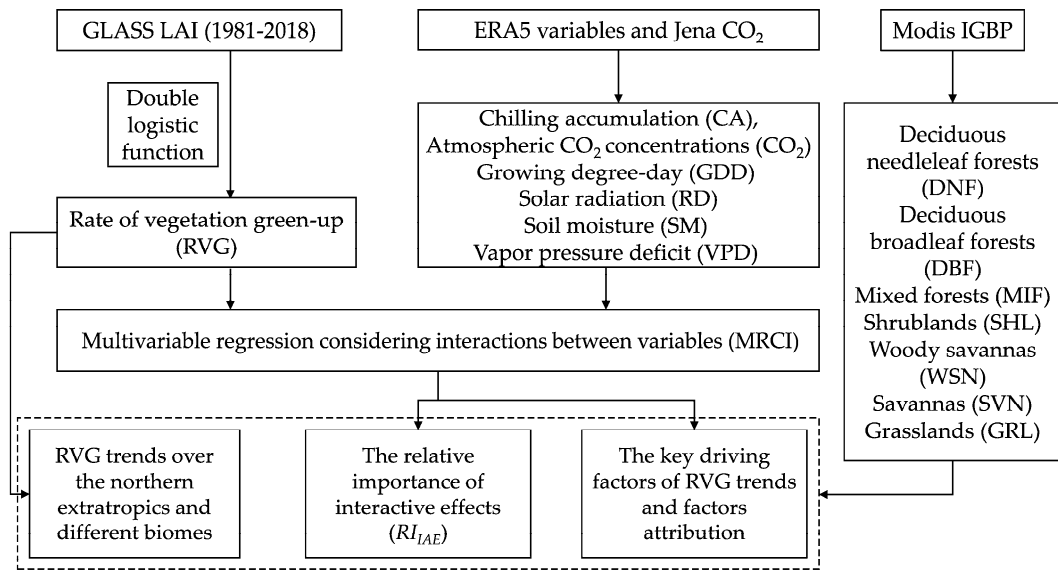


**Figure S1** (a) Correlation coefficient ( $r$ ) between RVG and regressed RVG ( $RVG_{reg}$ ) for multilinear regression considering interactions between variables, and (b) The  $RVG_{reg}$  trend based on the multivariable regression considering interactions between variables.

As shown in Figure S1 the high correlation ( $r: 0.654 \pm 0.110$ ) between RVG and  $RVG_{reg}$  indicated the reliability of MRCI method for the study of the RVG changes. Thus the MRCI approach was suited to analyze the long-term RVG trends.



**Figure S2** The workflow of this study

Table S1 Environmental variables and interactions between variables used in MRCI models, variance inflation factor (VIF), the coefficient of determination ( $R^2$ ) and p-value for different biomes.

	Biomes	DNF	DBF	MIF	SHL	WSN	SVN	GRL
Individual variables	CA	1.689	2.378	2.605	2.591	1.742	1.461	2.605
	GDD	11.670	8.358	9.382	8.367	10.479	9.511	9.382
	VPD	8.410	10.853	8.604	6.158	9.846	10.615	8.604
	RD	3.160	3.097	3.503	4.574	3.642	2.998	3.503
	SM	2.195	3.350	1.463	1.683	1.724	6.134	1.463
	CO <sub>2</sub>	4.861	4.590	7.259	10.185	6.144	8.800	7.259
	GDD:CA	-	7.628	-	-	9.997	-	-
	GDD:RD	-	-	4.084	-	-	-	4.084
	GDD:SM	-	-	-	-	-	-	-
	GDD:VPD	1.415	1.595	2.091	-	1.787	1.342	2.091
	GDD:CO <sub>2</sub>	-	-	-	-	-	-	-
Interaction terms	CA:RD	1.911	3.415	2.493	3.534	3.503	1.361	2.493
	CA:SM	1.753	2.639	1.647	1.391	3.233	1.355	1.647
	CA:VPD	-	6.100	-	-	8.945	-	-
	CA:CO <sub>2</sub>	2.604	5.404	3.009	4.727	10.930	-	3.009
	RD:SM	2.838	4.587	2.572	-	1.881	4.263	2.572
	RD:VPD	-	-	-	-	-	-	-
	RD:CO <sub>2</sub>	3.177	2.244	1.963	1.537	2.350	2.325	1.963
	SM:VPD	-	-	-	-	-	-	-
	SM:CO <sub>2</sub>	-	6.442	-	-	-	6.010	-
	VPD:CO <sub>2</sub>	-	-	-	-	-	-	-
<b>R<sup>2</sup></b>		0.463	0.724	0.654	0.918	0.775	0.807	0.686
<b>p-value</b>		0.099	<0.001	0.004	<0.001	<0.001	<0.001	<0.001

A:B represents the interaction between A and B