



Data Rescue activities in AEMET

José A. Guijarro (jguijarrop@aemet.es)

State Meteorological Agency (AEMET), Balearic Islands Office, Spain

DARE-EUMETNET Meeting (Budapest, May 13, 2014)



- Territorial structure of AEMET
- Data Rescue achievements
- Data Rescue pending tasks
- Problems and prospects

- Territorial structure of AEMET
- Data Rescue achievements
- Data Rescue pending tasks
- Problems and prospects

- Territorial structure of AEMET
- Data Rescue achievements
- Data Rescue pending tasks
- Problems and prospects

- Territorial structure of AEMET
- Data Rescue achievements
- Data Rescue pending tasks
- Problems and prospects



Territorial structure of AEMET

Achievements

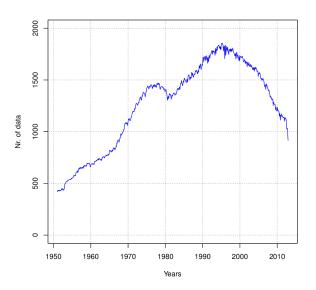
- ▶ Digitization of (almost) all *modern* data (from around 1950)
- Scanning (1998) of old manuscript data reports (\sim 1860 to \sim 1950)
- Digitization of old monthly values

Achievements

- ▶ Digitization of (almost) all *modern* data (from around 1950)
- Scanning (1998) of old manuscript data reports (\sim 1860 to \sim 1950)
- Digitization of old monthly values

Achievements

- ▶ Digitization of (almost) all *modern* data (from around 1950)
- Scanning (1998) of old manuscript data reports (\sim 1860 to \sim 1950)
- Digitization of old monthly values



Temperature data (series with 10 or more years)



		a	acenta	inetro	,		ů .			day was			
		9 de la mainana. Bureción Fines a		I de la tarde Niveccion Tuerza		Placifia tre	Almon tre av Milimeters	Koher de O ár fo D mais a lande		Estado del Ciclos Observaciones que			
9,8	58	200	3	04	3		1,18	5.	6	Generalis Got low what is boundered in her the line is to			
3,3	12	10	3	elict	1	* 🗵	120	4	3	Cumbe limber of the pylo horace whitelund			
42	0.11	U/	-11-	4	/ :-		6.64	111		Set the lists to the land to the Second Seco			
0//3_	11_	ald !	1	15%	2	- <i>U</i>	468	111	5	Introde lumater Albert on by Showing aboutter			
3,5	-67	1.146	4	Crail.	~~		4.62	10		lucture Simplede tomore de la T. C. Denate			
10,1	15	2016	1	26/	1	- 6	1.28	10	16_	Lie land lublete Land by think			
13,0	9/.	W.	1	ul	/	cp	0,68	1	10	Tirrer Subjects to begin be Staine mektick			
110	91	.3	0	1.0	,	7 70	1:11	. 3	10	Block line of a			
11,8	232	will.		125	2		1,03		6	Section from he was been there we be and ready			

Old (1864) Palma data (black & white)

A#0 1981 MES 10 ARES LONG. 0244E; LATI. 3933; ALTIT. 7; ALTIBA. ; (EDICION 22-06-90) 13 HORAS 18 HORAS EXTREMAS TH HU MAX. HORA 24.2 20.2 68 20.5 17.9 24.8 17.0 42 13.1 11.1 22.0 20.0 83 21.8 18.9 25.0 11.00 12.2 04.00 21.2 17.0 64 16.0 14.1 25.4 14.45 15.0 23.00 20.2 3.2 25.0 20.6 66 20.7 18.1 22.4 20.6 84 22.8 19.6 25.6 12.40 14.4 03.00 20.0 1.6 25.6 21.2 66 21.6 18.8 22.4 20.8 86 23.3 20.0 23.6 21.4 82 23.7 20.3 26.6 12.15 15.0 05.30 20.8 0.8 28.2 21.6 54 20.5 17.9 30.0 12.00 13.2 05.25 21.6 26.0 22.0 69 23.2 19.9 23.0 20.0 75 21.0 18.3 26.6 13.40 15.8 24.00 21.2 26.6 22.0 65 22.7 19.6 23.0 21.0 83 23.3 20.0 29.6 12.00 13.2 07.00 21.4 2.0 28.0 21.0 51 19.3 17.0 22.0 18.2 68 17.8 15.8 29.0 15.00 16.6 24.00 22.8 3.2 27.8 22.4 61 22.8 19.6 23.0 20.4 78 21.9 19.0 21.8 20.4 88 22.8 19.7 29.6 13.20 15.2 24.00 22.4 24.6 21.4 74 22.9 19.7 26.8 11.15 13.2 05.00 20.0 26.1 20.9 62 20.7 18.0 22.4 20.0 79 21.4 18.6 27.4 26.6 22.2 67 23.2 19.9 24.4 18.6 55 16.8 14.8 28.4 14.30 14.0 07.00 26.6 22.4 68 23.7 20.3 23.6 21.2 80 23.2 19.9 27.6 12.30 14.6 04.45 21.1 2.6 27.2 22.0 62 22.3 19.3 25.4 22.8 79 25.7 21.5 21.2 19.2 82 20.6 18.0 28.4 13.30 16.8 01.30 22.6 1.5 23.0 21.0 83 23.3 20.0 26.0 13.15 13.8 05.30 19.9 26.0 22.8 75 25.2 21.2 23.2 21.6 86 24.5 20.8 27.0 14.50 14.4 24.00 20.7 27.2 23.0 69 24.7 20.9 21.6 20.6 91 23.5 20.1 29.4 11.45 13.2 04.00 21.3 29.0 23.3 60 24.0 20.5 22.2 21.0 90 23.9 20.4 29.8 13.15 12.4 07.00 21.1 1.8 26.8 22.0 64 22.6 19.5 22.4 20.8 86 23.3 20.0 27.6 13.30 14.0 06.15 25.0 21.0 69 21.7 18.8 26.0 14.00 17.0 04.00 20.8 25.4 21.0 66 21.3 18.6 21.5 1.4 20.2 18.4 84 19.7 17.3 24.0 15.40 13.6 24.00 21.8 18.8 74 19.3 17.0 18.8

Image of digitized data (!!!???)

TEMPERATURA Y HUMEDAD DEL AIRE											TEMPERATURAS EXTREMAS					1						
7 h.					13 h.				18 h.				Máxima	Hora	Misimo	Hora	Osci-	Media	Min. a fi			
ter. um	for.	Bitat.	Tensión		Posto da resia	Ter. secs	Yer.	Pital.	Tentis	Pizzle de recis	Trr. vera	Yer.	Mest.	Tentile	Puets da recis	No.	0.000		188	- de(o)	16-2	V design
		0.7	144		1	1-11	19	-2	1.89	6	10:2	910	84	7.85	8	17.0	1220	1.0	0631	16:01	9'0	
6.	22	93	500	,	-	15 6	10 0	TI	6.89	11	10.3	12.8	84	10:31	121	17.2	1100	5'0		122	11'1	
6.4	64	9+	60	-	6	15 4	154	14	1116	113	1510	14.0	91	11142	13	18.0	1230	12:5	0500	5'5	15'3	
14.6	137	21	11.4	0	13	It.	122	67	10.43	12/	1210	9.5	62	6.84	6	1812	1/3/5	04.8	0615	13'4	11'5	
60	6 0	100	F.0	0	6	12.0	140	771	11:24	12	IVIP	12.6	82	11:18	13	17:5	1205	5'0	0630	12:5	113	+
8 0	8 0	10 1	80	0	71	1270	1112	90	9.7/	10	1116	9'6	77	7'96	8	14'5	1100	12'0	0650	2'5	13'2	-
1.3.1	11.0	13	74	21	IL	1810	914	71	71/3	6	10.8	700	93	880	10	13'5	14'01	2.8 0	0600	53	9'0	t
7.4	6.0	87	0 0	1	a	14.6	124	7 7 11	9101	10	1115	102	85	8.44	9	15'2	1320	10.0	0640	53	12.6	
10.0	10 0	113	85	2	9	818	7.5	7.3	600	14	10:21	814	76	6.93	5	11.9	1400	7.0	060		91	
10:2	311	61	PA D	1	1	12.4	28	61	63	5	10:2	9.8	97	9.04	10	13'5	1700	7'5	030	0 6'0	10.5	
14.30	Sections	- R. 3	20	-	-	LN	7. W. W.		2014	400	I was a	1-10	001/0	OPP	1 4 11	IFF	7	73'1	1	828	1123	5
90.4	808	880	763		69	1432	111-	RI	884	170	120:3	100	10 40	8RE	2.1.1	155		73'0	1			
90	6.2	52	62	2	00	11:2	714	154	521	121	10:0	6'8	60	5:57	3	12.0	1340	515	0.000	63	8 1	
1	219	7.7	6.2	0	4	10.6	74	71	617	4	1074	7'0	58	645	-21	11.6	125	05.0	030	96	6.9	/
30	716	1 to	67	7	4	11.4	1'4	52	5'0	1	7'>	5'4	166	56	0 3	12'0	1400	33	053	090	t 1	2007
3.0	213		68	P	4	182	7.6	92	7'66	7	7.0	6.0	83	6.4	1 5	10.0	143	015	0000	0		
6'0	71	9	54	5	3	9.0	8'0	86	7.4	7 5	10.6	7'4	60	557	3	10.2	173	0 510	064	0 83	OK	-
11. 8	1110	9, 96	914	12	11	111.8	1114	95	915	511	132	:51	693	10.00	111	15'0	121	0 6 1	0001	040	101	
4.8	47	97	6'9	1	5	142	11:0	65	786	8	82	7.5	189	1.01	6	150	(40	0 3.0	060	010	2 71	
410	219	97	516	18	4	1116	8.8	67	684	15	192	7.0	7-1	6.13	4	133	1/60	251	-050	0 0	4	
1115	8.0	56	5	13	3	1134	9'2	5	6.04	14	8.0	7'0	86	68	15	1,3.5	160	5 5 3	O A F	P 916	0 9	-
10.8	, 8.	6 73	172	15	6	1114	190	771	7:13	6	1111	100	44	9'61	11	140	100	2 5'0	055		I di	- Contract
2000	(13	702	11/11	2	111	112	4715	020	6.190	155	9514	77	476	5 684	853	126	8	347	R	13	180.	+
14	6,62	483	704	SI	Total .	115	opport	A. P.V	0010		1	d.J.	LELLING	Str. Made on N	Market		100					0

Color photograph of a data sheet

Ongoing Data Rescue tasks

- Imaging old radiosonde output (before 1970)
- ► Imaging of some analog recordings (paper strips)
- Digitization of discovered data forms

Ongoing Data Rescue tasks

- Imaging old radiosonde output (before 1970)
- Imaging of some analog recordings (paper strips)
- Digitization of discovered data forms

Ongoing Data Rescue tasks

- Imaging old radiosonde output (before 1970)
- Imaging of some analog recordings (paper strips)
- Digitization of discovered data forms

SERVICIO METEOROLOGICO NACIONAL POTYM/LEDOYM													
	NSMISION	<u> </u>	II iii	GGhhh	TTTaTaTx	0 dd ff	Par	te A	400 0504				
SECCION 1. Presiones tipo.	PPhhh 85438 40737	TTTdTdTx 16511 74769	0 dd ff 0 2143	PPhhh 70 059 30940	77661x 04128 90998	0 dd ff 0 2035	PPhhh 50 €71 20 40 3	11141x 63659 10992	0 dd ff 0 22/2 0				
SECC. 11 Tropo- pausa.	15 384 111 AA 111 22	11996 HtHt BBB 20200	TpTpTdpTdpSt	10 637 111 A A 11122	05995 HHRRR	TpTpTdpTdpSt	111 A A 11122	H _t H _t P _t P _t P _t	TpTpTdpTdpSt				
SECC.10 Vientos máximos.	111 A A 11100	jn HmHmHmHm	22 066	jnHmHmHmHm	da da fff	jո HաHաHաHա	da da fff	jn HmHmHmHm					
		GG TT 2/3	07302			Part	te B	T	x as de TaTa				

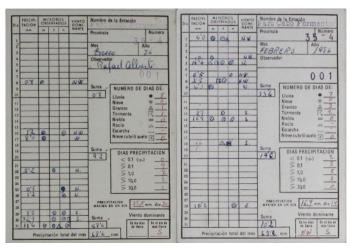
Scan of a radiosonde TEMP report

- Cataloging all data documents
- Imaging of all written data documents
- Imaging of all analog recordings
- Digitization of all imaged data

- Cataloging all data documents
- Imaging of all written data documents
- Imaging of all analog recordings
- Digitization of all imaged data

- Cataloging all data documents
- Imaging of all written data documents
- Imaging of all analog recordings
- Digitization of all imaged data

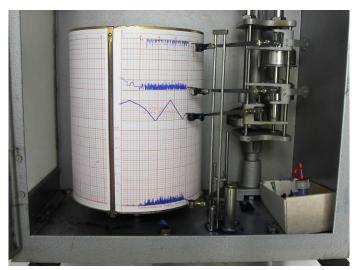
- Cataloging all data documents
- Imaging of all written data documents
- Imaging of all analog recordings
- Digitization of all imaged data



Color photograph of a precipitation postcard



Chickpea size hailstone report on a precipitation postcard



FUESS anemo-cinemograph

- Lack of human resources (chronic in climatology area)
- Little appreciation of Data Rescue importance
- ► ⇒ Advocating for it!
- WFCS providing a favorable background
- Agreements with Geography Faculties, etc, can be an invaluable help

- Lack of human resources (chronic in climatology area)
- Little appreciation of Data Rescue importance
- ▶ ⇒ Advocating for it!
- WFCS providing a favorable background
- Agreements with Geography Faculties, etc, can be an invaluable help

- Lack of human resources (chronic in climatology area)
- Little appreciation of Data Rescue importance
- ▶ ⇒ Advocating for it!
- WFCS providing a favorable background
- Agreements with Geography Faculties, etc, can be an invaluable help

- Lack of human resources (chronic in climatology area)
- Little appreciation of Data Rescue importance
- ▶ ⇒ Advocating for it!
- WFCS providing a favorable background
- Agreements with Geography Faculties, etc, can be an invaluable help

- Lack of human resources (chronic in climatology area)
- Little appreciation of Data Rescue importance
- ▶ ⇒ Advocating for it!
- WFCS providing a favorable background
- Agreements with Geography Faculties, etc, can be an invaluable help