Assignment #: Silver Springs Model

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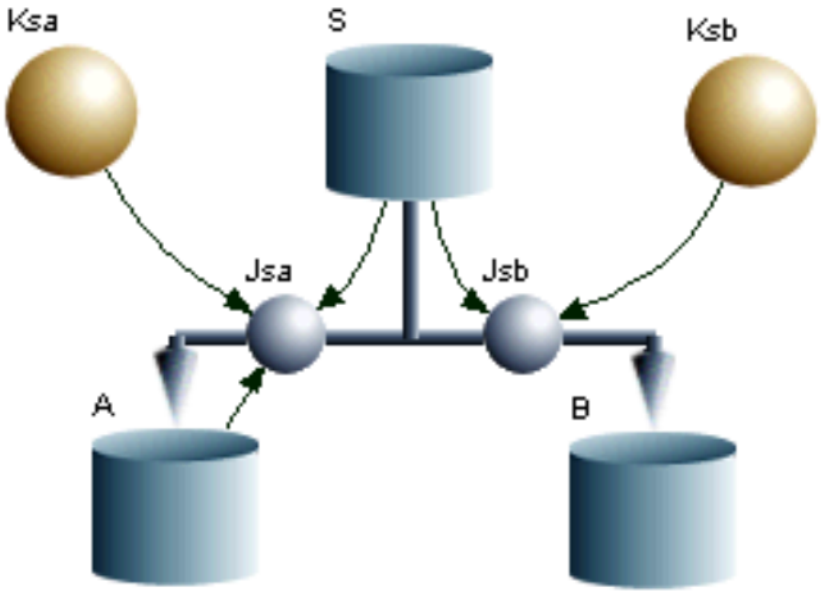
1 A Brief Introduction

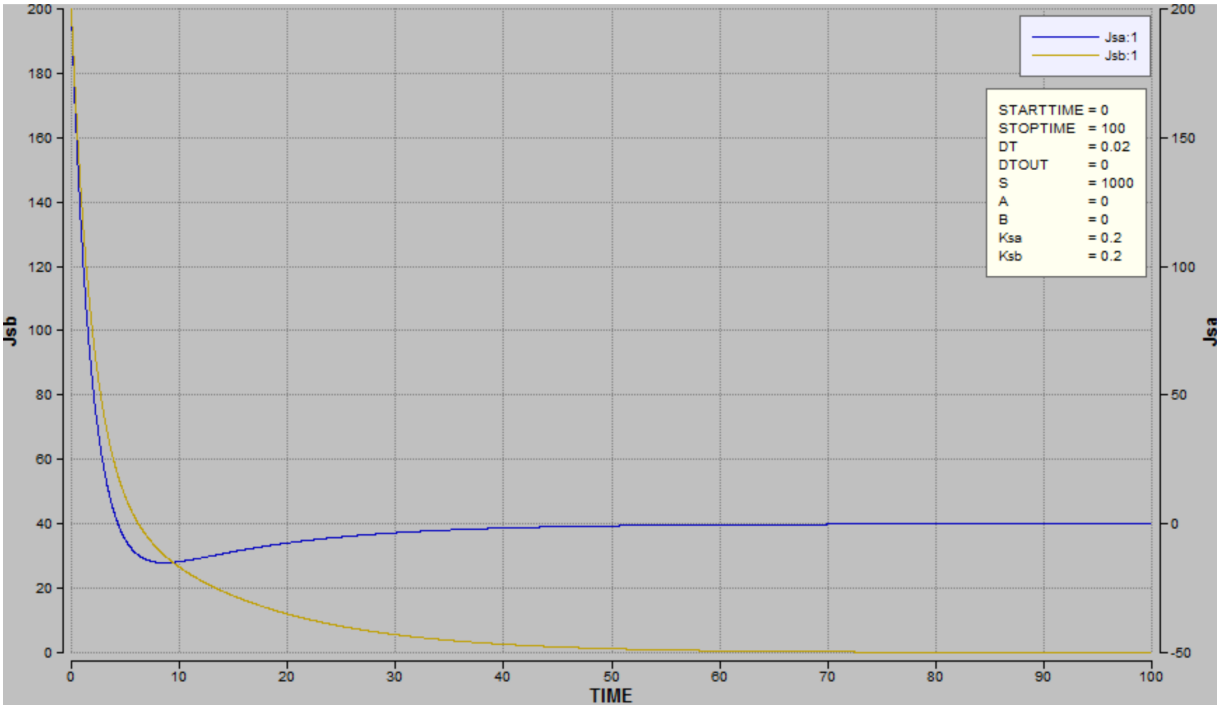
In this model,

2 Results

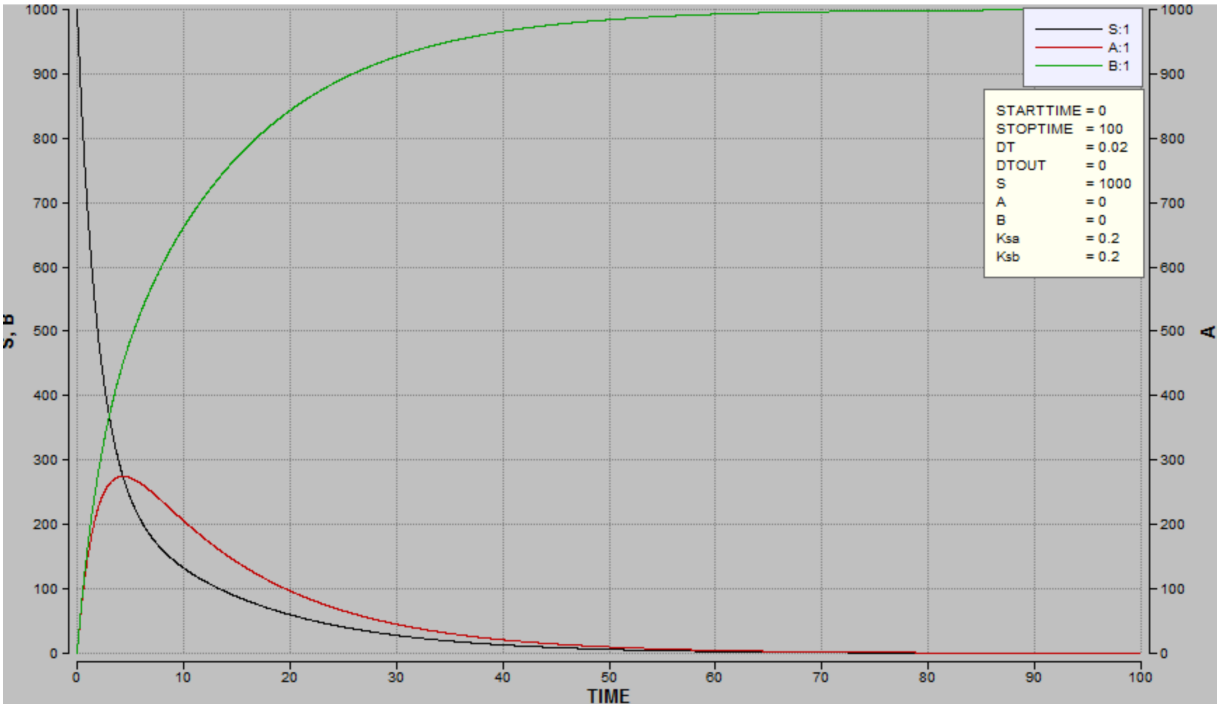
2.0.1 Compartment Model



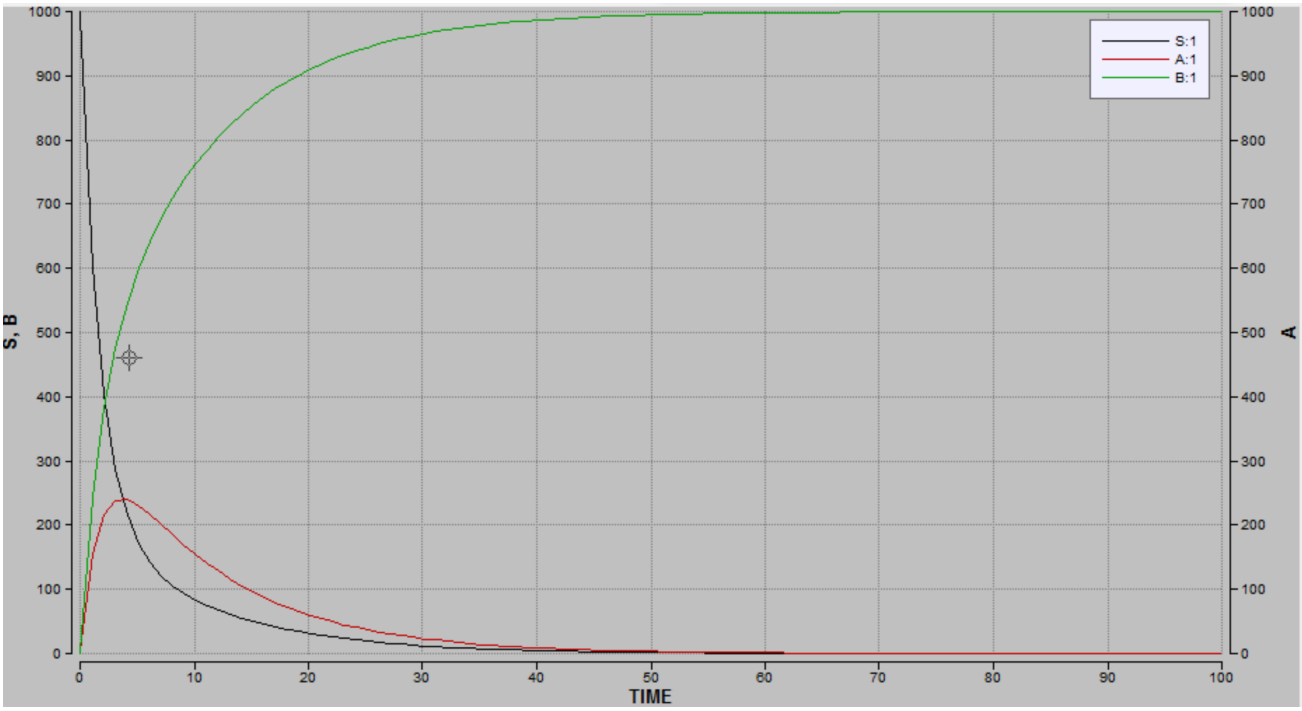
2.0.2 Flow vs Time



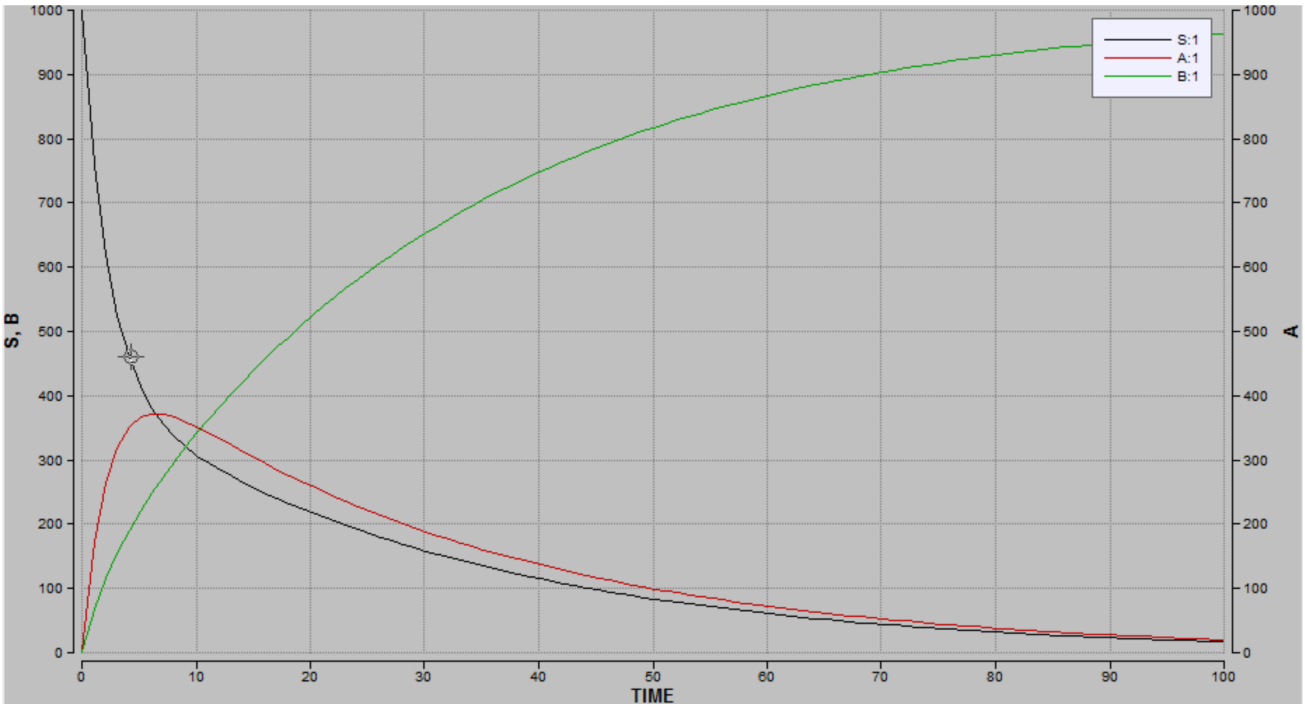
2.1 Reservoir level Over Time



2.2 Ksb > Ksa


S:1
A:1
B:1
S, B
A
TIME
0
100
200
300
400
500
600
700
800
900
1000
10
20
30
40
50
60
70
80
90

2.3 Ksb < Ksa



3 Conclusion

From my observations, when the graph of S intersects with a graph from either A or B, it presents an equilibrium of the two compartment volume. When the K_{sb} value is greater than the K_{sa}, compartment B fills up at a faster pace. When the K_{sb} value is less than the K_{sa}, compartment A will have a higher volume than B up to when the graph of A intersects with the graph of B. In conclusion, when S decreases both graph of A and B increases; however, the graph of A will began to decrease when it intersects with S.

4 Appendix

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{Top model}

   {Reservoirs}
   d/dt (S) = - Jsa - Jsb
      INIT S = 1000
   d/dt (A) = + Jsa
      INIT A = 0
   d/dt (B) = + Jsb
      INIT B = 0

   {Flows}
   Jsa = Ksa * ( S - A)
   Jsb = Ksb * S

   {Functions}
   Ksa = 0.2
   Ksb = 0.2
{Globals}
{End Globals}
```