**MODELAÇÃO DOS RECURSOS FLORESTAIS 2019/20**

***FOREST MODELS 2019/20***

***Continuous evaluation – Topic 6***

***StandsSIM, simulator practice***

sIMfLOR is a platform that integrates several simulators developed for the main Portuguese forest species under a common environment. Using StandsSIM.md run the following simulations and answer the following questions.

**Background information:** São Salvador is a maritime pine thinning trial located in Viseu. The trial established in 1981 in a naturally regenerated stand was 19 years old at the trial establishment. The experimental design is complete randomized block with 4 treatments: a control (no thinning) and 3 thinning severities: heavy, intermediate and light. Each plot is rectangular and has a total area of 1000 m2. The stand is at an altitude of 553 m a.s.l. Simulate from 1981 until 2012 considering 3 thinnings in years 1981, 1986 and 1999 and the thinning criteria and severities described in the table below.

|  |  |  |
| --- | --- | --- |
| Id\_plot | Nr trees / plot | Residual Basal área |
| SSB309 | 327 | - |
| SSB310 | 296 | 26-28 m2ha-1 |
| SSB311 | 185 | 22-24 m2ha-1 |
| SSB312 | 180 | 18-20 m2ha-1 |

Compare the simulations of the PINASTER model with real data for one of the 3 thinned plots of your choice (SSB310, SSB311, SSB312) to evaluate the PINASTER model.

The **SSalvador\_realData.xlsx** contain the evolution of diameter distributions and stand variables computed with the data from measurements for each of the plots 12 plots in the trial. Inside you’ll find information about the codes “Id\_status” (1 – unthinned; 2 – thinned this year) and “Status” (BT – before thinning; AT – after thinning).

The tree level inputs for each of the plots are **SSB309.csv**, **SSB310.csv**, **SSB311.csv** and **SSB312.csv**. Consider using the default costs (operations and consumables) and assortments.

The characterization of the stand has to be made throught the interface. Note that all required inputs for stand characterization have been provided in the text (“Nr trees” is the number of trees in the plot, “area” is the plot area). You can leave the “thinning” (number of years since last thinning) set to zero.

Please make sure that the id of the plot/stand (“Plot”) is the same in the tree level input file and in the generated stand level file, otherwise you’ll get the following message in the black window:



1) Define the planning horizon and justify why you’ve chosen to simulate that number of years.

2) Until what age will you have to define your FMA approach to guarantee you cover the whole simulation period?

3) Use the generator to define the FMAs to reproduce the management carried out in each of your 2 plots:

|  |  |
| --- | --- |
| plot | Description of FMA (disregard other operations apart from thinning) |
| SSB309 | At age 22 carry out a low thinning (coniferous stands with more than 8 years) considering residual basal area as the criteria. Repeat the operation for age 37. Consult basal area in the RealData file to get the basal area at both these ages. |
| SSB310 | At ages 19, 24, 37 carry out a low thinning coniferous (stands with more than 8 years). Check the table above to know the criteria and thinning intensity. |
| SSB311 |
| SSB312 |

4) Have you encountered any problems so far? How do you propose to solve it?

5) Repeat the following steps for each of the 2 selected plots:

1. Project the stand, applying thinnings with a severity similar to the one used for each plot
2. Plot the observed and simulated data for the most important stand variables and for the diameter distributions

6) Discuss the results