Biofilm colonisation area calculation

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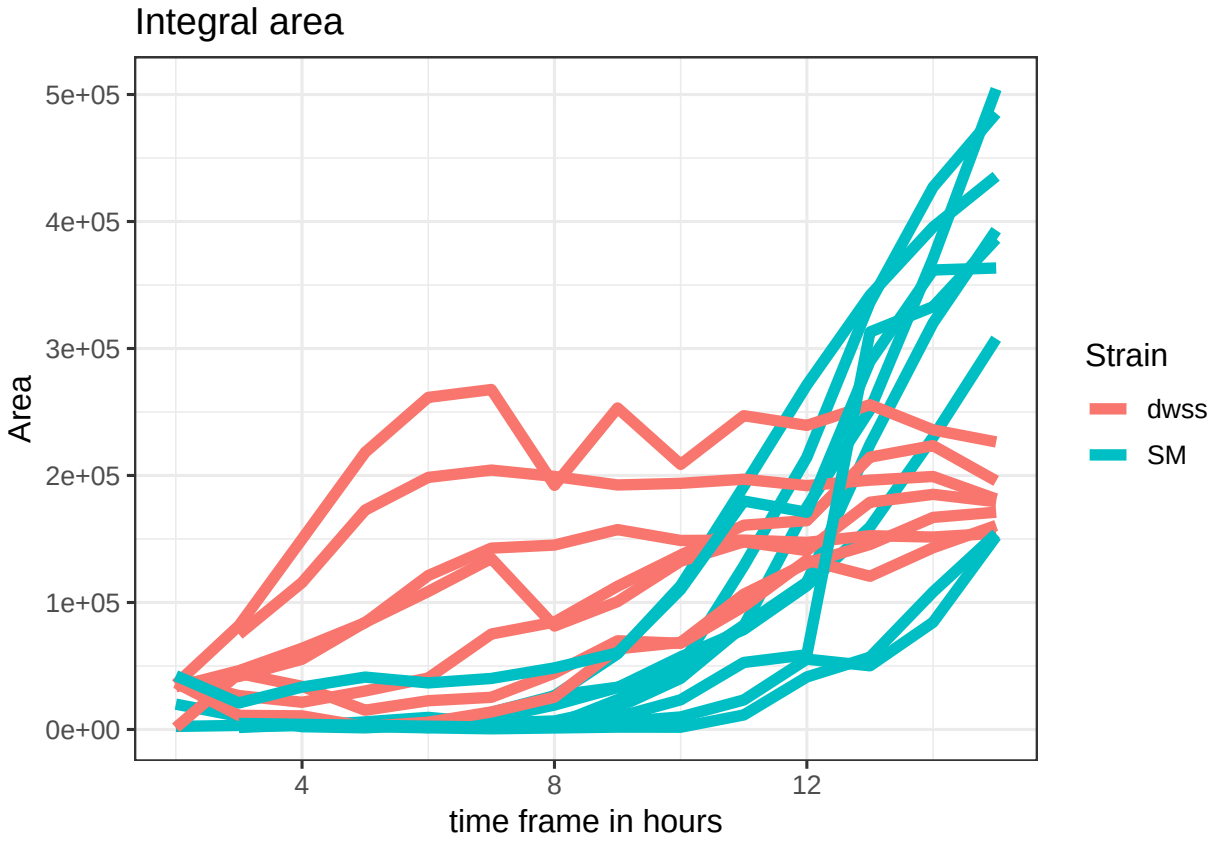
Contents

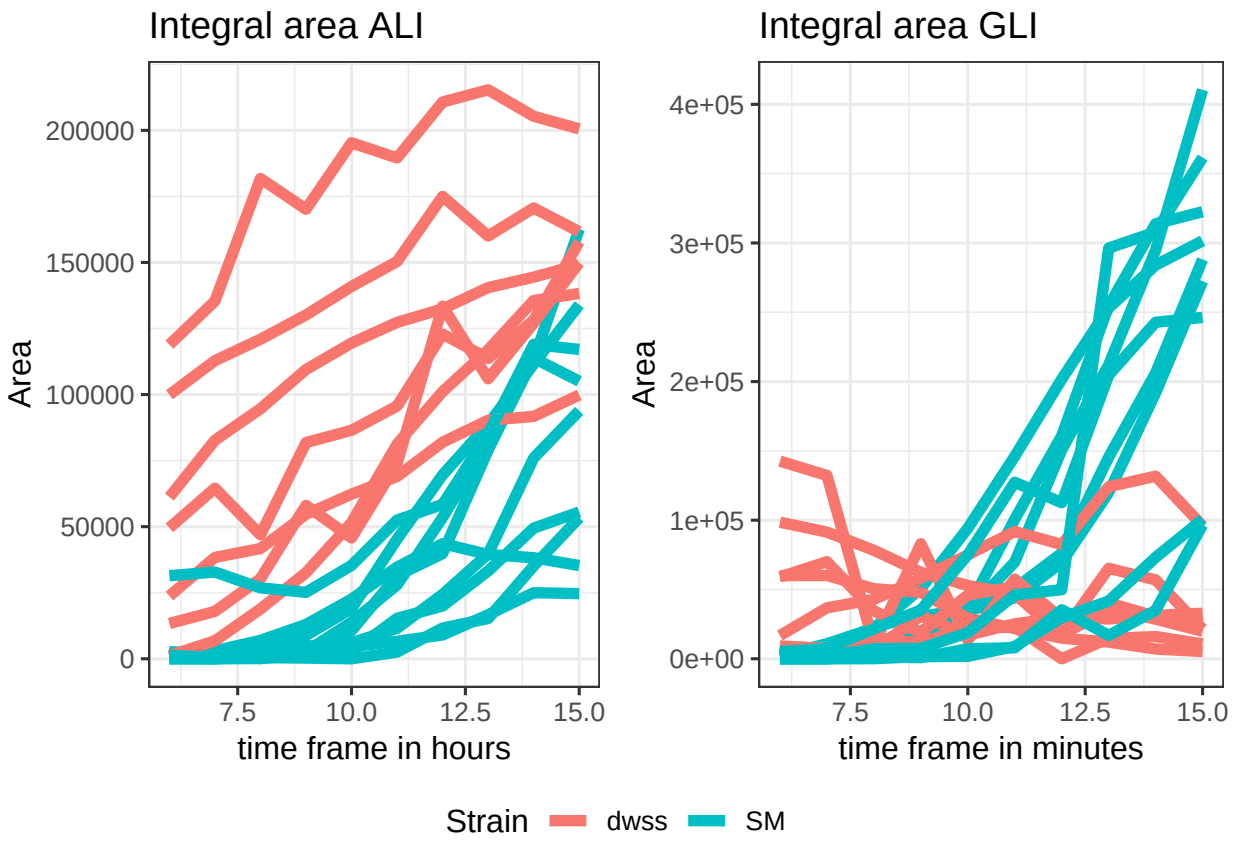
Integral area

Integral area represent sum of the colonized pixel for each frame. Each frame represent one hour of experiment. Here we are interested in 15 first hours.

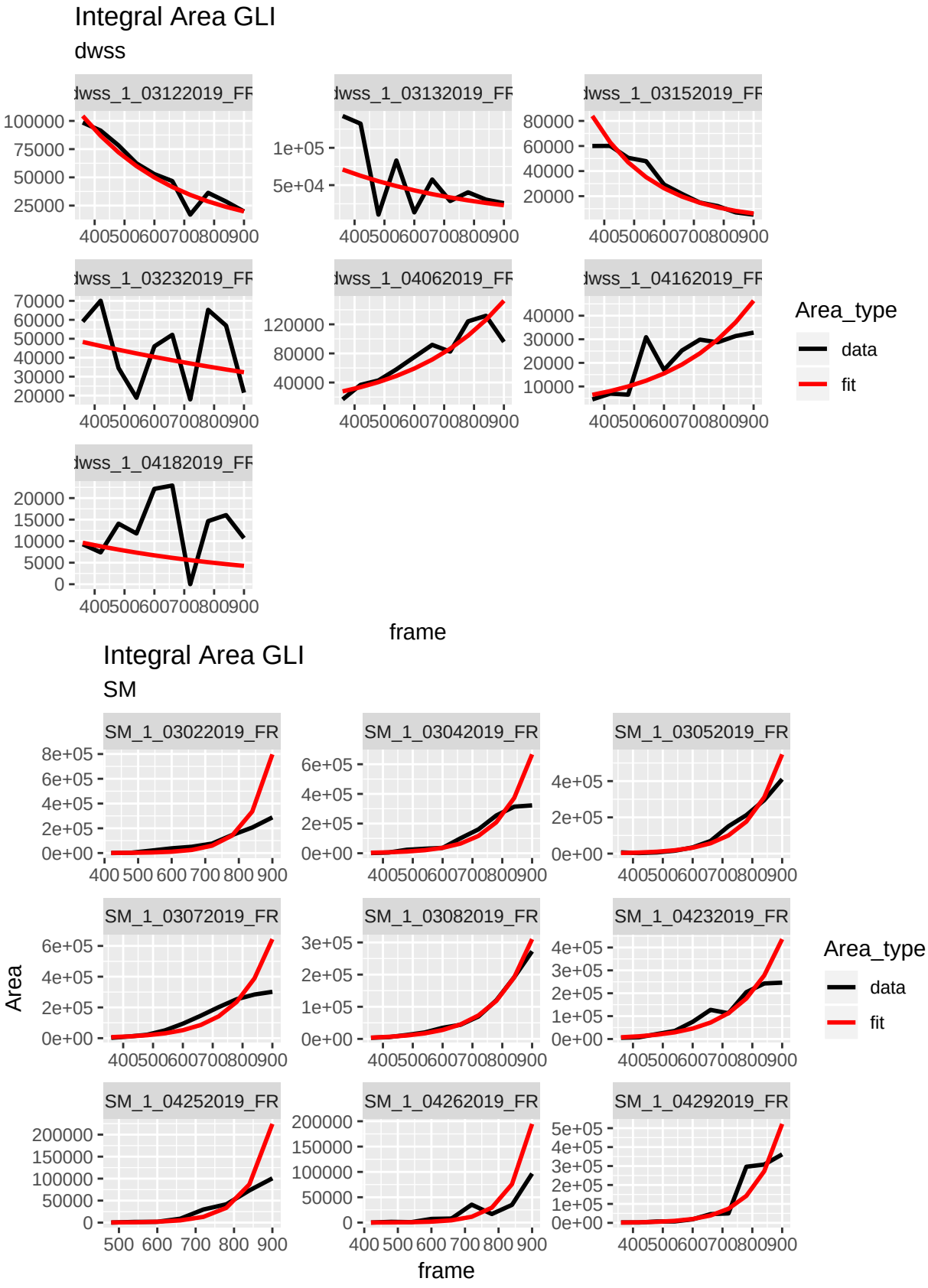


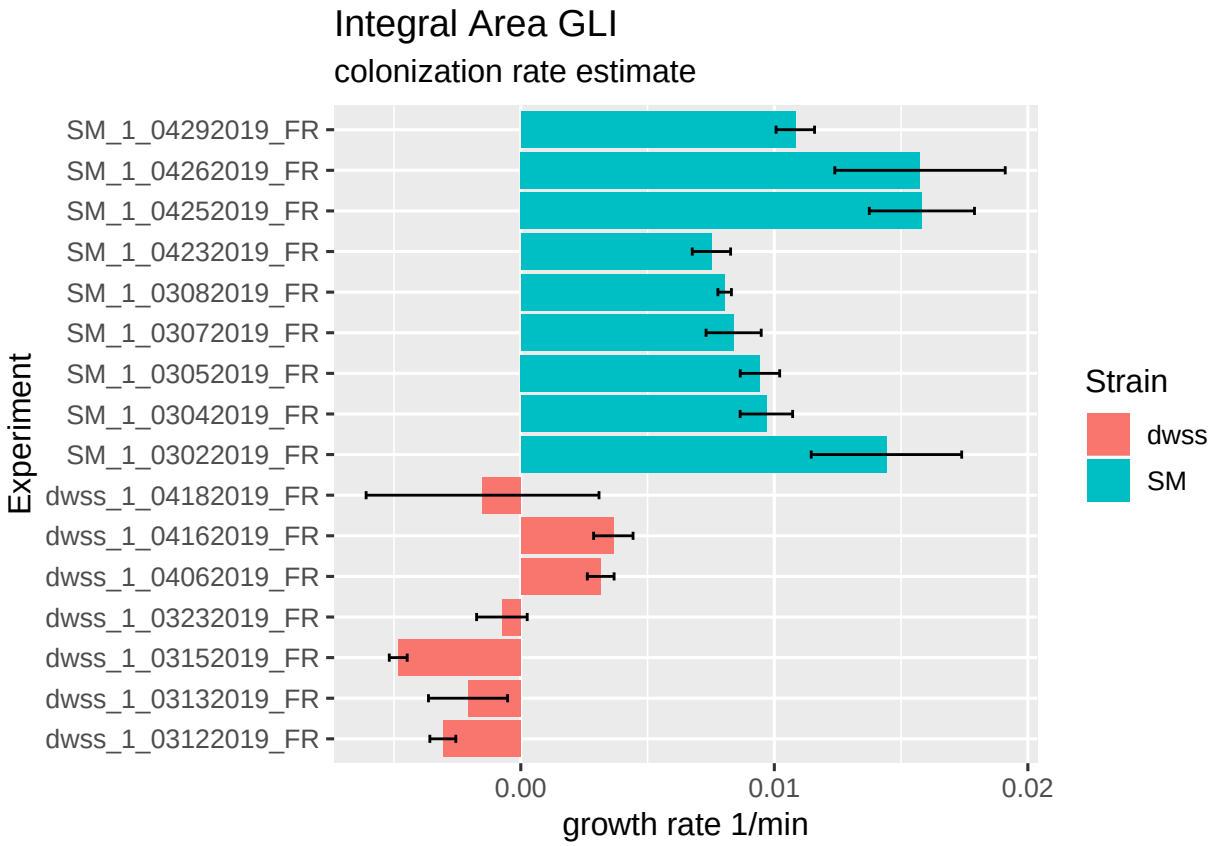
Integlal area ALI and GALI

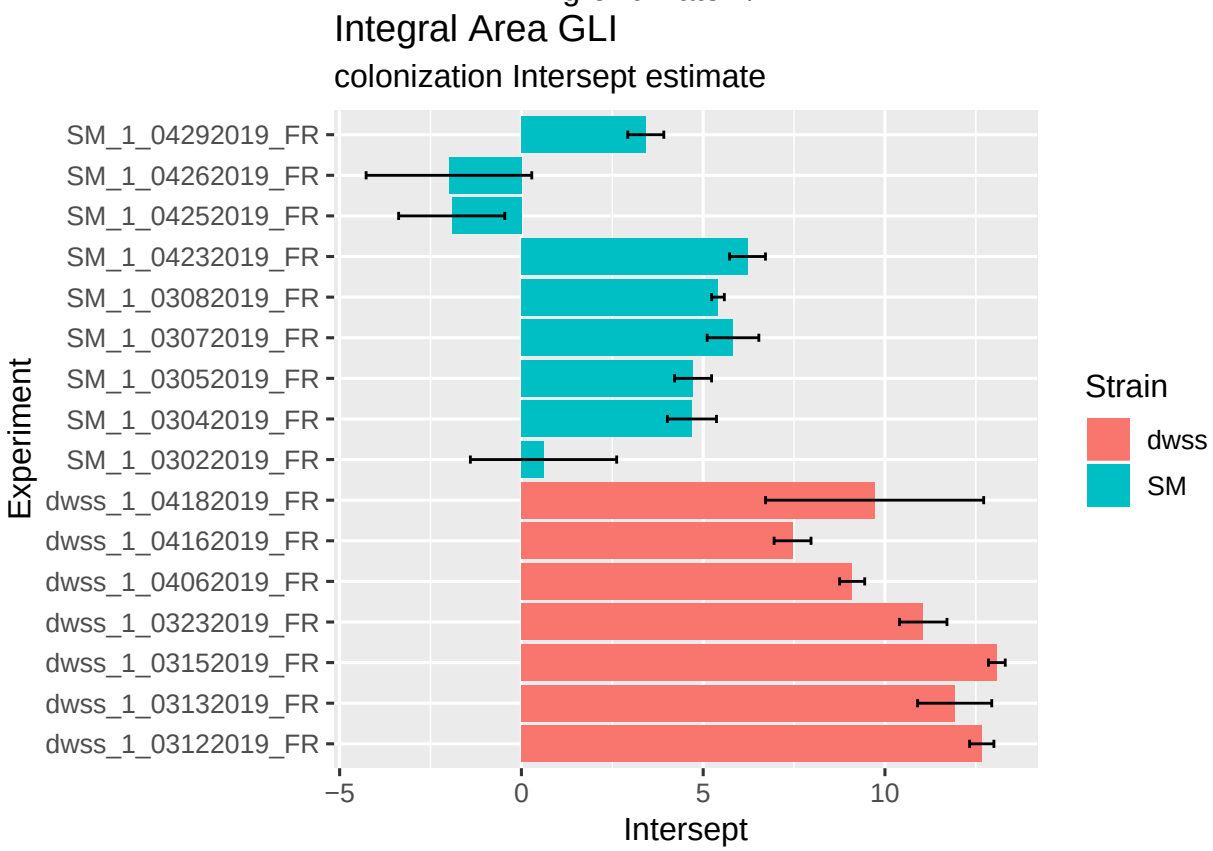
We cutted each image to the two parts: ALI part includes 200px (32mkm) layer counted from the ALI, and GLI part includes rest part of the image. The integral area per Strain expreriment is shown below.

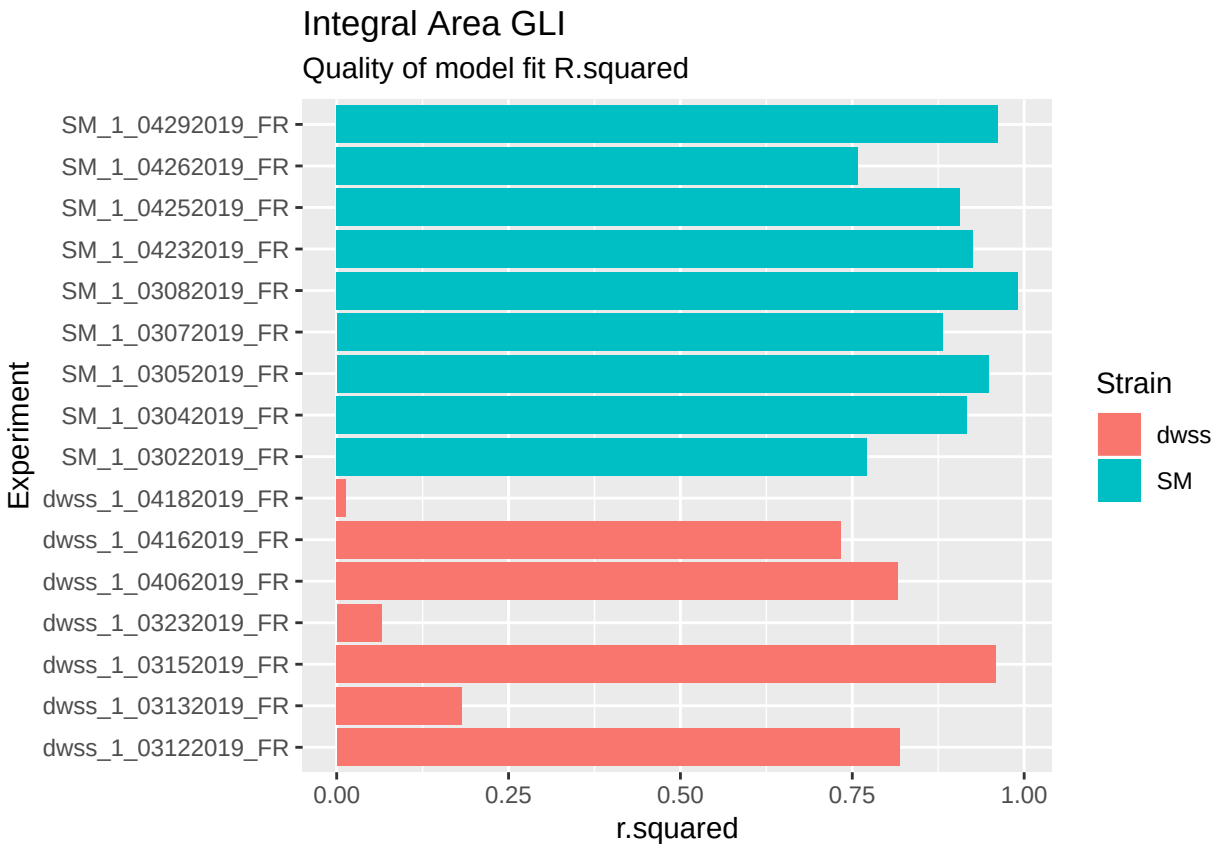


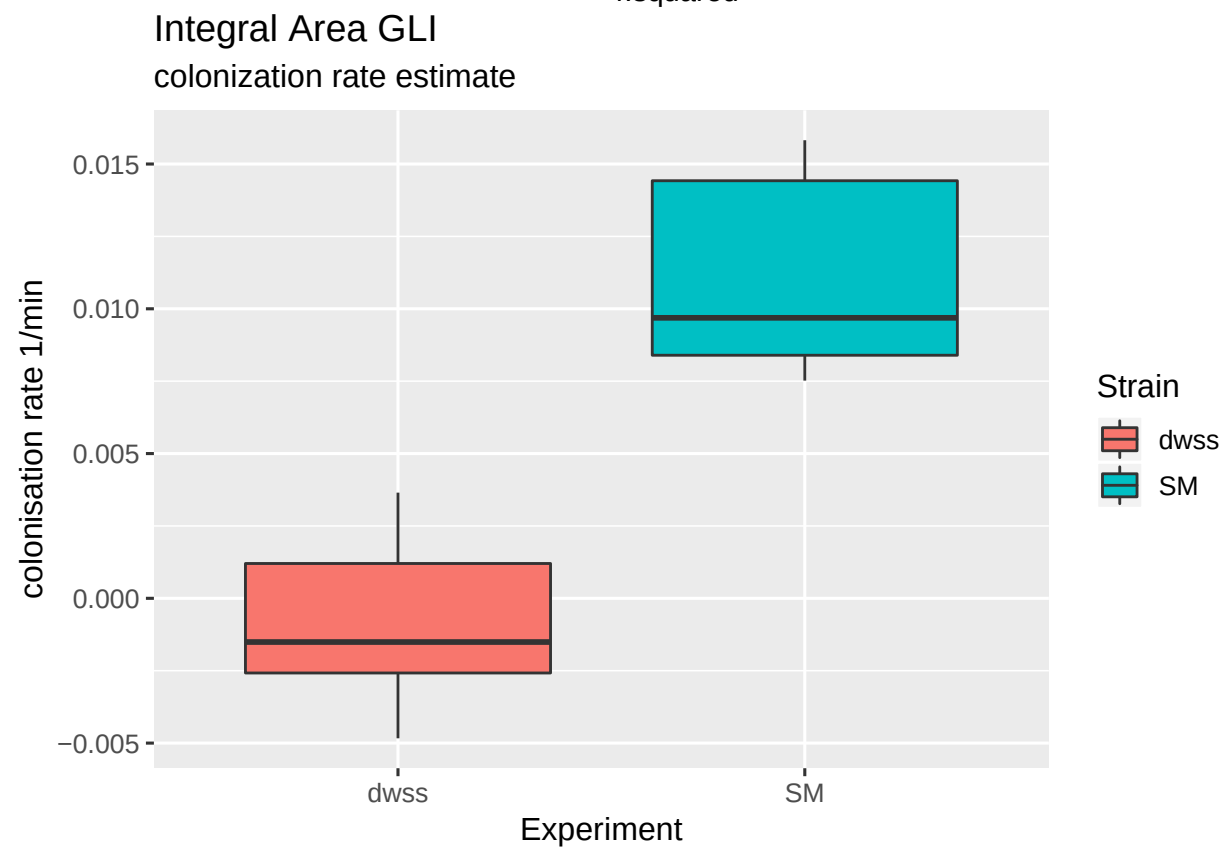
We fitted ALI and GALI separately by Log(Area)~A+B*frame.

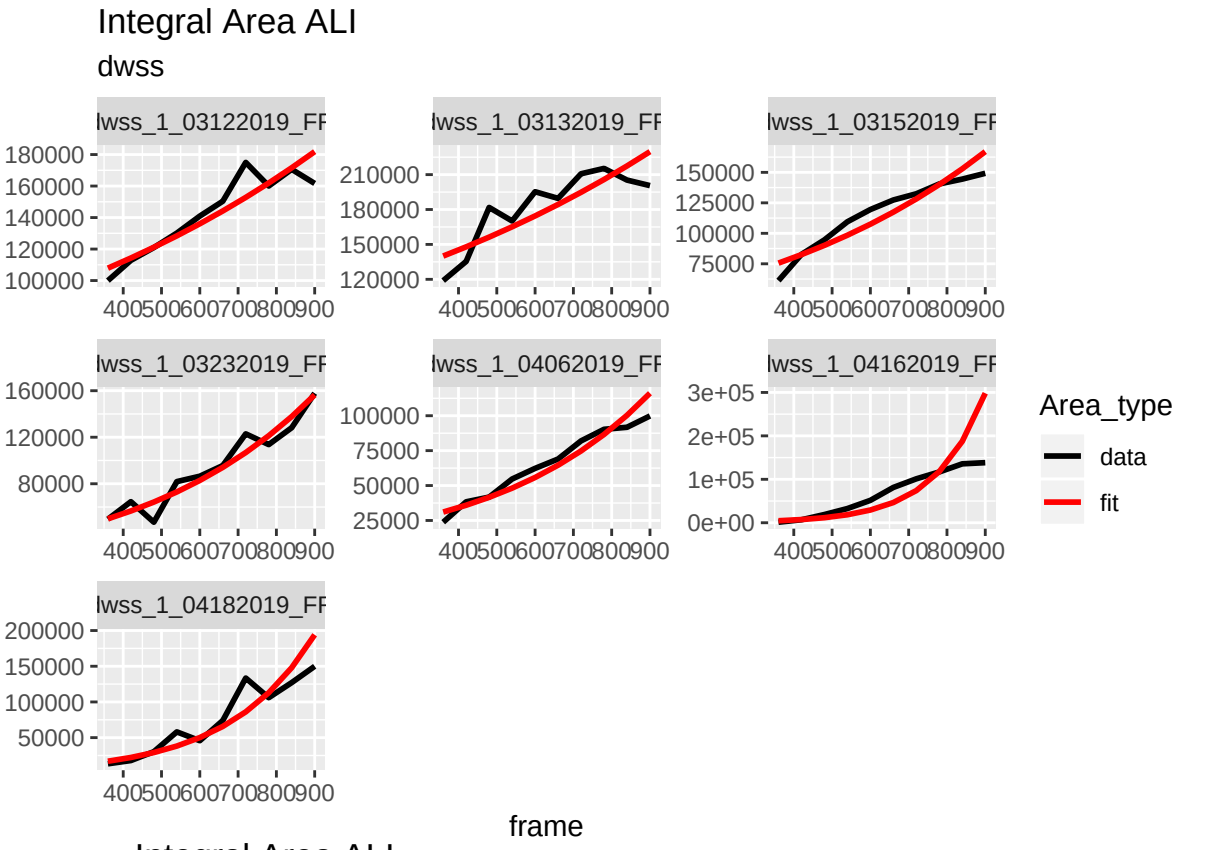

Integral Area GLI
dwss
dwss_1_03122019_FR
dwss_1_03132019_FR
dwss_1_03152019_FR
dwss_1_03232019_FR
dwss_1_04062019_FR
dwss_1_04162019_FR
dwss_1_04182019_FR
Area_type
data
fit
frame
Integral Area GLI
SM
SM_1_03022019_FR
SM_1_03042019_FR
SM_1_03052019_FR
SM_1_03072019_FR
SM_1_03082019_FR
SM_1_04232019_FR
SM_1_04252019_FR
SM_1_04262019_FR
SM_1_04292019_FR
Area
Area_type
data
fit
frame

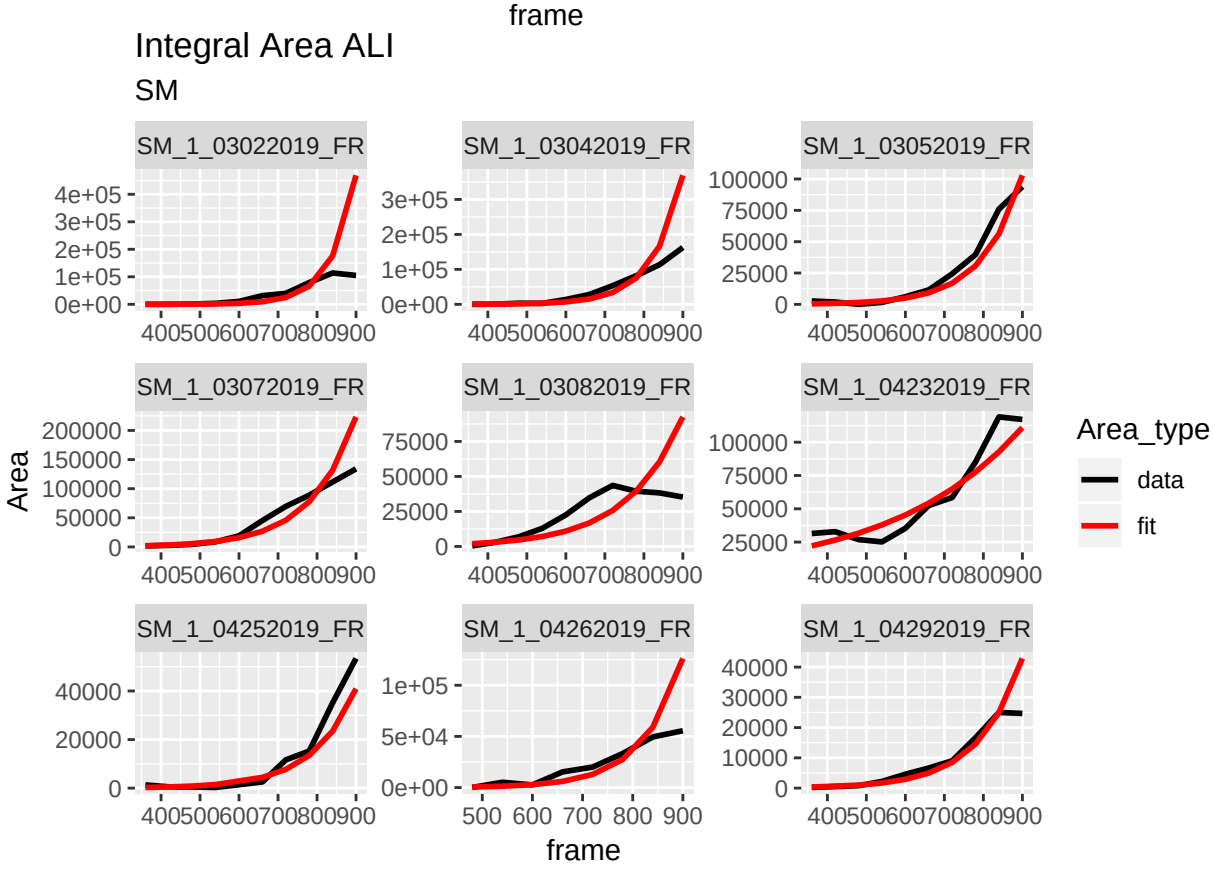

Integral Area GLI
colonization rate estimate
Experiment
SM_1_04292019_FR
SM_1_04262019_FR
SM_1_04252019_FR
SM_1_04232019_FR
SM_1_03082019_FR
SM_1_03072019_FR
SM_1_03052019_FR
SM_1_03042019_FR
SM_1_03022019_FR
dwss_1_04182019_FR
dwss_1_04162019_FR
dwss_1_04062019_FR
dwss_1_03232019_FR
dwss_1_03152019_FR
dwss_1_03132019_FR
dwss_1_03122019_FR
0.00
0.01
0.02
growth rate 1/min
Strain
dwss
SM

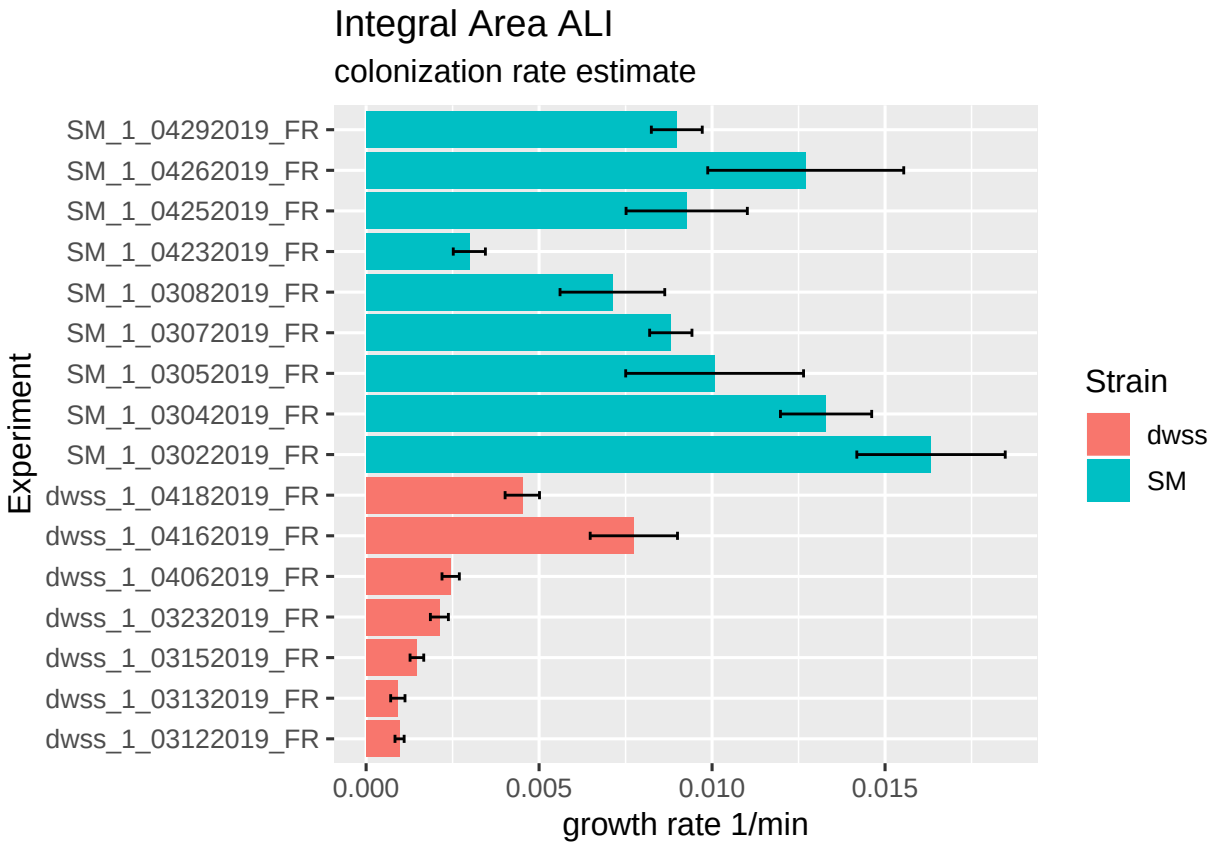

Integral Area GLI
colonization Intersept estimate
Experiment
SM_1_04292019_FR
SM_1_04262019_FR
SM_1_04252019_FR
SM_1_04232019_FR
SM_1_03082019_FR
SM_1_03072019_FR
SM_1_03052019_FR
SM_1_03042019_FR
SM_1_03022019_FR
dwss_1_04182019_FR
dwss_1_04162019_FR
dwss_1_04062019_FR
dwss_1_03232019_FR
dwss_1_03152019_FR
dwss_1_03132019_FR
dwss_1_03122019_FR
−5
0
5
10
Intersept
Strain
dwss
SM

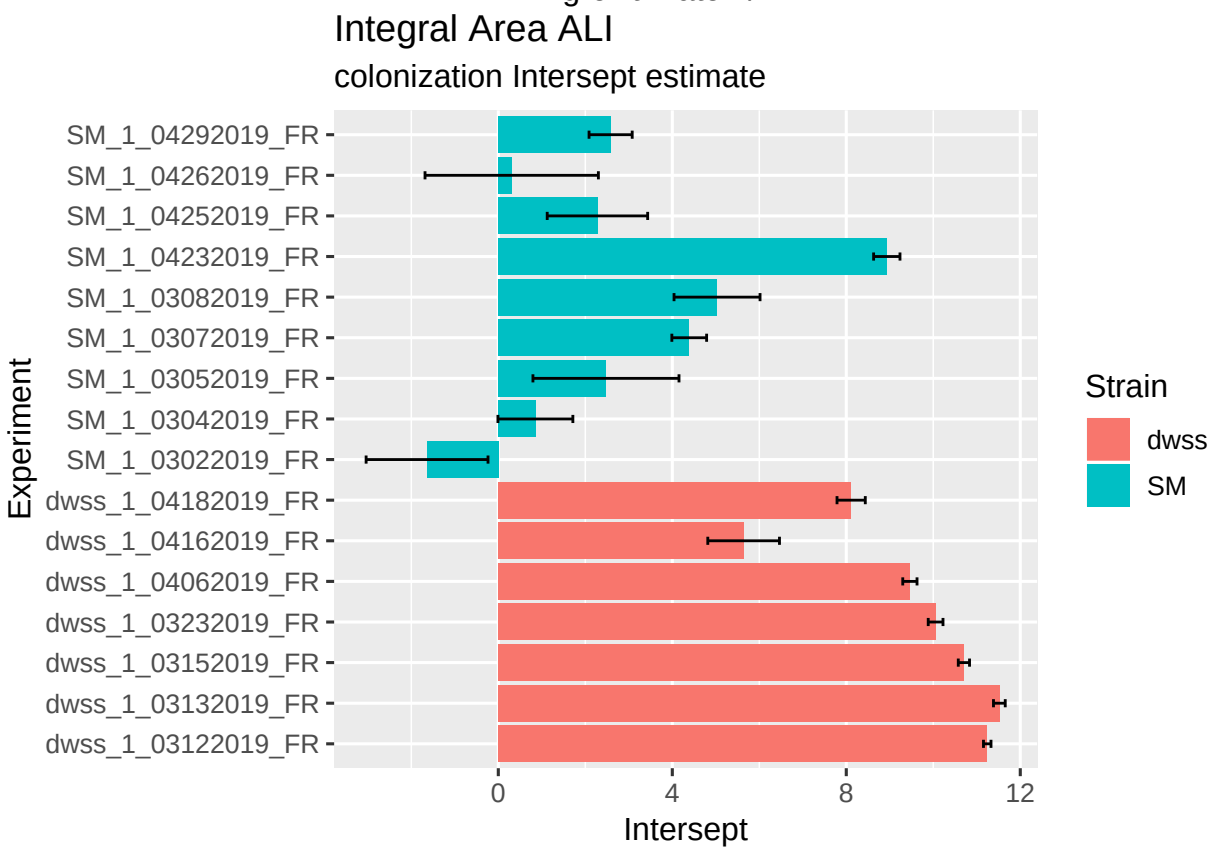

Integral Area GLI
Quality of model fit R.squared
SM_1_04292019_FR
SM_1_04262019_FR
SM_1_04252019_FR
SM_1_04232019_FR
SM_1_03082019_FR
SM_1_03072019_FR
SM_1_03052019_FR
SM_1_03042019_FR
SM_1_03022019_FR
dwss_1_04182019_FR
dwss_1_04162019_FR
dwss_1_04062019_FR
dwss_1_03232019_FR
dwss_1_03152019_FR
dwss_1_03132019_FR
dwss_1_03122019_FR
Experiment
0.00
0.25
0.50
0.75
1.00
r.squared
Strain
dwss
SM

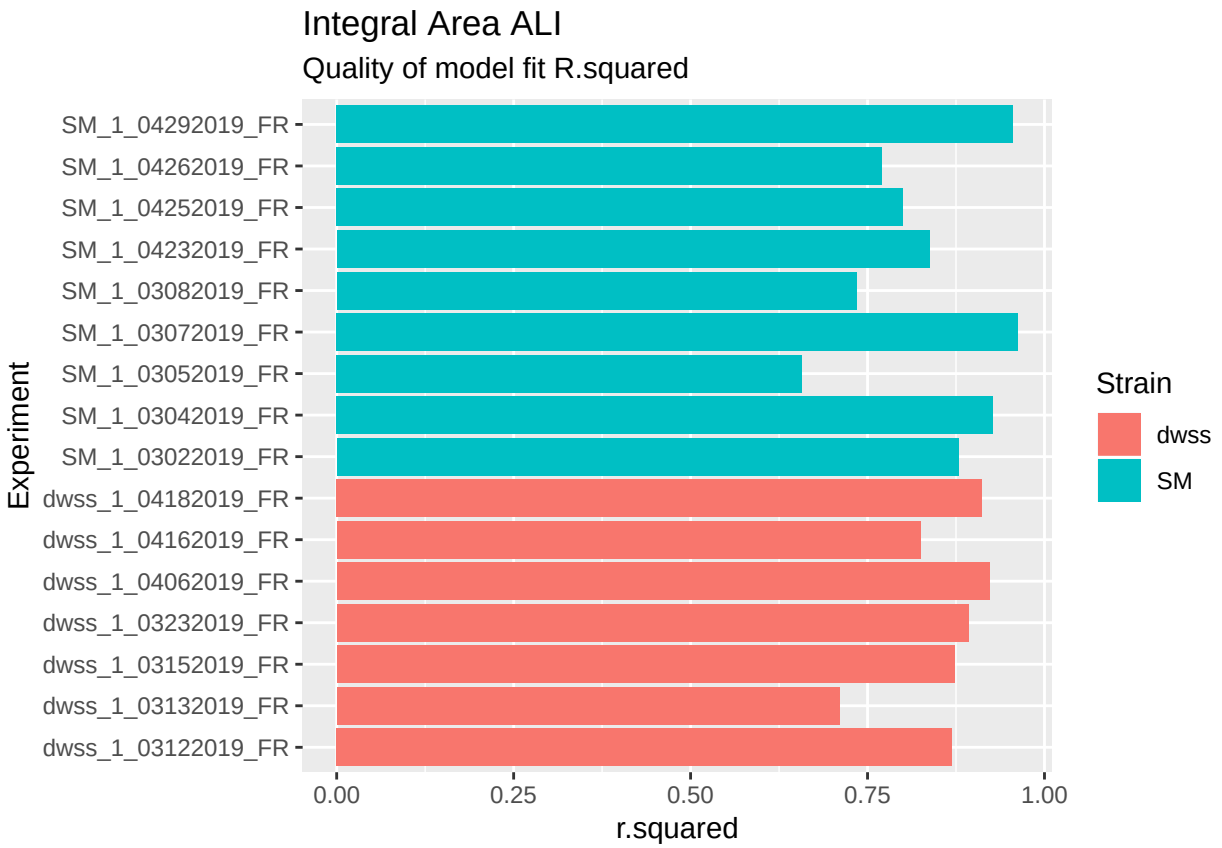

Integral Area GLI
colonization rate estimate
0.015
0.010
0.005
0.000
−0.005
colonisation rate 1/min
dwss
SM
Experiment
Strain
dwss
SM

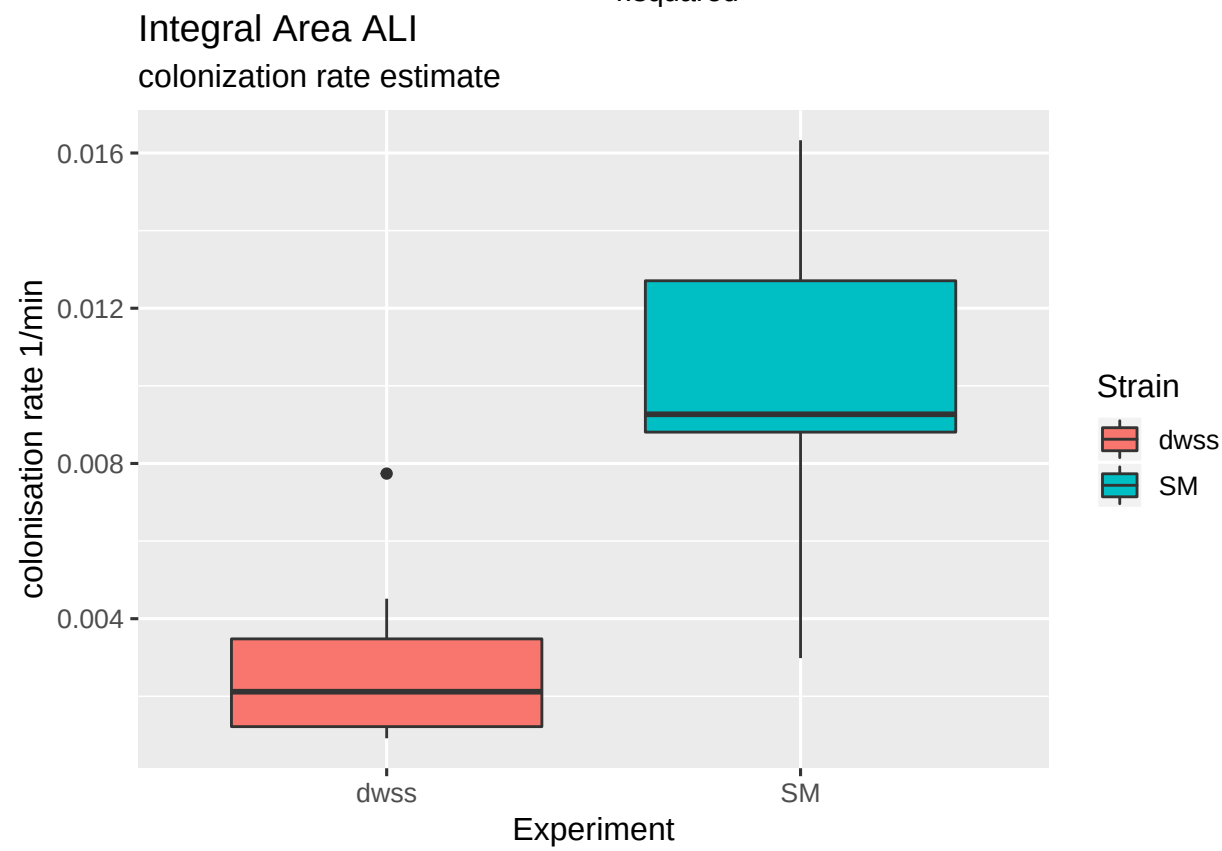

Integral Area ALI
dwss
lwss_1_03122019_FR
lwss_1_03132019_FR
lwss_1_03152019_FR
lwss_1_03232019_FR
lwss_1_04062019_FR
lwss_1_04162019_FR
lwss_1_04182019_FR
Area_type
data
fit
frame


Integral Area ALI
SM
SM_1_03022019_FR
SM_1_03042019_FR
SM_1_03052019_FR
SM_1_03072019_FR
SM_1_03082019_FR
SM_1_04232019_FR
SM_1_04252019_FR
SM_1_04262019_FR
SM_1_04292019_FR
Area
Area_type
data
fit
frame


Integral Area ALI
colonization rate estimate
SM_1_04292019_FR
SM_1_04262019_FR
SM_1_04252019_FR
SM_1_04232019_FR
SM_1_03082019_FR
SM_1_03072019_FR
SM_1_03052019_FR
SM_1_03042019_FR
SM_1_03022019_FR
dwss_1_04182019_FR
dwss_1_04162019_FR
dwss_1_04062019_FR
dwss_1_03232019_FR
dwss_1_03152019_FR
dwss_1_03132019_FR
dwss_1_03122019_FR
Experiment
0.000
0.005
0.010
0.015
growth rate 1/min
Strain
dwss
SM


Integral Area ALI
colonization Intersept estimate
SM_1_04292019_FR
SM_1_04262019_FR
SM_1_04252019_FR
SM_1_04232019_FR
SM_1_03082019_FR
SM_1_03072019_FR
SM_1_03052019_FR
SM_1_03042019_FR
SM_1_03022019_FR
dwss_1_04182019_FR
dwss_1_04162019_FR
dwss_1_04062019_FR
dwss_1_03232019_FR
dwss_1_03152019_FR
dwss_1_03132019_FR
dwss_1_03122019_FR
Experiment
0
4
8
12
Intersept
Strain
dwss
SM


Integral Area ALI
Quality of model fit R.squared
SM_1_04292019_FR
SM_1_04262019_FR
SM_1_04252019_FR
SM_1_04232019_FR
SM_1_03082019_FR
SM_1_03072019_FR
SM_1_03052019_FR
SM_1_03042019_FR
SM_1_03022019_FR
dwss_1_04182019_FR
dwss_1_04162019_FR
dwss_1_04062019_FR
dwss_1_03232019_FR
dwss_1_03152019_FR
dwss_1_03132019_FR
dwss_1_03122019_FR
Experiment
0.00
0.25
0.50
0.75
1.00
r.squared
Strain
dwss
SM


Integral Area ALI
colonization rate estimate
0.016
0.012
0.008
0.004
colonisation rate 1/min
dwss
SM
Experiment
Strain
dwss
SM

Colonisation area per Layer

LayerSize=32 mkm (200px)