Validation exercise of the KEPLER Workflow

JET shot 77922 : [48.7 s – 52.5 s]

3 transport equations (Ψ, Te, Ti)

Source prescribed (but NCLASS)

Bohm/GyroBohm (JET coefficients)

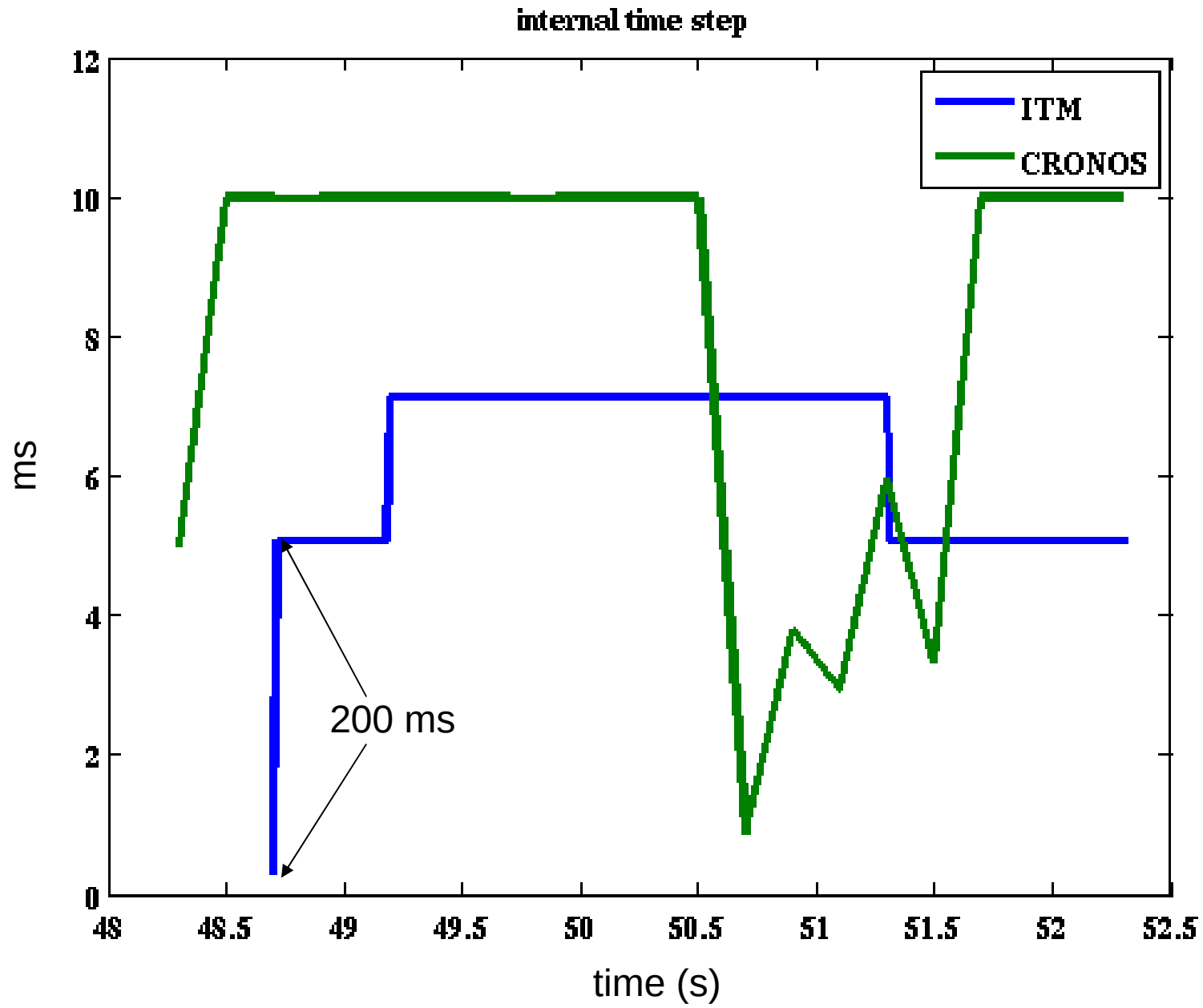
Equilibrium every 50 time steps (HELENA21)

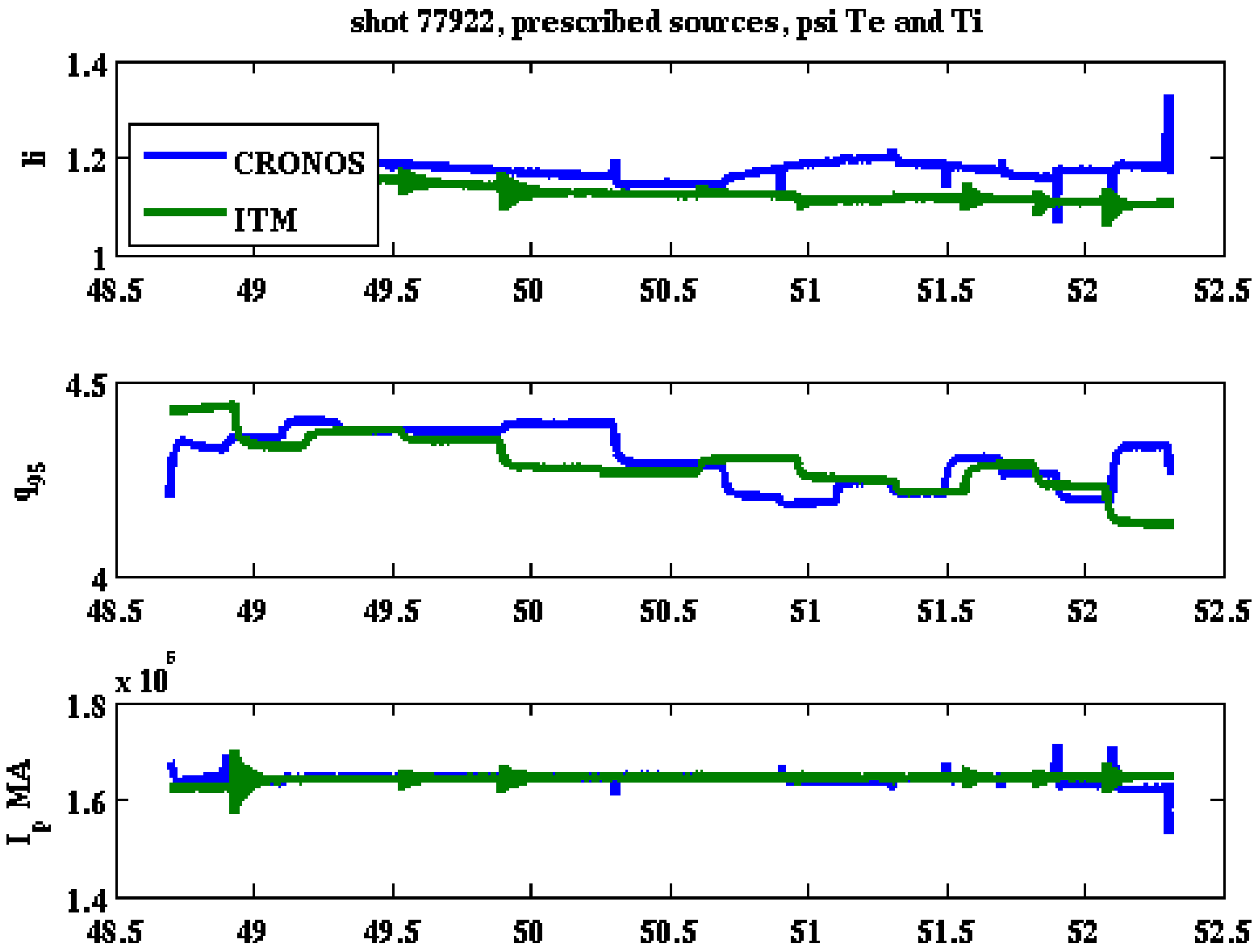
Procedure

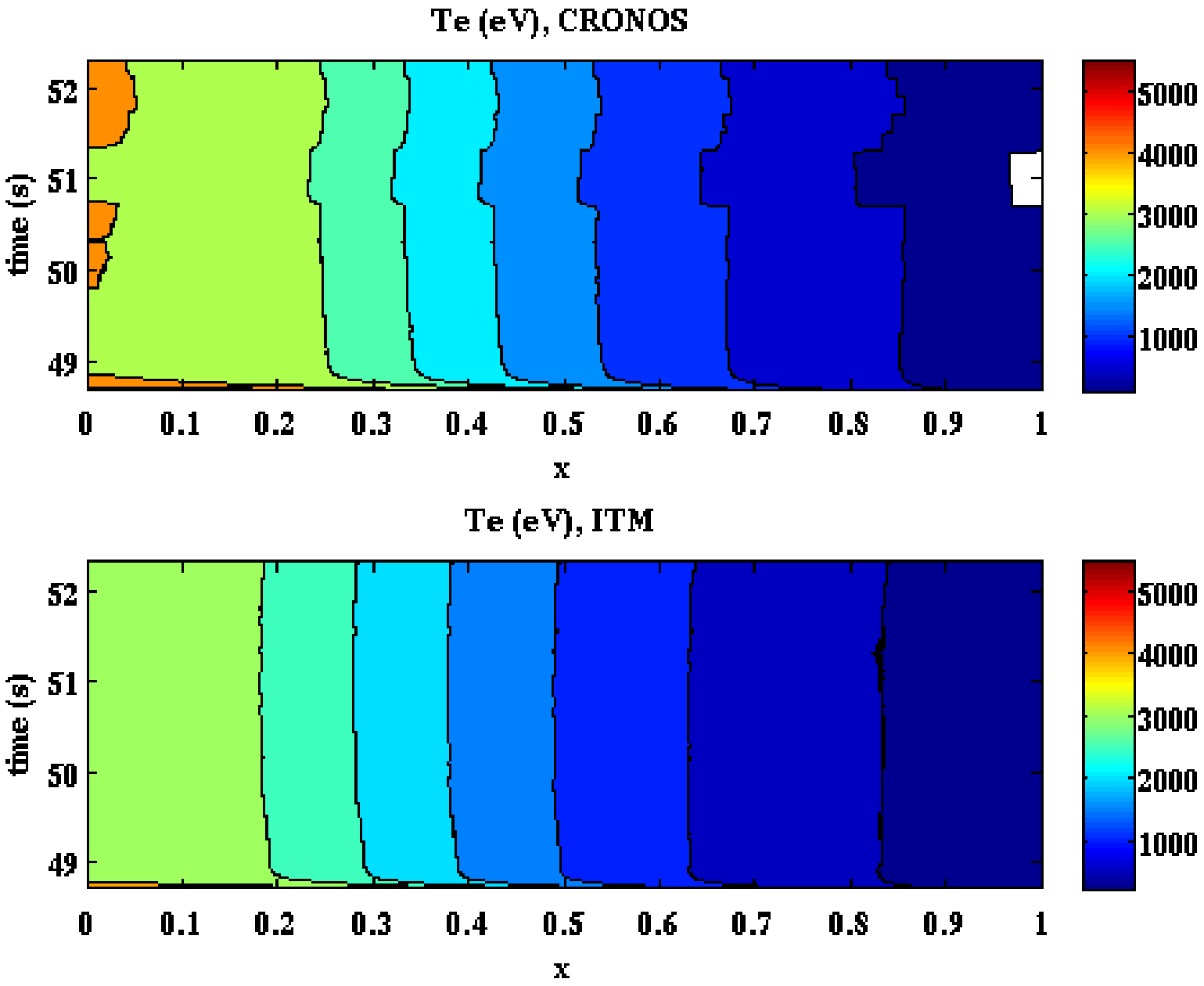
Run CRONOS on the gateway ⇨generation of an outputfile

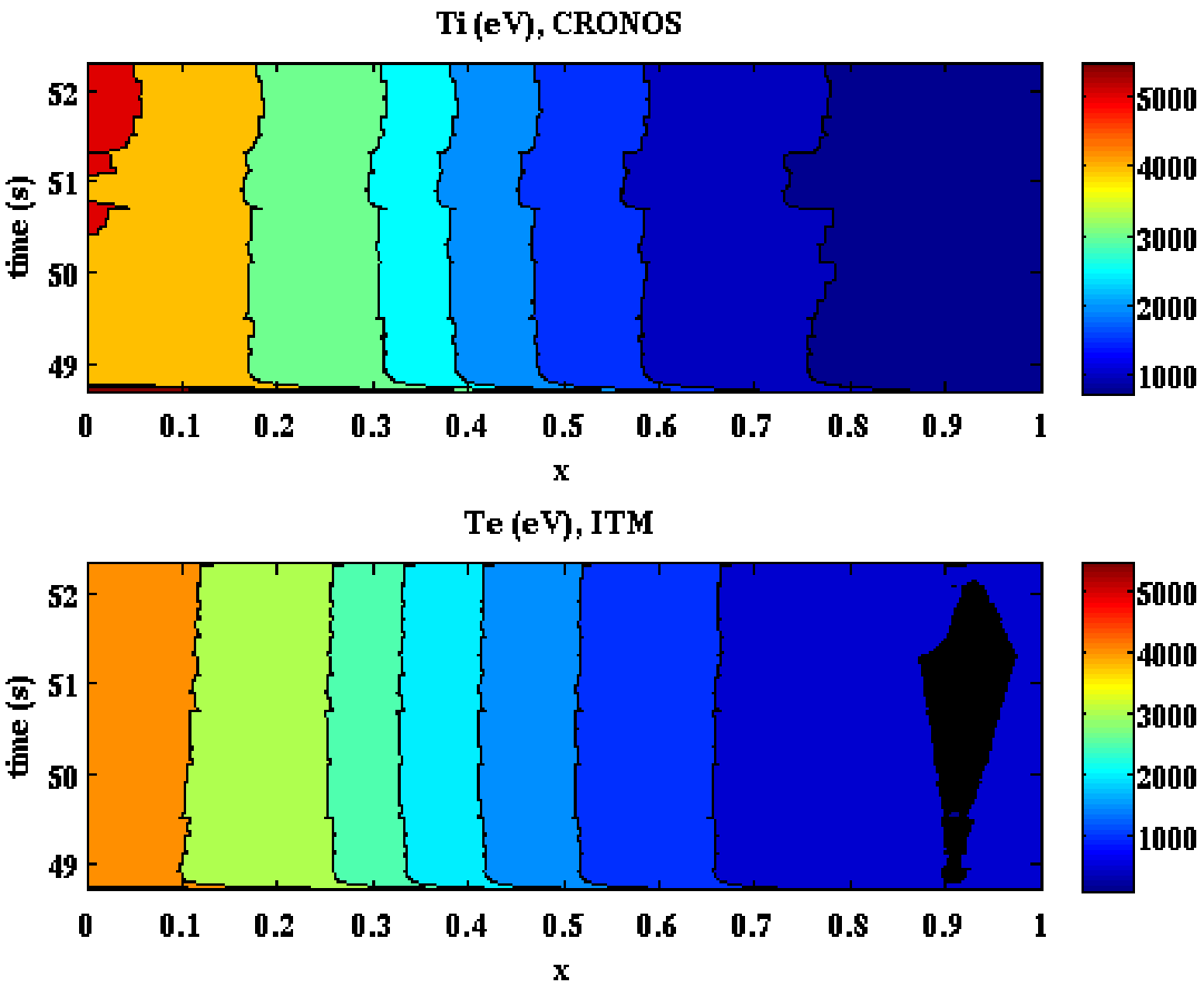
Creation of the CPO with the MatLab routine scriptshot.m

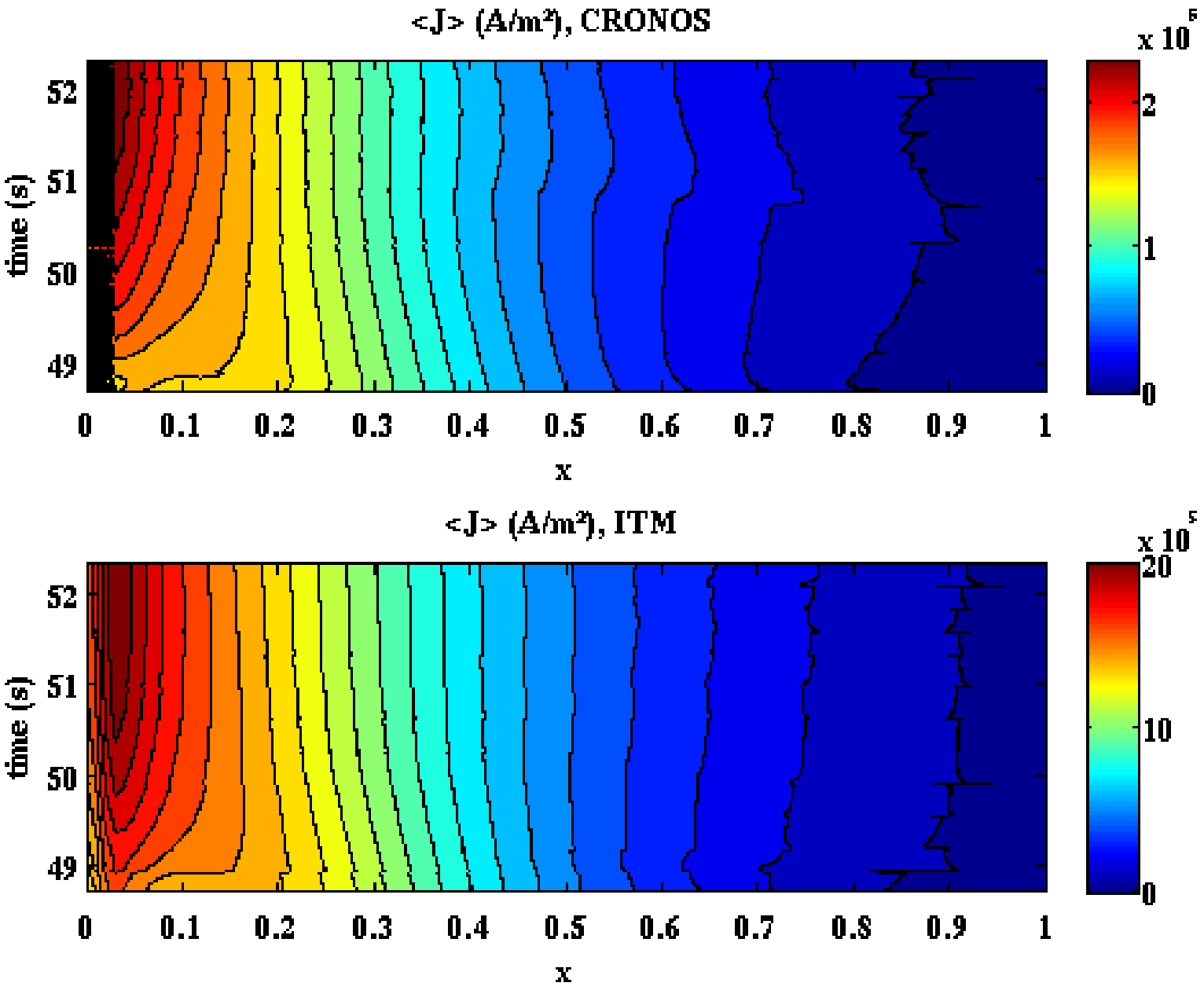
Run kepler workflow (same modules as CRONOS)

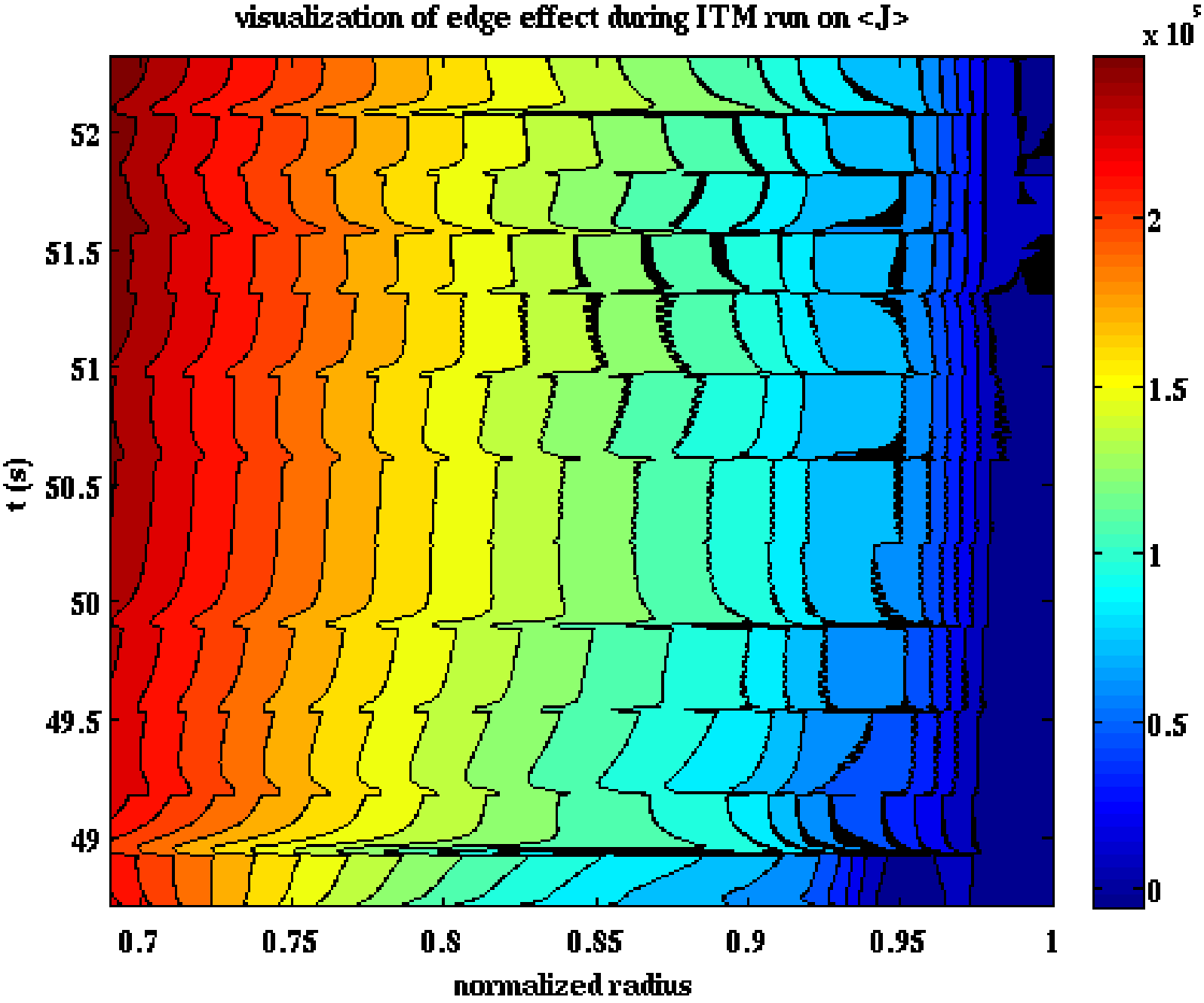

internal time step
ITM
CRONOS
ms
time (s)
200 ms
0
2
4
6
8
10
12
48
48.5
49
49.5
50
50.5
51
51.5
52
52.5


shot 77922, prescribed sources, psi Te and Ti
li
CRONOS
ITM
1.4
1.2
1
48.5
49
49.5
50
50.5
51
51.5
52
52.5
q_{95}
4.5
4
x 10^6
I_p MA
1.8
1.6
1.4


Te (eV), CRONOS
time (s)
52
51
50
49
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
x
5000
4000
3000
2000
1000
Te (eV), ITM
time (s)
52
51
50
49
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
x
5000
4000
3000
2000
1000


Ti (eV), CRONOS
time (s)
52
51
50
49
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
x
5000
4000
3000
2000
1000
Te (eV), ITM
time (s)
52
51
50
49
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
x
5000
4000
3000
2000
1000


<J> (A/m²), CRONOS
x 10^5
2
1
0
52
51
50
49
time (s)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
x
<J> (A/m²), ITM
x 10^5
20
10
0
52
51
50
49
time (s)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
x


visualization of edge effect during ITM run on <J>
x 10^5
2
1.5
1
0.5
0
52
51.5
51
50.5
50
49.5
49
t (s)
0.7
0.75
0.8
0.85
0.9
0.95
1
normalized radius