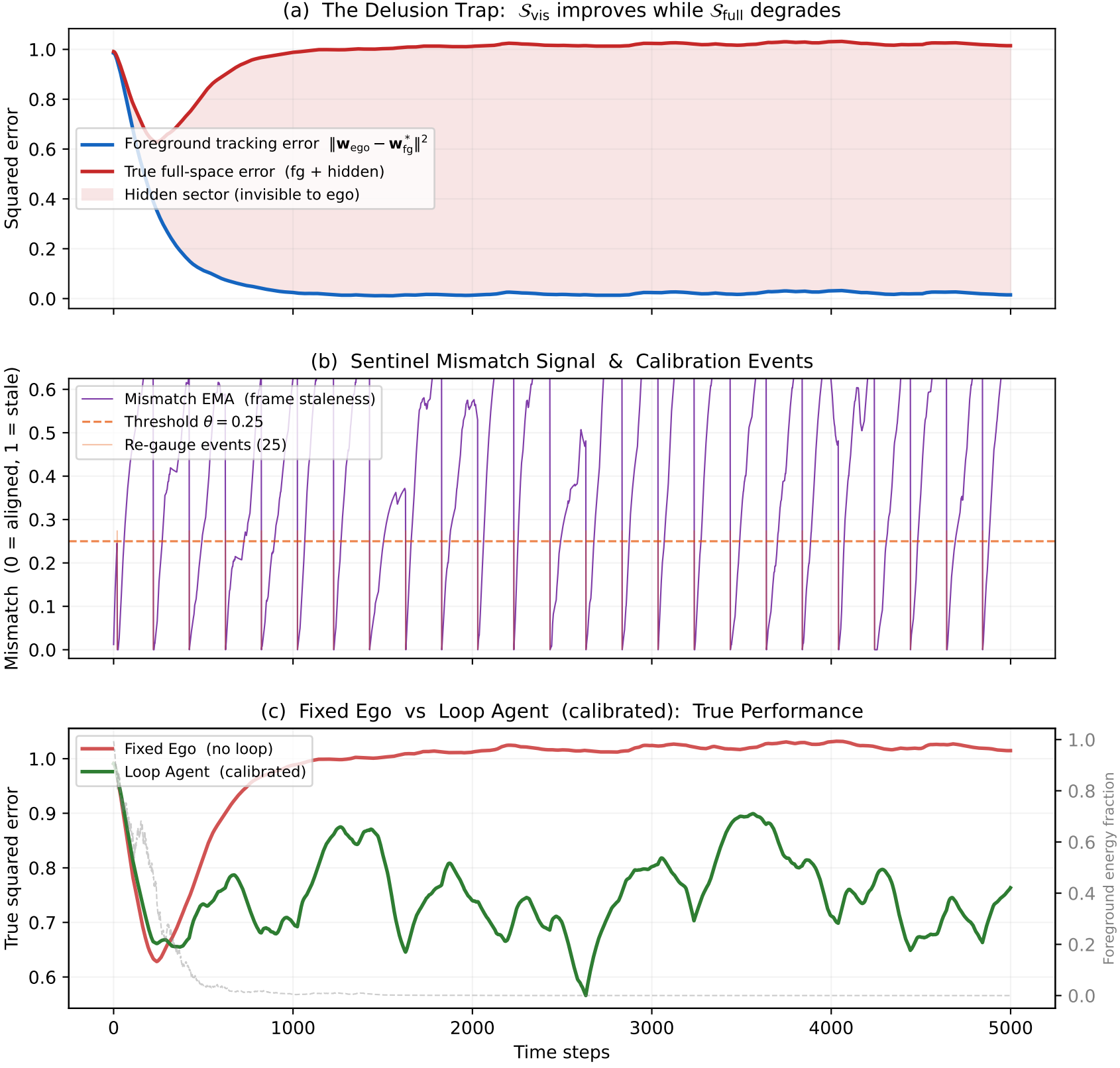
(a) The Delusion Trap: $\mathcal{S}_{\text{vis}}$ improves while $\mathcal{S}_{\text{full}}$ degrades
Squared error
Foreground tracking error $\|\mathbf{w}_{\text{ego}} - \mathbf{w}^*_{\text{fg}}\|^2$
True full-space error (fg + hidden)
Hidden sector (invisible to ego)
(b) Sentinel Mismatch Signal & Calibration Events
Mismatch (0 = aligned, 1 = stale)
Mismatch EMA (frame staleness)
Threshold $\theta = 0.25$
Re-gauge events (25)
(c) Fixed Ego vs Loop Agent (calibrated): True Performance
True squared error
Foreground energy fraction
Fixed Ego (no loop)
Loop Agent (calibrated)
Time steps