Table S1. 32 Core ET-SCI indices (Source: [9]). Bold indicates index is also an ETCCDI index. (TX: daily maximum near-surface air temperature, TN: daily minimum near-surface air temperature, PR: daily near-surface total precipitation, H: Health, AFS: Agriculture and Food Security, WRH: Water Resources and Hydrology).

Short Name	Long Name	Definition	Plain Language Description	Units	Time Scale	Sector(s)
FD	Frost Days	Number of days when TN < 0 °C	Days when minimum temperature is below 0 °C	days	Mon/Ann	H, AFS
TNlt2	TN below 2°C	Number of days when TN < 2 °C	Days when minimum temperature is below 2 °C	days	Mon/Ann	AFS
TNltm2	TN below -2°C	Number of days when TN < -2 °C	Days when minimum temperature is below −2 °C	days	Mon/Ann	AFS
TNltm20	TN below -20°C	Number of days when TN < -20 °C	Days when minimum temperature is below −20 °C	days	Mon/Ann	H, AFS
ID	Ice Days	Number of days when TX < 0 °C	Days when maximum temperature is below 0 °C	days	Mon/Ann	H, AFS
SU	Summer days	Number of days when TX > 25 °C	Days when maximum temperature exceeds 25 °C	days	Mon/Ann	H
TR	Tropical nights	Number of days when TN > 20 °C	Days when minimum temperature exceeds 20 °C	days	Mon/Ann	H,AFS
GSL	Growing Season Length	Annual number of days between the first occurrence of 6 consecutive days with TM > 5 °C and the first occurrence of 6 consecutive days with TM < 5 °C	Length of time in which plants can grow	days	Ann	AFS
TXx	Max TX	Warmest daily TX	Hottest day	°C	Mon/Ann	AFS
TNn	Min TN	Coldest daily TN	Coldest night	°C	Mon/Ann	AFS
WSDI	Warm spell duration indicator	Annual number of days contributing to events where 6 or more consecutive days experience TX > 90th percentile	Number of days contributing to a warm period (where the period has to be at least 6 days long)	days	Ann	H, AFS, WRH
WSDId	User-defined WSDI	Annual number of days contributing to events where *d* or more consecutive days experience TX > 90th percentile	Number of days contributing to a warm period (where the minimum length is user-specified)	days	Ann	H, AFS, WRH
CSDI	Cold spell duration indicator	Annual number of days contributing to events where 6 or more consecutive days experience TN < 10th percentile	Number of days contributing to a cold period (where the period has to be at least 6 days long)	days	Ann	H, AFS

CSDId	User-defined CSDI	Annual number of days contributing to events where d or more consecutive days experience TN < 10th percentile	Number of days contributing to a cold period (where the minimum length is user-specified)	days	Ann	H, AFS, WRH
TXgt50p	Fraction of days with above average temperature	Percentage of days where TX > 50th percentile	Fraction of days with above average temperature	%	Mon/Ann	H, AFS, WRH
TX95t	Very warm day threshold	Value of 95th percentile of TX	A threshold where days above this temperature would be classified as very warm	°C	Daily	H, AFS
TMge5	TM of at least 5°C	Number of days when TM >= 5 °C	Days when average temperature is at least 5 °C	days	Mon/Ann	AFS
TMlt5	TM below 5°C	Number of days when TM < 5 °C	Days when average temperature is below 5 °C	days	Mon/Ann	AFS
TMge10	TM of at least 10°C	Number of days when TM >= 10 °C	Days when average temperature is at least 10 °C	days	Mon/Ann	AFS
TMlt10	TM below 10°C	Number of days when TM < 10 °C	Days when average temperature is below 10 °C	days	Mon/Ann	AFS
TXge30	TX of at least 30°C	Number of days when TX >= 30 °C	Days when maximum temperature is at least 30 °C	days	Mon/Ann	H, AFS
TXge35	TX of at least 35°C	Number of days when TX >= 35 °C	Days when maximum temperature is at least 35°C	days	Mon/Ann	H, AFS
TXdTNd	User-defined consecutive number of hot days and nights	Annual count of d consecutive days where both TX > 95th percentile and TN > 95th percentile, where $10 >= d >= 2$	Total consecutive hot days and hot nights (where consecutive periods are user-specified)	events	Ann	H, AFS, WRH
GDDgrown	Growing Degree Days	Annual sum of TM - n (where n is a user-defined location-specific base temperature and TM > n)	A measure of heat accumulation to predict plant and animal developmental rates	degree-days	Ann	H, AFS
CDD	Consecutive Dry Days	Maximum number of consecutive dry days (when PR < 1.0 mm)	Longest dry spell	days	Mon/Ann	H, AFS, WRH
R20mm	Number of very heavy rain days	Number of days when PR >= 20 mm	Days when rainfall is at least 20 mm	days	Mon/Ann	AFS, WRH
PRCPTOT	Annual total wet-day PR	Sum of daily PR >= 1.0 mm	Total wet-day rainfall	mm	Mon/Ann	AFS, WRH
R95pTOT	Contribution from very wet days	100*r95p / PRCPTOT	Fraction of total wet-day rainfall that comes from very wet days	%	Ann	AFS, WRH
R99pTOT	Contribution from extremely wet days	100*r99p / PRCPTOT	Fraction of total wet-day rainfall that comes from extremely wet days	%	Ann	AFS, WRH

Short Name	Long Name	Definition	Plain Language Description	Units	Time Scale	Sector(s)
RXdday	User-defined consecutive days PR amount	Maximum *d*-day PR total	Maximum amount of rain that falls in a user-specified period	mm	Mon/Ann	H, AFS, WRH
SPI	Standardised Precipitation Index	Measure of "drought" using the Standardised Precipitation Index on time scales of 3, 6, 12, 24, 36 and 48 months. Calculated using the R SPEI package [17].	A drought measure specified as a precipitation deficit	unitless	Custom	H, AFS, WRH
SPEI	Standardised Precipitation Evapotranspiration Index	Measure of "drought" using the Standardised Precipitation Evapotranspiration Index on time scales of 3, 6, 12, 24, 36 and 48 months. Calculated using the R SPEI package [17].	A drought measure specified using precipitation and evaporation	unitless	Custom	H, AFS, WRH

Table S2. 39 non-core ET-SCI indices (Source: [9]). Bold indicates index is also an ETCCDI index. Sectoral abbreviations same as in Table S1.

Short Name	Long Name	Definition	Plain Language Description	Units	Time Scale	Sector(s)
TXbdTNbd	User-defined consecutive number of cold days and nights	Annual number of *d* consecutive days where both TX < 5th percentile and TN < 5th percentile, where 10 >= *d* >=2	Total consecutive cold days and cold nights (where consecutive periods are user-specified)	events	Ann	H, AFS, WRH
DTR	Daily Temperature Range	Mean difference between daily TX and daily TN	Average range of maximum and minimum temperature	°C	Mon/Ann	
TNx	Max TN	Warmest daily TN	Hottest night	°C	Mon/Ann	
TXn	Min TX	Coldest daily TX	Coldest day	°C	Mon/Ann	
TMm	Mean TM	Mean daily mean temperature	Average daily temperature	°C	Mon/Ann	
TXm	Mean TX	Mean daily maximum temperature	Average daily maximum temperature	°C	Mon/Ann	
TNm	Mean TN	Mean daily minimum temperature	Average daily minimum temperature	°C	Mon/Ann	
TX10p	Amount of cool days	Percentage of days when TX < 10th percentile	Fraction of days with cool day time temperatures	%	Ann	
TX90p	Amount of hot days	Percentage of days when TX > 90th percentile	Fraction of days with hot day time temperatures	%	Ann	
TN10p	Amount of cold nights	Percentage of days when TN < 10th percentile	Fraction of days with cold night time temperatures	%	Ann	
TN90p	Amount of warm nights	Percentage of days when TN > 90th percentile	Fraction of days with warm night time temperatures	%	Ann	
CWD	Consecutive Wet Days	Maximum annual number of consecutive wet days (when PR >= 1.0 mm)	The longest wet spell	days	Ann	
R10mm	Number of heavy rain days	Number of days when PR >= 10 mm	Days when rainfall is at least 10mm	days	Mon/Ann	

Rnnmm	Number of customised rain days	Number of days when PR >= *nn*	Days when rainfall is at least a user-specified number of mm	days	Mon/Ann	
SDII	Daily PR intensity	Annual total PR divided by the number of wet days (when total PR >= 1.0 mm)	Average daily wet-day rainfall intensity	mm/day	Ann	
R95p	Total annual PR from heavy rain days	Annual sum of daily PR > 95th percentile	Amount of rainfall from very wet days	mm	Ann	
R99p	Total annual PR from very heavy rain days	Annual sum of daily PR > 99th percentile	Amount of rainfall from extremely wet days	mm	Ann	
Rx1day	Max 1-day PR	Maximum 1-day PR total	Maximum amount of rain that falls in one day	mm	Mon/Ann	
Rx5day	Max 5-day PR	Maximum 5-day PR total	Maximum amount of rain that falls in five consecutive days	mm	Mon/Ann	
HWN (EHF/Tx90/Tn90)	Heatwave number (HWN) as defined by either the Excess Heat Factor (EHF), 90th percentile of TX or the 90th percentile of TN	The number of individual heatwaves that occur each summer (Nov–Mar in southern hemisphere and May–Sep in northern hemisphere). A heatwave is defined as 3 or more days where either the EHF is positive, TX > 90th percentile of TX or where TN > 90th percentile of TN. Where percentiles are calculated from base period specified by user. See [31] for more details.	Number of individual heatwaves	events	Ann	H, AFS, WRH
HWF (EHF/Tx90/Tn90)	Heatwave frequency (HWF) as defined by either the Excess Heat Factor (EHF), 90th percentile of TX or the 90th percentile of TN	The number of days that contribute to heatwaves as identified by HWN. See [31] for more details.	Total number of days that contribute to individual heatwaves	days	Ann	H, AFS, WRH
HWD (EHF/Tx90/Tn90)	Heatwave duration (HWD) as defined by either the Excess Heat Factor (EHF), 90th percentile of TX or the 90th percentile of TN	The length of the longest heatwave identified by HWN. See [31] for more details.	Length of the longest heatwave	days	Ann	H, AFS, WRH
HWM (EHF/Tx90/Tn90)	Heatwave magnitude (HWM) as defined by either the Excess Heat Factor (EHF), 90th percentile of TX or the 90th percentile of TN	The mean temperature of all heatwaves identified by HWN. See [31] for more details.	Average temperature across all individual heatwaves	°C ($°C^2$ for EHF)	Ann	H, AFS, WRH

HWA (EHF/Tx90/Tn90)	Heatwave amplitude (HWA) as defined by either the Excess Heat Factor (EHF), 90th percentile of TX or the 90th percentile of TN	The peak daily value in the hottest heatwave (defined as the heatwave with highest HWM). [31] for more details.	Hottest day of the hottest heatwave	°C (°C^2 for EHF)	Ann	H, AFS, WRH
CWN_ECF	Coldwave number (CWN) as defined by the Excess Cold Factor (ECF).	The number of individual 'coldwaves' that occur each year. See [32] for more information.	Number of individual coldwaves	events	Ann	H, AFS, WRH
CWF_ECF	Coldwave frequency (CWF) as defined by the Excess Cold Factor (ECF).	The number of days that contribute to 'coldwaves' as identified by ECF_HWN. See [32] for more information.	Total number of days that contribute to individual coldwaves	days	Ann	H, AFS, WRH
CWD_ECF	Coldwave duration (CWD) as defined by the Excess Cold Factor (ECF).	The length of the longest 'coldwave' identified by ECF_HWN. See [32] for more information.	Length of the longest coldwave	days	Ann	H, AFS, WRH
CWM_ECF	Coldwave magnitude (CWM) as defined by the Excess Cold Factor (ECF).	The mean temperature of all 'coldwaves' identified by ECF_HWN. See [32] for more information.	Average temperature across all individual coldwaves	°C^2	Ann	H, AFS, WRH
CWA_ECF	Coldwave amplitude (CWA) as defined by the Excess Cold Factor (ECF).	The minimum daily value in the coldest 'coldwave' (defined as the coldwave with lowest ECF_HWM). See [32] for more information.	Coldest day of the coldest coldwave	°C^2	Ann	H, AFS, WRH