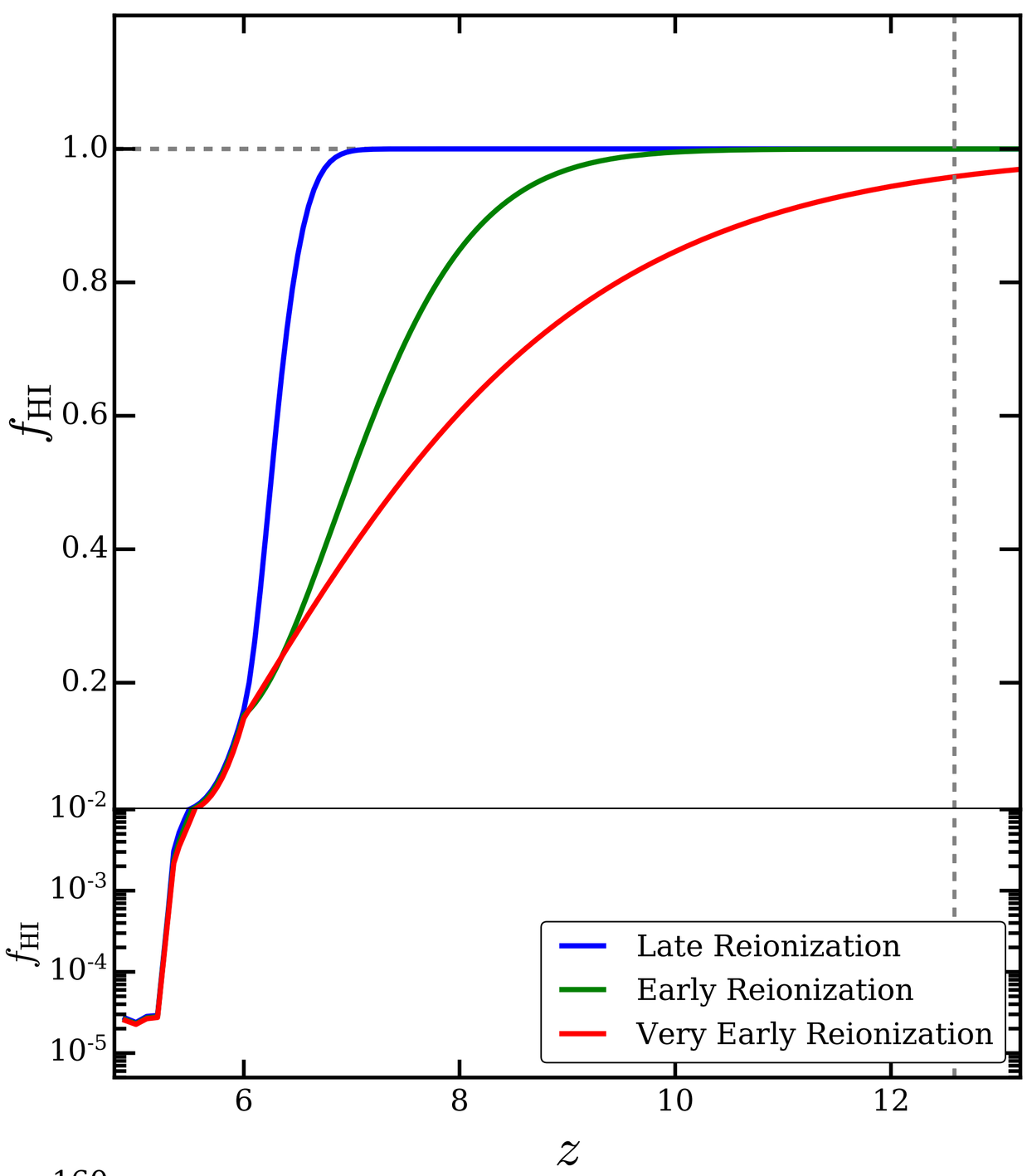
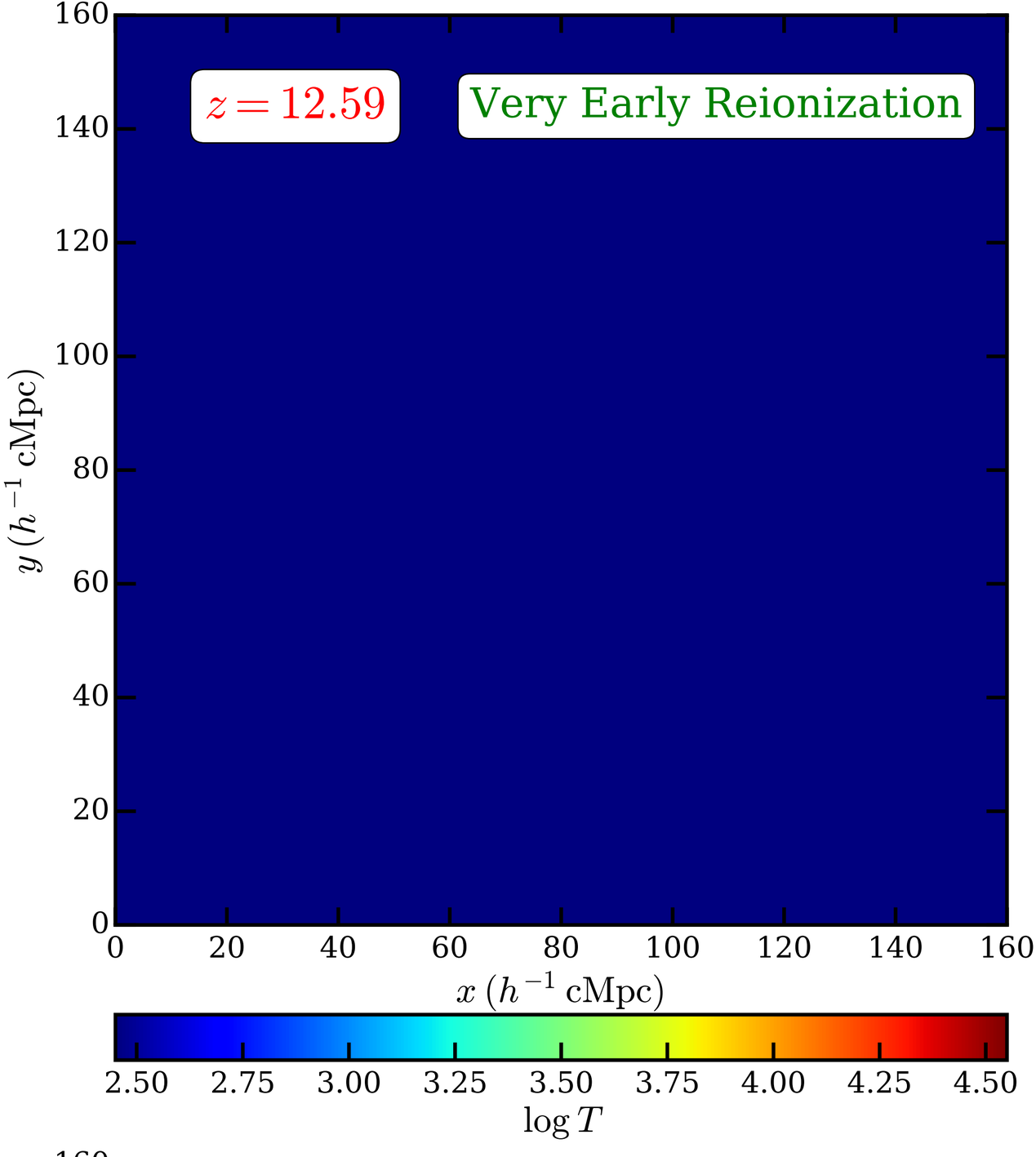
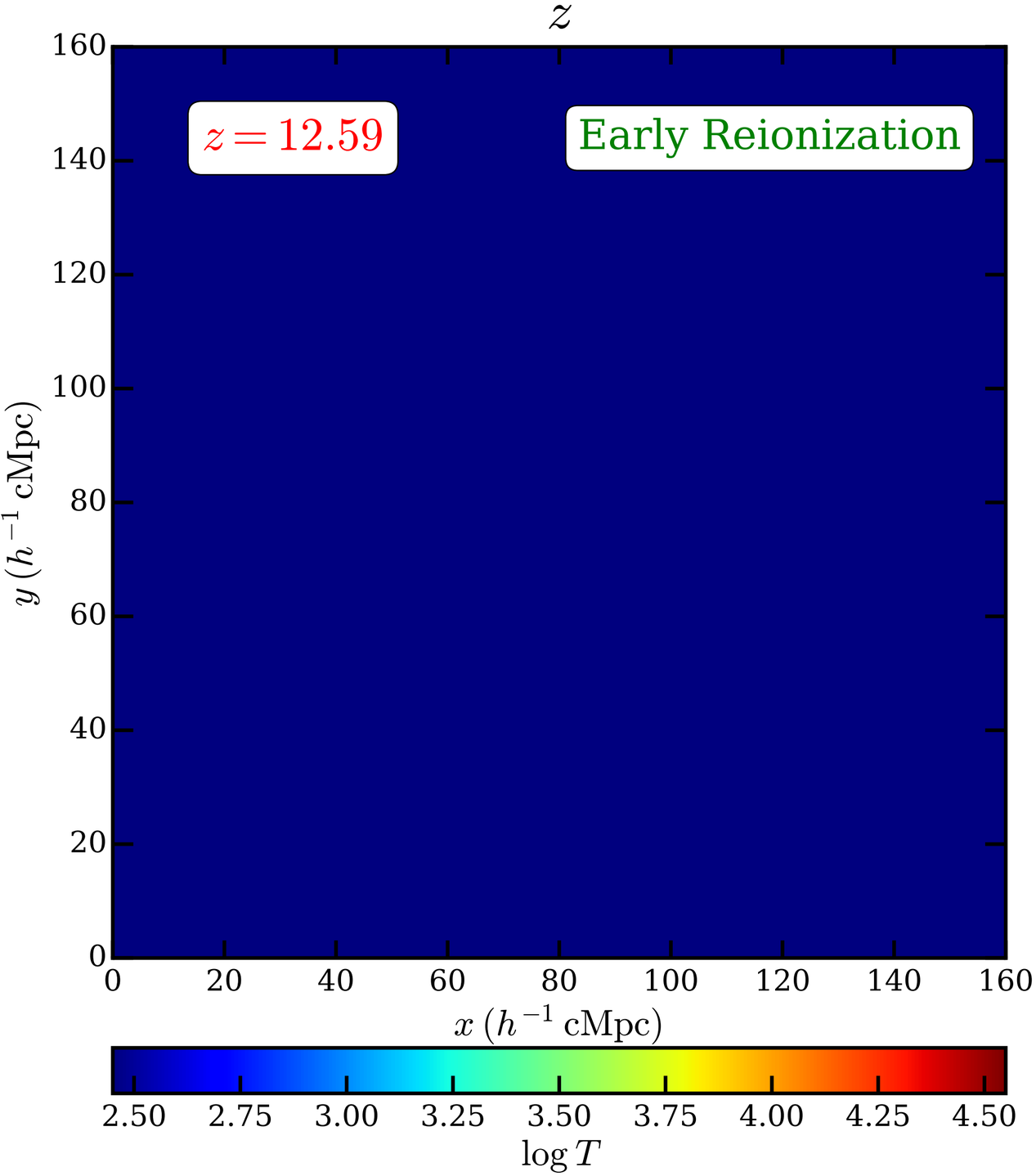
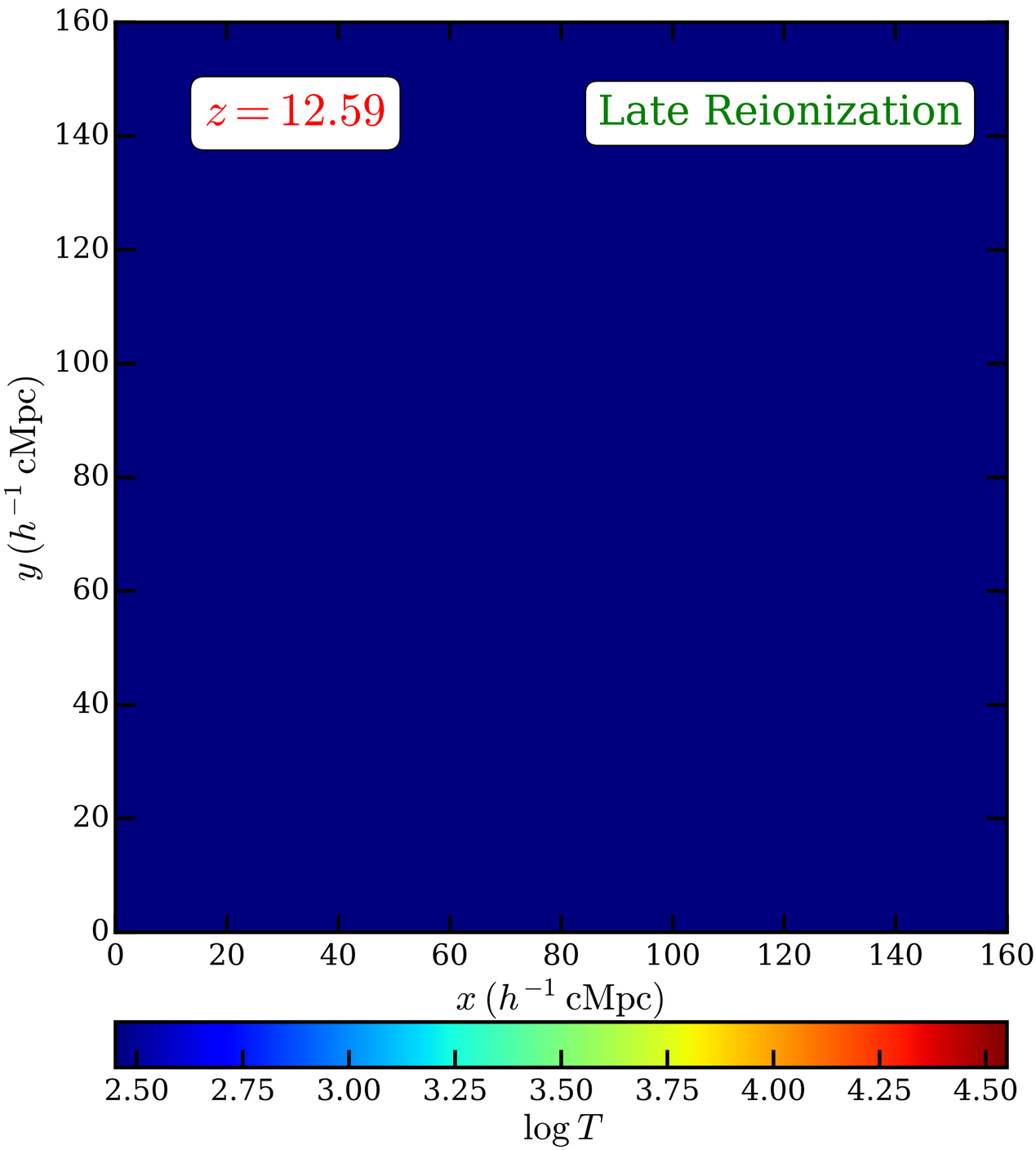
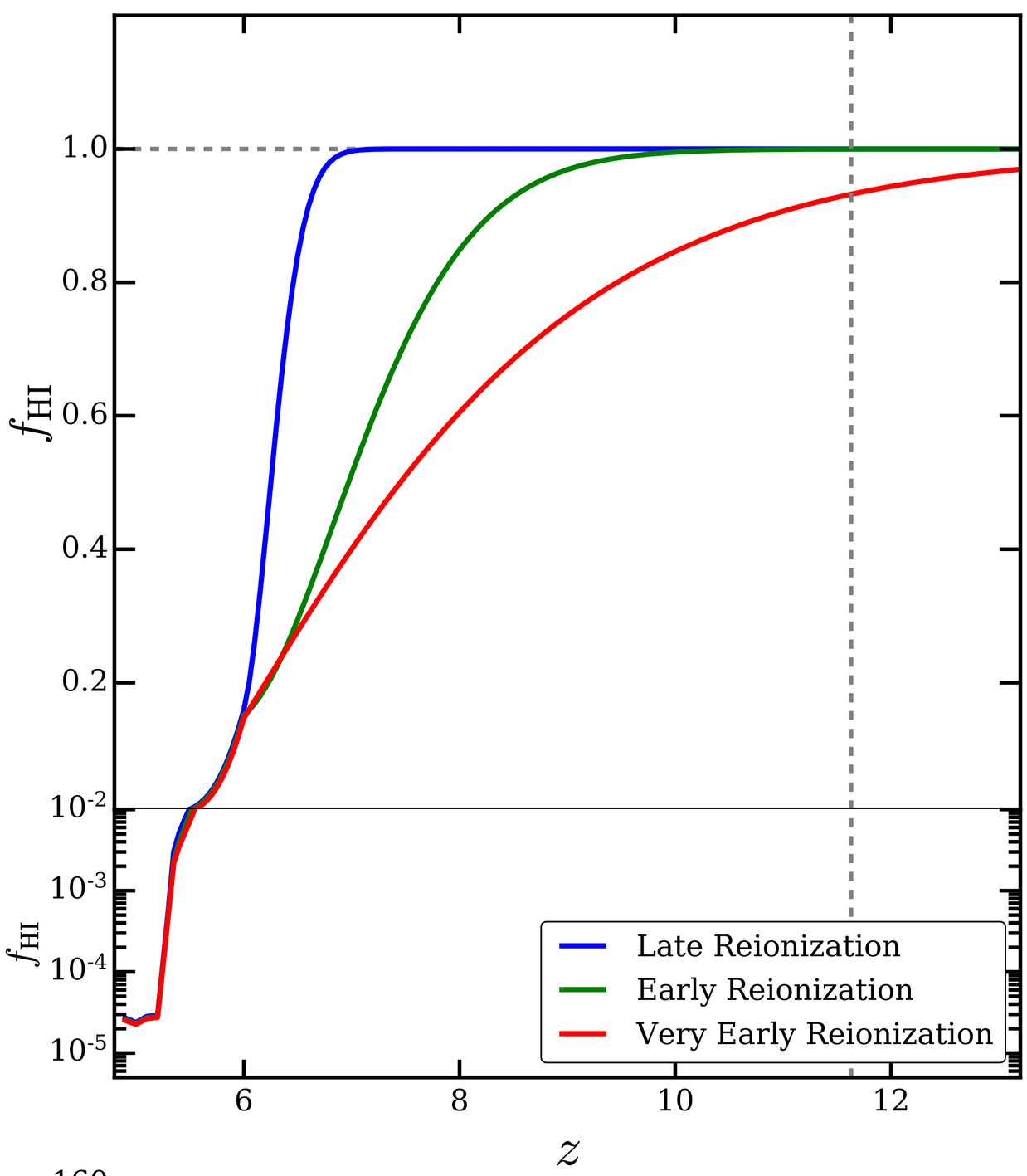
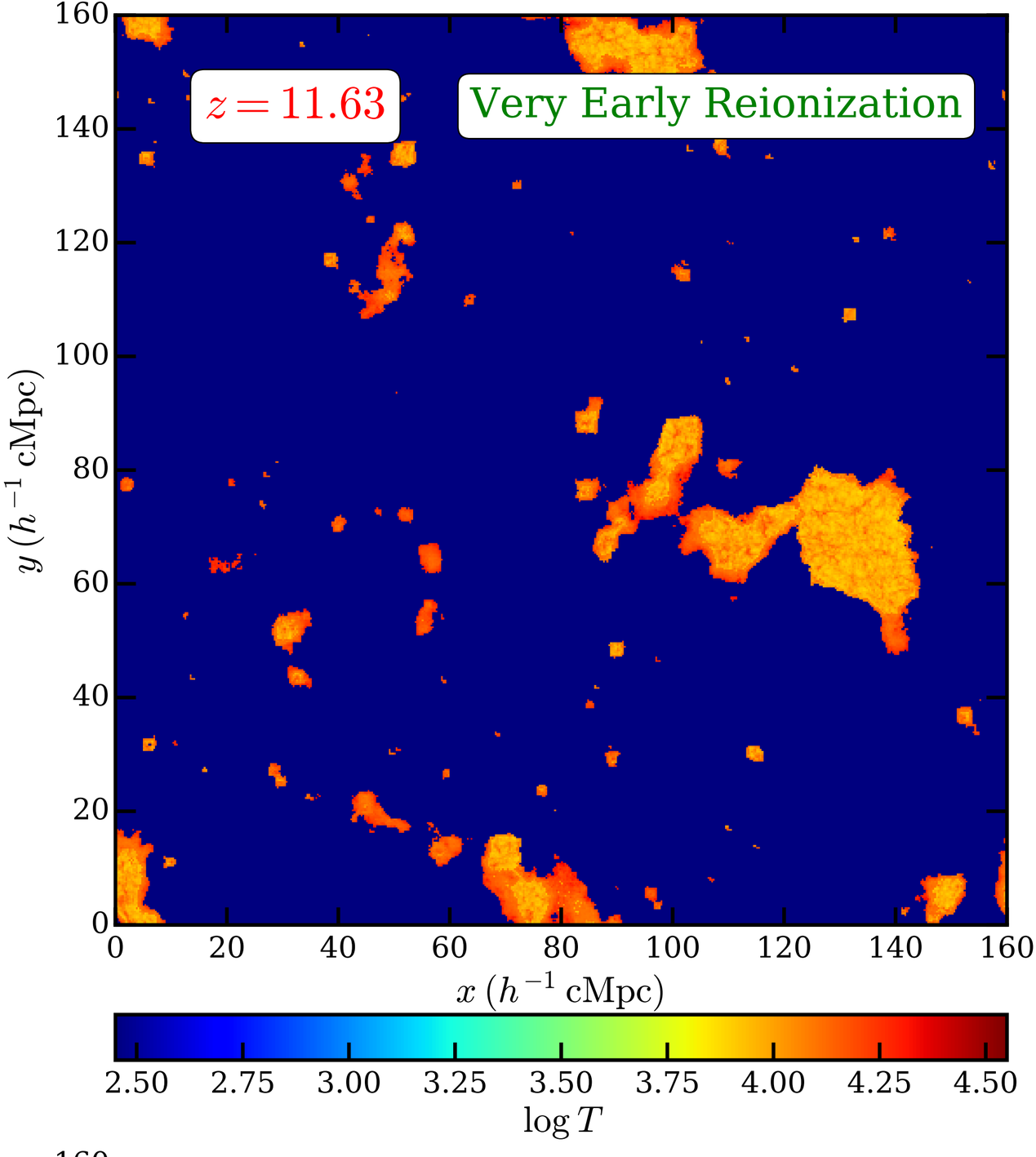

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

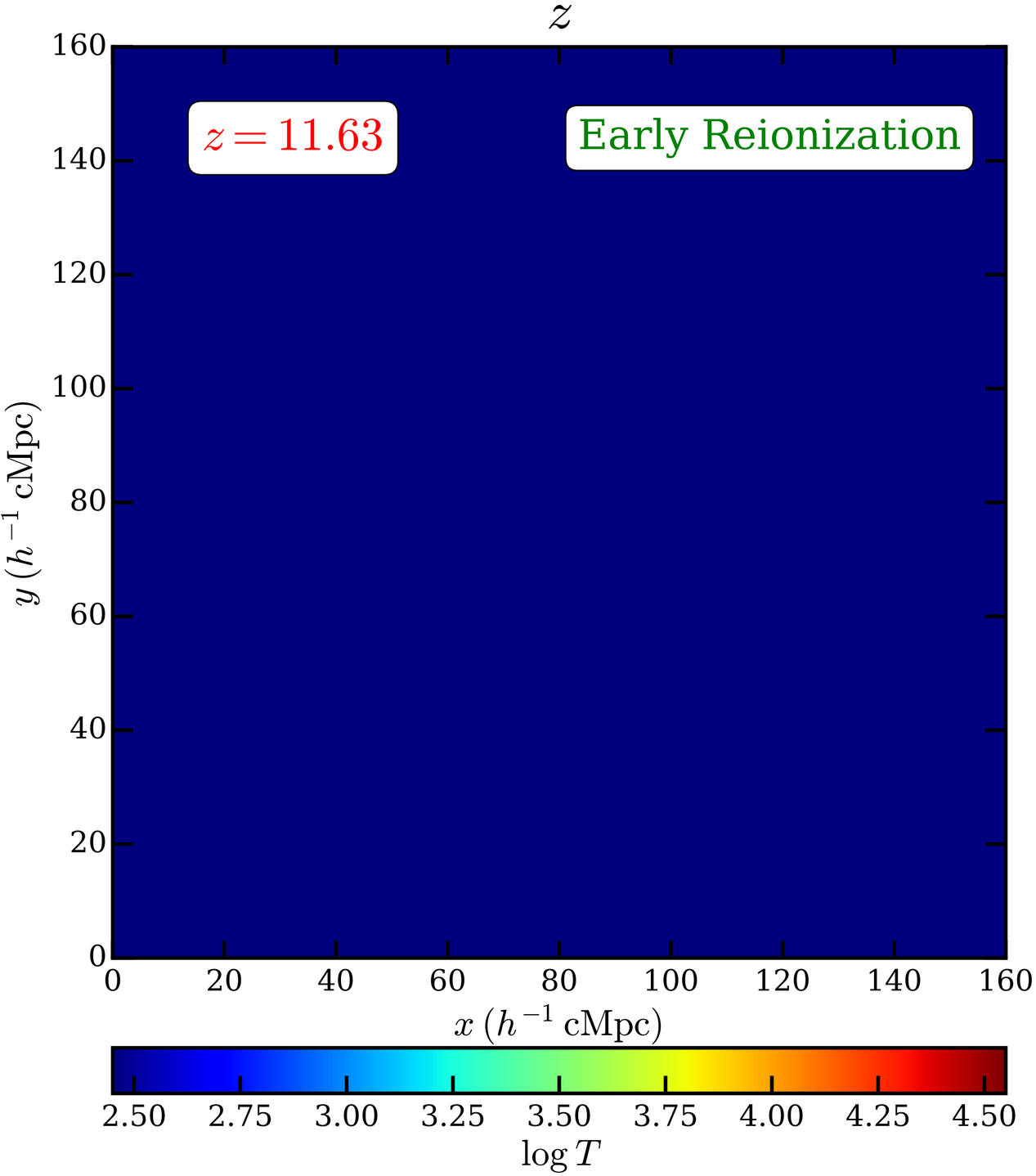

$z = 12.59$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

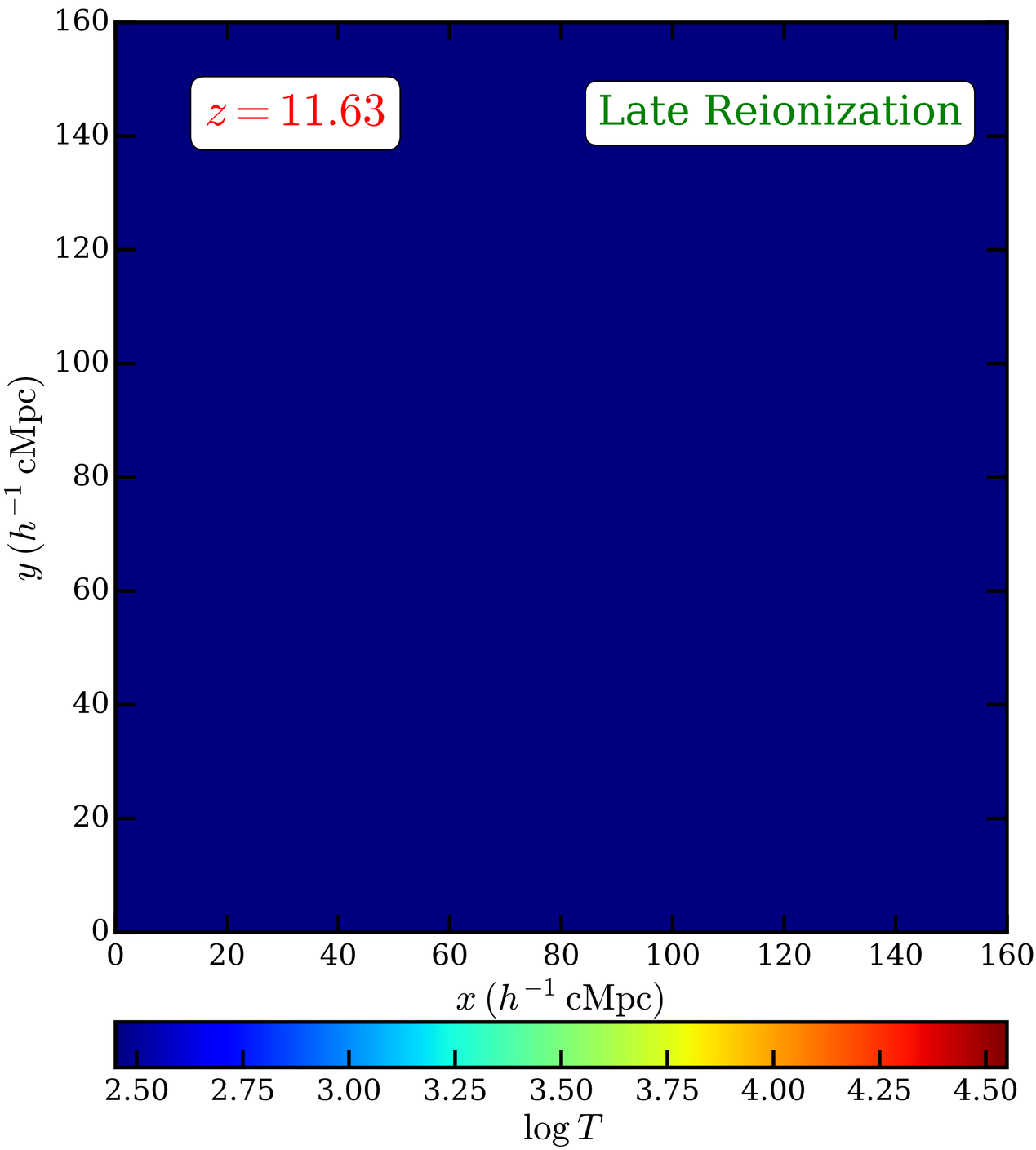

$z = 12.59$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

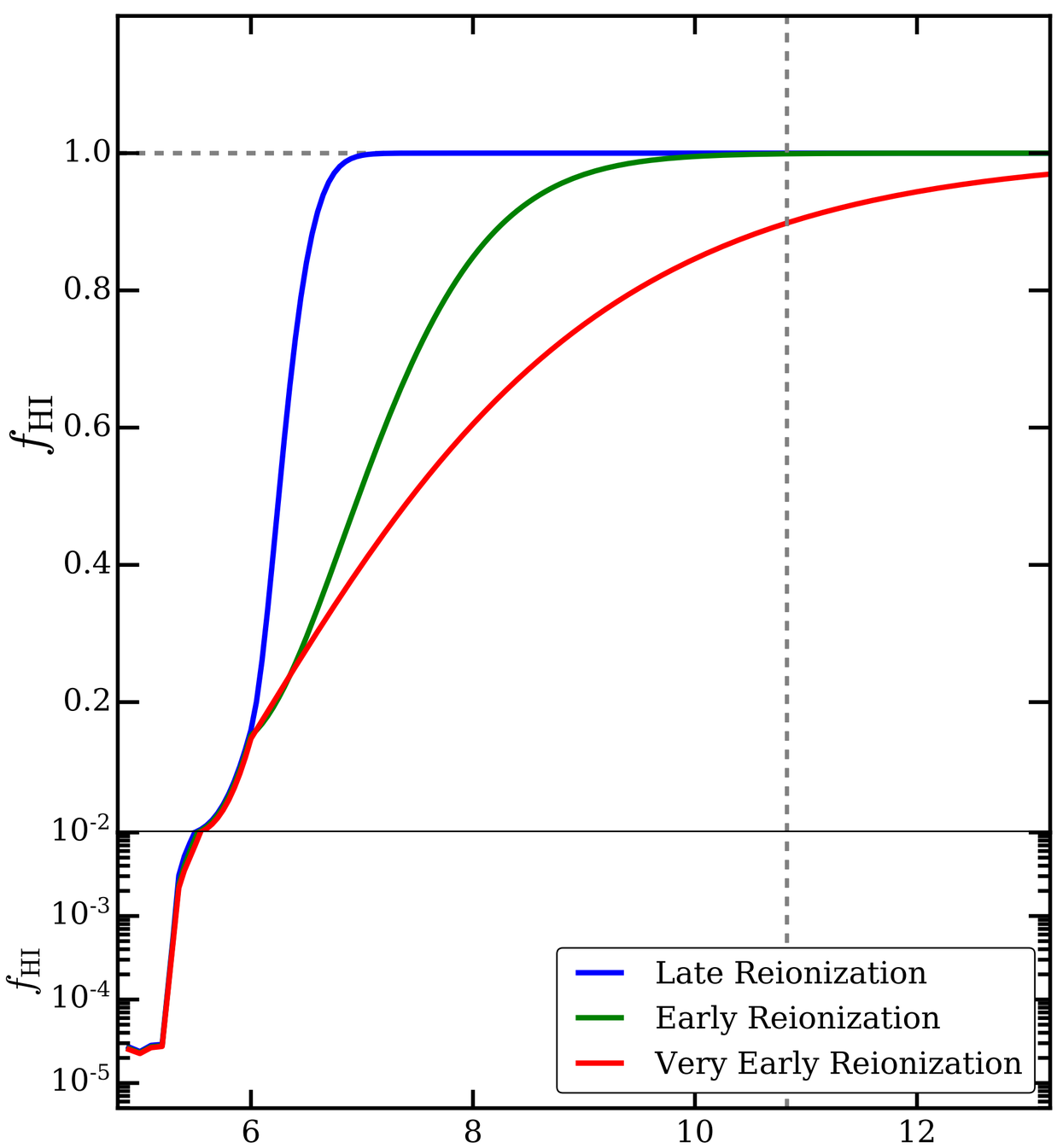

$z = 12.59$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

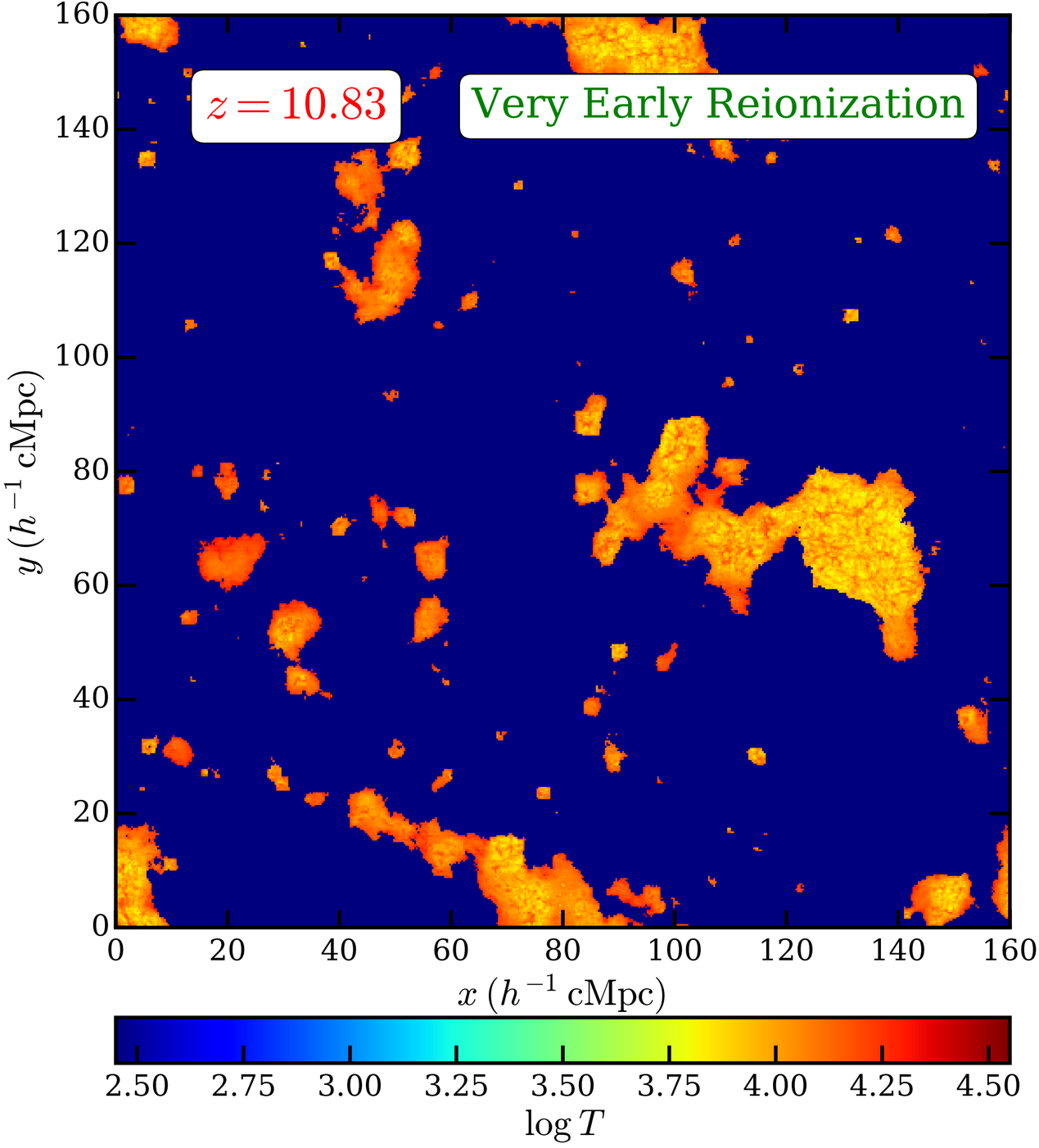

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

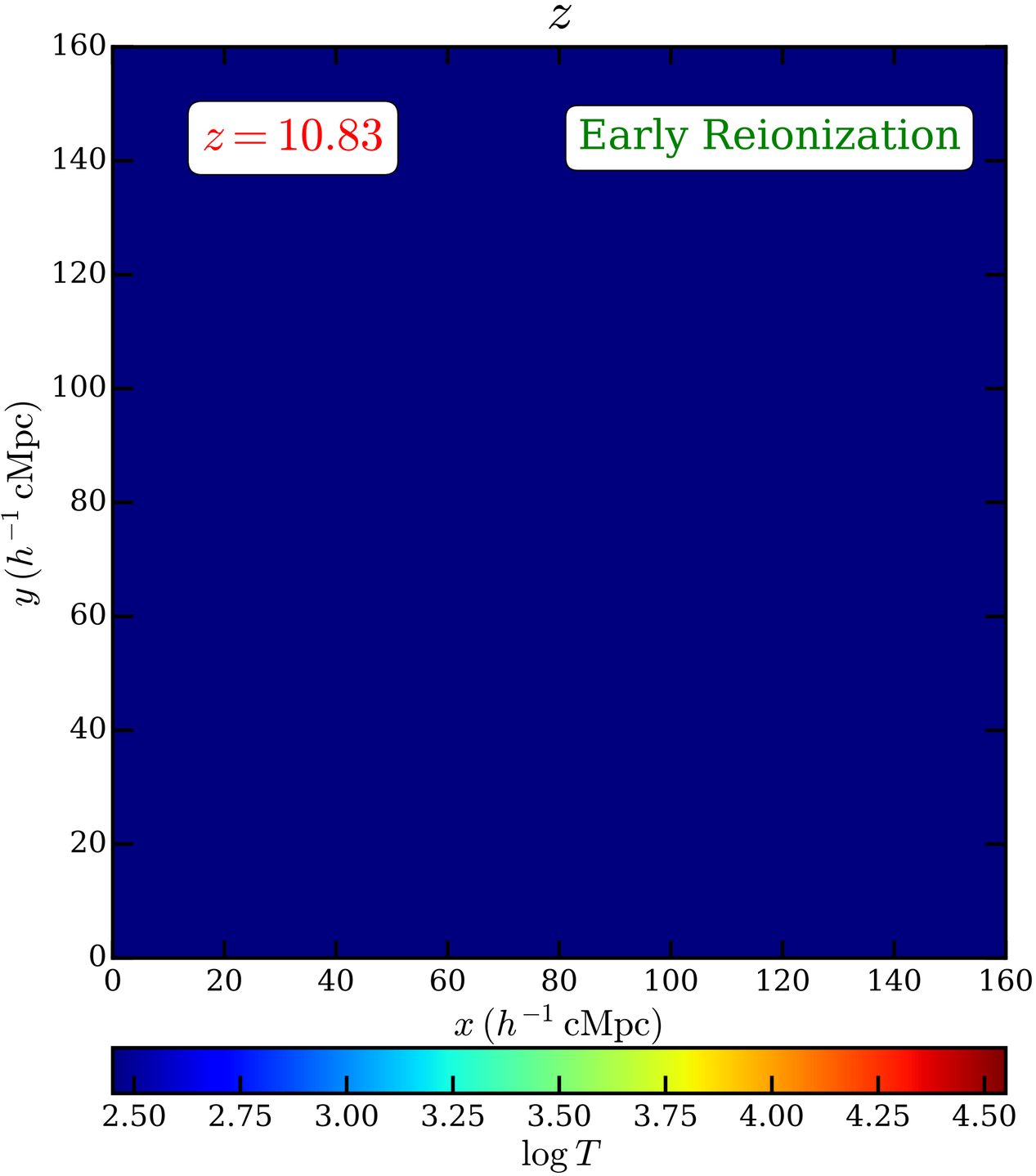

$z = 11.63$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

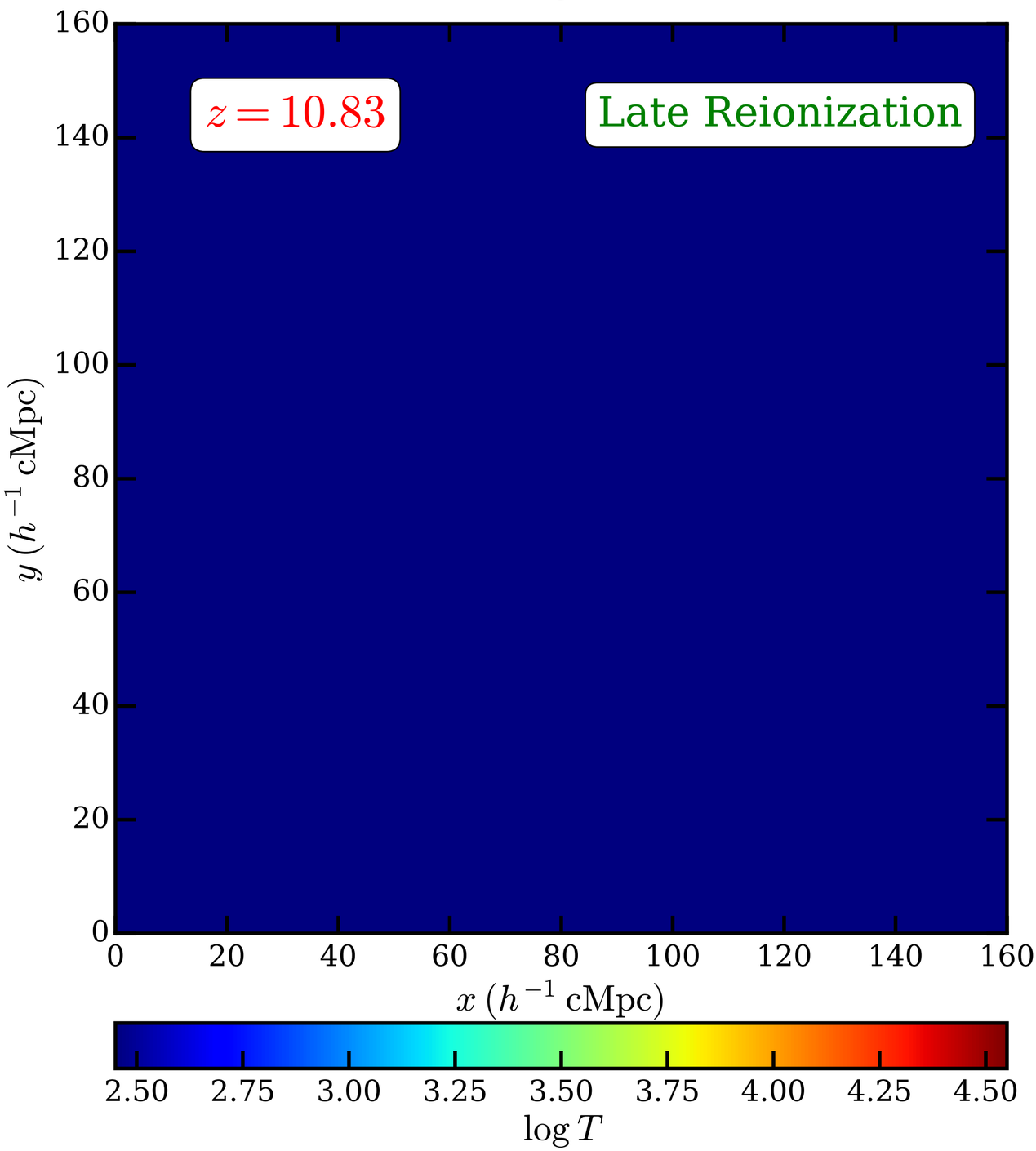

$z = 11.63$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

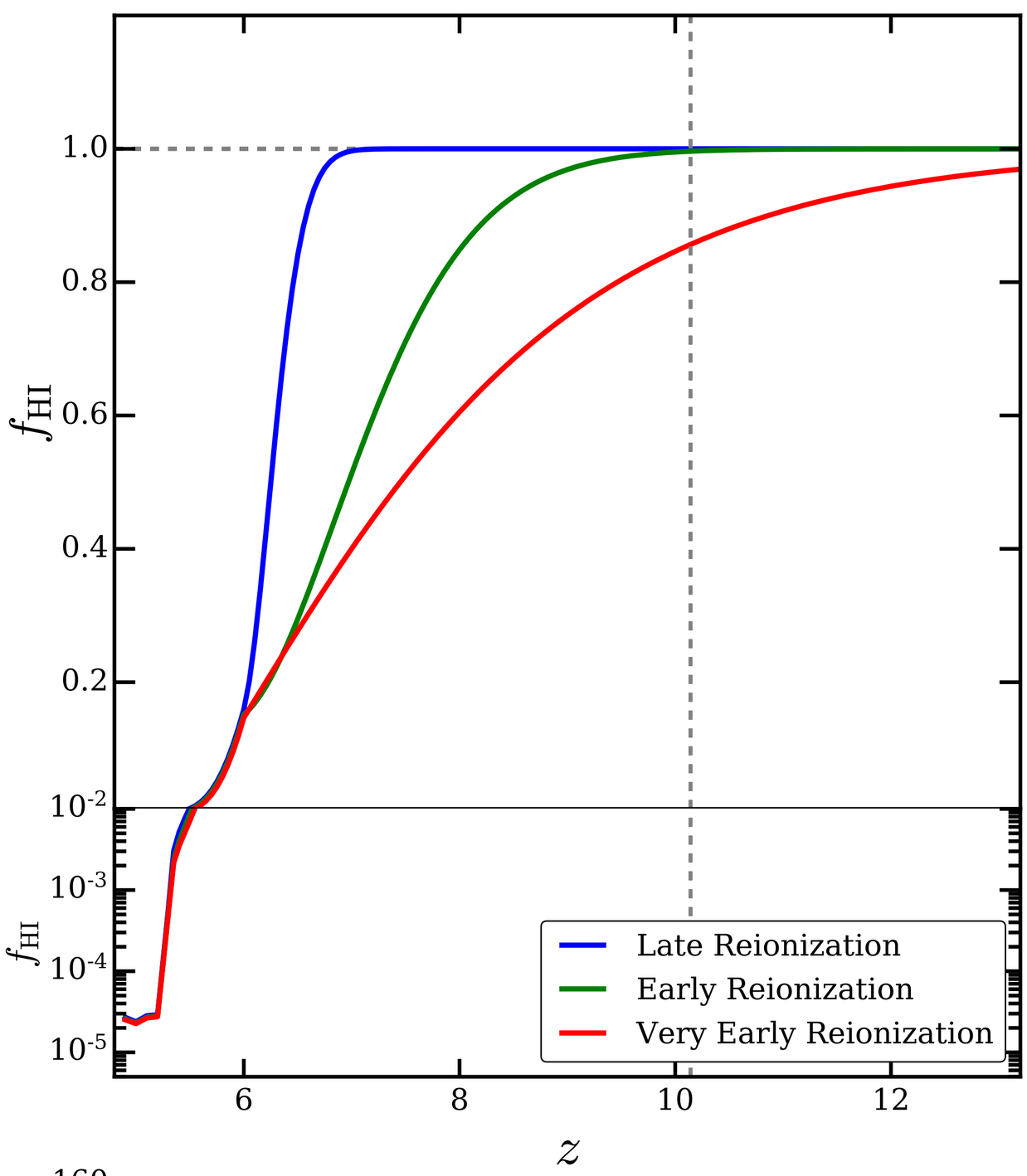

$z = 11.63$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

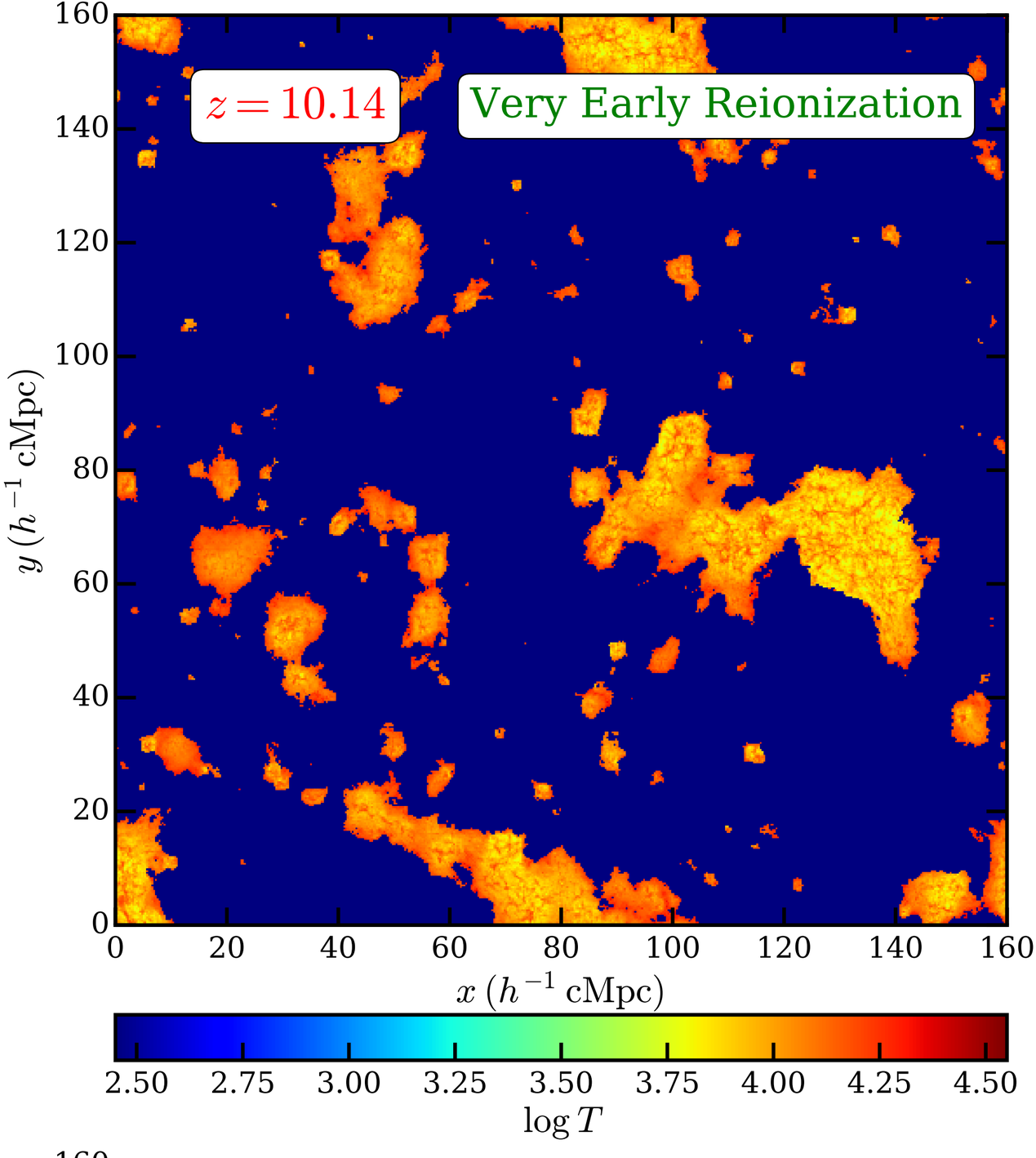

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

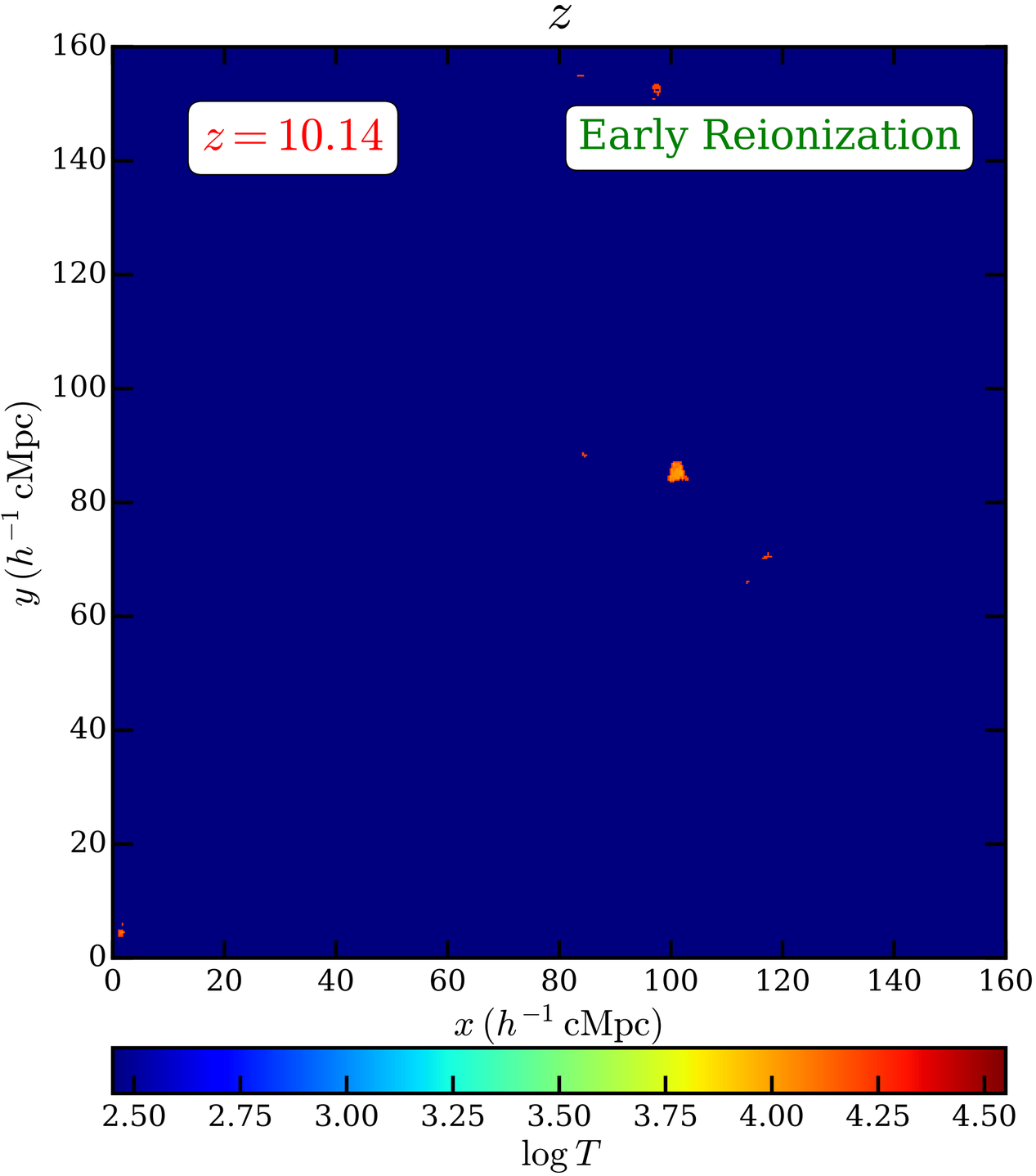

$z = 10.83$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

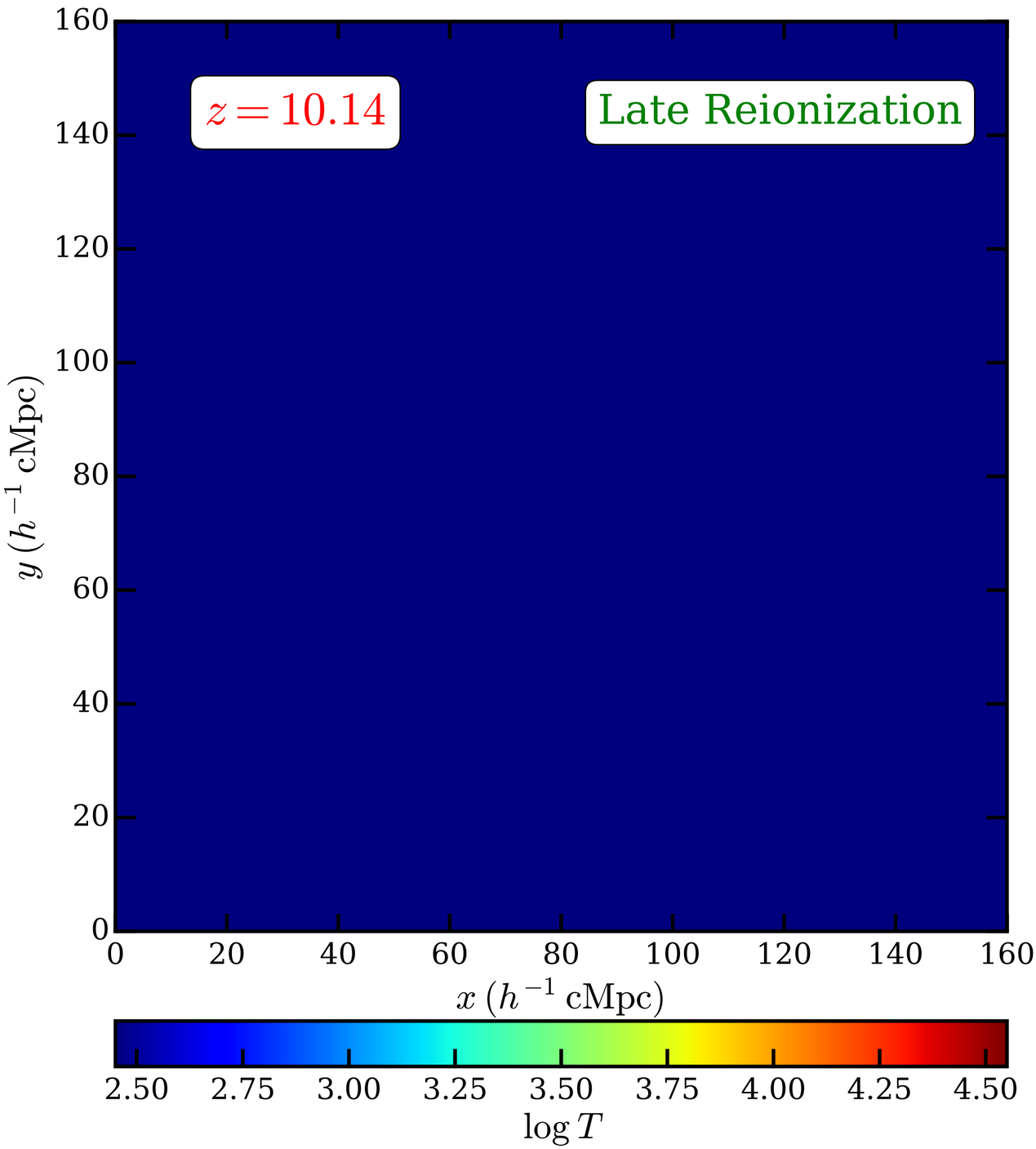

$z = 10.83$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

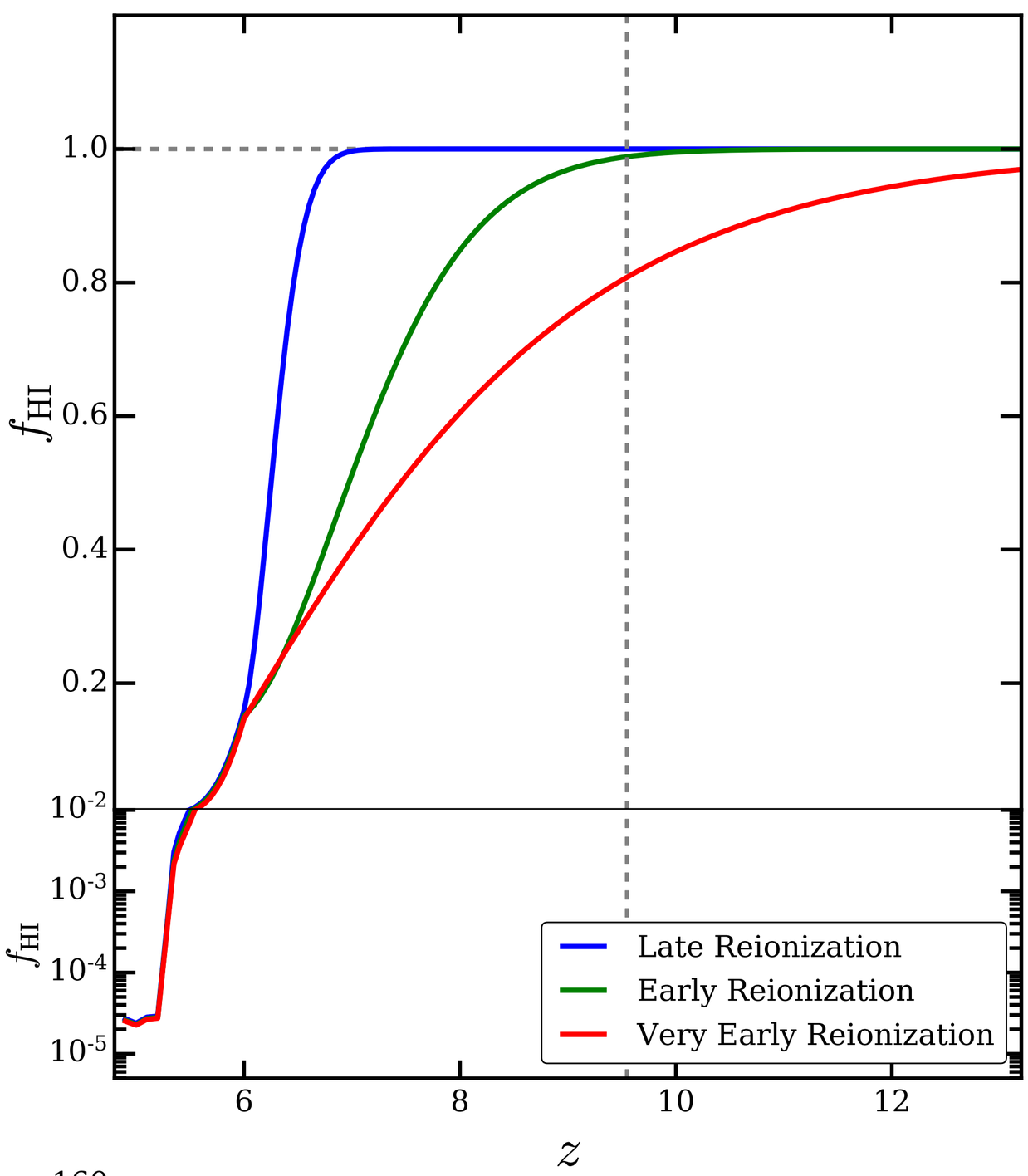

$z = 10.83$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

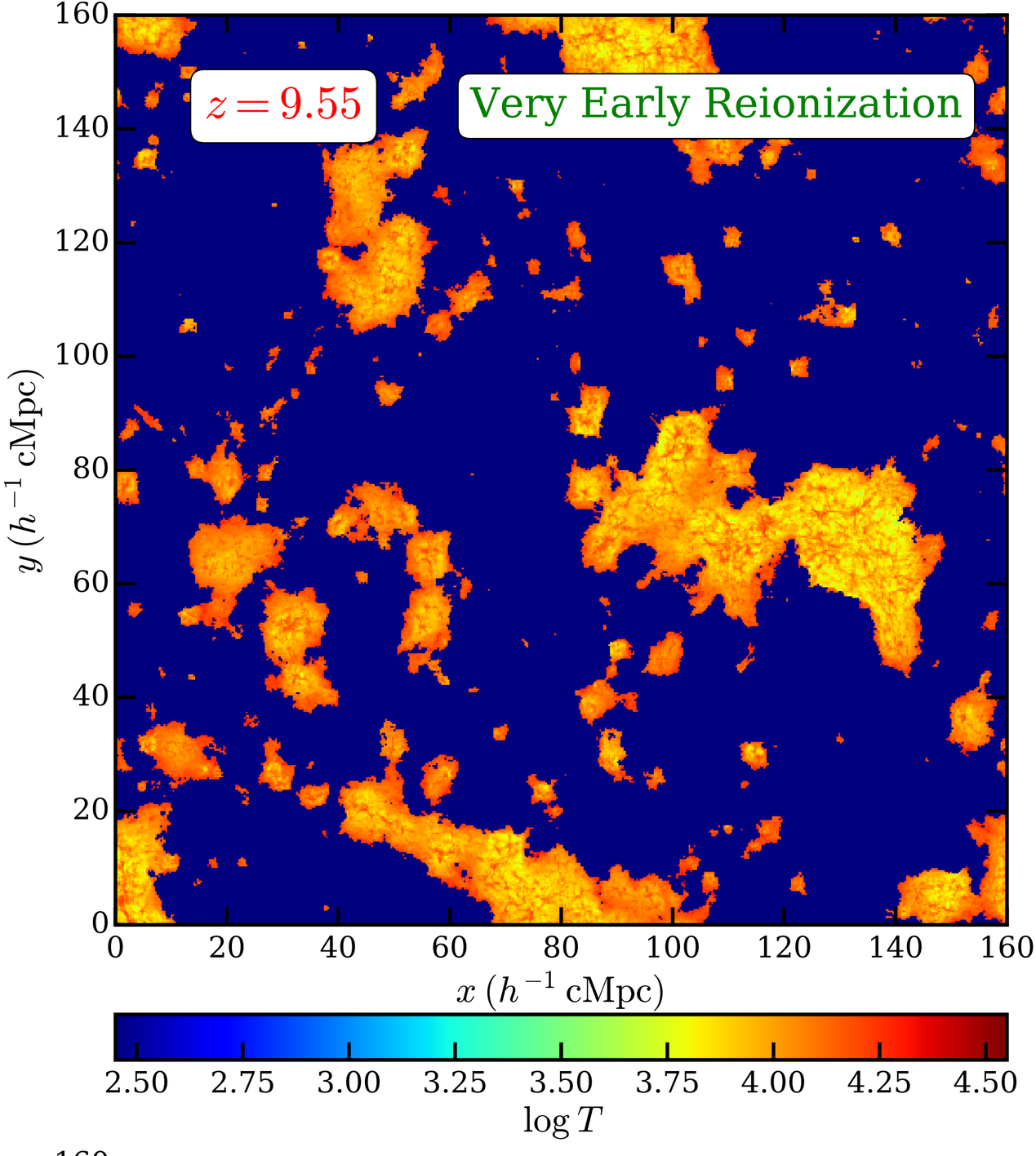

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

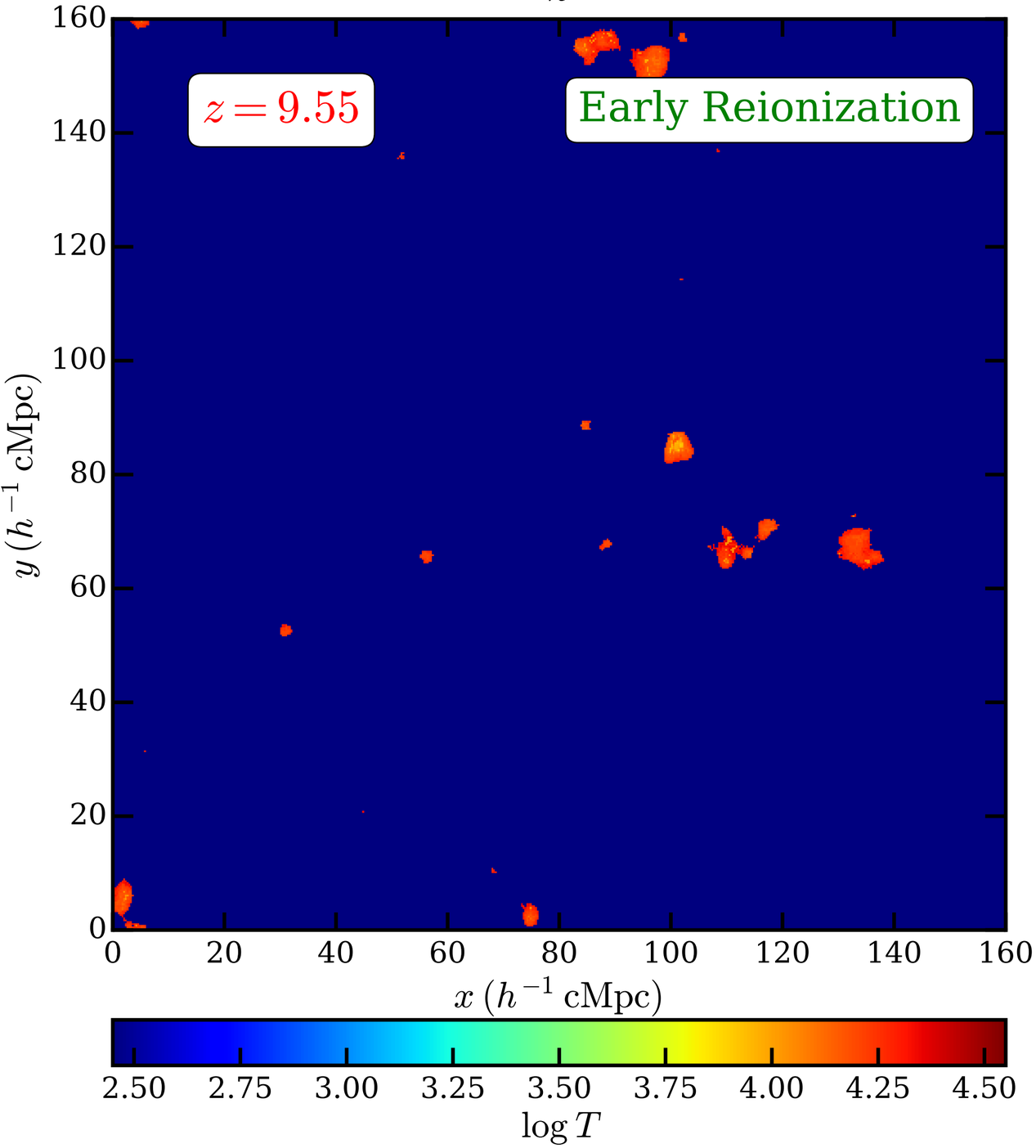

$z = 10.14$
Very Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

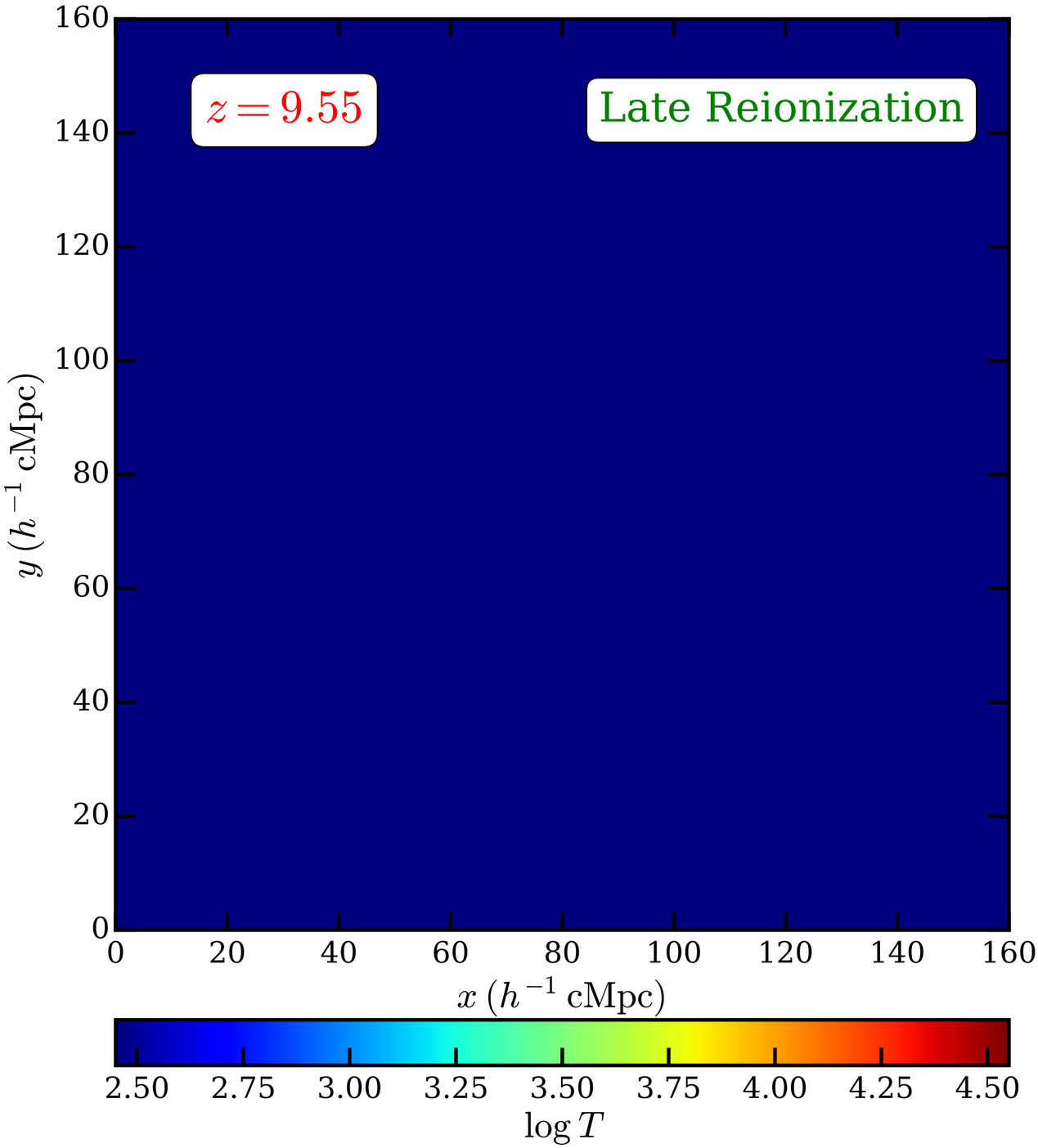

$z = 10.14$
Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

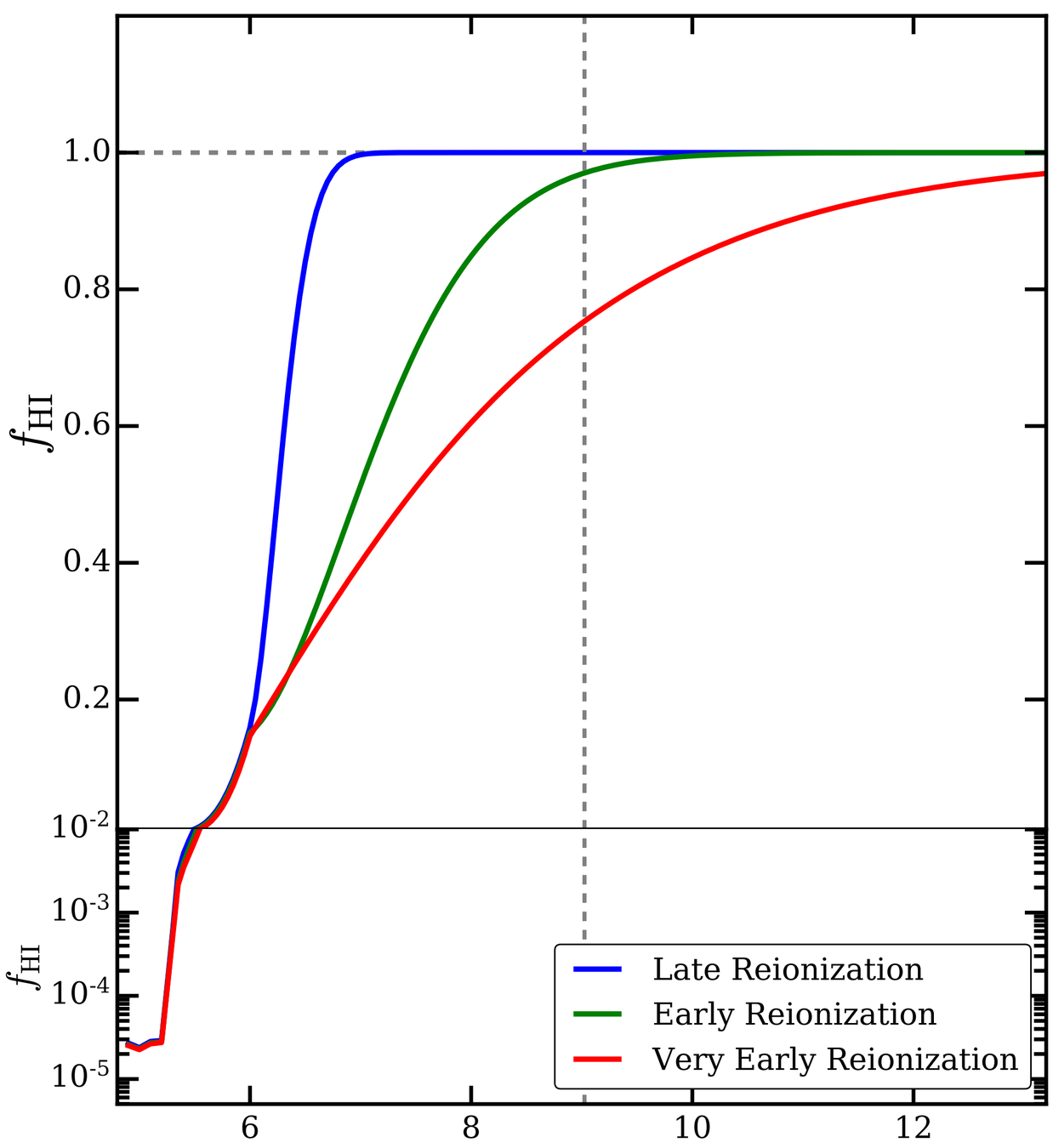

$z = 10.14$
Late Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

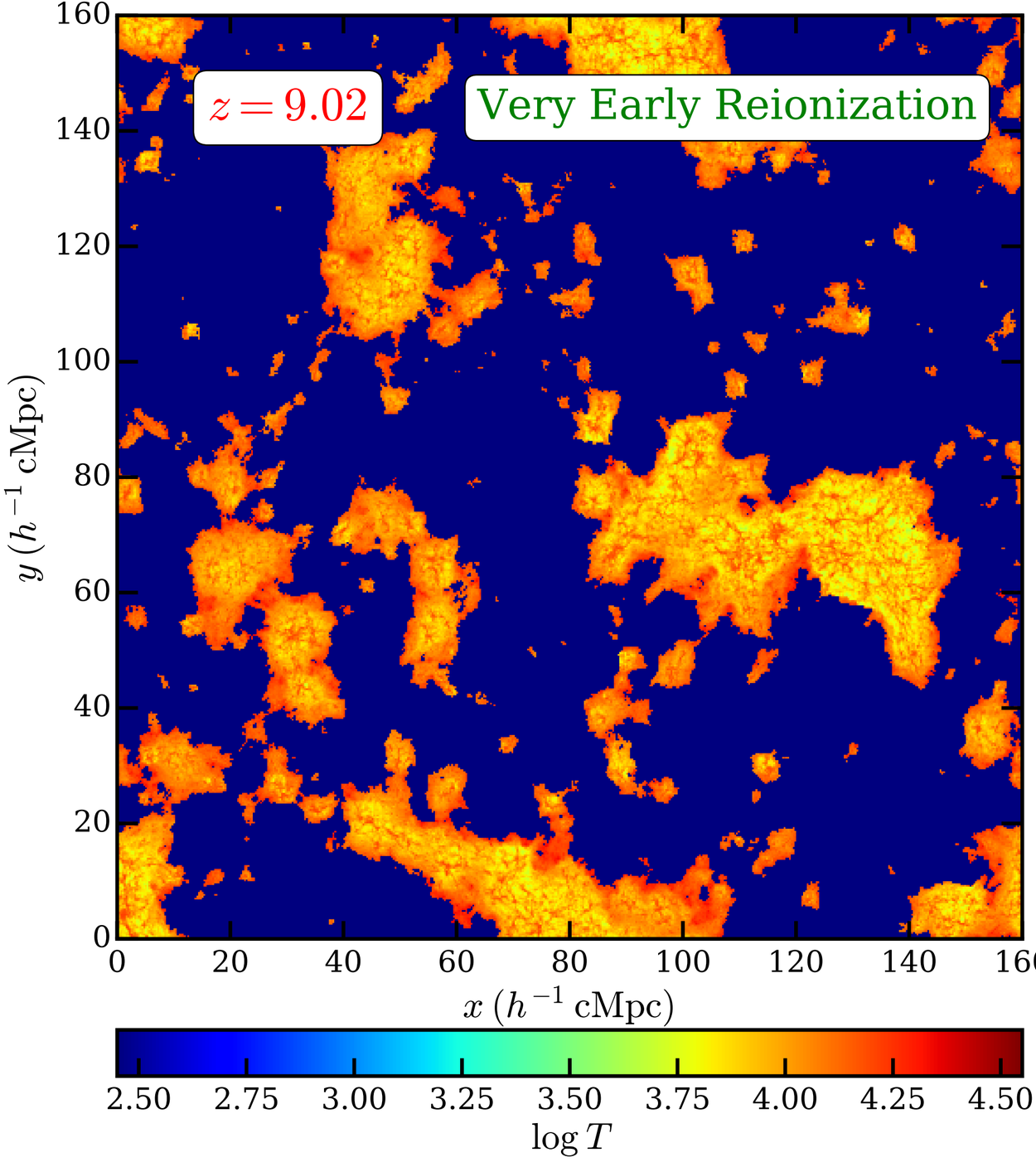

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

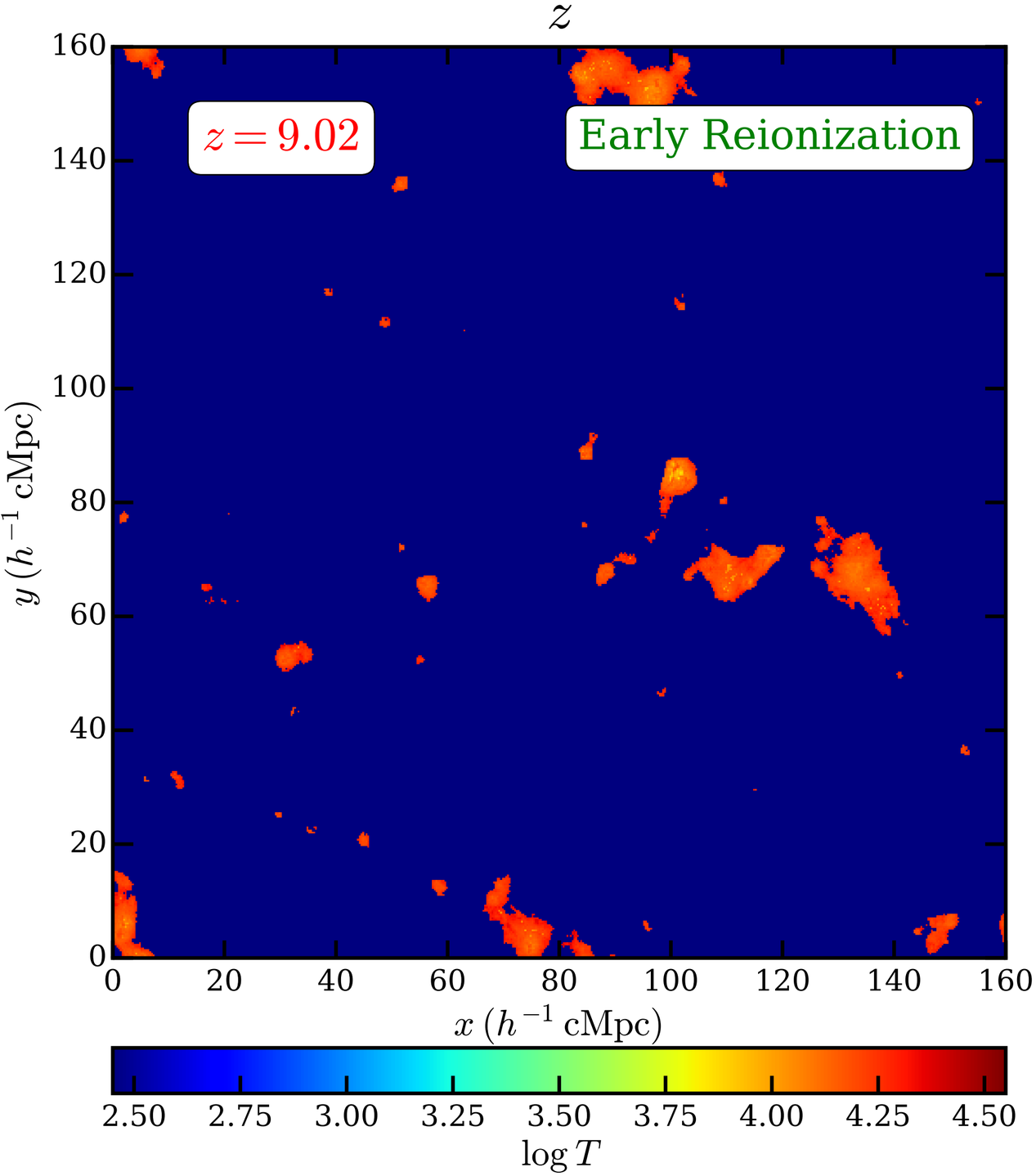

$z = 9.55$
Very Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

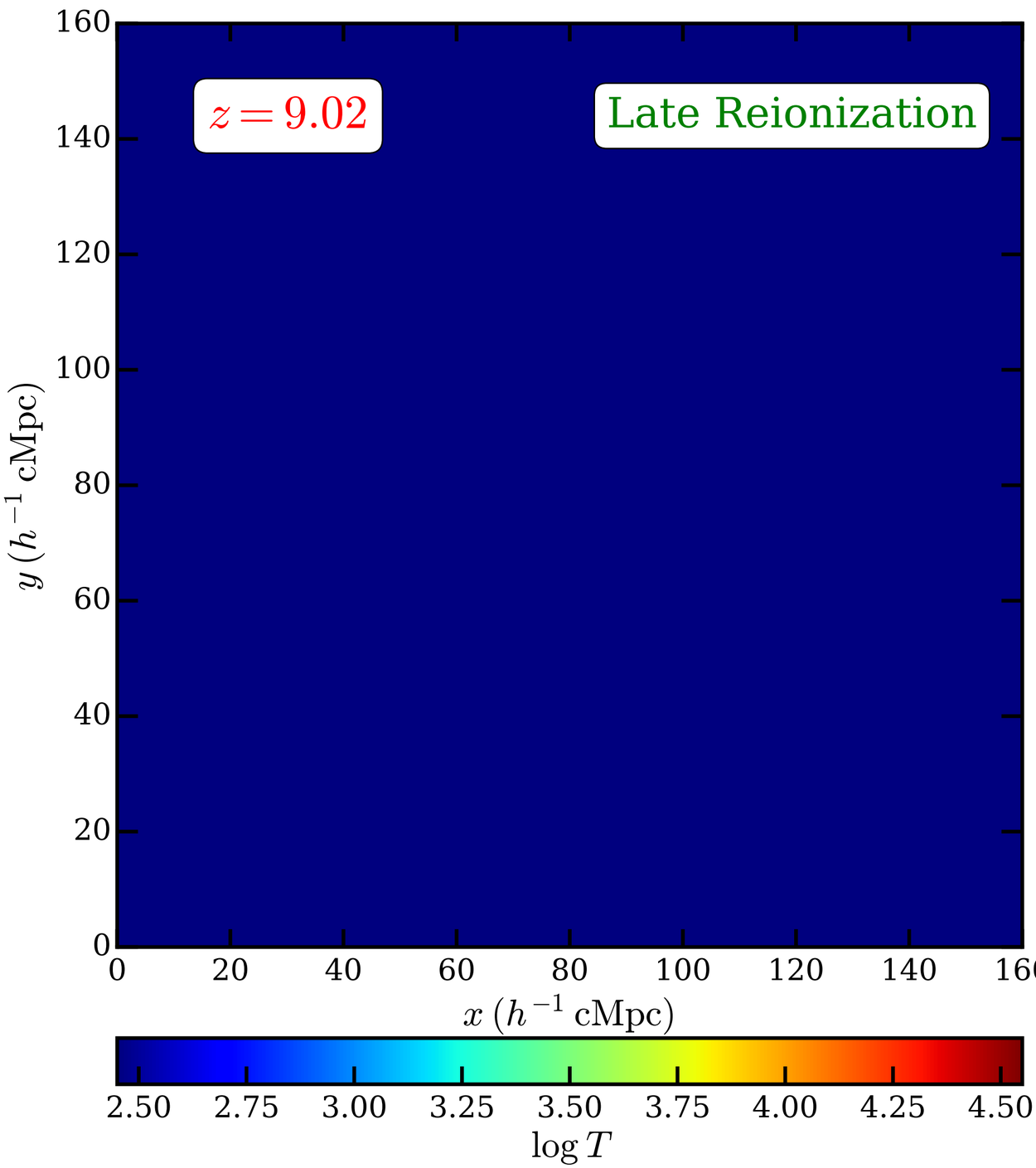

$z = 9.55$
Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

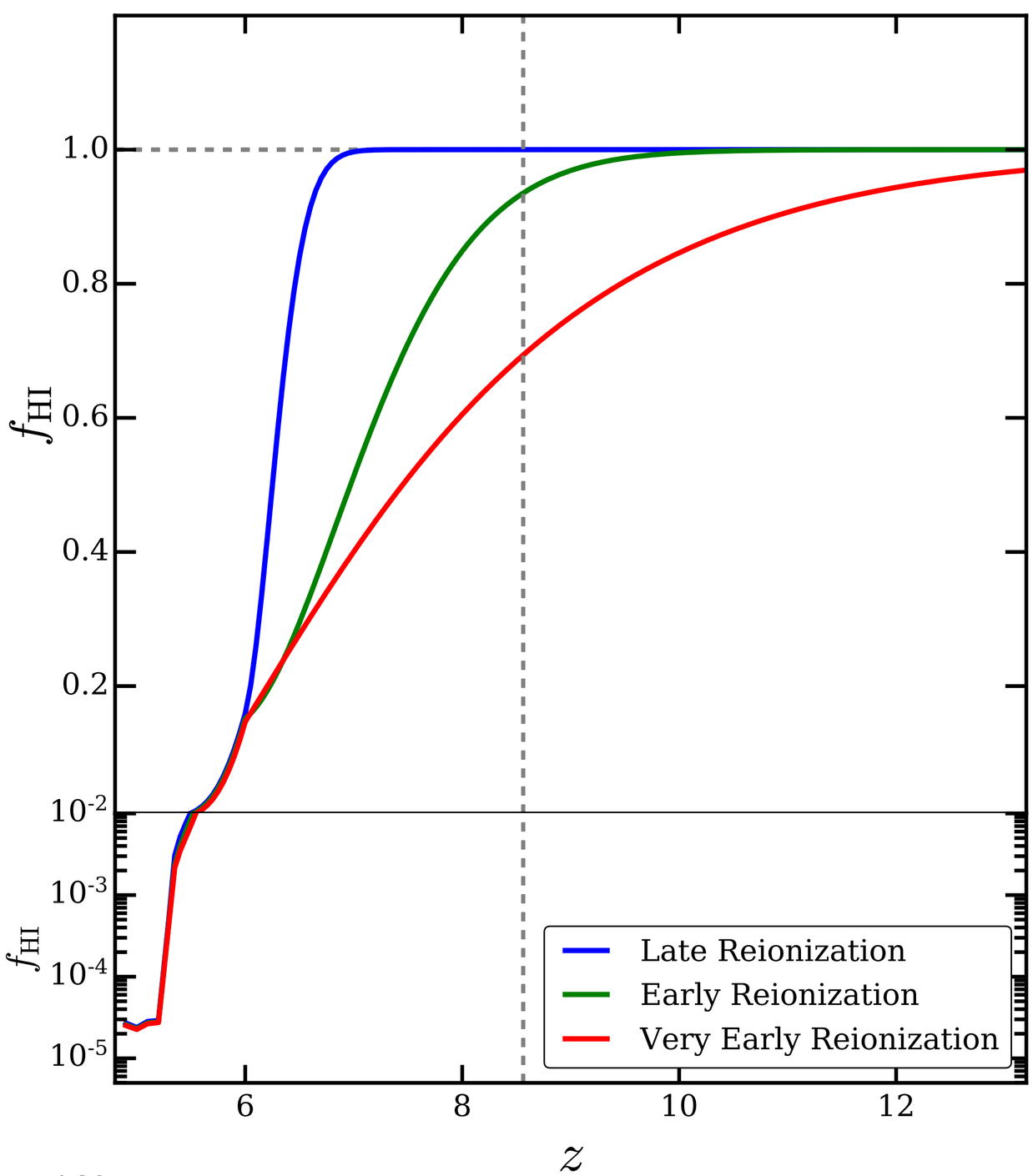

$z = 9.55$
Late Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

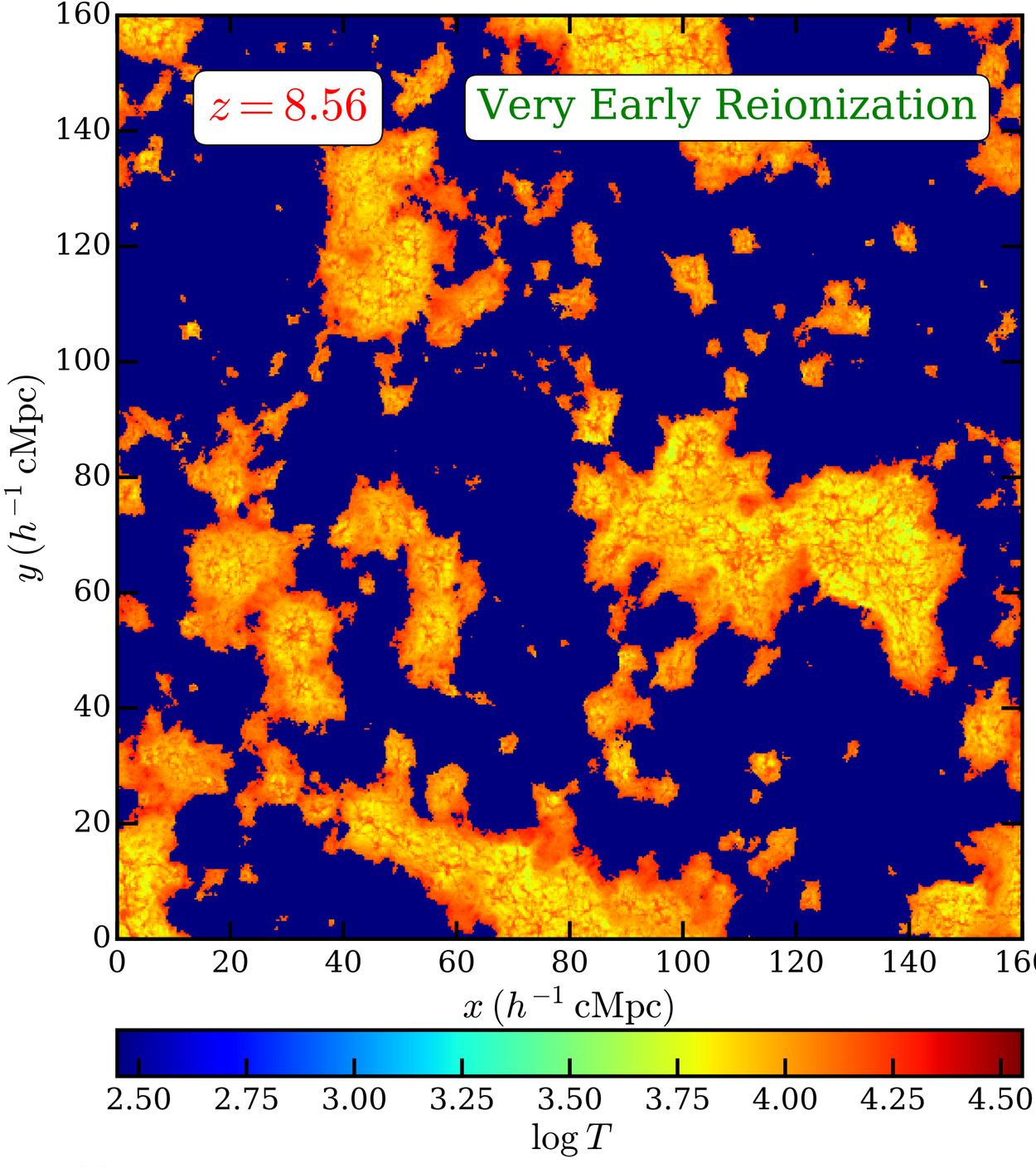

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

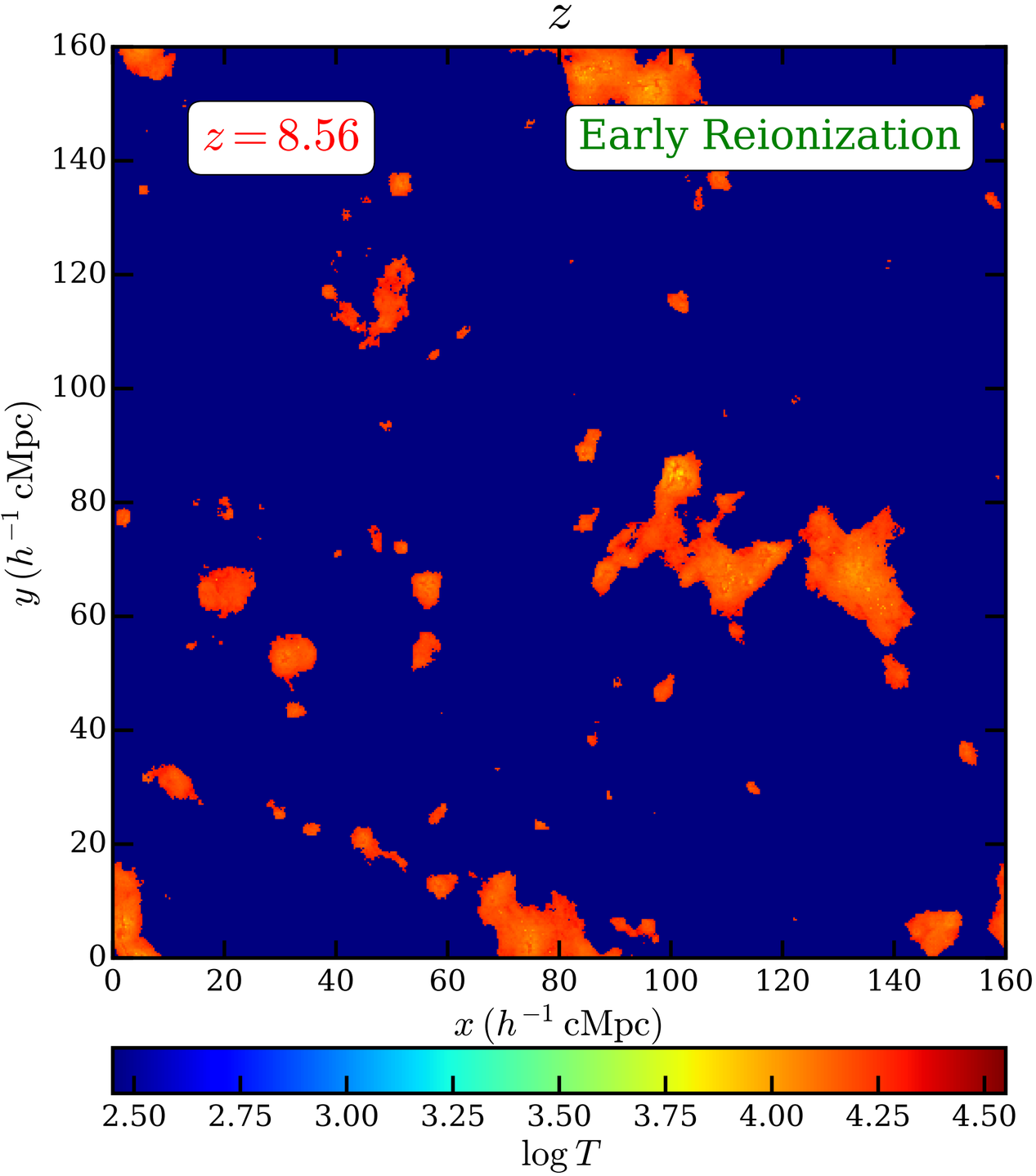

$z = 9.02$
Very Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

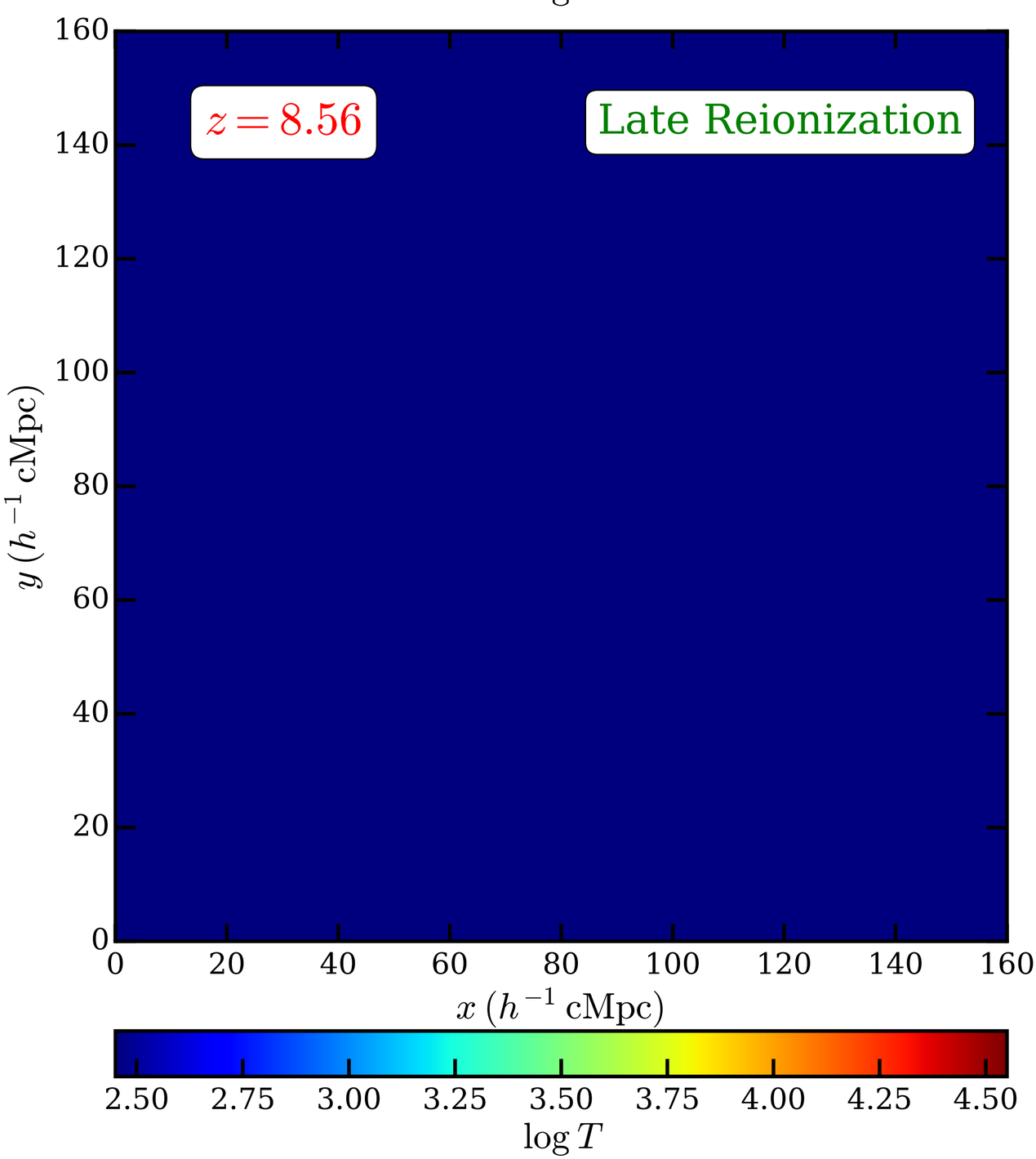

$z = 9.02$
Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

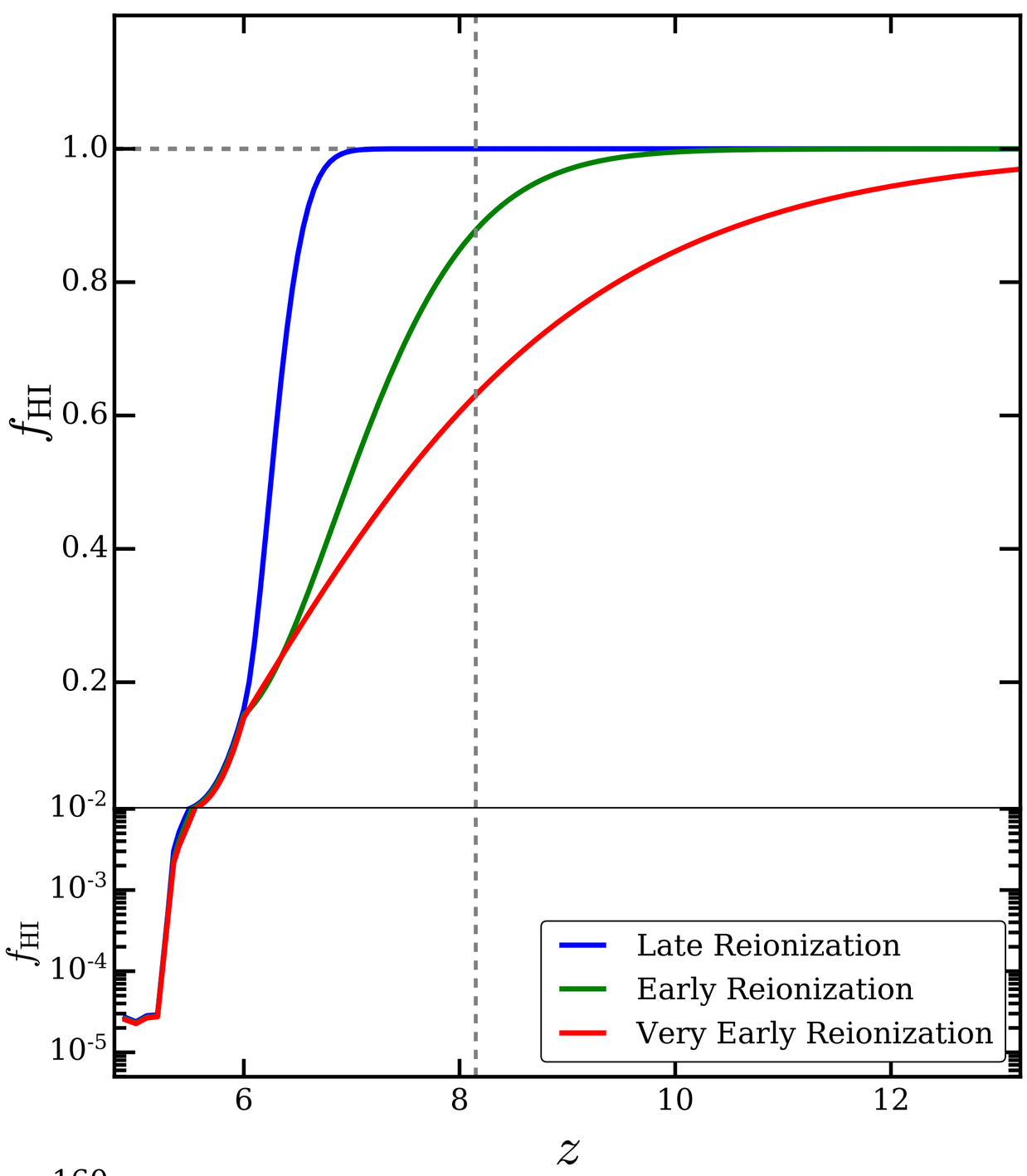

$z = 9.02$
Late Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

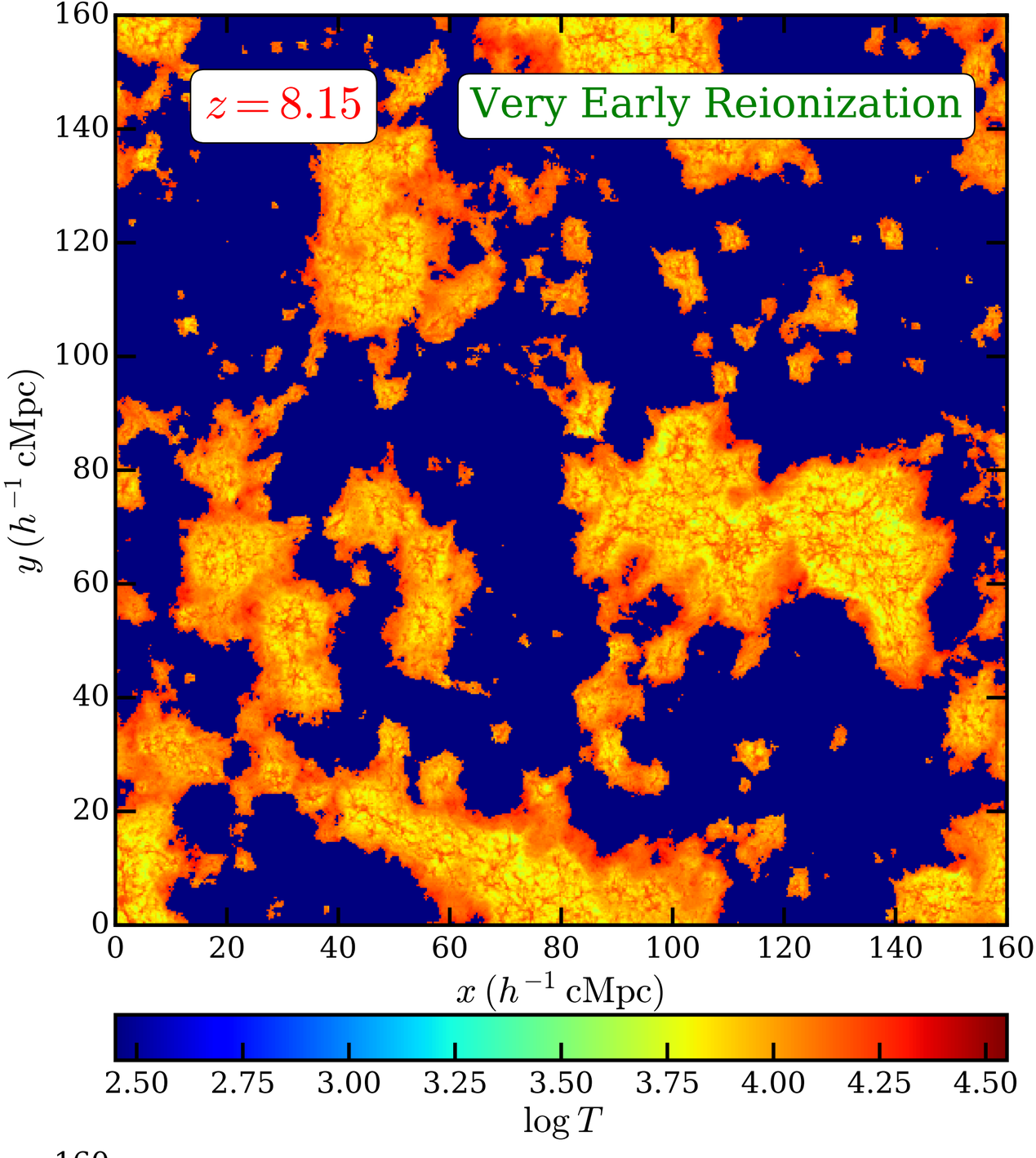

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

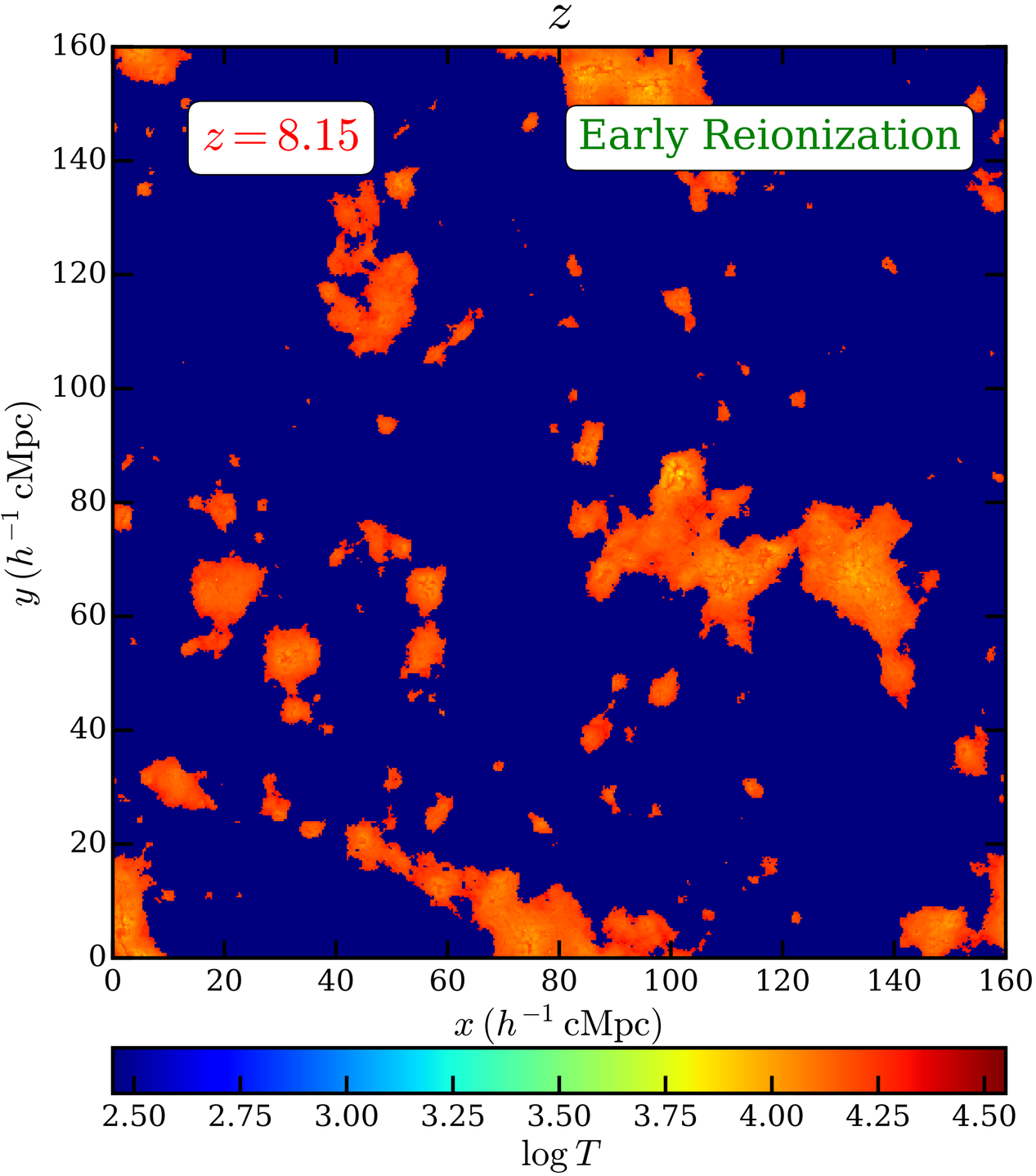

$z = 8.56$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50 2.75 3.00 3.25 3.50 3.75 4.00 4.25 4.50
$\log T$

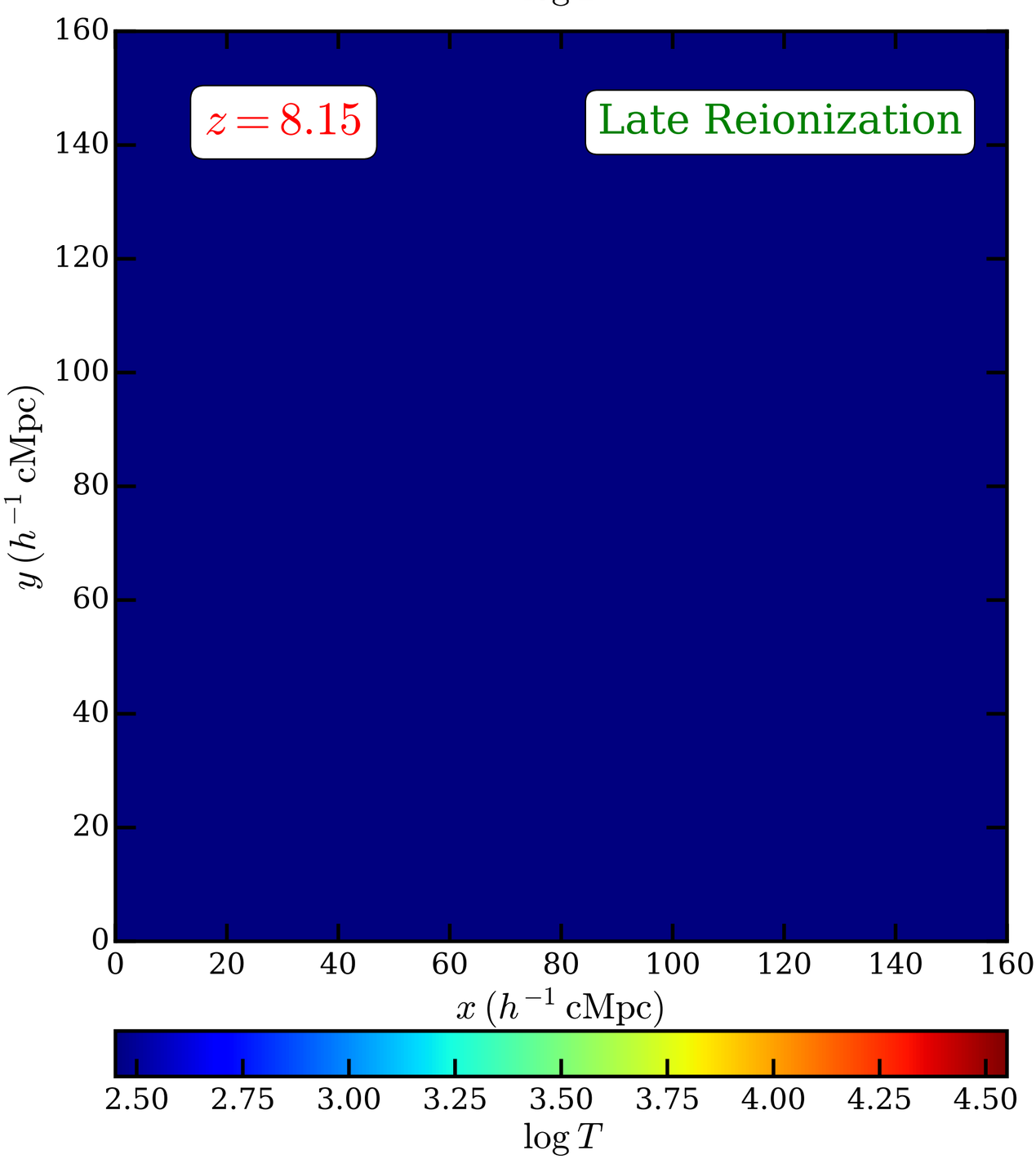

$z = 8.56$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50 2.75 3.00 3.25 3.50 3.75 4.00 4.25 4.50
$\log T$

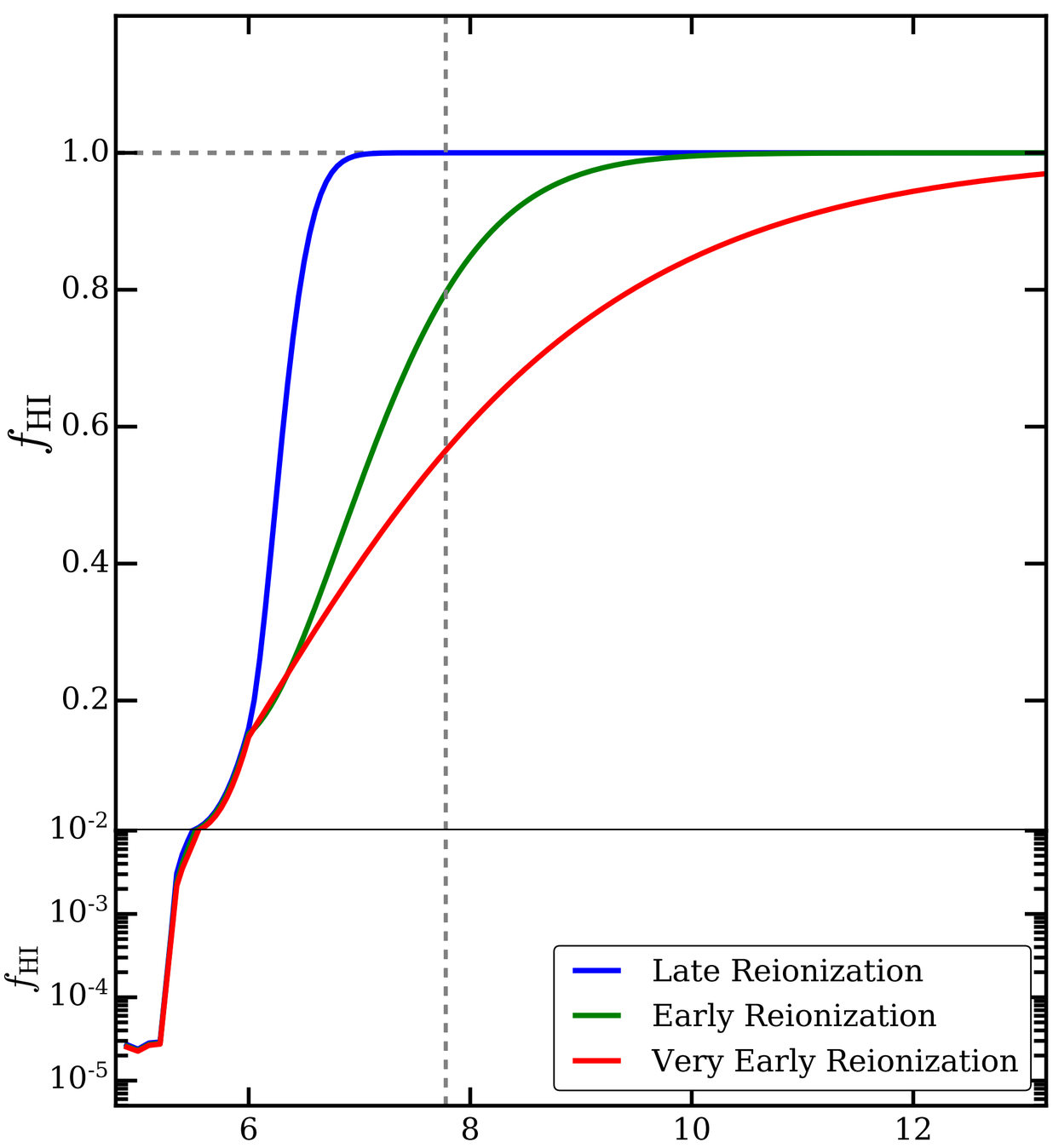

$z = 8.56$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50 2.75 3.00 3.25 3.50 3.75 4.00 4.25 4.50
$\log T$

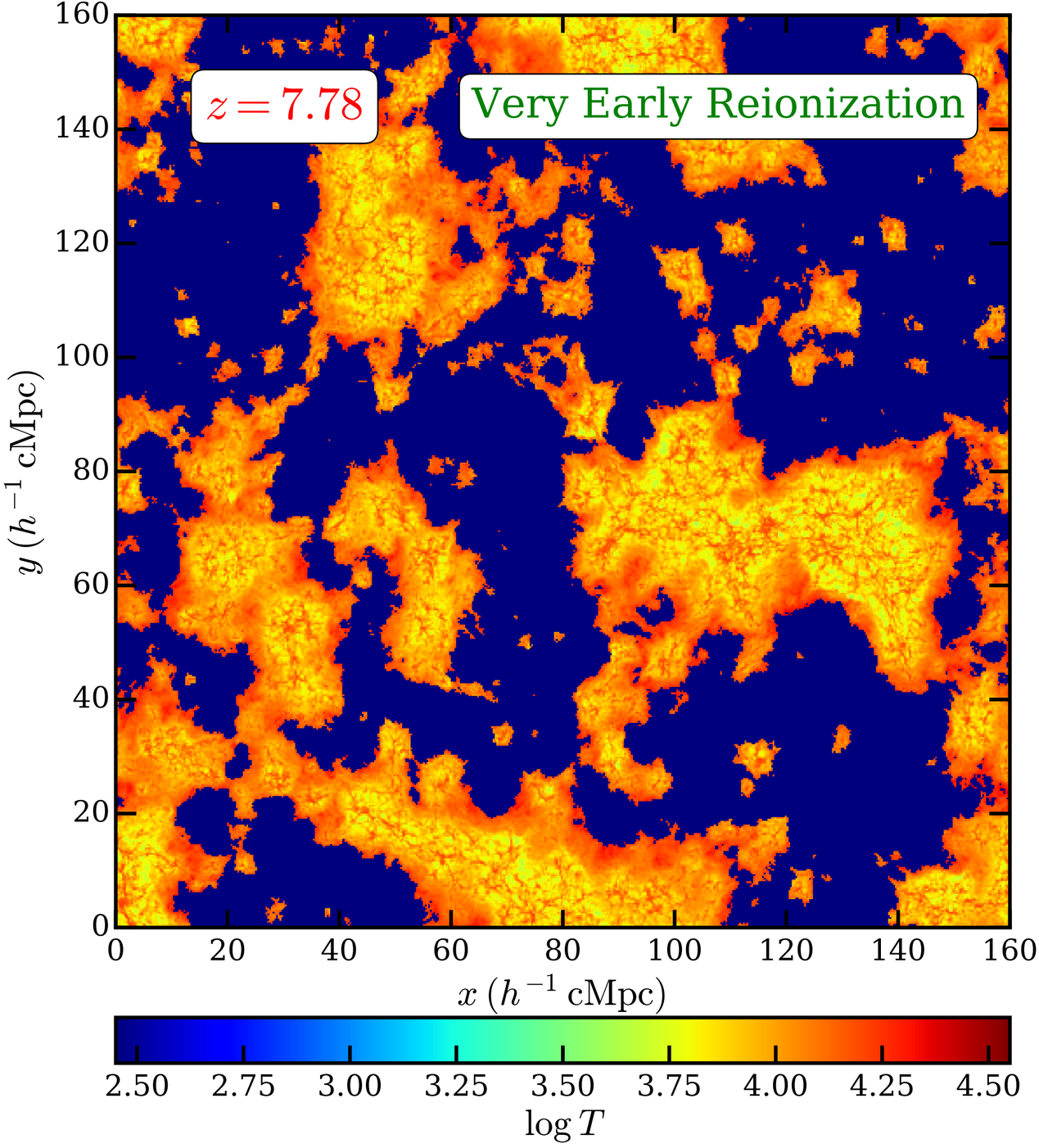

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

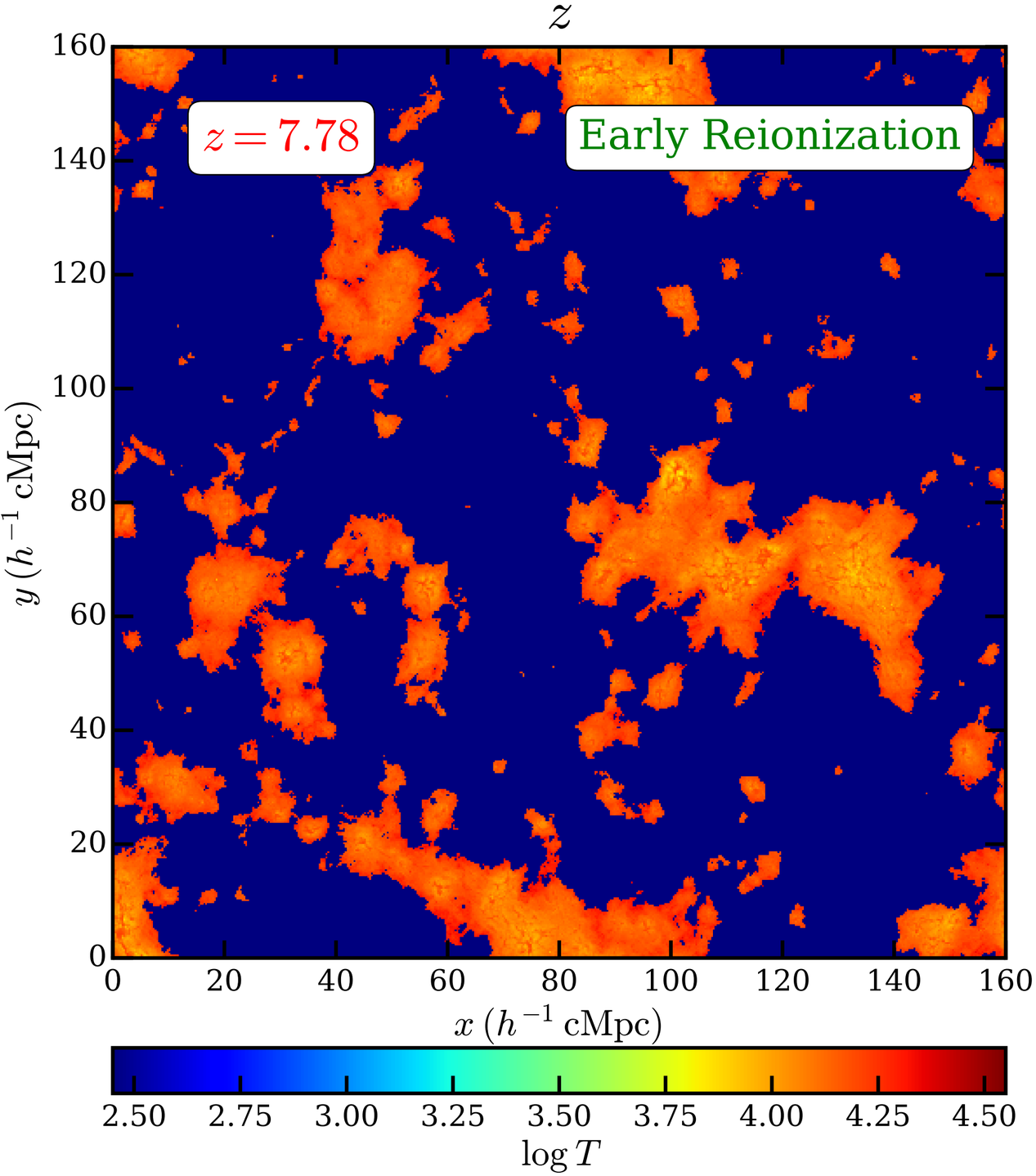

$z = 8.15$
Very Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

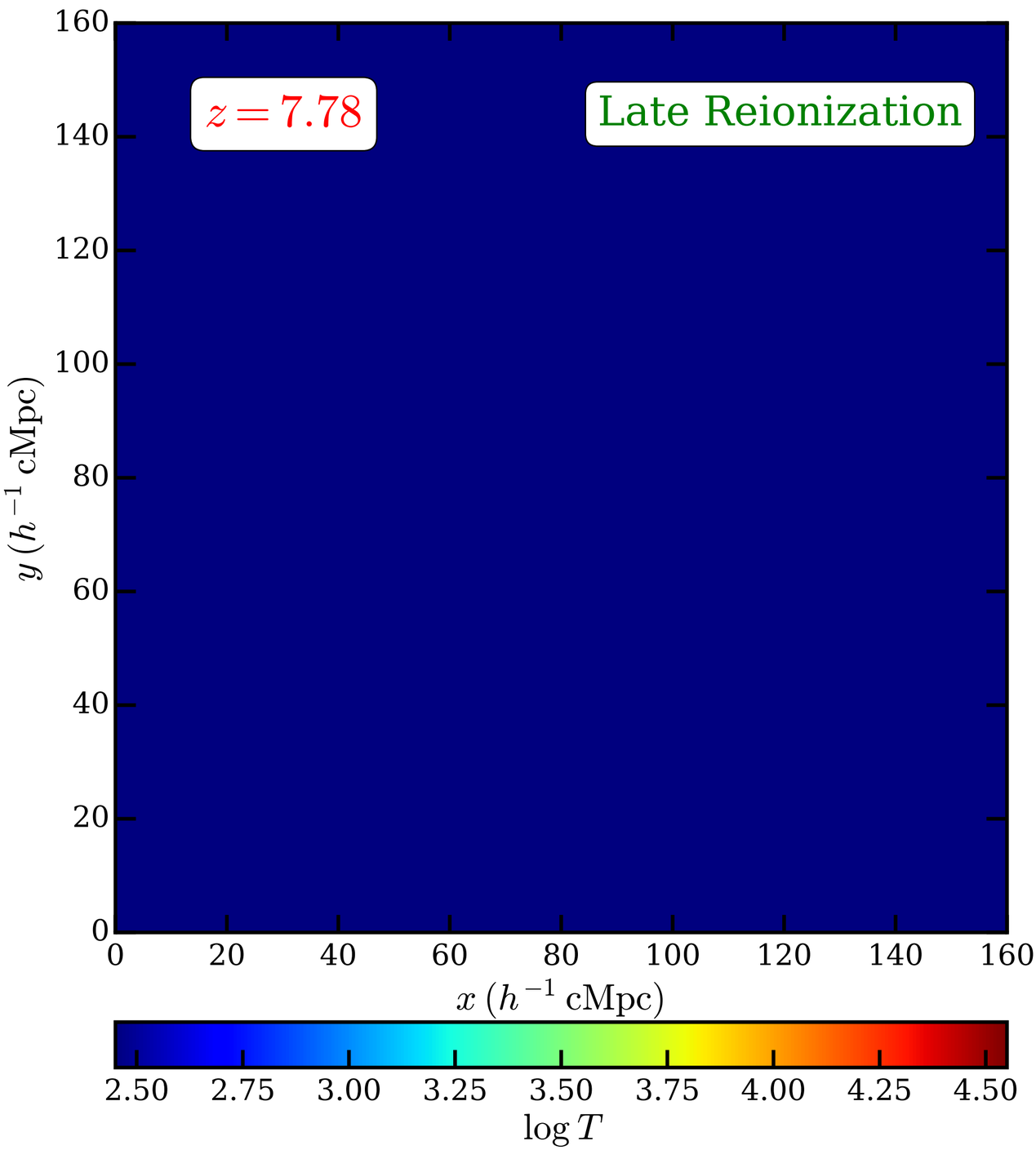

$z = 8.15$
Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

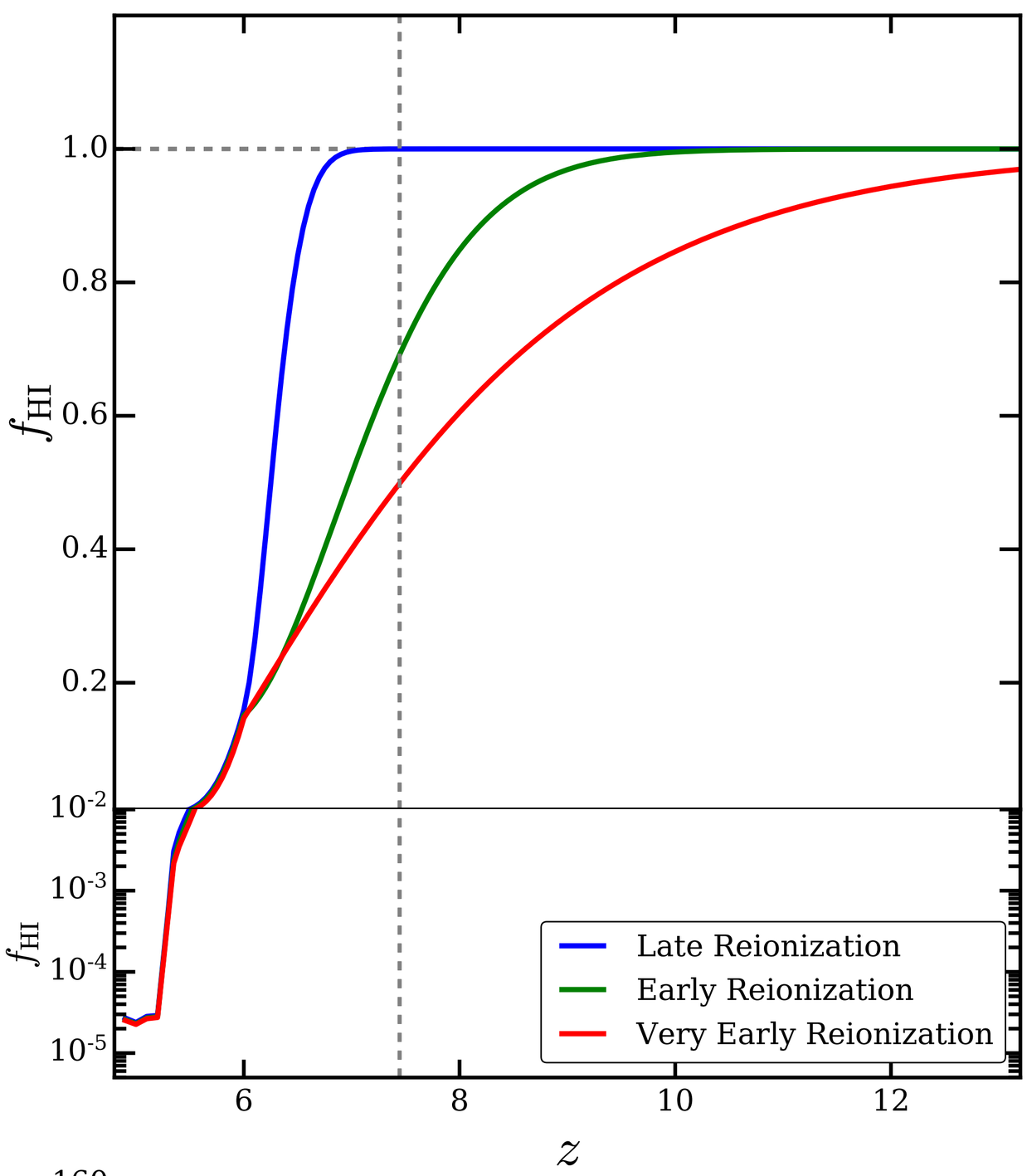

$z = 8.15$
Late Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

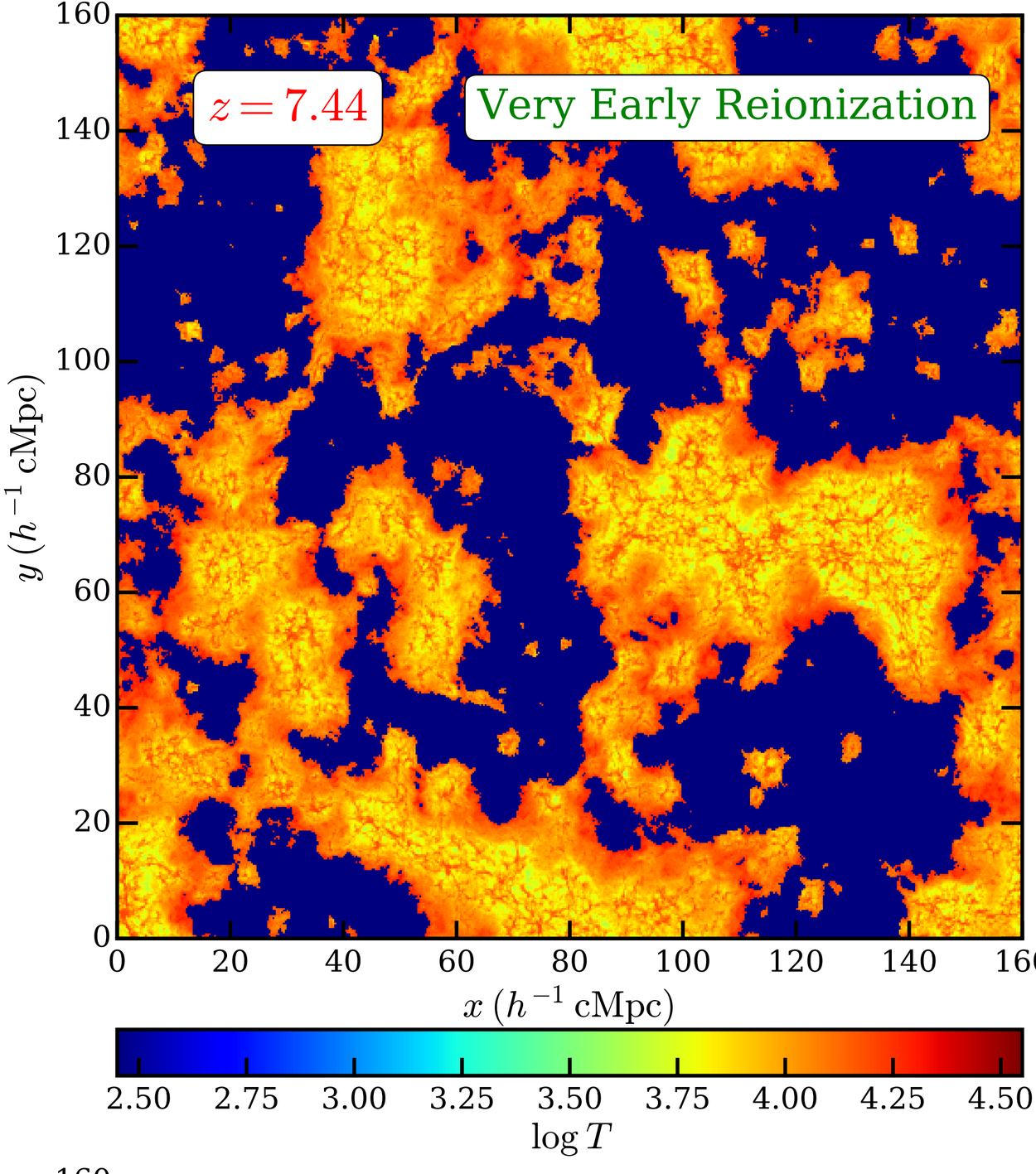

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

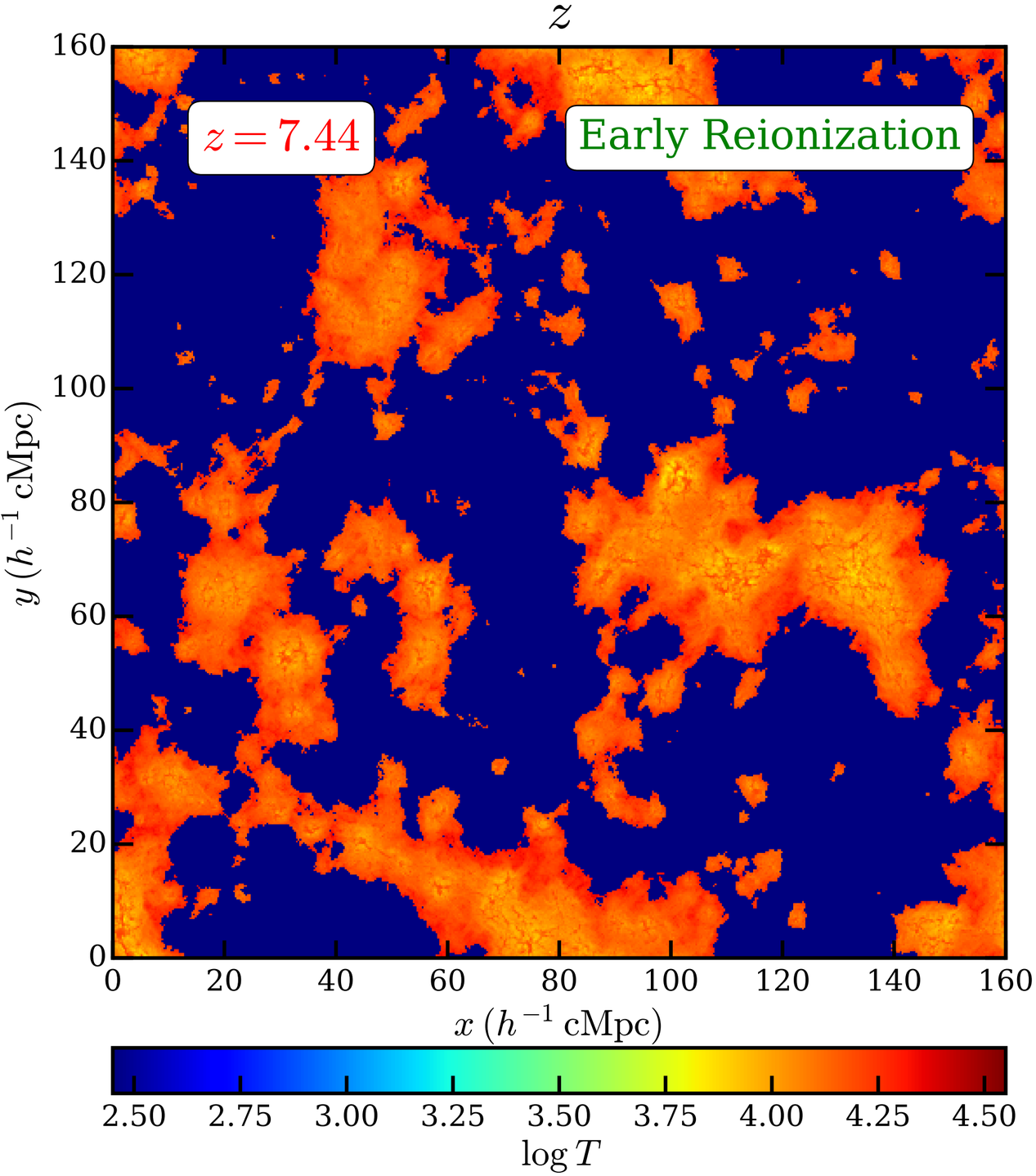

$z = 7.78$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

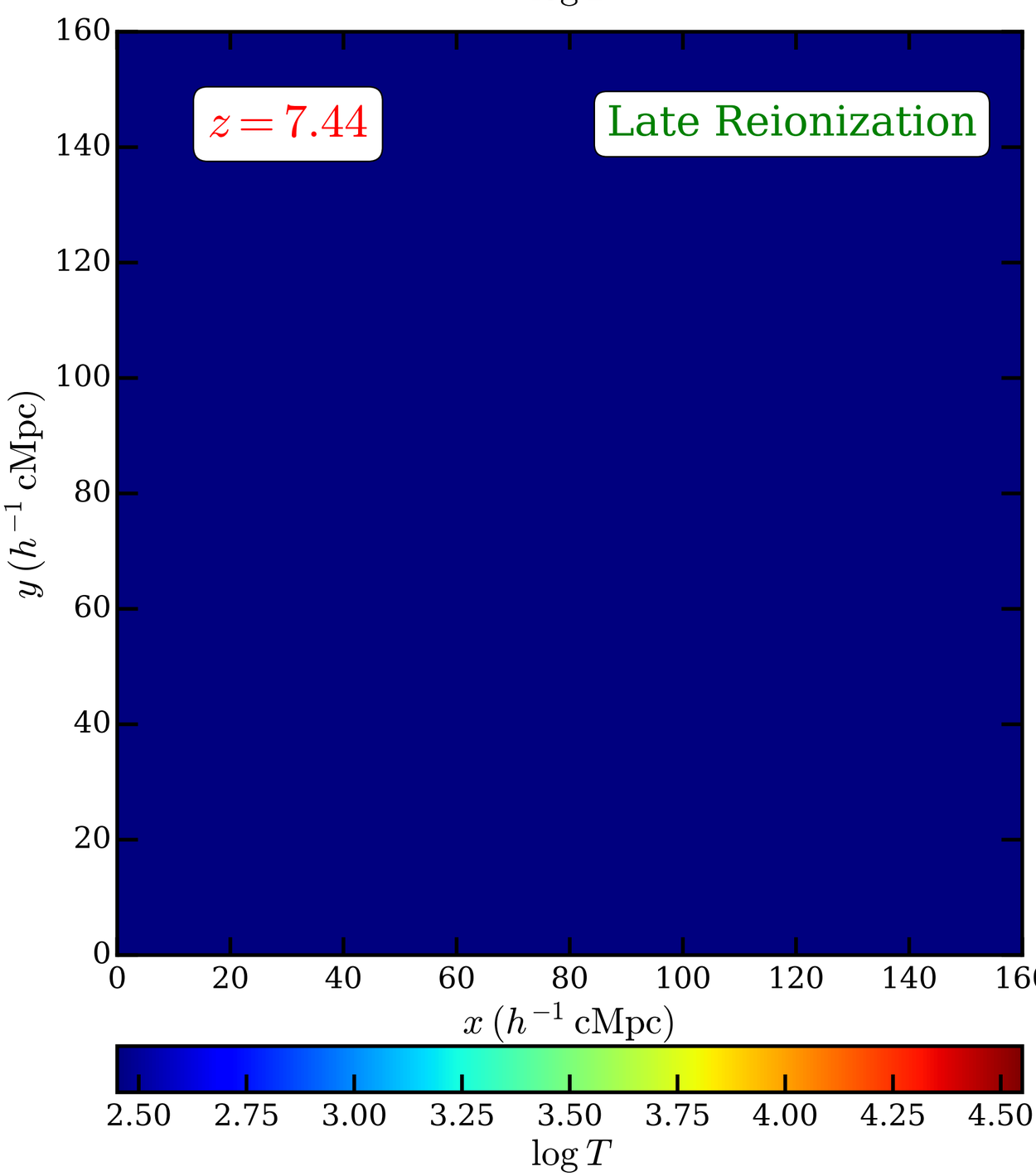

$z = 7.78$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

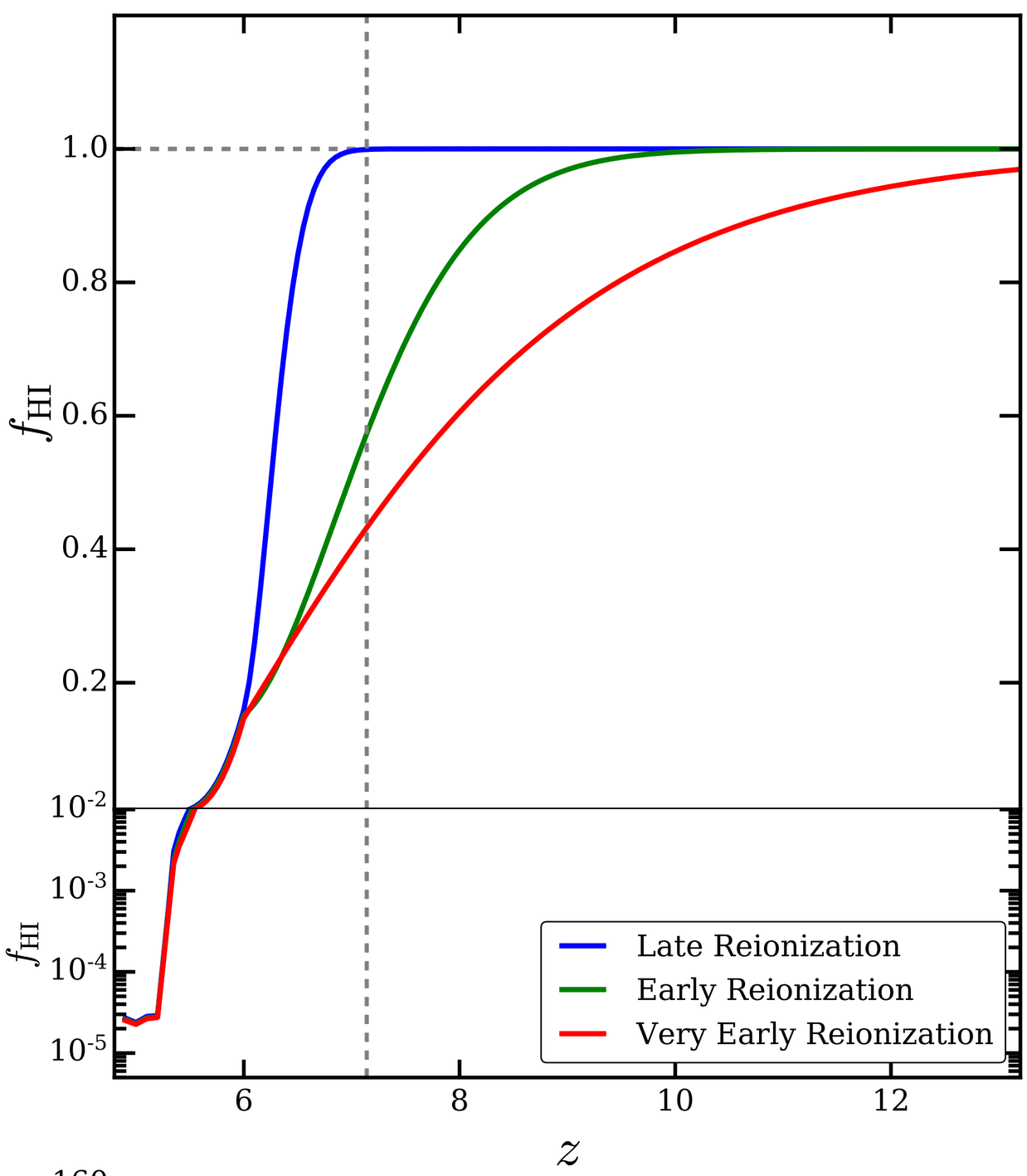

$z = 7.78$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

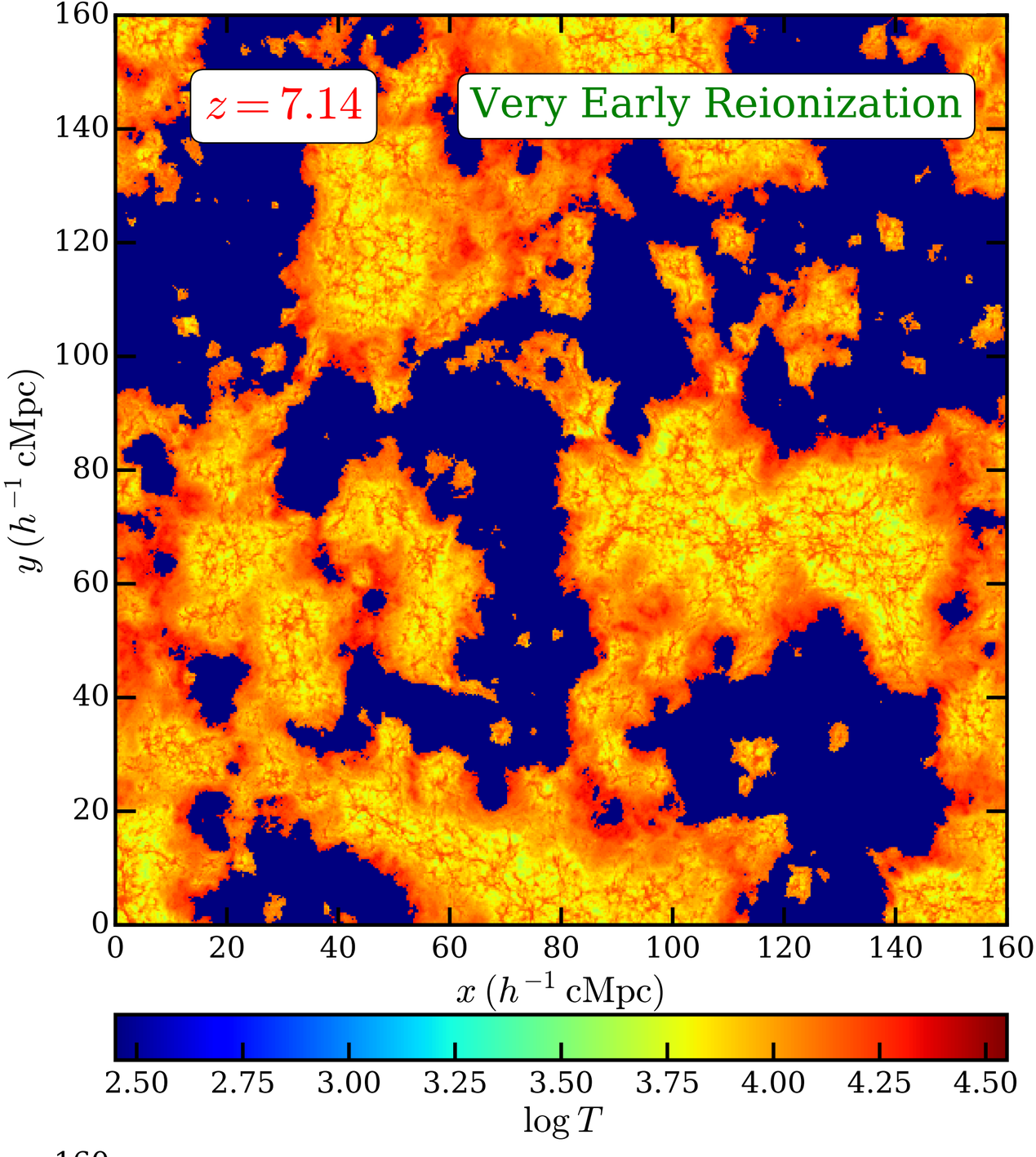

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

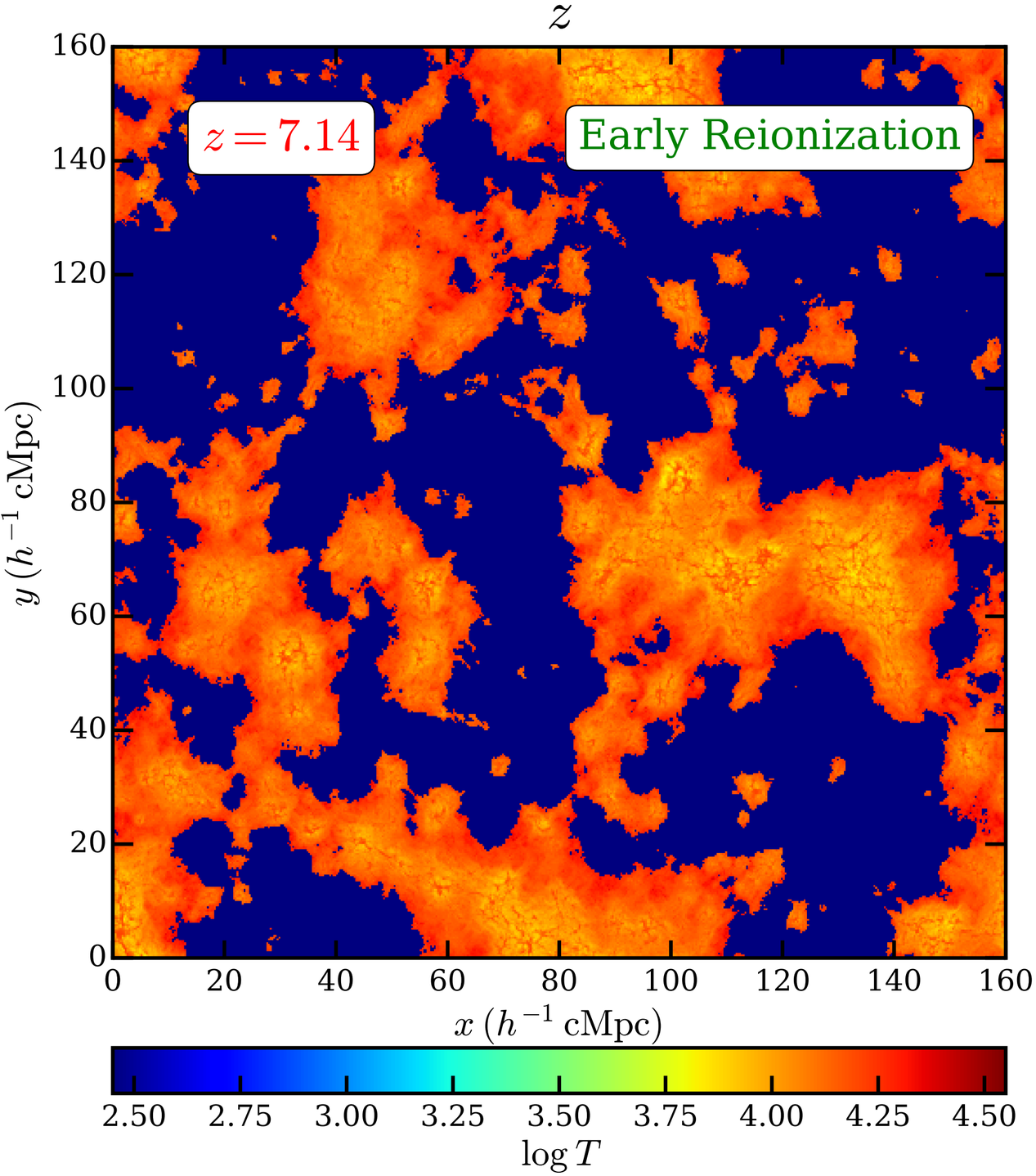

$z = 7.44$
Very Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

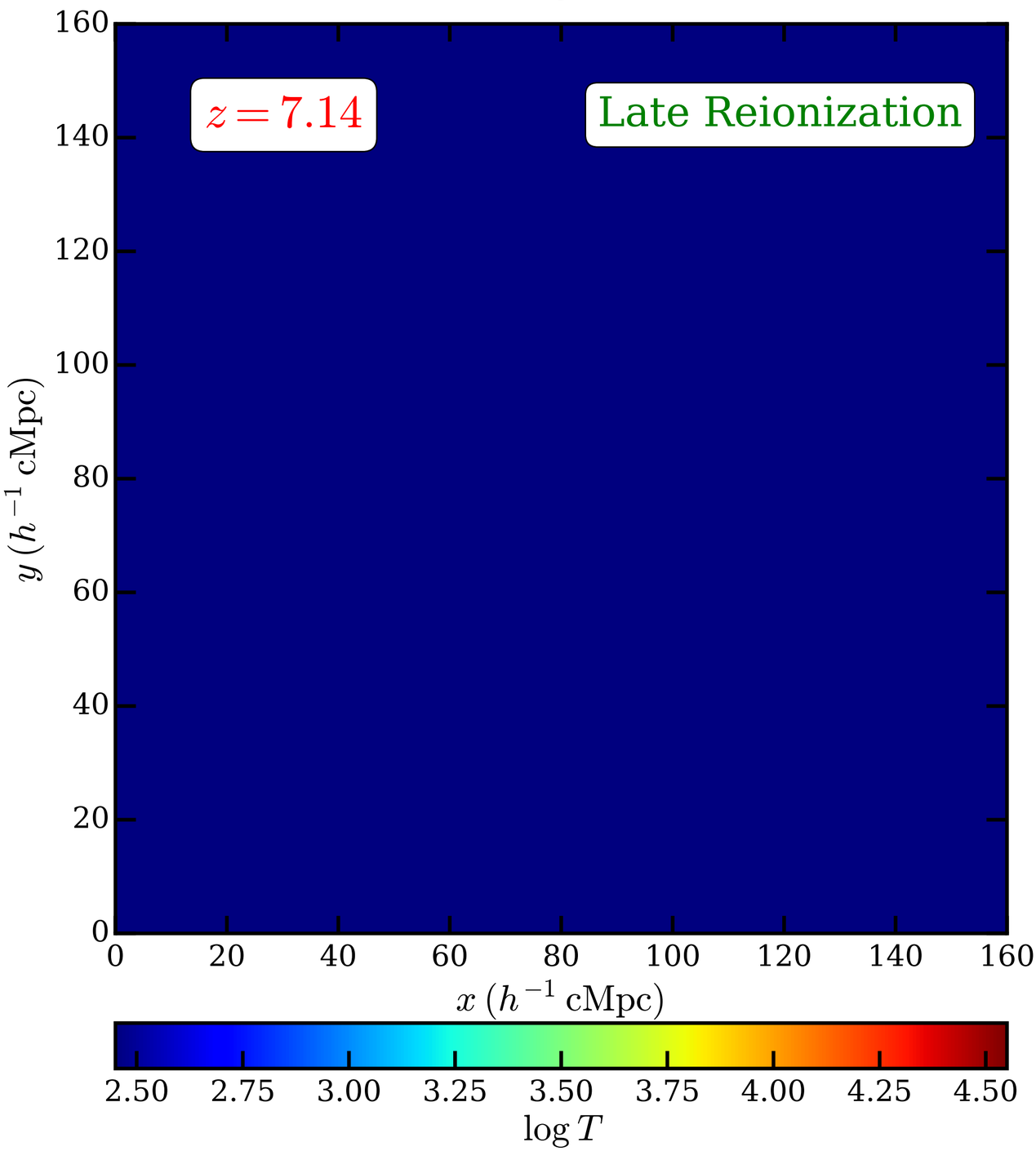

$z = 7.44$
Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

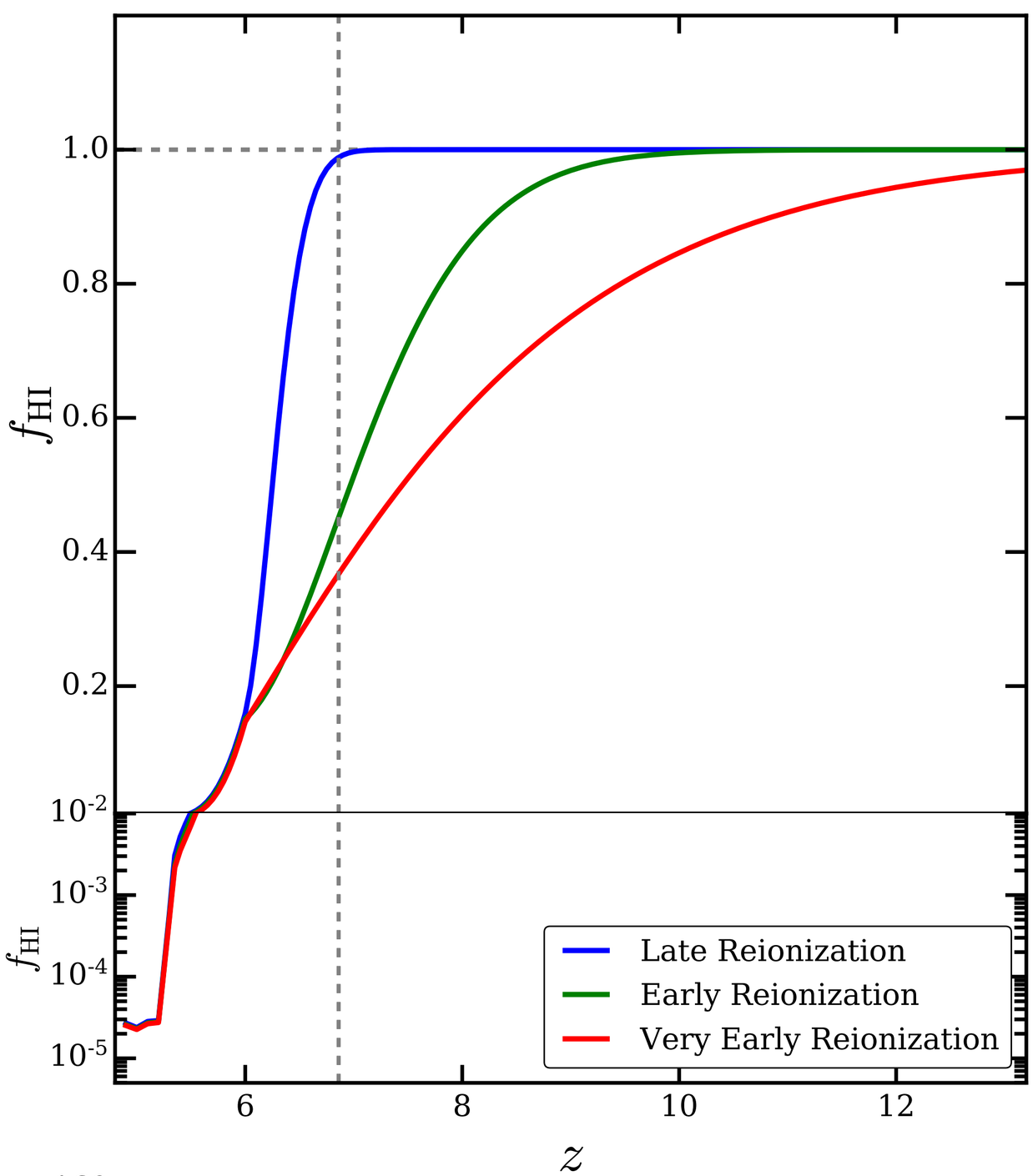

$z = 7.44$
Late Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

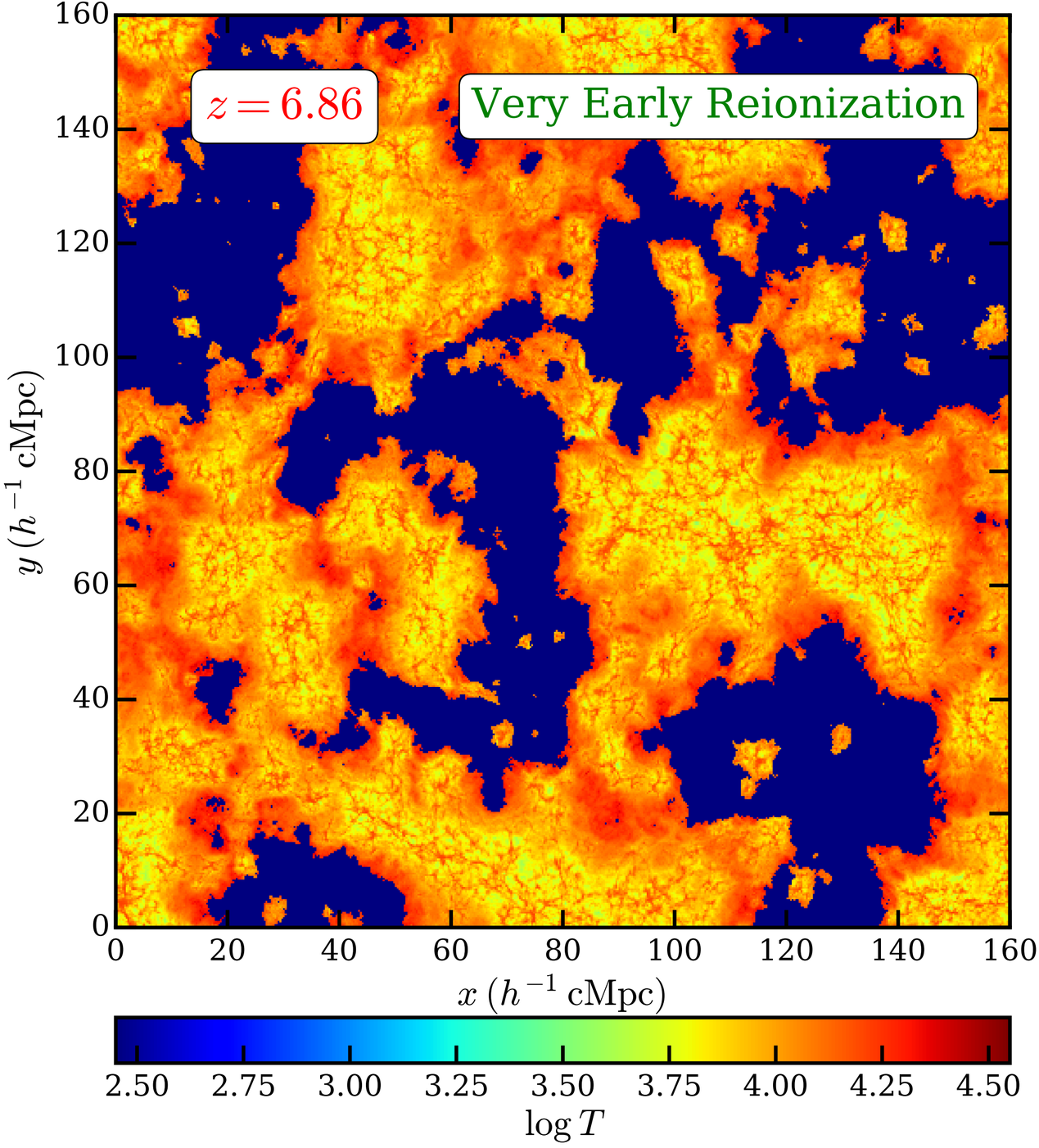

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

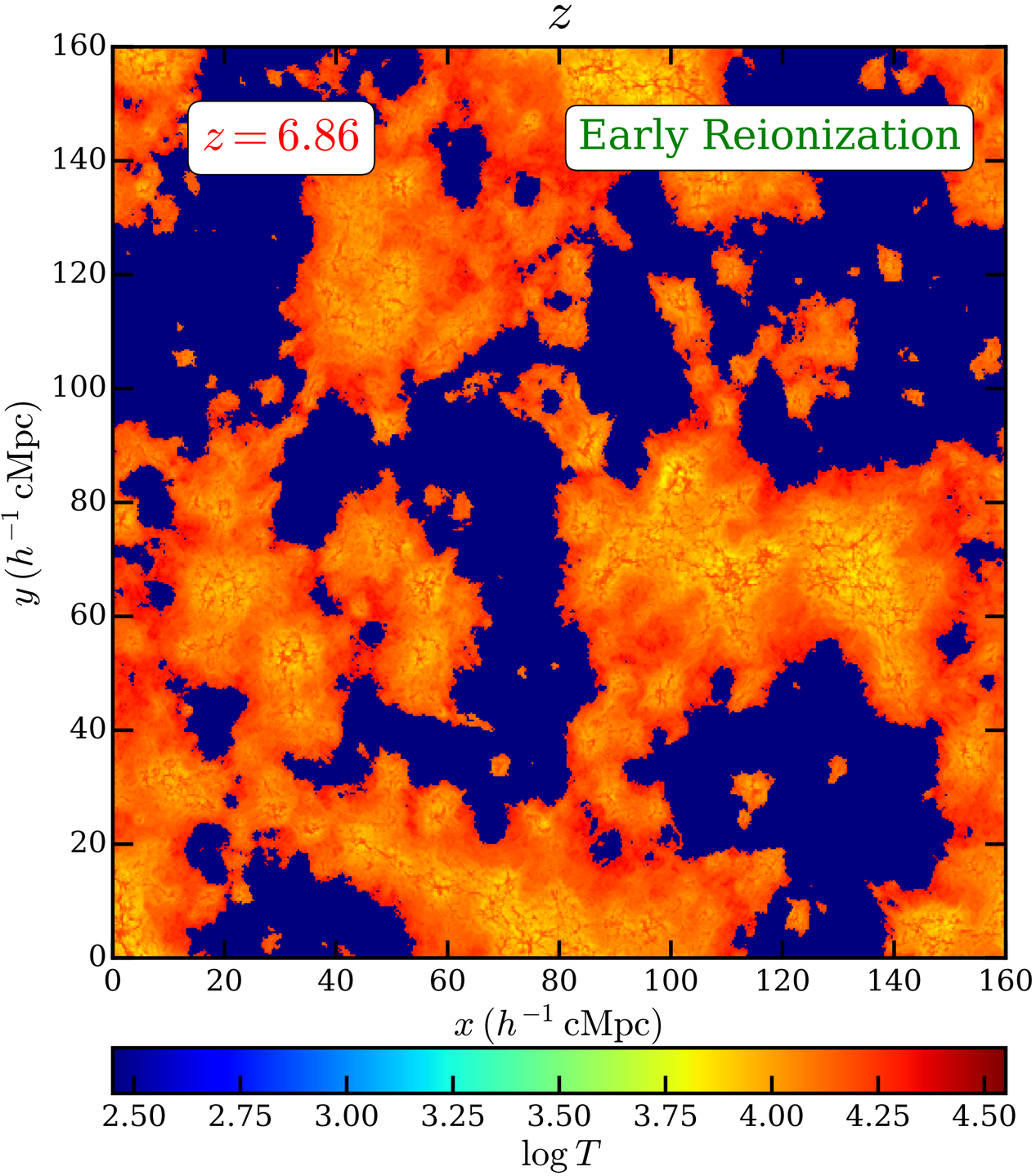

$z = 7.14$
Very Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

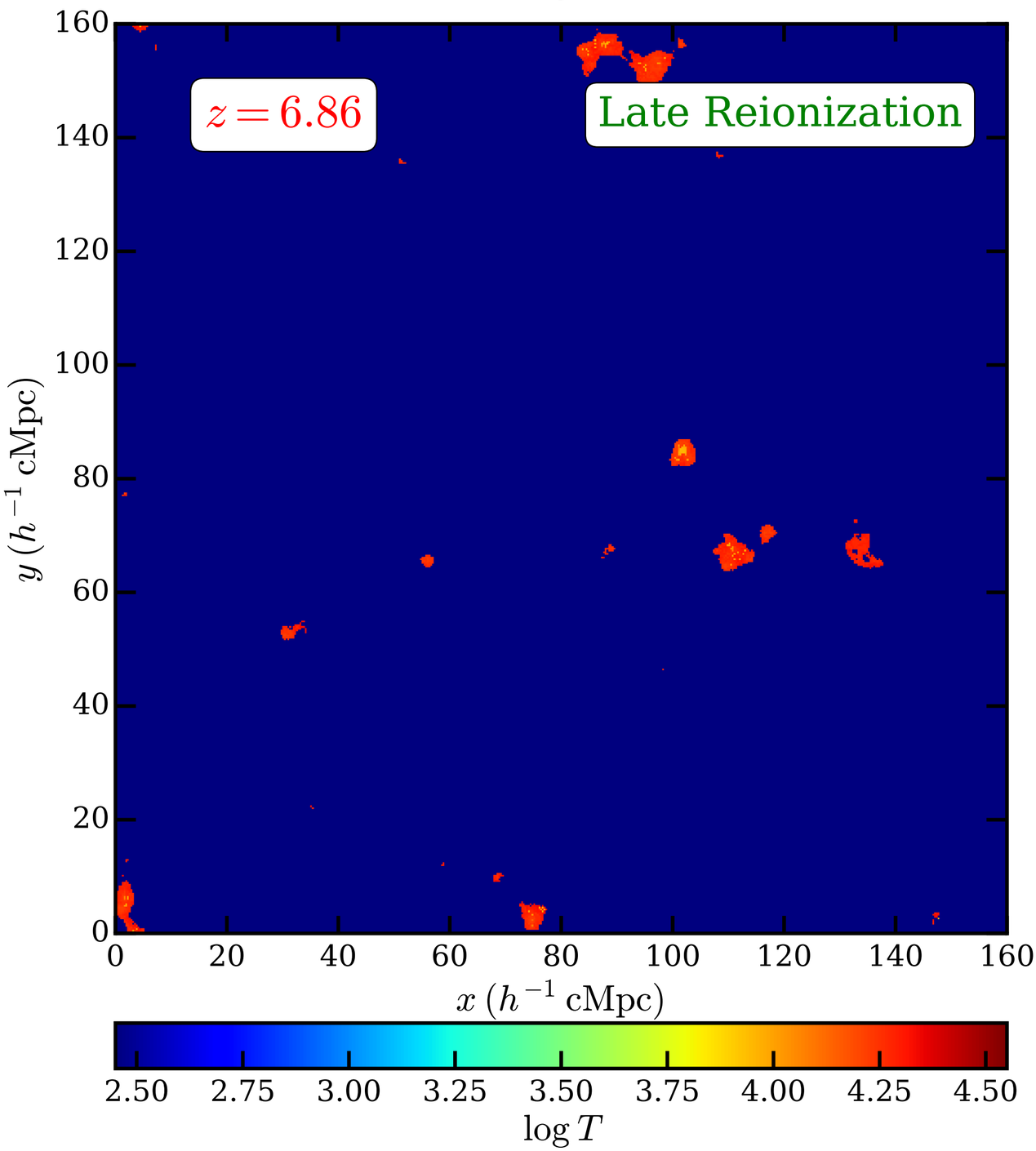

$z = 7.14$
Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

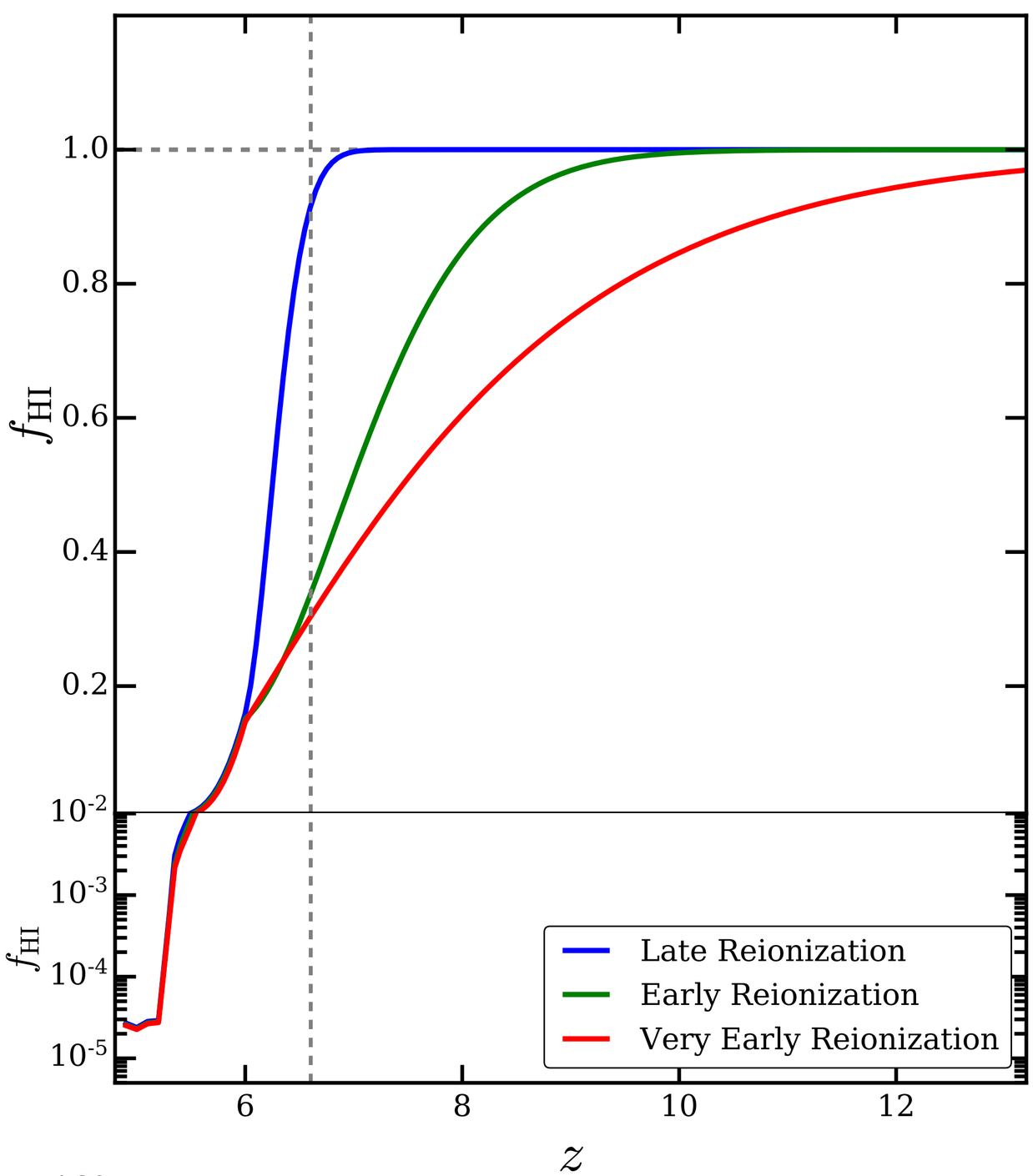

$z = 7.14$
Late Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

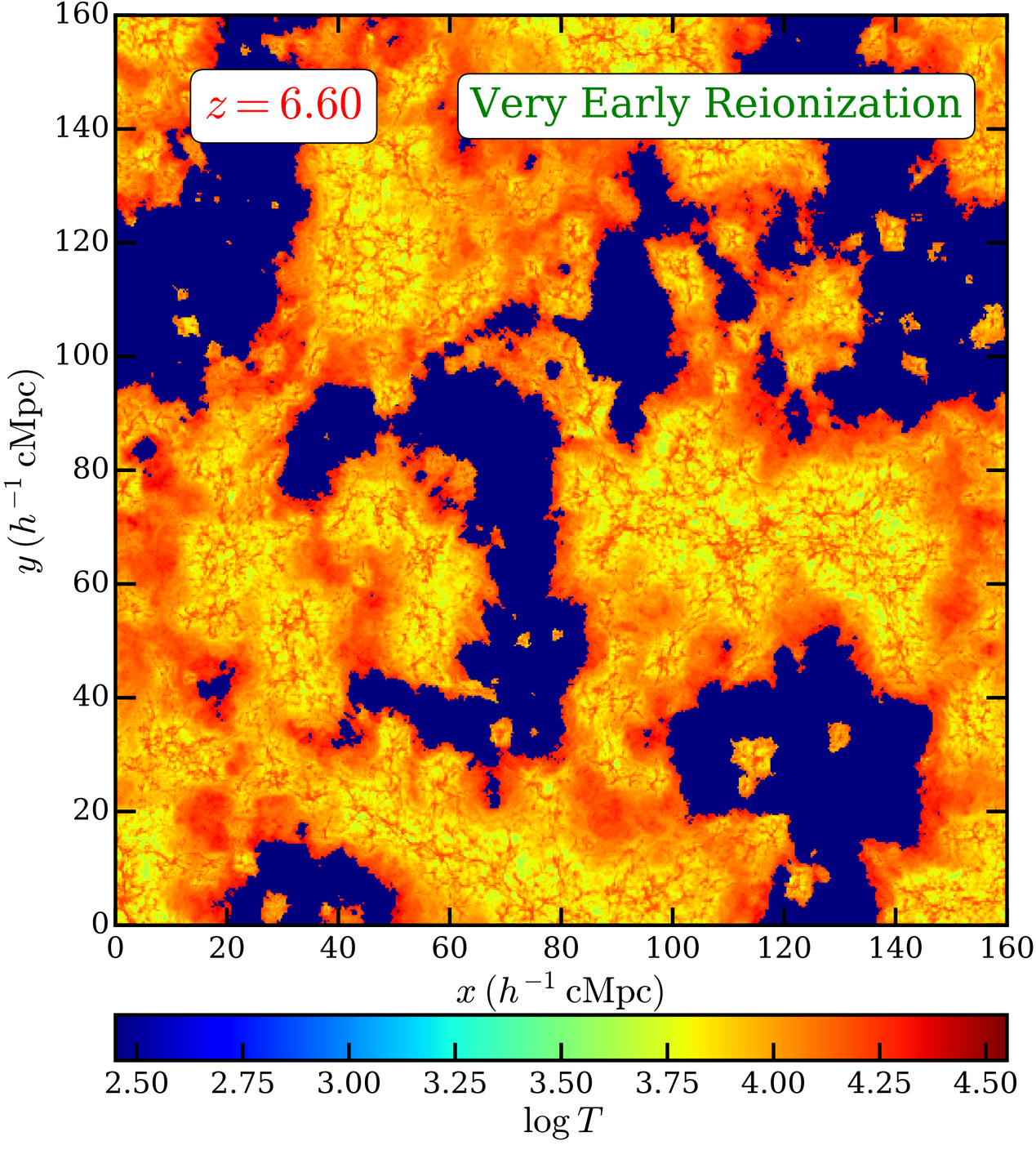

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

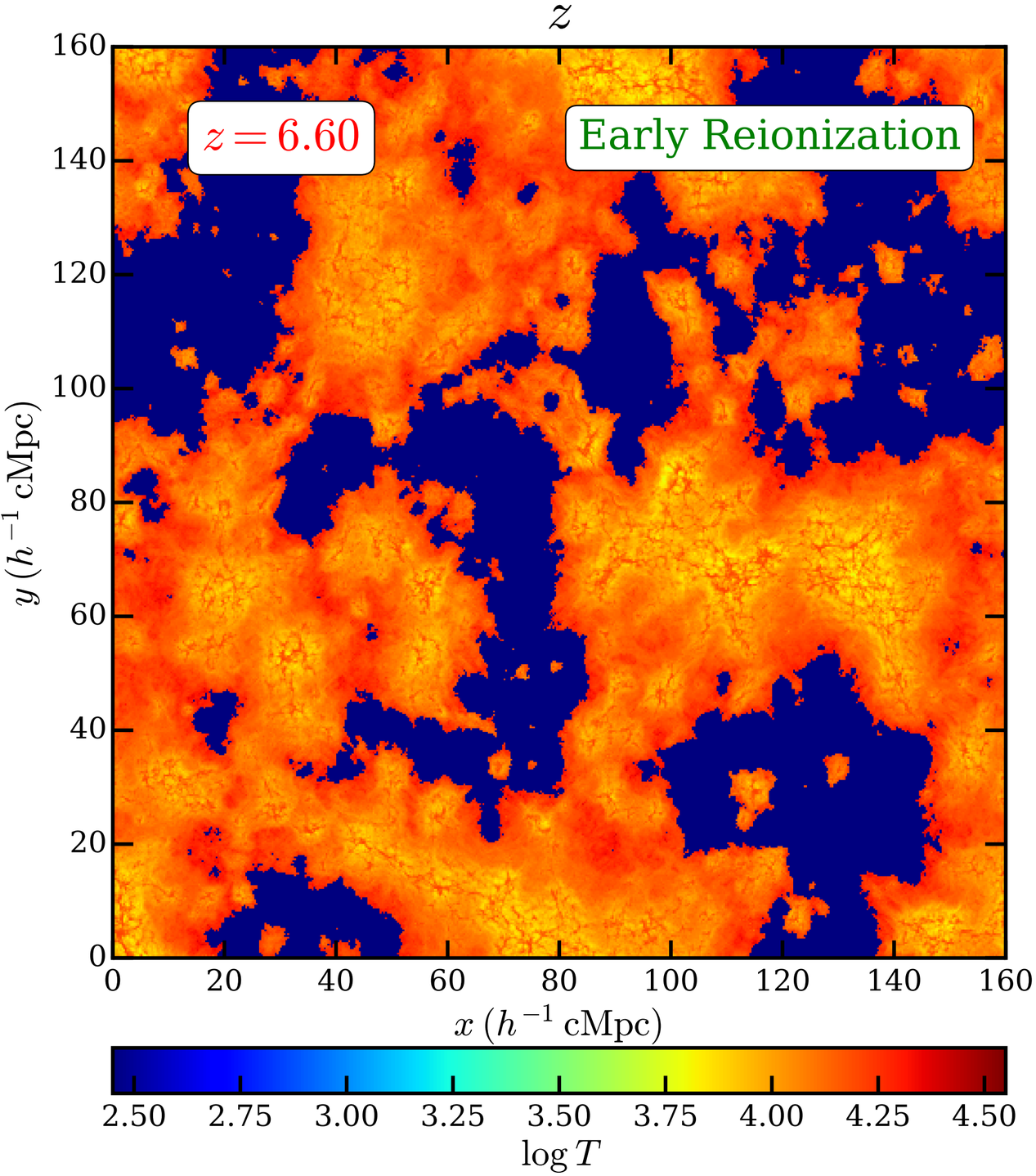

$z = 6.86$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

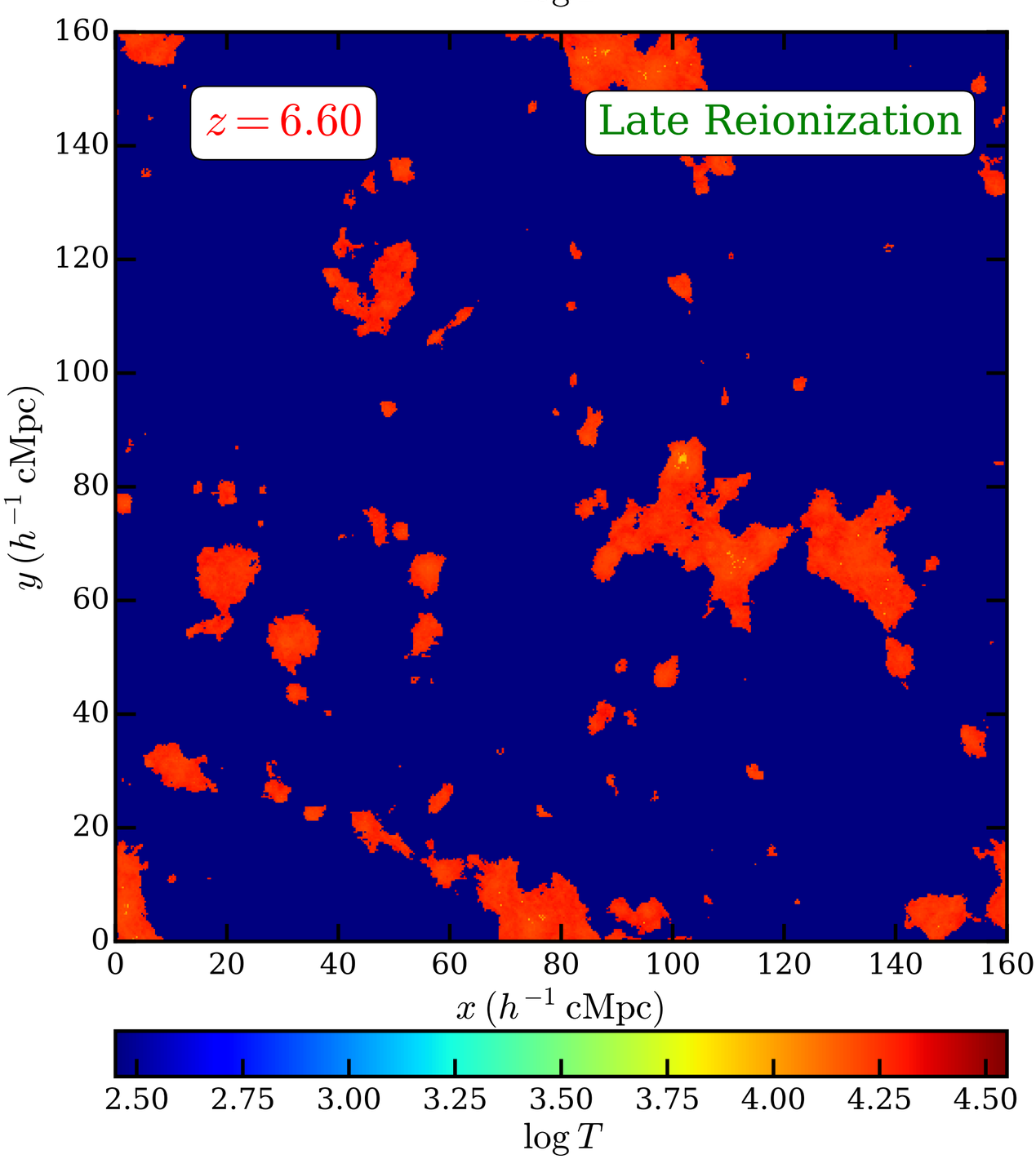

$z = 6.86$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

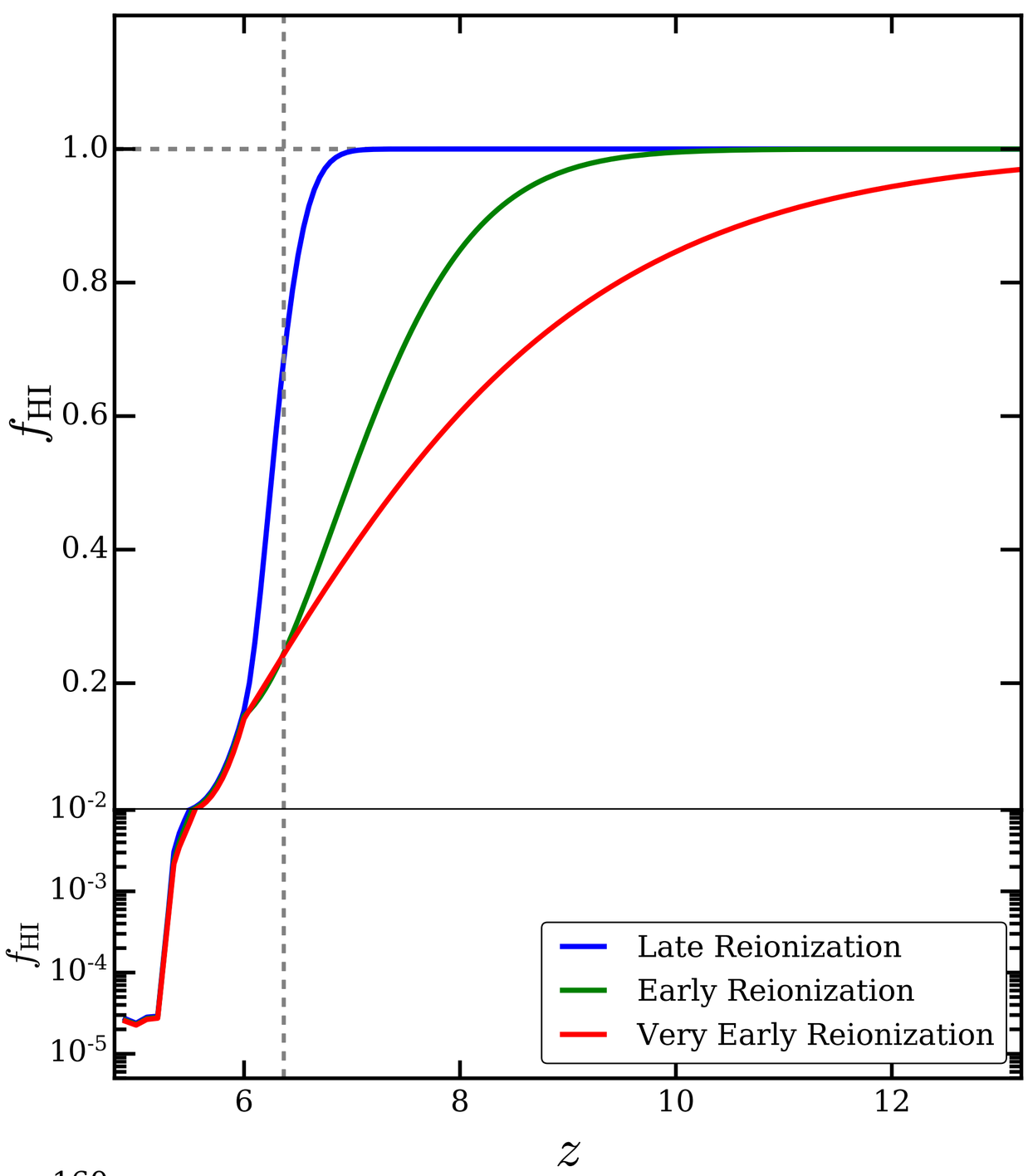

$z = 6.86$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

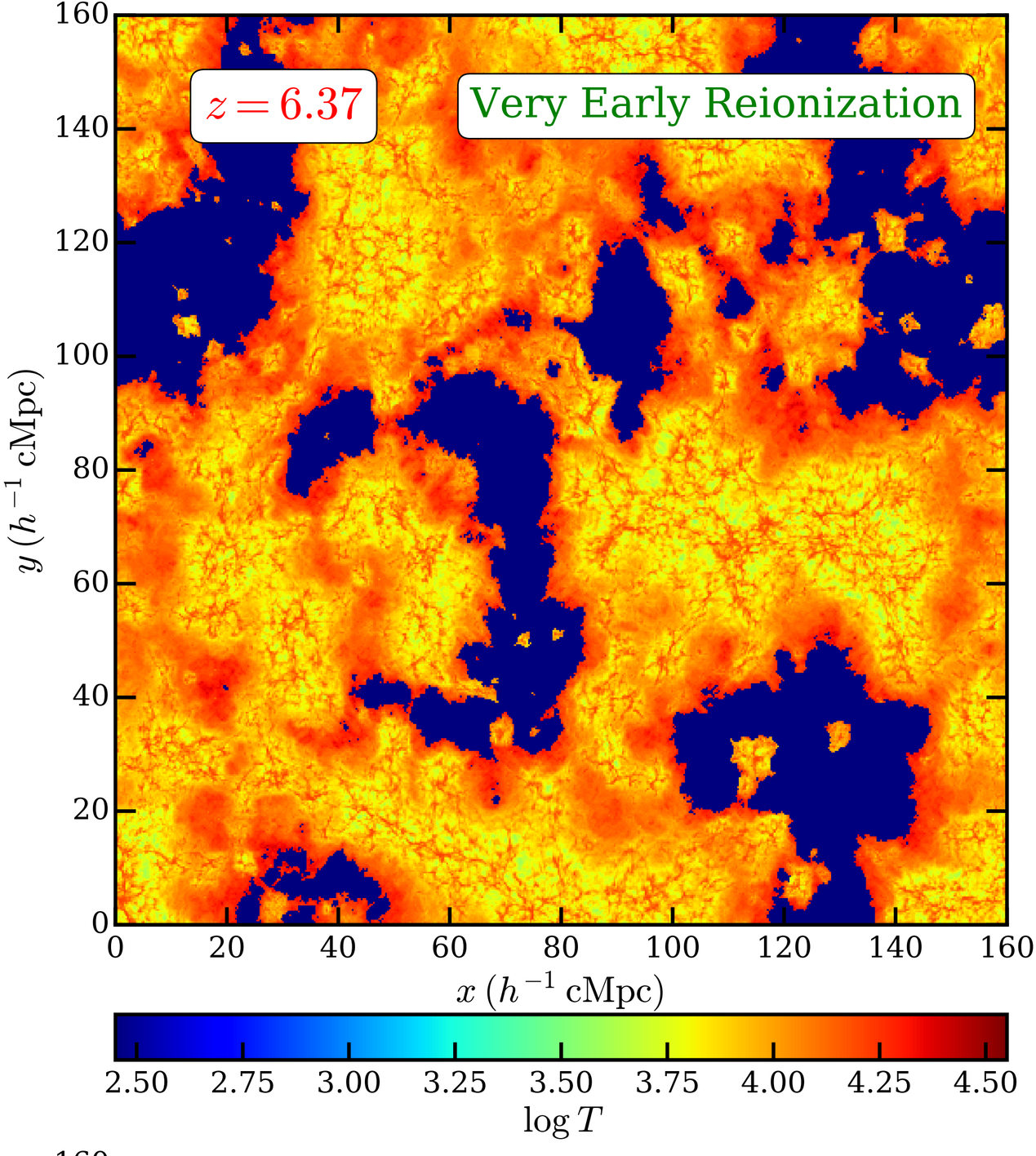

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

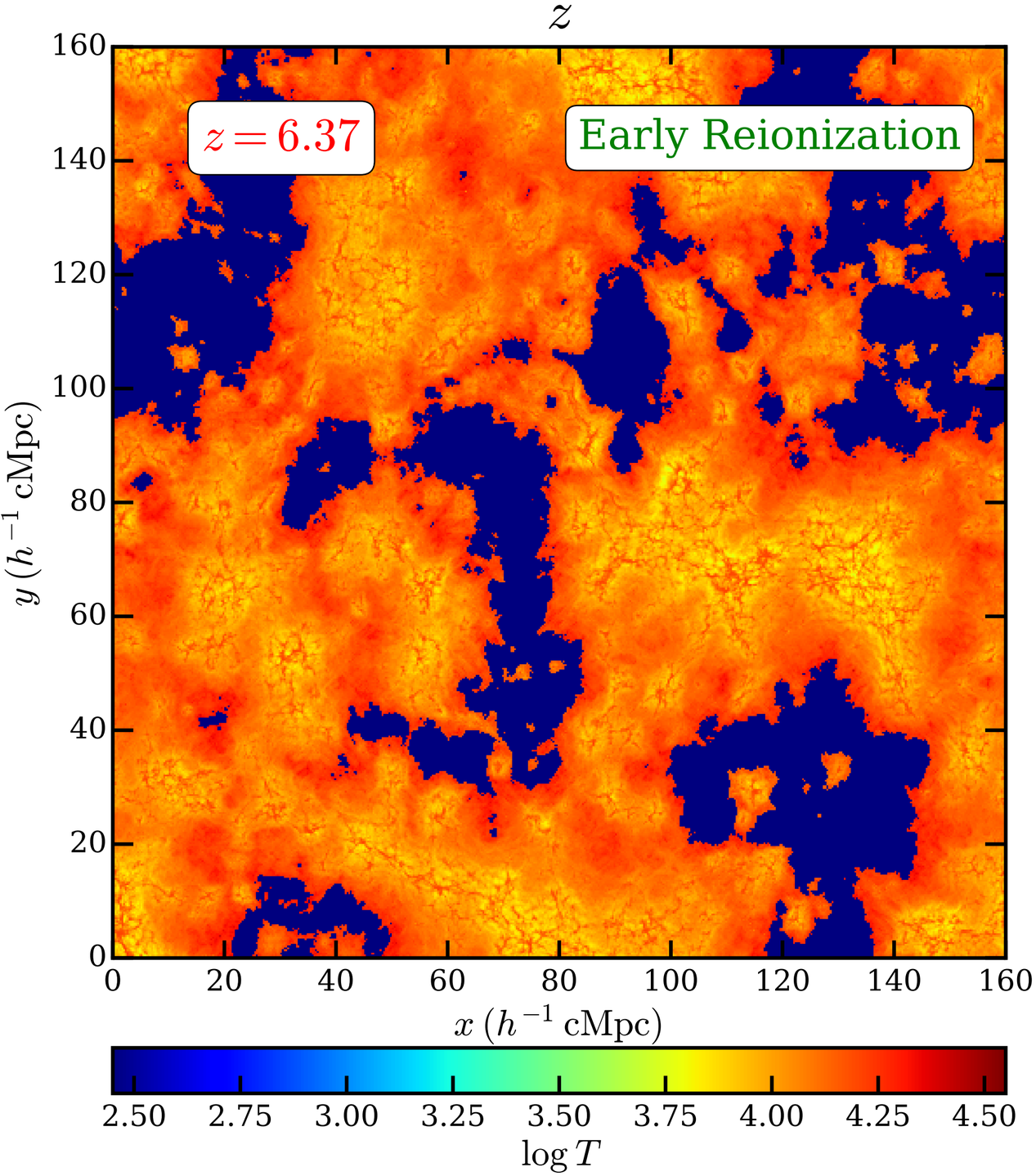

$z = 6.60$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

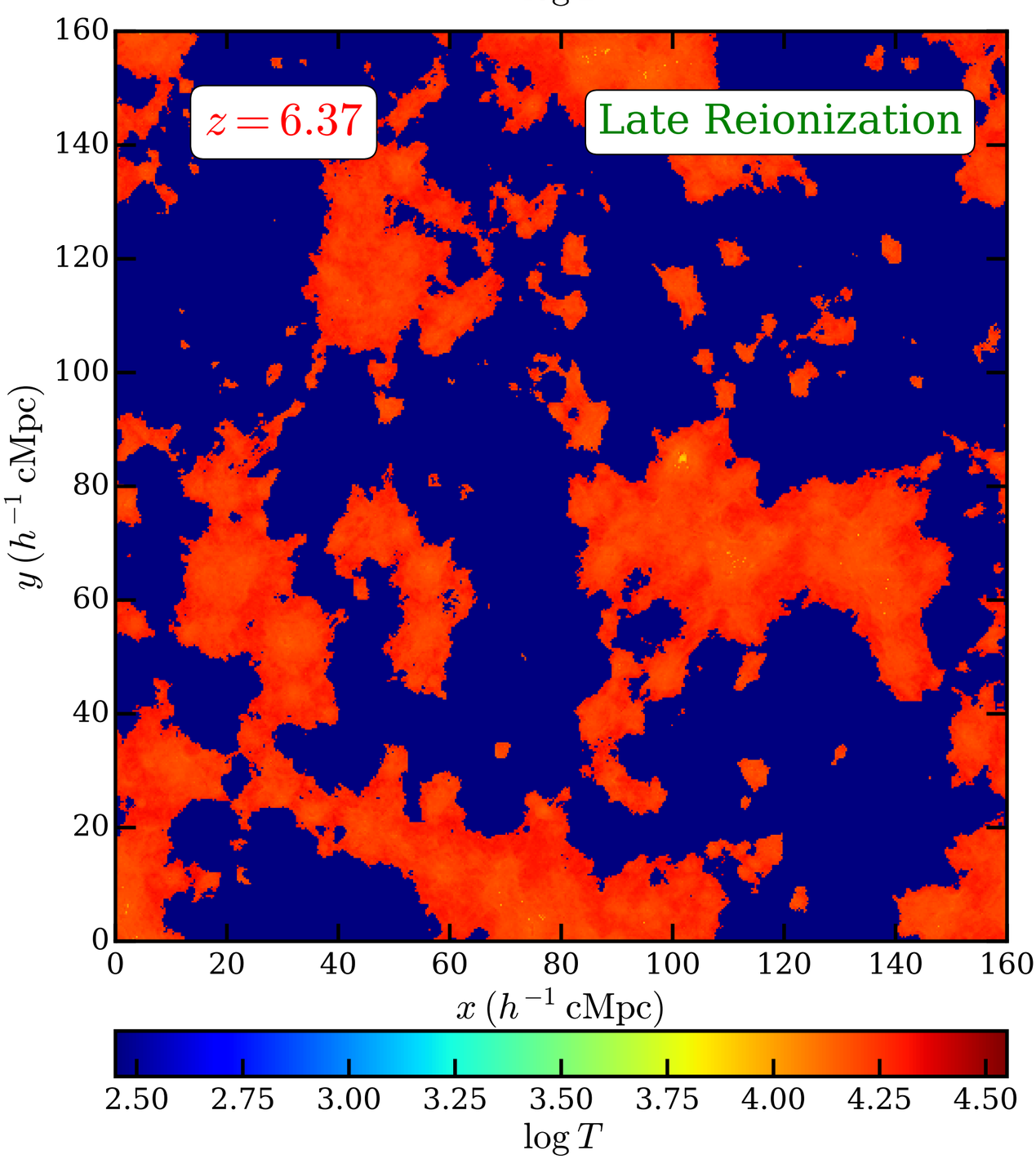

$z = 6.60$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

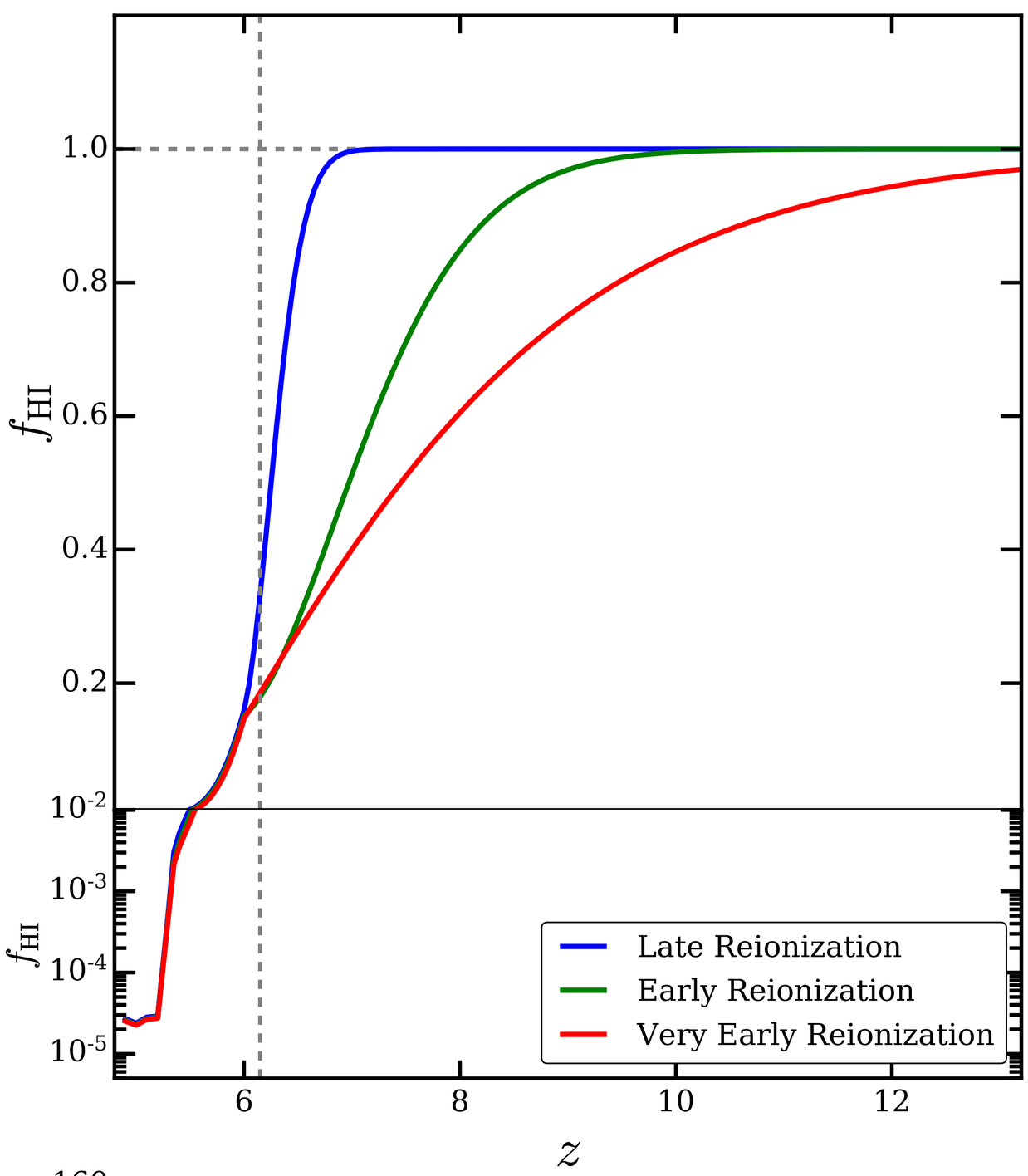

$z = 6.60$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

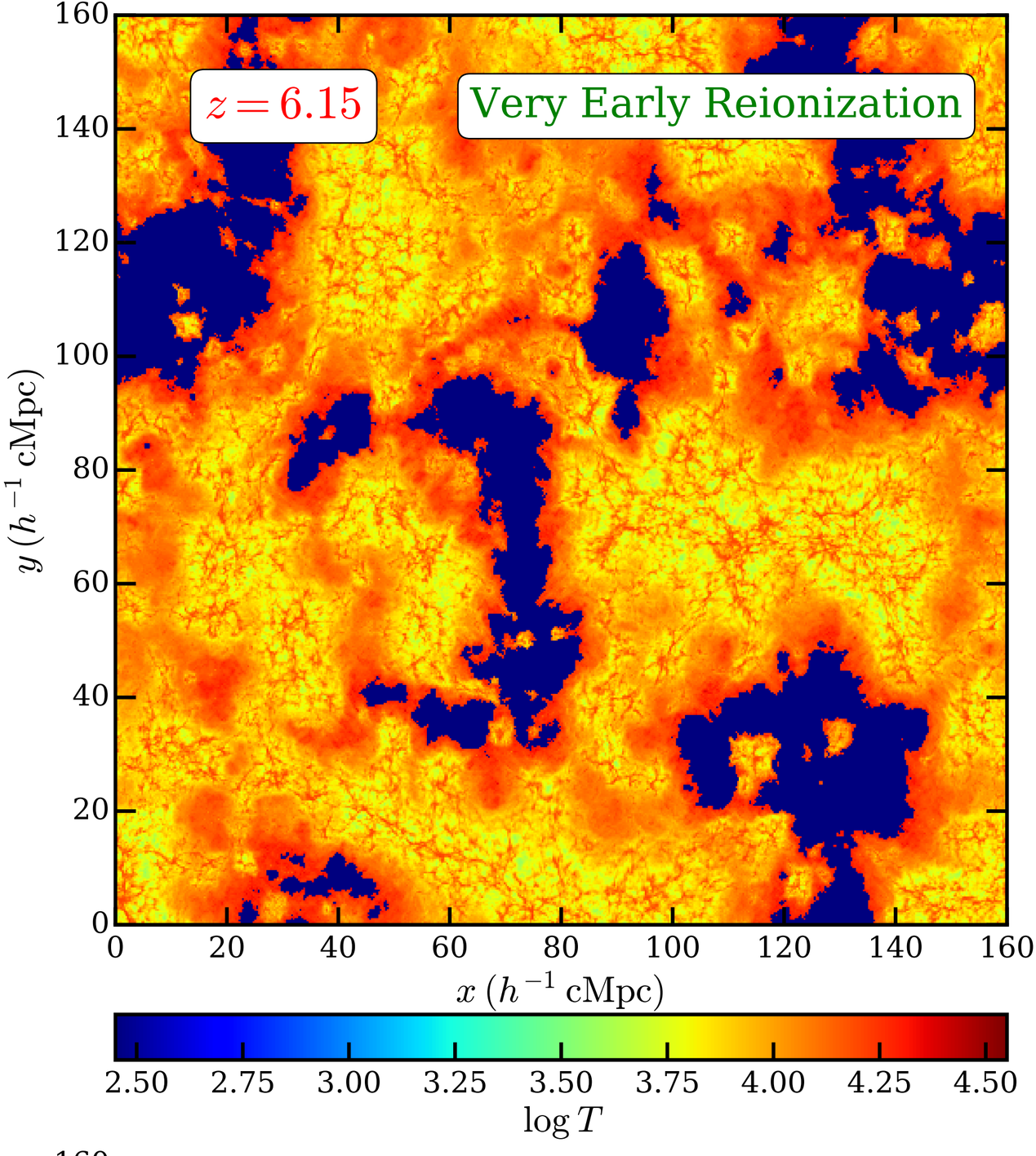

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

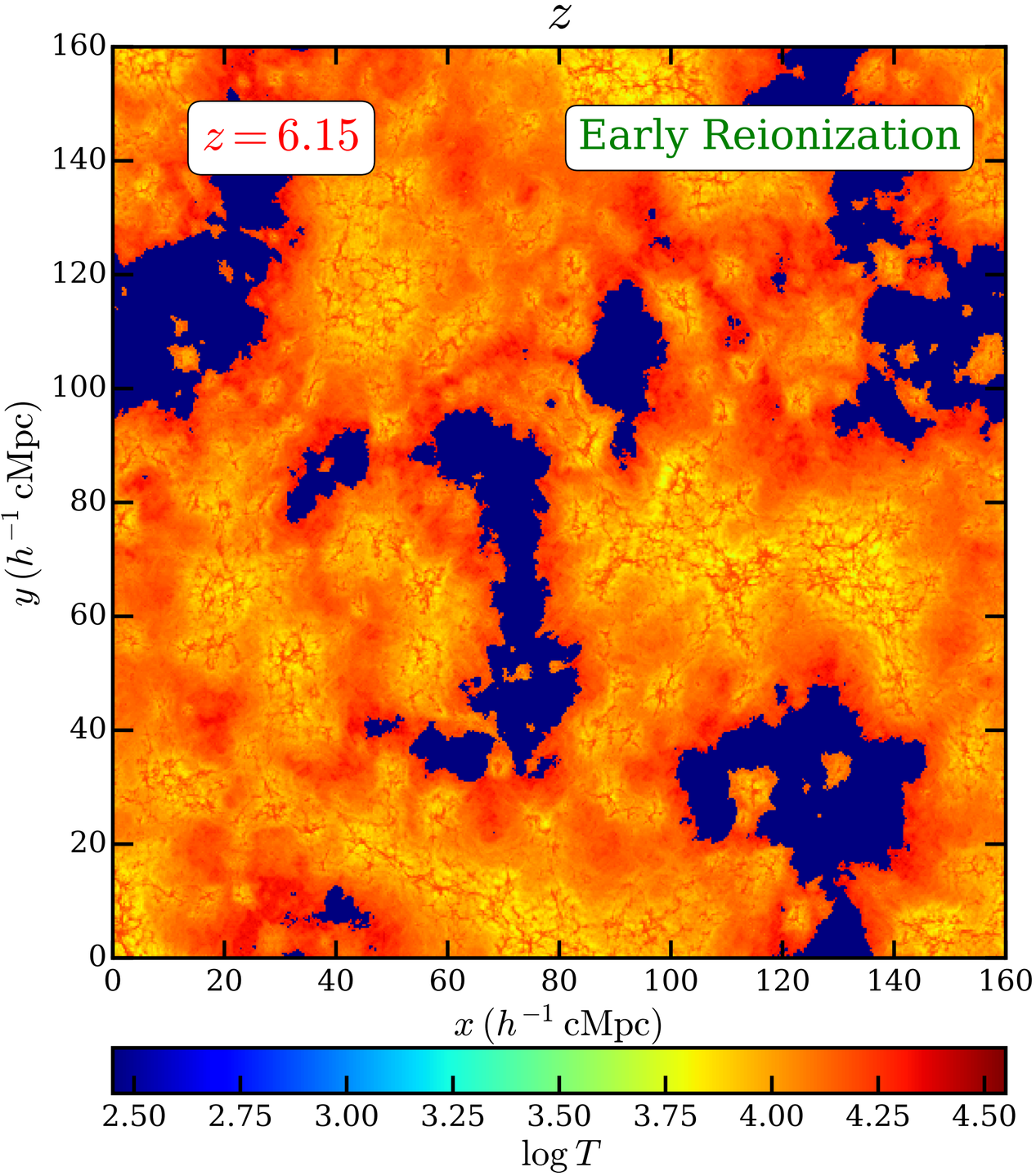

$z = 6.37$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

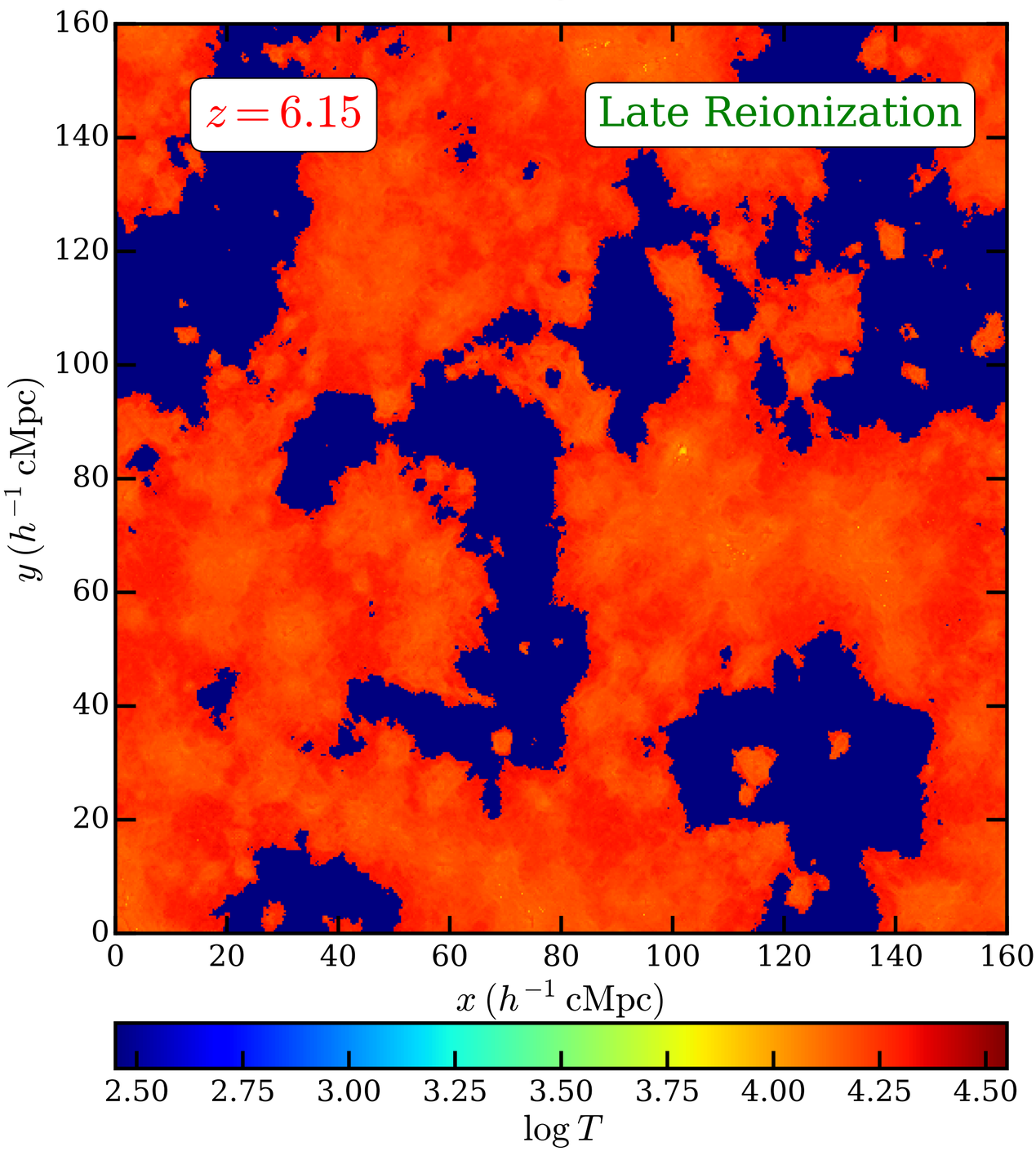

$z = 6.37$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

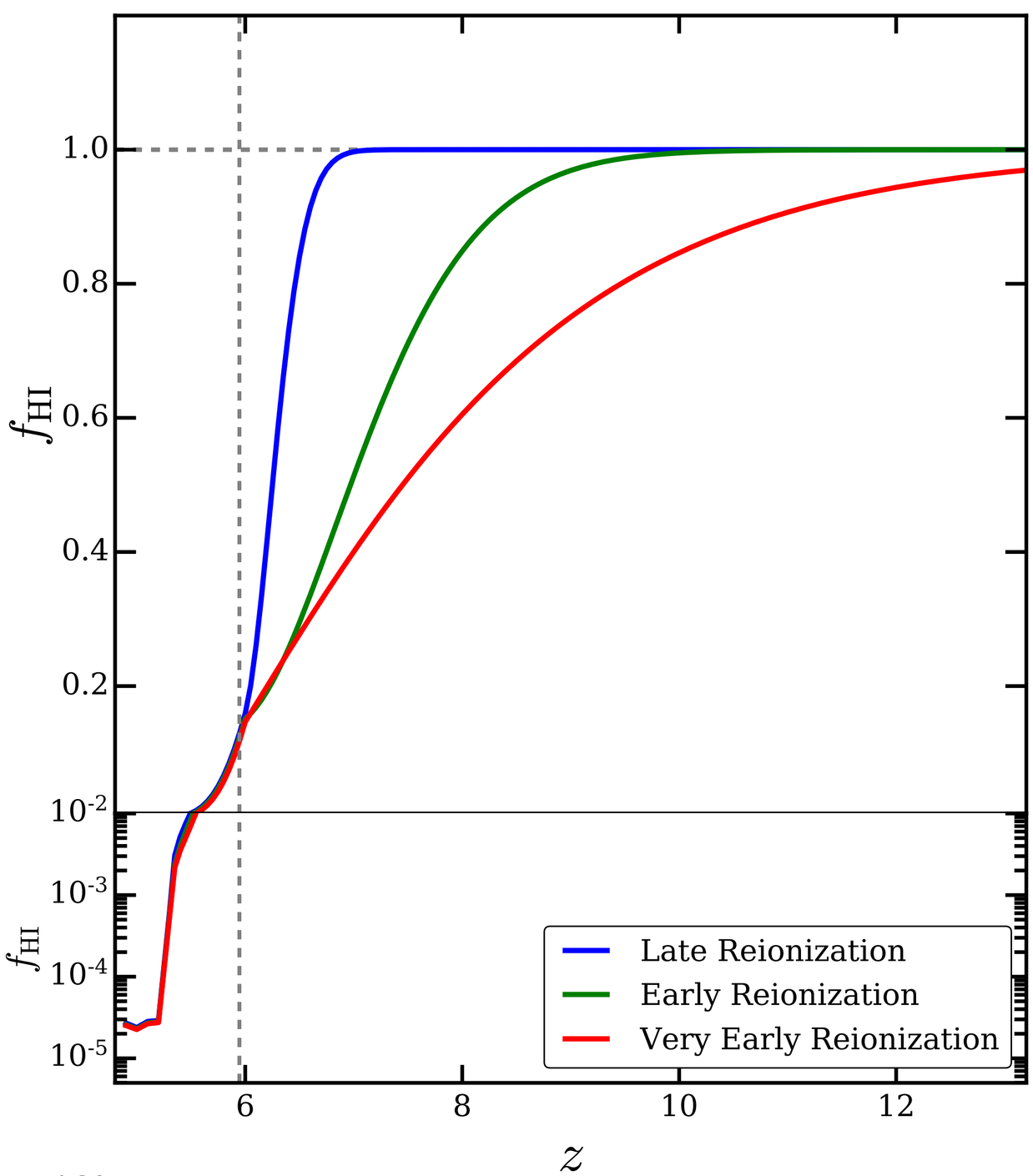

$z = 6.37$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

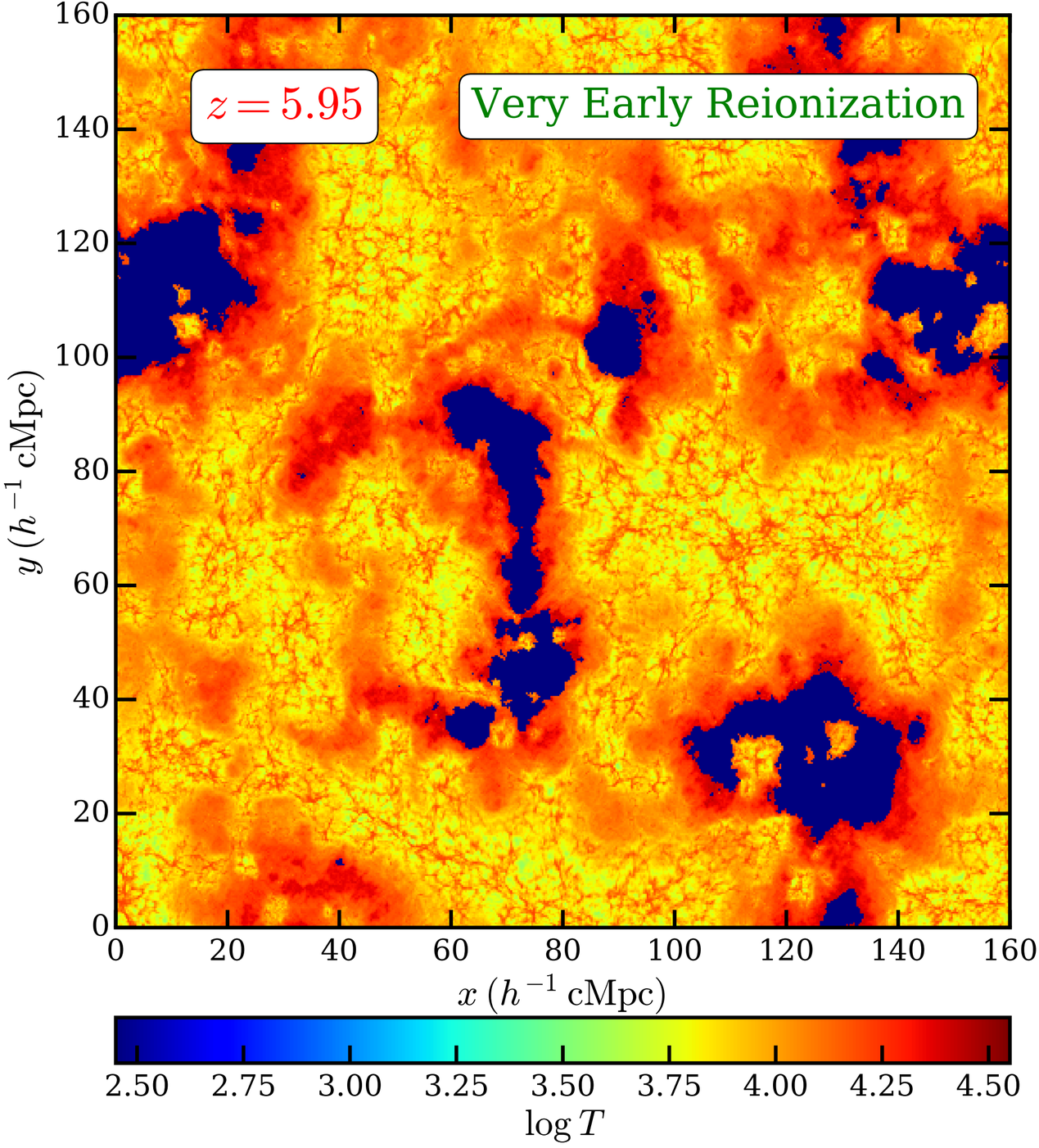

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

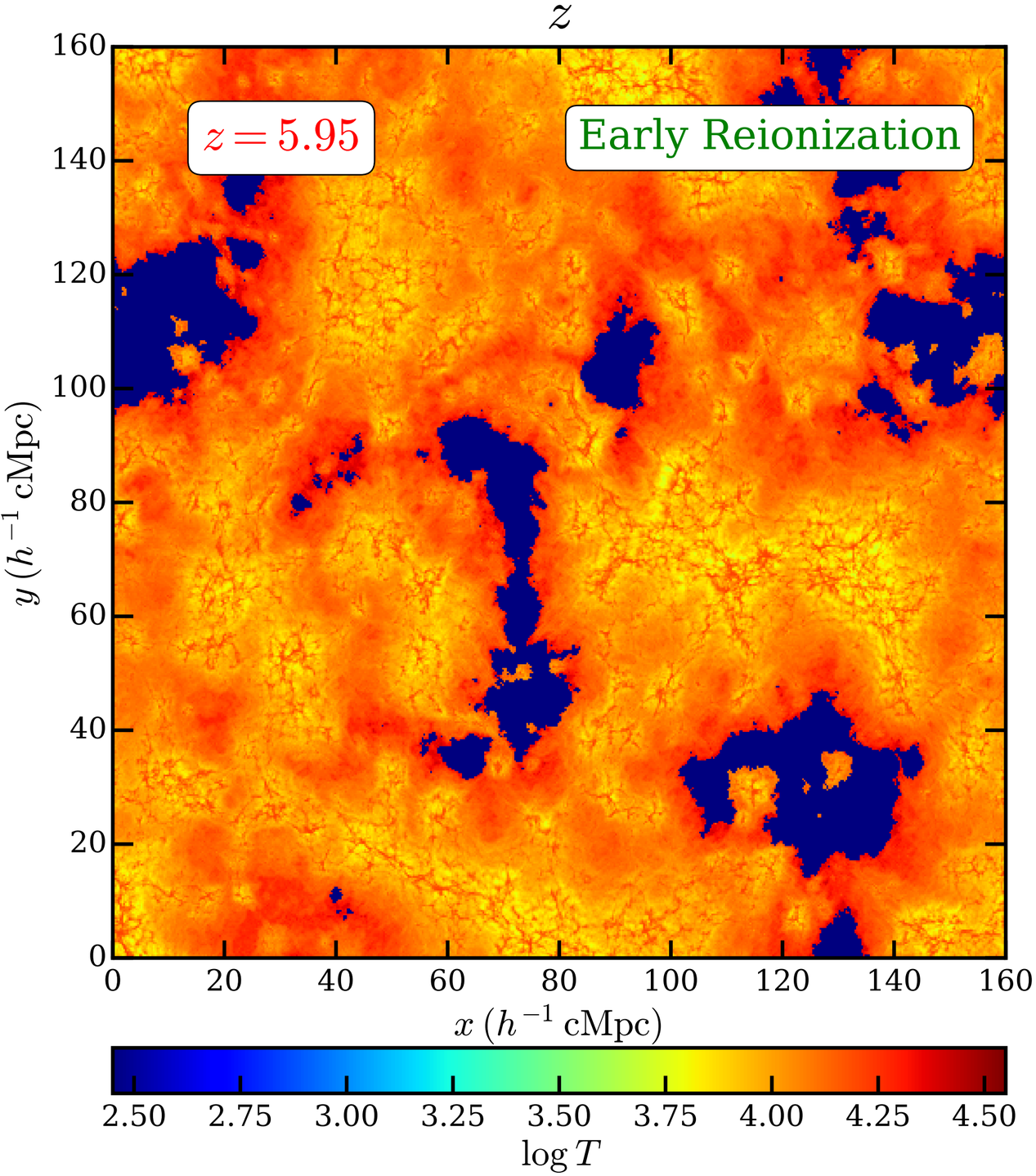

$z = 6.15$
Very Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

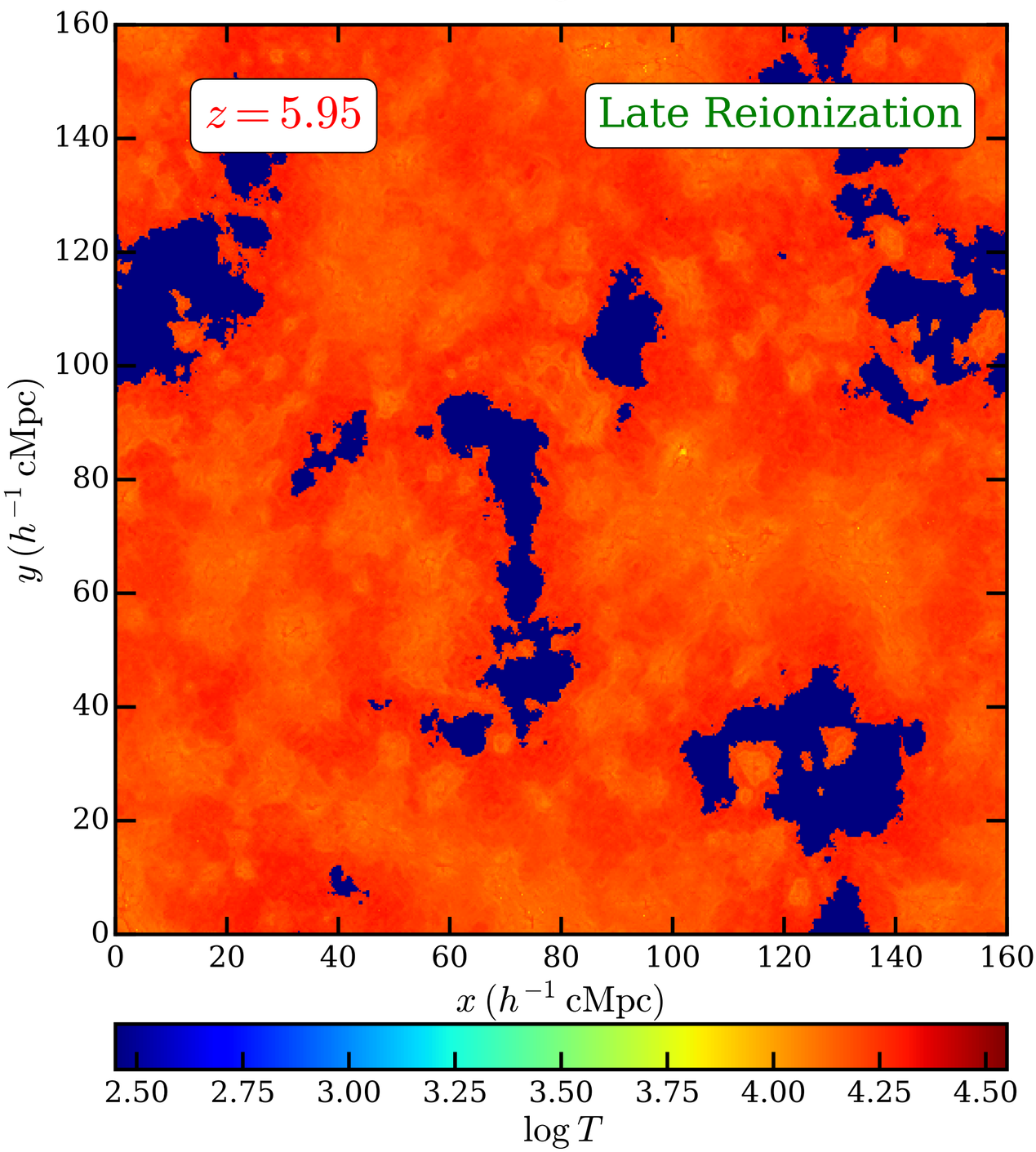

$z = 6.15$
Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

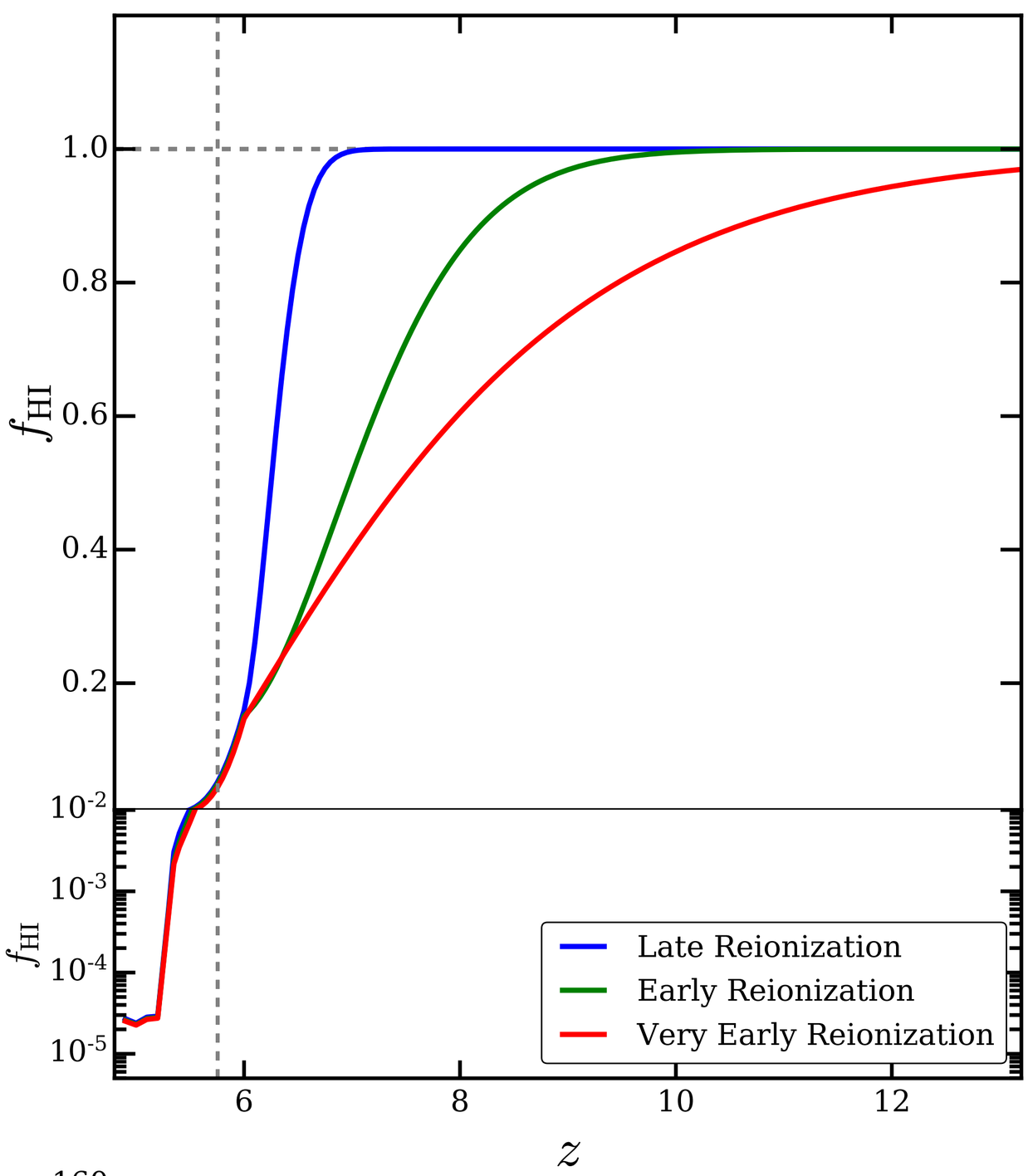

$z = 6.15$
Late Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

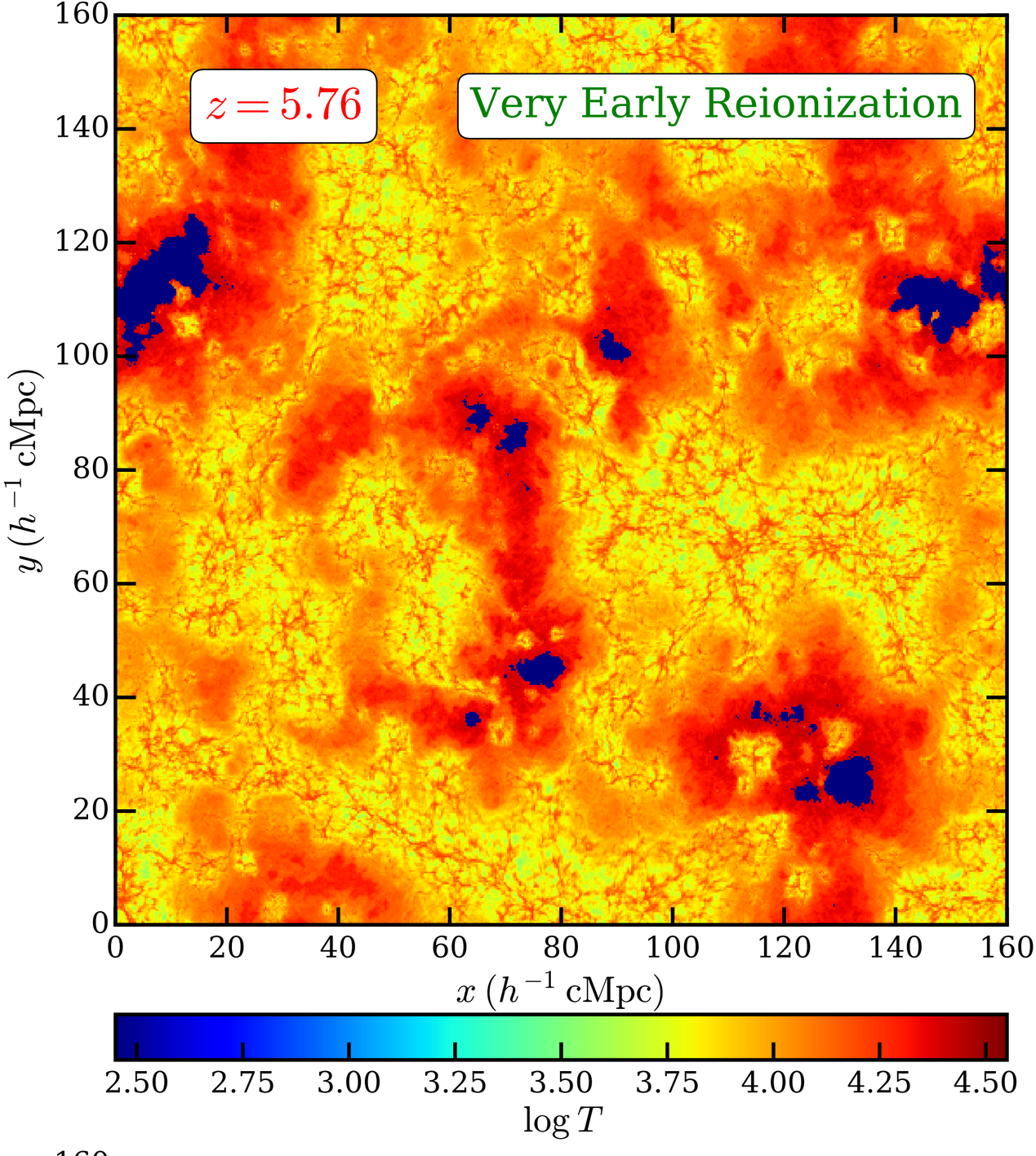

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

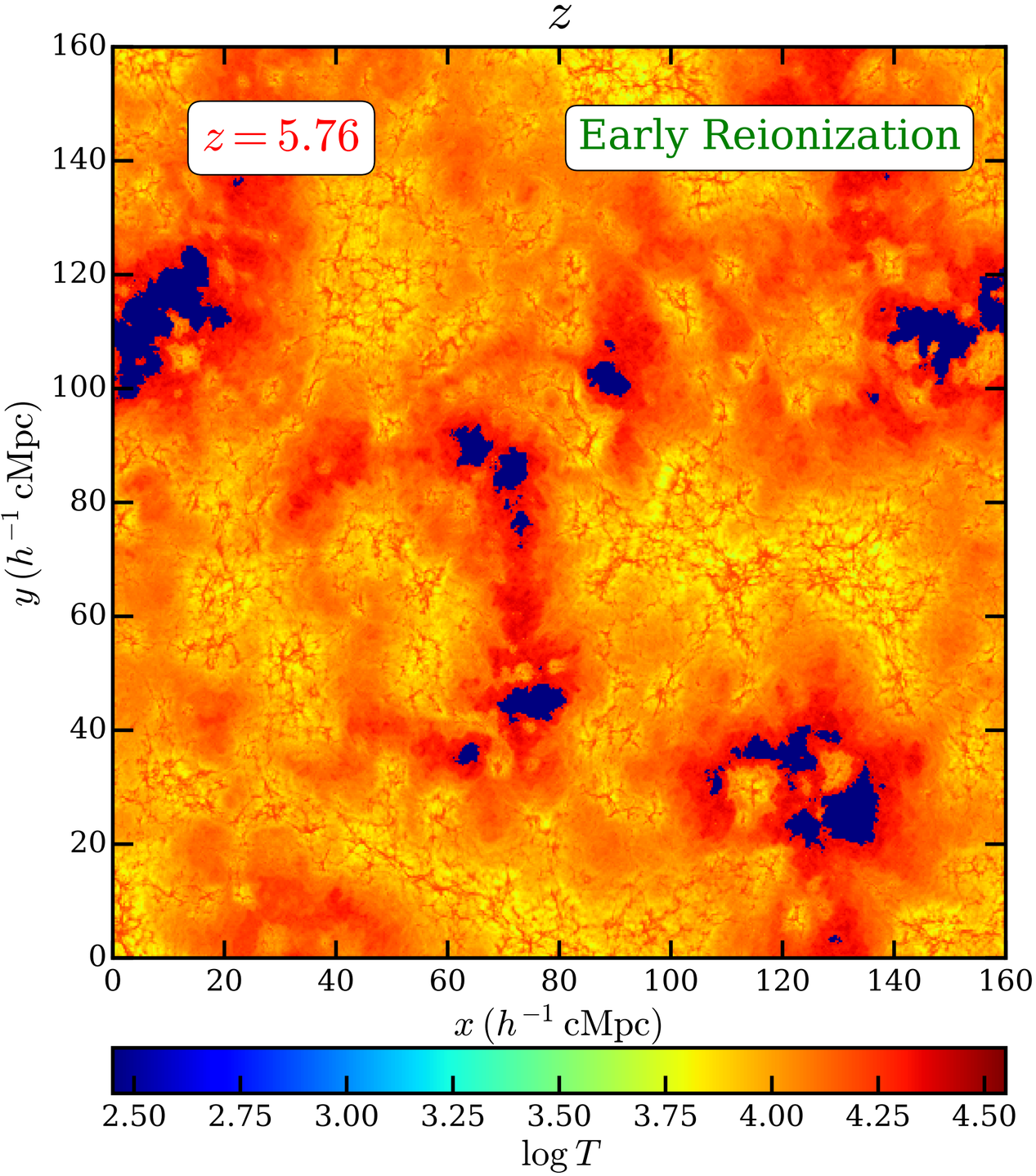

$z = 5.95$
Very Early Reionization
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

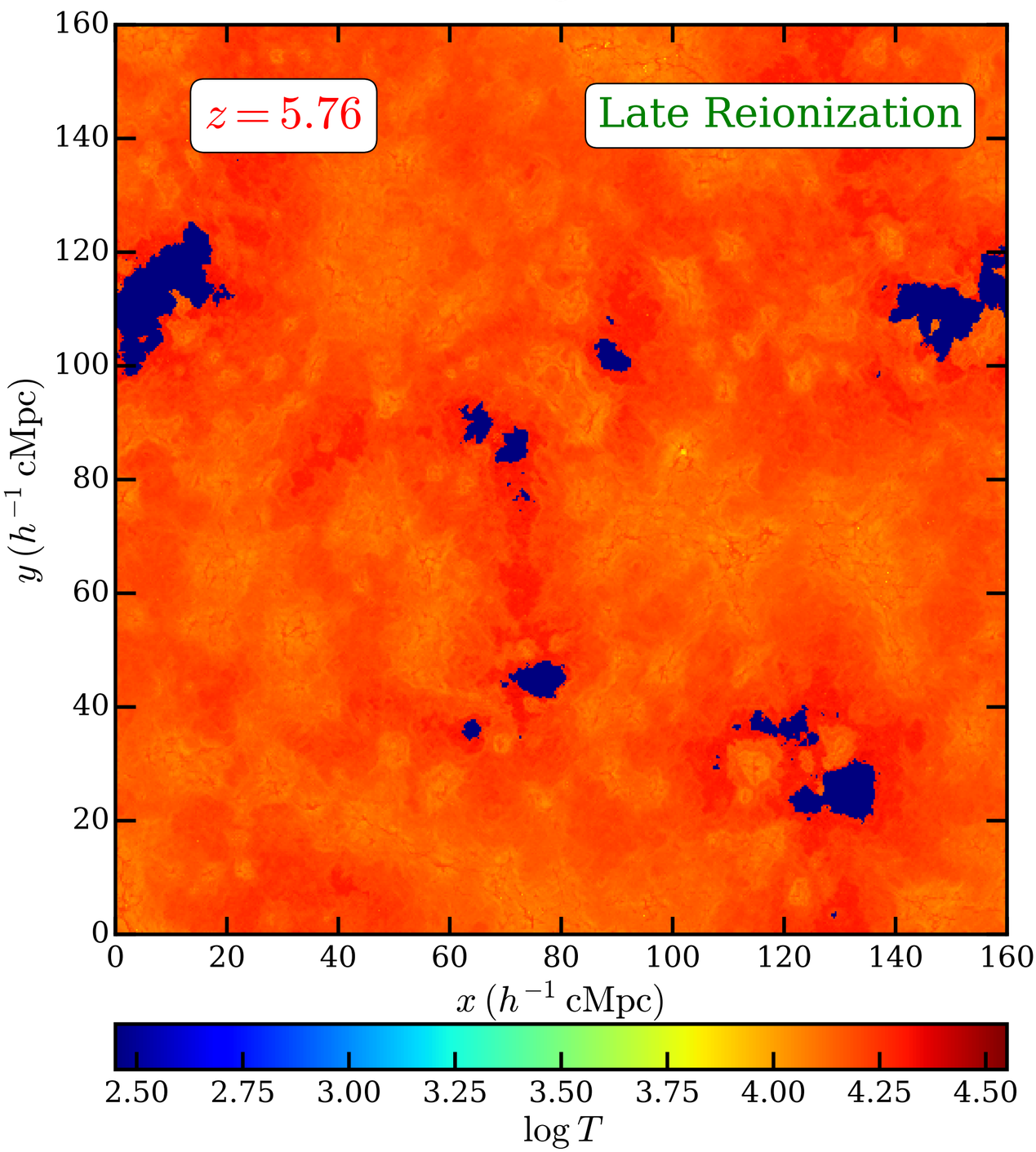

$z = 5.95$
Early Reionization
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

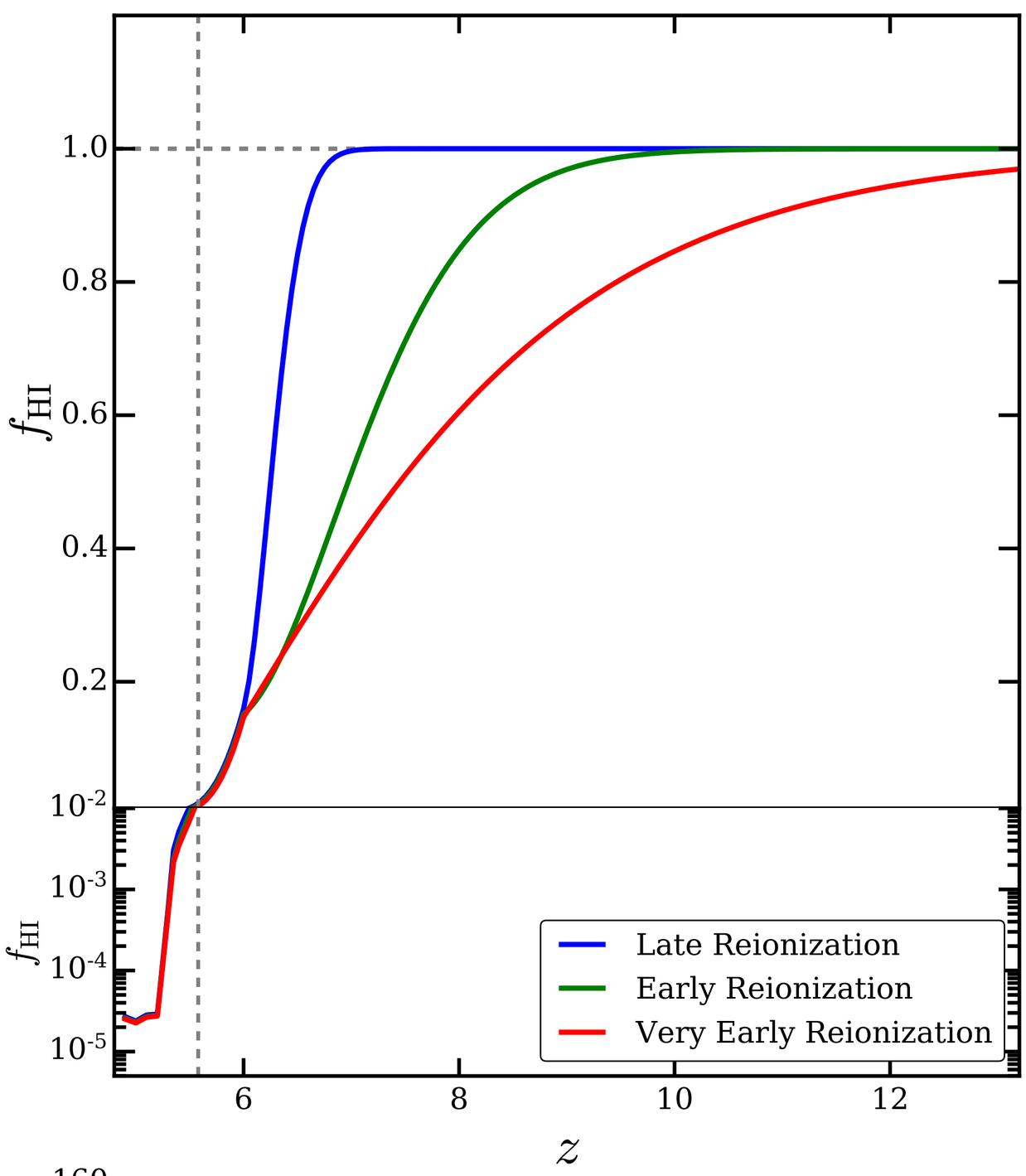

$z = 5.95$
Late Reionization
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

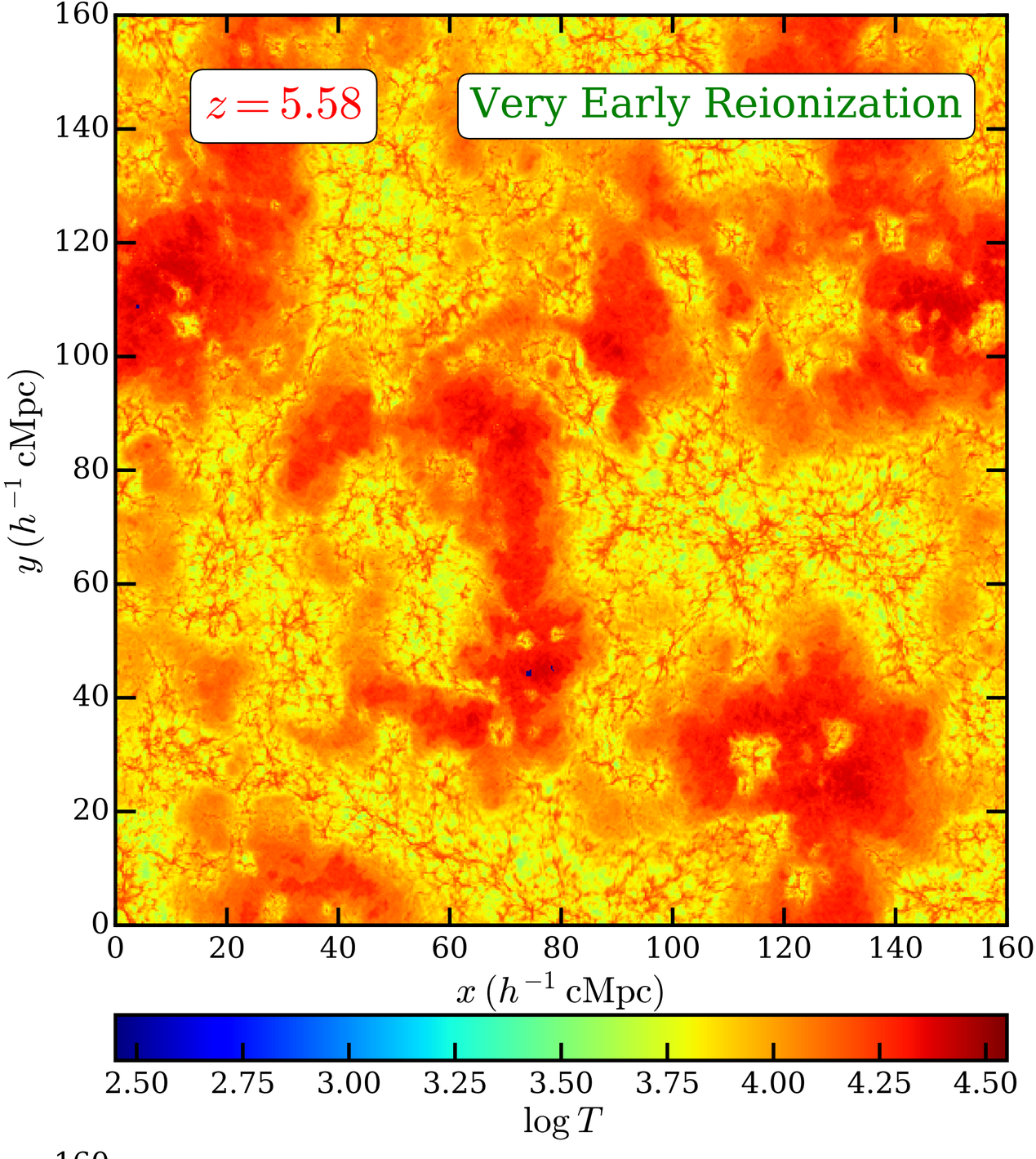

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

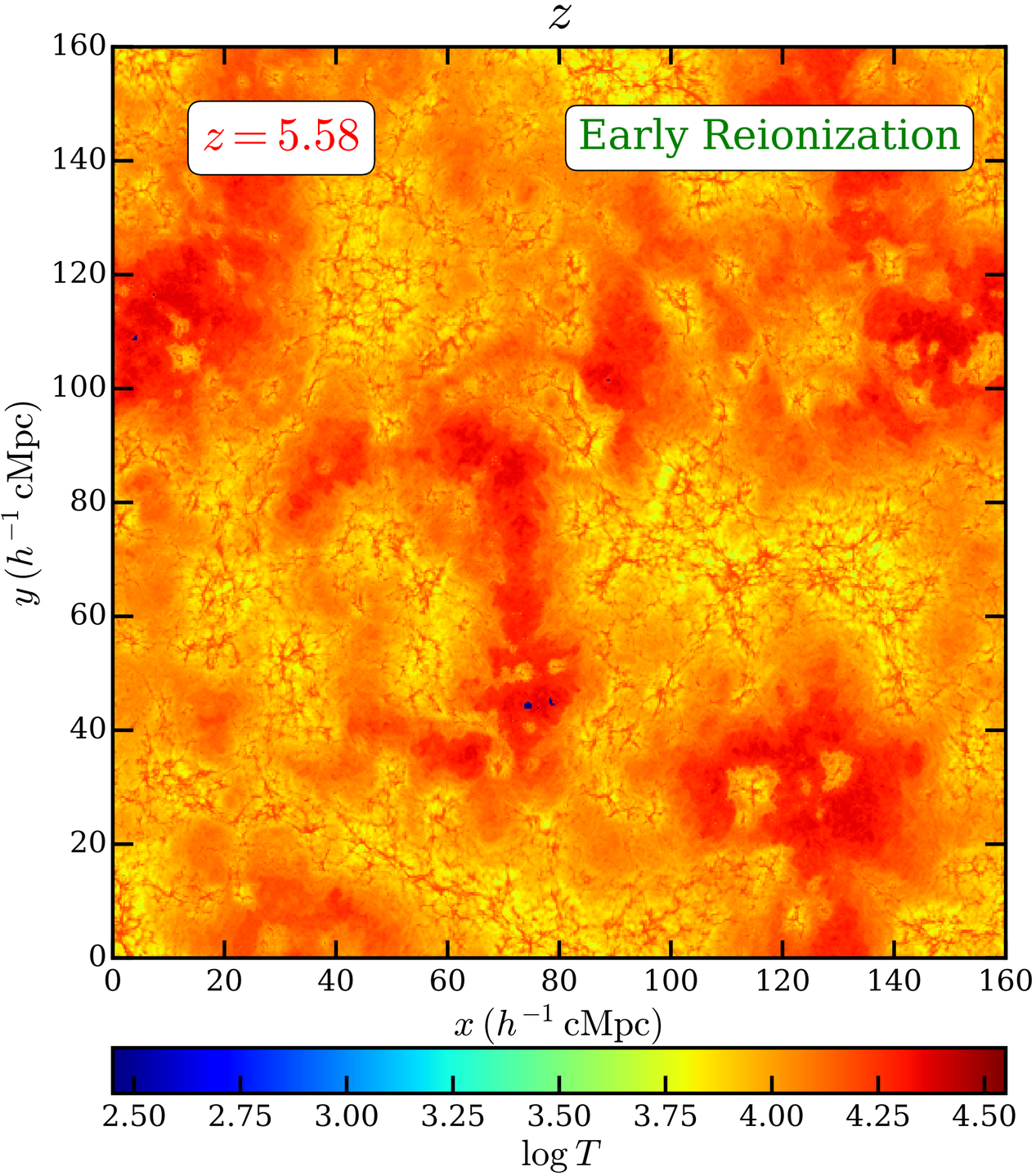

$z = 5.76$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
$\log T$

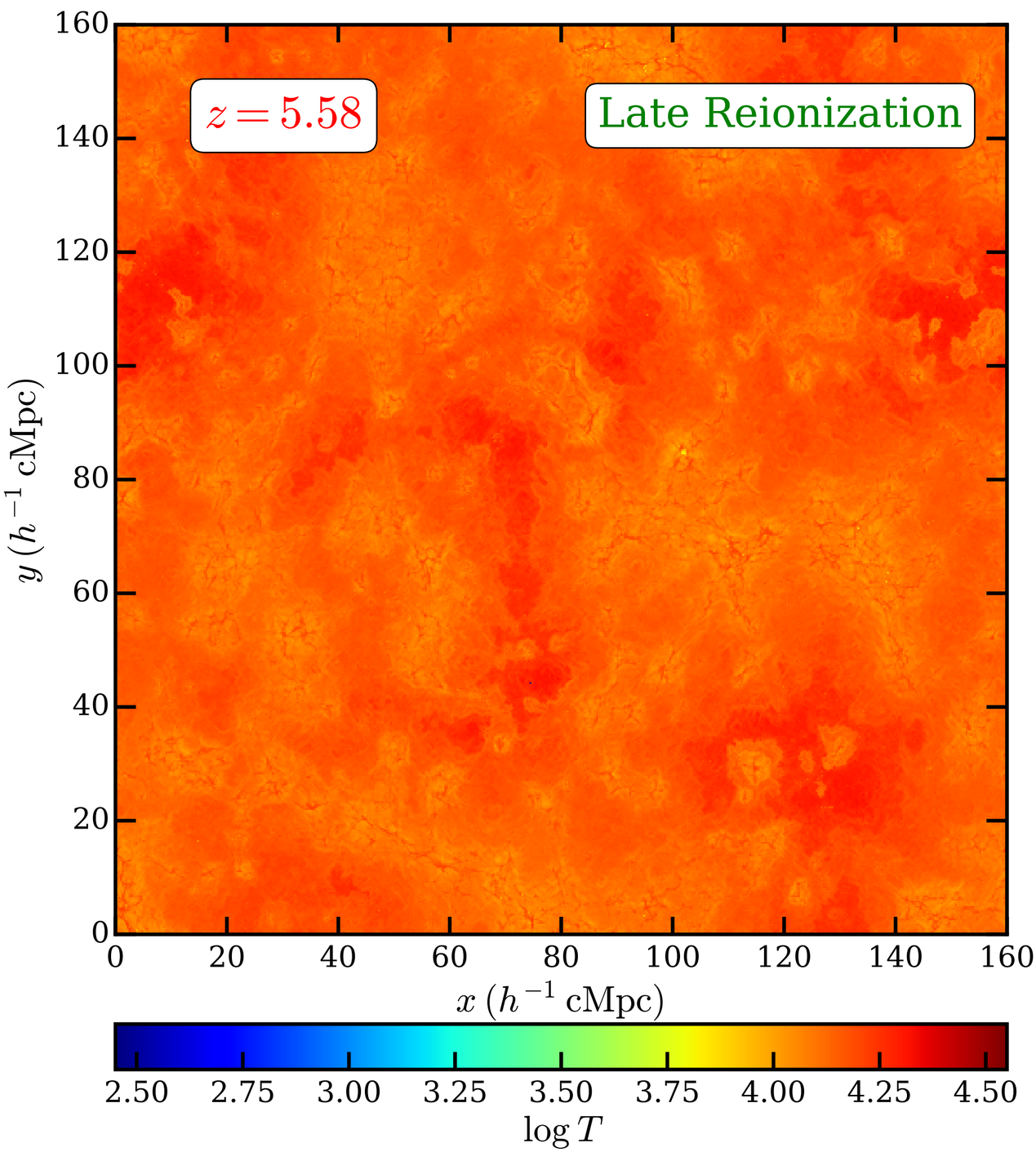

$z = 5.76$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
$\log T$

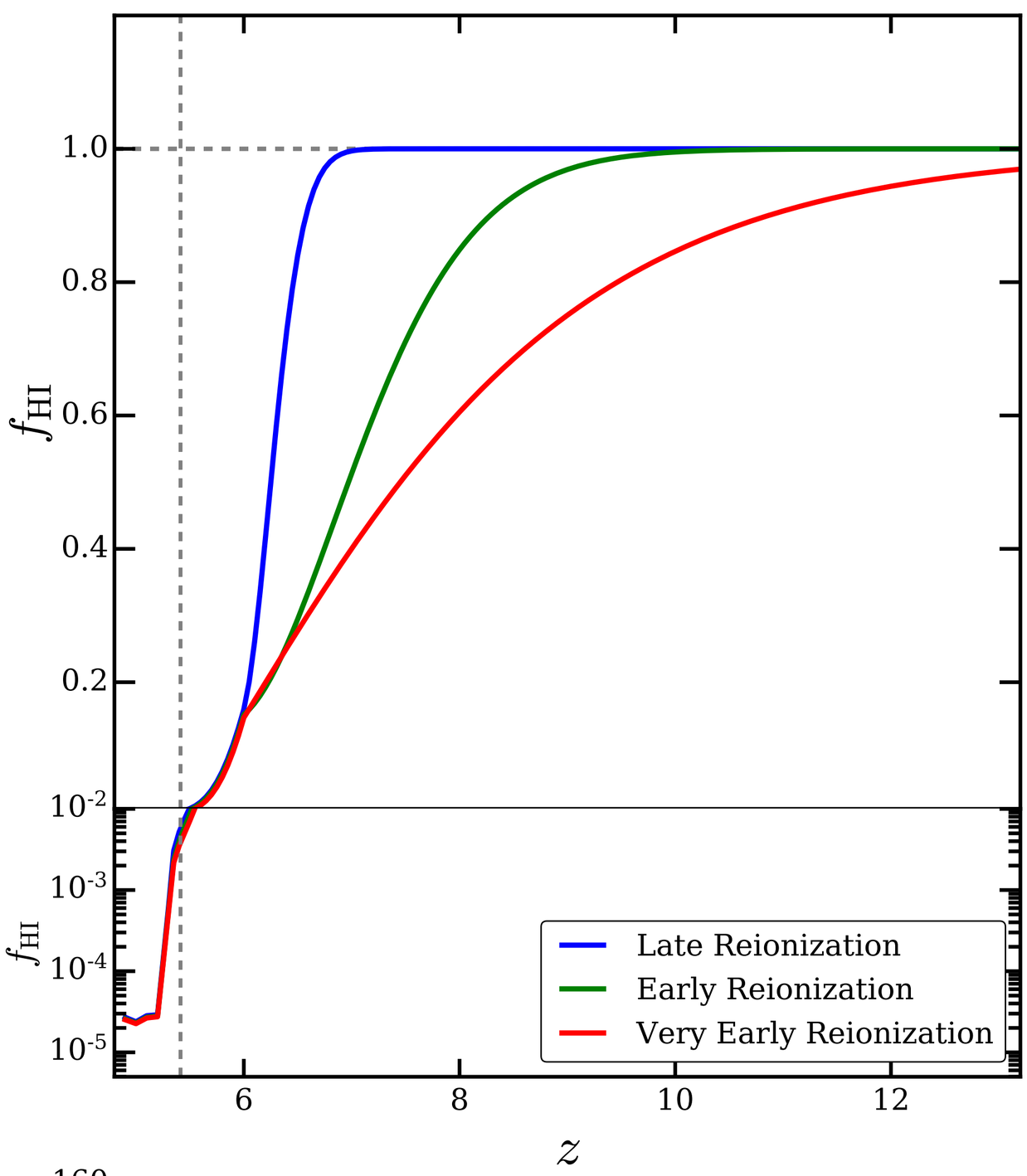

$z = 5.76$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
$\log T$

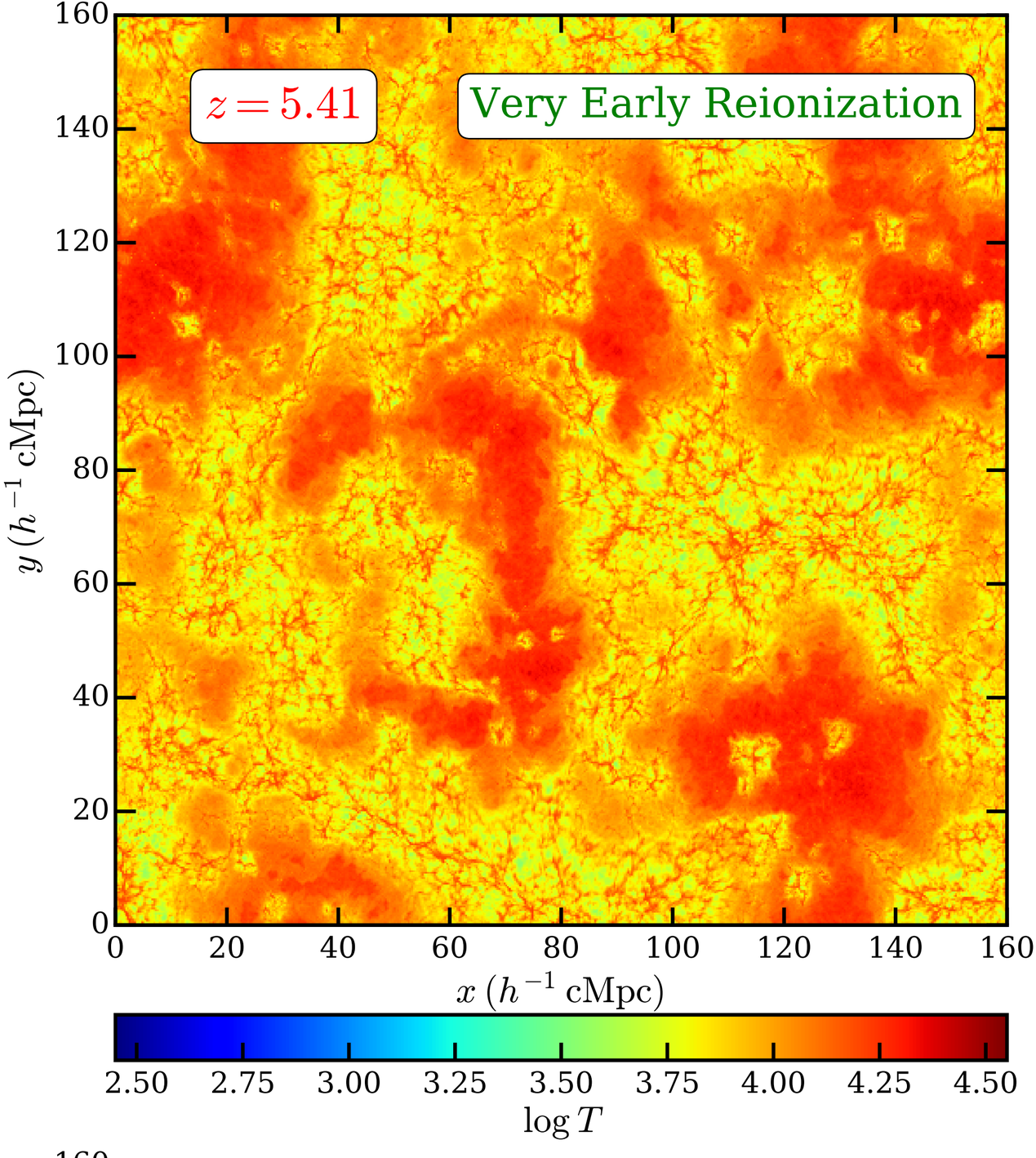

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

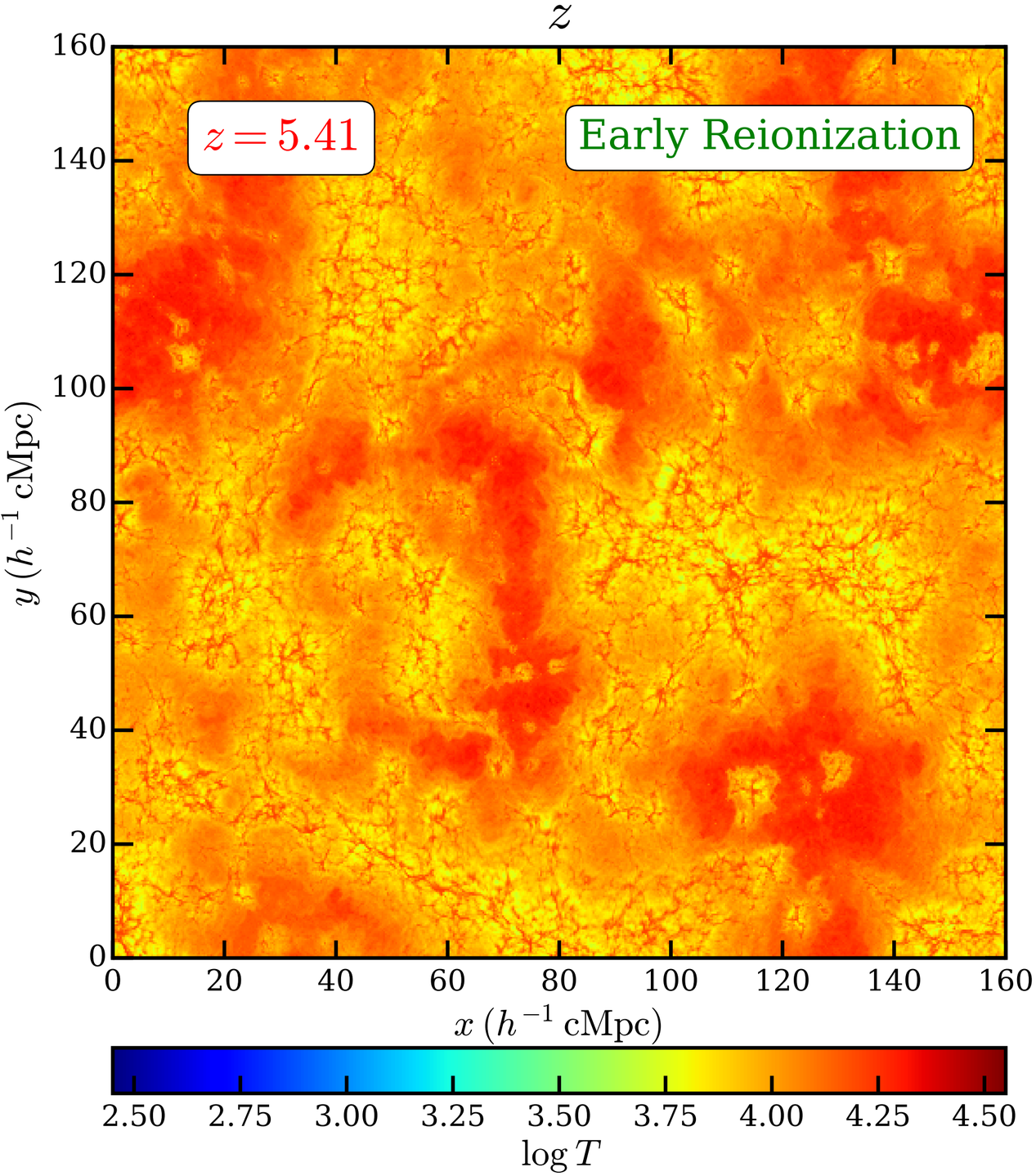

$z = 5.58$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

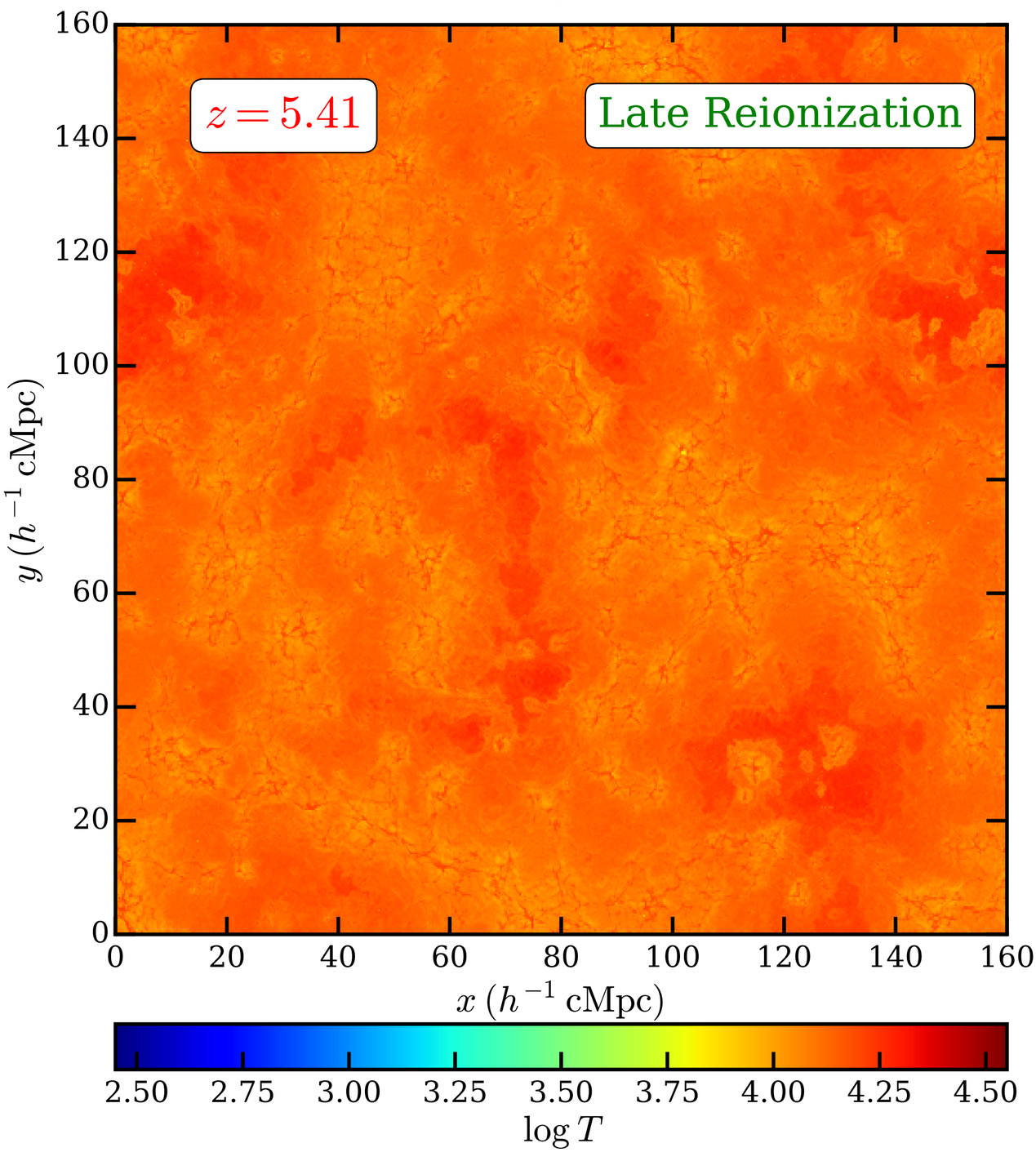

$z = 5.58$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

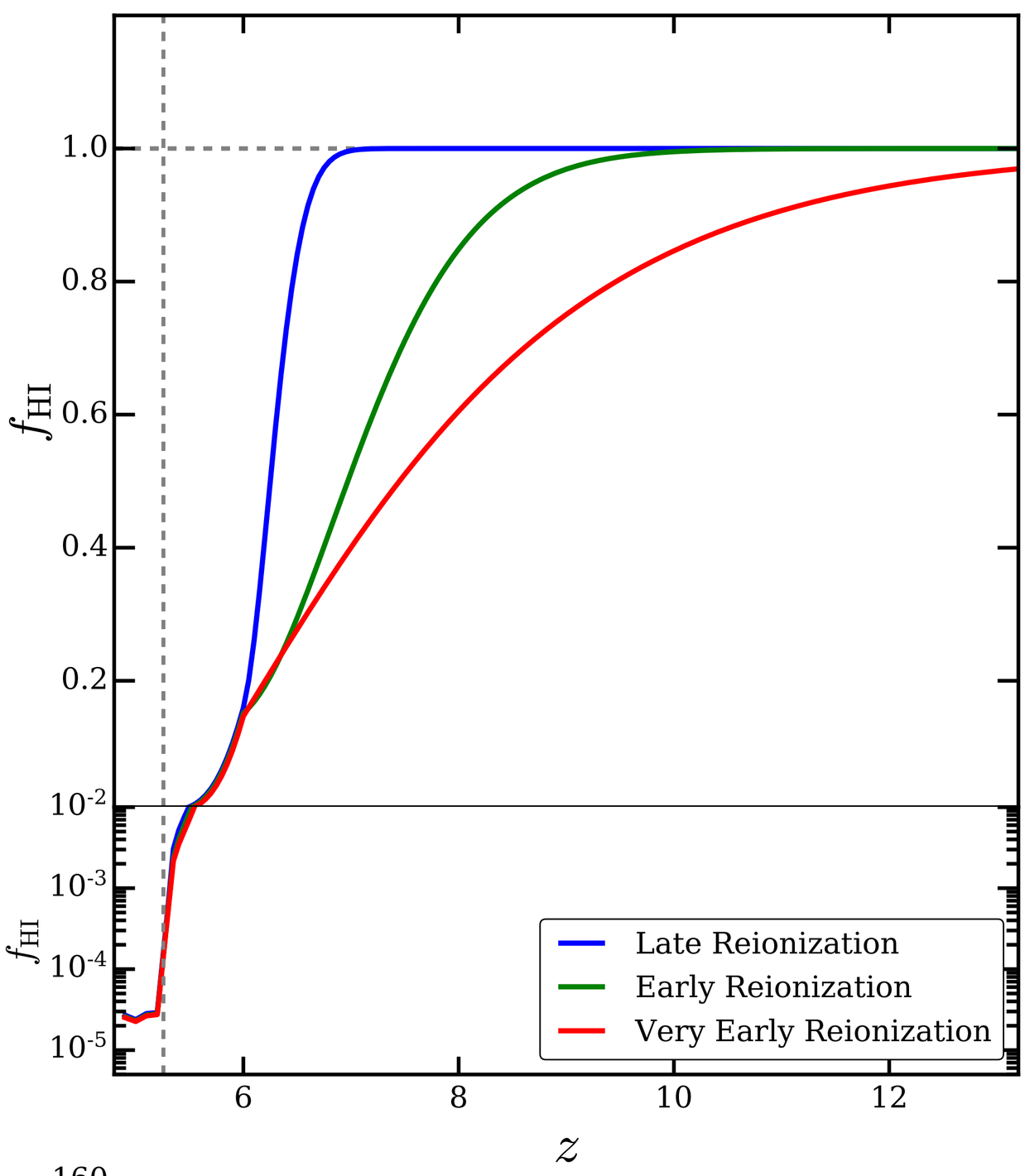

$z = 5.58$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

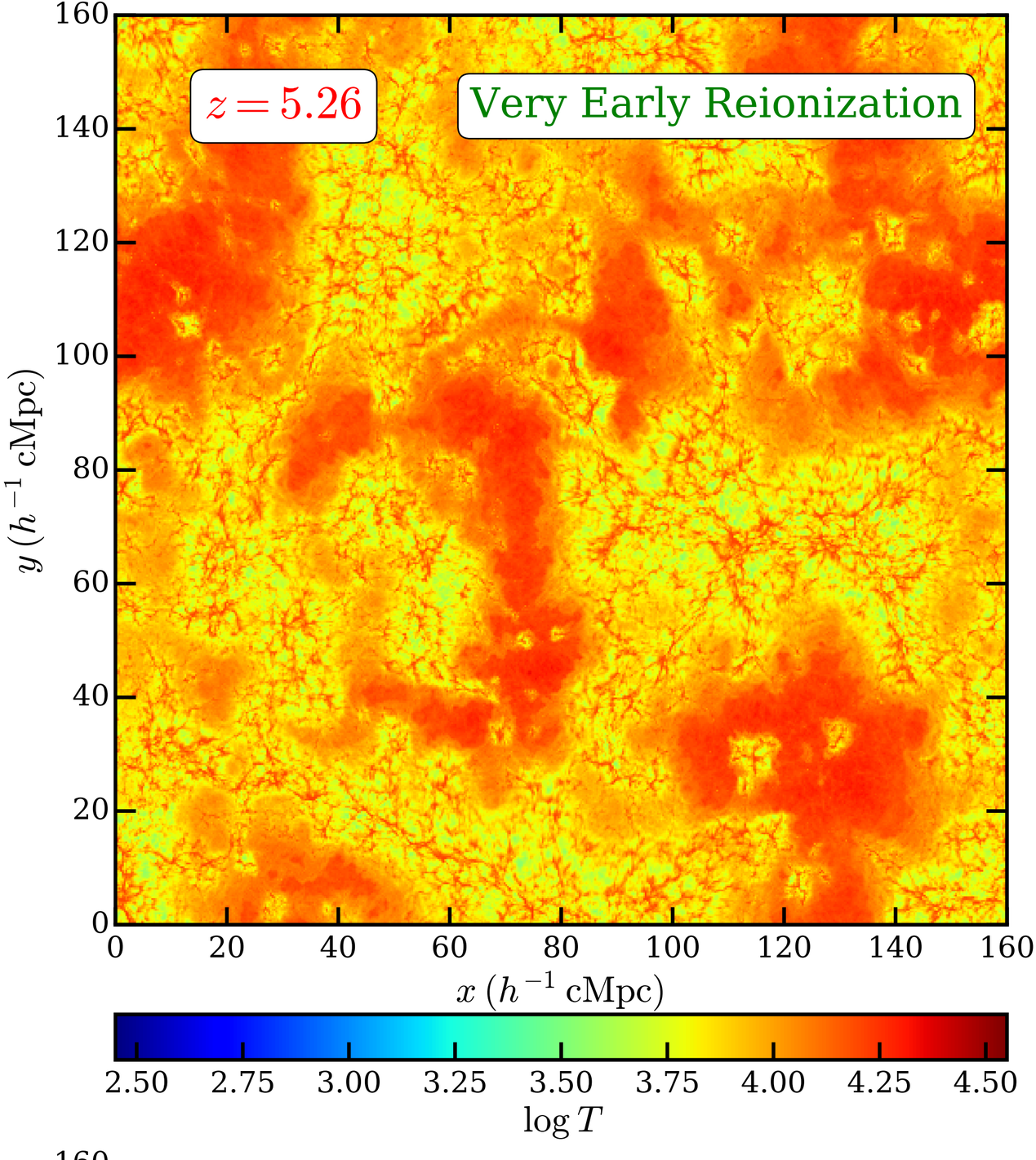

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

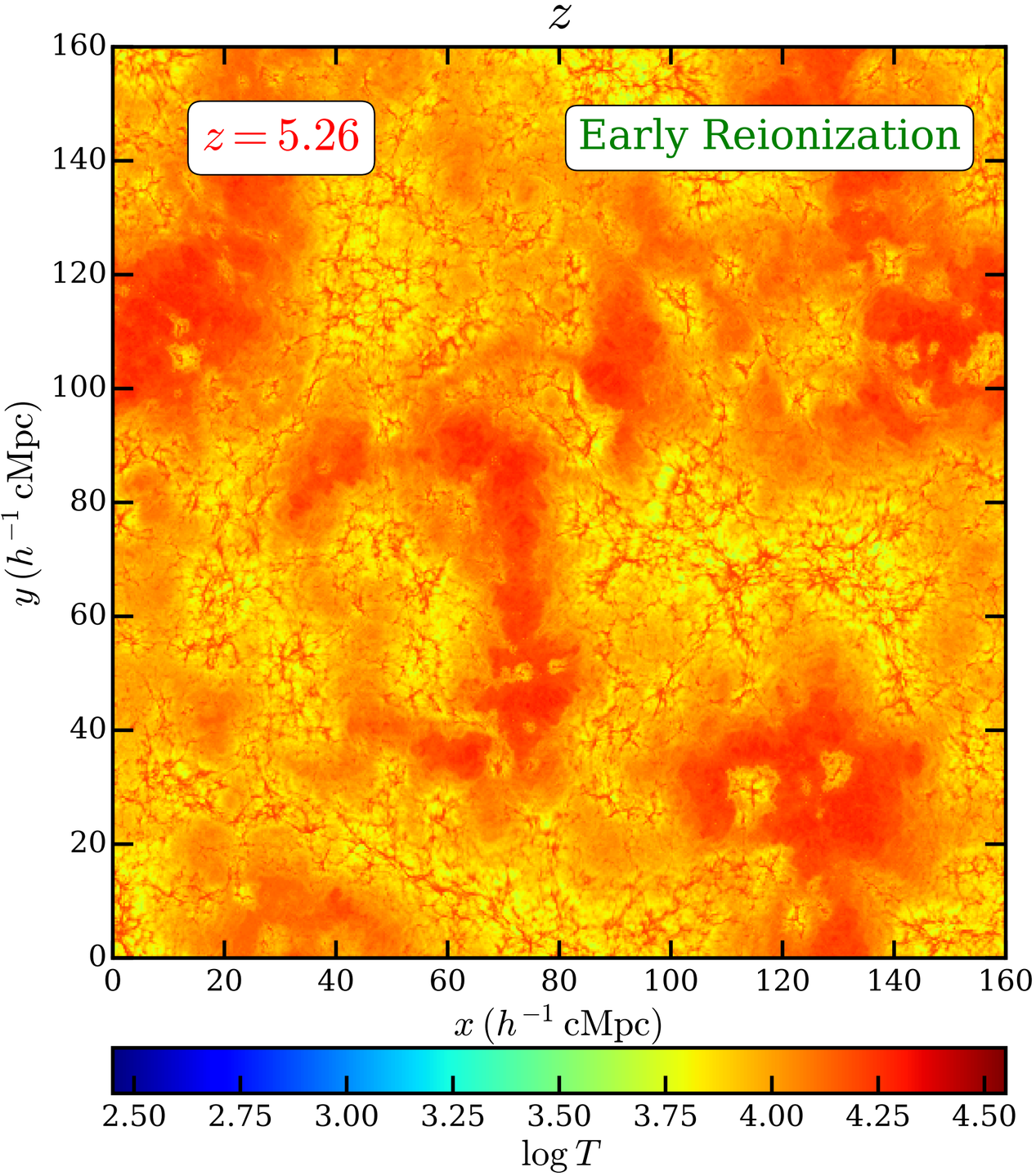

$z = 5.41$
Very Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

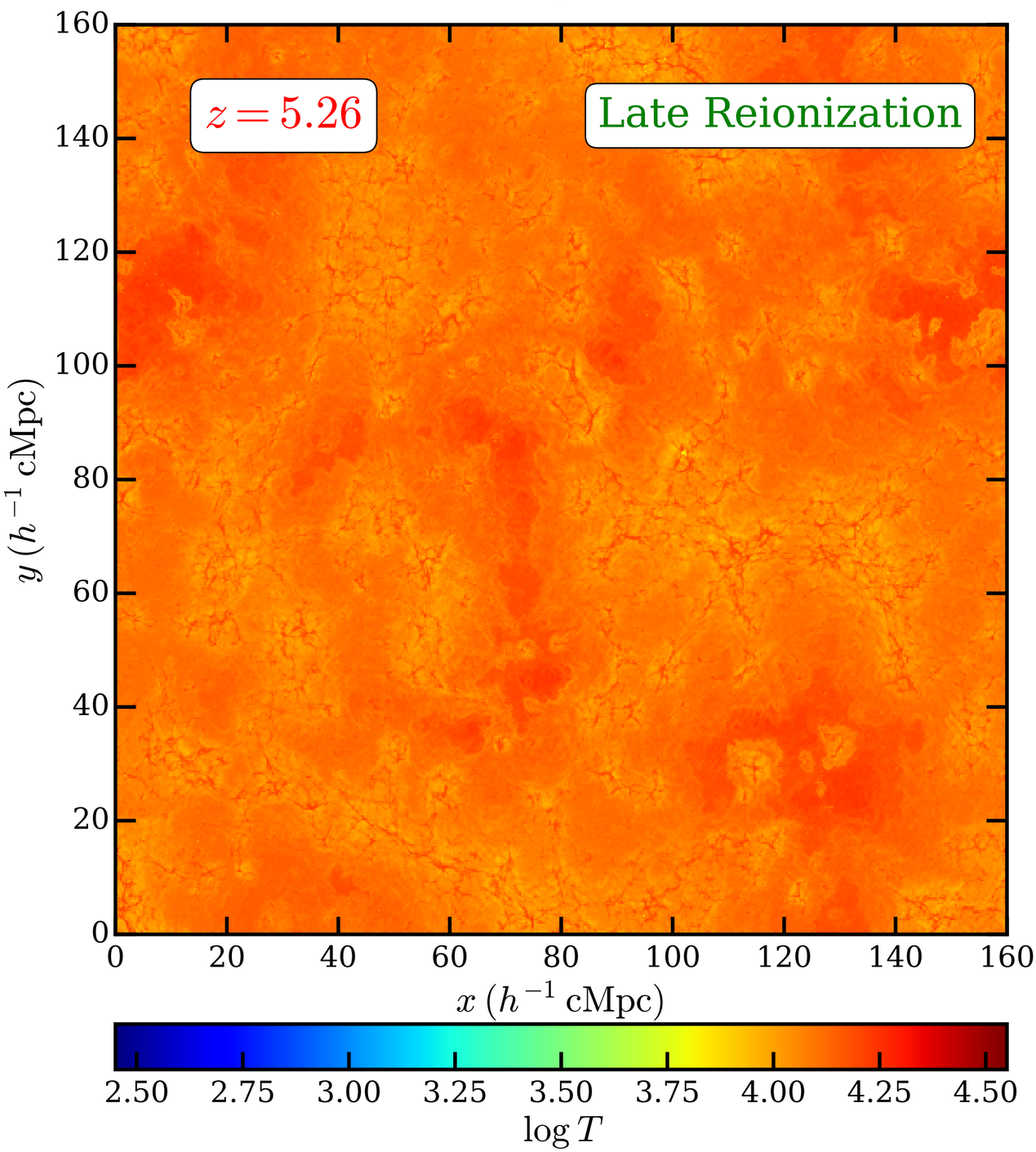

$z = 5.41$
Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

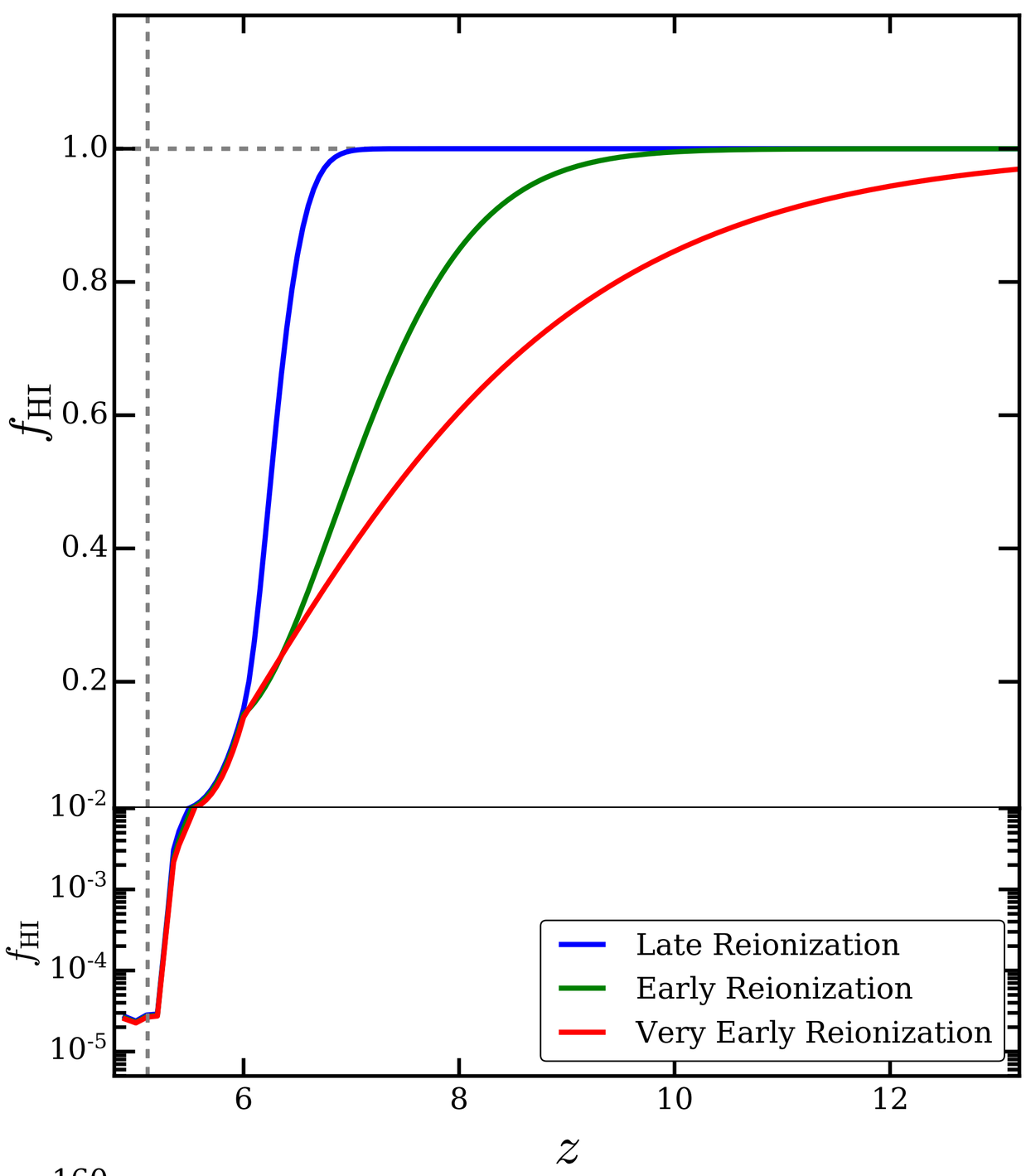

$z = 5.41$
Late Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

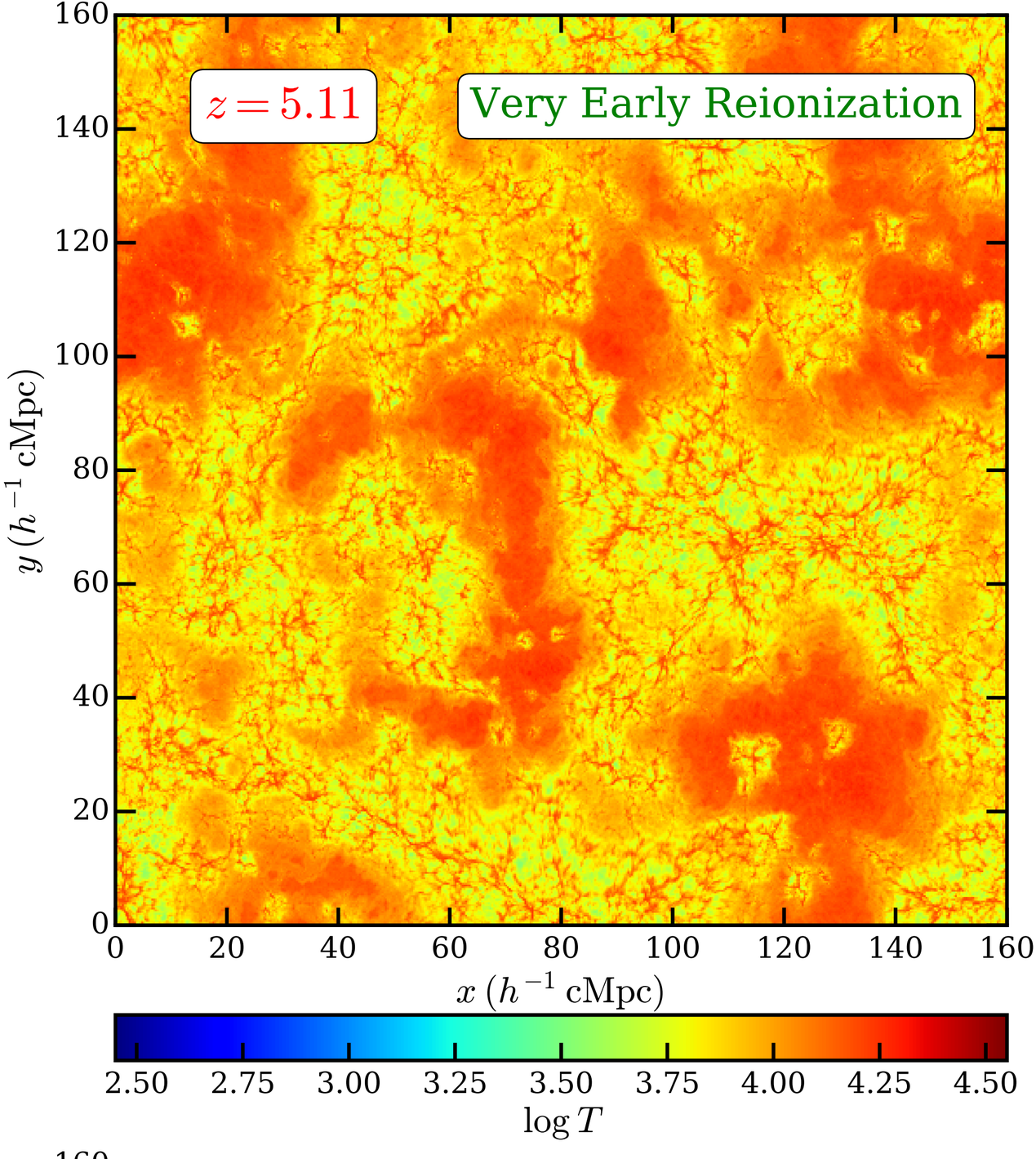

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

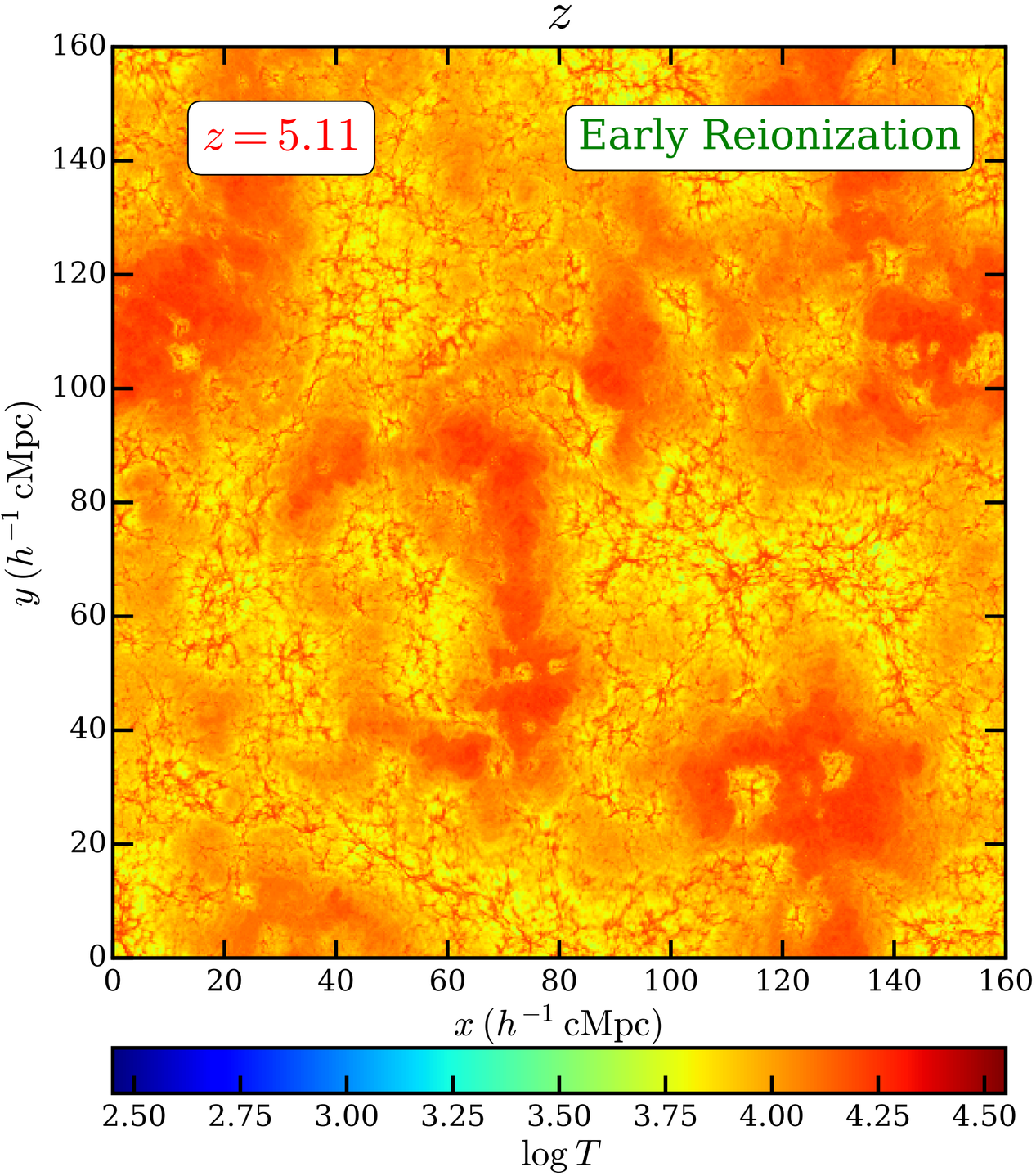

$z = 5.26$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

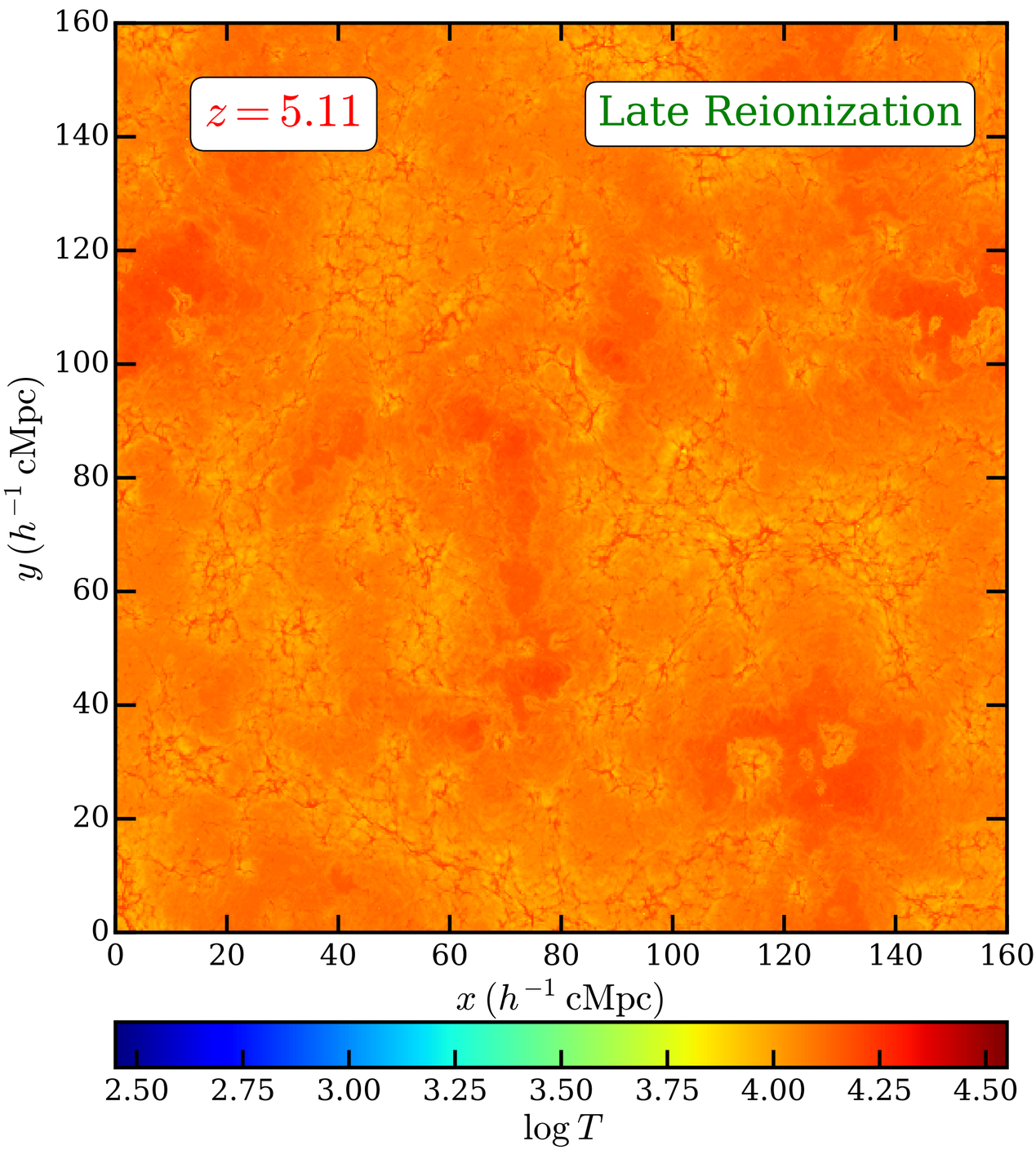

$z = 5.26$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

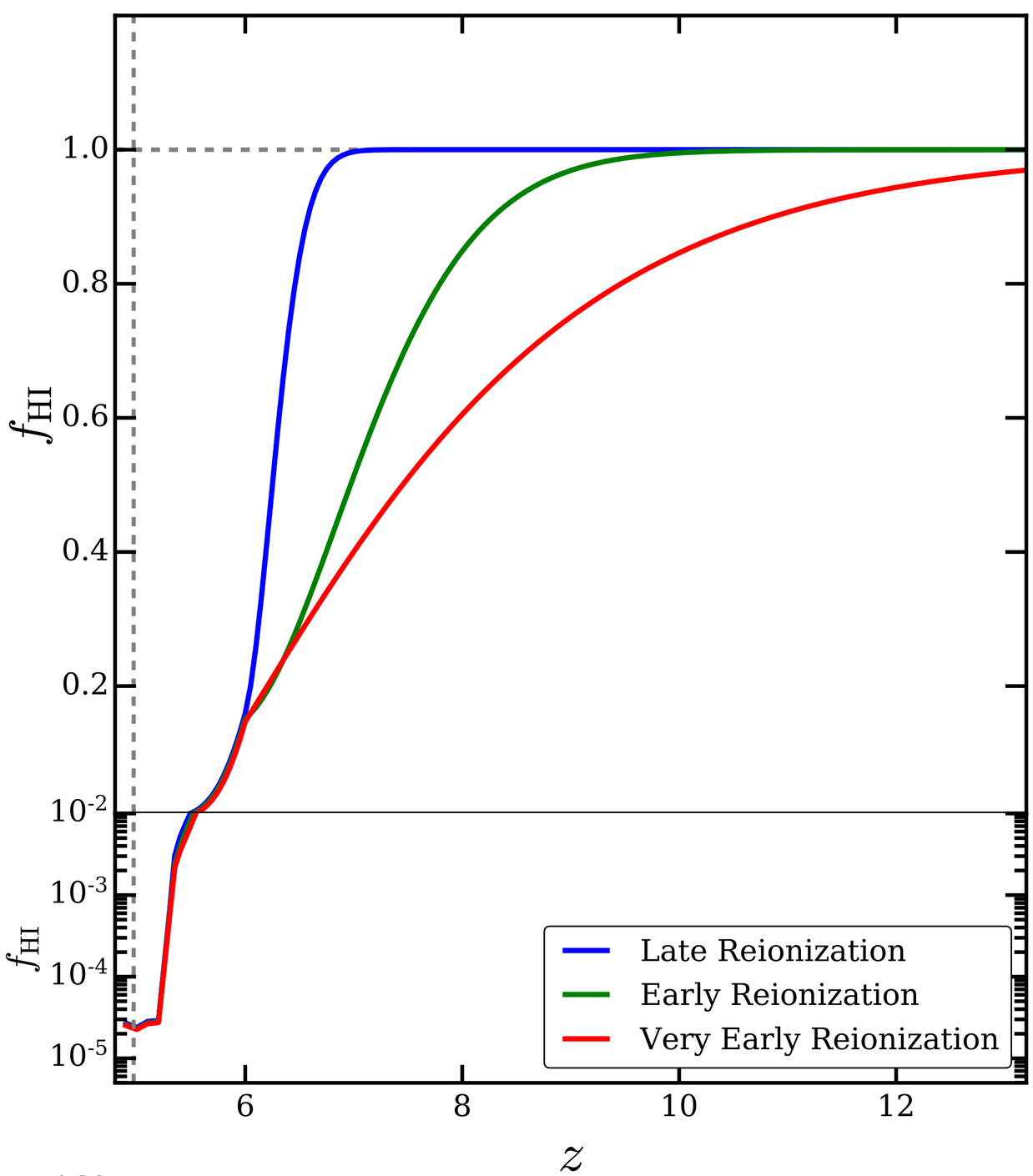

$z = 5.26$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

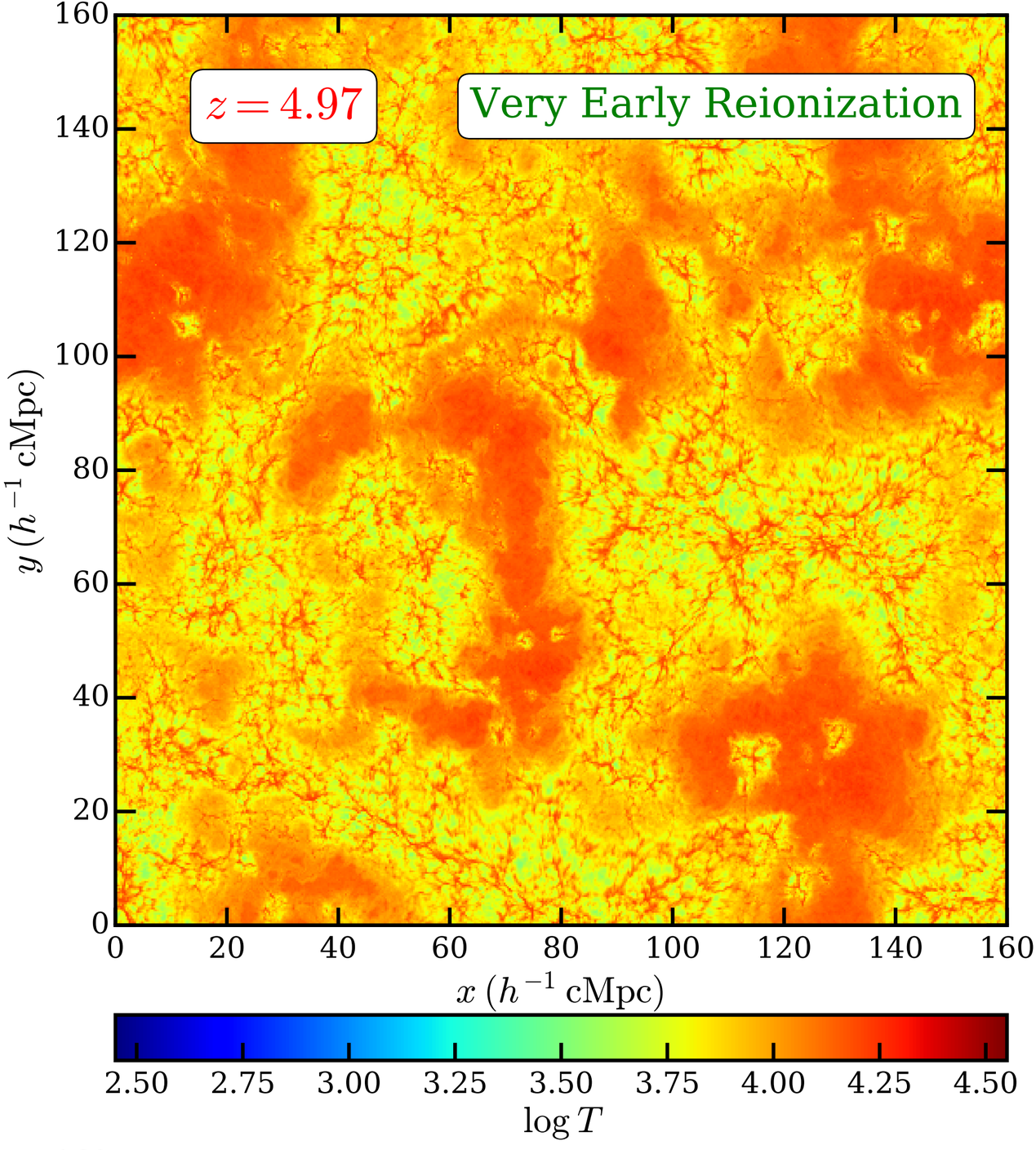

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

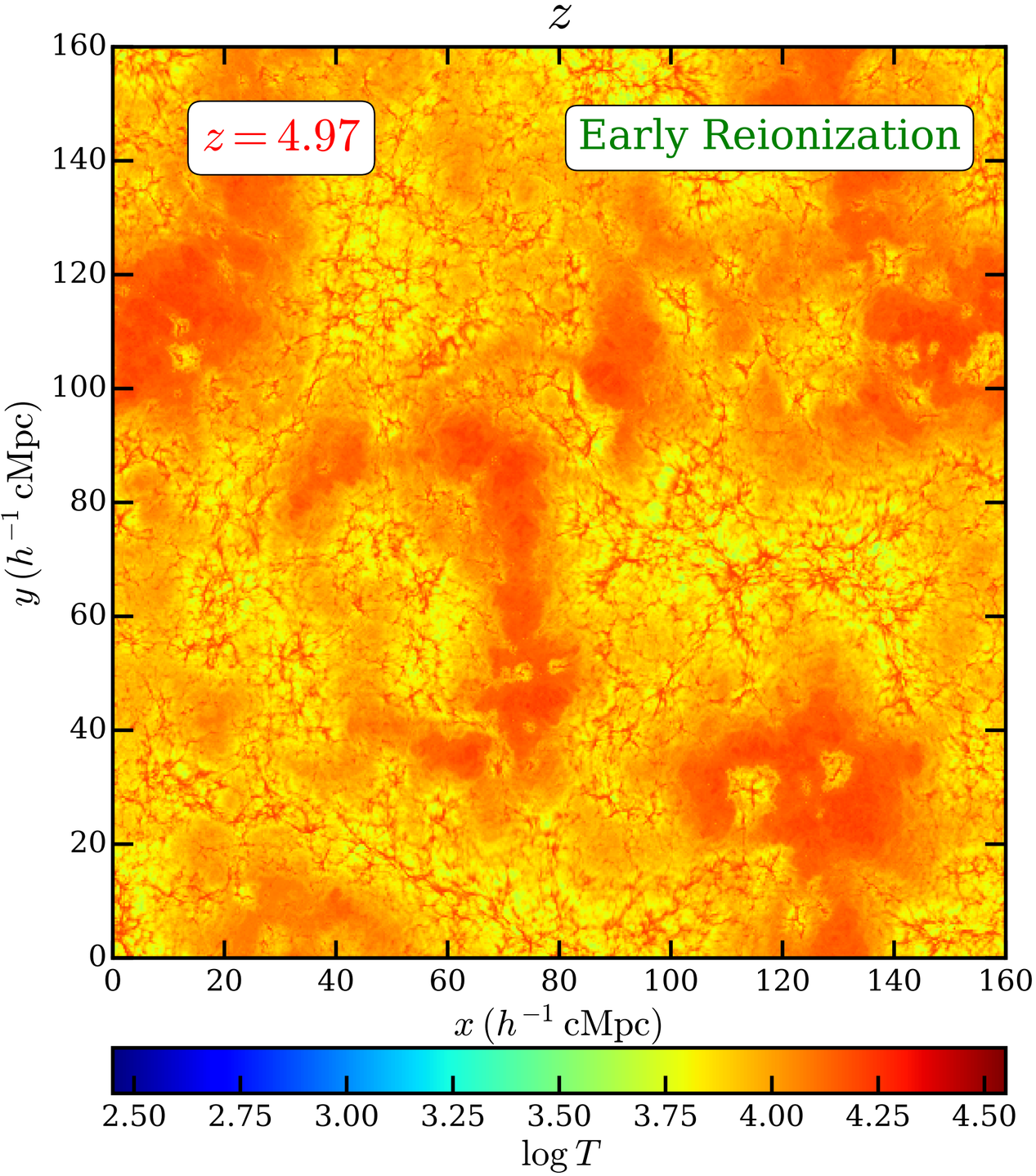

$z = 5.11$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

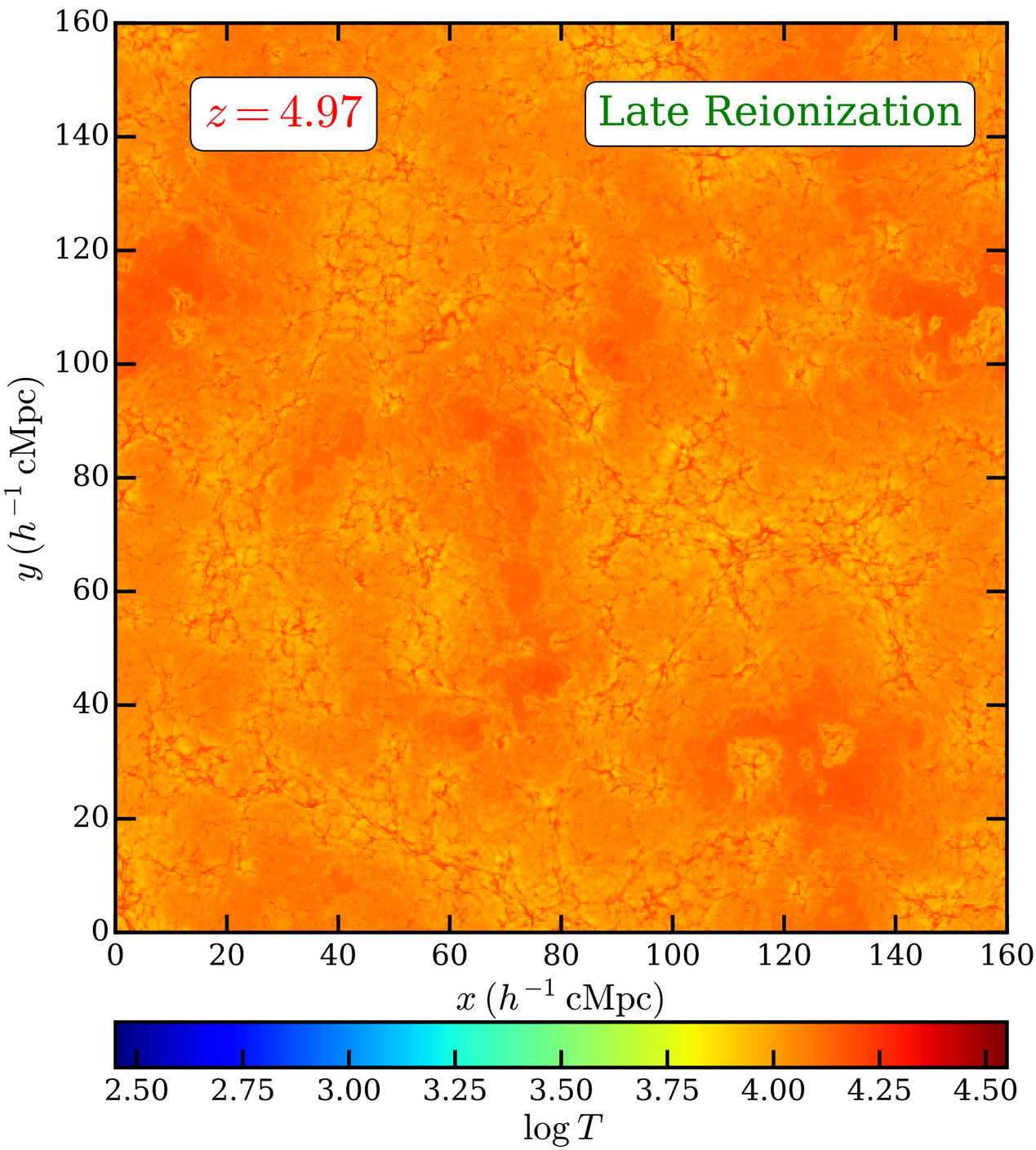

$z = 5.11$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

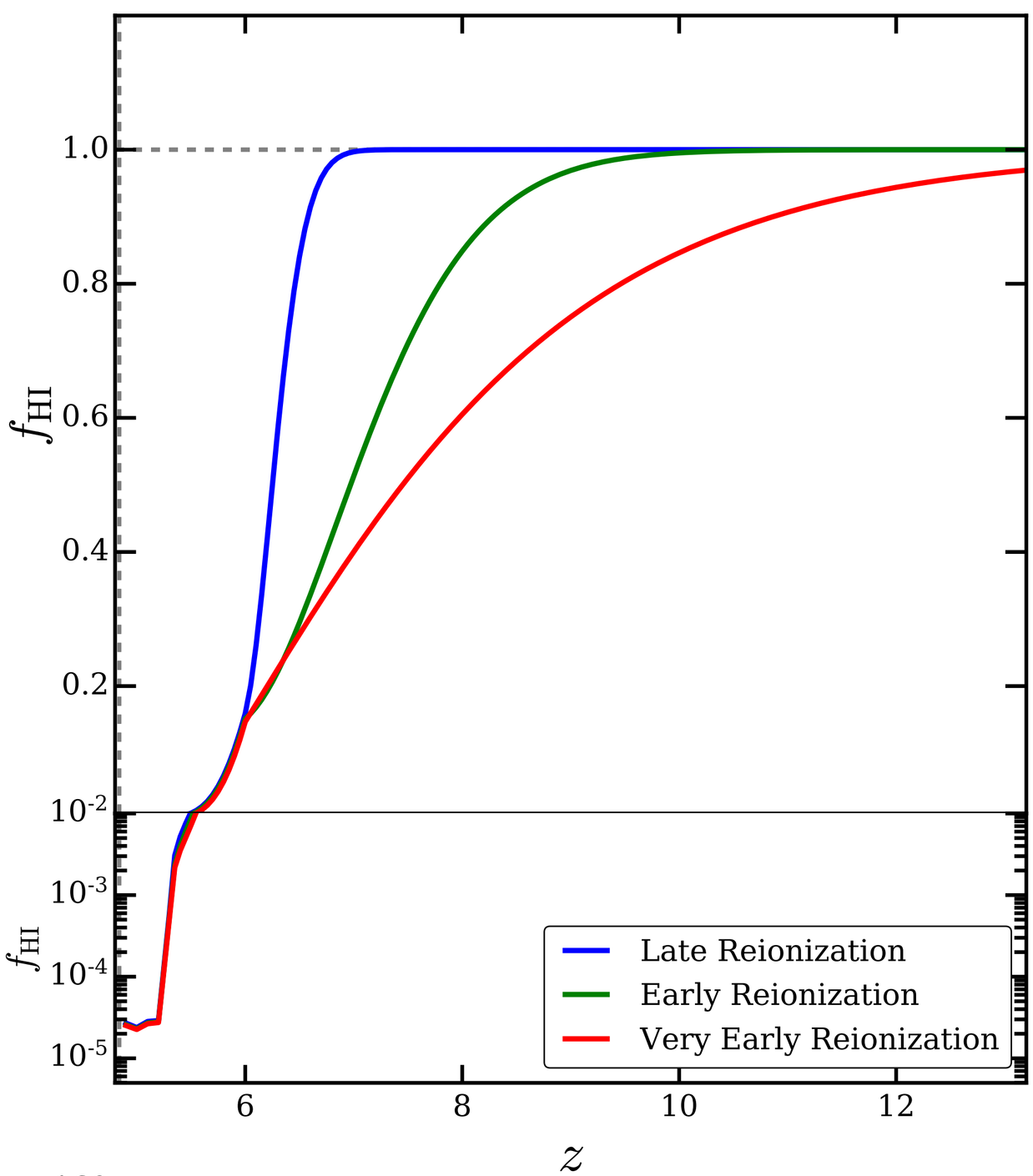

$z = 5.11$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

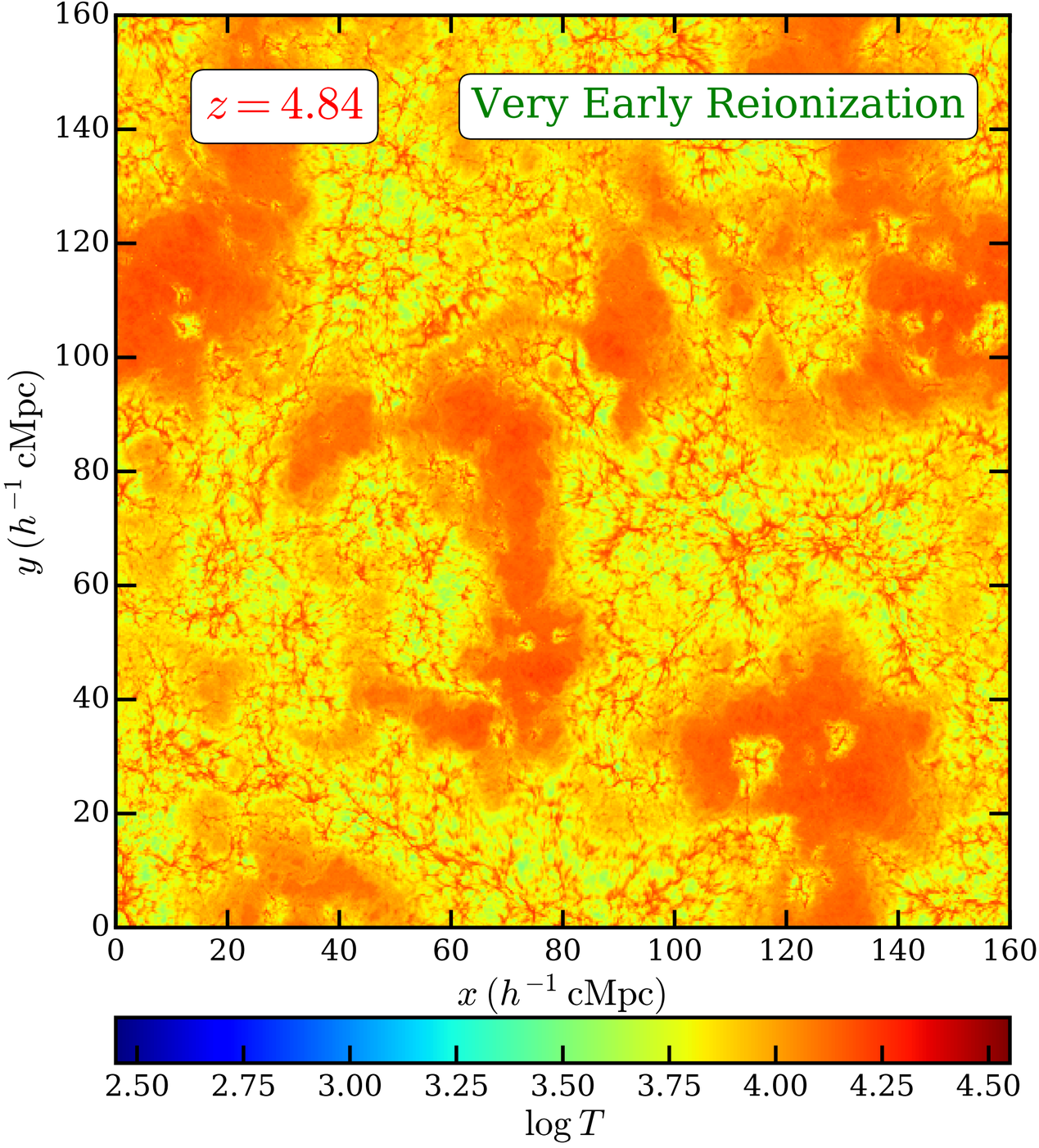

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

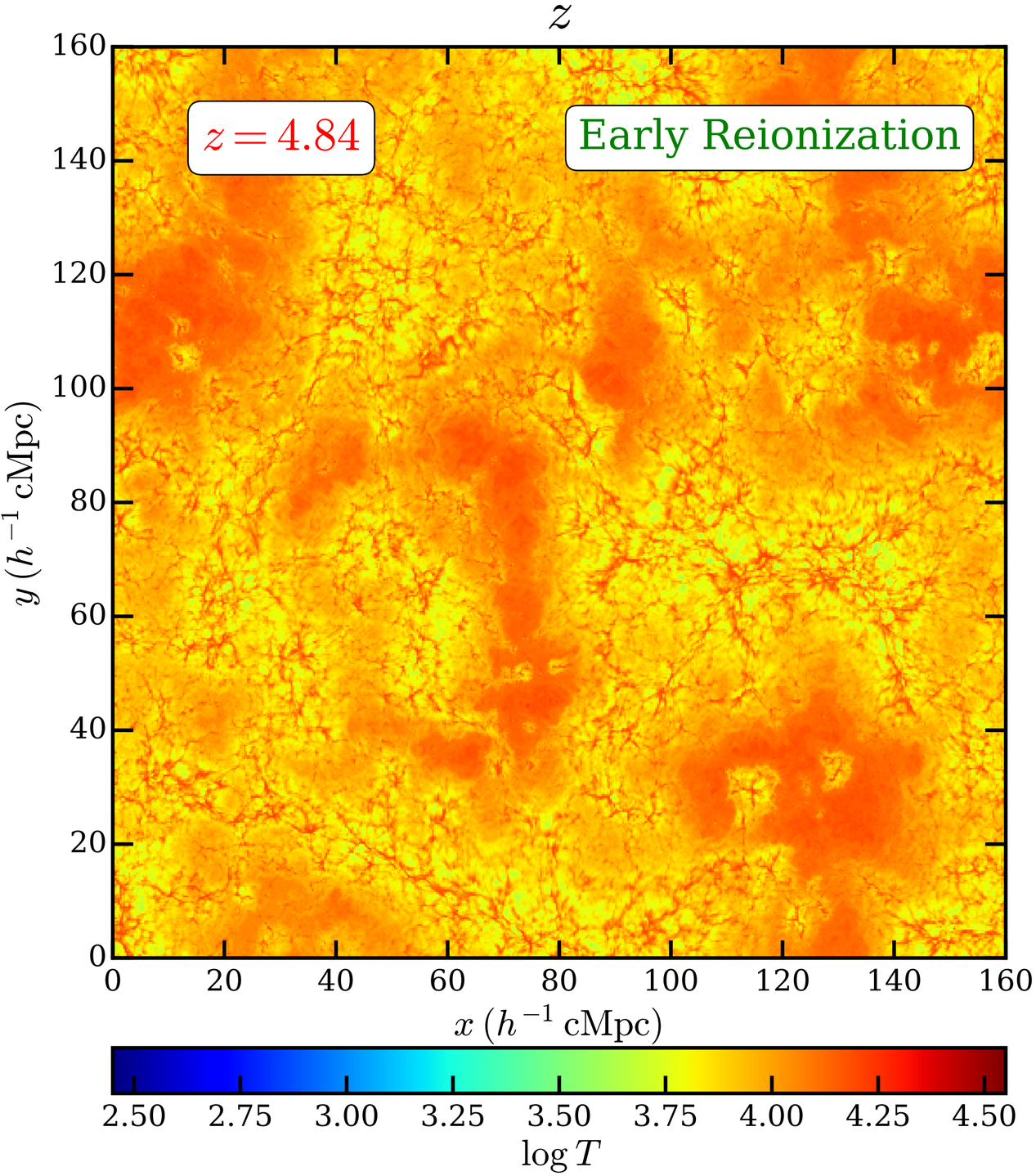

$z = 4.97$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

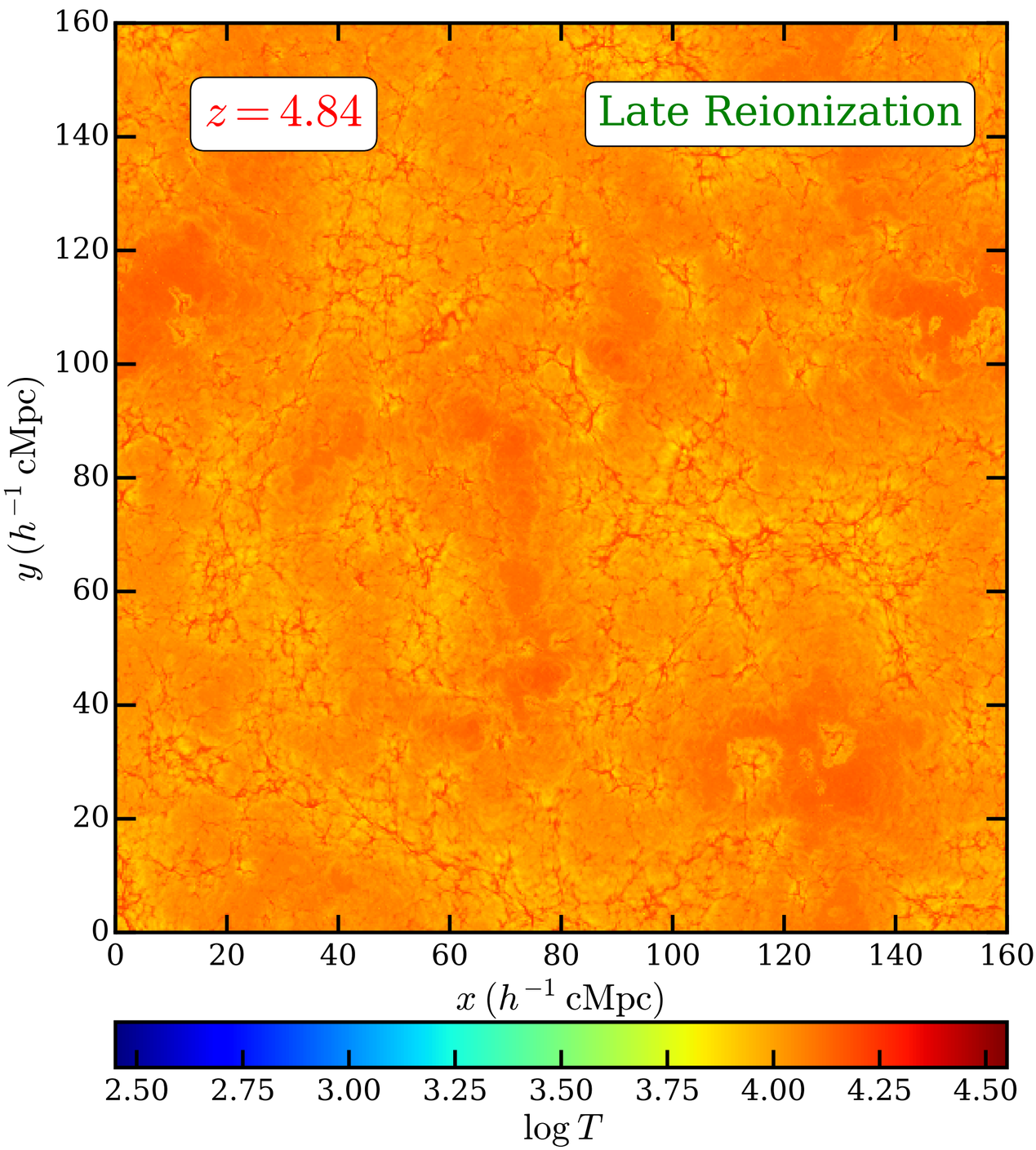

$z = 4.97$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

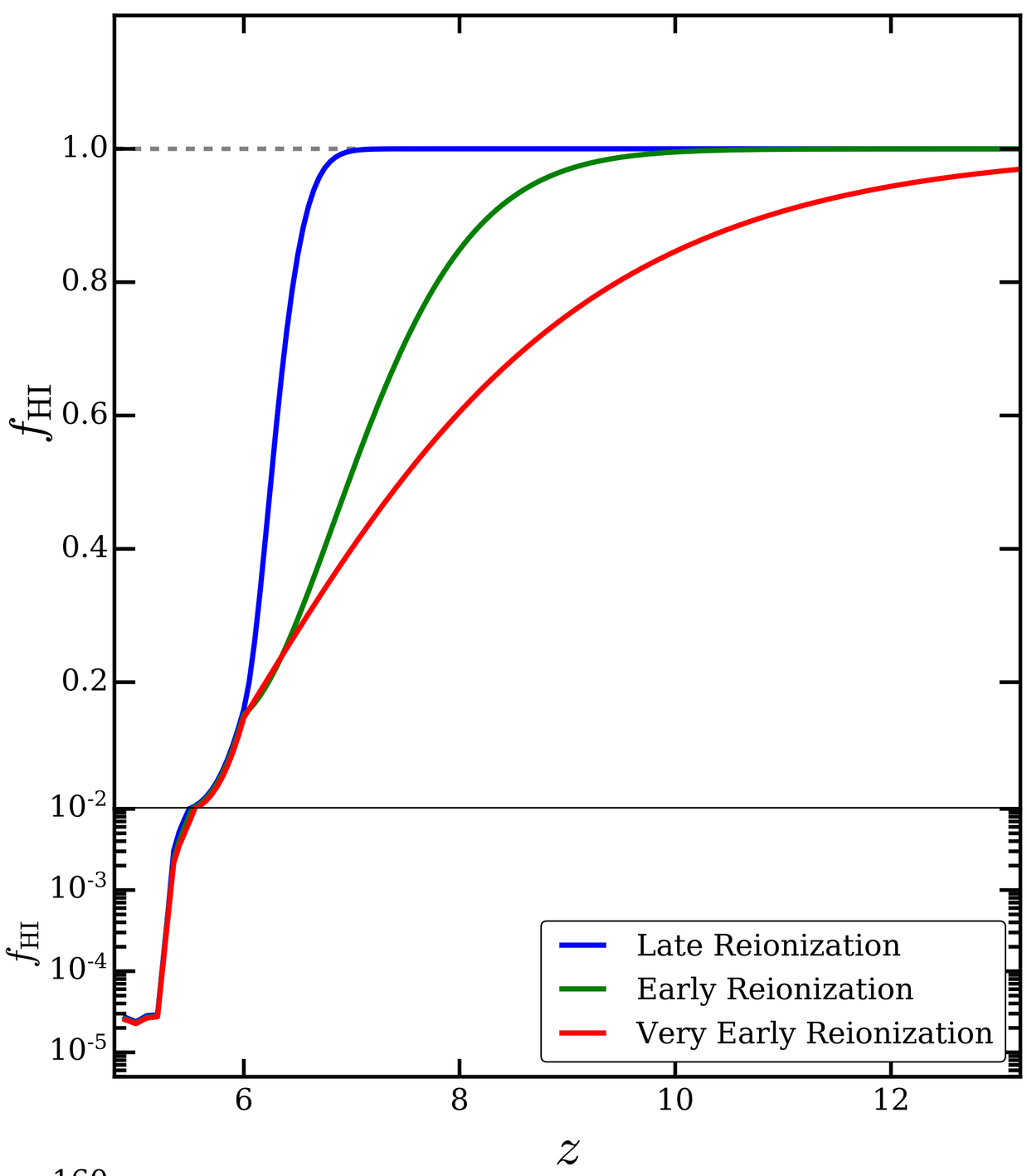

$z = 4.97$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

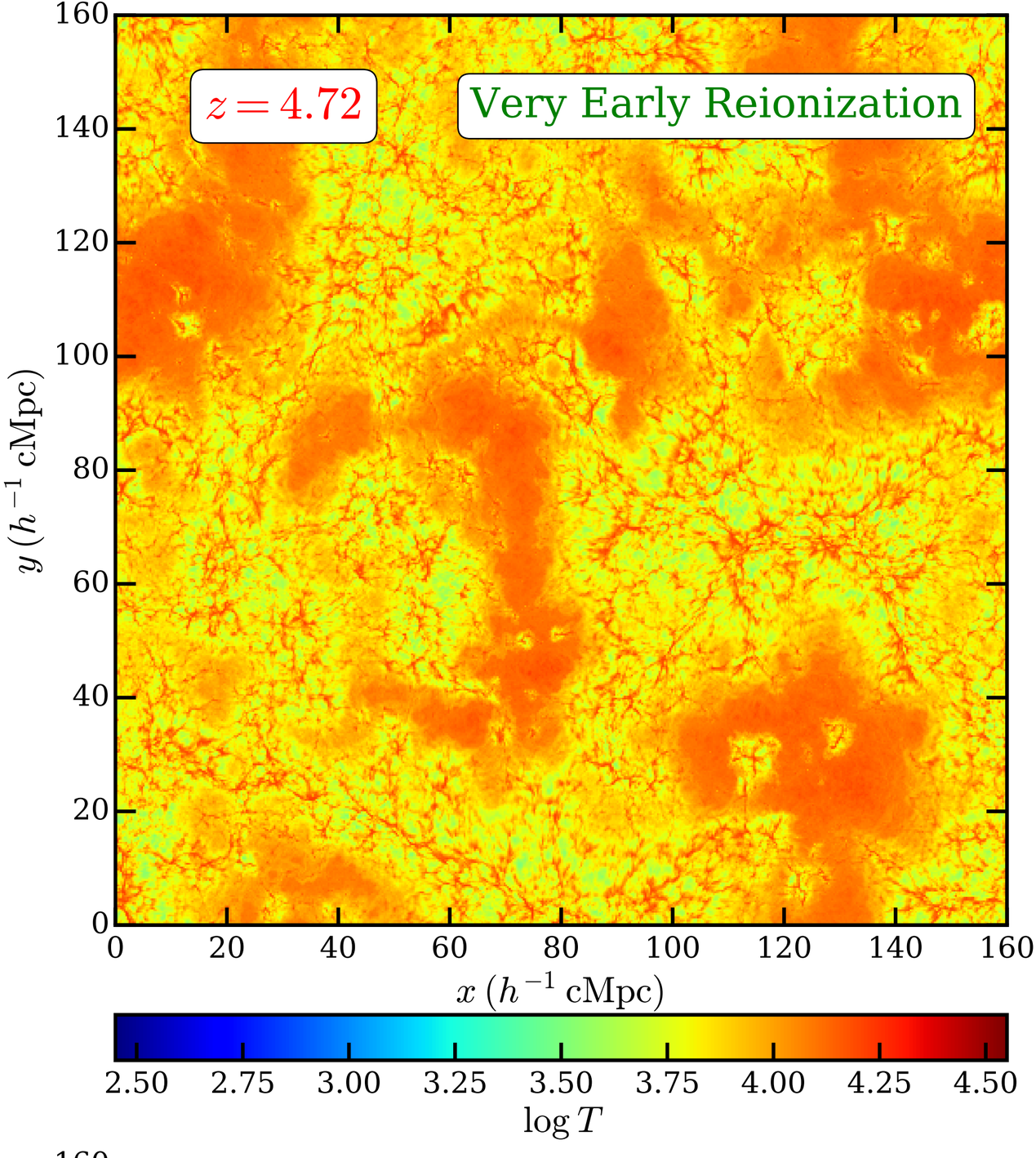

$f_{\rm HI}$
1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

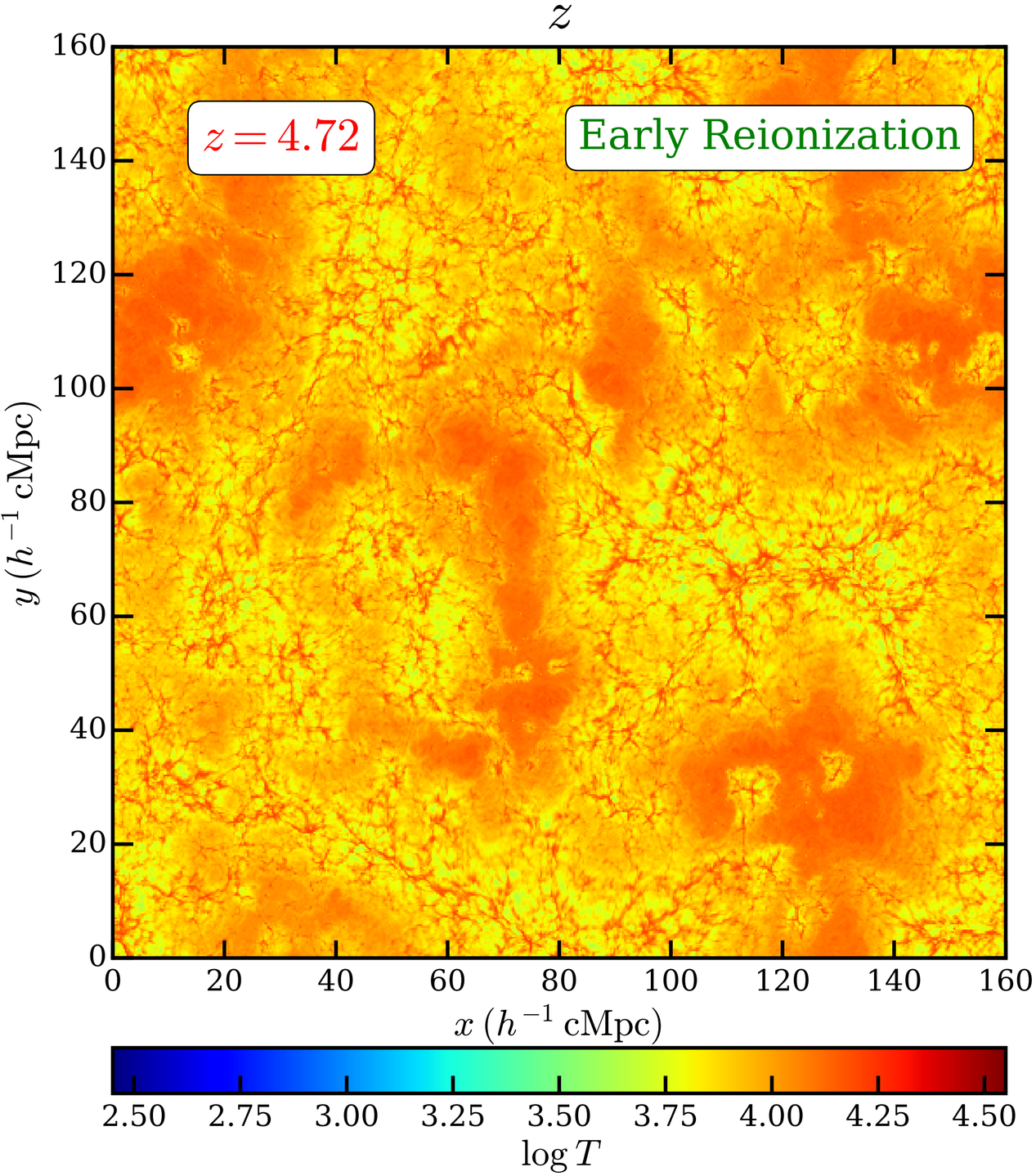

$z = 4.84$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

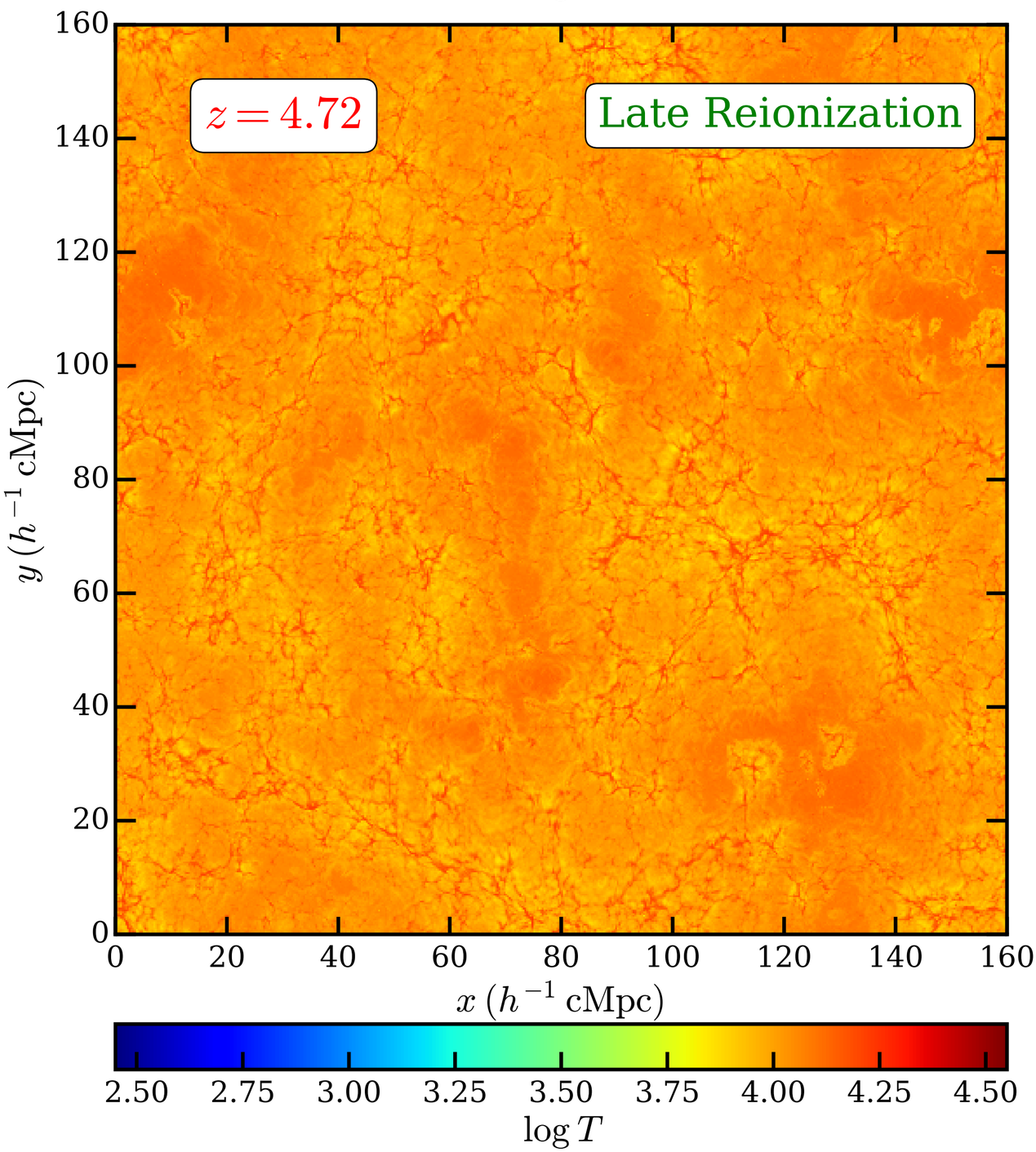

$z = 4.84$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

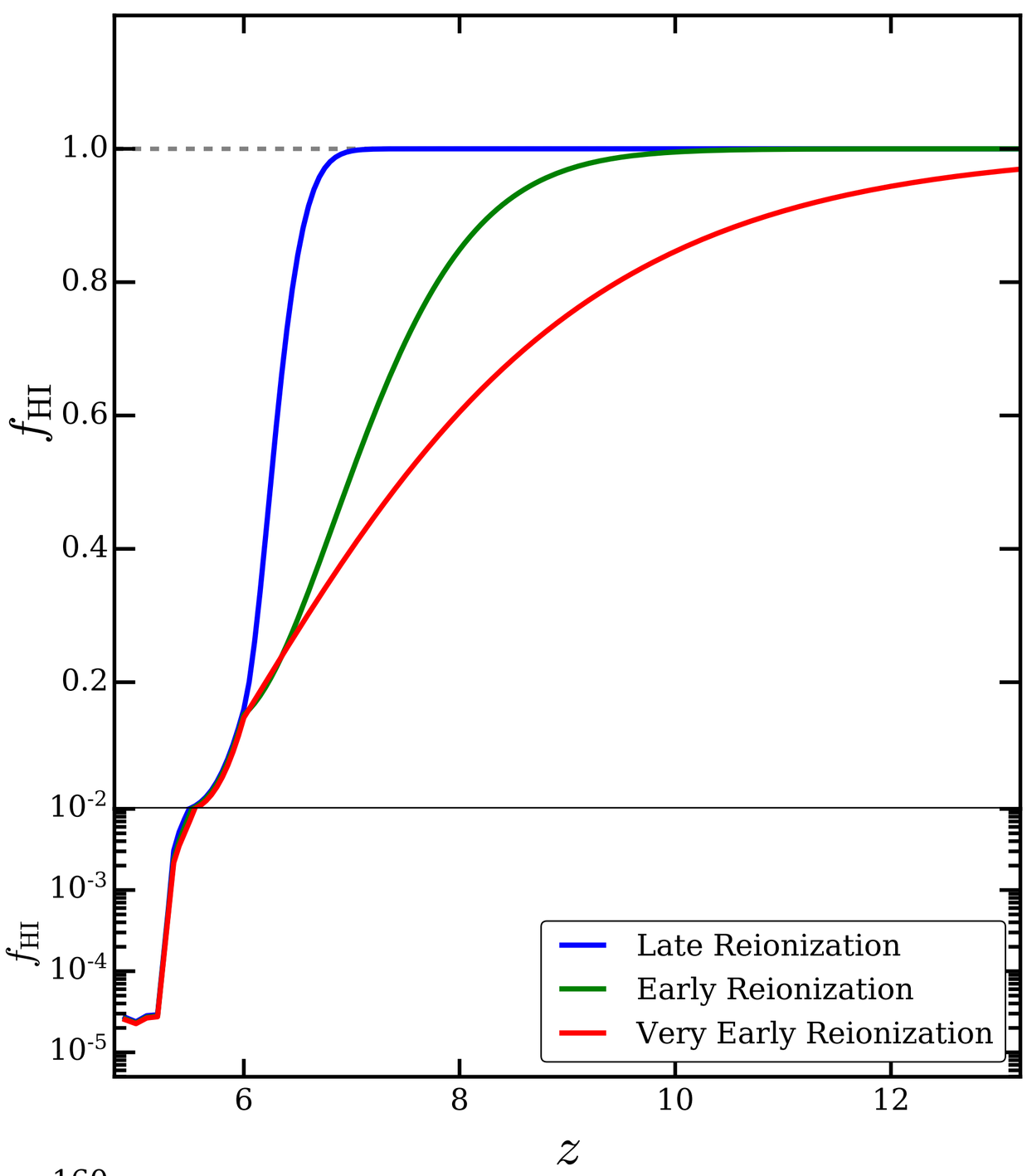

$z = 4.84$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

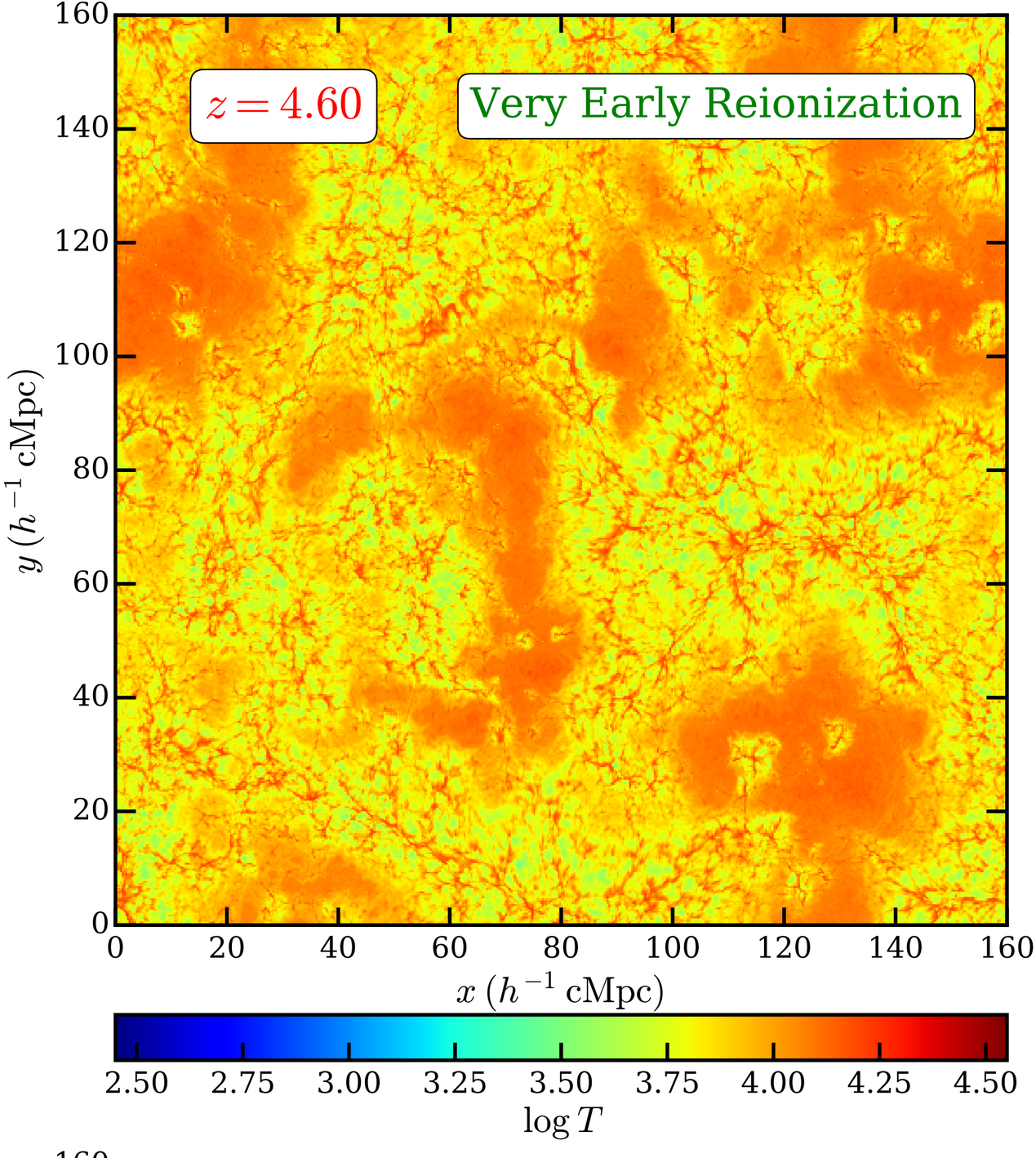

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

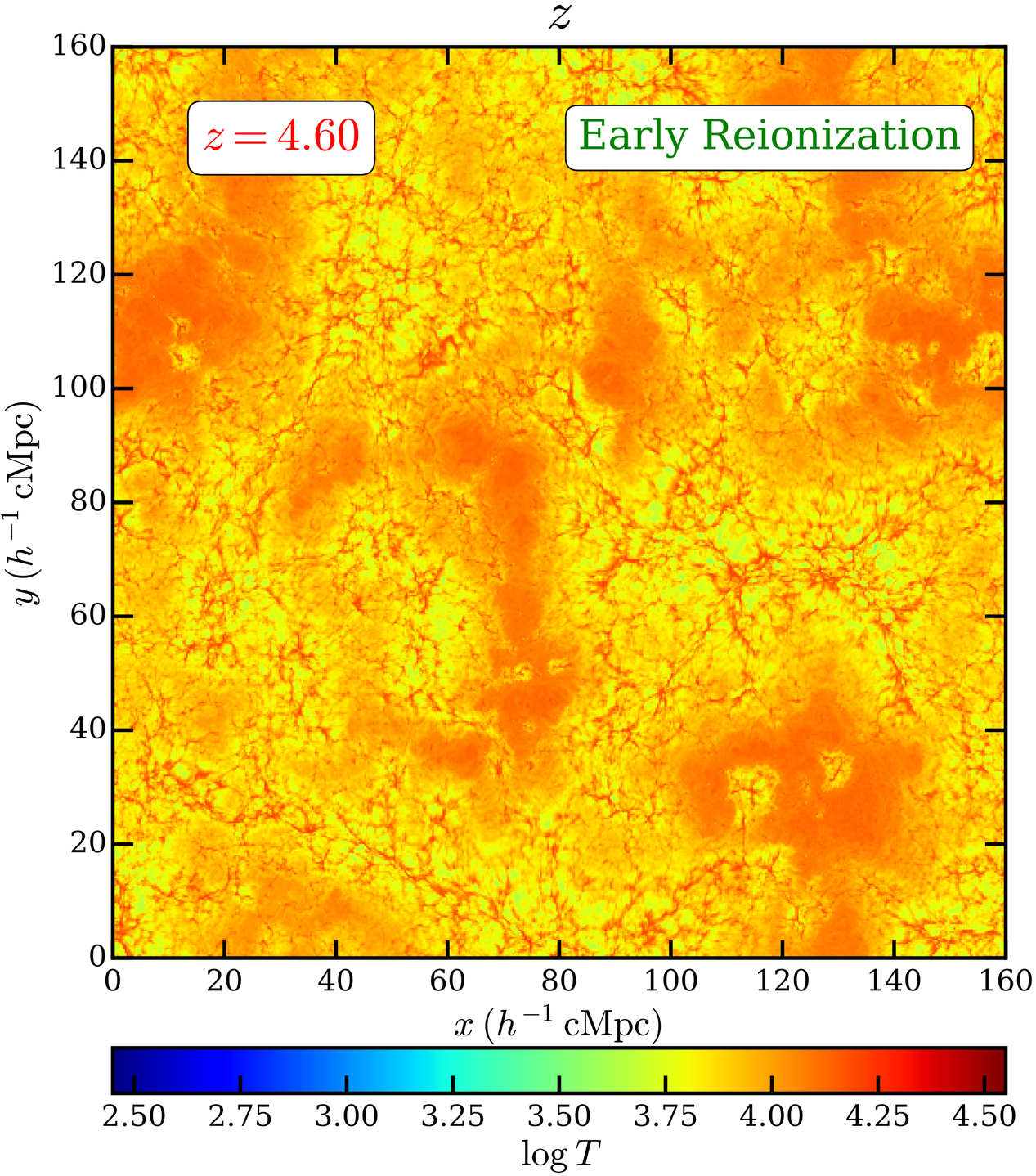

$z = 4.72$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50 2.75 3.00 3.25 3.50 3.75 4.00 4.25 4.50
$\log T$

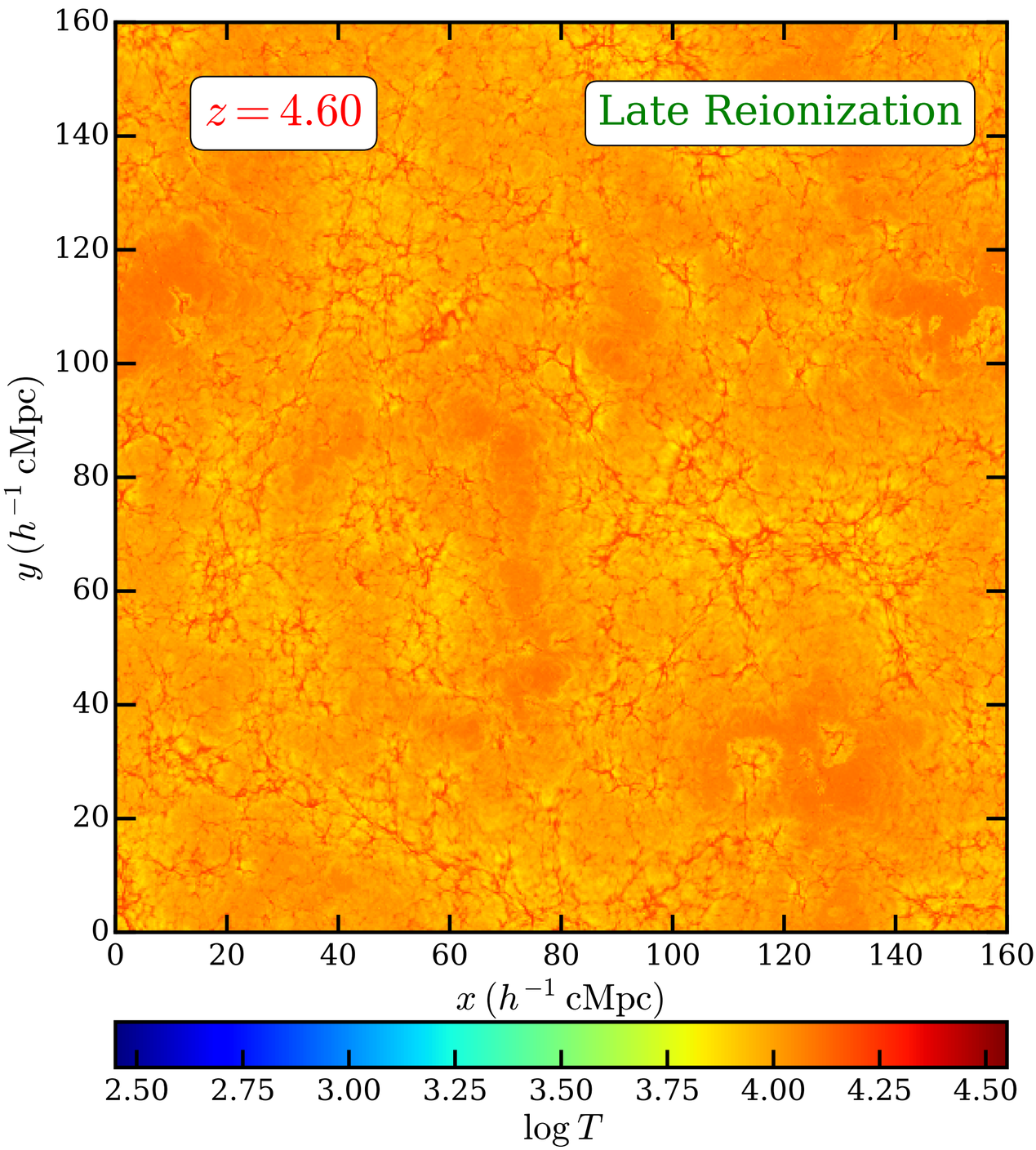

$z = 4.72$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50 2.75 3.00 3.25 3.50 3.75 4.00 4.25 4.50
$\log T$

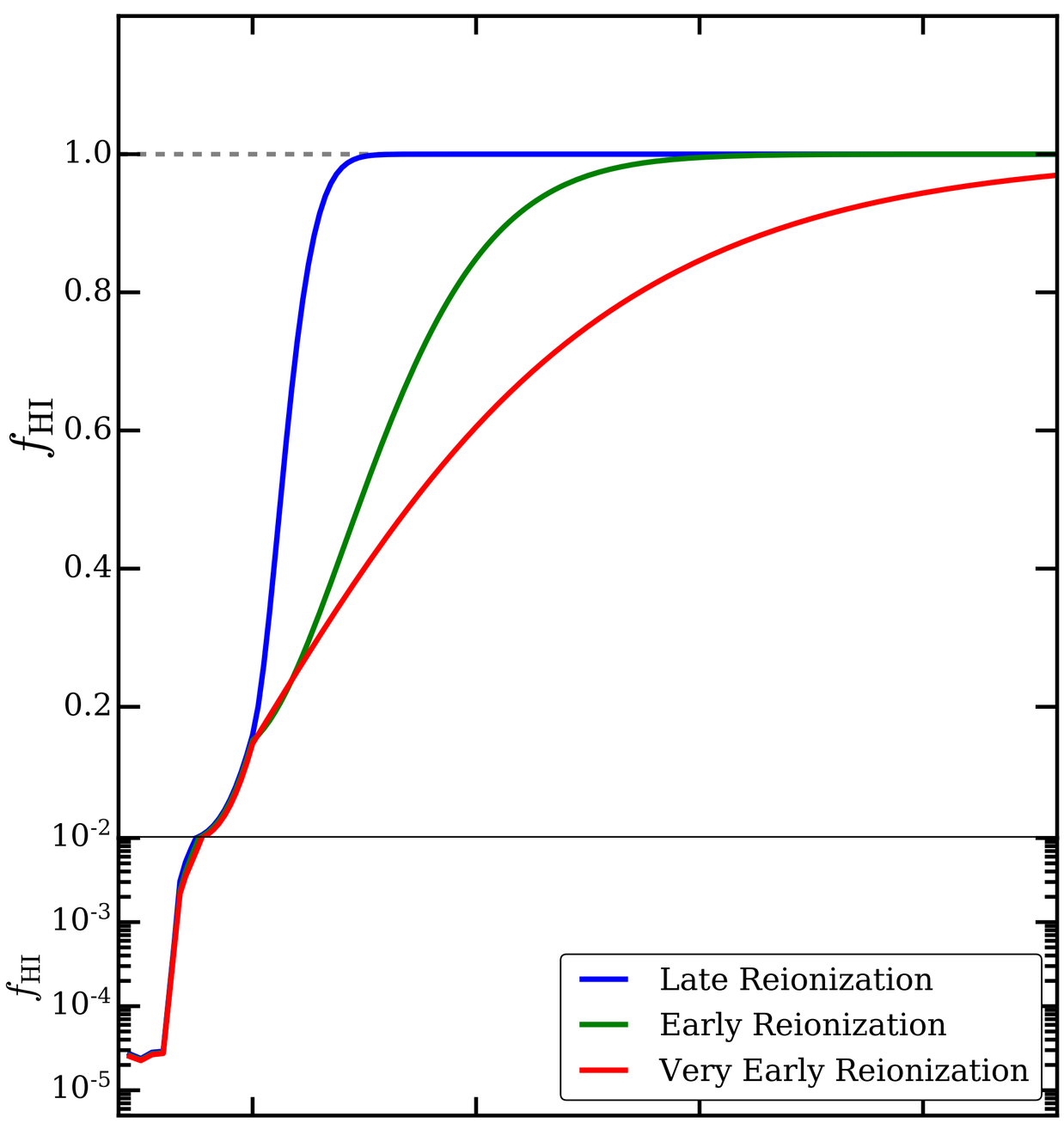

$z = 4.72$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50 2.75 3.00 3.25 3.50 3.75 4.00 4.25 4.50
$\log T$

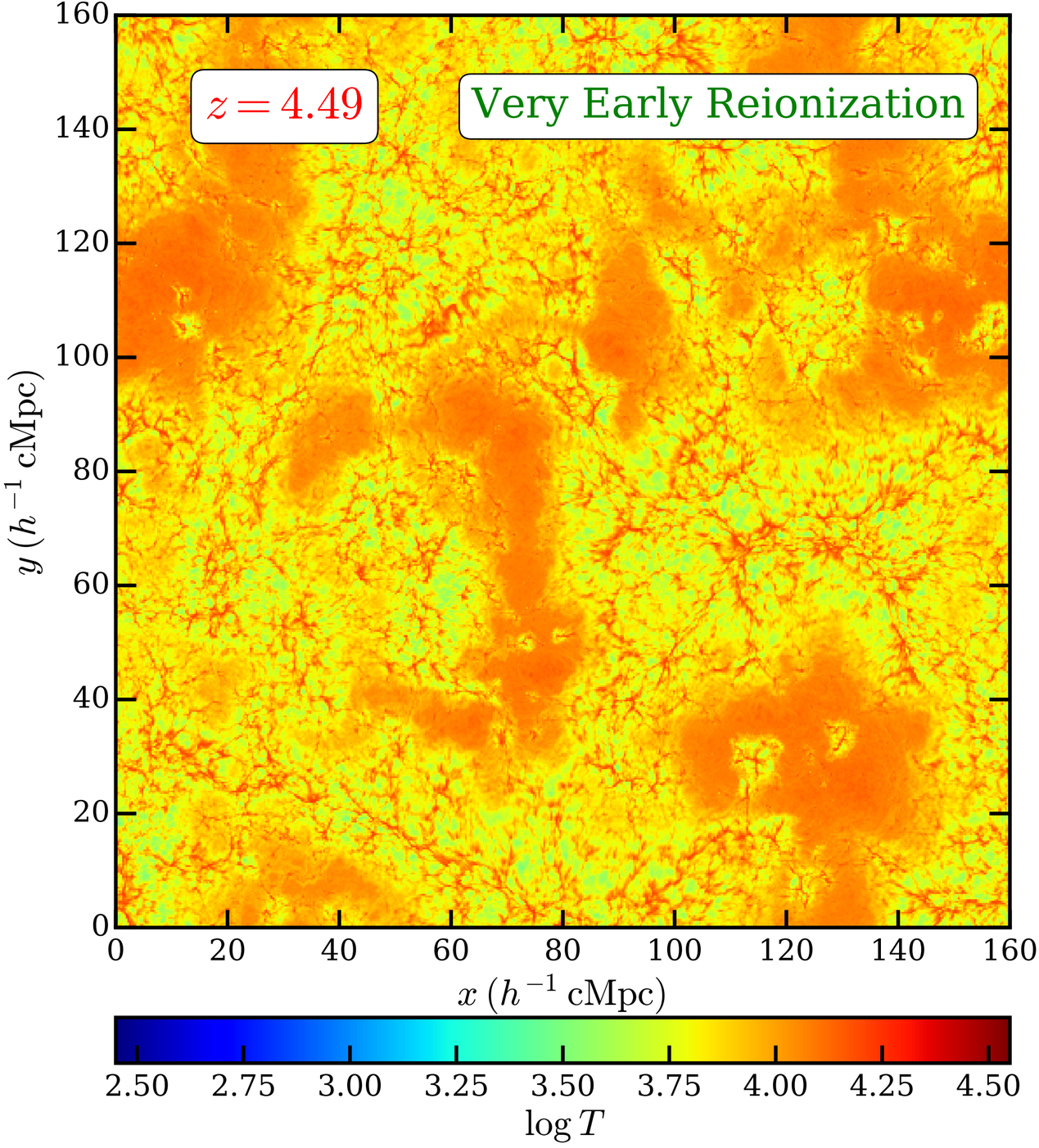

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

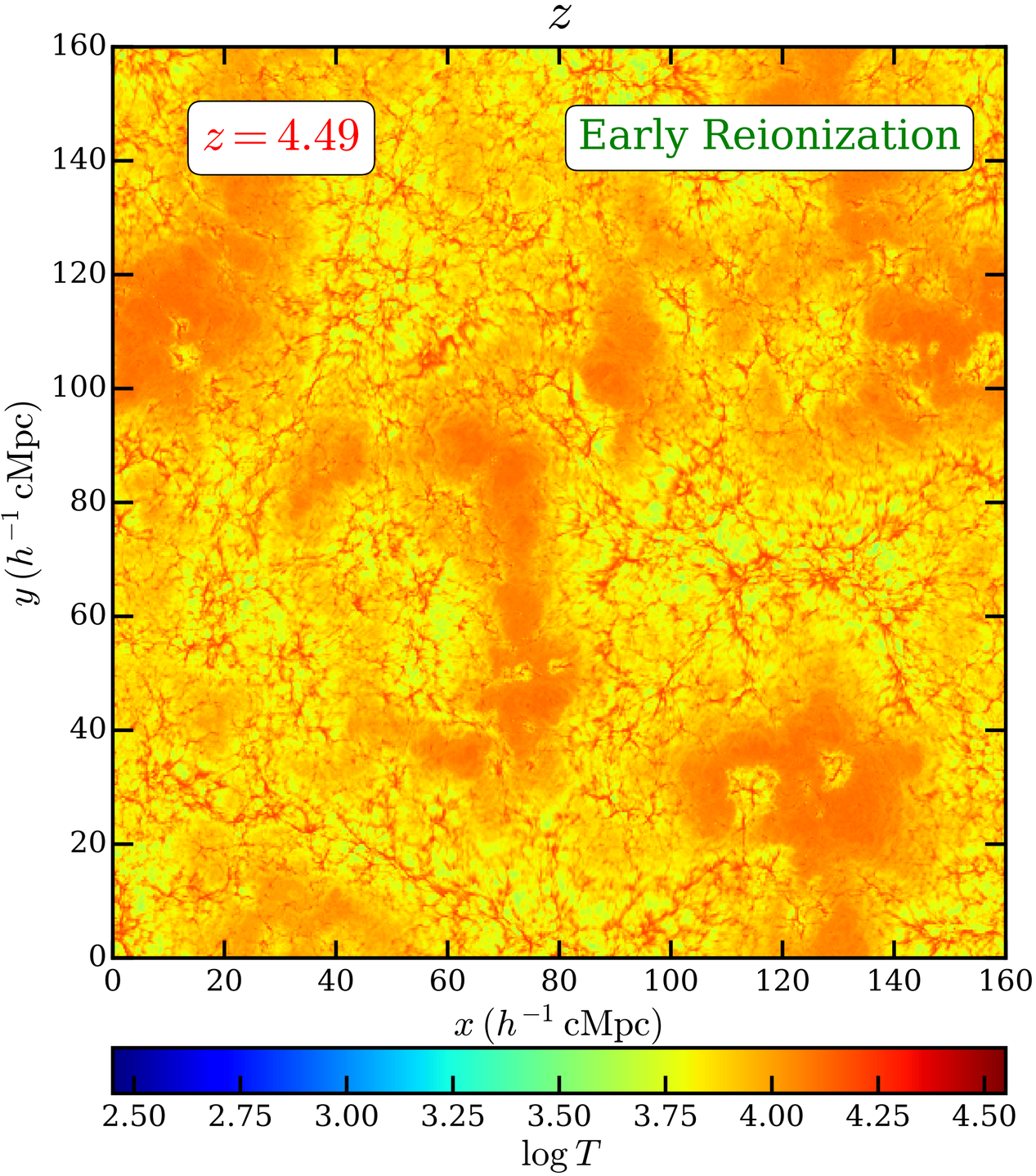

$z = 4.60$
Very Early Reionization
$y\,(h^{-1}\,{\rm cMpc})$
$x\,(h^{-1}\,{\rm cMpc})$
$\log T$

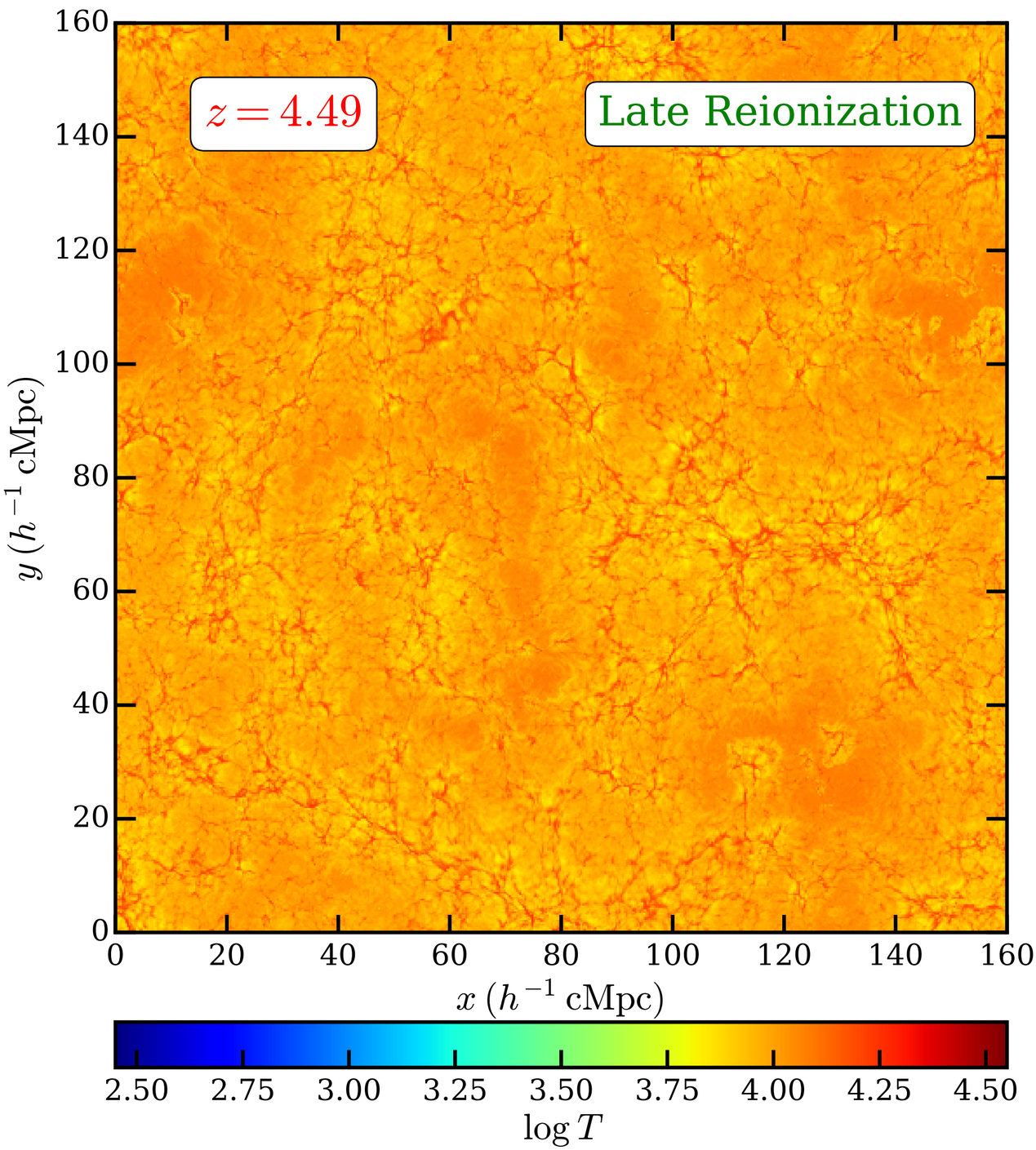

$z = 4.60$
Early Reionization
$y\,(h^{-1}\,{\rm cMpc})$
$x\,(h^{-1}\,{\rm cMpc})$
$\log T$

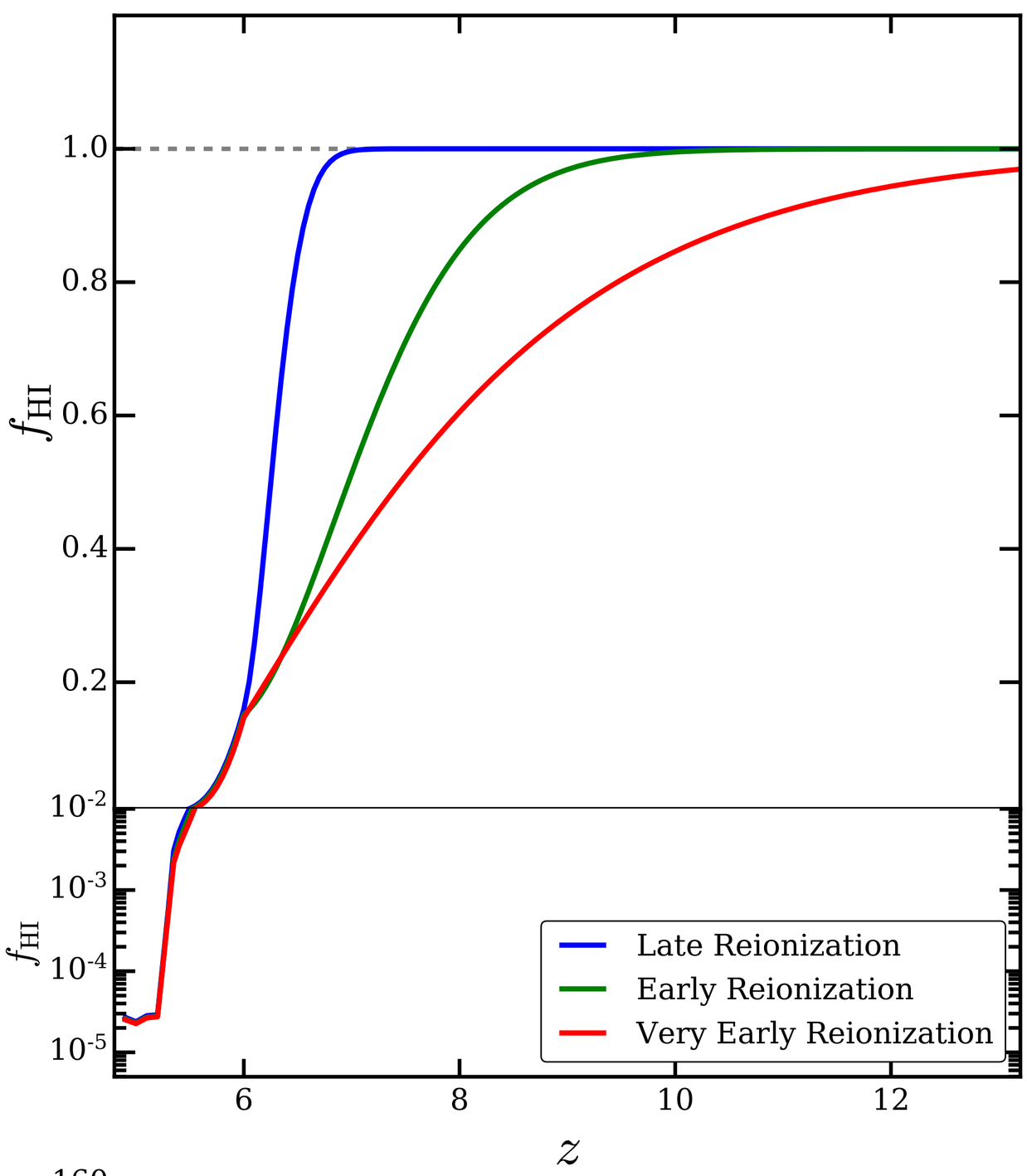

$z = 4.60$
Late Reionization
$y\,(h^{-1}\,{\rm cMpc})$
$x\,(h^{-1}\,{\rm cMpc})$
$\log T$

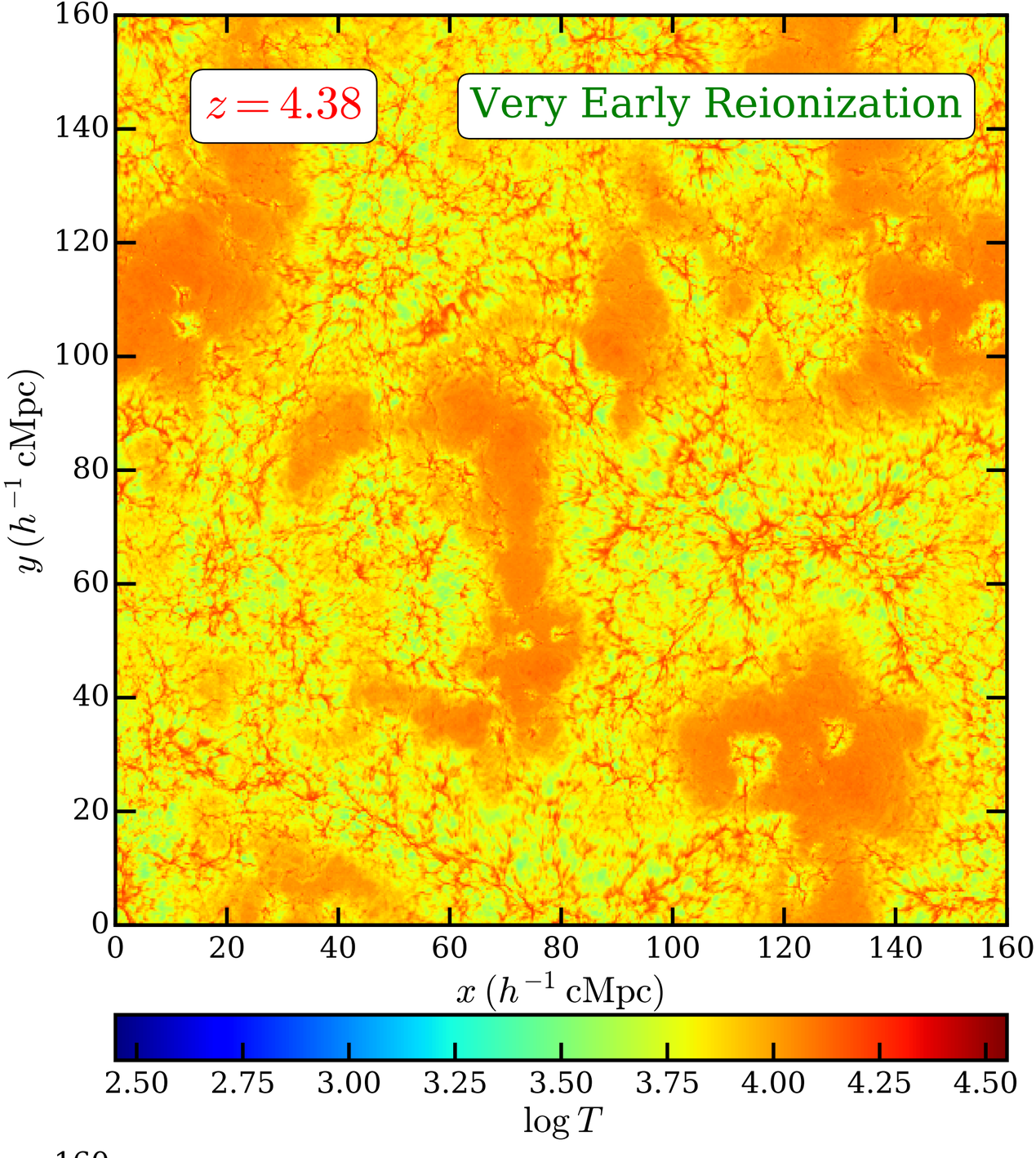

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

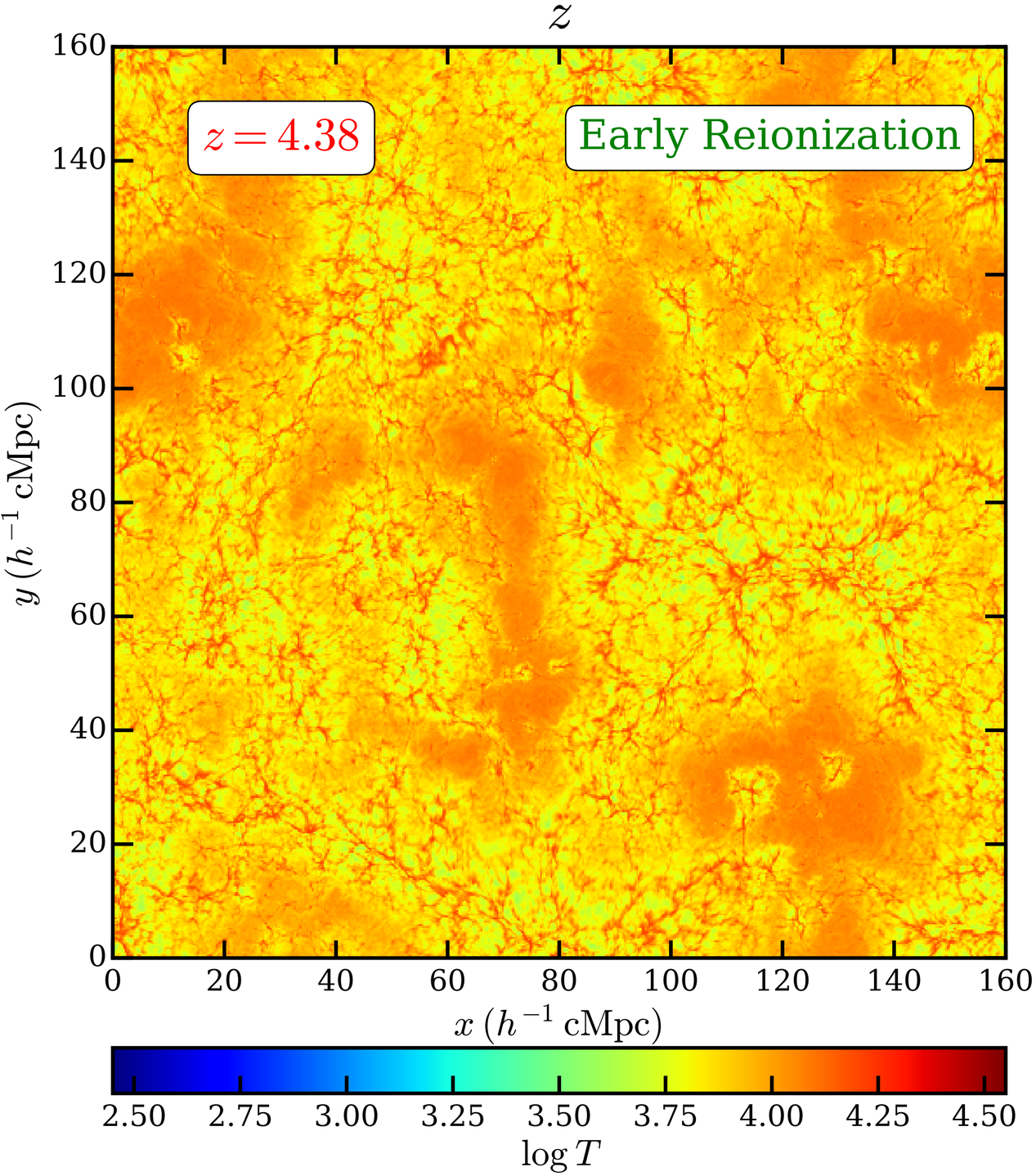

$z = 4.49$
Very Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

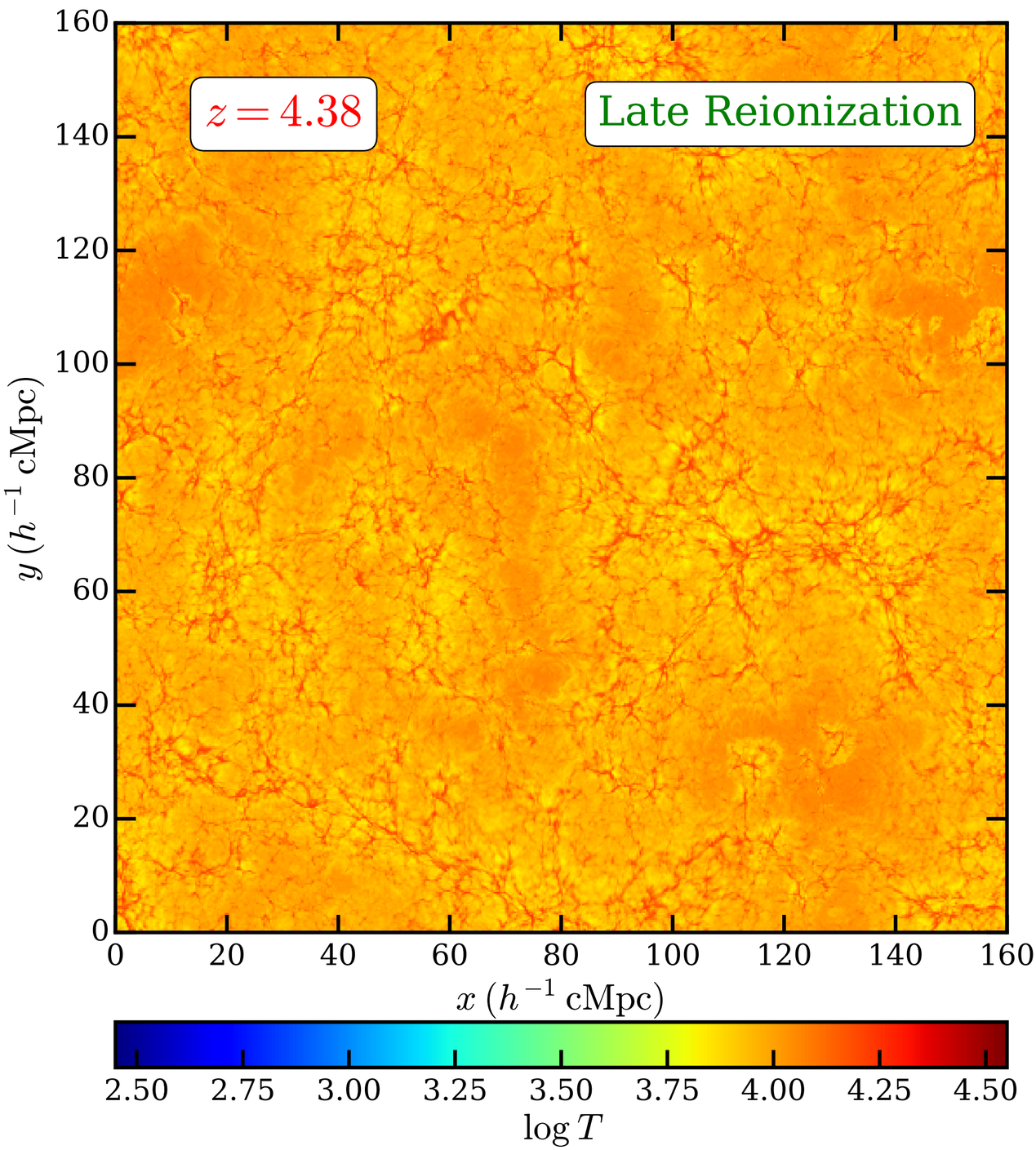

$z = 4.49$
Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

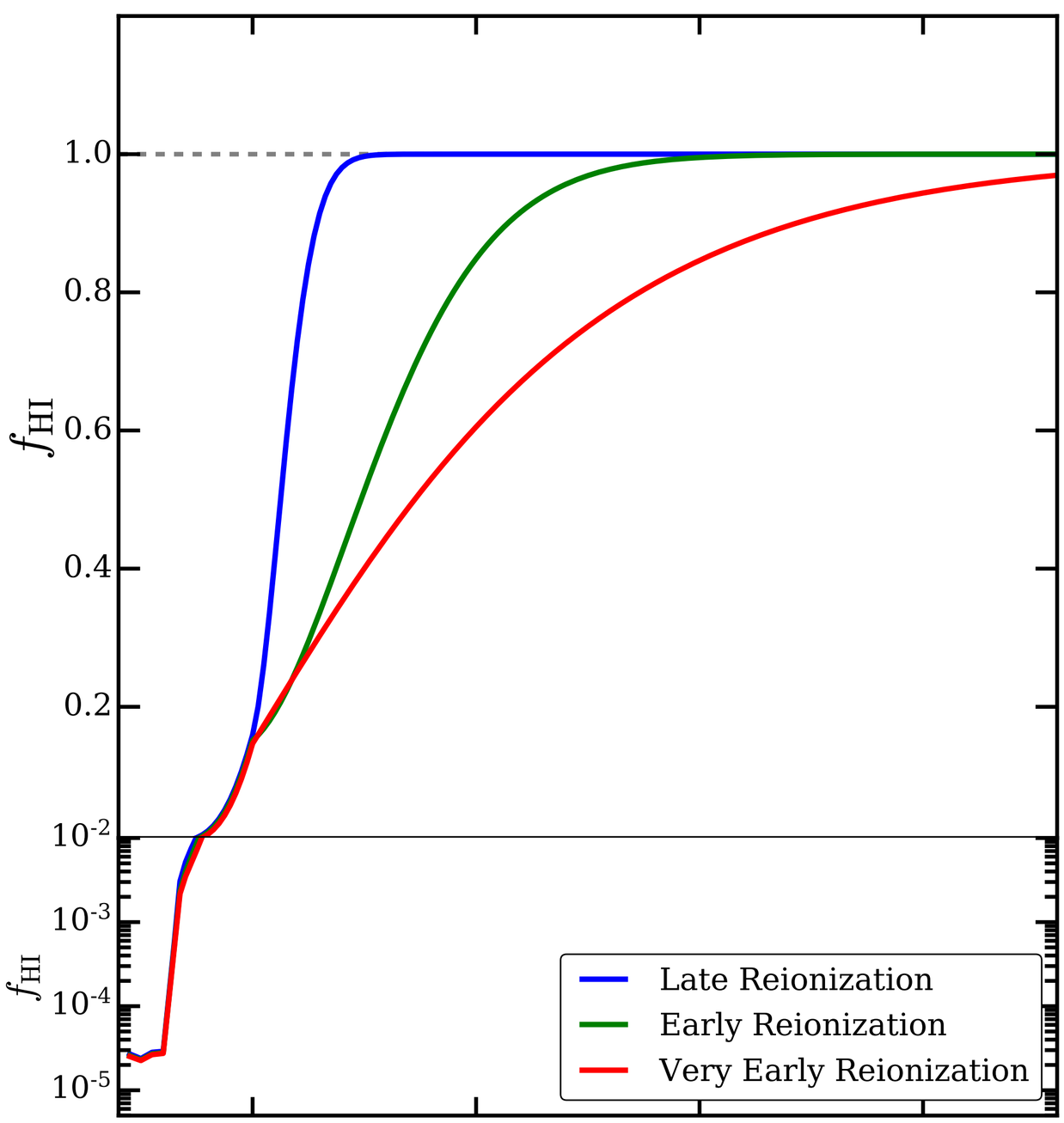

$z = 4.49$
Late Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

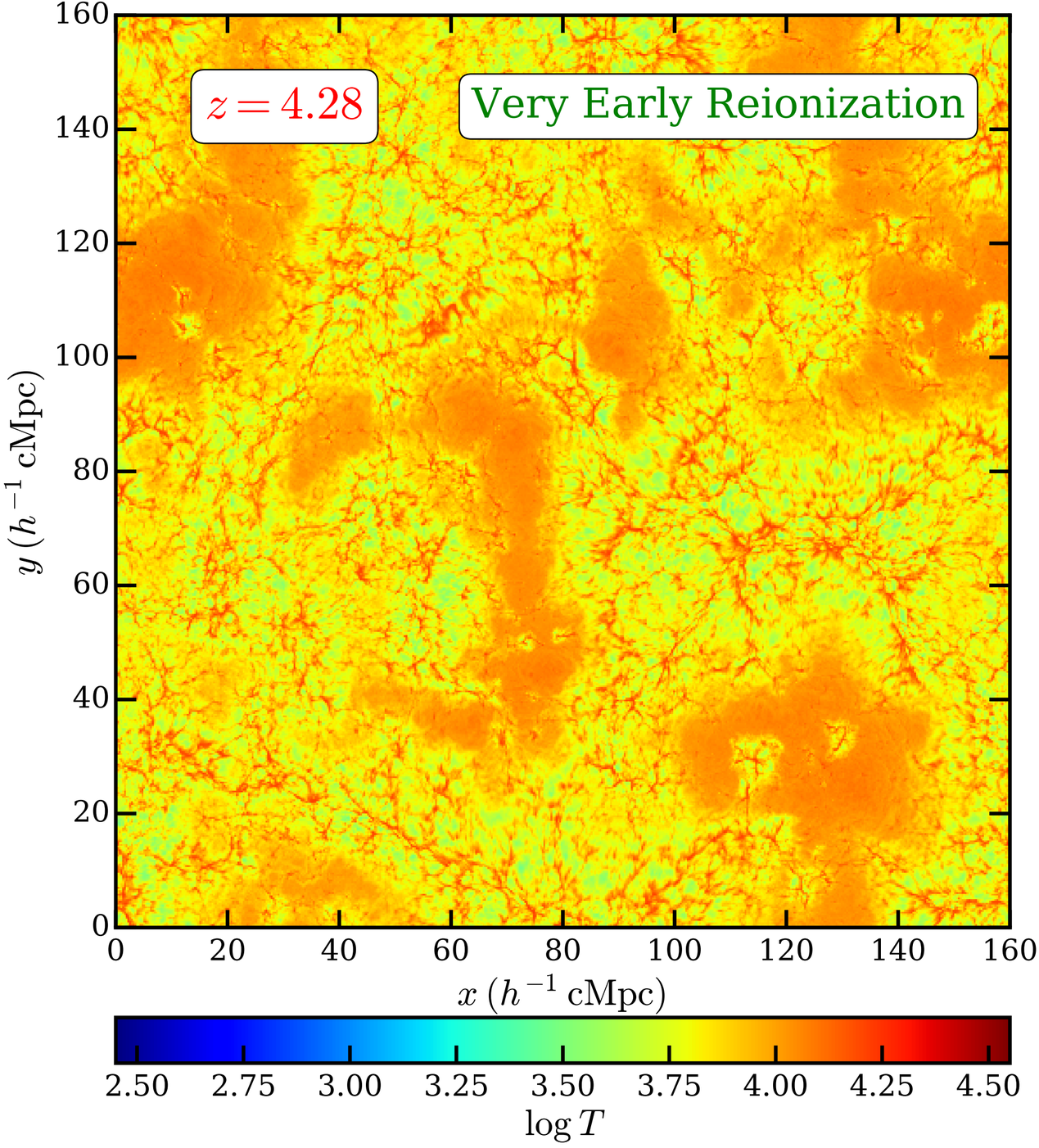

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

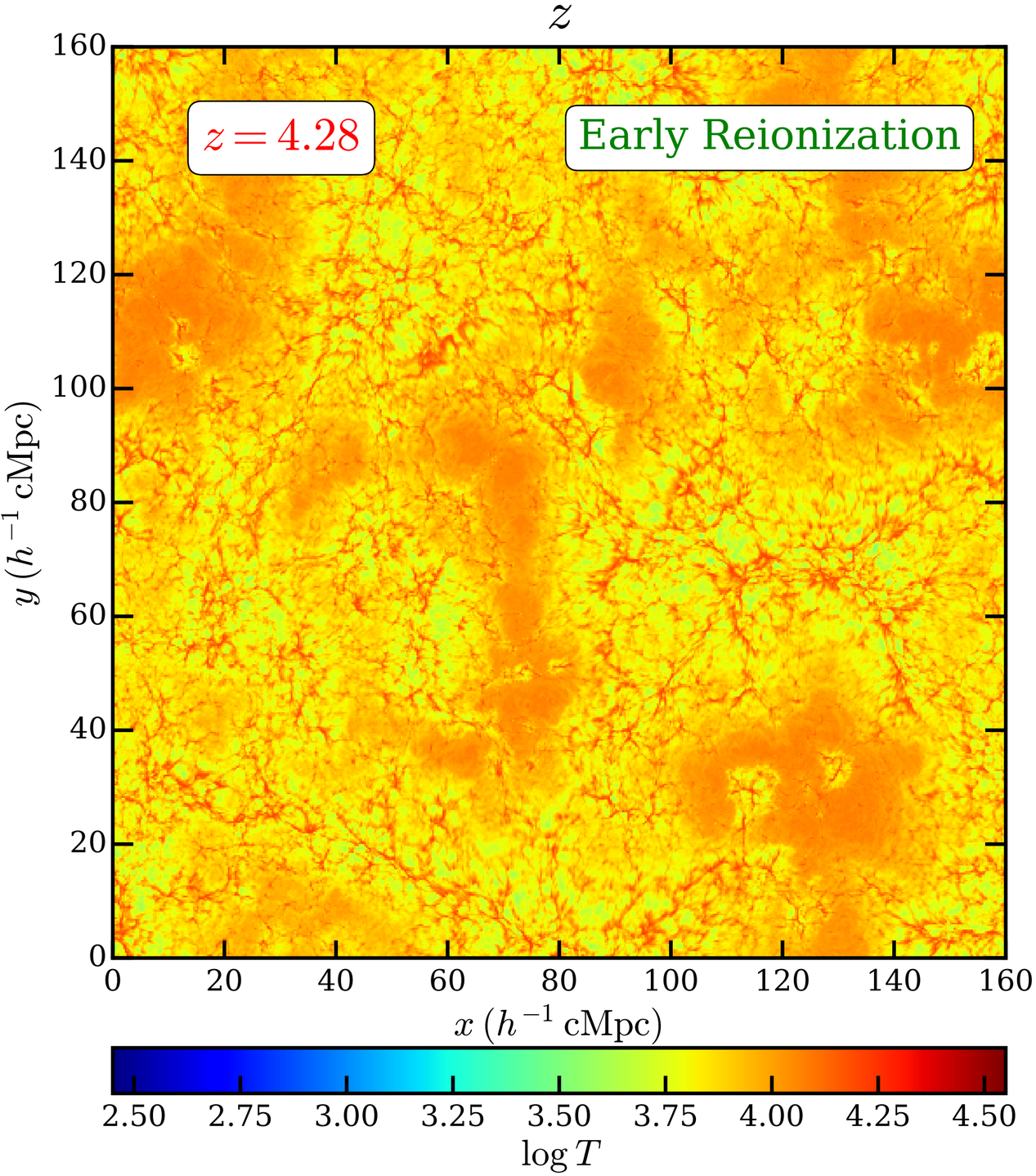

$z = 4.38$
Very Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

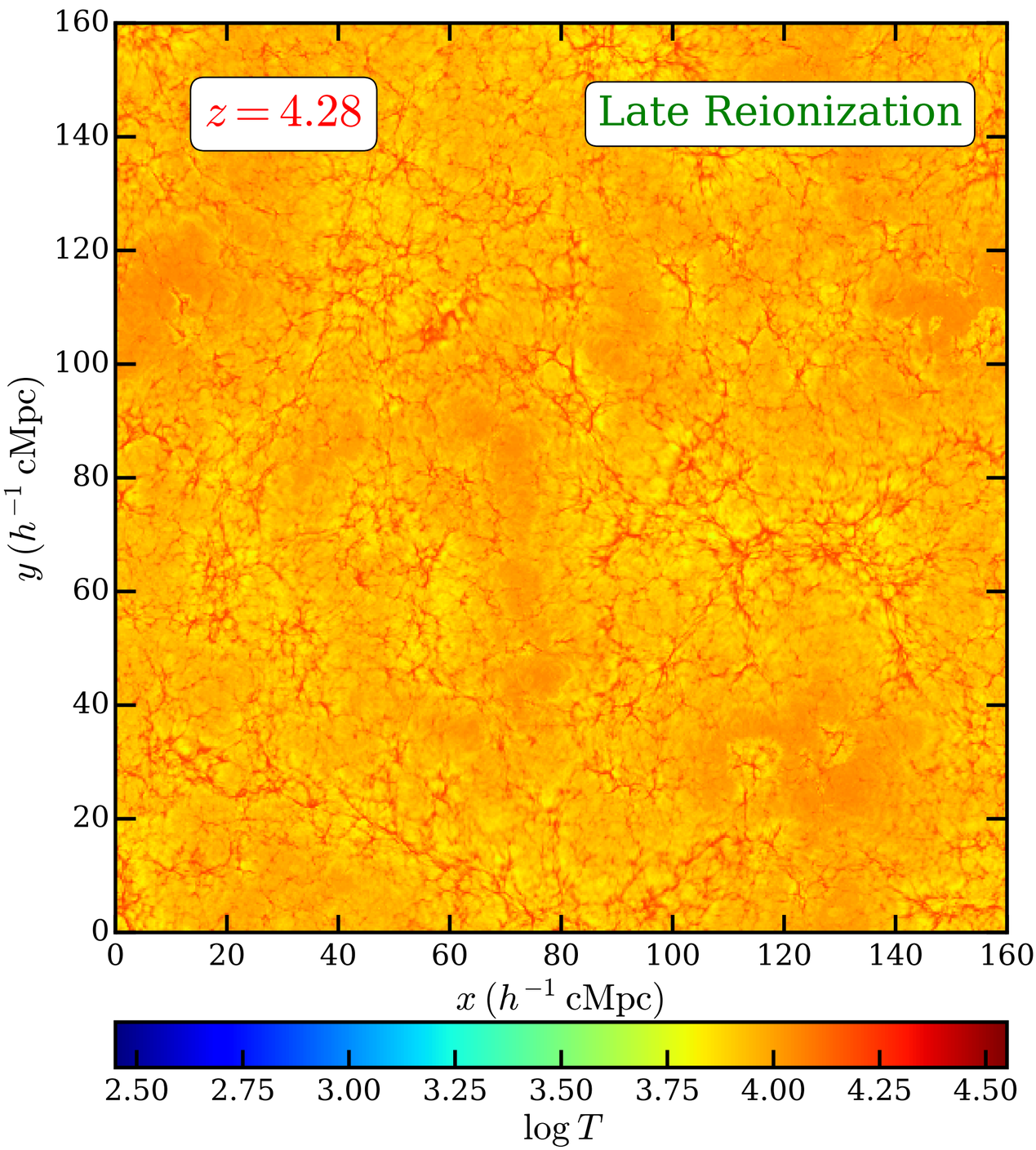

$z = 4.38$
Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

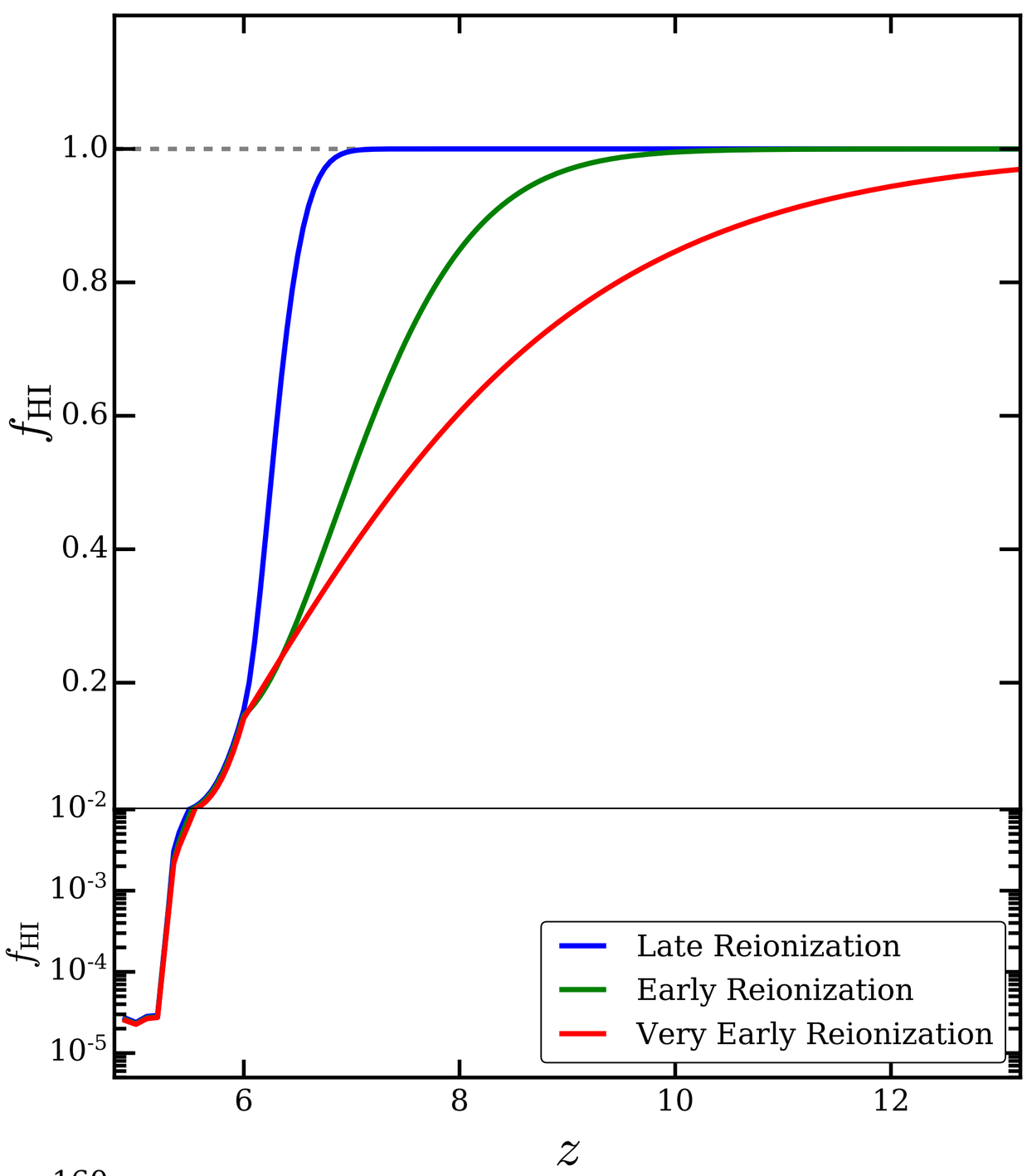

$z = 4.38$
Late Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

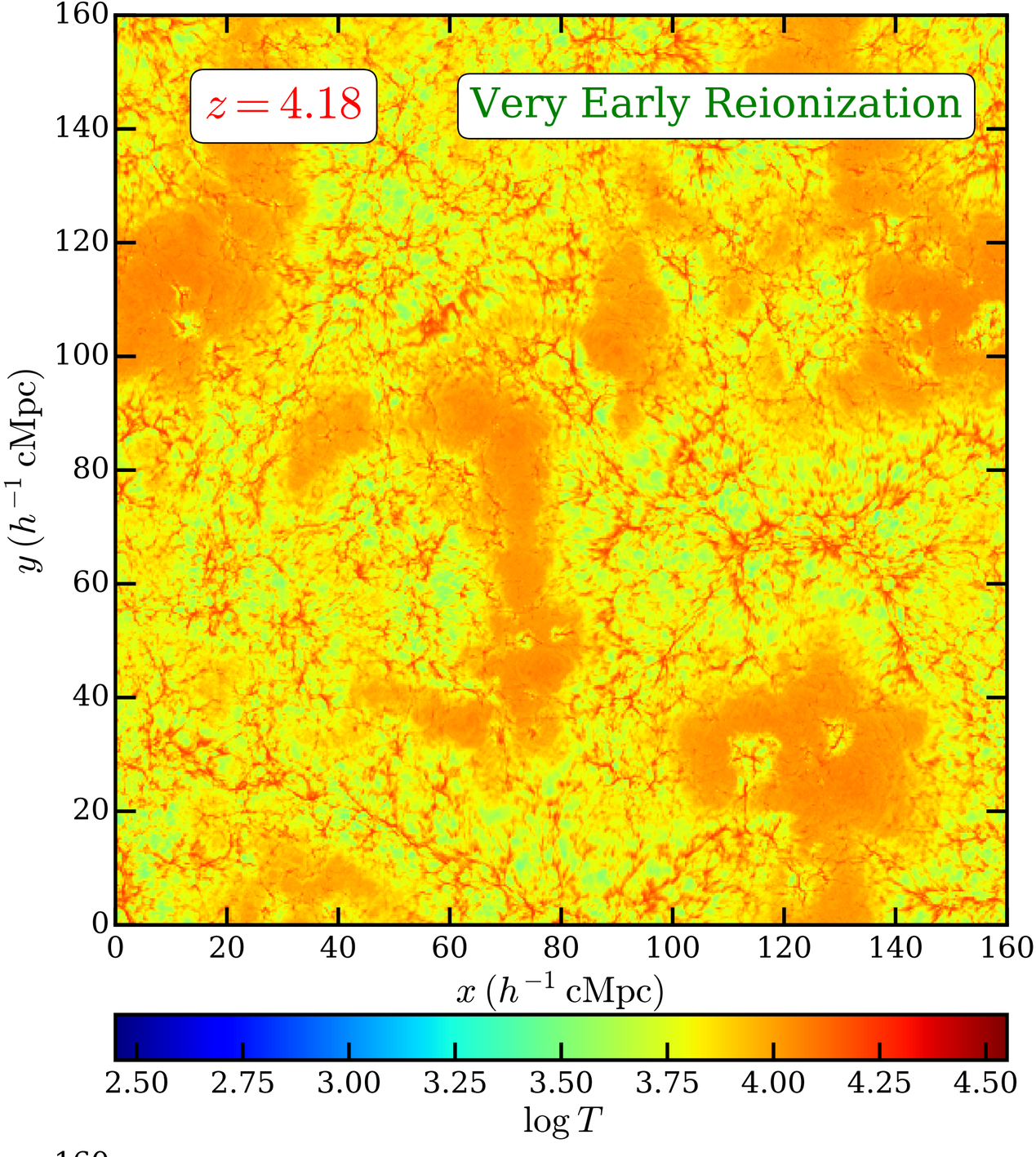

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

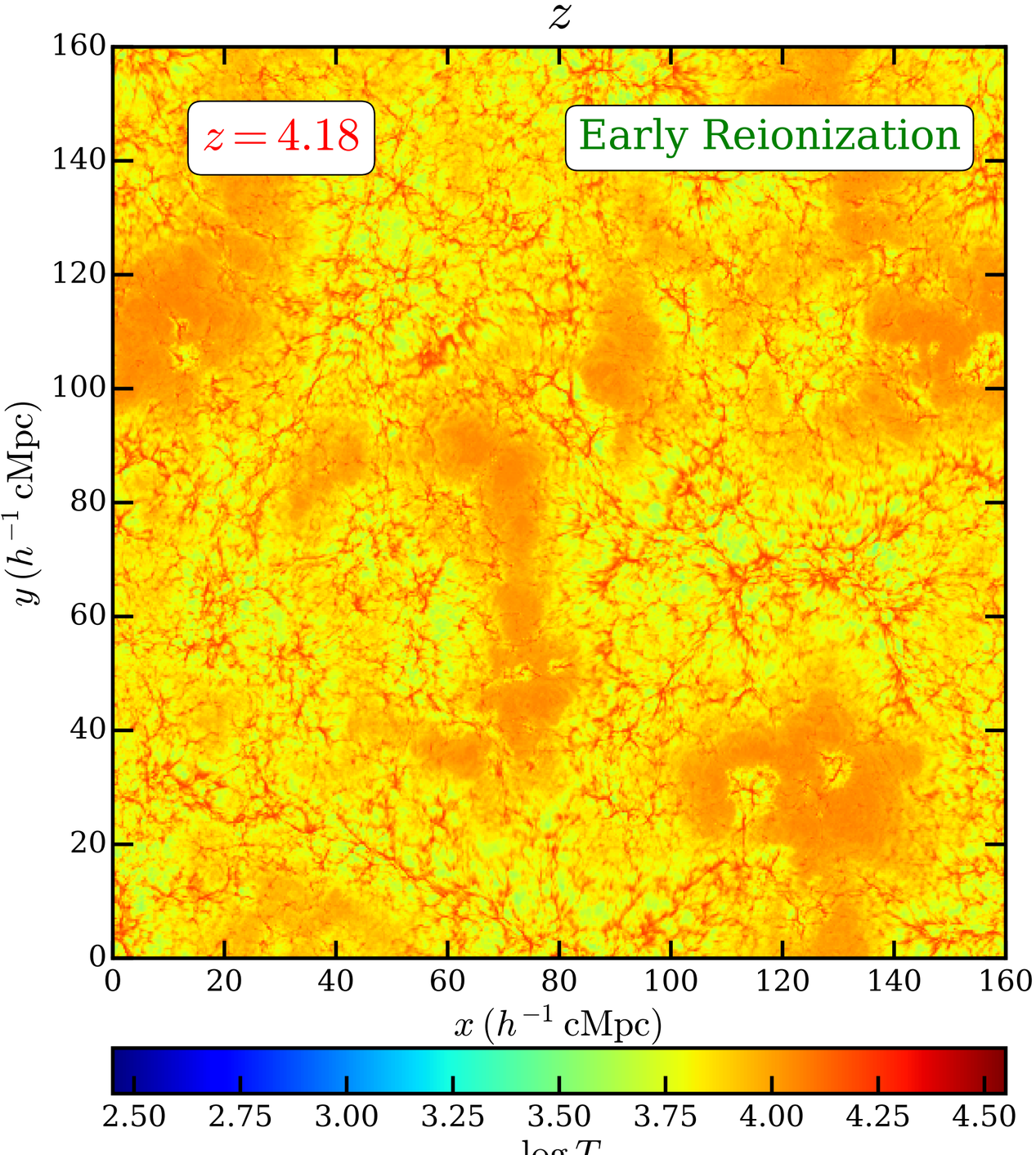

$z = 4.28$
Very Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50 2.75 3.00 3.25 3.50 3.75 4.00 4.25 4.50
$\log T$

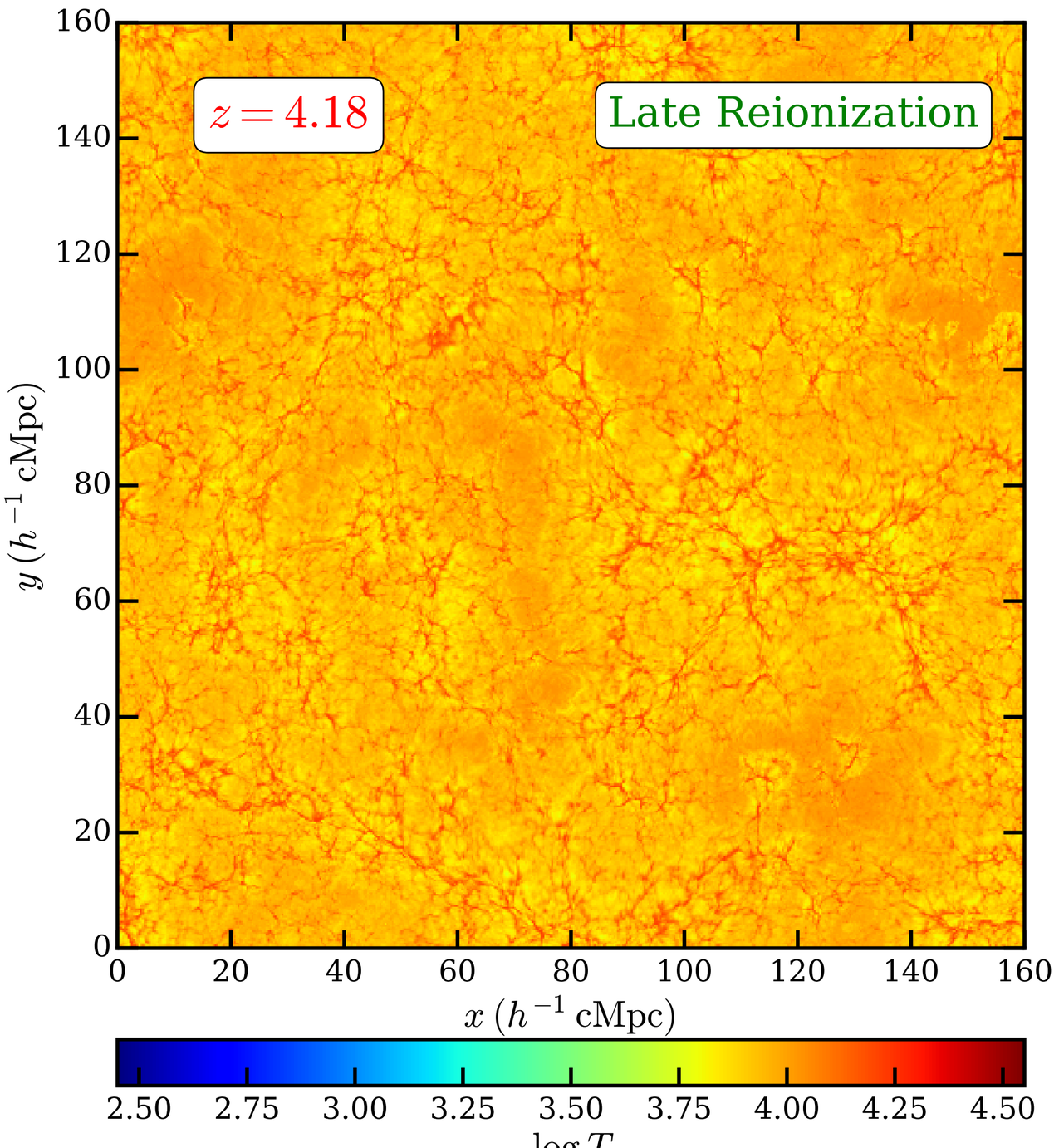

$z = 4.28$
Early Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50 2.75 3.00 3.25 3.50 3.75 4.00 4.25 4.50
$\log T$

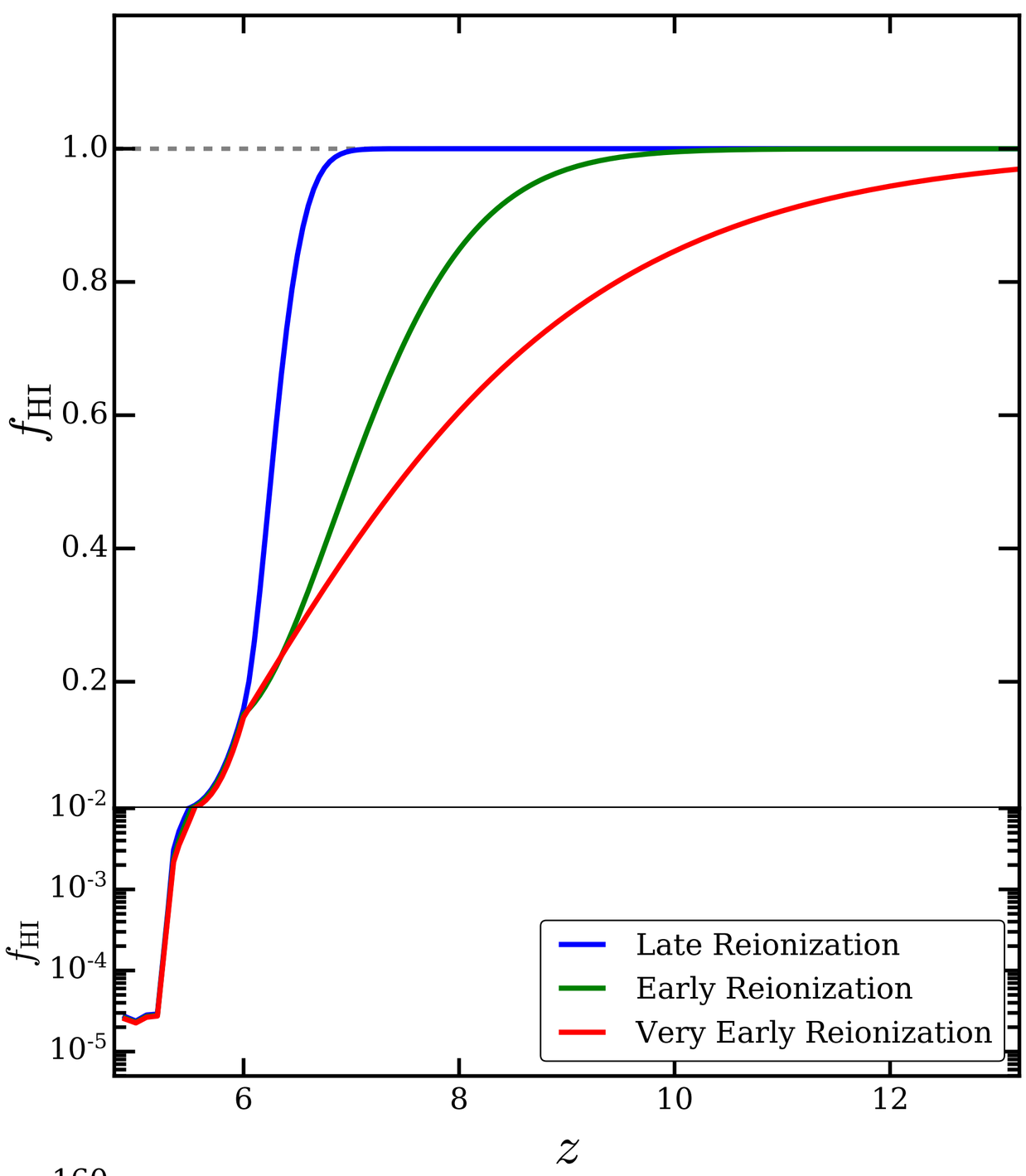

$z = 4.28$
Late Reionization
$y\,(h^{-1}\,\mathrm{cMpc})$
$x\,(h^{-1}\,\mathrm{cMpc})$
2.50 2.75 3.00 3.25 3.50 3.75 4.00 4.25 4.50
$\log T$

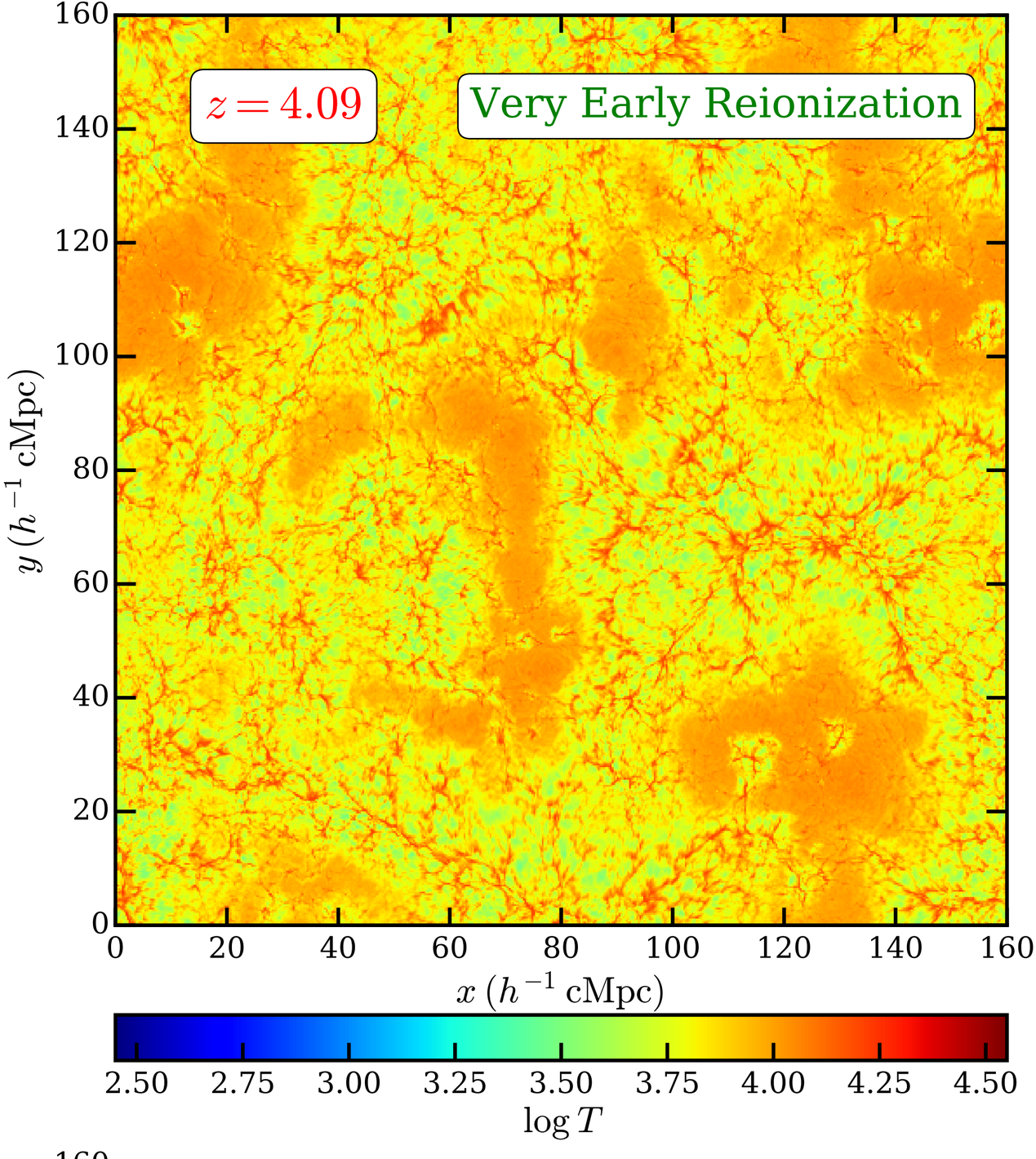

1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization

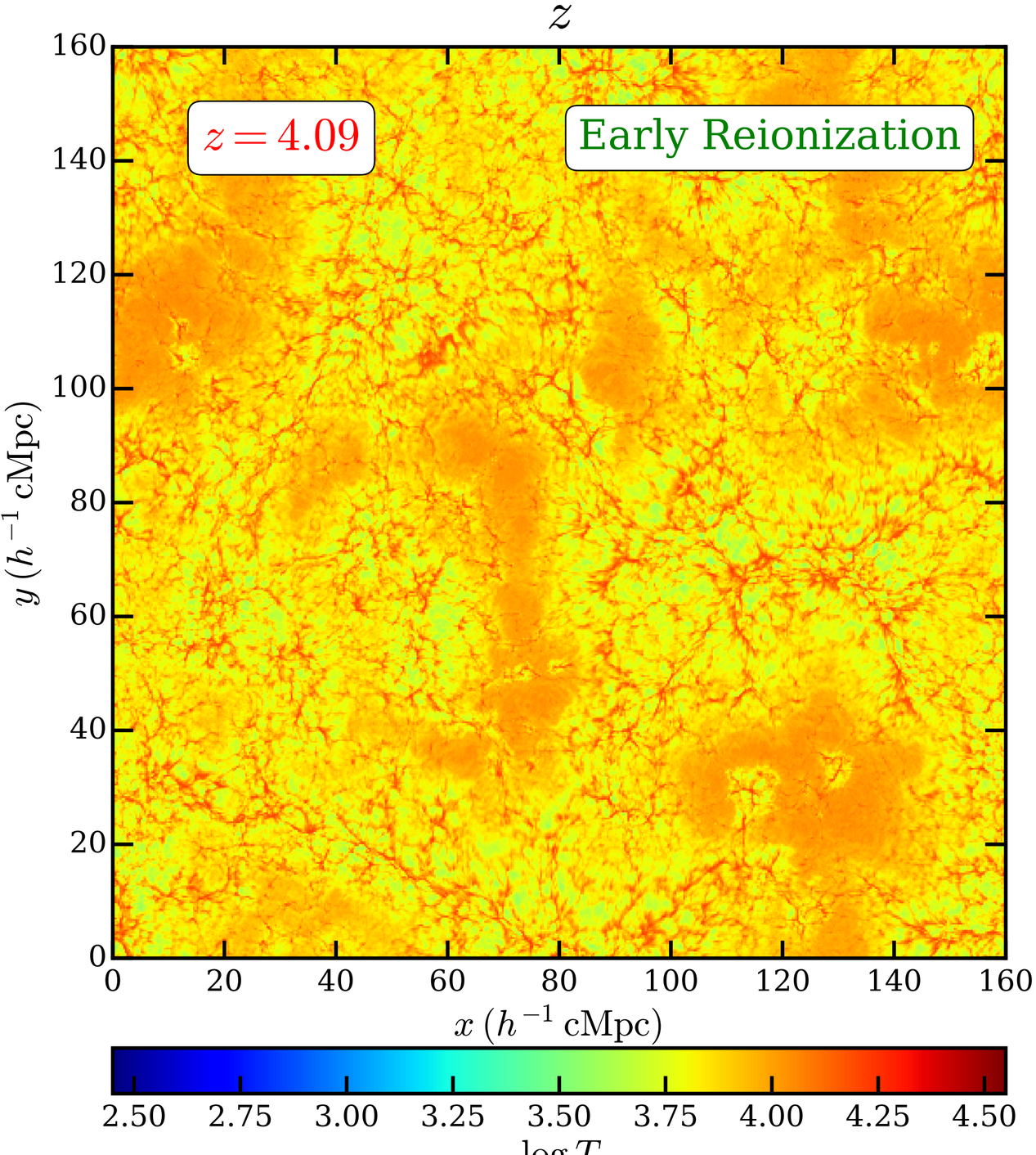

$z = 4.18$
Very Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$

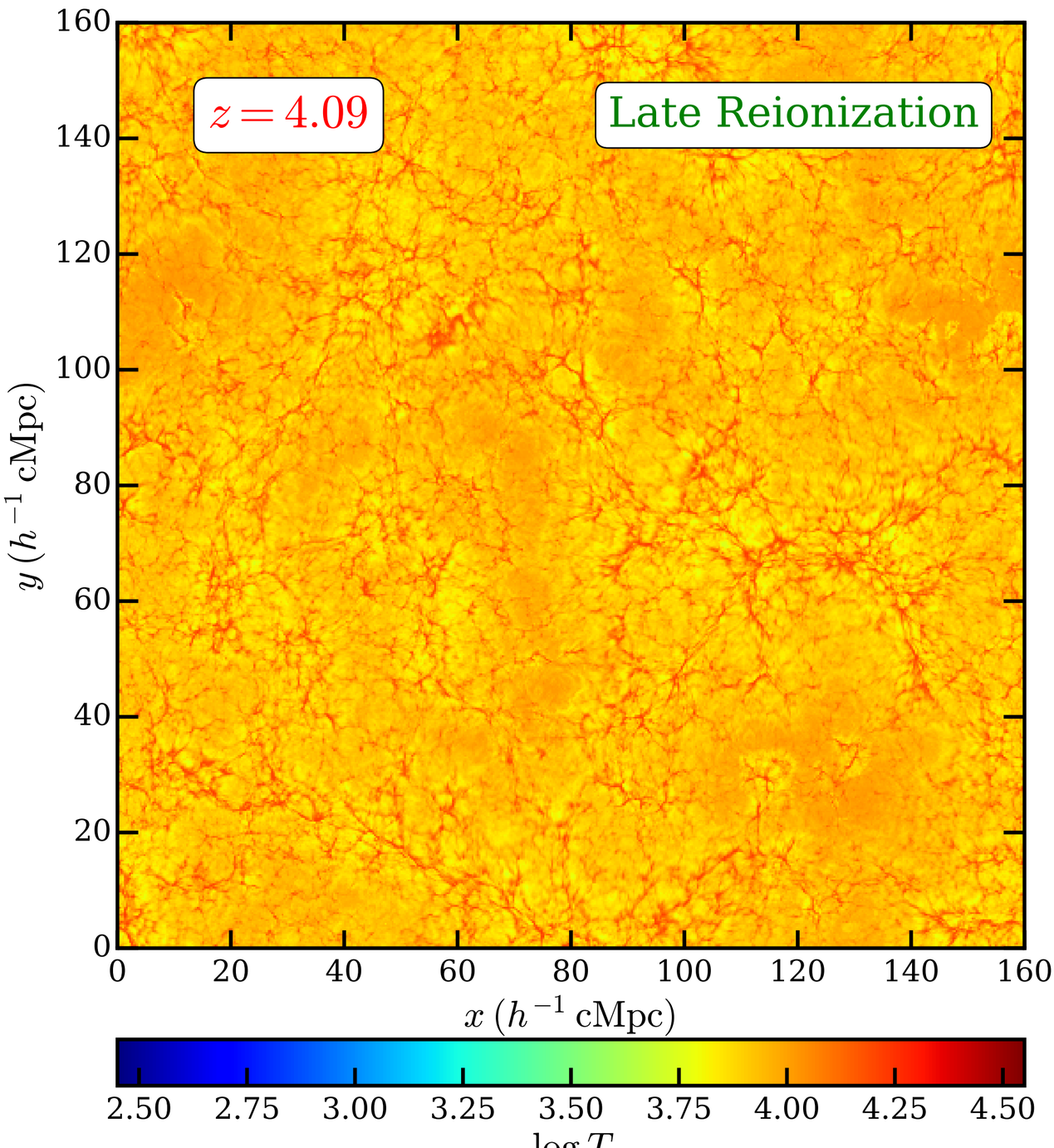

$z = 4.18$
Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$


$z = 4.18$
Late Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$


1.0
0.8
0.6
0.4
0.2
10^{-2}
10^{-3}
10^{-4}
10^{-5}
$f_{\rm HI}$
6
8
10
12
z
Late Reionization
Early Reionization
Very Early Reionization


$z = 4.09$
Very Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$


$z = 4.09$
Early Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$


$z = 4.09$
Late Reionization
160
140
120
100
80
60
40
20
0
$y\,(h^{-1}\,{\rm cMpc})$
0
20
40
60
80
100
120
140
160
$x\,(h^{-1}\,{\rm cMpc})$
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
$\log T$