The Italian data rescue projects by the AISAM Association

Oslo, 4 November 2025

Alessandro Ceppi, Michele Brunetti, Maurizio Maugeri, Sergio Pisani, Dino Zardi, Veronica Manara

The AISAM association

Italian Association of Atmospheric Sciences and Meteorology

From our statute…

- AISAM aims to promote the development of **atmospheric sciences and meteorology** through the creation of opportunities and tools for meetings, mutual knowledge, and collaboration among all subjects interested in meteorology.

- It also aims to:

- highlight, at **international level**, the initiatives and results achieved by the national community
- promote **international cooperation**
- foster Italian participation in **international projects**, programs, and organizations in this sector.

Overview

Historical weather observations are crucial for the science of climate

Old records are still **available only on paper** and hence hardly accessible and exposed to serious risks of damage or loss

AISAM launched 3 different projects in the recent years:

1) The project **«Cli-DaRe@School»** in spring 2022 which is a branch of the project «**Citizen Science for Italian Climate Data Rescue (Cli-DaRe)»,** specifically meant to engage high school students in climate data rescue «dual training» activities.

2) The **«Dieci e Lode: Climate data of the Former Italian Colonies and their Digitalization»** Project in October 2023: rescuing climate data of former Italian colonies and thier digitalisation

3) The **«Cli-DaRe@Images»** in December 2024, once again it engages high school students in climate data rescue of old meteological volumes and books stored in the Franciscan monasteries of Trentino Region.

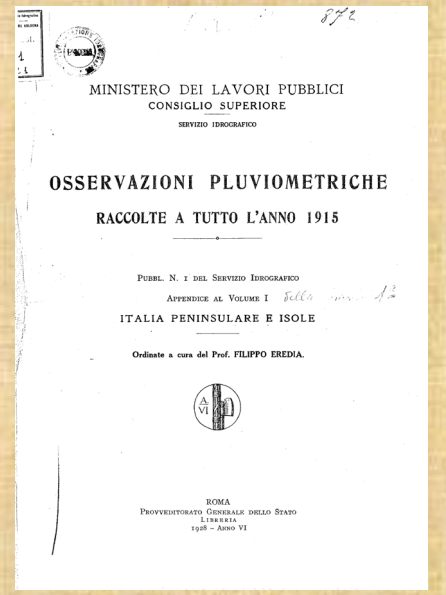
Cli-DaRe@School Project (1)

DATA SOURCES

Four monographs published by the **Italian Hydrographic Service**:

- Three contain **monthly precipitation records** covering the **years before 1916**, the **period 1916-1920** and the **period 1921-1950**;
- One contain **monthly temperature records** covering the **period 1926-1955**.

Period: before 1916


MINISTERO DEI LAVORI PUBBLICI
CONSIGLIO SUPERIORE
SERVIZIO IDROGRAFICO

OSSERVAZIONI PLUVIOMETRICHE

RACCOLTE A TUTTO L'ANNO 1915

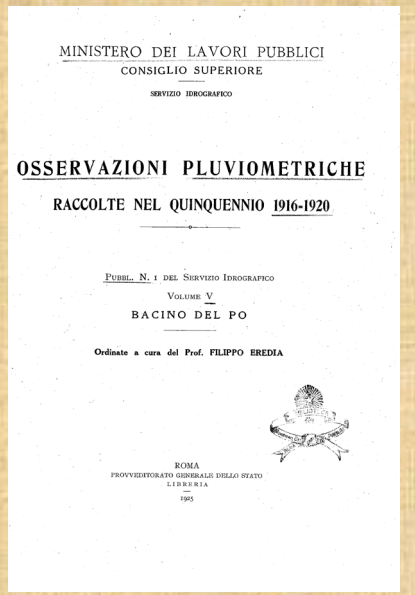
PUBBL. N. 1 DEL SERVIZIO IDROGRAFICO
APPENDICE AL VOLUME I
ITALIA PENINSULARE E ISOLE

Ordinate a cura del Prof. FILIPPO EREDIA.

ROMA
PROVVEDITORATO GENERALE DELLO STATO
LIBRERIA
1928 - ANNO VI

13 volumes

Period: 1916-1920


MINISTERO DEI LAVORI PUBBLICI
CONSIGLIO SUPERIORE
SERVIZIO IDROGRAFICO

OSSERVAZIONI PLUVIOMETRICHE

RACCOLTE NEL QUINQUENNIO 1916-1920

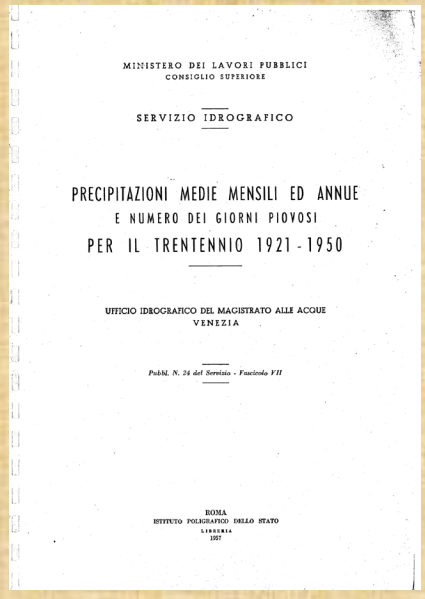
PUBBL. N. 1 DEL SERVIZIO IDROGRAFICO
VOLUME V
BACINO DEL PO

Ordinate a cura del Prof. FILIPPO EREDIA

ROMA
PROVVEDITORATO GENERALE DELLO STATO
LIBRERIA
1925

3 volumes

Period: 1921-1950


MINISTERO DEI LAVORI PUBBLICI
CONSIGLIO SUPERIORE

SERVIZIO IDROGRAFICO

PRECIPITAZIONI MEDIE MENSILI ED ANNUE
E NUMERO DEI GIORNI PIOVOSI
PER IL TRENTENNIO 1921-1950

UFFICIO IDROGRAFICO DEL MAGISTRATO ALLE ACQUE
VENEZIA

Pubbl. N. 24 del Servizio - Fascicolo VII

ROMA
ISTITUTO POLIGRAFICO DELLO STATO
LIBRERIA
1957

14 volumes

Period: 1926-1955

MINISTERO DEI LAVORI PUBBLICI
CONSIGLIO SUPERIORE

SERVIZIO IDROGRAFICO

DISTRIBUZIONE DELLA
TEMPERATURA DELL'ARIA IN ITALIA
NEL TRENTENNIO 1926-1955

Pubblicazione N. 21 del Servizio
II Edizione
Fascicolo I - Italia Settentrionale

I NORD

ROMA
ISTITUTO POLIGRAFICO DELLO STATO
LIBRERIA
1966

3 volumes

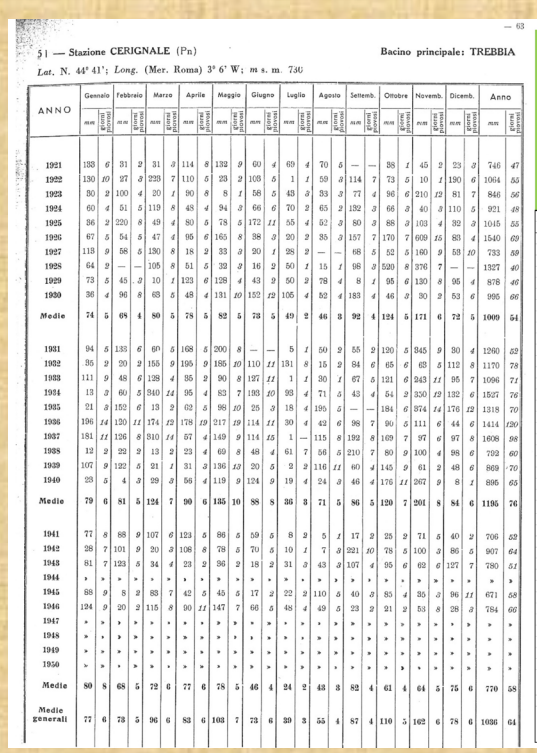
Methodology for data keying

- All **data sources** were first **scanned** (https://aisam.eu/progetti/cli-dare-at-school/#materiale)

- **The pages to be digitised were selected and distributed** to the schools using the OneDrive directory together with the list of the pages to be processed;

- **Each page were digitised only one time** in order to maximise the quantity of recovered data, even if this does not allow a completely automatic check;

- The **spreadsheet templates for data keying** were prepared and distributed together with detailed instructions;



51 — Stazione CERIGNALE (Pn) — Bacino principale: TREBBIA

Lat. N. 44° 41'; *Long.* (Mer. Roma) 3° 6' W; *m* s. m. 730

ANNO	Gennaio		Febbraio		Marzo		Aprile		Maggio		Giugno		Luglio		Agosto		Settemb.		Ottobre		Novemb.		Dicemb.		Anno	
	mm	giorni piovosi	mm	giorni piovosi	mm	giorni piovosi	mm	giorni piovosi	mm	giorni piovosi	mm	giorni piovosi	mm	giorni piovosi	mm	giorni piovosi	mm	giorni piovosi	mm	giorni piovosi	mm	giorni piovosi	mm	giorni piovosi	mm	giorni piovosi
1921	133	6	31	2	31	3	114	8	132	9	60	4	69	4	70	5	—	—	38	1	45	2	23	3	746	47
1922	130	10	27	3	223	7	110	5	23	2	103	5	1	1	59	3	114	7	73	5	10	1	190	6	1064	55
1923	30	2	100	4	20	1	90	8	8	1	58	5	43	3	33	3	77	4	96	6	210	12	81	7	846	56
1924	60	4	51	5	119	8	48	4	94	3	66	6	70	2	65	2	192	3	66	3	40	3	110	5	921	48
1925	36	2	220	8	49	4	80	5	78	5	172	11	55	4	52	3	80	3	88	3	103	4	32	3	1015	55
1926	67	5	54	5	47	4	95	6	165	8	38	3	20	2	35	3	157	7	170	7	609	15	83	4	1540	69
1927	113	9	58	5	130	8	18	2	33	3	20	1	28	2	—	—	68	5	52	5	160	9	53	10	733	59
1928	64	2	—	—	105	8	51	5	32	3	16	2	50	1	15	1	98	3	520	8	376	7	—	—	1327	40
1929	73	5	45	3	10	1	123	6	128	4	43	3	50	2	78	4	8	1	95	6	130	8	95	4	878	46
1930	36	4	96	8	63	5	48	4	131	10	152	12	105	4	52	4	183	4	46	3	30	2	53	6	995	66
Medie	**74**	**5**	**68**	**4**	**80**	**5**	**78**	**5**	**82**	**5**	**73**	**5**	**49**	**2**	**46**	**3**	**92**	**4**	**124**	**5**	**171**	**6**	**72**	**5**	**1009**	**54**
1931	94	5	133	6	60	5	168	5	200	8	—	—	5	1	50	2	55	2	120	5	345	9	30	4	1260	62
1932	35	2	20	2	155	9	195	9	185	10	110	11	131	8	15	2	84	6	65	6	63	5	112	8	1170	78
1933	111	9	48	6	128	4	85	2	90	8	127	11	1	1	30	1	67	5	121	6	243	11	95	7	1096	71
1934	13	3	60	5	340	14	95	4	83	7	193	10	93	4	71	5	43	4	54	2	350	13	132	6	1527	76
1935	21	3	152	6	13	2	62	5	98	10	25	3	18	4	195	5	—	—	184	6	374	14	176	12	1318	70
1936	196	14	120	11	174	13	178	13	217	13	114	11	30	4	42	6	98	7	90	5	111	6	44	6	1414	120
1937	181	11	126	8	810	14	67	4	149	9	114	15	1	—	115	8	192	8	169	7	97	6	97	8	1608	98
1938	12	2	22	2	13	2	23	4	69	8	48	4	61	7	56	5	210	7	80	9	100	4	98	6	792	60
1939	107	9	122	5	21	1	31	3	136	13	20	5	2	2	116	11	60	4	145	9	61	2	48	6	869	70
1940	23	5	4	3	29	3	56	4	119	9	124	9	19	4	24	3	46	4	176	11	267	9	8	1	895	65
Medie	**79**	**6**	**81**	**5**	**124**	**7**	**90**	**6**	**135**	**10**	**88**	**8**	**36**	**3**	**71**	**5**	**86**	**5**	**120**	**7**	**201**	**8**	**84**	**6**	**1195**	**76**
1941	77	8	88	9	107	6	123	5	86	5	59	5	8	2	5	1	17	2	25	2	71	5	40	2	706	52
1942	28	7	101	9	20	3	108	8	78	5	70	5	10	1	7	3	221	10	78	5	100	3	86	5	907	64
1943	81	7	123	5	34	4	23	2	36	2	18	2	31	3	43	3	107	4	95	6	62	6	127	7	780	51
1944	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»
1945	88	9	8	2	83	7	42	5	45	5	17	2	22	2	110	8	40	3	85	4	35	3	96	11	671	58
1946	124	9	20	2	115	8	90	11	147	7	66	5	48	4	49	5	23	2	21	2	53	8	28	3	784	66
1947	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»
1948	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»
1949	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»
1950	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»
Medie	**80**	**8**	**68**	**5**	**72**	**6**	**77**	**6**	**78**	**5**	**46**	**4**	**24**	**2**	**43**	**3**	**82**	**4**	**61**	**4**	**64**	**5**	**75**	**6**	**770**	**58**
Medie generali	**77**	**6**	**73**	**5**	**96**	**6**	**83**	**6**	**103**	**7**	**73**	**6**	**39**	**3**	**55**	**4**	**87**	**4**	**110**	**5**	**162**	**6**	**78**	**6**	**1036**	**64**

STATION NAME	CERIGNALE	Insert the first row of the station name as it is written in the paper to be digitised
PAGE NUMBER	63	Insert the page number. You can find it on the right or on the left side of the top of the page
LATITUDE degree (°) and minute (')	44° 41'	Insert the station latitude. Attention to the coordinate format: it is necessary to digitise the symbol "°" and the symbol "'"
LONGITUDE degree (°) minute (') and E or W	3° 6' W	Insert the station longitude. Attention to the coordinates format: it is necessary to digitise the symbol "°" and the symbol "'" and the letter "E" or "W"
ELEVATION (meters)	730	Insert the station elevation

YEAR	January		February		March		April		May		June		July		August		September		October		November		December		Year	
	mm	days	mm	days	mm	days	mm	days	mm	days	mm	days	mm	days	mm	days	mm	days	mm	days	mm	days	mm	days	mm	days
1921	133	6	31	2	31	3	114	8	132	9	60	4	69	4	70	5	0	0	38	1	45	2	23	3	746	47
1922	130	10	27	3	223	7	110	5	23	2	103	5	1	1	59	3	114	7	73	5	10	1	190	6	1064	55
1923	30	2	100	4	20	1	90	8	8	1	58	5	43	3	33	3	77	4	96	6	210	12	81	7	846	56
1924	60	4	51	5	119	8	48	4	94	3	66	6	70	2	65	2	192	3	66	3	40	3	110	5	921	48
1925	36	2	220	8	49	4	80	5	78	5	172	11	55	4	52	3	80	3	88	3	103	4	32	3	1015	55
1926	67	5	54	5	47	4	95	6	165	8	38	3	20	2	35	3	157	7	170	7	609	15	83	4	1540	69
1927	113	9	58	5	130	8	18	2	33	3	20	1	28	2	0	0	68	5	52	5	160	9	53	10	733	59
1928	64	2	0	0	105	8	51	5	32	3	16	2	50	1	15	1	98	3	520	8	376	7	0	0	1327	40
1929	73	5	45	3	10	1	123	6	128	4	43	2	50	2	78	4	8	1	95	6	130	8	95	4	878	46
1930	36	4	96	8	63	5	48	4	131	10	152	12	105	4	52	4	183	4	46	3	30	2	53	6	995	66
Averages	**74**	**5**	**68**	**4**	**80**	**5**	**78**	**5**	**82**	**5**	**73**	**5**	**49**	**2**	**46**	**3**	**92**	**4**	**124**	**5**	**171**	**6**	**72**	**5**	**1009**	**54**
1931	94	5	133	6	60	5	168	5	200	8	—	—	5	1	50	2	55	2	120	5	345	9	30	4	1260	62
1932	35	2	20	2	155	9	195	9	185	10	110	11	131	8	15	2	84	6	65	6	63	5	112	8	1170	78
1933	111	9	48	6	128	4	85	2	90	8	127	11	1	1	30	1	67	5	121	6	243	11	95	7	1096	71
1934	13	3	60	5	340	14	95	4	83	7	193	10	93	4	71	5	43	4	54	2	350	13	132	6	1527	76
1935	21	3	152	6	13	2	62	5	98	10	25	3	18	4	195	5	0	0	184	6	374	14	176	12	1318	70
1936	196	14	120	11	174	12	178	19	217	13	114	11	30	4	42	6	98	7	90	5	111	6	44	6	1414	120
1937	181	11	126	8	310	14	57	4	149	9	114	15	1	0	115	8	192	8	169	7	97	6	97	8	1608	98
1938	12	2	22	2	13	2	23	4	69	8	48	4	61	7	56	5	210	7	80	9	100	4	98	6	792	60
1939	107	9	122	5	21	1	31	3	136	13	20	5	2	2	116	11	60	4	145	9	61	2	48	6	869	70
1940	23	5	4	3	29	3	56	4	119	9	124	9	19	4	24	3	46	4	176	11	267	9	8	1	895	65
Averages	**79**	**6**	**81**	**5**	**124**	**7**	**90**	**6**	**135**	**10**	**88**	**8**	**36**	**3**	**71**	**5**	**86**	**5**	**120**	**7**	**201**	**8**	**84**	**6**	**1195**	**76**
1941	77	8	88	9	107	6	123	5	86	5	59	5	8	2	5	1	17	2	25	2	71	5	40	2	706	52
1942	28	7	101	9	20	3	108	8	78	5	70	5	10	1	7	3	221	10	78	5	100	3	86	5	907	64
1943	81	7	123	5	34	4	23	2	36	2	18	2	31	3	43	3	107	4	95	6	62	6	127	7	780	51
1944	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>
1945	88	9	8	2	83	7	42	5	45	5	17	2	22	2	110	8	40	3	85	4	35	3	96	11	671	58
1946	124	9	20	2	115	8	90	11	147	7	66	5	48	4	49	5	23	2	21	2	53	8	28	3	784	66
1947	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>
1948	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>
1949	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>
1950	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>	>>
Averages	**80**	**8**	**68**	**5**	**72**	**6**	**77**	**6**	**78**	**5**	**46**	**4**	**24**	**2**	**43**	**3**	**82**	**4**	**61**	**4**	**64**	**5**	**75**	**6**	**770**	**58**
Overall averages	**77**	**6**	**73**	**5**	**96**	**6**	**83**	**6**	**103**	**7**	**73**	**6**	**39**	**3**	**55**	**4**	**87**	**4**	**110**	**5**	**162**	**6**	**78**	**6**	**1036**	**64**
Error in the overall averages	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**-1**	**0**	**0**	**0**

- All students were assisted in the digitisation work.

Data extraction and quality check

A **quality-checking procedure, using an R code, to control the files provided by the schools** was prepared in order:

- To **verify if all the files expected** from each student **are present** and their **names are correctly coded**;
- To **check**, if the **spreadsheet has the correct format**;
- To **check the metadata (latitude, longitude and elevation)**;
- To **check the data** by comparing the calculated yearly sums/averages with the corresponding values entered by students. The same check is also performed for the monthly 10-year averages and for the averages over the entire considered period;

For each file **an output file is produced reporting if errors are present** and indicating which are the errors for each file.

The procedure quickly requires opening each Excel file due to the fact that each page has been digitised only one time in order to recover an high number of data:

- **If no errors are reported, it only requires checking a few values;**
- **If the R code indicates one or more errors, it is necessary to evaluate whether the data must be corrected** or if the error/errors are simply due to incorrect sums or averages in the original data tables.

Learning activities proposed to the students

- ***Introductory lectures:*** two introductory lectures to each school participating in the project aiming at giving a **general presentation of the relevance of data rescue activities** and the **second focused on presenting the specific data rescue activities proposed within the project**;

- ***Tutorial on the importance of accurate station metadata:*** learning module aimed both to explain to students the relevance of correct georeferencing of stations and to provide them a methodology for checking the correctness of the station coordinates;

- ***Tutorial on errors and inhomogeneities in the data records:*** explain that any possible change in the environment around a station or any possible small displacement of it may cause relevant inhomogeneities in the data series. Other inhomogeneities may arise from changes in the instruments and instrument screens.

- ***Additional training activities:*** **seven meetings** on meteorology, climate and climate change to provide students with basic concepts to understand not only the importance and the goal of their activity in the frame of the Cli-DaRe@School project but also to make them more aware of the complexity of the climate system and the relevance of the climate change issue.

- A ***final online event*** was also organised to share the results of the first year of activities among the partecipants in the Cli-DaRe@School project.

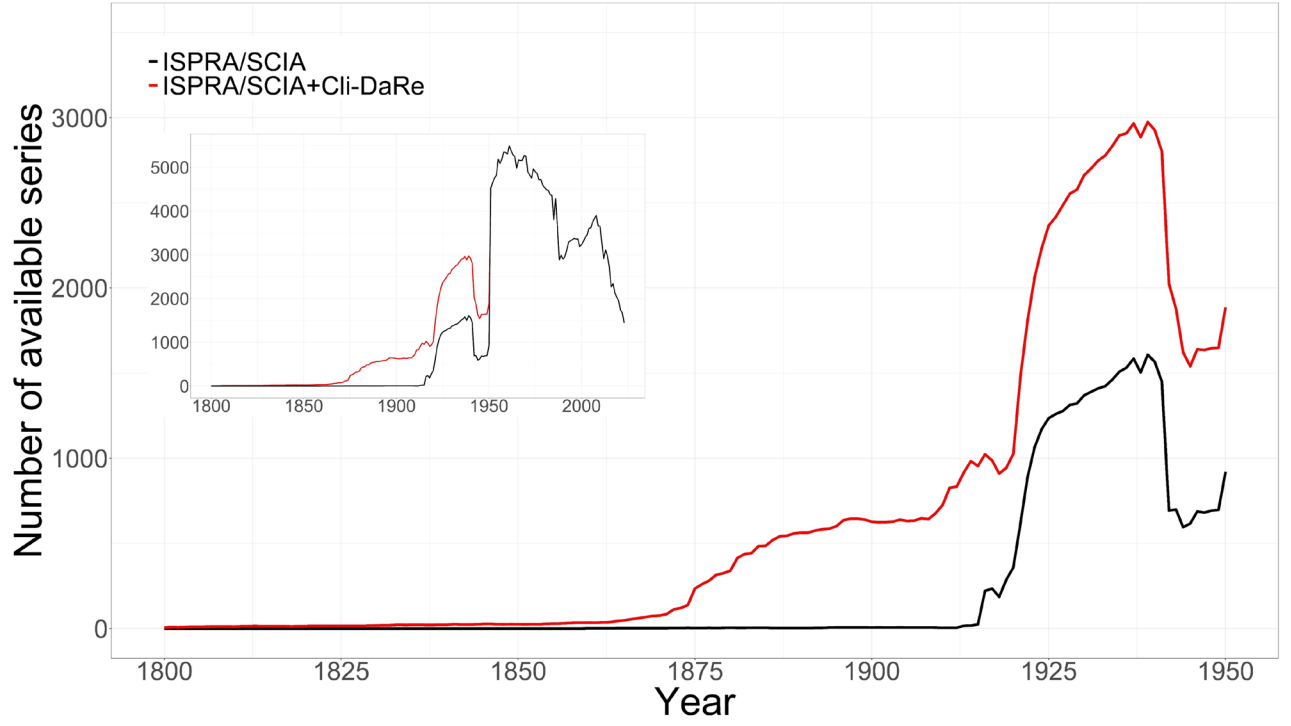
Results

- The involved **students** were **more than 500 around Italy**;
- A total amount of **more than 6000 pages** of data were **digitised** corresponding to **7193 stations**;
- The **working time** for the digitisation of **one page** was **1 h** also taking into account the work time necessary for students to check the instructions and possible errors;
- **Metadata** turned out to be a **frequent** source of **errors**;
- The **fraction of pages with differences** between the calculated values and the corresponding ones turned out to be rather high (**about 30%**), even though about half of the cases did not depend on the digitisation work, but on errors in the original data source;
- A good fraction of students (**about 68%)** completed all their activities **without errors** in the digitised values while **less than 1%** of the students performed a **high number of errors;**
- The **procedure** to check the data **requires about 6 min** per digitised page, but it is rather small (about **10% in terms of working hours**) when compared to that necessary for data digitisation.

Results

- The **rescue activity improved the data availability from 1950 backward**.

With the ISPRA-SCIA (https://scia.isprambiente.it/) dataset taken into account for the precipitation values, the data availability has more than doubled between the 1920s and 1940s;



- The **data control file is finished** for **precipitation for the 1921-1950 period** and they are **now freely available** (Manara et al., 2025 https://zenodo.org/records/15084062) and it is in progress for the other periods.

Results: 1921-1950 Precipitation record

- The number of **digitised pages** was **1707**;
- The data digitisation performed within the Cli-DaRe@School project concerned about **half of the stations contained in this monograph** because, for the **other stations**, the data were **already available in computer-readable form** in several Italian archives of meteorological records;

Specifically, for each station in the monograph we selected:

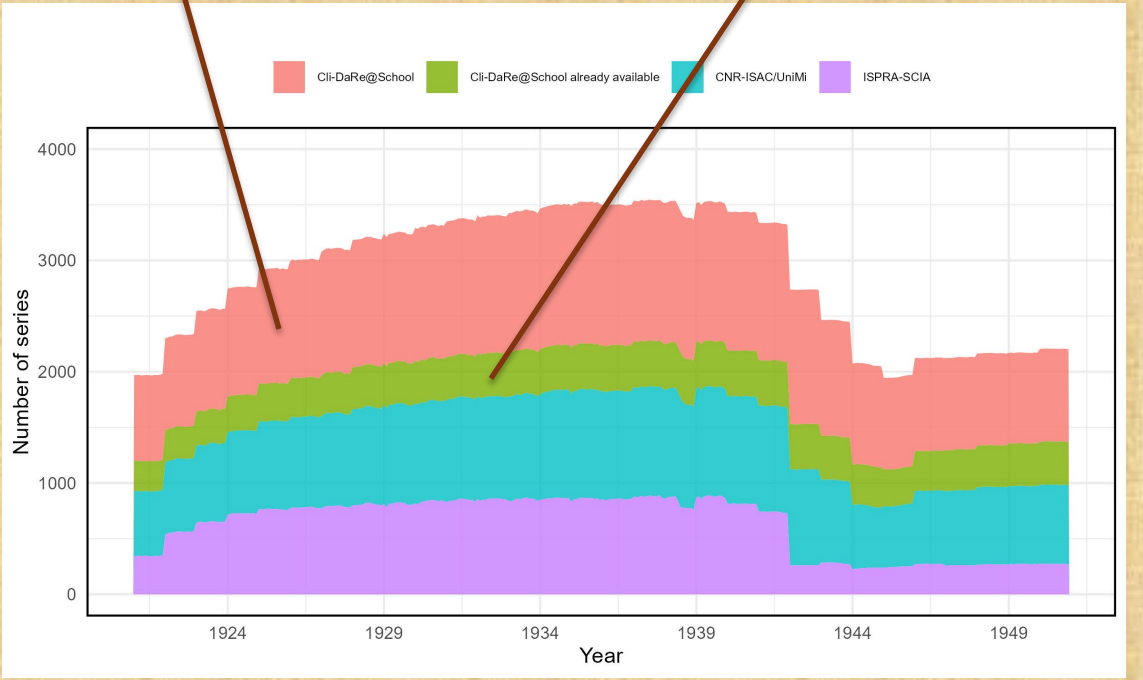
i) the closest station/stations;
ii) the station/stations with the most similar name among those available in the SCIA and in the CNR-ISAC/UniMi archives;
iii) we selected the station with the data most similar to those reported in the published data tables.

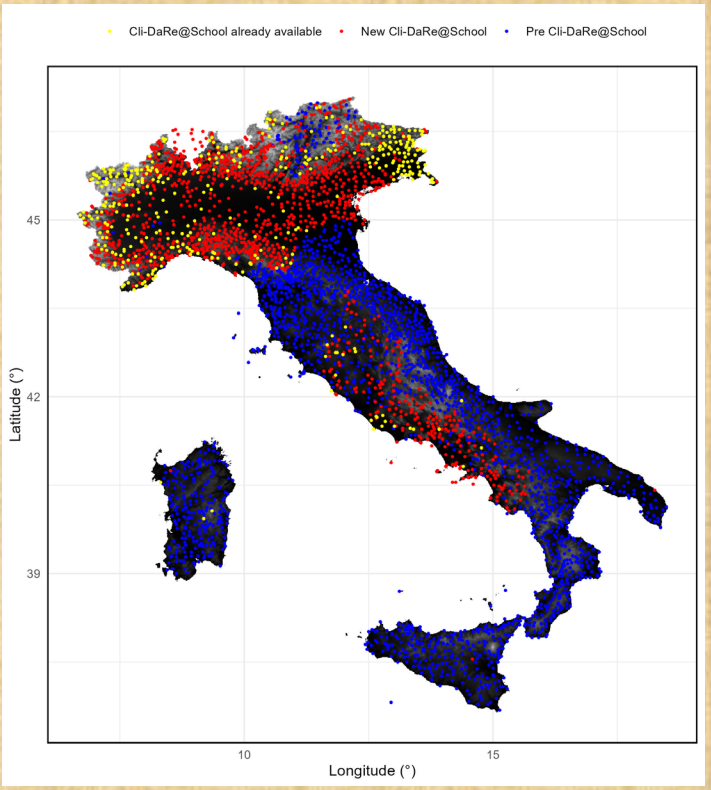
- Manually check of about 1900 data tables;
- The fraction of stations for which we found a correspondence turned out to be 99.2%, whereas the data tables of the few remaining stations were finally digitised by the Cli-DaRe@School research team.

Results: 1921-1950 Precipitation record

The new stations range between about 1000 and 1500.

About 300 stations were digitised even though their data were already available.





References

Papers

Manara V., Brunetti M., Beltrano M.C., Bertoldi G., Brugnara Y., Cat Berro D., Ceppi A., Crespi A., Stefanini F.M., Sudati F., Zardi D., Maugeri M. (2025a), *Engaging high school students in rescuing and digitizing data from historical observations in Italy: The citizen science project Cli-DaRe@School*, Bull. Am. Meteor. Soc., 106, E509–E524, https://doi.org/10.1175/BAMS-D- 24- 0078.1

Manara V., Arcuri B., Brunetti M., Beltrano M.C., Bertoldi G., Brugnara Y., Cat Berro D., Ceppi A., Crespi A., Melada J., Stefanini F.M., Sudati F., Zardi D., Maugeri M. (2025b), *A new dataset of Italian precipitation records for the period 1921-1950 from the Cli-DaRe@School citizen science project,* Bull. Atm. Sc. Tech., 6-25, https://doi.org/10.1007/s42865-025-00111-3

Dataset

Manara V., Arcuri B., Beltrano M.C., Bertoldi G., Brugnara Y., Brunetti M., Cat Berro D., Ceppi A., Crespi A., Melada J., Stefanini F.M., Sudati F., Zardi D., Maugeri M. (2025c), *Italian precipitation records for the period 1921–1950 from the Citizen science project Cli-DaRe@School*, Zenodo, https://doi.org/10.5281/zenodo.15084062

Dieci e Lode Project (2)

https://aisam.eu/progetti/10-e-lode-en/

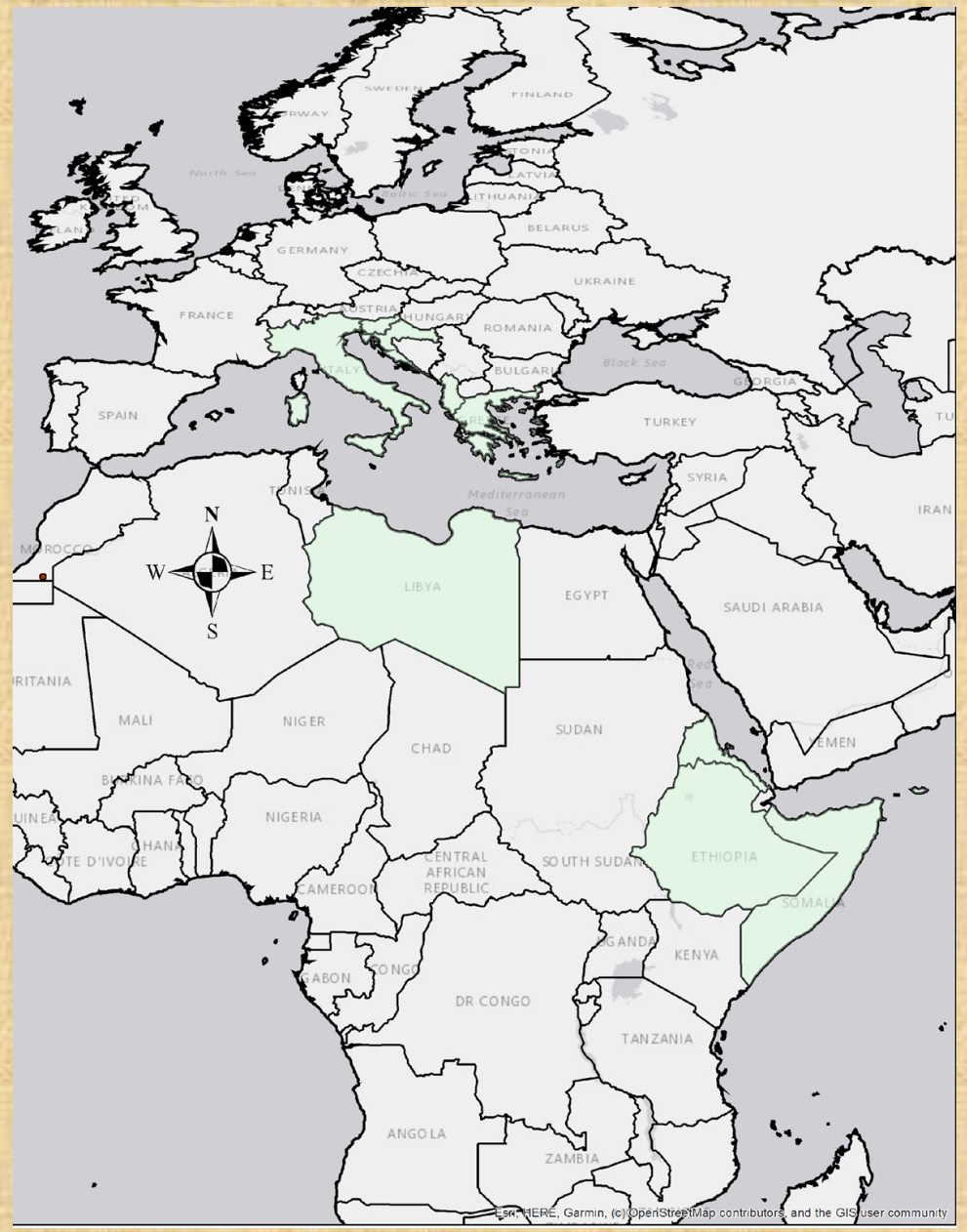
An Italian acronym for "**Climate data of the Former Italian Colonies and their Digitalization**"

- Recover observations from former Italian colonies and territories that were for a period ruled by Italy
- Digitise and ensure open access to these data
- Contribute to filling the data gap in areas that are still suffering from being poorly covered by monitoring networks.

Study area

Among the data to be recovered a significant part was collected in territories formerly ruled by Italy:

- **Eritrea**
- **Somalia**
- **Ethiopia**
- **Libya**
- **Dodecanese islands**
- **Albania**
- **Dalmatia**
- **Istria**



Project funding

The Project is co-financed by public institutions:

- **the Italian Ministry of Culture**
- **the European Union – Next Generation EU**
- **the Italian National Agency of Meteorology and Climatology (ItaliaMeteo)**
- **private companies, such as** Hypermeteo, Radarmeteo, SIAP+Micros, CAE, Ecosearch, Lombard & Marozzini, Osservatorio Juris Silva

MINISTERO DELLA CULTURA

Finanziato dall'Unione europea NextGenerationEU

ItaliaMeteo

PNRR TOCC Transizione digitale Organismi Culturali e Creativi

Hypermeteo Climate & weather grids

Radarmeteo Professional weather services

Close to 100 years Since 1925 SIAP+MICROS Environmental Monitoring Solutions

CAE innovation for a safer world.

ECOSEARCH ENVIRONMENTAL MONITORING AND SAMPLIN

LOMBARD & MAROZZINI

OSSERVATORIO JURISSILVA

Steps of the project (October 2023-April 2025)

- Phase #1: team building, official agreements with partners, and fundraising
- Phase #2: set up the inventory of available climatological datasets to be rescued
- Phase #3: scanning activities
- Phase #4: organization of the archive images, dissemination and publications

Kick-off meeting: Bologna on 31st May 2024 Closing meeting: Rome on 10st April 2025

https://aisam.eu/progetti/10-e-lode-kick-off-meeting-en

https://aisam.eu/10-e-lode-closing-meeting-en/

Material and data: available digitized and scanned information

To better understand which data only exist in hard copy and have to be recovered by scanning, the «Dieci e Lode» project has created:

- A **list containing all international datasets which are already available online,** such as :
  - Copernicus
  - GHCN (Global Historical Climatology Network)
  - ISPD (International Surface Pressure Databank).

- A **list of many original sources that have been already scanned** throughout the years, **but not digitized,** such as:
  - Documents from Italian Air Force Service
  - Meteorological Bulletin of Cyrenaica (1931)
  - Climatological Contribution of Somalia
  - Meteorological bulletin of the Italian colonies for the years 1932, 1933, 1934, 1935-1936).

Material and data: the CREA's treasure

- The **heritage of meteorological observations** from these **territories** is mostly found in the **National Meteorological Archives of the** Council for Research in Agricultural and the analysis of Agricultural Economy (**CREA**)

- **Tmean, Tmin, Tmax, humidity, precipitation, wind, pressure and cloudiness** are the most common variables available in these data archives to be scanned.

crea
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria

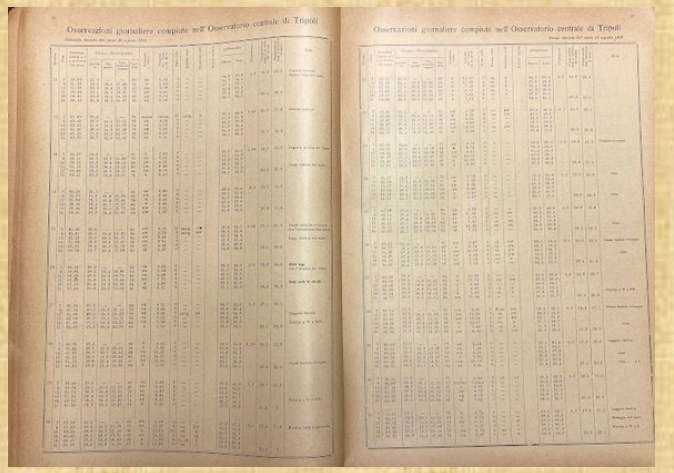
Material and data: libraries

In addition, many books and datasheets containing meteorological data and climatological studies regarding former Italian colonies that have been scanned have been found in:

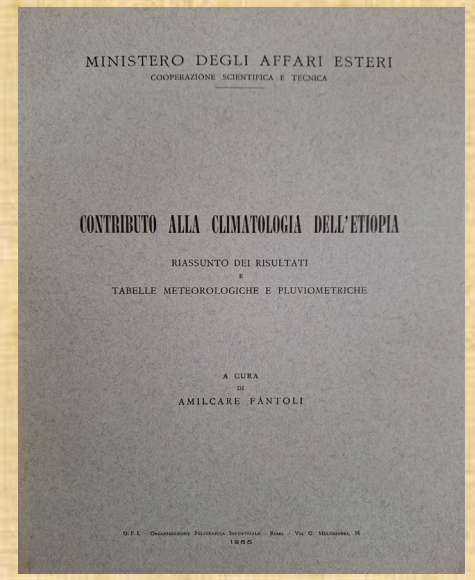
- **Library BSGU** (Biblioteca degli Studi Giuridici e Umanistici), of the University of Milan
- **Library "Ardito Desio"**, also belonging to the University of Milan
- **Accademia Nazionale dei Lincei** (Rome)
- **State library of Cremona**

Main activities

- Between August 2024 and February 2025, the material, previously been identified, has been scanned by **Ronca Editore** (publishing company).
- The result is a collection of **40,000** scanned pages, all collected into a database that from today will be available to everyone.

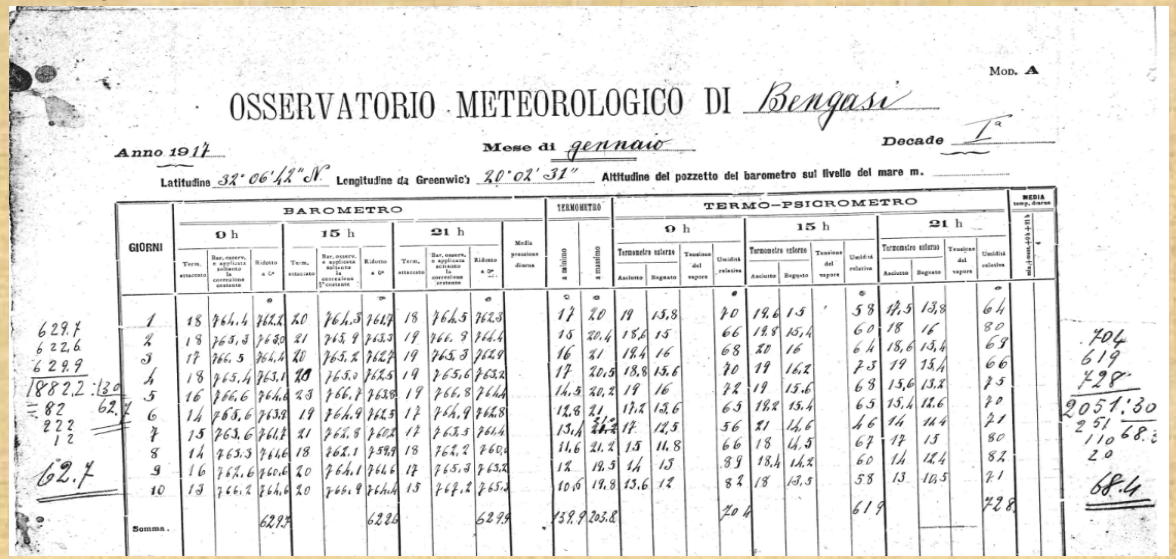


Main scanned volumes



- Contribution to the climatology of **Ethiopia**, **Tripolitania**, **Cyrenaica**, the internal regions of **Libya**, the **Ethiopian Plateau and Eritrea**, "Meteorological observations made in **Tripoli** with the climograms of that period": 6 volumes in total, about 2800 pages.

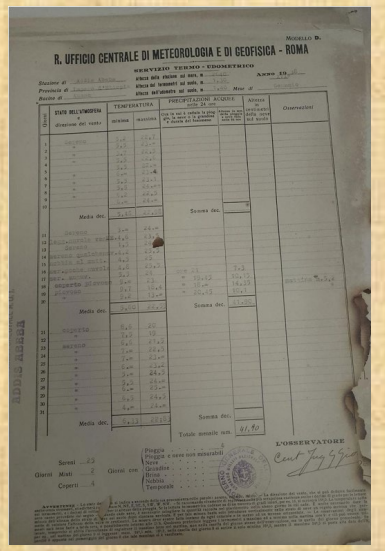
- 34 Meteorological bulletins of **Tripolitania** (1919-1931), **Cyrenaica** (1921-1928) and **Eritrea** (1930-1933), **Italian Africa** (1935-1936), **Italian Colonies** (1932-1934), **Kingdom of Libya** (1956-1959)

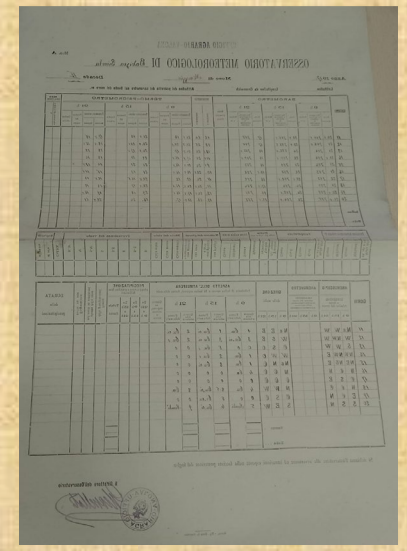


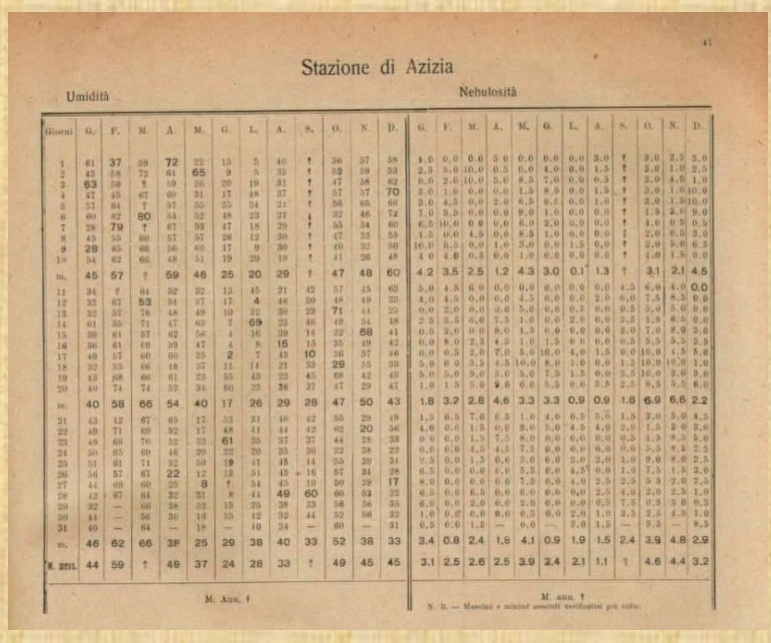
Main scanned volumes

- Archived paper sheets at CREA, with data from **82 stations** in different countries: Albania (1), Algeria (2), Croatia (10), Egypt (1), Eritrea (3), Ethiopia (1), Greece (14), Libya (37), Palestine (1), Slovenia (1) and Somalia (11). These data sheets are about 14.800 pages.

- 48 books and short publications containing meteorological data and climatological studies about former African colonies.







Scanned data

Libya

- Period of Italian government: 1912-1943
- Stations in the digitized inventory: 67
- Stations in the scanned inventory: 70
- Stations in the scanned material: more than 80

Ethiopia

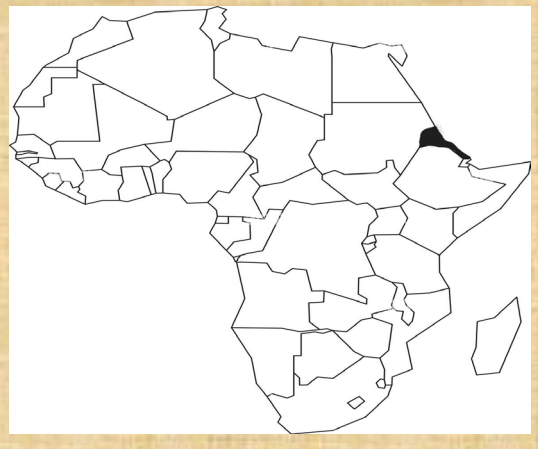
- Period of Italian government: 1935-1941
- Stations in the digitized inventory: 190
- Stations in the scanned inventory: 24
- Stations in the scanned material: 47

Somalia

- Period of Italian government: 1908-1941
- Sations in the digitized inventory: 13
- Stations in the scanned inventory: 90
- Stations in scanned material: 45

Eritrea

- Period of Italian government: 1890-1947
- Stations in the digitized inventory: 13
- Stations in the scanned inventory: 22
- Stations in the scanned material: 56



Dalmatia and Istria

- Period of Italian government: 1941-1943
- Stations in the digitized inventory: 67
- Stations in the scanned inventory: 0
- Stations in the scanned material: 11

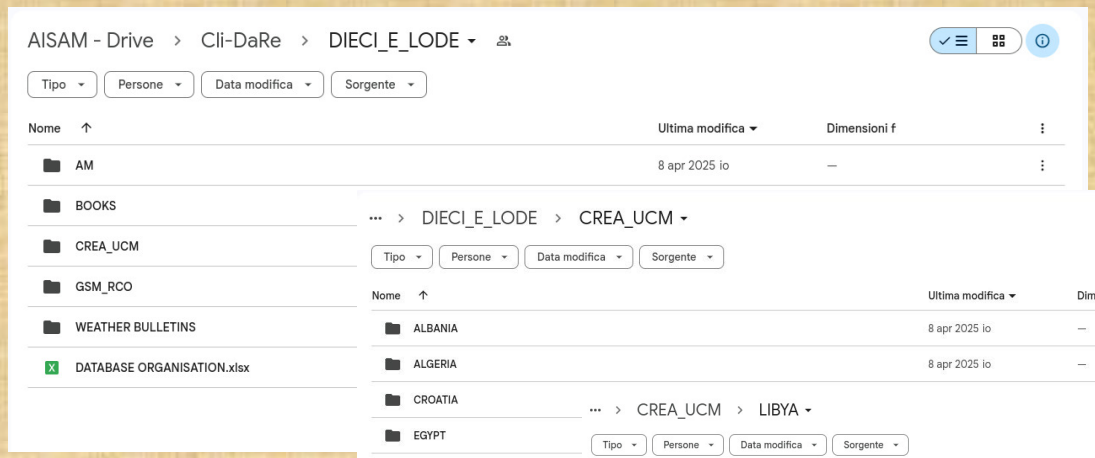
Albania

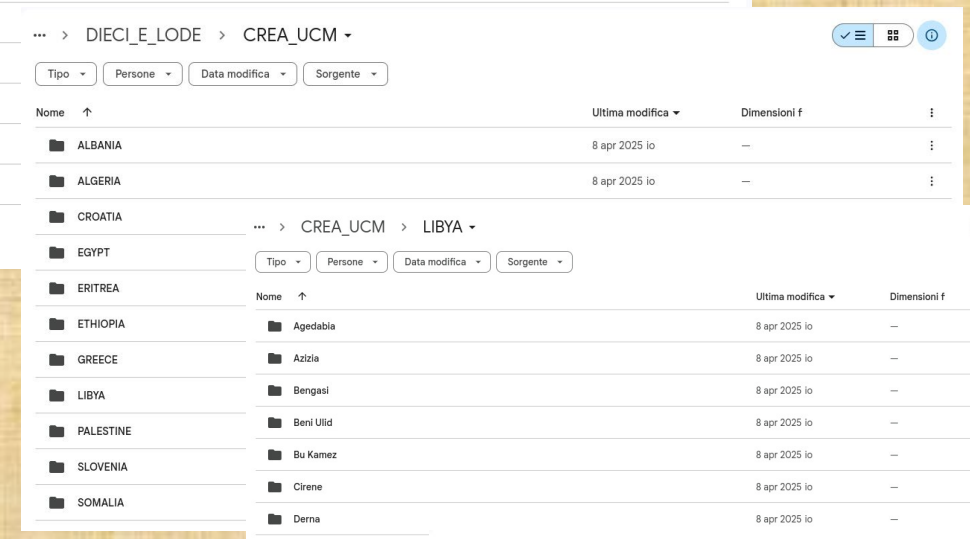
- Period of Italian government : 1918-1920, 1939-1943
- Stations in the digitized inventory: 13
- Stations in the scanned inventory: 0
- Stations in the scanned material: 1 (Babizza Piccola)

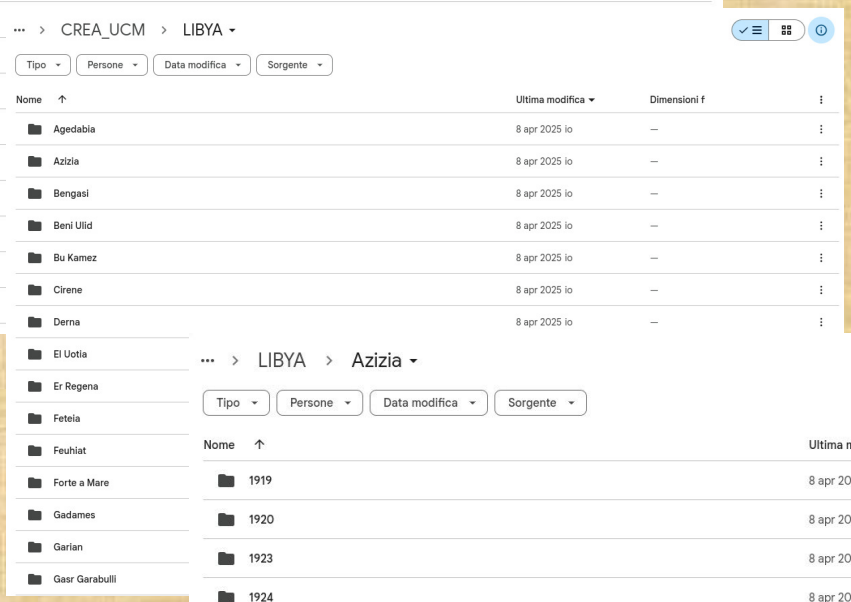
Dodecanese islands and Rhodes

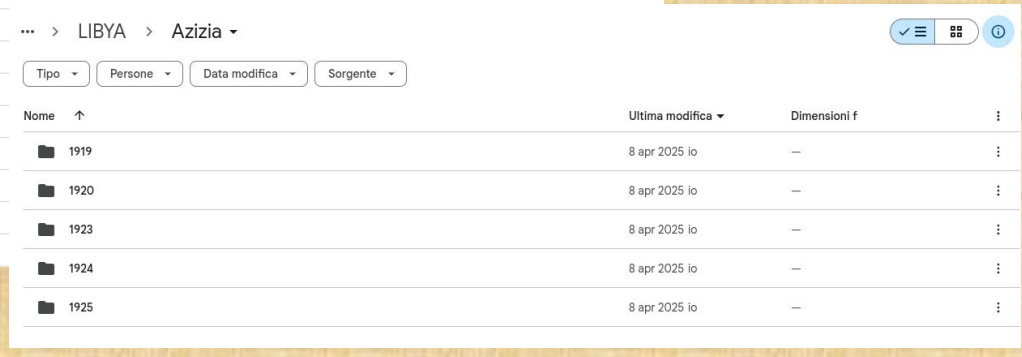
- Period of Italian government : 1912-1943
- Stations in the digitized inventory: 0
- Stations in the scanned inventory: 2
- Stations in the scanned material: 15

Final Database







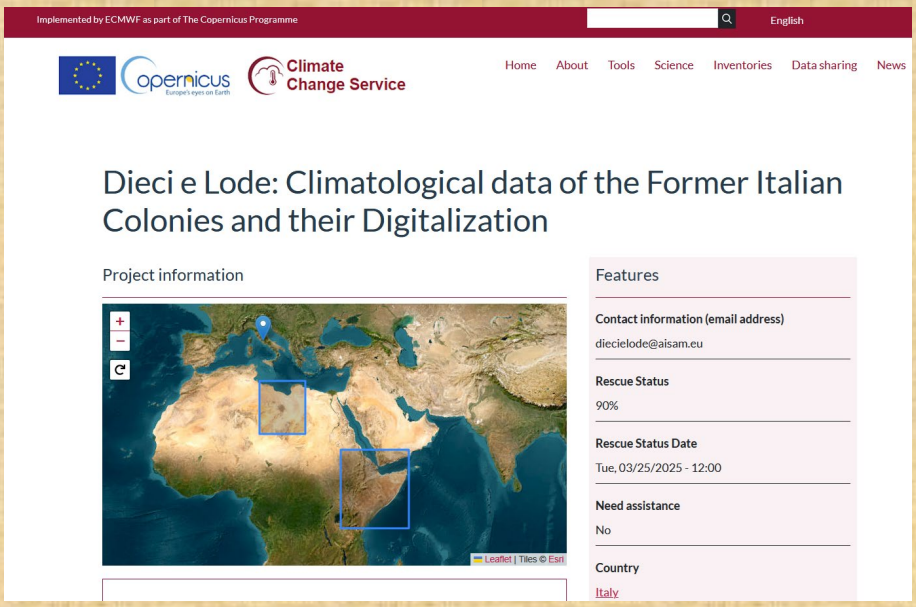


Next step

New Project (September 2025 – April 2028): involved in the WG1

C3S2 311 BisRescue, Collection and Processing of in-situ Observations

A project coordinated by Maynooth University (Ireland) under the “Tender Copernicus Procurement” call, funded by the European Union and implemented by ECMWF.



CliDaRe@Images Project (3)

Citizen Science for Italian Climate Data Rescue with Images, funded by CARITRO

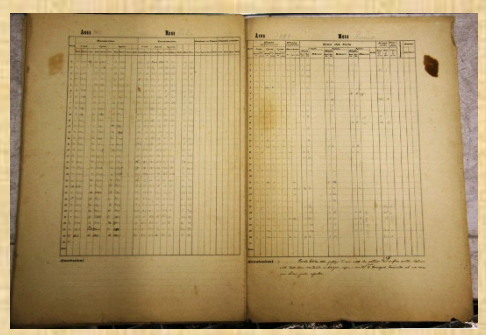
December 2024-May2026

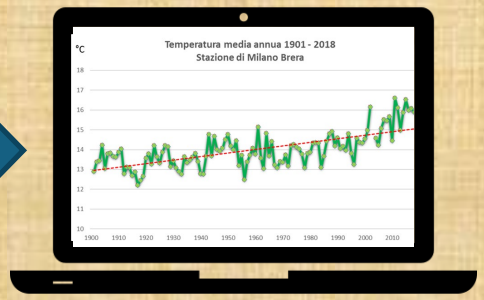
Aim of the project

- Educate and raise awareness among high school students about climate change in the Trentino Region through the recovery of historical climate data.
- Specifically, it aims to digitalise the data stored at the **San Bernardino Library** in Trento city.
- After photographing the records, the data will be transcribed into a spreadsheet, recovering and making available a priceless scientific heritage.
- The project aims to operate from a **Citizen Science** perspective, shifting from a science narrative in which students are passive learners to one in which they become active participants. The goal is to have the students involved experience the process of digitally retrieving historical meteorological data from historical paper records and processing the data themselves.

FONDAZIONE CARITRO
CASSA DI RISPARMIO DI TRENTO E ROVERETO

Methods





The project raises students' awareness of climate change by putting them in direct contact with historical data series for their preservation and valorisation. In this way:

1) By processing historical data, they directly observe the reality of ongoing climate change;

2) They acquire technical and IT skills related to numerical data management that can be used broadly in the future.

Partners

- The San Bernardino Library in Trento preserves and makes available the data collection to be digitized, the spaces where the project will be carried out, the photographic survey equipment, and the staff's expertise in protecting and enhancing the archival heritage.
- Galileo Galilei high school (Trento)
- Collegio Arcivescovile Endrici high school (Trento)
- Meteorological Associaciation of Trentino and South Tyrol

ARCIVESCOVILE

LICEO SCIENTIFICO TRENTO

Fondazione Biblioteca San Bernardino

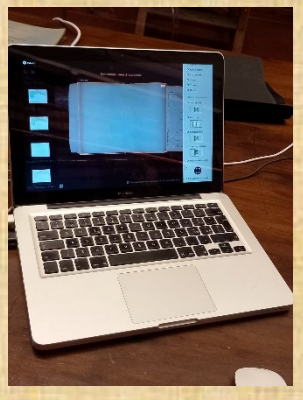
mtaa

Activities

1. Students will be offered a **series of seminars** to present the historical evolution of meteorological observation networks, to raise awareness of the importance of data and its retrieval, and to understand how the climate has changed over time.

2. With the involvement of a **professional photographer**, **they will be trained to independently create images** of the annals' pages and will be guided in the creation of a digital archive to be transcribed into a spreadsheet.

3. **Students will experience the entire process**, often unknown to non-experts, that **scientific research follows to achieve its final result: knowledge**. They will be shown what scientific research entails, from archival consultation to data retrieval, through data validation and quality control, until they obtain a solid foundation for the rigorous analyses that lead to scientific learning about climate change.



Conclusions

The imposing task of scanning that AISAM has developed allows to:

- **preserve a heritage** of inestimable value and consult a significant series of past information, actually on paper only: all the scanned copies are online and freely available.

- The Cli-DaRe@School project demonstrates that **high school students can make a great contribution to rescue** the huge amount of **past meteorological data** that are available in image or hardcopy formats only.

- The benefit of engaging students is of **great educational value**, offering them an easy help on experience with climate data and making them conscious of the hard work required to set up the datasets necessary to document climatic trends. This will be the main goal also for Cli-DaRe@Images project.

- The weather observations in the former colonies (**Dieci e Lode** project) will give significant contribution to international climatological research of the past, particularly over ungauged countries.

- The project also allowed a high number of **university students** working on these projects records for their final **dissertation or for internships** on climatic data. These students had a key role for the quality checks and for the organisation of the dataset.

EGU General Assembly 2026 | Session CL2.7

Historical Weather Data Rescue and Methodologies Focusing on Data-sparse Regions

Convener: Praveen Teleti
Co-conveners: Alessandro Ceppi, Veronica Manara
Vienna, Austria & Online | 3–8 May 2026

Overview

Join us for an engaging session dedicated to uncovering the untold stories hidden in historical weather records. We invite contributions exploring new data sources, innovative extraction methods, and applications of rescued datasets to improve our understanding of past climates, extremes, and risks.

This session particularly welcomes:

- Automated AI/ML workflows for weather data extraction
- Citizen science initiatives and collaborative projects
- Best practices for digitization and integration
- Case studies applying historical data to reconstruct floods, droughts, and extremes

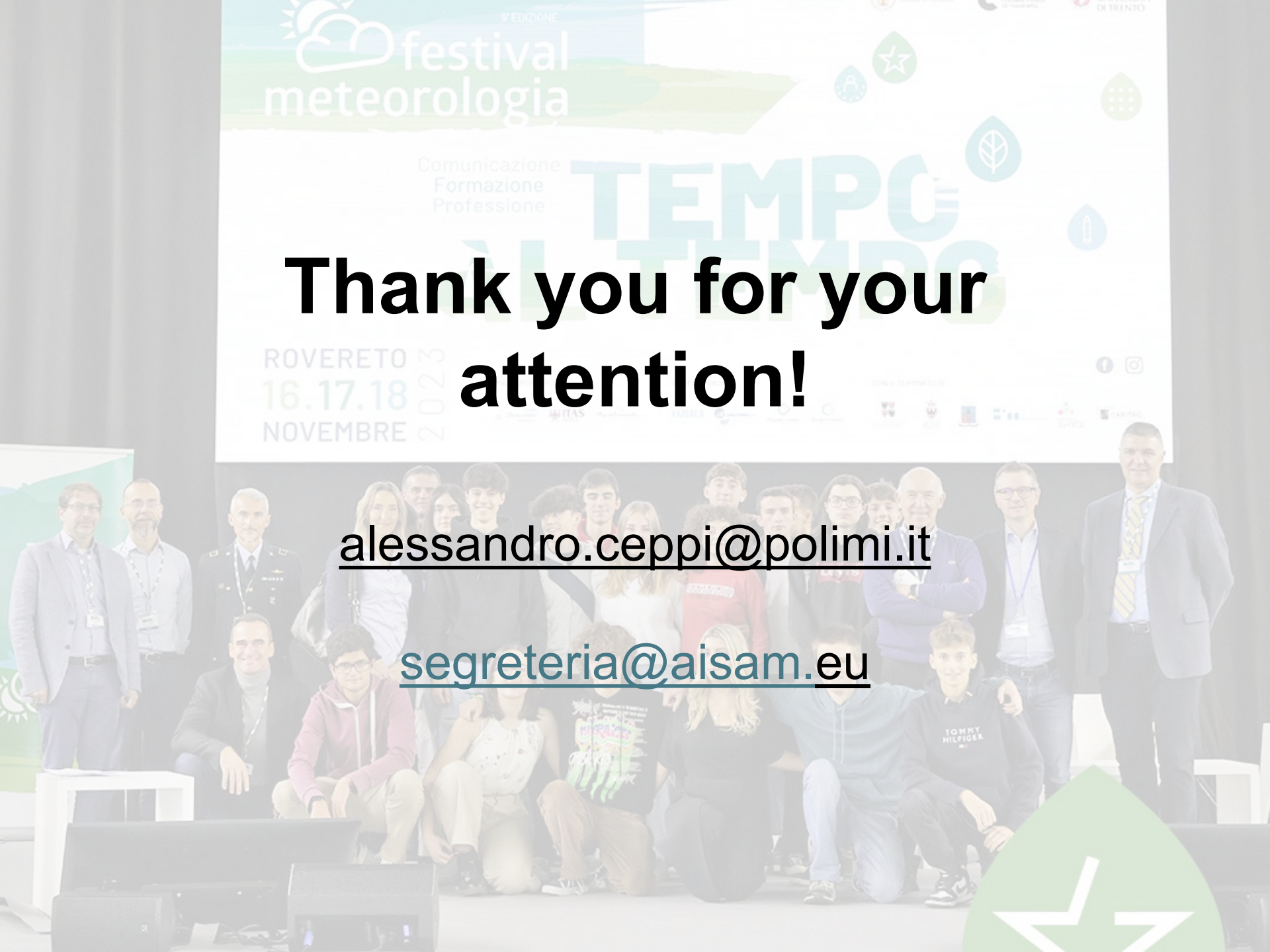
Key Topics

- ✅ Discovering new sources of historical weather observations
- ✅ Data rescue, digitization, and quality control methodologies
- ✅ Applying rescued data to climate and hazard reconstruction
- ✅ Collaborative data-rescue efforts: successes & lessons learned
- ✅ Leveraging AI & machine learning to unlock archives

Session Information

🗓️ Abstract submission deadline: 15 January 2026, 13:00 CET
💰 Financial support deadline: 1 December 2025, 13:00 CET

Be part of the global effort to rescue our weather heritage!
Submit your abstract now:
https://meetingorganizer.copernicus.org/EGU26/session/57107



Thank you for your attention!

alessandro.ceppi@polimi.it

segreteria@aisam.eu

The Team

Principal Investigator

Alessandro Ceppi
(Politecnico di Milano)

Staff Members

Michele Brunetti
(CNR-ISAC)

Dino Zardi
(University of Trento)

Sergio Pisani
(**President of AISAM**)

Maurizio Maugeri
(University of Milan)

Luigi Iafrate
(CREA)

Francesco Sudati
(Air Force Service)

Maria Carmen Beltrano
(AISAM)

Veronica Manara
(University of Milan)

Marina Baldi
(CNR-IBE)

Samuele Giampietro
(AISAM)

Federico Stefanini
(University of Milan)

Fabio Leali
(University of Trento)

Eva De Vecchis
(AISAM)

Alessia Tadiello
(University of Milan)

Affiliations

The team members are affiliated with various Italian institutions:

- University of Milan, Department of Environmental Science and Policy
- CNR - Institute of Atmospheric Sciences and Climate (ISAC)
- CNR - Institute of Bioeconomy (IBE)
- Politecnico di Milano, Department of Civil and Environmental Engineering (DICA)
- University of Trento, Department of Civil, Environmental and Mechanical Engineering (DICAM)
- Italian Air Force Service (AM)
- Council for research in agriculture and the analysis of agricultural economy (CREA)

Database organisation

- Into the database it can be found: a file describing both its structure (mostly the data are clustered per nation, then per station and sometimes per year) and the meaning of the images' names.

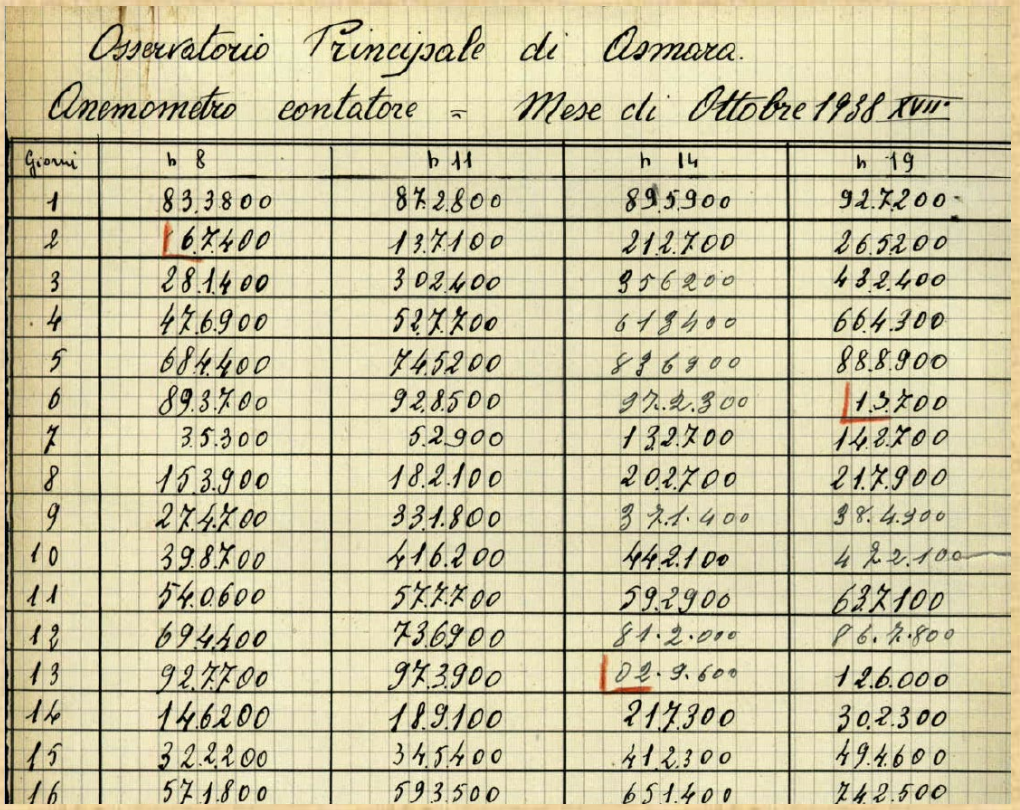
- Regarding the single images, their name always contain an acronym indicating their source (the volume it comes from or the archive), the nation about their data refer to, the station, and when it is possible the year of the measurements, with the time subdivision (semiannual, monthly, decadal) or the variables contained, where present.

Database organisation

The database is divided into 5 main sources:

Aeronautica Militare:

Data sheets already scanned before the project and provided by the Italian Air Force. They cover data from various nations from the end of the nineteenth century until the 1960's.

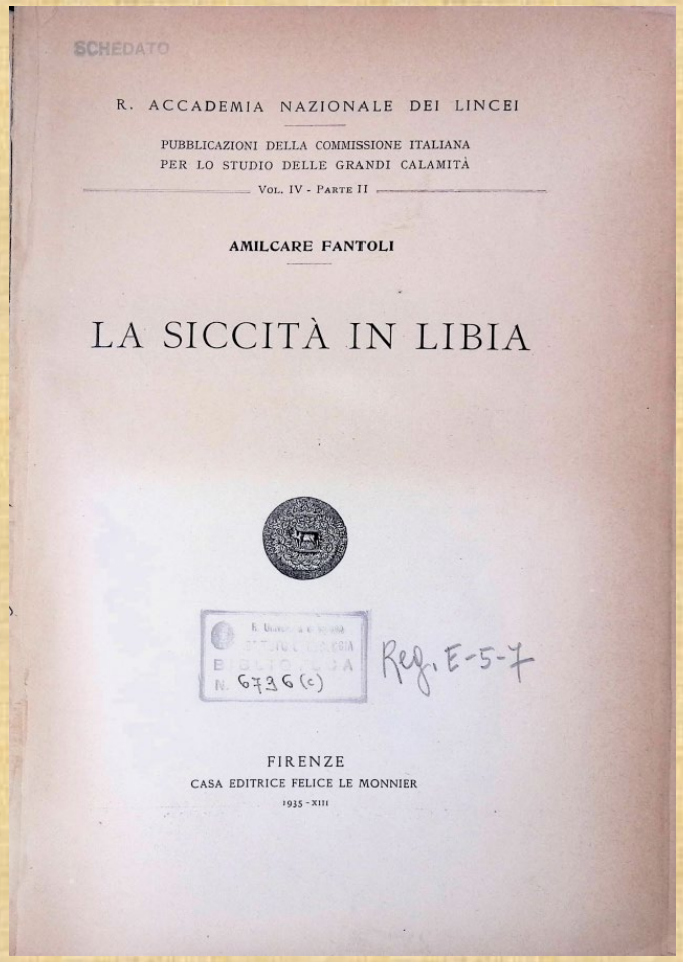


Osservatorio Principale di Asmara.

Anemometro contatore = Mese di Ottobre 1938 XVII.

Giorni	h 8	h 11	h 14	h 19
1	83.3800	87.2800	89.5900	92.7200
2	167400	137100	212.700	265200
3	28.1400	302400	356200	432400
4	476900	527700	618400	664.300
5	684400	745200	836900	888.900
6	893700	928500	972.300	13700
7	35300	52900	132700	148700
8	153.900	182100	202700	217900
9	274700	331800	371.400	398.400
10	398700	416.200	442100	422.100
11	540600	577700	592900	637100
12	694400	736900	81.2.000	86.7.800
13	927700	973900	02.9.600	126.000
14	146200	189100	217300	302300
15	322200	345400	412300	494600
16	571800	593500	651400	742500

Database organisation



BOOKS:

Books both scanned during the project and obtained through internet, containing both meteorological data and climatological studies; they are all available as pdf files, and furthermore for some of them (mainly the contributes to the climatology), the single pages have been divided per nations, stations and year.

An inventory list is available containing the books' titles, their author, publishing year and a short description of the content.

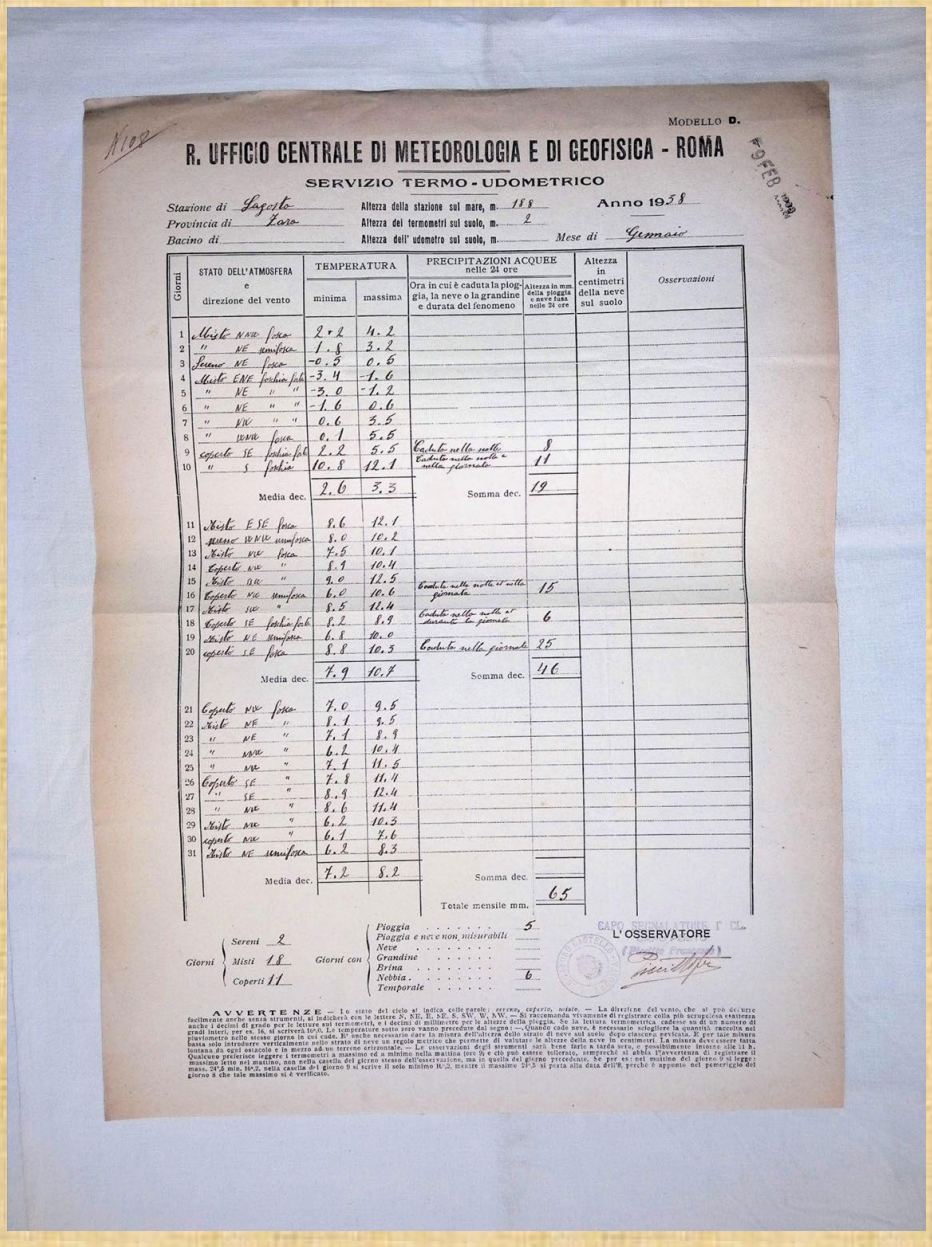
Database organisation

CREA-UCM:

The datasheets that were contained into the CREA archive, including meteorological data from the first half of the 20th century.

WEATHER BULLETINS:

Weather bulletins from Cyrenaica, Tripolitania, Internal regions of Libya, and Eritrea, both already available on internet or scanned during the project.



MODELLO D.

R. UFFICIO CENTRALE DI METEOROLOGIA E DI GEOFISICA - ROMA

SERVIZIO TERMO-UDOMETRICO

Stazione di Lagosta — Altezza della stazione sul mare, m. 118 — Anno 1938
Provincia di Zara — Altezza dei termometri sul suolo, m. 2
Bacino di ____ — Altezza dell'udometro sul suolo, m. ____ — Mese di Gennaio

Giorni	STATO DELL'ATMOSFERA e direzione del vento	TEMPERATURA minima	TEMPERATURA massima	PRECIPITAZIONI ACQUEE nelle 24 ore: Ora in cui è caduta la pioggia, la neve o la grandine e durata del fenomeno	PRECIPITAZIONI ACQUEE nelle 24 ore: Altezza in mm della pioggia e neve fusa nelle 24 ore	Altezza in centimetri della neve sul suolo	Osservazioni
1	Misto NNW forza	2.2	4.2				
2	" NE semiforza	1.8	3.2				
3	Sereno NE forza	-0.5	0.6				
4	Misto ENE forzissima	-3.4	-1.6				
5	" NE " "	-3.0	-1.2				
6	" NE " "	-1.6	0.6				
7	" NW " "	0.6	3.5				
8	" NNW forza	0.1	3.5				
9	coperto SE forzissima	2.2	5.5	Caduta nella notte	8		
10	" S forzissima	10.8	12.1	Caduta nella notte e nella giornata	11		
	Media dec.	2.6	3.3	Somma dec.	19		
11	Misto ESE forza	8.6	12.1				
12	sereno WNW semiforza	8.0	10.2				
13	Misto NW forza	7.5	10.1				
14	Coperto NW "	8.1	10.4				
15	Misto NW "	9.0	12.5	Caduta nella notte ed nella giornata	15		
16	Coperto NW semiforza	6.0	10.6				
17	Misto NW "	8.5	11.4				
18	Coperto SE forzissima	8.2	8.9	Caduta nella notte ed durante la giornata	6		
19	Misto NE semiforza	6.8	10.0				
20	coperto SE forza	8.8	10.3	Caduta nella giornata	25		
	Media dec.	7.9	10.7	Somma dec.	46		
21	Coperto NW forza	7.0	9.5				
22	Misto NE "	8.1	9.5				
23	" NE "	7.1	8.9				
24	" NNW "	6.2	10.4				
25	" NW "	7.1	11.5				
26	Coperto SE "	7.8	11.4				
27	" SE "	8.9	12.4				
28	" NW "	8.6	11.4				
29	Misto NW "	6.2	10.3				
30	coperto NW "	6.1	7.6				
31	Misto NE semiforza	6.2	8.3				
	Media dec.	7.2	8.2	Somma dec.			
				Totale mensile mm.	65		

Giorni: Sereni 2 — Misti 18 — Coperti 11

Giorni con: Pioggia 5 — Pioggia e neve non misurabili — Neve — Grandine — Brina — Nebbia 6 — Temporale

L'OSSERVATORE

AVVERTENZE — Lo stato del cielo si indica colle parole: *sereno, coperto, misto*. — La direzione del vento, che si può definire facilmente anche senza strumenti, si indicherà con le lettere N, NE, E, SE, S, SW, W, NW. — Si raccomanda vivamente di registrare colla più scrupolosa esattezza anche i decimi di grado per le letture sui termometri, e i decimi di millimetro per le altezze della pioggia. Se la lettura termometrica, cadesse su di un numero di gradi interi, per es. 16, si scriverà 16.0. Le temperature sotto zero vanno precedute dal segno —. Per la misura della neve caduta, si usi lo stesso pluviometro nelle stesse giorne in cui cade. E' anche necessario di misurare l'altezza della strato di neve sul suolo dopo ciascuna nevicata. A tale scopo basta solo introdurre verticalmente nella neve un regolo di legno, o metterci che permette di valutare le altezze della neve in centimetri. La misura deve essere fatta lontana da ogni ostacolo e in modo ad un terreno orizzontale. — Le osservazioni degli strumenti sarà bene farle a tarda ora, e possibilmente lontano alle 11 h. Qualcuno dei termometri segnerà il massimo ed a minimo nella mattina (ore 9) e ciò può essere tollerato, sempreché si abbia l'avvertenza di registrare il numero del mese, non nella casella del giorno stesso dell'osservazione, ma in quella del giorno precedente, be per es: nel mattino del giorno 9 si legge: massimo 27.3 min. 10.2, nella casella del giorno 9 si scrive il solo minimo 10.2, mentre il massimo 27.3 si porta alla data del 8, perchè è appunto nel pomeriggio del giorno 8 che tale massimo si è verificato.

Database organisation

GSM-RCO:

Global summaries of the month and Records of Climatological Observations regarding the climate of Libya, already scanned before the project

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Record of Climatological Observations
These data are quality controlled and may not be identical to the original observations.
Generated on 06/22/2024

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 2037 ft. Lat: 31.8700° N Lon: 10.9800° E
Station: **NALUT, LY LYE00147740**

Observation Time Temperature: Unknown Observation Time Precipitation: Unknown

Year	Month	Day	Temperature (F) "24 Hrs. Ending at Observation Time" Max.	Temperature (F) "24 Hrs. Ending at Observation Time" Min.	At Obs.	Precipitation 24 Hour Amounts Ending at Observation Time: Rain, Melted Snow, Etc. (in)	Flag	Snow, Ice Pellets, Hail (in)	Flag	At Obs. Time: Snow, Ice Pellets, Hail, Ice on Ground (in)	Evaporation: 24 Hour Wind Movement (mi)	Evaporation: Amount of Evap. (in)	"Soil Temperature (F)" 4 in. Depth: Ground Cover (see *)	4 in. Depth: Max.	4 in. Depth: Min.	8 in. Depth: Ground Cover (see *)	8 in. Depth: Max.	8 in. Depth: Min.
1932	01	01		35														
1932	01	02		27														
1932	01	03		30														
1932	01	04		36														
1932	01	05		34														
1932	01	06		37														
1932	01	07		37														
1932	01	08		36														
1932	01	09		40														
1932	01	10		42														
1932	01	11		44														
1932	01	12		42														
1932	01	13		39														
1932	01	14		38														
1932	01	15		35														
1932	01	16		44														
1932	01	17		34														
1932	01	18		32														
1932	01	19		34														
1932	01	20		38														
1932	01	21		39														
1932	01	22		45														
1932	01	23		46														
1932	01	24		41														
1932	01	25		39														
1932	01	26		36														
1932	01	27		38														
1932	01	28		35														
1932	01	29		36														
1932	01	30		39														
1932	01	31		40														
		Summary	0	38		0.00												

Empty, or blank, cells indicate that a data observation was not reported.
*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown
"s" This data value failed one of NCEI's quality control tests. "At Obs." = Temperature at time of observation
"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.
"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.
Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Global Summary of the Month for 1932
Generated on 06/22/2024

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 2037 ft. Lat: 31.8700° N Lon: 10.9800° E
Station: **NALUT, LY LYE00147740**

Date	Temperature (F)												Precipitation (Inches)										Observed Weather	
Elem ->	TAVG	TMAX	TMIN	HTDD	CLDD	EMXT		EMNT		DX90	DX32	DT32	DT00	PRCP	EMXP		SNOW	EMSD		DP01	DP10	DP1X	DYHF	DYTS
Month	Mean	Mean Max.	Mean Min.	Heating Degree Days	Cooling Degree Days	Highest	High Date	Lowest	Low Date	Number of Days				Total	Greatest Observed		Snow, Sleet			Number of Days				
										Max >= 90	Max <= 32	Min <= 32	Min <= 0		Amount	Date	Total Fall	Max Depth	Max Date	>=.01	>=.10	>=1.0	FG+	TS
Jan	M	M	37.7	M	M	M	M	27	02	M	M	2	0	M	M	M	M	M	M	M	M	M	M	M
Feb	M	M	41.4	M	M	M	M	37	06	M	M	0	0	M	M	M	M	M	M	M	M	M	M	M
May	M	M	57.1	M	M	M	M	46	04	M	M	0	0	M	M	M	M	M	M	M	M	M	M	M
Jun	78.9	92.8	65.0	0	393	107	21	53	10	16	0	0	0	M	M	M	M	M	M	M	M	M	M	M

Notes

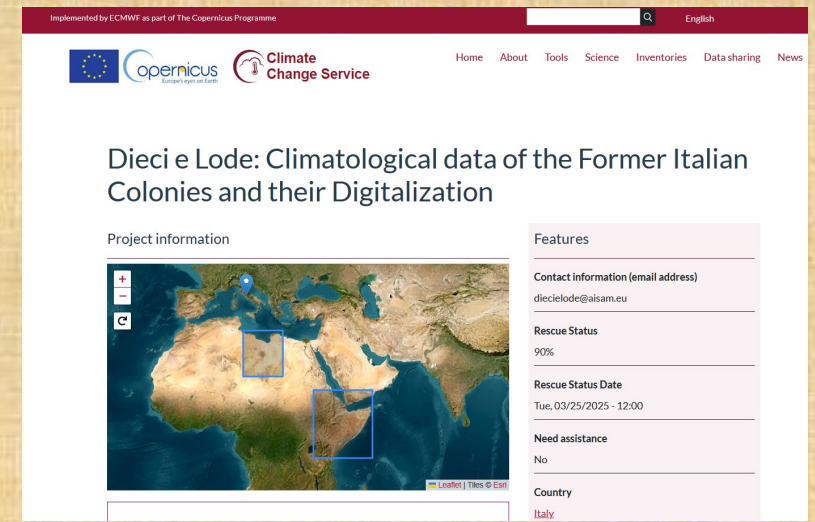
M Data element not reported or missing.
X Monthly means or totals based on incomplete time series.
+ Occurred on one or more previous dates during the month. The date in the Date field is the last day of occurrence.
A Accumulated amount.
T Trace Amount.
FG+ Heavy Fog
TS Thunderstorms

Conclusions

The weather observations in the former colonies will give significant contribution to international climatological research.

The imposing task of scanning that AISAM has developed allows to:

- preserve a heritage of inestimable value.
- consult a significant series of past information, actually on paper only: all the scanned copies are online and freely available.
- obtain an international visibility thanks to Copernicus EU, which added our project to its Data Rescue Database, and to all the dissemination activities provided by the team members.
- what's next?



C3S2 311 Bis
Rescue, Collection and Processing of in-situ Observations

Copernicus Europe's eyes on Earth
ItaliaMeteo
Climate Change Service

Database organisation

- Into the database it can be found: a file describing both its structure (mostly the data are clustered per nation, then per station and sometimes per year) and the meaning of the images' names.

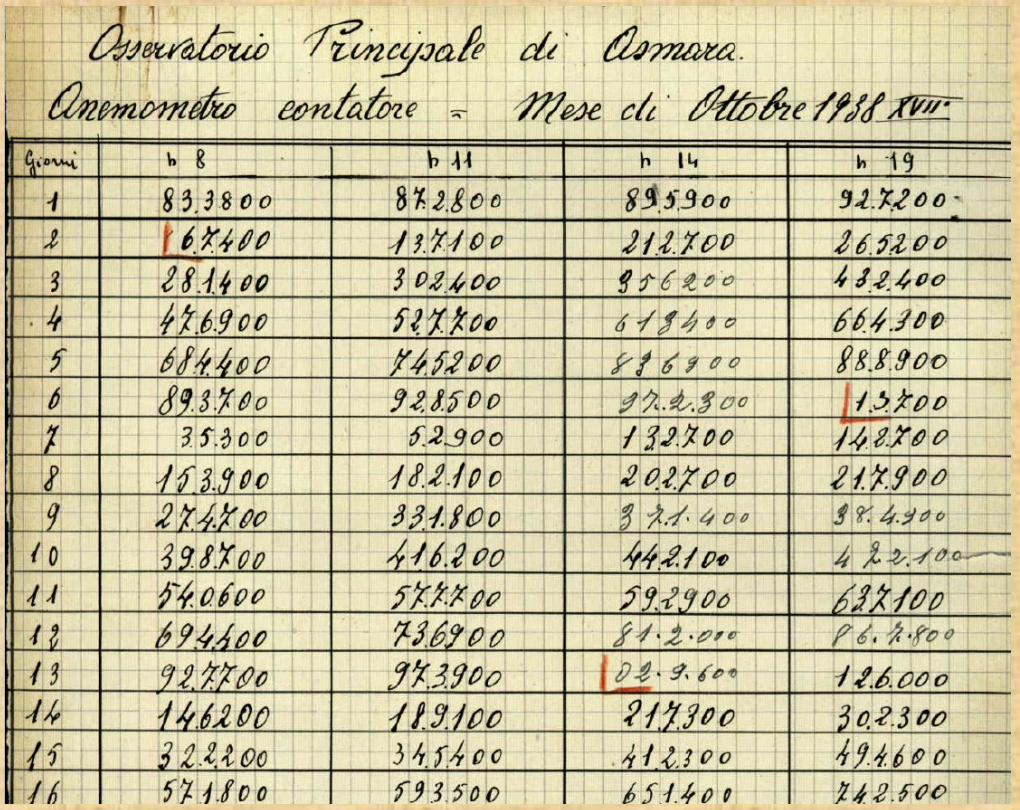
- Regarding the single images, their name always contain an acronym indicating their source (the volume it comes from or the archive), the nation about their data refer to, the station, and when it is possible the year of the measurements, with the time subdivision (semiannual, monthly, decadal) or the variables contained, where present.

Database organisation

The database is divided into 5 main sources:

Aeronautica Militare:

Data sheets already scanned before the project and provided by the Italian Air Force. They cover data from various nations from the end of the nineteenth century until the 1960's.

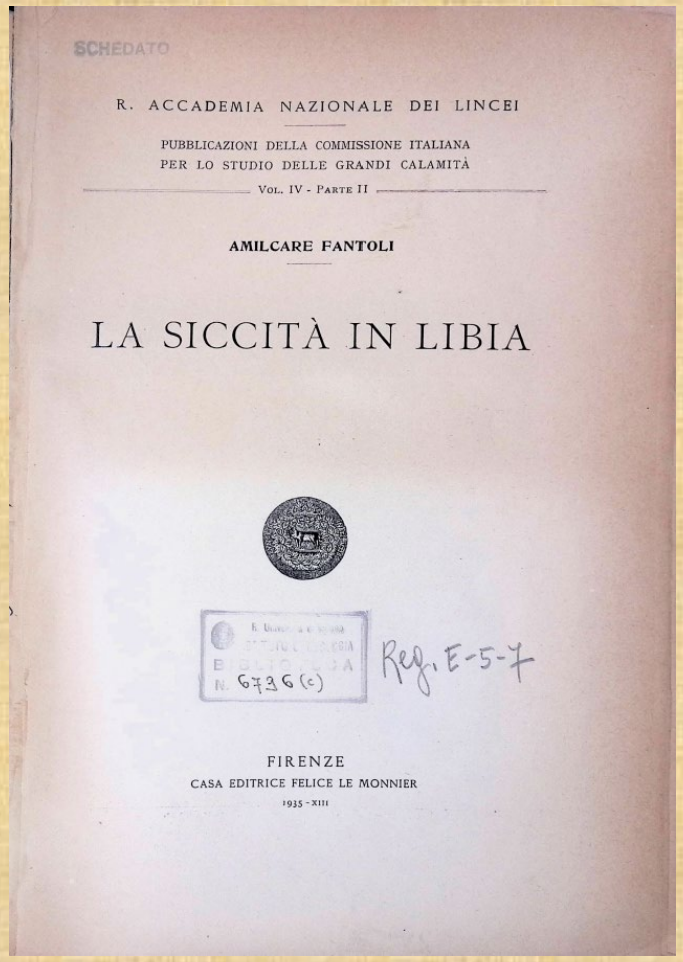


Osservatorio Principale di Asmara.

Anemometro contatore = Mese di Ottobre 1938 XVII.

Giorni	h 8	h 11	h 14	h 19
1	83.3800	87.2800	89.5900	92.7200
2	167400	137100	212.700	265200
3	28.1400	302400	356200	432400
4	476900	527700	618400	664.300
5	684400	745200	836900	888.900
6	893700	928500	972.300	13700
7	35300	52900	132700	148700
8	153.900	182100	202700	217900
9	274700	331800	371.400	398.400
10	398700	416.200	442100	422.100
11	540600	577700	592900	637100
12	694400	736900	81.2.000	86.7.800
13	927700	973900	02.9.600	126.000
14	146200	189100	217300	302300
15	322200	345400	412300	494600
16	571800	593500	651400	742500

Database organisation



BOOKS:

Books both scanned during the project and obtained through internet, containing both meteorological data and climatological studies; they are all available as pdf files, and furthermore for some of them (mainly the contributes to the climatology), the single pages have been divided per nations, stations and year.

An inventory list is available containing the books' titles, their author, publishing year and a short description of the content.

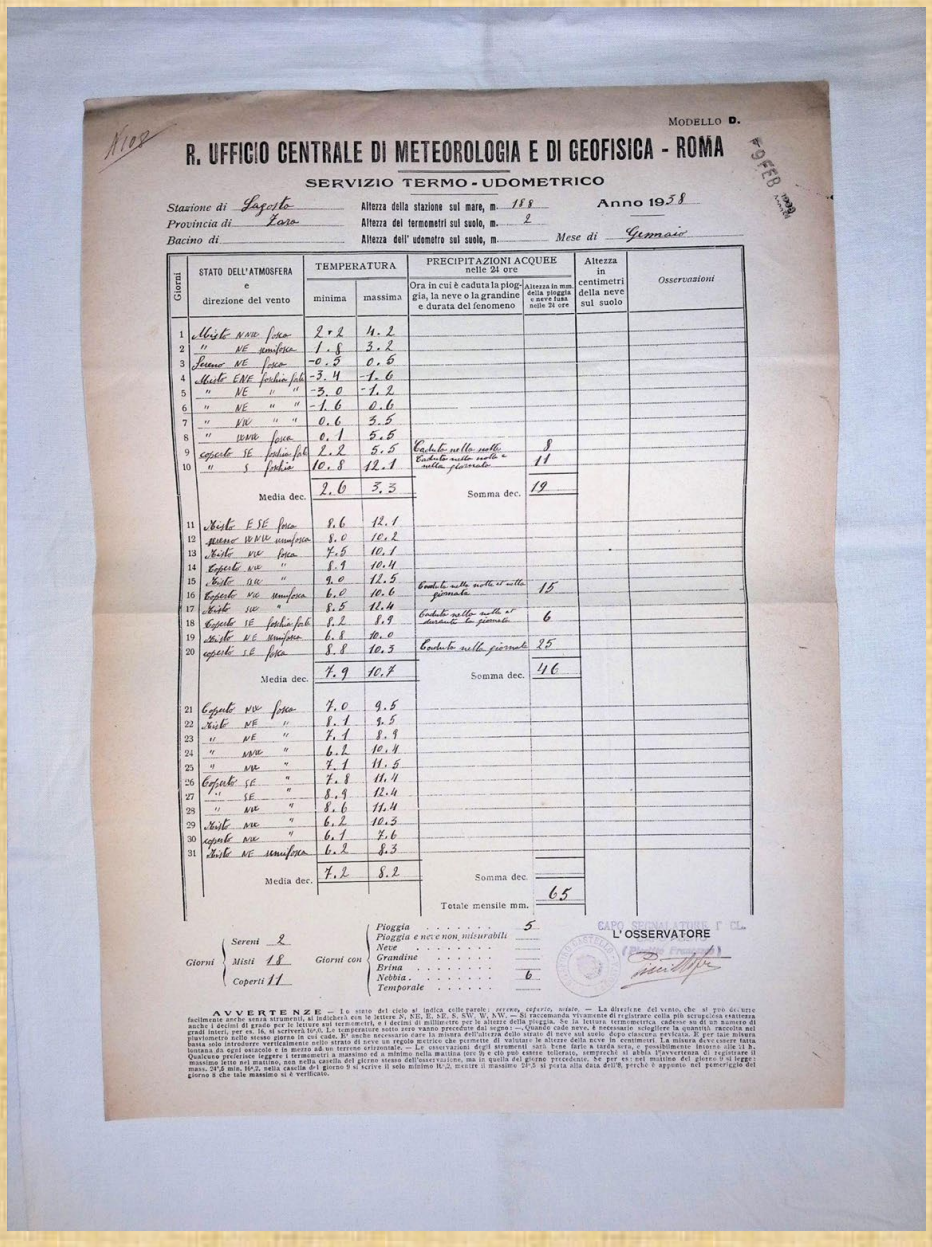
Database organisation

CREA-UCM:

The datasheets that were contained into the CREA archive, including meteorological data from the first half of the 20th century.

WEATHER BULLETINS:

Weather bulletins from Cyrenaica, Tripolitania, Internal regions of Libya, and Eritrea, both already available on internet or scanned during the project.



MODELLO D.

R. UFFICIO CENTRALE DI METEOROLOGIA E DI GEOFISICA - ROMA

SERVIZIO TERMO-UDOMETRICO

Stazione di Lagosta — Altezza della stazione sul mare, m. 118 — Anno 1938
Provincia di Zara — Altezza dei termometri sul suolo, m. 2
Bacino di ____ — Altezza dell'udometro sul suolo, m. ____ — Mese di Gennaio

Giorni	STATO DELL'ATMOSFERA e direzione del vento	TEMPERATURA minima	TEMPERATURA massima	PRECIPITAZIONI ACQUEE nelle 24 ore: Ora in cui è caduta la pioggia, la neve o la grandine e durata del fenomeno	PRECIPITAZIONI ACQUEE nelle 24 ore: Altezza in mm della pioggia e neve fusa nelle 24 ore	Altezza in centimetri della neve sul suolo	Osservazioni
1	Misto NNW forza	2.2	4.2				
2	" NE semiforza	1.8	3.2				
3	Sereno NE forza	-0.5	0.6				
4	Misto ENE forzissima	-3.4	-1.6				
5	" NE " "	-3.0	-1.2				
6	" NE " "	-1.6	0.6				
7	" NW " "	0.6	3.5				
8	" NNW forza	0.1	3.5				
9	coperto SE forzissima	2.2	5.5	Caduta nella notte	8		
10	" S forzissima	10.8	12.1	Caduta nella notte e nella giornata	11		
	Media dec.	2.6	3.3	Somma dec.	19		
11	Misto ESE forza	8.6	12.1				
12	sereno WNW semiforza	8.0	10.2				
13	Misto NW forza	7.5	10.1				
14	Coperto NW "	8.1	10.4				
15	Misto NW "	9.0	12.5	Caduta nella notte ed nella giornata	15		
16	Coperto NW semiforza	6.0	10.6				
17	Misto NW "	8.5	11.4				
18	Coperto SE forzissima	8.2	8.9	Caduta nella notte ed durante la giornata	6		
19	Misto NE semiforza	6.8	10.0				
20	coperto SE forza	8.8	10.3	Caduta nella giornata	25		
	Media dec.	7.9	10.7	Somma dec.	46		
21	Coperto NW forza	7.0	9.5				
22	Misto NE "	8.1	9.5				
23	" NE "	7.1	8.9				
24	" NNW "	6.2	10.4				
25	" NW "	7.1	11.5				
26	Coperto SE "	7.8	11.4				
27	" SE "	8.9	12.4				
28	" NW "	8.6	11.4				
29	Misto NW "	6.2	10.3				
30	coperto NW "	6.1	7.6				
31	Misto NE semiforza	6.2	8.3				
	Media dec.	7.2	8.2	Somma dec.			
				Totale mensile mm.	65		

Giorni: Sereni 2 — Misti 18 — Coperti 11

Giorni con: Pioggia 5 — Pioggia e neve non misurabili — Neve — Grandine — Brina — Nebbia 6 — Temporale

L'OSSERVATORE

AVVERTENZE — Lo stato del cielo si indica colle parole: *sereno, coperto, misto*. — La direzione del vento, che si può definire facilmente anche senza strumenti, si indicherà con le lettere N, NE, E, SE, S, SW, W, NW. — Si raccomanda vivamente di registrare colla più scrupolosa esattezza anche i decimi di grado per le letture sui termometri, e i decimi di millimetro per le altezze della pioggia. Se la lettura termometrica, cadesse su di un numero di gradi interi, per es. 16, si scriverà 16.0. Le temperature sotto zero vanno precedute dal segno —. Per la misura della neve caduta, si usi lo stesso pluviometro nelle stesse giorne in cui cade. E' anche necessario di misurare l'altezza della strato di neve sul suolo dopo ciascuna nevicata. A tale scopo basta solo introdurre verticalmente nella neve un regolo di legno, o metterci che permette di valutare le altezze della neve in centimetri. La misura deve essere fatta lontana da ogni ostacolo e in modo ad un terreno orizzontale. — Le osservazioni degli strumenti sarà bene farle a tarda ora, e possibilmente lontano alle 11 h. Qualcuno dei termometri segnerà il massimo ed a minimo nella mattina (ore 9) e ciò può essere tollerato, sempreché si abbia l'avvertenza di registrare il numero del mese, non nella casella del giorno stesso dell'osservazione, ma in quella del giorno precedente, be per es: nel mattino del giorno 9 si legge: massimo 27.3 min. 10.2, nella casella del giorno 9 si scrive il solo minimo 10.2, mentre il massimo 27.3 si porta alla data del 8, perchè è appunto nel pomeriggio del giorno 8 che tale massimo si è verificato.

Database organisation

GSM-RCO:

Global summaries of the month and Records of Climatological Observations regarding the climate of Libya, already scanned before the project

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Record of Climatological Observations
These data are quality controlled and may not be identical to the original observations.
Generated on 06/22/2024

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 2037 ft. Lat: 31.8700° N Lon: 10.9800° E
Station: **NALUT, LY LYE00147740**

Observation Time Temperature: Unknown Observation Time Precipitation: Unknown

Year	Month	Day	Temperature (F) "24 Hrs. Ending at Observation Time" Max.	Temperature (F) "24 Hrs. Ending at Observation Time" Min.	At Obs.	Precipitation 24 Hour Amounts Ending at Observation Time: Rain, Melted Snow, Etc. (in)	Flag	Snow, Ice Pellets, Hail (in)	Flag	At Obs. Time: Snow, Ice Pellets, Hail, Ice on Ground (in)	Evaporation: 24 Hour Wind Movement (mi)	Evaporation: Amount of Evap. (in)	"Soil Temperature (F)" 4 in. Depth: Ground Cover (see *)	4 in. Depth: Max.	4 in. Depth: Min.	8 in. Depth: Ground Cover (see *)	8 in. Depth: Max.	8 in. Depth: Min.
1932	01	01		35														
1932	01	02		27														
1932	01	03		30														
1932	01	04		36														
1932	01	05		34														
1932	01	06		37														
1932	01	07		37														
1932	01	08		36														
1932	01	09		40														
1932	01	10		42														
1932	01	11		44														
1932	01	12		42														
1932	01	13		39														
1932	01	14		38														
1932	01	15		35														
1932	01	16		44														
1932	01	17		34														
1932	01	18		32														
1932	01	19		34														
1932	01	20		38														
1932	01	21		39														
1932	01	22		45														
1932	01	23		46														
1932	01	24		41														
1932	01	25		39														
1932	01	26		36														
1932	01	27		38														
1932	01	28		35														
1932	01	29		36														
1932	01	30		39														
1932	01	31		40														
		Summary	0	38		0.00												

Empty, or blank, cells indicate that a data observation was not reported.
*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown
"s" This data value failed one of NCEI's quality control tests. "At Obs." = Temperature at time of observation
"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.
"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.
Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Global Summary of the Month for 1932
Generated on 06/22/2024

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 2037 ft. Lat: 31.8700° N Lon: 10.9800° E
Station: **NALUT, LY LYE00147740**

Date	Temperature (F)												Precipitation (Inches)										Observed Weather	
Elem ->	TAVG	TMAX	TMIN	HTDD	CLDD	EMXT		EMNT		DX90	DX32	DT32	DT00	PRCP	EMXP		SNOW	EMSD		DP01	DP10	DP1X	DYHF	DYTS
Month	Mean	Mean Max.	Mean Min.	Heating Degree Days	Cooling Degree Days	Highest	High Date	Lowest	Low Date	Number of Days				Total	Greatest Observed		Snow, Sleet			Number of Days				
										Max >= 90	Max <= 32	Min <= 32	Min <= 0		Amount	Date	Total Fall	Max Depth	Max Date	>=.01	>=.10	>=1.0	FG+	TS
Jan	M	M	37.7	M	M	M	M	27	02	M	M	2	0	M	M	M	M	M	M	M	M	M	M	M
Feb	M	M	41.4	M	M	M	M	37	06	M	M	0	0	M	M	M	M	M	M	M	M	M	M	M
May	M	M	57.1	M	M	M	M	46	04	M	M	0	0	M	M	M	M	M	M	M	M	M	M	M
Jun	78.9	92.8	65.0	0	393	107	21	53	10	16	0	0	0	M	M	M	M	M	M	M	M	M	M	M

Notes

M Data element not reported or missing.
X Monthly means or totals based on incomplete time series.
+ Occurred on one or more previous dates during the month. The date in the Date field is the last day of occurrence.
A Accumulated amount.
T Trace Amount.
FG+ Heavy Fog
TS Thunderstorms