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# EnKF simulation results

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## 1 History match plots

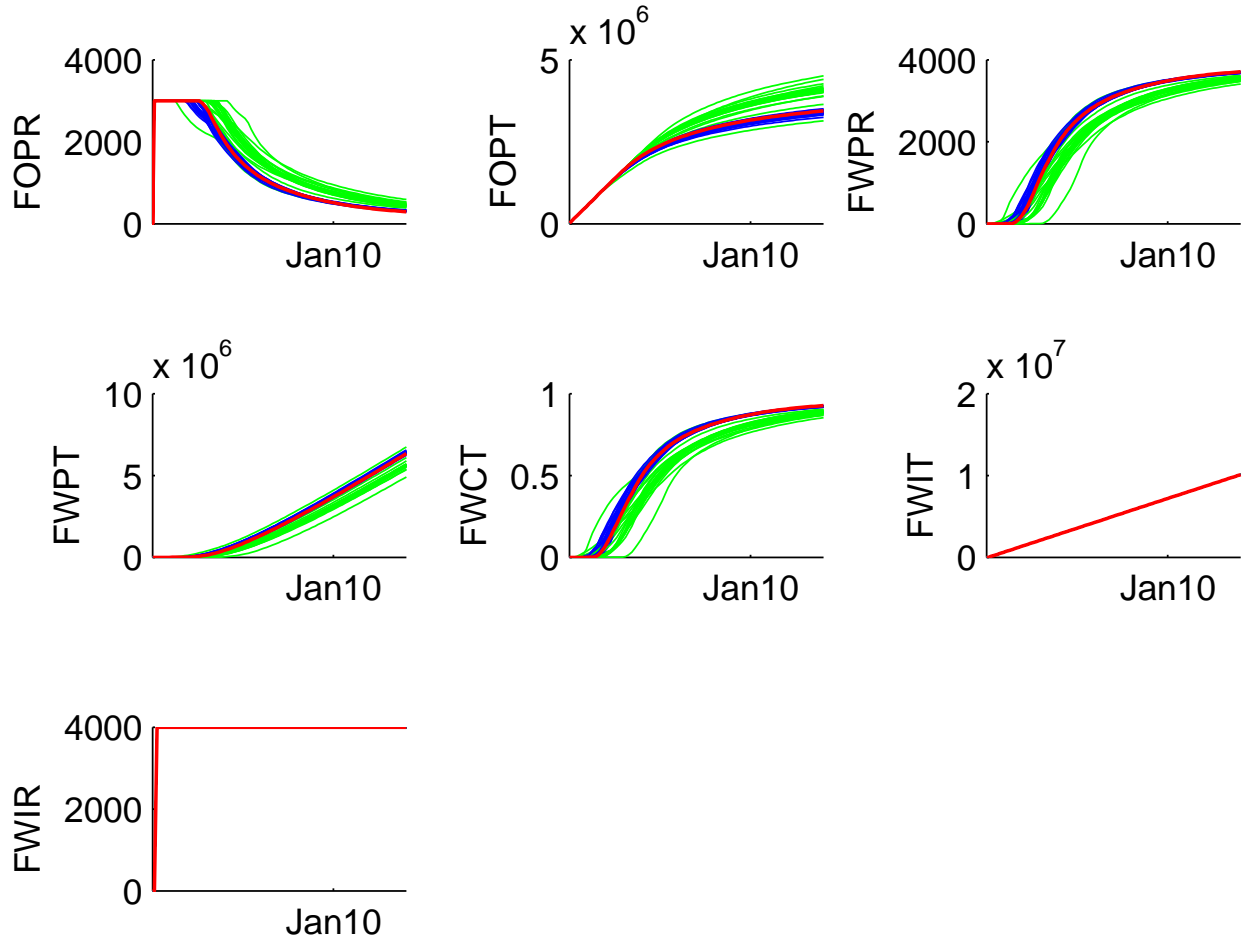
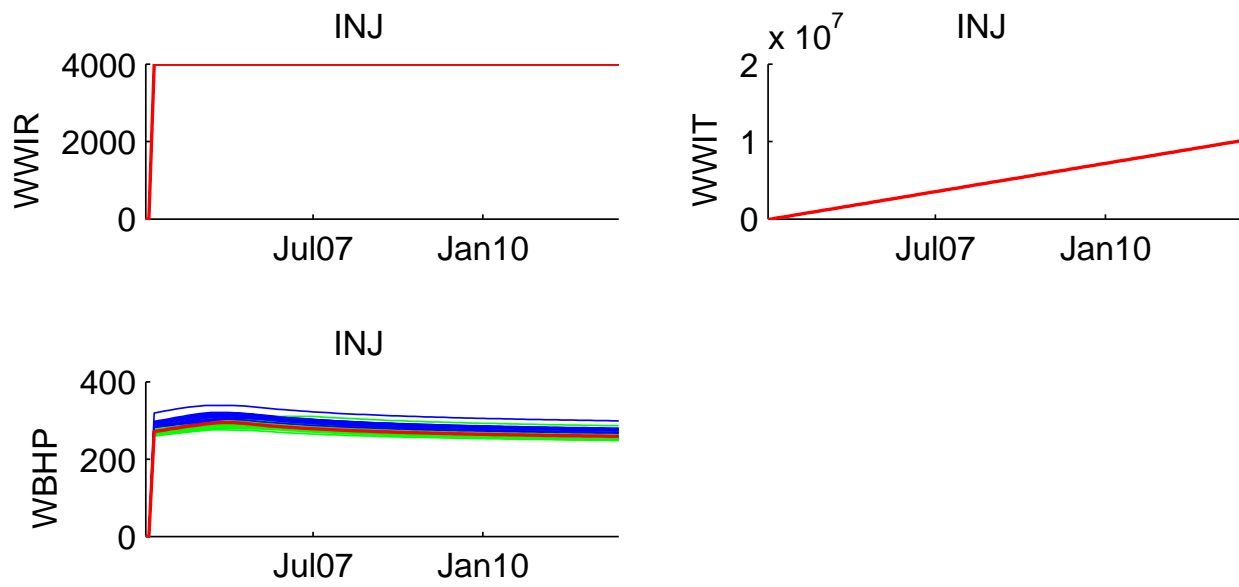


Figure 1: FIELD History Matching plots



**Figure 2:** INJ History Matching plots

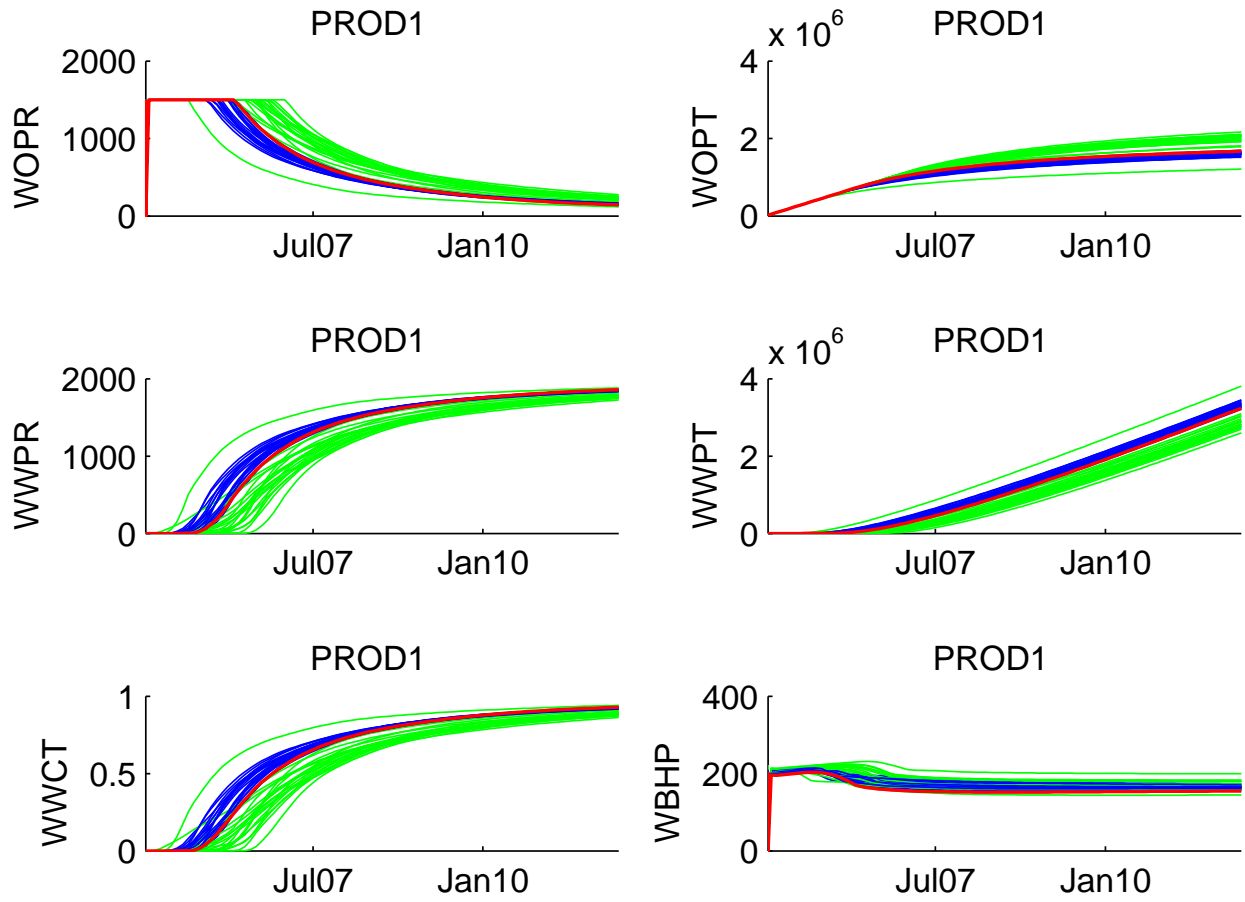


Figure 3: PROD1 History Matching plots

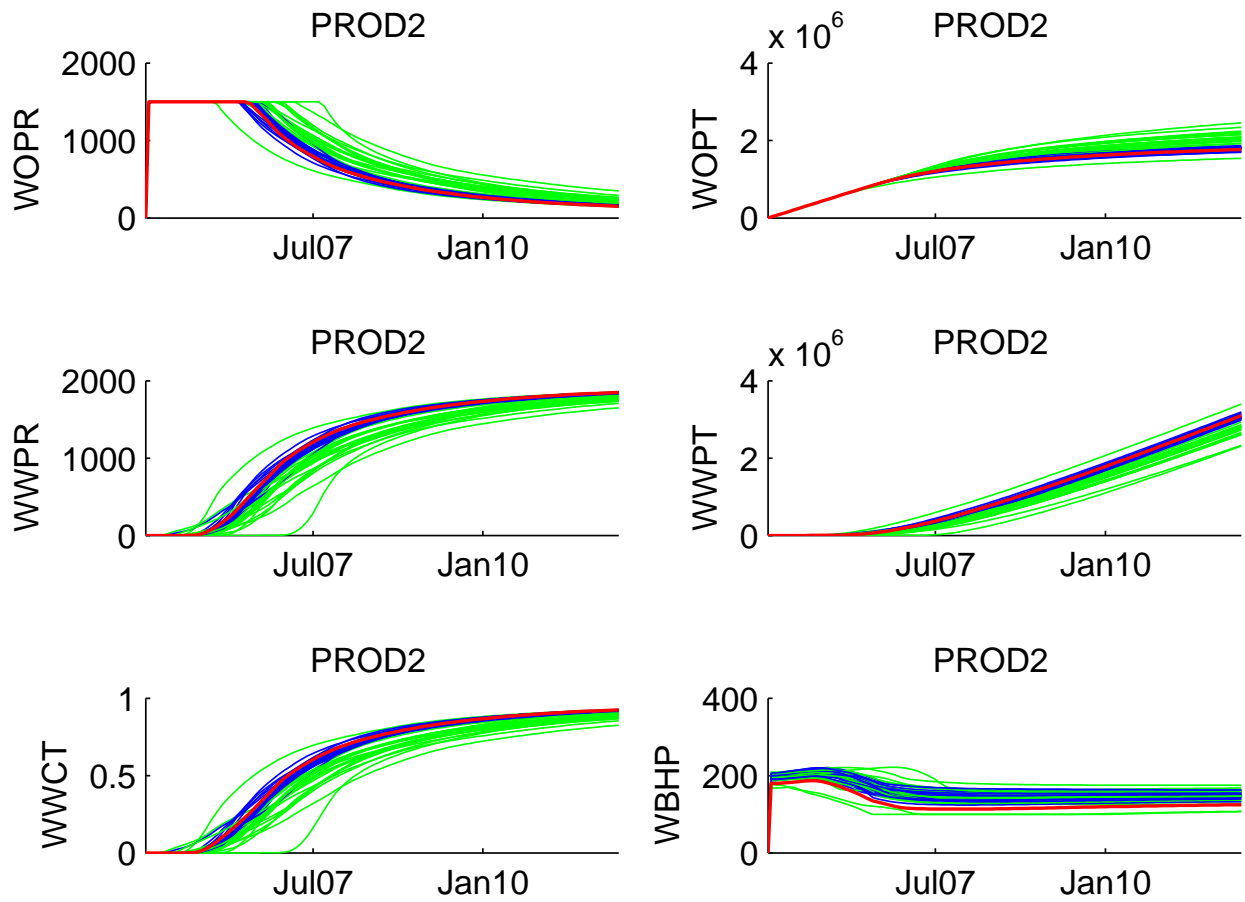


Figure 4: PROD2 History Matching plots

## 2 PORO for layer 1

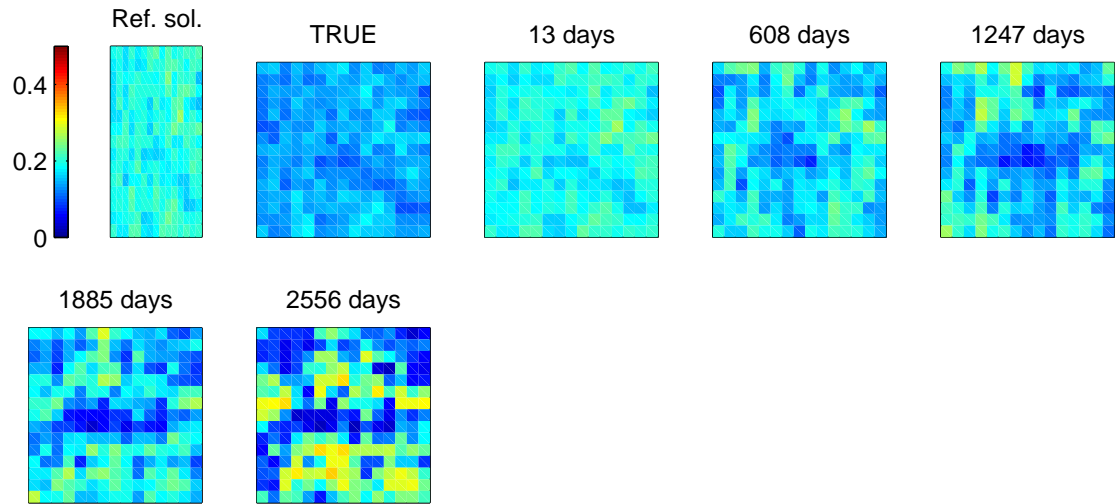


Figure 5: PORO mean value for layer 1

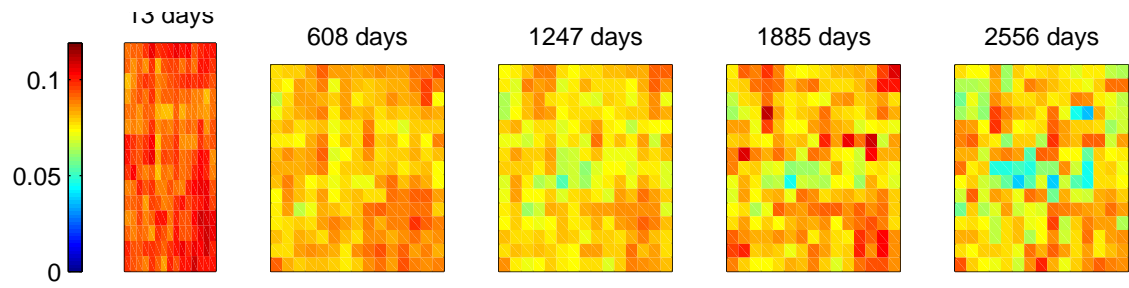
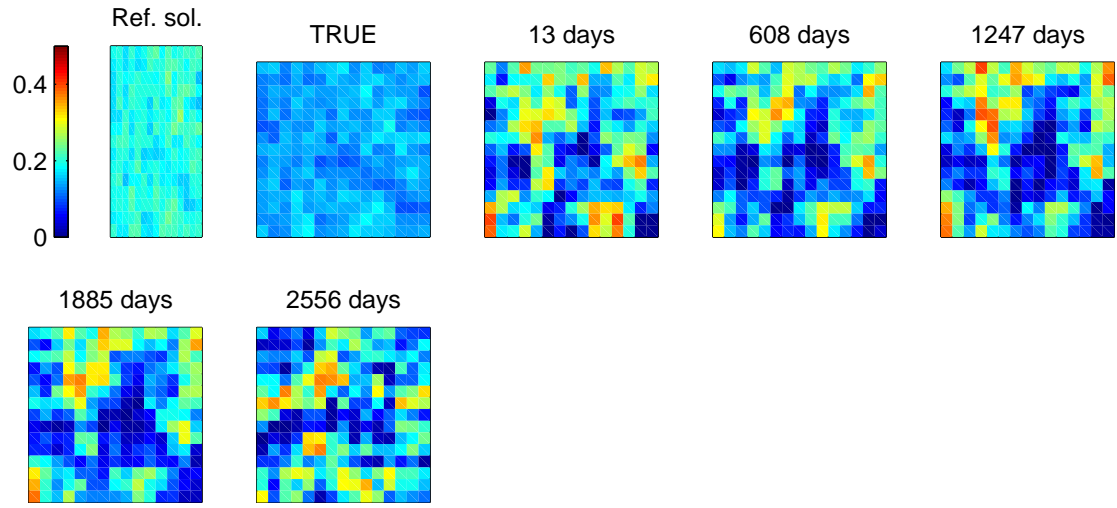
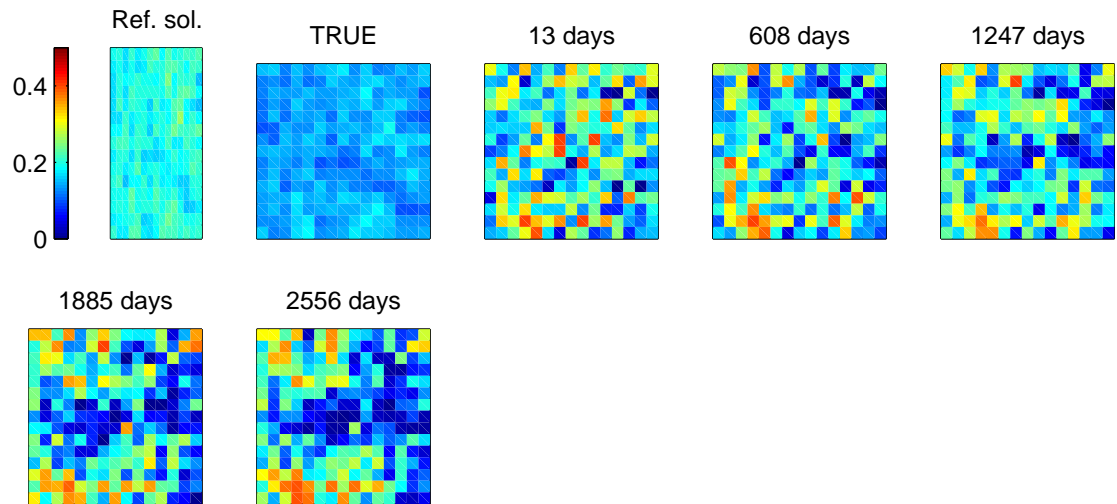


Figure 6: PORO standard deviation for layer 1





**Figure 7:** PORO for ensemble member 1 for layer 1



**Figure 8:** PORO for ensemble member 2 for layer 1

### 3 PORO for layer 2

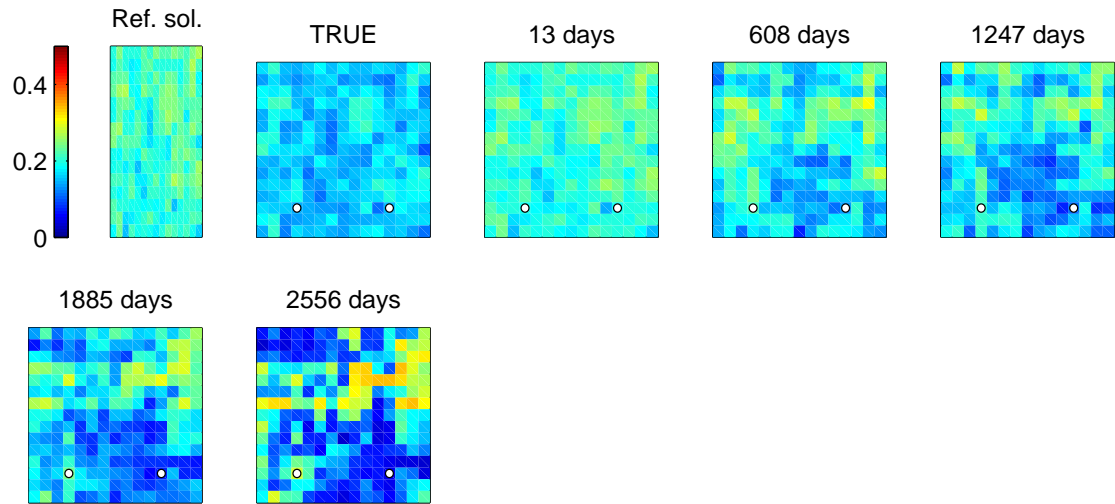


Figure 9: PORO mean value for layer 2

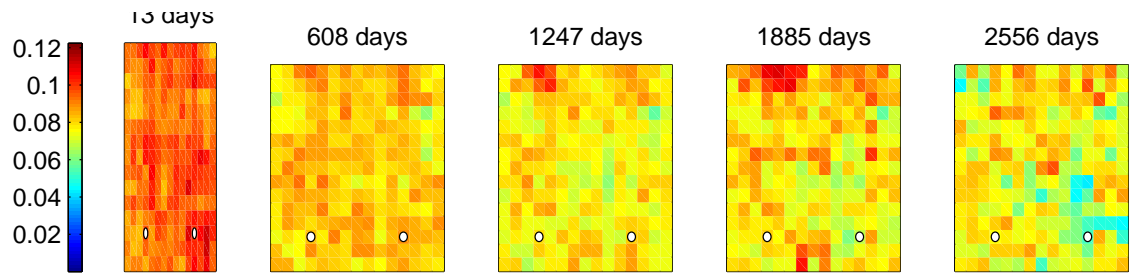
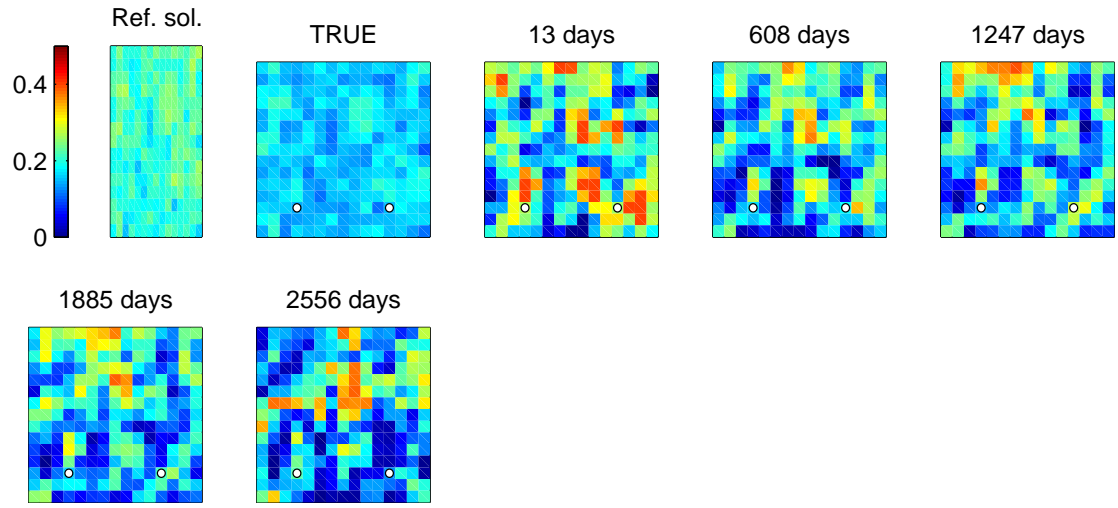
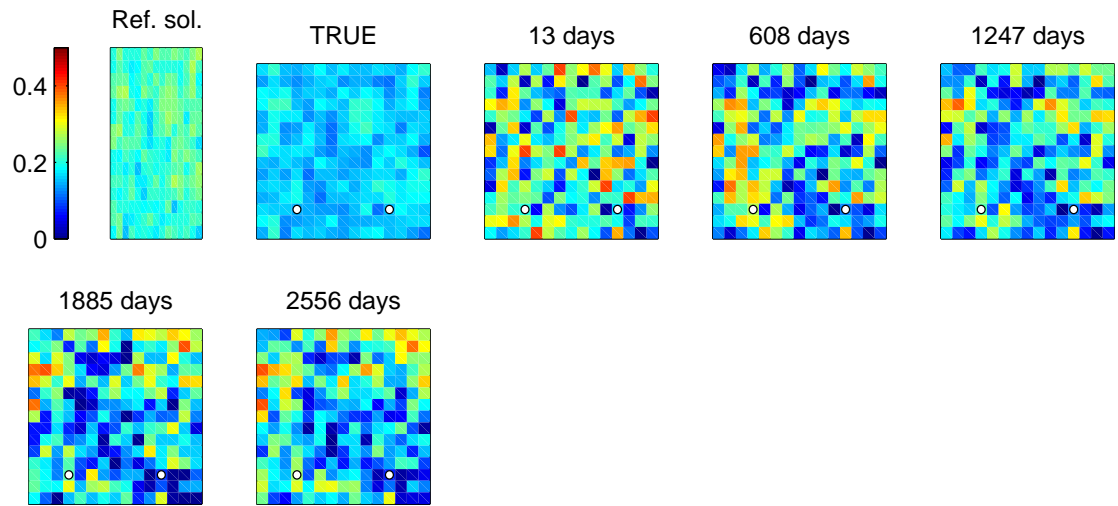


Figure 10: PORO standard deviation for layer 2



**Figure 11:** PORO for ensemble member 1 for layer 2



**Figure 12:** PORO for ensemble member 2 for layer 2

## 4 PORO for layer 3

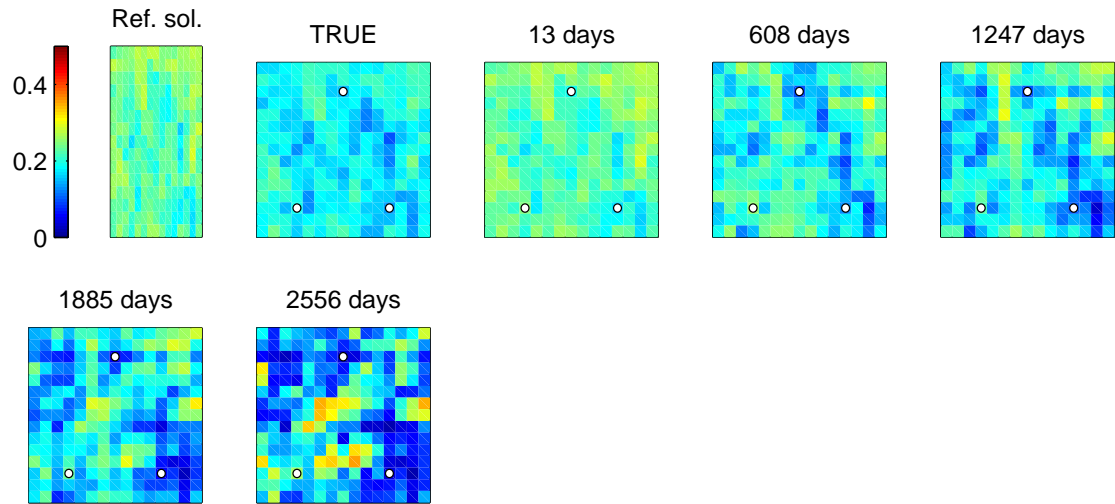


Figure 13: PORO mean value for layer 3

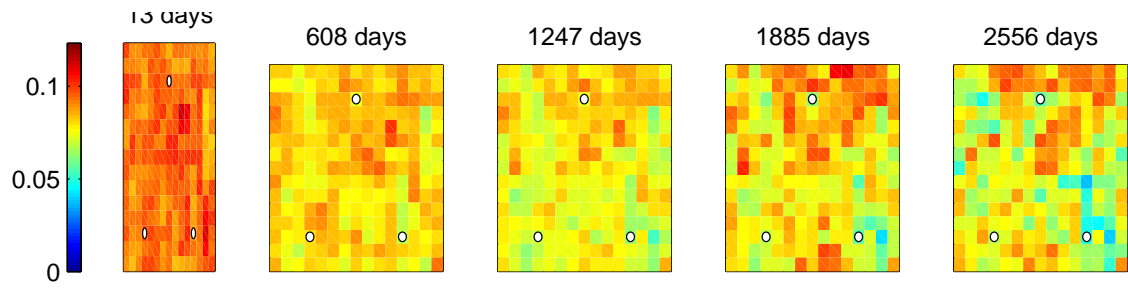
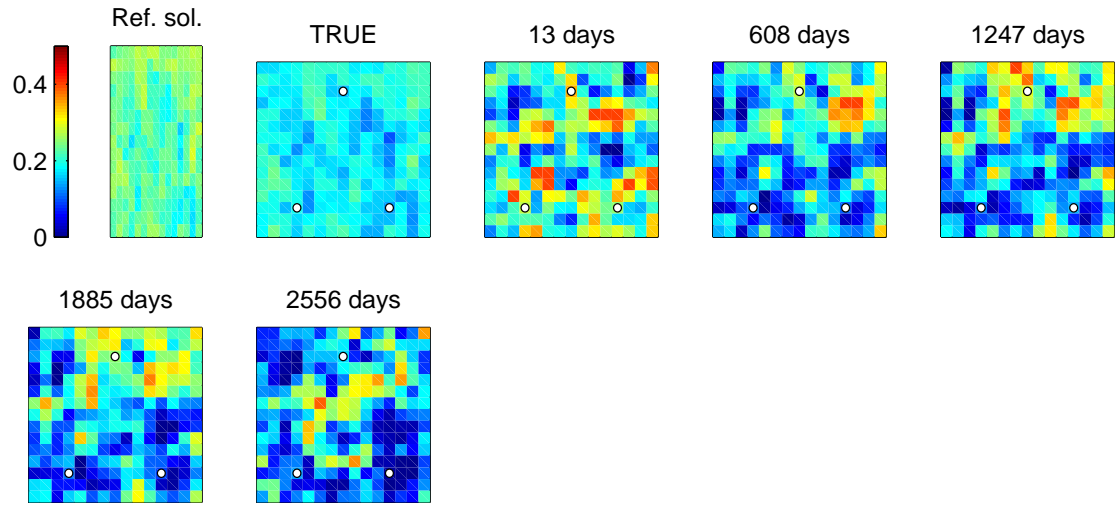
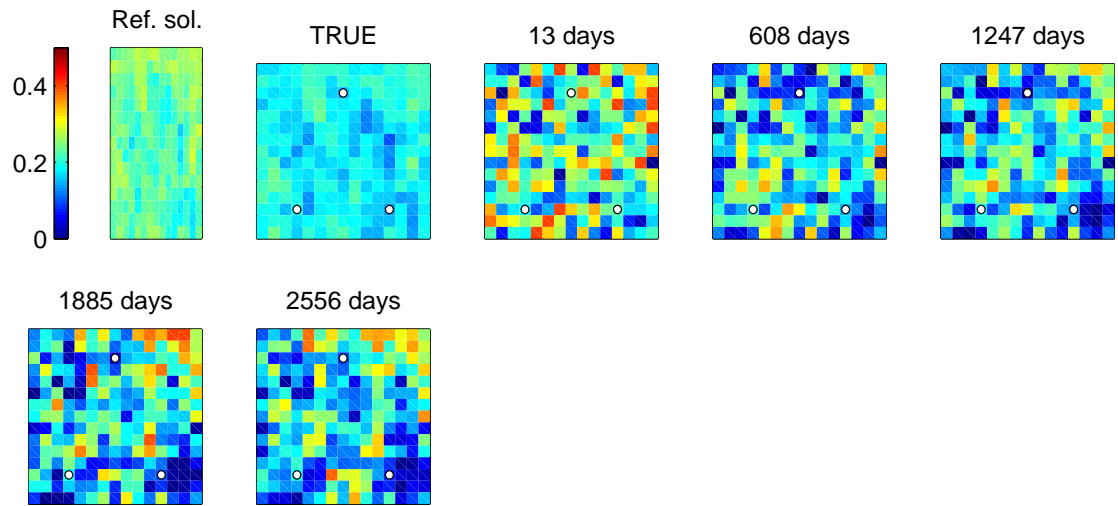


Figure 14: PORO standard deviation for layer 3



**Figure 15:** PORO for ensemble member 1 for layer 3



**Figure 16:** PORO for ensemble member 2 for layer 3

## 5 PORO for layer 4

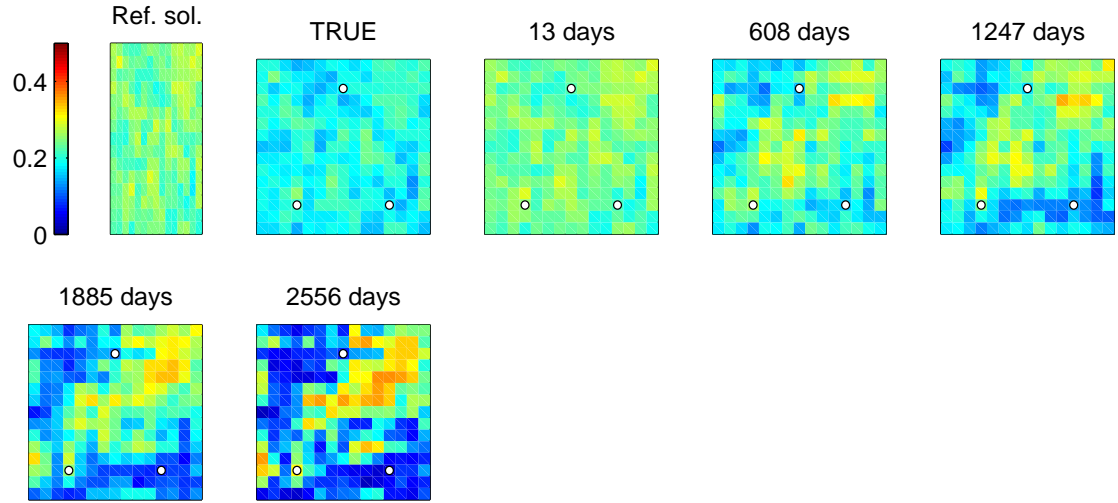


Figure 17: PORO mean value for layer 4

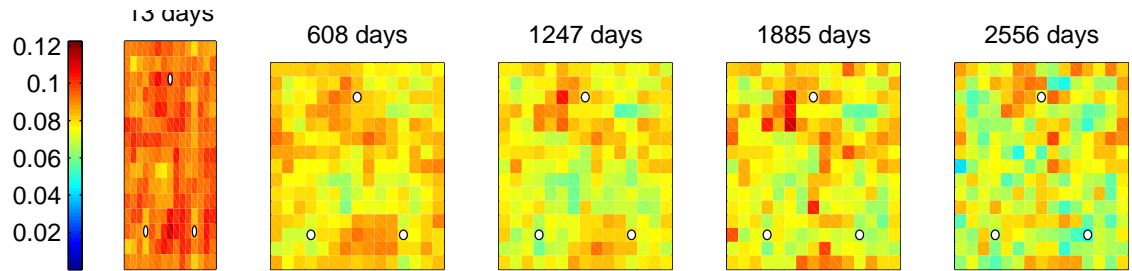
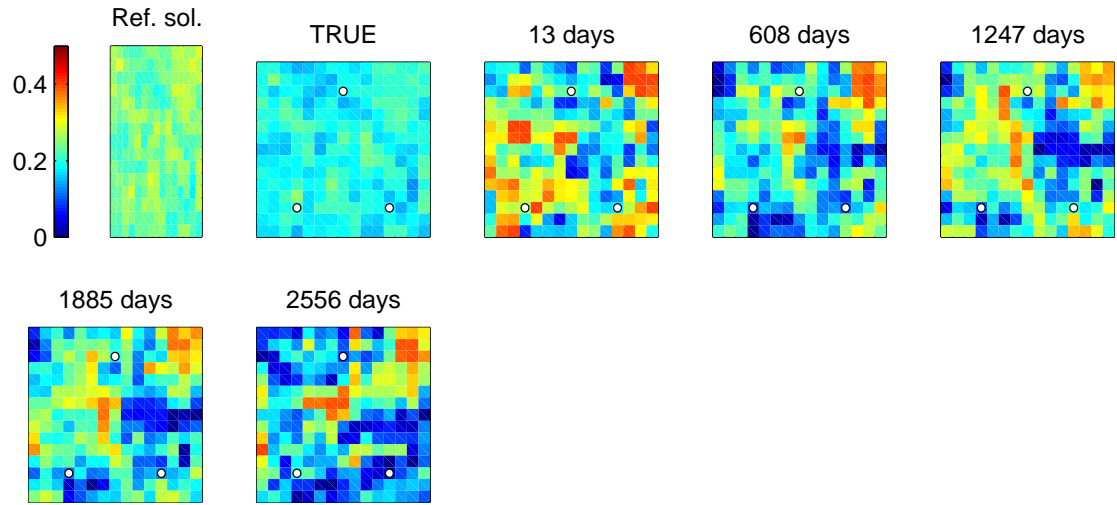
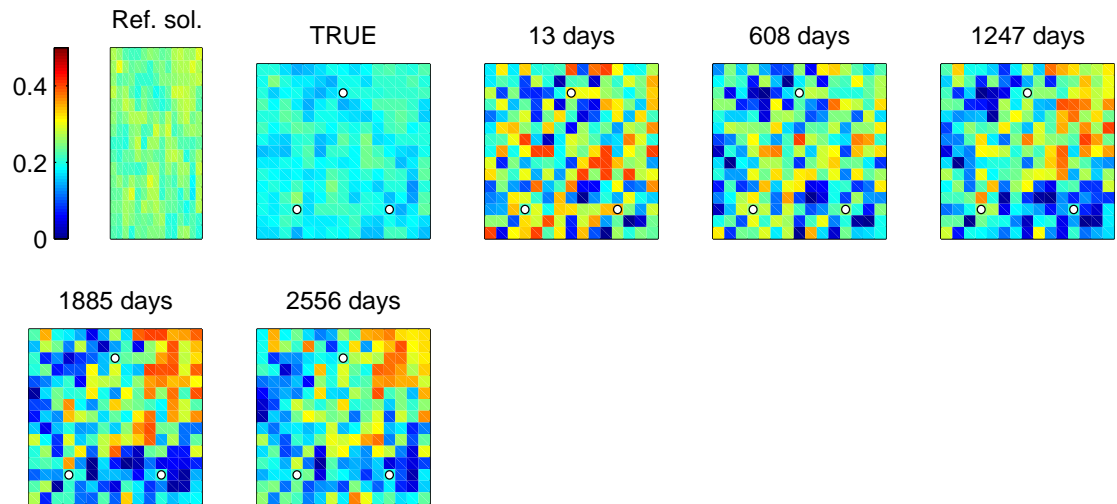


Figure 18: PORO standard deviation for layer 4



**Figure 19:** PORO for ensemble member 1 for layer 4



**Figure 20:** PORO for ensemble member 2 for layer 4

## 6 PORO for layer 5

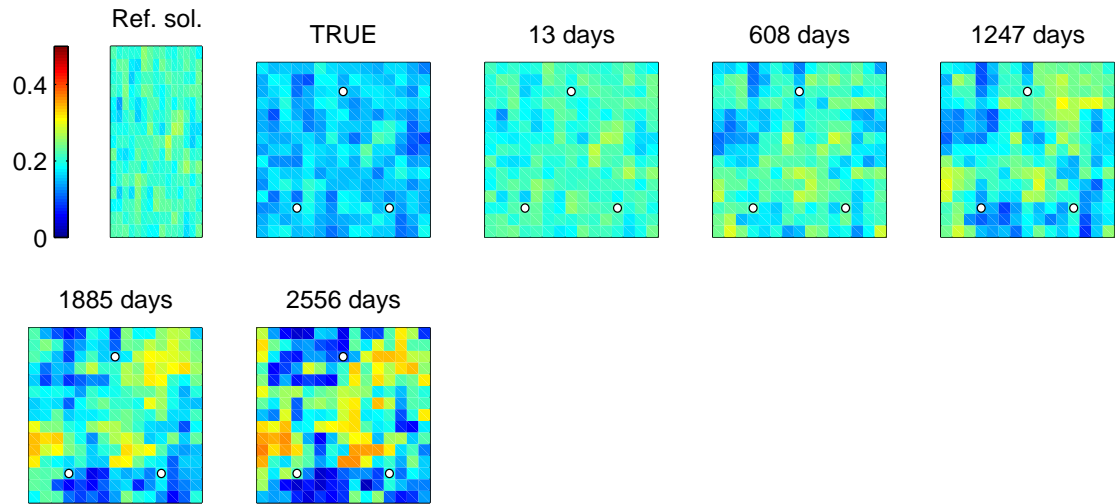


Figure 21: PORO mean value for layer 5

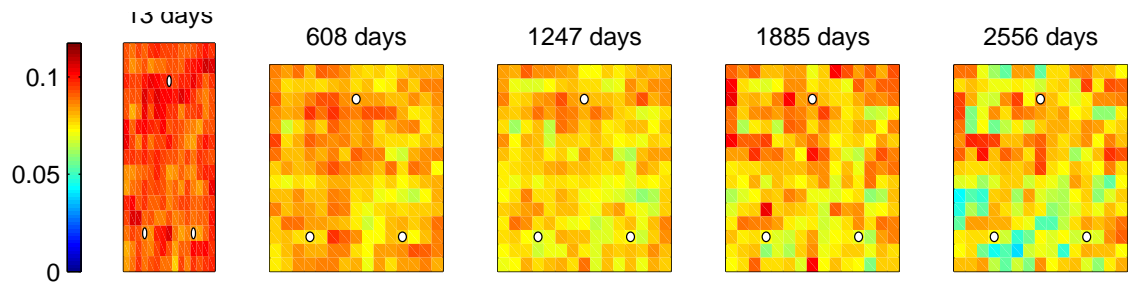
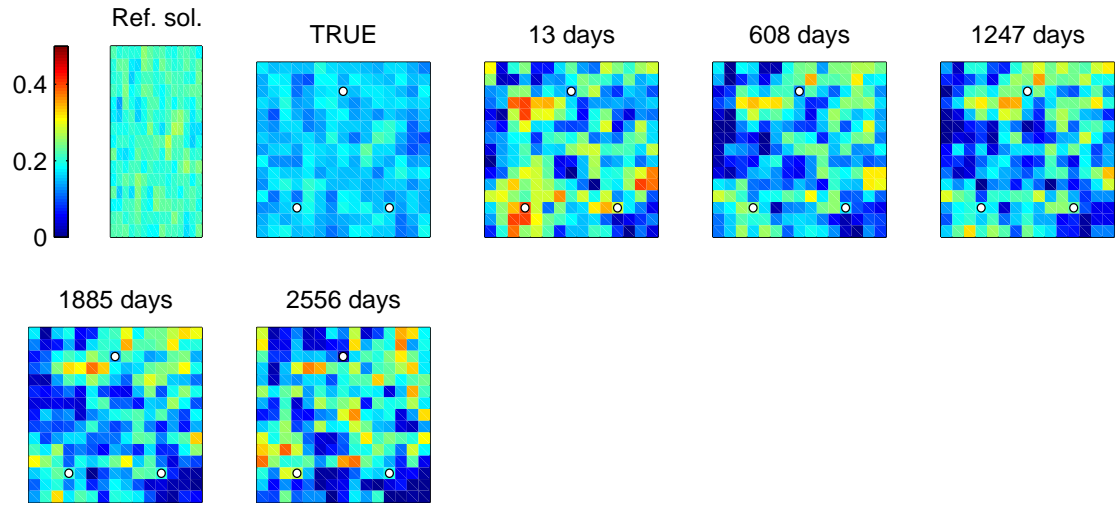
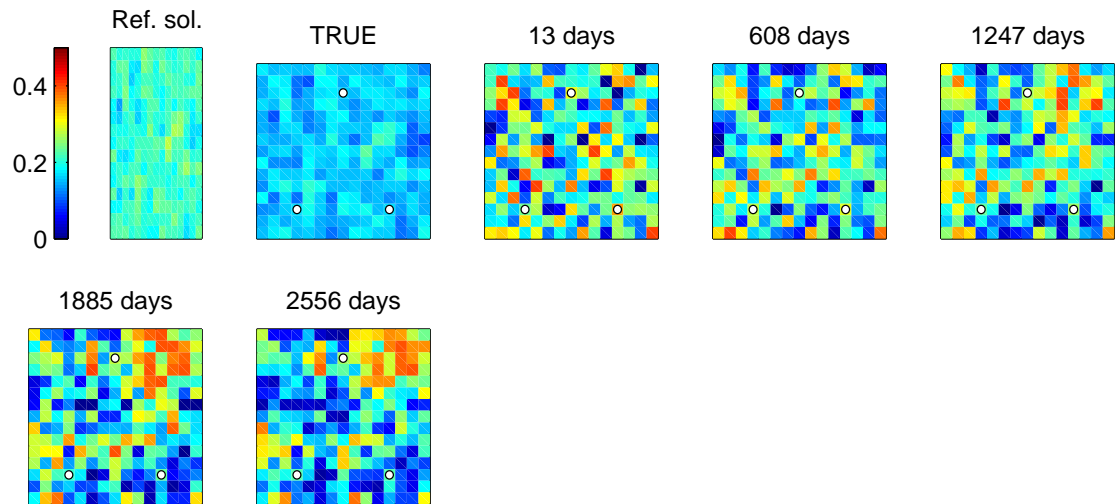


Figure 22: PORO standard deviation for layer 5



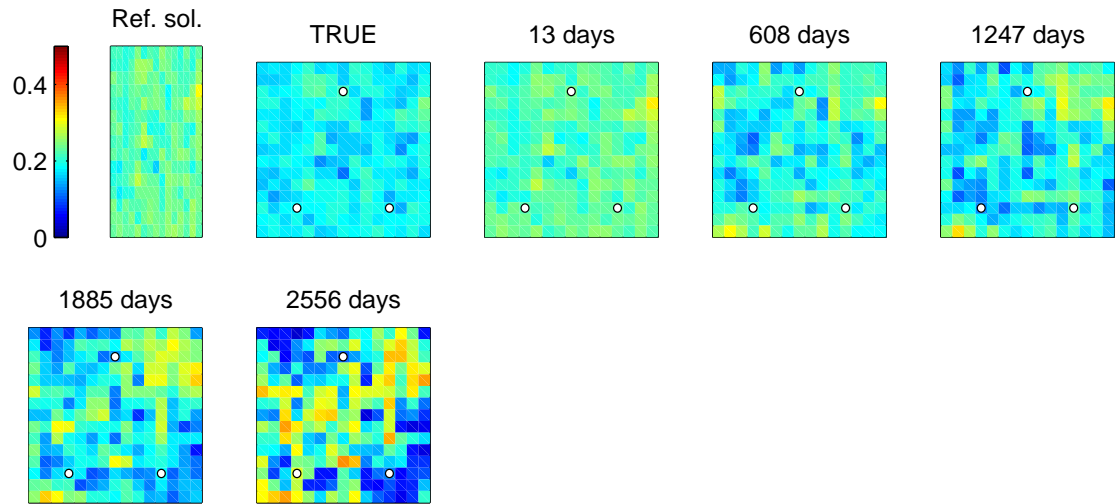


**Figure 23:** PORO for ensemble member 1 for layer 5

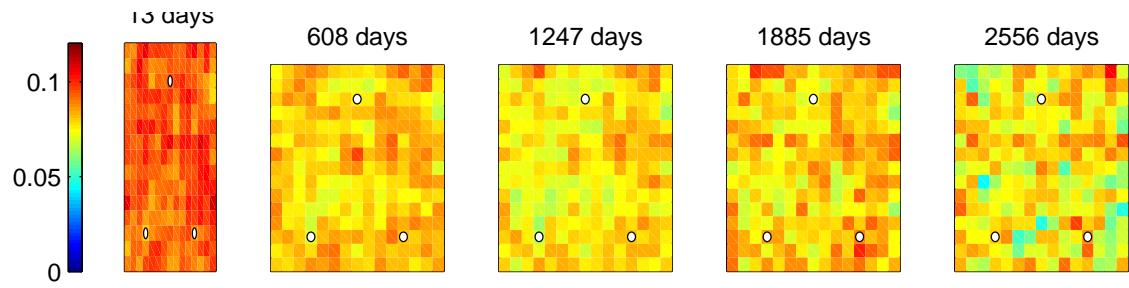


**Figure 24:** PORO for ensemble member 2 for layer 5

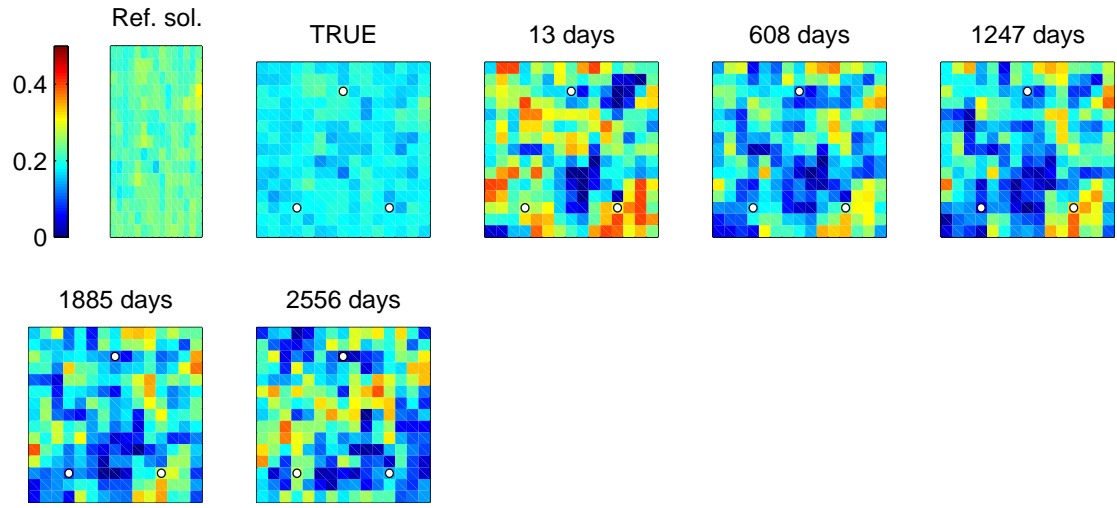
## 7 PORO for layer 6



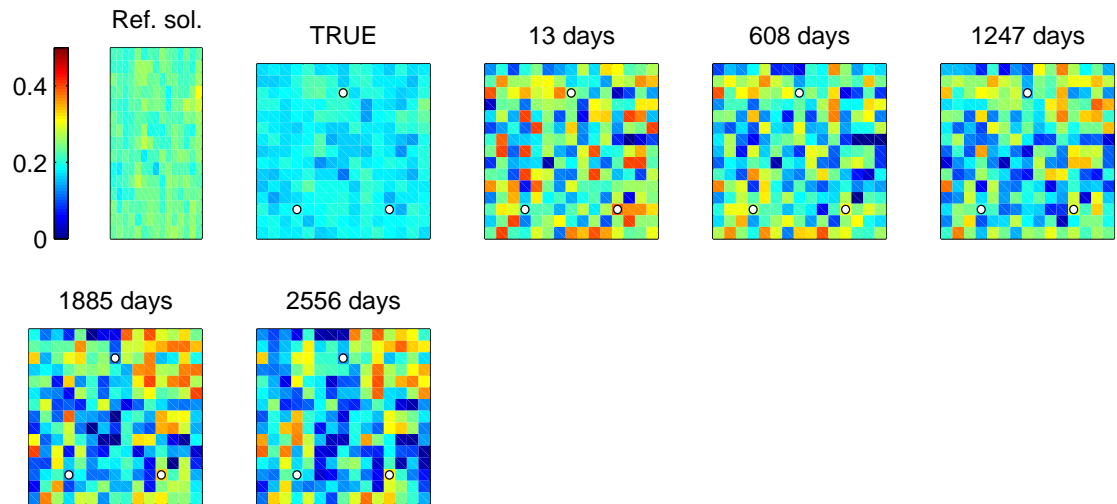
**Figure 25:** PORO mean value for layer 6



**Figure 26:** PORO standard deviation for layer 6



**Figure 27:** PORO for ensemble member 1 for layer 6



**Figure 28:** PORO for ensemble member 2 for layer 6

## 8 PORO for layer 7

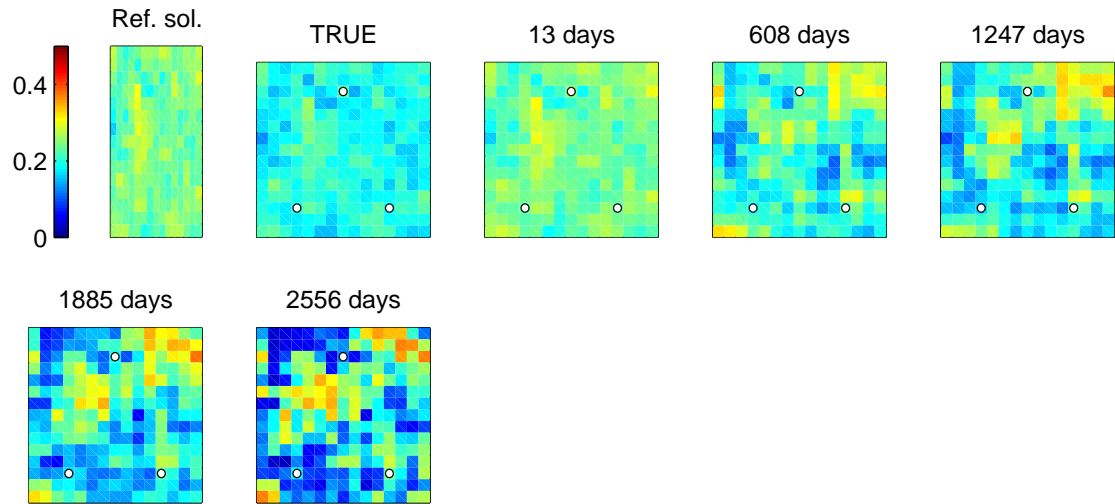


Figure 29: PORO mean value for layer 7

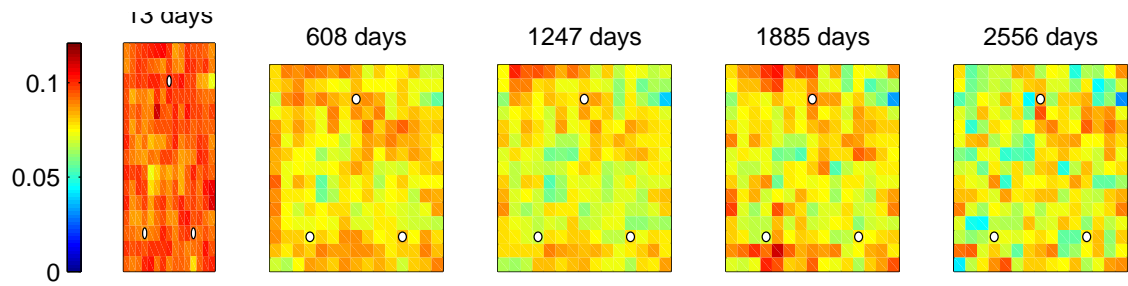
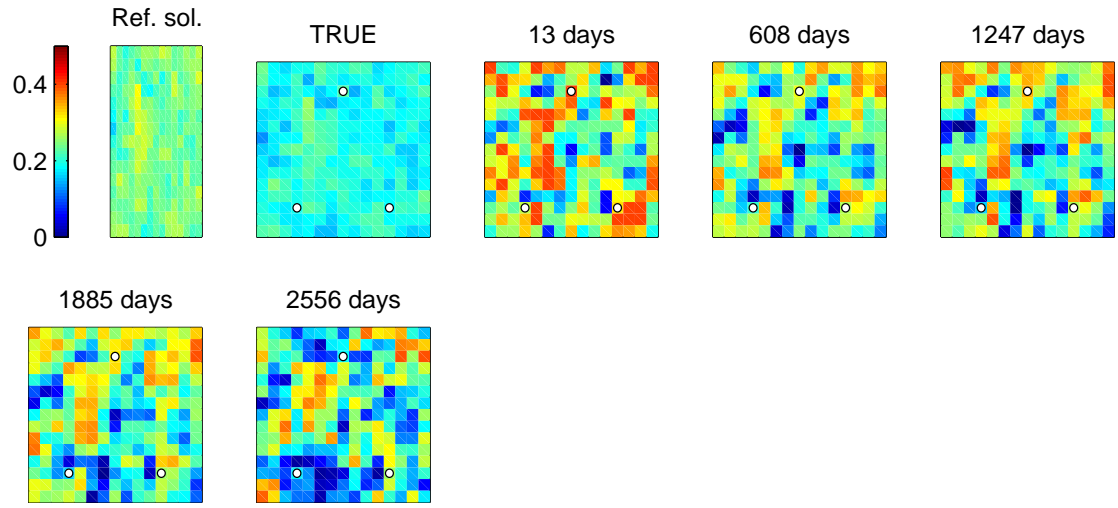
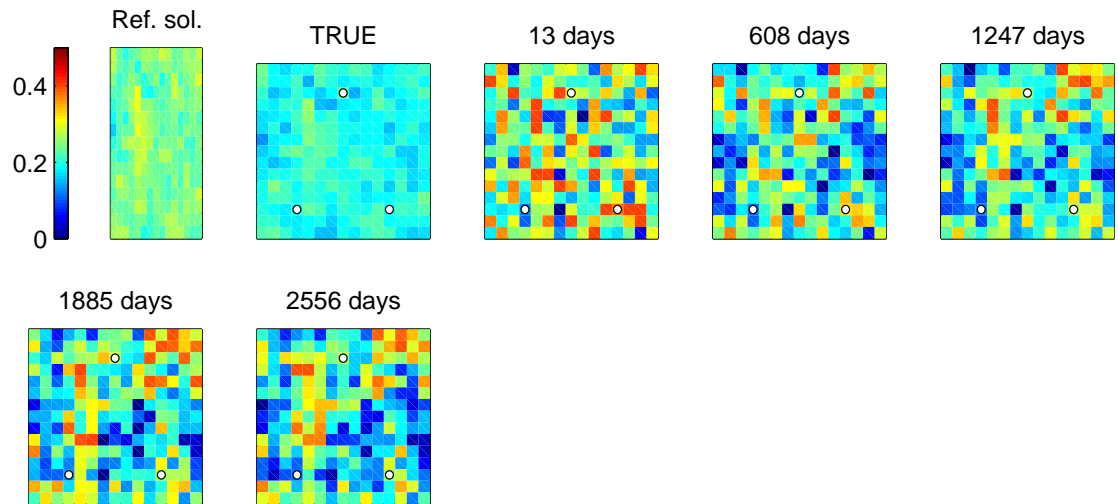


Figure 30: PORO standard deviation for layer 7

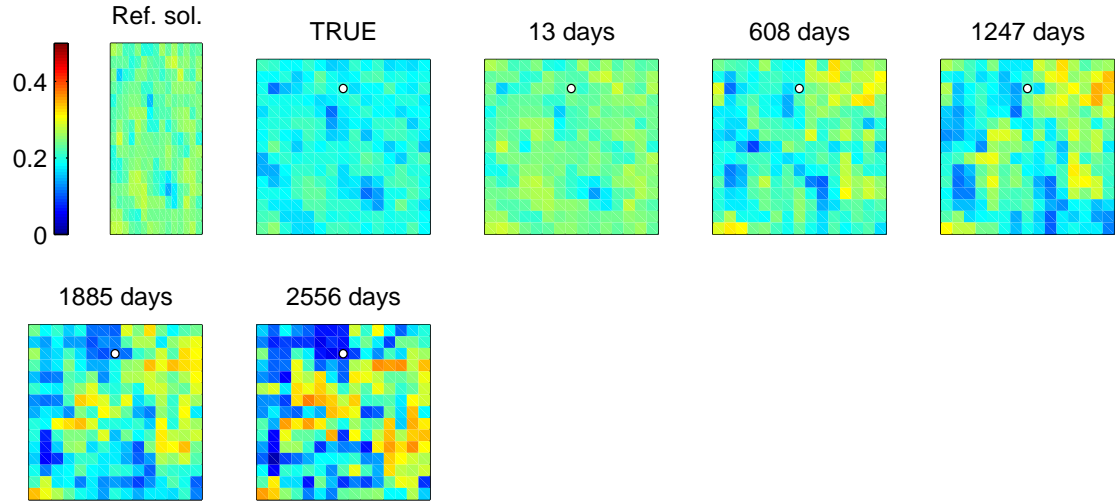


**Figure 31:** PORO for ensemble member 1 for layer 7

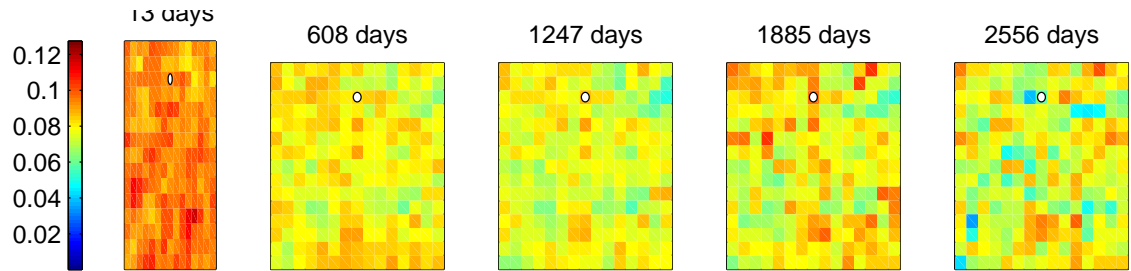


**Figure 32:** PORO for ensemble member 2 for layer 7

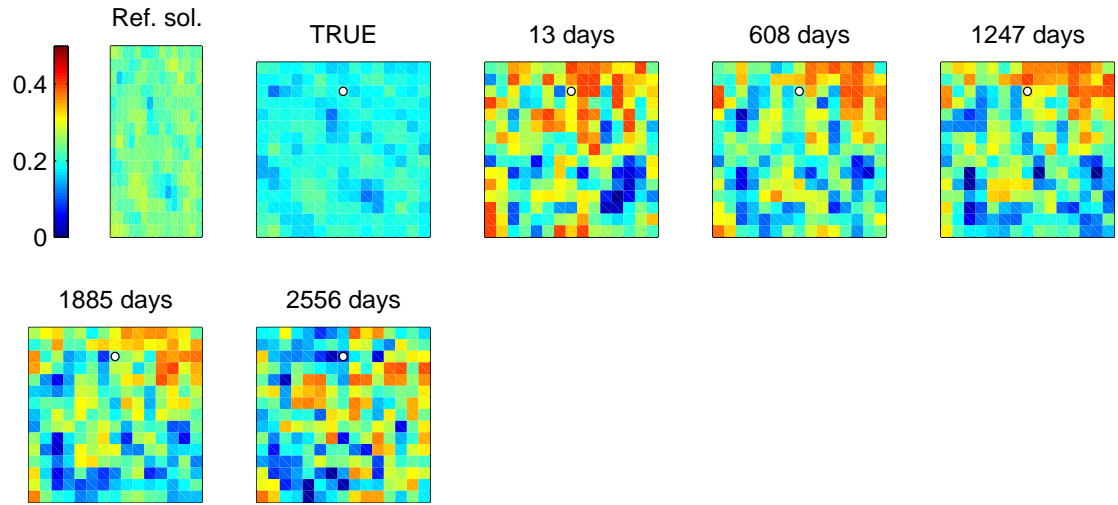
## 9 PORO for layer 8



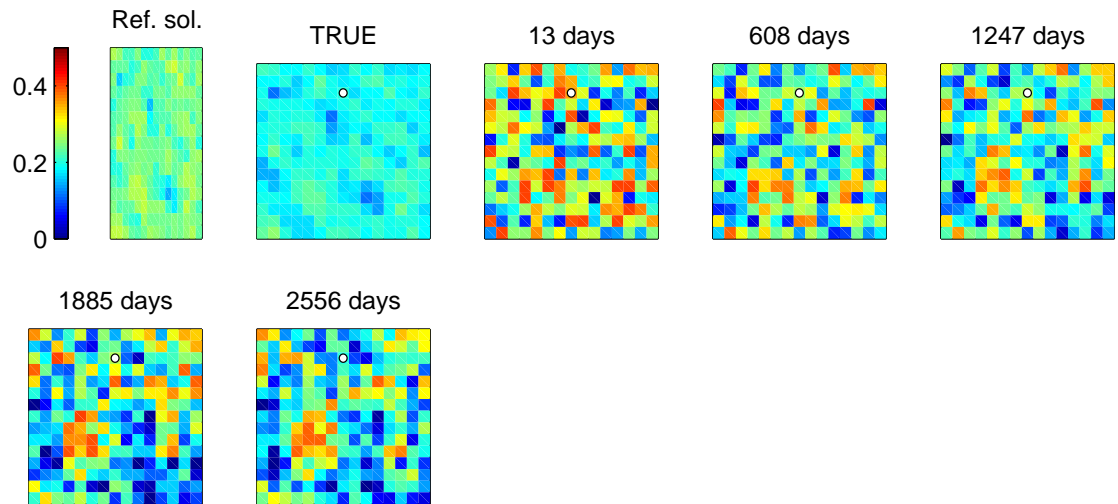
**Figure 33:** PORO mean value for layer 8



**Figure 34:** PORO standard deviation for layer 8



**Figure 35:** PORO for ensemble member 1 for layer 8



**Figure 36:** PORO for ensemble member 2 for layer 8

## 10 PORO for layer 9

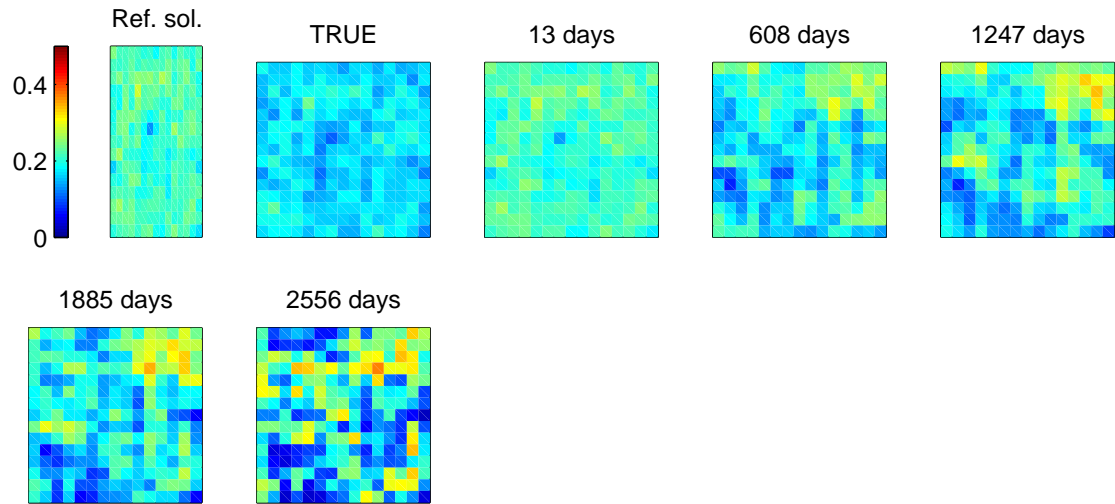


Figure 37: PORO mean value for layer 9

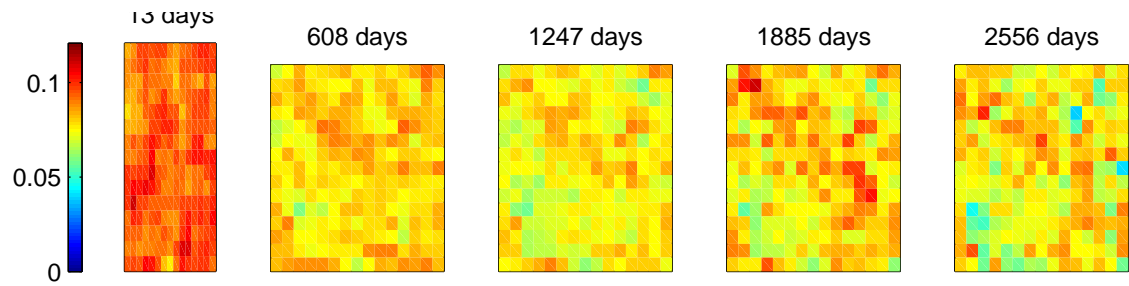
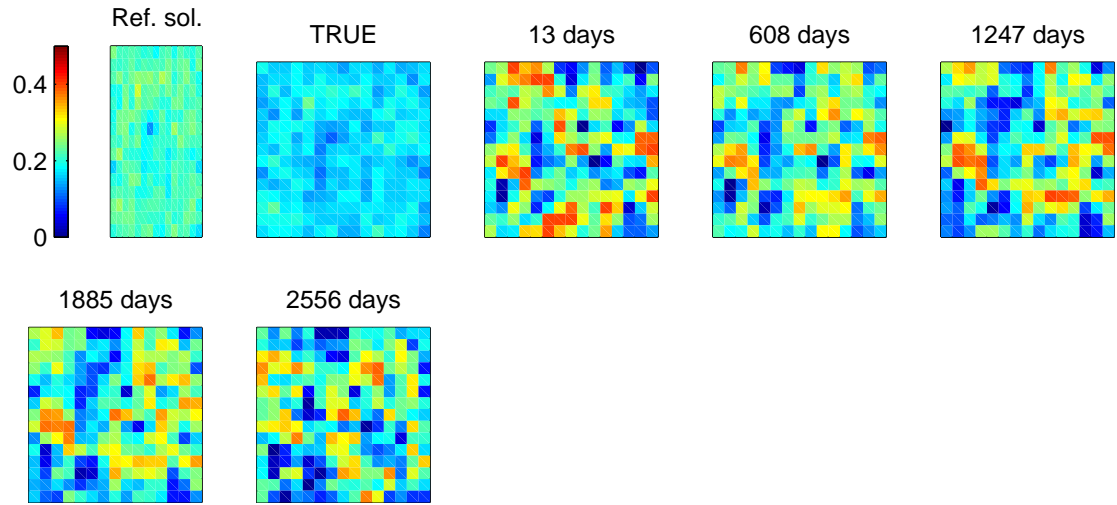
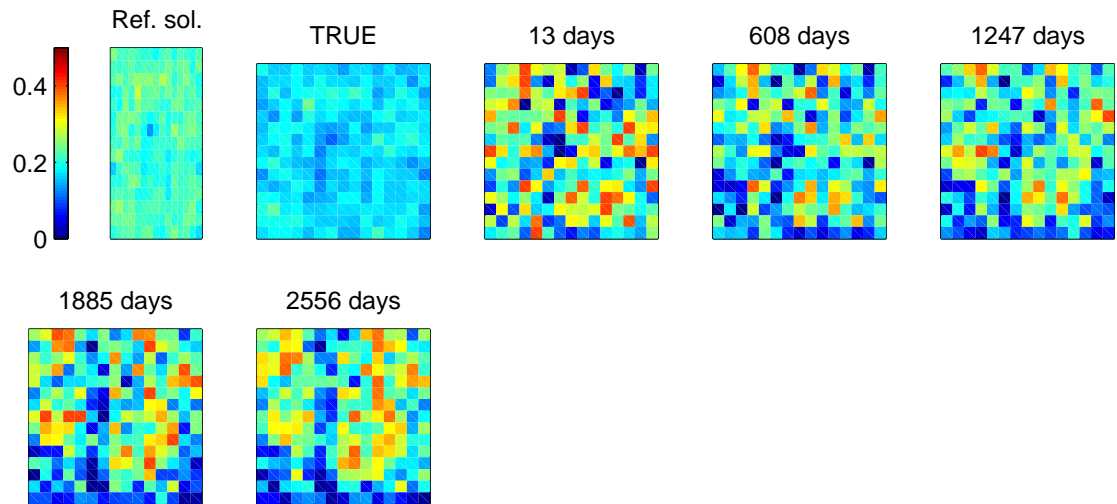


Figure 38: PORO standard deviation for layer 9



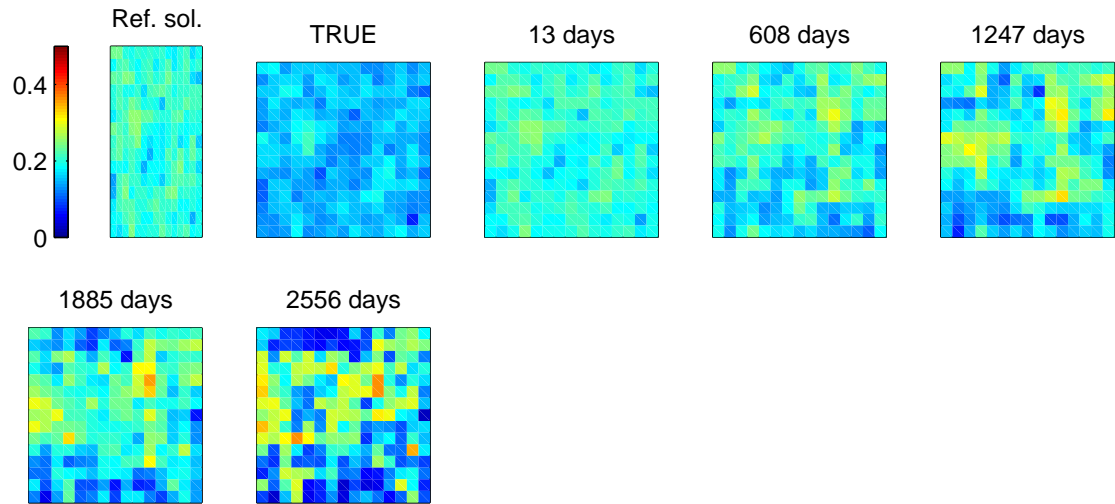


**Figure 39:** PORO for ensemble member 1 for layer 9

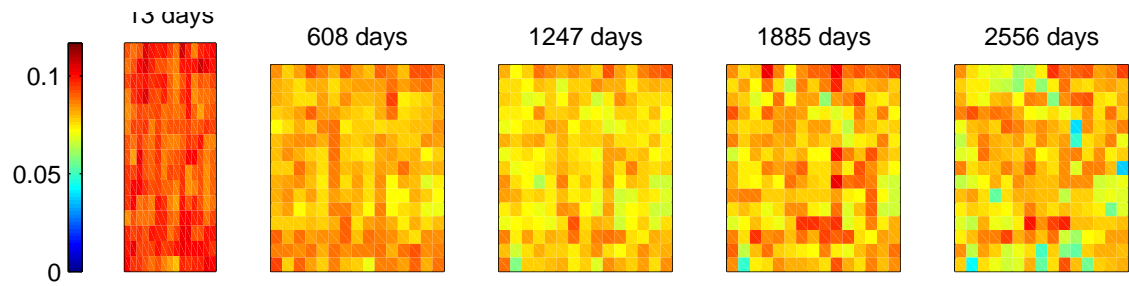


**Figure 40:** PORO for ensemble member 2 for layer 9

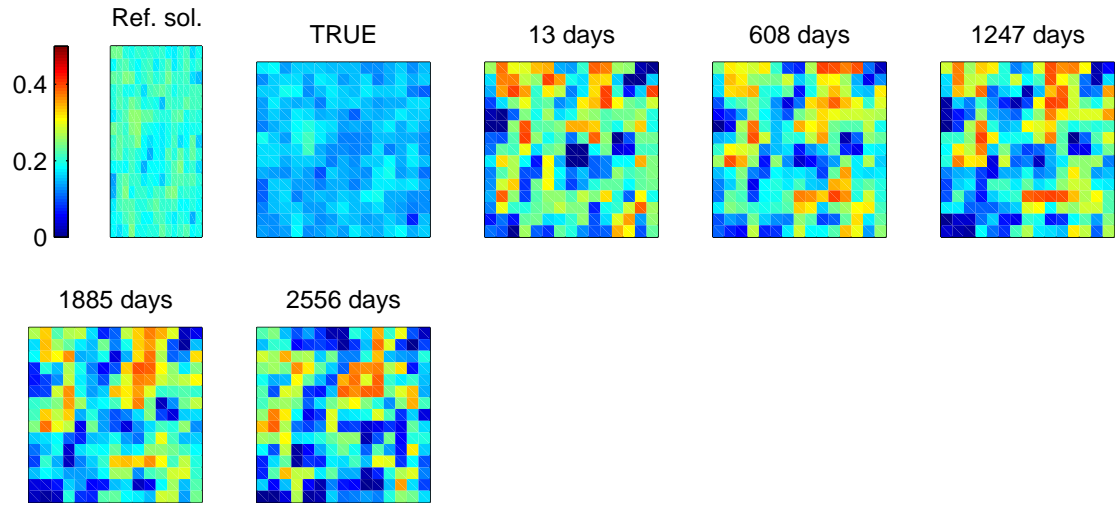
## 11 PORO for layer 10



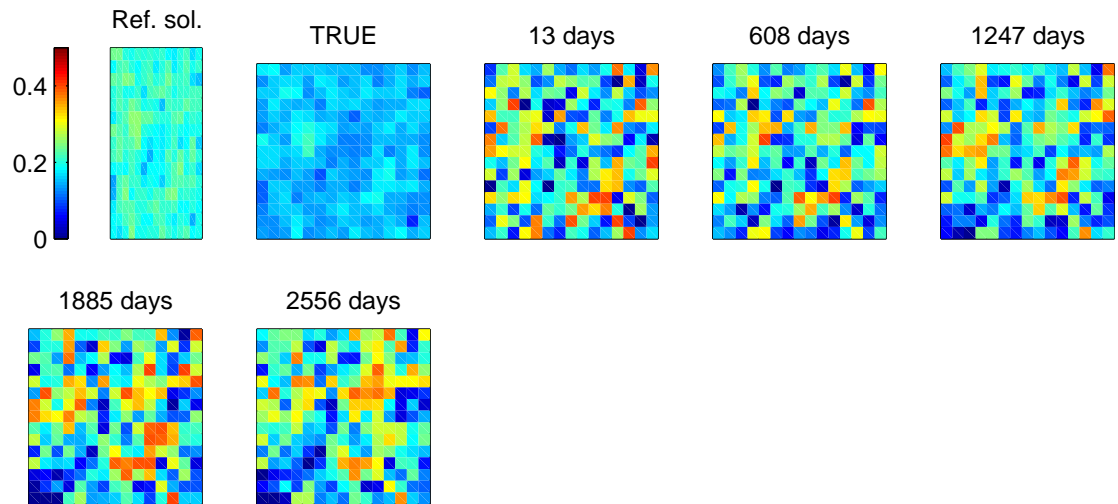
**Figure 41:** PORO mean value for layer 10



**Figure 42:** PORO standard deviation for layer 10

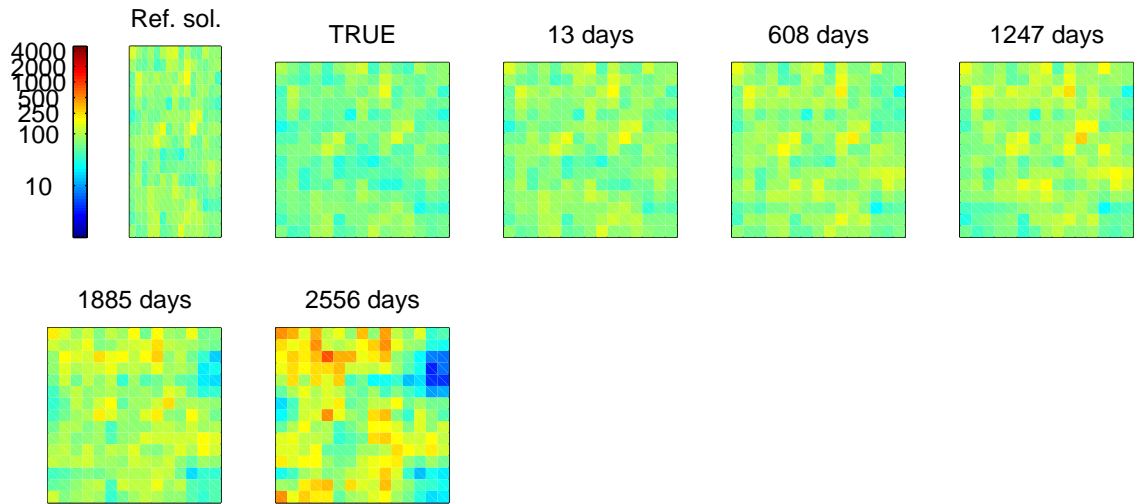


**Figure 43:** PORO for ensemble member 1 for layer 10

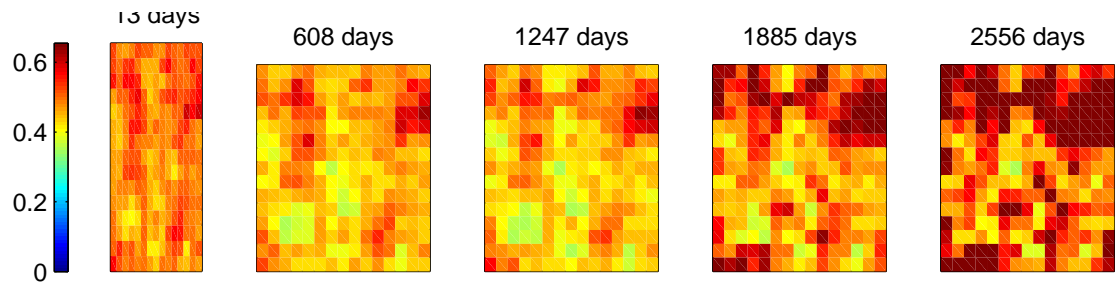


**Figure 44:** PORO for ensemble member 2 for layer 10

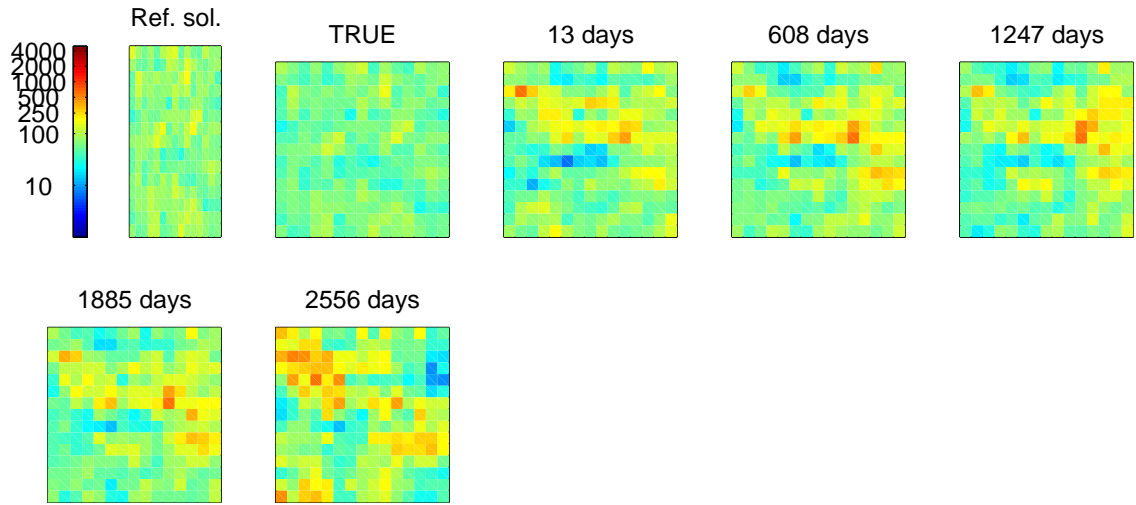
## 12 PERMX for layer 1



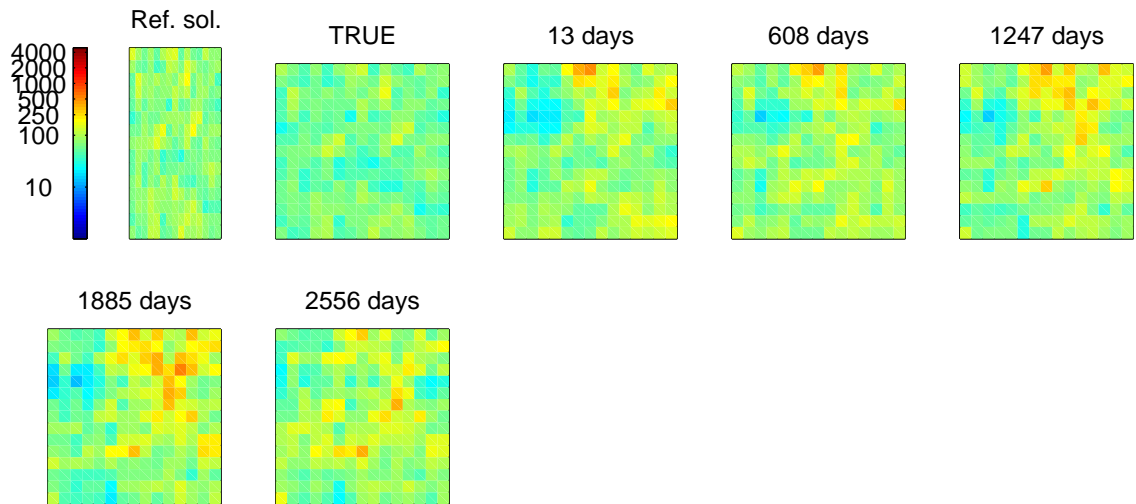
**Figure 45:** PERMX mean value for layer 1



**Figure 46:** PERMX standard deviation for layer 1

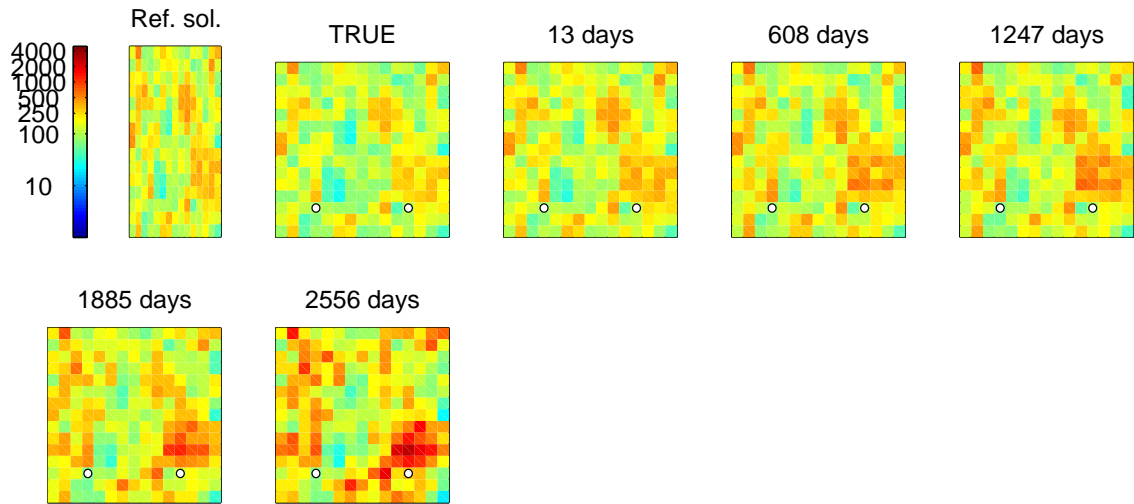


**Figure 47:** PERMX for ensemble member 1 for layer 1

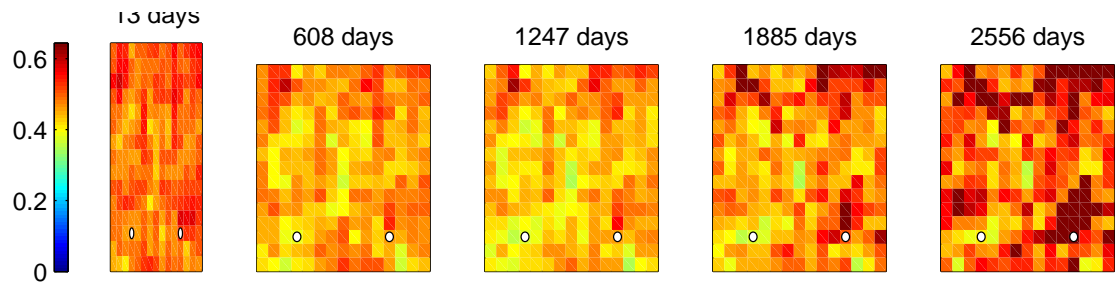


**Figure 48:** PERMX for ensemble member 2 for layer 1

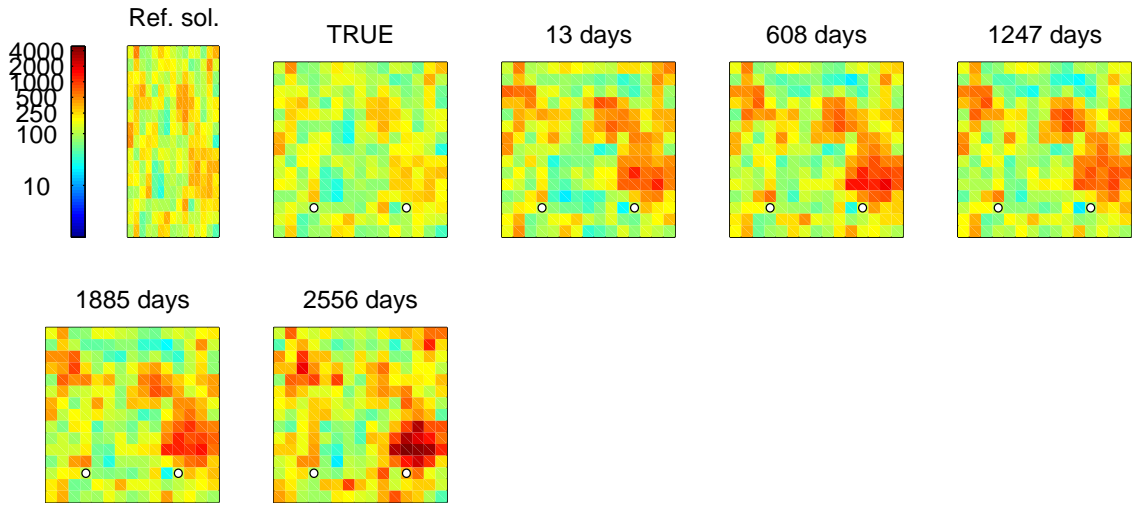
### 13 PERMX for layer 2



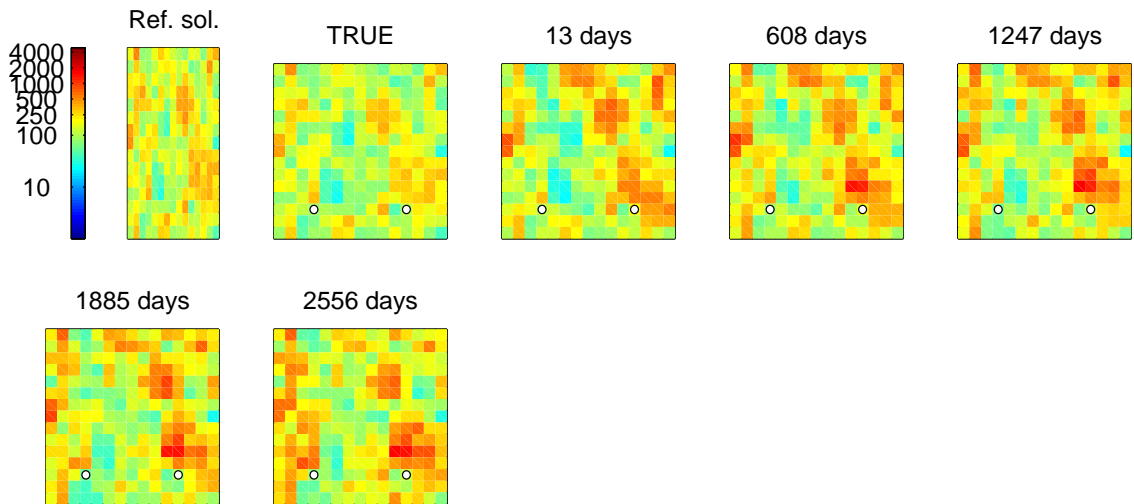
**Figure 49:** PERMX mean value for layer 2



**Figure 50:** PERMX standard deviation for layer 2

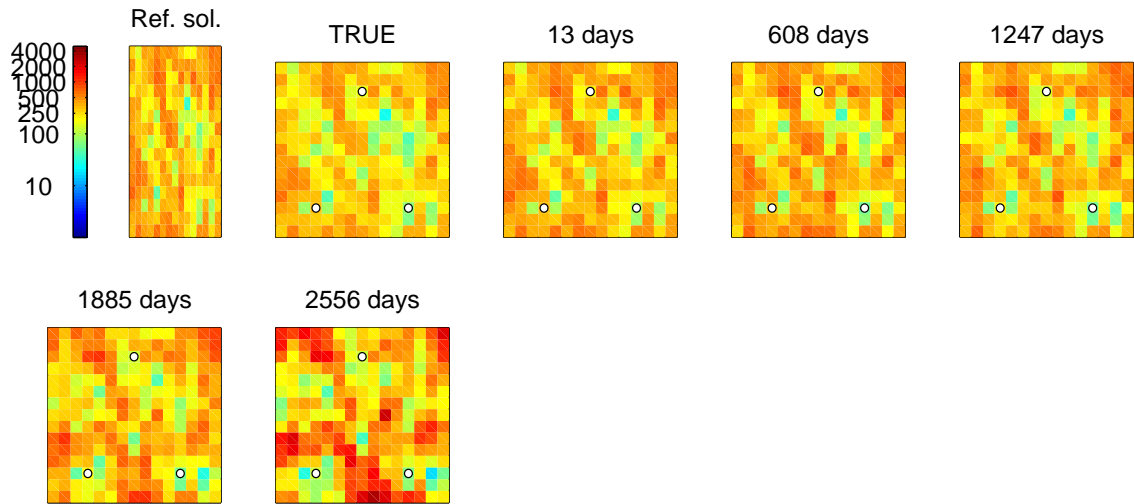


**Figure 51:** PERMX for ensemble member 1 for layer 2

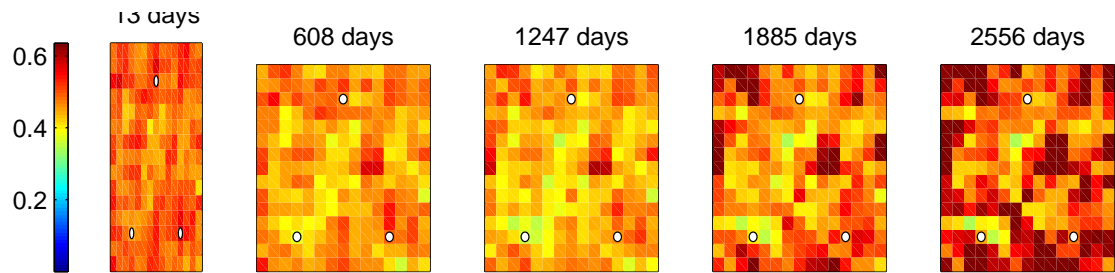


**Figure 52:** PERMX for ensemble member 2 for layer 2

## 14 PERMX for layer 3

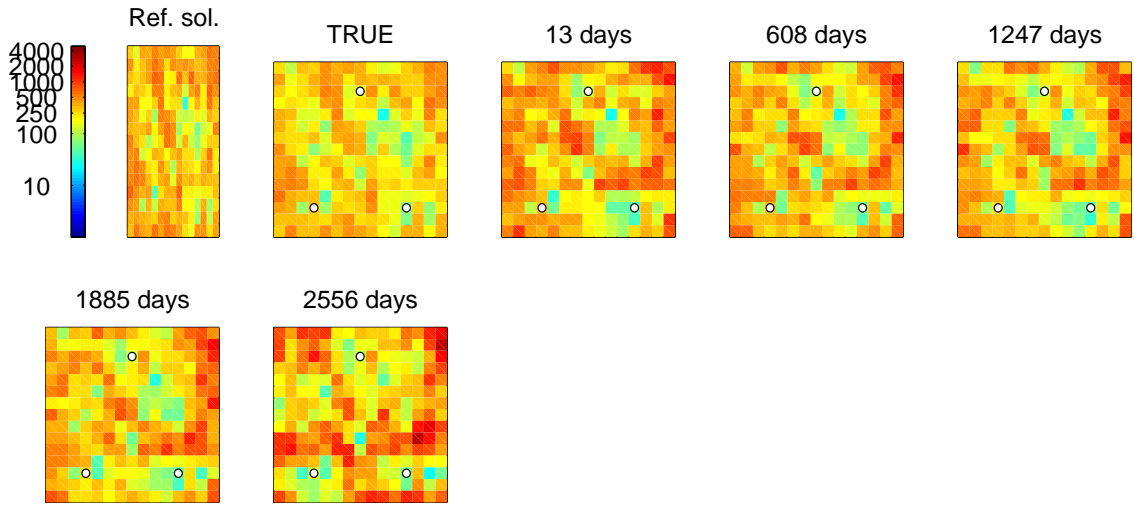


**Figure 53:** PERMX mean value for layer 3

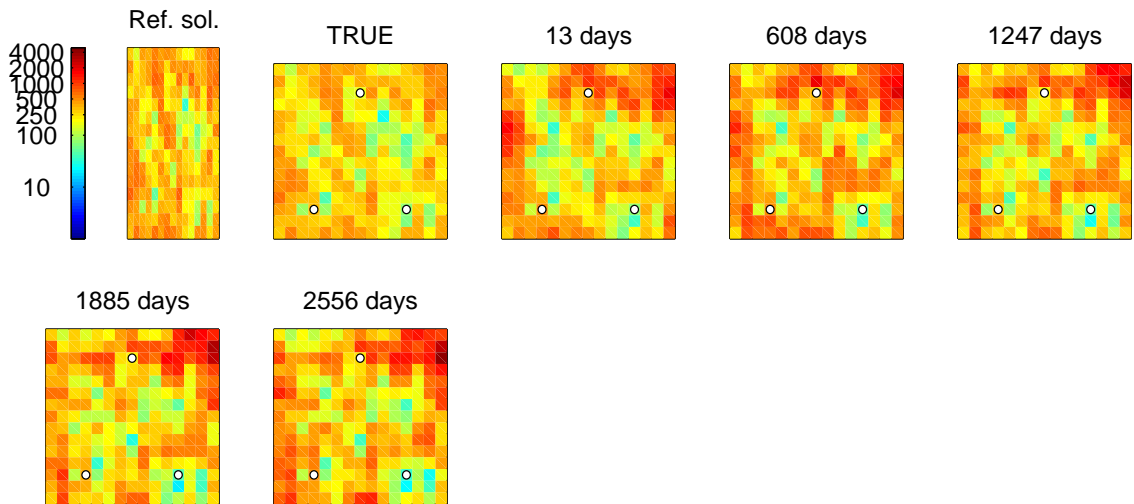


**Figure 54:** PERMX standard deviation for layer 3



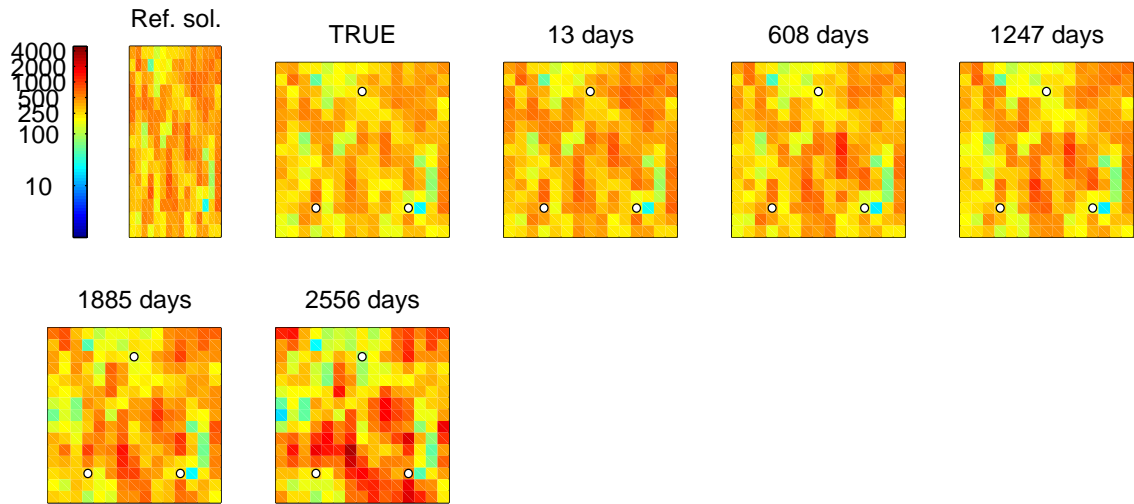


**Figure 55:** PERMX for ensemble member 1 for layer 3

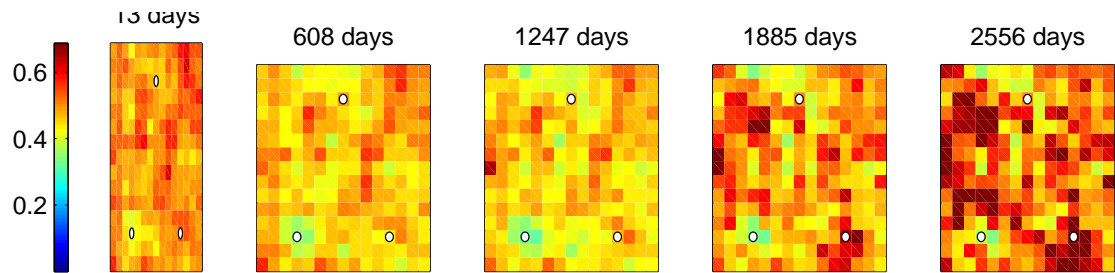


**Figure 56:** PERMX for ensemble member 2 for layer 3

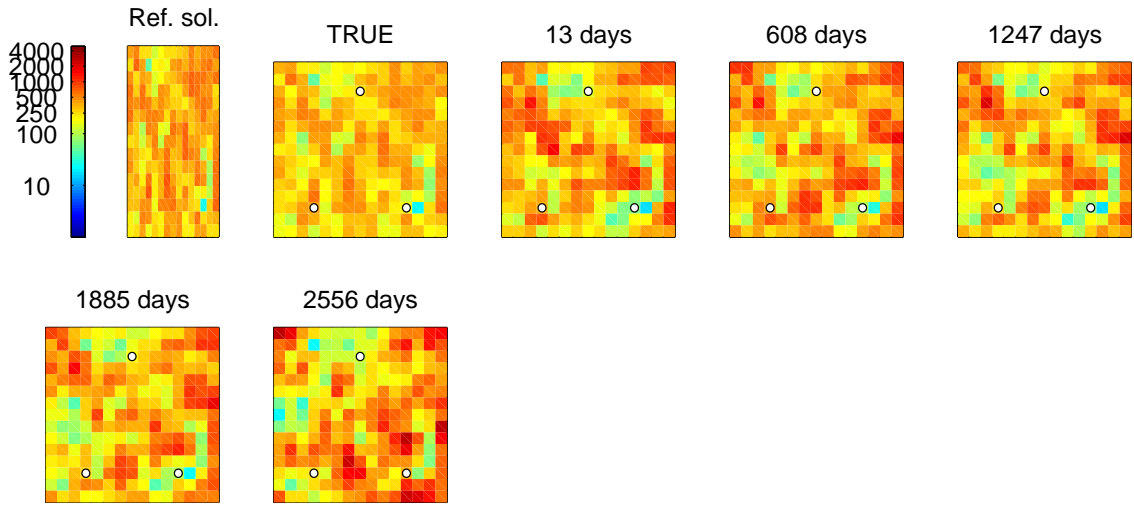
## 15 PERMX for layer 4



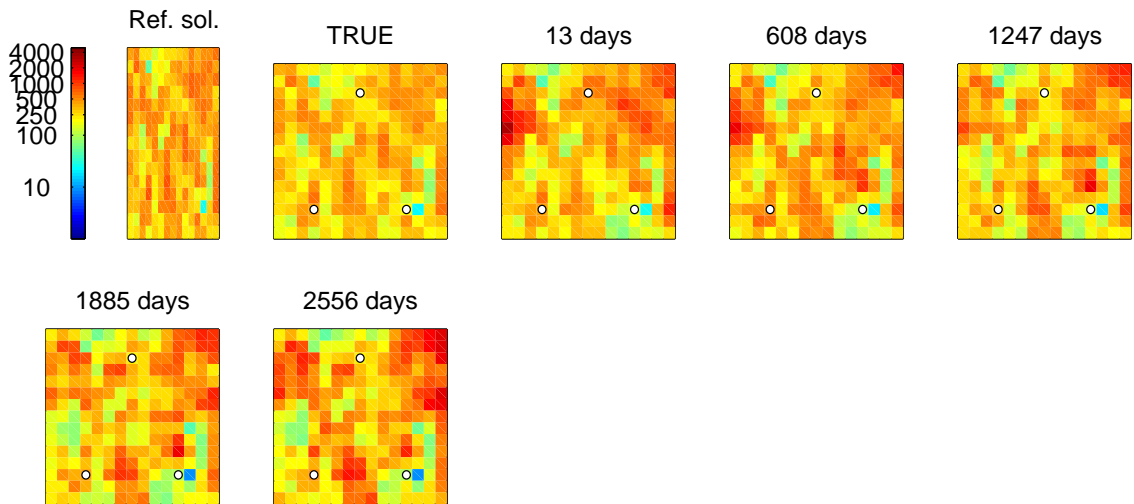
**Figure 57:** PERMX mean value for layer 4



**Figure 58:** PERMX standard deviation for layer 4

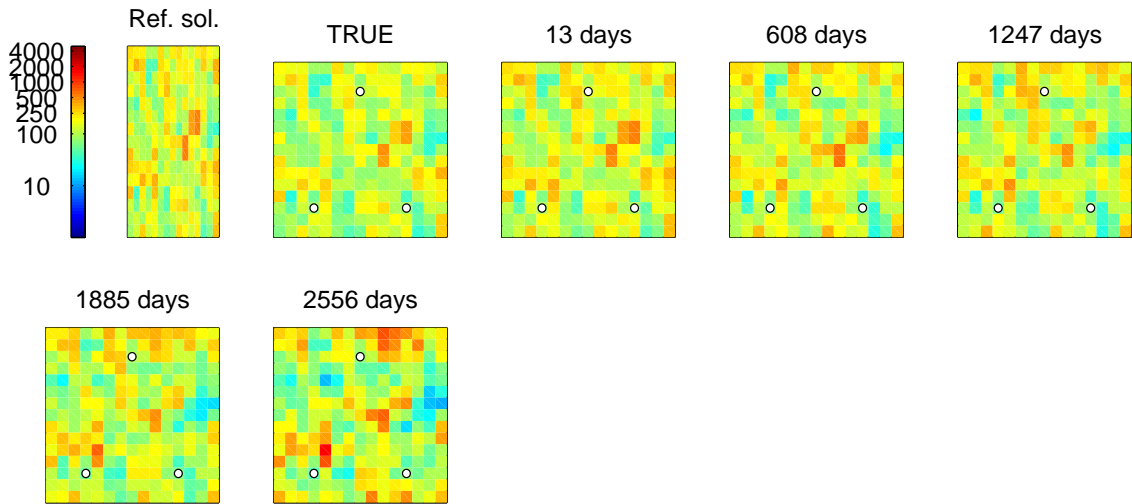


**Figure 59:** PERMX for ensemble member 1 for layer 4

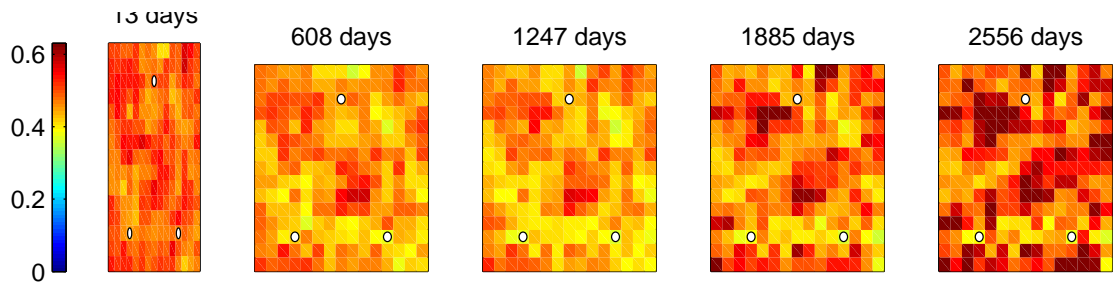


**Figure 60:** PERMX for ensemble member 2 for layer 4

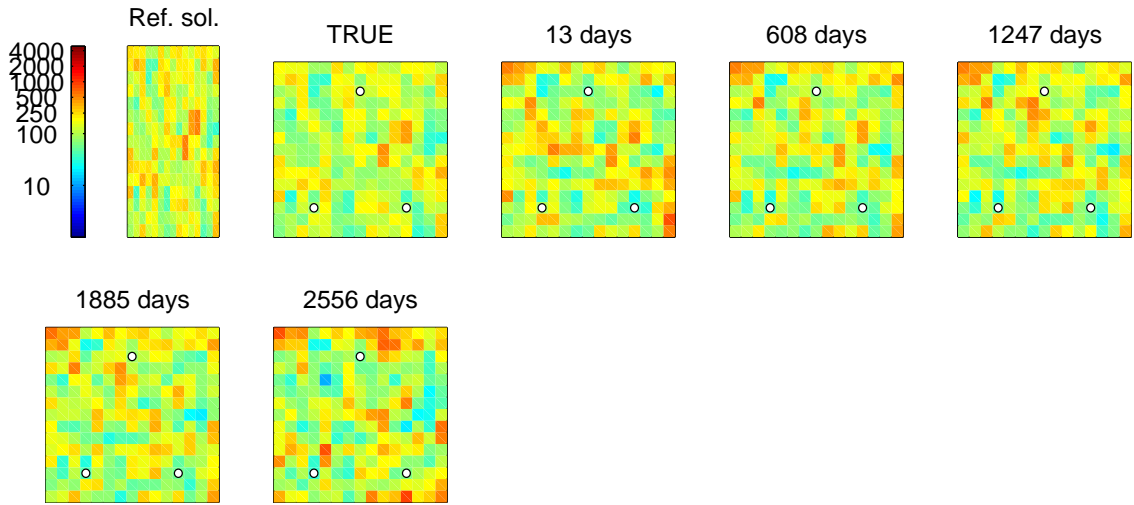
## 16 PERMX for layer 5



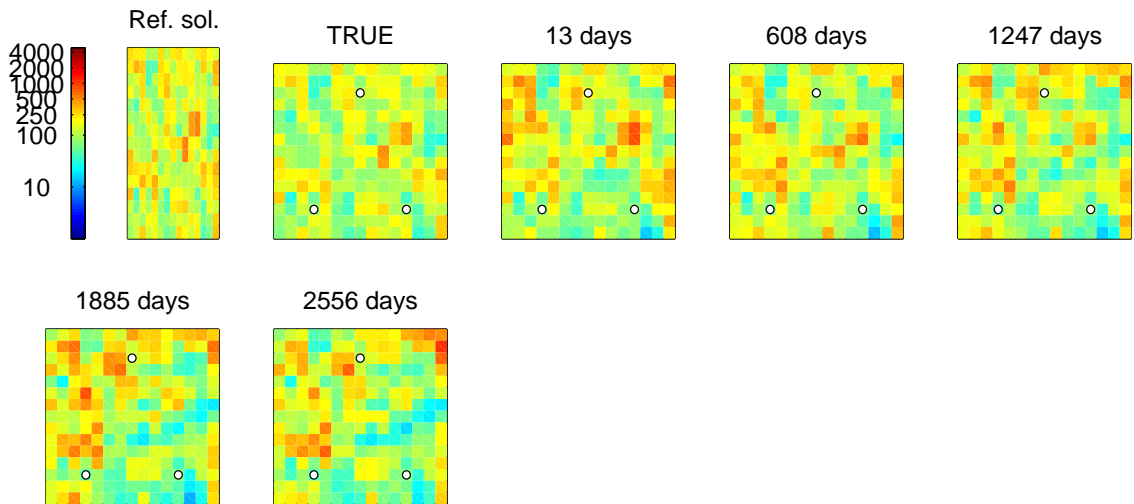
**Figure 61:** PERMX mean value for layer 5



**Figure 62:** PERMX standard deviation for layer 5

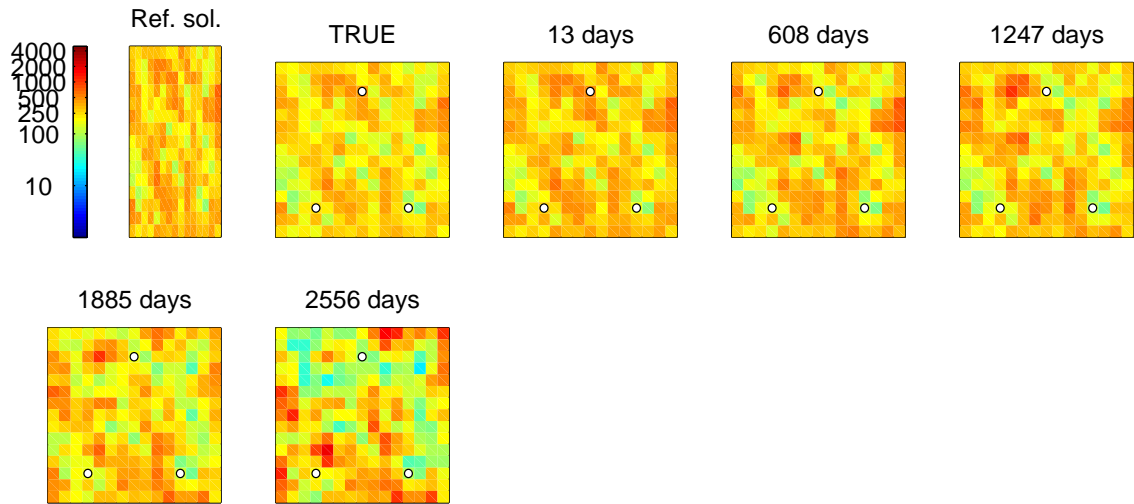


**Figure 63:** PERMX for ensemble member 1 for layer 5

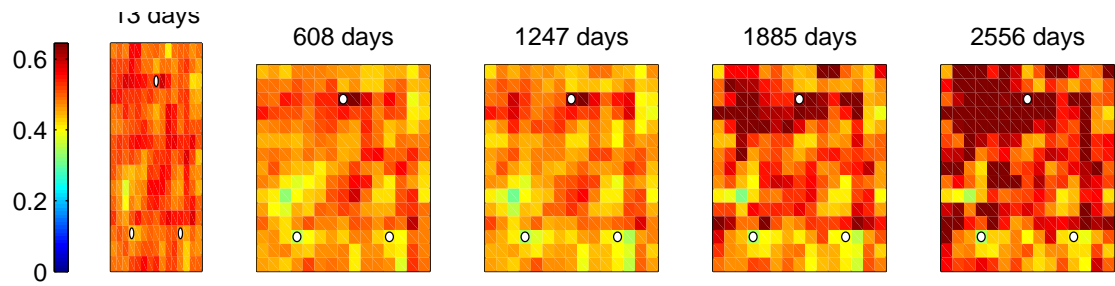


**Figure 64:** PERMX for ensemble member 2 for layer 5

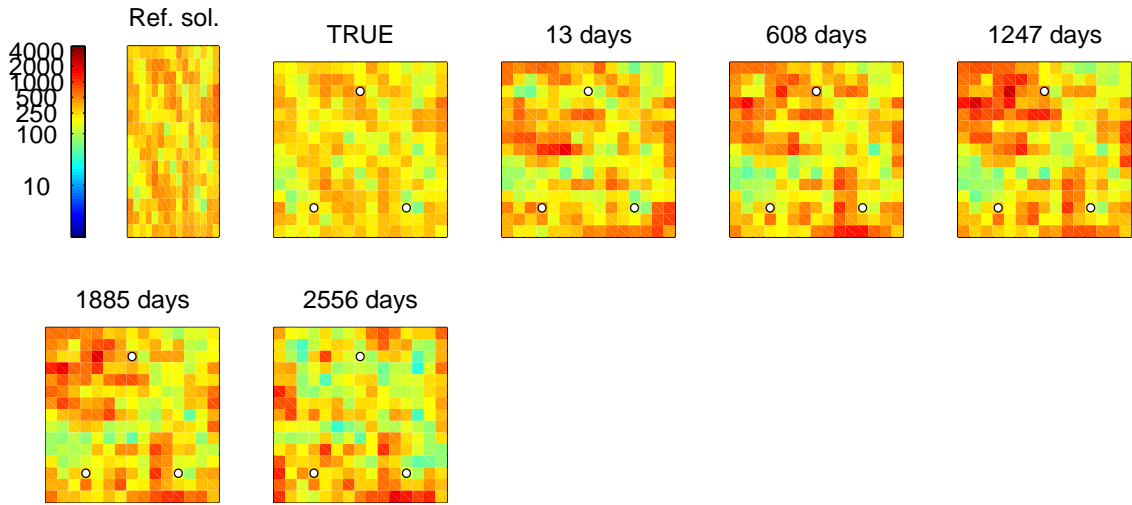
## 17 PERMX for layer 6



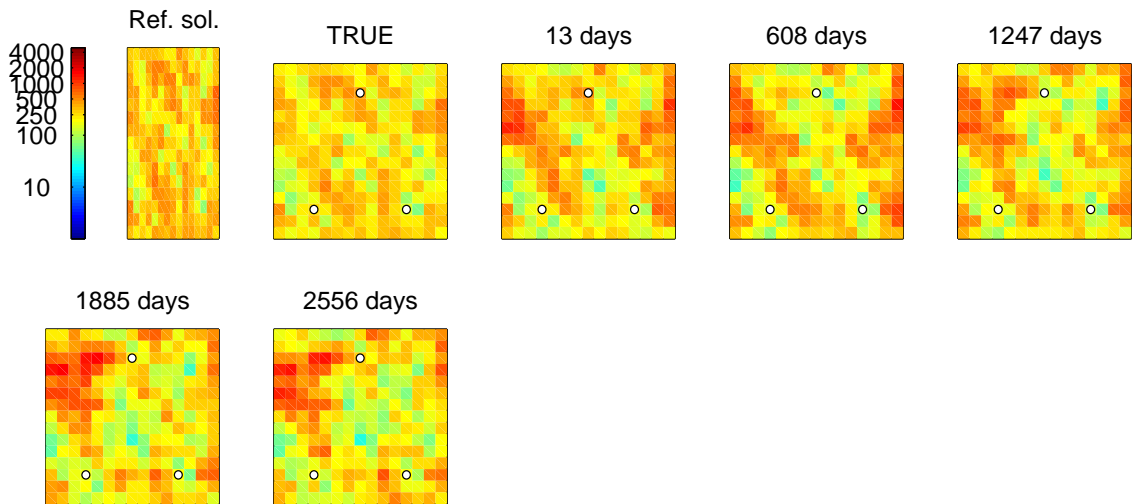
**Figure 65:** PERMX mean value for layer 6



**Figure 66:** PERMX standard deviation for layer 6

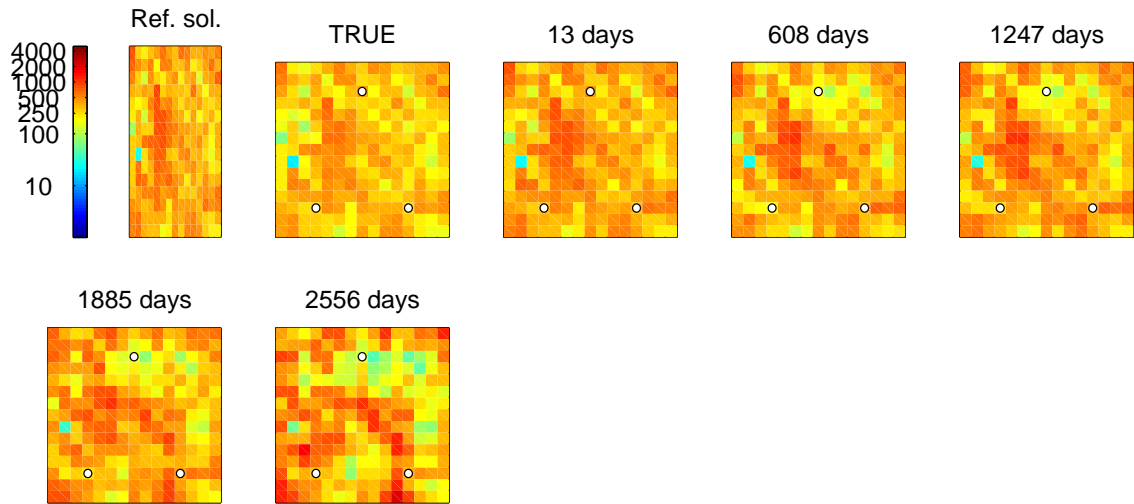


**Figure 67:** PERMX for ensemble member 1 for layer 6

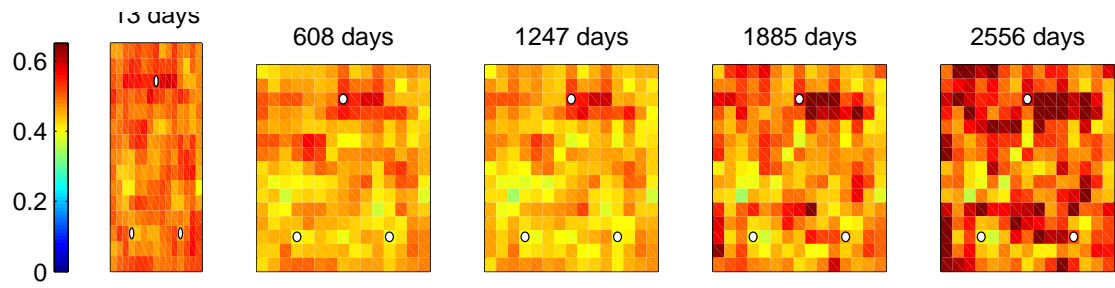


**Figure 68:** PERMX for ensemble member 2 for layer 6

## 18 PERMX for layer 7

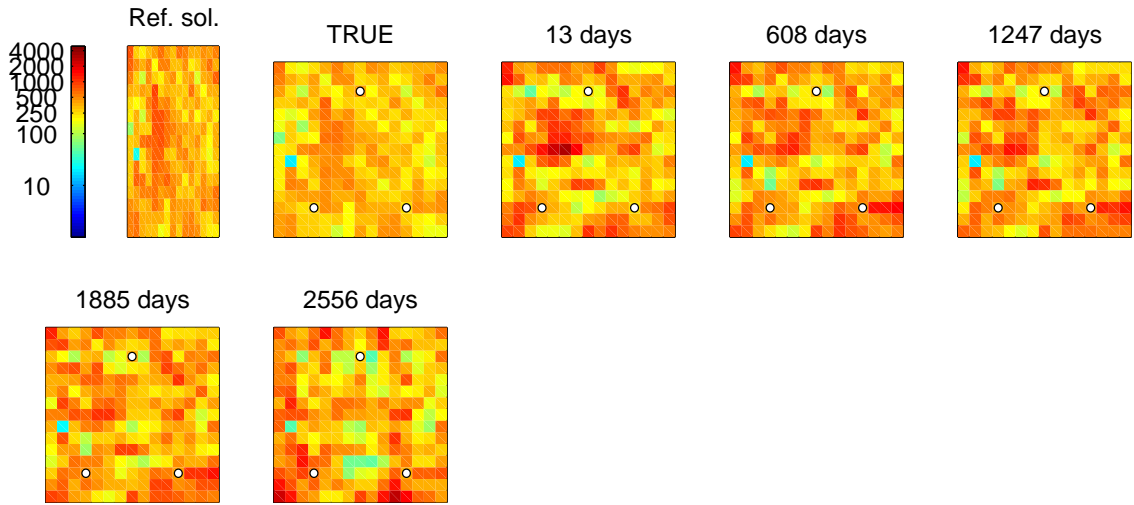


**Figure 69:** PERMX mean value for layer 7

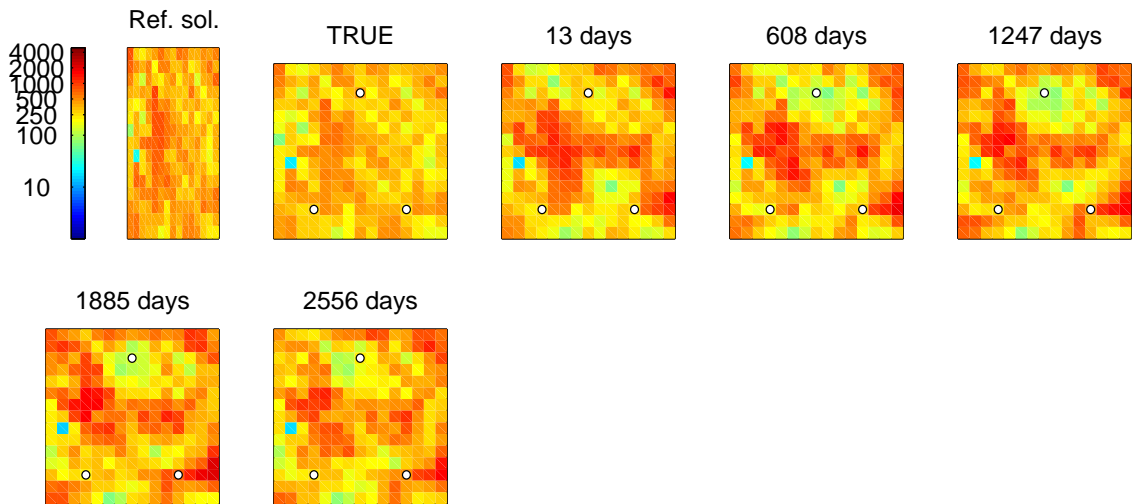


**Figure 70:** PERMX standard deviation for layer 7



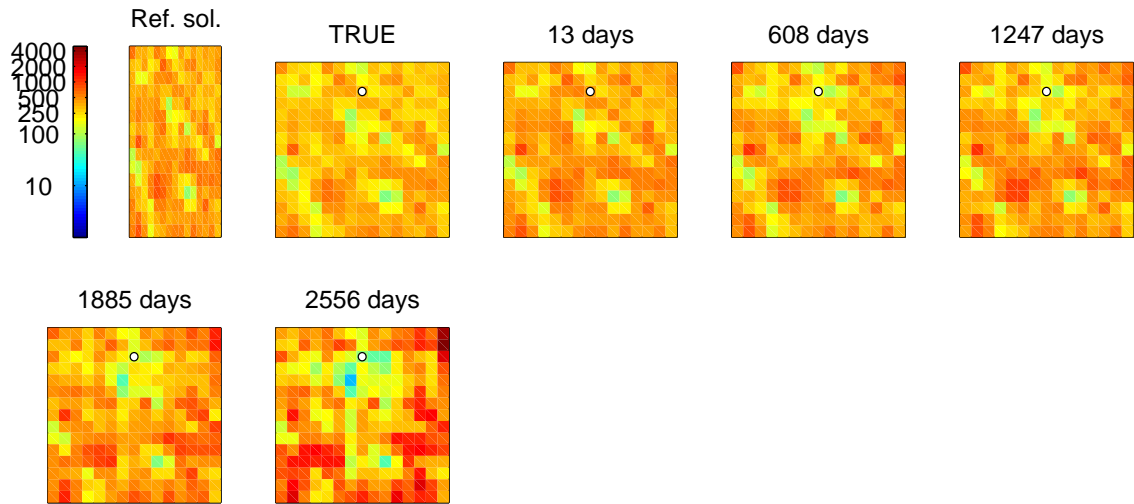


**Figure 71:** PERMX for ensemble member 1 for layer 7

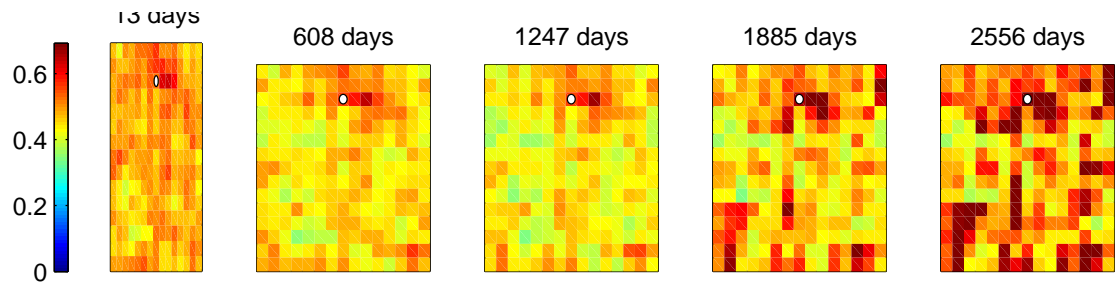


**Figure 72:** PERMX for ensemble member 2 for layer 7

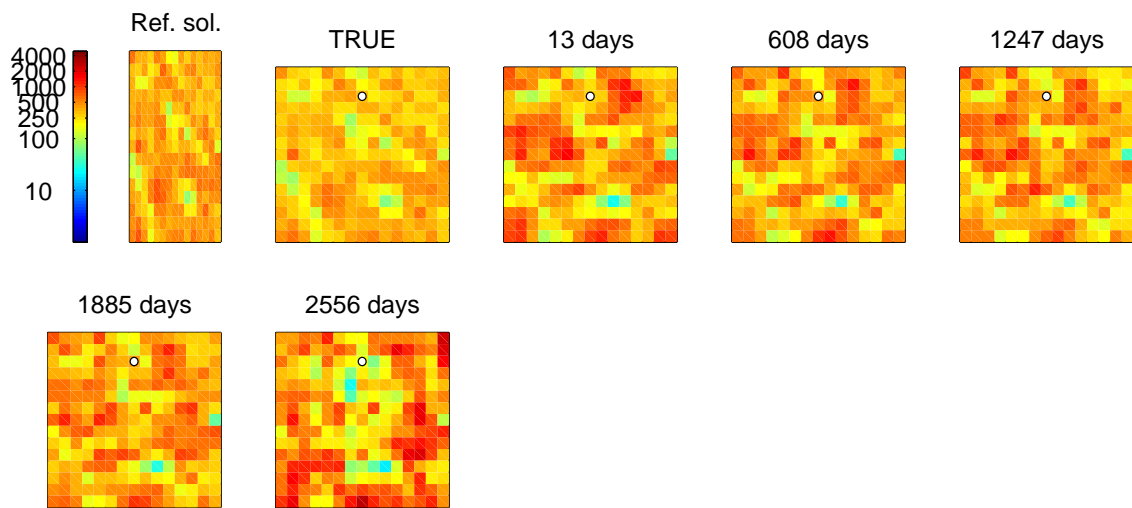
## 19 PERMX for layer 8



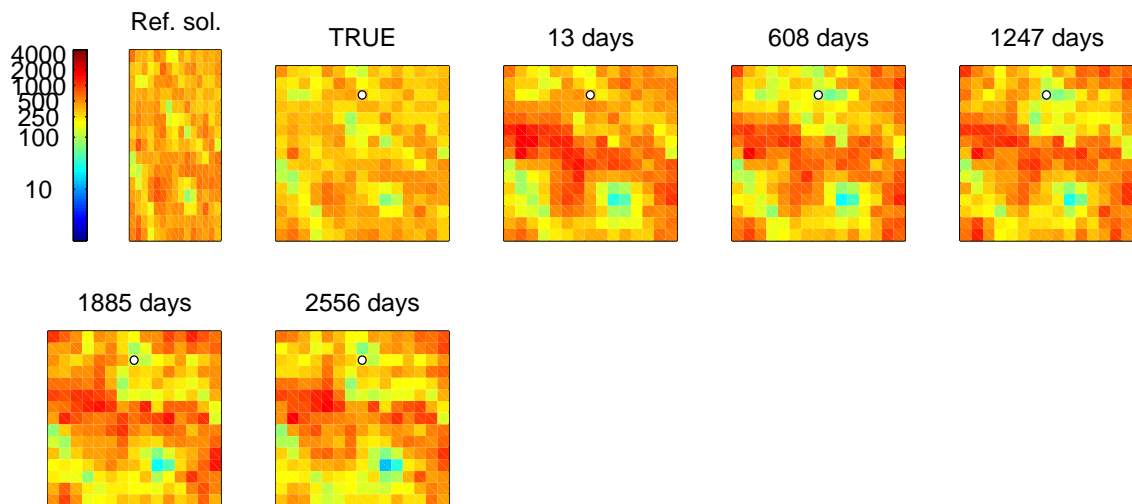
**Figure 73:** PERMX mean value for layer 8



**Figure 74:** PERMX standard deviation for layer 8

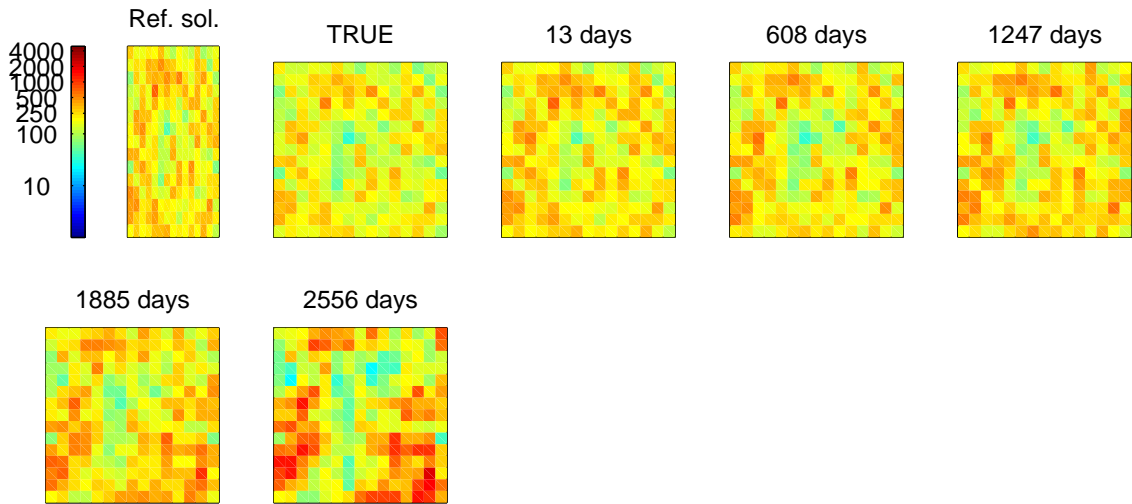


**Figure 75:** PERMX for ensemble member 1 for layer 8

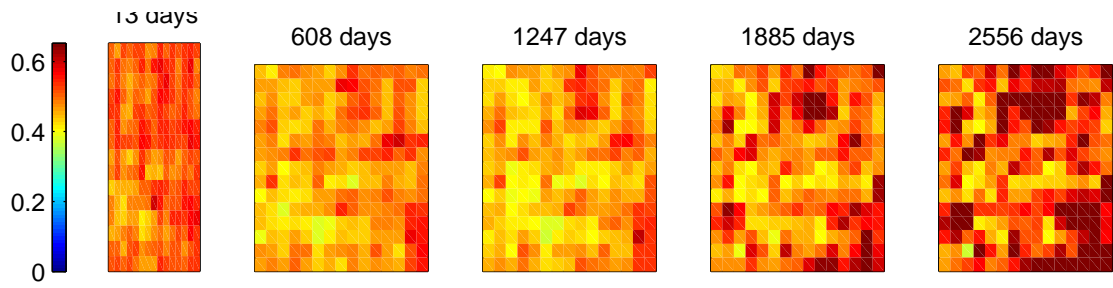


**Figure 76:** PERMX for ensemble member 2 for layer 8

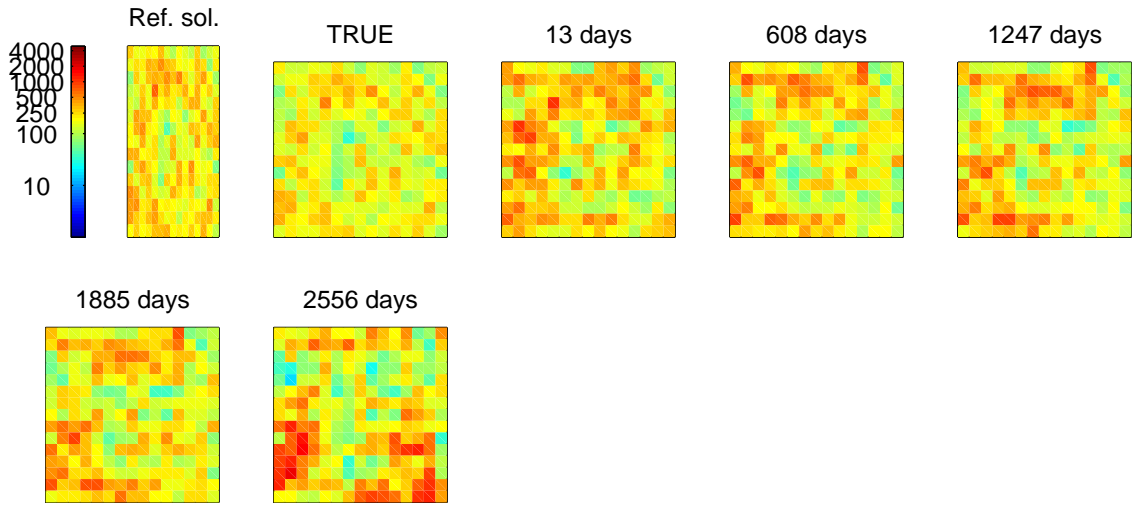
## 20 PERMX for layer 9



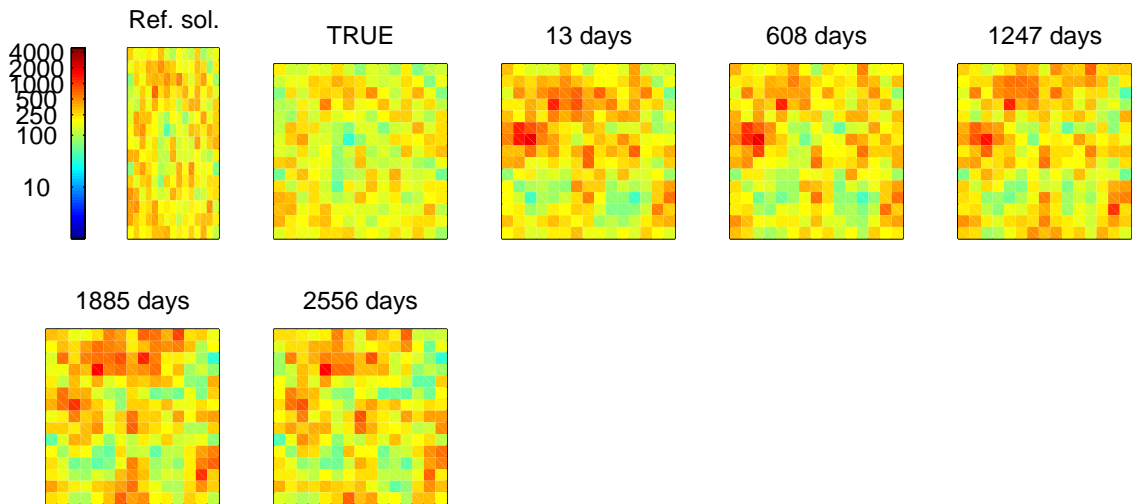
**Figure 77:** PERMX mean value for layer 9



**Figure 78:** PERMX standard deviation for layer 9

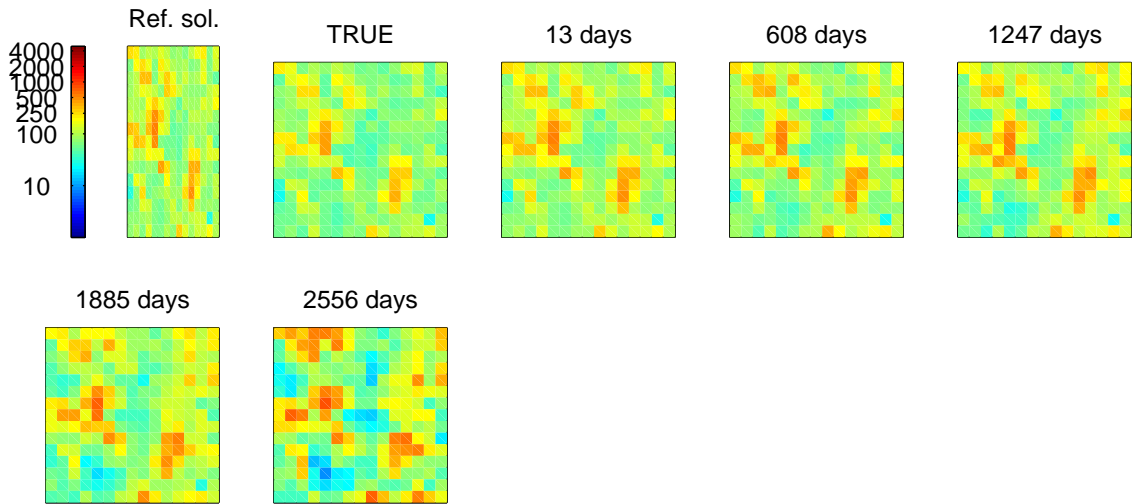


**Figure 79:** PERMX for ensemble member 1 for layer 9

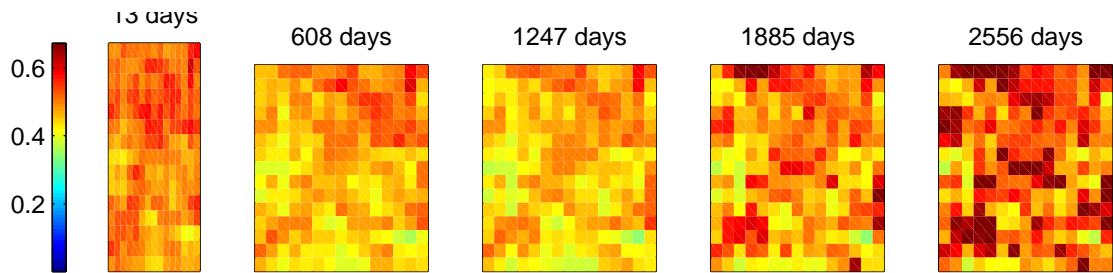


**Figure 80:** PERMX for ensemble member 2 for layer 9

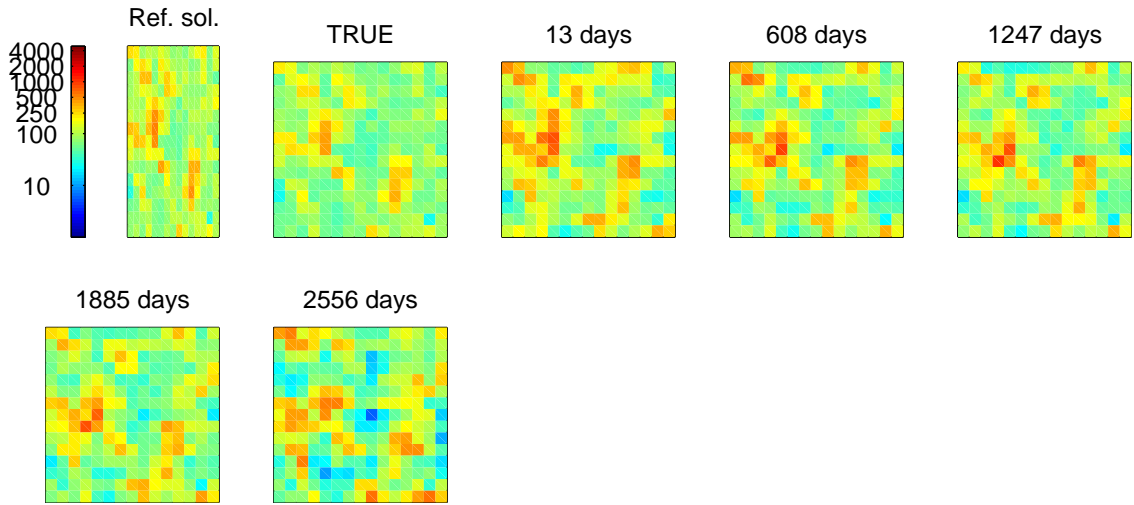
## 21 PERMX for layer 10



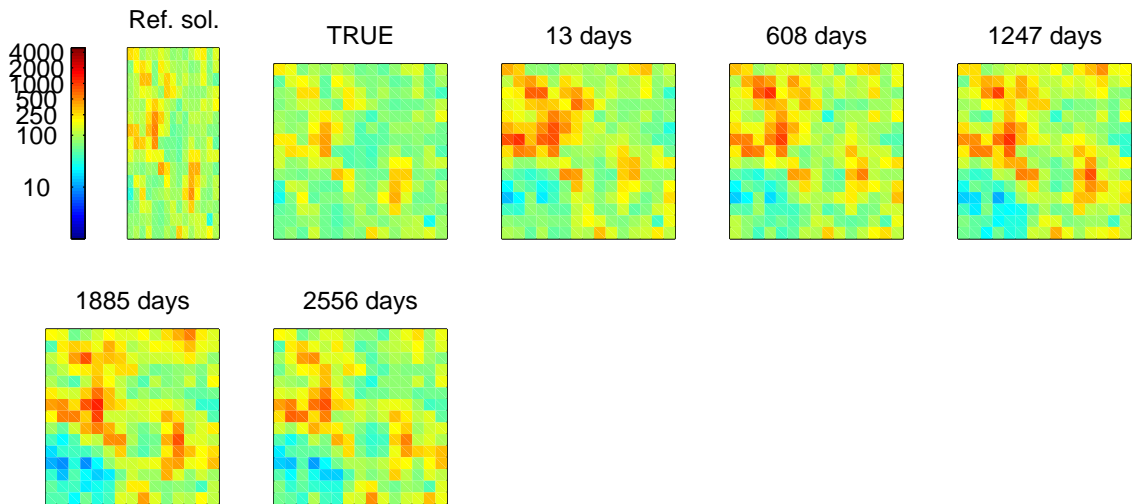
**Figure 81:** PERMX mean value for layer 10



**Figure 82:** PERMX standard deviation for layer 10

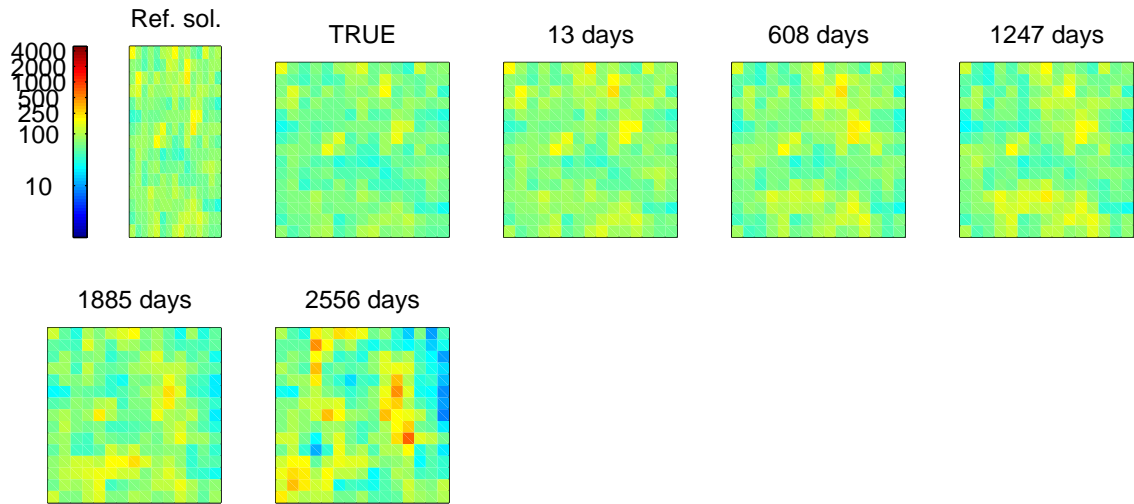


**Figure 83:** PERMX for ensemble member 1 for layer 10

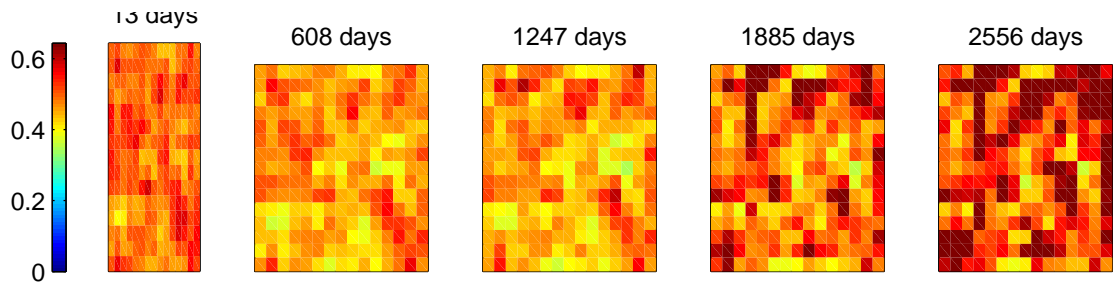


**Figure 84:** PERMX for ensemble member 2 for layer 10

## 22 PERMY for layer 1

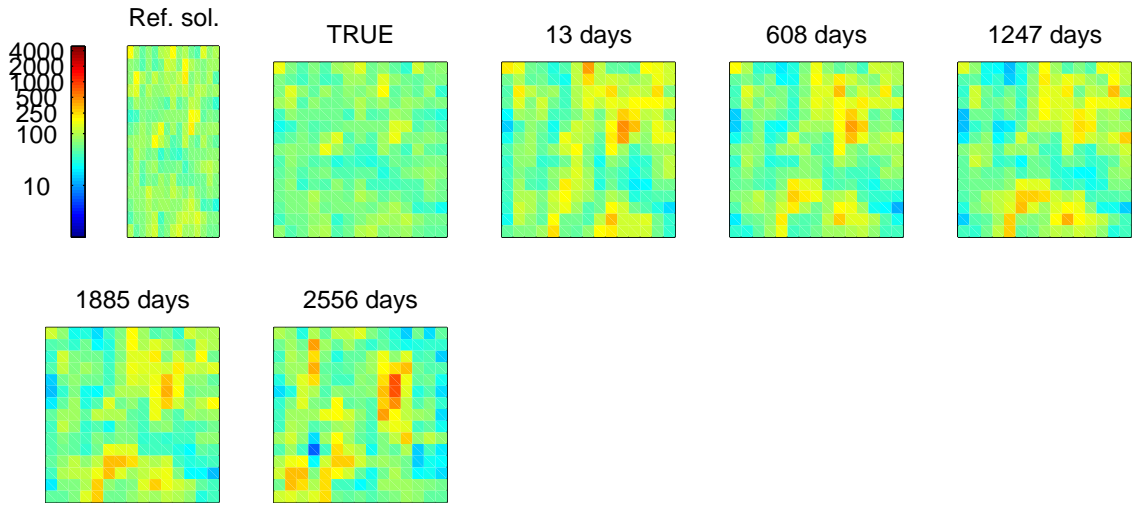


**Figure 85:** PERMY mean value for layer 1

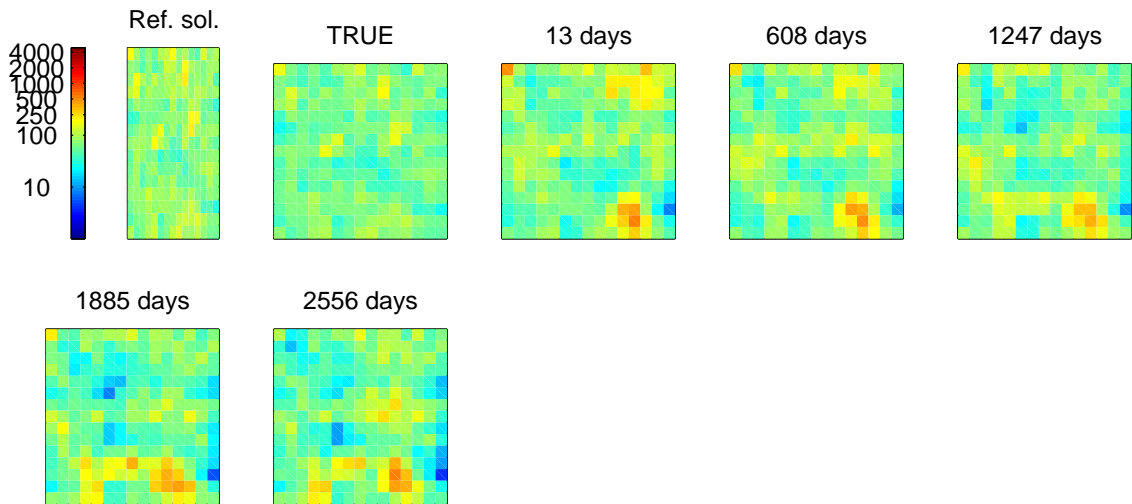


**Figure 86:** PERMY standard deviation for layer 1



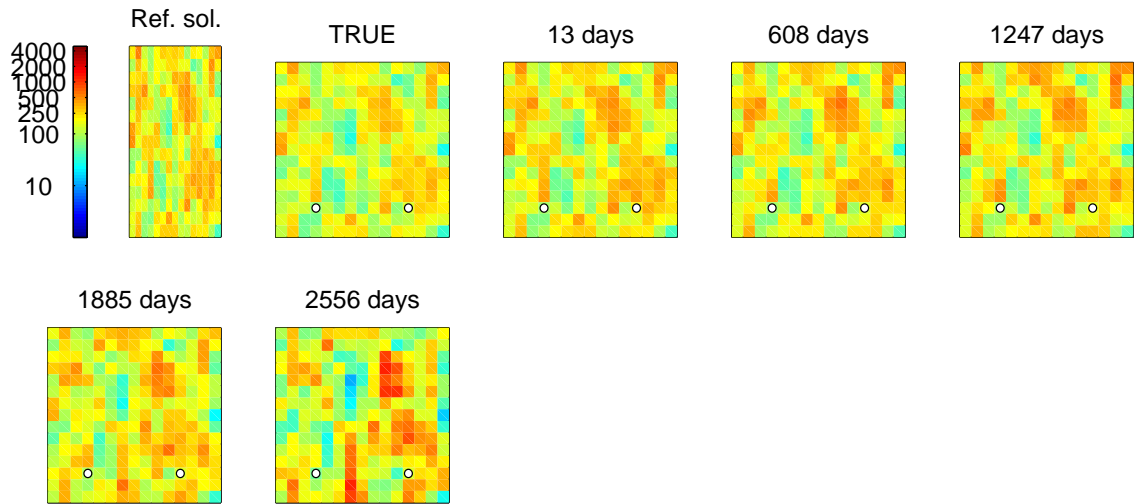


**Figure 87:** PERMY for ensemble member 1 for layer 1

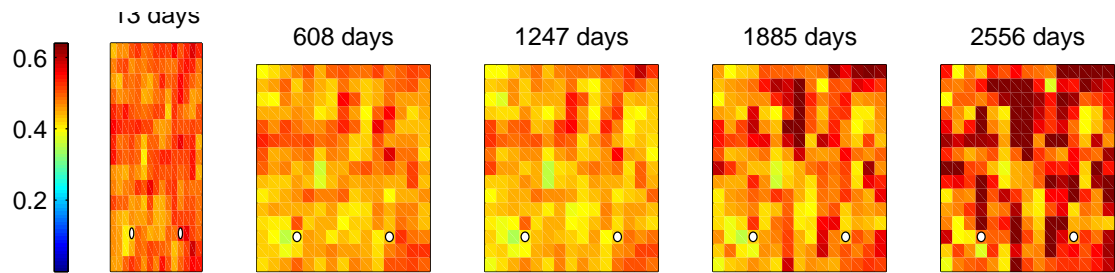


**Figure 88:** PERMY for ensemble member 2 for layer 1

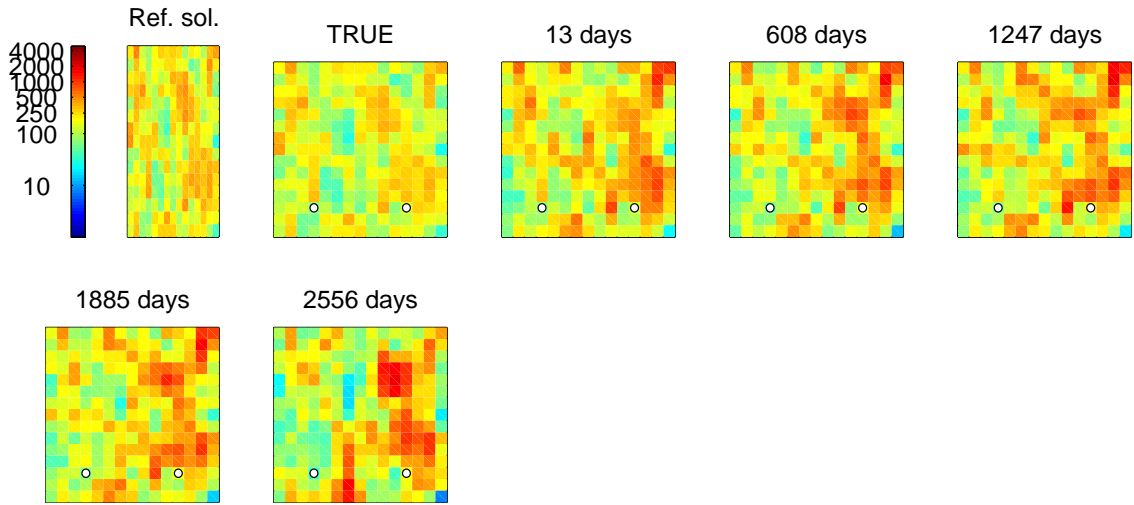
## 23 PERMY for layer 2



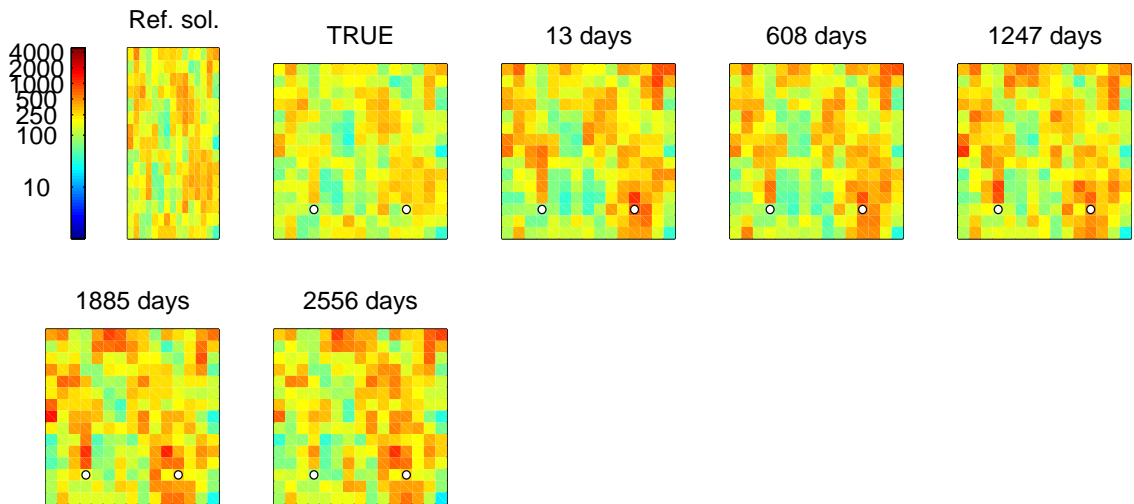
**Figure 89:** PERMY mean value for layer 2



**Figure 90:** PERMY standard deviation for layer 2

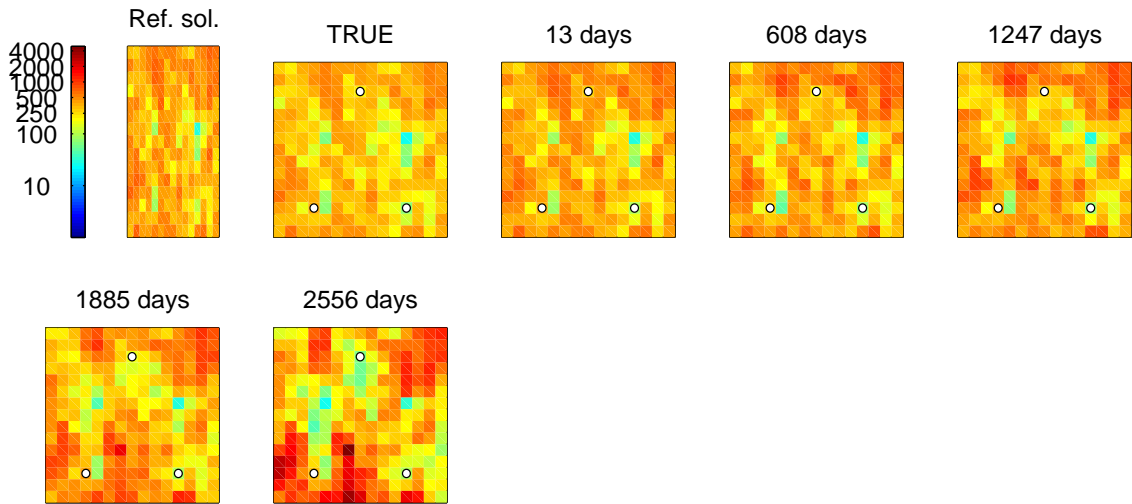


**Figure 91:** PERMY for ensemble member 1 for layer 2

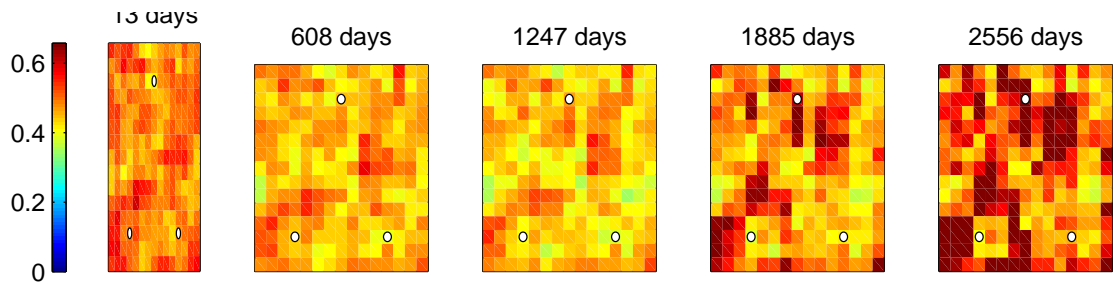


**Figure 92:** PERMY for ensemble member 2 for layer 2

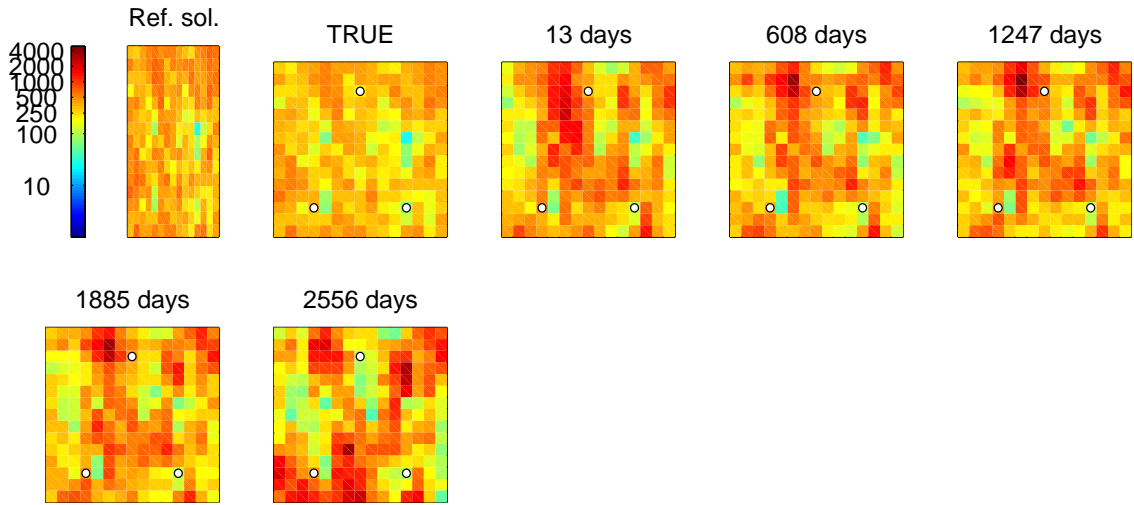
## 24 PERMY for layer 3



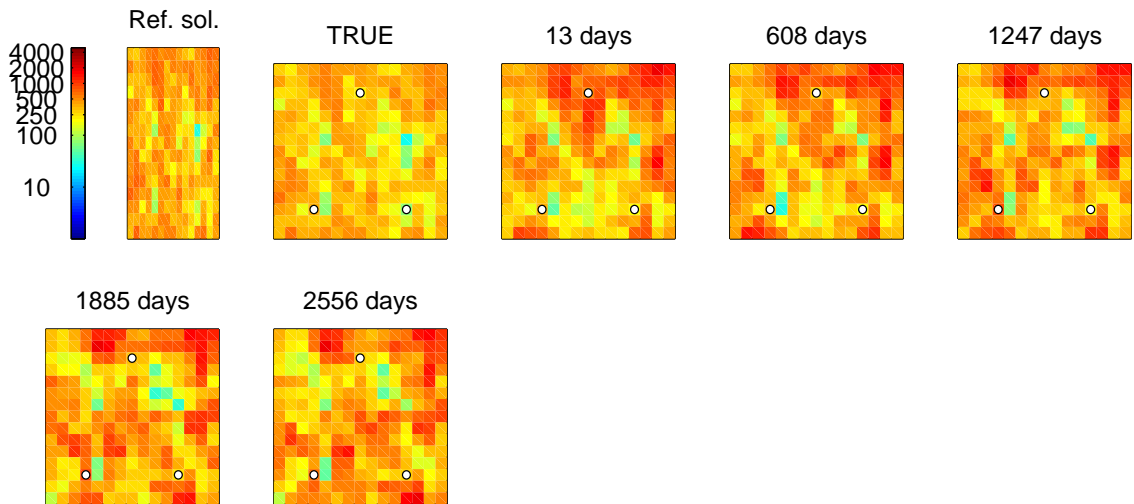
**Figure 93:** PERMY mean value for layer 3



**Figure 94:** PERMY standard deviation for layer 3

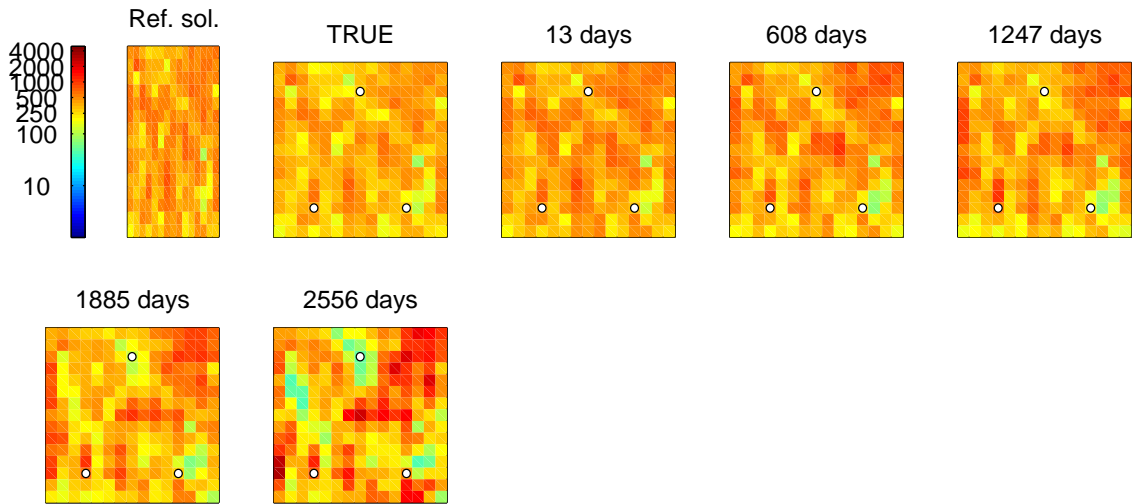


**Figure 95:** PERMY for ensemble member 1 for layer 3

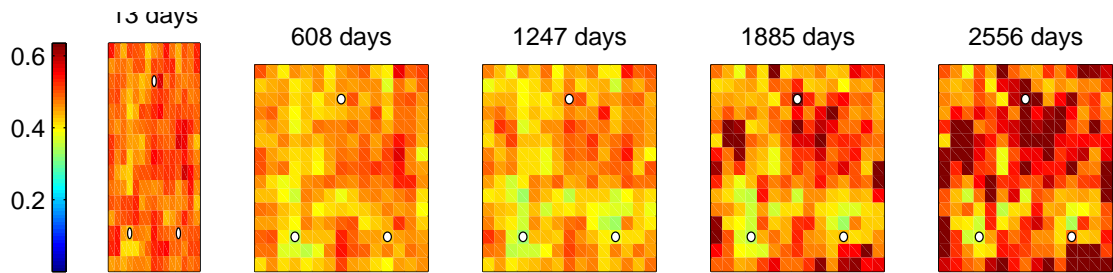


**Figure 96:** PERMY for ensemble member 2 for layer 3

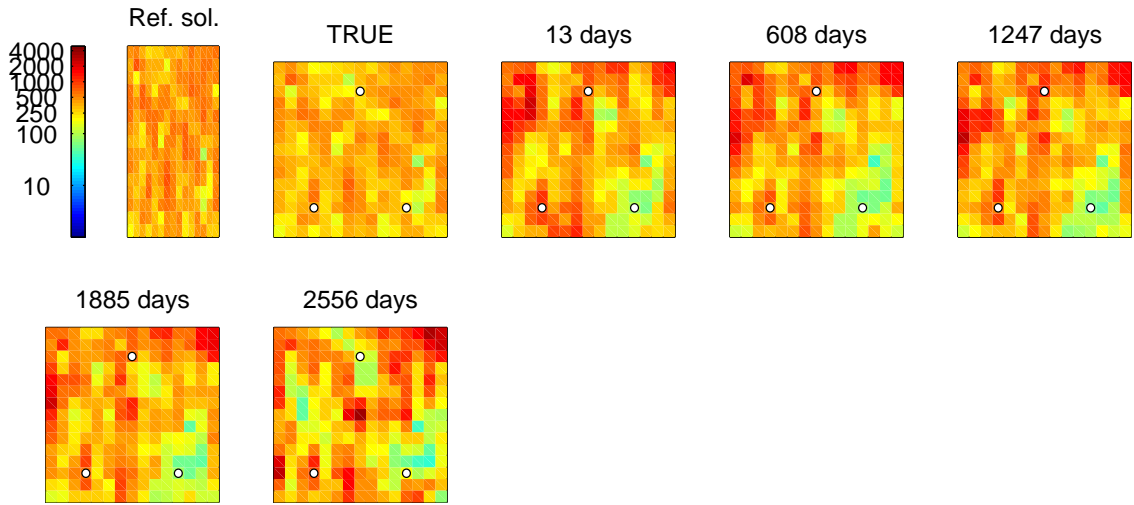
## 25 PERMY for layer 4



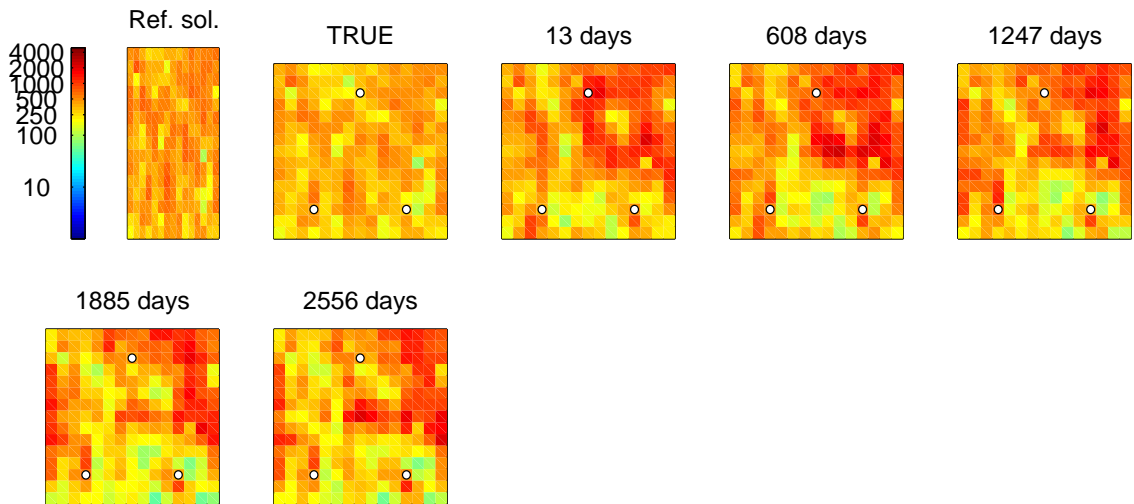
**Figure 97:** PERMY mean value for layer 4



**Figure 98:** PERMY standard deviation for layer 4

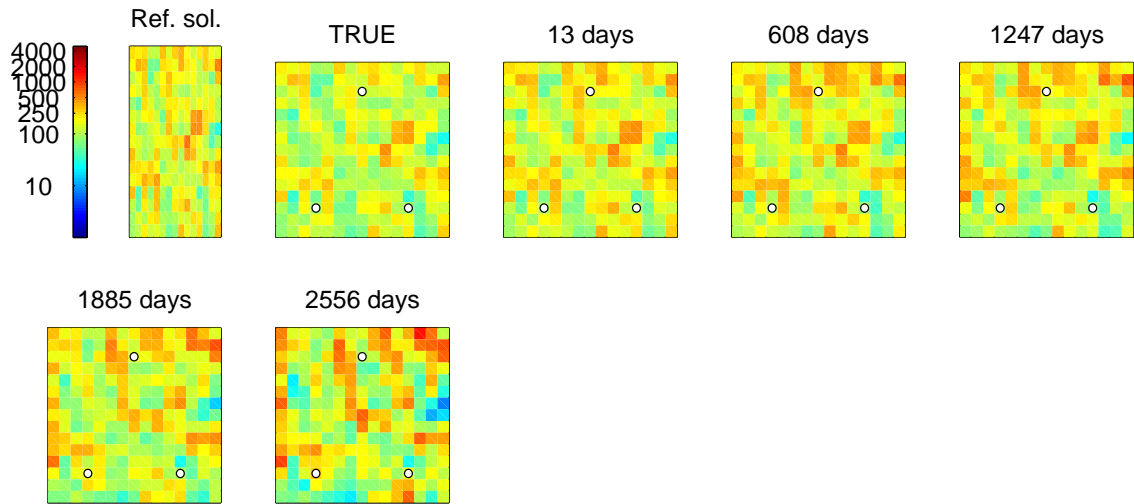


**Figure 99:** PERMY for ensemble member 1 for layer 4

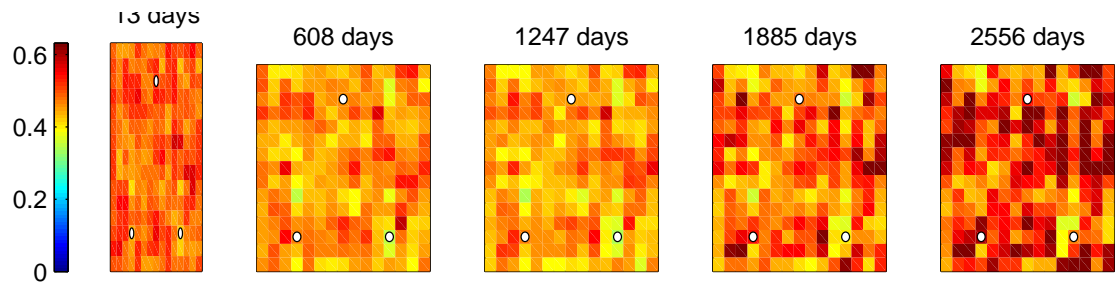


**Figure 100:** PERMY for ensemble member 2 for layer 4

## 26 PERMY for layer 5

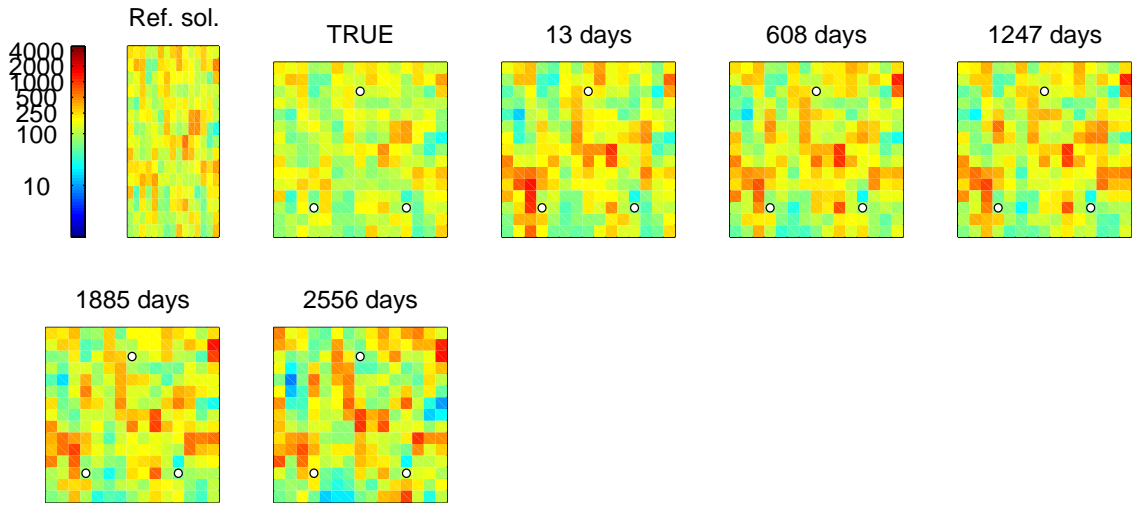


**Figure 101:** PERMY mean value for layer 5

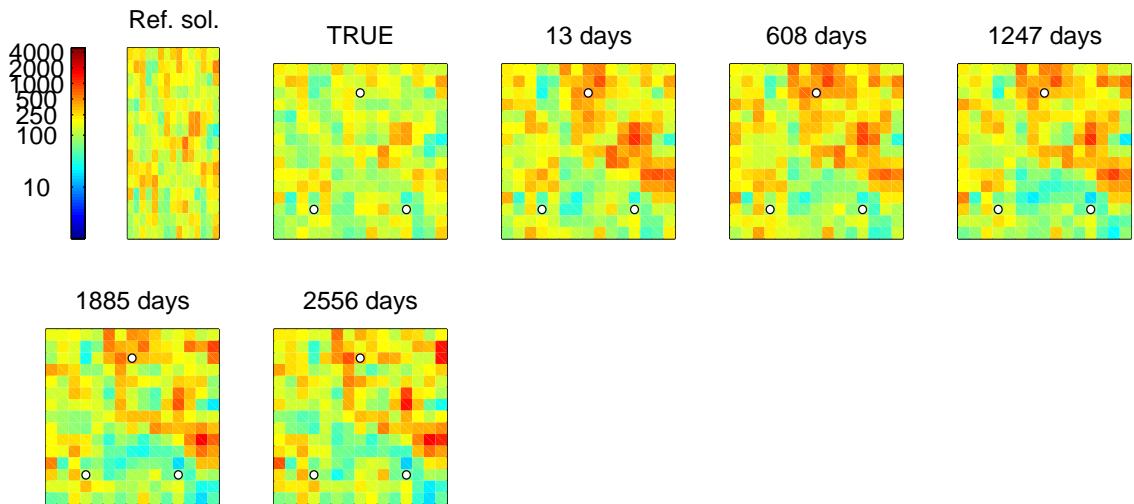


**Figure 102:** PERMY standard deviation for layer 5





**Figure 103:** PERMY for ensemble member 1 for layer 5



**Figure 104:** PERMY for ensemble member 2 for layer 5

## 27 PERMY for layer 6

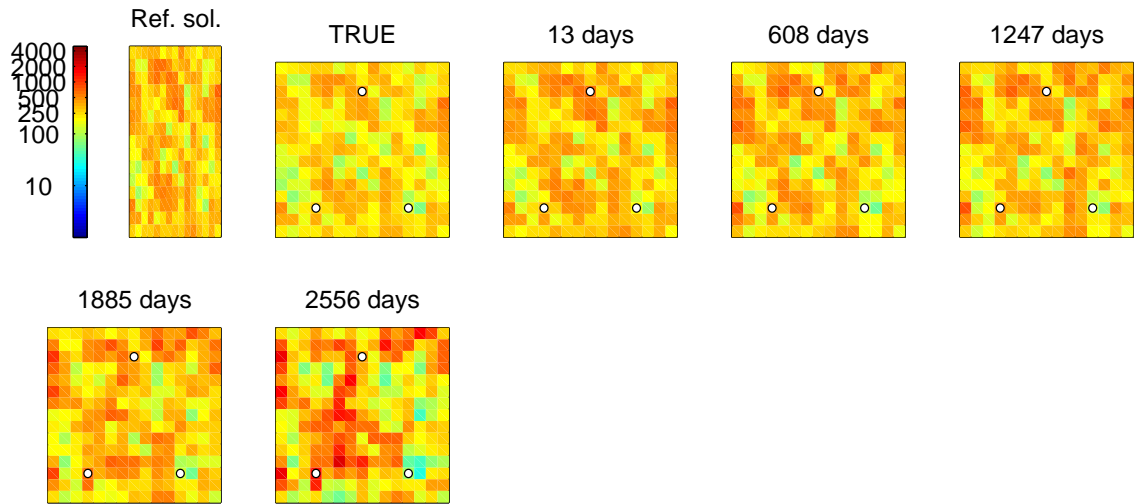


Figure 105: PERMY mean value for layer 6

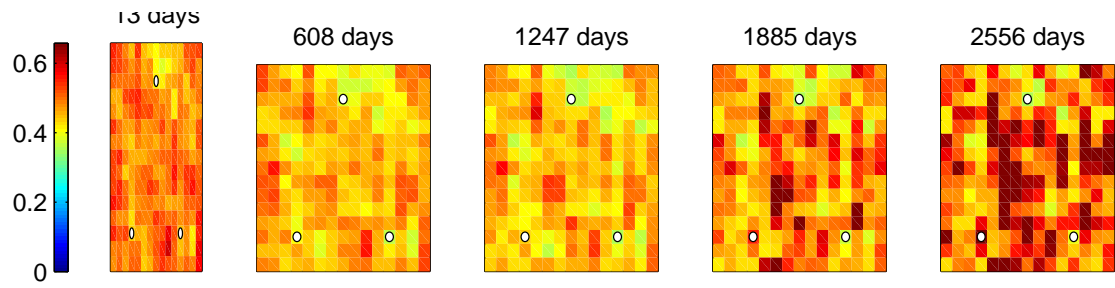
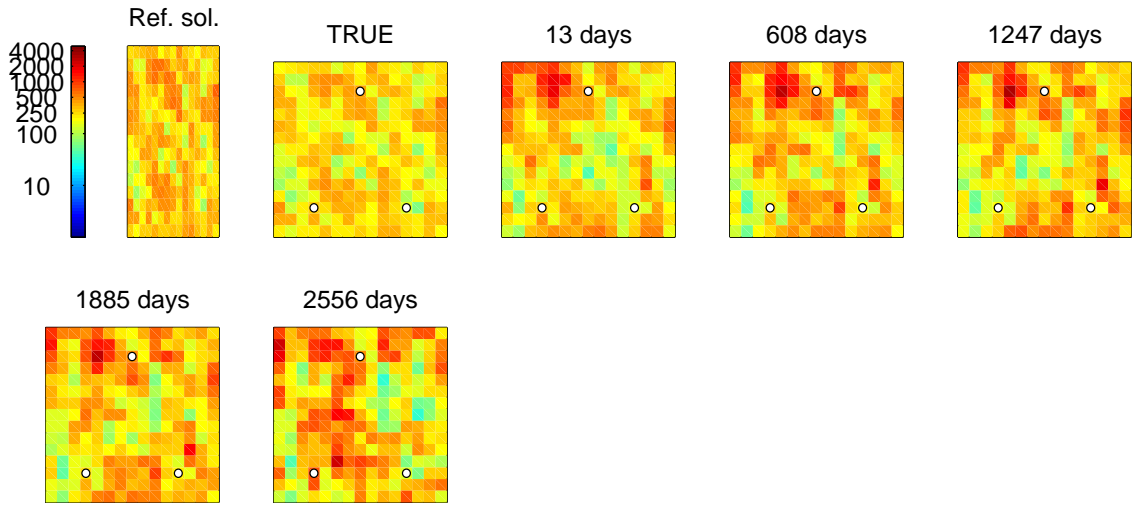
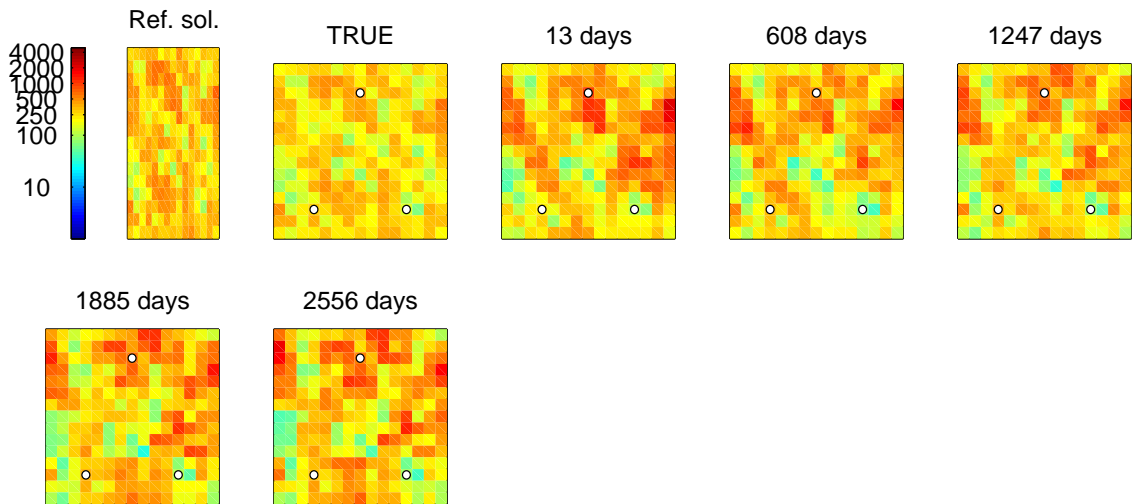


Figure 106: PERMY standard deviation for layer 6



**Figure 107:** PERMY for ensemble member 1 for layer 6



**Figure 108:** PERMY for ensemble member 2 for layer 6

## 28 PERMY for layer 7

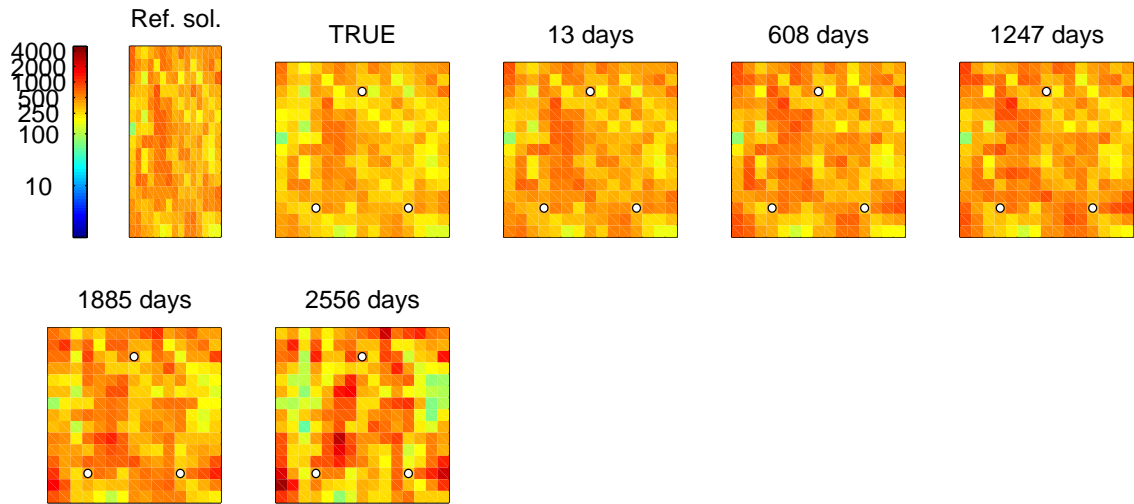


Figure 109: PERMY mean value for layer 7

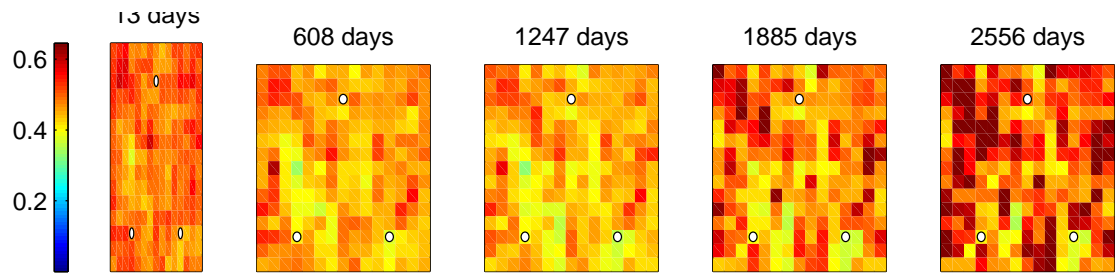
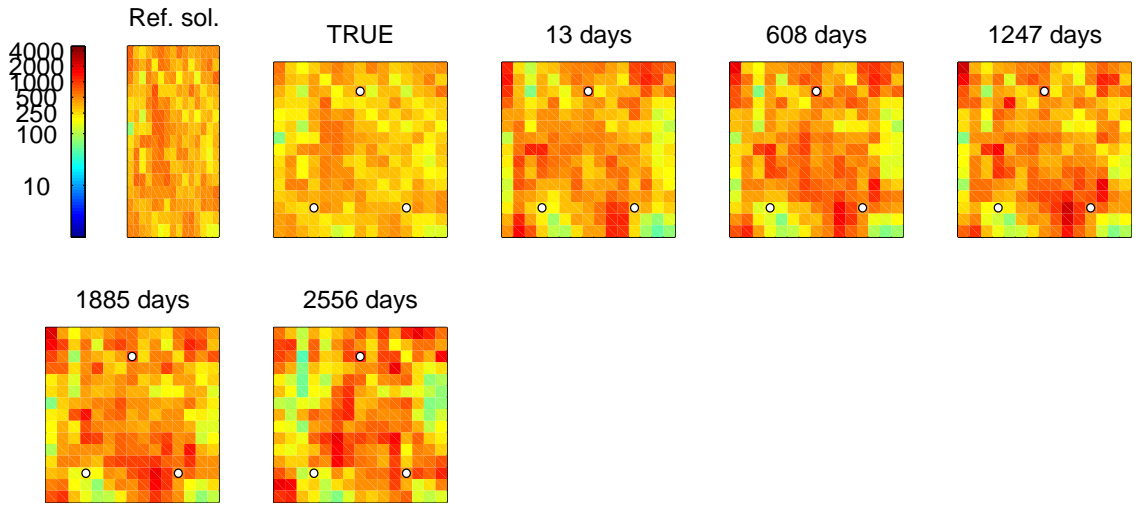
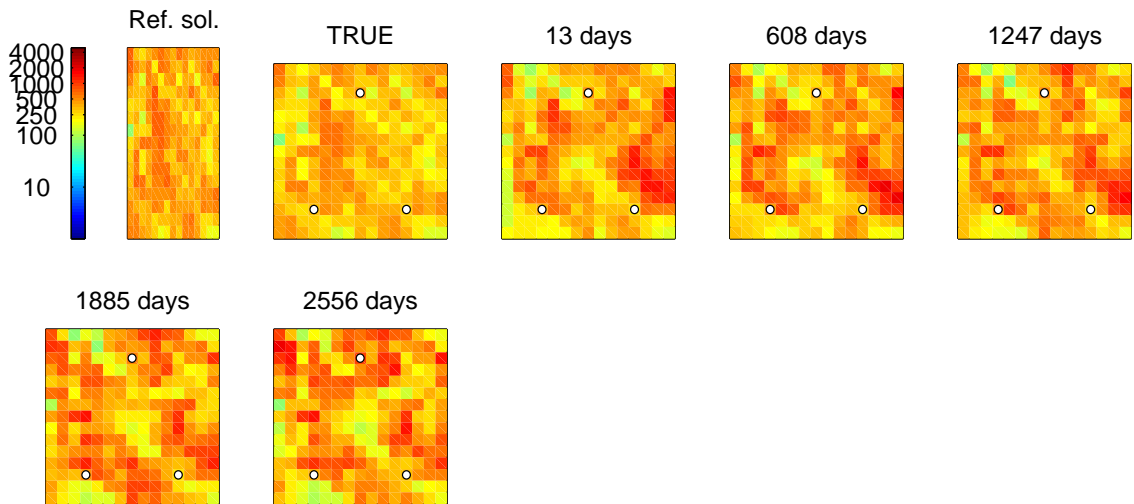


Figure 110: PERMY standard deviation for layer 7



**Figure 111:** PERMY for ensemble member 1 for layer 7



**Figure 112:** PERMY for ensemble member 2 for layer 7

## 29 PERMY for layer 8

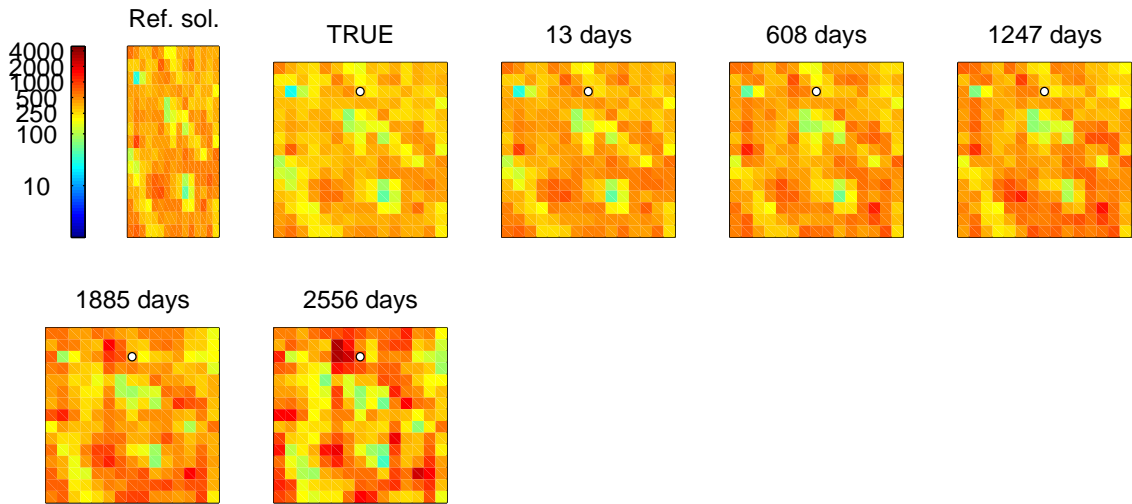


Figure 113: PERMY mean value for layer 8

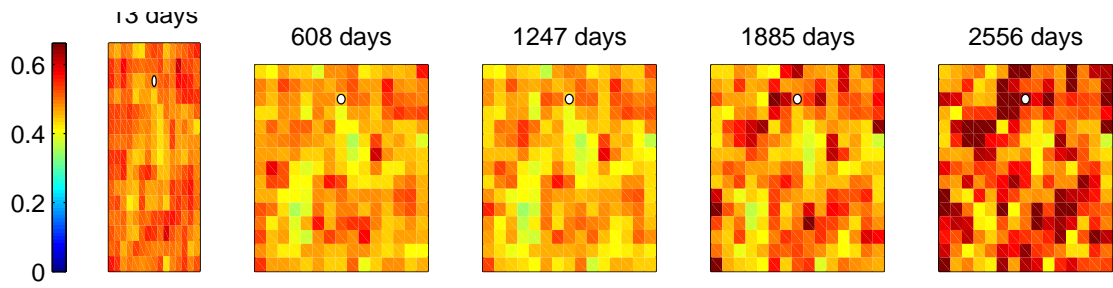
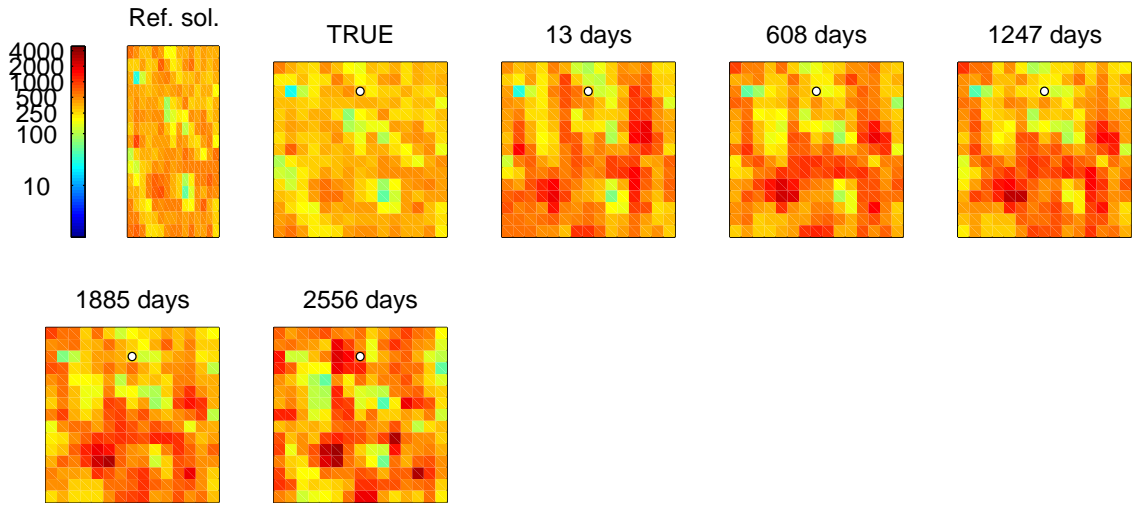
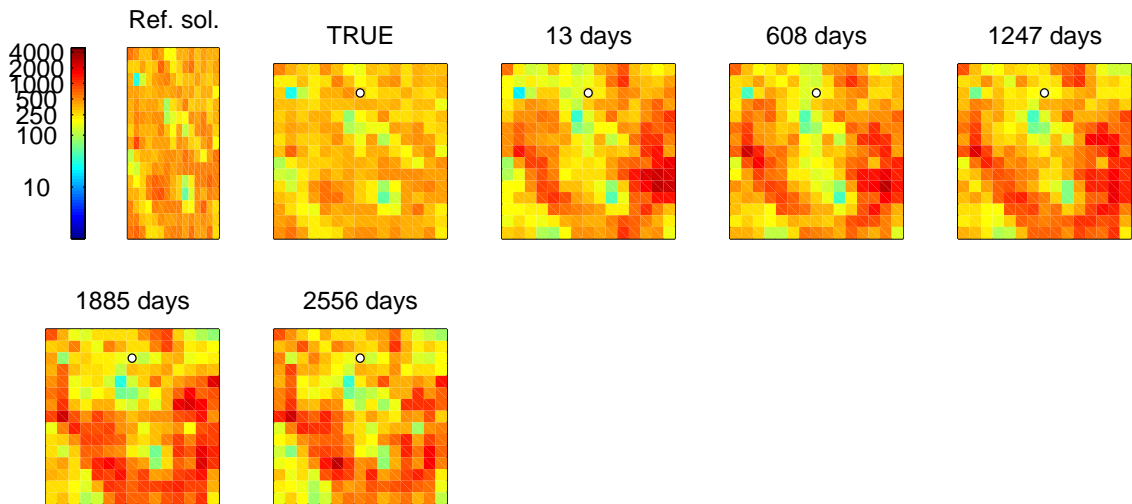


Figure 114: PERMY standard deviation for layer 8



**Figure 115:** PERMY for ensemble member 1 for layer 8



**Figure 116:** PERMY for ensemble member 2 for layer 8

### 30 PERMY for layer 9

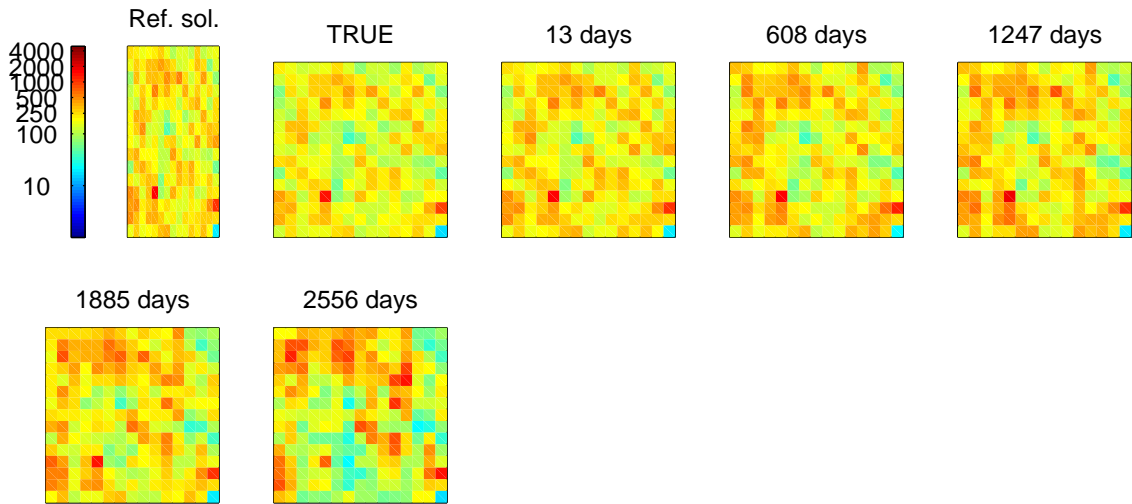


Figure 117: PERMY mean value for layer 9

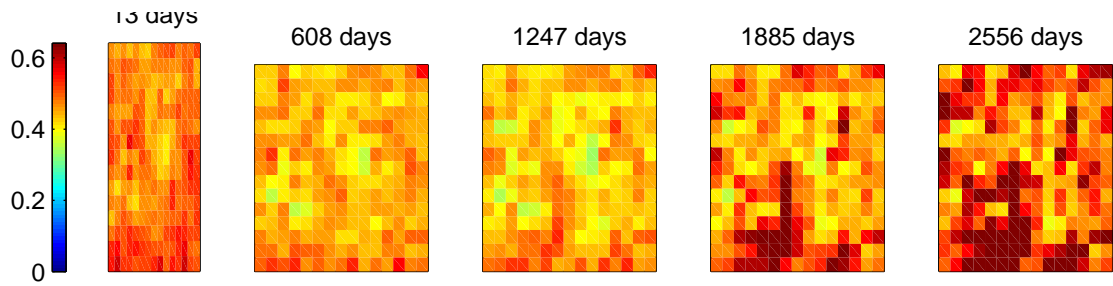
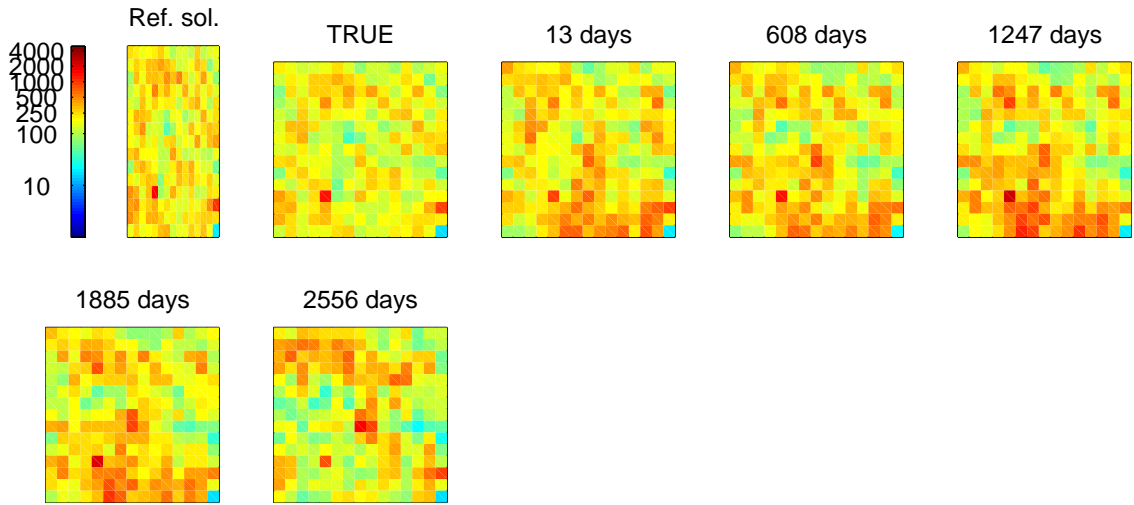
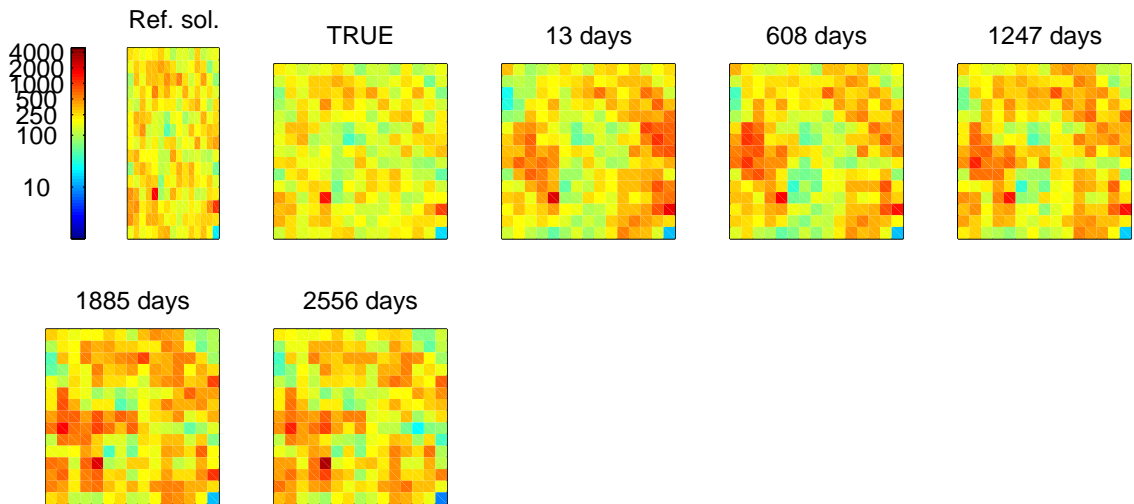


Figure 118: PERMY standard deviation for layer 9



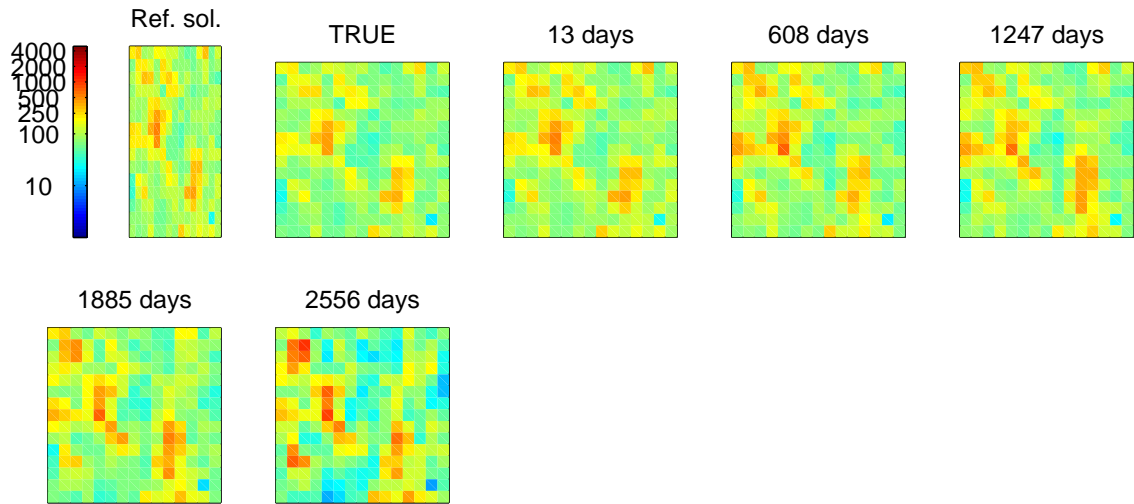


**Figure 119:** PERMY for ensemble member 1 for layer 9

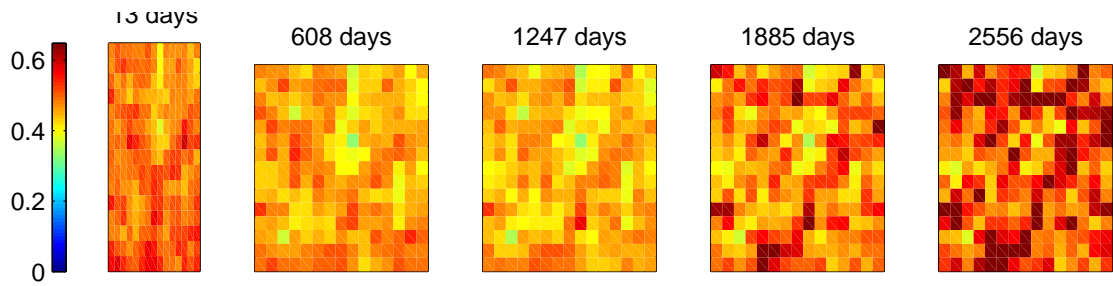


**Figure 120:** PERMY for ensemble member 2 for layer 9

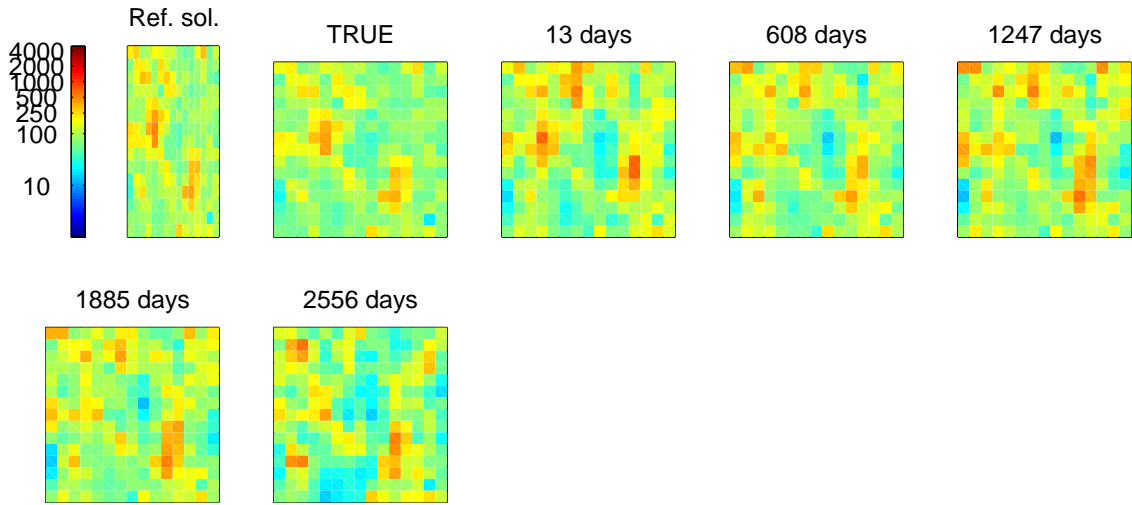
### 31 PERMY for layer 10



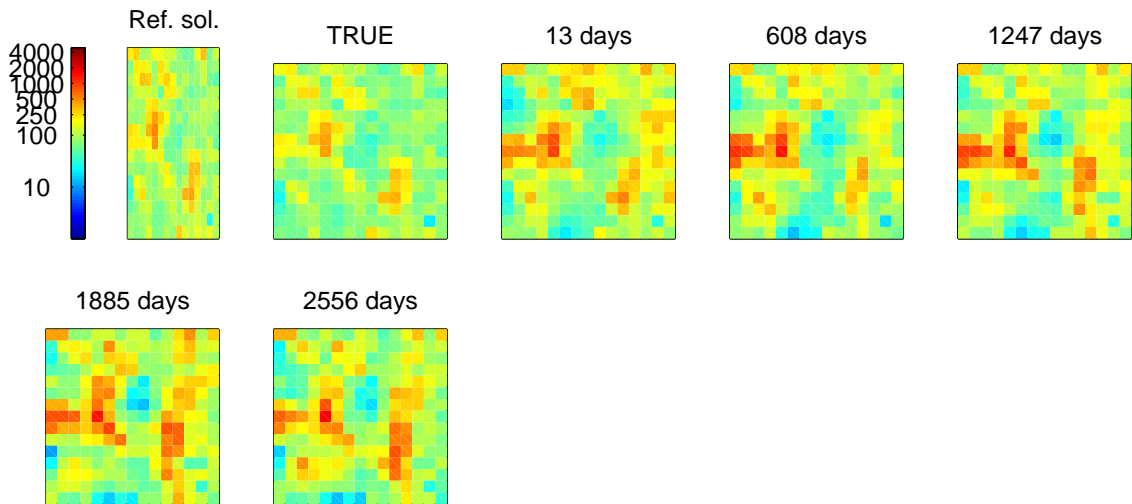
**Figure 121:** PERMY mean value for layer 10



**Figure 122:** PERMY standard deviation for layer 10



**Figure 123:** PERMY for ensemble member 1 for layer 10



**Figure 124:** PERMY for ensemble member 2 for layer 10

## 32 PERMZ for layer 1

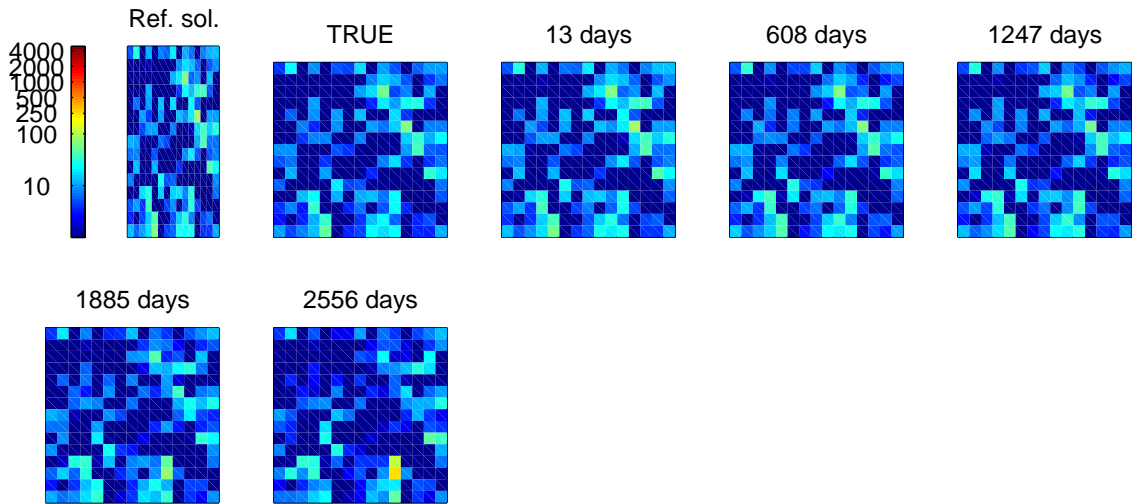


Figure 125: PERMZ mean value for layer 1

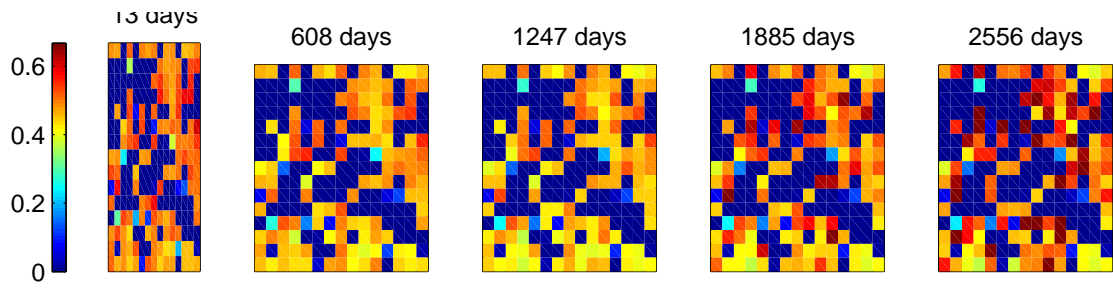
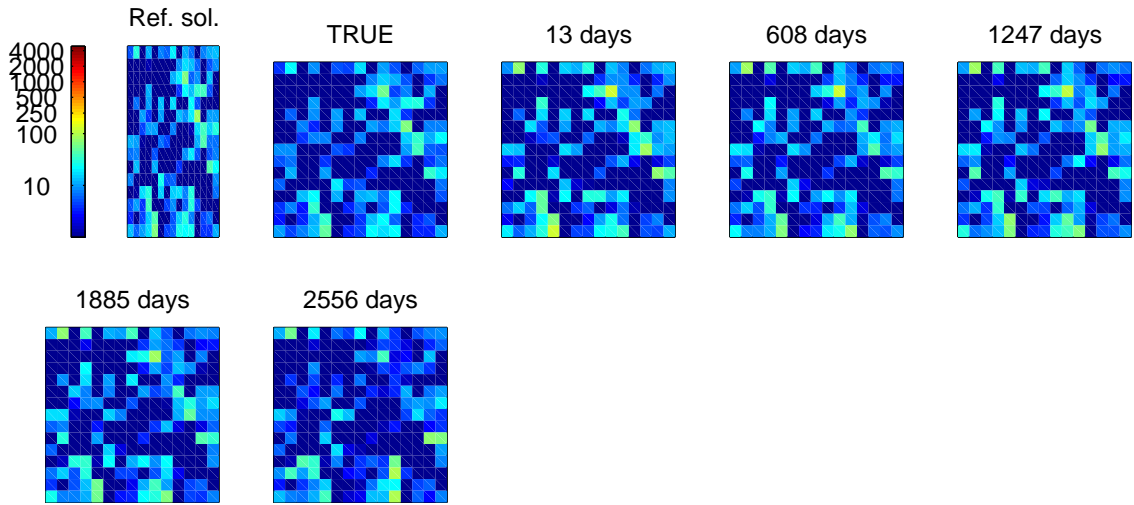
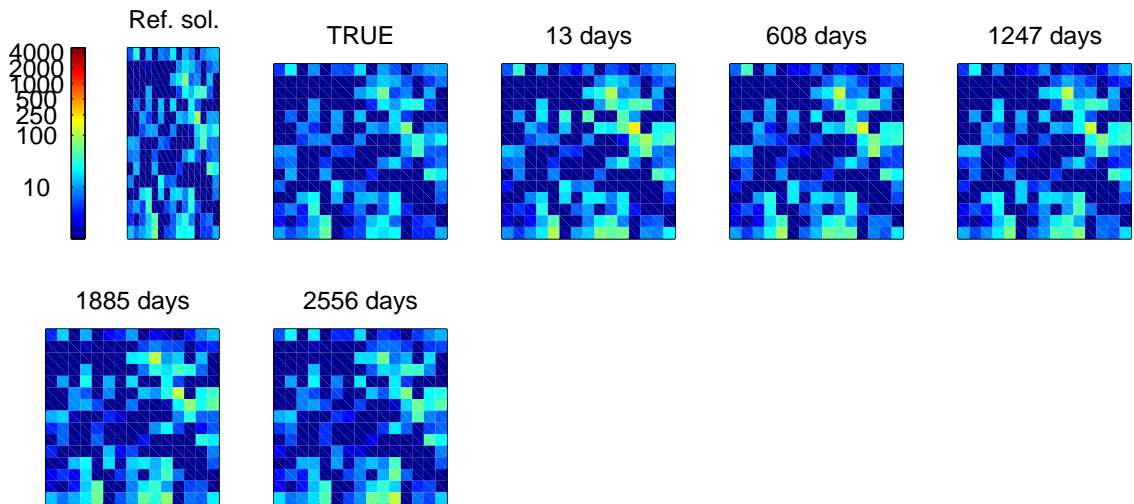


Figure 126: PERMZ standard deviation for layer 1

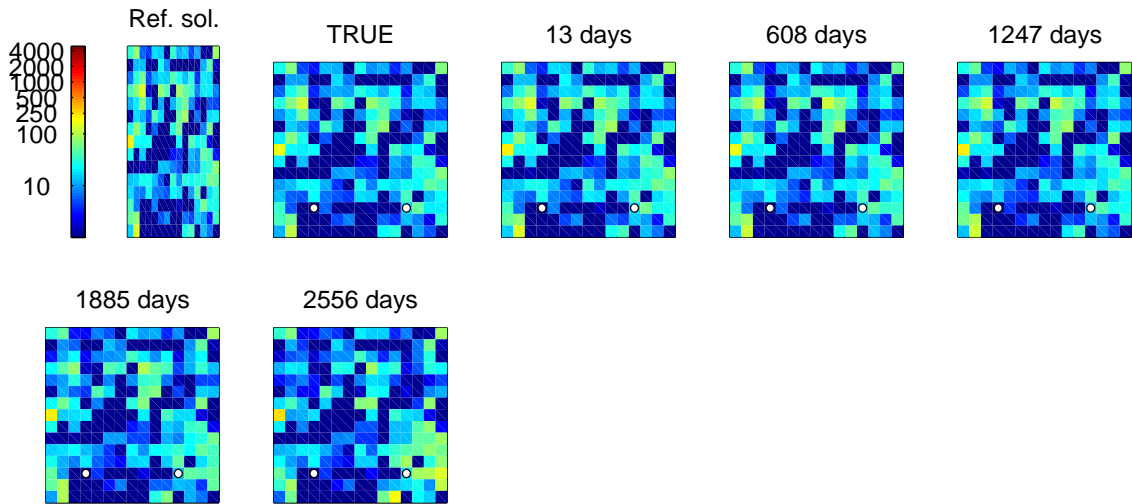


**Figure 127:** PERMZ for ensemble member 1 for layer 1

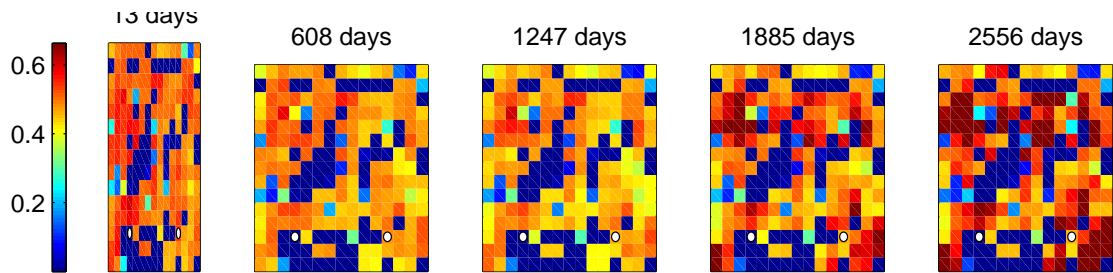


**Figure 128:** PERMZ for ensemble member 2 for layer 1

### 33 PERMZ for layer 2



**Figure 129:** PERMZ mean value for layer 2



**Figure 130:** PERMZ standard deviation for layer 2

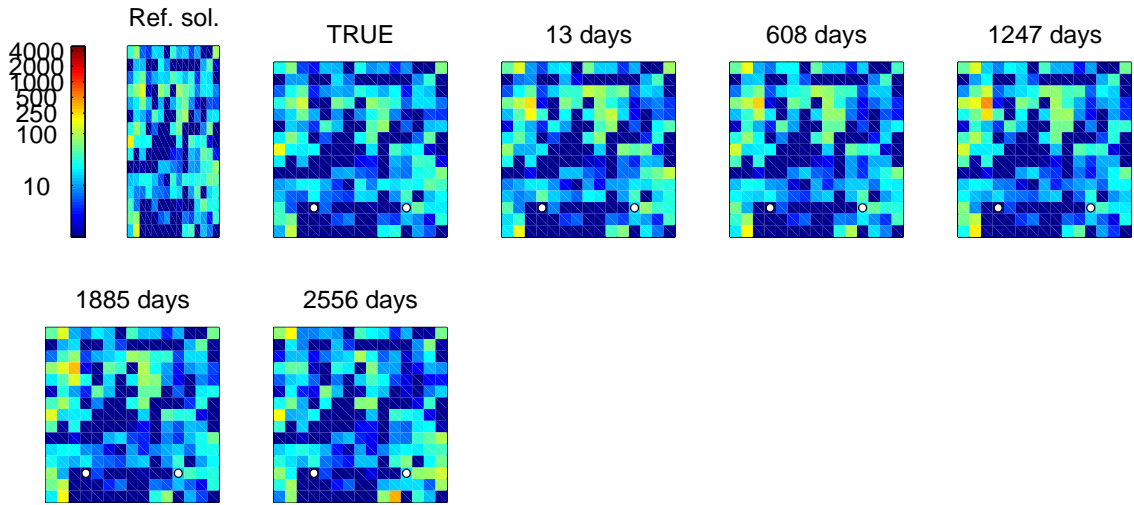


Figure 131: PERMZ for ensemble member 1 for layer 2

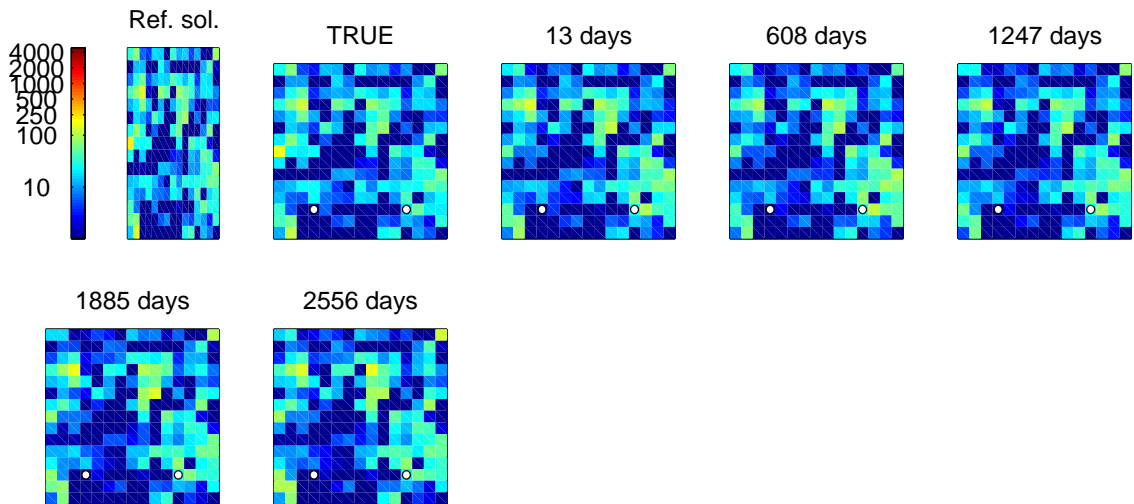


Figure 132: PERMZ for ensemble member 2 for layer 2

### 34 PERMZ for layer 3

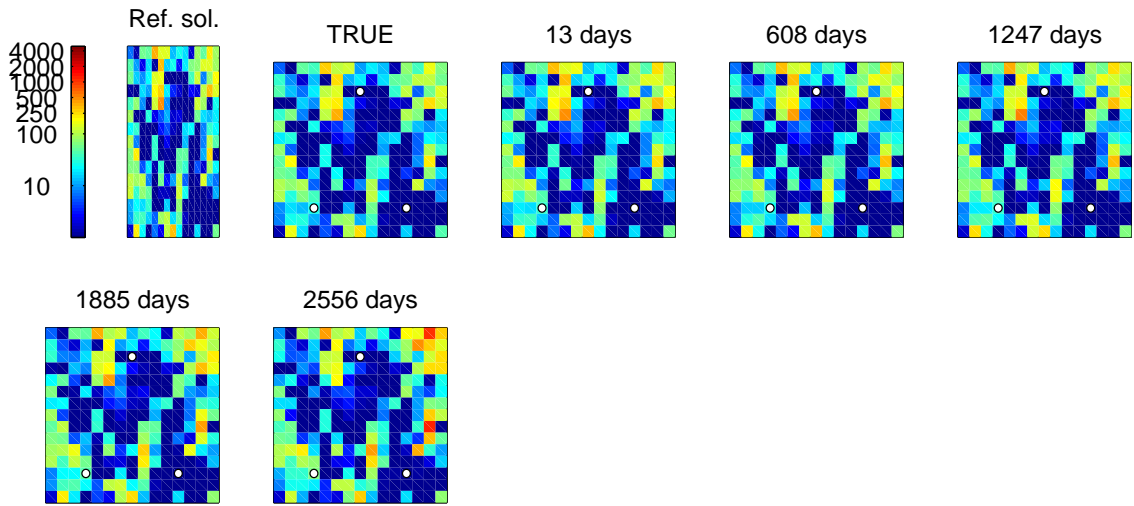


Figure 133: PERMZ mean value for layer 3

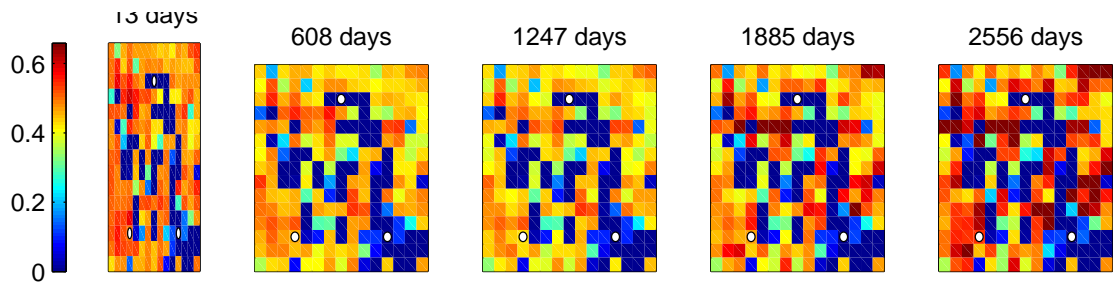
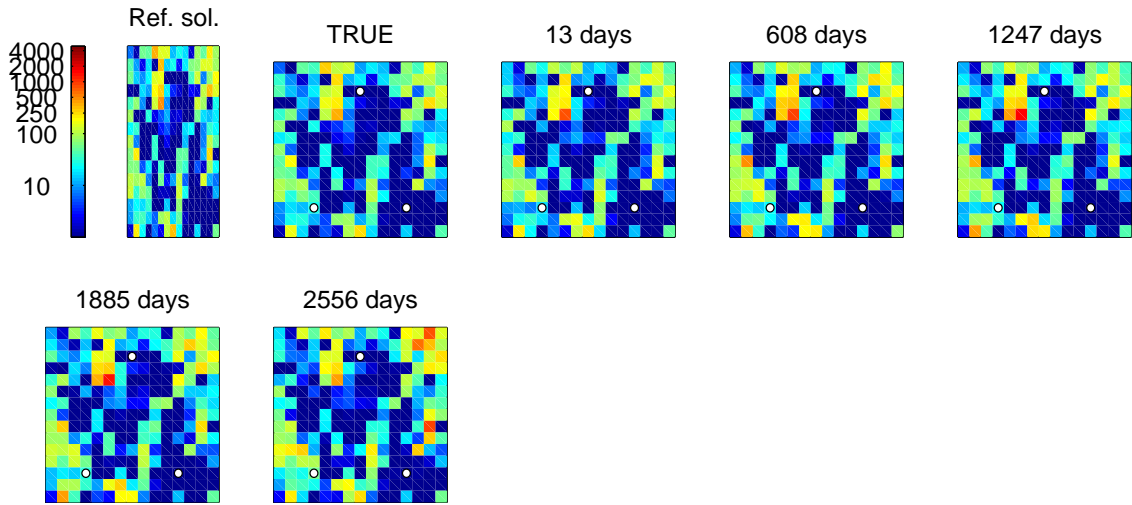
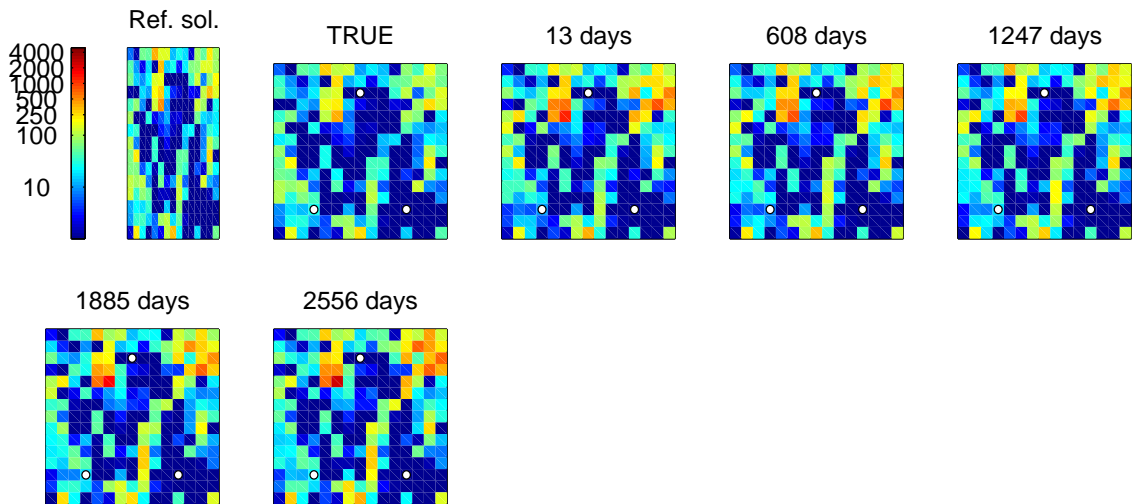


Figure 134: PERMZ standard deviation for layer 3



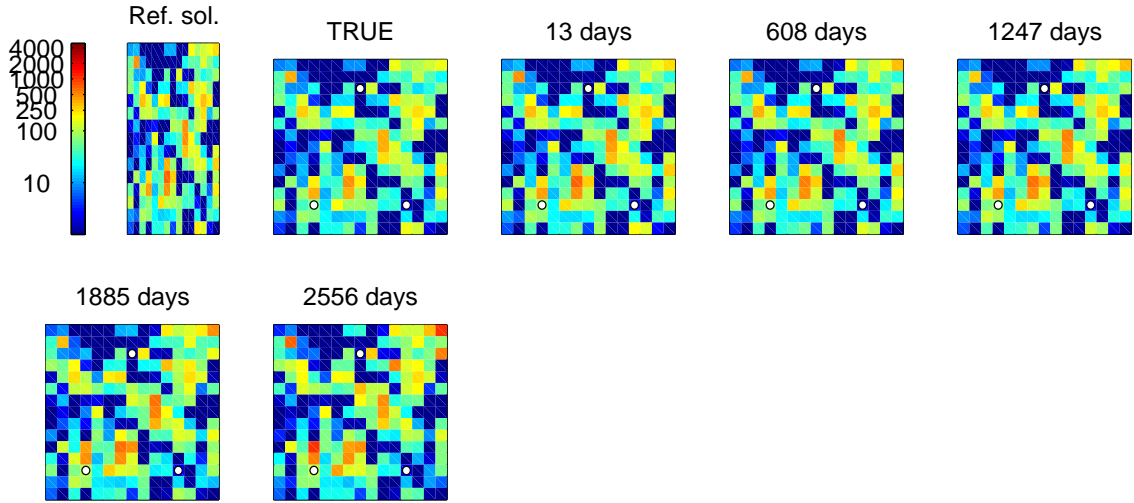


**Figure 135:** PERMZ for ensemble member 1 for layer 3

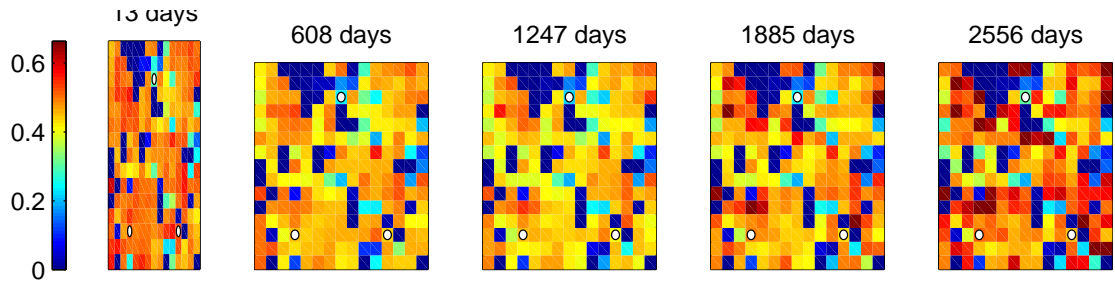


**Figure 136:** PERMZ for ensemble member 2 for layer 3

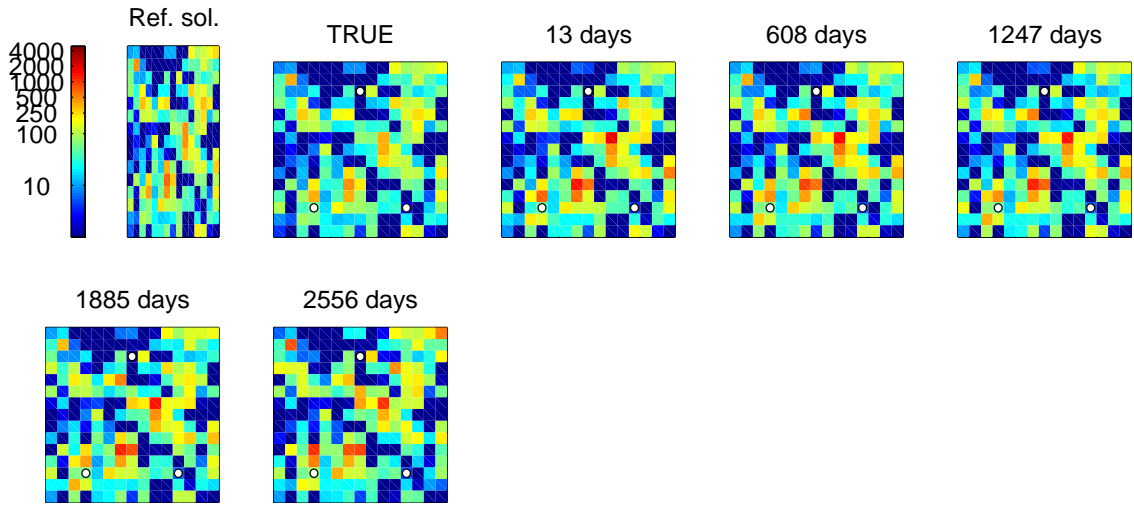
### 35 PERMZ for layer 4



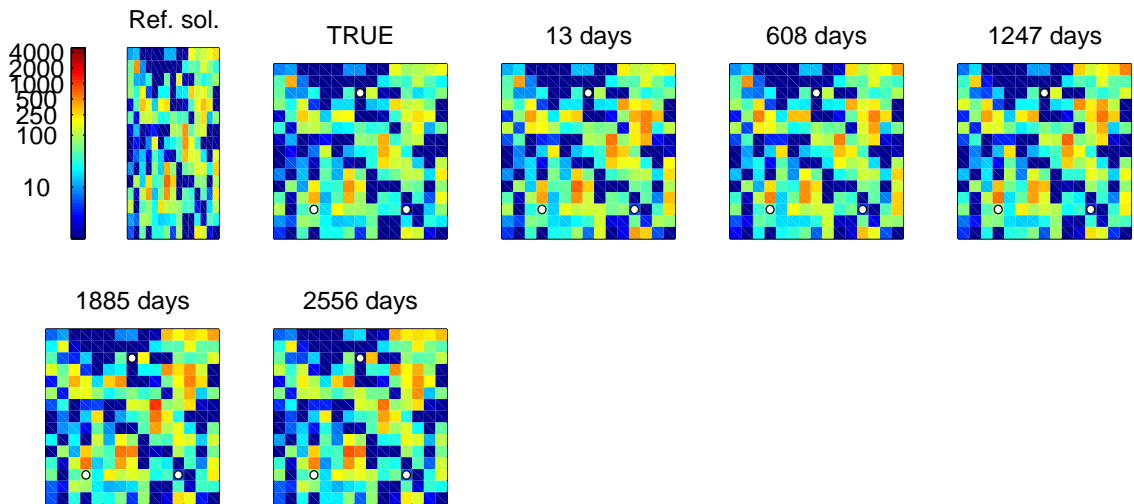
**Figure 137:** PERMZ mean value for layer 4



**Figure 138:** PERMZ standard deviation for layer 4



**Figure 139:** PERMZ for ensemble member 1 for layer 4



**Figure 140:** PERMZ for ensemble member 2 for layer 4

### 36 PERMZ for layer 5

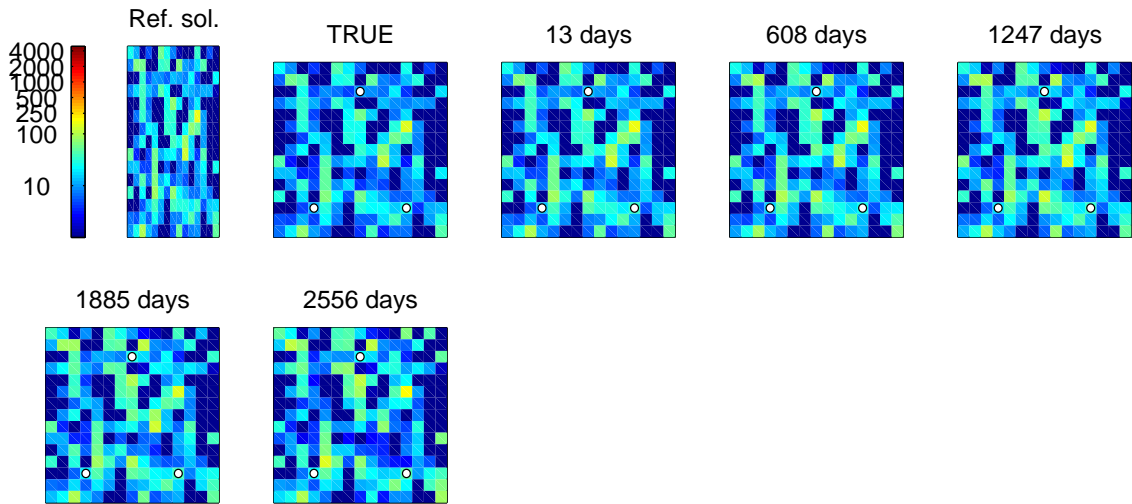


Figure 141: PERMZ mean value for layer 5

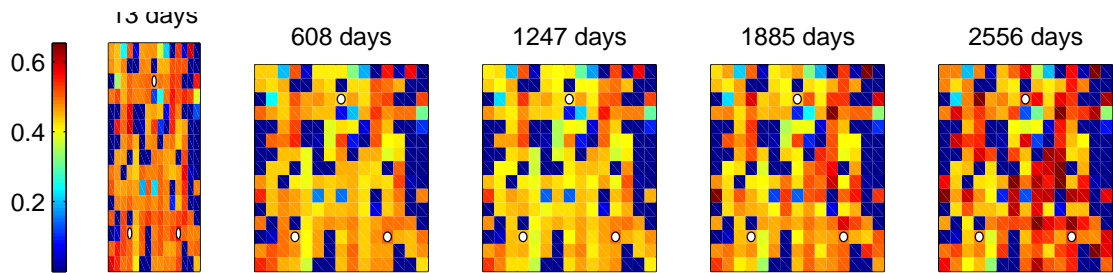


Figure 142: PERMZ standard deviation for layer 5

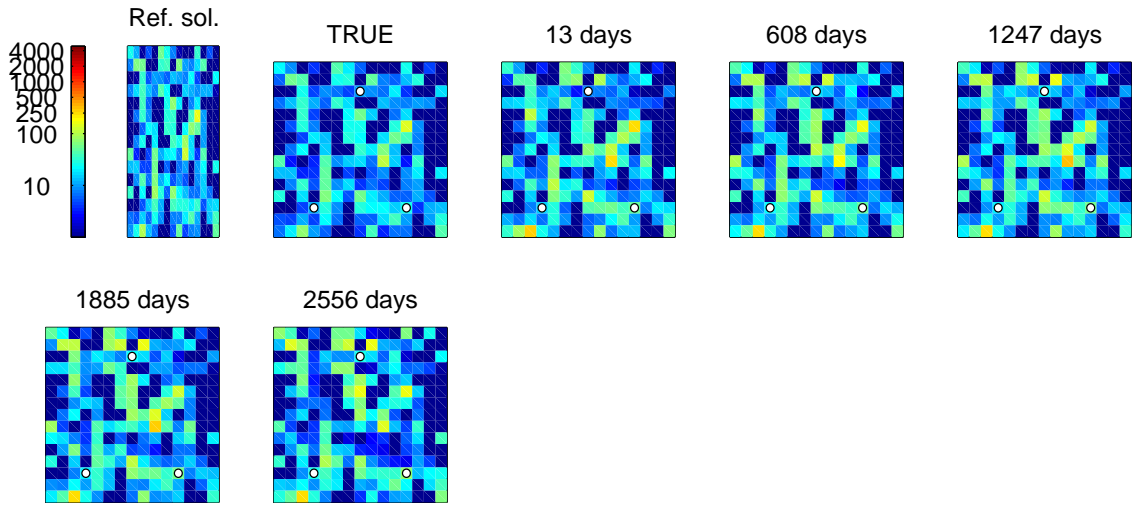


Figure 143: PERMZ for ensemble member 1 for layer 5

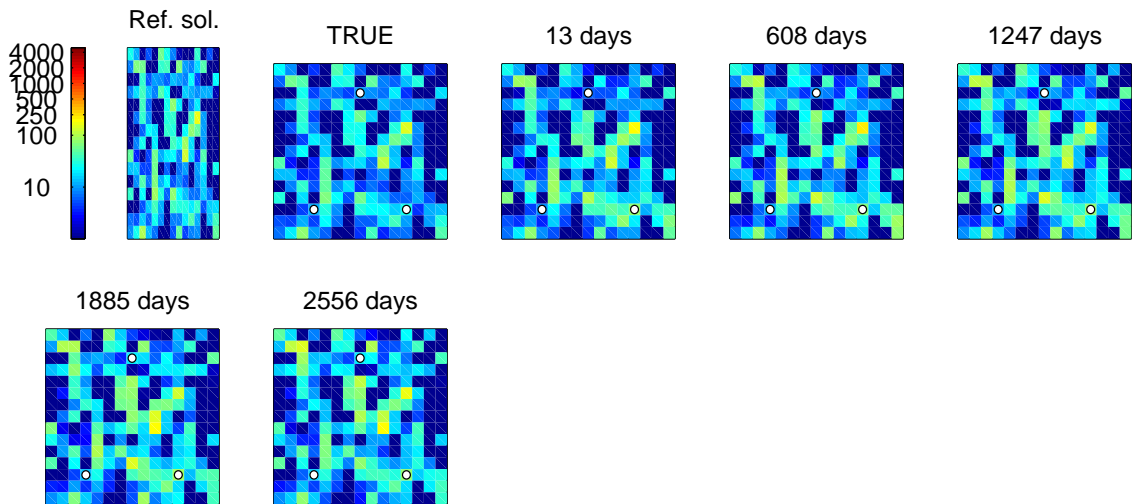


Figure 144: PERMZ for ensemble member 2 for layer 5

### 37 PERMZ for layer 6

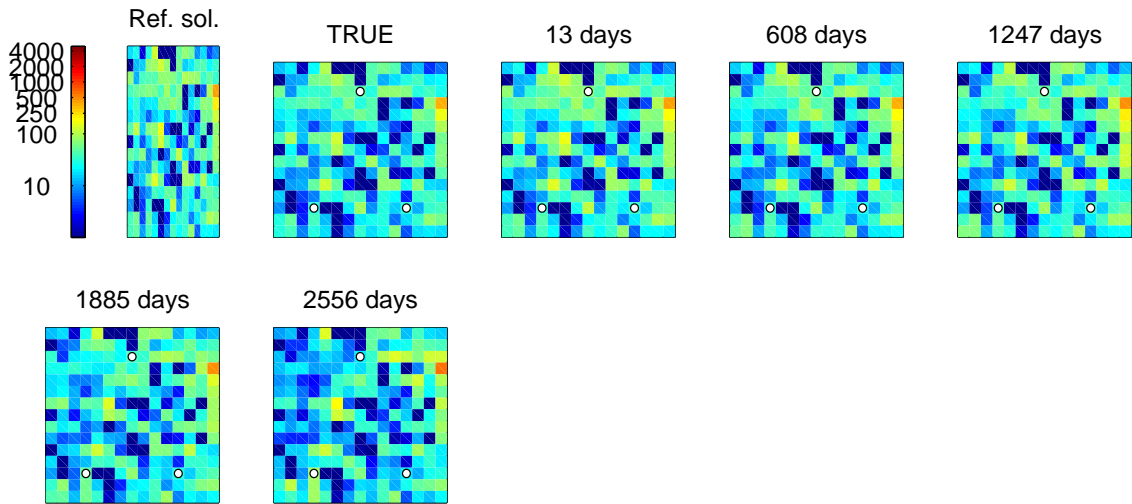


Figure 145: PERMZ mean value for layer 6

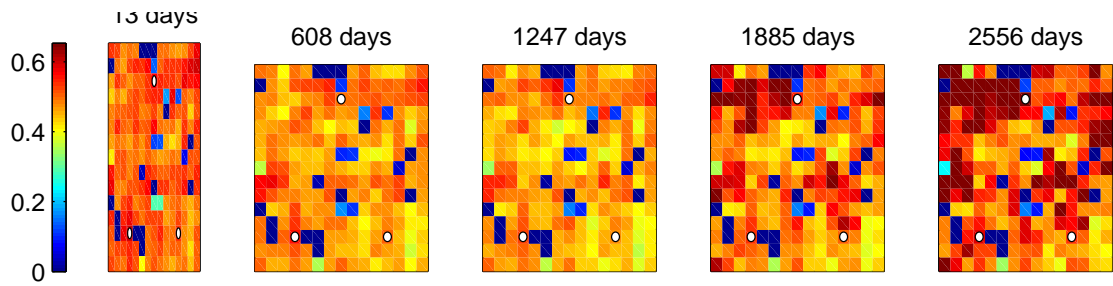


Figure 146: PERMZ standard deviation for layer 6

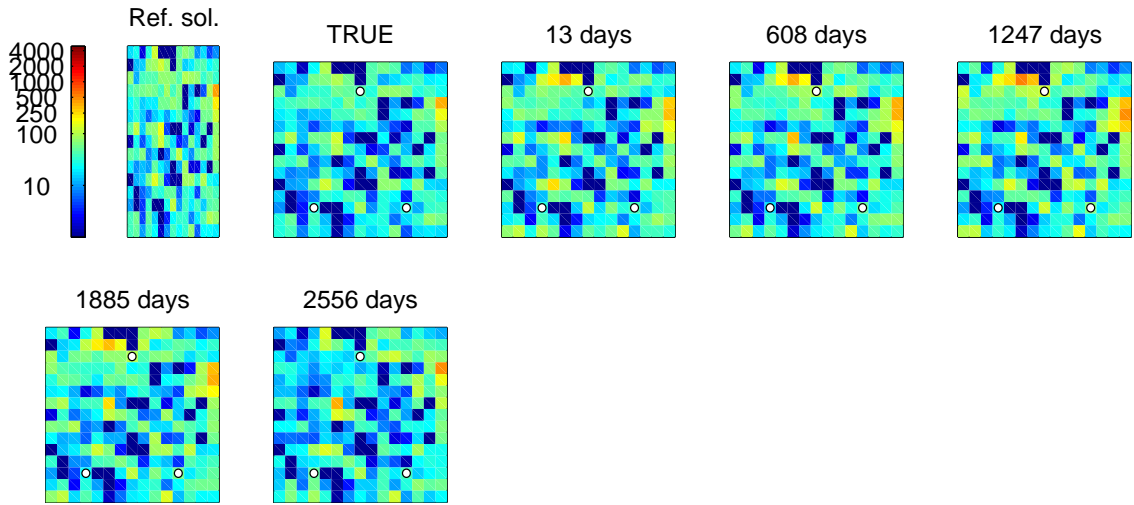


Figure 147: PERMZ for ensemble member 1 for layer 6

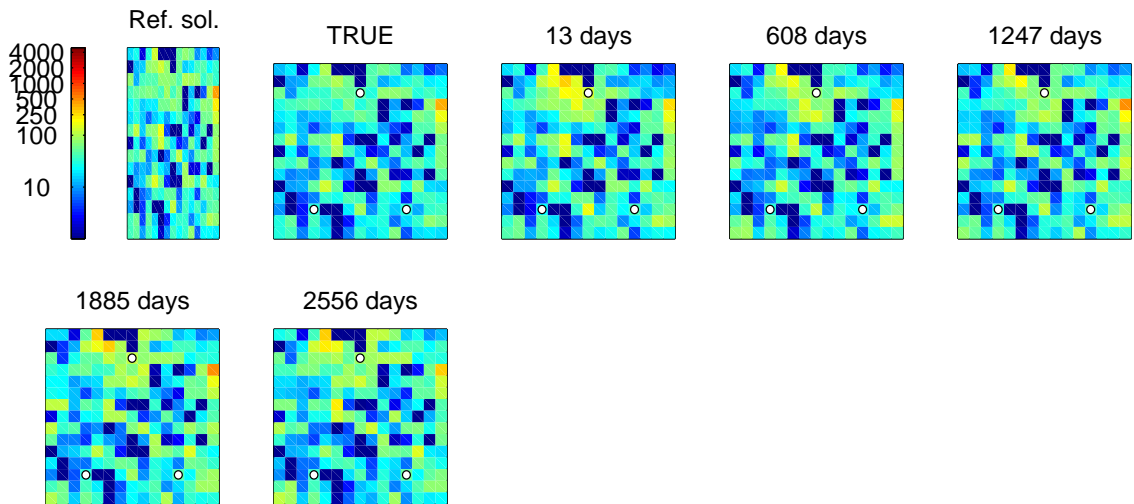


Figure 148: PERMZ for ensemble member 2 for layer 6

### 38 PERMZ for layer 7

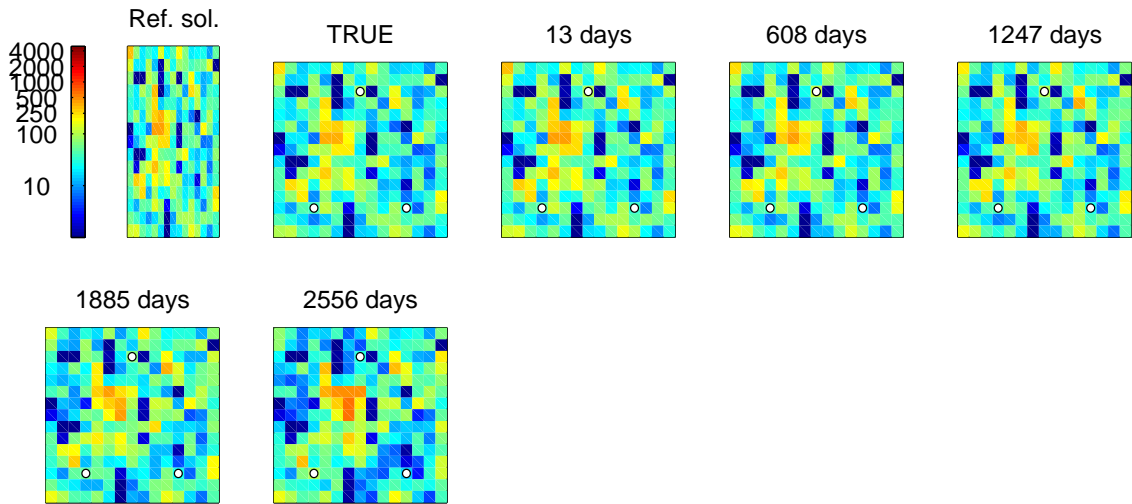


Figure 149: PERMZ mean value for layer 7

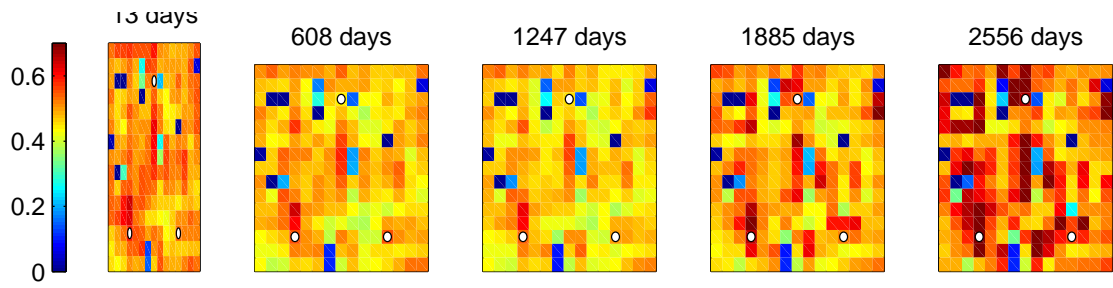
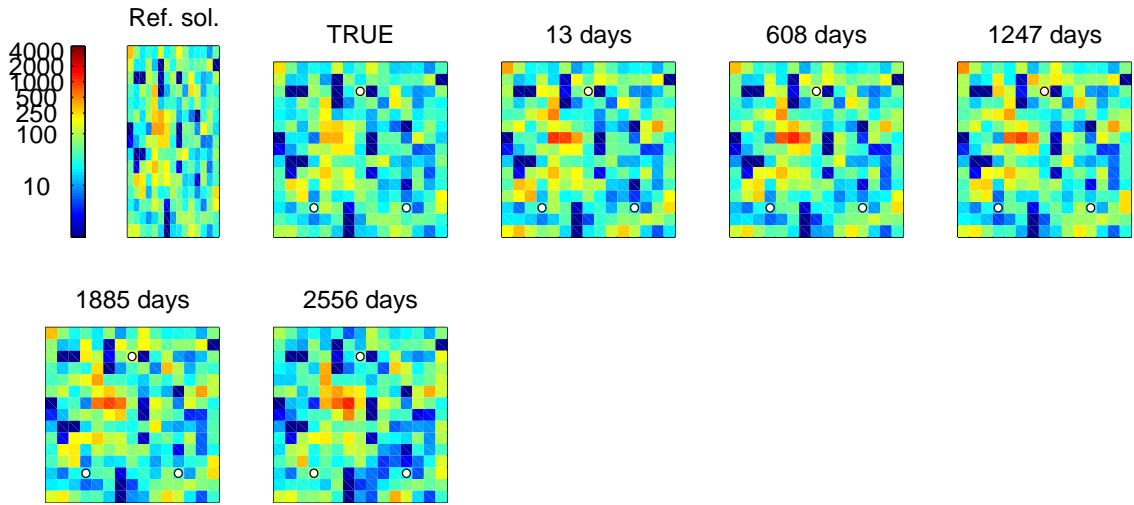
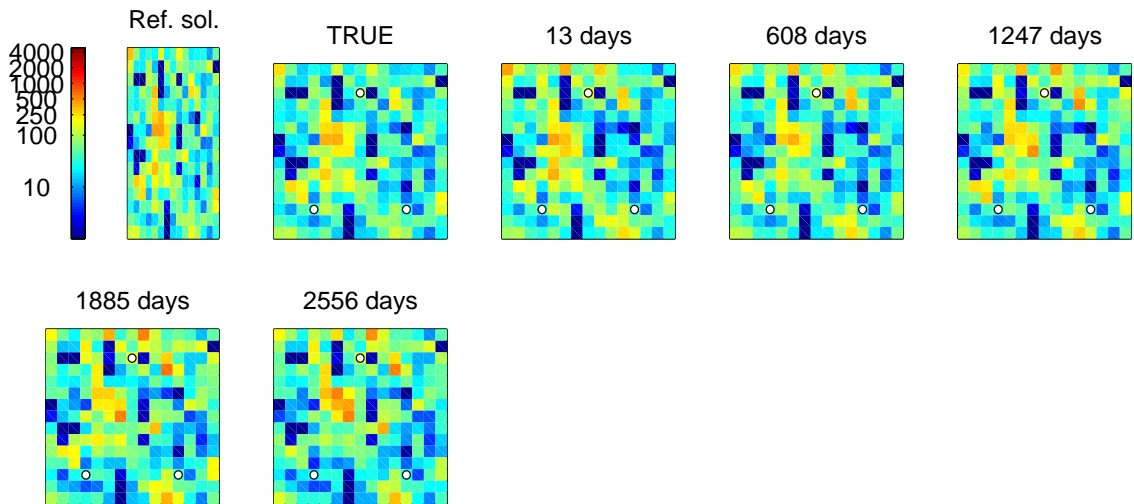


Figure 150: PERMZ standard deviation for layer 7





**Figure 151:** PERMZ for ensemble member 1 for layer 7



**Figure 152:** PERMZ for ensemble member 2 for layer 7

### 39 PERMZ for layer 8

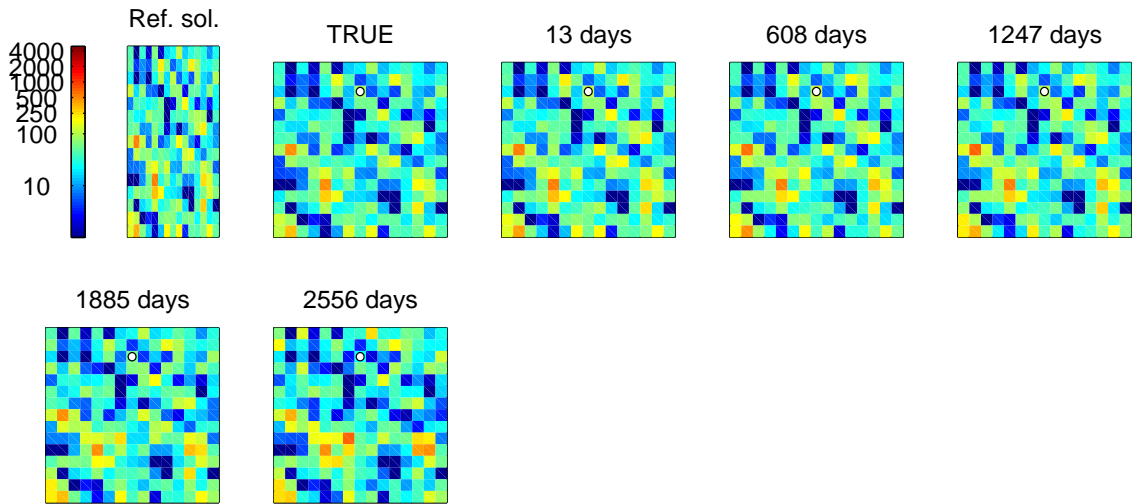


Figure 153: PERMZ mean value for layer 8

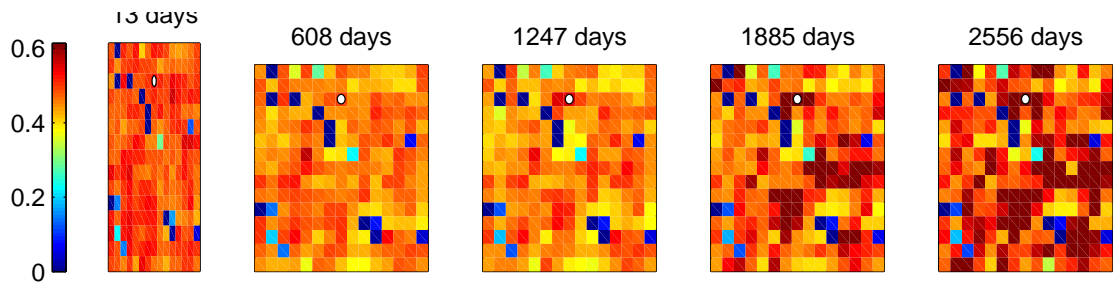


Figure 154: PERMZ standard deviation for layer 8

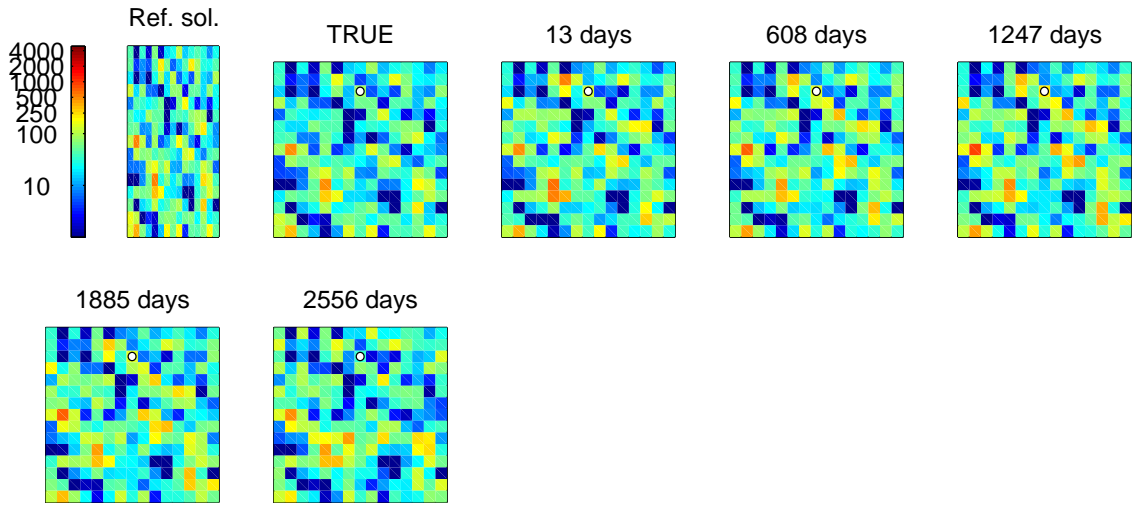


Figure 155: PERMZ for ensemble member 1 for layer 8

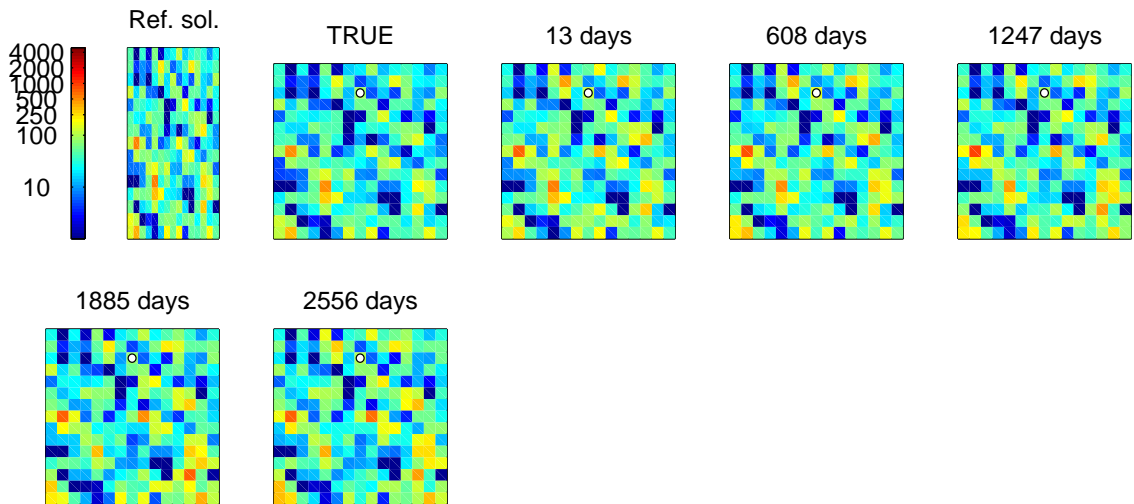


Figure 156: PERMZ for ensemble member 2 for layer 8

## 40 PERMZ for layer 9

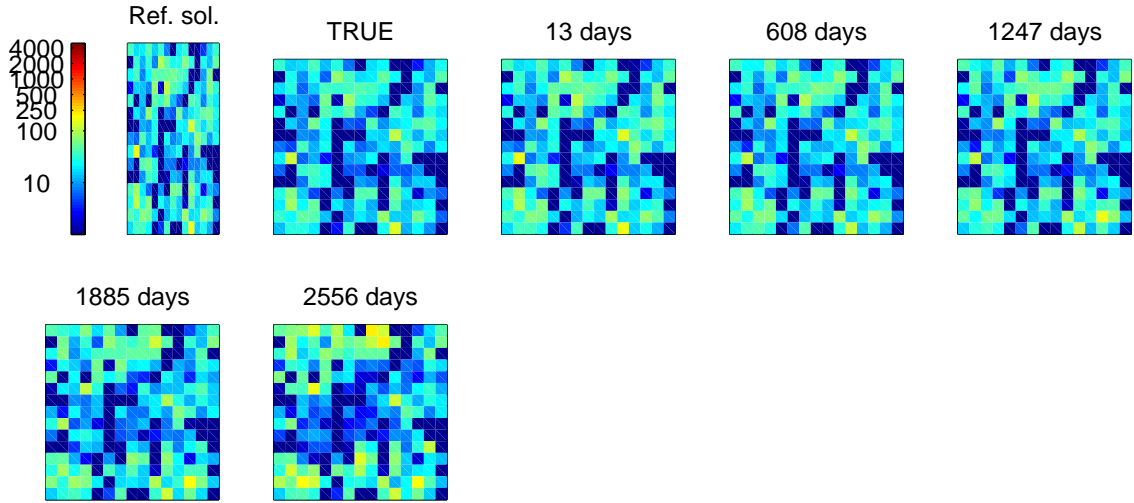


Figure 157: PERMZ mean value for layer 9

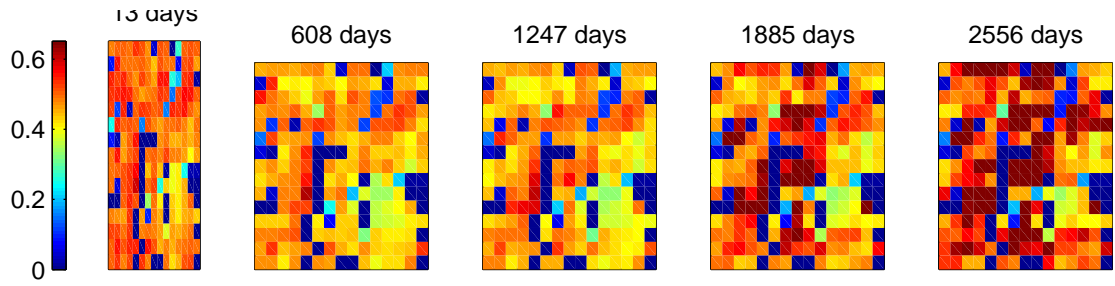
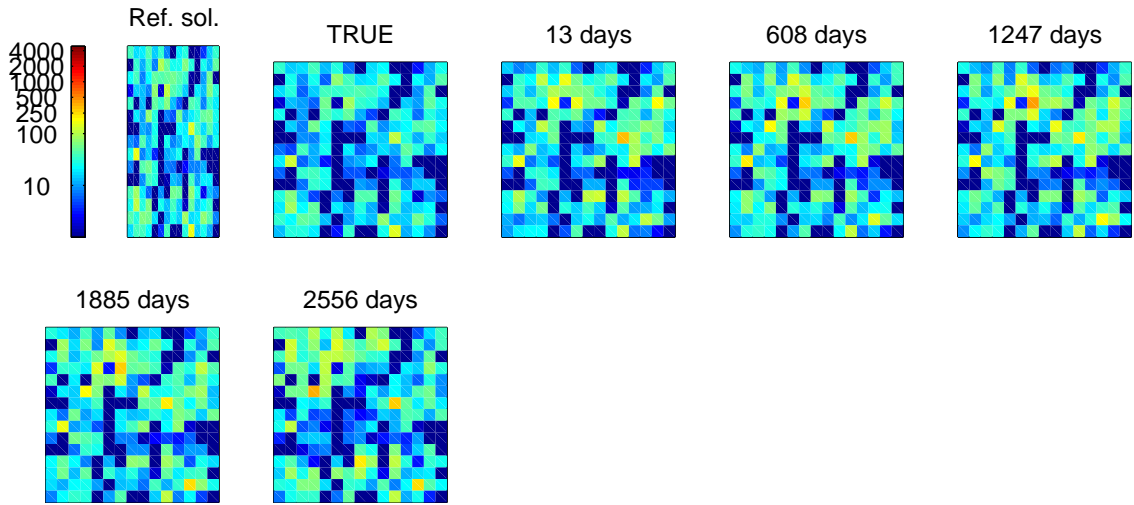
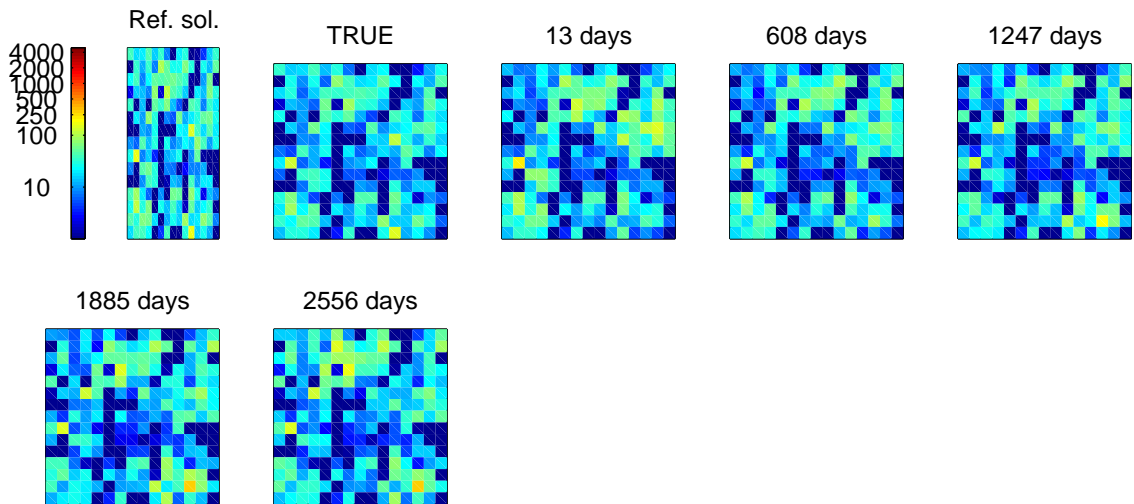


Figure 158: PERMZ standard deviation for layer 9

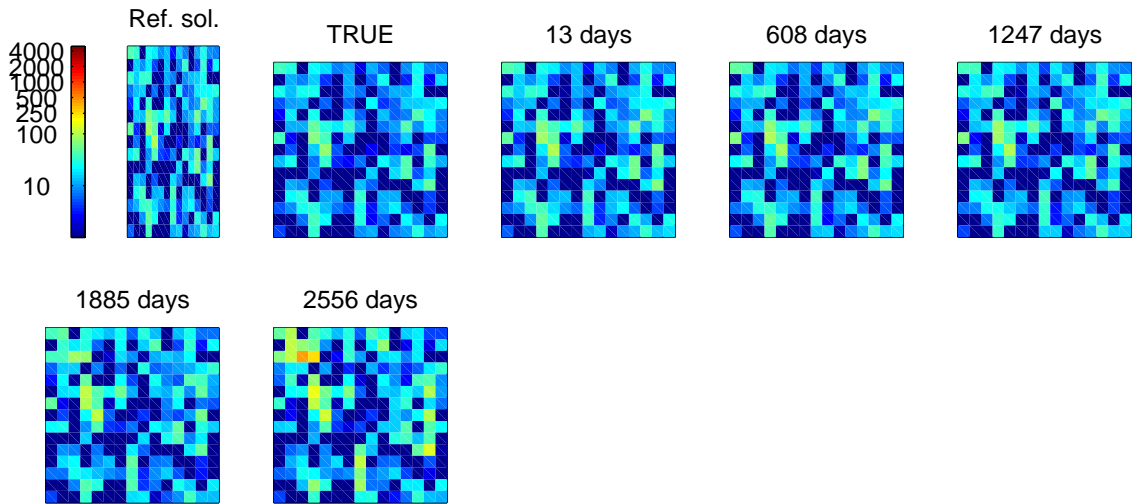


**Figure 159:** PERMZ for ensemble member 1 for layer 9

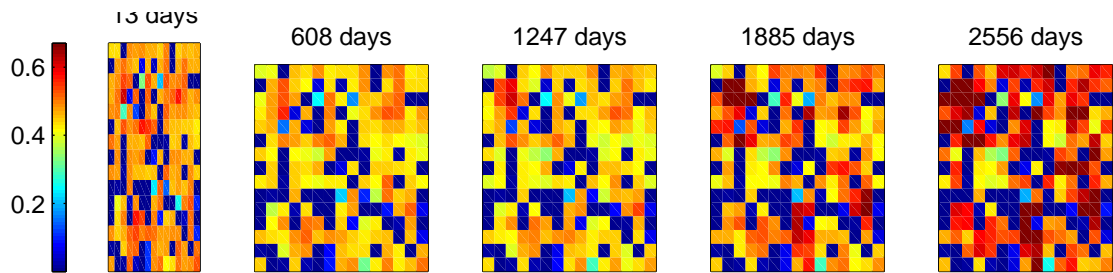


**Figure 160:** PERMZ for ensemble member 2 for layer 9

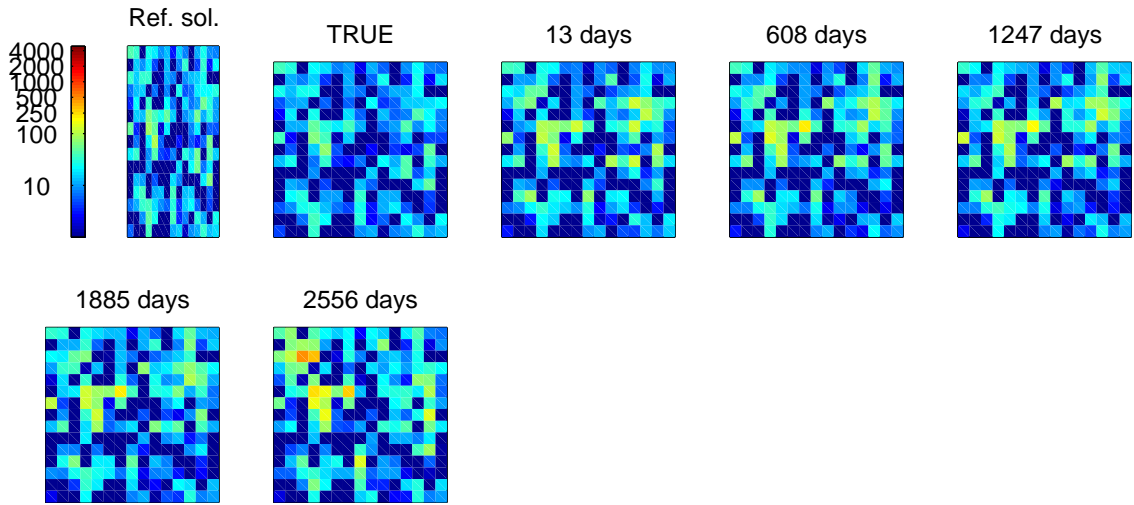
## 41 PERMZ for layer 10



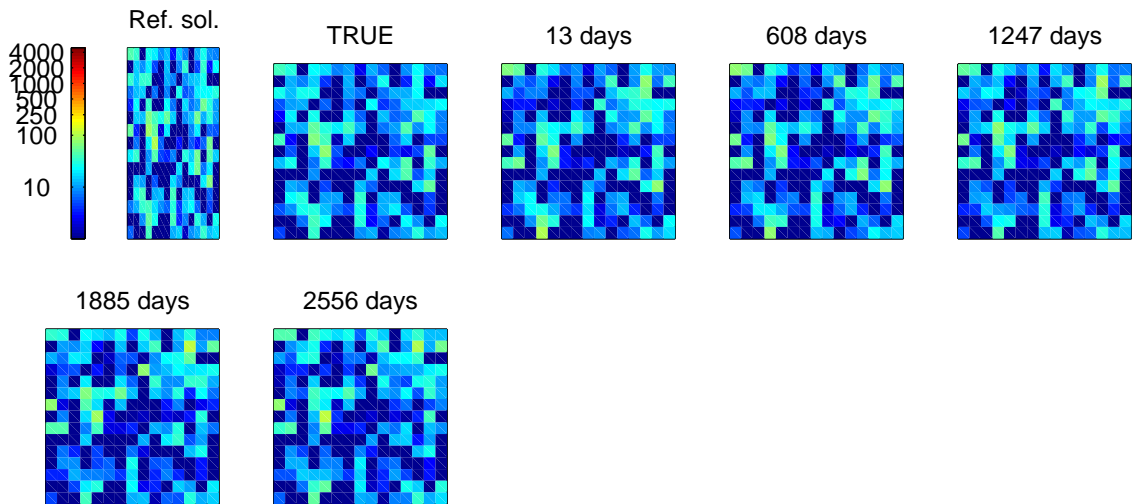
**Figure 161:** PERMZ mean value for layer 10



**Figure 162:** PERMZ standard deviation for layer 10



**Figure 163:** PERMZ for ensemble member 1 for layer 10



**Figure 164:** PERMZ for ensemble member 2 for layer 10