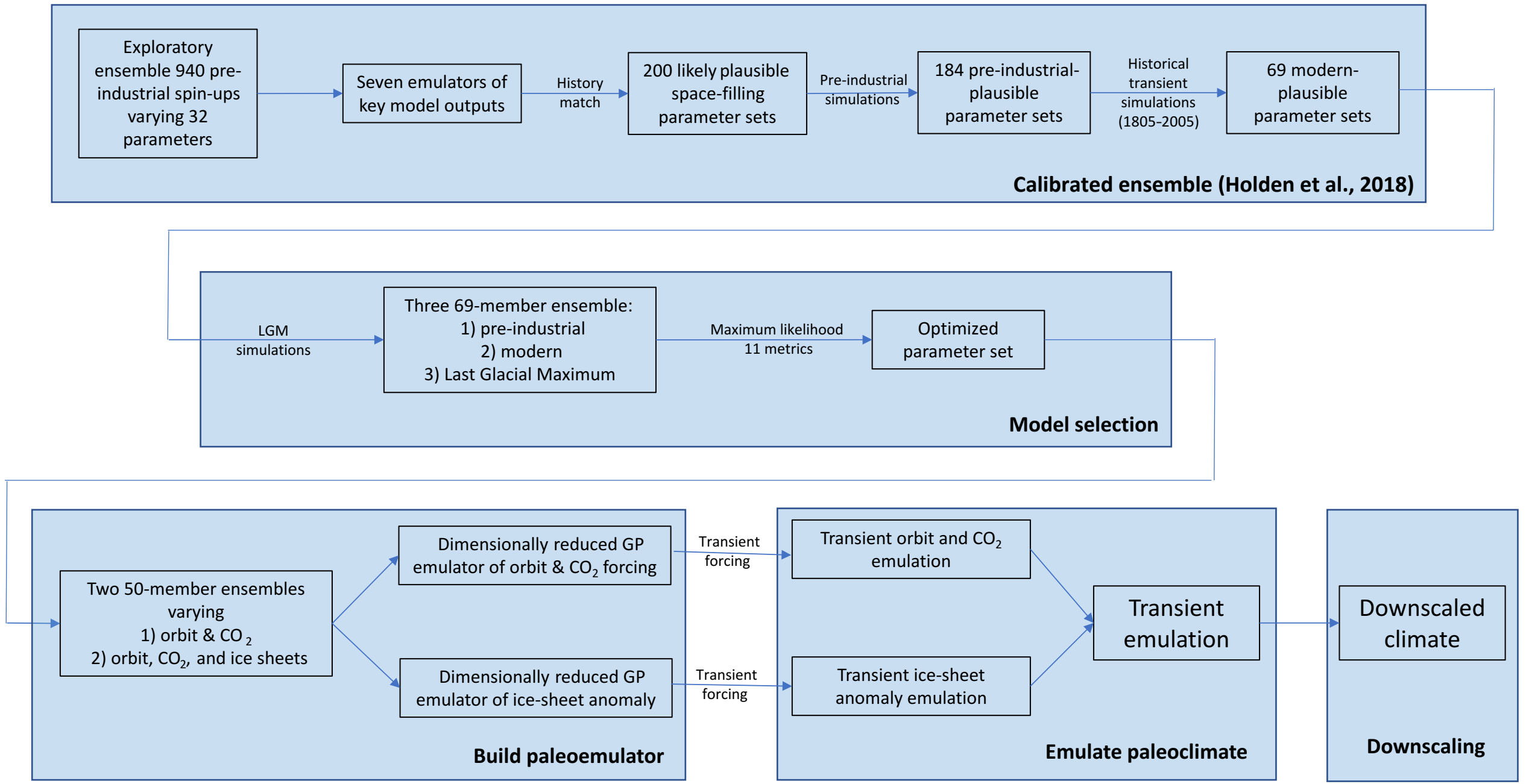
Exploratory ensemble 940 pre-industrial spin-ups varying 32 parameters
Seven emulators of key model outputs
History match
200 likely plausible space-filling parameter sets
Pre-industrial simulations
184 pre-industrial-plausible parameter sets
Historical transient simulations (1805-2005)
69 modern-plausible parameter sets
Calibrated ensemble (Holden et al., 2018)
LGM simulations
Three 69-member ensemble:
1) pre-industrial
2) modern
3) Last Glacial Maximum
Maximum likelihood
11 metrics
Optimized parameter set
Model selection
Two 50-member ensembles varying
1) orbit & CO 2
2) orbit, CO2, and ice sheets
Dimensionally reduced GP emulator of orbit & CO2 forcing
Dimensionally reduced GP emulator of ice-sheet anomaly
Build paleoemulator
Transient forcing
Transient forcing
Transient orbit and CO2 emulation
Transient ice-sheet anomaly emulation
Transient emulation
Emulate paleoclimate
Downscaled climate
Downscaling