Lorenz attractor y-dimension unobserved True ODE parameters:

```
simulation.ode_param = [10,28,8/3];
```

Final time for simulation:

```
simulation.final_time = 20;
```

Observation noise:

```
simulation.state_obs_variance = @(mean)(bsxfun(@times,[2,2],ones(size(mean))));
```

Time interval between observations

```
simulation.interval_between_observations = 0.1;
```

Kernel parameters ϕ

```
kernel.param = [10,0.2];
```

Error variance on state derivatives (i.e. γ**)**

```
state.derivative_variance = [6,6,6];
```

Estimation times

```
time.est = 0:0.1:20;
```

```
close all; clc; addpath('VGM_functions')
```

```
[symbols,simulation,ode,odes_path,coupling_idx,opt_settings,plot_settings] = ...
preprocessing_Lorenz_Attractor (simulation);
```

```
ODEs:

/  d x                    \
|  --- == -sigma (x - y)  |
|   dt                    |
|                         |
| d y                     |
| --- == rho x - y - x z  |
|  dt                     |
|                         |
|  d z                    |
|  --- == x y - lambda z  |
\   dt                    /
```

K $\theta \in \mathcal{R}^d$ K $\mathbf{x}(t) = [x_1(t), \ldots, x_K(t)]^T$ $\dot{\mathbf{x}}(t) = \frac{d\mathbf{x}(t)}{dt} = \mathbf{f}(\mathbf{x}(t), \theta)(1)$ $\mathbf{y}(t)$ K $\mathbf{E} \sim \mathcal{N}(\mathbf{E}; \mathbf{0}, \mathbf{D})$ $\mathbf{D}_{ik} = \sigma_k^2 \delta_{ik}$ N $\mathbf{Y} = \mathbf{X} + \mathbf{E}$ $\mathbf{X} =$