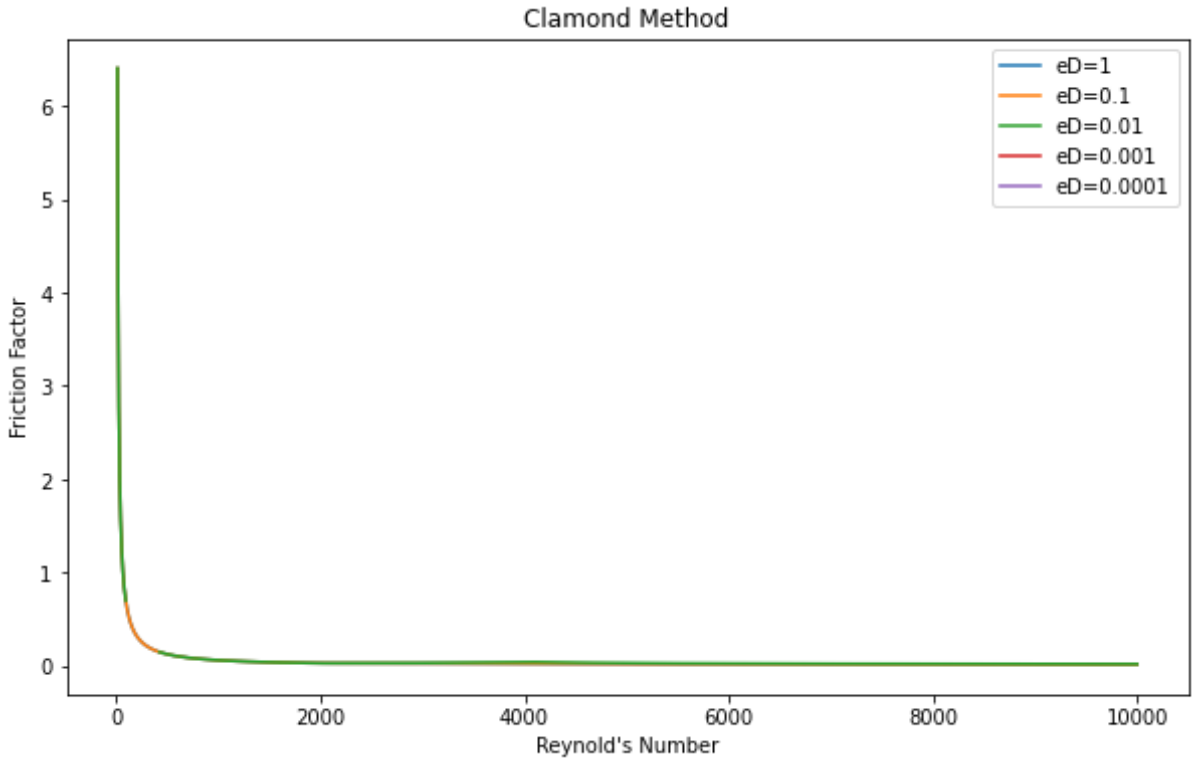
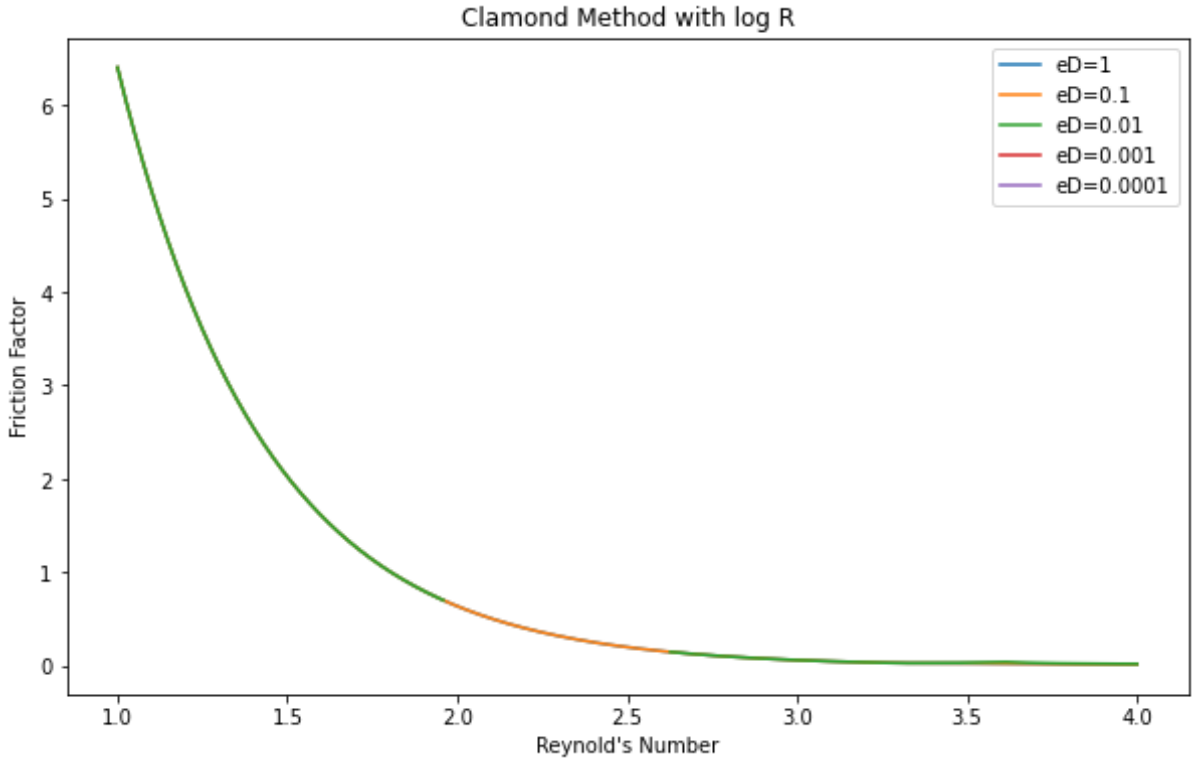
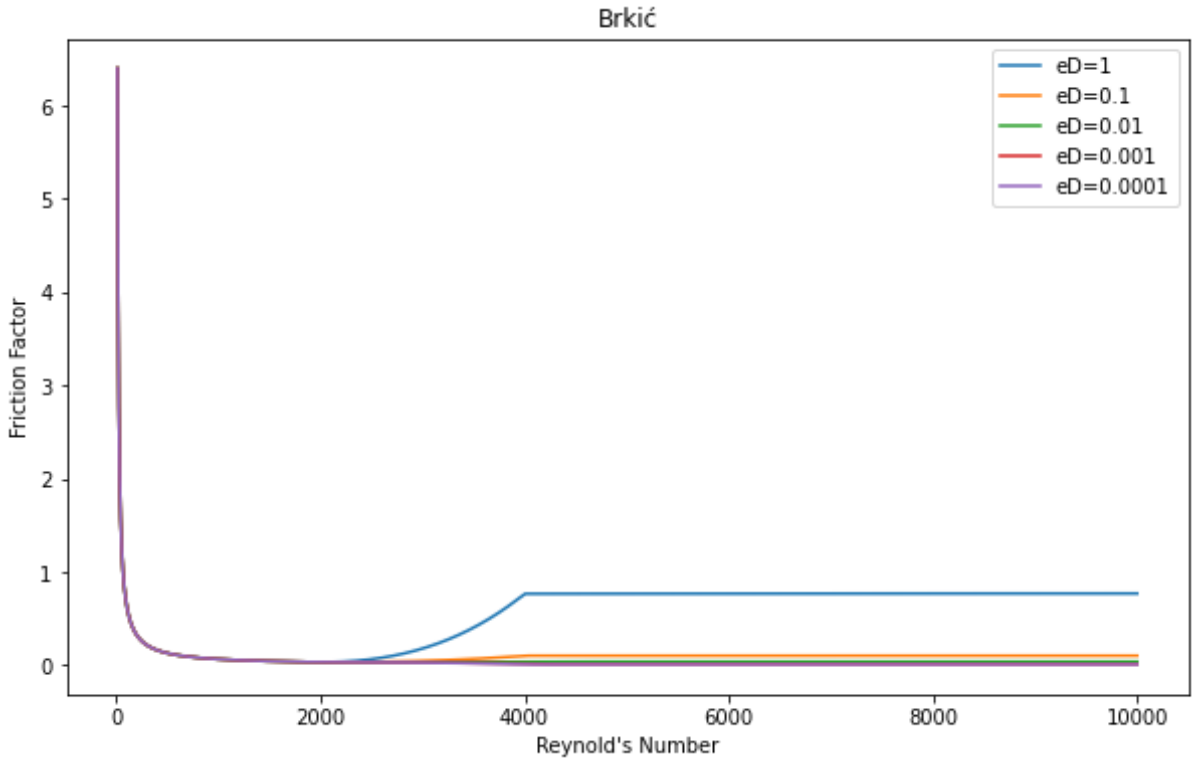
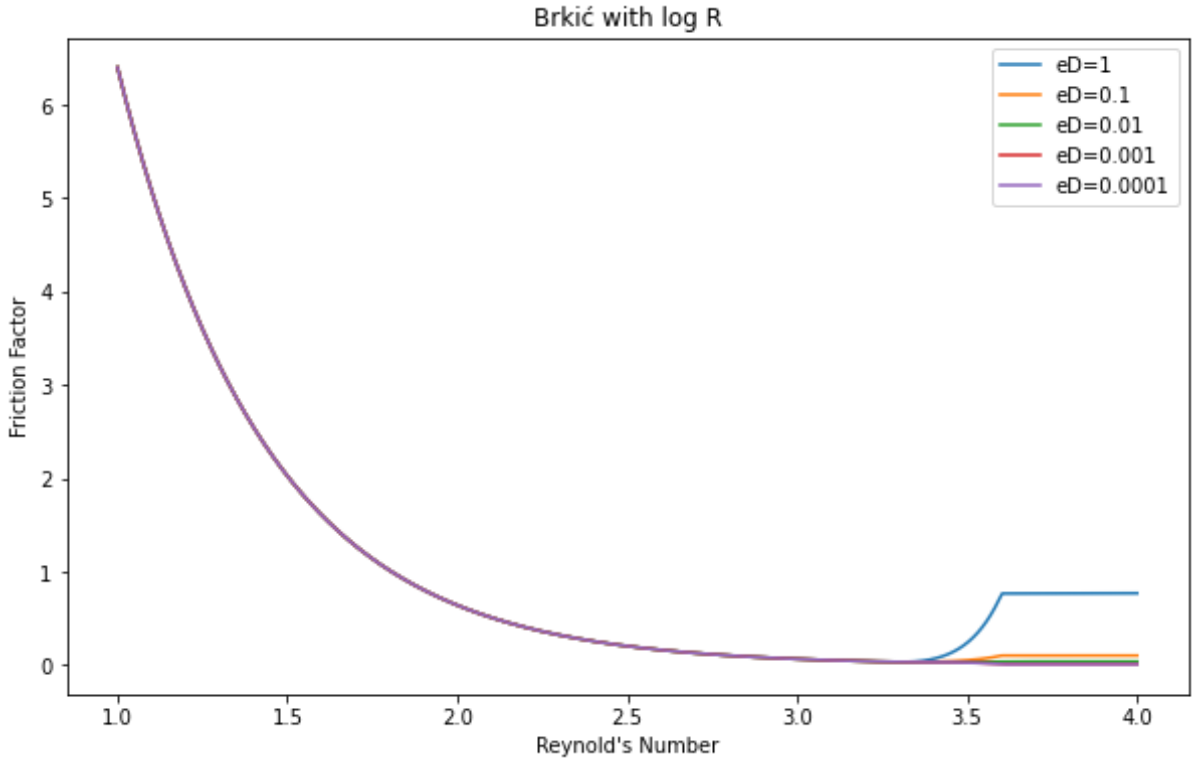

Clamond Method
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000


Clamond Method with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Brkić
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000


Brkić with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
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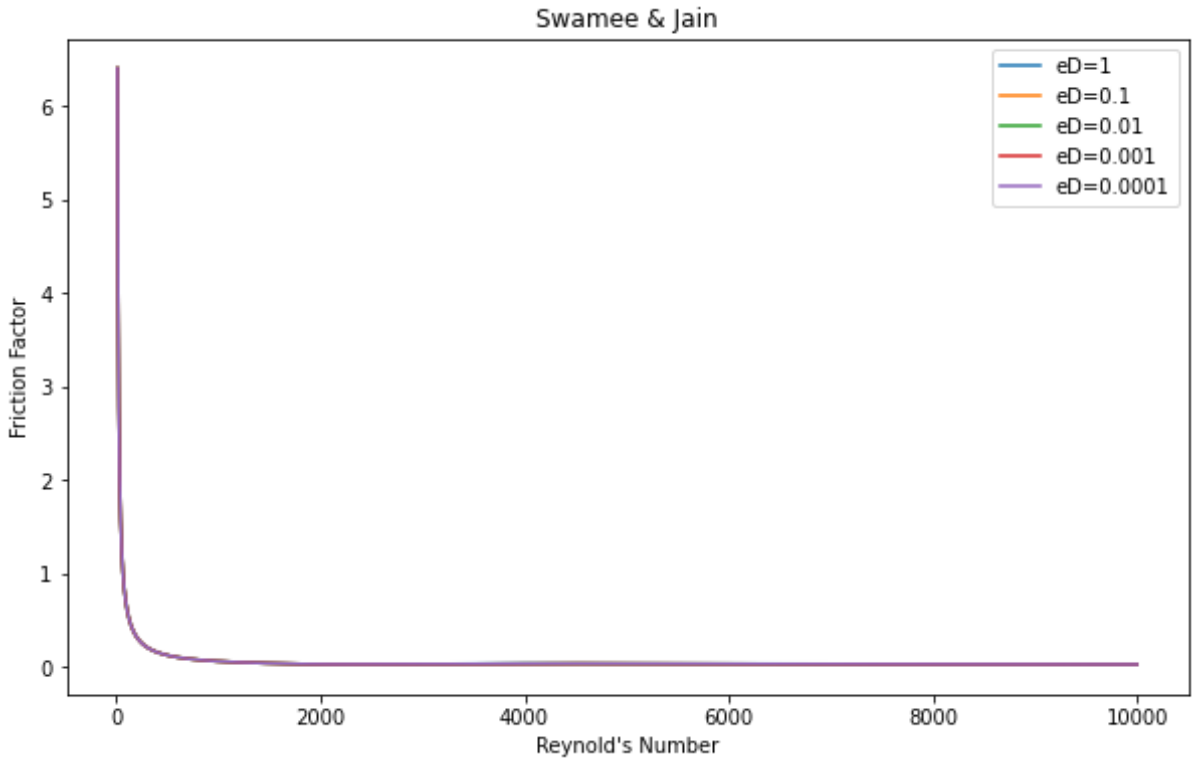
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Swamee & Jain
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
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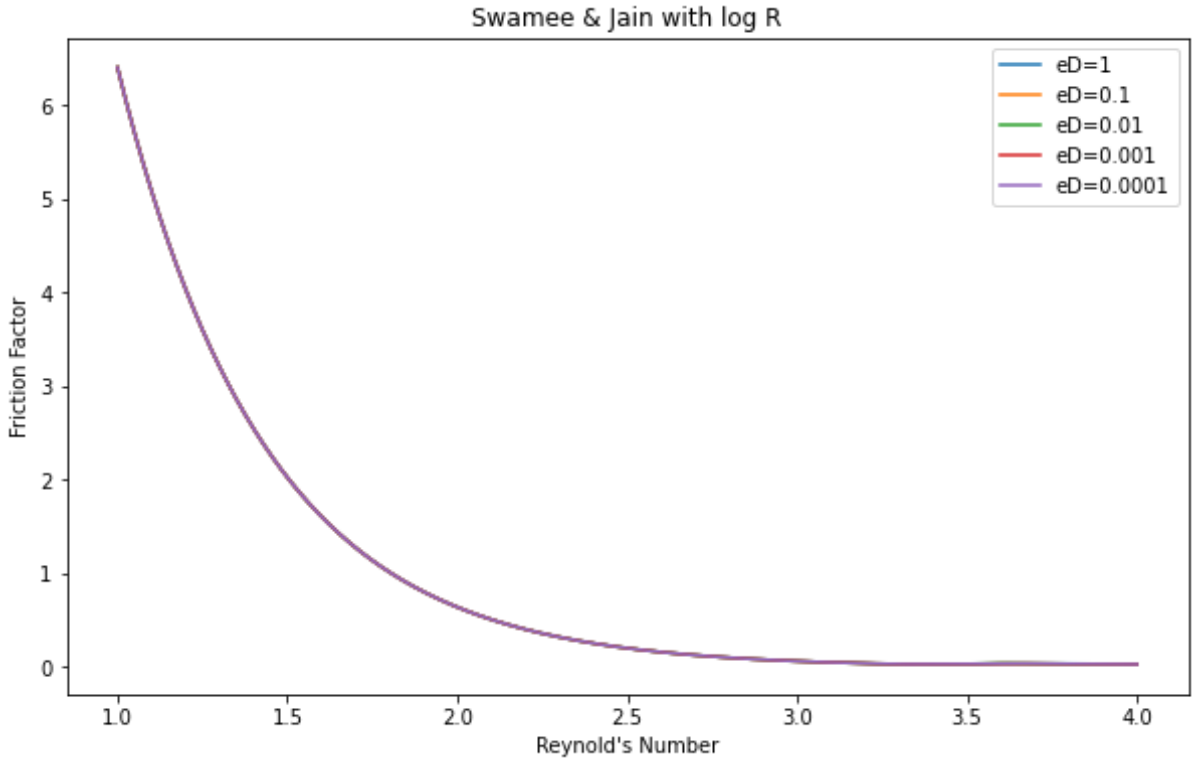
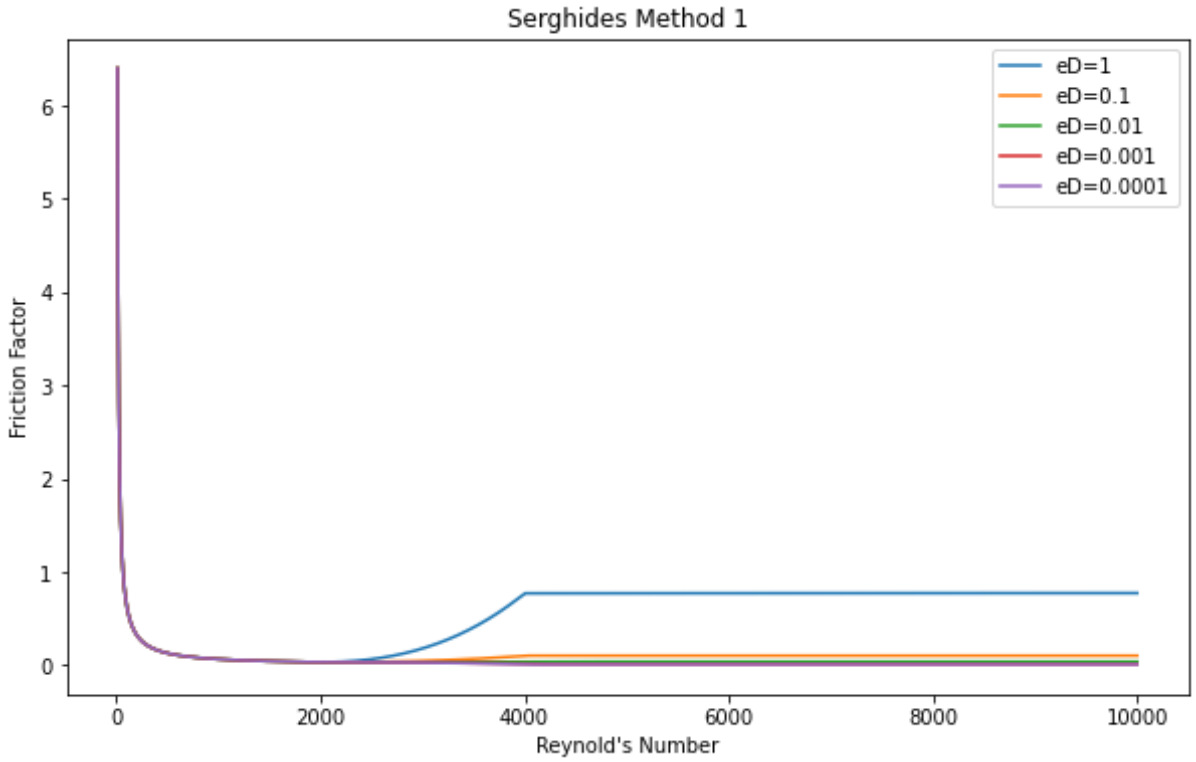
4000
6000
8000
10000


Swamee & Jain with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Serghides Method 1
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
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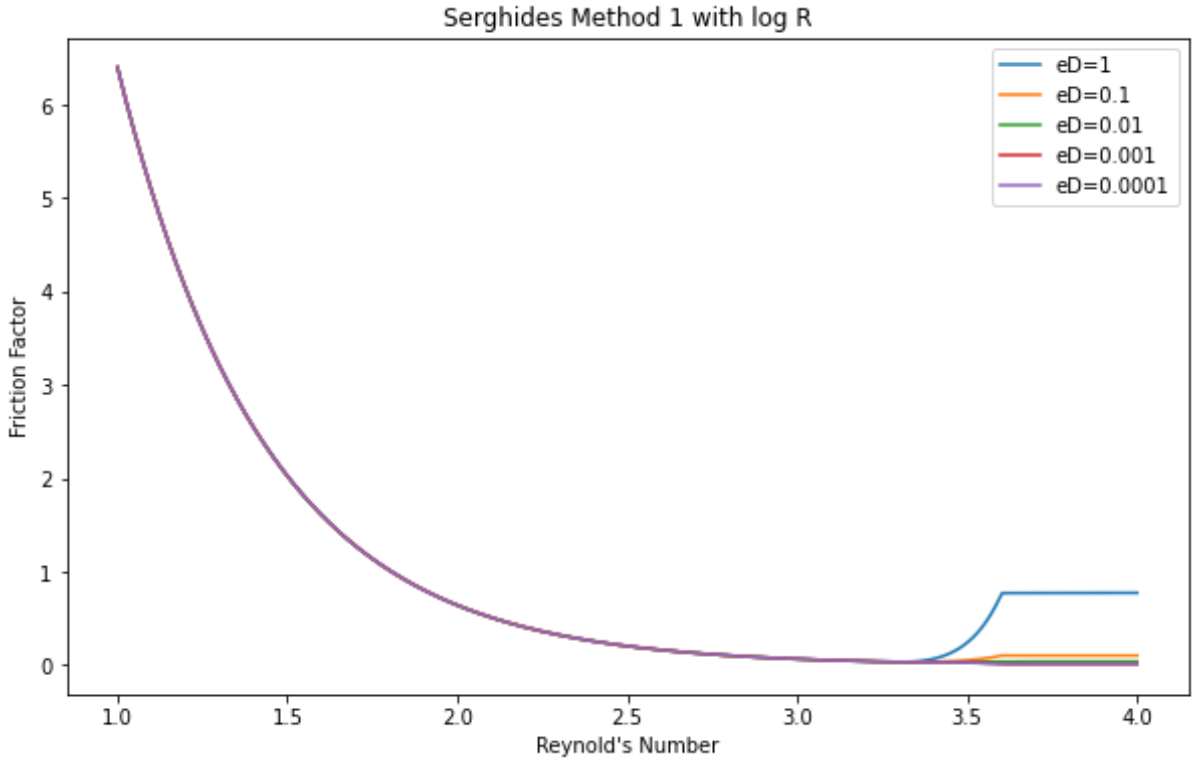
4000
6000
8000
10000


Serghides Method 1 with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
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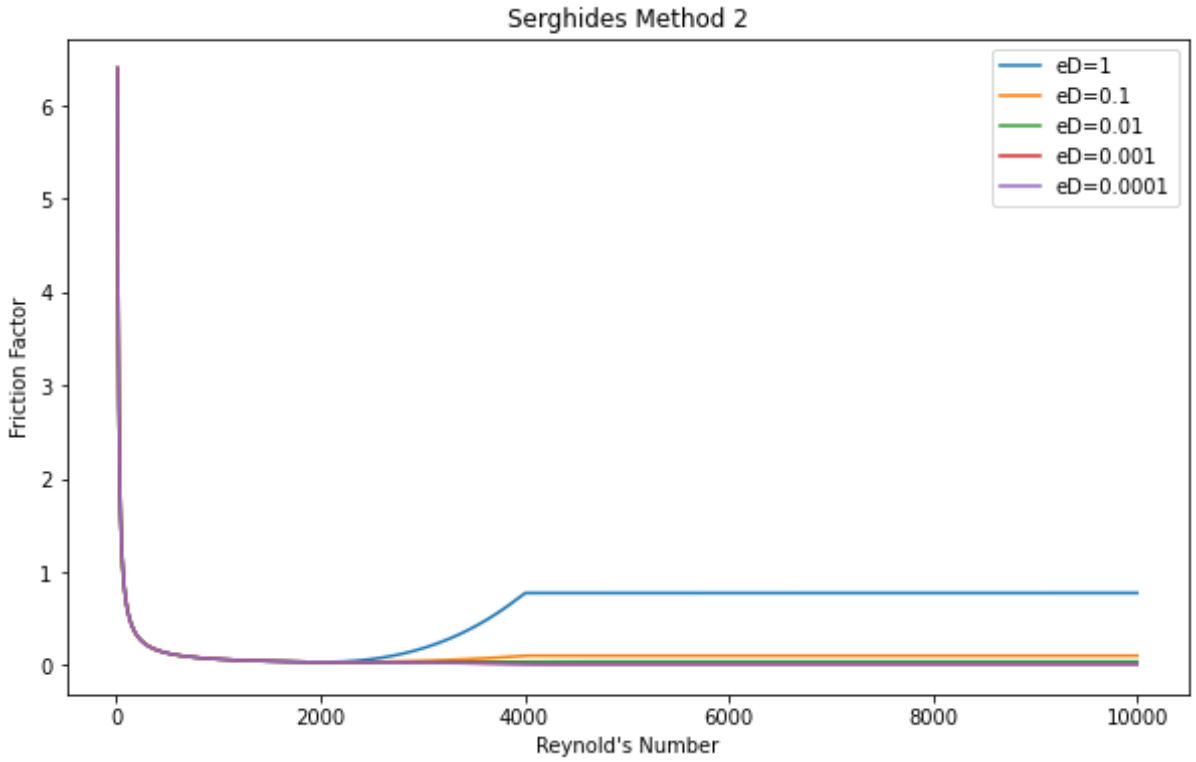
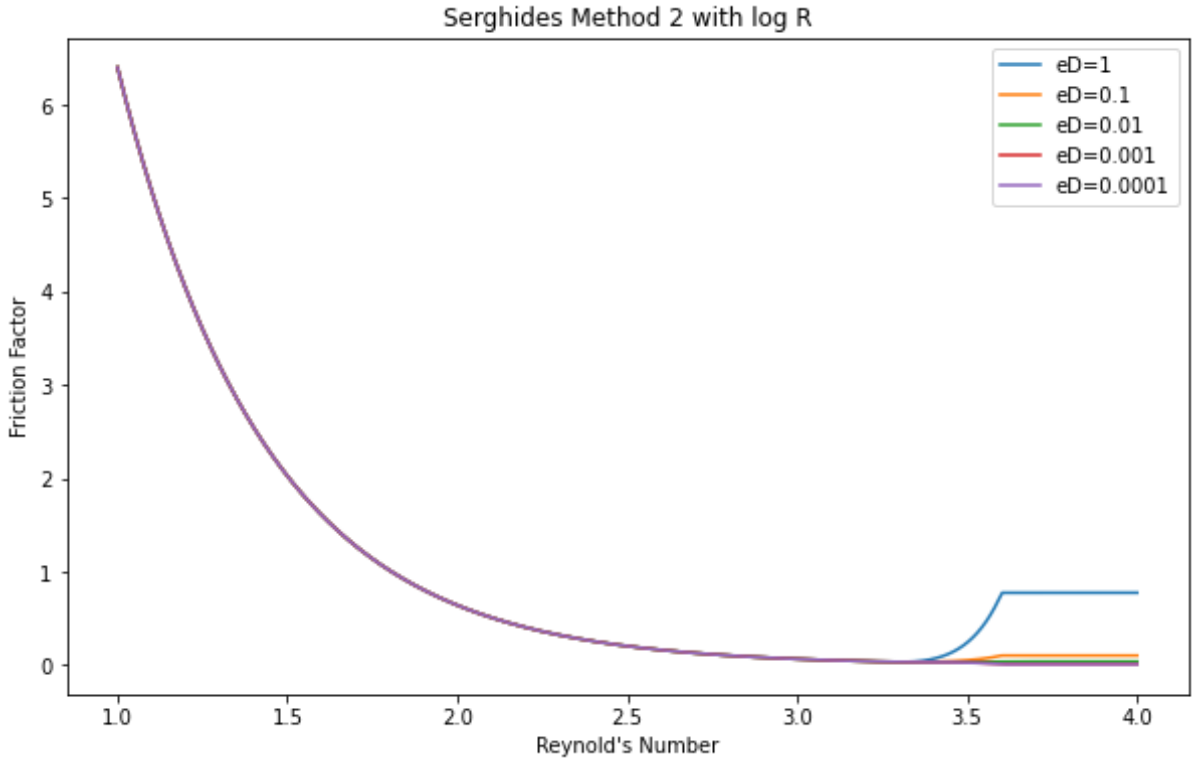
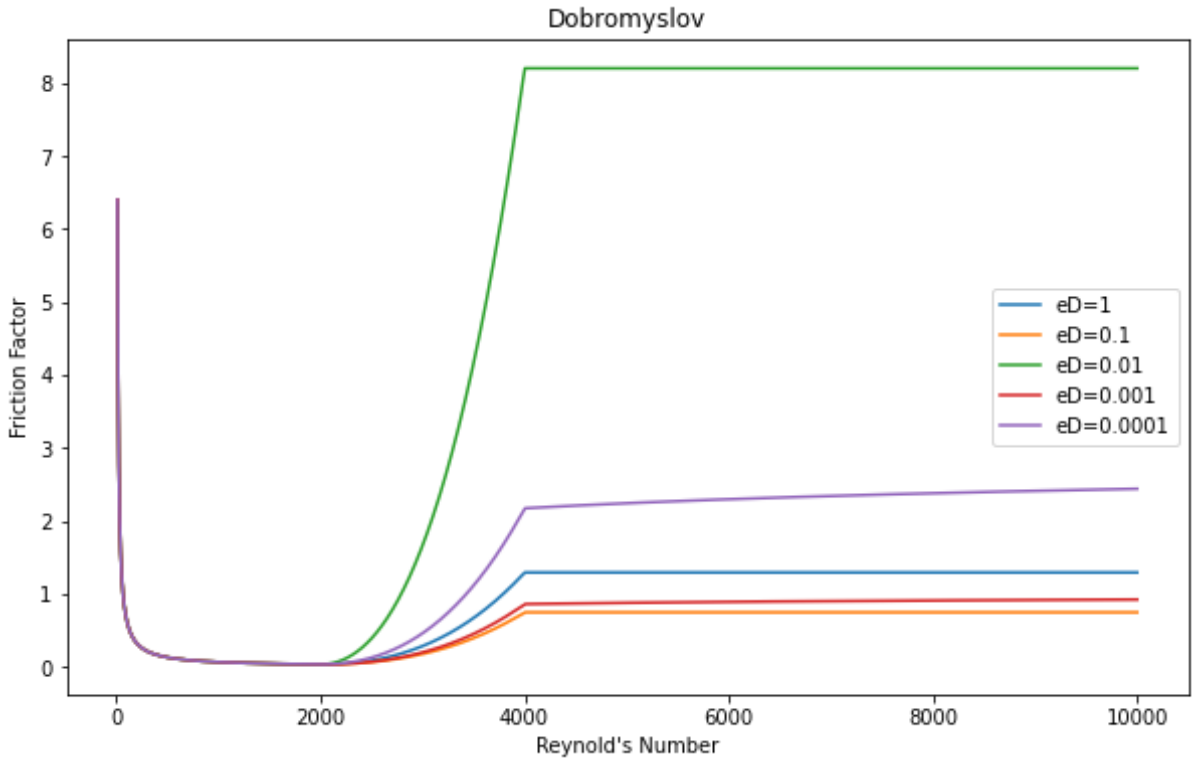
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Serghides Method 2
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000


Serghides Method 2 with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Dobromyslov
Friction Factor
Reynold's Number
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
0
1
2
3
4
5
6
7
8
0
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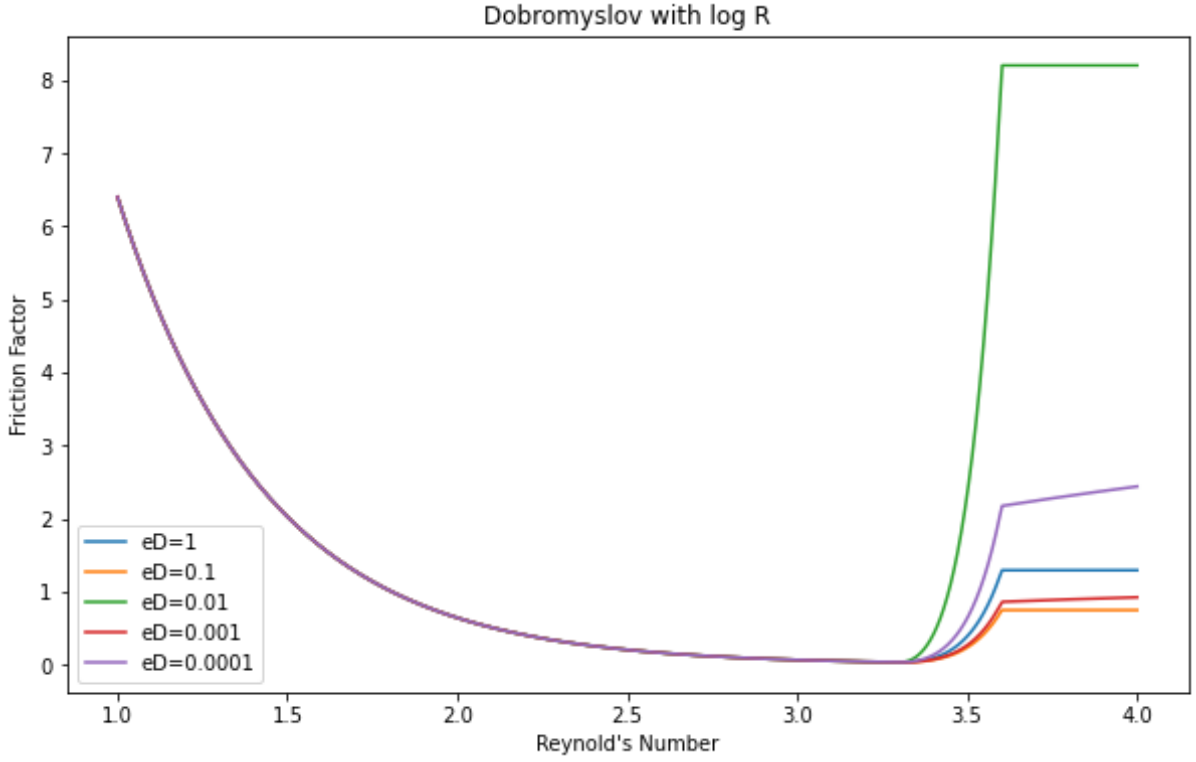
4000
6000
8000
10000


Dobromyslov with log R
Friction Factor
Reynold's Number
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
0
1
2
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4
5
6
7
8
1.0
1.5
2.0
2.5
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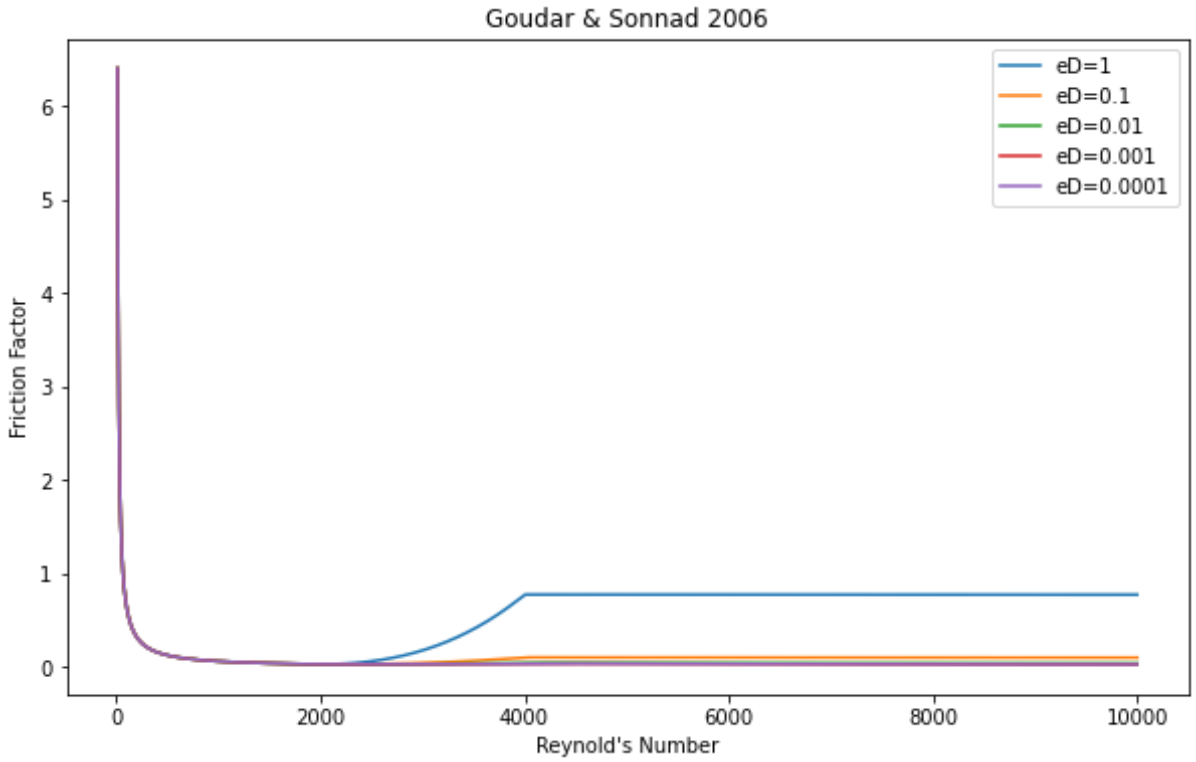
3.5
4.0


Goudar & Sonnad 2006
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
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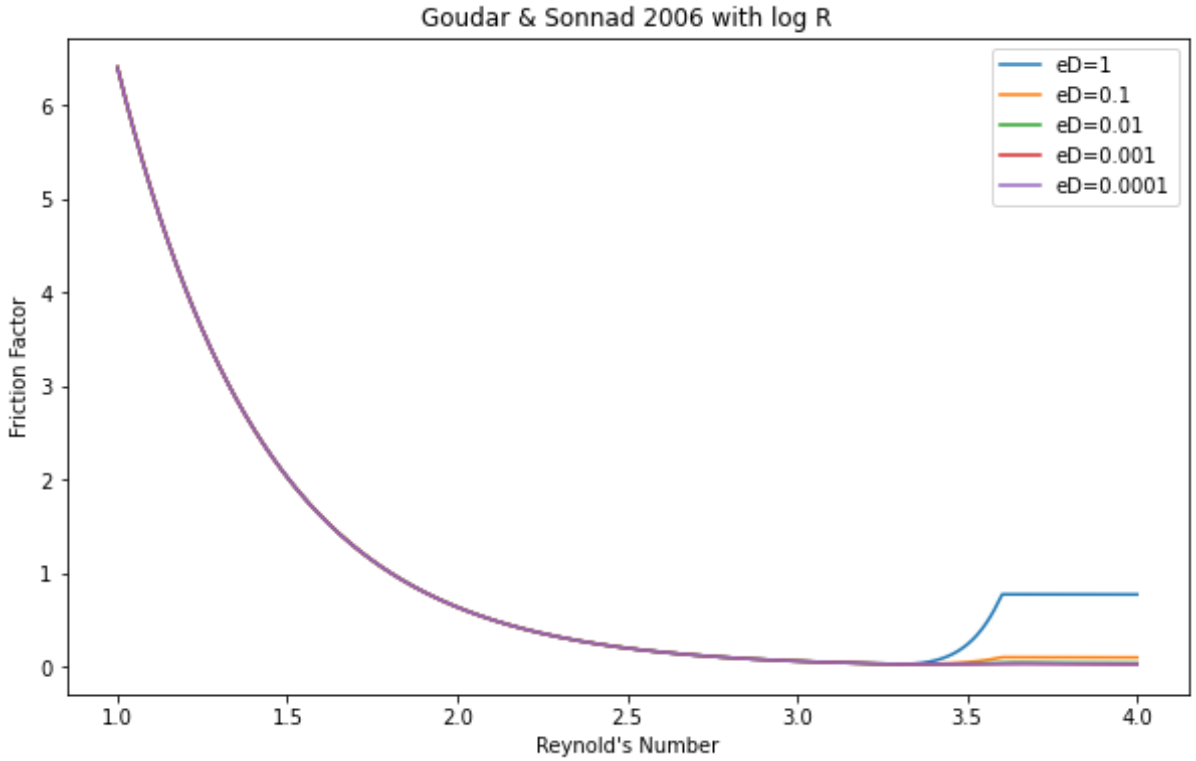
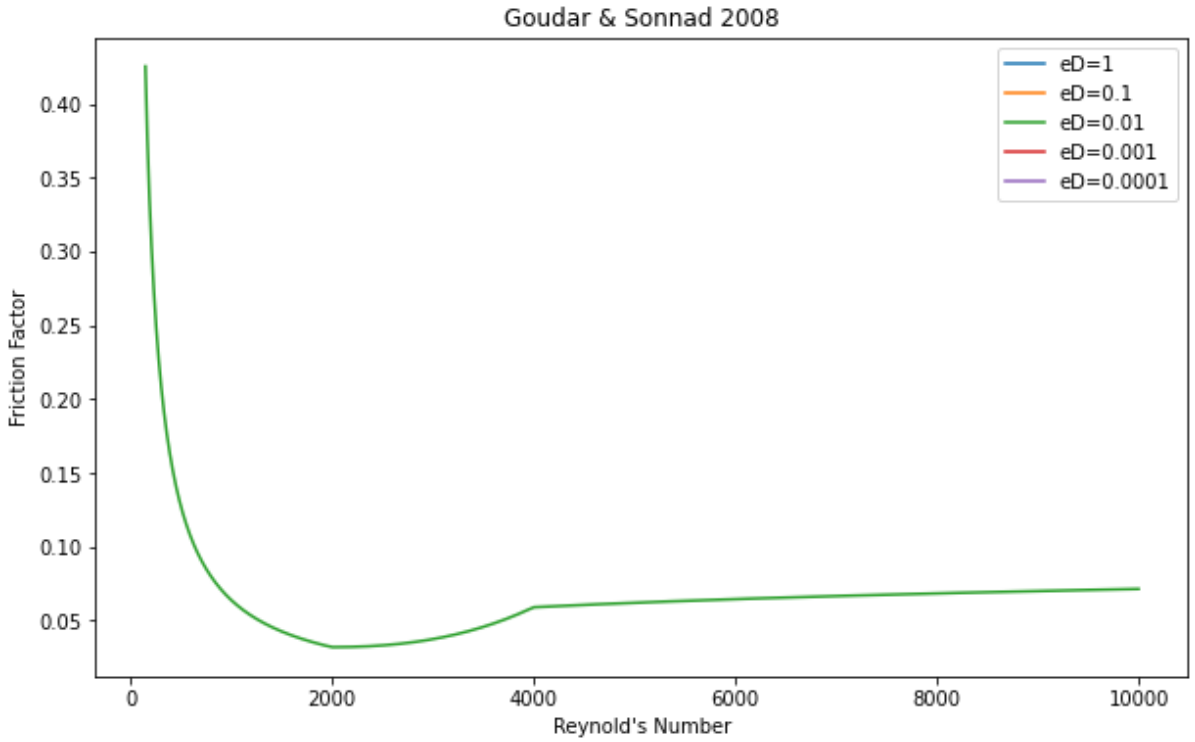
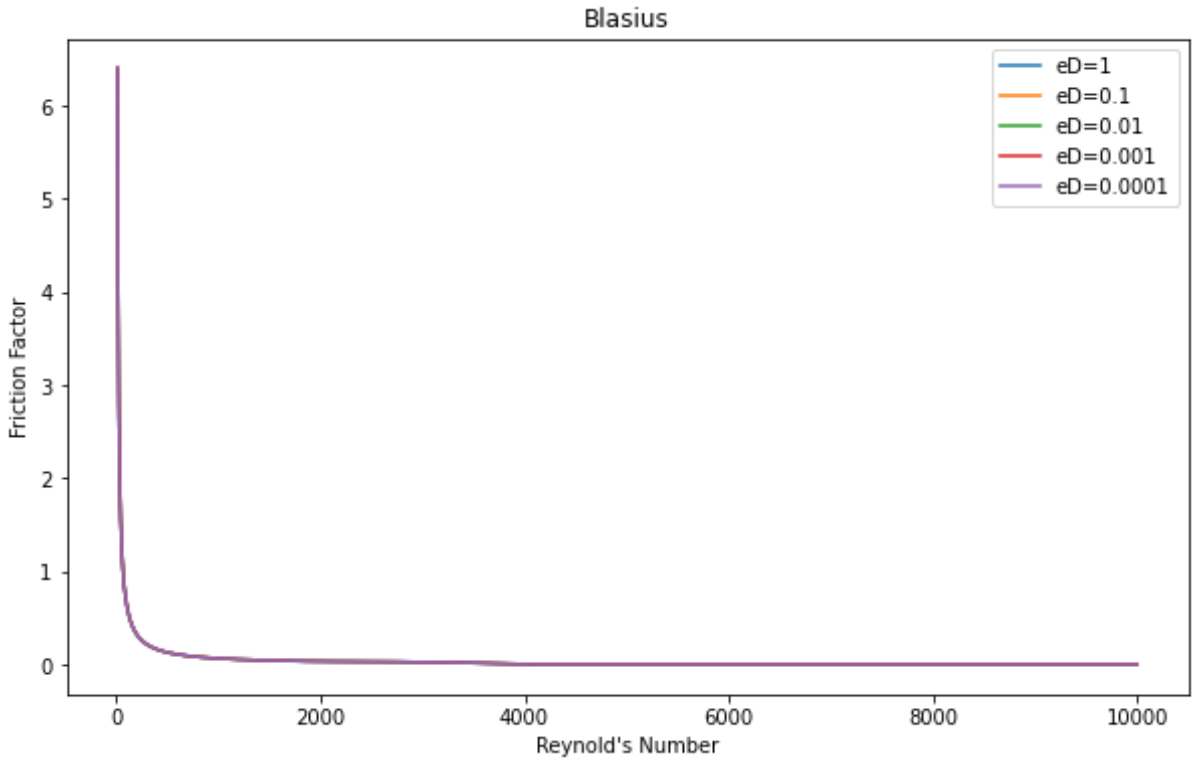
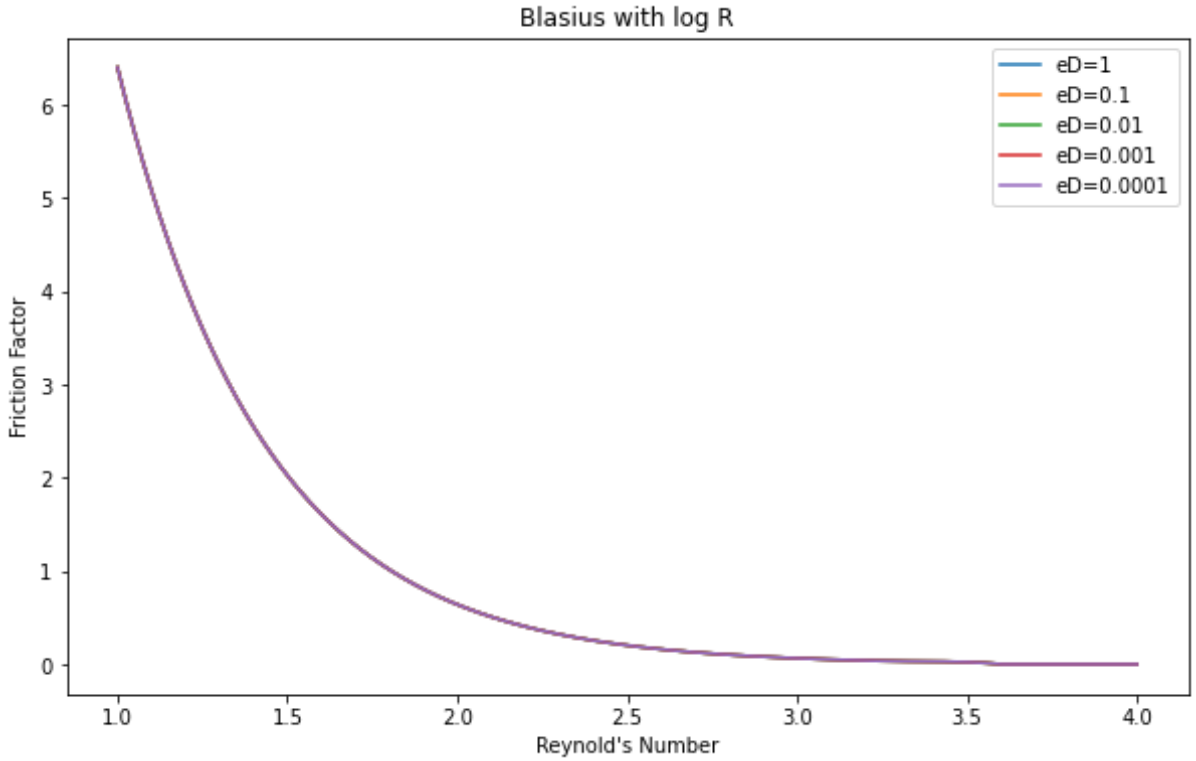
4000
6000
8000
10000


Goudar & Sonnad 2006 with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Goudar & Sonnad 2008
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0
2000
4000
6000
8000
10000
Reynold's Number

Goudar & Sonnad 2008 with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
2.25
2.50
2.75
3.00
3.25
3.50
3.75
4.00
Reynold's Number


Blasius
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000


Blasius with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
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2
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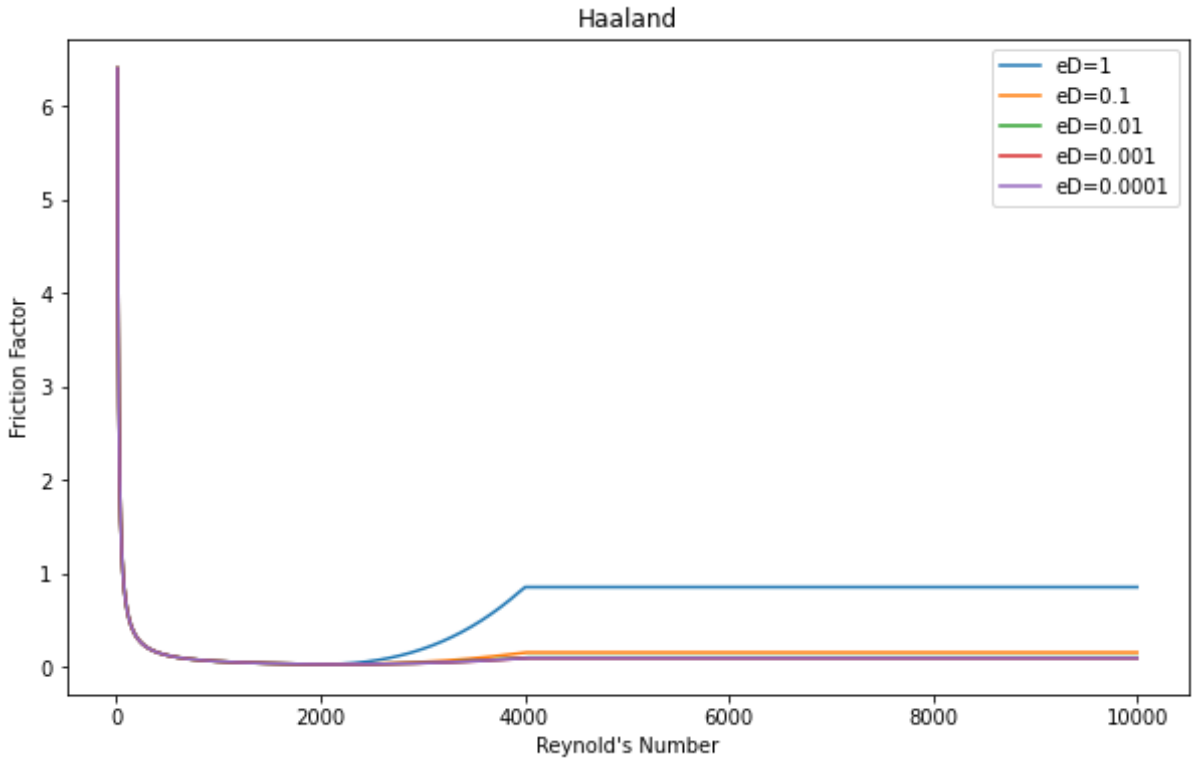
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Haaland
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
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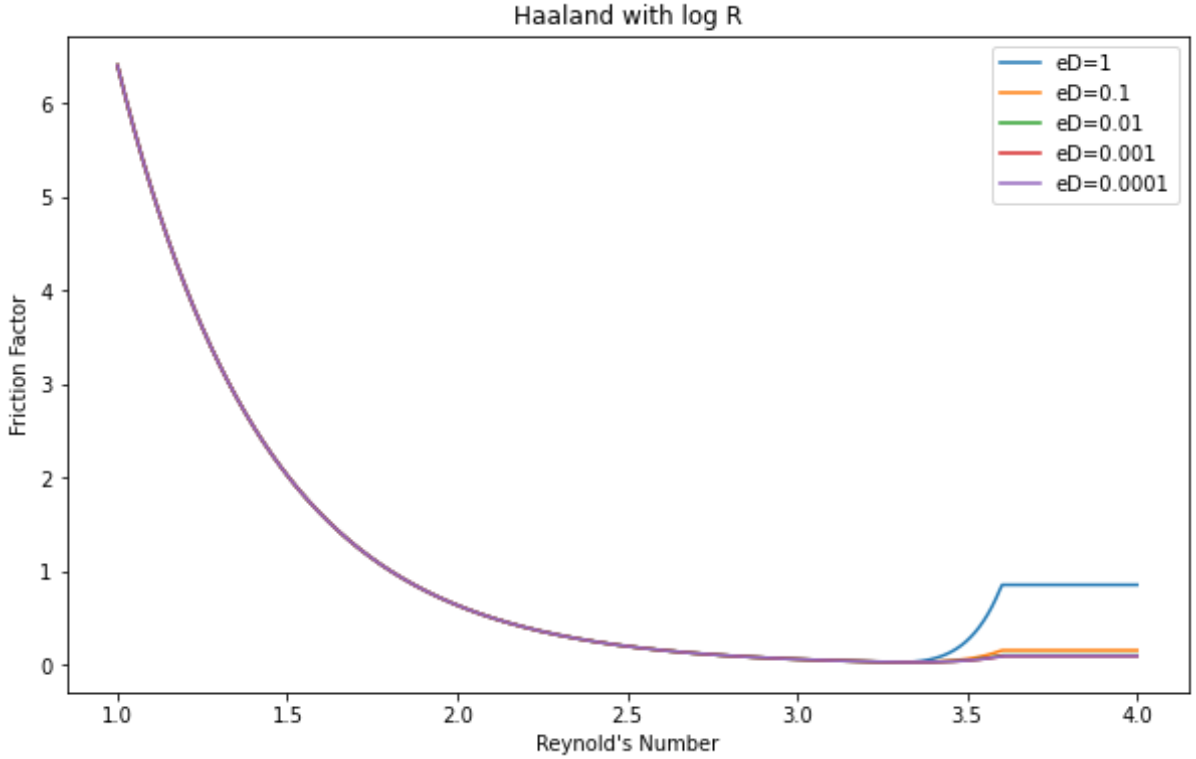
4000
6000
8000
10000


Haaland with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
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2
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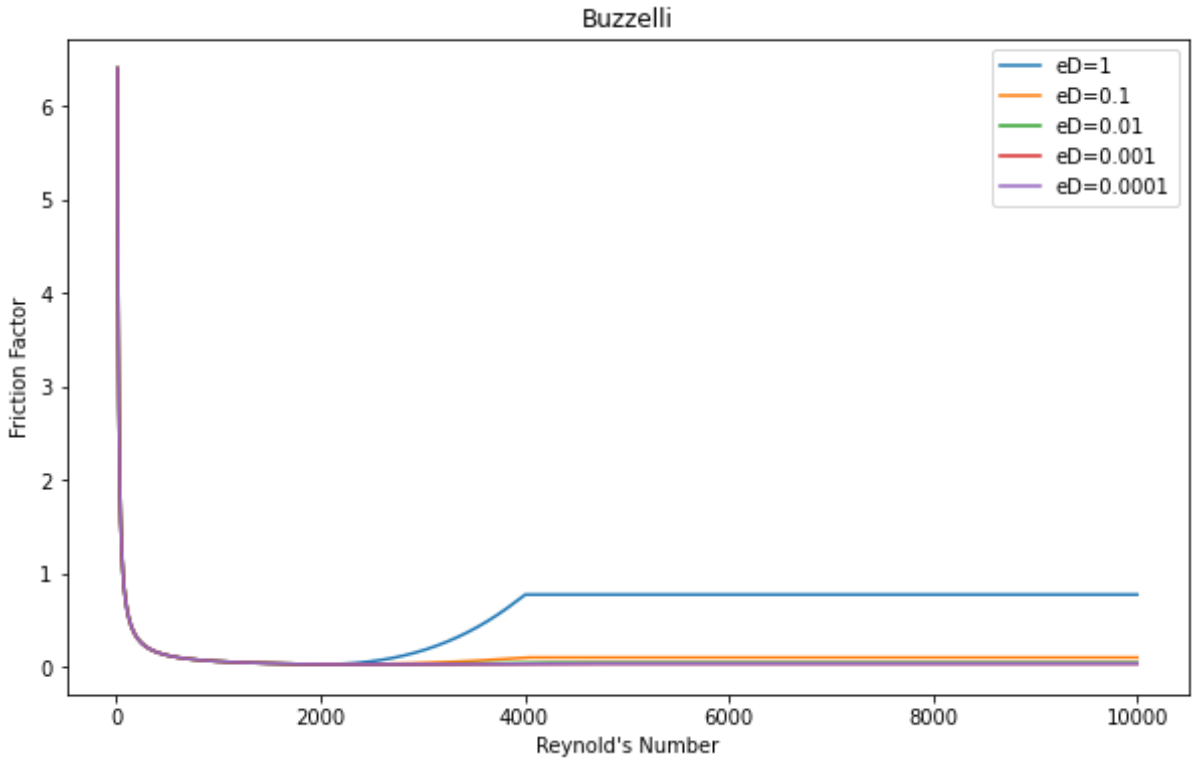
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Buzzelli
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
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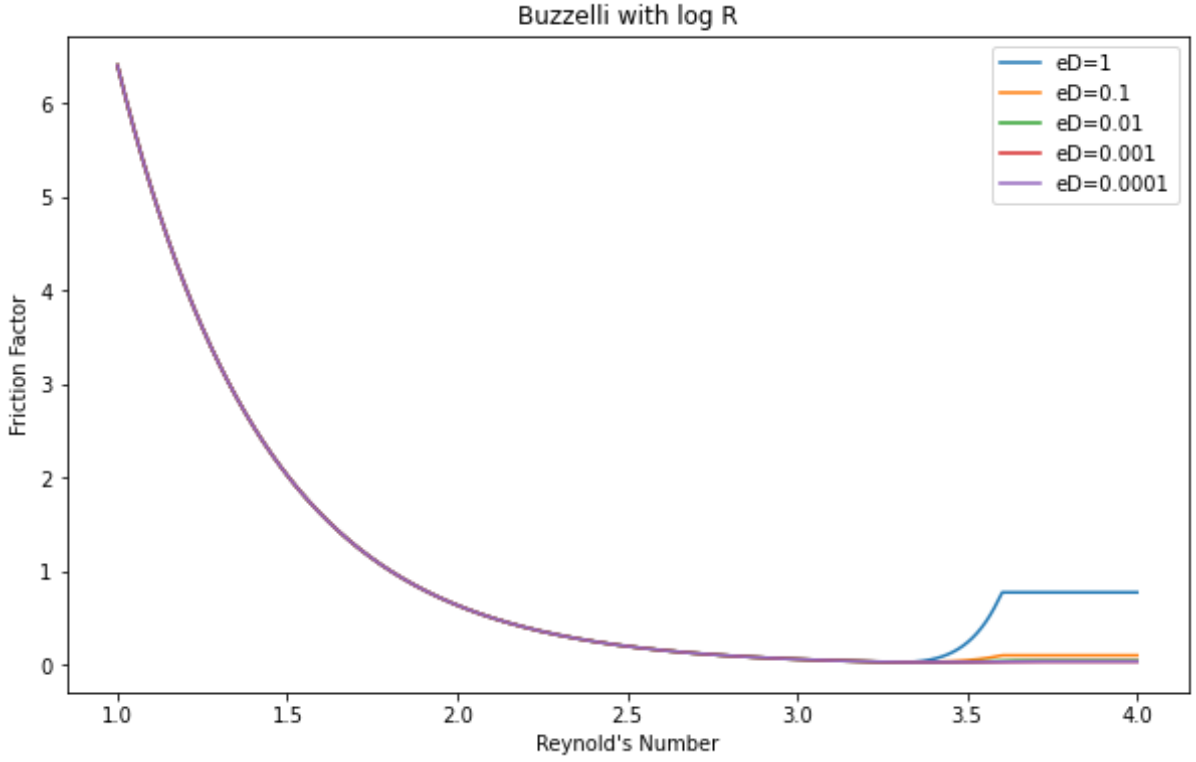
Buzzelli with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
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4
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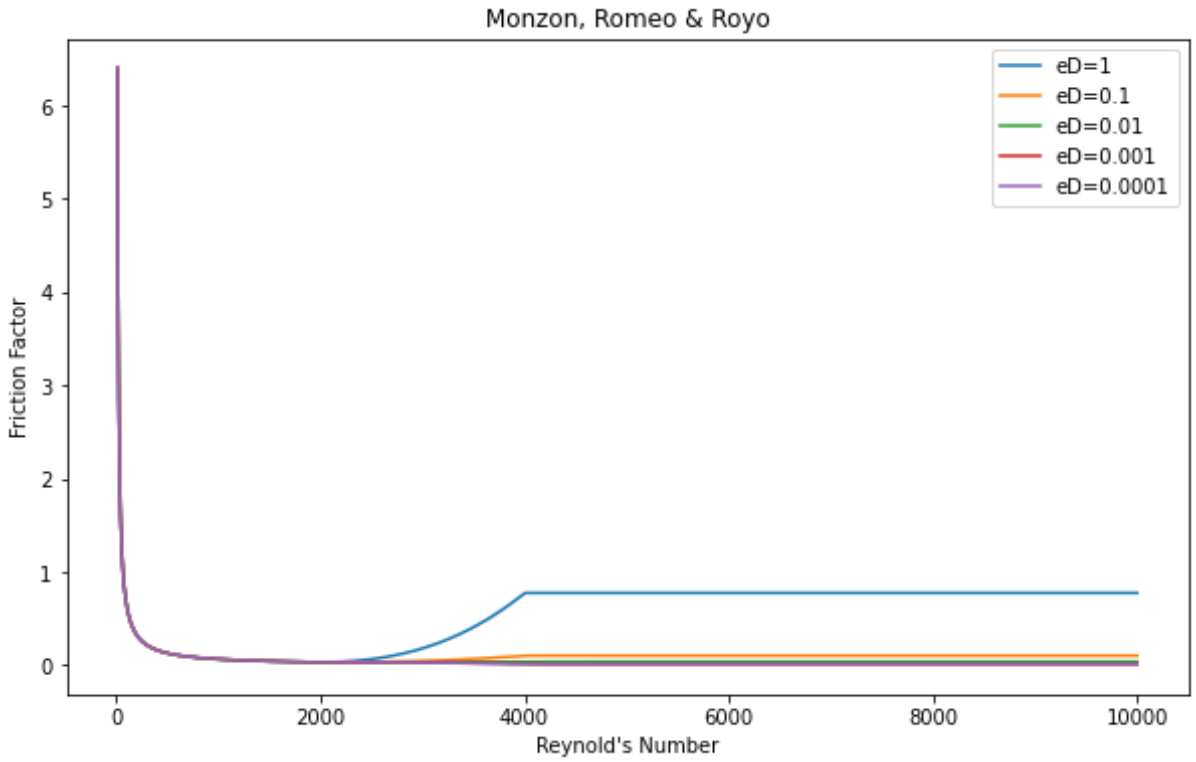
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Monzon, Romeo & Royo
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
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8000
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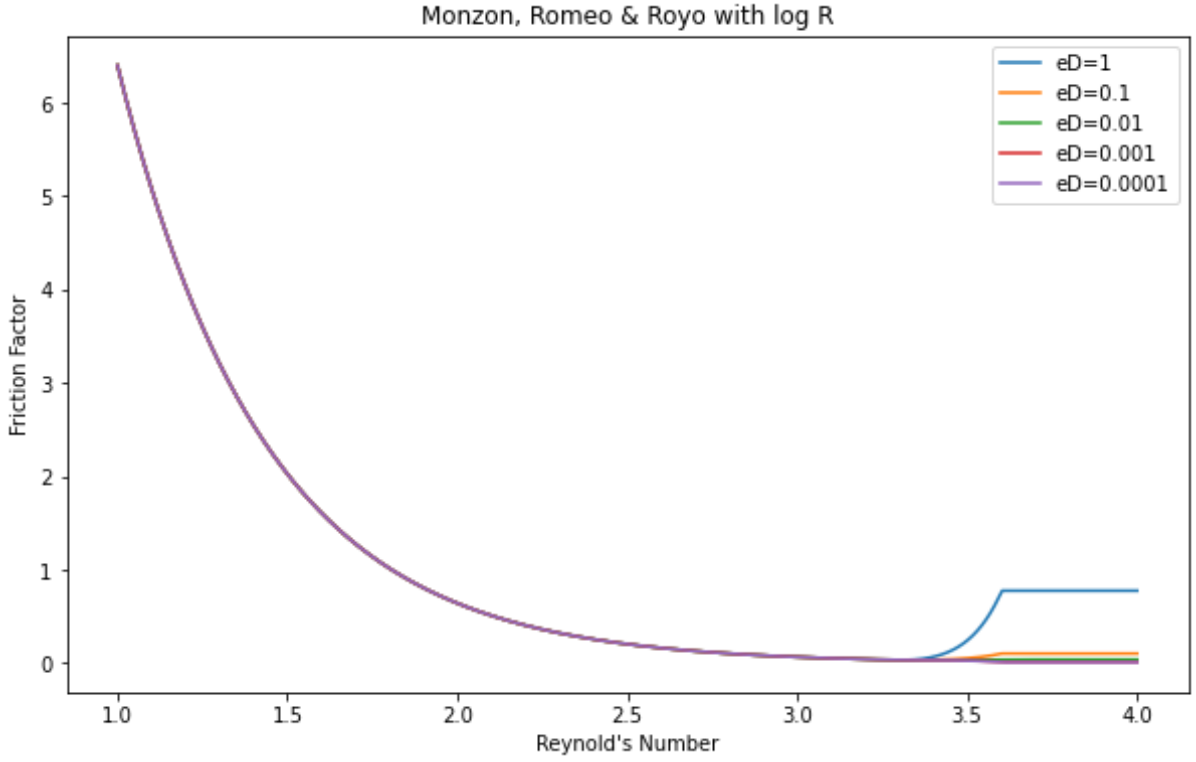
Monzon, Romeo & Royo with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
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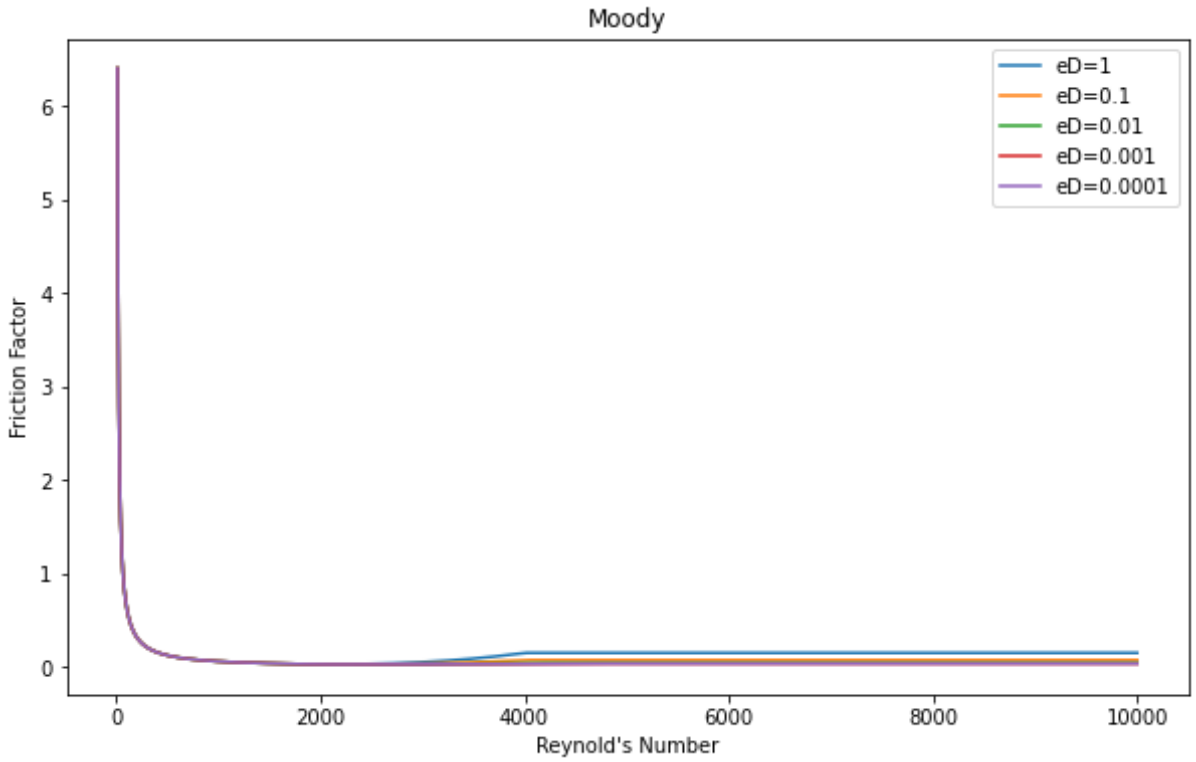
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Moody
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
2000
4000
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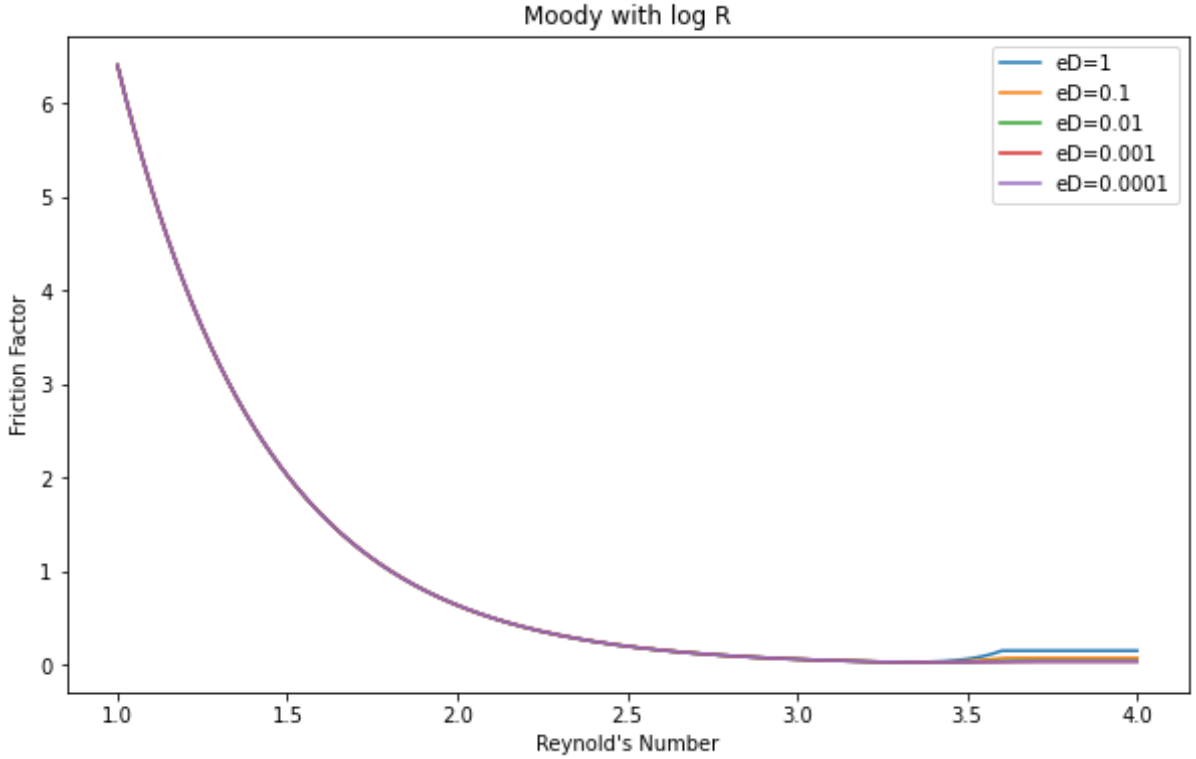
8000
10000


Moody with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
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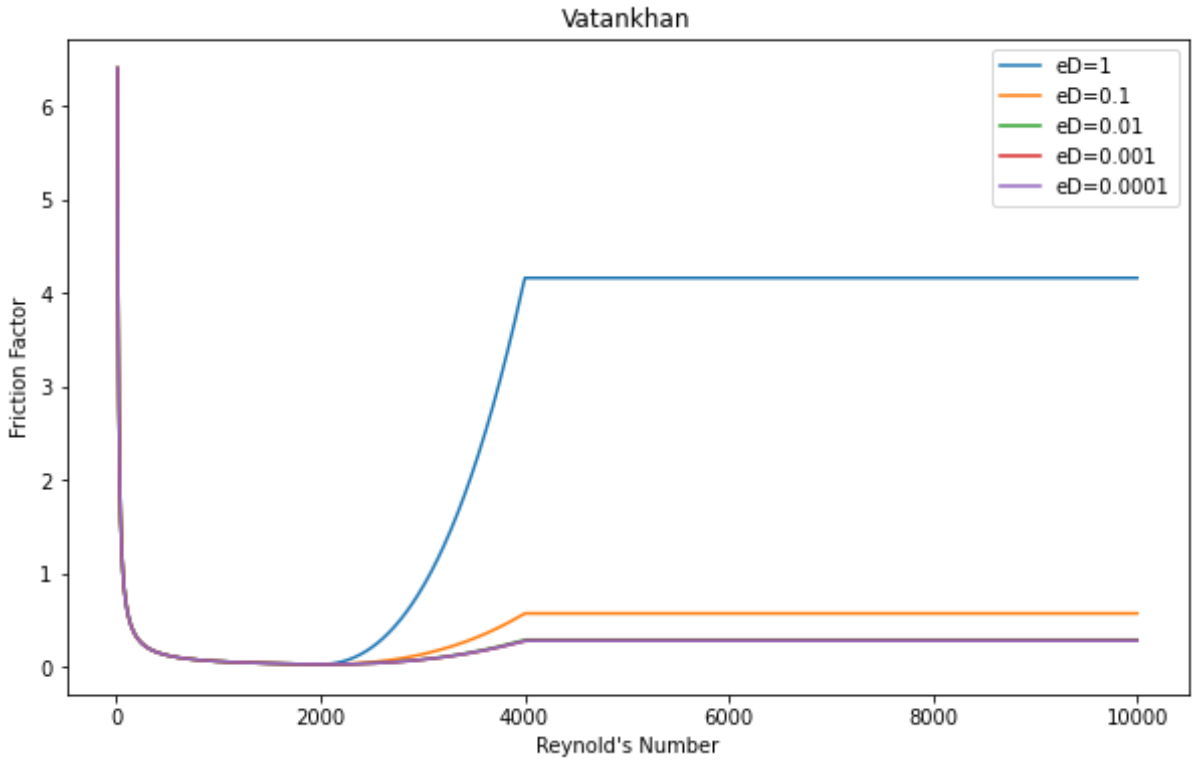
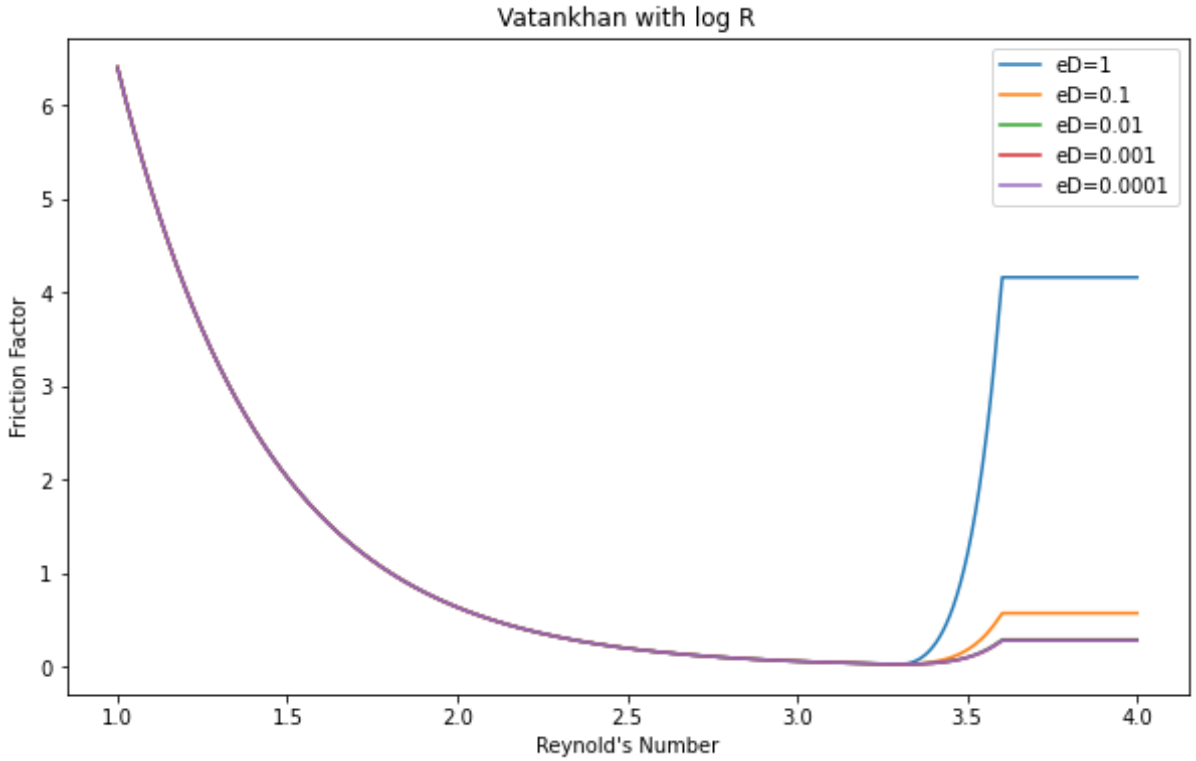
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Vatankhan
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000


Vatankhan with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
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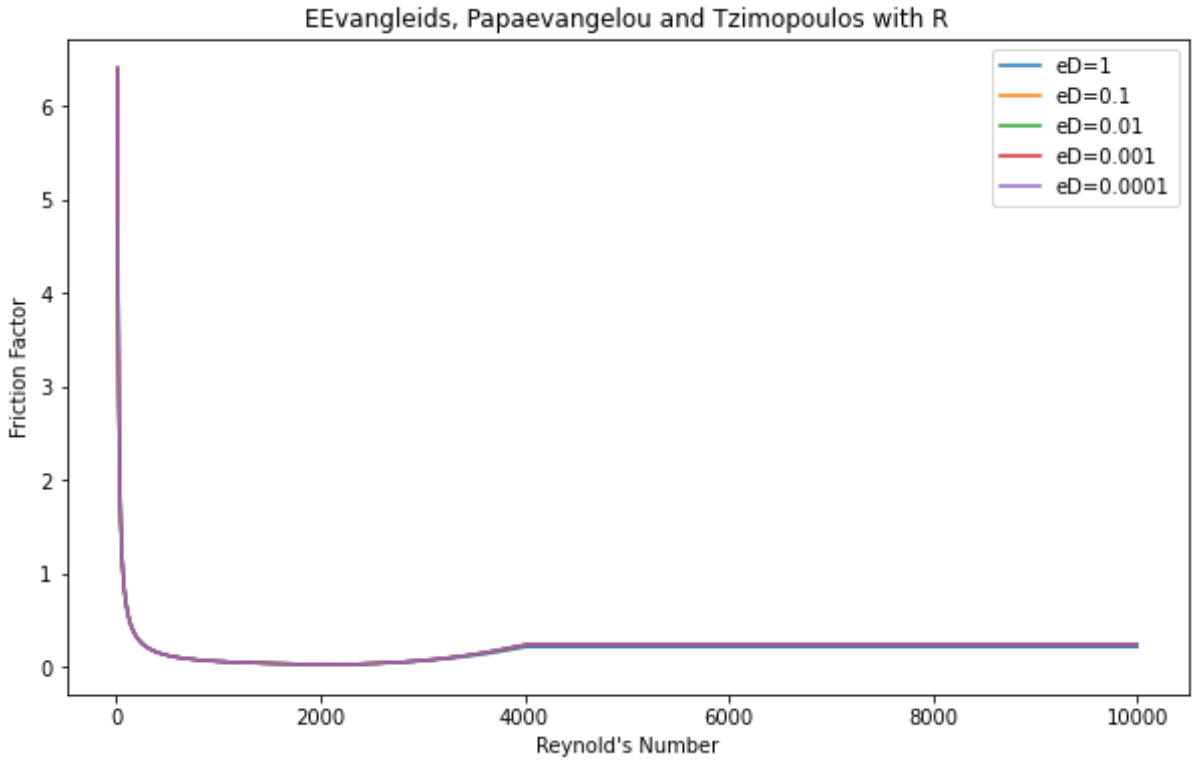
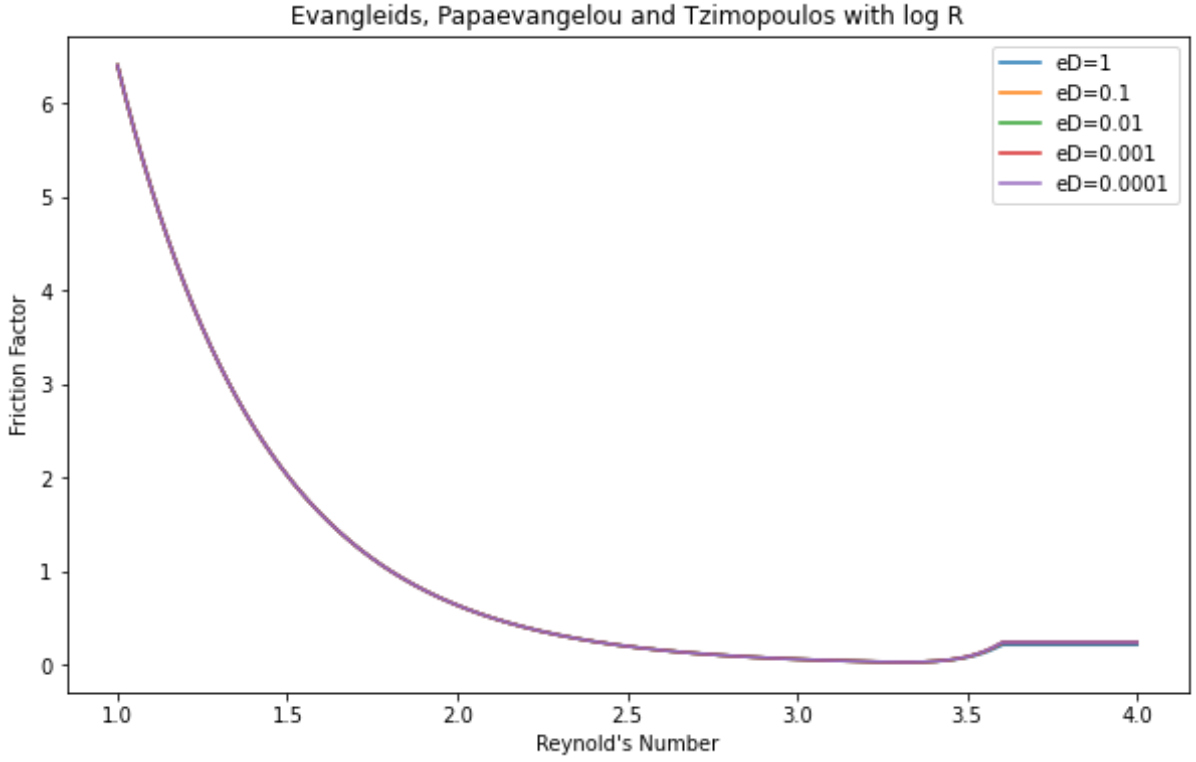
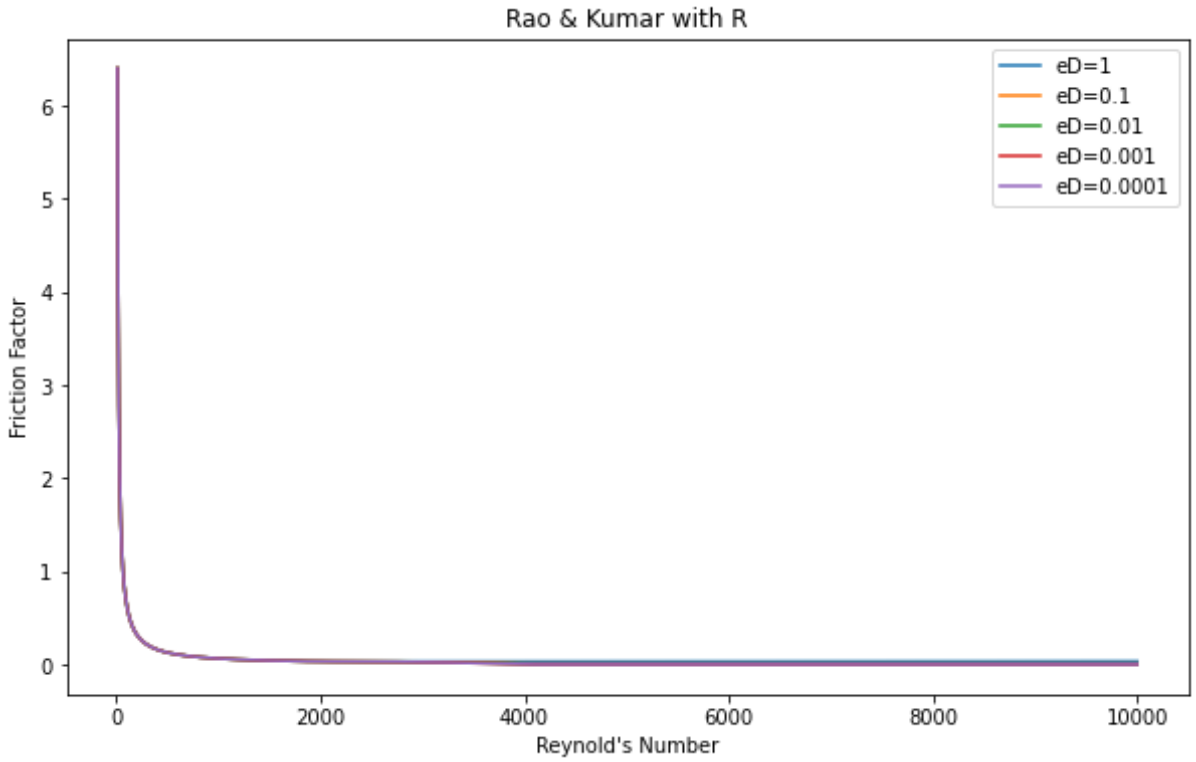
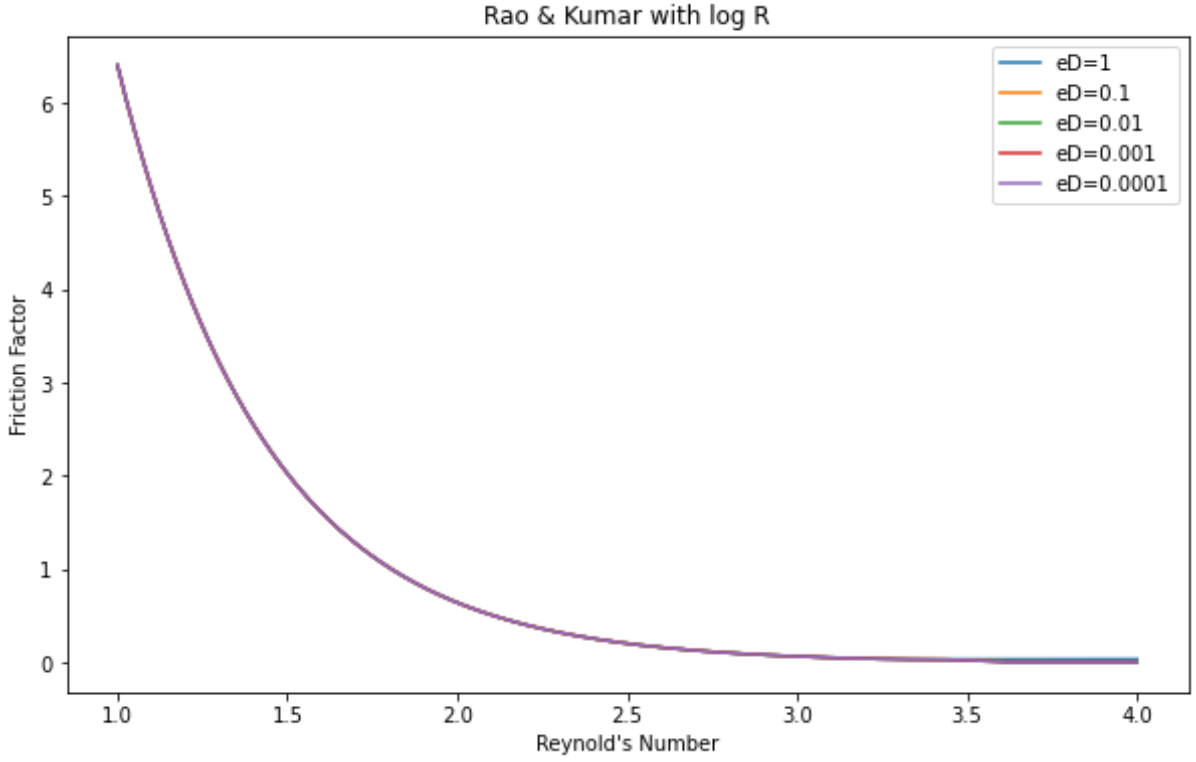
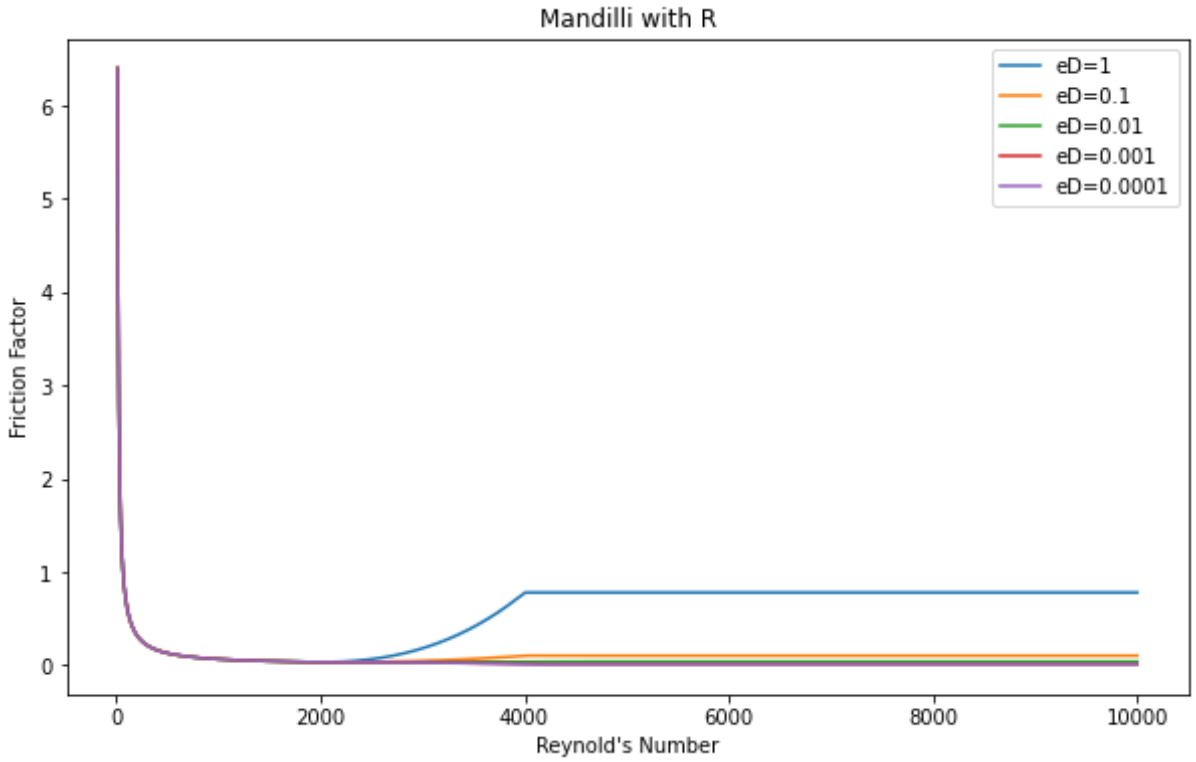
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0

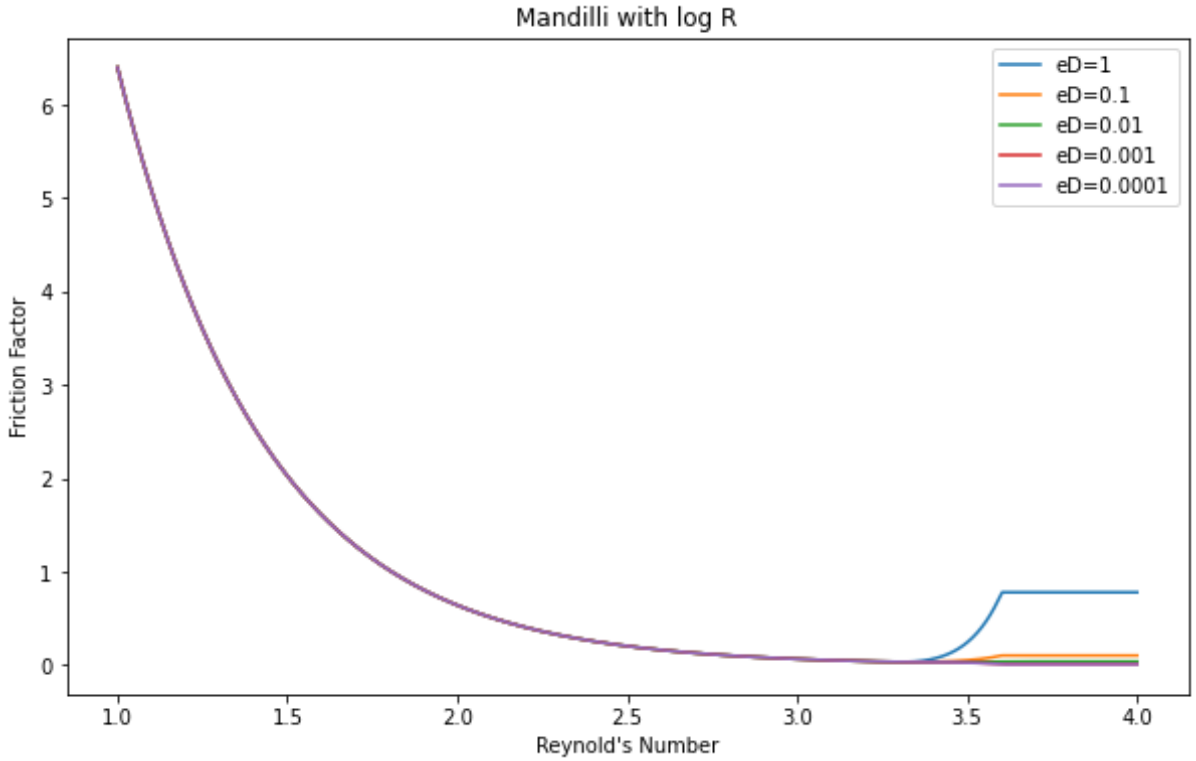

EEvangleids, Papaevangelou and Tzimopoulos with R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000

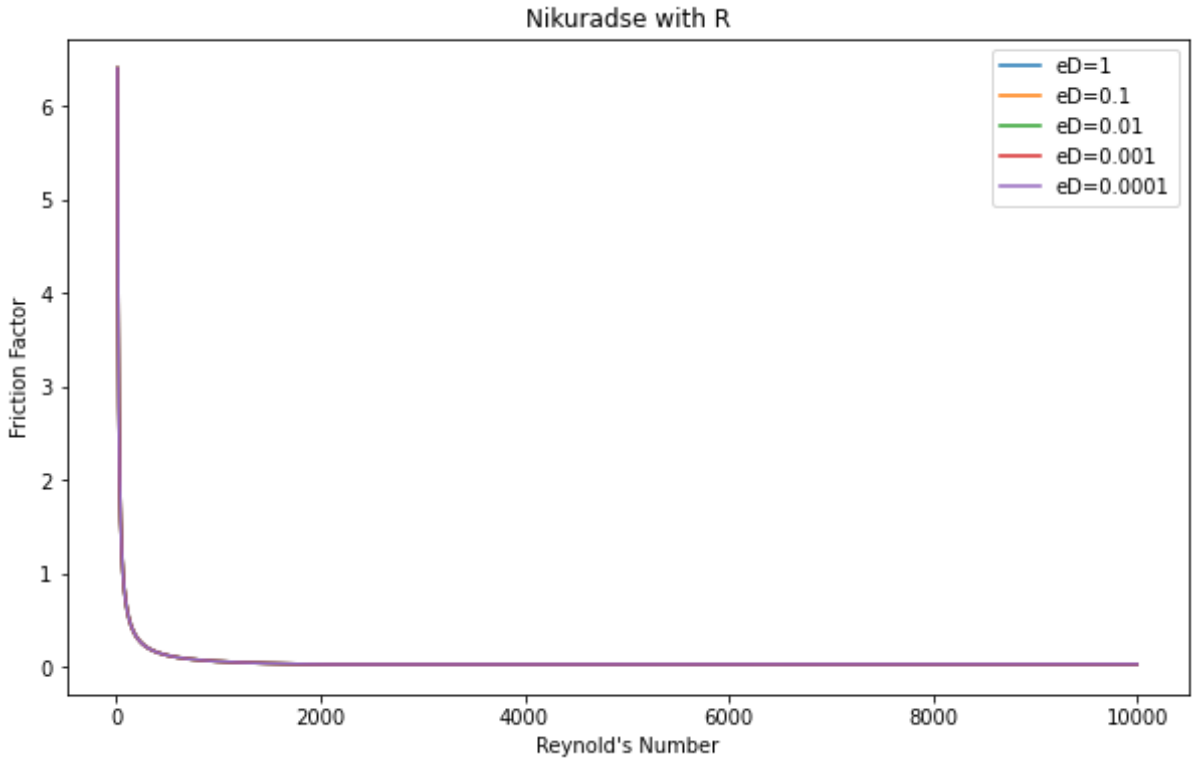

Evangleids, Papaevangelou and Tzimopoulos with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0

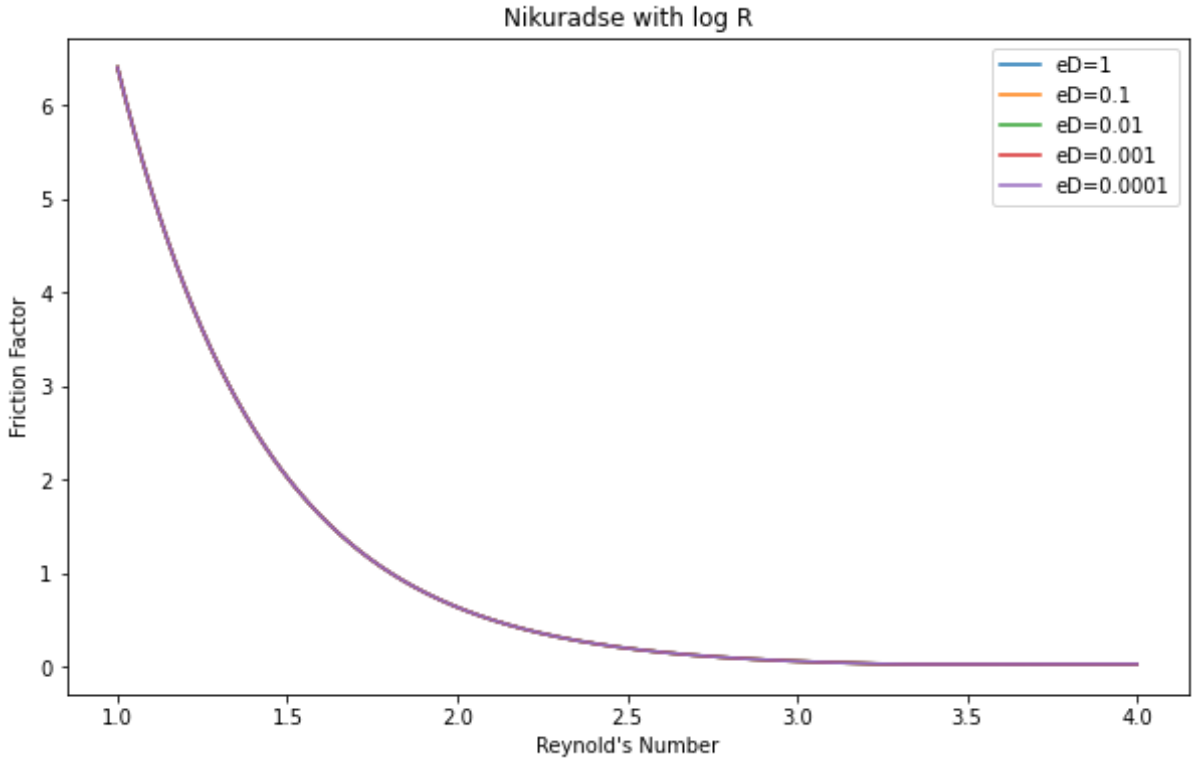

Rao & Kumar with R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000

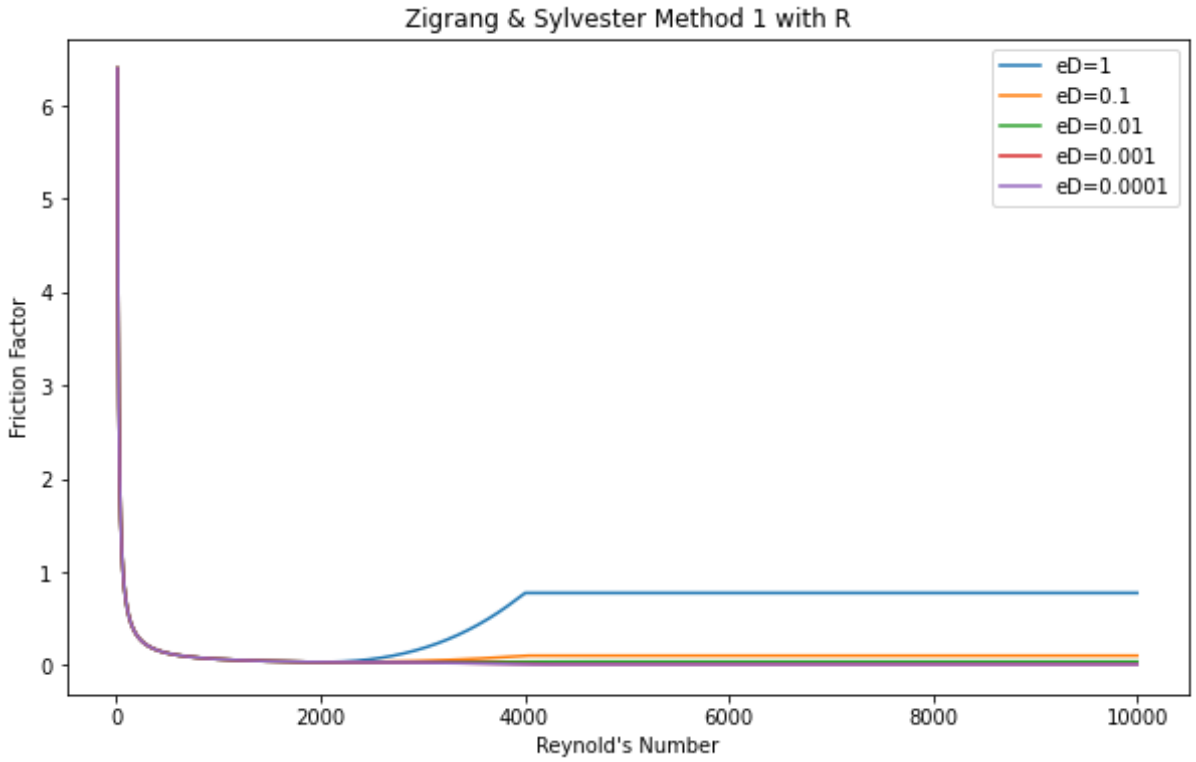

Rao & Kumar with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0

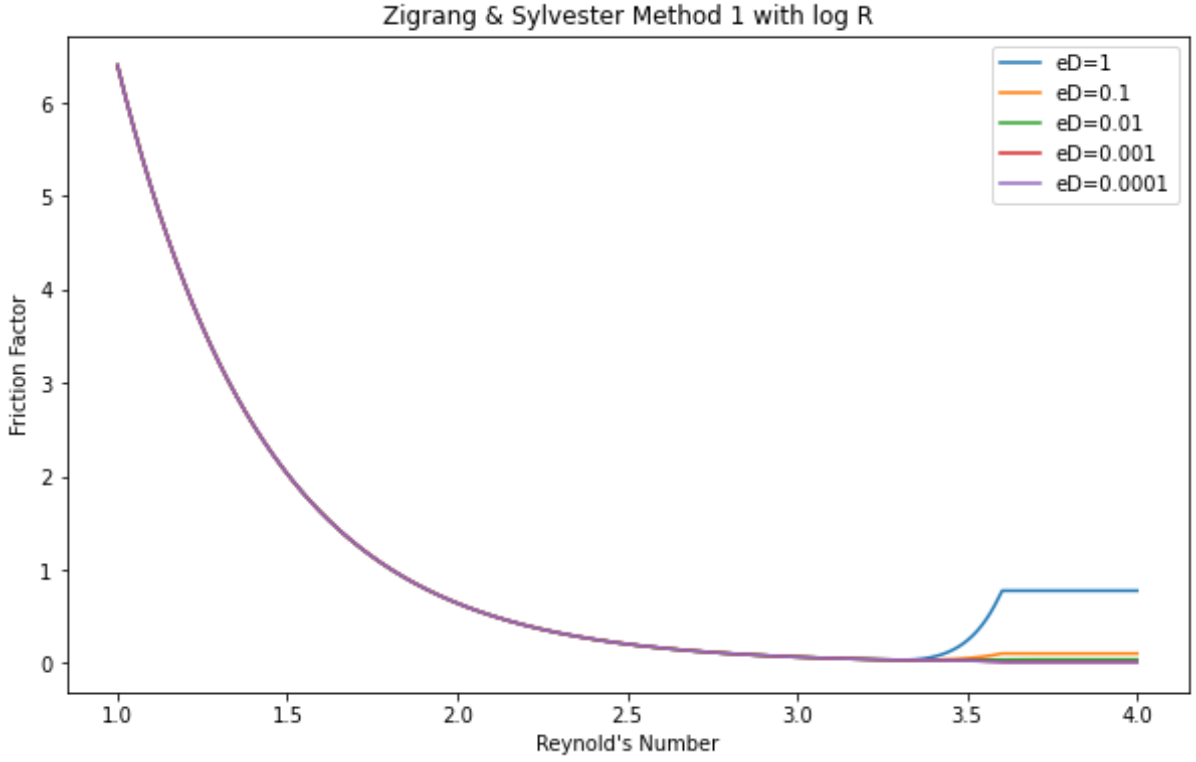

Mandilli with R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000

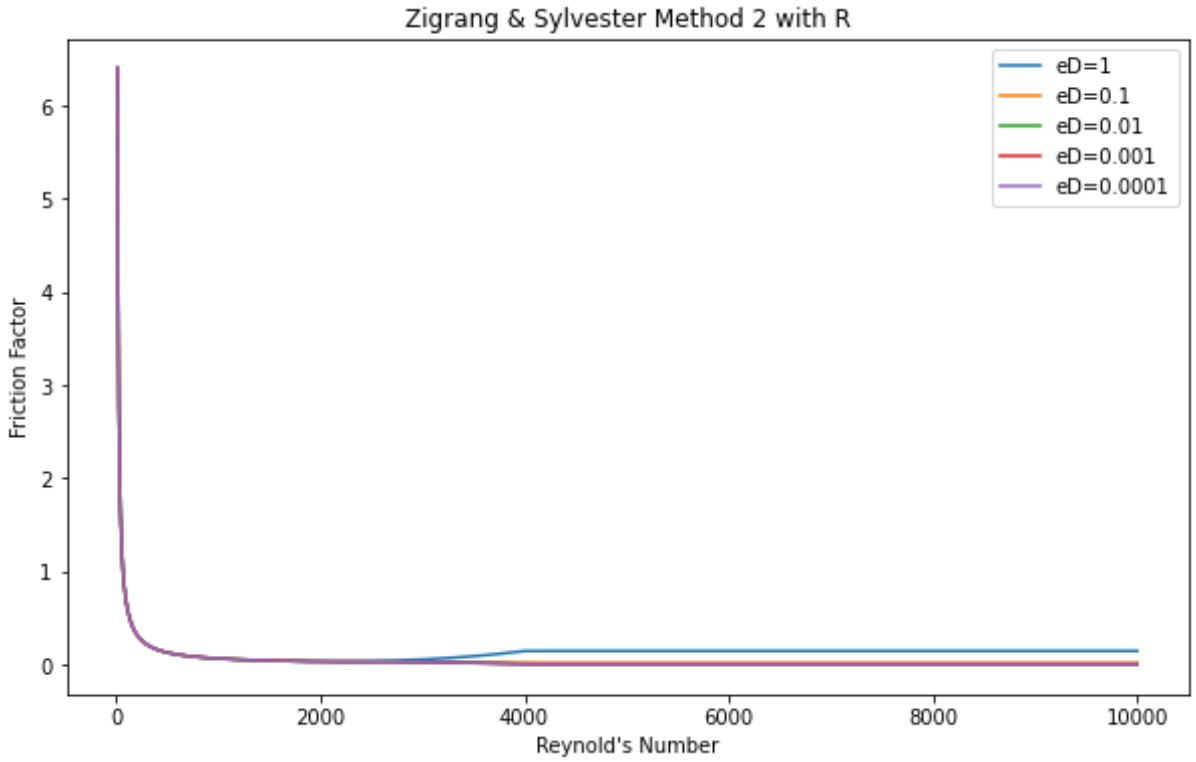

Mandilli with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0

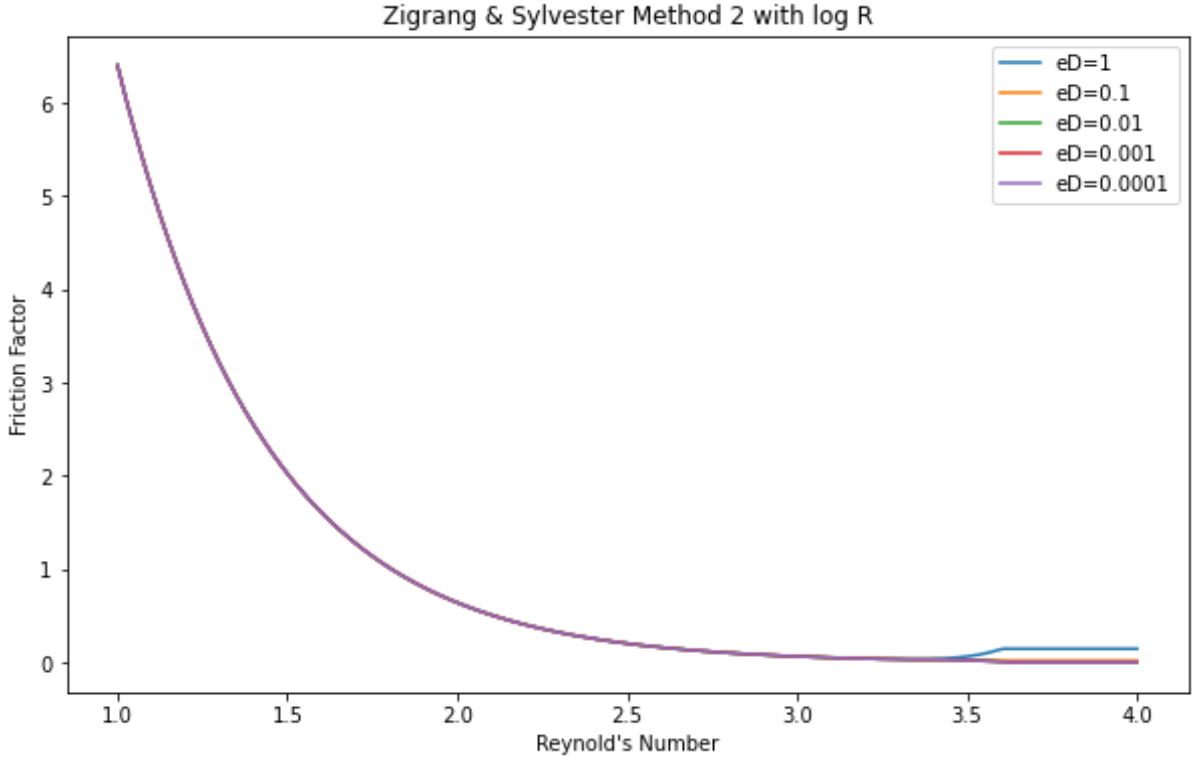

Nikuradse with R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000

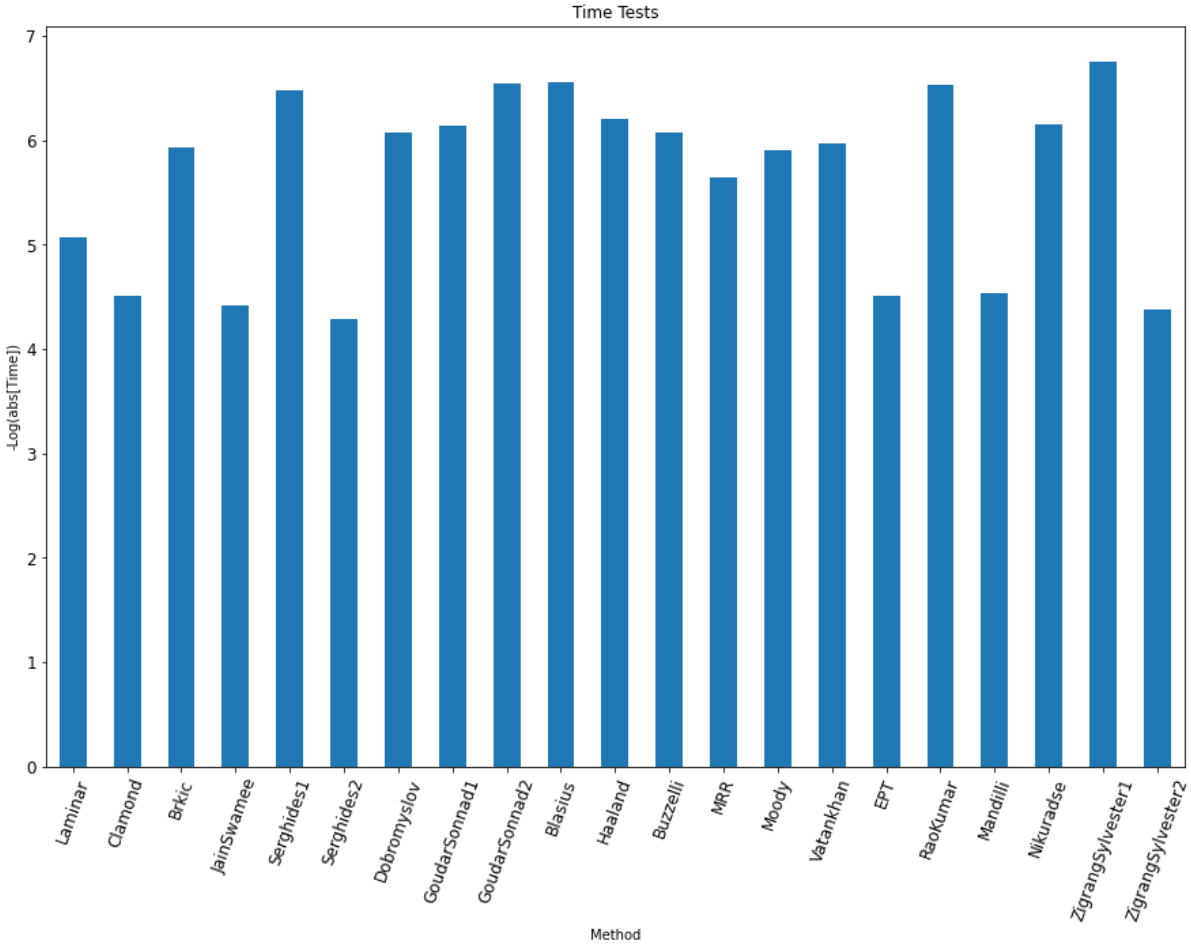

Nikuradse with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Zigrang & Sylvester Method 1 with R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000


Zigrang & Sylvester Method 1 with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Zigrang & Sylvester Method 2 with R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
0
2000
4000
6000
8000
10000


Zigrang & Sylvester Method 2 with log R
eD=1
eD=0.1
eD=0.01
eD=0.001
eD=0.0001
Friction Factor
Reynold's Number
0
1
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Time Tests
-Log(abs[Time])
Method
0
1
2
3
4
5
6
7
Laminar
Clamond
Brkic
JainSwamee
Serghides1
Serghides2
Dobromyslov
GoudarSonnad1
GoudarSonnad2
Blasius
Haaland
Buzzelli
MRR
Moody
Vatankhan
EPT
Raokumar
Mandilli
Nikuradse
ZigrangSylvester1
ZigrangSylvester2