Table S1 Model Selection. Columns indicate the type of model (models): Null, full or the backward elimination round, the autoregressive (Autoregressive) and seasonal (Seasonal) order, the covariates, including inside parenthesis the lag (Covariates(Lag)) and the Akaike Information Criterion (AIC), a model selection which is minimized by the best model. The best model for the null and full models and each selection round are **bolded**. o and x indicate, respectively, the presence or absence of a variable in a model. SST4, Temp and Rain are, respectively, abbreviations for Sea Surface Temperature 4 (El Niño 4 Index), Temperature and Rainfall.

Models	Autoregressive			Seasonal	Covariates (Lag)					AIC
	1st	2nd	3rd	12th	SST4(4)	SST4(5)	SST4(12)	Temp(13)	Rain(15)	
Null Models	o	o	o	o	x	x	x	x	x	**1489**
	o	o	x	o	x	x	x	x	x	1494
	o	x	x	o	x	x	x	x	x	1497
Full	o	o	o	o	o	o	o	o	o	**1296**
1st Round	o	o	o	o	o	o	o	o	x	1296
	o	o	o	o	o	o	o	x	o	1305
	o	o	o	o	o	o	x	o	o	1297
	o	o	o	o	o	x	o	o	o	**1294**
	o	o	o	o	x	o	o	o	o	1302
	o	o	o	x	o	o	o	o	o	1296
	o	o	x	o	o	o	o	o	o	1295
	o	x	x	o	o	o	o	o	o	1309
2nd Round	o	o	o	o	o	x	o	o	x	1295
	o	o	o	o	o	x	o	x	o	1303
	o	o	o	o	o	x	x	o	o	1296
	o	o	o	o	x	x	o	o	o	1300
	o	o	o	x	o	x	o	o	o	1296
	o	o	x	o	o	x	o	o	o	**1293**
	o	x	x	o	o	x	o	o	o	1308
3rd Round	o	o	x	o	o	x	o	o	x	**1293**
	o	o	x	o	o	x	o	x	o	1302
	o	o	x	o	o	x	x	o	o	1308
	o	o	x	o	x	x	o	o	o	1294
	o	o	x	x	o	x	o	o	o	1294
	o	x	x	o	o	x	o	o	o	1307
4th Round	o	o	x	o	o	x	o	x	x	1303
	o	o	x	o	o	x	x	o	x	1310
	o	o	x	o	x	x	o	o	x	1297
	o	o	x	x	o	x	o	o	x	**1293**
	o	x	x	o	o	x	o	o	x	1307