

MAIN OBJECTIVES

- Predict the effects of elevated CO₂ in different diversity scenarios
- Provide guidance for new surveys and testable hypothesis for the FACE experiment
- Promote insights for future model improvements towards better data-model agreement and harmonization of model inputs/outputs

MODELS

Functional Diversity in Models (Initial number of 'plant entities/strategies')

	aDGVM2 (Individual-based)	aDGVM-BT (Individual-based)	CAETÊ (Area-based)	LPJ-GUESS-NTD (Individual-based)	Plant-FATE (Density/Cohort-based)
High Diversity Scenario (HD)	20	1 PFT (High within-population diversity; high mutation rate allowed for deciduous and evergreen mutants)	139 PLS	1 PFT (High within-population diversity)	100
Low Diversity Scenario (LD)	20 (reduced trait space: forbidding deciduous and water triggered plants)	1 PFT (Mutation rate tuned down until lowest trait variances)	11 PLS	1 PFT (Reduced traits ranges)	6 (After halving the traits extents of those 100 strategies)

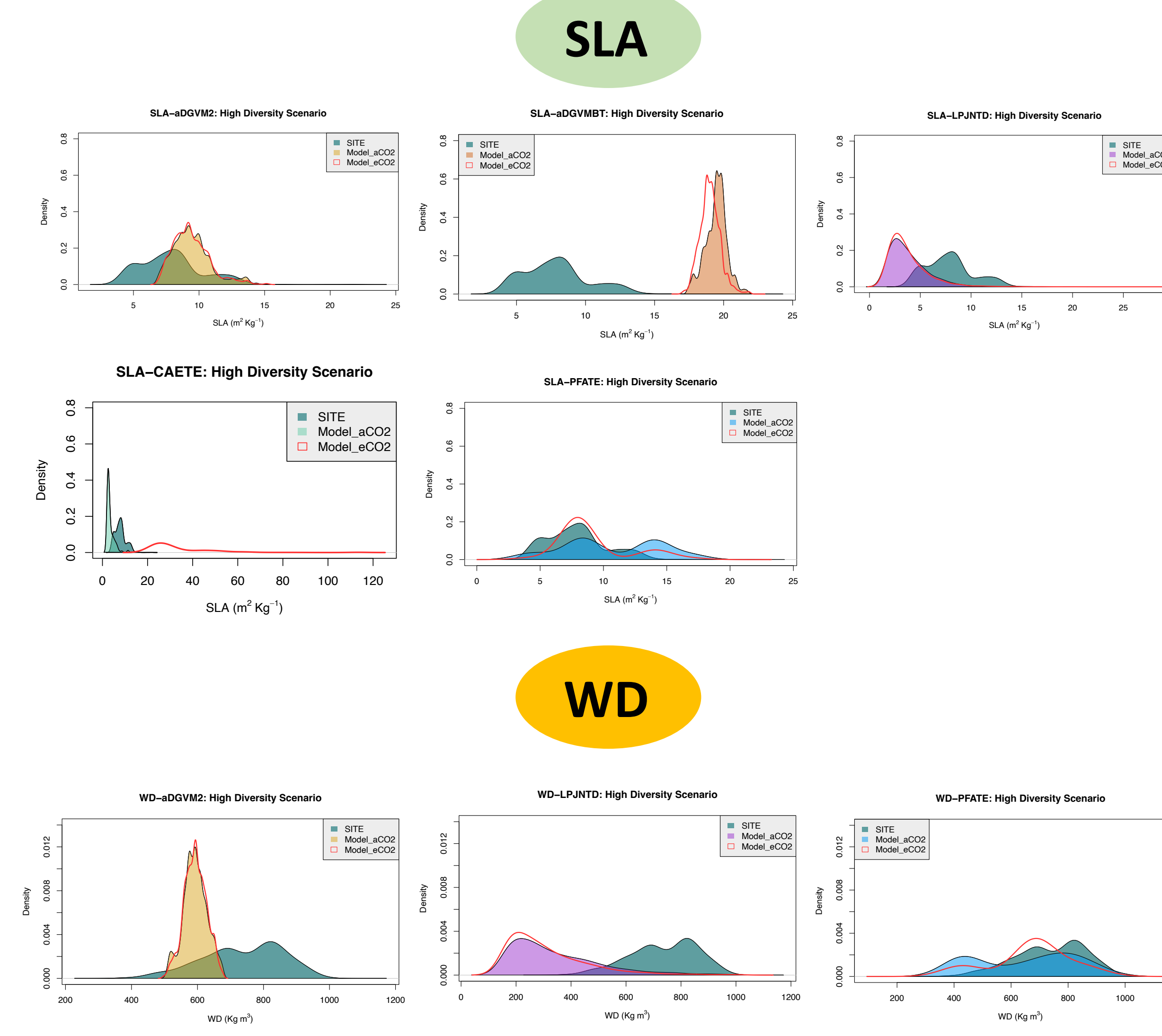
- aDGVM2: Senckenberg Biodiversity and Climate Research Center, Germany (Langan et al. 2017)
- aDGVM-BT: University of Bayreuth, Germany (Higgins et al. *in prep.*)
- CAETÊ: State University of Campinas, Brazil (Rius et al. 2023)
- LPJ-GUESS-NTD: Senckenberg Biodiversity and Climate Research Center, Germany (Dantas et al. 2021)
- PlantFATE: International Institute for Applied Systems Analysis, Austria (Joshi et al. 2020)

MODELING PROTOCOL

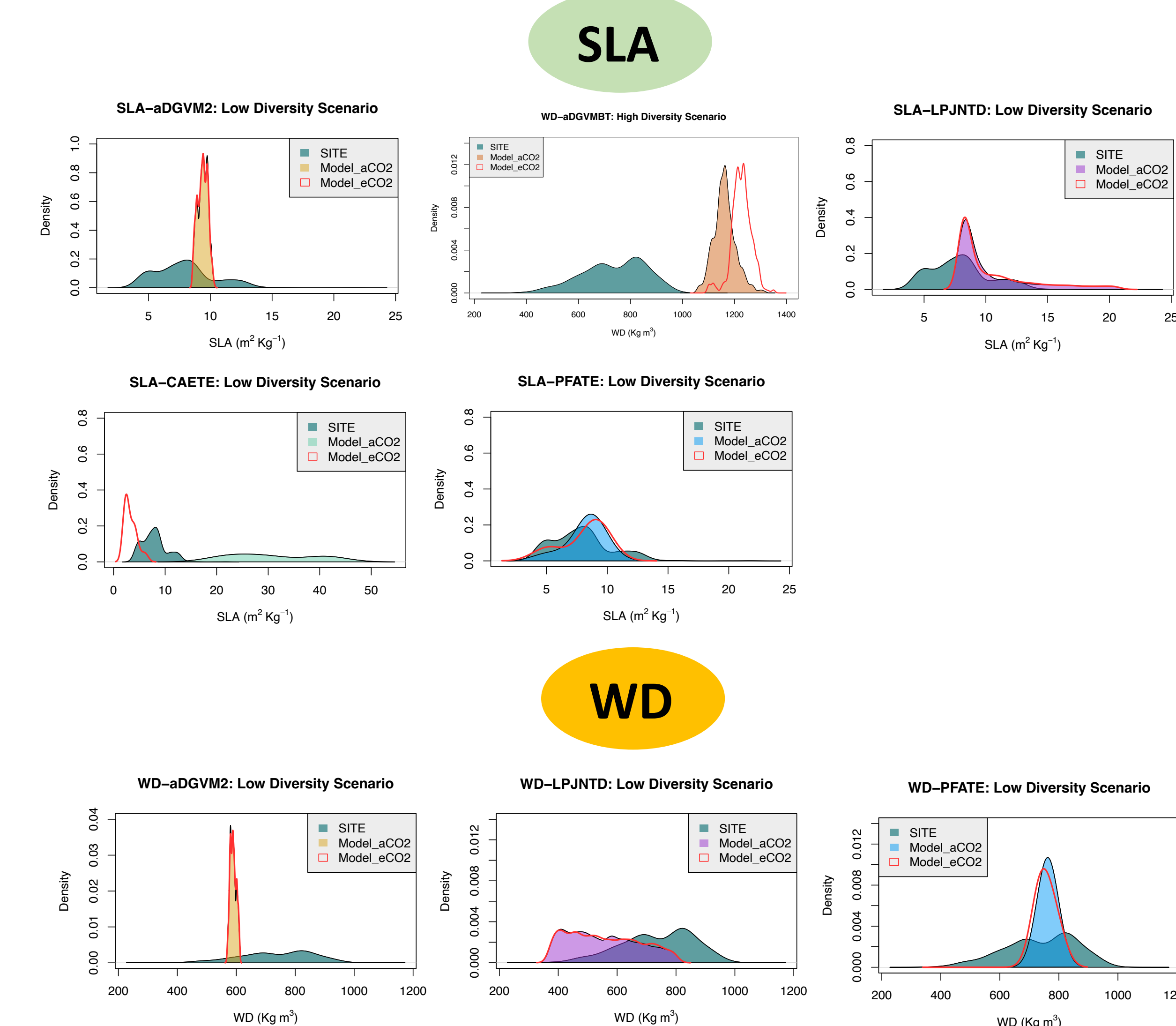
- Single gridcell in central Amazon
- Climate scenario: 2000–2015 (K34 flux tower)
- Model experiments:
 - HD + [CO₂] = historical values
 - LD + [CO₂] = historical values
 - HD + [CO₂] = historical values+200ppm
 - LD + [CO₂] = historical values+200ppm

RESULTS

HIGH DIVERSITY SCENARIO

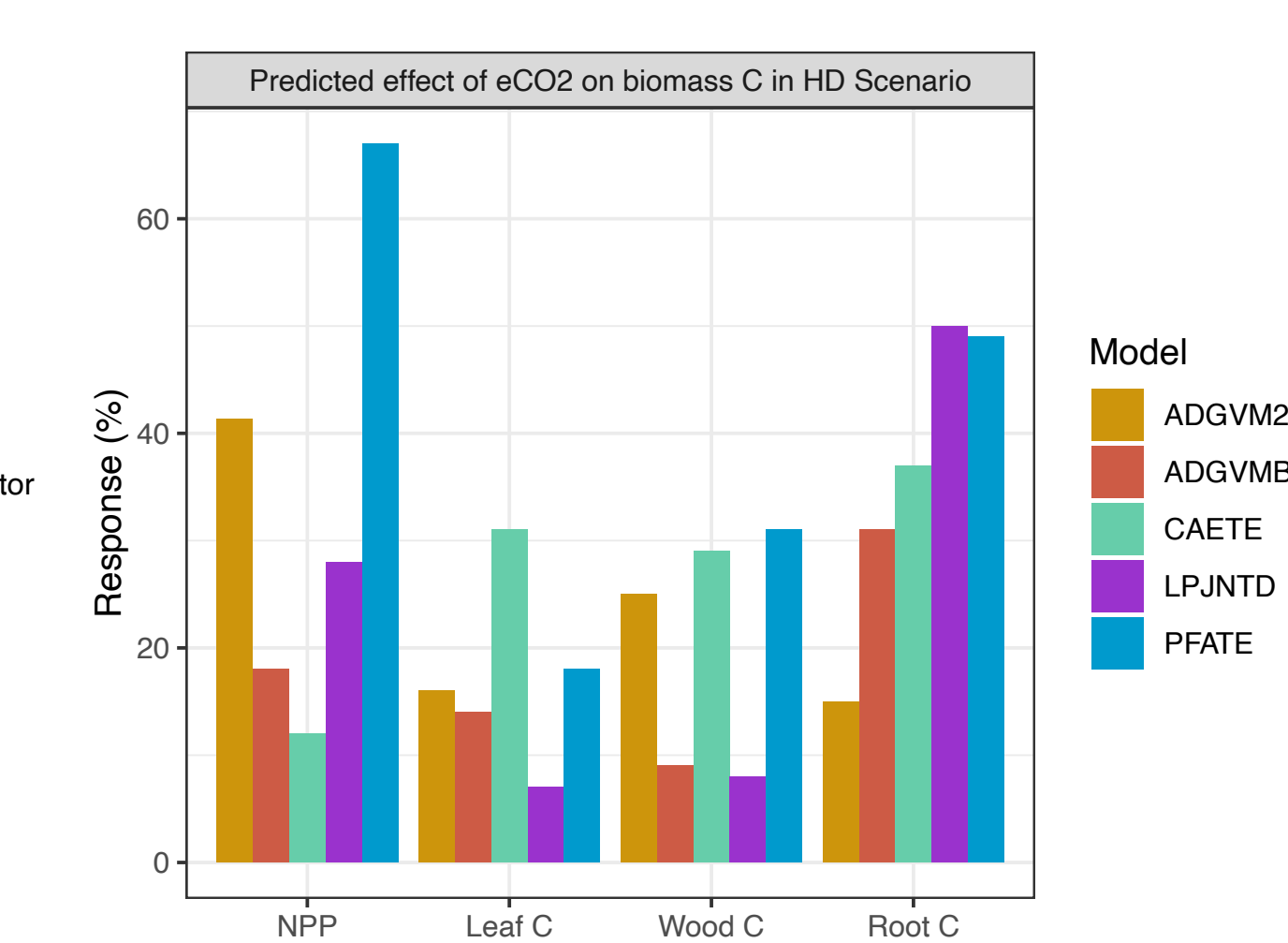
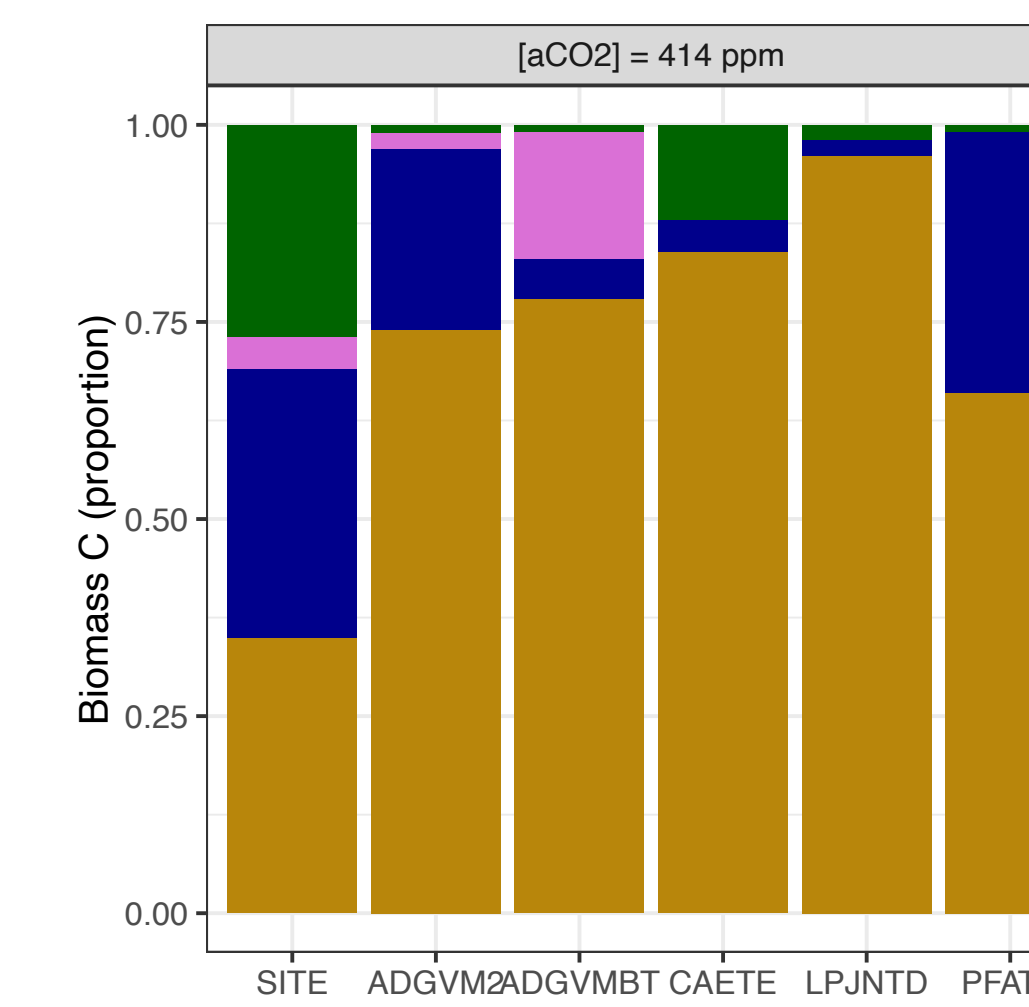
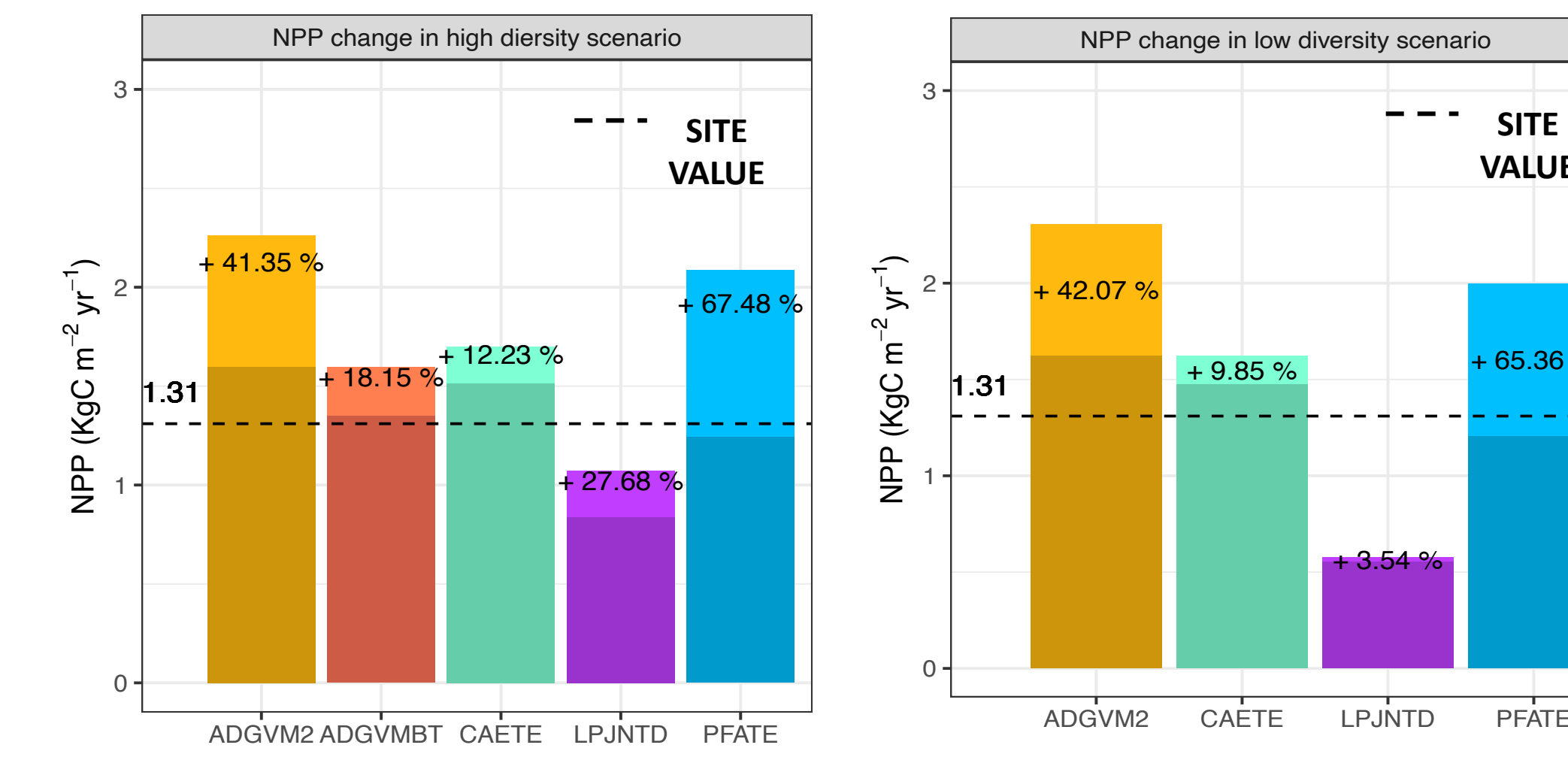
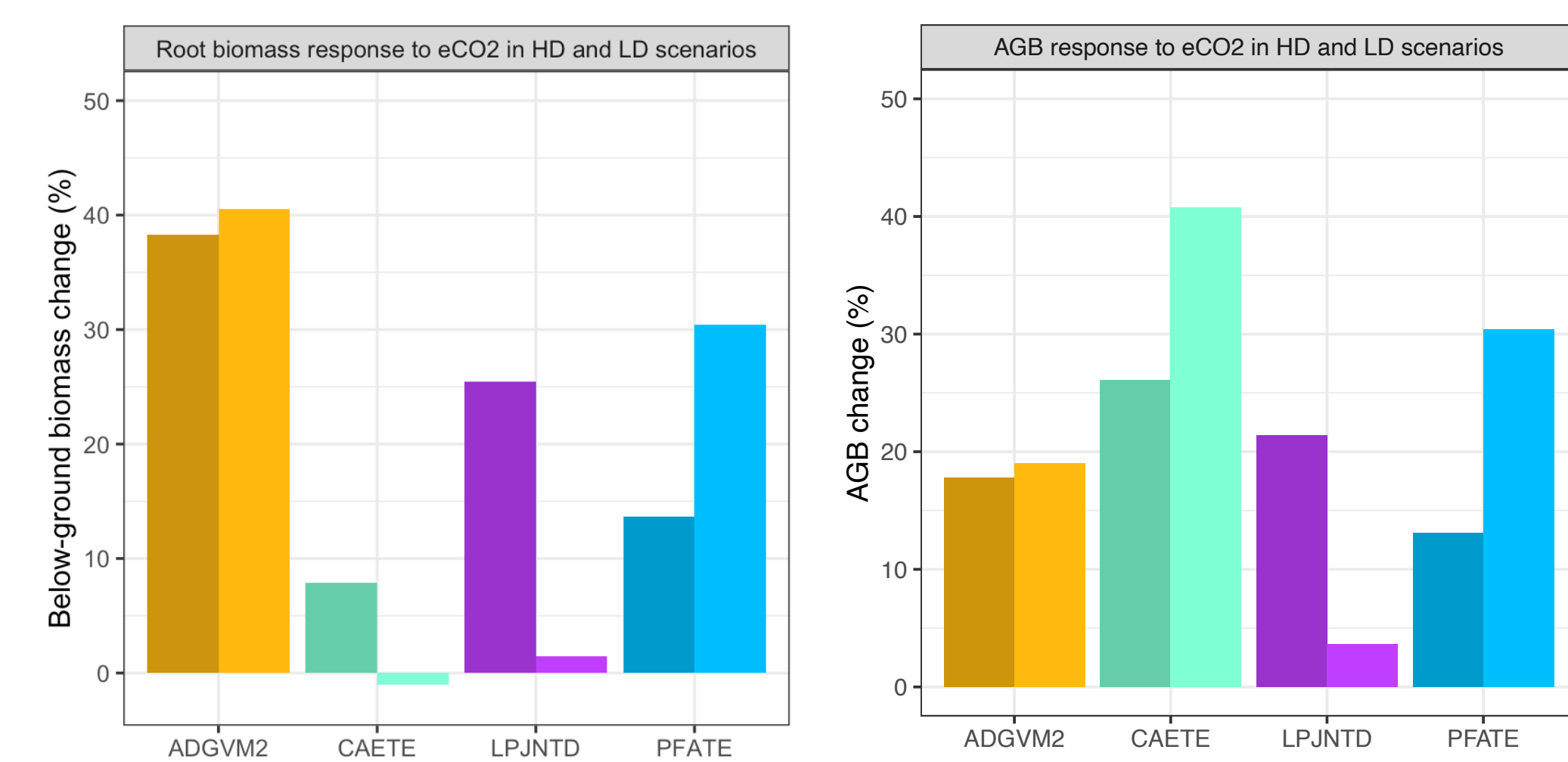


LOW DIVERSITY SCENARIO



RESULTS

BELOWGROUND vs ABG RESPONDES TO eCO₂



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