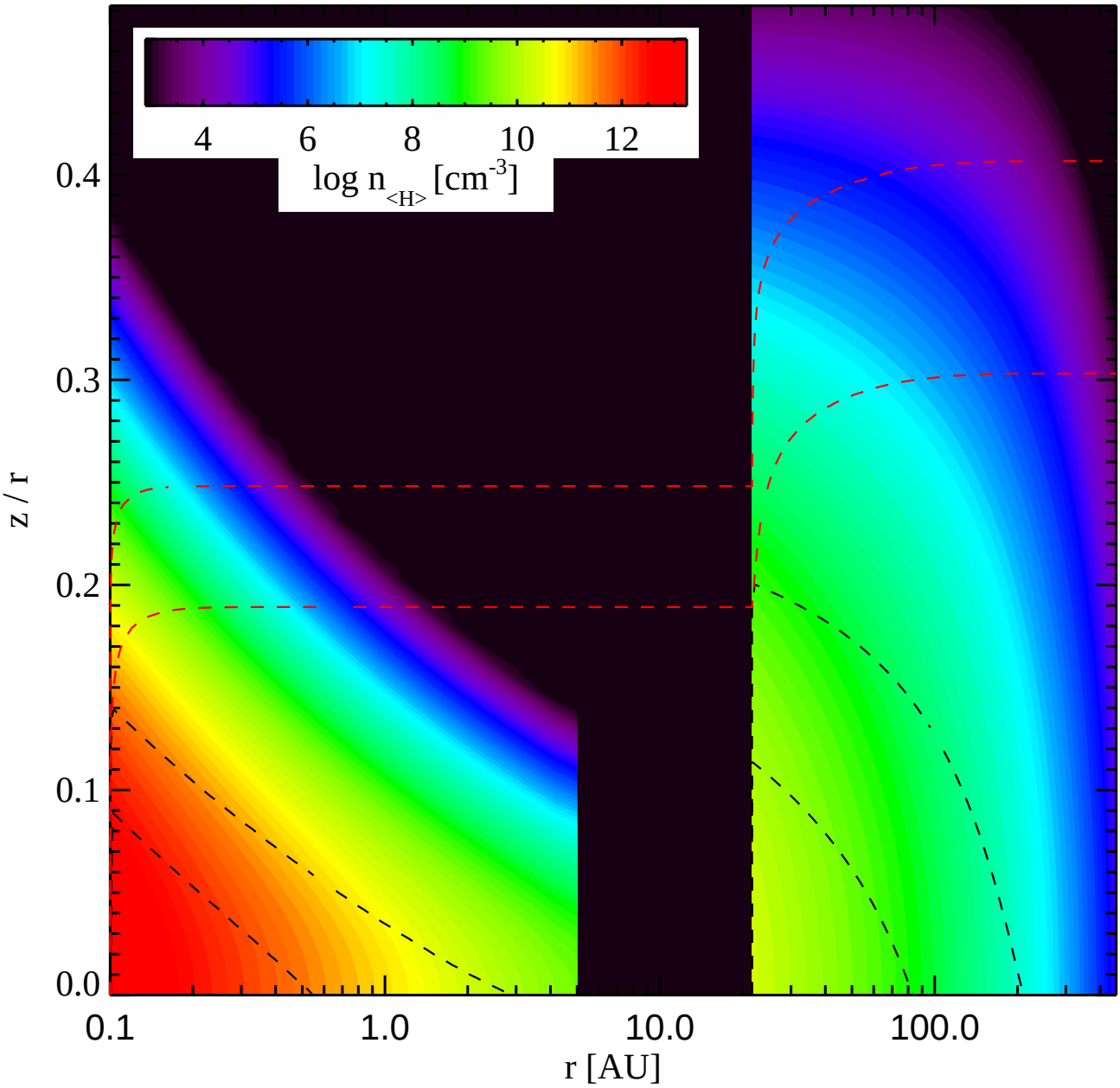
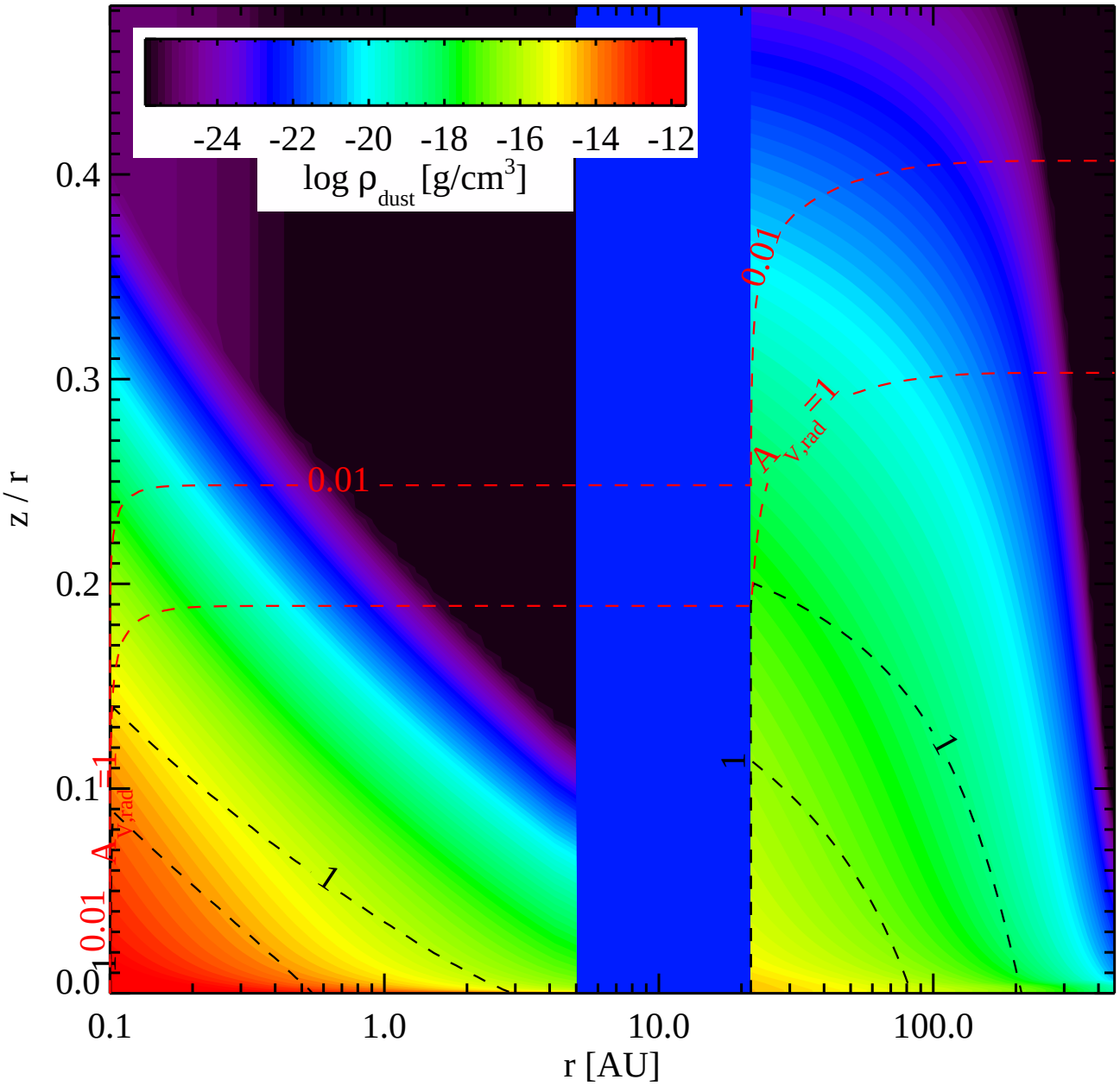
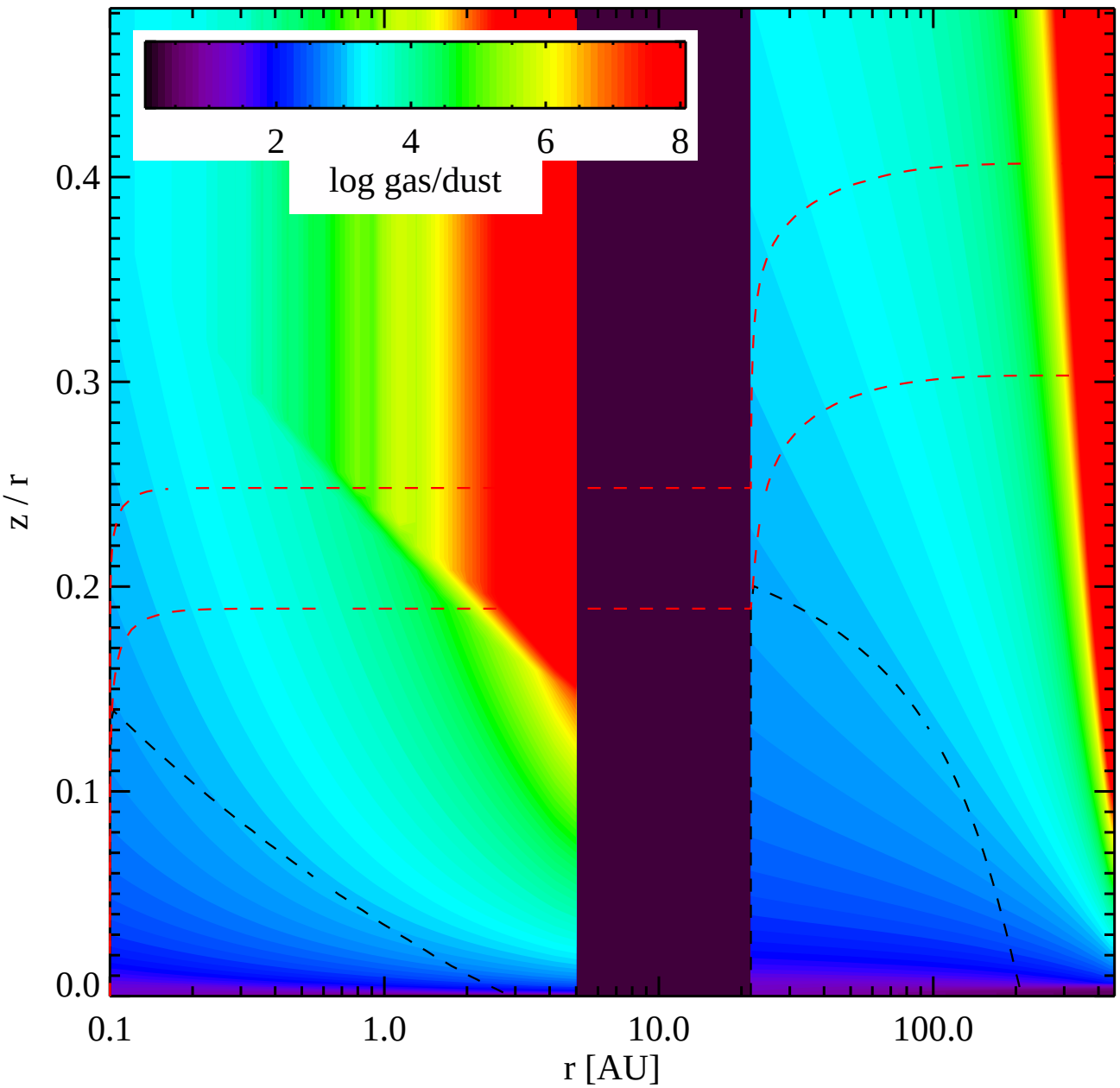
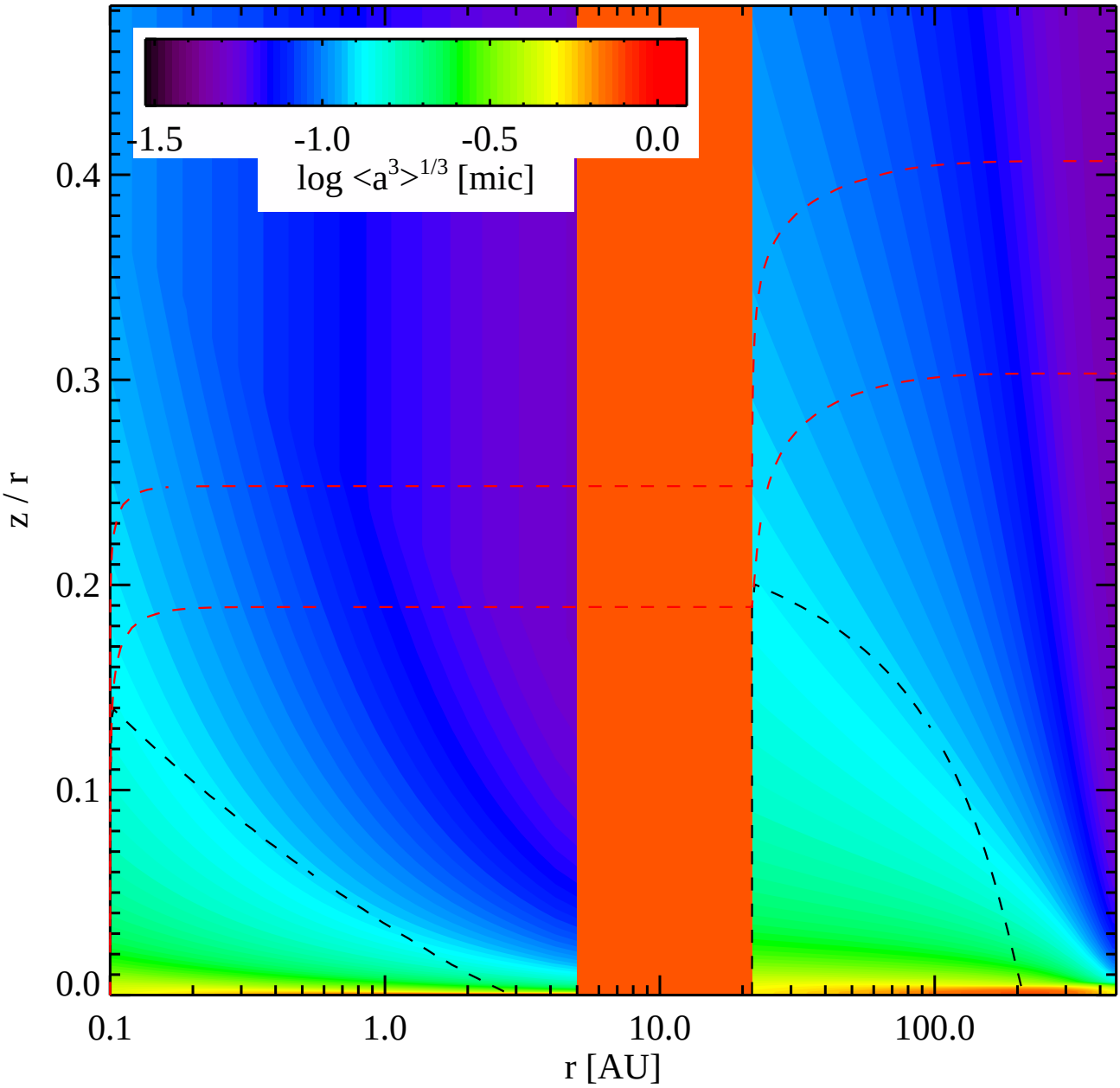
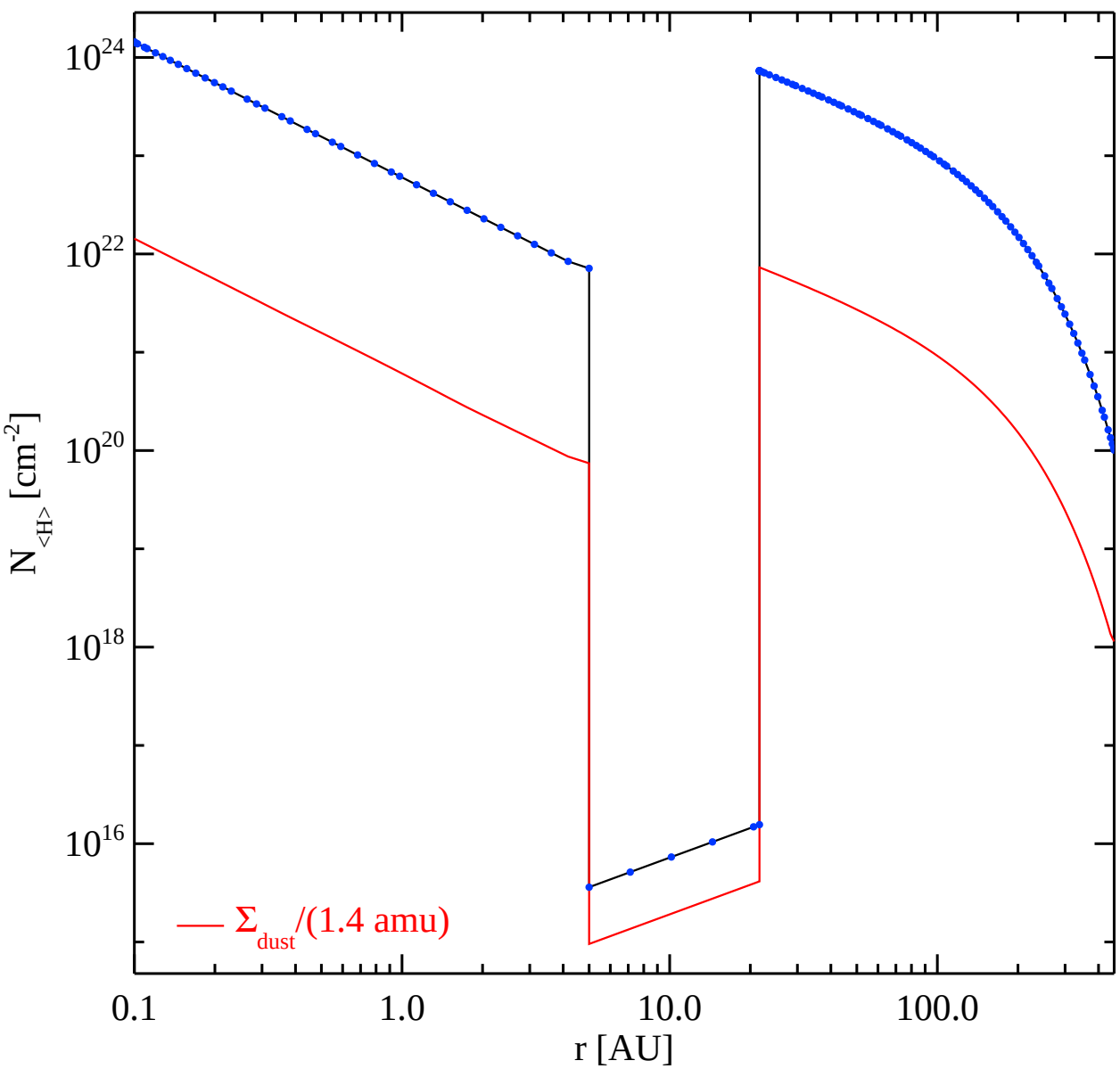
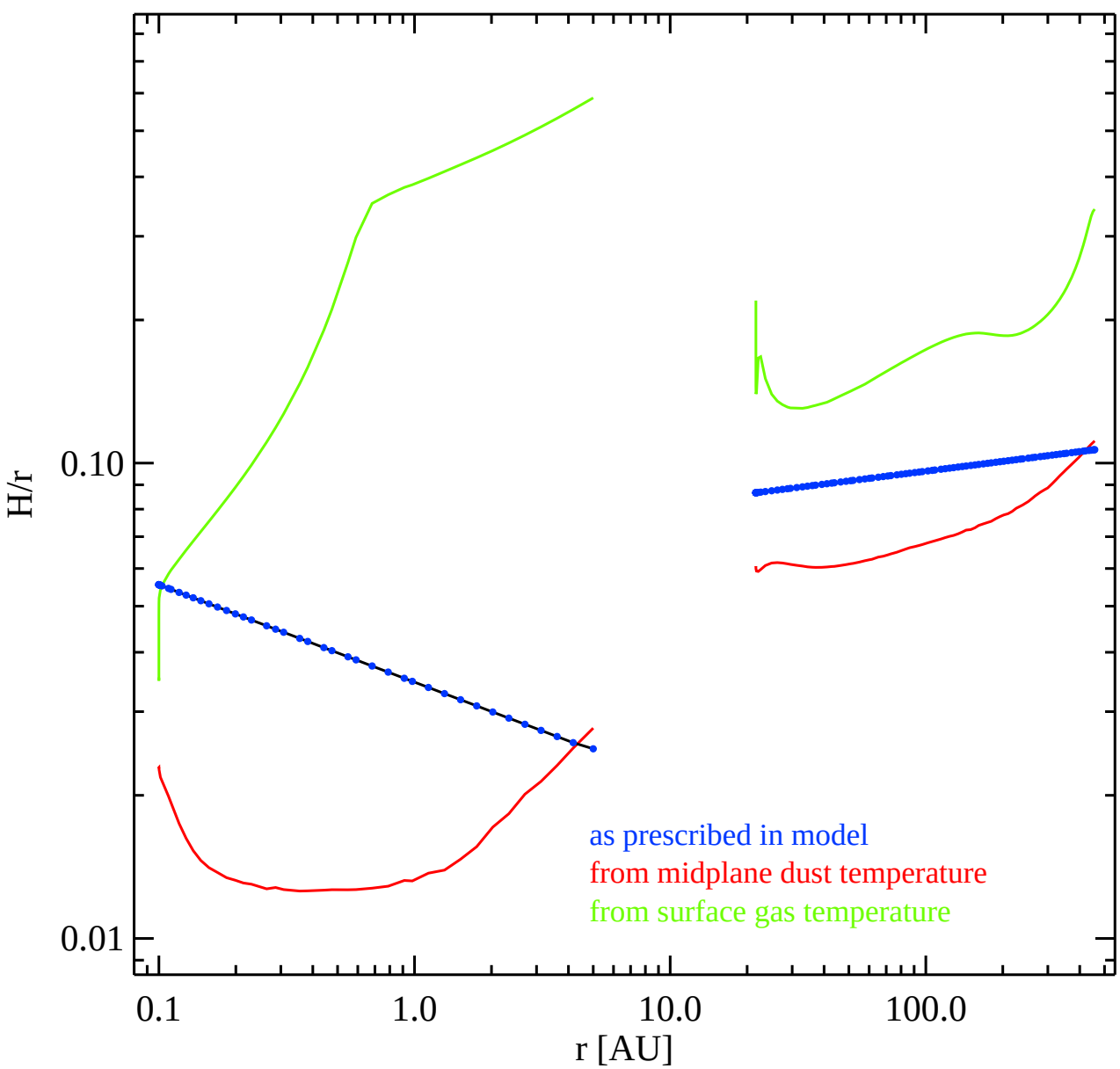

4
6
8
10
12
log n<H> [cm-3]
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

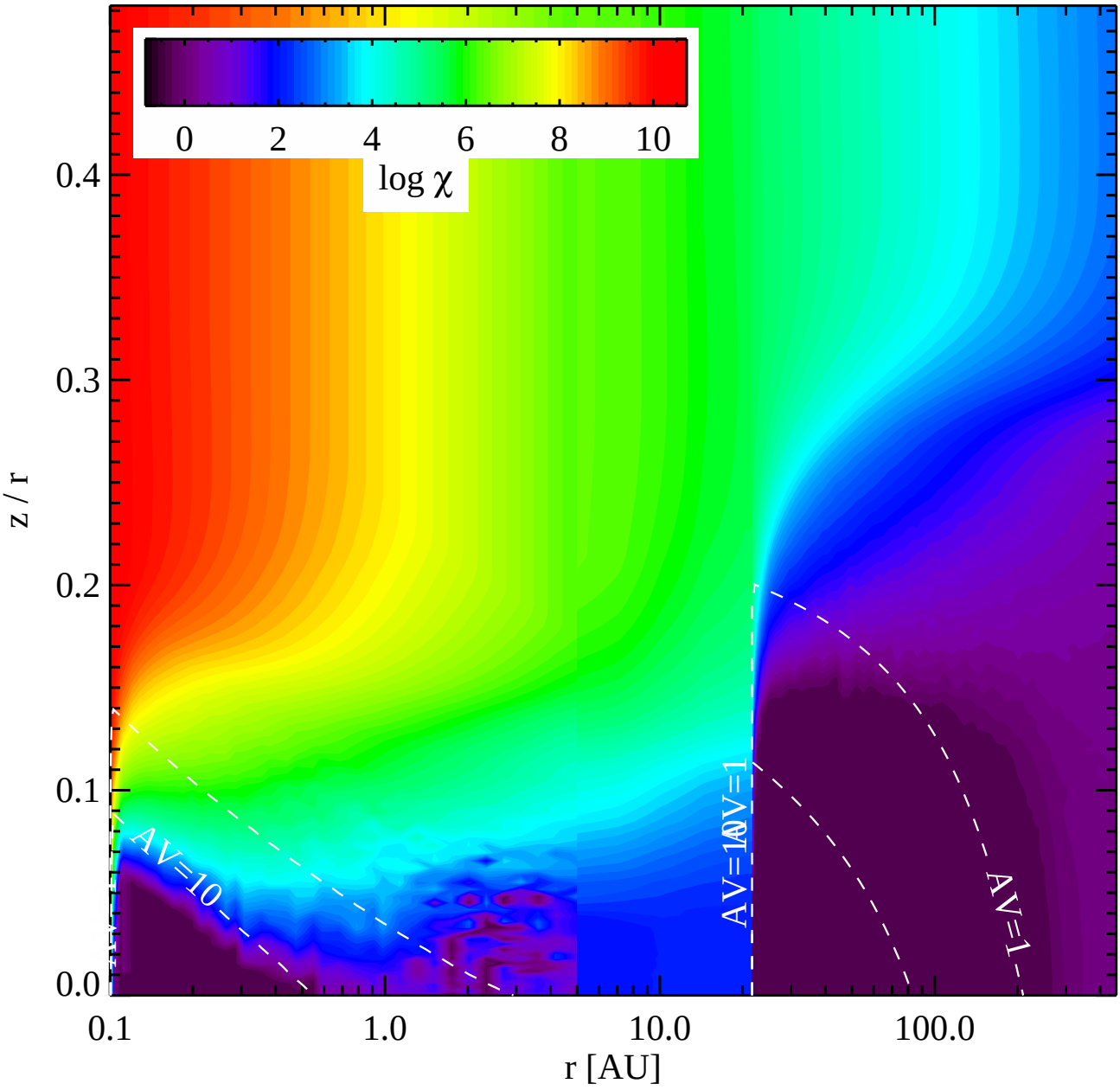

-24 -22 -20 -18 -16 -14 -12
log ρ dust [g/cm3]
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
0.01
A V,rad =1
1
0.01
A V,rad =1
1
1

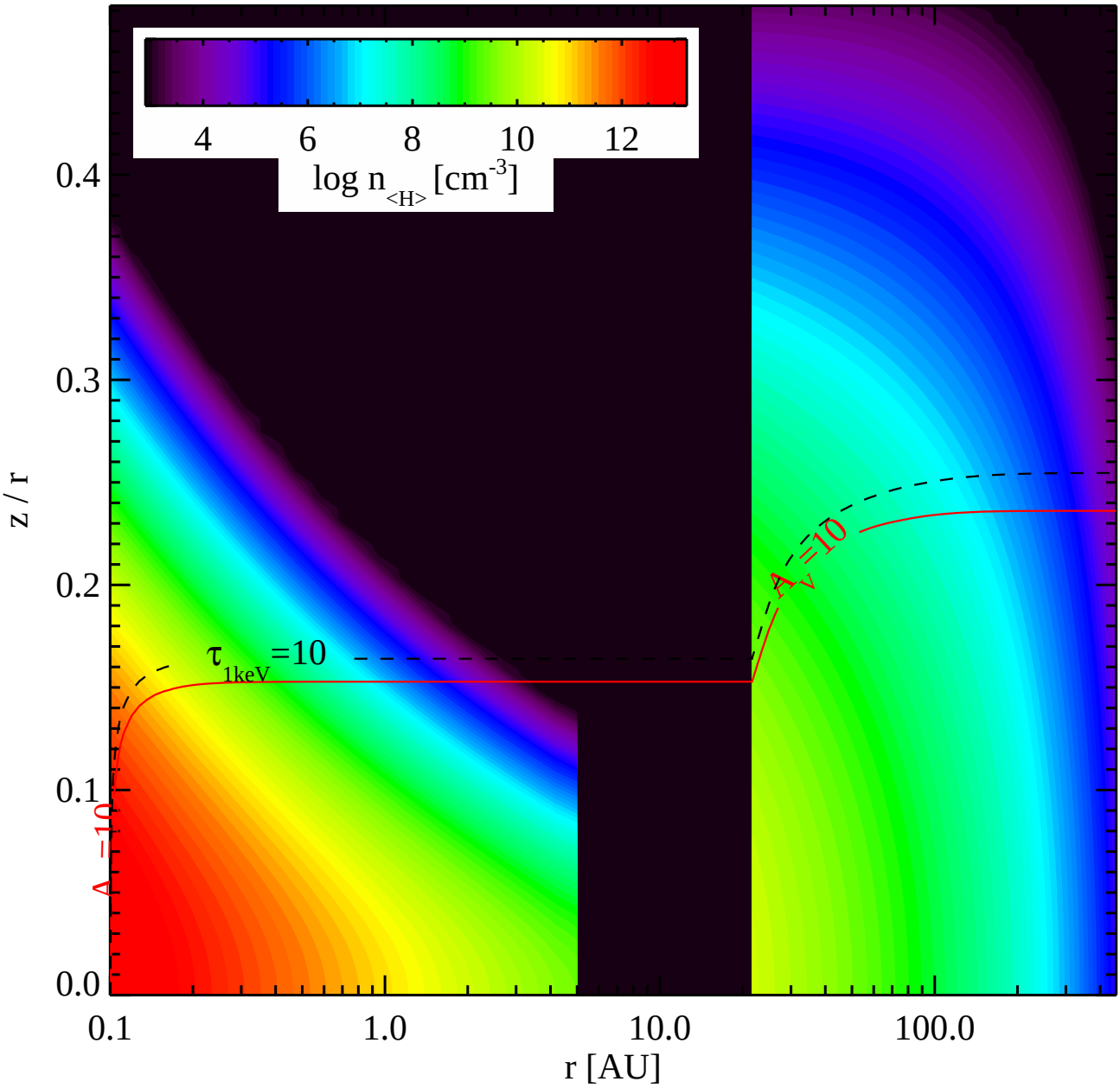

2
4
6
8
log gas/dust
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

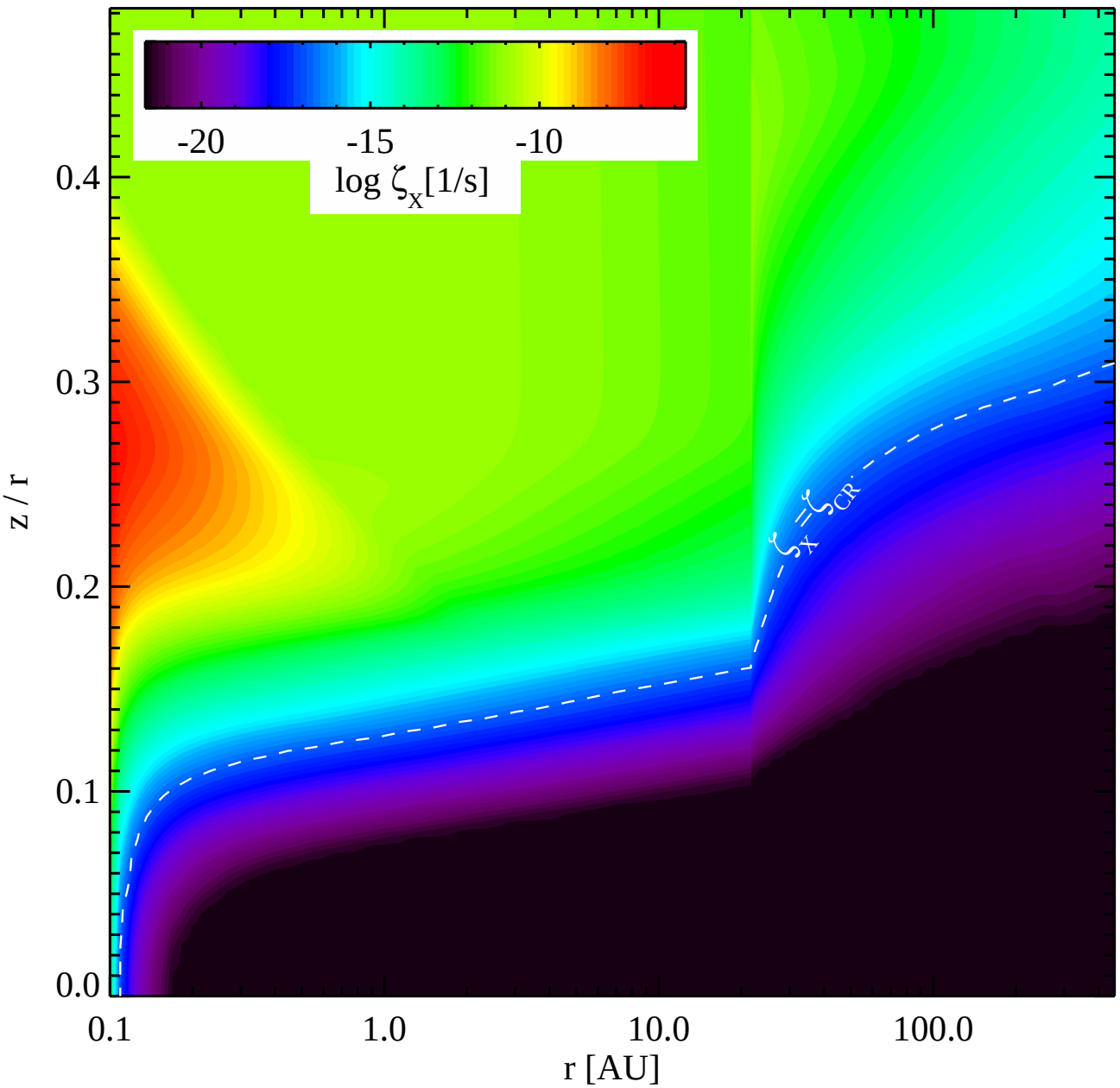

-1.5
-1.0
-0.5
0.0
log <a^3>^1/3 [mic]
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

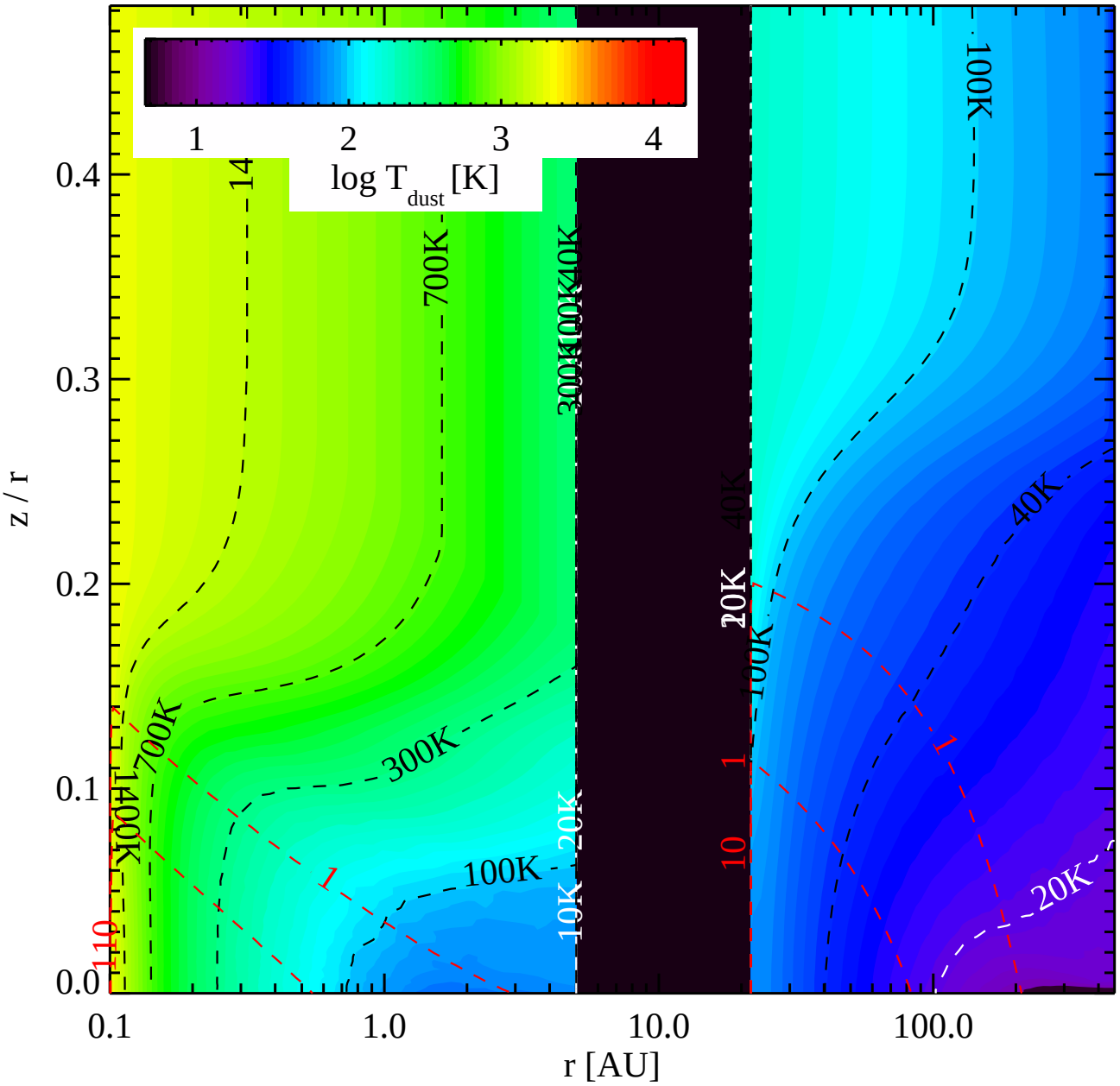

10^{24}
10^{22}
10^{20}
10^{18}
10^{16}
$N_{<H>}$ [cm^{-2}]
0.1
1.0
10.0
100.0
r [AU]
Σ_{dust}/(1.4 amu)


H/r
0.10
0.01
0.1
1.0
10.0
100.0
r [AU]
as prescribed in model
from midplane dust temperature
from surface gas temperature

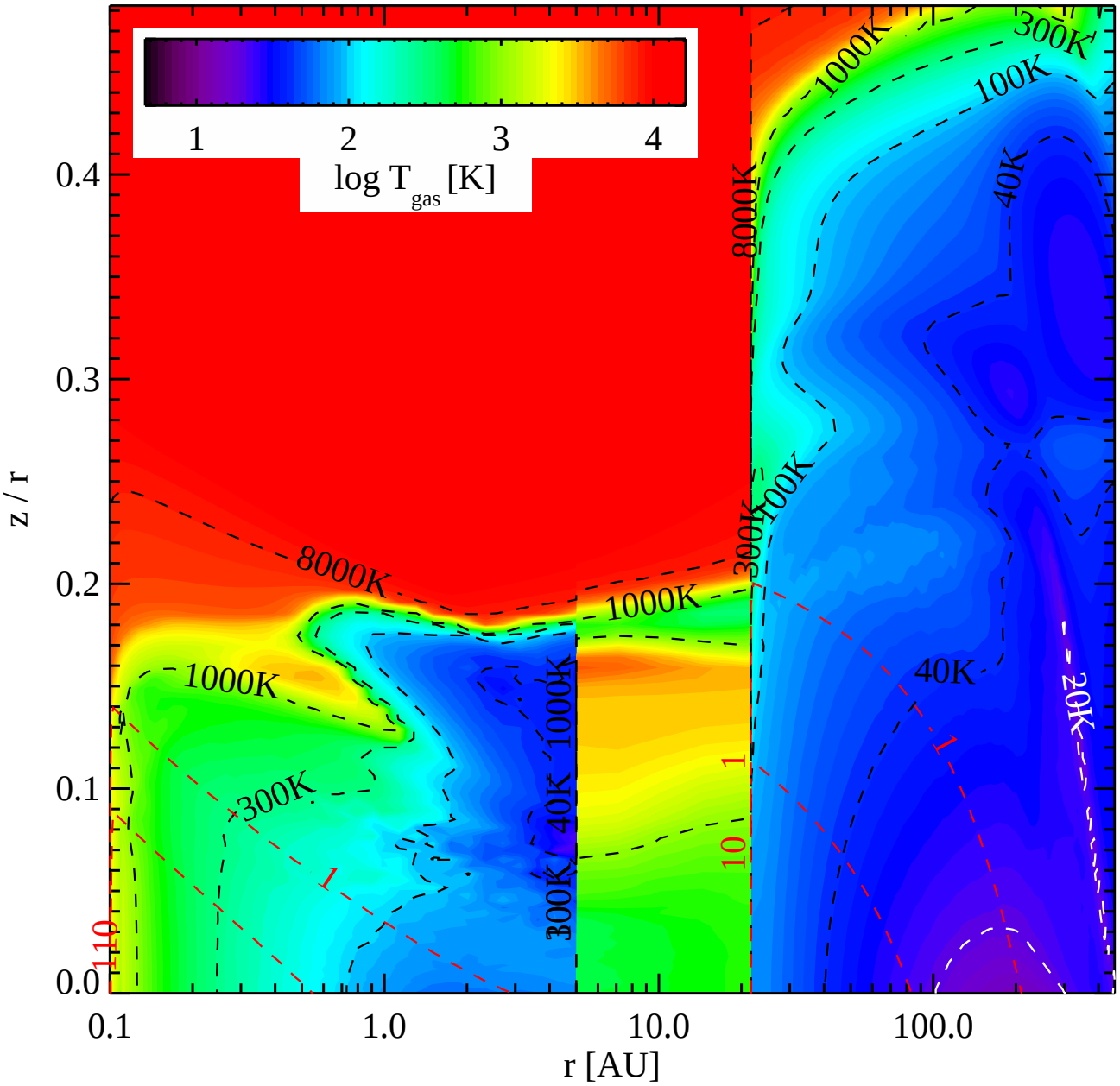

0
2
4
6
8
10
log χ
0.4
0.3
0.2
0.1
0.0
z / r
AV=10
AV=1
AV=1
0.1
1.0
10.0
100.0
r [AU]

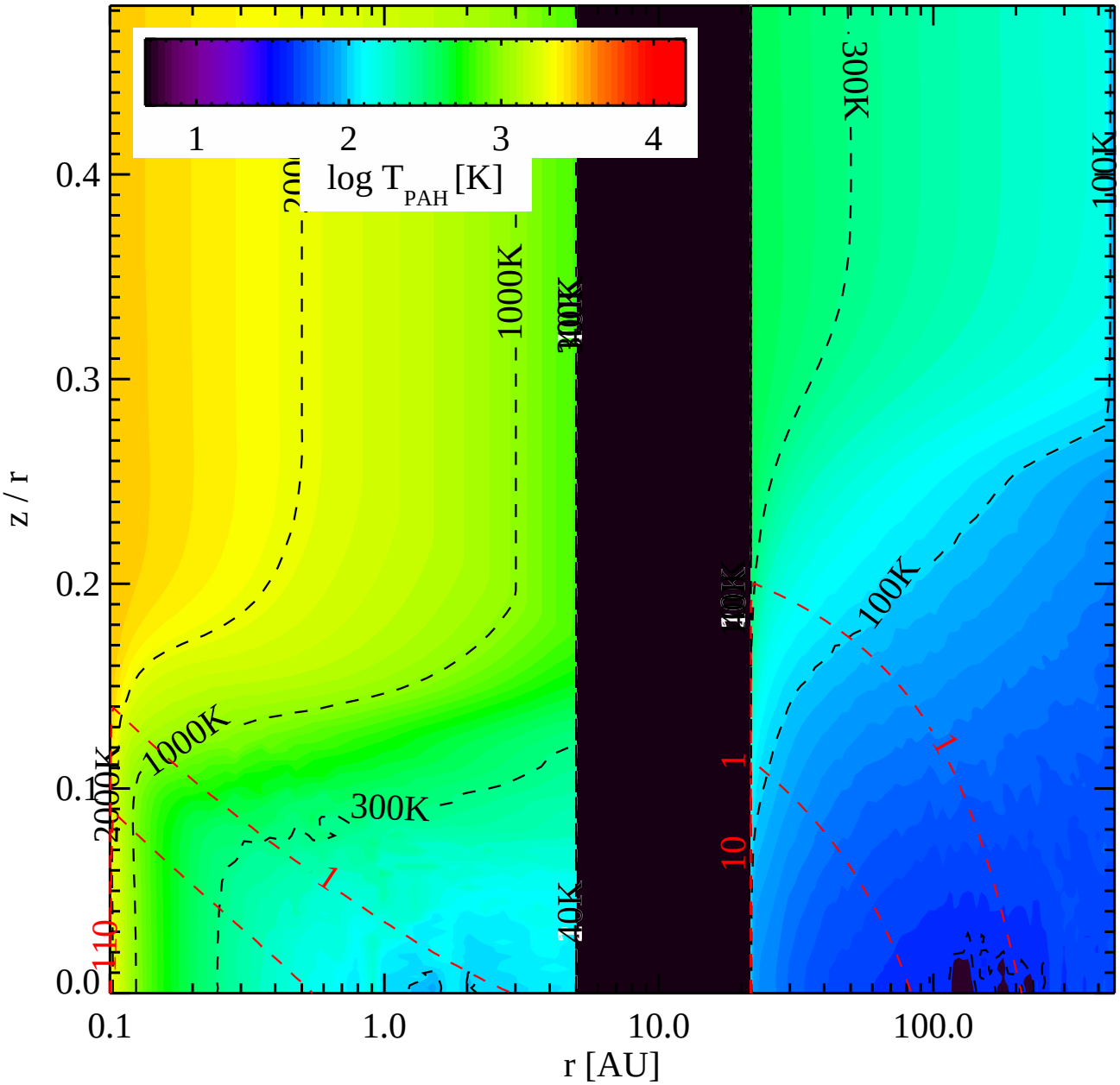

4
6
8
10
12
log n<H> [cm-3]
0.4
0.3
0.2
0.1
0.0
z / r
τ1keV=10
AV=10
AV=10
0.1
1.0
10.0
100.0
r [AU]

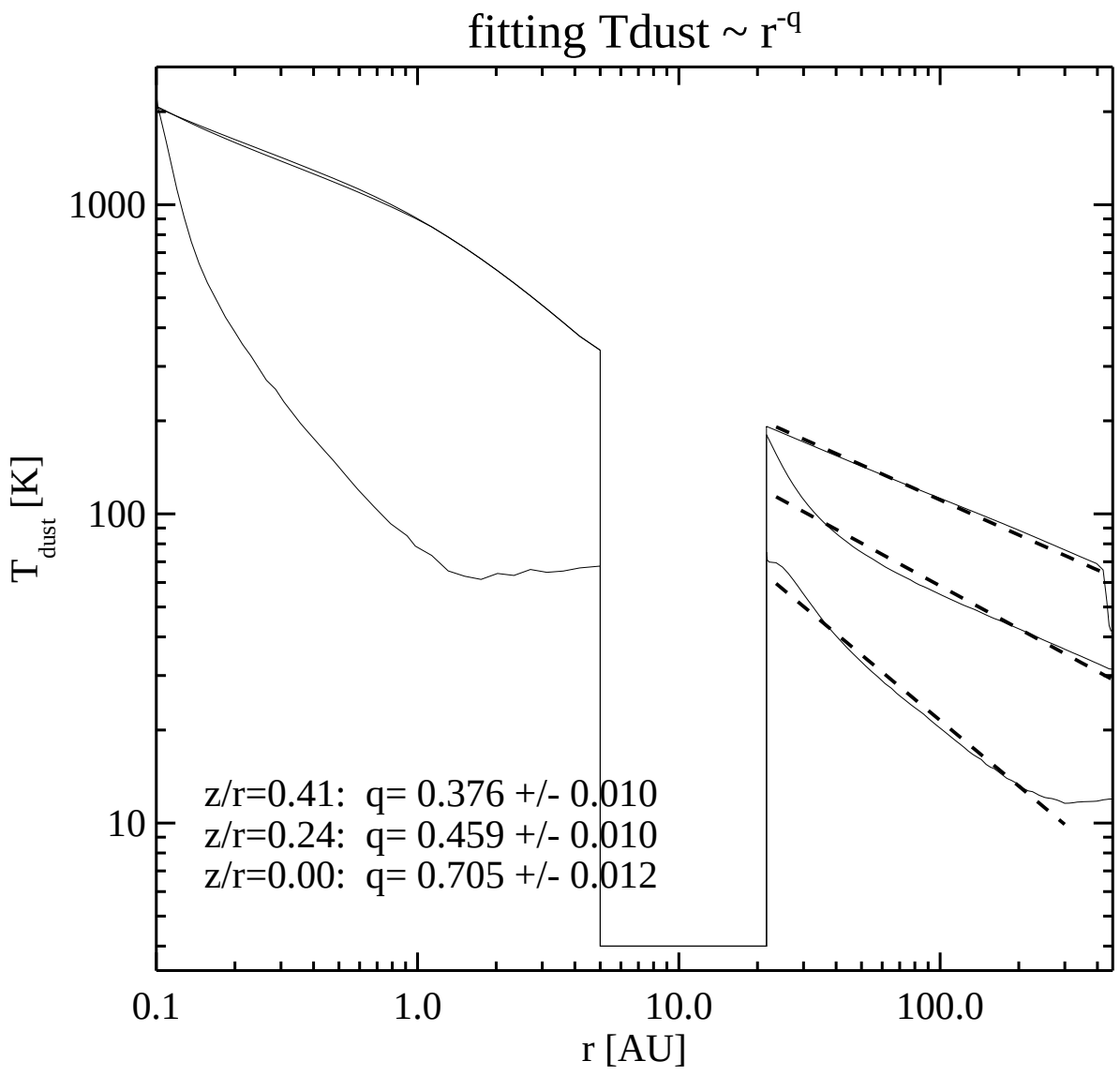

-20
-15
-10
log ζ_X[1/s]
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
ζ_X=ζ_CR

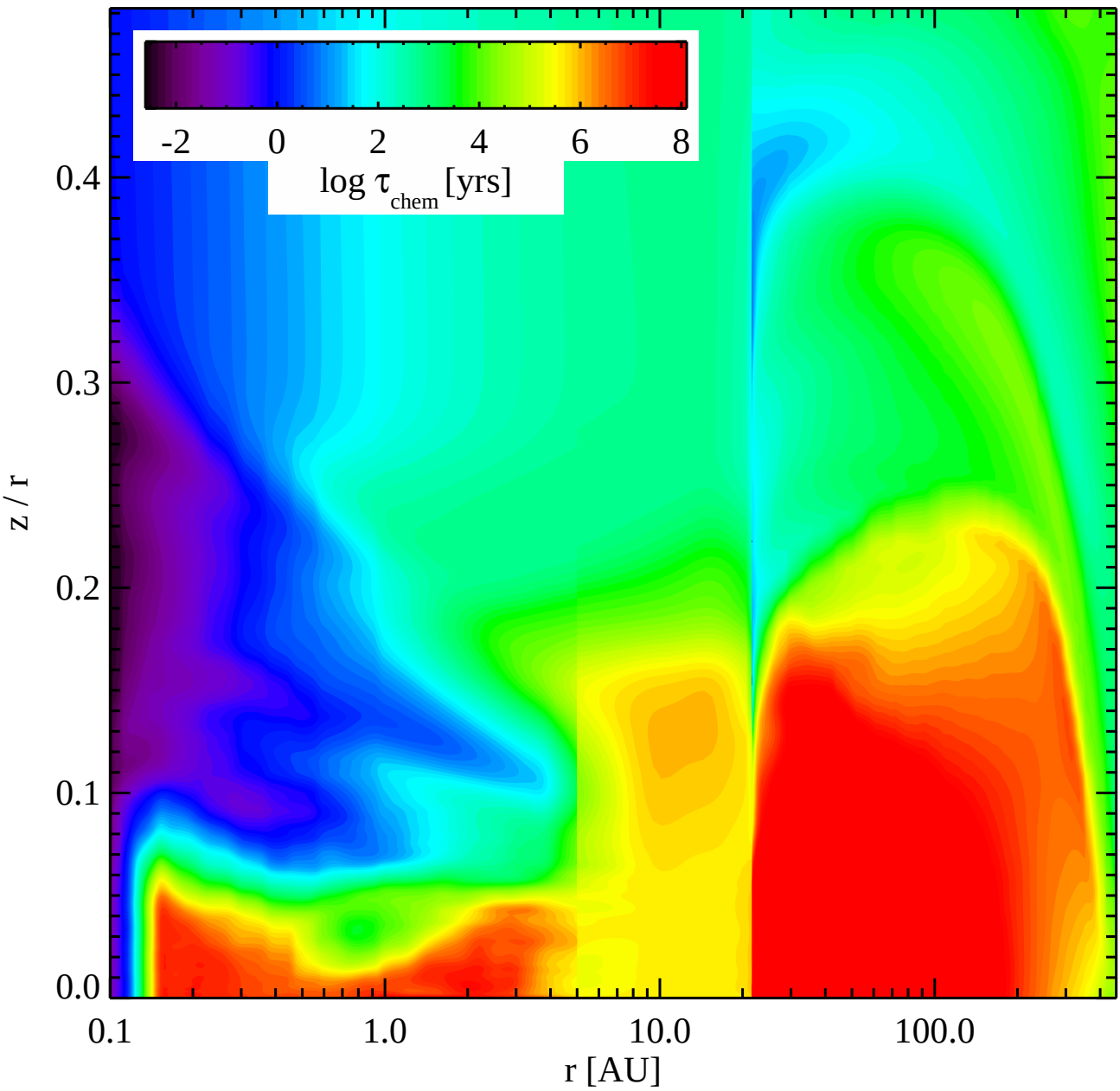


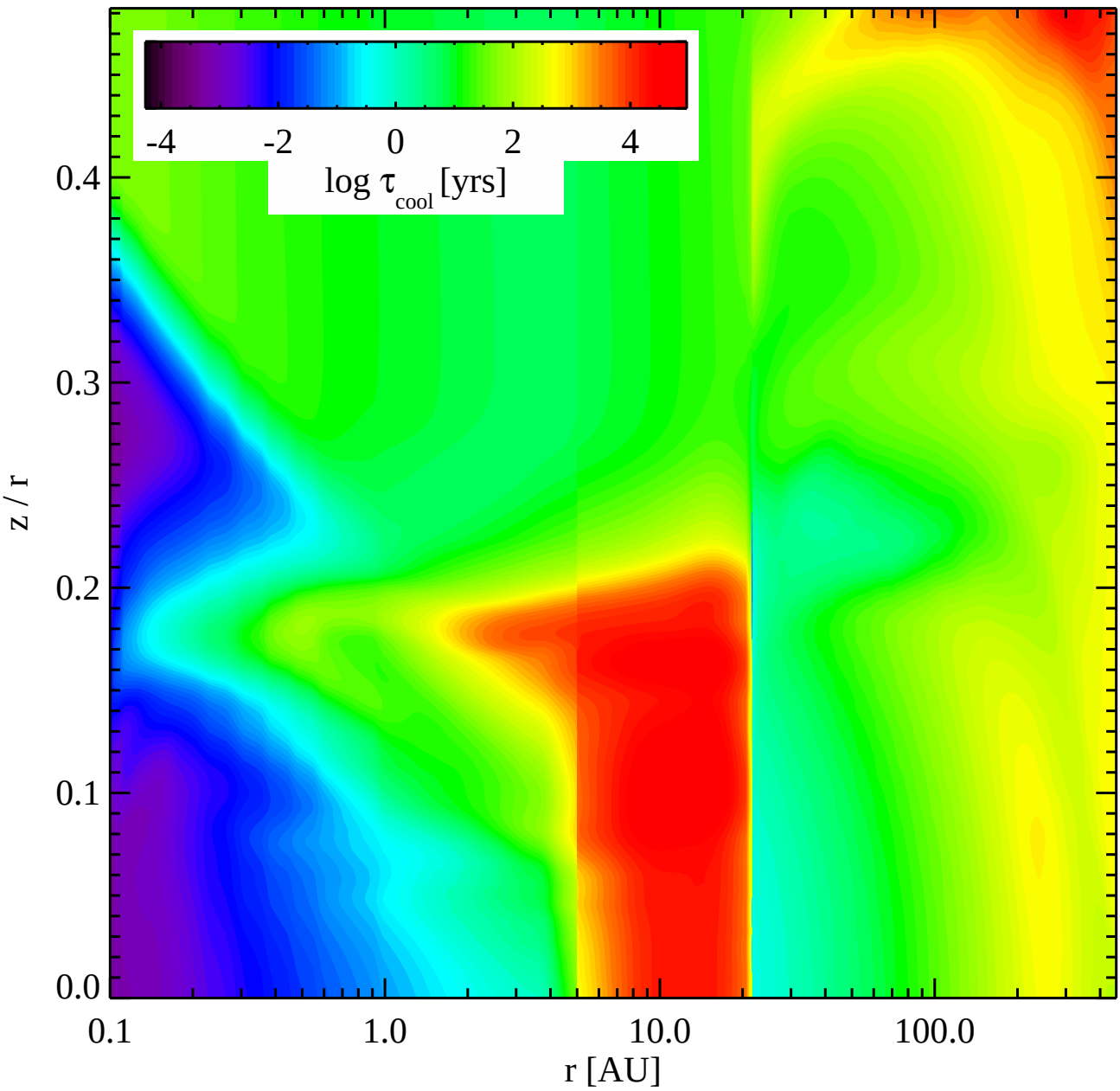
1
2
3
4
log T dust [K]
z / r
r [AU]
0.0
0.1
0.2
0.3
0.4
0.1
1.0
10.0
100.0
14
700K
300K
100K
40K
20K
10K
1400K
110
10
1

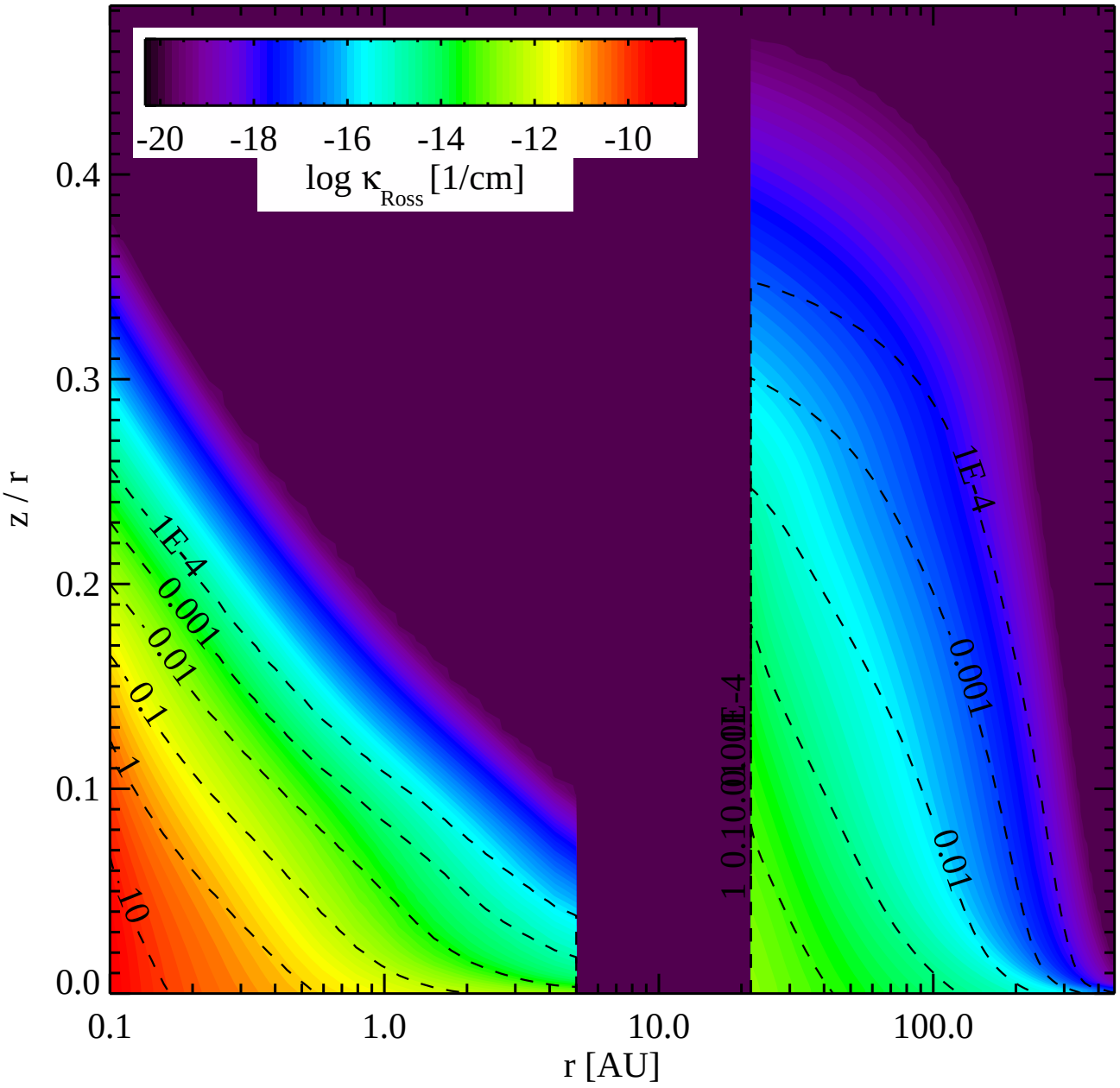

1
2
3
4
log T gas [K]
8000K
1000K
300K
100K
40K
20K
10
1
0.1
0.01
0.0
0.1
0.2
0.3
0.4
z / r
0.1
1.0
10.0
100.0
r [AU]

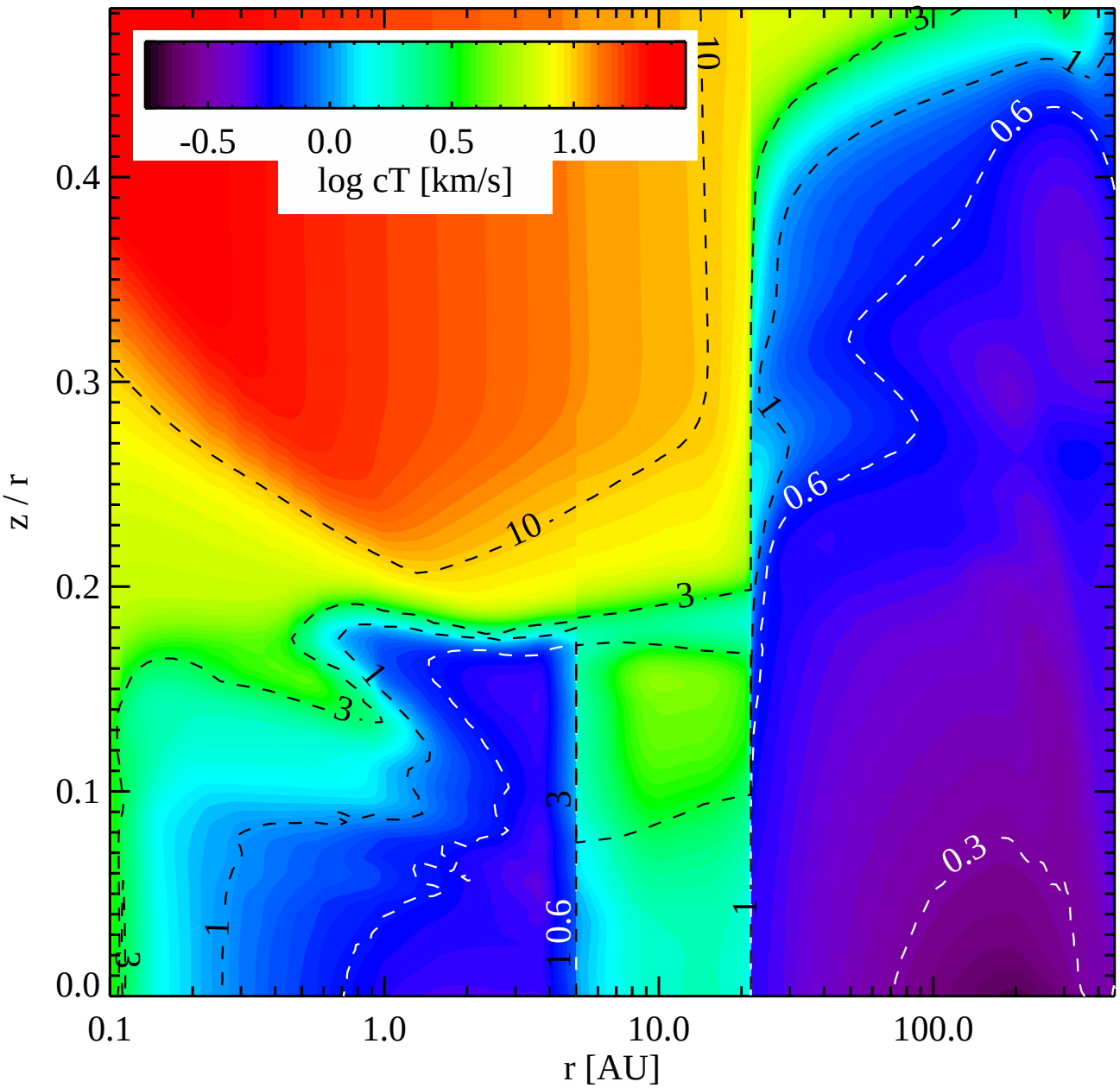

1
2
3
4
log T PAH [K]
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
1000K
300K
100K
40K
10
1

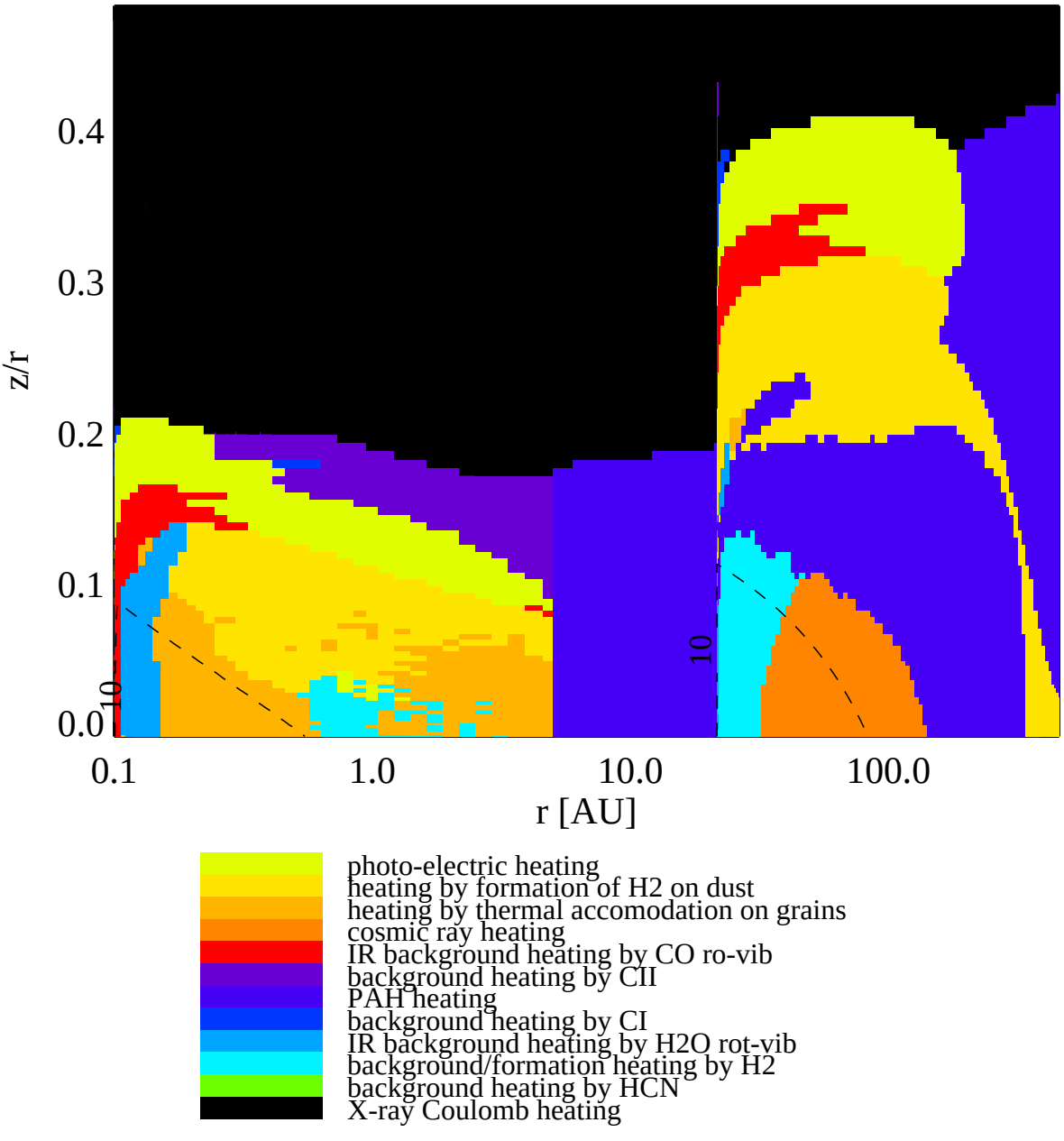

fitting Tdust ~ r^-q
1000
100
10
T dust [K]
0.1
1.0
10.0
100.0
r [AU]
z/r=0.41: q= 0.376 +/- 0.010
z/r=0.24: q= 0.459 +/- 0.010
z/r=0.00: q= 0.705 +/- 0.012

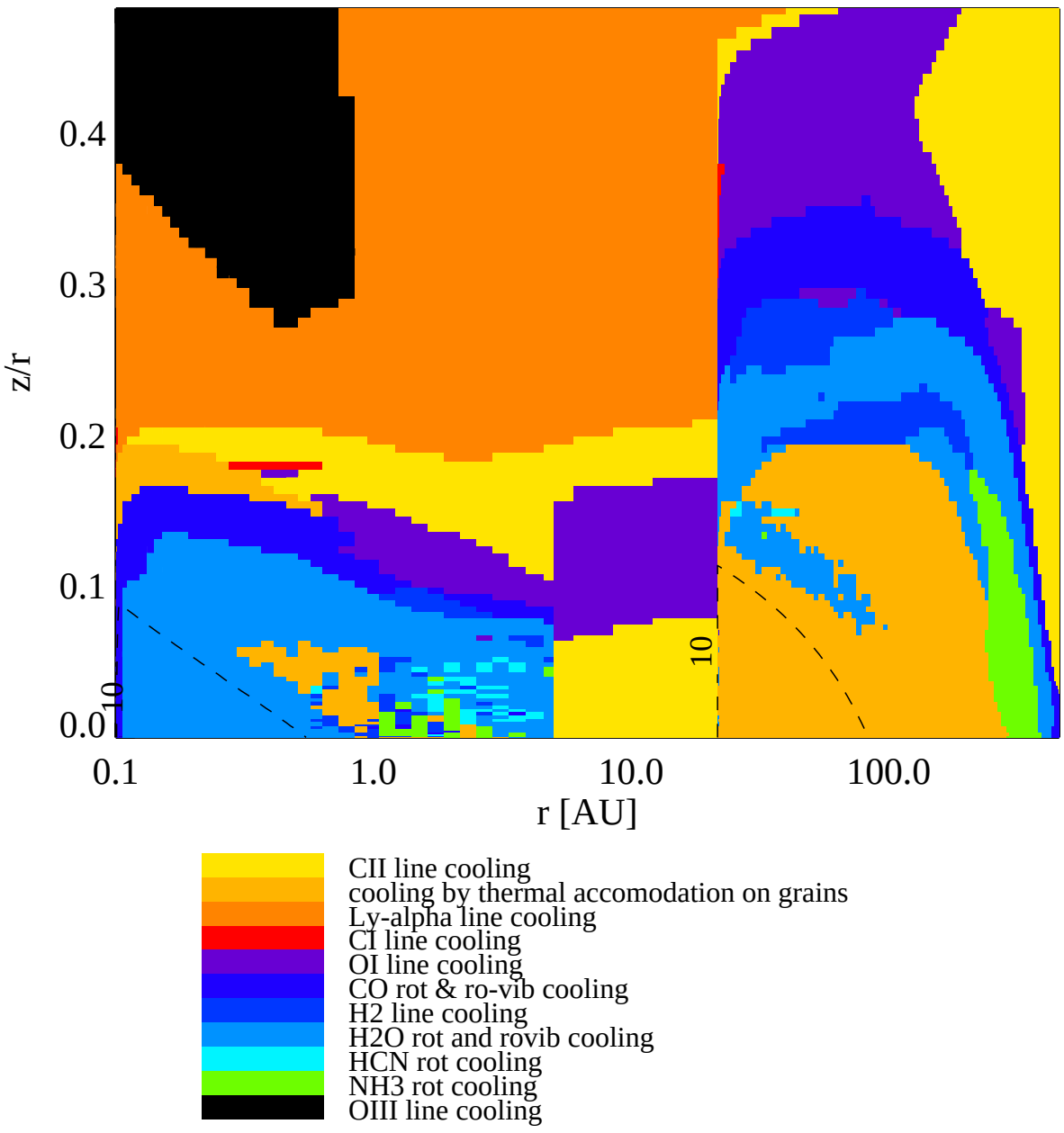

-2
0
2
4
6
8
log τ chem [yrs]
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

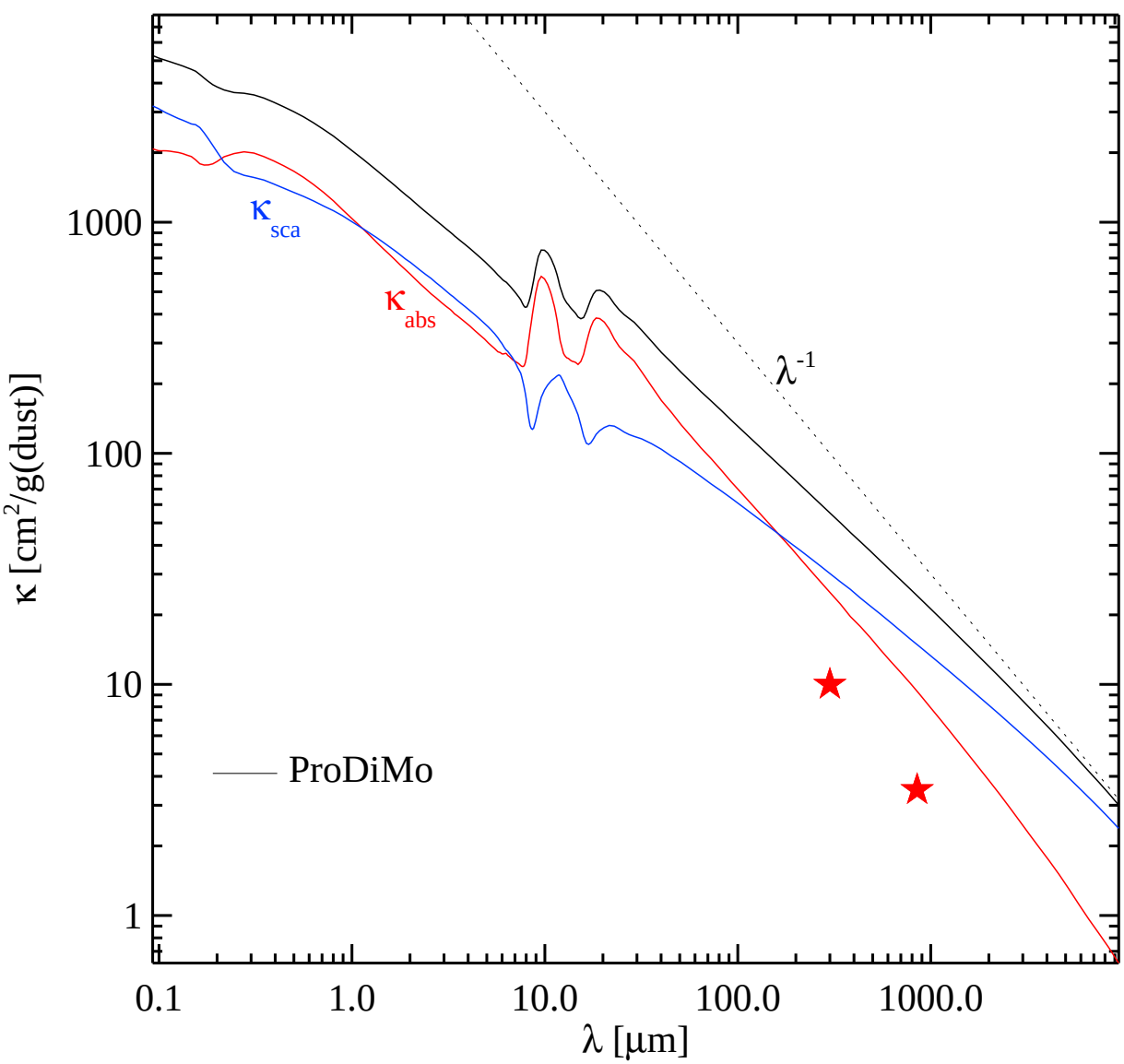

-4
-2
0
2
4
log τ cool [yrs]
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

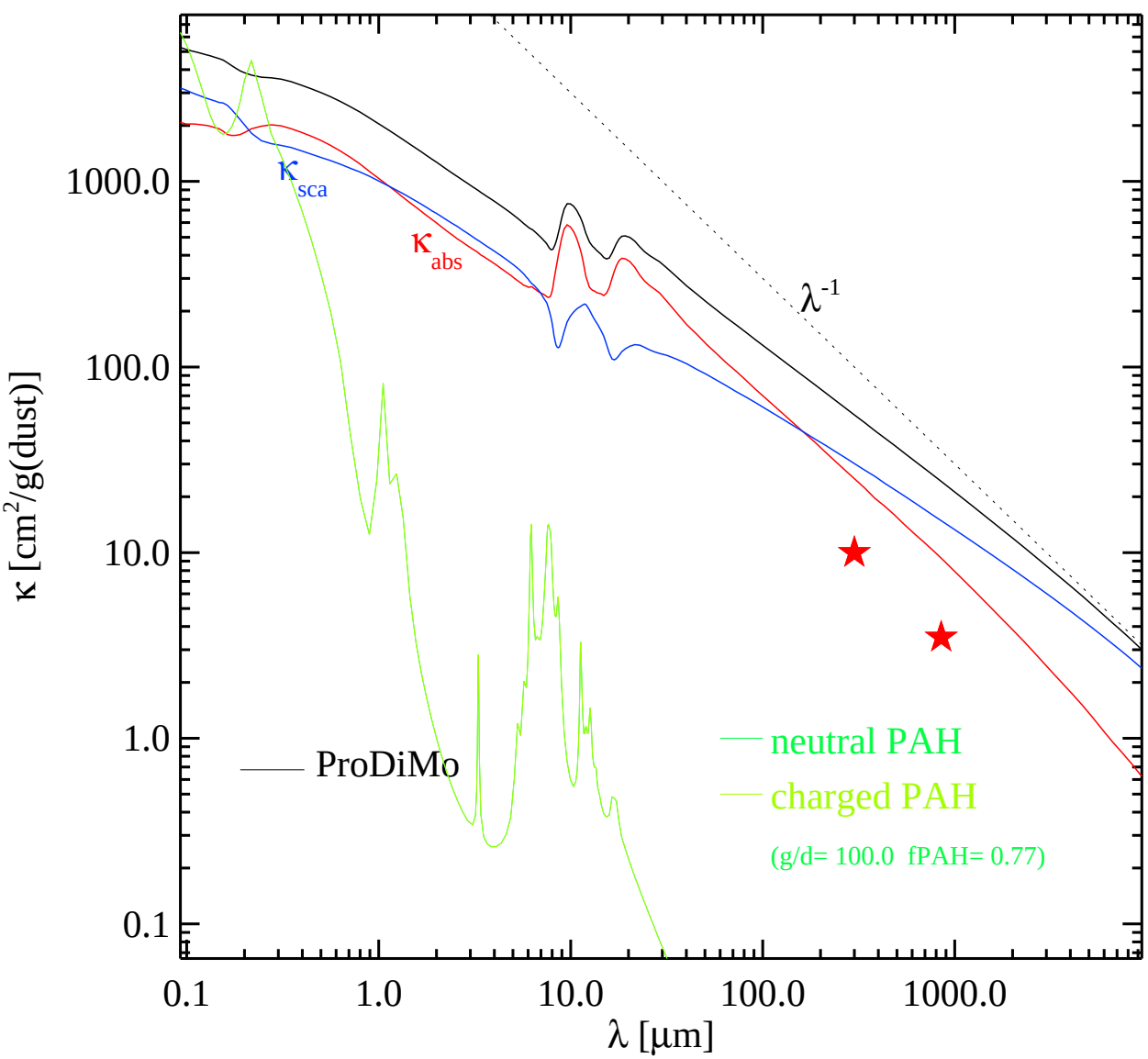

-20
-18
-16
-14
-12
-10
log κ Ross [1/cm]
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
1E-4
0.001
0.01
0.1
1
10
1E-4
0.001
0.01
1
0.1
0.01
0.001
1E-4

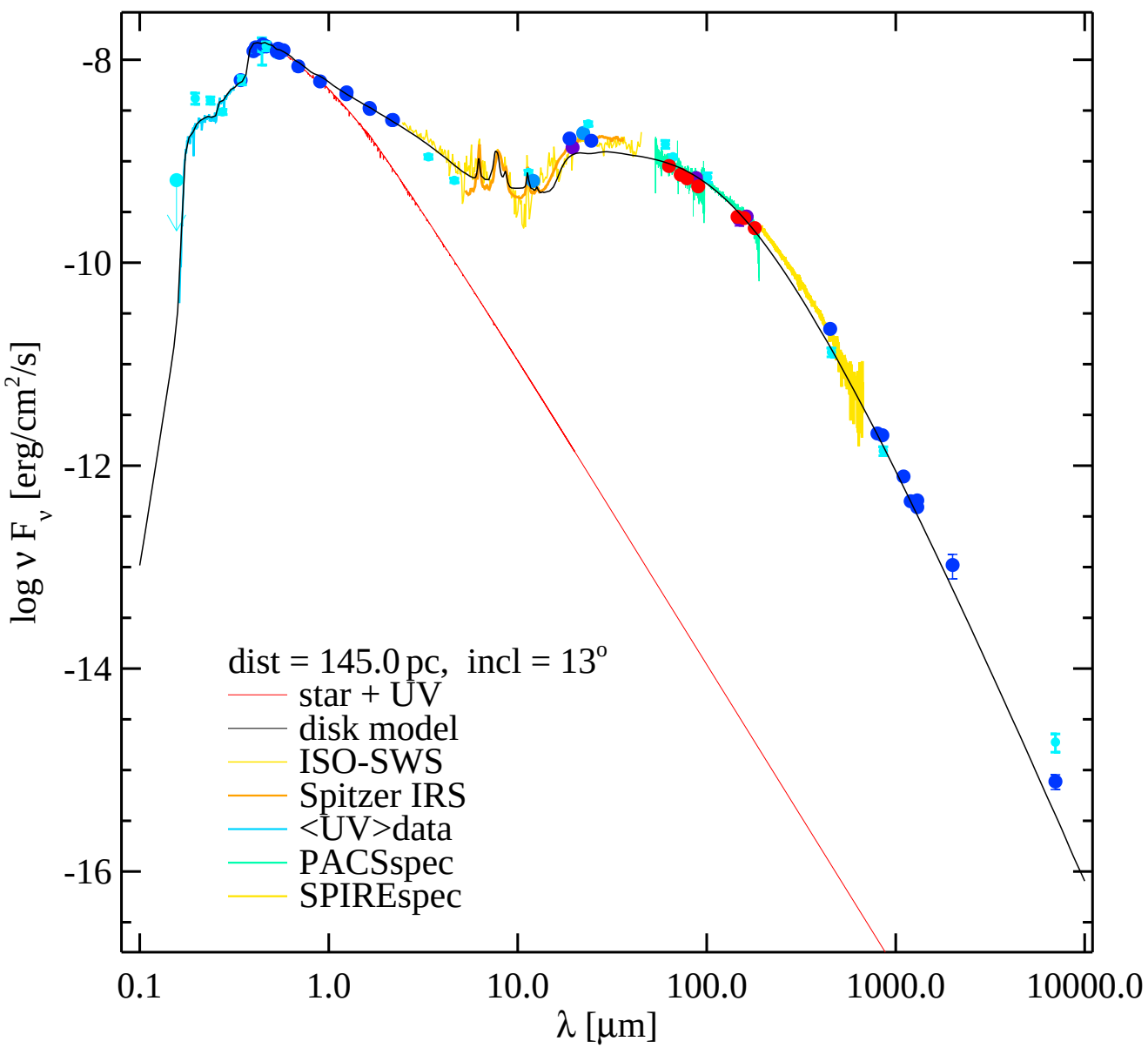

-0.5
0.0
0.5
1.0
log cT [km/s]
z / r
r [AU]
0.0
0.1
0.2
0.3
0.4
0.1
1.0
10.0
100.0
10
3
1
0.6
0.3

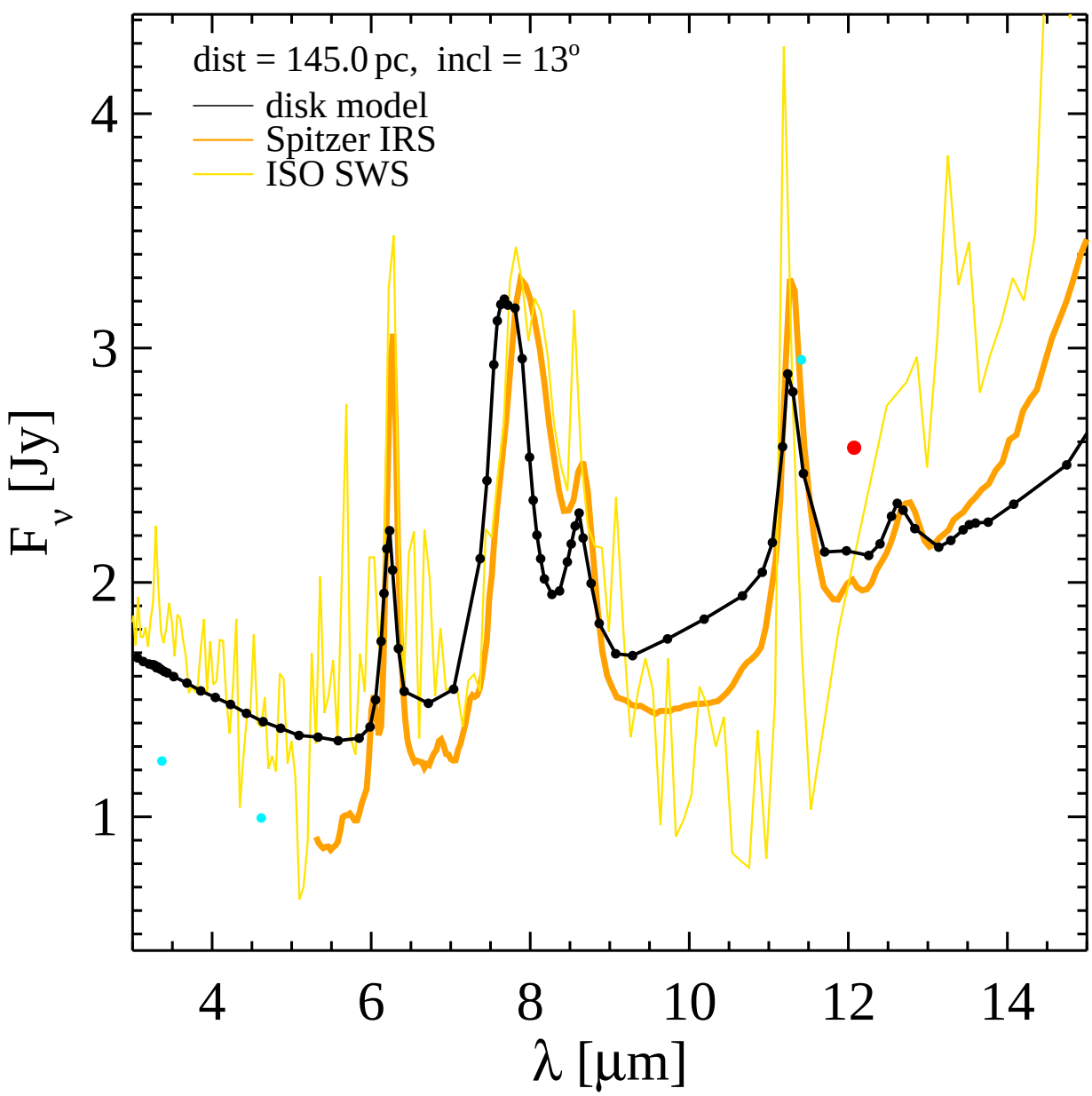

0.4
0.3
0.2
0.1
0.0
z/r
10
10
0.1
1.0
10.0
100.0
r [AU]
photo-electric heating
heating by formation of H2 on dust
heating by thermal accomodation on grains
cosmic ray heating
IR background heating by CO ro-vib
background heating by CII
PAH heating
background heating by CI
IR background heating by H2O rot-vib
background/formation heating by H2
background heating by HCN
X-ray Coulomb heating

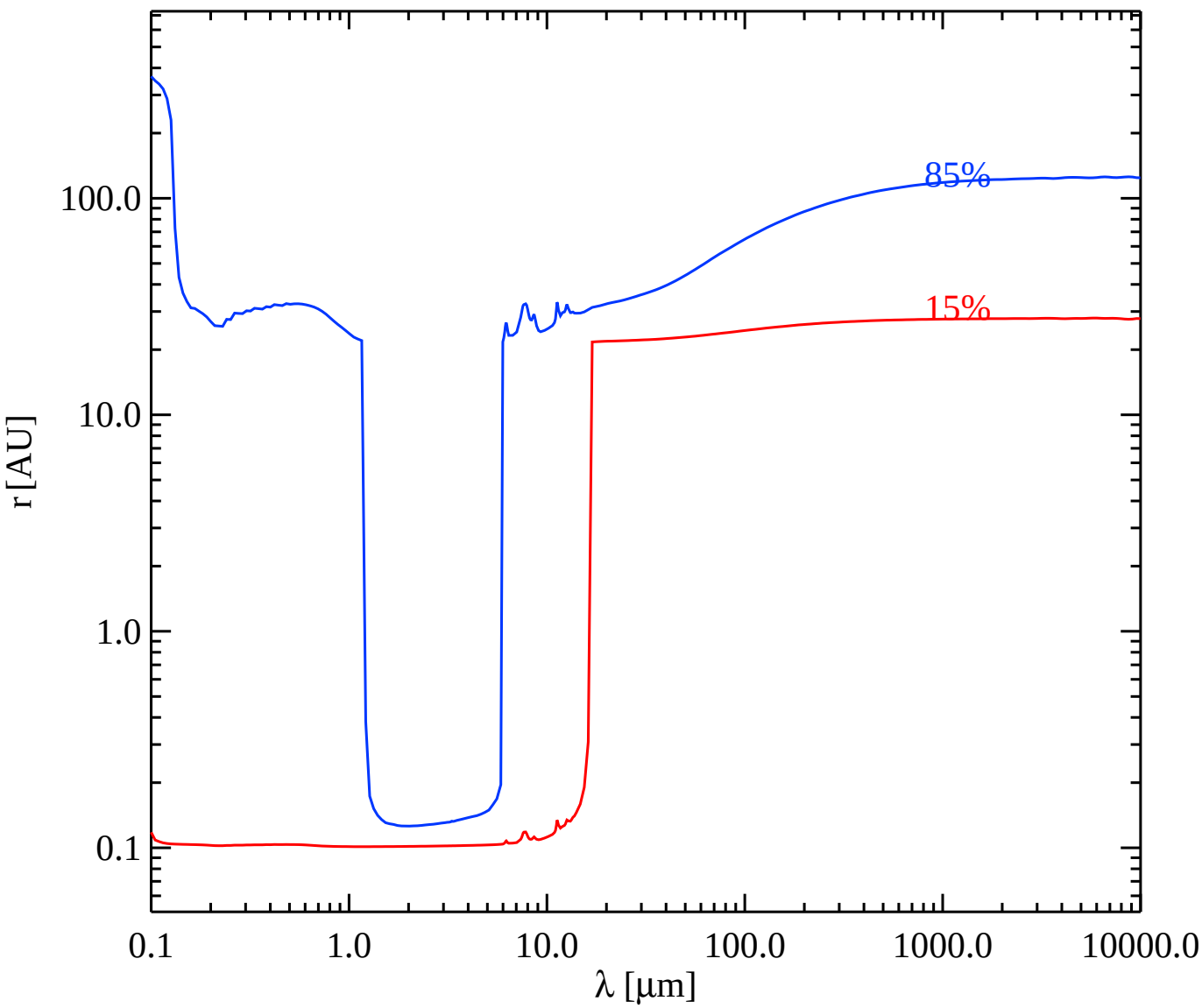

z/r
0.4
0.3
0.2
0.1
0.0
10
10
0.1
1.0
10.0
100.0
r [AU]
CII line cooling
cooling by thermal accomodation on grains
Ly-alpha line cooling
CI line cooling
OI line cooling
CO rot & ro-vib cooling
H2 line cooling
H2O rot and rovib cooling
HCN rot cooling
NH3 rot cooling
OIII line cooling

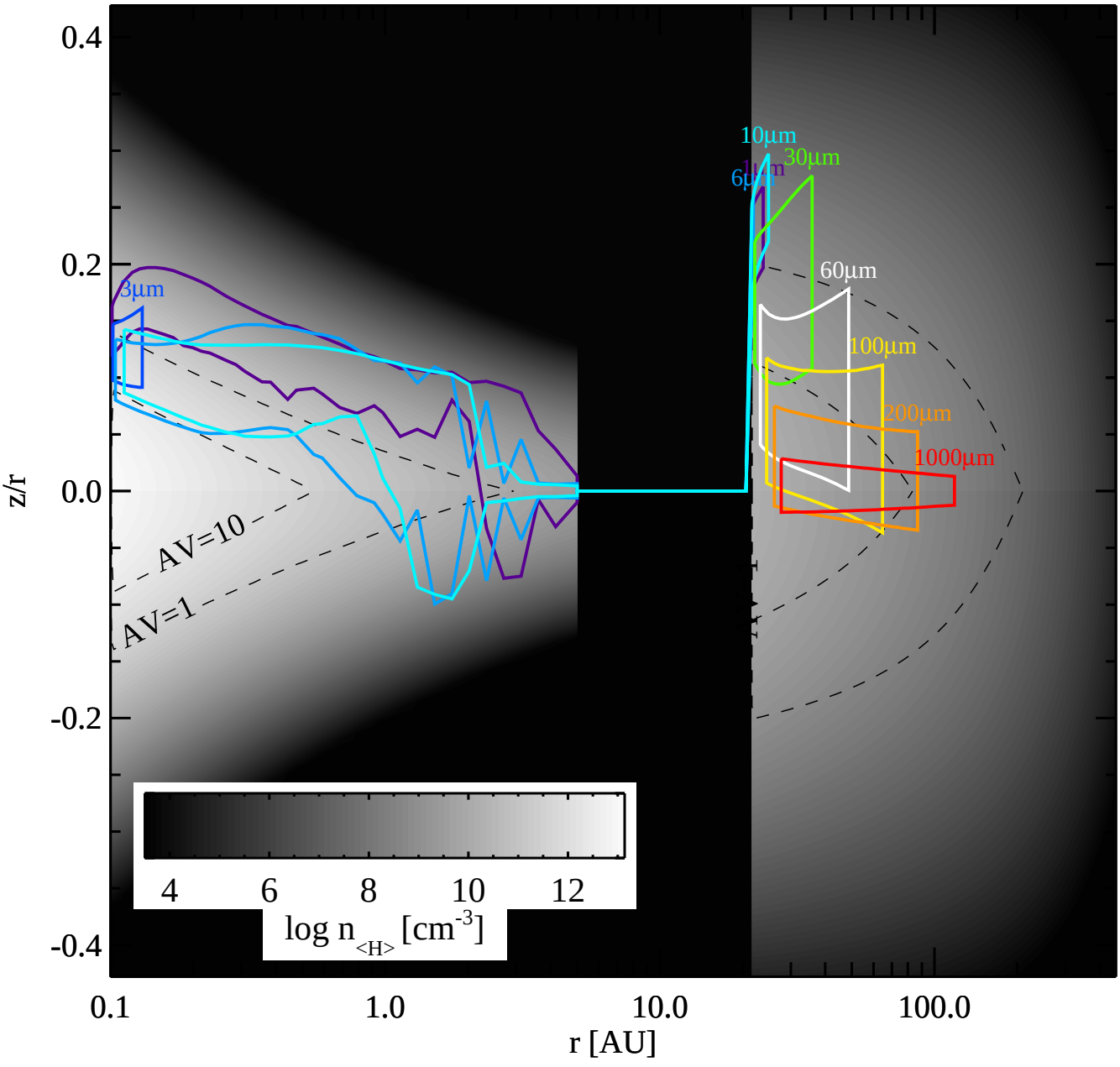

κ [cm²/g(dust)]
1000
100
10
1
0.1
1.0
10.0
100.0
1000.0
λ [μm]
κsca
κabs
λ-1
ProDiMo

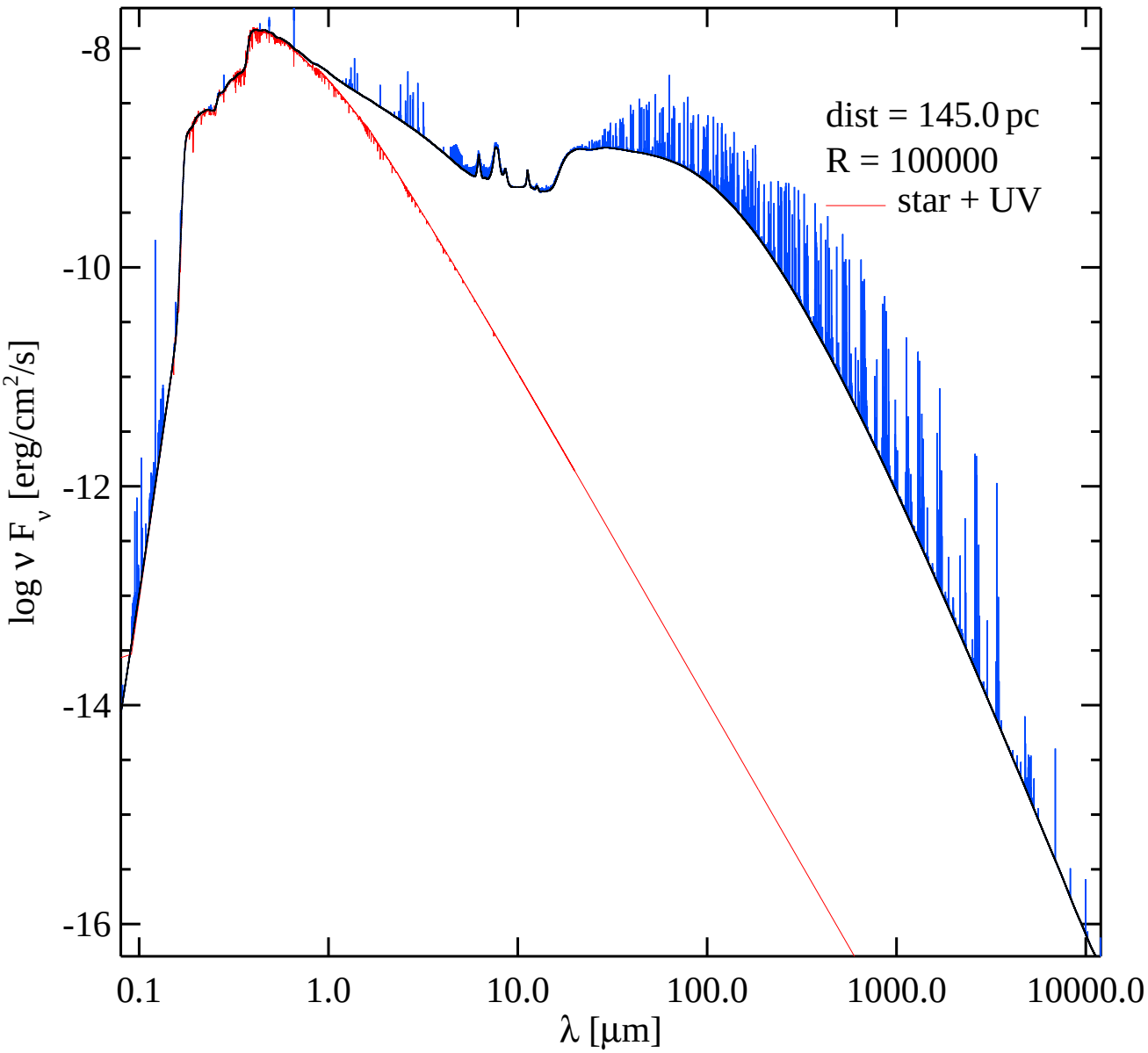

κ [cm²/g(dust)]
λ [μm]
1000.0
100.0
10.0
1.0
0.1
0.1
1.0
10.0
100.0
1000.0
κ sca
κ abs
λ-1
ProDiMo
neutral PAH
charged PAH
(g/d= 100.0 fPAH= 0.77)

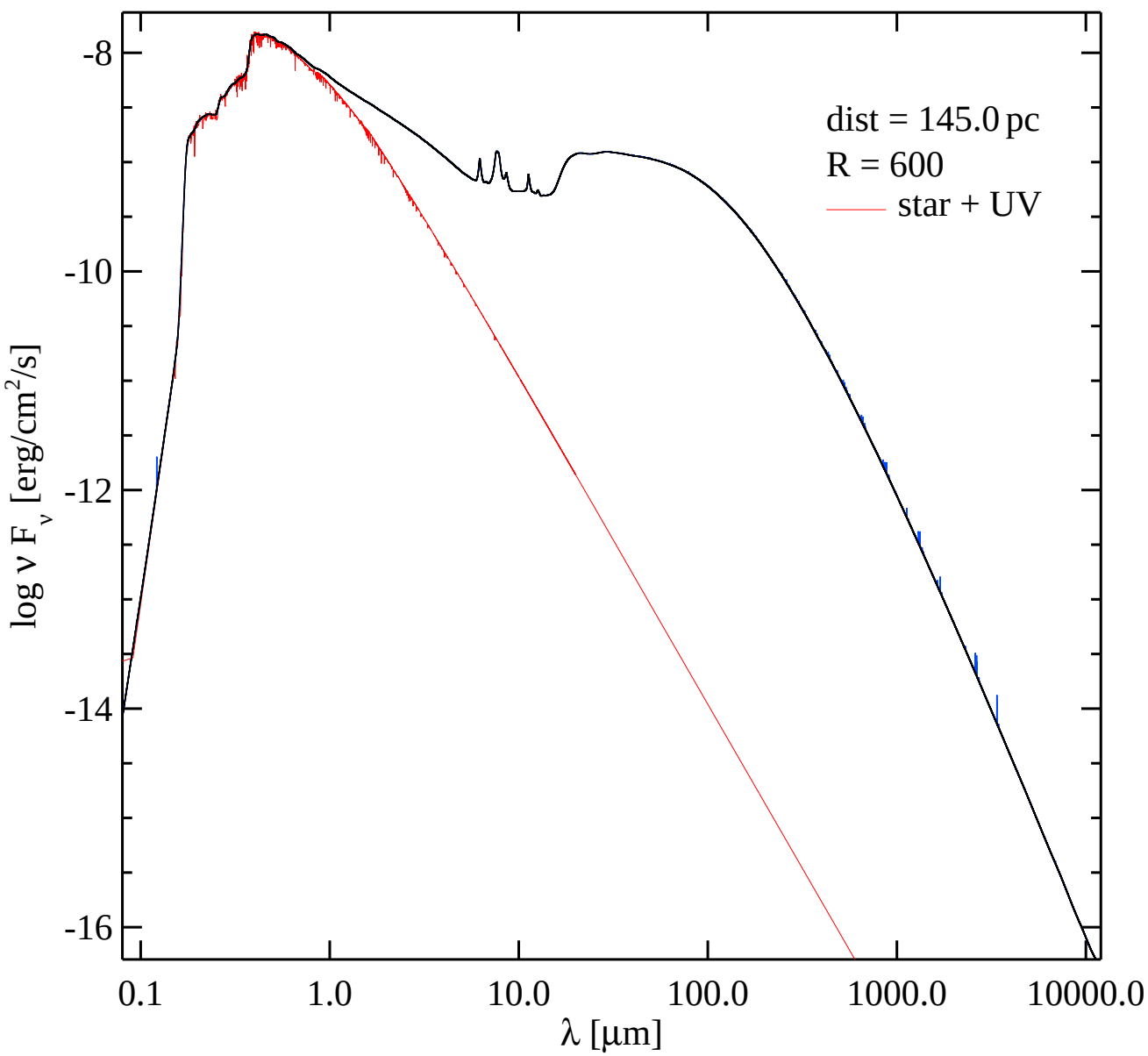

-8
-10
-12
-14
-16
log ν F_ν [erg/cm²/s]
0.1
1.0
10.0
100.0
1000.0
10000.0
λ [μm]
dist = 145.0 pc, incl = 13°
star + UV
disk model
ISO-SWS
Spitzer IRS
<UV>data
PACSspec
SPIREspec

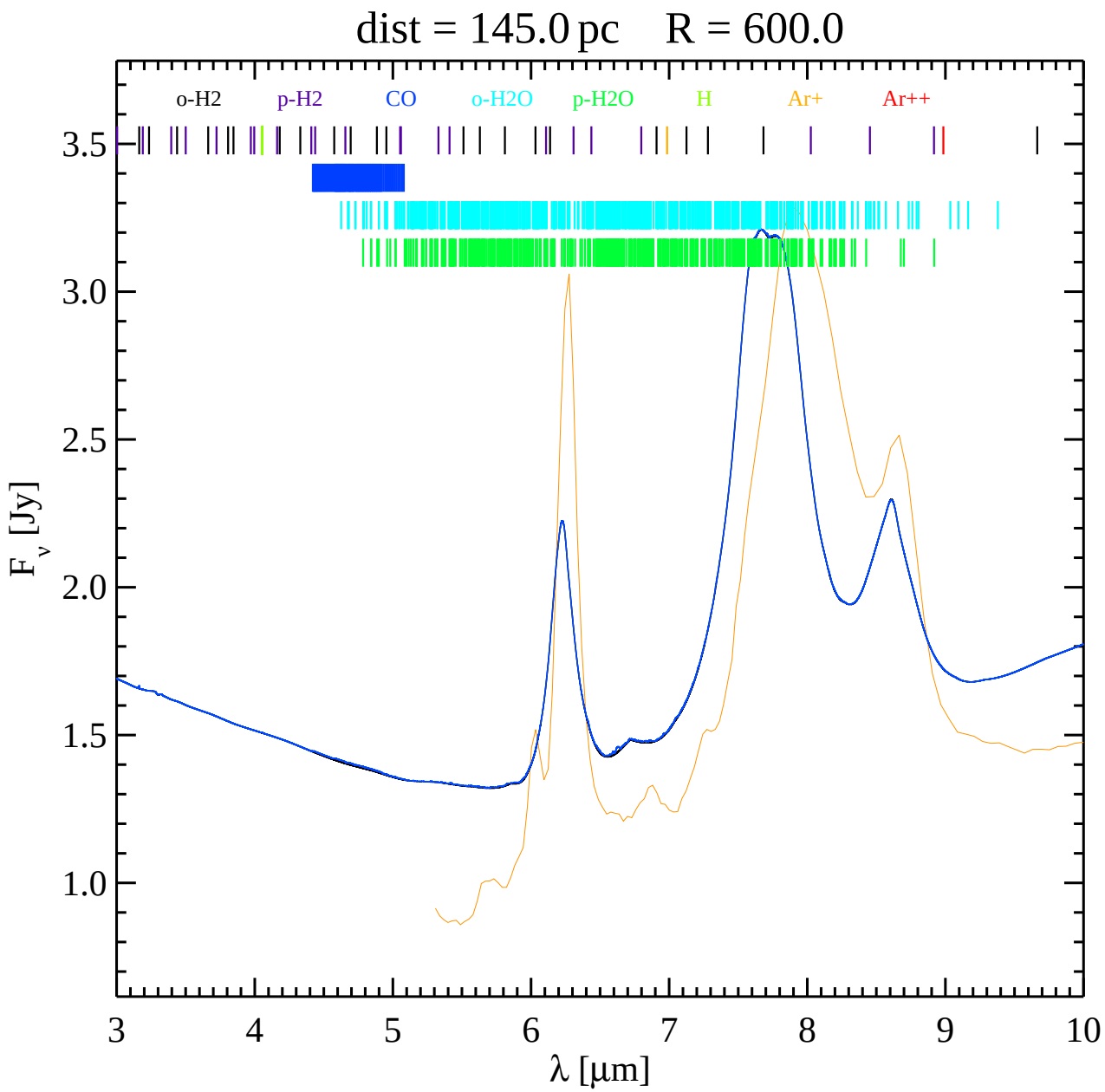

dist = 145.0 pc, incl = 13°
disk model
Spitzer IRS
ISO SWS
F_ν [Jy]
λ [μm]
1
2
3
4
4
6
8
10
12
14

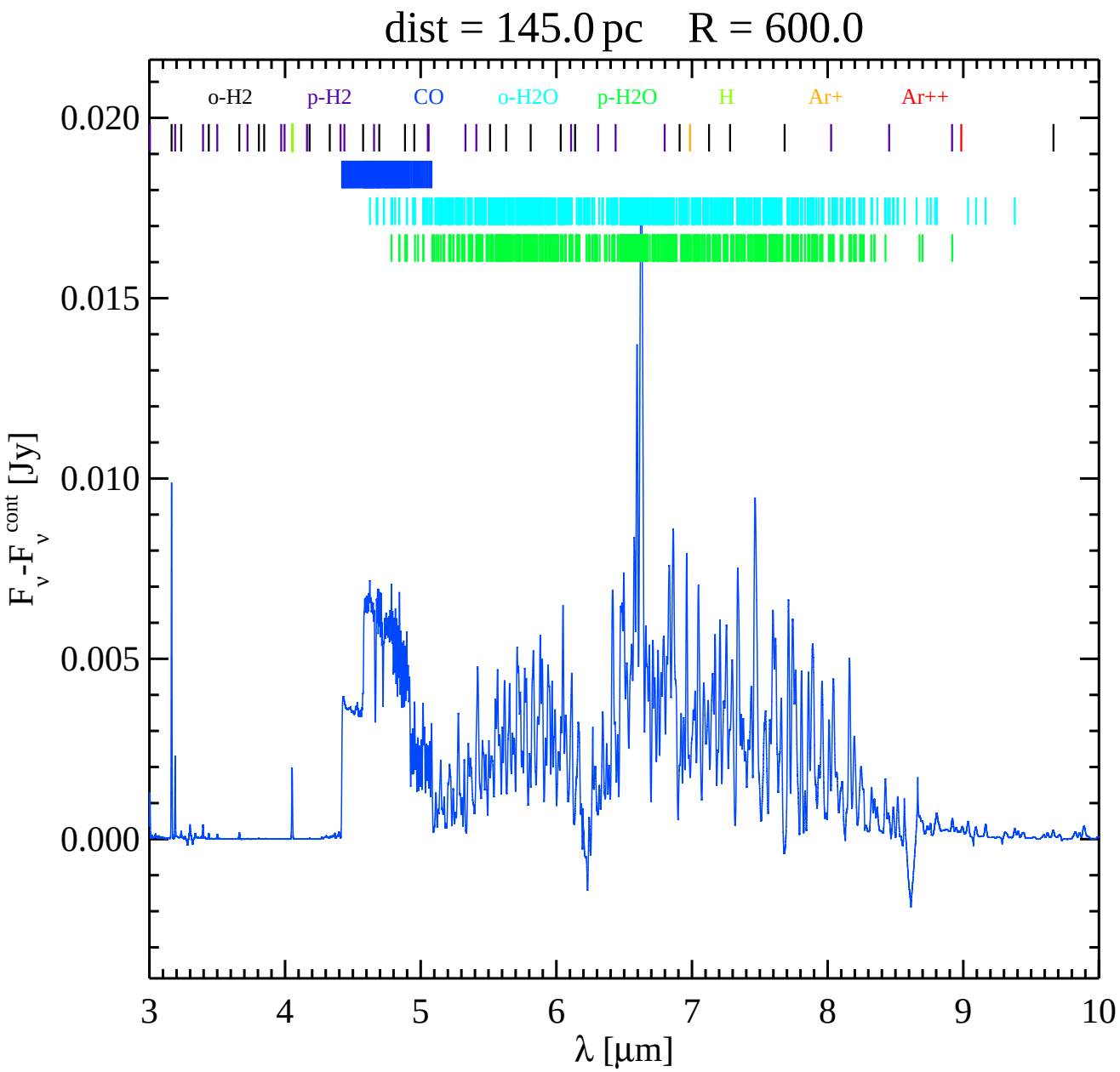

85%
15%
100.0
10.0
1.0
0.1
r [AU]
0.1
1.0
10.0
100.0
1000.0
10000.0
λ [μm]

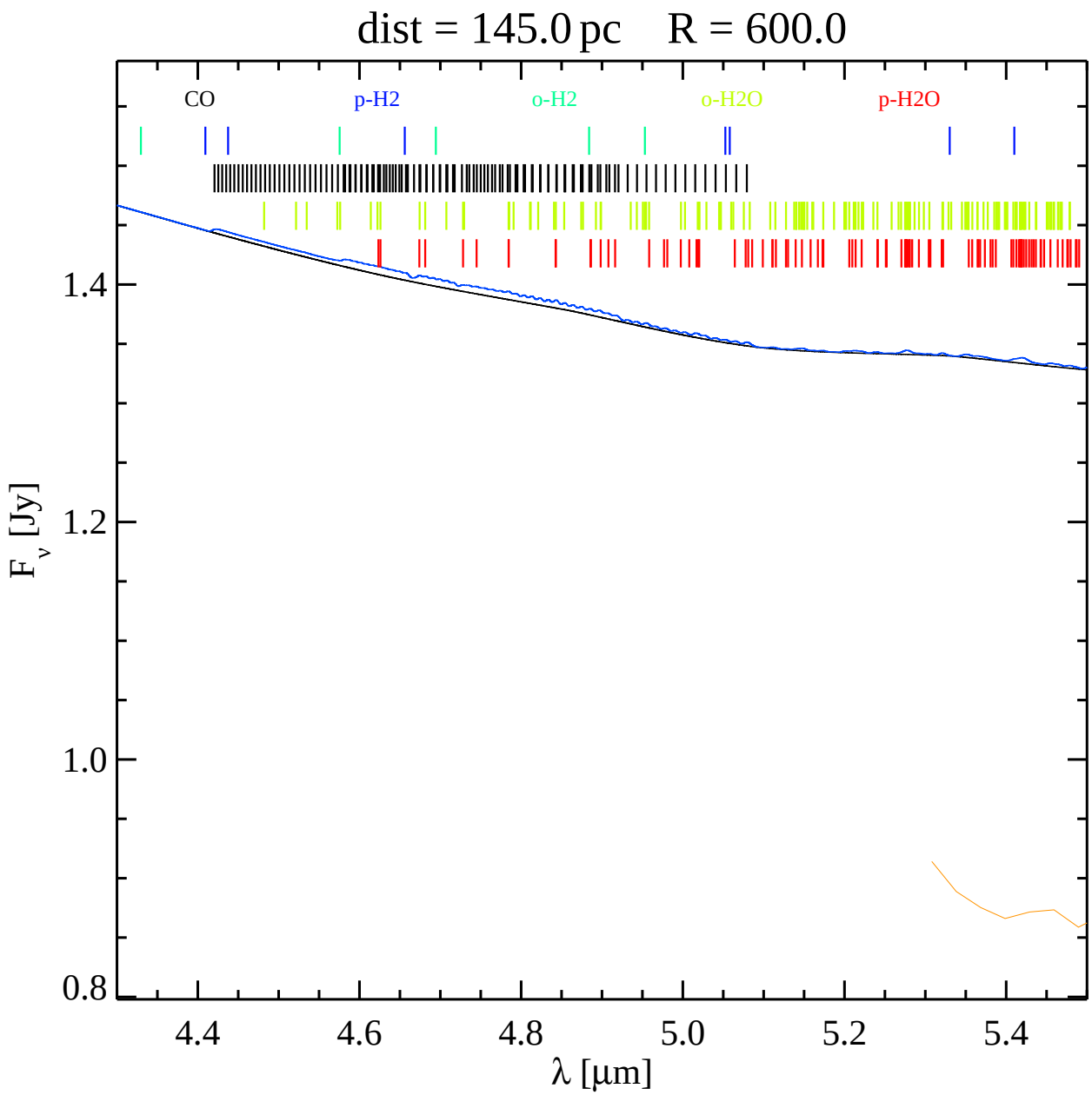

0.4
0.2
0.0
-0.2
-0.4
z/r
0.1
1.0
10.0
100.0
r [AU]
3µm
10µm
30µm
60µm
100µm
200µm
1000µm
AV=10
AV=1
4
6
8
10
12
log n<H> [cm-3]

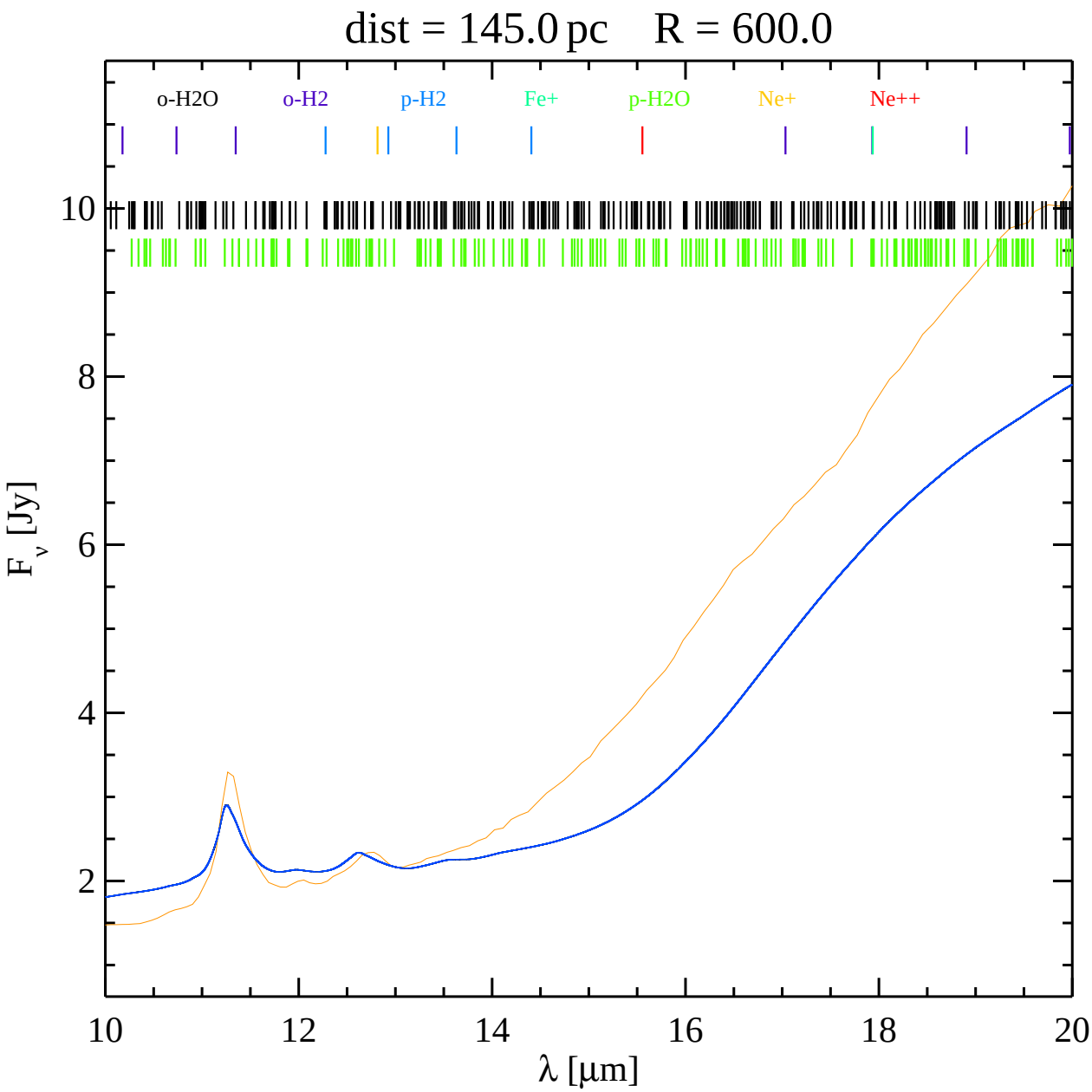

dist = 145.0 pc
R = 100000
star + UV
-8
-10
-12
-14
-16
log ν F_ν [erg/cm²/s]
0.1
1.0
10.0
100.0
1000.0
10000.0
λ [μm]

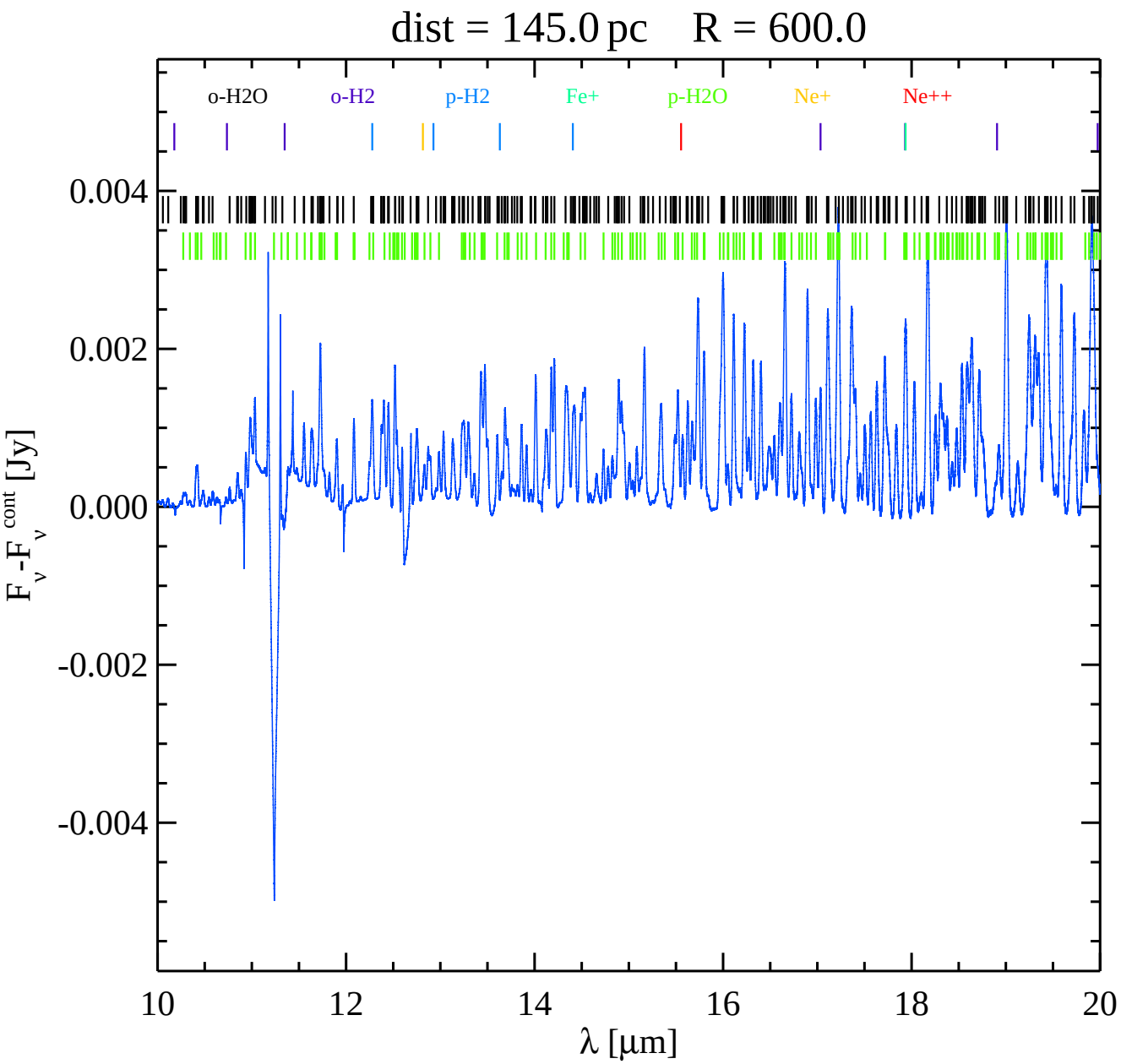

dist = 145.0 pc
R = 600
star + UV
-8
-10
-12
-14
-16
log ν F_ν [erg/cm²/s]
0.1
1.0
10.0
100.0
1000.0
10000.0
λ [μm]

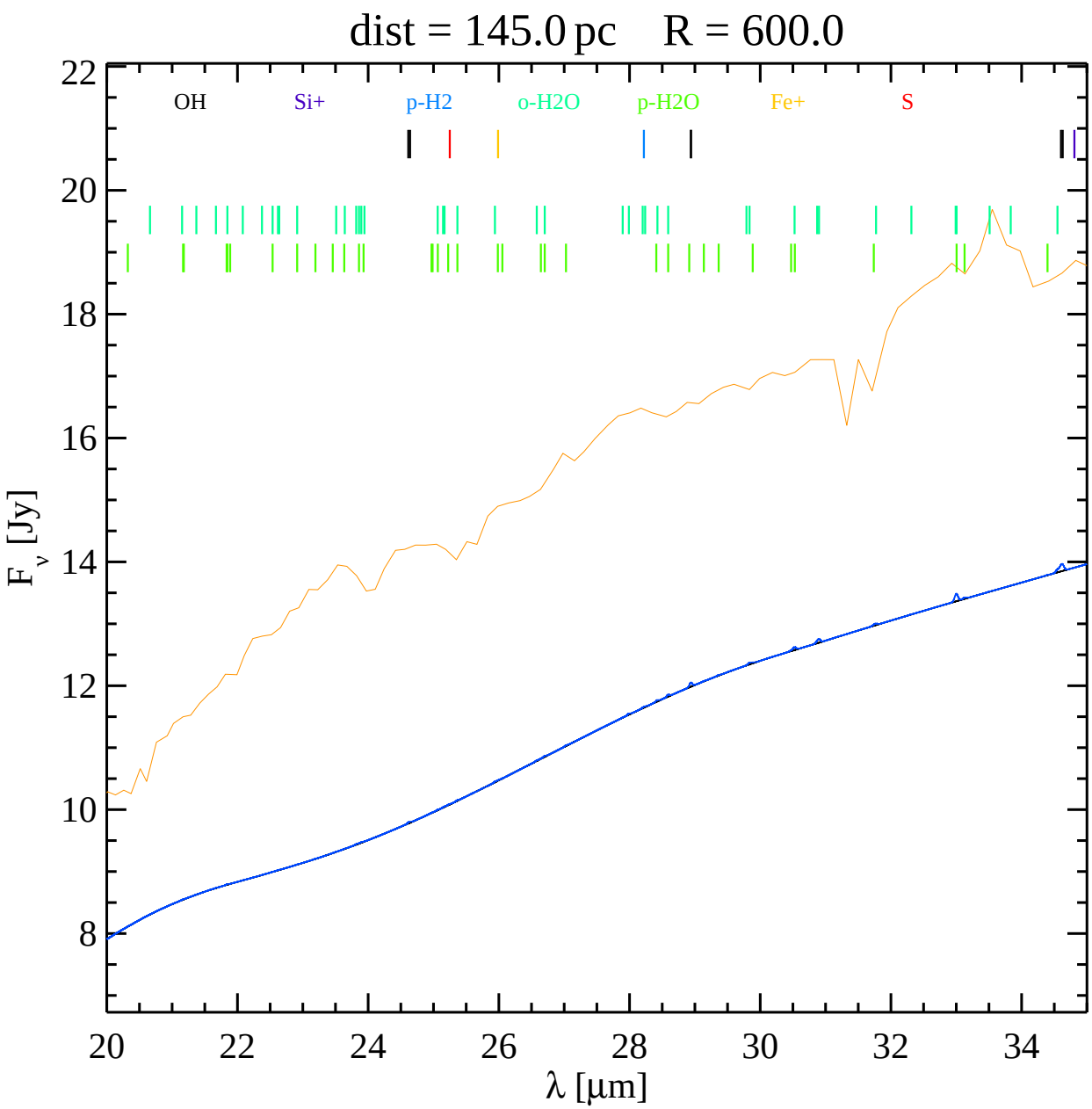

dist = 145.0 pc R = 600.0
o-H2
p-H2
CO
o-H2O
p-H2O
H
Ar+
Ar++
3.5
3.0
2.5
2.0
1.5
1.0
F_ν [Jy]
3
4
5
6
7
8
9
10
λ [μm]

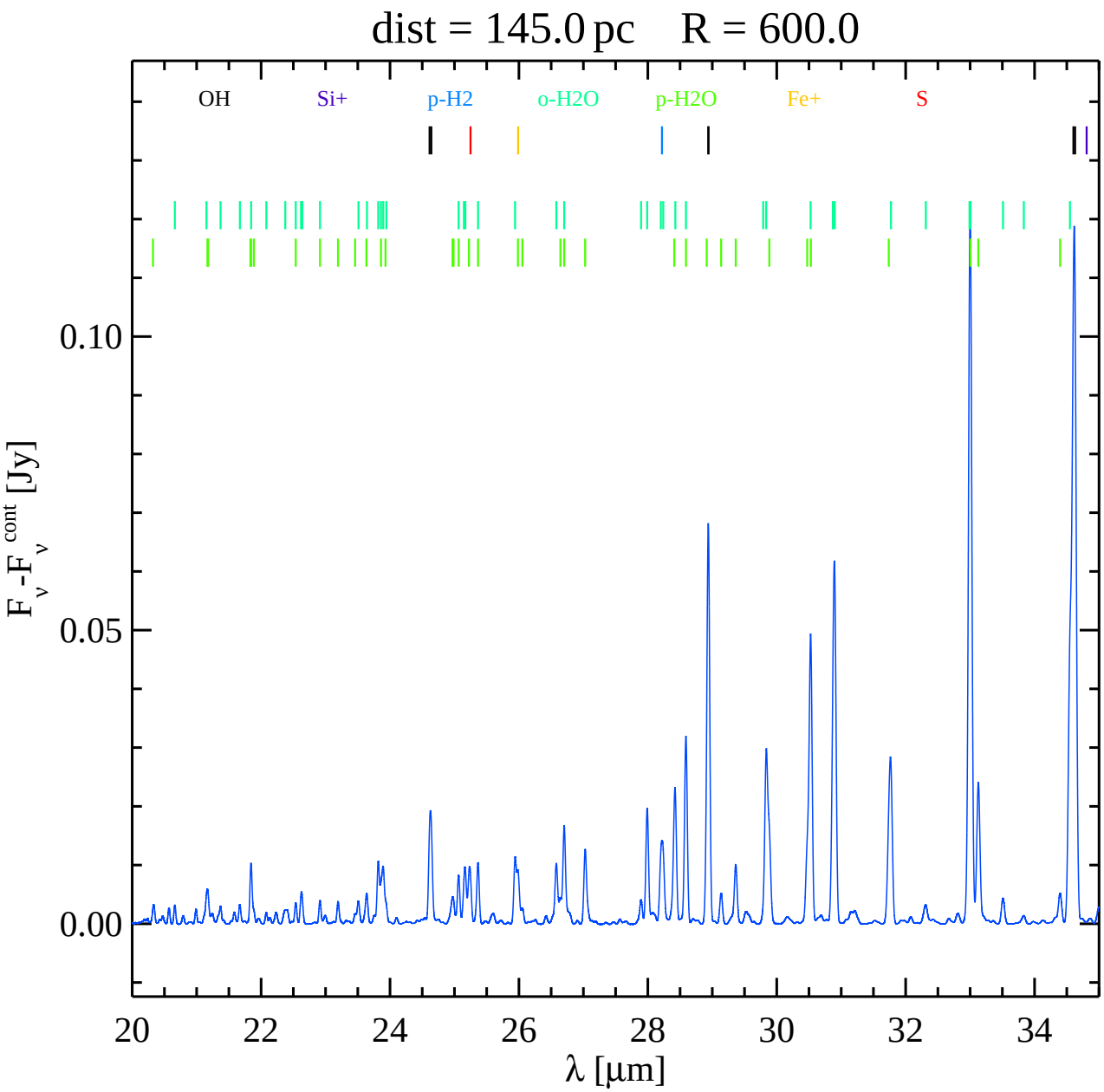

dist = 145.0 pc R = 600.0
o-H2
p-H2
CO
o-H2O
p-H2O
H
Ar+
Ar++
0.020
0.015
0.010
0.005
0.000
F_ν -F_ν^cont [Jy]
3
4
5
6
7
8
9
10
λ [μm]

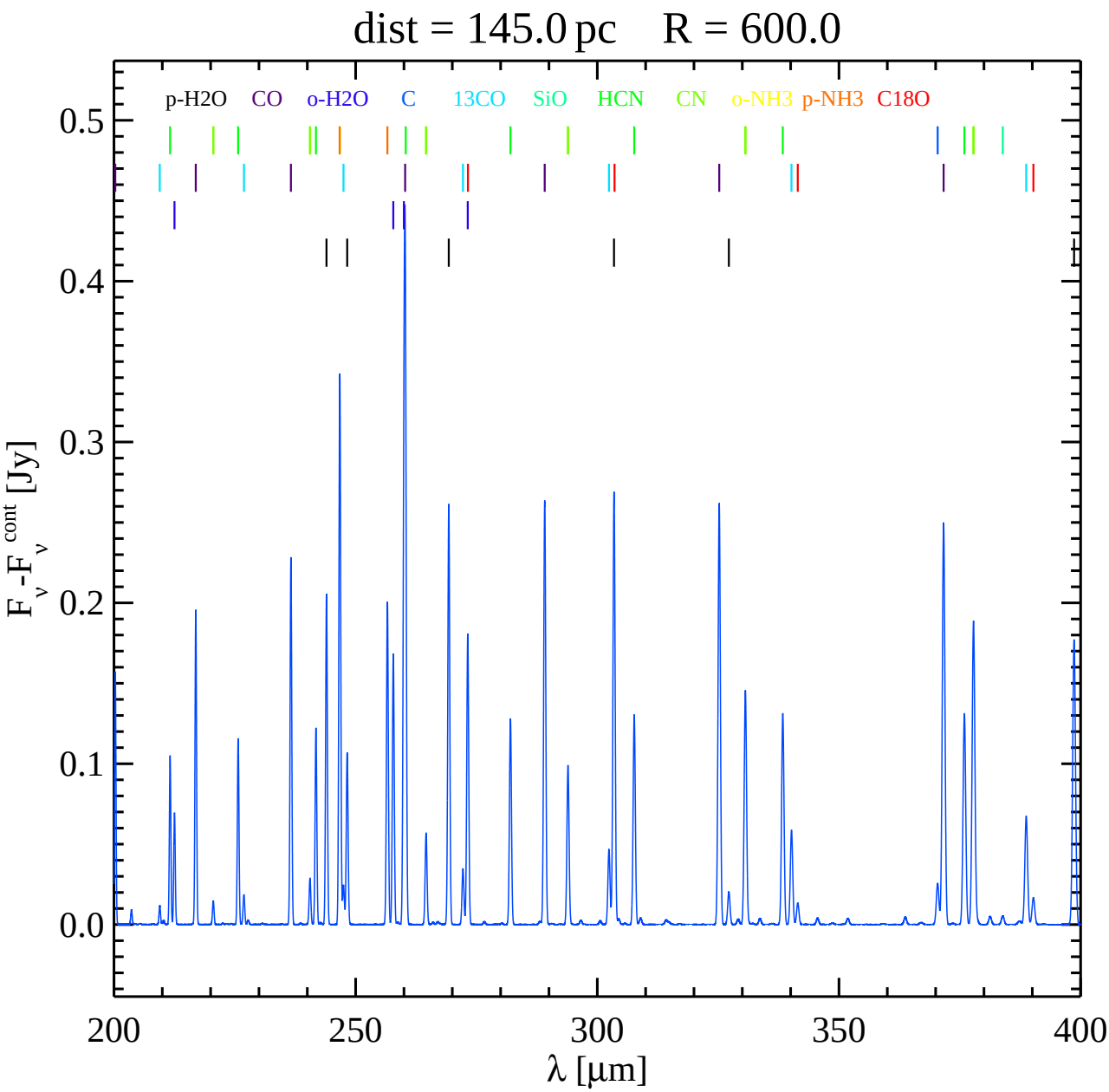

dist = 145.0 pc R = 600.0
CO
p-H2
o-H2
o-H2O
p-H2O
1.4
1.2
1.0
0.8
F_ν [Jy]
4.4
4.6
4.8
5.0
5.2
5.4
λ [μm]

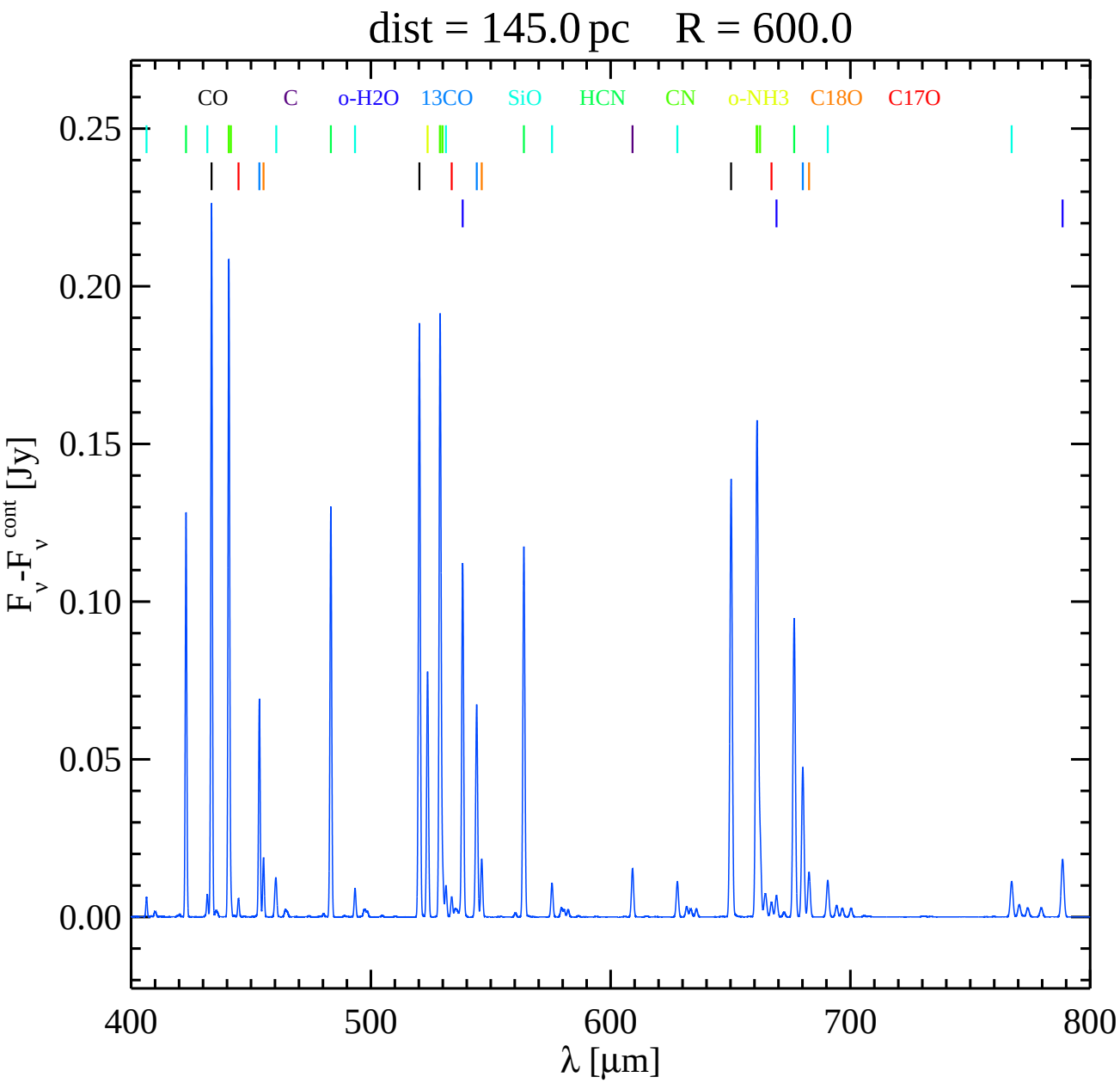

dist = 145.0 pc R = 600.0
o-H2O
o-H2
p-H2
Fe+
p-H2O
Ne+
Ne++
10
8
6
4
2
F_ν [Jy]
10
12
14
16
18
20
λ [μm]

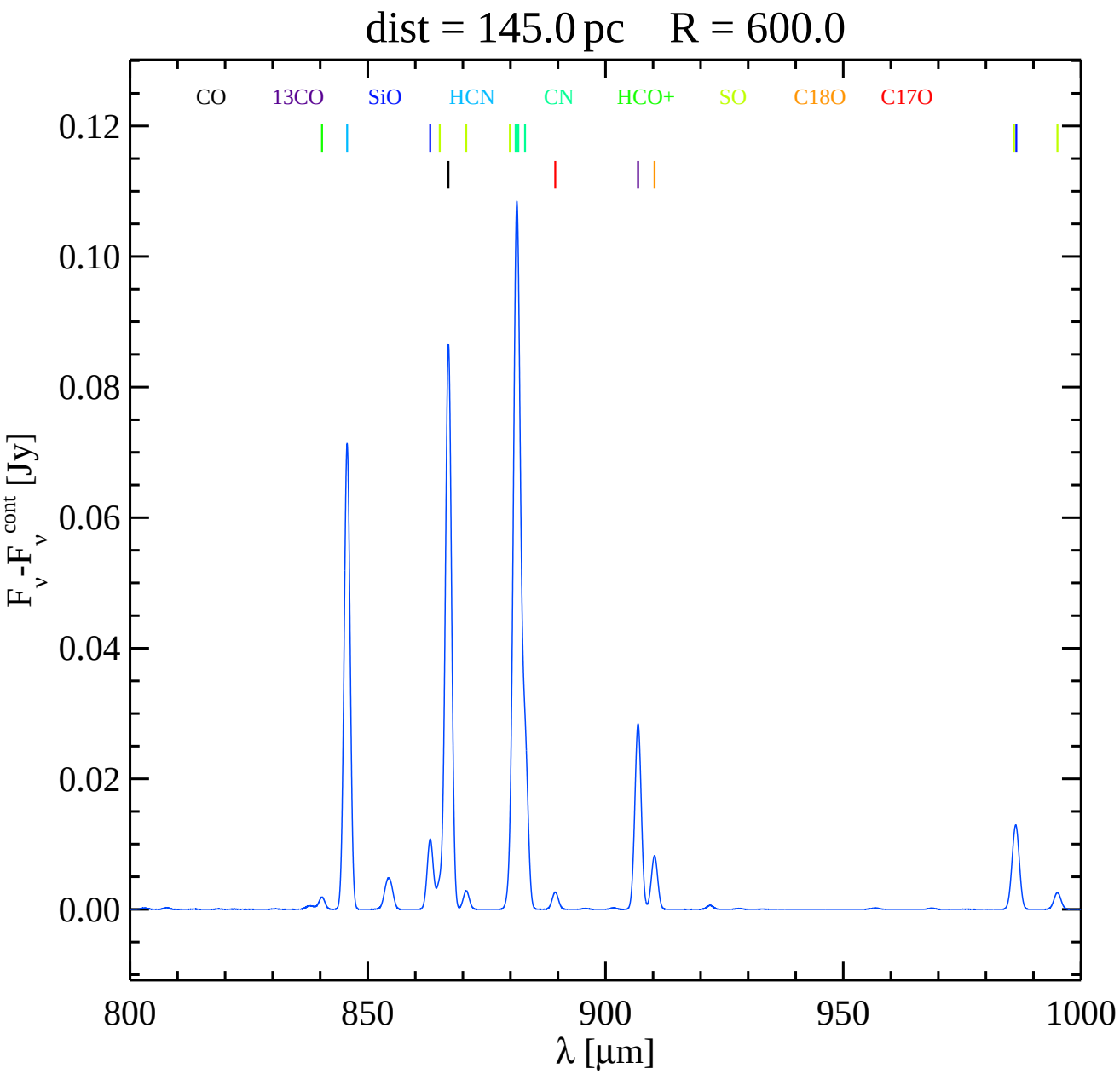

dist = 145.0 pc R = 600.0
o-H2O
o-H2
p-H2
Fe+
p-H2O
Ne+
Ne++
0.004
0.002
0.000
-0.002
-0.004
F_ν - F_ν^cont [Jy]
10
12
14
16
18
20
λ [μm]

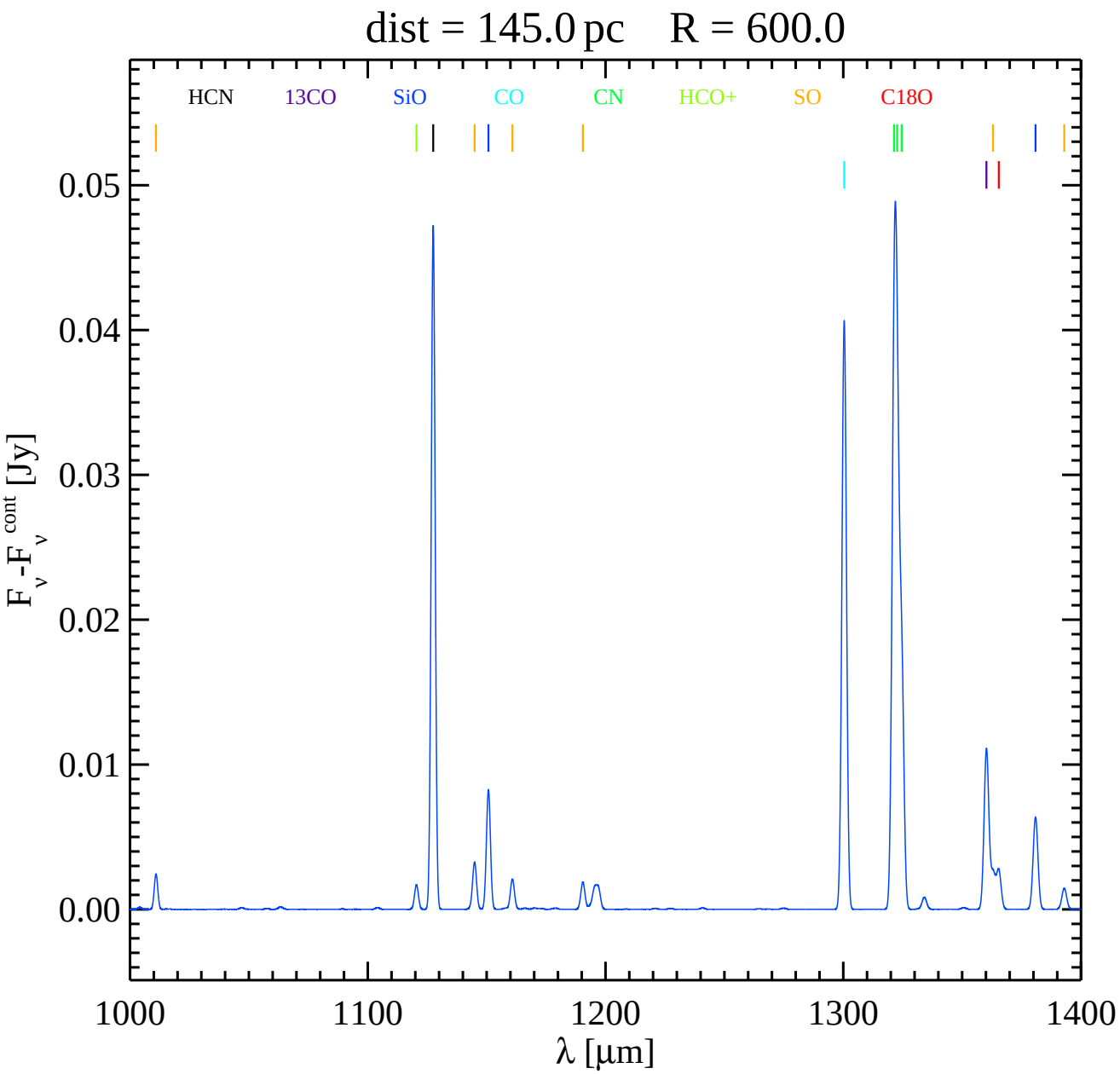

dist = 145.0 pc R = 600.0
OH
Si+
p-H2
o-H2O
p-H2O
Fe+
S
22
20
18
16
14
12
10
8
F_ν [Jy]
20
22
24
26
28
30
32
34
λ [μm]

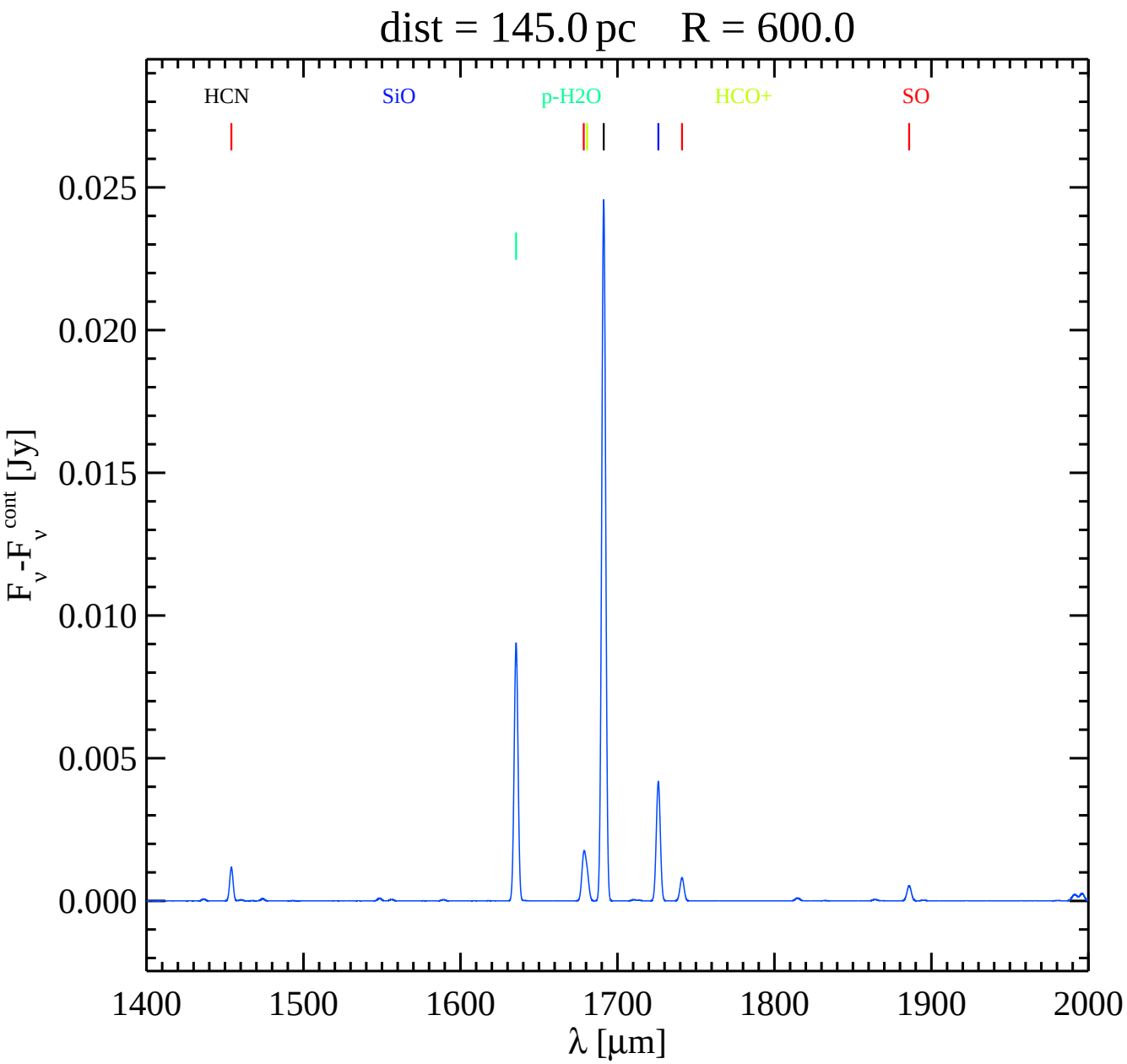

dist = 145.0 pc R = 600.0
OH
Si+
p-H2
o-H2O
p-H2O
Fe+
S
0.10
0.05
0.00
F_ν -F_ν^cont [Jy]
20
22
24
26
28
30
32
34
λ [μm]

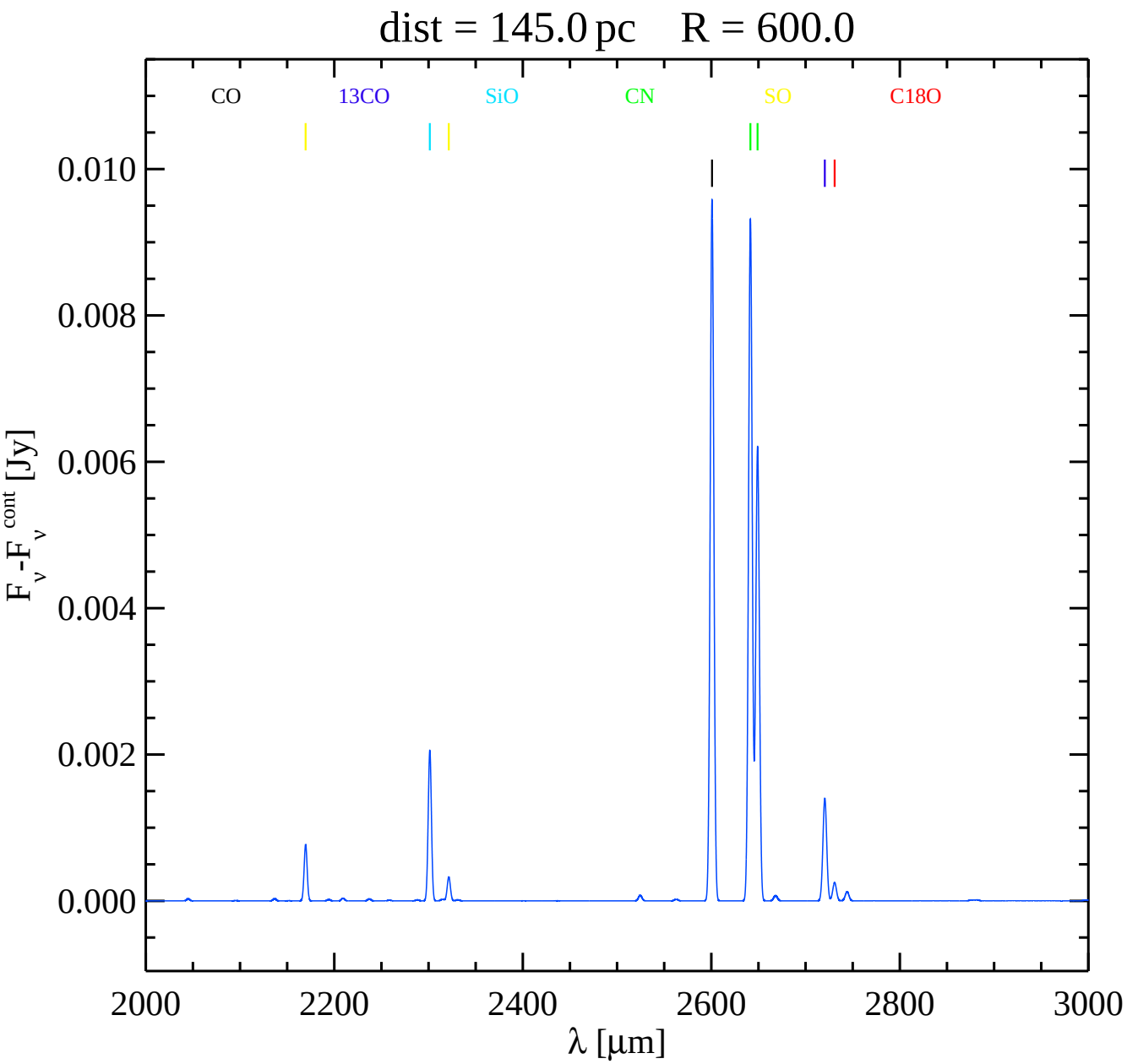

dist = 145.0 pc R = 600.0
p-H2O CO o-H2O C 13CO SiO HCN CN o-NH3 p-NH3 C18O
0.5
0.4
0.3
0.2
0.1
0.0
F_ν -F_ν^cont [Jy]
200
250
300
350
400
λ [μm]

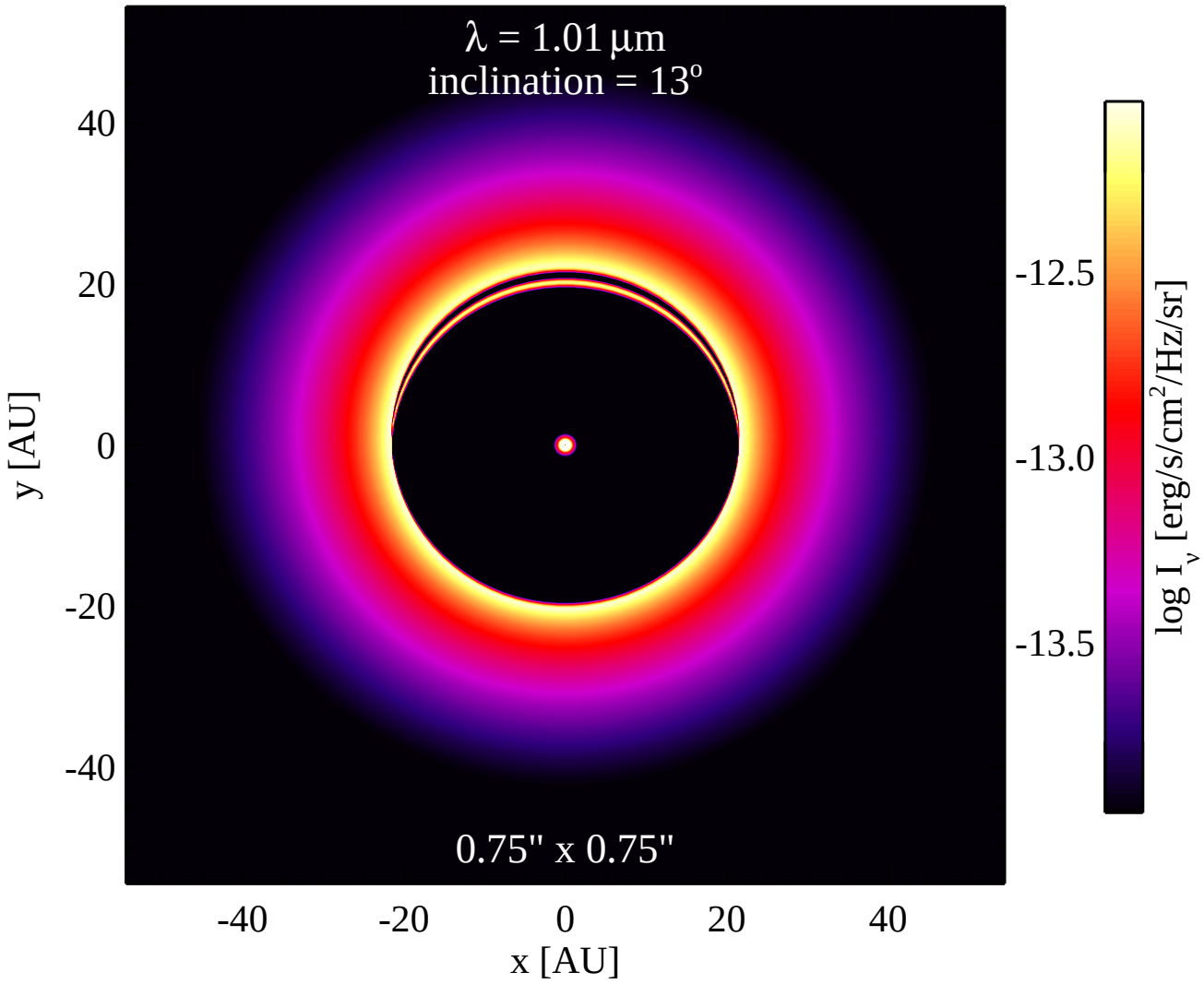

dist = 145.0 pc R = 600.0
CO
C
o-H2O
13CO
SiO
HCN
CN
o-NH3
C18O
C17O
0.25
0.20
0.15
0.10
0.05
0.00
F_ν -F_ν^cont [Jy]
400
500
600
700
800
λ [μm]

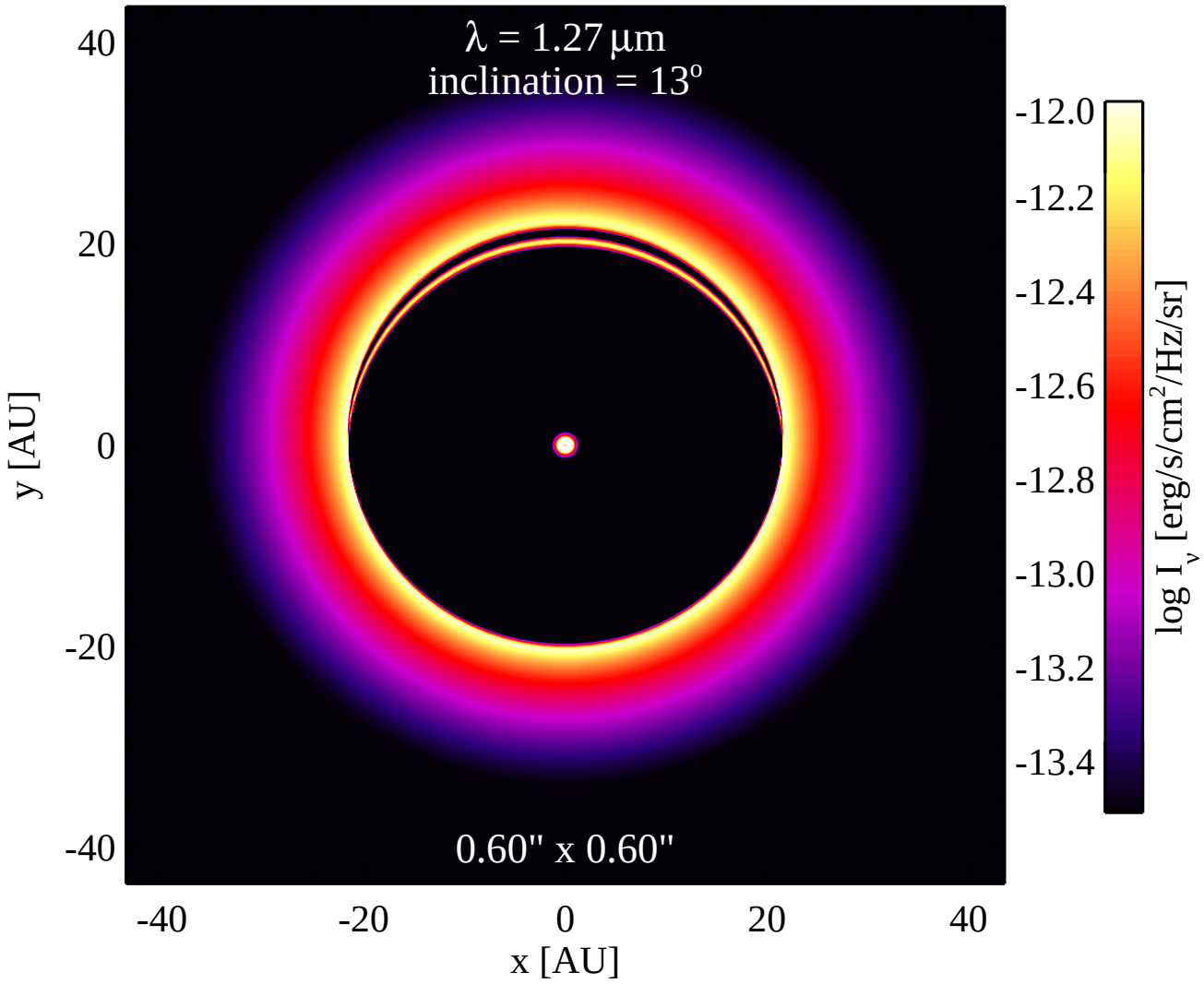

dist = 145.0 pc R = 600.0
CO
13CO
SiO
HCN
CN
HCO+
SO
C18O
C17O
0.12
0.10
0.08
0.06
0.04
0.02
0.00
F_ν -F_ν^cont [Jy]
800
850
900
950
1000
λ [μm]

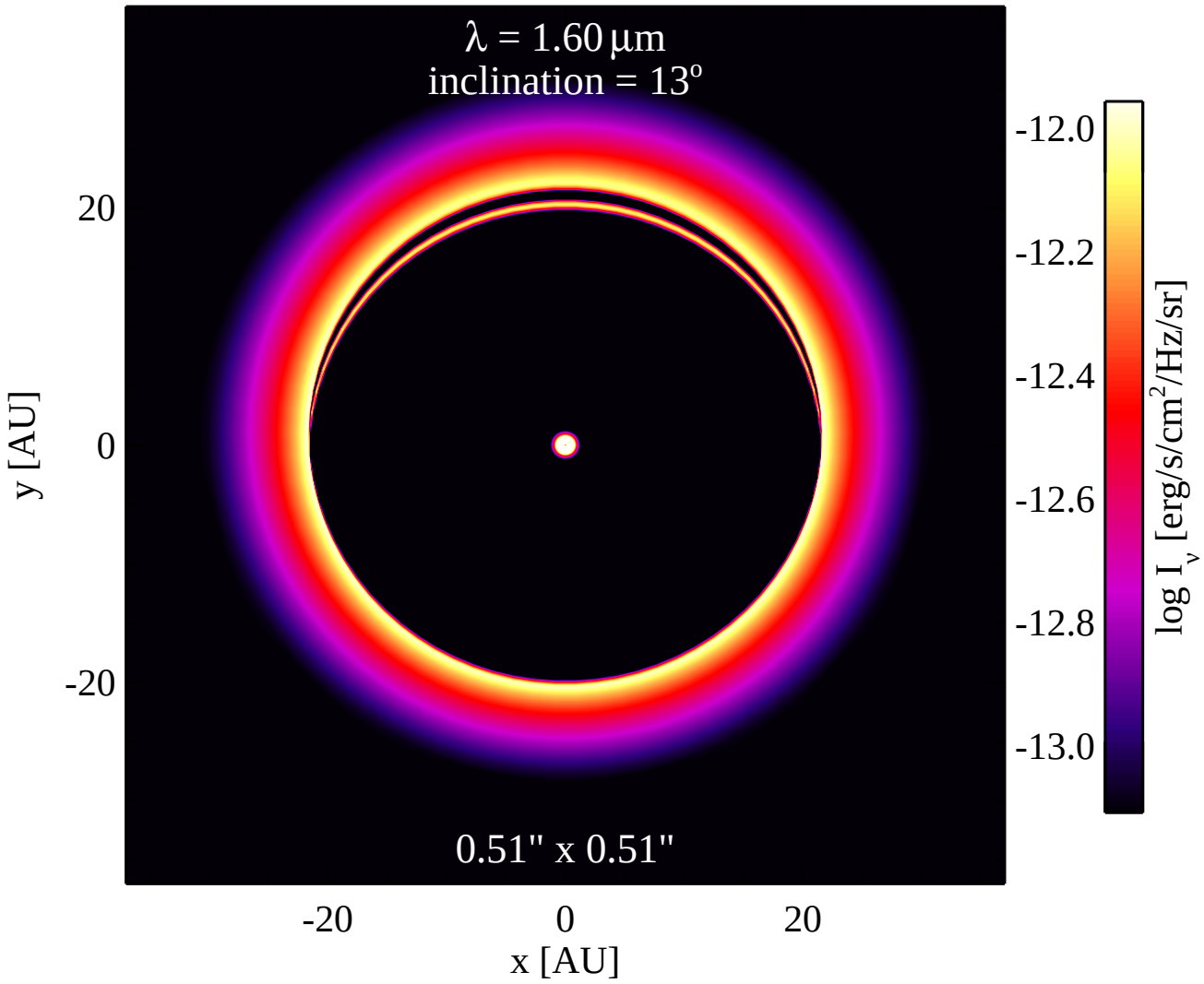

dist = 145.0 pc R = 600.0
HCN
13CO
SiO
CO
CN
HCO+
SO
C18O
0.05
0.04
0.03
0.02
0.01
0.00
F_ν -F_ν^cont [Jy]
1000
1100
1200
1300
1400
λ [μm]

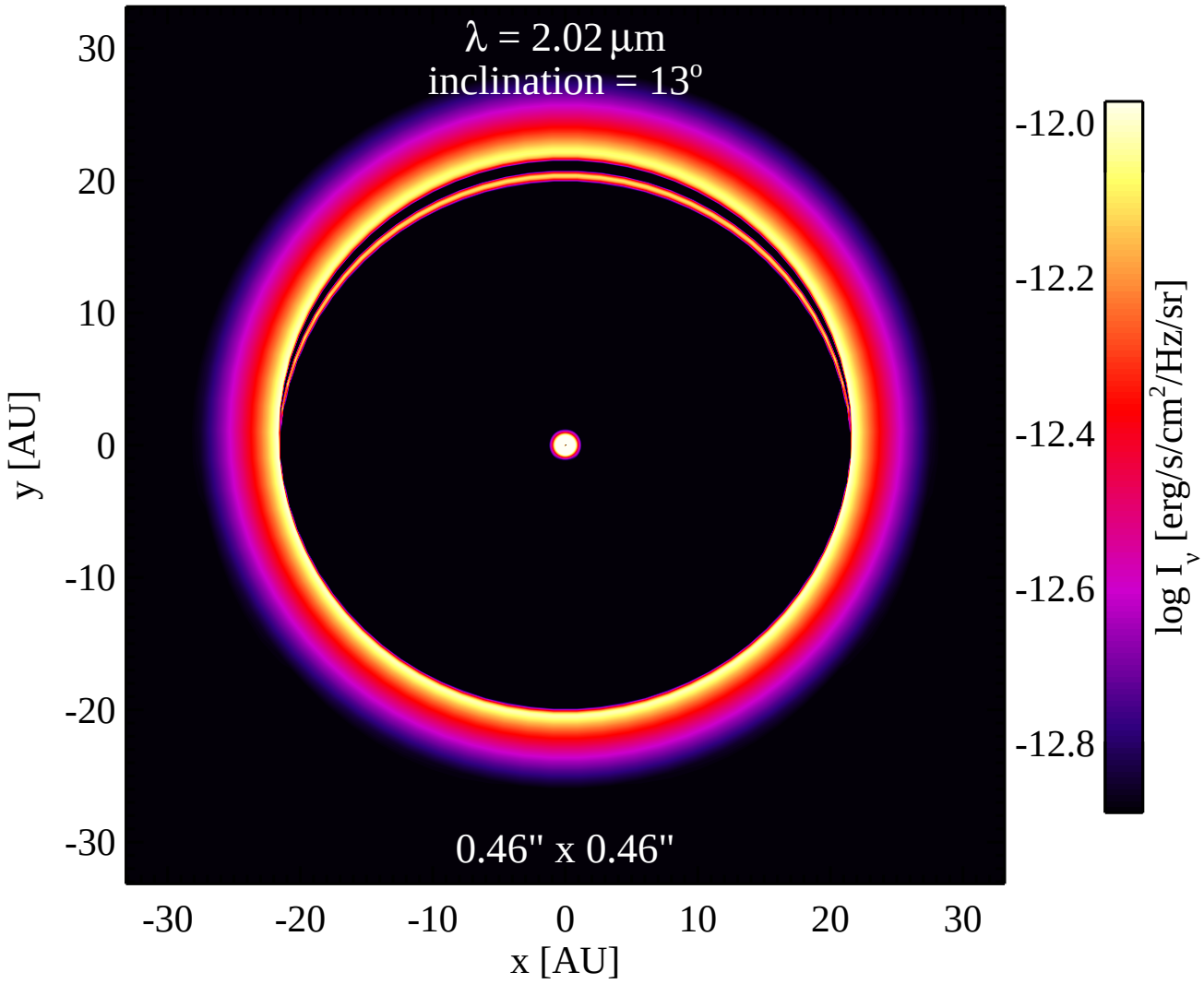

dist = 145.0 pc R = 600.0
HCN
SiO
p-H2O
HCO+
SO
0.025
0.020
0.015
0.010
0.005
0.000
F_ν -F_ν^cont [Jy]
1400
1500
1600
1700
1800
1900
2000
λ [μm]

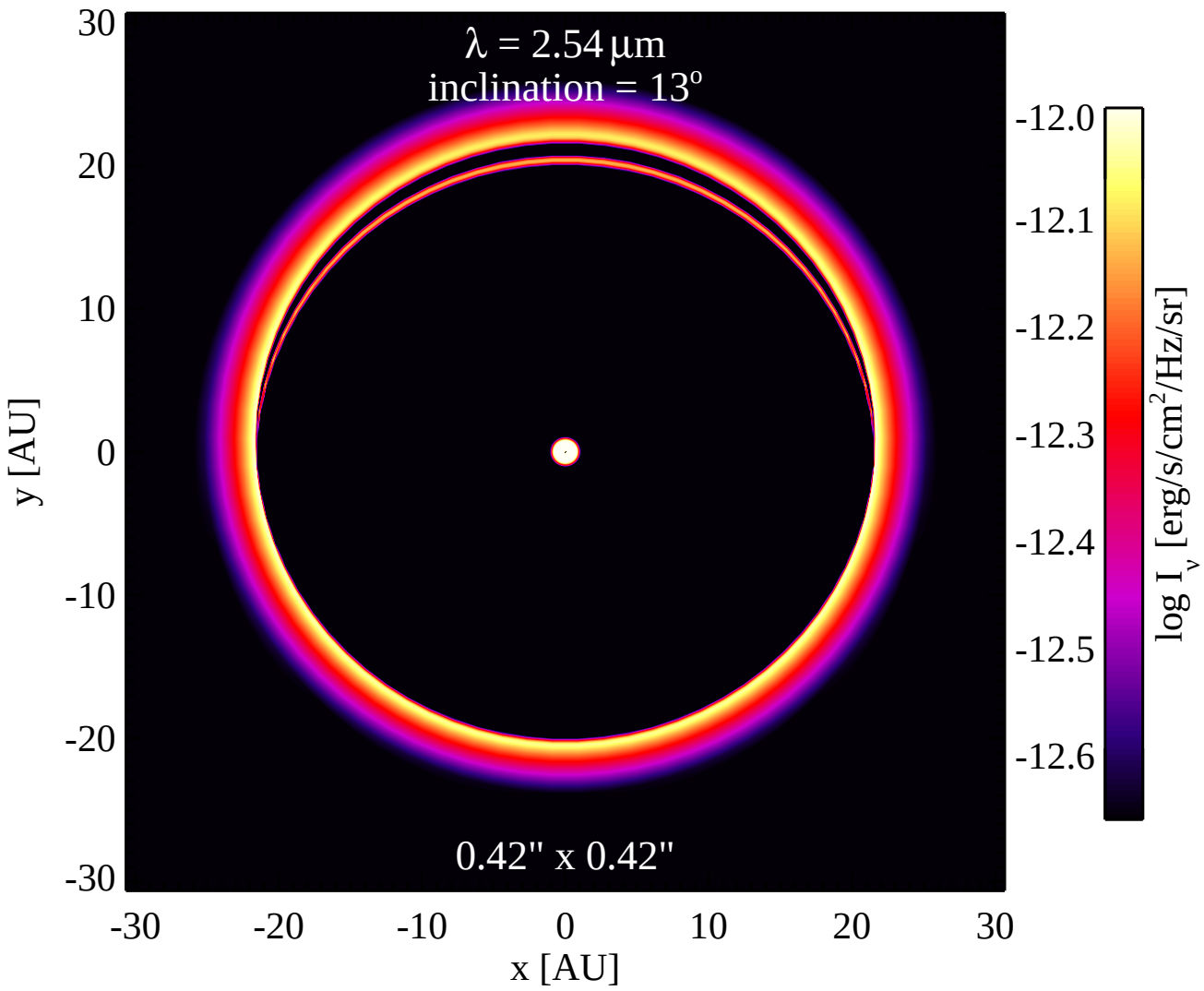

dist = 145.0 pc R = 600.0
CO
13CO
SiO
CN
SO
C18O
0.010
0.008
0.006
0.004
0.002
0.000
F_ν - F_ν^cont [Jy]
2000
2200
2400
2600
2800
3000
λ [μm]

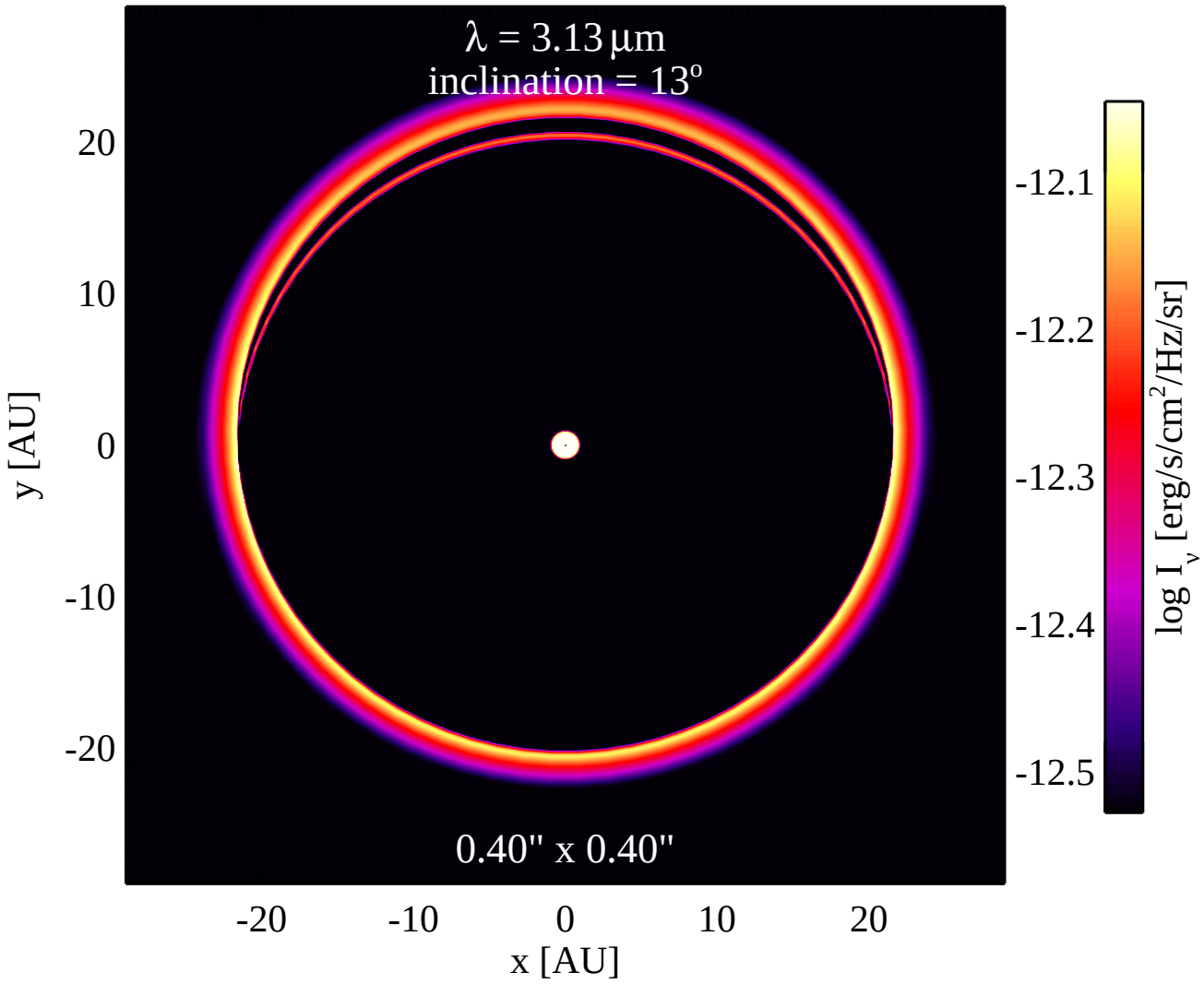

λ = 1.01 μm
inclination = 13°
0.75" x 0.75"
40
20
0
-20
-40
y [AU]
-40
-20
0
20
40
x [AU]
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

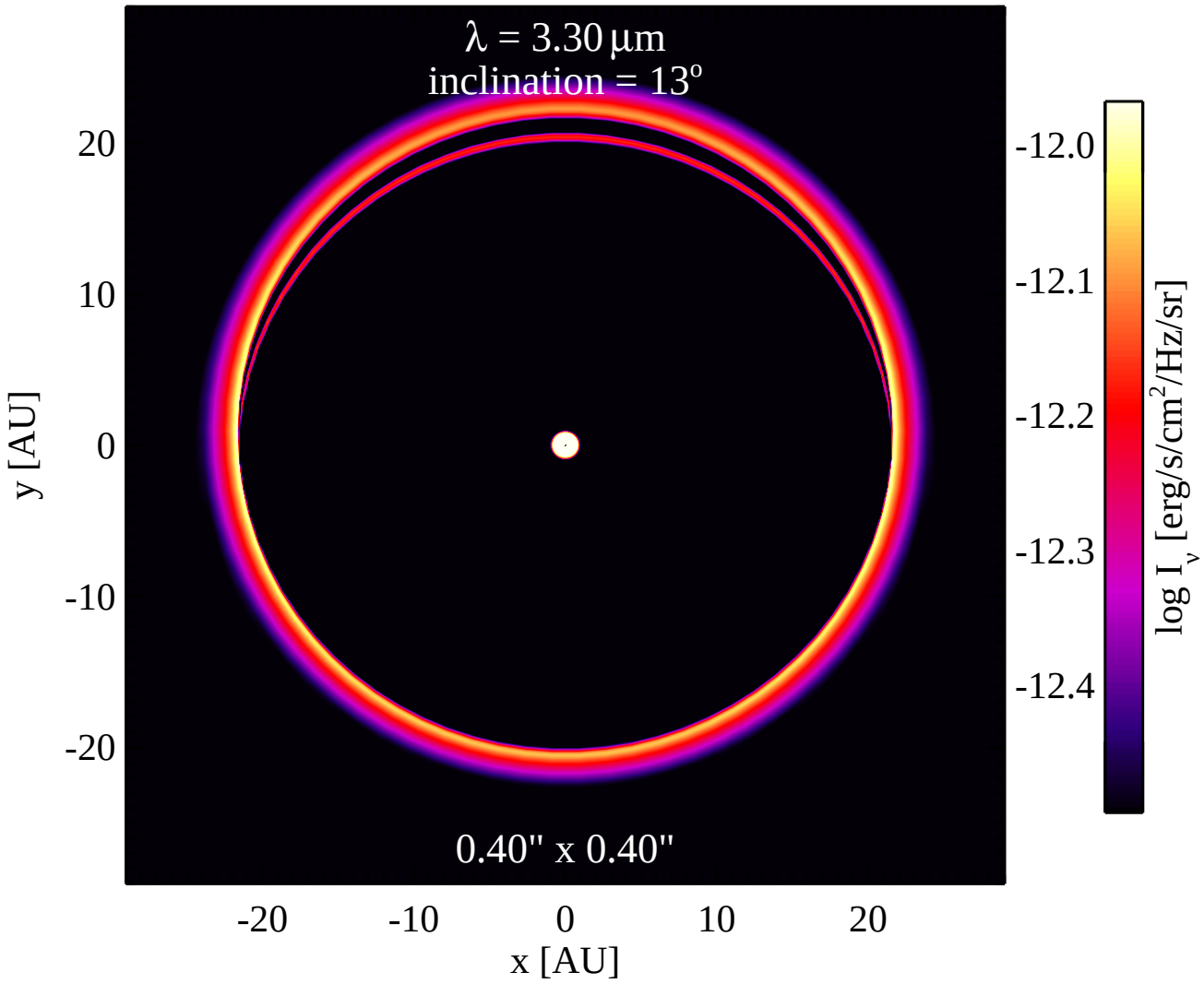

λ = 1.27 μm
inclination = 13°
0.60" x 0.60"
40
20
0
-20
-40
y [AU]
-40
-20
0
20
40
x [AU]
-12.0
-12.2
-12.4
-12.6
-12.8
-13.0
-13.2
-13.4
log I_ν [erg/s/cm²/Hz/sr]

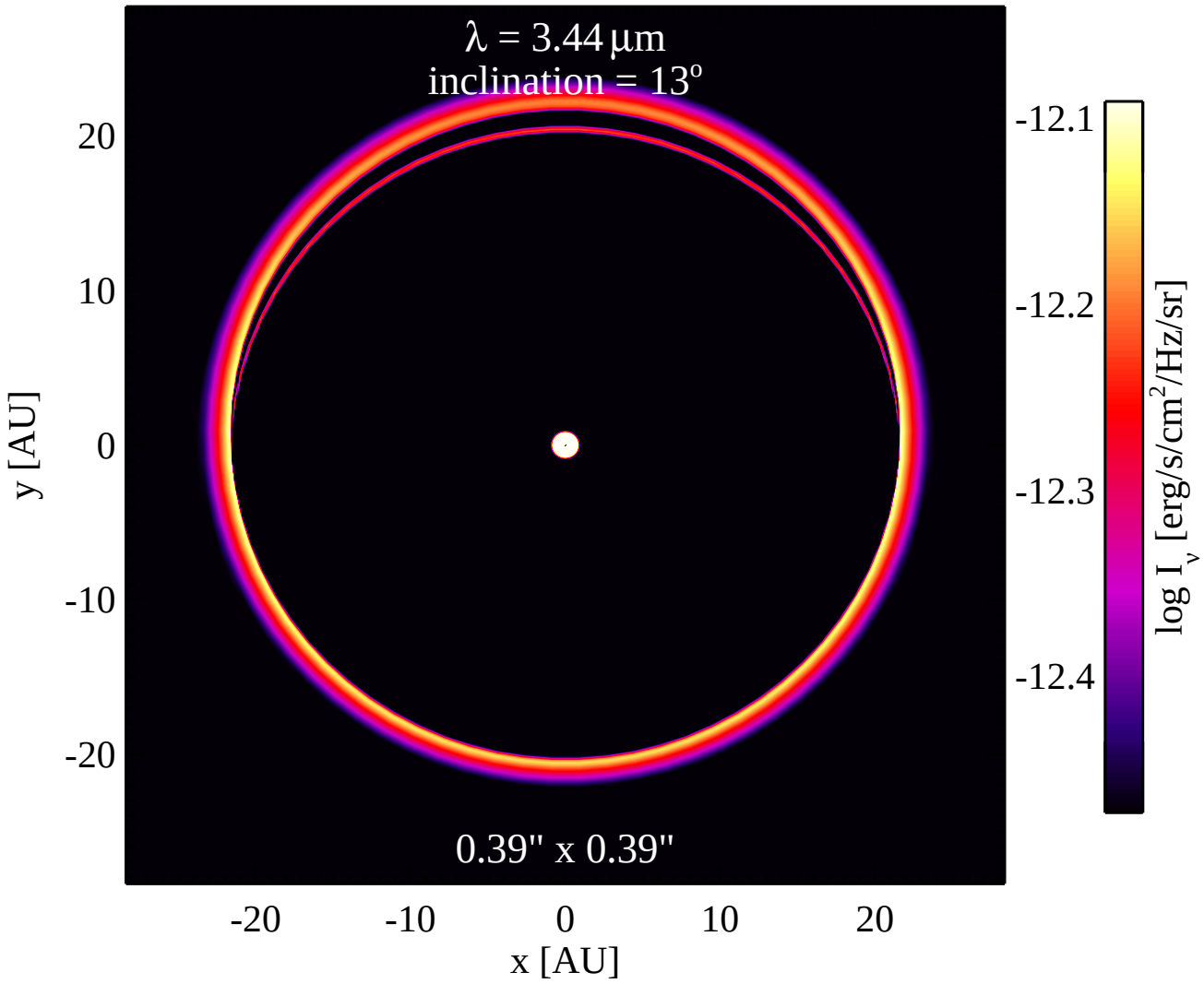

λ = 1.60 μm
inclination = 13°
0.51" x 0.51"
20
0
-20
y [AU]
-20
0
20
x [AU]
-12.0
-12.2
-12.4
-12.6
-12.8
-13.0
log I_ν [erg/s/cm²/Hz/sr]

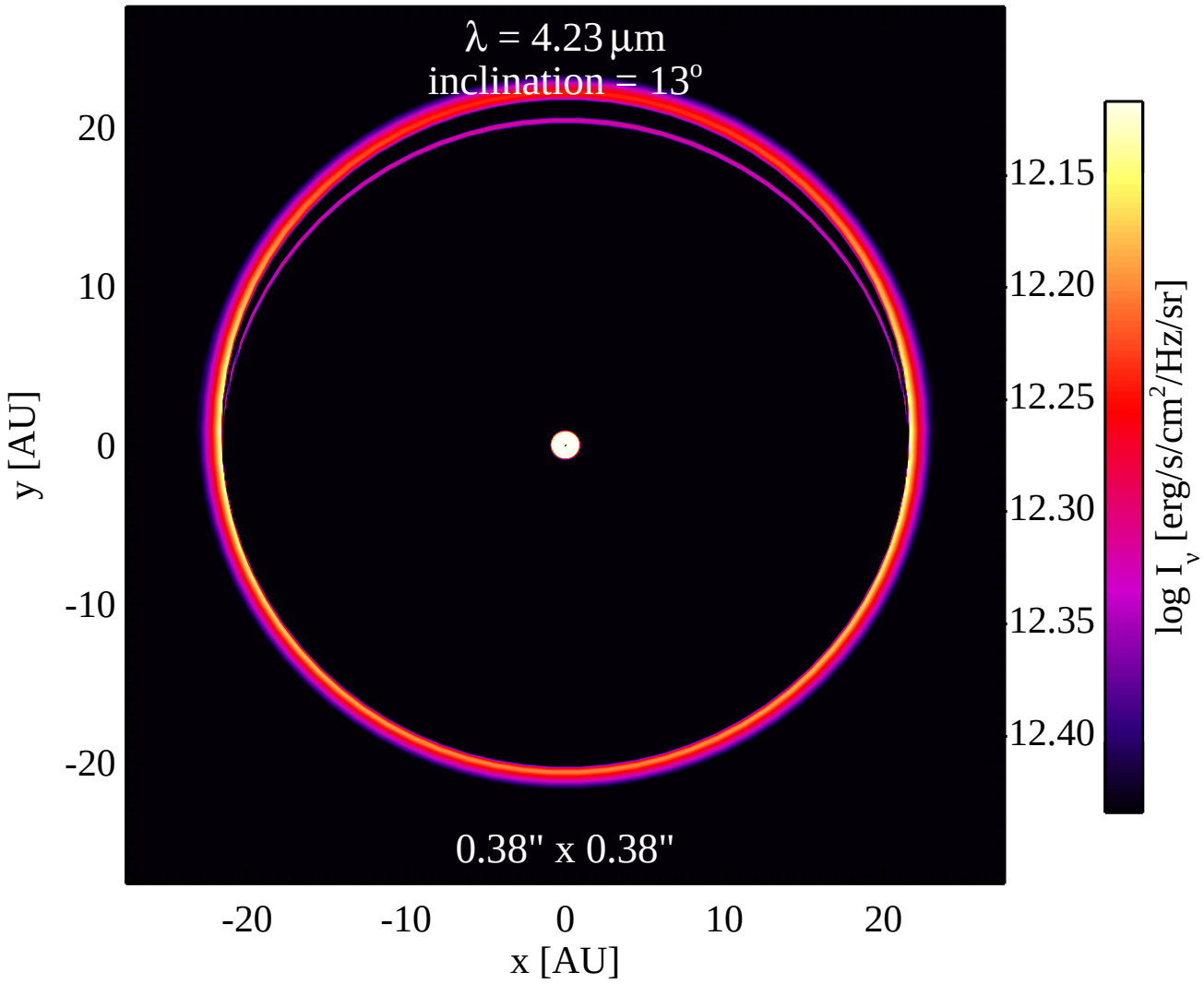

λ = 2.02 μm
inclination = 13°
0.46" x 0.46"
30
20
10
0
-10
-20
-30
y [AU]
-30
-20
-10
0
10
20
30
x [AU]
-12.0
-12.2
-12.4
-12.6
-12.8
log I_ν [erg/s/cm²/Hz/sr]

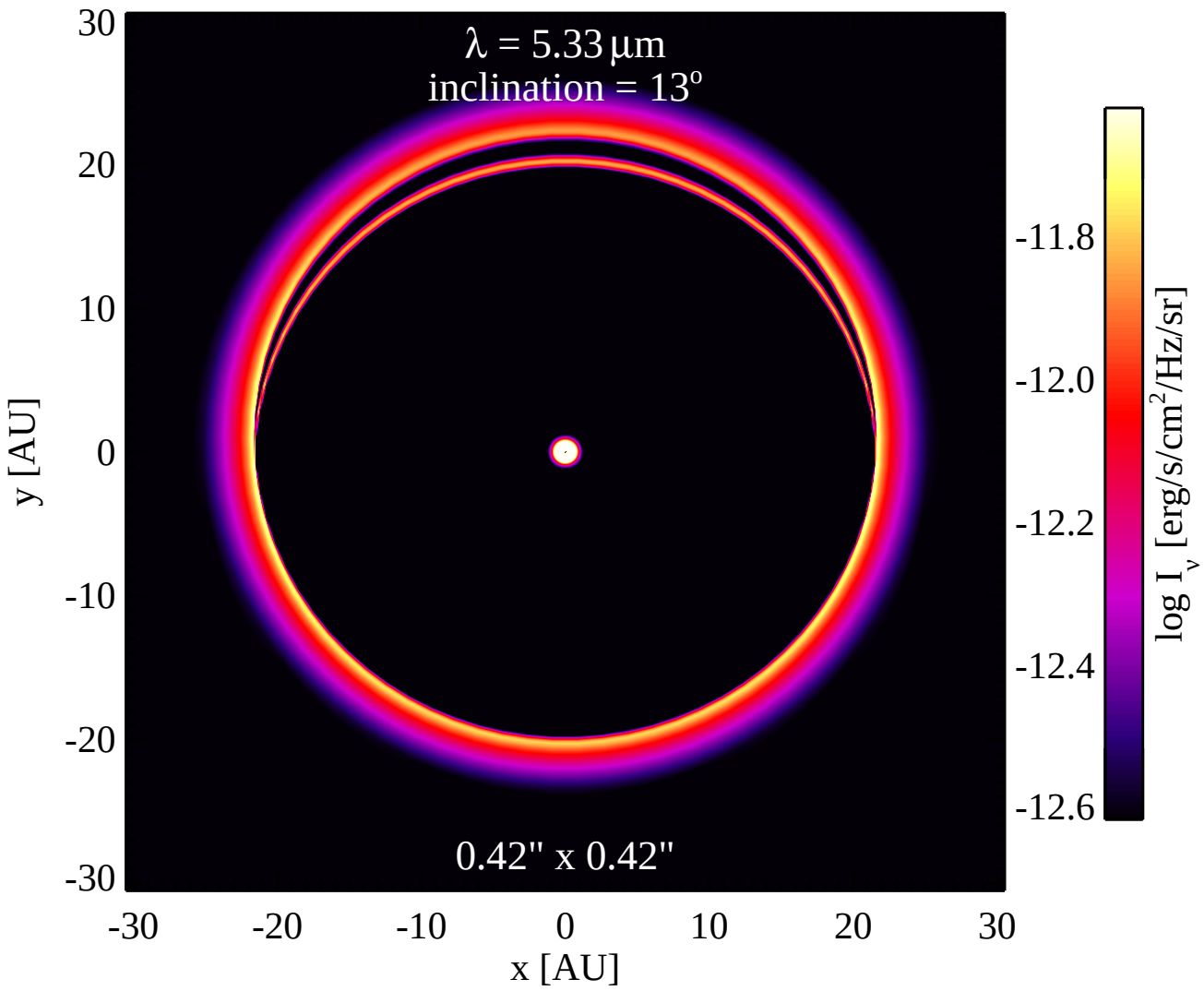

λ = 2.54 μm
inclination = 13°
0.42" x 0.42"
30
20
10
0
-10
-20
-30
y [AU]
-30
-20
-10
0
10
20
30
x [AU]
-12.0
-12.1
-12.2
-12.3
-12.4
-12.5
-12.6
log I_ν [erg/s/cm²/Hz/sr]

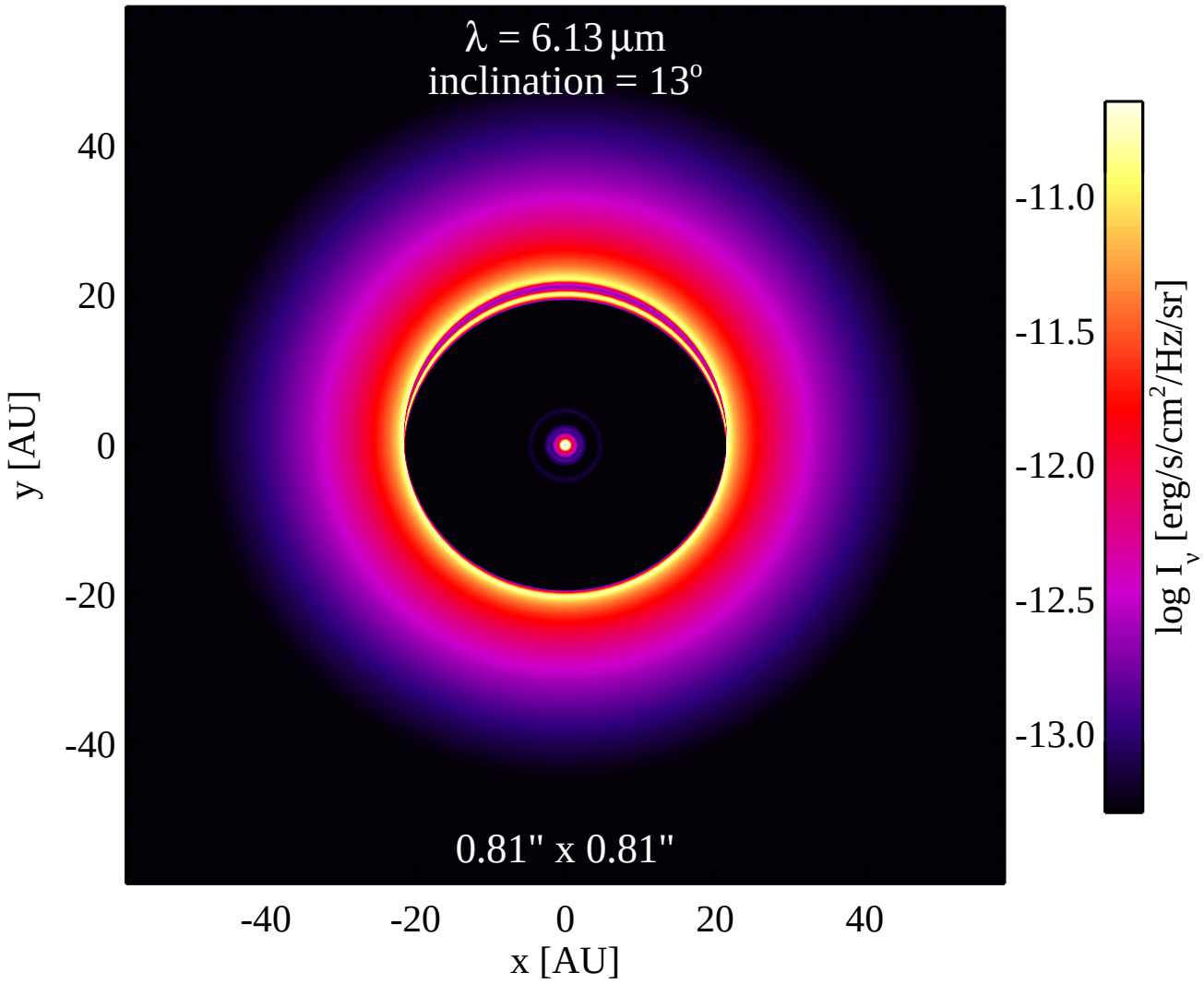

λ = 3.13 μm
inclination = 13°
0.40" x 0.40"
20
10
0
-10
-20
y [AU]
-20
-10
0
10
20
x [AU]
-12.1
-12.2
-12.3
-12.4
-12.5
log I_ν [erg/s/cm²/Hz/sr]

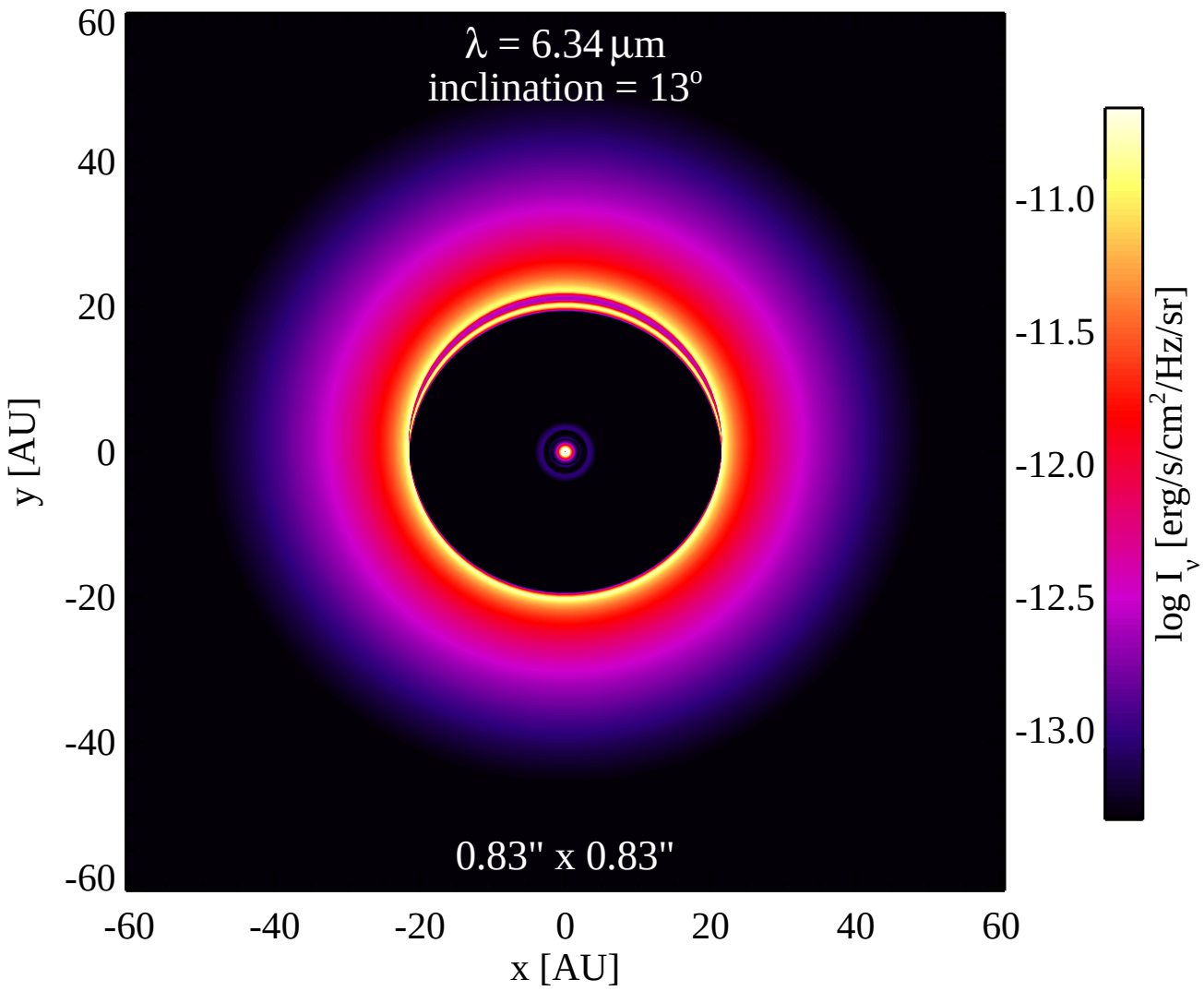

λ = 3.30 μm
inclination = 13°
0.40" x 0.40"
20
10
0
-10
-20
y [AU]
-20
-10
0
10
20
x [AU]
-12.0
-12.1
-12.2
-12.3
-12.4
log I_ν [erg/s/cm²/Hz/sr]

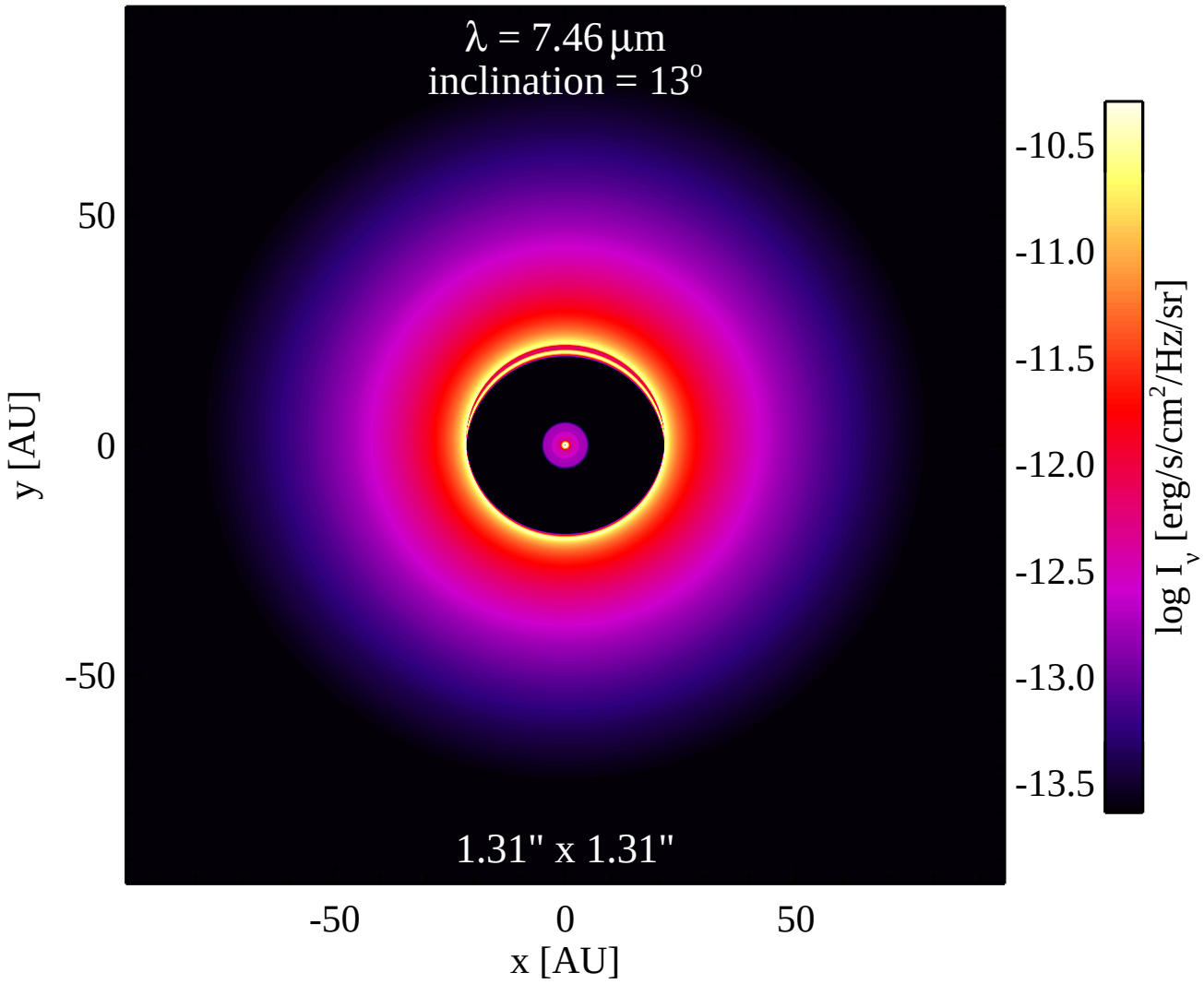

λ = 3.44 μm
inclination = 13°
0.39" x 0.39"
20
10
0
-10
-20
y [AU]
-20
-10
0
10
20
x [AU]
-12.1
-12.2
-12.3
-12.4
log I_ν [erg/s/cm²/Hz/sr]

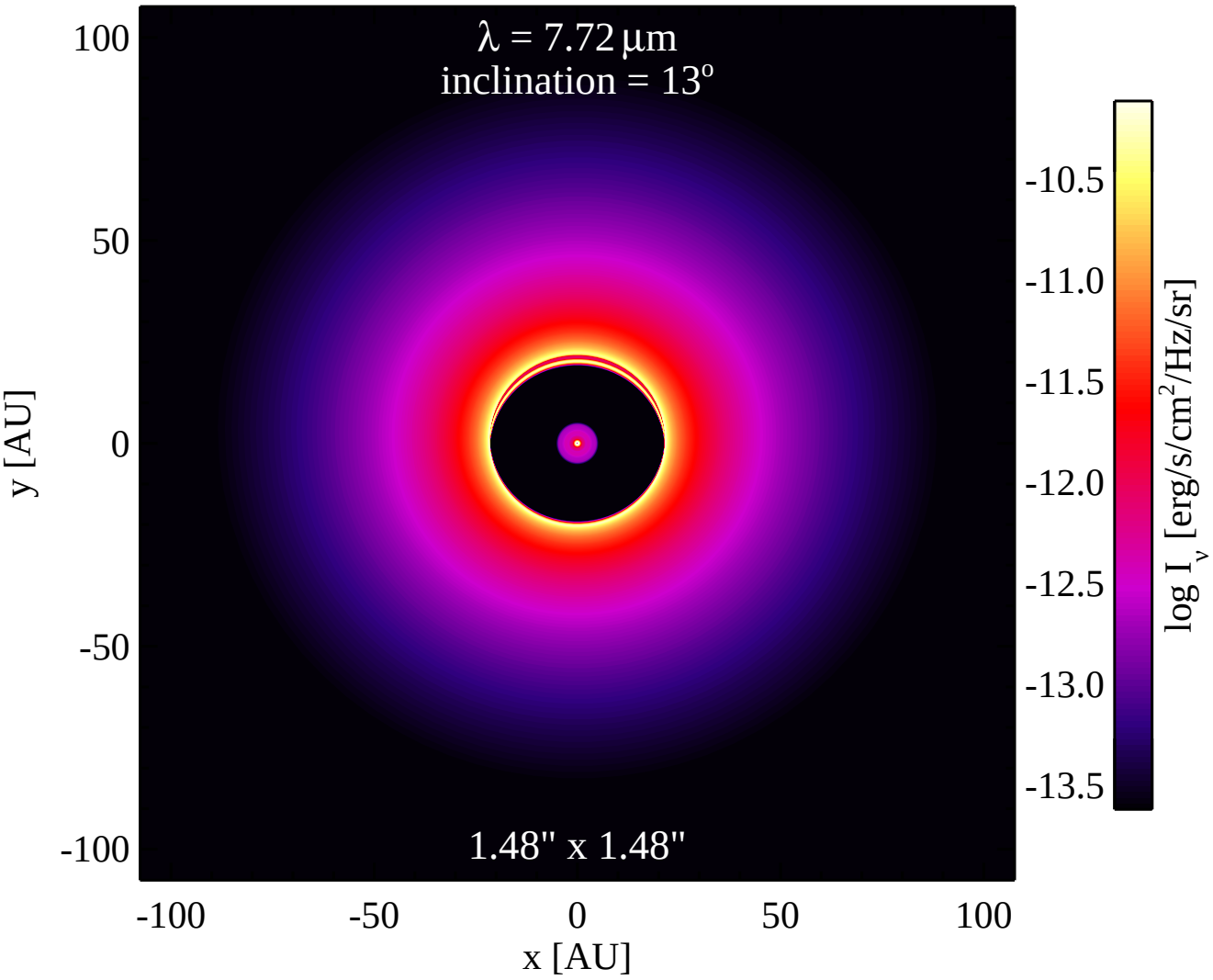

λ = 4.23 μm
inclination = 13°
0.38" x 0.38"
20
10
0
-10
-20
y [AU]
-20
-10
0
10
20
x [AU]
12.15
12.20
12.25
12.30
12.35
12.40
log I_ν [erg/s/cm²/Hz/sr]

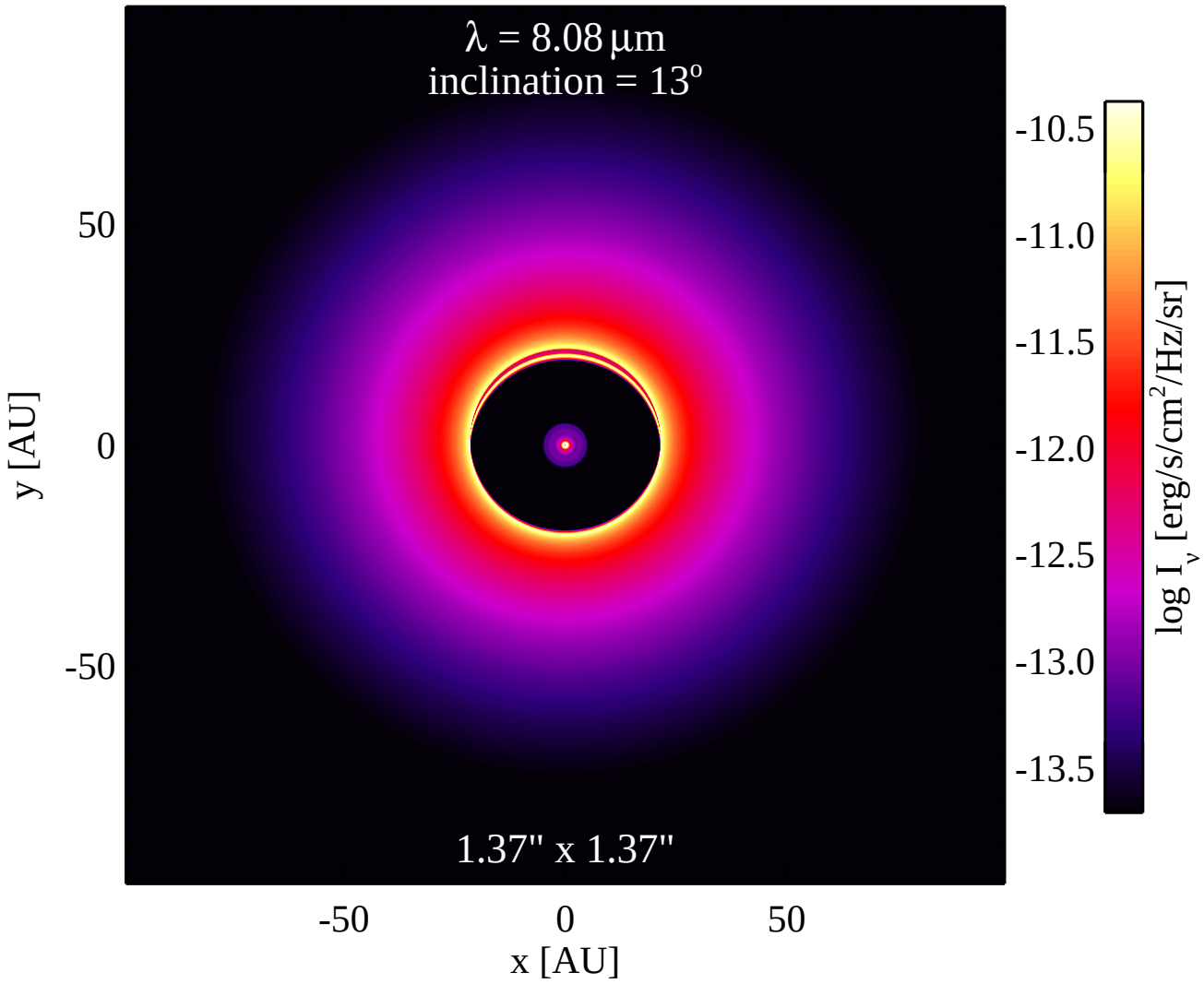

λ = 5.33 μm
inclination = 13°
0.42" x 0.42"
30
20
10
0
-10
-20
-30
y [AU]
-30
-20
-10
0
10
20
30
x [AU]
-11.8
-12.0
-12.2
-12.4
-12.6
log I_ν [erg/s/cm²/Hz/sr]

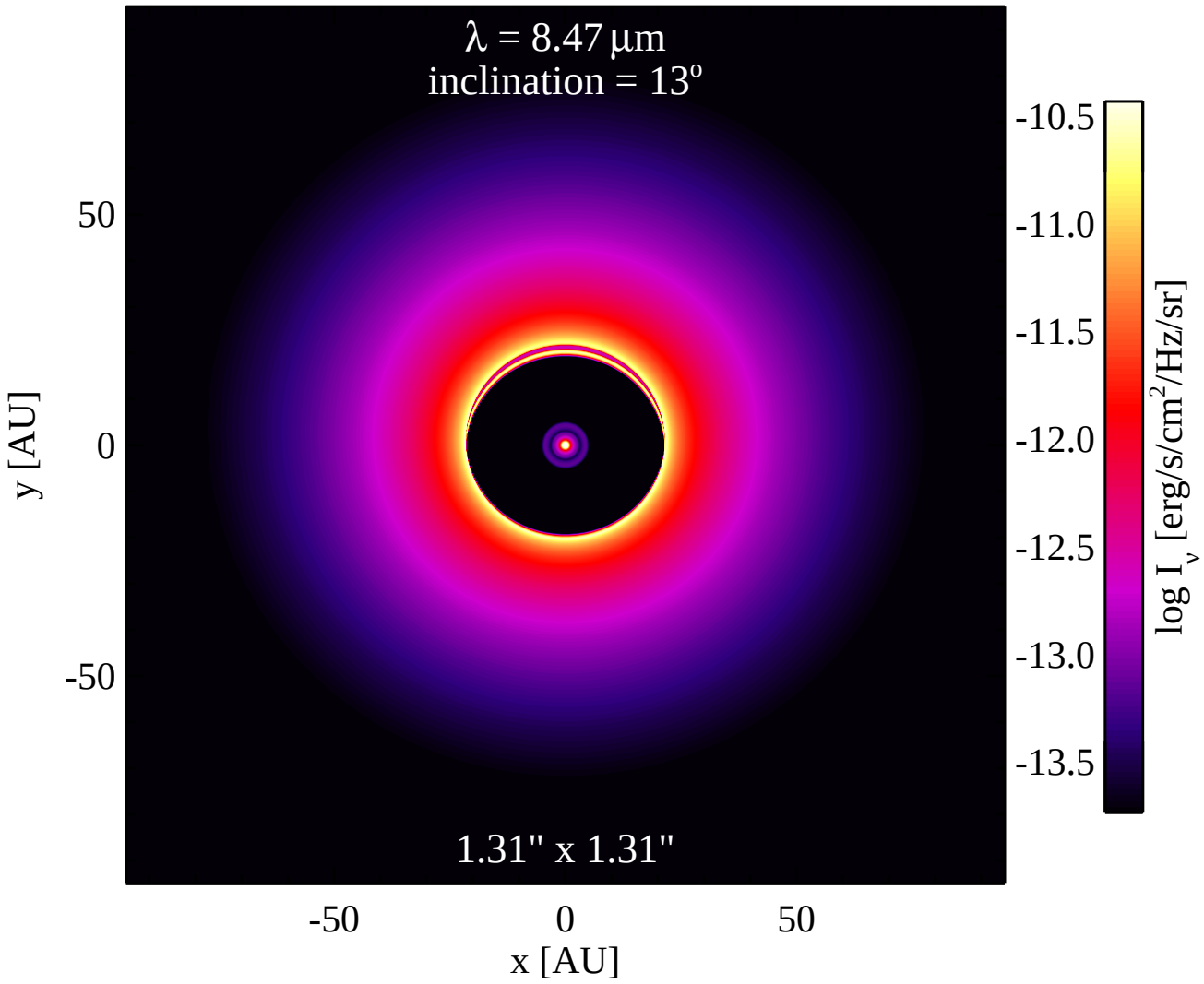

λ = 6.13 μm
inclination = 13°
0.81" x 0.81"
40
20
0
-20
-40
y [AU]
-40
-20
0
20
40
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
log I_ν [erg/s/cm²/Hz/sr]

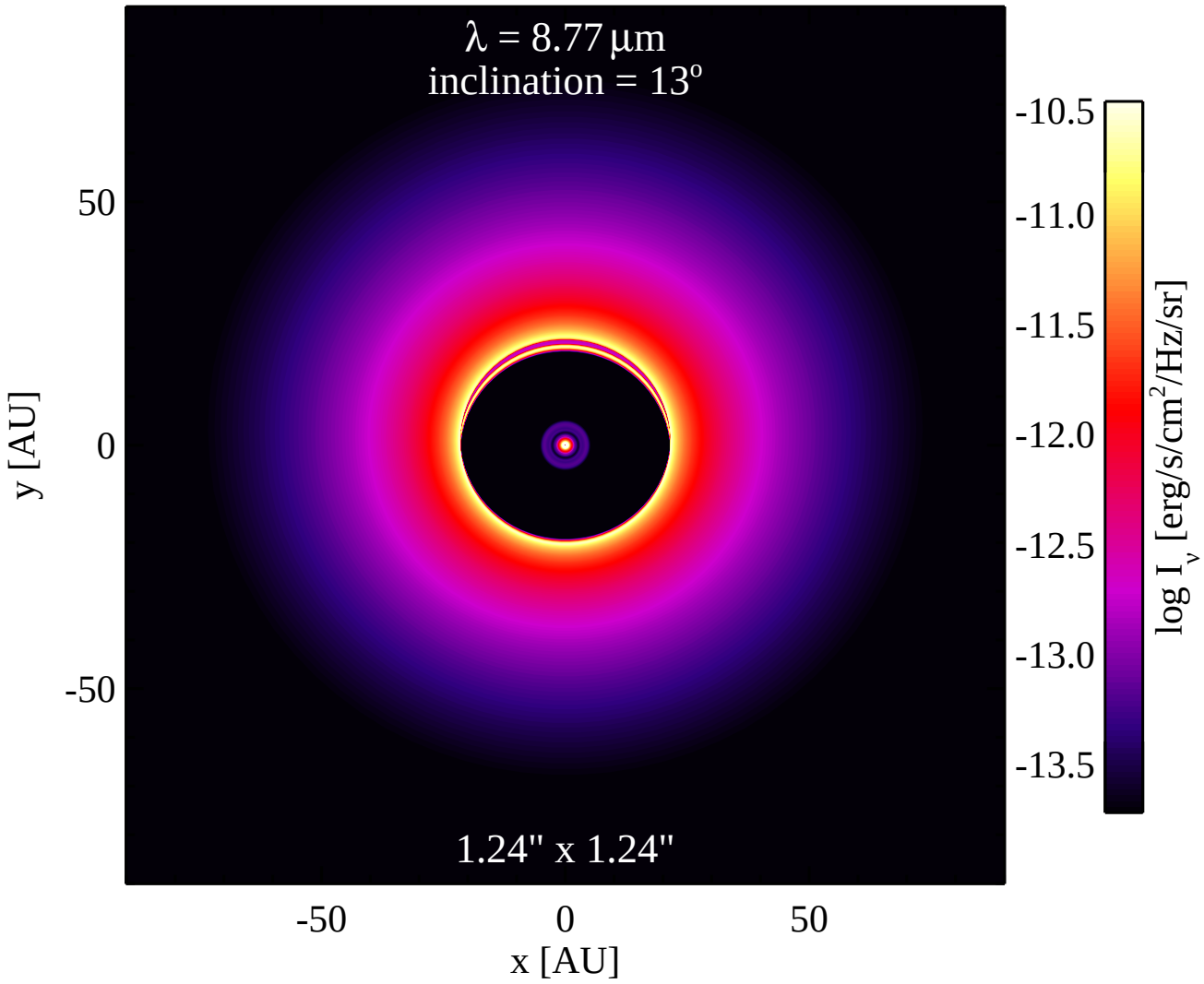

λ = 6.34 μm
inclination = 13°
0.83" x 0.83"
60
40
20
0
-20
-40
-60
y [AU]
-60
-40
-20
0
20
40
60
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
log I_ν [erg/s/cm²/Hz/sr]

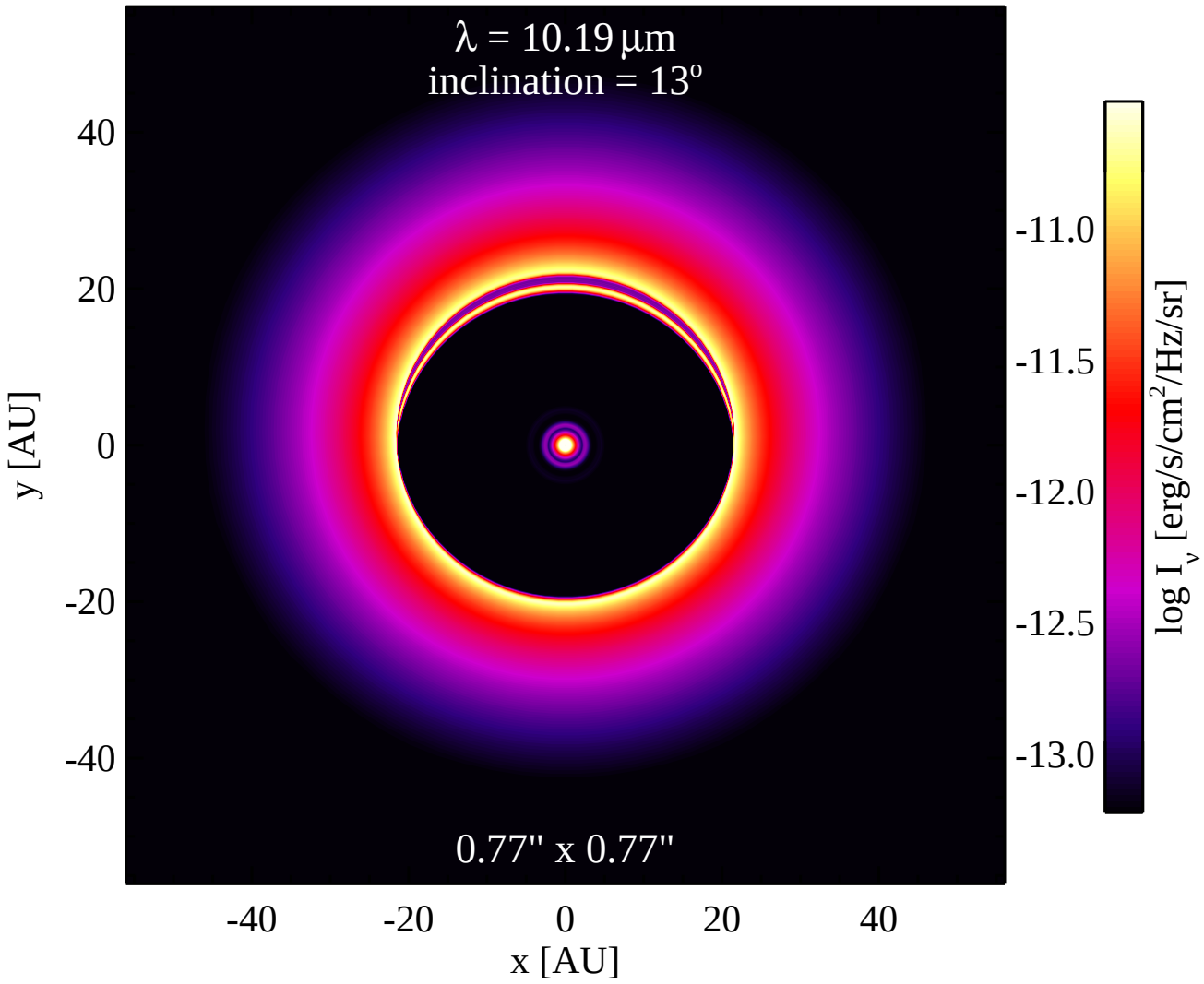

λ = 7.46 μm
inclination = 13°
1.31" x 1.31"
50
0
-50
y [AU]
-50
0
50
x [AU]
-10.5
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

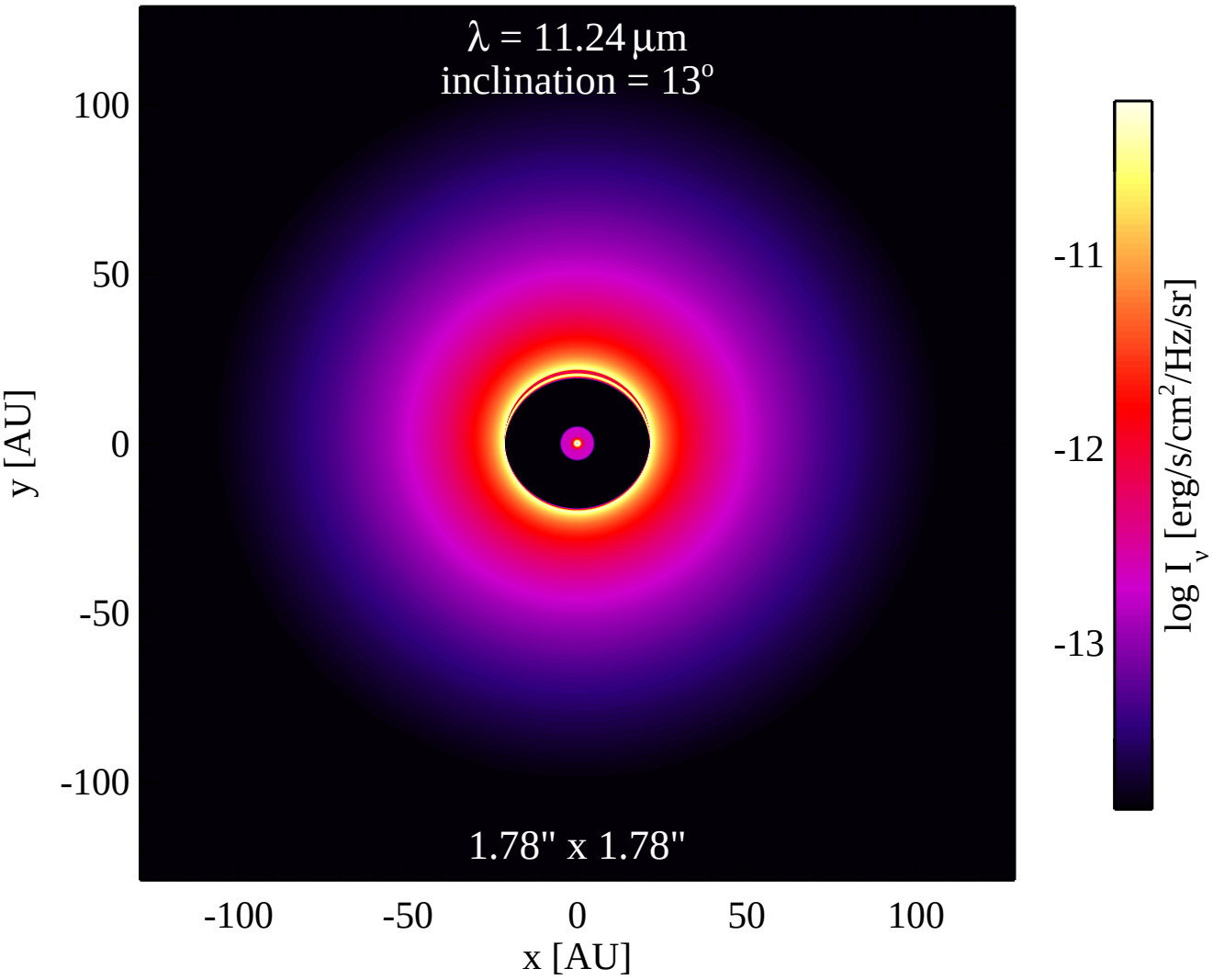

λ = 7.72 μm
inclination = 13°
1.48" x 1.48"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-10.5
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

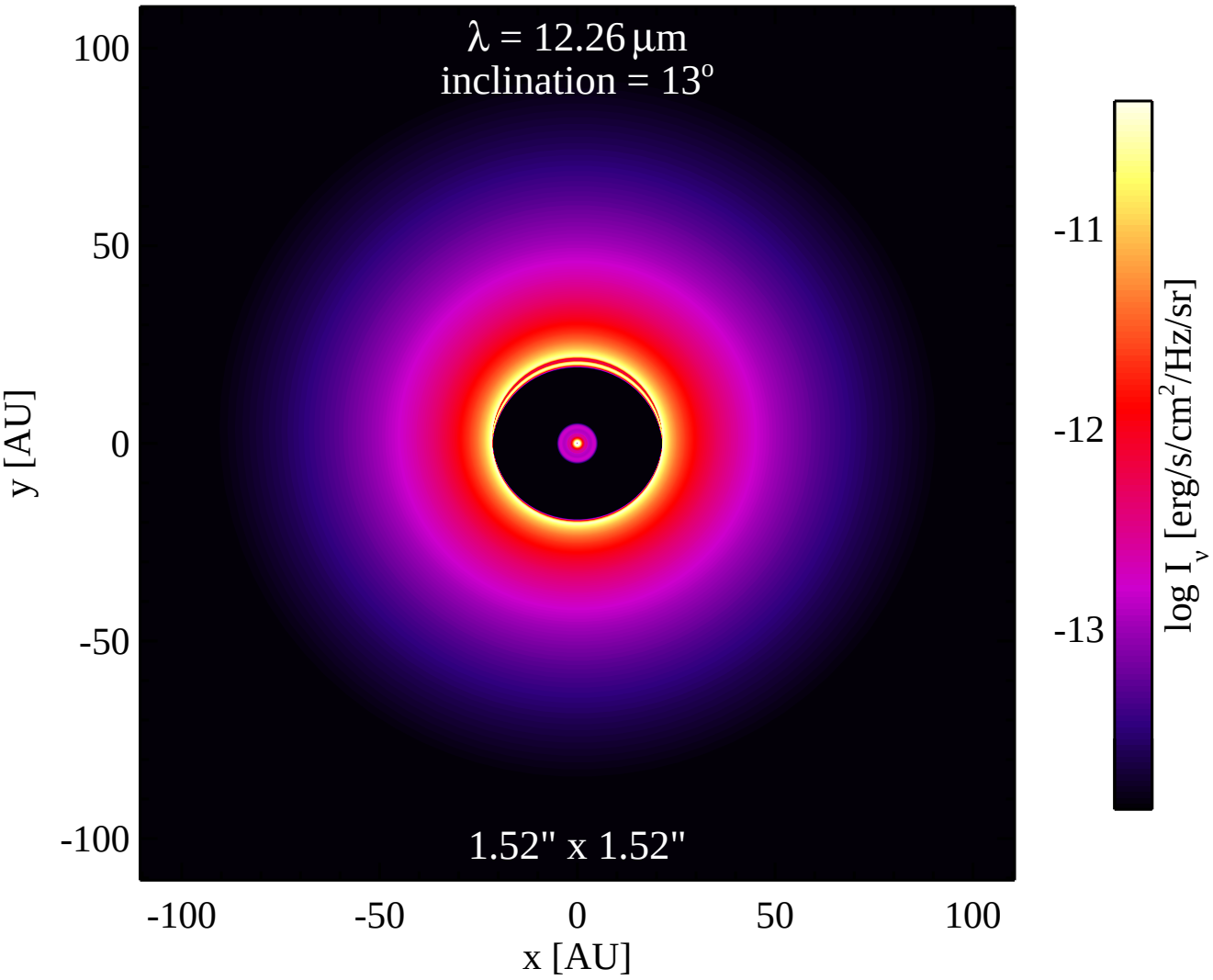

λ = 8.08 μm
inclination = 13°
1.37" x 1.37"
50
0
-50
y [AU]
-50
0
50
x [AU]
-10.5
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

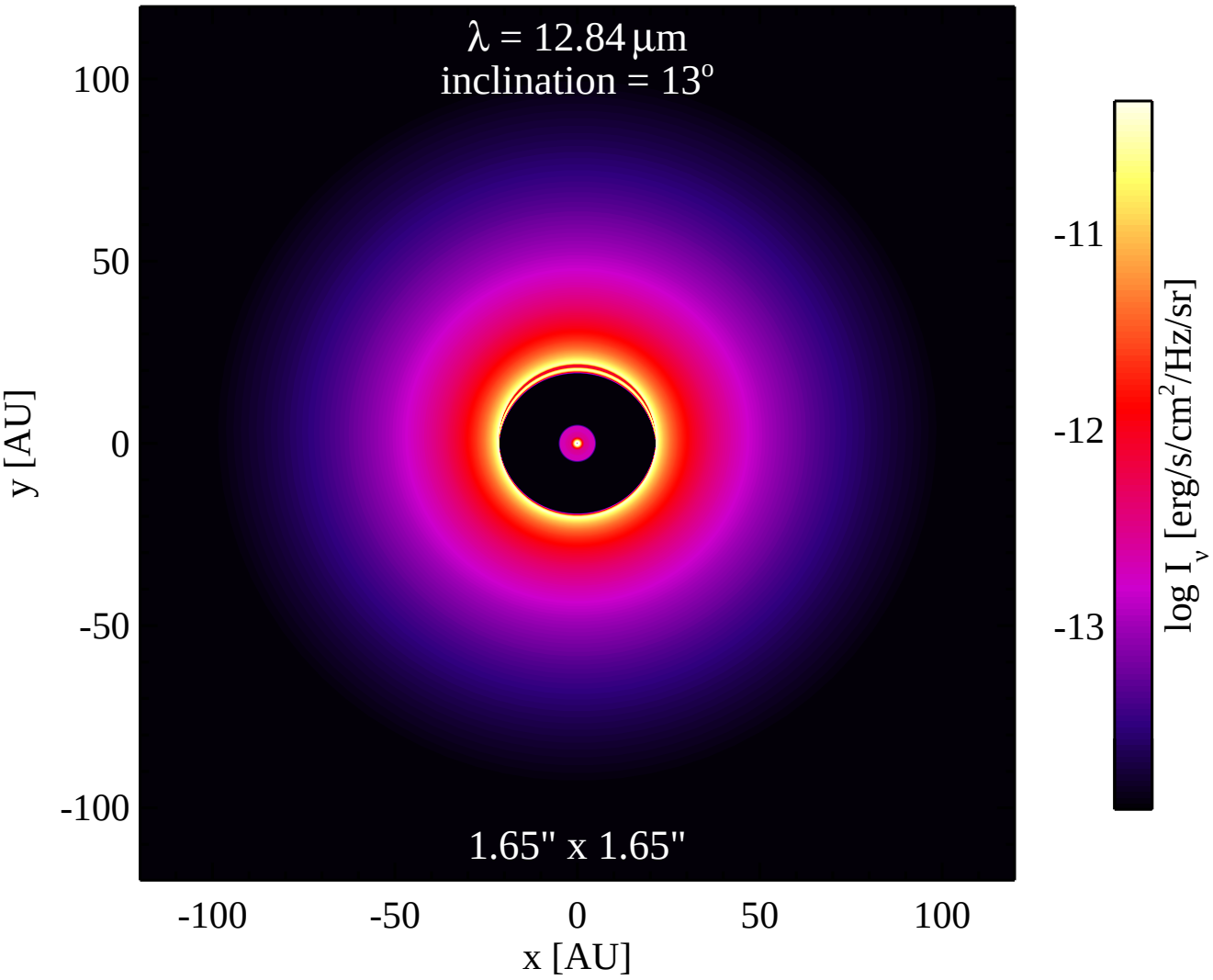

λ = 8.47 μm
inclination = 13°
1.31" x 1.31"
50
0
-50
y [AU]
-50
0
50
x [AU]
-10.5
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

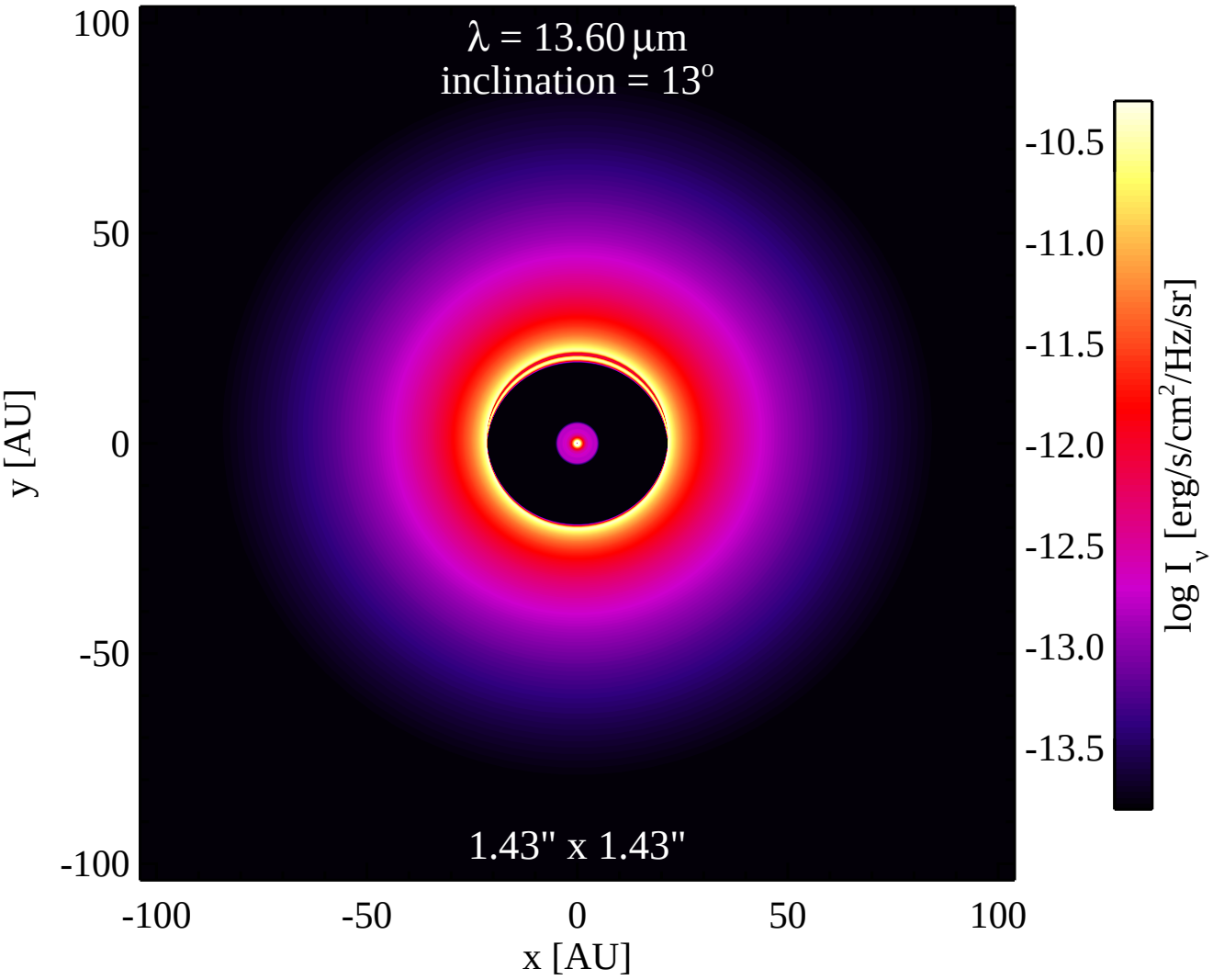

λ = 8.77 μm
inclination = 13°
1.24" x 1.24"
50
0
-50
y [AU]
-50
0
50
x [AU]
-10.5
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

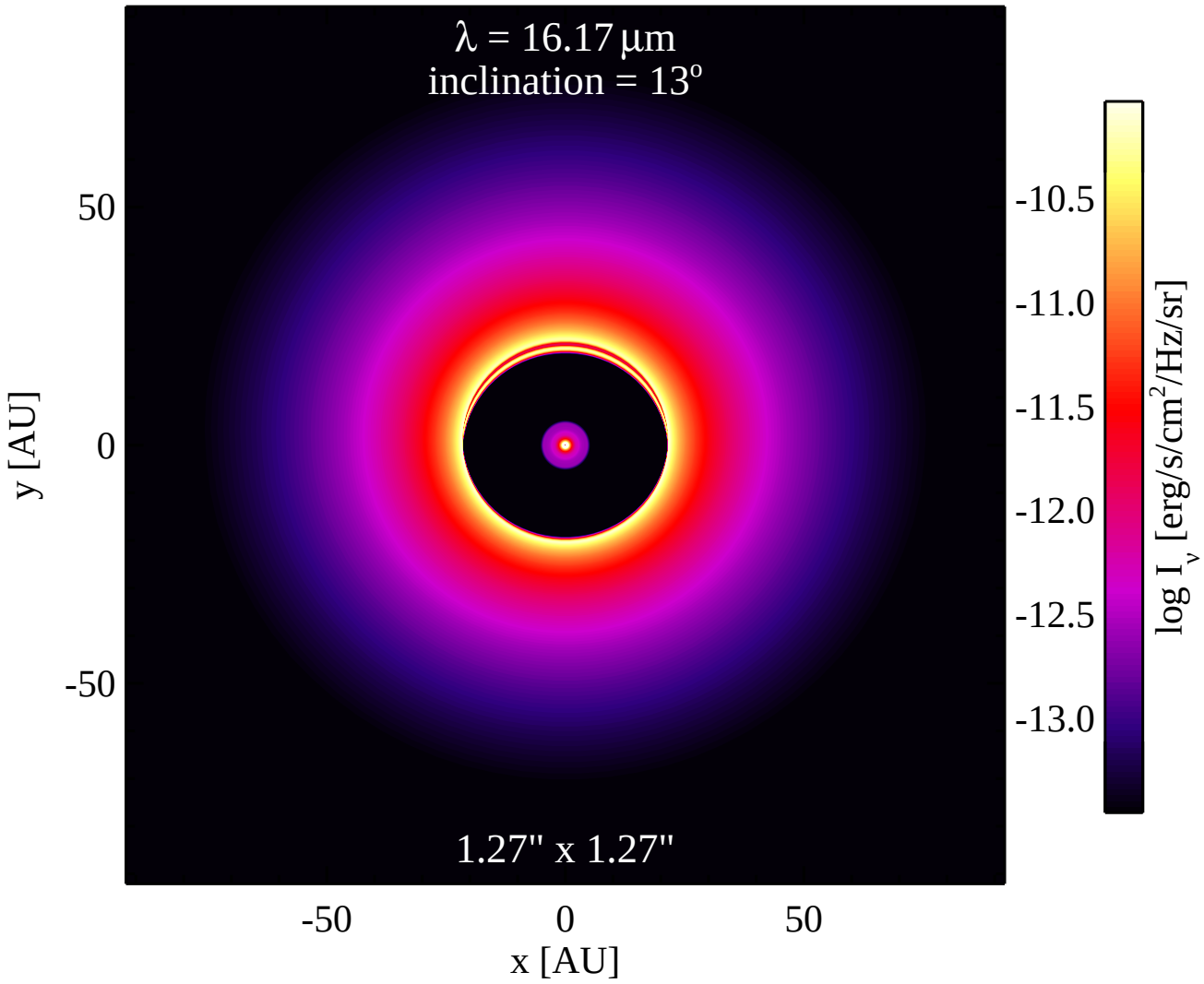

λ = 10.19 μm
inclination = 13°
0.77" x 0.77"
40
20
0
-20
-40
y [AU]
-40
-20
0
20
40
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
log I_ν [erg/s/cm²/Hz/sr]

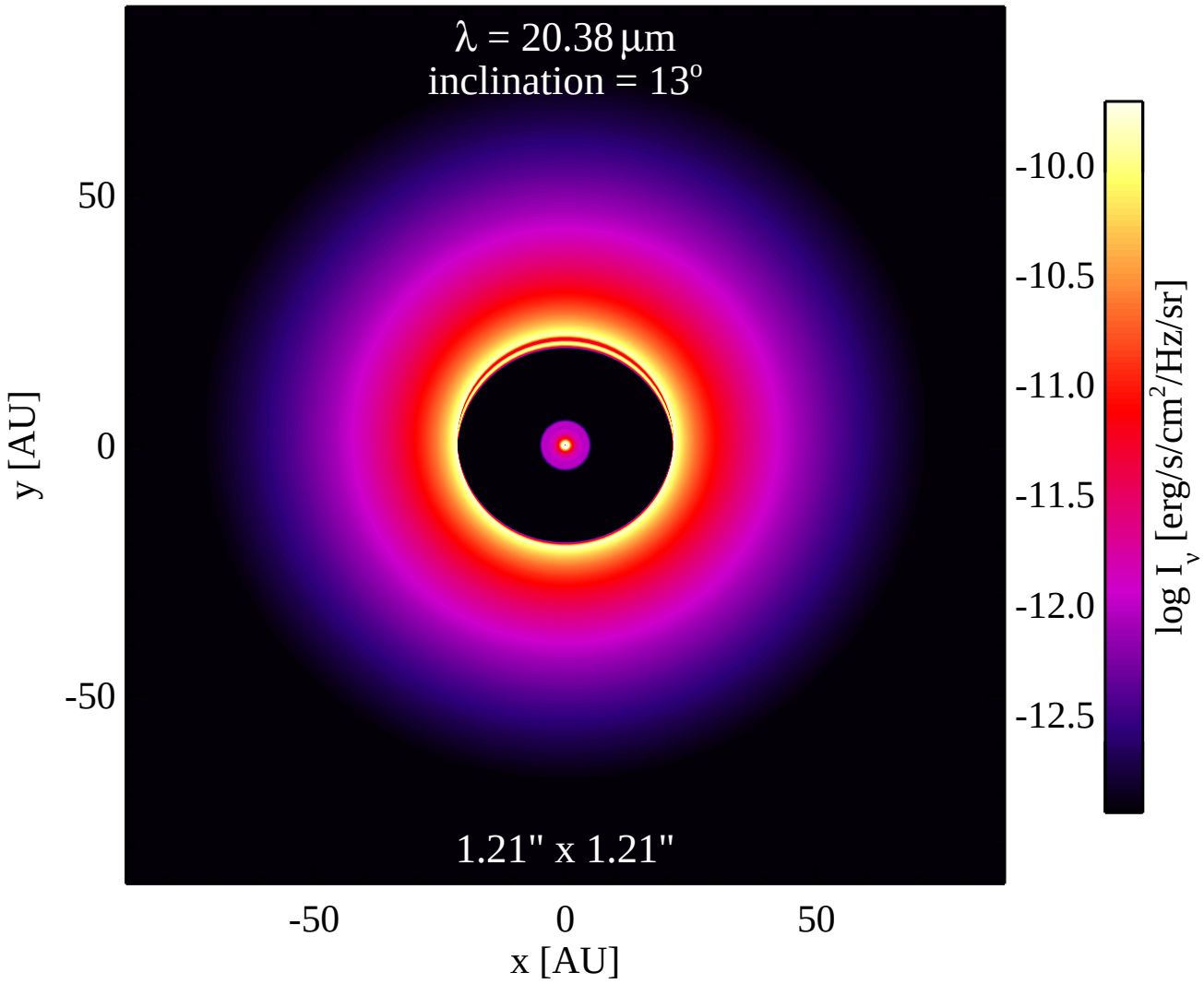

λ = 11.24 μm
inclination = 13°
1.78" x 1.78"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11
-12
-13
log I_ν [erg/s/cm²/Hz/sr]

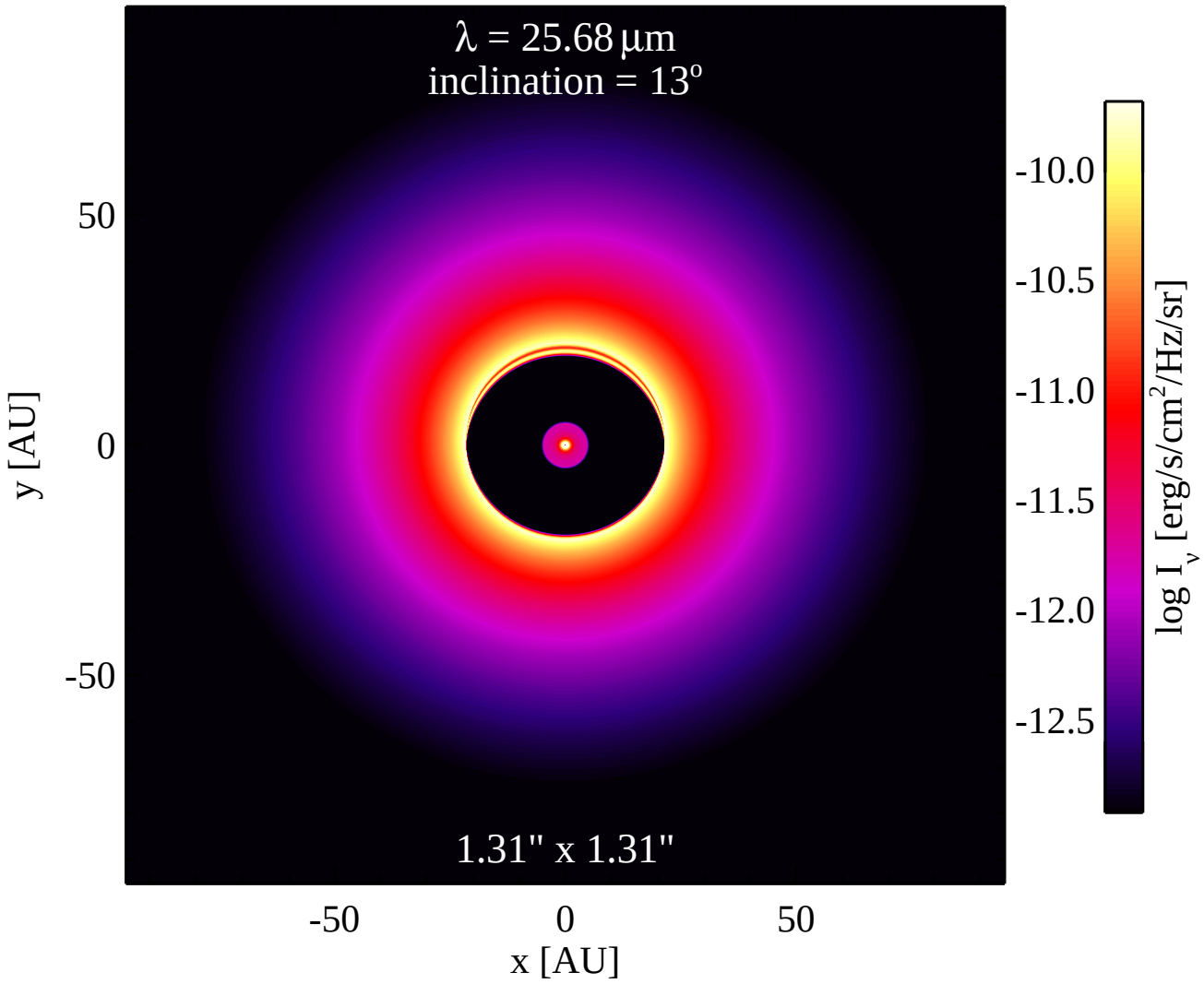

λ = 12.26 μm
inclination = 13°
1.52" x 1.52"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11
-12
-13
log I_ν [erg/s/cm²/Hz/sr]

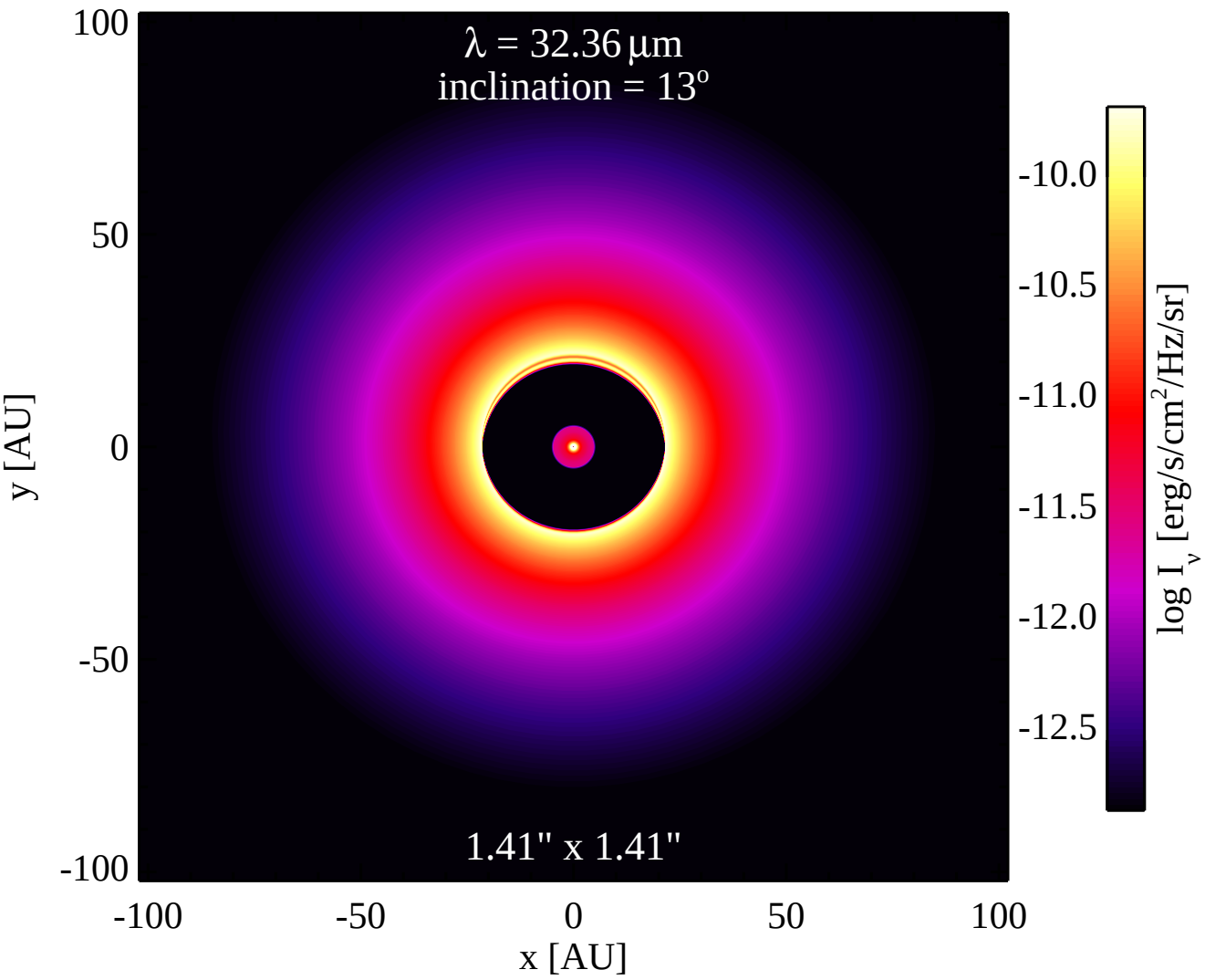

λ = 12.84 μm
inclination = 13°
1.65" x 1.65"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11
-12
-13
log I_ν [erg/s/cm²/Hz/sr]

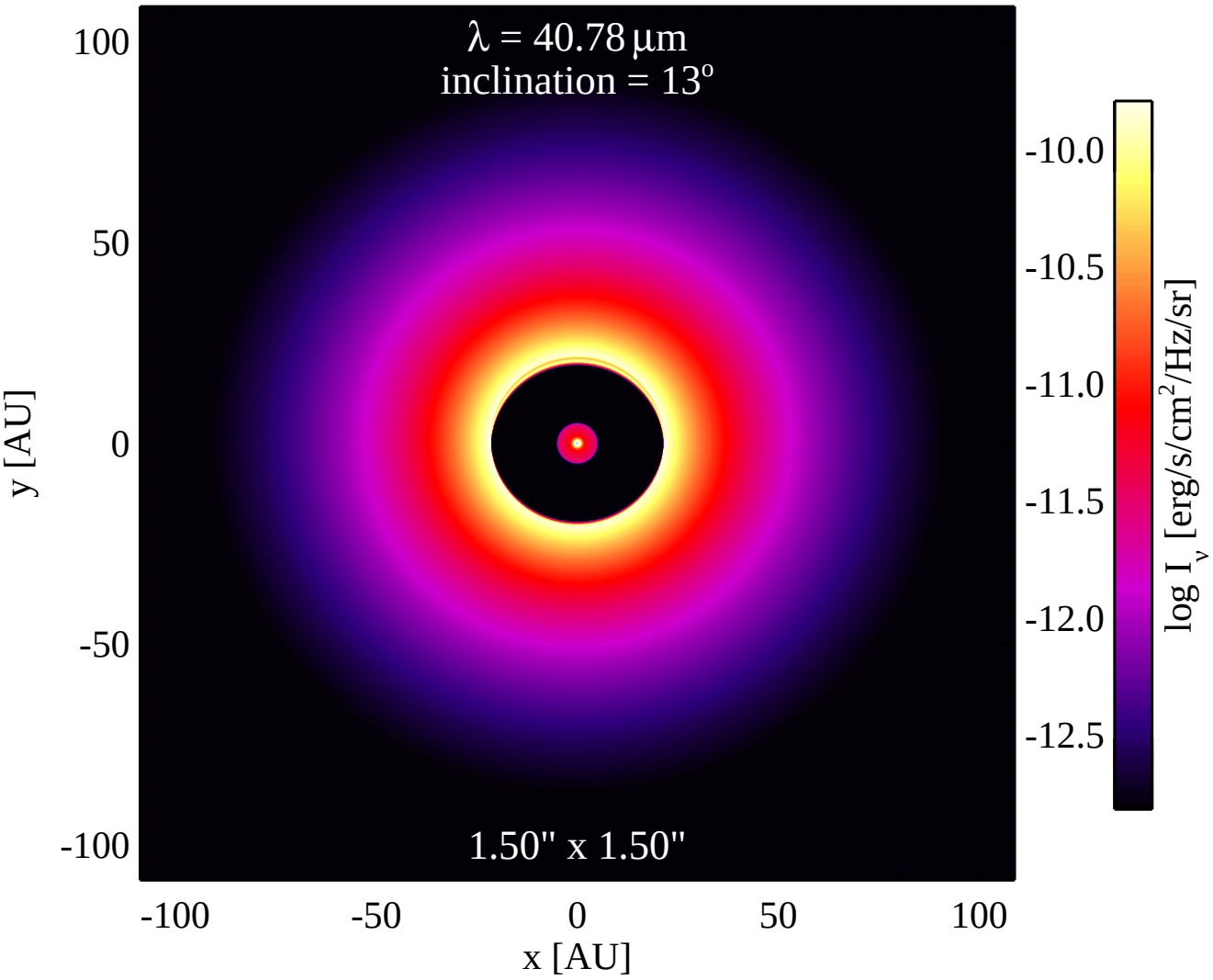

λ = 13.60 μm
inclination = 13°
1.43" x 1.43"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-10.5
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

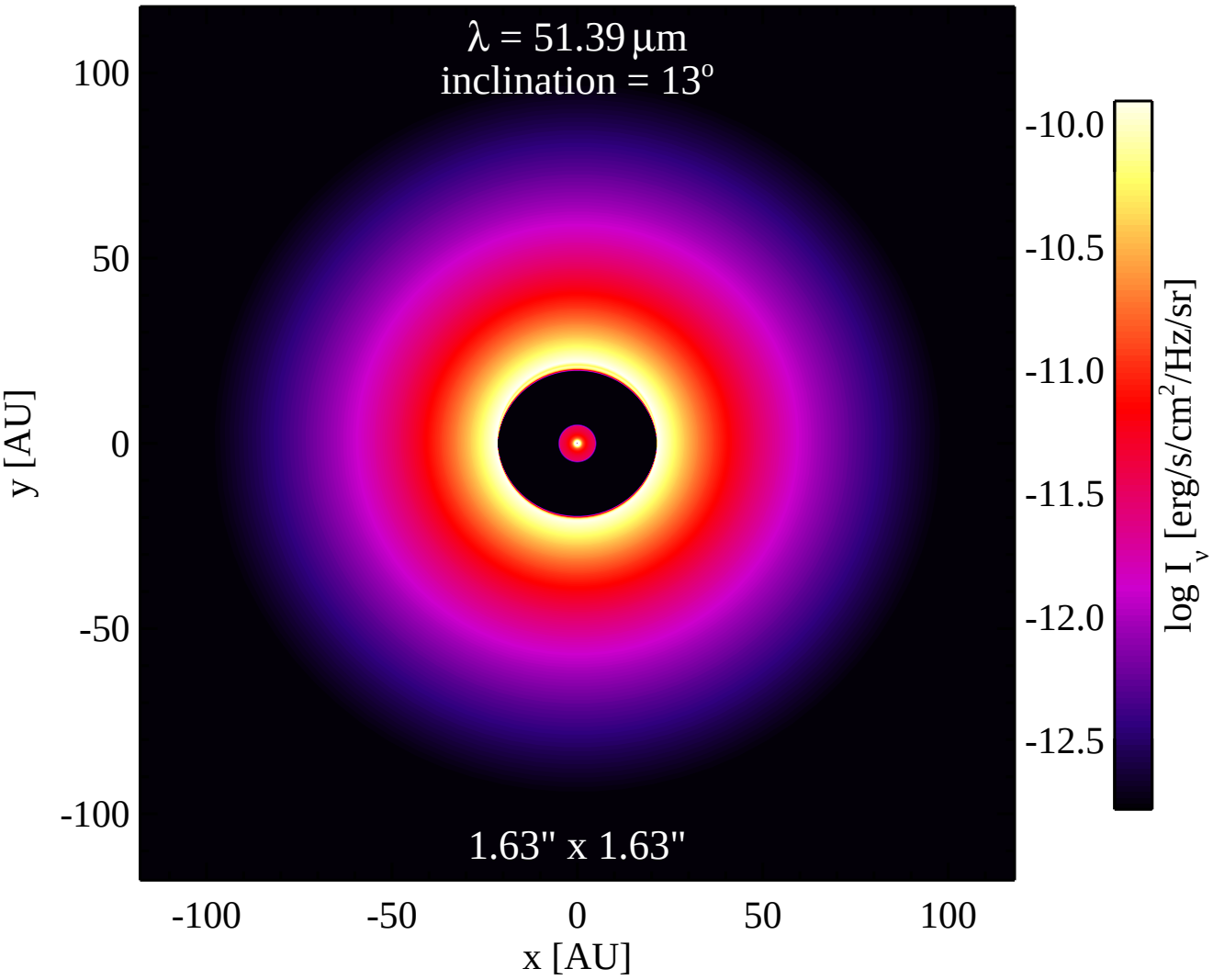

λ = 16.17 μm
inclination = 13°
1.27" x 1.27"
50
0
-50
y [AU]
-50
0
50
x [AU]
-10.5
-11.0
-11.5
-12.0
-12.5
-13.0
log I_ν [erg/s/cm²/Hz/sr]

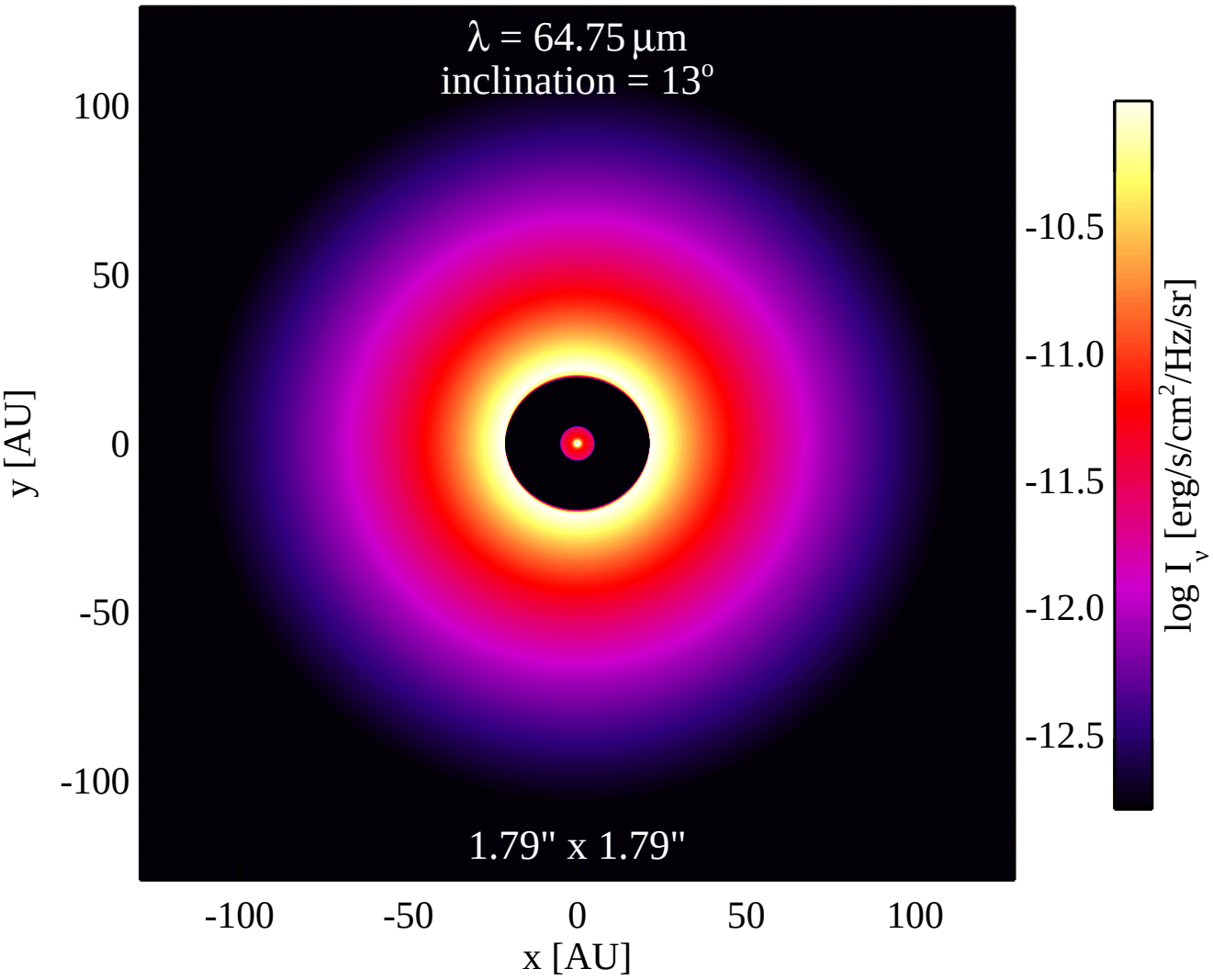

λ = 20.38 μm
inclination = 13°
1.21" x 1.21"
50
0
-50
y [AU]
-50
0
50
x [AU]
-10.0
-10.5
-11.0
-11.5
-12.0
-12.5
log I_ν [erg/s/cm²/Hz/sr]

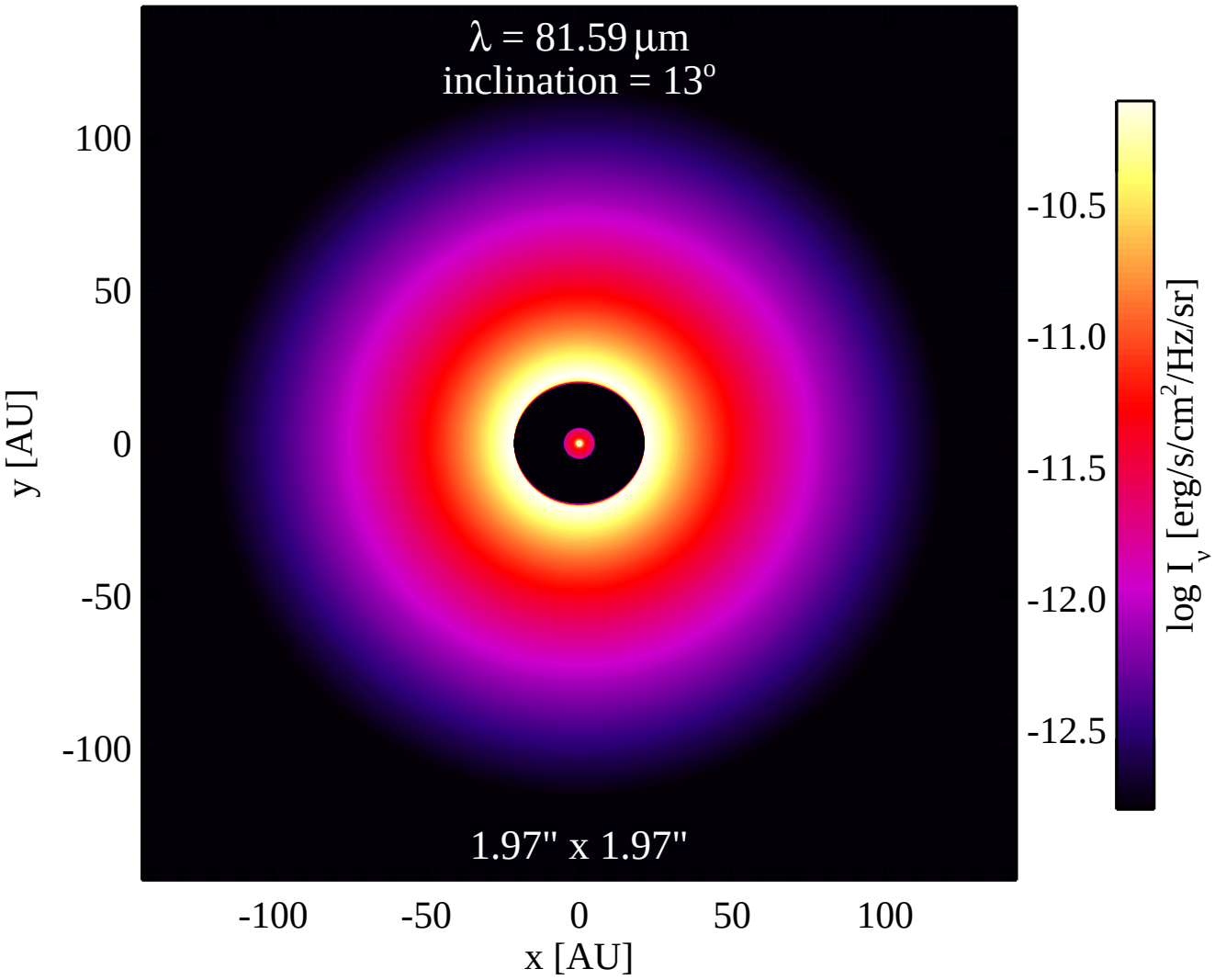

λ = 25.68 μm
inclination = 13°
1.31" x 1.31"
50
0
-50
y [AU]
-50
0
50
x [AU]
-10.0
-10.5
-11.0
-11.5
-12.0
-12.5
log I_ν [erg/s/cm²/Hz/sr]

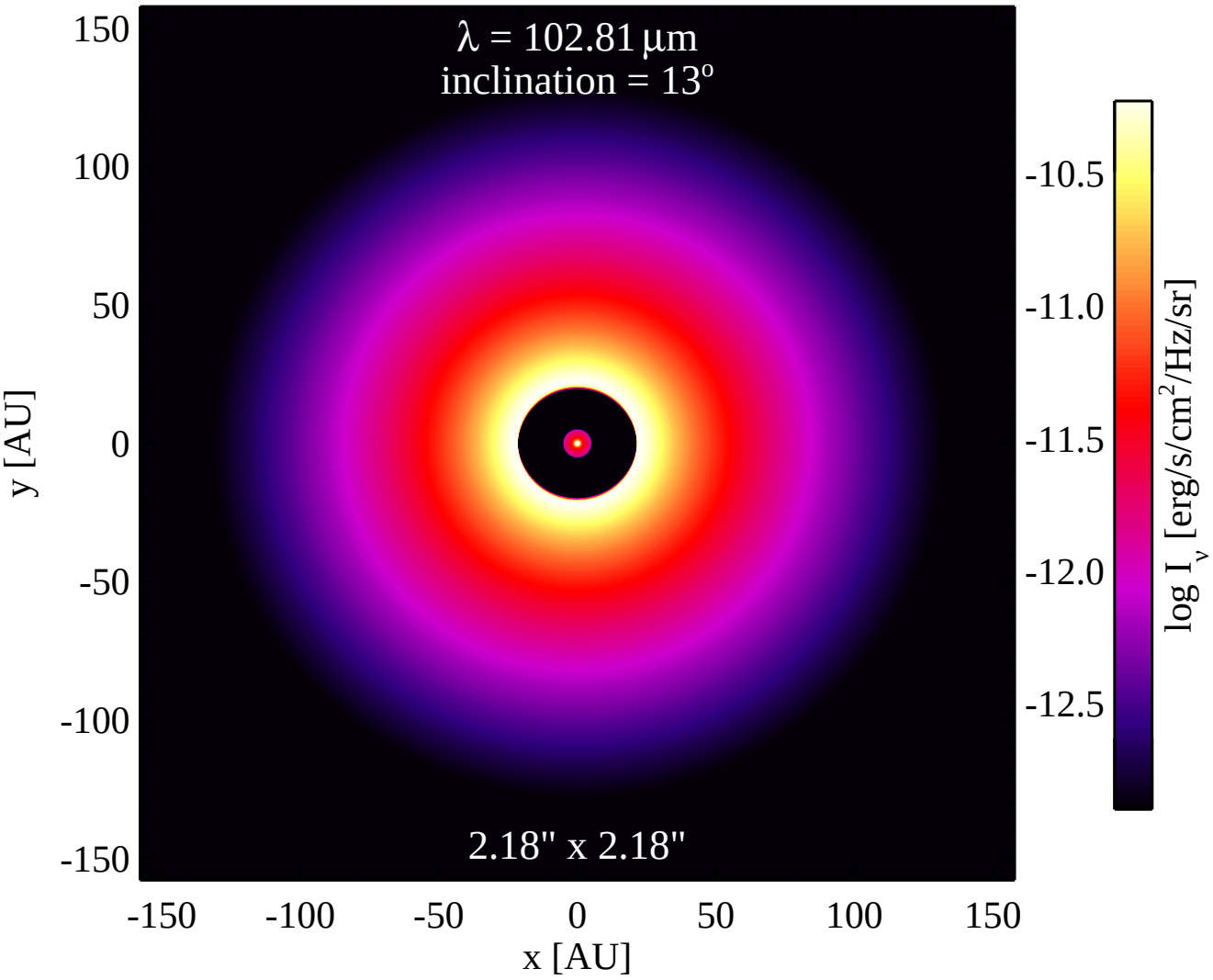

λ = 32.36 μm
inclination = 13°
1.41" x 1.41"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-10.0
-10.5
-11.0
-11.5
-12.0
-12.5
log I_ν [erg/s/cm²/Hz/sr]

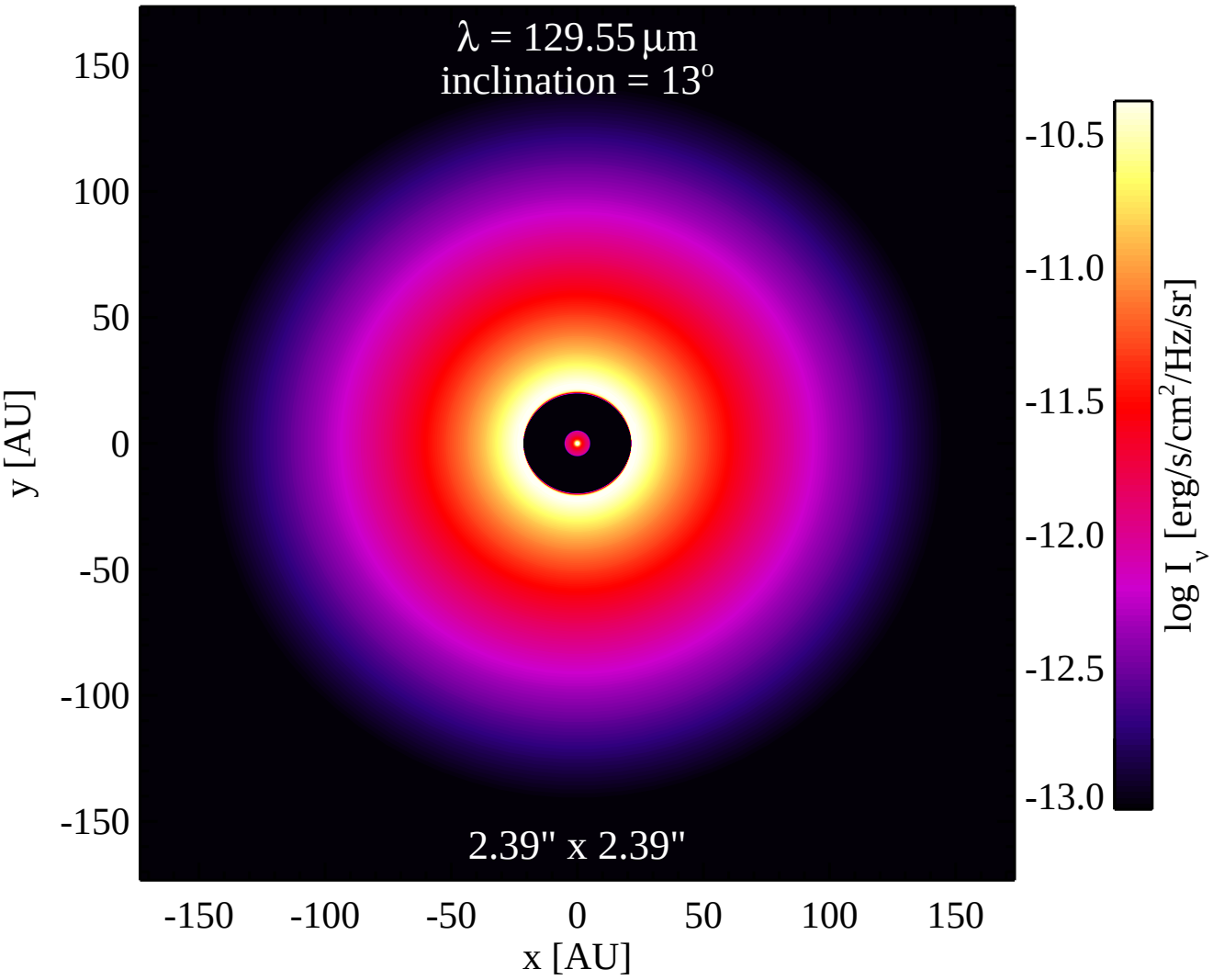

λ = 40.78 μm
inclination = 13°
1.50" x 1.50"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-10.0
-10.5
-11.0
-11.5
-12.0
-12.5
log I_ν [erg/s/cm²/Hz/sr]

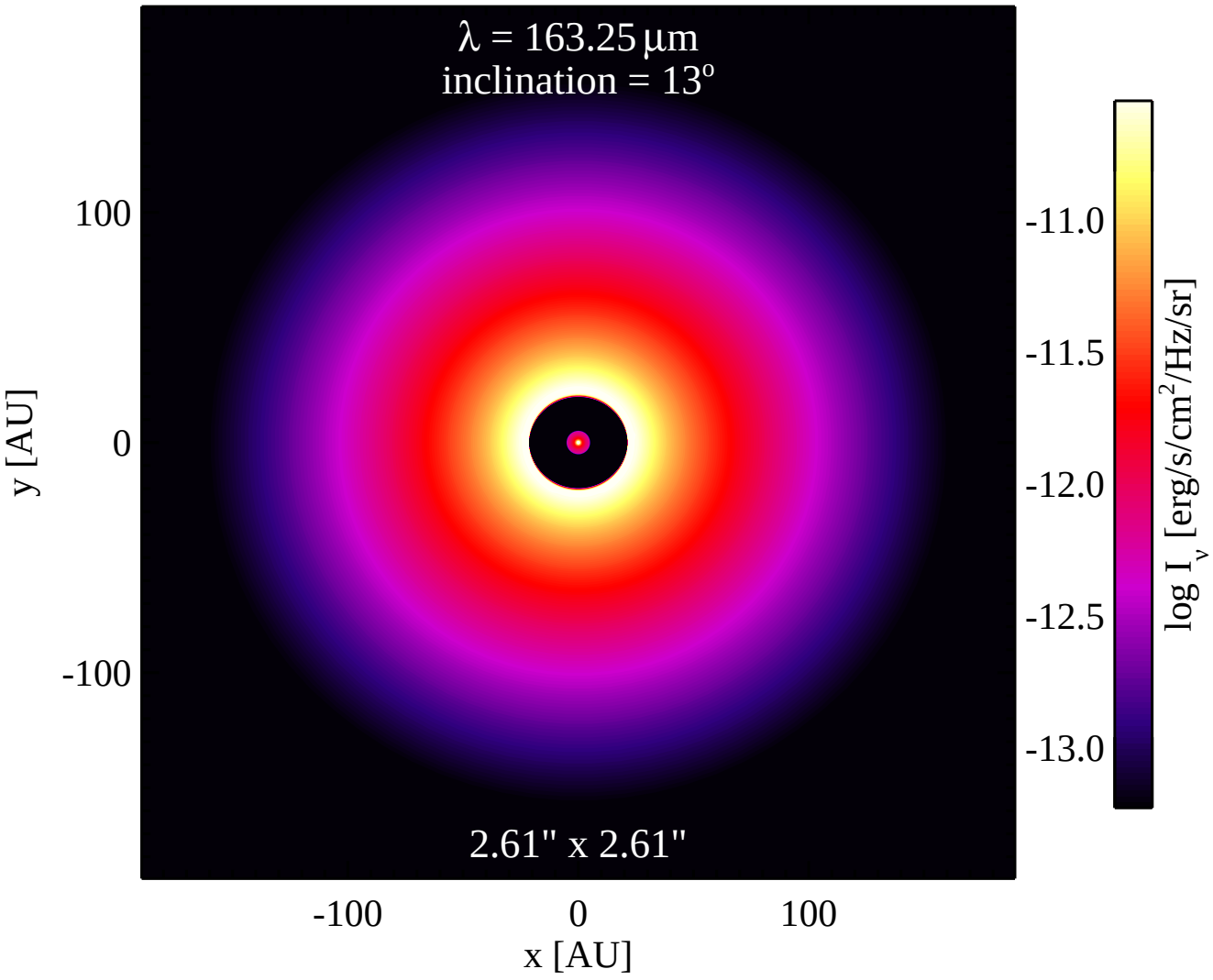

λ = 51.39 μm
inclination = 13°
1.63" x 1.63"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-10.0
-10.5
-11.0
-11.5
-12.0
-12.5
log I_ν [erg/s/cm²/Hz/sr]

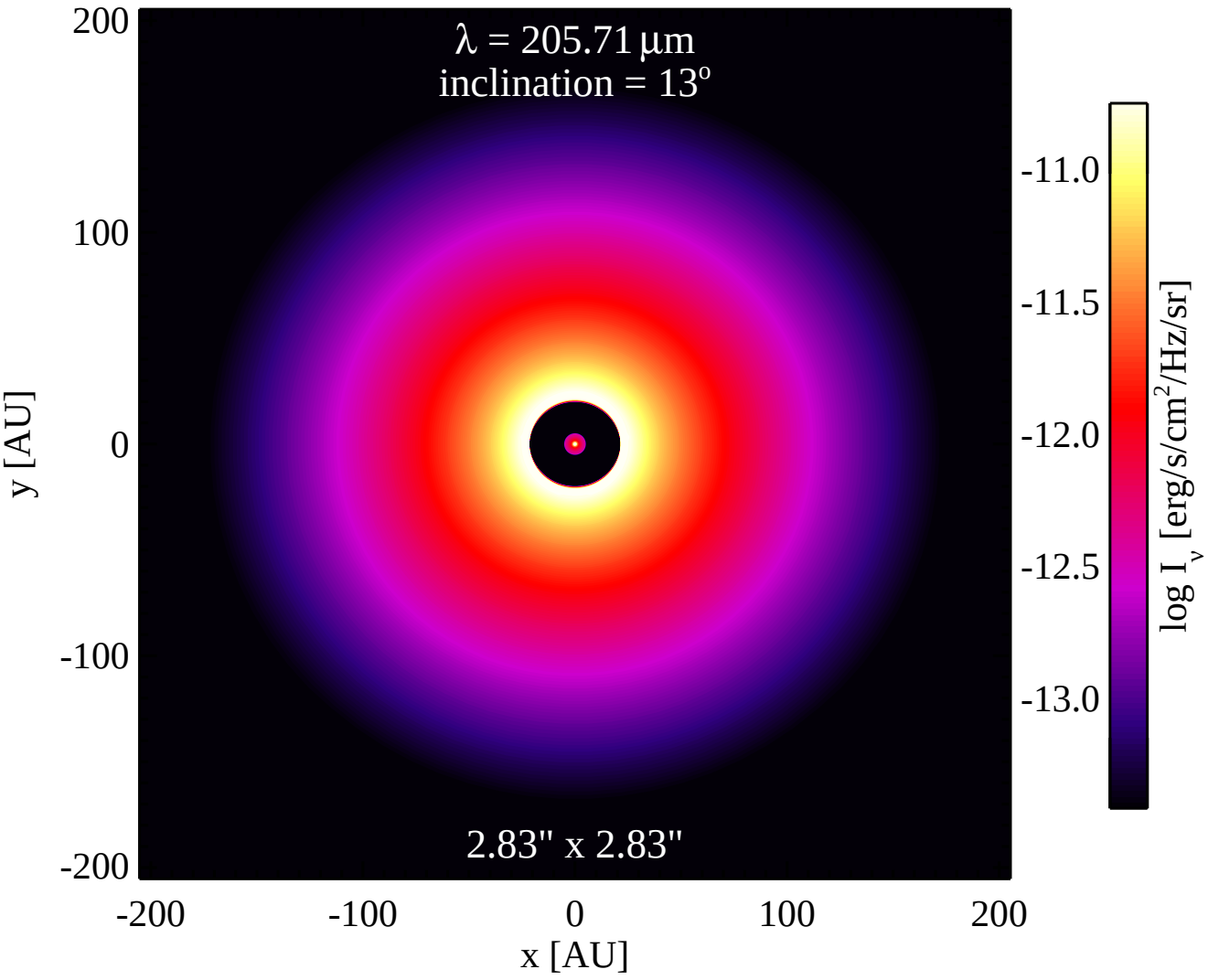

λ = 64.75 μm
inclination = 13°
1.79" x 1.79"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-10.5
-11.0
-11.5
-12.0
-12.5
log I_ν [erg/s/cm²/Hz/sr]

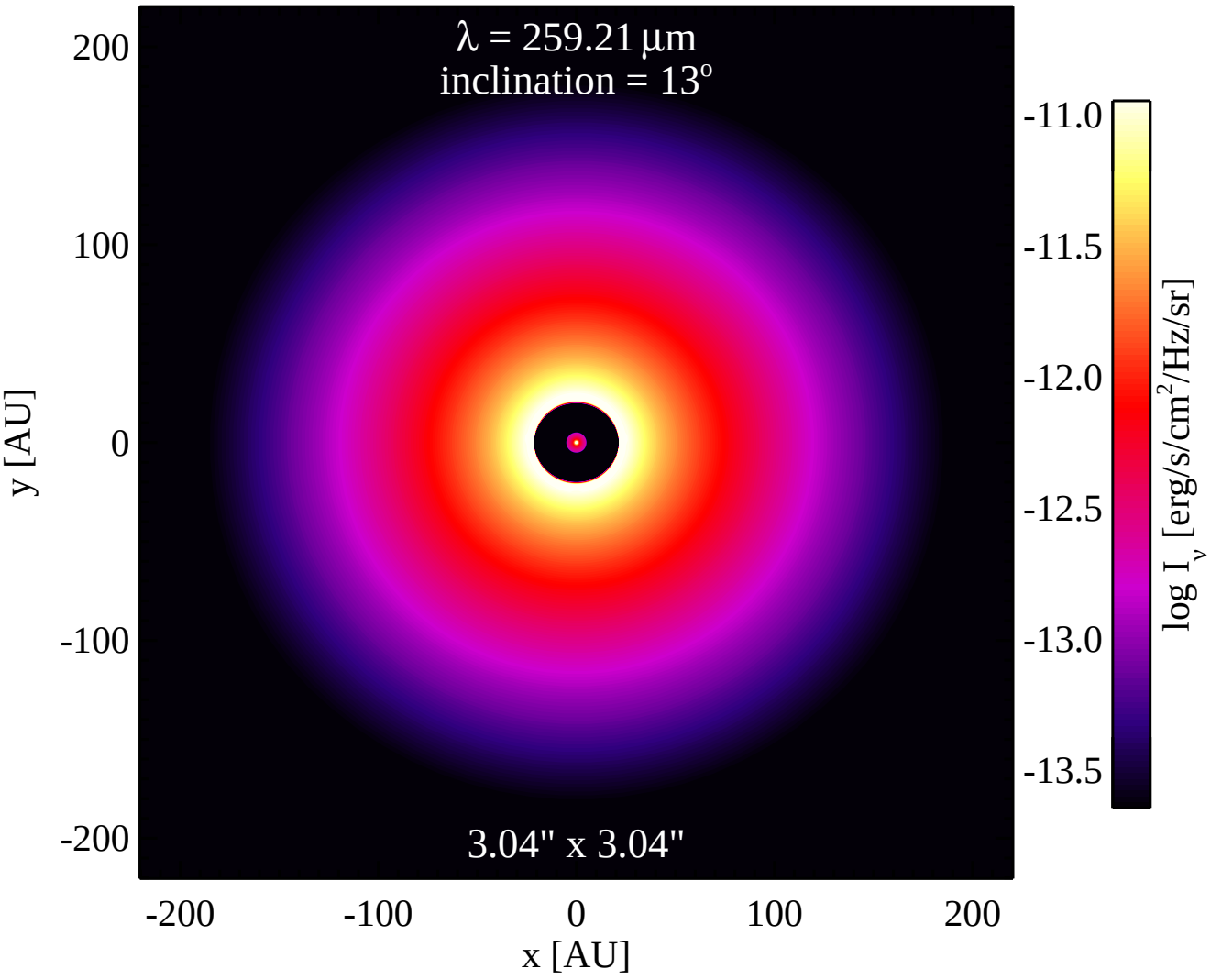

λ = 81.59 μm
inclination = 13°
1.97" x 1.97"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-10.5
-11.0
-11.5
-12.0
-12.5
log I_ν [erg/s/cm²/Hz/sr]

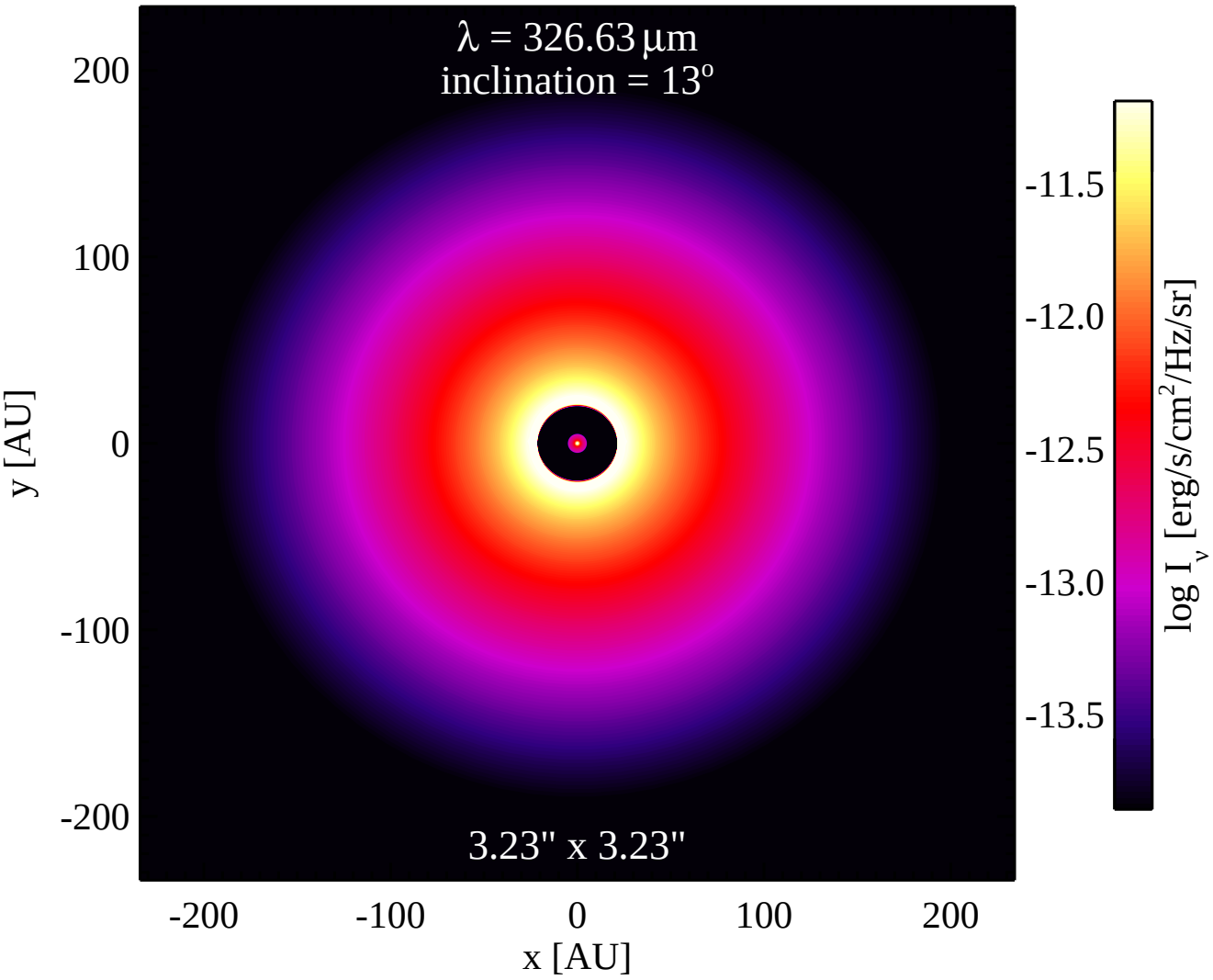

λ = 102.81 μm
inclination = 13°
2.18" x 2.18"
150
100
50
0
-50
-100
-150
y [AU]
-150
-100
-50
0
50
100
150
x [AU]
-10.5
-11.0
-11.5
-12.0
-12.5
log I_ν [erg/s/cm²/Hz/sr]

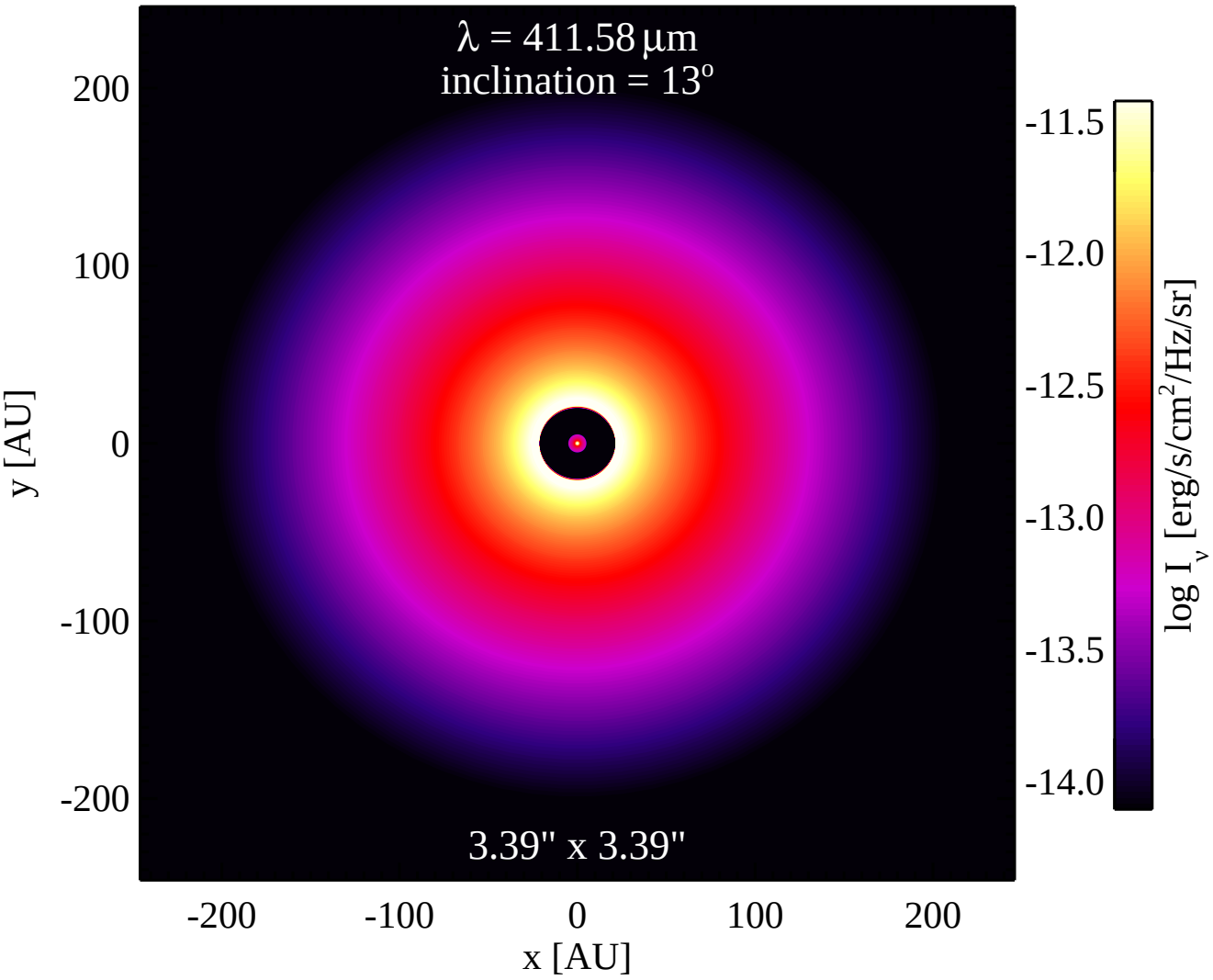

λ = 129.55 μm
inclination = 13°
2.39" x 2.39"
150
100
50
0
-50
-100
-150
y [AU]
-150
-100
-50
0
50
100
150
x [AU]
-10.5
-11.0
-11.5
-12.0
-12.5
-13.0
log I_ν [erg/s/cm²/Hz/sr]

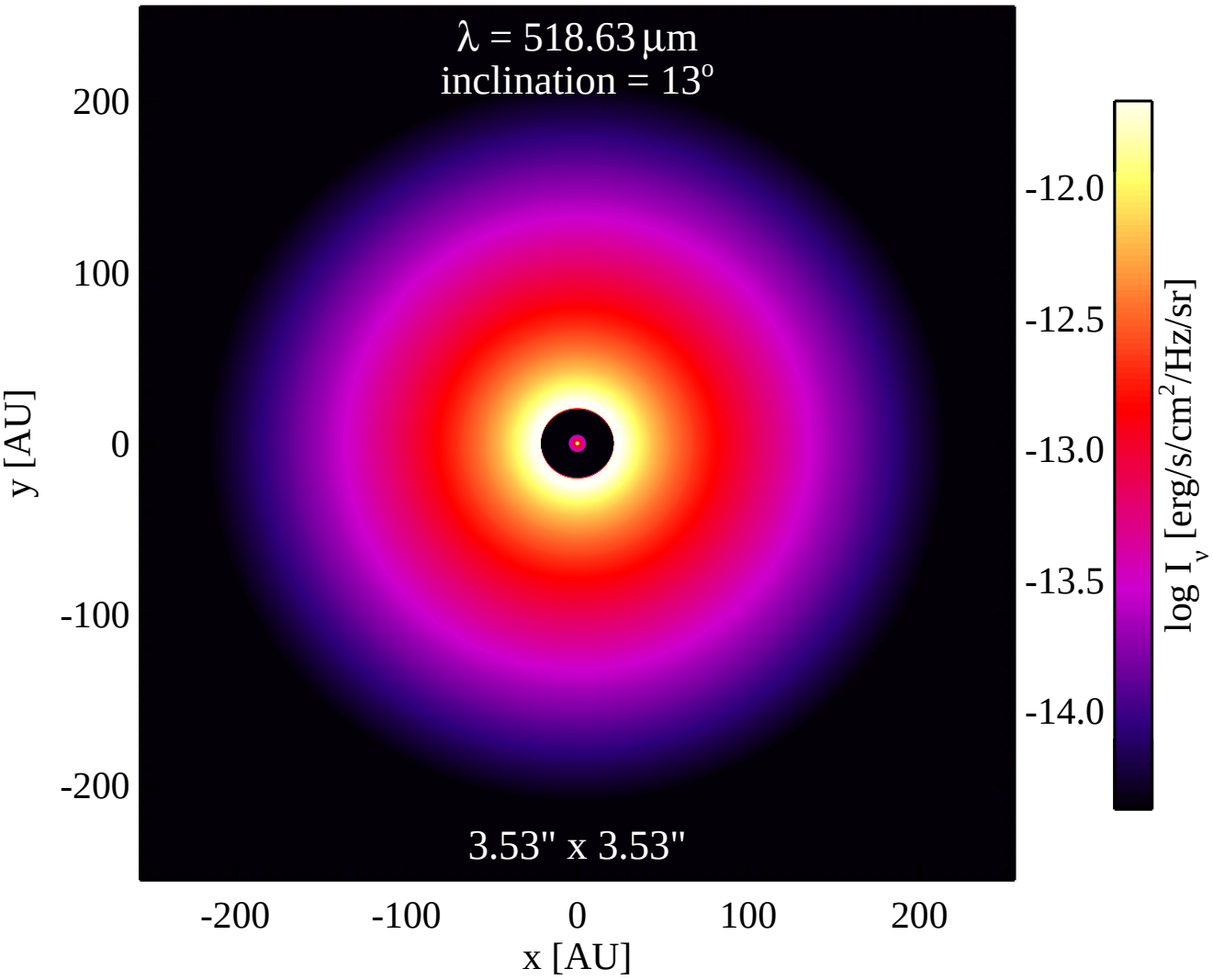

λ = 163.25 μm
inclination = 13°
2.61" x 2.61"
100
0
-100
y [AU]
-100
0
100
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
log I_ν [erg/s/cm²/Hz/sr]

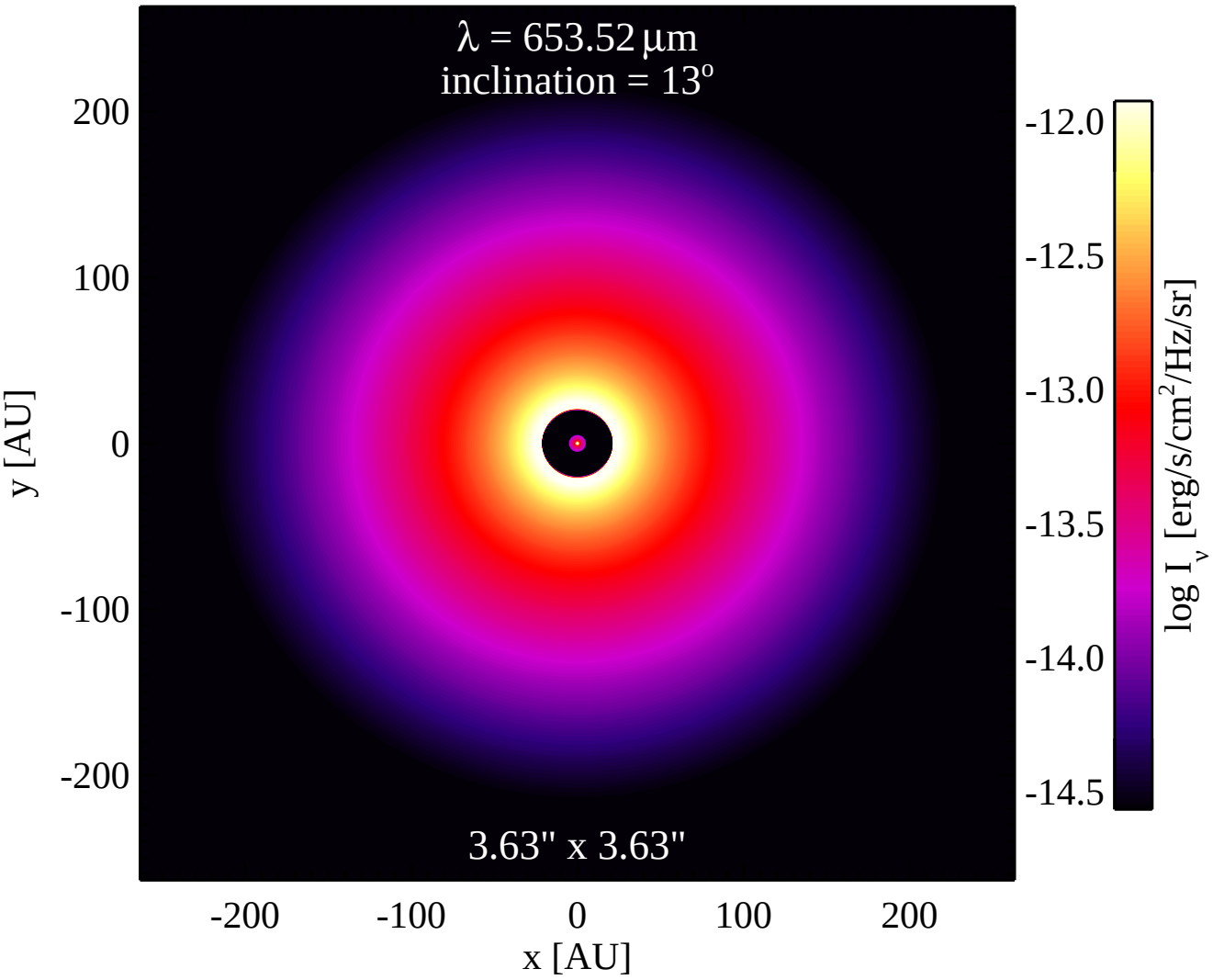

λ = 205.71 μm
inclination = 13°
2.83" x 2.83"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
log I_ν [erg/s/cm²/Hz/sr]

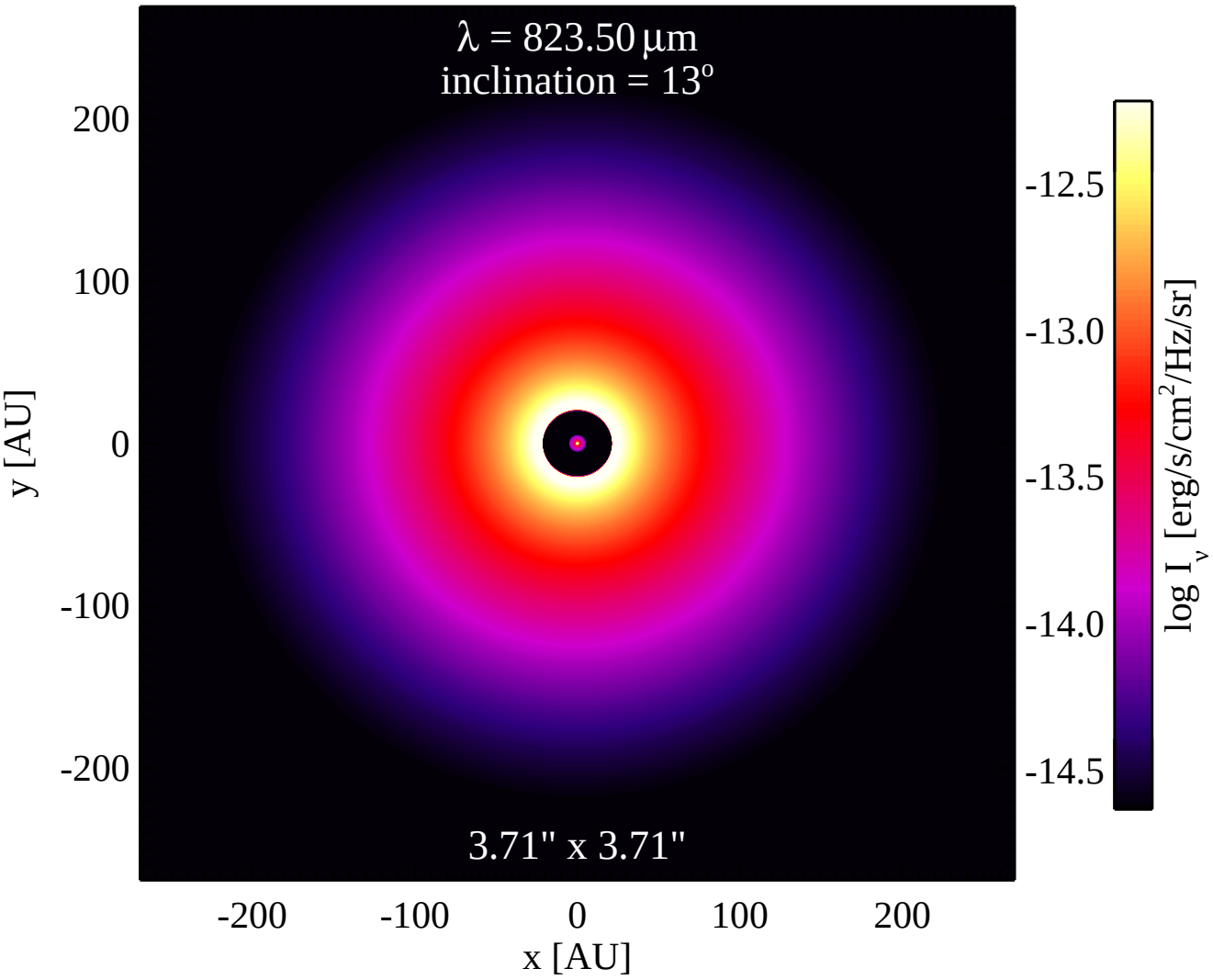

λ = 259.21 μm
inclination = 13°
3.04" x 3.04"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

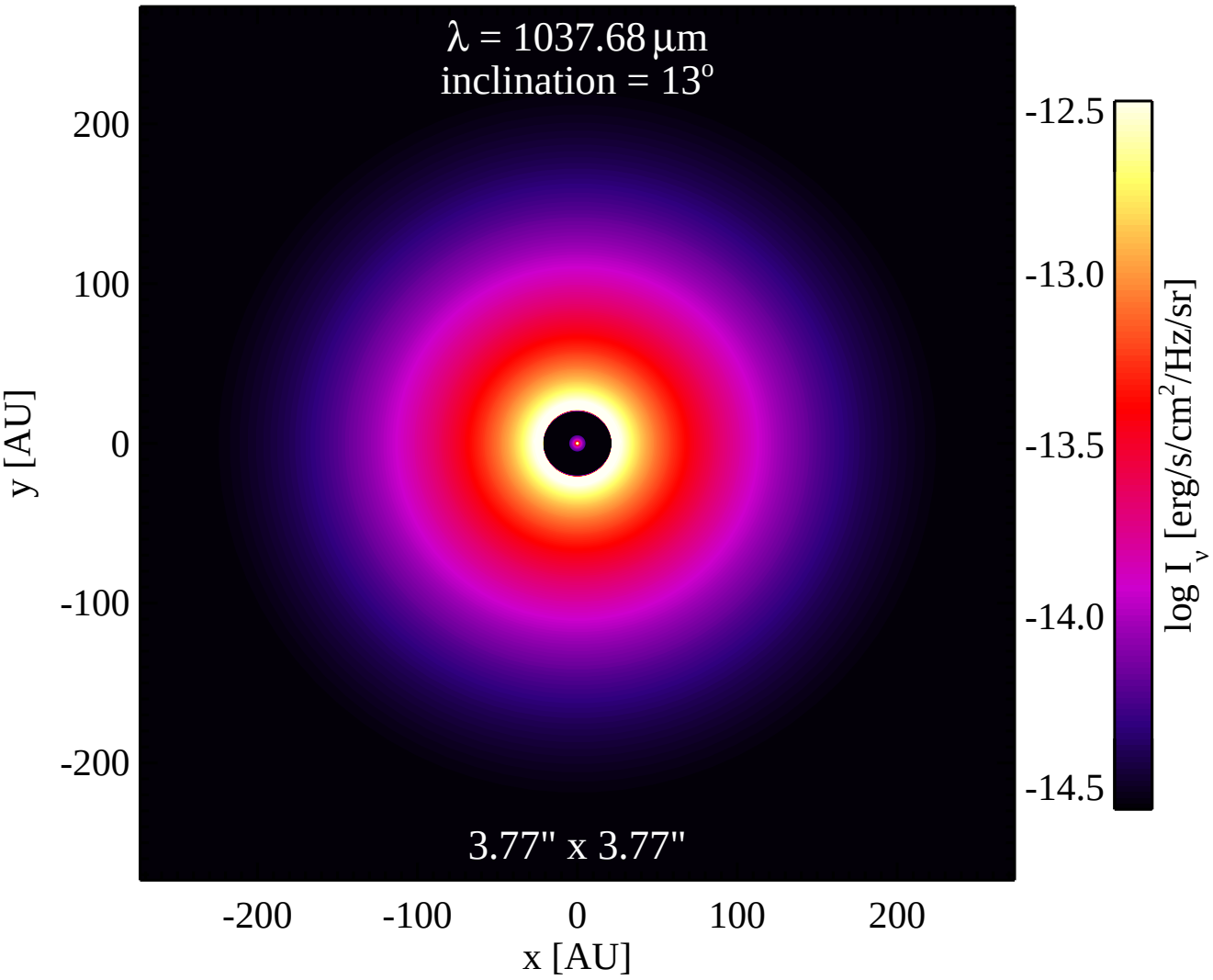

λ = 326.63 μm
inclination = 13°
3.23" x 3.23"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

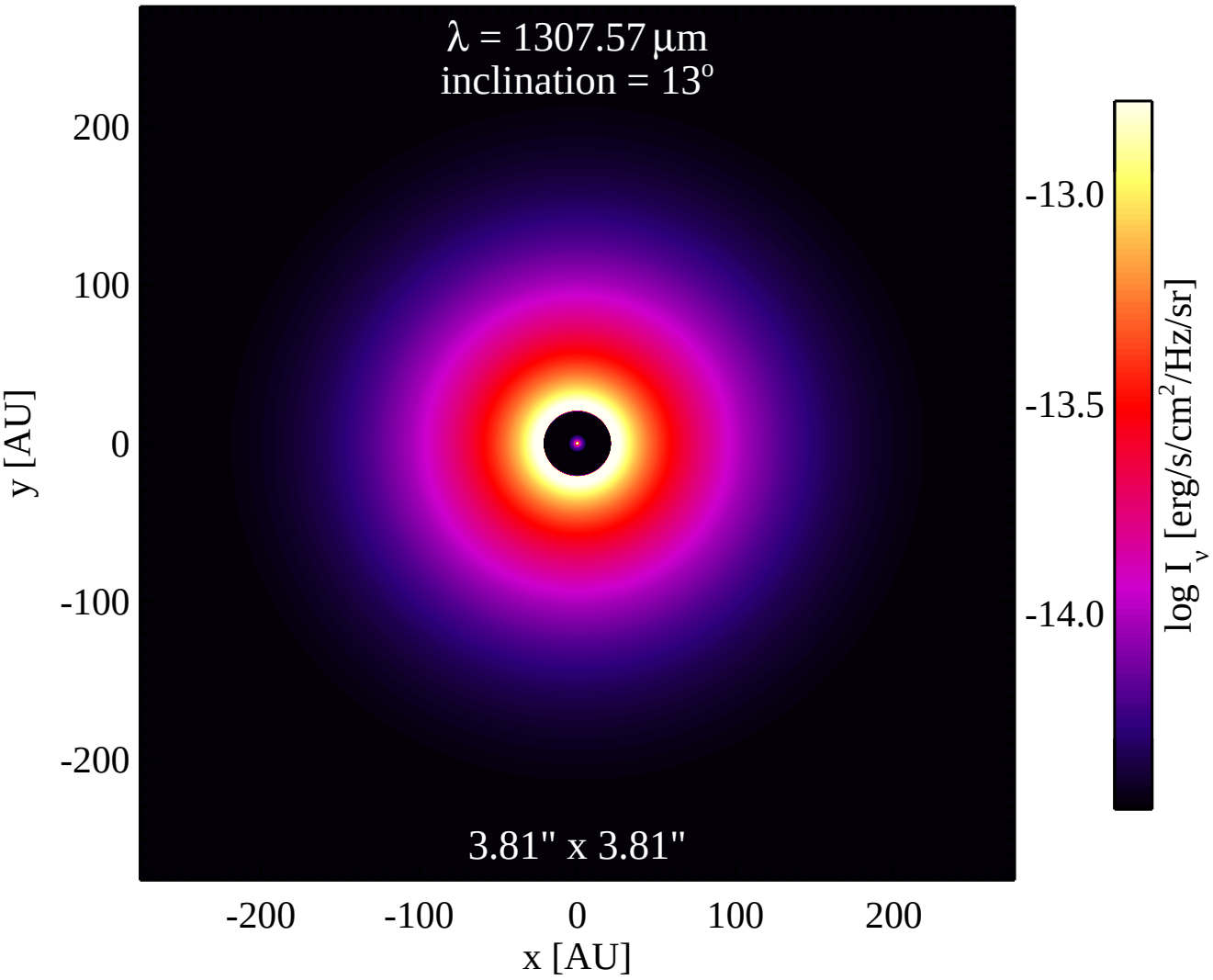

λ = 411.58 μm
inclination = 13°
3.39" x 3.39"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-11.5
-12.0
-12.5
-13.0
-13.5
-14.0
log I_ν [erg/s/cm²/Hz/sr]

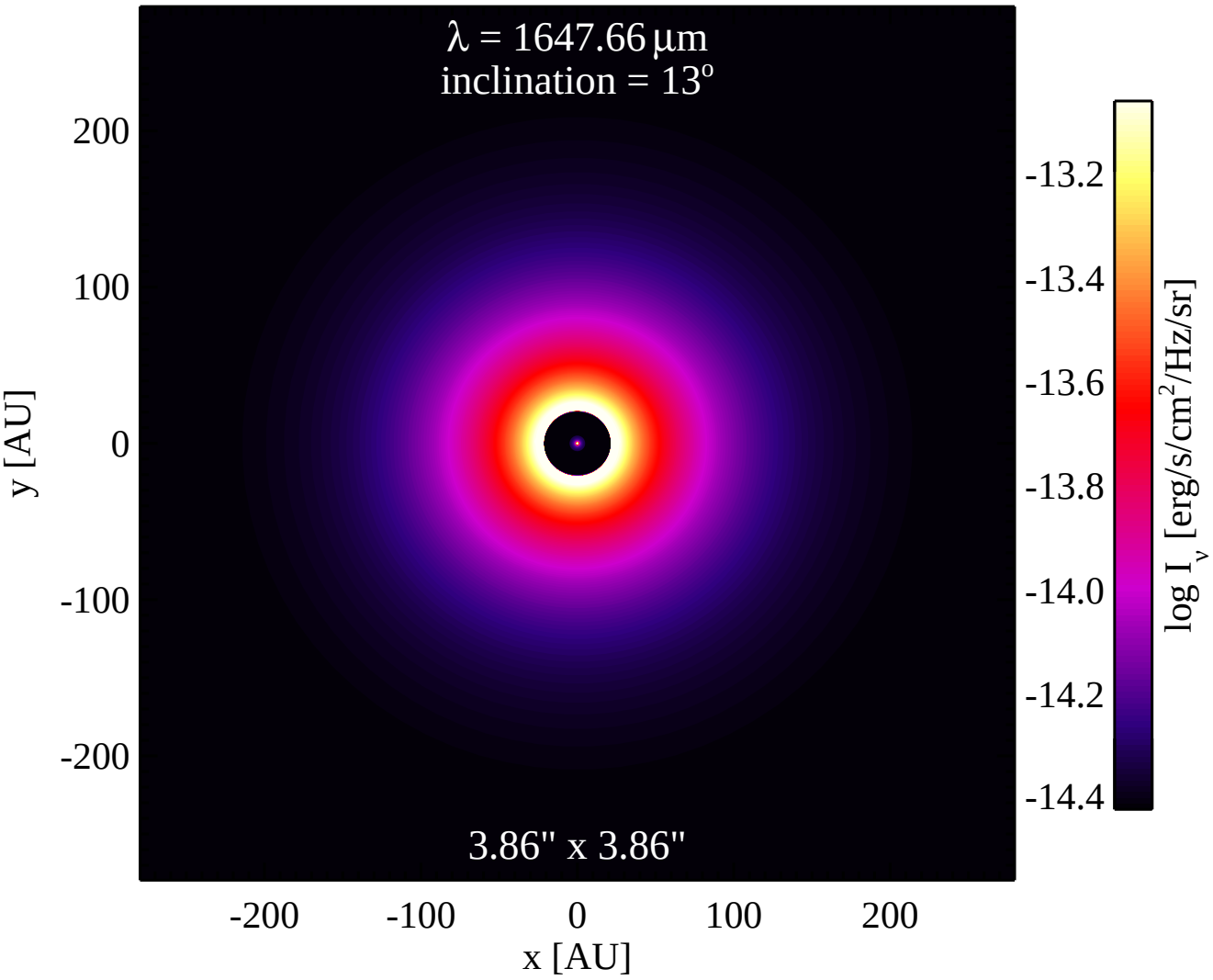

λ = 518.63 μm
inclination = 13°
3.53" x 3.53"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-12.0
-12.5
-13.0
-13.5
-14.0
log I_ν [erg/s/cm²/Hz/sr]

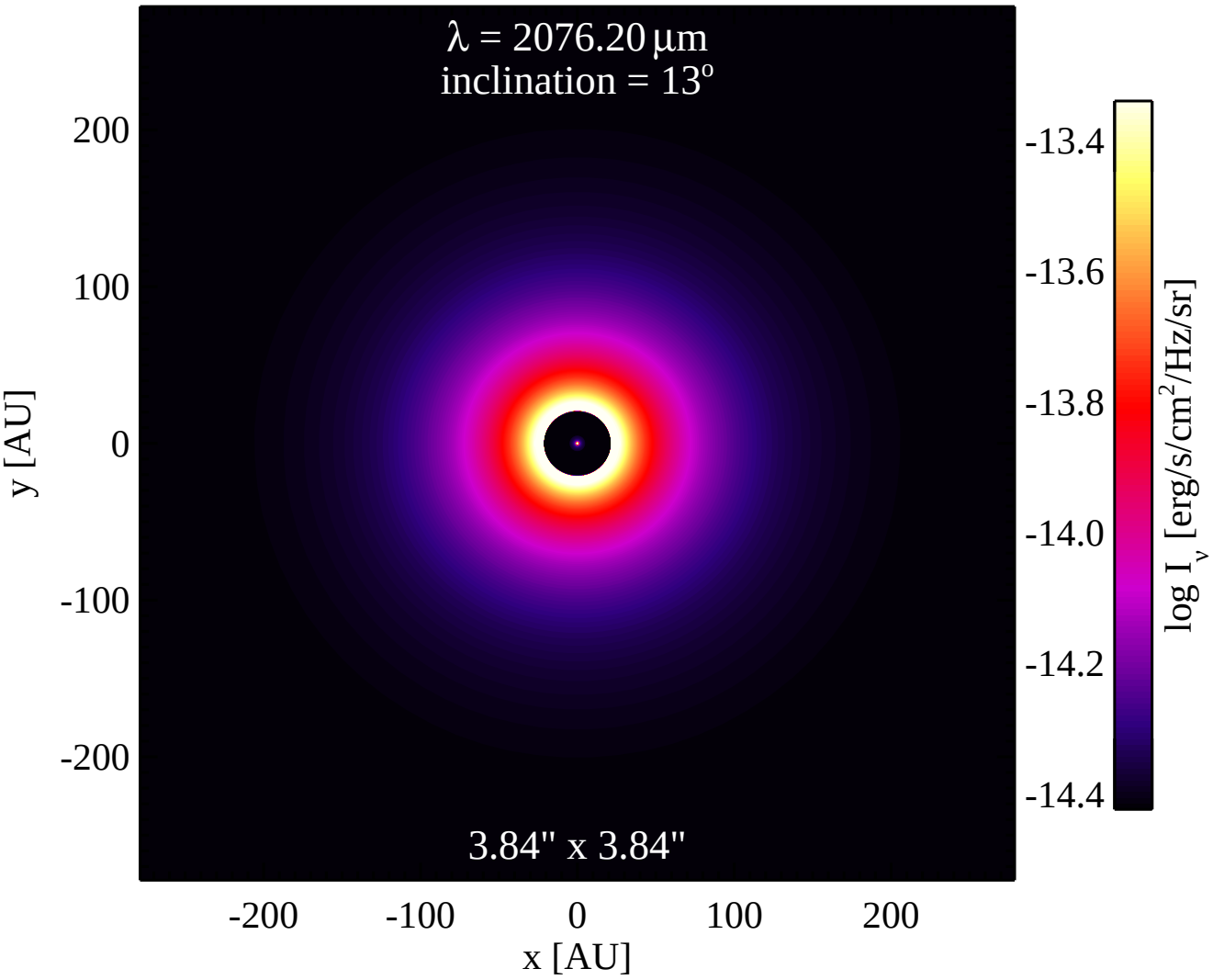

λ = 653.52 μm
inclination = 13°
3.63" x 3.63"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-12.0
-12.5
-13.0
-13.5
-14.0
-14.5
log I_ν [erg/s/cm²/Hz/sr]

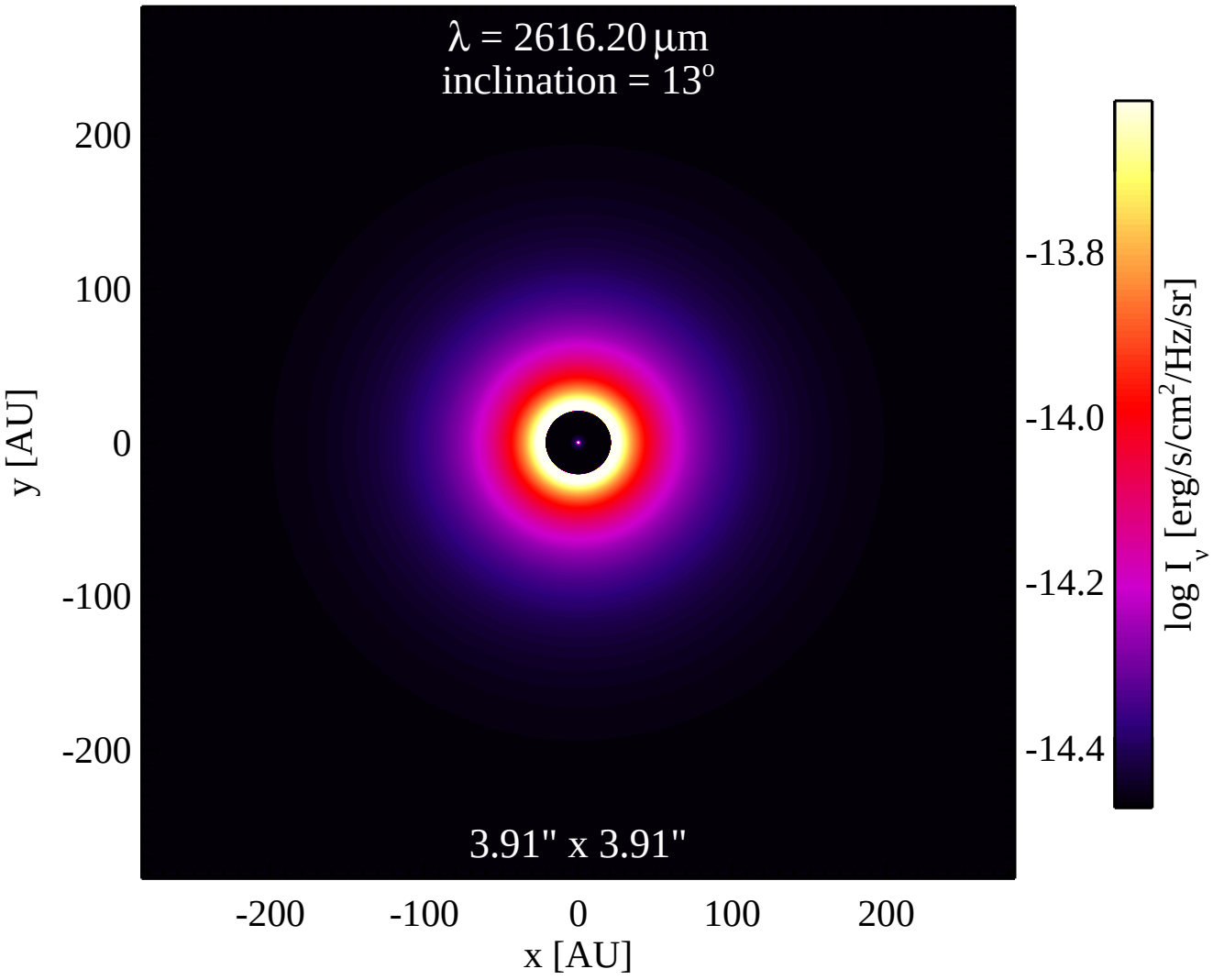

λ = 823.50 μm
inclination = 13°
3.71" x 3.71"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-12.5
-13.0
-13.5
-14.0
-14.5
log I_ν [erg/s/cm²/Hz/sr]

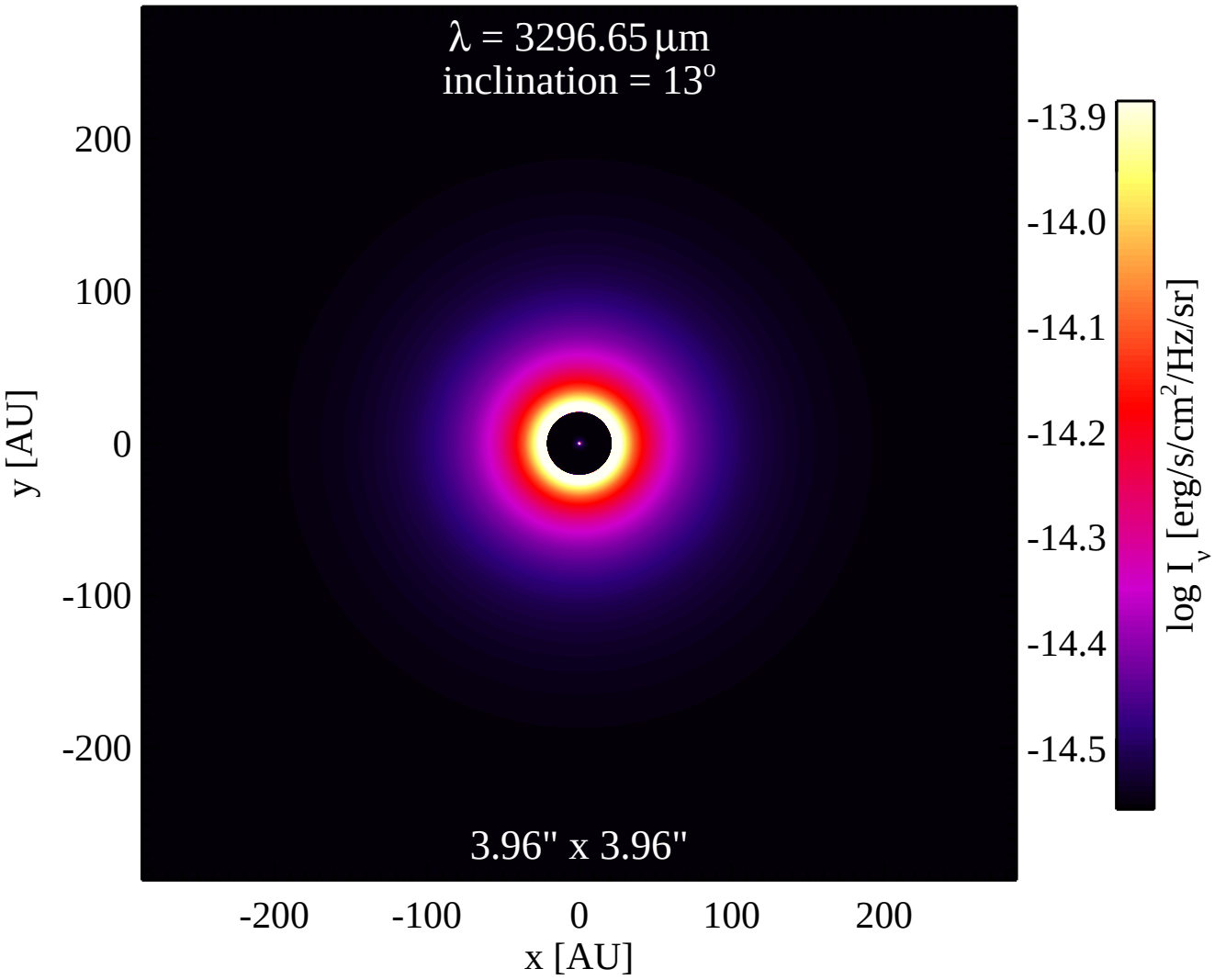

λ = 1037.68 μm
inclination = 13°
3.77" x 3.77"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-12.5
-13.0
-13.5
-14.0
-14.5
log I_ν [erg/s/cm²/Hz/sr]

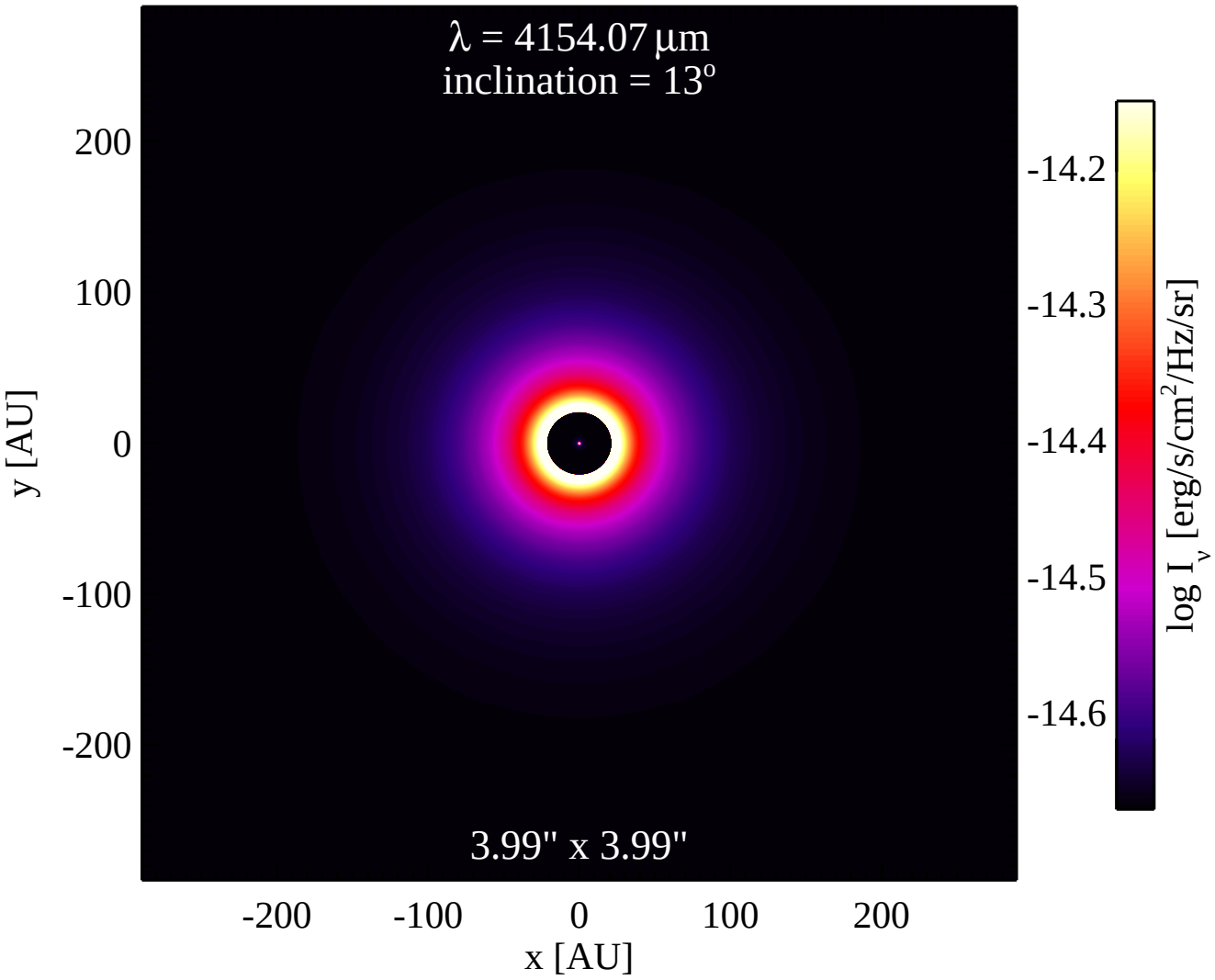

λ = 1307.57 μm
inclination = 13°
3.81" x 3.81"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-13.0
-13.5
-14.0
log I_ν [erg/s/cm²/Hz/sr]

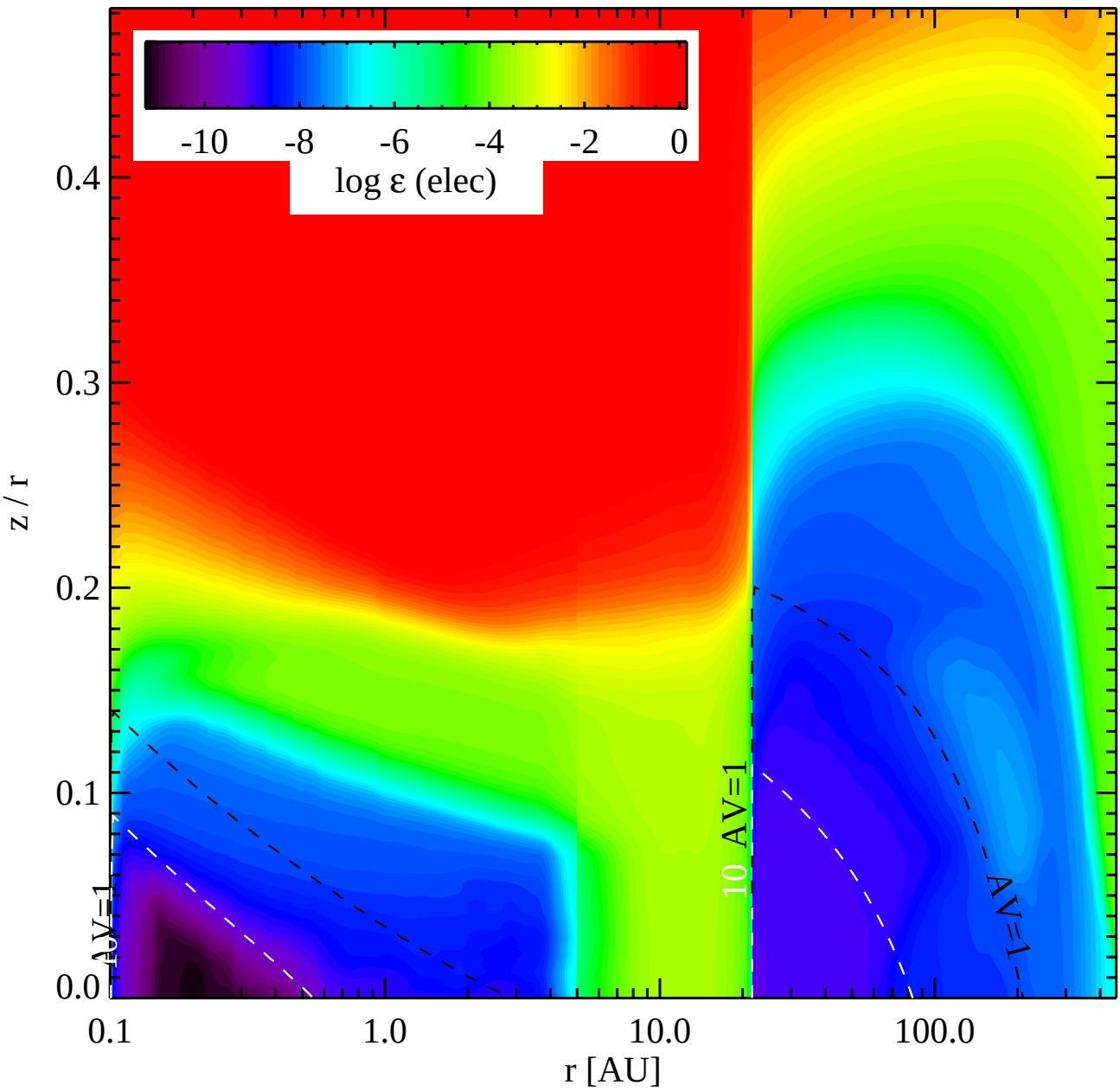

λ = 1647.66 μm
inclination = 13°
3.86" x 3.86"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-13.2
-13.4
-13.6
-13.8
-14.0
-14.2
-14.4
log I_ν [erg/s/cm²/Hz/sr]

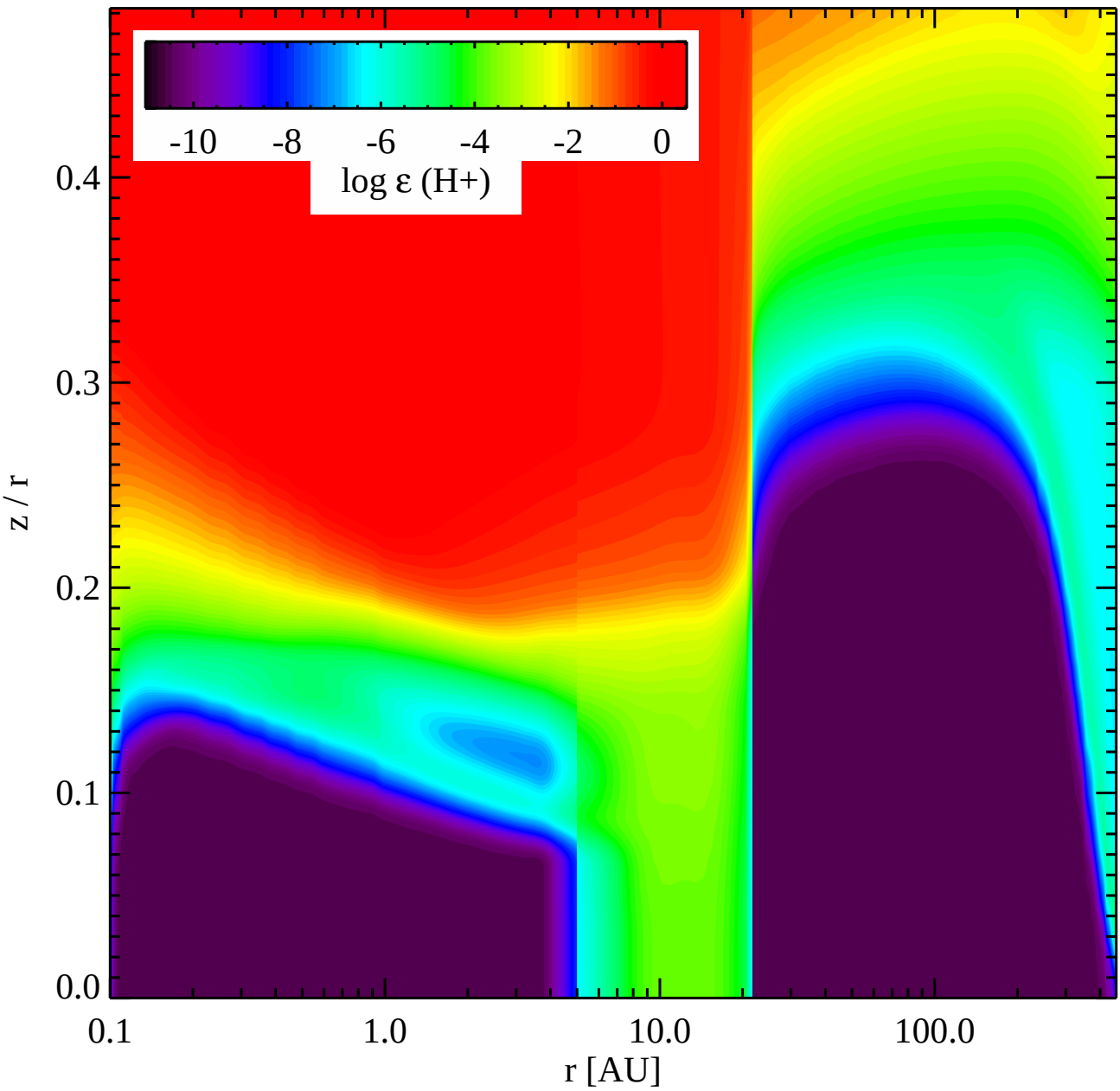

λ = 2076.20 μm
inclination = 13°
3.84" x 3.84"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-13.4
-13.6
-13.8
-14.0
-14.2
-14.4
log I_ν [erg/s/cm²/Hz/sr]

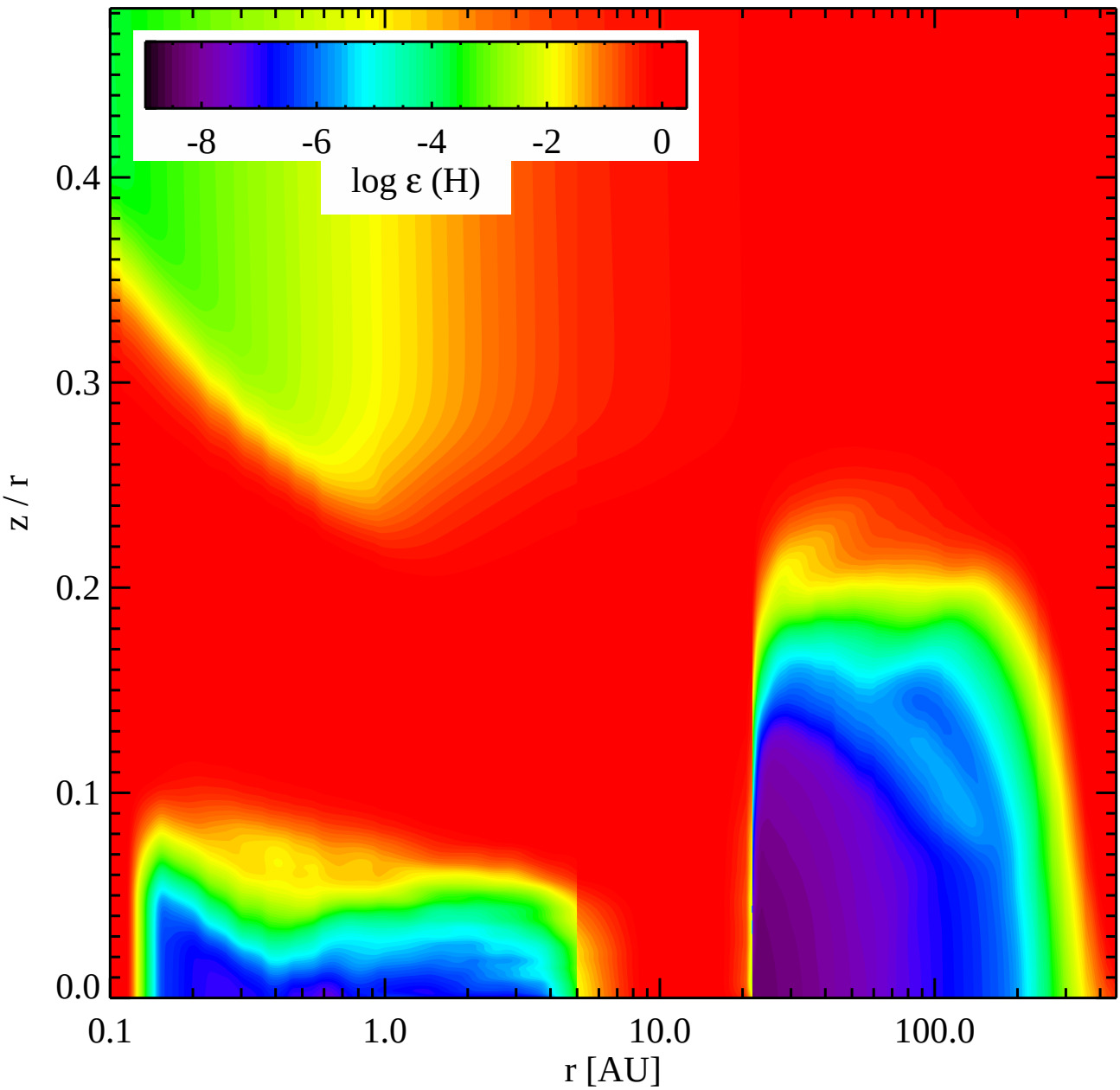

λ = 2616.20 μm
inclination = 13°
3.91" x 3.91"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-13.8
-14.0
-14.2
-14.4
log I_ν [erg/s/cm²/Hz/sr]

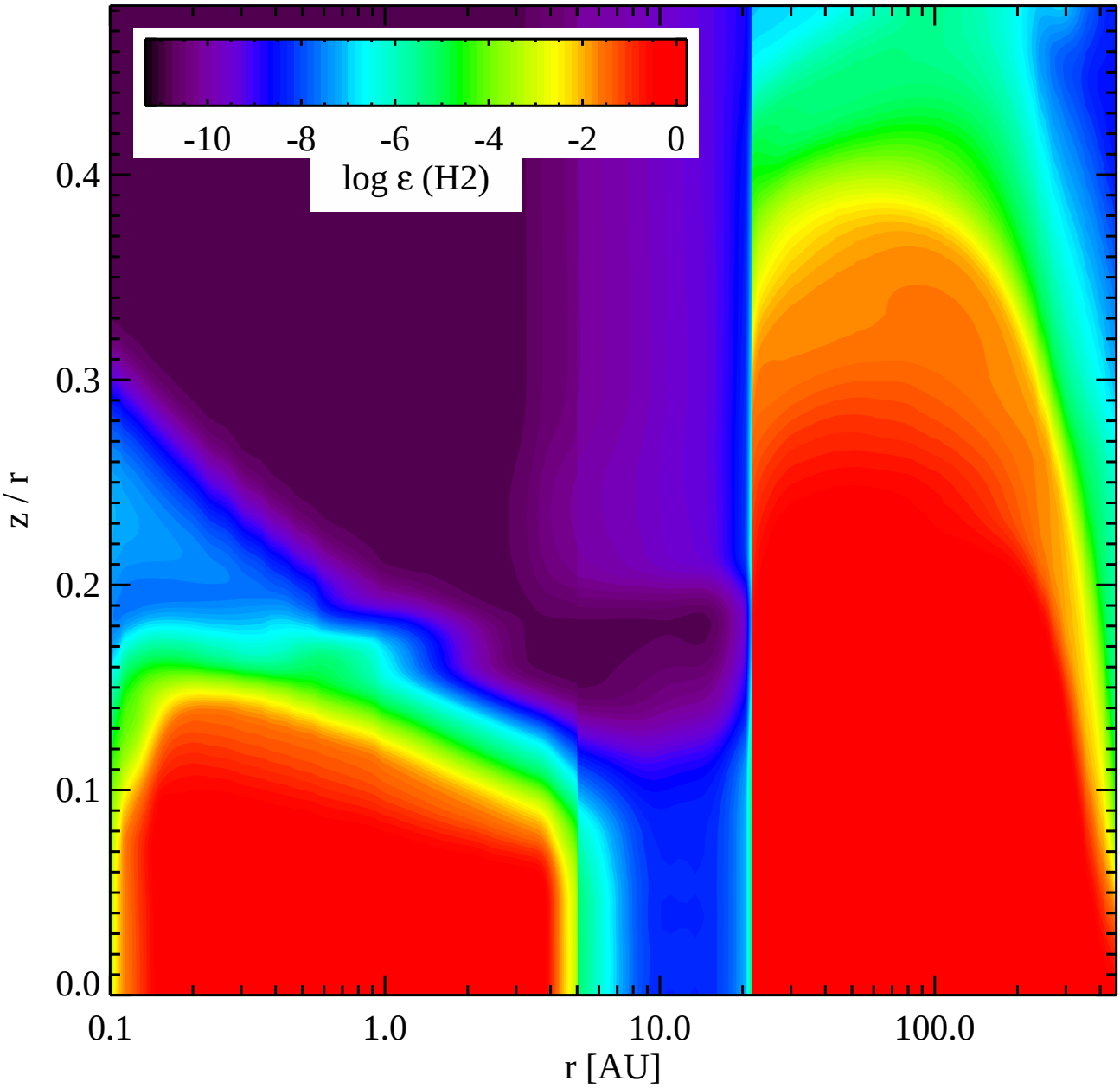

λ = 3296.65 μm
inclination = 13°
3.96" x 3.96"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-13.9
-14.0
-14.1
-14.2
-14.3
-14.4
-14.5
log I_ν [erg/s/cm²/Hz/sr]

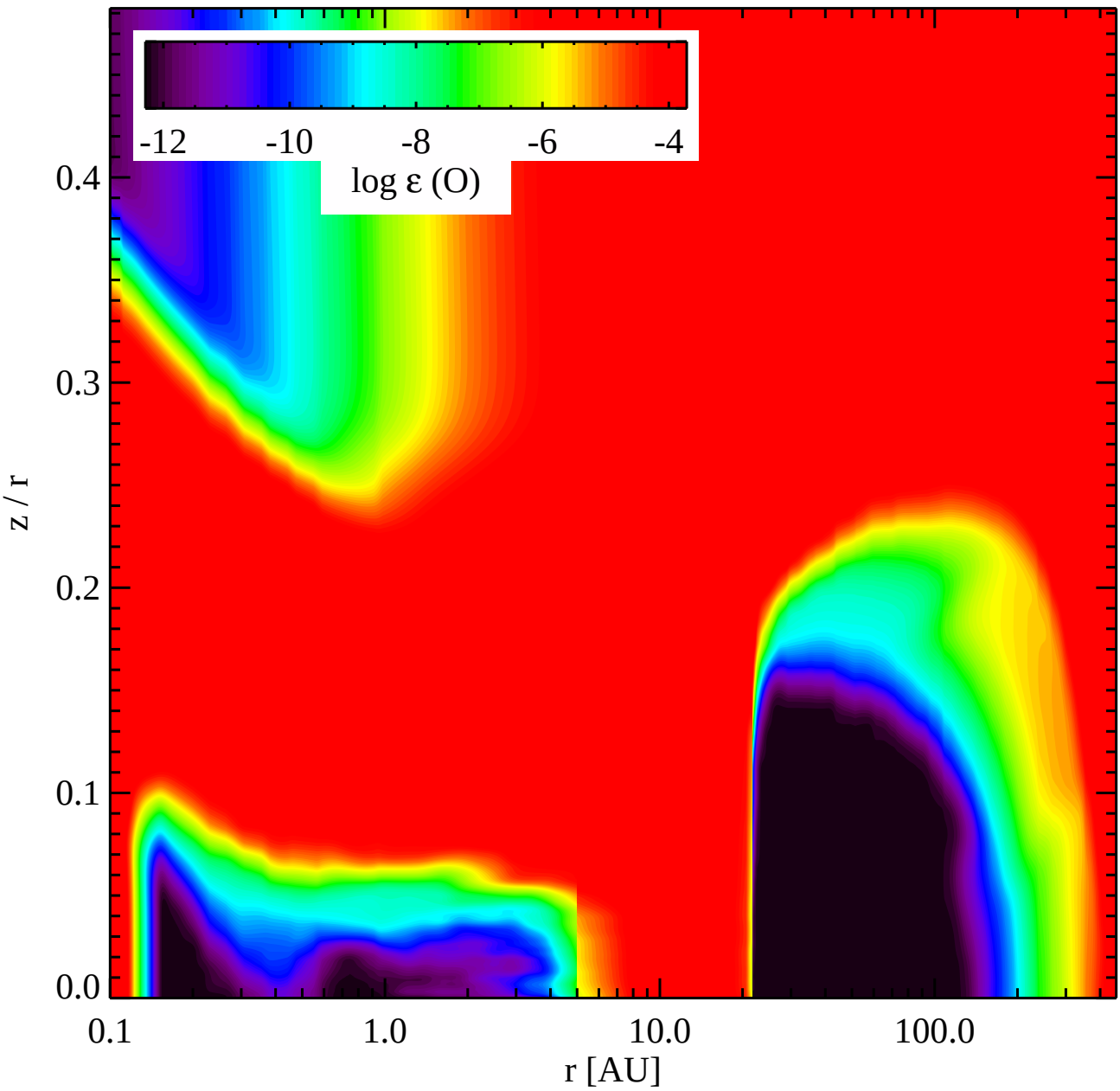

λ = 4154.07 μm
inclination = 13°
3.99" x 3.99"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-14.2
-14.3
-14.4
-14.5
-14.6
log I_ν [erg/s/cm²/Hz/sr]

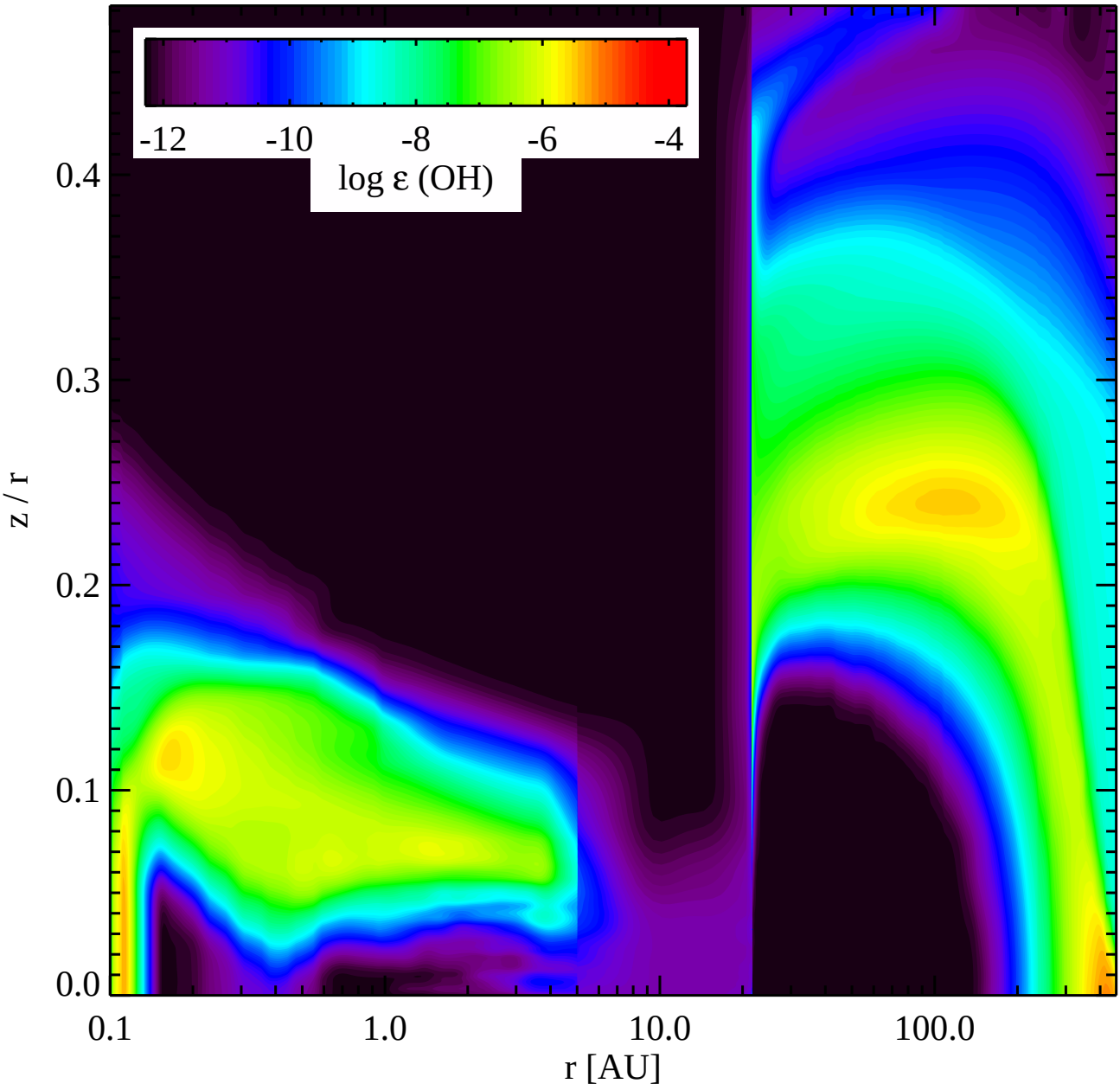

-10
-8
-6
-4
-2
0
log ε (elec)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
AV=1
10
AV=1
AV=1

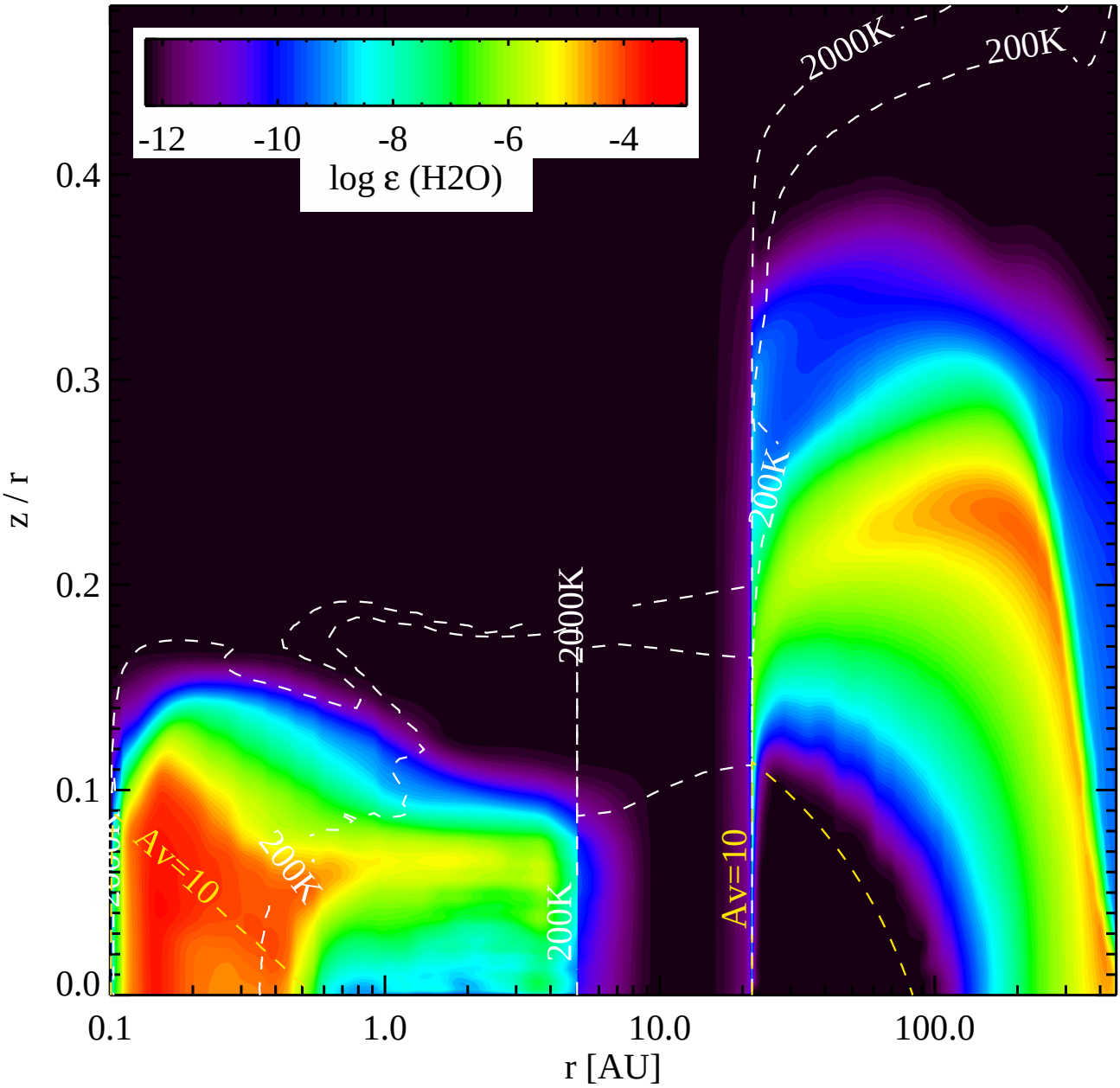

-10
-8
-6
-4
-2
0
log ε (H+)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

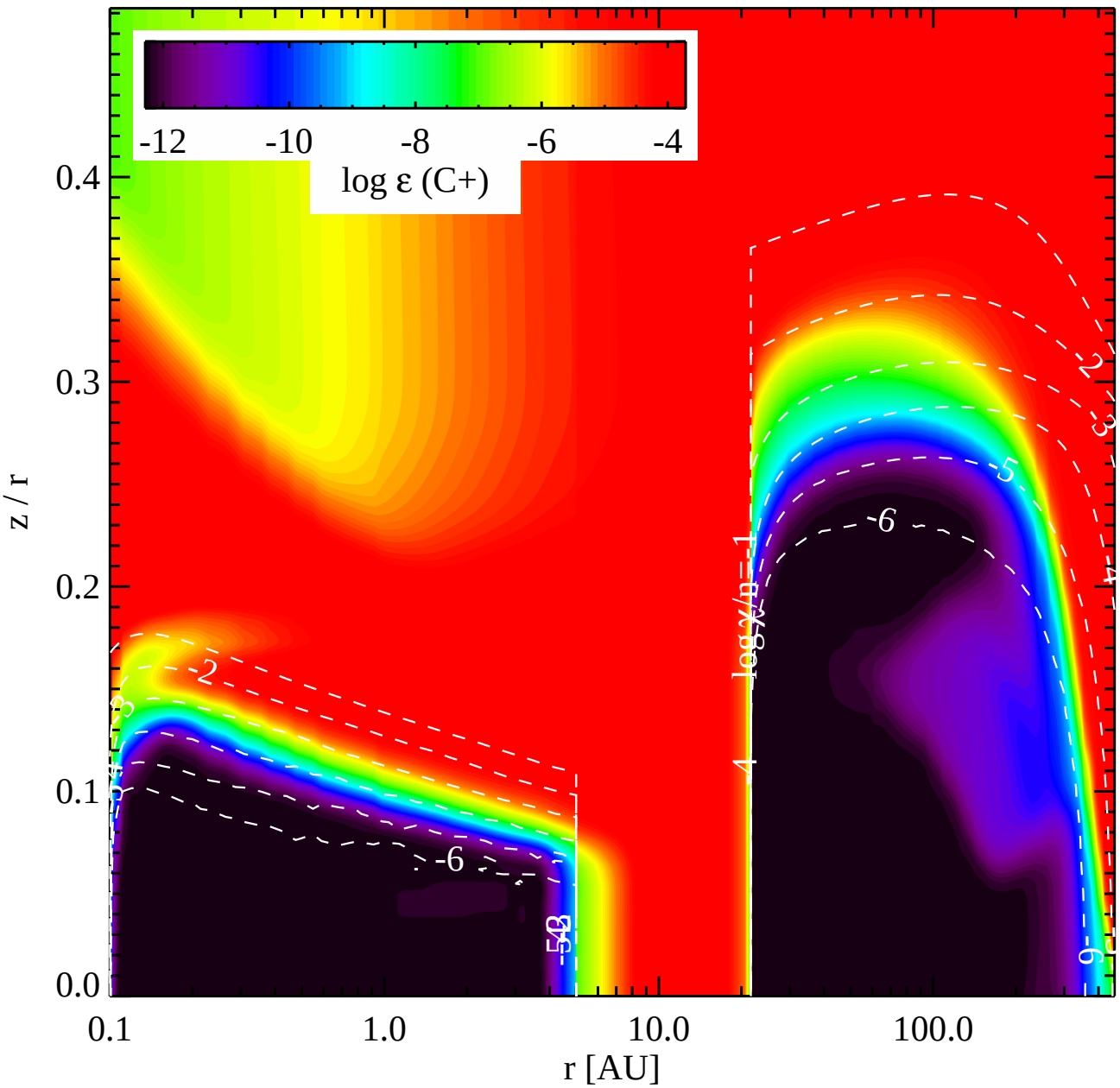

-8
-6
-4
-2
0
log ε (H)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]


-10
-8
-6
-4
-2
0
log ε (H2)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

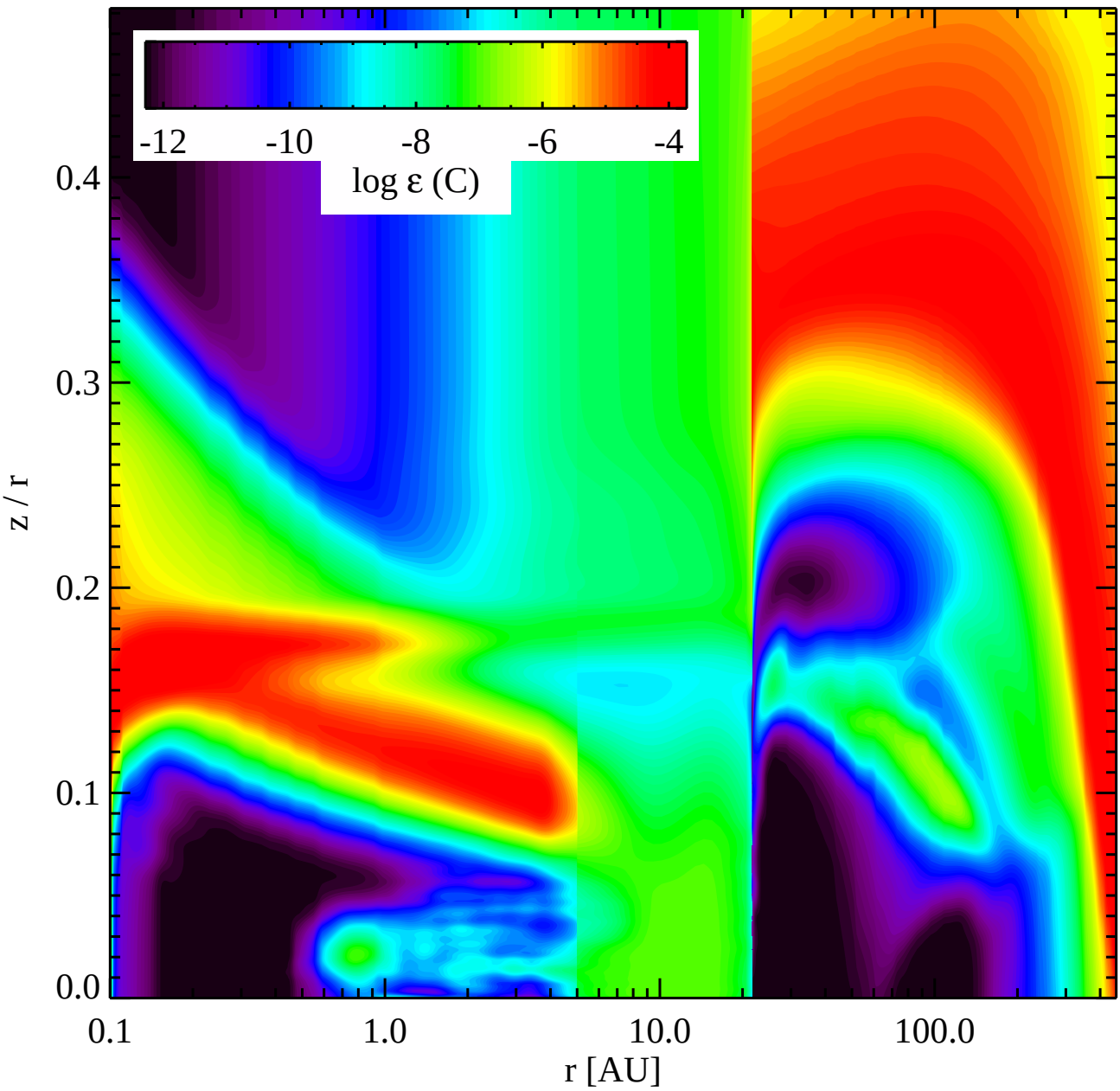

-12
-10
-8
-6
-4
log ε (O)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

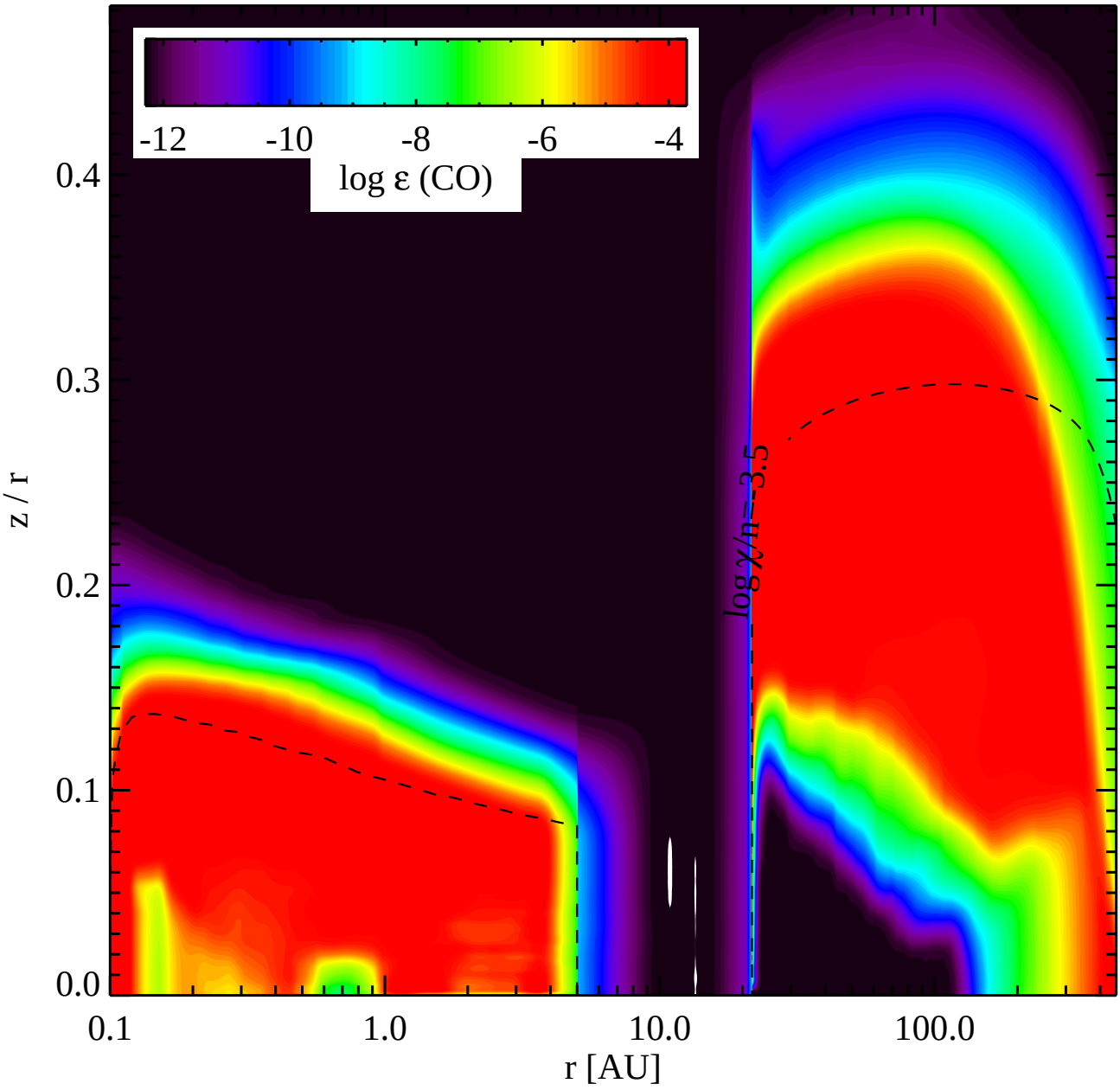

-12
-10
-8
-6
-4
log ε (OH)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

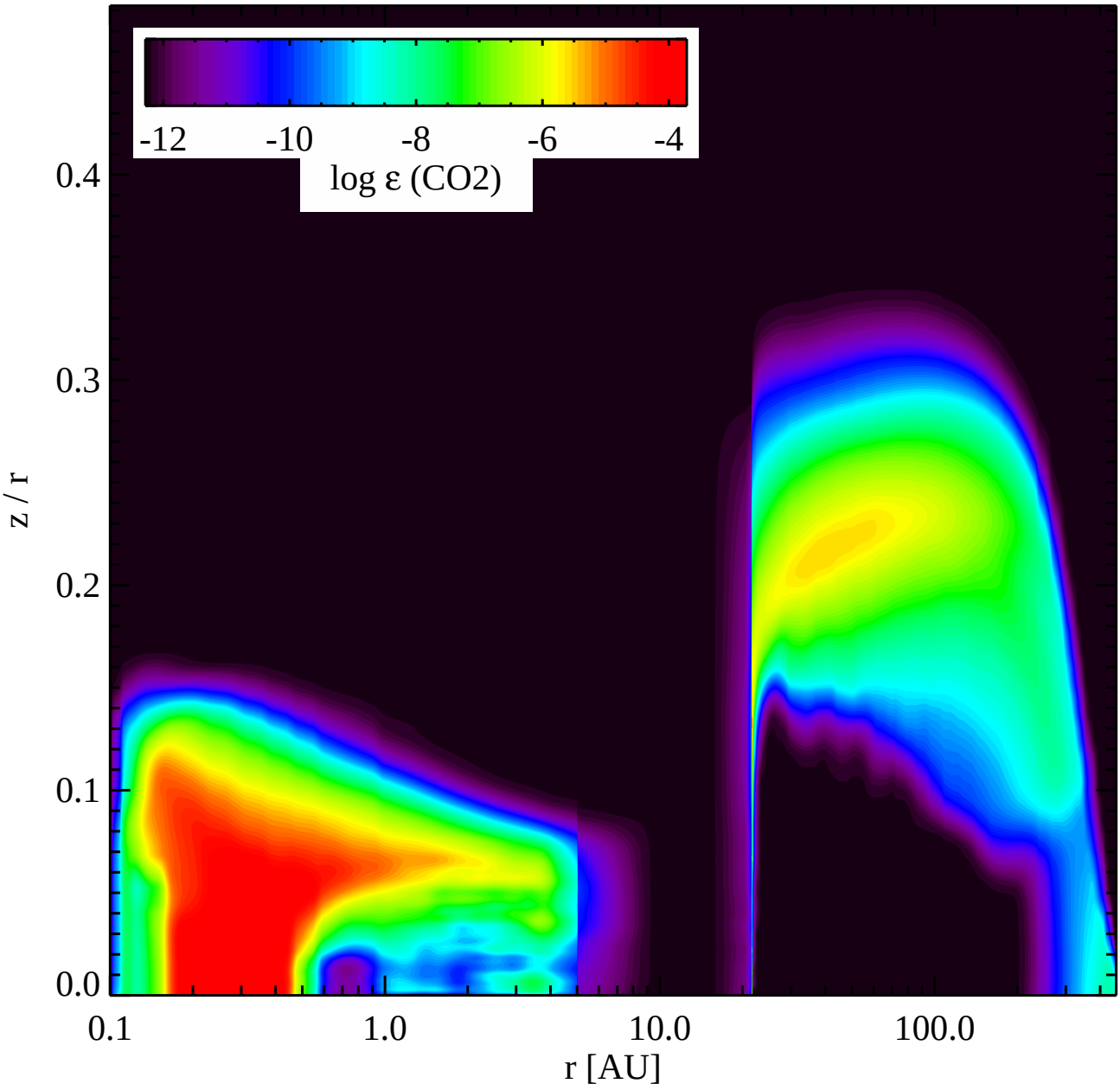

-12
-10
-8
-6
-4
log ε (H2O)
2000K
200K
200K
2000K
200K
Av=10
200K
Av=10
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

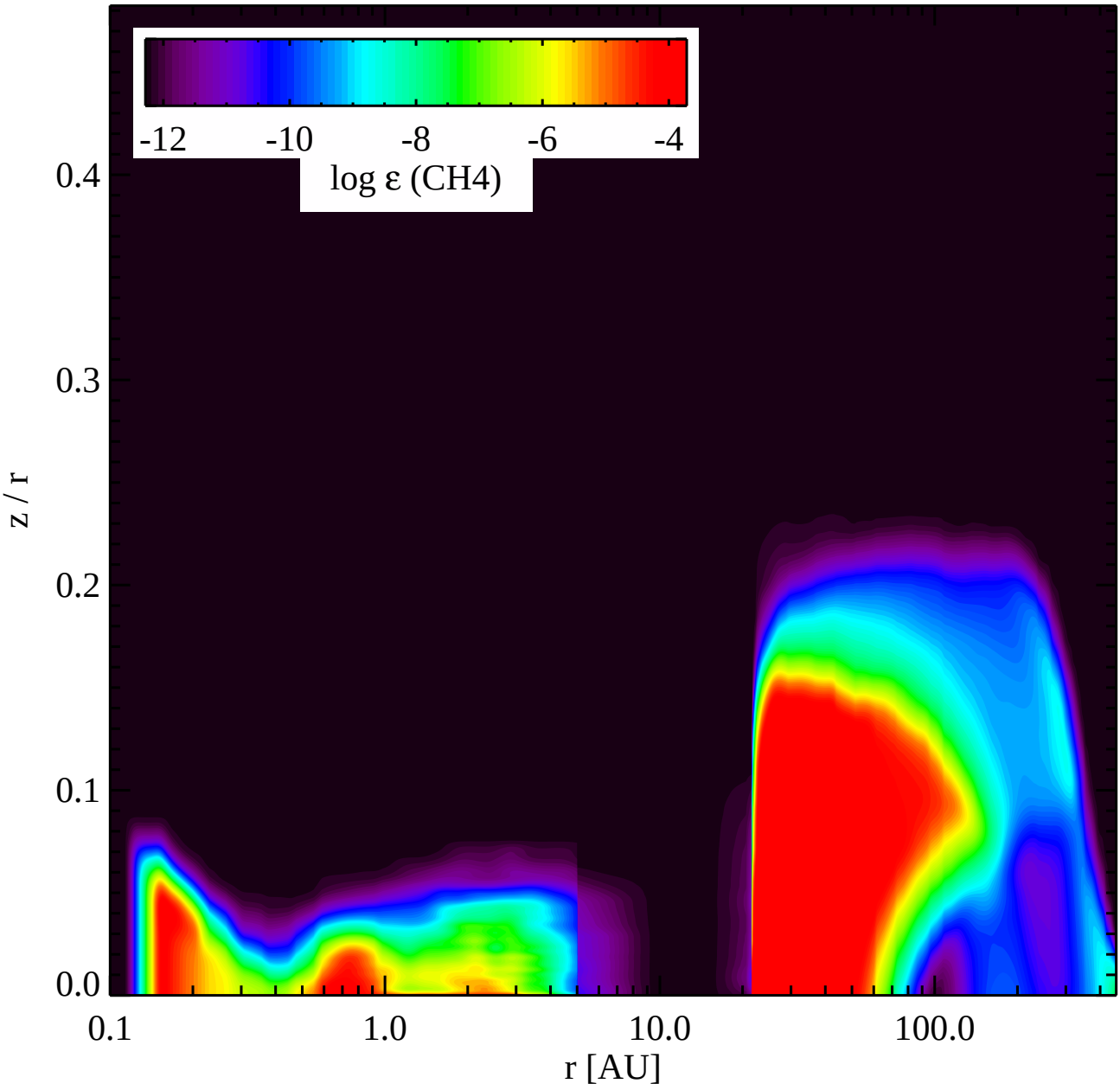


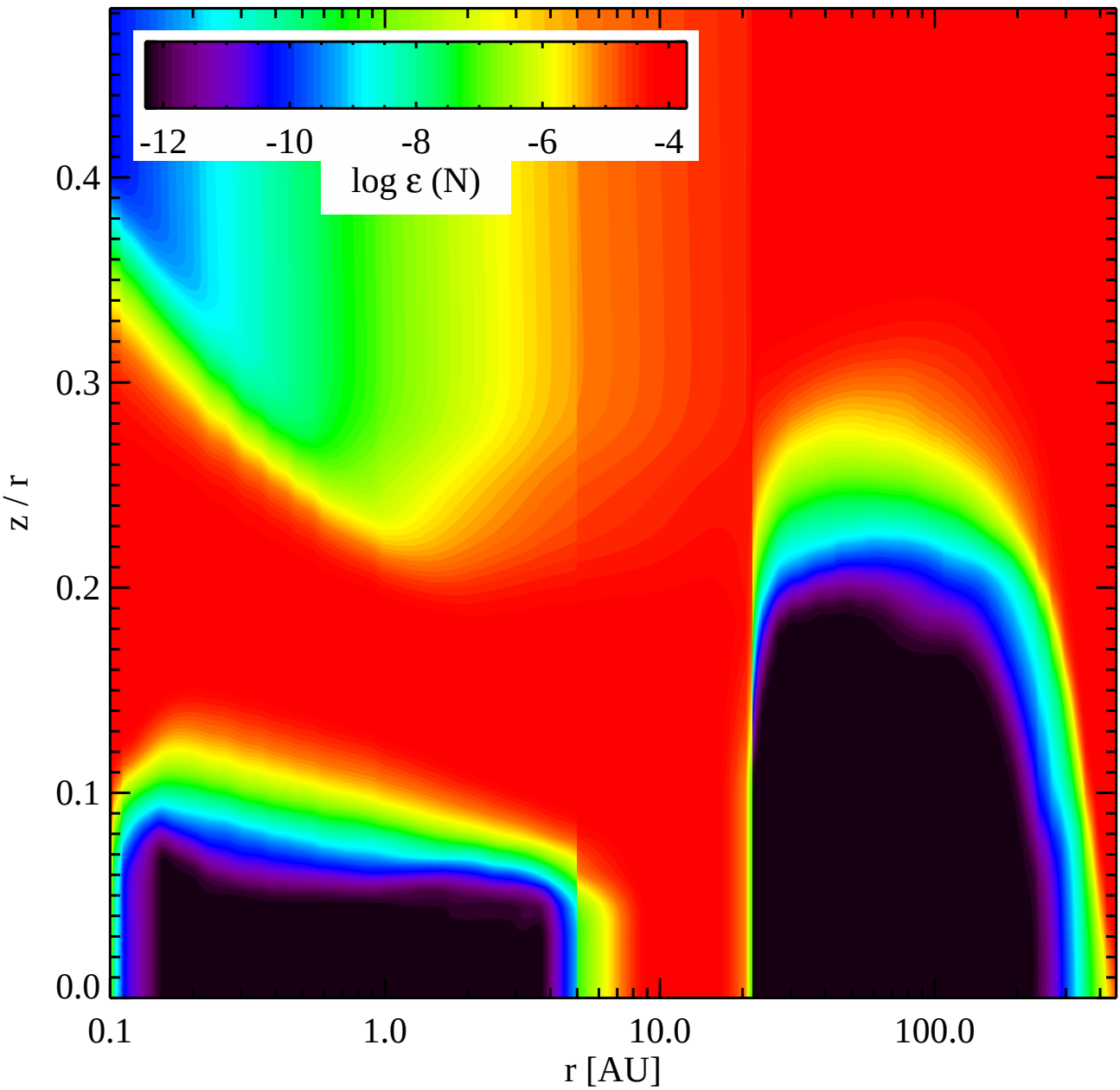
-12
-10
-8
-6
-4
log ε (C+)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
-2
-3
-4
-5
-6
-8
-9
log χ/n=-1

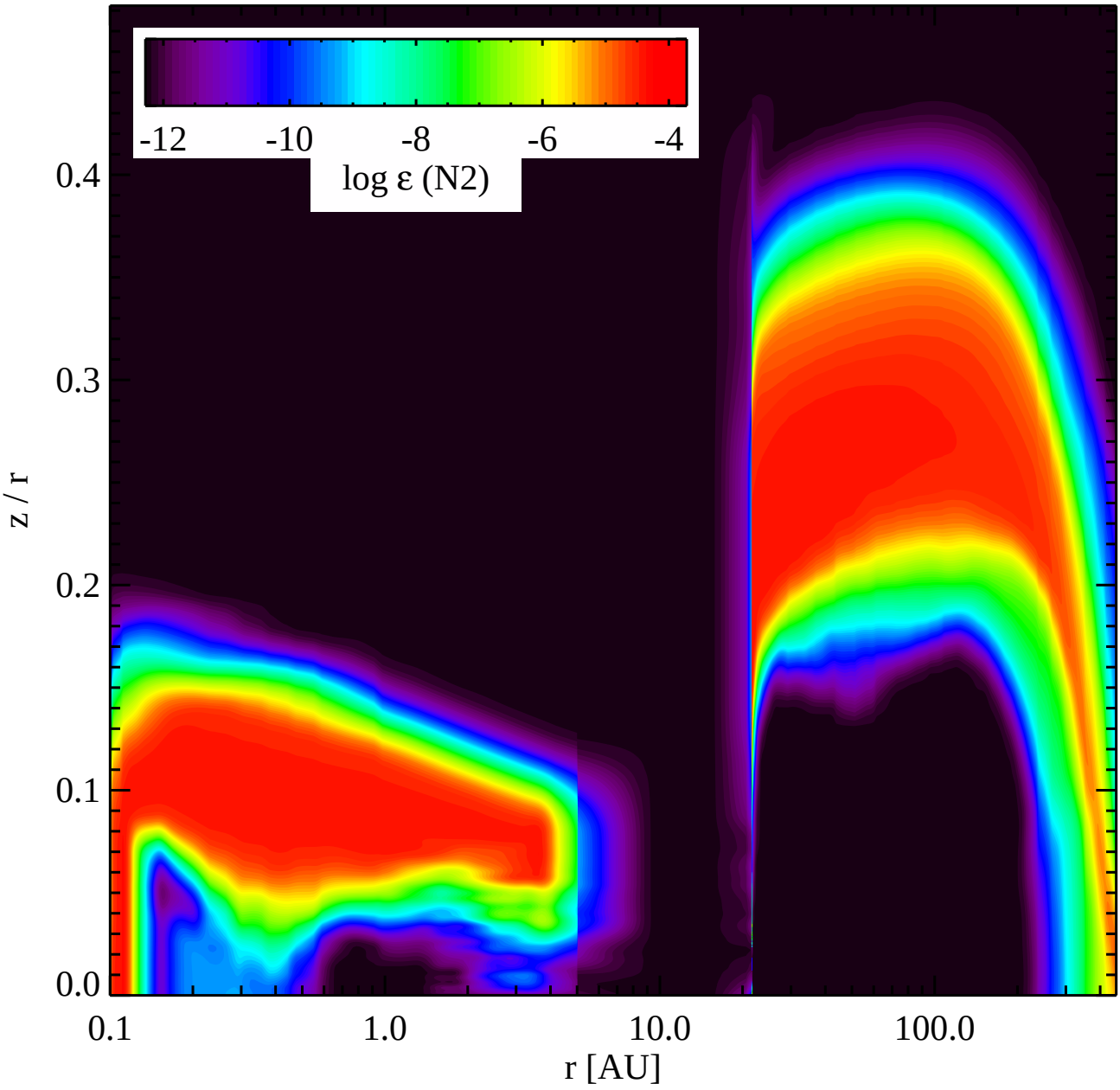

-12
-10
-8
-6
-4
log ε (C)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

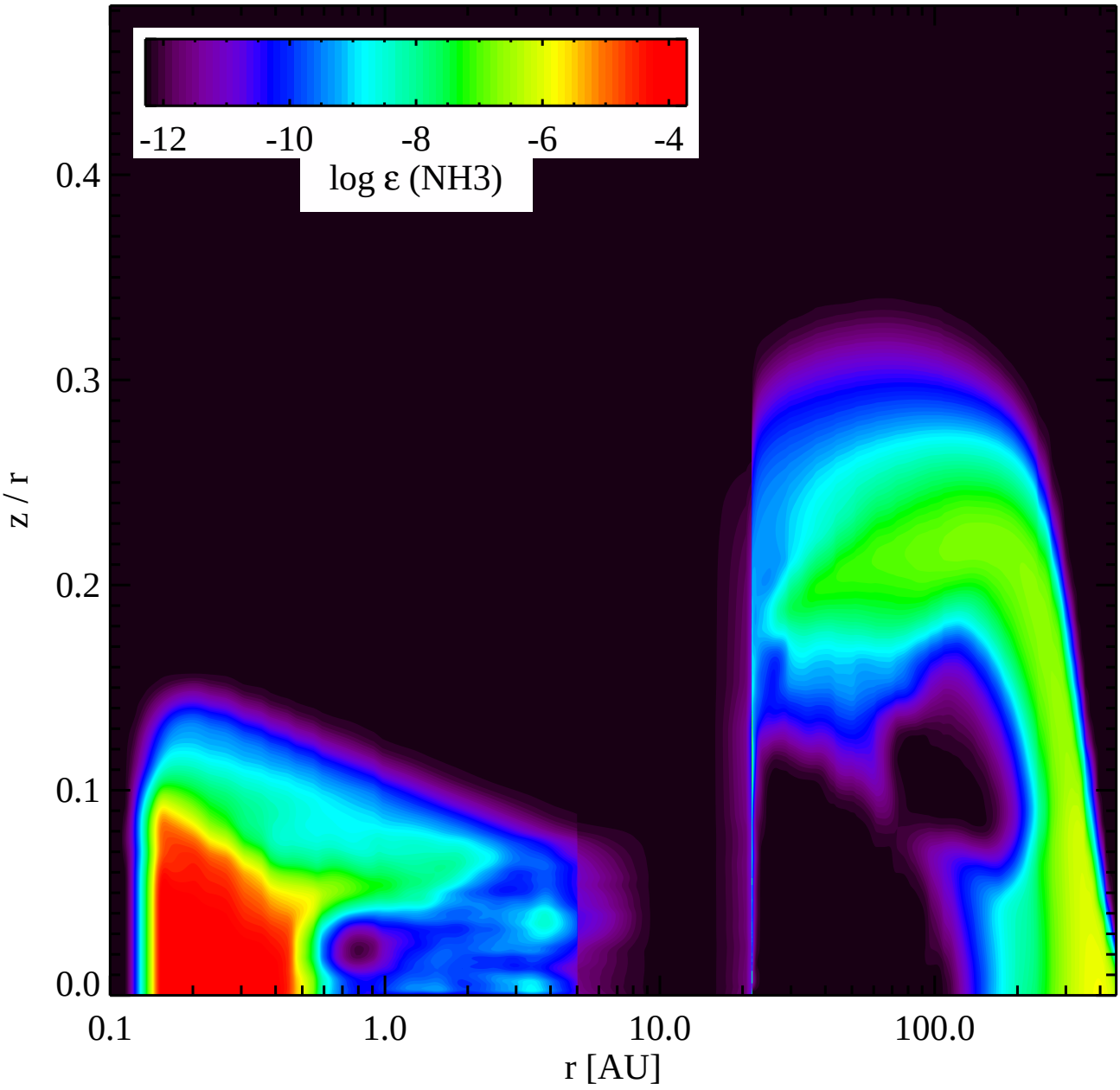

-12
-10
-8
-6
-4
log ε (CO)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
log χ/n=-3.5

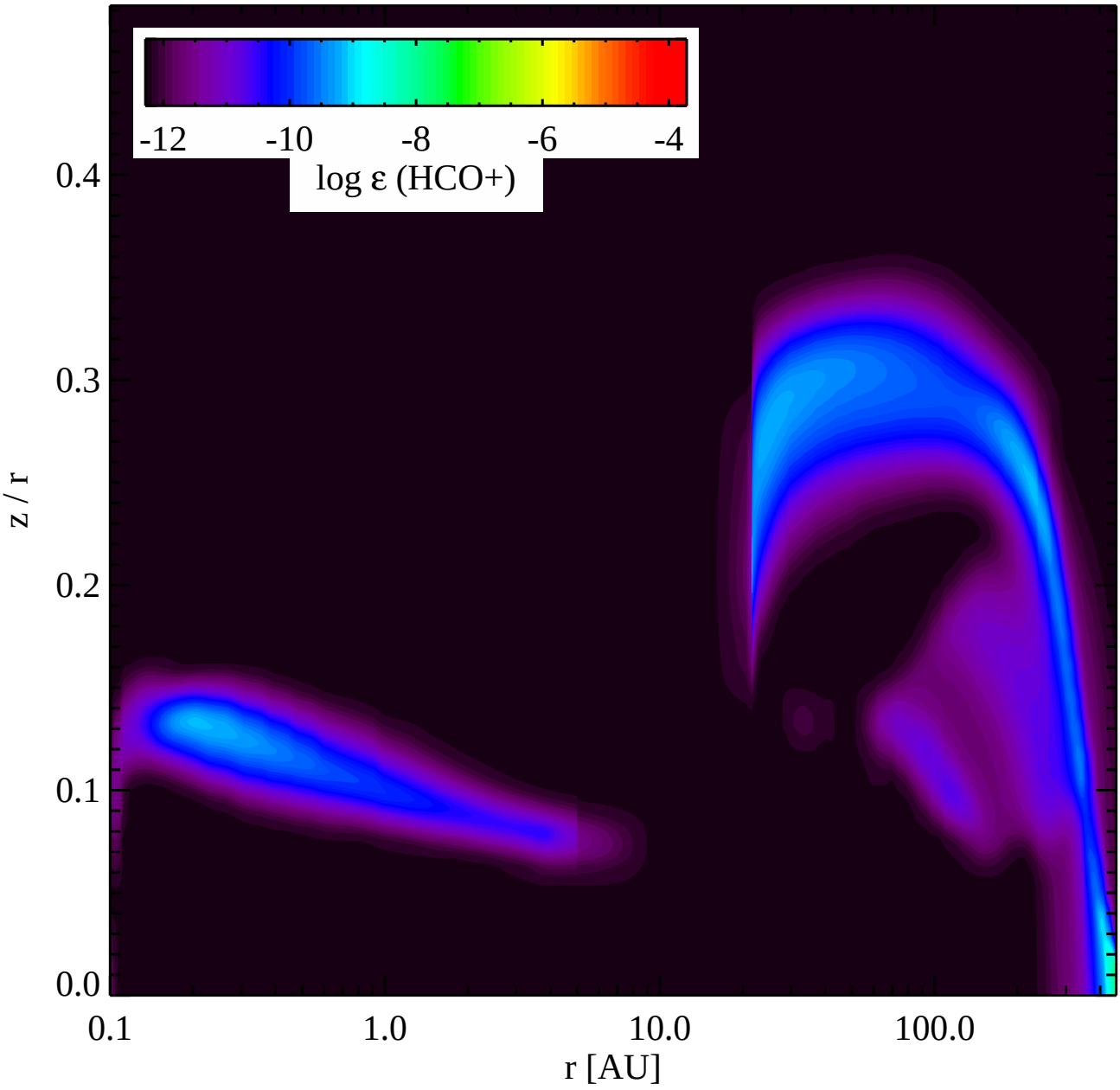

-12
-10
-8
-6
-4
log ε (CO2)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

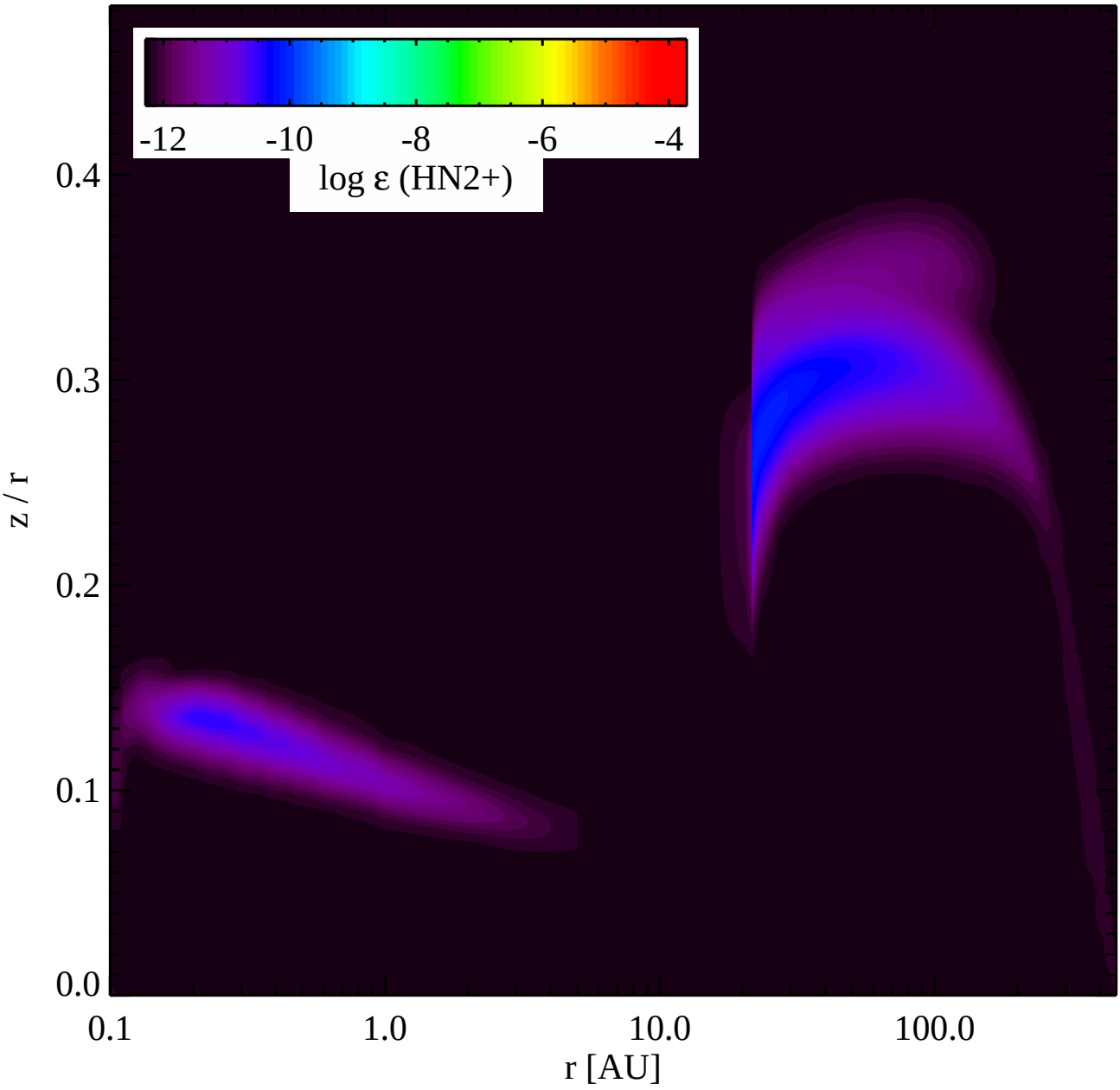

-12
-10
-8
-6
-4
log ε (CH4)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

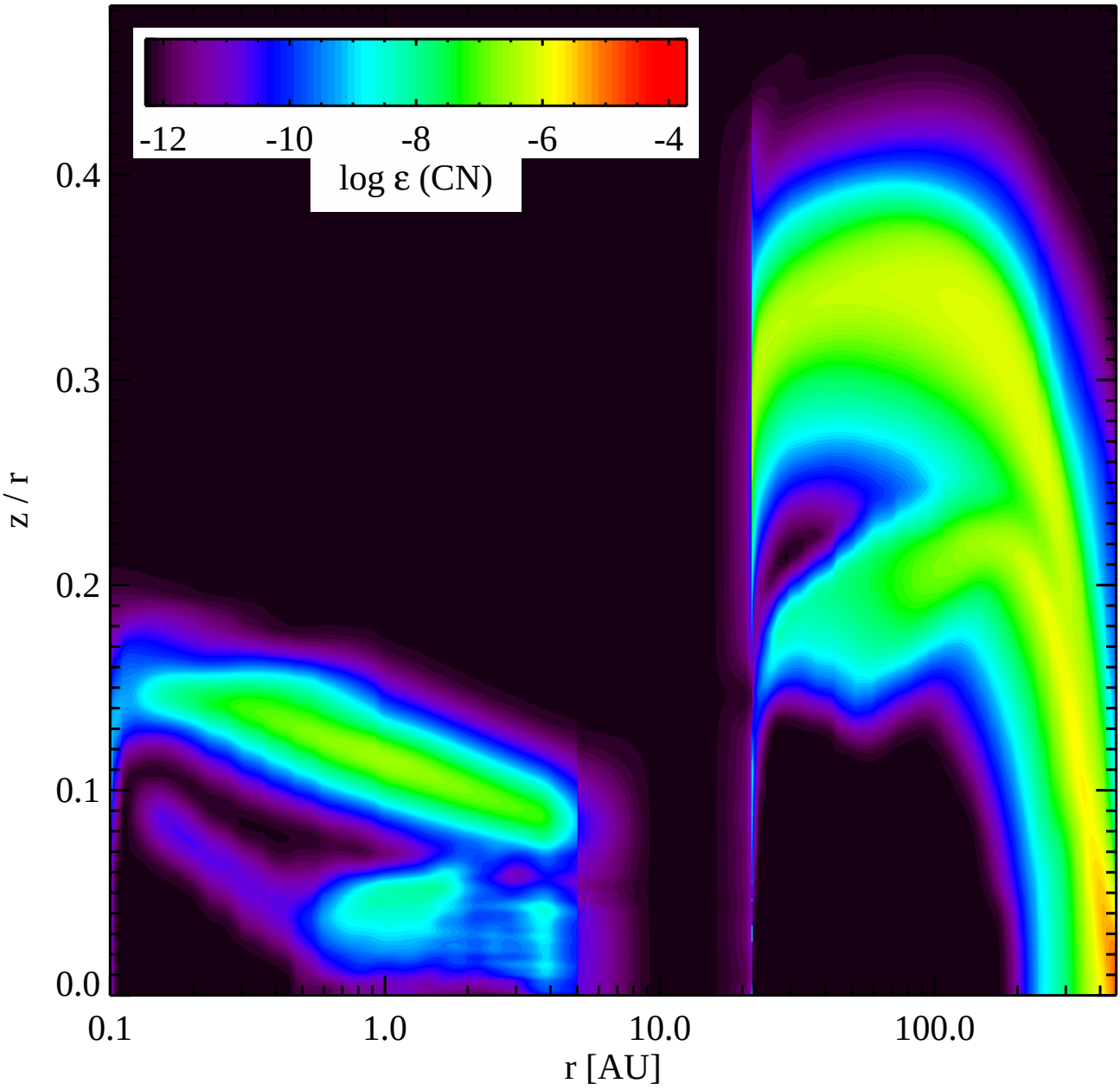

-12
-10
-8
-6
-4
log ε (N)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

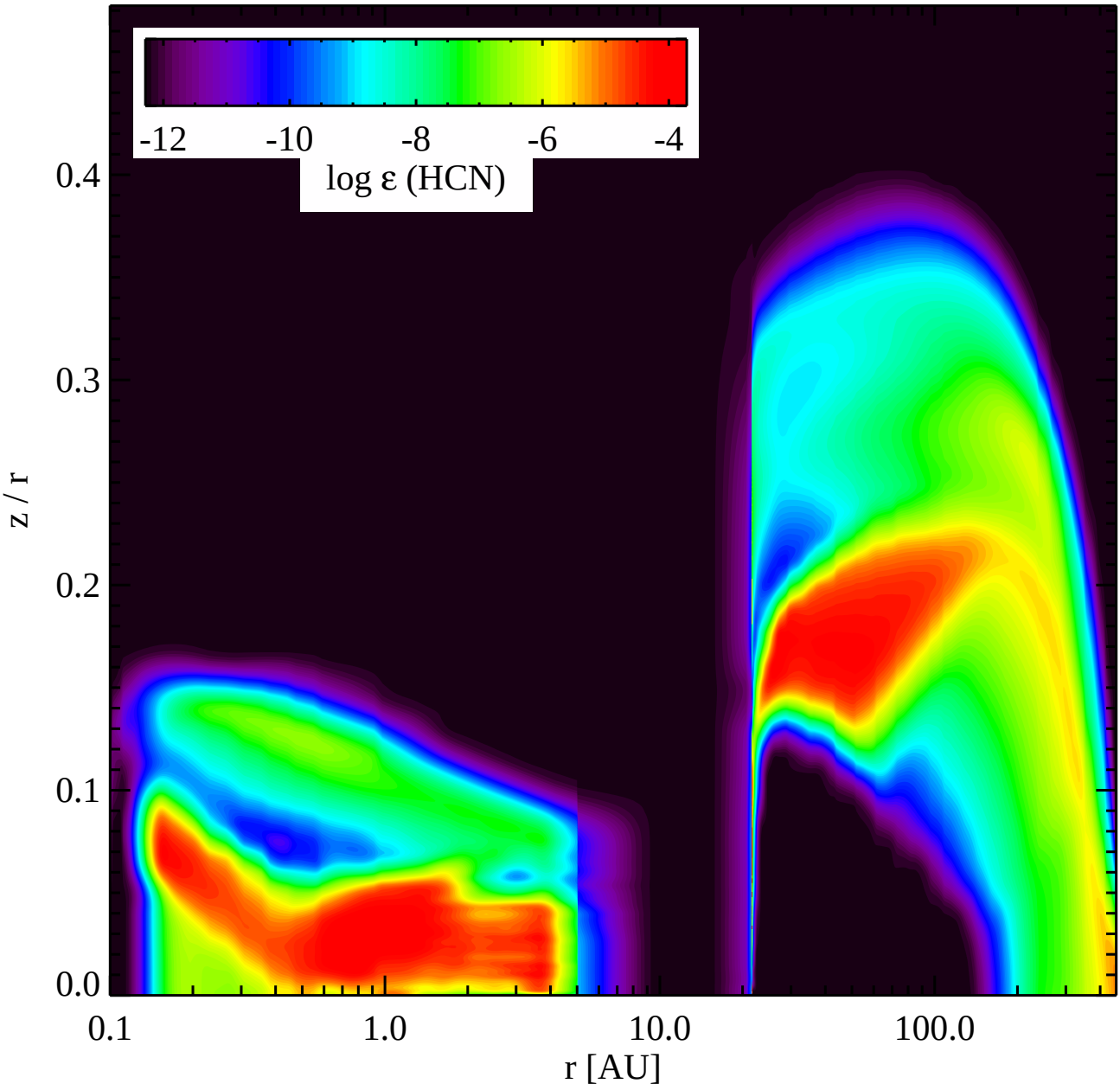

-12
-10
-8
-6
-4
log ε (N2)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

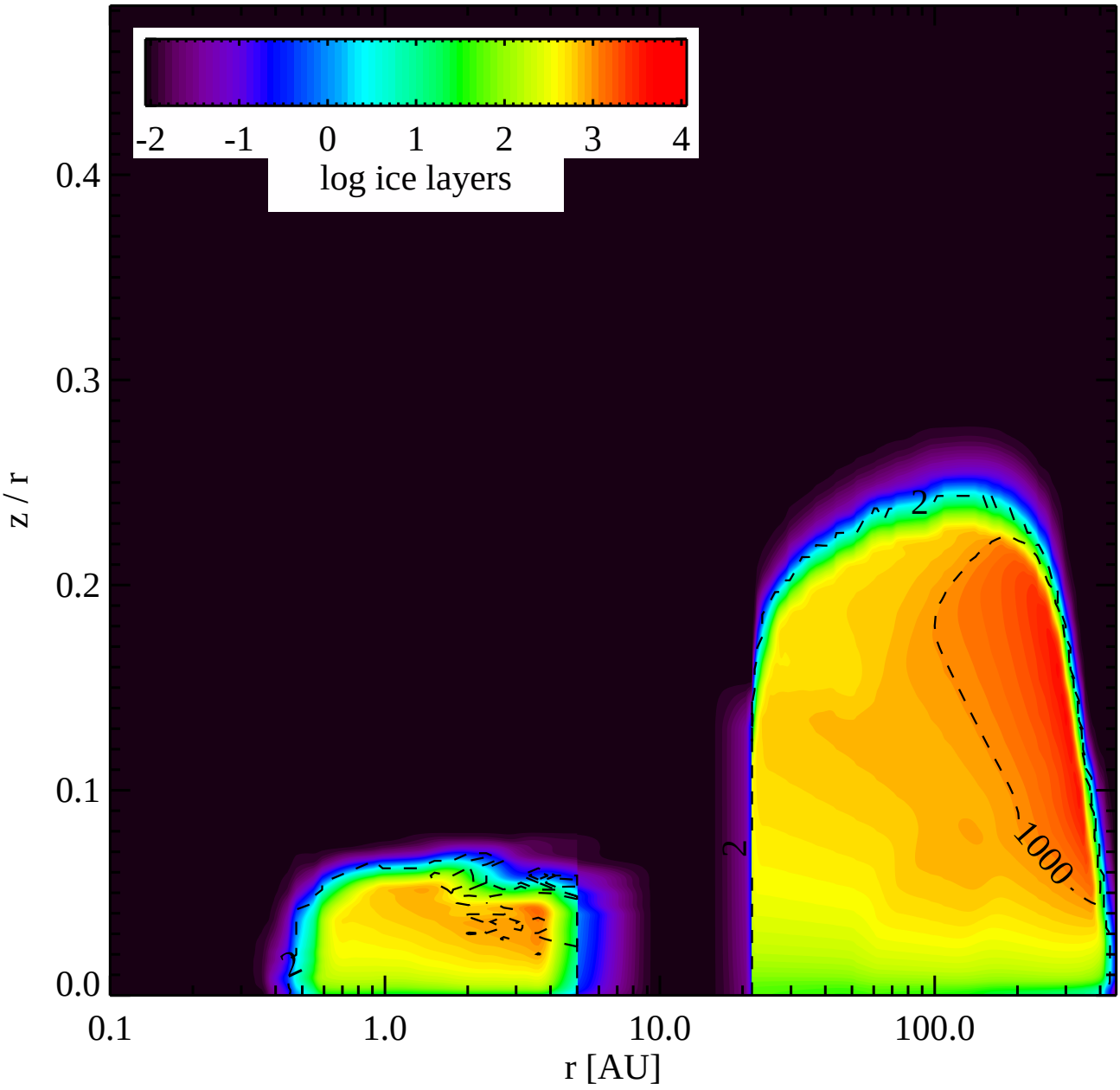

-12
-10
-8
-6
-4
log ε (NH3)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

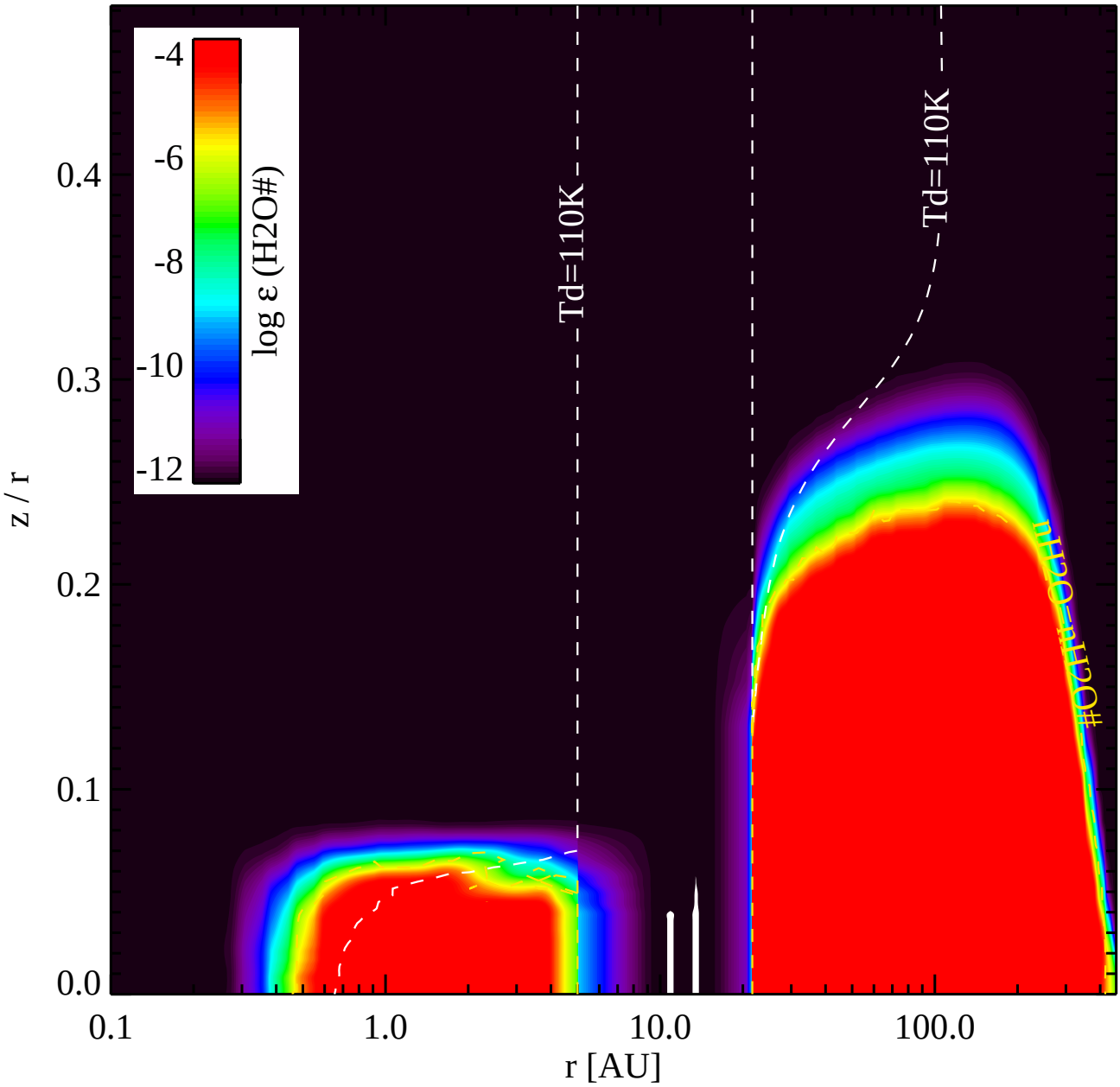

-12
-10
-8
-6
-4
log ε (HCO+)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

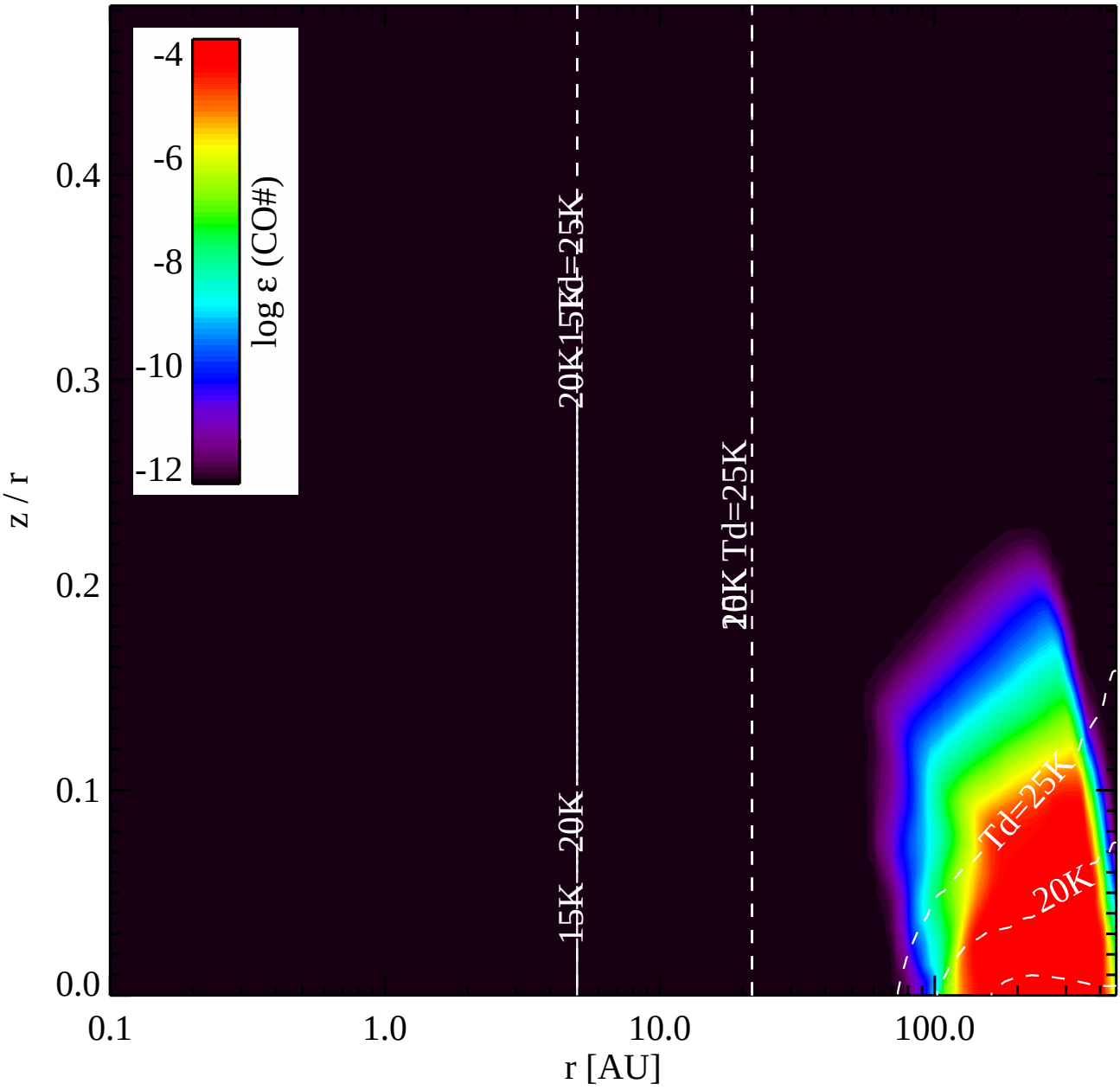

-12
-10
-8
-6
-4
log ε (HN2+)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

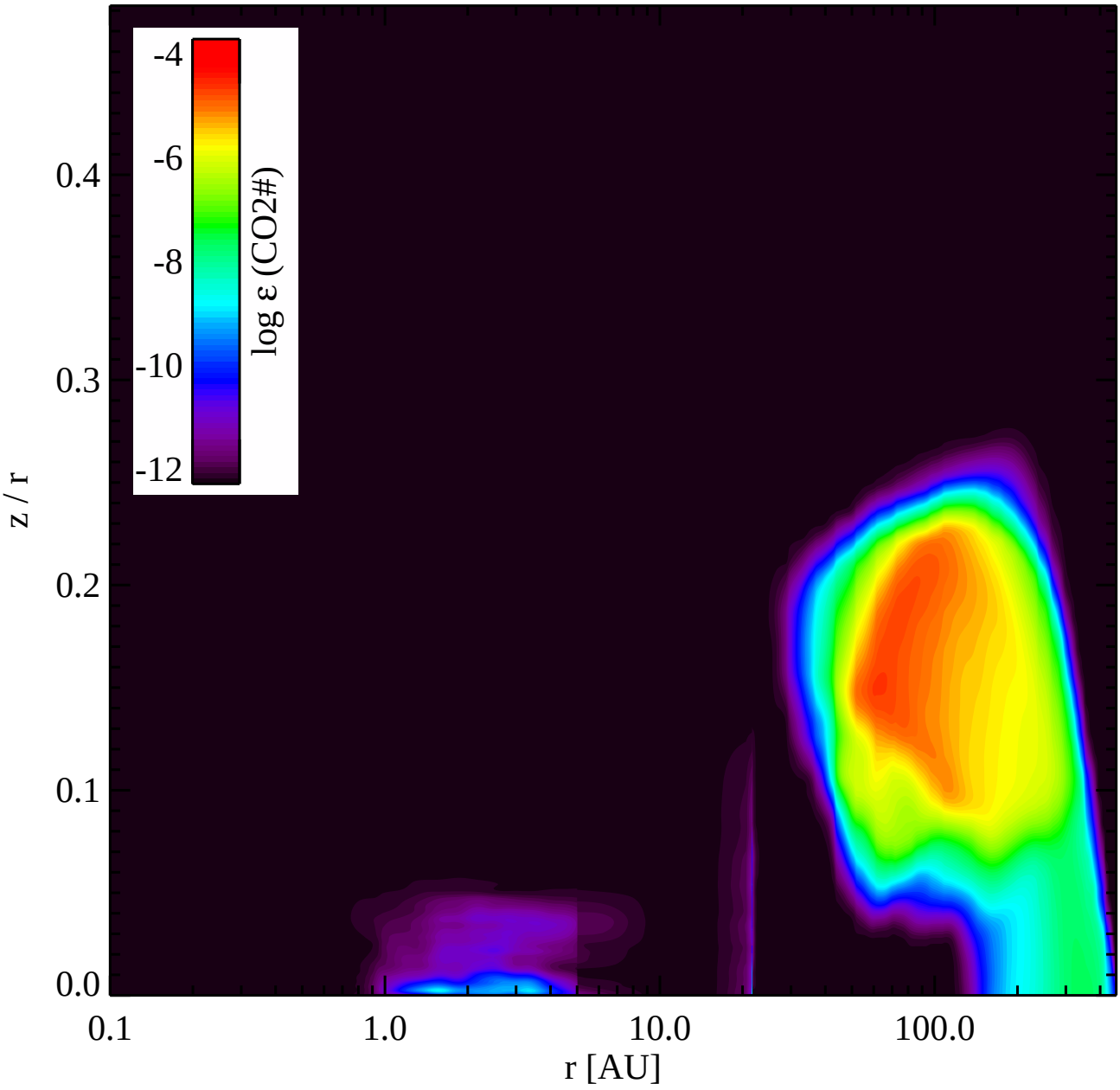

-12
-10
-8
-6
-4
log ε (CN)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

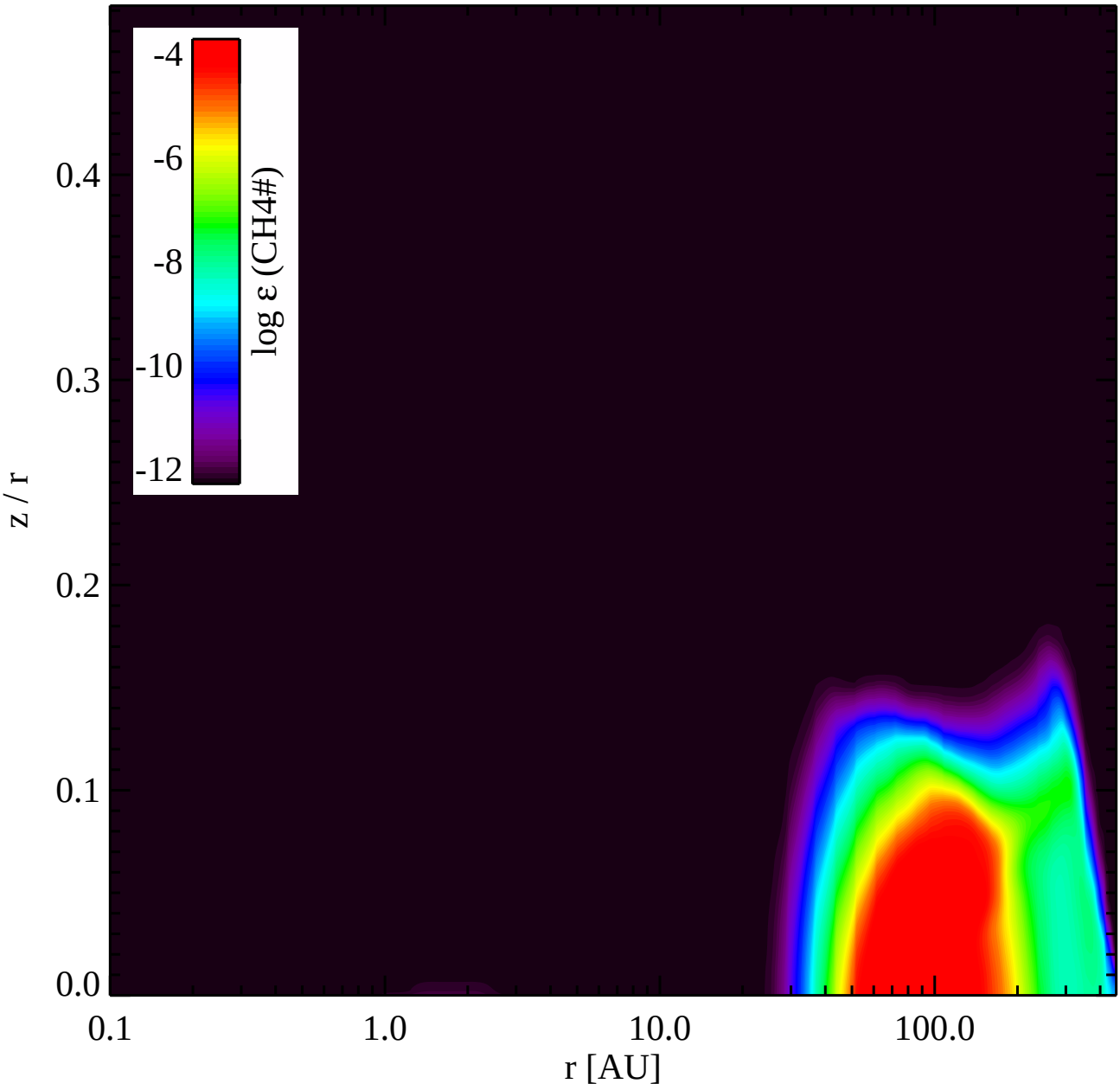

-12
-10
-8
-6
-4
log ε (HCN)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

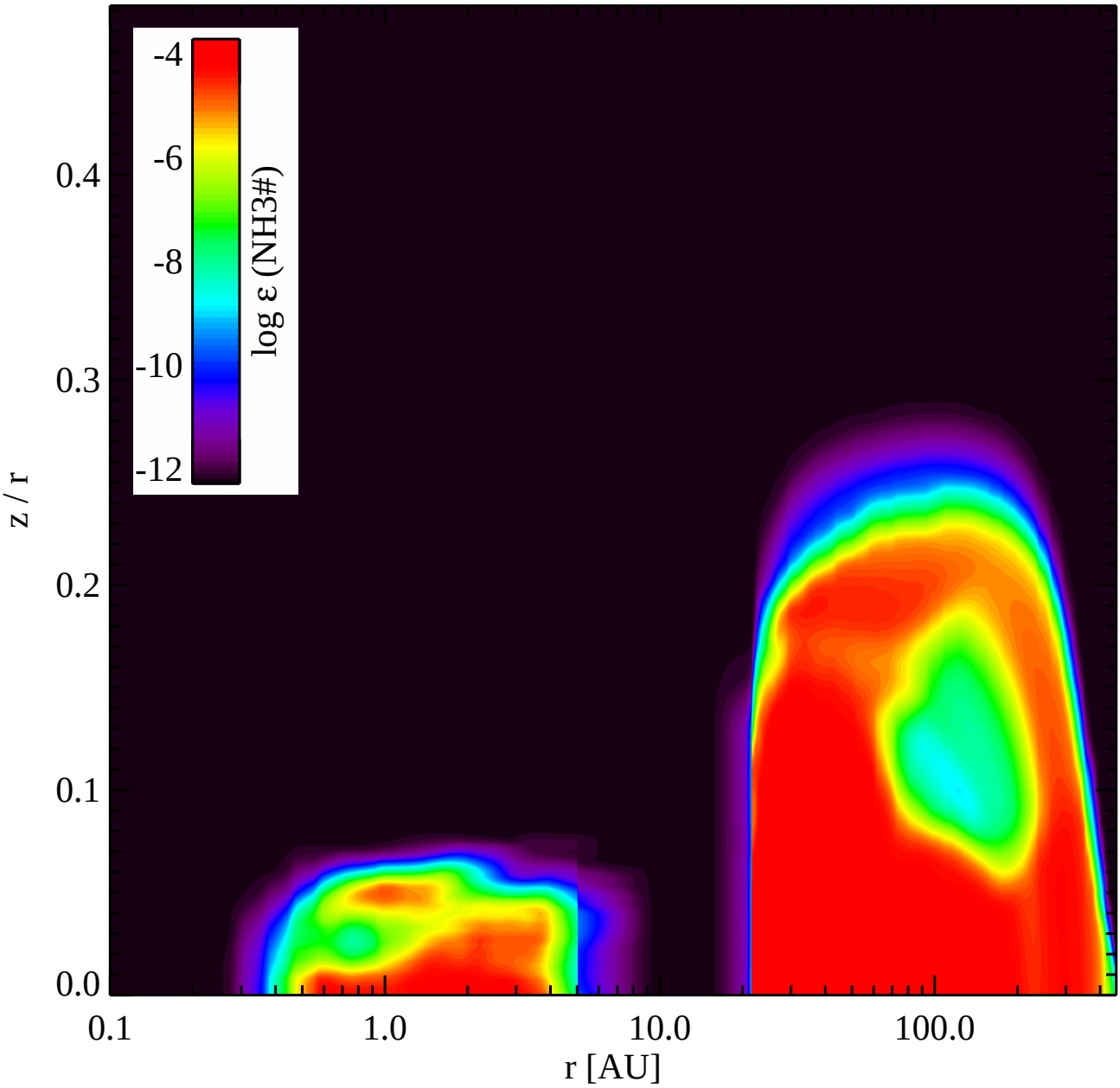

-2
-1
0
1
2
3
4
log ice layers
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
2
2
1000

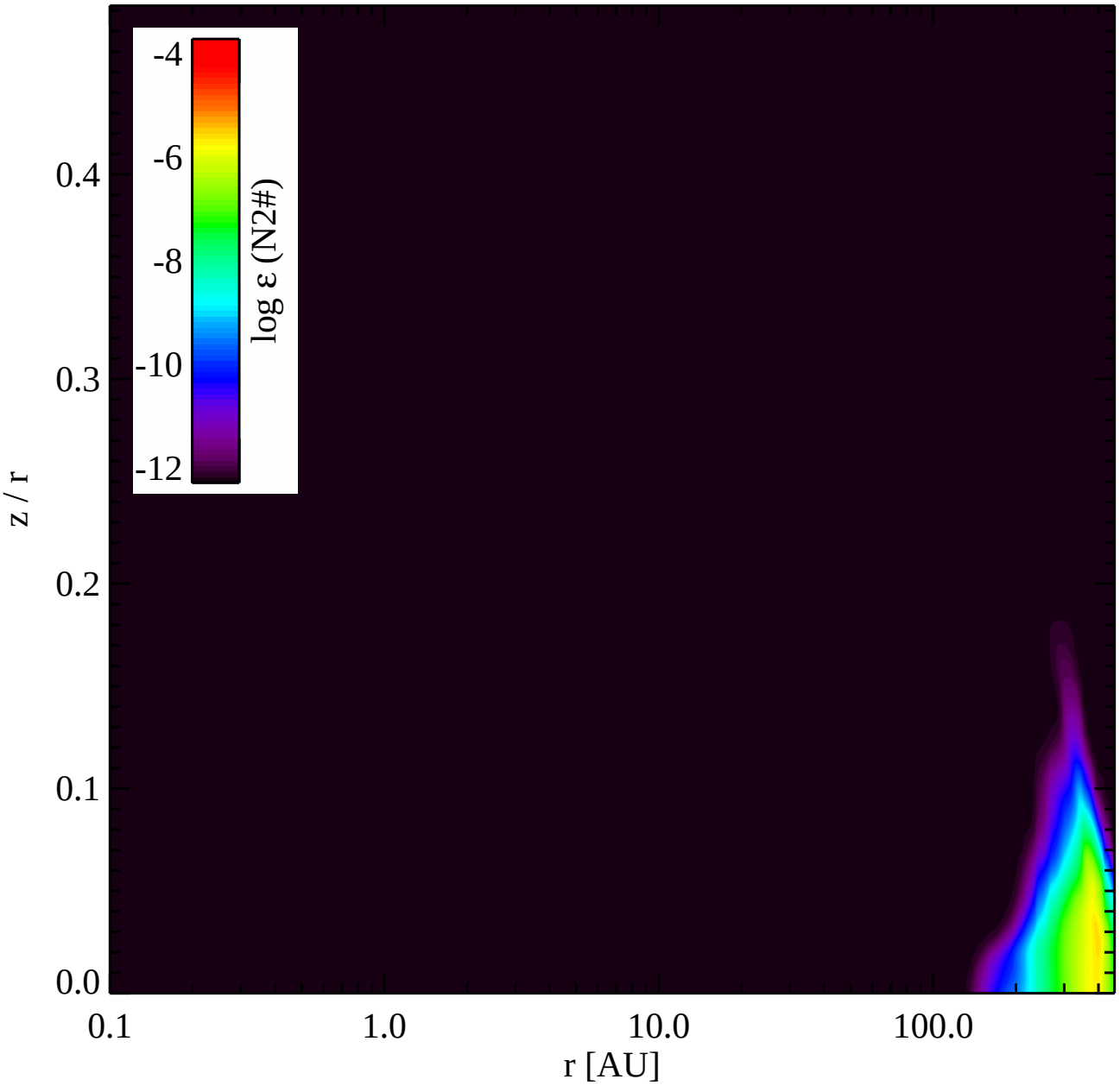

-4
-6
-8
-10
-12
log ε (H2O#)
Td=110K
Td=110K
#OCHH=OCHH
0.0
0.1
0.2
0.3
0.4
z / r
0.1
1.0
10.0
100.0
r [AU]

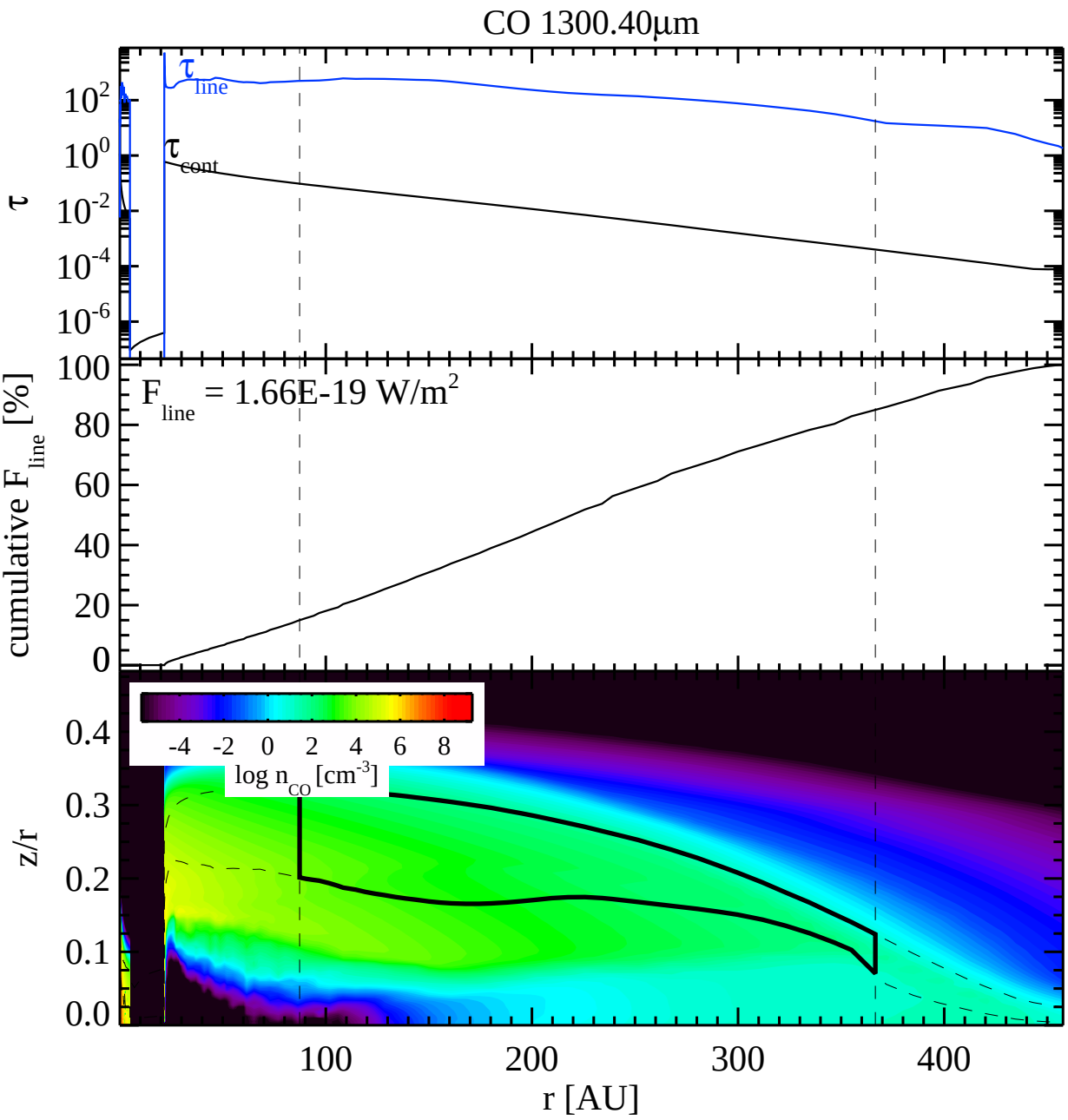

-4
-6
-8
-10
-12
log ε (CO#)
15K
20K
Td=25K
20K
Td=25K
Td=25K
20K
0.0
0.1
0.2
0.3
0.4
z / r
0.1
1.0
10.0
100.0
r [AU]

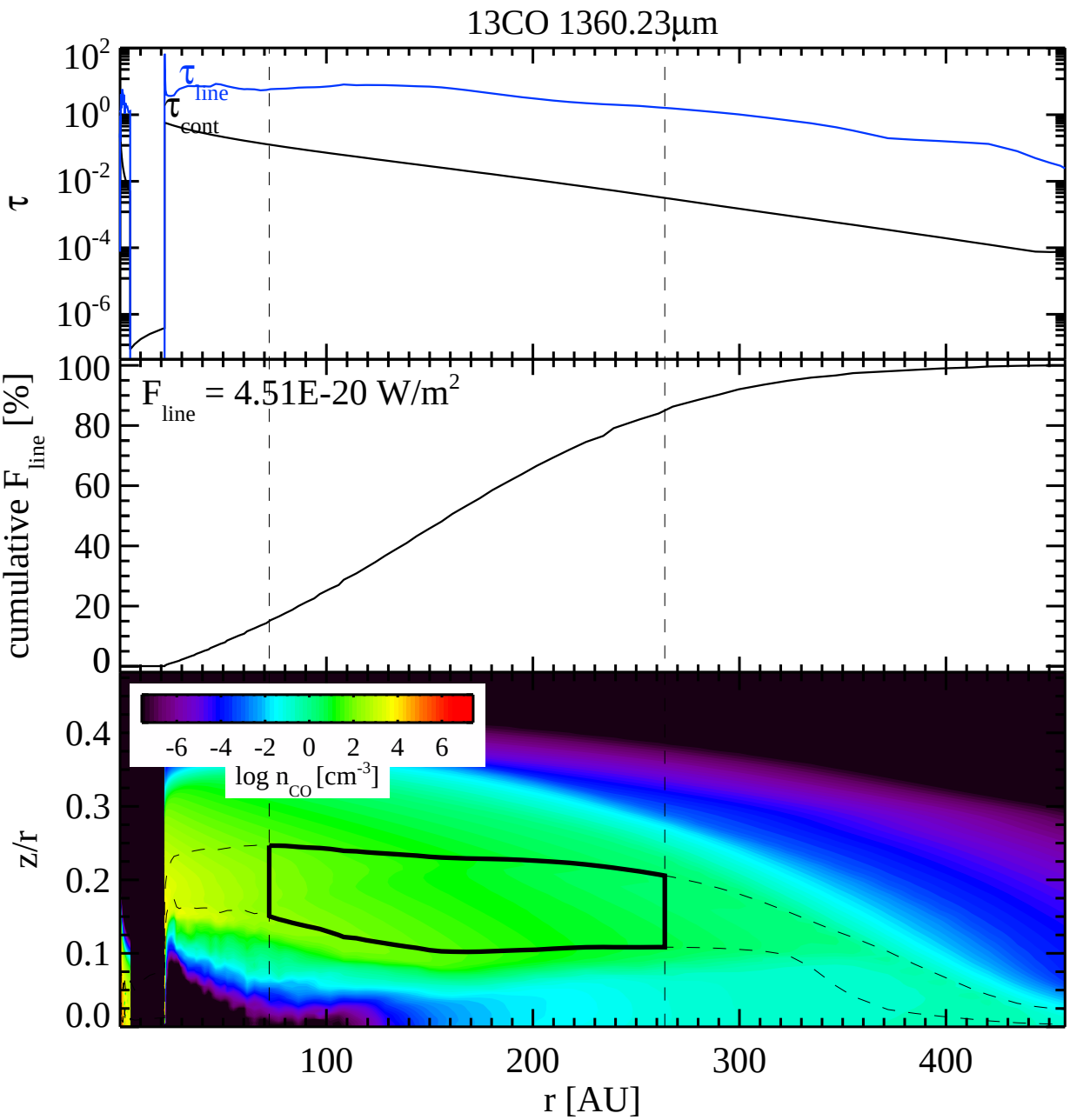

-4
-6
-8
-10
-12
log ε (CO2#)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

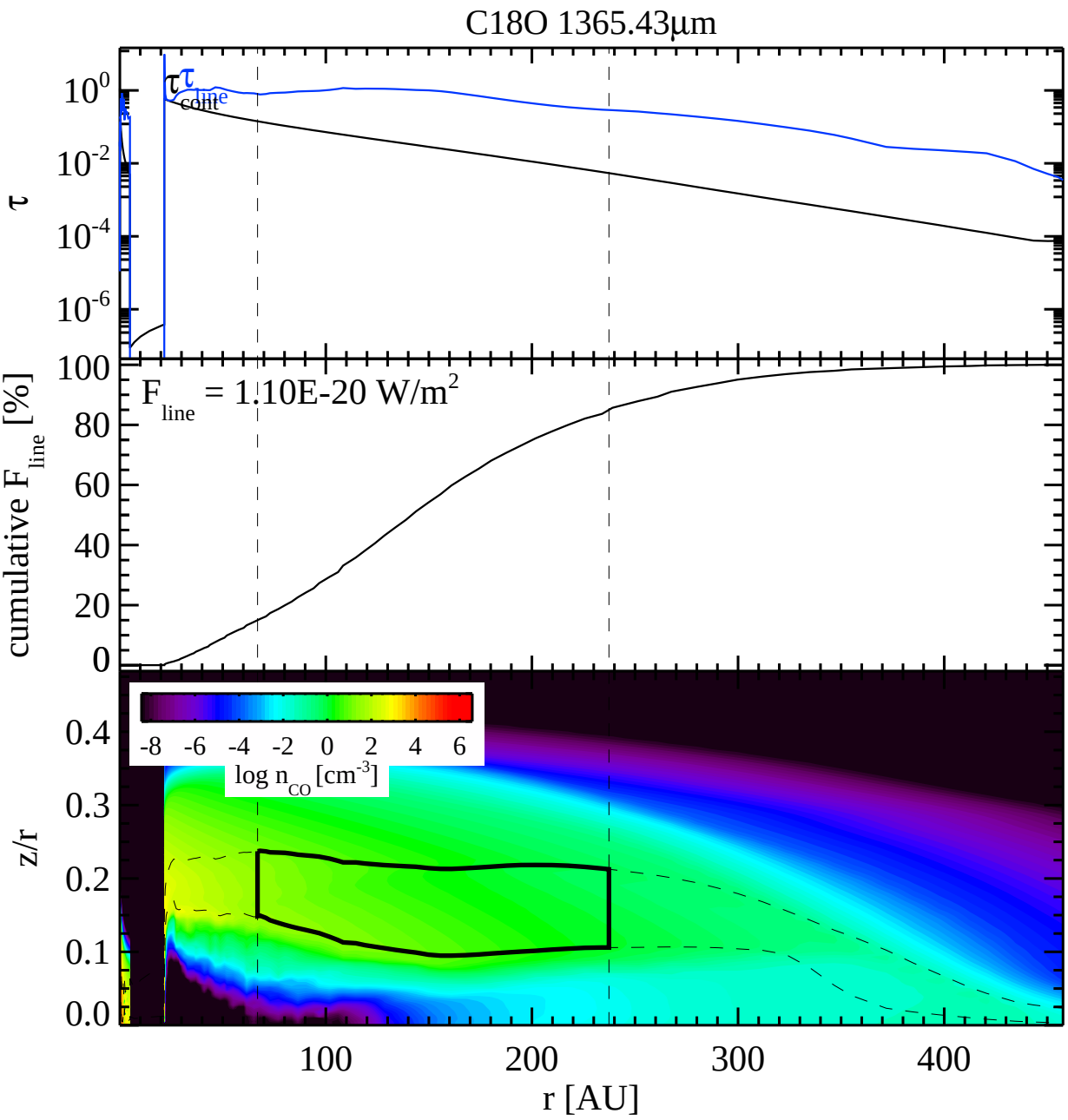

-4
-6
-8
-10
-12
log ε (CH4#)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

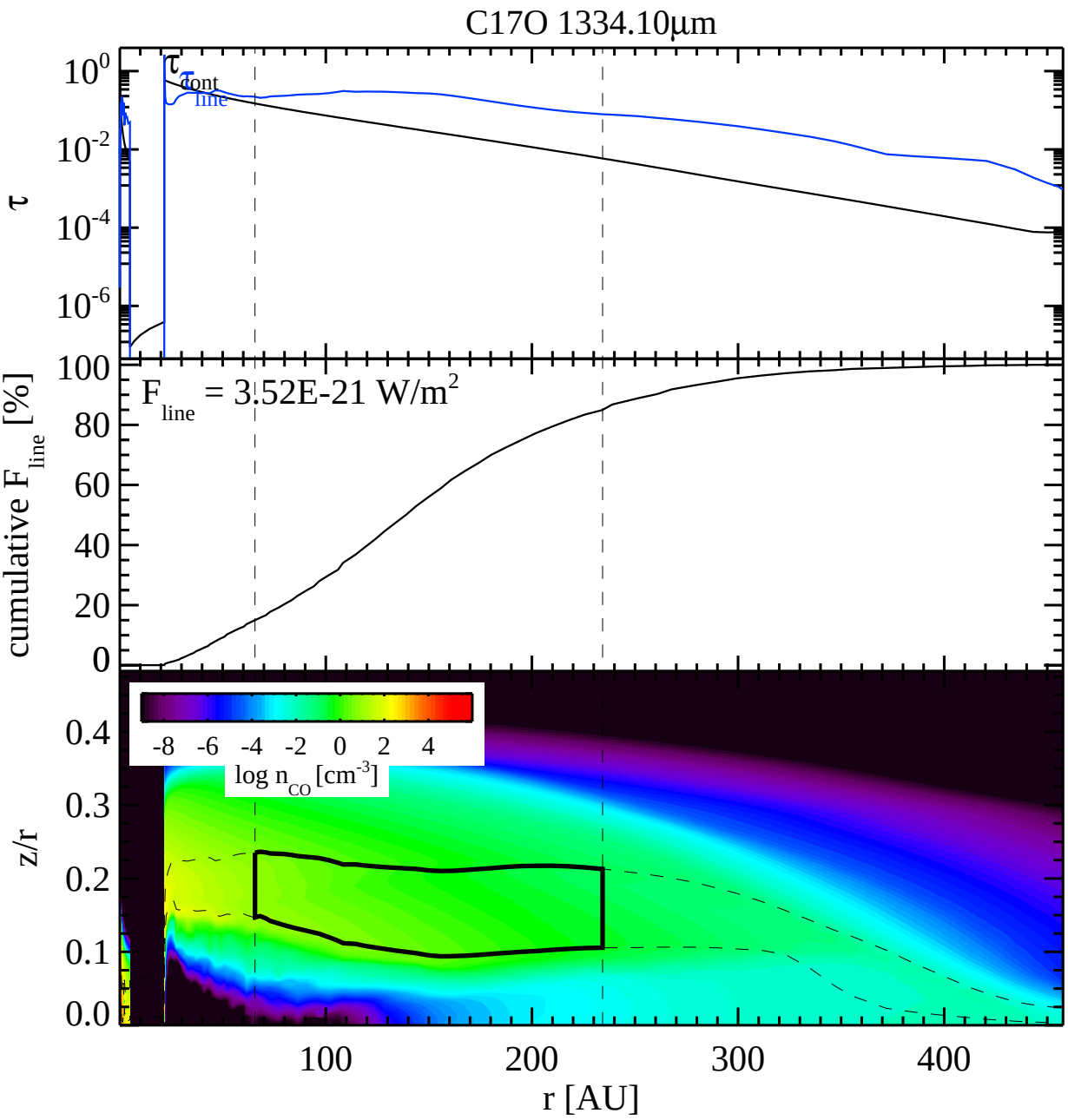

-4
-6
-8
-10
-12
log ε (NH3#)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

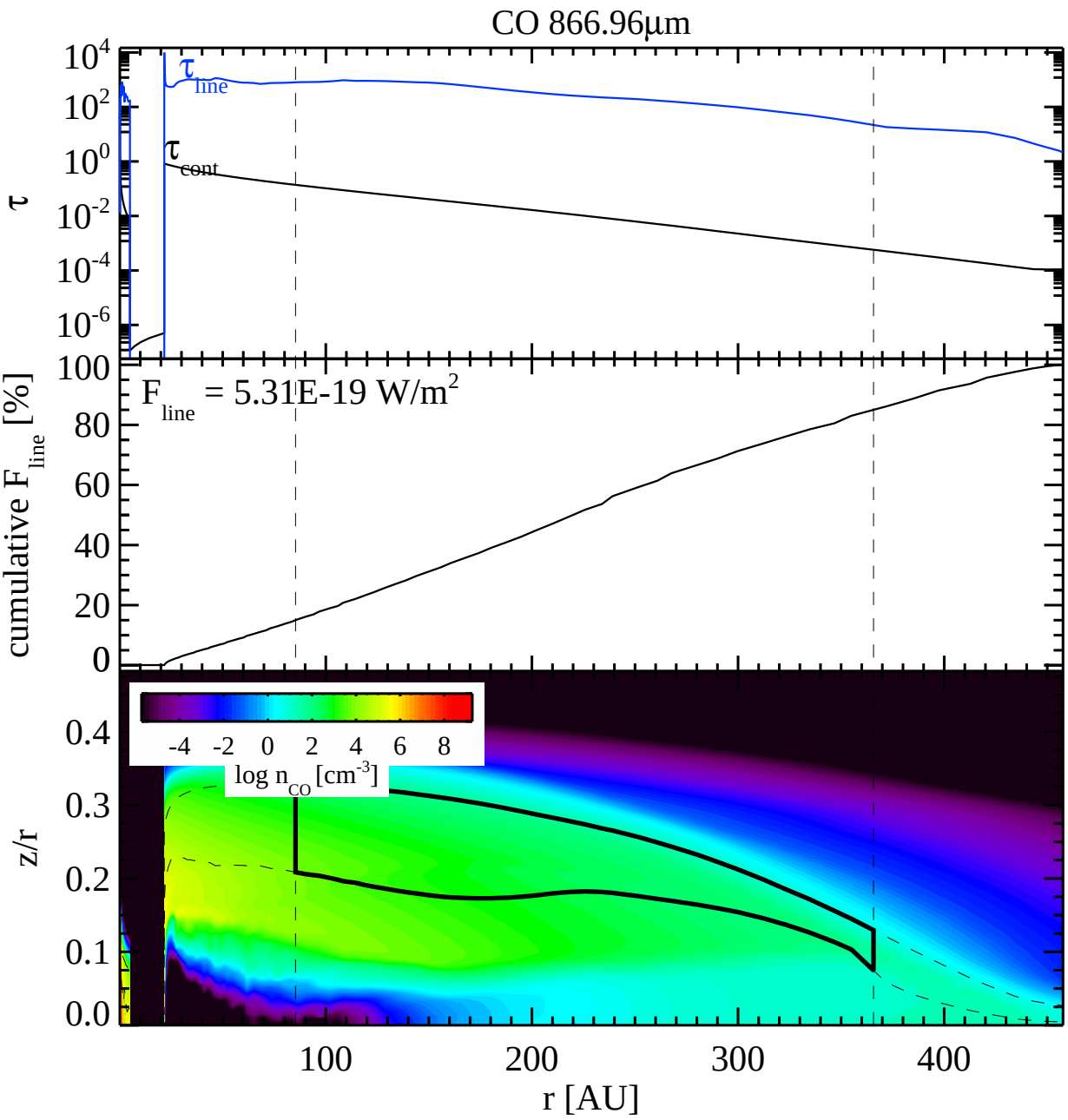

-4
-6
-8
-10
-12
log ε (N2#)
0.4
0.3
0.2
0.1
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

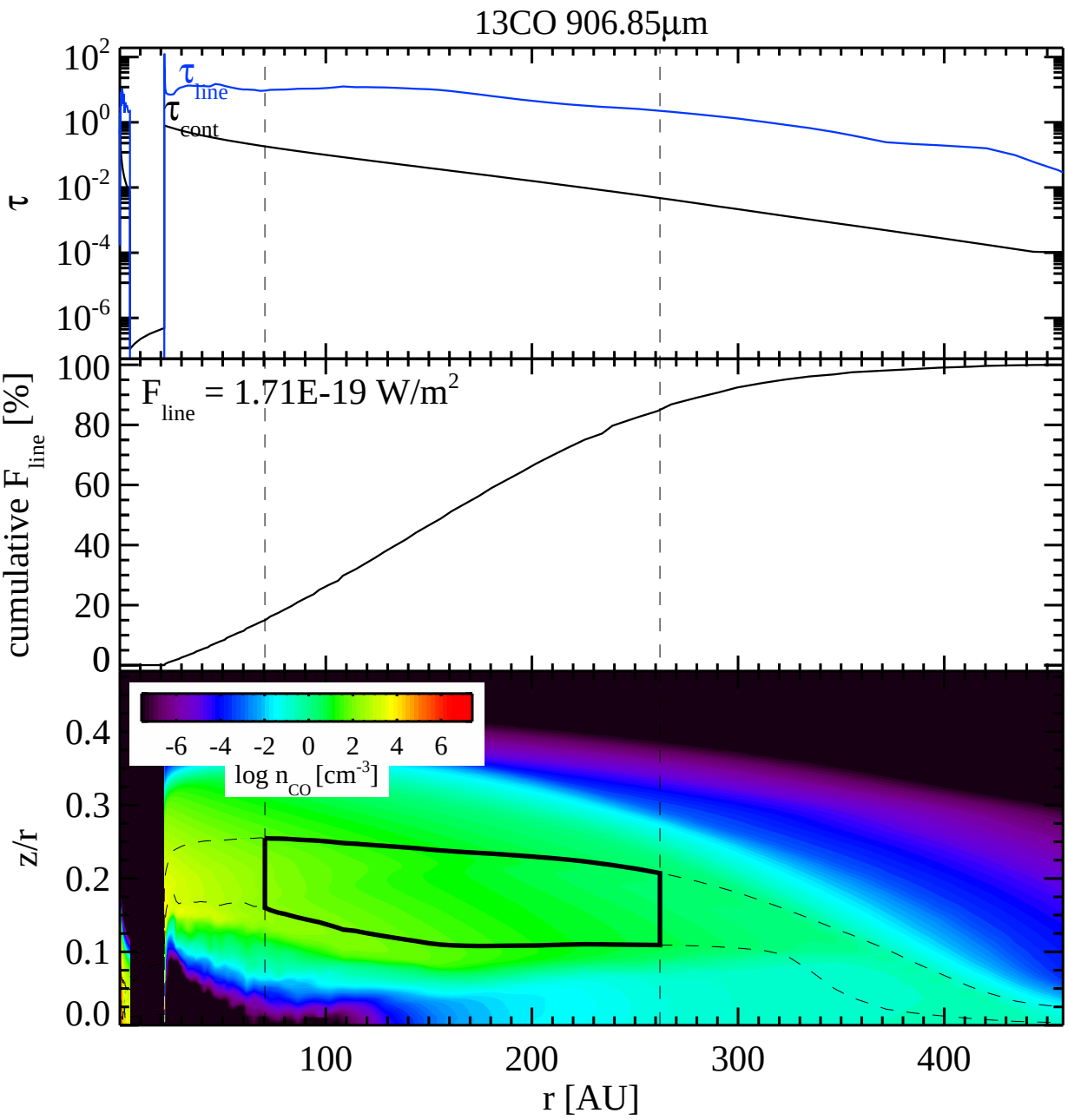

CO 1300.40µm
τ
τ line
τ cont
10^2
10^0
10^-2
10^-4
10^-6
cumulative F line [%]
F line = 1.66E-19 W/m^2
100
80
60
40
20
0
-4 -2 0 2 4 6 8
log n CO [cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
100
200
300
400
r [AU]

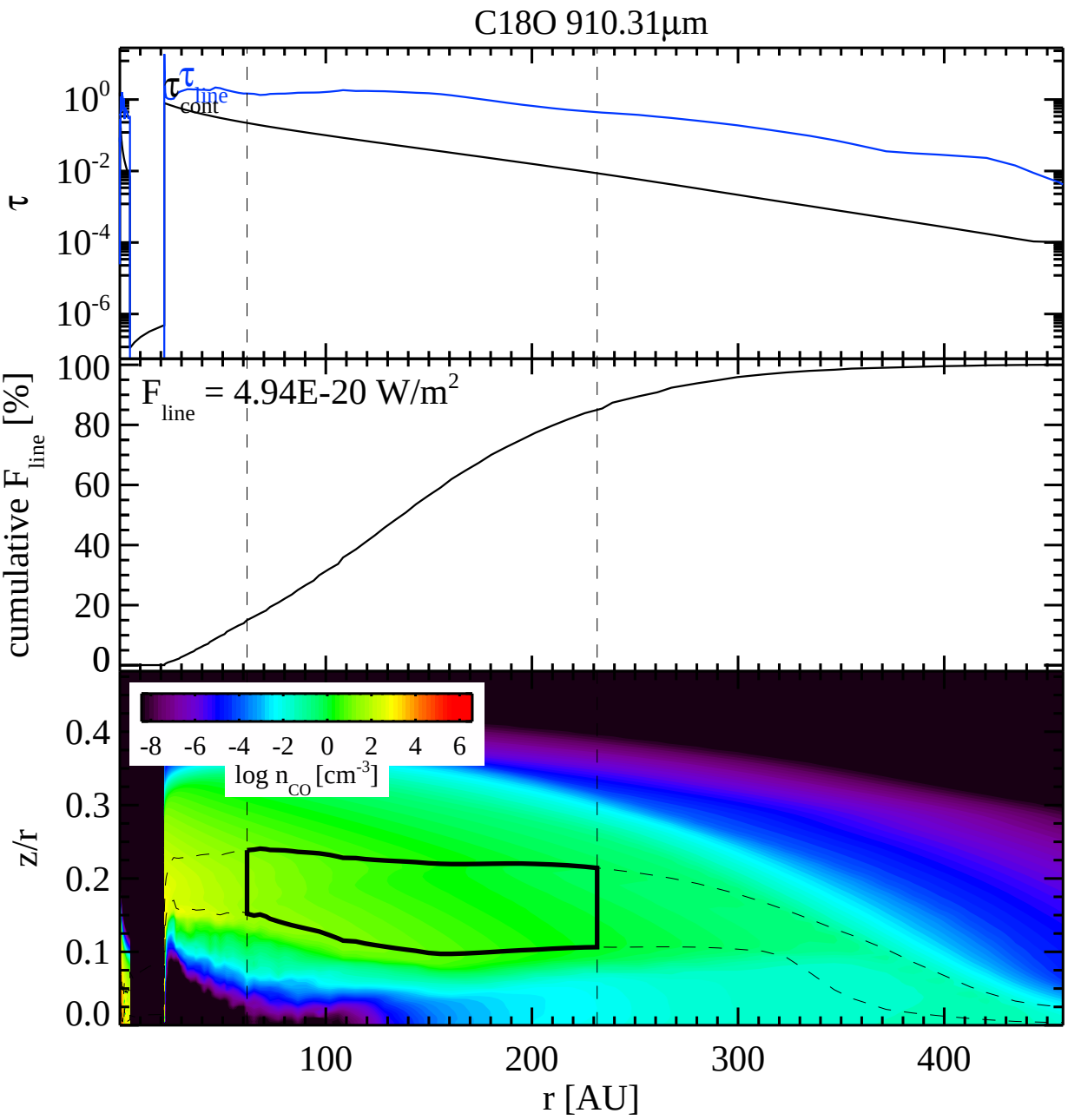

13CO 1360.23µm
τ
τ line
τ cont
cumulative F line [%]
F line = 4.51E-20 W/m2
log n CO [cm-3]
-6 -4 -2 0 2 4 6
z/r
r [AU]
100
200
300
400

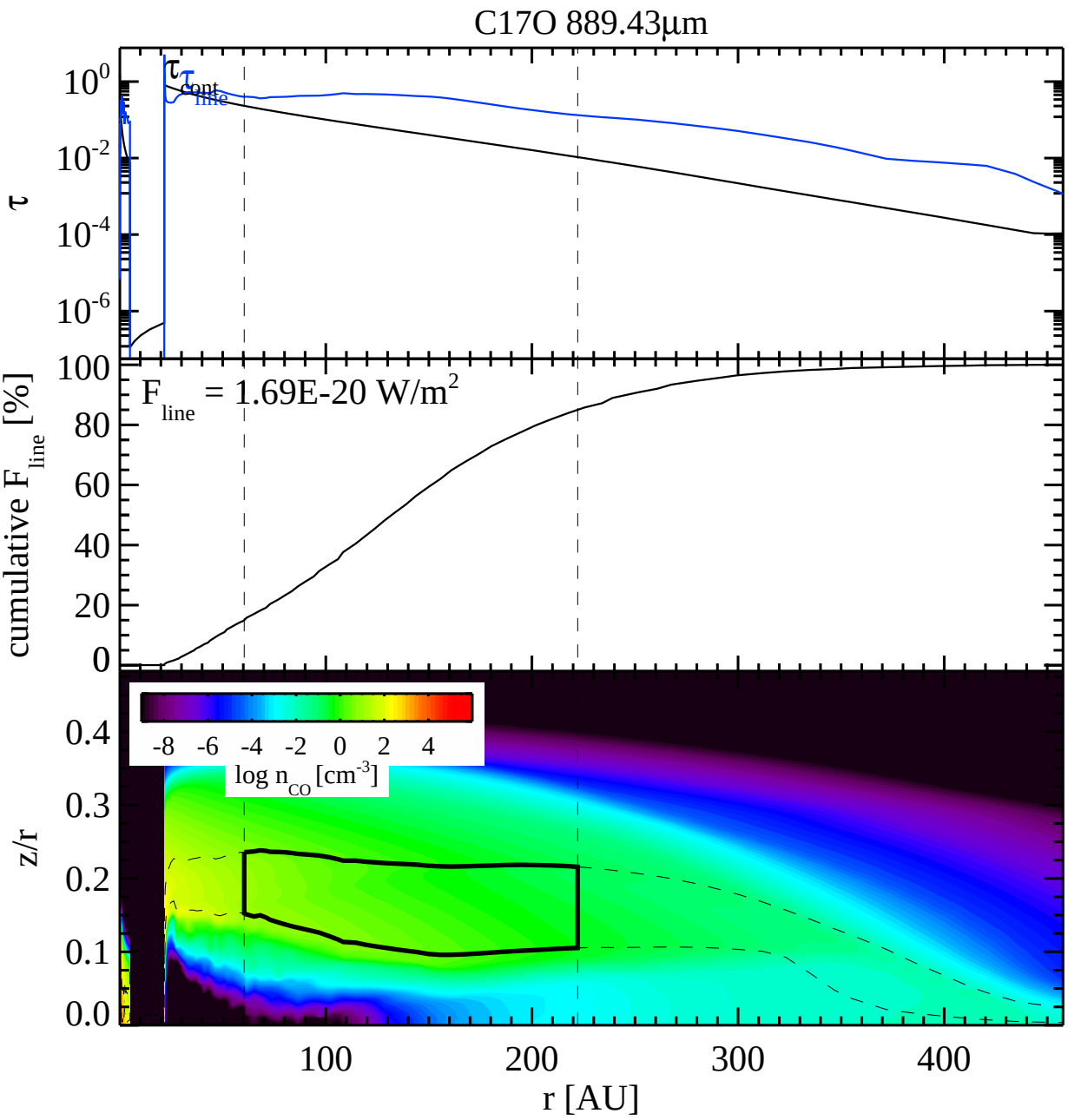

C18O 1365.43µm
τ
τ_{line}
τ_{cont}
10^{0}
10^{-2}
10^{-4}
10^{-6}
cumulative F_{line} [%]
F_{line} = 1.10E-20 W/m^2
100
80
60
40
20
0
z/r
0.4
0.3
0.2
0.1
0.0
-8 -6 -4 -2 0 2 4 6
log n_{CO} [cm^{-3}]
100
200
300
400
r [AU]

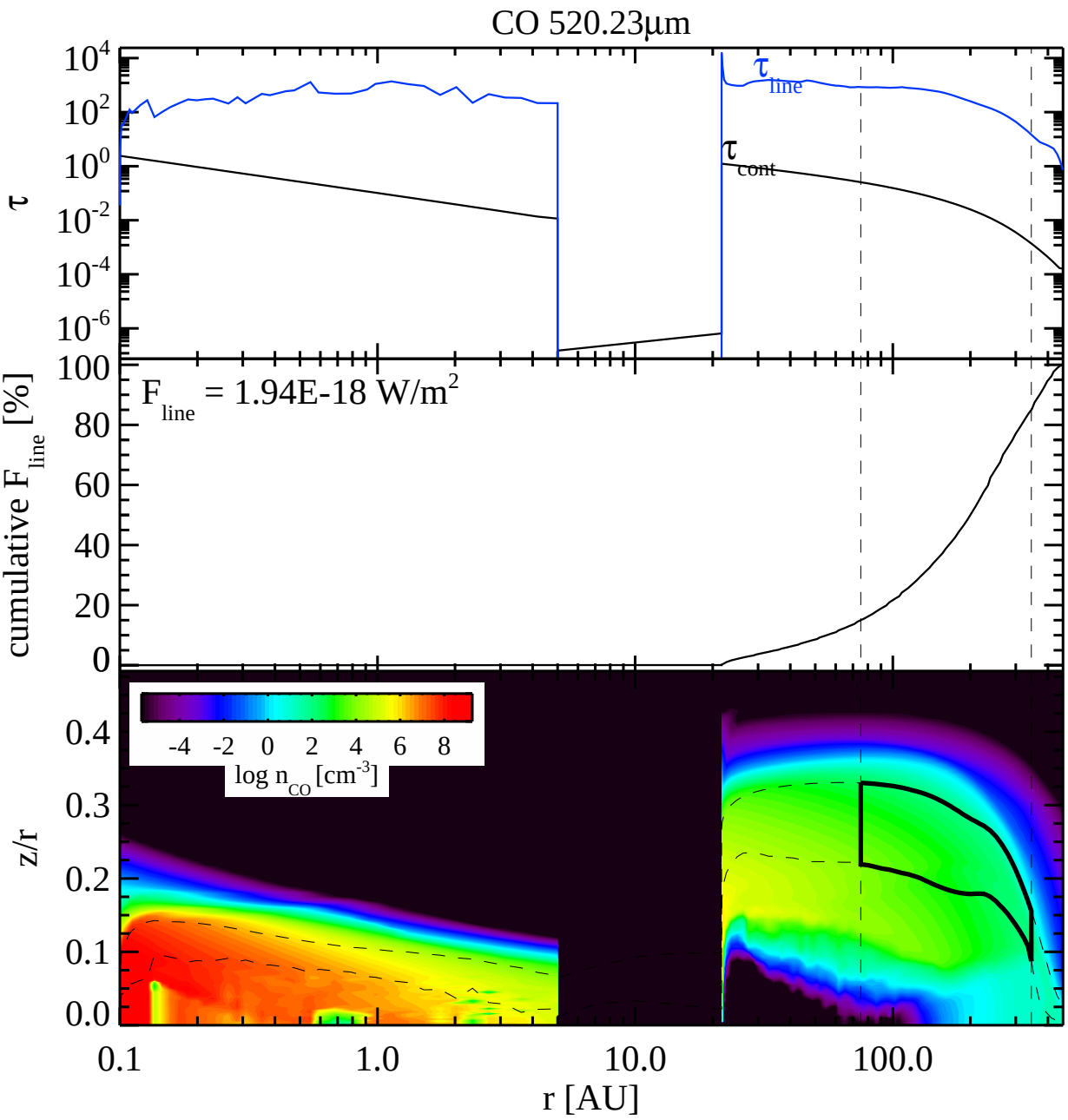

C17O 1334.10µm
τ
τ cont
τ line
cumulative F line [%]
F line = 3.52E-21 W/m2
log n CO [cm-3]
z/r
r [AU]

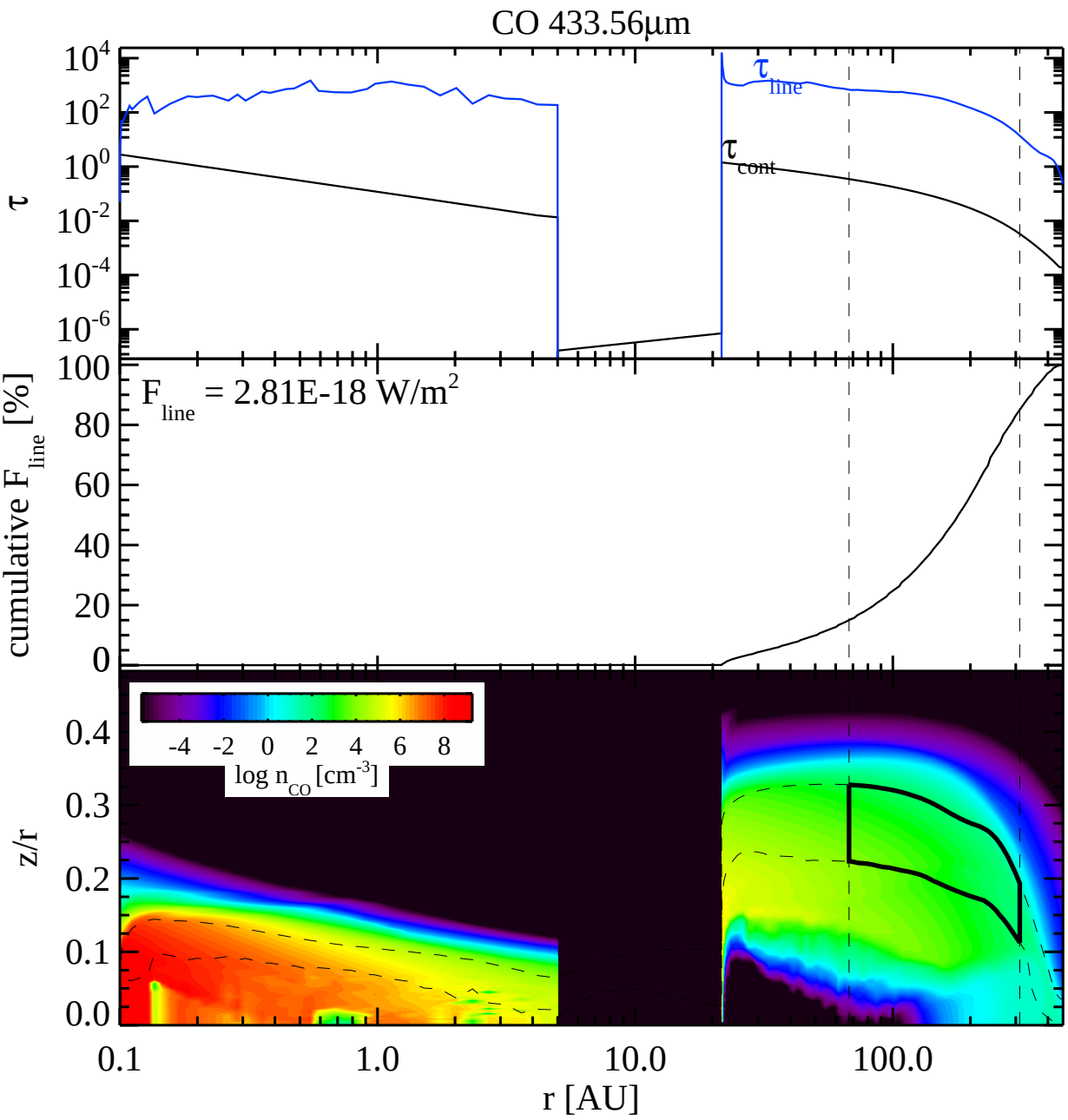

CO 866.96µm
τ
τ line
τ cont
cumulative F line [%]
F line = 5.31E-19 W/m2
log n CO [cm-3]
-4 -2 0 2 4 6 8
z/r
r [AU]

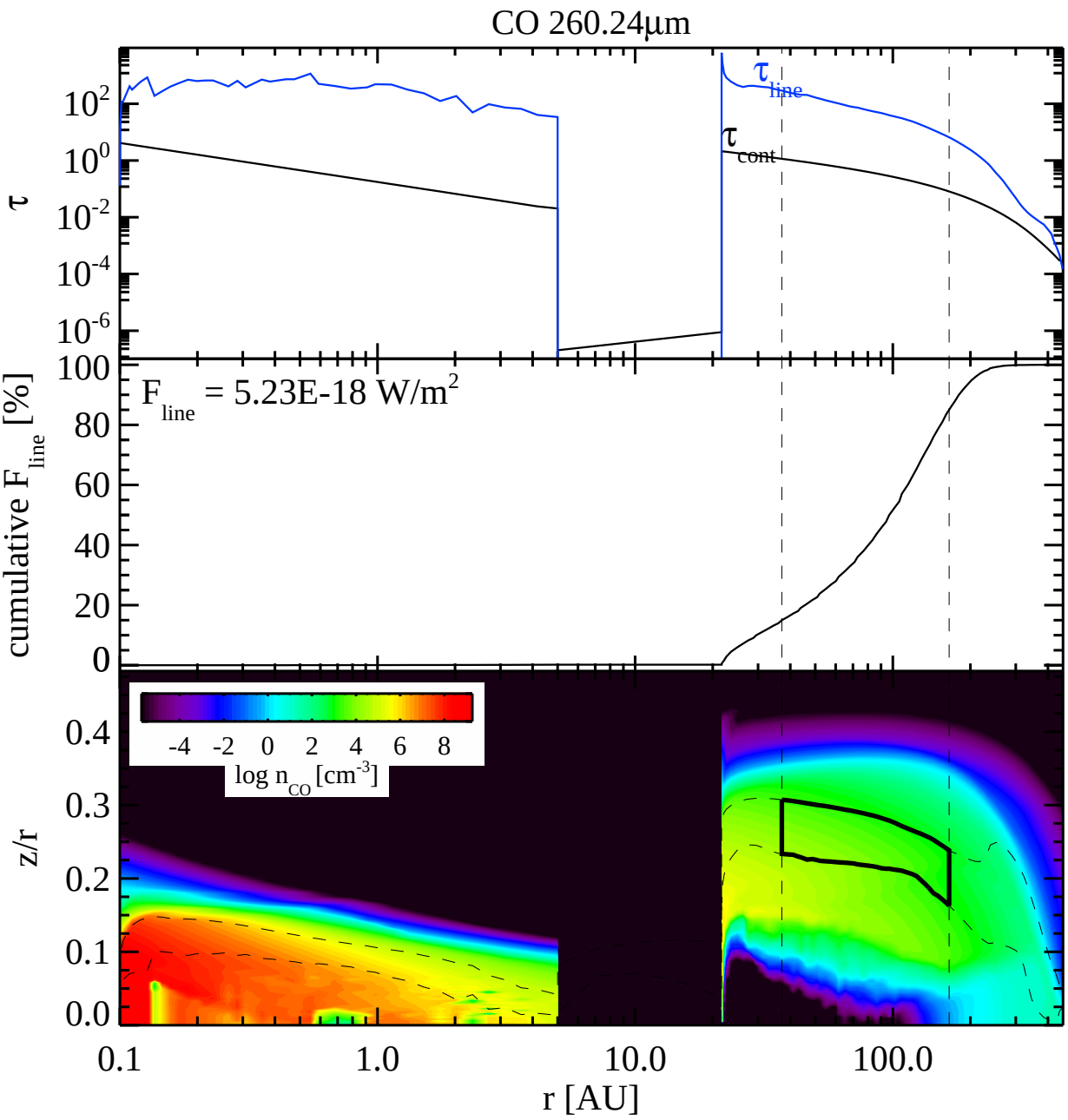

13CO 906.85µm
τ
τ line
τ cont
cumulative F line [%]
F line = 1.71E-19 W/m2
log n CO [cm-3]
z/r
r [AU]

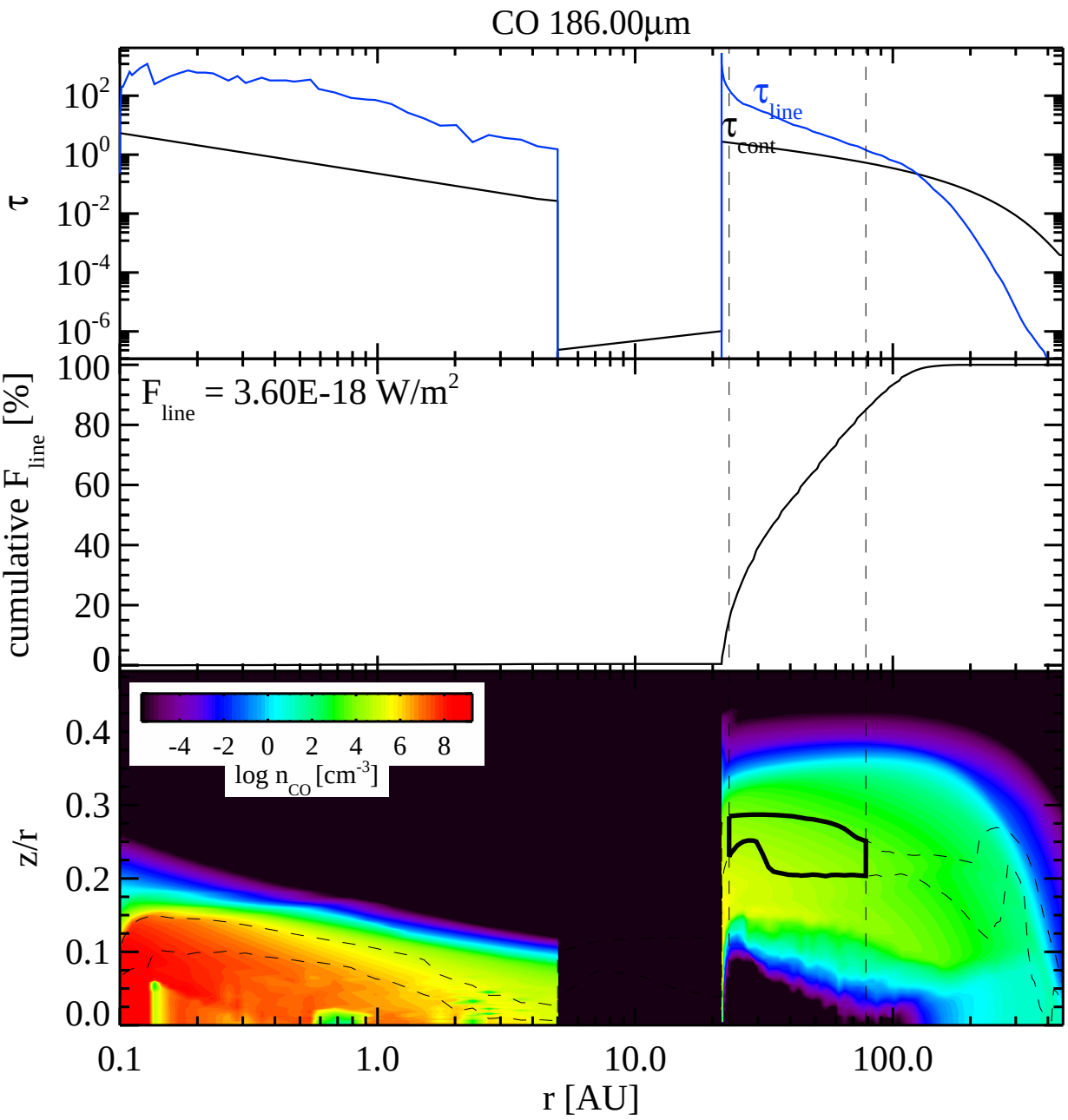

C18O 910.31µm
τ
τ_{line}
τ_{cont}
10^{0}
10^{-2}
10^{-4}
10^{-6}
cumulative F_{line} [%]
F_{line} = 4.94E-20 W/m^2
100
80
60
40
20
0
z/r
0.4
0.3
0.2
0.1
0.0
-8 -6 -4 -2 0 2 4 6
log n_{CO} [cm^{-3}]
100
200
300
400
r [AU]

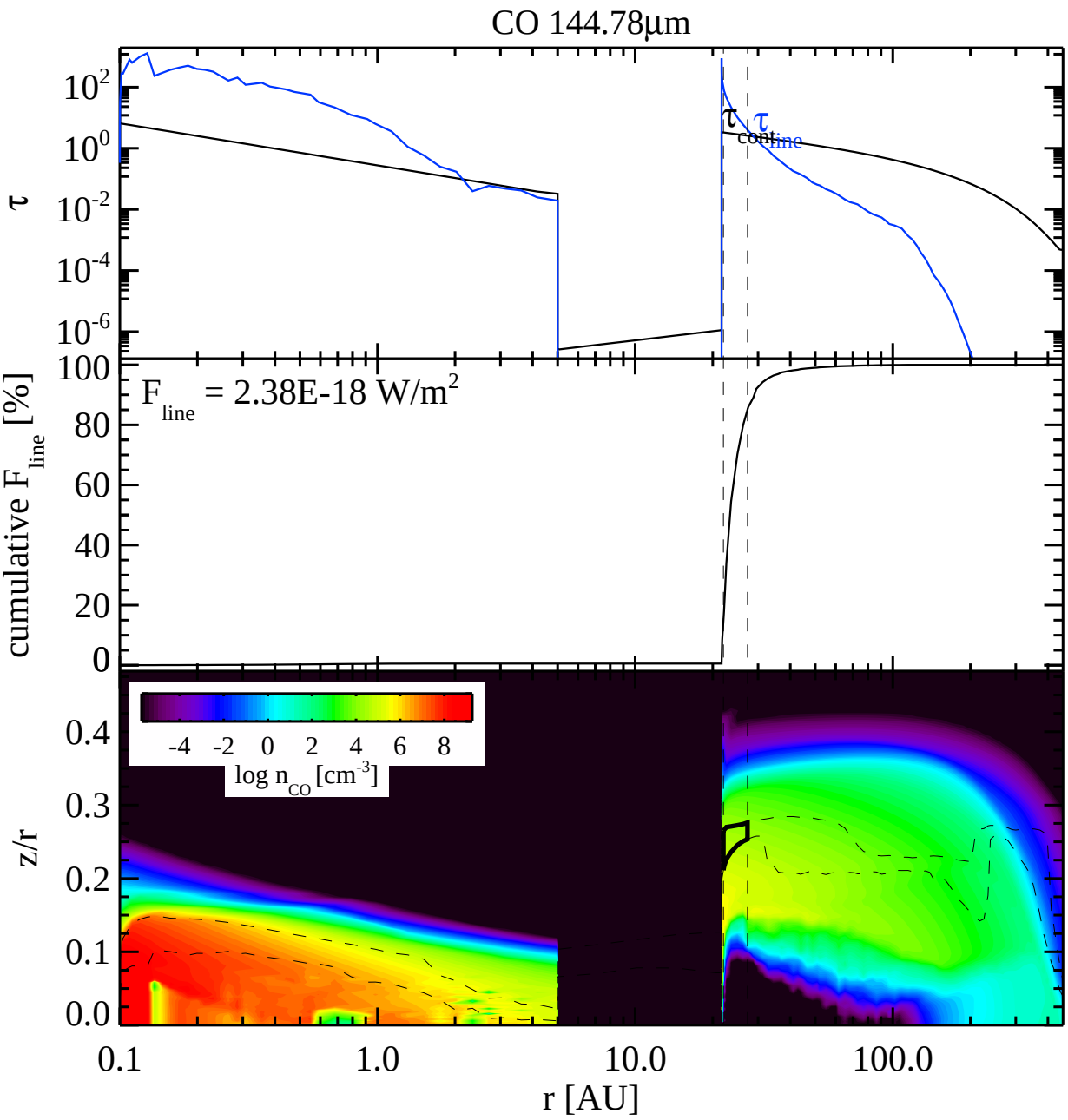

C17O 889.43µm
τ
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.69E-20 W/m^2
z/r
0.4
0.3
0.2
0.1
0.0
-8 -6 -4 -2 0 2 4
log n_{CO} [cm^{-3}]
100
200
300
400
r [AU]

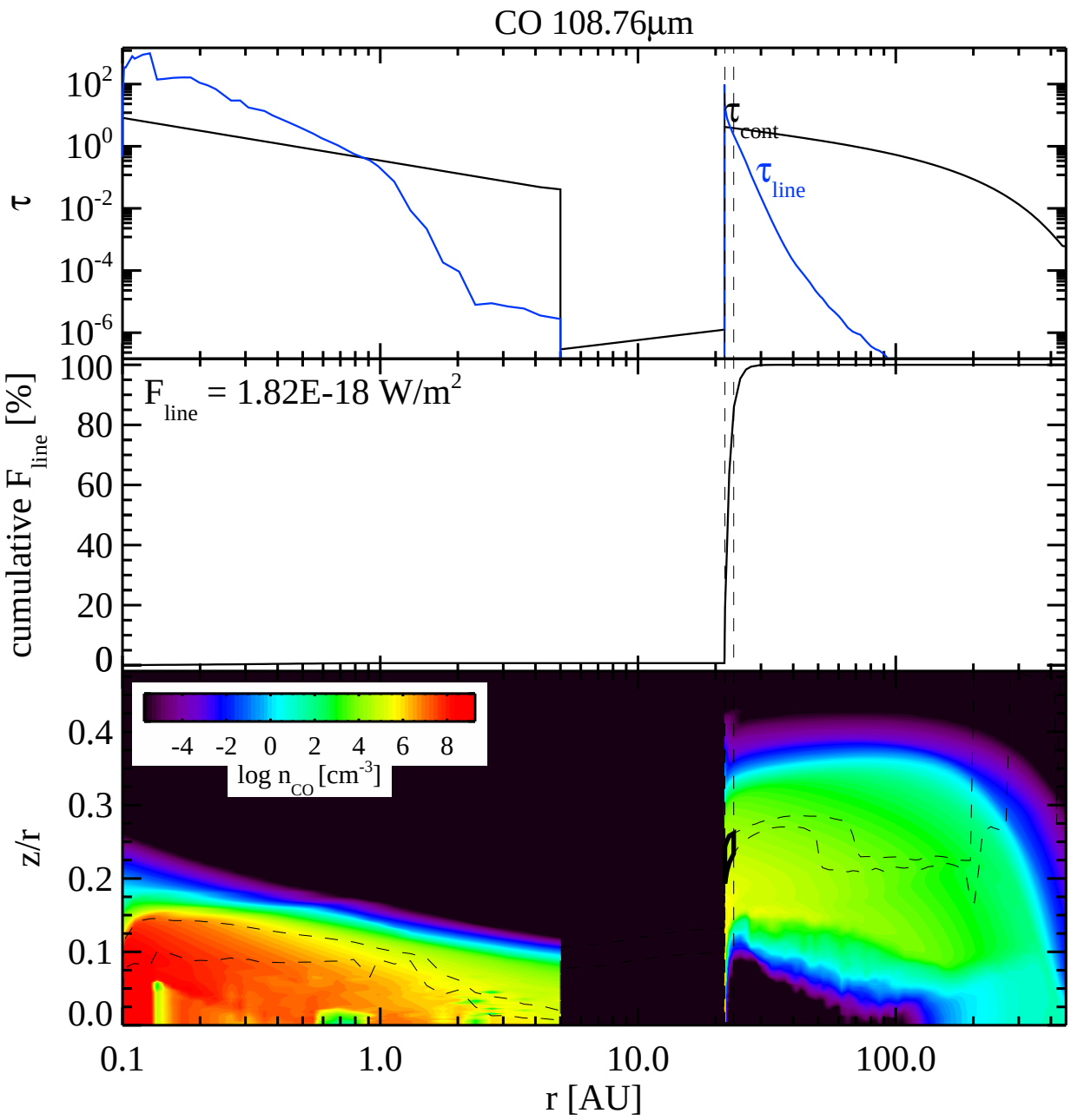

CO 520.23µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.94E-18 W/m^2
z/r
0.4
0.3
0.2
0.1
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

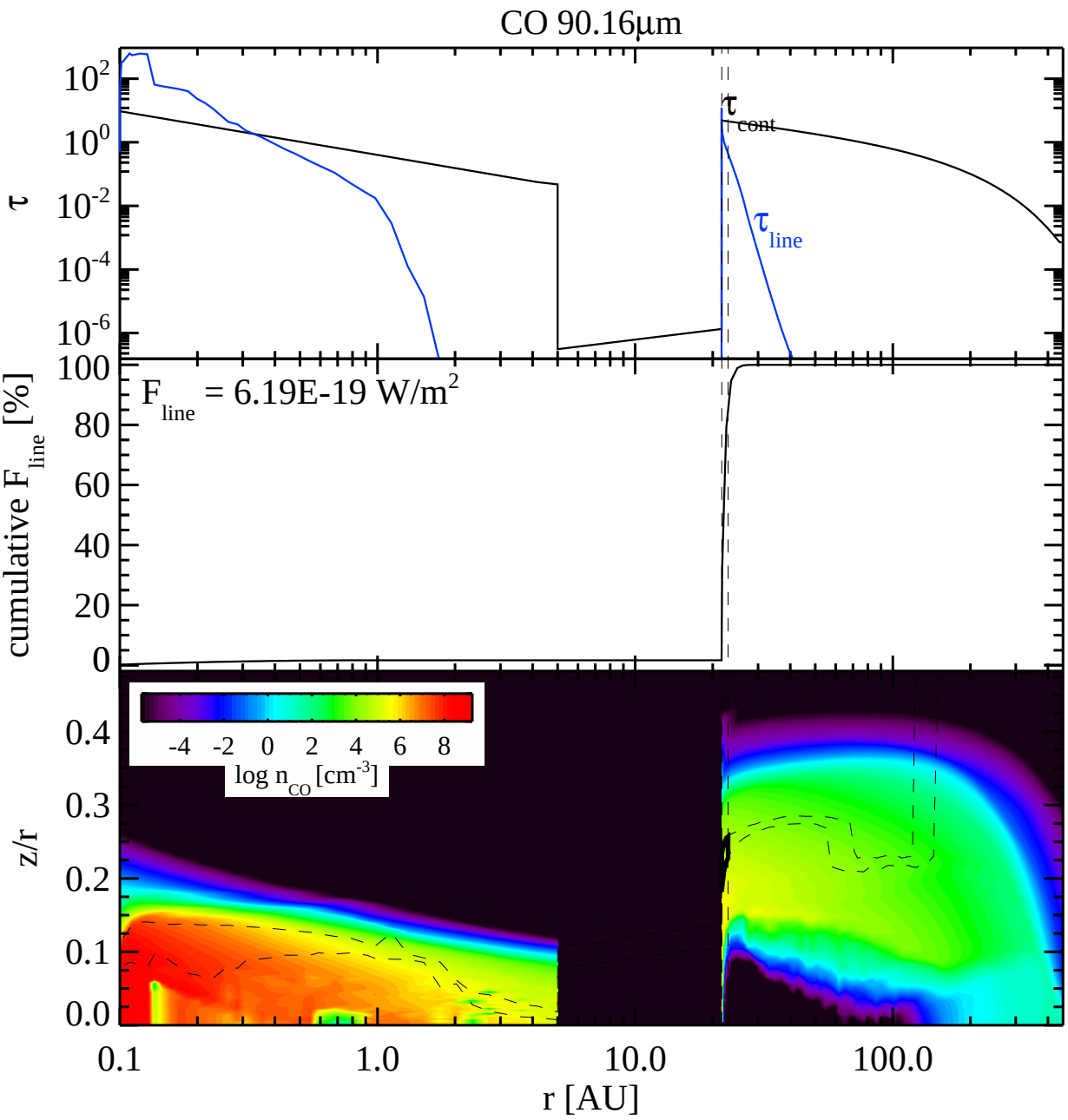

CO 433.56µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.81E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

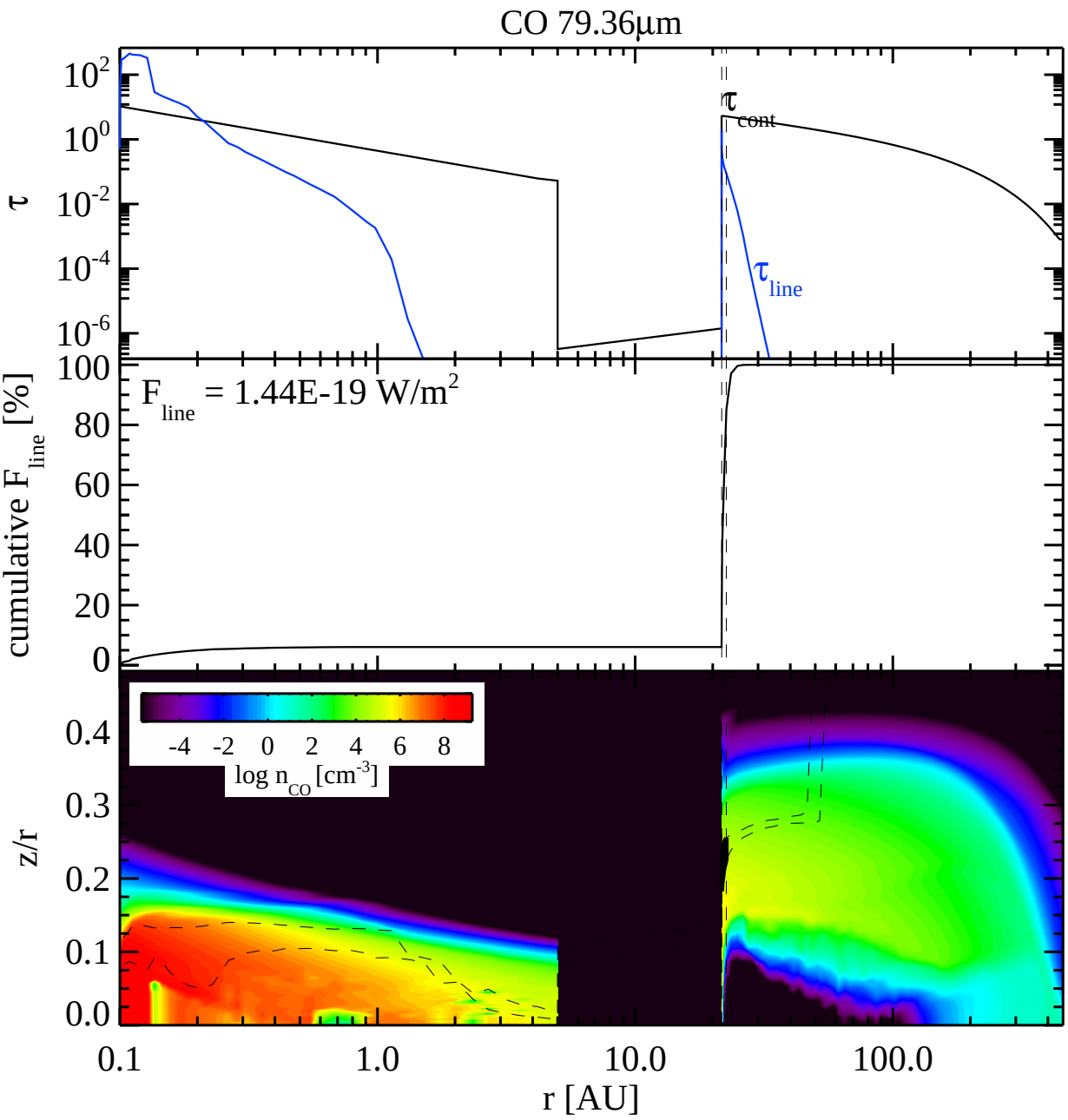

CO 260.24μm
τ
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 5.23E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

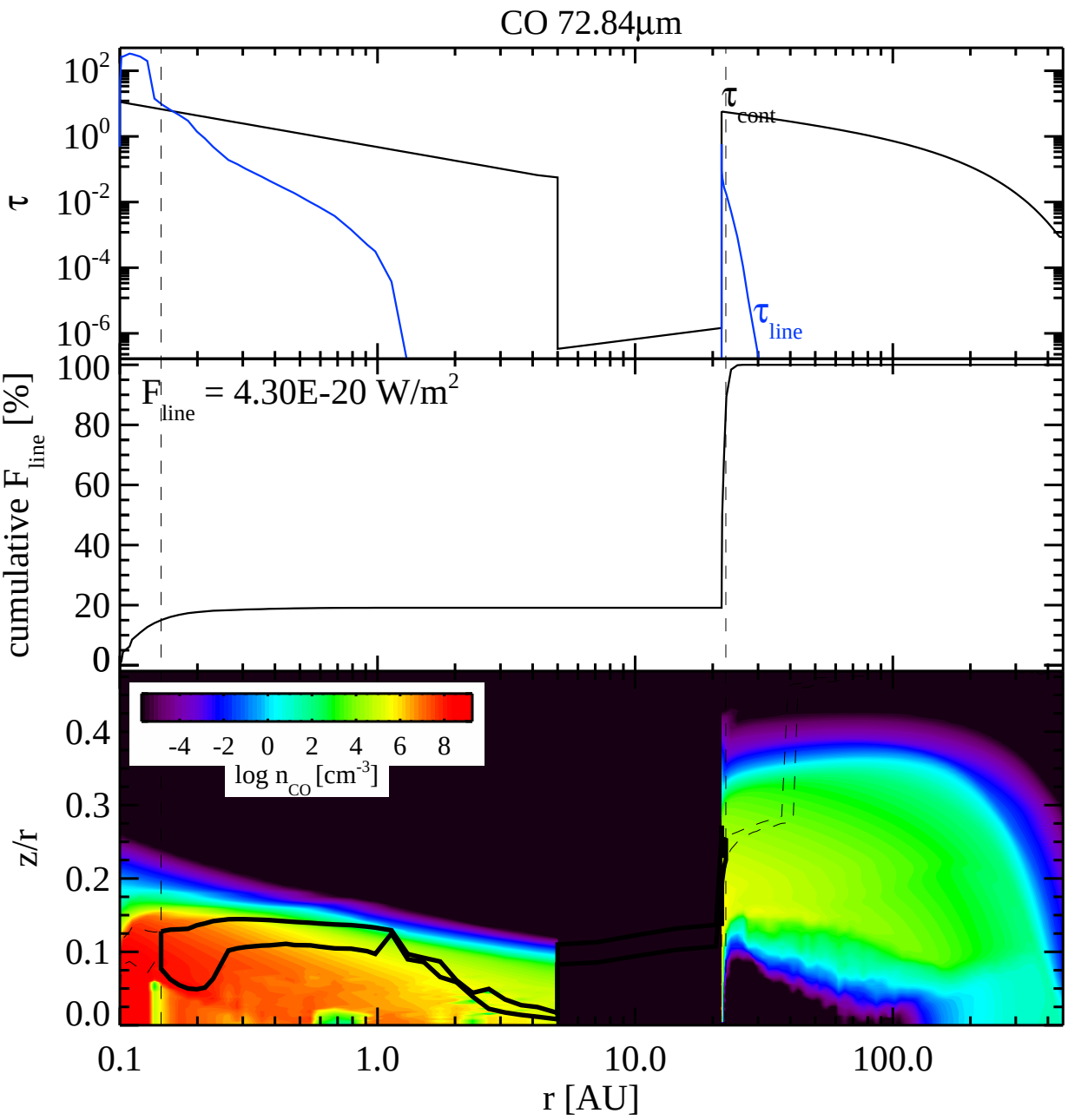

CO 186.00µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 3.60E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

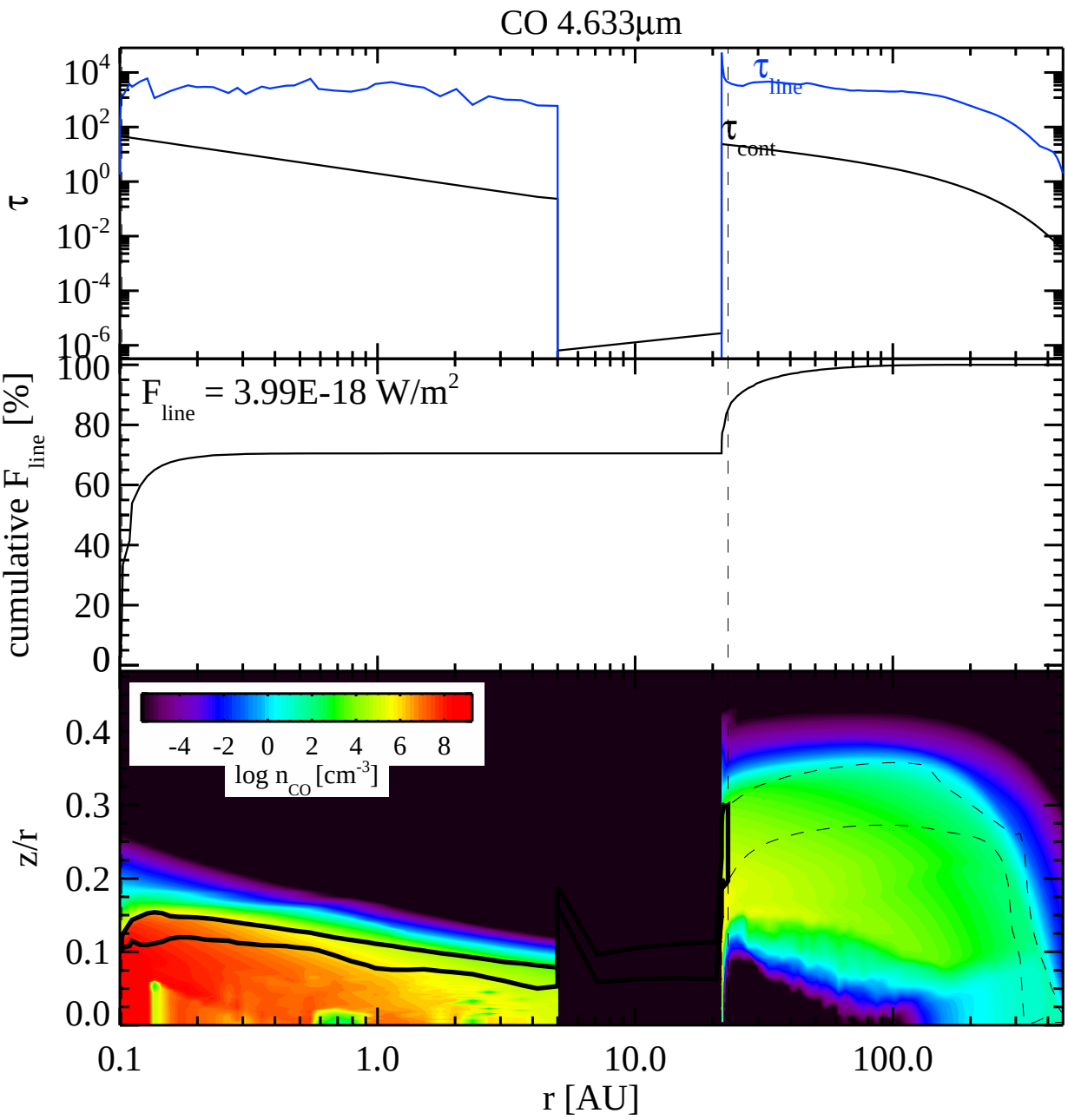

CO 144.78µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ
τ
cont
line
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.38E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

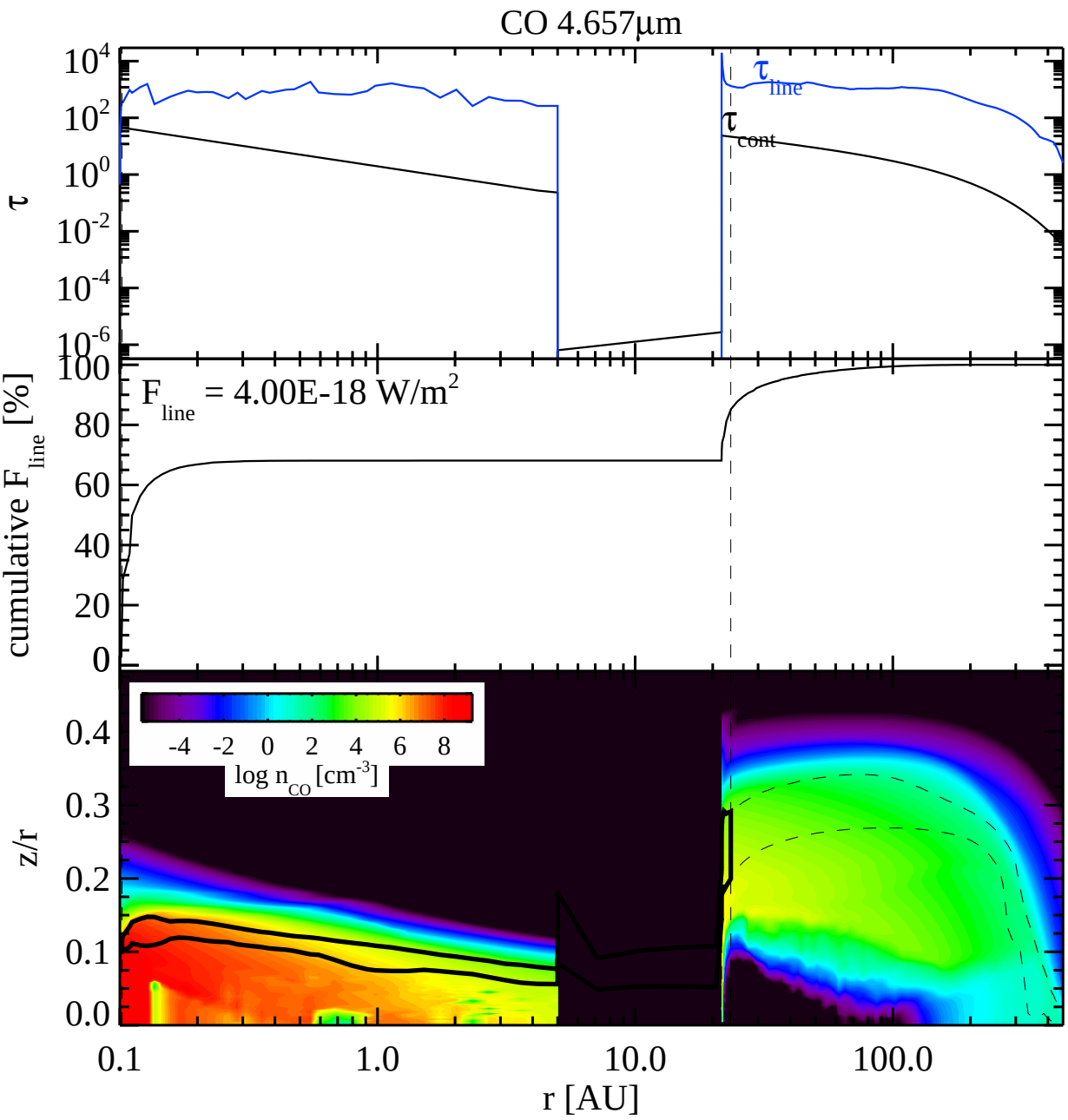

CO 108.76µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.82E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

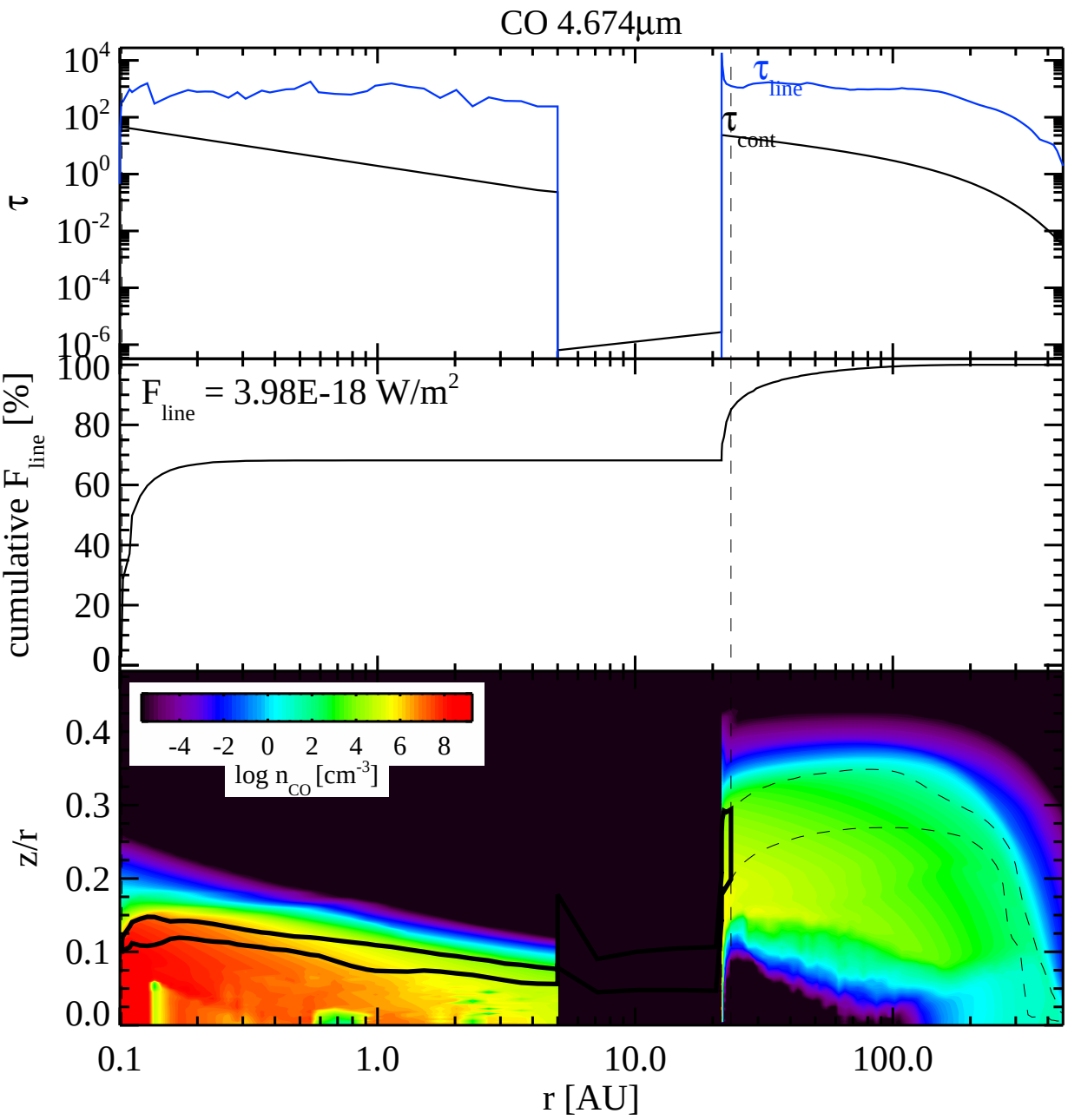

CO 90.16µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 6.19E-19 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

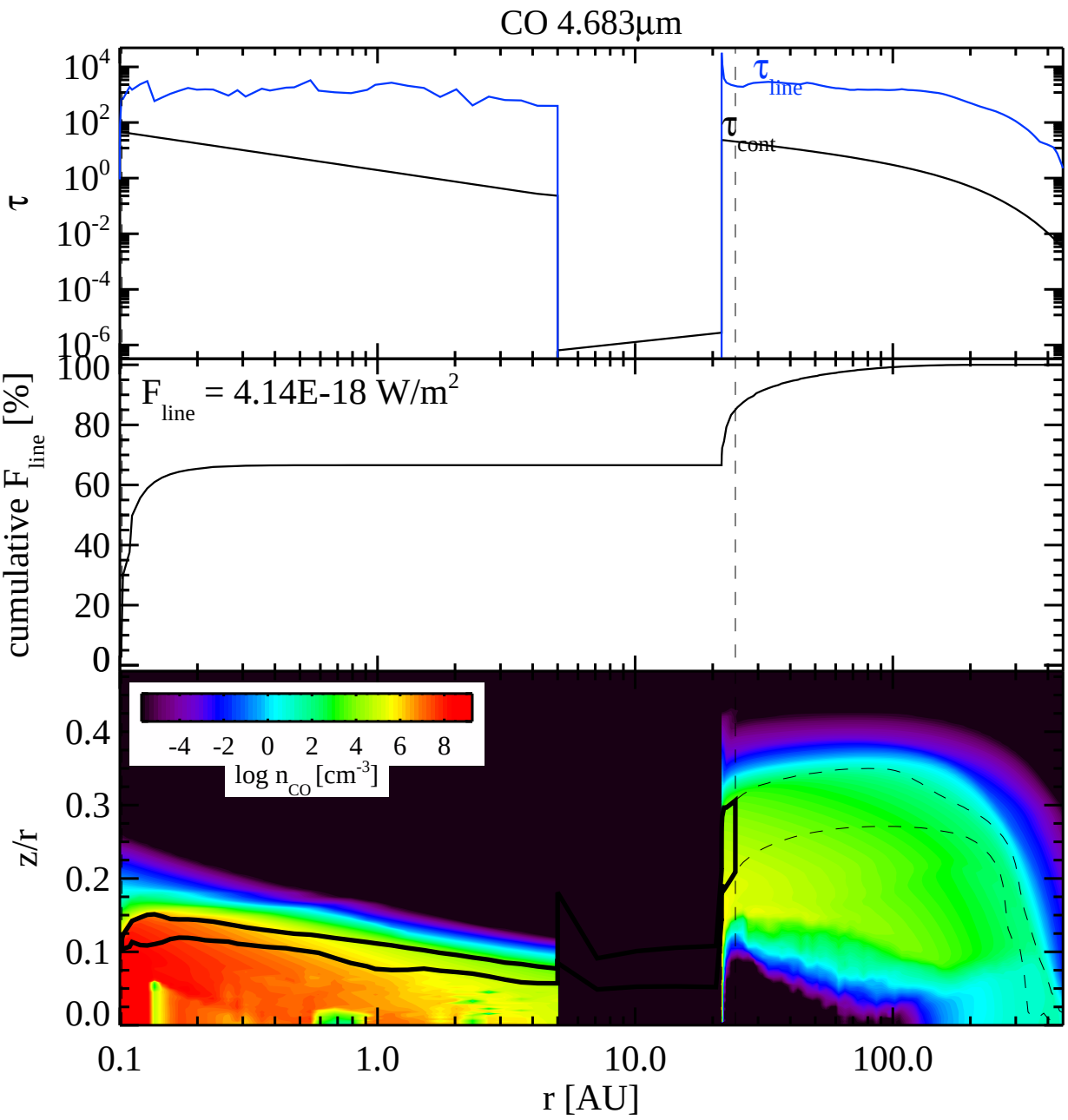

CO 79.36µm
τ
τ cont
τ line
cumulative F line [%]
F line = 1.44E-19 W/m2
log n CO [cm-3]
z/r
r [AU]

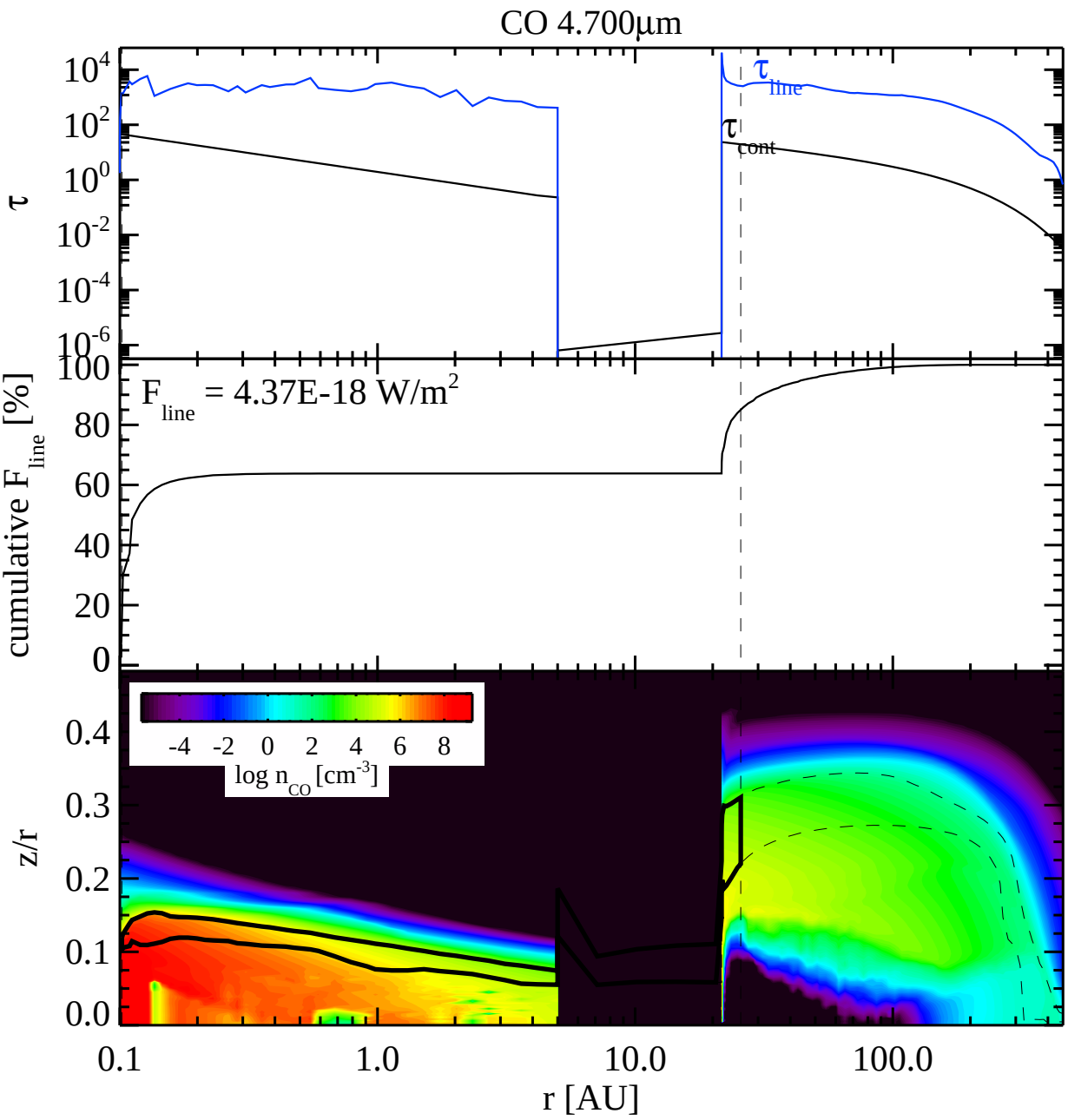

CO 72.84μm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ cont
τ line
cumulative F line [%]
100
80
60
40
20
0
F line = 4.30E-20 W/m²
z/r
0.4
0.3
0.2
0.1
0.0
-4 -2 0 2 4 6 8
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

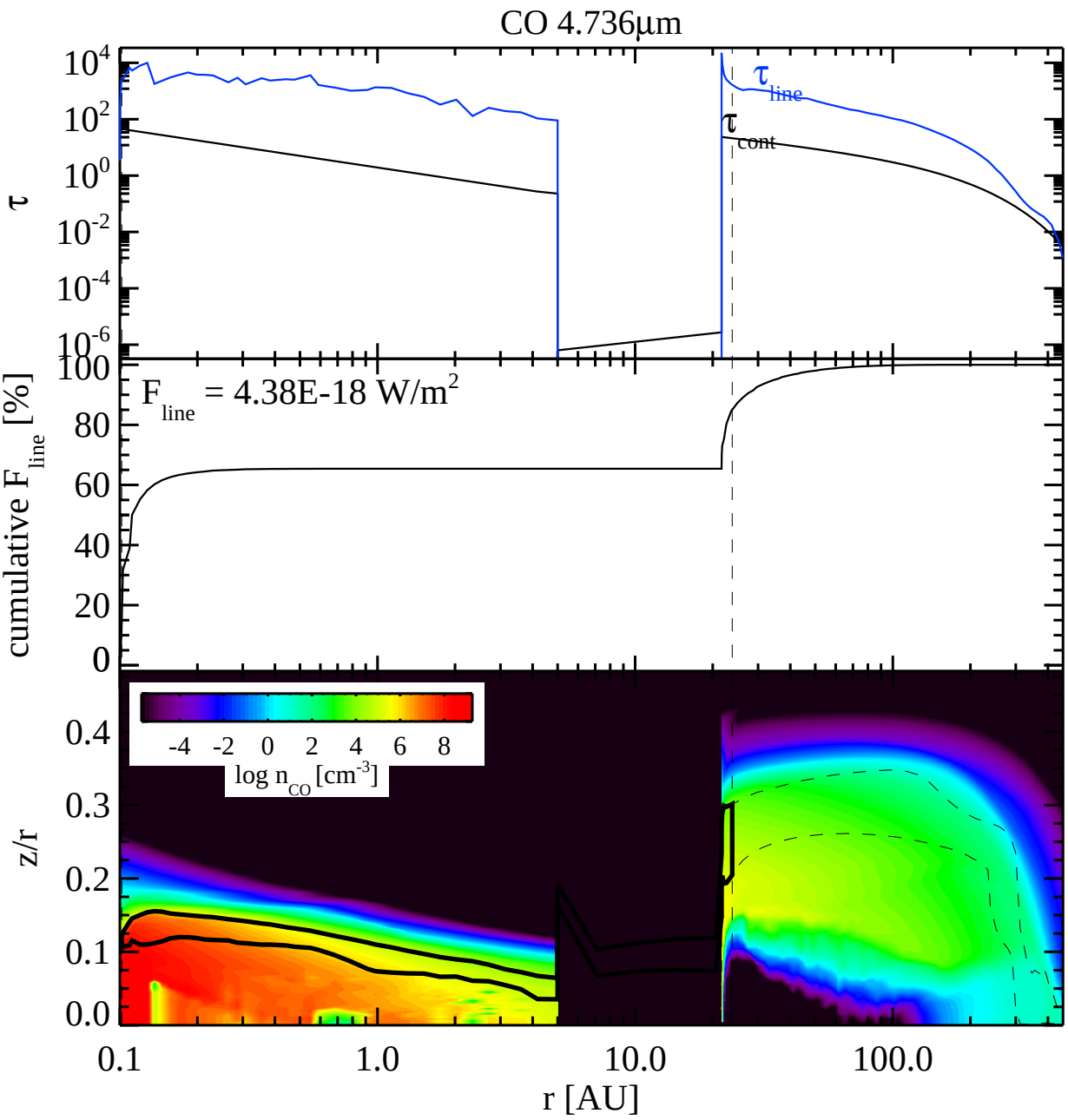

CO 4.633µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 3.99E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

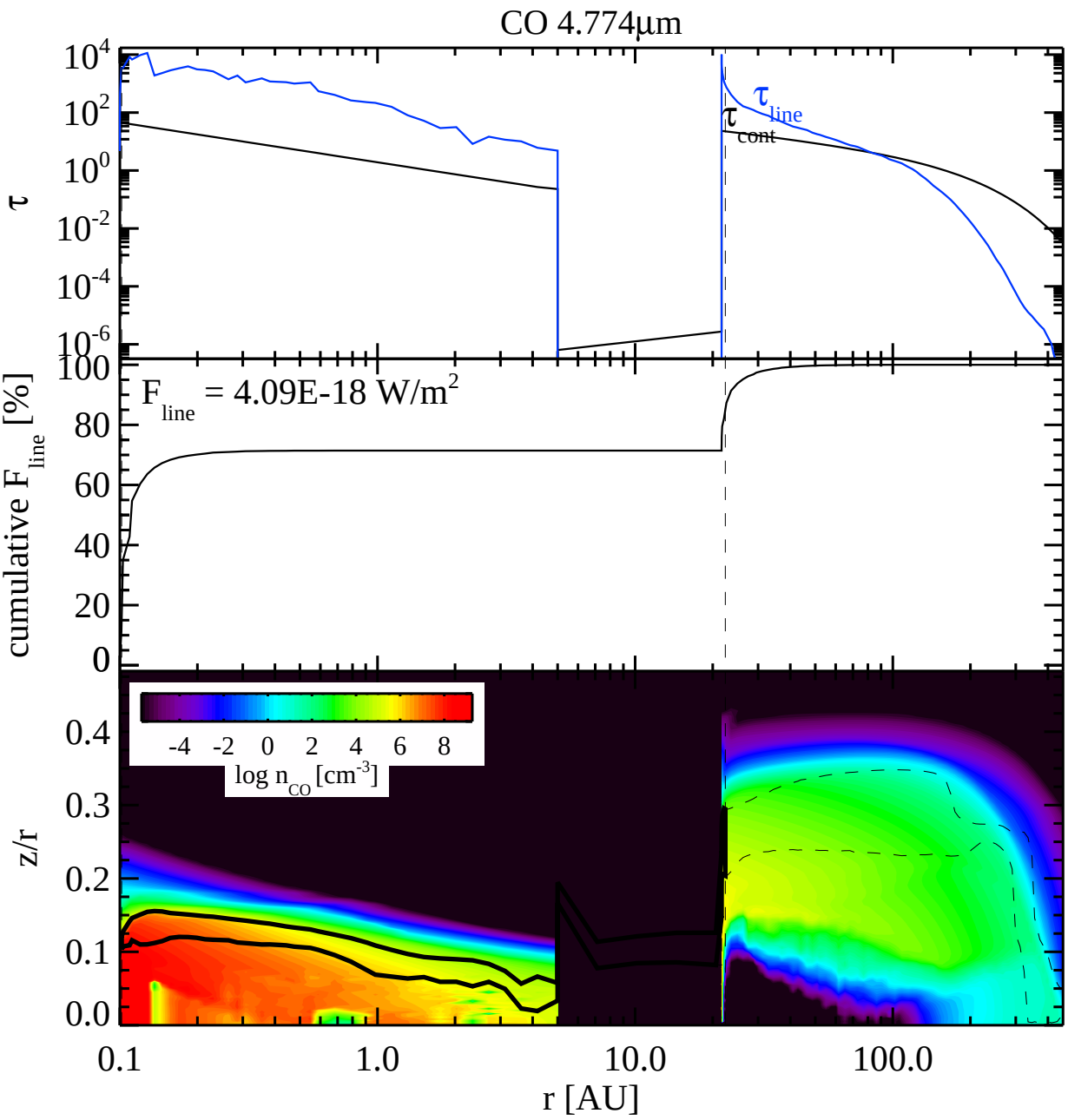

CO 4.657µm
τ
τ line
τ cont
cumulative F line [%]
F line = 4.00E-18 W/m2
log n CO [cm-3]
-4 -2 0 2 4 6 8
z/r
r [AU]
0.1
1.0
10.0
100.0

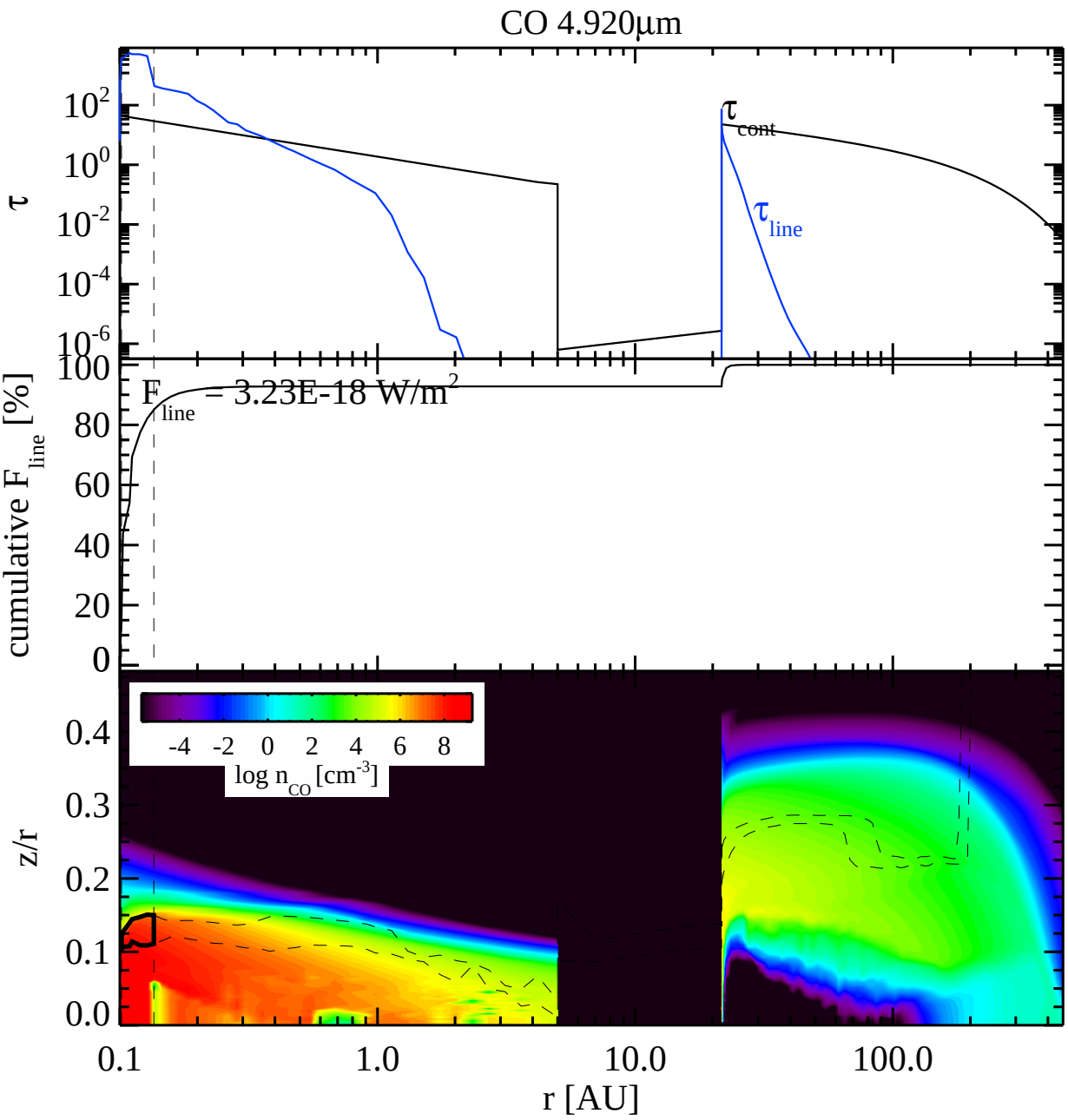

CO 4.674µm
τ
τ line
τ cont
cumulative F line [%]
F line = 3.98E-18 W/m2
log n CO [cm-3]
z/r
r [AU]

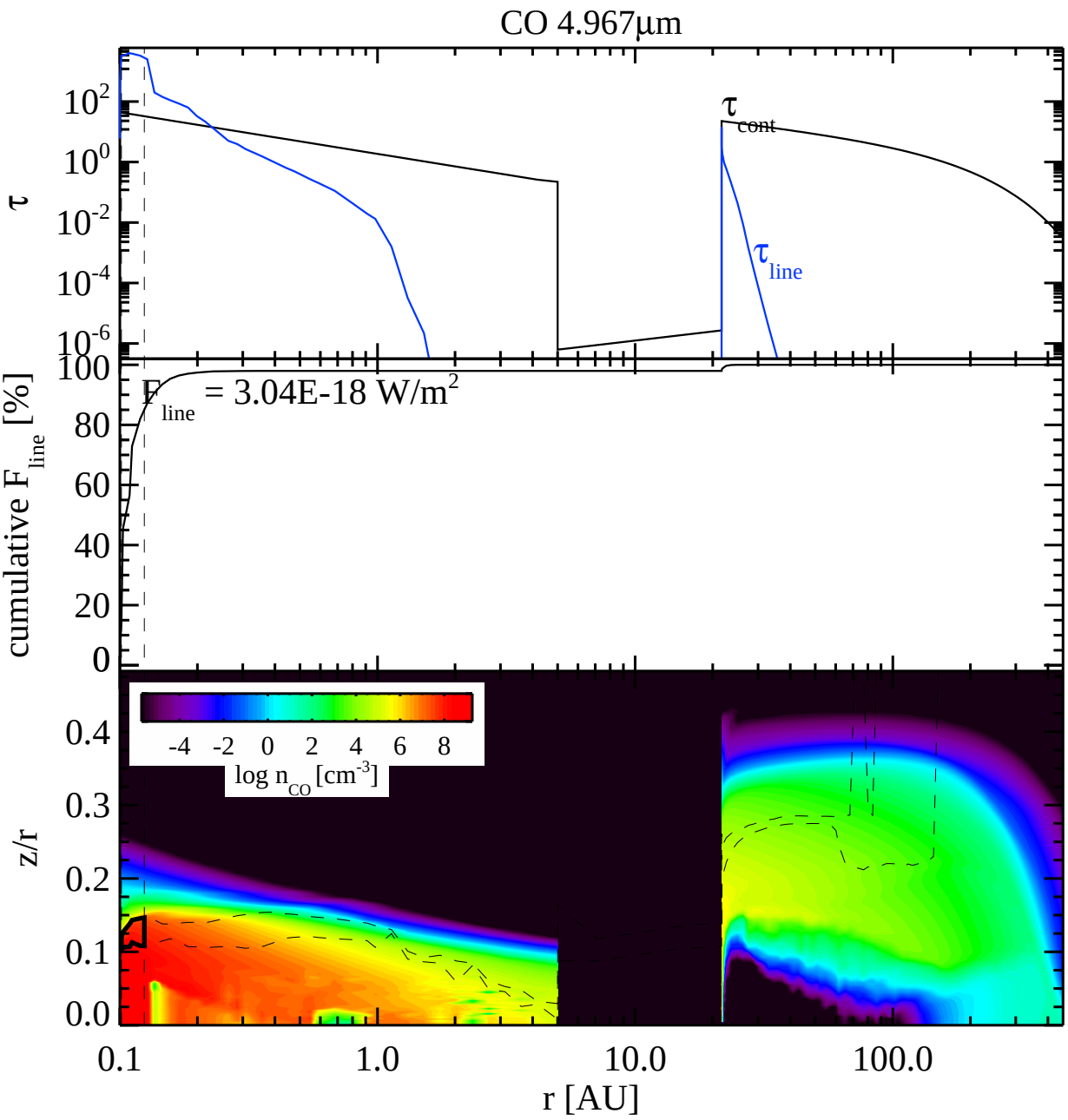

CO 4.683µm
τ
τ line
τ cont
cumulative F line [%]
F line = 4.14E-18 W/m2
log n CO [cm-3]
-4 -2 0 2 4 6 8
z/r
r [AU]
0.1
1.0
10.0
100.0

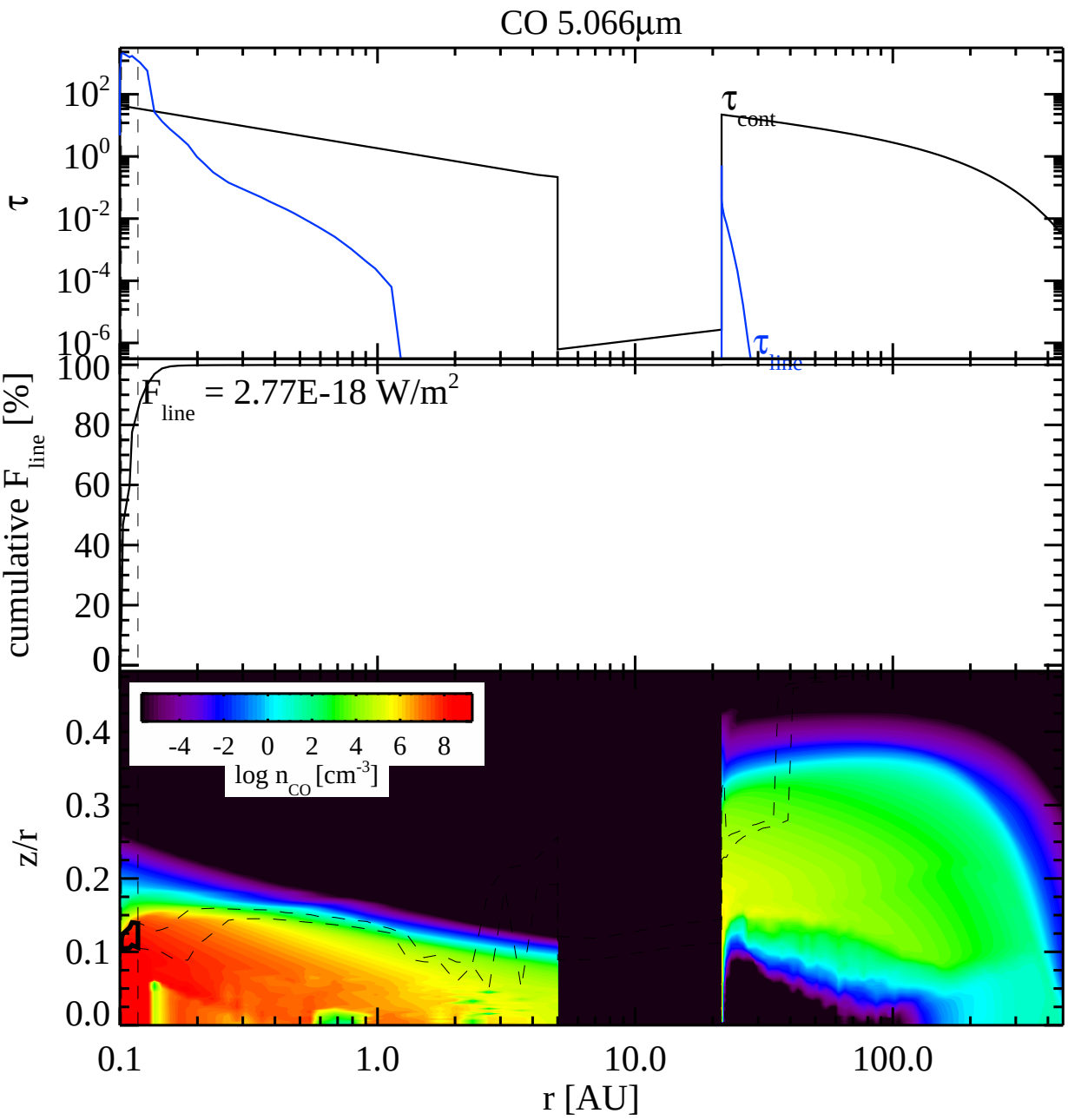

CO 4.700µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 4.37E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

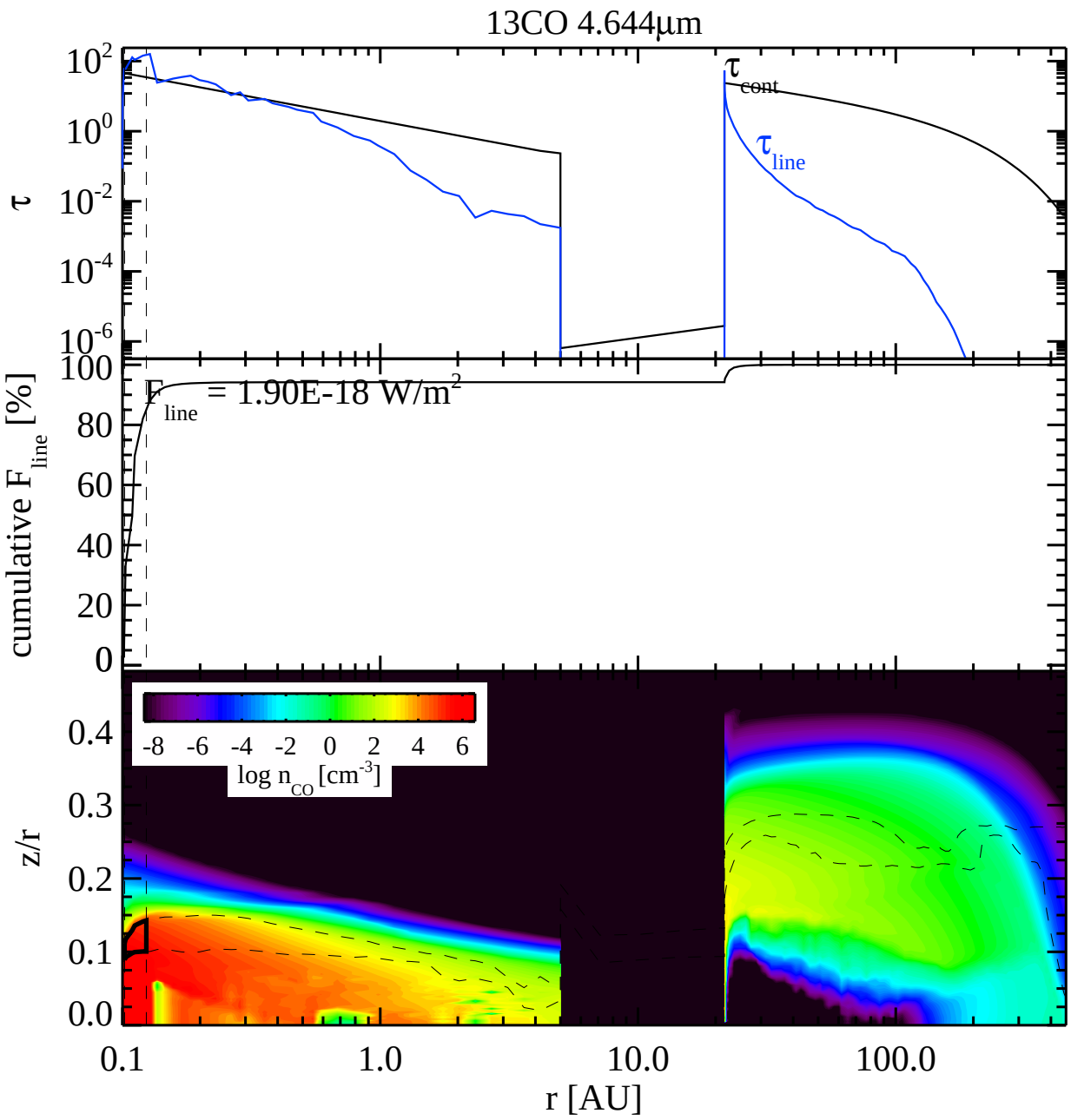

CO 4.736µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 4.38E-18 W/m^2
z/r
0.4
0.3
0.2
0.1
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

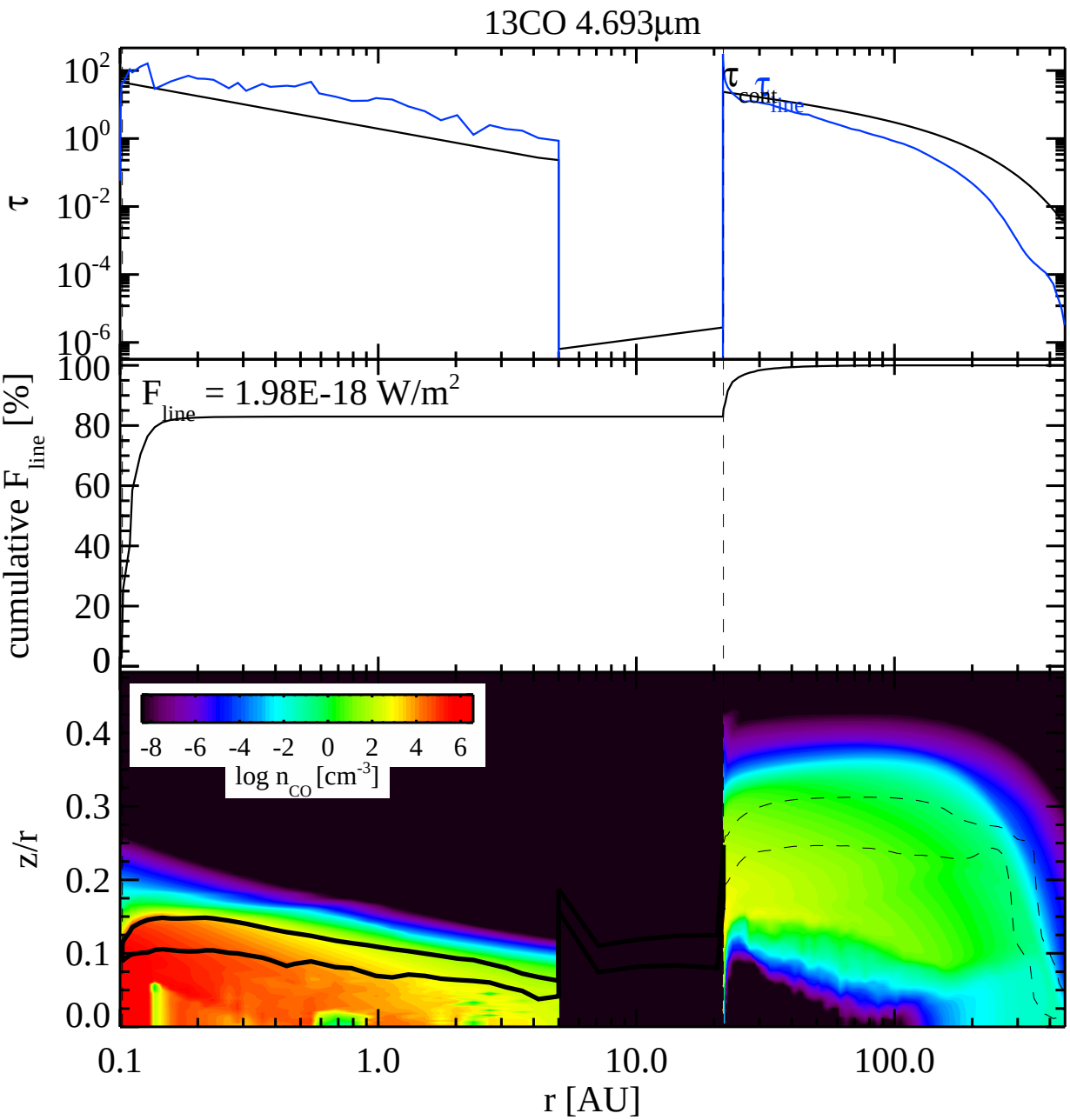

CO 4.774µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 4.09E-18 W/m^2
z/r
0.4
0.3
0.2
0.1
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

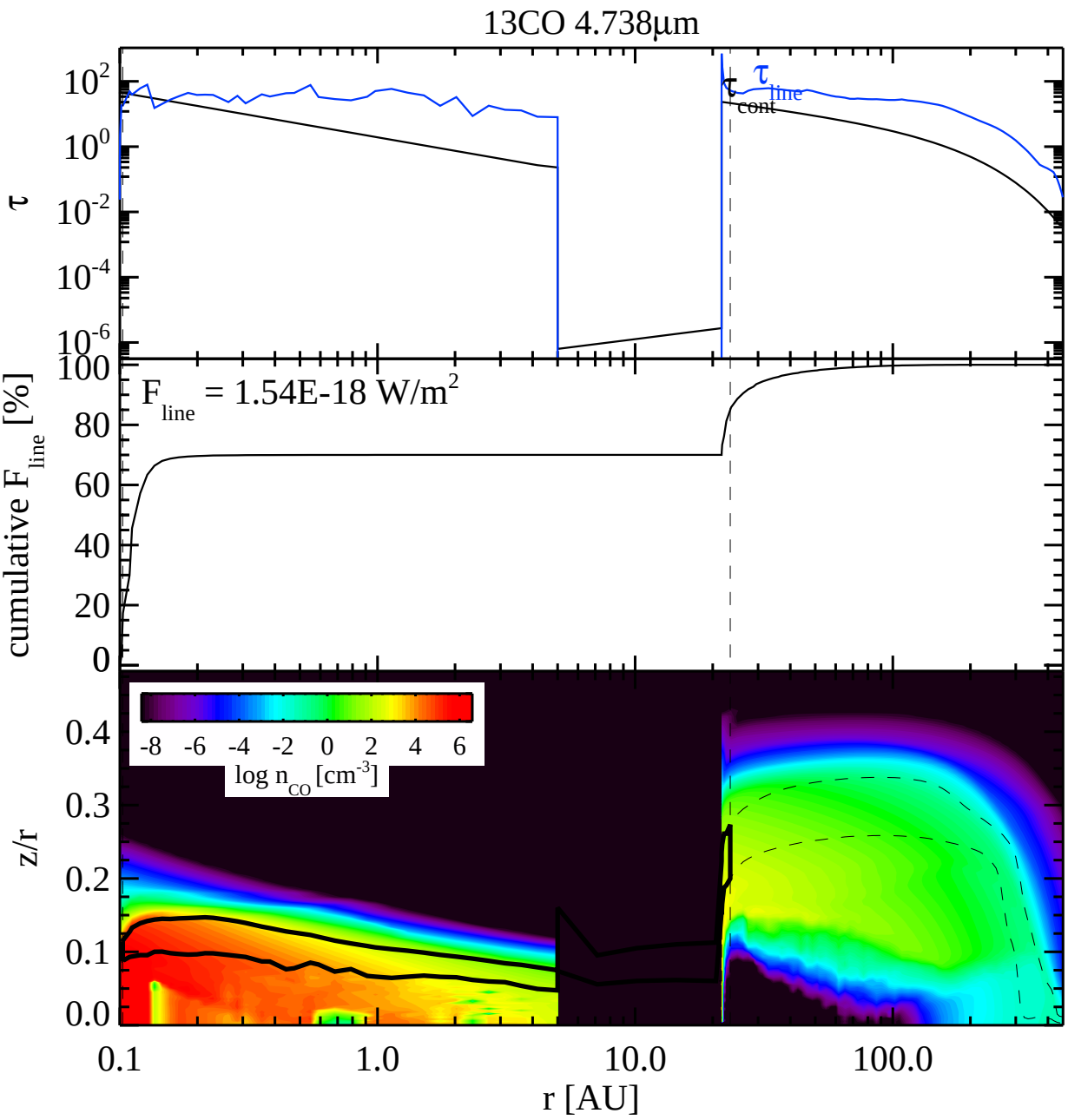

CO 4.920µm
τ
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 3.23E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

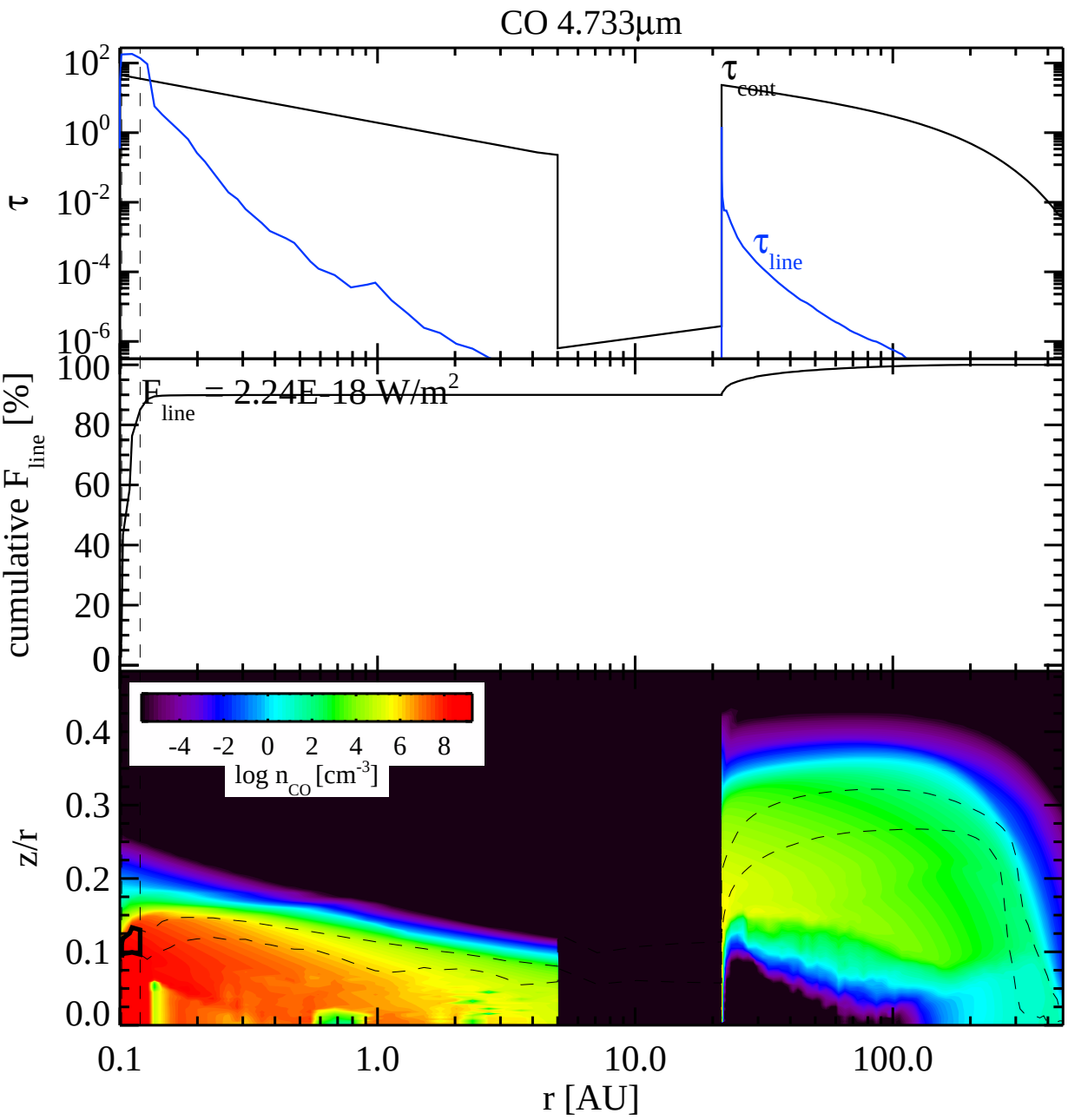

CO 4.967µm
τ
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 3.04E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

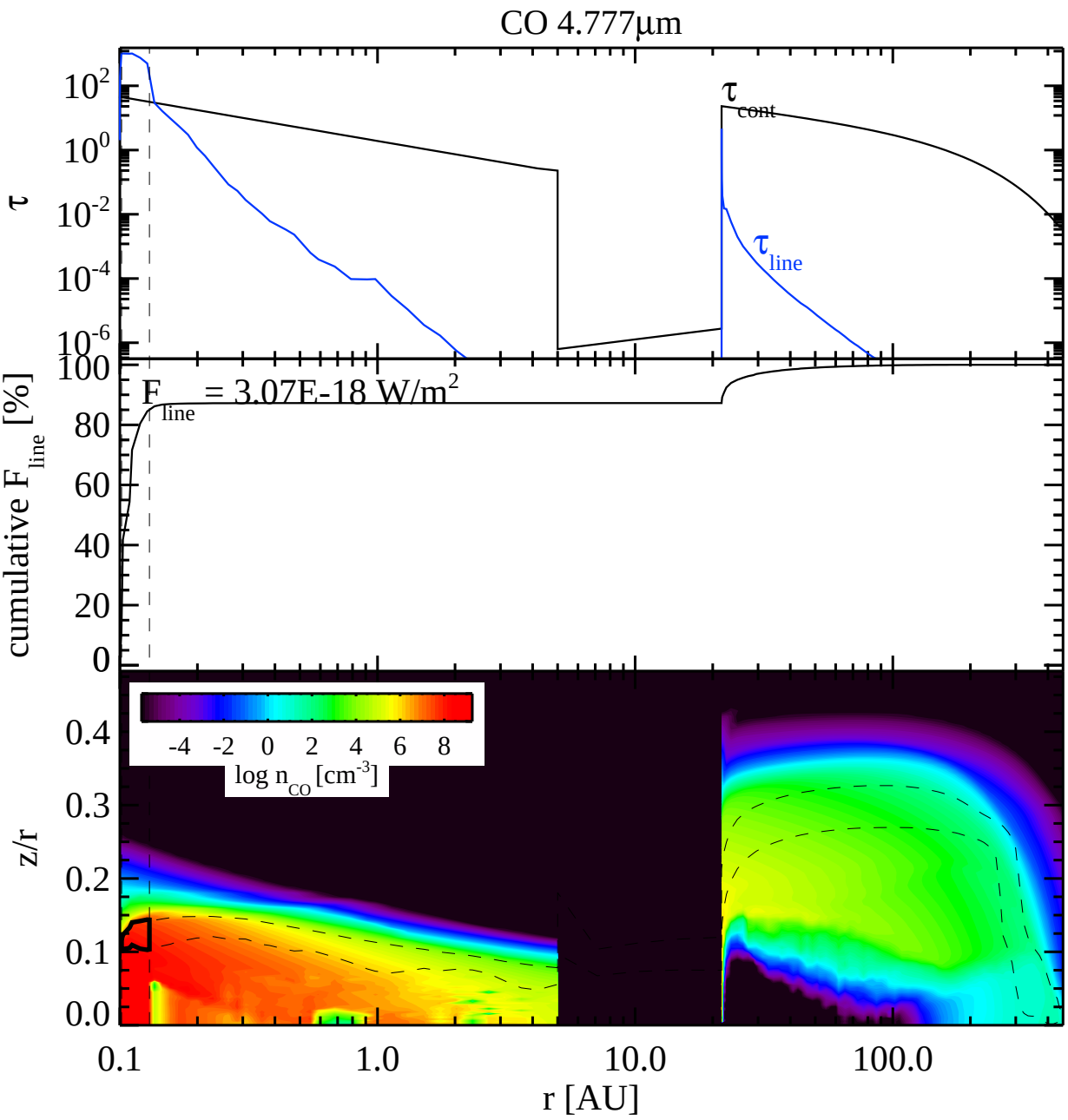

CO 5.066µm
τ
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.77E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

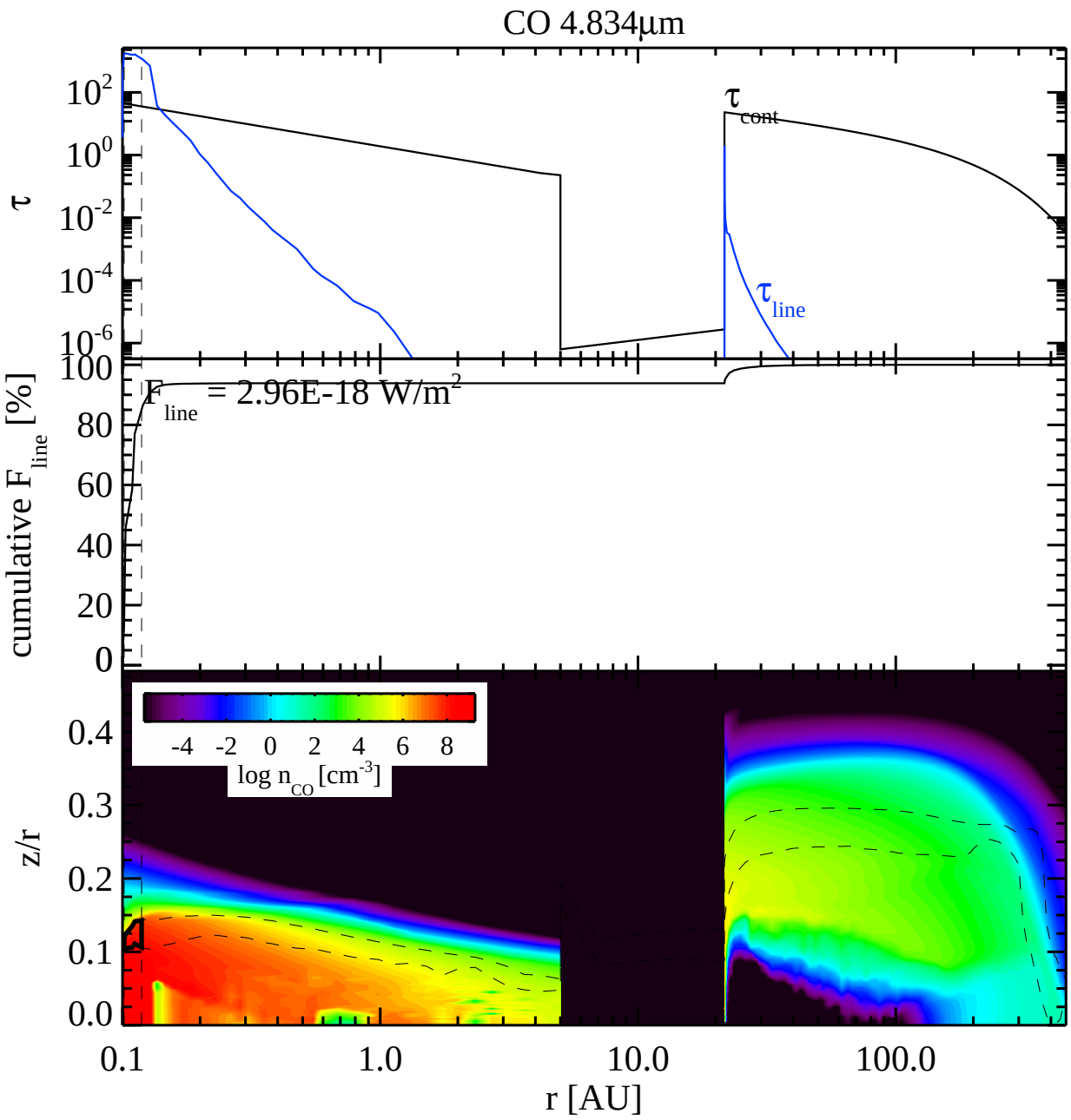

13CO 4.644µm
τ
τ cont
τ line
cumulative F line [%]
F line = 1.90E-18 W/m2
log n CO [cm-3]
-8 -6 -4 -2 0 2 4 6
z/r
r [AU]
0.1
1.0
10.0
100.0

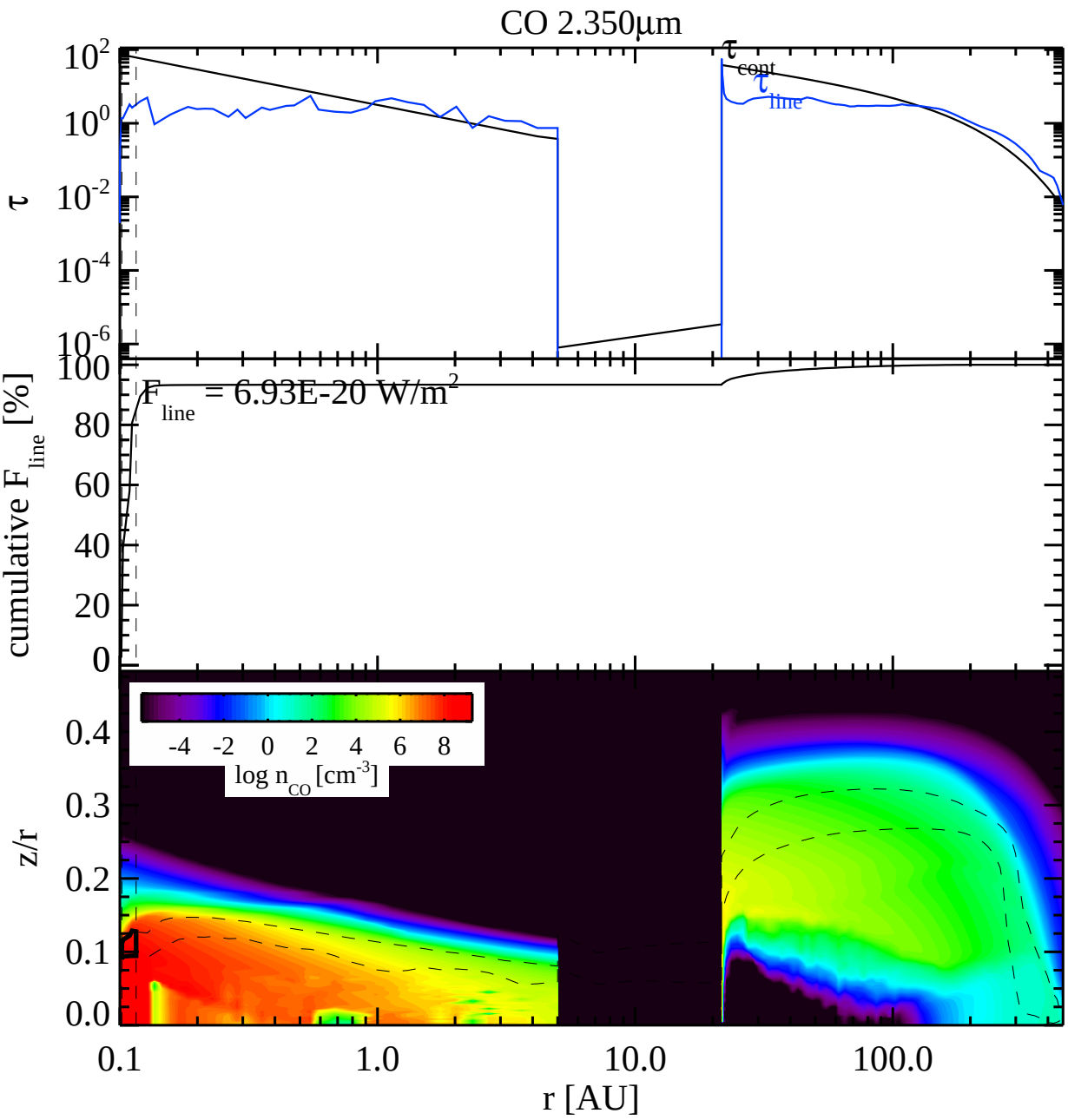

13CO 4.693µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.98E-18 W/m^2
-8 -6 -4 -2 0 2 4 6
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

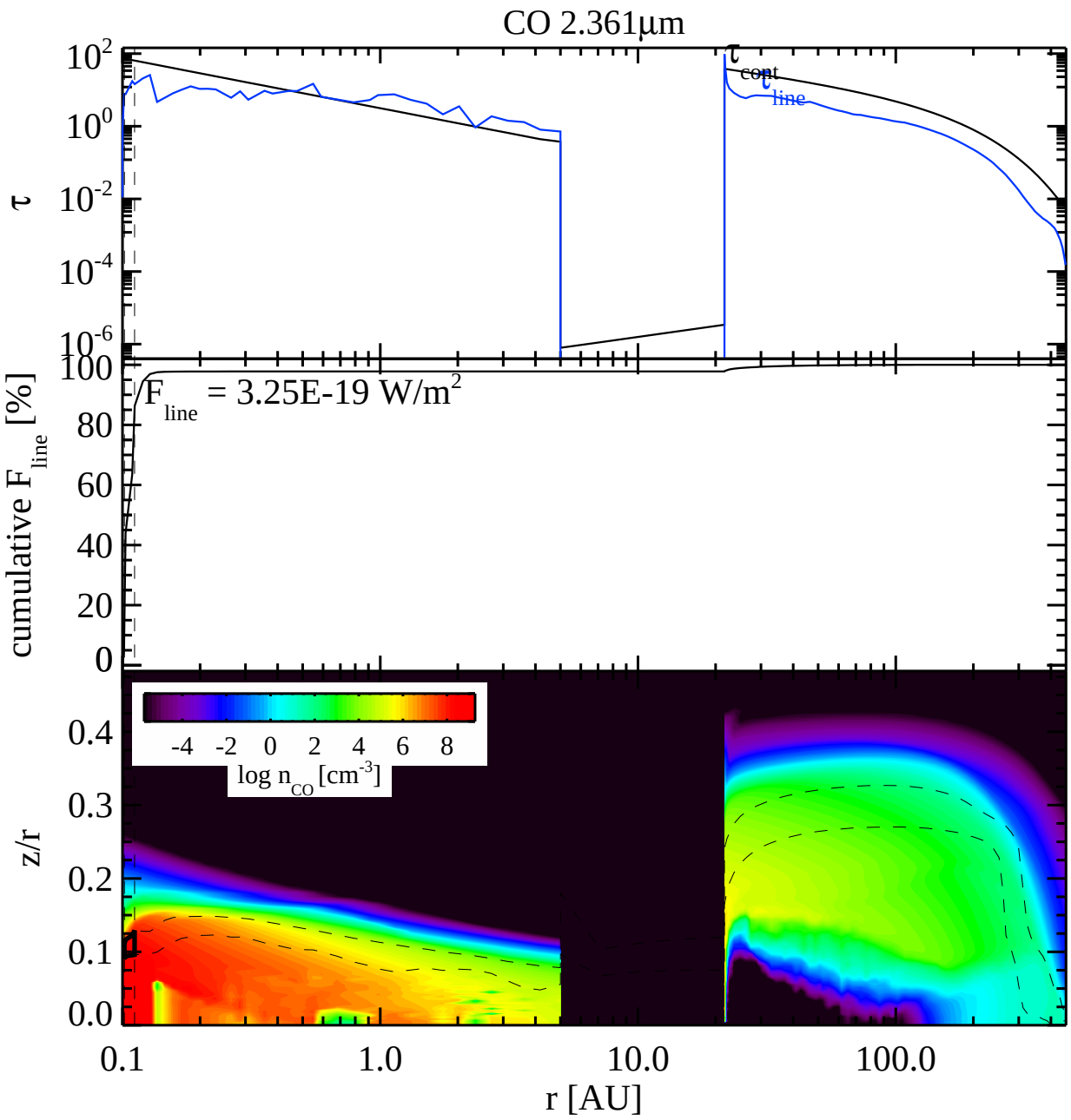

13CO 4.738µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.54E-18 W/m^2
-8 -6 -4 -2 0 2 4 6
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

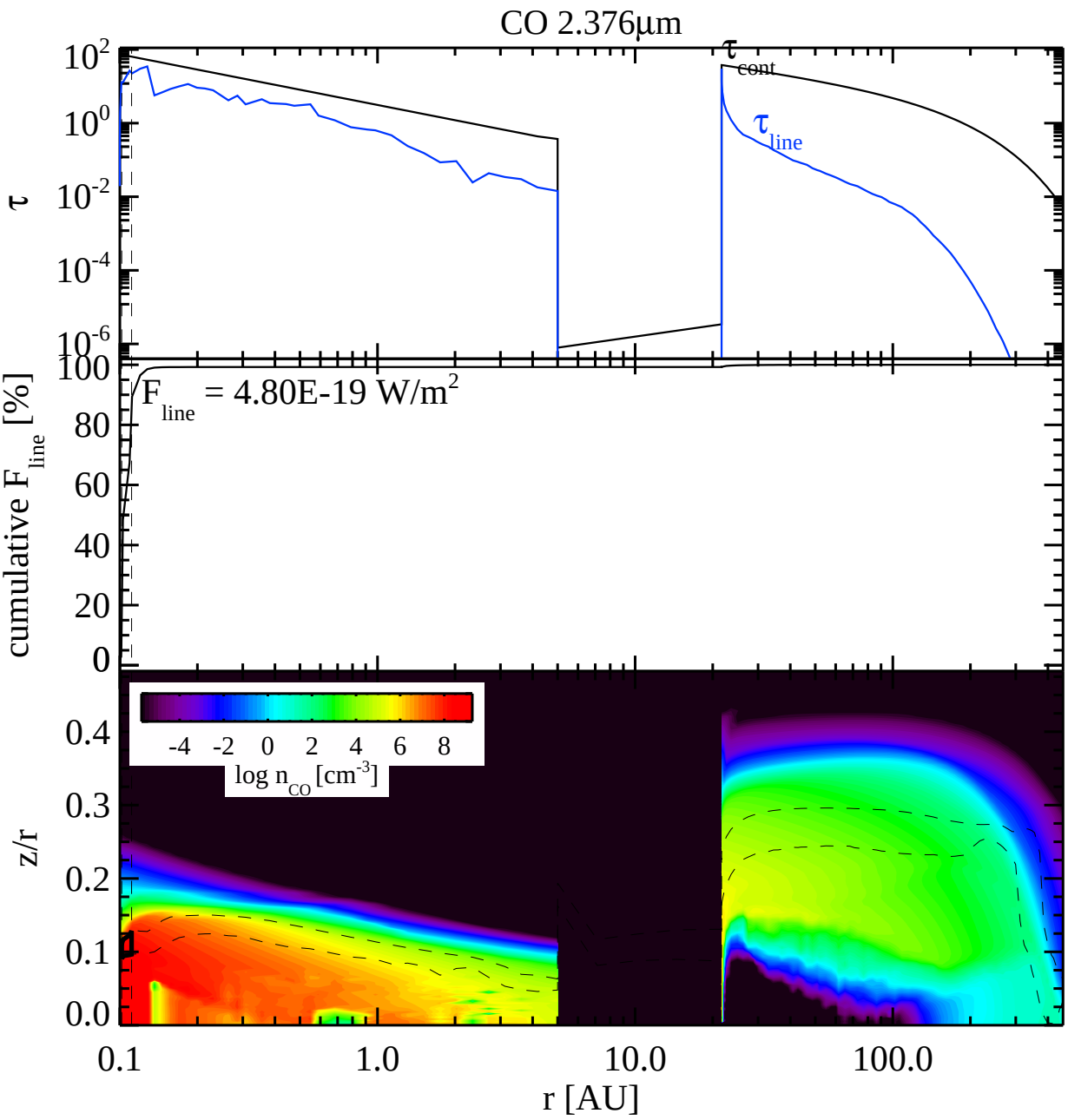

CO 4.733µm
τ
τ cont
τ line
cumulative F line [%]
F line = 2.24E-18 W/m2
log n CO [cm-3]
-4 -2 0 2 4 6 8
z/r
r [AU]
0.1
1.0
10.0
100.0

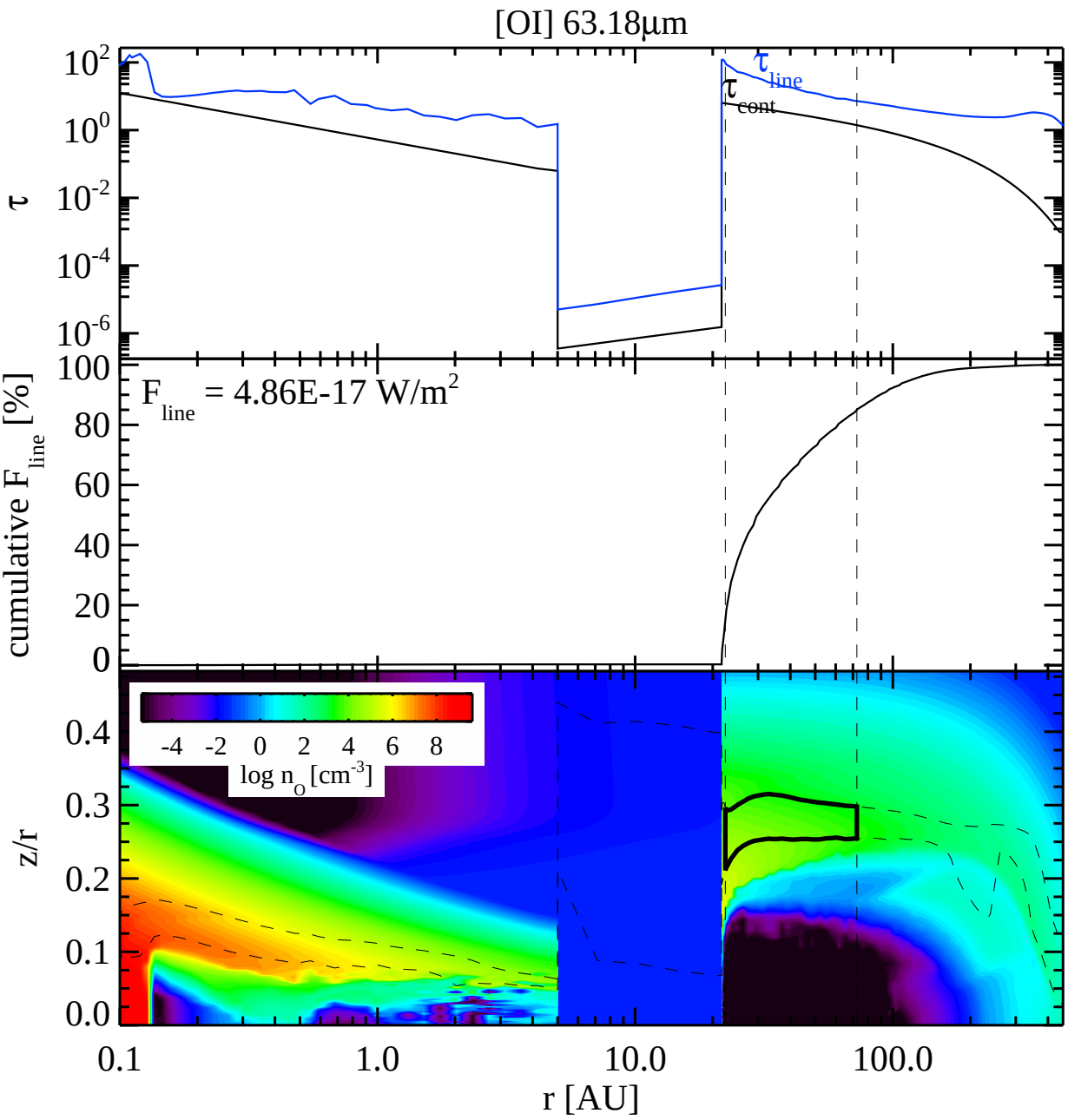

CO 4.777µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 3.07E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

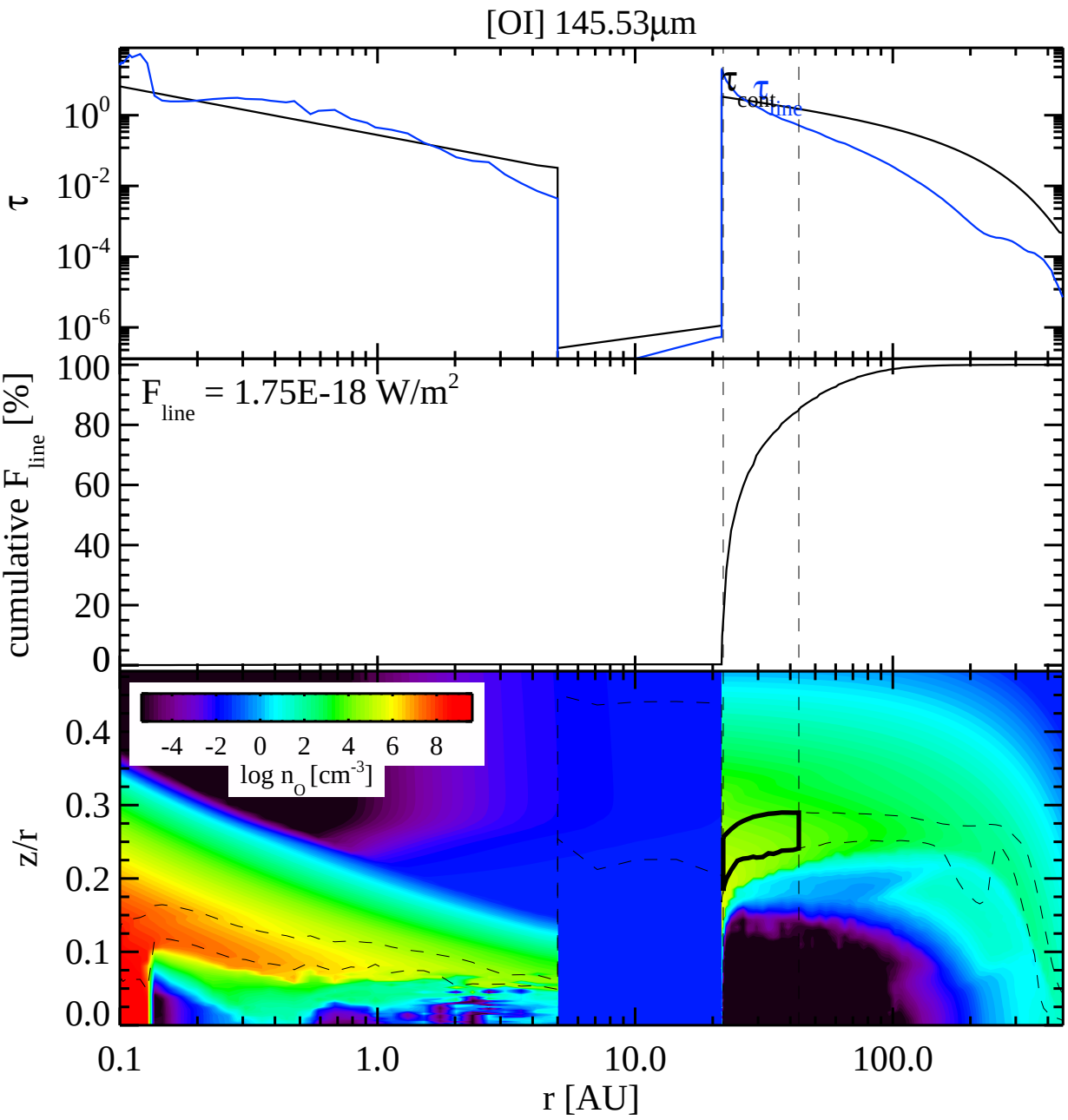

CO 4.834µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.96E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

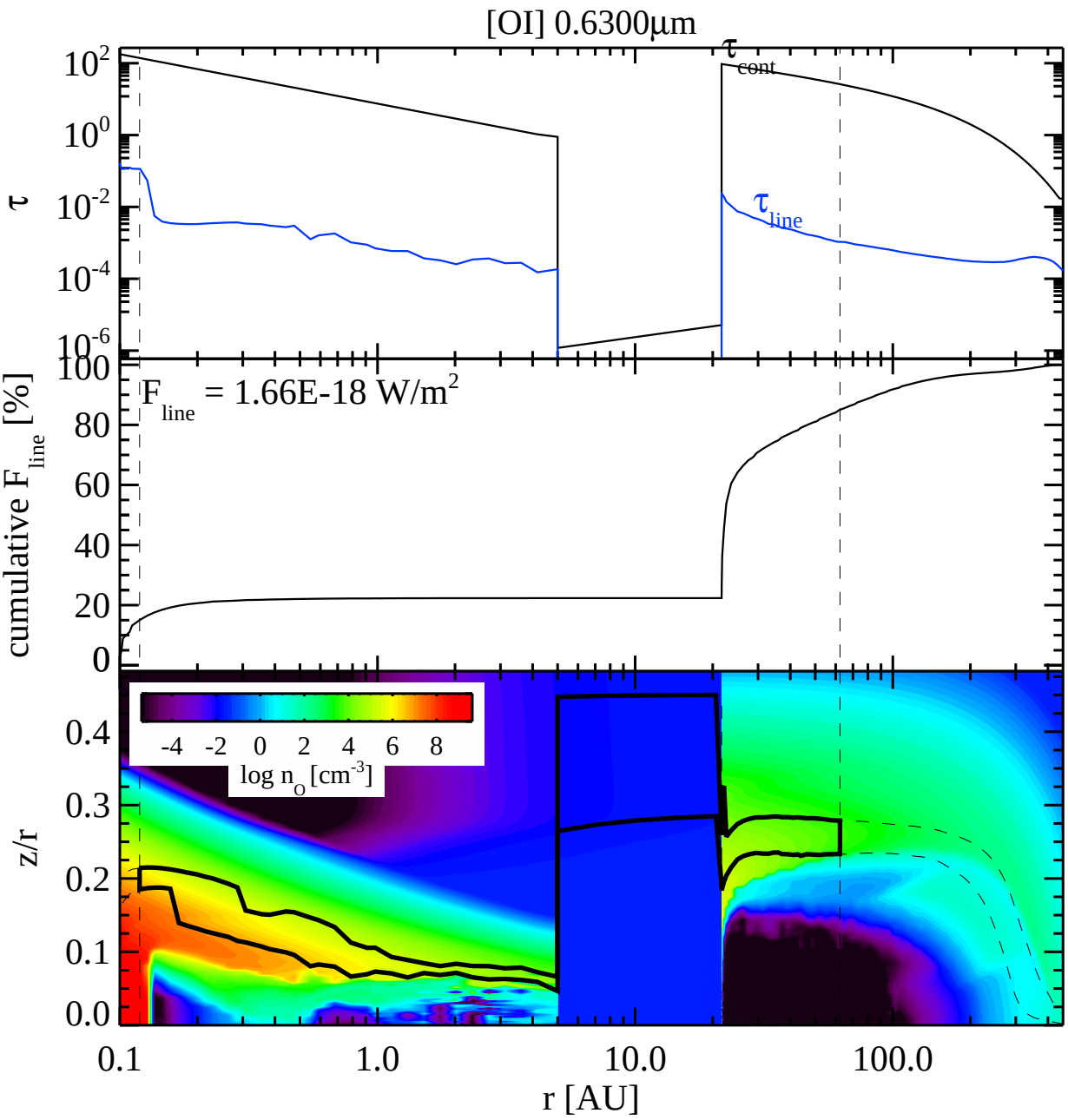

CO 2.350µm
τ
τ cont
τ line
cumulative F line [%]
F line = 6.93E-20 W/m2
log n CO [cm-3]
z/r
r [AU]

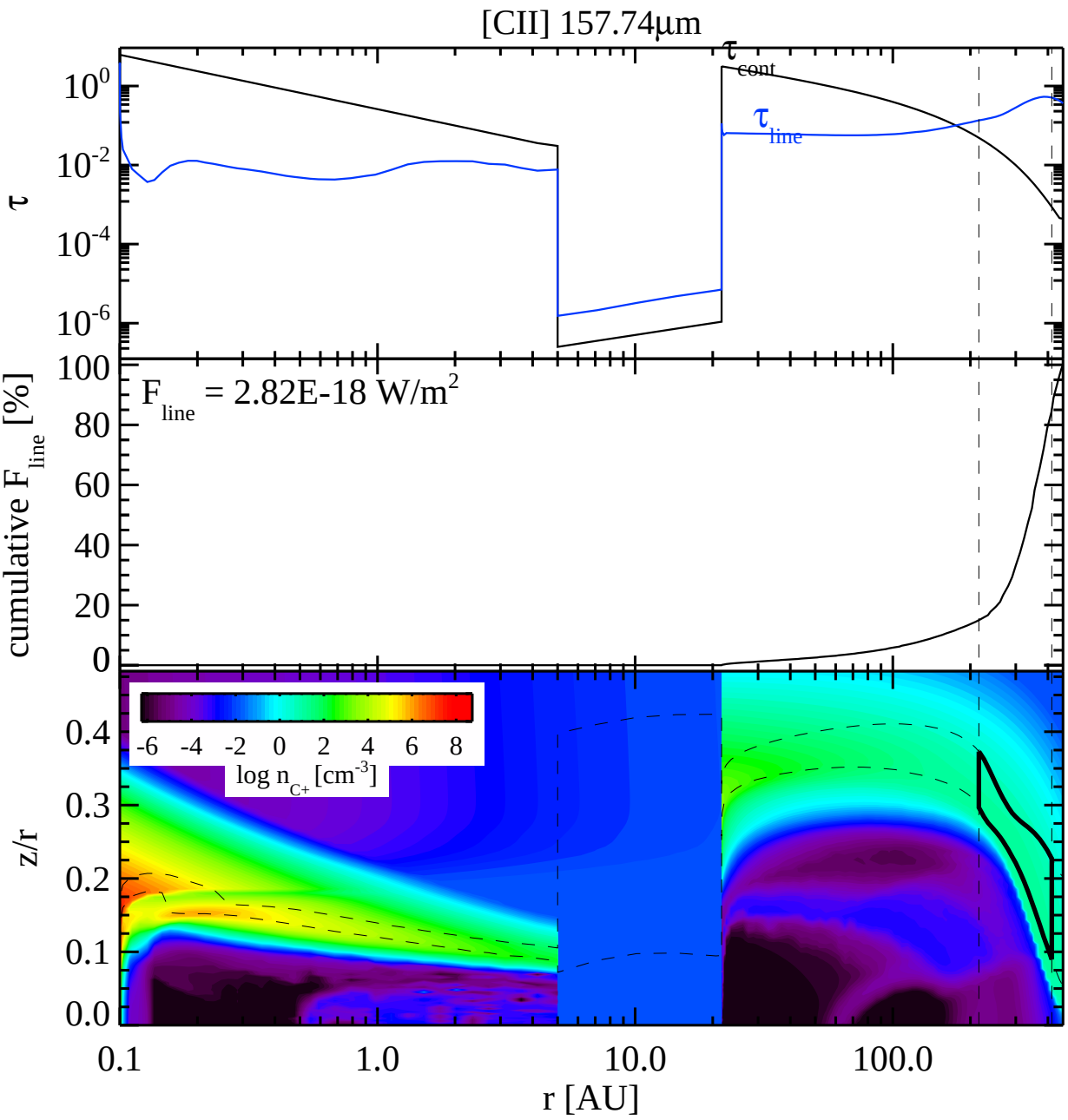

CO 2.361µm
τ
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 3.25E-19 W/m^2
log n_{CO} [cm^{-3}]
z/r
r [AU]

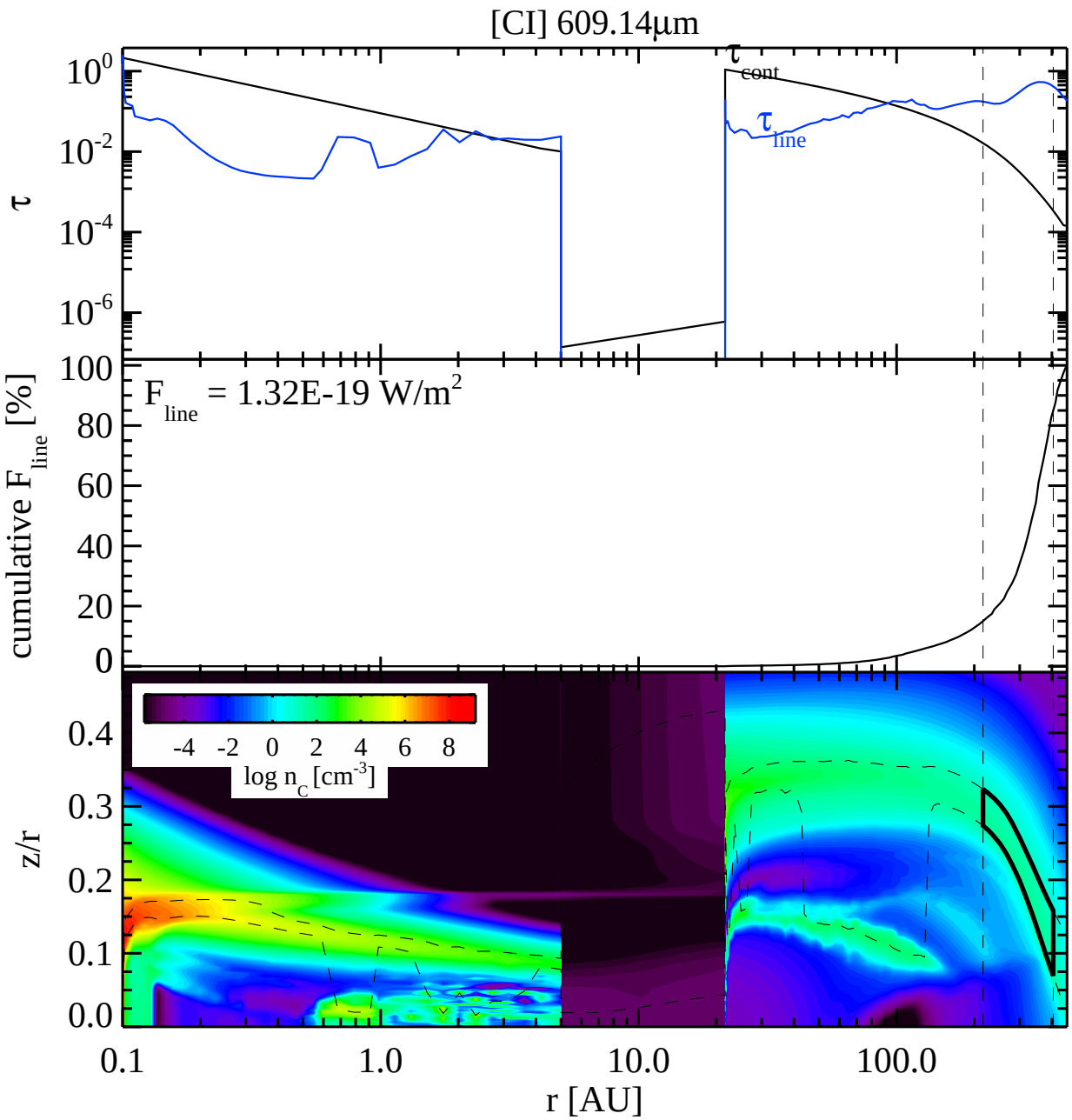

CO 2.376µm
τ
τ cont
τ line
cumulative F line [%]
F line = 4.80E-19 W/m2
log n CO [cm-3]
-4 -2 0 2 4 6 8
z/r
r [AU]
0.1
1.0
10.0
100.0

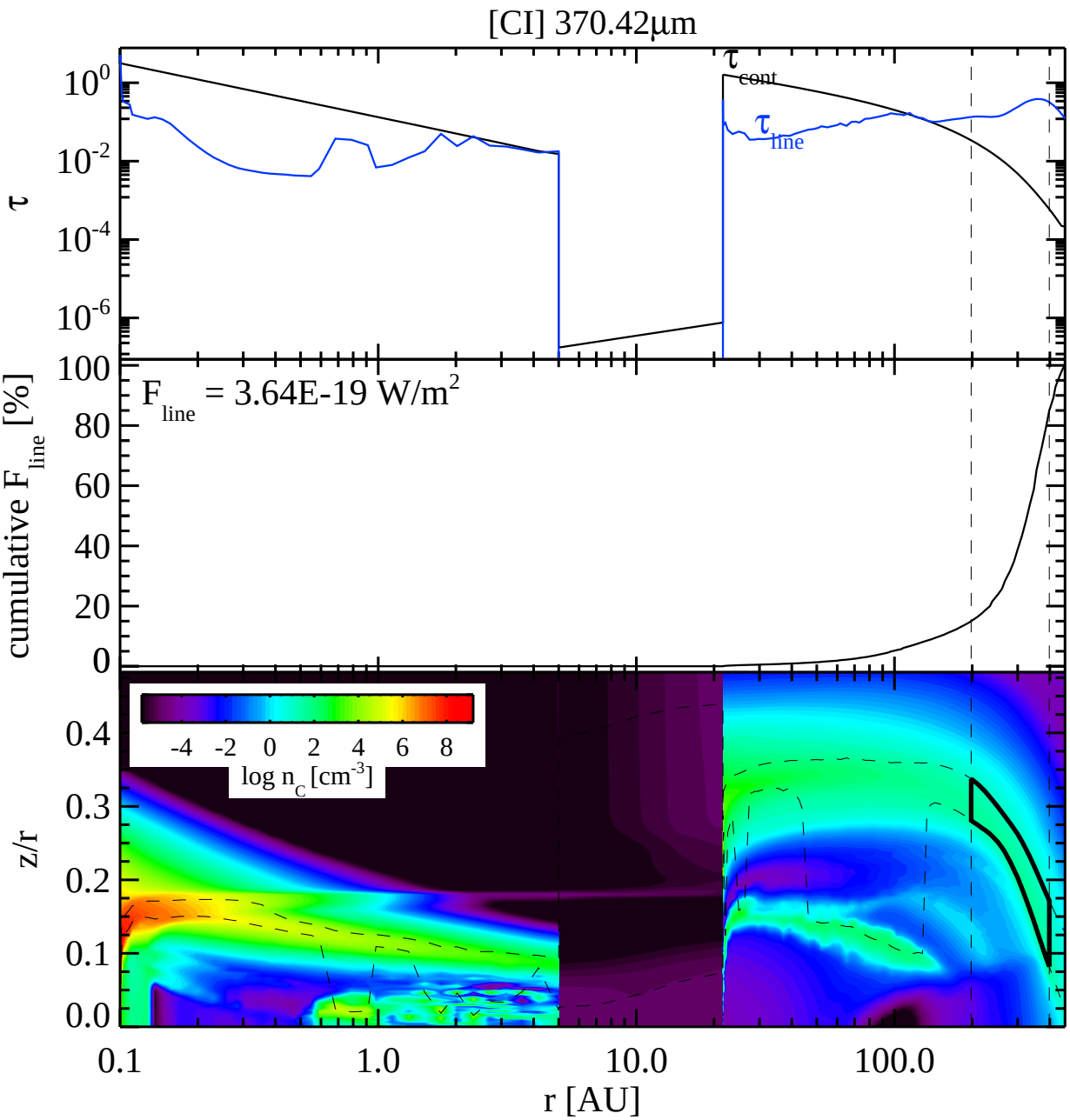

[OI] 63.18µm
τ
τ line
τ cont
cumulative F line [%]
F line = 4.86E-17 W/m2
log n O [cm-3]
-4 -2 0 2 4 6 8
z/r
r [AU]
0.1
1.0
10.0
100.0

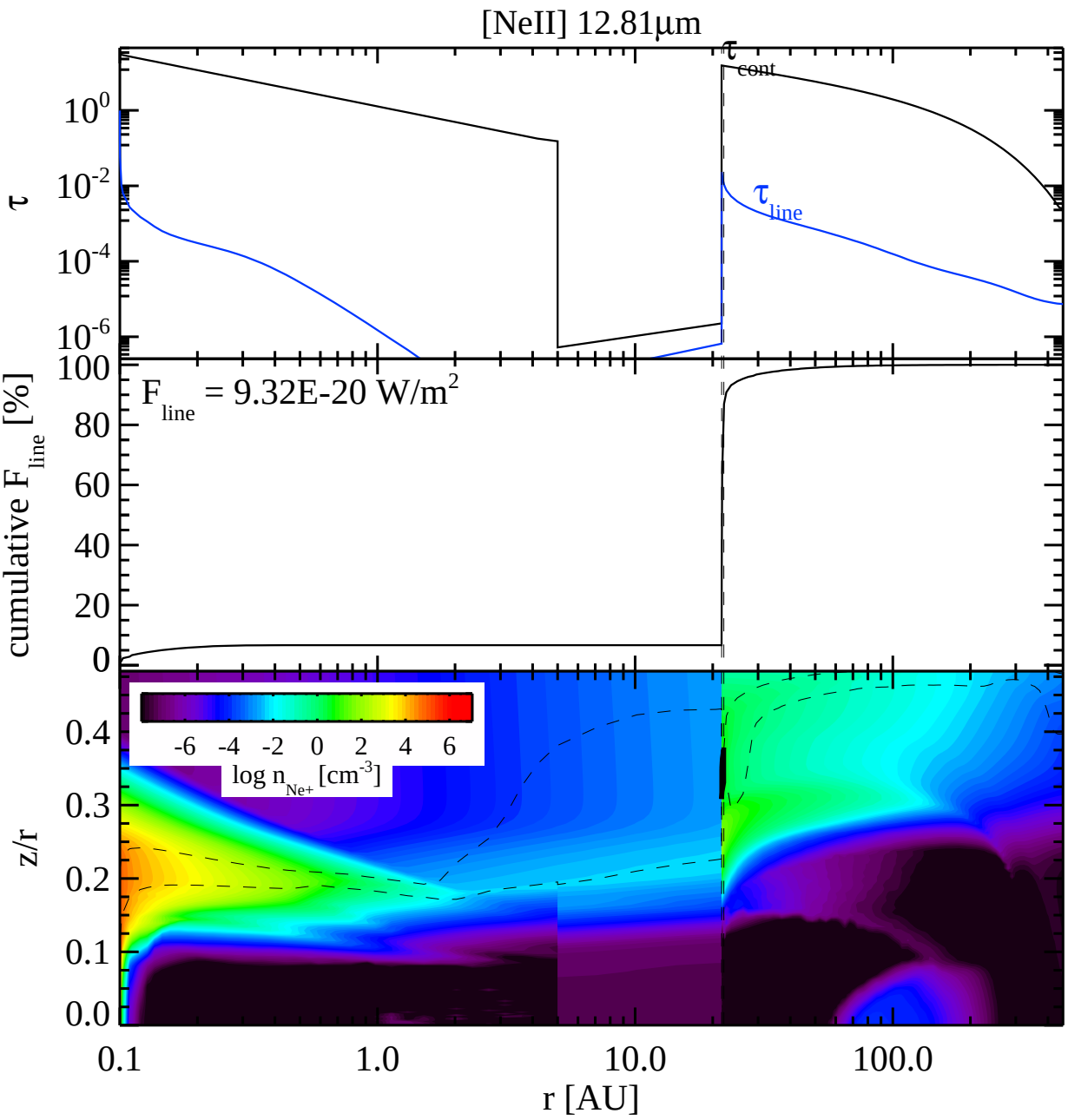

[OI] 145.53µm
τ
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.75E-18 W/m^2
z/r
0.4
0.3
0.2
0.1
0.0
-4 -2 0 2 4 6 8
log n_O [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

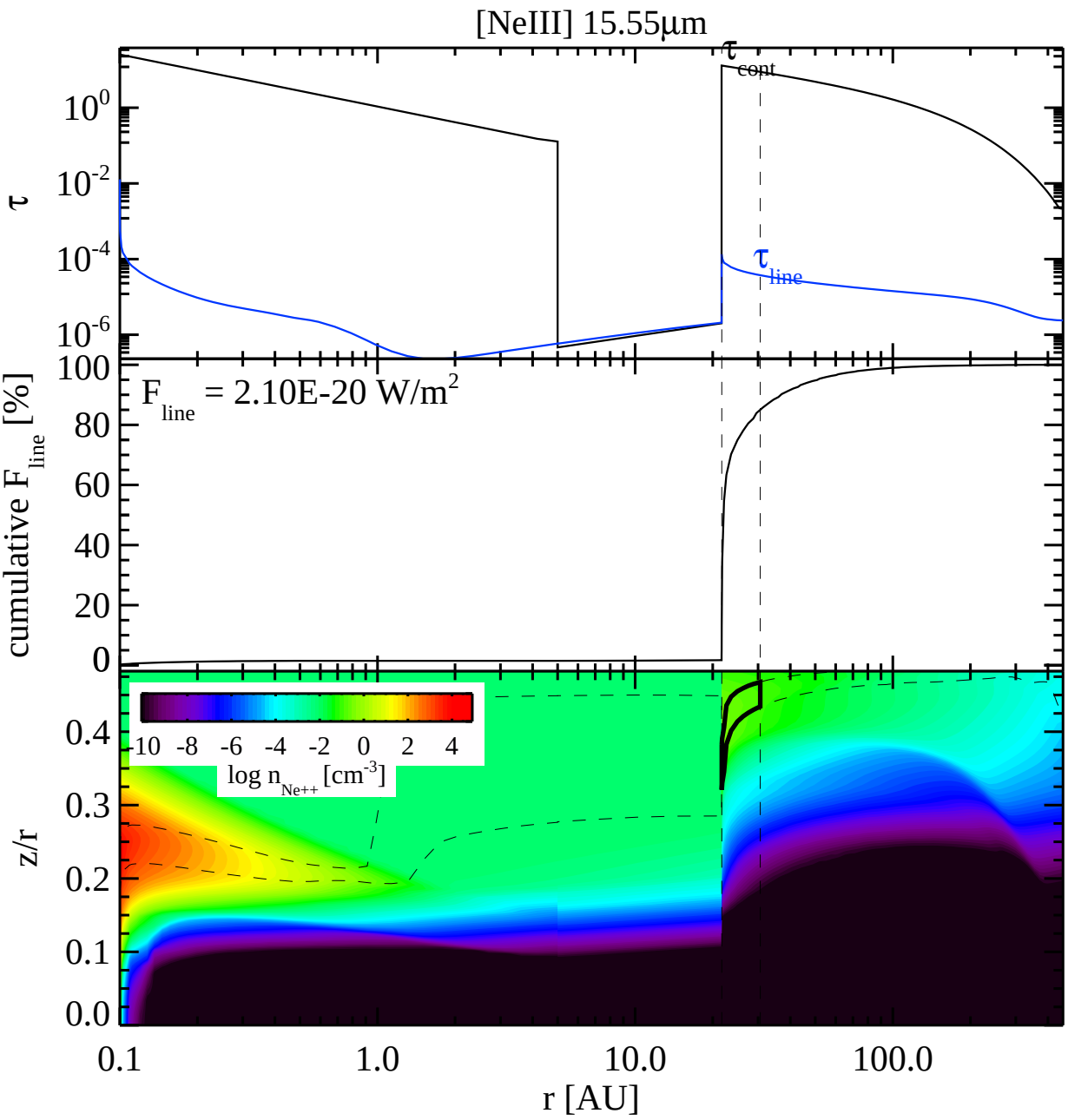

[OI] 0.6300µm
τ
τ cont
τ line
F line = 1.66E-18 W/m2
cumulative F line [%]
log n O [cm-3]
z/r
r [AU]

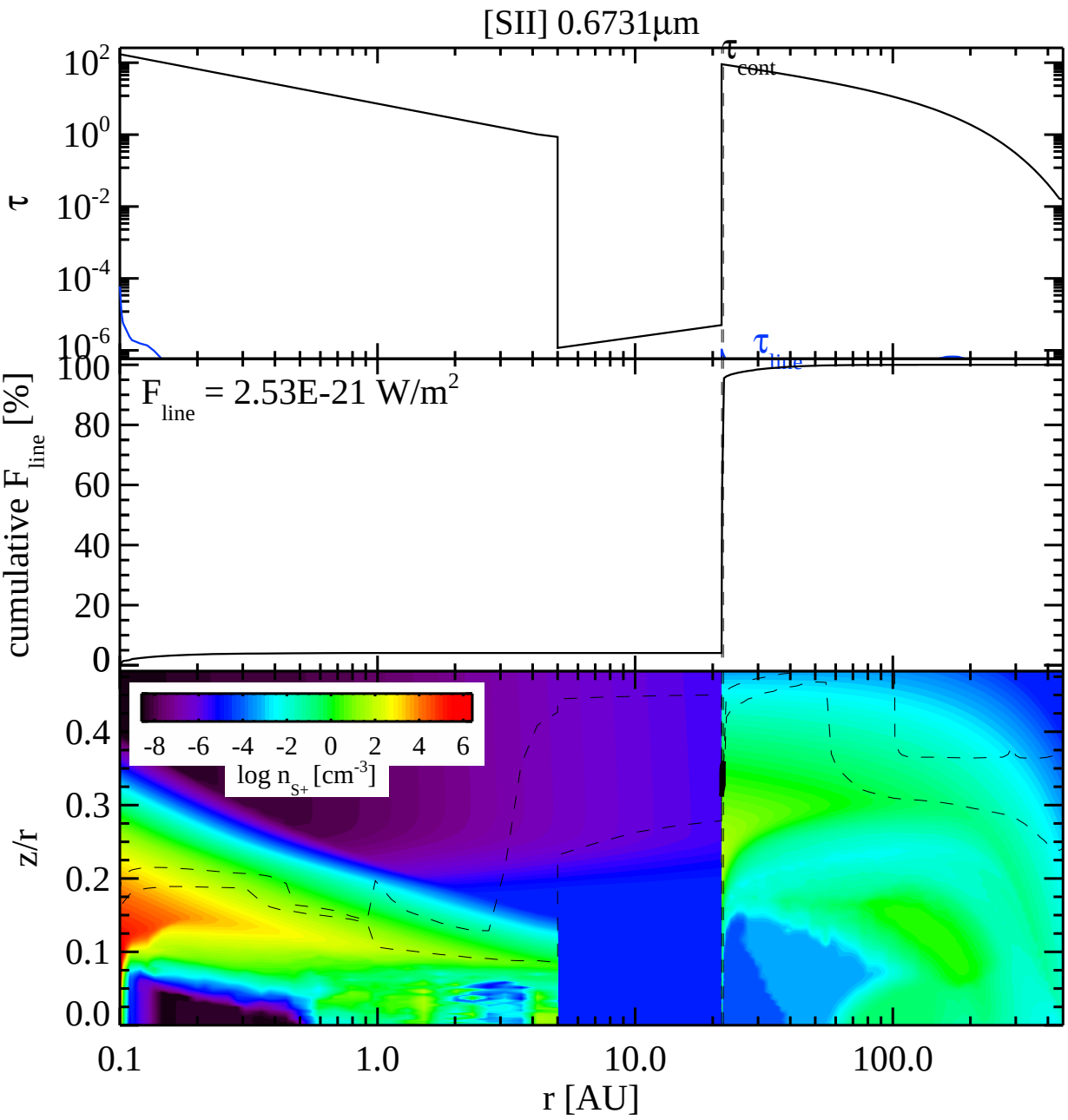

[CII] 157.74µm
τ
cont
τ
line
τ
10^0
10^-2
10^-4
10^-6
F
line
= 2.82E-18 W/m^2
cumulative F
line
[%]
100
80
60
40
20
0
log n
C+
[cm^-3]
-6 -4 -2 0 2 4 6 8
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

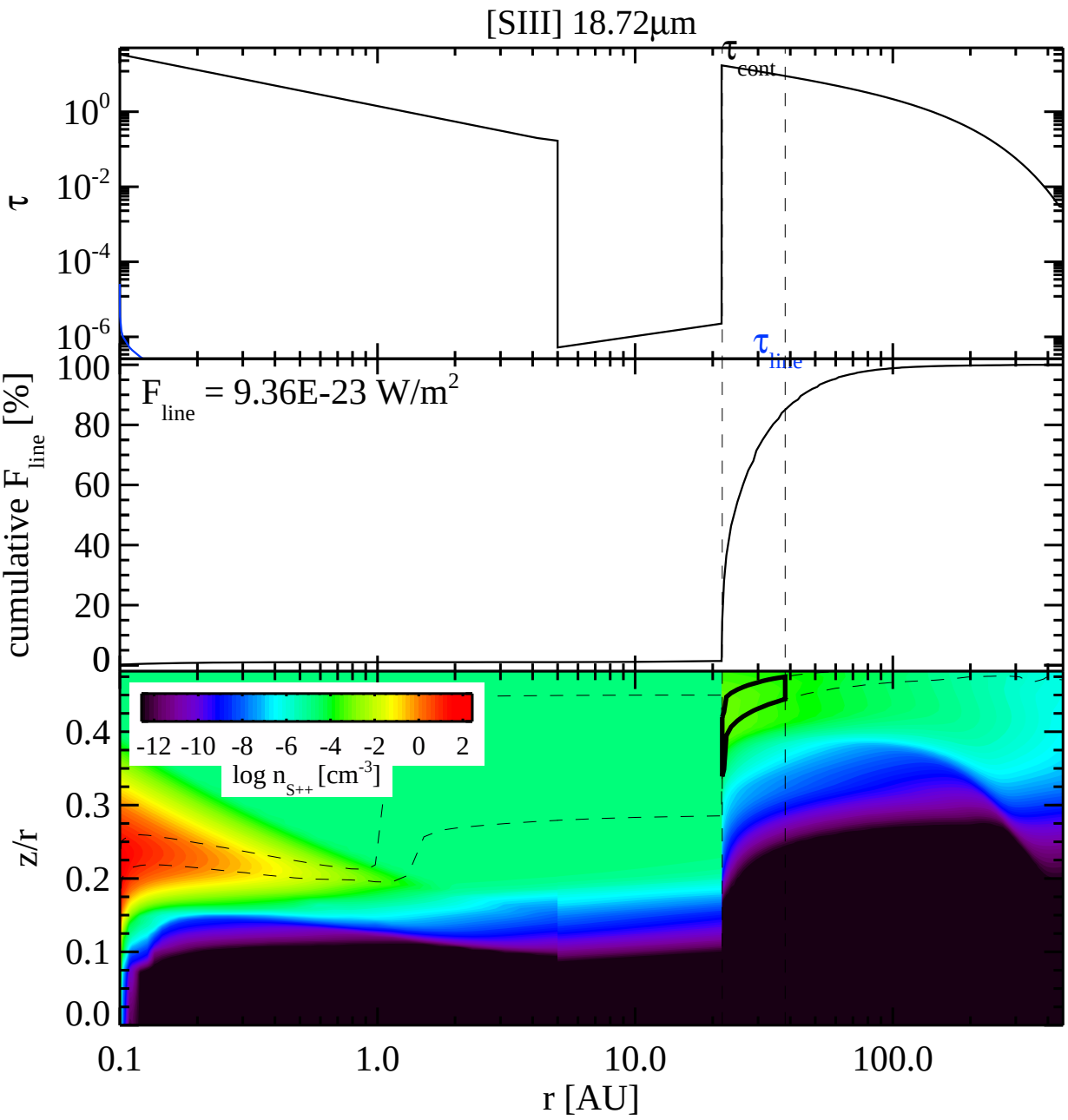

[CI] 609.14µm
τ
cont
τ
line
τ
cumulative F line [%]
F line = 1.32E-19 W/m2
log n C [cm-3]
z/r
r [AU]


[CI] 370.42µm
τ
cont
τ
line
τ
10^0
10^-2
10^-4
10^-6
F
line
= 3.64E-19 W/m^2
cumulative F
line
[%]
100
80
60
40
20
0
-4 -2 0 2 4 6 8
log n
C
[cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

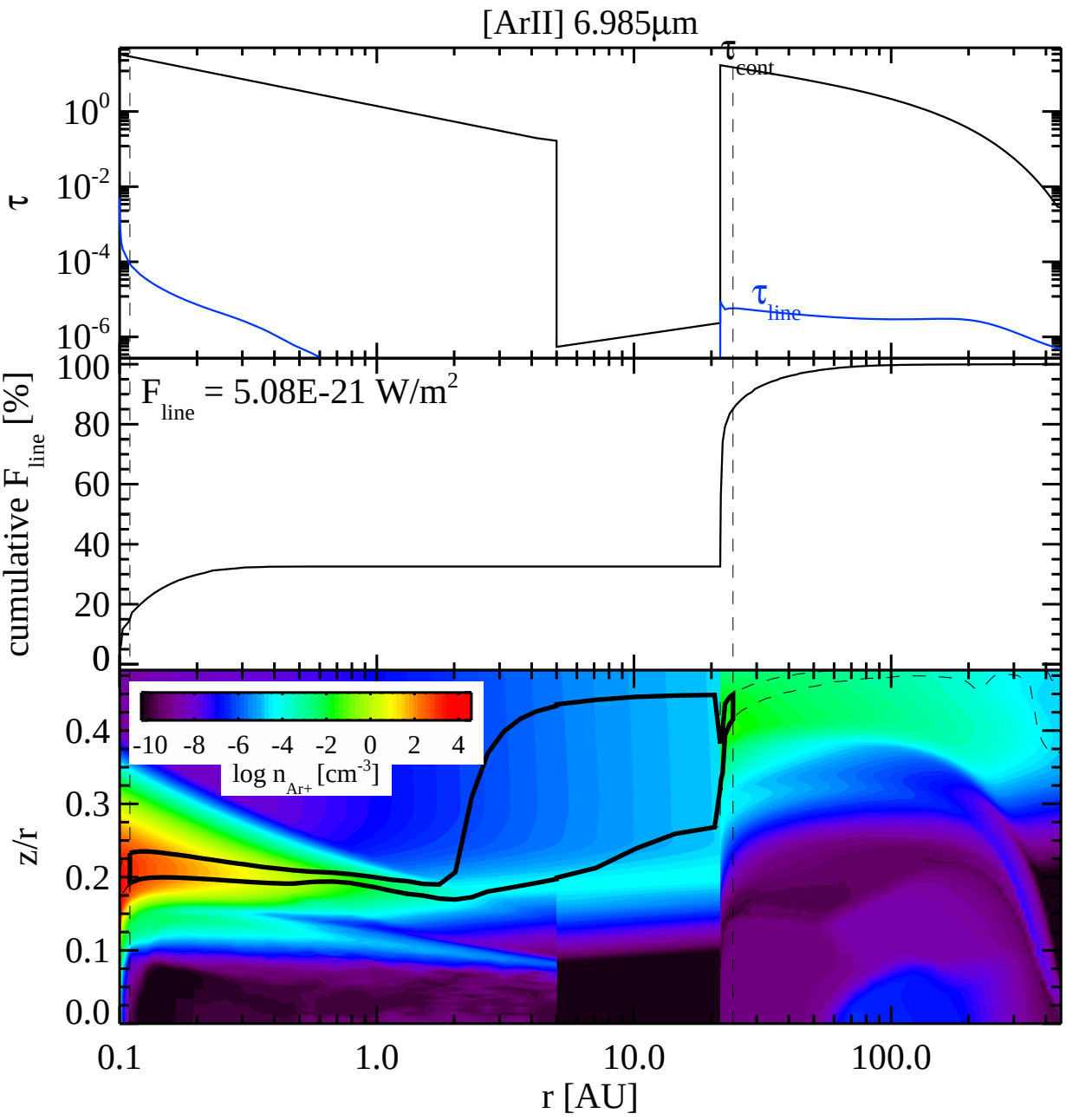

[NeII] 12.81µm
τ
cont
τ
line
τ
10^0
10^-2
10^-4
10^-6
cumulative F_line [%]
F_line = 9.32E-20 W/m^2
100
80
60
40
20
0
z/r
0.4
0.3
0.2
0.1
0.0
-6 -4 -2 0 2 4 6
log n_Ne+ [cm^-3]
0.1
1.0
10.0
100.0
r [AU]

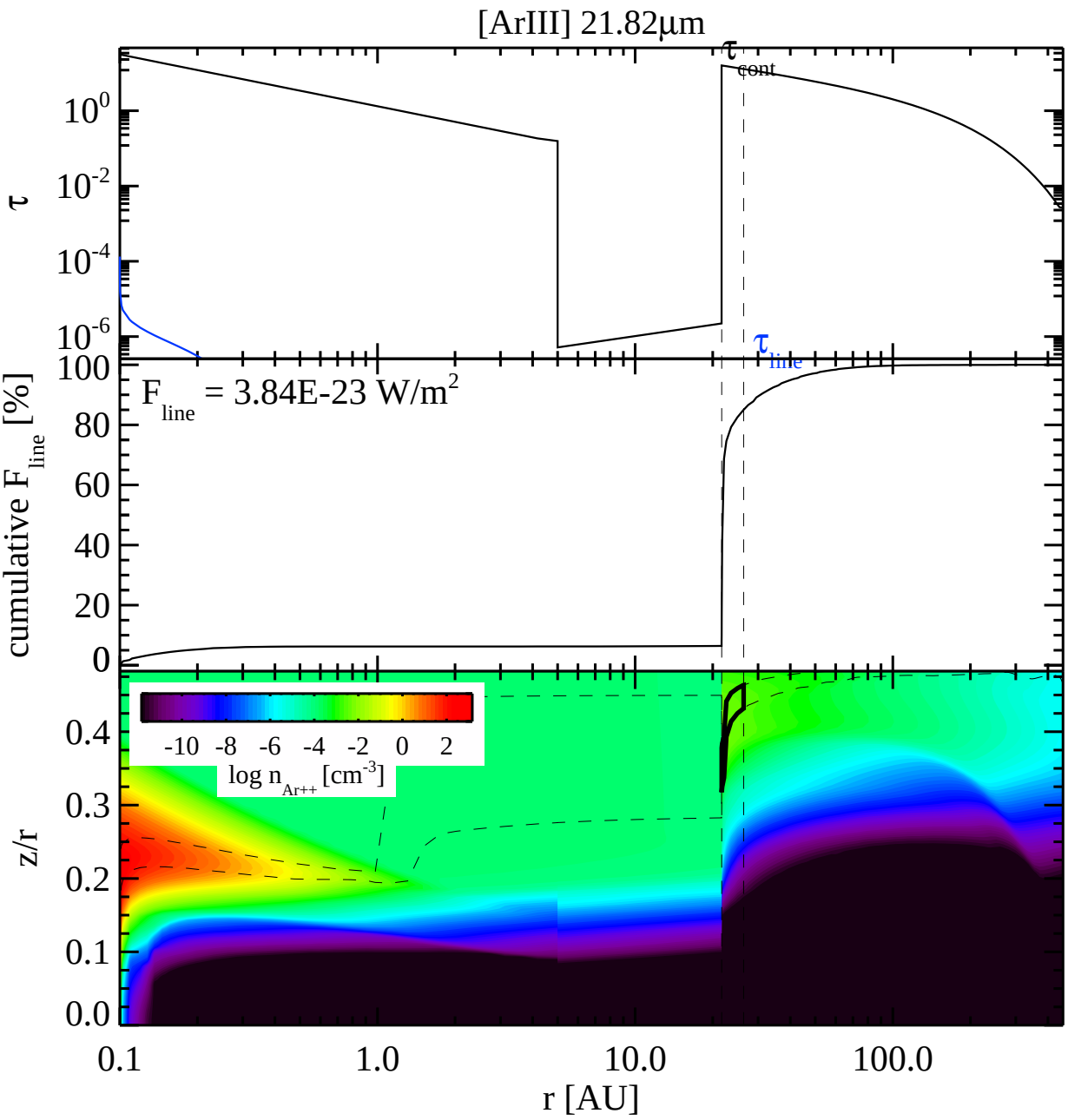

[NeIII] 15.55µm
τ
cont
τ
line
τ
10^0
10^-2
10^-4
10^-6
F
line
= 2.10E-20 W/m^2
cumulative F
line
[%]
100
80
60
40
20
0
log n
Ne++
[cm^-3]
-10 -8 -6 -4 -2 0 2 4
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

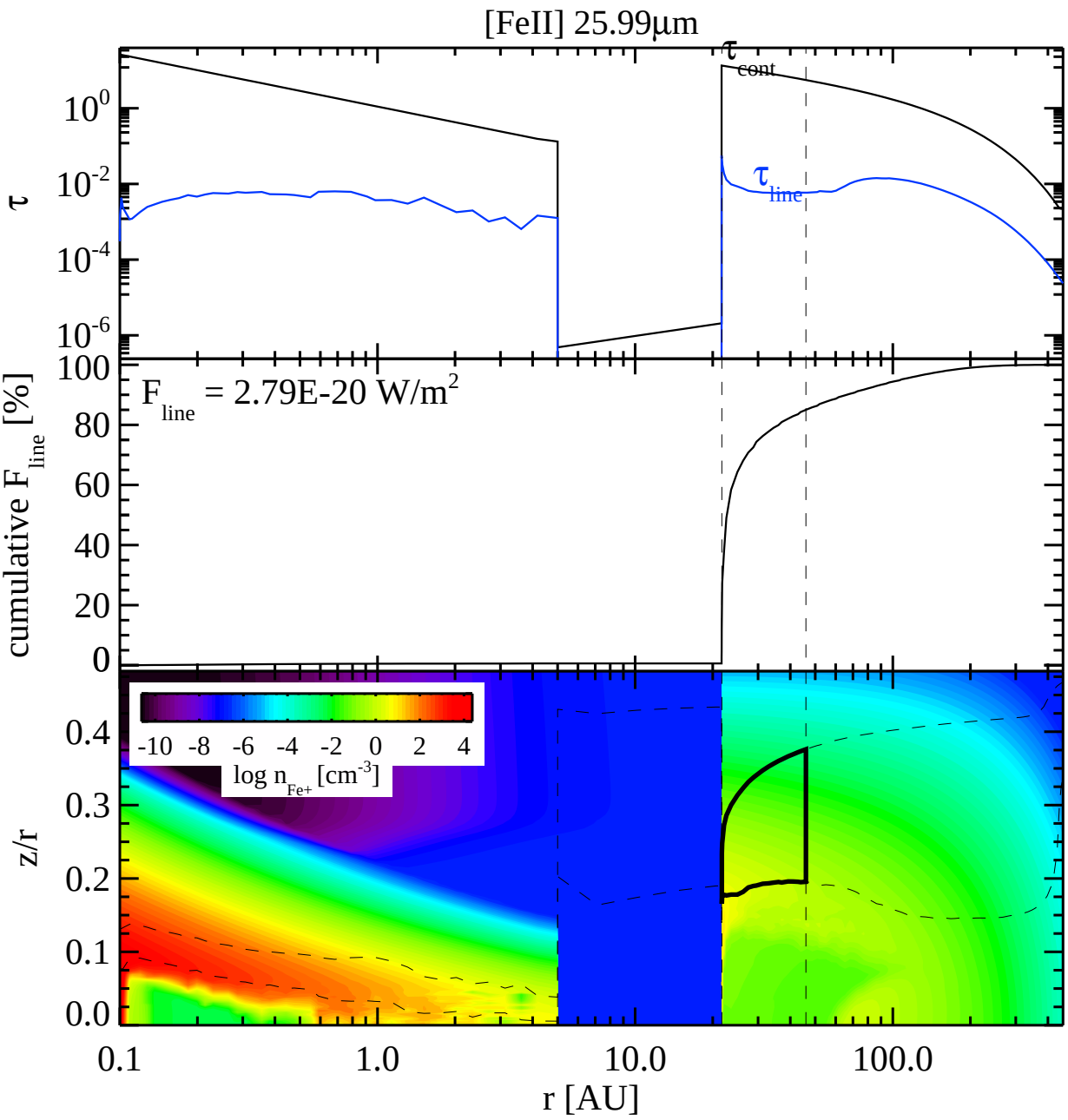

[SII] 0.6731µm
τ
cont
τ
line
τ
10^2
10^0
10^-2
10^-4
10^-6
F
line
= 2.53E-21 W/m^2
cumulative F
line
[%]
100
80
60
40
20
0
z/r
0.4
0.3
0.2
0.1
0.0
-8 -6 -4 -2 0 2 4 6
log n
S+
[cm^-3]
0.1
1.0
10.0
100.0
r [AU]

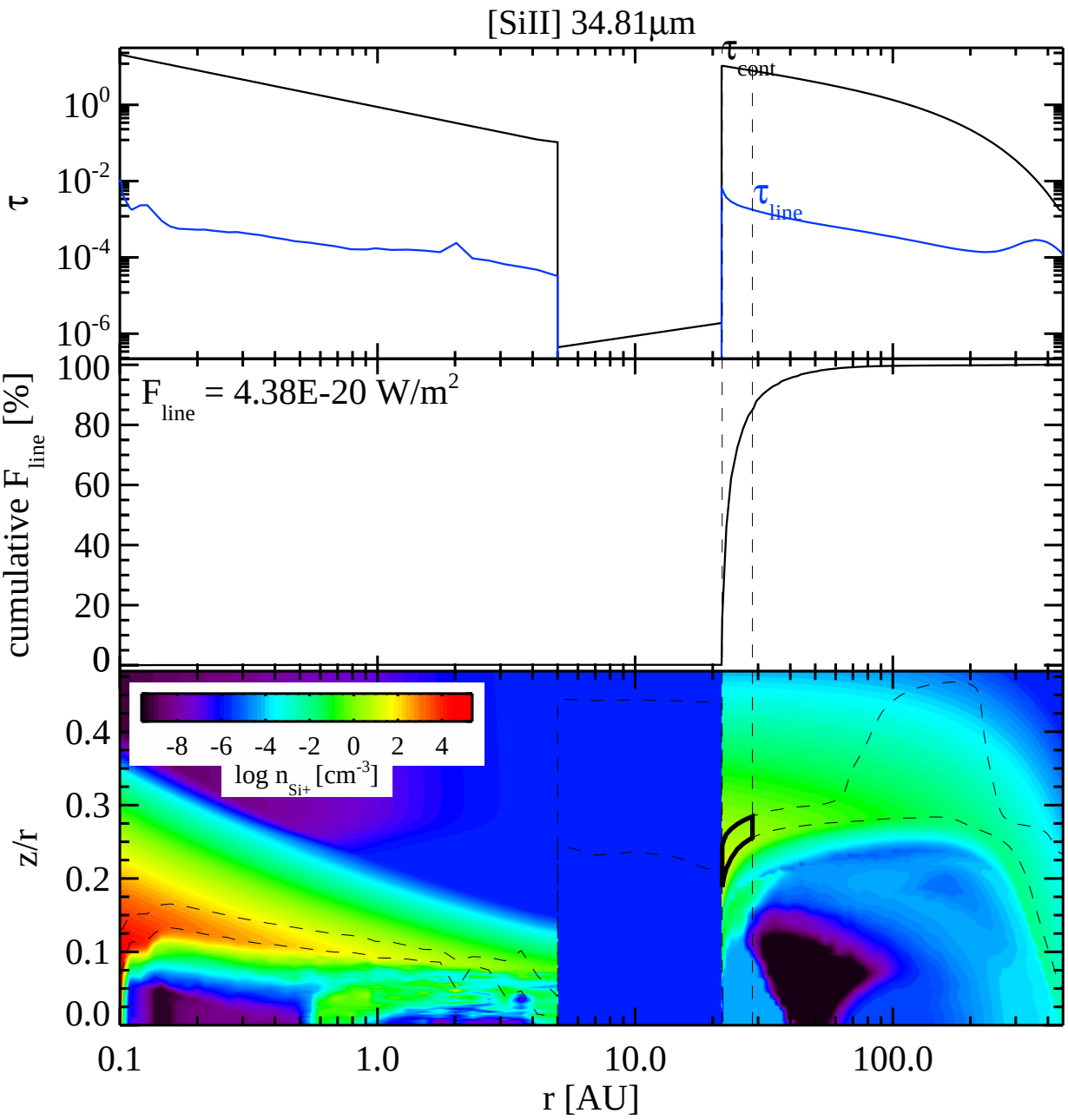


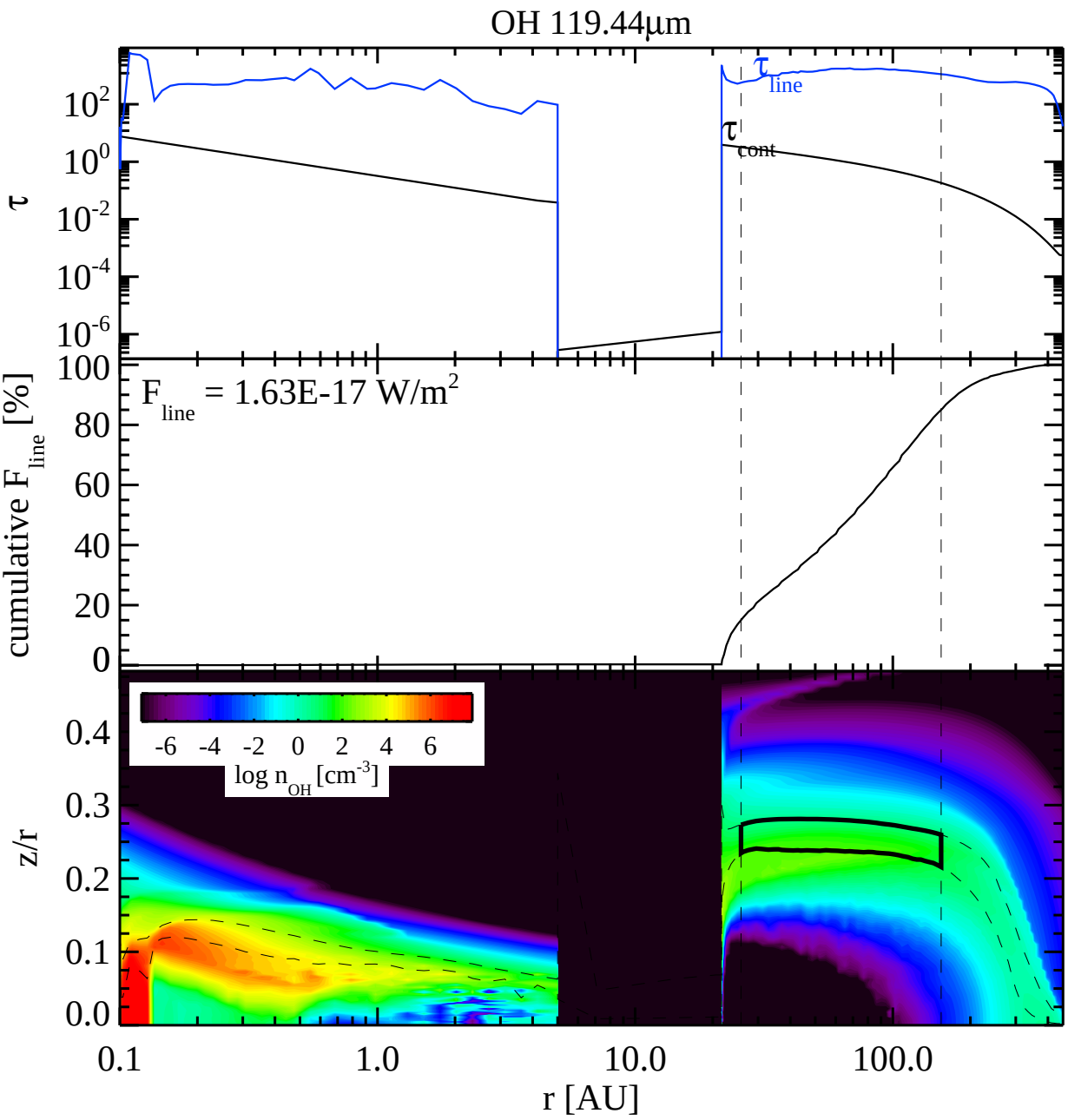
[SIII] 18.72μm
τ
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 9.36E-23 W/m^2
z/r
0.4
0.3
0.2
0.1
0.0
-12 -10 -8 -6 -4 -2 0 2
log n_{S++} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

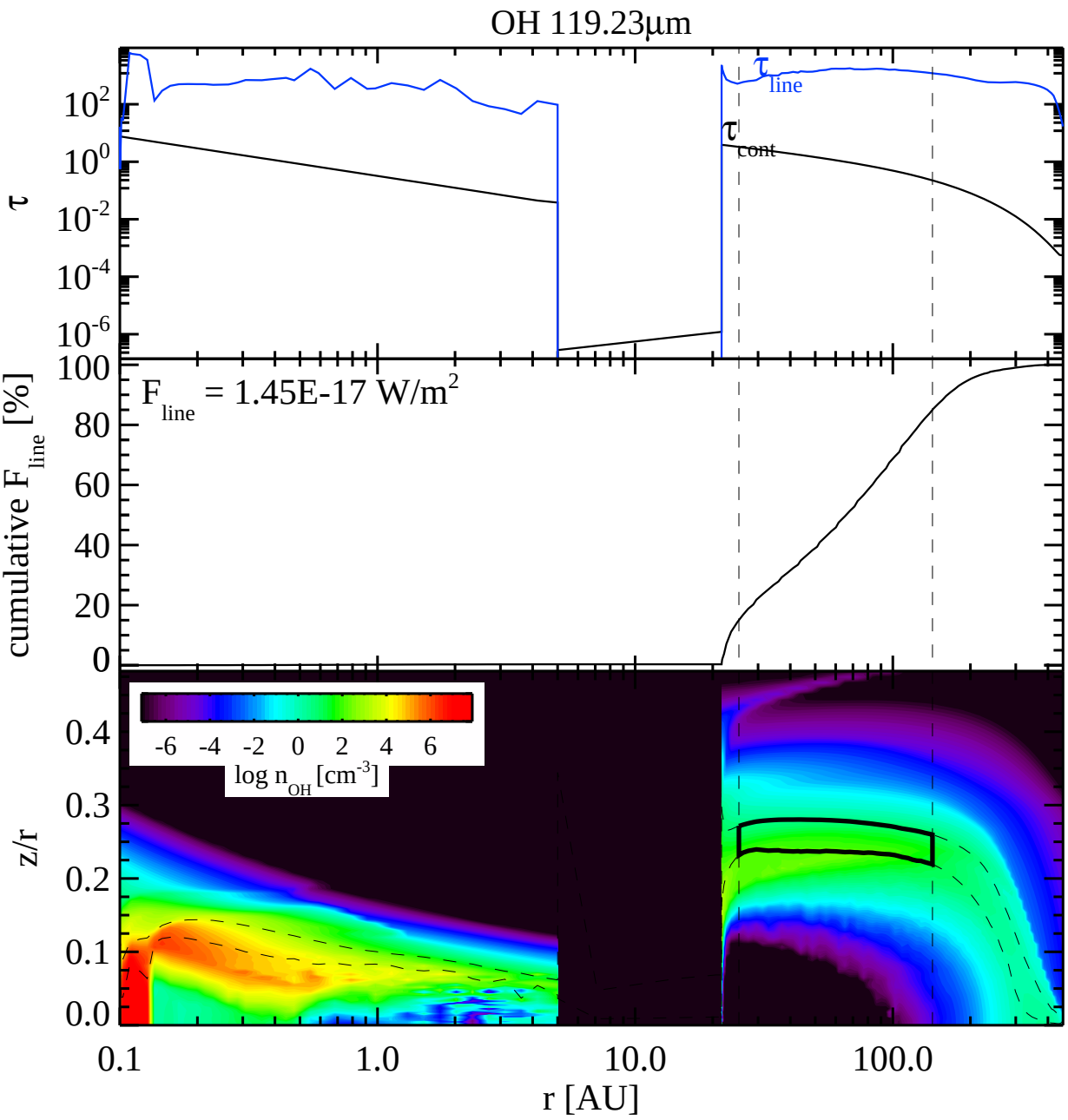

[ArII] 6.985µm
τ
cont
τ
line
τ
10^0
10^-2
10^-4
10^-6
cumulative F line [%]
F line = 5.08E-21 W/m^2
100
80
60
40
20
0
z/r
0.4
0.3
0.2
0.1
0.0
-10 -8 -6 -4 -2 0 2 4
log n Ar+ [cm^-3]
0.1
1.0
10.0
100.0
r [AU]

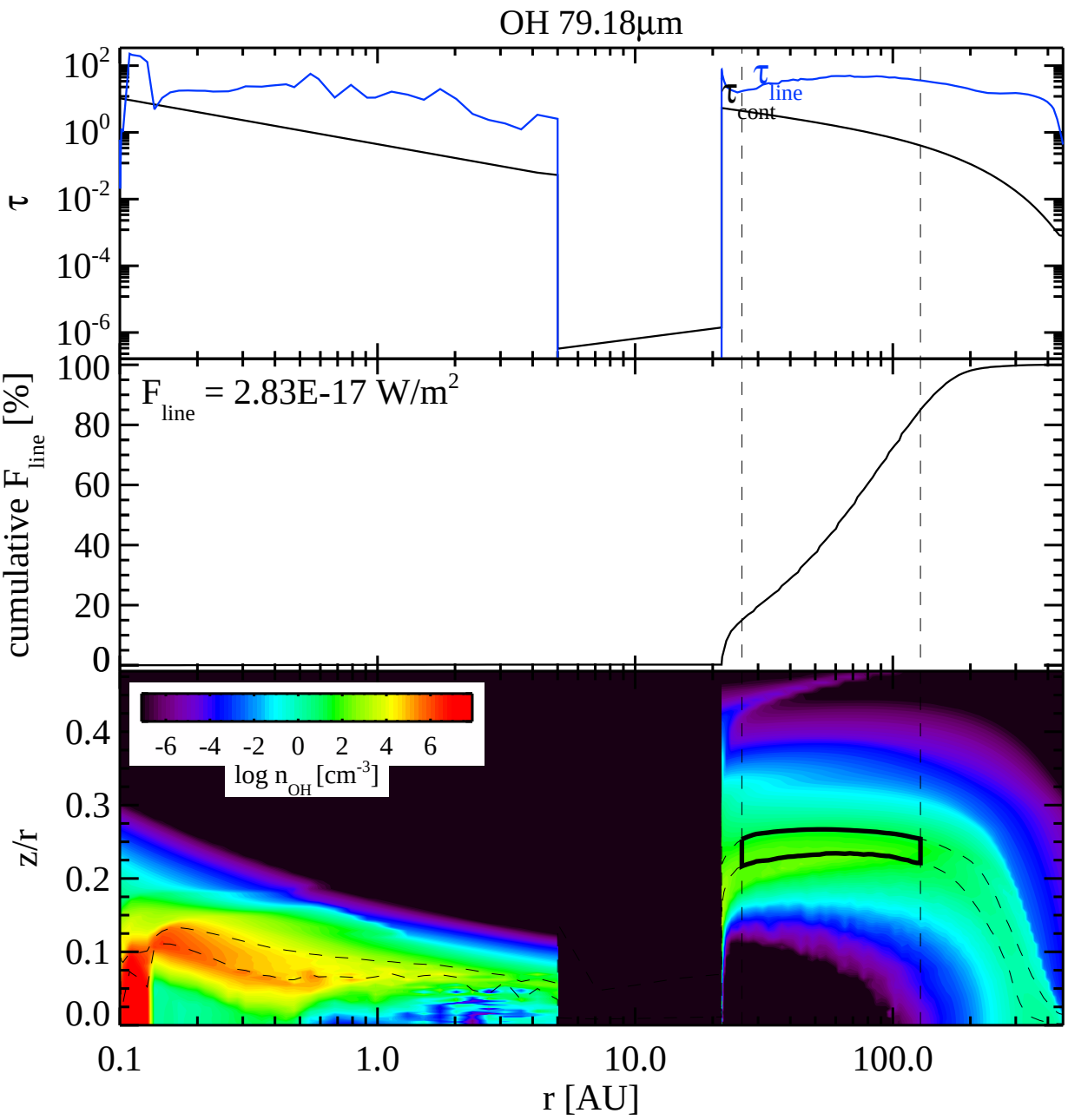

[ArIII] 21.82μm
τ
τ cont
τ line
10^0
10^-2
10^-4
10^-6
cumulative F line [%]
F line = 3.84E-23 W/m^2
100
80
60
40
20
0
z/r
0.4
0.3
0.2
0.1
0.0
-10 -8 -6 -4 -2 0 2
log n Ar++ [cm^-3]
0.1
1.0
10.0
100.0
r [AU]

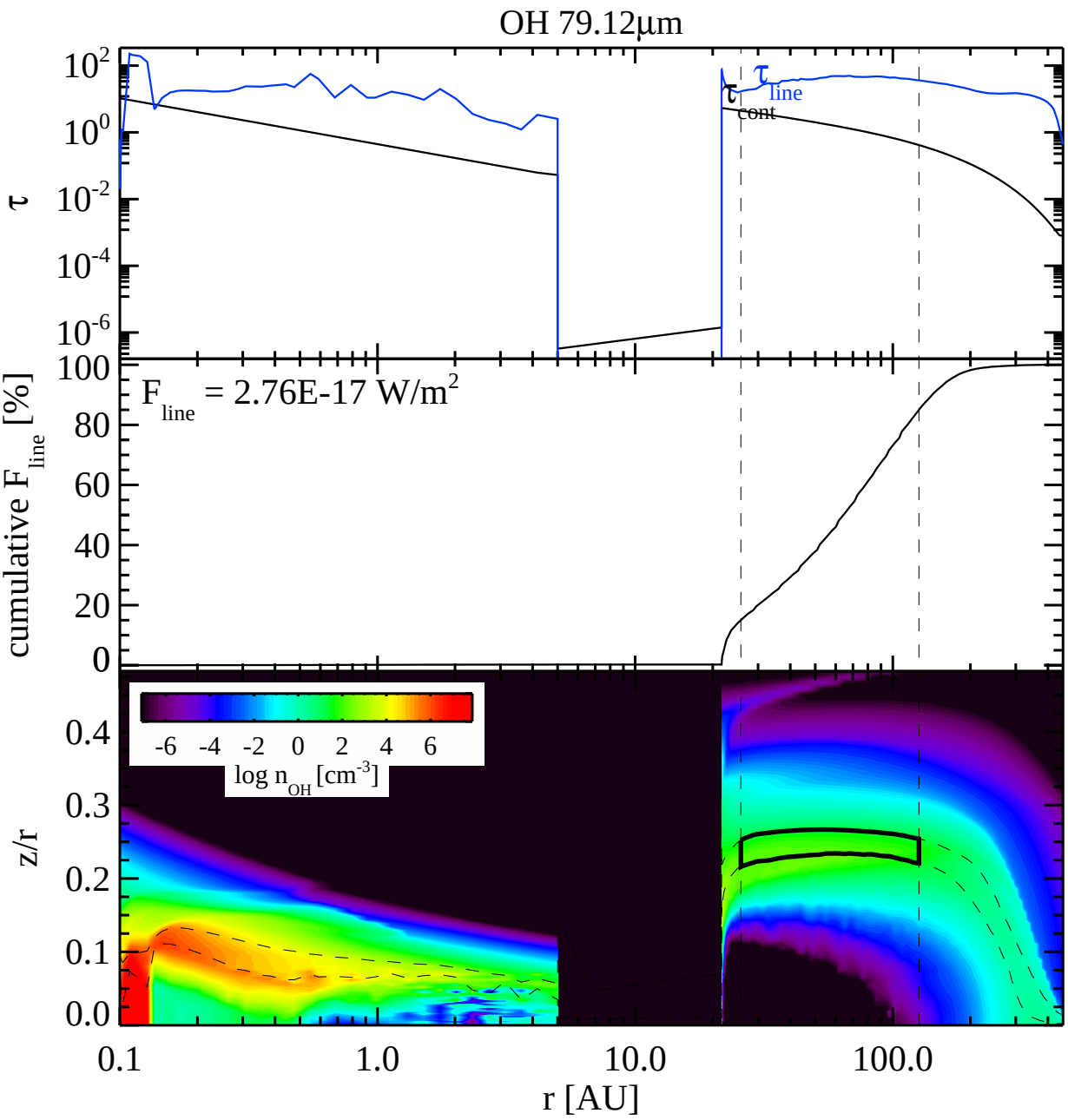

[FeII] 25.99µm
τ
τ cont
τ line
10^0
10^-2
10^-4
10^-6
cumulative F line [%]
F line = 2.79E-20 W/m^2
100
80
60
40
20
0
-10 -8 -6 -4 -2 0 2 4
log n Fe+ [cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

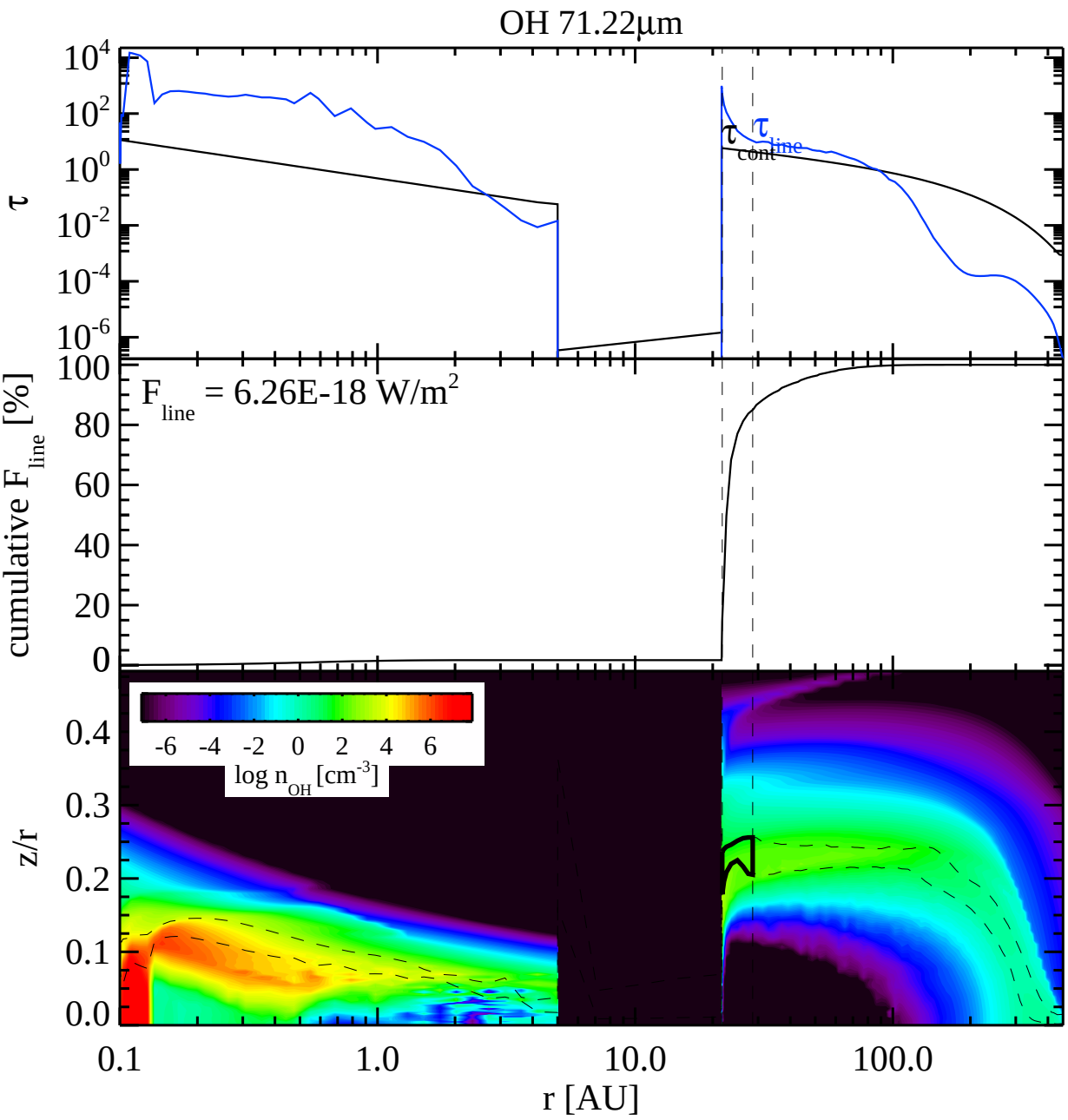

[SiII] 34.81µm
τ
τ cont
τ line
10^0
10^-2
10^-4
10^-6
F line = 4.38E-20 W/m^2
cumulative F line [%]
100
80
60
40
20
0
-8 -6 -4 -2 0 2 4
log n Si+ [cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

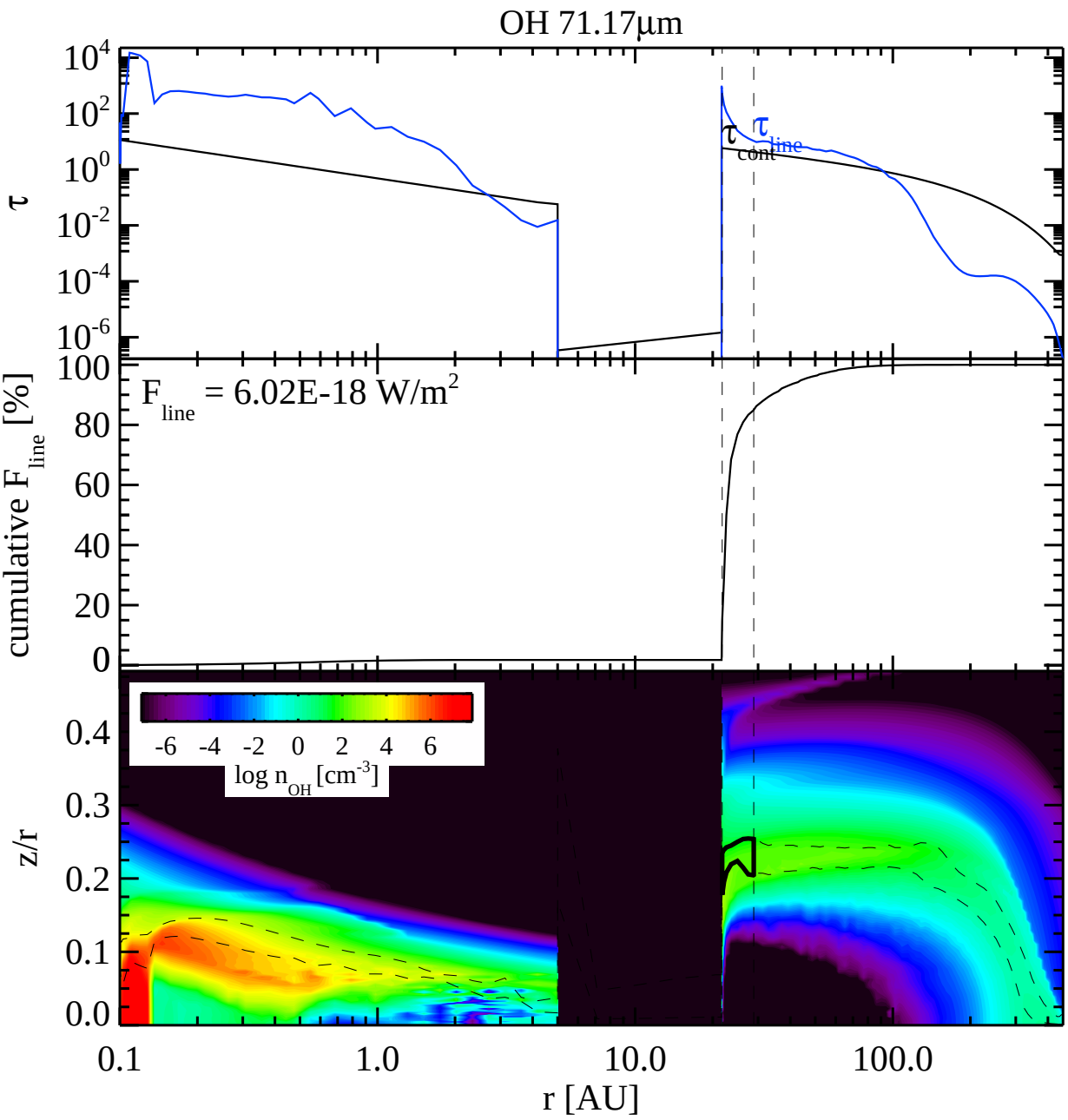

OH 119.44µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.63E-17 W/m^2
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

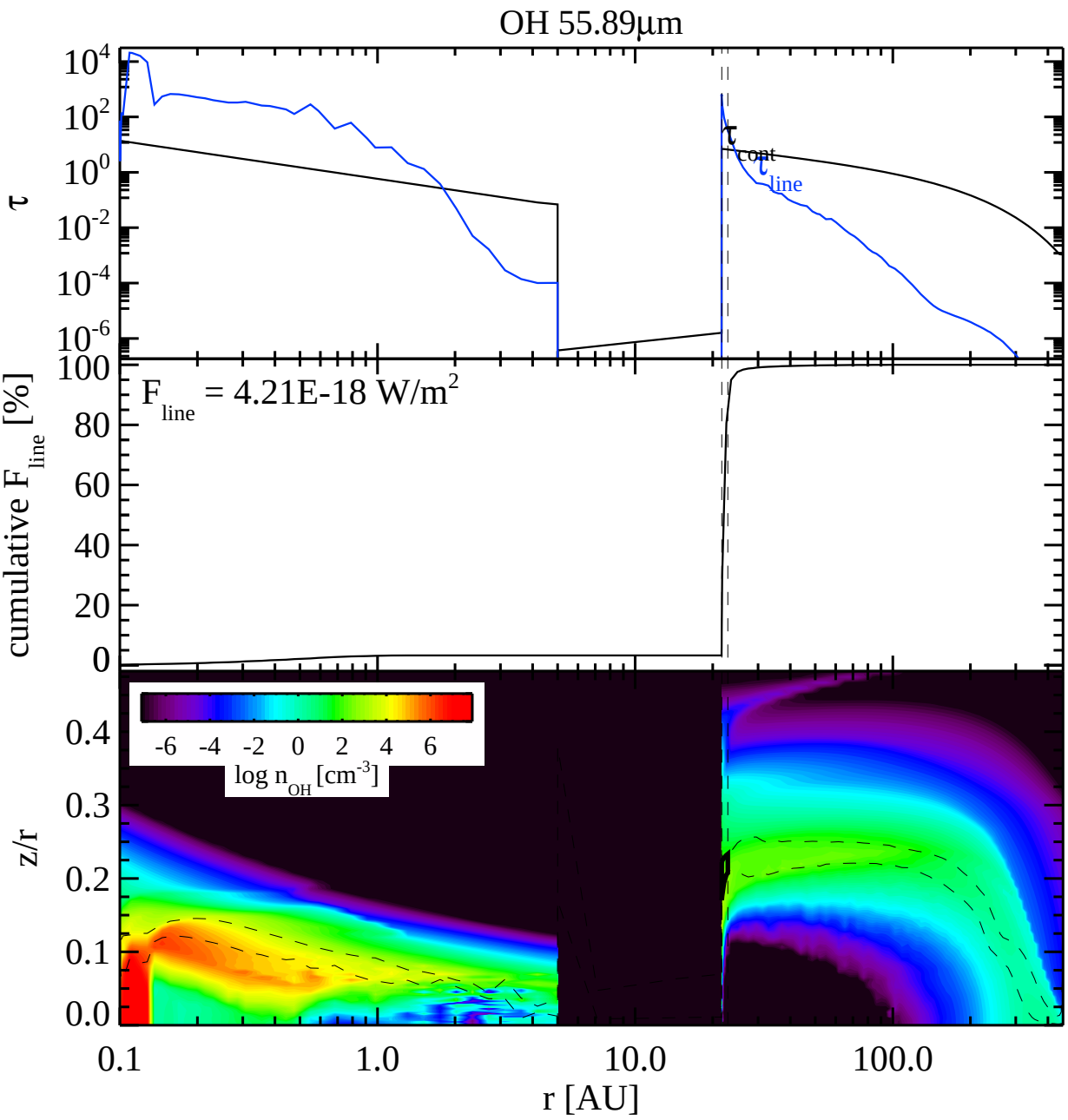

OH 119.23µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.45E-17 W/m^2
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

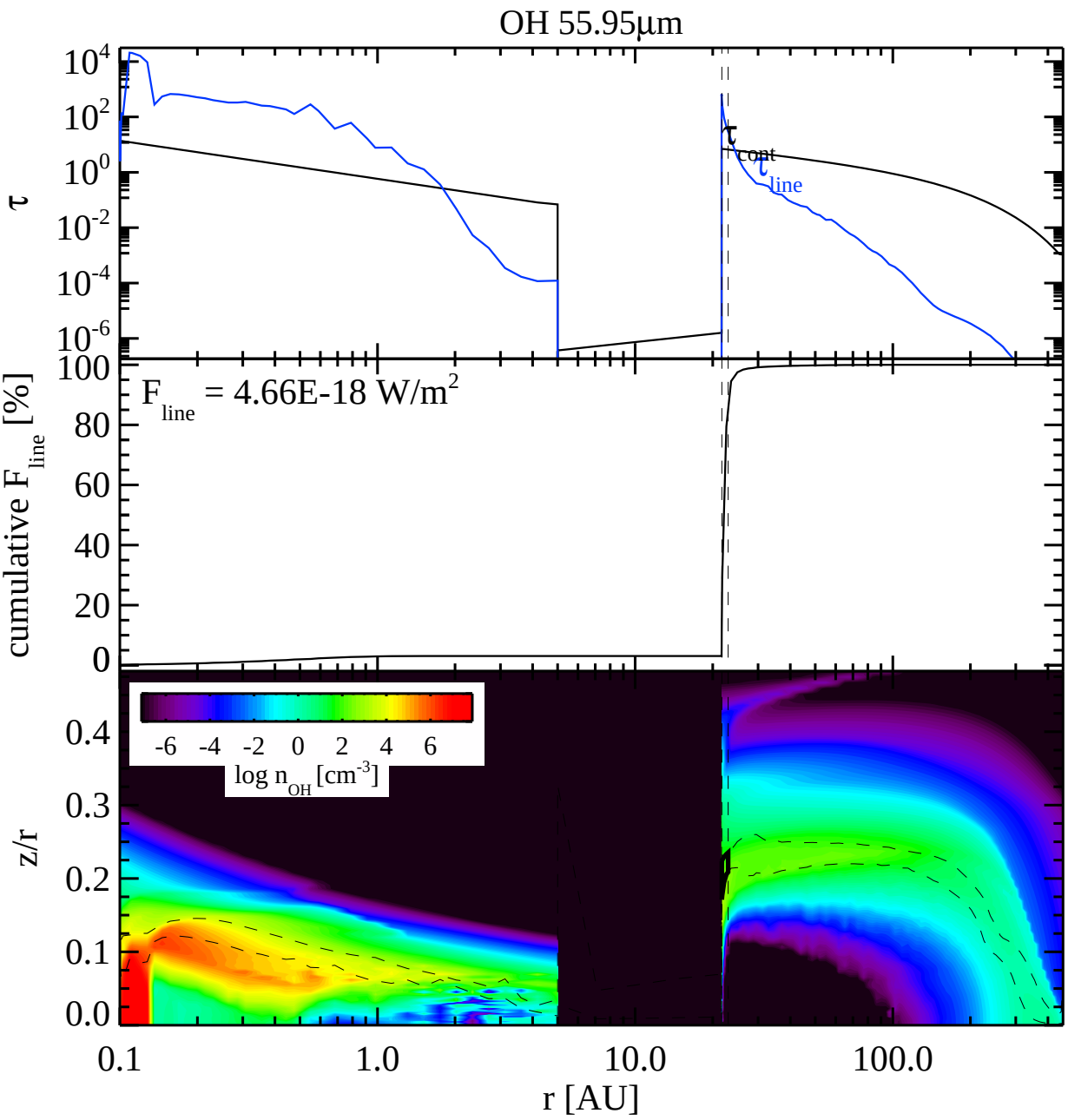

OH 79.18µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.83E-17 W/m^2
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

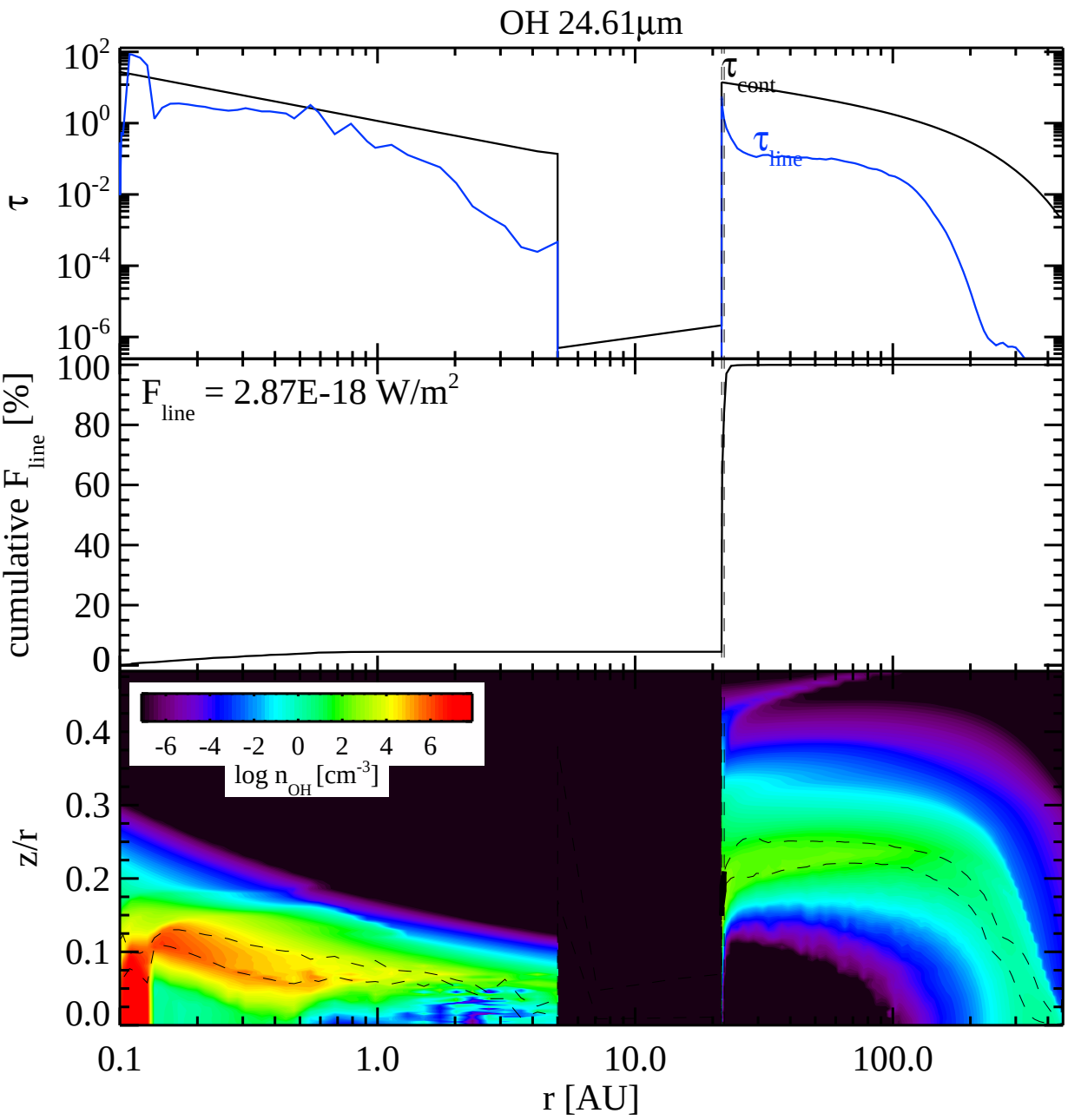

OH 79.12µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.76E-17 W/m^2
z/r
0.4
0.3
0.2
0.1
0.0
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

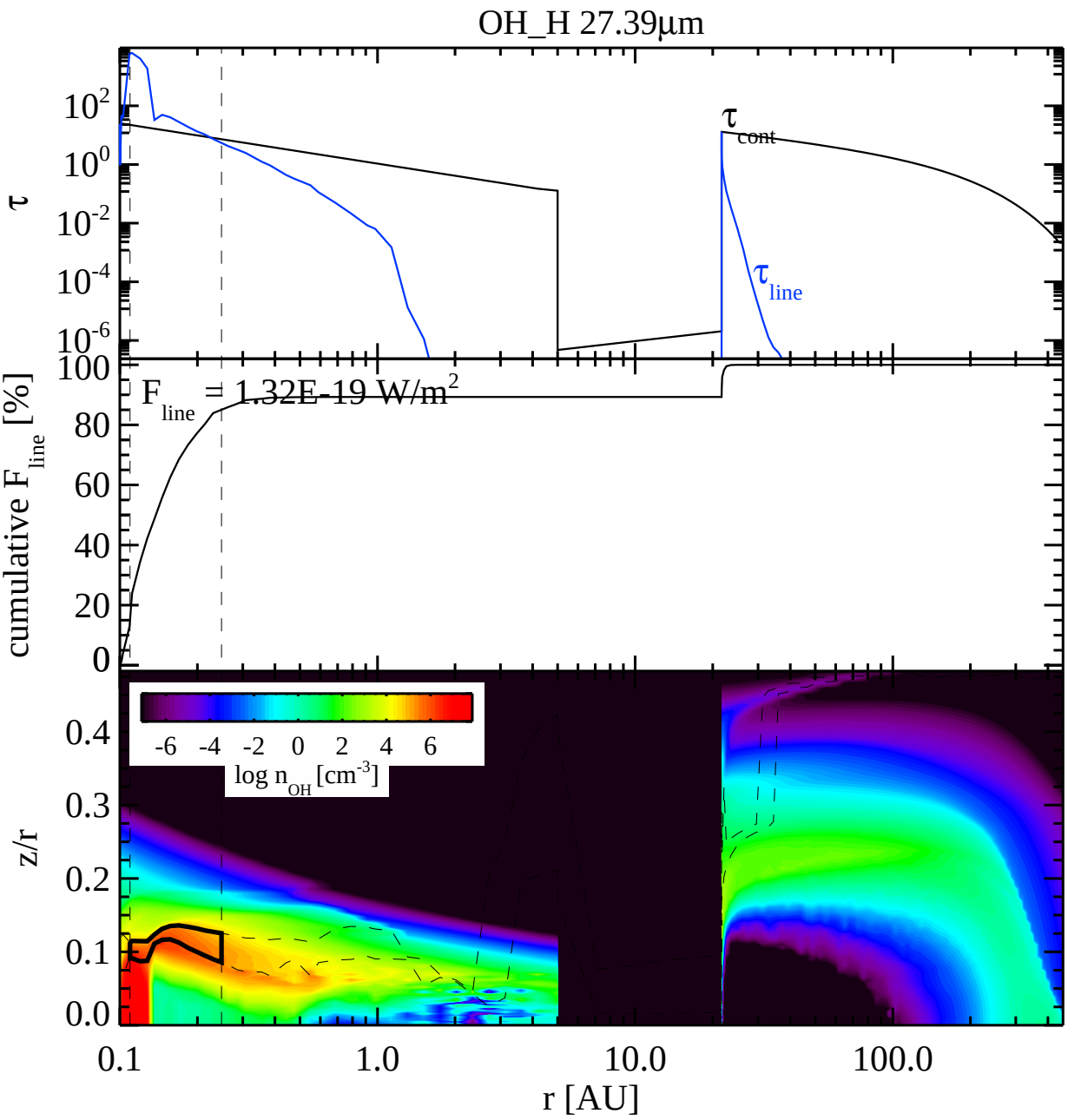

OH 71.22µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 6.26E-18 W/m^2
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

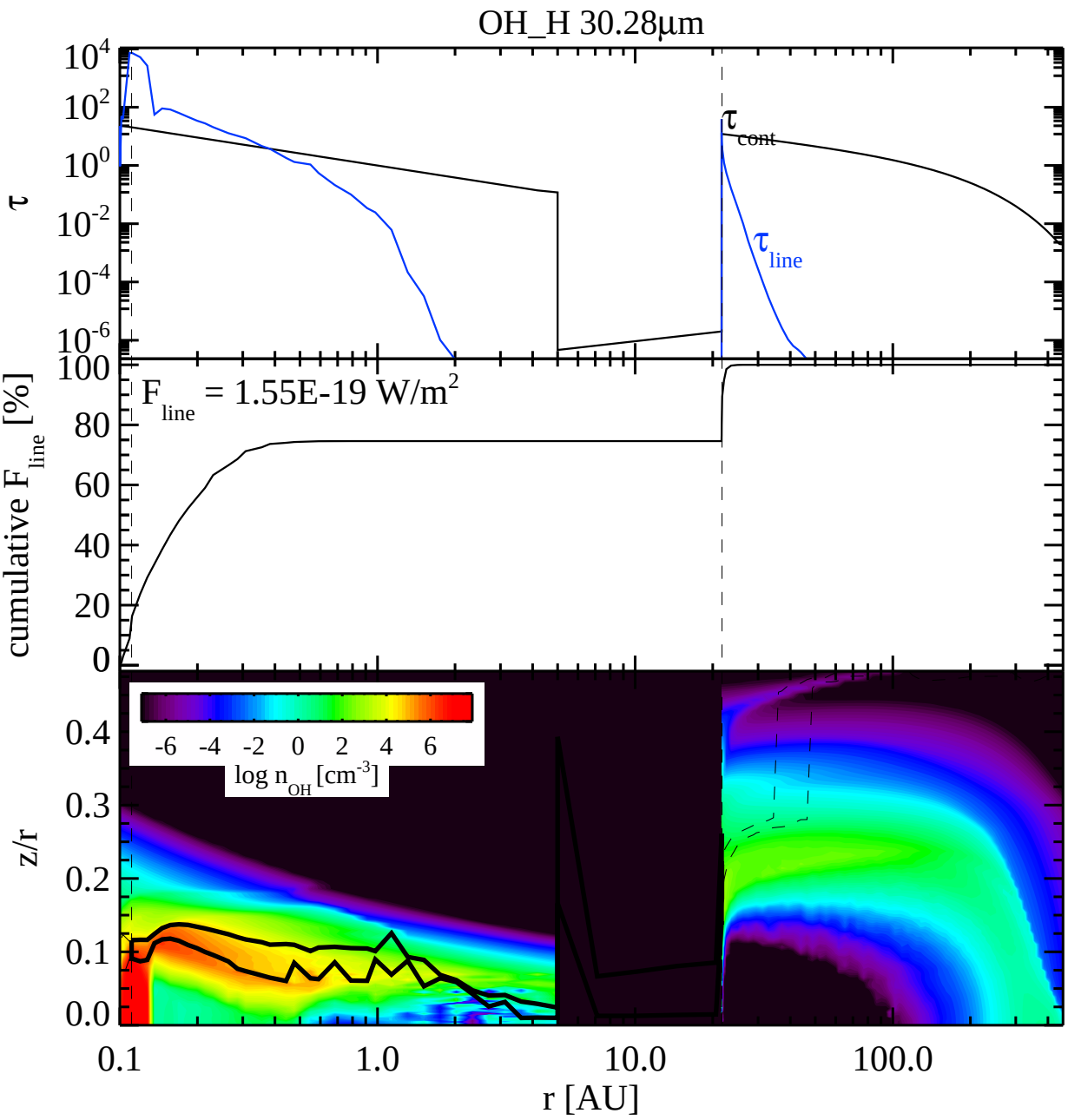

OH 71.17µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 6.02E-18 W/m^2
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

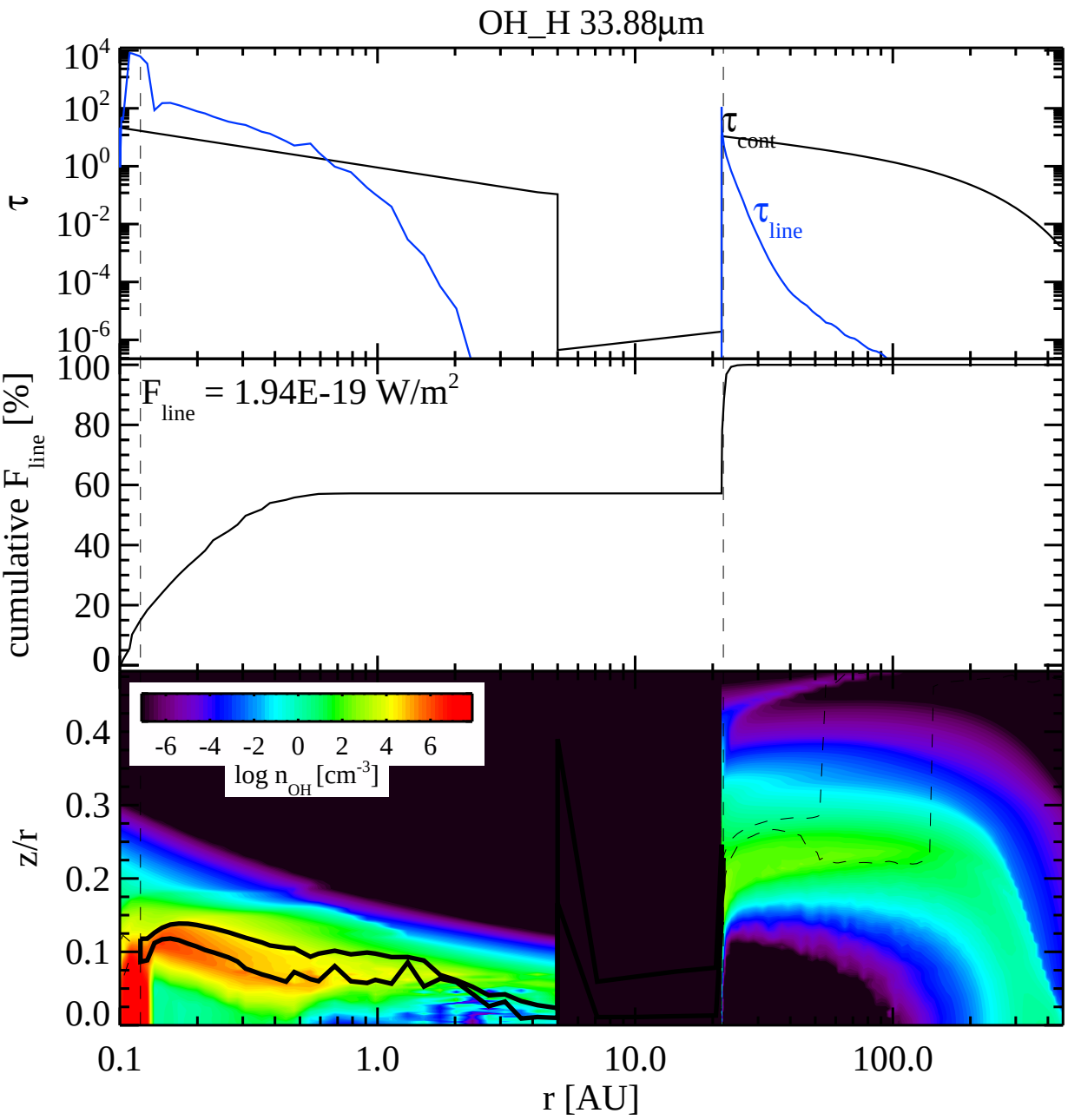

OH 55.89µm
τ
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 4.21E-18 W/m^2
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

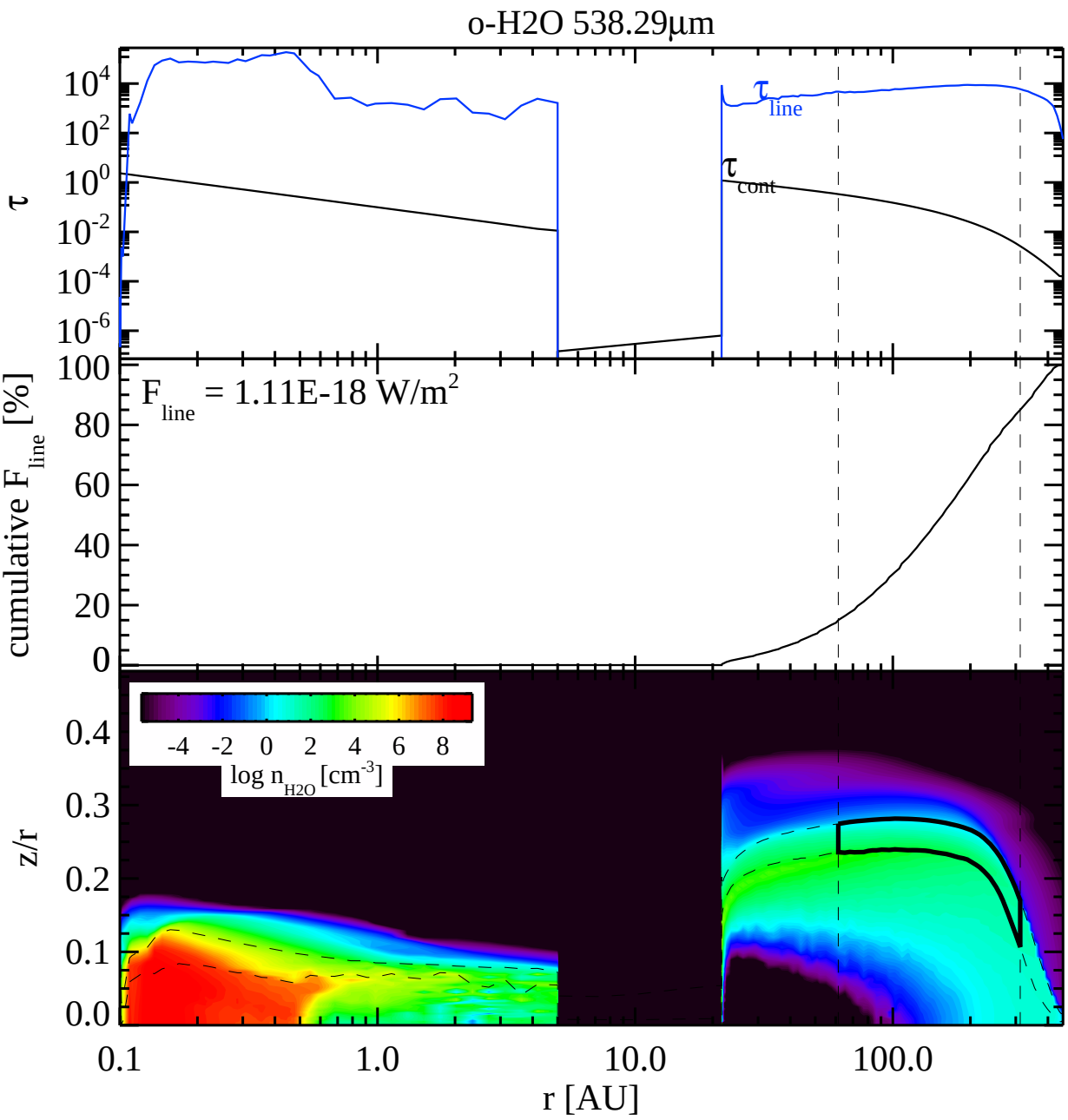

OH 55.95µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 4.66E-18 W/m^2
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

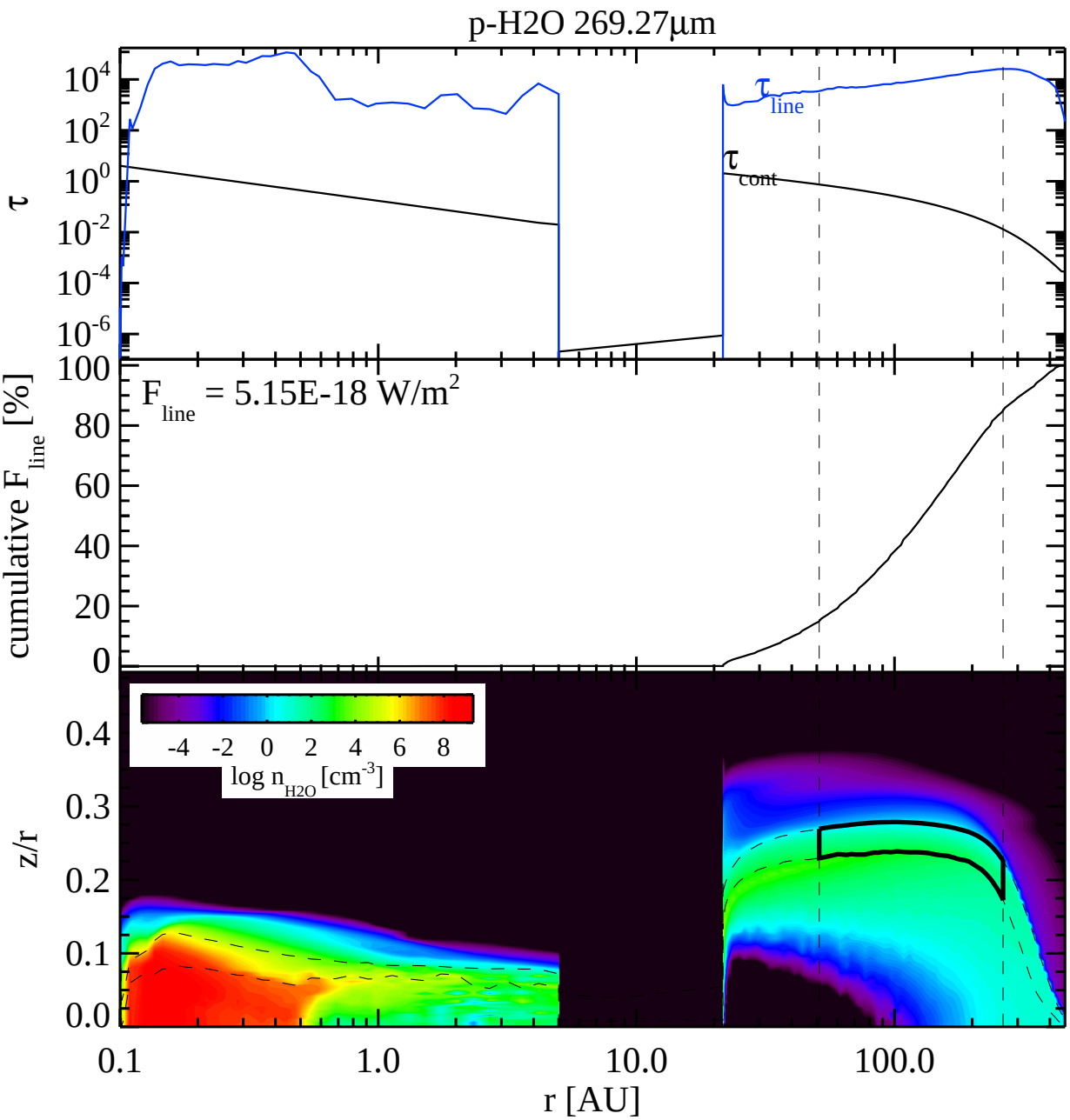

OH 24.61µm
τ
τ cont
τ line
cumulative F line [%]
F line = 2.87E-18 W/m2
log n OH [cm-3]
z/r
r [AU]

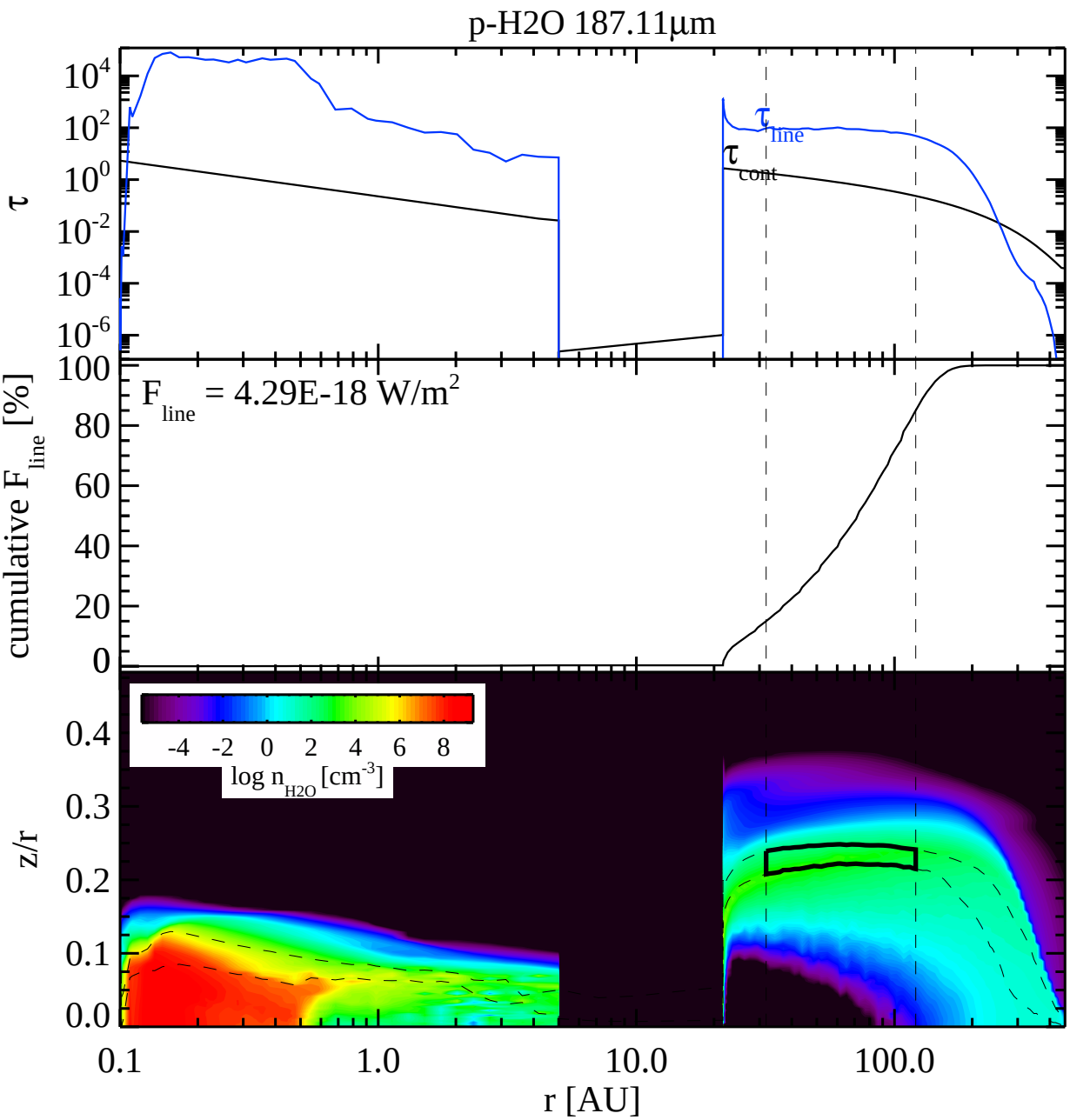

OH_H 27.39µm
τ
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.32E-19 W/m^2
z/r
0.4
0.3
0.2
0.1
0.0
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

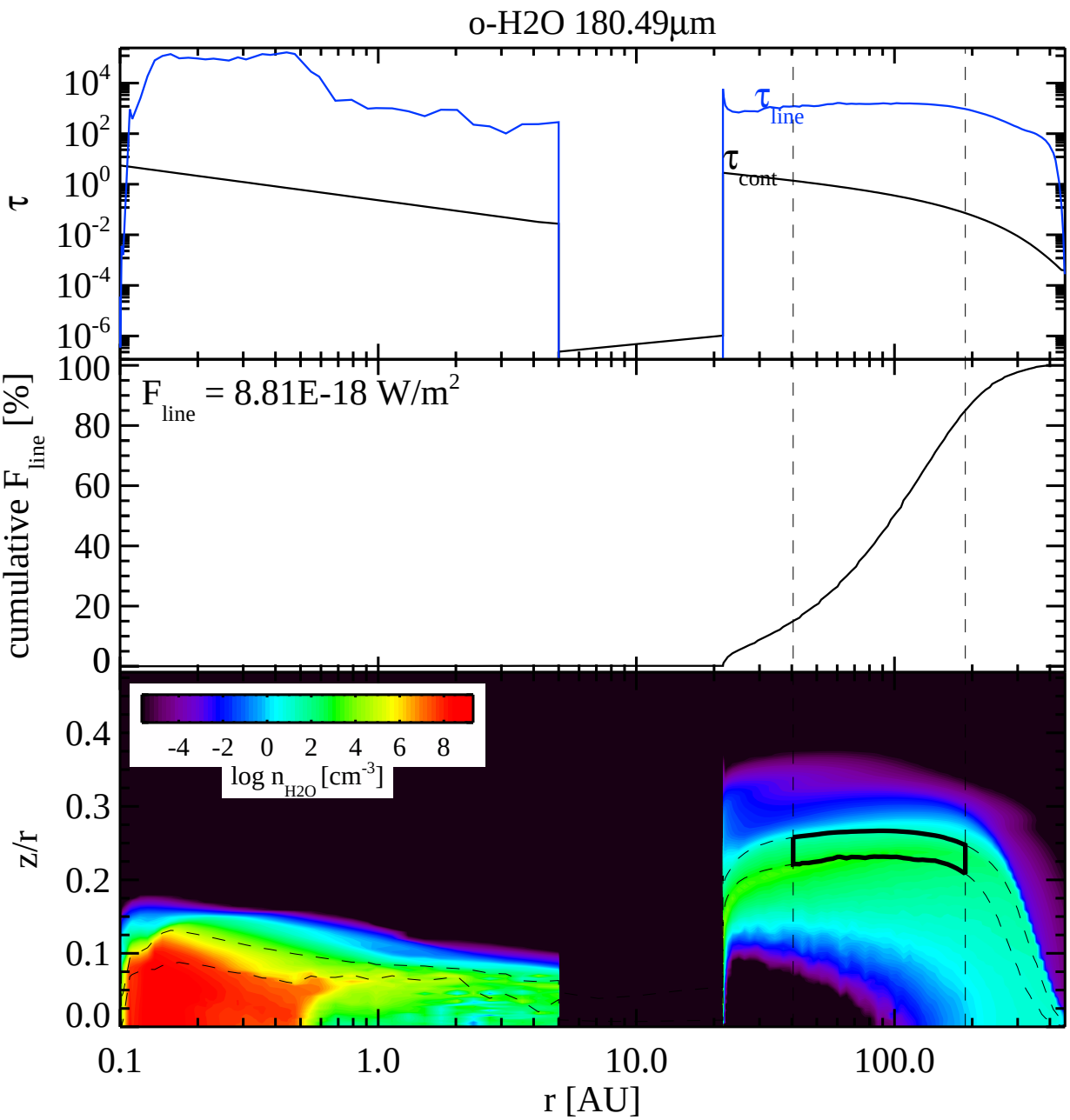

OH_H 30.28µm
τ
τ cont
τ line
cumulative F line [%]
F line = 1.55E-19 W/m2
log n OH [cm-3]
z/r
r [AU]

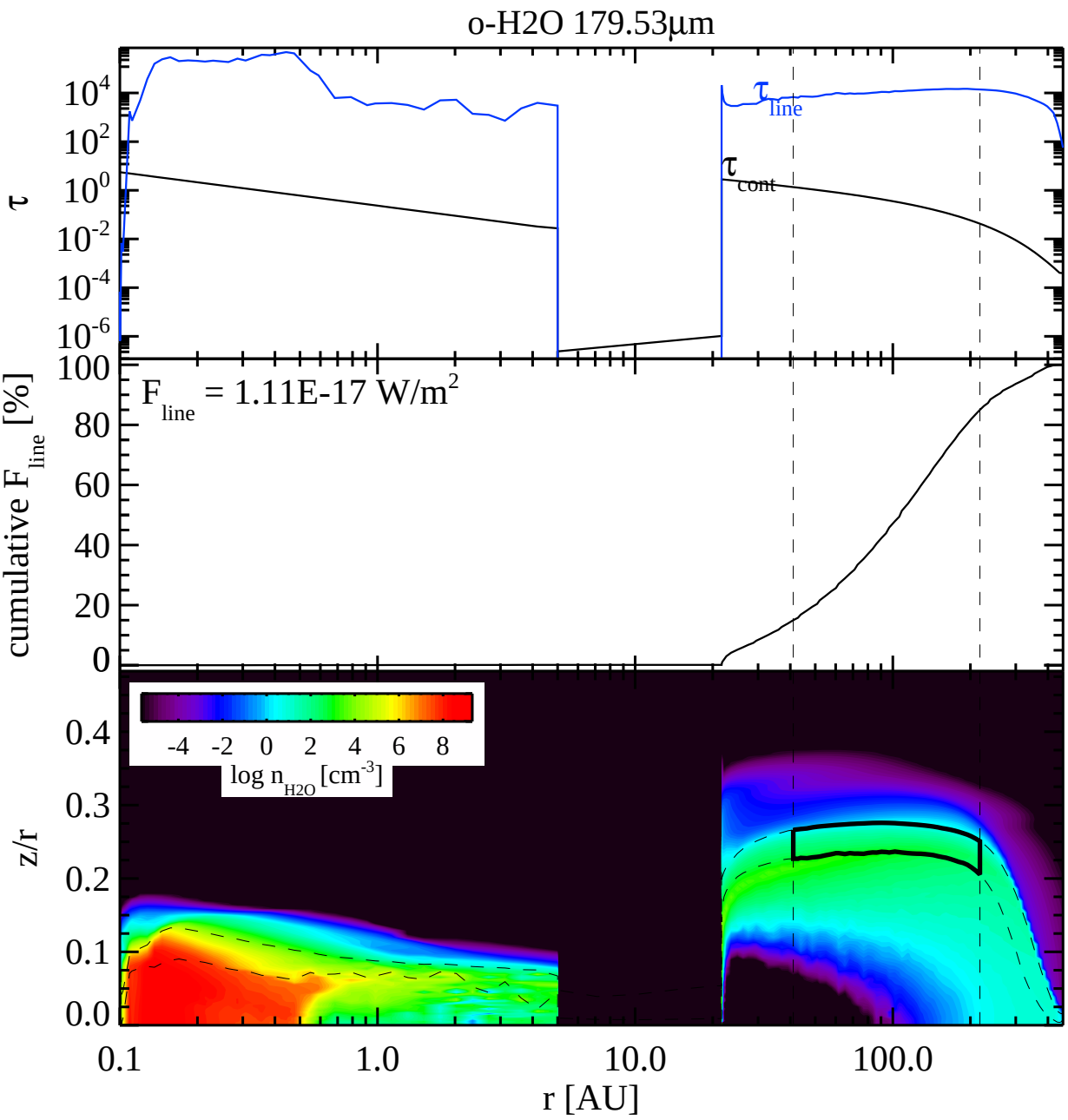

OH_H 33.88µm
τ
τ cont
τ line
cumulative F line [%]
F line = 1.94E-19 W/m2
log n OH [cm-3]
z/r
r [AU]

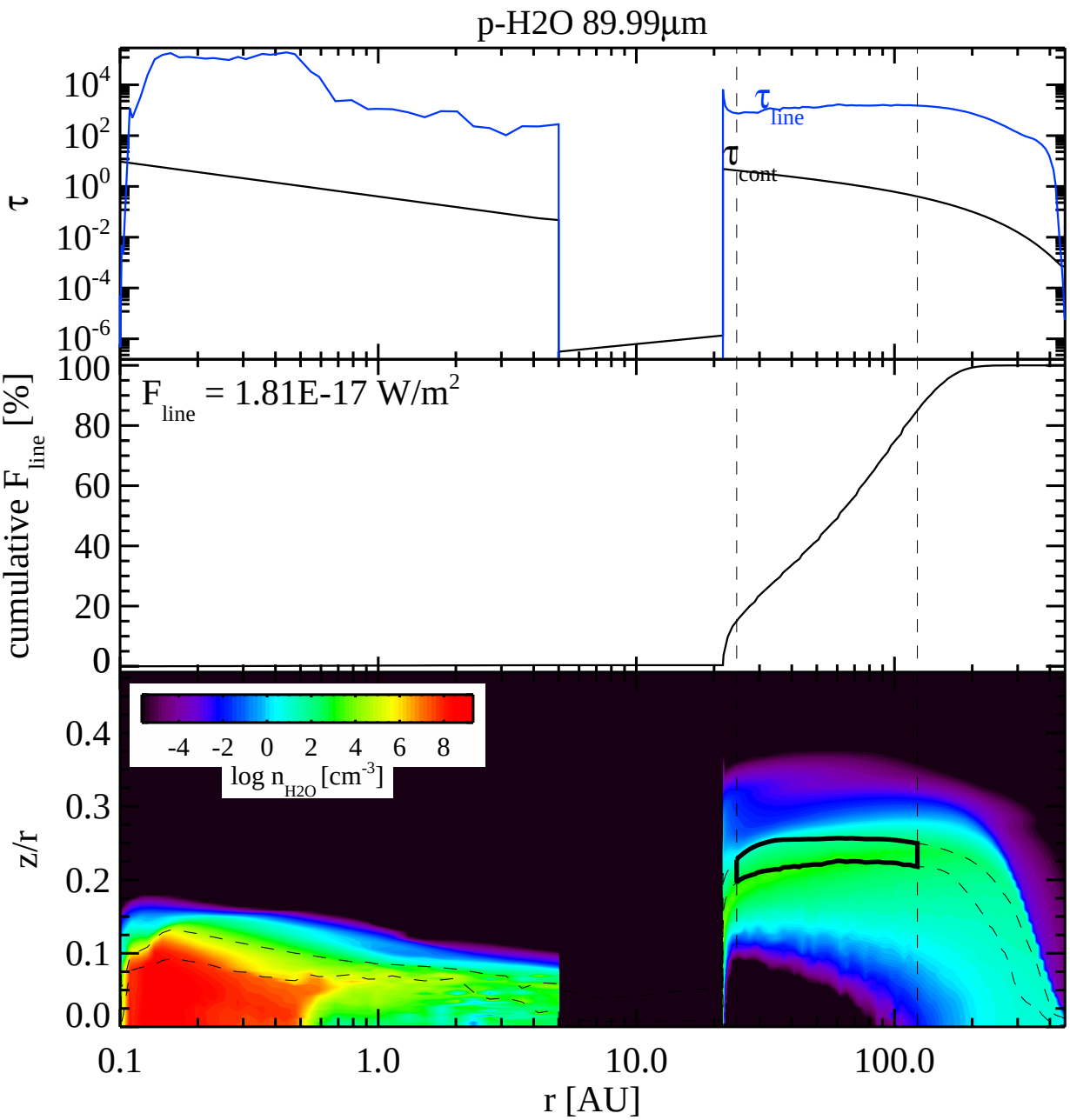

o-H2O 538.29µm
τ
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 1.11E-18 W/m^2
100
80
60
40
20
0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

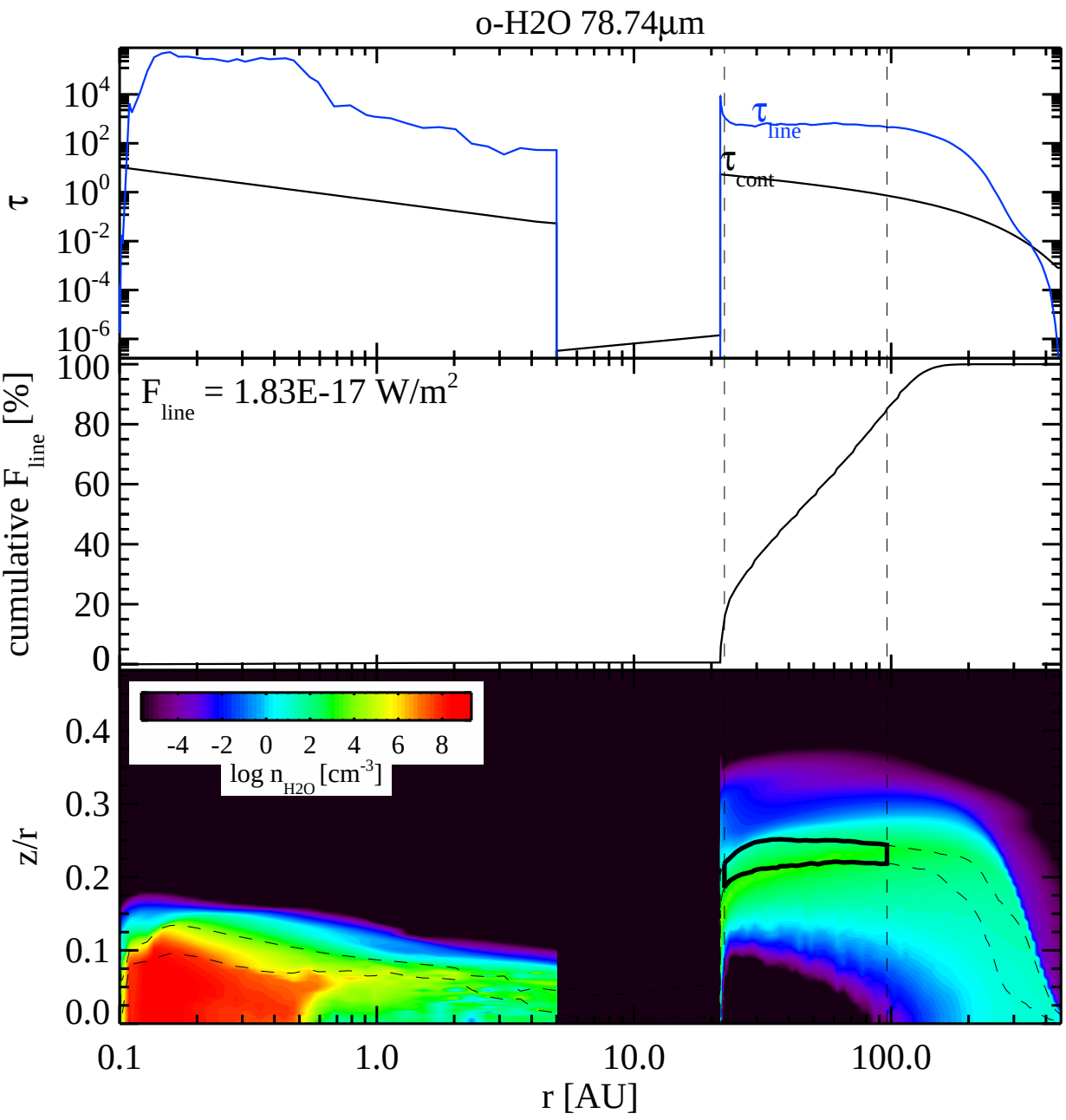

p-H2O 269.27µm
τ
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 5.15E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

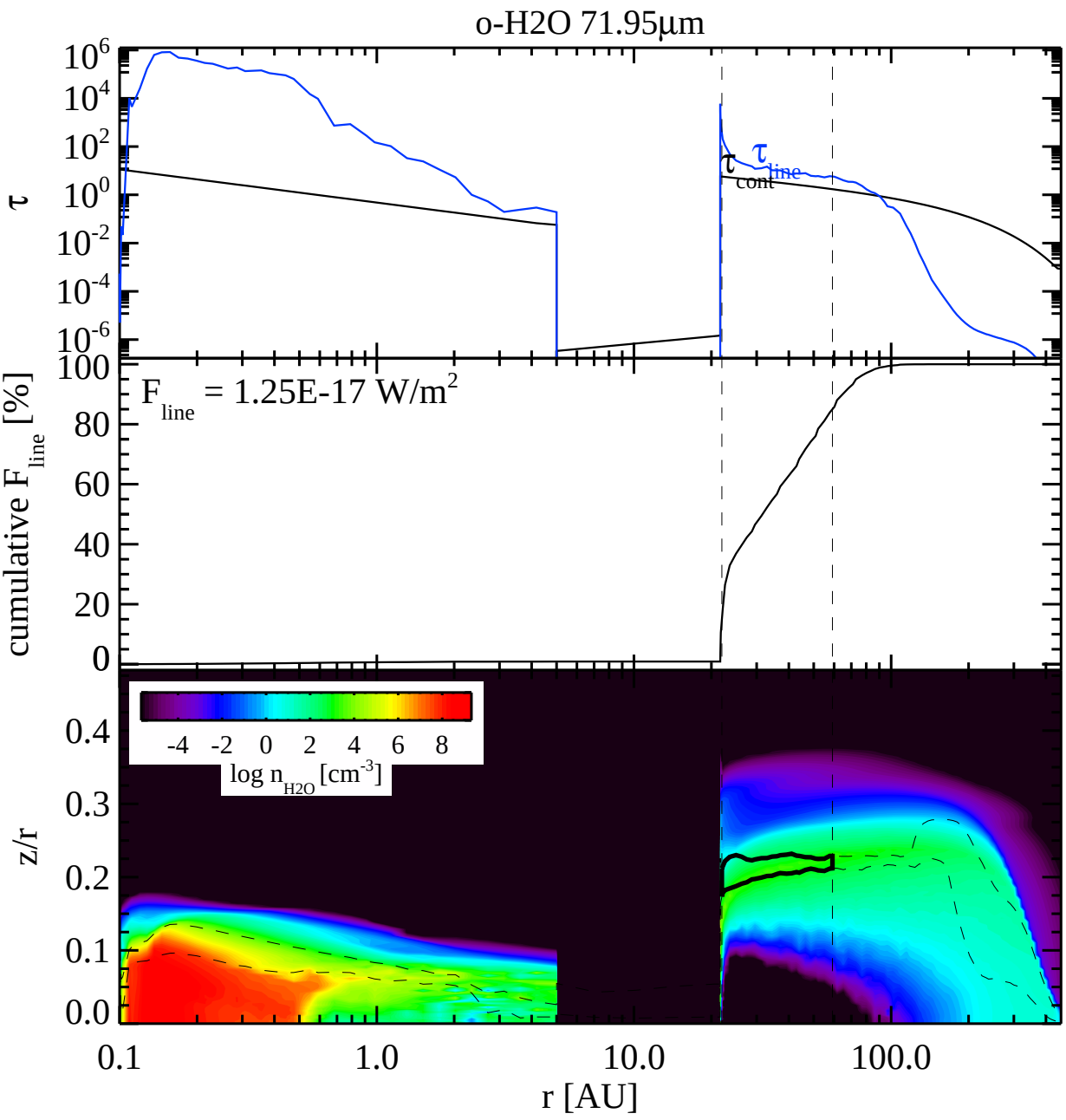

p-H2O 187.11µm
τ
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 4.29E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

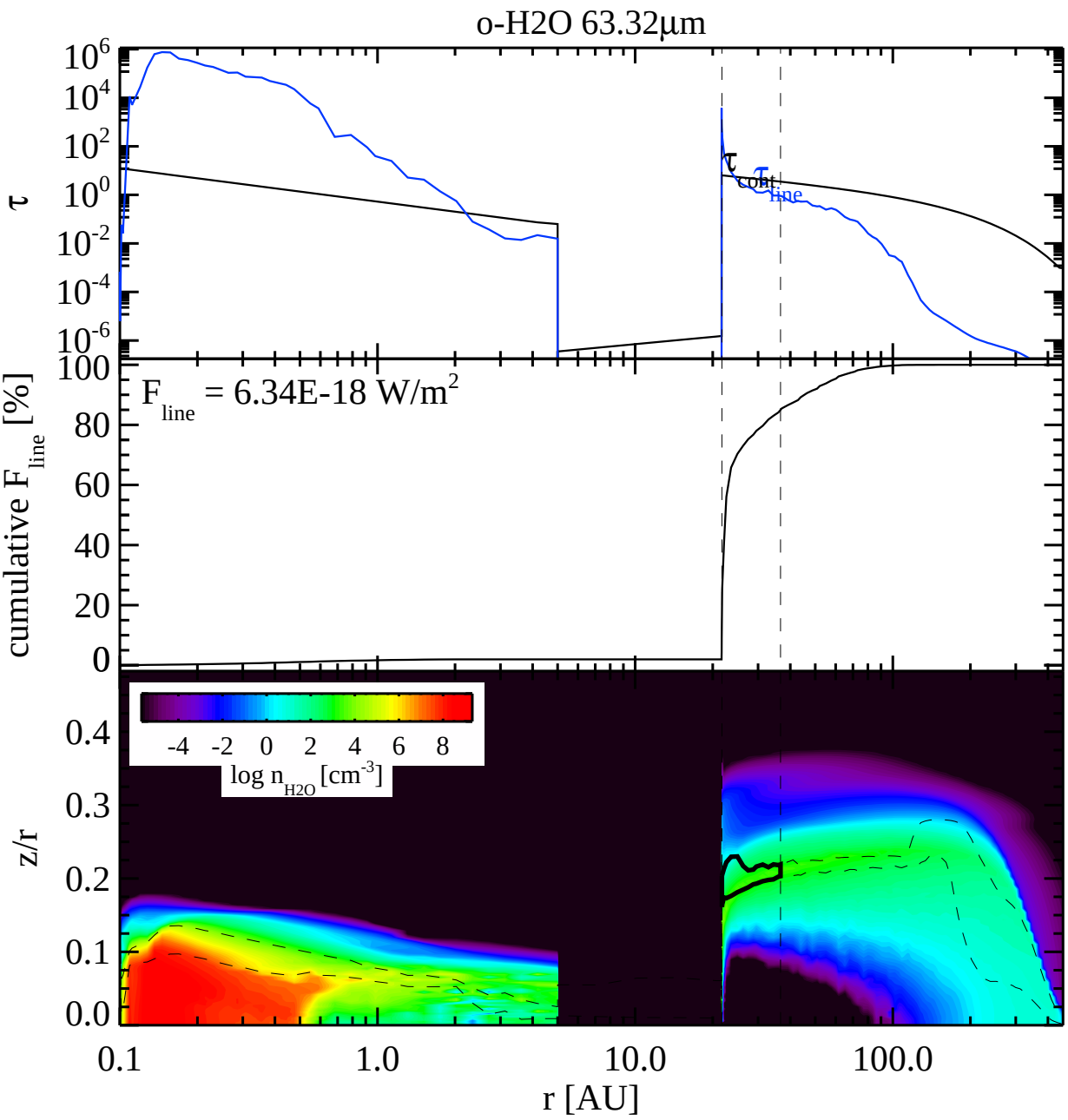

o-H2O 180.49µm
τ
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 8.81E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

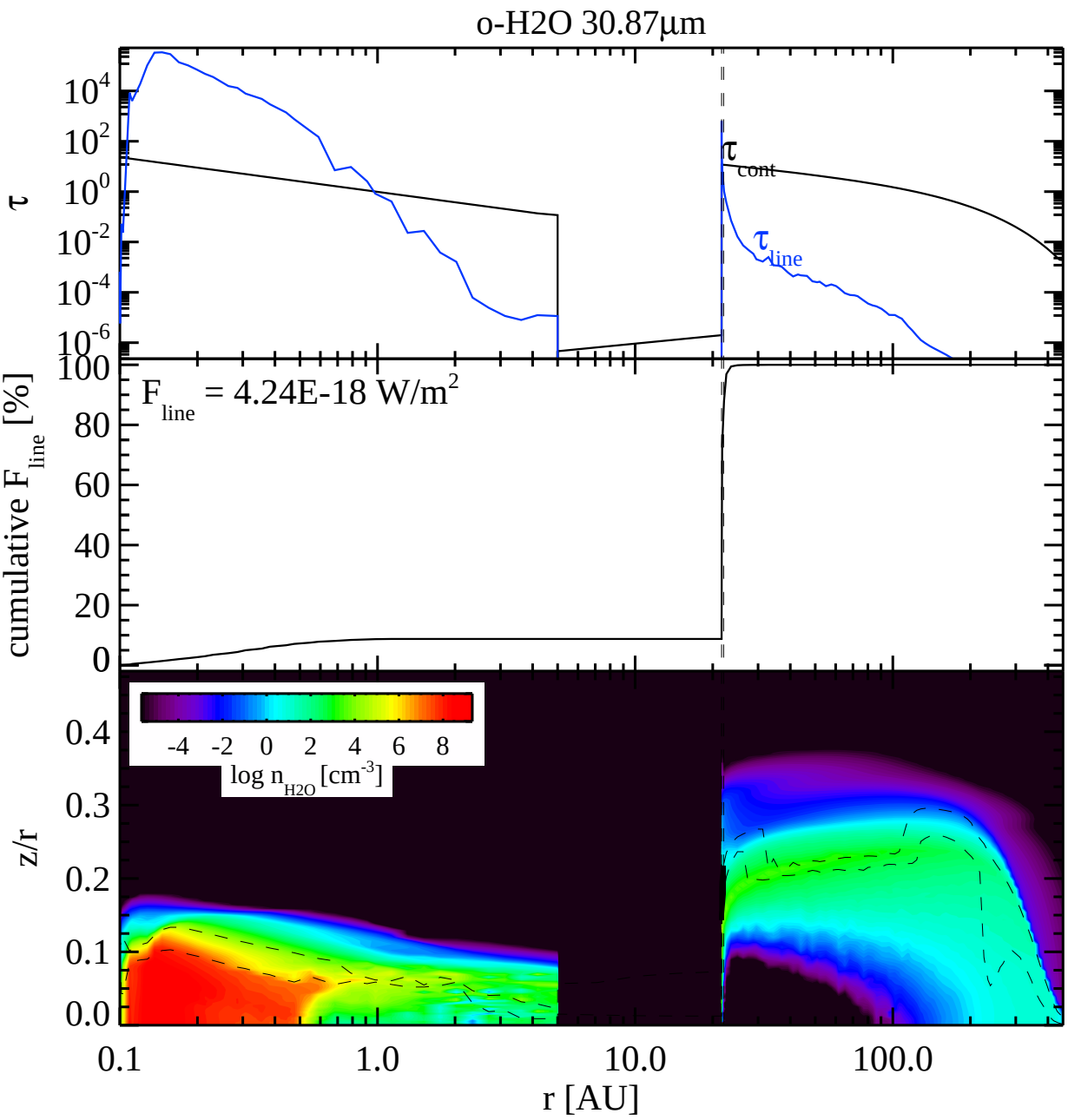

o-H2O 179.53µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.11E-17 W/m^2
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

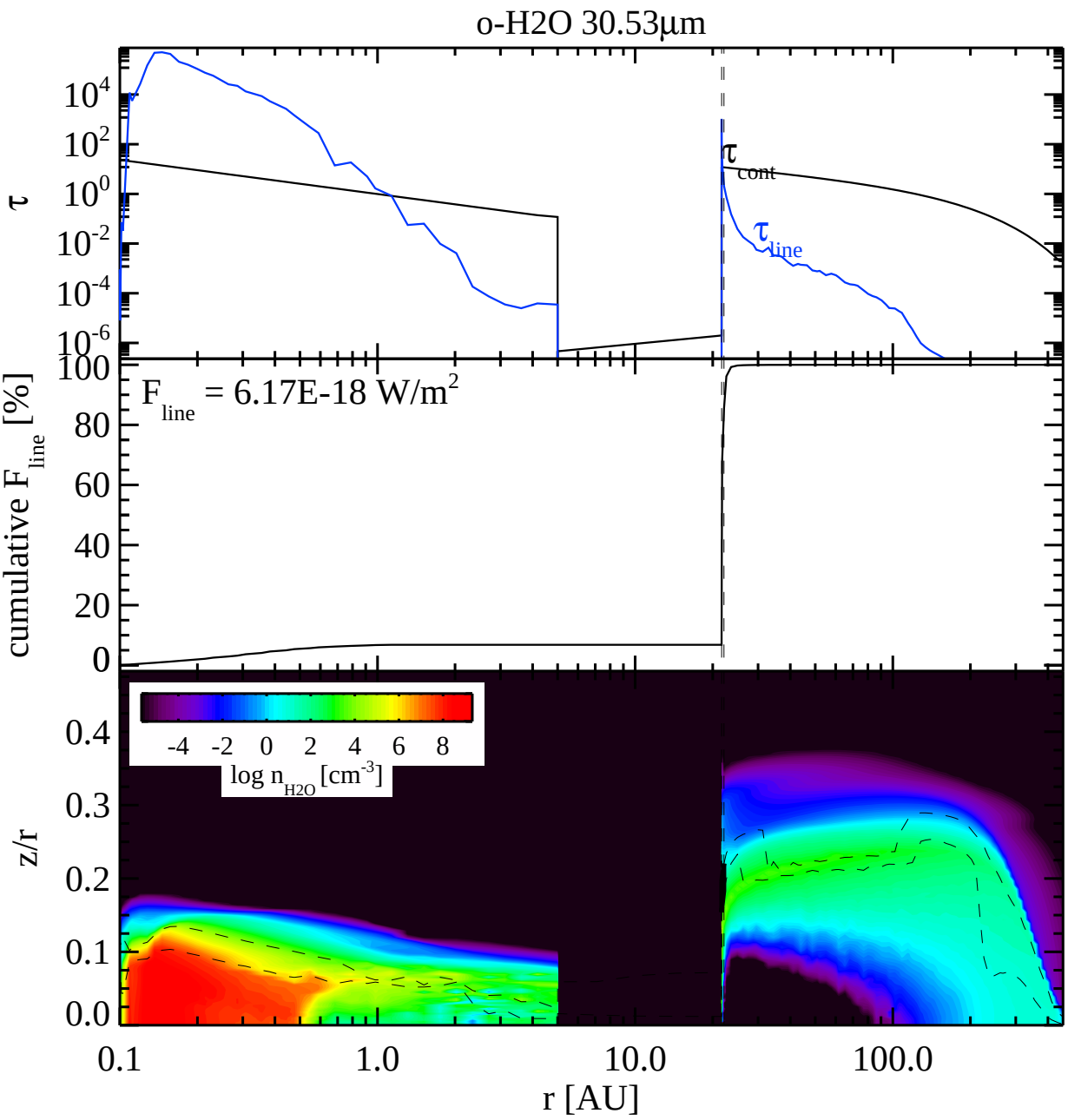

p-H2O 89.99µm
τ
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.81E-17 W/m^2
z/r
0.4
0.3
0.2
0.1
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

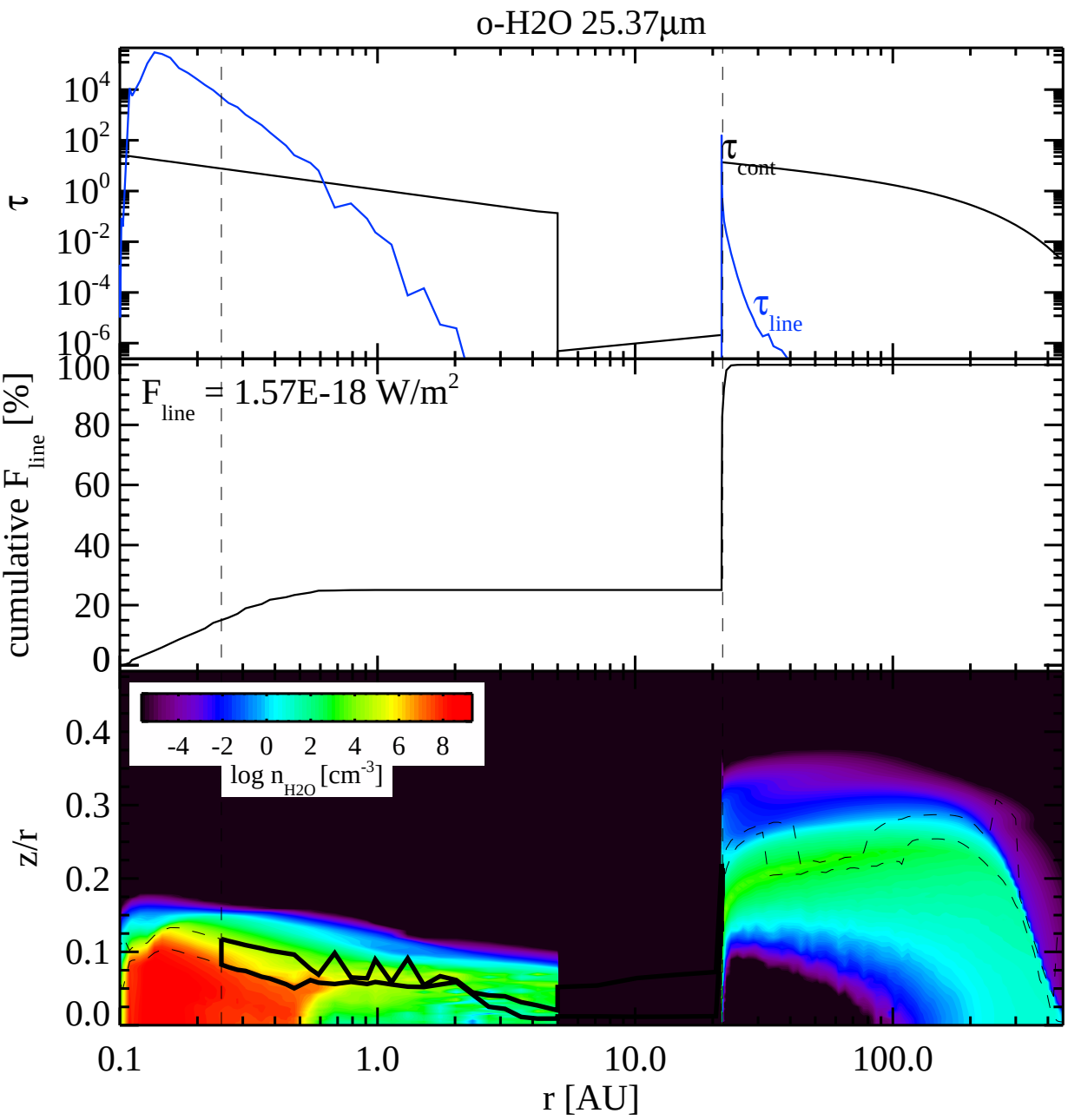

o-H2O 78.74µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.83E-17 W/m^2
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

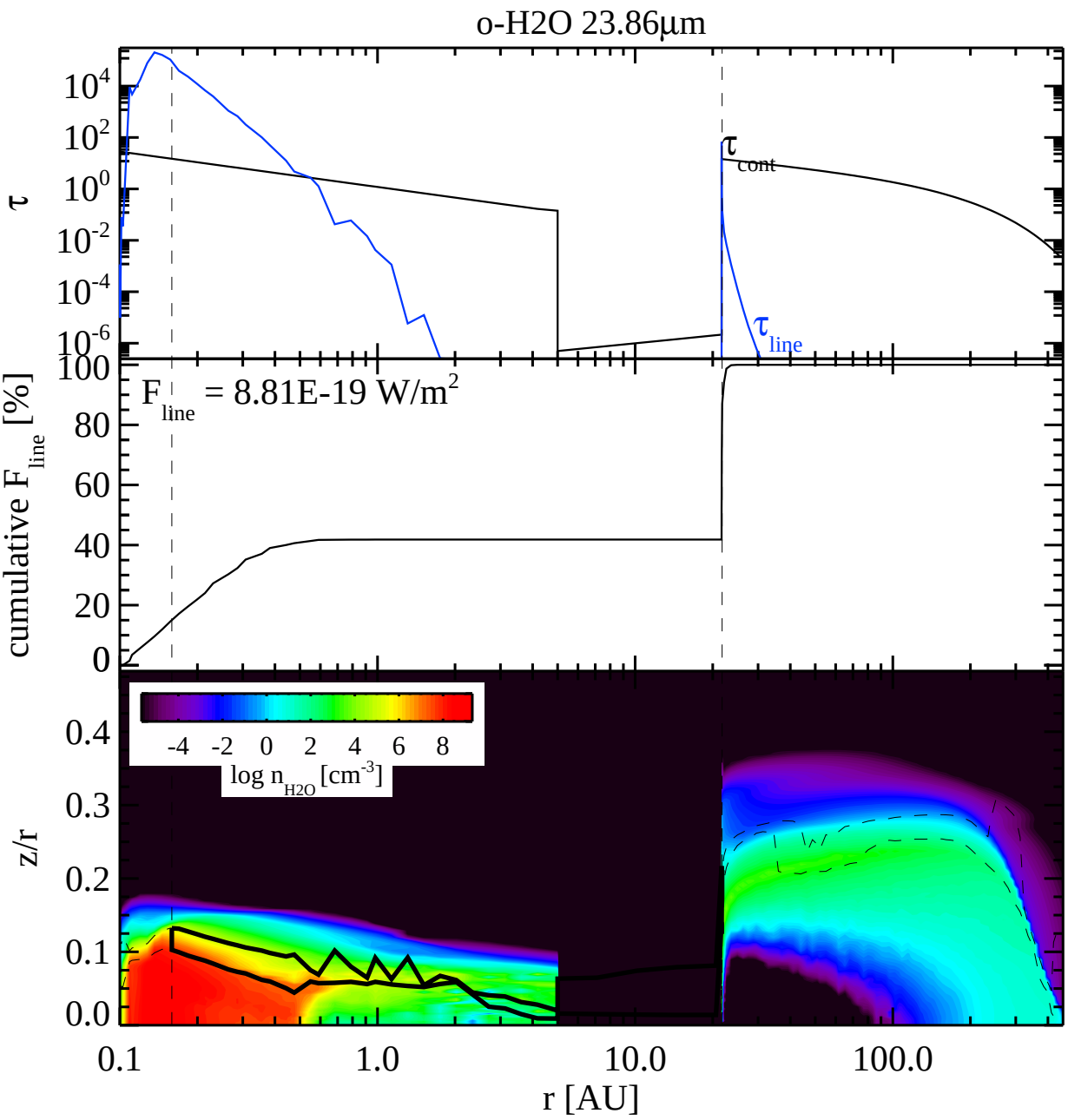

o-H2O 71.95µm
τ
10^{6}
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.25E-17 W/m^2
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

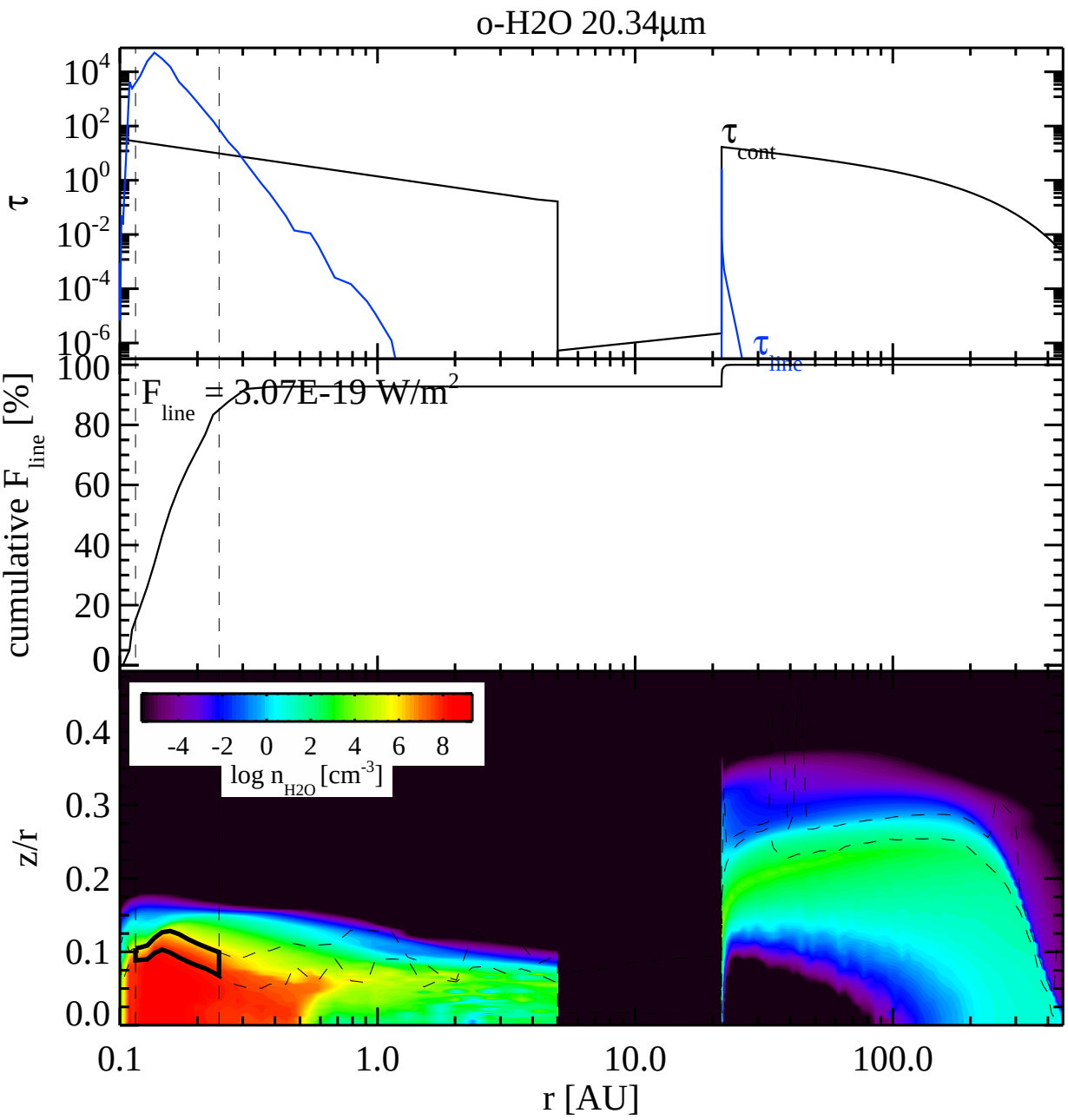

o-H2O 63.32µm
τ
10^{6}
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
$\tau_{cont.}$
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 6.34E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

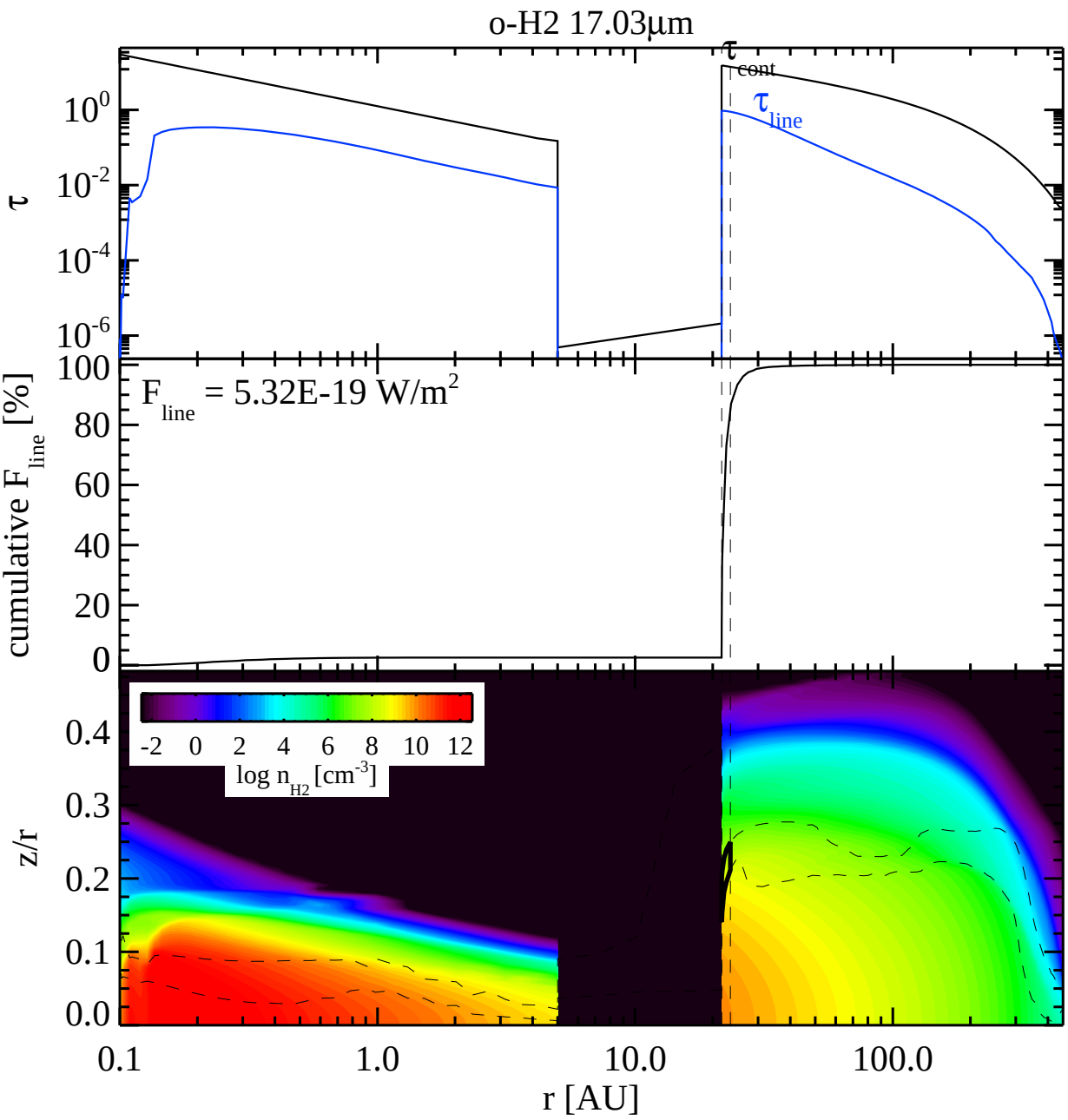

o-H2O 30.87µm
τ
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 4.24E-18 W/m^2
z/r
0.4
0.3
0.2
0.1
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

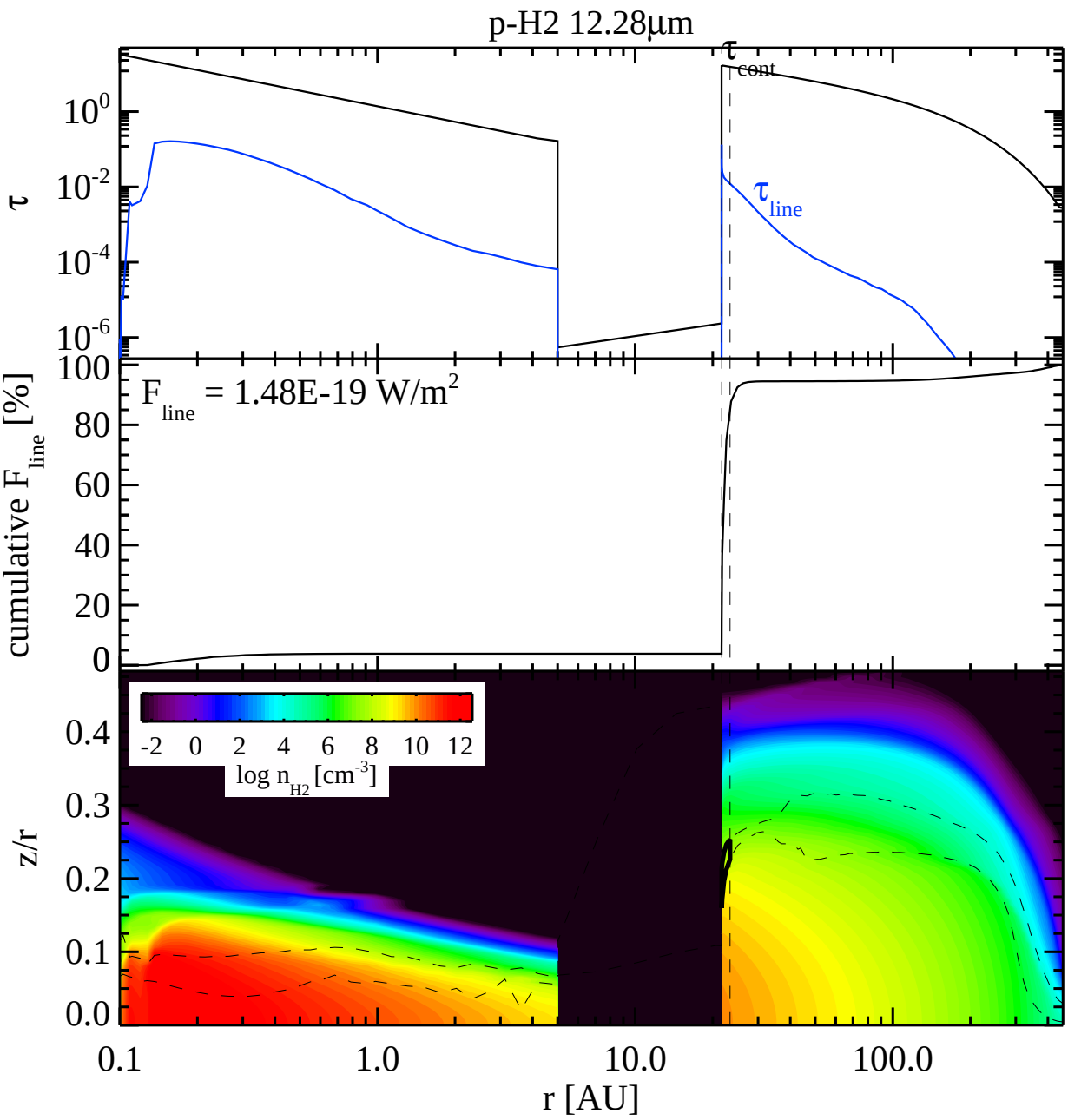

o-H2O 30.53µm
τ
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 6.17E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

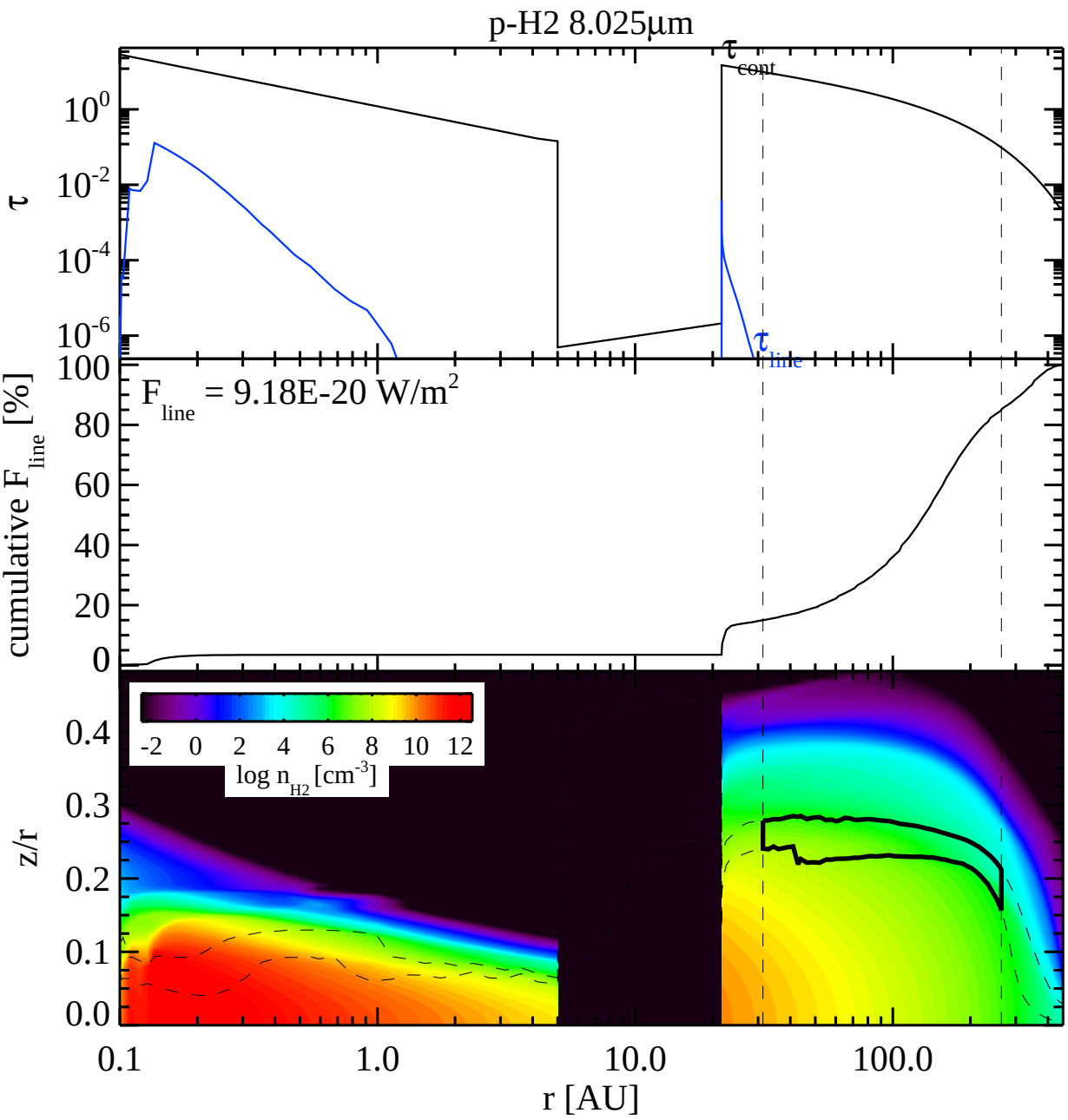

o-H2O 25.37µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.57E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

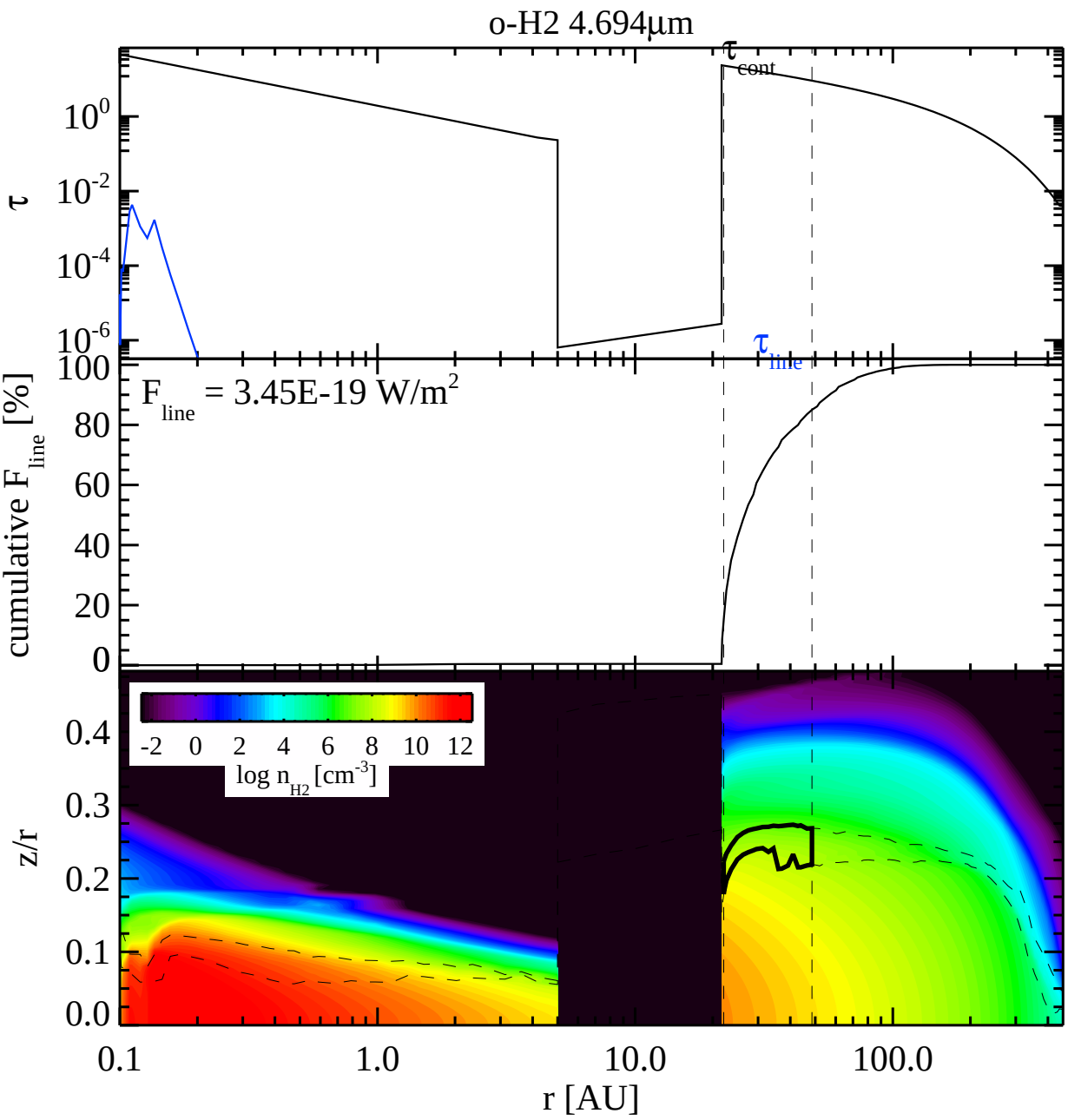

o-H2O 23.86µm
τ
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 8.81E-19 W/m^2
100
80
60
40
20
0
z/r
0.4
0.3
0.2
0.1
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

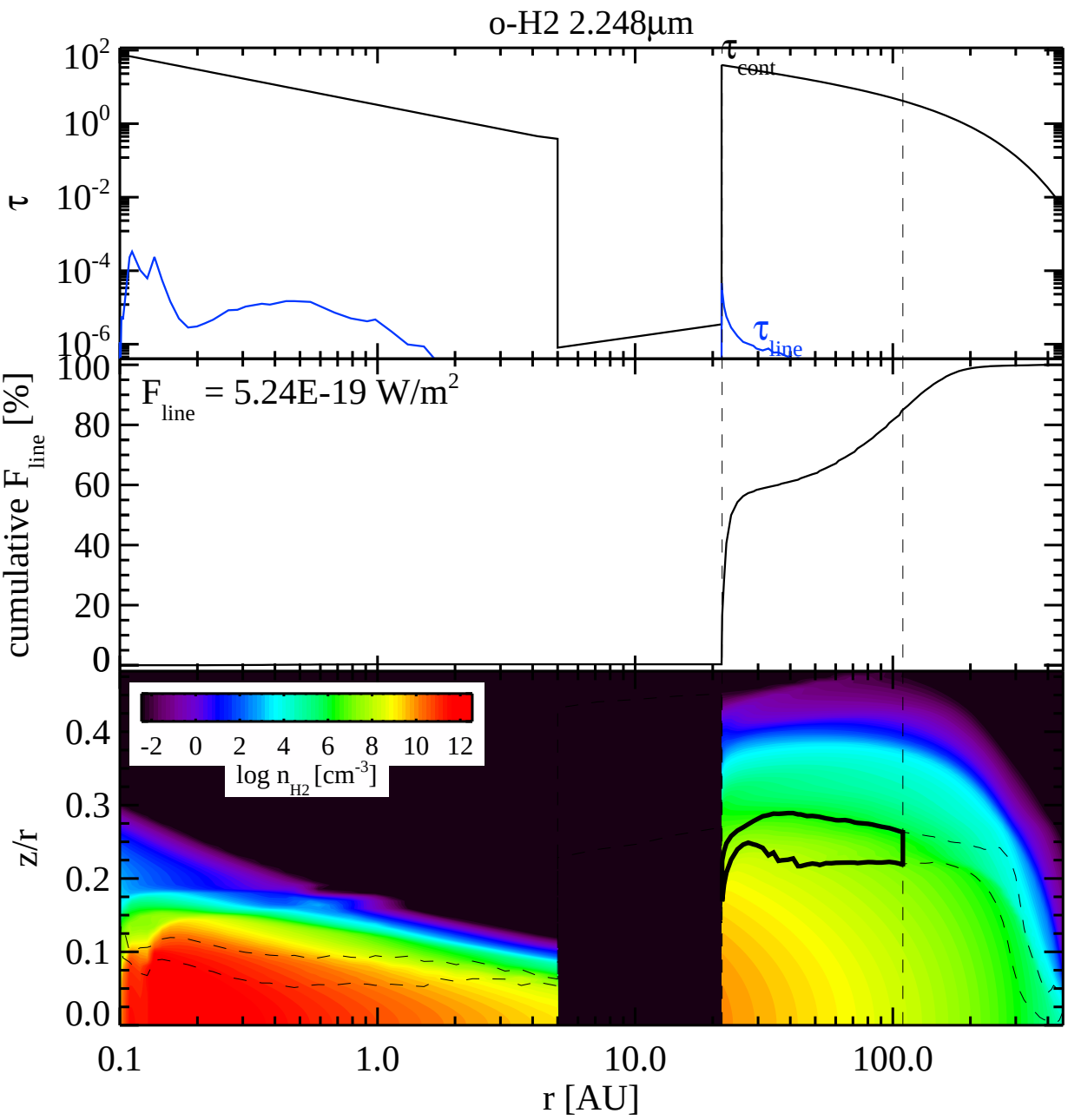

o-H2O 20.34µm
τ
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 3.07E-19 W/m^2
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

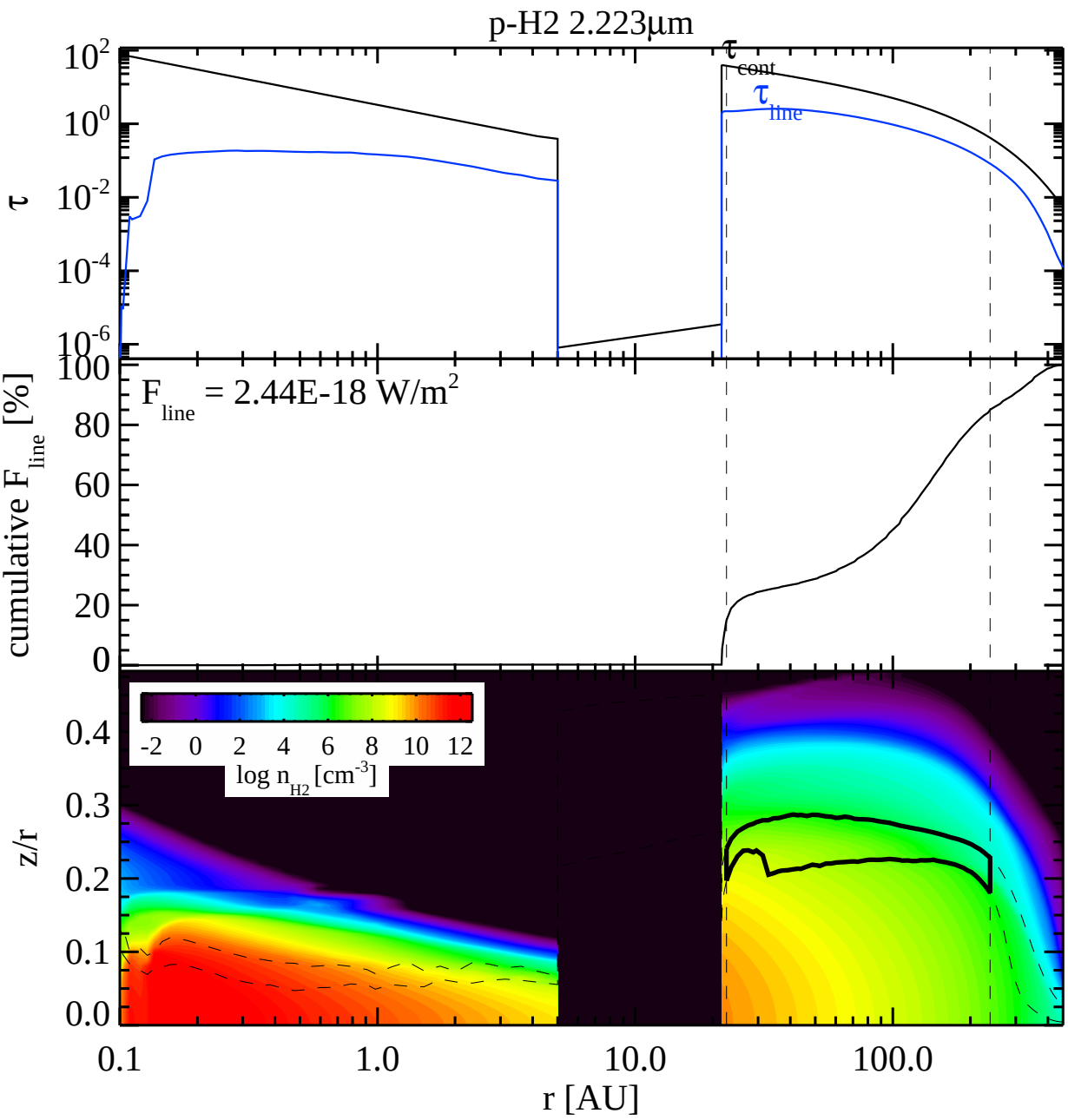

o-H2 17.03µm
τ
cont
τ
line
τ
10^0
10^-2
10^-4
10^-6
cumulative F_line [%]
F_line = 5.32E-19 W/m^2
100
80
60
40
20
0
-2 0 2 4 6 8 10 12
log n_H2 [cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

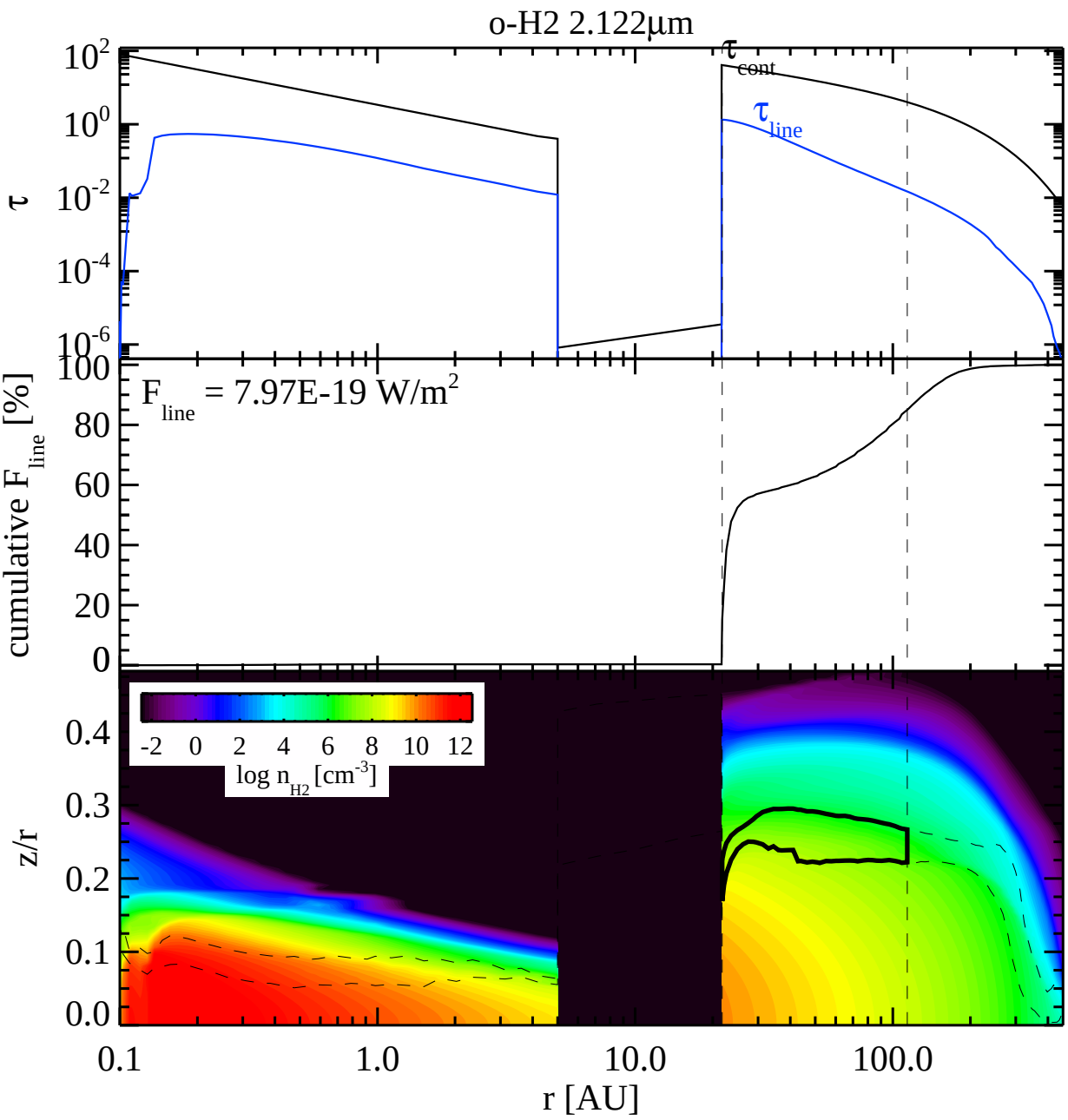

p-H2 12.28µm
τ
cont
τ
line
τ
10^0
10^-2
10^-4
10^-6
cumulative F
line
[%]
F
line
= 1.48E-19 W/m^2
100
80
60
40
20
0
-2 0 2 4 6 8 10 12
log n
H2
[cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

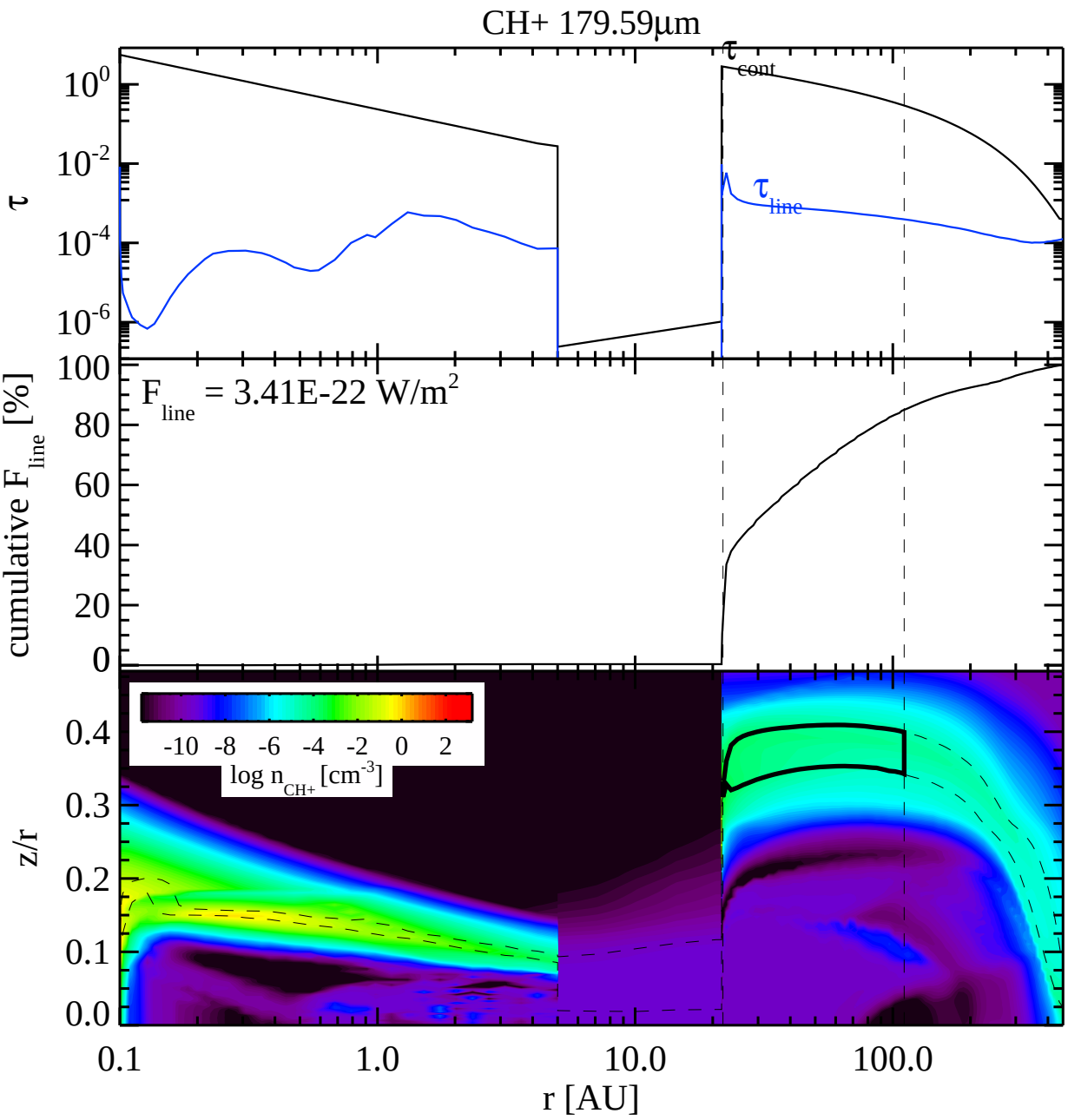

p-H2 8.025µm
τ
cont
τ
line
τ
10^0
10^-2
10^-4
10^-6
F
line
= 9.18E-20 W/m^2
cumulative F
line
[%]
100
80
60
40
20
0
-2 0 2 4 6 8 10 12
log n
H2
[cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

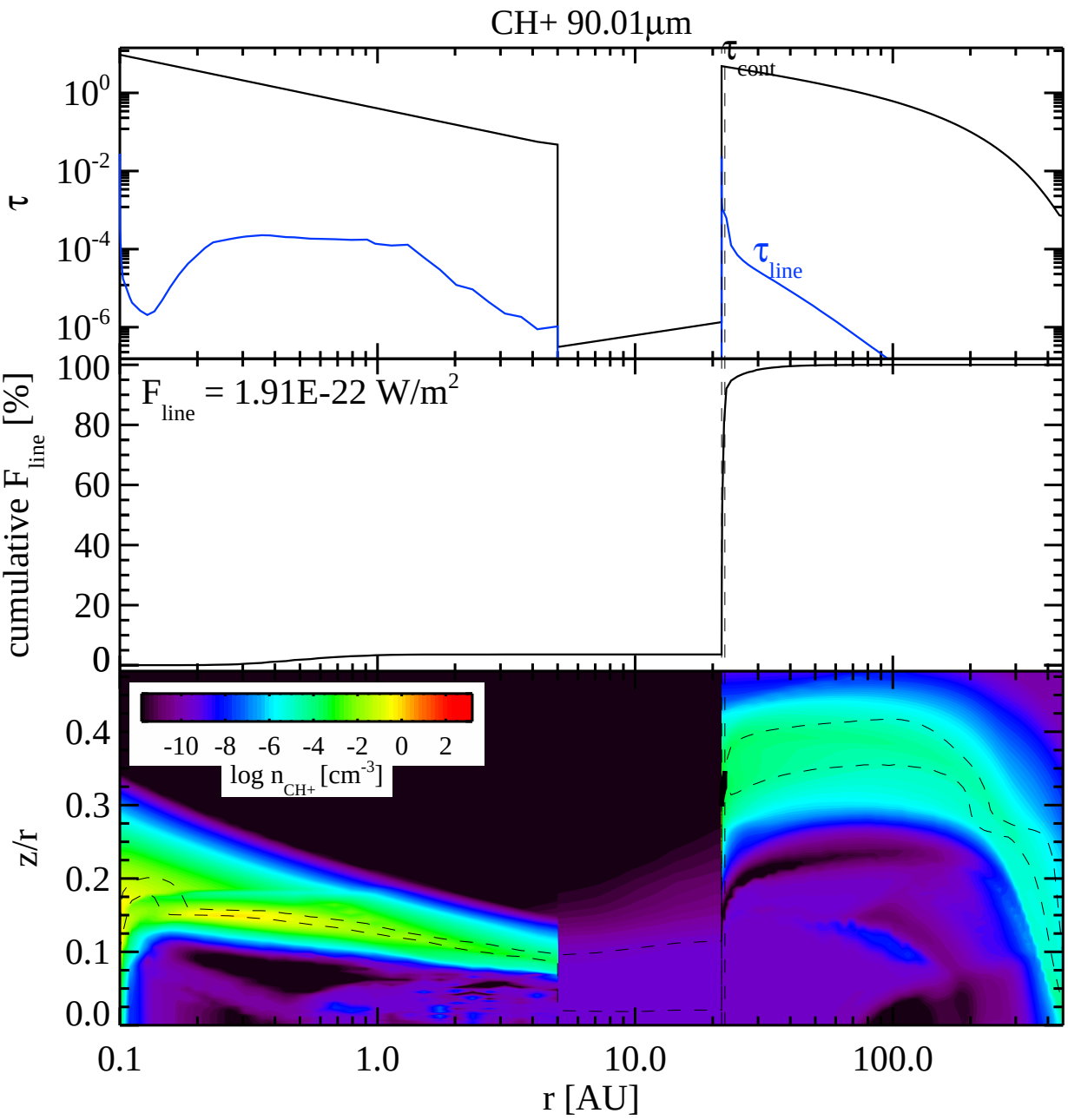

o-H2 4.694µm
τ
cont
τ
line
F
line
= 3.45E-19 W/m2
cumulative F
line
[%]
log n
H2
[cm-3]
z/r
r [AU]

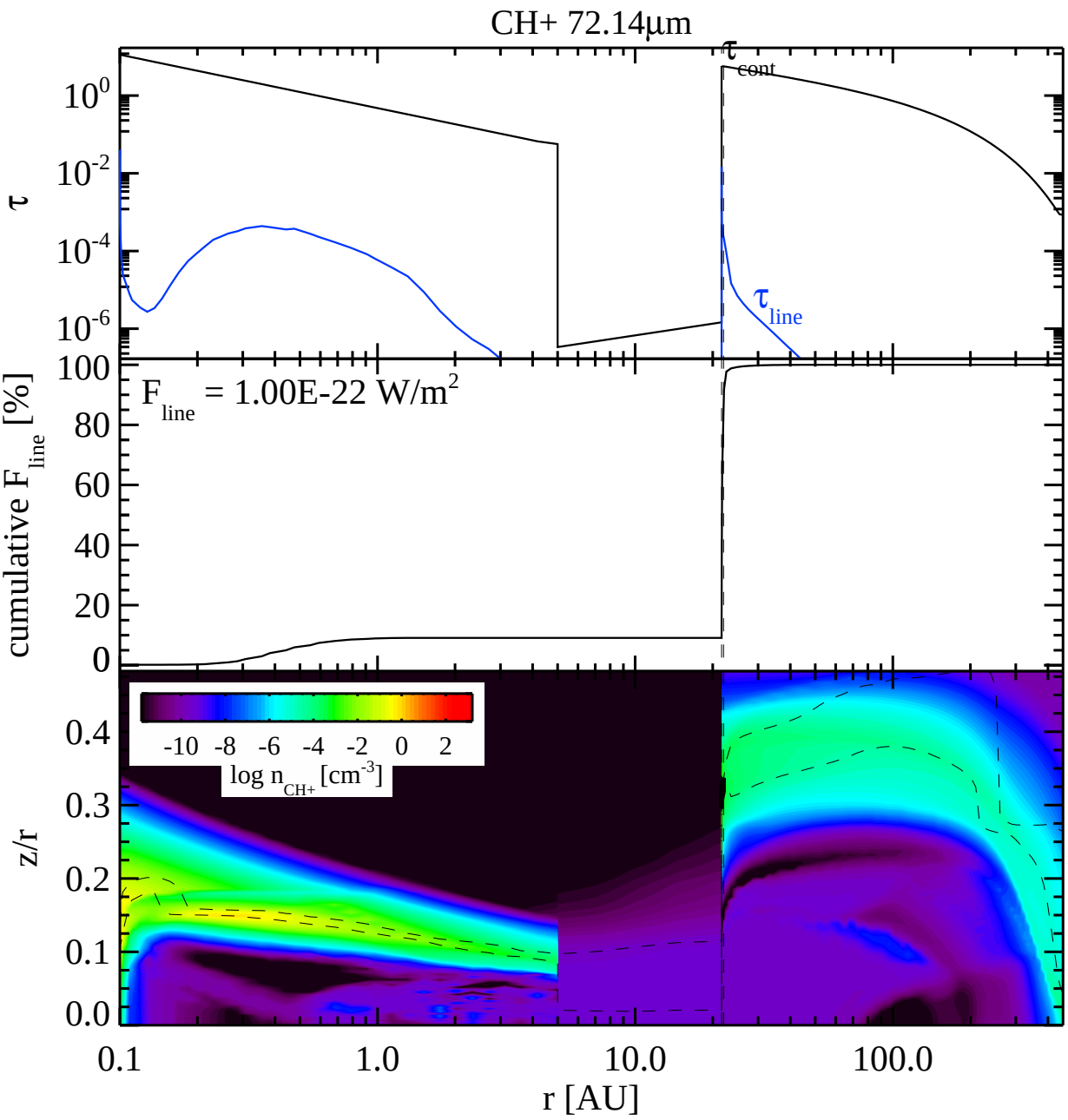

o-H2 2.248µm
τ
cont
τ
line
τ
10^2
10^0
10^-2
10^-4
10^-6
F
line
= 5.24E-19 W/m^2
cumulative F
line
[%]
100
80
60
40
20
0
log n
H2
[cm^-3]
-2 0 2 4 6 8 10 12
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

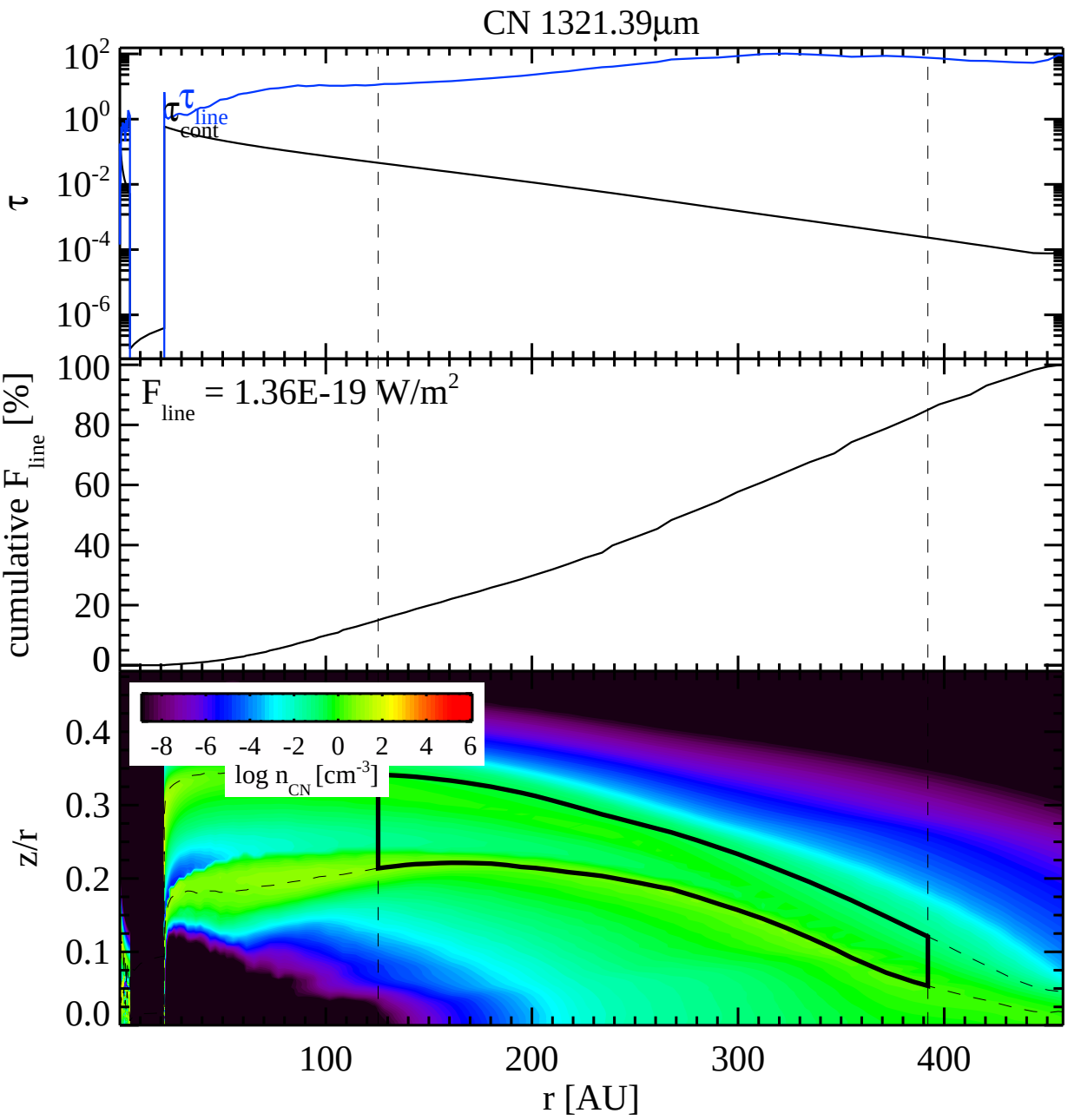

p-H2 2.223µm
τ
cont
τ
line
τ
cumulative F line [%]
F line = 2.44E-18 W/m2
log n H2 [cm-3]
-2 0 2 4 6 8 10 12
z/r
r [AU]
0.1
1.0
10.0
100.0

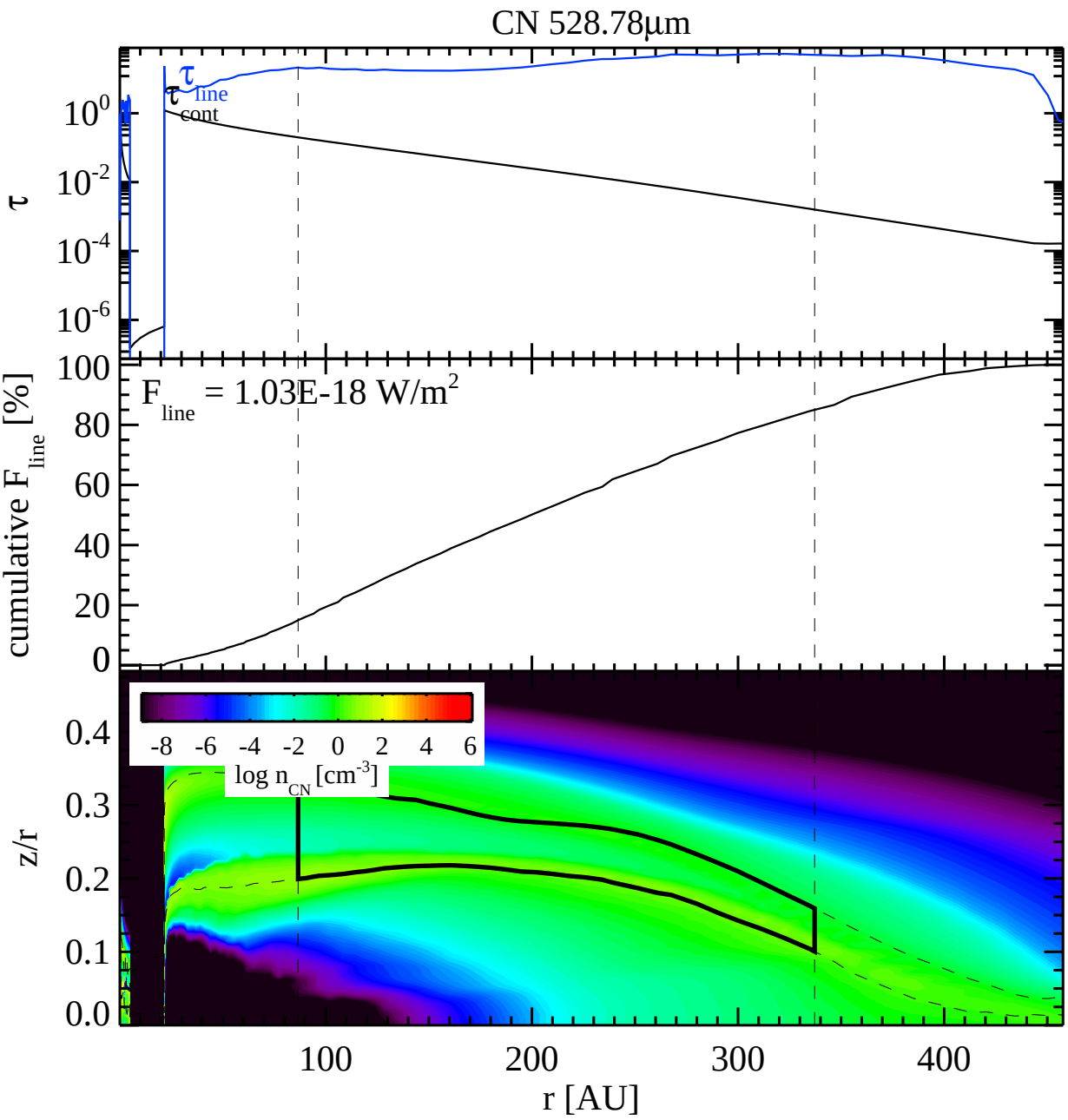

o-H2 2.122µm
τ
cont
τ
line
τ
cumulative F
line
[%]
F
line
= 7.97E-19 W/m
2
log n
H2
[cm
-3
]
z/r
r [AU]

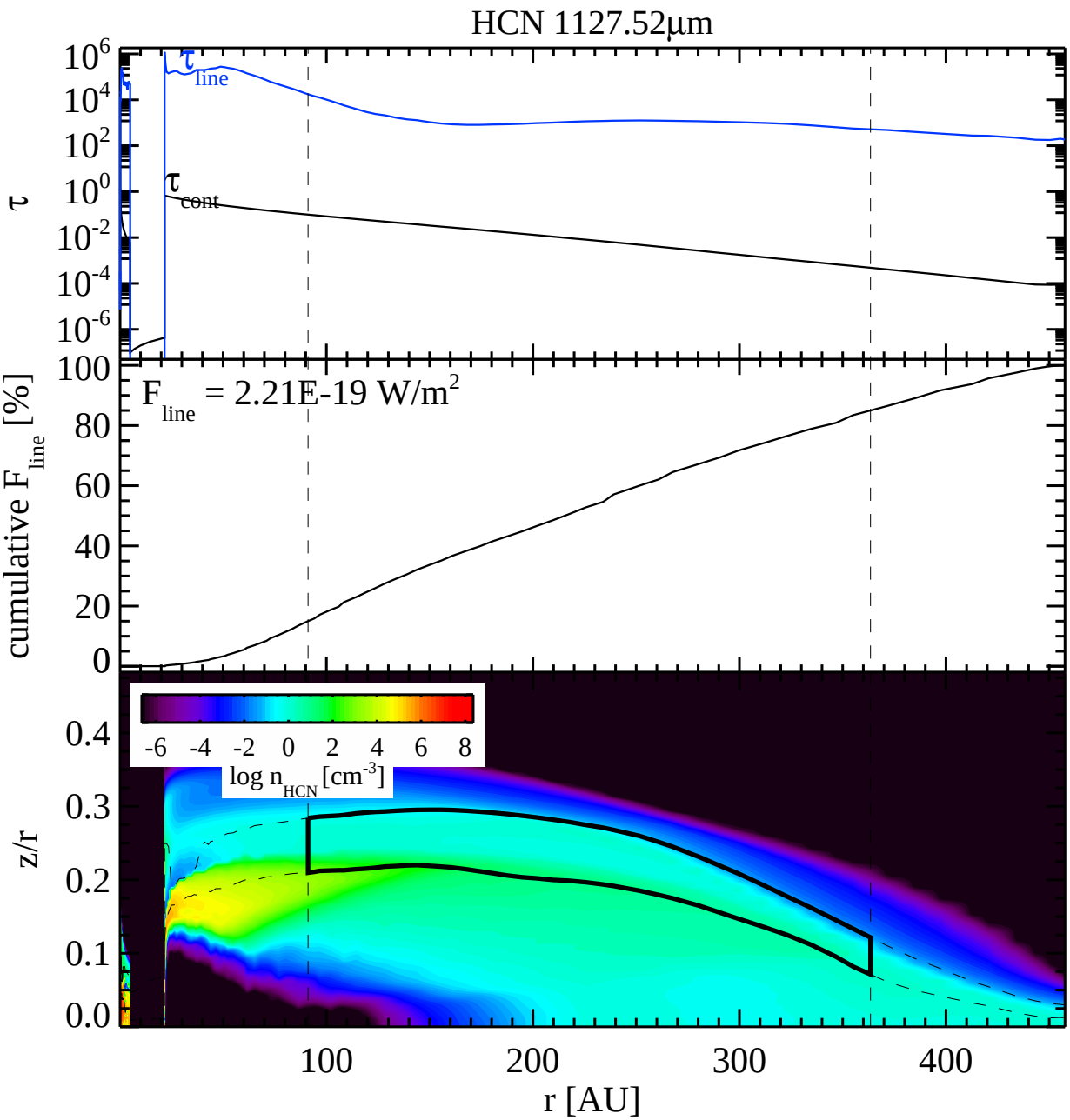

CH+ 179.59µm
τ
cont
τ
line
τ
10^0
10^-2
10^-4
10^-6
F
line
= 3.41E-22 W/m^2
cumulative F
line
[%]
100
80
60
40
20
0
-10 -8 -6 -4 -2 0 2
log n
CH+
[cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

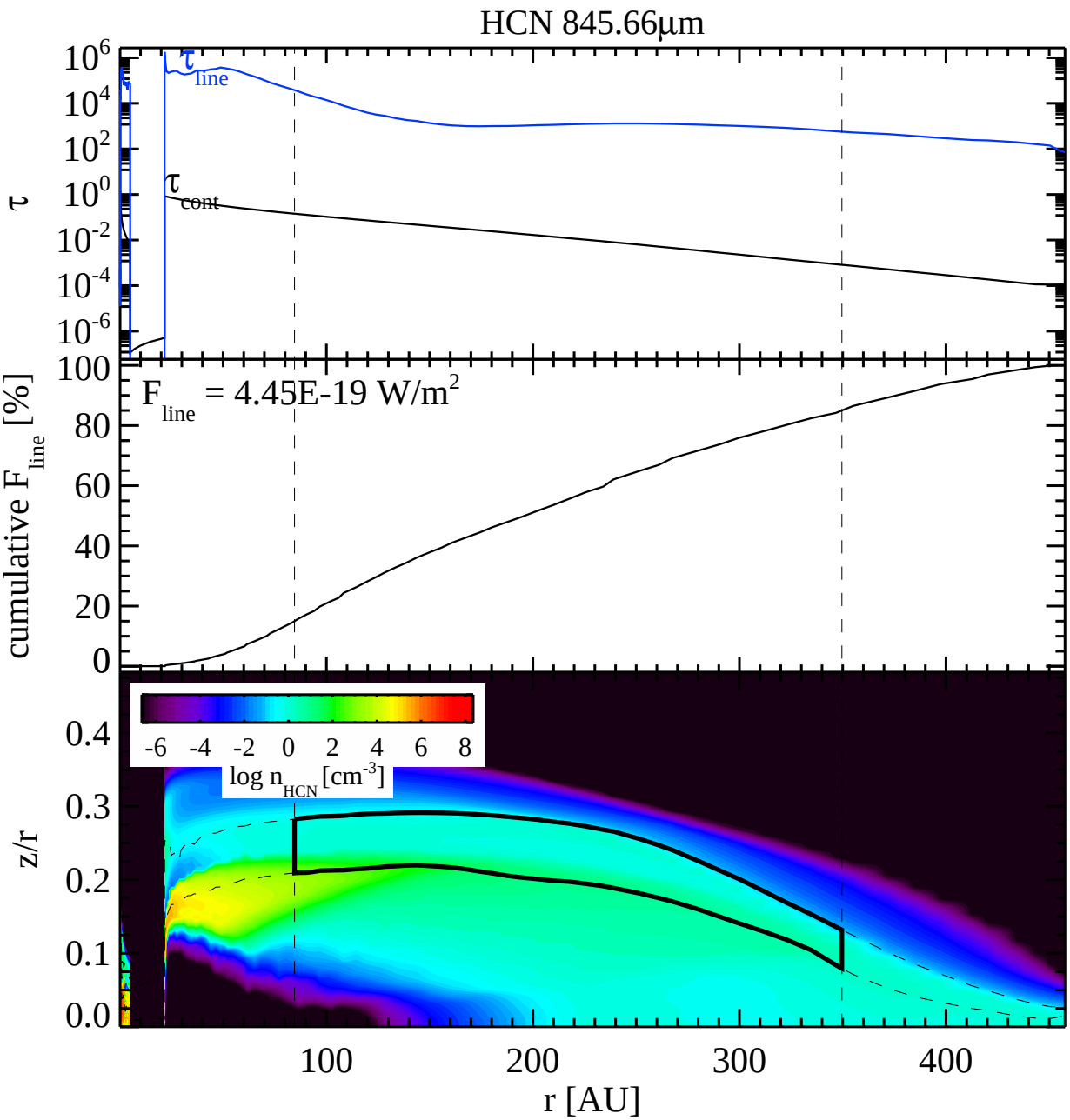

CH+ 90.01µm
τ
τ cont
τ line
10^0
10^-2
10^-4
10^-6
cumulative F line [%]
F line = 1.91E-22 W/m^2
100
80
60
40
20
0
-10 -8 -6 -4 -2 0 2
log n CH+ [cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

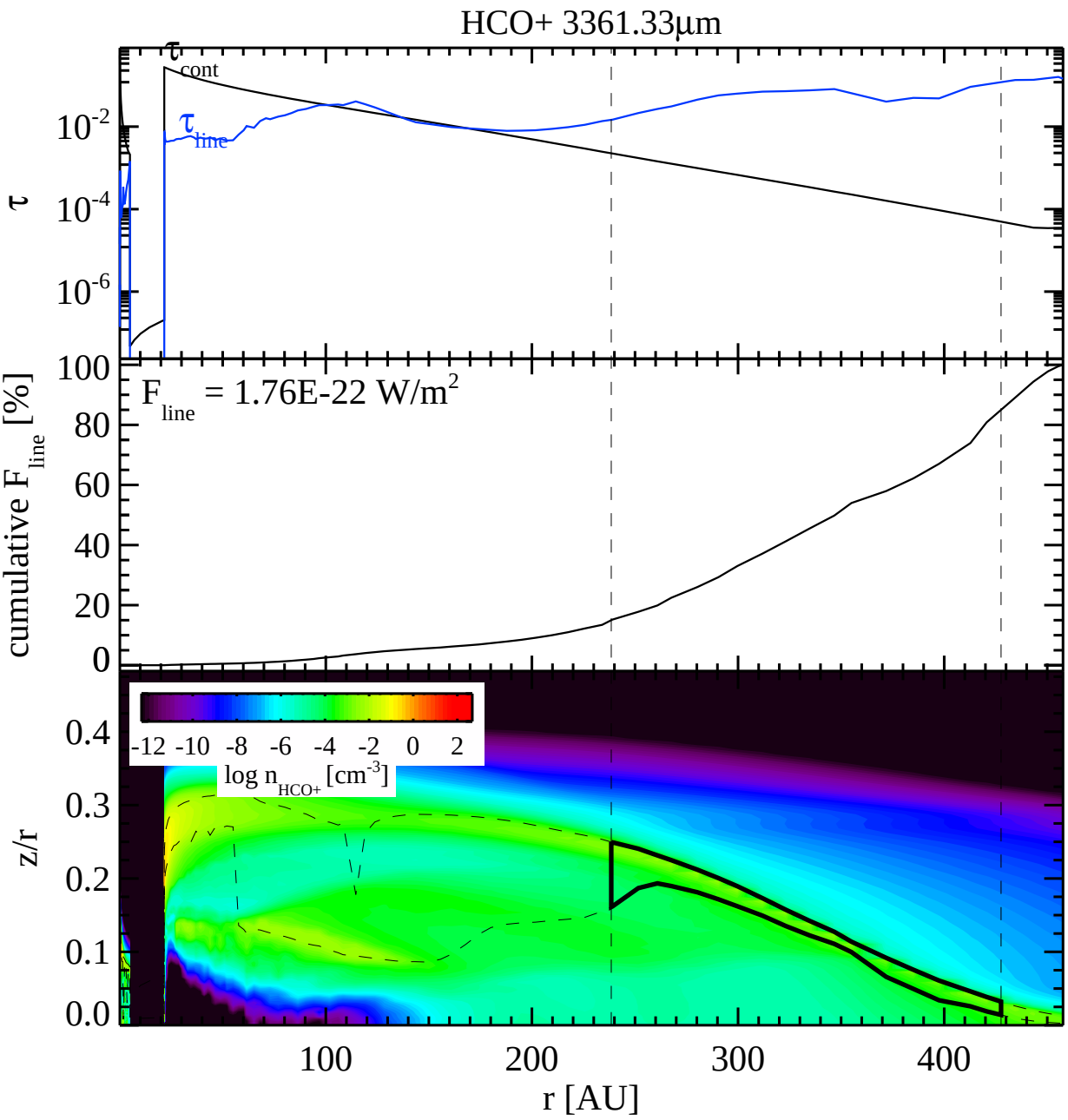

CH+ 72.14µm
τ
cont
τ
line
τ
10^0
10^-2
10^-4
10^-6
F
line
= 1.00E-22 W/m^2
cumulative F
line
[%]
100
80
60
40
20
0
-10 -8 -6 -4 -2 0 2
log n
CH+
[cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
0.1
1.0
10.0
100.0
r [AU]

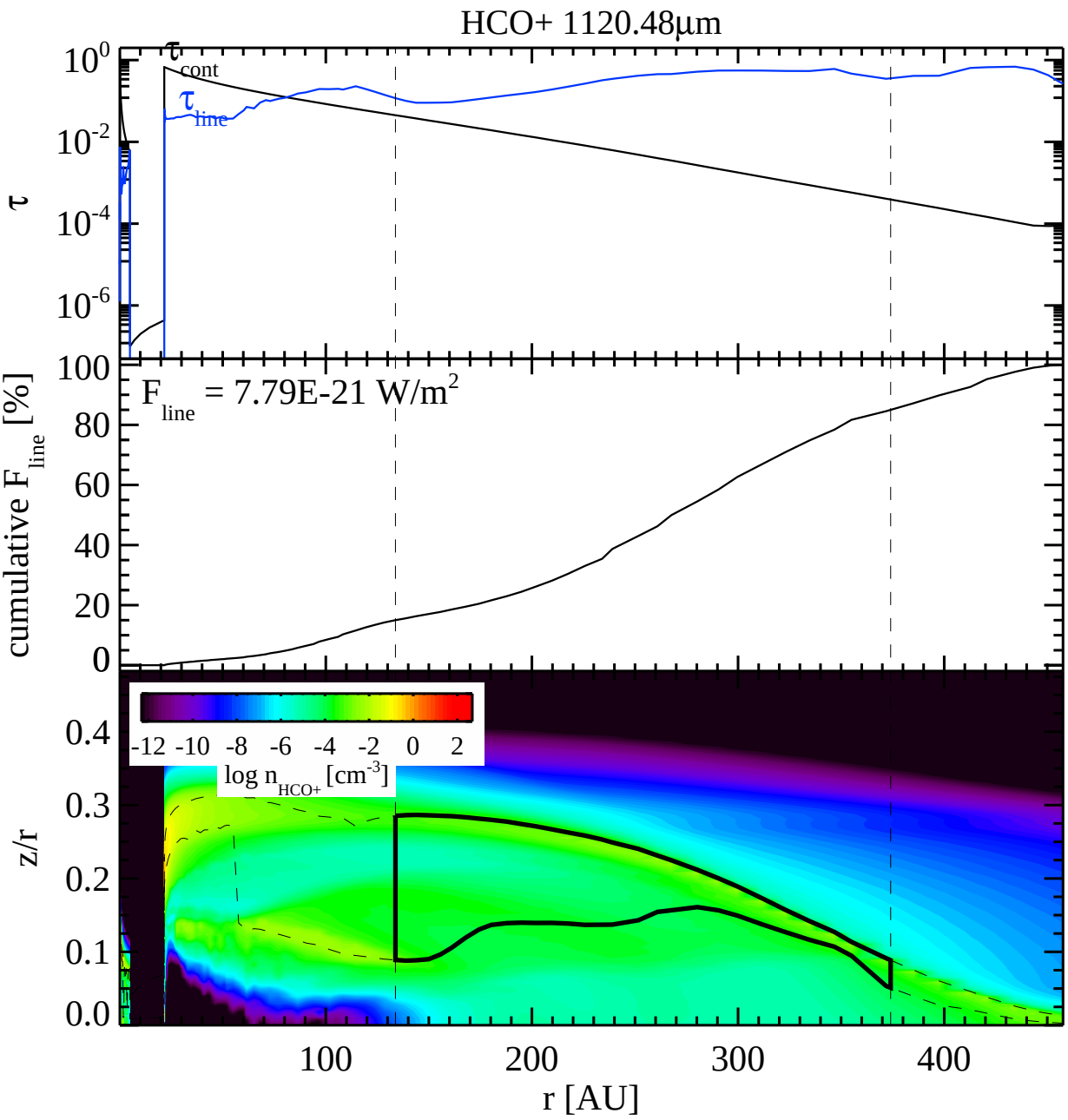

CN 1321.39µm
τ
τ line
τ cont
F line = 1.36E-19 W/m2
cumulative F line [%]
log n CN [cm-3]
z/r
r [AU]

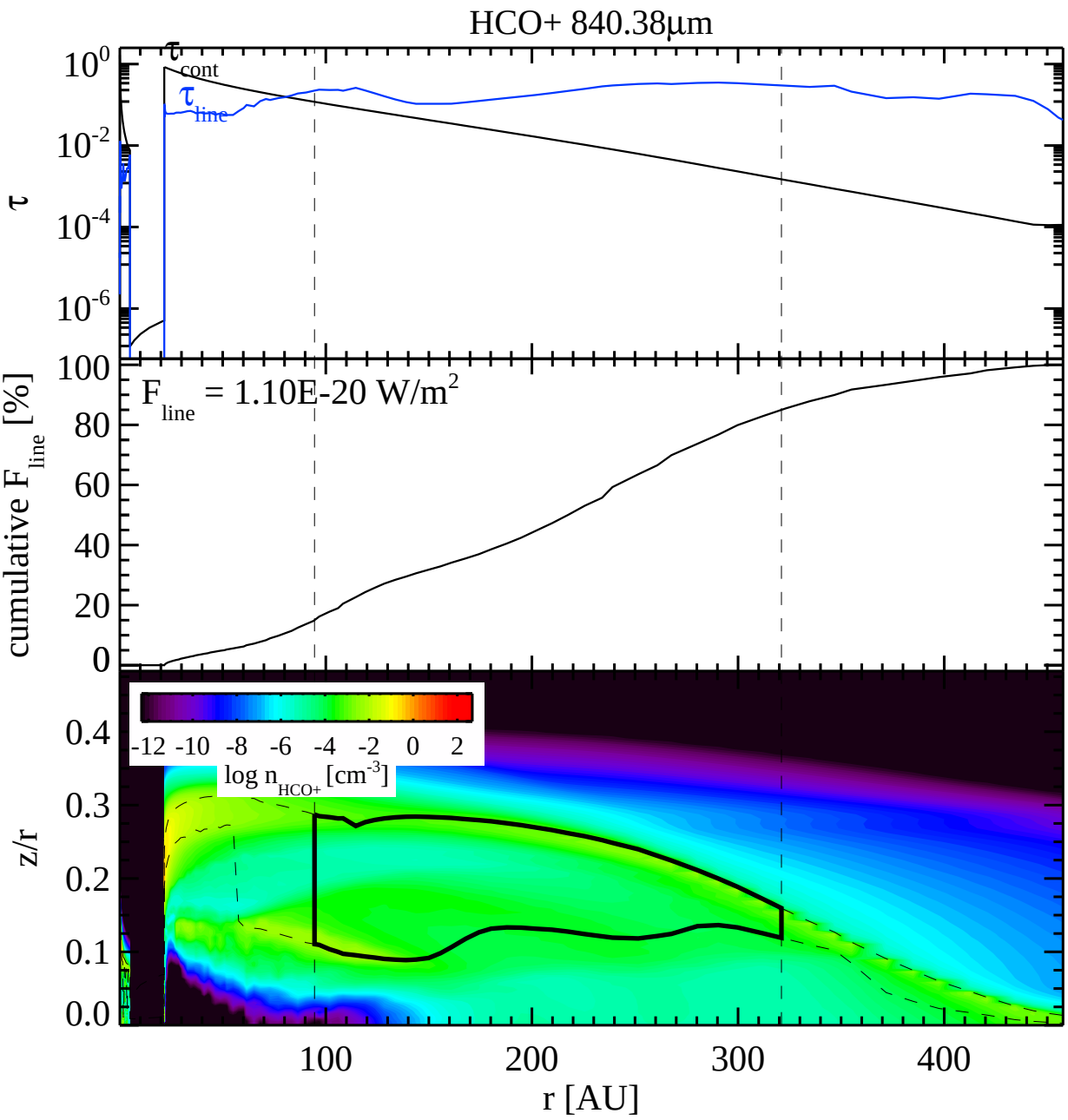

CN 528.78µm
τ
τ line
τ cont
10^0
10^-2
10^-4
10^-6
cumulative F line [%]
F line = 1.03E-18 W/m^2
100
80
60
40
20
0
-8 -6 -4 -2 0 2 4 6
log n CN [cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
100
200
300
400
r [AU]

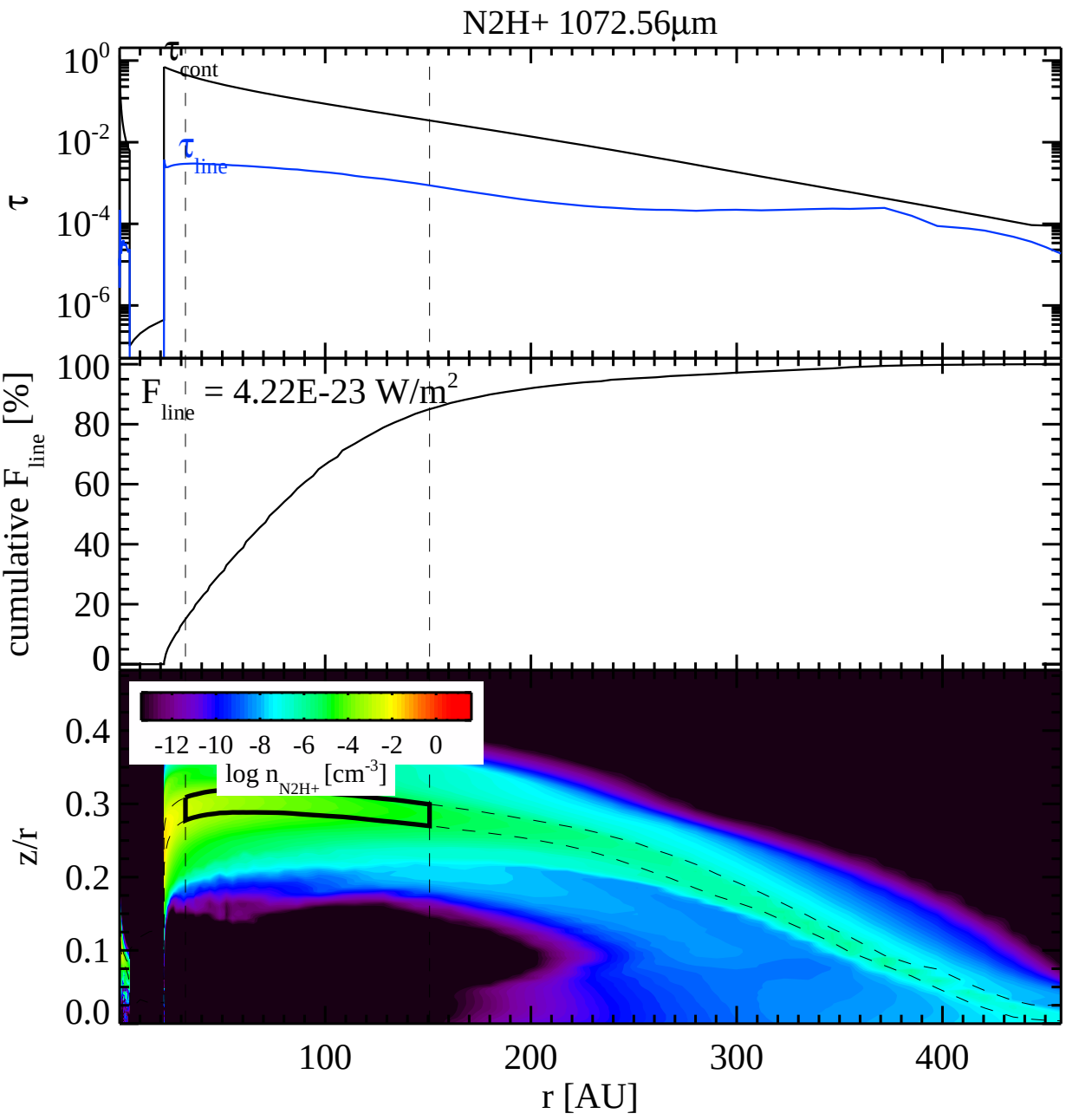

HCN 1127.52µm
τ
τ line
τ cont
cumulative F line [%]
F line = 2.21E-19 W/m2
log n HCN [cm-3]
z/r
r [AU]

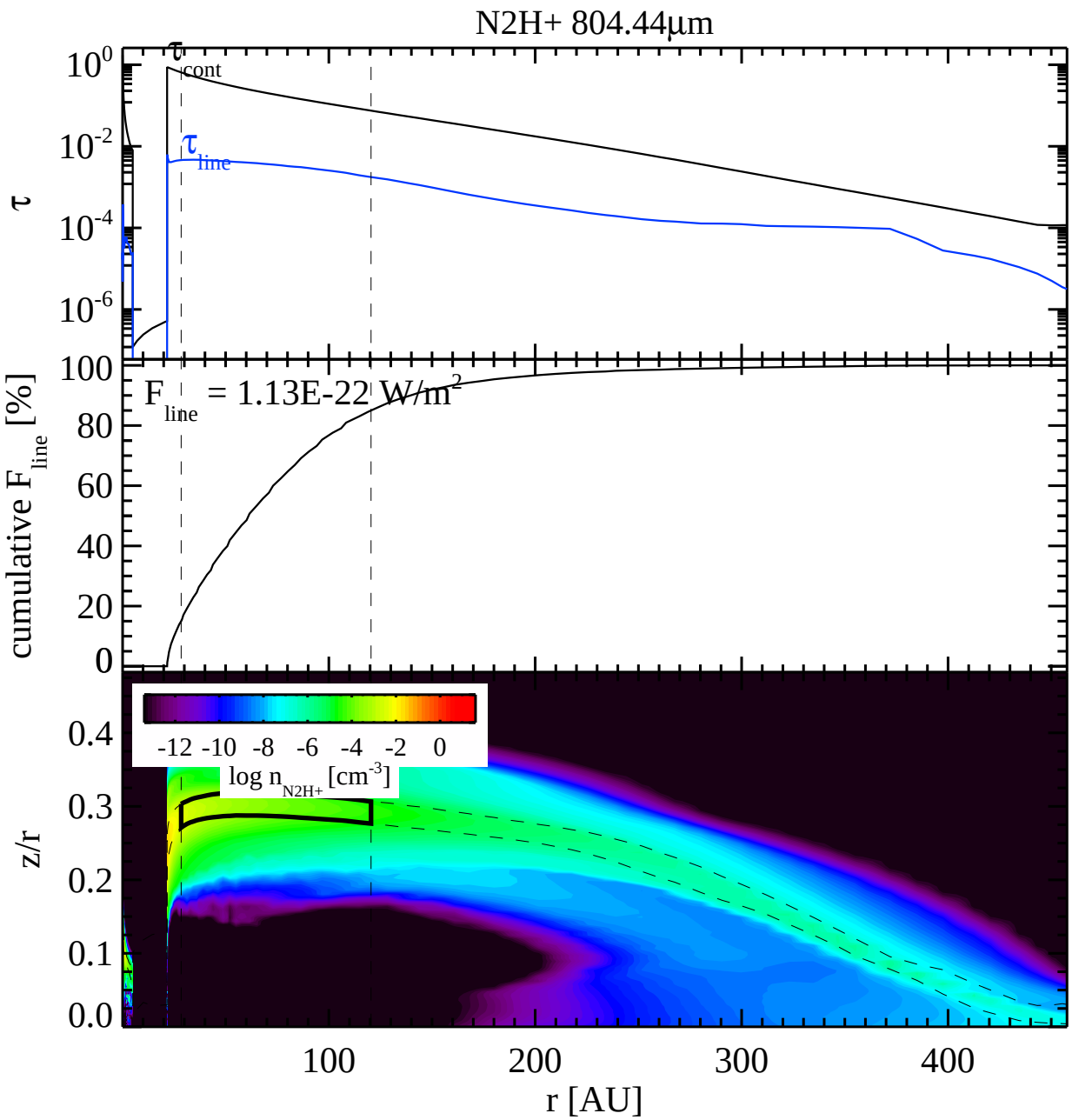

HCN 845.66µm
τ
τ line
τ cont
cumulative F line [%]
F line = 4.45E-19 W/m2
log n HCN [cm-3]
z/r
r [AU]

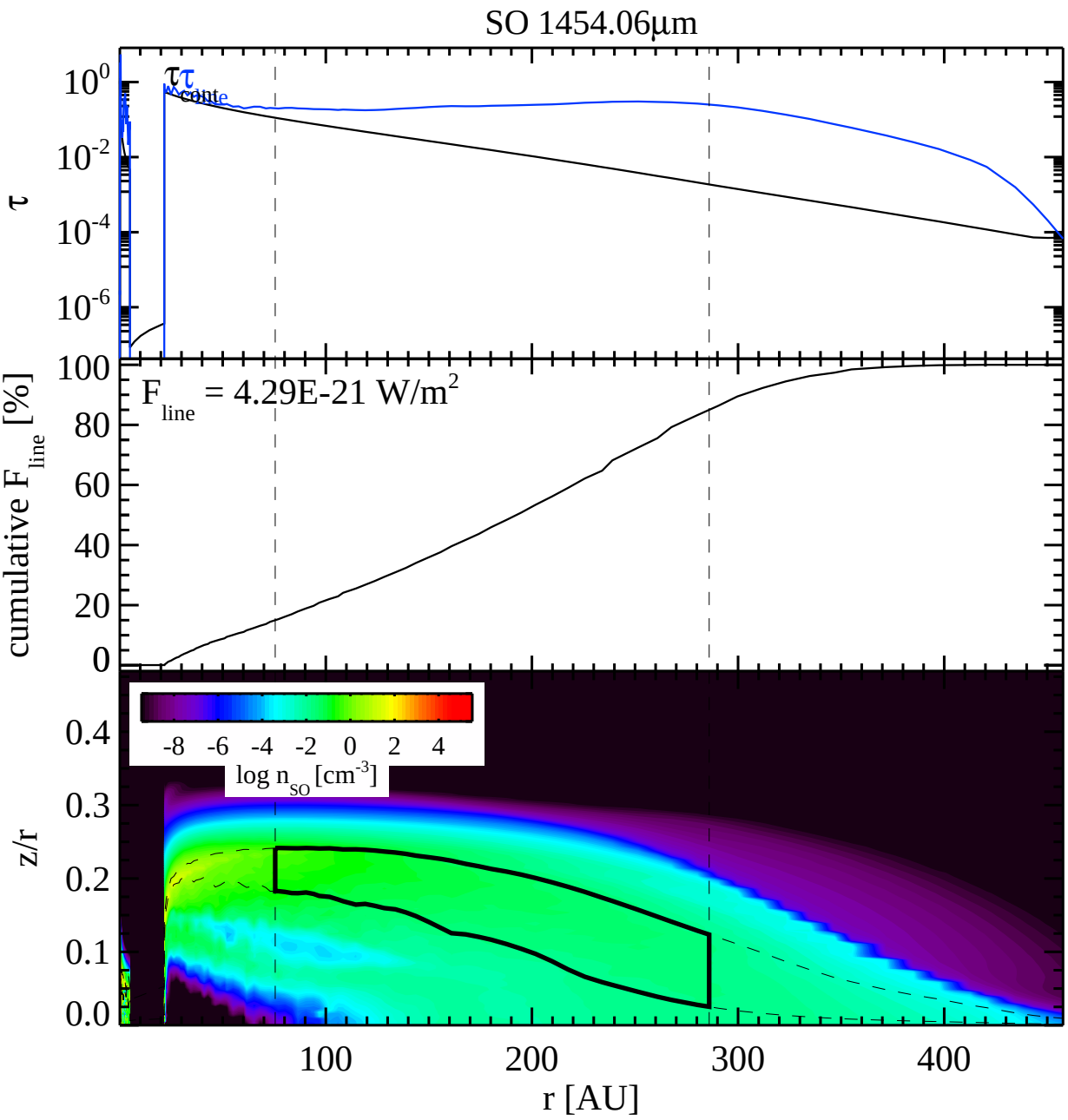

HCO+ 3361.33µm
τ
cont
τ
line
10-2
10-4
10-6
τ
100
80
60
40
20
0
cumulative F line [%]
F line = 1.76E-22 W/m2
-12 -10 -8 -6 -4 -2 0 2
log n HCO+ [cm-3]
0.4
0.3
0.2
0.1
0.0
z/r
100
200
300
400
r [AU]

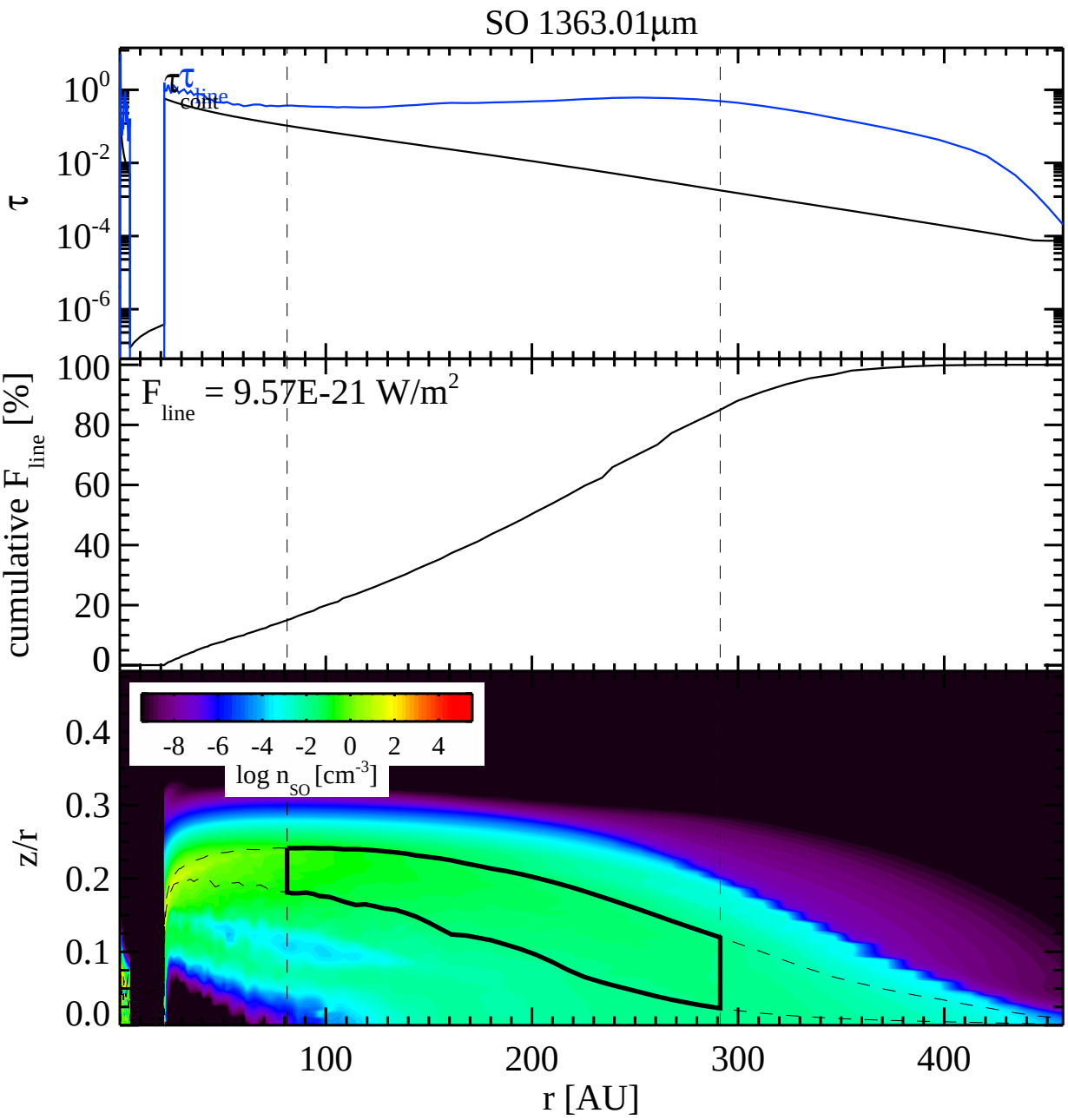

HCO+ 1120.48µm
τ
cont
τ
line
τ
10^0
10^-2
10^-4
10^-6
F
line
= 7.79E-21 W/m^2
cumulative F
line
[%]
100
80
60
40
20
0
-12 -10 -8 -6 -4 -2 0 2
log n
HCO+
[cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
100
200
300
400
r [AU]

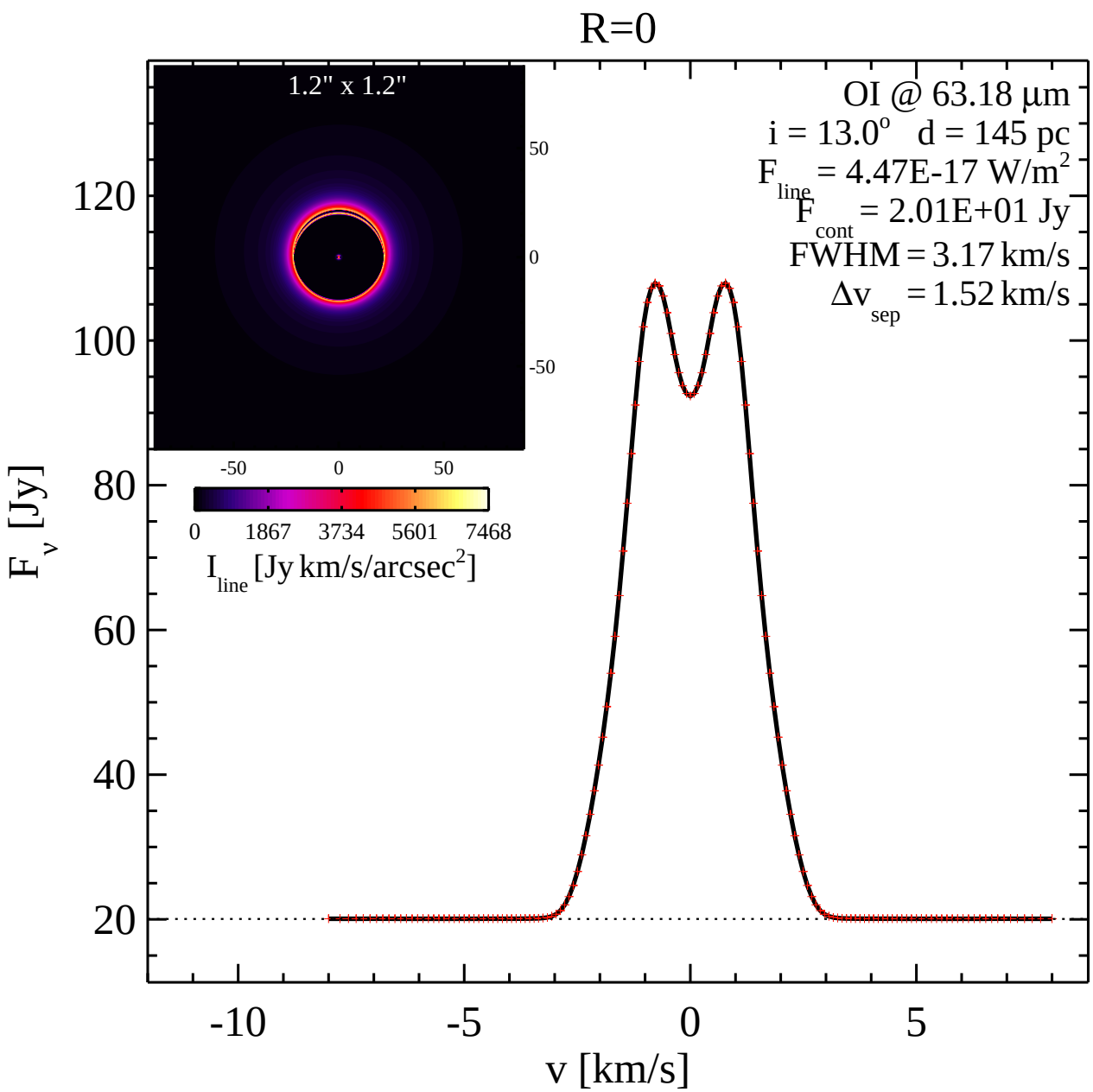

HCO+ 840.38µm
τ
τ cont
τ line
cumulative F line [%]
F line = 1.10E-20 W/m2
log n HCO+ [cm-3]
z/r
r [AU]

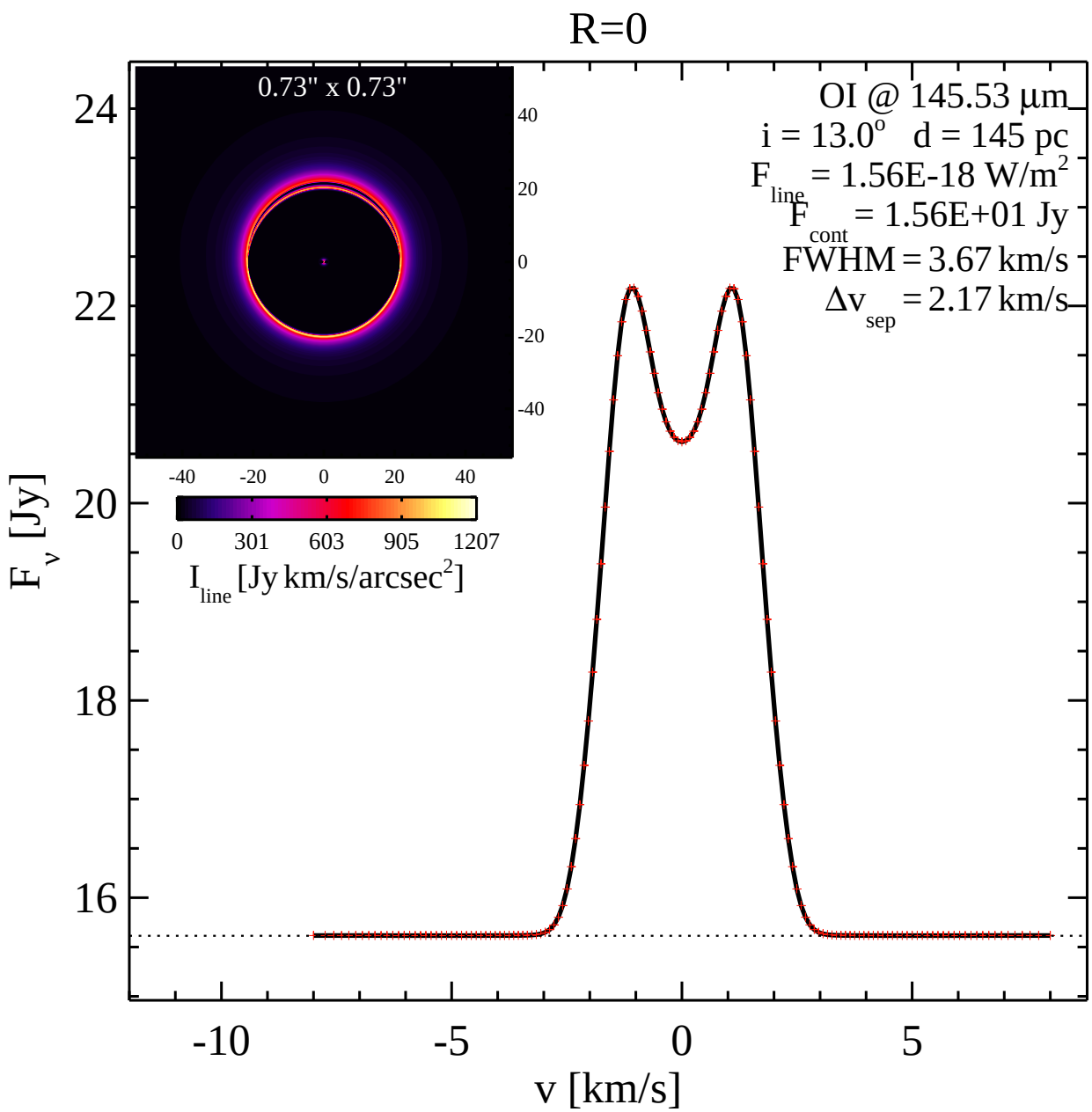

N2H+ 1072.56µm
τ
cont
τ
line
τ
cumulative F
line
[%]
F
line
= 4.22E-23 W/m
2
-12 -10 -8 -6 -4 -2 0
log n
N2H+
[cm
-3
]
z/r
r [AU]

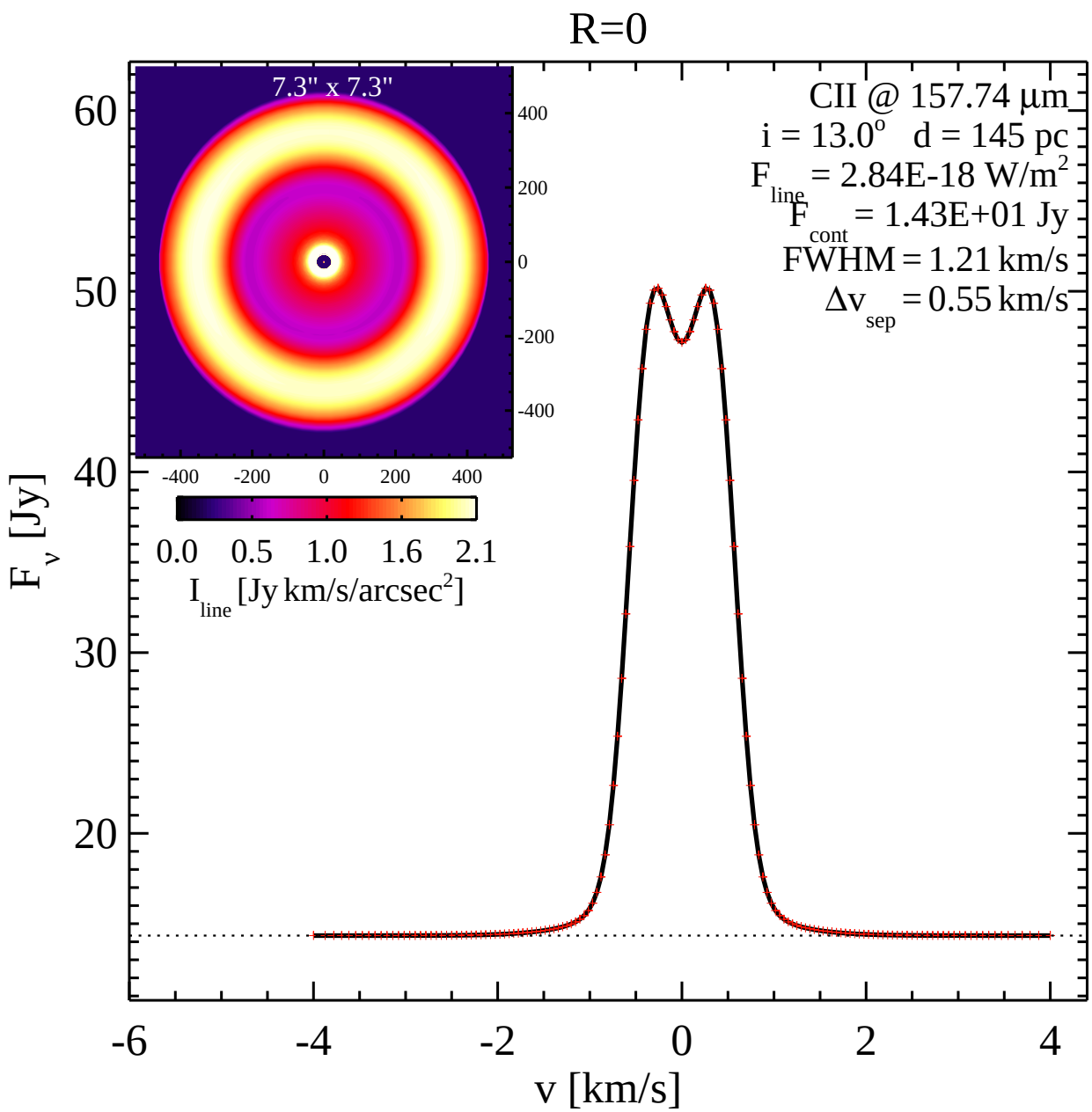

N2H+ 804.44µm
τ
cont
τ
line
τ
10^0
10^-2
10^-4
10^-6
F
line
= 1.13E-22 W/m^2
cumulative F
line
[%]
100
80
60
40
20
0
-12 -10 -8 -6 -4 -2 0
log n
N2H+
[cm^-3]
z/r
0.4
0.3
0.2
0.1
0.0
100
200
300
400
r [AU]

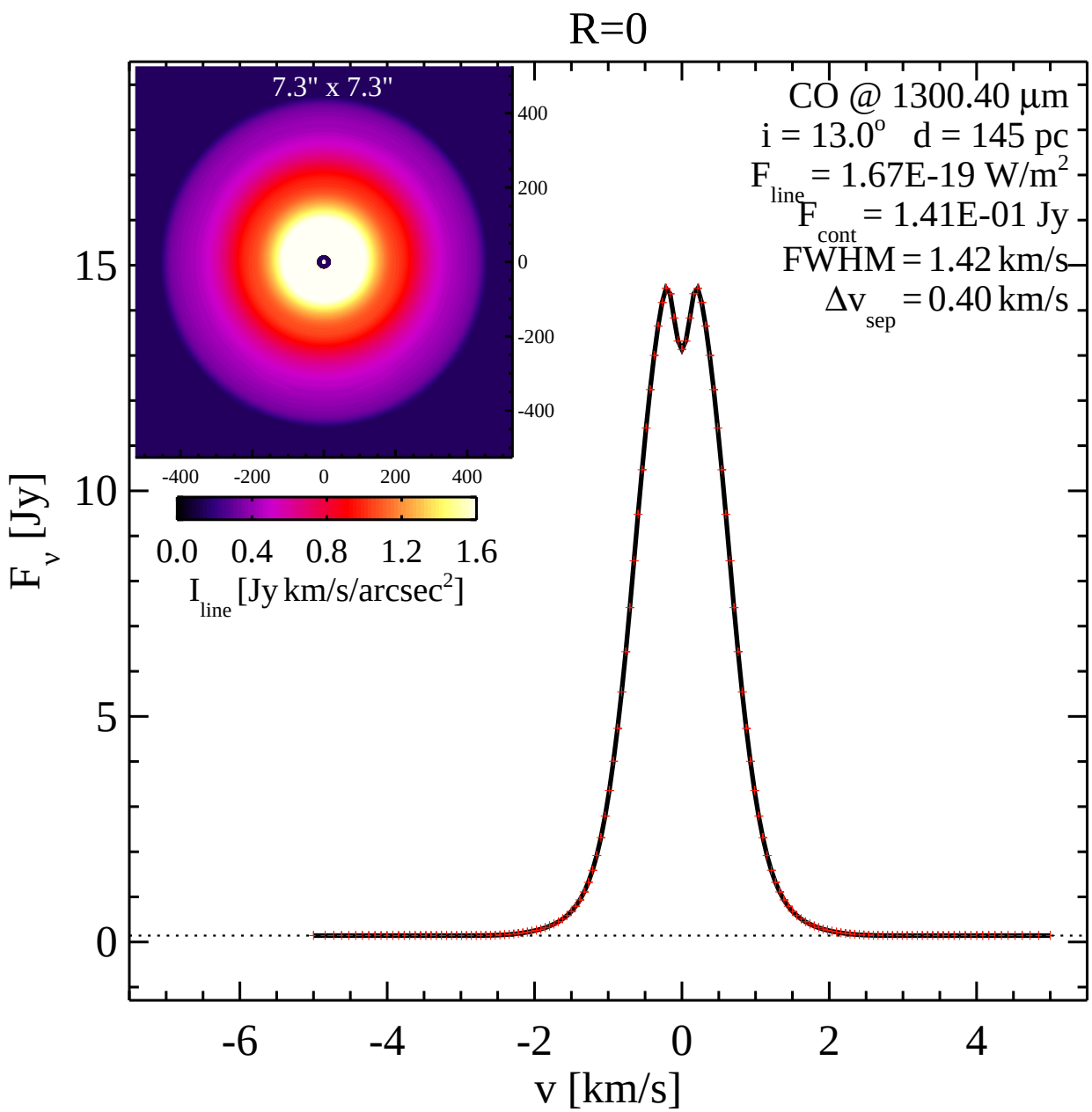

SO 1454.06µm
τ
τ
cont
F
line
= 4.29E-21 W/m
2
cumulative F
line
[%]
log n
SO
[cm
-3
]
z/r
r [AU]

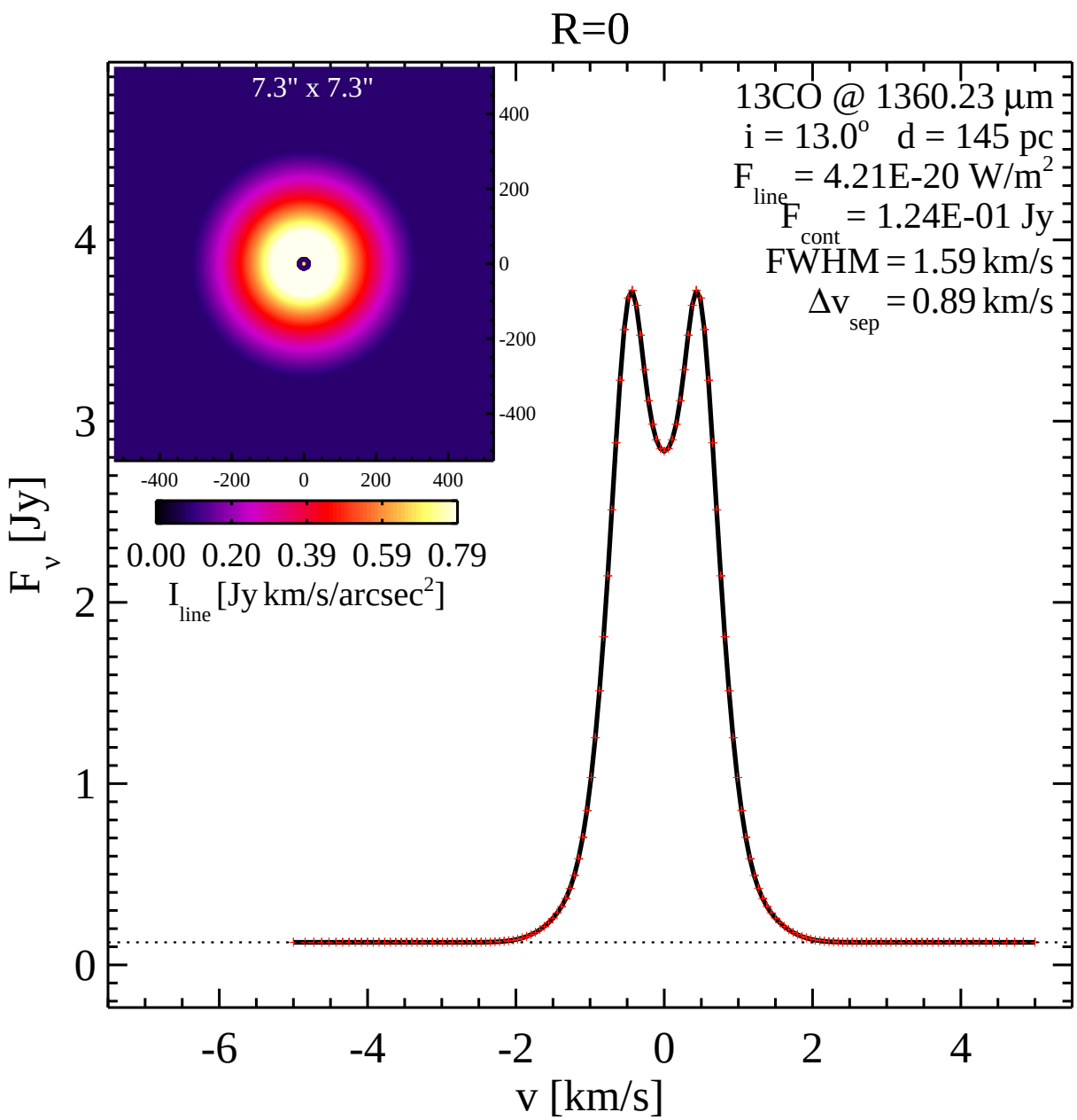

SO 1363.01µm
τ
τ_{line}
τ_{cont}
10^{0}
10^{-2}
10^{-4}
10^{-6}
cumulative F_{line} [%]
F_{line} = 9.57E-21 W/m^2
100
80
60
40
20
0
z/r
0.4
0.3
0.2
0.1
0.0
-8 -6 -4 -2 0 2 4
log n_{SO} [cm^{-3}]
100
200
300
400
r [AU]

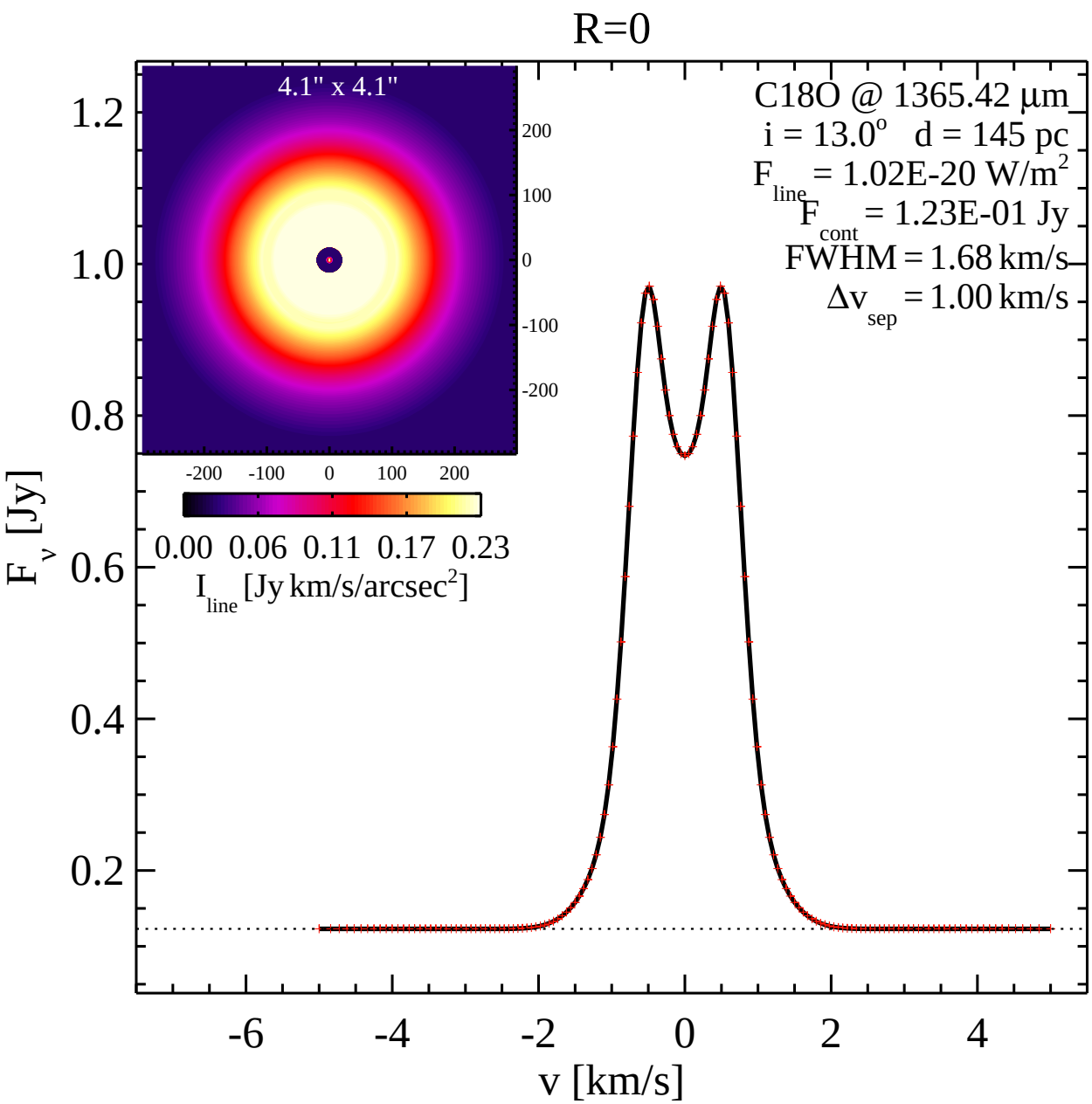

R=0
1.2" x 1.2"
50
0
-50
-50
0
50
0
1867
3734
5601
7468
I line [Jy km/s/arcsec2]
OI @ 63.18 µm
i = 13.0o d = 145 pc
F line = 4.47E-17 W/m2
F cont = 2.01E+01 Jy
FWHM = 3.17 km/s
Δv sep = 1.52 km/s
F v [Jy]
120
100
80
60
40
20
-10
-5
0
5
v [km/s]

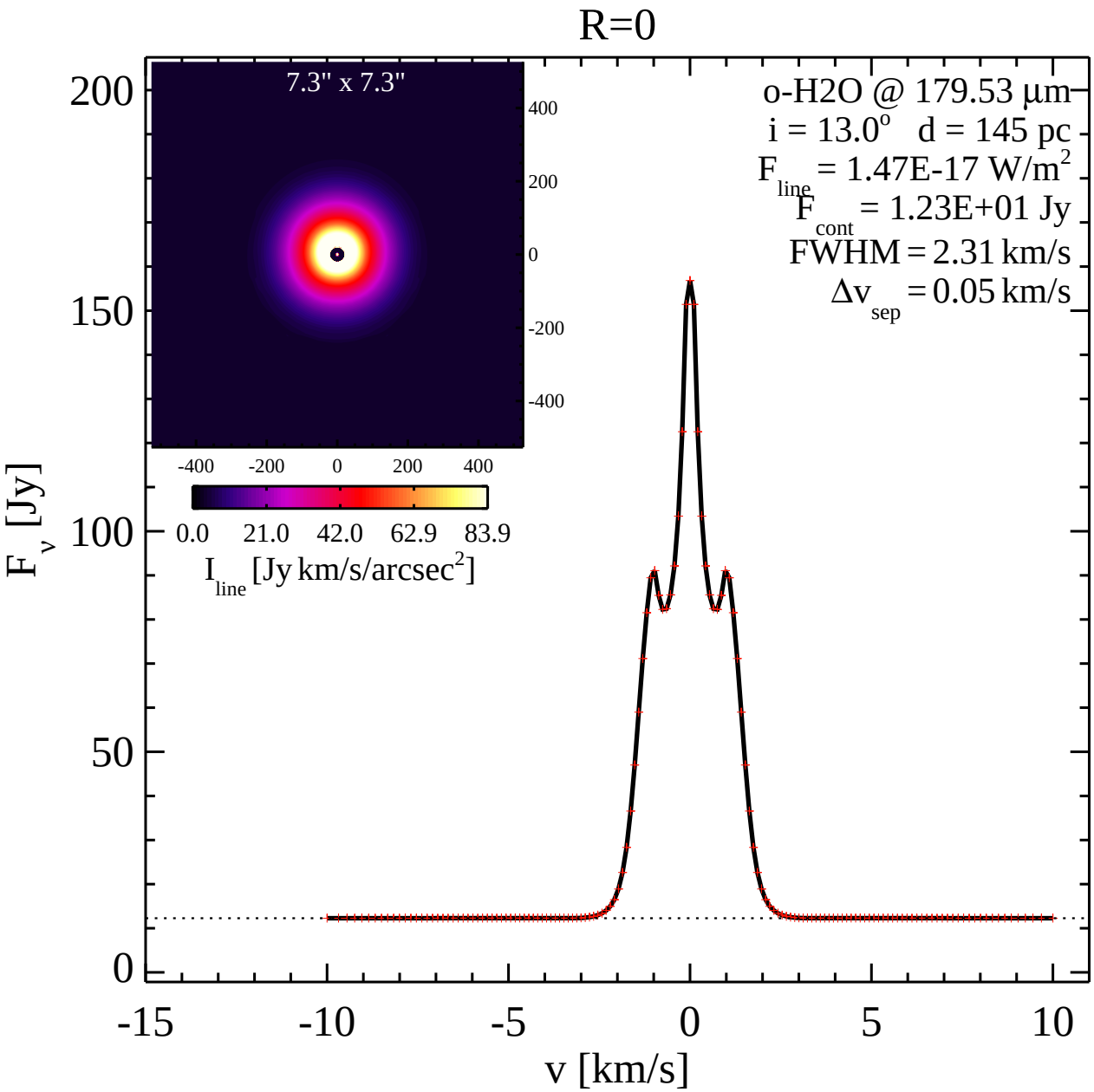

R=0
0.73" x 0.73"
40
20
0
-20
-40
-40 -20 0 20 40
0 301 603 905 1207
I line [Jy km/s/arcsec2]
OI @ 145.53 µm
i = 13.0o d = 145 pc
F line = 1.56E-18 W/m2
F cont = 1.56E+01 Jy
FWHM = 3.67 km/s
Δv sep = 2.17 km/s
F v [Jy]
24
22
20
18
16
-10
-5
0
5
v [km/s]

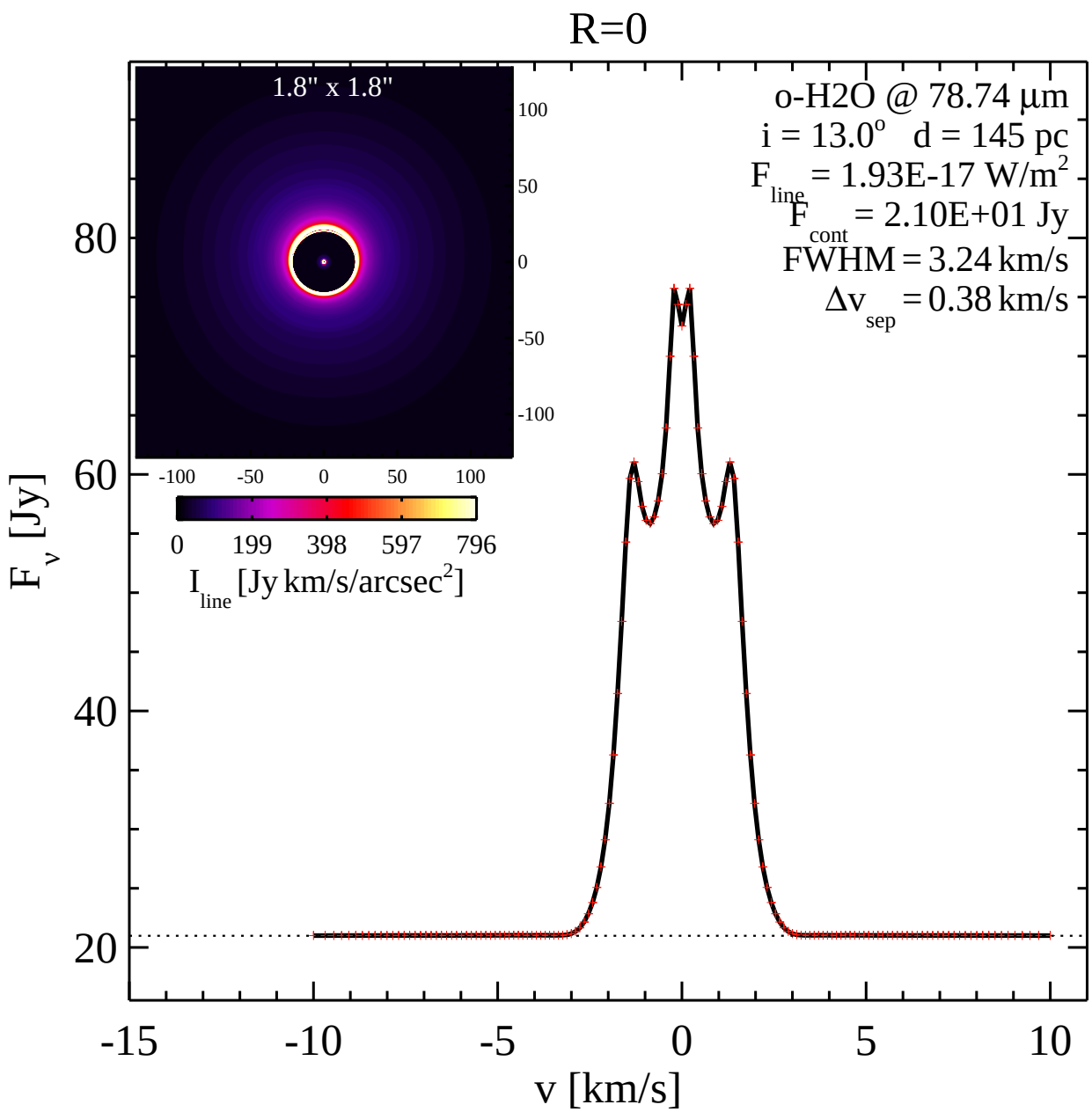

R=0
7.3" x 7.3"
CII @ 157.74 µm
i = 13.0° d = 145 pc
F line = 2.84E-18 W/m2
F cont = 1.43E+01 Jy
FWHM = 1.21 km/s
Δv sep = 0.55 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0.0 0.5 1.0 1.6 2.1
-400 -200 0 200 400
60 50 40 30 20
-6 -4 -2 0 2 4

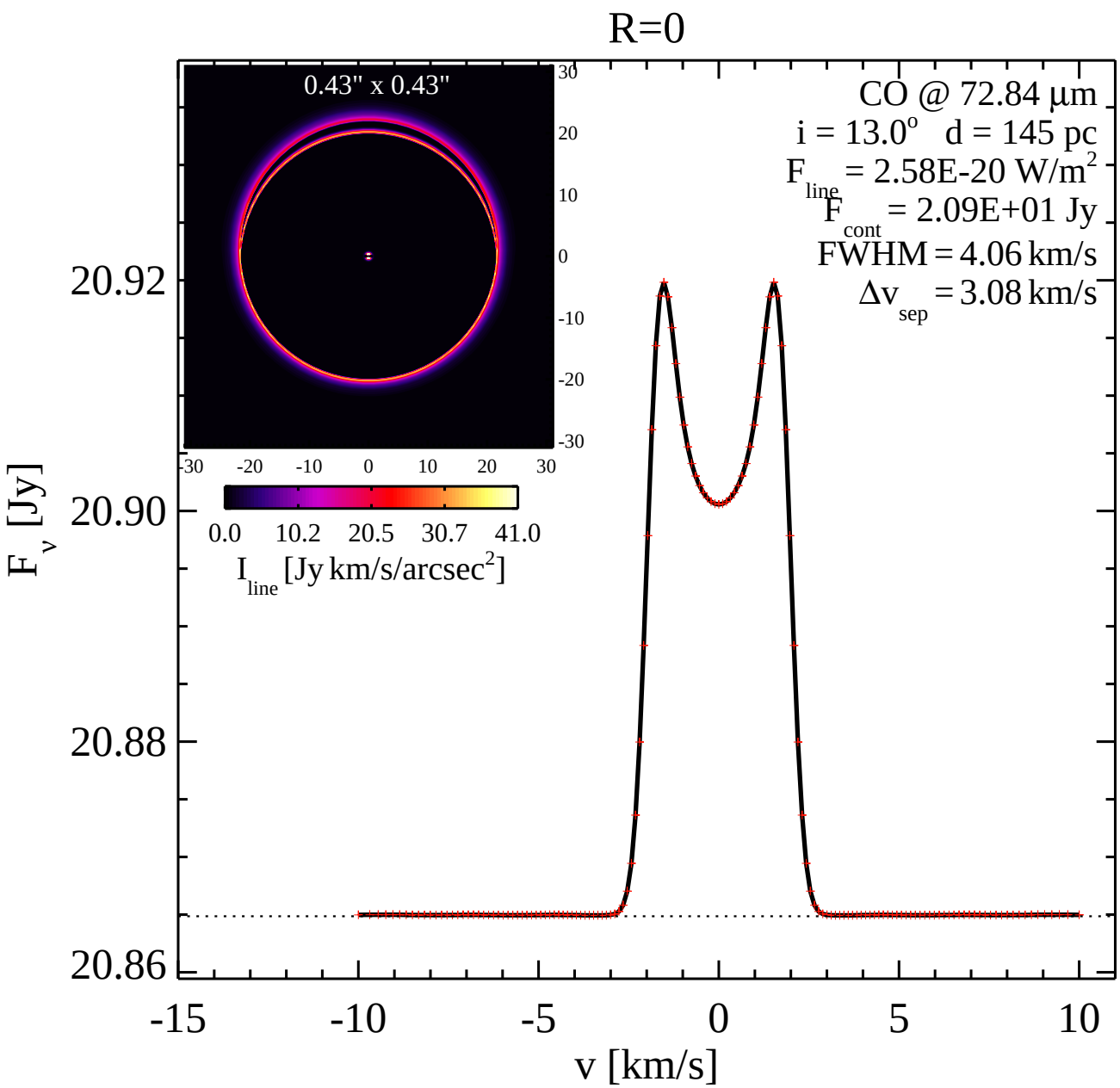

R=0
7.3" x 7.3"
400
200
0
-200
-400
-400 -200 0 200 400
0.0 0.4 0.8 1.2 1.6
I line [Jy km/s/arcsec2]
CO @ 1300.40 µm
i = 13.0o d = 145 pc
F line = 1.67E-19 W/m2
F cont = 1.41E-01 Jy
FWHM = 1.42 km/s
Δv sep = 0.40 km/s
F v [Jy]
15
10
5
0
-6 -4 -2 0 2 4
v [km/s]

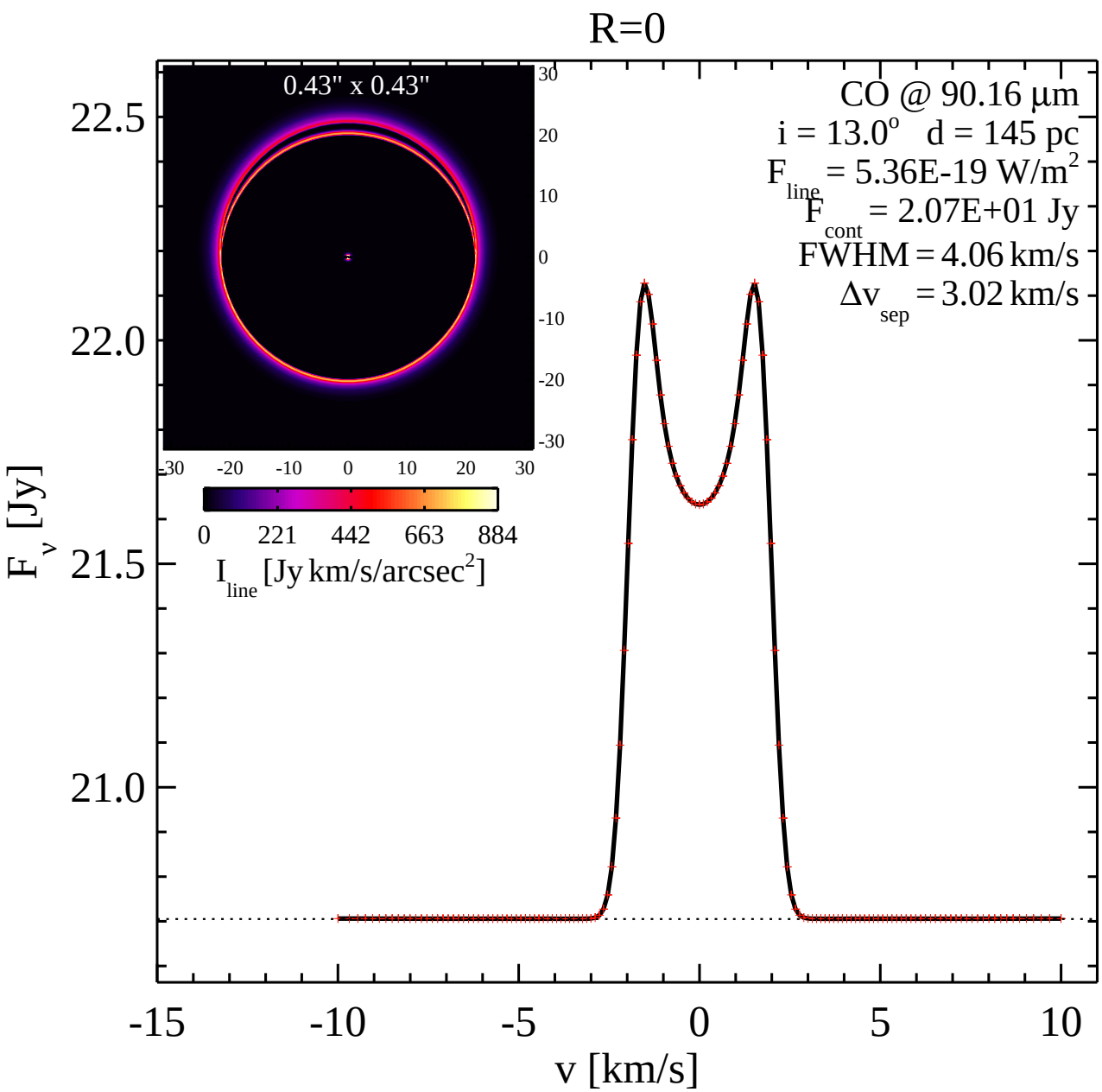

R=0
7.3" x 7.3"
400
200
0
-200
-400
-400 -200 0 200 400
0.00 0.20 0.39 0.59 0.79
I line [Jy km/s/arcsec2]
13CO @ 1360.23 µm
i = 13.0o d = 145 pc
F line = 4.21E-20 W/m2
F cont = 1.24E-01 Jy
FWHM = 1.59 km/s
Δv sep = 0.89 km/s
F v [Jy]
0
1
2
3
4
-6
-4
-2
0
2
4
v [km/s]

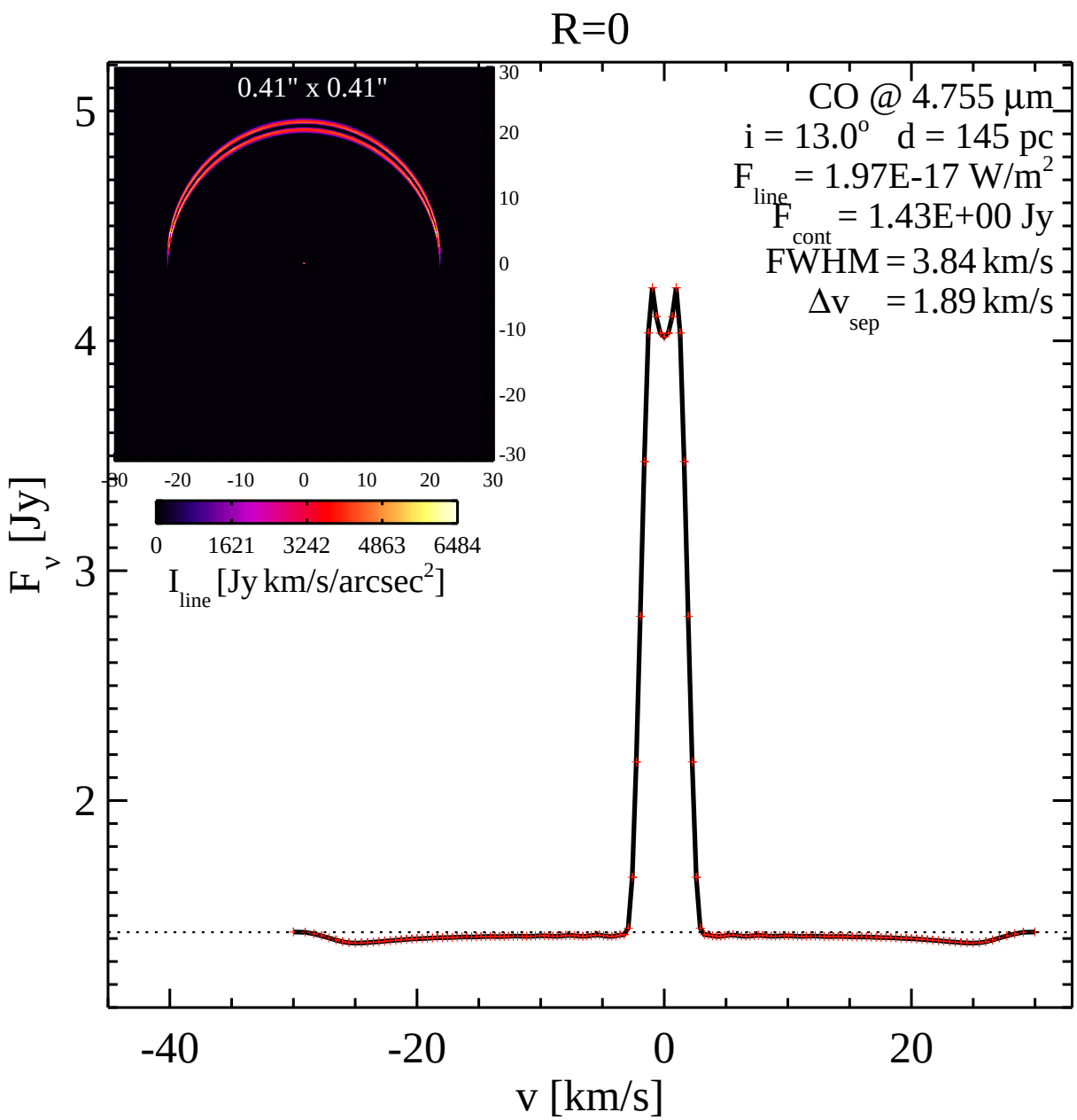

R=0
4.1" x 4.1"
C18O @ 1365.42 µm
i = 13.0° d = 145 pc
F line = 1.02E-20 W/m2
F cont = 1.23E-01 Jy
FWHM = 1.68 km/s
Δv sep = 1.00 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0.00 0.06 0.11 0.17 0.23

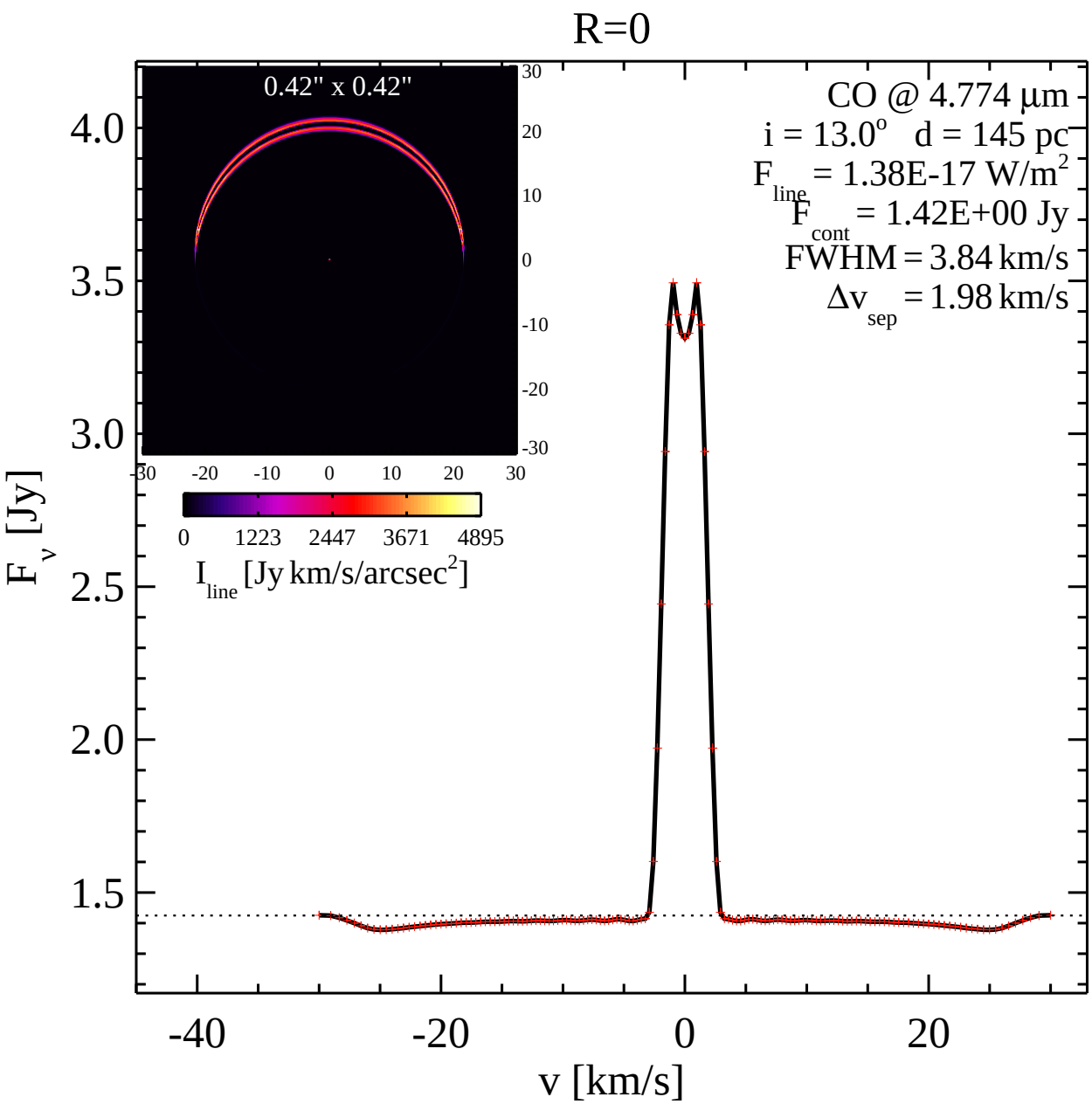

R=0
7.3" x 7.3"
o-H2O @ 179.53 µm
i = 13.0° d = 145 pc
F line = 1.47E-17 W/m2
F cont = 1.23E+01 Jy
FWHM = 2.31 km/s
Δv sep = 0.05 km/s
I line [Jy km/s/arcsec2]
F v [Jy]
v [km/s]


R=0
1.8" x 1.8"
100
50
0
-50
-100
-100 -50 0 50 100
0 199 398 597 796
I line [Jy km/s/arcsec2]
o-H2O @ 78.74 µm
i = 13.0o d = 145 pc
F line = 1.93E-17 W/m2
F cont = 2.10E+01 Jy
FWHM = 3.24 km/s
Δv sep = 0.38 km/s
F v [Jy]
80
60
40
20
-15 -10 -5 0 5 10
v [km/s]


R=0
0.43" x 0.43"
CO @ 72.84 µm
i = 13.0° d = 145 pc
F line = 2.58E-20 W/m2
F cont = 2.09E+01 Jy
FWHM = 4.06 km/s
Δv sep = 3.08 km/s
F v [Jy]
20.92
20.90
20.88
20.86
-15
-10
-5
0
5
10
v [km/s]
30
20
10
0
-10
-20
-30
0.0
10.2
20.5
30.7
41.0
I line [Jy km/s/arcsec2]


R=0
0.43" x 0.43"
CO @ 90.16 µm
i = 13.0° d = 145 pc
F line = 5.36E-19 W/m2
F cont = 2.07E+01 Jy
FWHM = 4.06 km/s
Δv sep = 3.02 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0 221 442 663 884


R=0
0.41" x 0.41"
CO @ 4.755 µm
i = 13.0° d = 145 pc
F line = 1.97E-17 W/m2
F cont = 1.43E+00 Jy
FWHM = 3.84 km/s
Δv sep = 1.89 km/s
I line [Jy km/s/arcsec2]
0 1621 3242 4863 6484
F v [Jy]
v [km/s]


R=0
0.42" x 0.42"
CO @ 4.774 µm
i = 13.0° d = 145 pc
F line = 1.38E-17 W/m2
F cont = 1.42E+00 Jy
FWHM = 3.84 km/s
Δv sep = 1.98 km/s
I line [Jy km/s/arcsec2]
0 1223 2447 3671 4895
F v [Jy]
v [km/s]