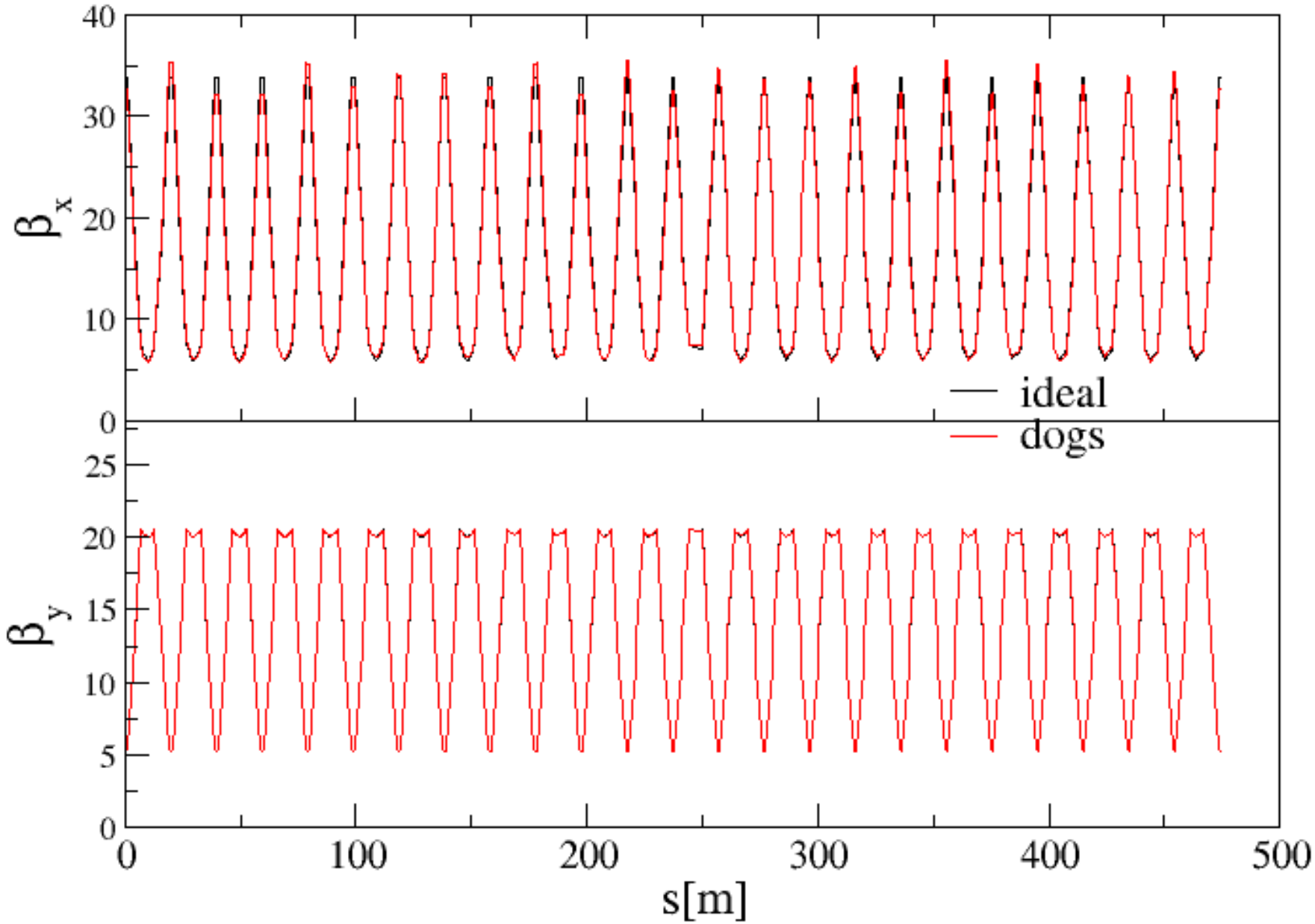
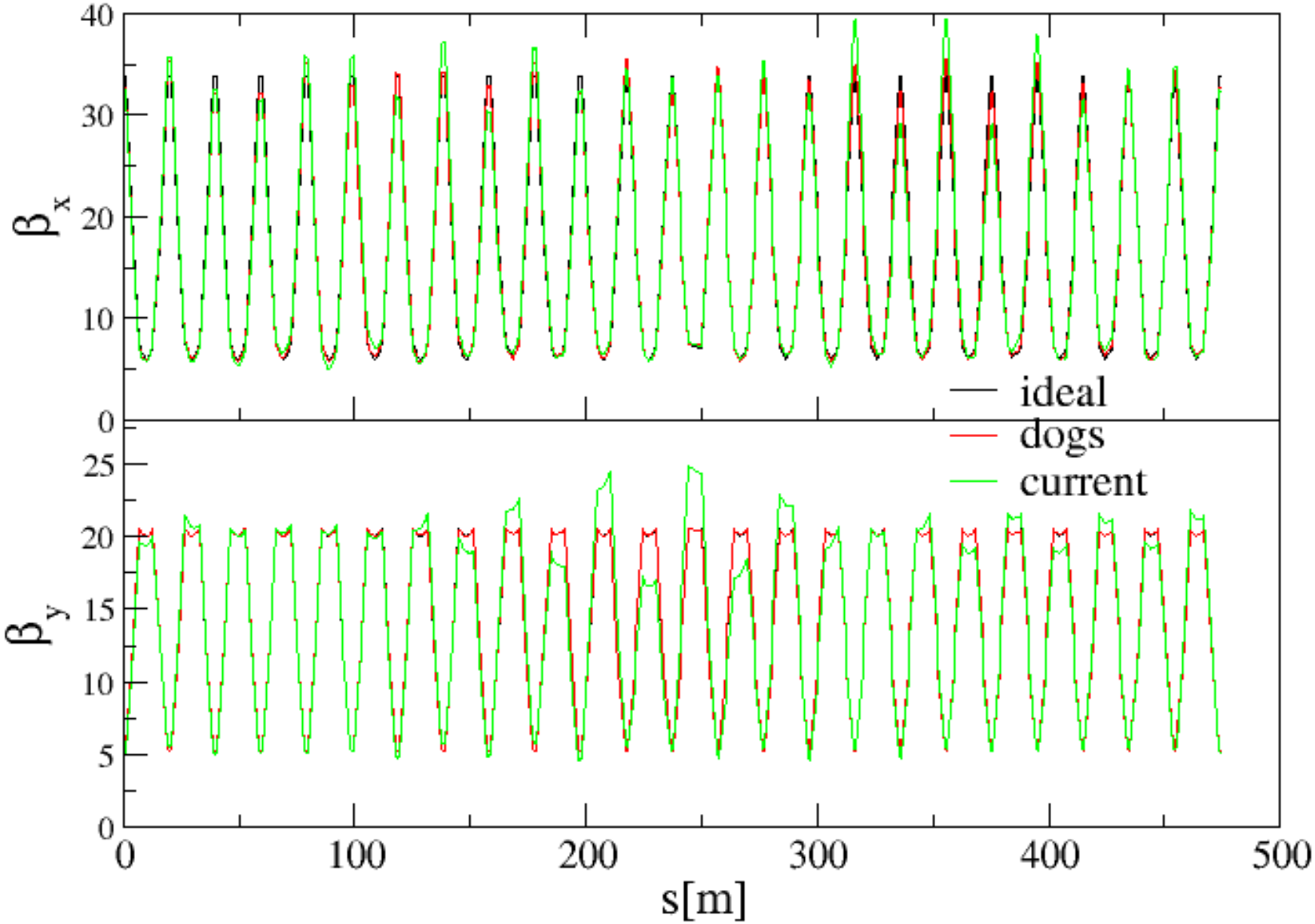
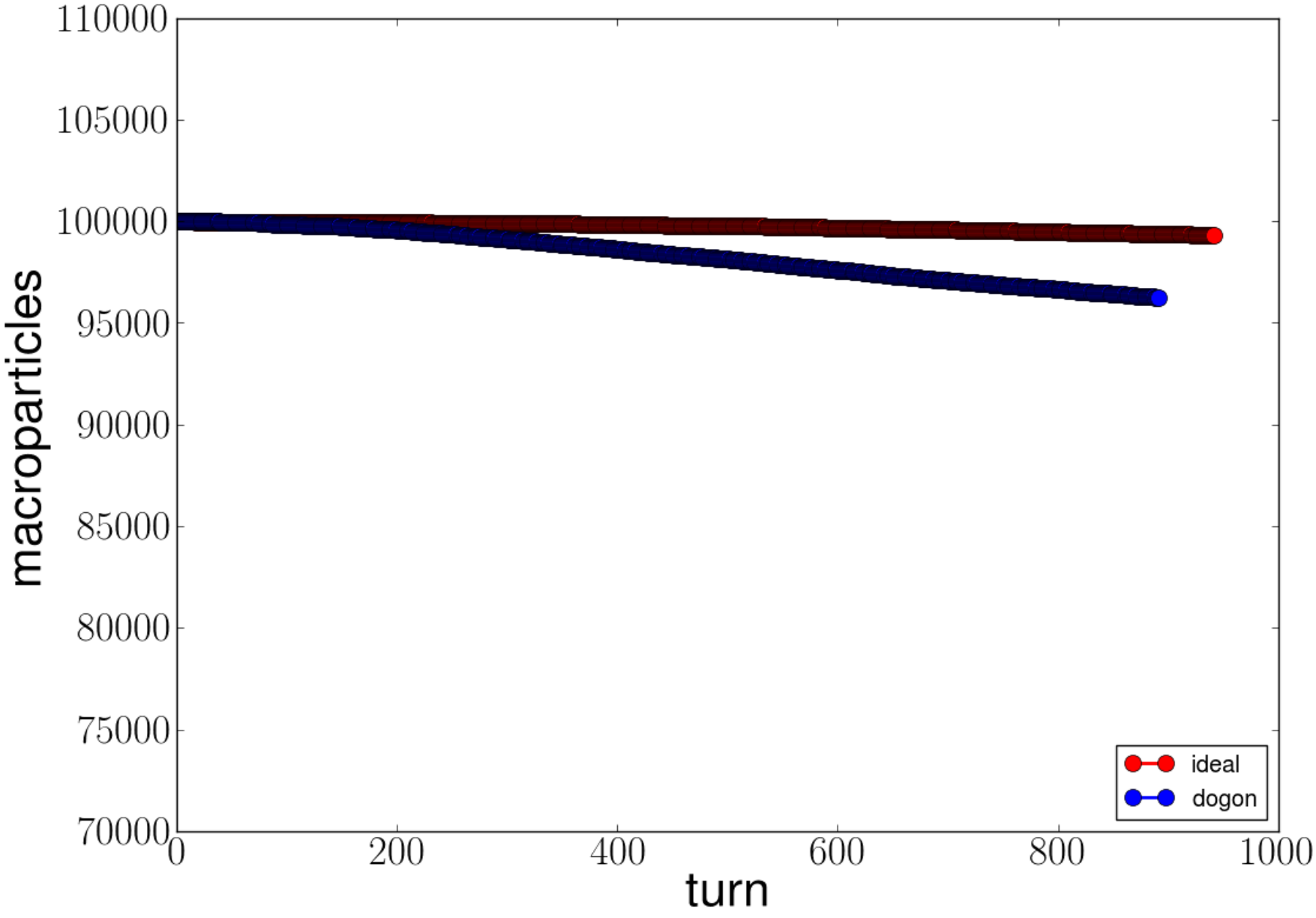
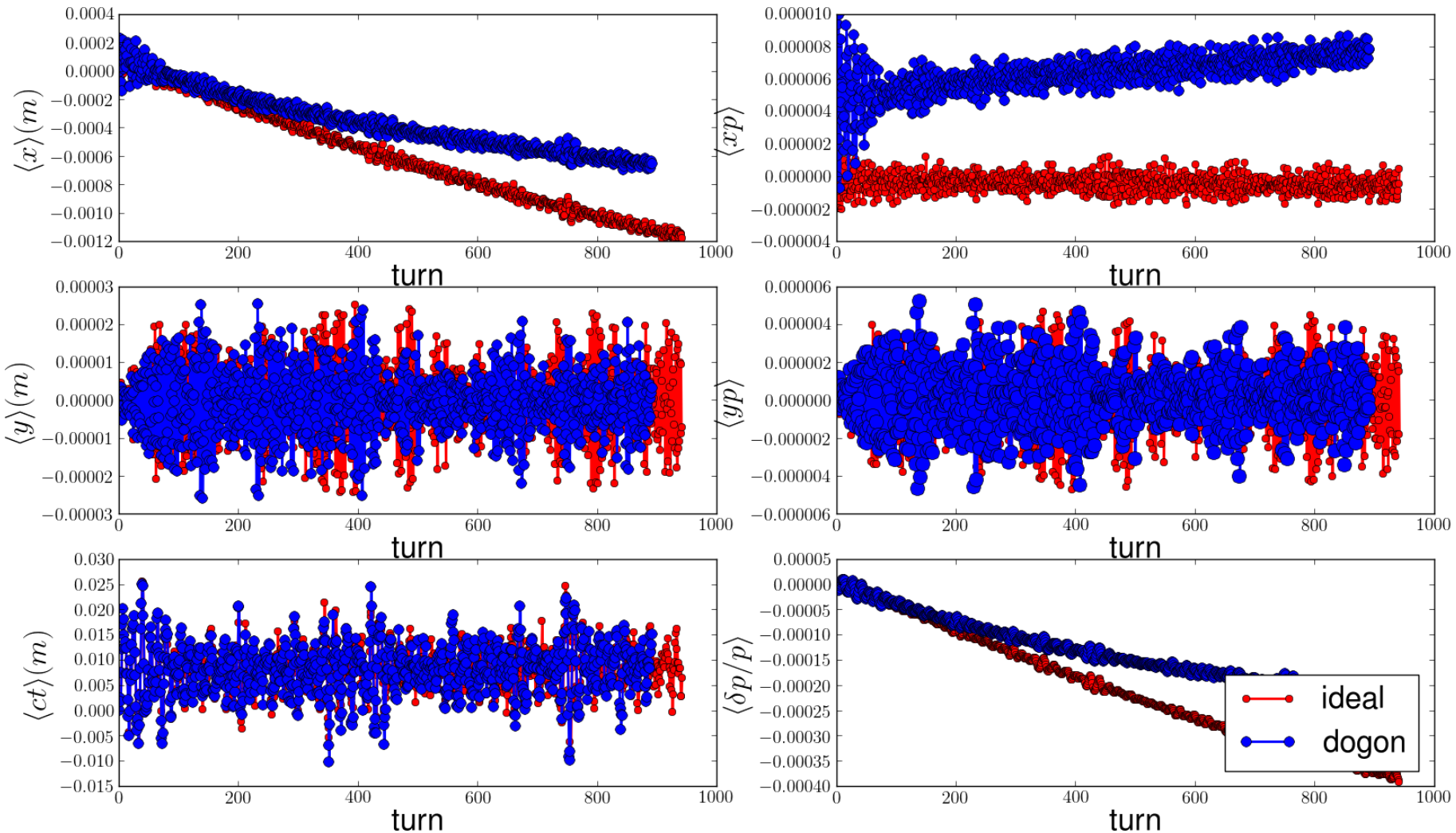
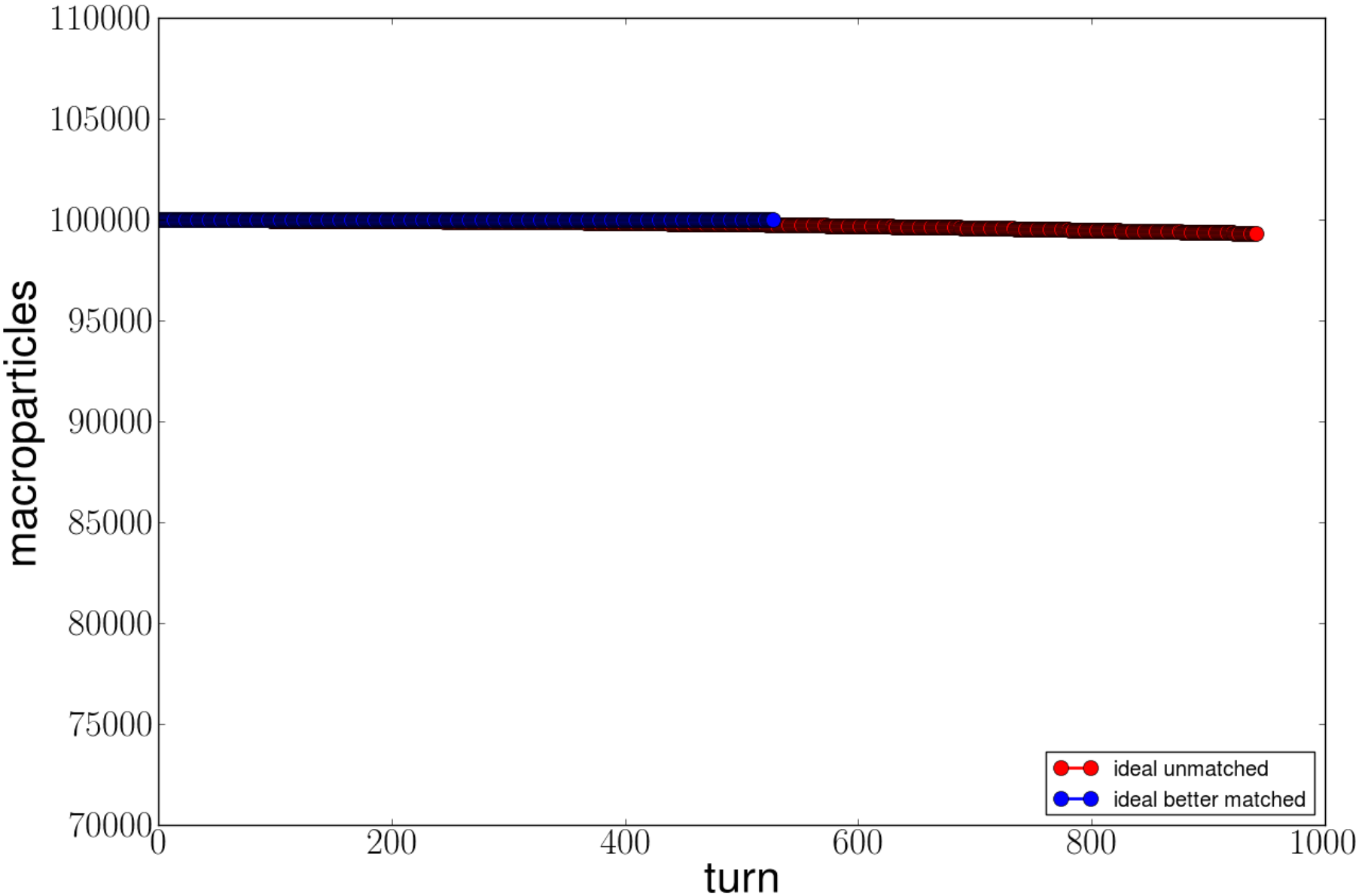
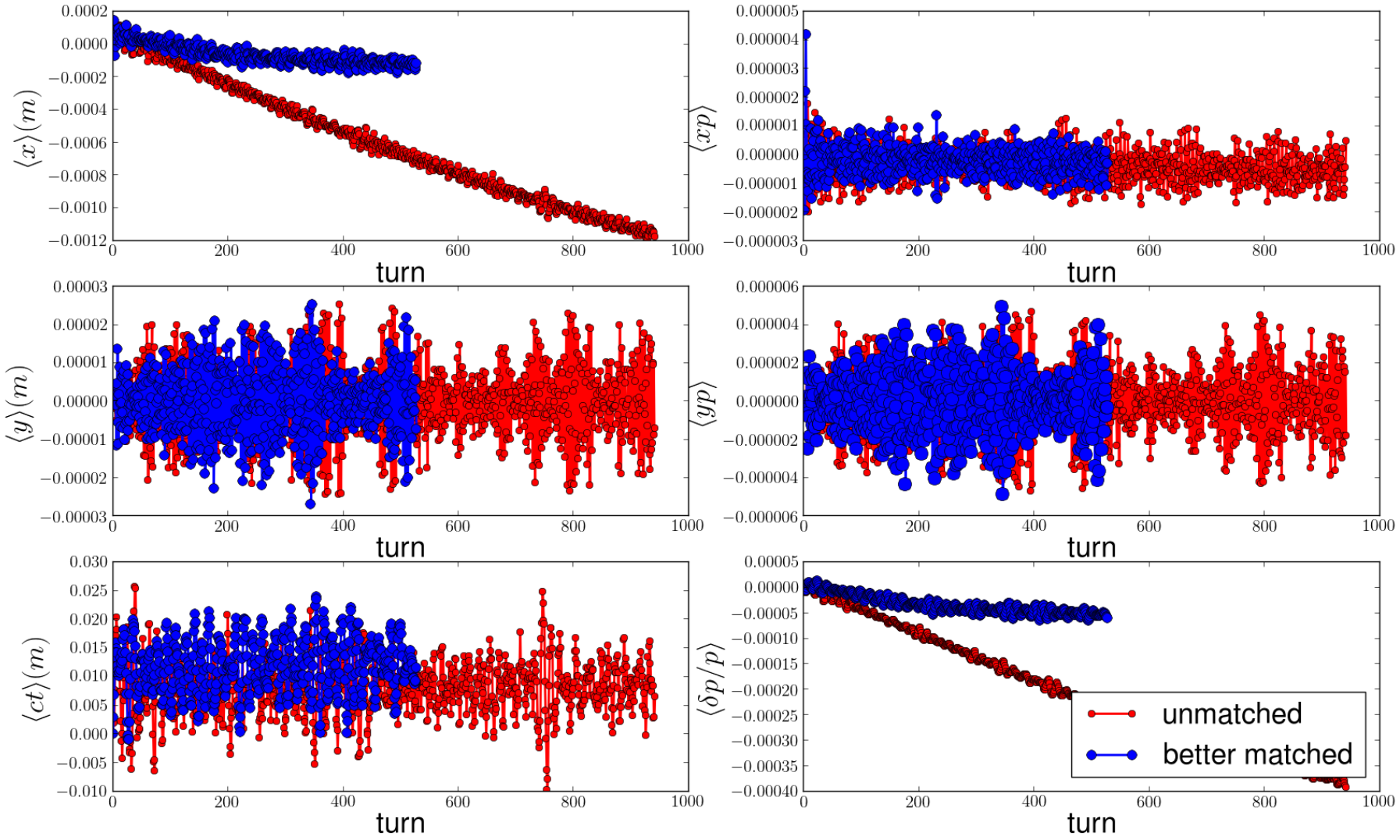

40
30
20
10
0
β_x
ideal
dogs
25
20
15
10
5
0
β_y
0
100
200
300
400
500
s[m]


40
30
20
10
0
β_x
ideal
dogs
current
25
20
15
10
5
0
β_y
0
100
200
300
400
500
s[m]

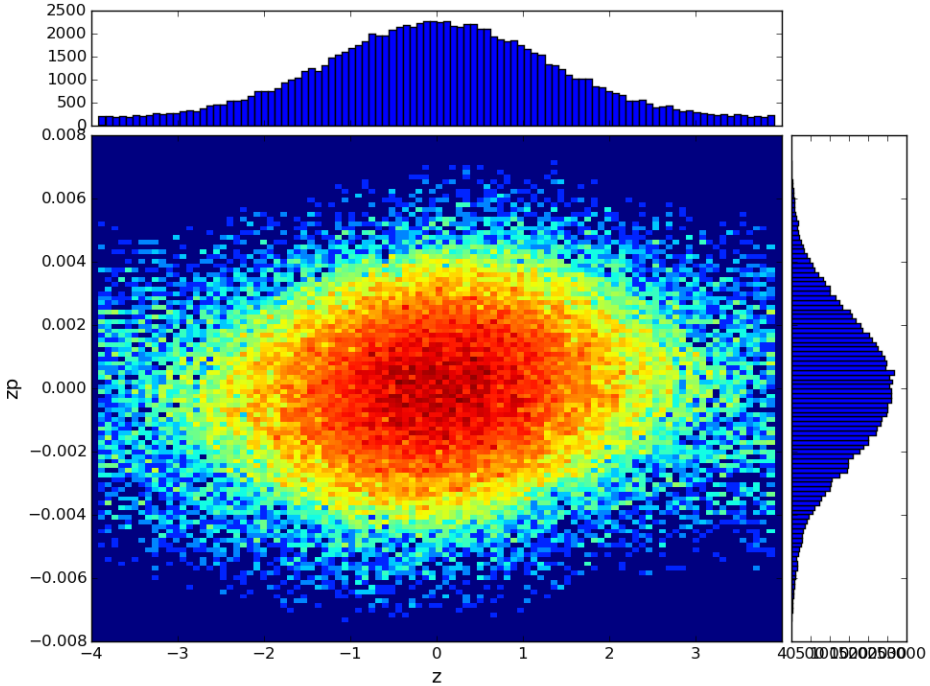

110000
105000
100000
95000
90000
85000
80000
75000
70000
macroparticles
0
200
400
600
800
1000
turn
ideal
dogon


$\langle x \rangle (m)$
$\langle dx \rangle$
$\langle y \rangle (m)$
$\langle dy \rangle$
$\langle ct \rangle (m)$
$\langle \delta p/p \rangle$
turn
ideal
dogon

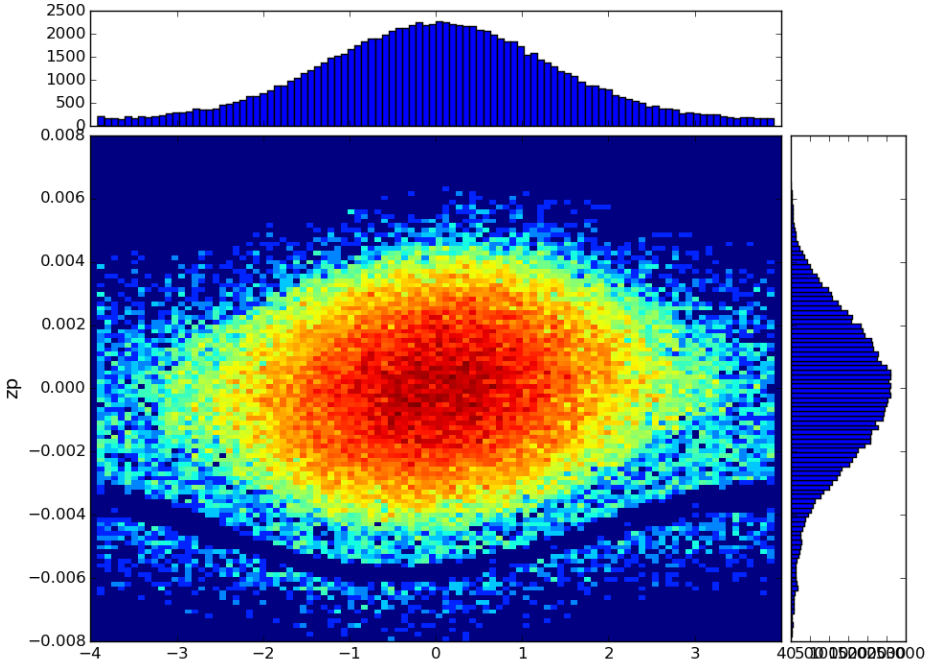

110000
105000
100000
95000
90000
85000
80000
75000
70000
macroparticles
0
200
400
600
800
1000
turn
ideal unmatched
ideal better matched


$\langle x \rangle (m)$
$\langle dx \rangle$
$\langle y \rangle (m)$
$\langle dy \rangle$
$\langle ct \rangle (m)$
$\langle \delta p/p \rangle$
turn
unmatched
better matched

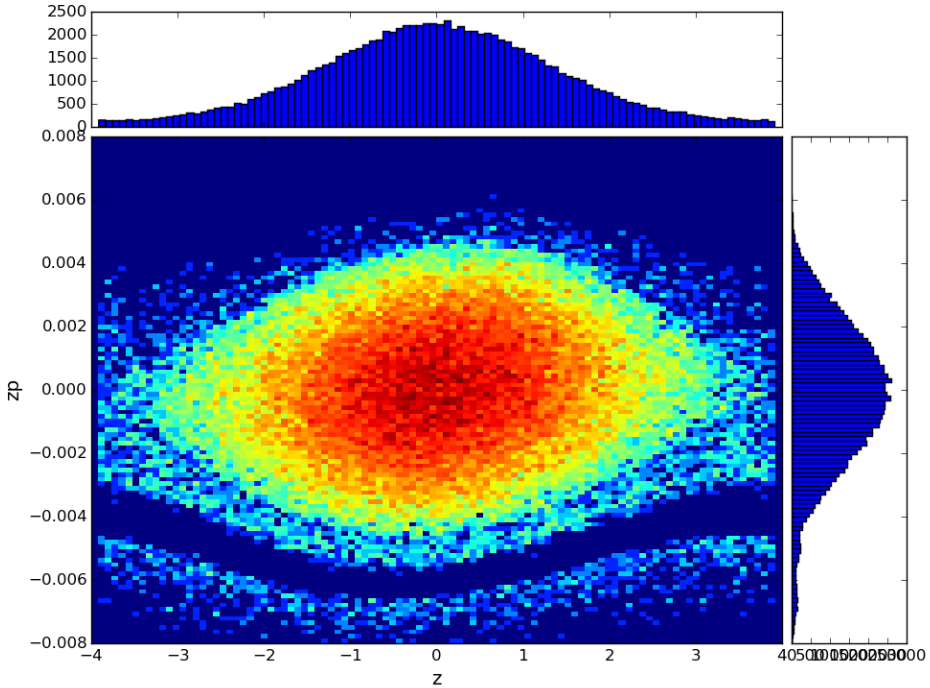
turn 100



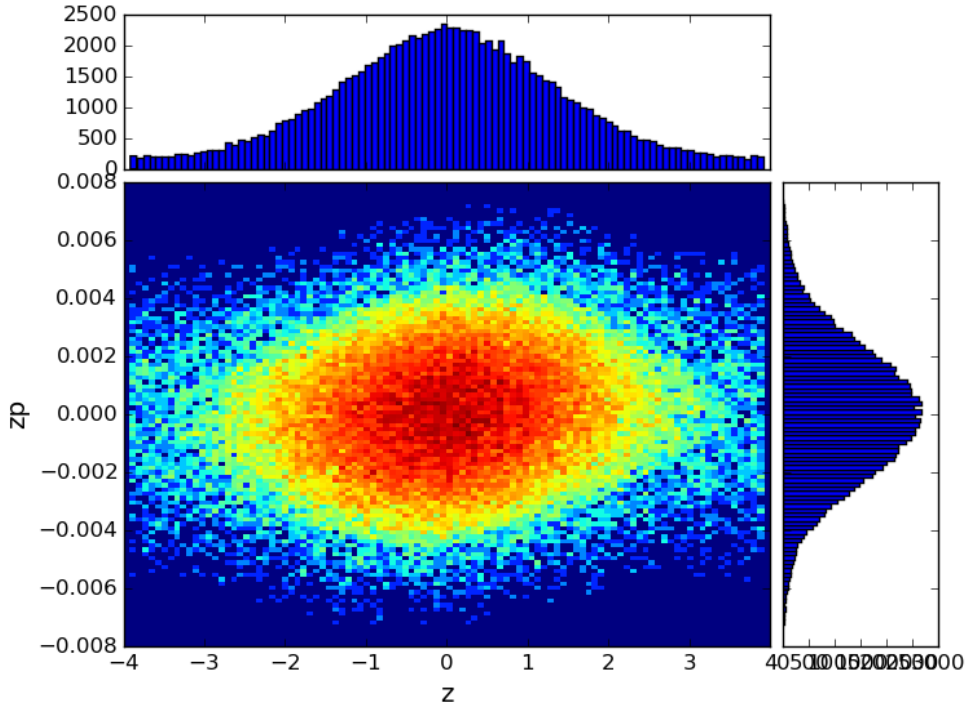
turn 500



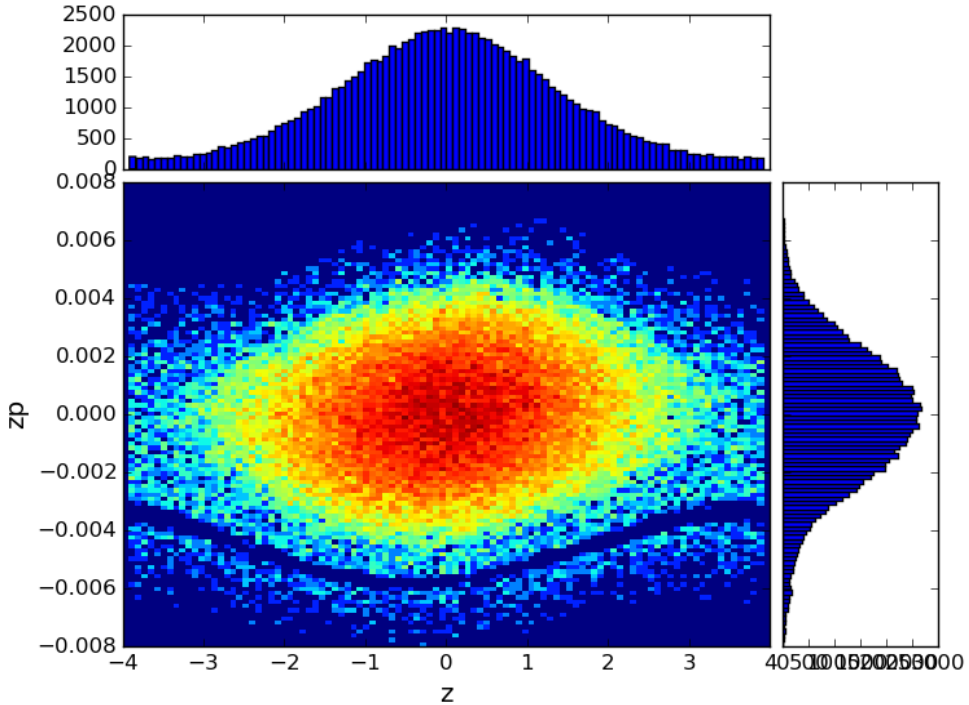
turn 800



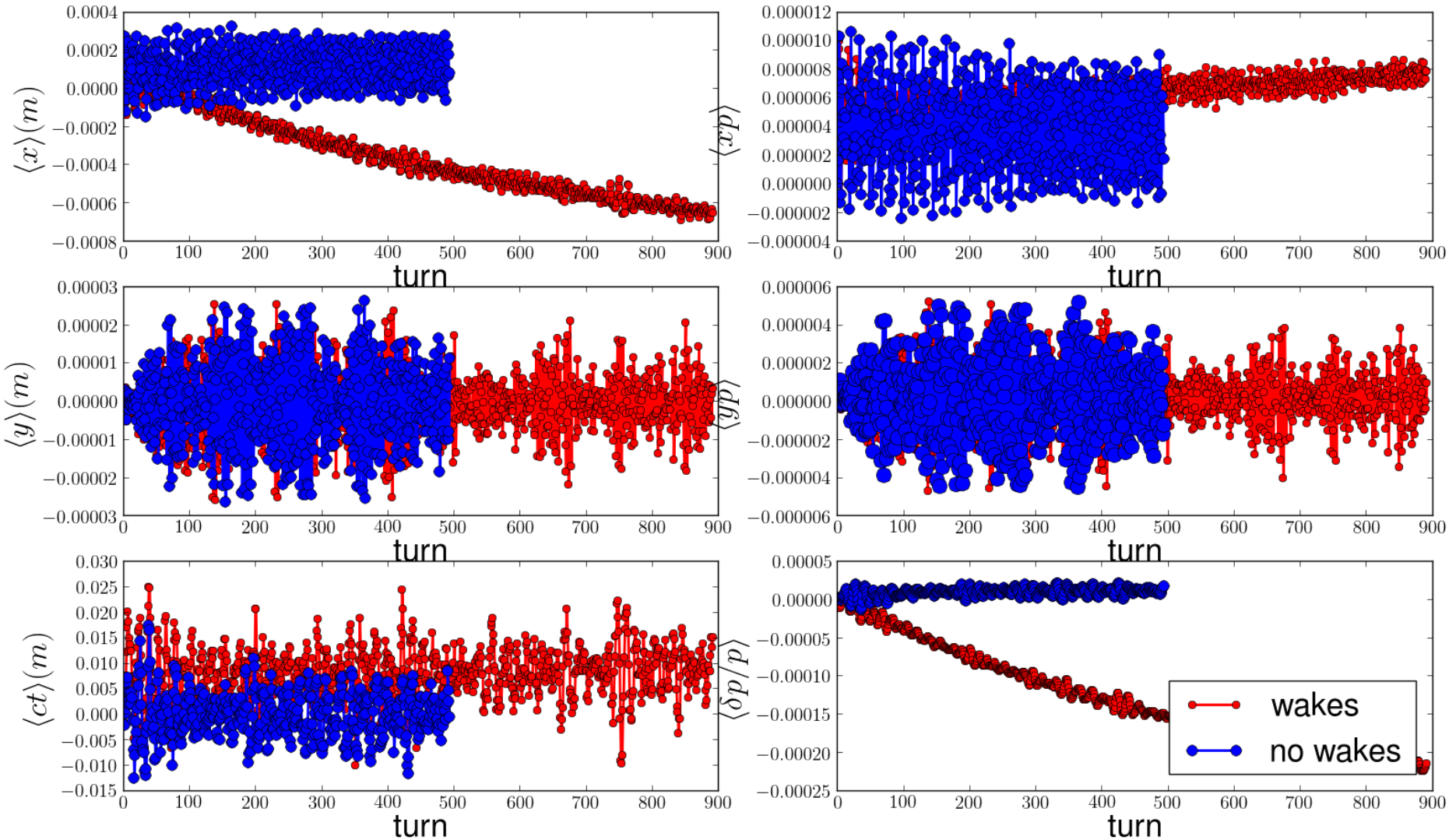
No wakes present

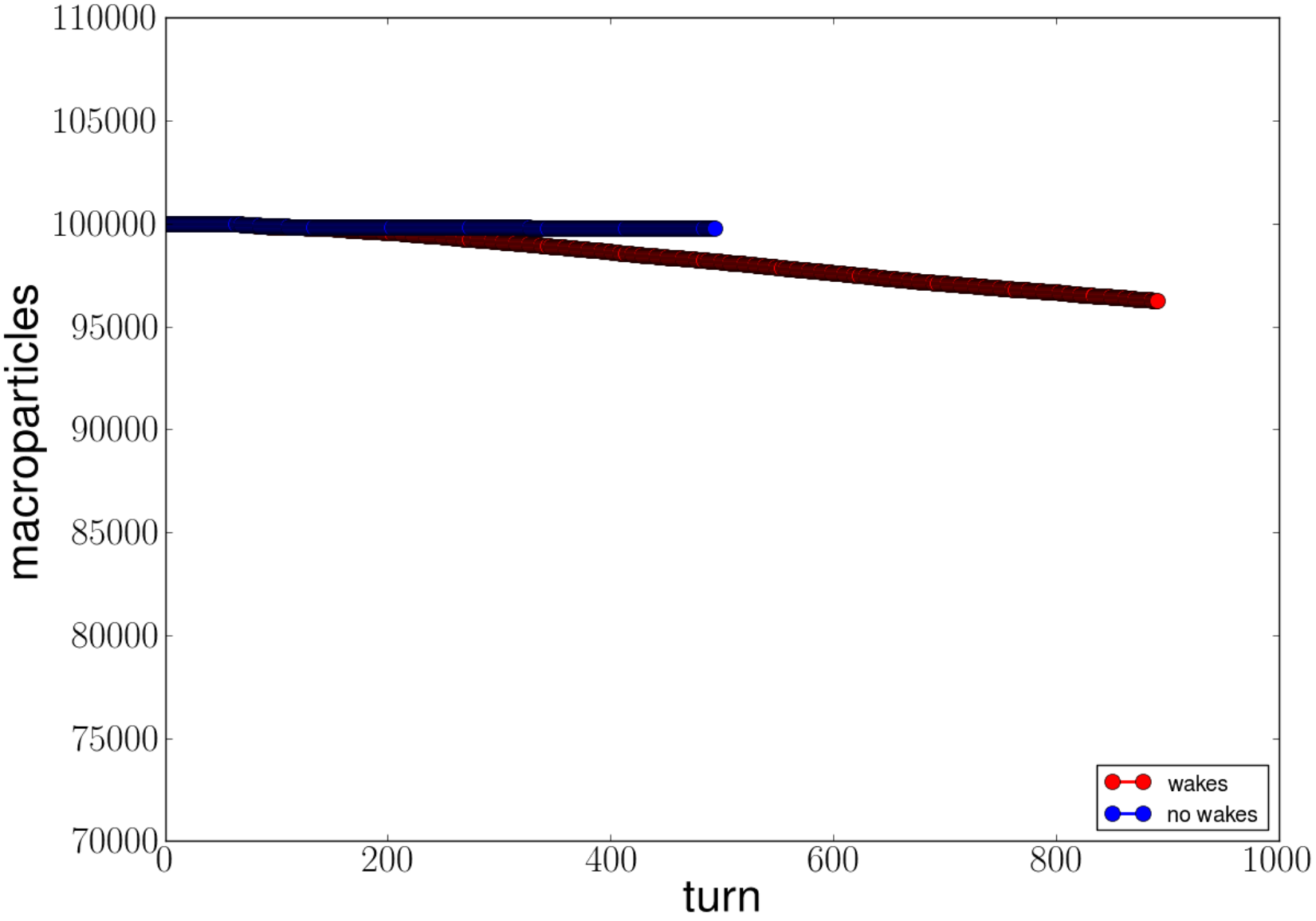


With wakes



turn 400


$\langle x \rangle (m)$
$\langle xp \rangle$
$\langle y \rangle (m)$
$\langle yp \rangle$
$\langle ct \rangle (m)$
$\langle \delta p/p \rangle$
turn
wakes
no wakes


110000
105000
100000
95000
90000
85000
80000
75000
70000
macroparticles
0
200
400
600
800
1000
turn
wakes
no wakes