Glossary

Acronyms

AMFDS	Absolute maximum first difference series
ANTHRO	HadCM3 model run with all anthropogenic forcings
AO	Arctic Oscillation
BAU	Business As Usual
BLUE	Best Linear Unbiased Estimator
C.I	Confidence Interval
DJF	December January February
ENSO	El Nino Southern Oscillation
EOF	Empirical Orthogonal Function
GCM	Global Climate Model / General Circulation Model
G	Greenhouse gas forcing
GHG	HadCM3 greenhouse gas forcing run
GS	Greenhouse gas plus sulphate aerosol forcing
GSO	Greenhouse gas plus sulphate aerosol plus ozone forcing
HadCM2	Second version of the Hadley Centre GCM
HadCM3	Third version of the Hadley Centre GCM
HadCRUT	Globally gridded near-surface temperature dataset
HadCRUTv	Variance corrected version of HadCRUT
HadRT	Globally gridded radiosonde upper air temperature dataset
IPCC	Inter-governmental Panel on Climate Change
JJA	June July August
LAA	Large Area Average
LBB	Solar forcing realisation
LHS	Left Hand Side
LT	Lower Troposphere
MAM	March April May
MSU	Microwave Sounding Unit upper air temperature dataset
NAT	Combined solar and volcanic forcings
NATURAL	Combined solar and volcanic forcing realisation in HadCM3
NAO	North Atlantic Oscillation

O	Stratospheric ozone depletion forcing.
OLS	Ordinary Least Squares Regression
PDF	Probability Density Function
QBO	Quasi-Biennial Oscillation
RHS	Right Hand Side
RMSD	Root Mean Squared Difference
S	Sulphate aerosol forcing
SAR	Second Assessment Report of the IPCC
S.D	Standard Deviation
SHC	Spherical Harmonic Coefficients
SNR	Signal-to-Noise Ratio
SOL	Solar forcing realisation in HadCM2
SOLAR	Solar forcing realisation in HadCM3
SON	September October November
SRES	Special Report on Emissions Scenarios
SSTs	Sea Surface Temperatures
Surf	Surface
TAR	Third Assessment Report of the IPCC
TLS	Total Least Squares Regression
TROP-ANTHRO	Anthropogenic forcing realisation in HadCM3
UT	Upper troposphere
VOL	Volcanic forcing realisation in HadCM2
VOLCANIC	Volcanic forcing realisation in HadCM3
V1 to V3	Versions of HadRT annual data with increasingly strict inclusion criteria.
WMO	World Meteorological Organisation

Mathematical symbols

β	Regression amplitude estimator
α	Constant factor multiplier
∂	Partial differential
Δ	A small change in
ε	Expectation operator

κ	Truncation at which the regression is being performed
ϕ	Scalar linear diagnostic of the climate system
σ	Standard deviation
ν	Estimator of noise from regression residuals
χ^2	Chi-squared distribution
λ^2	Lagrange operator
Λ	Eigenvalues of the singular value decomposition of Z
Σ	Summation operator
$\wedge$	Estimate of the variable
$\sim$	Best-guess linear unbiased estimators
C_N	Estimate of climate noise covariance
C_{N2}	Independent estimate of climate noise covariance
I	Identity matrix
F^T	Best Linear Unbiased Estimator OR Distinguishing fingerprints
L	Likelihood estimator
$mF_{m,v}$	F-distribution with m and v degrees of freedom in the numerator and denominator respectively
P	Pre-whitening operator
Q	Left singular vectors of the singular value decomposition of Z
R	Right singular vectors of the singular value decomposition of Z
r^2	sum of residuals squared
U	Operator which removes the global mean from a series
V	Variance (or in 4.2.2 a vector of coefficients on Z)
w	Weights on input field to gain scalar linear diagnostic
X	Array of signal ensemble average realisations (Chapter 4 only)
X^T	Transpose of X (etc., change symbol in front of ^{T}.)
y	Observation vector (Chapter 4 only)
Y	Residuals from a TLS regression
Y_N	Successive independent chunks of model control realisations
Z	Pre-whitened observed values of X and y