Initial latent state:

$$\underbrace{\begin{bmatrix}\text{ss\_level}\\\text{ss\_velocity}\end{bmatrix}(t_0)}_{\boldsymbol{\eta}(t_0)} \sim \mathrm{N}\left(\underbrace{\underbrace{\begin{bmatrix}-44.799\\1.034\end{bmatrix}}_{}}_{\text{T0MEANS}}, \underbrace{\underbrace{\begin{bmatrix}1 & 0\\0 & 1\end{bmatrix}}_{\mathbf{Q^*}_{t0}}}_{\text{T0VAR}}\right)$$

Deterministic change:

$$\underbrace{\mathrm{d}\begin{bmatrix}\text{ss\_level}\\\text{ss\_velocity}\end{bmatrix}(t)}_{\mathrm{d}\boldsymbol{\eta}(t)} = \left(\underbrace{\underbrace{\begin{bmatrix}0 & 1\\-0.456 & -0.68\end{bmatrix}}_{\mathbf{A}}}_{\text{DRIFT}}\underbrace{\begin{bmatrix}\text{ss\_level}\\\text{ss\_velocity}\end{bmatrix}(t)}_{\boldsymbol{\eta}(t)} + \underbrace{\underbrace{\begin{bmatrix}0\\0\end{bmatrix}}_{\mathbf{b}}}_{\text{CINT}}\right)\mathrm{d}t \quad +$$

Random change:

$$\underbrace{\underbrace{\mathit{cholsdcor}\left\{\begin{bmatrix}0 & 0\\0 & 31.349\end{bmatrix}\right\}}_{\mathbf{G}}}_{\text{DIFFUSION}}\underbrace{\mathrm{d}\begin{bmatrix}W_1\\W_2\end{bmatrix}(t)}_{\mathrm{d}\mathbf{W}(t)}$$

Observations:

$$\underbrace{\begin{bmatrix}\text{sunspots}\end{bmatrix}(t)}_{\mathbf{Y}(t)} = \underbrace{\underbrace{\begin{bmatrix}1 & 0\end{bmatrix}}_{\boldsymbol{\Lambda}}}_{\text{LAMBDA}}\underbrace{\begin{bmatrix}\text{ss\_level}\\\text{ss\_velocity}\end{bmatrix}(t)}_{\boldsymbol{\eta}(t)} + \underbrace{\underbrace{\begin{bmatrix}49.759\end{bmatrix}}_{\boldsymbol{\tau}}}_{\text{MANIFESTMEANS}} + \underbrace{\underbrace{\begin{bmatrix}0\end{bmatrix}}_{\boldsymbol{\Theta}}}_{\text{MANIFESTVAR}}\underbrace{\begin{bmatrix}\epsilon_1\end{bmatrix}(t)}_{\boldsymbol{\epsilon}(t)}$$

Latent noise per time step: $\Delta\left[W_{j\in[1,2]}\right](t-u) \sim \mathrm{N}(0, t-u)$

Observation noise: $\left[\epsilon_{j\in[1,2]}\right](t) \sim \mathrm{N}(0,1)$

cholsdcor converts lower tri matrix of std dev and unconstrained correlation to Cholesky factor covariance.
covsdcor = transposed cross product of cholsdcor, to give covariance.
See Driver & Voelkle (2018) p11.