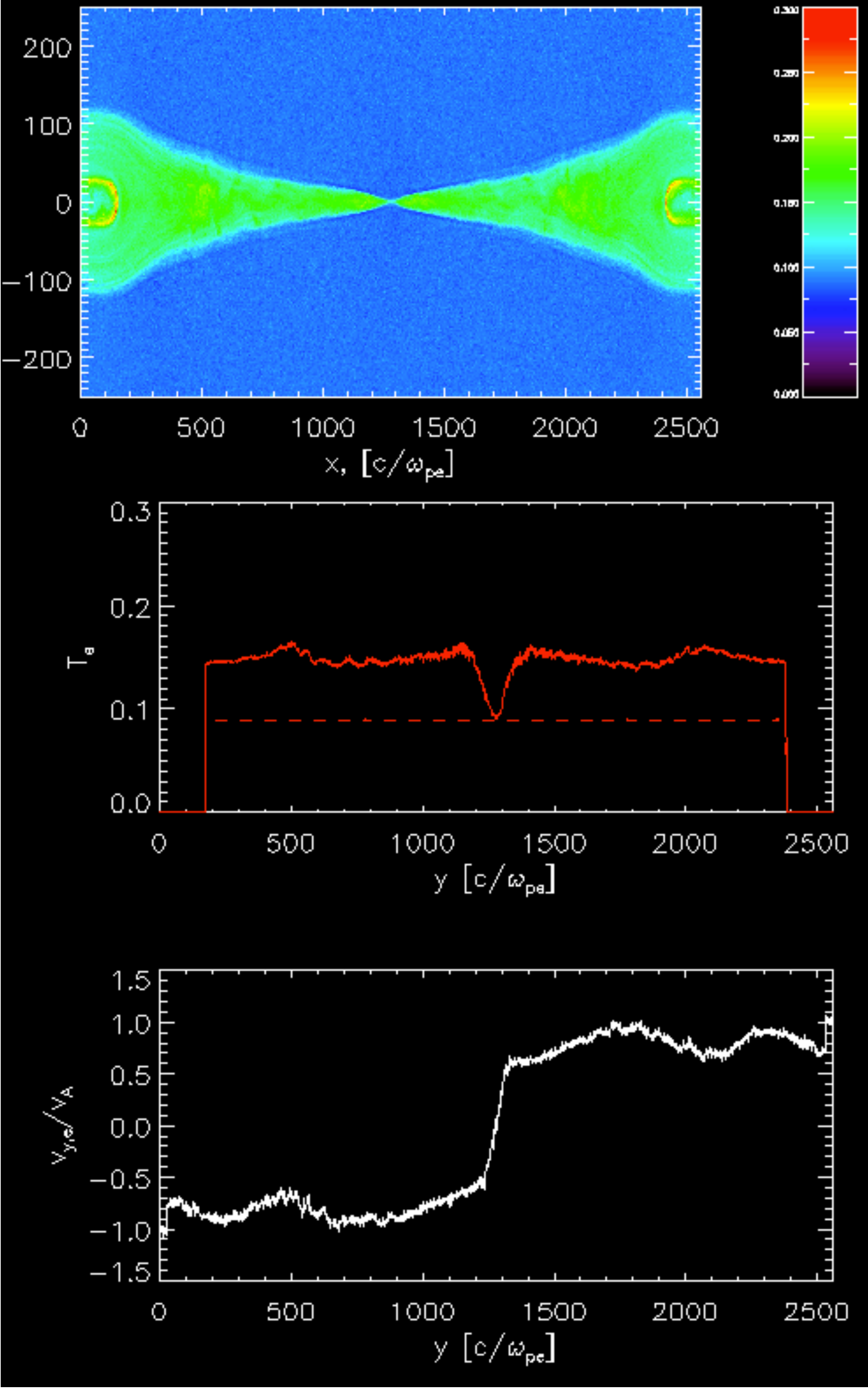

200
100
0
−100
−200
0
500
1000
1500
2000
2500
x, [c/ω_pe]
0.300
0.200
0.100
0.000
0.3
0.2
0.1
0.0
T_e
0
500
1000
1500
2000
2500
y [c/ω_pe]
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
v_ye/v_A
0
500
1000
1500
2000
2500
y [c/ω_pe]

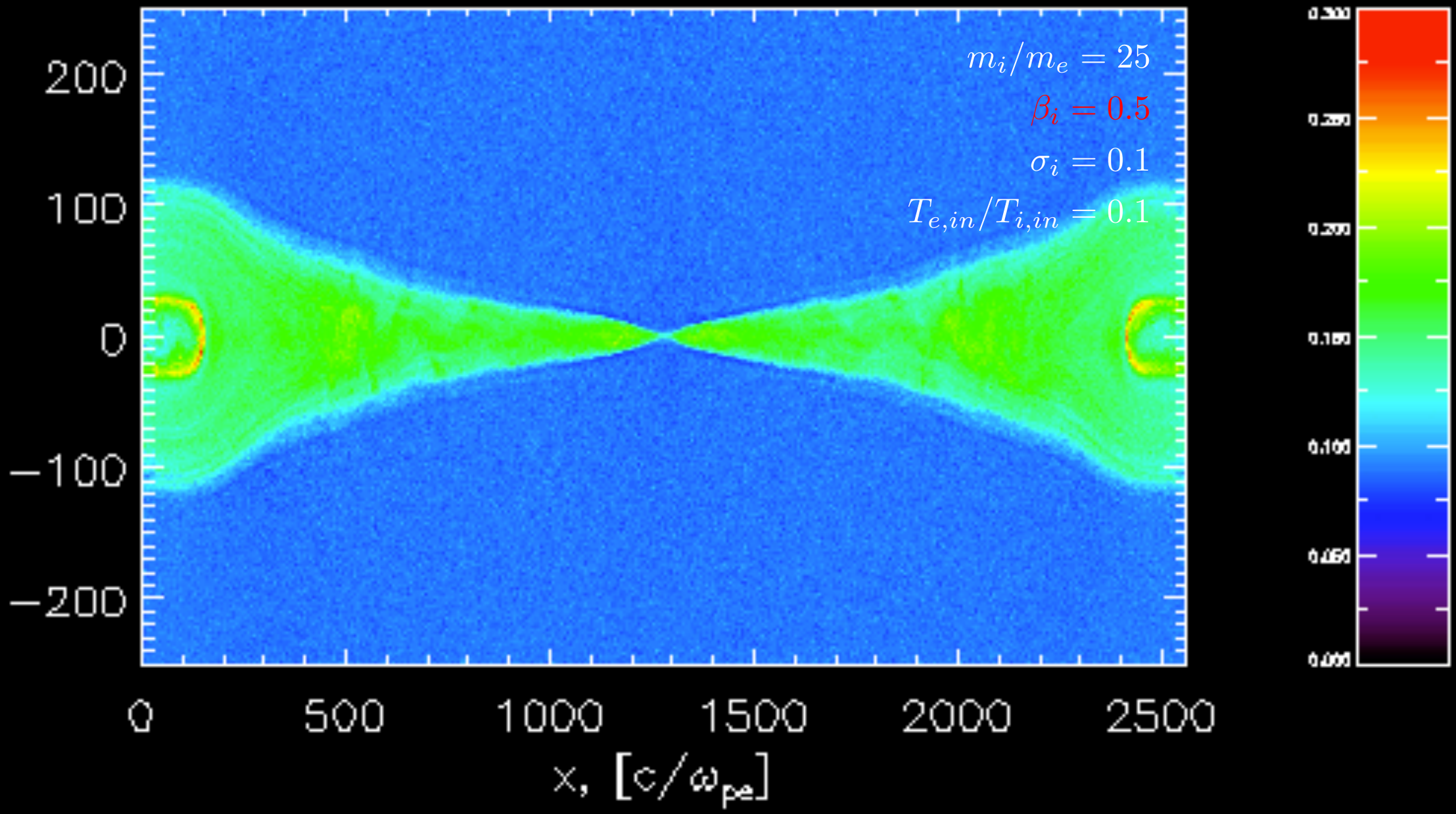
...and this is a high(er)-beta plasma

$$\beta_i = 0.5$$

200
100
0
−100
−200
0
500
1000
1500
2000
2500
x, [c/ω_pe]
0.300
0.200
0.100
0.000
0.3
0.2
0.1
0.0
T_e
0
500
1000
1500
2000
2500
y [c/ω_pe]
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
v_ye/v_A
0
500
1000
1500
2000
2500
y [c/ω_pe]

...and this is a high(er)-beta plasma

- Islands are absent; thermal pressure suppresses tearing mode
- Heuristically: the plasma is already 'hot,' so there is less heating that can be done by reconnection $k_b T_e / m_e c^2$



We carefully extract the temperature increase

$T^{\mu\nu}_{lab}$ → **For each cell, compute lab-frame stress tensor** ← Recorded in code as: $\frac{1}{N_p}\sum_{particles}\frac{p^\mu p^\nu}{E}$