Supplement of
Characterizing Soil Moisture Drought Onset and Termination in Europe

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Table S1. Averaged index of each circulation mode as in Table 3, together with the corresponding frequency of occurrence in percentage. Colors indicate the phase state, either positive or negative.

		WCEU		ECEU		IP		EMED	
		DO	DT	DO	DT	DO	DT	DO	DT
SCA	DJF	0.14 (50%)	-0.06 (51%)	0.10 (51%)	0.04 (55%)				
	MAM	-0.13 (59%)	-0.09 (53%)			-0.16 (56%)	0.04 (52%)		
	JJA	-0.13 (62%)	0.15 (50%)	-0.17 (64%)	0.21 (52%)	-0.18 (61%)	0.24 (53%)	-0.19 (64%)	0.27 (56%)
	SON	0.11 (57%)	0.09 (54%)	0.12 (58%)	0.10 (50%)	-0.12 (59%)	0.24 (61%)		
NAO	DJF	0.14 (63%)	0.20 (56%)	0.17 (64%)	0.20 (57%)	0.18 (62%)	-0.07 (53%)	0.14 (65%)	-0.08 (56%)
	MAM	0.14 (58%)	0.01 (55%)	0.26 (62%)	0.04 (57%)	0.25 (63%)	-0.06 (53%)	0.22 (61%)	0.07 (52%)
	JJA					-0.22 (59%)	0.08 (57%)	-0.25 (58%)	0.24 (67%)
	SON	0.23 (56%)	-0.17 (59%)	0.30 (58%)	-0.13 (57%)	0.19 (58%)	-0.16 (61%)	0.12 (53%)	0.05 (48%)
EA	DJF					-0.09 (59%)	0.15 (55%)	0.01 (50%)	-0.08 (56%)
	MAM					-0.03 (56%)			
	JJA	0.23 (61%)	0.21 (59%)	0.28 (62%)	0.16 (53%)	0.32 (62%)	-0.08 (52%)		
	SON			0.27 (63%)	-0.04 (53%)			0.24 (58%)	-0.19 (59%)
EAWR	DJF	0.12 (57%)	-0.30 (66%)	0.03 (53%)	-0.31 (65%)	0.19 (56%)	-0.24 (62%)	0.27 (63%)	-0.39 (70%)
	MAM	0.20 (56%)	-0.24 (60%)	0.21 (57%)	-0.25 (61%)			0.03 (53%)	-0.12 (57%)
	JJA					-0.20 (56%)	-0.03 (53%)		
	SON	0.09 (56%)	-0.27 (60%)	0.04 (53%)	-0.34 (66%)			0.13 (56%)	-0.10 (52%)

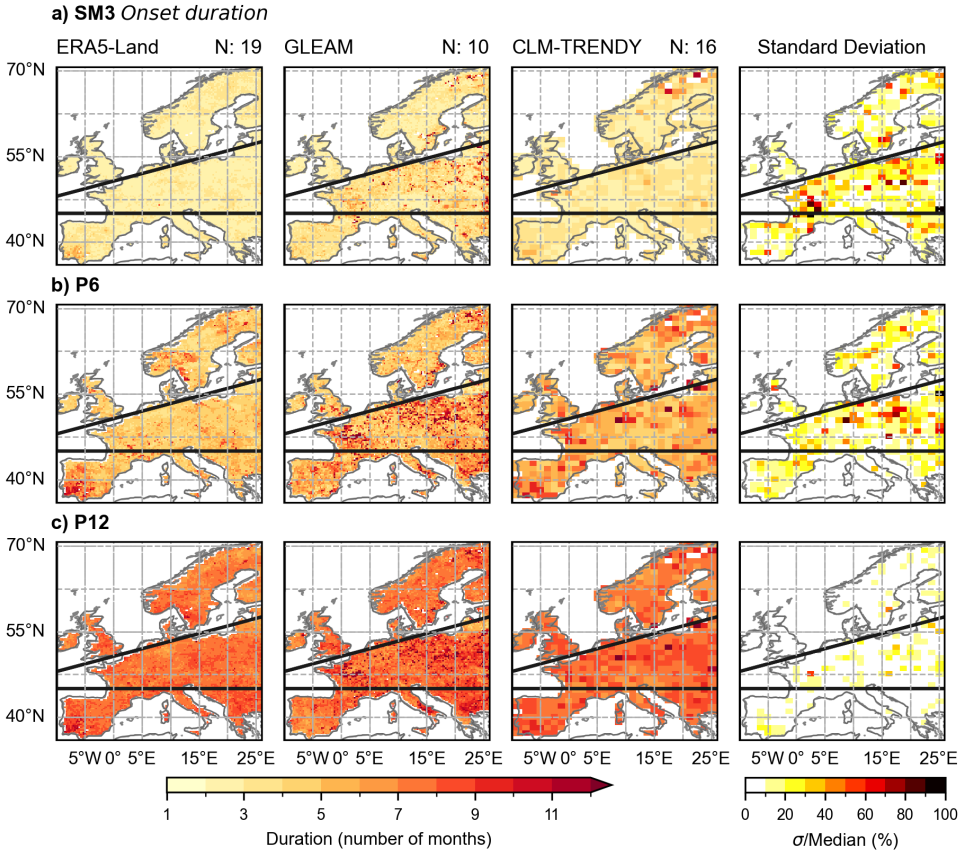

Figure S1. The mean duration of DO of droughts over Europe during 1980–2020. N indicates the median of the number of drought events over the study region. The standard deviations of the mean duration across the three soil moisture datasets are shown in the right-most panels.

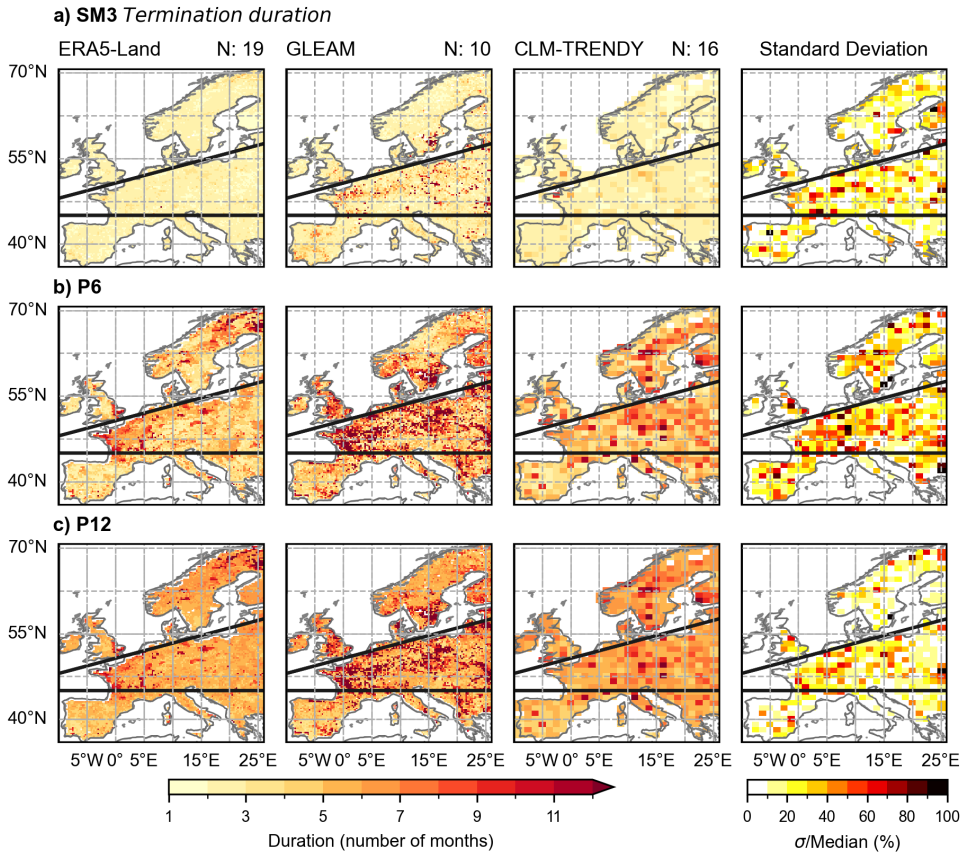

Figure S2. Same as Fig. S1 but for DT.

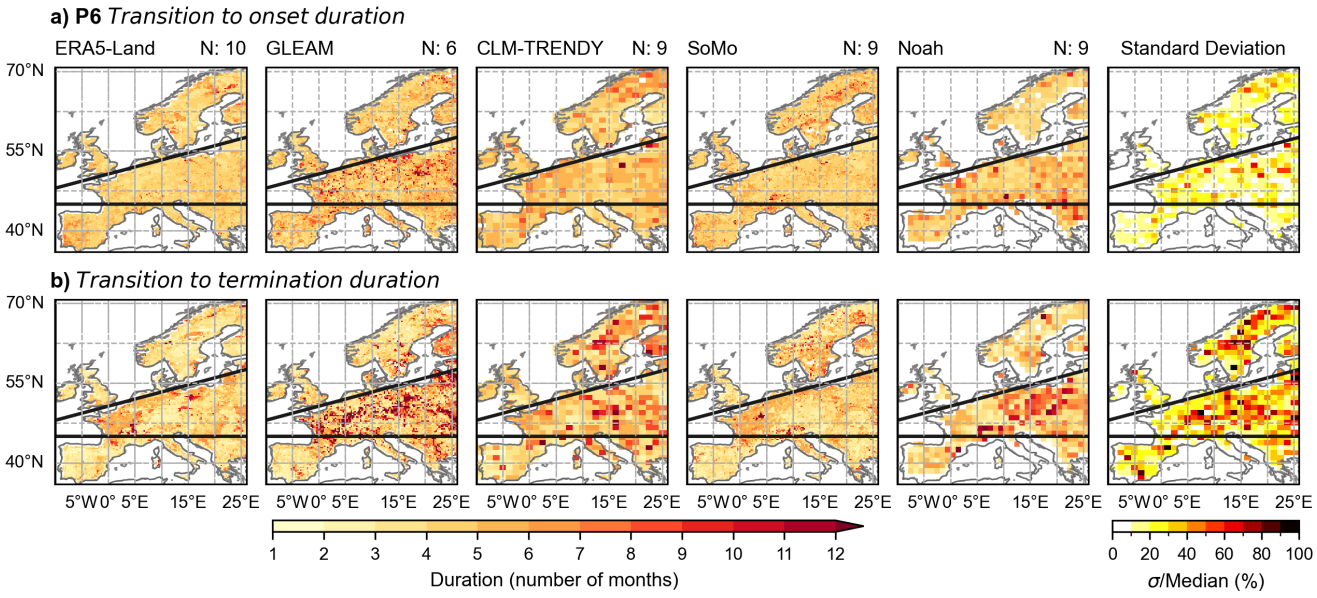

Figure S3. Duration of a) DO and b) DT based on P6 during 2000–2020.

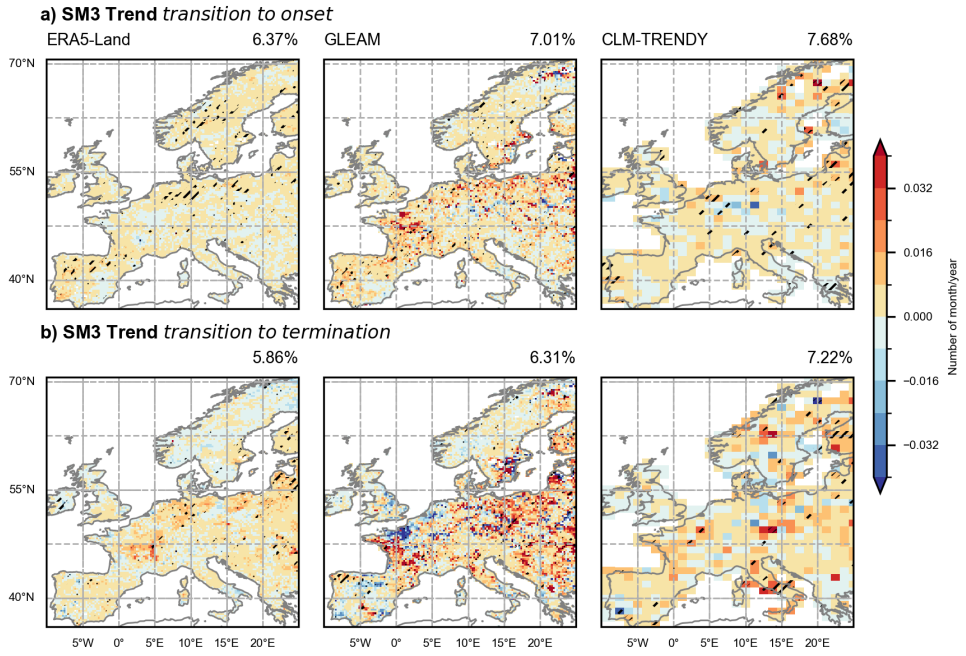

Figure S4. Linear trend coefficients for SM3-based transition periods during 1980–2020: a) DO and b) DT. The regions where the trends are statistically significant at a 95% confidence level are dashed.

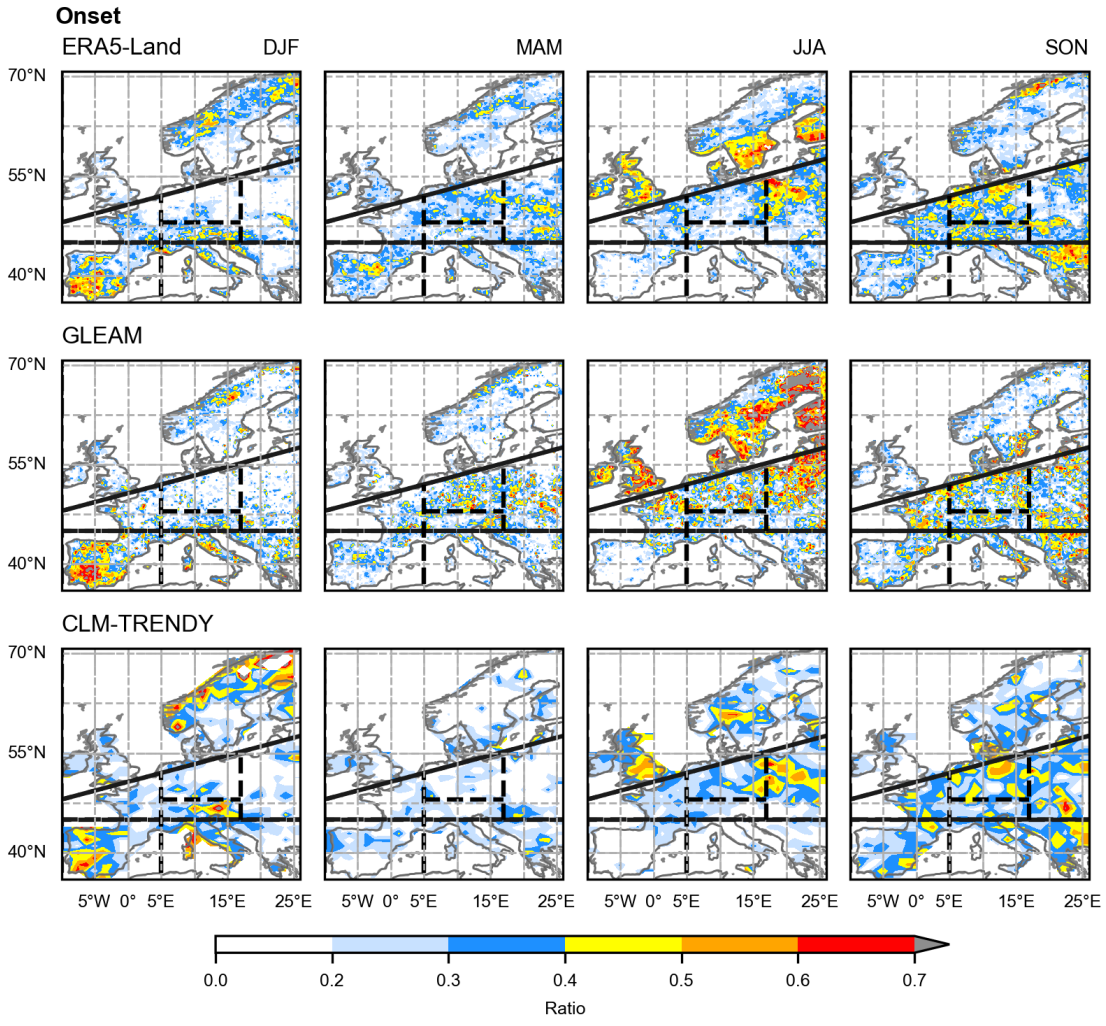

Figure S5. Ratio of seasonal occurrence of DO for 1980–2020. Subregions are delimited with black lines.

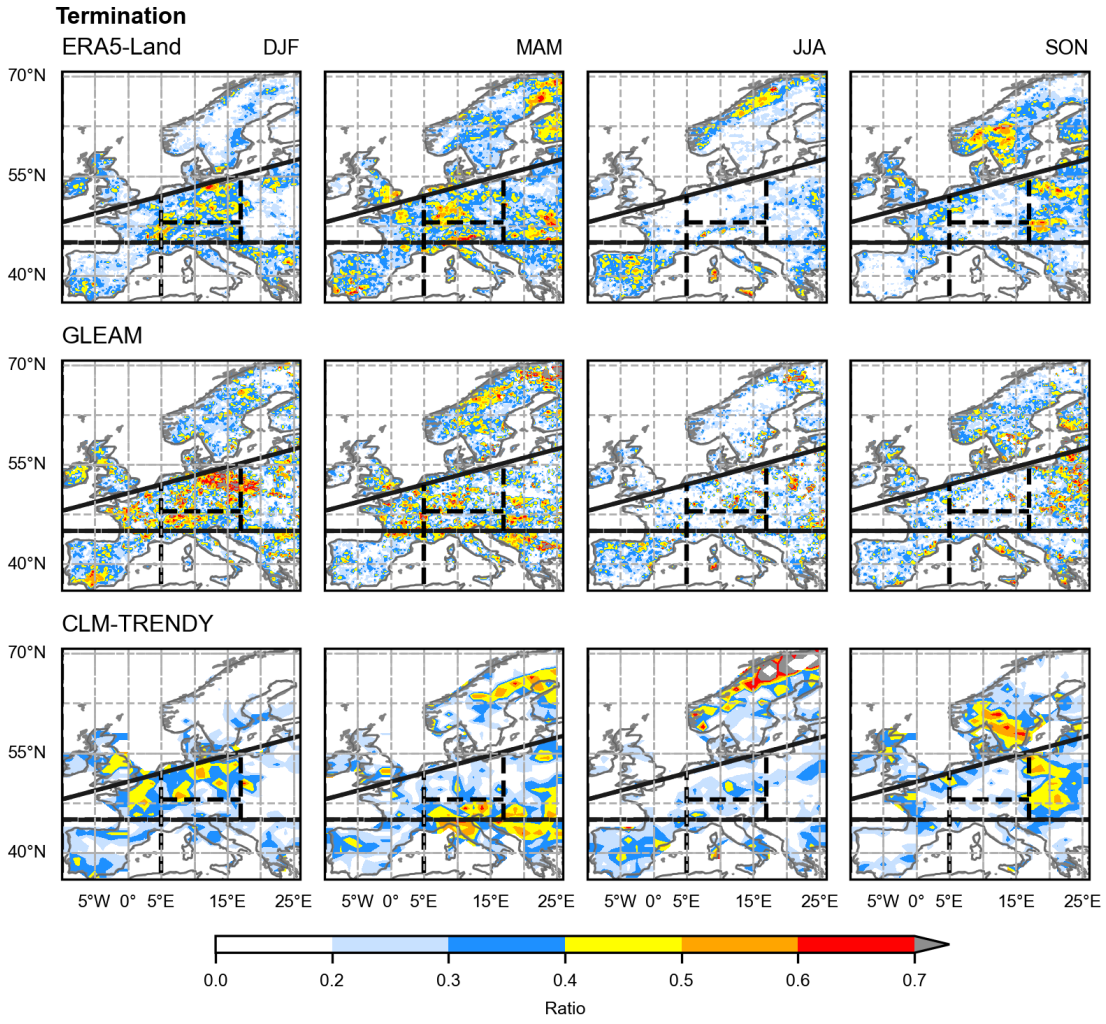

Figure S6. Same as Fig. S5 but for DT.

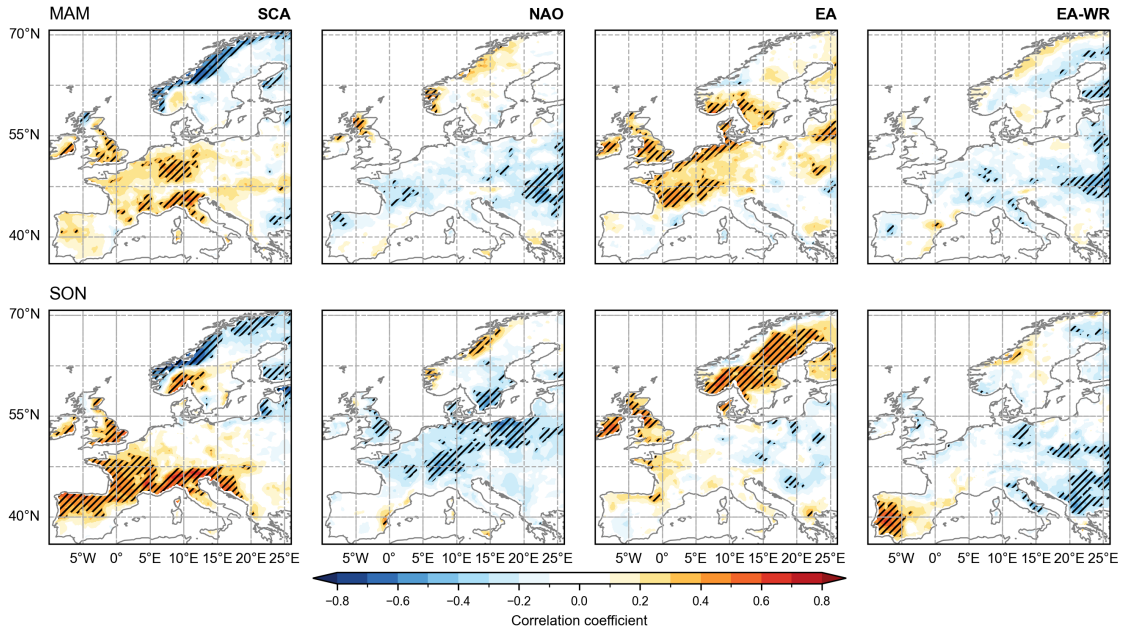

Figure S7. Pearson correlation coefficients between seasonal mean indices of circulation modes and seasonal precipitation for MAM (upper panels, and SON (lower panels). The regions where the coefficients are statistically significant at a 95% confidence level are dashed.