

# **Validation process for SAN ANDRES**

**The epidemiology research group, EAFIT**

06-Apr-2022

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## Chapter 1. Extension number1

### 1.1. Basic information

The extension to be validated consists of the time series from the data1 to the 141. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

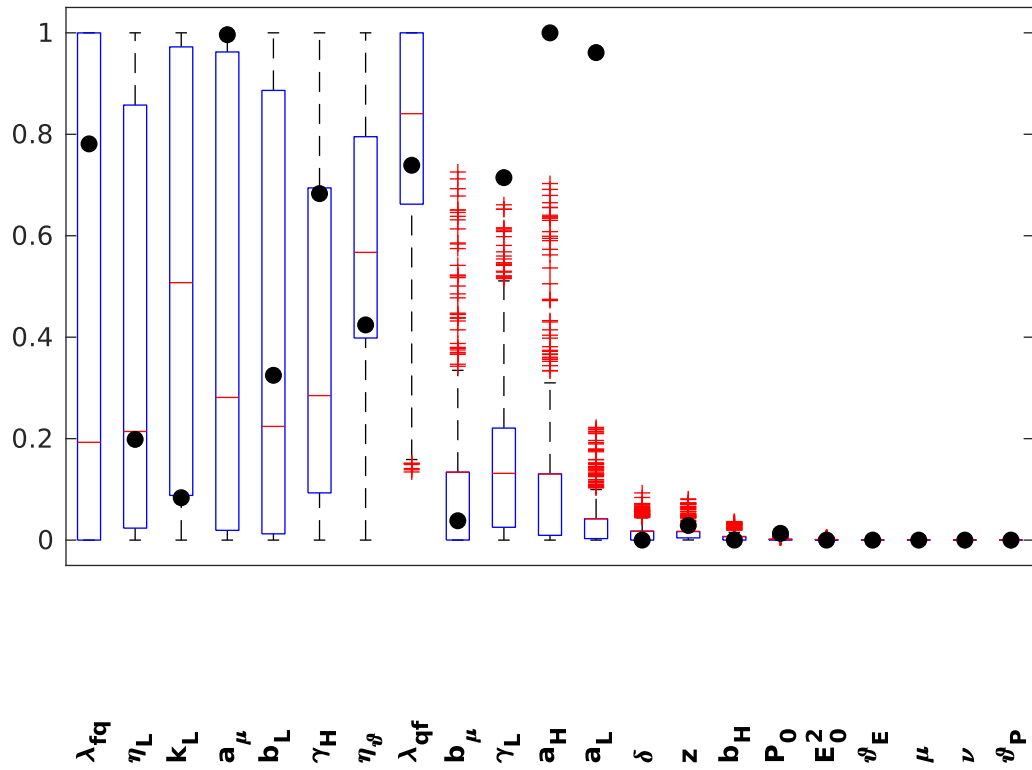
### 1.2. Estimated parameters with their intervals

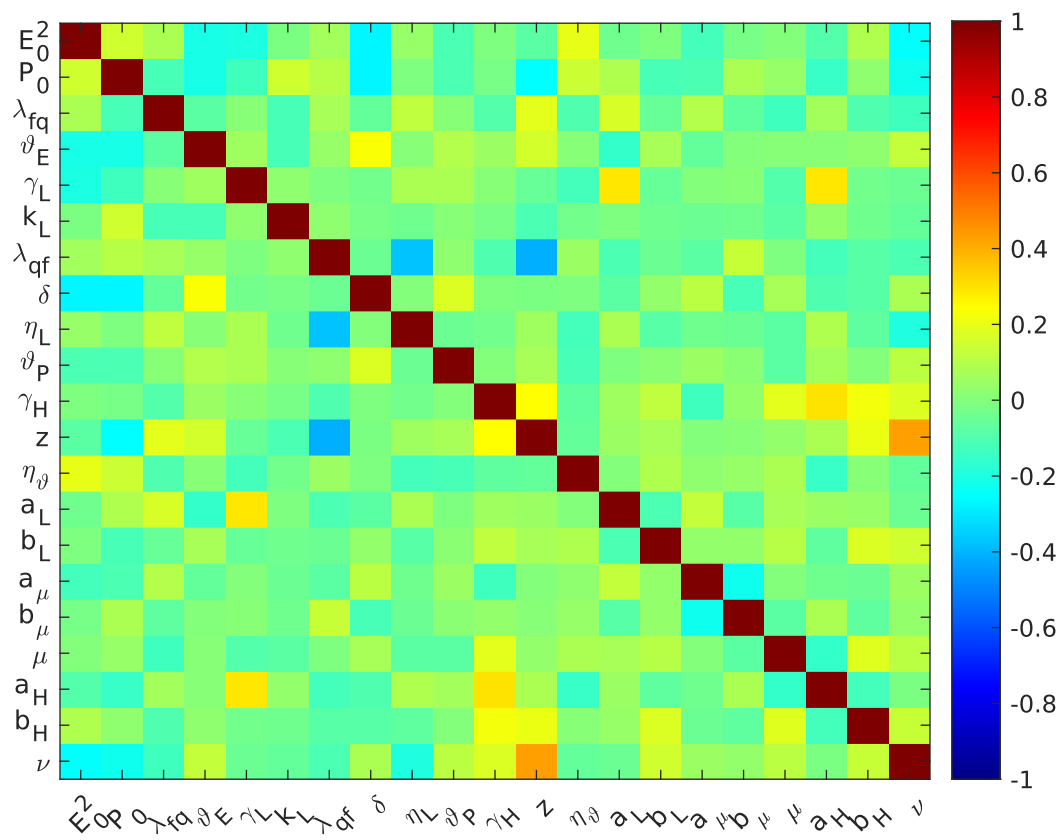
It was necessary to fix 0 parameters of 11 that could be fixed to complete validation.

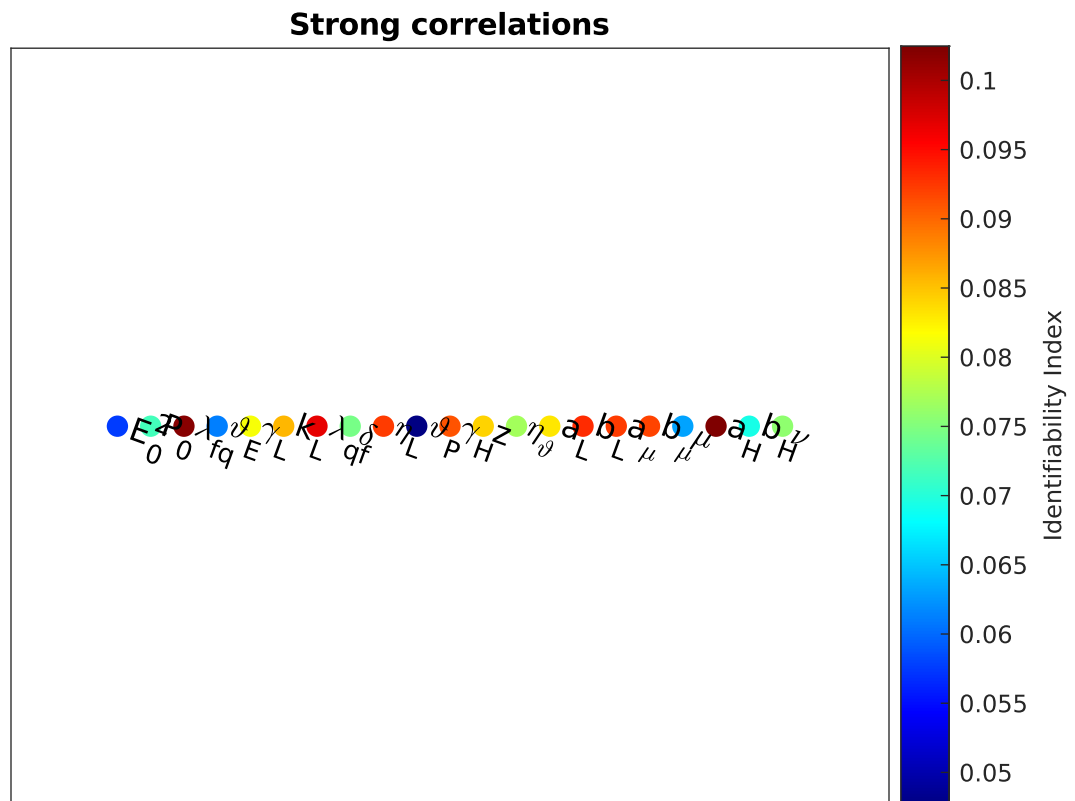
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
$E^2_0$	'0'	'0.0018'	'1.9656'	'0.001'	'0.0577'
$P_0$	'4.3831'	'5.3922'	'0.6902'	'5.3318'	'0.0718'
$\lambda_{fq}$	'0.738'	'0.7905'	'0.1928'	'0.7811'	'0.1018'
$\vartheta_E$	'0'	'0'	'0'	'0'	'0.0612'
$\gamma_L$	'0.4202'	'0.7711'	'0.1316'	'0.7145'	'0.0814'
$k_L$	'1.1809'	'8.2367'	'5.5679'	'1.7518'	'0.0858'
$\lambda_{qf}$	'0.7295'	'0.7399'	'0.8406'	'0.7389'	'0.0967'
$\delta$	'0'	'0'	'0.0026'	'0'	'0.0746'
$\eta_L$	'0.1938'	'0.2066'	'0.2141'	'0.1986'	'0.0923'
$\vartheta_P$	'0'	'0.0001'	'0'	'0'	'0.0477'
$\gamma_H$	'0.6513'	'0.6842'	'0.2849'	'0.683'	'0.091'
$z$	'0.8299'	'0.8757'	'0.5096'	'0.8674'	'0.0843'
$\eta_{\vartheta}$	'0.4021'	'0.459'	'0.5672'	'0.4242'	'0.077'
$a_L$	'12.894'	'14.6568'	'1.5883'	'14.4547'	'0.0831'
$b_L$	'4.6928'	'5.6553'	'4.1376'	'5.5479'	'0.0932'
$a_{\mu}$	'3.66'	'15'	'4.9371'	'14.9486'	'0.0923'
$b_{\mu}$	'1'	'13.6'	'2.8751'	'1.5337'	'0.0919'
$\mu$	'0'	'0'	'0'	'0'	'0.0632'
$a_H$	'13.8766'	'15'	'2.8275'	'14.999'	'0.1025'
$b_H$	'1'	'1.059'	'1.0978'	'1.0001'	'0.0695'
$\nu$	'0'	'0.0004'	'0.0007'	'0.0002'	'0.0758'

### 1.3. Identifiability analysys

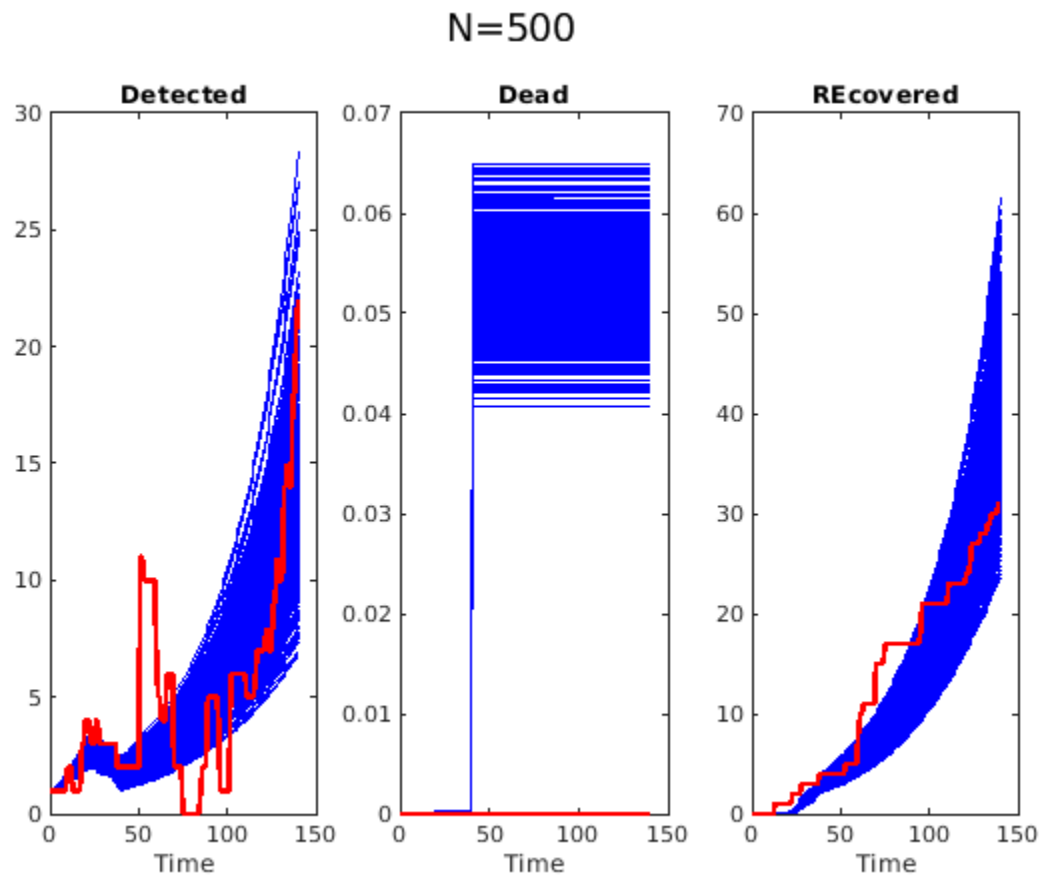








## 1.4. Uncertainty analysis



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## Chapter 2. Extension number2

### 2.1. Basic information

The extension to be validated consists of the time series from the data141 to the 168. The status of the validation is: COMPLETED.

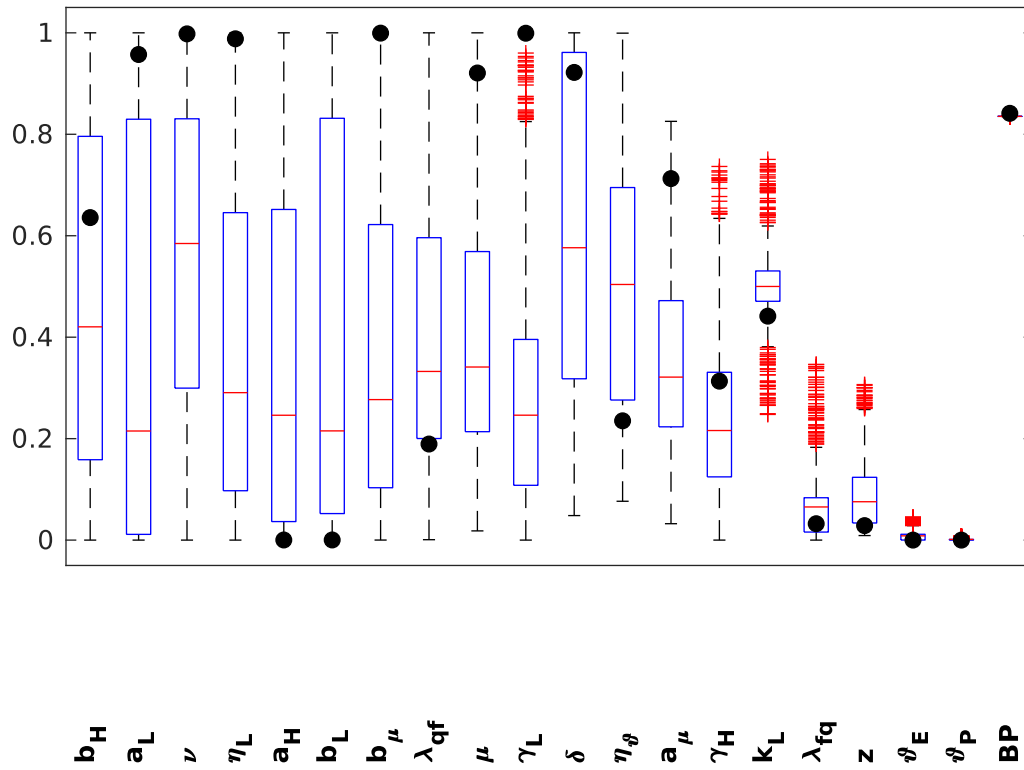
The number of estimations needed to perform the validation was1000.

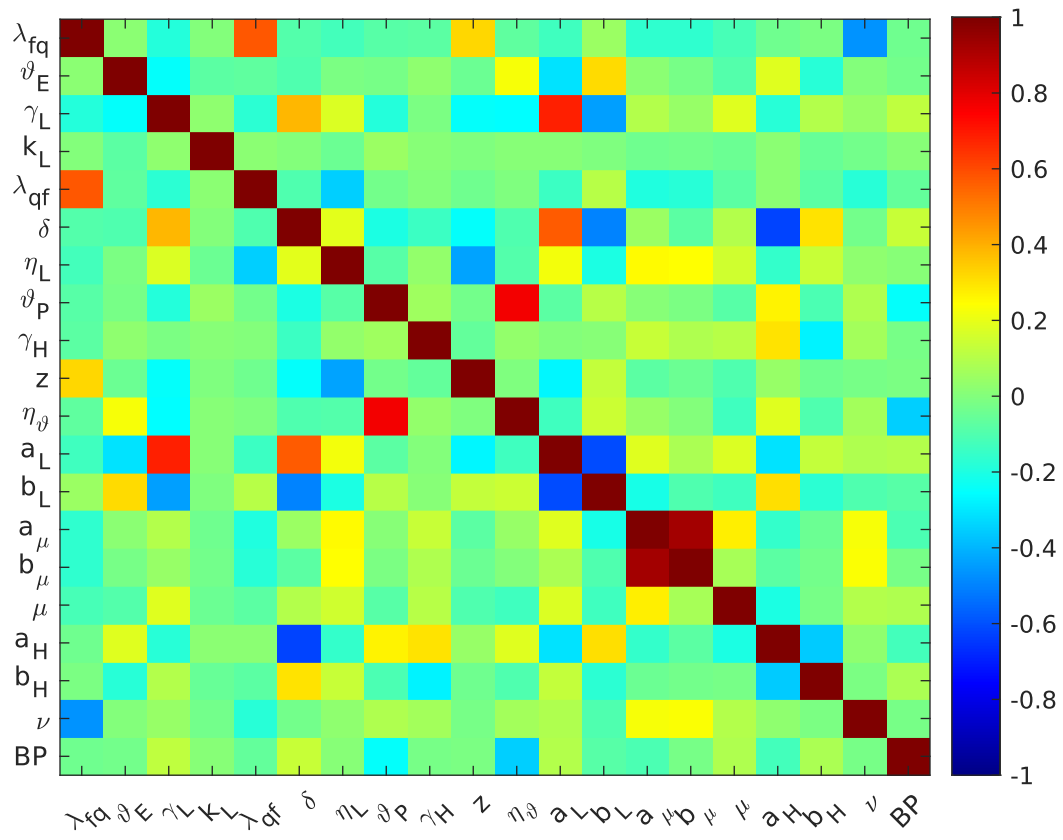
### 2.2. Estimated parameters with their intervals

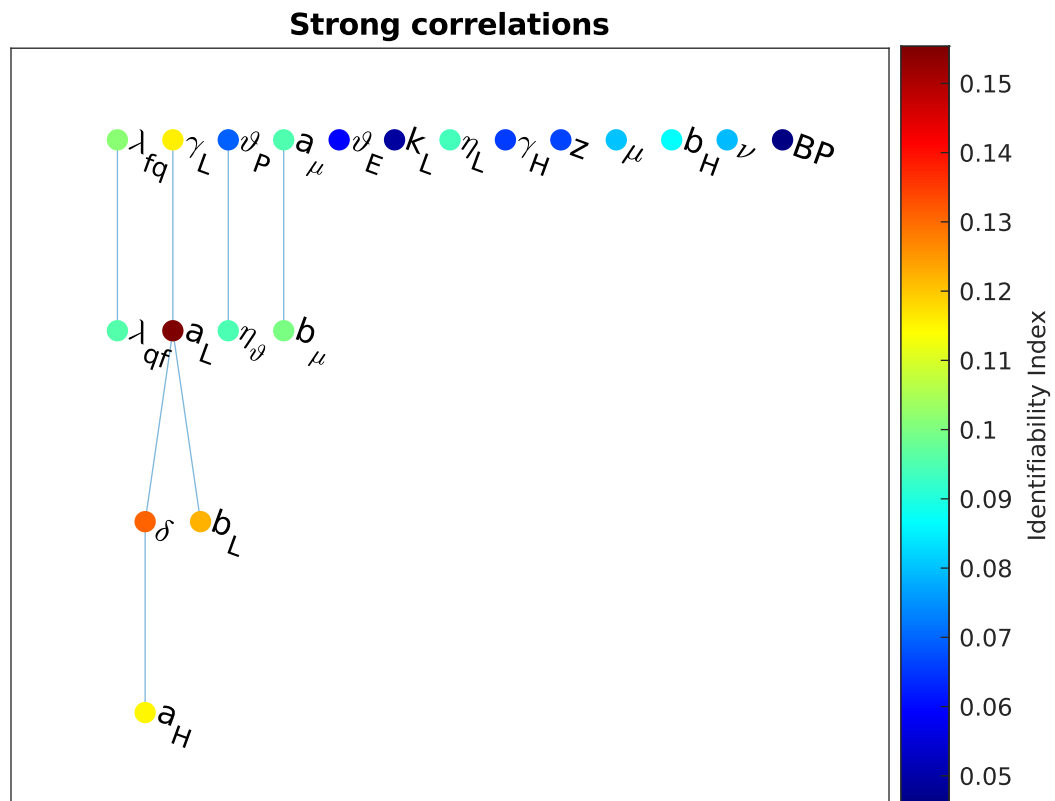
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0.0348'	'0.0963'	'0.0656'	'0.0323'	'0.1019'
$\vartheta_E$	'0'	'0.0196'	'0.0084'	'0'	'0.0595'
$\gamma_L$	'0.2155'	'0.2773'	'0.2464'	'0.9992'	'0.1156'
$k_L$	'5.3375'	'5.6624'	'5.5'	'4.9733'	'0.0491'
$\lambda_{qf}$	'0.3038'	'0.3612'	'0.3325'	'0.1894'	'0.0957'
$\delta$	'0.0817'	'0.0912'	'0.0865'	'0.1383'	'0.1307'
$\eta_L$	'0.2585'	'0.3229'	'0.2907'	'0.9882'	'0.094'
$\vartheta_P$	'0.0006'	'0.0022'	'0.0014'	'0'	'0.0695'
$\gamma_H$	'0.1936'	'0.239'	'0.2163'	'0.3133'	'0.0659'
$z$	'1.8256'	'2.7135'	'2.2696'	'0.8561'	'0.0668'
$\eta_{\vartheta}$	'0.4804'	'0.5274'	'0.5039'	'0.2352'	'0.0948'
$a_L$	'3.4442'	'4.5776'	'4.0109'	'14.4018'	'0.1554'
$b_L$	'3.4741'	'4.554'	'4.0141'	'1.0038'	'0.1221'
$a_{\mu}$	'5.2552'	'5.75'	'5.5026'	'10.9767'	'0.0952'
$b_{\mu}$	'4.4277'	'5.3275'	'4.8776'	'14.9916'	'0.1001'
$\mu$	'0.3138'	'0.3686'	'0.3412'	'0.9208'	'0.0802'
$a_H$	'3.9858'	'4.9057'	'4.4458'	'1.0032'	'0.115'
$b_H$	'6.4027'	'7.3686'	'6.8856'	'9.9004'	'0.0871'
$\nu$	'276.6382'	'308.0473'	'292.3427'	'498.9782'	'0.0793'
BP	'140.4357'	'140.5643'	'140.5'	'141.5'	'0.0459'

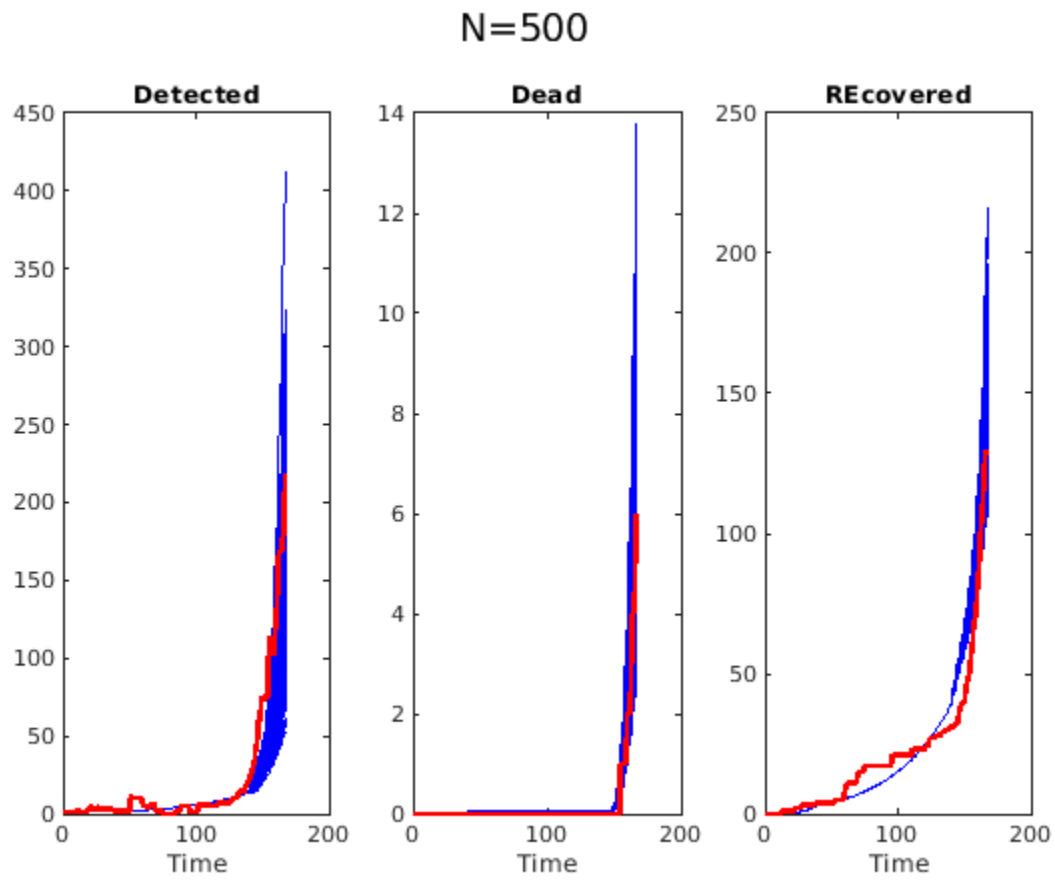
## 2.3. Identifiability analysis







## 2.4. Uncertainty analysis



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## Chapter 3. Extension number3

### 3.1. Basic information

The extension to be validated consists of the time series from the data168 to the 193. The status of the validation is: COMPLETED.

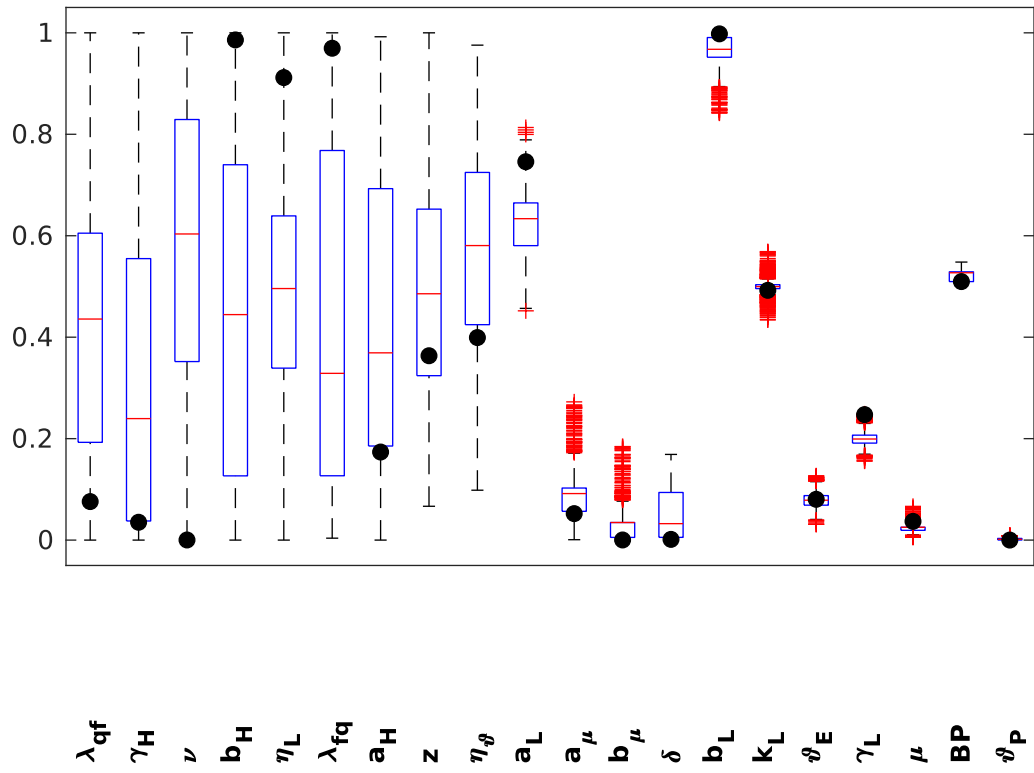
The number of estimations needed to perform the validation was1000.

### 3.2. Estimated parameters with their intervals

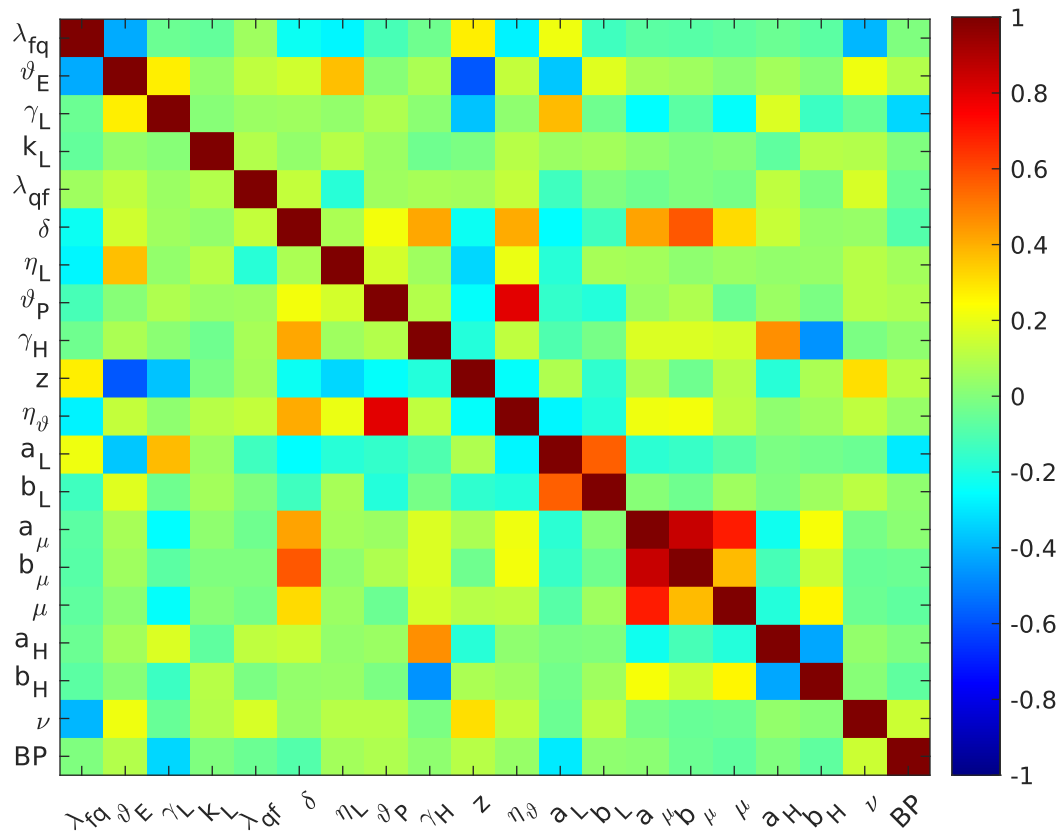
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

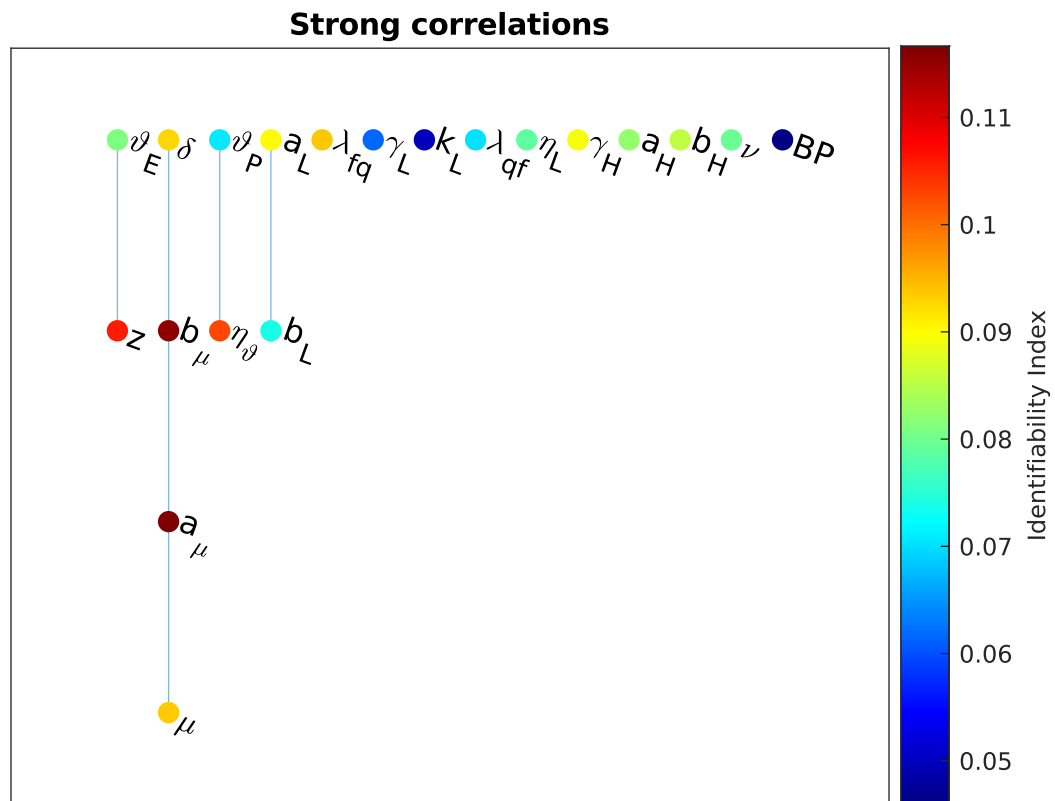
	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0.2956'	'0.3618'	'0.3287'	'0.9696'	'0.094'
$\vartheta_E$	'0.076'	'0.0813'	'0.0786'	'0.0804'	'0.0812'
$\gamma_L$	'0.196'	'0.2026'	'0.1993'	'0.2474'	'0.0618'
$k_L$	'5.3827'	'5.6132'	'5.4979'	'5.4314'	'0.05'
$\lambda_{qf}$	'0.4092'	'0.4624'	'0.4358'	'0.0759'	'0.0703'
$\delta$	'0.004'	'0.0057'	'0.0049'	'0.0002'	'0.0928'
$\eta_L$	'0.4725'	'0.5192'	'0.4959'	'0.9118'	'0.079'
$\vartheta_P$	'0.0011'	'0.0021'	'0.0016'	'0.0001'	'0.0709'
$\gamma_H$	'0.2091'	'0.27'	'0.2395'	'0.0352'	'0.0895'
$z$	'13.8995'	'15.2378'	'14.5686'	'10.9031'	'0.1058'
$\eta_{\vartheta}$	'0.562'	'0.5992'	'0.5806'	'0.3992'	'0.1027'
$a_L$	'9.7478'	'9.9935'	'9.8707'	'11.4423'	'0.0902'
$b_L$	'14.391'	'14.7'	'14.5455'	'14.9716'	'0.0741'
$a_{\mu}$	'1.9988'	'2.5694'	'2.2841'	'1.7307'	'0.1166'
$b_{\mu}$	'1.1134'	'1.8571'	'1.4853'	'1.0036'	'0.1155'
$\mu$	'0.0057'	'0.0449'	'0.0253'	'0.0369'	'0.0937'
$a_H$	'5.7744'	'6.5618'	'6.1681'	'3.4305'	'0.0825'
$b_H$	'6.775'	'7.6719'	'7.2234'	'14.8044'	'0.0856'
$\nu$	'287.3745'	'316.1097'	'301.7421'	'0.1171'	'0.0799'
BP	'168.3403'	'168.4666'	'168.4034'	'167.4999'	'0.046'

### 3.3. Identifiability analysis

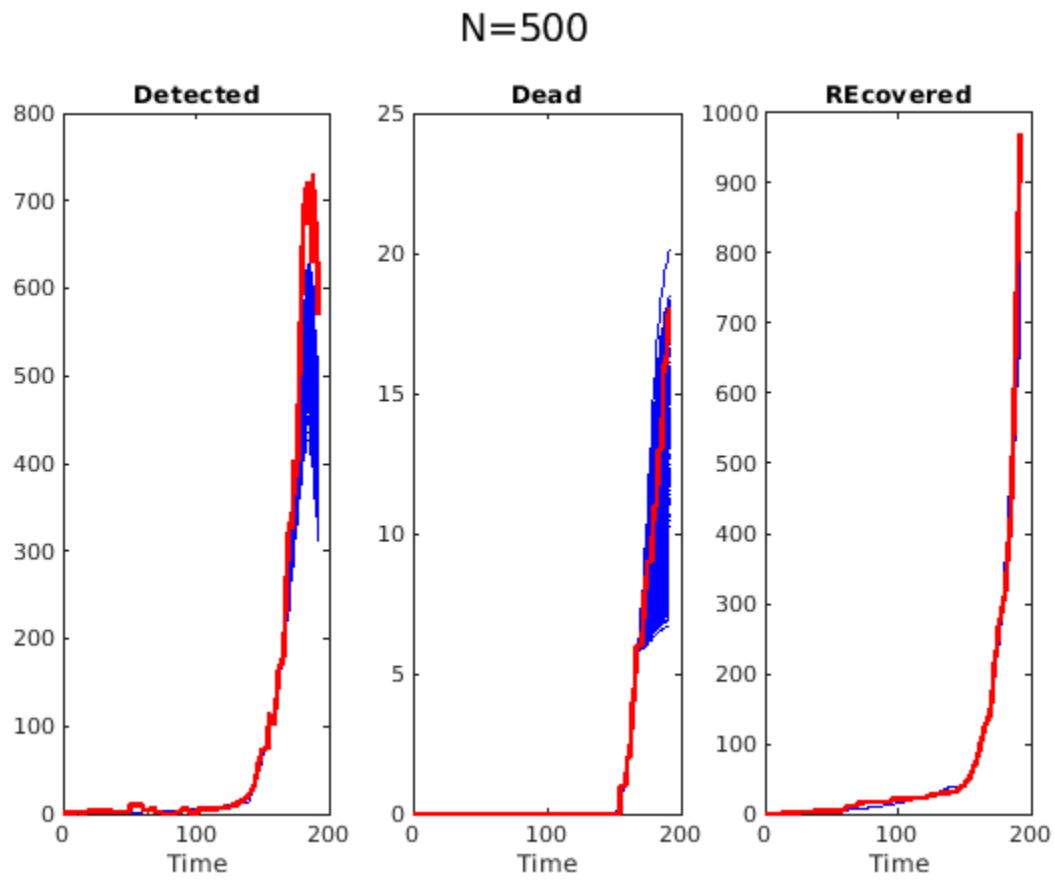








### 3.4. Uncertainty analysys



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## Chapter 4. Extension number4

### 4.1. Basic information

The extension to be validated consists of the time series from the data193 to the 215. The status of the validation is: COMPLETED.

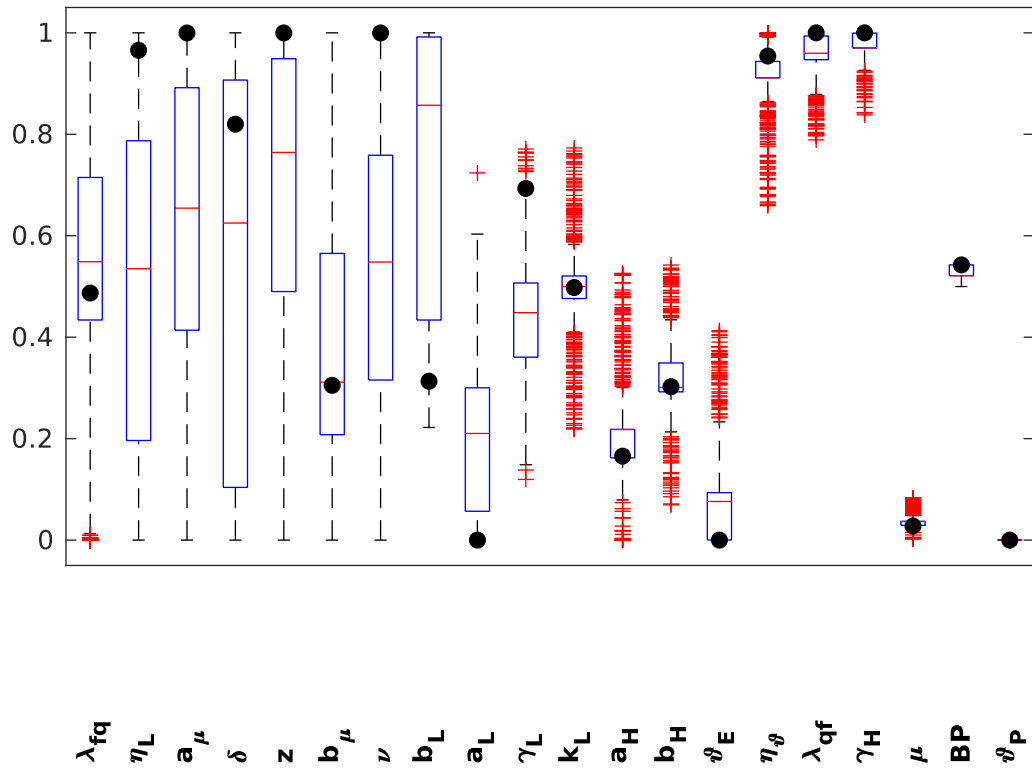
The number of estimations needed to perform the validation was1000.

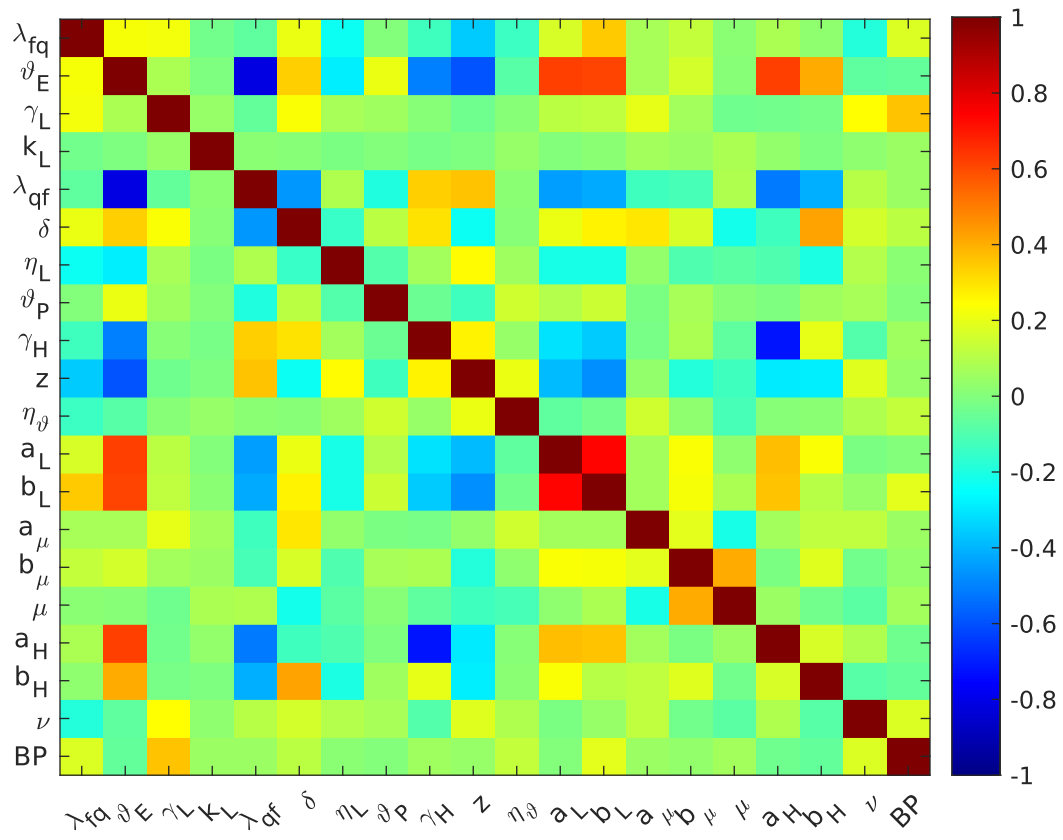
### 4.2. Estimated parameters with their intervals

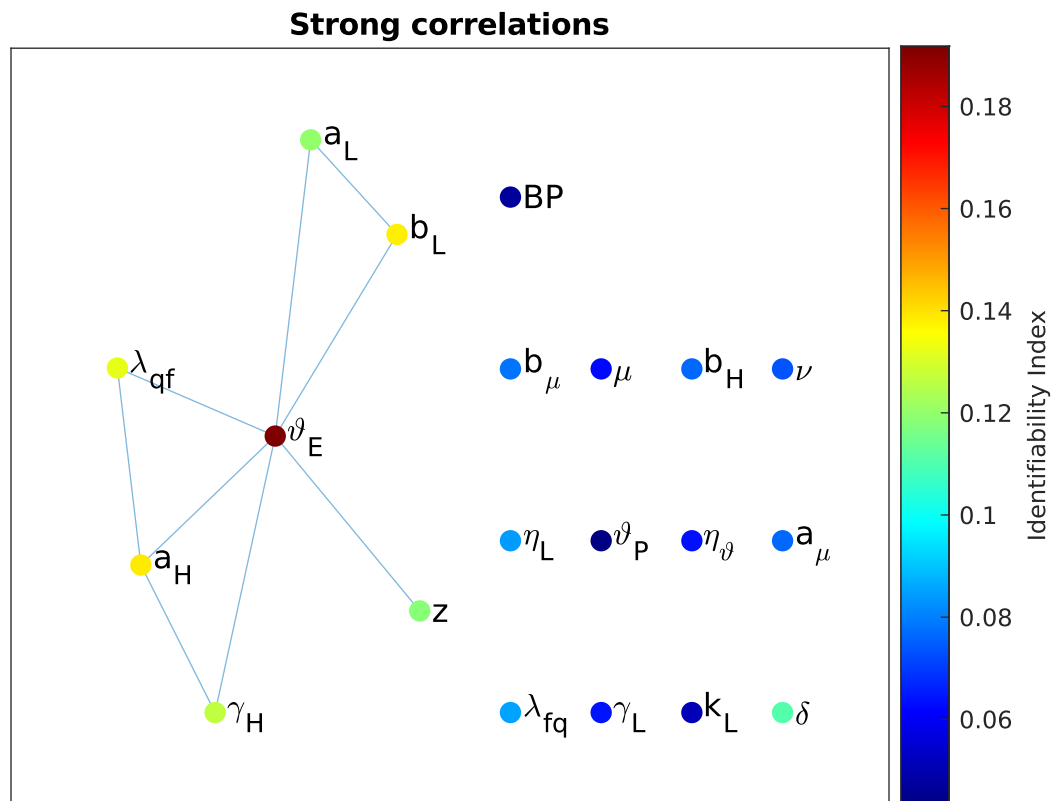
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0.5237'	'0.5737'	'0.5487'	'0.4871'	'0.0853'
$\vartheta_E$	'0.0564'	'0.0958'	'0.0761'	'0'	'0.1918'
$\gamma_L$	'0.4343'	'0.4624'	'0.4483'	'0.6933'	'0.0645'
$k_L$	'5.3253'	'5.6738'	'5.4996'	'5.481'	'0.051'
$\lambda_{qf}$	'0.9356'	'0.9839'	'0.9597'	'1'	'0.1325'
$\delta$	'0.0884'	'0.0991'	'0.0937'	'0.123'	'0.1111'
$\eta_L$	'0.5052'	'0.5648'	'0.535'	'0.9656'	'0.0842'
$\vartheta_P$	'0'	'0'	'0'	'0'	'0.0434'
$\gamma_H$	'0.9373'	'1'	'0.97'	'1'	'0.1267'
$z$	'22.1672'	'23.6895'	'22.9283'	'29.9957'	'0.1185'
$\eta_{\vartheta}$	'0.8902'	'0.932'	'0.9111'	'0.9542'	'0.0637'
$a_L$	'3.7201'	'4.1671'	'3.9436'	'1'	'0.1199'
$b_L$	'12.6126'	'13.3866'	'12.9996'	'5.3842'	'0.1381'
$a_{\mu}$	'9.7847'	'10.5397'	'10.1622'	'14.9966'	'0.0768'
$b_{\mu}$	'5.0395'	'5.6781'	'5.3588'	'5.2726'	'0.0787'
$\mu$	'0.0213'	'0.0525'	'0.0369'	'0.0278'	'0.0629'
$a_H$	'3.6319'	'4.4773'	'4.0546'	'3.3172'	'0.1387'
$b_H$	'5.0212'	'5.404'	'5.2126'	'5.2334'	'0.0767'
$\nu$	'261.801'	'286.3739'	'274.0875'	'499.8806'	'0.0739'
BP	'192.4477'	'192.5557'	'192.5017'	'193.5'	'0.0473'

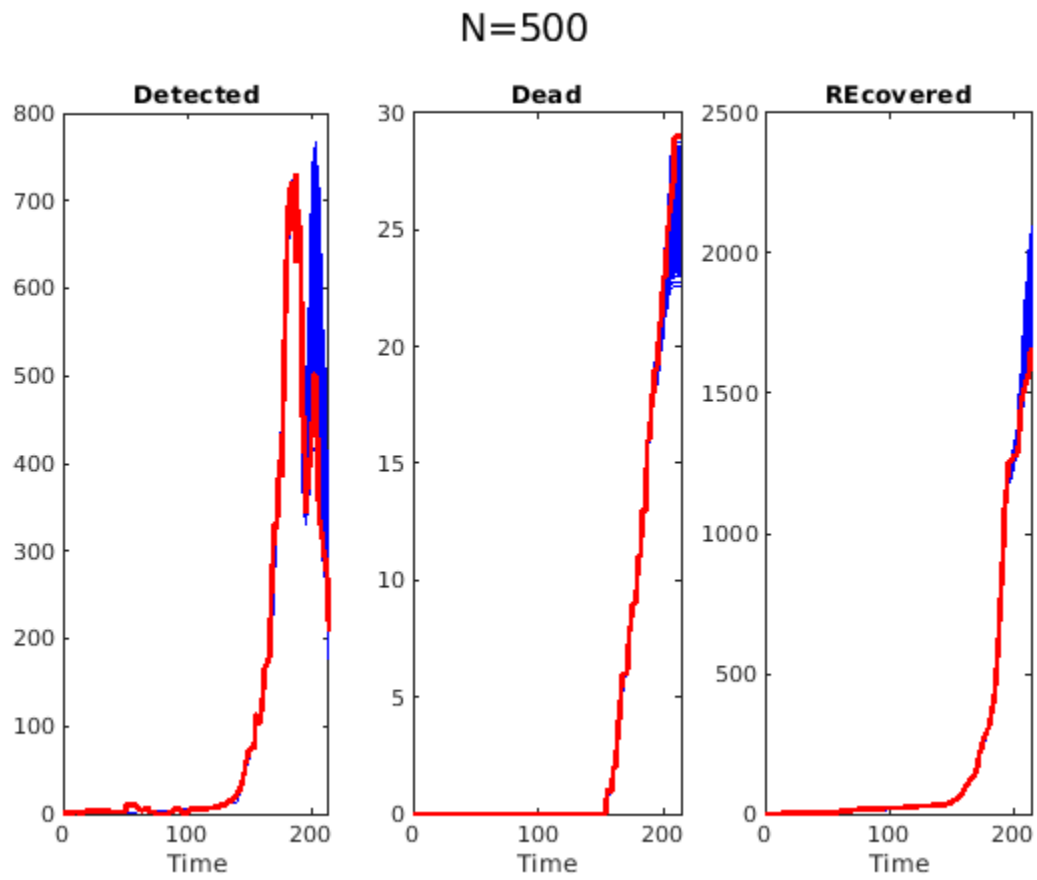
### 4.3. Identifiability analysis







#### 4.4. Uncertainty analysys





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## Chapter 5. Extension number5

### 5.1. Basic information

The extension to be validated consists of the time series from the data215 to the 262. The status of the validation is: COMPLETED.

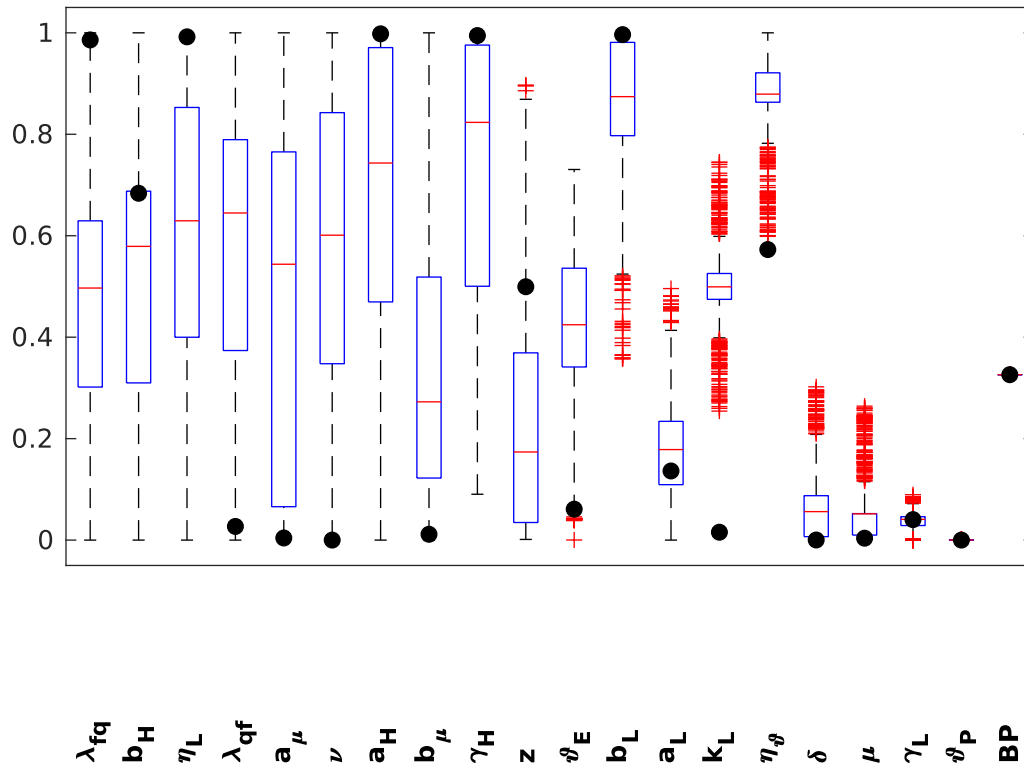
The number of estimations needed to perform the validation was1000.

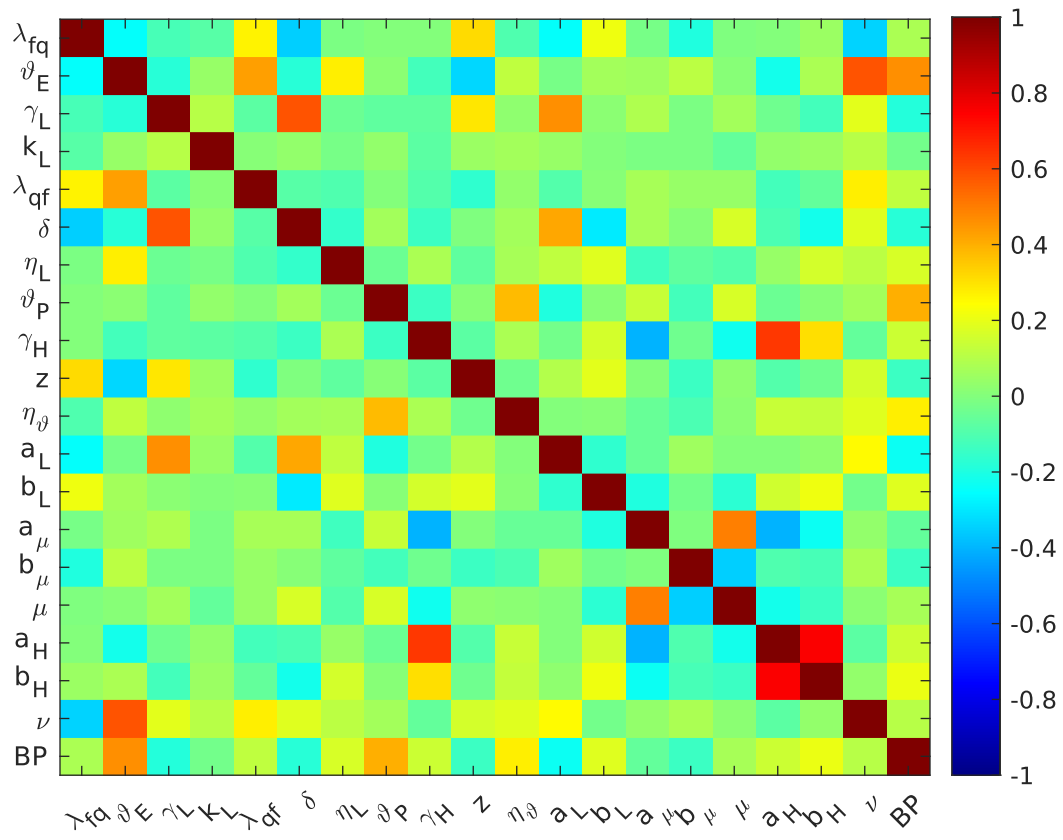
### 5.2. Estimated parameters with their intervals

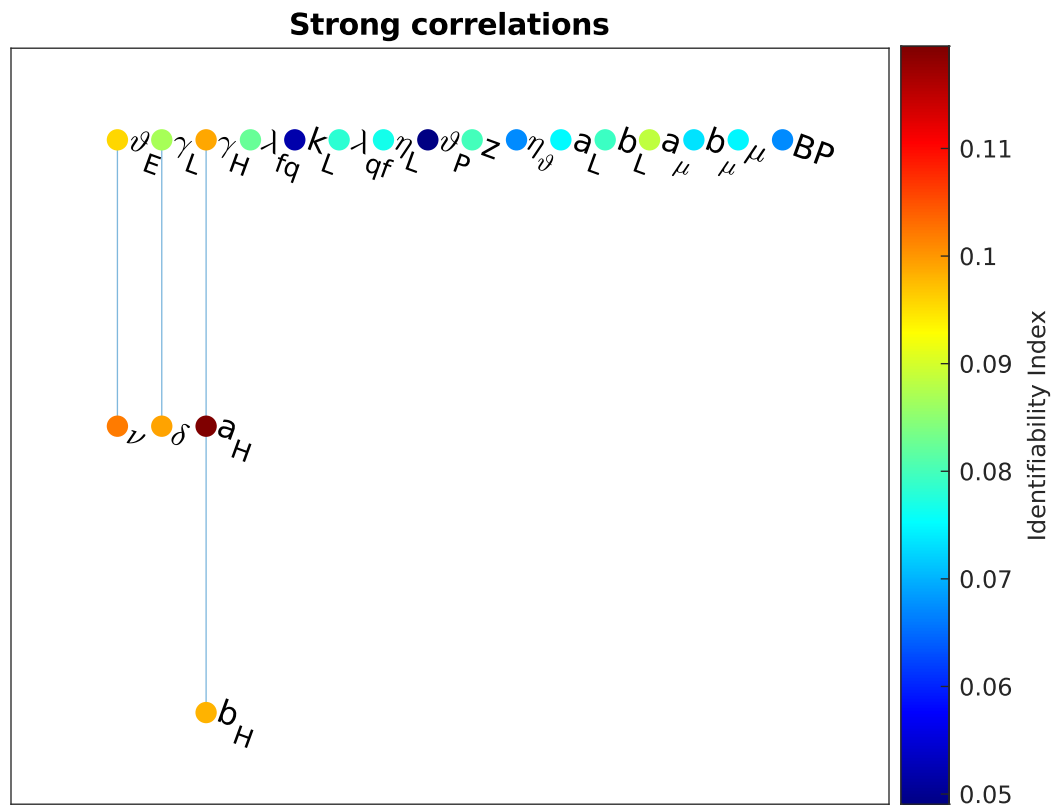
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0.4722'	'0.5216'	'0.4969'	'0.986'	'0.0826'
$\vartheta_E$	'0.4108'	'0.4382'	'0.4245'	'0.061'	'0.0956'
$\gamma_L$	'0.0257'	'0.0561'	'0.0409'	'0.0404'	'0.0869'
$k_L$	'5.3483'	'5.6378'	'5.493'	'1.1399'	'0.052'
$\lambda_{qf}$	'0.6177'	'0.672'	'0.6449'	'0.0269'	'0.0783'
$\delta$	'0.0054'	'0.0115'	'0.0084'	'0'	'0.0993'
$\eta_L$	'0.602'	'0.6569'	'0.6295'	'0.9921'	'0.0766'
$\vartheta_P$	'0.0002'	'0.0005'	'0.0003'	'0'	'0.0491'
$\gamma_H$	'0.7978'	'0.8491'	'0.8235'	'0.9946'	'0.099'
$z$	'4.3994'	'6.0311'	'5.2153'	'14.9835'	'0.0801'
$\eta_{\vartheta}$	'0.8605'	'0.8977'	'0.8791'	'0.5728'	'0.0674'
$a_L$	'3.2451'	'3.7673'	'3.5062'	'2.908'	'0.075'
$b_L$	'12.8748'	'13.5962'	'13.2355'	'14.9501'	'0.0794'
$a_{\mu}$	'8.164'	'9.0628'	'8.6134'	'1.0585'	'0.0886'
$b_{\mu}$	'4.4421'	'5.1896'	'4.8158'	'1.1607'	'0.0733'
$\mu$	'0.0315'	'0.0729'	'0.0522'	'0.0038'	'0.0749'
$a_H$	'11.0122'	'11.8017'	'11.4069'	'14.9723'	'0.1195'
$b_H$	'8.7722'	'9.4407'	'9.1064'	'10.5723'	'0.0981'
$\nu$	'286.3865'	'314.7029'	'300.5447'	'0.0214'	'0.1019'
BP	'215.4356'	'215.5644'	'215.5'	'215.5'	'0.0674'

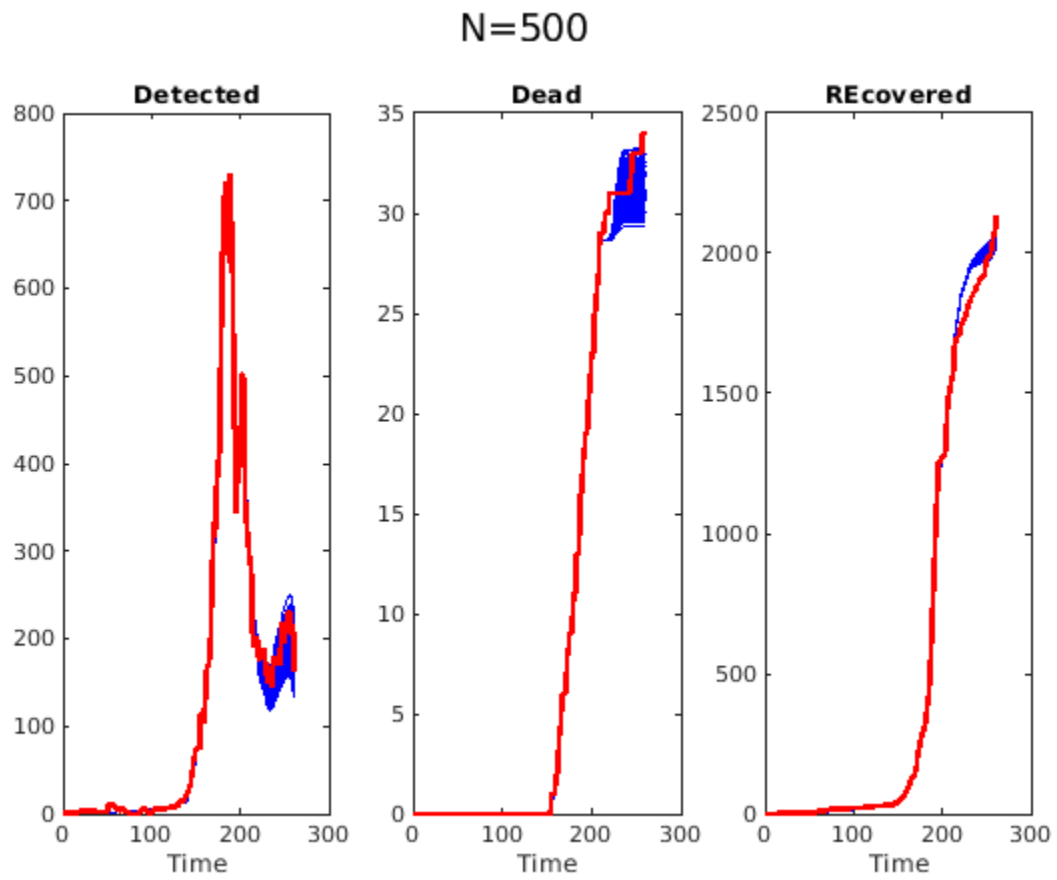
### 5.3. Identifiability analysis







## 5.4. Uncertainty analysys



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## Chapter 6. Extension number6

### 6.1. Basic information

The extension to be validated consists of the time series from the data262 to the 330. The status of the validation is: COMPLETED.

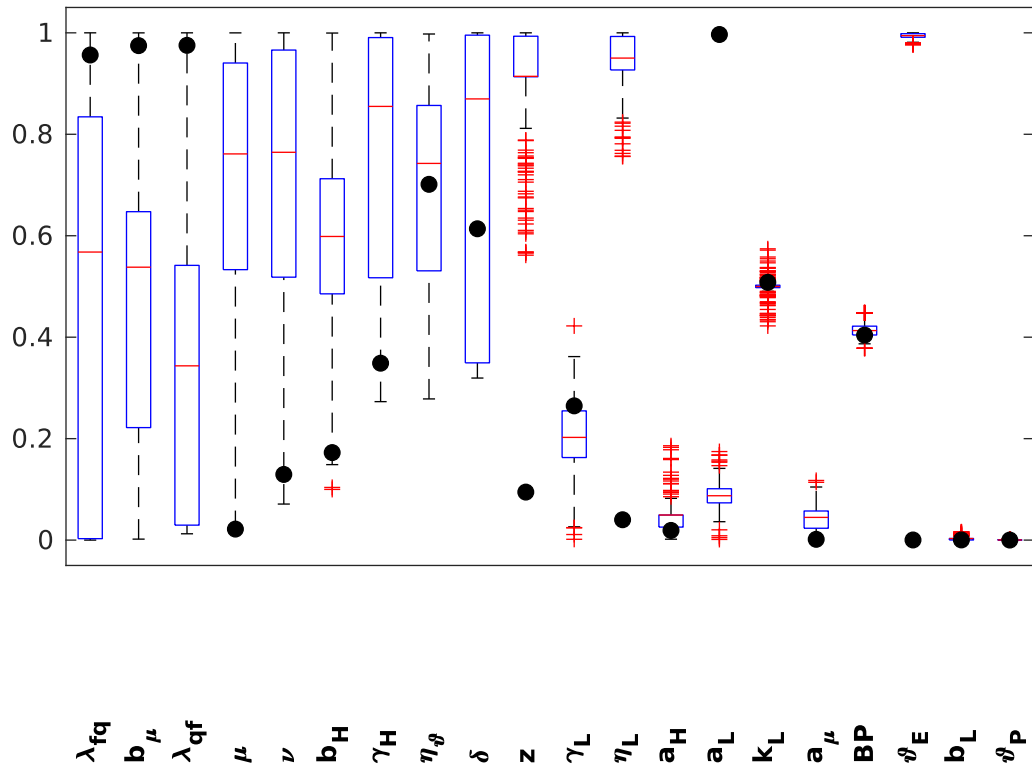
The number of estimations needed to perform the validation was1000.

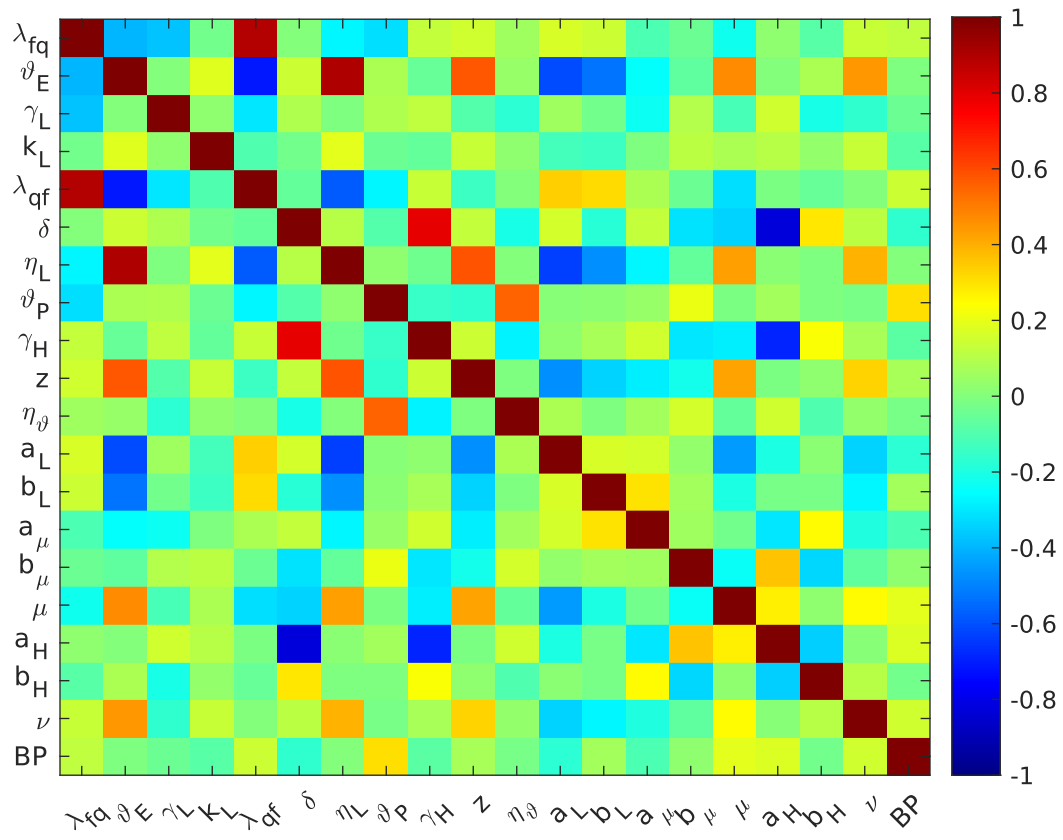
### 6.2. Estimated parameters with their intervals

It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

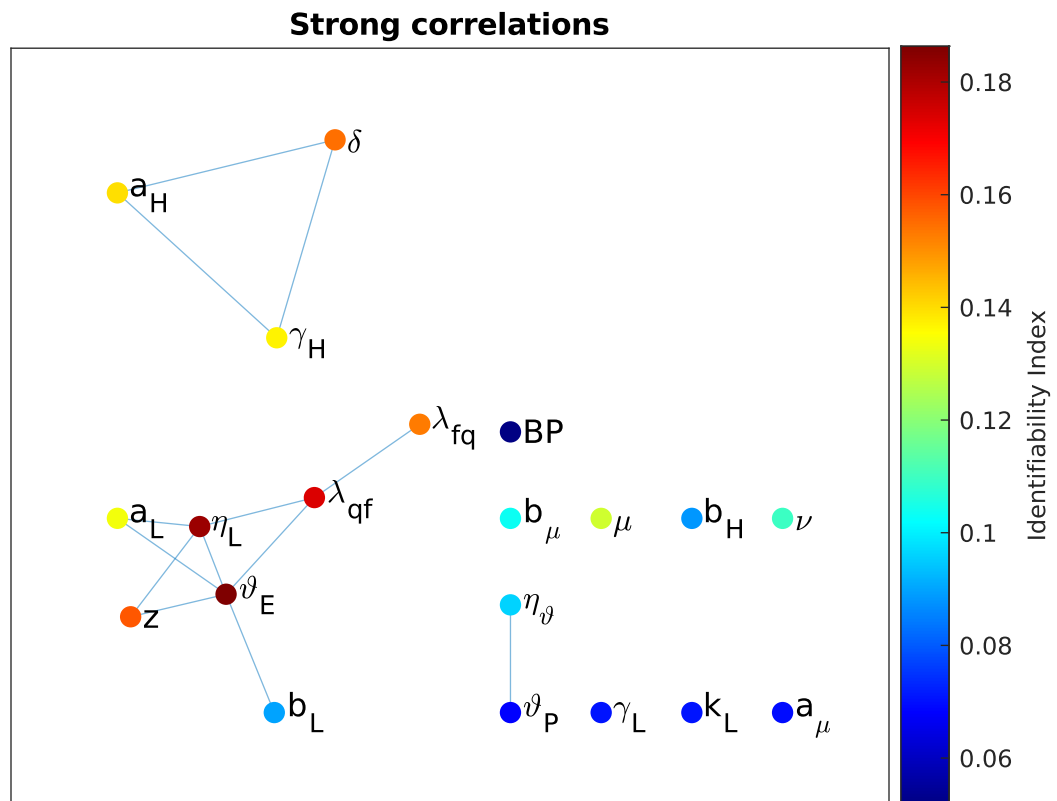
	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0.498'	'0.6377'	'0.5678'	'0.9563'	'0.1531'
$\vartheta_E$	'0.941'	'1'	'0.9945'	'0.0002'	'0.1864'
$\gamma_L$	'0.1856'	'0.2193'	'0.2025'	'0.2646'	'0.0711'
$k_L$	'5.2708'	'5.7286'	'5.4997'	'5.573'	'0.0709'
$\lambda_{qf}$	'0.2883'	'0.3987'	'0.3435'	'0.9754'	'0.1738'
$\delta$	'0.1225'	'0.1384'	'0.1305'	'0.0921'	'0.1545'
$\eta_L$	'0.9049'	'0.9955'	'0.9502'	'0.0401'	'0.1824'
$\vartheta_P$	'0.0001'	'0.0005'	'0.0003'	'0.0001'	'0.0684'
$\gamma_H$	'0.8153'	'0.8945'	'0.8549'	'0.3487'	'0.1373'
$z$	'25.8051'	'29.0497'	'27.4274'	'2.8389'	'0.1578'
$\eta_{\vartheta}$	'0.7091'	'0.776'	'0.7426'	'0.7013'	'0.0962'
$a_L$	'1.7854'	'2.6629'	'2.2242'	'14.954'	'0.134'
$b_L$	'1'	'1.2919'	'1.0437'	'1.0047'	'0.0897'
$a_{\mu}$	'1.5225'	'1.7309'	'1.6267'	'1.0215'	'0.0701'
$b_{\mu}$	'7.9236'	'9.1403'	'8.5319'	'14.6468'	'0.1033'
$\mu$	'0.7121'	'0.8105'	'0.7613'	'0.0217'	'0.1296'
$a_H$	'1.0856'	'2.2988'	'1.6922'	'1.2671'	'0.14'
$b_H$	'8.8926'	'9.8671'	'9.3799'	'3.4148'	'0.0881'
$\nu$	'360.2686'	'404.2237'	'382.2461'	'64.725'	'0.1098'
BP	'262.2099'	'262.79'	'262.4999'	'261.4733'	'0.0518'

### 6.3. Identifiability analysys

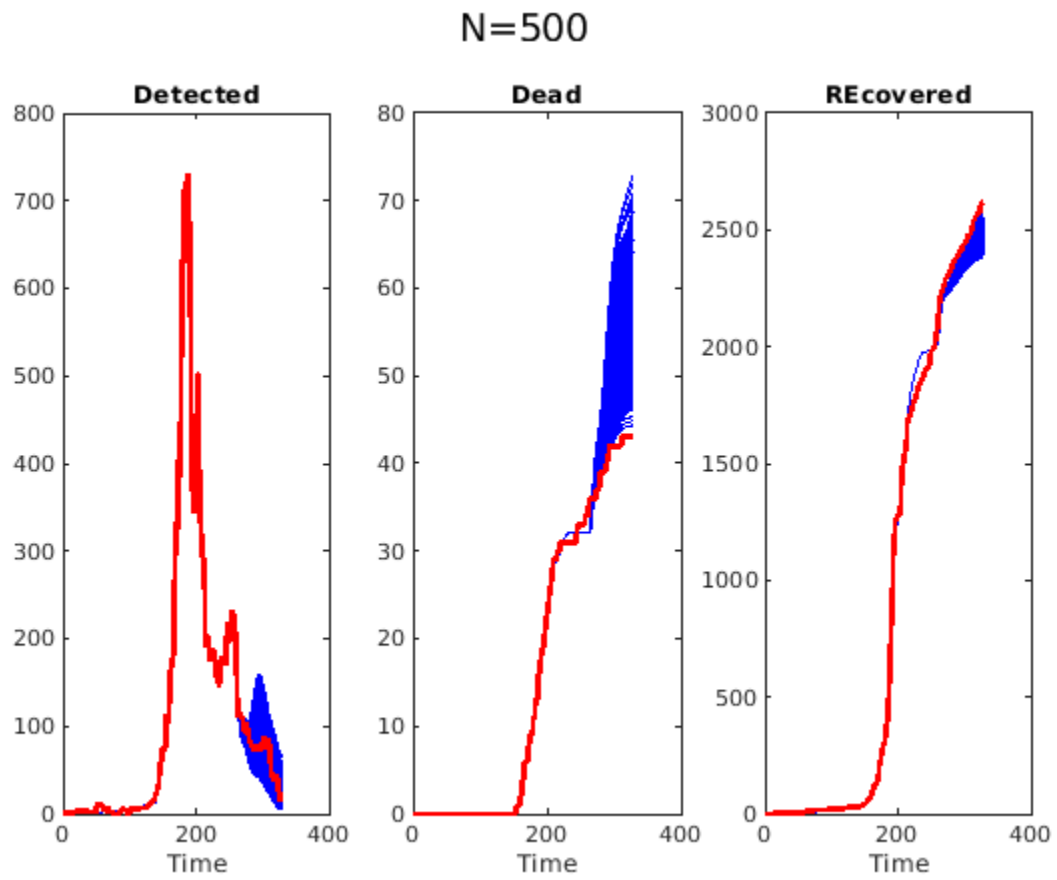








## 6.4. Uncertainty analysis



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## Chapter 7. Extension number7

### 7.1. Basic information

The extension to be validated consists of the time series from the data330 to the 398. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

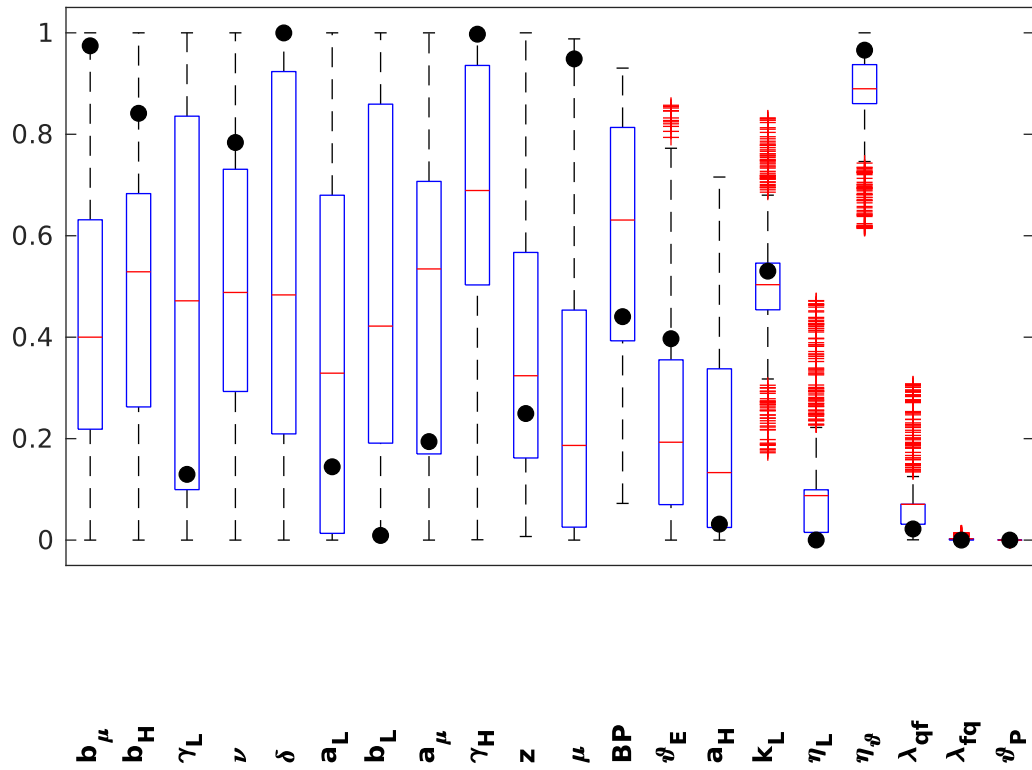
### 7.2. Estimated parameters with their intervals

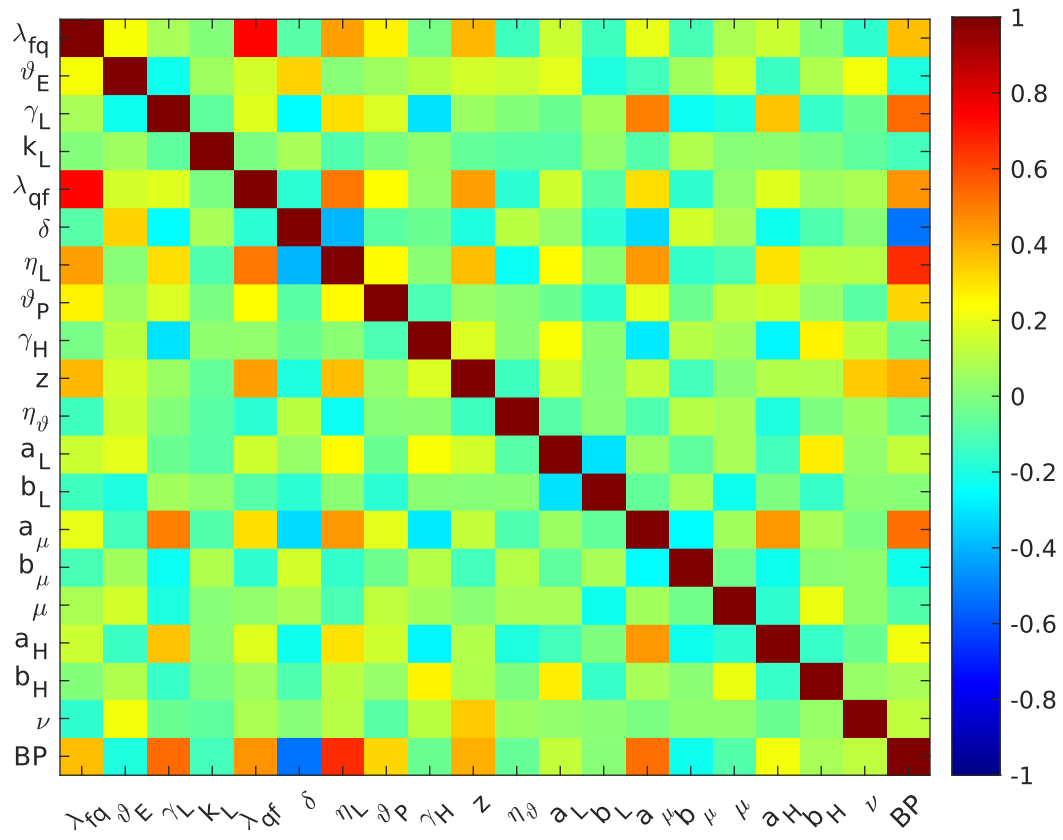
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

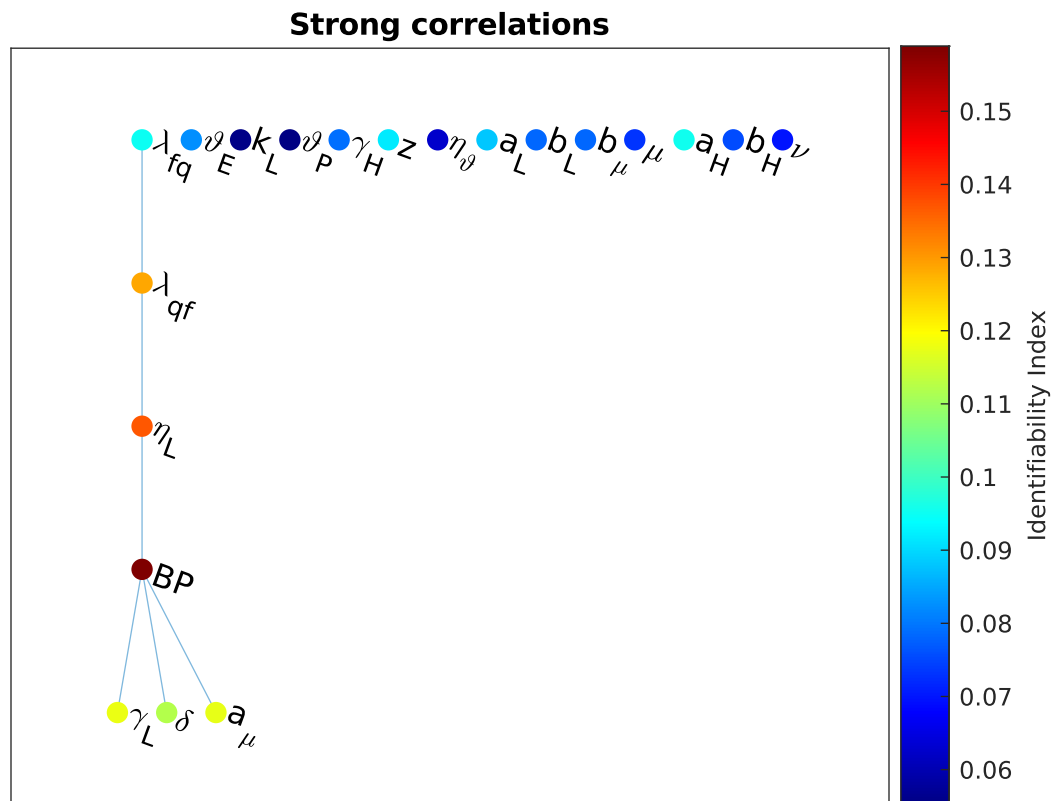
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0'	'0'	'0.0027'	'0'	'0.0952'
$\vartheta_E$	'0.3941'	'0.4568'	'0.193'	'0.397'	'0.0828'
$\gamma_L$	'0.1184'	'0.2692'	'0.4717'	'0.1296'	'0.1178'
$k_L$	'4.1764'	'7.0409'	'5.5315'	'5.7717'	'0.0559'
$\lambda_{qf}$	'0.0212'	'0.0241'	'0.0707'	'0.022'	'0.1288'
$\delta$	'0.1297'	'0.15'	'0.0725'	'0.15'	'0.112'
$\eta_L$	'0.0001'	'0.0002'	'0.0878'	'0.0002'	'0.1368'
$\vartheta_P$	'0'	'0'	'0'	'0'	'0.0553'
$\gamma_H$	'0.8252'	'1'	'0.6892'	'0.9973'	'0.0792'
$z$	'7.4729'	'8.2102'	'9.7207'	'7.4851'	'0.092'
$\eta_{\vartheta}$	'0.7673'	'0.9792'	'0.8897'	'0.9658'	'0.0627'
$a_L$	'2.8114'	'4.8954'	'5.6069'	'3.0235'	'0.0883'
$b_L$	'1.0575'	'2.7789'	'6.9061'	'1.1282'	'0.0787'
$a_{\mu}$	'3.5572'	'7.1796'	'8.4837'	'3.7186'	'0.1173'
$b_{\mu}$	'12.1439'	'14.9226'	'6.6009'	'14.6421'	'0.0784'
$\mu$	'0.6362'	'0.9576'	'0.1866'	'0.9486'	'0.0734'
$a_H$	'1.2867'	'2.082'	'2.8651'	'1.4414'	'0.0956'
$b_H$	'8.7661'	'13.2845'	'8.405'	'12.7789'	'0.0757'
$\nu$	'332.4667'	'397.796'	'244.0908'	'391.8917'	'0.0699'
BP	'312.4253'	'388'	'341.5'	'317.4999'	'0.1589'

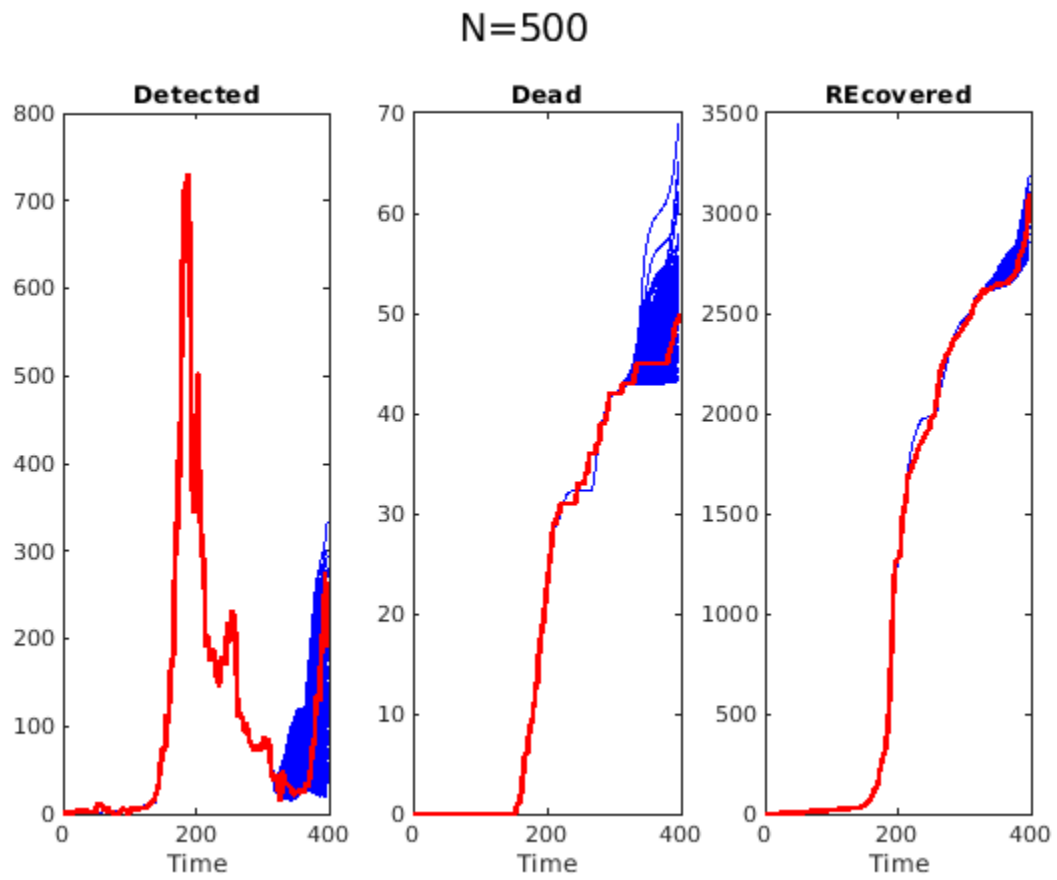
### 7.3. Identifiability analysis







## 7.4. Uncertainty analysys



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## Chapter 8. Extension number8

### 8.1. Basic information

The extension to be validated consists of the time series from the data398 to the 398. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

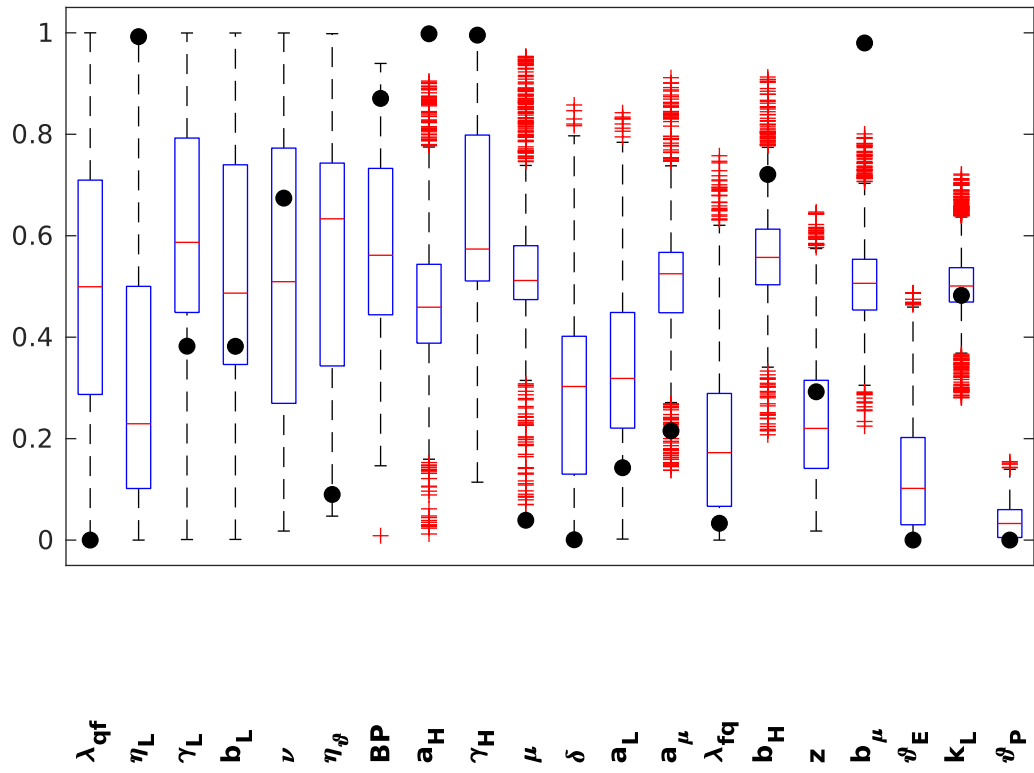
### 8.2. Estimated parameters with their intervals

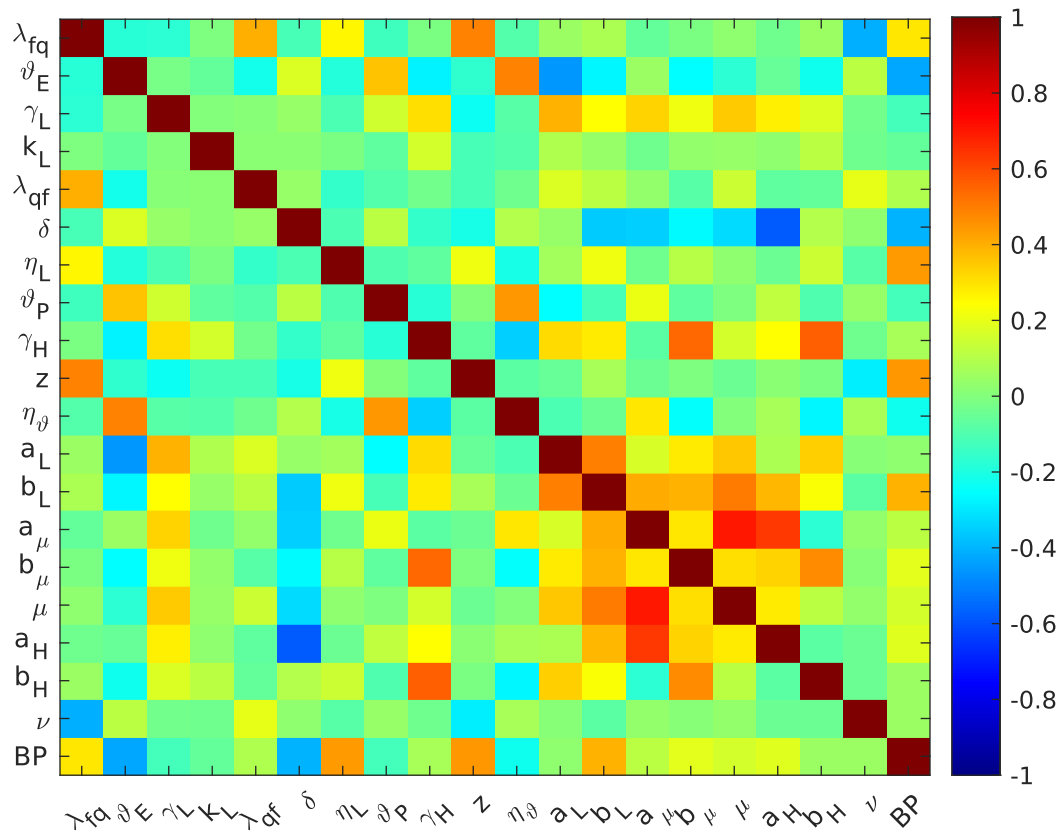
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

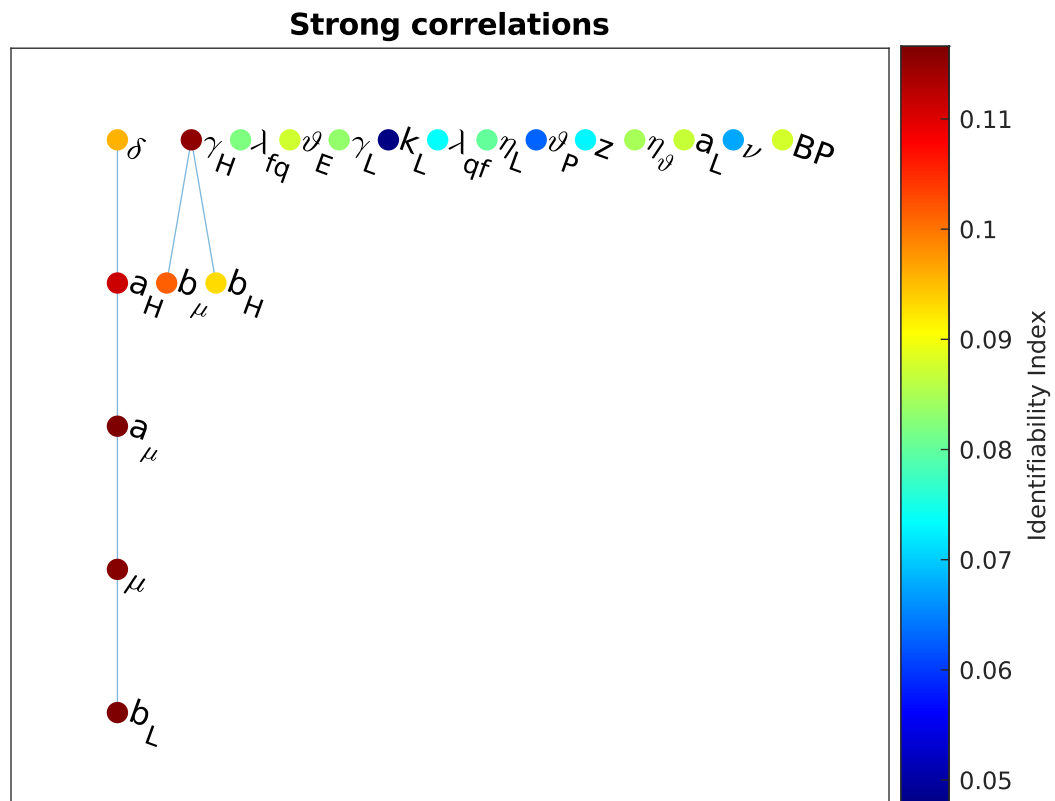
	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0.1511'	'0.1938'	'0.1725'	'0.0332'	'0.082'
$\vartheta_E$	'0.0913'	'0.1127'	'0.102'	'0.0001'	'0.0873'
$\gamma_L$	'0.5695'	'0.6045'	'0.587'	'0.3823'	'0.0833'
$k_L$	'5.4184'	'5.5983'	'5.5084'	'5.3418'	'0.0478'
$\lambda_{qf}$	'0.4765'	'0.5224'	'0.4994'	'0.0001'	'0.0737'
$\delta$	'0.0433'	'0.0476'	'0.0454'	'0.0001'	'0.0957'
$\eta_L$	'0.2063'	'0.2524'	'0.2294'	'0.9925'	'0.0801'
$\vartheta_P$	'0.0281'	'0.0374'	'0.0327'	'0.0001'	'0.063'
$\gamma_H$	'0.5569'	'0.5905'	'0.5737'	'0.9955'	'0.1154'
$z$	'6.1578'	'7.0536'	'6.6057'	'8.7711'	'0.0728'
$\eta_{\vartheta}$	'0.6149'	'0.6518'	'0.6334'	'0.09'	'0.0847'
$a_L$	'5.256'	'5.6687'	'5.4624'	'2.9978'	'0.0869'
$b_L$	'7.5376'	'8.0942'	'7.8159'	'6.3486'	'0.1166'
$a_{\mu}$	'8.1244'	'8.5766'	'8.3505'	'4.0171'	'0.1166'
$b_{\mu}$	'7.9105'	'8.2627'	'8.0866'	'14.7196'	'0.1014'
$\mu$	'0.4926'	'0.531'	'0.5118'	'0.0391'	'0.1159'
$a_H$	'7.1881'	'7.667'	'7.4276'	'14.9739'	'0.1113'
$b_H$	'8.5985'	'9.005'	'8.8017'	'11.0919'	'0.0932'
$\nu$	'243.6075'	'265.8158'	'254.7117'	'337.0589'	'0.0676'
BP	'361.7365'	'363.3979'	'362.5672'	'380.4992'	'0.0877'



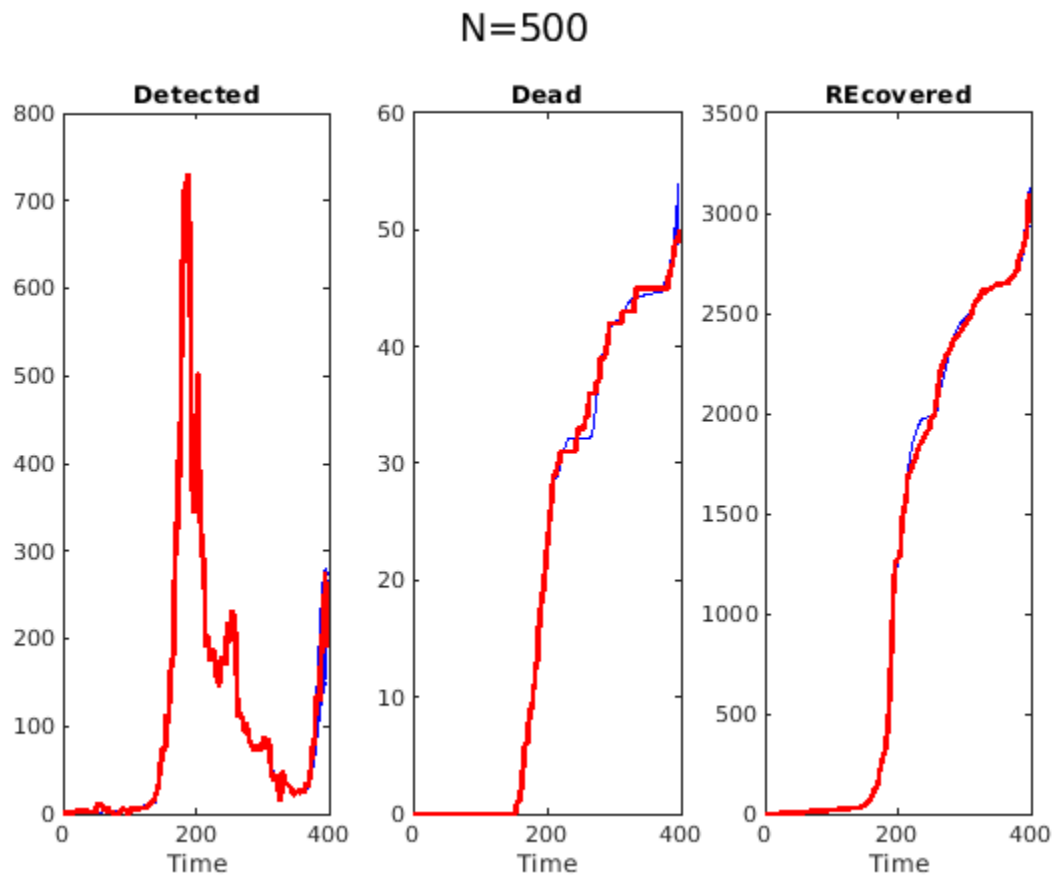
## 8.3. Identifiability analysis







## 8.4. Uncertainty analysys



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## Chapter 9. Extension number9

### 9.1. Basic information

The extension to be validated consists of the time series from the data398 to the 428. The status of the validation is: COMPLETED.

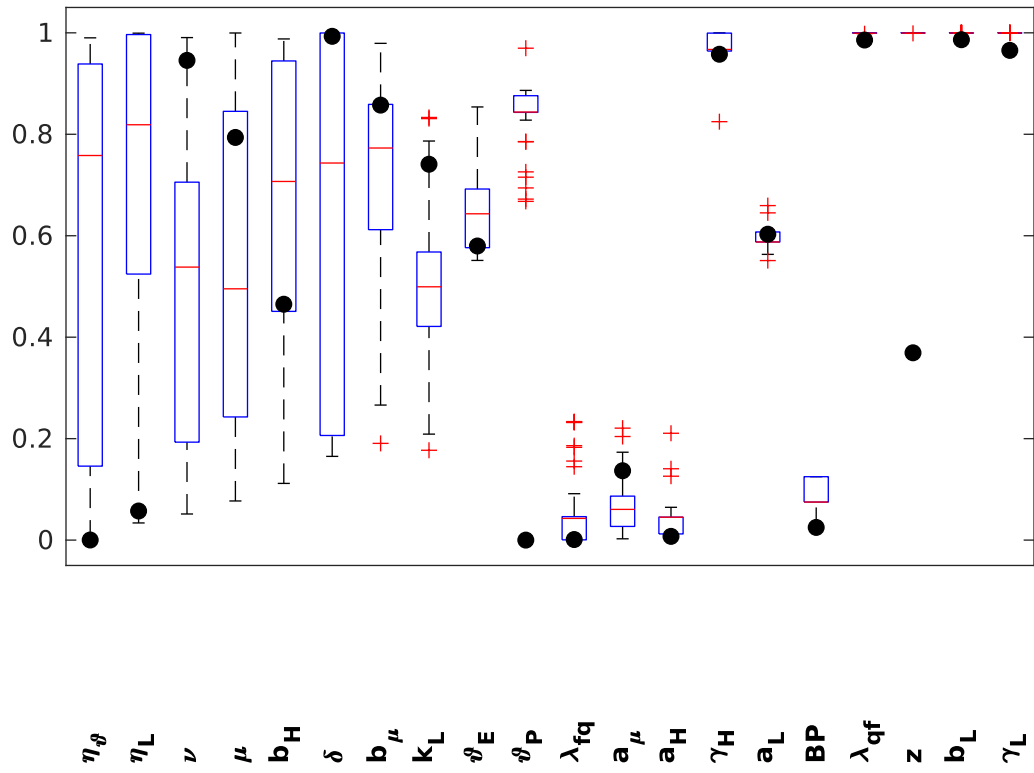
The number of estimations needed to perform the validation was2000.

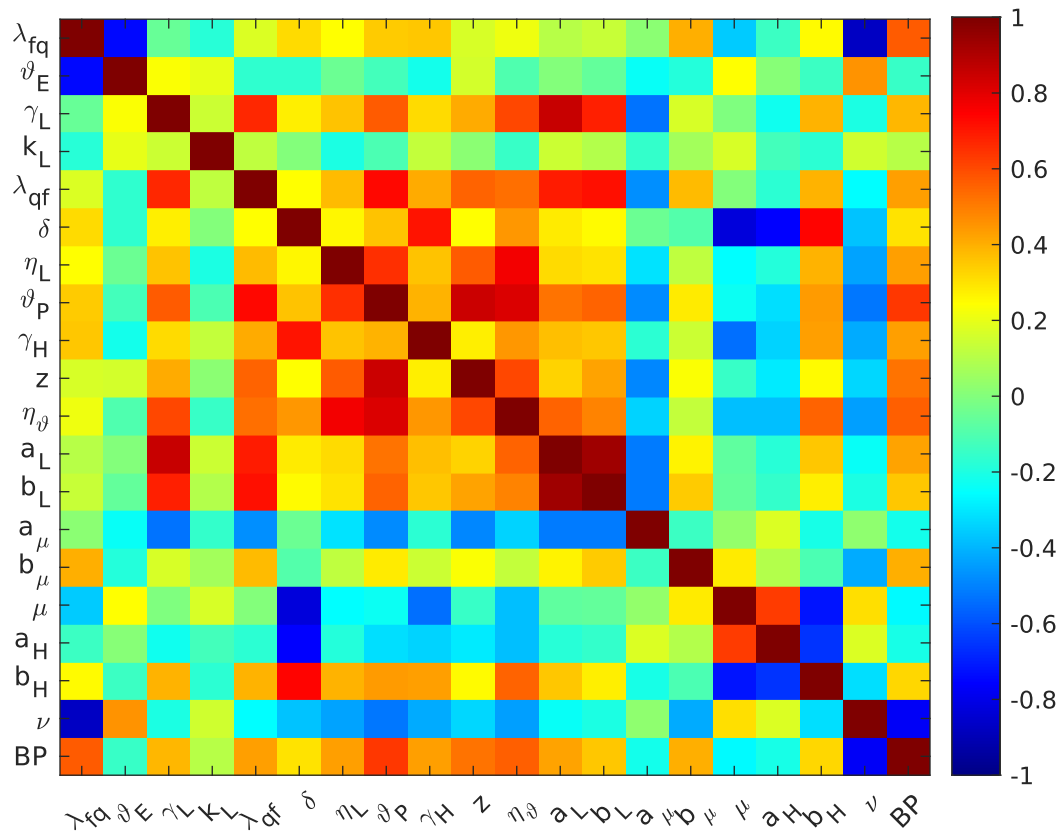
### 9.2. Estimated parameters with their intervals

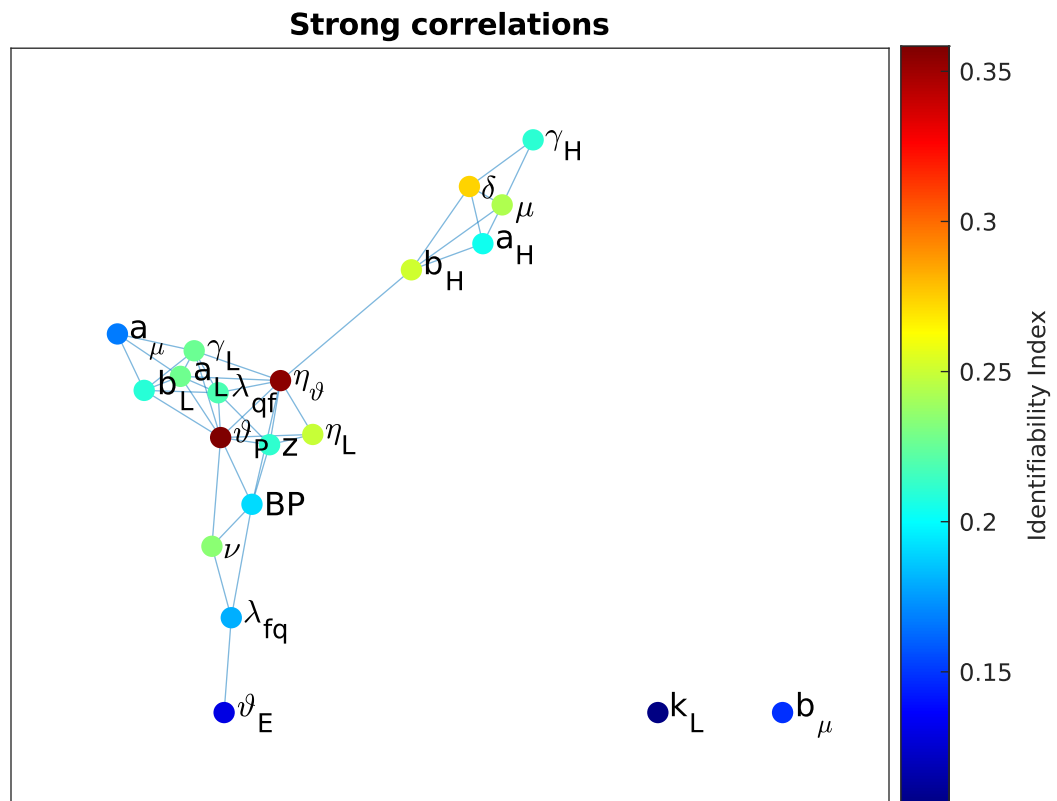
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0'	'0.0942'	'0.0463'	'0.0011'	'0.1799'
$\vartheta_E$	'0.591'	'0.6868'	'0.6389'	'0.5798'	'0.1305'
$\gamma_L$	'0.9237'	'1'	'0.9997'	'0.9654'	'0.2267'
$k_L$	'5.0376'	'5.9506'	'5.4941'	'7.6685'	'0.1059'
$\lambda_{qf}$	'0.9496'	'1'	'0.9994'	'0.9858'	'0.2187'
$\delta$	'0.0942'	'0.1289'	'0.1115'	'0.149'	'0.2742'
$\eta_L$	'0.7141'	'0.9228'	'0.8184'	'0.0573'	'0.2492'
$\vartheta_P$	'0.7339'	'0.9524'	'0.8432'	'0'	'0.3584'
$\gamma_H$	'0.8481'	'1'	'0.9641'	'0.9578'	'0.211'
$z$	'27.6704'	'30'	'29.9863'	'11.0768'	'0.212'
$\eta_{\vartheta}$	'0.6339'	'0.8824'	'0.7582'	'0.0002'	'0.3554'
$a_L$	'8.6854'	'9.77'	'9.2277'	'9.4419'	'0.228'
$b_L$	'13.9777'	'15'	'14.9954'	'14.8099'	'0.2104'
$a_{\mu}$	'1.2672'	'2.4332'	'1.8502'	'2.9144'	'0.1675'
$b_{\mu}$	'10.829'	'12.7908'	'11.8099'	'13.0047'	'0.1485'
$\mu$	'0.3952'	'0.5955'	'0.4954'	'0.7938'	'0.2437'
$a_H$	'1'	'3.1572'	'1.6337'	'1.103'	'0.2044'
$b_H$	'9.6707'	'12.1249'	'10.8978'	'7.5097'	'0.2516'
$\nu$	'226.1468'	'312.0275'	'269.0871'	'472.8437'	'0.2348'
BP	'399.2937'	'399.7063'	'399.5'	'398.5'	'0.1912'

### 9.3. Identifiability analysis

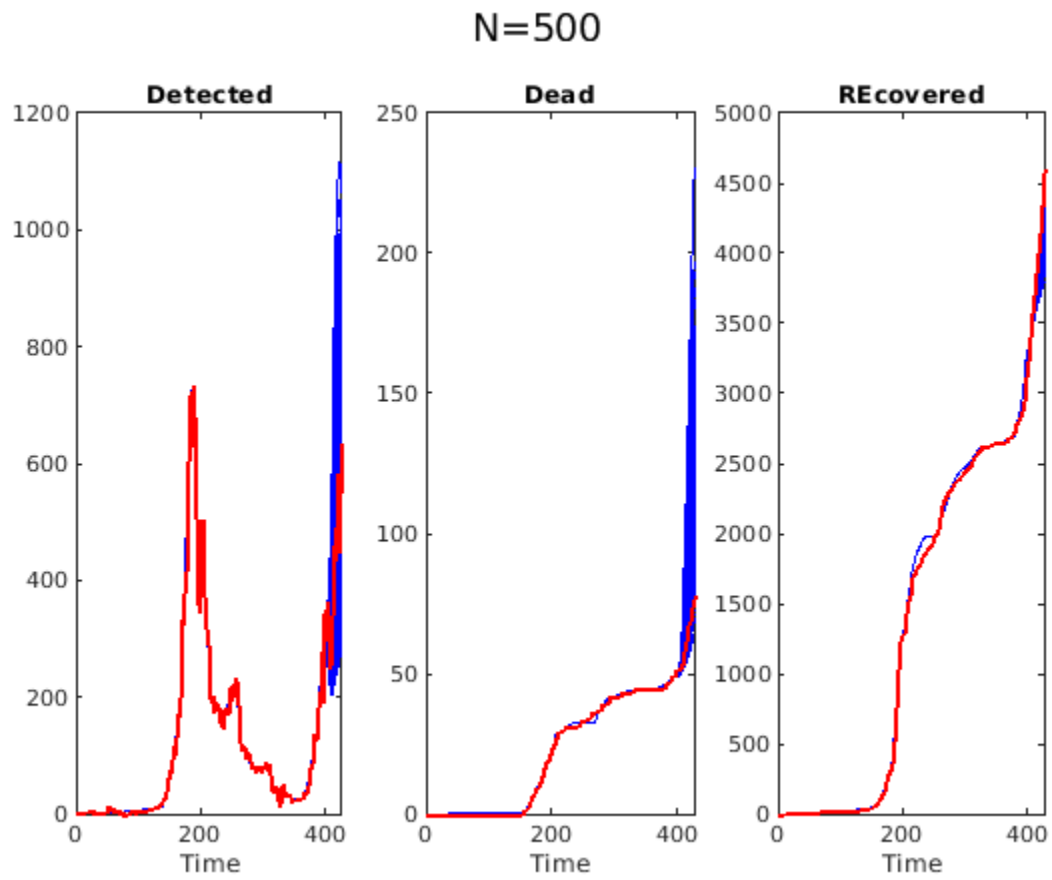








## 9.4. Uncertainty analysis



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## Chapter 10. Extension number10

### 10.1. Basic information

The extension to be validated consists of the time series from the data428 to the 449. The status of the validation is: COMPLETED.

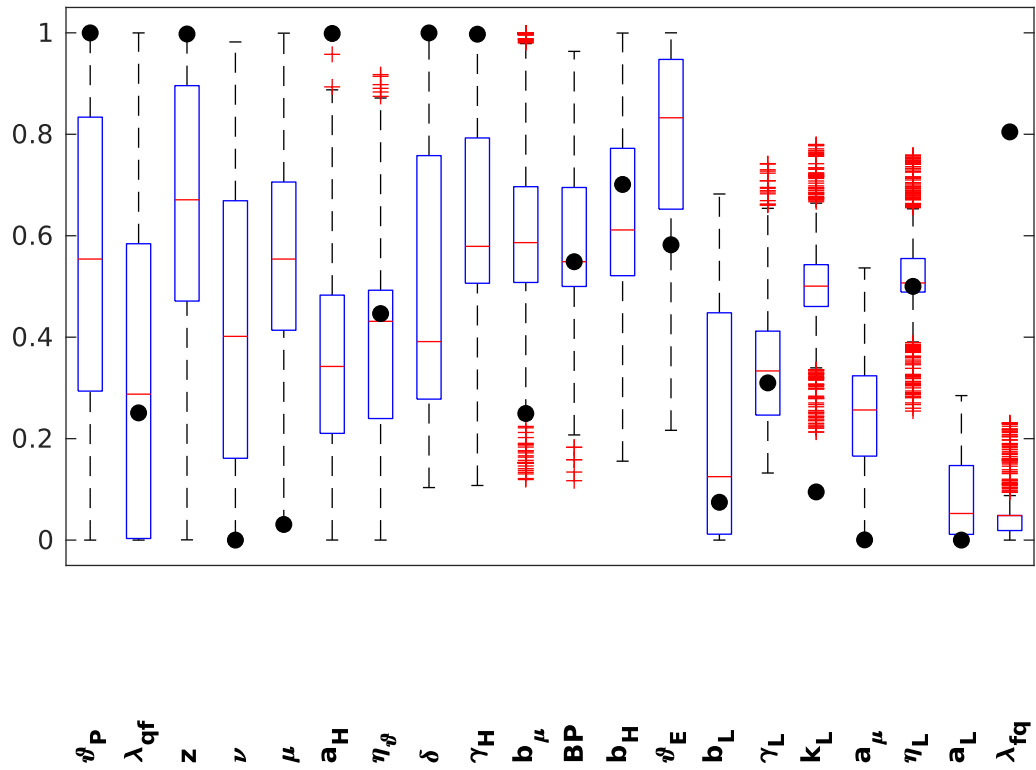
The number of estimations needed to perform the validation was1000.

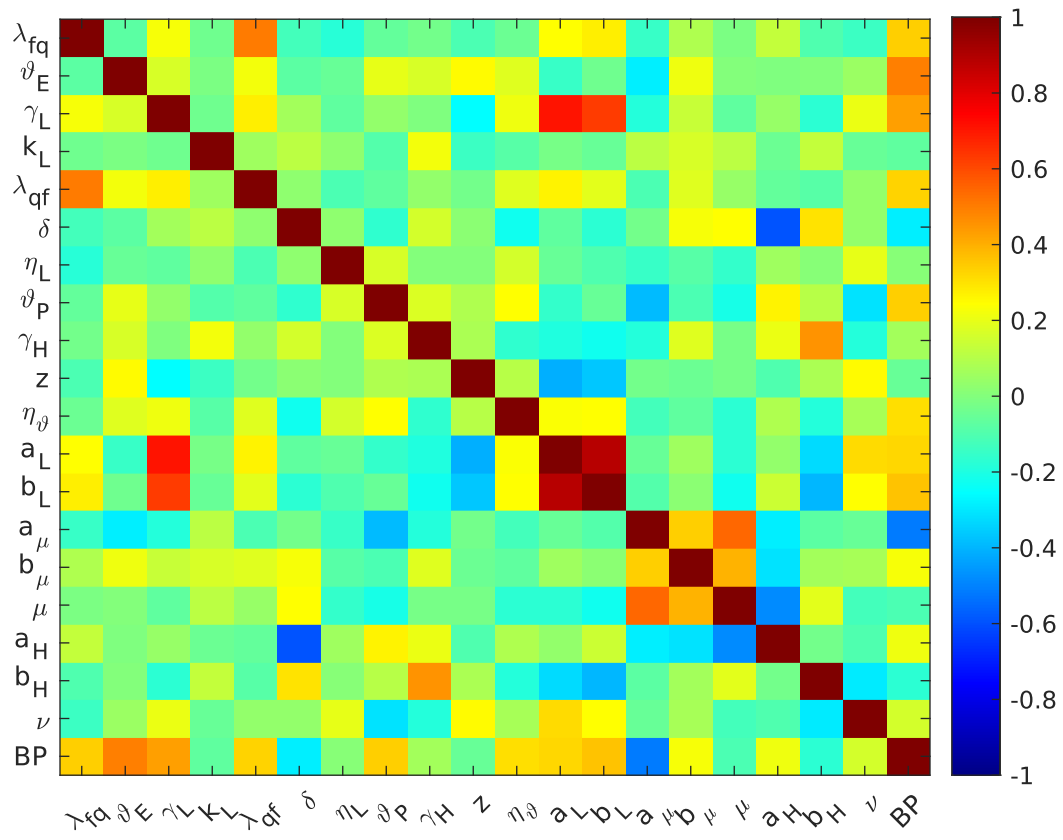
### 10.2. Estimated parameters with their intervals

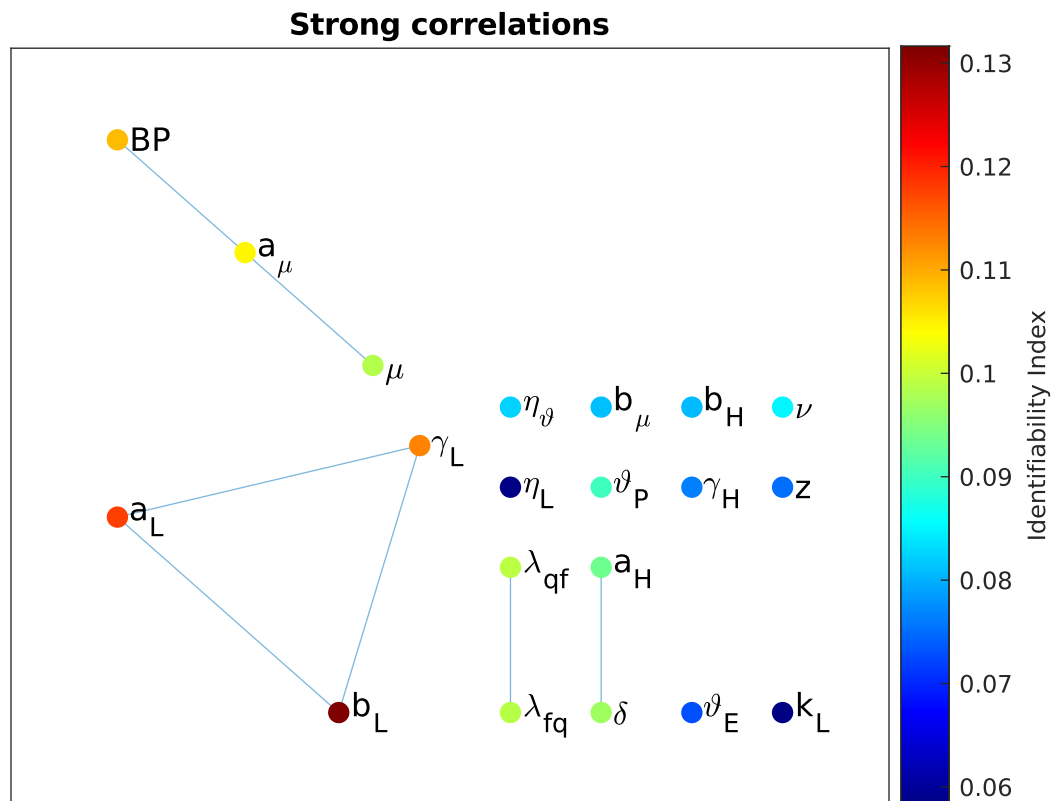
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0.0227'	'0.0743'	'0.0485'	'0.8047'	'0.0989'
\vartheta_E	'0.8174'	'0.8476'	'0.8325'	'0.5821'	'0.073'
\gamma_L	'0.3198'	'0.3475'	'0.3337'	'0.3099'	'0.1128'
k_L	'5.3831'	'5.6283'	'5.5057'	'1.8548'	'0.0583'
\lambda_{qf}	'0.2611'	'0.3143'	'0.2877'	'0.2508'	'0.0991'
\delta	'0.0553'	'0.0621'	'0.0587'	'0.15'	'0.0972'
\eta_L	'0.4931'	'0.5207'	'0.5069'	'0.5002'	'0.0587'
\vartheta_P	'0.5291'	'0.579'	'0.5541'	'0.9998'	'0.0902'
\gamma_H	'0.5621'	'0.596'	'0.579'	'0.9973'	'0.0765'
z	'19.519'	'20.7322'	'20.1256'	'29.931'	'0.0753'
\eta_{\vartheta}	'0.4124'	'0.4502'	'0.4313'	'0.4465'	'0.0826'
a_L	'1.6074'	'1.8677'	'1.7376'	'1.0002'	'0.1178'
b_L	'2.4386'	'3.0832'	'2.7609'	'2.0438'	'0.1316'
a_{\mu}	'4.4687'	'4.7147'	'4.5917'	'1.0063'	'0.1045'
b_{\mu}	'8.948'	'9.4711'	'9.2096'	'4.4941'	'0.0811'
\mu	'0.5339'	'0.5741'	'0.554'	'0.0309'	'0.0985'
a_H	'5.5718'	'6.0277'	'5.7997'	'14.982'	'0.0936'
b_H	'9.3355'	'9.7836'	'9.5595'	'10.8156'	'0.0807'
\nu	'188.8609'	'212.7448'	'200.8029'	'0.0178'	'0.0851'
BP	'420.0367'	'420.9633'	'420.5'	'420.4999'	'0.1089'

### 10.3. Identifiability analysis

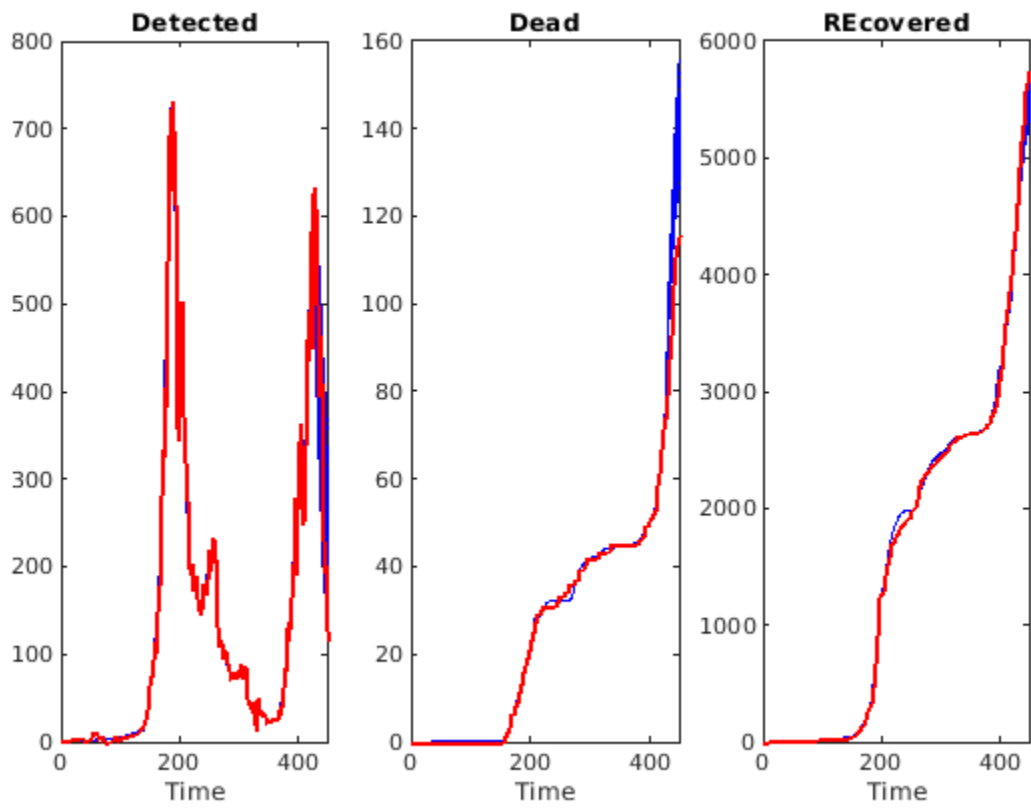






## 10.4. Uncertainty analysys

N=500



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## Chapter 11. Extension number11

### 11.1. Basic information

The extension to be validated consists of the time series from the data449 to the 461. The status of the validation is: COMPLETED.

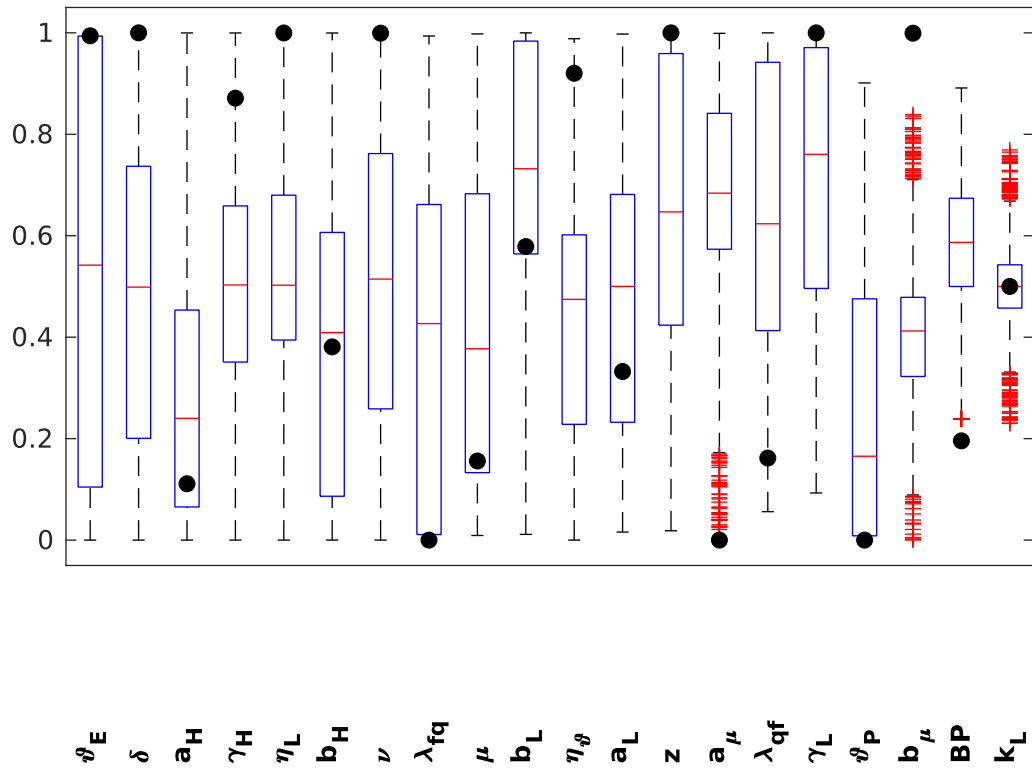
The number of estimations needed to perform the validation was1000.

### 11.2. Estimated parameters with their intervals

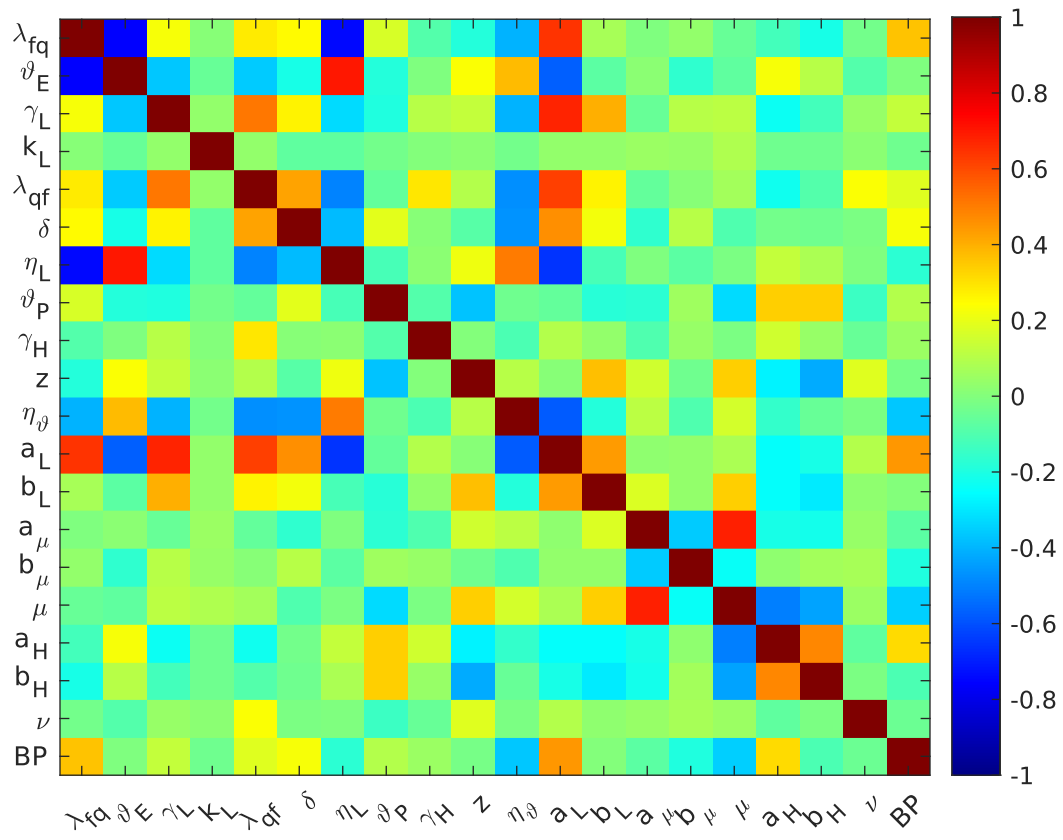
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

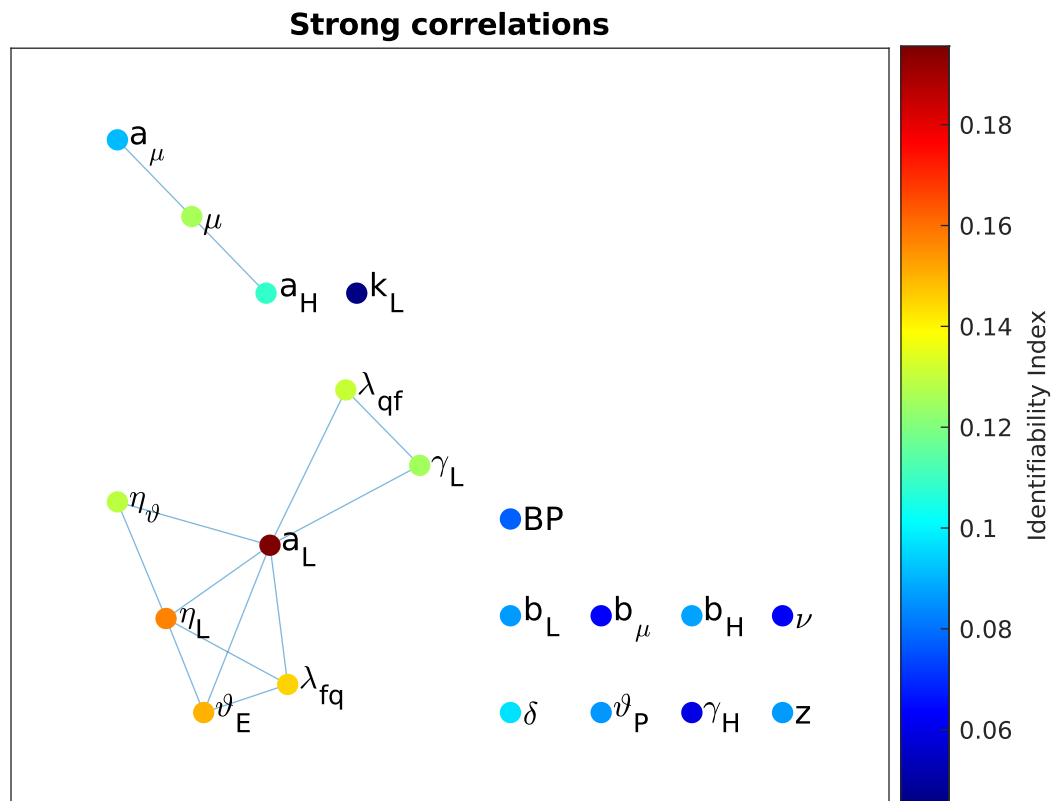
	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0.4017'	'0.452'	'0.4268'	'0'	'0.1455'
\vartheta_E	'0.5111'	'0.5731'	'0.5421'	'0.9941'	'0.1503'
\gamma_L	'0.7404'	'0.7807'	'0.7606'	'0.9999'	'0.1256'
k_L	'5.3987'	'5.6041'	'5.5014'	'5.5002'	'0.0452'
\lambda_{qf}	'0.6024'	'0.6448'	'0.6236'	'0.1618'	'0.1309'
\delta	'0.071'	'0.0787'	'0.0748'	'0.15'	'0.097'
\eta_L	'0.4803'	'0.5247'	'0.5025'	'0.9997'	'0.1572'
\vartheta_P	'0.1438'	'0.1873'	'0.1655'	'0'	'0.0858'
\gamma_H	'0.4848'	'0.521'	'0.5029'	'0.8712'	'0.0595'
z	'18.7797'	'20.0446'	'19.4121'	'29.9978'	'0.0868'
\eta_{\vartheta}	'0.4536'	'0.4958'	'0.4747'	'0.9203'	'0.1288'
a_L	'7.7108'	'8.2956'	'8.0032'	'5.6518'	'0.1956'
b_L	'11.0039'	'11.4945'	'11.2492'	'9.1015'	'0.0866'
a_{\mu}	'10.2872'	'10.8647'	'10.576'	'1.0009'	'0.0913'
b_{\mu}	'6.556'	'6.99'	'6.773'	'14.99'	'0.0629'
\mu	'0.3519'	'0.4027'	'0.3773'	'0.1559'	'0.1257'
a_H	'4.0672'	'4.6552'	'4.3612'	'2.5543'	'0.1088'
b_H	'6.4263'	'7.0271'	'6.7267'	'6.3317'	'0.0881'
\nu	'246.0921'	'268.434'	'257.2631'	'499.6749'	'0.0628'
BP	'441.2066'	'441.7934'	'441.5'	'432.5'	'0.0776'

### 11.3. Identifiability analysis



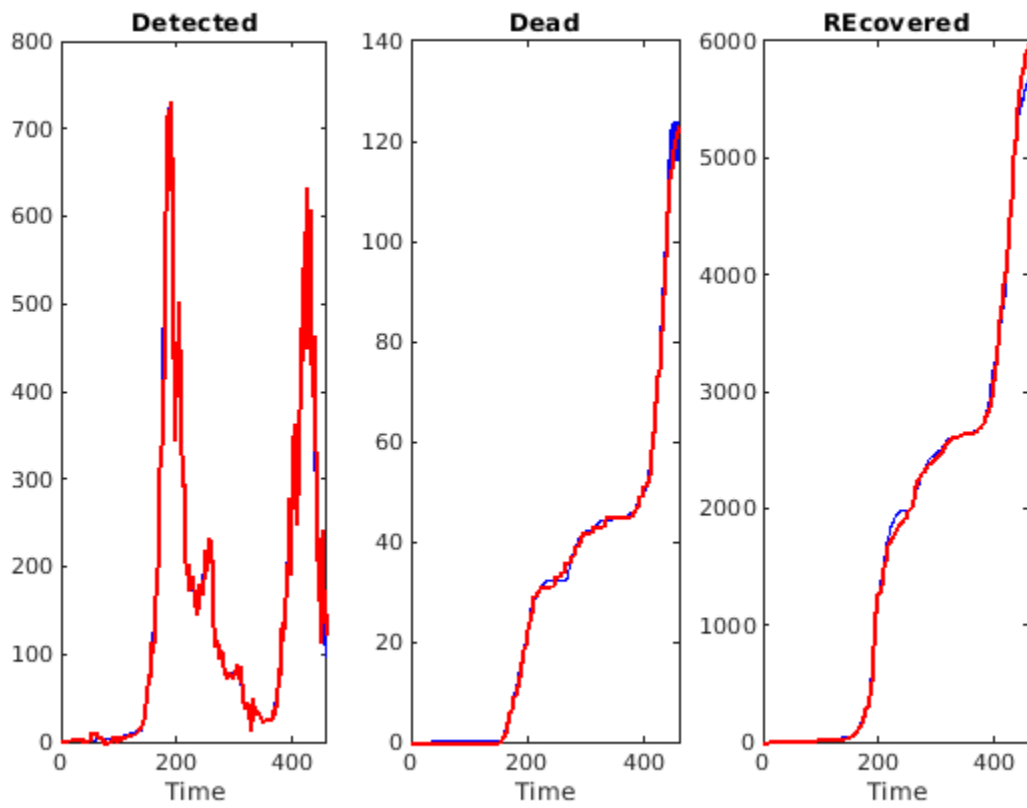






## 11.4. Uncertainty analysys

N=500



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## Chapter 12. Extension number12

### 12.1. Basic information

The extension to be validated consists of the time series from the data461 to the 470. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

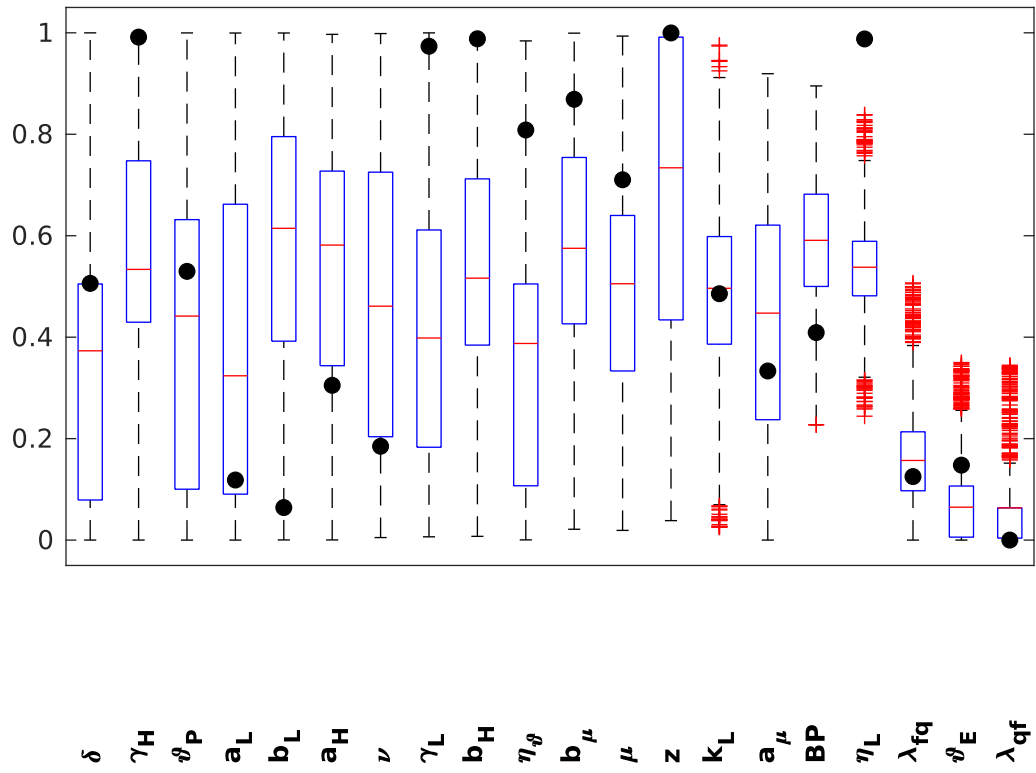
### 12.2. Estimated parameters with their intervals

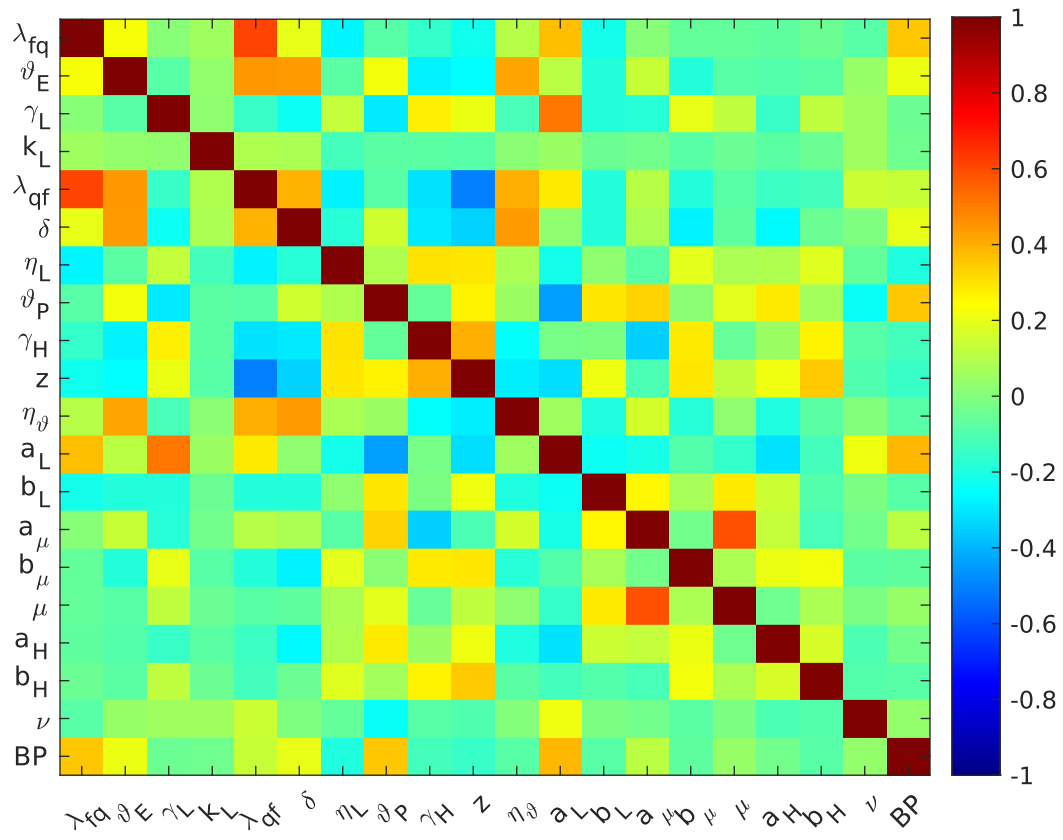
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

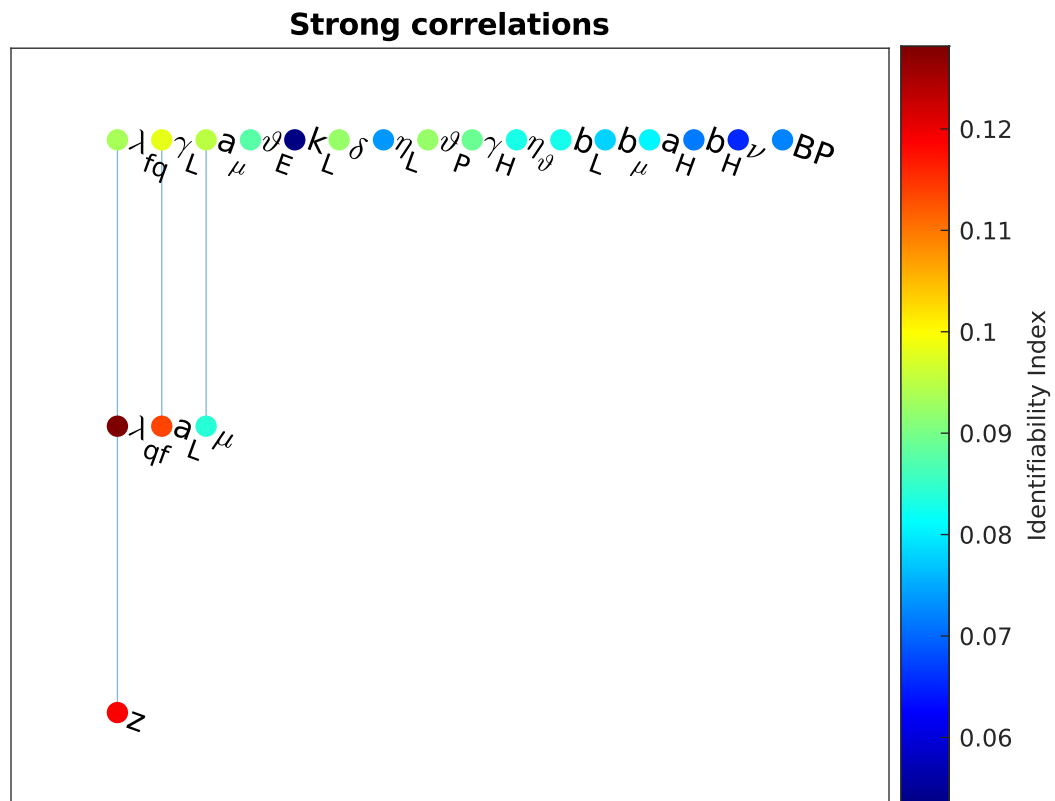
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0.1007'	'0.1584'	'0.157'	'0.1252'	'0.0935'
$\vartheta_E$	'0'	'0.3325'	'0.0651'	'0.1478'	'0.0878'
$\gamma_L$	'0.3837'	'0.9753'	'0.3984'	'0.9735'	'0.0981'
$k_L$	'1'	'10'	'5.4676'	'5.3711'	'0.0534'
$\lambda_{qf}$	'0'	'0.0001'	'0.0635'	'0'	'0.1282'
$\delta$	'0.0058'	'0.1427'	'0.056'	'0.0759'	'0.0925'
$\eta_L$	'0'	'1'	'0.5379'	'0.9879'	'0.0738'
$\vartheta_P$	'0.1449'	'0.9285'	'0.4416'	'0.5297'	'0.0923'
$\gamma_H$	'0'	'1'	'0.5336'	'0.9915'	'0.0892'
$z$	'18.9487'	'30'	'22.0165'	'29.9919'	'0.1188'
$\eta_{\vartheta}$	'0'	'1'	'0.3876'	'0.8084'	'0.0829'
$a_L$	'2.6107'	'3.493'	'5.5347'	'2.6585'	'0.1136'
$b_L$	'1.1372'	'2.324'	'9.6042'	'1.898'	'0.0828'
$a_{\mu}$	'1'	'15'	'7.2636'	'5.667'	'0.0949'
$b_{\mu}$	'1'	'15'	'9.0529'	'13.1648'	'0.0781'
$\mu$	'0'	'1'	'0.5053'	'0.7103'	'0.0842'
$a_H$	'1.35'	'15'	'9.1413'	'5.2719'	'0.0807'
$b_H$	'1'	'15'	'8.2286'	'14.8348'	'0.0717'
$\nu$	'62.1304'	'207.055'	'230.5397'	'92.4793'	'0.0655'
BP	'452.7498'	'457.589'	'455.5'	'453.5'	'0.0724'

### 12.3. Identifiability analysis

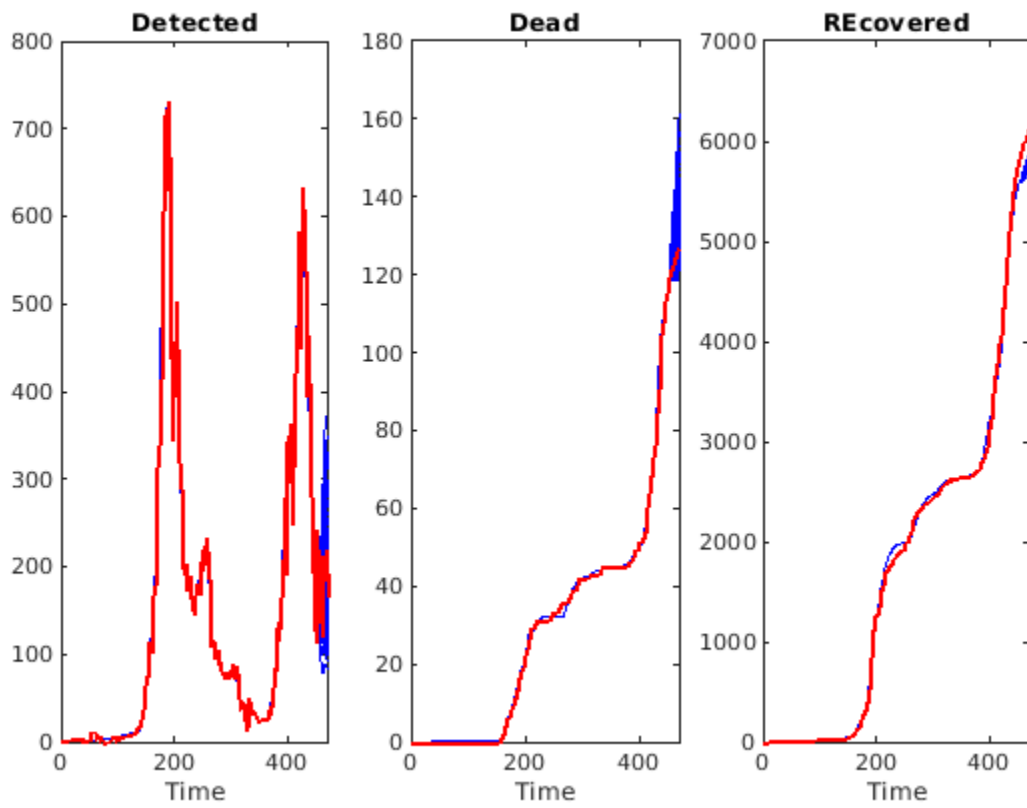






## 12.4. Uncertainty analysis

N=500





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## Chapter 13. Extension number13

### 13.1. Basic information

The extension to be validated consists of the time series from the data470 to the 477. The status of the validation is: COMPLETED.

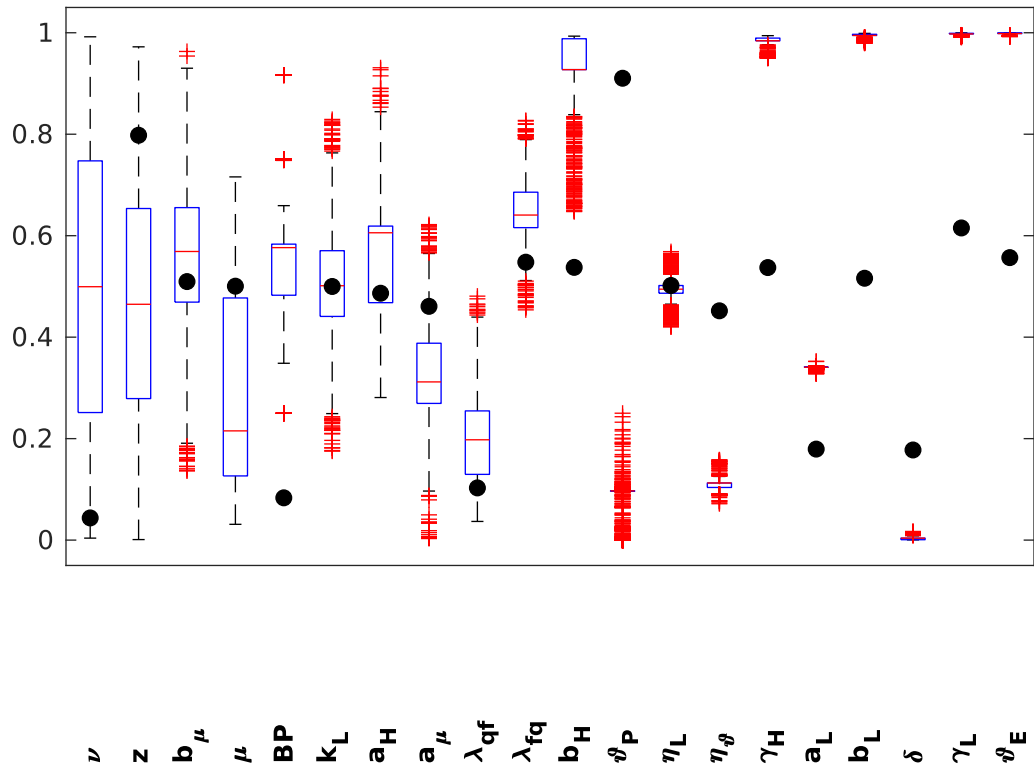
The number of estimations needed to perform the validation was1000.

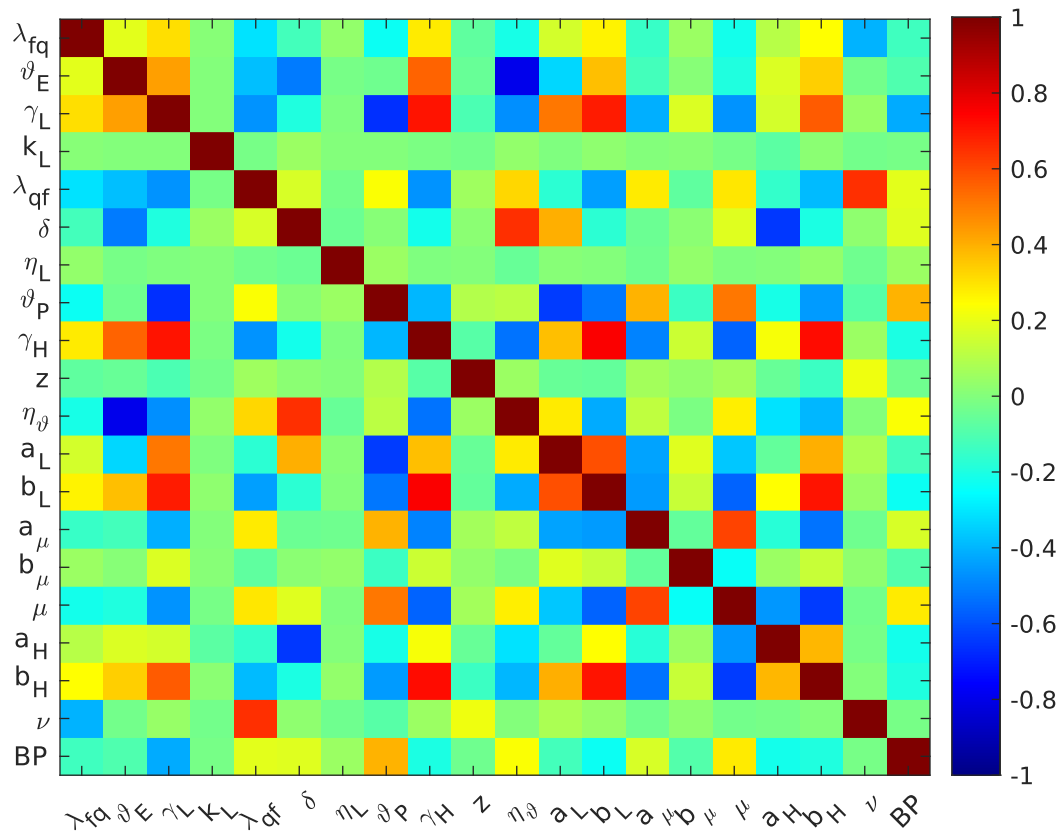
### 13.2. Estimated parameters with their intervals

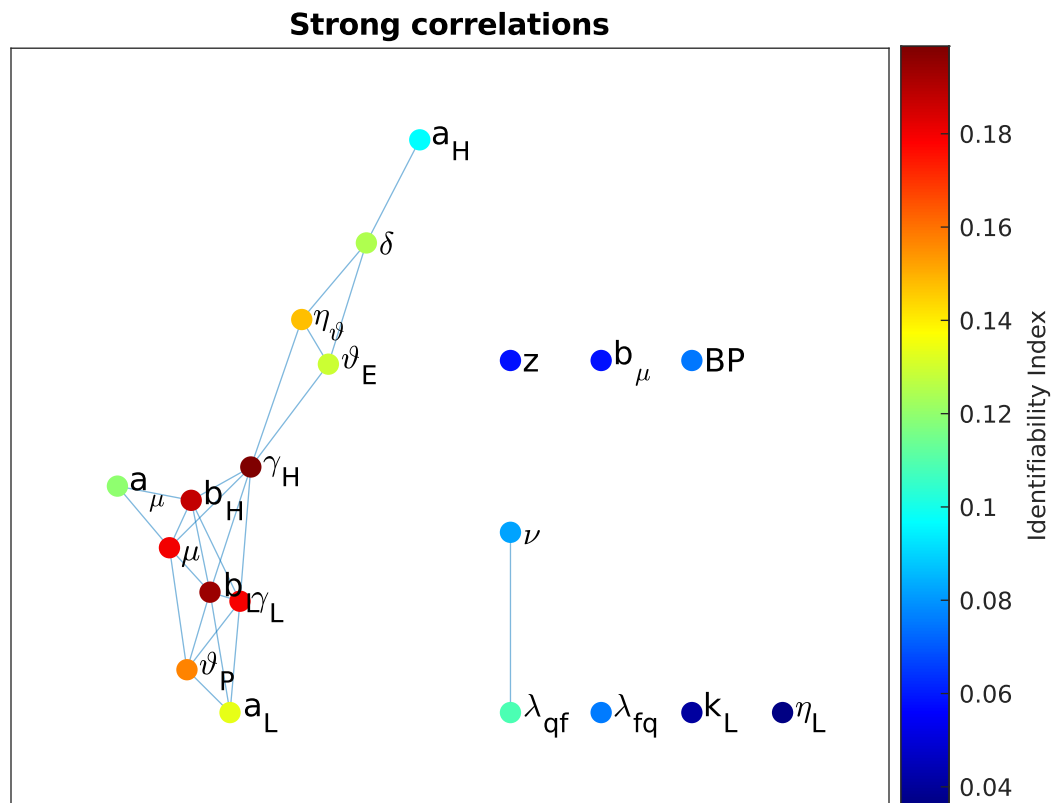
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0.6336'	'0.6478'	'0.6407'	'0.5478'	'0.0758'
$\vartheta_E$	'0.9821'	'1'	'0.9985'	'0.5568'	'0.1292'
$\gamma_L$	'0.9862'	'1'	'0.9976'	'0.6152'	'0.1792'
$k_L$	'5.4073'	'5.6172'	'5.5122'	'5.499'	'0.0413'
$\lambda_{qf}$	'0.19'	'0.2055'	'0.1977'	'0.1029'	'0.1086'
$\delta$	'0'	'0.0042'	'0.0006'	'0.0266'	'0.1246'
$\eta_L$	'0.4888'	'0.5004'	'0.4946'	'0.5019'	'0.0363'
$\vartheta_P$	'0.0796'	'0.1145'	'0.097'	'0.9103'	'0.157'
$\gamma_H$	'0.97'	'0.9984'	'0.9842'	'0.5372'	'0.1988'
$z$	'13.4125'	'14.4759'	'13.9442'	'23.9397'	'0.0587'
$\eta_{\vartheta}$	'0.093'	'0.1321'	'0.1126'	'0.4519'	'0.1479'
$a_L$	'5.6714'	'5.8694'	'5.7704'	'3.5111'	'0.134'
$b_L$	'14.7002'	'15'	'14.9258'	'8.2254'	'0.1942'
$a_{\mu}$	'5.1879'	'5.5423'	'5.3651'	'7.4505'	'0.1199'
$b_{\mu}$	'8.7763'	'9.152'	'8.9642'	'8.1337'	'0.0586'
$\mu$	'0.1977'	'0.2329'	'0.2153'	'0.5005'	'0.1798'
$a_H$	'9.2984'	'9.6625'	'9.4805'	'7.812'	'0.097'
$b_H$	'13.718'	'14.2473'	'13.9826'	'8.5258'	'0.1876'
$\nu$	'238.6647'	'260.7642'	'249.7145'	'21.8539'	'0.0824'
BP	'464.3999'	'464.5177'	'464.4588'	'461.5'	'0.0755'

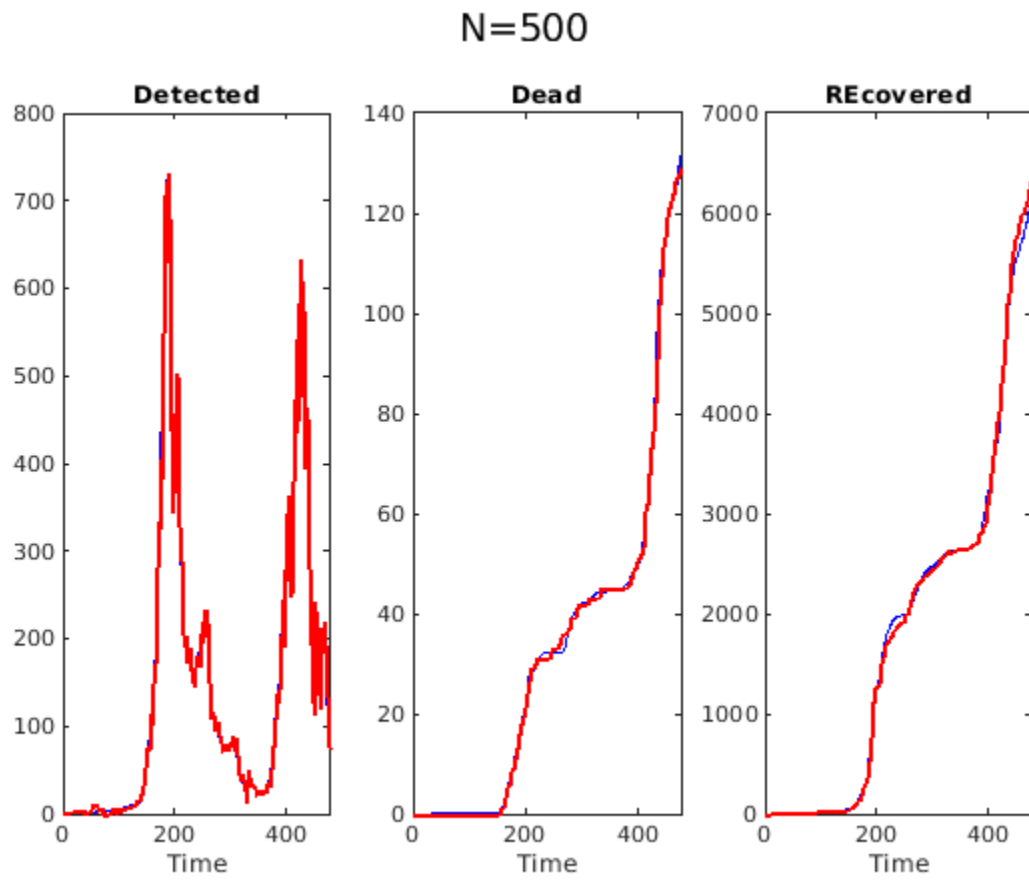
### 13.3. Identifiability analysis







### 13.4. Uncertainty analysys



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## Chapter 14. Extension number14

### 14.1. Basic information

The extension to be validated consists of the time series from the data477 to the 485. The status of the validation is: COMPLETED.

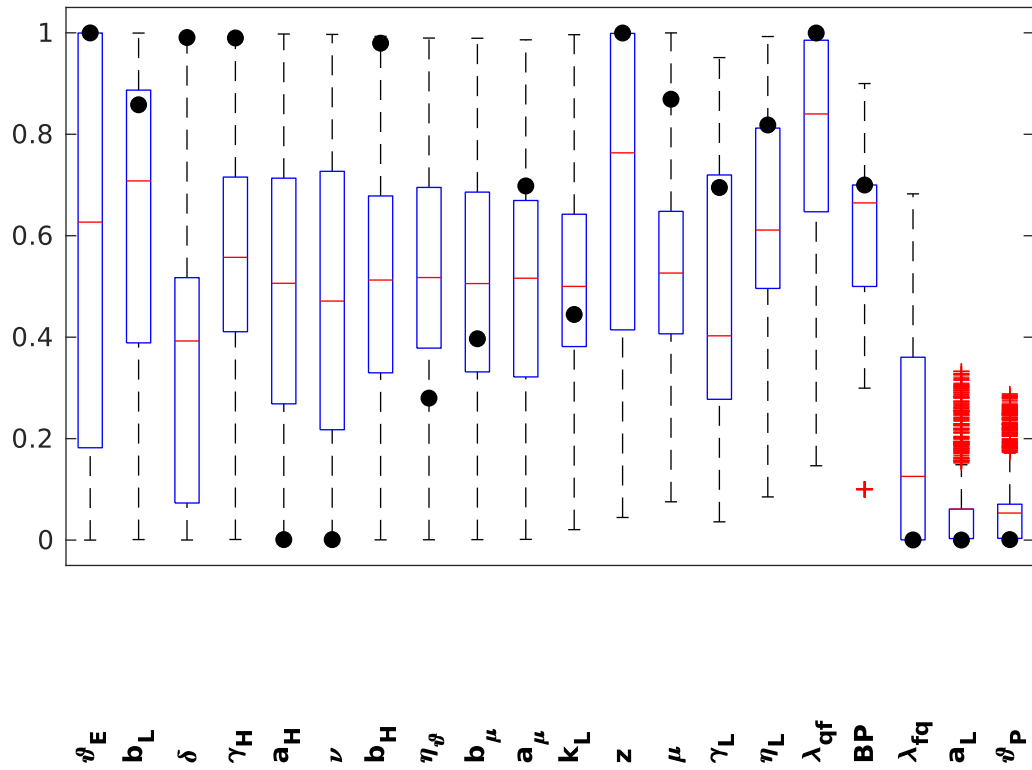
The number of estimations needed to perform the validation was1000.

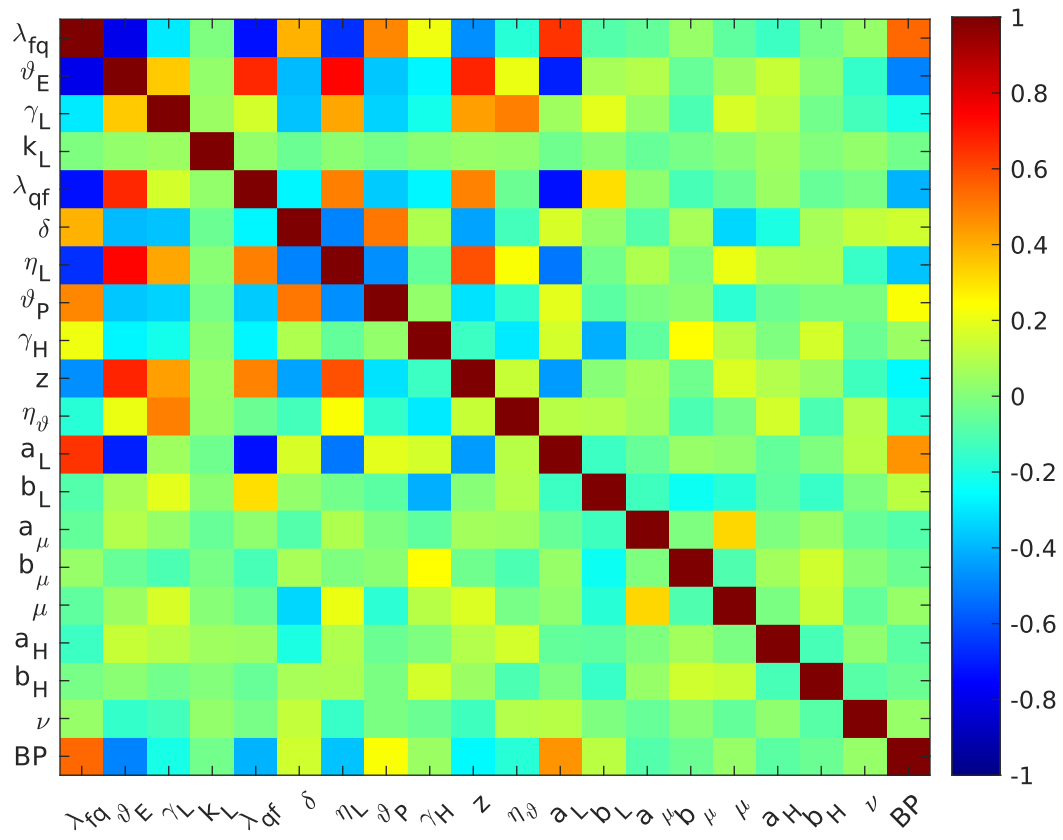
### 14.2. Estimated parameters with their intervals

It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

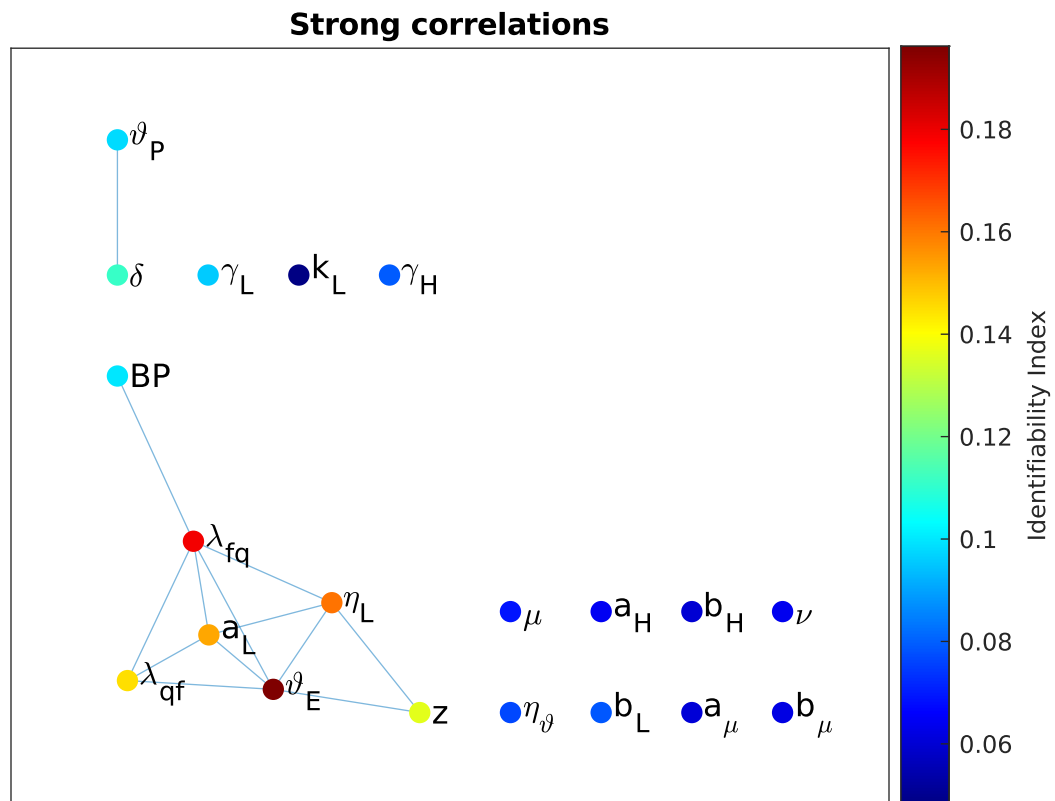
	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0.1071'	'0.1441'	'0.1256'	'0.0003'	'0.1793'
\vartheta_E	'0.5962'	'0.6575'	'0.6269'	'0.9998'	'0.1962'
\gamma_L	'0.3837'	'0.4217'	'0.4027'	'0.6951'	'0.096'
k_L	'5.3557'	'5.6459'	'5.5008'	'5.0031'	'0.0482'
\lambda_{qf}	'0.8227'	'0.8562'	'0.8395'	'0.9996'	'0.145'
\delta	'0.056'	'0.0618'	'0.0589'	'0.1486'	'0.1116'
\eta_L	'0.5971'	'0.6254'	'0.6112'	'0.8183'	'0.1607'
\vartheta_P	'0.0401'	'0.0667'	'0.0534'	'0.001'	'0.0984'
\gamma_H	'0.5379'	'0.5769'	'0.5574'	'0.9898'	'0.0799'
z	'22.1845'	'23.62'	'22.9023'	'29.9876'	'0.1365'
\eta_{\vartheta}	'0.5008'	'0.5343'	'0.5176'	'0.2799'	'0.077'
a_L	'1.5684'	'2.1465'	'1.8574'	'1.002'	'0.1534'
b_L	'10.566'	'11.2596'	'10.9128'	'13.014'	'0.079'
a_{\mu}	'7.968'	'8.4873'	'8.2277'	'10.7741'	'0.0605'
b_{\mu}	'7.8183'	'8.3422'	'8.0803'	'6.5565'	'0.0621'
\mu	'0.5099'	'0.5429'	'0.5264'	'0.8691'	'0.0692'
a_H	'7.7953'	'8.3802'	'8.0878'	'1.014'	'0.0647'
b_H	'7.917'	'8.4374'	'8.1772'	'14.714'	'0.06'
\nu	'224.1508'	'247.0268'	'235.5888'	'0.4812'	'0.064'
BP	'473.2498'	'473.3972'	'473.3235'	'473.4999'	'0.1001'

## 14.3. Identifiability analysis



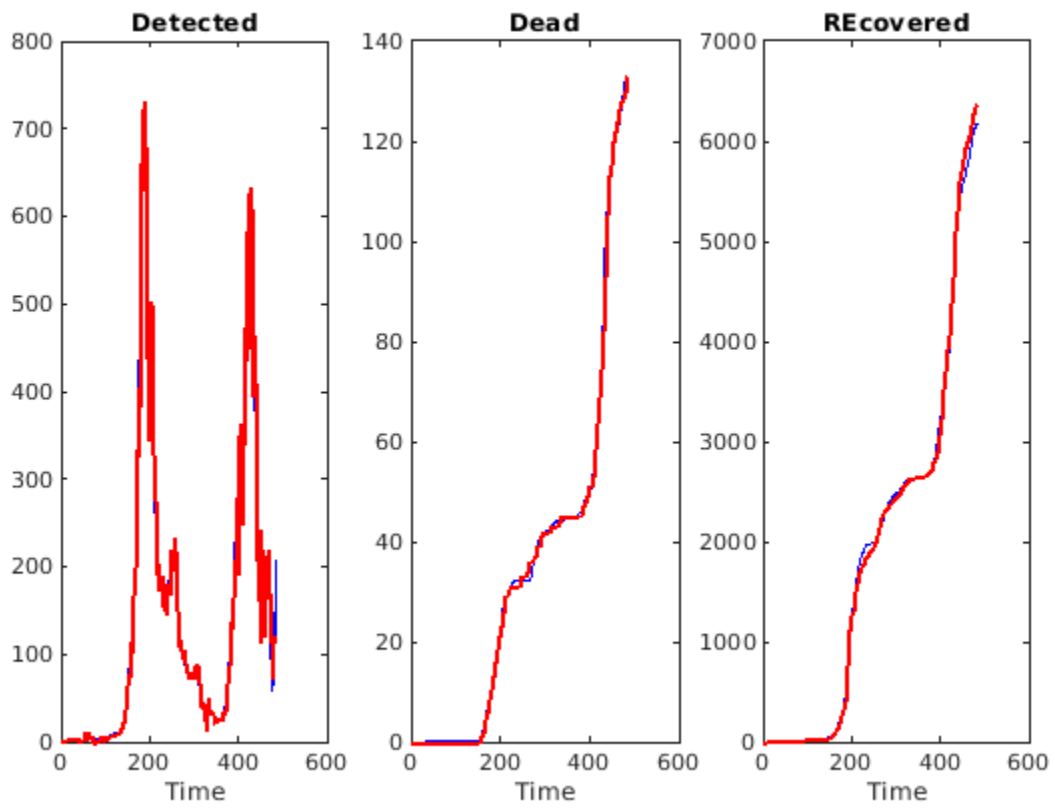






## 14.4. Uncertainty analysys

N=500



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## Chapter 15. Extension number15

### 15.1. Basic information

The extension to be validated consists of the time series from the data485 to the 492. The status of the validation is: COMPLETED.

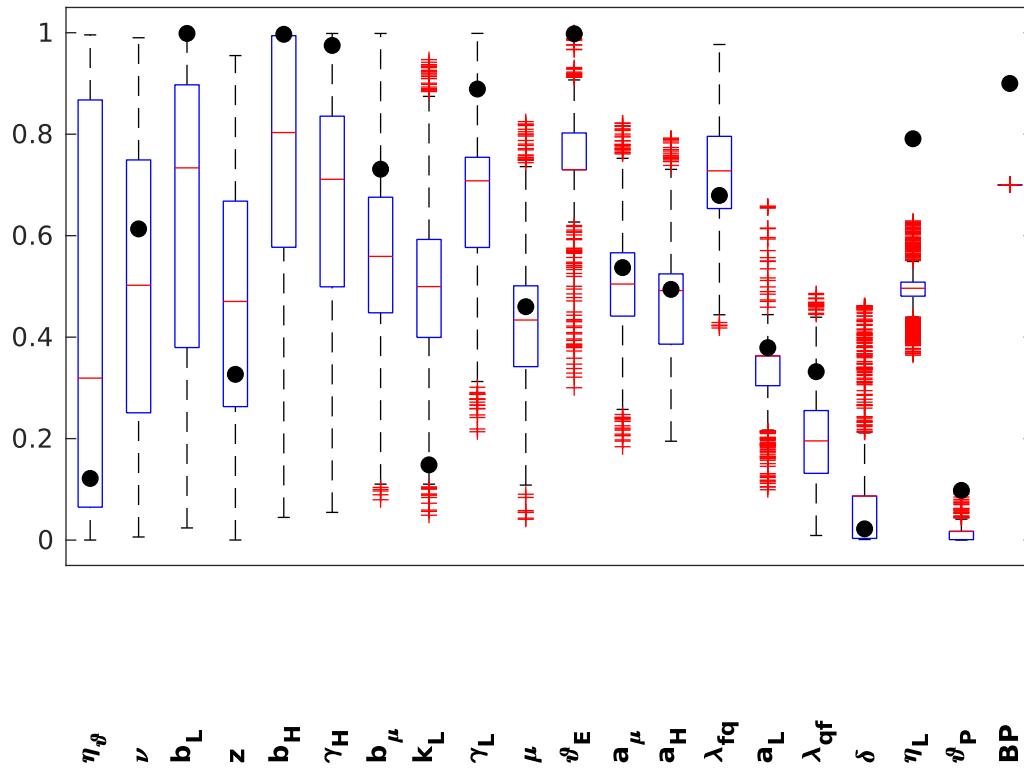
The number of estimations needed to perform the validation was1000.

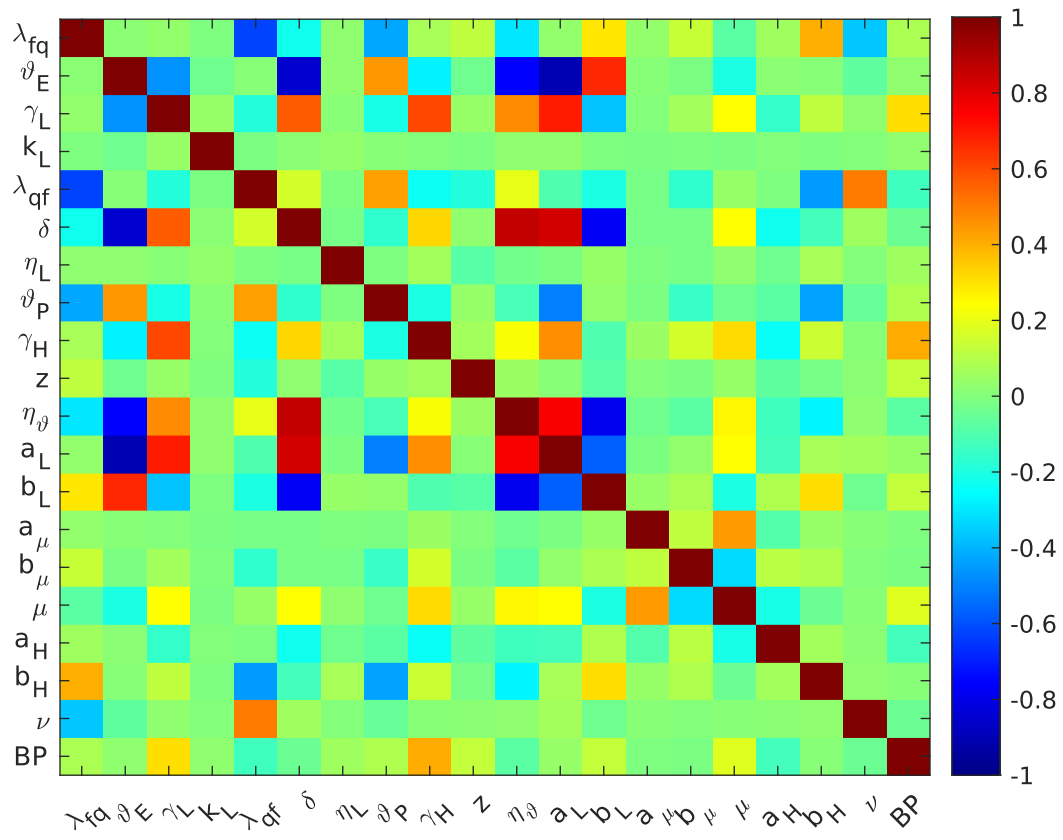
### 15.2. Estimated parameters with their intervals

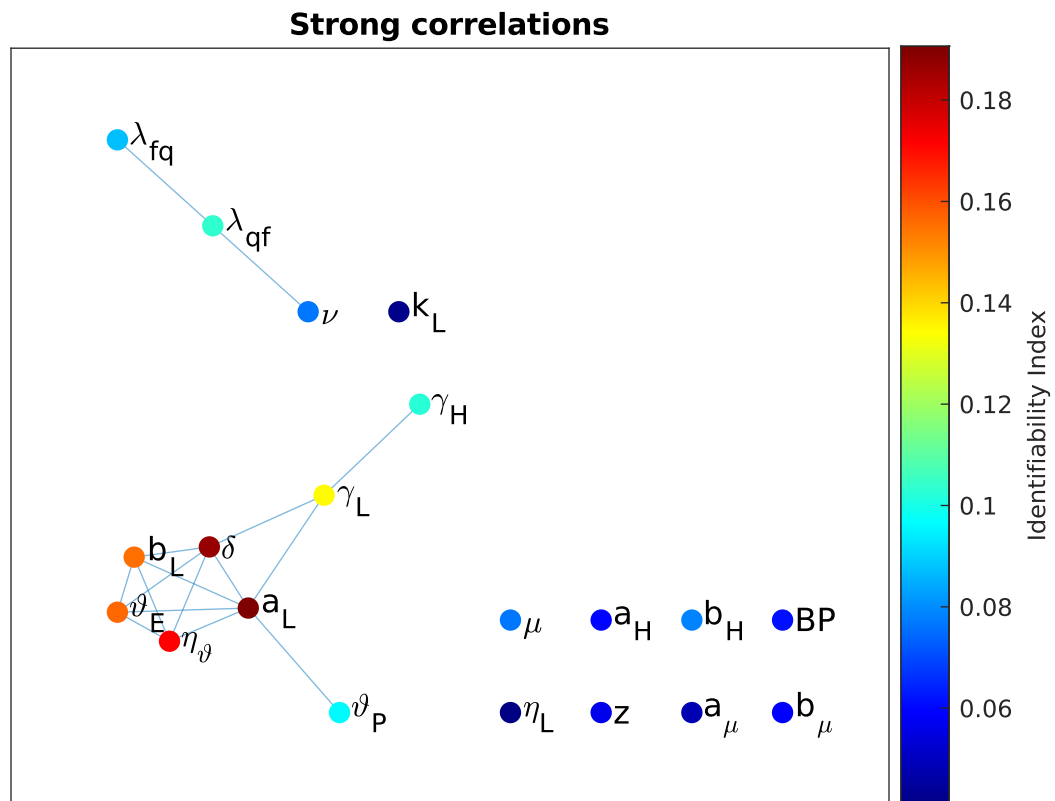
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0.7194'	'0.7361'	'0.7278'	'0.6793'	'0.0874'
\vartheta_E	'0.7088'	'0.7508'	'0.7298'	'0.9979'	'0.1565'
\gamma_L	'0.6937'	'0.7223'	'0.708'	'0.889'	'0.1346'
k_L	'5.3718'	'5.6214'	'5.4966'	'2.3347'	'0.0425'
\lambda_{qf}	'0.187'	'0.2041'	'0.1955'	'0.3319'	'0.1039'
\delta	'0.0085'	'0.0176'	'0.013'	'0.0033'	'0.1869'
\eta_L	'0.4876'	'0.5051'	'0.4963'	'0.791'	'0.0411'
\vartheta_P	'0.0015'	'0.0332'	'0.0173'	'0.098'	'0.0964'
\gamma_H	'0.6954'	'0.7265'	'0.711'	'0.975'	'0.1026'
z	'13.5621'	'14.6592'	'14.1107'	'9.8005'	'0.0563'
\eta_{\vartheta}	'0.2908'	'0.3477'	'0.3193'	'0.1216'	'0.1717'
a_L	'5.7757'	'6.391'	'6.0833'	'6.3099'	'0.1906'
b_L	'10.9862'	'11.5557'	'11.271'	'14.9805'	'0.1553'
a_{\mu}	'7.9071'	'8.2239'	'8.0655'	'8.5189'	'0.0482'
b_{\mu}	'8.626'	'9.0303'	'8.8281'	'11.2346'	'0.0595'
\mu	'0.4212'	'0.4464'	'0.4338'	'0.46'	'0.0772'
a_H	'7.7151'	'8.0558'	'7.8855'	'7.918'	'0.0602'
b_H	'11.9671'	'12.5238'	'12.2455'	'14.9562'	'0.0788'
\nu	'239.9583'	'262.3228'	'251.1406'	'306.6873'	'0.0769'
BP	'480.4379'	'480.5621'	'480.5'	'481.5'	'0.0615'

### 15.3. Identifiability analysis

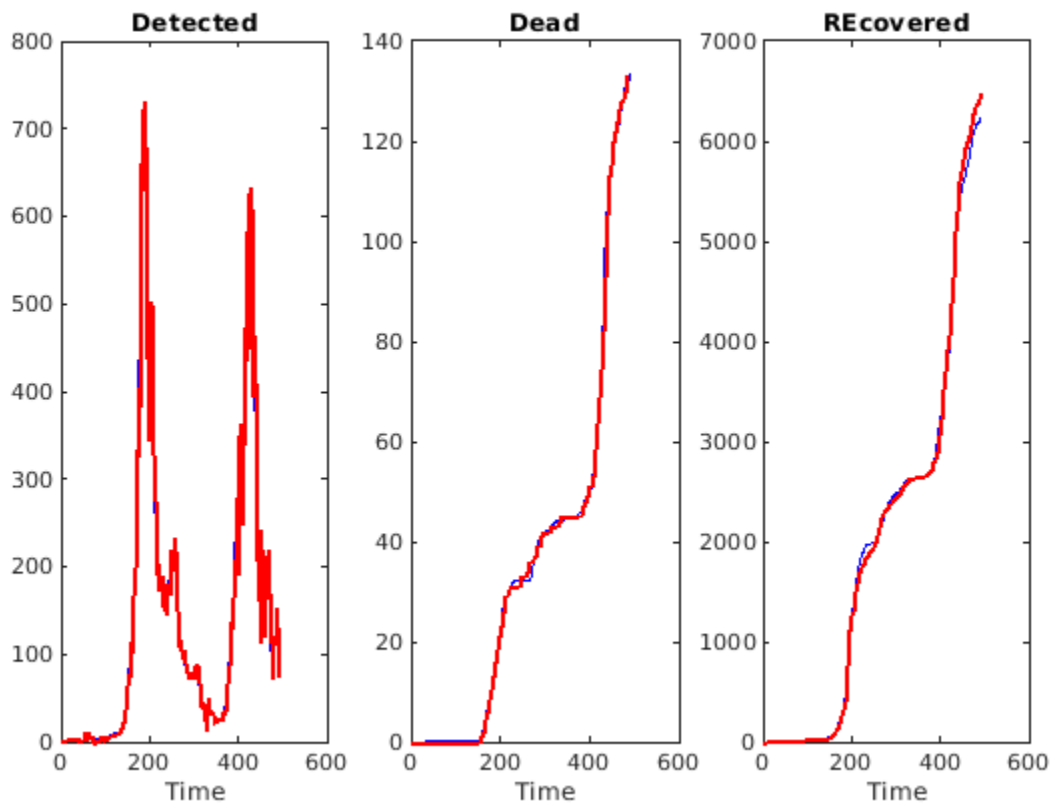






## 15.4. Uncertainty analysis

N=500



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## Chapter 16. Extension number16

### 16.1. Basic information

The extension to be validated consists of the time series from the data492 to the 506. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

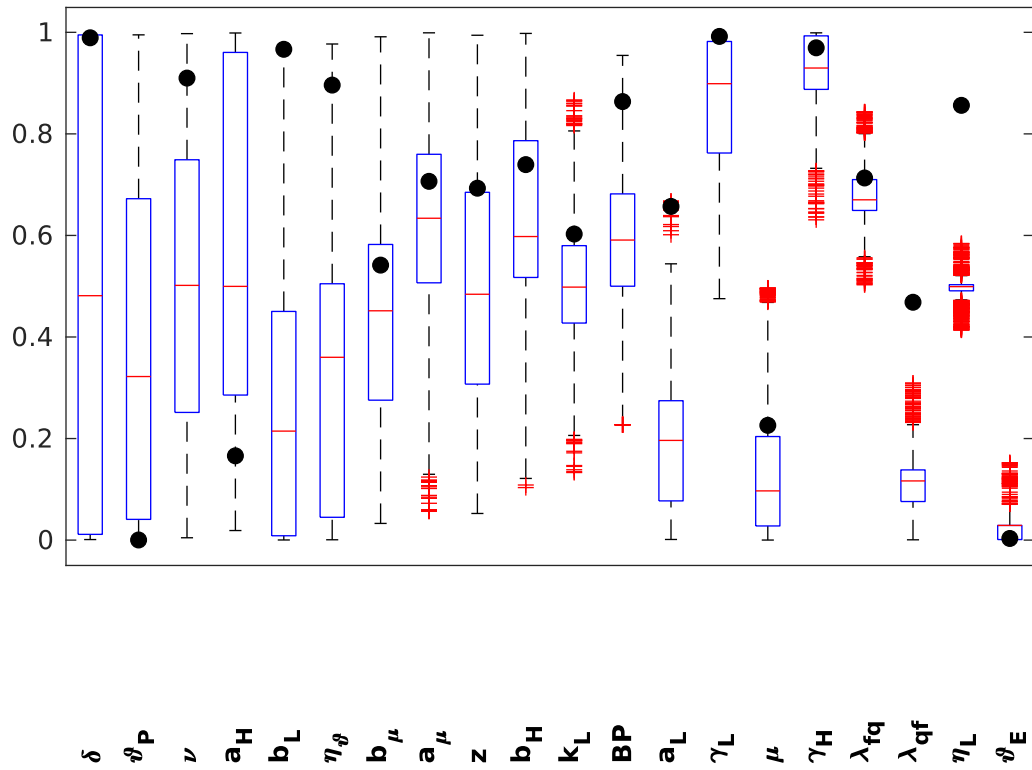
### 16.2. Estimated parameters with their intervals

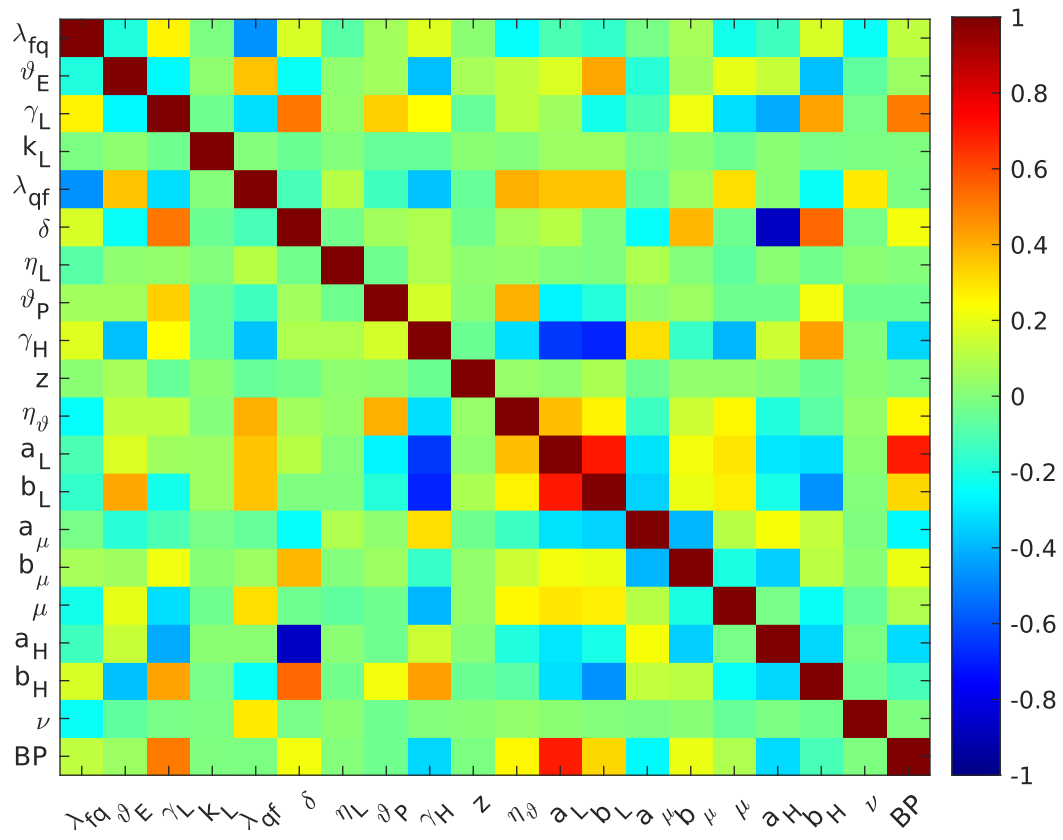
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

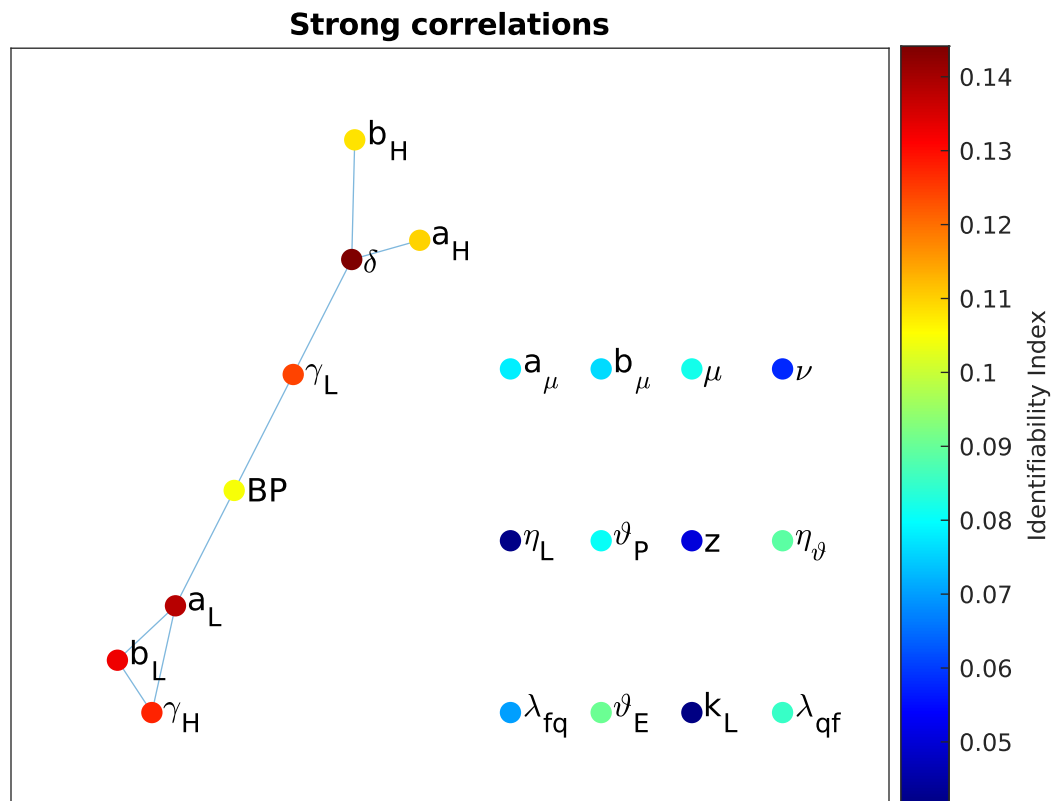
	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0.6615'	'0.6788'	'0.6702'	'0.7132'	'0.07'
$\vartheta_E$	'0.0059'	'0.0519'	'0.0289'	'0.0032'	'0.0906'
$\gamma_L$	'0.8802'	'0.9175'	'0.8988'	'0.992'	'0.1243'
$k_L$	'5.3866'	'5.5817'	'5.4841'	'6.4247'	'0.0416'
$\lambda_{qf}$	'0.1062'	'0.1269'	'0.1165'	'0.4684'	'0.0854'
$\delta$	'0.067'	'0.0774'	'0.0722'	'0.1484'	'0.1441'
$\eta_L$	'0.4905'	'0.5078'	'0.4992'	'0.8562'	'0.0422'
$\vartheta_P$	'0.2941'	'0.3502'	'0.3221'	'0.0002'	'0.0808'
$\gamma_H$	'0.9148'	'0.9446'	'0.9297'	'0.9695'	'0.1276'
$z$	'14.0003'	'15.0498'	'14.525'	'20.7908'	'0.0507'
$\eta_{\vartheta}$	'0.3396'	'0.3804'	'0.36'	'0.8961'	'0.0891'
$a_L$	'3.566'	'3.931'	'3.7485'	'10.2007'	'0.1382'
$b_L$	'3.7079'	'4.3022'	'4.005'	'14.5322'	'0.1327'
$a_{\mu}$	'9.6484'	'10.0997'	'9.874'	'10.8915'	'0.0782'
$b_{\mu}$	'7.1062'	'7.5384'	'7.3223'	'8.5817'	'0.0763'
$\mu$	'0.08'	'0.1139'	'0.0969'	'0.226'	'0.0817'
$a_H$	'7.642'	'8.3489'	'7.9954'	'3.3236'	'0.1097'
$b_H$	'9.1335'	'9.6059'	'9.3697'	'11.3525'	'0.1081'
$\nu$	'239.6635'	'261.9755'	'250.8195'	'454.943'	'0.0582'
BP	'491.3864'	'491.6136'	'491.5'	'494.4998'	'0.1049'



### 16.3. Identifiability analysis

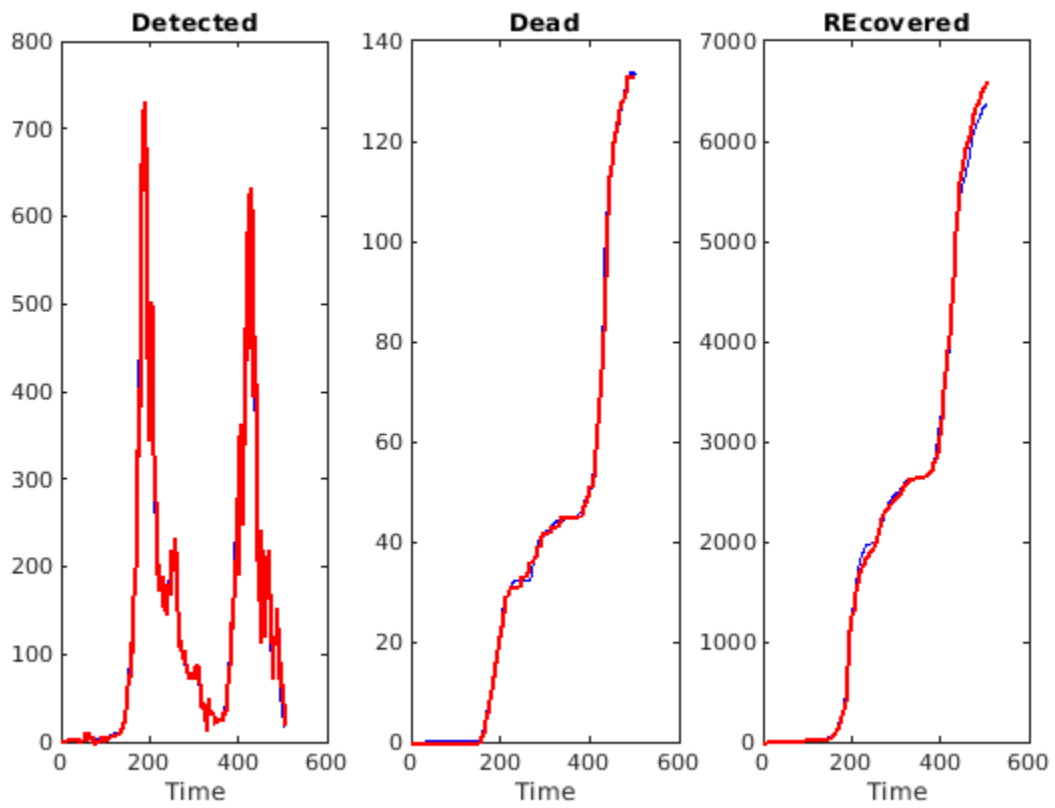






## 16.4. Uncertainty analysis

N=500



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## Chapter 17. Extension number17

### 17.1. Basic information

The extension to be validated consists of the time series from the data506 to the 517. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

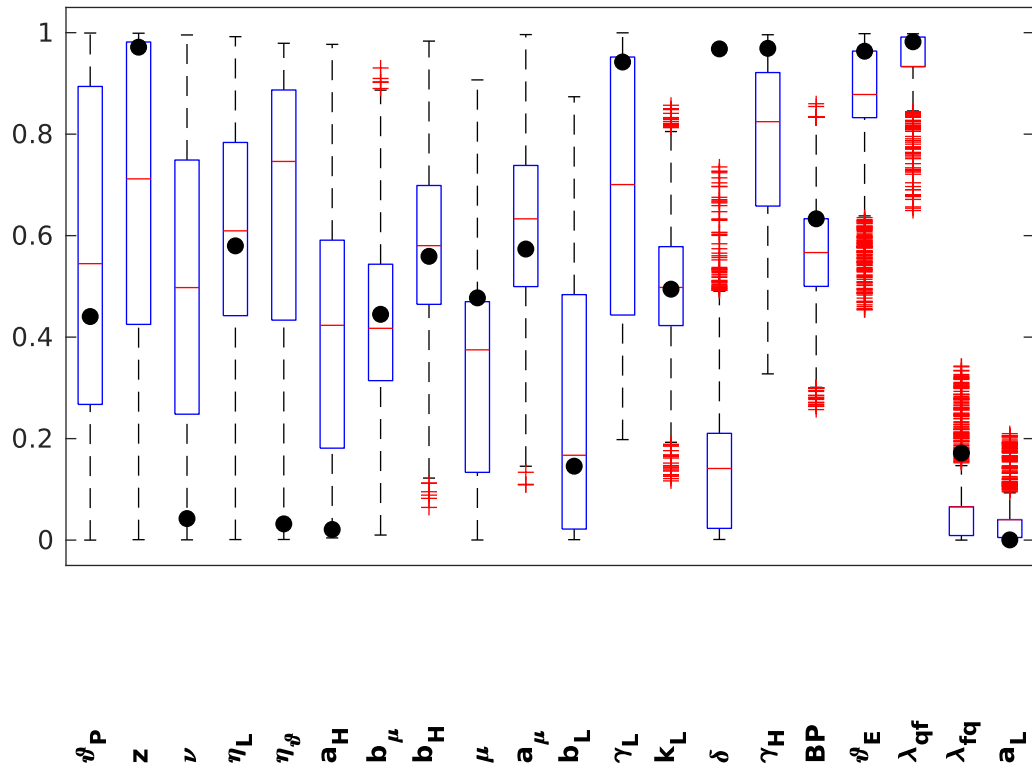
### 17.2. Estimated parameters with their intervals

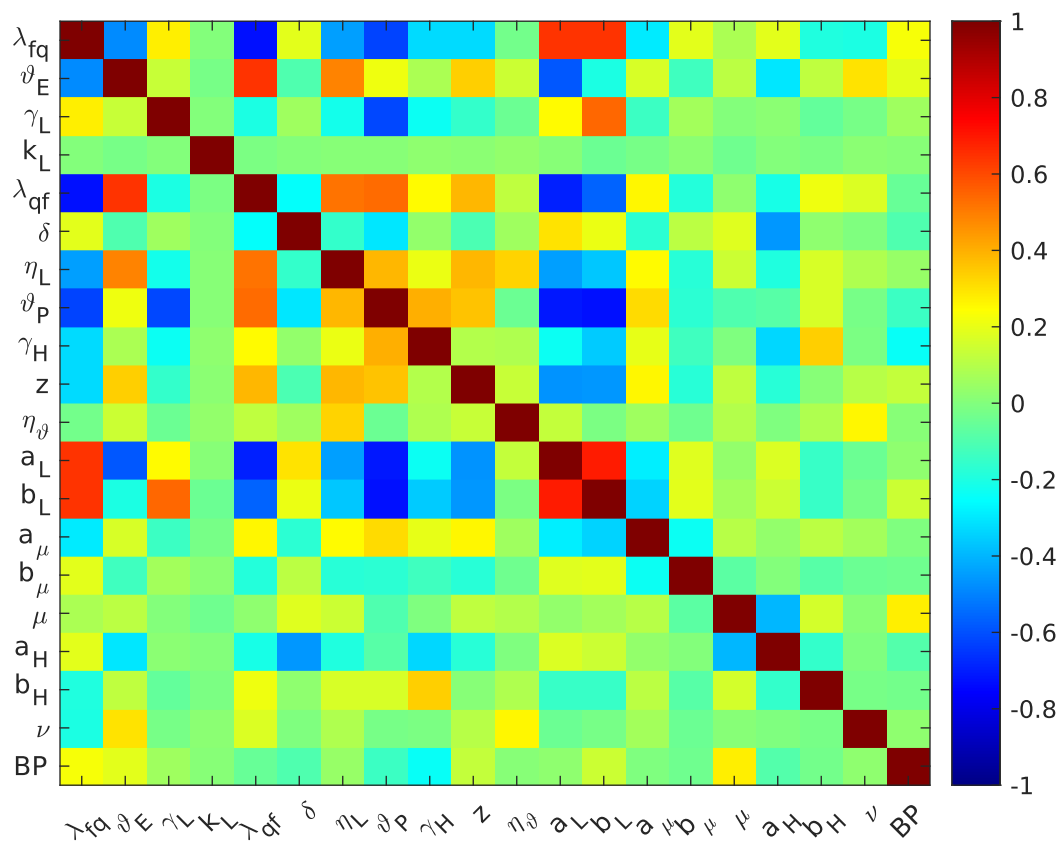
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

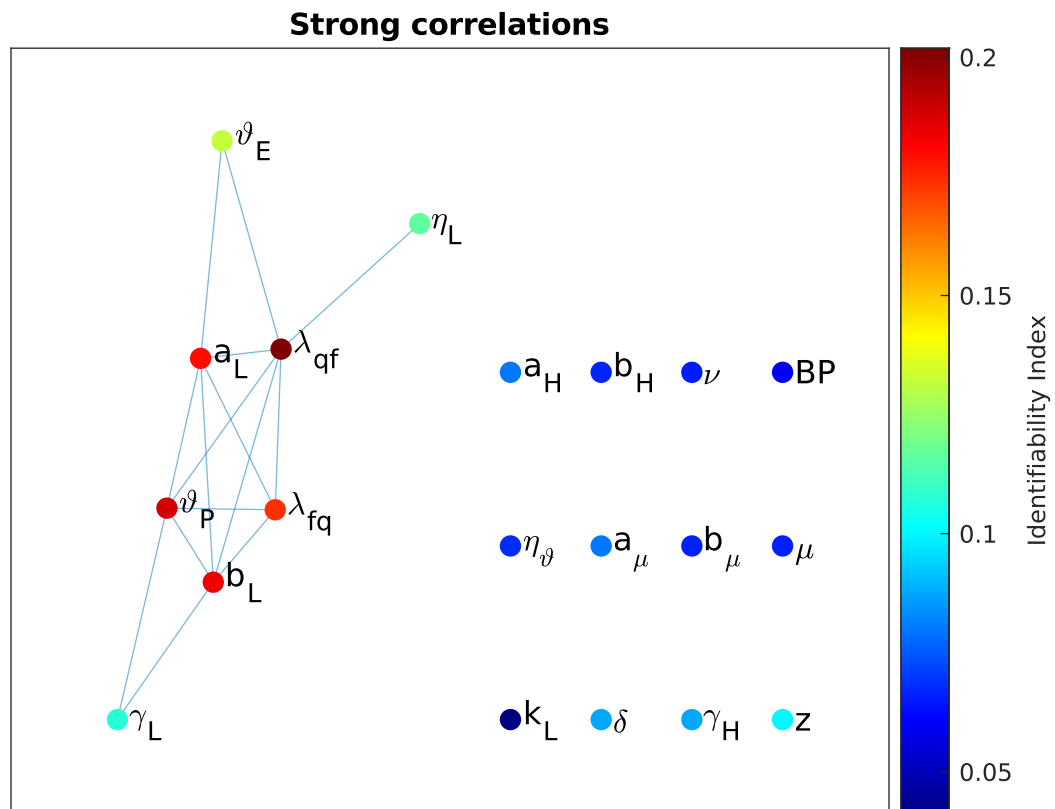
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0.03'	'0.386'	'0.0658'	'0.1715'	'0.174'
$\vartheta_E$	'0.9111'	'1'	'0.878'	'0.9634'	'0.1323'
$\gamma_L$	'0.5384'	'0.9879'	'0.7006'	'0.9422'	'0.1073'
$k_L$	'1.18'	'10'	'5.4813'	'5.4503'	'0.0415'
$\lambda_{qf}$	'0.2886'	'1'	'0.933'	'0.9821'	'0.2019'
$\delta$	'0.0059'	'0.15'	'0.0212'	'0.1452'	'0.0877'
$\eta_L$	'0.025'	'1'	'0.6094'	'0.5799'	'0.1166'
$\vartheta_P$	'0.3508'	'0.8566'	'0.5448'	'0.4406'	'0.1883'
$\gamma_H$	'0.1'	'1'	'0.8245'	'0.9691'	'0.0877'
$z$	'19.2802'	'29.5342'	'21.3568'	'29.1418'	'0.1004'
$\eta_{\vartheta}$	'0'	'0.0719'	'0.7462'	'0.032'	'0.0683'
$a_L$	'1'	'1.7671'	'1.5656'	'1.0055'	'0.1797'
$b_L$	'1.6377'	'6.1619'	'3.3408'	'3.0394'	'0.184'
$a_{\mu}$	'1'	'15'	'9.8633'	'9.0302'	'0.08'
$b_{\mu}$	'1.56'	'15'	'6.8445'	'7.2292'	'0.0664'
$\mu$	'0'	'1'	'0.375'	'0.4774'	'0.0663'
$a_H$	'1'	'14.44'	'6.9256'	'1.2934'	'0.0801'
$b_H$	'1'	'14.3'	'9.1202'	'8.8291'	'0.067'
$\nu$	'0'	'43.0713'	'248.8113'	'21.2109'	'0.0655'
BP	'499.7959'	'502.4308'	'500.5'	'501.4976'	'0.0608'

### 17.3. Identifiability analysis



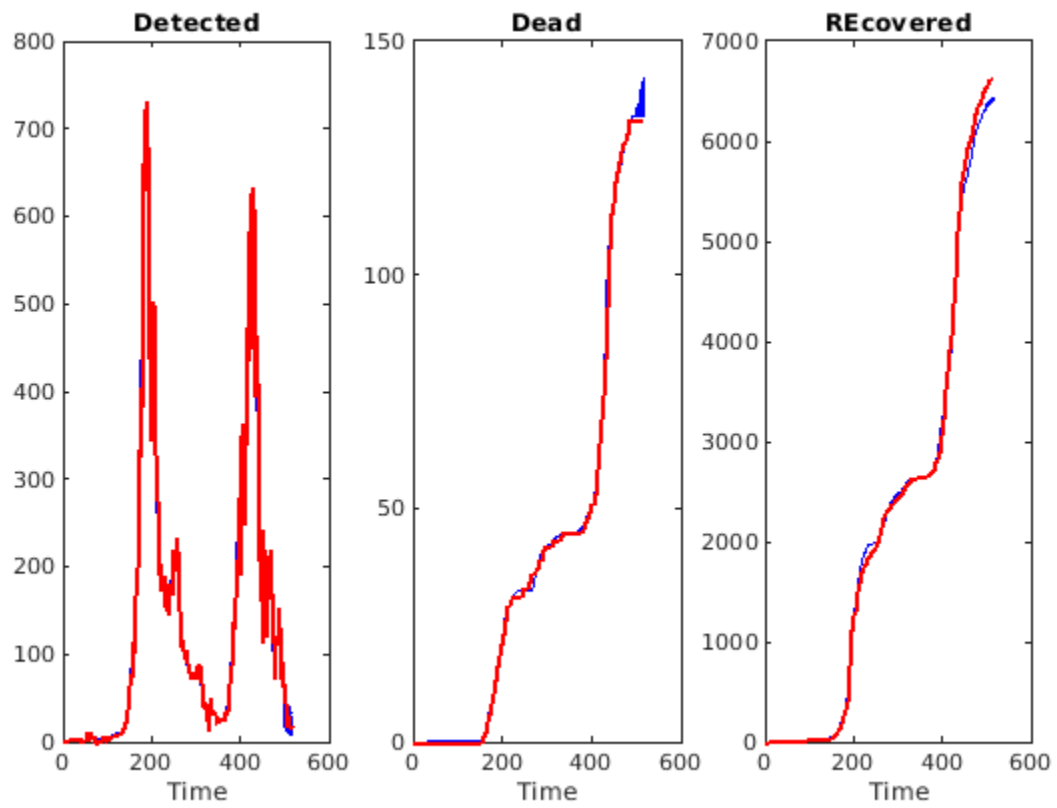






## 17.4. Uncertainty analysis

N=500



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## Chapter 18. Extension number18

### 18.1. Basic information

The extension to be validated consists of the time series from the data517 to the 591. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

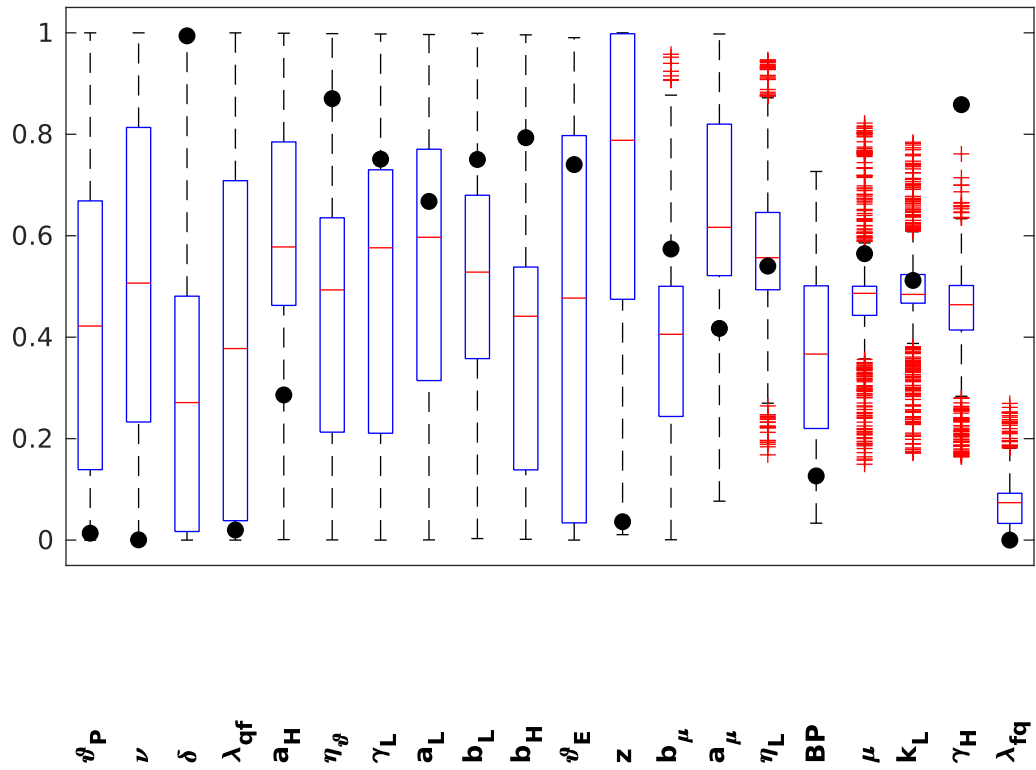
### 18.2. Estimated parameters with their intervals

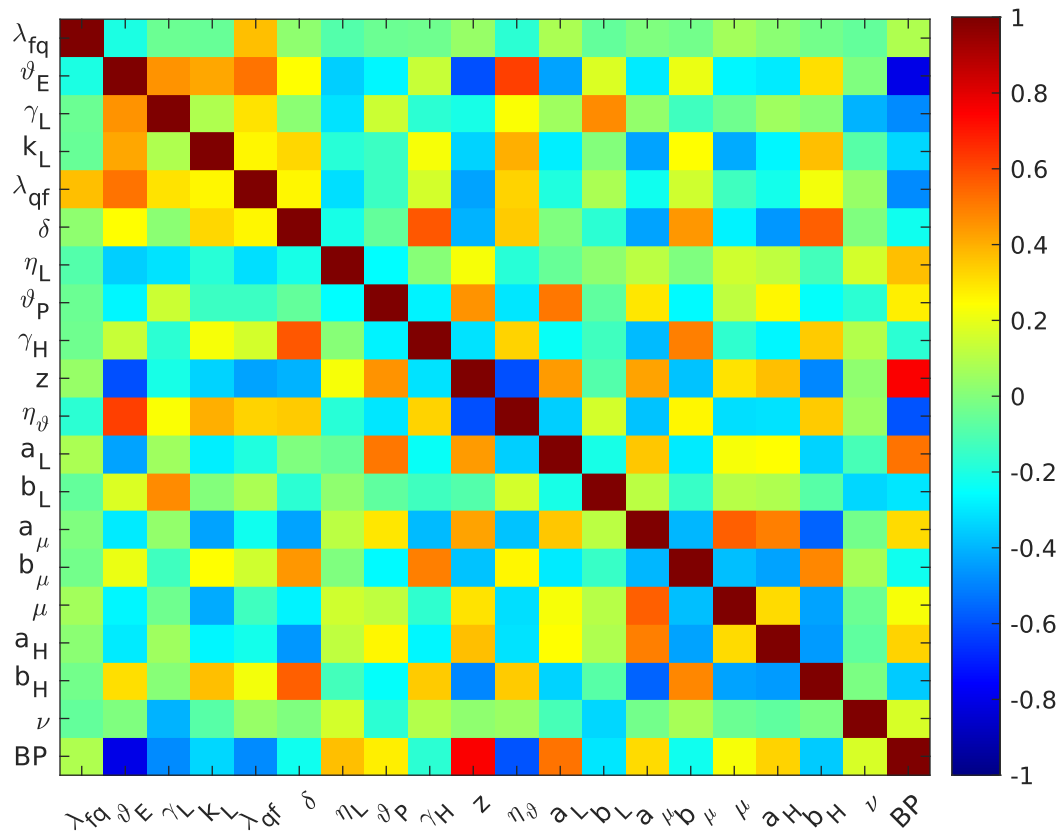
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

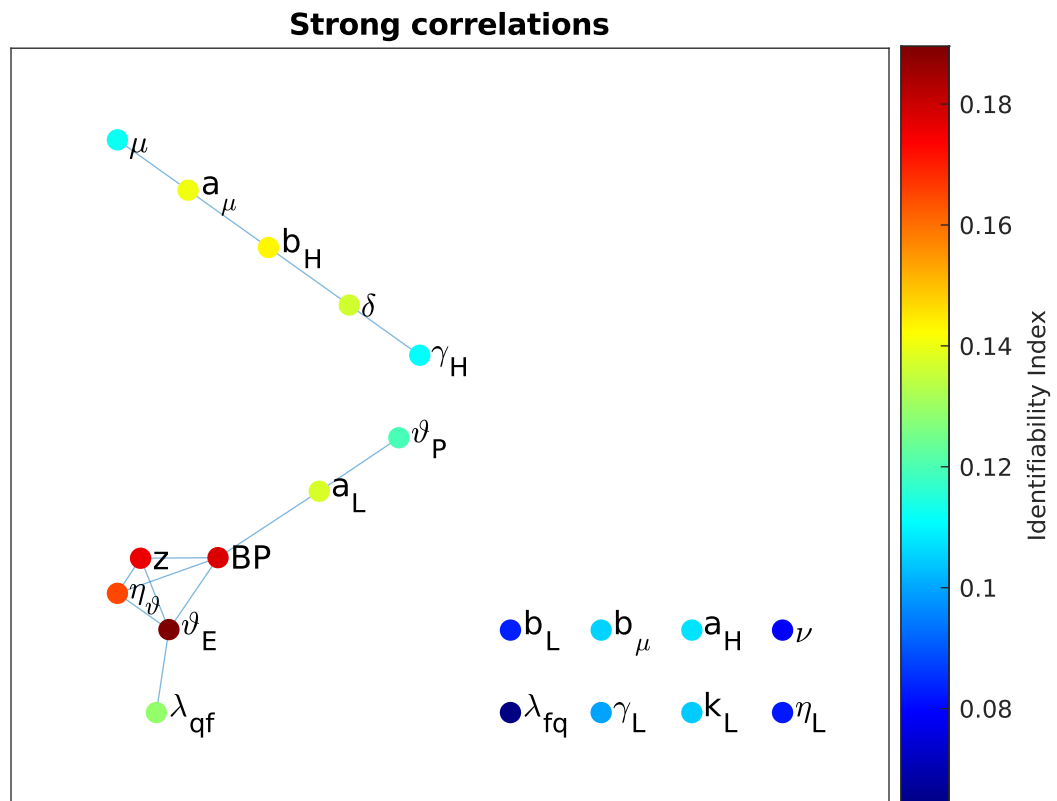
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0'	'0'	'0.0738'	'0'	'0.0642'
$\vartheta_E$	'0.7335'	'0.7558'	'0.4771'	'0.7403'	'0.1896'
$\gamma_L$	'0.4481'	'0.8822'	'0.5762'	'0.7509'	'0.0996'
$k_L$	'1.171'	'8.4306'	'5.359'	'5.6066'	'0.1048'
$\lambda_{qf}$	'0.0081'	'0.0416'	'0.3776'	'0.02'	'0.1292'
$\delta$	'0.0785'	'0.15'	'0.0407'	'0.1491'	'0.1366'
$\eta_L$	'0.4235'	'0.8981'	'0.5567'	'0.5402'	'0.0826'
$\vartheta_P$	'0.0101'	'0.0212'	'0.422'	'0.0136'	'0.1196'
$\gamma_H$	'0.1528'	'0.9013'	'0.464'	'0.8584'	'0.1114'
$z$	'0.9979'	'1.0913'	'23.6459'	'1.0862'	'0.1761'
$\eta_{\vartheta}$	'0.7703'	'0.9093'	'0.4932'	'0.8703'	'0.1649'
$a_L$	'9.7301'	'11.5558'	'9.3573'	'10.3478'	'0.1373'
$b_L$	'9.2582'	'12.219'	'8.3958'	'11.5047'	'0.0837'
$a_{\mu}$	'2.1369'	'10.6716'	'9.6303'	'6.8421'	'0.1406'
$b_{\mu}$	'2.1002'	'13.812'	'6.684'	'9.0338'	'0.1056'
$\mu$	'0.0619'	'0.9155'	'0.4865'	'0.5646'	'0.1127'
$a_H$	'1.8473'	'12.0653'	'9.0902'	'5.0059'	'0.1076'
$b_H$	'1.2688'	'14.44'	'7.1782'	'12.1056'	'0.1432'
$\nu$	'0.0455'	'0.5216'	'253.3191'	'0.2612'	'0.079'
BP	'514.6404'	'517.9482'	'533.5'	'515.4876'	'0.178'

### 18.3. Identifiability analysis

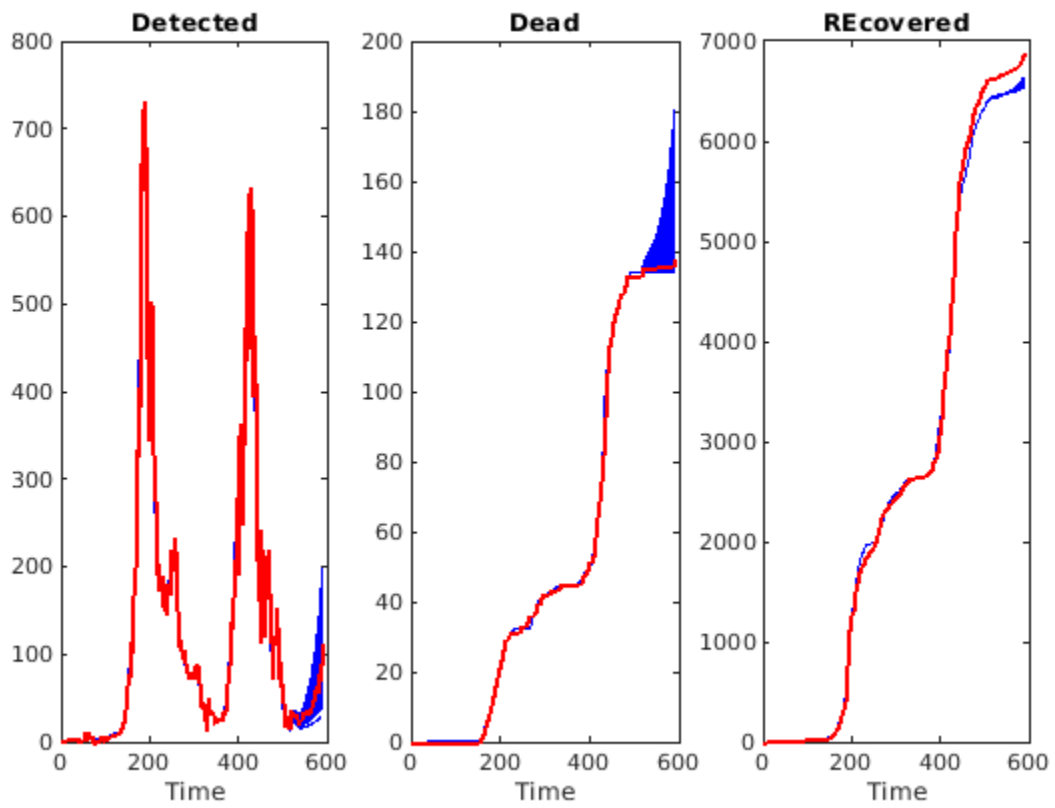






## 18.4. Uncertainty analysis

N=500



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## Chapter 19. Extension number19

### 19.1. Basic information

The extension to be validated consists of the time series from the data591 to the 598. The status of the validation is: COMPLETED.

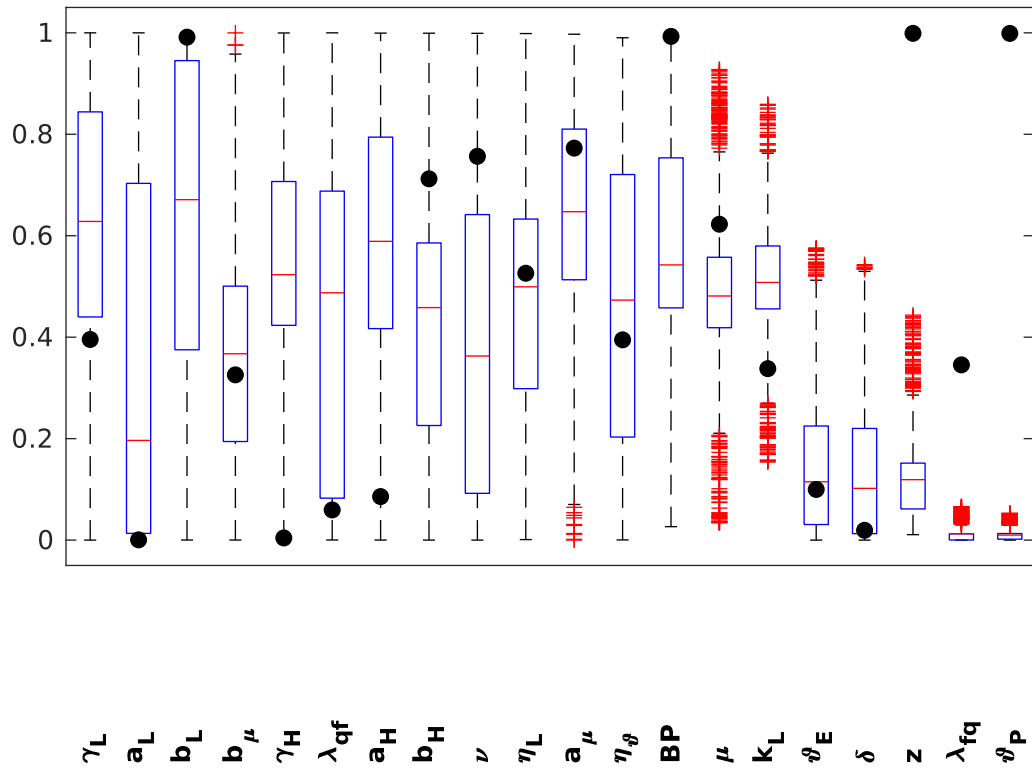
The number of estimations needed to perform the validation was1000.

### 19.2. Estimated parameters with their intervals

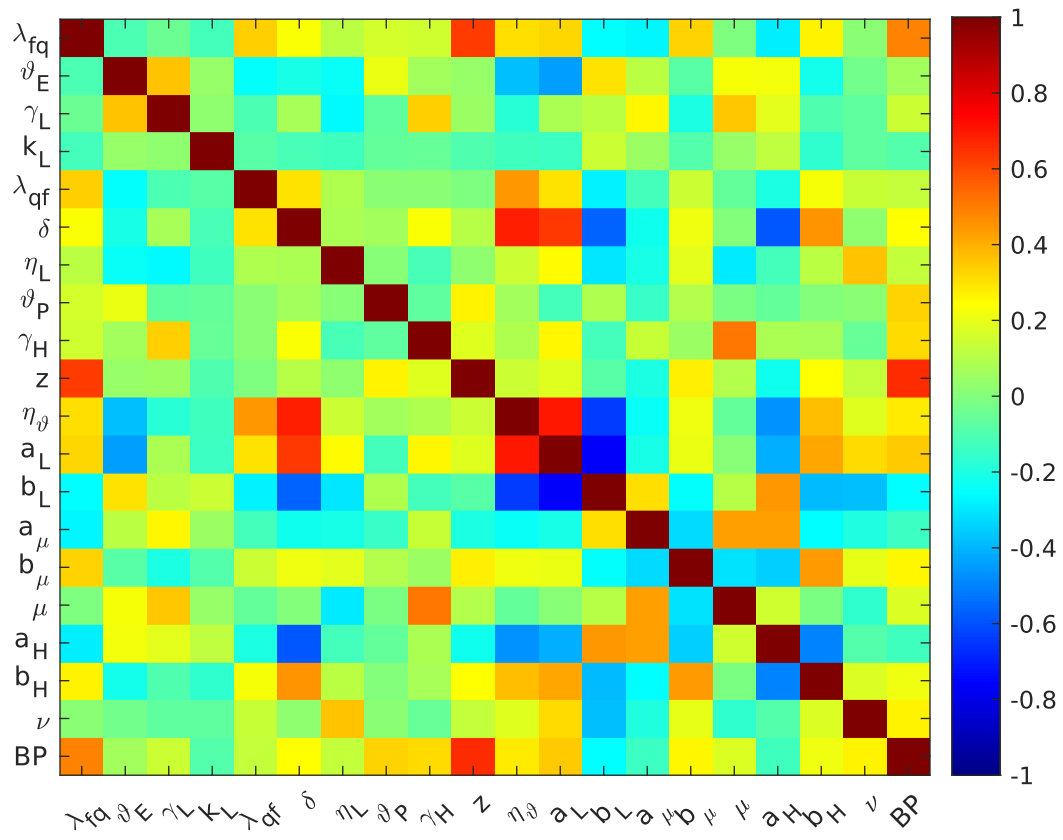
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

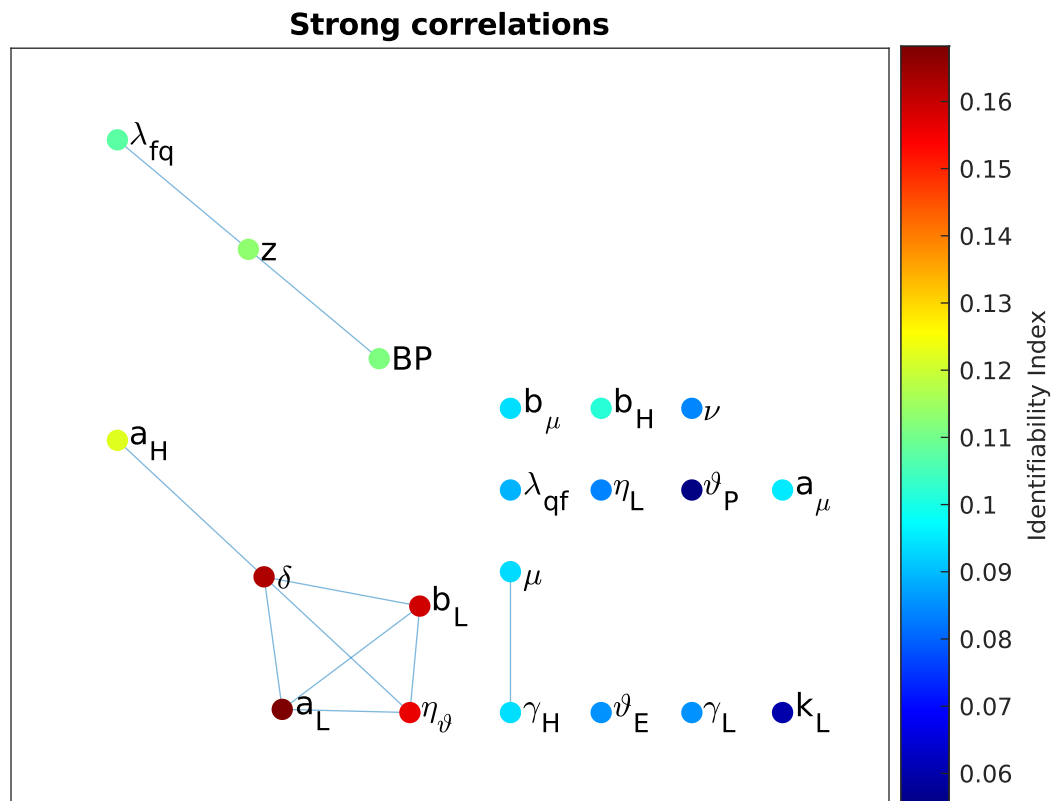
	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0'	'0.0297'	'0.0124'	'0.3455'	'0.1077'
\vartheta_E	'0.0993'	'0.1306'	'0.115'	'0.0999'	'0.0857'
\gamma_L	'0.6053'	'0.651'	'0.6282'	'0.3955'	'0.0856'
k_L	'5.4531'	'5.6895'	'5.5713'	'4.0416'	'0.0603'
\lambda_{qf}	'0.4639'	'0.5112'	'0.4875'	'0.0594'	'0.0892'
\delta	'0.0117'	'0.0189'	'0.0153'	'0.0029'	'0.1627'
\eta_L	'0.4803'	'0.5183'	'0.4993'	'0.5261'	'0.0839'
\vartheta_P	'0.0028'	'0.017'	'0.0099'	'0.9989'	'0.0554'
\gamma_H	'0.5036'	'0.5428'	'0.5232'	'0.0043'	'0.0938'
z	'3.0511'	'4.0959'	'3.5735'	'29.9694'	'0.1132'
\eta_{\vartheta}	'0.451'	'0.4952'	'0.4731'	'0.3948'	'0.1561'
a_L	'3.3465'	'4.156'	'3.7512'	'1.007'	'0.1682'
b_L	'10.0498'	'10.7406'	'10.3952'	'14.8806'	'0.1593'
a_{\mu}	'9.825'	'10.3009'	'10.063'	'11.8181'	'0.0954'
b_{\mu}	'5.9158'	'6.3692'	'6.1425'	'5.5605'	'0.094'
\mu	'0.4632'	'0.4993'	'0.4812'	'0.6227'	'0.0933'
a_H	'8.9489'	'9.5418'	'9.2454'	'2.2013'	'0.1221'
b_H	'7.1533'	'7.68'	'7.4167'	'10.9704'	'0.1017'
\nu	'169.7359'	'193.156'	'181.446'	'378.2993'	'0.0842'
BP	'554.3867'	'556.6435'	'555.5151'	'587.5'	'0.1116'

### 19.3. Identifiability analysis



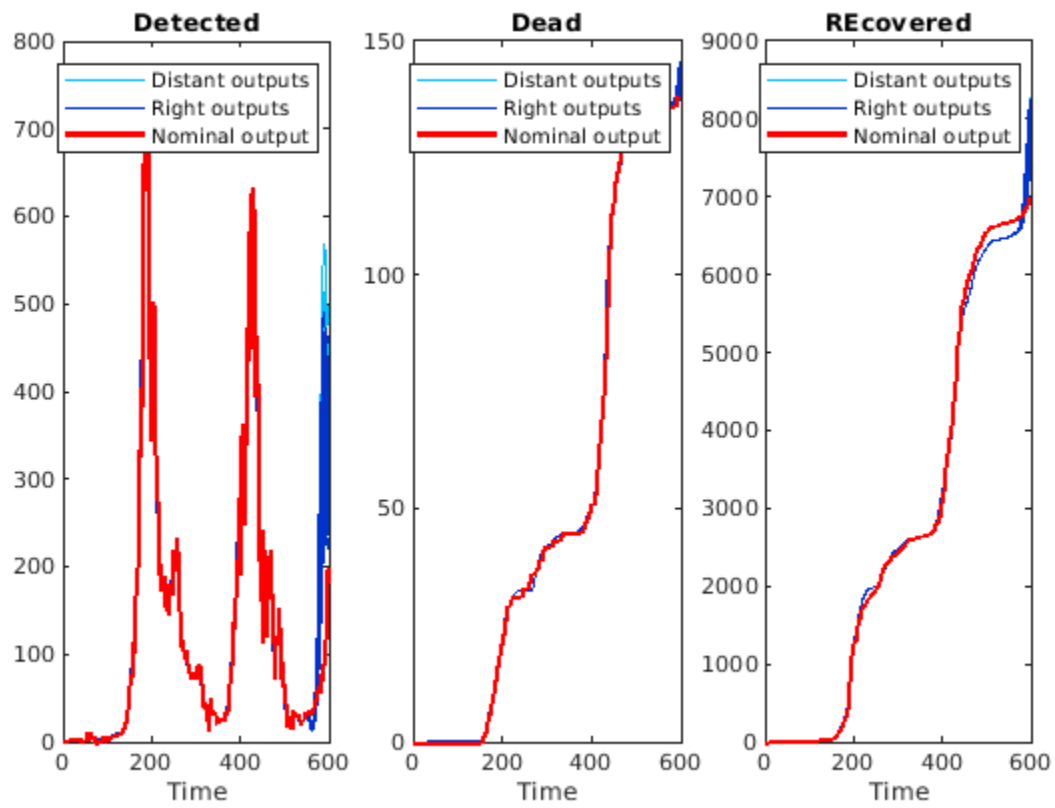






## 19.4. Uncertainty analysys

N=500



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## Chapter 20. Extension number20

### 20.1. Basic information

The extension to be validated consists of the time series from the data598 to the 616. The status of the validation is: COMPLETED.

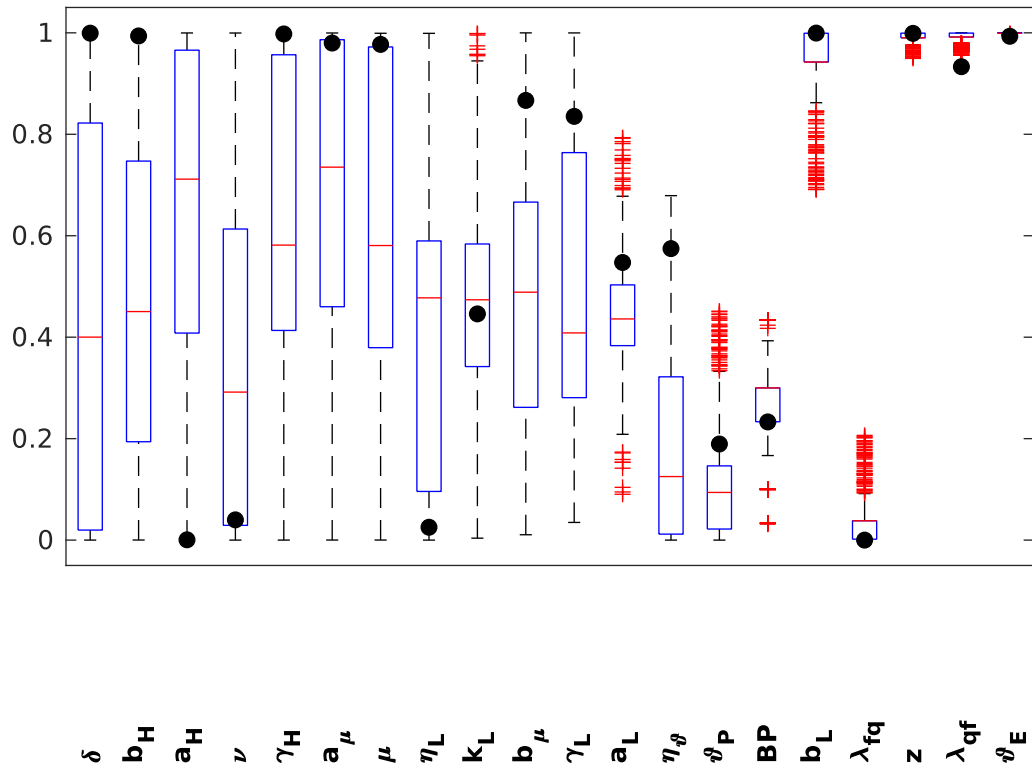
The number of estimations needed to perform the validation was1000.

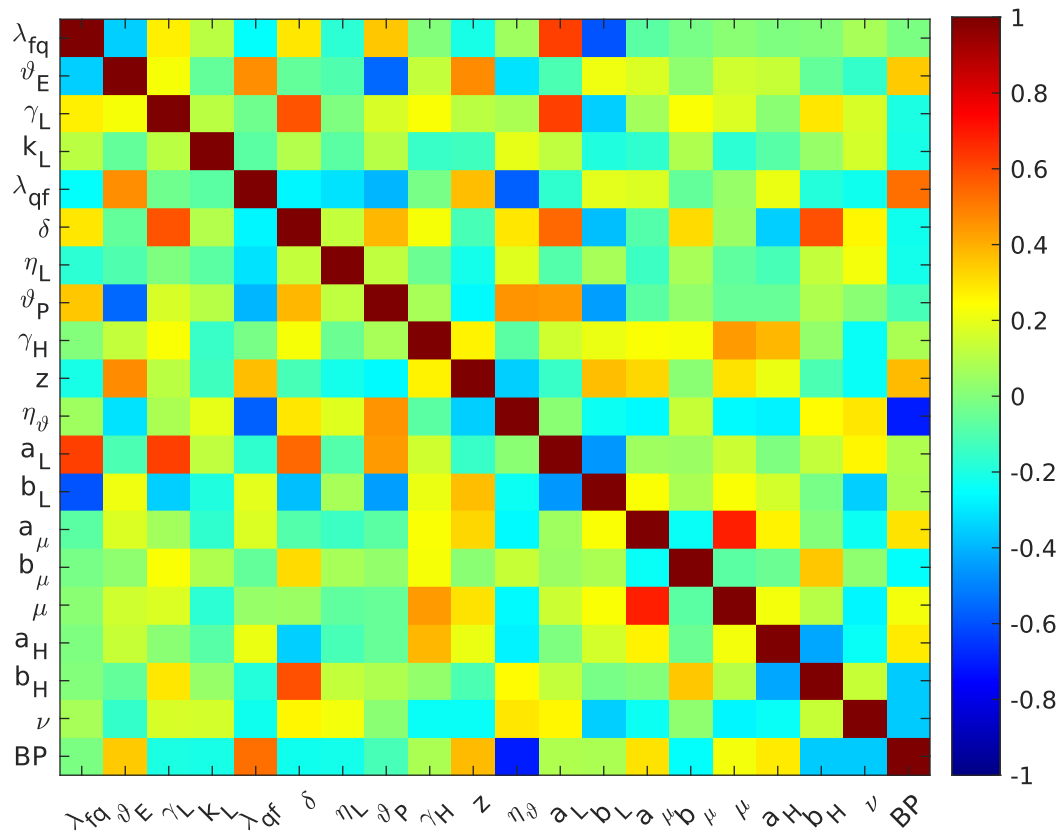
### 20.2. Estimated parameters with their intervals

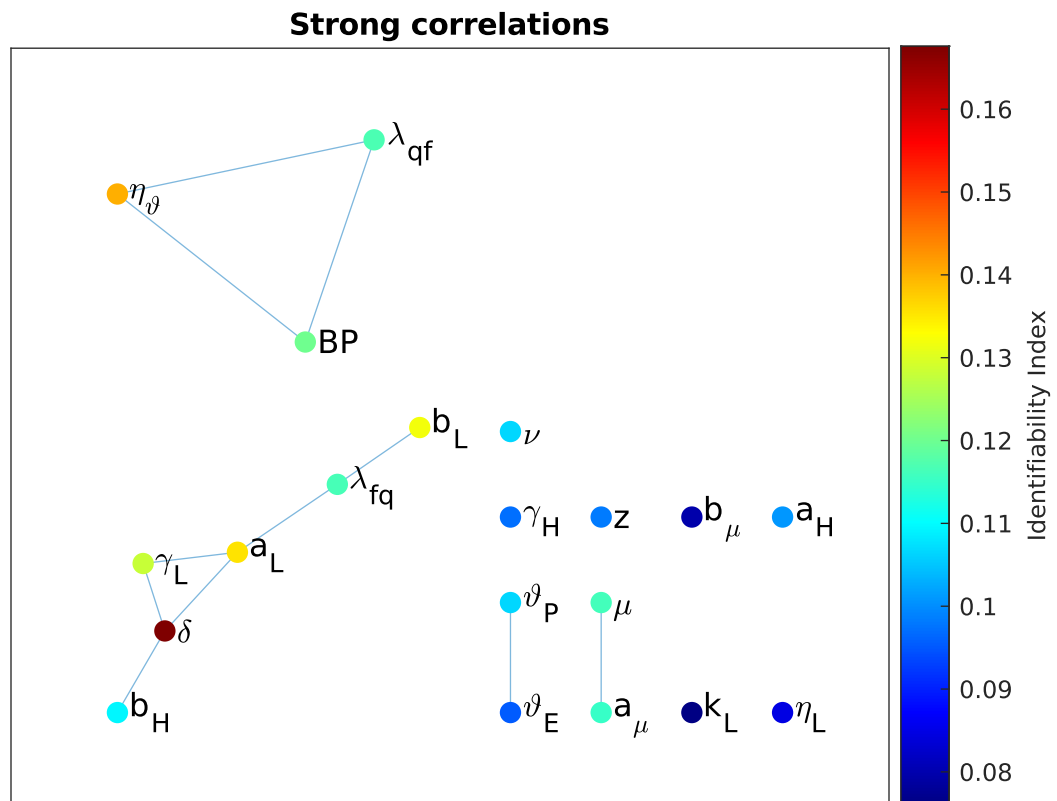
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0.0148'	'0.0614'	'0.0381'	'0'	'0.1167'
\vartheta_E	'0.9861'	'1'	'0.9992'	'0.9932'	'0.0956'
\gamma_L	'0.38'	'0.4368'	'0.4084'	'0.8353'	'0.128'
k_L	'5.0666'	'5.461'	'5.2638'	'5.0135'	'0.0761'
\lambda_{qf}	'0.9788'	'1'	'0.9917'	'0.9332'	'0.1171'
\delta	'0.0541'	'0.0659'	'0.06'	'0.1499'	'0.1676'
\eta_L	'0.4485'	'0.5066'	'0.4776'	'0.0253'	'0.0847'
\vartheta_P	'0.0769'	'0.111'	'0.094'	'0.1894'	'0.1068'
\gamma_H	'0.5496'	'0.6135'	'0.5815'	'0.9978'	'0.0972'
z	'29.0354'	'30'	'29.7055'	'29.9679'	'0.0986'
\eta_{\vartheta}	'0.0975'	'0.153'	'0.1252'	'0.5746'	'0.1401'
a_L	'6.8148'	'7.3925'	'7.1037'	'8.6618'	'0.1357'
b_L	'13.7232'	'14.6655'	'14.1944'	'14.9928'	'0.1319'
a_{\mu}	'10.8643'	'11.721'	'11.2927'	'14.7178'	'0.1154'
b_{\mu}	'7.483'	'8.2009'	'7.8419'	'13.1347'	'0.0799'
\mu	'0.5479'	'0.6135'	'0.5807'	'0.9772'	'0.1164'
a_H	'10.5062'	'11.4183'	'10.9622'	'1.008'	'0.1008'
b_H	'6.8748'	'7.7393'	'7.307'	'14.9141'	'0.1096'
\nu	'129.488'	'162.2885'	'145.8882'	'19.9456'	'0.1066'
BP	'595.3724'	'595.6275'	'595.5'	'594.4944'	'0.1201'

### 20.3. Identifiability analysis

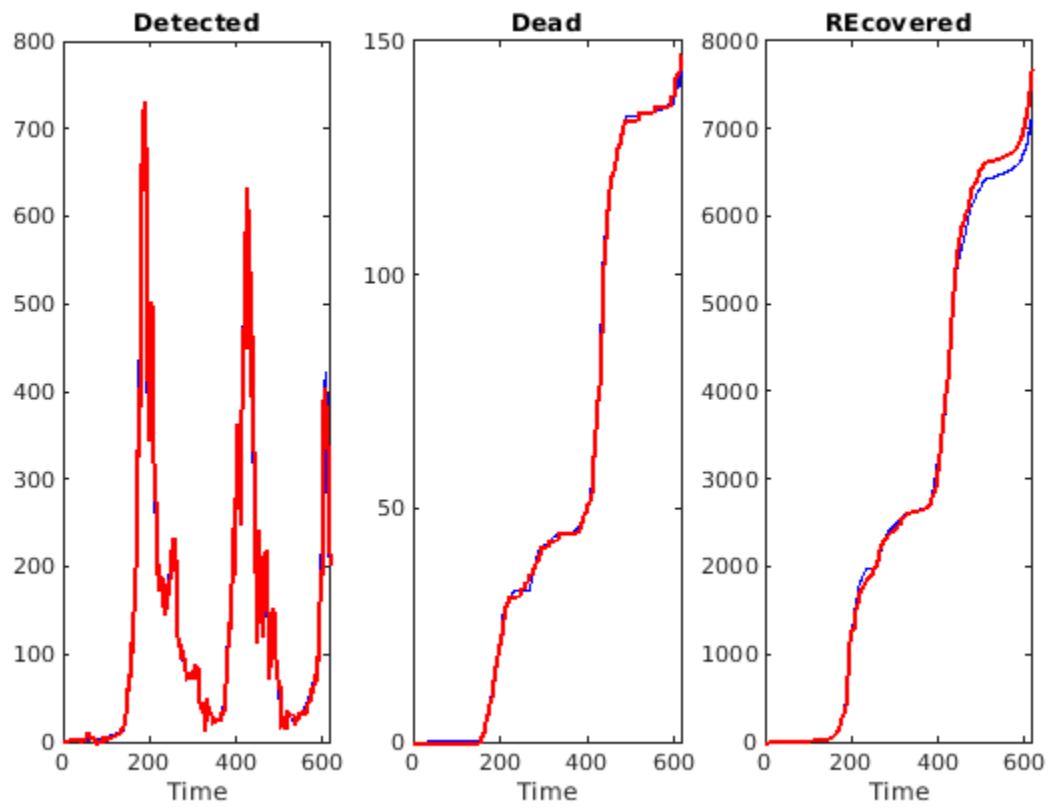






## 20.4. Uncertainty analysis

N=500





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## Chapter 21. Extension number21

### 21.1. Basic information

The extension to be validated consists of the time series from the data616 to the 625. The status of the validation is: COMPLETED.

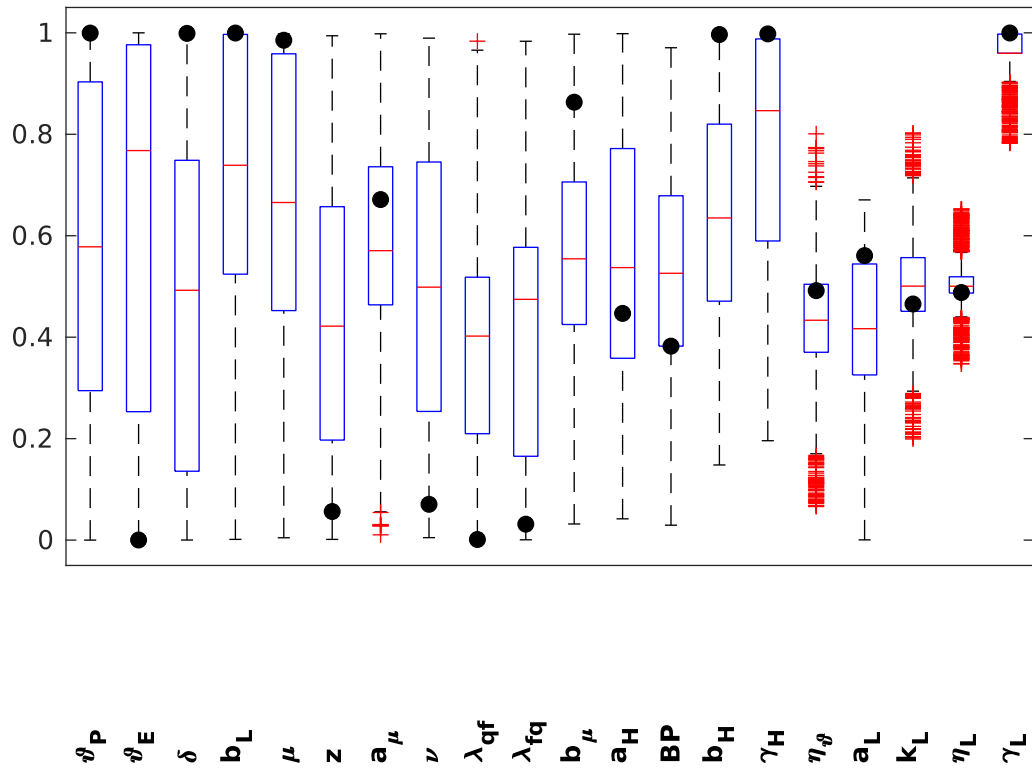
The number of estimations needed to perform the validation was1000.

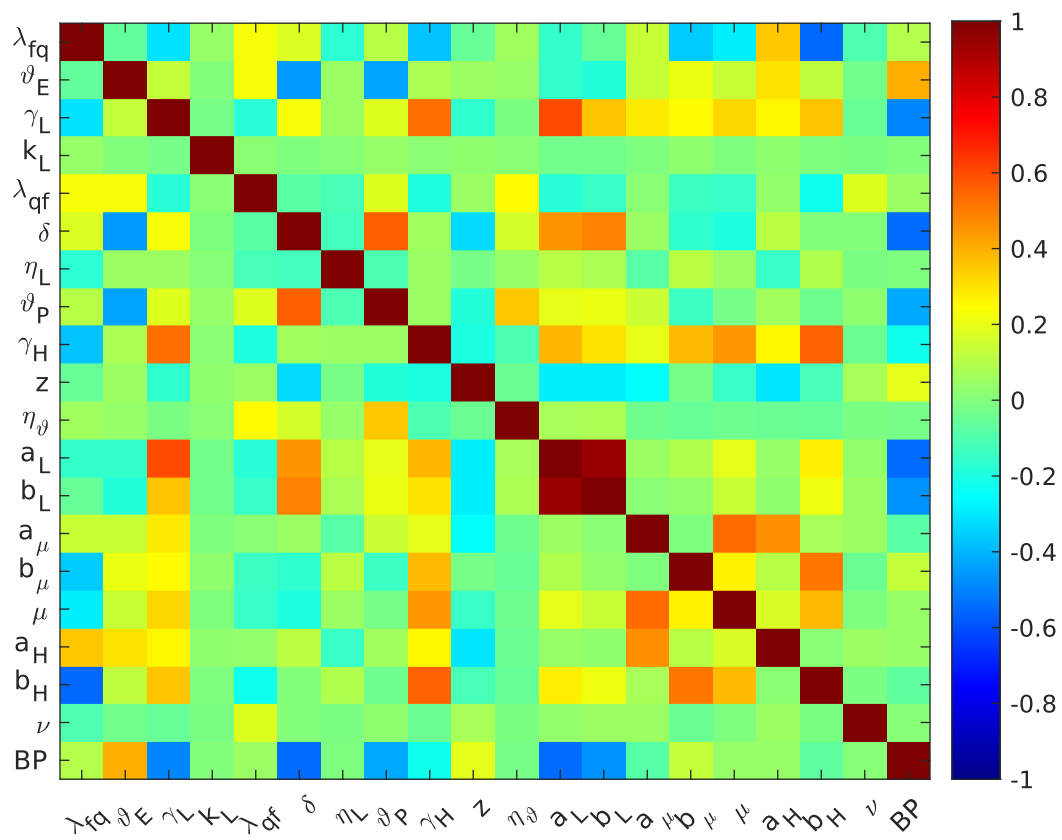
### 21.2. Estimated parameters with their intervals

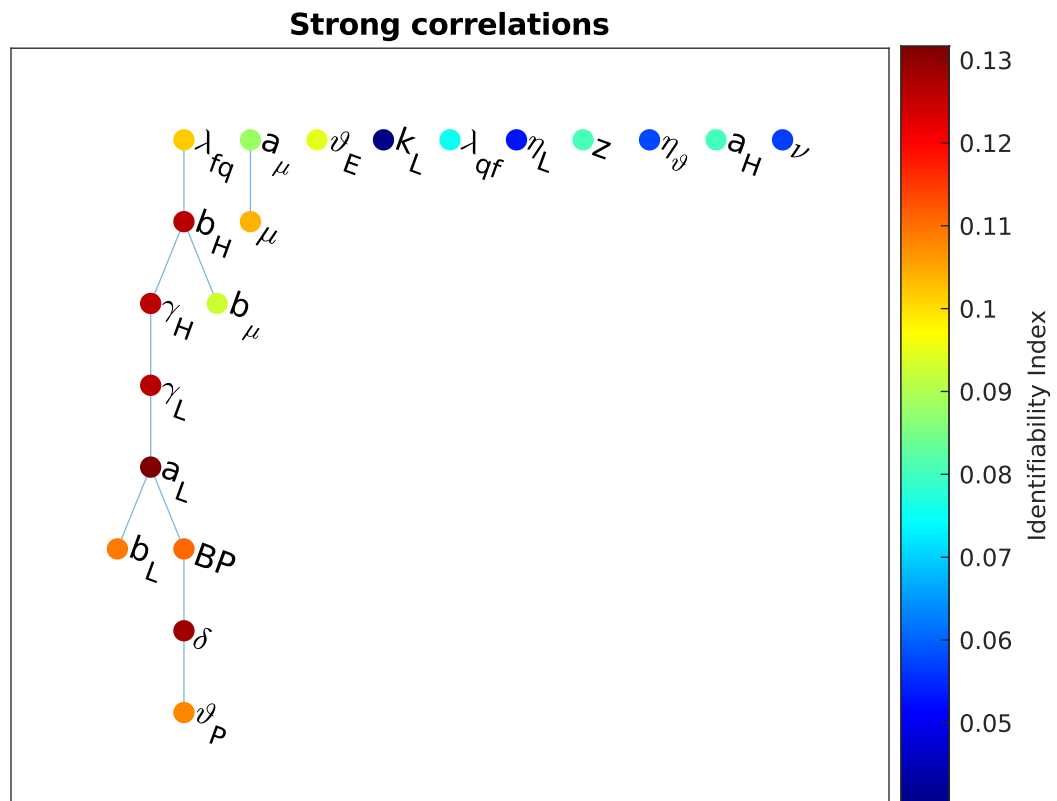
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0.4557'	'0.4935'	'0.4746'	'0.0314'	'0.102'
$\vartheta_E$	'0.7384'	'0.7974'	'0.7679'	'0.0002'	'0.0946'
$\gamma_L$	'0.943'	'0.9763'	'0.9596'	'0.9997'	'0.1265'
$k_L$	'5.4086'	'5.6036'	'5.5061'	'5.1892'	'0.0402'
$\lambda_{qf}$	'0.3845'	'0.4198'	'0.4022'	'0.0012'	'0.0755'
$\delta$	'0.0699'	'0.0778'	'0.0739'	'0.1498'	'0.1287'
$\eta_L$	'0.4901'	'0.5108'	'0.5005'	'0.4881'	'0.0531'
$\vartheta_P$	'0.5509'	'0.6054'	'0.5782'	'0.9995'	'0.1079'
$\gamma_H$	'0.8259'	'0.8668'	'0.8463'	'0.9979'	'0.1261'
$z$	'12.015'	'13.2898'	'12.6524'	'1.6893'	'0.0808'
$\eta_{\vartheta}$	'0.4194'	'0.4475'	'0.4334'	'0.4917'	'0.0577'
$a_L$	'6.7039'	'6.9648'	'6.8343'	'8.8512'	'0.1317'
$b_L$	'11.0632'	'11.6265'	'11.3448'	'14.9944'	'0.1092'
$a_{\mu}$	'8.7343'	'9.2409'	'8.9876'	'10.398'	'0.0884'
$b_{\mu}$	'8.5225'	'9.0025'	'8.7625'	'13.0856'	'0.0925'
$\mu$	'0.643'	'0.688'	'0.6655'	'0.9854'	'0.1041'
$a_H$	'8.2429'	'8.7985'	'8.5207'	'7.2566'	'0.0804'
$b_H$	'9.6361'	'10.1454'	'9.8907'	'14.9531'	'0.1265'
$\nu$	'238.2193'	'260.3897'	'249.3045'	'35.2796'	'0.0571'
BP	'606.7193'	'607.1654'	'606.9423'	'604.5'	'0.1108'

### 21.3. Identifiability analysis

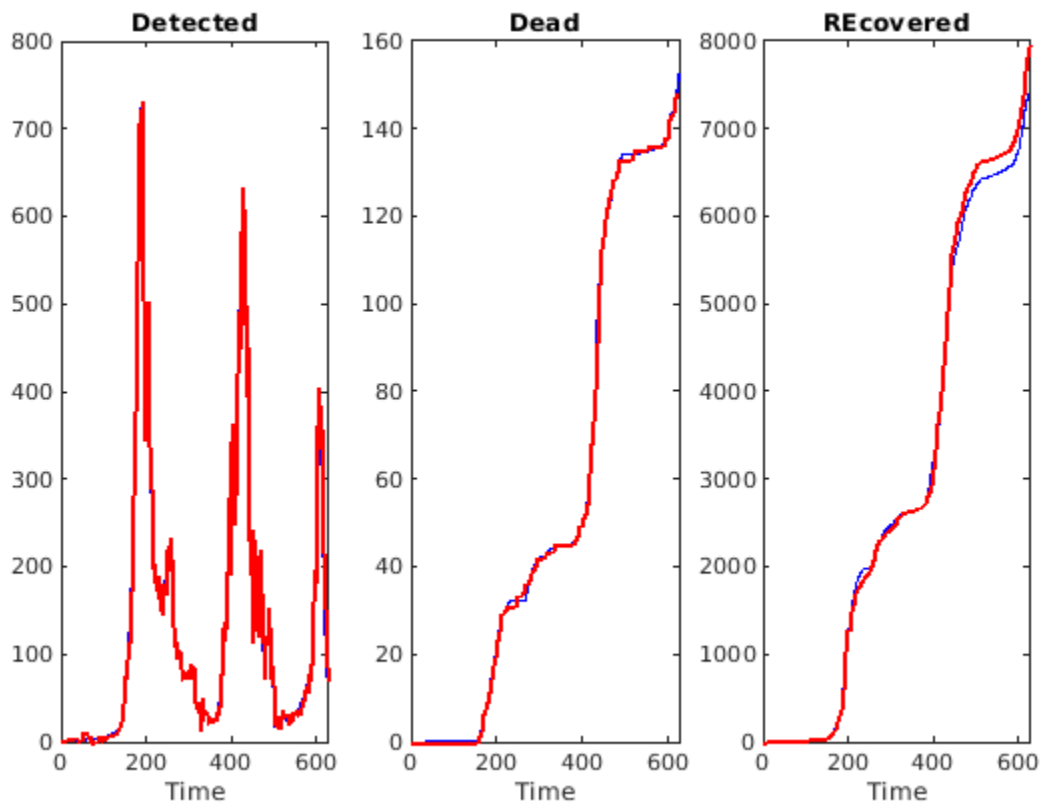






## 21.4. Uncertainty analysis

N=500



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## Chapter 22. Extension number22

### 22.1. Basic information

The extension to be validated consists of the time series from the data625 to the 728. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was3000.

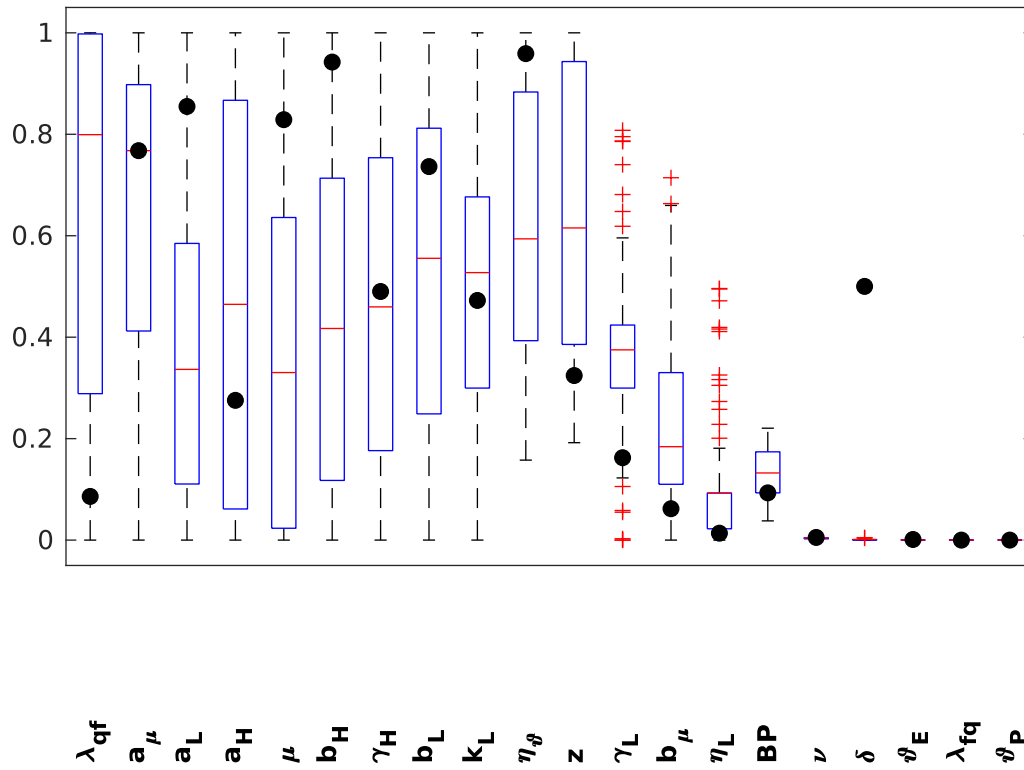
### 22.2. Estimated parameters with their intervals

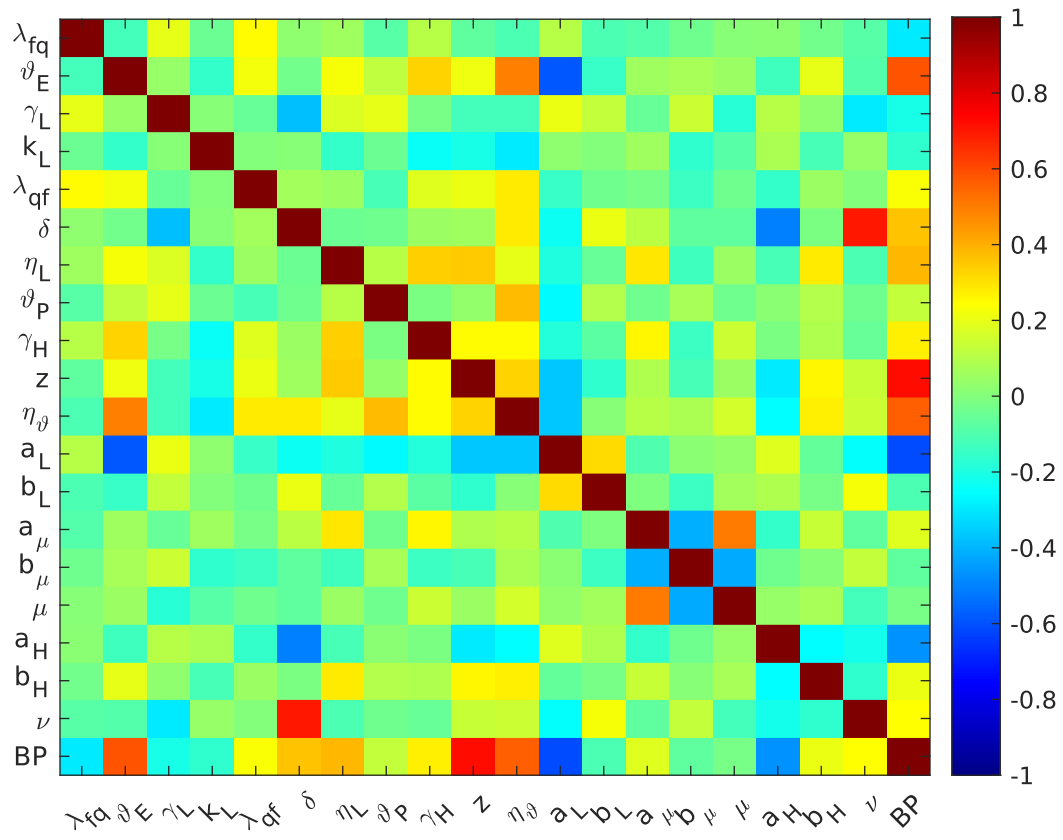
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

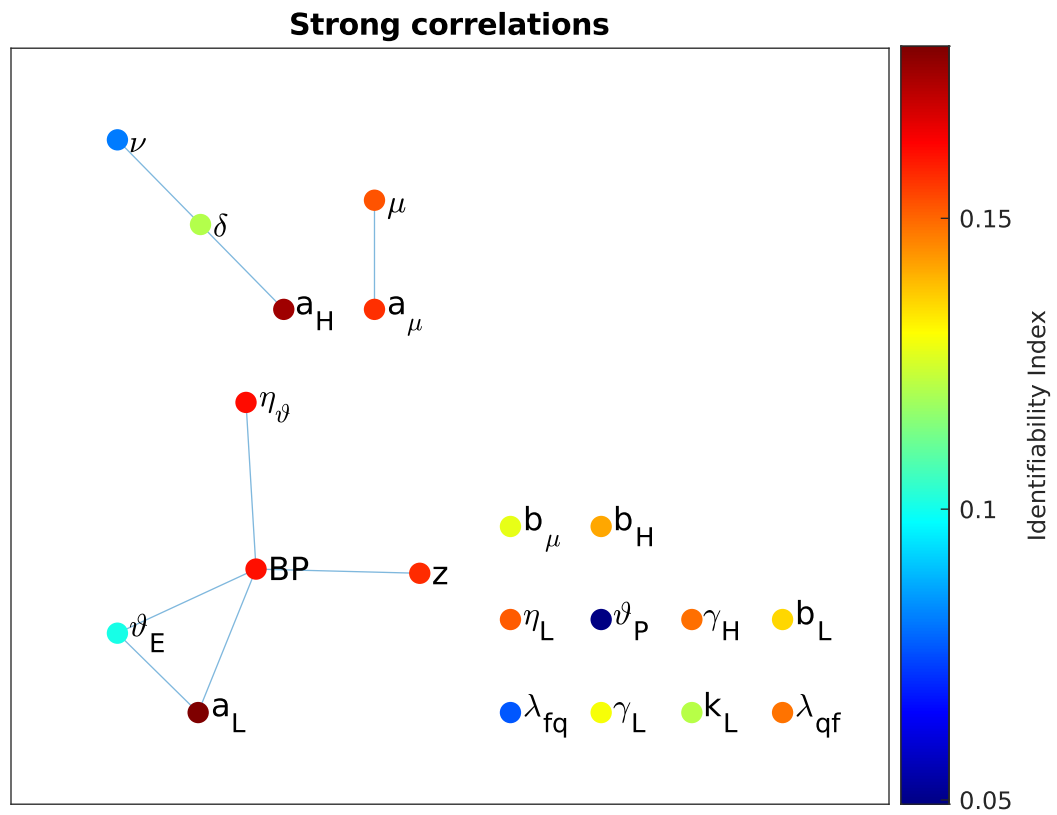
	Rango		Nominal	Mejor	Index
$\lambda_{fq}$	'0'	'0.0102'	'0'	'0'	'0.0764'
$\vartheta_E$	'0.0009'	'0.0013'	'0.0003'	'0.0012'	'0.1008'
$\gamma_L$	'0.0772'	'0.2203'	'0.3751'	'0.1624'	'0.1293'
$k_L$	'3.2079'	'5.3693'	'5.7457'	'5.252'	'0.1211'
$\lambda_{qf}$	'0.0599'	'0.088'	'0.7993'	'0.0861'	'0.1481'
$\delta$	'0.0645'	'0.0763'	'0.0002'	'0.075'	'0.1205'
$\eta_L$	'0.0033'	'0.0143'	'0.0928'	'0.0136'	'0.1512'
$\vartheta_P$	'0'	'0'	'0'	'0'	'0.0493'
$\gamma_H$	'0.4768'	'0.601'	'0.4597'	'0.4901'	'0.1486'
$z$	'8.133'	'9.8805'	'18.4613'	'9.7322'	'0.1577'
$\eta_{\vartheta}$	'0.7409'	'0.9631'	'0.5939'	'0.959'	'0.1617'
$a_L$	'7.3743'	'13.175'	'5.7114'	'12.9675'	'0.1796'
$b_L$	'4.9359'	'11.3857'	'8.7771'	'11.3086'	'0.1357'
$a_{\mu}$	'9.3608'	'12.056'	'11.7481'	'11.7481'	'0.1571'
$b_{\mu}$	'1.6717'	'5.3001'	'3.578'	'1.866'	'0.1275'
$\mu$	'0.4707'	'0.8518'	'0.3303'	'0.8288'	'0.1523'
$a_H$	'3.8749'	'4.921'	'7.5065'	'4.8571'	'0.1751'
$b_H$	'11.4392'	'14.3542'	'6.8407'	'14.1931'	'0.1416'
$\nu$	'2.5457'	'4.8285'	'2.1001'	'2.6244'	'0.0812'
BP	'622.5'	'708.45'	'629.5'	'625.5'	'0.1608'

### 22.3. Identifiability analysis









## 22.4. Uncertainty analysis

N=500

