

Supplementary Materials

Shift of potential natural vegetation against global climate change under historical, current and future scenarios

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Supplementary Tables

Table S1. The levels of $\Sigma\theta$ (°C) and K (unitless) for different potential natural vegetation classes (1-42) in Comprehensive and Sequential Classification System

K $\Sigma\theta$			I	II	III	IV	V	VI	VII
			≤ 1300 Frigid	1300-2300 Cold temperate	2300-3700 Cool temperate	3700-5300 Warm temperate	5300-6200 Warm	6200-8000 Sub-tropical	≥ 8000 Tropical
A	≤ 0.3	Extra-arid	IA1	IIA2	IIIA3	IVA4	VA5	VIA6	VIIA7
B	0.3-0.9	Arid	IB8	IIB9	IIIB10	IVB11	VB12	VIB13	VIIIB14
C	0.9-1.2	Semi-arid	IC15	IIC16	IIIC17	IVC18	VC19	VIC20	VIIIC21
D	1.2-1.5	Sub-humid moist	ID22	IID23	IID24	IVD25	VD26	VID27	VIID28
E	1.5-2.0	Humid tundra	IE29	IIE30	IIIE31	IVE32	VE33	VIE34	VIIIE35
F	≥ 2.0	Per-humid rain	IF36	IIF37	IIIF38	IVF39	VF40	VIF41	VIIIF42

Table S2. The code and its PNV class (1-42) in Comprehensive and Sequential Classification System

Code	Name	Code	Name
IA1	Frigid-extrarid frigid desert, alpine desert	ID22	Frigid-subhumid moist tundra, alpine meadow steppe
IIA2	Cold temperate-extrarid montane desert	IID23	Cold temperate subhumid montane meadow steppe
IIIA3	Cool temperate-extrarid temperate zonal desert	IID24	Cool temperate-subhumid meadow steppe
IVA4	Warm temperate-extrarid warm temperate zonal desert	IVD25	Warm temperate-subhumid forest steppe
VA5	Warm-extrarid subtropical desert	VD26	Warm-subhumid deciduous broad leaved forest
VIA6	Subtropical-extrarid subtropical desert	VID27	Subtropical-subhumid sclerophyllous forest
VIIA7	Tropical-extrarid tropical desert	VIID28	Tropical-subhumid tropical xerophytic forest
IB8	Frigid-arid frigid zonal semidesert, alpine semidesert	IE29	Frigid-humid tundra, alpine meadow
IIB9	Cold temperate-arid montane semidesert	IIE30	Cold temperate-humid montane meadow
IIIB10	Cool temperate-arid temperate zonal semidesert	IIIE31	Cool temperate-humid forest steppe, deciduous broad leaved forest
IVB11	Warm temperate-arid warm temperate zonal semidesert	IVE32	Warm temperate-humid deciduous broad leaved forest
VB12	Warm-arid warm subtropical semidesert	VE33	Warm-humid evergreen-deciduous broad leaved forest
VIB13	Subtropical arid subtropical desert brush	VIE34	Subtropical-humid evergreen broad leaved forest
VIIIB14	Tropical arid tropical desert brush	VIIIE35	Tropical-humid seasonal rain forest
IC15	Frigid-semiarid dry tundra, alpine steppe	IF36	Frigid perhumid rain tundra, alpine meadow
IIC16	Cold temperate-semiarid montane steppe	IIF37	Cold temperate perhumid taiga forest
IIIC17	Cool temperate-semiarid temperate typical steppe	IIIF38	Cool temperate perhumid mixed coniferous broad leaved forest
IVC18	Warm temperate-semiarid warm temperate typical steppe	IVF39	Warm temperate perhumid deciduous broad leaved forest
VC19	Warm-semiarid subtropical grasses-fruticous steppe	VF40	Warm-perhumid deciduous-evergreen broad leaved forest
VIC20	Subtropical-semiarid subtropical brush steppe	VIF41	Subtropical perhumid evergreen broad leaved forest
VIIIC21	Tropical-semiarid savanna	VIIIF42	Tropical-perhumid rain forest

Table S3. The class and its corresponding super-class of potential natural vegetation in Comprehensive and Sequential Classification System

Code	Class	Super-class
1	IA1, IB8, IC15, ID22, IE29, IF36	Tundra and alpine steppe
2	IIA2, IIIA3, IVA4	Frigid desert
3	IIB9, IIIB10, IVB11, VB12	Semi desert
4	IIC16, IIIC17, IVC18, VC19	Steppe
5	IID23, IIID24, IIE30	Temperate zonal humid grassland
6	IVD25, IIIE31, IVE32, IIF37, IIIF38, IVF39	Temperate zonal forest steppe
7	VA5, VIA6, VIIA7	Warm desert
8	VD26, VID27, VE33, VIE34, VF40, VIF41	Sub-tropical zonal forest steppe
9	VIB13, VIIB14, VIC20, VIIC21	Savanna
10	VIID28, VIIE35, VIIF42	Tropical zonal forest steppe