

Supplementary Material

Stronger Warming Amplification Effects over Drier Ecoregions Observed Since 1979

Liming Zhou¹, Haishan Chen² and Yongjiu Dai³

¹*Department of Atmospheric and Environmental Sciences, SUNY at Albany, Albany, NY 12222, USA*

²*Key Laboratory of Meteorological Disaster of Ministry of Education, Nanjing University of Information Science and Technology, Nanjing 210044, China.*

³*School of Geography, Beijing Normal University, Beijing, 100875, China*

Contents

Supplementary Table S1	2
Supplementary Table S2	3
Supplementary Table S3	4

Table S1. List of the datasets used in this study

Data provider ^a	Data version ^b	Variable ^c	Spatial resolution	Period	References
CRU	TS3.22	Temperature	0.5° x 0.5°	1979-2012	Harris et al., 2014
GISS	GISTEMP	Temperature	2.5° x 2.5°	1979-2012	Hansen et al., 2010
NCDC	MLOST/v3.5.3	Temperature	5° x 5°	1979-2012	Vose et al., 2012
NASA	GPCP/v2.2	Precipitation	2.5° x 2.5°	1979-2012	Adler et al., 2003
NASA	MOD13C2/C5	EVI	0.05° x 0.05°	2000-2012	Huete et al., 2002

^aCRU - Climatic Research Unit; GISS - Goddard Institute for Space Studies; NASA - National Aeronautics and Space Administration; NCDC - National Climatic Data Center

^bGPCP - Global Precipitation Climatology Project; TS - time-series; MLOST - Merged Land-Ocean Surface Temperature Analysis

^cEVI - enhanced vegetation index.

Table S2. List of 12 CMIP5 models used to calculate the multi-model ensemble means in ALL, RCP45, and NAT for the period 1979-2012^a

Organizations	Model ^b
Canadian Centre for Climate Modelling and Analysis, Canada	CanESM2
National Center for Atmospheric Research, USA	CCSM4
National Center for Atmospheric Research, USA	CESM1-CAM5
Centre National de Recherches Meteorologiques, France	CNRM-CM5
CSIRO Atmospheric Research, Australia	CSIRO-Mk3-6-0
Institute of Atmospheric Physics, China	FGOALS-g2
NOAA/Geophysical Fluid Dynamics Laboratory, USA	GFDL-CM3
NASA/Goddard Institute for Space Studies, USA	GISS-E2-R
Met Office Hadley Centre, UK	HadGEM2-ES
Institut Pierre-Simon Laplace, France	IPSL-CM5A-LR
JAMSTEC/AORI/NIES, Japan	MIROC-ESM-CHEM
Norwegian Climate Center, Norway	NorESM1-ME

Note: ^aSimulations with both anthropogenic and natural forcings are referred to as ALL, and simulations with natural forcings only are referred to as NAT. Only one ensemble member “r1i1p1” from each model is used. ^bDetailed description about each model can be found at http://www-pcmdi.llnl.gov/ipcc/model_documentation/ipcc_model_documentation.php.

Table S3. The fitted coefficients and goodness of fit (R^2) of the linear and logarithmic fits between $\overline{\text{EVI}}$ and T_{trend} ($^{\circ}\text{C}/10\text{yrs}$) from three individual observational datasets by large-scale ecoregion.

Ecoregions	$y = A_0 * \overline{\text{EVI}} + C_0$		$y = A_0 * \ln(\overline{\text{EVI}}) + C_0$	
	A_0	R^2	A_0	R^2
CRU				
7	-0.44	0.86	-0.09	0.93
14	-0.44	0.81	-0.09	0.89
21	-0.44	0.81	-0.09	0.89
28	-0.43	0.77	-0.09	0.84
35	-0.43	0.76	-0.09	0.83
GISS				
7	-0.41	0.95	-0.09	0.96
14	-0.41	0.91	-0.09	0.93
21	-0.41	0.91	-0.08	0.93
28	-0.41	0.90	-0.08	0.92
35	-0.41	0.88	-0.08	0.90
NCDC				
7	-0.40	0.93	-0.09	0.96
14	-0.40	0.90	-0.09	0.93
21	-0.40	0.89	-0.08	0.92
28	-0.40	0.88	-0.08	0.90
35	-0.40	0.85	-0.08	0.88