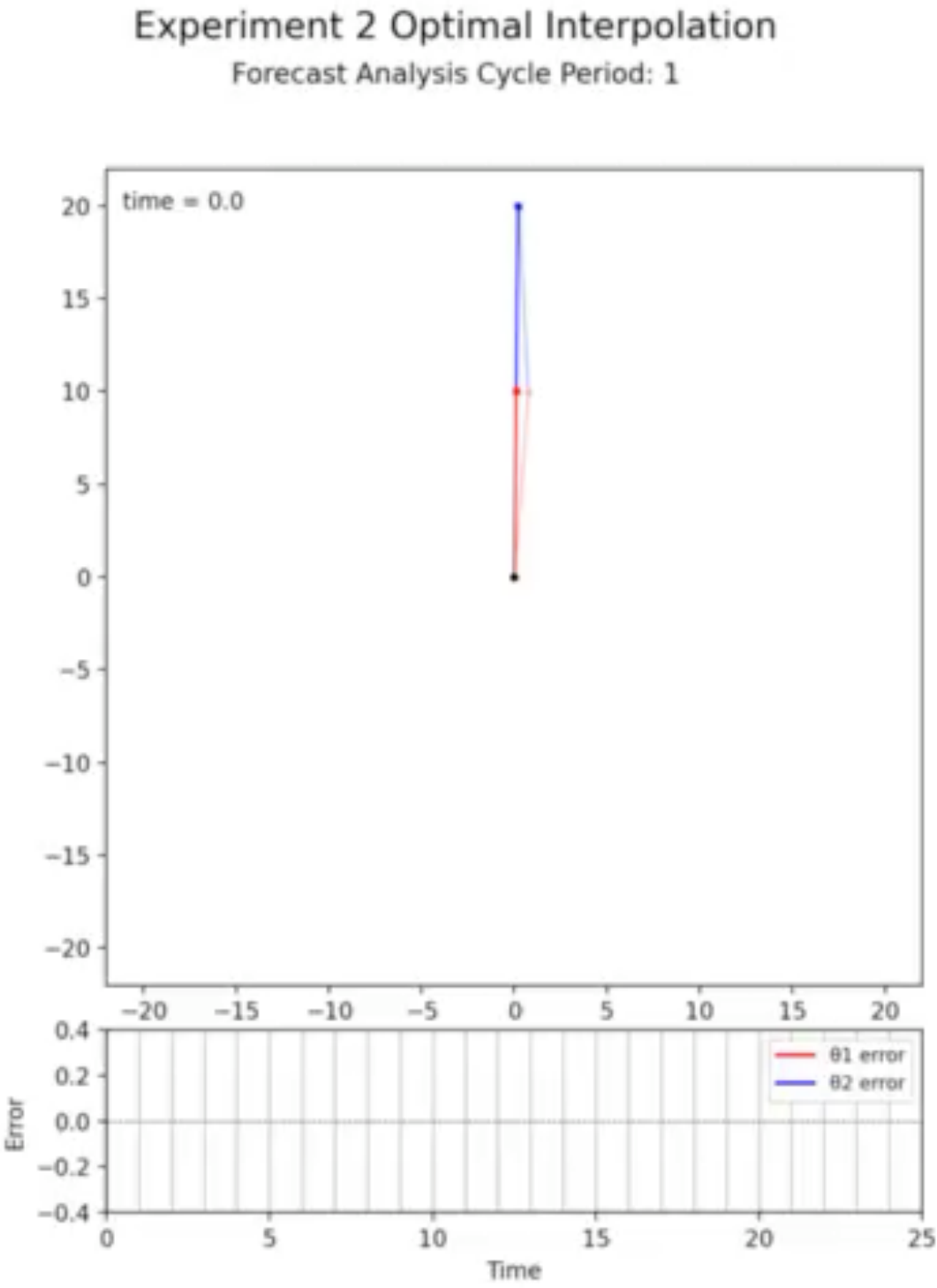
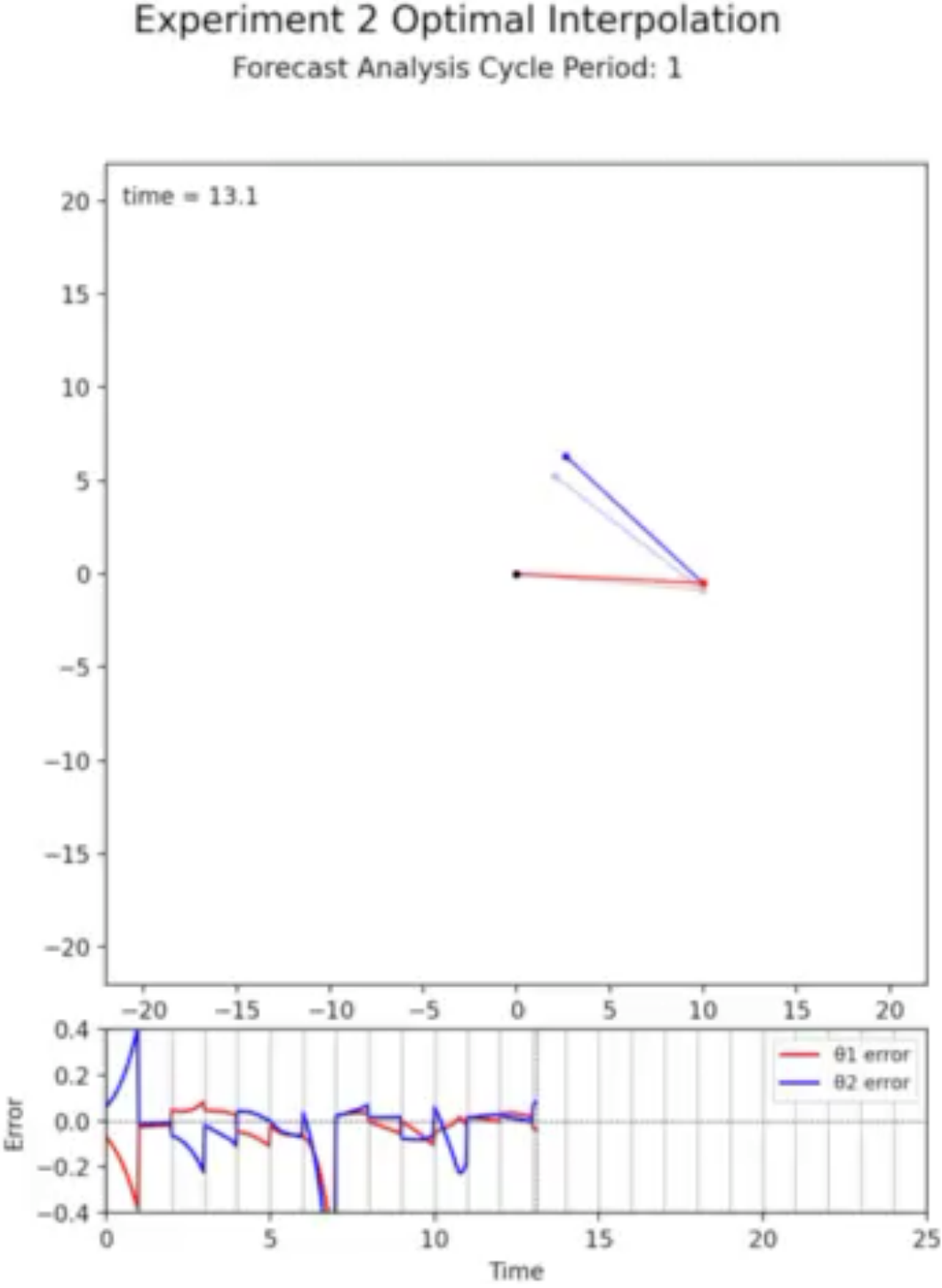
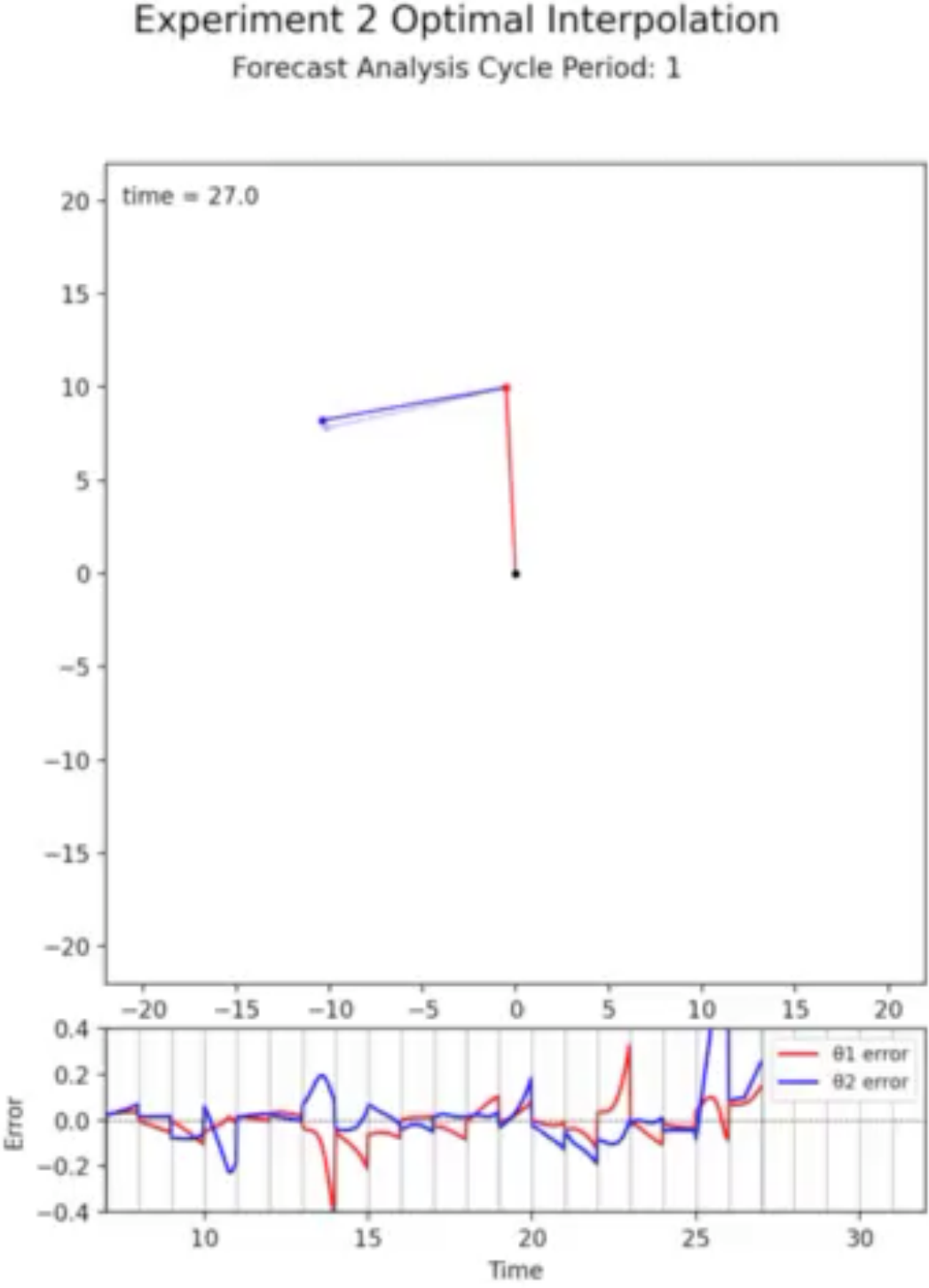
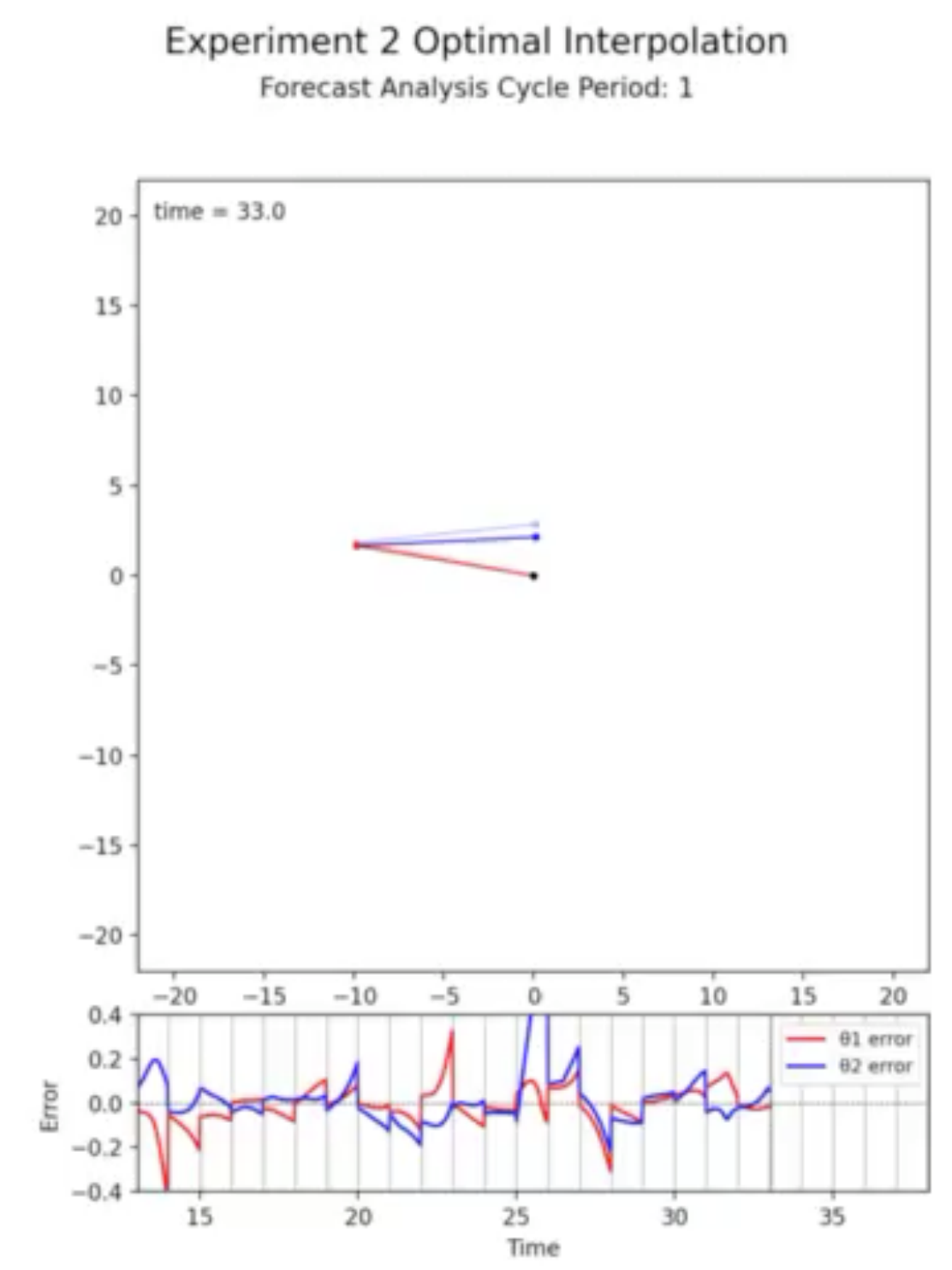
Experiment

Experiment 2: Optimal Interpolation（每1秒分析一次，最佳內插法）


Experiment 2 Optimal Interpolation
Forecast Analysis Cycle Period: 1
time = 0.0
20
15
10
5
0
−5
−10
−15
−20
−20
−15
−10
−5
0
5
10
15
20
0.4
0.2
0.0
−0.2
−0.4
Error
θ1 error
θ2 error
0
5
10
15
20
25
Time

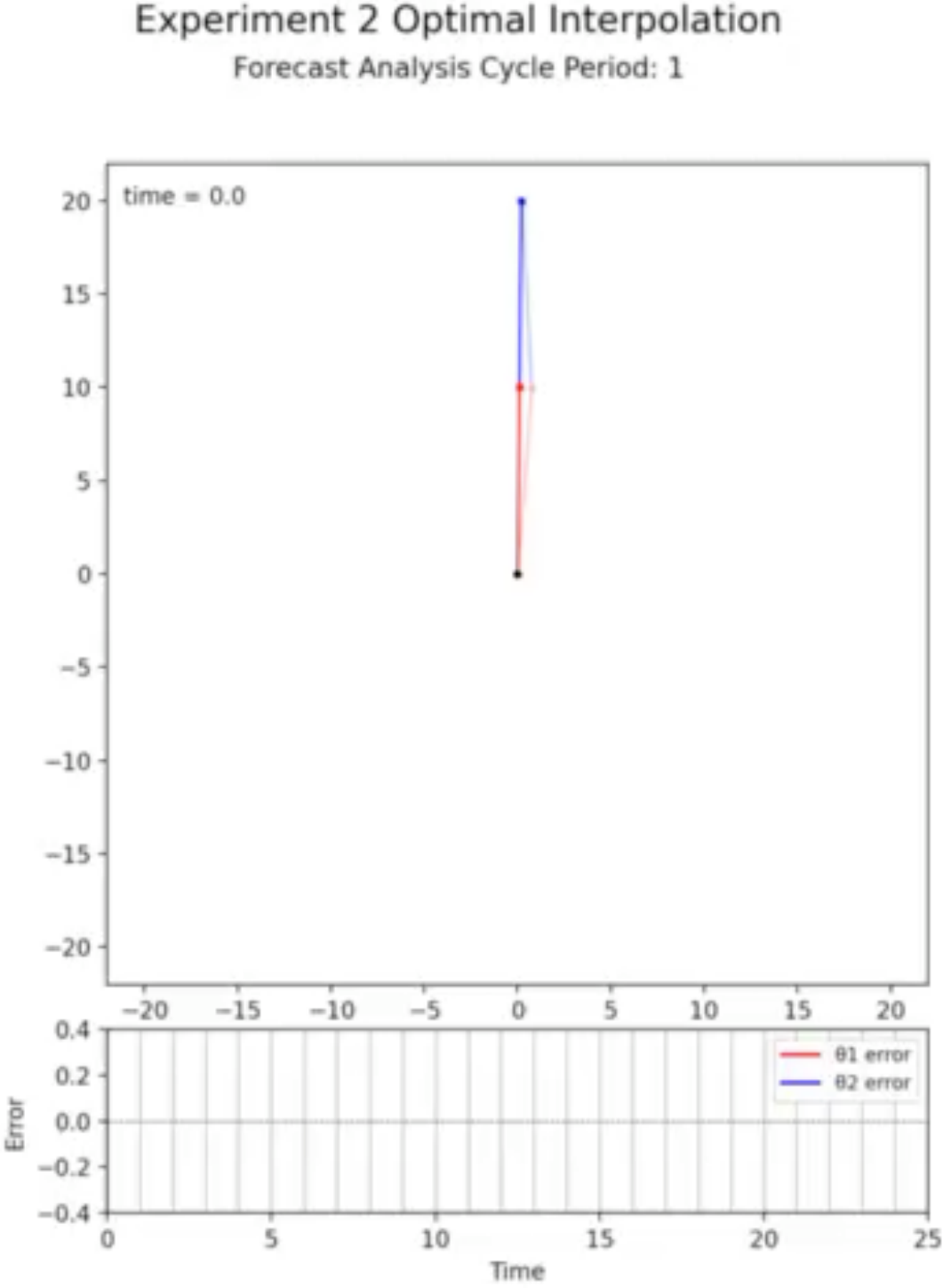

Experiment 2 Optimal Interpolation
Forecast Analysis Cycle Period: 1
time = 13.1
20
15
10
5
0
−5
−10
−15
−20
−20
−15
−10
−5
0
5
10
15
20
0.4
0.2
0.0
−0.2
−0.4
Error
θ1 error
θ2 error
0
5
10
15
20
25
Time

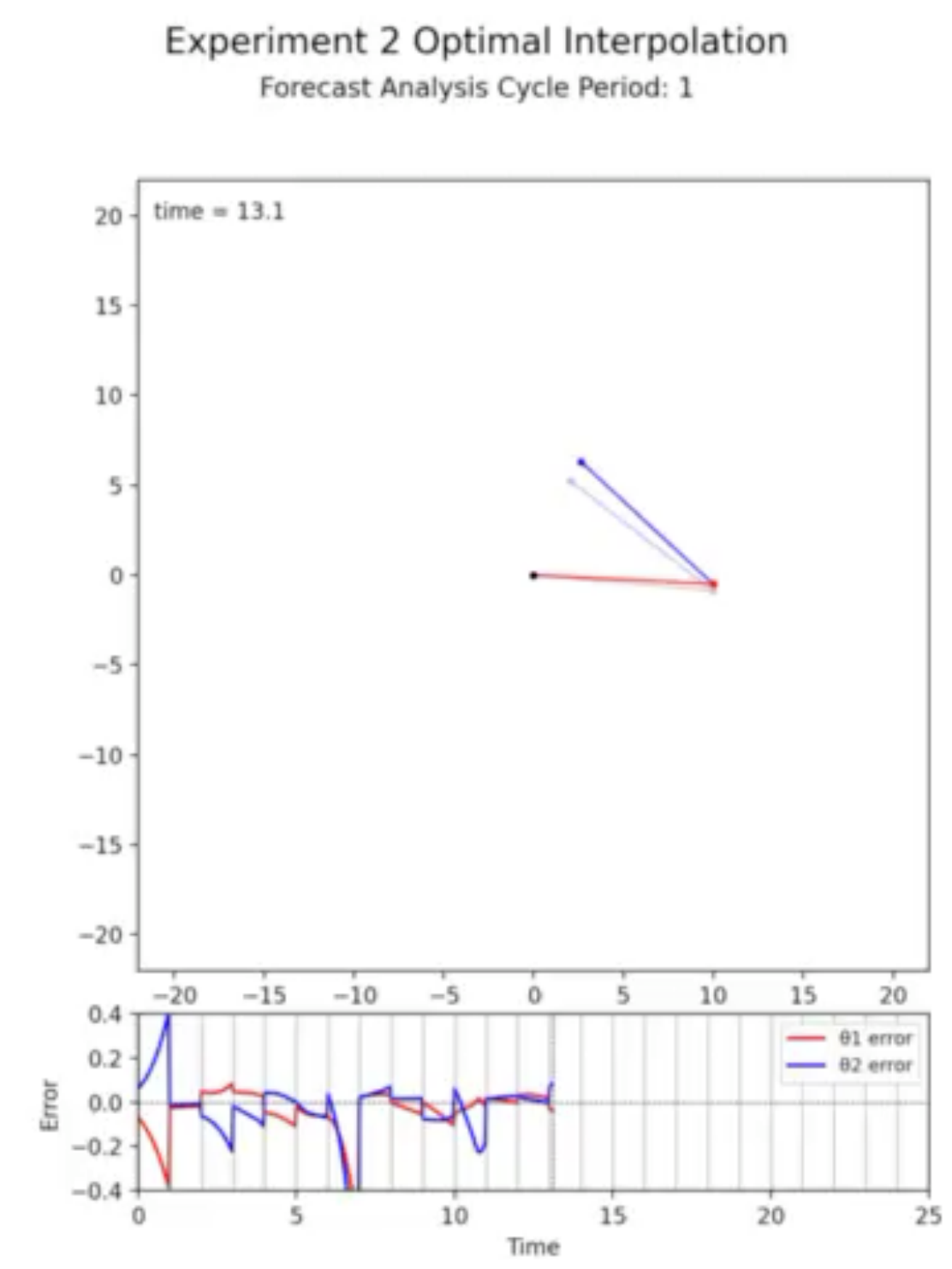

Experiment 2 Optimal Interpolation
Forecast Analysis Cycle Period: 1
time = 27.0
20
15
10
5
0
−5
−10
−15
−20
−20
−15
−10
−5
0
5
10
15
20
0.4
0.2
0.0
−0.2
−0.4
Error
θ1 error
θ2 error
10
15
20
25
30
Time

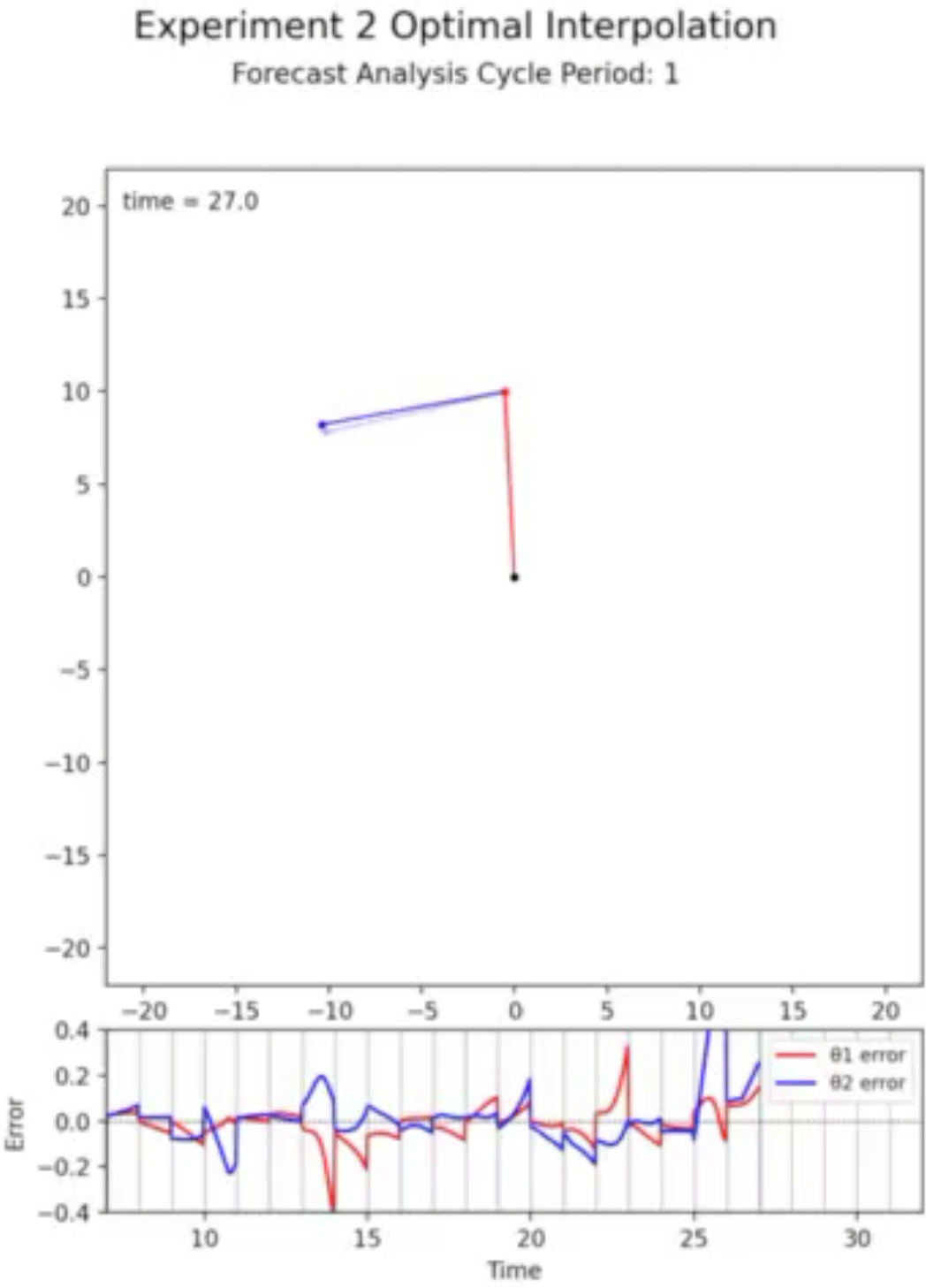

Experiment 2 Optimal Interpolation
Forecast Analysis Cycle Period: 1
time = 33.0
20
15
10
5
0
−5
−10
−15
−20
−20
−15
−10
−5
0
5
10
15
20
0.4
0.2
0.0
−0.2
−0.4
Error
θ1 error
θ2 error
15
20
25
30
35
Time

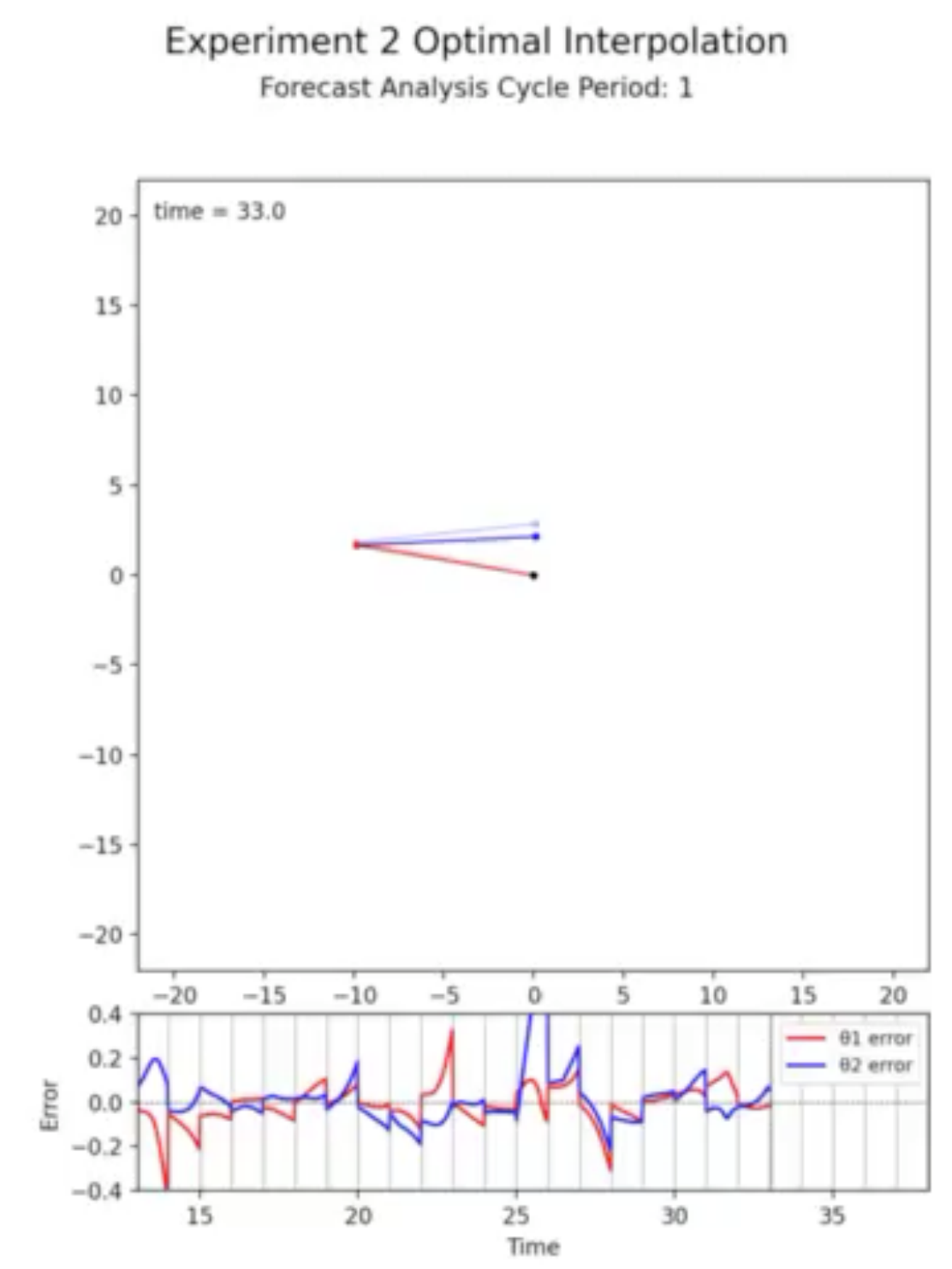
擺得慢時，背景誤差大；擺得快時，背景誤差小！

背景誤差共變異數矩陣 **B** 不應是定值！


Experiment 2 Optimal Interpolation
Forecast Analysis Cycle Period: 1
time = 0.0
20
15
10
5
0
−5
−10
−15
−20
−20
−15
−10
−5
0
5
10
15
20
0.4
0.2
0.0
−0.2
−0.4
Error
θ1 error
θ2 error
0
5
10
15
20
25
Time

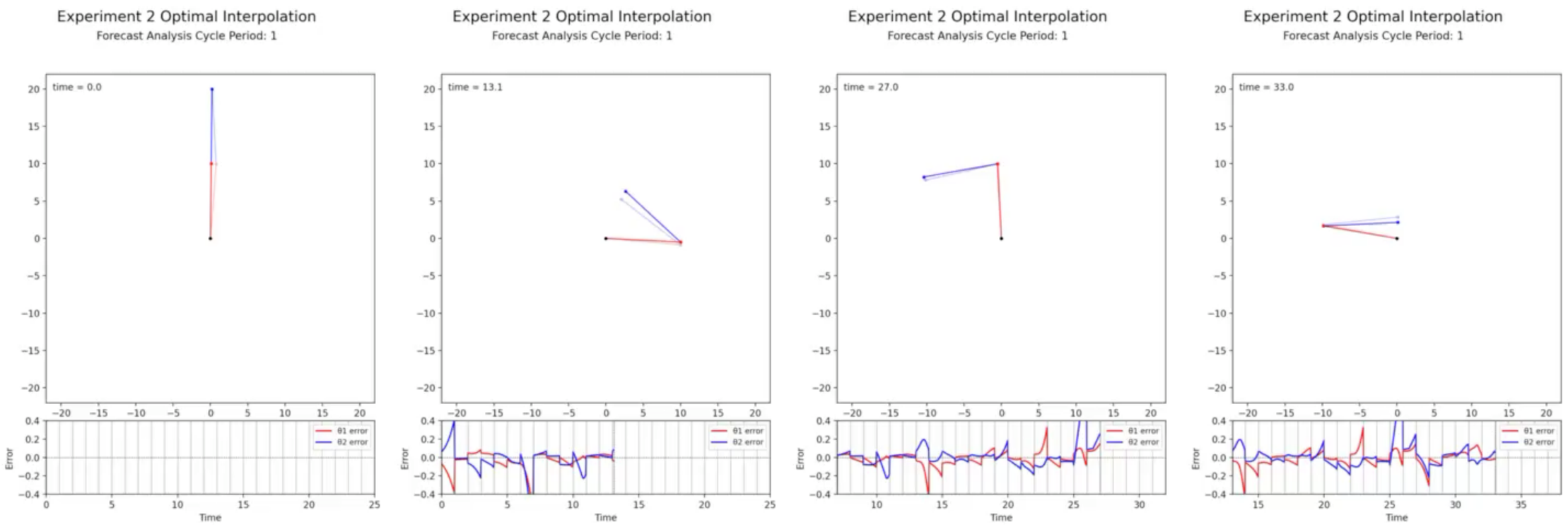

Experiment 2 Optimal Interpolation
Forecast Analysis Cycle Period: 1
time = 13.1
θ1 error
θ2 error
Error
Time


Experiment 2 Optimal Interpolation
Forecast Analysis Cycle Period: 1
time = 27.0
20
15
10
5
0
−5
−10
−15
−20
−20
−15
−10
−5
0
5
10
15
20
0.4
0.2
0.0
−0.2
−0.4
Error
θ1 error
θ2 error
10
15
20
25
30
Time


Experiment 2 Optimal Interpolation
Forecast Analysis Cycle Period: 1
time = 33.0
20
15
10
5
0
−5
−10
−15
−20
−20
−15
−10
−5
0
5
10
15
20
0.4
0.2
0.0
−0.2
−0.4
Error
θ1 error
θ2 error
15
20
25
30
35
Time

Experiment

Experiment 2: Optimal Interpolation（每1秒分析一次，最佳內插法）



擺得慢時，背景誤差大；擺得快時，背景誤差小！

背景誤差共變異數矩陣 **B** 不應是定值！

Experiment

Experiment 3: Extended Kalman Filter（每1秒分析一次，使用擴展卡爾曼濾波器）

評論：

接下來我想到可能比較具挑戰性的部份是：為了要做 EKF，還需要推導此雙擺的 tangent linear model（TLM），我猜測你應該可以成功完成，但在 energy constraint 的部份或許會有一點困難，我建議若對應於 energy constraint 步驟的 TLM 不好推導，可以先在 TLM 中省略這部份，這造成的微小的誤差或許不會影響 TLM 的可用性。

11月11日 下午 6:22