Teleconnections between oceanic–atmospheric indices and drought over Iran using quantile regressions

Supplementary Material

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Table S1. The 135 synoptic stations positions of the country that are studied in the paper.

ID	Station	Longitude	Latitude	Elevation	ID	Station	Longitude	Latitude	Elevation
1	Abadan	48.25	30.36	6.6	35	Eilam	46.43	33.63	1337
2	Abali	51.88	35.75	2465.2	36	Eizeh	49.866	31.85	767
3	Abomosa	54.83	25.83	6.6	37	Eslamabad Gharb	46.466	34.116	1348.8
4	Aghajari	49.66	30.76	27	38	Fasa	53.68	28.96	1288.3
5	Ahar	47.066	38.43	1390.5	39	Ferdos	58.16	34.01	1293
6	Ahvaz	48.66	31.33	22.5	40	Firozkoh	52.83	35.91	1975.6
7	Aligoodarz	49.7	33.4	2022	41	Garmsar	52.35	35.23	899.9
8	Anar	55.25	30.88	1408.8	42	Ghaemshahr	52.76	36.45	14.7
9	Arak	49.76	34.1	1708	43	Ghaen	59.166	33.716	1432
10	Ardabil	48.28	38.25	1322	44	Ghazvin	50.05	36.25	1279.2
11	Ardestan	52.38	33.38	1252.4	45	Ghochan	58.5	37.06	0
12	Astara	48.85	38.37	–21.1	46	Ghorveh	47.8	35.16	1906
13	Babolsar	52.65	36.71	–21	47	Golmakan	59.28	36.48	1176
14	Bafgh	55.43	31.6	991.4	48	Golpaygan	50.28	33.466	1870
15	Baft	56.58	29.23	2280	49	Gonabad	58.68	34.35	1056
16	Bam	58.35	29.1	1066.9	50	Gorgan	54.4	36.9	0
17	Bandar Abas	56.36	27.25	9.8	51	Hamedan Forodgah	48.53	34.866	1741.5
18	Bandar Anzali	49.45	37.48	–23.6	52	Hamedan Nojeh	48.71	35.2	1679.7
19	Bandar Dayer	51.93	27.83	4	53	Iranshahr	60.7	27.2	591.1
20	Bandar Lengeh	54.83	26.75	22.7	54	Isfahan	51.66	32.62	1550.4
21	Bandar Mahshahr	49.15	30.55	6.2	55	Jam Tohid	52.327	27.827	750
22	Behbahan	50.23	30.6	3.3	56	Jask	57.766	25.63	5.2
23	Bijar	47.61	35.88	1883.4	57	Jeofizik Tehran	51.38	35.73	1418.6
24	Birjand	59.2	32.86	1491	58	Jolfa	45.66	38.75	736.2
25	Borojen	51.3	31.98	2260	59	Kahnoj	57.7	27.966	469.7
26	Borojerd	48.75	33.916	1629	60	Kangavar	47.98	34.5	1468
27	Boshehr Coastal	50.816	28.9	8.4	61	Karaj	50.95	35.8	1300
28	Boshroyeh	57.45	33.9	885	62	Kashan	51.45	33.98	982.3
29	Bostan	48	31.71	7.8	63	Kashmar	58.46	35.2	1109.7
30	Chabahar	60.61	25.75	8	64	Kenarak Chabahar	60.366	25.43	12
31	Daran	50.366	32.966	2290	65	Kerman	56.97	30.25	1753.8
32	Dehloran	47.266	32.68	232	66	Kermanshah	47.15	34.35	1318.6
33	Dogonbadan	50.816	30.33	726	67	Khalkhal	48.516	37.63	1796
34	Doshan Tape	51.33	35.7	1209.2	68	Khash	61.2	28.216	1394

Table S1. continued

ID	Station	Longitude	Latitude	Elevation	ID	Station	Longitude	Latitude	Elevation
69	Khodabandeh	48.58	36.116	1887	103	Saghez	46.26	36.25	1522.8
70	Khoram Abad	48.28	33.43	1147.8	104	Sahand	46.116	37.93	1641
71	Khoramdare	49.18	36.18	1575	105	Sanandaj	47	35.33	1373.4
72	Khorobiabanak	55.08	33.78	845	106	Sarab	47.53	37.93	1682
73	Khoy	44.96	38.55	1103	107	Sarakhs	61.16	36.53	235
74	Kish	53.98	26.75	30	108	Saravan	62.33	27.33	1195
75	Koohrang	50.11	32.43	2285	109	Sardasht	45.48	36.15	1556.8
76	Lar	54.28	27.68	792	110	Sarpol Zahab	45.86	34.45	545
77	Mahabad	45.716	36.75	1351.8	111	Saveh	50.33	35.05	1108
78	Makoo	44.43	39.33	1411.3	112	Semnan	53.41	35.58	1127
79	Malayer	48.85	34.25	1777.8	113	Shahre Babak	55.13	30.1	1834.1
80	Maraghe	46.26	37.4	1477.7	114	Shahrekord	50.85	32.28	2048.9
81	Marave Tape	55.95	37.9	460	115	Shahreza	51.83	31.98	1845.2
82	Marivan	46.2	35.516	1286.8	116	Shahrod	54.95	36.41	1349.1
83	Mashhad	59.63	36.26	999.2	117	Sharghe Esfahan	51.86	32.67	1543
84	Masjed Soliman	49.28	31.93	320.5	118	Shemiran	51.428	35.8	1600
85	Mianeh	47.7	37.45	1110	119	Shiraz	52.6	29.53	1484
86	Minab	57.08	27.1	29.6	120	Shoshtar	48.83	32.05	47
87	Naein	53.08	32.82	1549	121	Siri	54.48	25.88	4.4
88	Natanz	51.9	33.53	1684.9	122	Sirjan	55.68	29.46	1739.4
89	Nehbandan	58.53	30.466	1211	123	Tabas	56.91	33.6	711
90	Neishabor	58.8	36.266	1213	124	Tabriz	46.28	38.083	1361
91	Noshahr	51.5	36.65	–20.9	125	Takab	47.1	36.4	1817.2
92	Omidiyeh	49.6	30.766	34.9	126	Tehran	51.31	35.68	1190.8
93	Oromiyeh	45.05	37.66	1328	127	Torbat Jam	60.58	35.25	950.4
94	Parsabad	47.91	39.65	31.9	128	Yasuj	51.55	30.68	1816.3
95	Piranshahr	45.13	36.666	1455	129	Yazd	54.28	31.9	1237.2
96	Ramhormoz	49.6	31.26	150.5	130	Zabol	61.48	31.02	489.2
97	Ramsar	50.66	36.9	–20	131	Zahak	61.68	30.9	495
98	Rasht	49.61	37.31	–8.6	132	Zahedan	60.88	29.46	1370
99	Ravansar	46.65	34.71	1379.7	133	Zanjan	48.5	36.68	1663
100	Robat Poshtbadam	55.55	33.033	1188	134	Zarghan	52.716	29.78	1596
101	Sad Dorrod Zan	52.45	30.18	1652	135	Zarine Abato	46.916	36.066	2142.6
102	Safiabad Dezfol	48.416	32.266	82.9					

Table S2. The highest correlation lagged months with their magnitudes between three different large–scale climate indices and SPI values of 16 different regions over the country.

Regions	MEI	NAO	SOI
R1	Lag11(+0.221)	-	Lag0 (–0.187)
R2	Lag 11 (0.232)	Lag 3 (0.175)	Lag 12 (+0.262)
R3	Lag 1 (+0.376)	Lag 12 (+0.121)	Lag 0 (+0.327)
R4	Lag 0 (+0.415)	-	Lag 0 (–0.354)
R5	Lag 3 (–0.270)	Lag 12 (+0.124)	Lag 1 (+0.137)
R6	Lag 12 (0.173)	-	Lag 8 (+0.112)
R7	Lag 0 (+0.148)	Lag 0 (+0.209)	Lag 4 (–0.194)
R8	Lag 0 (+0.352)	Lag 7 (–0.155)	Lag 0 (–0.245)
R9	Lag 12 (0.296)	Lag 4 (–0.113)	Lag 11 (+0.253)
R10	Lag 0 (+0.132)	-	-
R11	Lag 0 (+0.219)	-	Lag 0 (–0.126)
R12	-	-	Lag 5 (+0.151)
R13	Lag 0 (+0.276)	Lag 12 (+0.118)	Lag 0 (–0.220)
R14	Lag 0 (+0.226)	Lag 12 (+0.112)	Lag 1 (–0.200)
R15	Lag 12 (0.219)	-	Lag 9 (+0.184)
R16	Lag 0 (–0.165)	-	-