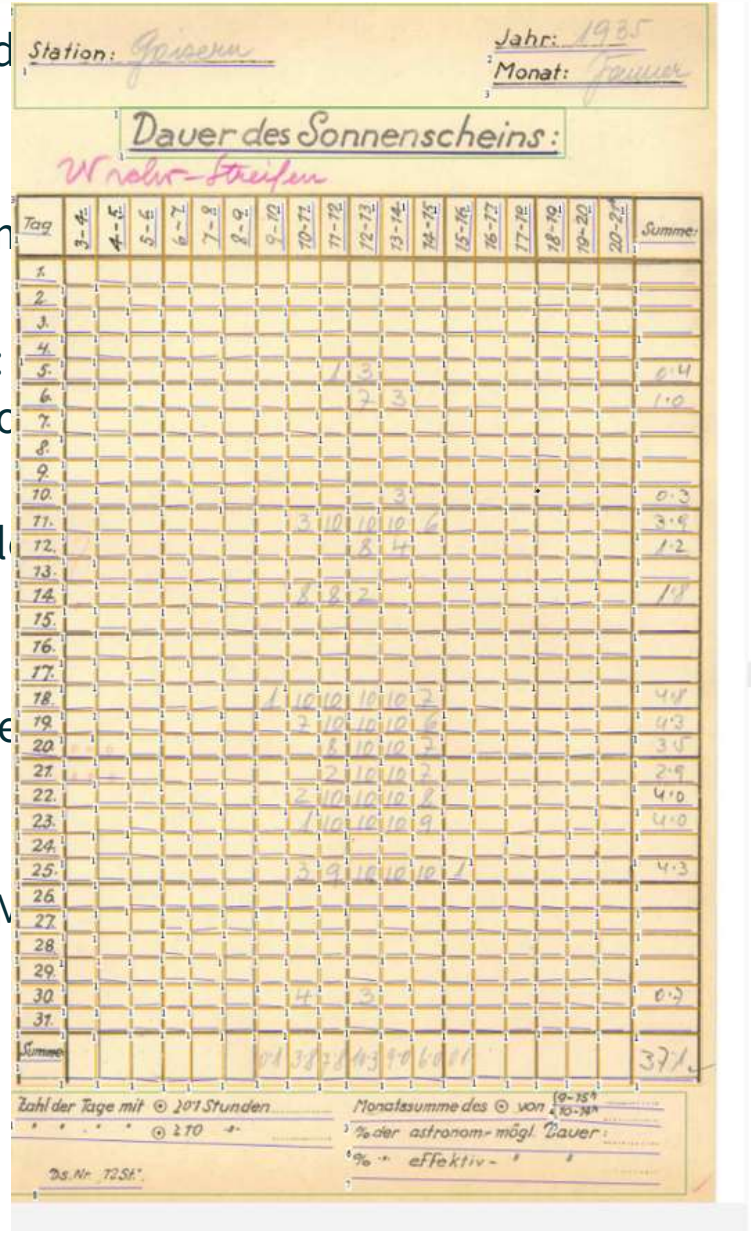
2020: data material screening:
information and documentatic

2020 – 2024: imaging/scan-tail
/SECOND CHECKS

2020/21: Lockdowns, work inte
breaks

2021: presentation @ 13th EUM

2024: tests with transkribus



Region 1

1 Daver des Sonnenscheins :

Region 2

1 station: Goisern
2 Jahr:1935
3 Monat: Juliain

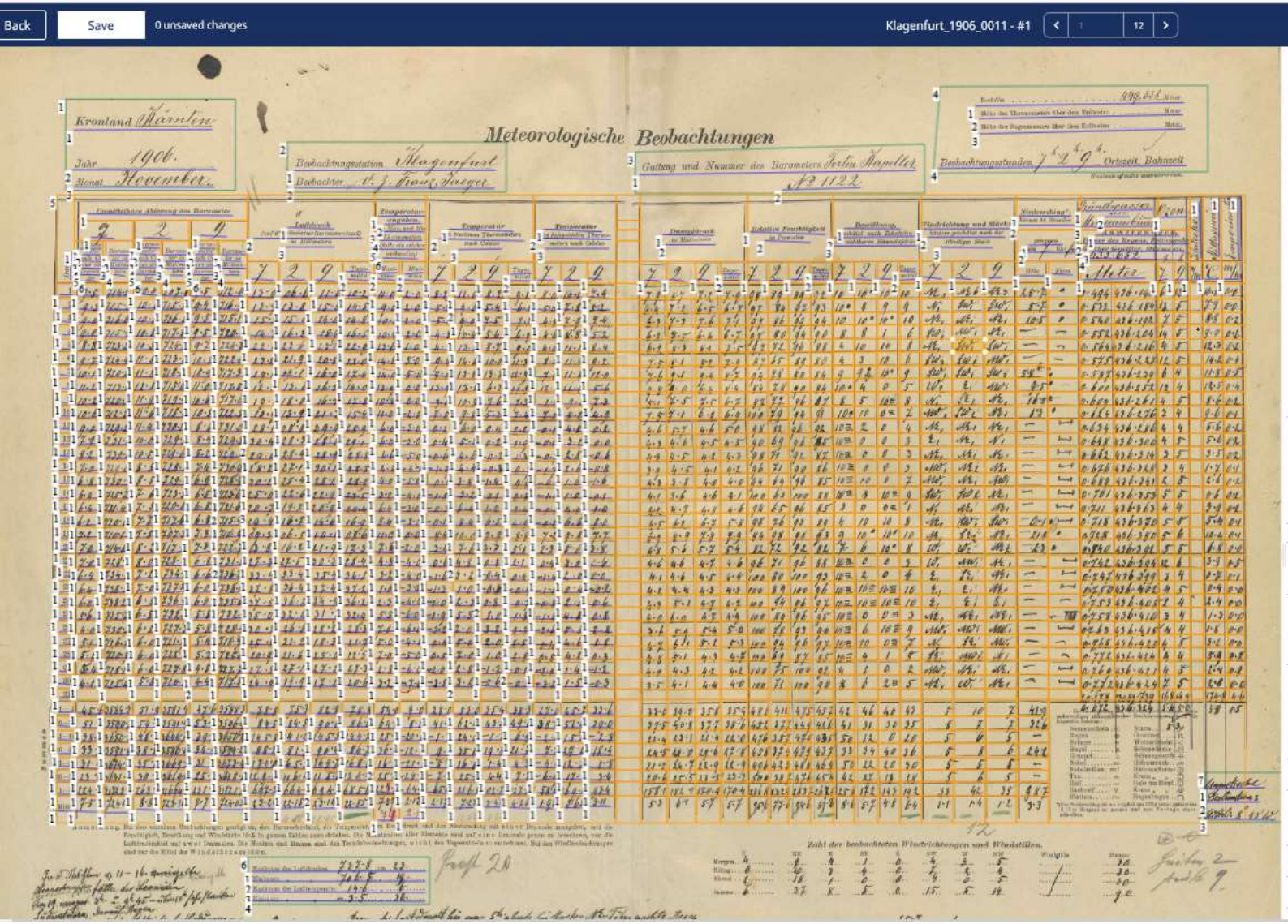
Region 3

Tag	3-4	4-5	5-6	6-7	7-8	8-9	4/-10	10-71	11-12	12-13	13 - 14	74-75	15-16	76-77	17.78	18-19	¬	20-21	Summe
1.	-	-	¬	-	-	-	-	den die andere	zijn	m	¬	m	¬	m	¬	O	-	¬	ije
2.	m	-	-	¬	nevende	1	e	H	¬	.	¬	—	-	¬	re	m	¬	¬	de
3.	—	-	1	-	¬	¬	n	m	„	-	¬	¬	m	m	¬	—	¬	m	¬
4.	-	¬	-	-	„	¬	-	-	t	-	¬	-	-	¬	¬	¬	¬	¬	¬
5.	-	n	¬	¬	¬	¬	¬	¬	1	3	¬	¬	t	¬	¬	7	1	¬	0.4
6.	t	m	-	-	¬	-	a	¬	—	7	3	m	—	m	¬	-	¬	-	1.0
7.	O	¬	¬	-	-	-	-	-	-	-	¬	¬	„	¬	m	-	¬	m	¬
8.	-	re¬	e	—	-	-	¬	m	den vorz.	-	-	-	-	¬	¬	-	¬	-	e
9.	re	¬	m	I	¬	-	-	¬	-	-	-	¬	-	¬	¬	-	Mij	1	de
70.	¬	¬	O	¬	¬	¬	-	¬	¬	„	3	re¬	-	¬	¬	-	¬	¬	0.3
77.	-	n	-	-	-	-	-	3	10	10	10	6	d.	¬	e	-	-	-	3.9
12.	-	„	-	denen vielen vor der	—	-	¬	-	-	8	4	¬	m	m	—	¬	¬	¬	1.2
73.	-	¬	¬	„	-	—	¬	den, welche der	den die	H	-	-	¬	-	-	¬	¬	¬	e
14	t	¬	¬	-	-	-	¬	8	8	2	-	-	e	-	-	O	¬	¬	18
75.	n	re	¬	1	¬	¬	¬	¬	„	¬	¬	n	¬	¬	-	n	t	¬	¬
76.	t	-	-	-	-	¬	-	a	a	-	¬	t	¬	¬	-	-	-	-	¬
17.	—	—	-	¬	-	¬	¬	n	¬	-	¬	-	¬	-	-	—	¬	¬	-
78.	7	-	-	e	-	-	1	1	10	10	10	7	¬	¬	-	-	n	-	„
79.	7.	¬	—	-	—	¬	1e	?	10	10	10	6	-	¬	-	-	n	¬	4.
20	¬	¬	re	-	-	„	¬	e	8	10	10	?	¬	¬	¬	„	-	¬	zijn
21.	¬	t	—	¬	e¬	¬	a	de	2	10	10	7	¬	¬	re¬	—	den die andere	-	29
22.	¬	„	ei	e	-	-	-	2	1	10	10	8	O	-	den	-	-	-	4.10
23	-	-	-	¬	„	-	¬	1	10	10	10	9	¬	-	-	n	de	e	4.0
24.	t	s.	-	-	-	¬	-	voor der	-	¬	¬	¬	-	-	-	¬	t	-	Mij
25	t	n	¬	¬	¬	¬	-	3	9	10	10	10	1	¬	¬	M	N:o 30	—	n
26	¬	¬	1	¬	-	-	-	¬	¬	O	¬	—	¬	-	-	-	-	-	¬
27.	—	—	-	nicht sein, wie der	„	¬	-	¬	¬	n	re¬	¬	¬	¬	-	-	-	¬	Mij
28	O	-	¬	¬	¬	-	¬	-	-	-	de	„	¬	Mij	M.	den	¬	¬	—
29.	-	¬	¬	¬	¬	-	¬	¬	¬	¬	-	¬	-	ein	-	-	¬	Mij	m
30	¬	¬	es	¬	—	m	-	4	-	3	¬	¬	-	-	¬	7	-	den	0.7
37	-	m	¬	¬	n	n	¬	¬	¬	¬	¬	¬	¬	¬	¬	¬	n	¬	¬
Summe	t	¬	¬	-	¬	t	¬	¬	¬	t	¬	¬	¬	-	-	-	¬	-	x

Region 4

1 tahl der lage mit & 10'7 Stunden.
2 „ „ 9 '10
3 Monatssumme des O von

Process of digitization - HISTORY



- \+ decoding kurrent handwriting
- \+ non -commercial -> The COOP membership
- \+ documentation

- \- suboptimal numbers and table recognition
- \- layout analysis very time consuming
- \- support issues – lack of resources

Dampfdruck in Millimetern				Relative Feuchtigkeit in Perzenten				Bewölkung, geschätzt nach Zehnteilen der sichtbaren Himmelsfläche				Windrichtung und Stärke, letztere geschätzt nach der 10teiligen Skala				Niederschla*), binnen 24 Stunden	
																gemessen um 7 Uhr früh	
7	2	9	Tages-mittel	7	2	9	Tages-mittel	7	2	9	Tages-mittel	7	2	9	Höhe	Form	

Process of digitization - HISTORY

archive inventory @ RS KLA – discovery data treasure Klagenfurt (1830 -1938)

2020: Transfer historical documents to Vienna

2020: data material screening: first metadata information and documentation / FIRST CHECKS

2020 – 2024: imaging/scan-tailor/SECOND CHECKS

2020/21: Lockdowns, work interruptions and long breaks

2021: presentation @ 13th EUMETNET DMWS in Greece

Work in prpgress, data input and quality control via DCT, © Anita Paul

Process of digitization - HISTORY

archive inventory @ RS KLA – discovery data treasure Klagenfurt (1830 -1938)

2020: Transfer historical documents to Vienna

2020: data material screening: first metadata information and documentation / FIRST CHECKS

2020 – 2024: imaging/scan-tailor/ OCR / gImageReader /SECOND CHECKS

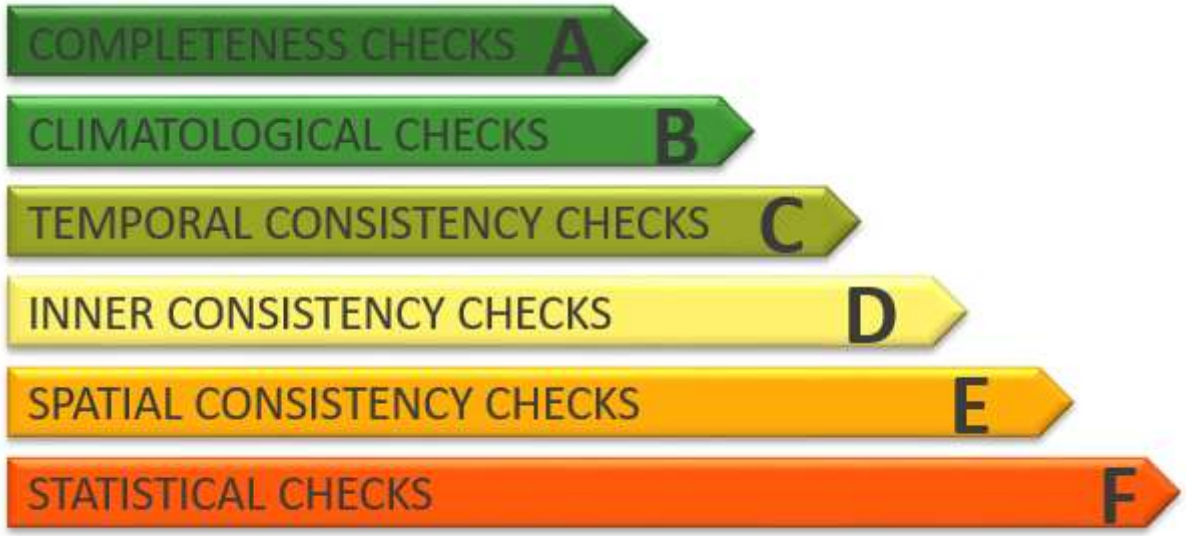
2020/21: Lockdowns, work interruptions and long breaks

2021: presentation @ 13th EUMETNET DMWS in Greece

2024: tests with transkribus

2024: input and quality control via DCT (insert into db with quality and metadata information)

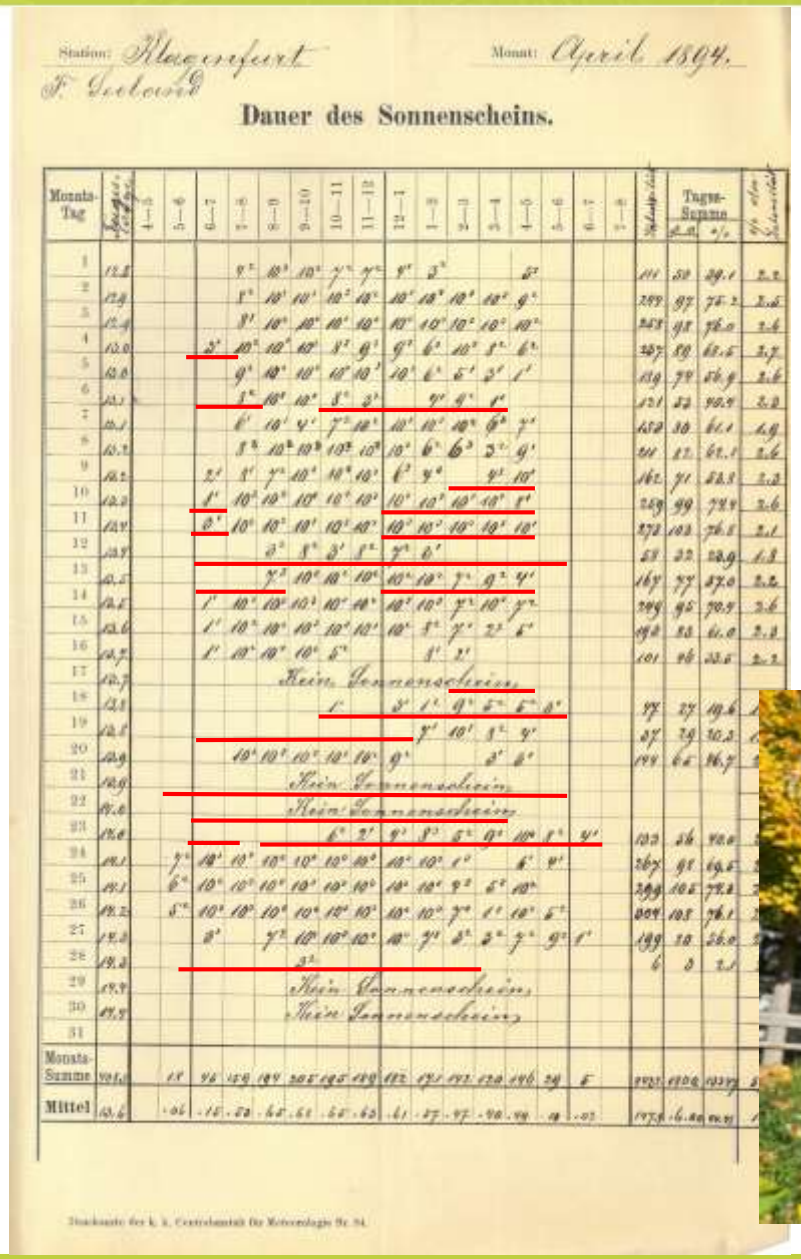
Multi-stage quality control via DCT:



typical errors:

- **pressure:** conversion errors
- **precipitation:** incorrect allocation of sums – day shift
- **temperature:** tmin, tmax errors (observing time/ no reset)
- **sun duration:** wrong day / burn trace
- **humidity:** over 100%

parameter sun duration


Station: Klagenfurt
Monat: April 1894.
F. Seeland

Dauer des Sonnenscheins.

Kein Sonnenschein

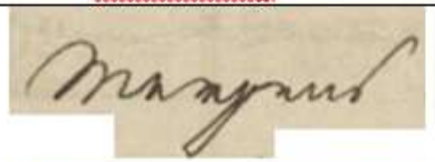
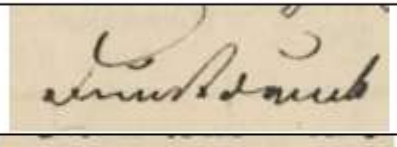
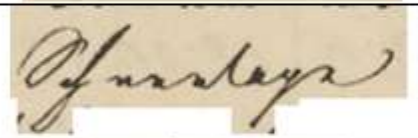
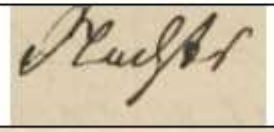
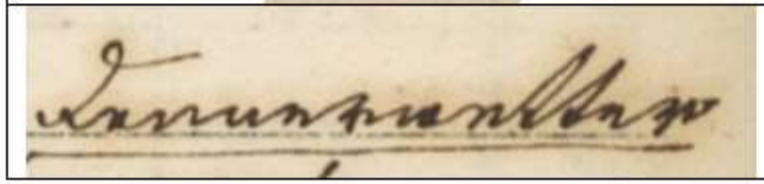
DCT 7.2
Online Monitor
User: Schmalhofer
KLAGENFURT/LANDESMUSEUM
Station: 20214
449 m
Date: 18940401 - 18940430
18300101 19520630
Elemente
Entfernen
Laden
Speichern
Regions-übersicht
Log Datei
Qualitäts-abfrage
Kommentar manuell
Qualitäts-Flags
Enter ->
Vollbild
Meldungen

element	datum	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SUX	18940401	0	0	0	0	0	0	0	4	10	10	7	7	4	3	0	0	5	0	0	0
SUX	18940402	0	0	0	0	0	0	0	8	10	10	10	10	10	10	10	10	9	0	0	0
SUX	18940403	0	0	0	0	0	0	0	8	10	10	10	10	10	10	10	10	10	0	0	0
SUX	18940404	0	0	0	0	0	0	3	10	10	10	8	9	9	6	10	8	6	0	0	0
SUX	18940405	0	0	0	0	0	0	0	9	10	10	10	10	10	6	5	3	1	0	0	0
SUX	18940406	0	0	0	0	0	0	0	8	10	10	8	3	0	4	9	1	0	0	0	0
SUX	18940407	0	0	0	0	0	0	0	6	10	4	7	10	10	10	10	6	7	0	0	0
SUX	18940408	0	0	0	0	0	0	0	8	10	10	10	10	10	6	6	3	9	0	0	0
SUX	18940409	0	0	0	0	0	0	2	8	7	10	10	10	6	4	0	4	10	0	0	0
SUX	18940410	0	0	0	0	0	0	1	10	10	10	10	10	10	10	10	10	8	0	0	0
SUX	18940411	0	0	0	0	0	0	3	10	10	10	10	10	10	10	10	10	10	0	0	0
SUX	18940412	0	0	0	0	0	0	0	0	3	8	3	8	7	3	0	0	0	0	0	0
SUX	18940413	0	0	0	0	0	0	0	0	7	10	10	10	10	10	7	9	4	0	0	0
SUX	18940414	0	0	0	0	0	0	1	10	10	10	10	10	10	10	7	10	7	0	0	0
SUX	18940415	0	0	0	0	0	0	1	10	10	10	10	10	10	8	7	2	5	0	0	0
SUX	18940416	0	0	0	0	0	0	1	10	10	10	5	0	0	8	2	0	0	0	0	0
SUX	18940417	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	1	0	3	1	9	5	5	3	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	7	10	8	4	0	0	0
		0	0	0	0	0	0	0	10	10	10	10	10	9	0	0	3	3	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	6	2	4	8	5	9	10	8	4	0	0	0
		7	10	10	10	10	10	10	10	10	10	10	10	10	1	0	6	4	0	0	0
		6	10	10	10	10	10	10	10	10	10	10	10	10	4	5	10	0	0	0	0
		5	10	10	10	10	10	10	10	10	10	10	10	10	7	1	10	5	0	0	0
		0	3	0	7	10	10	10	10	10	10	10	10	7	3	3	7	9	1	0	0
		0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Campbell Stokes @ GeoSphere Austria, © Gregor Schmalhofer

challenges / examples

- **kurrent handwriting**
- other measurement(s)
  - times
  - instruments
  - units
  - methods

Original kurrent handwriting	german	english
	Morgens	In the morning
	Dunstdruck	Vapor Pressure
	Schneetage	Days with snow
	Nachts	At night
	Donnerwetter	Thunderstorm

challenges / examples

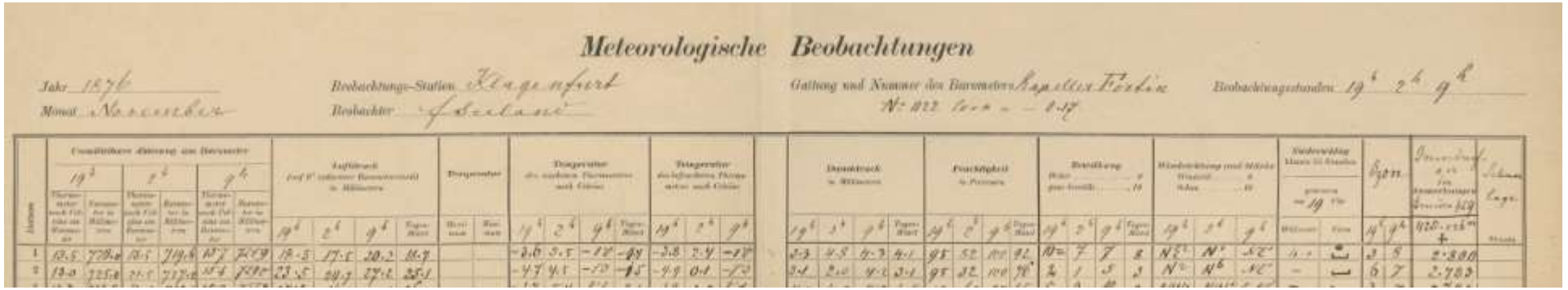
- kurrent handwriting
- **other measurement(s)**
  - **times**
  - instruments
  - units
  - methods
  - errors depending on station observer

1. Astronomical time
   differs from civil time
   day begins at noon / shifted 12 hours
   no year zero

2. Mannheimer hours 7,14,21
➔ change in 1971 @ZAMG
➔ Reason:

TV \ main evening program

➔ now: ZAMG=7,14,19
HD=7,14,21


Meteorologische Beobachtungen

challenges / examples

- kurrent handwriting
- **other measurement(s)**
  - times
  - instruments
  - **units**
  - **methods**

Example for different scaling:

Date	Scaling
Wind	
1830 – 04/1855	*0 – 4 (4 = Storm)*
05/1855 – 01/1916	*0 – 10*
02/1916 - today	*1 – 12 Beaufort*
Temperature	
1830 – 11/1871	*Réaumur (1 = 1,25 °C)*
12/1871 - today	*Celsius*
Pressure, Precipitation	
1830 – 11/1871	*Paris line (1 = 2,2558291 mm)*
12/1871 - today	*mm*
Cloud Cover	
1830 – 04/1855	*0 – 4*
05/1855 - today	*0 – 10*

challenges / examples

- kurrent handwriting
- **other measurement(s)**
  - times
  - instruments
  - units
  - **methods**

until November 1875	since December 1875	
		fog
		rain
		thunderstorm
		hail
		graupel
*) Federwolken werden mit F., Haufenwolken mit H., Schichtwolken mit S. bezeichnet, Federschichtwolken mit FS. u. s. f. **) Bezeichnung der Form des Niederschlages: • Nebel, | Regen, △ Hagel, * Schnee. Im Falle eines Gewitters mit oder ohne Niederschlag wird das Zeichen ↕ eingeschrieben, für Blitze ohne Donner (Wetterleuchten) das Zeichen ↑.	Internationale meteorologische Zeichen: Sonnenschein ⊙ Sturm Regen • Gewitter ℞ Schnee * Donner ⊤ Hagel ▲ Wetterleuchten < Graupel △ Schneedecke ⊡ Nebel ≡ Schneegestöber ⁜ Bodennebel ≡ Dunst ∞ Nebelreißen ≡ Ring um Sonne ⊕ Tau Hof ⊕ Reif Ring um Mond ☾ Rauhreif V Hof ☾ Glatteis Regenbogen ∩	

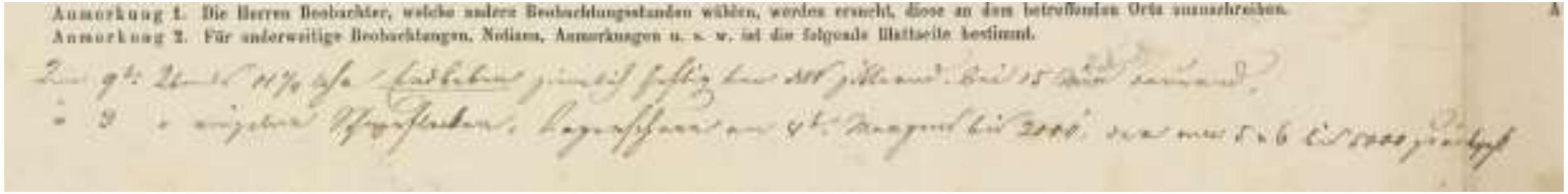
additional information / metadata

- seismic observation: earthquakes
- phenological observation: first leave (fall), first bee flight/sight, first snowdrop,…
- astronomical/ optical observation: aurora borealis, comets, asteroids, solar/ lunar eclipse, rainbows, halos, meteors, planetary alignments …
- extreme events: floods, records (RR amount, heatwaves), heavy storms, lightning strikes / damage reports,…
- observation in surrounding area: very intense sunsets, ice thickness Wörthersee (Klagenfurt located on lake Wörth), snow lines, black ice,…
- others: avalanches, landslides, vandalism,…

additional information / metadata

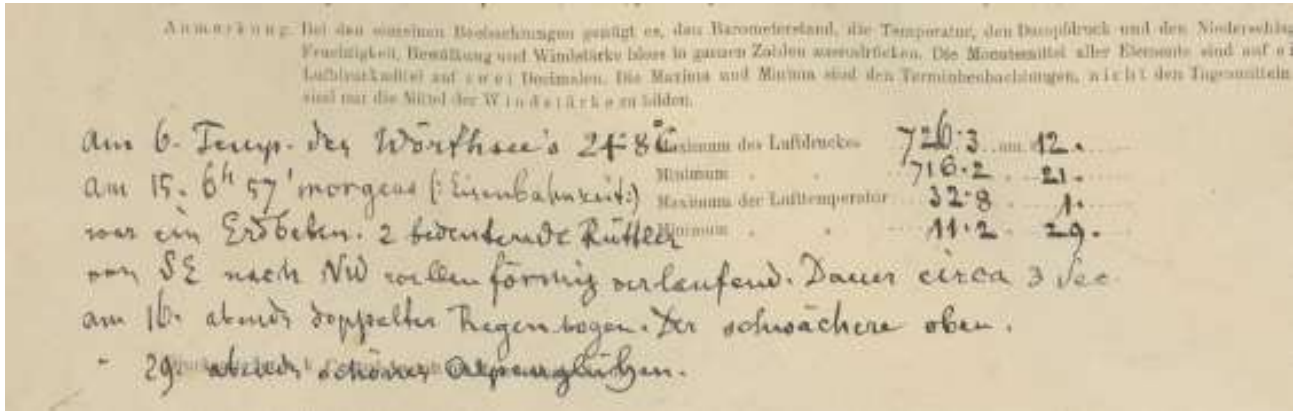
- **seismic observation: earthquakes**

climate sheet 1856 - Nov



Am 9. Abends 11:15 Uhr Erdbeben ziemlich heftig von NW zitternd, bei 15 Minuten dauernd.
Am 3. Abends einzelne Schneeflecken, Lagerschnee am 4. Morgens bis 2000 Fuß, der am 5 und 6 bis 5000 xxx

On the 9th, at 11:15 p.m., a fairly violent earthquake shook from northwest, lasting 15 minutes.



climate sheet 1897 - July

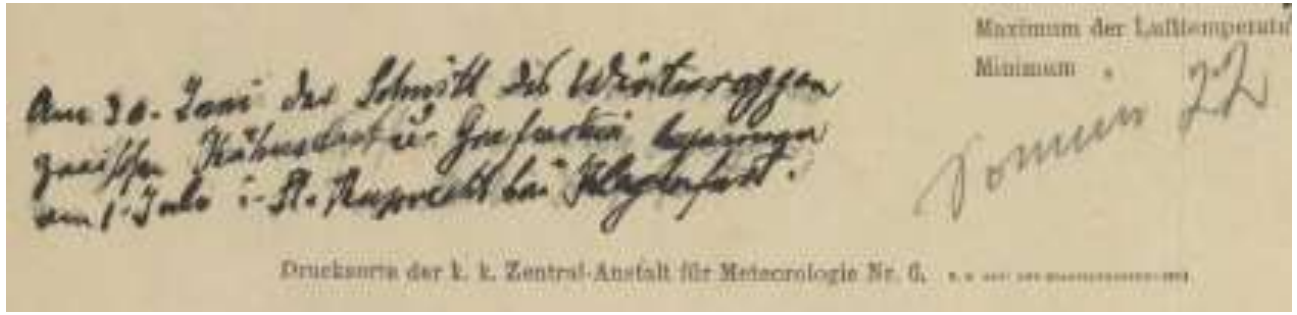
Am 6. Temp. des Wörthsee‘s 24.8°C
Am 15. 6h57‘ morgens (Eisenbahnzeit:)
War ein Erdbeben. 2 bedeutende Rüttler
Von SE nach NW wellenförmig verlaufend. Dauer ca. 3 Sec.
Am 16. abends doppelter Regenbogen. Der schwächere oben.
Am 19. abends schönes Alpenglühen

On the 6th, the temperature of Lake Wörthsee was 24.8°C. On the 15th at 6:57 a.m. (railway time): There was an earthquake. Two significant tremors. Wavy pattern from SE to NW. Duration approximately 3 seconds.
On the evening of the 16th, a double rainbow appeared. The weaker one was at the top.
On the evening of the 19th, beautiful alpenglow.

additional information / metadata

- seismic observation: earthquake
- **phenological observation: first leave (fall), first bee flight/sight, first snowdrop,…**

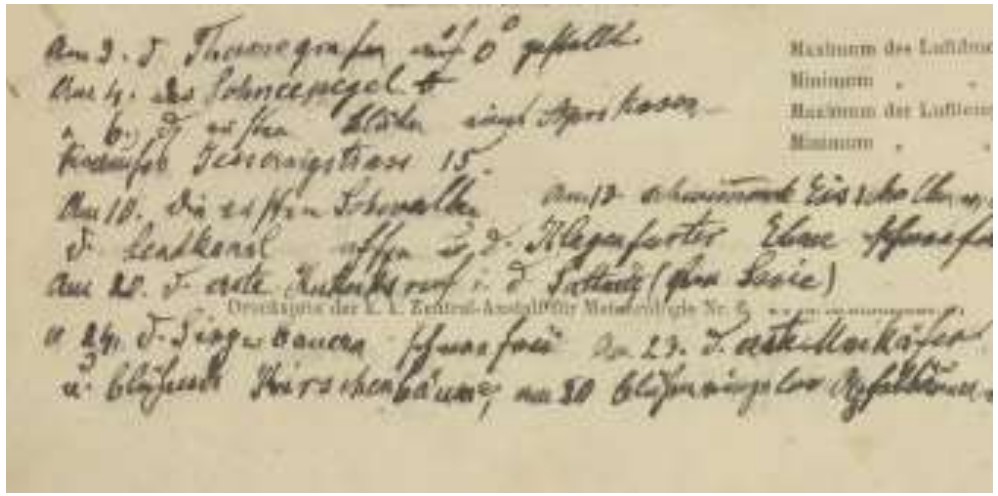
climate sheet 1911 - July



Am 30. Juni der Schnitt des Winterroggen xxx

Cut of winter rye on June 30th

climate sheet 1909 - April



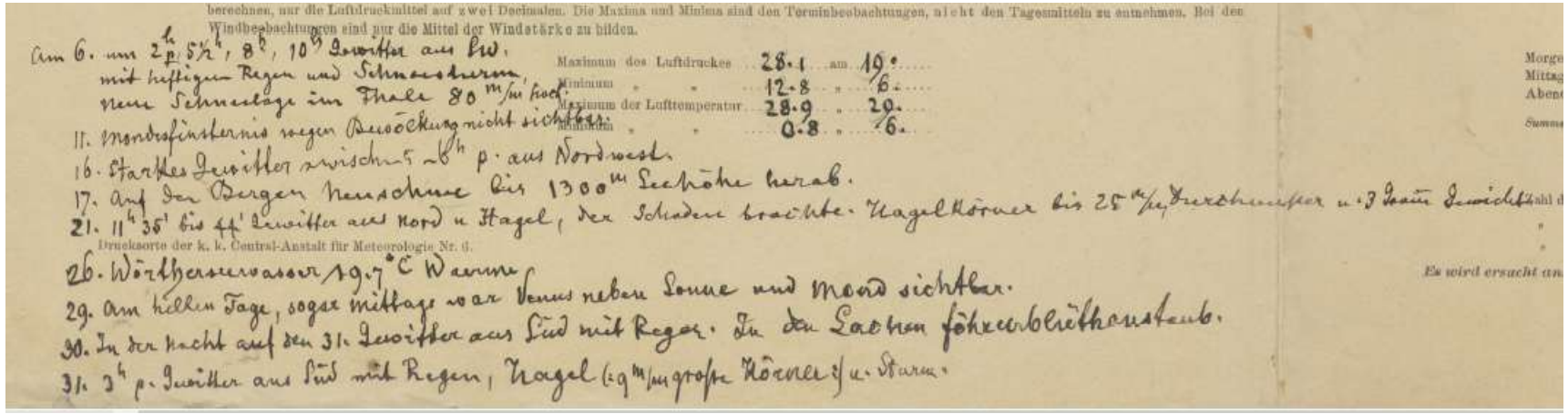
Am 6. erste Blüte der Aprikosen
Am 10. ersten Schwalben
Am 23. blühende Kirschbäume und Apfelbäume, erste Maikäfer

On the 6th first blossom apricot trees
On the 10th, the first swallows appear
On the 23rd, cherry and apple trees blossom, and the first cockchafers appear.

additional information / metadata

- seismic observation: earthquakes
- phenological observation: first leave (fall), first bee flight/sight, first snowdrop,…
- **astronomical/ optical observation: aurora borealis, comets, asteroids, solar/ lunar eclipse, rainbows, halos, meteors, planetary alignments …**

climate sheet 1892 - May



Am 11. Mondfinsternis wegen Bewölkung nicht sichtbar
Am 29. am hellen Tage, sogar Mittags war Venus neben Sonne und Mond sichtbar

The lunar eclipse on the 11th was not visible due to cloud cover.
On the 29th, Venus was visible alongside the sun and moon in broad daylight, even at midday.

Am 13. 7h 20‘ abends ein schöner Meteor Richtung SE-NW in Vollmondgröße mit Auflösung in 4 Stücken von gelben, goldenen und grünen Lichtern 20m ober dem Boden bei Ehrenthal. Zeit 6 sekunden. Bahnfleck nordöstl. vom Zenit. (Beobachter Gärtner Hirsch in Ehrenhausens)

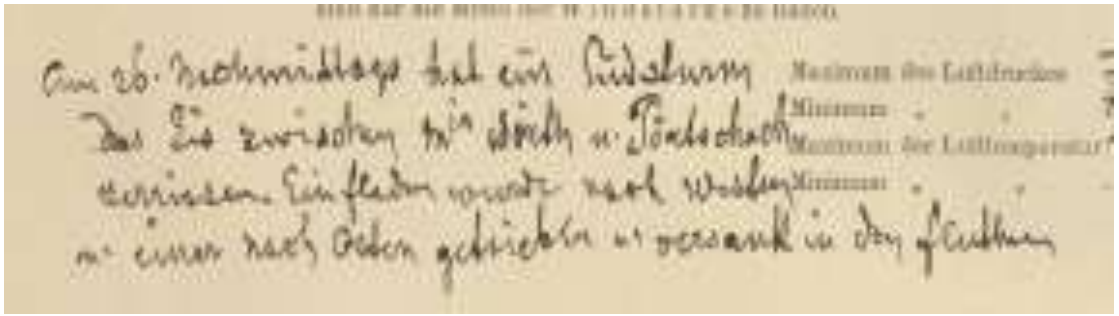
On the 13th at 7:20 PM, a beautiful meteor, the size of a full moon, was observed in the SE- NW, resolving into four pieces of yellow, gold, and green lights, 20 meters above the ground near Ehrenthal. The duration was 6 seconds. The meteor's path was NE of zenith. (Observer: Gardener Hirsch in Ehrenhausens)

climate sheet 1883 - Mar

additional information / metadata

- seismic observation: earthquake
- phenological observation: first leave (fall), first bee flight/sight, first snowdrop,…
- astronomical observation: aurora borealis, comets, asteroids,…
- **extreme events: floods, records (RR amount, heatwaves), heavy storms, lightning strikes / damage reports**

climate sheet 1900 - Mar

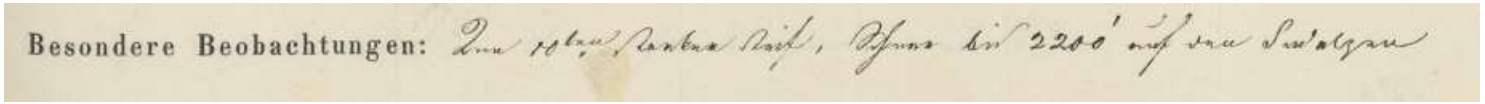


Am 26. nachmittags hat ein Südsturm das Eis zwischen Maria Wörth und Pörtschach zerrissen. Eisflächen wurden nach Westen und einer nach Osten getrieben und versanken in den Fluten

On the afternoon of the 26th, a southerly storm tore apart the ice between Maria Wörth and Pörtschach. Patches of ice were driven westward and one eastward, both sinking into the floodwaters.

additional information / metadata

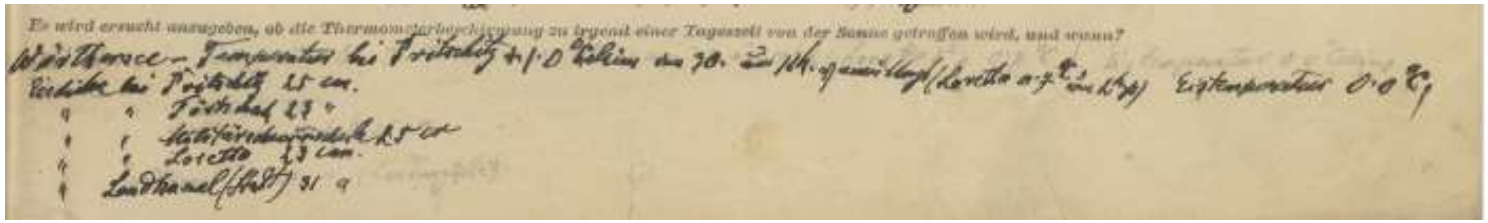
- seismic observation: earthquakes
- phenological observation: first leave (fall), first bee flight/sight, first snowdrop,…
- astronomical/ optical observation: aurora borealis, comets, asteroids, solar/ lunar eclipse, rainbows, halos, meteors, planetary alignments …
- extreme events: floods, records (RR amount, heatwaves), heavy storms, lightning strikes / damage reports,…
- **observation in surrounding area: very intense sunsets, ice thickness Wörthersee (Klagenfurt located on lake Wörth), snow lines, black ice,…**



climate sheet 1855- May

Am 10 ten starker Reif, Schnee bis 2200 auf den Südalpen

On the 10th, heavy frost, snow down to 2200 in the Southern Alps.



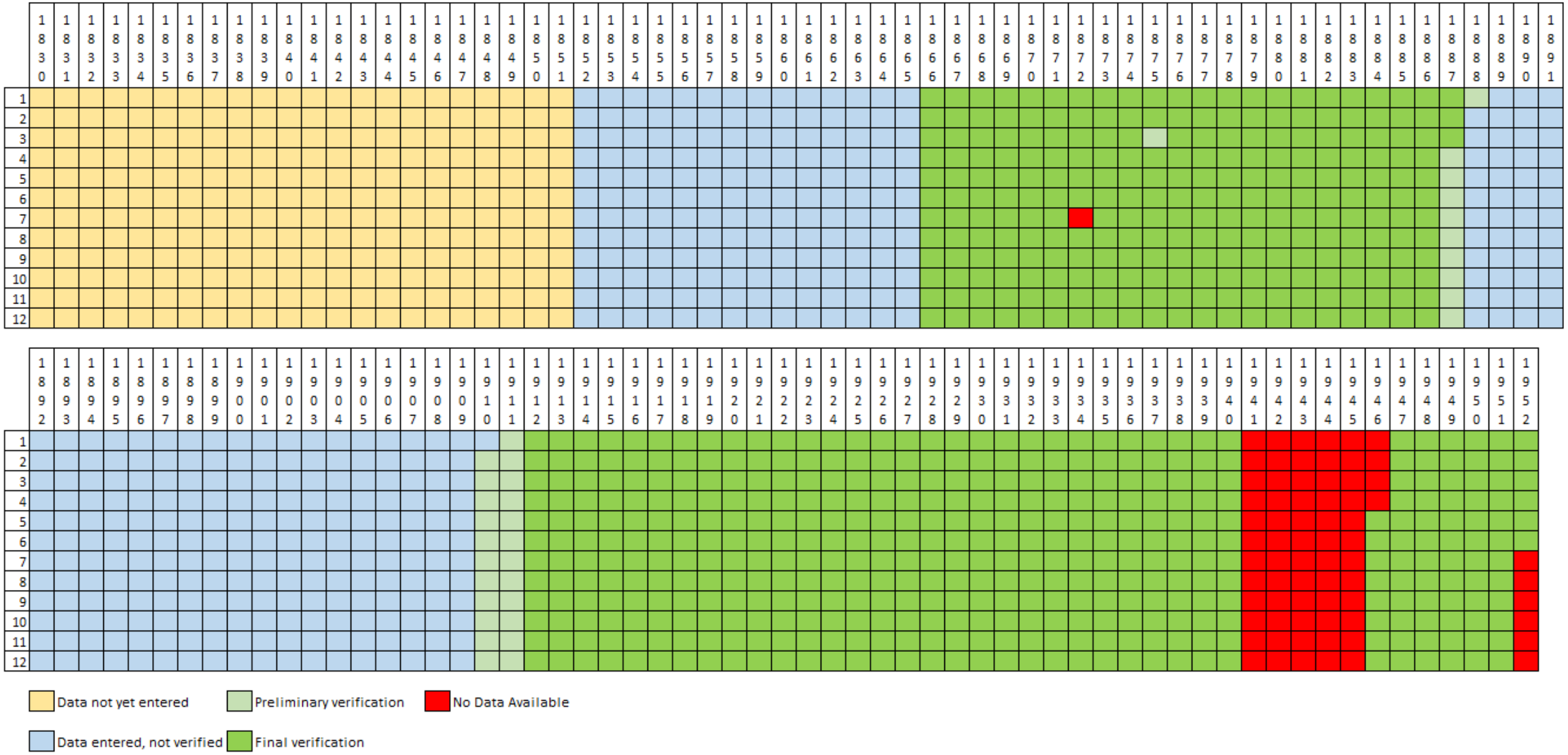
climate sheet 1906 - Jan

Ice thickness
Präbichl 25cm
Pörtschach 23cm
Loretto 23cm

additional information / metadata

- seismic observation: earthquakes
- phenological observation: first leave (fall), first bee flight/sight, first snowdrop,…
- astronomical/ optical observation: aurora borealis, comets, asteroids, solar/ lunar eclipse, rainbows, halos, meteors, planetary alignments …
- extreme events: floods, records (RR amount, heatwaves), heavy storms, lightning strikes / damage reports,…
- observation in surrounding area: very intense sunsets, ice thickness Wörthersee (Klagenfurt located on lake Wörth), snow lines, black ice,…
- **others: avalanches, landslides, vandalism,…**

database


1830 1831 1832 1833 1834 1835 1836 1837 1838 1839 1840 1841 1842 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1853 1854 1855 1856 1857 1858 1859 1860 1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891
1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952
1 2 3 4 5 6 7 8 9 10 11 12
Data not yet entered
Preliminary verification
No Data Available
Data entered, not verified
Final verification

Quality checks:

Data not yet entered

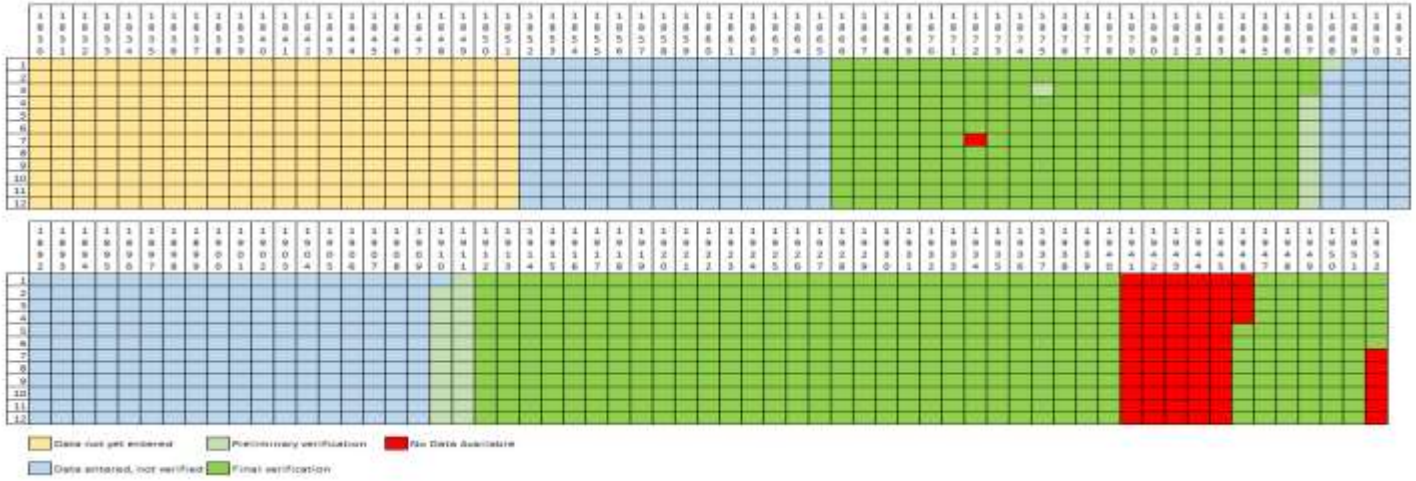
Flag Typ 5
Preliminary verification

No Data Available

Flag Typ 2
Data entered, not verified

Flag Typ 6
Final verification

flag typ 2: 29%
flag typ 5: 2% prechecked with DCT (criteria)
flag typ 6: 46% endchecked with DCT (criteria)
data not entered: 18%
missing data: 5%



Recognition criteria for centennial meteorological observing stations

GeoSphere Austria

(1) The observing station was founded at least 100 years ago, observing at least one meteorological element since then, and is in operation as an observing station at the date of nomination

(2) Periods of inactivity of the observing station shall not exceed 10%

(3) The minimum historical station metadata for the full duration of station operation shall contain actual or derived geographical coordinates including elevation, known changes of station name and/or station identifier, identified meteorological element(s) and its unit(s) as well as the observing schedule(s)

(4) Any known observing station relocation or change in the measurement technique have not significantly affected the climatological time-series data

(5) All historical observational data and metadata have been digitally archived or will be rescued. Members shall share their plans for data rescue, if applicable

(6) The observing station shall be operated according to WMO observing standards (…)

(7) The current environment of the observing station has been classified or will be classified according to the siting classification defined in the Guide to Instruments and Methods of Observation (…). Members shall share (i) the metadata attached to the siting classification in the appropriate WMO metadata repository (currently OSCAR) or (ii) their plans to classify the observing station

(8) The observed and measured data shall be subject to routine quality control procedures according to current WMO guidelines and practices. The quality control processes as well as its results shall be well documented.

(9) Members shall do their utmost to maintain nominated stations according to the above recognition criteria

(10) Historical observation data and metadata have been or will be made available for scientific research (…)

Outlook:

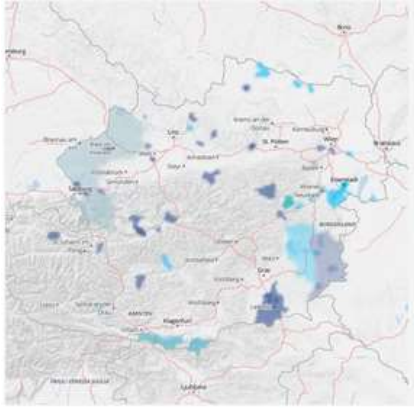
Documentation database| MIDB | GitLab | Confluence

Publication www | papers | tv | datahub | databases

CESARE

National Damage and Event Database for Austria

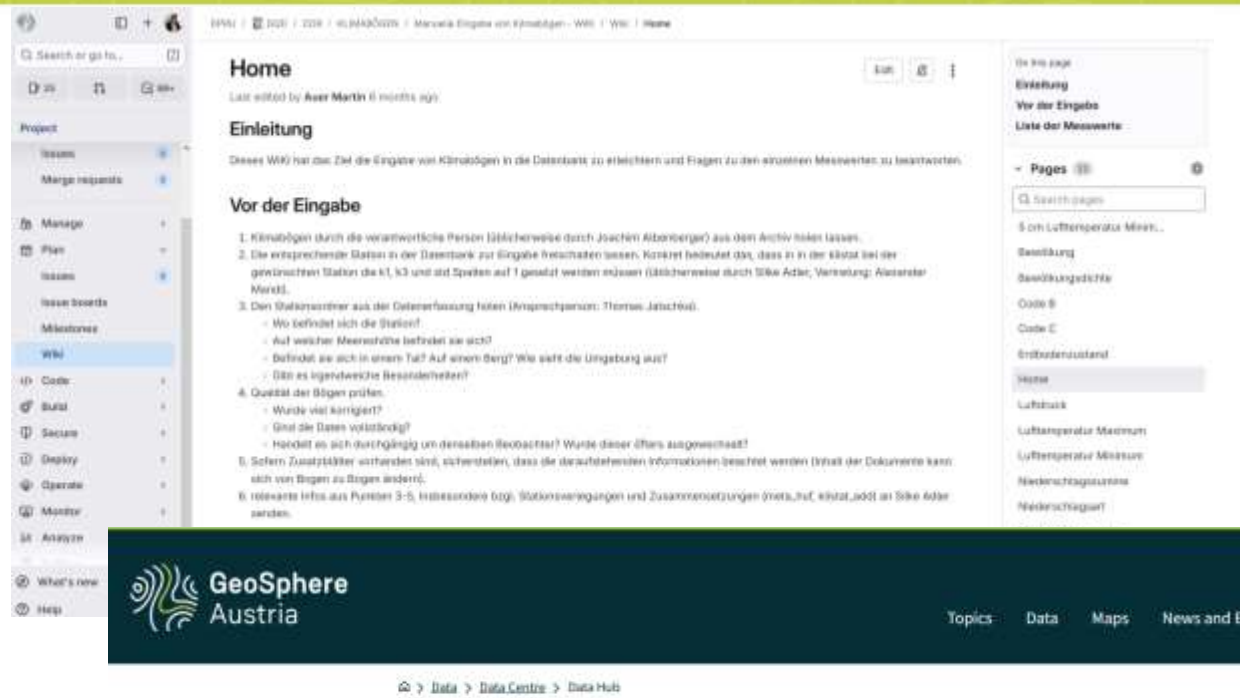
https://www.cesare.at/en/



Severe weather chronicle

The VIOLA web service provides information on severe weather events in Austria since 1961, such as heavy rain, hail, lightning strikes, floods and much more.

https://www.geosphere.at/en/maps/climate-portal/severe-weather-chronicle



https://www.geosphere.at/en/data/data-center/data-hub

Data Hub

Through Data Hub you can download a large number of our data sets from the fields of meteorology and climatology as well as data from the Austrian climate research community free of charge.

Download free weather and climate data

Whether tourism, agriculture, insurance or construction – weather and climate data are highly relevant in these and many other areas. With the Data Hub, we provide businesses, the scientific community, public administration as well as society with high quality and free data from the fields of meteorology and climatology as well as data from the Austrian climate research community:

MANGE TAKK!

Chimani, B., Auer, I., Prohom, M., Nadbath, M., Paul, A. & Rasol, D. (2021)
Data rescue in selected countries in connection with the EUMETNET DARE activity.
Geoscience Data Journal, 00, 1–14. https://doi.org/10.1002/gdj3.128

WMO (2016) *Guidelines on Best Practice for Climate Data Rescue*. WMO –No. 1182. 2016 edition,
https://public.wmo.int/en/resources/library/guide lines –best–practices–climate–data–rescue

Guidelines on the WMO Recognition of Long-term Observing Stations
https://library.wmo.int/viewer/68903/download?file=1354-Long-term-Observing-Stations_en.pdf&type=pdf&navigator=1