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Report for UERRA Deliverable 1.2 (D1.2): Report on the locations of the station data: digitised and to be digitised

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The report for the Deliverable 1.2 (D1.2) entitled: *Report on the locations of the station data: digitised and to be digitised* is presented in this document, which has been conducted by the University Rovira i Virgili (URV) in collaboration with the University of East Anglia (UEA) and the National Meteorological Administration of Romania (NMA-RO) for the Work Package 1 (WP1 on Data Rescue and development, gridded and observational datasets) committed under the EU-FP7-funded collaborative project entitled *Uncertainties in Ensembles of Regional Reanalyses* (UERRA: Grant agreement no.: 607193, http://www.uerra.eu/).

The report is organised in two sections: in the first one, we provide a description of the previous work done to assess what is already accessible at the Meteorological Archival and Retrieval System (MARS) from the European Centre for Medium-Range Weather Forecast (ECMWF) in digital format for the relevant climate variables identified in D1.1 and we catalogue what information is available and scanned in accessible, but undigitised, data sources to identify the targets for synoptic stations data digitisation. Second, we give the lists of stations identified for digitisation and their current status, dividing this section into two subsections to provide the targets committed to by URV and NMA-RO.

Section 1: Previous steps undertaken to set targets for Data Rescue (DARE) and digitisation under UERRA WP1

The explored data sources and holders detailed in the D1.1 report have provided a rich amount of historical climate data in usable format to be potentially digitised. However, before starting to digitize weather observations, it is necessary to know what data exist in digital format at the ECMWF MARS Archive to avoid duplicating efforts. Therefore, exhaustive searches and data inventories, both in digital and undigitised formats, have been carried out to know what is available and what could be the target for digitisation. The main purpose of these inventories has been to identify all known and accessible

time-series (both scanned images and in digitised form) and gather all the relevant information on the station-data, which included station identifiers (name and WMO code, if available), climate variables recorded, observing times, the period covered by the source, the imaged/scanned data formats and all the metadata available in the sources explored. Data inventories are crucial and a previous step to identify and set the targets for digitisation.

In addition to the scanned data sources described in D1.1, the URV along with UEA has explored the current availability of digitised data kept at the International Surface Pressure Databank (ISPD: http://www.reanalysis.org/observations/international-surface-pressure-databank), which along with the International Comprehensive Ocean-Atmosphere Data Set (ICOADS: http://icoads.noaa.gov/) for marine data and the digitised records currently available at MARS and gathered from different sources, constitute the basic input used for the generation of global and regional reanalysis. Comparisons among the digitised data available at MARS and ISPD and the scanned data sources gathered have been carried out to identify what climate time-series could be digitised and added to MARS.

Useful metadata files have been produced by the UEA partner after data decoding from MARS Archive for the post-1960 period and three files listing the current availability of digital data were produced for the three European windows previously identified as data-sparse sub-regions: the Mediterranean Basin, including Middle East countries (45N.29N.040E.010W), Eastern Europe (55N.45N.025E.015E) and Scandinavia (71N.55N.025E.005E). Table 1 shows an example of the information contained in the metadata files produced by UEA and used by URV to identify what data exist in the imaged data sources, but that MARS doesn't contain. The table provides percentages (rounded to the nearest whole number) of the stations with adequately-complete months for different climate variables (SLP: sea level pressure, WD: wind direction, WS: wind speed, TT DP: temperature dew point, RR: rainfall, SD: snow-depth and RH: relative humidity) between 01/1960 and 12/2010, along with the most common daily frequency of observing times identified for each station.

These files enabled URV to identify which stations we have gathered from imaged data sources that are not evident within MARS, in addition to those others that being available at MARS have lower percentages of data completeness. Therefore, low percentages of temporal data completeness in Table 1 represent data scarcity for a given station and climate variable that could be set as a target for digitising its synoptical variables from the hardcopy or digital images gathered. Stations with less than 40% of adequately-supported months were set as potential targets, in addition to those variables with no data.

Table 1: Example of metadata file extracted from the ECMWF MARS Archive, showing the fraction of digitised data currently available and estimated from the period 1960-2010 for several climatic variables and for the most common daily observing time frequency encountered for each station (in % wrt their whole period. See text for climate variables acronyms).

WMO code	Latitude	Longitude	Altitude (m)	Observing times	SLP	WD	WS	TT	DP	RR	SD	RH
2596	47.42	18.92	5	2	0	0	0	0	0	0	0	0
6199	55.00	15.08	6	8	30	30	30	30	30	0	0	30

6199	55.00	15.10	6	4	0	0	0	0	0	0	0	0
9499	51.17	15.00	237	4	0	0	0	0	0	0	0	0
11019	48.68	15.37	620	6	27	27	27	27	27	6	0	27
11020	48.62	15.20	511	2	8	8	8	8	8	8	0	8
11021	48.97	15.03	570	4	14	26	26	25	26	14	0	25
11021	48.95	15.03	555	4	15	14	14	15	15	12	0	15
11022	48.77	15.97	243	2	6	6	6	6	6	0	0	6
11022	48.77	15.95	262	4	39	39	39	39	39	19	0	39
11024	48.33	15.35	860	2	0	0	0	0	0	0	0	0
11024	48.35	15.37	860	2	0	3	3	3	3	2	0	3
11024	48.33	15.33	959	1	0	0	0	0	0	0	0	0
11026	48.45	15.63	312	2	0	0	0	0	0	0	0	0
11028	48.20	15.63	282	4	6	6	6	6	6	0	0	6
11028	48.20	15.70	277	2	0	0	0	0	0	0	0	0
11028	48.20	15.62	282	4	34	34	34	34	34	5	0	34
11028	48.18	15.62	284	12	11	11	11	11	11	10	0	11
11030	48.32	16.12	176	8	60	60	60	60	60	56	0	60
11032	48.67	16.62	210	4	0	4	4	4	4	0	0	4
11032	48.67	16.63	209	4	25	26	26	26	26	21	0	26

After checking data availability in digital format, the digitisation plan has been produced from available data sources. Most of the data sources gathered from data holders are reproduced in digital images by scanning or digitally photographing the hardcopy documents. The use of digital images instead of hardcopy documents has the advantage that they can be used by more people at the same time and can be easily provided via the Internet.

Before starting the digitisation, the data source has been inspected to find changes in parameters, units, formats, missing data and other important metadata. This information is needed for constructing templates for keying the data into spreadsheets and for the construction of a metadata file. This previous checking of data sources is crucial to identify which time-series are of interest under UERRA DARE activities to develop a clear digitisation plan for accomplishing the UERRA research plan.

10 university students are working with a part-time contract (15 hours per week) for 2 years. The most common method for getting data into spreadsheets is manually keying the data. For handwritten material this is still the only feasible method, but also for printed data it is often the most efficient approach, especially when the quality of the images is poor. The use of Optical Character Recognition (OCR) software may be feasible when the observations are printed with sufficient quality in the documents, but when the quality of the originals and images is poor, OCR may require a lot of post processing and, therefore, may probably not be much faster than manually typing (Brandsma *et al.*, 2000).

Some of the mentioned printed material is suitable to be digitised by using the purchased OCR software, ABBYY FineReader (http://www.abbyy.com/), which will be

in generalised use in year #2 to digitise those images that ensure better outputs and less post-processing tasks, since its experimental usage is providing good results so far.

Section 2: Locations of the digitised stations, under digitisation and those set for future digitisation by URV and NMA-RO efforts

In this section, we provide the lists showing the locations of the station data set as target for digitisation by URV (first sub-section) and NMA-RO (second sub-section), along with relevant information on their identifiers (station name and WMO code), geographical details (coordinate and elevation), observed variables, observing times and period length.

2.1. List of stations locations set as target for digitisation by URV and its status

The initial URV effort for digitisation has been focused on the Southern Mediterranean sub-region where the basic input for European Regional Reanalysis shows a poorer representation in the explored databanks. Specifically, Table 2 shows a list of the already digitised stations that includes station metadata, variables of interest and the observing times recovered for the given time-period. Eighteen Egyptian stations have been digitised, two stations for Cyprus and Morocco respectively, and seven more for Algeria taking into account different observing times for various climate variables.

Table 2: List of stations, climatic variables, observing times and data periods recovered (See the text for details on the climate variables acronyms).

Country	Station name	WMO code	Latitude	Longitude	Altitude (m)	Variables	Observing times	Length
Egypt	Damietta	62330	31.42 deg N	31.82 deg E	5	TT, SLP	6h/8h/12h/14h/20h	1934-1957
	Damanhour	62339	31.03 deg N	30.47 deg E	2	TT, SLP	6h/8h/12h/14h/20h	1934-1957
	El Mansura	62342	31.34 deg N	31.08 deg E	10	TT, SLP	6h/8h/12h/14h/20h	1932-1957
	Tanta	62348	30.78 deg N	31.00 deg E	15	TT, SLP	6h/8h/12h/14h/20h	1927-1957
	Zagazig	62354	30.58 deg N	31.50 deg E	13	TT, SLP	6h/8h/12h/14h/20h	1913-1957
	Minya	62387	28.08 deg N	30.73 deg E	40	TT, SLP	6h/8h/12h/14h/20h	1907-1957
	Asyut-Heat airport	62393	27.05 deg N	31.02 deg E	226	TT, SLP	6h/8h/12h/14h/20h	1907-1957
	Luxor Airport	62405	25.67 deg N	32.70 deg E	93	TT, SLP	6h/8h/12h/14h/20h	1936-1957
	Fayoum	62381	29.30 deg N	30.85 deg E	23	TT, SLP	6h/8h/12h/14h/20h	1932-1957
	Salloum	62300	31.55 deg N	25.18 deg E	4	TT	6h/8h/12h/14h/20h	1919-1957
	Mersa Matruh	62306	31.33 deg N	27.22 deg E	25	TT, RH, DP, WD, WS	6h/8h/12h/14h/20h	1920-1957
	Port Said	62333	31.28 deg N	32.23 deg E	6	TT, RH, DP, WD, WS	6h/8h/12h/14h/20h	1907-1957
	Cairo Ezbekiya	62374	30.05 deg N	31.25 deg E	20	TT, RH, DP, WD, WS	6h/8h/12h/14h/20h	1909-1957
	Giza (Cairo)	62375	30.03 deg N	31.21 deg E	28	TT	6h/8h/12h/14h/20h	1907-1957

	Helwan (Cairo)	62378	29.86 deg N	31.34 deg E	116	TT, RH, DP, WD, WS	6h/8h/12h/14h/ 20h	1907-1957
	Siwa	62417	29.20 deg N	25.48 deg E	-15	TT, RH, DP, WD, WS	6h/8h/12h/14h/ 20h	1912-1957
	Ismailia	62441	30.60 deg N	32.23 deg E	10	TT	6h/8h/12h/14h/ 20h	1948-1957
	El Suez	62450	29.93 deg N	32.55 deg E	10	TT, RH, DP, WD, WS	6h/8h/12h/14h/ 20h	1907-1957
Cyprus	Nicosia	17606	35.19 deg N	33.37 deg E	152	TT	9h/21h	1881-1922
	Paphos	17600	34.77 deg N	32.43 deg E	30	TT	9h/21h	1901-1922
Morocco	Tangier city	60100	35.78 deg N	5.82 deg W	86	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Oujda	60115	34.78 deg N	1.93 deg W	478	TT, DP, WD, WS	6h/7h/18h	1910-1938/1953-1964
Algeria	Oran	60461	35.70 deg N	0.65 deg W	53	SLP, TT, DP, WD, WS	6h/7h/18h	1910-1938/1953-1968
	Algiers (Ville)	60369	36.78 deg N	3.07 deg E	59	TT, WD, WS	7h	1900-1938
	Constantine	60419	36.37 deg N	6.62 deg E	660	TT, WD, WS	7h	1900-1938
	Orleansville (Chlef)	60425	36.17 deg N	1.34 deg E	112	TT, WD, WS	7h	1900-1938
	Setif	60475	36.18 deg N	5.40 deg E	1081	TT, WD, WS	7h	1910-1938
	Nemours (Gazaouet)	60517	35.10 deg N	1.85 deg W	83	TT, WD, WS	7h	1900-1938
	Laghouat	60545	33.80 deg N	2.89 deg E	767	SLP, TT, WD, WS	7h	1900-1938

Current digitisation status has the focus placed mostly on Mediterranean and Balkan countries, such as Slovenia, Republic of Serbia, Croatia, Bosnia & Herzegovina and especially in Turkey, where data images for 24 stations have been identified for the post-1960 period, for several climatic variables and for three observing times per day (Table 3). A few stations from Czech Republic and Slovak Republic have also been digitised to cover some parts of the Central Europe region.

Table 3: List of stations, climatic variables, observing times and data periods that are currently under digitisation by URV.

Country	Station name	WMO code	Latitude	Longitude	Altitude (m)	Variables	Observing times	Length
Slovenia	Ljubljana-Bezigrad	14015	46.07 deg N	14.52 deg E	299	SLP,TT,RH ,WD,WS	7h/14h/21h	1951-1984
Republic of Serbia	Zlatibor	13367	43.73 deg N	19.92 deg E	1029	SLP,TT,RH ,WD, WS	7h/14h/21h	1992-2012
	Loznica	13262	44.55 deg N	19.30 deg E	121	SLP,TT,RH ,WD, WS	7h/14h/21h	1992-2012
	Beograd-Surcin	13272	44.80 deg N	20.47 deg E	132	SLP,TT,RH ,WD,WS	7h/14h/21h	1949-1970 2011-12
Croatia	Zagreb-Gric	14236	45.82 deg N	15.98 deg E	157	SLP,TT,RH ,WD,WS	7h/14h/21h	1949-1984
	Split-Marjan	14445	43.52 deg N	16.43 deg E	122	SLP,TT,RH ,WD,WS	7h/14h/21h	1949-1984
Bosnia & Herzegovina	Sarajevo-Butmir	14653	43.87 deg N	18.43 deg E	630	SLP,TT,RH ,WD,WS	7h/14h/21h	1949-1960 1970-84
	Bjelasnica	14652	43.72 deg N	18.28 deg E	2067	SLP,TT,RH ,WD,WS	7h/14h/21h	1953-1960

Slovak Republic	Bratislava-Trnavaka	11814	48.17 deg N	17.13 deg E	139	SLP,TT,RH,WD,WS	7h/14h/21h	1948-1968
	Lomnicky Stit.	11930	49.20 deg N	20.22 deg E	2638	SLP,TT,RH,WD,WS	7h/14h/21h	1940-1966
Czech Republic	Brno-Kvetna	11721	49.20 deg N	16.57 deg E	233	SLP,TT,RH,WD,WS	7h/14h/21h	1948-1968
	Praha-Luzyne	11518	50.10 deg N	14.45 deg E	381	SLP,TT,RH,WD,WS	7h/14h/21h	1965-1966
Turkey	Istambul-Goztepe	17062	40.97 deg N	29.08 deg E	40	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1971
	Bursa	17116	40.23 deg N	29.02 deg E	101	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1966
	Erzurum	17096	39.92 deg N	41.27 deg E	1756	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1971
	Van	17170	38.45 deg N	43.32 deg E	106	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1971
	Diyarbakir	17280	37.88 deg N	40.18 deg E	686	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1971
	Rize	17040	41.03 deg N	40.49 deg E	29	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1971
	Manisa	17186	38.62 deg N	27.43 deg E	71	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1971
	Aydin	17234	37.85 deg N	27.85 deg E	57	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1971
	Kutahya	17155	39.42 deg N	29.99 deg E	969	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1971
	Kayseri	17195	38.78 deg N	35.48 deg E	1054	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1965
	Anamur	17320	36.08 deg N	32.83 deg E	4	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1971
	Antakya	17984	36.12 deg N	36.10 deg E	272	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1971
	Islahiye	17964	37.01 deg N	36.38 deg E	645	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1971
	Gaziantep	17260	37.08 deg N	37.37 deg E	855	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1966
	Siirt	17210	37.93 deg N	42.00 deg E	895	SLP,TT,RH,WD,WS	7h/14h/21h	1962-1971
	Artvin	17045	41.17 deg N	41.42 deg E	30	SLP,TT,RH,WD,WS	7h/14h/21h	1963-1971
	Bilecik	17120	40.15 deg N	29.98 deg E	539	SLP,TT,RH,WD,WS	7h/14h/21h	1963-1971
	Cankiri	Not found	40.60 deg N	33.63 deg E	245	SLP,TT,RH,WD,WS	7h/14h/21h	1963-1971
	Elazig	17202	38.60 deg N	39.28 deg E	903	SLP,TT,RH,WD,WS	7h/14h/21h	1963-1966
	Fethiye	17296	36.62 deg N	29.12 deg E	3	SLP,TT,RH,WD,WS	7h/14h/21h	1963-1971
	Giresun	17034	40.92 deg N	38.38 deg E	37	SLP,TT,RH,WD,WS	7h/14h/21h	1963-1966
	Igdir	17100	39.93 deg N	44.03 deg E	858	SLP,TT,RH,WD,WS	7h/14h/21h	1963-1971
	Kars	17098	40.60 deg N	40.08 deg E	1775	SLP,TT,RH,WD,WS	7h/14h/21h	1963-1971
	Nigde	17250	37.97 deg N	34.68 deg E	1208	SLP,TT,RH,WD,WS	7h/14h/21h	1963-1971

Finally, Table 4 shows the list of stations planned to be digitised in the near future also focused on the Mediterranean countries. New stations for Morocco, Tunisia, Lebanon and Algeria are pending for digitisation, and also other different variables than TT and SLP from Egypt stations are of interest under UERRA WP1.

Table 4: List of stations, climatic variables, observing times and data periods for future digitisation by URV

Country	Station name	WMO code	Latitude	Longitude	Altitude (m)	Variables	Observing times	Length
Morocco	Rabat-Sale	60135	34.05 deg N	6.77 deg W	76	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Casablanca	60155	33.57 deg N	7.67 deg W	58	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Nouasseur	60156	33.37 deg N	7.58 deg W	212	SLP, TT, DP, WD, WS	6h/18h	1953-1964
	Safi	60185	32.28 deg N	9.23 deg W	45	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Essaouria	60220	31.52 deg N	9.78 deg W	8	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Agadir	60250	30.38 deg N	9.57 deg W	19	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Ifrane	60160	33.50 deg N	5.17 deg W	1664	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Meknes	60150	33.88 deg N	5.53 deg W	549	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Fes-Sais	60141	33.93 deg N	4.98 deg W	579	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Kasba-Tadla	60190	32.53 deg N	6.28 deg W	518	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Marrakech	60230	31.62 deg N	8.03 deg W	466	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Midelt	60195	32.68 deg N	4.73 deg W	1515	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Ouarzazate	60265	30.93 deg N	6.90 deg W	1136	SLP, TT, DP, WD, WS	6h/18h	1953-1968
	Kenitra (Port-L Yautey)	60120	39.30 deg N	6.60 deg W	14	SLP, TT, DP, WD, WS	6h/18h	1953-1968
Egypt	Damietta	62330	31.42 deg N	31.82 deg E	5	RH, DP, WD, WS	6h/8h/12h/14h/20h	1934-1957
	Damanhour	62339	31.03 deg N	30.47 deg E	2	RH, DP, WD, WS	6h/8h/12h/14h/20h	1934-1957
	El Mansura	62342	31.34 deg N	31.08 deg E	10	RH, DP, WD, WS	6h/8h/12h/14h/20h	1932-1957
	Tanta	62348	30.78 deg N	31.00 deg E	15	RH, DP, WD, WS	6h/8h/12h/14h/20h	1930-1957
	Zagazig	62354	30.58 deg N	31.50 deg E	13	RH, DP, WD, WS	6h/8h/12h/14h/20h	1930-1957
	Minya	62387	28.08 deg N	30.73 deg E	40	RH, DP, WD, WS	6h/8h/12h/14h/20h	1930-1957
	Asyut-Heat airport	62393	27.05 deg N	31.02 deg E	226	RH, DP, WD, WS	6h/8h/12h/14h/20h	1930-1957
	Luxor Airport	62405	25.67 deg N	32.70 deg E	93	RH, DP, WD, WS	6h/8h/12h/14h/20h	1936-1957
	Fayoum	62381	29.30 deg N	30.85 deg E	23	RH, DP, WD, WS	6h/8h/12h/14h/20h	1932-1957
	Salloum	62300	31.55 deg N	25.18 deg E	4	RH, DP, WD, WS	6h/8h/12h/14h/20h	1930-1957
	Giza (Cairo)	62375	30.03 deg N	31.21 deg E	28	RH, DP, WD, WS	6h/8h/12h/14h/20h	1930-1957
	Ismailia	62441	30.60 deg N	32.23 deg E	10	RH, DP, WD, WS	6h/8h/12h/14h/20h	1948-1957
Tunisia	Bizerte-Cap Blanc	60714	37.33 deg N	09.84 deg E	264	TT, WD, WS	7h	1930-1938
	Tunis	60715	36.80 deg N	10.17 deg E	36	SLP, TT, WD, WS	7h	1930-1938
	Sfax	60750	34.72 deg N	10.72 deg E	23	TT, WD, WS	7h	1930-1938
	Tozeur	60760	33.95 deg N	8.11 deg E	50	TT, WD, WS	7h	1930-1938
Lebanon	Ksara	40106	33.82 deg N	35.89 deg E	918	SLP, TT, RH	Hourly	1930-1939
Algeria	Skikda-Cap Bougarouni	60355	37.08 deg N	6.47 deg E	195	SLP, TT, WD, WS	7h	1931-1938
	Annaba-Cap de Garde	60357	36.97 deg N	7.79 deg E	161	SLP, TT, WD, WS	7h	1930-1937
	Tizi Ouzou	60395	36.72 deg N	4.05 deg E	222	TT, WD, WS	7h	1930-1938

	Fort National	60395	36.63 deg N	4.20 deg E	942	TT, WD, WS	7h	1930-1938
	Bejaia-Cap Carbon	60400	36.78 deg N	5.10 deg E	225	TT, WD, WS	7h	1930-1938
	Oran-Cap Falcon	60485	35.77 deg N	0.80 deg W	78	SLP, TT, WD, WS	7h	1930-1938
	Tebessa	60475	35.42 deg N	8.12 deg E	863	TT, WD, WS	7h	1930-1938
	Sidi-Bel-Abbés	60520	35.20 deg N	0.63 deg W	476	SLP, TT, WD, WS	7h	1930-1938
	Biskra	60525	34.85 deg N	5.72 deg E	125	TT, WD, WS	7h	1930-1938
	Geryville (El-Bayadh)	60550	33.68 deg N	1.00 deg E	1320	SLP, TT, WD, WS	7h	1930-1938
	El-Golea	60590	30.55 deg N	3.07 deg E	394	TT, WD, WS	7h	1930-1938
	Tindouf	60656	27.67 deg N	9.33 deg W	431	SLP, TT, DP, WD, WS	6h/18h	1953-1968

In addition to the information on the URV targets for digitisation provided above, there are in course discussions with several National Meteorological Services (NMS such as the Catalonia Met Service, Deutscher Wetterdienst in Germany, Météo-France and Slovenia), in order to provide to URV with their scanned, but un-digitised data, for digitisation, while soon, similar requests will be sent to Sweden and Norway. Additionally there are proposals already sent to Libya, Jordan, Macedonia the FYR, Montenegro and Serbia (Romania) that remain unanswered (declined). There are also efforts placed on exploring the National Climate Data Center holdings, under cataloguing, for the World War 2 period to assess the feasibility of digitising some data from these holdings. Therefore, the lists provided above will be complemented in the near future with the new un-digitised station-data coming from these interactions, what will dramatically increase the number of post-1960 synoptical observations to be digitised and developed.

2.2. List of stations locations set as target for digitisation by NMA-RO

The NMA-RO DARE effort has been set with the target on digitizing Romanian stations with 6-hourly precipitation data. The Romanian stations which are set for digitisation in the near future are listed in Table 5 and illustrated in Figure 1. Three of them are situated in mountain regions.

Table 1. List of Romanian stations with 6-hourly precipitation set for digitisation.

Nr.	Name	ID	Latitude (°)	Longitude (°)	Altitude (m)	Period
1	Bâlea Lac	15279	45.603	24.614	2070	1979 - 2002
2	Bucin	15148	46.648	25.296	1282	1978 - 2002
3	Dej	15083	47.128	23.898	232	1974 - 2002
4	Reșita	15314	45.314	21.886	279	1979 - 2002
5	Slatina	15434	44.442	24.354	172	1977 - 2002
6	Stâna de Vale	15118	46.689	22.623	1108	1979 - 2002

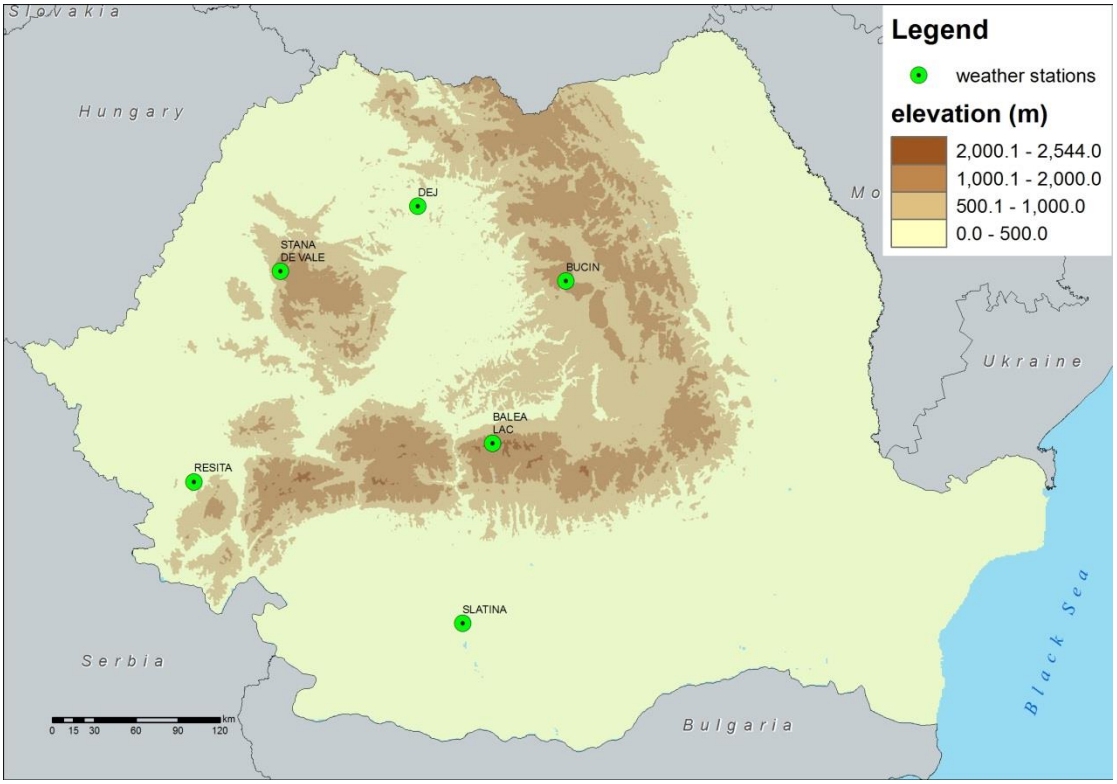

Figure 1. The locations of Romanian stations with 6-hourly precipitation set for digitization.

References

Brandsma, T., F. Koek, H. Wallbrink and G. P. Können, 2000. Het KNMI-programma Hisklim (HIStorisch KLIMaat). *KNMI-publication* **191**, also Hisklim 1, 72 pp.