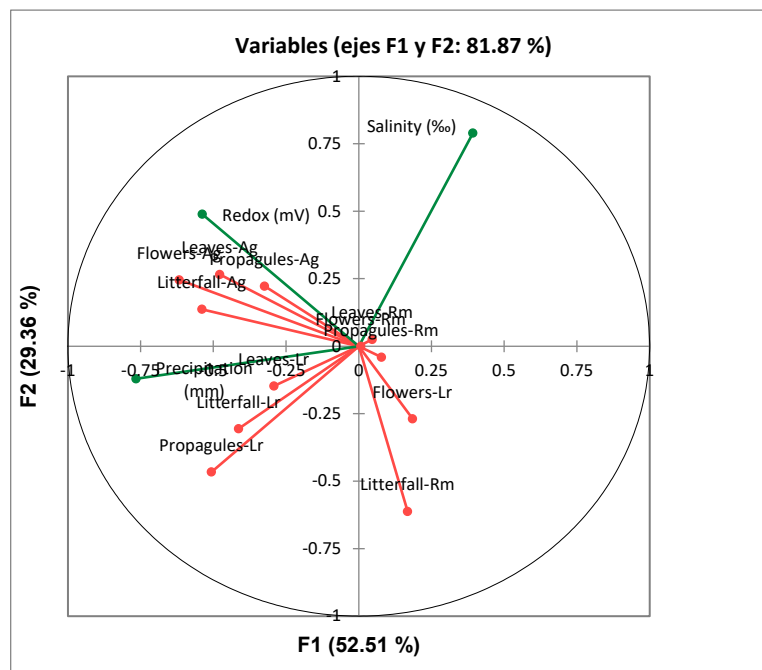


**Figure S1.** Bi-plot correlation between three mangrove species phenological production and physicochemical parameters (canonical variables) in 2009.



**Figure S2.** Bi-plot correlation between three mangrove species phenological production and physicochemical parameters (canonical variables) in 2010.

**Table S1.** Structural metrics computed for the structural analysis (adapted from Cintron et al. [33] and Akodekou [34]).

Parameters	Formula	Explanation
<b>Dominance pattern</b>		
Density (trees/ha)	$\frac{n \times 10000}{s}$	n = number of individuals in the plot area s
Relative dominance (RDo)	$\frac{TA}{BA} \times 100$	TA = Total basal area of a species, BA = Basal area of all species (G)
<b>Stand structure</b>		
The overall basal area, $G$	$G = \frac{10000\pi}{4s} \sum_{i=1}^{n_g} d_i^2$	$d_i$ represents respectively the diameter of a tree $i$ of the plot
The average diameter, $D$	$D = \sqrt{\frac{1}{n} \sum_{i=1}^n d_i^2}$	$d_i$ represents respectively the diameter of a tree $i$ of the plot
The average height, $H$	$H = \frac{\sum_{i=1}^n g_i h_i}{\sum_{i=1}^n g_i}$	$g_i$ and $h_i$ are respectively the basal area and the height of the tree $i$ .

**Table S2.** Summary of Fisher's Least Significant Difference post hoc tests conducted for the nested ANOVA on litter fall production and components in comparison with sites and seasons. *Ag*: *Avicennia germinans*; *Lr*: *Laguncularia racemosa*; *Rm*: *Rhizophora mangle*. Peten Neyac, Río Verde, Champotón, Sabancuy, Xibuja, Estero Pargo y Atasta, with a significance level of  $p < 0.05$ .

	LSD (Least Significant Difference)			
	Leaves	Flowers	Propagules	Litter fall
Sites				
Atasta - Champotón	0.53*	0.01	2.44*	0.42*
Atasta - Estero Pargo	0.33*	0.04	2.91*	0.28*
Atasta - Peten Neyac	0.84*	0.14*	3.33*	0.74*
Atasta - Río Verde	0.42*	-0.04	1.49*	0.26
Atasta - Sabancuy	0.43*	0.02	3.68*	0.53*
Atasta - Xibuja	0.45*	0.03	3.46*	0.36*
Champotón - Estero Pargo	-0.20	0.03	0.47	-0.13
Champotón - Peten Neyac	0.31*	0.12*	0.89	0.32*
Champotón - Río Verde	-0.11	-0.05	-0.95	-0.16
Champotón - Sabancuy	-0.01	0.01	1.24	0.11
Champotón - Xibuja	-0.07	0.02	1.02	-0.06
Estero Pargo - Peten Neyac	0.50*	0.09*	0.42	0.46*
Estero Pargo - Río Verde	0.09	-0.08*	-1.41	-0.03
Estero Pargo - Sabancuy	0.10	-0.02	0.77	0.24

Estero Pargo - Xibuja	0.12	-0.01	0.55	0.07
Peten Neyac - Río Verde	-0.42*	-0.17*	-1.84*	-0.48*
Peten Neyac - Sabancuy	-0.40*	-0.12*	0.35	-0.21
Peten Neyac - Xibuja	-0.38*	-0.11*	0.13	-0.38*
Río Verde - Sabancuy	0.01	0.05	2.19*	0.27*
Río Verde - Xibuja	0.04	0.07*	1.96*	0.10
Sabancuy - Xibuja	0.02	0.01	-0.22	-0.17
Seasons				
Dry - Rainy	-0.23*	-0.10*	-3.65*	-0.31*
Dry - Nortes	0.31*	0.02	-2.96*	0.61*
Rainy- Nortes	0.54*	0.11*	0.69	0.93*
Species				
Ag – Lr	0.34*	0.17*	0.36	0.34*
Ag – Rm	-0.79*	-0.19*	-3.41*	-0.77*
Lr - Rm	-1.12*	-0.36*	-3.77*	-1.11*

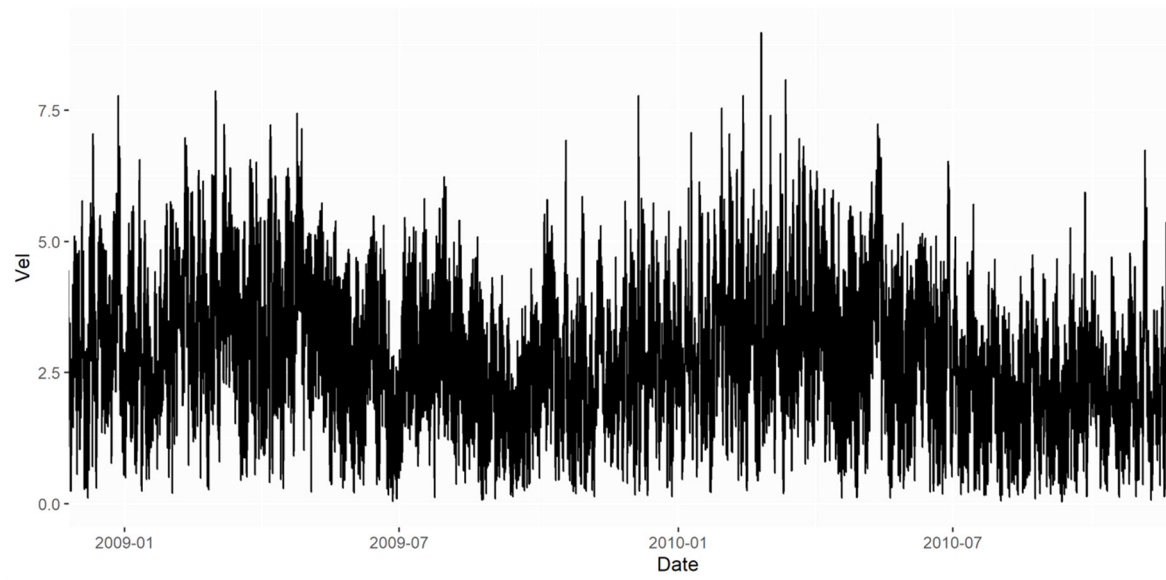
*p*-value: \* *p*<0.05.

**Table S3.** Comparison of Fisher's Least Significant Difference post hoc tests conducted for the nested ANOVA on potential redox, salinity and precipitation in comparison with sites and seasons, with a significance level of  $p < 0.05$ .

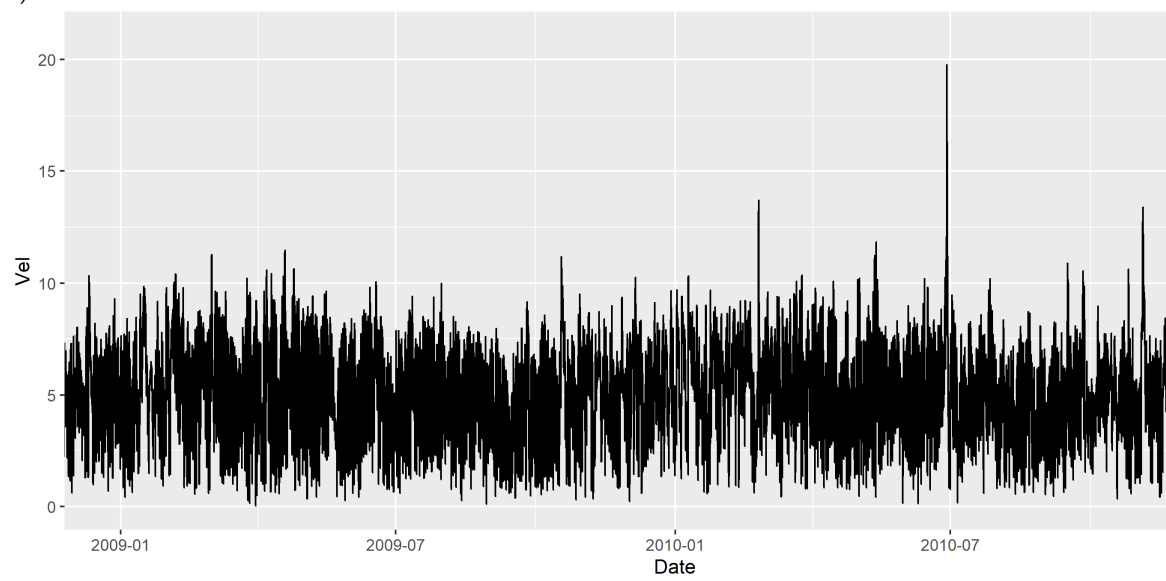
LSD (Least Significant Difference)			
Sites	Redox potential	Salinity	Precipitation
Atasta - Champoton	104.15*	-0.58	1.168*
Atasta - Estero Pargo	110.88*	-23.56*	0.23
Atasta - Peten Neyac	117.63*	-20.75*	1.01*
Atasta - Rio Verde	126.89*	-27.94*	0.96*
Atasta - Sabancuy	62.51*	-34.99*	0.41
Atasta - Xibuja	50.14	-22.88*	0.38
Champoton - Estero Pargo	6.72	-22.97*	-0.94*
Champoton - Peten Neyac	13.47	-20.17*	-0.15
Champoton - Rio Verde	22.74	-27.36*	-0.20
Champoton - Sabancuy	-41.65	-34.40*	-0.76*
Champoton - Xibuja	-54.01	-22.29*	-0.79*
Estero Pargo - Peten Neyac	6.75	2.81	0.79*
Estero Pargo - Rio Verde	16.02	-4.39	0.74*
Estero Pargo - Sabancuy	-48.37	-11.43*	0.19
Estero Pargo - Xibuja	-60.73*	0.68	0.15
Peten Neyac - Rio Verde	9.26	-7.19*	-0.05
Peten Neyac - Sabancuy	-55.12	-14.23*	-0.60
Peten Neyac - Xibuja	-67.49*	-2.13	-0.63
Rio Verde - Sabancuy	-64.39*	-7.04*	-0.55
Rio Verde - Xibuja	-76.75*	5.07	-0.58
Sabancuy - Xibuja	-12.36	12.11*	-0.03
<b>Seasons</b>			
Dry - Rainy	10.52*	4.86*	-2.58*
Dry - Nortes	54.92*	2.196	-1.45*
Rainy - Nortes	44.40*	-2.66	1.124*

*p*-value: \*  $p < 0.05$ .

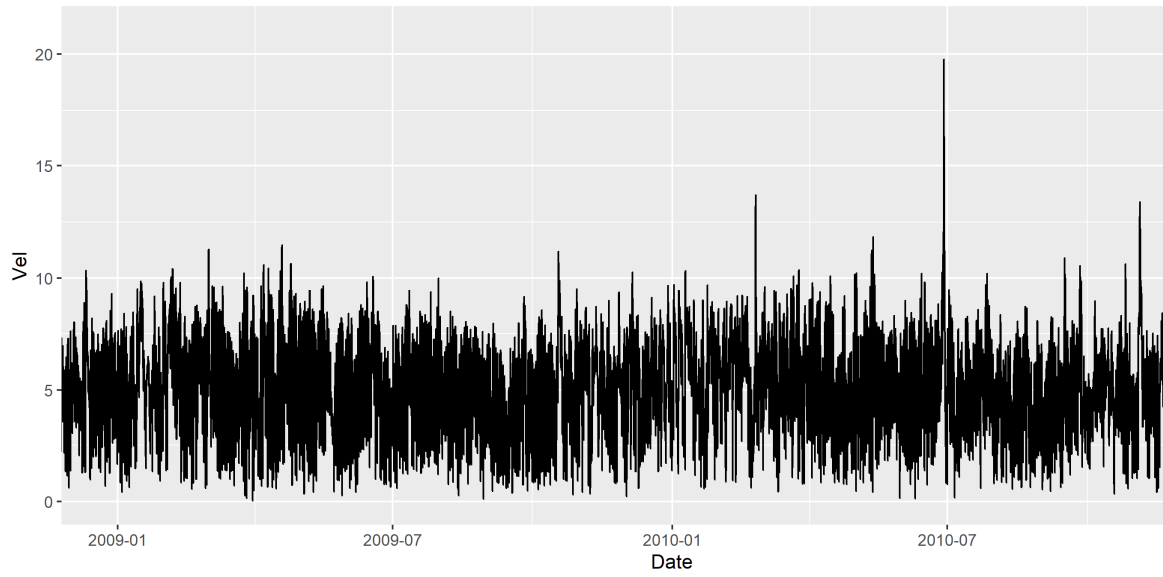
a)



b)



c)



**Figure S3.** Wind 10 m above ground, 2009-2010, ERA 5 Database along Campeche coast. a) Carmen City, b) Champoton, and c) Los Petenes Biosphere Reserve.