

Table S1 Shows the data sources and the number of daily stations with location issues per source.

No.	Data Source Name	No. of Stations
1	Data originated from NOAA's/NCEI Global Summary of the Day (GSOD) Product	2506
2	Global Historical Climate Network Dataset	1649
3	The European Climate Assessment and Dataset	881
4	South Asia Climate Assessment Dataset	442
5	UK Met office	421
6	Environment Canada National Climate Data and Information Archive	318
7	Marcus Flarup	235
8	National Climate Centre Bureau of Meteorology PO Box 1289K Melbourne	222
9	Blair Trewin	186
10	Pauli Jokinen	125
11	Eirik Forland	100
12	Albert Klein Tank	93
13	Claus Kern-Hansen	76
14	These data originated from the Japan Meteorological Agency	66
15	Antarctic Meteorological Research Center (AMRC) University Wisconsin	65
16	Vyacheslav Razuvaev	63
17	The Southeast Asian Climate Assessment and Dataset	60
18	Dr. Ir. Wanny K. Adidarma	56
19	Dr V.N. Razuvaev and Dr. O.N. Bulygina Oak Ridge National laboratory, USA	50
20	JAMSTEC digitization project	43
21	William Angel AS part of the CDMP program	42
22	GSN network	33
23	Antonio Mestre Barcelo	31
24	National Climate Data Center (DWD)	28
25	Olga Zolina	20
26	Marc Prohom	16
27	National Institute for Space Research (INPE) in Brazil	15
28	Maria Michelaraki	11
29	Australian Government Bureau of Meteorology	10
30	Michael Panayiotis	9
31	Deutscher Wetterdienst (DWD)	8
32	Kaupo Mandla	8
33	Data originated used to create The International Surface Pressure Databank	7
34	MEDARE Initiative	7
35	Philippe Dandin	7
36	Tanja Likso	7
37	Brazil's Instituto Nacional de Meteorologia (INMET)	6
38	Data was provided by Jayashree Revadekar India Meteorological Department	6
39	Data was provided by Juerg Luterbacher	6
40	Theo Brandsma	6
41	Midwestern Regional Climate Center (MRCC)	5
42	Avner Furshpan	4
43	Toranna Palsdottir	3
44	Data was provided by Ludvig Isaksson	2

Table S1 continued.

No.	Data Source Name	No. of Stations
45	Markku Rummukainen	2
46	Maurizio Maugeri	2
47	National Climate Information Centre	2
48	Olga Pachaliuk	2
49	Peter Fisher, Research and Development Division, Met Service of New Zealand	2
50	Tanja Cegnar	2
51	Tiziano Colombo	2
52	Amran B Osman	1
53	CIRCE project	1
54	Conor Daly	1
55	Eglantina Bruci	1
56	Fatima Coelho	1
57	Marcus Keane	1
58	Maria Antonia Valente	1

Table S2 Shows the data sources and the number of monthly stations with location issues per source.

No.	Data Source Name	No. of Stations
1	UK Met office	2511
2	Monthly Climatic Data of the World (MCDW)	844
3	World Weather Record NOA multiple sources	784
4	World Monthly Surface Station Climatology Dataset	774
5	Preliminary CLIMAT data	527
6	Environment Canada National Climate Data and Information Archive	425
7	Russource GHCND nonconus multiple sources	418
8	Russource ISH multiple sources	346
9	Royal Netherlands Meteorological Institute (KNMI)	287
10	NWS CLIMAT streams that are sent to NCDC	276
11	Russource Canada Multiple sources	240
12	Russource GHCND Multiple sources	225
13	National Snow and Ice data Central Asia Temperature and Precipitation Data	210
14	Russource CLIMAT Multiple sources	207
15	Russ Vose analysis of Mr Griffiths from various countries around the world	180
16	Russource TDXX MERGE Multiple Sources	167
17	Russource GRIFFITHS Multiple sources	130
18	National Centers for Environmental Information (NCEI)	128
19	Russource Australia Multiple sources	91
20	Norwegian Meteorological Institutes eKlima portal	61
21	International Arctic Research Center at the University of Alaska Fairbanks	50
22	Russource Australia WWR Multiple sources	49
23	Russource GRIFFITHS SA Multiple Sources	48
24	Scar Reader Project Antarctic Meteorological Research Center (AMRC) USA	26
25	Russource SOUTH AFRICA Multiple sources	25
26	Russource Australia de Multiple sources	24

Table S2 continued.

No.	Data Source Name	No. of Stations
27	Russource NEW ZEALAND Multiple sources	23
28	John Christy of UAH British E Africa Met Dept	18
29	Russource Brazil Multiple sources	9
30	Deutscher Wetterdienst (DWD)	7
31	Russource Chile Multiple sources	6
32	Russource INDONESIA Multiple sources	6
33	Russource MEXICO Multiple sources	6
34	Russource Cuba Multiple Sources	5
35	Antarctic Meteorological Research Center	4
36	German Meteorological Service Deutscher Wetterdienst	4
37	Russource FWA Multiple sources	3
38	Russource FAO Multiple sources	2
39	Central Institute for Meteorology and Geodynamics ZAMG	1
40	Russource Conus Climat Multiple Sources	1
41	Russource GREECE Multiple sources	1