

Validation process for NEIVA

The epidemiology research group, EAFIT

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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 130. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

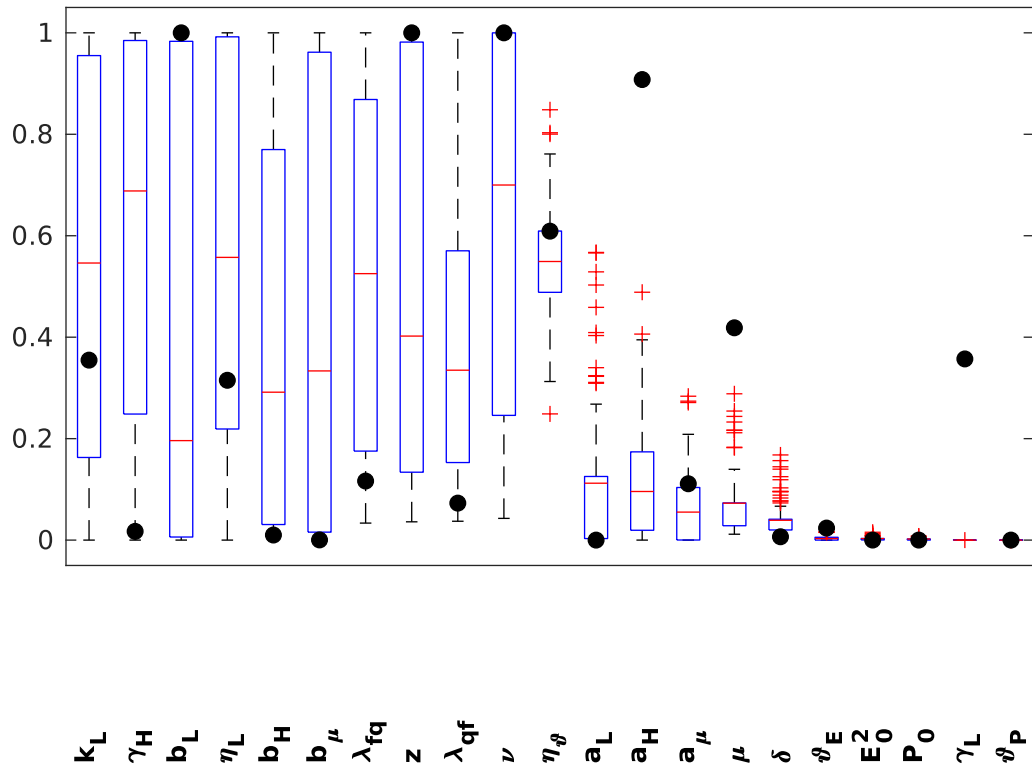
1.2. Estimated parameters with their intervals

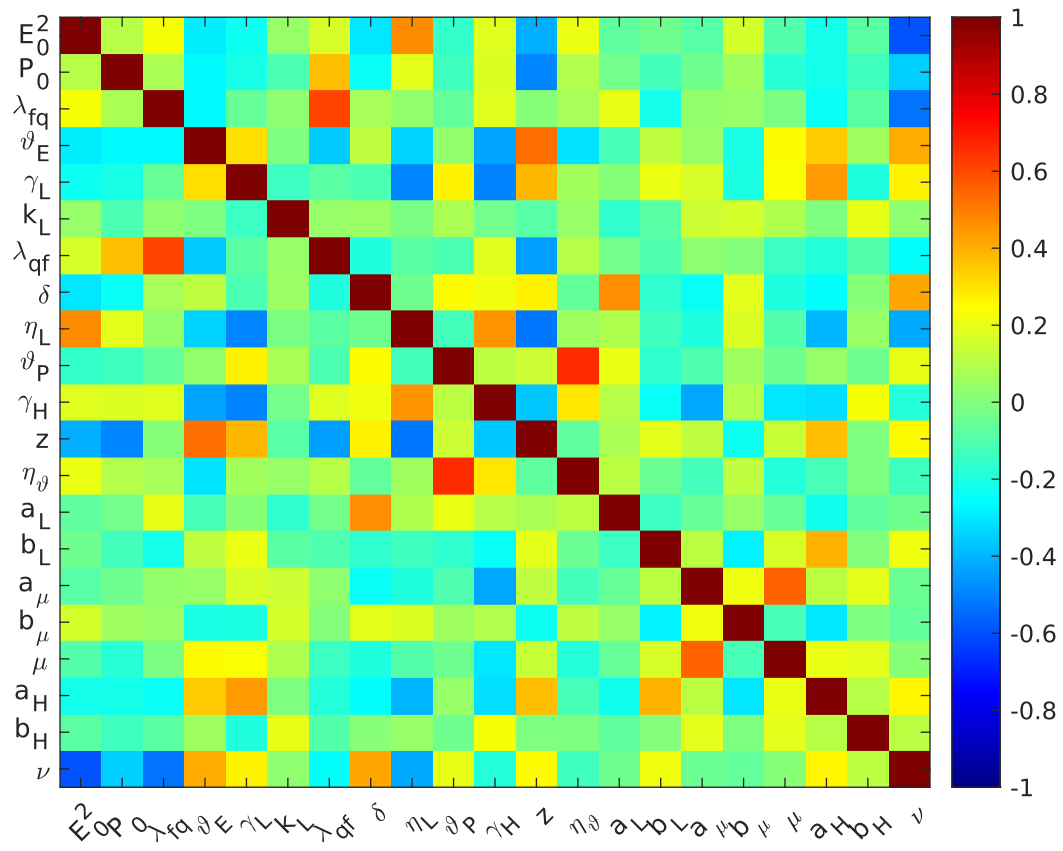
It was necessary to fix 0 parameters of 11 that could be fixed to complete validation.

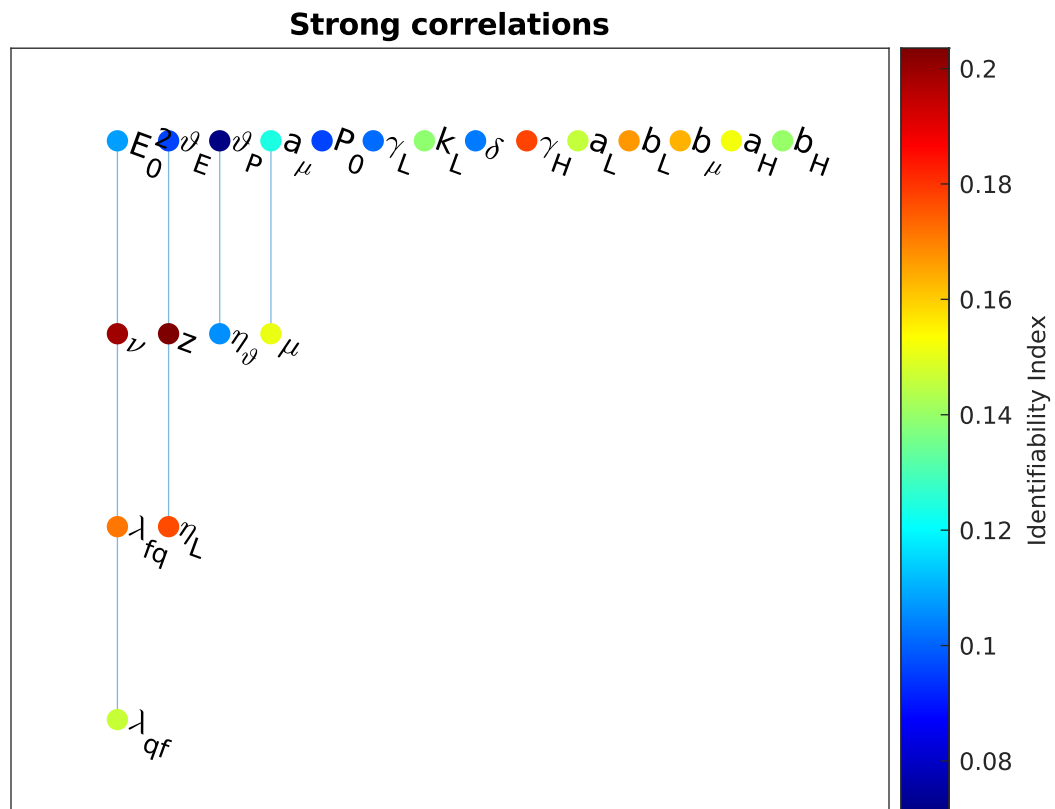
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
E^2_0	'0.0388'	'0.3976'	'6.299'	'0.1767'	'0.1079'
P_0	'0.0043'	'0.0358'	'0.9095'	'0.0159'	'0.0963'
\lambda_{fq}	'0.1086'	'0.1204'	'0.5253'	'0.1164'	'0.1714'
\vartheta_E	'0.0229'	'0.031'	'0.003'	'0.0237'	'0.0962'
\gamma_L	'0.2938'	'0.3574'	'0'	'0.3571'	'0.1016'
k_L	'1.6328'	'8.7603'	'5.9159'	'4.193'	'0.139'
\lambda_{qf}	'0.0656'	'0.0749'	'0.3349'	'0.0729'	'0.1463'
\delta	'0.0008'	'0.0013'	'0.0059'	'0.001'	'0.1032'
\eta_L	'0.1328'	'0.4774'	'0.5573'	'0.3151'	'0.1771'
\vartheta_P	'0'	'0'	'0'	'0'	'0.0711'
\gamma_H	'0'	'0.0234'	'0.6883'	'0.0172'	'0.1781'
z	'23.4931'	'30'	'12.0657'	'29.9999'	'0.2035'
\eta_{\vartheta}	'0.608'	'0.7254'	'0.5506'	'0.609'	'0.1062'
a_L	'1'	'1.1303'	'2.6086'	'1'	'0.1461'
b_L	'11.268'	'15'	'3.7457'	'15'	'0.167'
a_{\mu}	'2.2625'	'8.6333'	'1.7804'	'2.5549'	'0.1242'
b_{\mu}	'1'	'2.7966'	'5.6691'	'1.005'	'0.1634'
\mu	'0.1528'	'0.8663'	'0.0733'	'0.4185'	'0.1508'
a_H	'2.3484'	'15'	'2.3743'	'13.7103'	'0.1522'
b_H	'1'	'14.3'	'5.0821'	'1.1401'	'0.1403'
\nu	'405.8031'	'500'	'349.9928'	'499.9985'	'0.1994'

1.3. Identifiability analysis

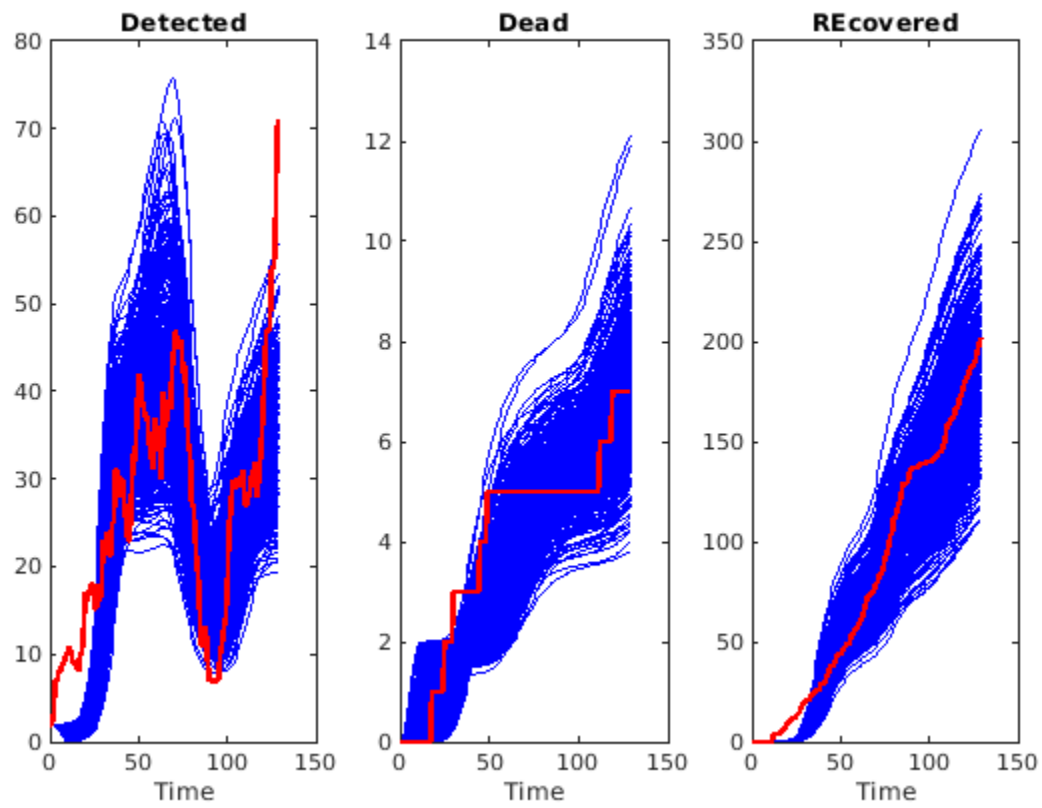






1.4. Uncertainty analysis

N=500



Chapter 2. Extension number2

2.1. Basic information

The extension to be validated consists of the time series from the data130 to the 191. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

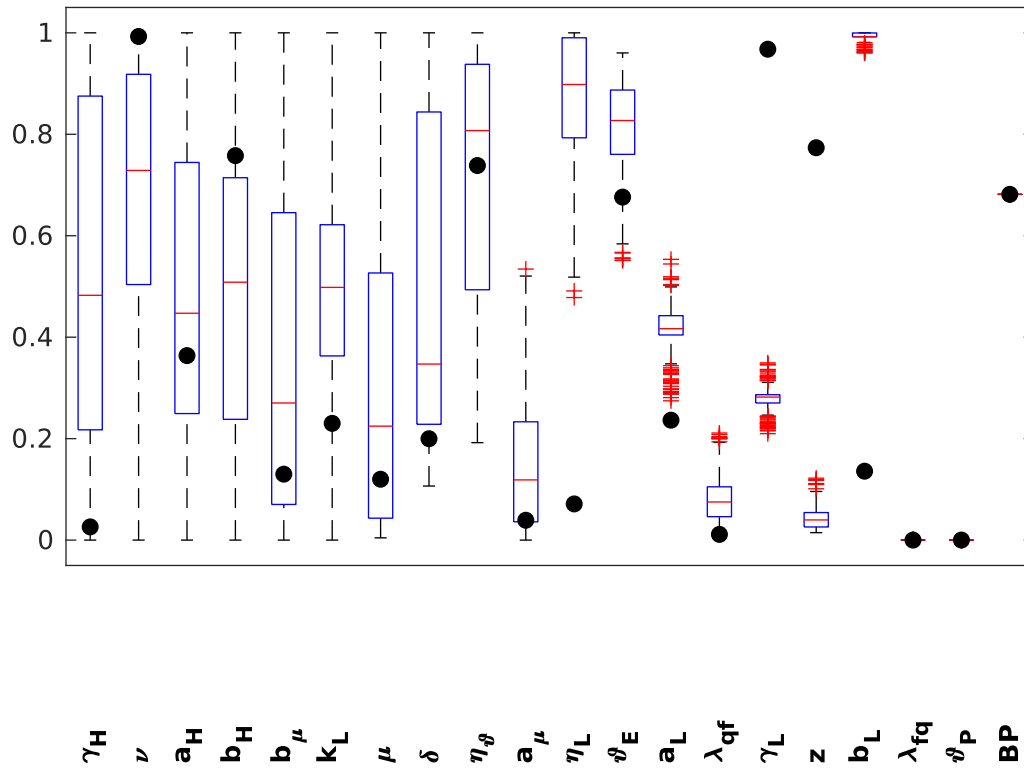
2.2. Estimated parameters with their intervals

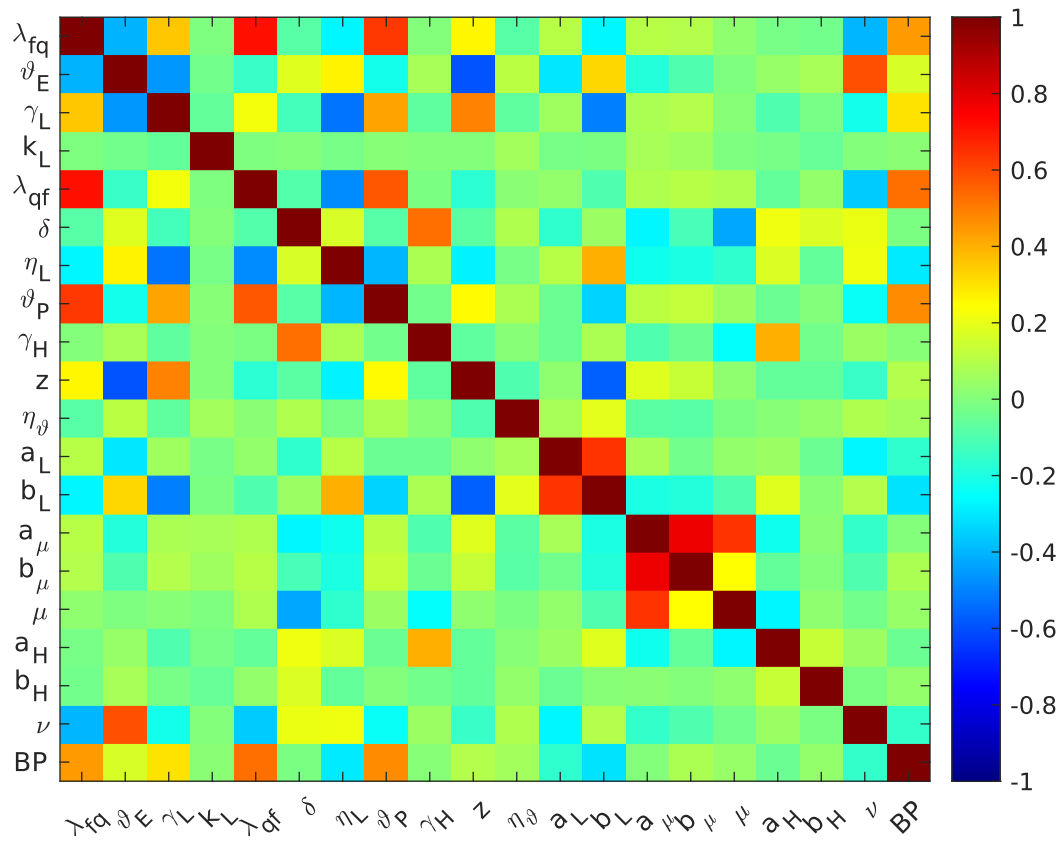
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

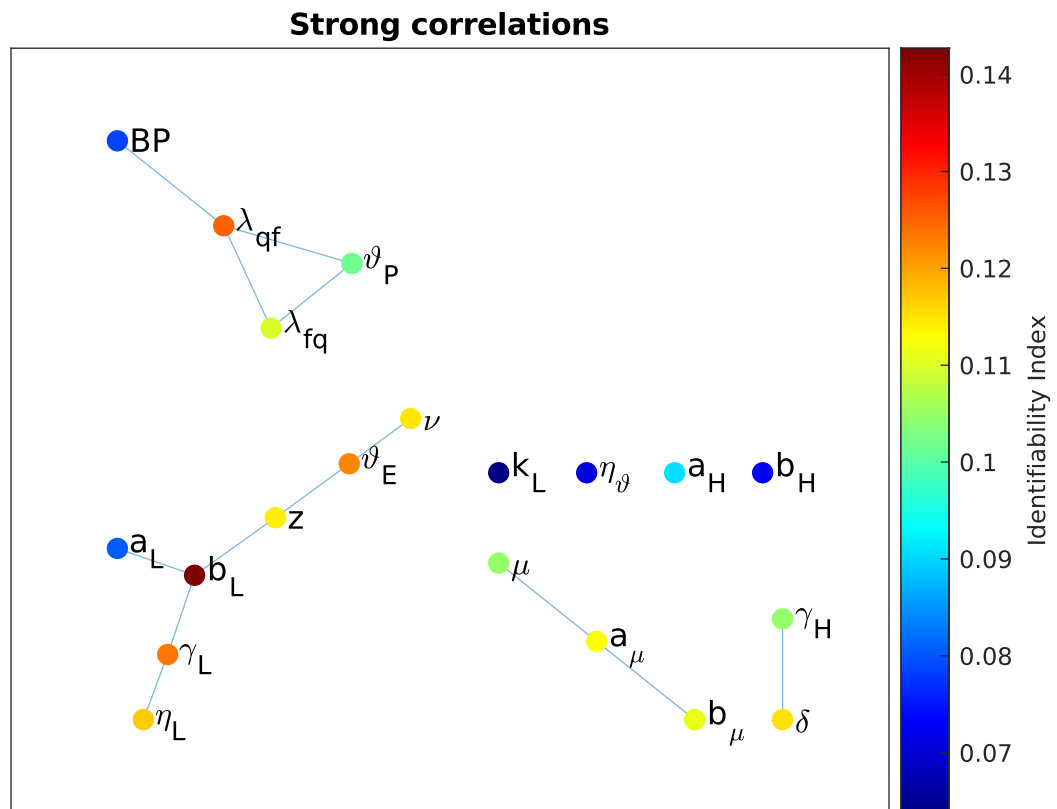
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0'	'0.0004'	'0.0001'	'0'	'0.1099'
ϑ_E	'0.5702'	'0.7432'	'0.8271'	'0.6762'	'0.1222'
γ_L	'0.4854'	'1'	'0.282'	'0.9677'	'0.1234'
k_L	'1.45'	'10'	'5.4836'	'3.0709'	'0.0639'
λ_{qf}	'0.0098'	'0.0122'	'0.0752'	'0.0113'	'0.1251'
δ	'0.0238'	'0.0304'	'0.0521'	'0.03'	'0.1152'
η_L	'0.0371'	'0.1026'	'0.8982'	'0.0713'	'0.1171'
ϑ_P	'0'	'0.0003'	'0'	'0.0001'	'0.102'
γ_H	'0'	'0.0586'	'0.4826'	'0.026'	'0.1046'
z	'18.4556'	'25.8786'	'1.1925'	'23.2041'	'0.1143'
η_{ϑ}	'0.4029'	'1'	'0.8073'	'0.7384'	'0.0708'
a_L	'4.1654'	'5.4582'	'6.8346'	'4.3098'	'0.0808'
b_L	'2.7577'	'4.7545'	'14.8909'	'2.9017'	'0.1427'
a_{μ}	'1.3464'	'3.5932'	'2.6612'	'1.5478'	'0.1127'
b_{μ}	'2.3895'	'12.473'	'4.7842'	'2.8202'	'0.1114'
μ	'0.107'	'0.4215'	'0.2246'	'0.12'	'0.1051'
a_H	'1'	'15'	'7.261'	'6.0922'	'0.0908'
b_H	'1'	'15'	'8.1178'	'11.6103'	'0.0728'
ν	'430.6033'	'500'	'364.376'	'496.4007'	'0.1147'
BP	'124.9456'	'130.823'	'130.5'	'130.5'	'0.0788'

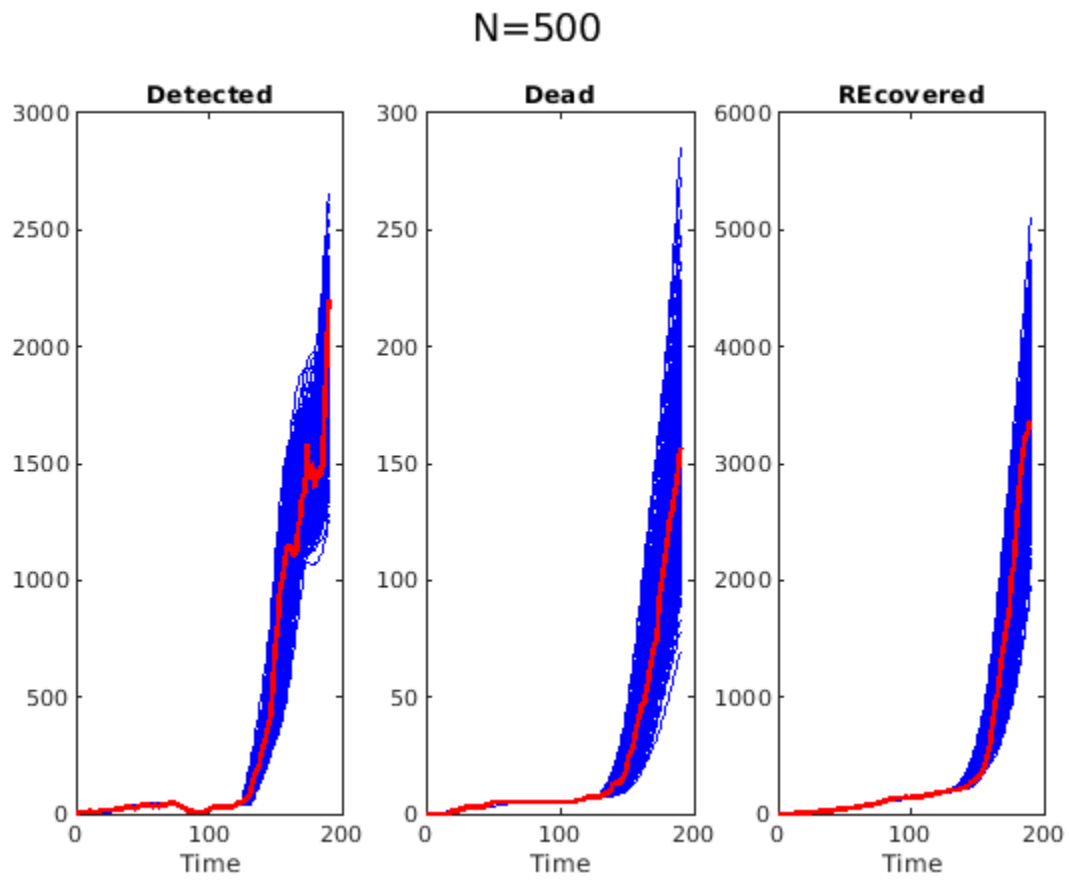
2.3. Identifiability analysis







2.4. Uncertainty analysis



Chapter 3. Extension number3

3.1. Basic information

The extension to be validated consists of the time series from the data191 to the 215. The status of the validation is: COMPLETED.

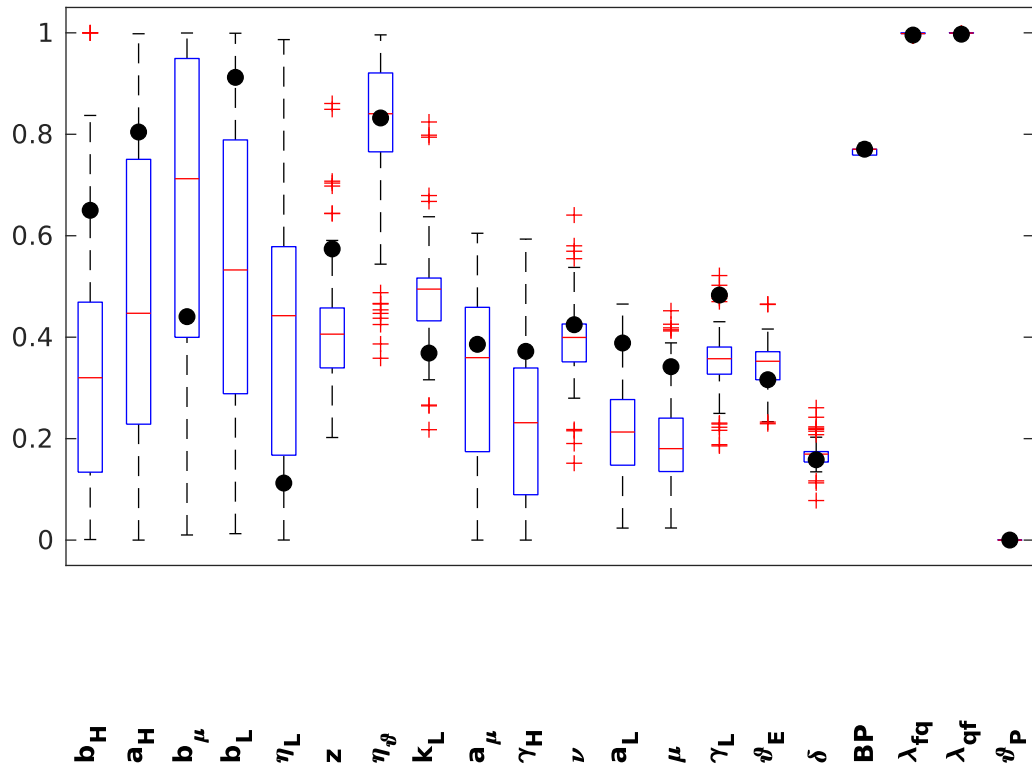
The number of estimations needed to perform the validation was2000.

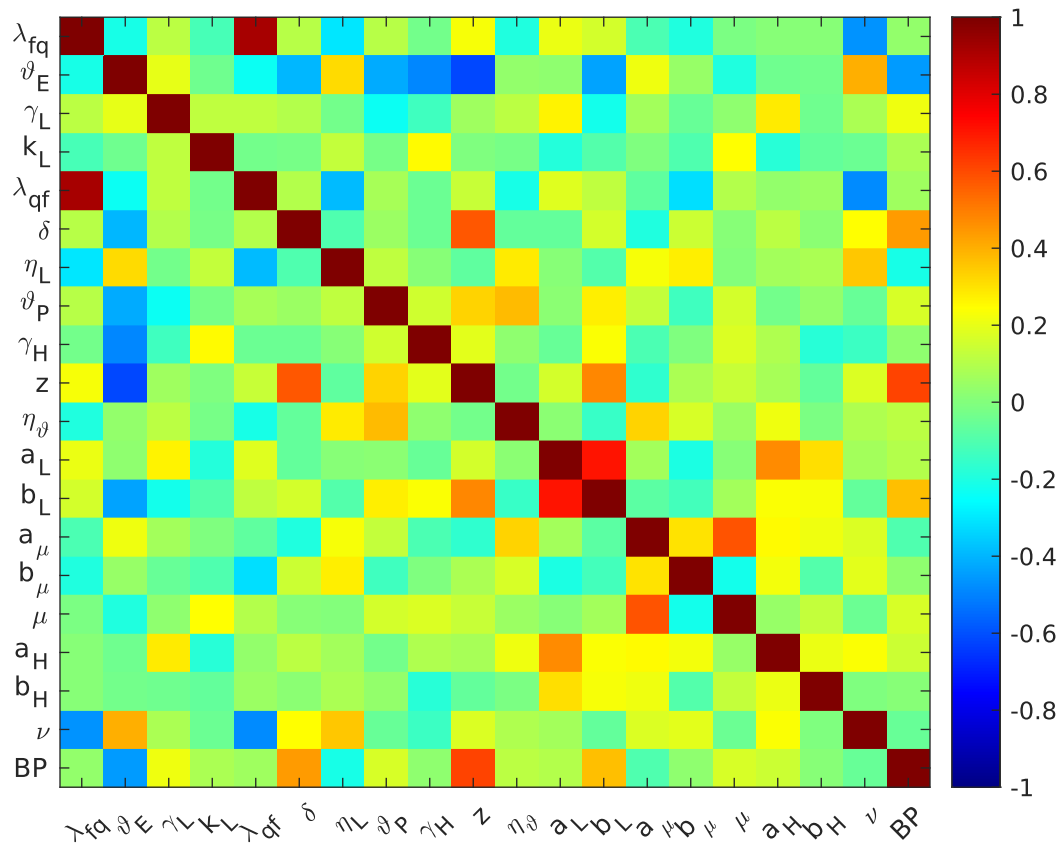
3.2. Estimated parameters with their intervals

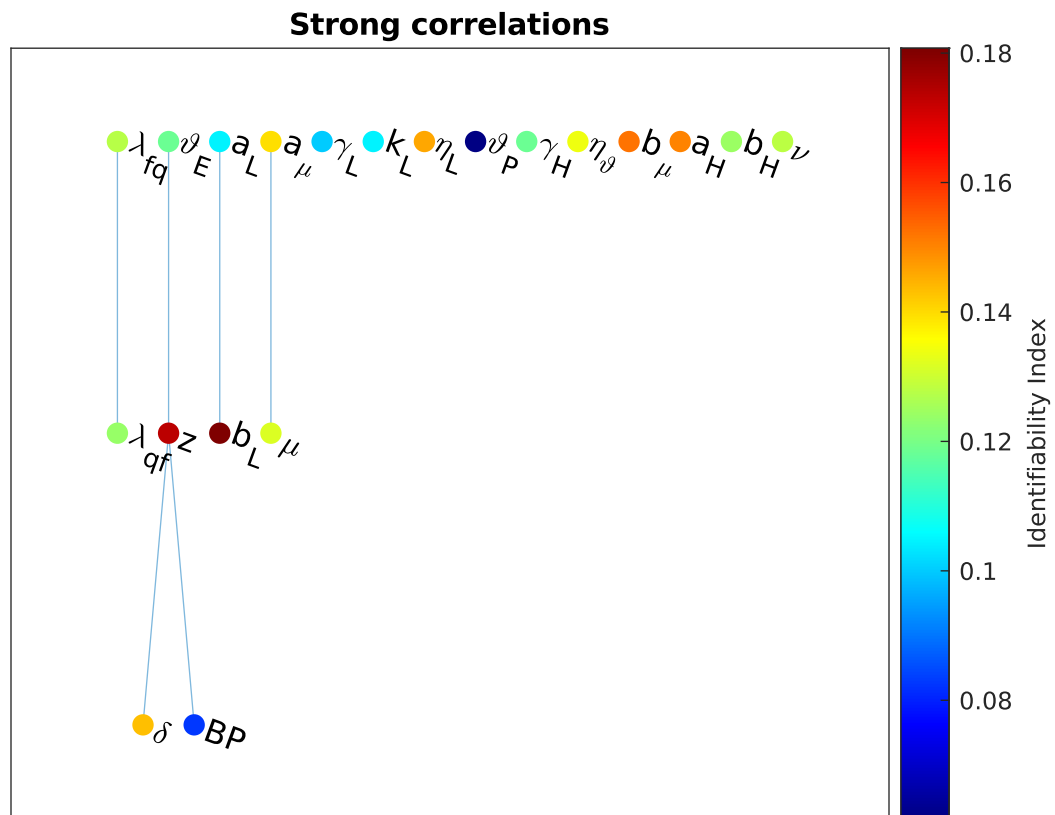
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.9076'	'1'	'0.9985'	'0.9956'	'0.1275'
ϑ_E	'0.3306'	'0.3745'	'0.3526'	'0.3162'	'0.1189'
γ_L	'0.313'	'0.4021'	'0.3575'	'0.4831'	'0.1001'
k_L	'4.9296'	'5.9766'	'5.4531'	'4.3183'	'0.1049'
λ_{qf}	'0.9186'	'1'	'0.9996'	'0.9973'	'0.1236'
δ	'0.015'	'0.0358'	'0.0254'	'0.0238'	'0.1435'
η_L	'0.3595'	'0.5253'	'0.4424'	'0.1125'	'0.1462'
ϑ_P	'0'	'0.0017'	'0.0001'	'0.0001'	'0.0618'
γ_H	'0.1672'	'0.2956'	'0.2314'	'0.3721'	'0.1188'
z	'10.4062'	'13.9534'	'12.1798'	'17.2208'	'0.1736'
η_{ϑ}	'0.7624'	'0.9186'	'0.8405'	'0.8322'	'0.1342'
a_L	'3.5871'	'4.3789'	'3.983'	'6.4394'	'0.1048'
b_L	'7.1993'	'9.7119'	'8.4556'	'13.7709'	'0.1808'
a_{μ}	'5.1949'	'6.8755'	'6.0352'	'6.4031'	'0.1395'
b_{μ}	'9.6964'	'12.2513'	'10.9738'	'7.1667'	'0.1522'
μ	'0.1157'	'0.2448'	'0.1803'	'0.3418'	'0.1316'
a_H	'6.0175'	'8.5027'	'7.2601'	'12.2625'	'0.1505'
b_H	'4.3963'	'6.5663'	'5.4813'	'10.1019'	'0.1244'
ν	'169.1411'	'230.3666'	'199.7538'	'212.2907'	'0.1281'
BP	'195.2169'	'195.7831'	'195.5'	'195.5'	'0.0828'

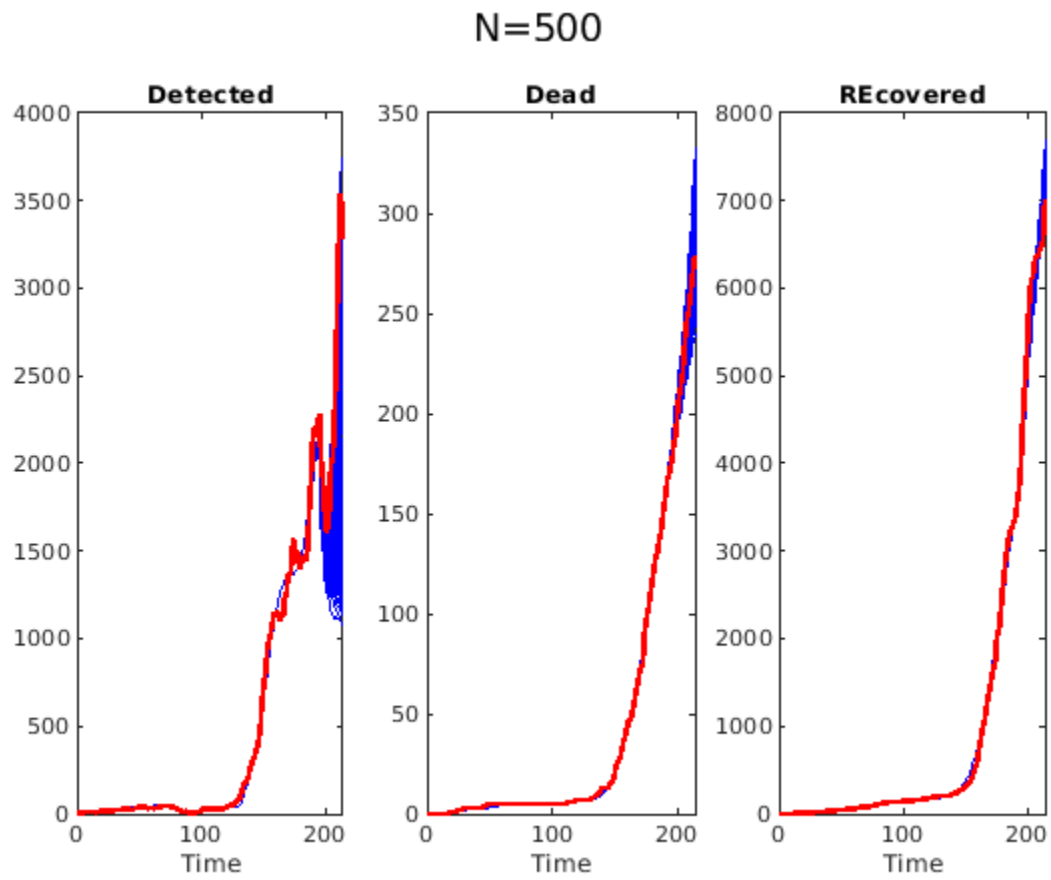
3.3. Identifiability analysis







3.4. Uncertainty analysys



Chapter 4. Extension number4

4.1. Basic information

The extension to be validated consists of the time series from the data215 to the 235. The status of the validation is: COMPLETED.

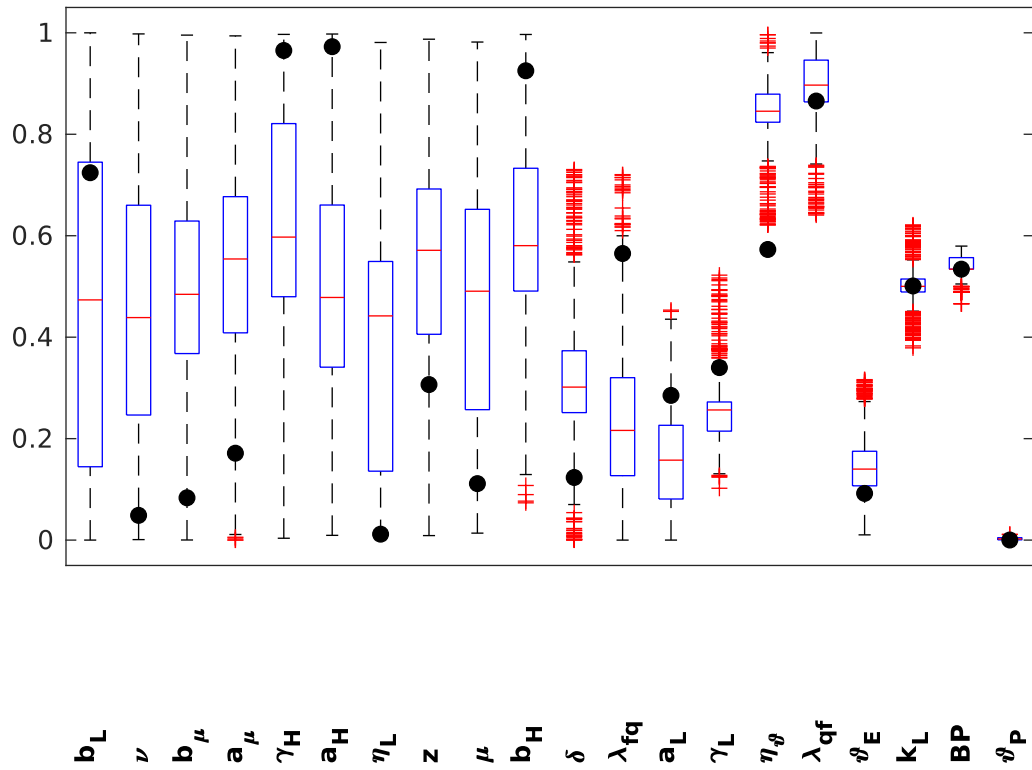
The number of estimations needed to perform the validation was1000.

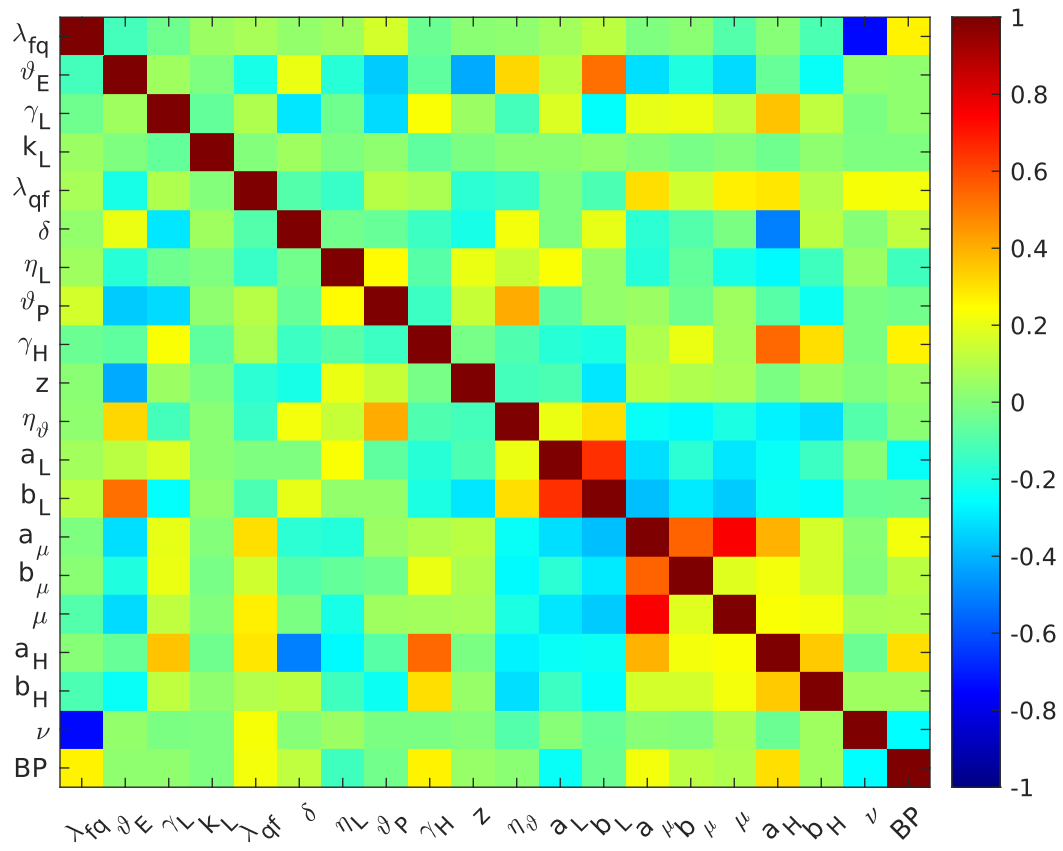
4.2. Estimated parameters with their intervals

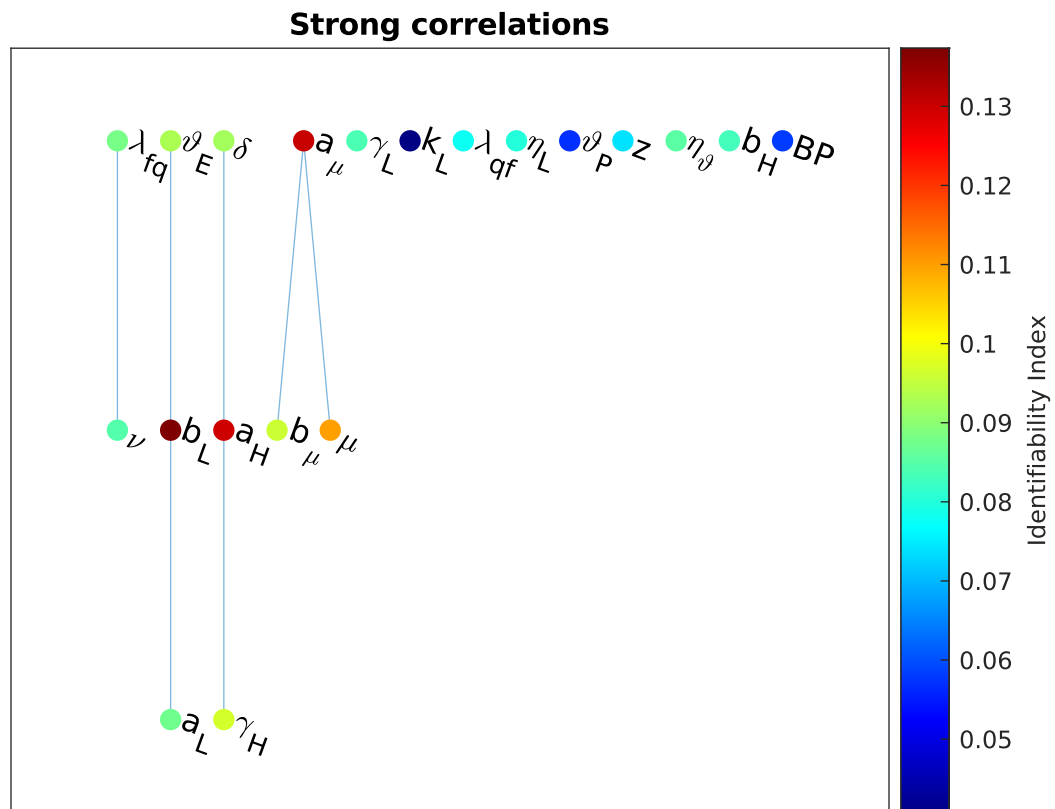
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.1912'	'0.2414'	'0.2163'	'0.5649'	'0.0882'
ϑ_E	'0.1312'	'0.1487'	'0.14'	'0.0921'	'0.0931'
γ_L	'0.2328'	'0.2803'	'0.2566'	'0.34'	'0.0839'
k_L	'5.4115'	'5.5923'	'5.5019'	'5.5086'	'0.0408'
λ_{qf}	'0.8788'	'0.9149'	'0.8968'	'0.8655'	'0.078'
δ	'0.0418'	'0.0487'	'0.0452'	'0.0185'	'0.0923'
η_L	'0.4168'	'0.4671'	'0.442'	'0.0117'	'0.0803'
ϑ_P	'0.002'	'0.0026'	'0.0023'	'0.0002'	'0.0572'
γ_H	'0.5733'	'0.6212'	'0.5973'	'0.9651'	'0.0968'
z	'16.4714'	'17.8042'	'17.1378'	'9.1978'	'0.074'
η_{ϑ}	'0.8294'	'0.8614'	'0.8454'	'0.5729'	'0.0855'
a_L	'3.0747'	'3.3379'	'3.2063'	'4.9935'	'0.0872'
b_L	'7.1685'	'8.0893'	'7.6289'	'11.1388'	'0.1373'
a_{μ}	'8.4171'	'9.0996'	'8.7583'	'3.3982'	'0.1303'
b_{μ}	'7.4965'	'8.069'	'7.7827'	'2.1676'	'0.0959'
μ	'0.4641'	'0.5172'	'0.4906'	'0.1113'	'0.1098'
a_H	'7.3591'	'8.0334'	'7.6962'	'14.617'	'0.1297'
b_H	'8.8517'	'9.3983'	'9.125'	'13.9525'	'0.0833'
ν	'206.4278'	'232.2054'	'219.3166'	'24.3984'	'0.0848'
BP	'214.412'	'214.588'	'214.5'	'214.5'	'0.0581'

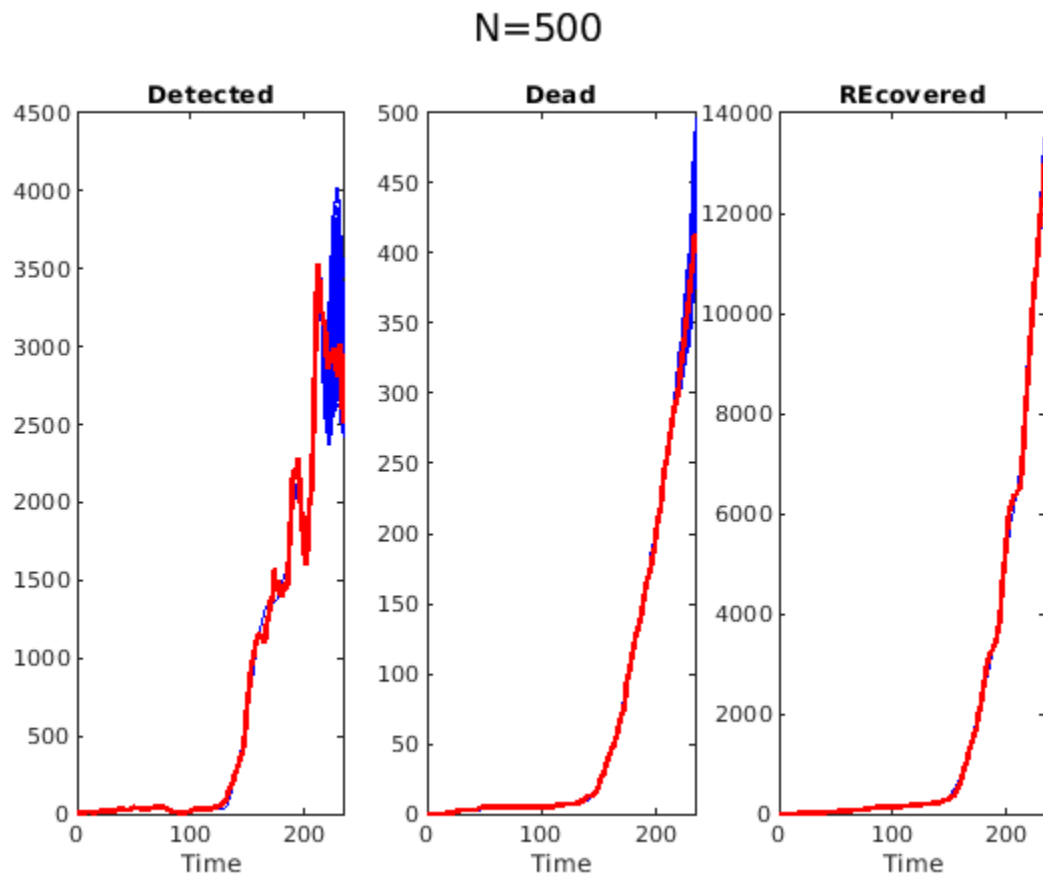
4.3. Identifiability analysis







4.4. Uncertainty analysys



Chapter 5. Extension number5

5.1. Basic information

The extension to be validated consists of the time series from the data235 to the 270. The status of the validation is: COMPLETED.

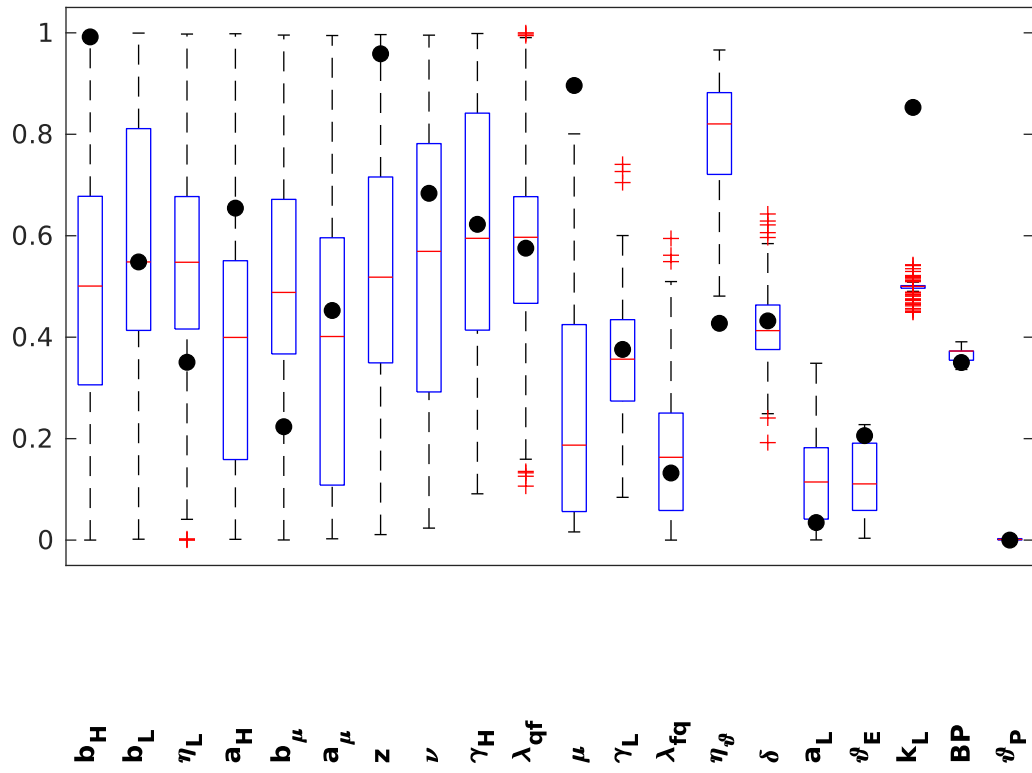
The number of estimations needed to perform the validation was1000.

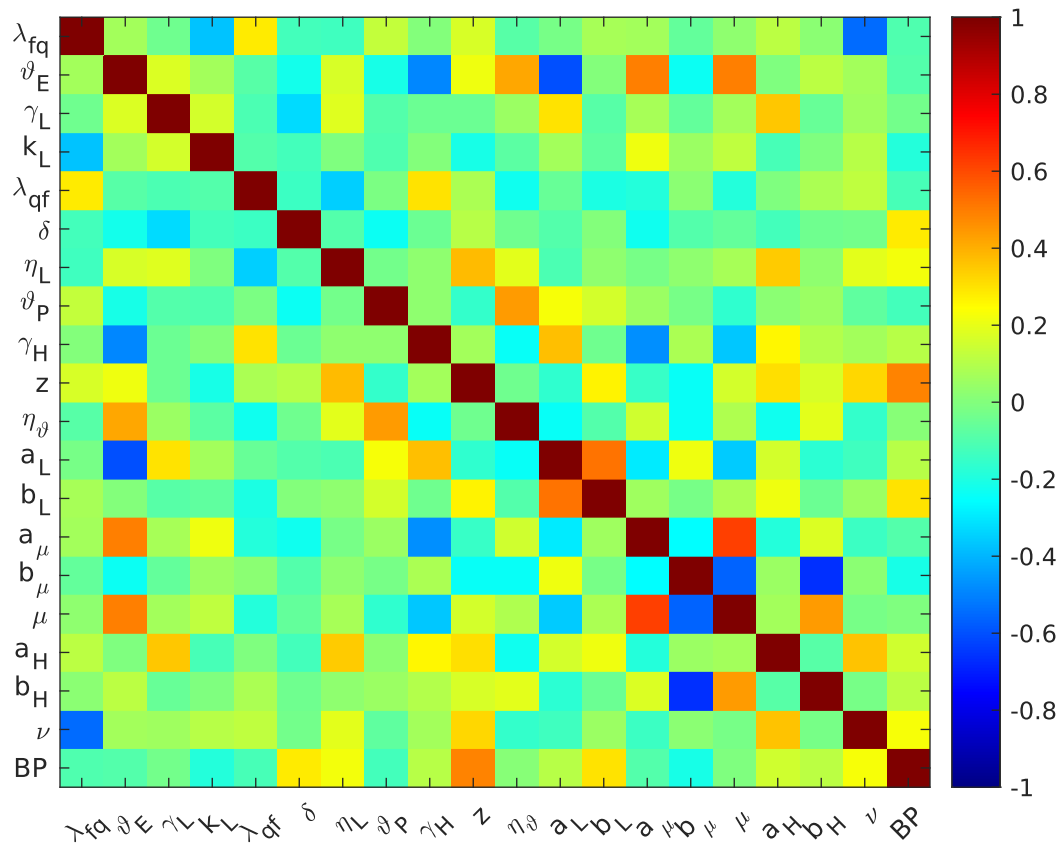
5.2. Estimated parameters with their intervals

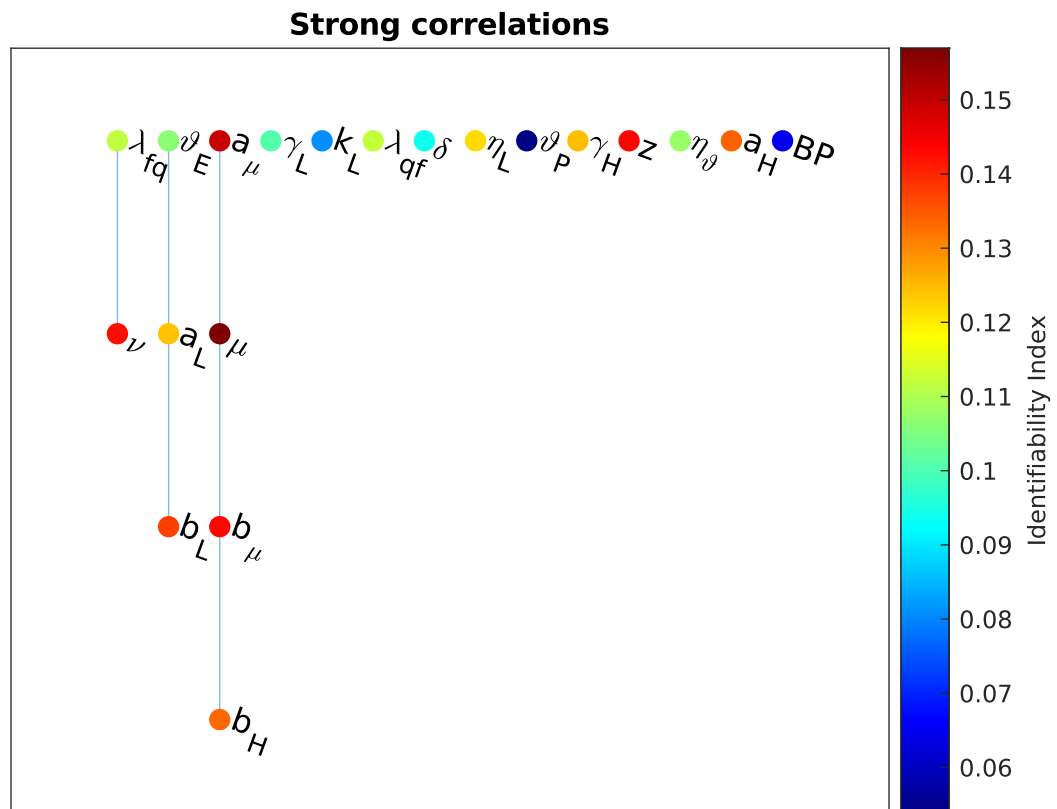
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.119'	'0.2075'	'0.1632'	'0.1323'	'0.1118'
ϑ_E	'0.0941'	'0.1275'	'0.1108'	'0.2059'	'0.1065'
γ_L	'0.3096'	'0.4038'	'0.3567'	'0.3759'	'0.1007'
k_L	'5.2336'	'5.7689'	'5.5012'	'8.6766'	'0.0813'
λ_{qf}	'0.543'	'0.6509'	'0.597'	'0.5754'	'0.112'
δ	'0.056'	'0.0679'	'0.0619'	'0.0648'	'0.094'
η_L	'0.4833'	'0.6122'	'0.5477'	'0.3506'	'0.1219'
ϑ_P	'0.0007'	'0.0017'	'0.0012'	'0'	'0.054'
γ_H	'0.5339'	'0.656'	'0.5949'	'0.6225'	'0.1247'
z	'13.3882'	'17.7112'	'15.5497'	'28.7605'	'0.1435'
η_{ϑ}	'0.7772'	'0.8636'	'0.8204'	'0.4273'	'0.1078'
a_L	'2.2957'	'2.9118'	'2.6037'	'1.484'	'0.1241'
b_L	'7.679'	'9.6747'	'8.6769'	'8.6769'	'0.1375'
a_{μ}	'5.7348'	'7.5029'	'6.6189'	'7.3368'	'0.1495'
b_{μ}	'7.0736'	'8.5974'	'7.8355'	'4.1292'	'0.1431'
μ	'0.1297'	'0.2447'	'0.1872'	'0.8962'	'0.157'
a_H	'5.6205'	'7.5668'	'6.5937'	'10.1619'	'0.1339'
b_H	'7.1133'	'8.9089'	'8.0111'	'14.8877'	'0.1334'
ν	'248.8753'	'320.3114'	'284.5934'	'341.8212'	'0.1428'
BP	'235.3266'	'235.6724'	'235.4995'	'234.2539'	'0.0649'

5.3. Identifiability analysis

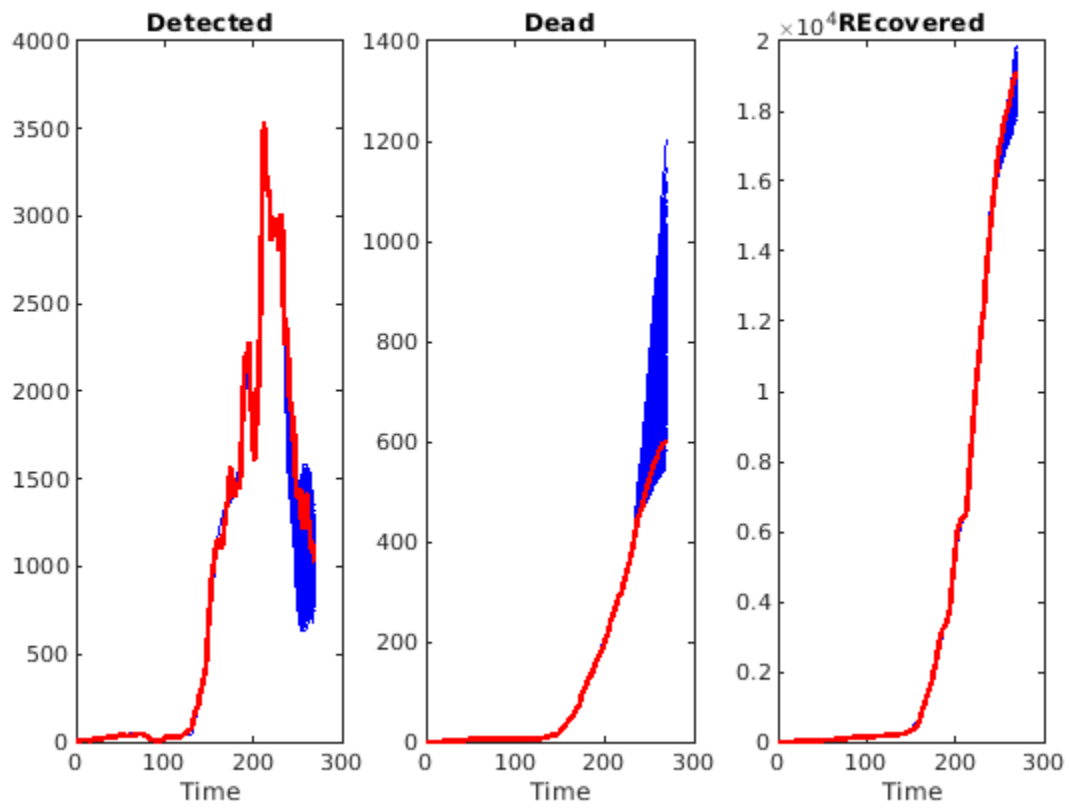






5.4. Uncertainty analysis

N=500



Chapter 6. Extension number6

6.1. Basic information

The extension to be validated consists of the time series from the data270 to the 301. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

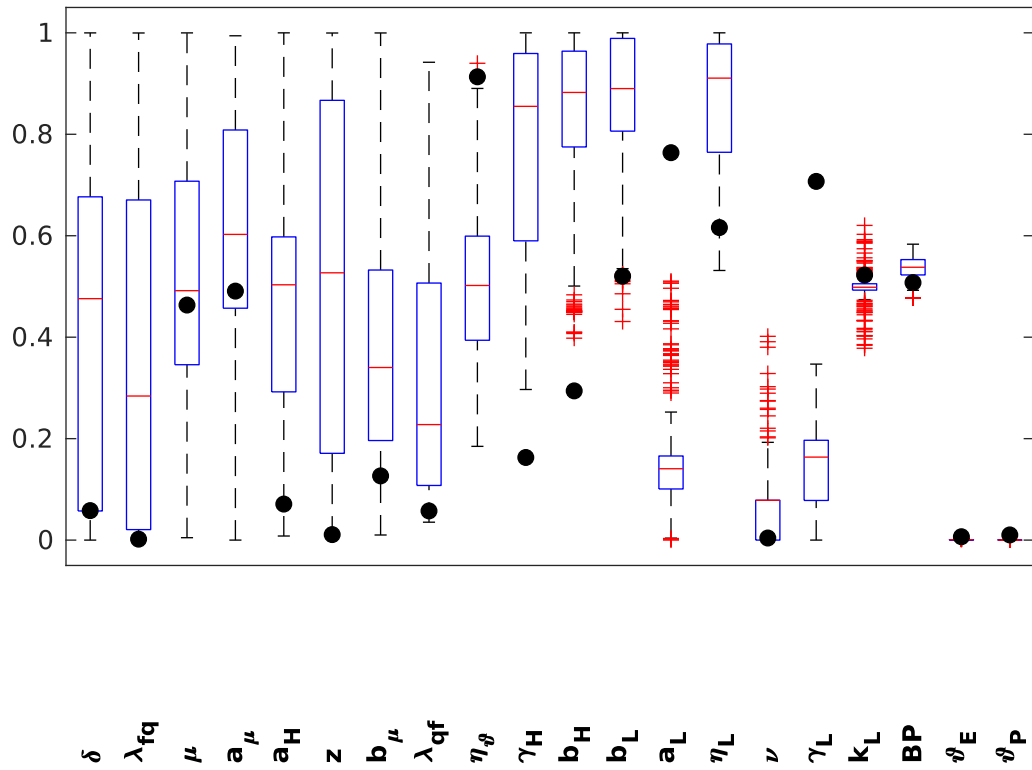
6.2. Estimated parameters with their intervals

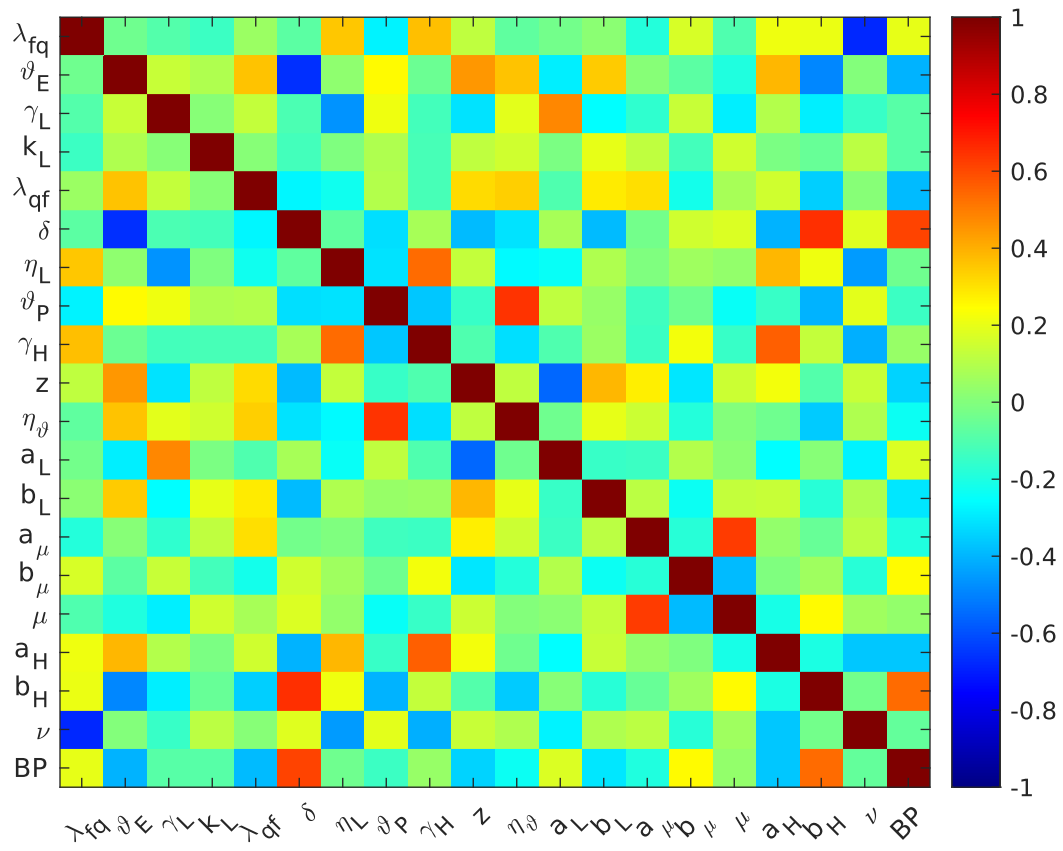
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

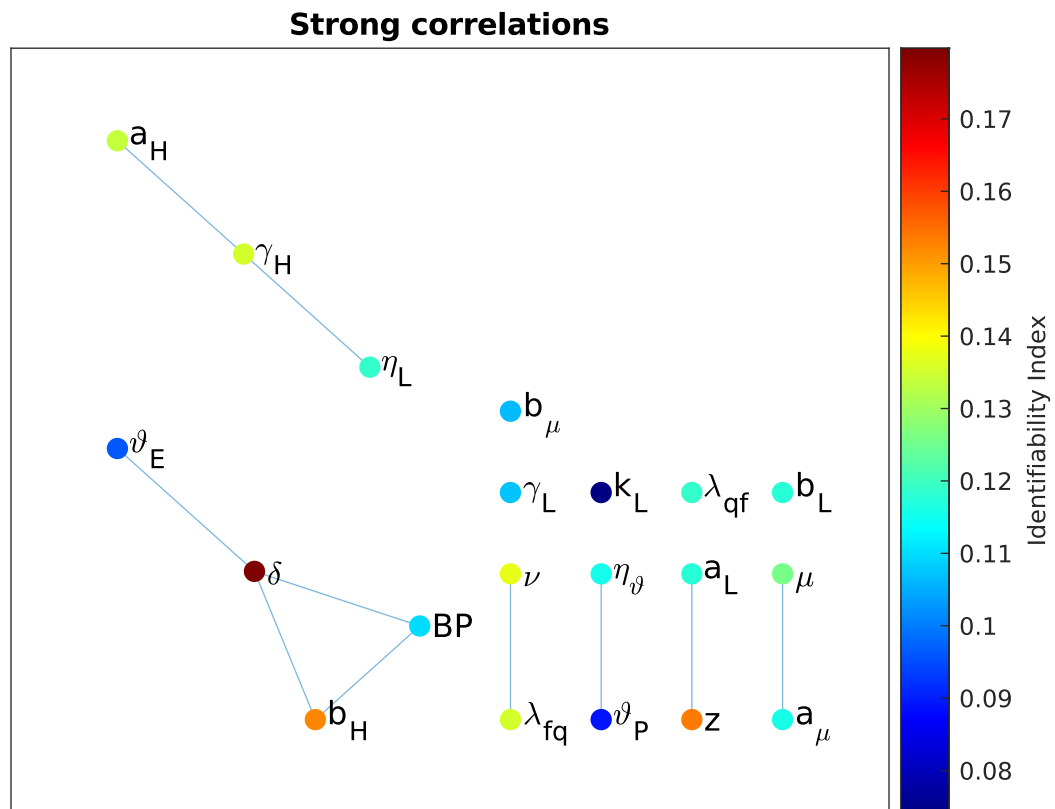
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.0002'	'0.0039'	'0.284'	'0.0019'	'0.1355'
ϑ_E	'0.0007'	'0.0136'	'0.0007'	'0.0067'	'0.0962'
γ_L	'0.2381'	'1'	'0.1636'	'0.7071'	'0.1074'
k_L	'1'	'9.55'	'5.4862'	'5.7022'	'0.0743'
λ_{qf}	'0.0032'	'0.1294'	'0.2277'	'0.0575'	'0.119'
δ	'0'	'0.017'	'0.0714'	'0.0087'	'0.1798'
η_L	'0.413'	'1'	'0.9107'	'0.6161'	'0.1189'
ϑ_P	'0.007'	'0.0103'	'0.0001'	'0.0102'	'0.0895'
γ_H	'0.103'	'0.3665'	'0.8551'	'0.1629'	'0.1353'
z	'0.219'	'0.4529'	'15.8076'	'0.3256'	'0.1538'
η_{ϑ}	'0.8919'	'0.9942'	'0.502'	'0.9133'	'0.1157'
a_L	'10.0363'	'14.4202'	'2.9696'	'11.6921'	'0.1178'
b_L	'5.6907'	'10.6552'	'13.4611'	'8.283'	'0.1176'
a_{μ}	'7.194'	'15'	'9.4369'	'7.8718'	'0.1162'
b_{μ}	'1'	'8.7414'	'5.7633'	'2.7723'	'0.1066'
μ	'0'	'0.7018'	'0.4917'	'0.4634'	'0.1261'
a_H	'1.464'	'6.5509'	'8.0461'	'1.9944'	'0.1338'
b_H	'4.3518'	'14.4676'	'13.3548'	'5.1181'	'0.1525'
ν	'0'	'4.4363'	'39.2684'	'2.0538'	'0.1373'
BP	'267.5814'	'284.2444'	'270.4998'	'268.5'	'0.1098'

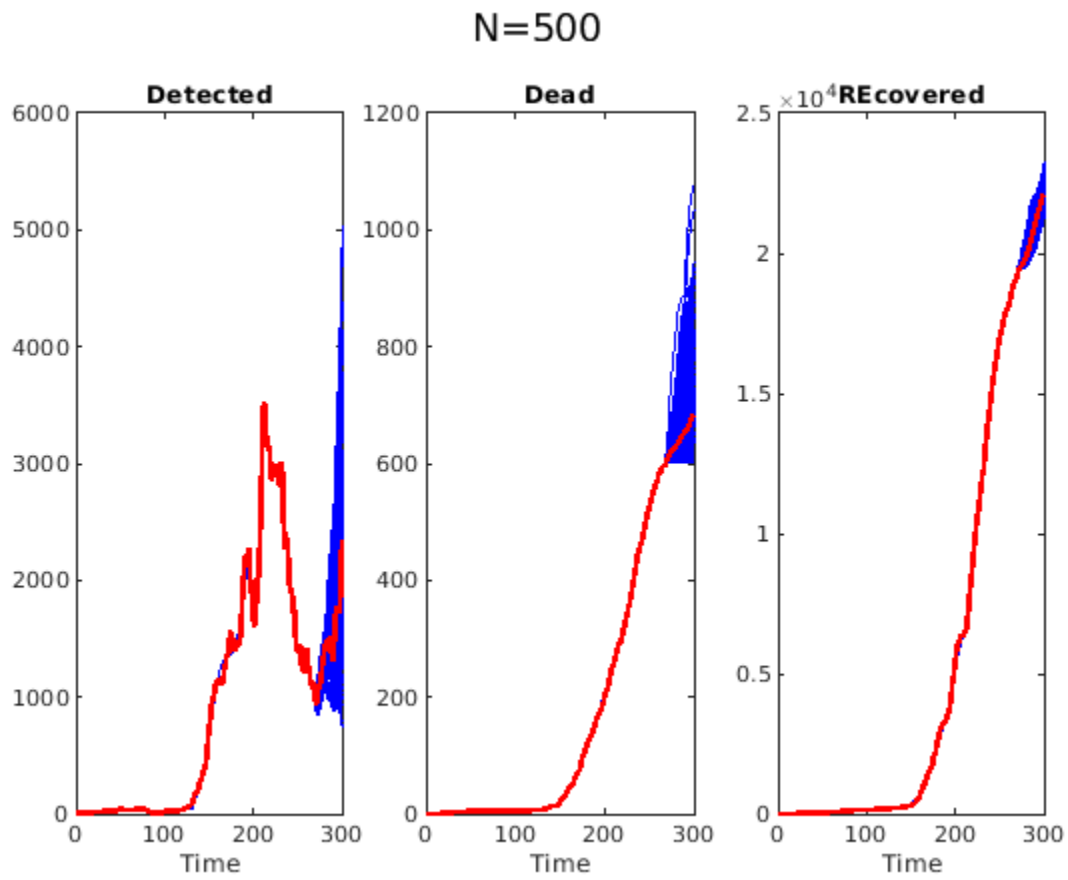
6.3. Identifiability analysis







6.4. Uncertainty analysys



Chapter 7. Extension number7

7.1. Basic information

The extension to be validated consists of the time series from the data301 to the 321. The status of the validation is: COMPLETED.

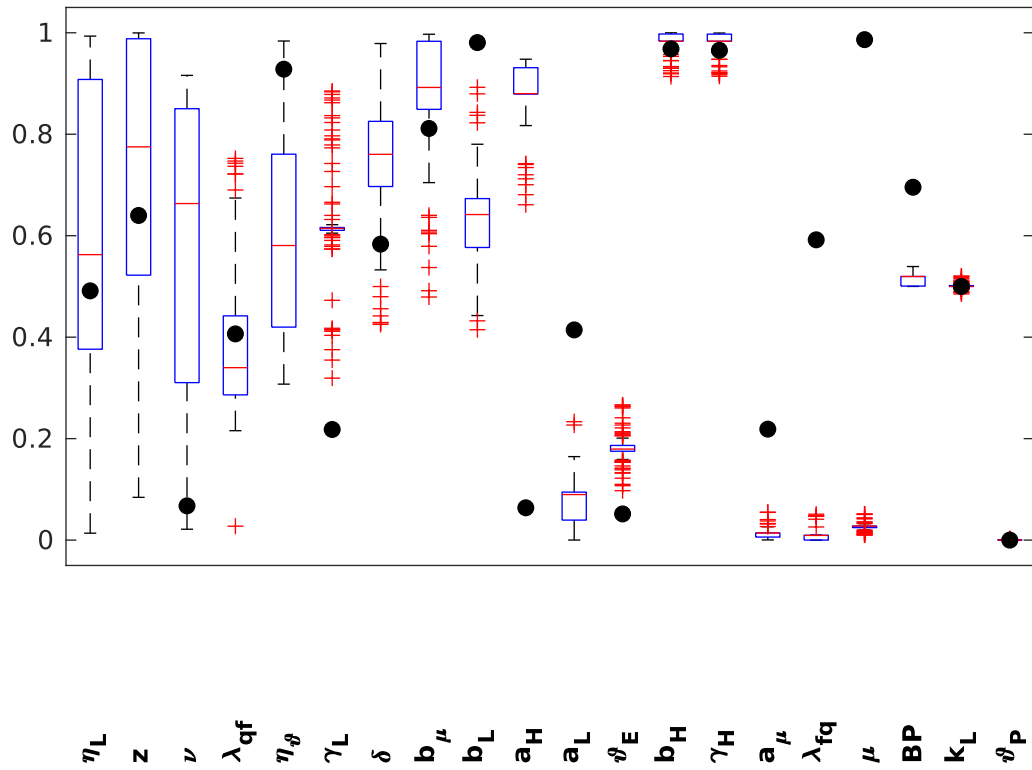
The number of estimations needed to perform the validation was2000.

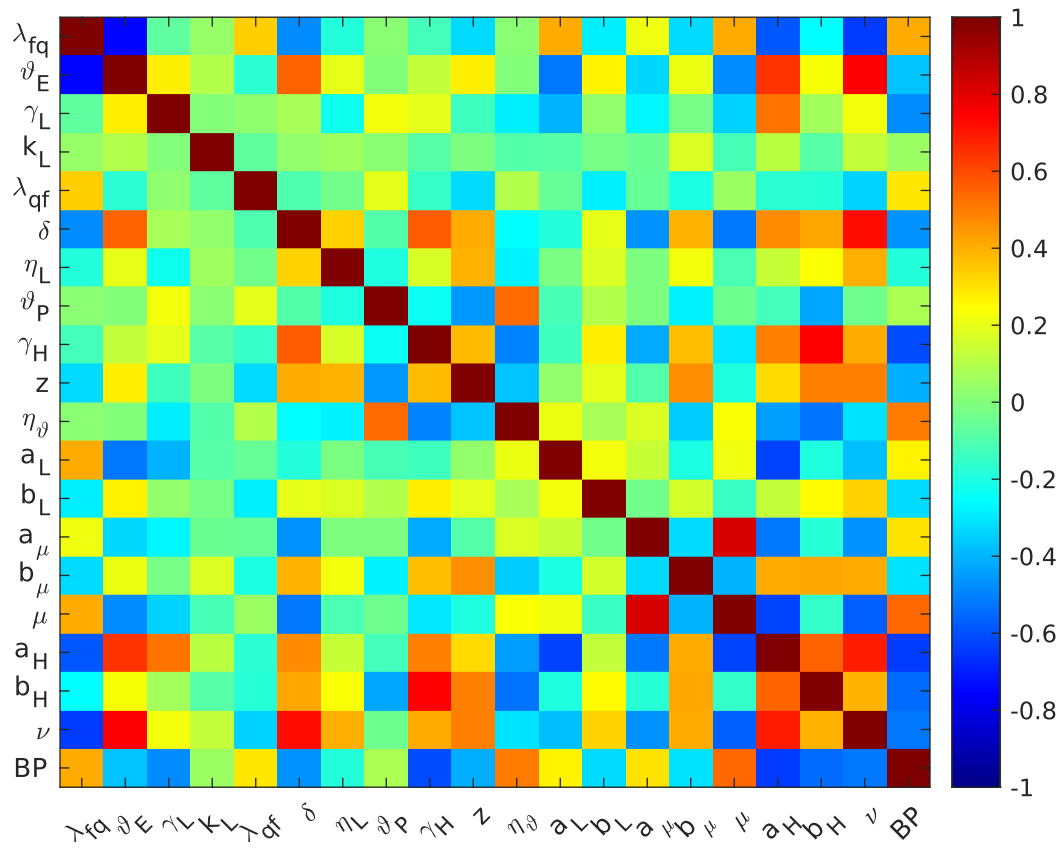
7.2. Estimated parameters with their intervals

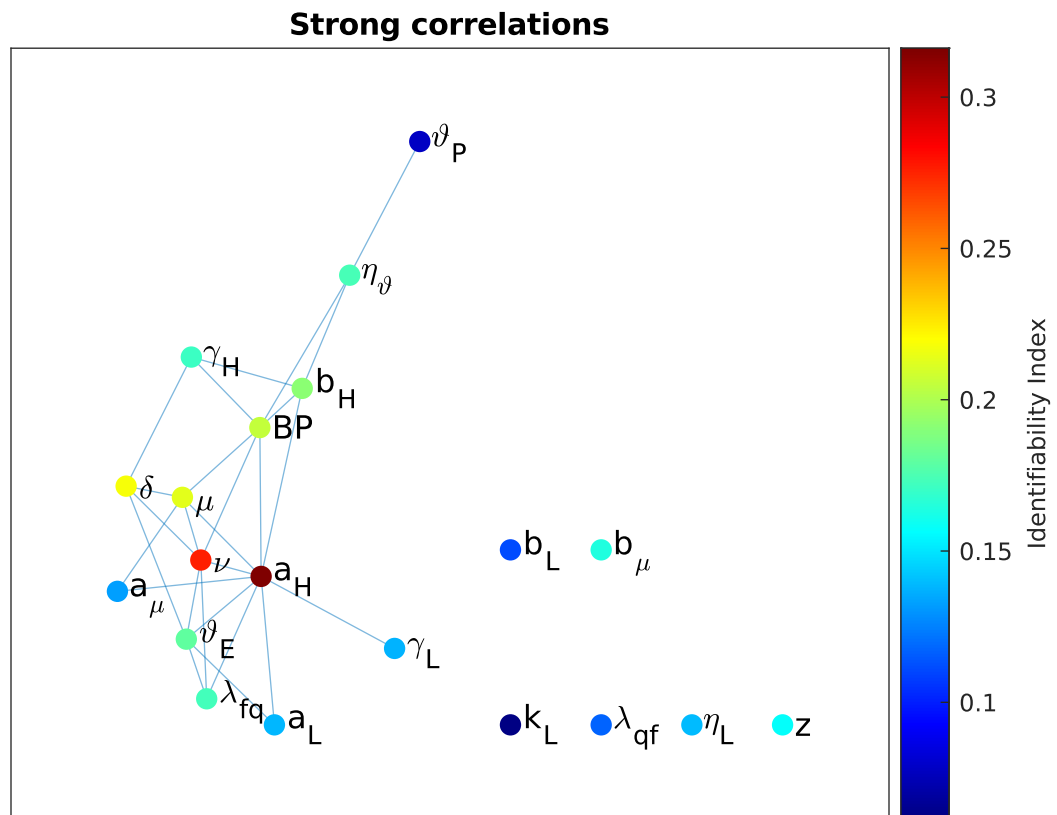
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0'	'0.0748'	'0.0095'	'0.5919'	'0.1731'
ϑ_E	'0.1643'	'0.1944'	'0.1794'	'0.0516'	'0.1808'
γ_L	'0.5626'	'0.6666'	'0.6146'	'0.218'	'0.1378'
k_L	'5.3163'	'5.6841'	'5.5002'	'5.5001'	'0.0617'
λ_{qf}	'0.2865'	'0.3934'	'0.3399'	'0.4065'	'0.1174'
δ	'0.1052'	'0.1229'	'0.114'	'0.0875'	'0.2181'
η_L	'0.4927'	'0.6326'	'0.5627'	'0.4913'	'0.1393'
ϑ_P	'0'	'0.0016'	'0.0005'	'0'	'0.0777'
γ_H	'0.9384'	'1'	'0.9833'	'0.9654'	'0.1715'
z	'21.4262'	'25.0819'	'23.2541'	'19.1965'	'0.158'
η_{ϑ}	'0.5339'	'0.6274'	'0.5806'	'0.9282'	'0.175'
a_L	'1.786'	'2.728'	'2.257'	'6.8005'	'0.1385'
b_L	'9.381'	'10.5863'	'9.9837'	'14.7292'	'0.112'
a_{μ}	'1'	'1.6206'	'1.1971'	'4.0621'	'0.1327'
b_{μ}	'12.5078'	'14.4518'	'13.4798'	'12.3598'	'0.1651'
μ	'0'	'0.0952'	'0.0277'	'0.9864'	'0.2133'
a_H	'12.2411'	'14.3735'	'13.3073'	'1.8916'	'0.3162'
b_H	'13.9689'	'15'	'14.7678'	'14.5561'	'0.1912'
ν	'295.147'	'368.2283'	'331.6877'	'33.7709'	'0.2758'
BP	'295.7641'	'297.2359'	'296.5'	'305.4717'	'0.2058'

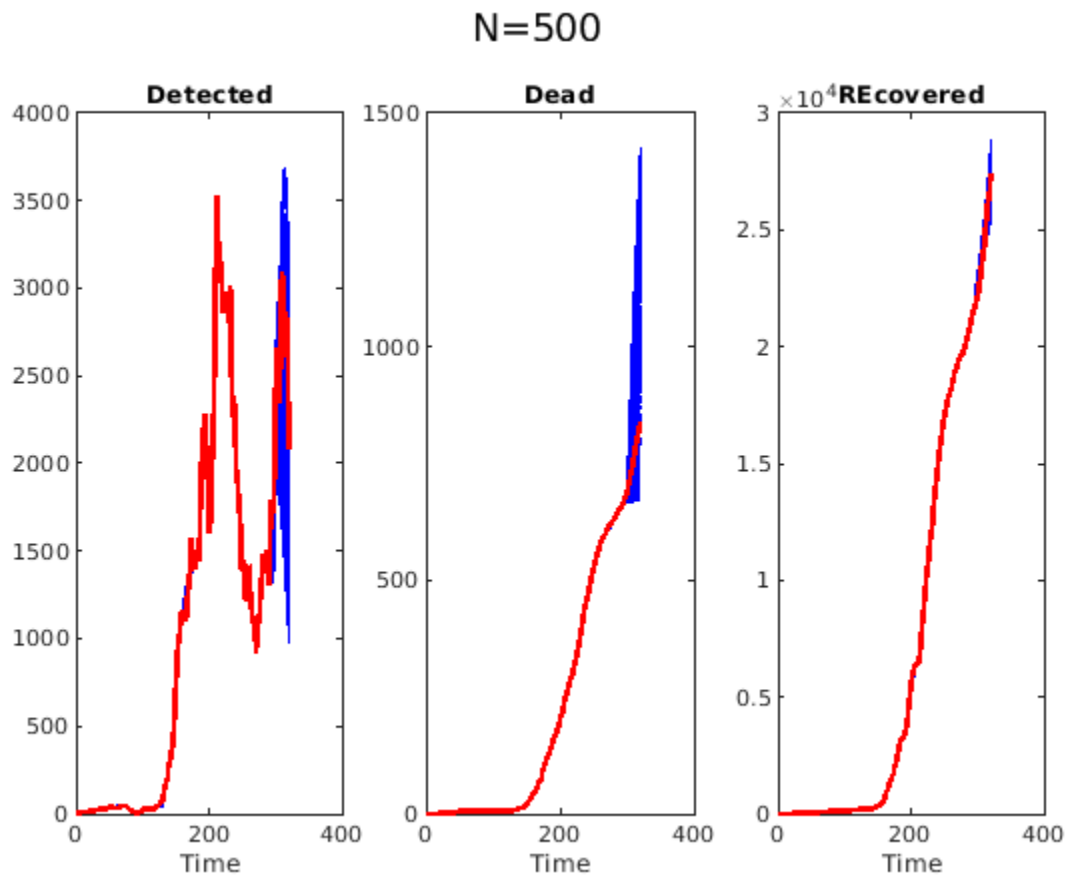
7.3. Identifiability analysys







7.4. Uncertainty analysys



Chapter 8. Extension number8

8.1. Basic information

The extension to be validated consists of the time series from the data321 to the 340. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

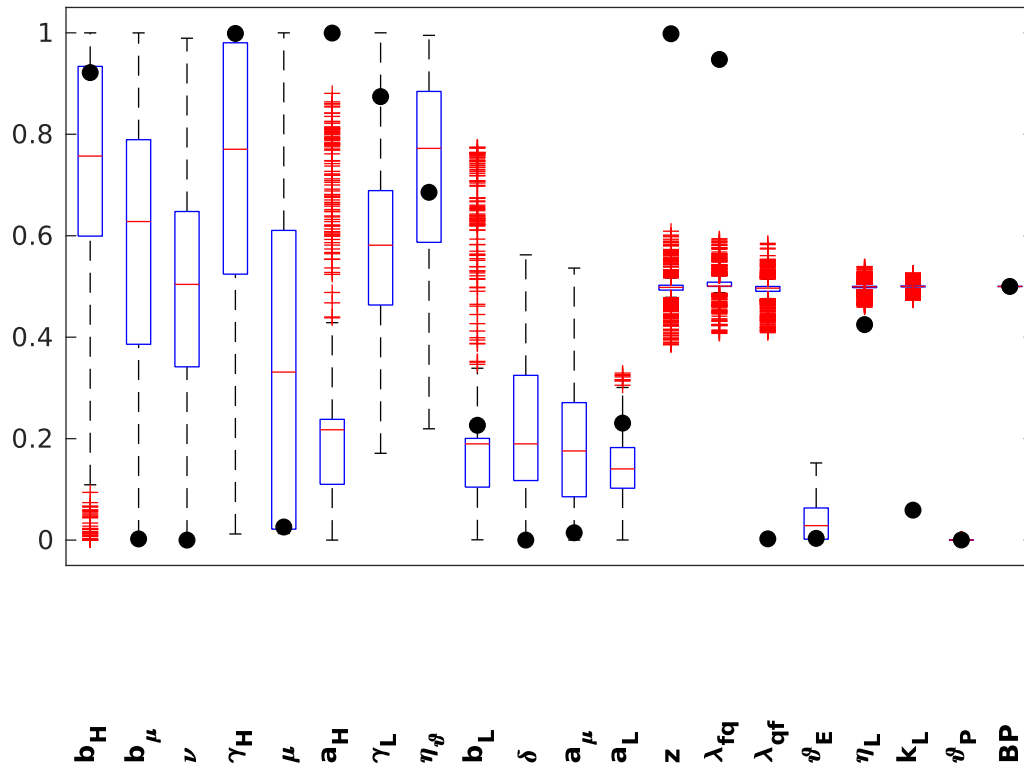
8.2. Estimated parameters with their intervals

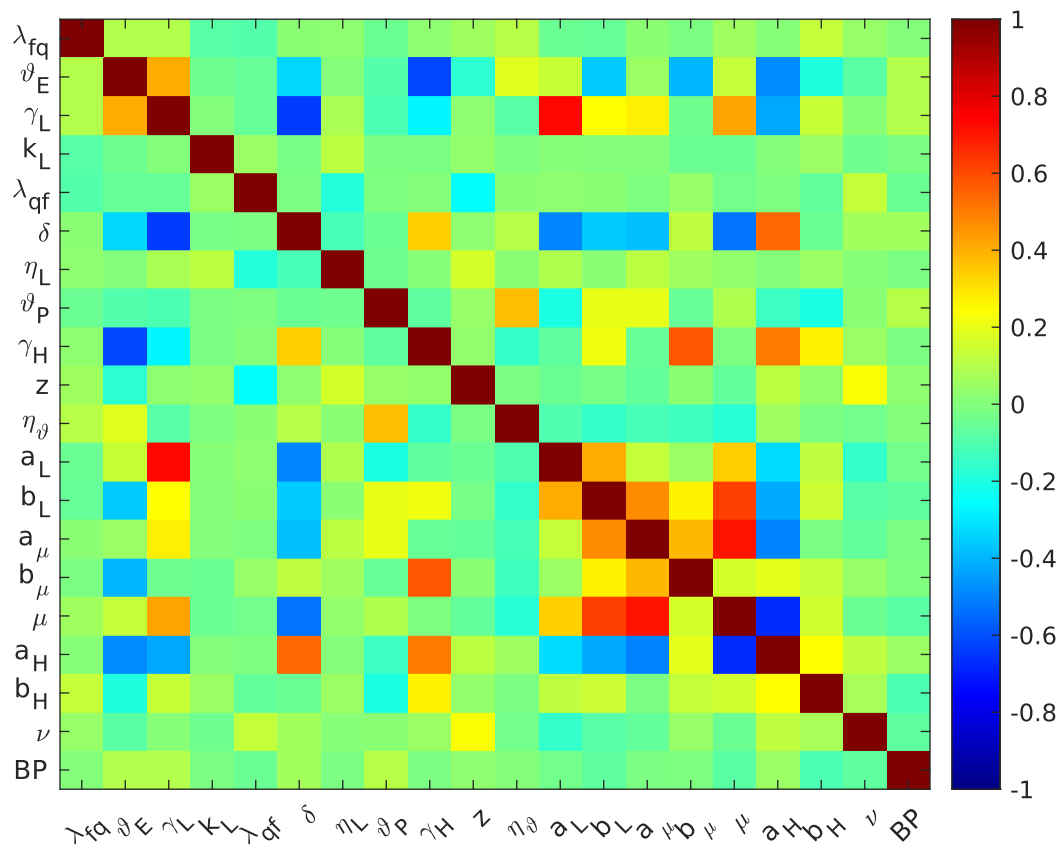
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

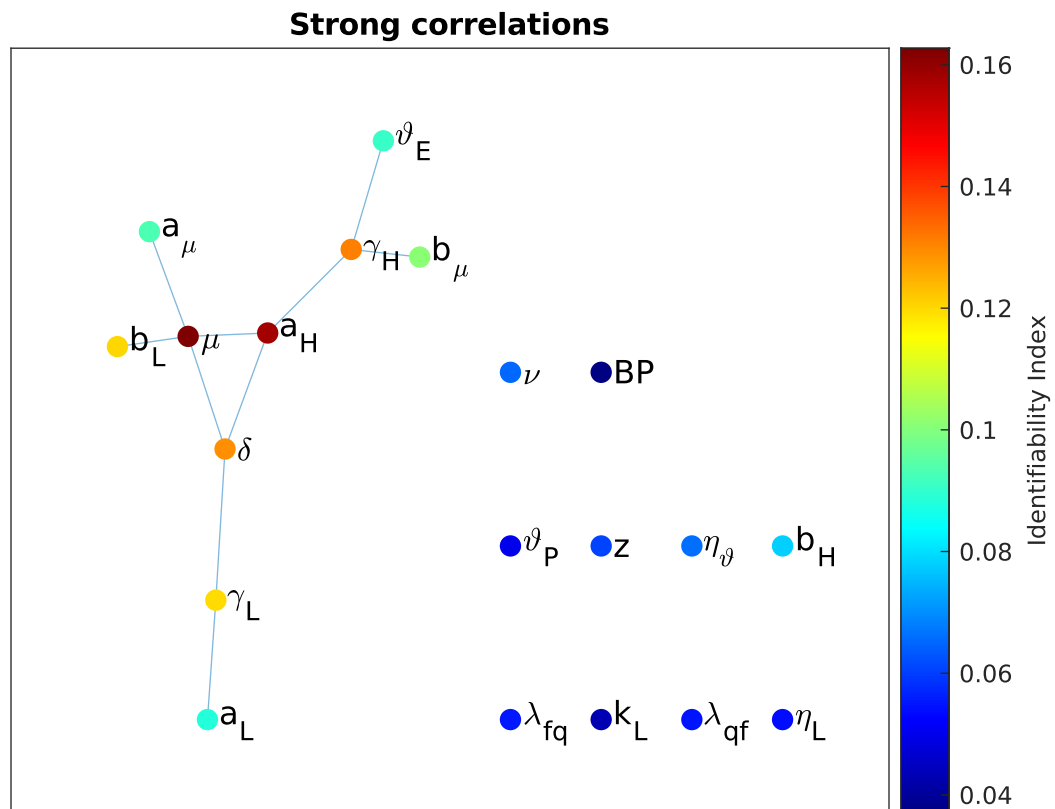
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.0419'	'1'	'0.5007'	'0.9475'	'0.0554'
ϑ_E	'0'	'0.0077'	'0.0285'	'0.0034'	'0.091'
γ_L	'0.4029'	'1'	'0.5813'	'0.8742'	'0.1198'
k_L	'1'	'3.4457'	'5.5'	'1.5314'	'0.0434'
λ_{qf}	'0'	'0.0055'	'0.4967'	'0.0025'	'0.0552'
δ	'0'	'0'	'0.0285'	'0'	'0.1293'
η_L	'0'	'0.9558'	'0.4994'	'0.4248'	'0.0539'
ϑ_P	'0'	'0.0006'	'0.0002'	'0.0003'	'0.0502'
γ_H	'0'	'1'	'0.7705'	'0.9987'	'0.1312'
z	'0'	'30'	'14.9451'	'29.9443'	'0.0612'
η_{ϑ}	'0.5736'	'1'	'0.7722'	'0.6856'	'0.0664'
a_L	'1'	'5.7066'	'2.9649'	'4.2288'	'0.0885'
b_L	'2.2889'	'15'	'3.656'	'4.1688'	'0.1201'
a_{μ}	'1'	'15'	'3.4605'	'1.2022'	'0.0934'
b_{μ}	'1'	'15'	'9.7921'	'1.0325'	'0.1009'
μ	'0'	'0.058'	'0.3312'	'0.0258'	'0.1627'
a_H	'1'	'15'	'4.0451'	'14.9931'	'0.1582'
b_H	'1'	'15'	'11.5981'	'13.9024'	'0.078'
ν	'0'	'0.0102'	'252.0447'	'0.0046'	'0.0653'
BP	'317.5'	'340'	'320.5'	'320.5'	'0.0372'

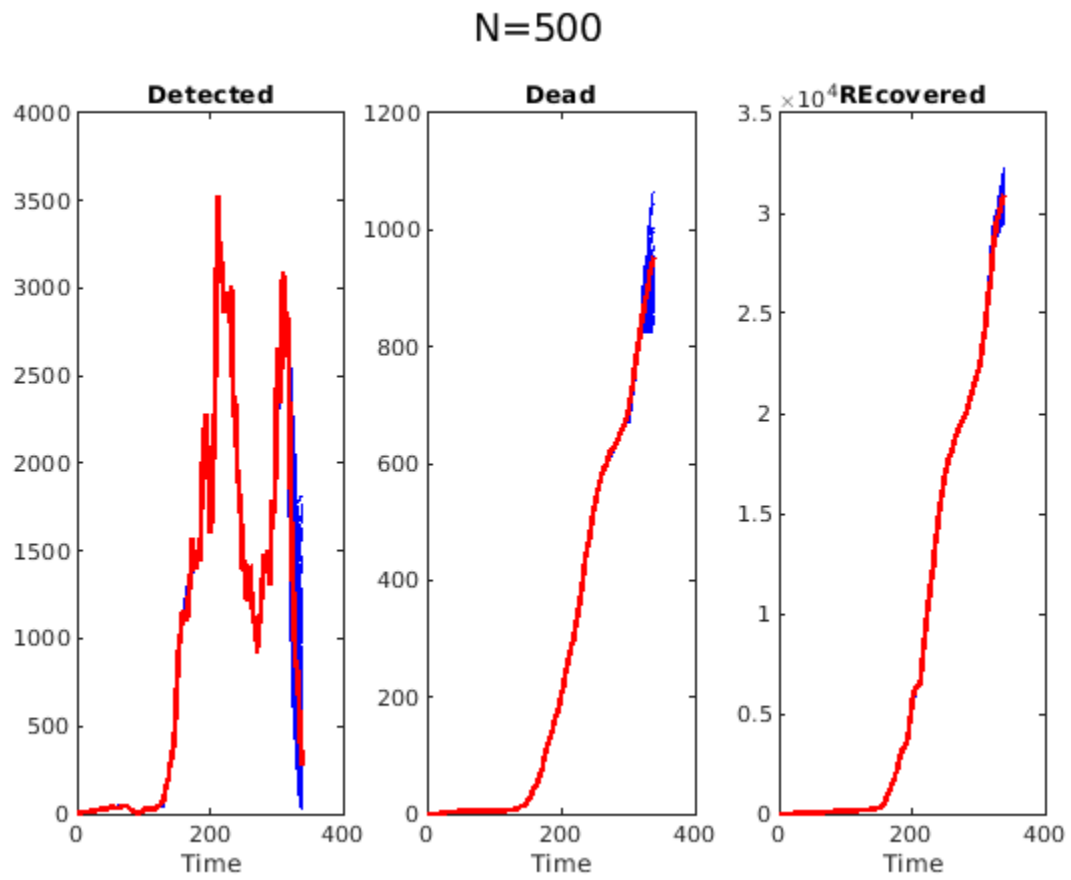
8.3. Identifiability analysis







8.4. Uncertainty analysis



Chapter 9. Extension number9

9.1. Basic information

The extension to be validated consists of the time series from the data340 to the 438. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

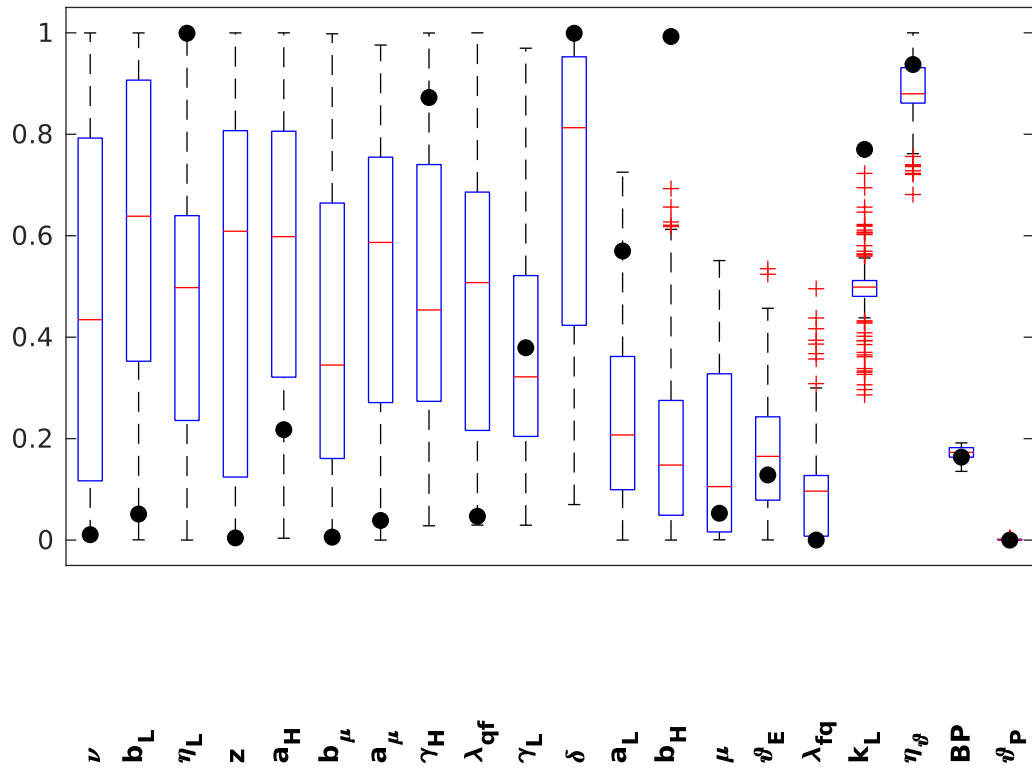
9.2. Estimated parameters with their intervals

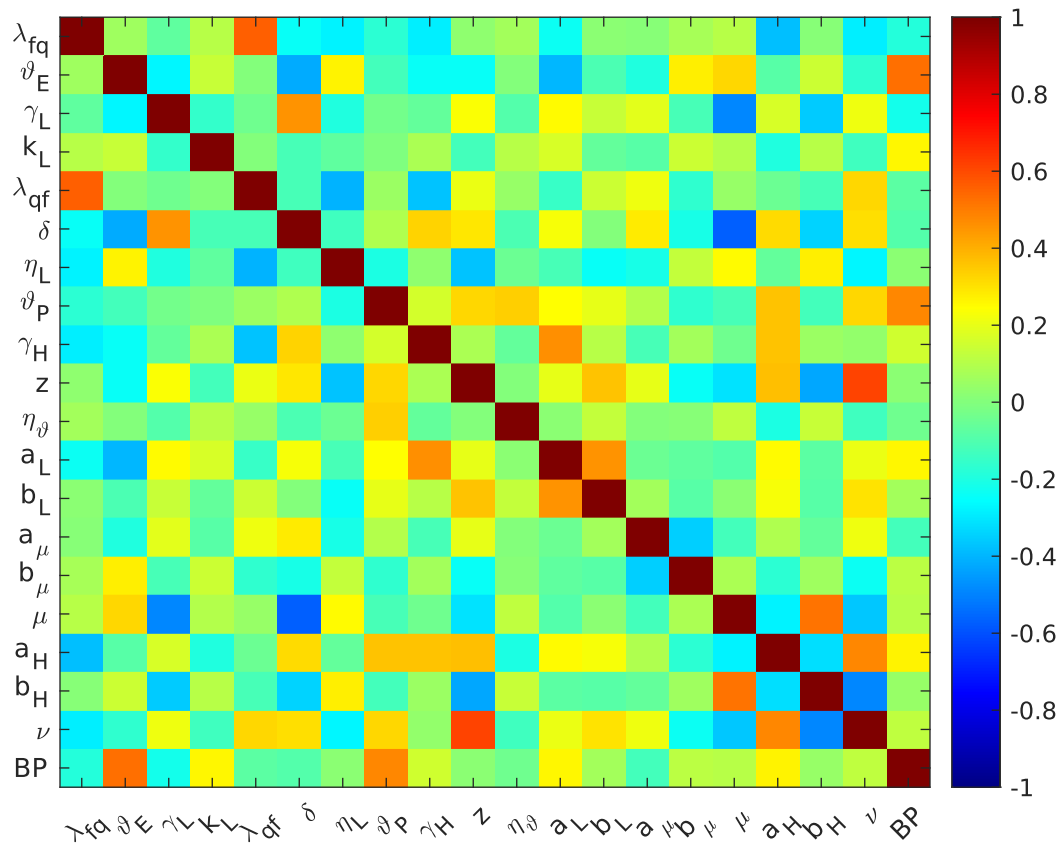
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

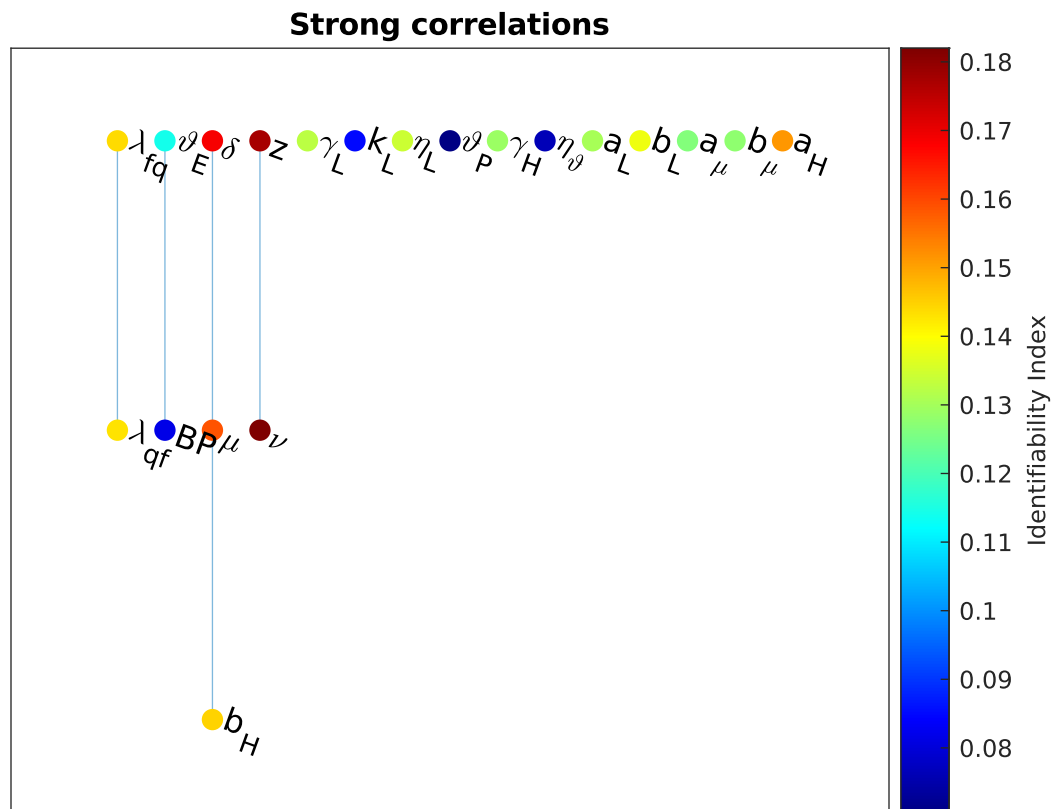
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0'	'0.0003'	'0.0965'	'0.0001'	'0.1441'
\vartheta_E	'0.0903'	'0.1438'	'0.165'	'0.1284'	'0.1143'
\gamma_L	'0.3422'	'0.8534'	'0.3218'	'0.3792'	'0.1328'
k_L	'1.1555'	'8.776'	'5.4887'	'7.9317'	'0.0851'
\lambda_{qf}	'0.0453'	'0.0557'	'0.5076'	'0.0469'	'0.143'
\delta	'0.0747'	'0.15'	'0.1219'	'0.1499'	'0.1686'
\eta_L	'0.8049'	'1'	'0.4977'	'0.9992'	'0.1345'
\vartheta_P	'0'	'0'	'0.0009'	'0'	'0.0706'
\gamma_H	'0.2678'	'1'	'0.4537'	'0.8725'	'0.129'
z	'0.1204'	'0.1482'	'18.2665'	'0.1297'	'0.1775'
\eta_{\vartheta}	'0.5691'	'1'	'0.8798'	'0.9375'	'0.0765'
a_L	'8.5542'	'12.7751'	'3.9012'	'8.9786'	'0.1303'
b_L	'1.3235'	'2.3518'	'9.9387'	'1.7192'	'0.1382'
a_{\mu}	'1.5003'	'13.635'	'9.2153'	'1.5424'	'0.1264'
b_{\mu}	'1'	'13.6'	'5.8311'	'1.0812'	'0.1279'
\mu	'0'	'0.1002'	'0.1054'	'0.053'	'0.1588'
a_H	'1.8574'	'9.7612'	'9.375'	'4.0476'	'0.1511'
b_H	'3.8486'	'15'	'3.0708'	'14.8978'	'0.1447'
\nu	'5.2467'	'9.1463'	'217.2285'	'5.3272'	'0.182'
BP	'336.7846'	'339.3001'	'339.4993'	'338.4998'	'0.0817'

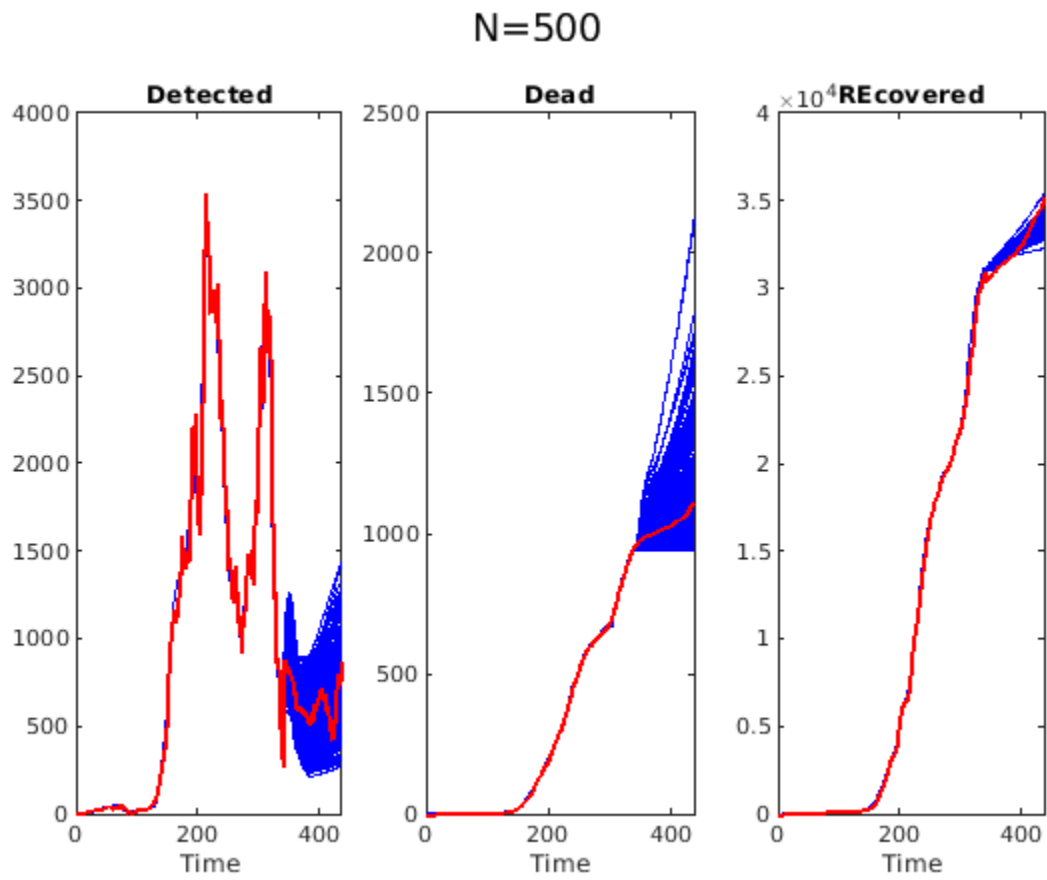
9.3. Identifiability analysis







9.4. Uncertainty analysis



Chapter 10. Extension number10

10.1. Basic information

The extension to be validated consists of the time series from the data438 to the 459. The status of the validation is: COMPLETED.

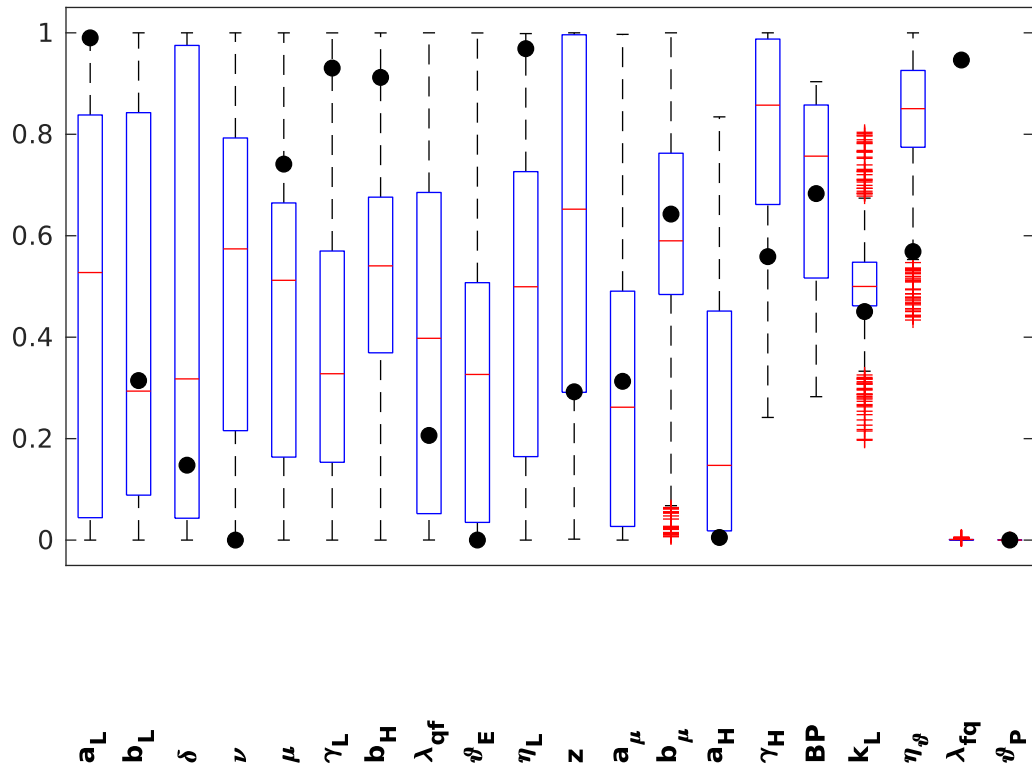
The number of estimations needed to perform the validation was1000.

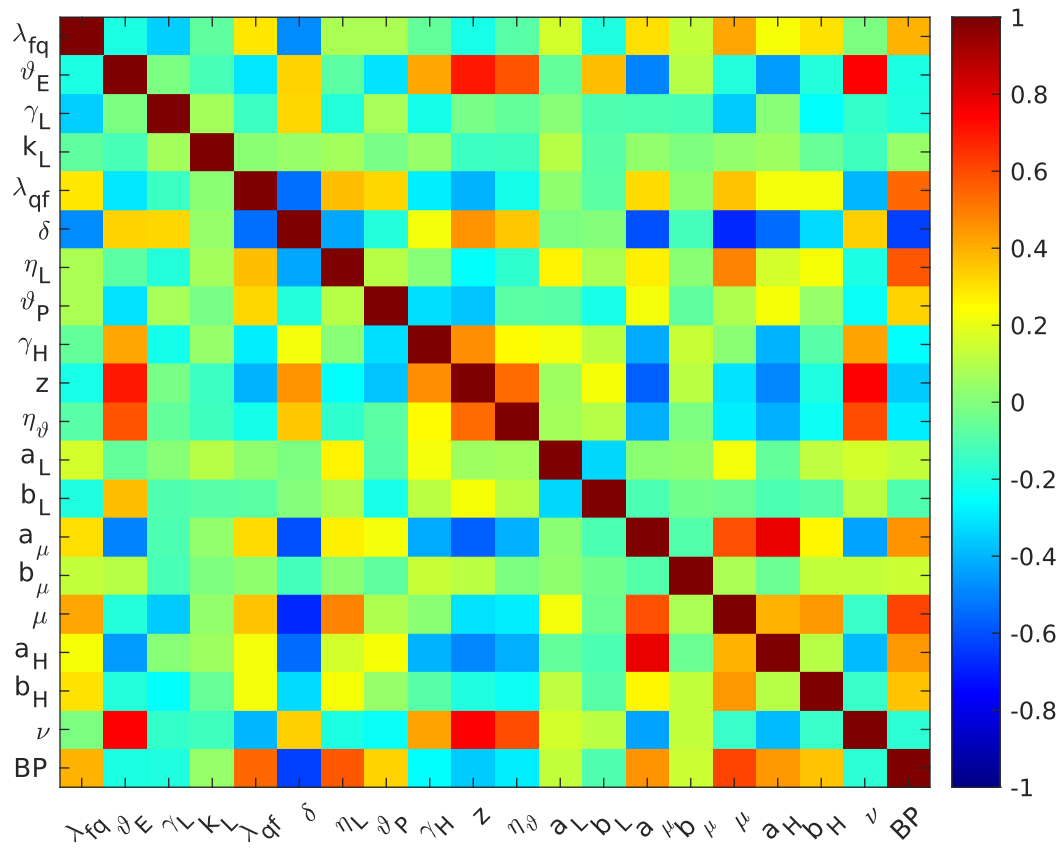
10.2. Estimated parameters with their intervals

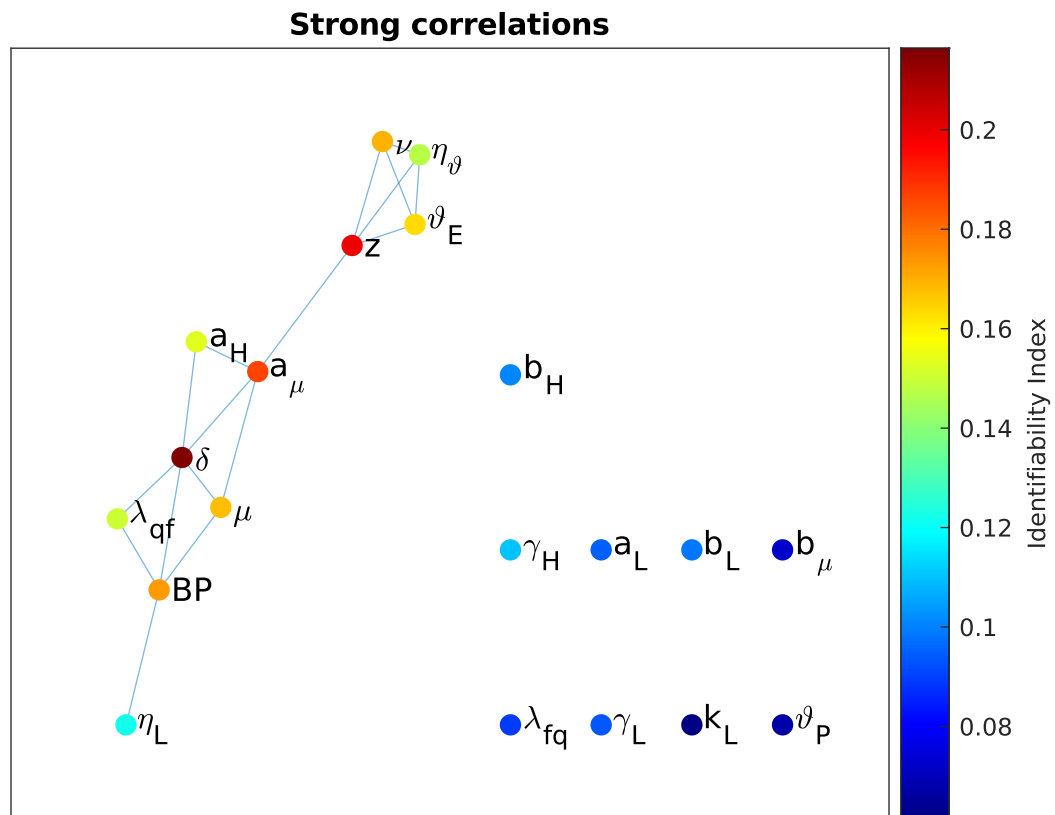
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0'	'0.028'	'0.0011'	'0.9464'	'0.0895'
\vartheta_E	'0.2983'	'0.3548'	'0.3265'	'0.0001'	'0.1635'
\gamma_L	'0.2932'	'0.3627'	'0.328'	'0.9305'	'0.0937'
k_L	'5.31'	'5.6904'	'5.5002'	'5.0548'	'0.0615'
\lambda_{qf}	'0.361'	'0.4346'	'0.3978'	'0.2063'	'0.1503'
\delta	'0.0407'	'0.0547'	'0.0477'	'0.0222'	'0.2164'
\eta_L	'0.4652'	'0.5336'	'0.4994'	'0.9688'	'0.1221'
\vartheta_P	'0'	'0.0009'	'0.0001'	'0.0001'	'0.0675'
\gamma_H	'0.8268'	'0.8873'	'0.857'	'0.5588'	'0.11'
z	'18.3267'	'20.8143'	'19.5705'	'8.7713'	'0.199'
\eta_{\vartheta}	'0.8266'	'0.8743'	'0.8505'	'0.5687'	'0.1471'
a_L	'7.7838'	'8.9846'	'8.3842'	'14.8611'	'0.0948'
b_L	'4.5126'	'5.7111'	'5.1119'	'5.403'	'0.0985'
a_{\mu}	'4.2391'	'5.0958'	'4.6675'	'5.3821'	'0.1867'
b_{\mu}	'8.8568'	'9.6575'	'9.2571'	'9.9975'	'0.0725'
\mu	'0.4791'	'0.5452'	'0.5121'	'0.7412'	'0.1675'
a_H	'2.6876'	'3.6324'	'3.16'	'1.0724'	'0.153'
b_H	'8.1589'	'8.9777'	'8.5683'	'13.7701'	'0.1012'
\nu	'269.0762'	'305.0039'	'287.04'	'0.0029'	'0.1693'
BP	'420.2656'	'424.7344'	'422.5'	'414.4569'	'0.1734'

10.3. Identifiability analysis

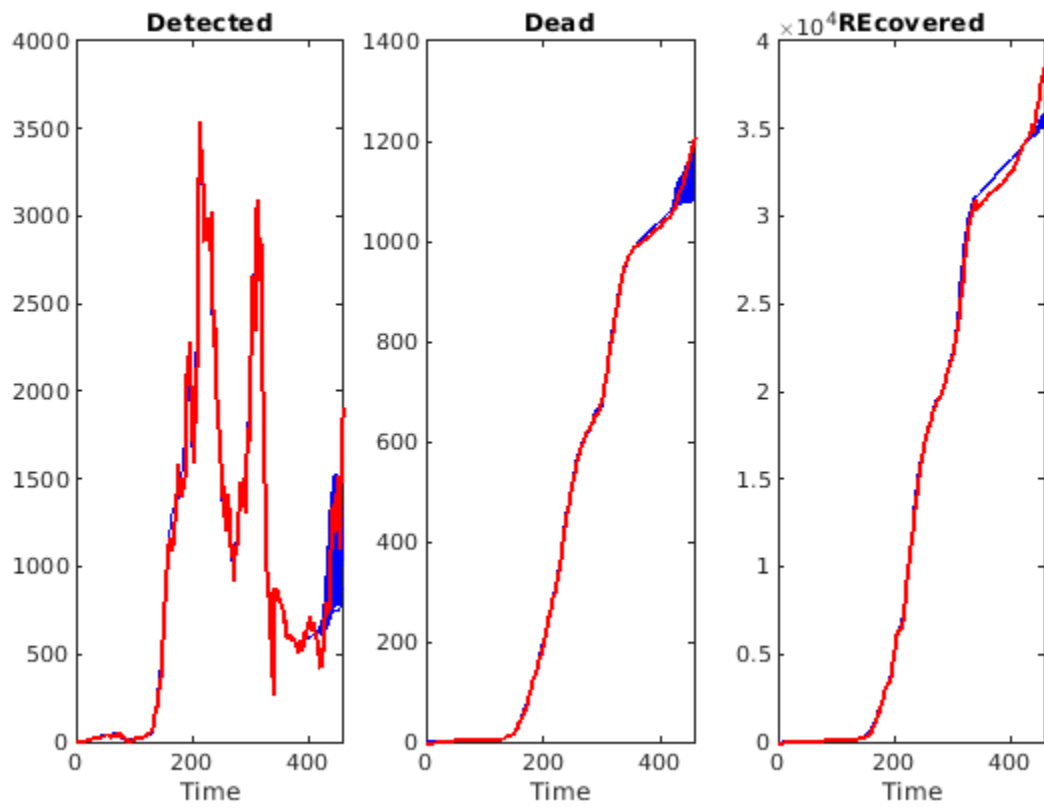






10.4. Uncertainty analysis

N=500



Chapter 11. Extension number11

11.1. Basic information

The extension to be validated consists of the time series from the data459 to the 471. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

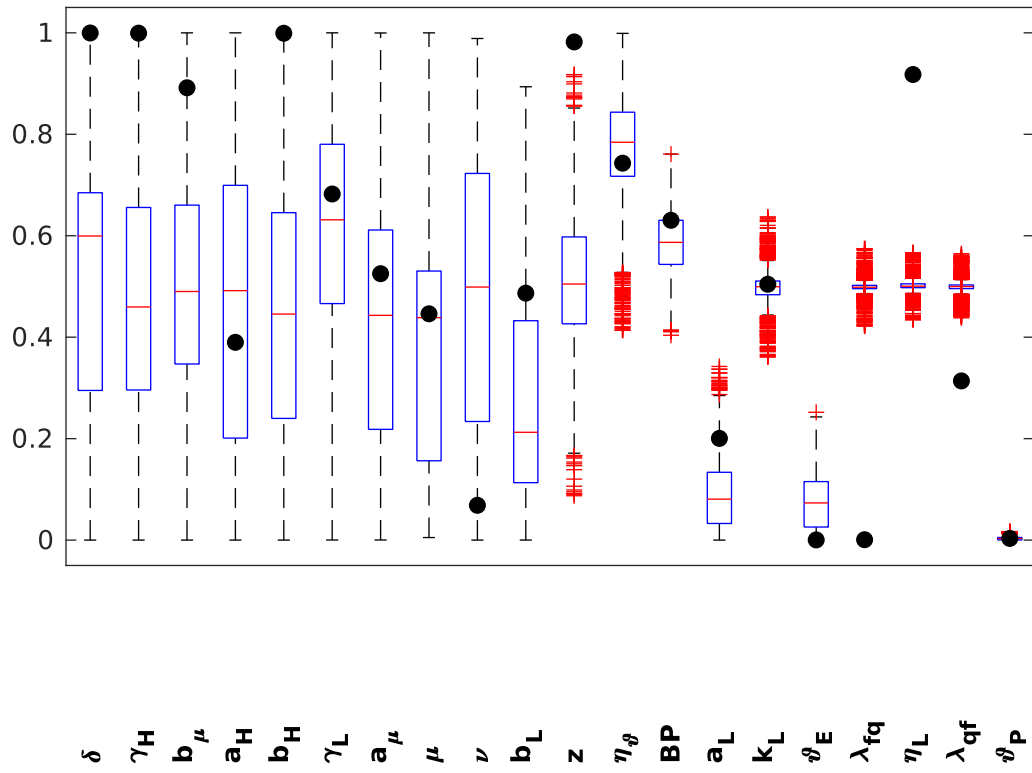
11.2. Estimated parameters with their intervals

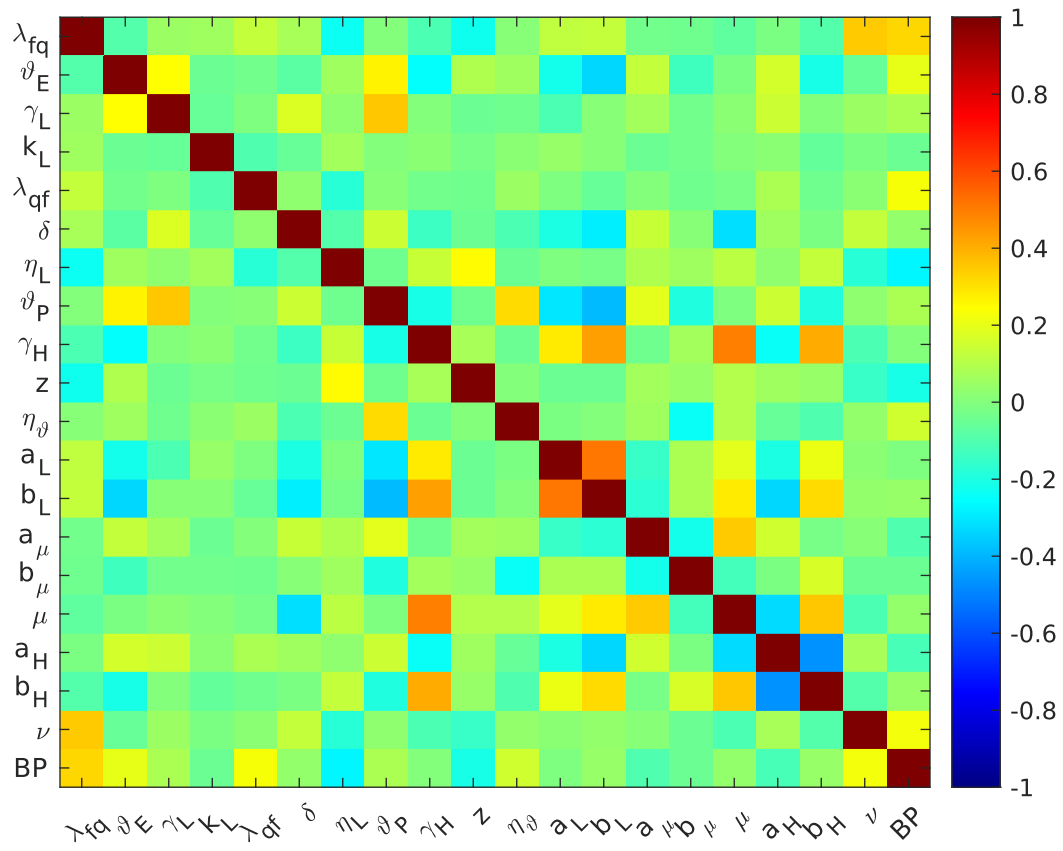
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

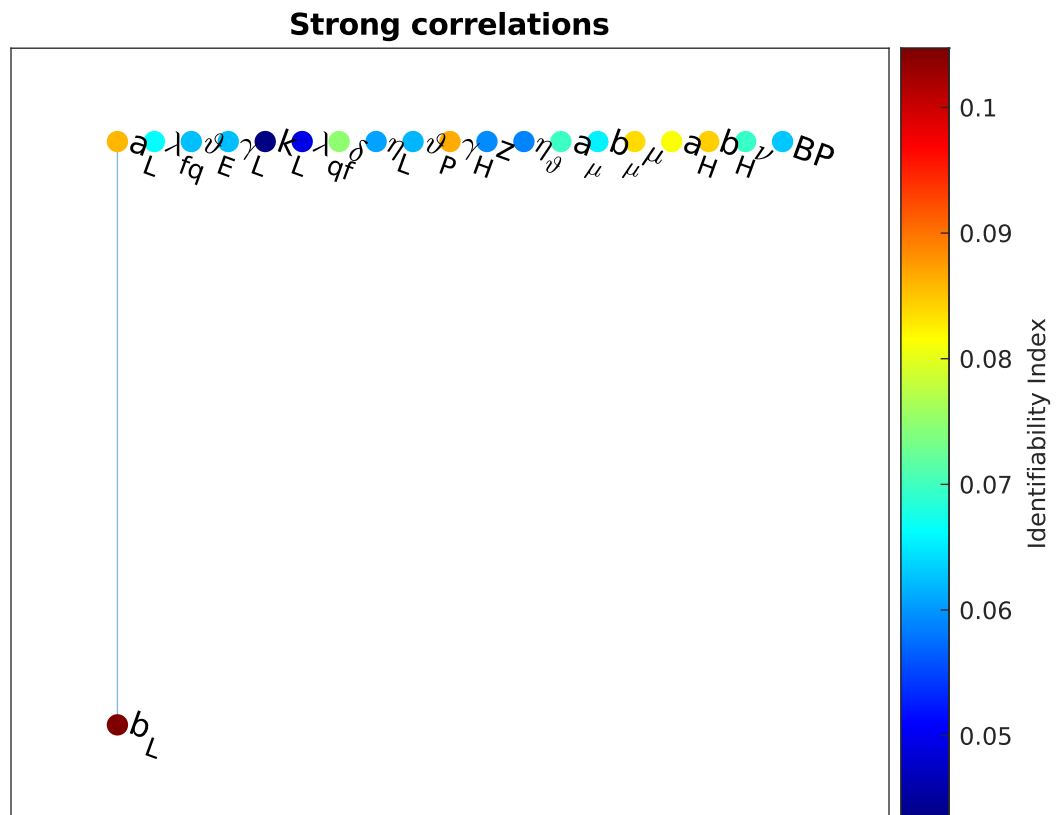
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0.0002'	'0.0015'	'0.4986'	'0.0007'	'0.0664'
\vartheta_E	'0'	'0.0009'	'0.0733'	'0.0004'	'0.0625'
\gamma_L	'0.4976'	'0.6852'	'0.6314'	'0.6823'	'0.0624'
k_L	'1.1714'	'7.8558'	'5.4954'	'5.5391'	'0.0434'
\lambda_{qf}	'0.1034'	'0.676'	'0.4999'	'0.3138'	'0.0496'
\delta	'0.0801'	'0.15'	'0.0899'	'0.15'	'0.0748'
\eta_L	'0.04'	'0.952'	'0.5006'	'0.9178'	'0.0608'
\vartheta_P	'0.0021'	'0.0048'	'0.0032'	'0.0033'	'0.0621'
\gamma_H	'0.3787'	'1'	'0.4596'	'0.9993'	'0.0866'
z	'7.5563'	'30'	'15.1425'	'29.4622'	'0.0593'
\eta_{\vartheta}	'0.7427'	'0.8526'	'0.7843'	'0.743'	'0.0588'
a_L	'3.2579'	'8.4773'	'2.1304'	'3.8074'	'0.0859'
b_L	'7.2308'	'11.4544'	'3.9753'	'7.8156'	'0.1047'
a_{\mu}	'6.1164'	'14.276'	'7.2025'	'8.3527'	'0.07'
b_{\mu}	'2.9464'	'14.8137'	'7.8611'	'13.4837'	'0.0656'
\mu	'0'	'1'	'0.4385'	'0.4461'	'0.0838'
a_H	'3.7108'	'6.7752'	'7.8846'	'6.4582'	'0.0814'
b_H	'8.6456'	'15'	'7.2383'	'14.9883'	'0.0845'
\nu	'25.9079'	'409.9225'	'249.4165'	'34.2916'	'0.0696'
BP	'452.3436'	'456.2447'	'451.5'	'452.5'	'0.063'

11.3. Identifiability analysis

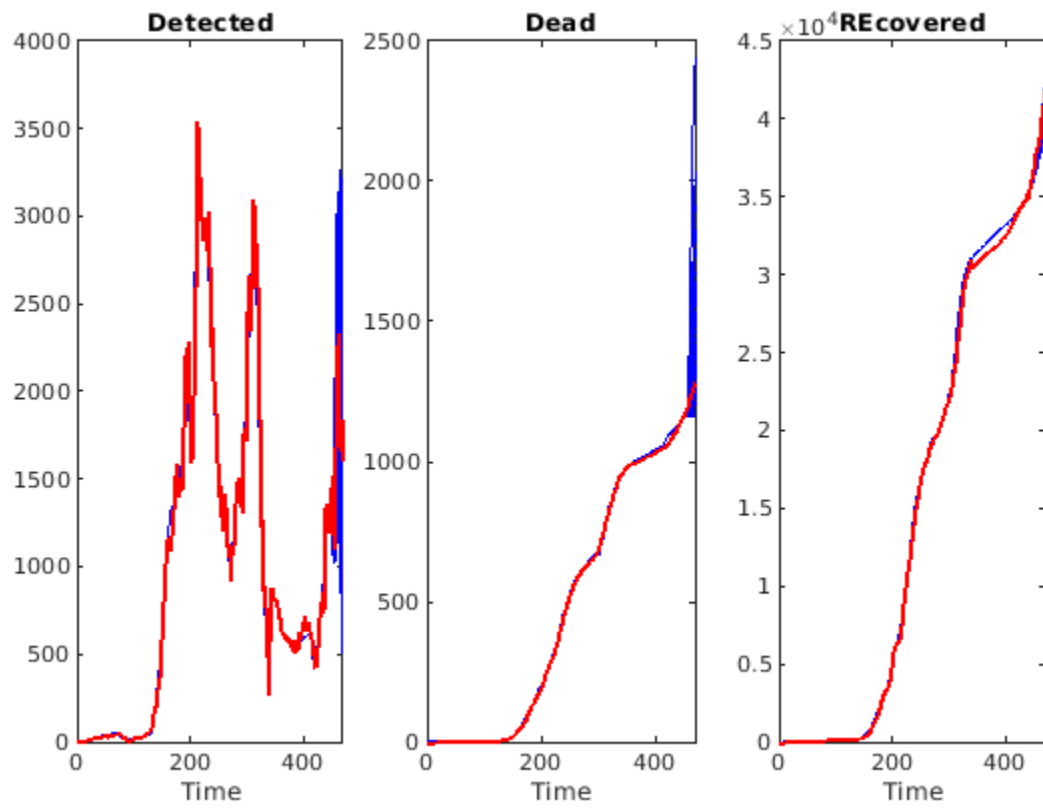






11.4. Uncertainty analysis

N=500



Chapter 12. Extension number12

12.1. Basic information

The extension to be validated consists of the time series from the data471 to the 487. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

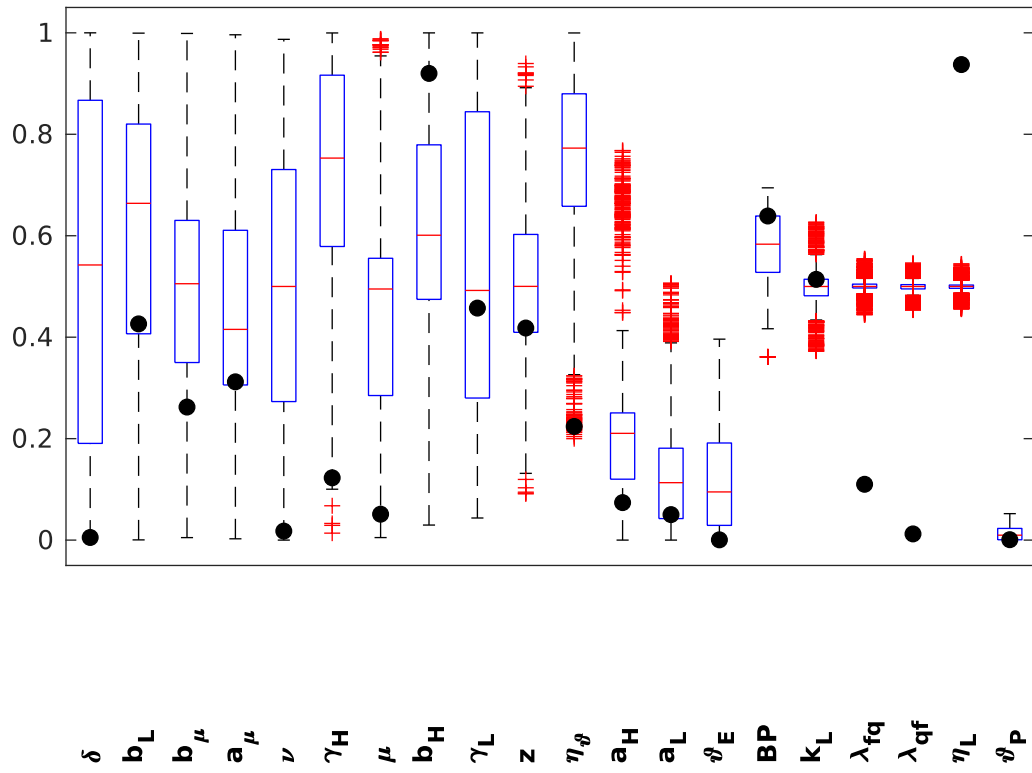
12.2. Estimated parameters with their intervals

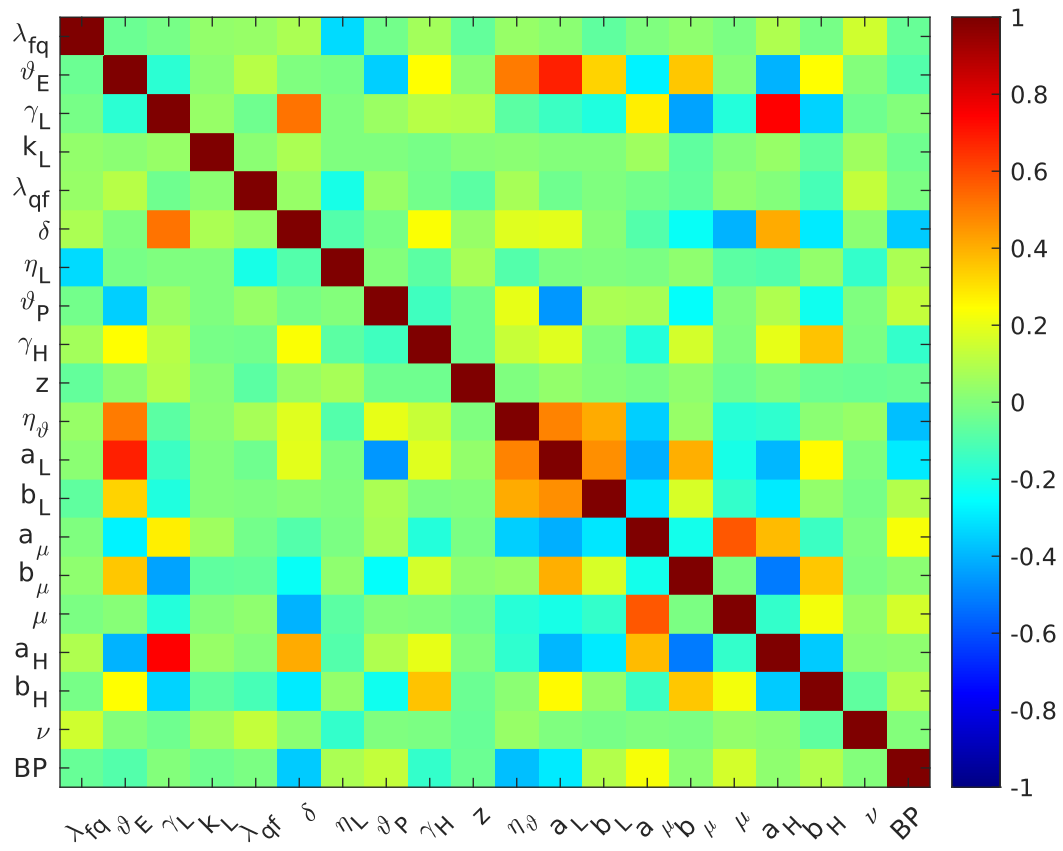
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

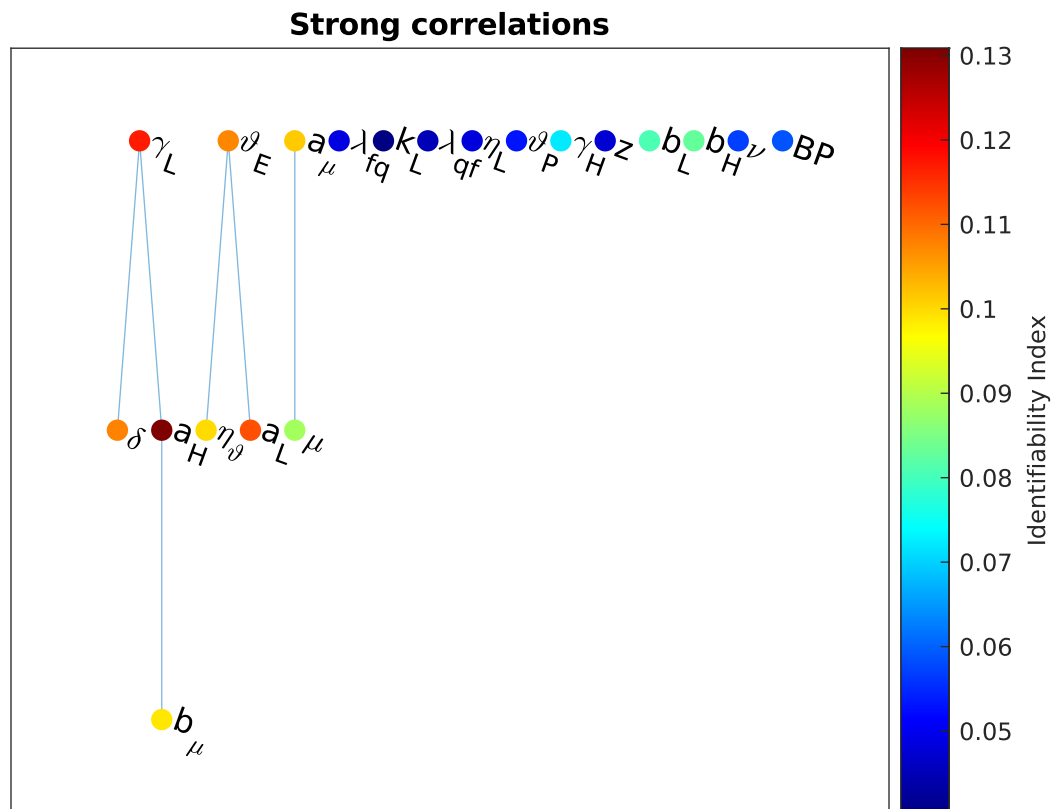
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0.0295'	'1'	'0.5'	'0.11'	'0.049'
\vartheta_E	'0'	'0.0011'	'0.095'	'0.0005'	'0.1074'
\gamma_L	'0.4533'	'0.7327'	'0.4922'	'0.4574'	'0.1167'
k_L	'1'	'10'	'5.4997'	'5.626'	'0.0404'
\lambda_{qf}	'0'	'0.0274'	'0.4999'	'0.0122'	'0.045'
\delta	'0'	'0.0017'	'0.0814'	'0.0008'	'0.1078'
\eta_L	'0.04'	'1'	'0.5'	'0.9374'	'0.0482'
\vartheta_P	'0.0004'	'0.0144'	'0.0097'	'0.0008'	'0.0533'
\gamma_H	'0'	'0.1537'	'0.7531'	'0.1228'	'0.0722'
z	'1.1175'	'28.2191'	'15.0049'	'12.5418'	'0.0476'
\eta_{\vartheta}	'0.2144'	'0.3675'	'0.7727'	'0.224'	'0.1'
a_L	'1.3064'	'2.2049'	'2.5849'	'1.7034'	'0.1124'
b_L	'4.5433'	'13.3432'	'10.2944'	'6.9671'	'0.0808'
a_{\mu}	'4.6468'	'15'	'6.8154'	'5.3682'	'0.1014'
b_{\mu}	'1'	'15'	'8.0756'	'4.6717'	'0.0989'
\mu	'0'	'0.1048'	'0.495'	'0.0511'	'0.0886'
a_H	'1.2073'	'11.3671'	'3.9462'	'2.0345'	'0.1309'
b_H	'1'	'14.44'	'9.4138'	'13.8799'	'0.0828'
\nu	'7.7175'	'241.2169'	'250.0017'	'8.8679'	'0.0573'
BP	'469.9702'	'475.2203'	'469.5'	'470.5'	'0.0588'

12.3. Identifiability analysis

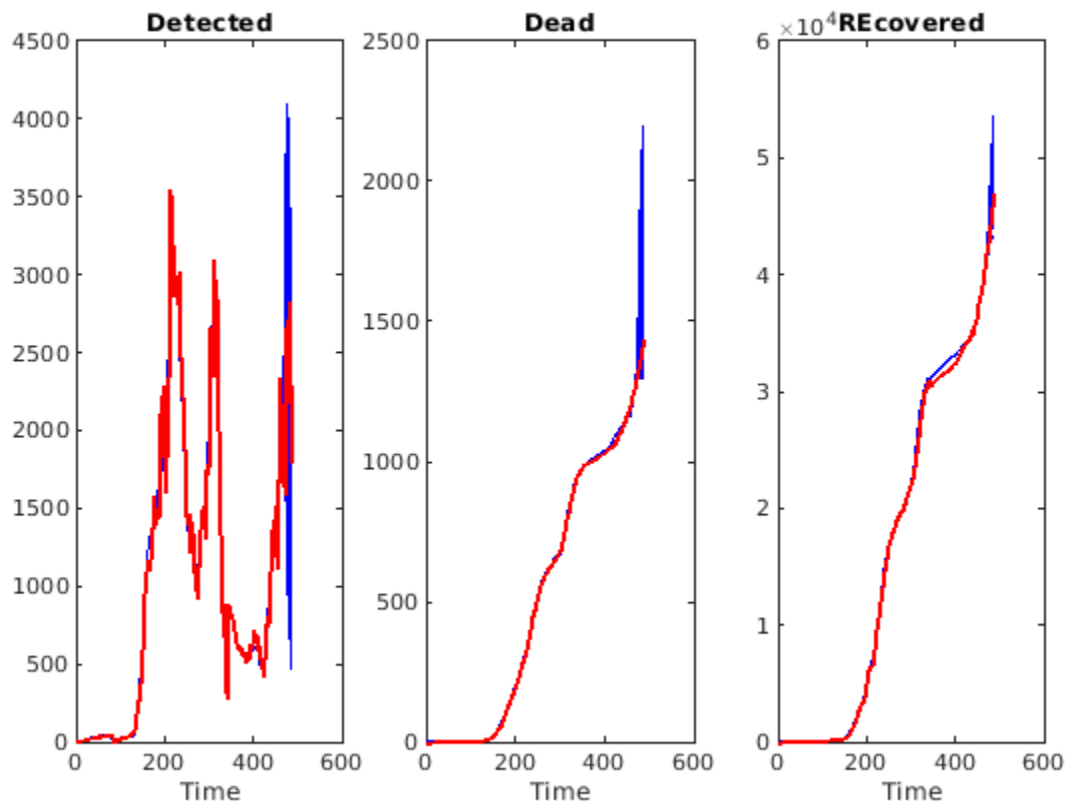






12.4. Uncertainty analysis

N=500



Chapter 13. Extension number13

13.1. Basic information

The extension to be validated consists of the time series from the data487 to the 495. The status of the validation is: COMPLETED.

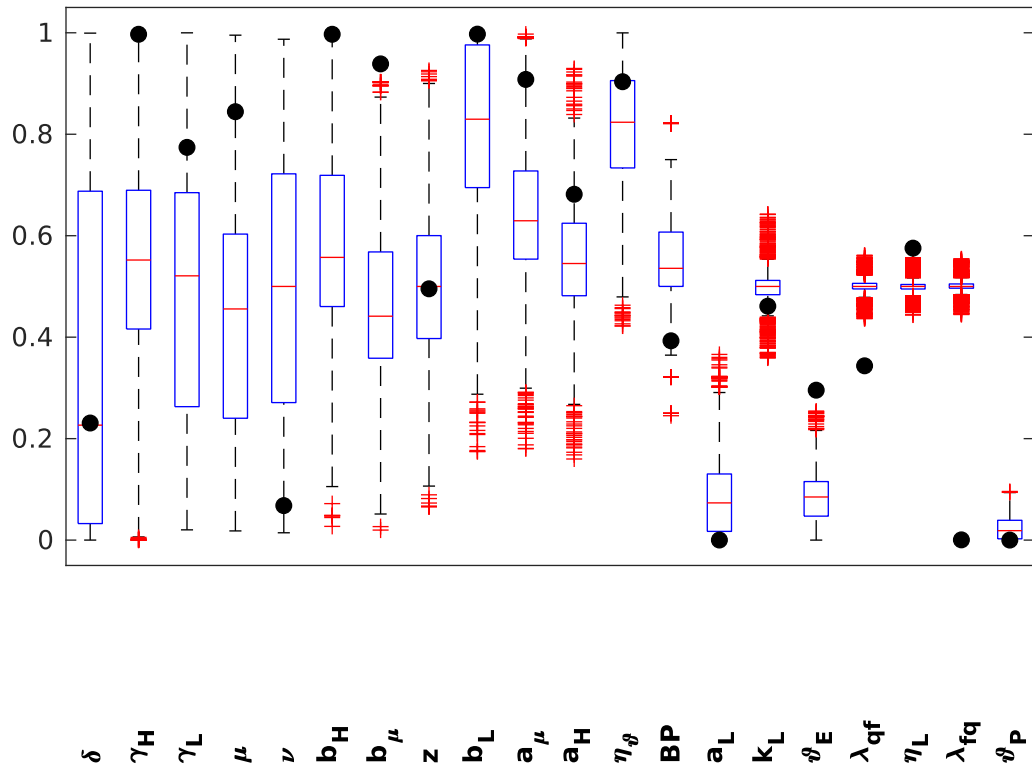
The number of estimations needed to perform the validation was1000.

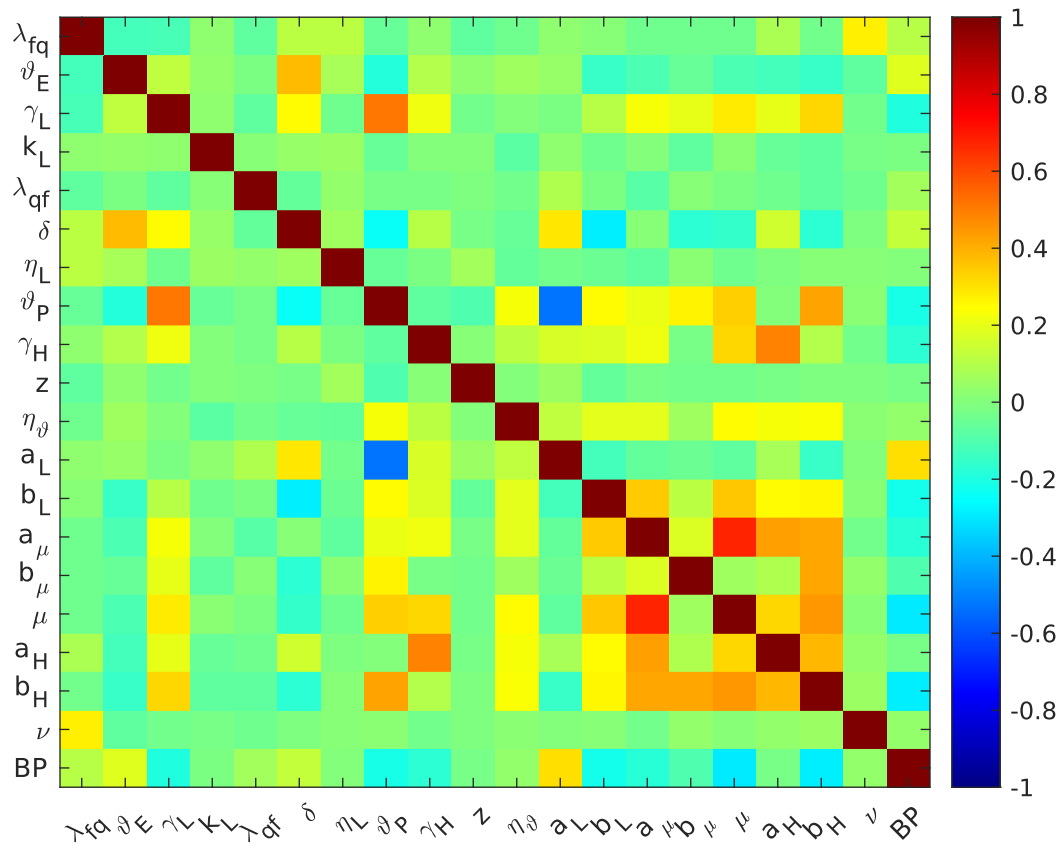
13.2. Estimated parameters with their intervals

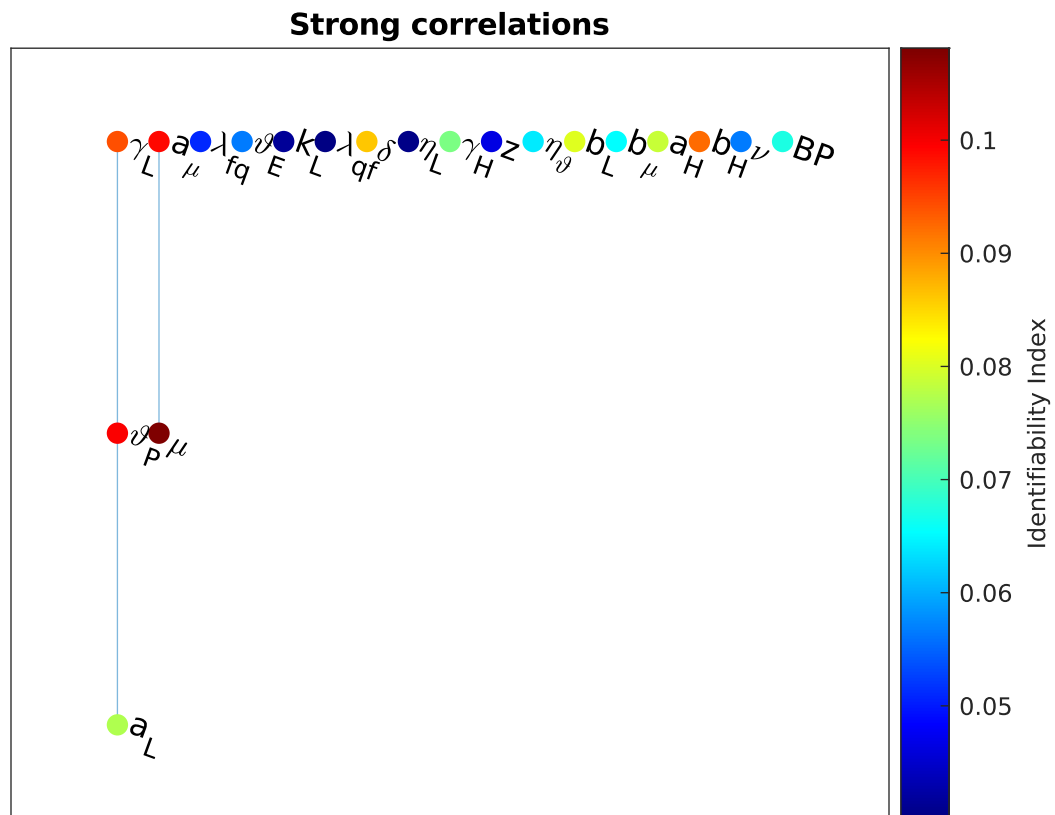
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.491'	'0.5089'	'0.4999'	'0.0005'	'0.0512'
ϑ_E	'0.079'	'0.091'	'0.085'	'0.2955'	'0.0568'
γ_L	'0.5013'	'0.5405'	'0.5209'	'0.7741'	'0.0941'
k_L	'5.423'	'5.5769'	'5.4999'	'5.1497'	'0.0416'
λ_{qf}	'0.494'	'0.506'	'0.5'	'0.3436'	'0.0401'
δ	'0.0298'	'0.0381'	'0.034'	'0.0346'	'0.0863'
η_L	'0.4944'	'0.5056'	'0.5'	'0.5755'	'0.0403'
ϑ_P	'0.0156'	'0.0216'	'0.0186'	'0.0001'	'0.0998'
γ_H	'0.5329'	'0.5712'	'0.5521'	'0.997'	'0.0736'
z	'14.5636'	'15.4348'	'14.9992'	'14.8601'	'0.0465'
η_{ϑ}	'0.8096'	'0.8377'	'0.8236'	'0.9035'	'0.0641'
a_L	'1.8574'	'2.1961'	'2.0268'	'1.0019'	'0.0772'
b_L	'12.3638'	'12.8661'	'12.6149'	'14.9627'	'0.0803'
a_{μ}	'9.5615'	'10.0633'	'9.8124'	'13.7129'	'0.0989'
b_{μ}	'6.9546'	'7.4031'	'7.1789'	'14.1415'	'0.0654'
μ	'0.4329'	'0.4784'	'0.4556'	'0.8445'	'0.1081'
a_H	'8.4043'	'8.8609'	'8.6326'	'10.5435'	'0.0788'
b_H	'8.5565'	'9.047'	'8.8017'	'14.9587'	'0.0923'
ν	'238.7069'	'261.2916'	'249.9993'	'33.998'	'0.0567'
BP	'478.3559'	'478.6441'	'478.5'	'476.4999'	'0.0673'

13.3. Identifiability analysys

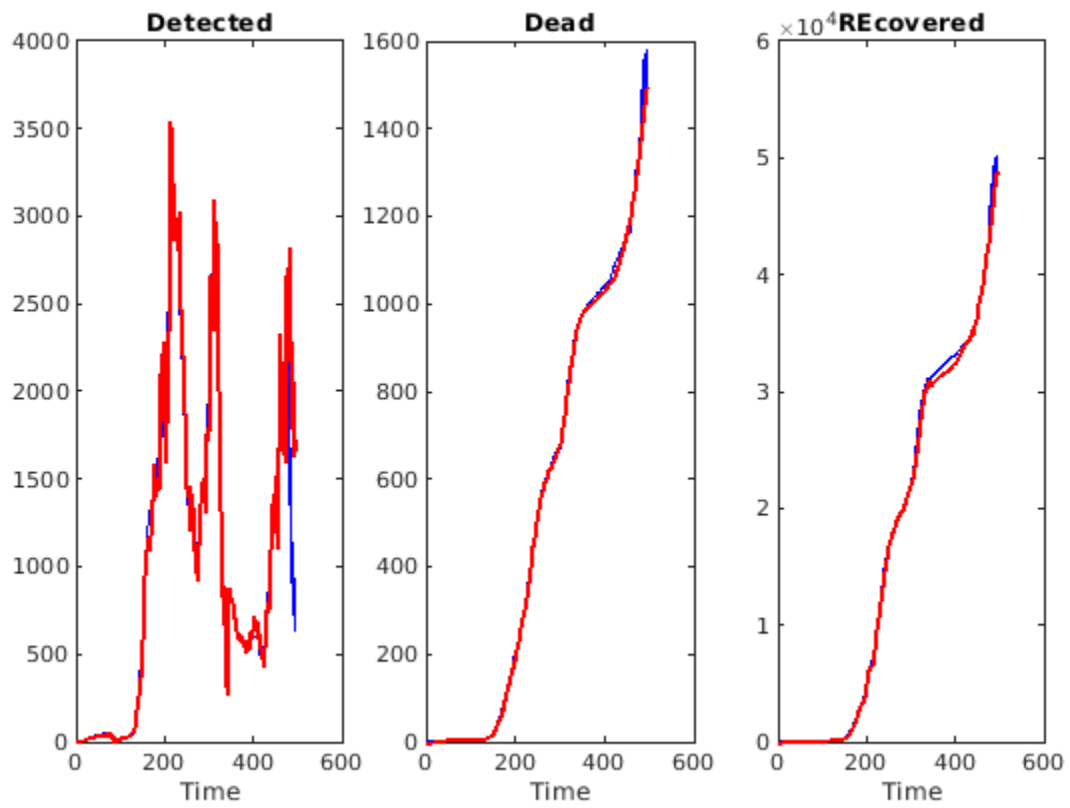






13.4. Uncertainty analysis

N=500



Chapter 14. Extension number14

14.1. Basic information

The extension to be validated consists of the time series from the data495 to the 527. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

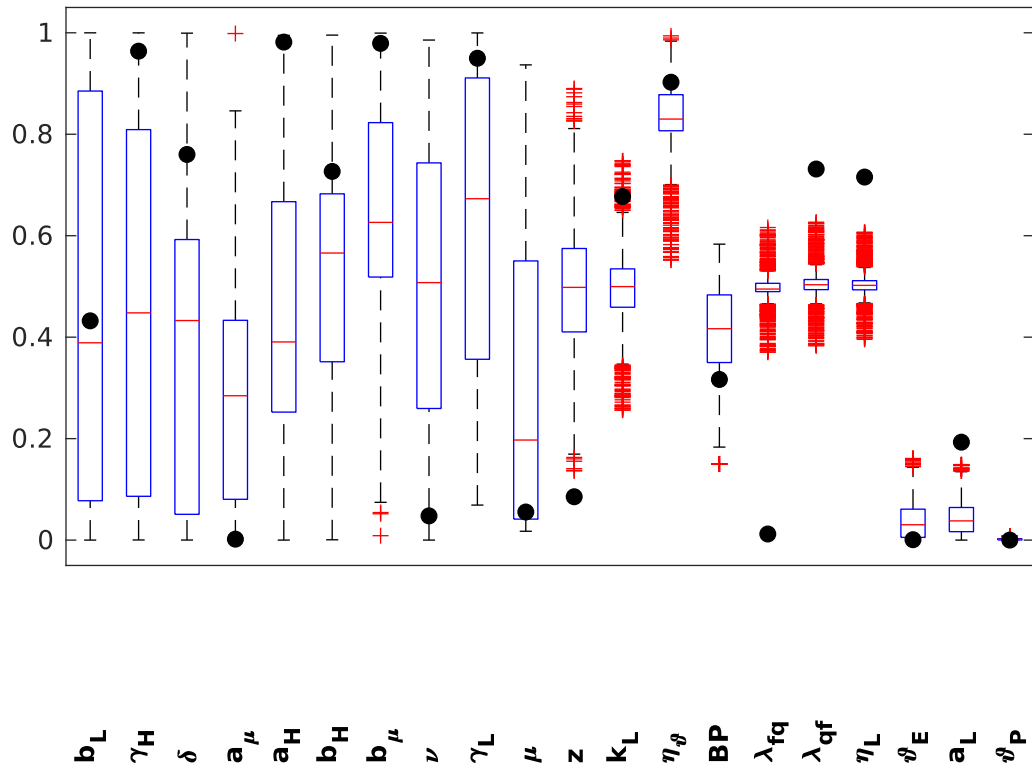
14.2. Estimated parameters with their intervals

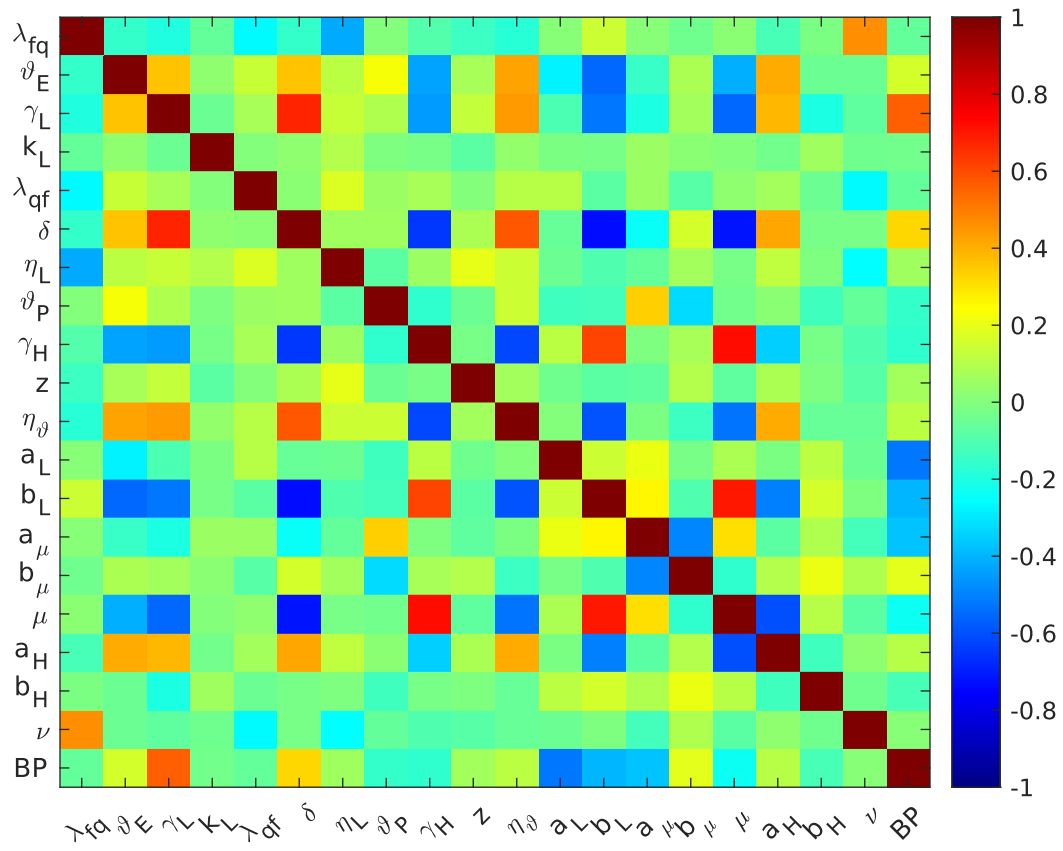
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

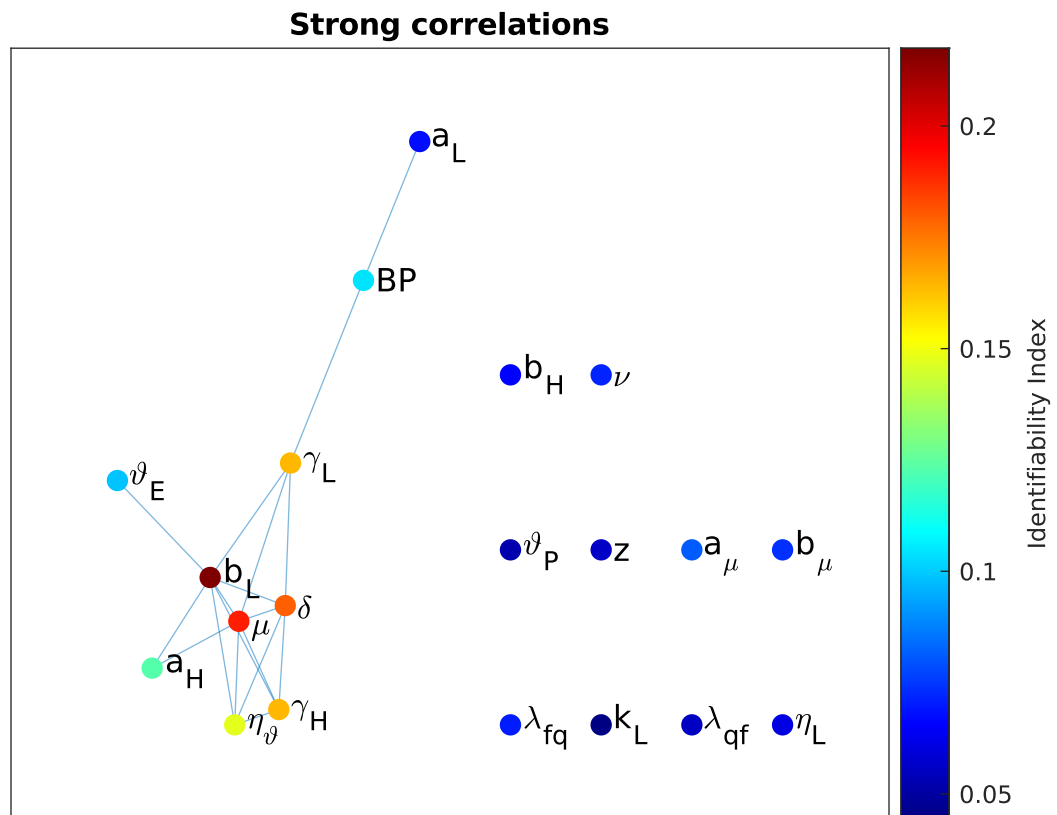
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0'	'0.027'	'0.4948'	'0.012'	'0.0709'
ϑ_E	'0'	'0.0018'	'0.0303'	'0.0008'	'0.0987'
γ_L	'0.2092'	'1'	'0.6729'	'0.9498'	'0.1642'
k_L	'1'	'10'	'5.4971'	'7.0939'	'0.0446'
λ_{qf}	'0'	'1'	'0.5033'	'0.7315'	'0.0557'
δ	'0.0451'	'0.15'	'0.0649'	'0.114'	'0.1796'
η_L	'0'	'1'	'0.5021'	'0.7156'	'0.0611'
ϑ_P	'0'	'0.0001'	'0.0016'	'0'	'0.0524'
γ_H	'0.1161'	'1'	'0.4479'	'0.9638'	'0.1641'
z	'0.1442'	'5.7667'	'14.9445'	'2.563'	'0.0561'
η_{ϑ}	'0.3766'	'1'	'0.8299'	'0.9025'	'0.1475'
a_L	'1'	'4.5254'	'1.53'	'3.7028'	'0.0677'
b_L	'2.652'	'15'	'6.4448'	'7.0509'	'0.2175'
a_{μ}	'1'	'15'	'4.9839'	'1.0258'	'0.0814'
b_{μ}	'1'	'15'	'9.7676'	'14.7081'	'0.0742'
μ	'0'	'0.1246'	'0.1973'	'0.0554'	'0.1901'
a_H	'5.2278'	'15'	'6.4688'	'14.7433'	'0.1231'
b_H	'1'	'15'	'8.9222'	'11.1738'	'0.0657'
ν	'21.0604'	'500'	'253.7731'	'23.87'	'0.0716'
BP	'492.104'	'501.3162'	'499.5'	'496.5'	'0.104'

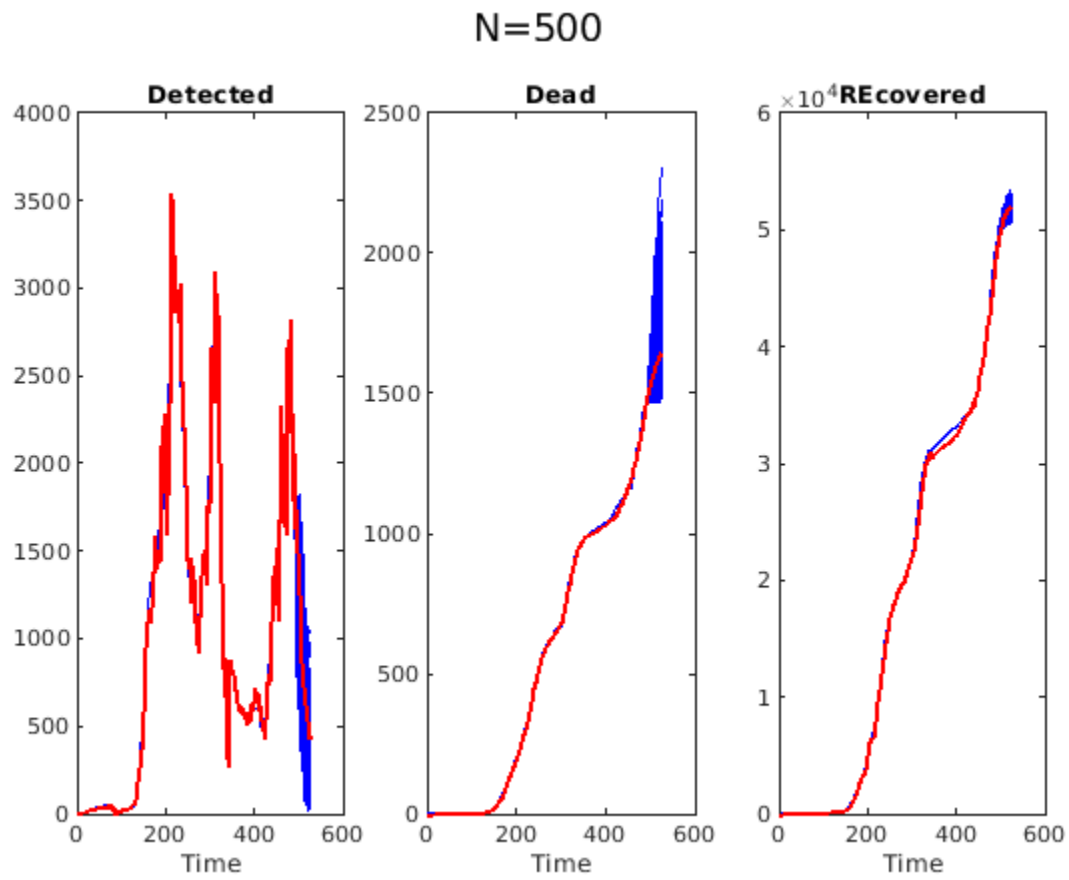
14.3. Identifiability analysys







14.4. Uncertainty analysis



Chapter 15. Extension number15

15.1. Basic information

The extension to be validated consists of the time series from the data527 to the 722. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

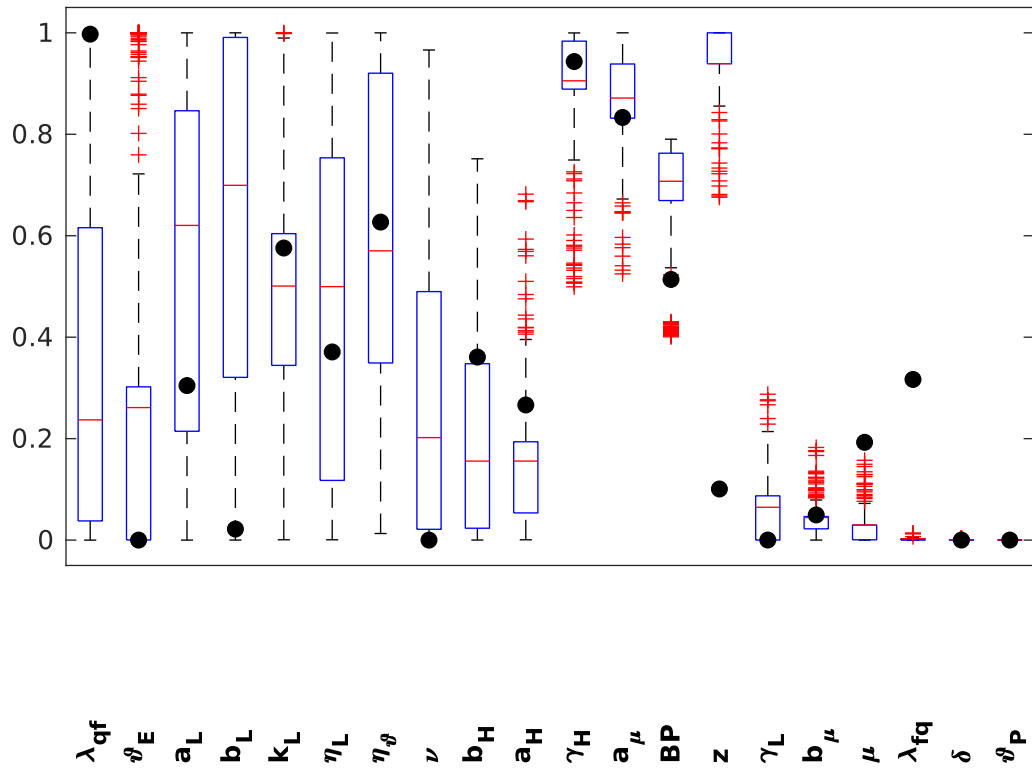
15.2. Estimated parameters with their intervals

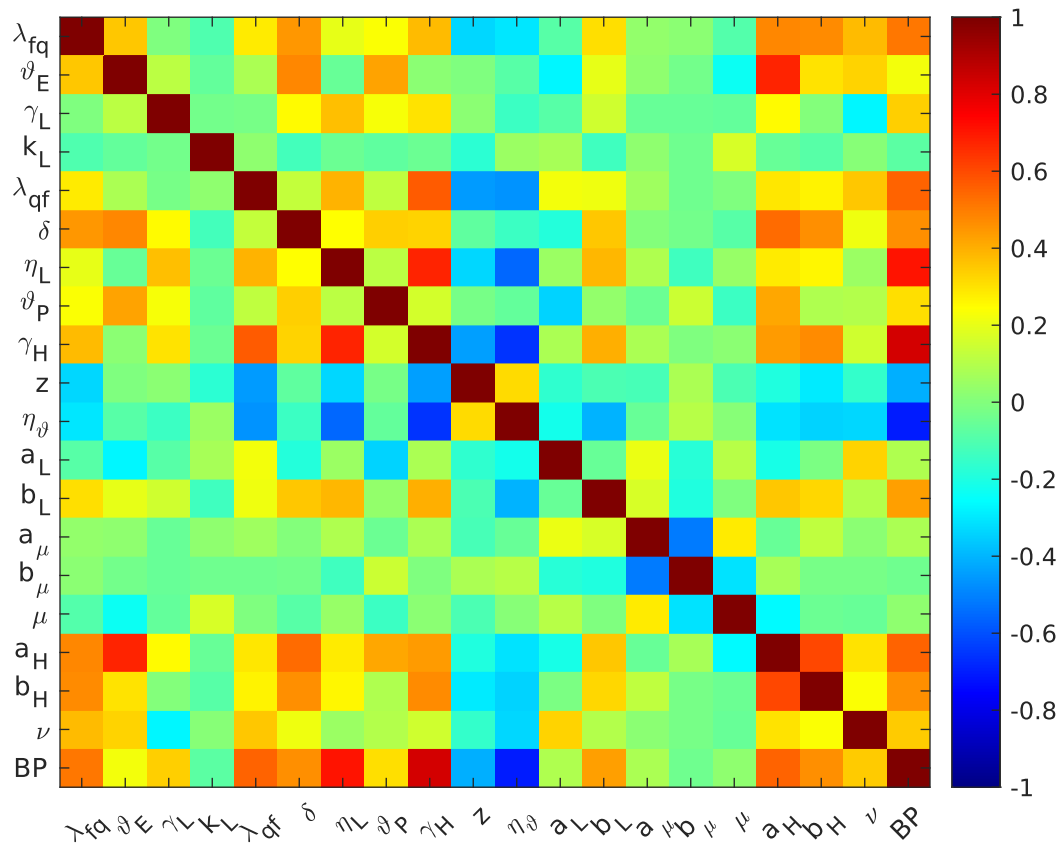
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

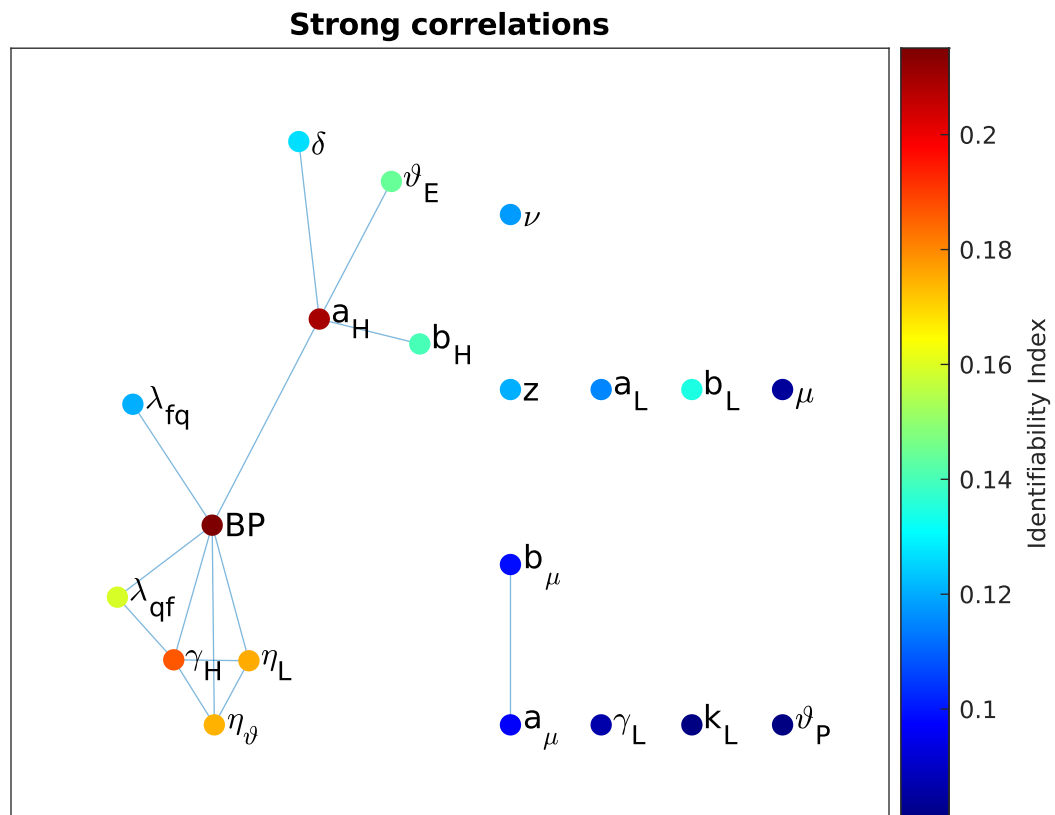
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0.1566'	'0.3172'	'0.0027'	'0.3167'	'0.1203'
\vartheta_E	'0'	'0'	'0.2613'	'0'	'0.1445'
\gamma_L	'0.0001'	'0.0002'	'0.0647'	'0.0001'	'0.0866'
k_L	'4.1191'	'7.1569'	'5.5072'	'6.1819'	'0.0812'
\lambda_{qf}	'0.9559'	'1'	'0.237'	'0.9974'	'0.1593'
\delta	'0'	'0'	'0.0001'	'0'	'0.1267'
\eta_L	'0.3376'	'0.6662'	'0.4997'	'0.3709'	'0.1756'
\vartheta_P	'0'	'0'	'0.0001'	'0'	'0.081'
\gamma_H	'0.6305'	'0.9614'	'0.9054'	'0.9434'	'0.1866'
z	'2.9477'	'3.5815'	'28.1766'	'3.0225'	'0.1205'
\eta_{\vartheta}	'0.6263'	'0.6488'	'0.5702'	'0.6269'	'0.1746'
a_L	'4.6153'	'7.5407'	'9.6852'	'5.2649'	'0.1151'
b_L	'1.0833'	'3.1375'	'10.7917'	'1.3049'	'0.1348'
a_{\mu}	'8.1124'	'12.9452'	'13.1998'	'12.6638'	'0.097'
b_{\mu}	'1.6684'	'4.7615'	'1.6227'	'1.6942'	'0.099'
\mu	'0.0787'	'0.2481'	'0.0297'	'0.1928'	'0.0843'
a_H	'4.6776'	'7.6784'	'3.1805'	'4.7296'	'0.2094'
b_H	'4.2013'	'7.5649'	'3.18'	'6.0518'	'0.1402'
\nu	'0.0001'	'0.0003'	'101.0147'	'0.0003'	'0.1177'
BP	'595.9247'	'712'	'648.5'	'606.5'	'0.2151'

15.3. Identifiability analysis

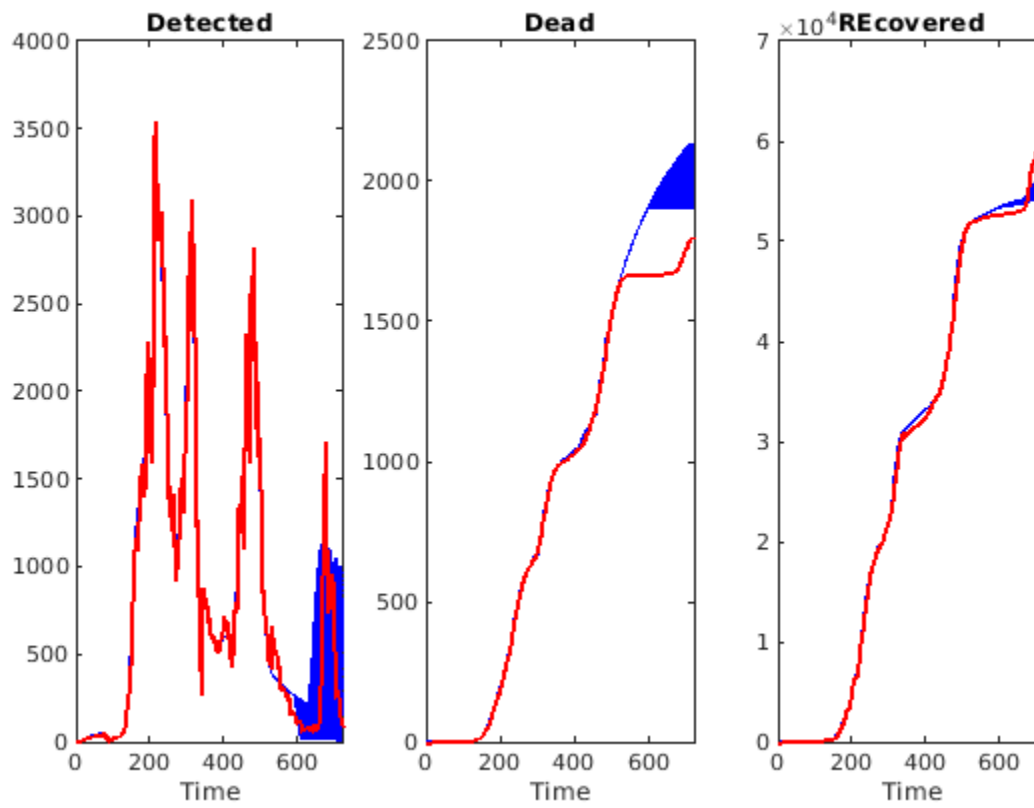






15.4. Uncertainty analysis

N=500



Chapter 16. Extension number16

16.1. Basic information

The extension to be validated consists of the time series from the data722 to the 736. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

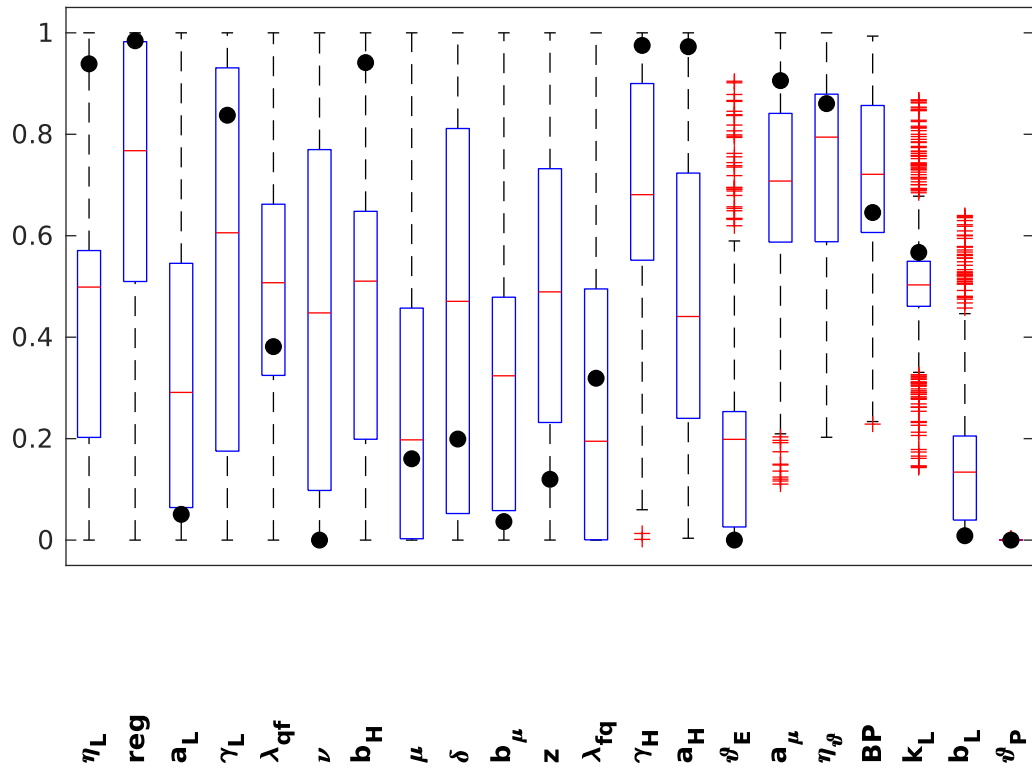
16.2. Estimated parameters with their intervals

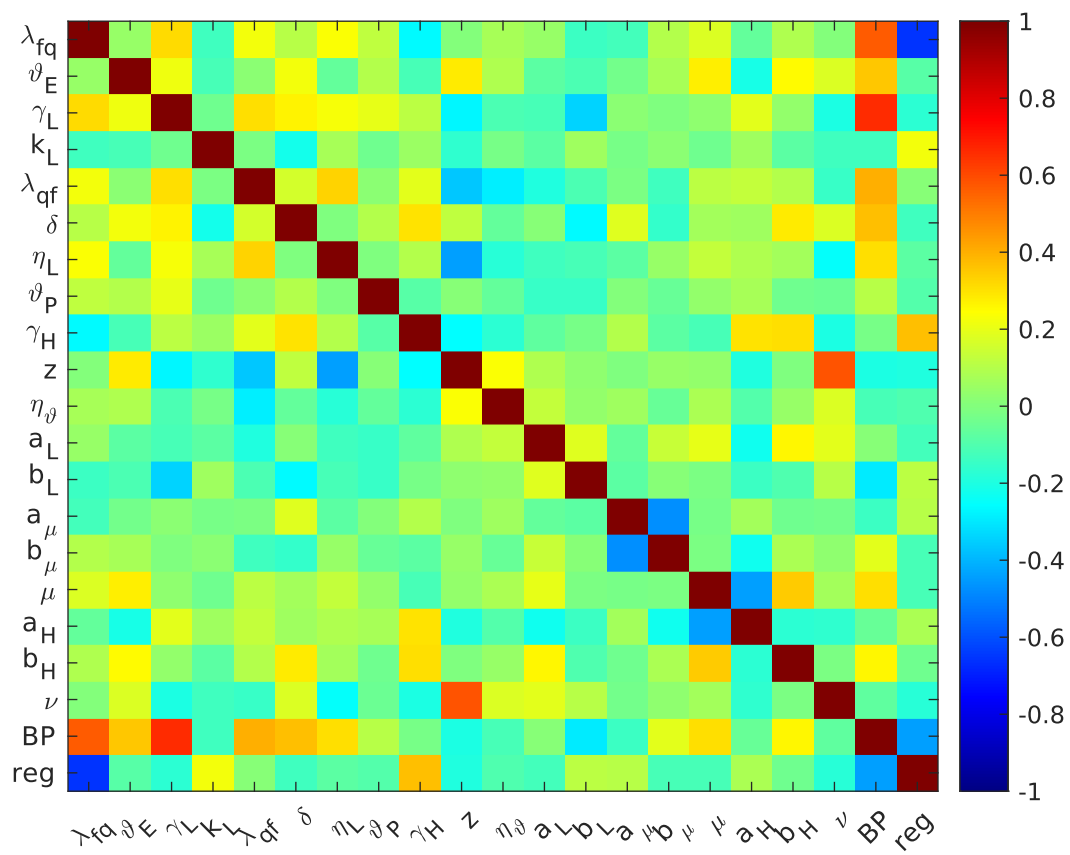
It was necessary to fix 0 parameters of 11 that could be fixed to complete validation.

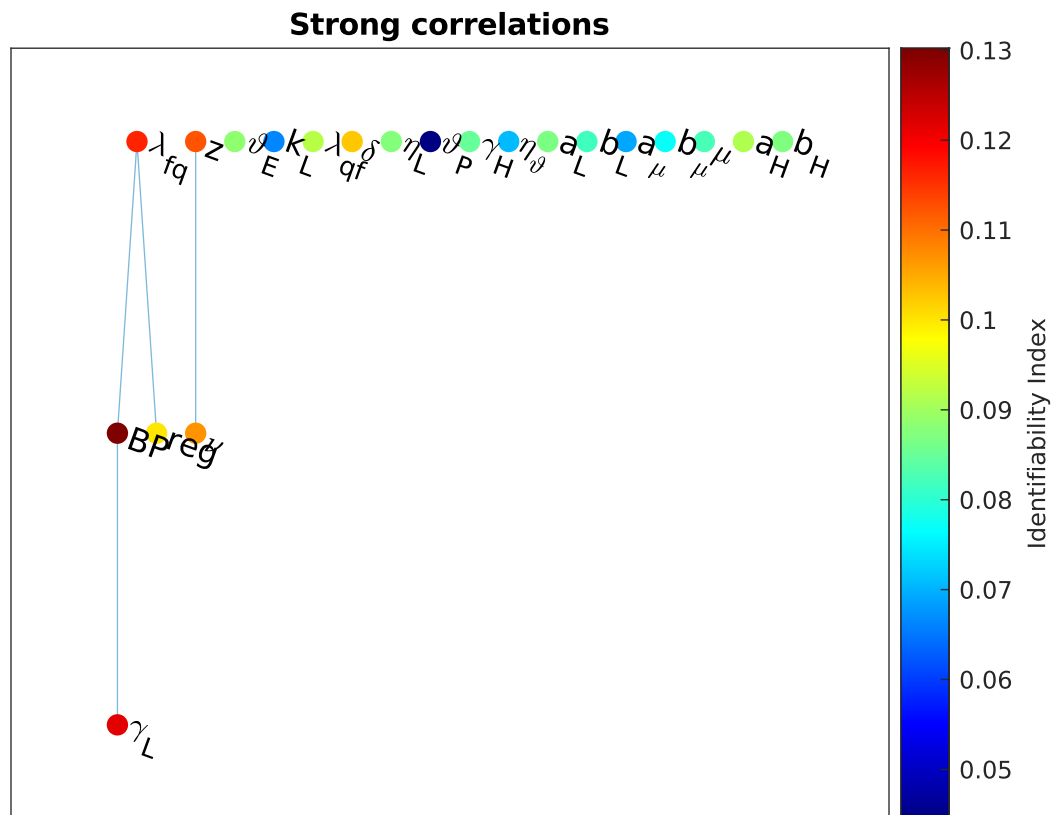
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0.2587'	'0.4274'	'0.1949'	'0.3191'	'0.1162'
\vartheta_E	'0'	'0.0001'	'0.1986'	'0.0001'	'0.0886'
\gamma_L	'0.3632'	'0.8433'	'0.6058'	'0.8375'	'0.1217'
k_L	'1.9666'	'6.275'	'5.5277'	'6.1037'	'0.0666'
\lambda_{qf}	'0.368'	'0.4995'	'0.5074'	'0.3814'	'0.0918'
\delta	'0.0226'	'0.0311'	'0.0706'	'0.0299'	'0.1026'
\eta_L	'0.6498'	'0.9812'	'0.4988'	'0.9389'	'0.0875'
\vartheta_P	'0'	'0'	'0.0005'	'0'	'0.0446'
\gamma_H	'0.4961'	'1'	'0.6809'	'0.9752'	'0.0853'
z	'2.6599'	'4.1313'	'14.6796'	'3.5961'	'0.1122'
\eta_{\vartheta}	'0.4933'	'0.9169'	'0.7944'	'0.8604'	'0.0708'
a_L	'1.6594'	'2.1748'	'5.0761'	'1.7107'	'0.0869'
b_L	'1.0892'	'2.1431'	'2.876'	'1.1204'	'0.082'
a_{\mu}	'9.0476'	'15'	'10.9093'	'13.6807'	'0.0692'
b_{\mu}	'1.136'	'6.0147'	'5.5345'	'1.5109'	'0.0771'
\mu	'0.0434'	'0.3135'	'0.1976'	'0.1603'	'0.0826'
a_H	'11.8471'	'14.6451'	'7.1708'	'14.6168'	'0.0914'
b_H	'9.9695'	'14.2856'	'8.1465'	'14.1782'	'0.0873'
\nu	'0.0015'	'0.0193'	'223.9436'	'0.0093'	'0.1071'
BP	'654.5569'	'661.4655'	'670.5'	'655.5'	'0.1302'
reg	'0.2076'	'0.2478'	'0.1919'	'0.2461'	'0.1001'

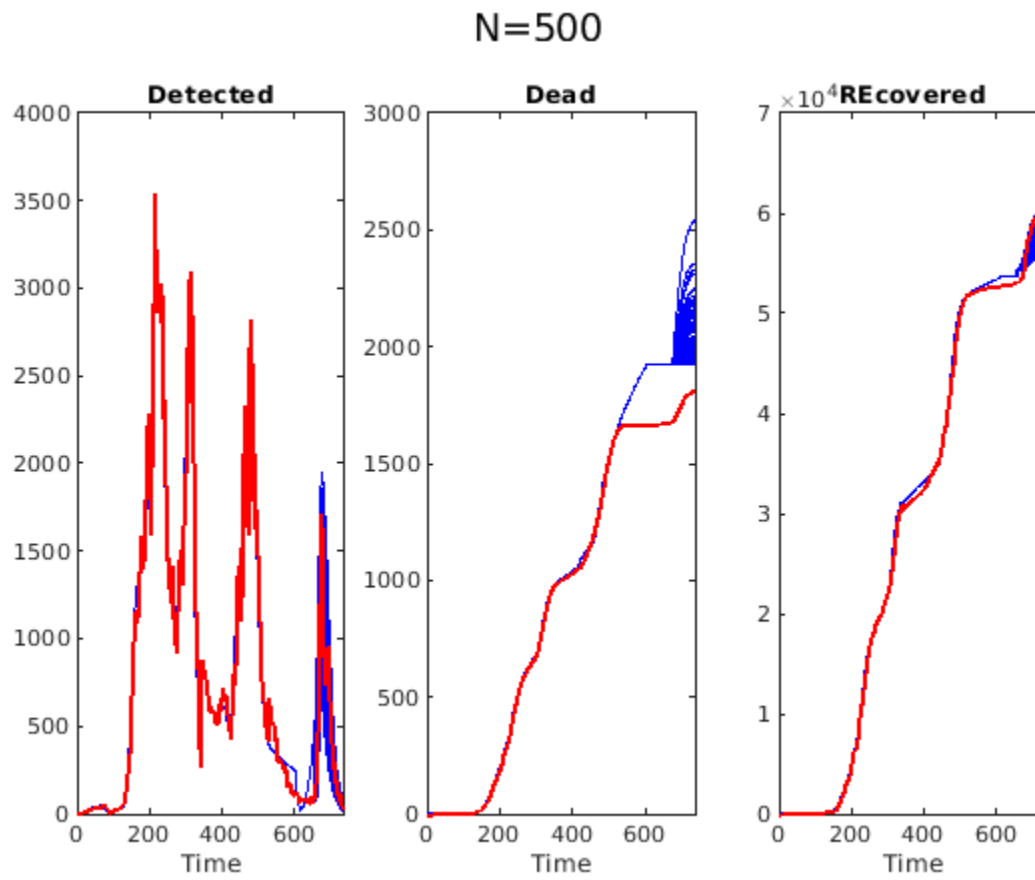
16.3. Identifiability analysis







16.4. Uncertainty analysis



Chapter 17. Extension number17

17.1. Basic information

The extension to be validated consists of the time series from the data736 to the 738. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

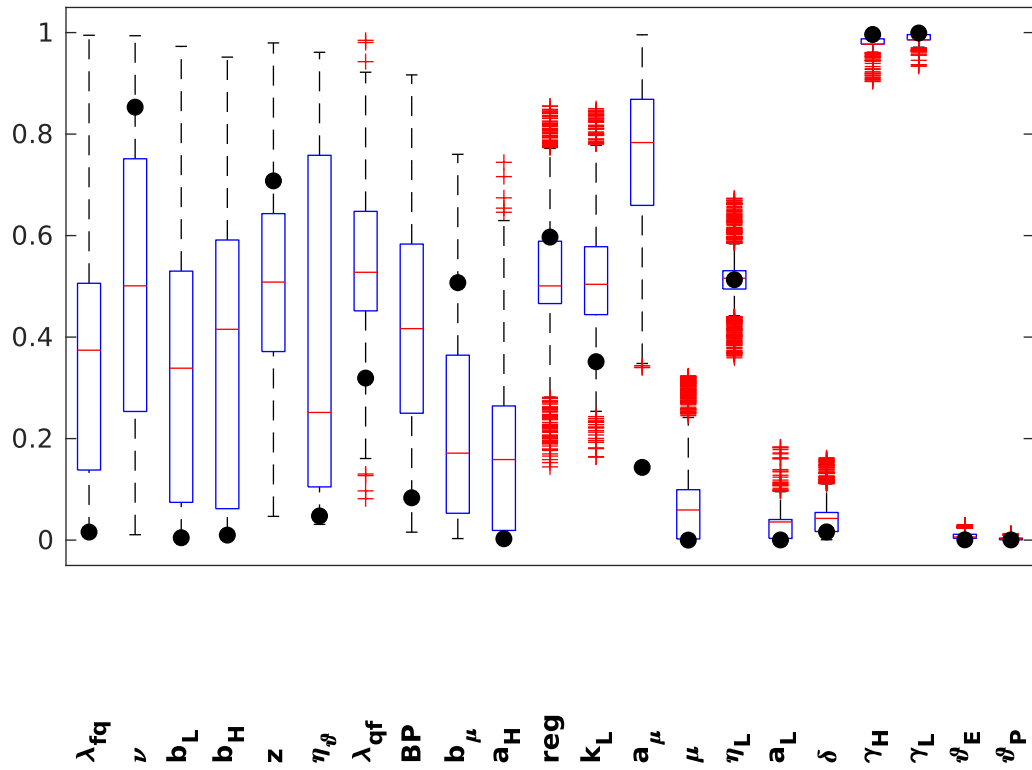
17.2. Estimated parameters with their intervals

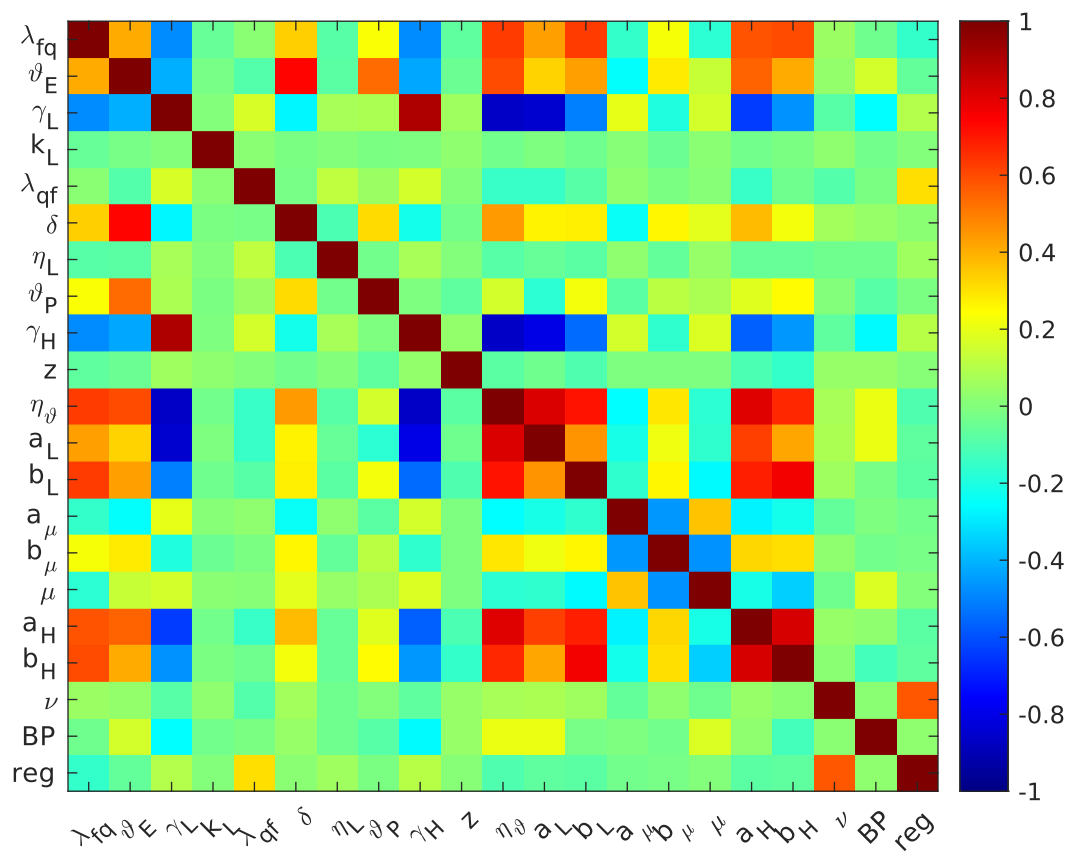
It was necessary to fix 0 parameters of 11 that could be fixed to complete validation.

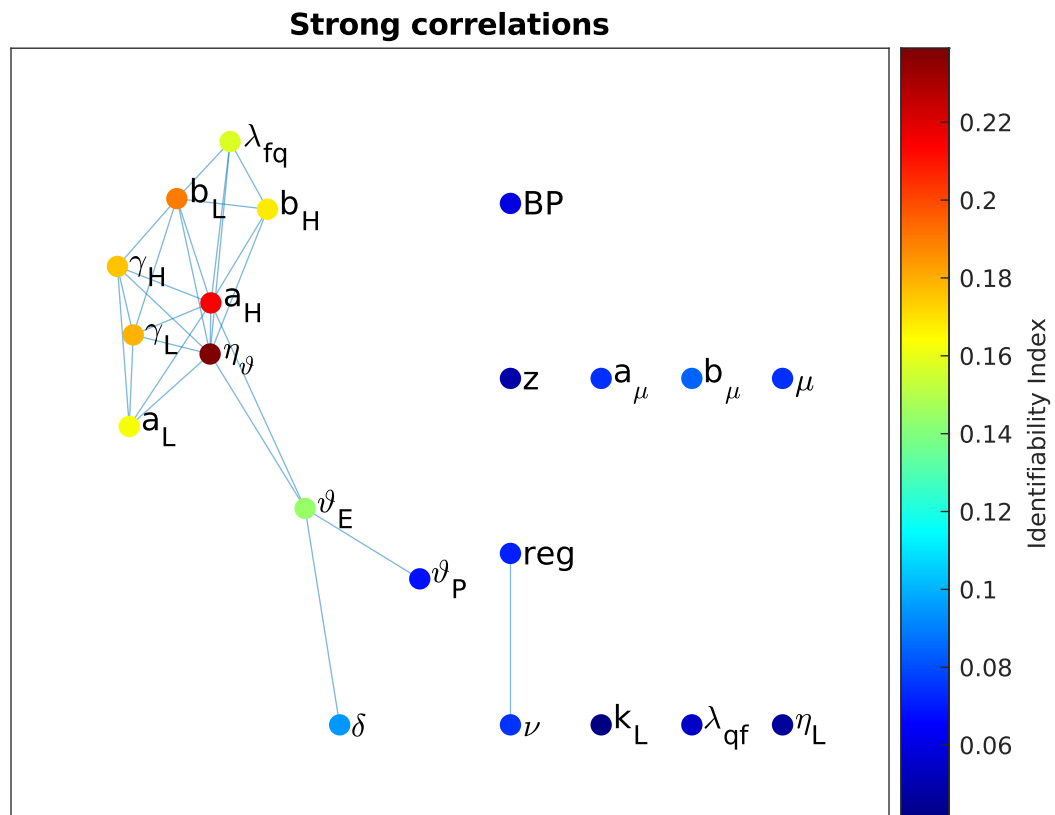
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0'	'0.0356'	'0.3742'	'0.0158'	'0.1574'
ϑ_E	'0'	'0.0012'	'0.0062'	'0.0005'	'0.1441'
γ_L	'0.8585'	'1'	'0.9857'	'0.9992'	'0.1795'
k_L	'1'	'10'	'5.5362'	'4.1638'	'0.0412'
λ_{qf}	'0'	'0.6824'	'0.5277'	'0.3192'	'0.055'
δ	'0'	'0.0337'	'0.0064'	'0.0024'	'0.0951'
η_L	'0'	'1'	'0.516'	'0.5131'	'0.0459'
ϑ_P	'0'	'0.0228'	'0.0028'	'0.0004'	'0.0683'
γ_H	'0.46'	'1'	'0.9771'	'0.9962'	'0.1757'
z	'0'	'22.8'	'15.2515'	'21.2348'	'0.0484'
η_{ϑ}	'0.0472'	'0.1009'	'0.2515'	'0.0476'	'0.239'
a_L	'1'	'1.0997'	'1.5006'	'1.0043'	'0.1627'
b_L	'1.0243'	'1.9735'	'5.7421'	'1.0654'	'0.1896'
a_{μ}	'1'	'15'	'11.9626'	'3.0059'	'0.0749'
b_{μ}	'1'	'15'	'3.4048'	'8.1018'	'0.0849'
μ	'0'	'0'	'0.0595'	'0'	'0.0751'
a_H	'1.0361'	'2.4447'	'3.2232'	'1.0372'	'0.2157'
b_H	'1'	'4.0747'	'6.815'	'1.1381'	'0.1685'
ν	'326.8128'	'500'	'250.5107'	'426.5401'	'0.0756'
BP	'722'	'724.4192'	'724.5'	'722.5'	'0.0603'
reg	'0.0823'	'0.1567'	'0.1252'	'0.1493'	'0.0715'

17.3. Identifiability analysis







17.4. Uncertainty analysis

N=500

