

Supplementary information 2 – Detailed information on MODIS-derived predictor variables (source, derived Fourier variables, image values and rescaling if applicable).

MODIS imagery	Estimated parameter	Number of variables	Estimate Fourier parameter	Number of variables	Image values
MIR	Mean, Minimum, Maximum, Variance,	4	Annual bi-annual, tri-annual amplitude; annual bi-annual, tri-annual phase Contribution to total variance for combined annual, bi-annual, tri-annual amplitude and phase and total variance of combination	6 4	Reflectance values * 10,000
LST (day, night)	Mean, Minimum, Maximum, Variance,	4	Annual bi-annual, tri-annual amplitude; annual bi-annual, tri-annual phase Contribution to total variance for combined annual, bi-annual, tri-annual amplitude and phase and total variance of combination	6 4	(Degree Centigrade + 273) * 50
NDVI and EVI	Mean, Minimum, Maximum	3 + 3	Annual bi-annual, tri-annual amplitude; annual bi-annual, tri-annual phase Contribution to total variance for combined annual, bi-annual, tri-annual amplitude and phase and total variance of combination	6 + 6 4 + 4	Index Value * 1,000
NDVI and EVI	Variance	1 + 1	-----		Value * 10,000
Green-up	Onset green-up event for annual cycle 1 (1 January - 30 June) and annual cycle 2 (1 July - 31 December)	1 + 1	-----		Julian day
Senescence	Onset senescence event for annual cycle 1 (1 January - 30 June) and annual cycle 2 (1 July - 31 December)	1 + 1	-----		Julian day