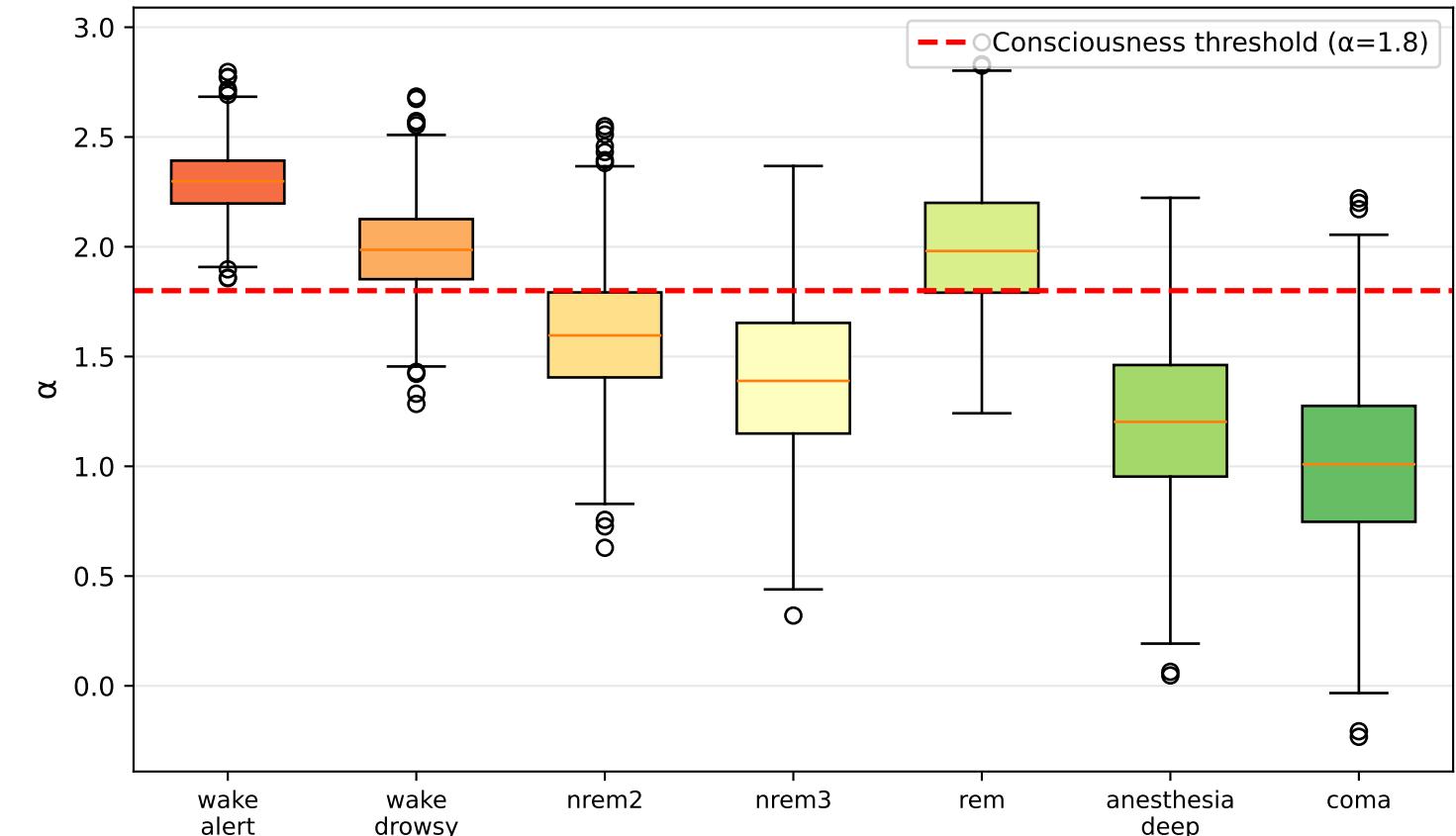
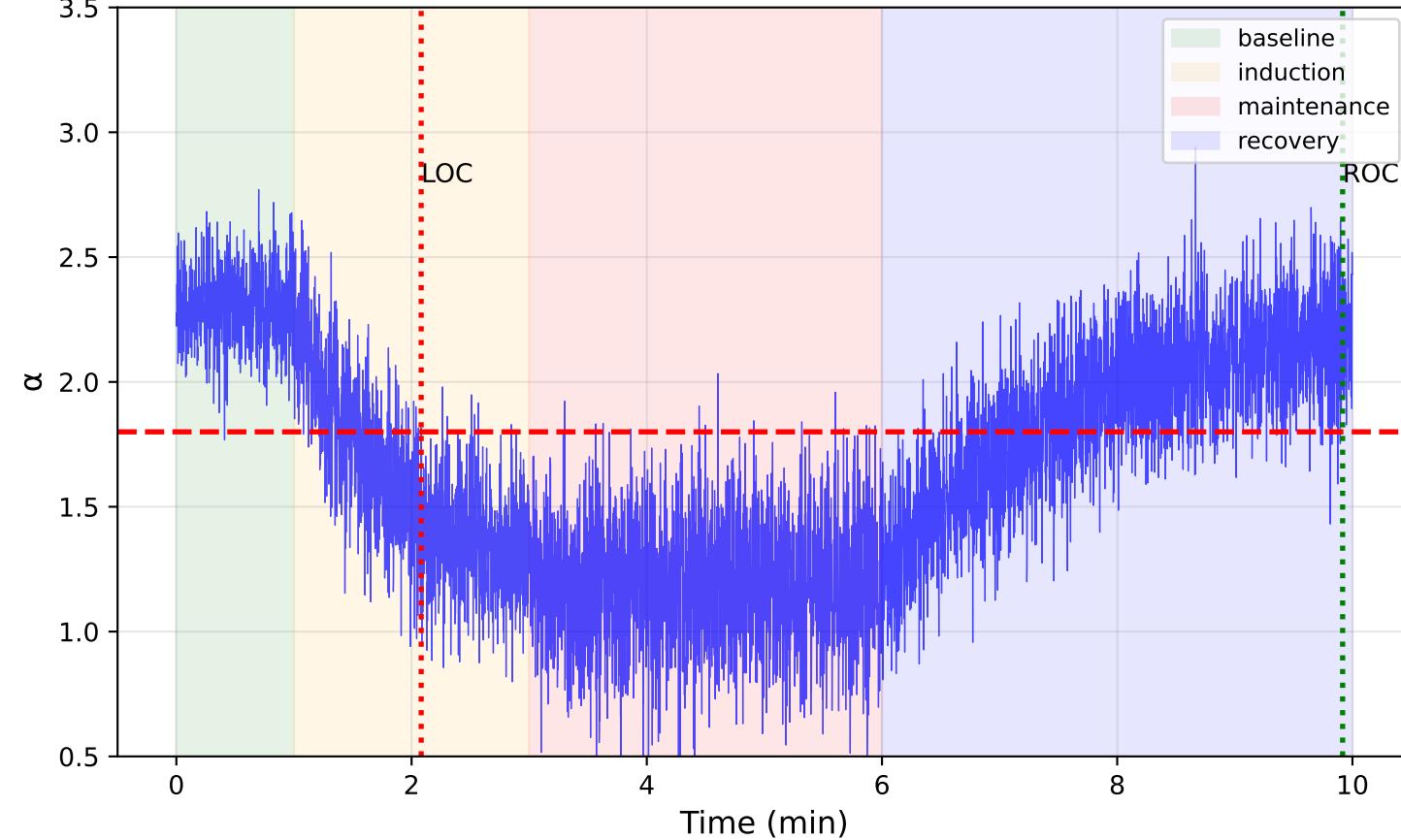


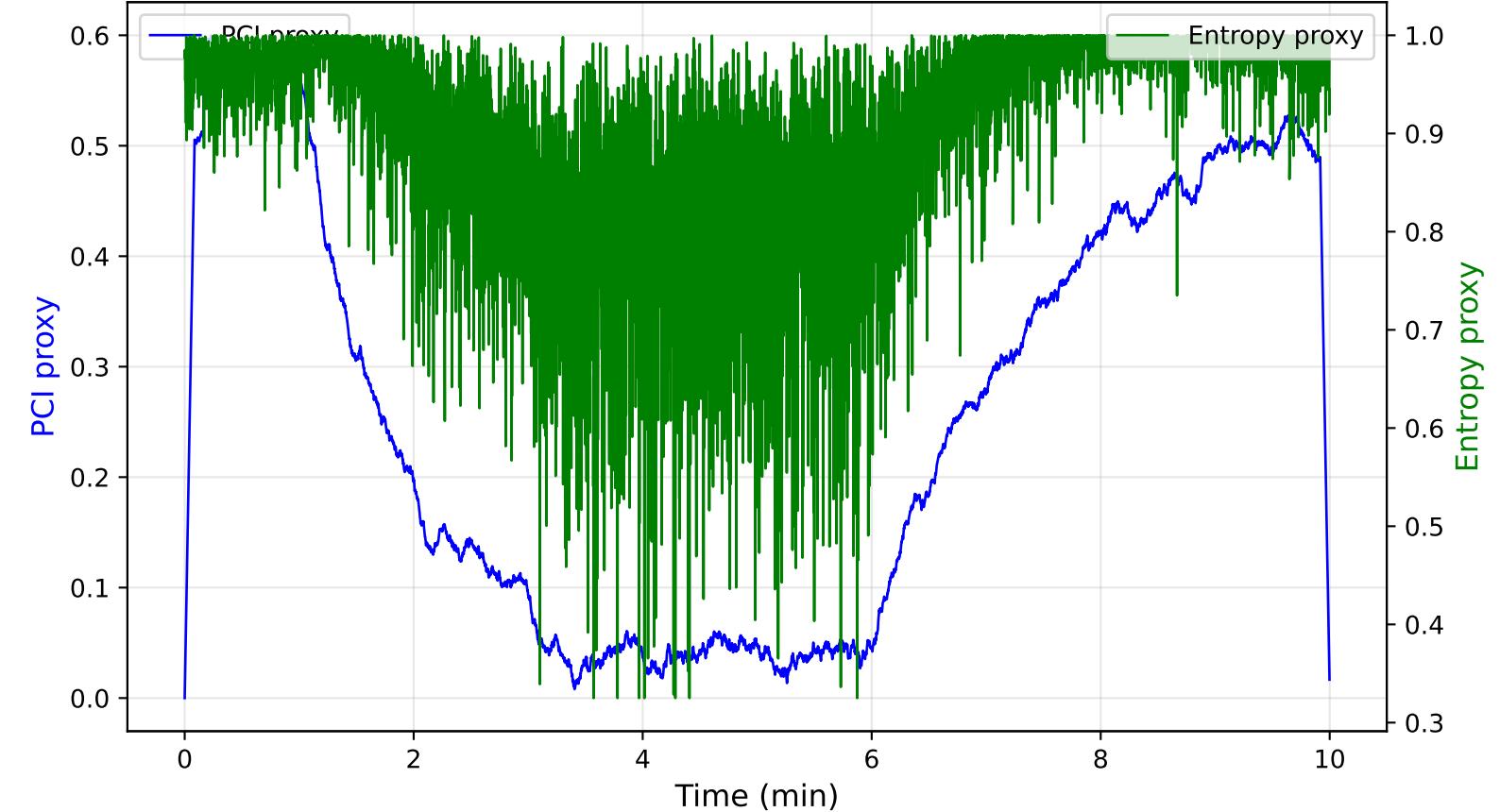
$\alpha$  Distribution by State of Consciousness



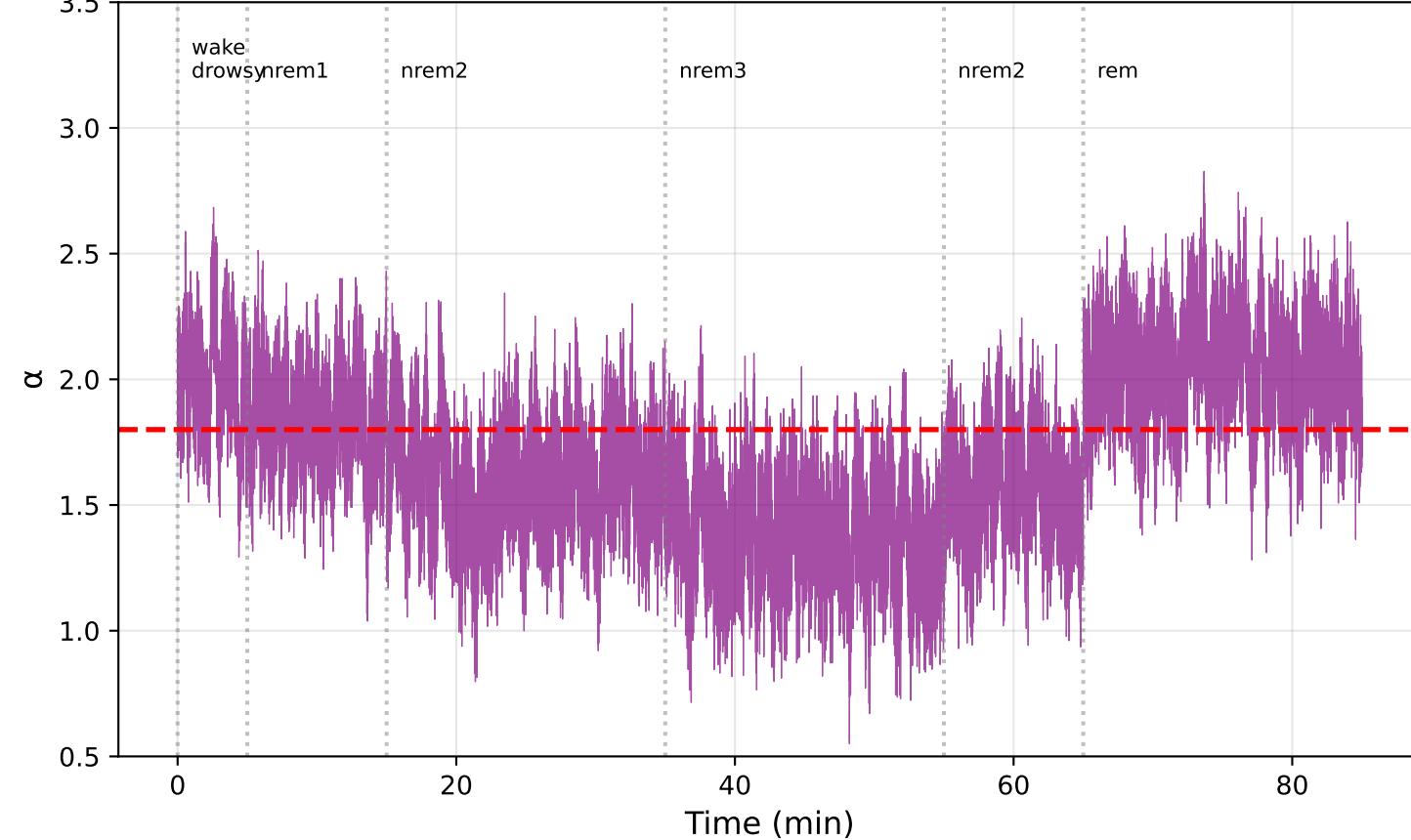
Anesthesia Induction and Recovery



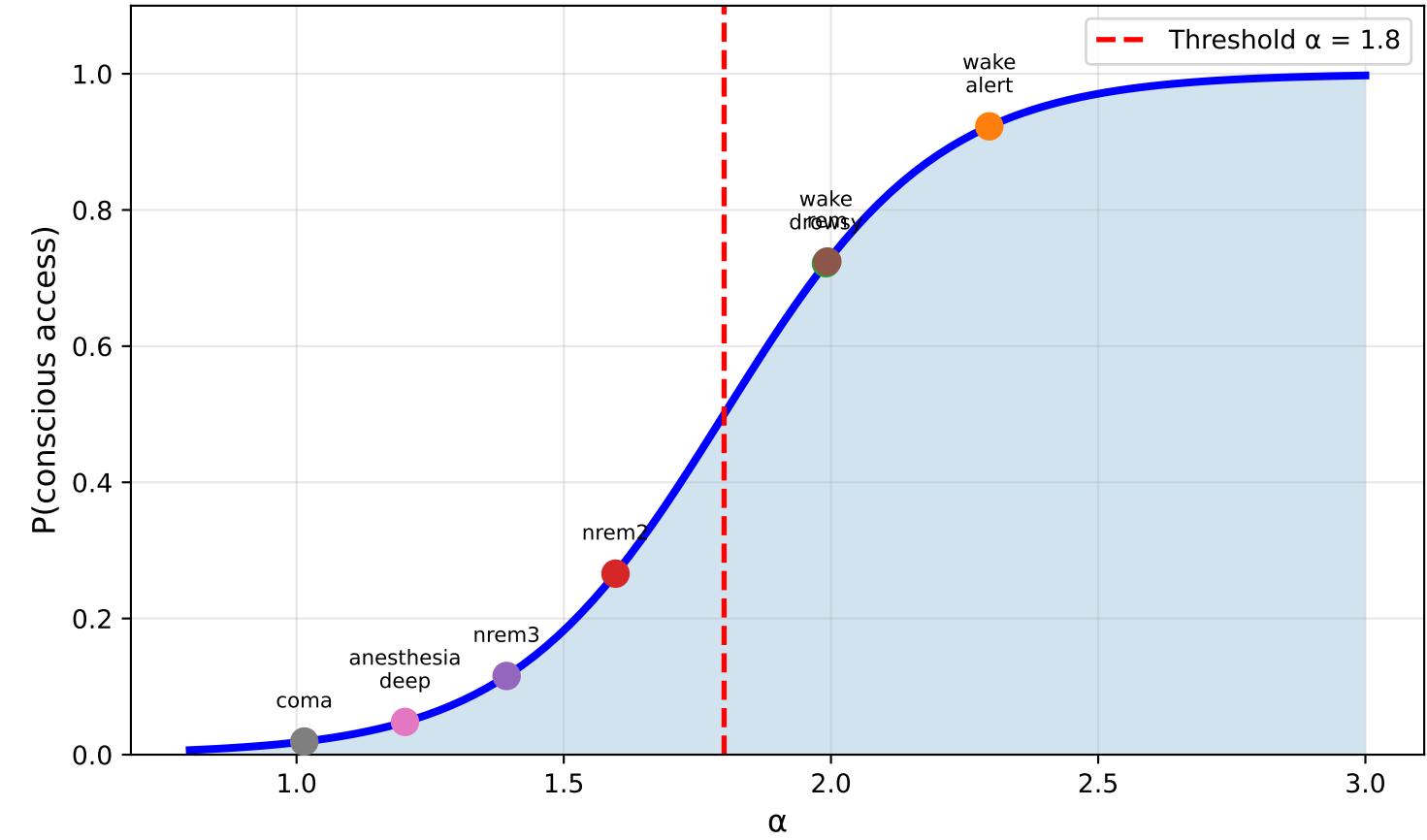
Consciousness Markers During Anesthesia



Sleep Cycle:  $\alpha$  Trajectory



Consciousness Probability vs  $\alpha$



#### RTM-NEURO CONSCIOUSNESS MODEL SUMMARY

##### CENTRAL HYPOTHESIS

Conscious access requires  $\alpha > 1.8$  (threshold) maintained stably across cortical scales.

##### STATE MAPPING

Wake alert:	$\alpha \approx 2.3$	$\rightarrow P(\text{conscious}) \approx 99\%$
Wake drowsy:	$\alpha \approx 2.0$	$\rightarrow P(\text{conscious}) \approx 80\%$
NREM2:	$\alpha \approx 1.6$	$\rightarrow P(\text{conscious}) \approx 20\%$
NREM3:	$\alpha \approx 1.4$	$\rightarrow P(\text{conscious}) \approx 5\%$
REM:	$\alpha \approx 2.0$	$\rightarrow P(\text{conscious}) \approx 75\%$
Deep anesthesia:	$\alpha \approx 1.2$	$\rightarrow P(\text{conscious}) \approx 1\%$

##### KEY PREDICTIONS

- $\alpha$  drops BEFORE behavioral LOC during induction
- Recovery shows hysteresis (slower than induction)
- $\alpha$  correlates with but is not identical to PCI
- Sleep stages map to discrete  $\alpha$  bands
- Disorders of consciousness show low/unstable  $\alpha$

##### FALSIFIABLE TESTS

- $\alpha$  predicts LOC timing better than spectral markers
- $\alpha$  shows state-specific distributions in NREM vs REM
- $\alpha$  adds predictive value over PCI for DoC outcome