

Validation process for NARINO

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 43. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

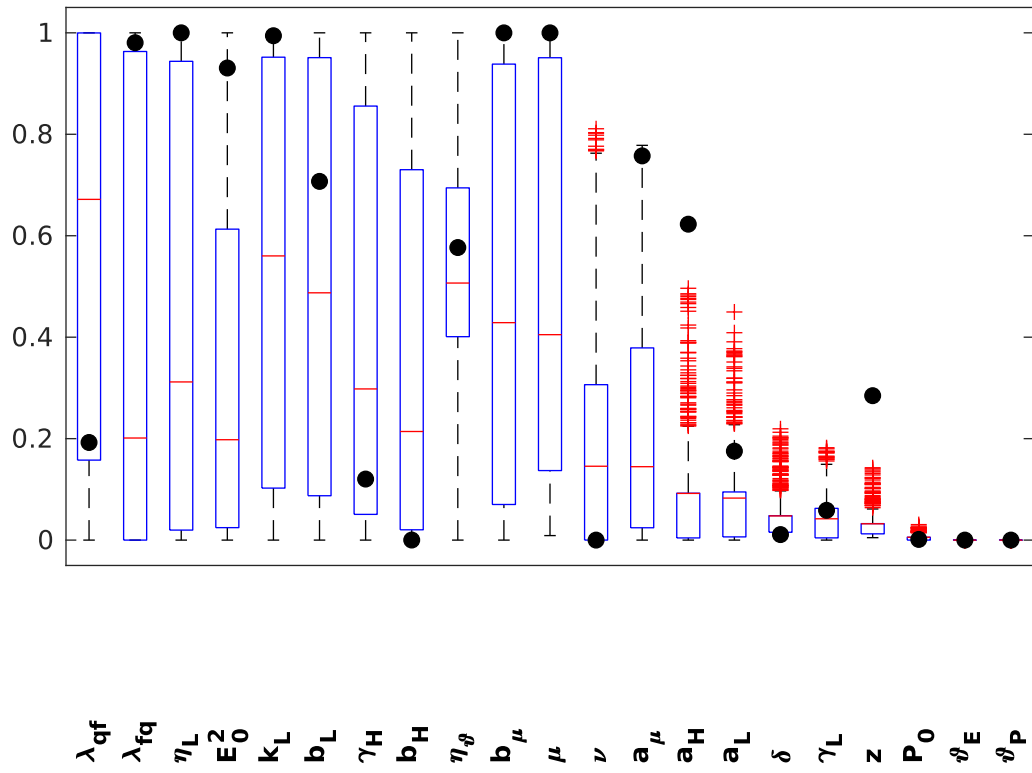
1.2. Estimated parameters with their intervals

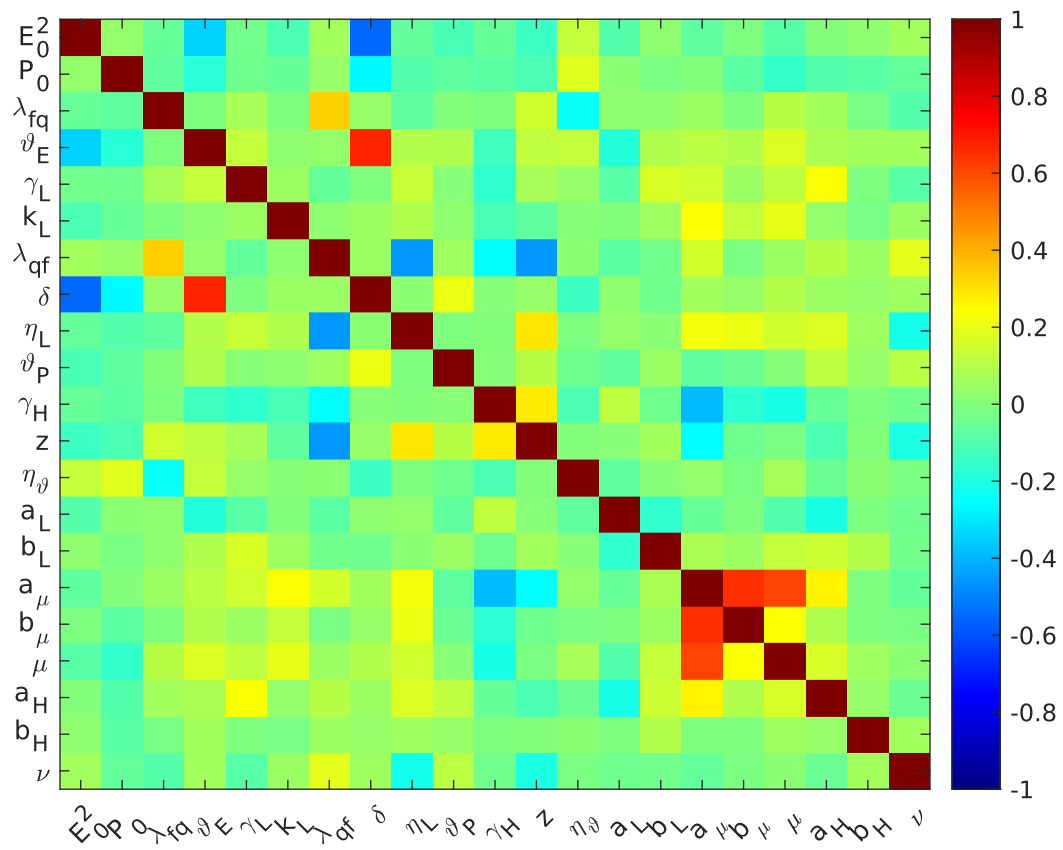
It was necessary to fix 0 parameters of 11 that could be fixed to complete validation.

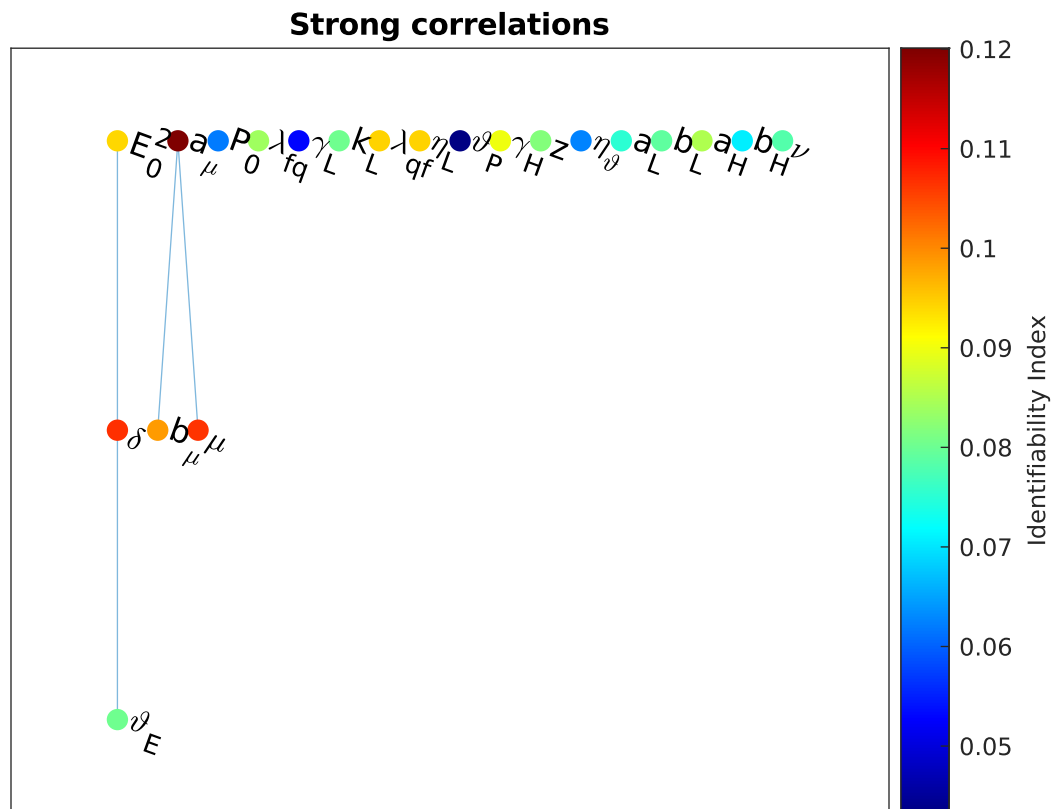
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
E^2_0	'1527.2459'	'1949.6641'	'395.7605'	'1861.2792'	'0.0942'
P_0	'0'	'1.2179'	'2.2685'	'0.5413'	'0.0622'
\lambda_{fq}	'0.8583'	'1'	'0.2012'	'0.9805'	'0.0839'
\vartheta_E	'0'	'0'	'0'	'0'	'0.0804'
\gamma_L	'0.0455'	'0.0591'	'0.0421'	'0.0587'	'0.0531'
k_L	'1.45'	'10'	'6.0421'	'9.9485'	'0.0804'
\lambda_{qf}	'0.1712'	'0.1987'	'0.6717'	'0.1924'	'0.0946'
\delta	'0.0016'	'0.0022'	'0.0072'	'0.0016'	'0.1066'
\eta_L	'0.8087'	'1'	'0.3118'	'1'	'0.0946'
\vartheta_P	'0'	'0'	'0'	'0'	'0.0434'
\gamma_H	'0'	'0.2321'	'0.298'	'0.1203'	'0.0898'
z	'6.4829'	'8.8938'	'0.9747'	'8.541'	'0.0818'
\eta_{\vartheta}	'0.562'	'0.5811'	'0.5067'	'0.5767'	'0.0628'
a_L	'3.3916'	'7.6498'	'2.1601'	'3.455'	'0.0752'
b_L	'8.1574'	'13.3411'	'7.8248'	'10.9'	'0.0793'
a_{\mu}	'8.4569'	'11.6938'	'3.0263'	'11.6038'	'0.1201'
b_{\mu}	'10.2807'	'15'	'7.0011'	'14.9987'	'0.0987'
\mu	'0.4411'	'1'	'0.405'	'0.9999'	'0.1066'
a_H	'7.6659'	'15'	'2.2945'	'9.7185'	'0.0851'
b_H	'1'	'9.0468'	'3.9973'	'1.0017'	'0.0709'
\nu	'0'	'0.0046'	'74.4245'	'0.0022'	'0.0784'

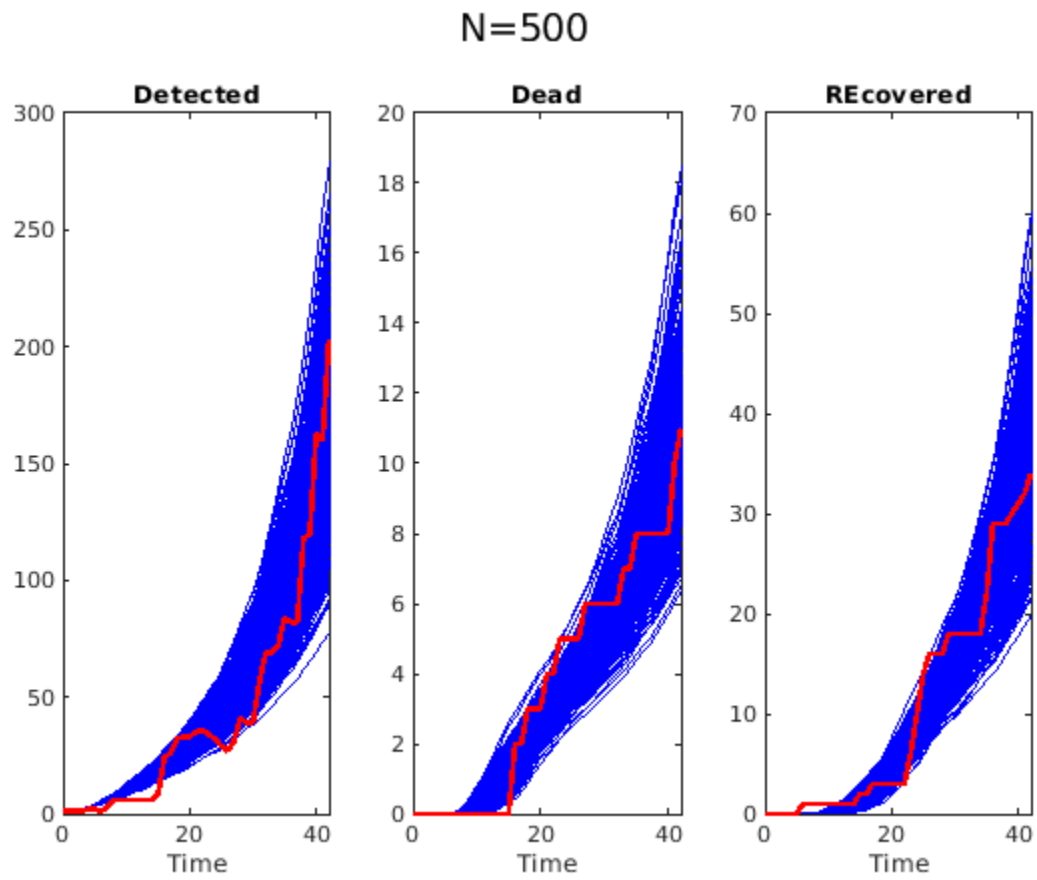
1.3. Identifiability analysis







1.4. Uncertainty analysis



Chapter 2. Extension number2

2.1. Basic information

The extension to be validated consists of the time series from the data43 to the 99. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

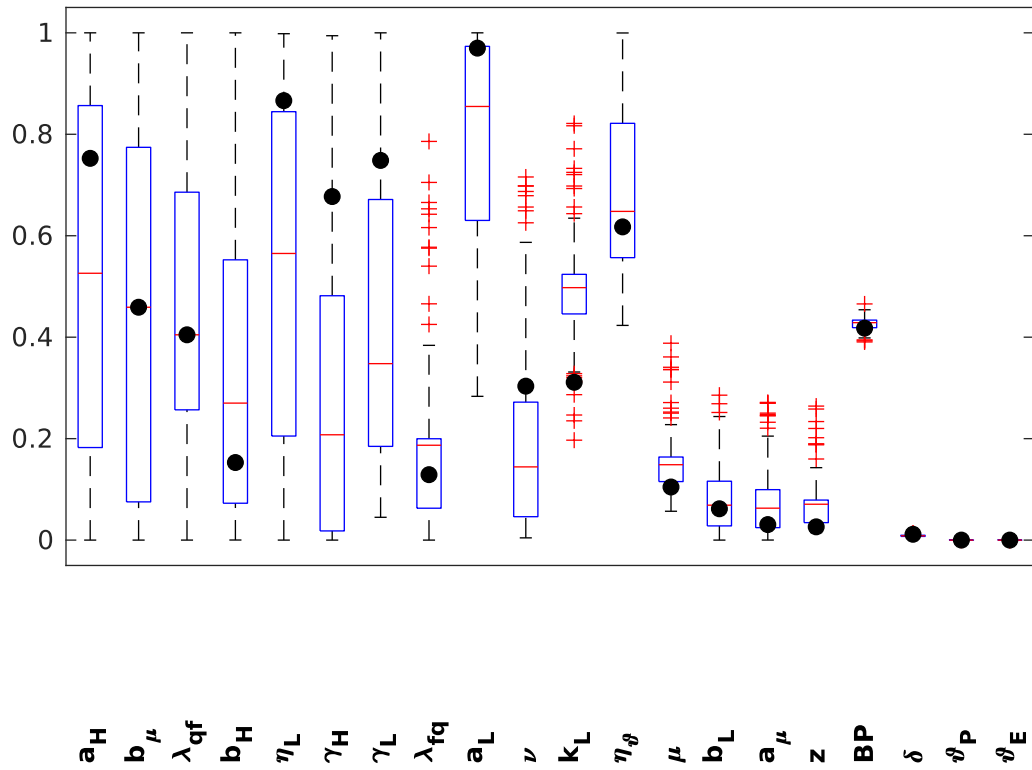
2.2. Estimated parameters with their intervals

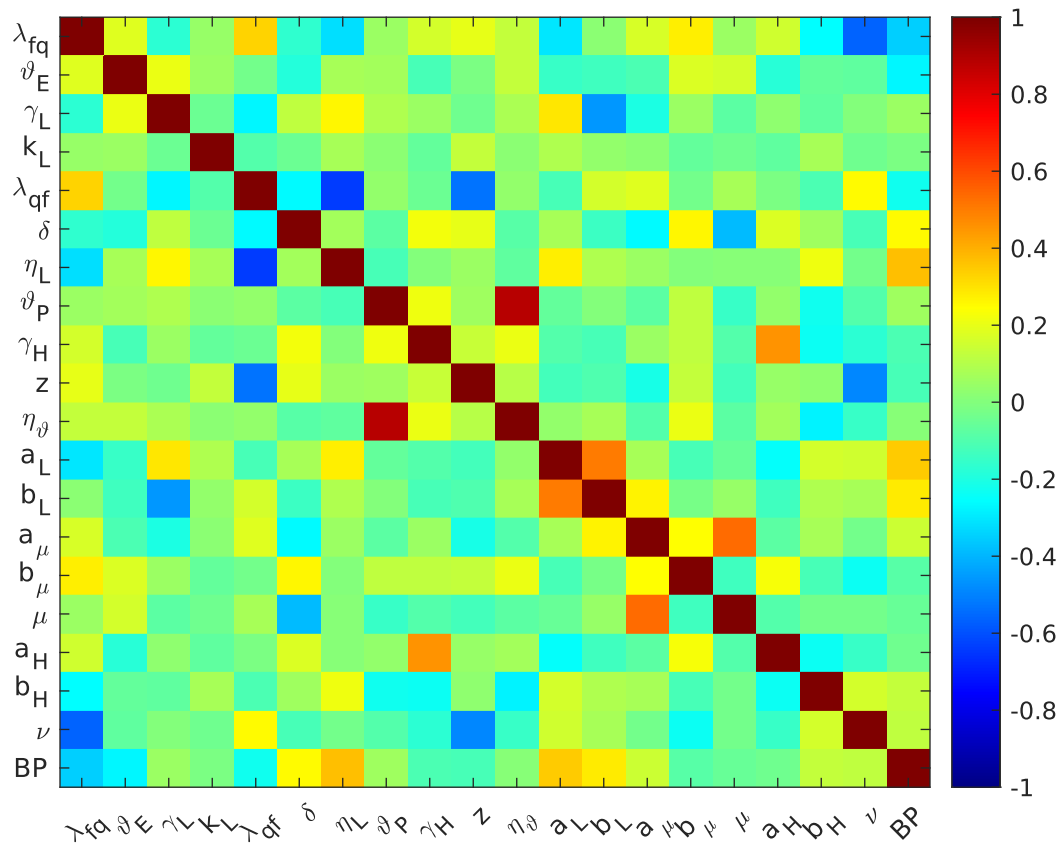
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

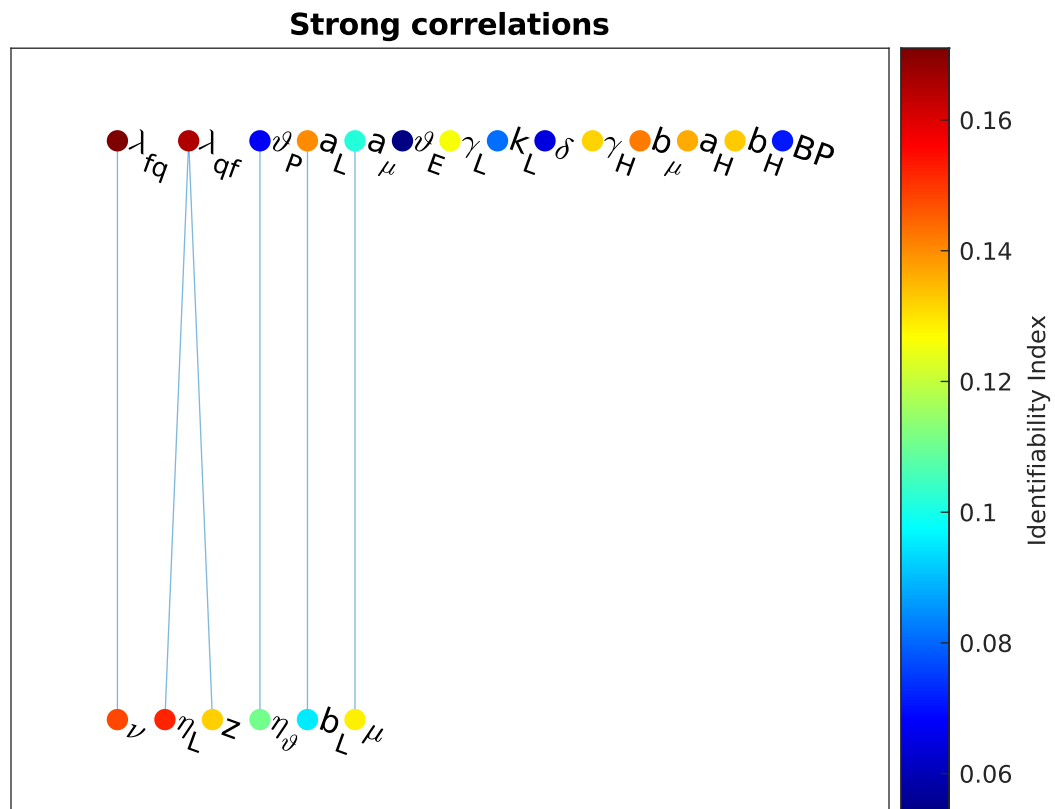
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.1226'	'0.1609'	'0.187'	'0.129'	'0.171'
ϑ_E	'0'	'0'	'0'	'0'	'0.0541'
γ_L	'0.1979'	'0.7561'	'0.3478'	'0.7485'	'0.1259'
k_L	'1'	'7.9255'	'5.479'	'3.8002'	'0.0811'
λ_{qf}	'0.3855'	'0.4925'	'0.4047'	'0.4047'	'0.1653'
δ	'0.0012'	'0.002'	'0.0013'	'0.0017'	'0.065'
η_L	'0.5557'	'0.904'	'0.565'	'0.8663'	'0.1519'
ϑ_P	'0'	'0'	'0'	'0'	'0.0677'
γ_H	'0.0164'	'0.8208'	'0.2076'	'0.6773'	'0.1318'
z	'0.6765'	'1.1639'	'2.1212'	'0.7845'	'0.1325'
η_{ϑ}	'0.604'	'0.6298'	'0.648'	'0.6175'	'0.111'
a_L	'10.5104'	'14.8124'	'12.9676'	'14.5778'	'0.1402'
b_L	'1.2417'	'2.296'	'1.9638'	'1.8647'	'0.0953'
a_{μ}	'1.3136'	'4.6243'	'1.881'	'1.4283'	'0.1016'
b_{μ}	'4.6365'	'14.5691'	'7.4265'	'7.4265'	'0.1419'
μ	'0.0947'	'0.1574'	'0.1486'	'0.1047'	'0.1289'
a_H	'8.1299'	'14.6565'	'8.3643'	'11.5359'	'0.1366'
b_H	'2.2112'	'9.2129'	'4.7807'	'3.1407'	'0.1328'
ν	'140.2858'	'202.178'	'72.1622'	'151.735'	'0.1478'
BP	'41.0368'	'51.9686'	'43.0068'	'41.9467'	'0.0714'

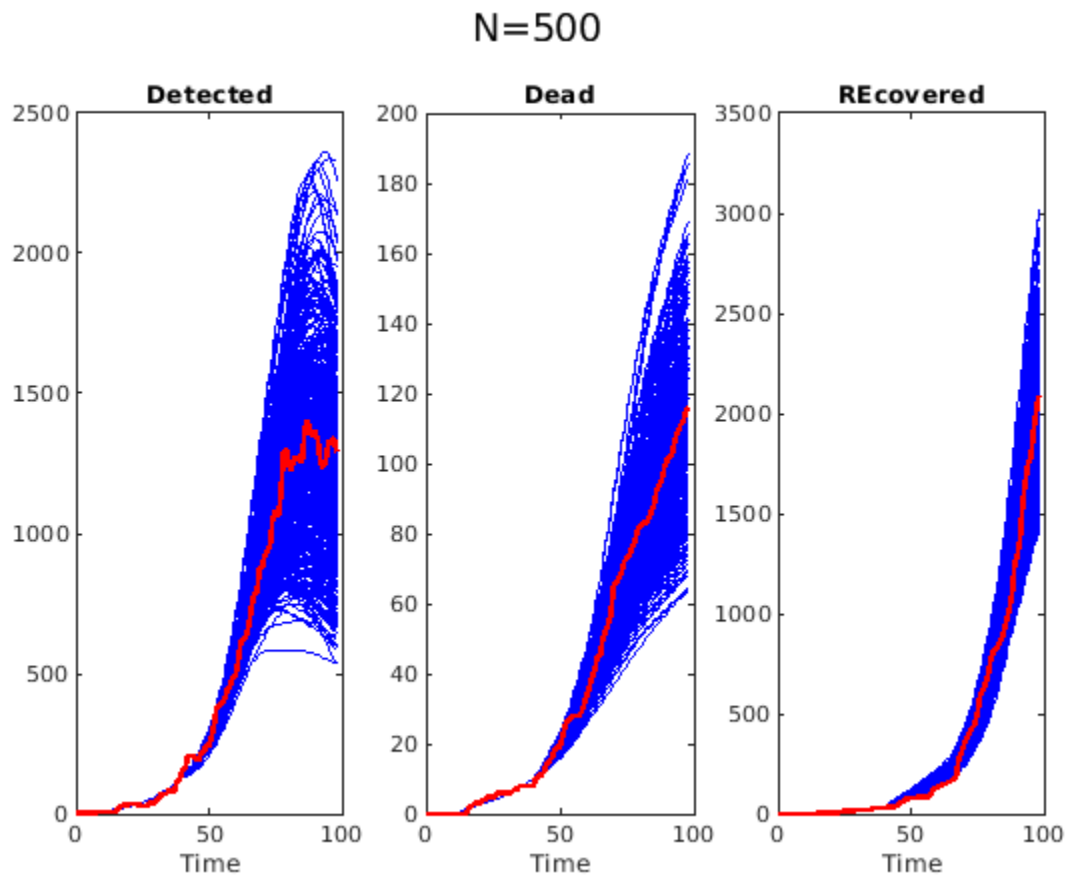
2.3. Identifiability analysis







2.4. Uncertainty analysis



Chapter 3. Extension number3

3.1. Basic information

The extension to be validated consists of the time series from the data99 to the 121. The status of the validation is: COMPLETED.

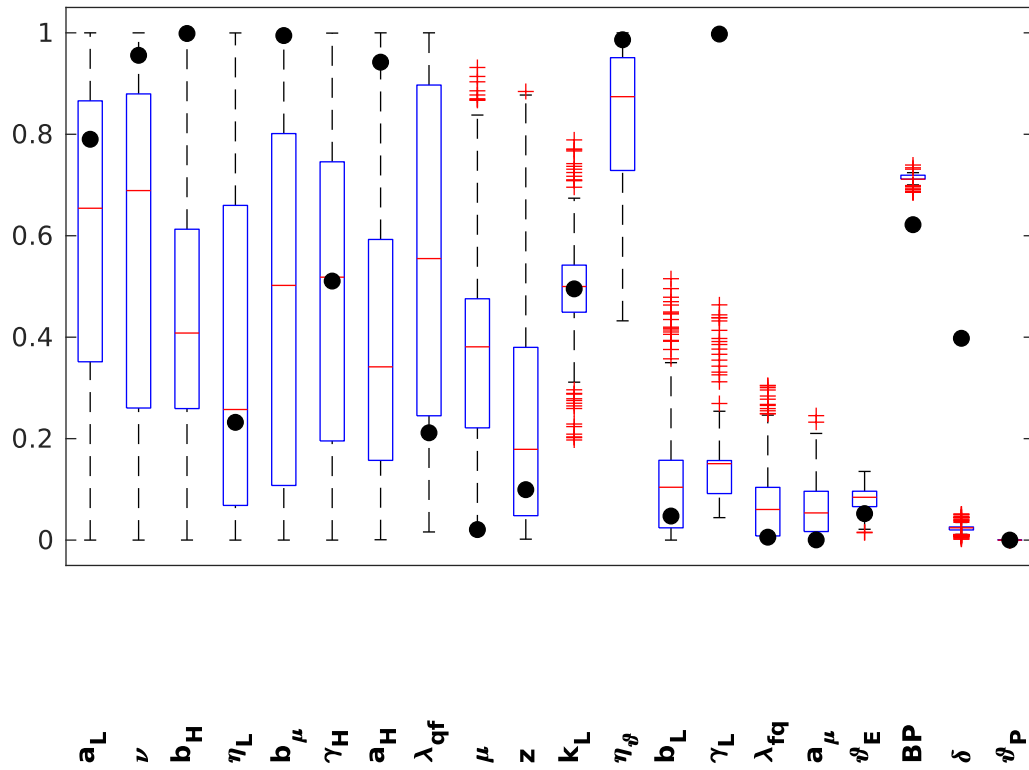
The number of estimations needed to perform the validation was1000.

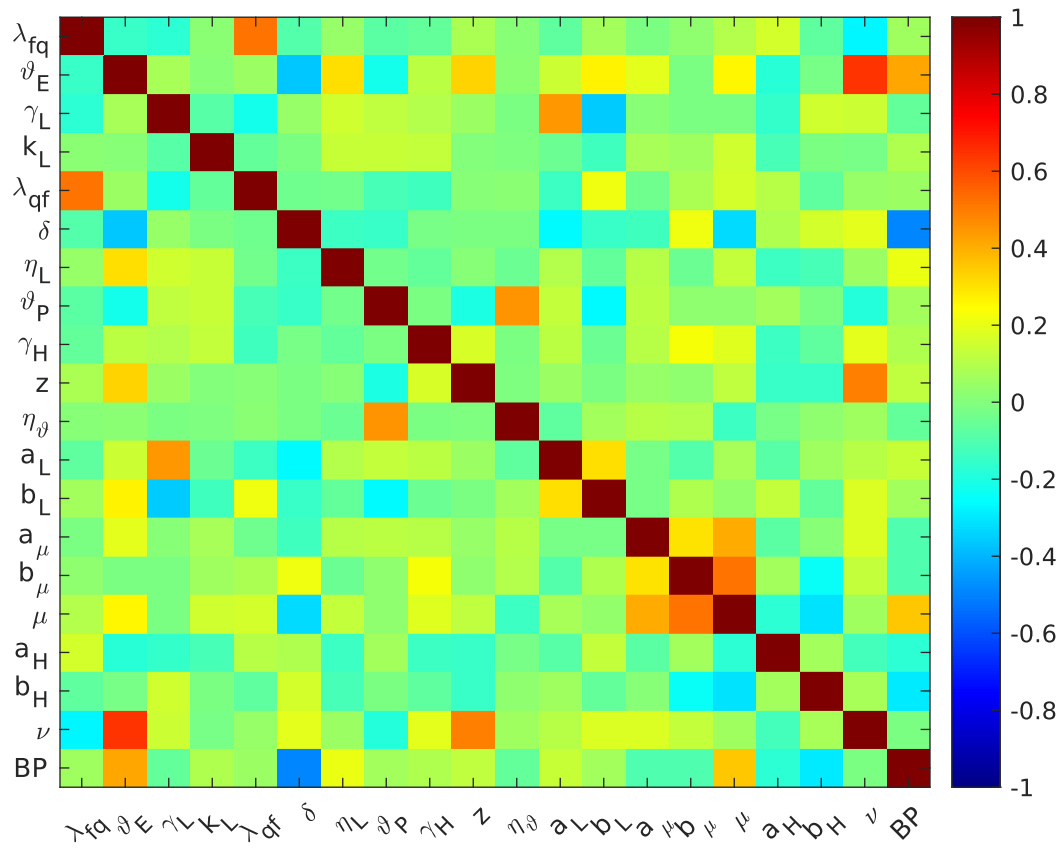
3.2. Estimated parameters with their intervals

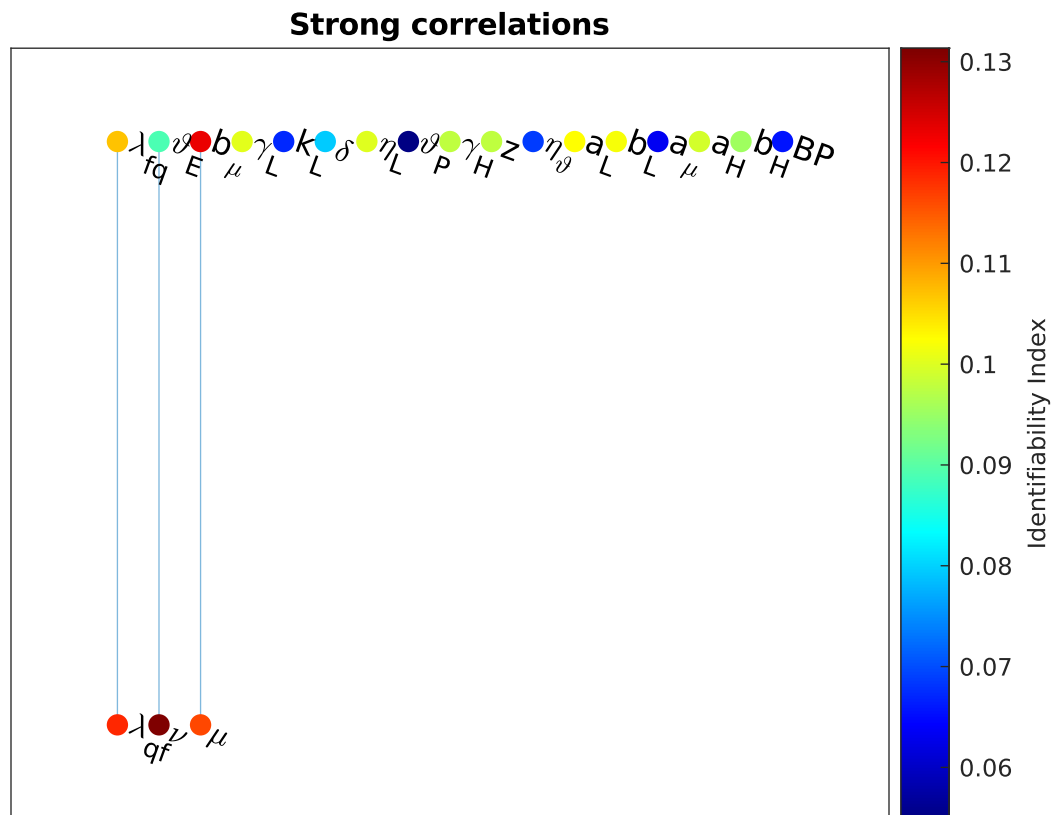
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.0161'	'0.1046'	'0.0604'	'0.0057'	'0.1071'
ϑ_E	'0.0799'	'0.0889'	'0.0844'	'0.0522'	'0.0893'
γ_L	'0.1047'	'0.1966'	'0.1507'	'0.9975'	'0.1006'
k_L	'5.2634'	'5.7348'	'5.4991'	'5.4573'	'0.0673'
λ_{qf}	'0.4999'	'0.6101'	'0.555'	'0.2115'	'0.1186'
δ	'0.0008'	'0.0064'	'0.0036'	'0.0597'	'0.0795'
η_L	'0.206'	'0.3089'	'0.2574'	'0.2321'	'0.1001'
ϑ_P	'0'	'0'	'0'	'0'	'0.055'
γ_H	'0.47'	'0.5666'	'0.5183'	'0.5107'	'0.0978'
z	'3.9479'	'6.7882'	'5.3681'	'2.9826'	'0.0978'
η_{ϑ}	'0.8458'	'0.9024'	'0.8741'	'0.9863'	'0.0687'
a_L	'9.5007'	'10.8171'	'10.1589'	'12.0621'	'0.1026'
b_L	'1.8183'	'3.0985'	'2.4584'	'1.6642'	'0.102'
a_{μ}	'1.5698'	'1.9306'	'1.7502'	'1.0062'	'0.0633'
b_{μ}	'7.2409'	'8.8177'	'8.0293'	'14.9248'	'0.1231'
μ	'0.3464'	'0.4156'	'0.381'	'0.0207'	'0.1164'
a_H	'5.1228'	'6.4403'	'5.7815'	'14.1903'	'0.0993'
b_H	'6.0711'	'7.3579'	'6.7145'	'14.9814'	'0.0953'
ν	'317.3493'	'371.677'	'344.5131'	'477.8314'	'0.1313'
BP	'98.1625'	'98.8375'	'98.5'	'91.5'	'0.0659'

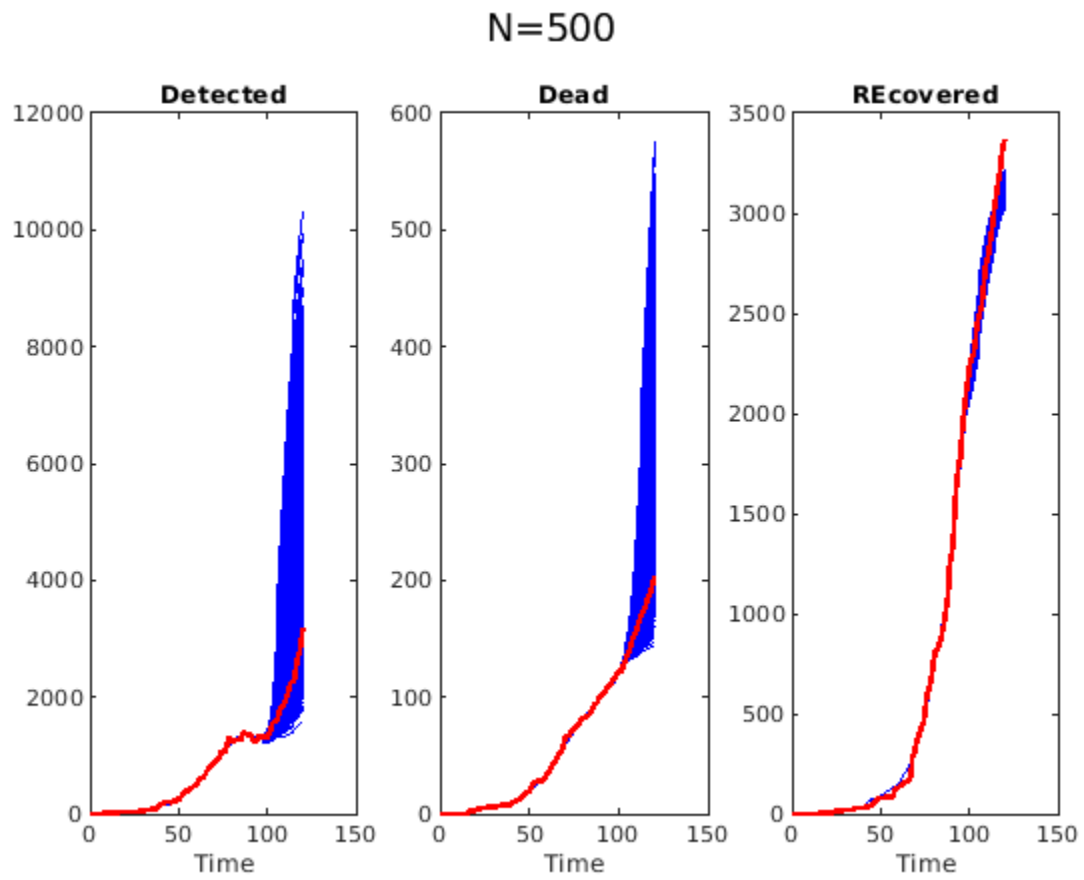
3.3. Identifiability analysys







3.4. Uncertainty analysys



Chapter 4. Extension number4

4.1. Basic information

The extension to be validated consists of the time series from the data121 to the 142. The status of the validation is: COMPLETED.

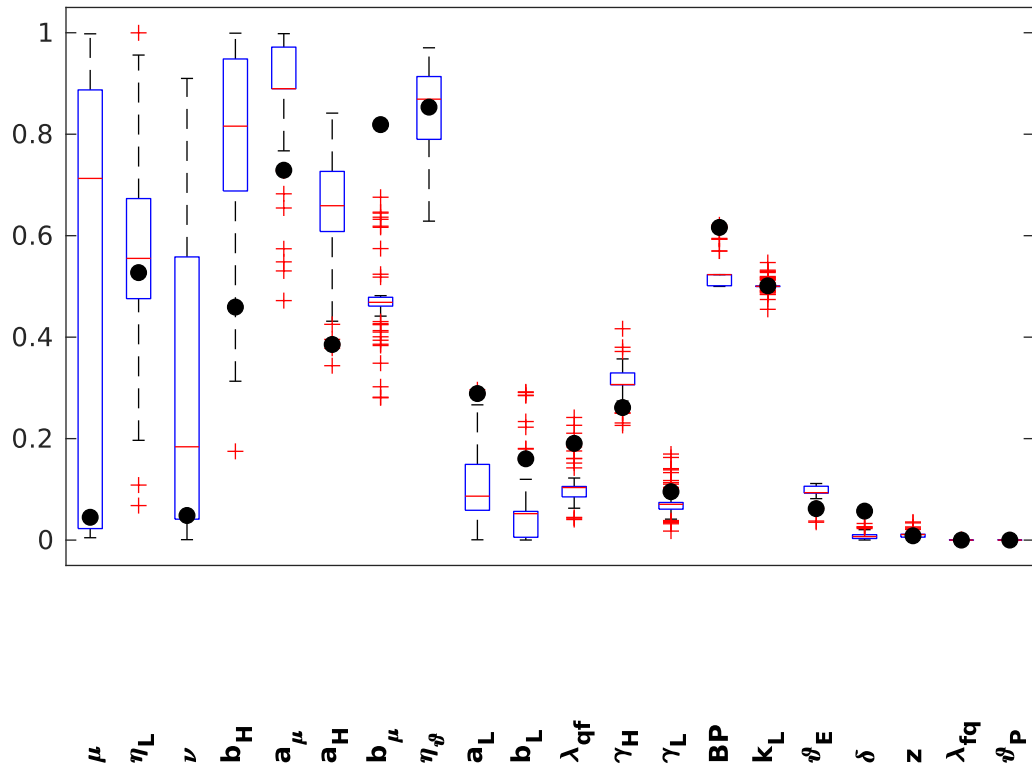
The number of estimations needed to perform the validation was1000.

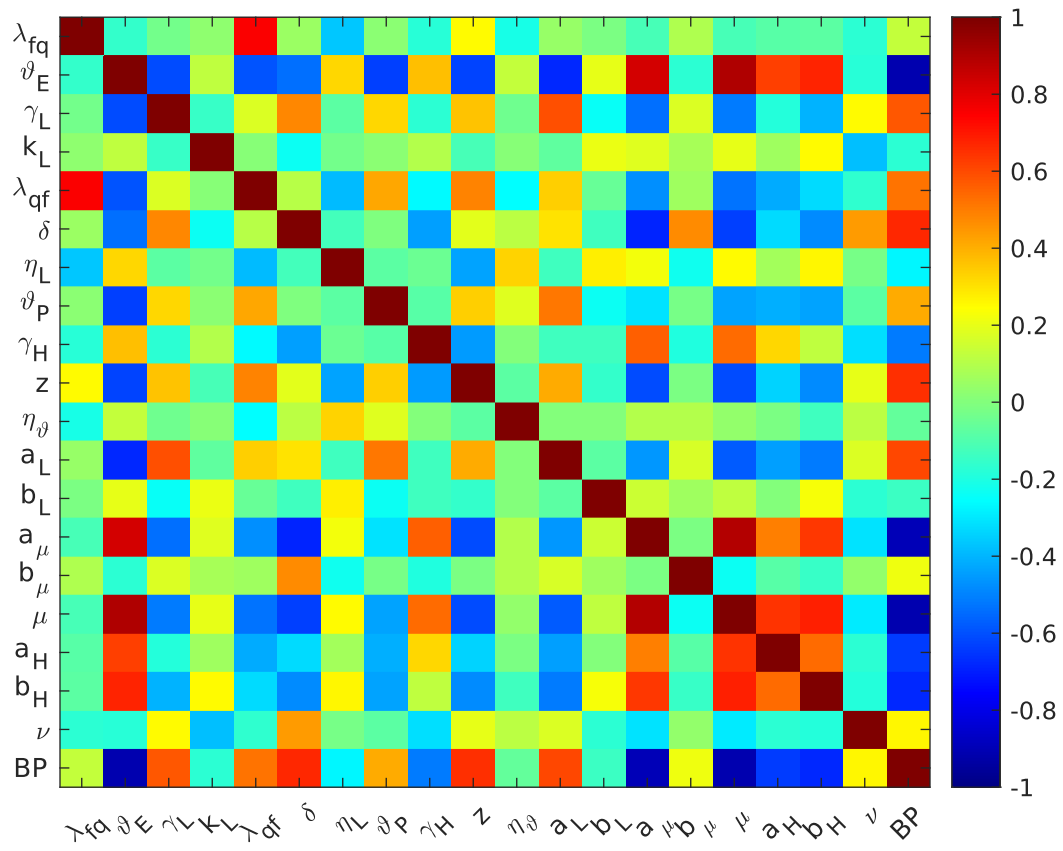
4.2. Estimated parameters with their intervals

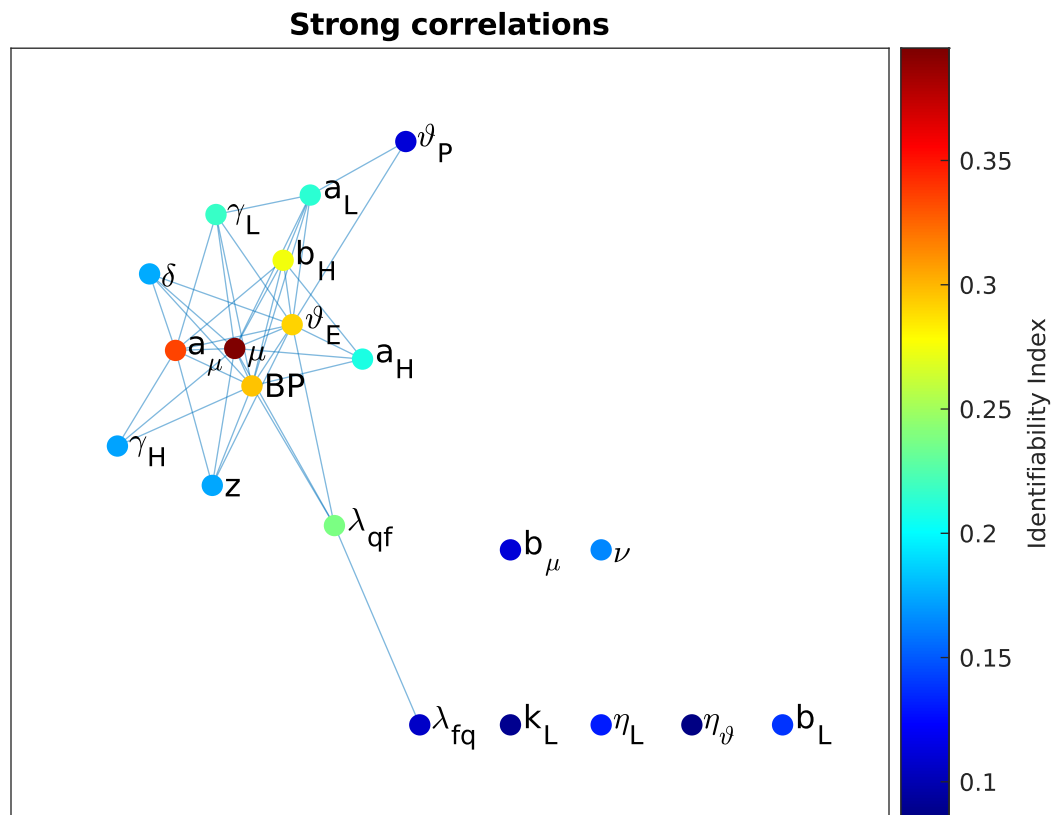
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0'	'0.0671'	'0.0001'	'0'	'0.1069'
ϑ_E	'0.0786'	'0.1065'	'0.0925'	'0.062'	'0.2918'
γ_L	'0.0137'	'0.1284'	'0.071'	'0.0954'	'0.2182'
k_L	'5.1905'	'5.814'	'5.5022'	'5.5107'	'0.0895'
λ_{qf}	'0.0215'	'0.1898'	'0.1057'	'0.1906'	'0.2379'
δ	'0'	'0.0063'	'0.0011'	'0.0086'	'0.1761'
η_L	'0.4964'	'0.6126'	'0.5545'	'0.5272'	'0.1319'
ϑ_P	'0'	'0.0002'	'0.0001'	'0'	'0.1115'
γ_H	'0.2574'	'0.3558'	'0.3066'	'0.2612'	'0.1731'
z	'0'	'0.8881'	'0.3354'	'0.2553'	'0.1746'
η_{ϑ}	'0.8315'	'0.9052'	'0.8683'	'0.8534'	'0.0854'
a_L	'1.7137'	'2.7287'	'2.2212'	'5.0436'	'0.2138'
b_L	'1'	'3.2901'	'1.792'	'3.2435'	'0.1389'
a_{μ}	'11.9992'	'14.9119'	'13.4556'	'11.2066'	'0.3348'
b_{μ}	'6.7921'	'8.3301'	'7.5611'	'12.4647'	'0.1117'
μ	'0.594'	'0.8317'	'0.7129'	'0.045'	'0.3952'
a_H	'9.3247'	'11.042'	'10.1834'	'6.3978'	'0.2094'
b_H	'11.2365'	'13.5998'	'12.4182'	'7.43'	'0.2748'
ν	'46.5873'	'137.3376'	'91.9625'	'24.2631'	'0.1644'
BP	'120.694'	'122.306'	'121.5'	'125.5'	'0.2963'

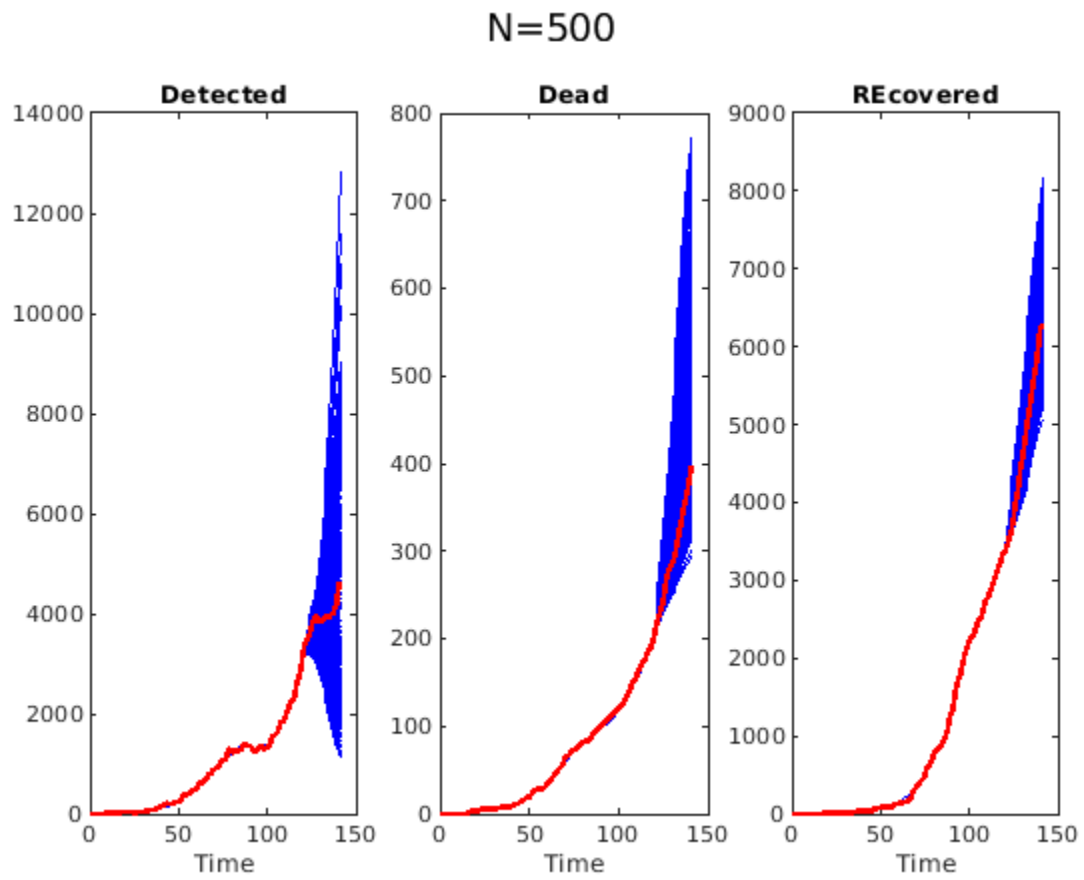
4.3. Identifiability analysis







4.4. Uncertainty analysys



Chapter 5. Extension number5

5.1. Basic information

The extension to be validated consists of the time series from the data142 to the 177. The status of the validation is: COMPLETED.

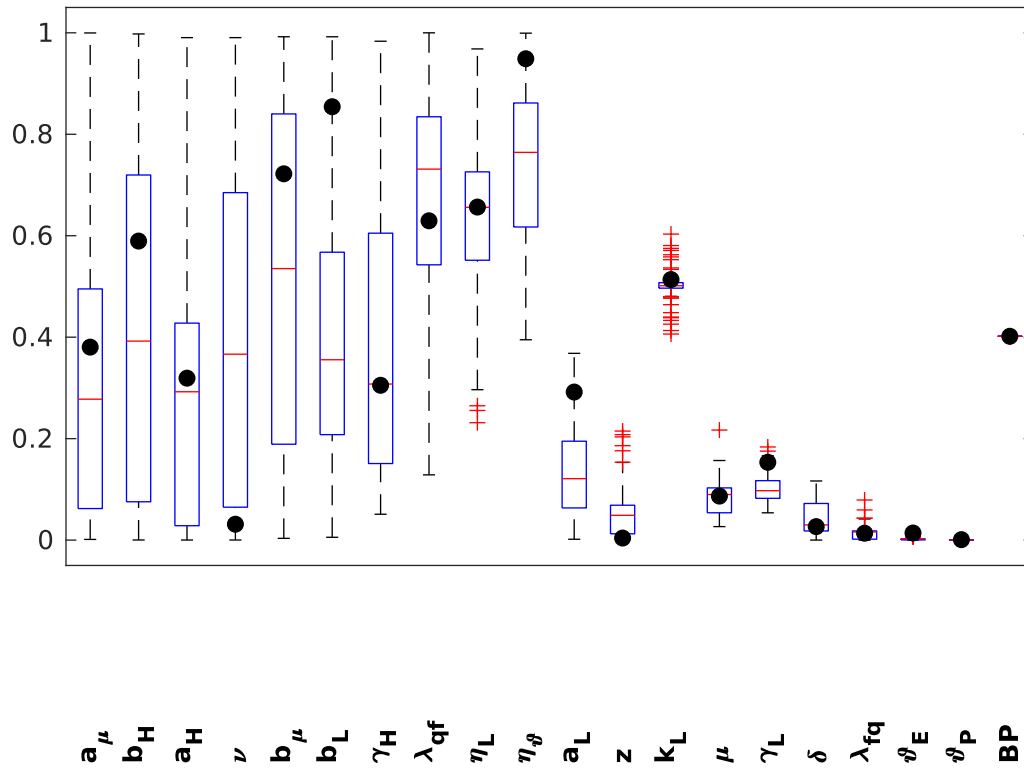
The number of estimations needed to perform the validation was3000.

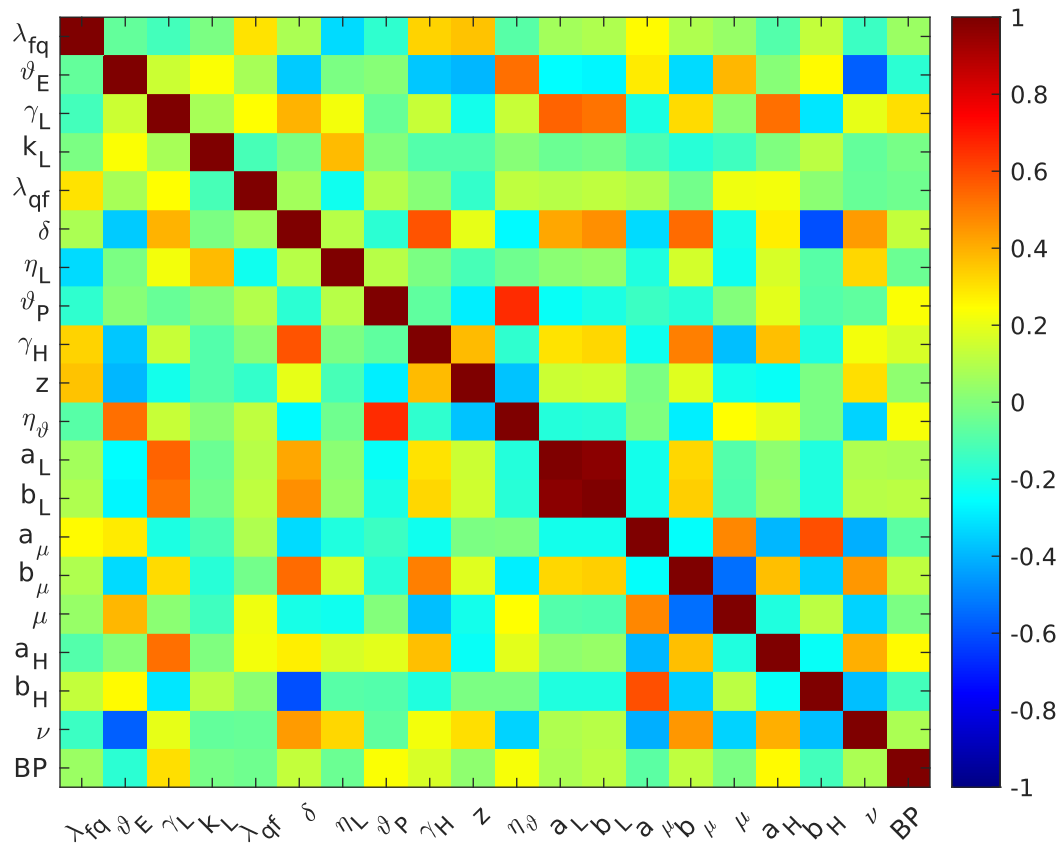
5.2. Estimated parameters with their intervals

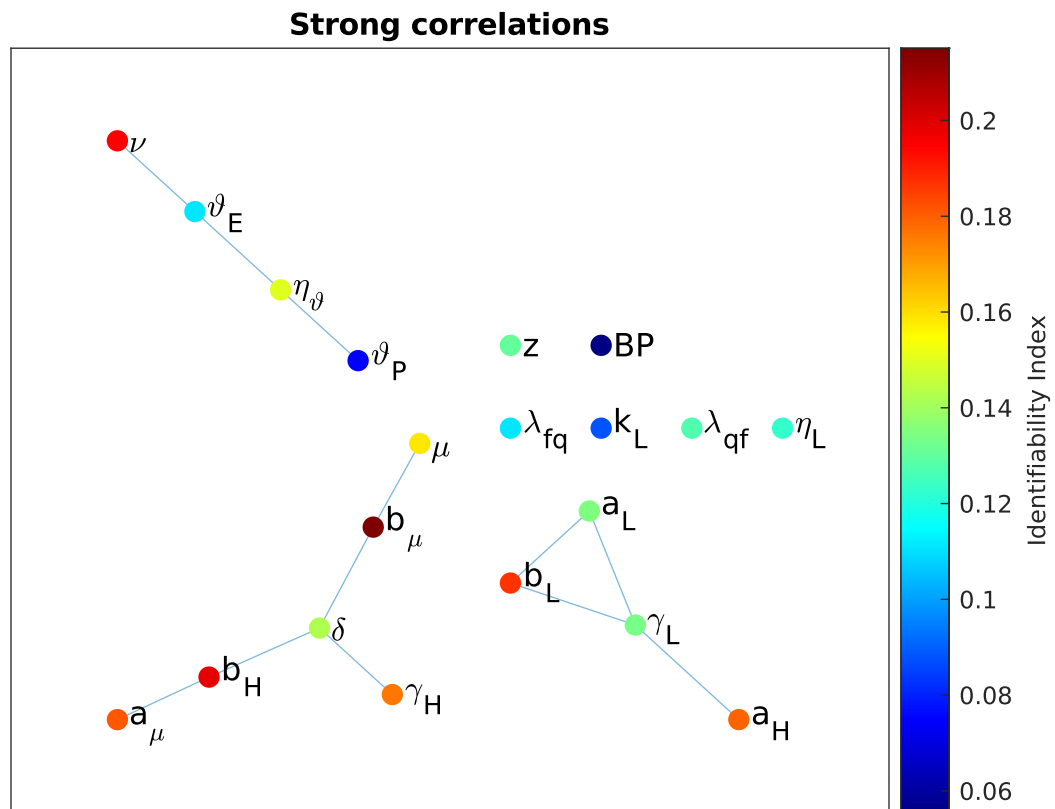
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0'	'0.1032'	'0.0181'	'0.0136'	'0.1113'
ϑ_E	'0'	'0.0051'	'0.0022'	'0.014'	'0.1113'
γ_L	'0.0848'	'0.1103'	'0.0976'	'0.1534'	'0.1338'
k_L	'5.137'	'5.8876'	'5.5123'	'5.6226'	'0.088'
λ_{qf}	'0.6548'	'0.8031'	'0.729'	'0.6294'	'0.1278'
δ	'0.003'	'0.006'	'0.0045'	'0.004'	'0.1428'
η_L	'0.5919'	'0.719'	'0.6555'	'0.6565'	'0.1235'
ϑ_P	'0'	'0.0002'	'0.0001'	'0.0009'	'0.0745'
γ_H	'0.2291'	'0.3862'	'0.3076'	'0.3052'	'0.1763'
z	'0'	'3.4253'	'1.5183'	'0.1212'	'0.1304'
η_{ϑ}	'0.7152'	'0.8134'	'0.7643'	'0.9488'	'0.1497'
a_L	'2.2696'	'3.1265'	'2.698'	'5.086'	'0.1347'
b_L	'4.8412'	'7.1135'	'5.9773'	'12.9598'	'0.1868'
a_{μ}	'3.6551'	'6.1222'	'4.8886'	'6.3256'	'0.1813'
b_{μ}	'7.1437'	'9.8416'	'8.4926'	'11.1085'	'0.2151'
μ	'0.018'	'0.1619'	'0.09'	'0.0868'	'0.1587'
a_H	'3.8512'	'6.3363'	'5.0938'	'5.4689'	'0.179'
b_H	'5.1061'	'7.8775'	'6.4918'	'9.2523'	'0.1988'
ν	'135.591'	'230.9025'	'183.2468'	'15.6546'	'0.195'
BP	'143.3828'	'143.6172'	'143.5'	'143.5'	'0.0555'

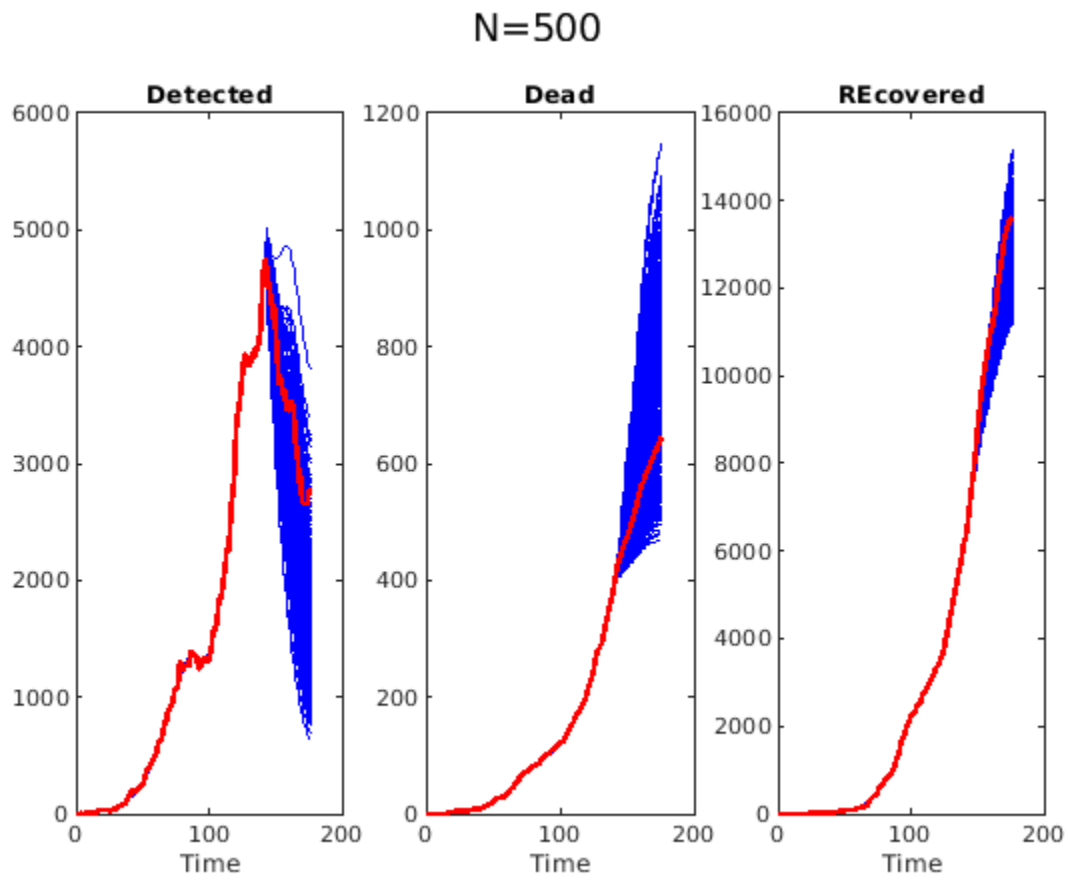
5.3. Identifiability analysys







5.4. Uncertainty analysis



Chapter 6. Extension number6

6.1. Basic information

The extension to be validated consists of the time series from the data177 to the 234. The status of the validation is: COMPLETED.

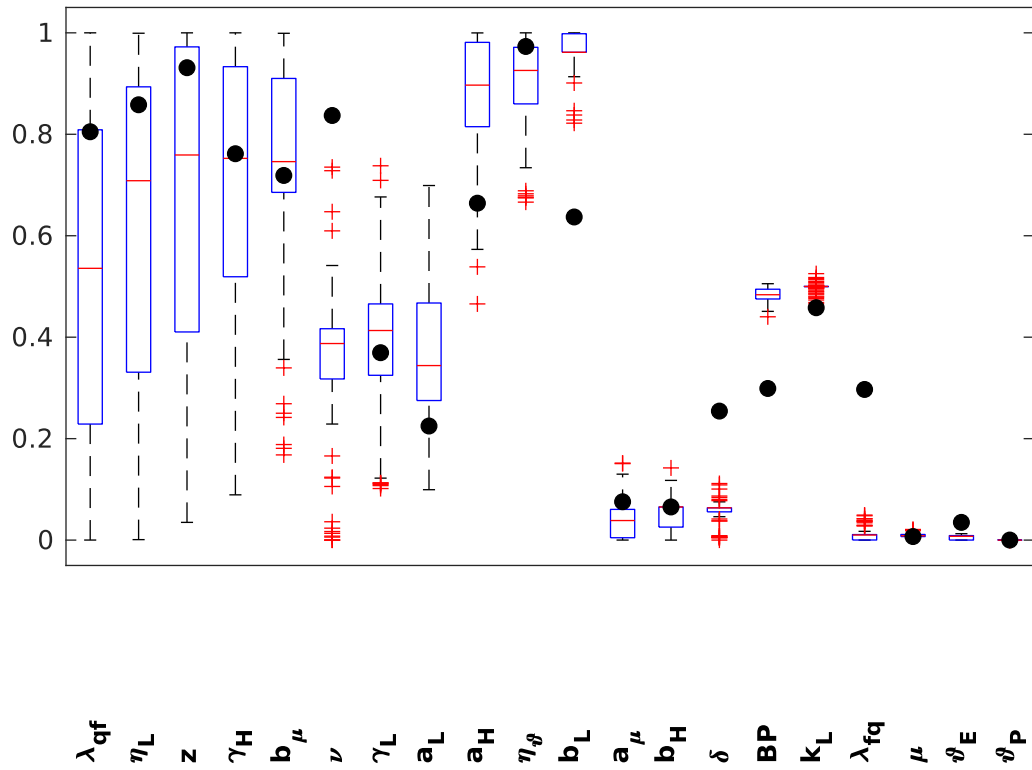
The number of estimations needed to perform the validation was4000.

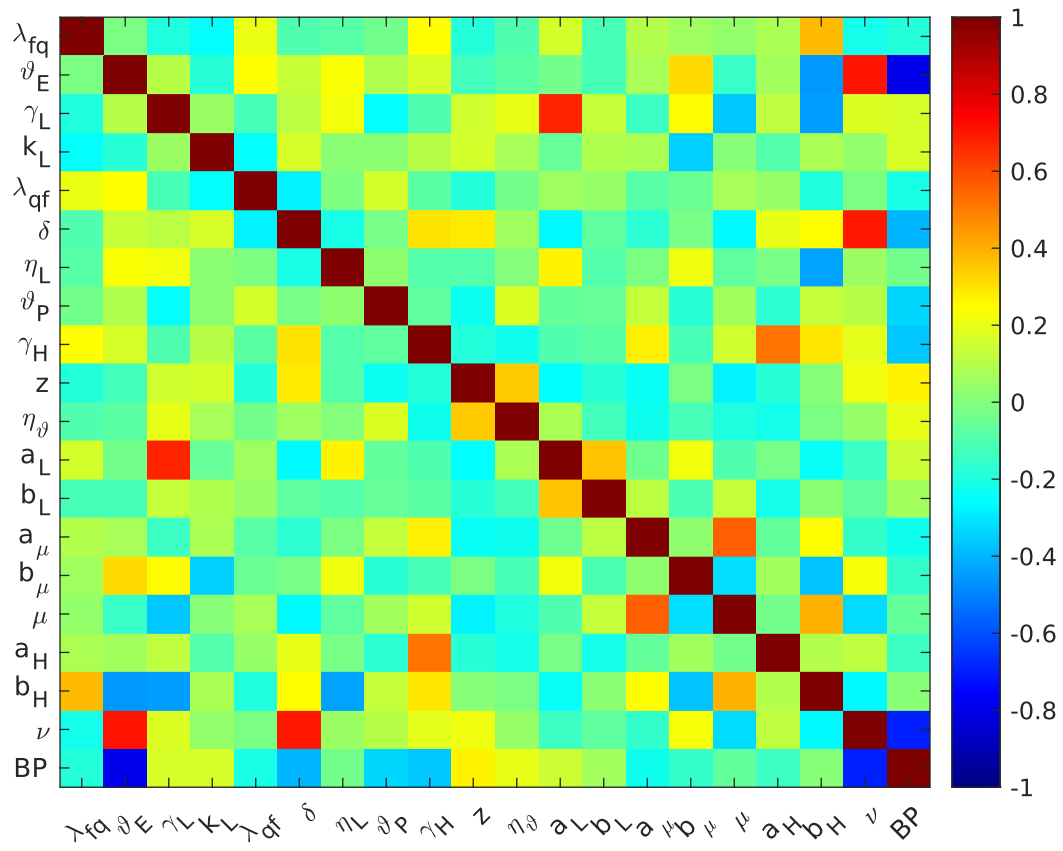
6.2. Estimated parameters with their intervals

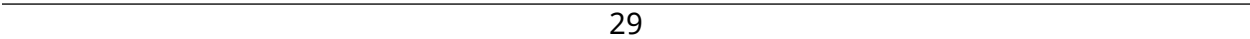
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0'	'0.058'	'0.01'	'0.297'	'0.088'
ϑ_E	'0.0044'	'0.0107'	'0.0075'	'0.0349'	'0.1042'
γ_L	'0.3635'	'0.4628'	'0.4132'	'0.3694'	'0.1366'
k_L	'5.1656'	'5.8339'	'5.4998'	'5.1226'	'0.0898'
λ_{qf}	'0.4474'	'0.6242'	'0.5358'	'0.805'	'0.142'
δ	'0.006'	'0.0131'	'0.0095'	'0.0381'	'0.1113'
η_L	'0.6237'	'0.7932'	'0.7085'	'0.8582'	'0.1369'
ϑ_P	'0'	'0'	'0'	'0.0001'	'0.0537'
γ_H	'0.6856'	'0.8195'	'0.7525'	'0.7617'	'0.15'
z	'20.292'	'25.2596'	'22.7758'	'27.9375'	'0.1525'
η_{ϑ}	'0.8795'	'0.9722'	'0.9258'	'0.9731'	'0.1023'
a_L	'5.2368'	'6.3969'	'5.8168'	'4.1485'	'0.1198'
b_L	'13.5218'	'15'	'14.4633'	'9.9176'	'0.1046'
a_{μ}	'1'	'2.0853'	'1.5397'	'2.0578'	'0.1131'
b_{μ}	'10.3784'	'12.5121'	'11.4453'	'11.0639'	'0.1408'
μ	'0'	'0.0328'	'0.0084'	'0.007'	'0.0983'
a_H	'12.7408'	'14.3724'	'13.5566'	'10.2982'	'0.1263'
b_H	'1'	'3.197'	'1.9149'	'1.9149'	'0.1576'
ν	'159.9815'	'227.5196'	'193.7505'	'418.5241'	'0.1855'
BP	'184.9409'	'188.0591'	'186.5'	'169.5'	'0.1244'

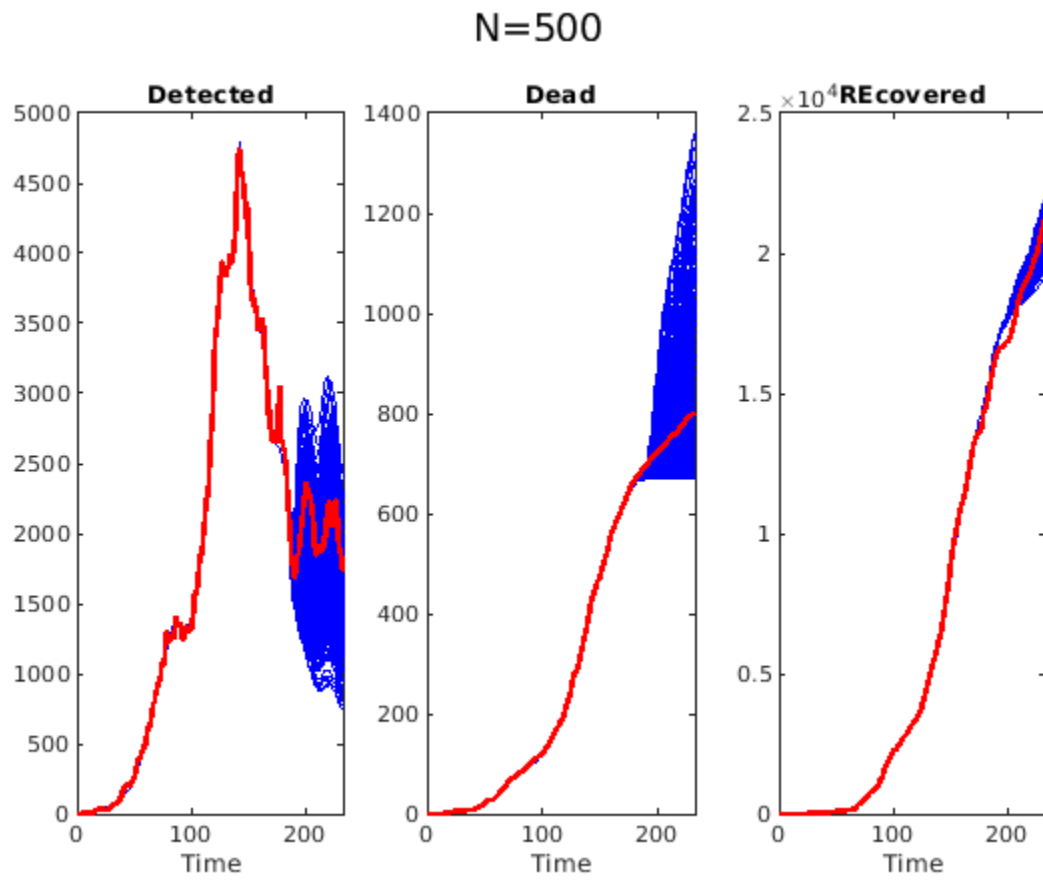
6.3. Identifiability analysis







6.4. Uncertainty analysys



Chapter 7. Extension number7

7.1. Basic information

The extension to be validated consists of the time series from the data234 to the 267. The status of the validation is: COMPLETED.

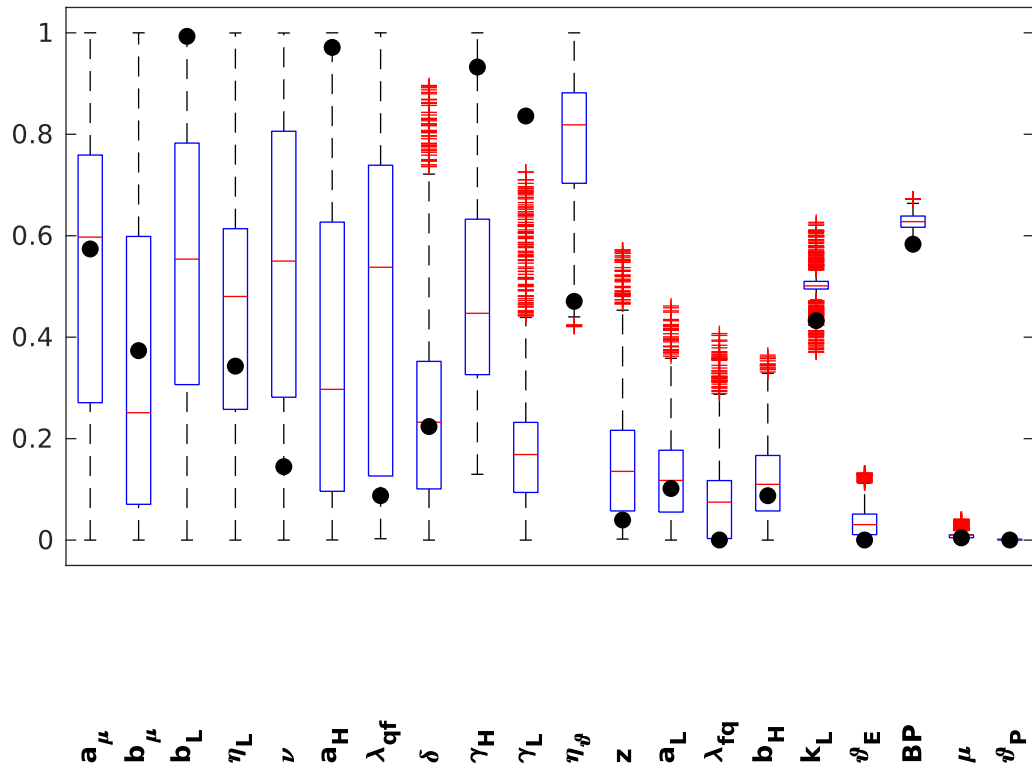
The number of estimations needed to perform the validation was1000.

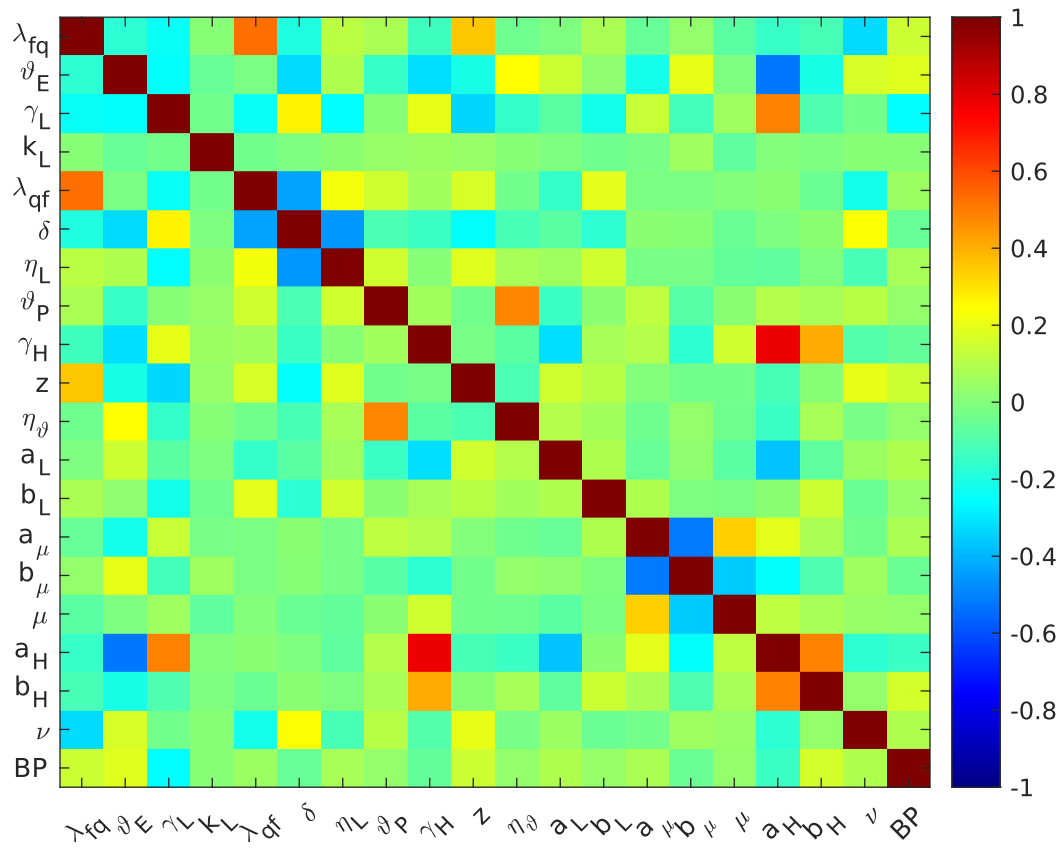
7.2. Estimated parameters with their intervals

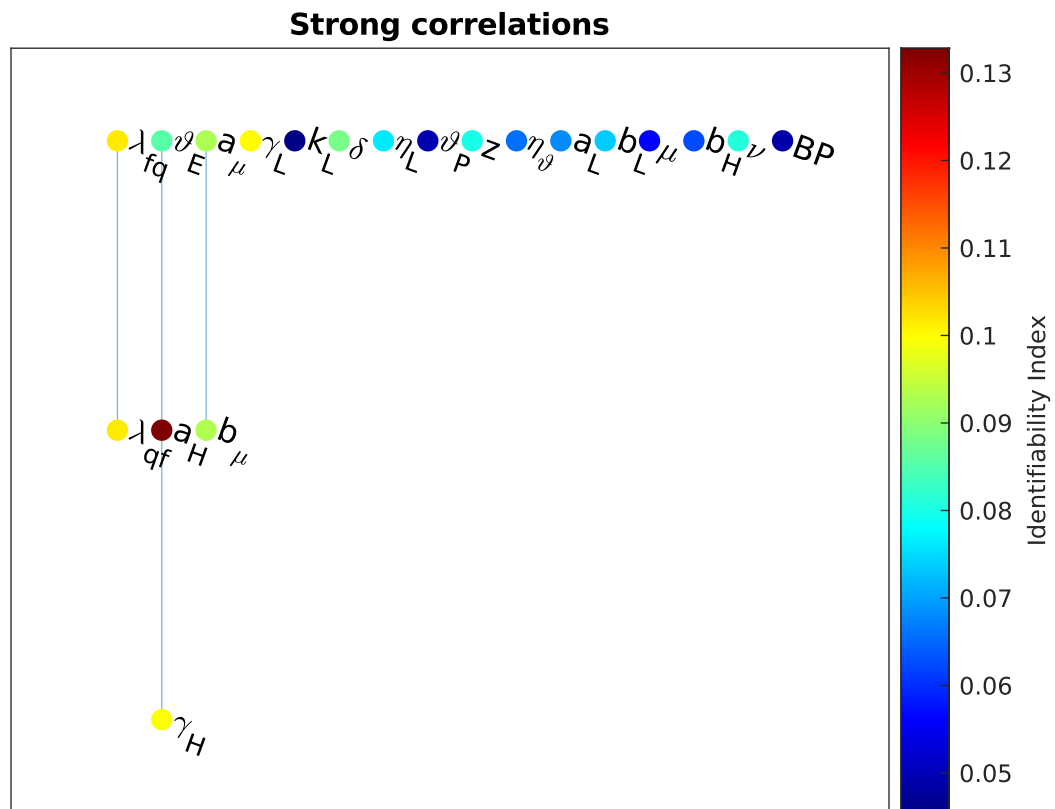
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.0458'	'0.1039'	'0.0749'	'0.0002'	'0.1018'
ϑ_E	'0.0259'	'0.0351'	'0.0305'	'0.0002'	'0.0854'
γ_L	'0.1369'	'0.2018'	'0.1693'	'0.836'	'0.1003'
k_L	'5.3823'	'5.6373'	'5.5098'	'4.8929'	'0.0455'
λ_{qf}	'0.5061'	'0.5697'	'0.5379'	'0.0876'	'0.1015'
δ	'0.0308'	'0.039'	'0.0349'	'0.0336'	'0.0882'
η_L	'0.4558'	'0.5049'	'0.4803'	'0.3429'	'0.0764'
ϑ_P	'0.0006'	'0.0009'	'0.0008'	'0.0002'	'0.0495'
γ_H	'0.4253'	'0.4689'	'0.4471'	'0.9325'	'0.0995'
z	'3.3455'	'4.7974'	'4.0714'	'1.1875'	'0.08'
η_{ϑ}	'0.801'	'0.8362'	'0.8186'	'0.4707'	'0.0658'
a_L	'2.3936'	'2.902'	'2.6478'	'2.4235'	'0.0683'
b_L	'8.3493'	'9.1597'	'8.7545'	'14.9029'	'0.0737'
a_{μ}	'8.9554'	'9.7675'	'9.3615'	'9.0346'	'0.0928'
b_{μ}	'4.104'	'4.9277'	'4.5159'	'6.2287'	'0.0932'
μ	'0'	'0.0223'	'0.01'	'0.0044'	'0.0561'
a_H	'4.723'	'5.5982'	'5.1606'	'14.5968'	'0.1328'
b_H	'2.4022'	'2.6769'	'2.5395'	'2.2249'	'0.0626'
ν	'259.5626'	'290.4454'	'275.004'	'72.3734'	'0.0812'
BP	'233.3159'	'233.6841'	'233.5'	'229.5'	'0.0486'

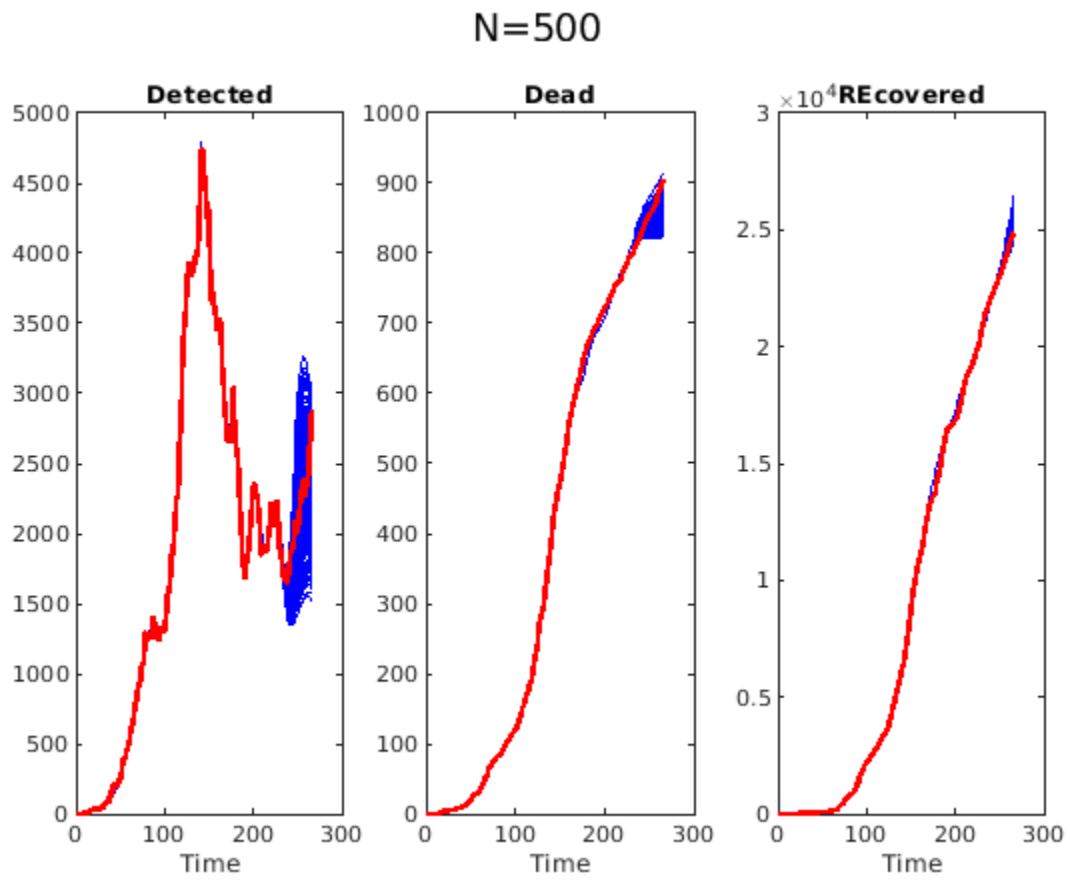
7.3. Identifiability analysis







7.4. Uncertainty analysis



Chapter 8. Extension number8

8.1. Basic information

The extension to be validated consists of the time series from the data267 to the 298. The status of the validation is: COMPLETED.

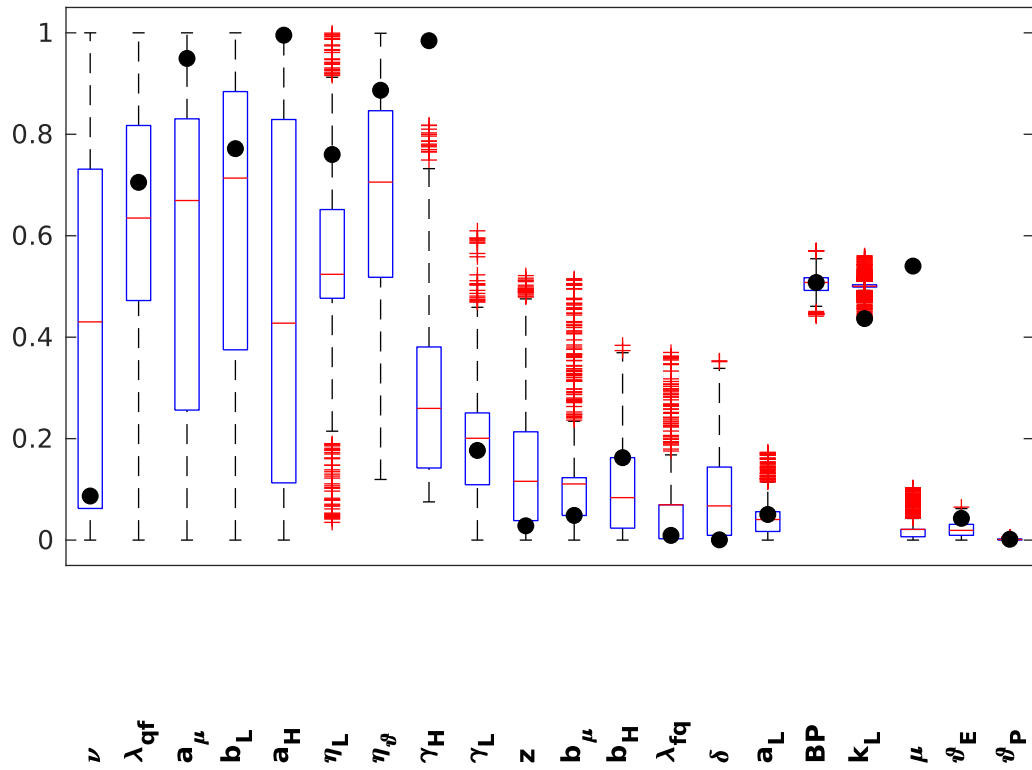
The number of estimations needed to perform the validation was1000.

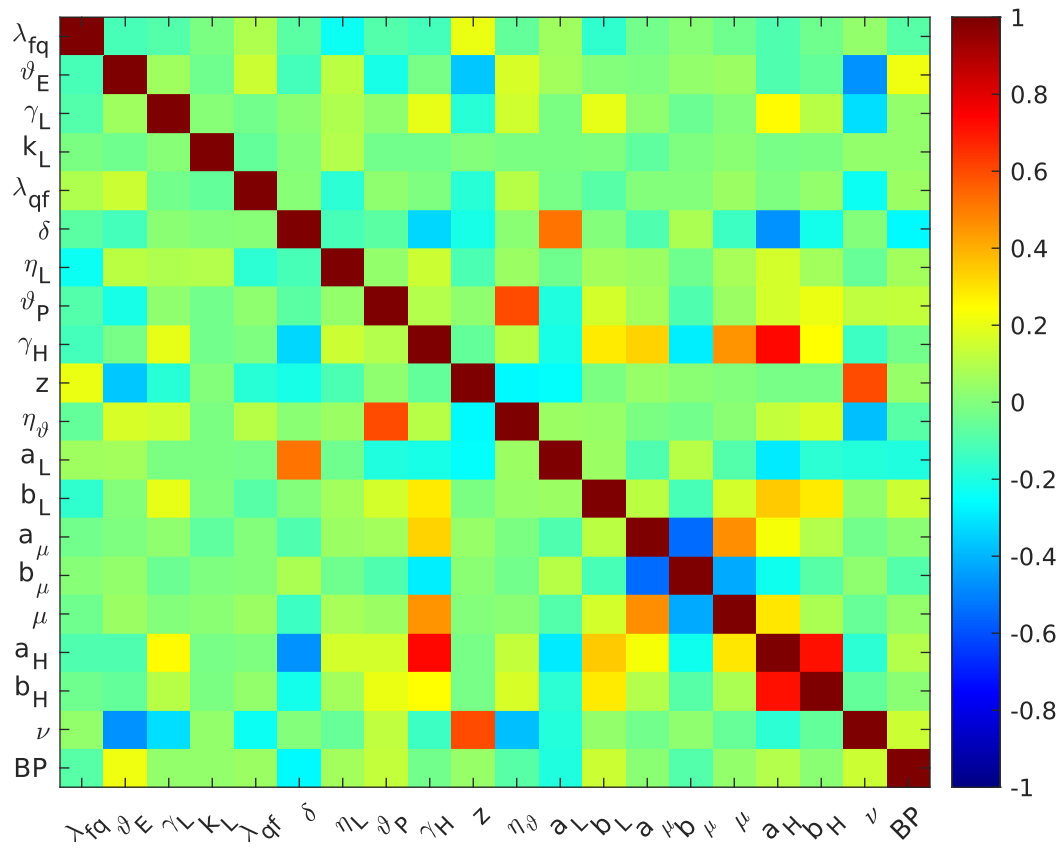
8.2. Estimated parameters with their intervals

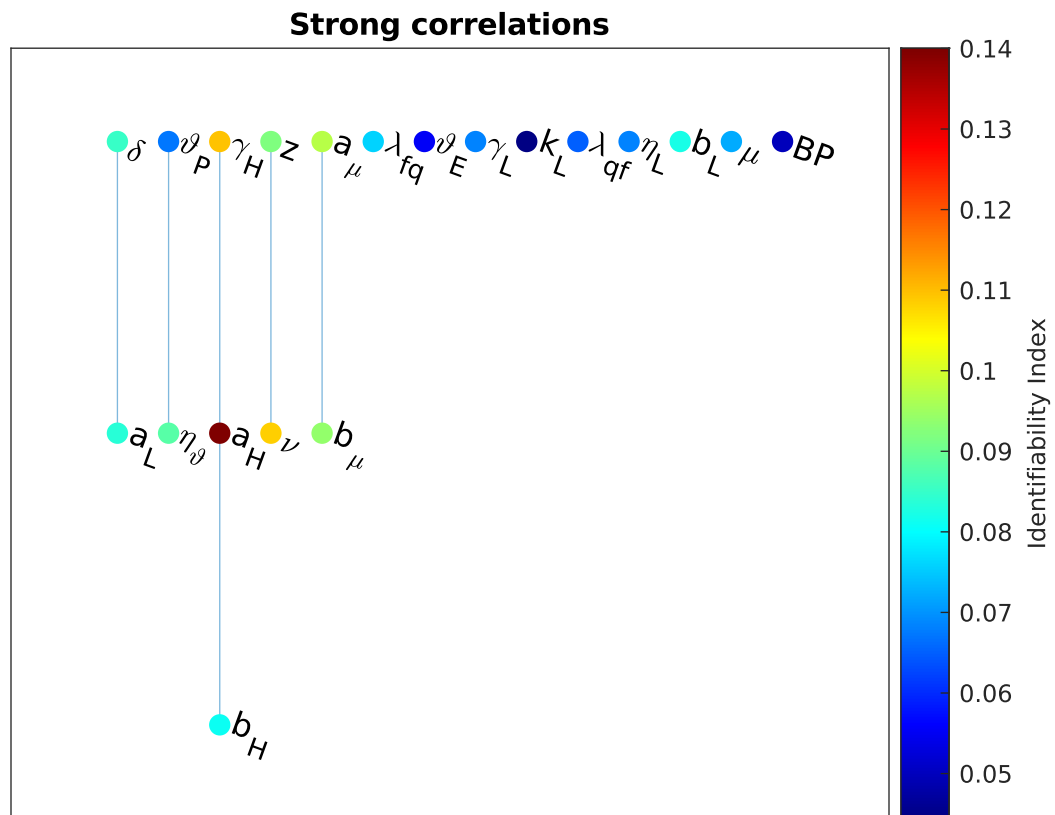
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.039'	'0.1002'	'0.0696'	'0.0093'	'0.0759'
ϑ_E	'0.0177'	'0.0207'	'0.0192'	'0.0429'	'0.0556'
γ_L	'0.1804'	'0.221'	'0.2007'	'0.1767'	'0.0685'
k_L	'5.3867'	'5.6216'	'5.5042'	'4.9303'	'0.0445'
λ_{qf}	'0.6108'	'0.659'	'0.6349'	'0.7053'	'0.0652'
δ	'0.0082'	'0.0121'	'0.0101'	'0.0001'	'0.0852'
η_L	'0.5025'	'0.5453'	'0.5239'	'0.7601'	'0.0684'
ϑ_P	'0.0009'	'0.0013'	'0.0011'	'0.0017'	'0.0675'
γ_H	'0.2359'	'0.2845'	'0.2602'	'0.9845'	'0.1095'
z	'2.8158'	'4.1487'	'3.4822'	'0.8451'	'0.0922'
η_{ϑ}	'0.6857'	'0.7258'	'0.7057'	'0.8868'	'0.0882'
a_L	'1.3709'	'1.7645'	'1.5677'	'1.7073'	'0.0839'
b_L	'10.5849'	'11.3966'	'10.9907'	'11.8032'	'0.0825'
a_{μ}	'9.9431'	'10.8005'	'10.3718'	'14.2935'	'0.0972'
b_{μ}	'2.1534'	'2.9494'	'2.5514'	'1.6815'	'0.094'
μ	'0.005'	'0.0373'	'0.0211'	'0.5402'	'0.0724'
a_H	'6.5143'	'7.4598'	'6.987'	'14.9353'	'0.14'
b_H	'2.0279'	'2.3198'	'2.1738'	'3.275'	'0.0811'
ν	'198.8454'	'231.3349'	'215.0902'	'43.4465'	'0.1084'
BP	'266.3057'	'266.6943'	'266.5'	'266.4999'	'0.0498'

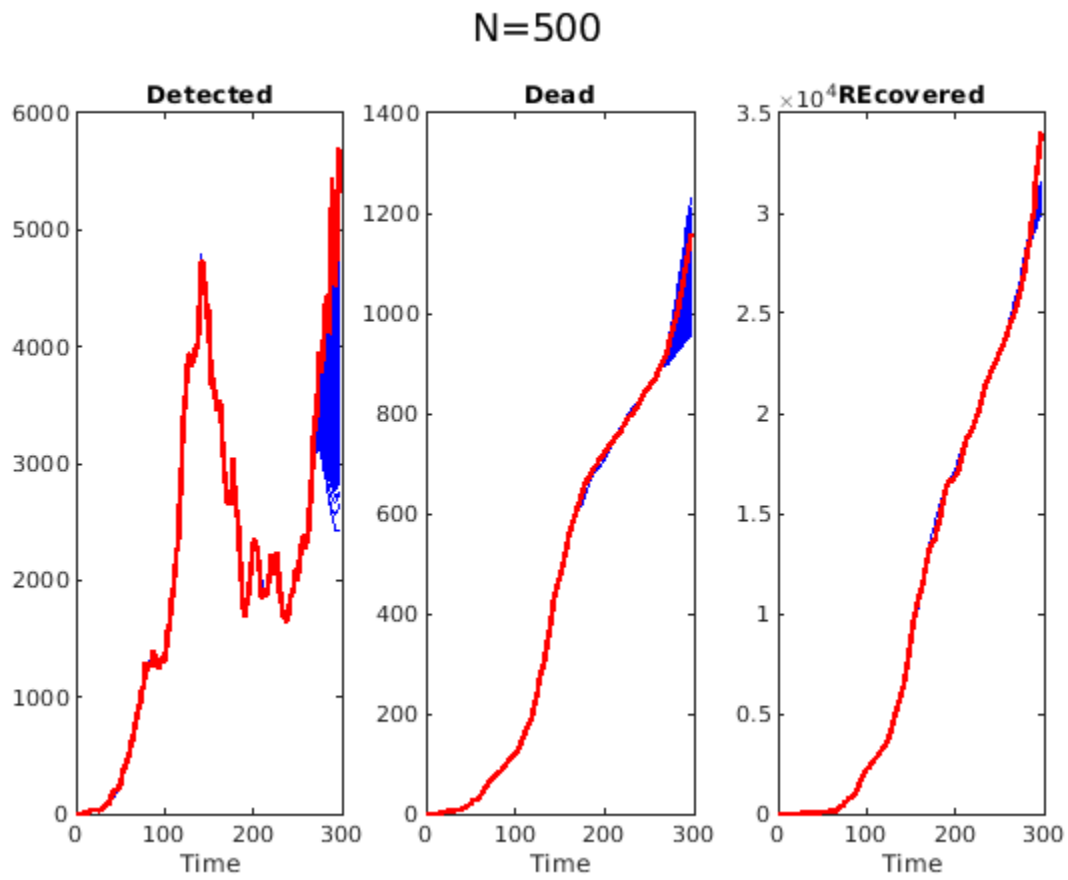
8.3. Identifiability analysis







8.4. Uncertainty analysis



Chapter 9. Extension number9

9.1. Basic information

The extension to be validated consists of the time series from the data298 to the 328. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

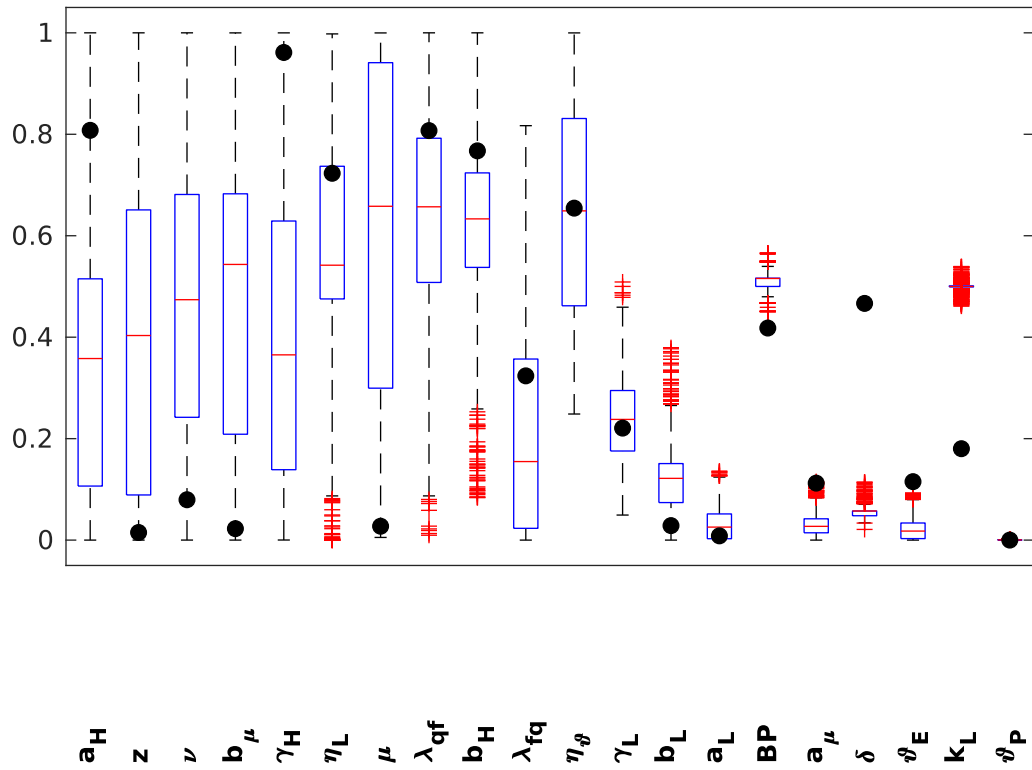
9.2. Estimated parameters with their intervals

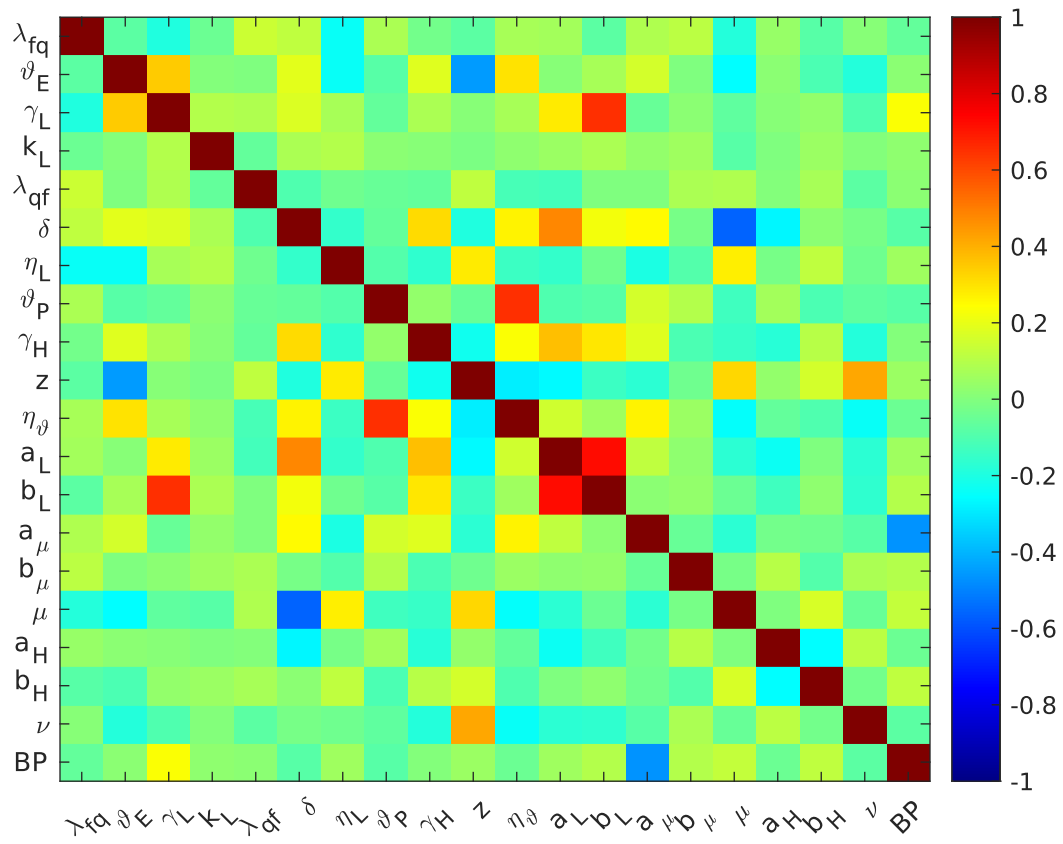
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

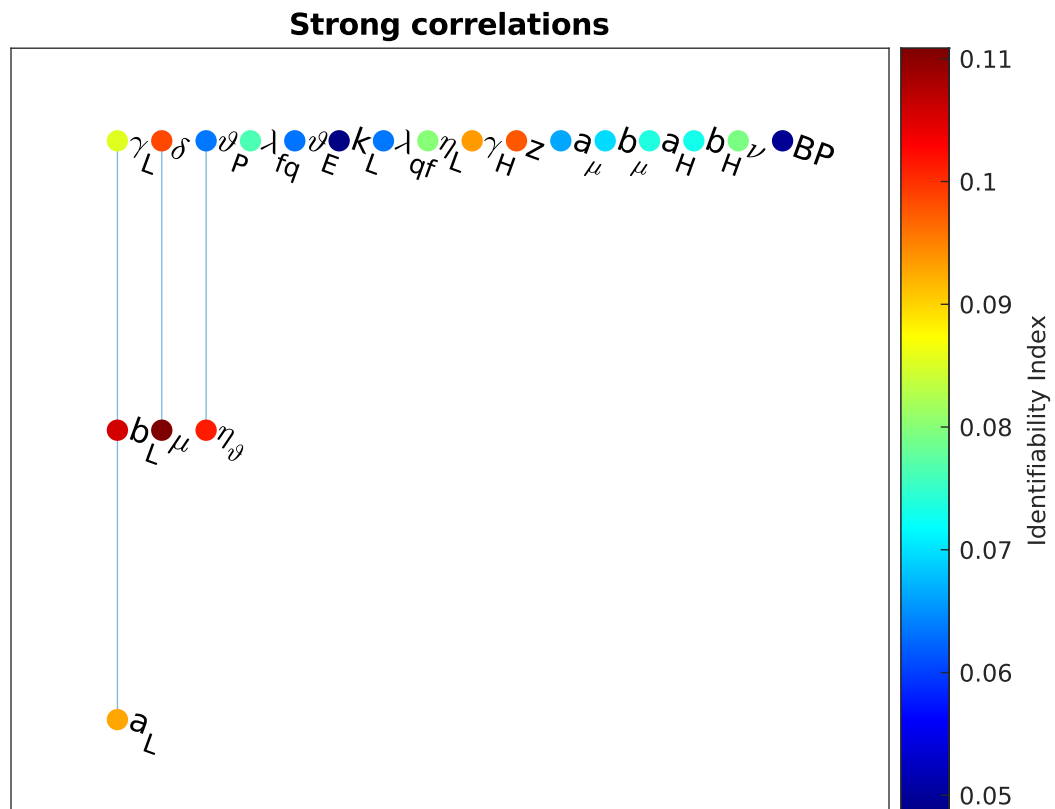
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.0626'	'0.9531'	'0.1548'	'0.3238'	'0.0766'
ϑ_E	'0.0896'	'0.198'	'0.0178'	'0.1152'	'0.0632'
γ_L	'0.2028'	'0.4863'	'0.2379'	'0.2208'	'0.0854'
k_L	'1'	'9.64'	'5.5'	'2.6216'	'0.0486'
λ_{qf}	'0'	'0.95'	'0.657'	'0.8072'	'0.0637'
δ	'0.0224'	'0.0836'	'0.0086'	'0.07'	'0.0986'
η_L	'0'	'0.96'	'0.5419'	'0.7231'	'0.08'
ϑ_P	'0'	'0'	'0.0004'	'0'	'0.0635'
γ_H	'0.1351'	'1'	'0.3652'	'0.9613'	'0.0935'
z	'0'	'0.9604'	'12.0988'	'0.4493'	'0.0976'
η_{ϑ}	'0.443'	'1'	'0.649'	'0.6544'	'0.1011'
a_L	'1.0444'	'1.9002'	'1.3587'	'1.1172'	'0.0927'
b_L	'1.1602'	'4.5994'	'2.704'	'1.3999'	'0.1057'
a_{μ}	'1.9202'	'15'	'1.3794'	'2.5722'	'0.0665'
b_{μ}	'1'	'14.44'	'8.608'	'1.3159'	'0.0697'
μ	'0'	'0.0591'	'0.6581'	'0.0273'	'0.1109'
a_H	'3.856'	'14.432'	'6.0109'	'12.309'	'0.0737'
b_H	'3.9939'	'15'	'9.8652'	'11.7431'	'0.073'
ν	'33.5797'	'500'	'236.9556'	'39.7887'	'0.0794'
BP	'292.244'	'299.6924'	'298.4612'	'292.5'	'0.0496'

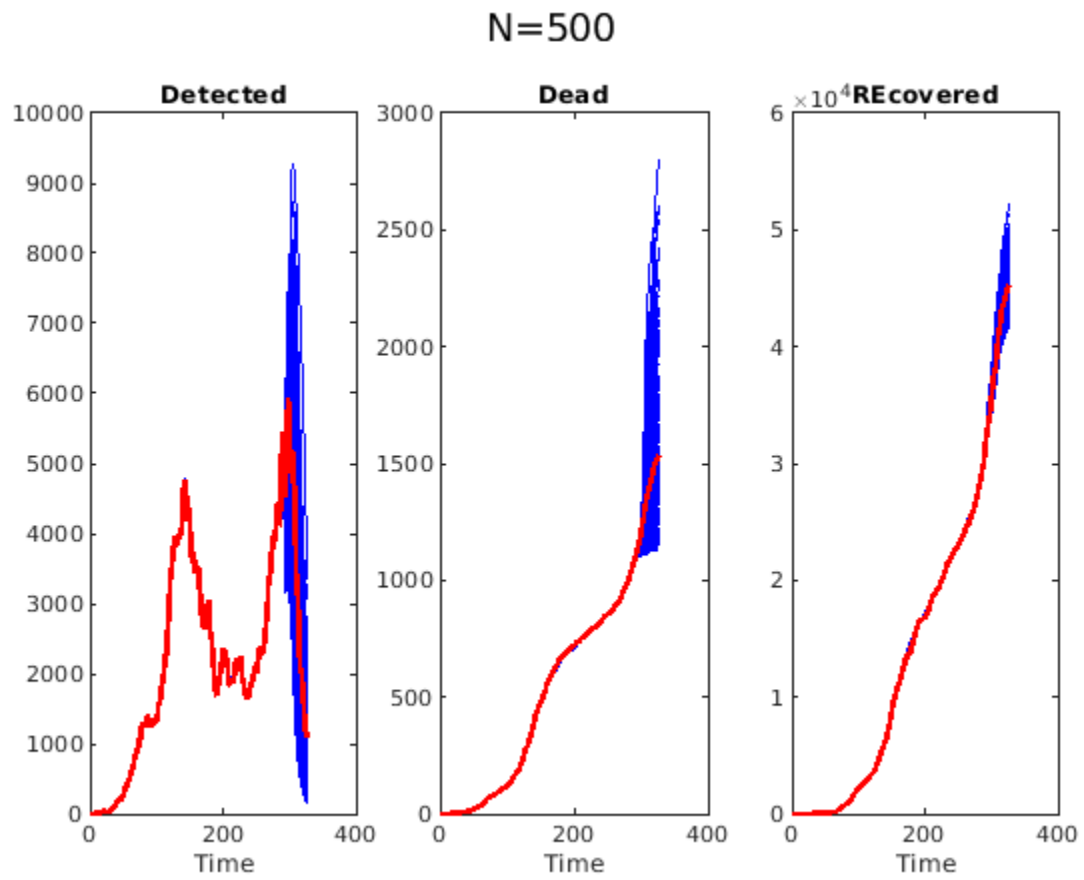
9.3. Identifiability analysys







9.4. Uncertainty analysis



Chapter 10. Extension number10

10.1. Basic information

The extension to be validated consists of the time series from the data328 to the 426. The status of the validation is: COMPLETED.

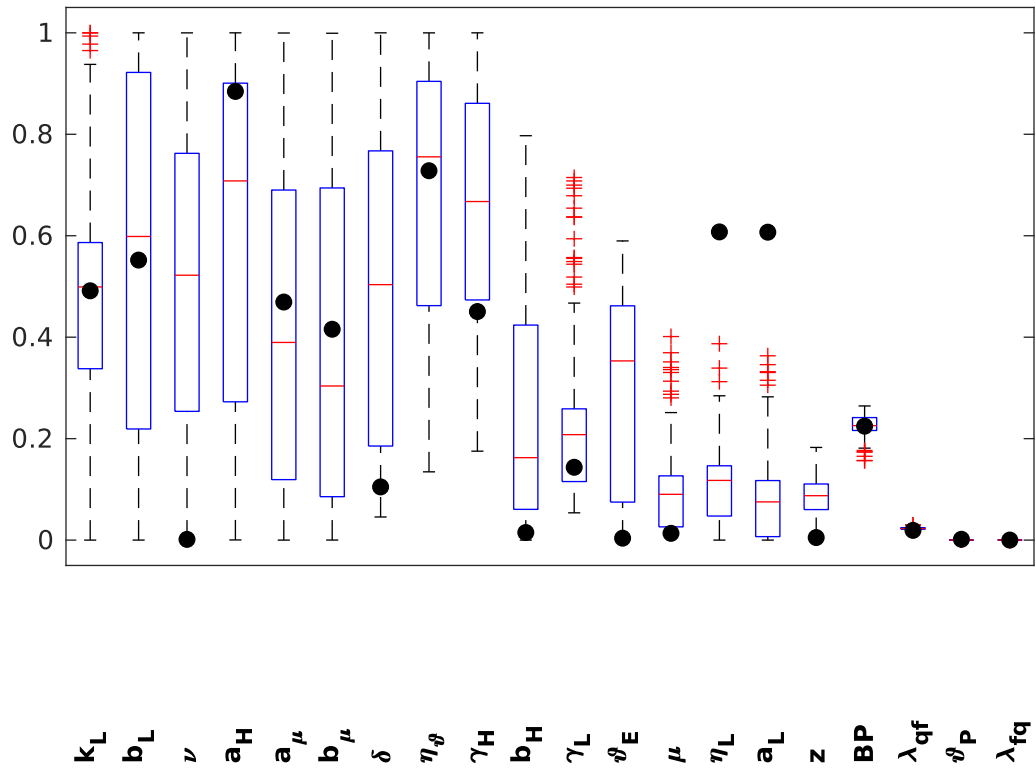
The number of estimations needed to perform the validation was1000.

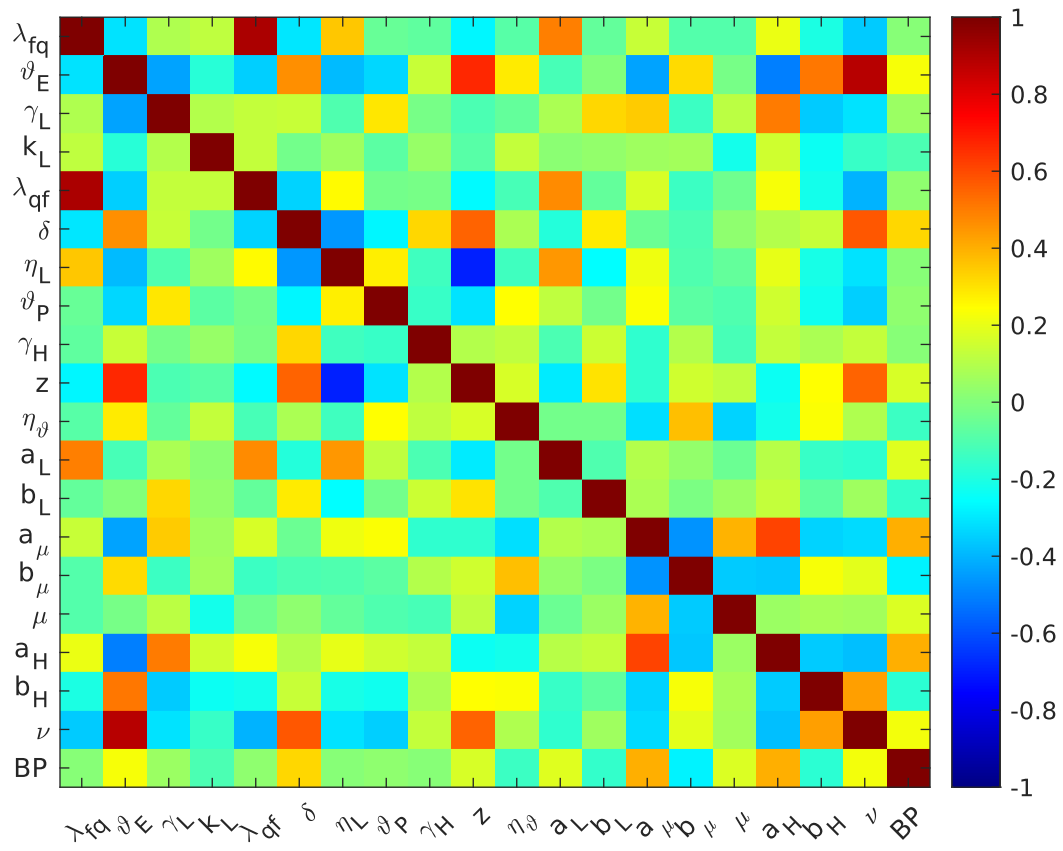
10.2. Estimated parameters with their intervals

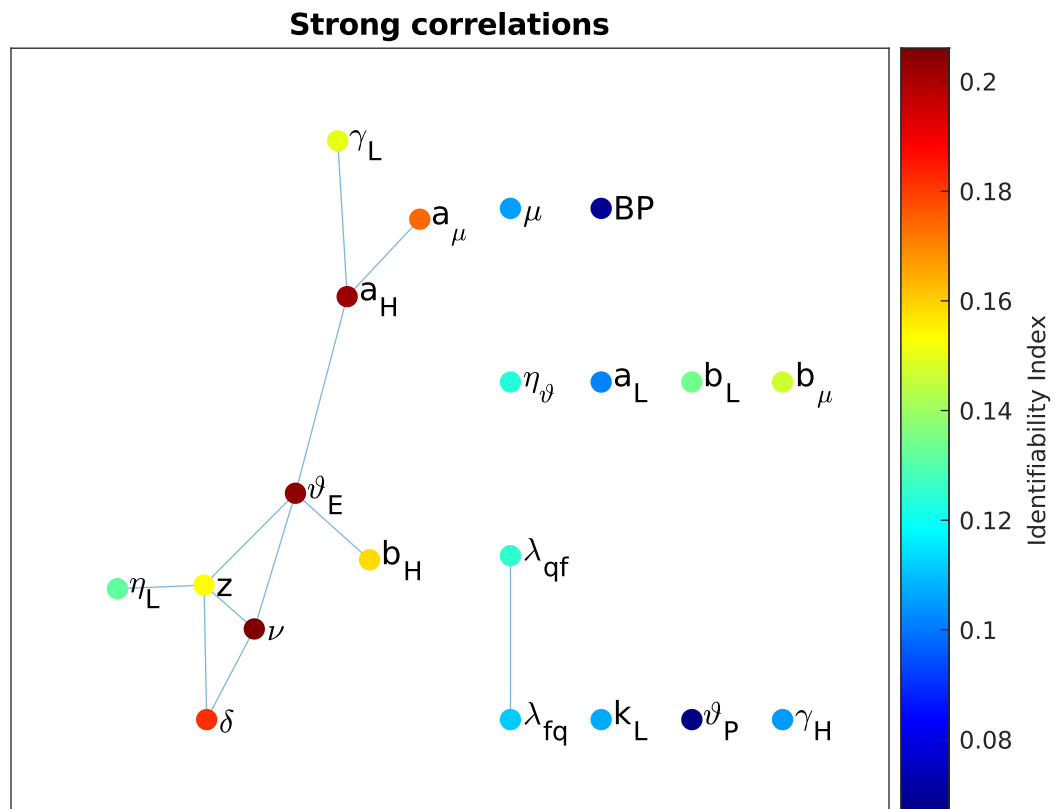
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0'	'0.0435'	'0'	'0.0001'	'0.1117'
\vartheta_E	'0.3066'	'0.3998'	'0.3532'	'0.0038'	'0.2035'
\gamma_L	'0.1411'	'0.2746'	'0.2079'	'0.1435'	'0.1503'
k_L	'4.9729'	'6.0106'	'5.4917'	'5.4231'	'0.1073'
\lambda_{qf}	'0'	'0.0679'	'0.0227'	'0.0192'	'0.1252'
\delta	'0.0646'	'0.0865'	'0.0755'	'0.0157'	'0.182'
\eta_L	'0.0812'	'0.1541'	'0.1177'	'0.6076'	'0.1318'
\vartheta_P	'0'	'0.0005'	'0.0001'	'0.0016'	'0.0668'
\gamma_H	'0.6135'	'0.7213'	'0.6674'	'0.4505'	'0.105'
z	'2.3033'	'2.9497'	'2.6265'	'0.1512'	'0.1536'
\eta_{\vartheta}	'0.697'	'0.814'	'0.7555'	'0.7281'	'0.1235'
a_L	'1.5429'	'2.5658'	'2.0544'	'9.4978'	'0.102'
b_L	'8.223'	'10.536'	'9.3795'	'8.7281'	'0.1345'
a_{\mu}	'5.415'	'7.4947'	'6.4549'	'7.57'	'0.1742'
b_{\mu}	'4.1727'	'6.3343'	'5.2535'	'6.8193'	'0.147'
\mu	'0.0399'	'0.1407'	'0.0903'	'0.0134'	'0.1058'
a_H	'9.8433'	'11.9831'	'10.9132'	'13.3824'	'0.2019'
b_H	'2.3665'	'4.1832'	'3.2749'	'1.2095'	'0.1583'
\nu	'226.283'	'295.8968'	'261.0899'	'0.7087'	'0.2061'
BP	'323.9961'	'325.2625'	'324.6293'	'324.5'	'0.0691'

10.3. Identifiability analysis

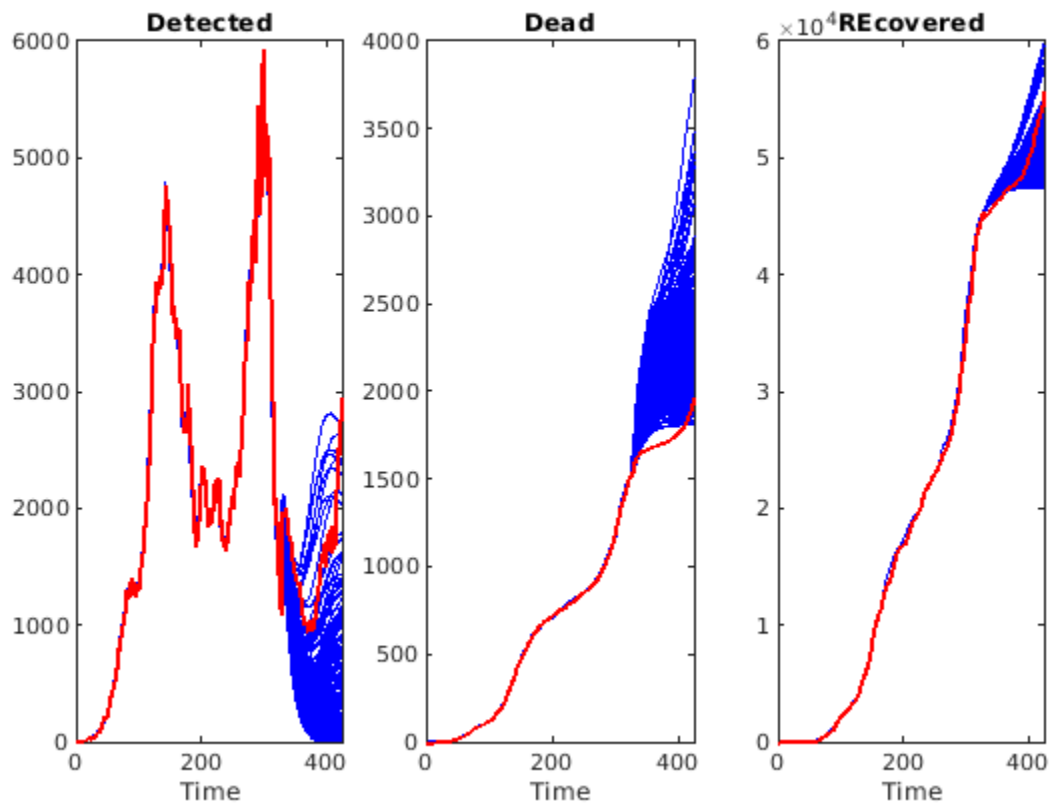






10.4. Uncertainty analysis

N=500



Chapter 11. Extension number11

11.1. Basic information

The extension to be validated consists of the time series from the data426 to the 447. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

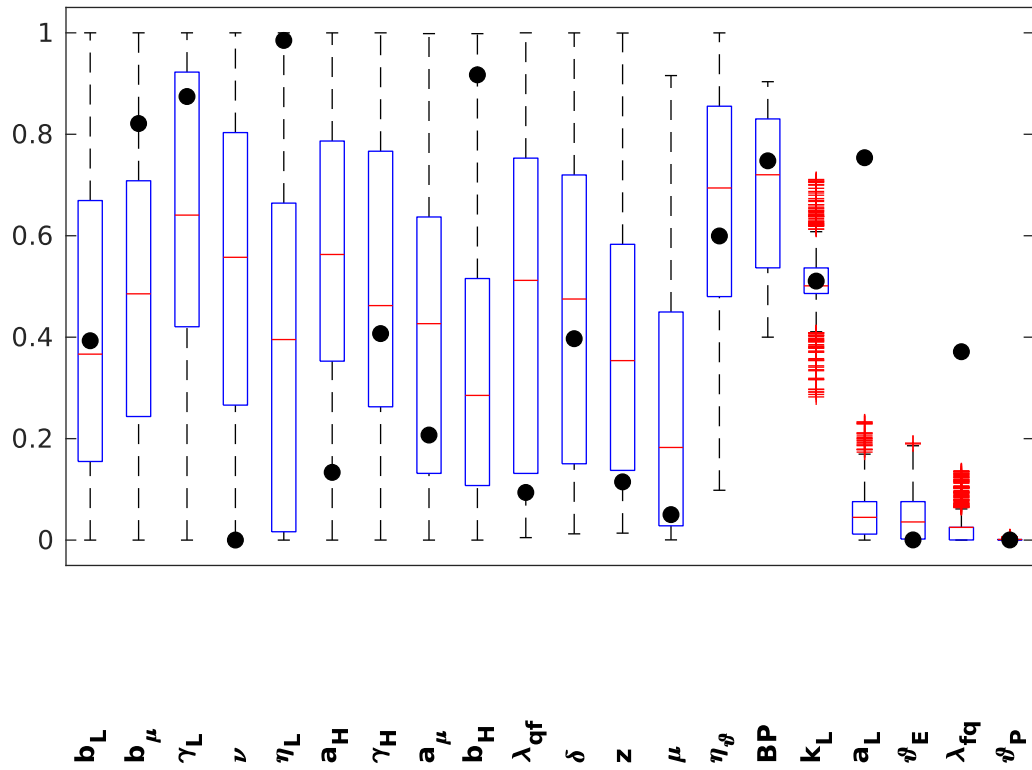
11.2. Estimated parameters with their intervals

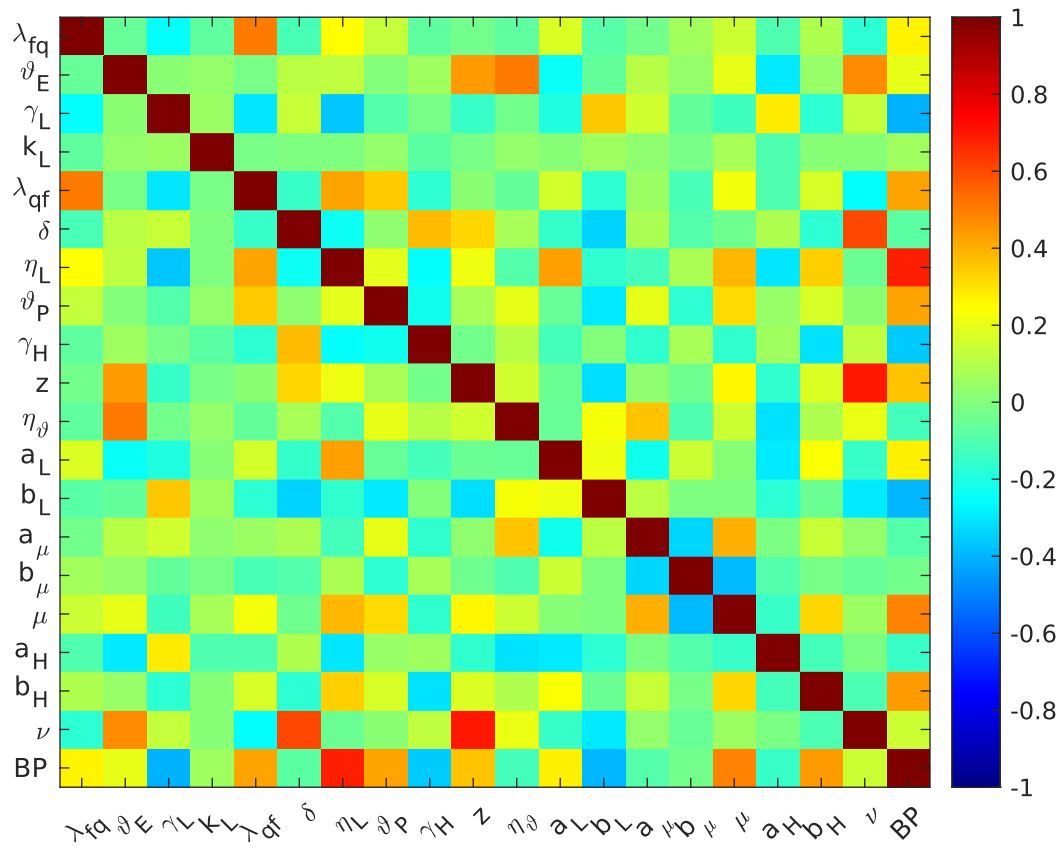
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

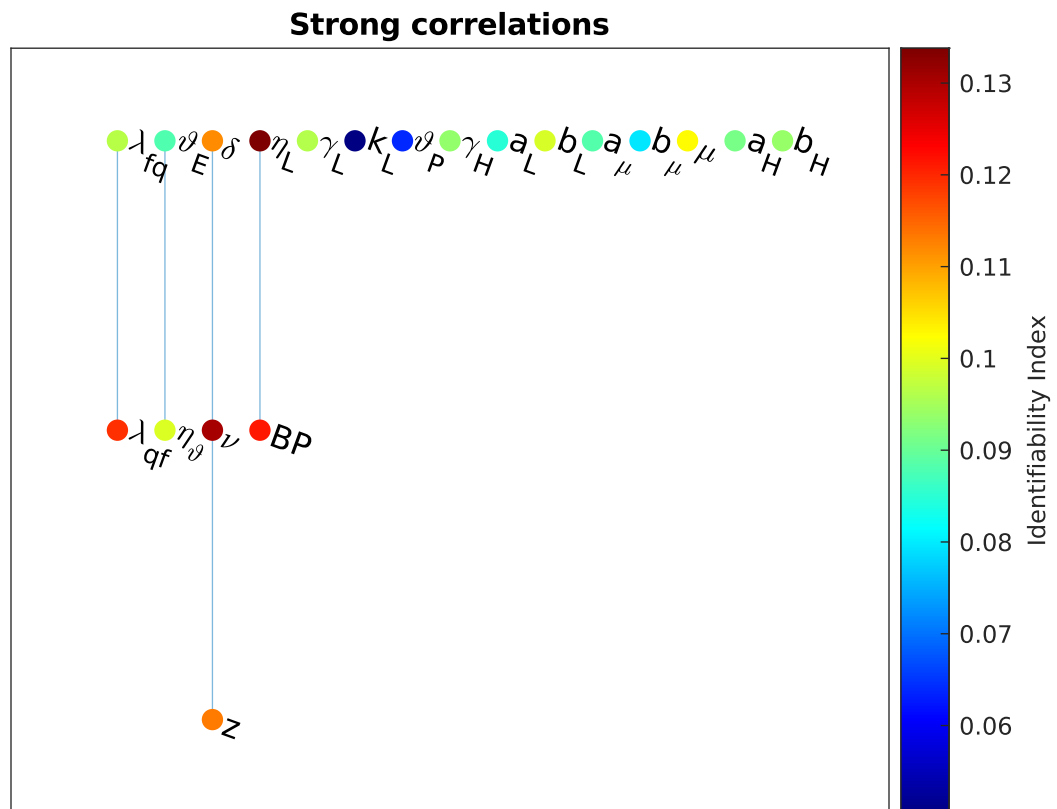
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.3642'	'0.4766'	'0.0251'	'0.3714'	'0.0965'
ϑ_E	'0'	'0.0007'	'0.0359'	'0.0004'	'0.0881'
γ_L	'0.4289'	'0.8897'	'0.6407'	'0.8744'	'0.0962'
k_L	'1.7056'	'9.6682'	'5.511'	'5.5953'	'0.0506'
λ_{qf}	'0.0523'	'0.0981'	'0.512'	'0.0939'	'0.1193'
δ	'0.0337'	'0.0724'	'0.0713'	'0.0596'	'0.1117'
η_L	'0.8173'	'1'	'0.3953'	'0.985'	'0.1338'
ϑ_P	'0.0003'	'0.0004'	'0.0012'	'0.0003'	'0.0639'
γ_H	'0.164'	'0.8445'	'0.4623'	'0.4071'	'0.0935'
z	'2.5756'	'3.4938'	'10.6147'	'3.4439'	'0.1132'
η_{ϑ}	'0.5978'	'0.6435'	'0.6942'	'0.5996'	'0.0997'
a_L	'11.2185'	'13.6946'	'1.6288'	'11.5533'	'0.0848'
b_L	'4.6509'	'6.5206'	'6.1322'	'6.5021'	'0.0992'
a_{μ}	'3.5428'	'13.4156'	'6.9734'	'3.8994'	'0.0884'
b_{μ}	'1.5167'	'12.6122'	'7.7969'	'12.4966'	'0.0795'
μ	'0.0021'	'0.0826'	'0.1828'	'0.0502'	'0.1027'
a_H	'2.7738'	'7.6537'	'8.8828'	'2.8693'	'0.0915'
b_H	'3.8917'	'14.3972'	'4.9932'	'13.8408'	'0.0941'
ν	'0.012'	'0.1143'	'278.7387'	'0.0527'	'0.1304'
BP	'409.2864'	'414.3475'	'406.5'	'409.4997'	'0.1214'

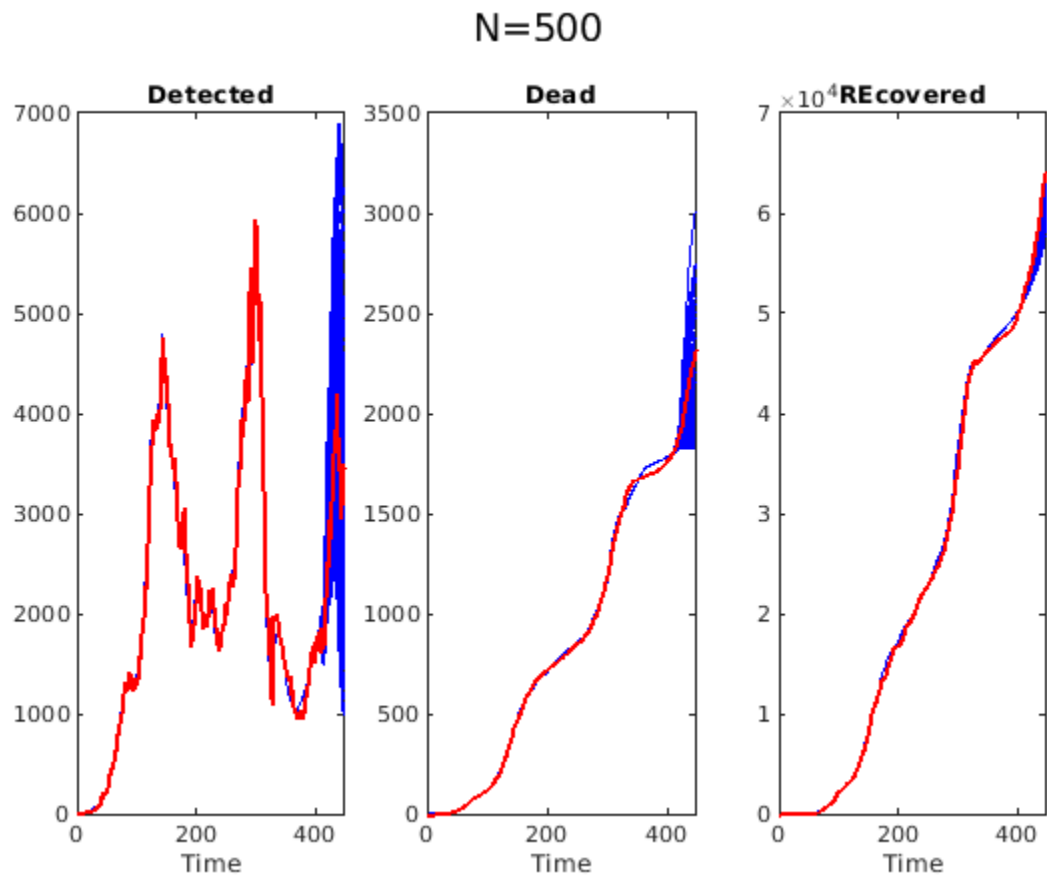
11.3. Identifiability analysis







11.4. Uncertainty analysis



Chapter 12. Extension number12

12.1. Basic information

The extension to be validated consists of the time series from the data447 to the 483. The status of the validation is: COMPLETED.

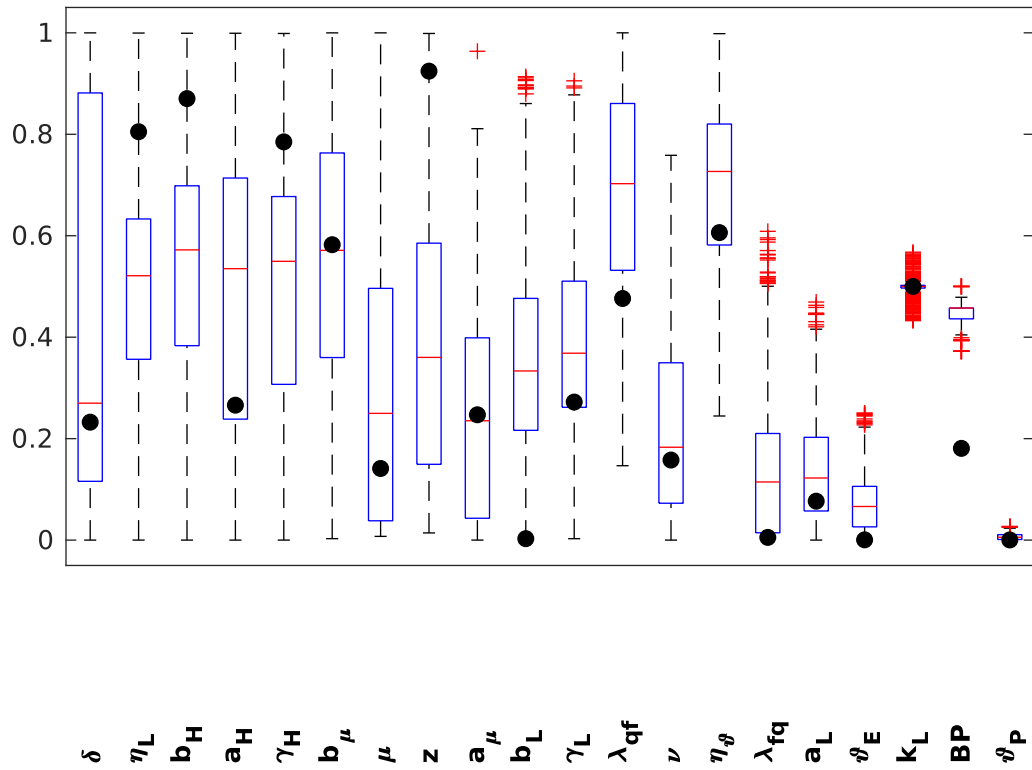
The number of estimations needed to perform the validation was1000.

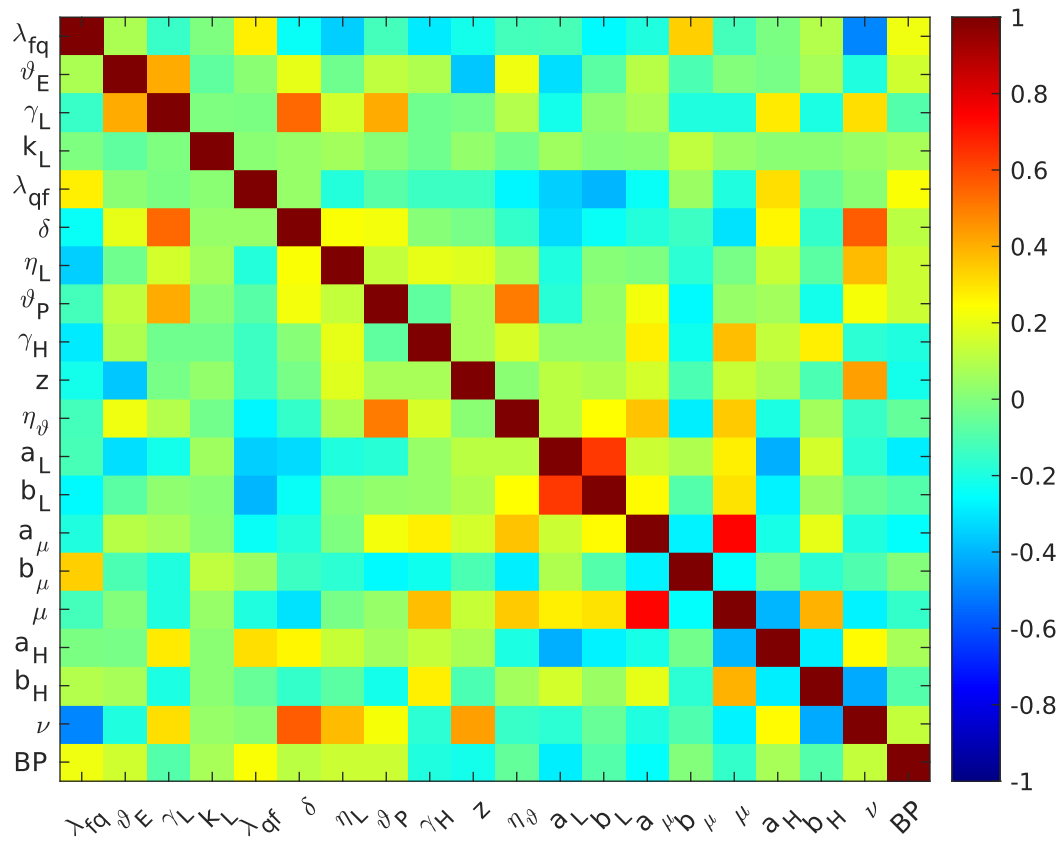
12.2. Estimated parameters with their intervals

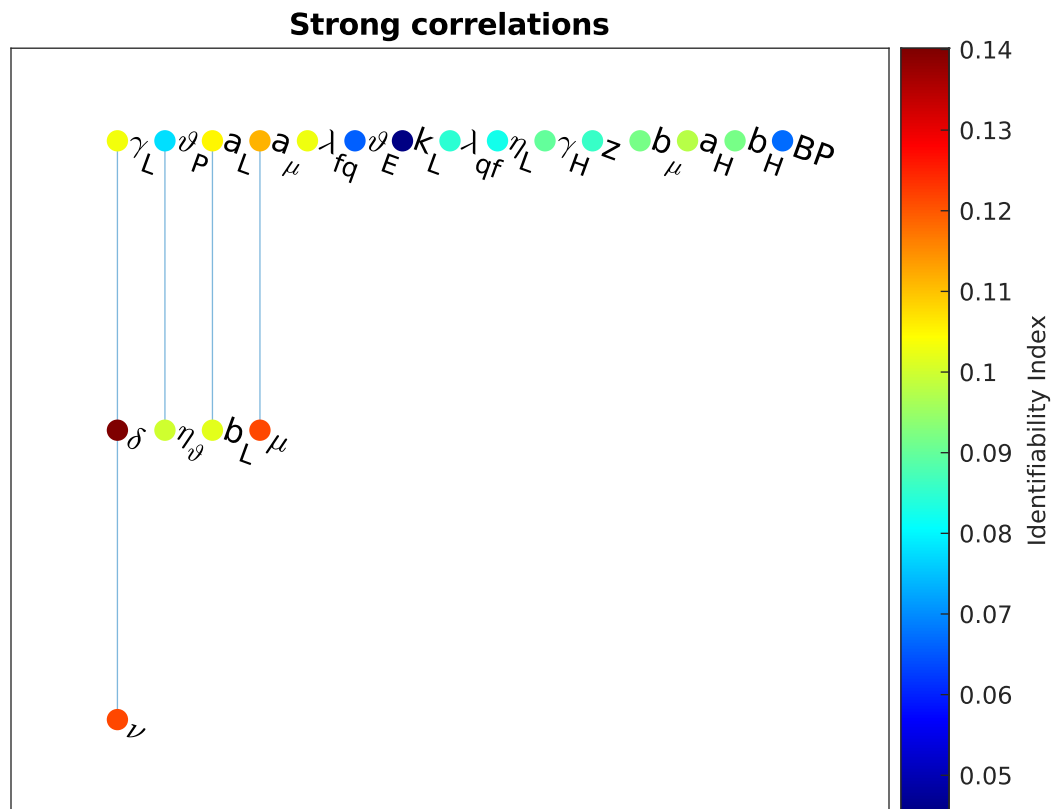
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0.0827'	'0.1465'	'0.1146'	'0.0053'	'0.1029'
\vartheta_E	'0.0584'	'0.0741'	'0.0663'	'0.0005'	'0.0659'
\gamma_L	'0.3455'	'0.3914'	'0.3684'	'0.2721'	'0.1032'
k_L	'5.3987'	'5.6013'	'5.5'	'5.5001'	'0.0454'
\lambda_{qf}	'0.6806'	'0.7246'	'0.7026'	'0.4763'	'0.0848'
\delta	'0.0345'	'0.0465'	'0.0405'	'0.0349'	'0.1402'
\eta_L	'0.4982'	'0.5442'	'0.5212'	'0.805'	'0.0825'
\vartheta_P	'0.0048'	'0.0066'	'0.0057'	'0.0003'	'0.0776'
\gamma_H	'0.5202'	'0.5789'	'0.5496'	'0.785'	'0.0899'
z	'9.9402'	'11.6685'	'10.8044'	'27.734'	'0.0861'
\eta_{\vartheta}	'0.7079'	'0.7455'	'0.7267'	'0.6062'	'0.0999'
a_L	'2.496'	'2.931'	'2.7135'	'2.074'	'0.1052'
b_L	'5.3216'	'6.0149'	'5.6683'	'1.0393'	'0.102'
a_{\mu}	'3.9773'	'4.6102'	'4.2937'	'4.4586'	'0.1113'
b_{\mu}	'8.5856'	'9.4069'	'8.9962'	'9.1524'	'0.0919'
\mu	'0.2228'	'0.2769'	'0.2498'	'0.1412'	'0.1215'
a_H	'8.0763'	'8.9056'	'8.4909'	'4.7237'	'0.0977'
b_H	'8.6184'	'9.4'	'9.0092'	'13.1849'	'0.0919'
\nu	'78.136'	'104.9266'	'91.5313'	'78.9158'	'0.1214'
BP	'447.1008'	'447.899'	'447.4999'	'434.4994'	'0.0671'

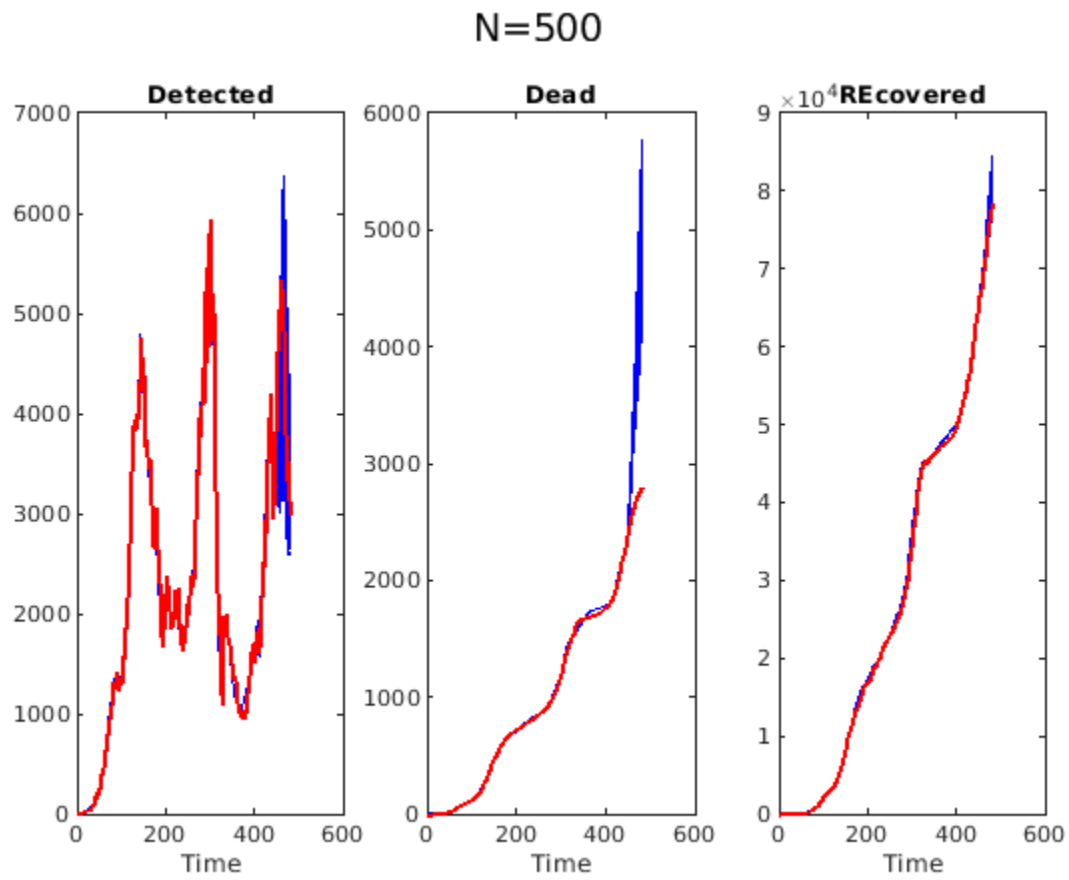
12.3. Identifiability analysis







12.4. Uncertainty analysis



Chapter 13. Extension number13

13.1. Basic information

The extension to be validated consists of the time series from the data483 to the 515. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

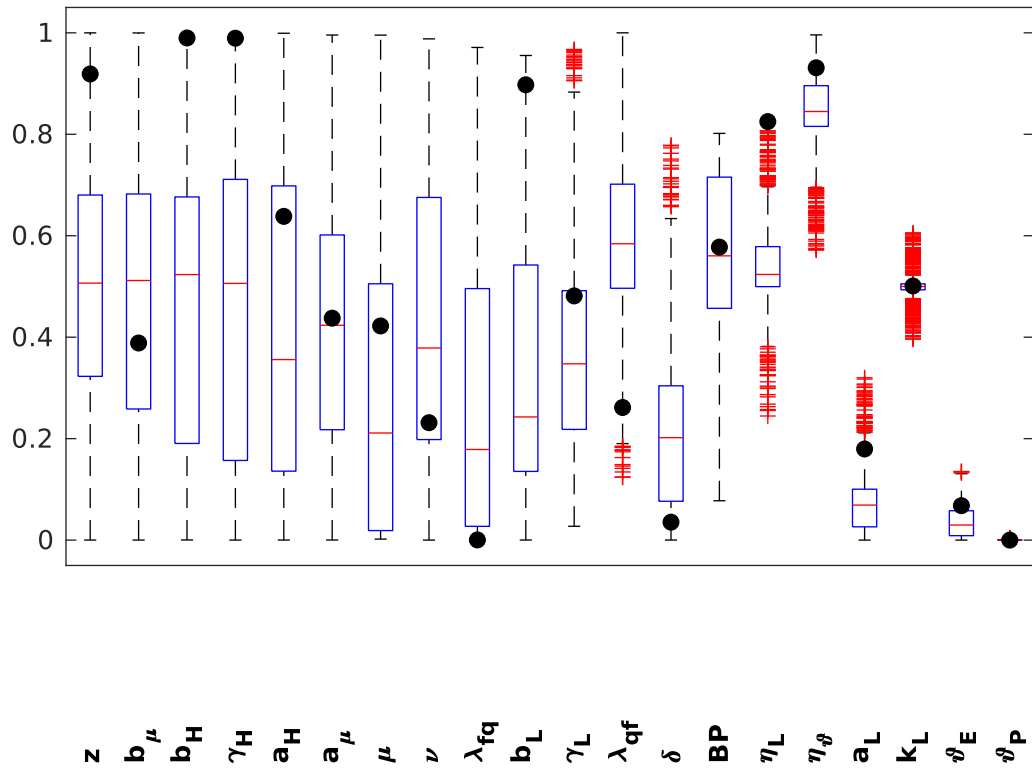
13.2. Estimated parameters with their intervals

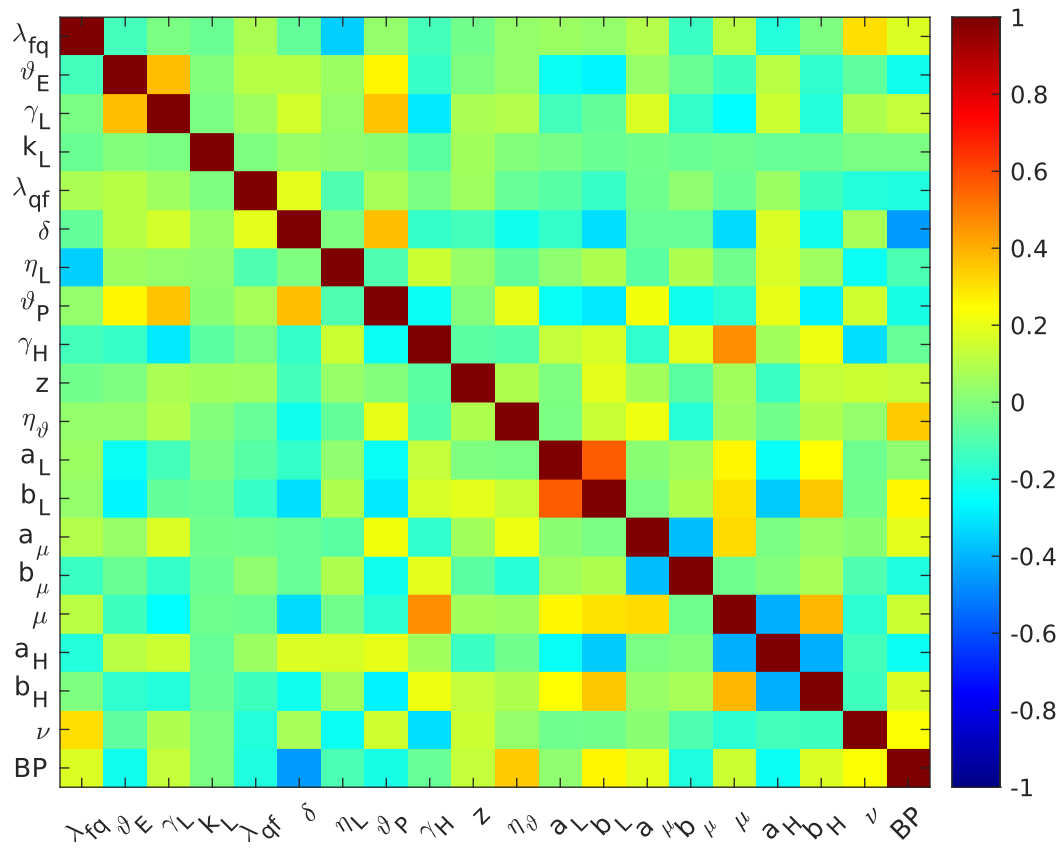
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

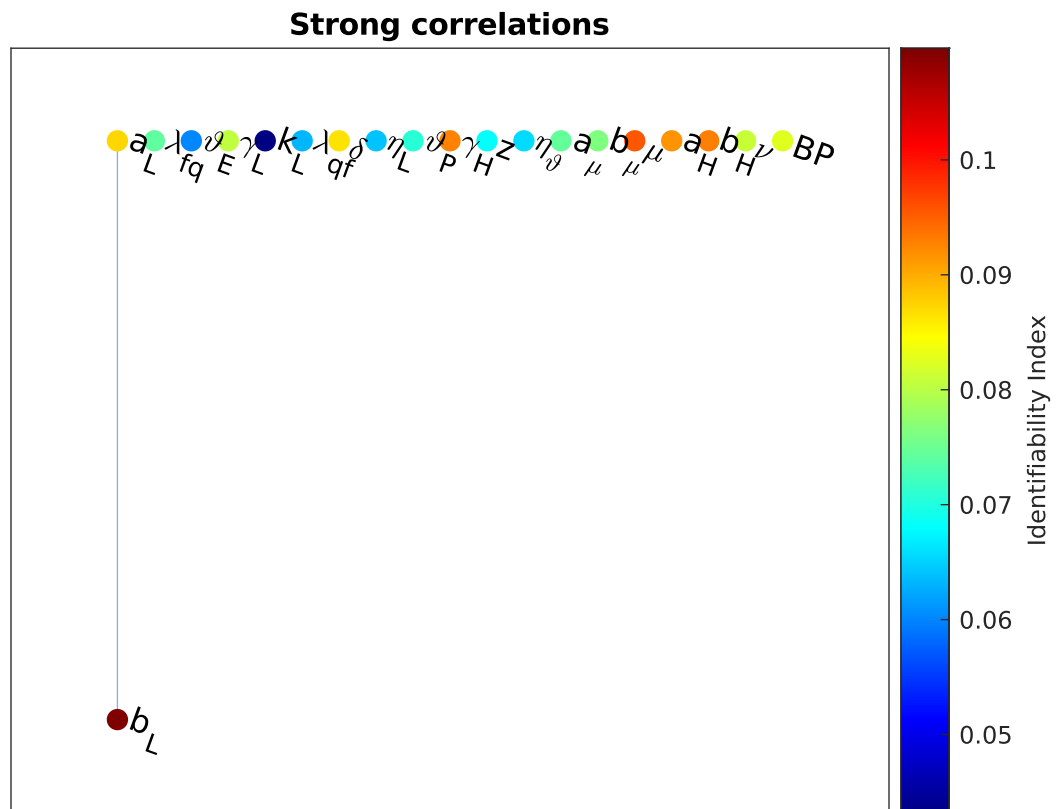
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0'	'0.0007'	'0.1788'	'0.0003'	'0.0743'
ϑ_E	'0.0494'	'0.0965'	'0.0297'	'0.0678'	'0.0602'
γ_L	'0.1923'	'0.8822'	'0.3476'	'0.4814'	'0.0804'
k_L	'1.18'	'10'	'5.5'	'5.5089'	'0.0432'
λ_{qf}	'0.0147'	'0.5594'	'0.5842'	'0.2614'	'0.0634'
δ	'0'	'0.0119'	'0.0303'	'0.0053'	'0.0865'
η_L	'0.1367'	'1'	'0.5237'	'0.825'	'0.0642'
ϑ_P	'0'	'0'	'0.0006'	'0'	'0.0707'
γ_H	'0.118'	'1'	'0.506'	'0.9894'	'0.0926'
z	'3.8078'	'30'	'15.1971'	'27.567'	'0.0683'
η_{ϑ}	'0.5219'	'1'	'0.8448'	'0.9311'	'0.0657'
a_L	'1'	'15'	'1.9666'	'3.515'	'0.0872'
b_L	'5.4831'	'15'	'4.402'	'13.5657'	'0.1097'
a_{μ}	'3.3977'	'15'	'6.9292'	'7.1245'	'0.0746'
b_{μ}	'1'	'13.768'	'8.1643'	'6.4395'	'0.0764'
μ	'0'	'0.912'	'0.2111'	'0.4222'	'0.0956'
a_H	'1.623'	'15'	'5.9822'	'9.9349'	'0.0918'
b_H	'1'	'15'	'8.3285'	'14.8581'	'0.0929'
ν	'90.404'	'275.7401'	'189.3515'	'115.7178'	'0.0811'
BP	'479.6993'	'487.6871'	'479.5'	'480.5'	'0.0827'

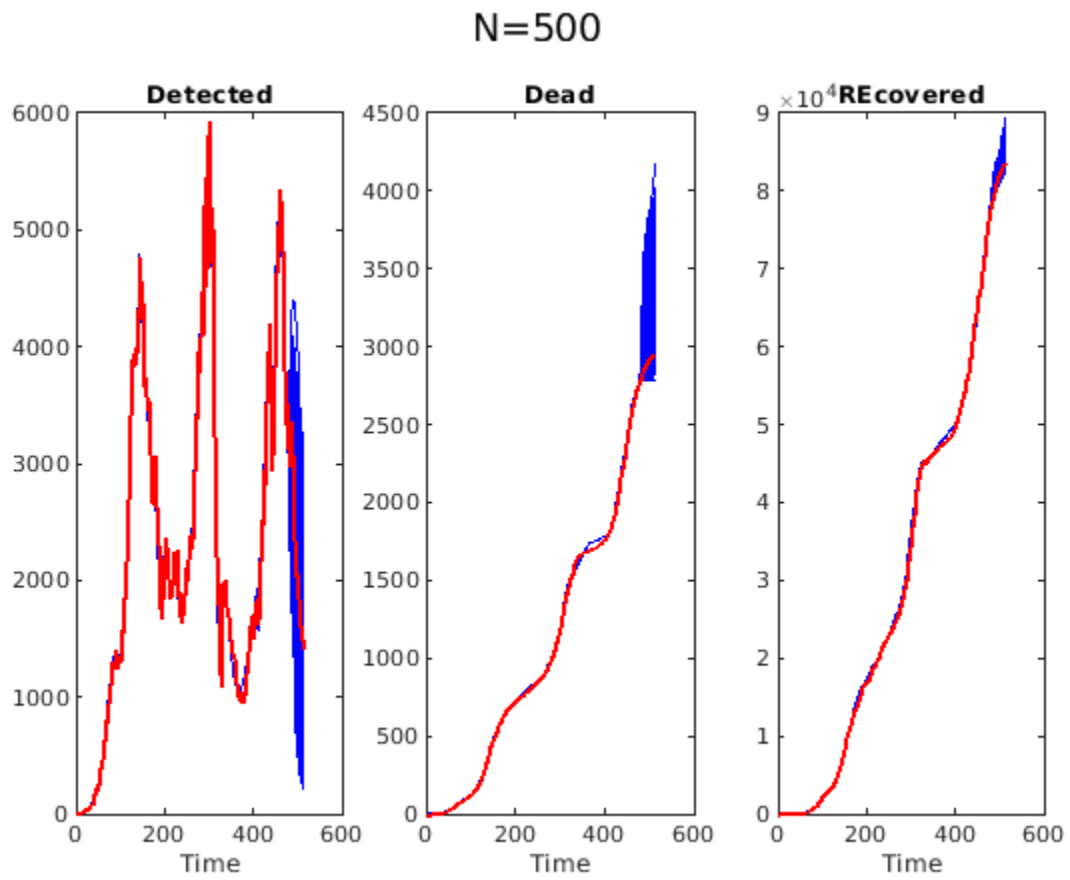
13.3. Identifiability analysys







13.4. Uncertainty analysis



Chapter 14. Extension number14

14.1. Basic information

The extension to be validated consists of the time series from the data515 to the 528. The status of the validation is: COMPLETED.

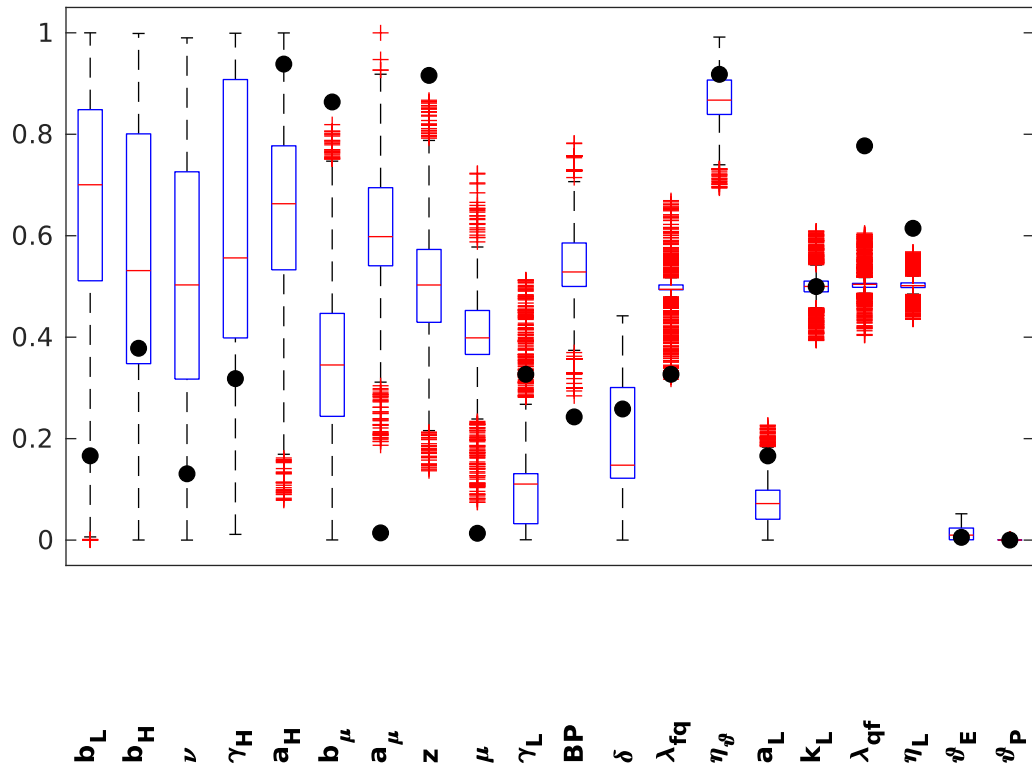
The number of estimations needed to perform the validation was1000.

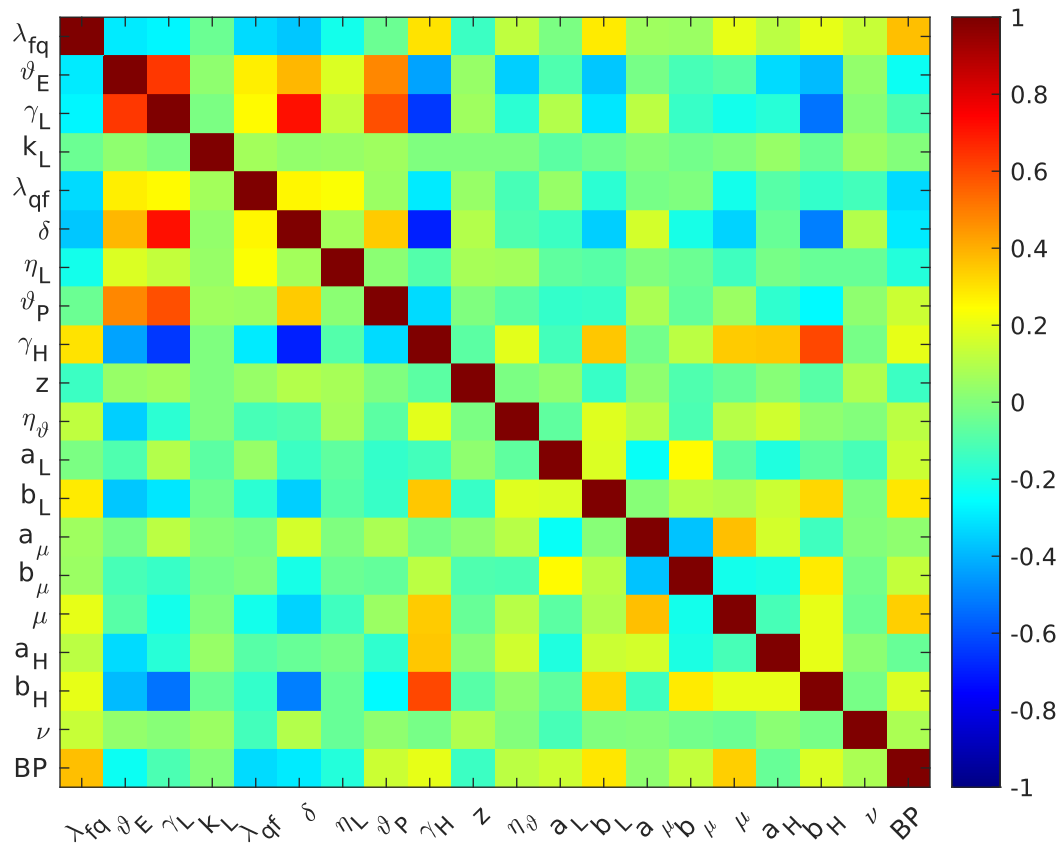
14.2. Estimated parameters with their intervals

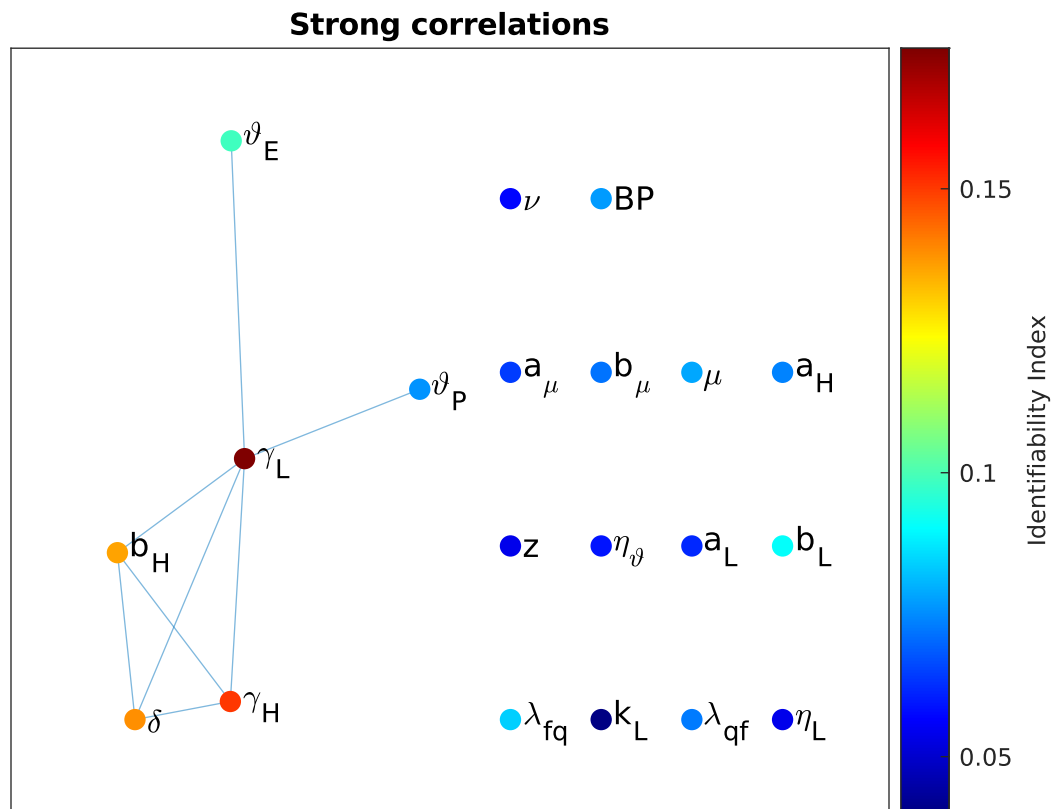
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0.4793'	'0.5096'	'0.4945'	'0.3269'	'0.0842'
ϑ_E	'0.0079'	'0.0117'	'0.0098'	'0.0054'	'0.0989'
γ_L	'0.0876'	'0.1334'	'0.1105'	'0.3268'	'0.1748'
k_L	'5.429'	'5.5713'	'5.5002'	'5.4981'	'0.0402'
λ_{qf}	'0.4941'	'0.5141'	'0.5041'	'0.7772'	'0.0731'
δ	'0.0205'	'0.0238'	'0.0222'	'0.0388'	'0.1385'
η_L	'0.4941'	'0.509'	'0.5016'	'0.6146'	'0.0543'
ϑ_P	'0'	'0.0003'	'0.0002'	'0'	'0.076'
γ_H	'0.5335'	'0.579'	'0.5563'	'0.3183'	'0.1502'
z	'14.6769'	'15.4958'	'15.0864'	'27.4817'	'0.054'
η_{ϑ}	'0.8585'	'0.8761'	'0.8673'	'0.9182'	'0.0595'
a_L	'1.8647'	'2.1522'	'2.0084'	'3.324'	'0.0622'
b_L	'10.5109'	'11.102'	'10.8065'	'3.3265'	'0.0907'
a_{μ}	'9.1621'	'9.5873'	'9.3747'	'1.199'	'0.0645'
b_{μ}	'5.6271'	'6.042'	'5.8345'	'13.0915'	'0.0718'
μ	'0.3844'	'0.4129'	'0.3987'	'0.0134'	'0.0791'
a_H	'10.0383'	'10.5221'	'10.2802'	'14.1372'	'0.0742'
b_H	'8.1525'	'8.7226'	'8.4375'	'6.2941'	'0.1359'
ν	'241.3058'	'261.7182'	'251.512'	'65.3622'	'0.0574'
BP	'501.1272'	'501.8728'	'501.5'	'491.4999'	'0.0775'

14.3. Identifiability analysis

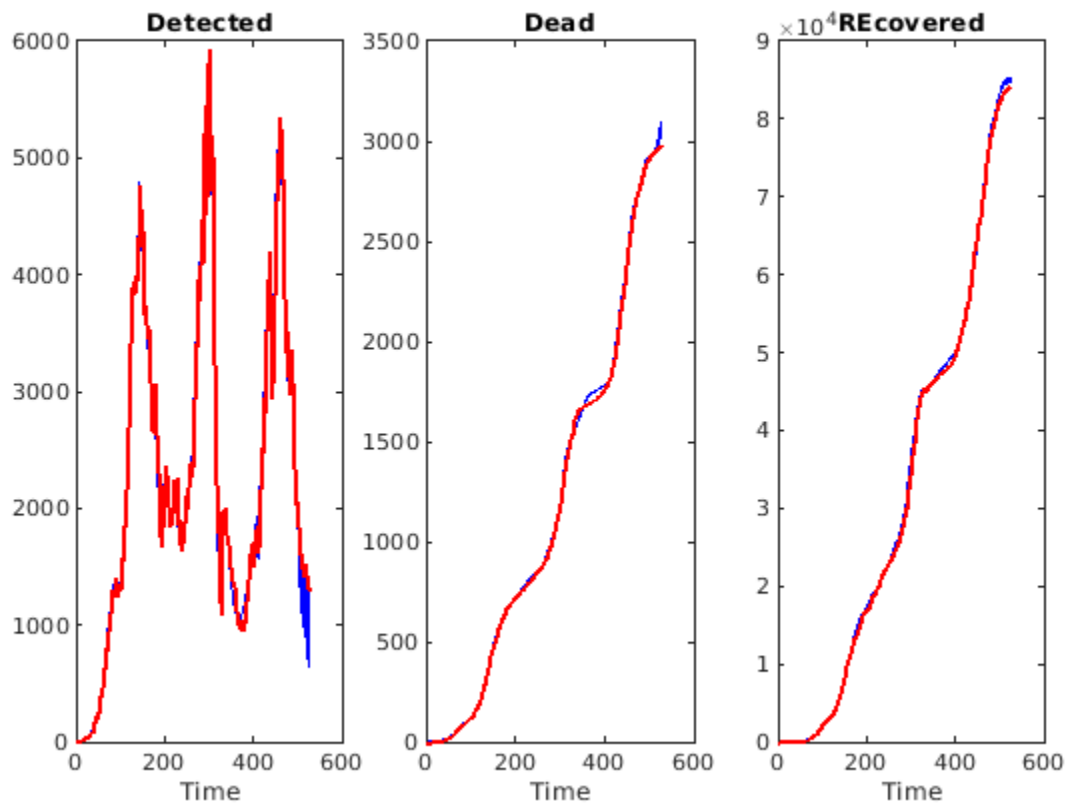






14.4. Uncertainty analysis

N=500



Chapter 15. Extension number15

15.1. Basic information

The extension to be validated consists of the time series from the data528 to the 710. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

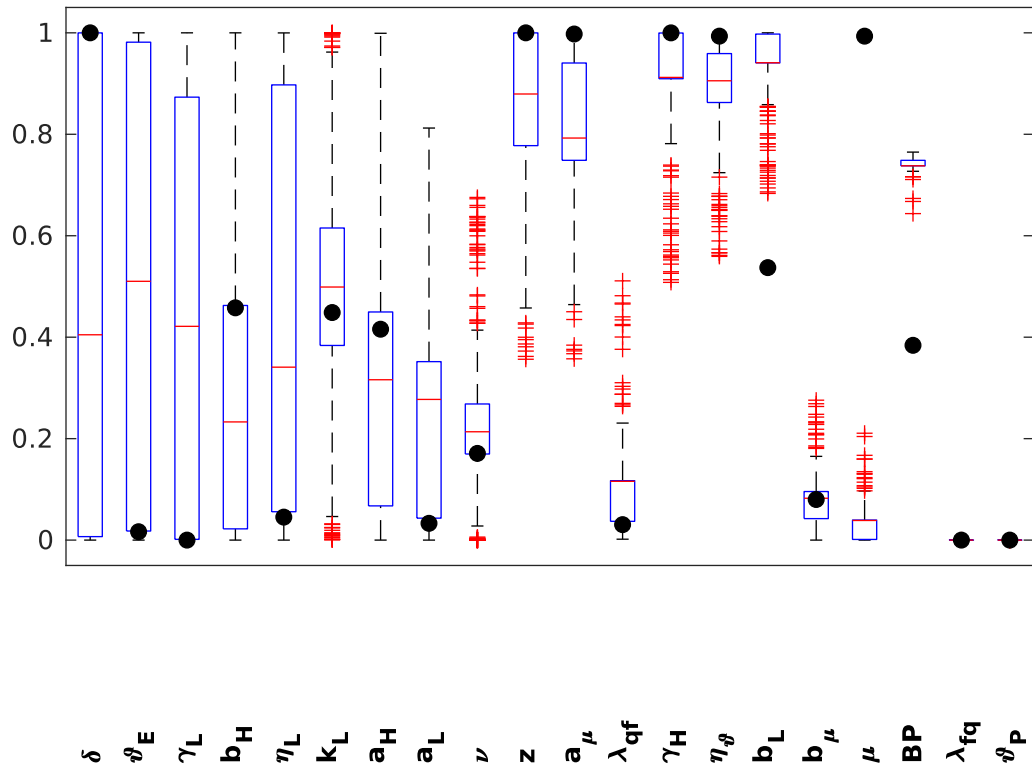
15.2. Estimated parameters with their intervals

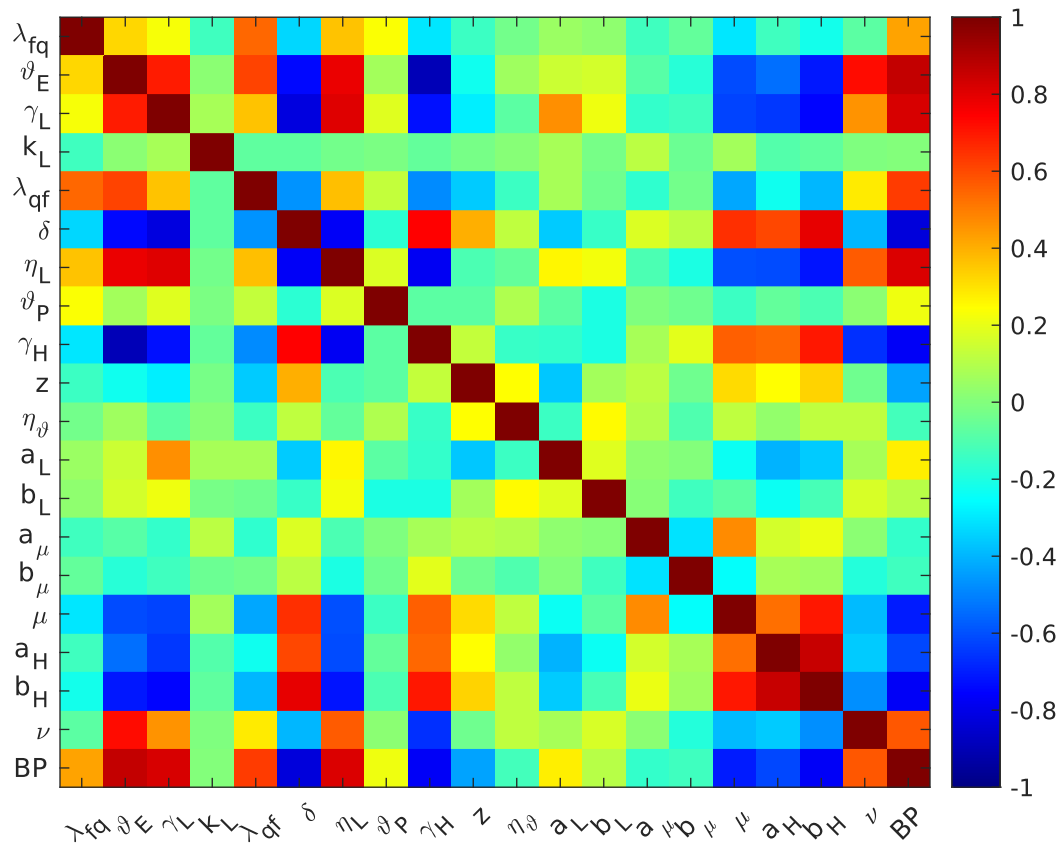
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

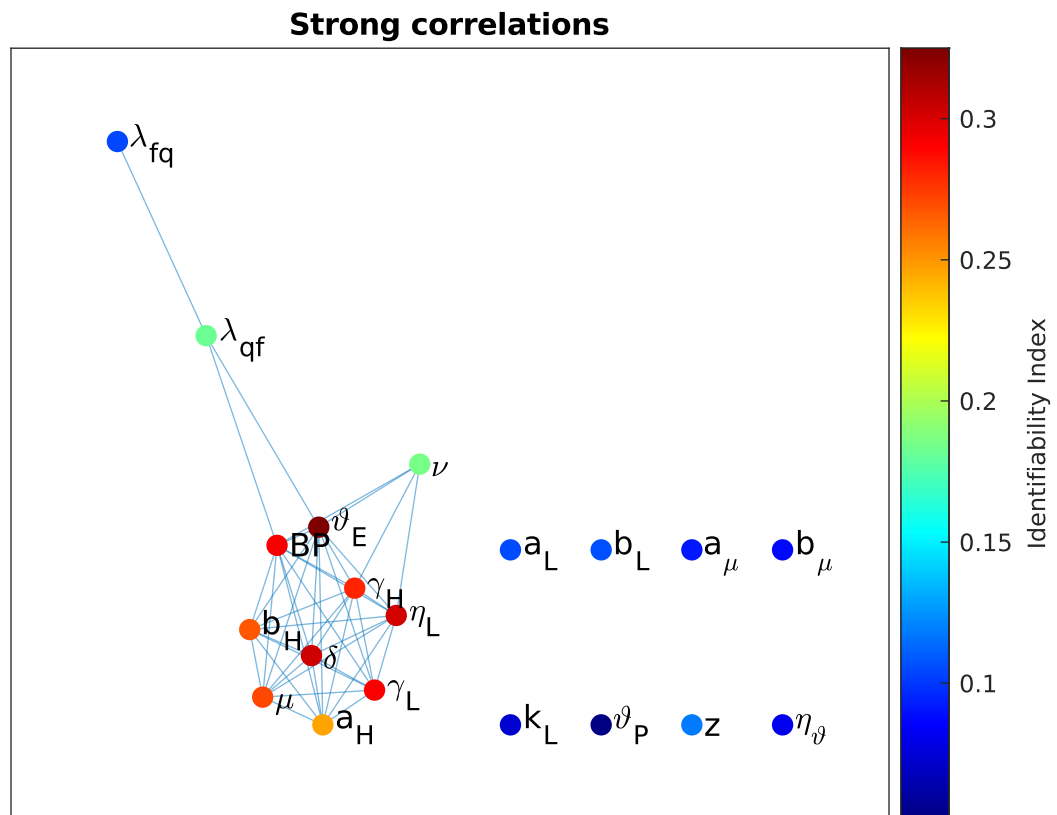
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
λ_{fq}	'0'	'0.1576'	'0.0001'	'0'	'0.1049'
ϑ_E	'0.0163'	'0.0216'	'0.5102'	'0.0165'	'0.325'
γ_L	'0'	'0'	'0.4214'	'0'	'0.2918'
k_L	'2.4362'	'5.8045'	'5.4901'	'5.0374'	'0.0735'
λ_{qf}	'0.0154'	'0.2409'	'0.1172'	'0.0305'	'0.1822'
δ	'0.1448'	'0.15'	'0.0607'	'0.15'	'0.3035'
η_L	'0.0227'	'0.0514'	'0.3409'	'0.0453'	'0.3026'
ϑ_P	'0'	'0'	'0'	'0'	'0.0522'
γ_H	'0.811'	'1'	'0.9095'	'0.9999'	'0.2809'
z	'25.345'	'30'	'26.3162'	'29.9998'	'0.1189'
η_{ϑ}	'0.8263'	'1'	'0.9053'	'0.9935'	'0.0817'
a_L	'1.3784'	'5.5695'	'4.8915'	'1.4631'	'0.1062'
b_L	'3.9369'	'10.6836'	'14.1703'	'8.5199'	'0.1071'
a_{μ}	'9.7012'	'15'	'12.0922'	'14.9672'	'0.0917'
b_{μ}	'1.6042'	'8.1874'	'2.1558'	'2.1205'	'0.0879'
μ	'0.7747'	'1'	'0.0396'	'0.9935'	'0.2711'
a_H	'6.3588'	'6.8203'	'5.4255'	'6.8201'	'0.2469'
b_H	'7.38'	'9.592'	'4.2617'	'7.4107'	'0.2666'
ν	'82.5233'	'115.7763'	'106.8885'	'85.4541'	'0.1863'
BP	'582.799'	'637.974'	'651.5'	'586.0378'	'0.2922'

15.3. Identifiability analysis

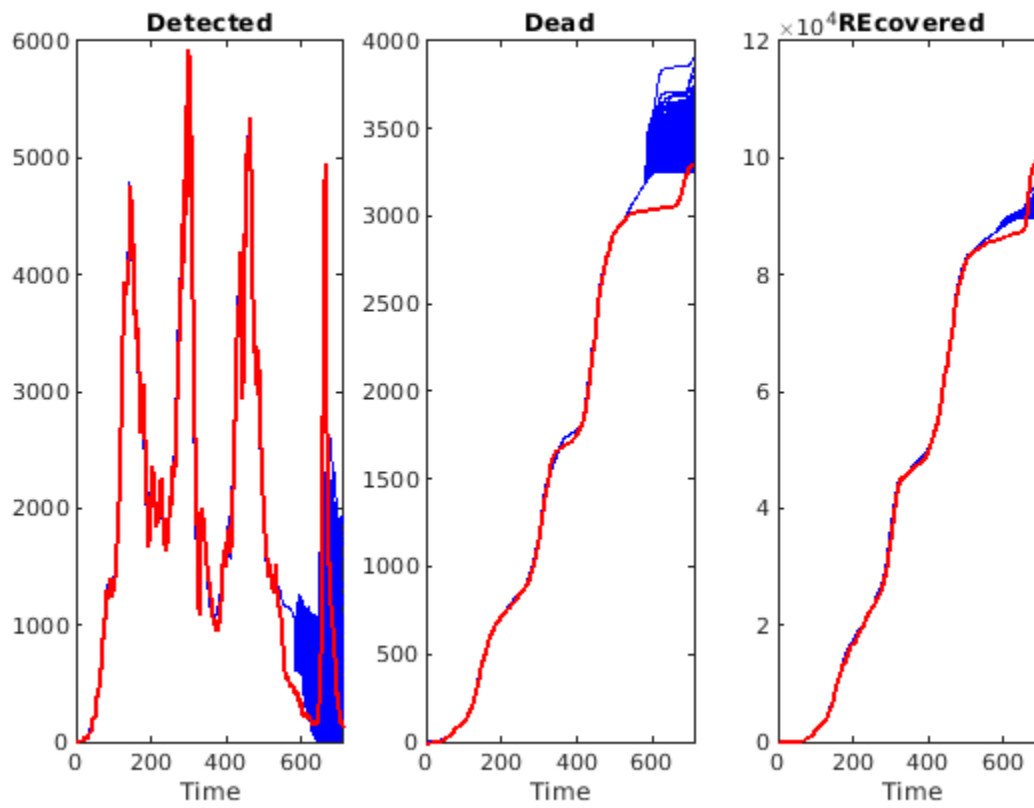






15.4. Uncertainty analysis

N=500



Chapter 16. Extension number16

16.1. Basic information

The extension to be validated consists of the time series from the data710 to the 726. The status of the validation is: COMPLETED.

The number of estimations needed to perform the validation was1000.

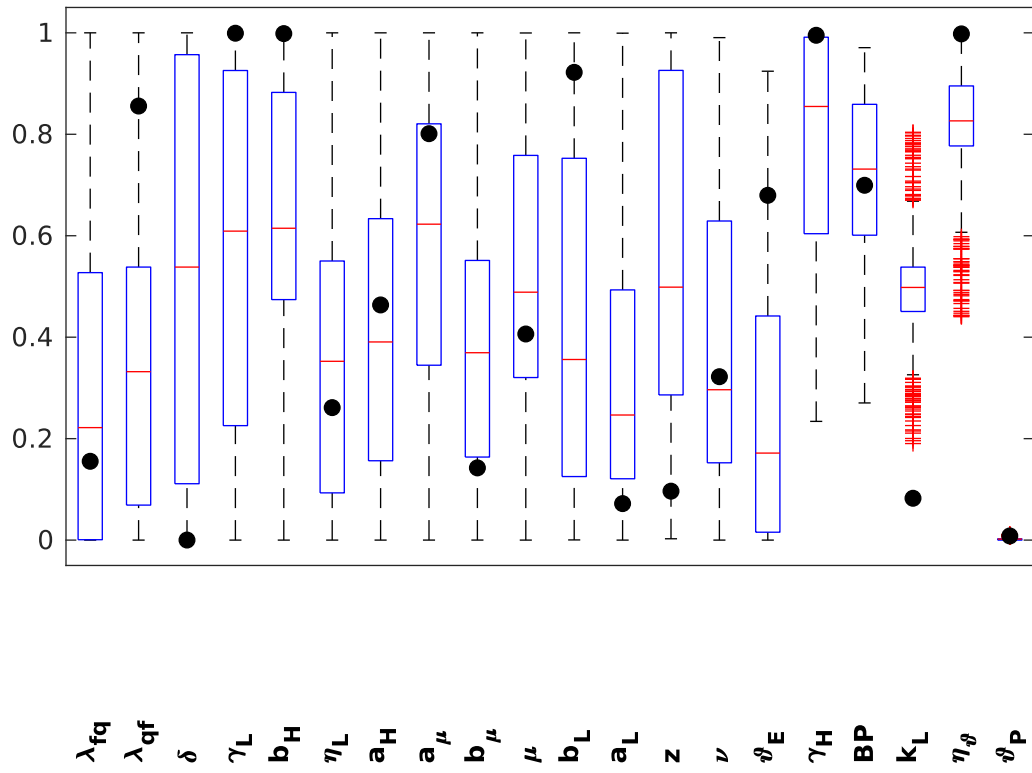
16.2. Estimated parameters with their intervals

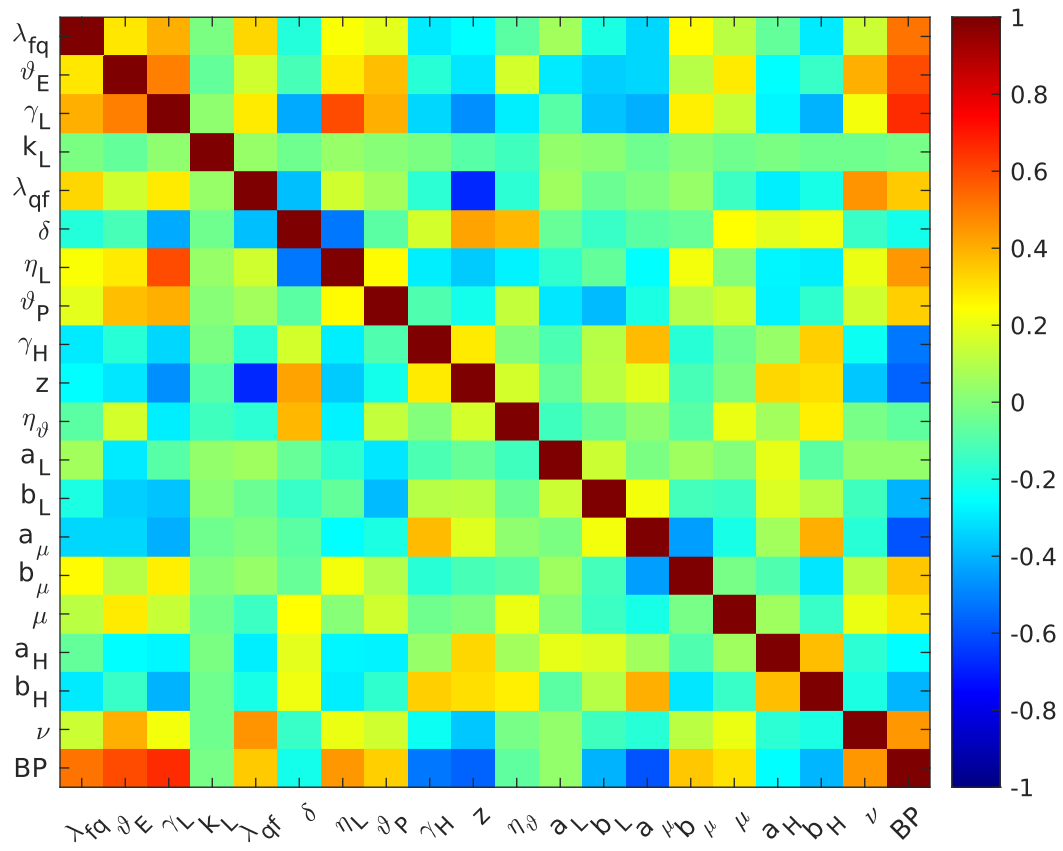
It was necessary to fix 0 parameters of 10 that could be fixed to complete validation.

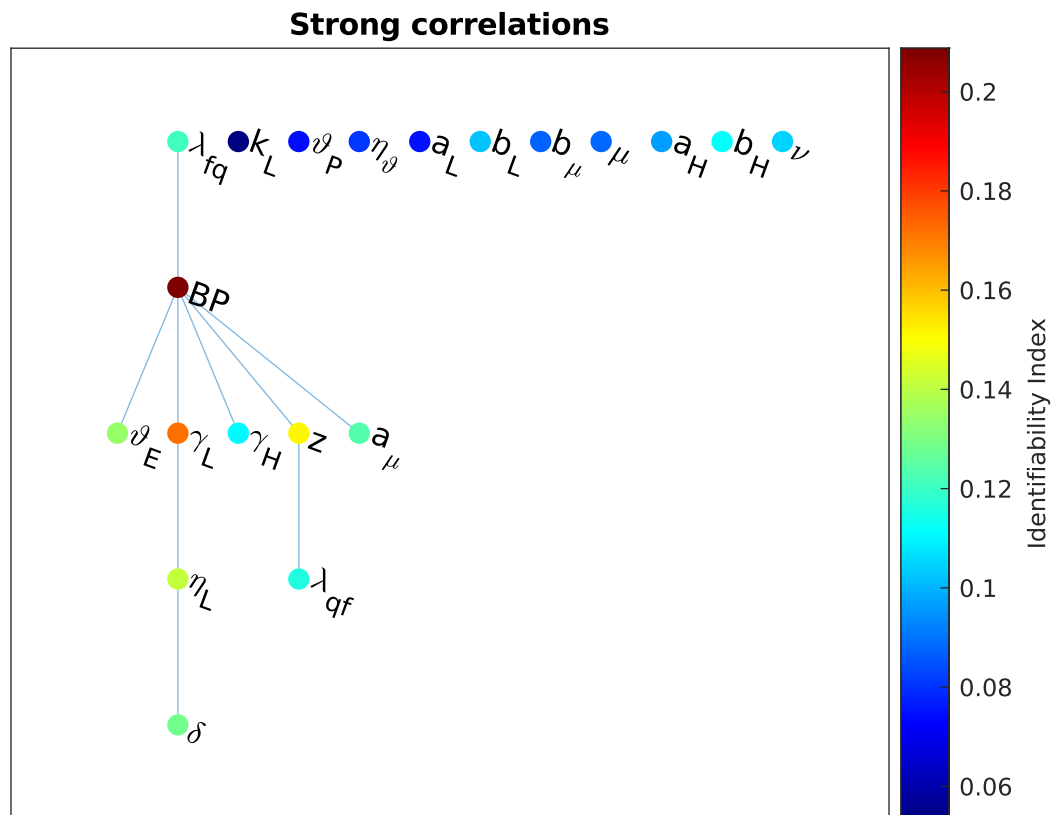
Due to a deviation from the median the CSB method was activated to obtain the parameter intervals.

	Rango		Nominal	Mejor	Index
\lambda_{fq}	'0.138'	'0.2051'	'0.2217'	'0.1554'	'0.1211'
\vartheta_E	'0.4101'	'0.7259'	'0.1716'	'0.6797'	'0.1343'
\gamma_L	'0.825'	'1'	'0.6091'	'0.9992'	'0.1718'
k_L	'1.3709'	'7.7643'	'5.4827'	'1.7422'	'0.0536'
\lambda_{qf}	'0.8127'	'0.9381'	'0.332'	'0.8557'	'0.1165'
\delta	'0'	'0'	'0.0807'	'0'	'0.1288'
\eta_L	'0.256'	'0.4198'	'0.3525'	'0.2612'	'0.1412'
\vartheta_P	'0.002'	'0.0109'	'0.0021'	'0.0082'	'0.0748'
\gamma_H	'0.3236'	'1'	'0.8548'	'0.9952'	'0.1111'
z	'2.4669'	'2.918'	'14.9594'	'2.894'	'0.1516'
\eta_{\vartheta}	'0.7874'	'1'	'0.8261'	'0.9979'	'0.0811'
a_L	'1.2624'	'2.0925'	'4.4523'	'2.007'	'0.0751'
b_L	'7.5251'	'14.257'	'5.9844'	'13.9095'	'0.1022'
a_{\mu}	'6.9388'	'15'	'9.719'	'12.2165'	'0.1242'
b_{\mu}	'1.5037'	'7.9689'	'6.1715'	'2.9933'	'0.0877'
\mu	'0.0451'	'0.768'	'0.4887'	'0.4063'	'0.0883'
a_H	'2.284'	'8.3955'	'6.4687'	'7.49'	'0.0968'
b_H	'7.1154'	'15'	'9.6066'	'14.9786'	'0.1124'
\nu	'146.682'	'189.2063'	'148.2137'	'161.0601'	'0.1049'
BP	'657.0111'	'671.2583'	'665.5'	'659.4998'	'0.2088'

16.3. Identifiability analysis







16.4. Uncertainty analysys

