

Table S1. The correlation between 10-days values of precipitation and SR NDVI for Meghri (significance level: *- $p < 0.05$, ** $p < 0.01$).

	1P	2P	3P	4P	5P	6P	7P	8P	9P	10P	11P	12P	13P	14P	15P	16P	17P	18P	19P	20P	21P
1NDVI	-.424																				
2NDVI	-.233	-.137																			
3NDVI	-.215	-.060	-.703**																		
4NDVI	-.468	.498*	-.462	-.034																	
5NDVI	-.230	.297	.377	-.048	.115																
6NDVI	-.068	-.044	.461	.722**	.644**	-.023															
7NDVI	.082	.390	.342	.115	.437	.464	-.157														
8NDVI	-.046	.152	.170	.454	.452	.444	.337	.159													
9NDVI	.236	.318	.316	.102	.304	.585*	.305	.175	-.233												
10NDVI	.061	.100	.209	.463	.456	.559*	.485*	.106	-.038	-.431											
11NDVI	-.230	-.025	.132	.284	.441	.543*	.487*	.355	.209	.179	-.180										
12NDVI	.062	.017	.062	.122	.263	.315	.091	.355	-.266	-.158	-.148	-.274									
13NDVI	-.289	.552*	-.083	.288	.385	-.128	.158	-.164	-.251	-.171	-.179	.287	.192								
14NDVI	-.361	.069	-.063	.436	.420	.464	.529*	.293	-.021	-.155	-.143	-.008	.119	-.168							
15NDVI	-.106	.089	-.133	-.264	.154	.133	-.041	-.050	.261	.280	-.033	.309	.347	-.209	-.517*						
16NDVI	-.012	.527*	.380	.095	.215	.292	.153	.054	-.241	-.380	-.015	-.084	.260	.065	.332	-.545*					
17NDVI	-.125	.144	-.315	.145	.080	.211	-.038	.025	-.008	-.110	-.046	-.318	.272	-.118	.437	.000	-.573*				
18NDVI	-.349	.768**	.097	.072	.089	.366	-.246	-.408	.277	-.242	-.044	.285	.112	-.332	.375	-.077	-.035	-.448			
19NDVI	-.215	.083	-.235	.000	-.199	.027	.684**	.110	.193	.206	-.226	-.061	.260	.355	.050	.032	.401	.394	-.558*		
20NDVI	-.094	.235	.095	-.331	-.279	.257	.124	.140	.417	.392	.018	.052	-.243	.250	.147	.320	.590*	.380	-.242	-.090	
21NDVI	.157	.150	.254	.208	.245	.222	.201	.106	.147	-.029	-.011	.086	-.250	.315	-.149	-.197	.237	.055	.064	.009	-.542*

Table S2. The correlation between 10-days values of temperature and SR NDVI for Meghri (significance level: *- $p < 0.05$, ** $p < 0.01$)

	1T	2T	3T	4T	5T	6T	7T	8T	9T	10T	11T	12T	13T	14T	15T	16T	17T	18T	19T	20T	21T
1NDVI	.333																				
2NDVI	.034	.505*																			
3NDVI	.210	.240	.572*																		
4NDVI	-.022	-.309	-.183	.436																	
5NDVI	.487*	-.431	-.608**	-.428	.259																
6NDVI	-.211	.146	-.242	-.578*	-.161	-.035															
7NDVI	-.059	-.159	-.443	-.171	-.151	-.240	.248														
8NDVI	-.143	-.033	-.315	-.074	-.027	-.154	-.091	.397													
9NDVI	.060	-.361	-.568*	-.217	-.111	-.368	-.134	.104	.122												
10NDVI	-.049	-.260	-.381	-.323	-.098	-.414	-.310	-.030	-.266	.709**											
11NDVI	.098	-.179	-.202	-.166	.241	-.516*	-.283	-.053	-.160	.110	.437										
12NDVI	-.124	.041	-.175	.044	-.081	.284	.084	.490*	.117	.460	-.056	.346									
13NDVI	-.278	-.309	-.276	.002	.073	.101	-.171	.063	.235	-.024	-.187	-.656**	.342								
14NDVI	-.096	.052	-.100	.013	.443	-.140	-.051	.167	.097	.336	-.086	-.266	.024	.627**							
15NDVI	.123	-.211	.048	.179	.133	-.230	-.302	-.352	-.342	-.572*	-.195	-.676**	-.380	-.239	.678**						
16NDVI	-.088	-.562*	-.688**	-.183	.073	-.291	-.131	.142	.163	.403	.229	-.382	-.030	-.082	-.232	.552*					
17NDVI	-.129	.120	.146	.057	.092	.415	.078	.520*	.137	.430	-.140	.164	.213	.382	-.210	.255	.615**				
18NDVI	.108	-.284	-.440	-.105	-.025	-.085	.349	.588*	.182	-.041	-.196	-.537*	-.040	.267	-.021	.337	-.259	.516*			
19NDVI	.216	-.395	-.142	-.153	.303	.070	-.430	-.258	-.351	-.147	-.045	-.213	-.281	-.216	-.244	-.416	-.303	-.601*	.318		
20NDVI	.274	-.412	-.342	.047	.113	-.323	.054	.069	.098	-.377	-.007	-.124	-.439	-.306	-.304	-.277	-.458	-.119	.359	.239	
21NDVI	-.358	-.427	-.468	.205	-.239	-.519*	-.358	-.029	-.346	-.102	.178	-.381	-.178	-.401	-.335	-.196	-.125	.203	-.019	.508*	.518*

Table S3. The correlation between 10-days values of precipitation and SR NDVI for Sisian (significance level: *- $p < 0.05$, ** $p < 0.01$)

	1P	2P	3P	4P	5P	6P	7P	8P	9P	10P	11P	12P	13P	14P	15P	16P	17P	18P	19P	20P	21P
1NDVI	-.577*																				
2NDVI	-.250	-.587*																			
3NDVI	-.212	-.211	-.466																		
4NDVI	-.521*	.158	-.552*	-.270																	
5NDVI	-.461	-.124	.377	-.261	-.319																
6NDVI	.383	-.491*	-.030	.629**	.284	-.265															
7NDVI	-.553*	.036	.108	.041	-.018	.093	-.202														
8NDVI	.152	.055	-.181	.383	.435	.245	.065	-.477													
9NDVI	-.472	.409	.220	-.493	-.183	.325	.116	.085	-.084												
10NDVI	.238	.171	-.137	.264	.465	.465	.497*	.044	.119	.143											
11NDVI	-.163	-.059	.177	-.015	.147	.219	.106	.299	.437	.529*	-.116										
12NDVI	.297	.133	-.198	.299	.311	.115	.152	-.352	.392	-.016	.548*	-.064									
13NDVI	-.202	.109	-.382	-.042	.270	.504*	.140	.367	.499*	.341	.221	.046	-.042								
14NDVI	-.298	.043	-.173	.266	.312	.144	-.062	.231	.736**	.701**	.501*	.240	-.169	-.313							
15NDVI	-.133	.325	-.352	-.418	-.187	.480	-.084	.474	.420	.647**	-.182	.055	.120	-.101	-.415						
16NDVI	.270	.529*	.359	-.288	-.291	-.014	.280	-.259	-.173	-.104	-.062	.062	.054	.415	.516*	-.545*					
17NDVI	.398	.255	-.387	.232	.340	-.201	.257	.068	.111	.117	.089	.180	-.424	.534*	.060	.419	-.407				
18NDVI	.093	.205	.156	.167	.390	.057	-.331	-.172	.388	.201	.477	-.122	-.221	.118	.243	-.048	-.312	-.543*			
19NDVI	-.115	.322	-.139	-.385	-.526*	-.087	.396	.414	.128	.176	-.063	.642**	.375	.209	-.398	-.212	.412	.055	-.444		
20NDVI	.015	.288	.189	.030	-.011	.157	.069	.083	.545*	.467	.178	.528*	.492*	-.001	-.087	-.366	.308	.090	-.314	-.592*	
21NDVI	-.020	.349	.111	.105	.397	.328	.042	-.152	.402	.308	-.186	.213	.328	.314	.089	.099	.267	.158	-.056	-.243	-.330

Table S4. The correlation between 10-days values of temperature and SR NDVI for Sisian (significance level: *- $p < 0.05$, ** $p < 0.01$)

	1T	2T	3T	4T	5T	6T	7T	8T	9T	10T	11T	12T	13T	14T	15T	16T	17T	18T	19T	20T	21T
1NDVI	.627**																				
2NDVI	.172	.508*																			
3NDVI	.277	.444	.690**																		
4NDVI	.145	-.123	.097	.345																	
5NDVI	.705**	.001	-.350	-.227	.478																
6NDVI	-.496*	.432	.361	-.227	.000	.213															
7NDVI	.575*	.240	-.095	-.021	.412	-.229	.706**														
8NDVI	-.015	.223	.039	.009	-.086	.083	.212	.461													
9NDVI	.216	-.438	-.595*	.285	.155	-.393	.264	-.154	.295												
10NDVI	-.148	-.211	-.187	-.297	-.264	-.394	-.450	-.074	-.637**	.245											
11NDVI	-.068	-.177	-.030	-.010	-.113	-.607**	-.328	-.361	-.181	-.308	.414										
12NDVI	-.078	.183	.118	.123	-.248	.357	.127	.427	-.094	-.017	-.266	.187									
13NDVI	-.058	-.158	-.114	.049	.336	-.075	-.337	-.083	-.420	-.193	-.192	-.646**	-.313								
14NDVI	.167	.250	.213	.112	.113	-.072	.141	.251	-.124	-.289	-.128	-.203	-.113	.170							
15NDVI	.094	-.197	.035	.123	.000	-.088	-.294	-.464	-.423	-.684**	-.198	-.487*	-.622**	-.500*	.532*						
16NDVI	.052	-.515*	-.802**	-.307	.046	.168	-.038	.429	-.113	.069	.004	-.428	-.097	-.299	-.462	.364					
17NDVI	-.216	.212	.229	.031	-.248	.462	-.149	.293	-.233	.085	-.247	.092	.280	.064	-.077	-.161	.710**				
18NDVI	-.071	.055	-.256	.001	-.155	.120	.315	.458	.080	-.099	-.327	-.293	.118	.250	-.049	.244	.064	.576*			
19NDVI	.058	-.245	-.157	.097	.224	.298	-.229	-.070	-.247	-.317	-.122	-.041	-.114	-.568*	-.042	-.405	-.051	-.593*	-.149		
20NDVI	-.103	-.270	-.257	-.046	-.227	-.140	-.193	.096	-.411	-.459	.089	-.246	-.524*	-.638**	-.216	-.373	-.218	-.052	.036	.333	
21NDVI	-.452	-.372	-.349	.272	-.218	-.270	-.332	.204	-.286	-.145	-.083	-.565*	-.200	-.301	-.352	-.253	-.115	.002	-.102	.096	.110

Table S9. Trend analysis based on LANDSAT NDVI time series.

Study area	Time series	MK			MMKH			MMKY			PW			TF PW			Sen's slope	Trend
		P	Z	Tau	P	Z	Tau	P	Z	Tau	P	Z	Tau	P	Z	Tau		
Meghri	April	0.04729	1.98374	0.28	0.00017	3.75712	0.28	0.000003	4.64521	0.28	0.07984	1.75162	0.25333	0.07212	1.79833	0.26	0.00372	Significant increasing
	May	0.01525	2.42638	0.31494	0.00153	2.42638	0.31494	0	8.44223	0.314943	0.07475	1.78201	0.23645	0.03733	2.08214	0.27586	0.00217	Significant increasing
	June	0.39559	0.84953	0.11640	0.23281	1.19314	0.11640	0.01227	2.50437	0.116402	0.80246	0.25016	0.03704	0.64650	0.45863	0.06553	0.00059	No trend
	July	0.59822	0.52697	0.06882	0.63648	0.47262	0.06882	0.13588	1.49131	0.068817	0.61739	0.49955	0.06667	0.54412	0.60659	0.08046	0.0004	No trend
	August	0.23415	1.18975	0.15269	0.10030	1.64338	0.15269	0.00125	3.22684	0.152688	0.47545	0.71364	0.09425	0.30077	1.03478	0.13563	0.00044	No trend
	September	0.29184	1.05408	0.13548	0.29185	1.05408	0.13548	0.00873	2.62261	0.135484	0.47545	0.71364	0.09425	0.47545	0.71364	0.09425	0.00033	No trend
	October	0.08958	1.69761	0.24	0.08958	1.69761	0.24	0.00007	3.98471	0.24	0.18311	0.33123	0.19333	0.12899	1.51807	0.22	0.00086	No trend
	Spring	0.01434	2.44868	0.30645	0.01434	2.44868	0.30645	0.0000003	5.07979	0.306452	0.01439	2.44748	0.31183	0.00531	2.78741	0.35484	0.00243	Significant increasing
	Summer	0.34458	0.94516	0.11742	0.17224	1.36503	0.11742	0.01651	2.39753	0.117424	0.88396	0.14595	0.02016	0.75799	0.30811	0.04032	0.00038	No trend
	Autumn	0.14003	1.47570	0.18548	0.14003	1.47570	0.18548	0.00101	3.28665	0.185484	0.39542	0.84982	0.10968	0.24778	2.52559	0.14839	0.00048	No trend
	Humid period	0.04378	2.01612	0.24421	0.04379	2.01612	0.24421	0.00002	4.20378	0.244207	0.02466	2.24669	0.27651	0.01155	1.05407	0.31061	0.00136	Significant increasing
	Dry period	0.49534	0.68184	0.08523	0.32516	0.98391	0.08523	0.08433	1.7261	0.085227	0.42684	0.79461	0.10081	0.29185	0.62035	0.13306	0.00040	No trend
Sisian	April	0.45961	0.73949	0.11463	0.45961	0.73949	0.11463	0.00874	2.622	0.114625	0.49856	0.67675	0.10822	0.53502	0.62035	0.09957	0.00259	No trend
	May	0.11012	1.59766	0.20430	0.02123	2.30384	0.20430	0.00008	3.94127	0.204301	0.16404	1.3916	0.18161	0.16404	1.3916	0.18161	0.00162	No trend
	June	0.26193	1.12176	0.14409	0.28225	1.07528	0.14409	0.00387	2.88878	0.144086	0.19895	1.28455	0.16782	0.09353	1.67706	0.21839	0.00175	No trend
	July	0.91363	-0.10850	-0.01515	0.91363	-0.10846	-0.01515	0.84126	-0.20028	-0.01515	0.98706	-0.01622	-0.00403	0.98706	-0.01622	-0.00403	-0.00014	No trend
	August	0.45856	-0.74122	-0.09091	0.45856	-0.74122	-0.09091	0.1628	-1.39556	-0.09091	0.63099	-0.48033	-0.06061	0.54566	-0.60428	-0.07576	-0.00007	No trend
	September	0.39008	-0.85947	-0.10887	0.39008	-0.85947	-0.10887	0.03963	-2.05756	-0.10887	0.61013	-0.50989	-0.06667	0.65856	-0.44191	-0.05806	-0.00058	No trend
	October	0.56090	0.5815	0.07882	0.12553	1.53196	0.07882	0.01061	2.55543	0.078818	0.51442	0.65196	0.08995	0.62137	0.49391	0.06898	0.00067	No trend
	Spring	0.22390	1.21623	0.15323	0.22390	1.21623	0.15323	0.00009	3.91593	0.153226	0.29198	1.05377	0.13548	0.41460	0.81583	0.10538	0.00145	No trend
	Summer	0.74432	0.32614	0.04099	0.74432	0.32614	0.04099	0.48019	0.70599	0.040998	0.88909	0.13945	0.01895	0.86466	0.17044	0.02273	0.00029	No trend
	Autumn	0.93825	-0.07747	-0.01136	0.88545	-0.14411	-0.01136	0.80212	-0.2506	-0.01136	0.78279	0.27568	0.03629	0.75799	0.30811	0.04032	-0.0001	No trend
	Humid period	0.14103	1.47197	0.18182	0.14103	1.47197	0.18182	0.00003	4.18204	0.181818	0.21179	1.24866	0.15726	0.22390	1.21623	0.15323	0.00161	No trend
	Dry period	0.78959	-0.26684	-0.03387	0.78959	-0.26684	-0.03387	0.57053	-0.56727	-0.03387	0.67569	0.41835	0.05303	0.72156	0.35637	0.04545	-0.00024	No trend