Seasonal Carbon Fluxes from Vegetation and Soil in a Mediterranean Non-tidal Salt Marsh

Lorena Carrasco-Barea[1*], Dolors Verdaguer[1], Maria Gispert[2], Xavier D. Quintana[3], Hélène Bourhis[1], and Laura Llorens[1]

[1] Group of Soils and Vegetation in the Mediterranean (SOLIPLANT), Plant Physiology Unit, Department of Environmental Sciences, Faculty of Sciences, University of Girona, Campus Montilivi, 17003 Girona, Spain

[2] Group of Soils and Vegetation in the Mediterranean (SOLIPLANT), Soil Science Unit, Department of Chemical and Agricultural Engineering and Agrifood Technology, University of Girona, Campus Montilivi, 17003 Girona, Spain

[3] GRECO, Institute of Aquatic Ecology, University of Girona, Campus Montilivi, 17003 Girona, Spain

Figure S1. Opaque chambers used to take the measurements of net soil CO_2 and CH_4 fluxes under non-flooded (a and b) and flooded (c and d) conditions. When soil was not flooded, soda lime was placed inside the chamber (a) and then it was hermetically closed (b).

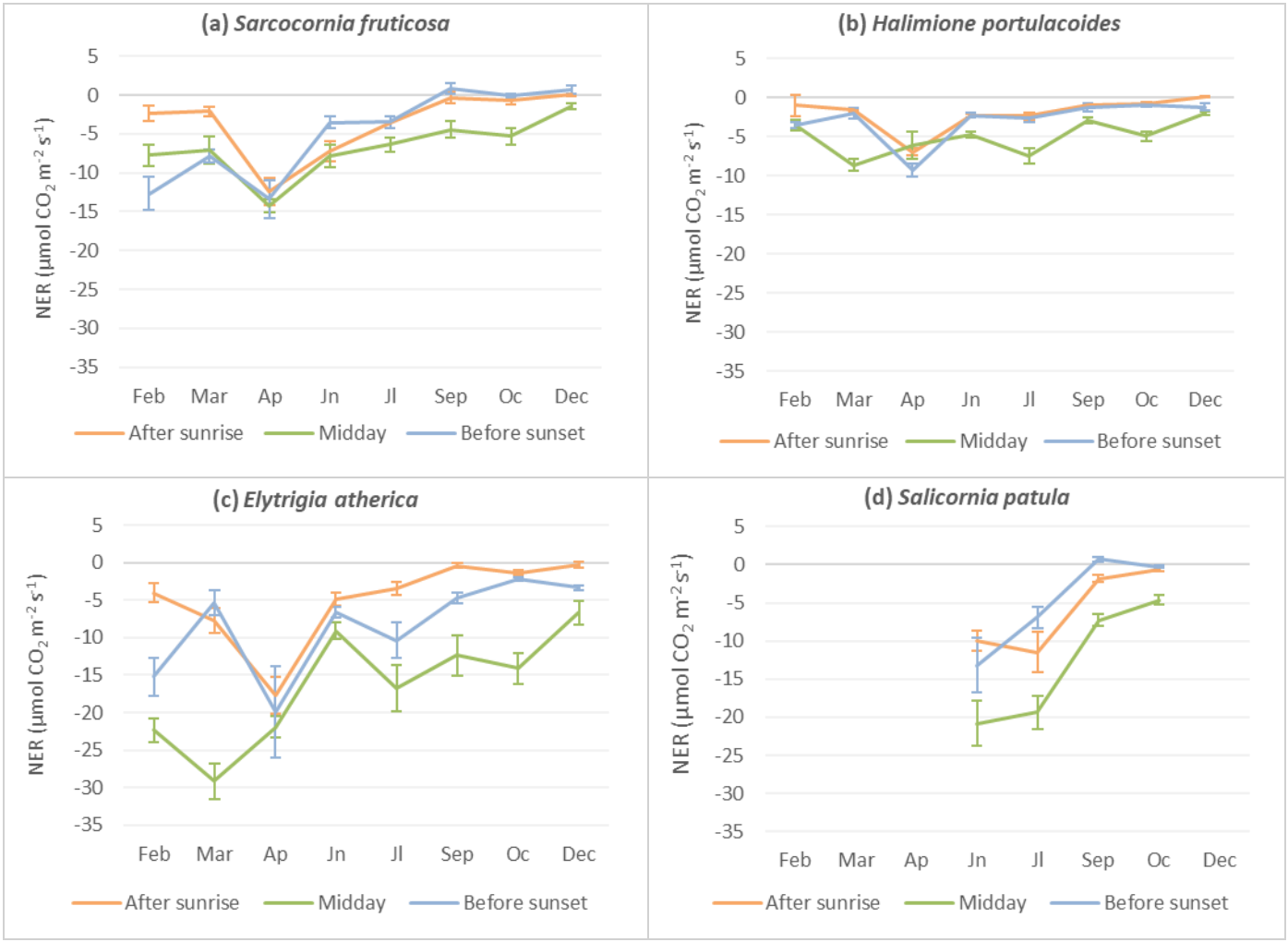

Figure S2. Instantaneous net CO_2 exchange rates (NER) at three daily periods (after sunrise, at midday and before sunset) for the green tissues of *S. fruticosa* (a), *H. portulacoides* (b), *E. atherica* (c) and *S. patula* (d). Negative values indicate net photosynthetic activity, while positive values indicate net respiration. Bars represent standard errors (n = 4 after sunrise, before sunset and at night, while n = 6 at midday).

Figure S3. Thin woody stems of *S. fruticosa* where the green tissue under the bark can be observed.

Table S1. Summary of the samplings performed to determine CO_2 fluxes from green and thin (Ø ≤ 3mm) woody plant tissues throughout one year (2017). The frequency of samplings per season and the number of plants used per species (n) are shown for the different times of the day when measurements were taken.

Time of the day	n	Frequency of samplings	
		Green tissues	Thin woody tissues
After sunrise	4	Every month and a half approximately (twice/season): 9 February, 10-16 March, 19-20 April, 8-13 June, 10-12 July, 4-11 September, 23 October, 6 December	Every three months approximately (once/season): 10 March, 15-16 May, 24-28 August, 7-15 November
Midday	6		
Before sunset	4		
Night	4	Every three months approximately (once/season): 10 February, 13 June, 28 August, 15 November	

Table S2. Summary of the samplings performed to determine soil CO_2 fluxes throughout 2017 indicating the number of flooded and non-flooded plots in every sampling day and the method used in each situation.

Habitat	Flood state	Method	Winter		Spring		Summer		Autumn	
			Feb	Mar	Apr	Jun	Jul	Sep	Oct	Dec
Halophilous scrub	Non-flooded	Soda-lime		5	5	5	5	5	5	5
	Flooded	Gas chromatography	5							
Salt meadow	Non-flooded	Soda-lime		5	5	5	5	5	5	5
	Flooded	Gas chromatography	5							
Glasswort sward	Non-flooded	Soda-lime		2	5	5	5	5	5	2
	Flooded	Gas chromatography	5	3						3