**Appendix: Description of latent factors and covariates**

**Position index**
BIO1 = Annual Mean Temperature expressed as 10* degrees Celsius, i.e. if it says 105 then it is 10.5 Degrees Celsius
BIO5 = Max Temperature of Warmest Month expressed as 10* degrees Celsius
BIO6 = Min Temperature of Coldest Month expressed as 10* degrees Celsius
BIO8 = Mean Temperature of Wettest Quarter expressed as 10* degrees Celsius
BIO9 = Mean Temperature of Driest Quarter expressed as 10* degrees Celsius
BIO10 = Mean Temperature of Warmest Quarter expressed as 10* degrees Celsius
BIO11 = Mean Temperature of Coldest Quarter expressed as 10* degrees Celsius
BIO12 = Annual Precipitation expressed as mm
BIO13 = Precipitation of Wettest Month expressed as mm
BIO14 = Precipitation of Driest Month expressed as mm
BIO16 = Precipitation of Wettest Quarter expressed as mm
BIO17 = Precipitation of Driest Quarter expressed as mm
BIO18 = Precipitation of Warmest Quarter expressed as mm
BIO19 = Precipitation of Coldest Quarter expressed as mm
Mod1803A0 mean - middle infra-red (expressed as reflectance)
Mod1803MN minimum - middle infra-red (expressed as reflectance)
Mod1803MX maximum - middle infra-red (expressed as reflectance)
Mod1807A0 mean - daytime land surface temperature (expressed as Kelvin)
Mod1807MN minimum - daytime land surface temperature (expressed as Kelvin)
Mod1807MX maximum - daytime land surface temperature (expressed as Kelvin)
Mod1815A0 mean – vegetation index
Mod1815MN minimum - vegetation index
Mod1815MX maximum - vegetation index

**Variability**
BIO2 = Mean Diurnal Range (Mean of monthly (max temp - min temp)) expressed as 10* degrees Celsius
BIO3 = Isothermality (BIO2/BIO7) (* 100) unitless
BIO4 = Temperature Seasonality (standard deviation *100) unitless, variation in temperature over the year
BIO7 = Temperature Annual Range (BIO5-BIO6) expressed as 10* degrees Celsius
BIO15 = Precipitation Seasonality (Coefficient of Variation) unitless
Mod1803VR variance - middle infra-red (expressed as reflectance)
Mod1807VR variance - daytime land surface temperature (expressed as Kelvin)
Mod1815VR variance - vegetation index

**Periodicity**
Mod1803A1 amplitude of annual cycle - middle infra-red (expressed as reflectance)
Mod1803A2 amplitude of biannual cycle - middle infra-red (expressed as reflectance)
Mod1803A3 amplitude of triannual cycle - middle infra-red (expressed as reflectance)
Mod1803P1 phase of annual cycle - middle infra-red (expressed as reflectance)
Mod1803P2 phase of biannual cycle - middle infra-red (expressed as reflectance)
Mod1803P3 phase of triannual cycle - middle infra-red (expressed as reflectance)
Mod1807A1 amplitude of annual cycle - daytime land surface temperature (expressed as Kelvin)
Mod1807A2 amplitude of biannual cycle - daytime land surface temperature (expressed as Kelvin)
Mod1807A3 amplitude of triannual cycle - daytime land surface temperature (expressed as Kelvin)
Mod1807P1 phase of annual cycle - daytime land surface temperature (expressed as Kelvin)
Mod1807P2 phase of biannual cycle - daytime land surface temperature (expressed as Kelvin)

Mod1807P3 phase of triannual cycle - daytime land surface temperature (expressed as Kelvin)
Mod1815A1 amplitude of annual cycle - vegetation index
Mod1815A2 amplitude of biannual cycle - vegetation index
Mod1815A3 amplitude of triannual cycle - vegetation index
Mod1815P1 phase of annual cycle - vegetation index
Mod1815P2 phase of biannual cycle - vegetation index
Mod1815P3 phase of triannual cycle - vegetation index.