DESTRESS
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$$J(x) = \tfrac{1}{2}\left[(y-M(x))^{T}R^{-1}(y-M(x)) + (x-x_b)^{T}B^{-1}(x-x_b)\right]$$
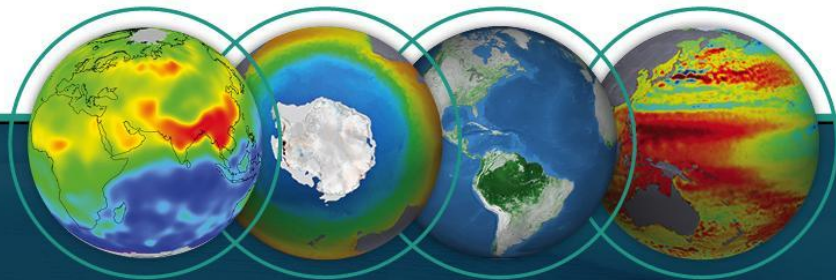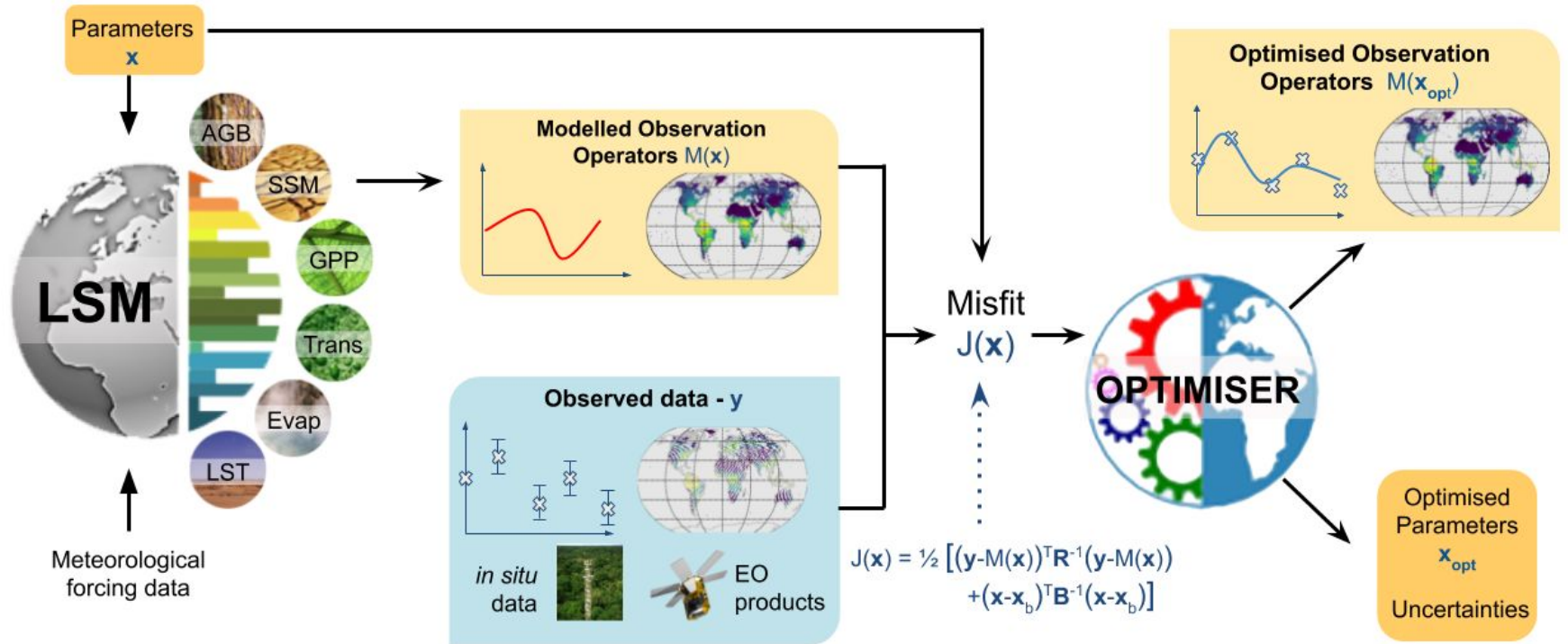
DATA ASSIMILATION SYSTEM: parameter optimisation

Definition of drydowns

Soil Moisture (ϑ)

Precipitation

$$\vartheta(t) = A \times \exp(-t/\tau) + \vartheta_{eq}$$

Time (days)
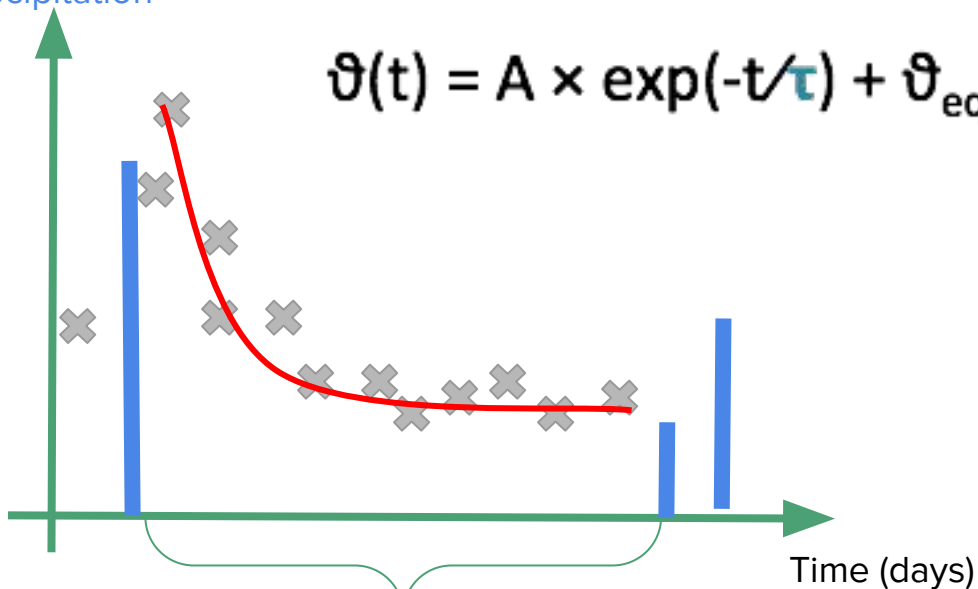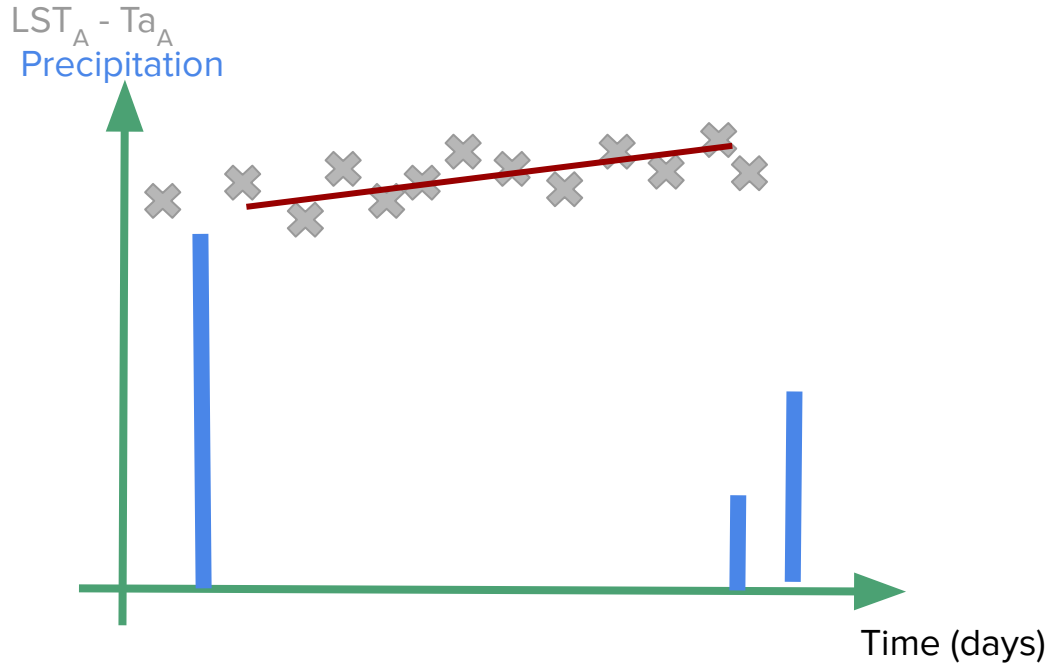
At least 5 days with no rain

❖ Due to large biases in SM, focus on temporal dynamics

❖ Measure of soil moisture memory

❖ τ is the metric of interest

Definition of relative warming rate

❖ Consider the relative warming of the land surface compared to atmosphere during drydowns

❖ Can be used to inform on water-limited evapotranspiration

Aims

- Investigate what added information is brought by the LST temporal dynamic during drydowns.

- Calibrate the ORCHIDEE model parameters using τ and RWR values

- Investigate the temporal evolution of evapotranspiration running the calibrated model under different scenarios.