



Koninklijk Meteorologisch Instituut

Institut Royal Météorologique

**Königliches Meteorologisches
Institut**

Royal Meteorological Institute

Data rescue by volunteers of precipitation and temperature extremes from centennial meteorological reports of the Royal Meteorological Institute (1881-1900): a first assessment

R. Ingels, M. Journée.

9-11 May 2023

11th Seminar for Homogenization and Quality Control in Climatological Databases and 6th Interpolation Conference jointly organized with the 14th EUMETNET Data Management Workshop

Large amount of climatological data to digitize

- RMI have more than a century of archives
- Enormous load of work to digitize all past archives
- Part of a patrimonial rescue project with back-up on external server
- Wide variety of data types and forms
- ... and a few problems

Station d'Alen. Observateur: M. Pabau.

Observations du mois de Janvier 1891, à 8 heures du soir.

Date du jour	Baromètre		Température		Psychromètre		Direction et force du vent				Vitesse du vent	Humidité	Remarques	
	Th. de bar.	Red. barom.	Max.	Min.	Th. sec.	Th. hum.	Direction	Force	Direction	Force				
1	753	752.9	2.6	-2.7	88		SW	4.5	1.0		1.0	72.1		
2	750	749.8	-2.2	-3.0	88		E	0	0	0	0	75.7		
3	751	750.9	-4.6	-4.1	91		SE	1.0	2	0	0	71.3		
4	752	751.8	-1.9	-2.7	86			0	0	0	0	60.6		
5	752	751.8	+2.2	-3.1	84			0	0	0	0	62.2		
6	751	750.9	2.2	-2.2	82		E	1	0	0	0	69.6		
7	750	749.8	2.6	-2.3	85			0	0	0	0	72.0		
8	751	750.9	2.5	-2.2	88		NE	1	0	0	0	70.3		
9	752	751.8	-2.7	-4.0	83		NE	1	0	0	0	69.0		
10	752	751.8	-1.9	-2.1	88			0	0	0	0	61.1		
11	752	751.8	-1.2	-1.7	91		NE	1	0	0	0	68.4		
12	751	750.9	-1.7	-2.2	91		SW	1	0	0	0	62.3		
13	751	750.9	-6.1	-6.7	89		SW	1.0	1.0	0	0	51.1		
14	750	749.8	-5.6	-6.0	89		E	1	0	0	0	57.6		
15	750	749.8	-7.8	-10.7	76			0	0	0	0	55.6		
16	751	750.9	-6.1	-6.9	82		SW	2.0	1.0	0	0	55.5		
17	750	749.8	-1.5	-2.2	85		SW	1.0	1.0	0	0	59.3		
18														
19	751	750.9	+2.2	-1.9	90		SW	2	0	0	0	62.5		
20	751	750.9	-5.3	-5.1	89		SW	2	0	0	0	59.4		
21	751	750.9	-6.7	-6.0	85			0	0	0	0	67.4		
22	751	750.9	-8.9	-5.8	81			0	0	0	0	65.0		
23	751	750.9	-1.1	-5.0	85		NE	1	0	0	0	64.0		
24	751	750.9	-1.6	-2.1	88			0	0	0	0	66.5		
25	750	749.8	-5.9	-6.1	80			0	0	0	0	61.7		
26	750	749.8	-5.7	-6.0	83			0	0	0	0	57.0		
27	751	750.9	-8.5	+3.2	85			0	0	0	0	60.5		
28	751	750.9	2.1	2.6	84		SW	2	0	0	0	66.5		
29	751	750.9	2.2	2.6	91		W	1	0	0	0	66.3		
30														
31	751	750.9	2.1	2.3	87		SW	2.5	1.0	0	0	68.1		

- Moisture and fungi problems
- Decontaminated 6 month ago
- Digitizing process on going



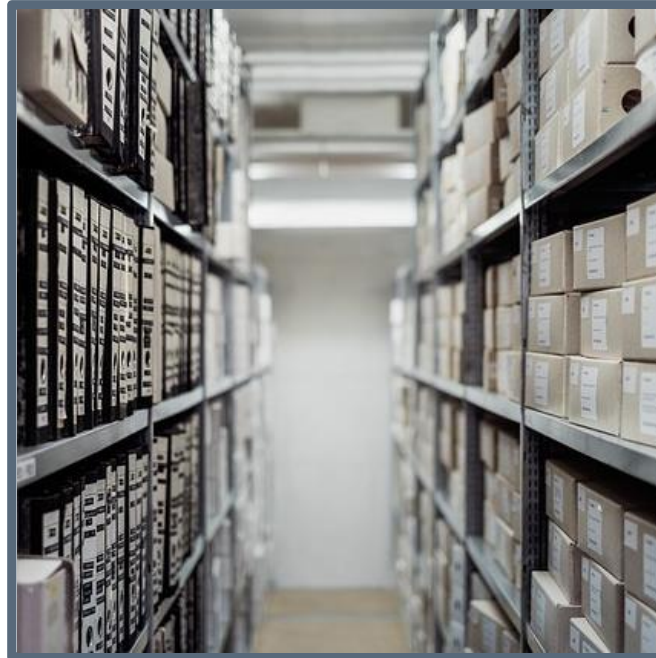
Problems – Solution ?

Problem 1



Not enough people

Problem 2



Too much workload

Solution ?



Zooniverse



What is Zooniverse ?

“The Zooniverse is the world’s largest and most popular platform for people-powered research. This research is made possible by volunteers — more than a million people around the world who come together to assist professional researchers. Our goal is to enable research that would not be possible, or practical, otherwise. Zooniverse research results in new discoveries, datasets useful to the wider research community, and many publications.”

250,469,827
CLASSIFICATIONS SO FAR BY
2,610,818
REGISTERED VOLUNTEERS

ZOONIVERSE

www.zooniverse.org



How to prepare data

- Must be friendly for every users
- No background or experience needed (except basic web computer skills)
- Create understandable forms
- Incorporate tutorial and field guide

Using questions and fill-in forms

What is the name of the station ?

Use field guide to help you

What is the name of the observer ?

Use field guide to help you

What is the month ?

Select month from options

What is the year ?

Select year from options

What is the time of the records ?

Select time. You can also create your own entry

NEED SOME HELP WITH THIS TASK?

Station de Arlon.

Observateur: M. Passau.

Observations du mois de Janvier 1881 à 8^h 1/2 heure du soir.

1 Date du mois	2 Baromètre			3 Température		4 Psychromètre			5 Direction et force du vent				6 Nébulosité	7 Forme des nuages	8 Kau lombée barom.	9 Remarques
	10 Th du bar.	11 Haut. barom.	12 Barom. réduit	13 Max.	14 Min.	15 Th. sec.	16 Th hum.	17 Humidité	18 Nuages		19 Girouette					
									20 Direction	21 Force	22 Direction	23 Force				
1	+5,4	735,5	734,9			0,0	-0,4	88			SW	0,5	10		72,8	
2	4,0	37,9	37,4			-2,3	-3,0	88	e	0	e	0,5	5	cm	75,7	
3	2,1	33,4	33,2			-1,6	-2,1	91	se	1	ete	1,0	3	cm	71,3	

Three different tools to help people

1. Field guide accessible anytime
 2. Tutorial specific for each workflow
 3. FAQ
- + Multilingual (EN – FR – NL)

<
FIELD GUIDE
✕




List of Station Name/Location

Observer 1880-1882

Here you can find a list of known Station Name/Location. If you have trouble to read this information on the bulletin, please look at this list and copy/past the correct name/location.

- Andenne --> Lesoir
- Anvers --> Ecole Pyrotechnie
- Arlon --> Passau
- Baraque-Michel --> Schmitz
- Bastogne --> Francois
- Bastogne --> Tock

<
FIELD GUIDE
✕



List of Station Name/Location

Observer 1880-1882

Here you can find a list of known Station Name/Location. If you have trouble to read this information on the bulletin, please look at this list and copy/past the correct name/location.

- Andenne --> Lesoir
- Anvers --> Ecole Pyrotechnie
- Arlon --> Passau
- Baraque-Michel --> Schmitz
- Bastogne --> Francois
- Bastogne --> Tock

In this TEMP workflow we will ask you to key **MAXIMUM** temperature value for each days. Usually, the **MAXIMUM** temperature data are found in columns 5.

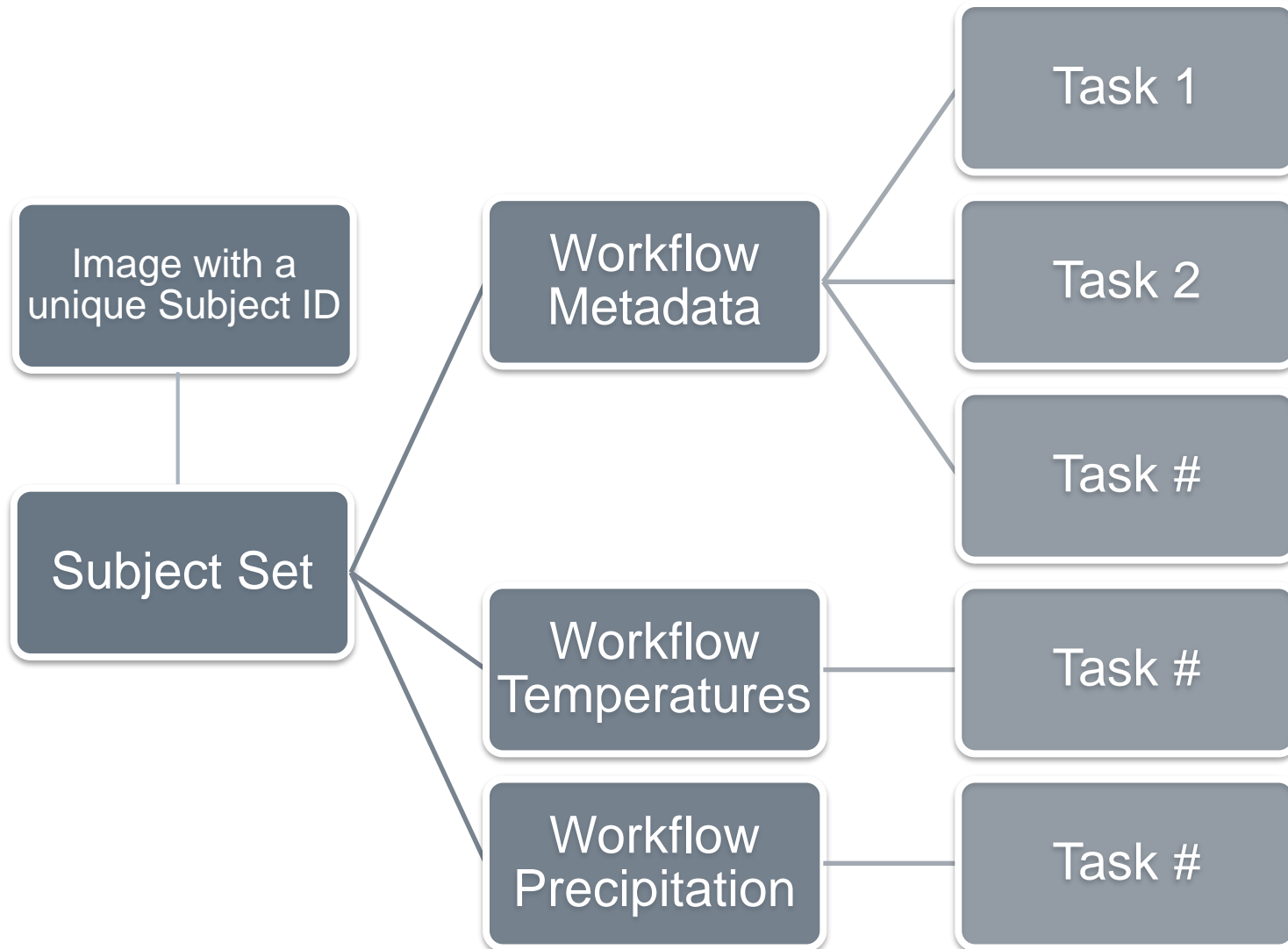
First we will ask you to confirm or not that temperature values are present on the bulletin. Then we will ask you to key each temperature value by day.

Continue

< ● ○ ○ ▶



Data exports




- Each images to classify have a unique Subject ID which allows to link every task we ask volunteers.
- Classify data can be easily export and information extract using the Panoptes Aggregation python package
- The result is a nice CSV file ready to be used



Let's see how this looks like

PROJECTS ABOUT GET INVOLVED TALK BUILD A PROJECT NEWS NOTIFICATIONS MESSAGES INGELSRMI

Language English

 IRM-KMI Past climate rescue project ABOUT CLASSIFY TALK COLLECT RECENTS LAB

Hello, welcome to the IRM-KMI Data Rescue project ! Thanks to your participation !
 Bonjour, bienvenue sur ce projet de sauvegarde des archives du climat passé de l'IRM ! Merci de votre participation !
 Hallo, welkom bij het Klimaatarchief project van het KMI! Bedankt voor uw deelname !

IRM-KMI Past climate archive project

[Learn more](#)

7	0.0	22.4	22.4	2.9	-4.0	-3.7	"	"	"	"	E	2	0	"	"
8	0.5	20.6	20.6	4.2	-0.3	-2.5	"	"	ENE	1	ENE	2	0	0	*
9	1.0	47.6	47.6	1.5	13	-1.6	"	"	"	"	"	"	0	"	"
10	2.0	11.2	11.2	1.3	10.3	-10.3	"	"	"	"	E	1	0	"	"
11	0.0	20.2	20.2	0.0	-2.3	-1.8	"	"	"	"	N	2	10	"	"
12	1.0	20.1	20.0	1.0	3.0	-1.8	"	"	S	"	S	1	0	0	*
13	0.0	27.9	27.9	0.2	-6.6	-8.8	"	"	"	"	E	1	0	"	*
14	0.2	34.8	34.8	1.0	-5.4	-2.5	"	"	"	"	NE	2	10	"	*

This project has been built using the Zooniverse Project Builder but is not yet an official Zooniverse project. Queries and Issues relating to this project directed at the Zooniverse Team may not receive any response.

<https://www.zooniverse.org/projects/ingelskmi/irm-kmi-past-climate-rescue-project>

Zooniverse have already a huge base core volunteers - BUT -

Very important to attract volunteers

- By official RMI website and social media
- Traditional media (press and/or TV)

Very important to give something back to volunteers.

- Raw data
- Valorization
- Scientific studies



Objectives / Perspectives

- First of all let's see if this first project works and interest people
- For now in beta-test mode by Zooniverse Team
- See if collected data are indeed exploitable (not too many mistakes)
- Analyze data digitize and add value to it
- Give back to volunteers
- Next try more complicated forms with other project

THANK YOU

**The Royal Meteorological
Institute**

**Het Koninklijk
Meteorologisch Instituut**

**L'Institut Royal
Météorologique**

**Das Königliche
Meteorologische Institut**



The RMI provides reliable public service realized by empowered staff and based on research, innovation and continuity.

Het KMI verleent een betrouwbare dienstverlening aan het publiek en de overheid gebaseerd op onderzoek, innovatie en continuïteit.

L'IRM fournit un service fiable basé sur la recherche, l'innovation et la continuité au public et aux autorités.

Vertrauenswürdige Dienstleistungen für Öffentlichkeit und Behörden begründet auf Forschung, Innovation und Kontinuität.