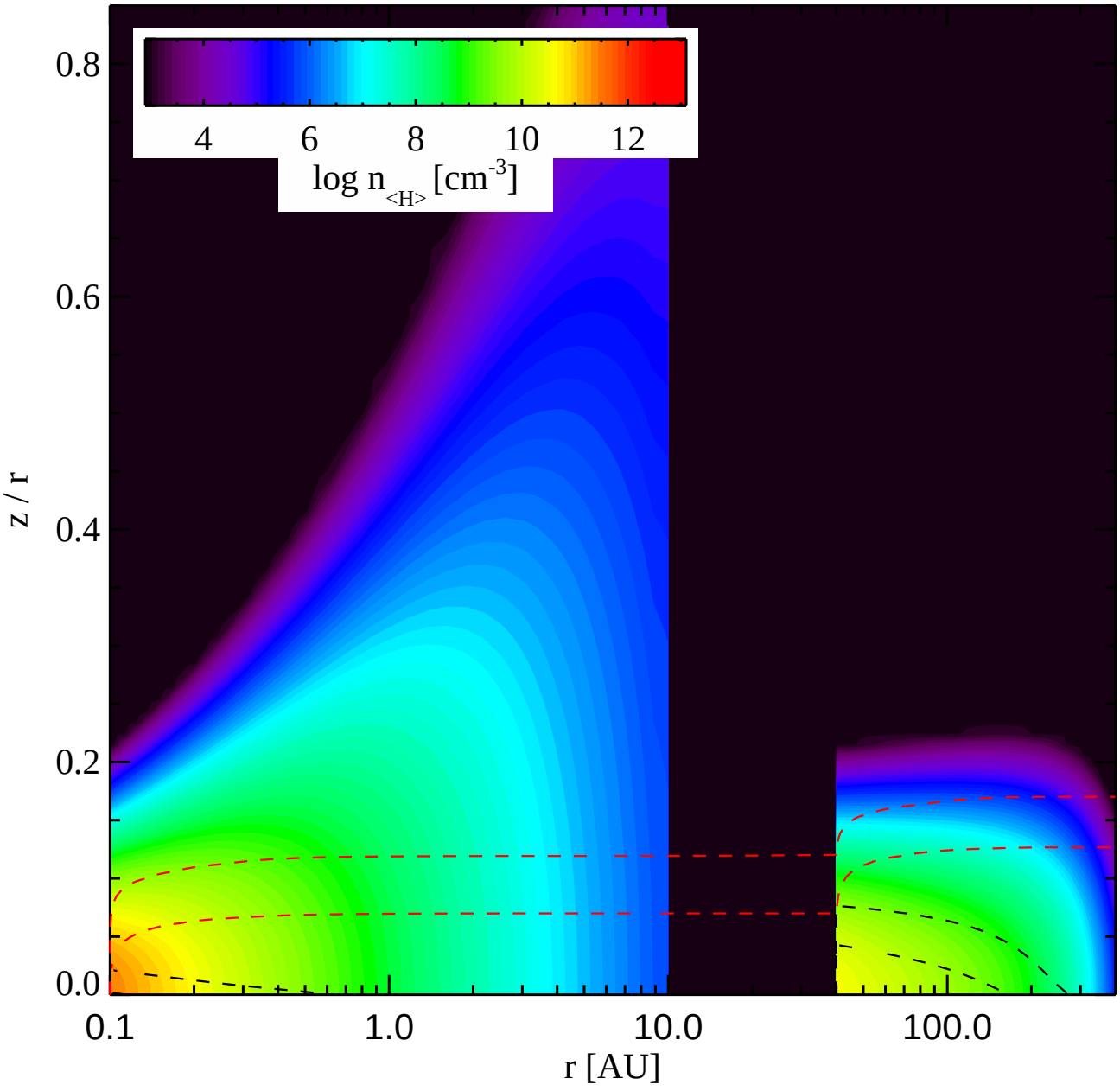
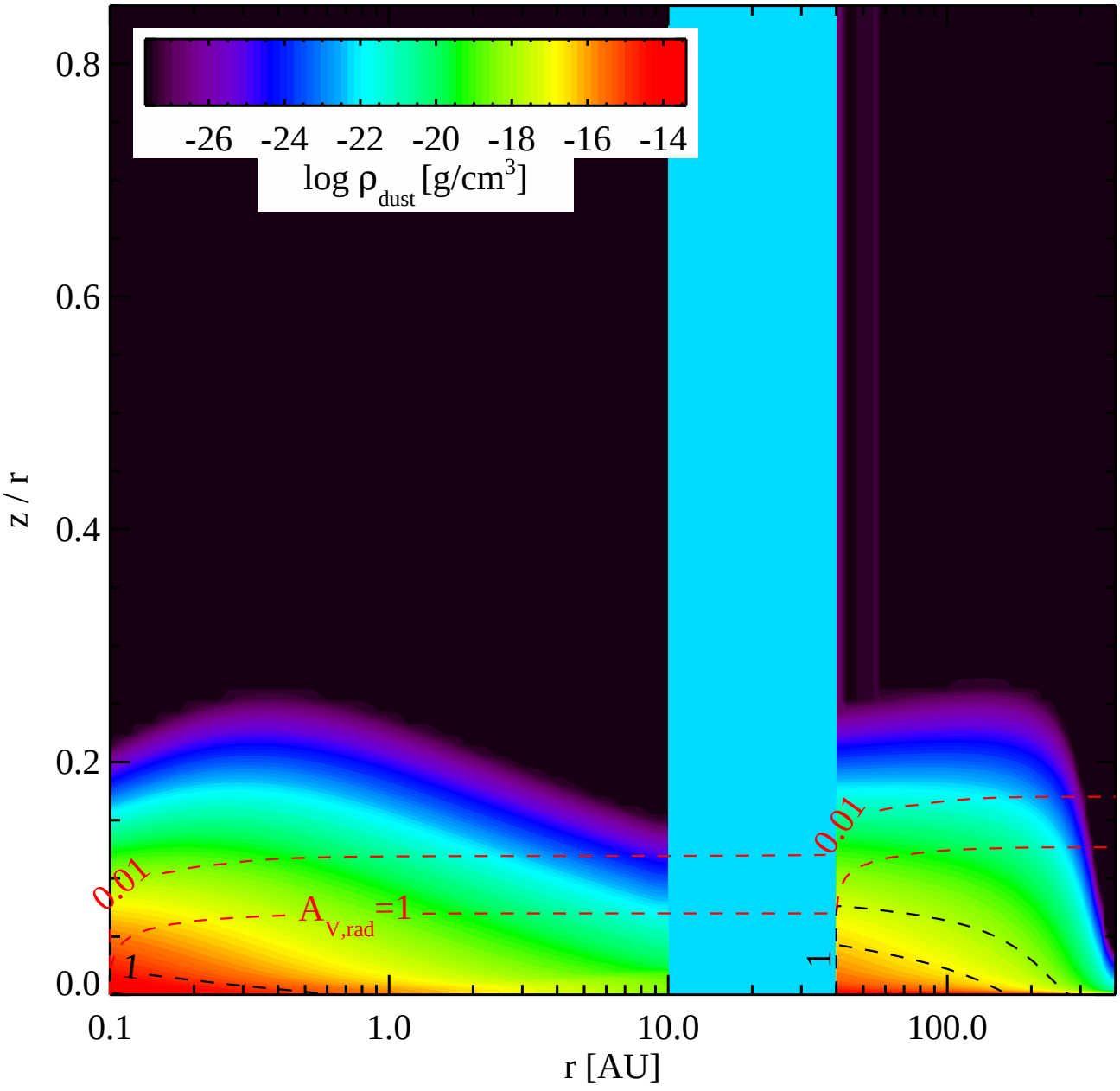
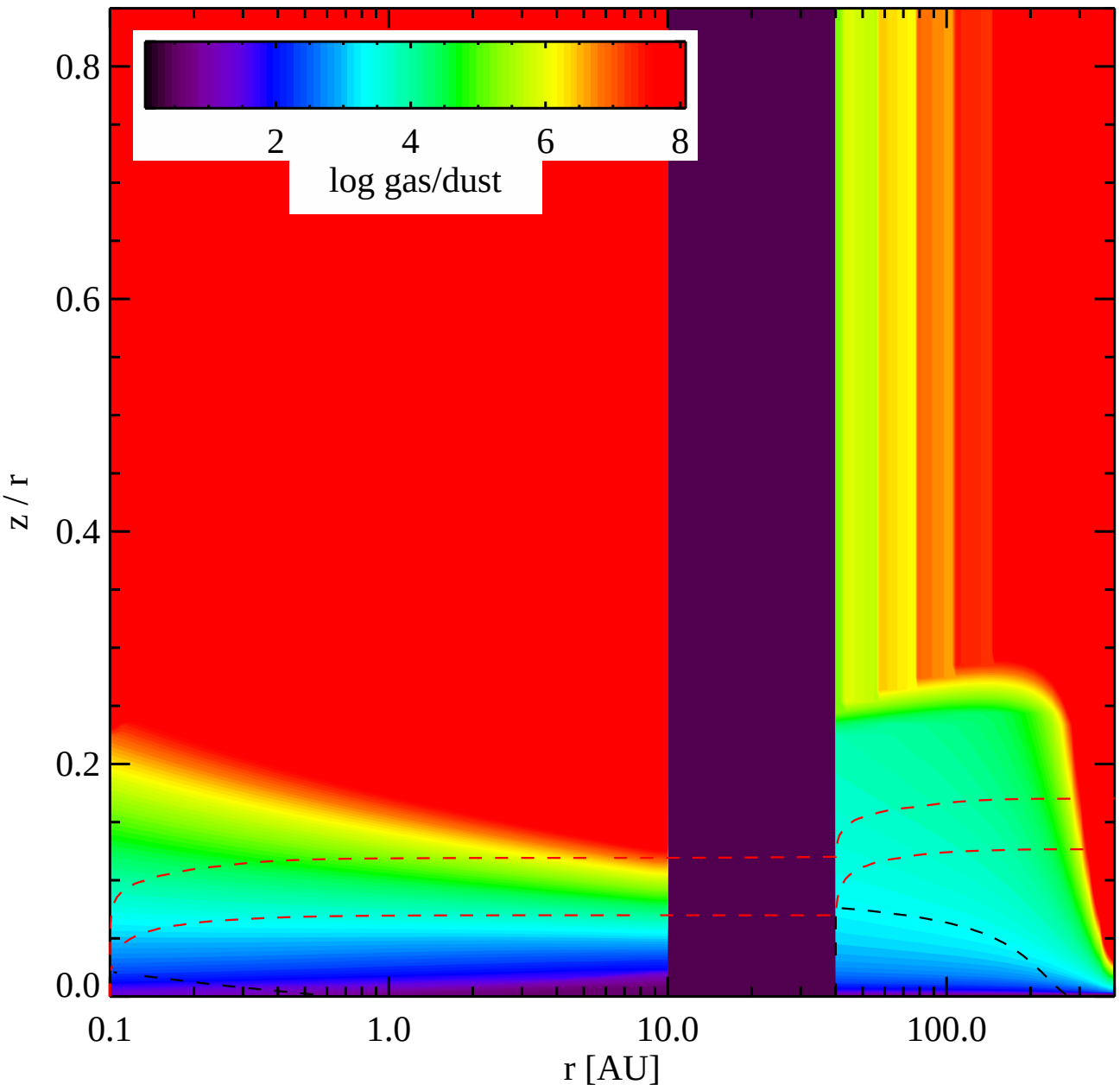
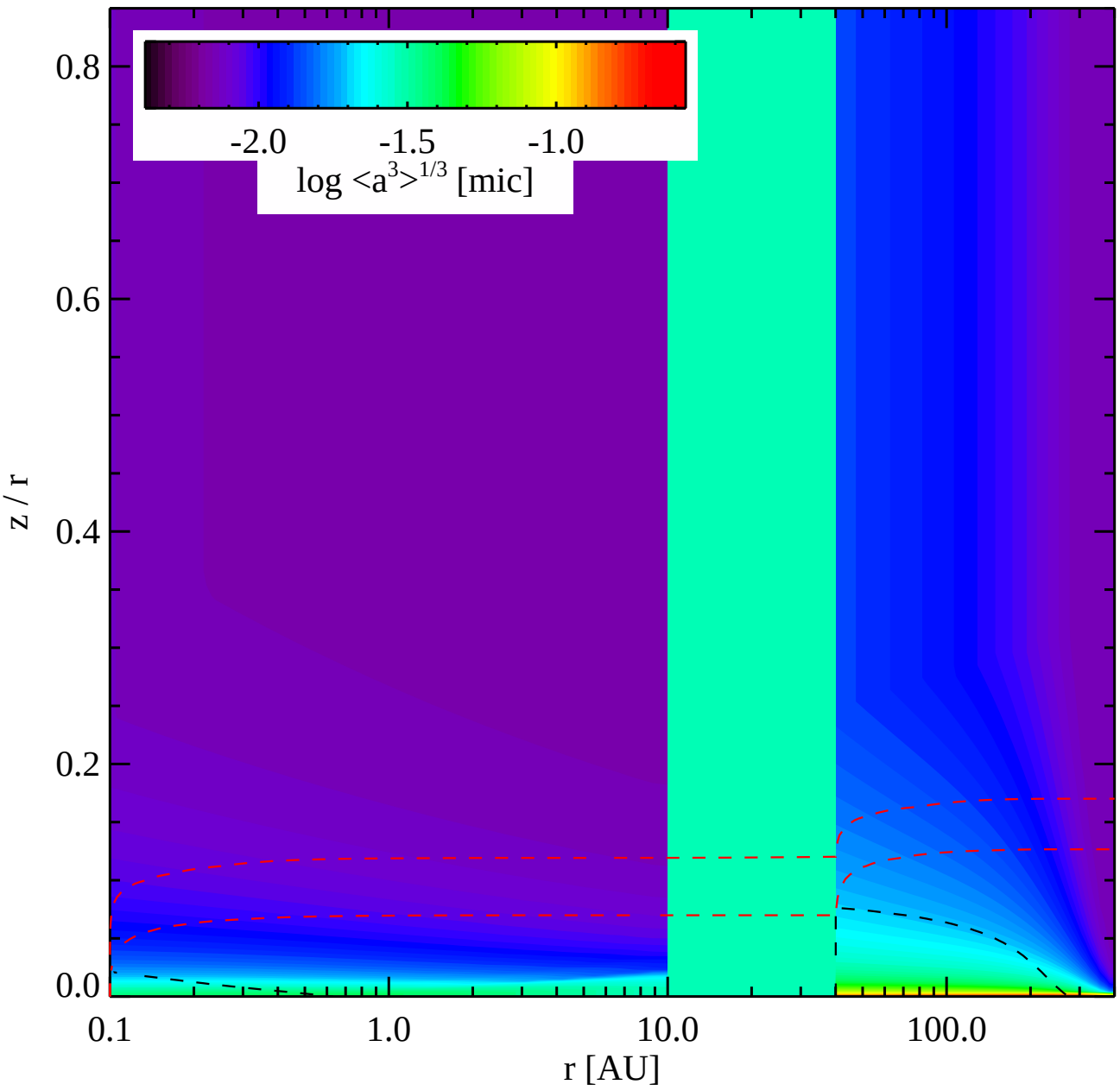
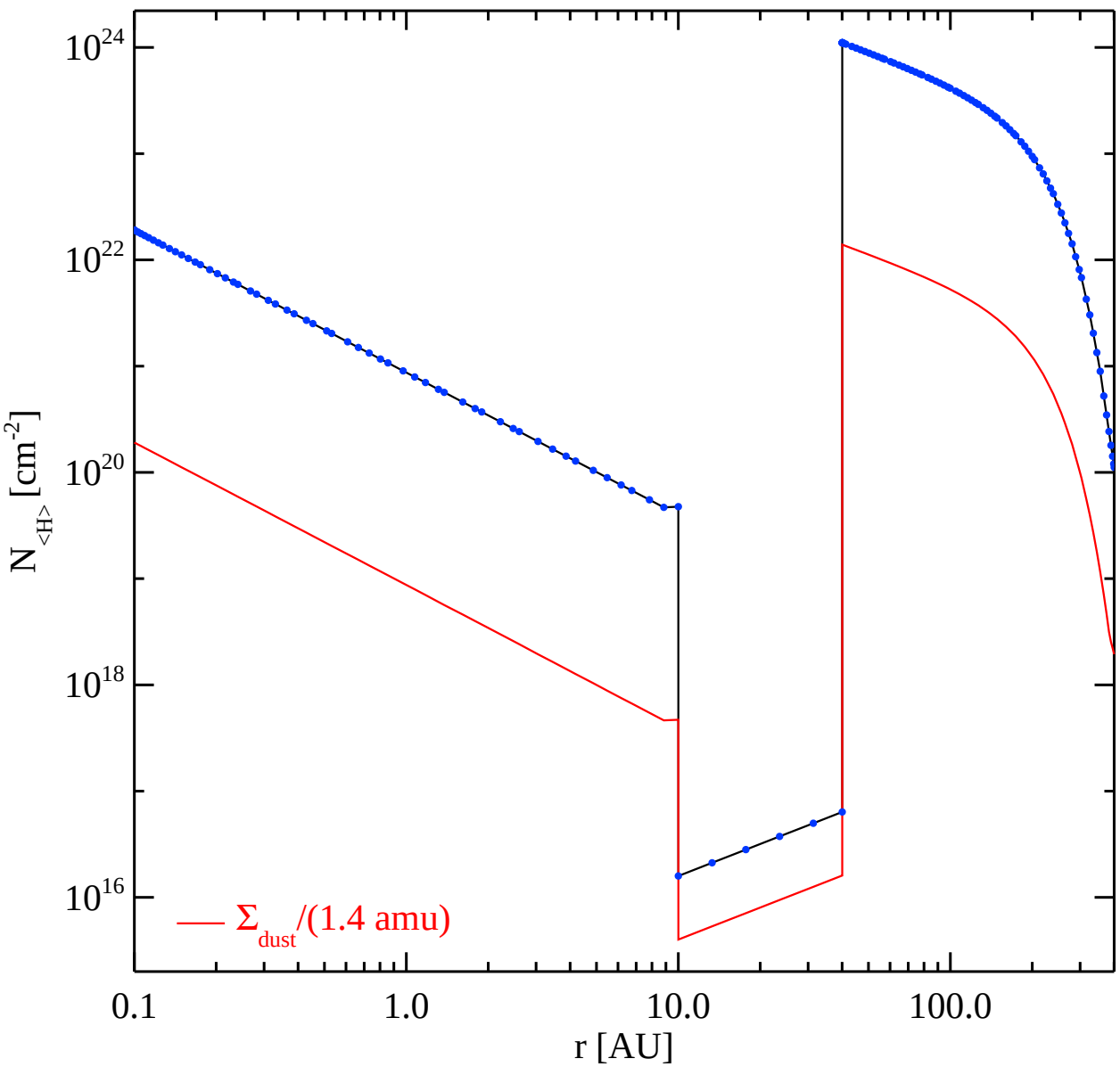
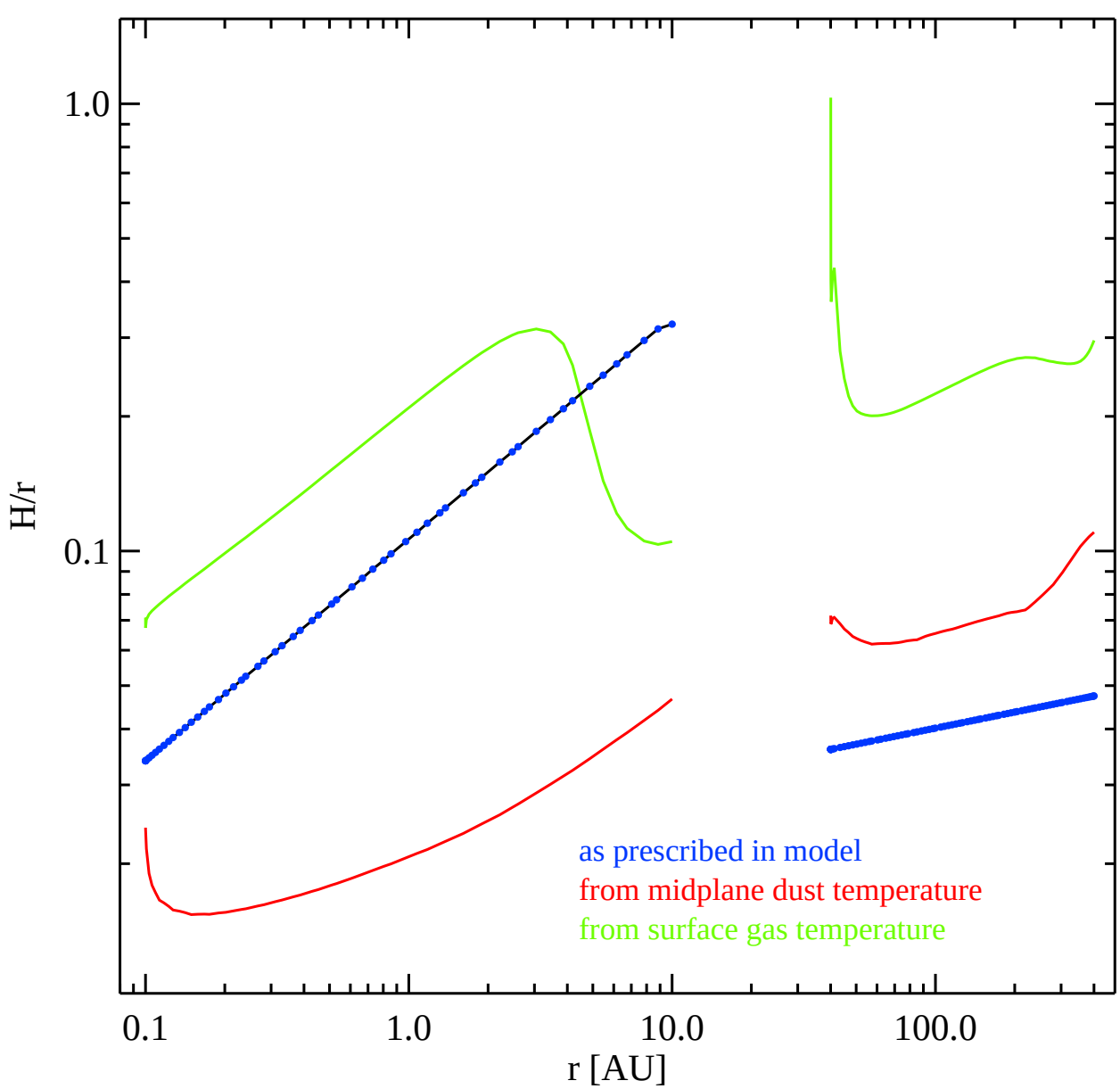

4
6
8
10
12
log n<H> [cm-3]
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

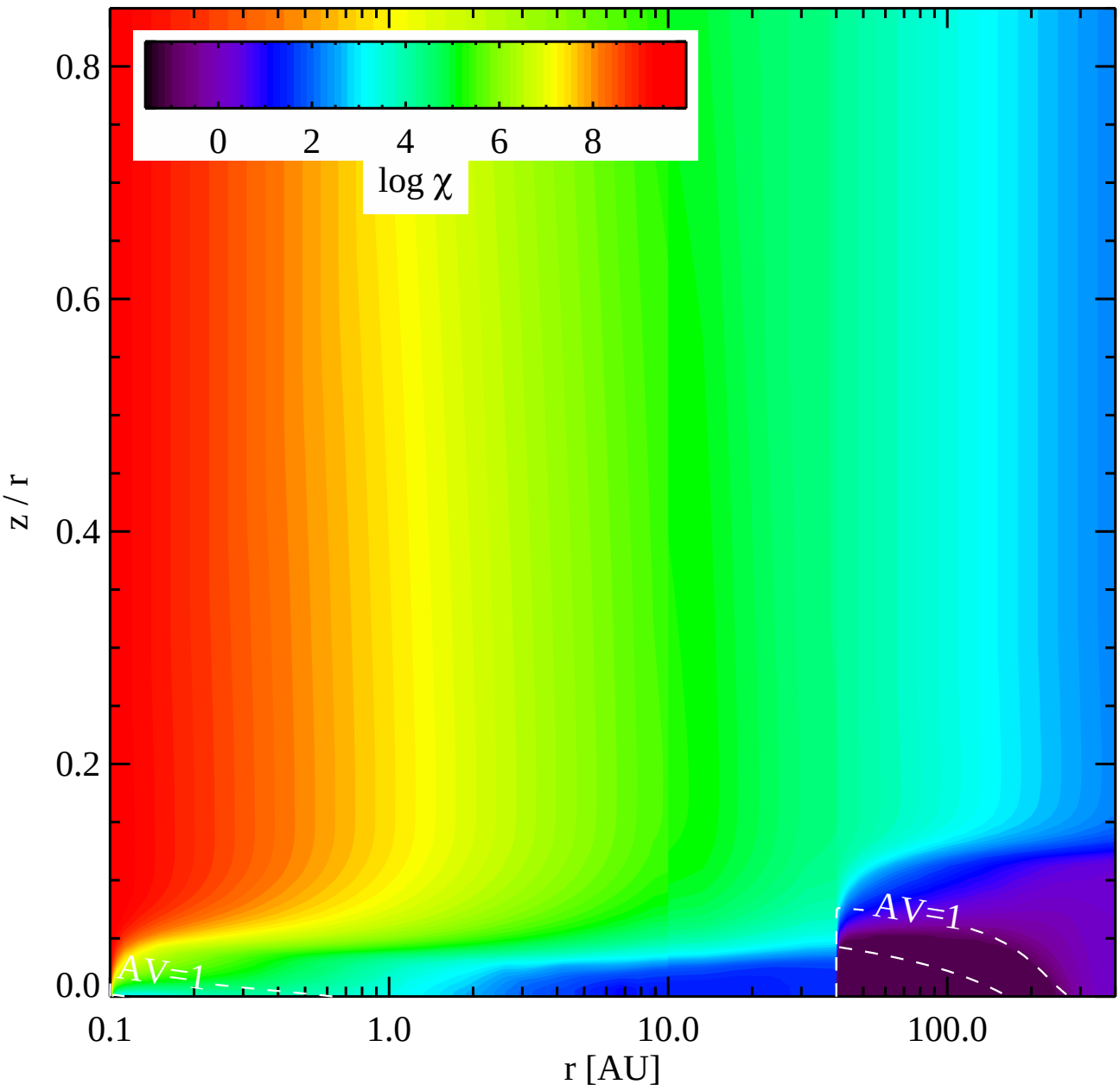

-26 -24 -22 -20 -18 -16 -14
log ρ dust [g/cm3]
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
0.01
A V,rad =1
1
0.01
1

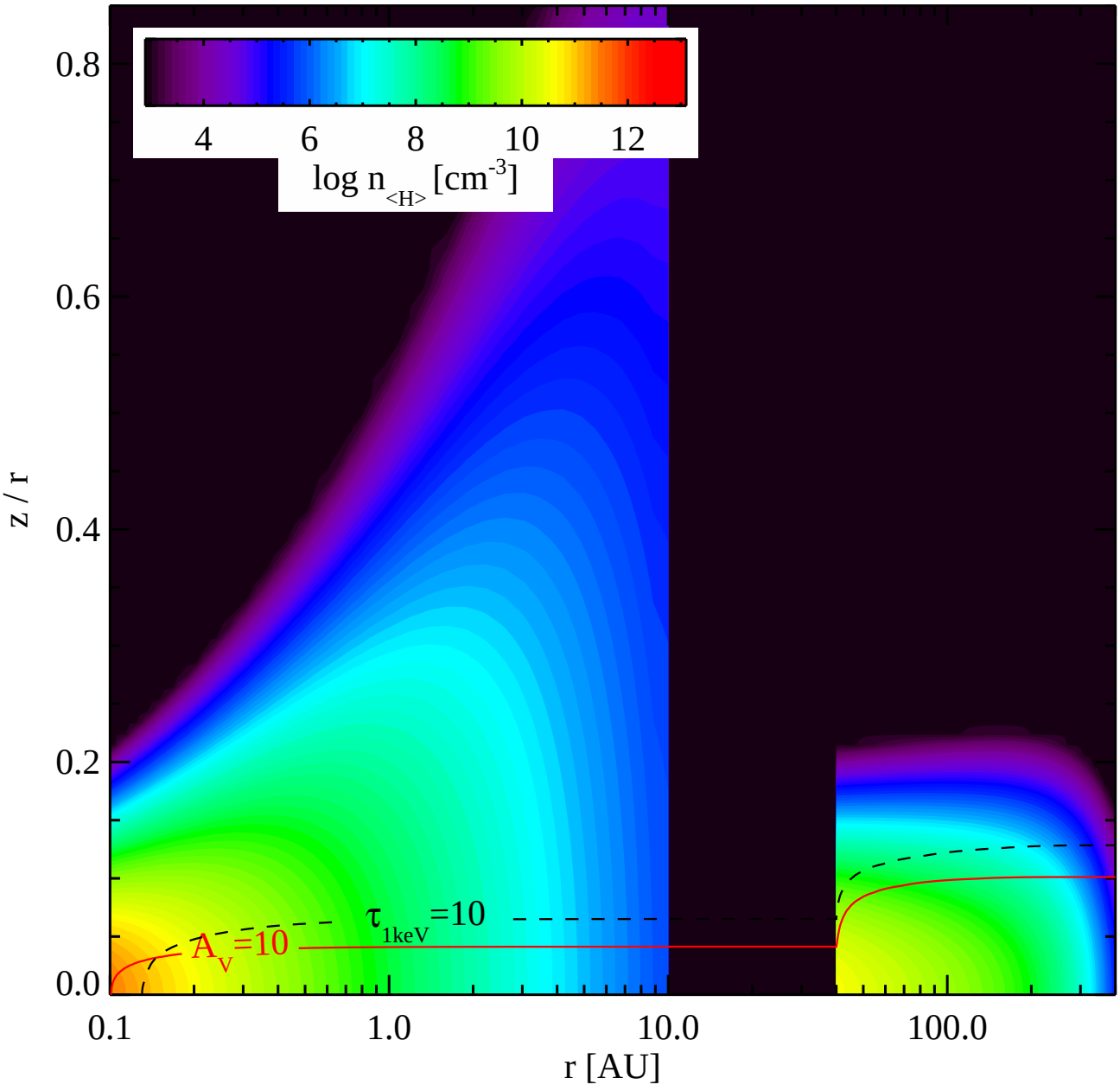

2
4
6
8
log gas/dust
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

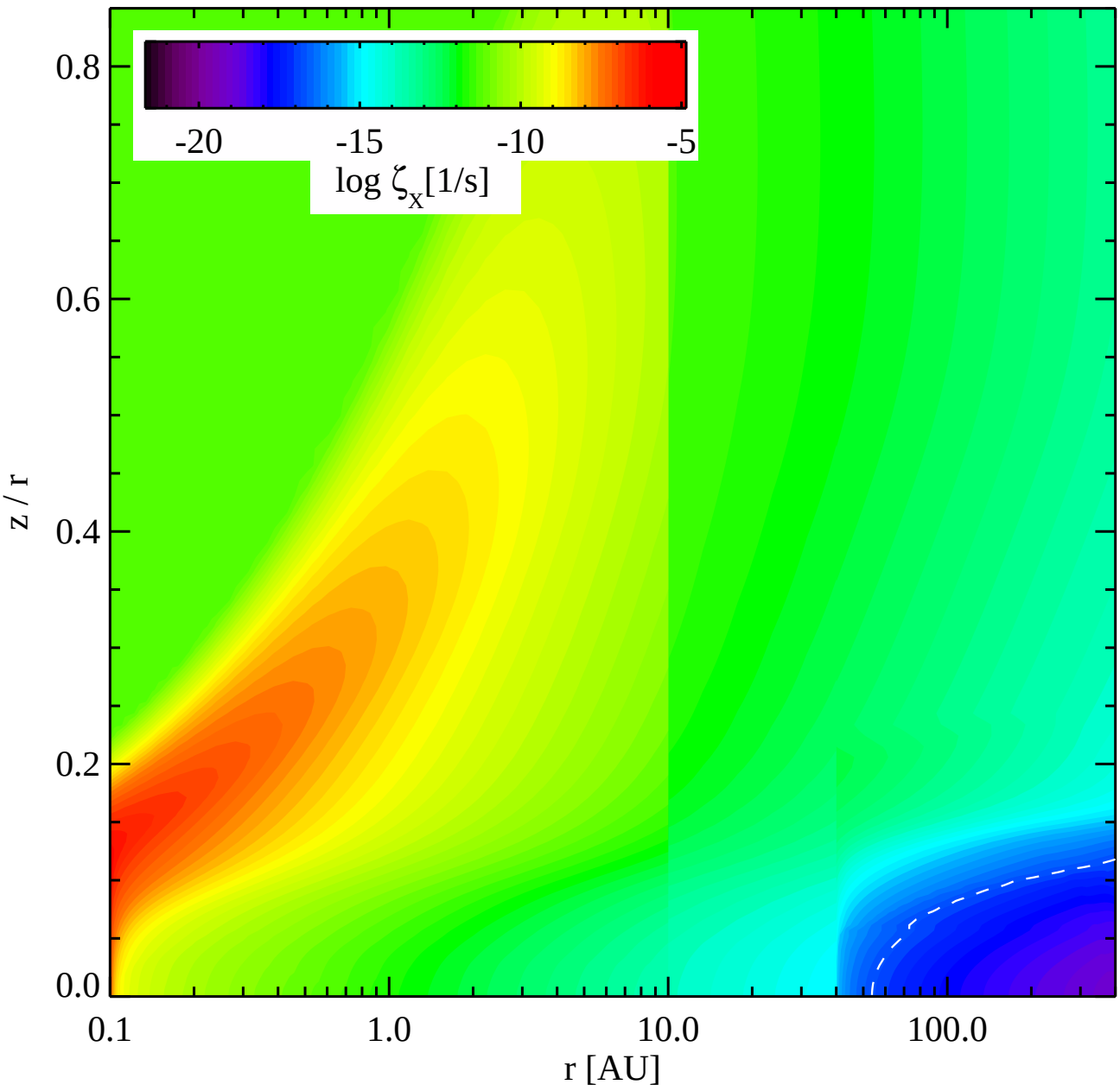

-2.0
-1.5
-1.0
log <a^3>^1/3 [mic]
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

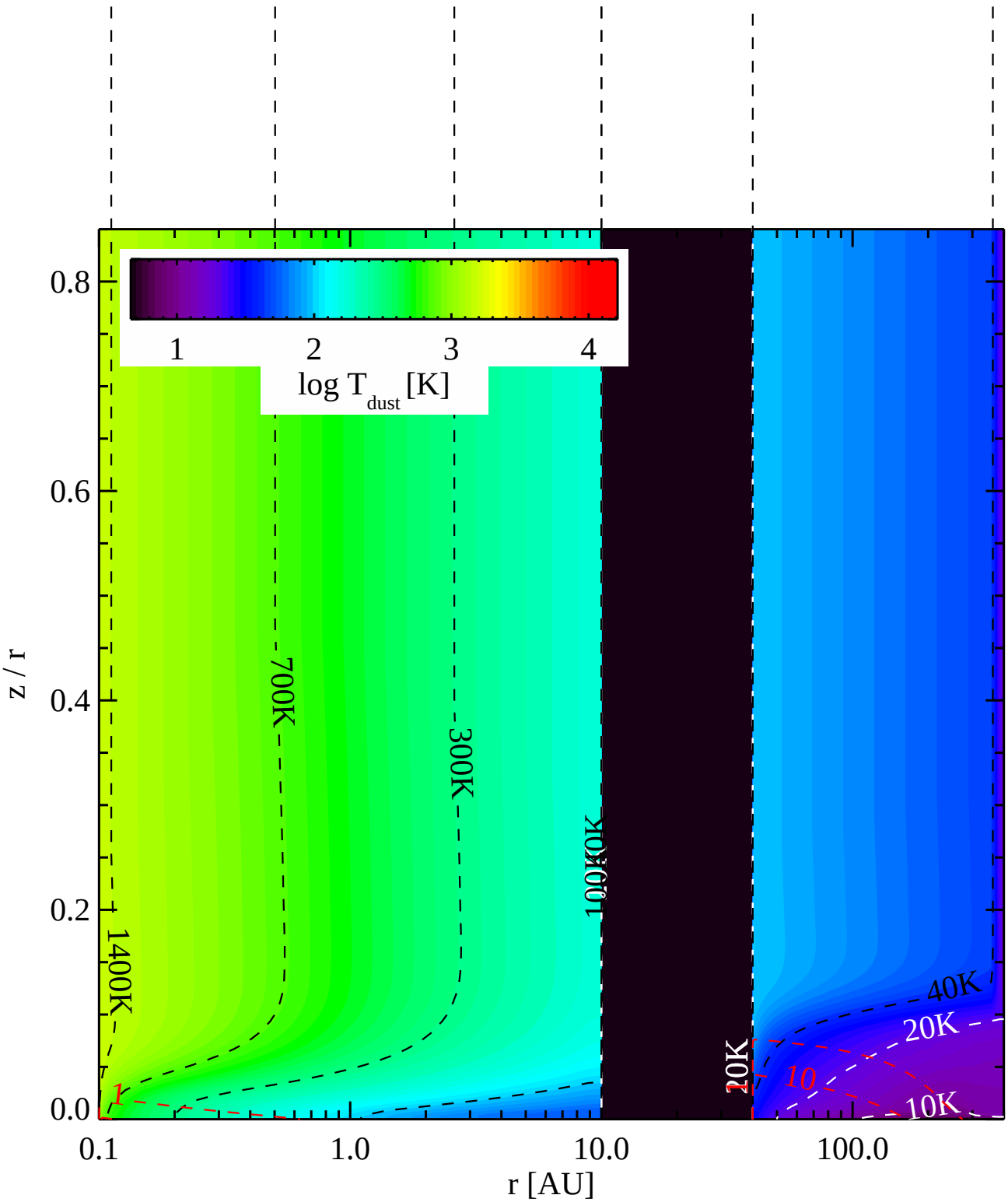

10^{24}
10^{22}
10^{20}
10^{18}
10^{16}
$N_{<H>}$ [cm^{-2}]
Σ_{dust}/(1.4 amu)
0.1
1.0
10.0
100.0
r [AU]

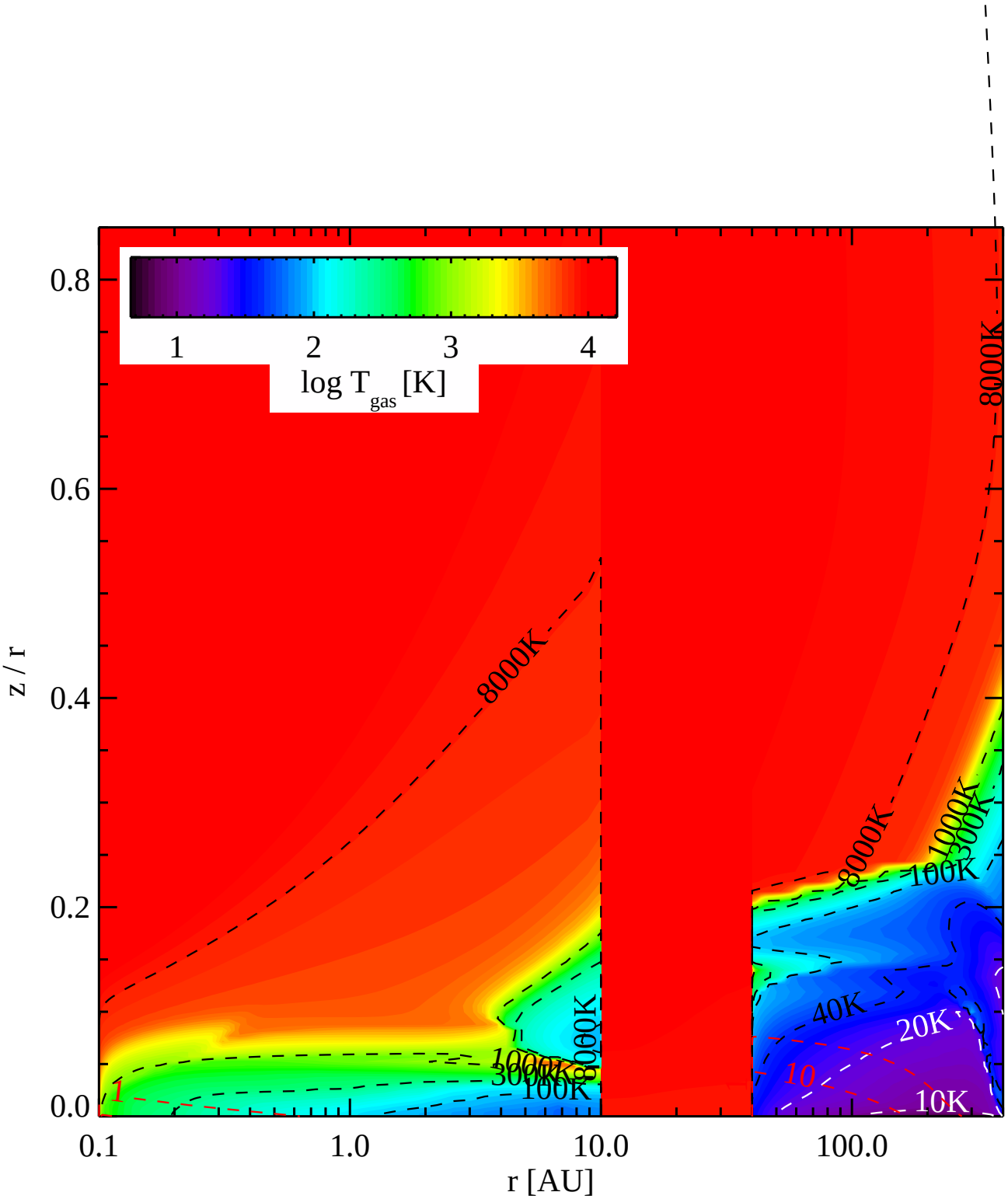

1.0
0.1
H/r
0.1
1.0
10.0
100.0
r [AU]
as prescribed in model
from midplane dust temperature
from surface gas temperature

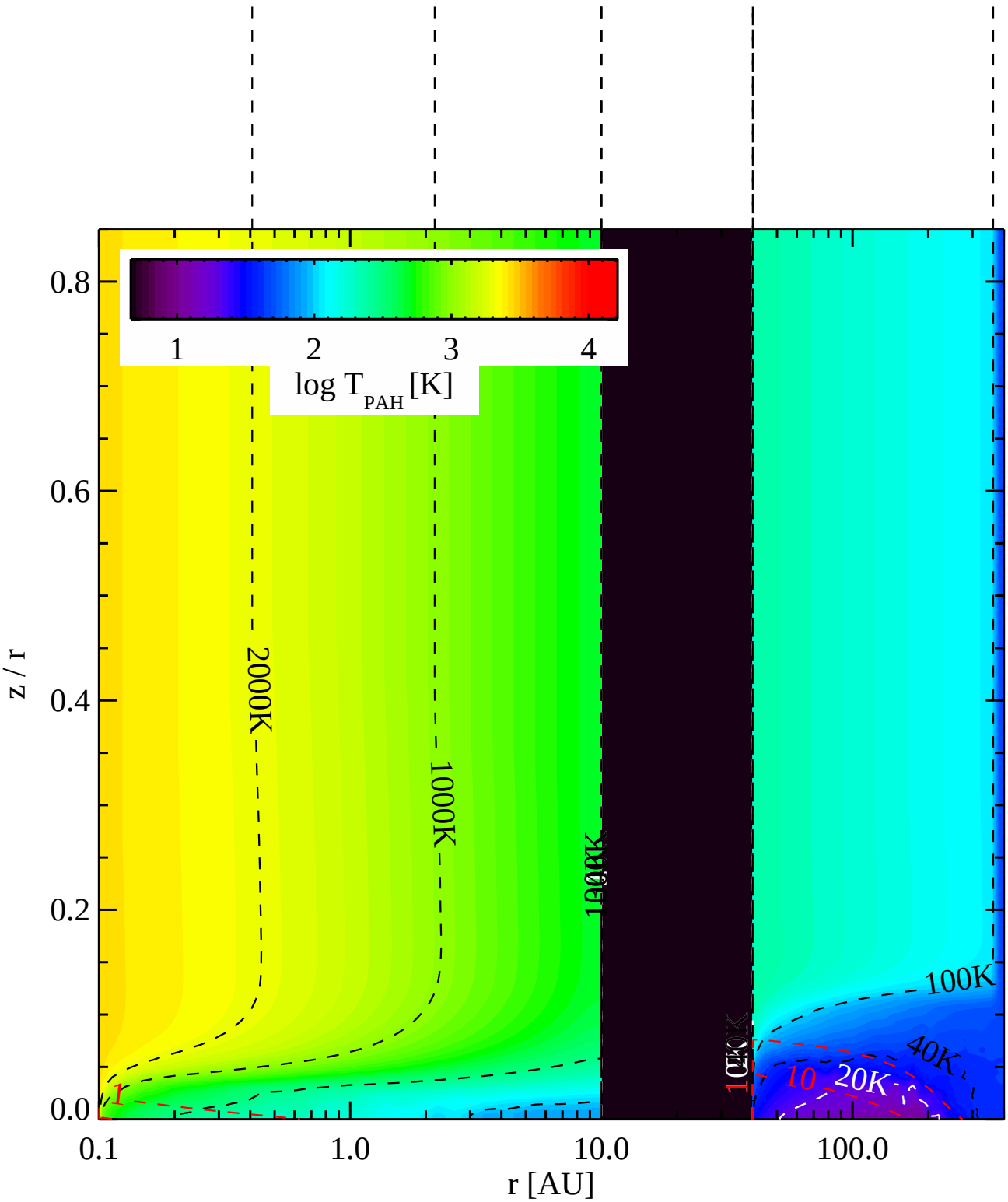

0.8
0.6
0.4
0.2
0.0
z / r
0
2
4
6
8
log χ
AV=1
AV=1
0.1
1.0
10.0
100.0
r [AU]

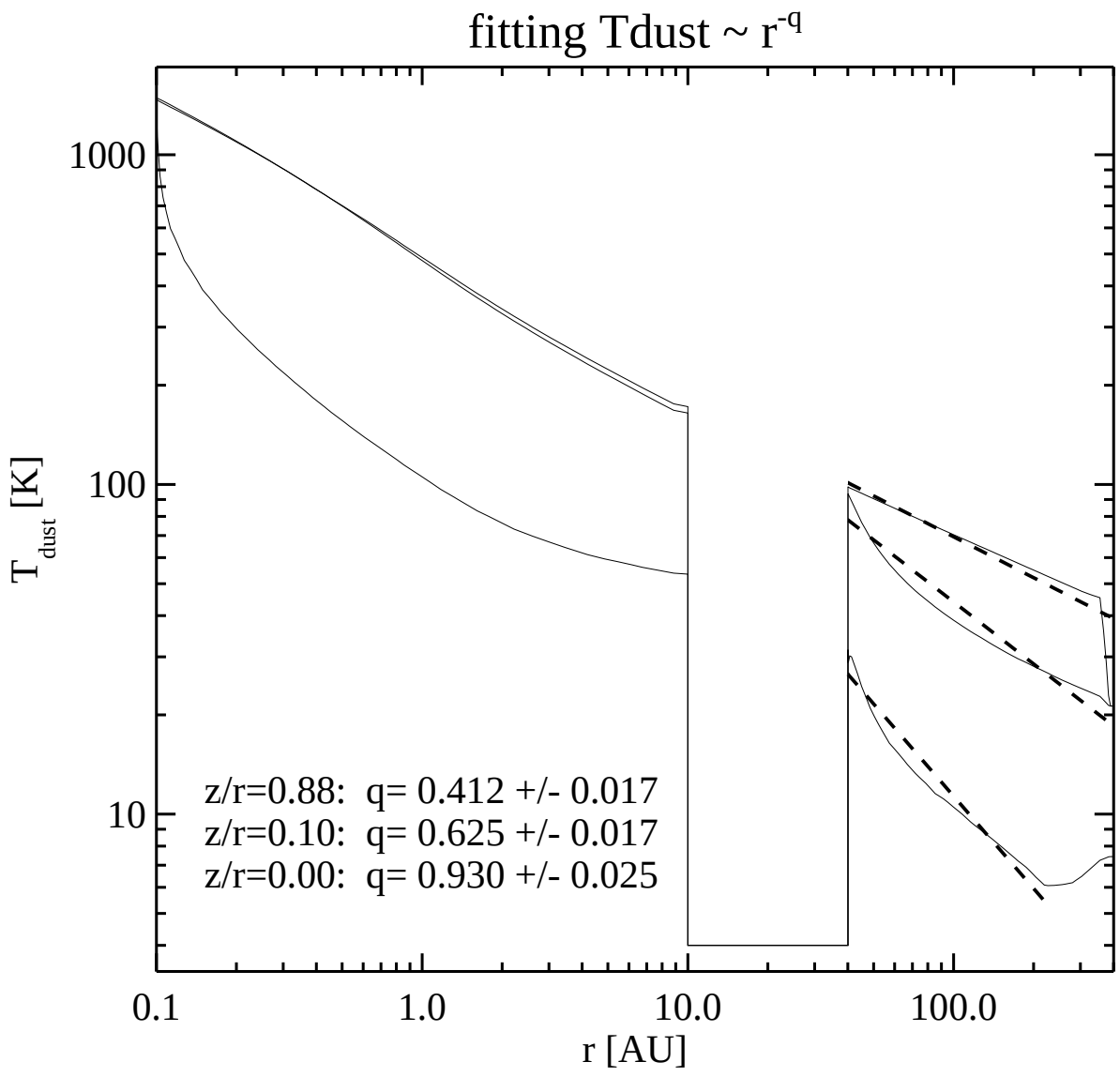

4
6
8
10
12
log n<H> [cm-3]
0.8
0.6
0.4
0.2
0.0
z / r
τ1keV=10
AV=10
0.1
1.0
10.0
100.0
r [AU]

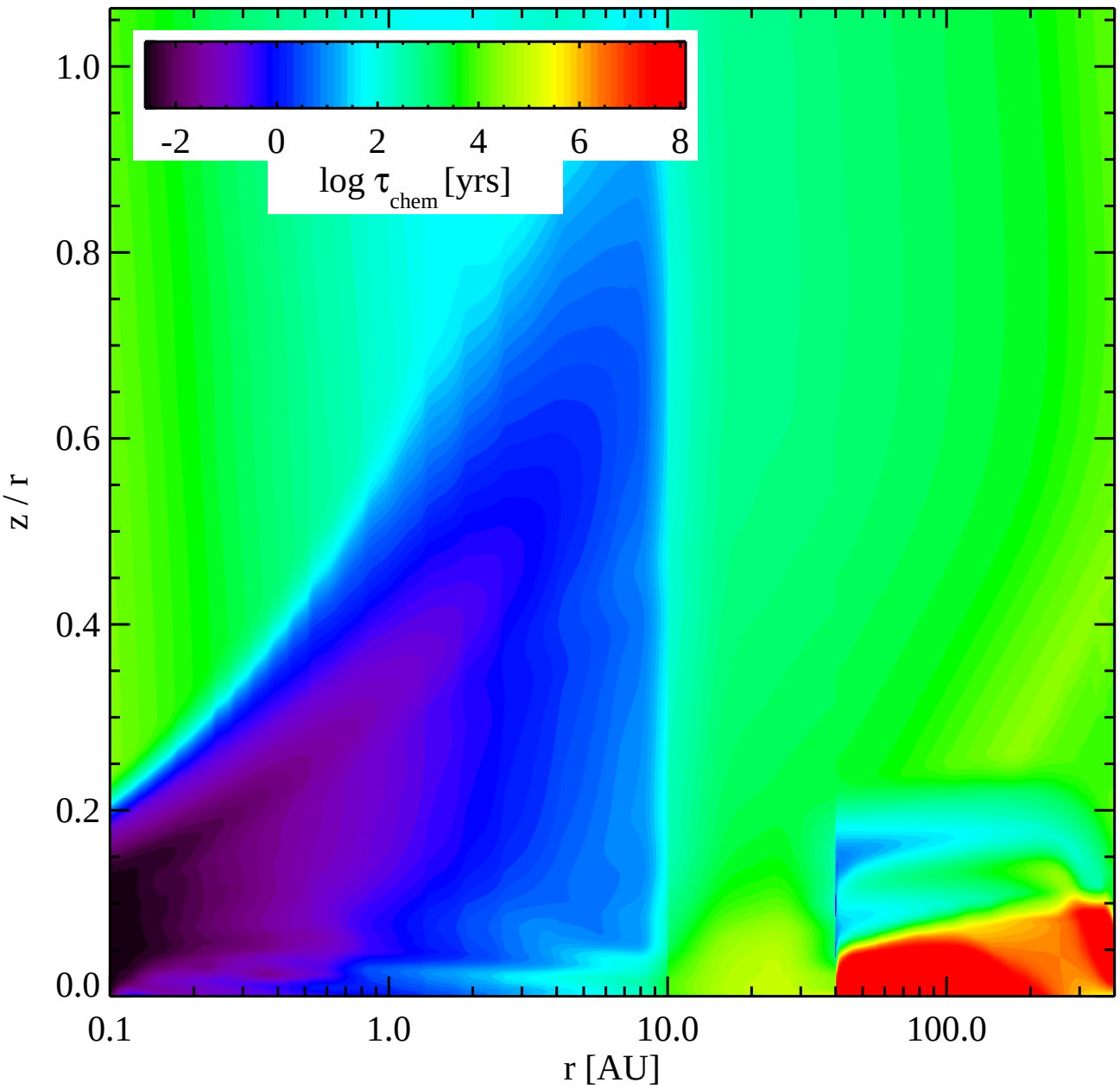

-20
-15
-10
-5
log ζ_X[1/s]
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

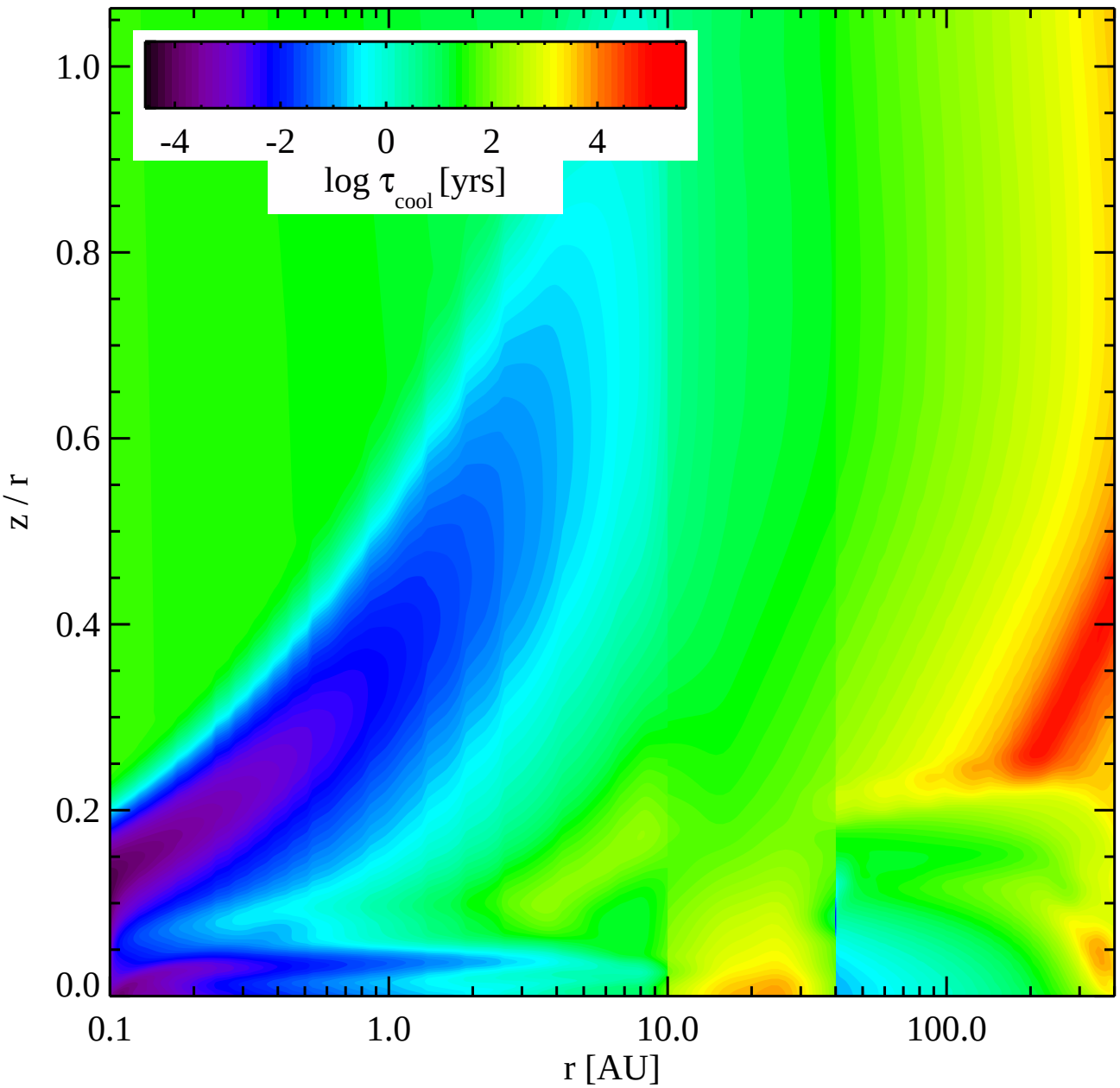

0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
1
2
3
4
log T dust [K]
1400K
700K
300K
100K
40K
20K
10K
1
10

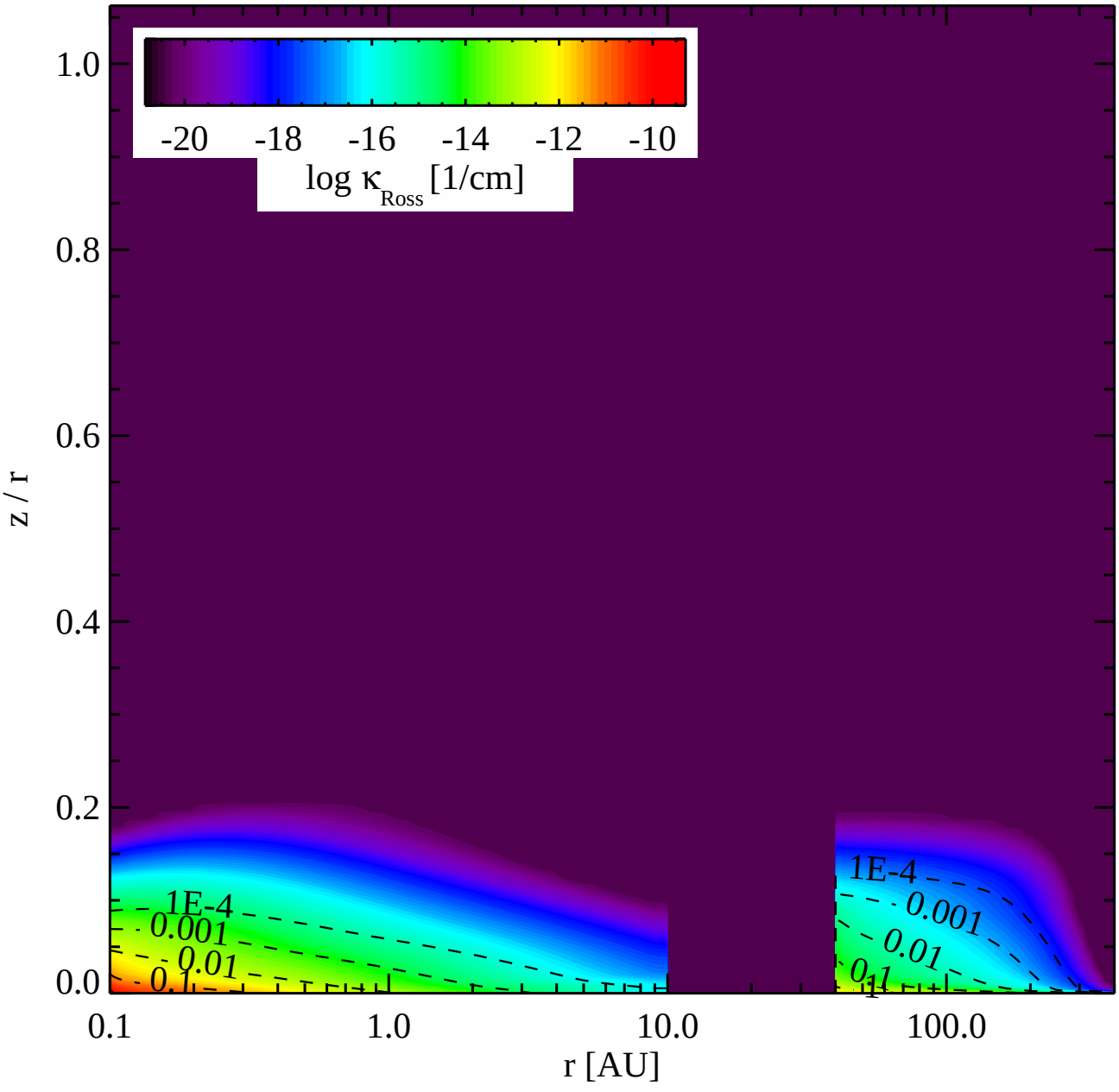

0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
1
2
3
4
log T gas [K]
8000K
8000K
8000K
1000K
300K
100K
1000K
300K
100K
40K
20K
10
10K
1

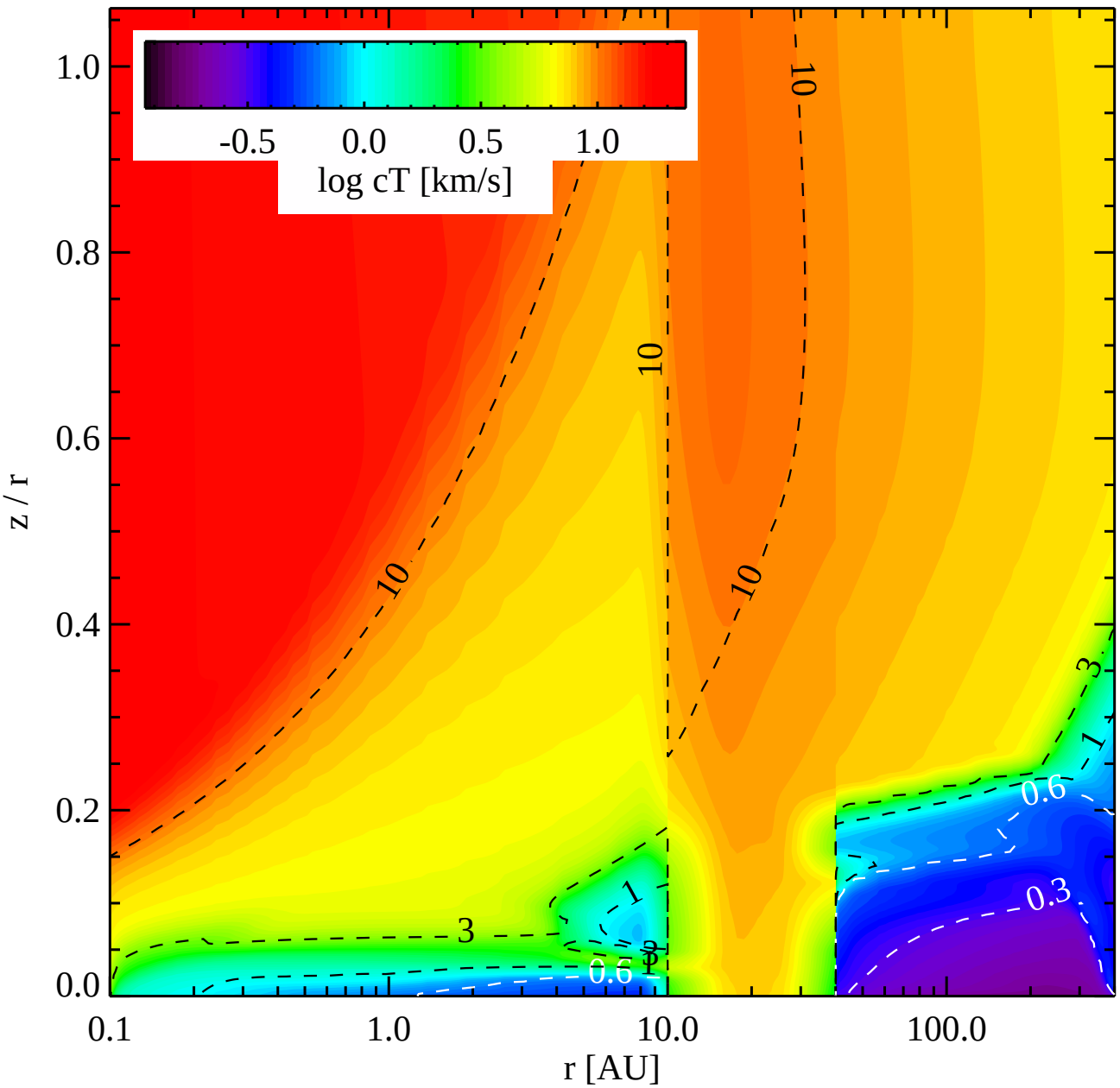

1
2
3
4
log T PAH [K]
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
2000K
1000K
100K
40K
20K
10
1

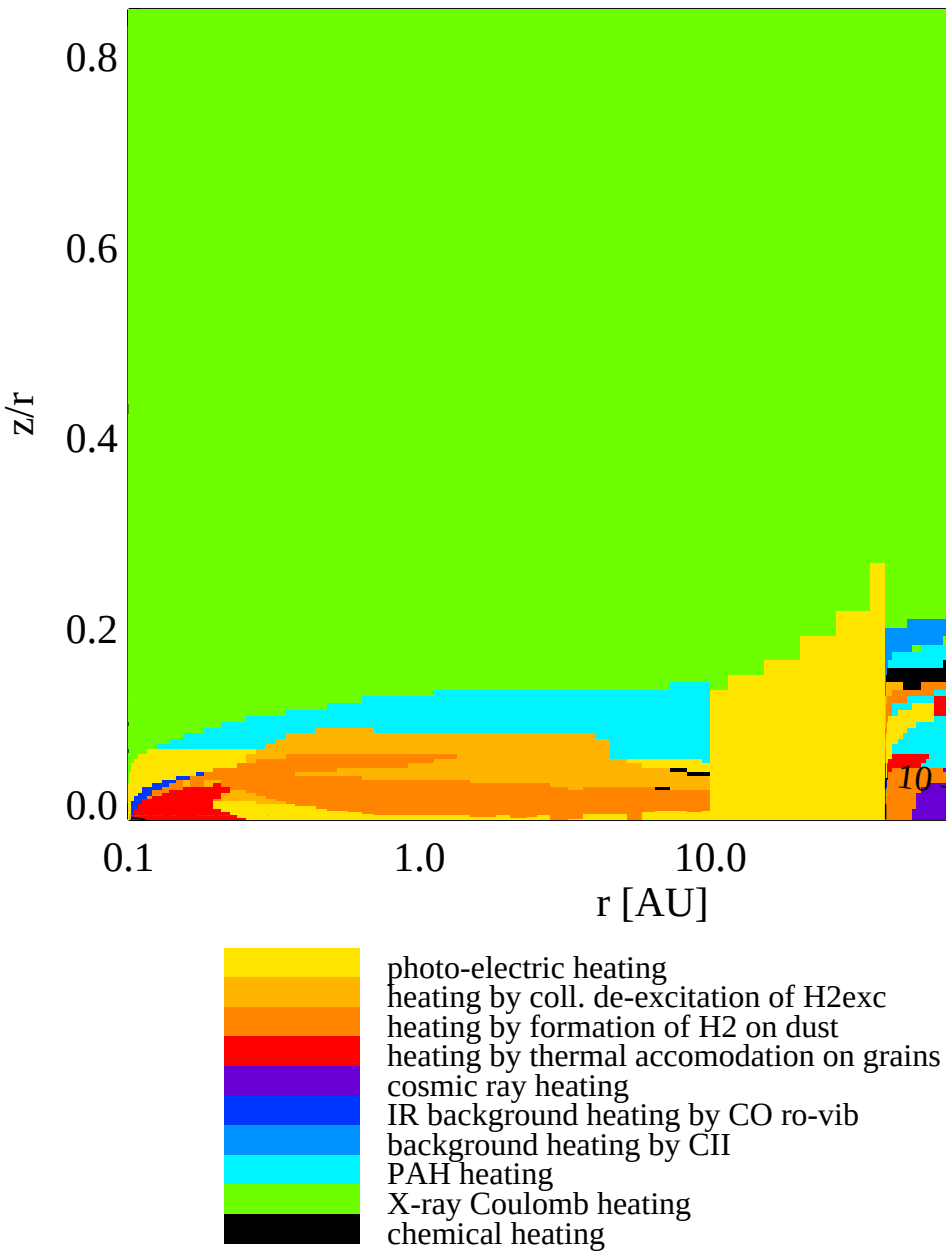

fitting Tdust ~ r^-q
1000
100
10
T dust [K]
0.1
1.0
10.0
100.0
r [AU]
z/r=0.88: q= 0.412 +/- 0.017
z/r=0.10: q= 0.625 +/- 0.017
z/r=0.00: q= 0.930 +/- 0.025

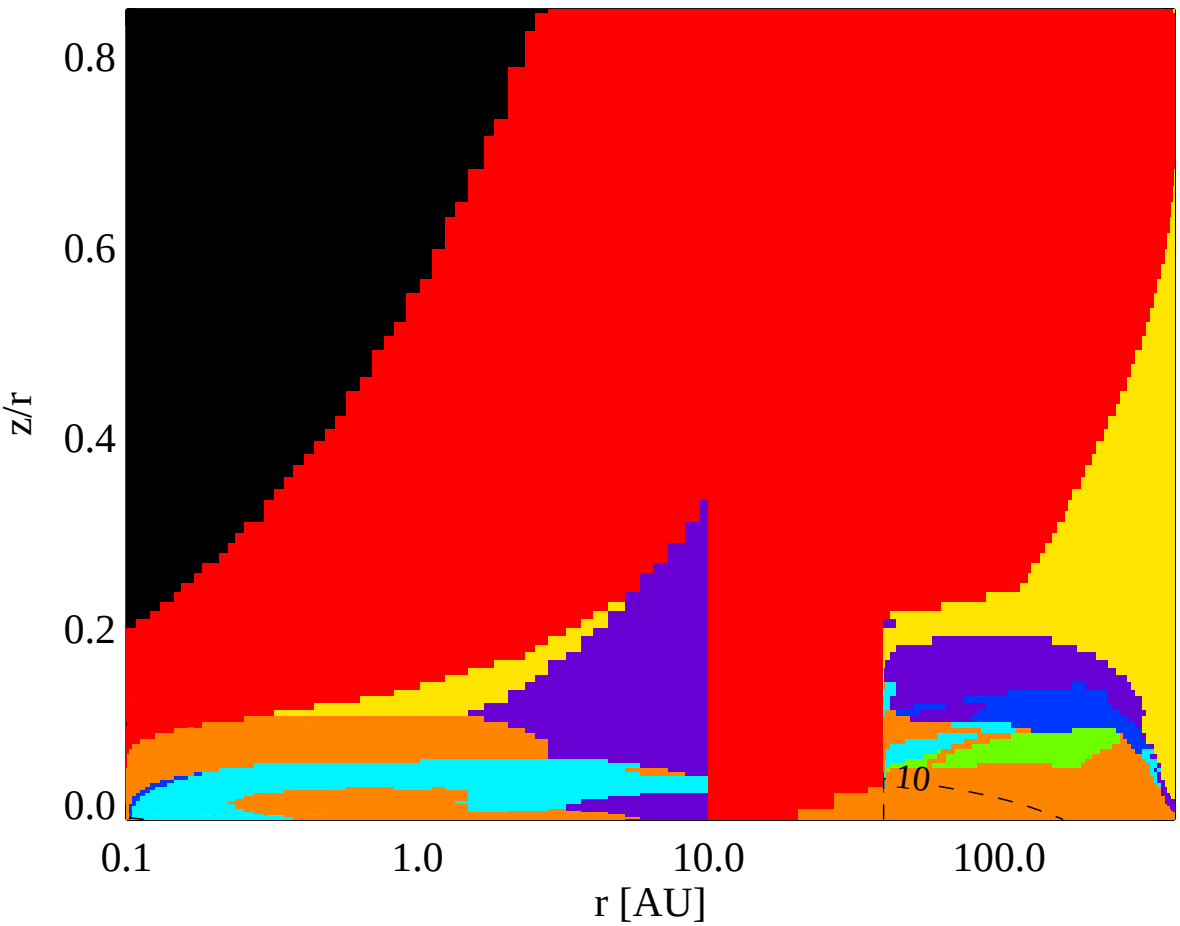

-2
0
2
4
6
8
log τ chem [yrs]
1.0
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]


-4
-2
0
2
4
log τ cool [yrs]
1.0
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

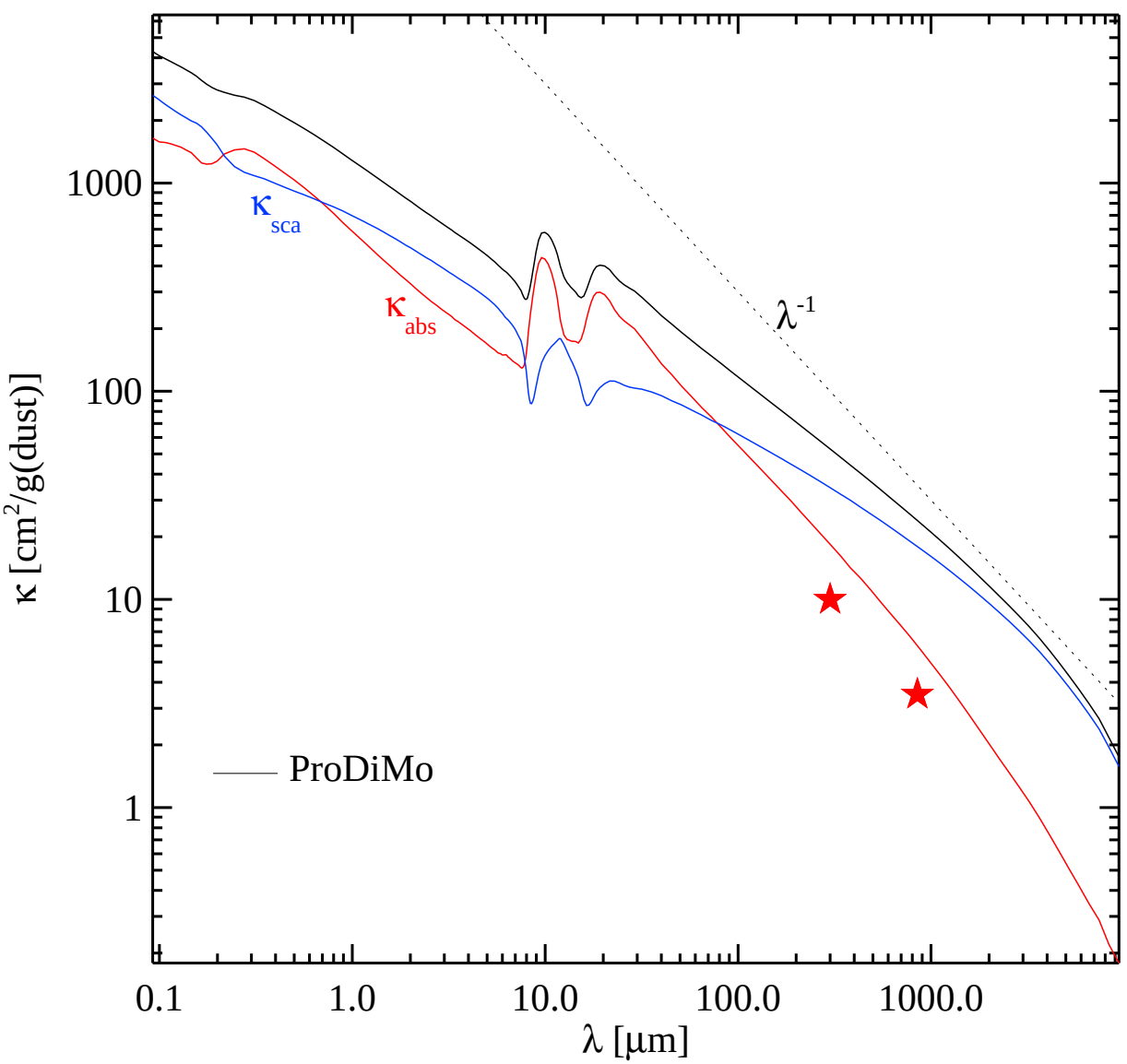

-20
-18
-16
-14
-12
-10
log κ Ross [1/cm]
1.0
0.8
0.6
0.4
0.2
0.0
z / r
1E-4
0.001
0.01
0.1
1E-4
0.001
0.01
0.1
0.1
1.0
10.0
100.0
r [AU]

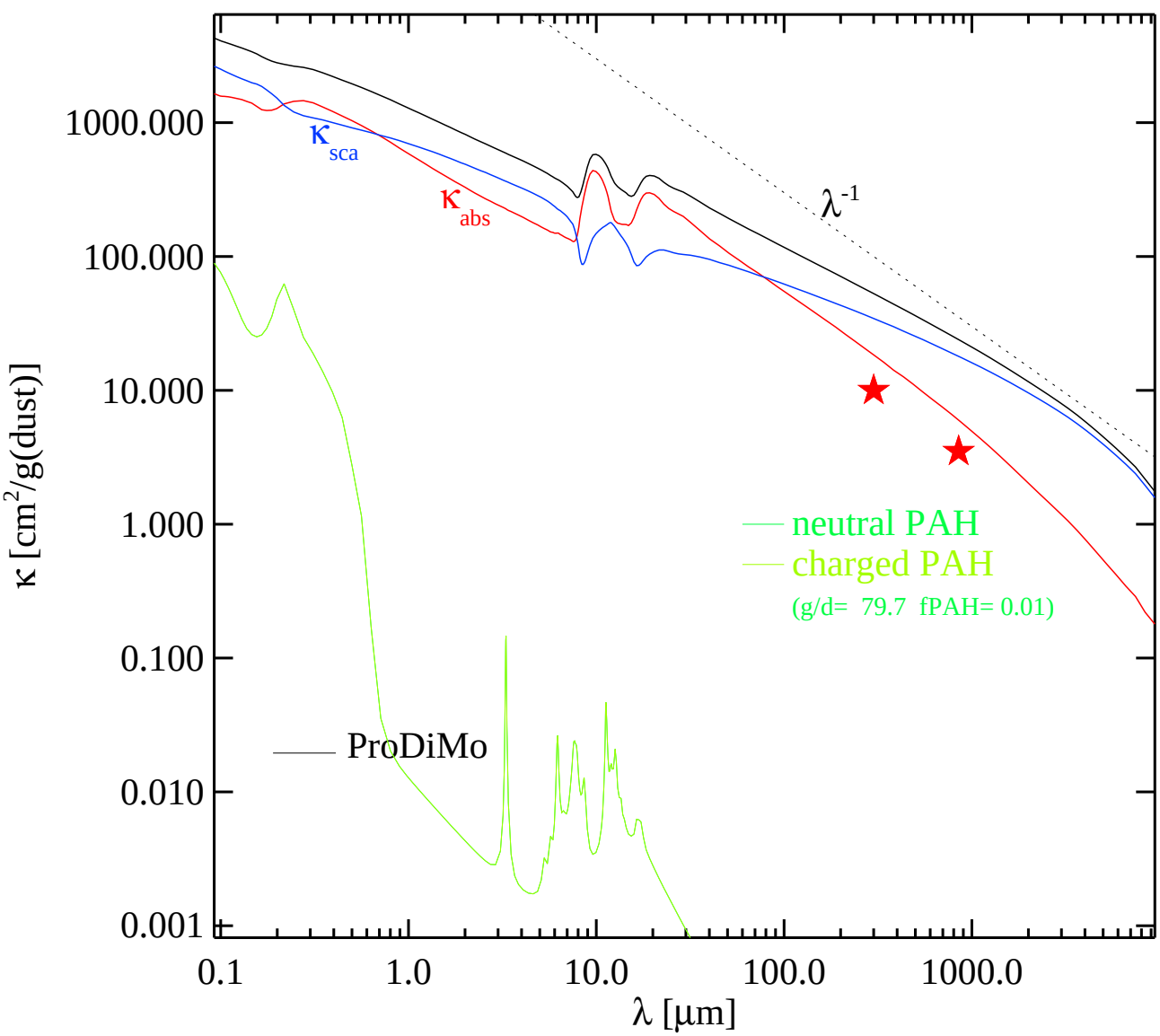

-0.5
0.0
0.5
1.0
log cT [km/s]
10
10
10
3
1
0.6
0.3
1.0
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

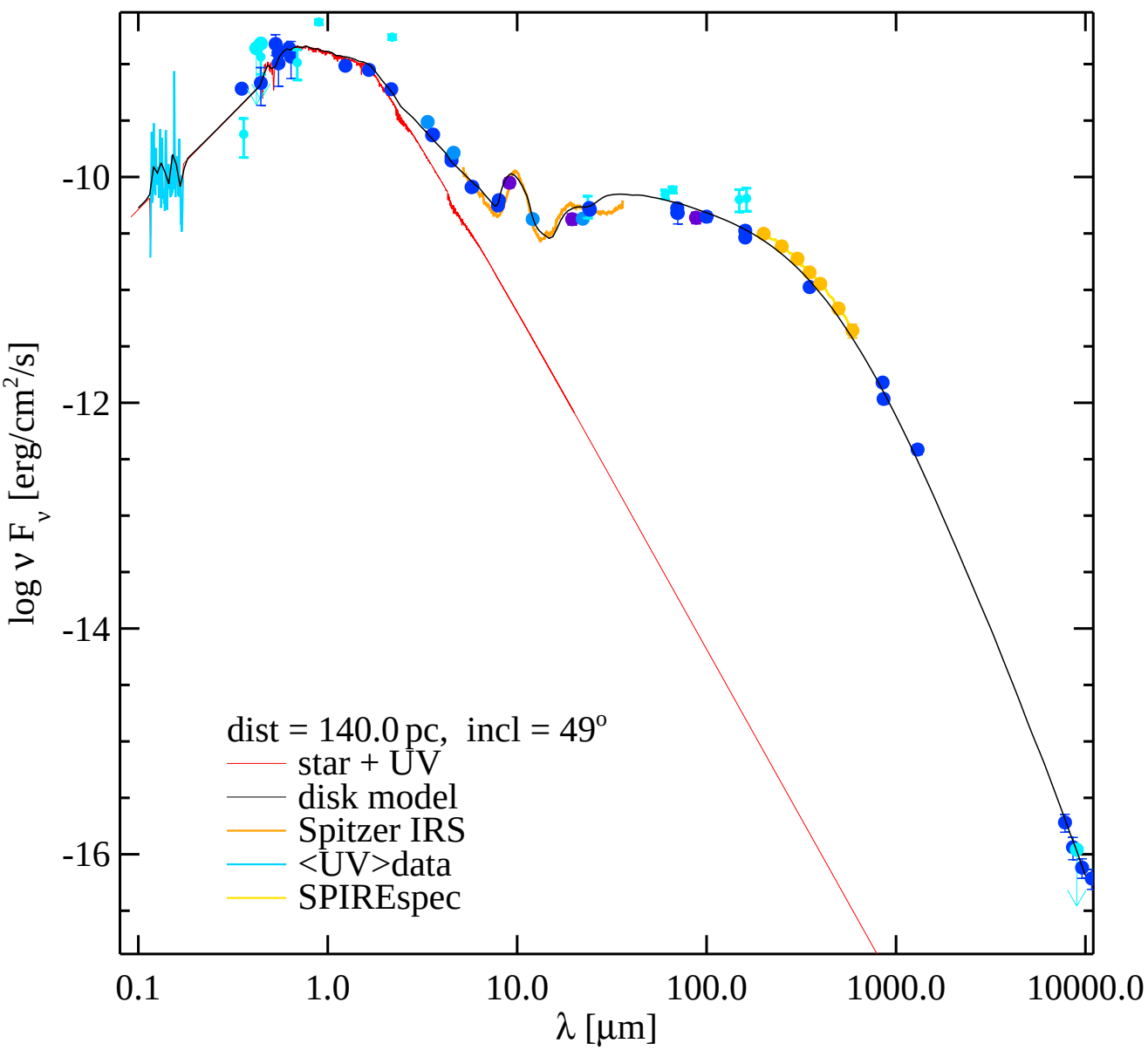

0.8
0.6
0.4
0.2
0.0
z/r
0.1
1.0
10.0
100.0
r [AU]
10
photo-electric heating
heating by coll. de-excitation of H2exc
heating by formation of H2 on dust
heating by thermal accomodation on grains
cosmic ray heating
IR background heating by CO ro-vib
background heating by CII
PAH heating
X-ray Coulomb heating
chemical heating

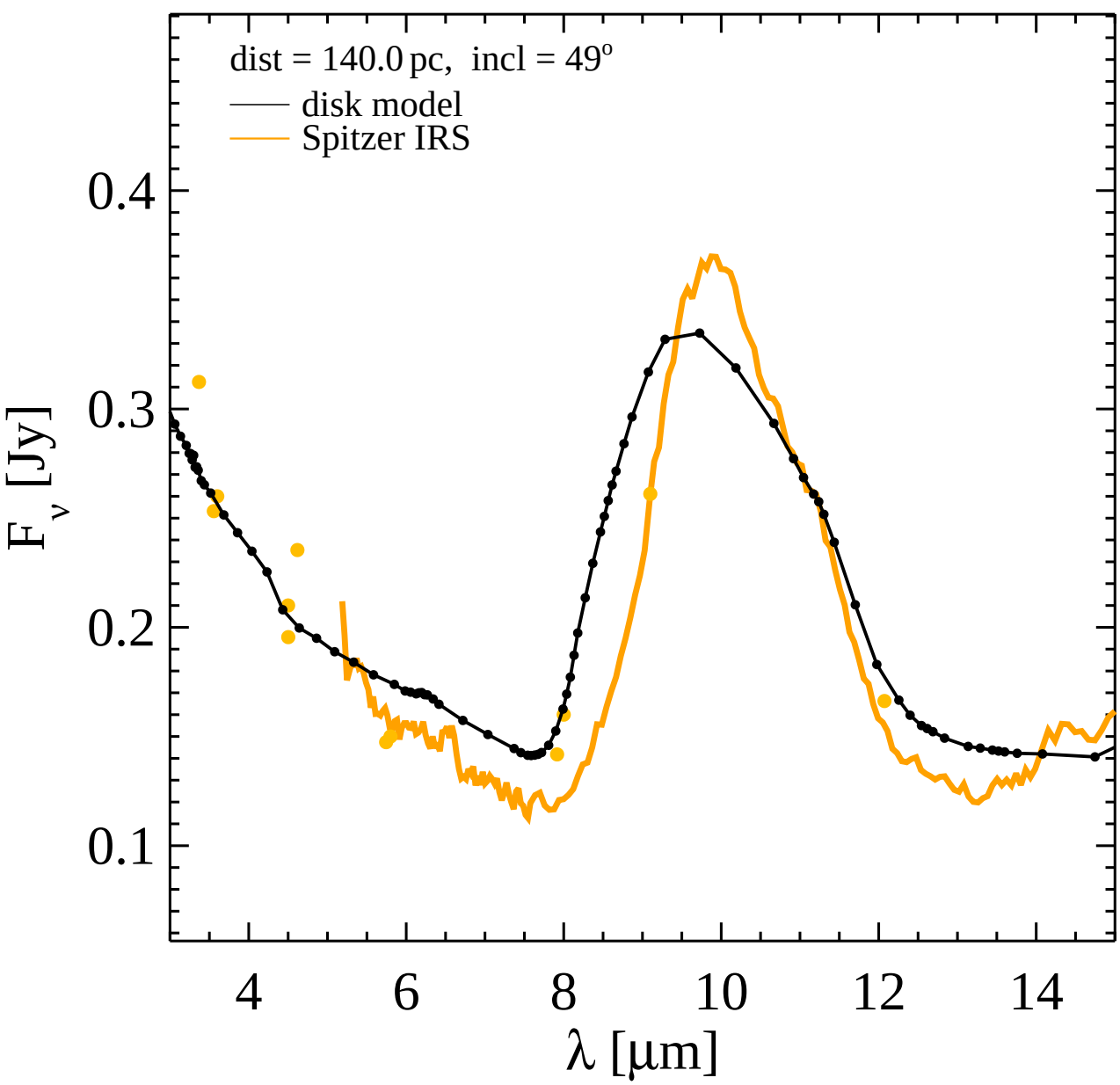


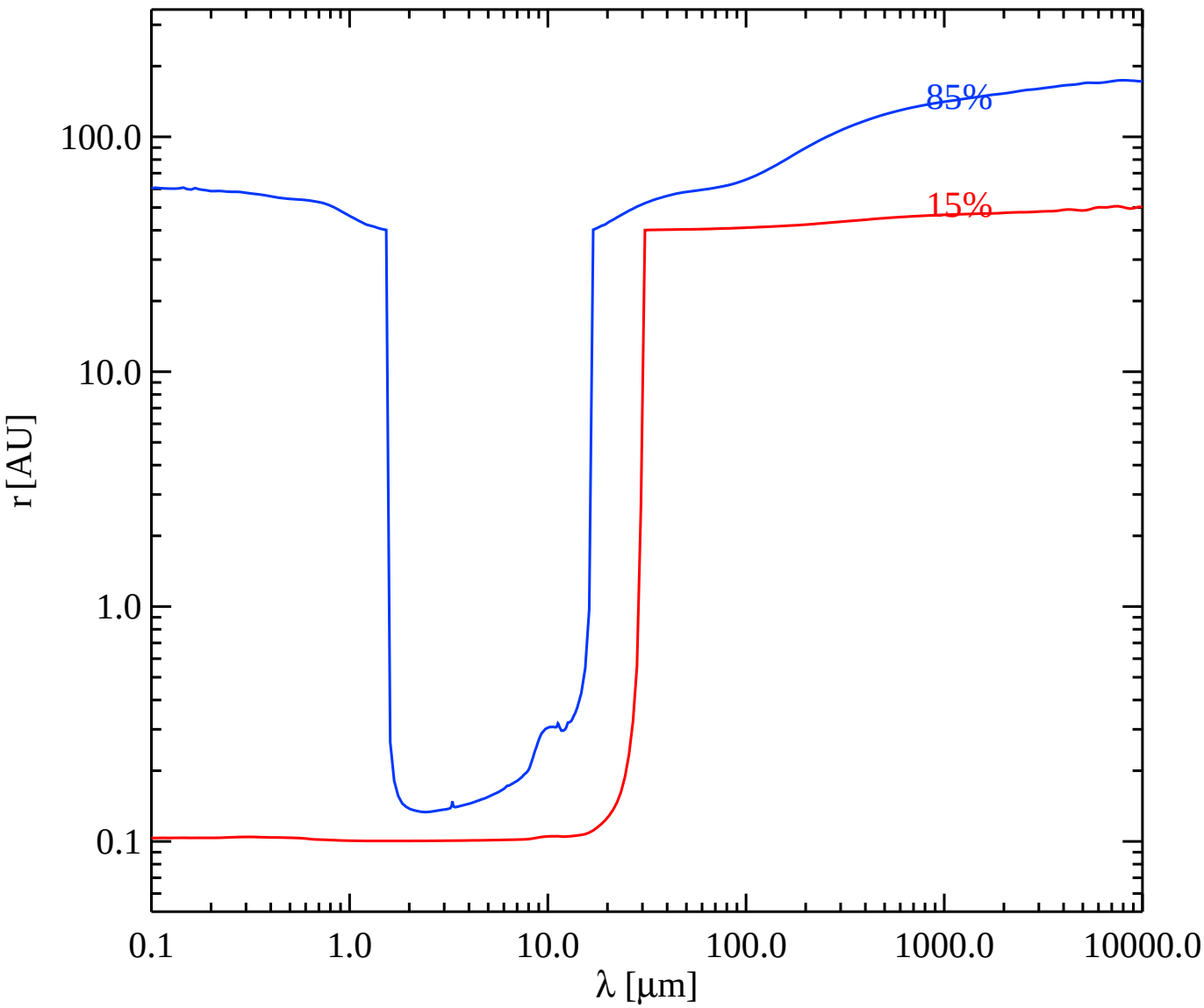
CII line cooling
cooling by thermal accomodation on grains
Ly-alpha line cooling
OI line cooling
CO rot & ro-vib cooling
H2O rot and rovib cooling
NH3 rot cooling
OIII line cooling

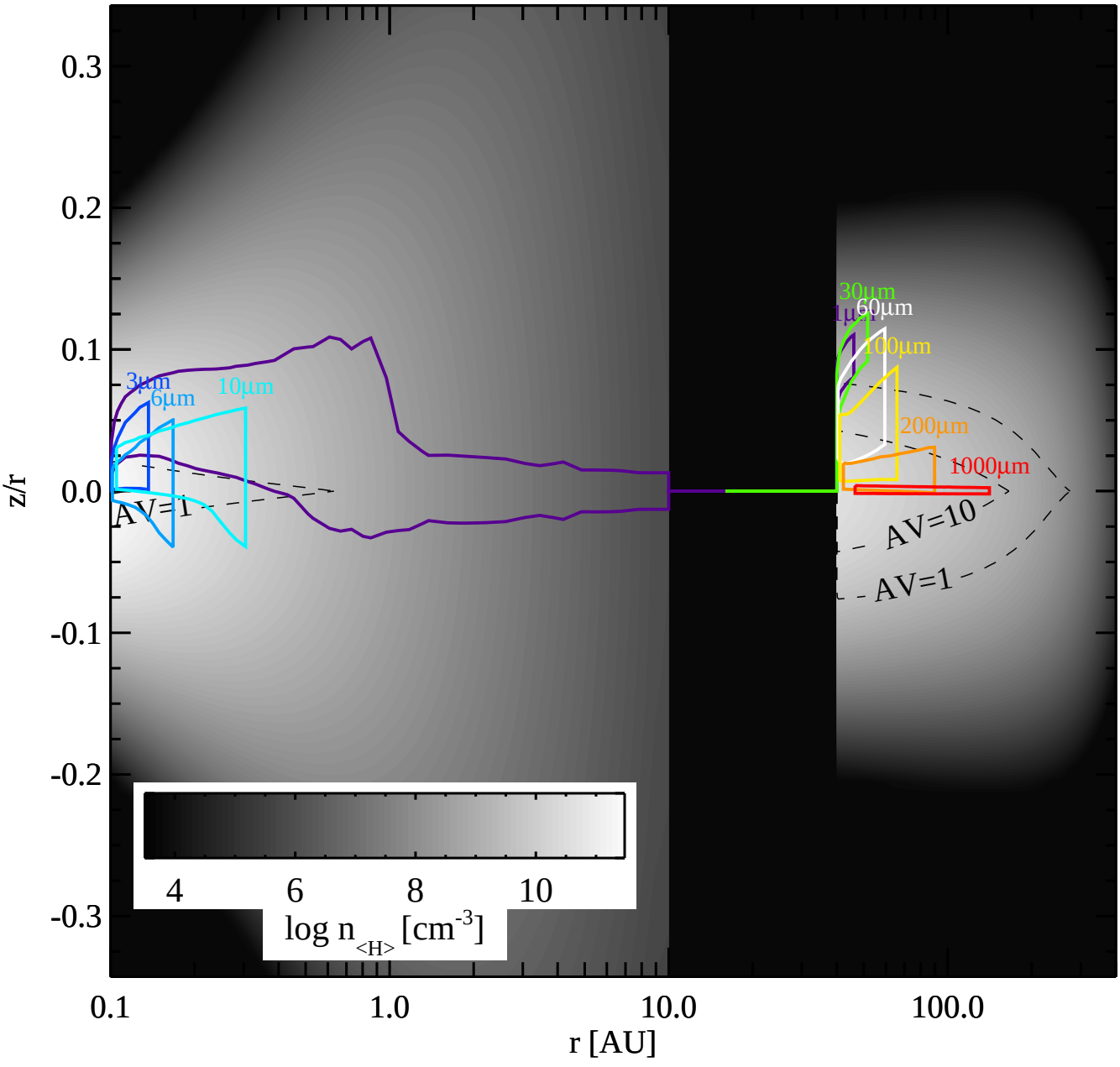

1000
100
10
1
κ [cm²/g(dust)]
κsca
κabs
λ-1
ProDiMo
0.1
1.0
10.0
100.0
1000.0
λ [μm]

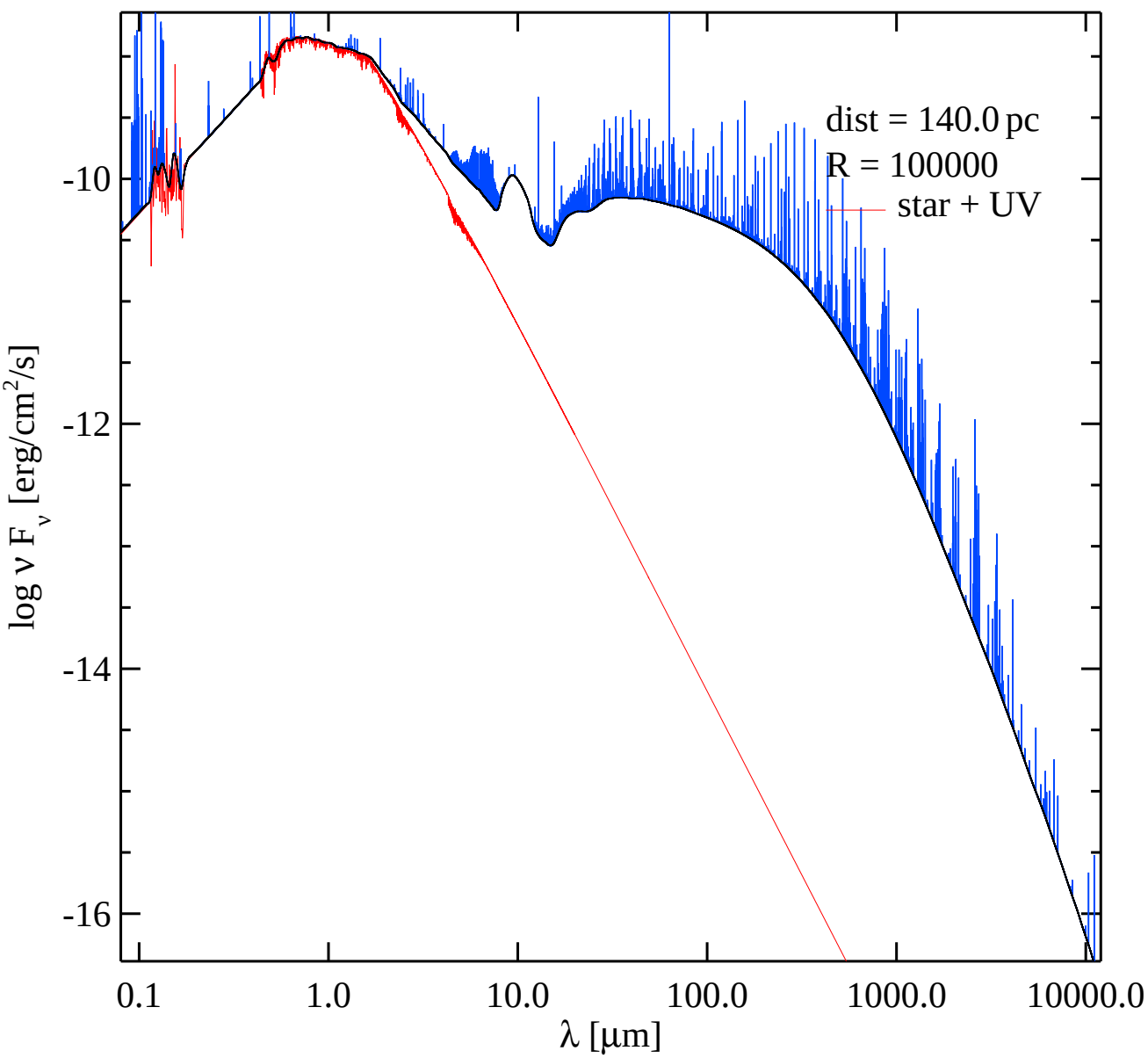

1000.000
100.000
10.000
1.000
0.100
0.010
0.001
κ [cm²/g(dust)]
0.1
1.0
10.0
100.0
1000.0
λ [μm]
κsca
κabs
λ-1
neutral PAH
charged PAH
(g/d= 79.7 fPAH= 0.01)
ProDiMo

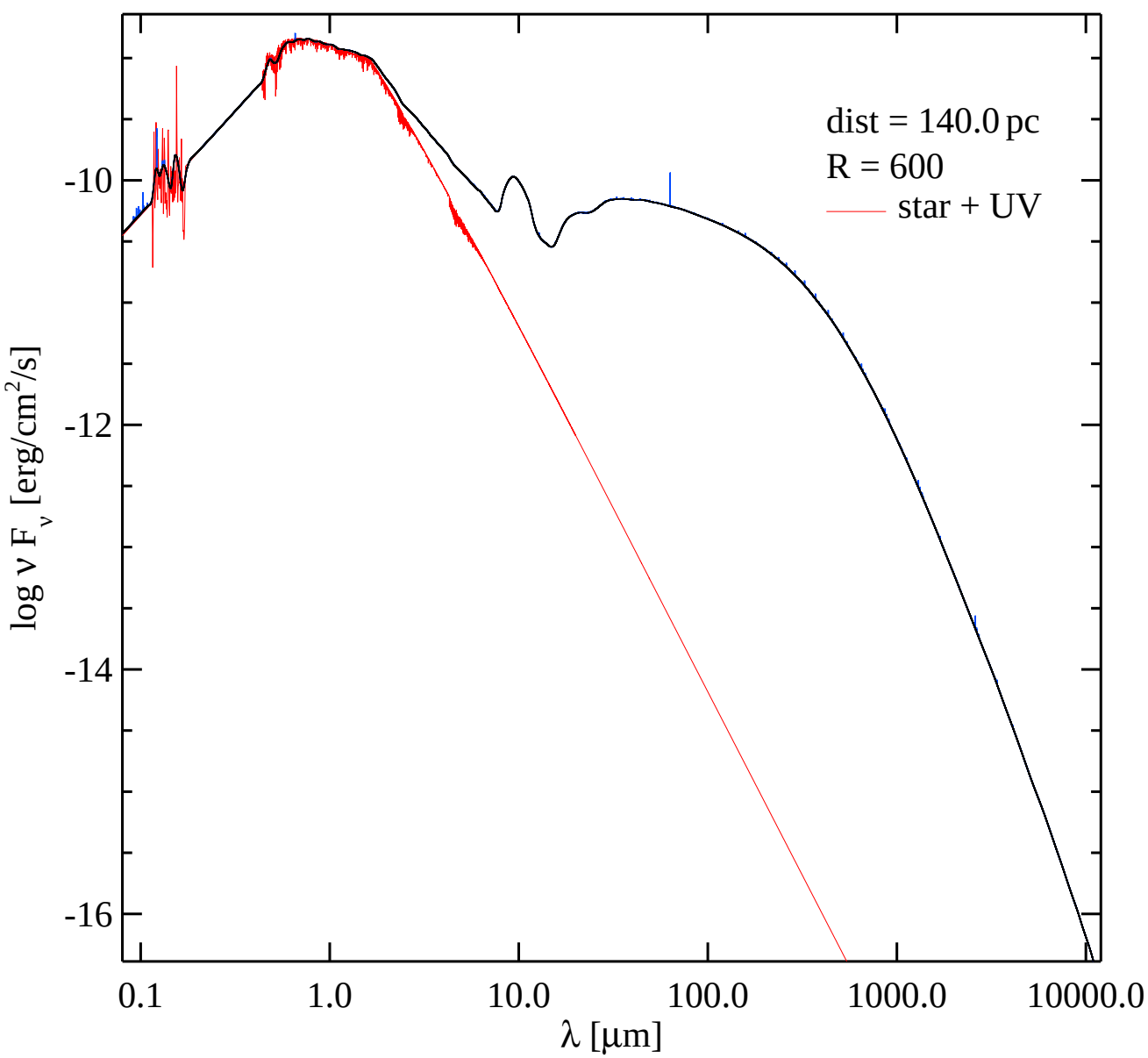

-10
-12
-14
-16
log ν F_ν [erg/cm²/s]
0.1
1.0
10.0
100.0
1000.0
10000.0
λ [μm]
dist = 140.0 pc, incl = 49°
star + UV
disk model
Spitzer IRS
<UV>data
SPIREspec

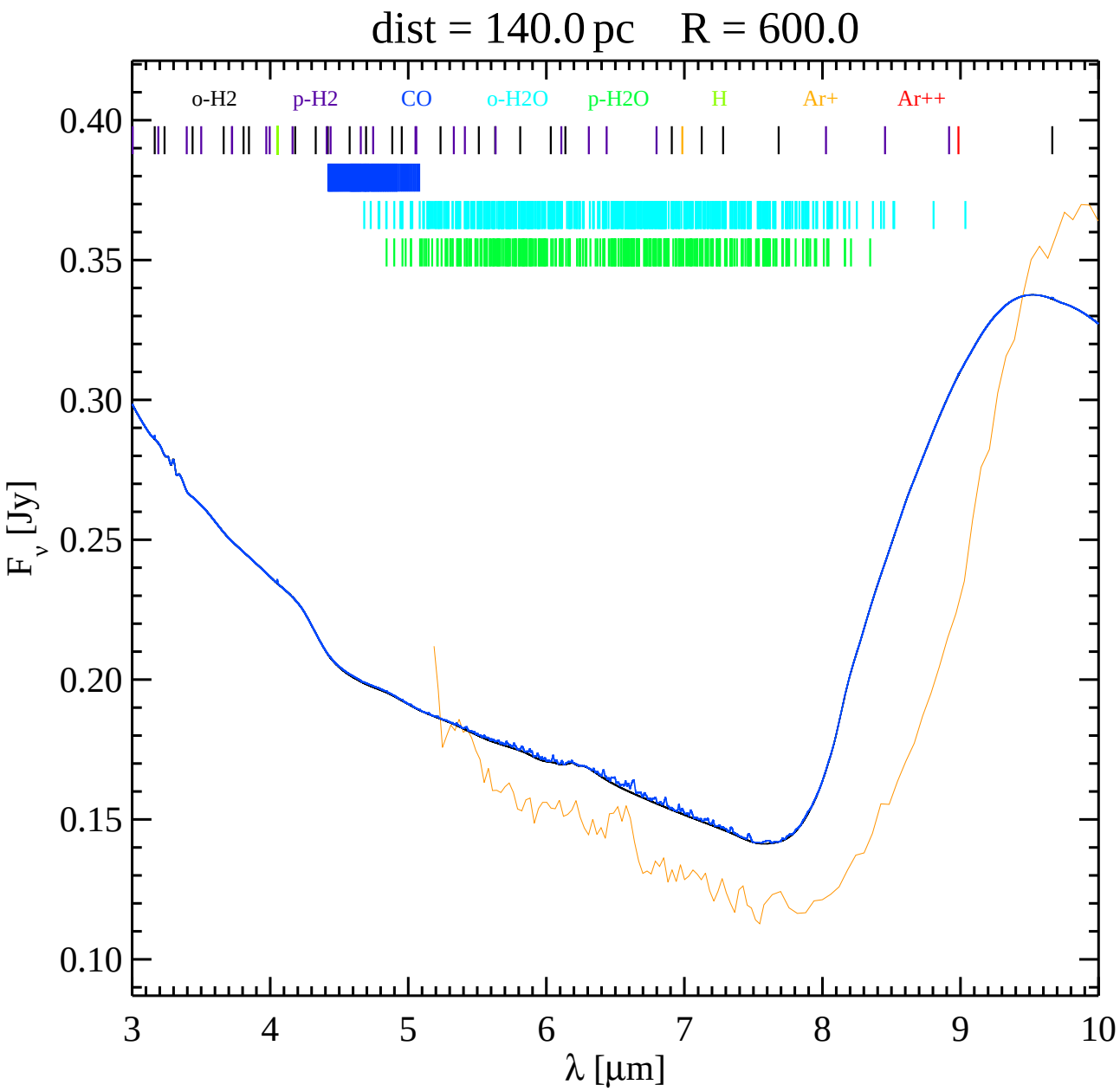

dist = 140.0 pc, incl = 49°
disk model
Spitzer IRS
0.4
0.3
0.2
0.1
F_ν [Jy]
4
6
8
10
12
14
λ [μm]

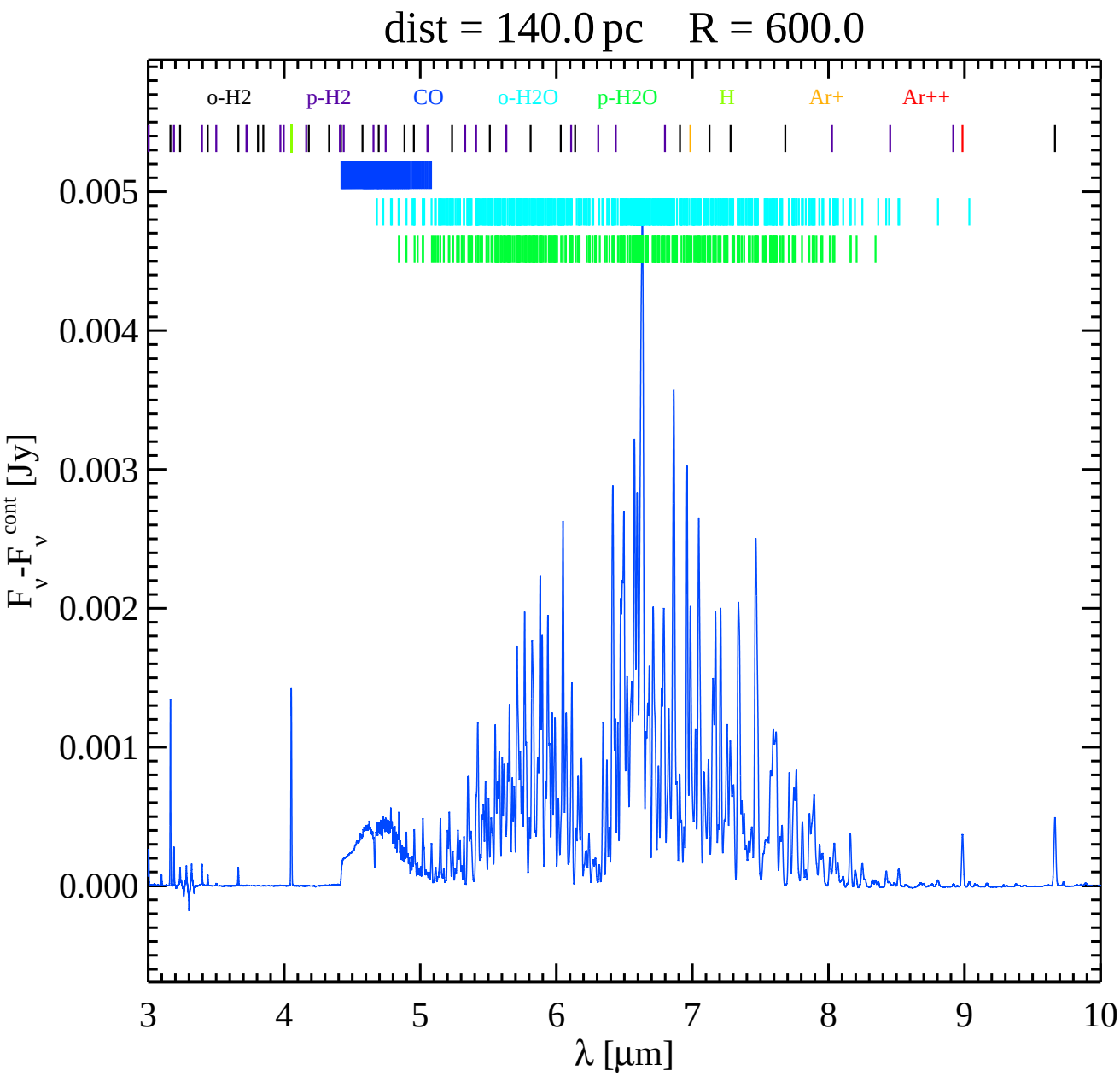

85%
15%
100.0
10.0
1.0
0.1
r [AU]
0.1
1.0
10.0
100.0
1000.0
10000.0
λ [μm]

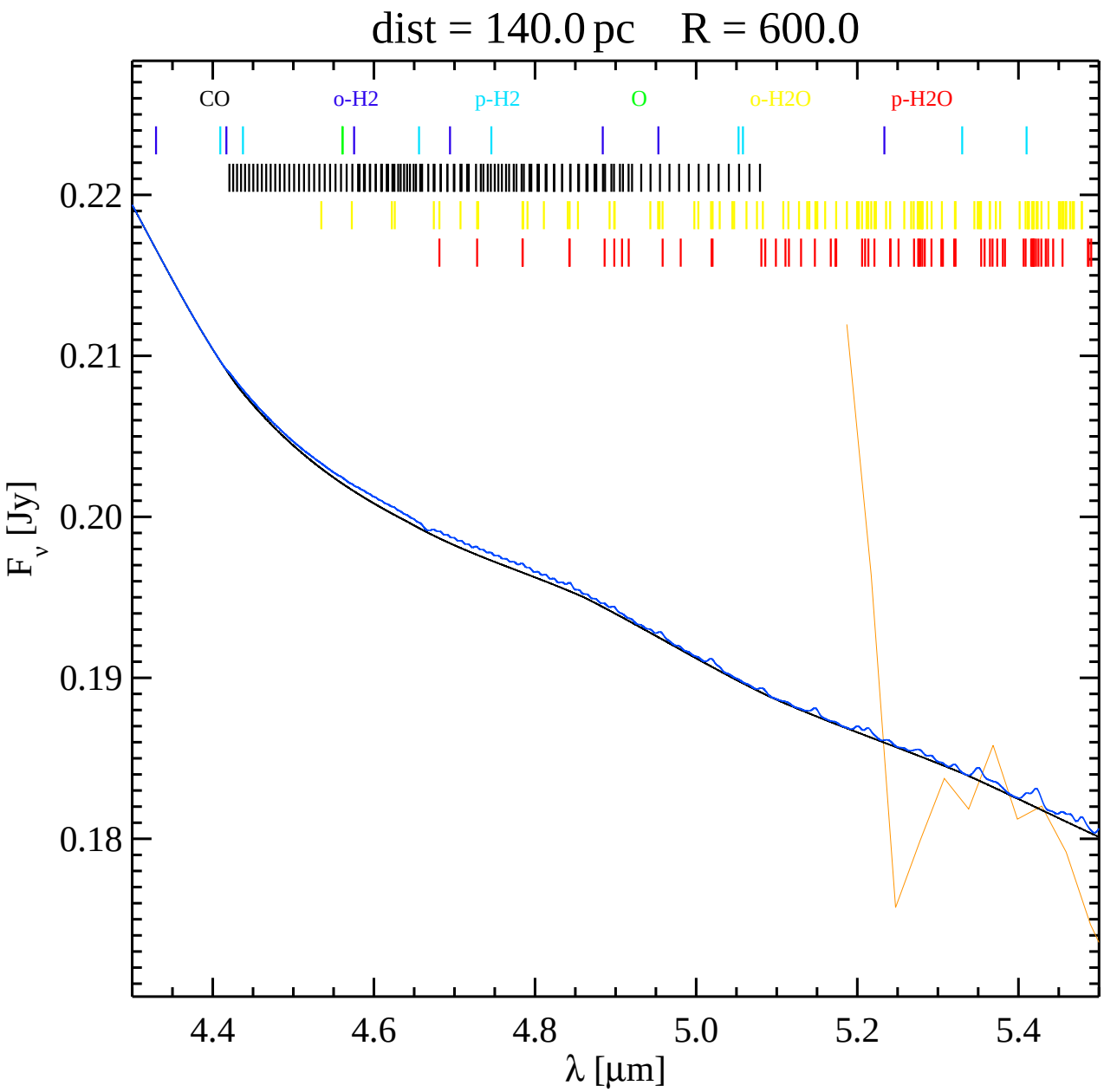

0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
z/r
0.1
1.0
10.0
100.0
r [AU]
3μm
6μm
10μm
AV=1
1μm
30μm
60μm
100μm
200μm
1000μm
AV=10
AV=1
4
6
8
10
log n<H> [cm-3]

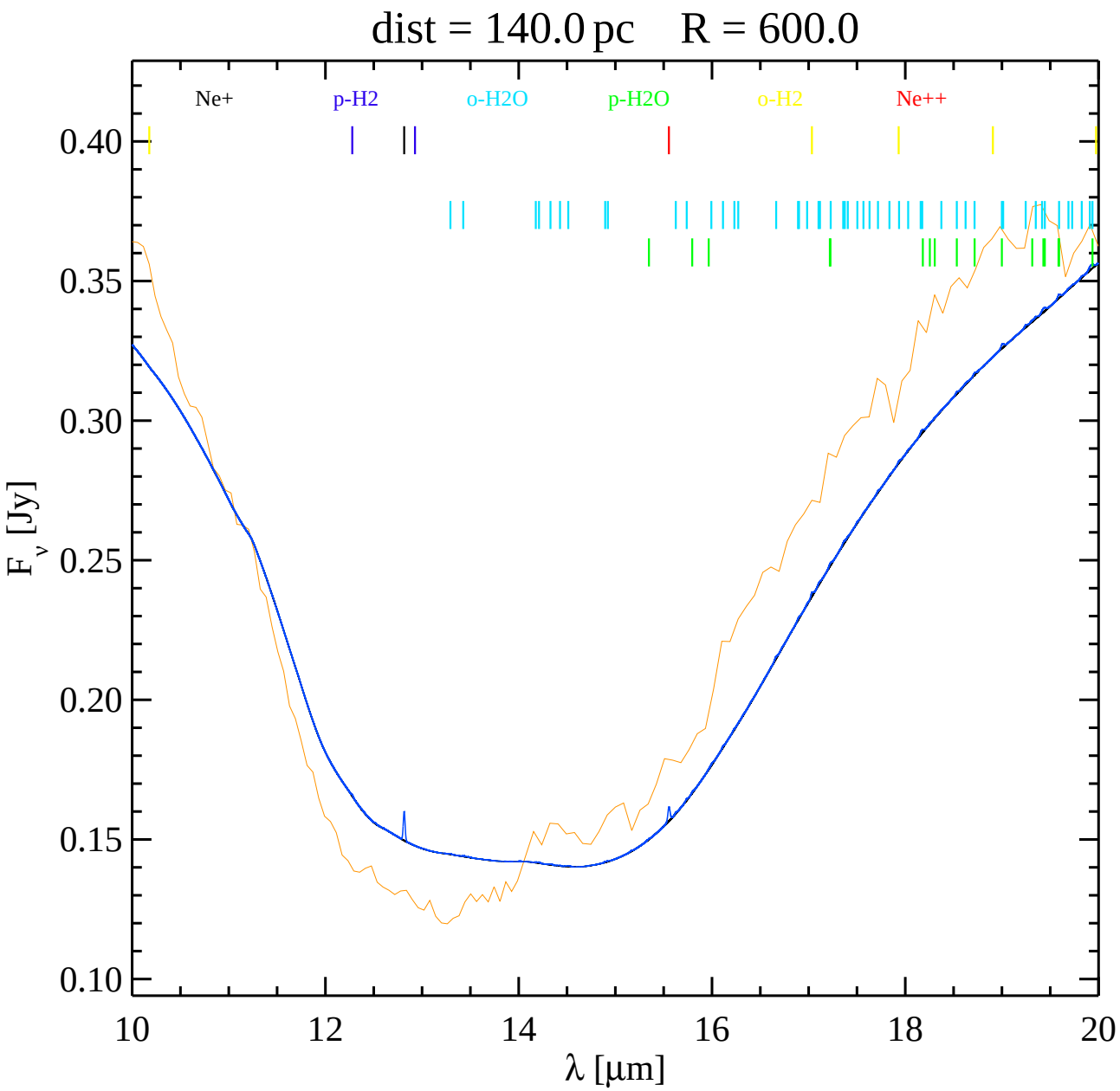

dist = 140.0 pc
R = 100000
star + UV
-10
-12
-14
-16
log ν F_ν [erg/cm²/s]
0.1
1.0
10.0
100.0
1000.0
10000.0
λ [μm]

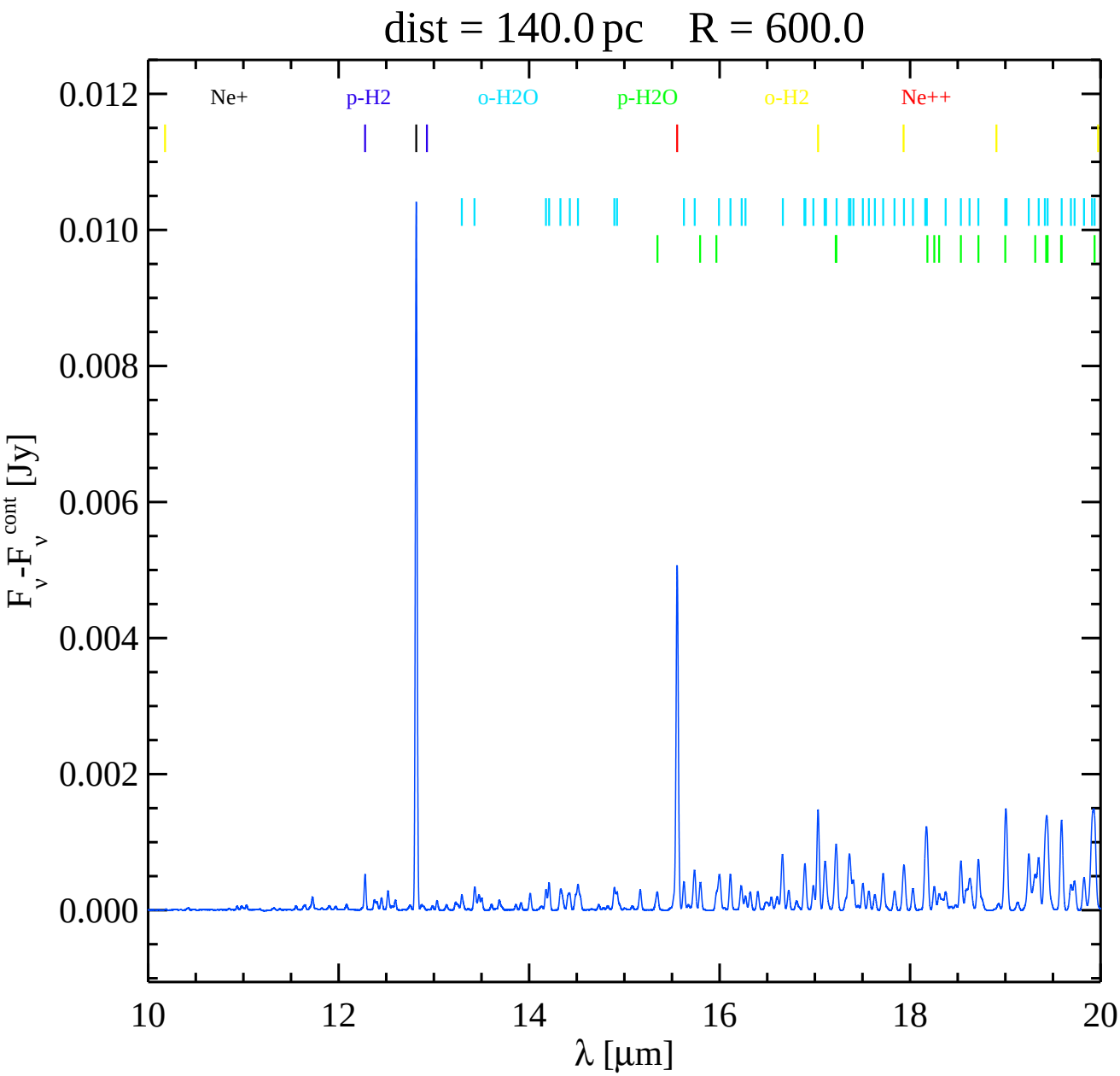

dist = 140.0 pc
R = 600
star + UV
-10
-12
-14
-16
log ν F_ν [erg/cm²/s]
0.1
1.0
10.0
100.0
1000.0
10000.0
λ [μm]

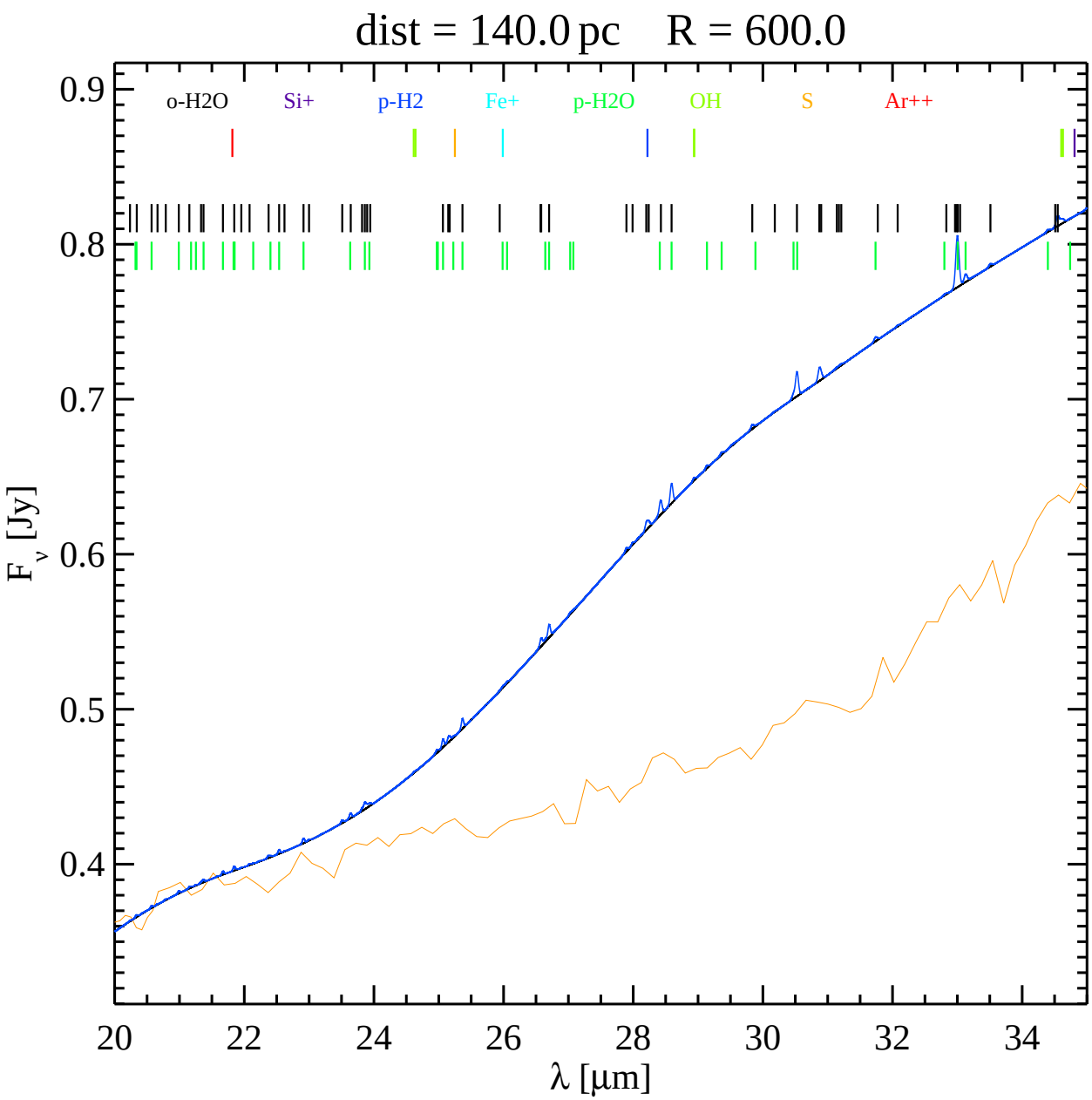

dist = 140.0 pc R = 600.0
o-H2
p-H2
CO
o-H2O
p-H2O
H
Ar+
Ar++
0.40
0.35
0.30
0.25
0.20
0.15
0.10
F_ν [Jy]
3
4
5
6
7
8
9
10
λ [μm]

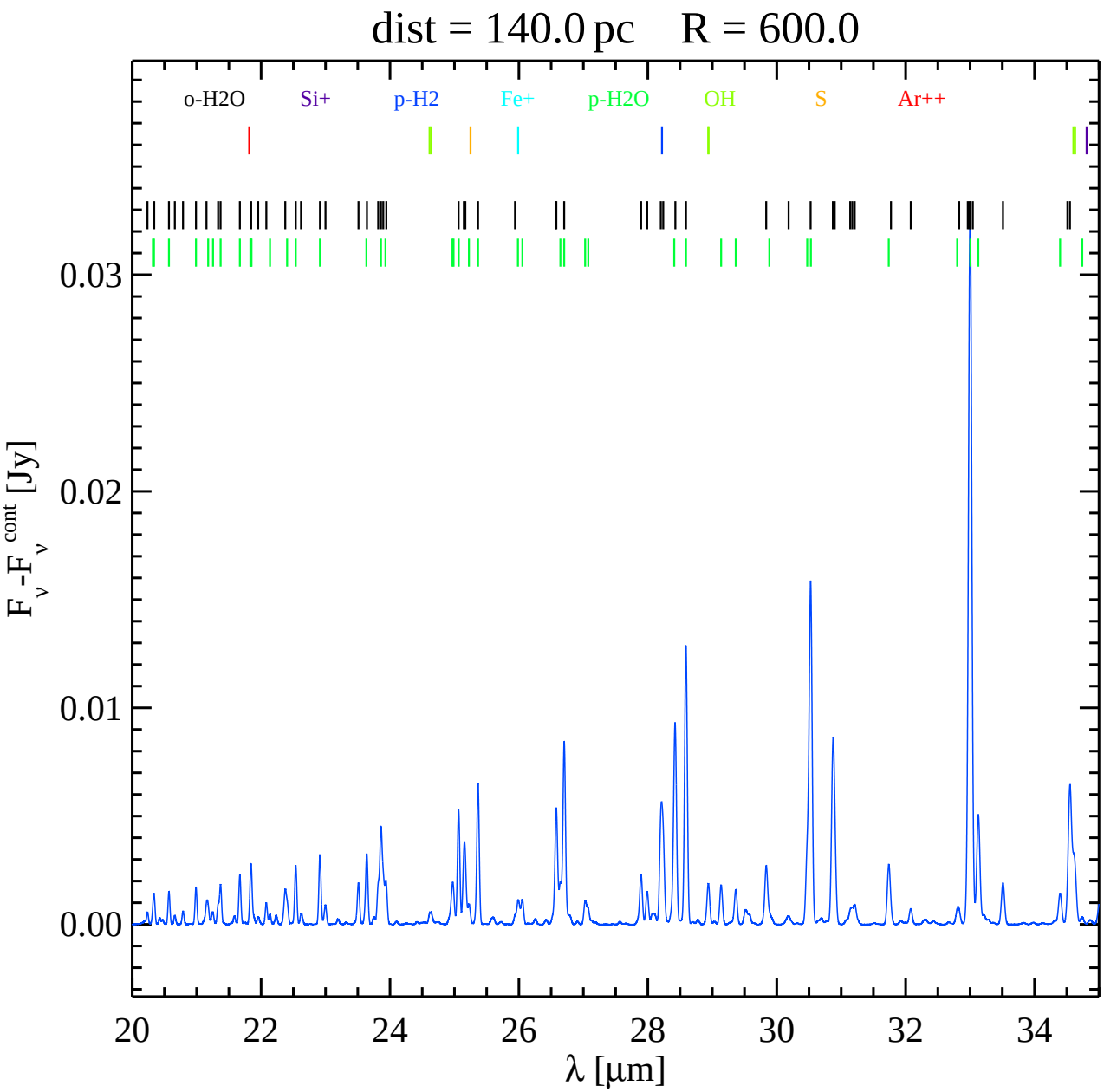

dist = 140.0 pc R = 600.0
o-H2
p-H2
CO
o-H2O
p-H2O
H
Ar+
Ar++
0.005
0.004
0.003
0.002
0.001
0.000
F_ν-F_ν^cont [Jy]
3
4
5
6
7
8
9
10
λ [μm]

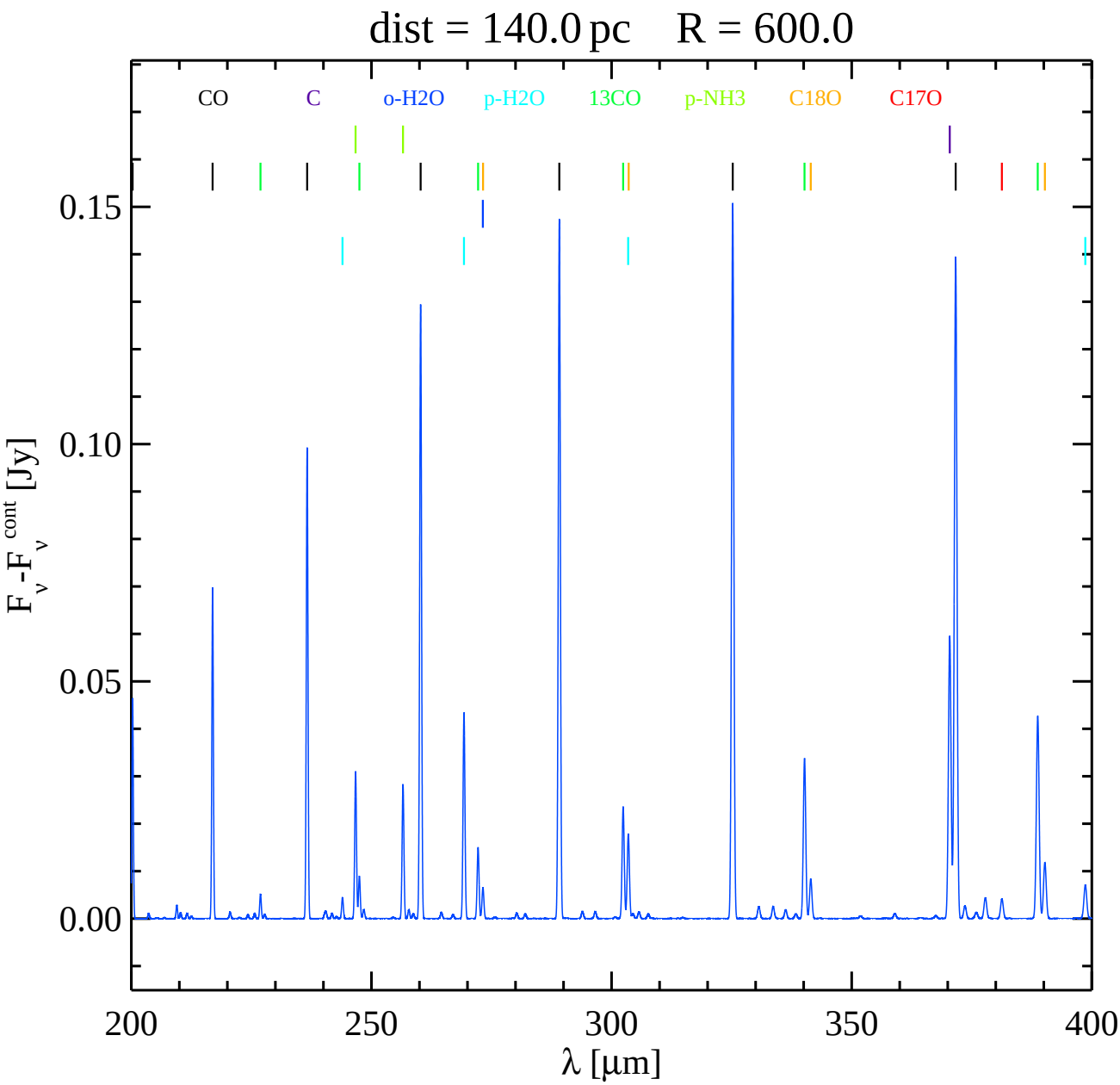

dist = 140.0 pc R = 600.0
CO
o-H2
p-H2
O
o-H2O
p-H2O
0.22
0.21
0.20
0.19
0.18
F_ν [Jy]
4.4
4.6
4.8
5.0
5.2
5.4
λ [μm]

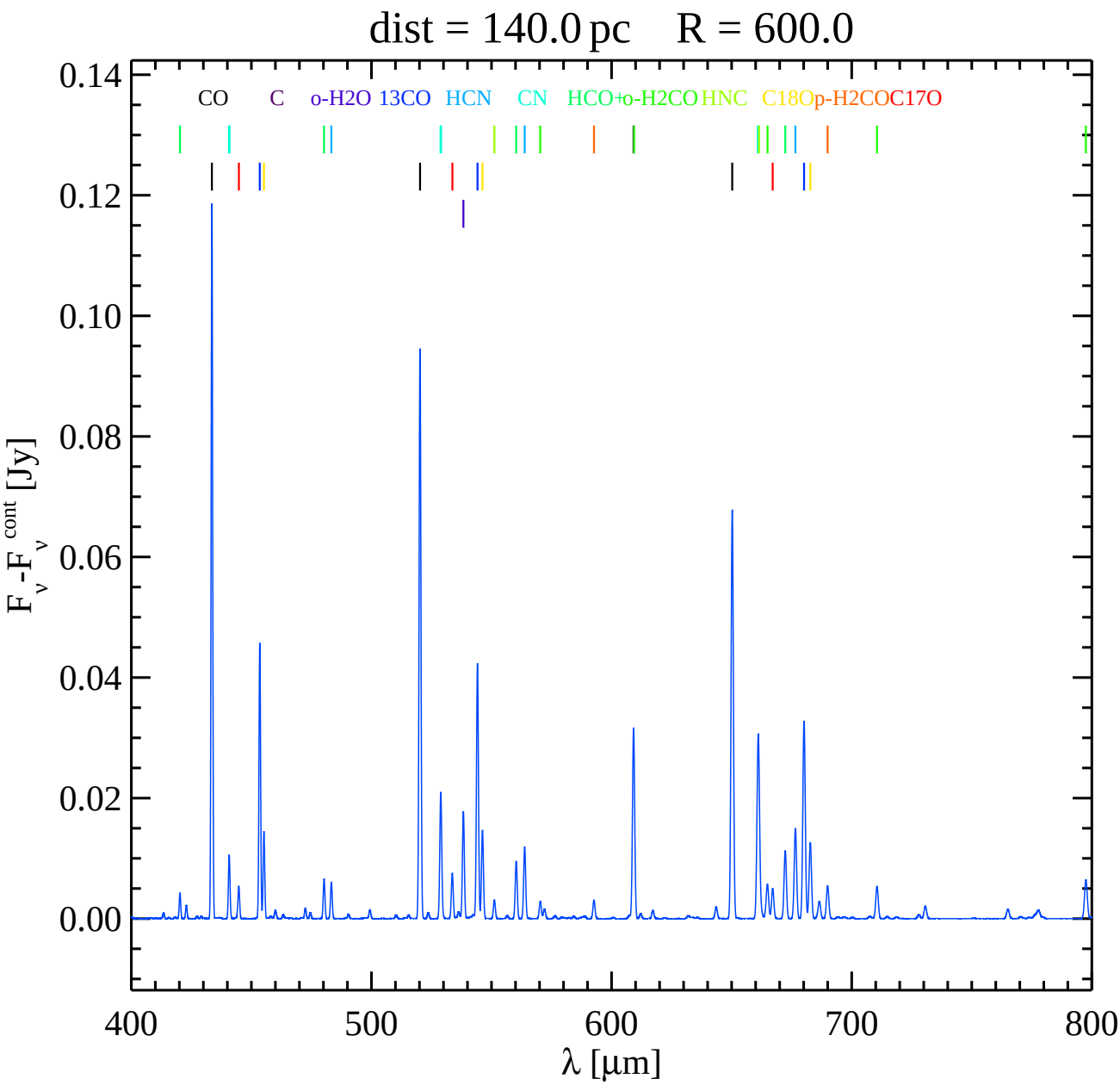

dist = 140.0 pc R = 600.0
Ne+
p-H2
o-H2O
p-H2O
o-H2
Ne++
0.40
0.35
0.30
0.25
0.20
0.15
0.10
F_ν [Jy]
10
12
14
16
18
20
λ [μm]

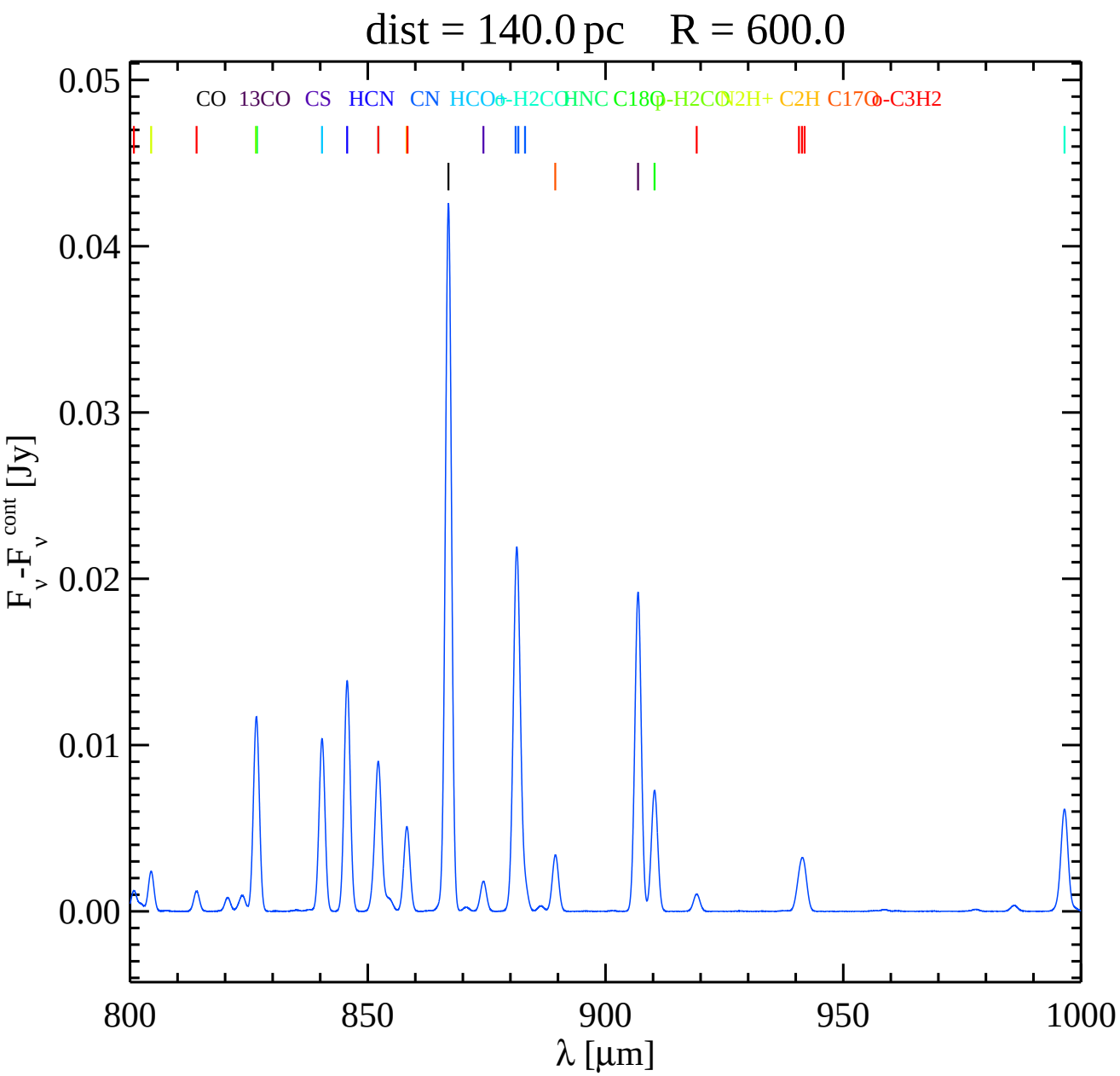

dist = 140.0 pc R = 600.0
Ne+
p-H2
o-H2O
p-H2O
o-H2
Ne++
0.012
0.010
0.008
0.006
0.004
0.002
0.000
F_ν -F_ν^cont [Jy]
10
12
14
16
18
20
λ [μm]

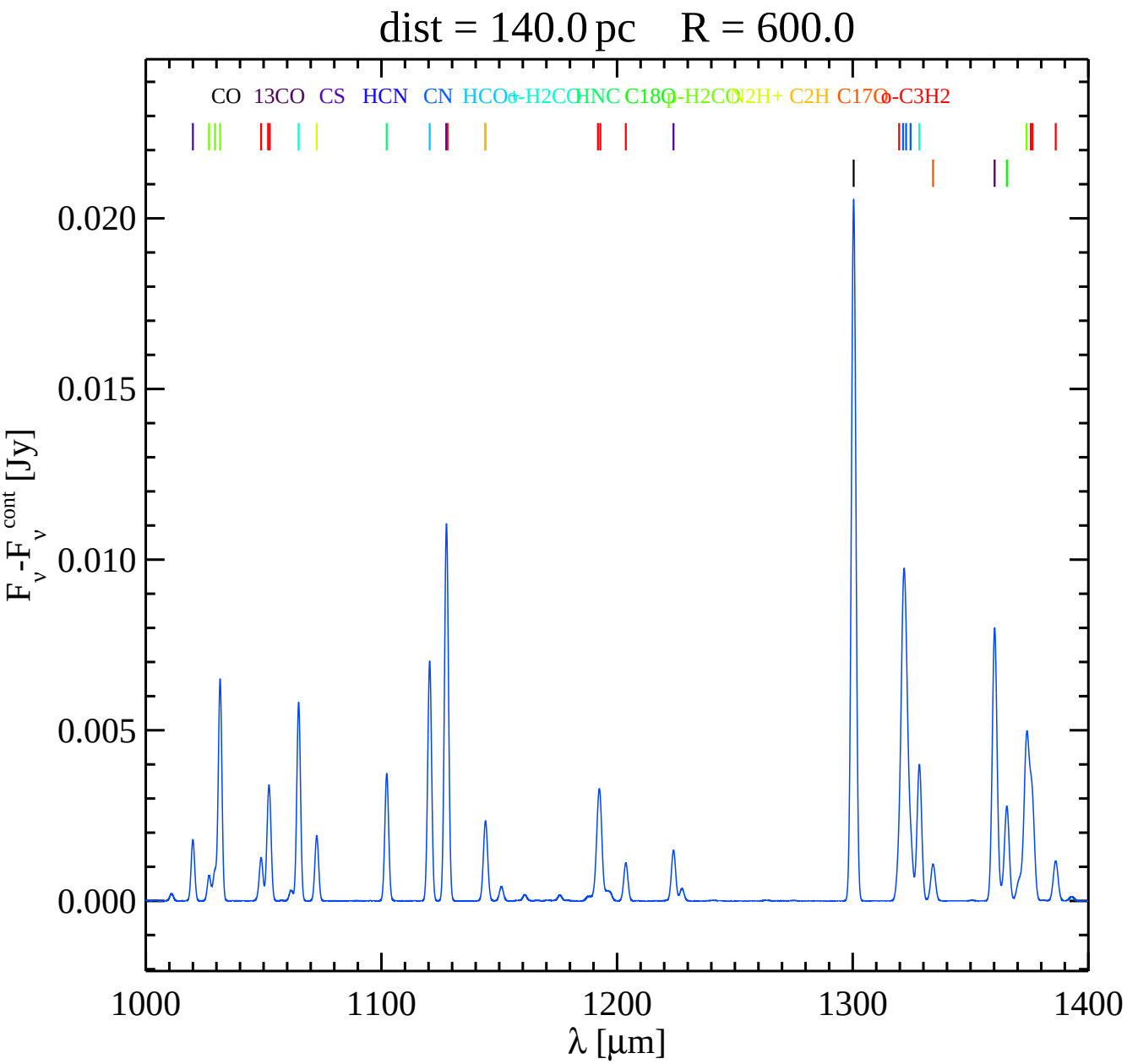

dist = 140.0 pc R = 600.0
o-H2O
Si+
p-H2
Fe+
p-H2O
OH
S
Ar++
0.9
0.8
0.7
0.6
0.5
0.4
F_ν [Jy]
20
22
24
26
28
30
32
34
λ [μm]

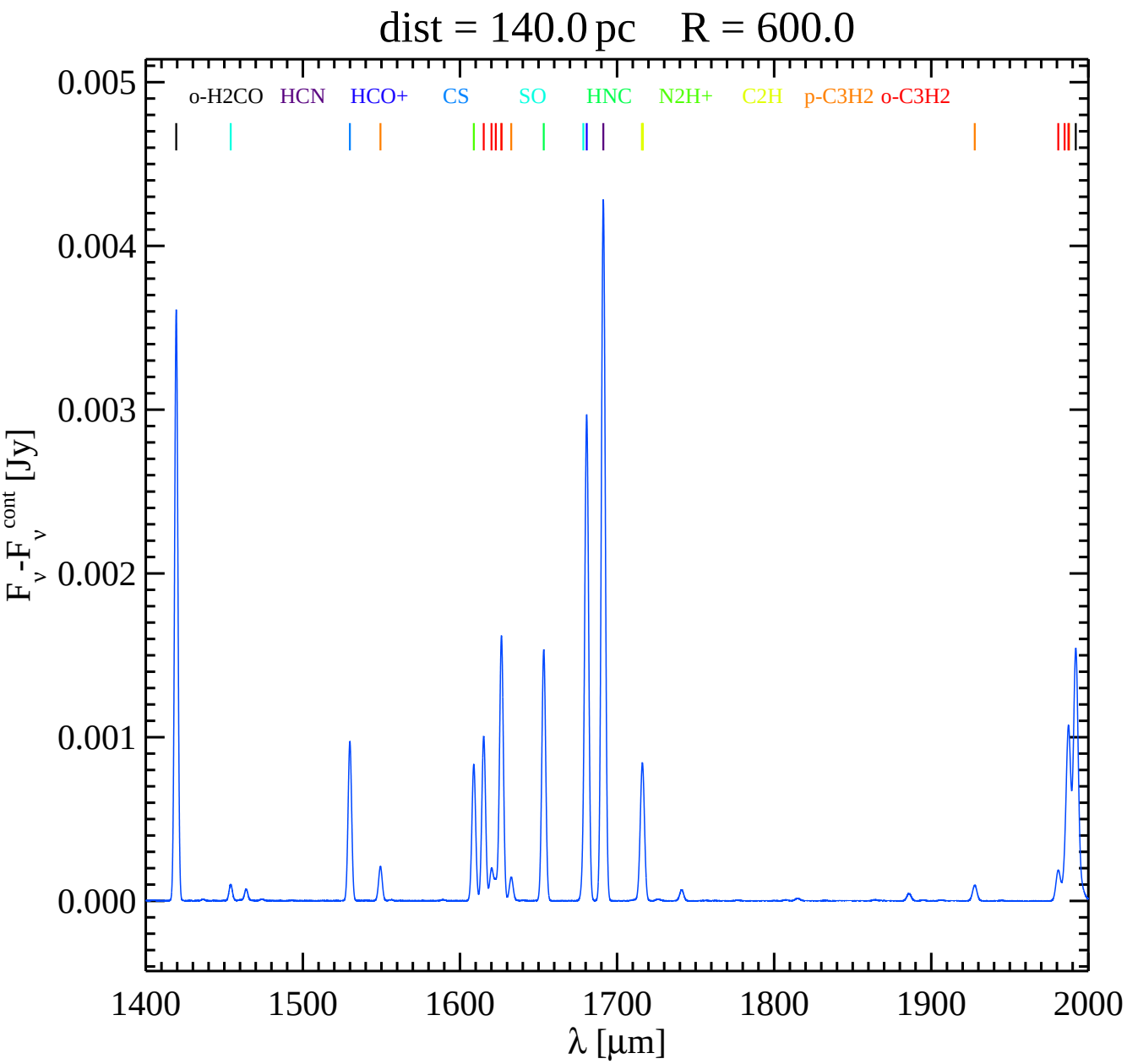

dist = 140.0 pc R = 600.0
o-H2O
Si+
p-H2
Fe+
p-H2O
OH
S
Ar++
0.03
0.02
0.01
0.00
F_ν -F_ν^cont [Jy]
20
22
24
26
28
30
32
34
λ [μm]

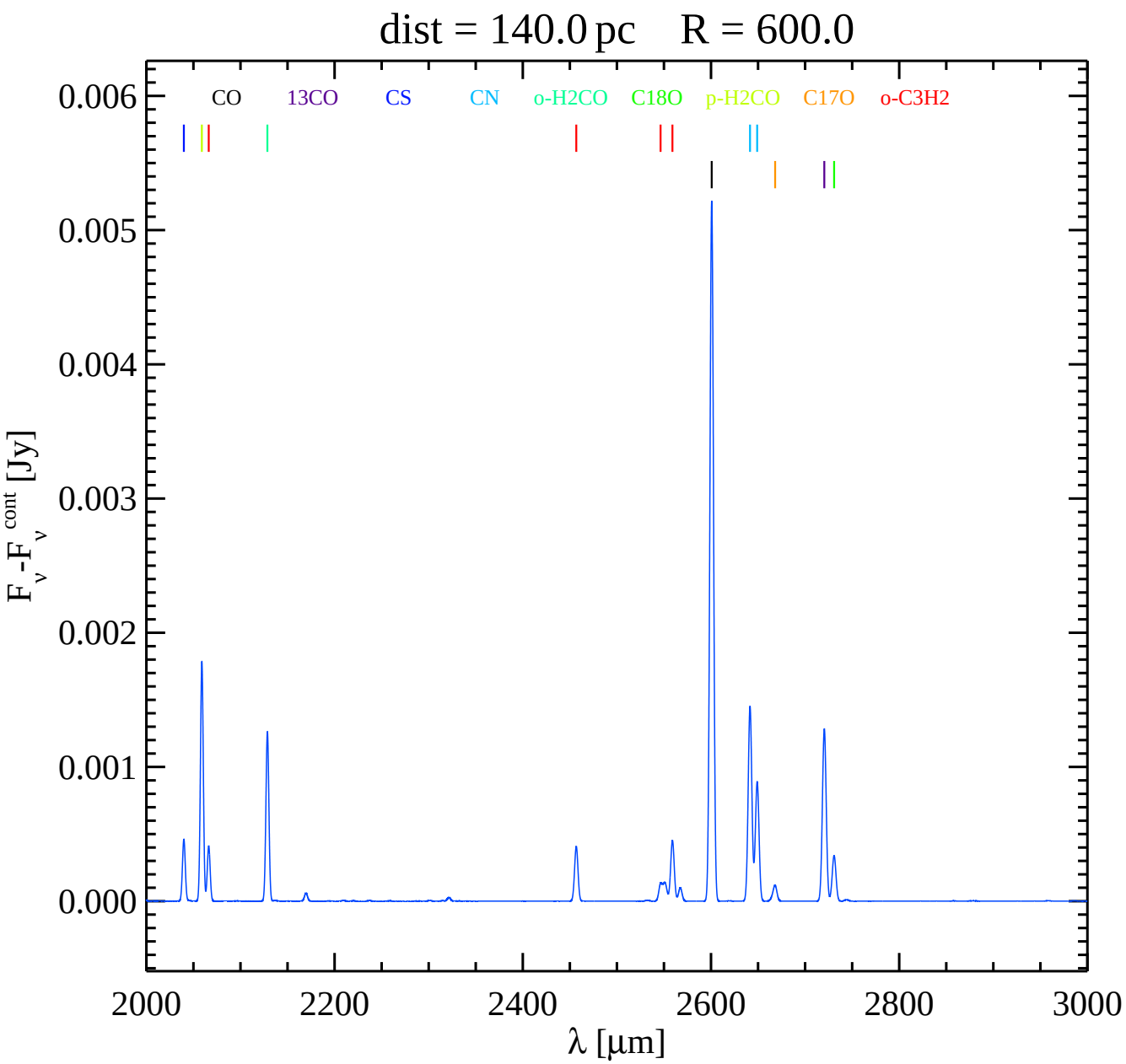

dist = 140.0 pc R = 600.0
CO
C
o-H2O
p-H2O
13CO
p-NH3
C18O
C17O
0.15
0.10
0.05
0.00
F_ν -F_ν^cont [Jy]
200
250
300
350
400
λ [μm]

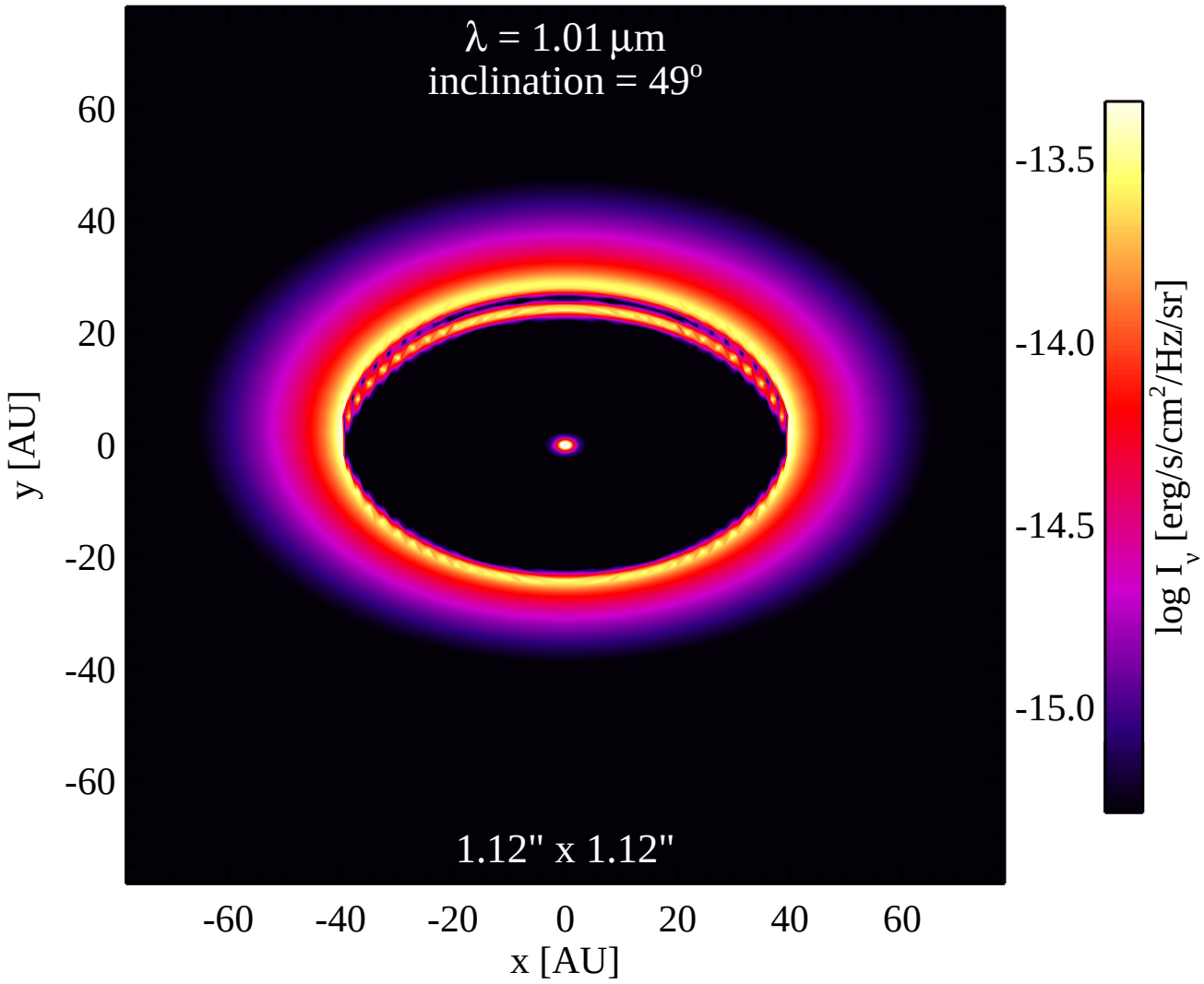

dist = 140.0 pc R = 600.0
CO
C
o-H2O
13CO
HCN
CN
HCO+
o-H2CO
HNC
C18O
p-H2CO
C17O
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
F_ν -F_ν^cont [Jy]
400
500
600
700
800
λ [μm]

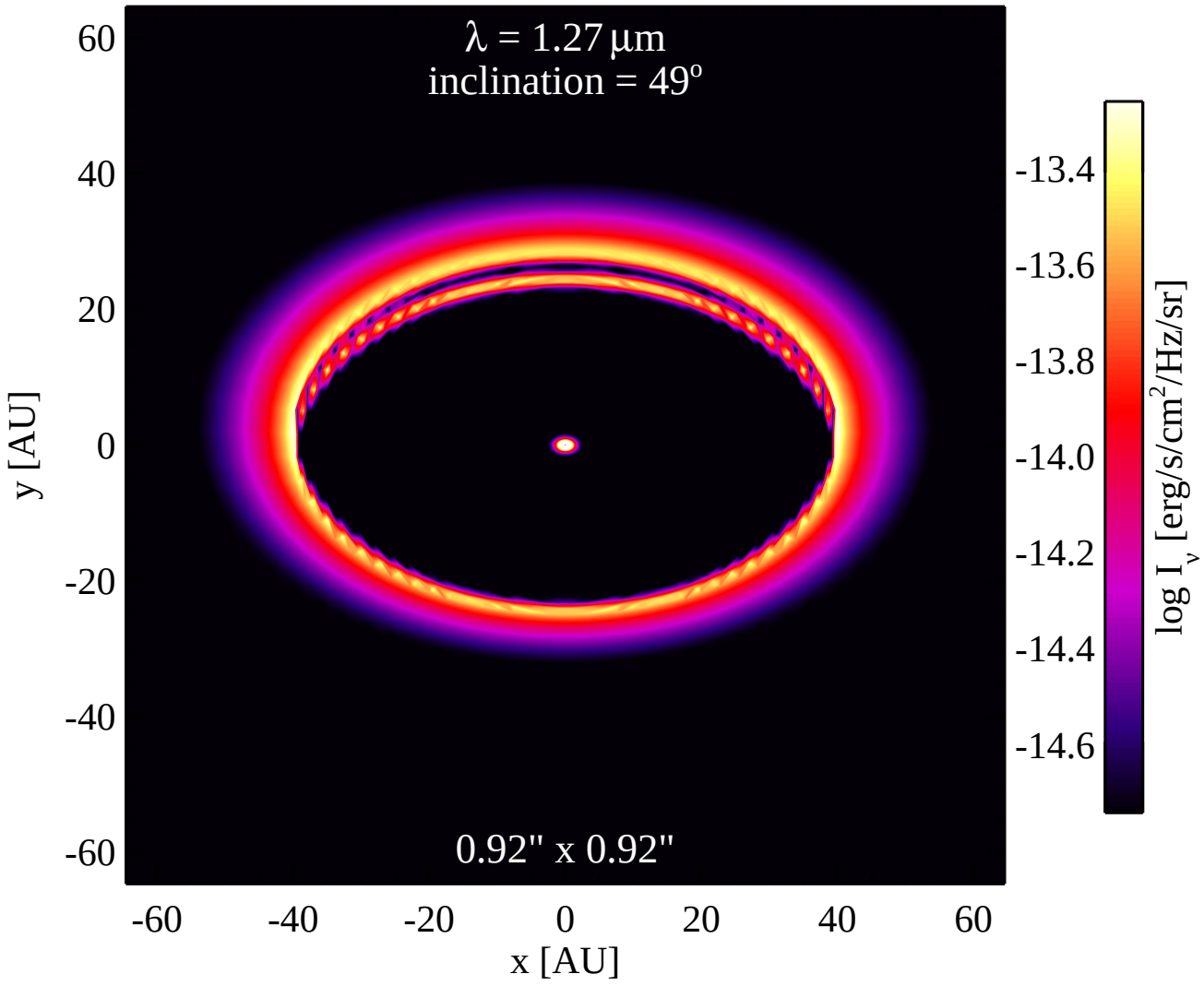

dist = 140.0 pc R = 600.0
CO 13CO CS HCN CN HCO+ o-H2CO HNC C18O p-H2CO N2H+ C2H C17O o-C3H2
0.05
0.04
0.03
0.02
0.01
0.00
F_ν -F_ν^cont [Jy]
800
850
900
950
1000
λ [μm]

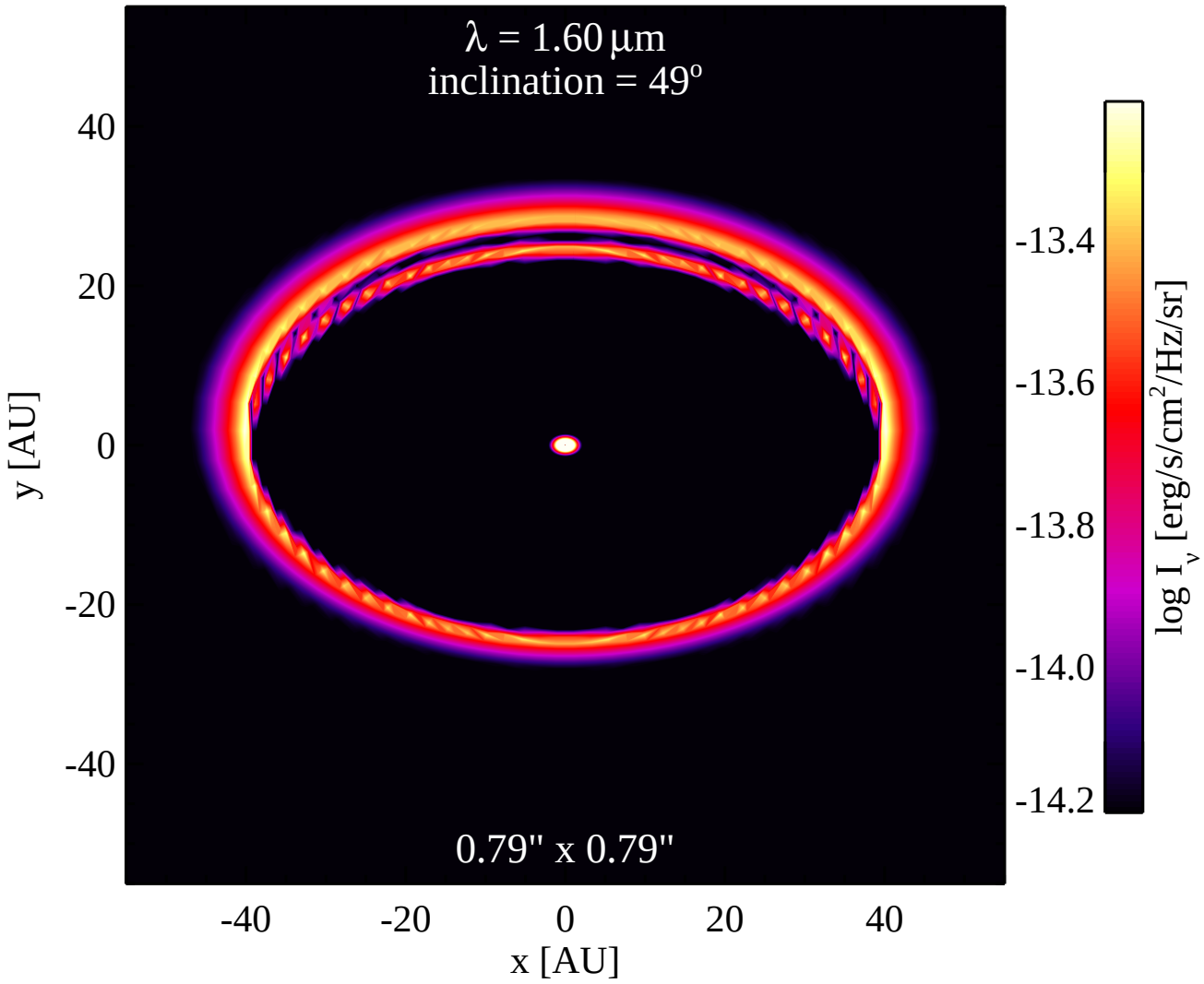

dist = 140.0 pc R = 600.0
CO 13CO CS HCN CN HCOo-H2CO HNC C18O p-H2CO N2H+ C2H C17O o-C3H2
0.020
0.015
0.010
0.005
0.000
F_ν -F_ν^cont [Jy]
1000
1100
1200
1300
1400
λ [μm]

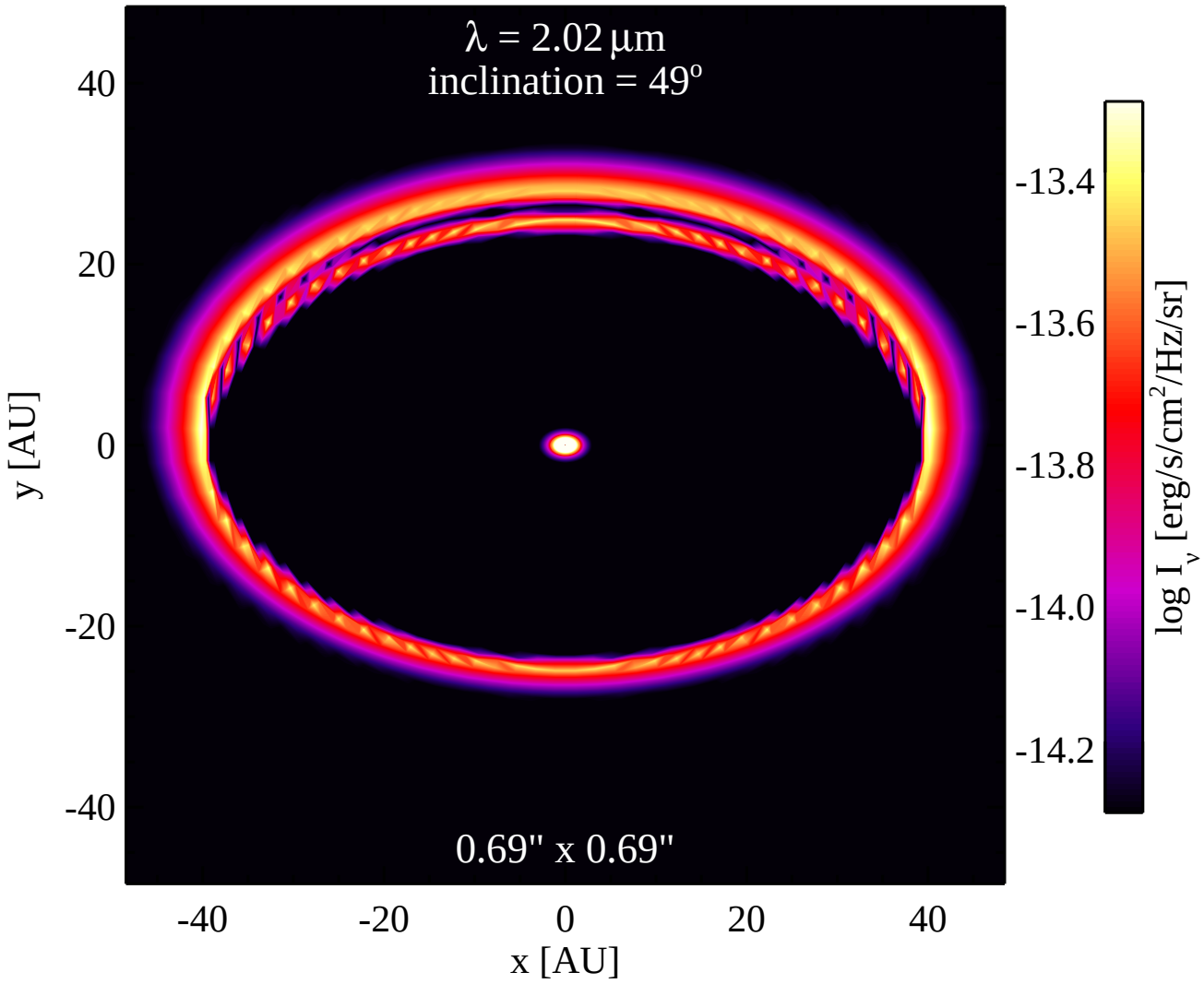

dist = 140.0 pc R = 600.0
o-H2CO
HCN
HCO+
CS
SO
HNC
N2H+
C2H
p-C3H2
o-C3H2
0.005
0.004
0.003
0.002
0.001
0.000
F_ν - F_ν^cont [Jy]
1400
1500
1600
1700
1800
1900
2000
λ [μm]

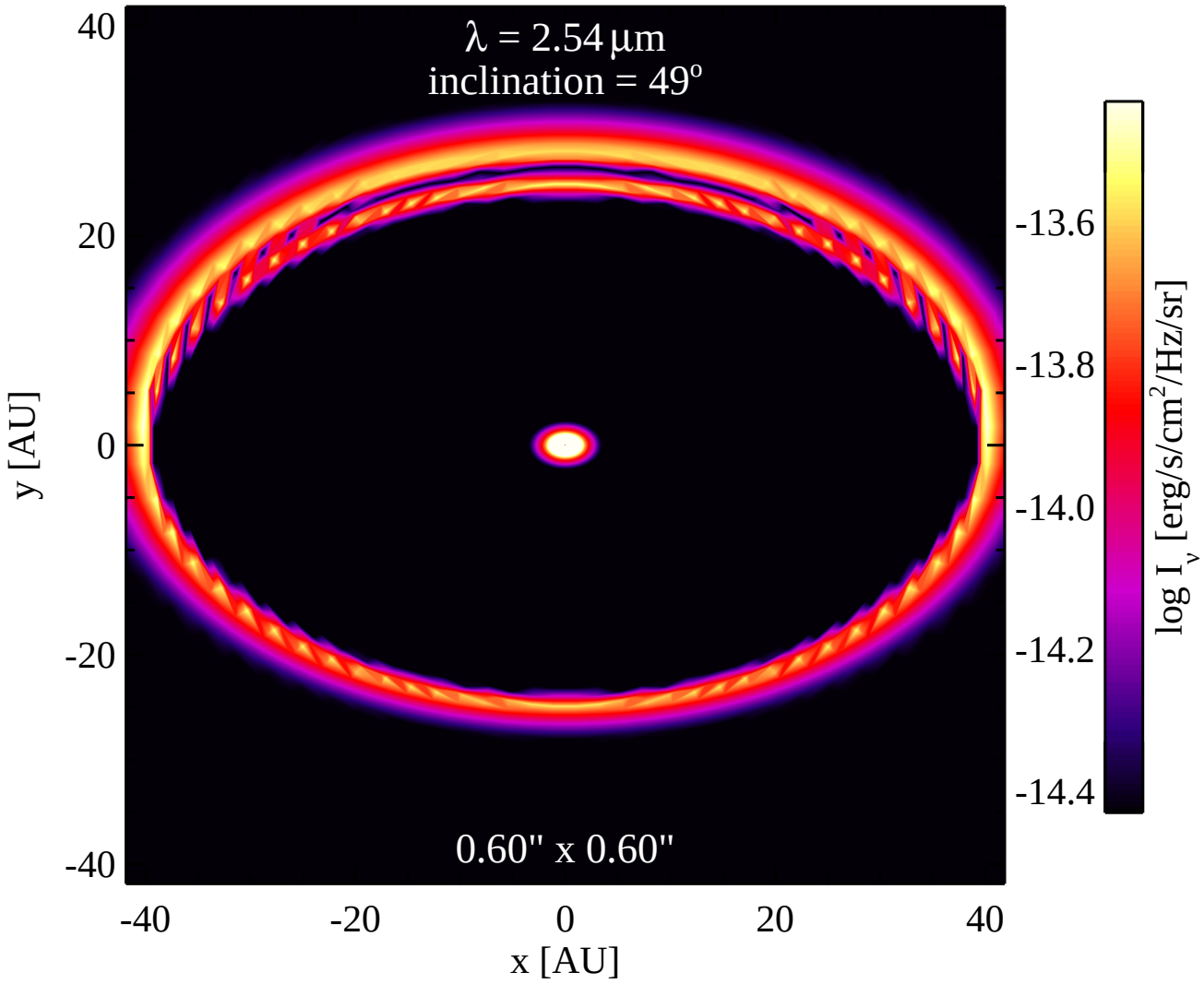

dist = 140.0 pc R = 600.0
CO
13CO
CS
CN
o-H2CO
C18O
p-H2CO
C17O
o-C3H2
0.006
0.005
0.004
0.003
0.002
0.001
0.000
F_ν - F_ν^cont [Jy]
2000
2200
2400
2600
2800
3000
λ [μm]

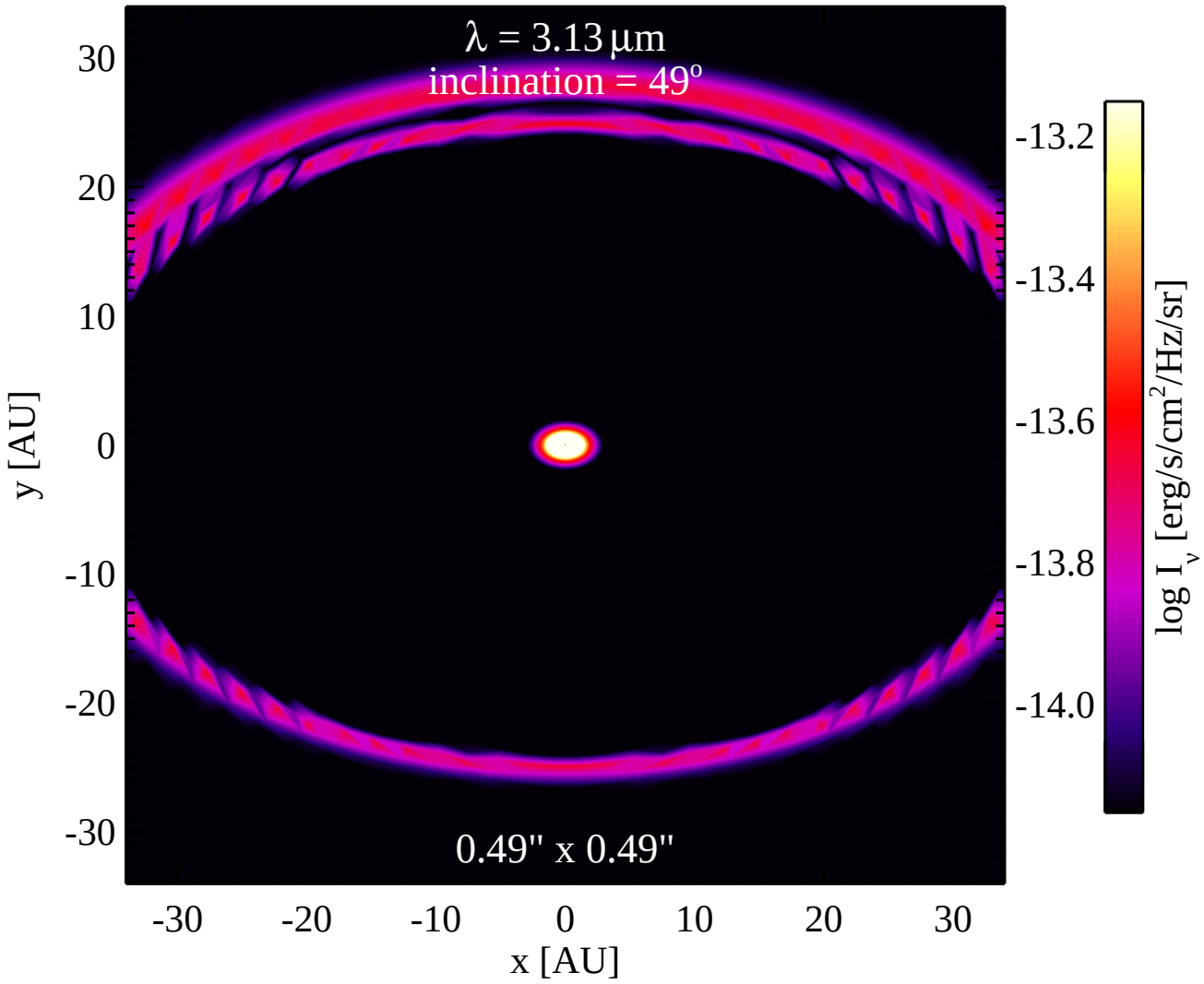

λ = 1.01 μm
inclination = 49°
1.12" x 1.12"
60
40
20
0
-20
-40
-60
y [AU]
-60
-40
-20
0
20
40
60
x [AU]
-13.5
-14.0
-14.5
-15.0
log I_ν [erg/s/cm²/Hz/sr]

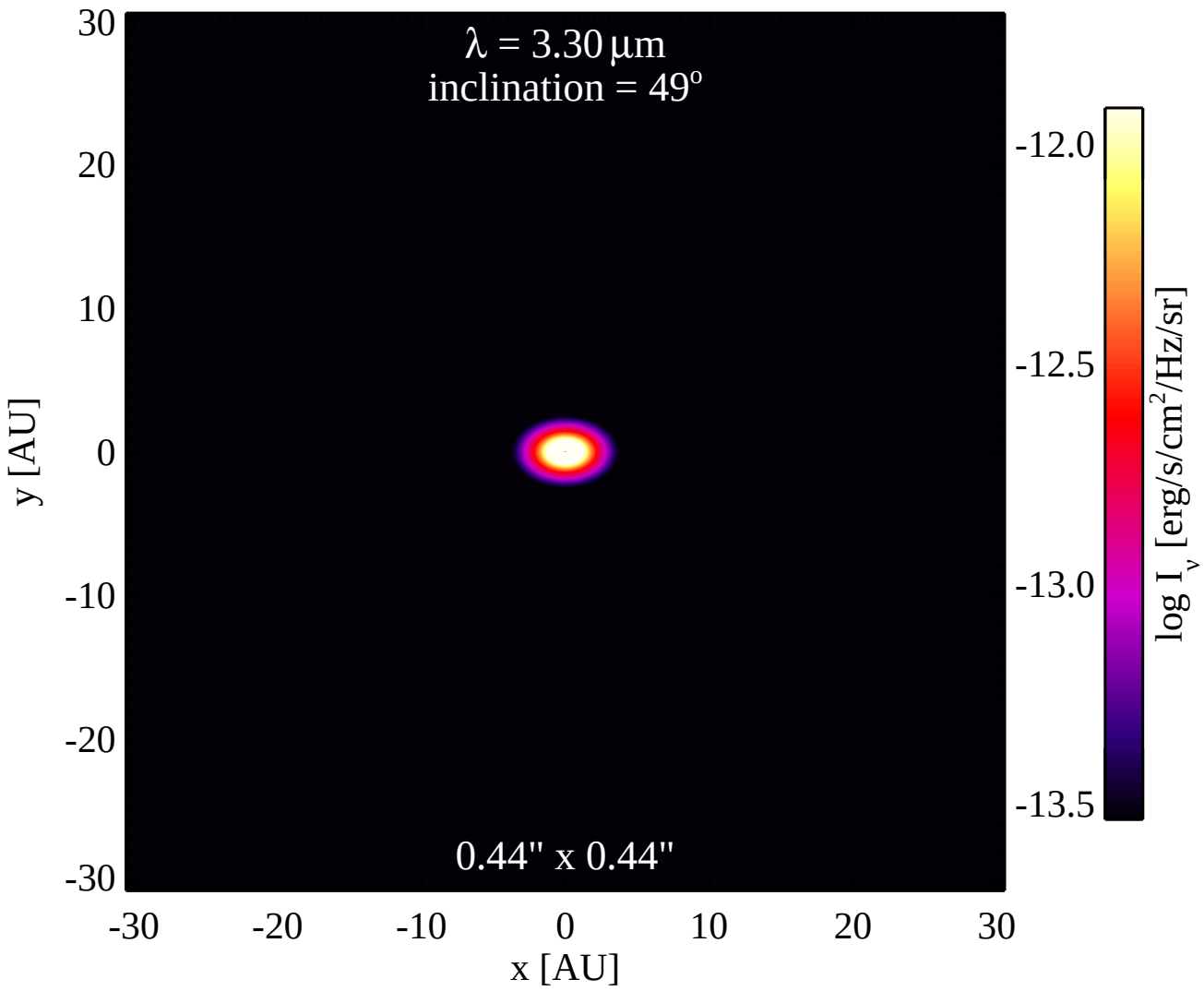

λ = 1.27 μm
inclination = 49°
0.92" x 0.92"
60
40
20
0
-20
-40
-60
y [AU]
-60
-40
-20
0
20
40
60
x [AU]
-13.4
-13.6
-13.8
-14.0
-14.2
-14.4
-14.6
log I_ν [erg/s/cm²/Hz/sr]

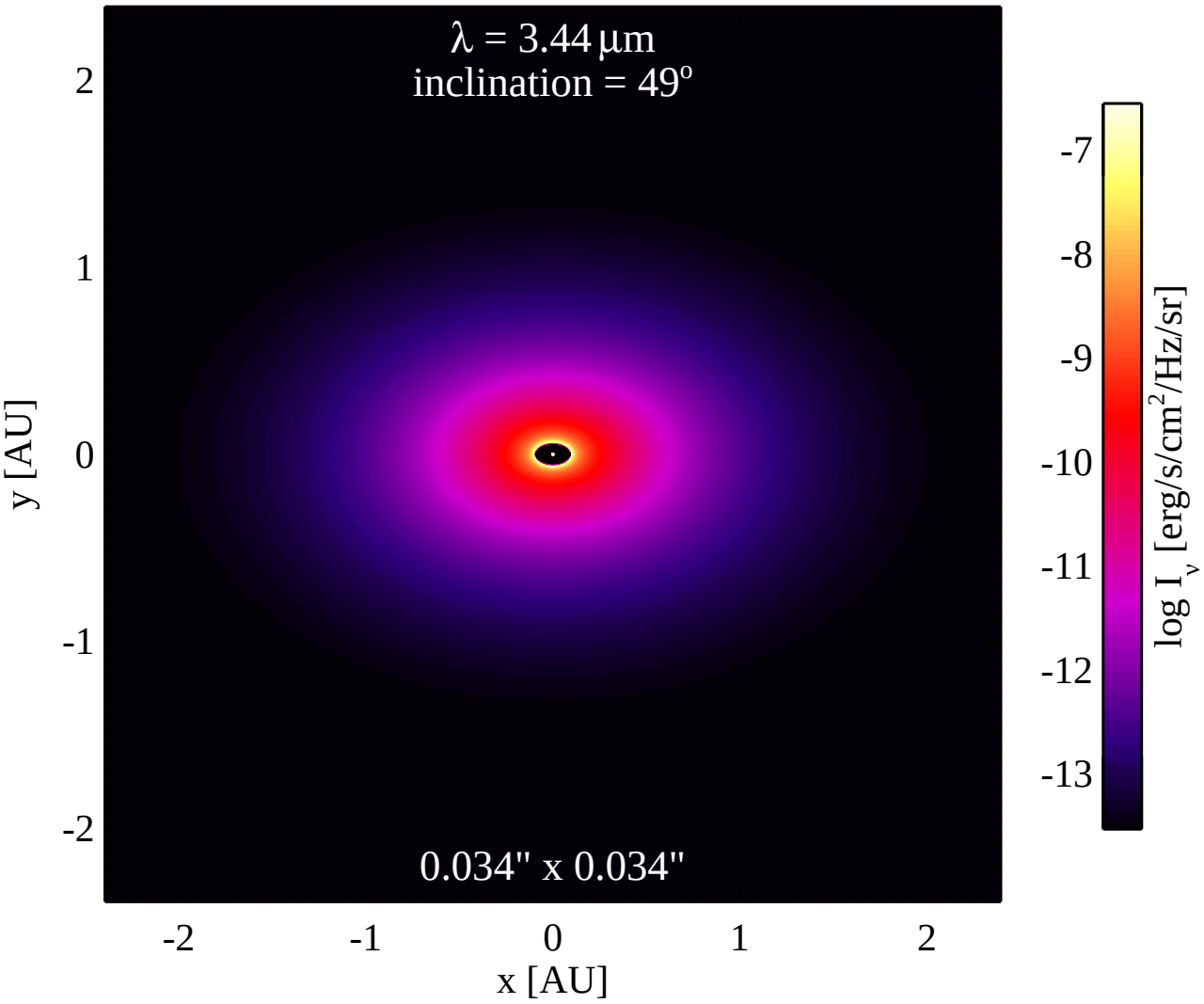

λ = 1.60 μm
inclination = 49°
0.79" x 0.79"
40
20
0
-20
-40
y [AU]
-40
-20
0
20
40
x [AU]
-13.4
-13.6
-13.8
-14.0
-14.2
log I_ν [erg/s/cm²/Hz/sr]

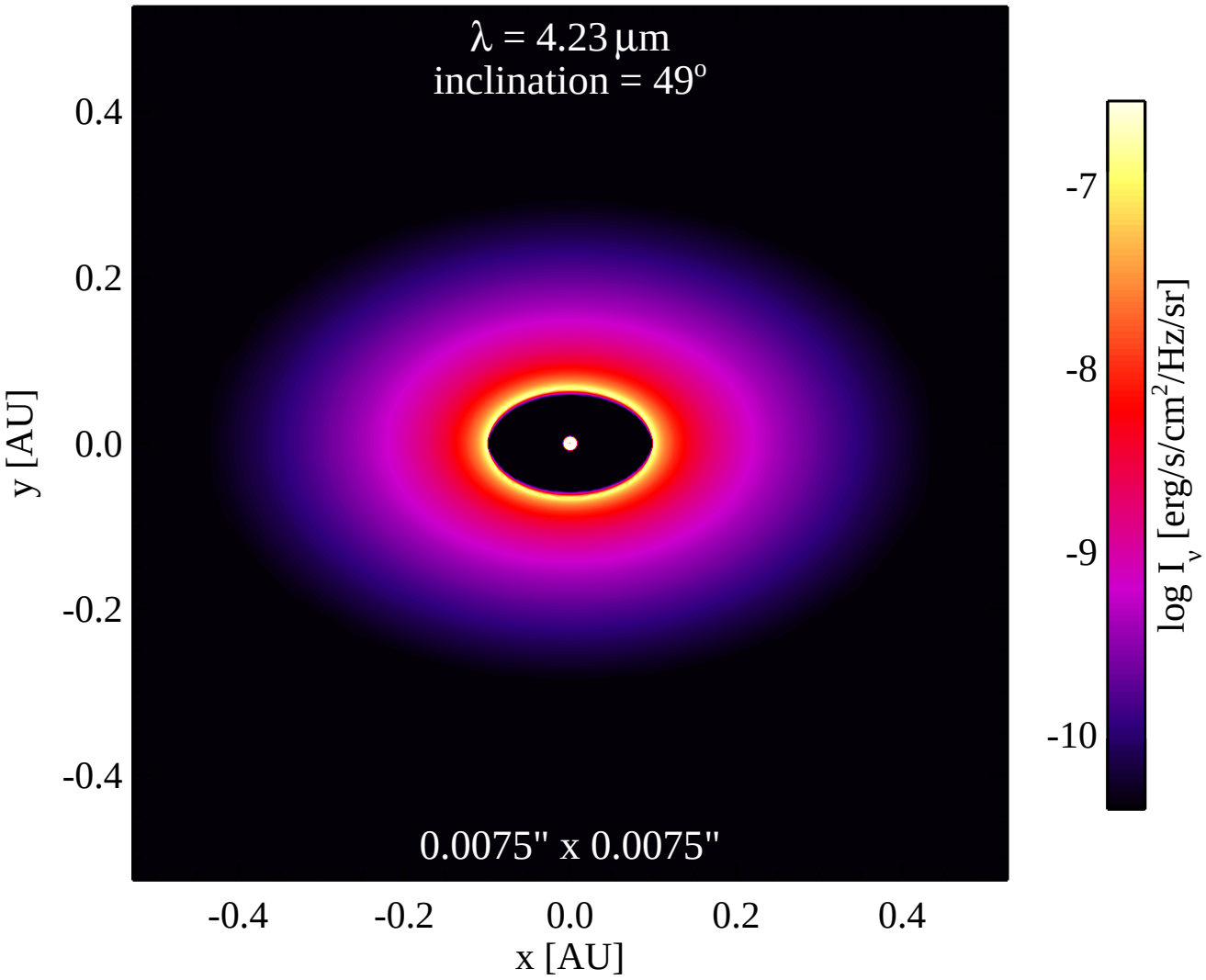

λ = 2.02 μm
inclination = 49°
0.69" x 0.69"
40
20
0
-20
-40
y [AU]
-40
-20
0
20
40
x [AU]
-13.4
-13.6
-13.8
-14.0
-14.2
log I_ν [erg/s/cm²/Hz/sr]

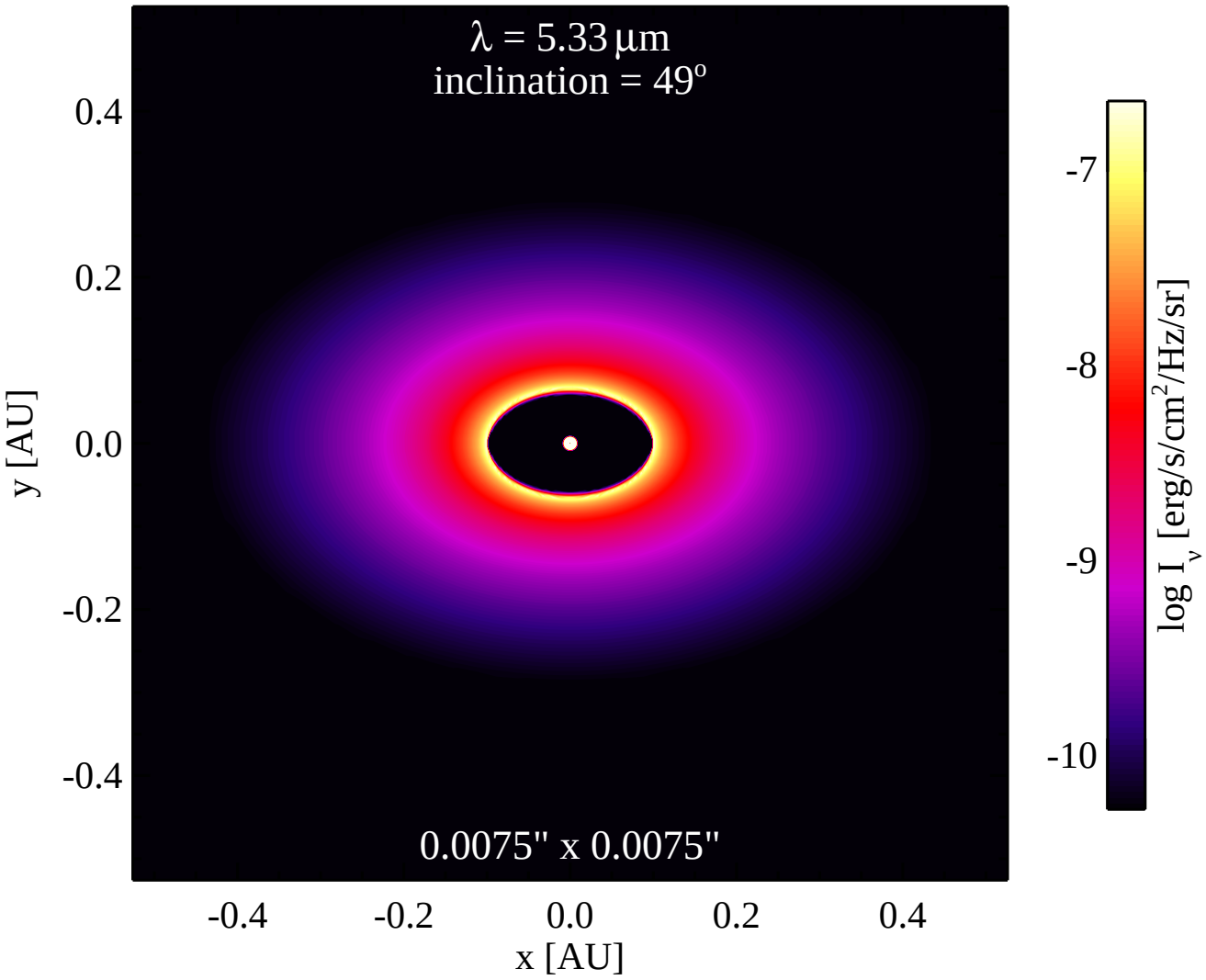

λ = 2.54 μm
inclination = 49°
0.60" x 0.60"
40
20
0
-20
-40
y [AU]
-40
-20
0
20
40
x [AU]
-13.6
-13.8
-14.0
-14.2
-14.4
log I_ν [erg/s/cm²/Hz/sr]

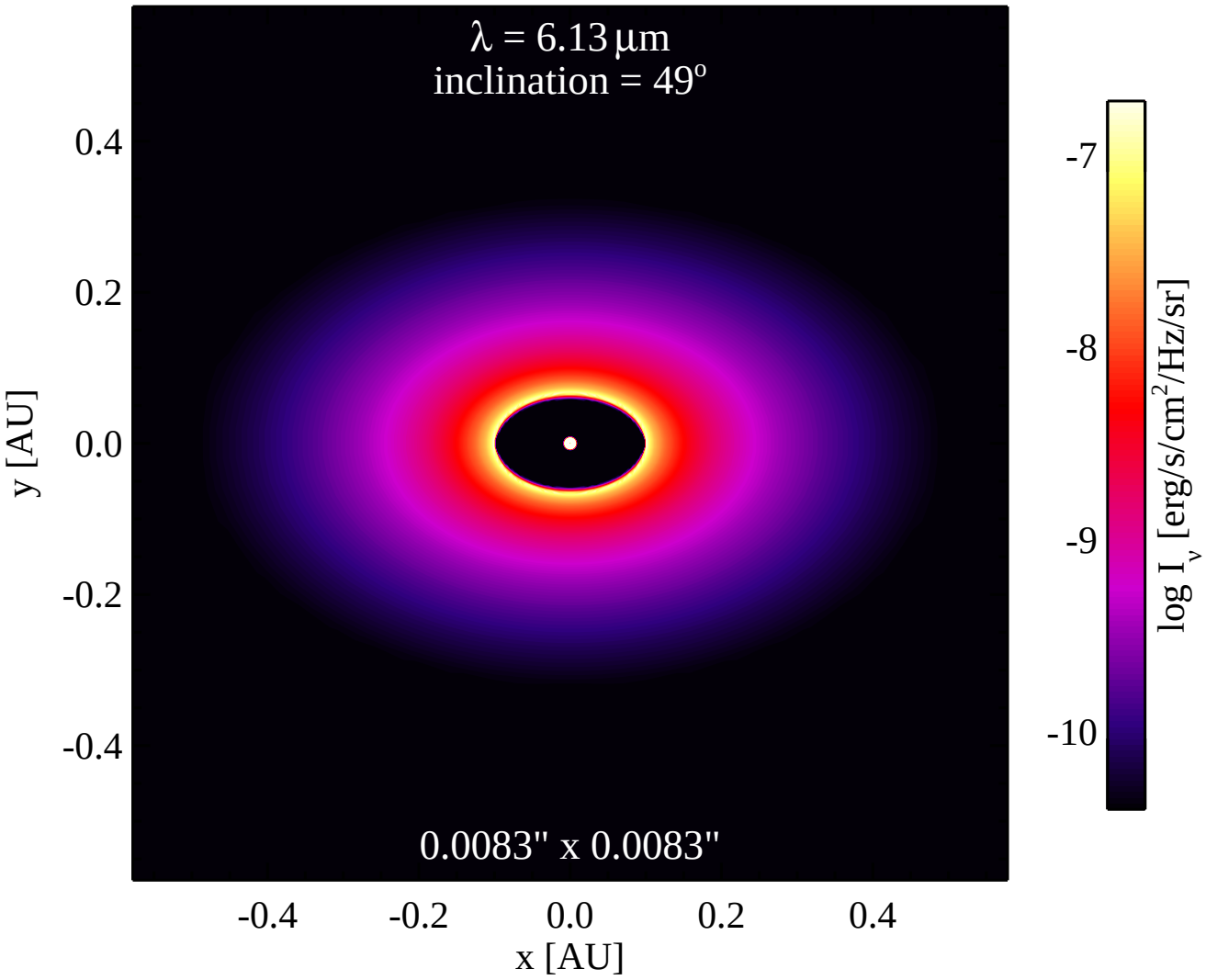

λ = 3.13 μm
inclination = 49°
0.49" x 0.49"
30
20
10
0
-10
-20
-30
y [AU]
-30
-20
-10
0
10
20
30
x [AU]
-13.2
-13.4
-13.6
-13.8
-14.0
log I_ν [erg/s/cm²/Hz/sr]

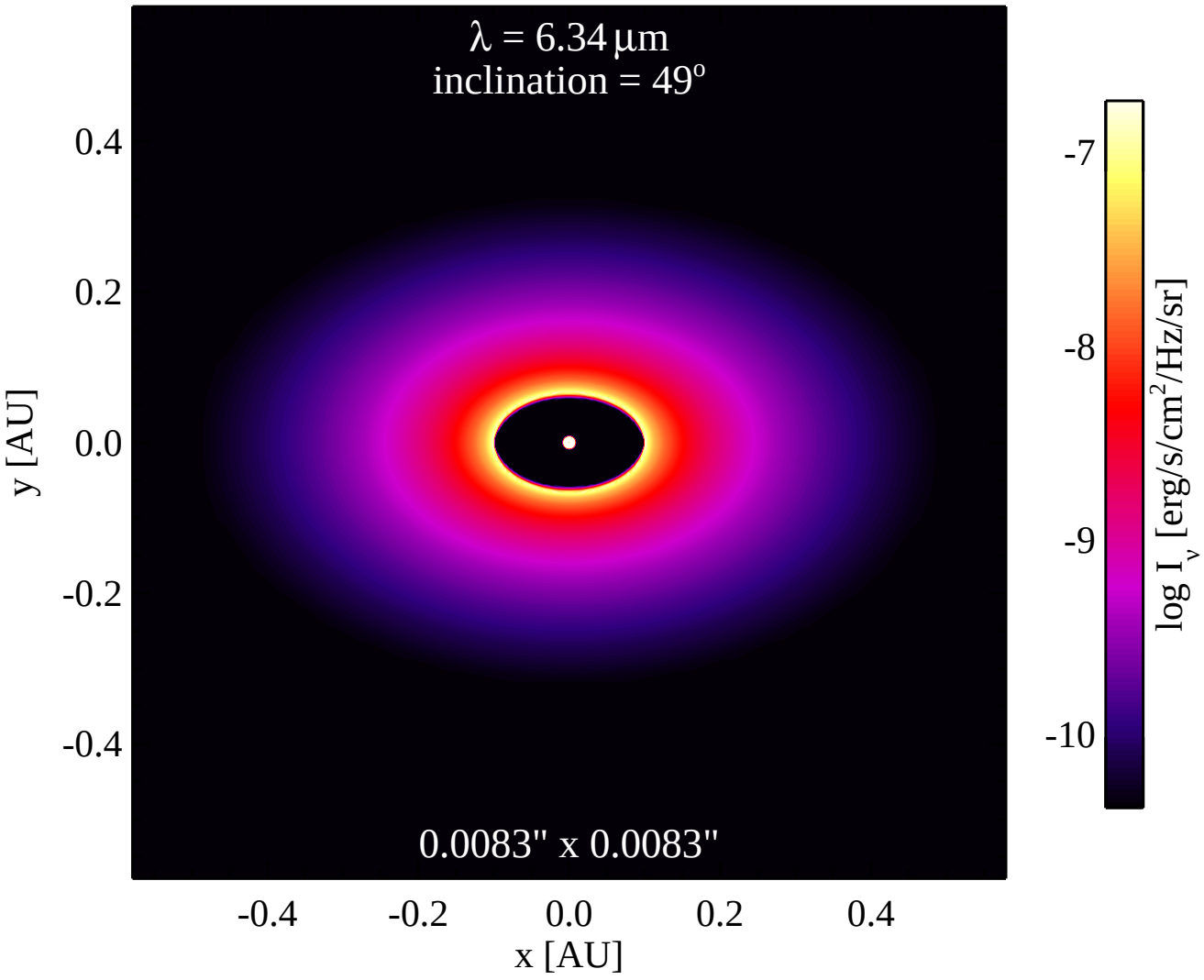

λ = 3.30 μm
inclination = 49°
0.44" x 0.44"
30
20
10
0
-10
-20
-30
y [AU]
-30
-20
-10
0
10
20
30
x [AU]
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

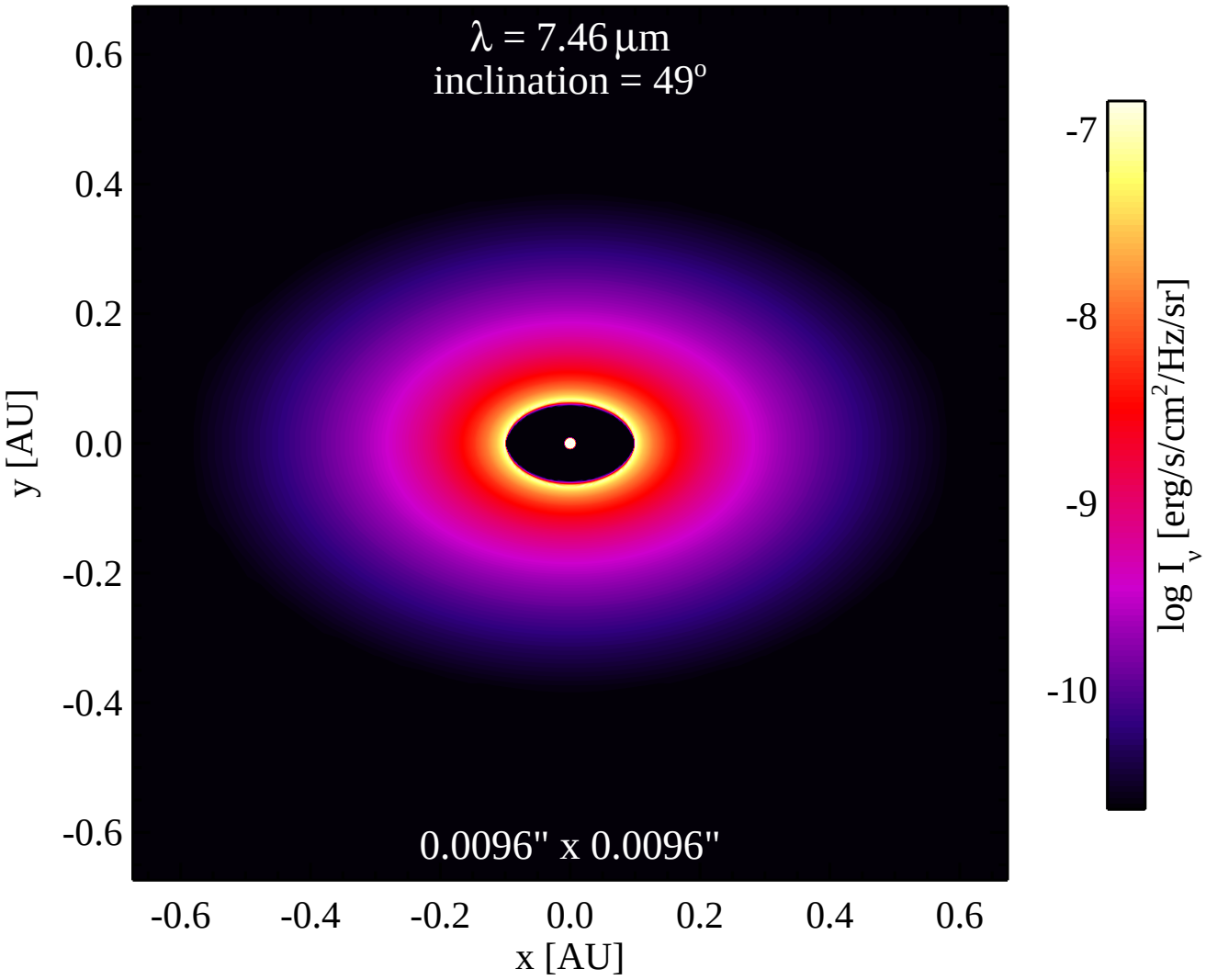

λ = 3.44 μm
inclination = 49°
0.034" x 0.034"
y [AU]
x [AU]
2
1
0
-1
-2
-2
-1
0
1
2
log I_ν [erg/s/cm²/Hz/sr]
-7
-8
-9
-10
-11
-12
-13

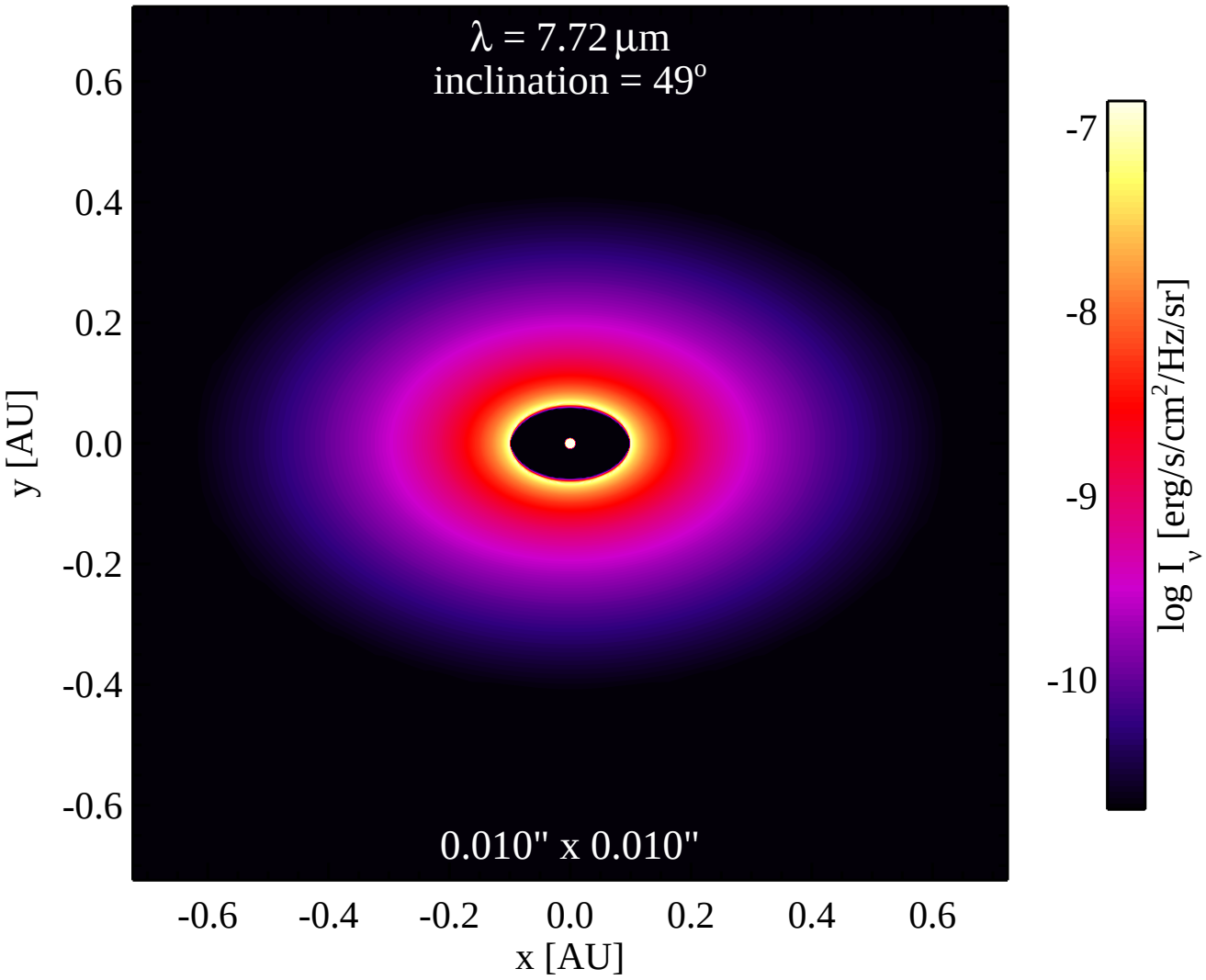

λ = 4.23 μm
inclination = 49°
0.0075" x 0.0075"
0.4
0.2
0.0
-0.2
-0.4
y [AU]
-0.4
-0.2
0.0
0.2
0.4
x [AU]
-7
-8
-9
-10
log I_ν [erg/s/cm²/Hz/sr]

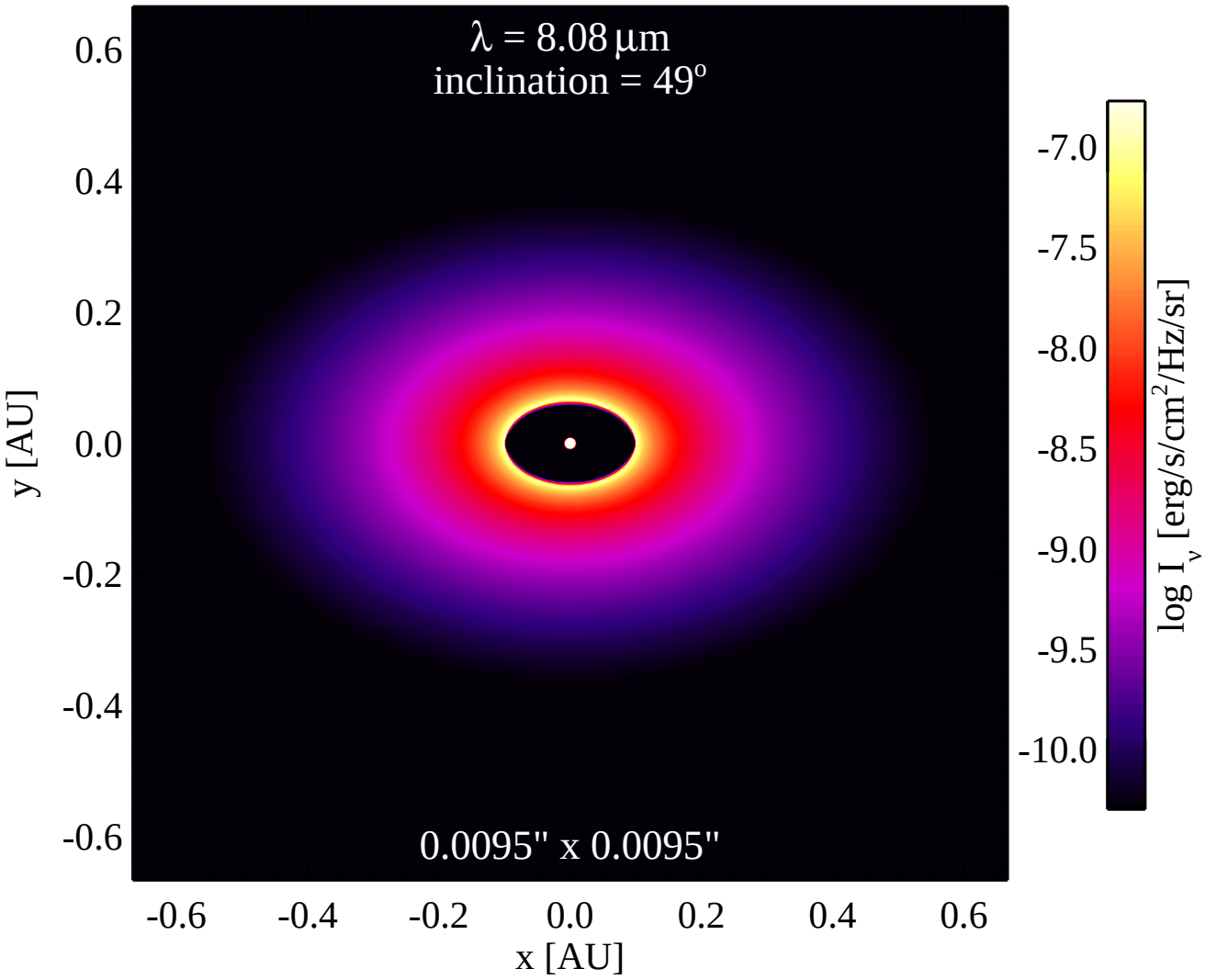

λ = 5.33 μm
inclination = 49°
0.0075" x 0.0075"
0.4
0.2
0.0
-0.2
-0.4
y [AU]
-0.4
-0.2
0.0
0.2
0.4
x [AU]
-7
-8
-9
-10
log I_ν [erg/s/cm²/Hz/sr]

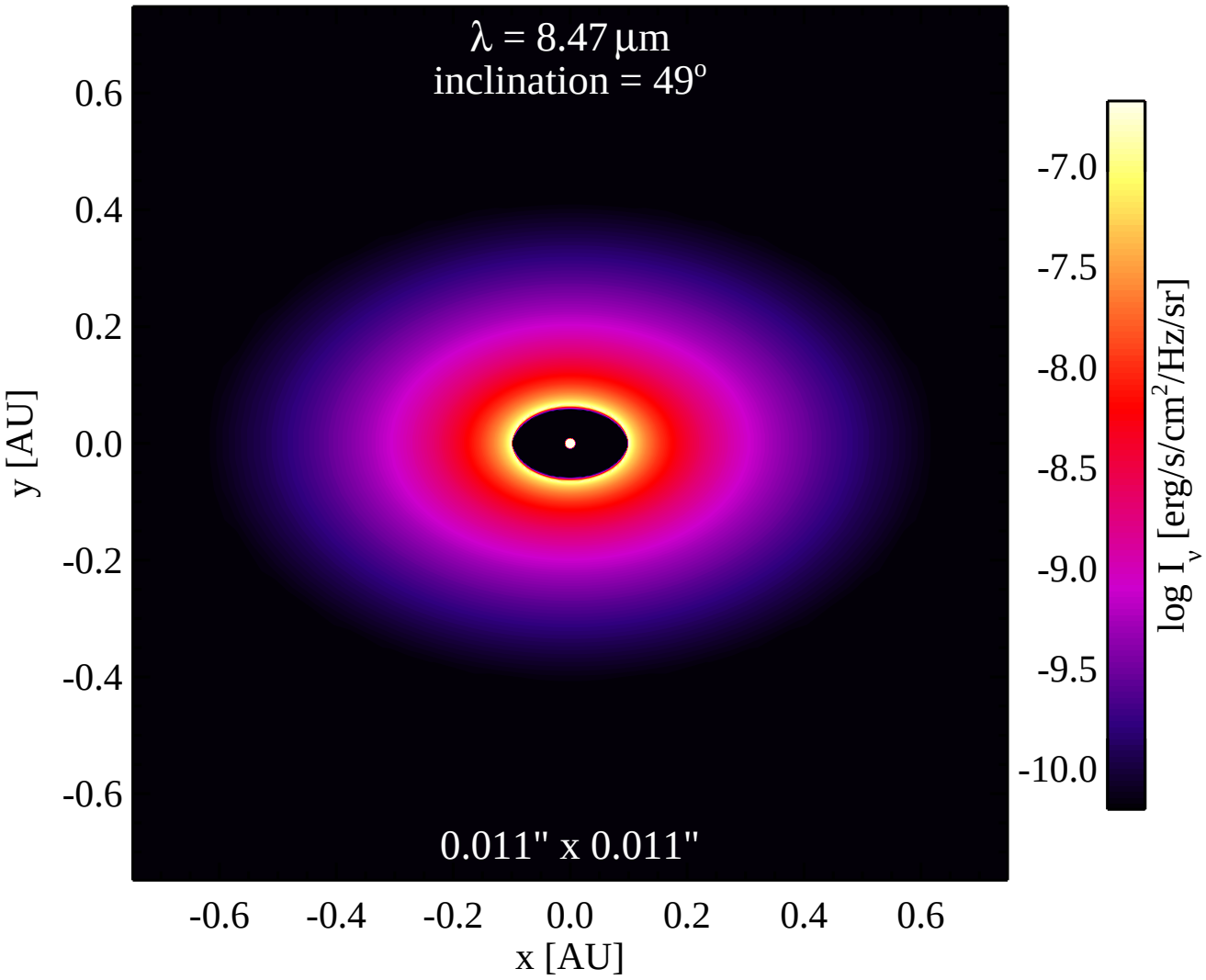

λ = 6.13 μm
inclination = 49°
0.0083" x 0.0083"
0.4
0.2
0.0
-0.2
-0.4
y [AU]
-0.4
-0.2
0.0
0.2
0.4
x [AU]
-7
-8
-9
-10
log I_ν [erg/s/cm²/Hz/sr]

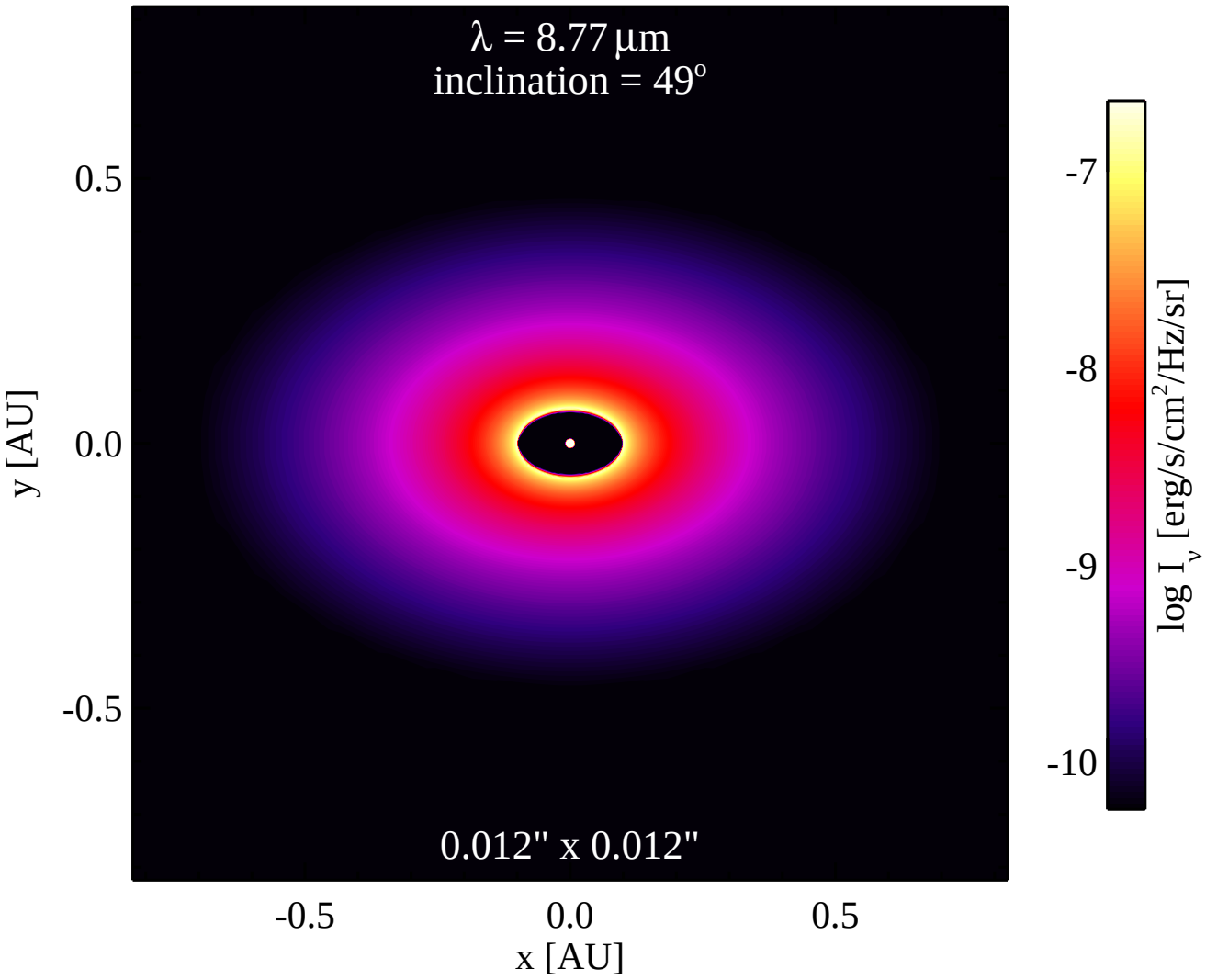

λ = 6.34 μm
inclination = 49°
0.0083" x 0.0083"
0.4
0.2
0.0
-0.2
-0.4
y [AU]
-0.4
-0.2
0.0
0.2
0.4
x [AU]
-7
-8
-9
-10
log I_ν [erg/s/cm²/Hz/sr]

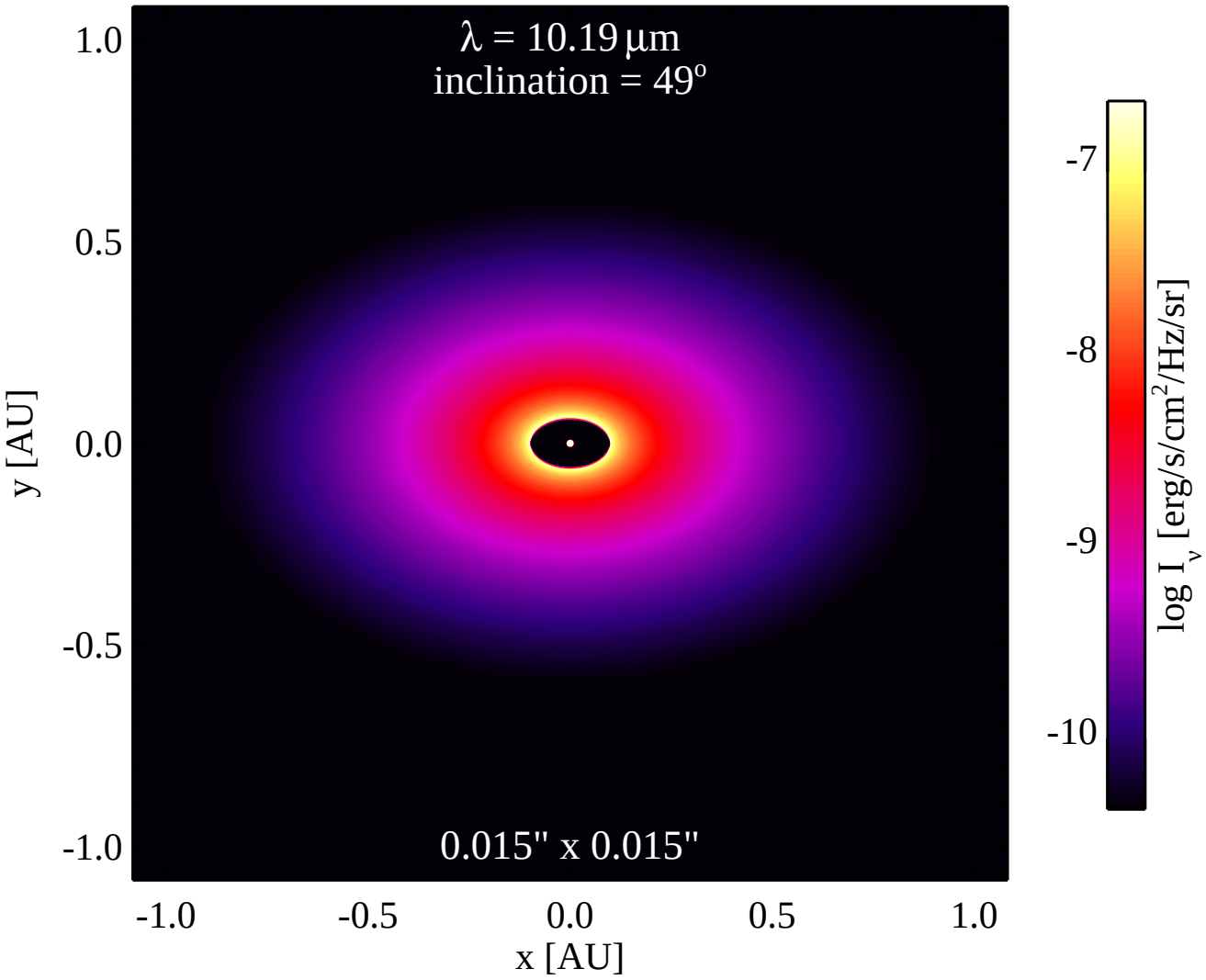

λ = 7.46 μm
inclination = 49°
0.0096" x 0.0096"
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
y [AU]
-0.6
-0.4
-0.2
0.0
0.2
0.4
0.6
x [AU]
-7
-8
-9
-10
log I_ν [erg/s/cm²/Hz/sr]

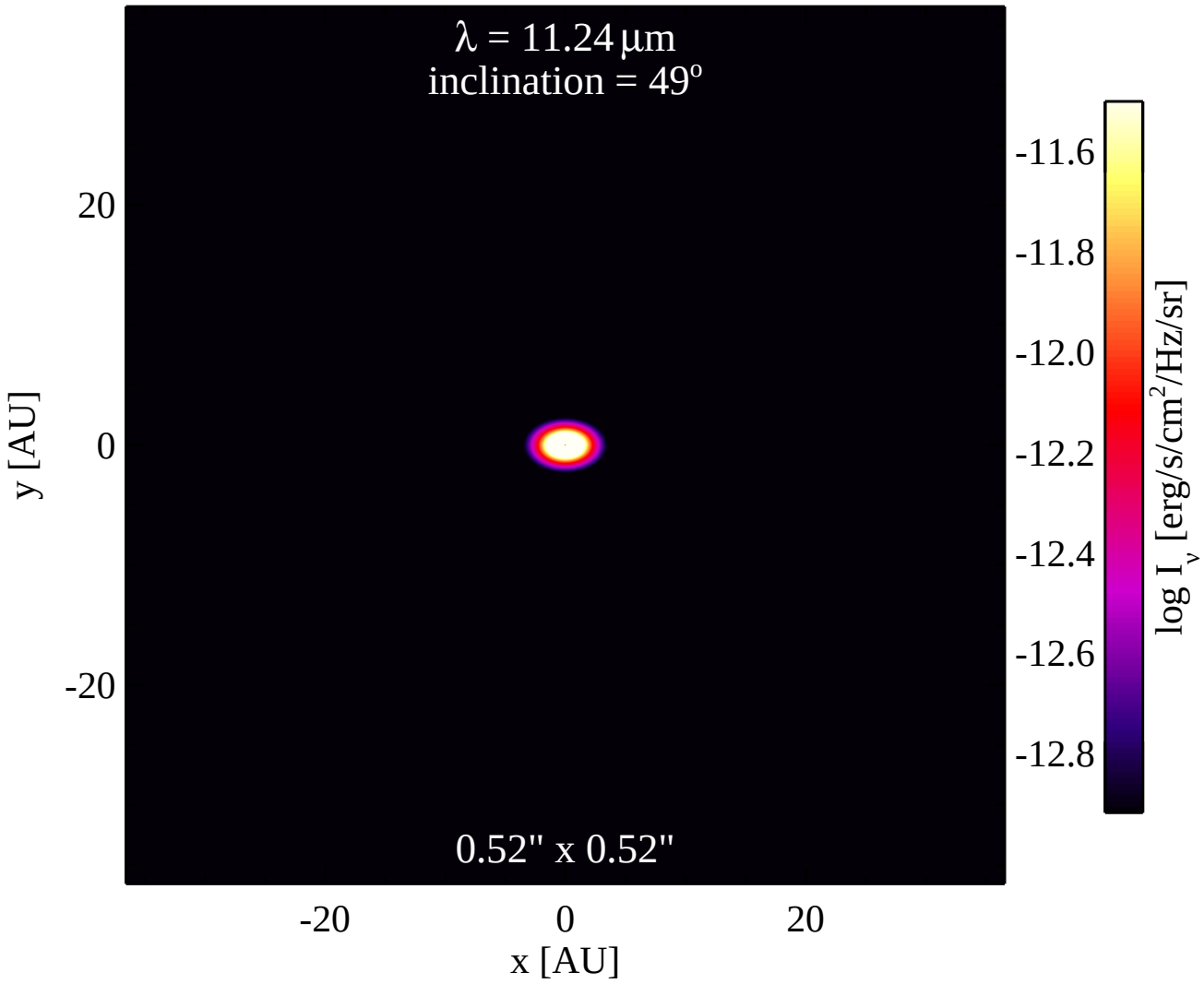

λ = 7.72 μm
inclination = 49°
0.010" x 0.010"
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
y [AU]
-0.6
-0.4
-0.2
0.0
0.2
0.4
0.6
x [AU]
-7
-8
-9
-10
log I_ν [erg/s/cm²/Hz/sr]

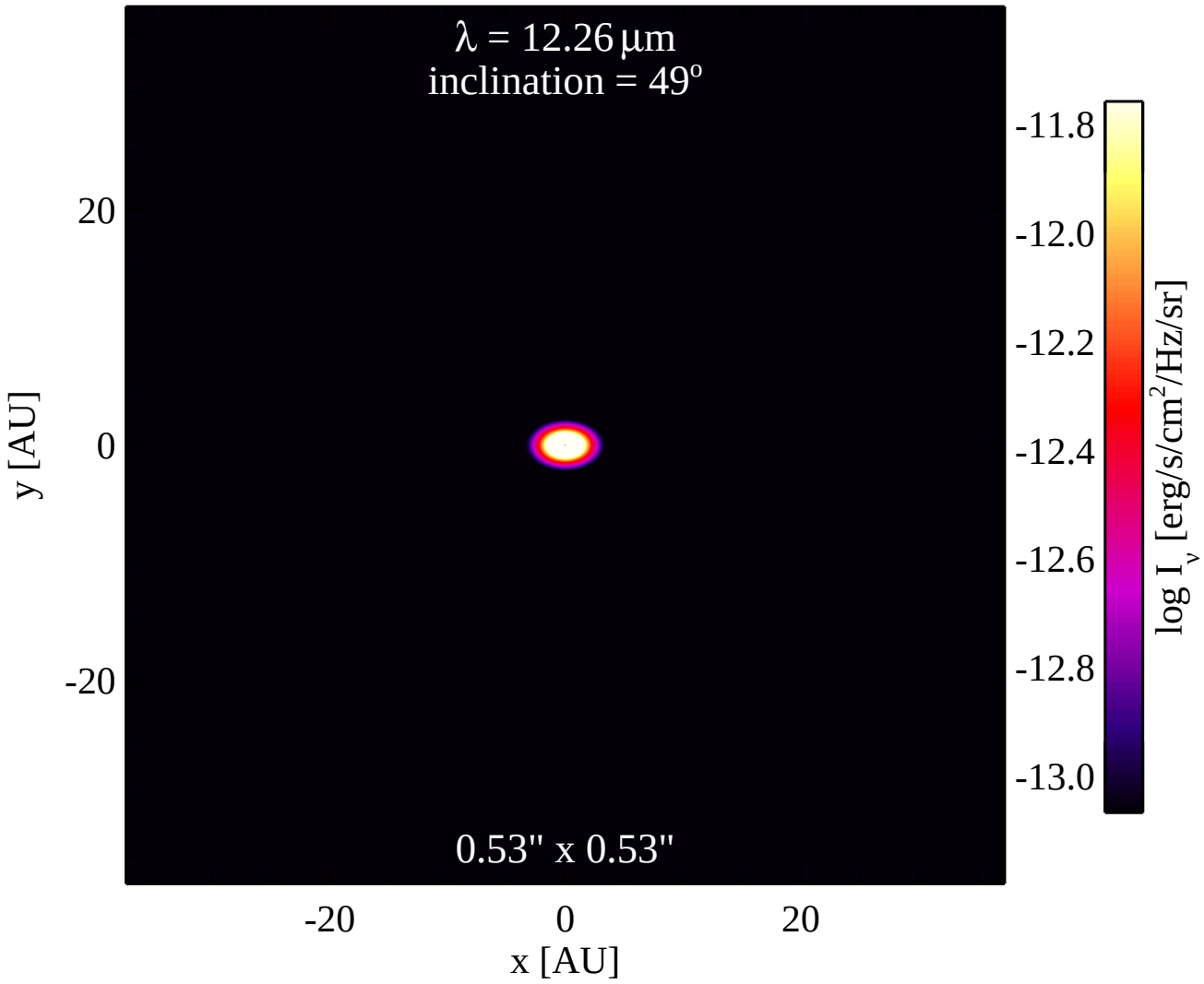

λ = 8.08 μm
inclination = 49°
0.0095" x 0.0095"
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
y [AU]
-0.6
-0.4
-0.2
0.0
0.2
0.4
0.6
x [AU]
-7.0
-7.5
-8.0
-8.5
-9.0
-9.5
-10.0
log I_ν [erg/s/cm²/Hz/sr]

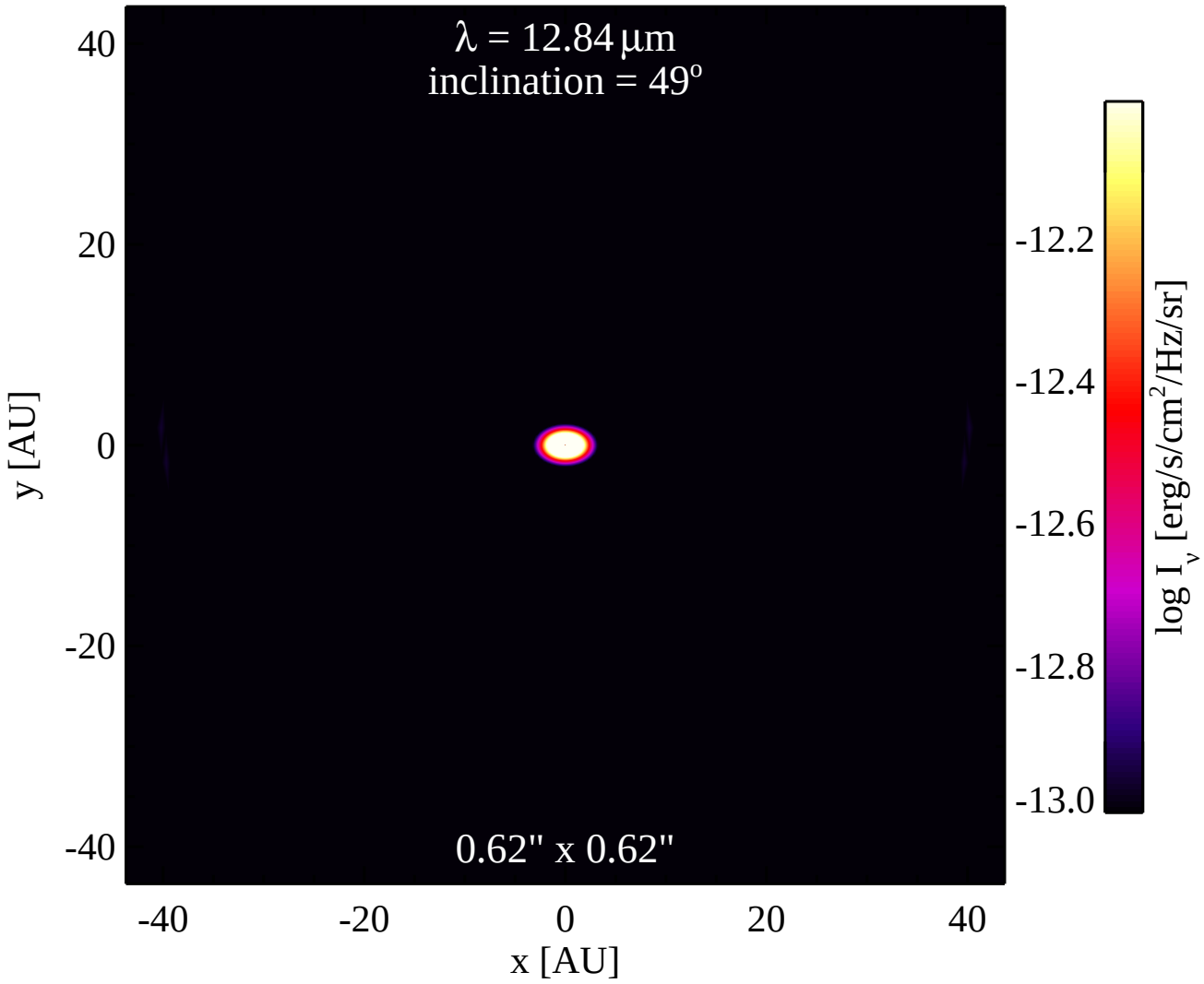

λ = 8.47 μm
inclination = 49°
0.011" x 0.011"
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
y [AU]
-0.6
-0.4
-0.2
0.0
0.2
0.4
0.6
x [AU]
-7.0
-7.5
-8.0
-8.5
-9.0
-9.5
-10.0
log I_ν [erg/s/cm²/Hz/sr]

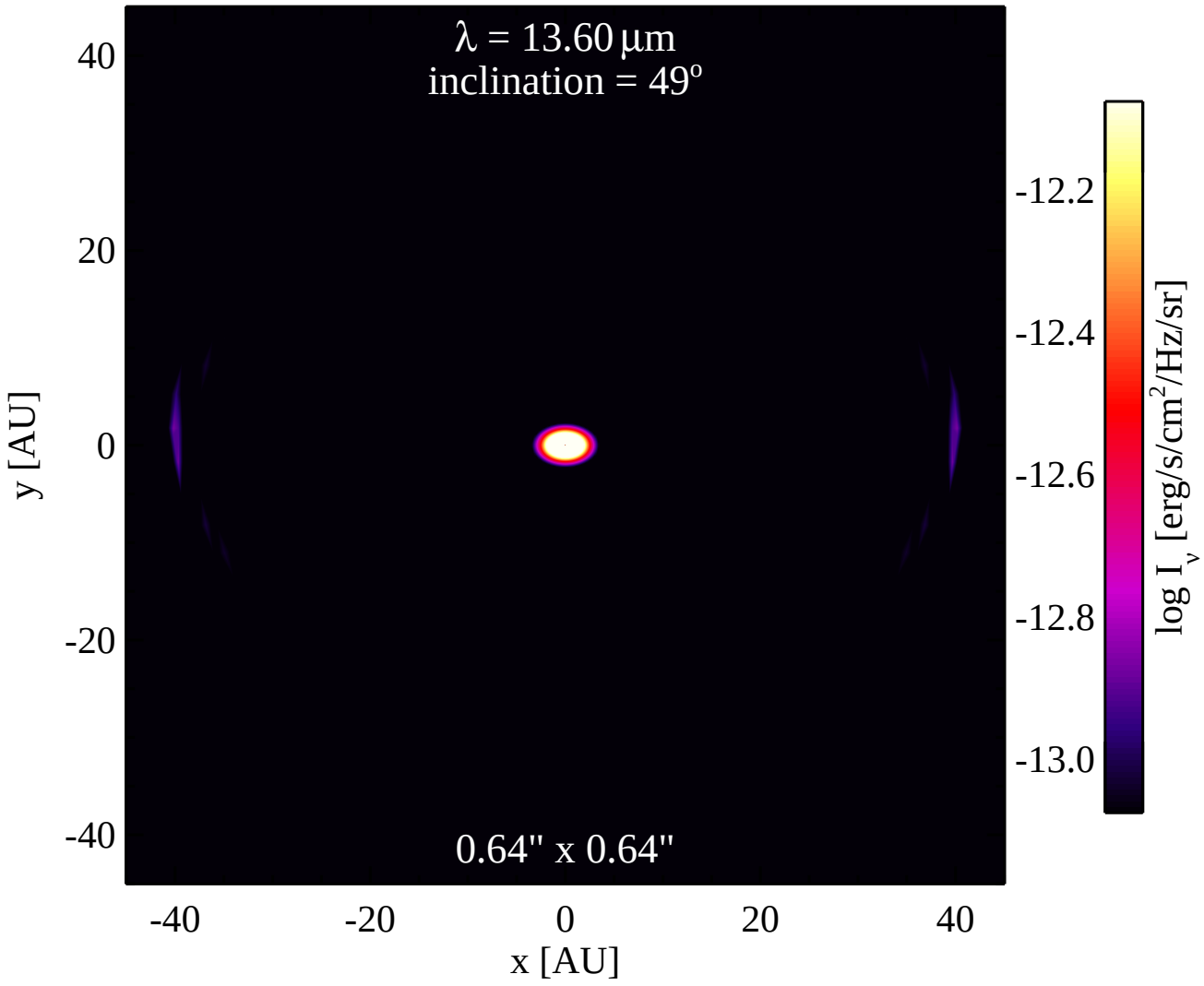

λ = 8.77 μm
inclination = 49°
0.012" x 0.012"
0.5
0.0
-0.5
y [AU]
-0.5
0.0
0.5
x [AU]
-7
-8
-9
-10
log I_ν [erg/s/cm²/Hz/sr]

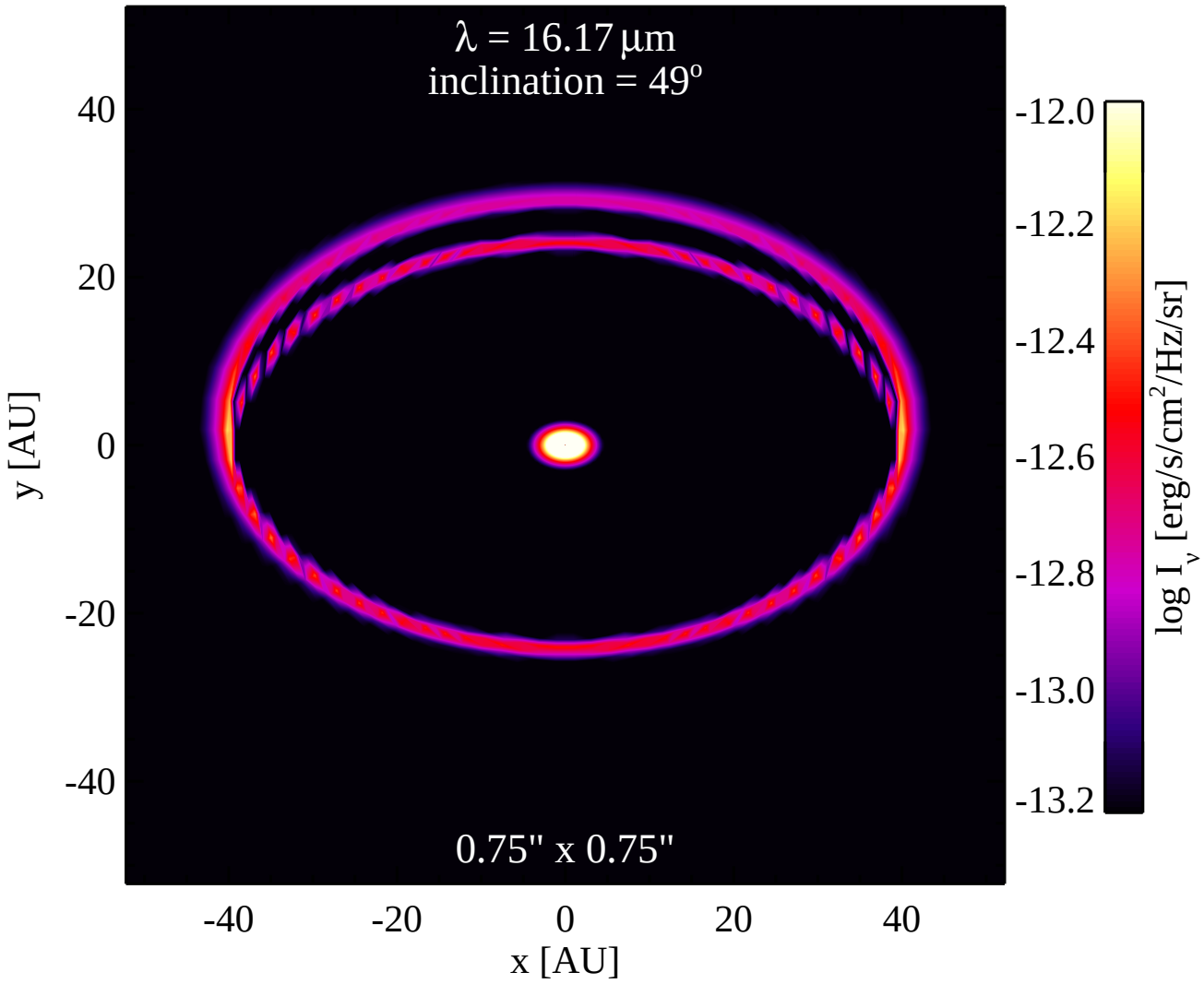

λ = 10.19 μm
inclination = 49°
0.015" x 0.015"
1.0
0.5
0.0
-0.5
-1.0
y [AU]
-1.0
-0.5
0.0
0.5
1.0
x [AU]
-7
-8
-9
-10
log I_ν [erg/s/cm²/Hz/sr]

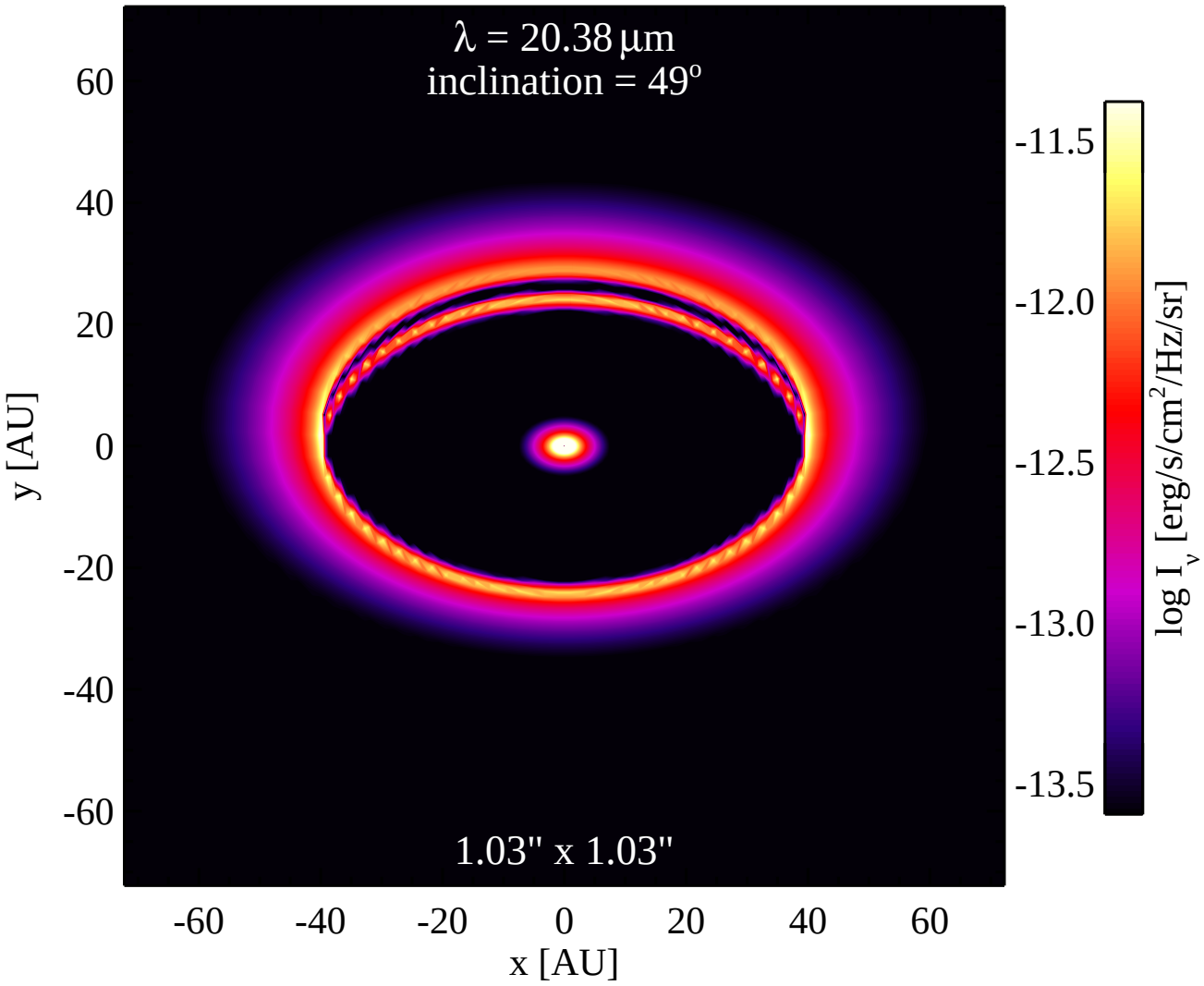

λ = 11.24 μm
inclination = 49°
0.52" x 0.52"
20
0
-20
y [AU]
-20
0
20
x [AU]
-11.6
-11.8
-12.0
-12.2
-12.4
-12.6
-12.8
log I_ν [erg/s/cm²/Hz/sr]

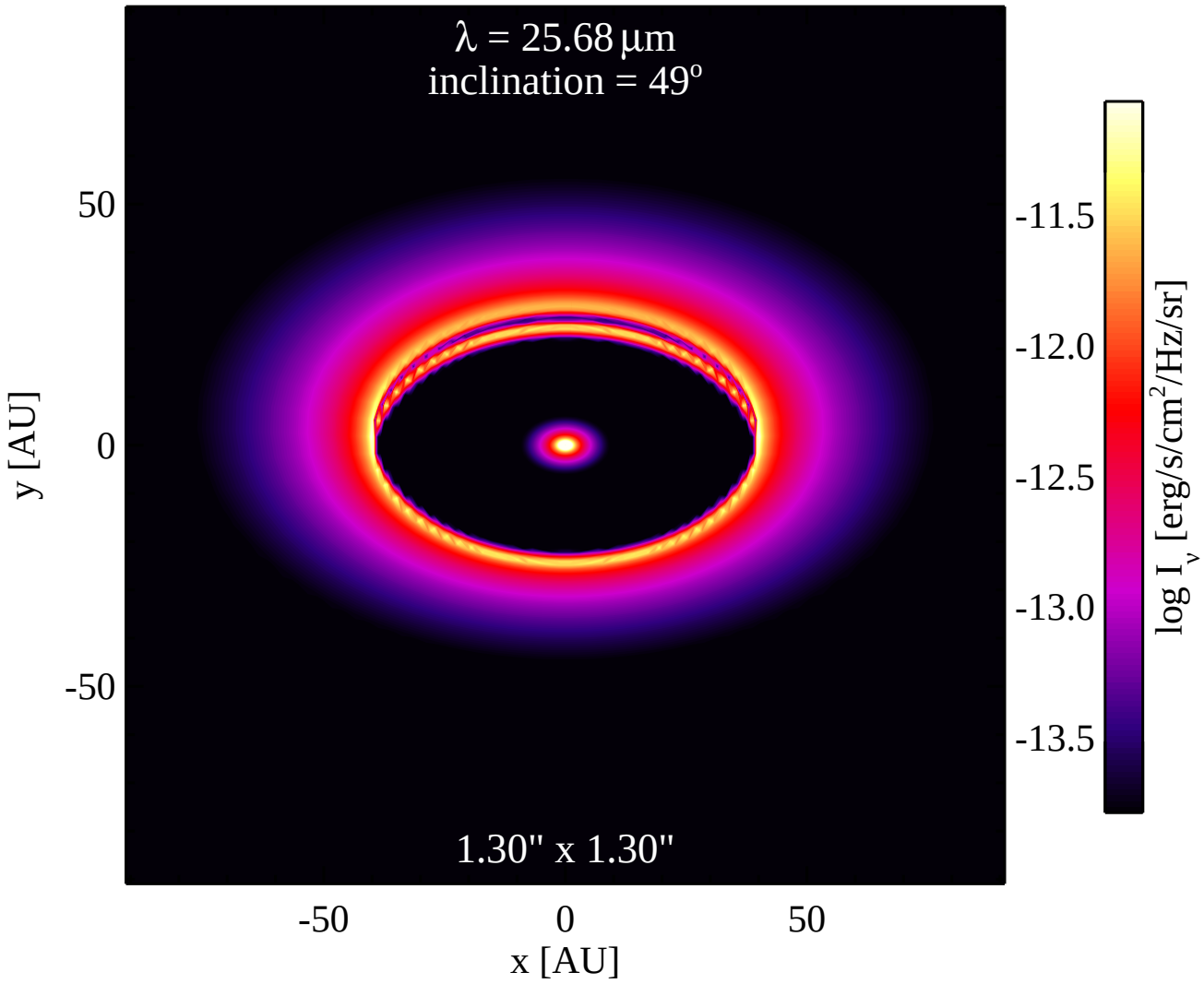

λ = 12.26 μm
inclination = 49°
0.53" x 0.53"
20
0
-20
y [AU]
-20
0
20
x [AU]
-11.8
-12.0
-12.2
-12.4
-12.6
-12.8
-13.0
log I_ν [erg/s/cm²/Hz/sr]

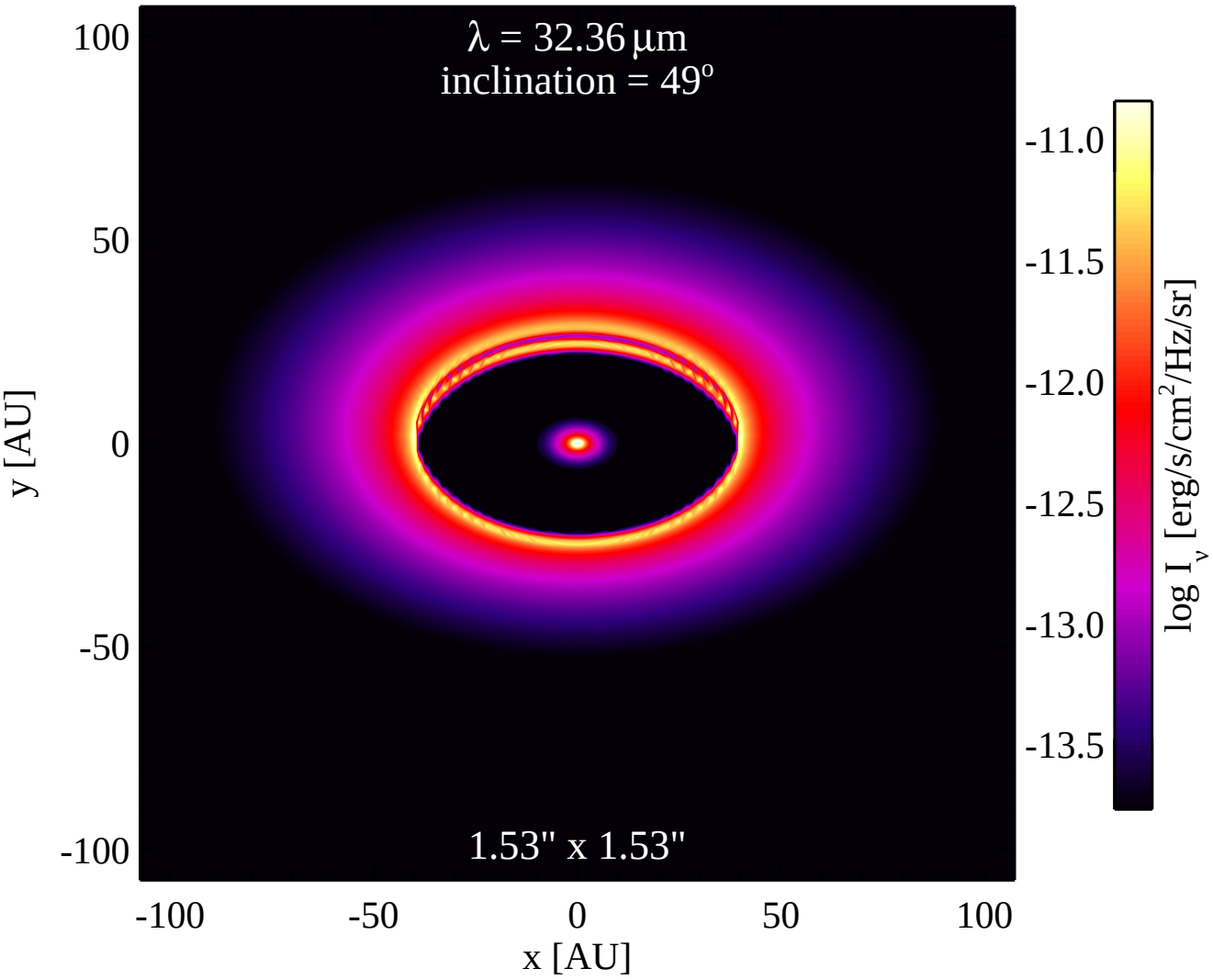

λ = 12.84 μm
inclination = 49°
0.62" x 0.62"
40
20
0
-20
-40
y [AU]
-40
-20
0
20
40
x [AU]
-12.2
-12.4
-12.6
-12.8
-13.0
log I_ν [erg/s/cm²/Hz/sr]

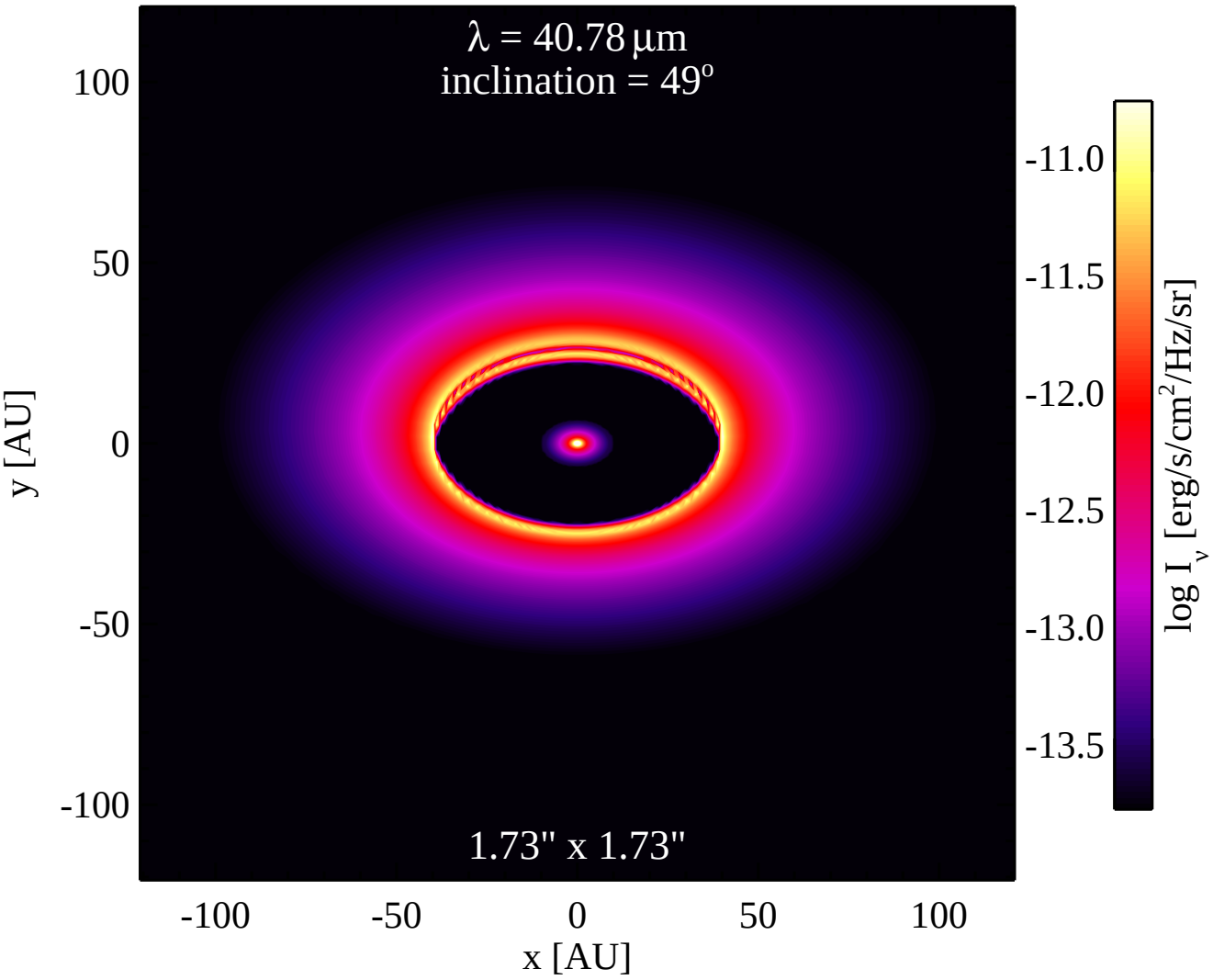

λ = 13.60 μm
inclination = 49°
0.64" x 0.64"
40
20
0
-20
-40
y [AU]
-40
-20
0
20
40
x [AU]
-12.2
-12.4
-12.6
-12.8
-13.0
log I_ν [erg/s/cm²/Hz/sr]

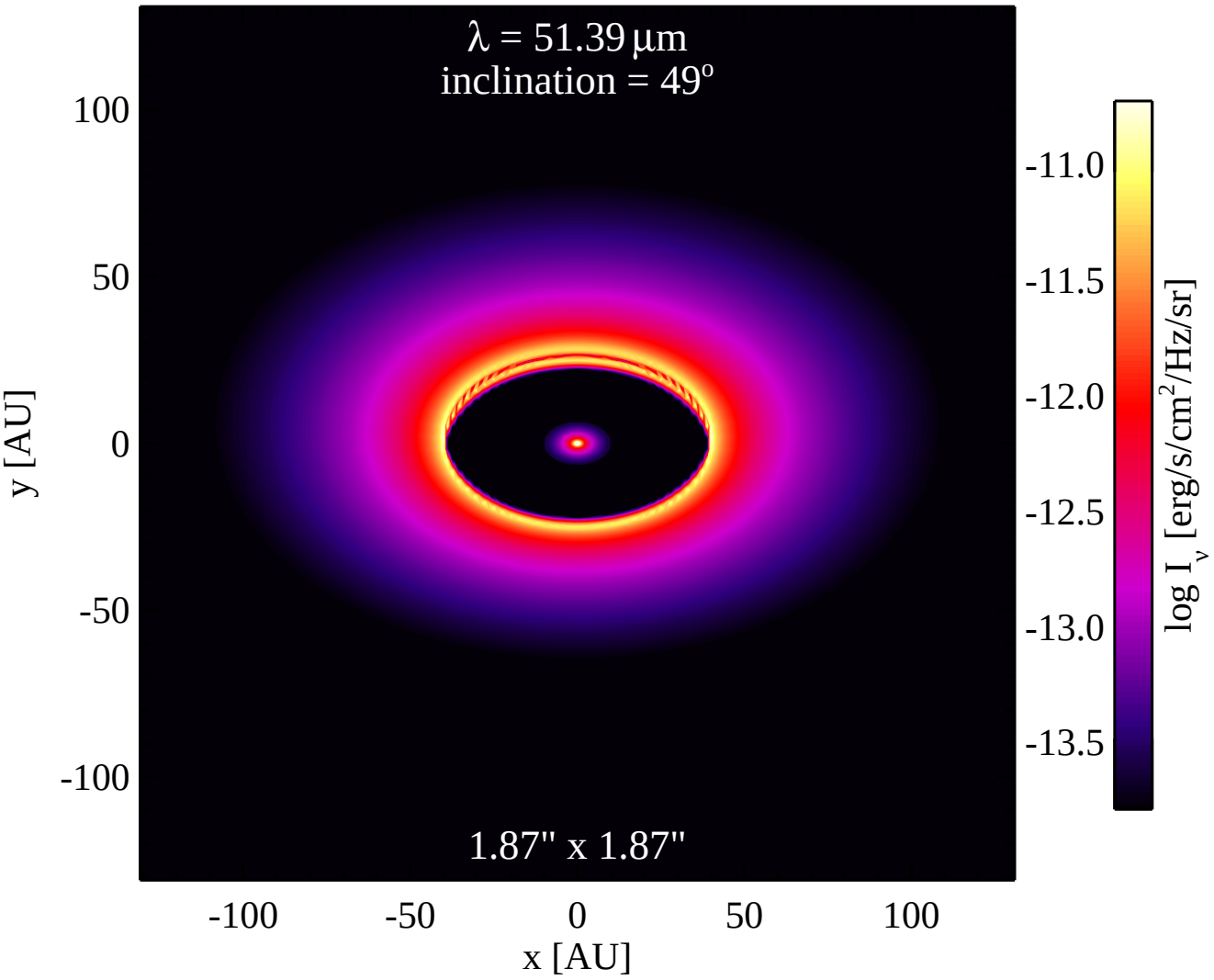

λ = 16.17 μm
inclination = 49°
0.75" x 0.75"
40
20
0
-20
-40
y [AU]
-40
-20
0
20
40
x [AU]
-12.0
-12.2
-12.4
-12.6
-12.8
-13.0
-13.2
log I_ν [erg/s/cm²/Hz/sr]

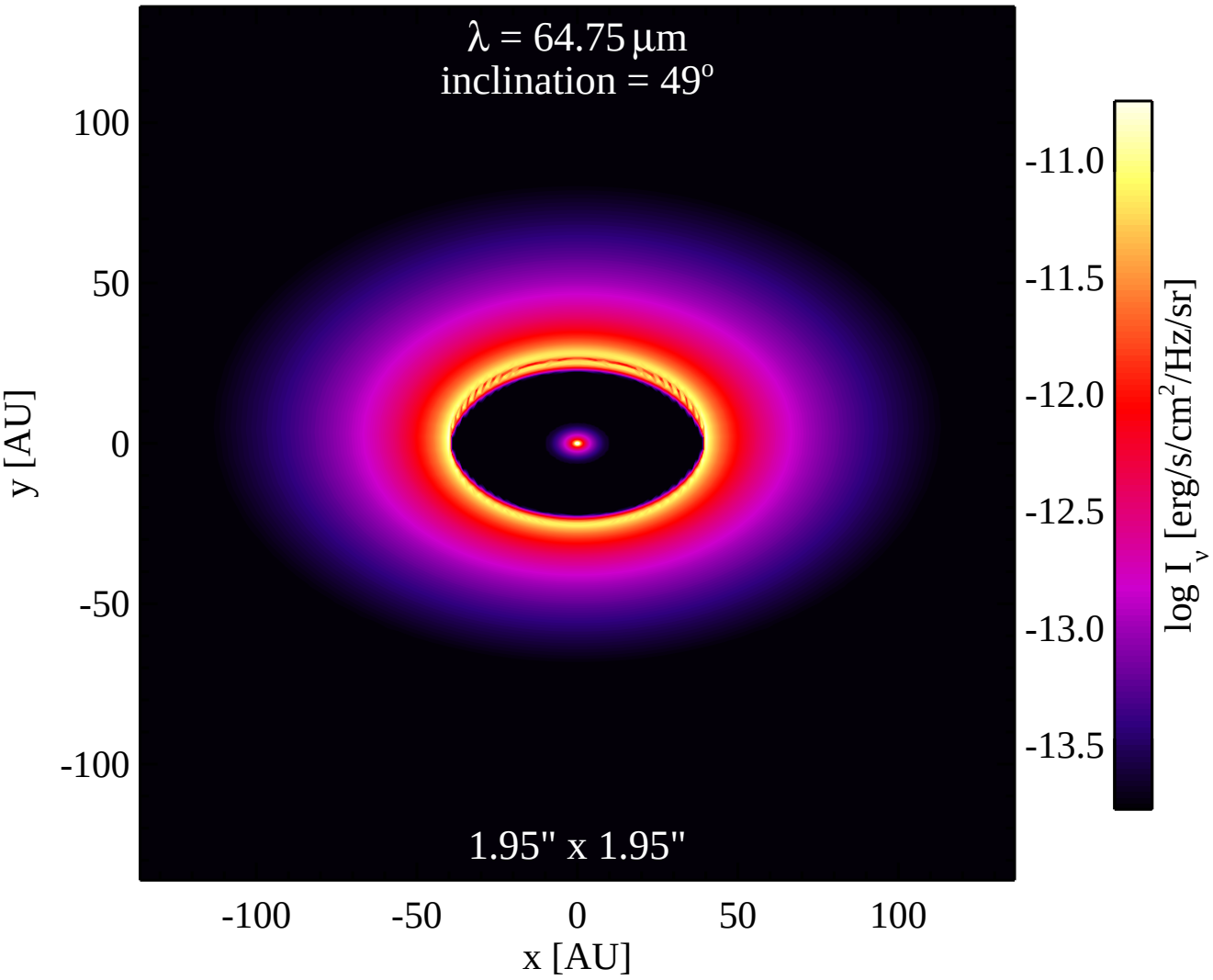

λ = 20.38 μm
inclination = 49°
1.03" x 1.03"
60
40
20
0
-20
-40
-60
y [AU]
-60
-40
-20
0
20
40
60
x [AU]
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

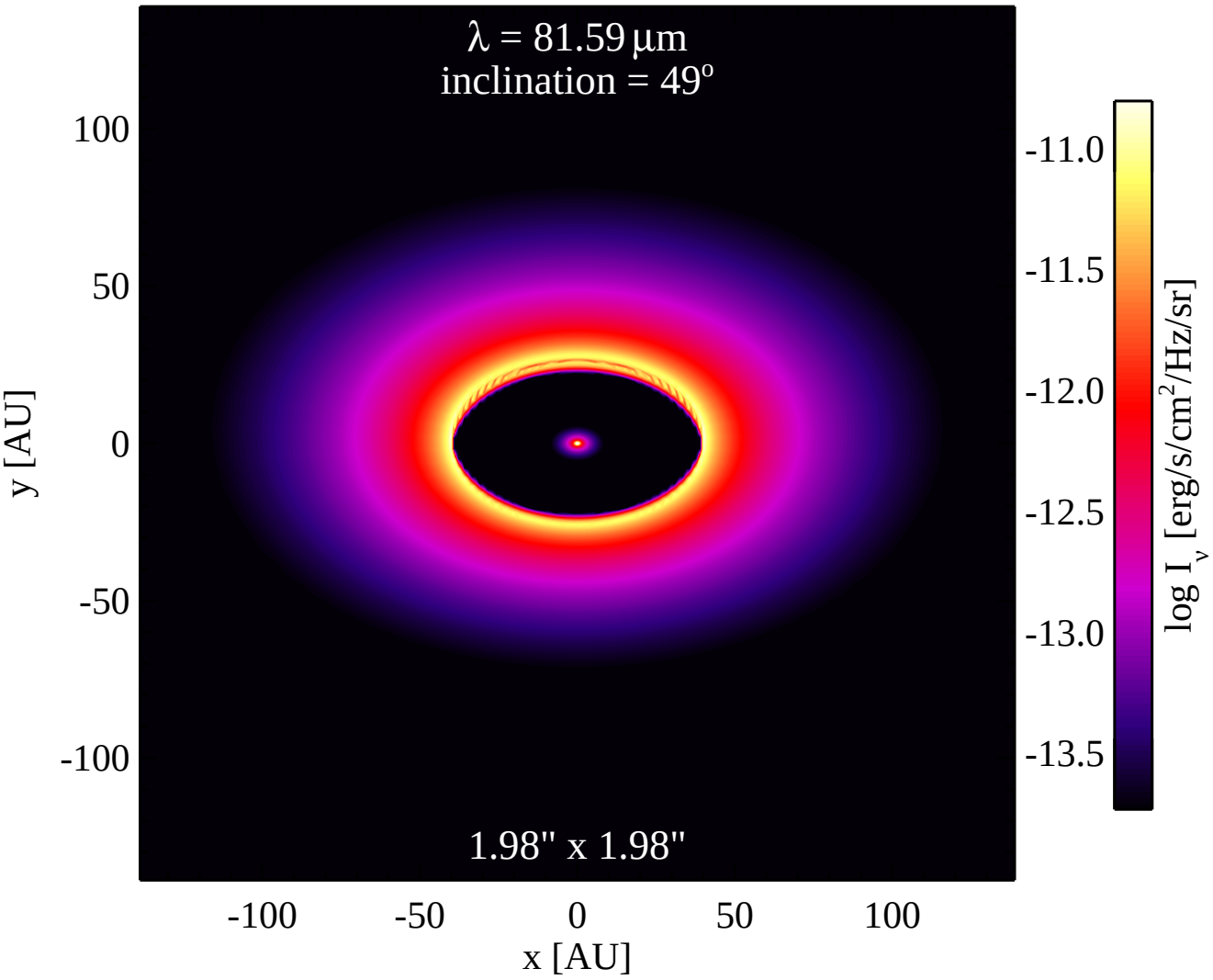

λ = 25.68 μm
inclination = 49°
1.30" x 1.30"
50
0
-50
y [AU]
-50
0
50
x [AU]
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

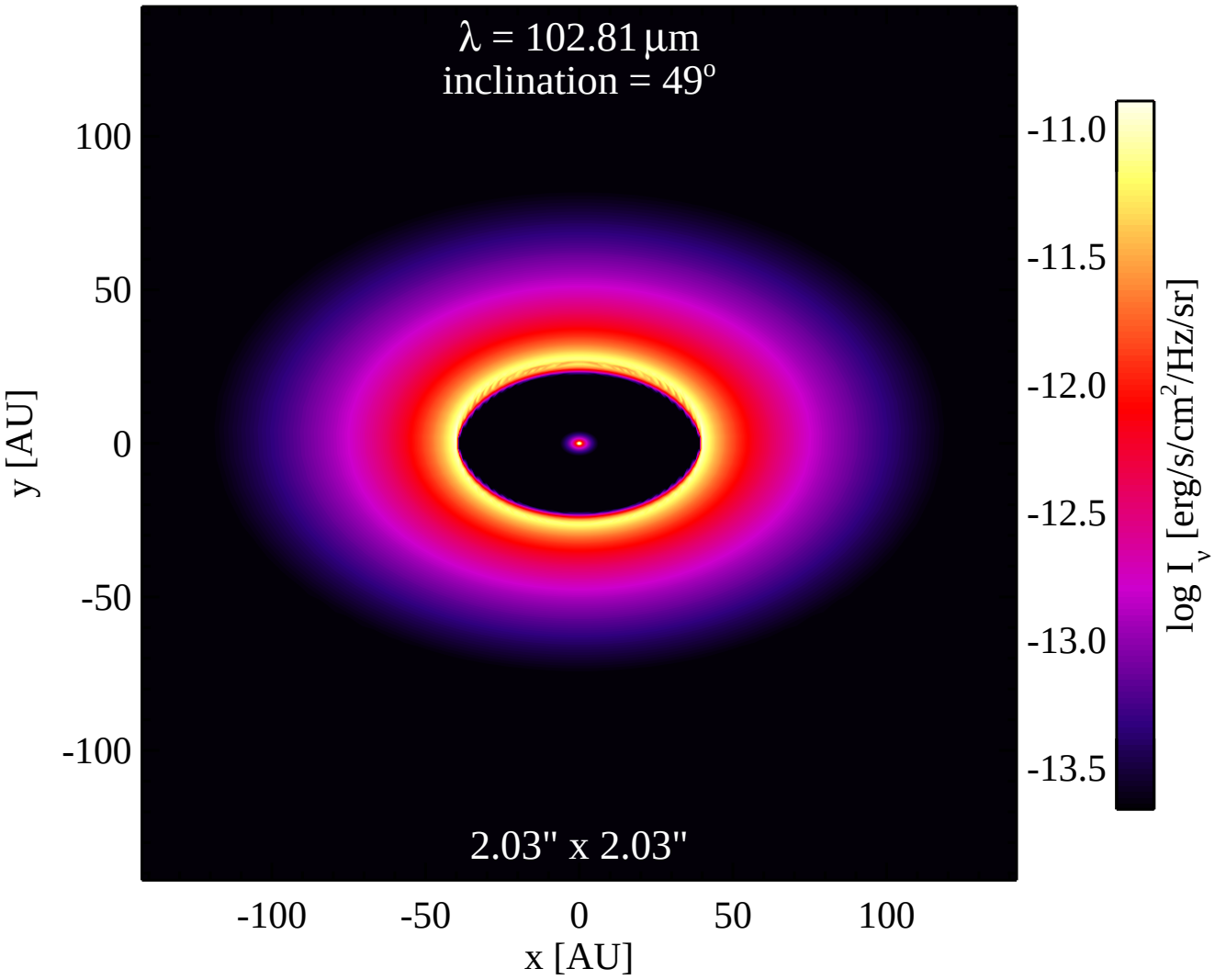

λ = 32.36 μm
inclination = 49°
1.53" x 1.53"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

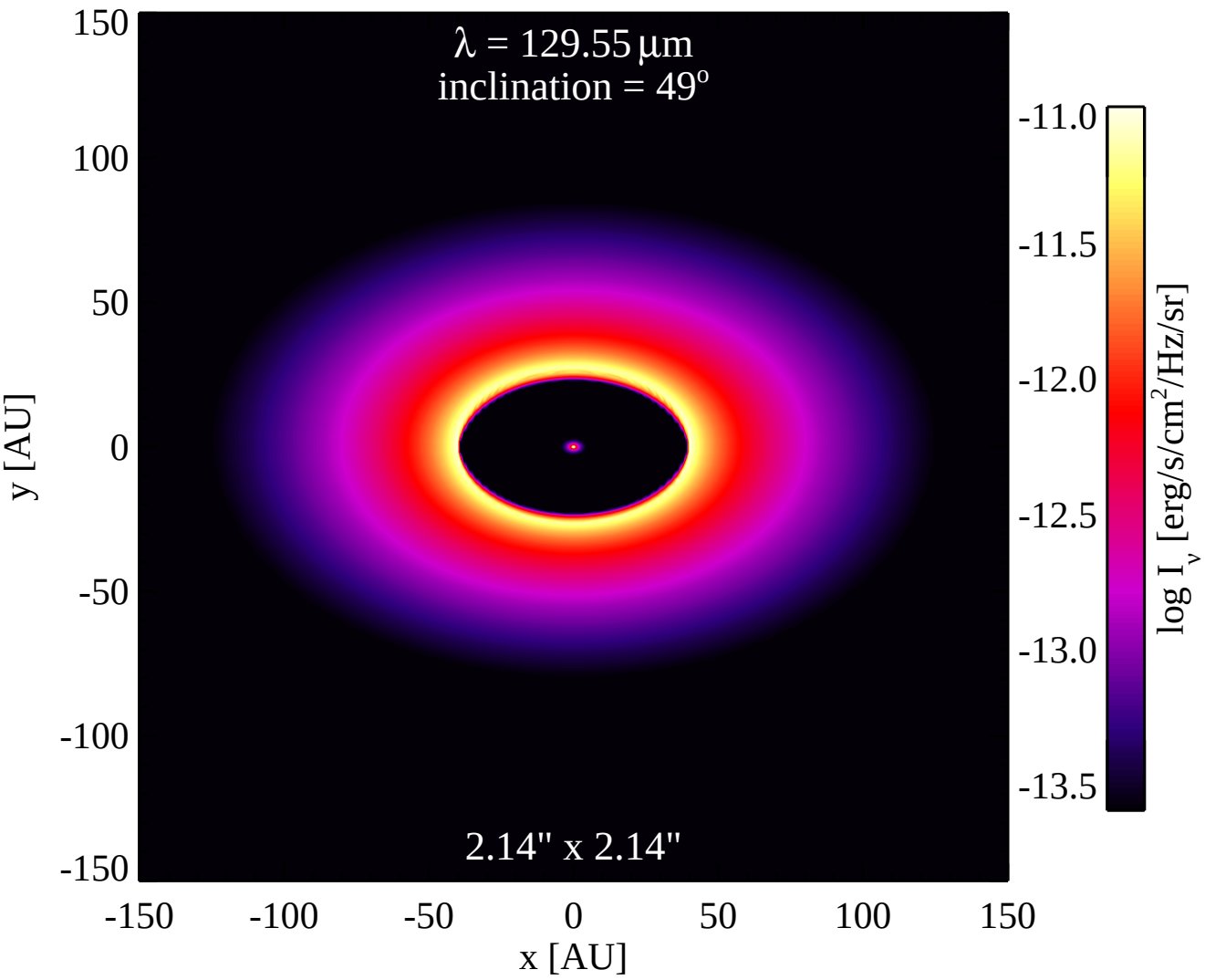

λ = 40.78 μm
inclination = 49°
1.73" x 1.73"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

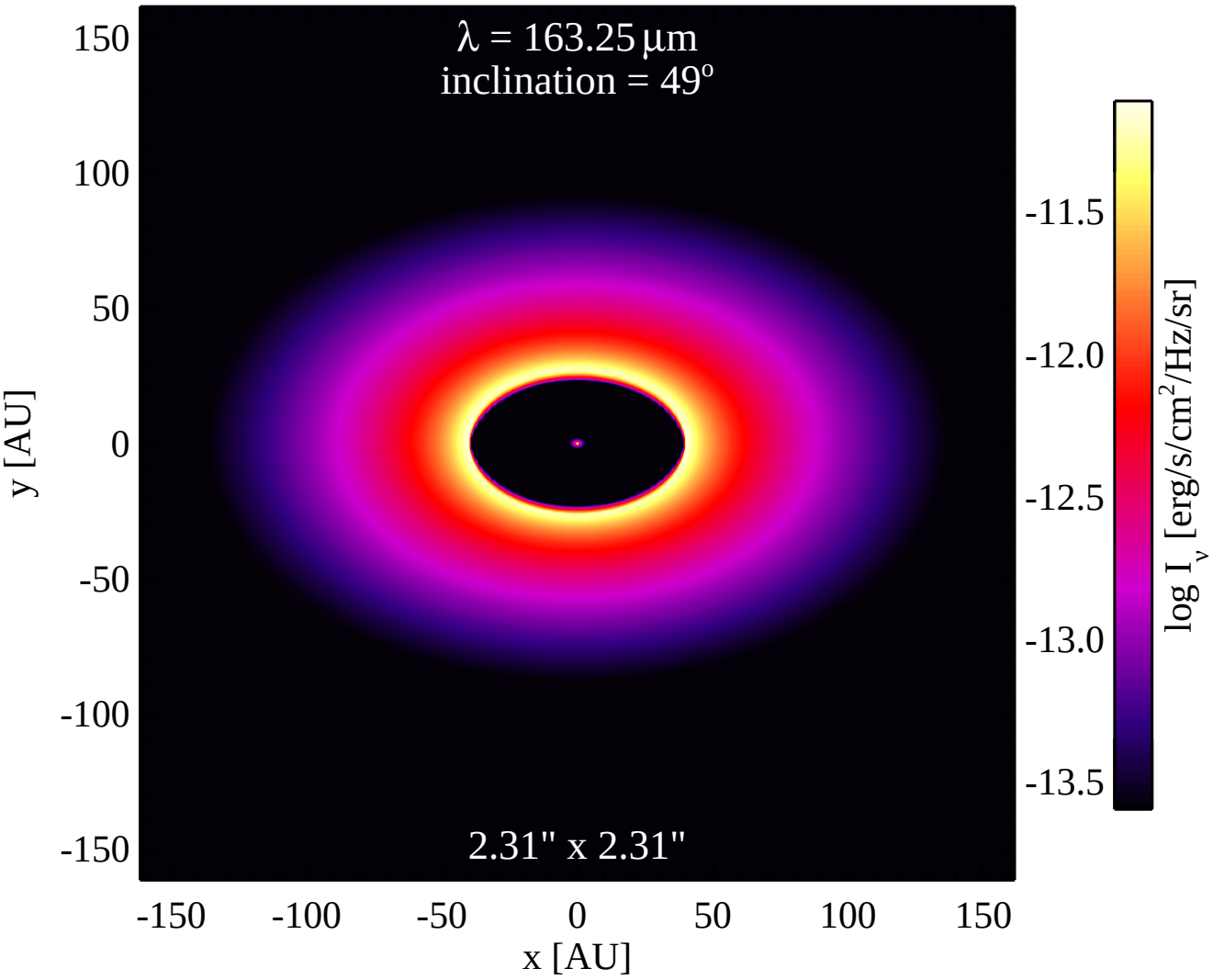

λ = 51.39 μm
inclination = 49°
1.87" x 1.87"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

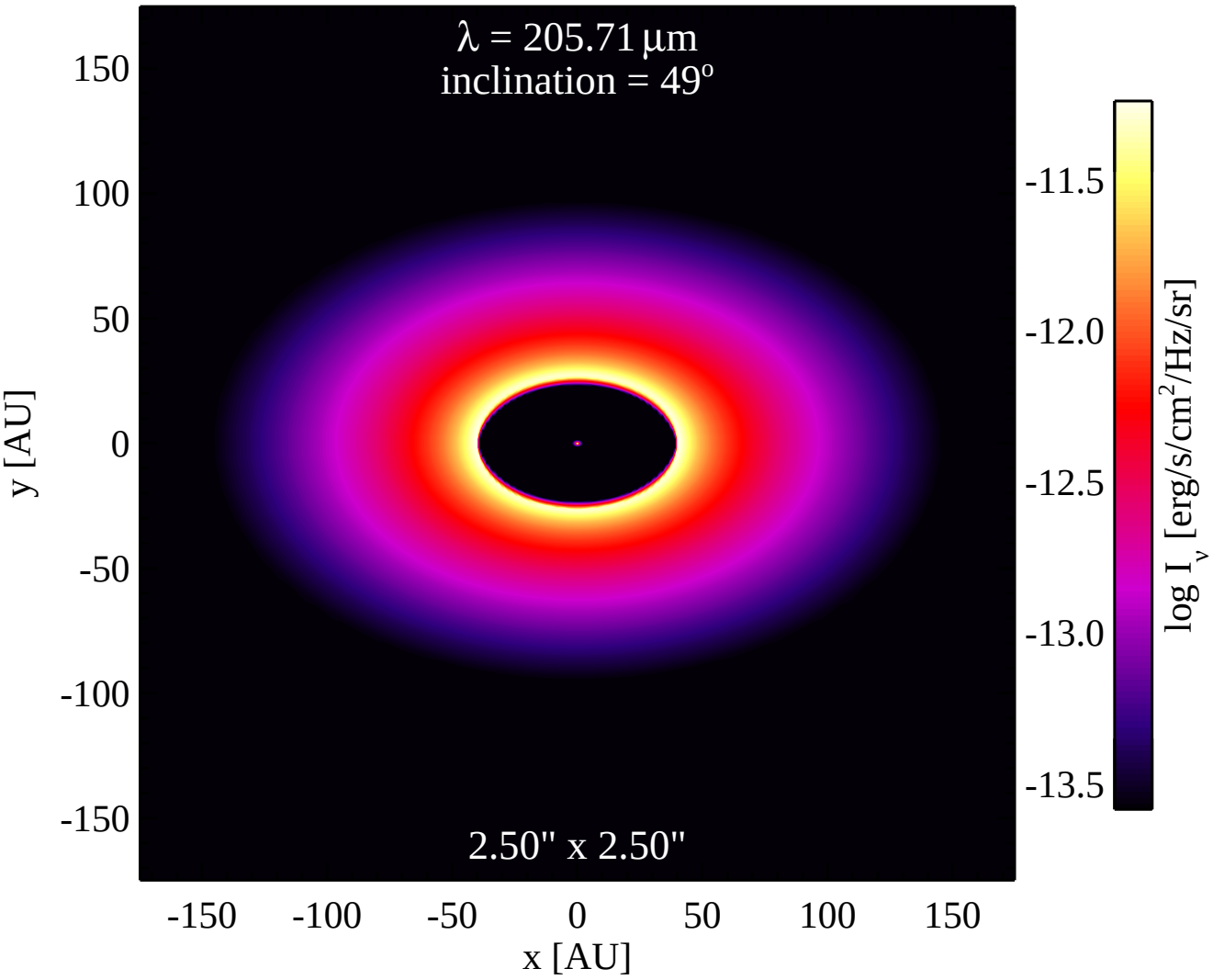

λ = 64.75 μm
inclination = 49°
1.95" x 1.95"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

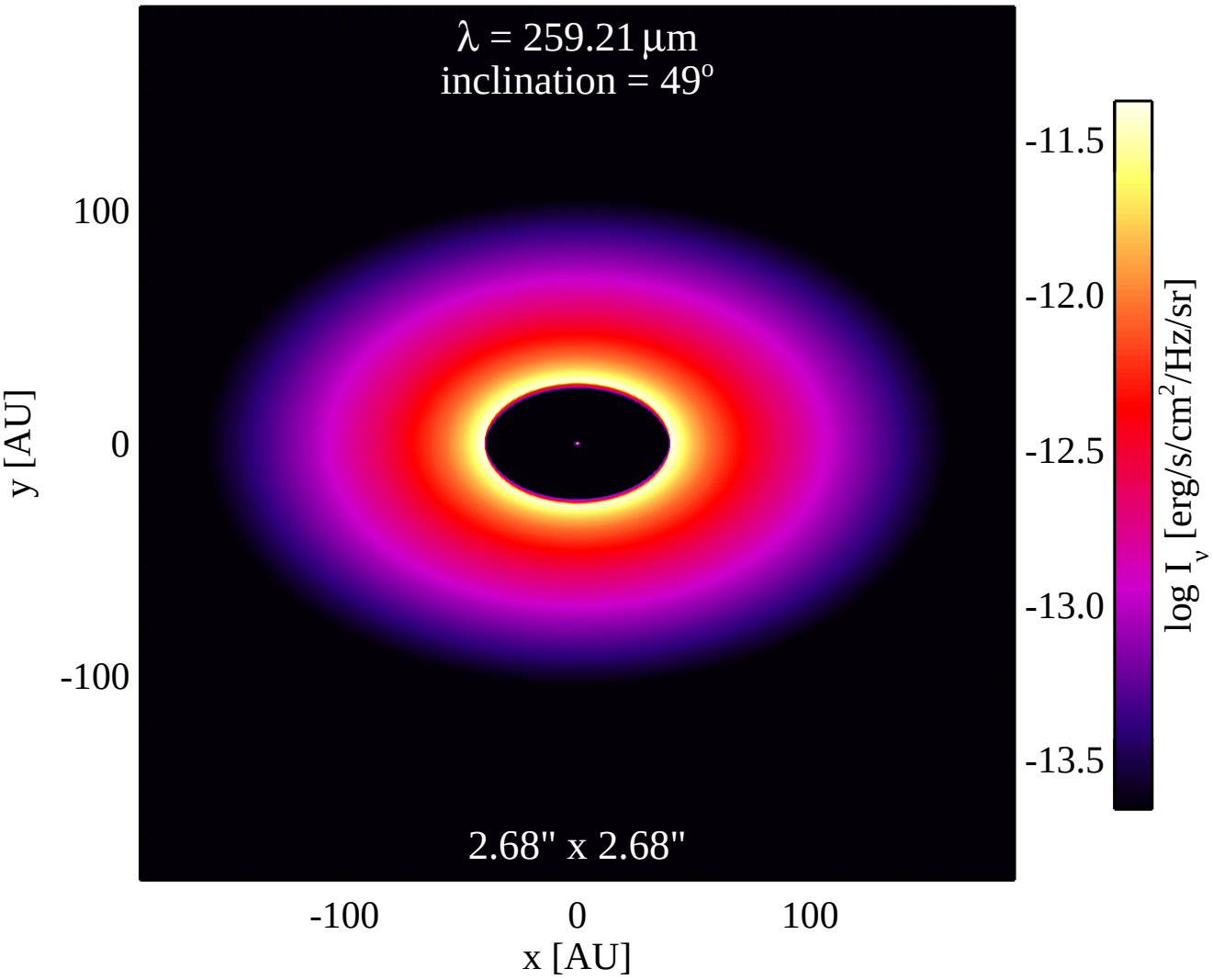

λ = 81.59 μm
inclination = 49°
1.98" x 1.98"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

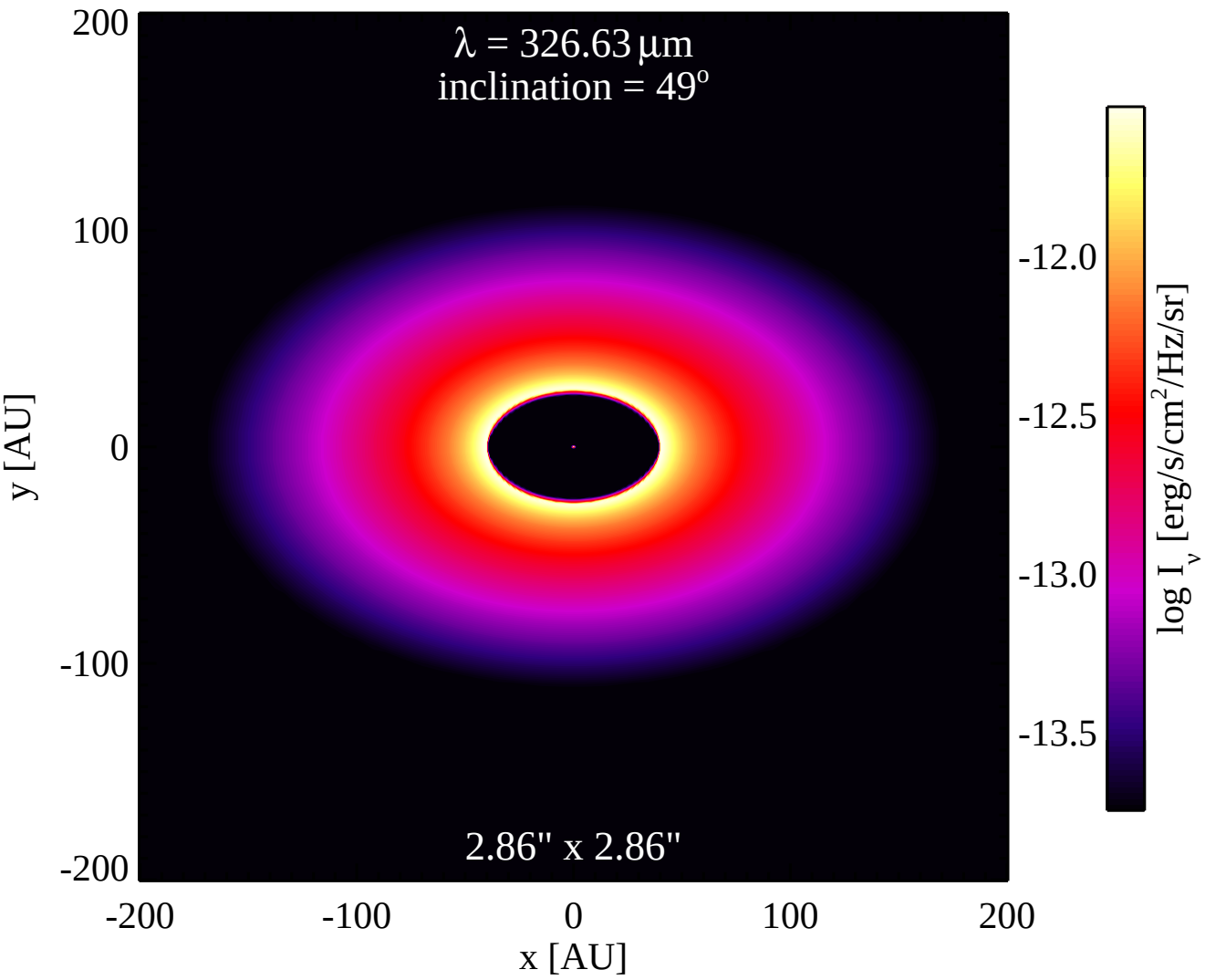

λ = 102.81 μm
inclination = 49°
2.03" x 2.03"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

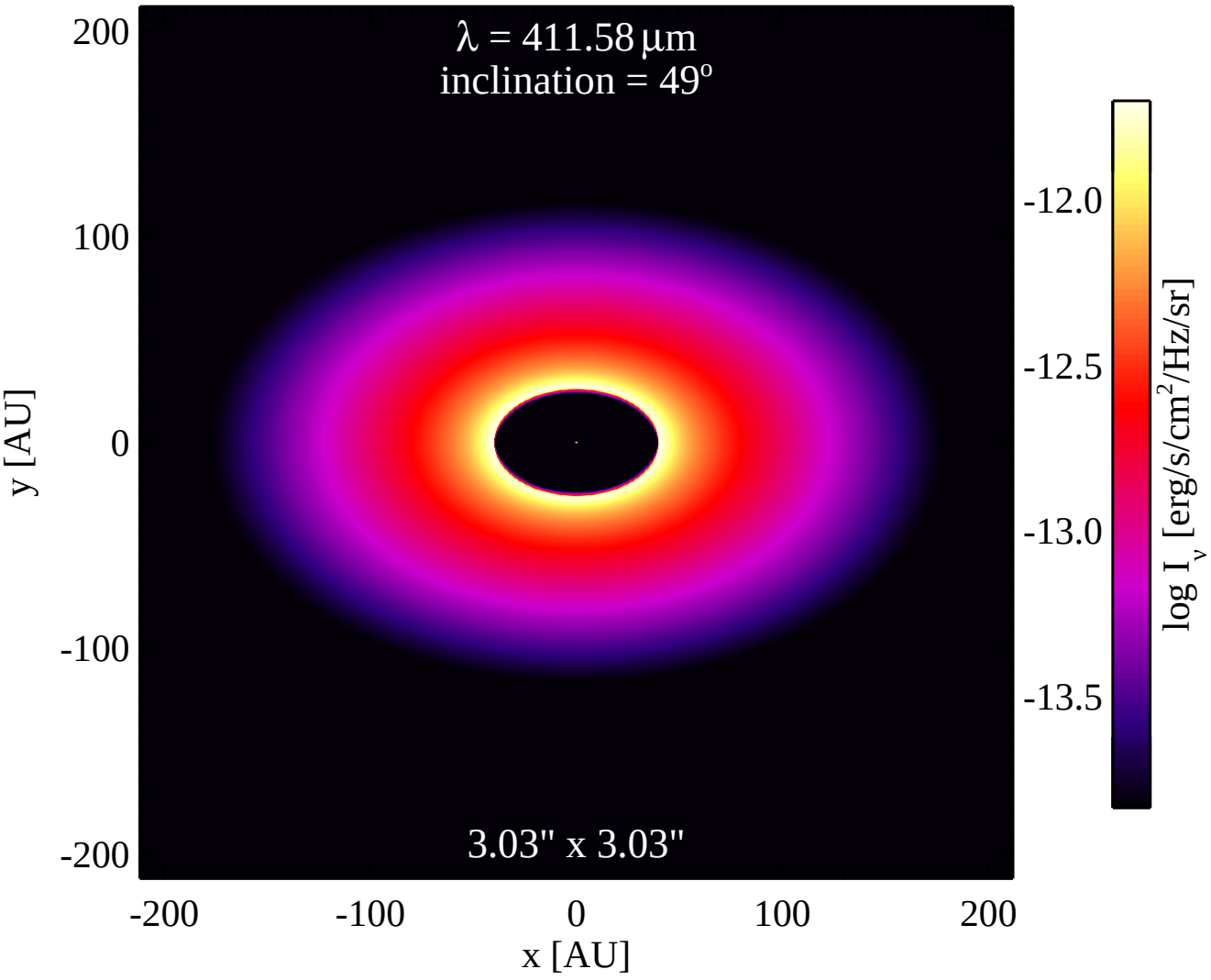

λ = 129.55 μm
inclination = 49°
2.14" x 2.14"
150
100
50
0
-50
-100
-150
y [AU]
-150
-100
-50
0
50
100
150
x [AU]
-11.0
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

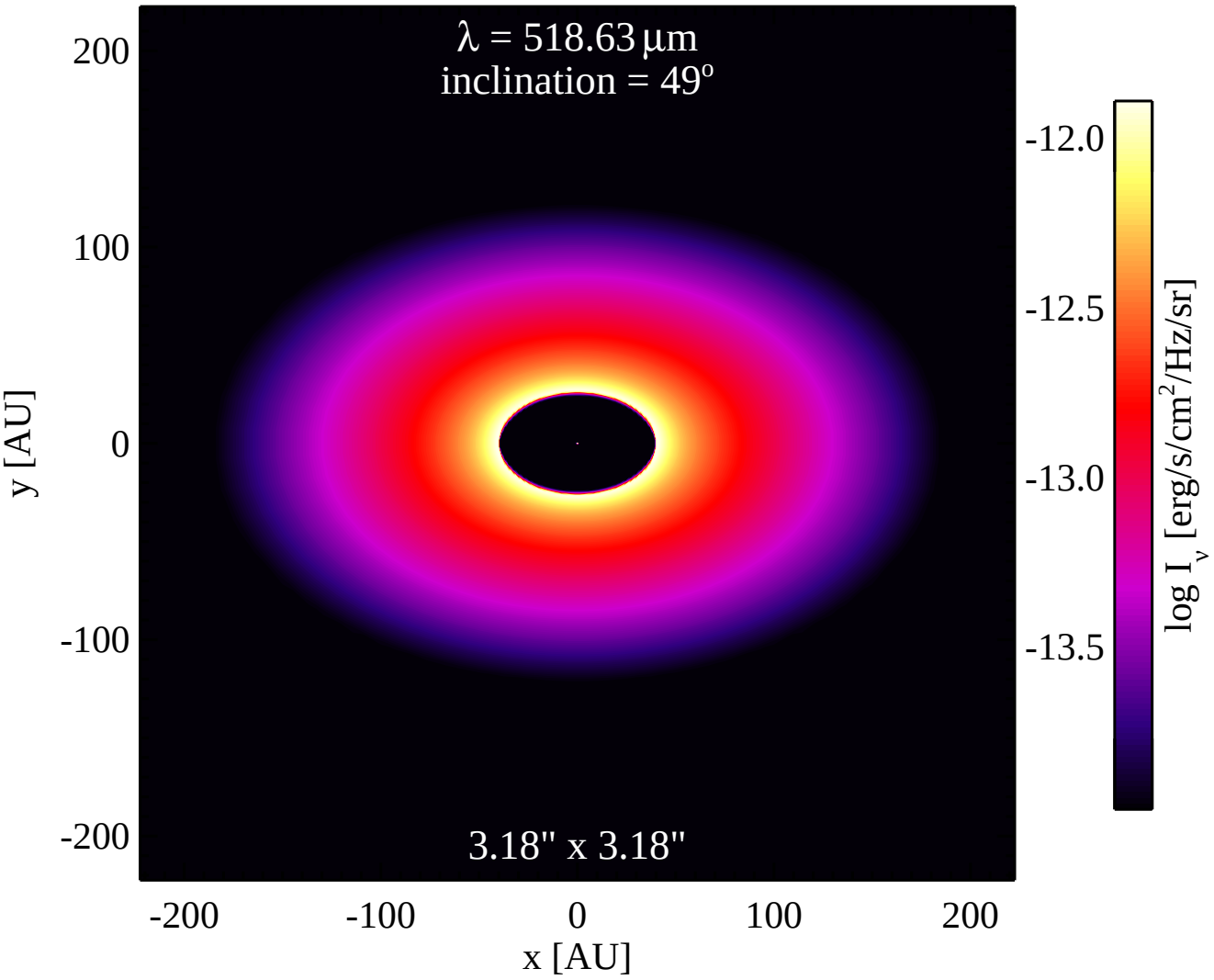

λ = 163.25 μm
inclination = 49°
2.31" x 2.31"
150
100
50
0
-50
-100
-150
y [AU]
-150
-100
-50
0
50
100
150
x [AU]
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

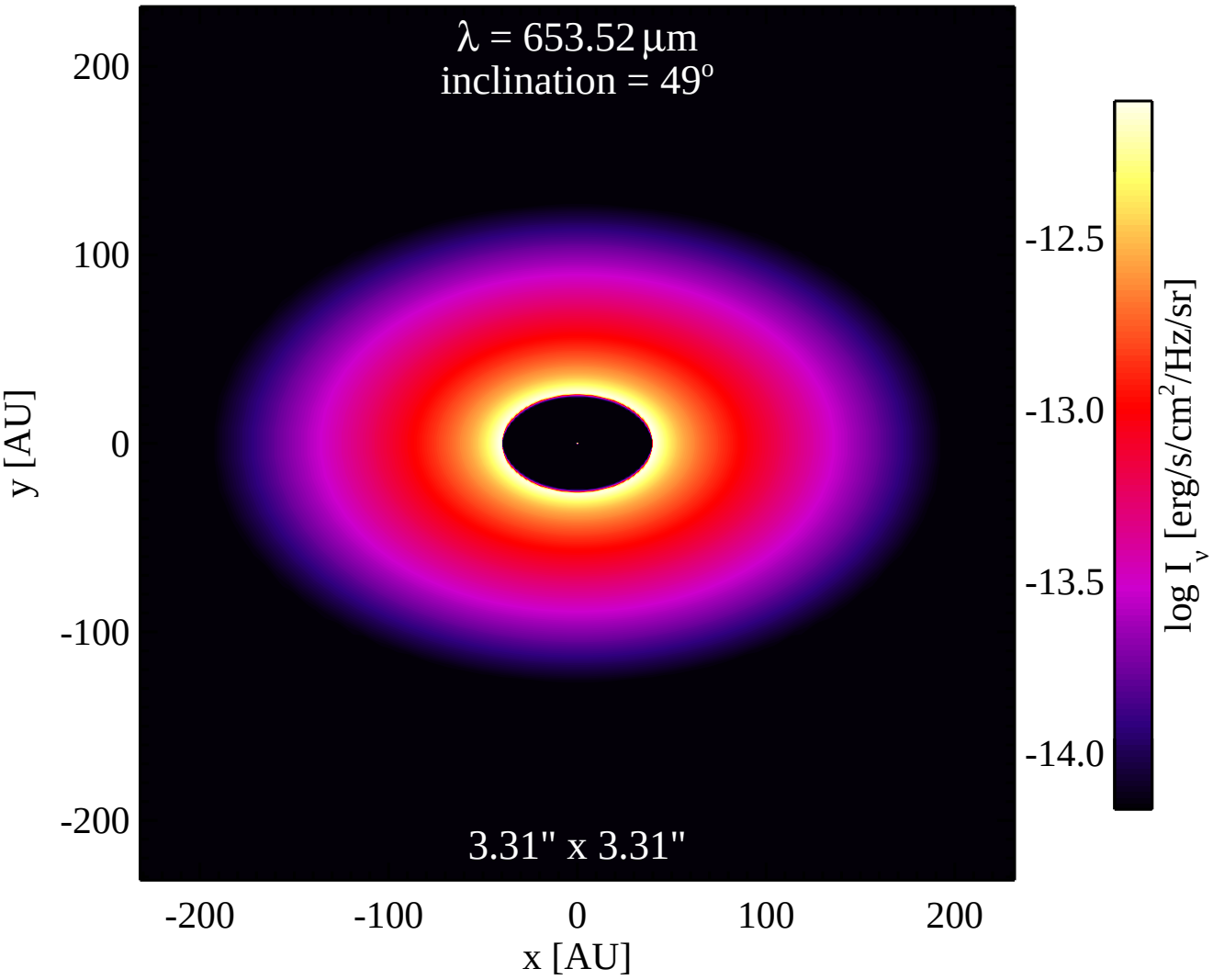

λ = 205.71 μm
inclination = 49°
2.50" x 2.50"
150
100
50
0
-50
-100
-150
y [AU]
-150
-100
-50
0
50
100
150
x [AU]
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

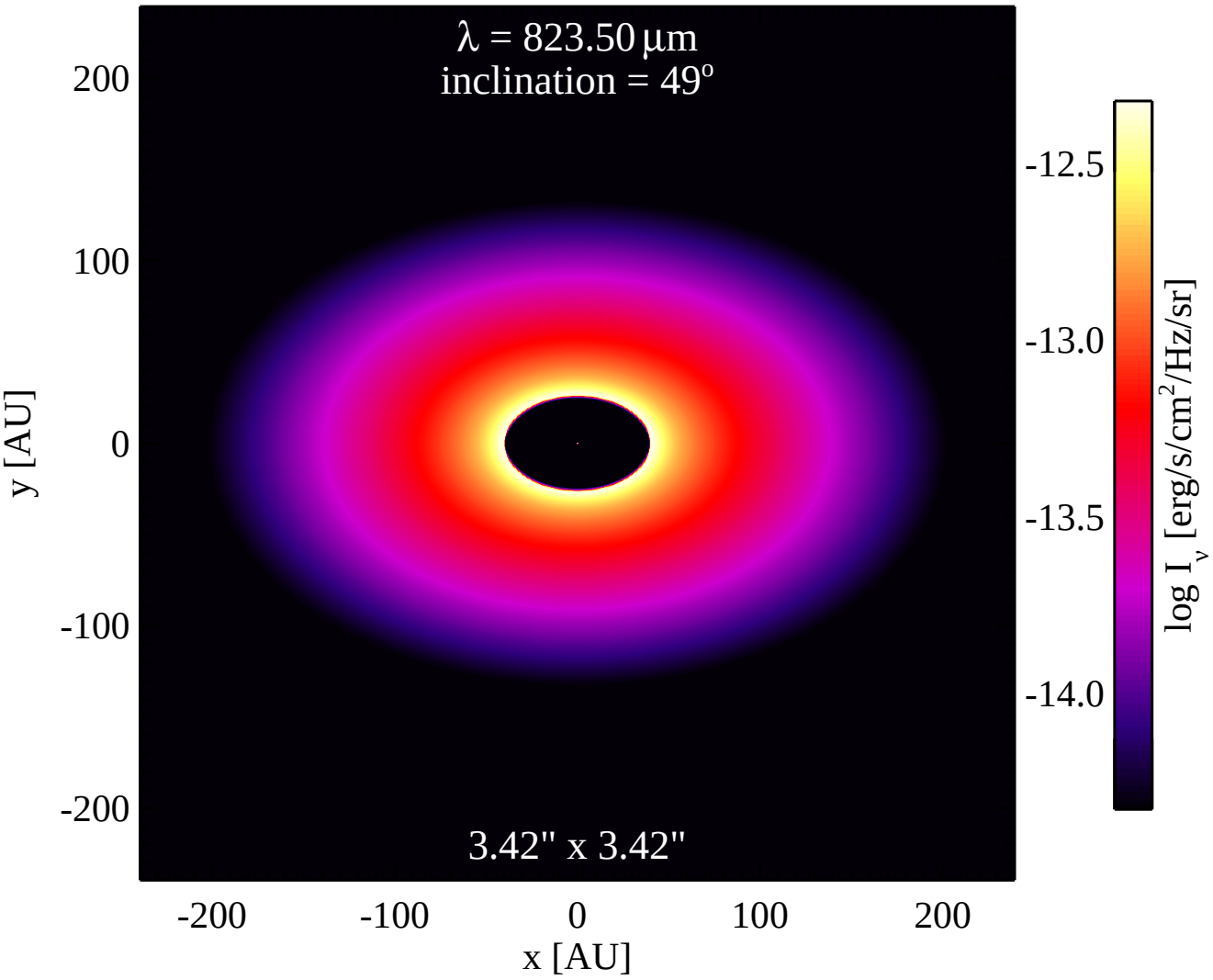

λ = 259.21 μm
inclination = 49°
2.68" x 2.68"
100
0
-100
y [AU]
-100
0
100
x [AU]
-11.5
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

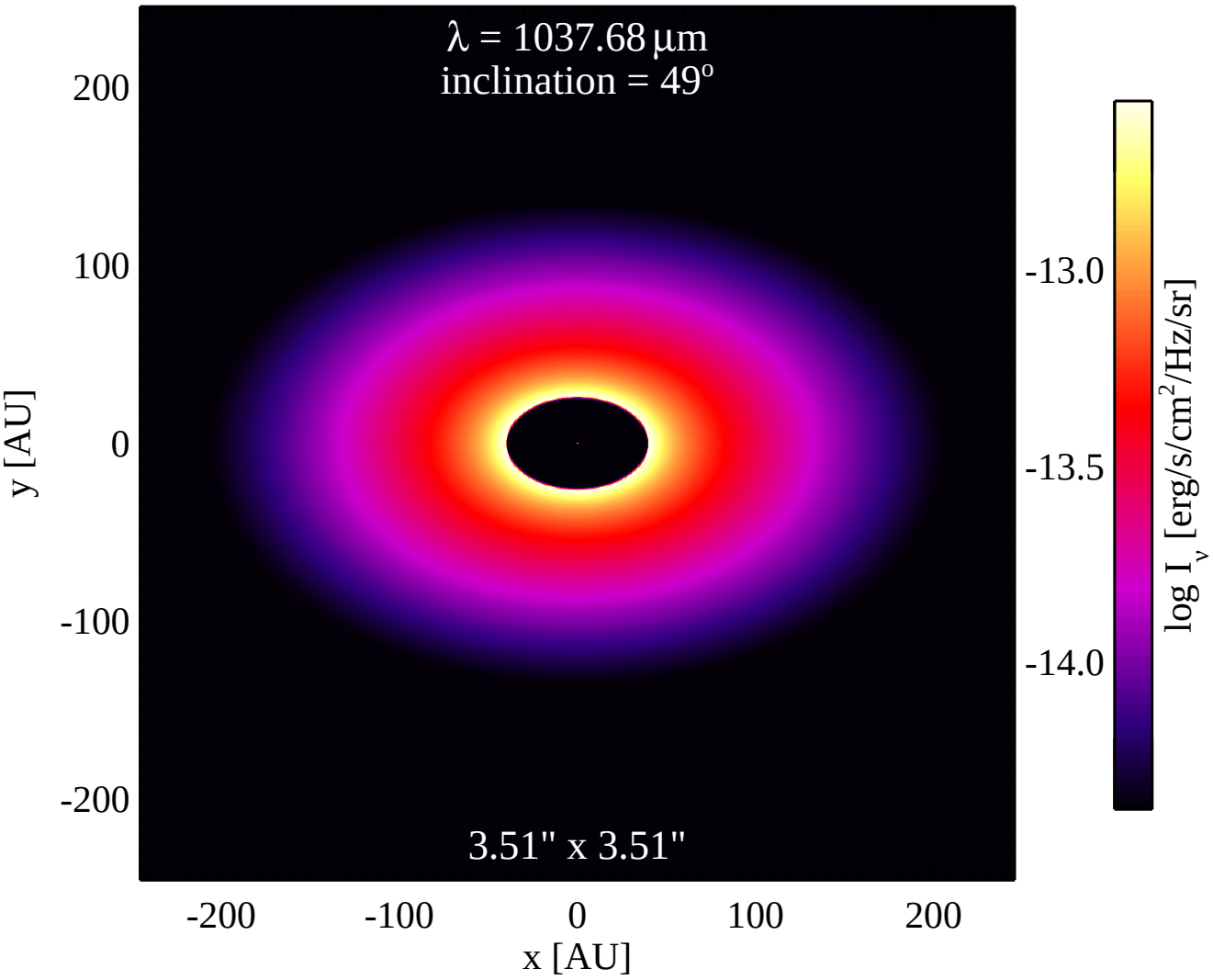

λ = 326.63 μm
inclination = 49°
2.86" x 2.86"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

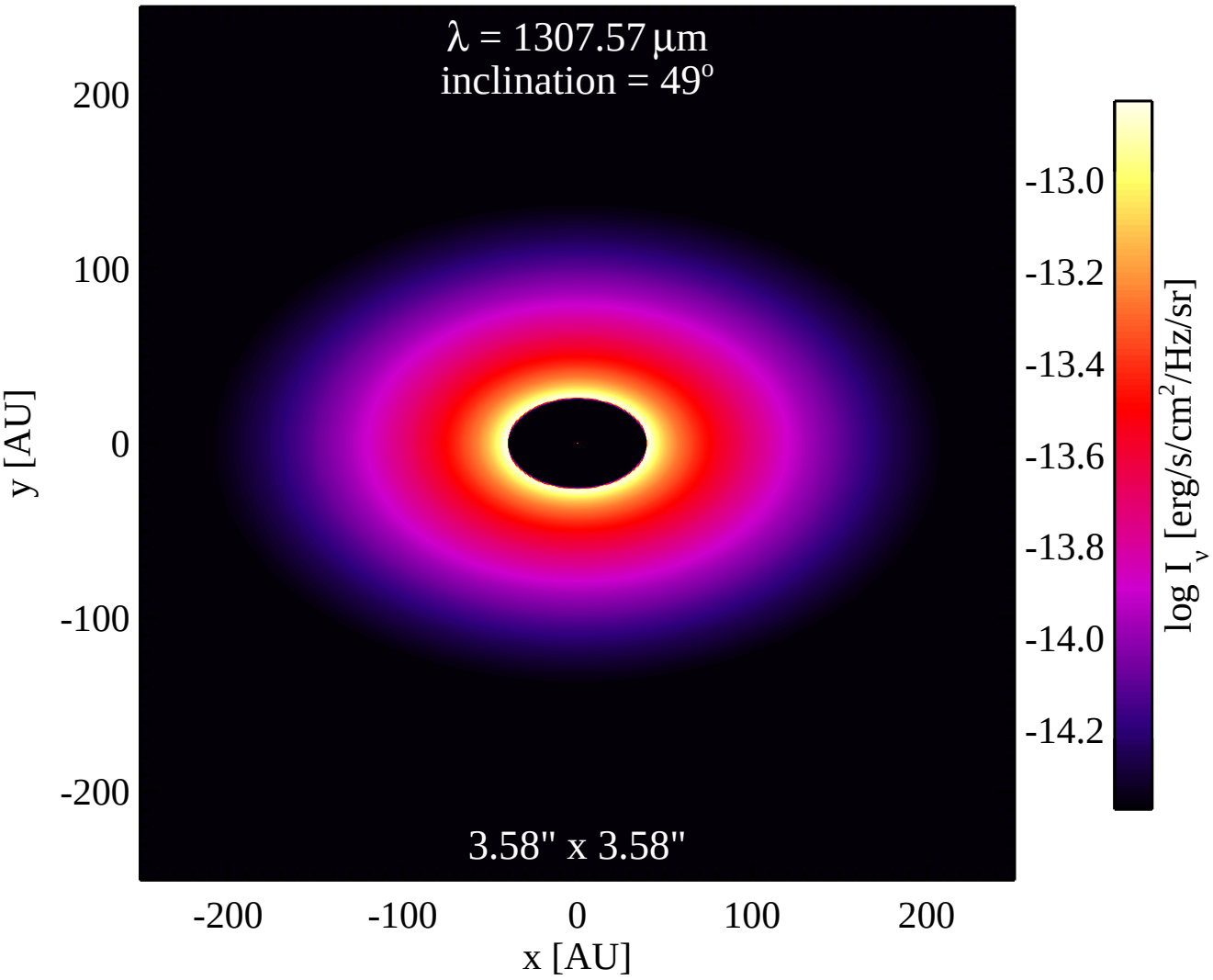

λ = 411.58 μm
inclination = 49°
3.03" x 3.03"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

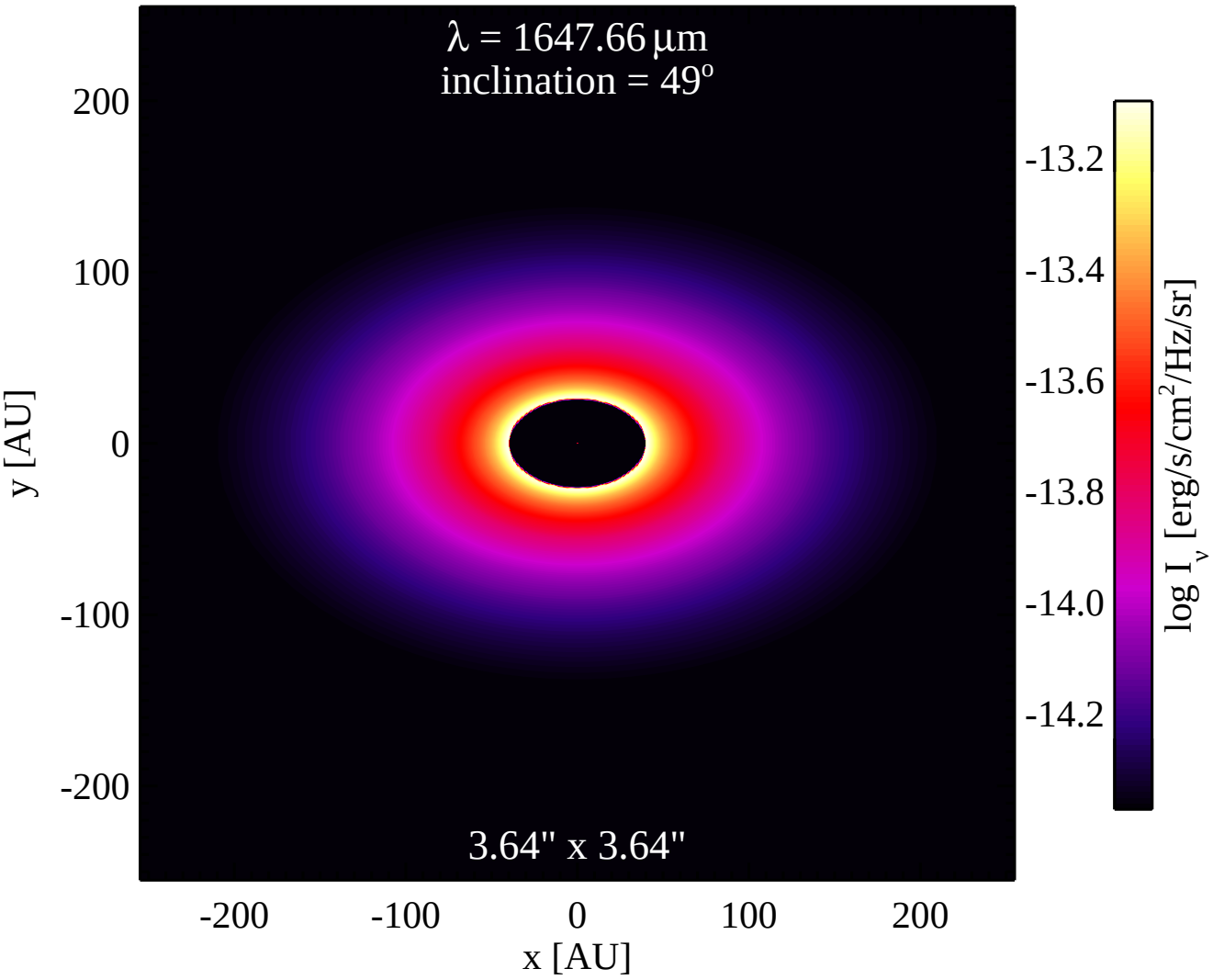

λ = 518.63 μm
inclination = 49°
3.18" x 3.18"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

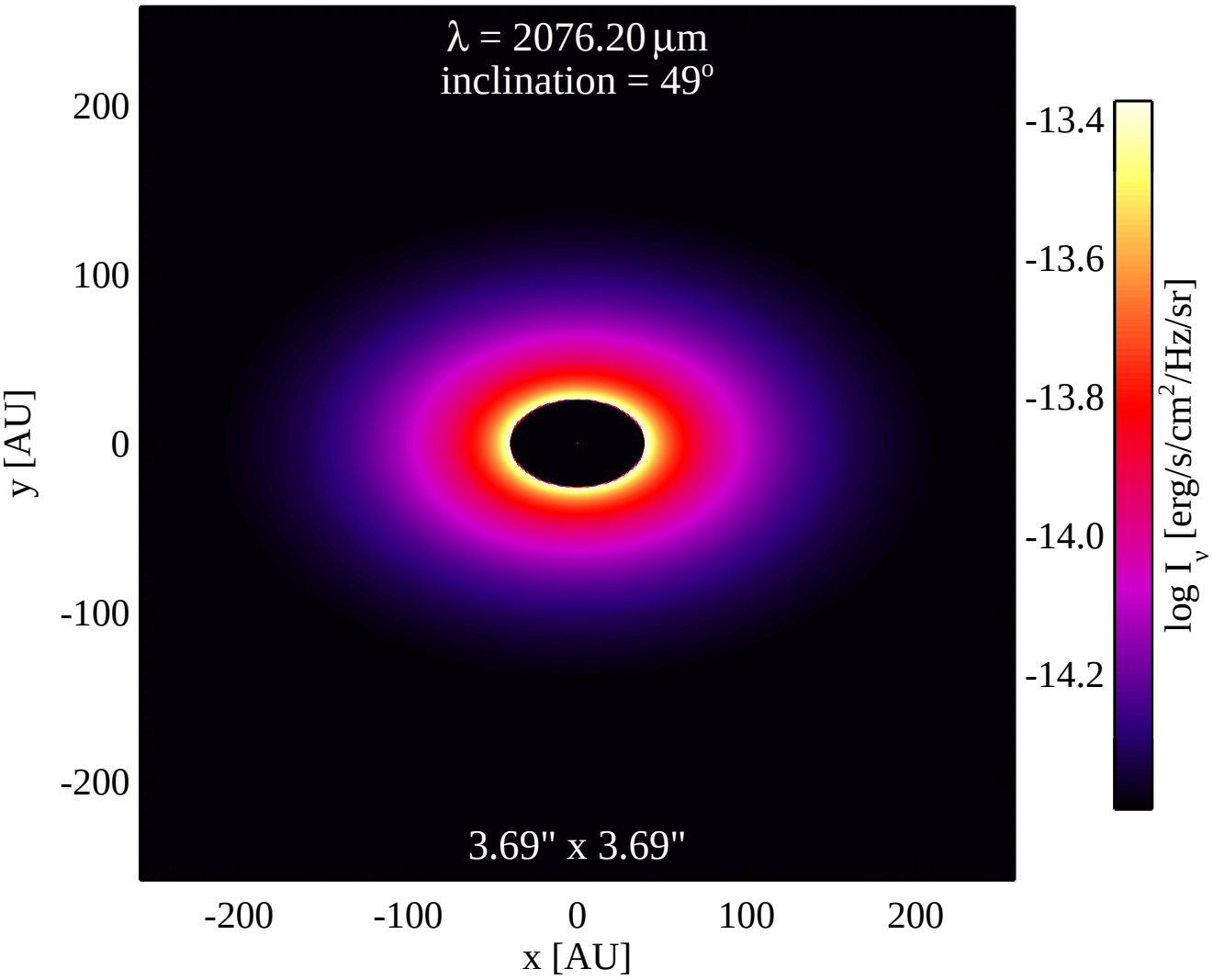

λ = 653.52 μm
inclination = 49°
3.31" x 3.31"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-12.5
-13.0
-13.5
-14.0
log I_ν [erg/s/cm²/Hz/sr]

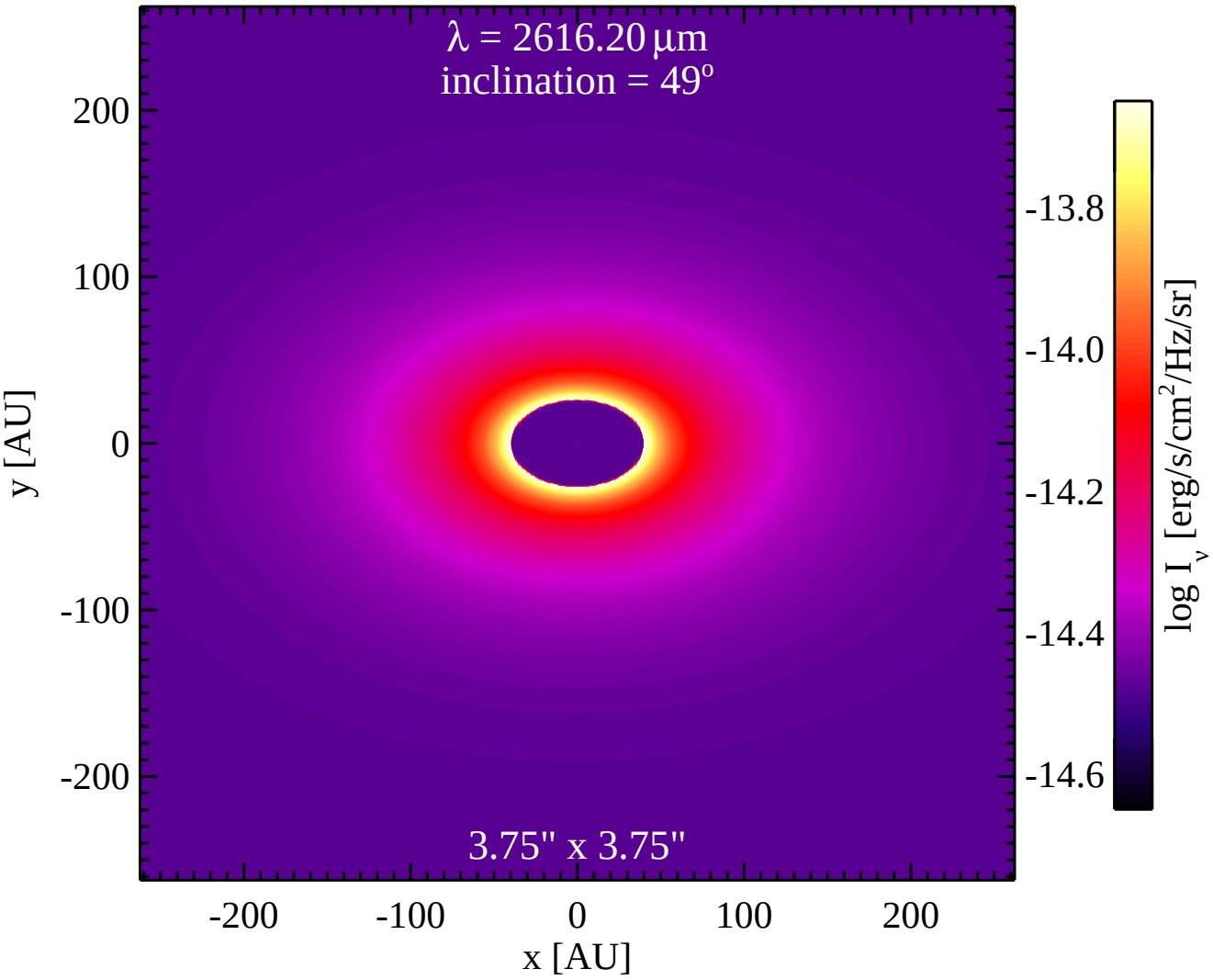

λ = 823.50 μm
inclination = 49°
3.42" x 3.42"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-12.5
-13.0
-13.5
-14.0
log I_ν [erg/s/cm²/Hz/sr]

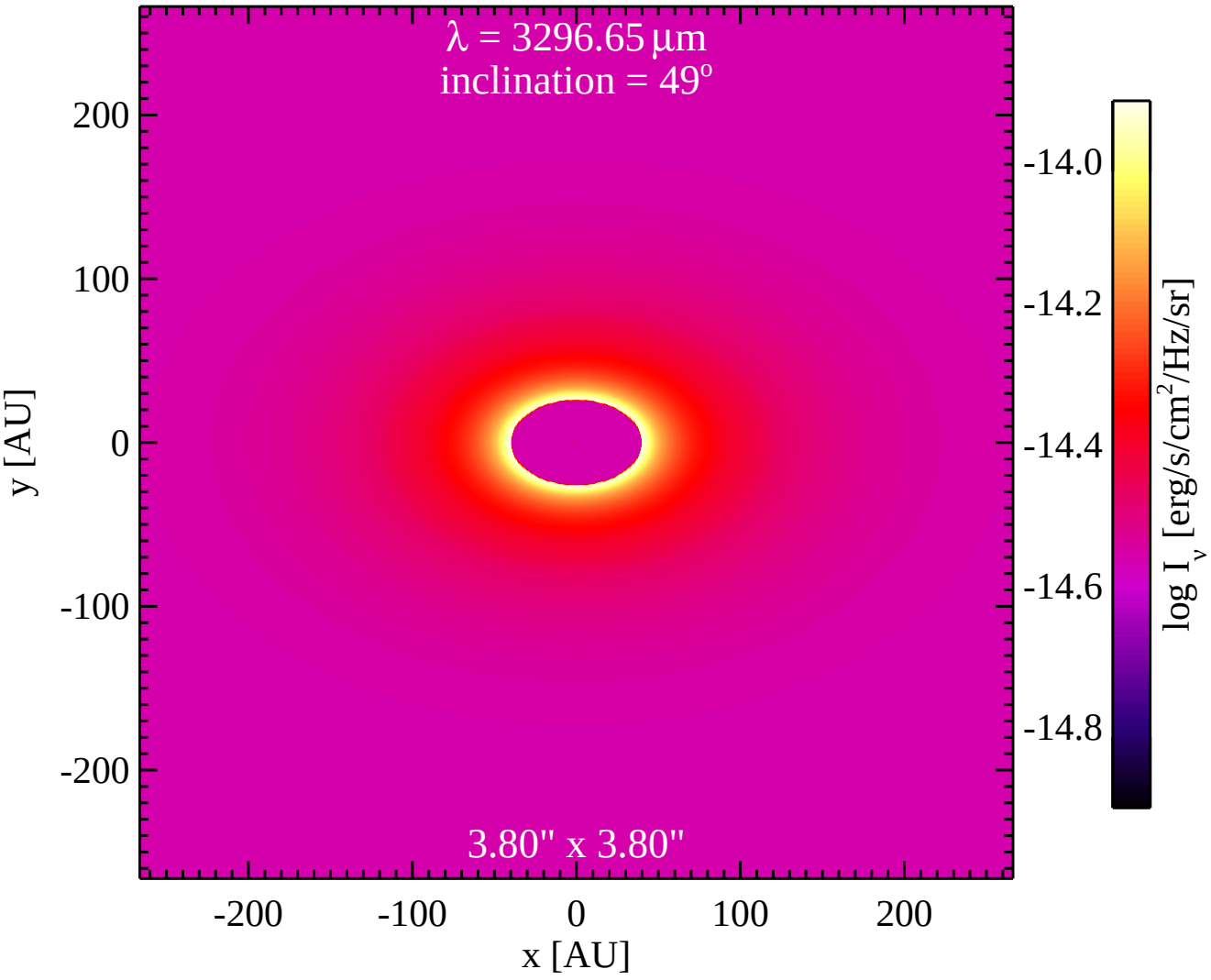

λ = 1037.68 μm
inclination = 49°
3.51" x 3.51"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-13.0
-13.5
-14.0
log I_ν [erg/s/cm²/Hz/sr]

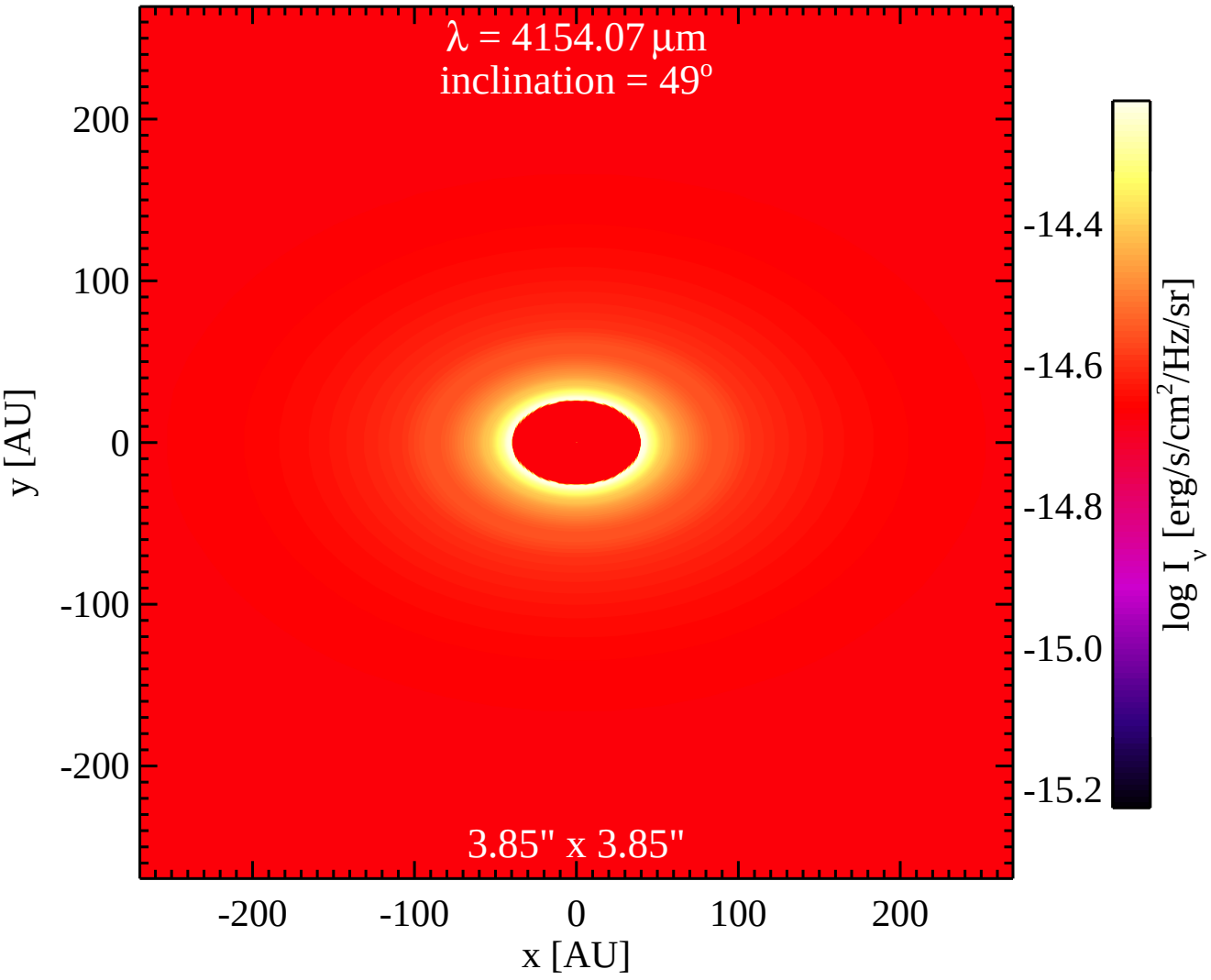

λ = 1307.57 μm
inclination = 49°
3.58" x 3.58"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-13.0
-13.2
-13.4
-13.6
-13.8
-14.0
-14.2
log I_ν [erg/s/cm²/Hz/sr]

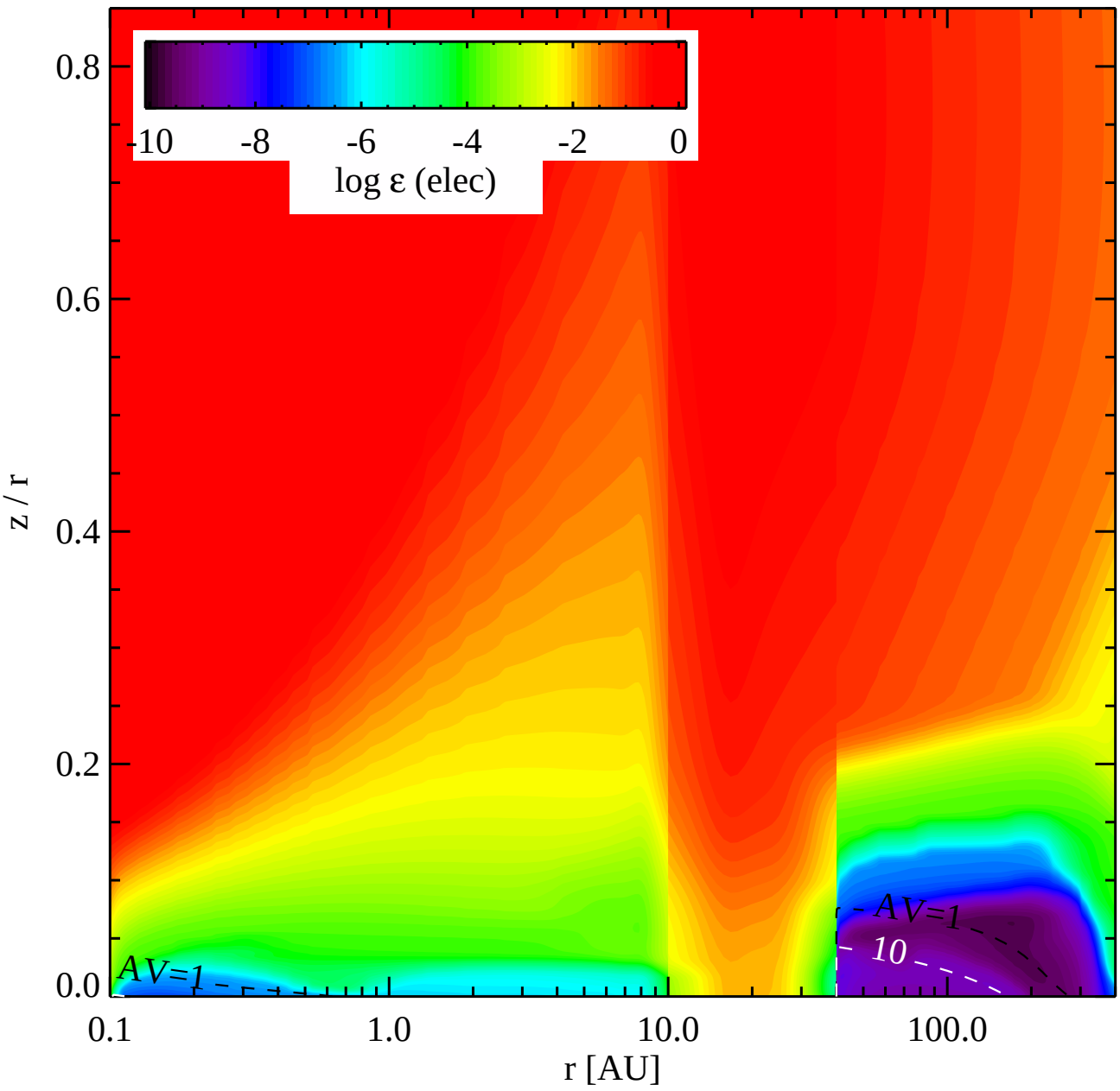

λ = 1647.66 μm
inclination = 49°
3.64" x 3.64"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-13.2
-13.4
-13.6
-13.8
-14.0
-14.2
log I_ν [erg/s/cm²/Hz/sr]

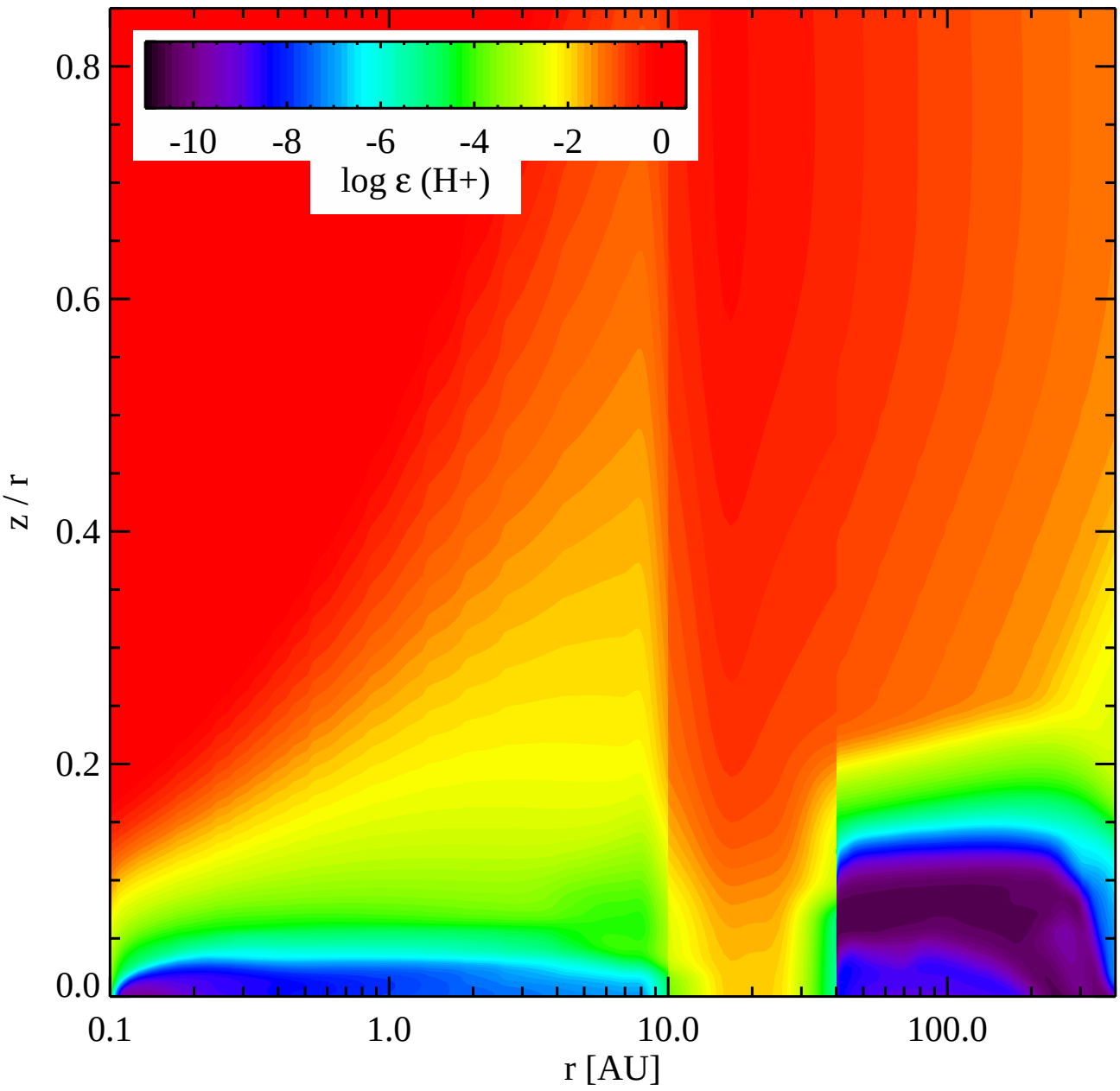

λ = 2076.20 μm
inclination = 49°
3.69" x 3.69"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-13.4
-13.6
-13.8
-14.0
-14.2
log I_ν [erg/s/cm²/Hz/sr]

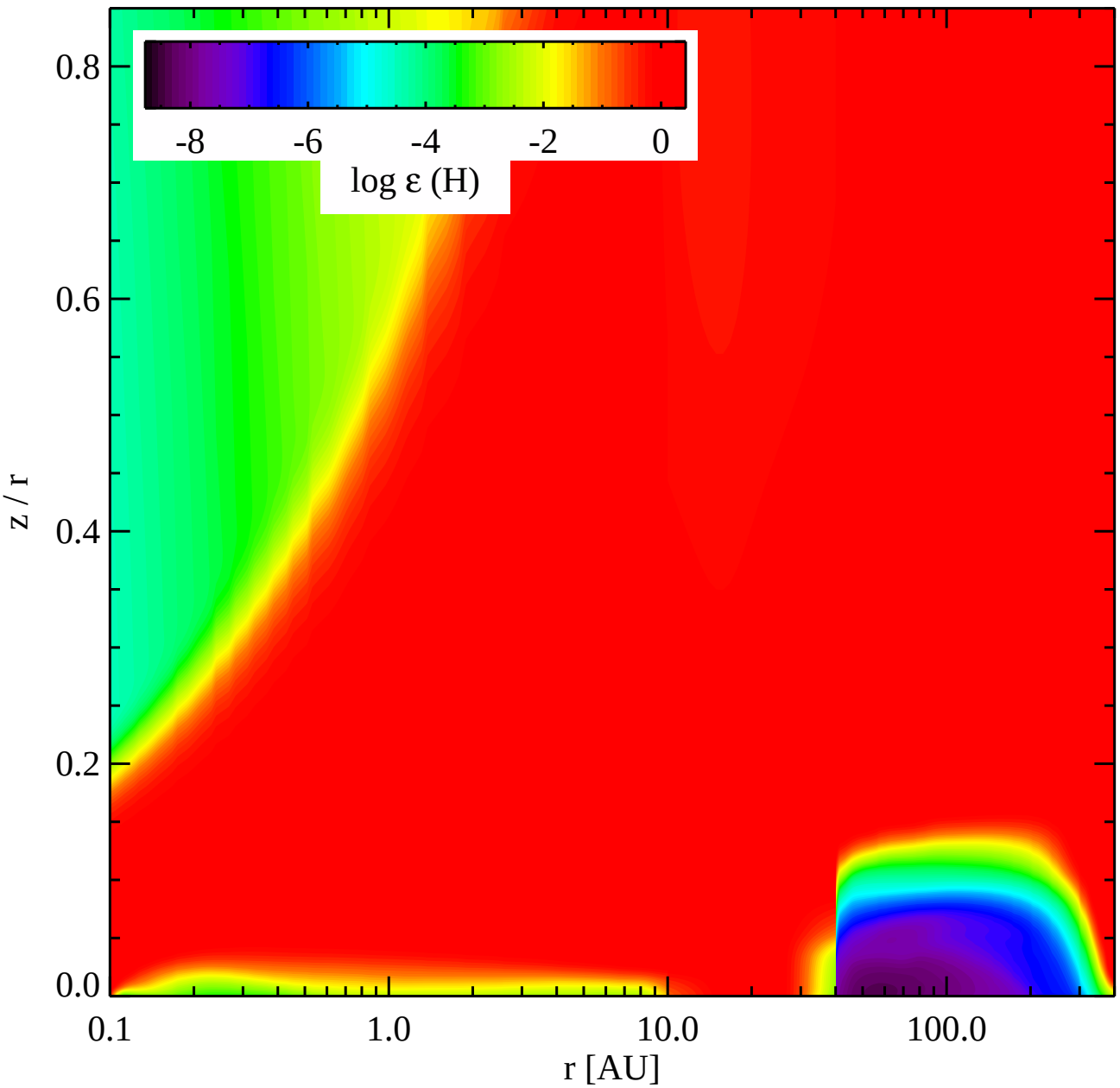

λ = 2616.20 μm
inclination = 49°
3.75" x 3.75"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-13.8
-14.0
-14.2
-14.4
-14.6
log I_ν [erg/s/cm²/Hz/sr]

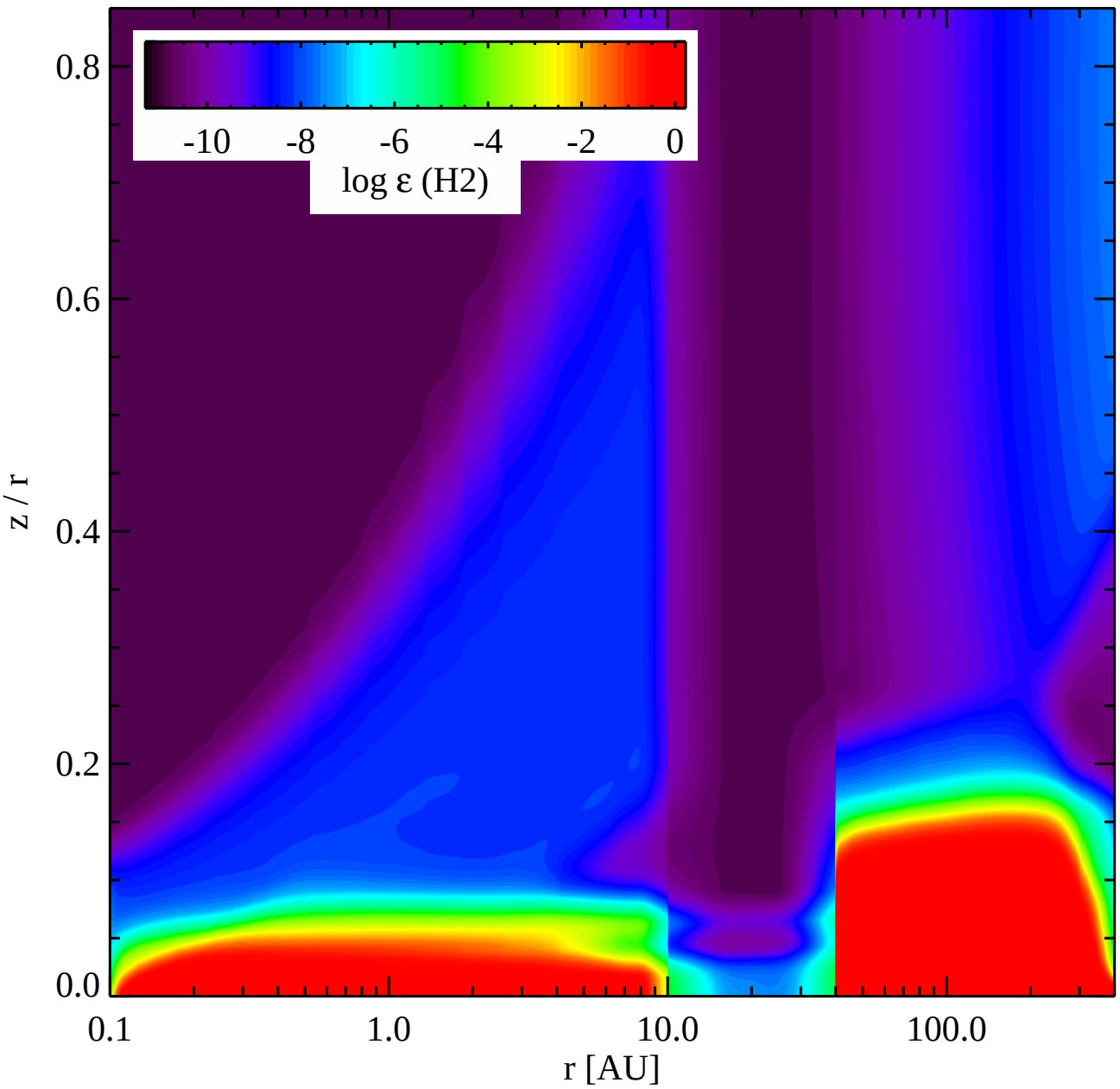

λ = 3296.65 μm
inclination = 49°
3.80" x 3.80"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-14.0
-14.2
-14.4
-14.6
-14.8
log I_ν [erg/s/cm²/Hz/sr]

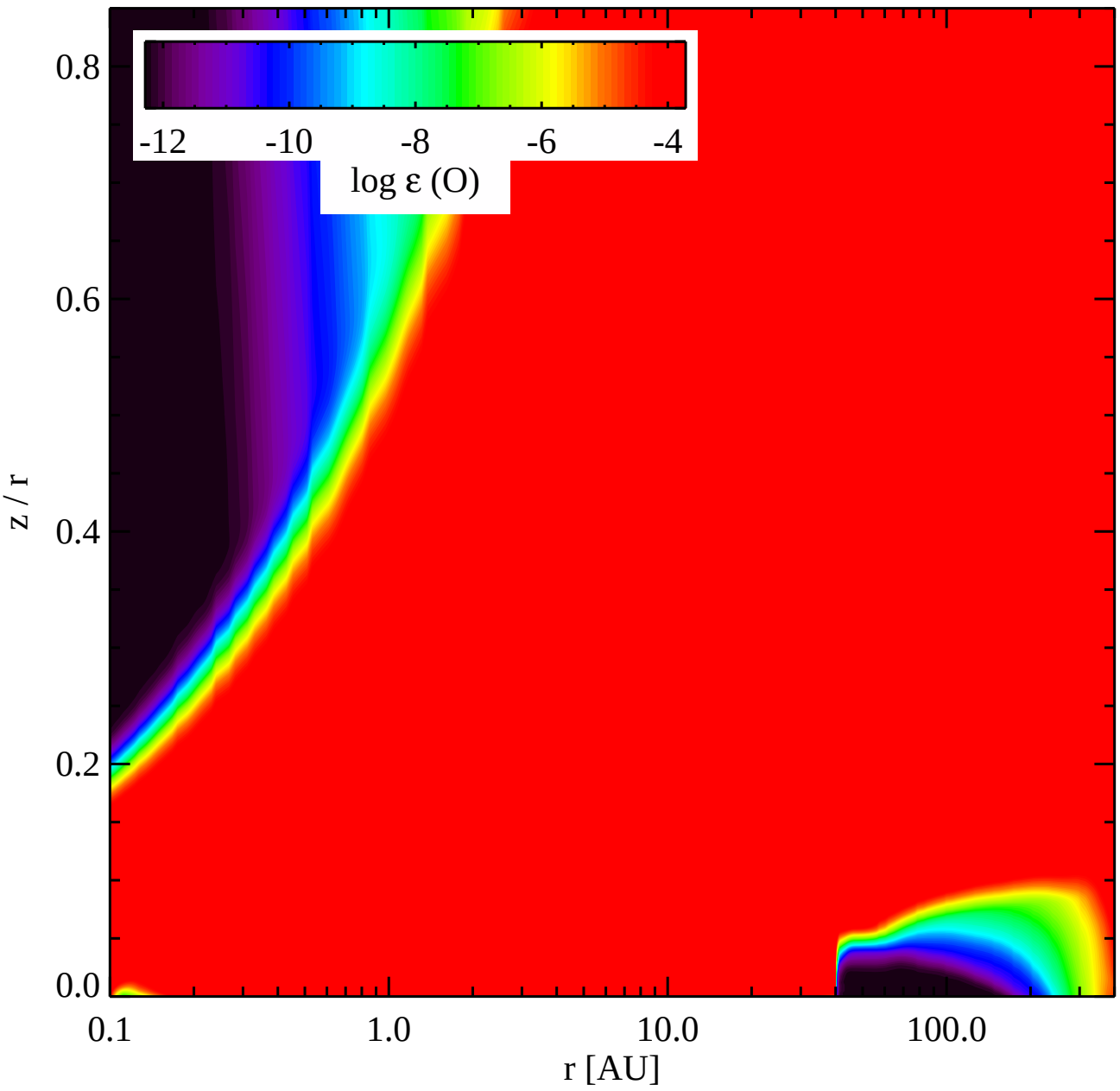

λ = 4154.07 μm
inclination = 49°
3.85" x 3.85"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-14.4
-14.6
-14.8
-15.0
-15.2
log I_ν [erg/s/cm²/Hz/sr]

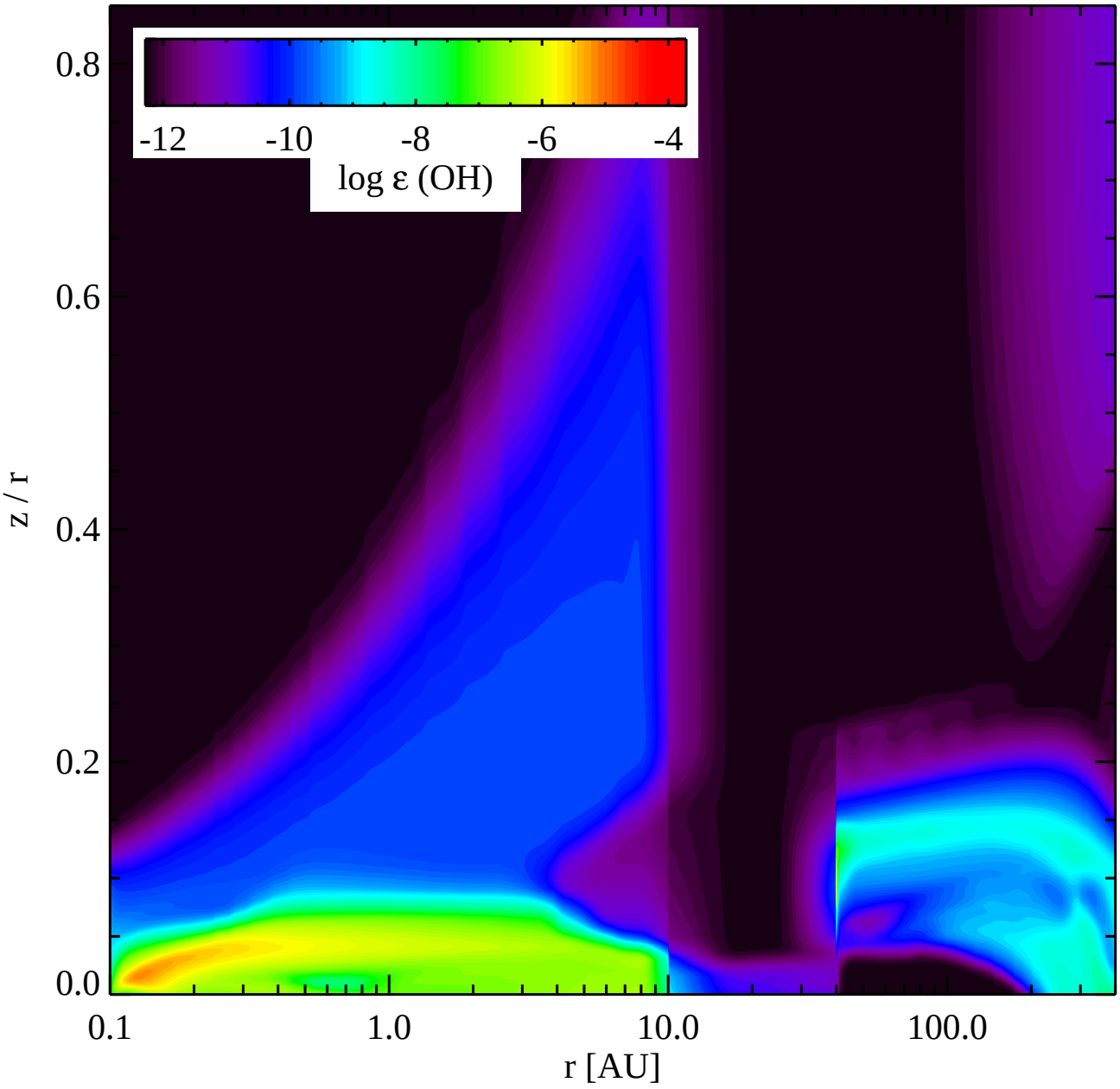

-10
-8
-6
-4
-2
0
log ε (elec)
0.8
0.6
0.4
0.2
0.0
z / r
AV=1
AV=1
10
0.1
1.0
10.0
100.0
r [AU]

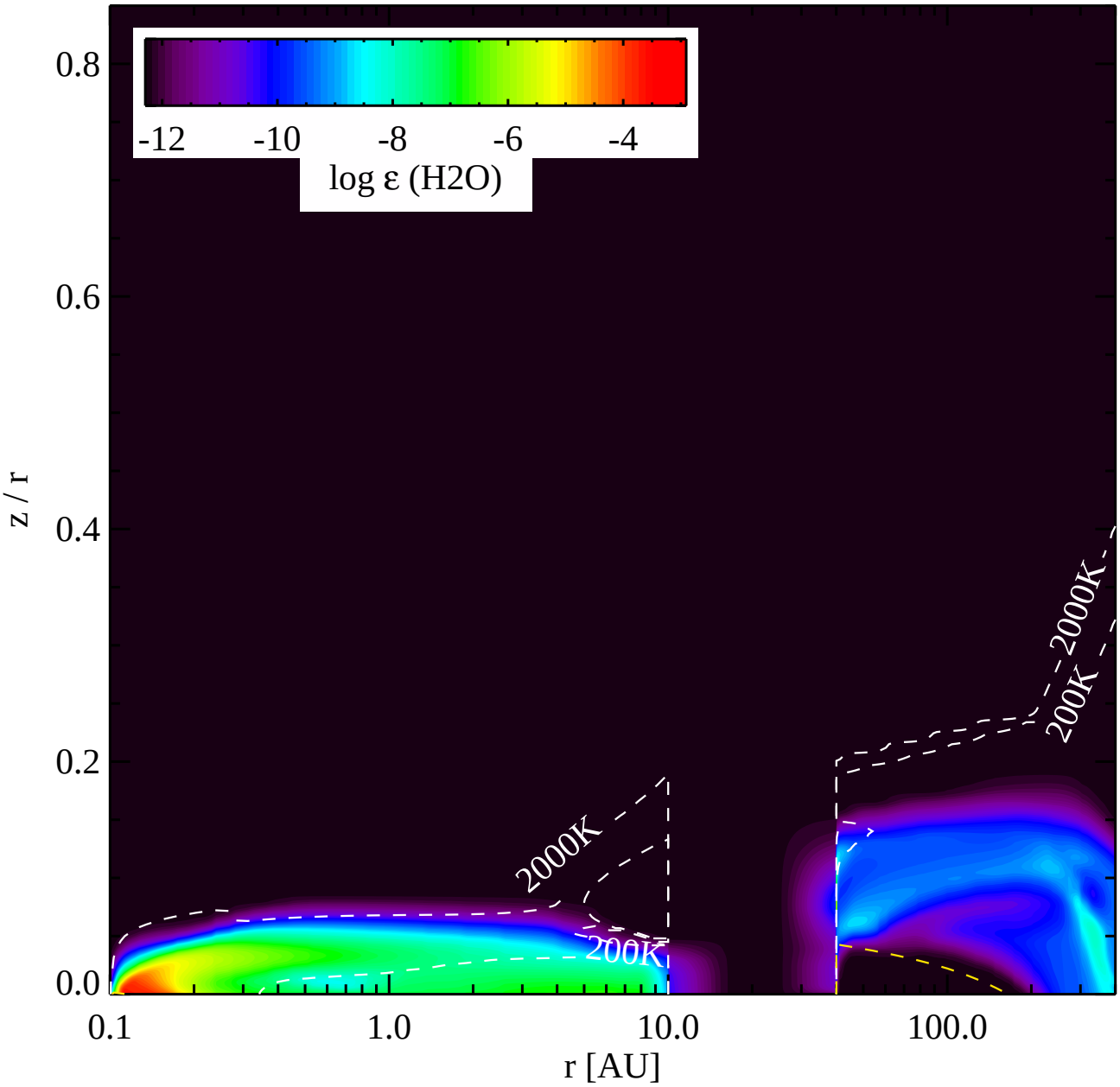

-10
-8
-6
-4
-2
0
log ε (H+)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

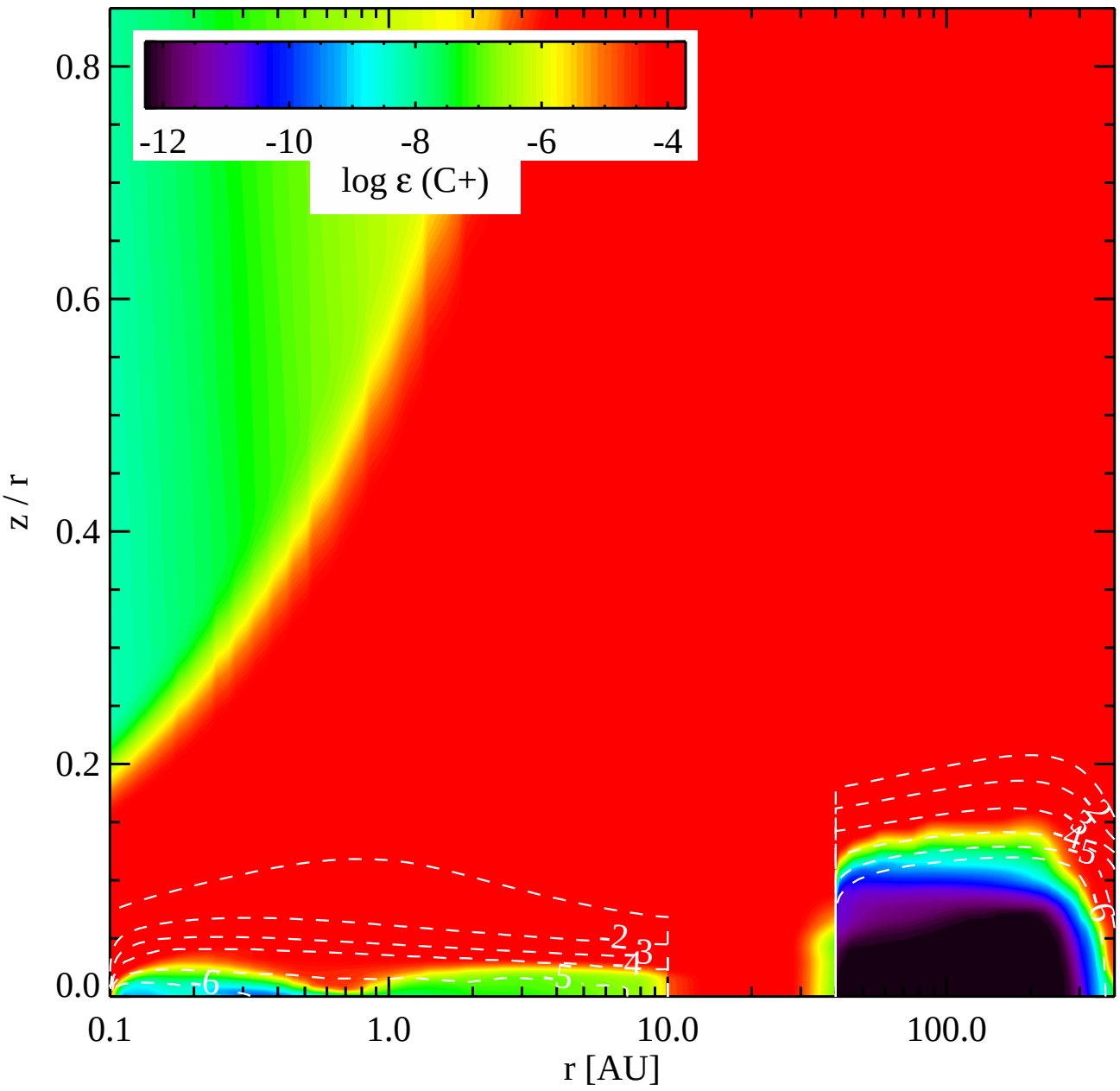

-8
-6
-4
-2
0
log ε (H)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

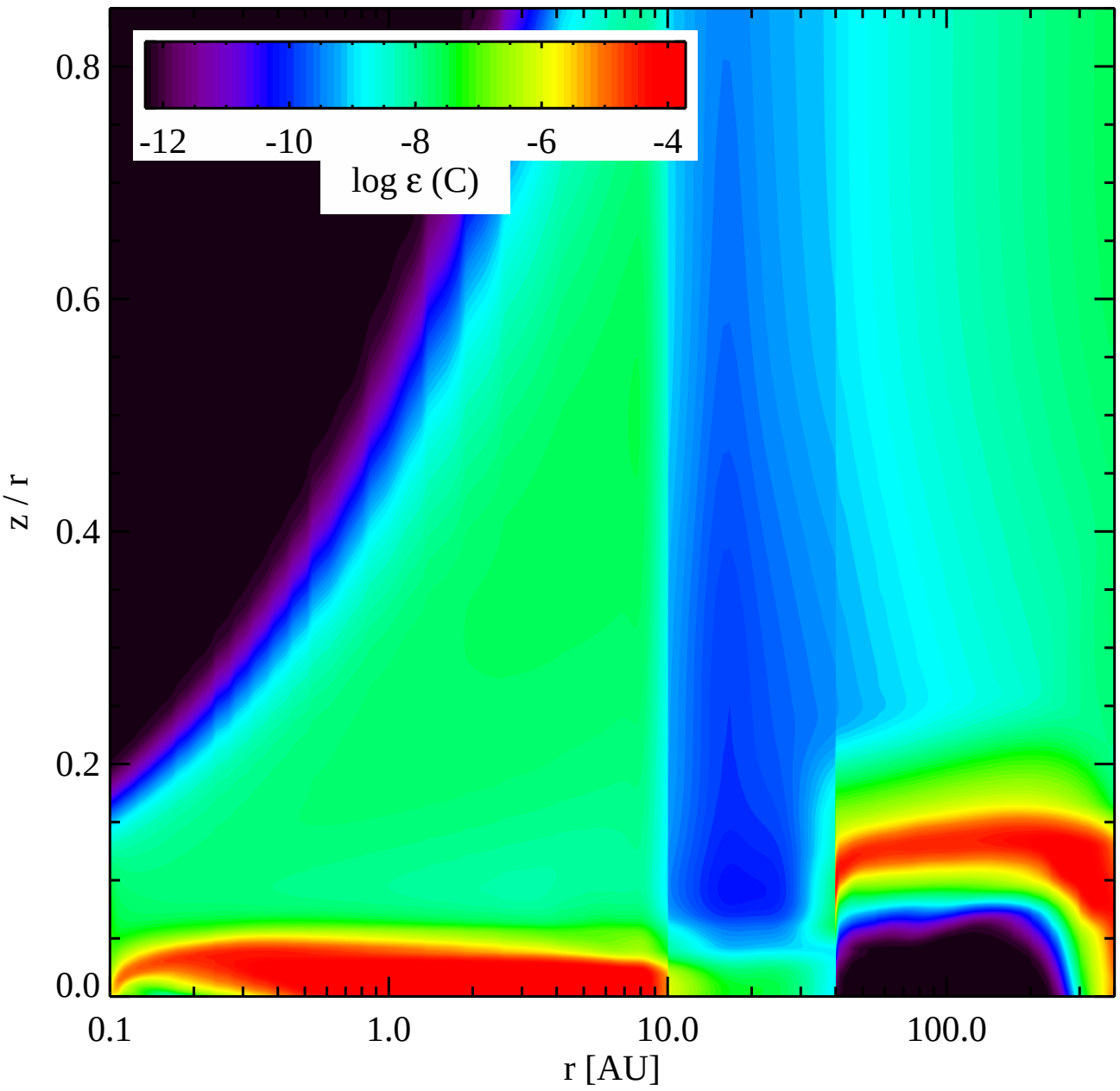

-10
-8
-6
-4
-2
0
log ε (H2)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

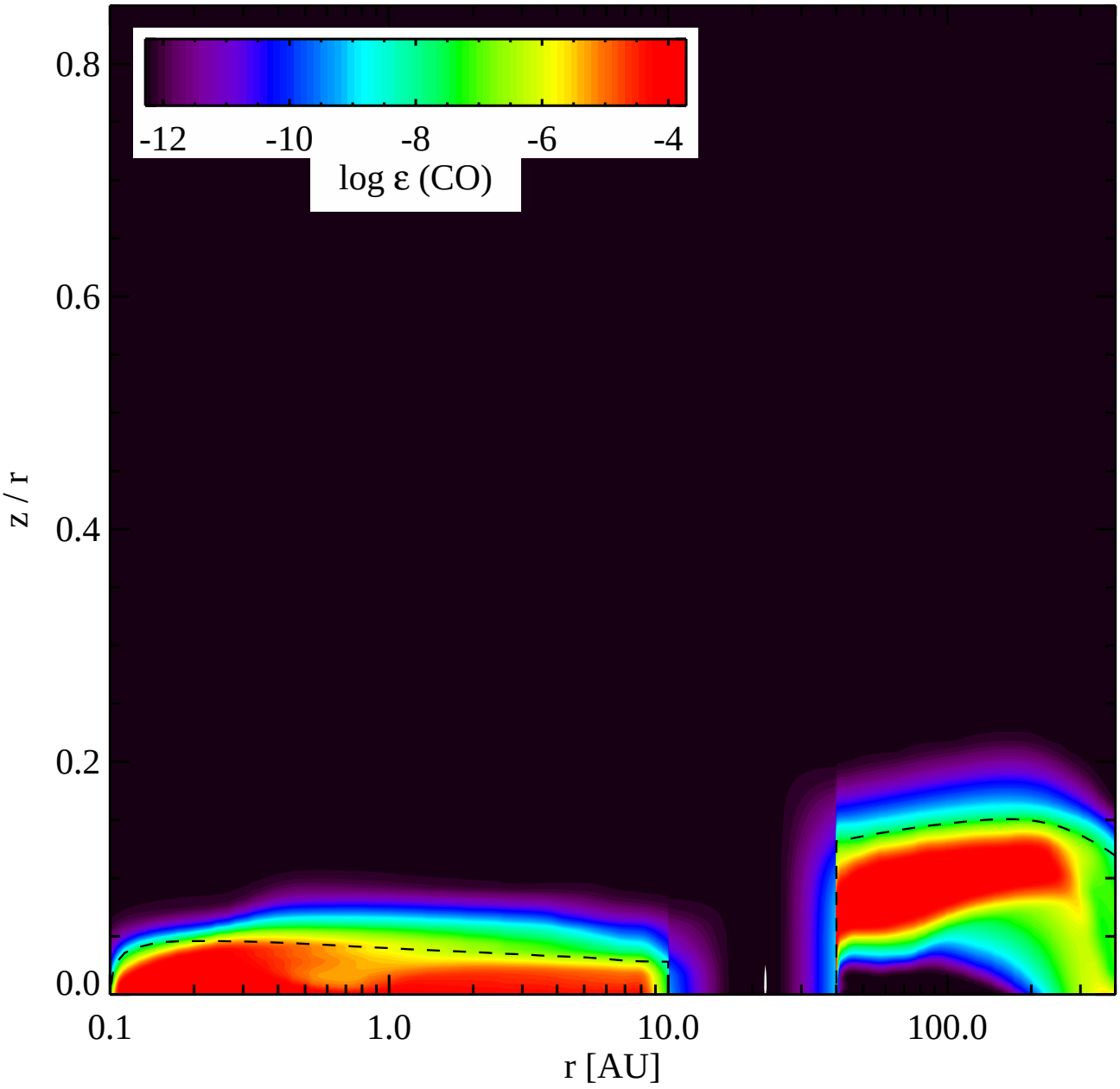

-12
-10
-8
-6
-4
log ε (O)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

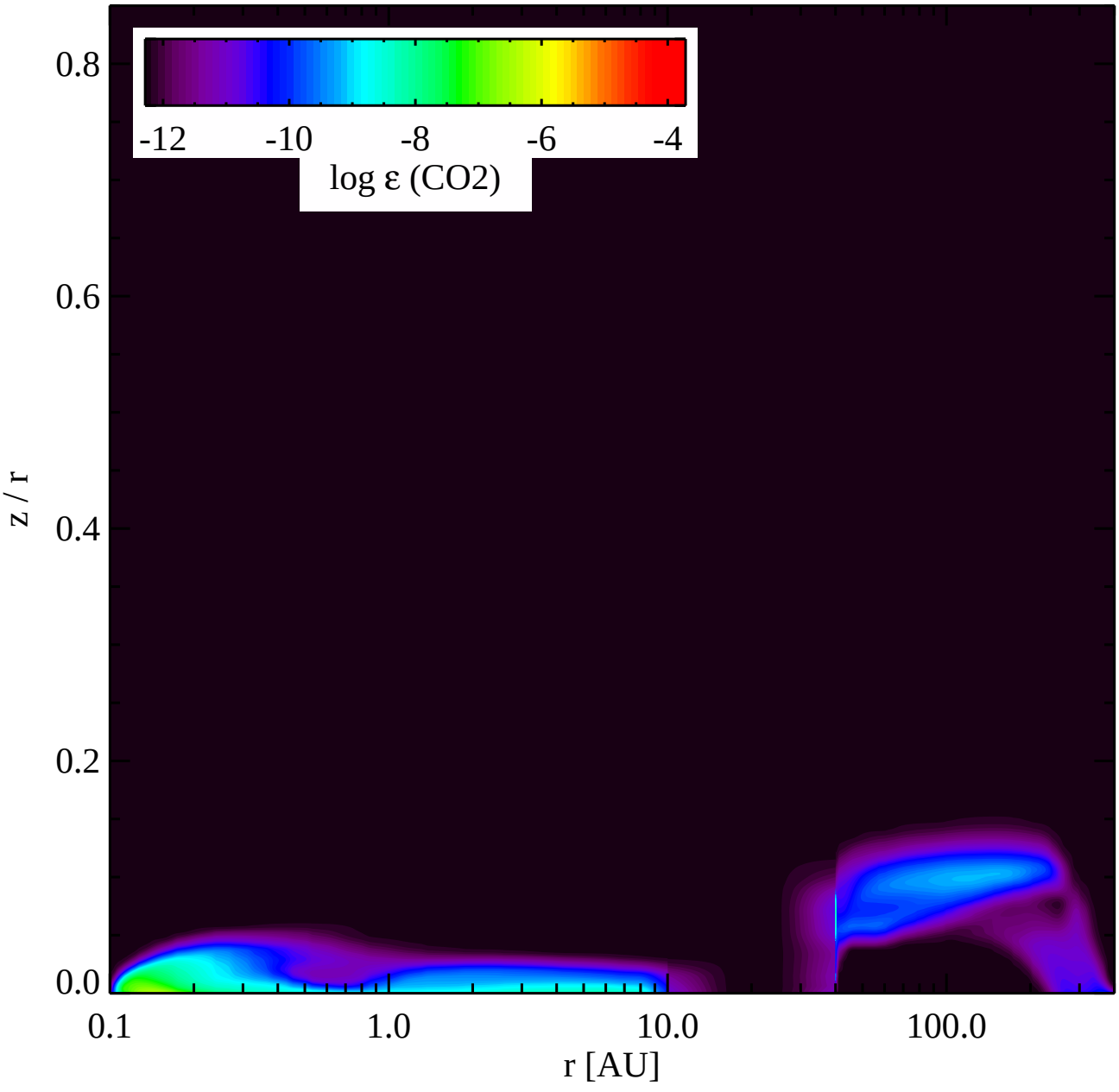

-12
-10
-8
-6
-4
log ε (OH)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

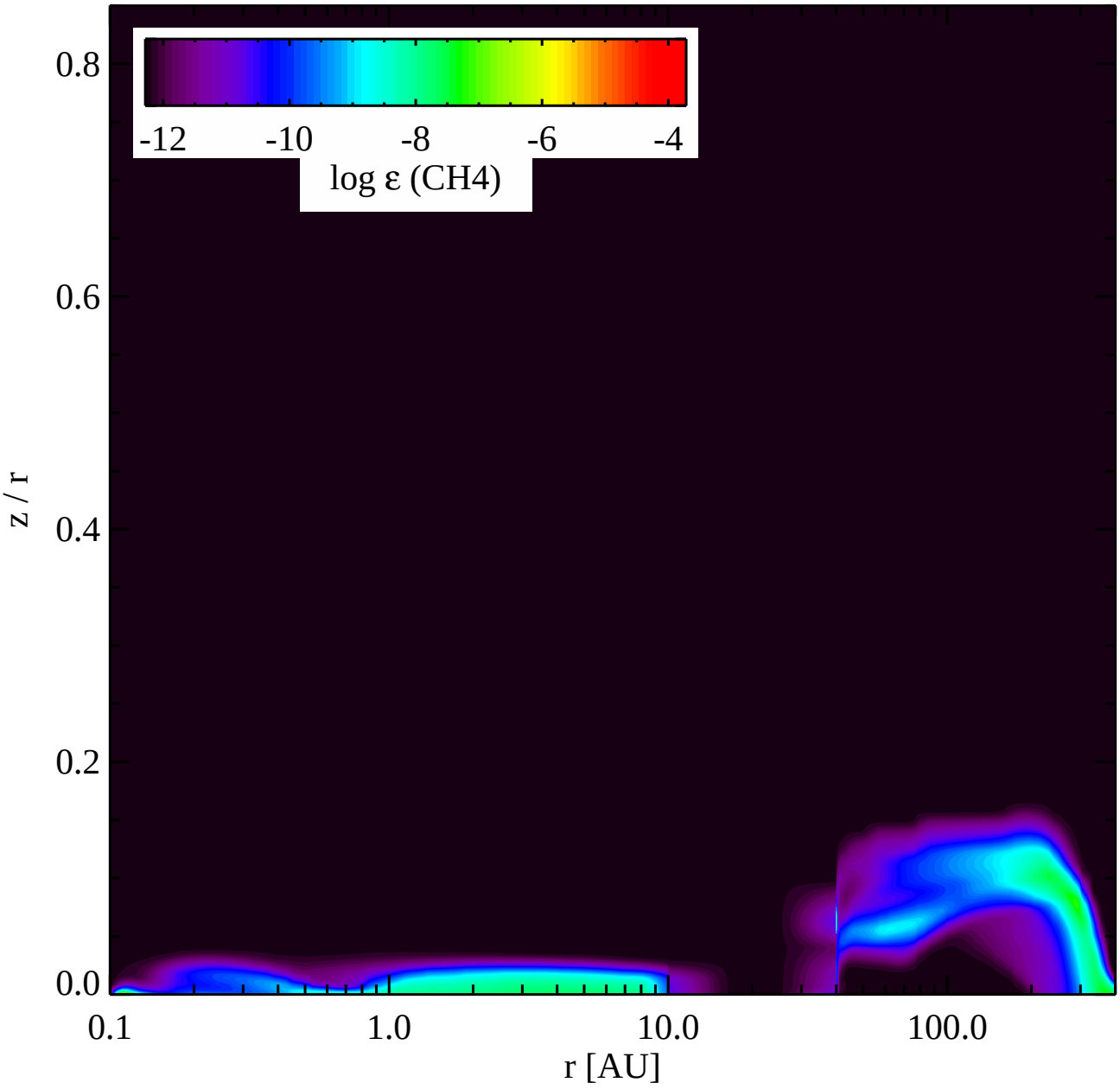

0.8
0.6
0.4
0.2
0.0
z / r
-12
-10
-8
-6
-4
log ε (H2O)
2000K
200K
2000K
200K
0.1
1.0
10.0
100.0
r [AU]

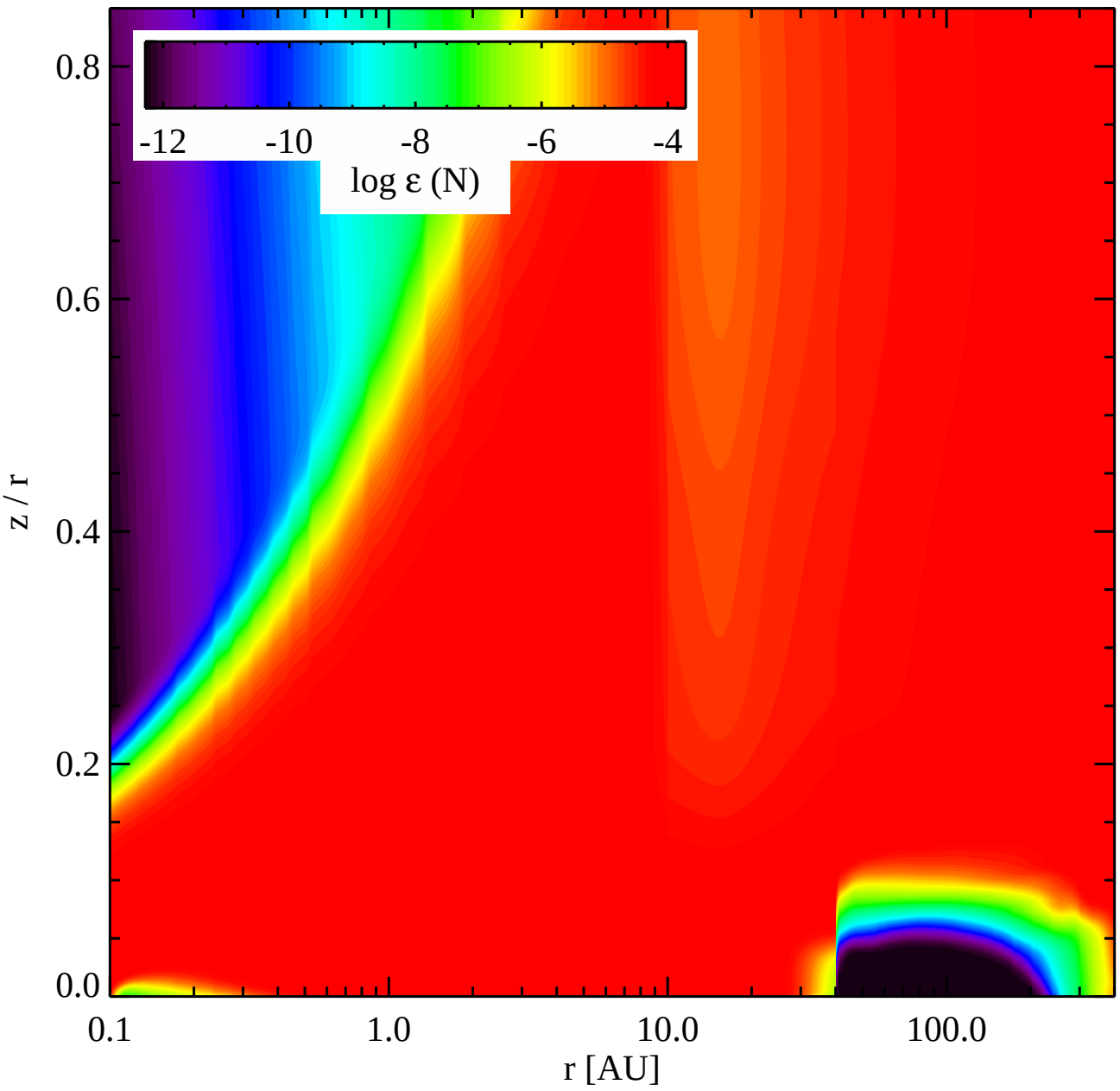

-12
-10
-8
-6
-4
log ε (C+)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
2
3
4
5
6
7

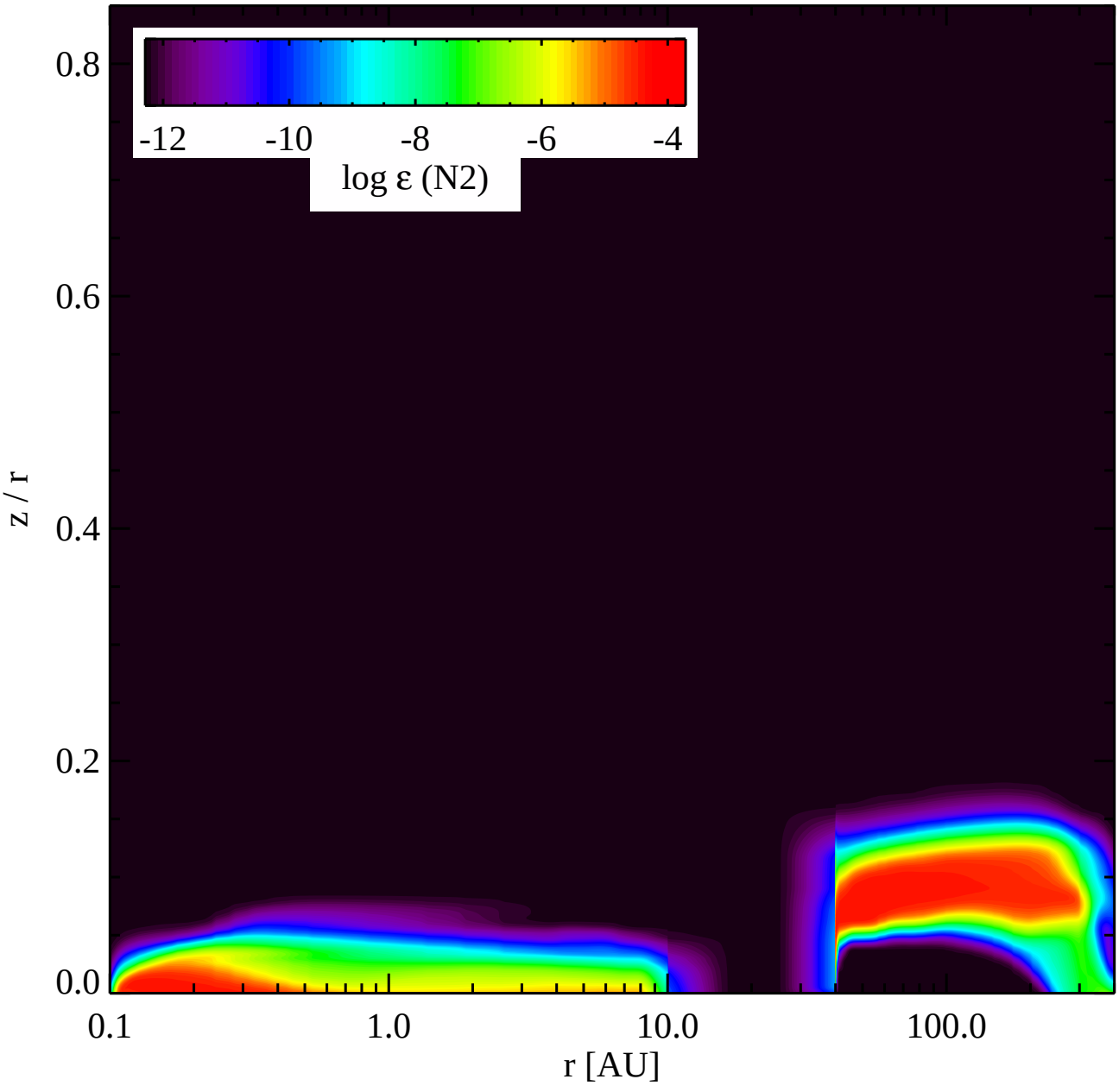

-12
-10
-8
-6
-4
log ε (C)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

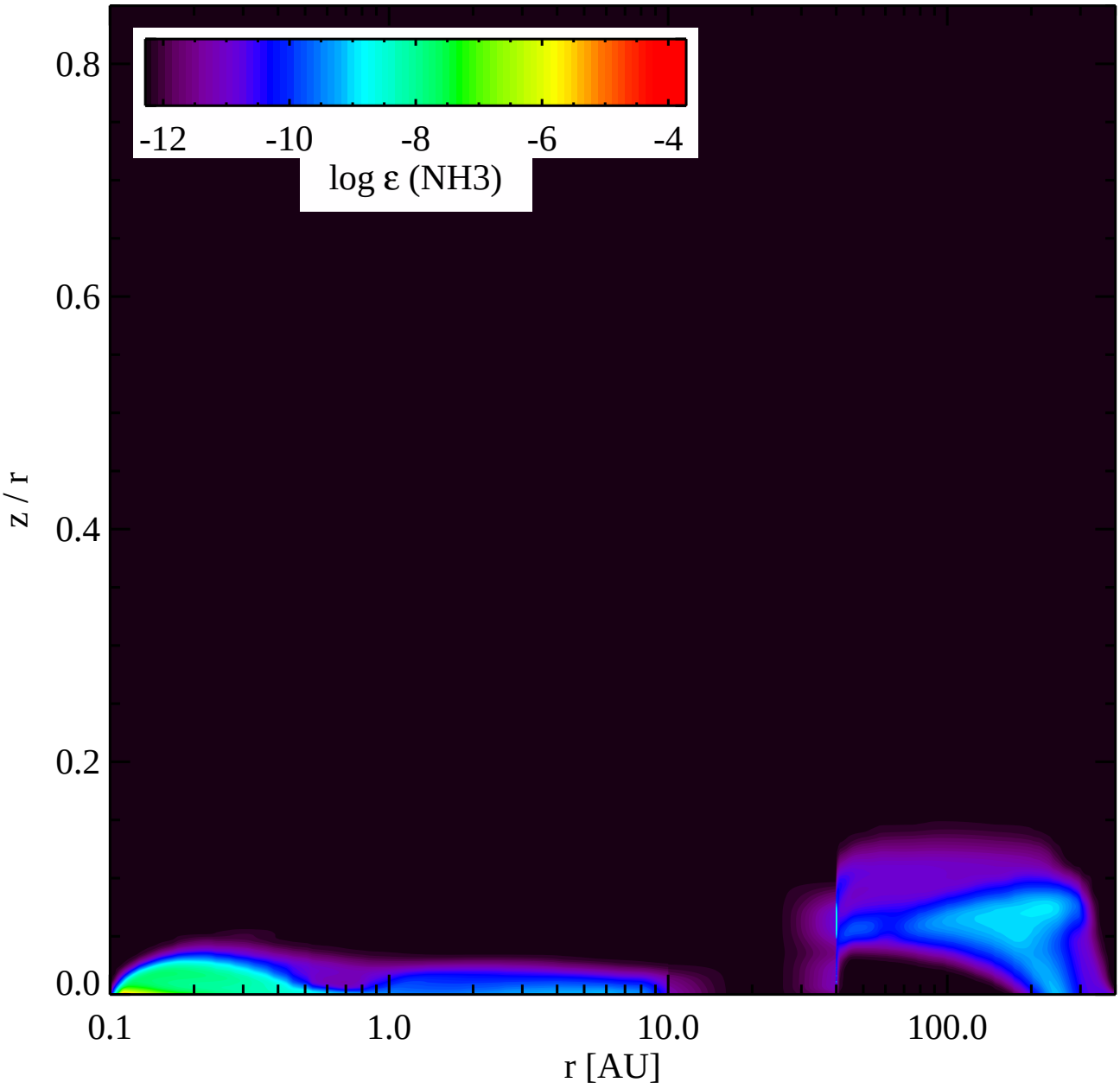

-12
-10
-8
-6
-4
log ε (CO)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

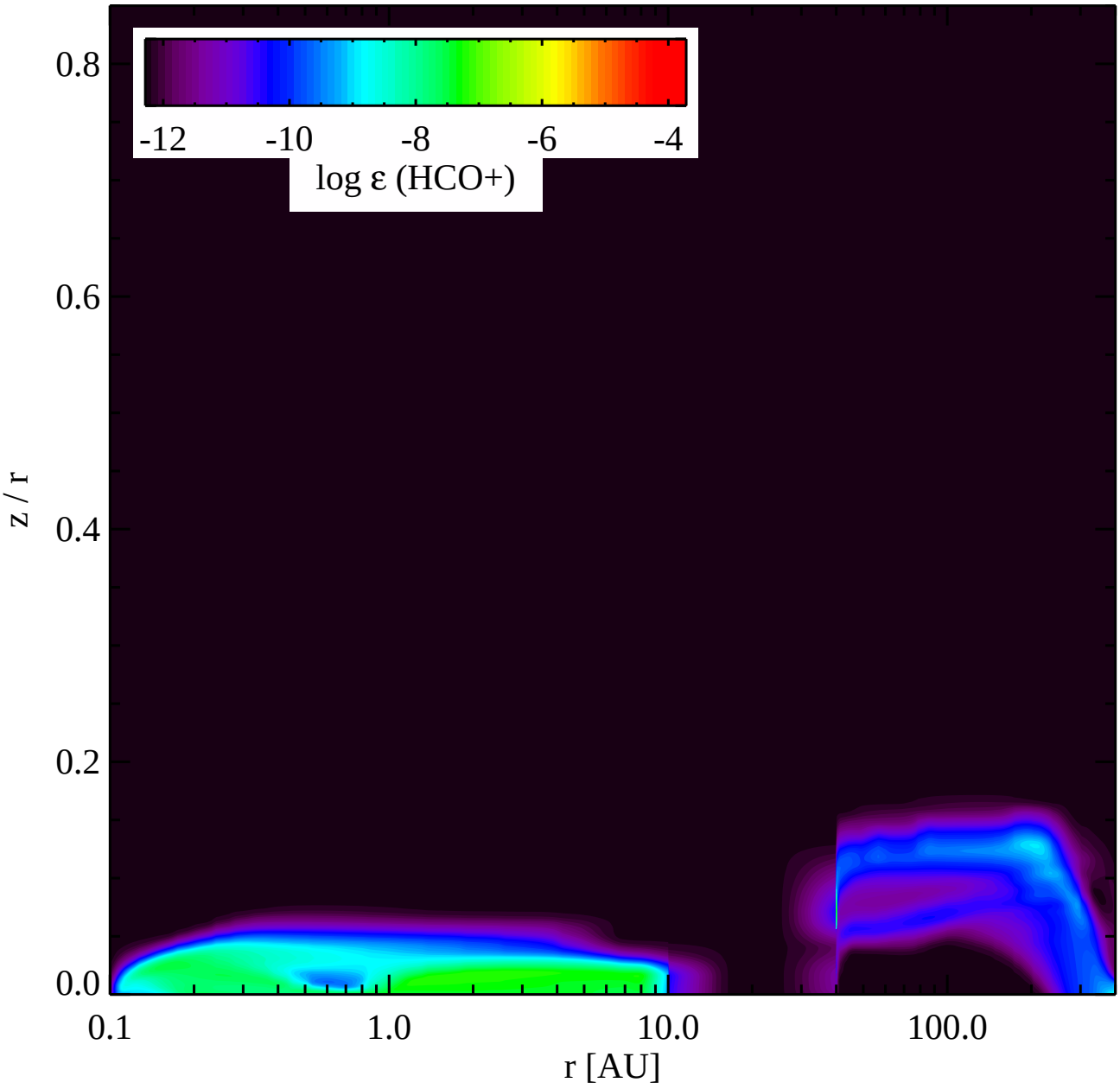

-12
-10
-8
-6
-4
log ε (CO2)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

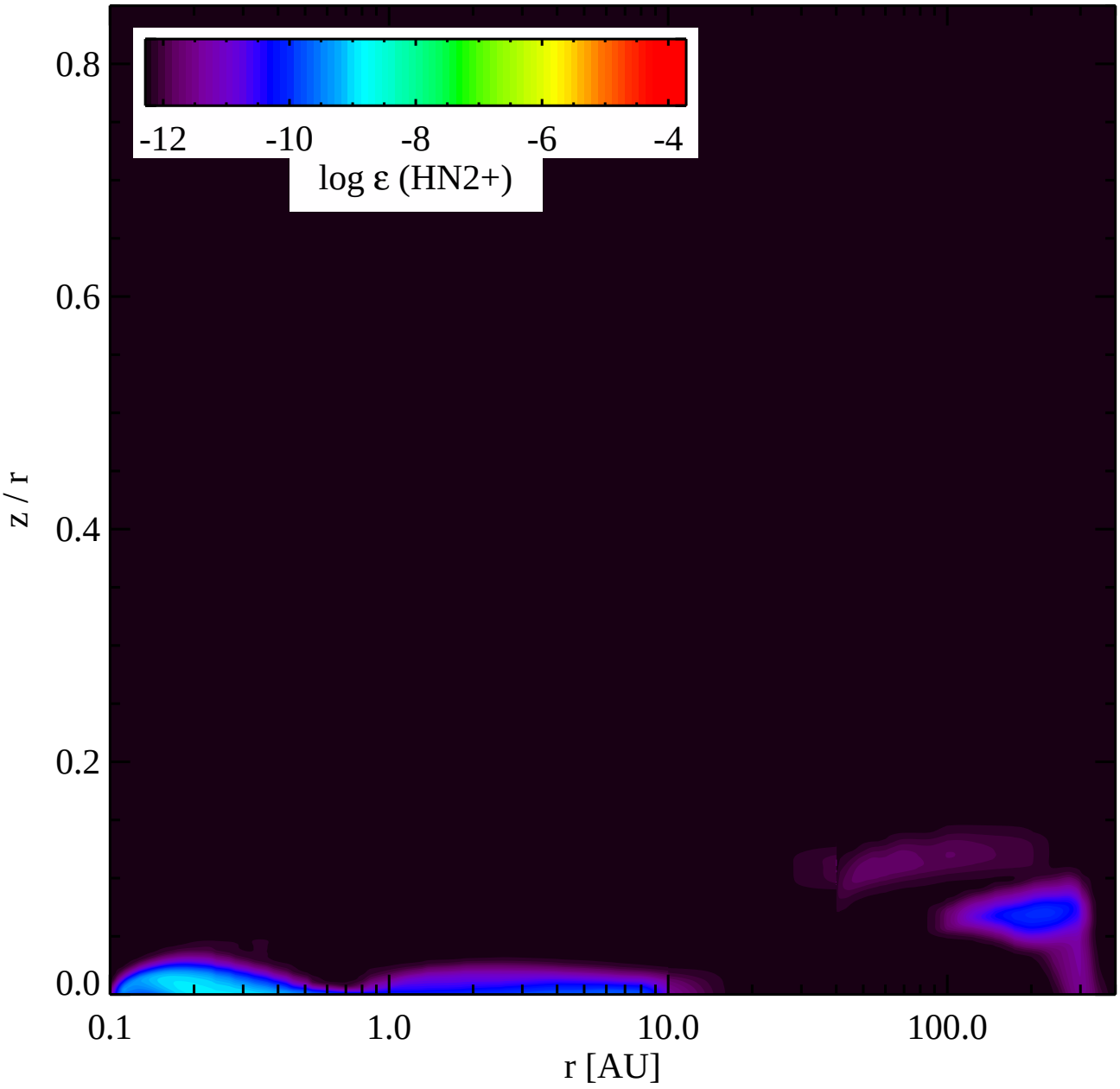

-12
-10
-8
-6
-4
log ε (CH4)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

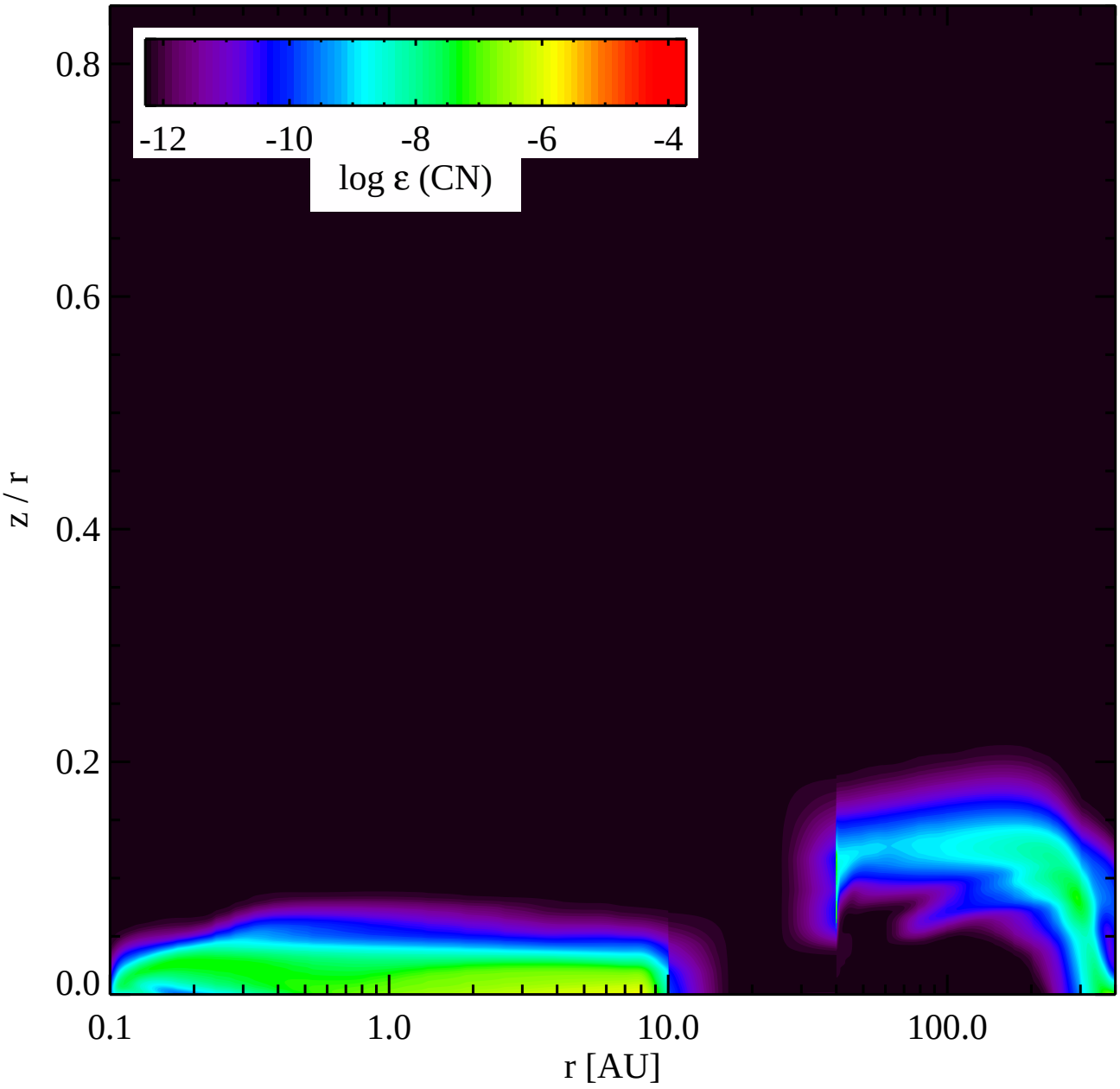

-12
-10
-8
-6
-4
log ε (N)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

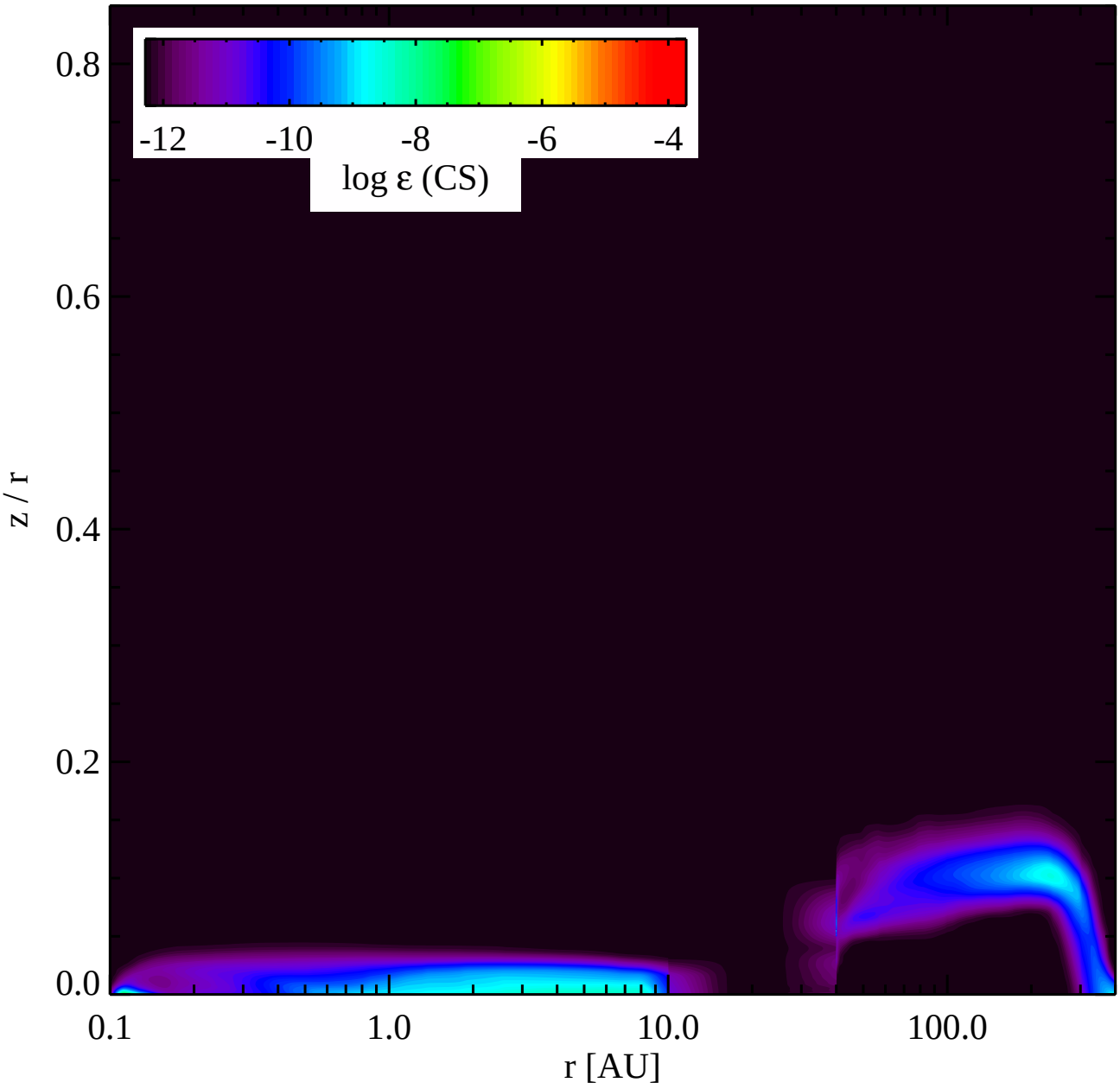

-12
-10
-8
-6
-4
log ε (N2)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

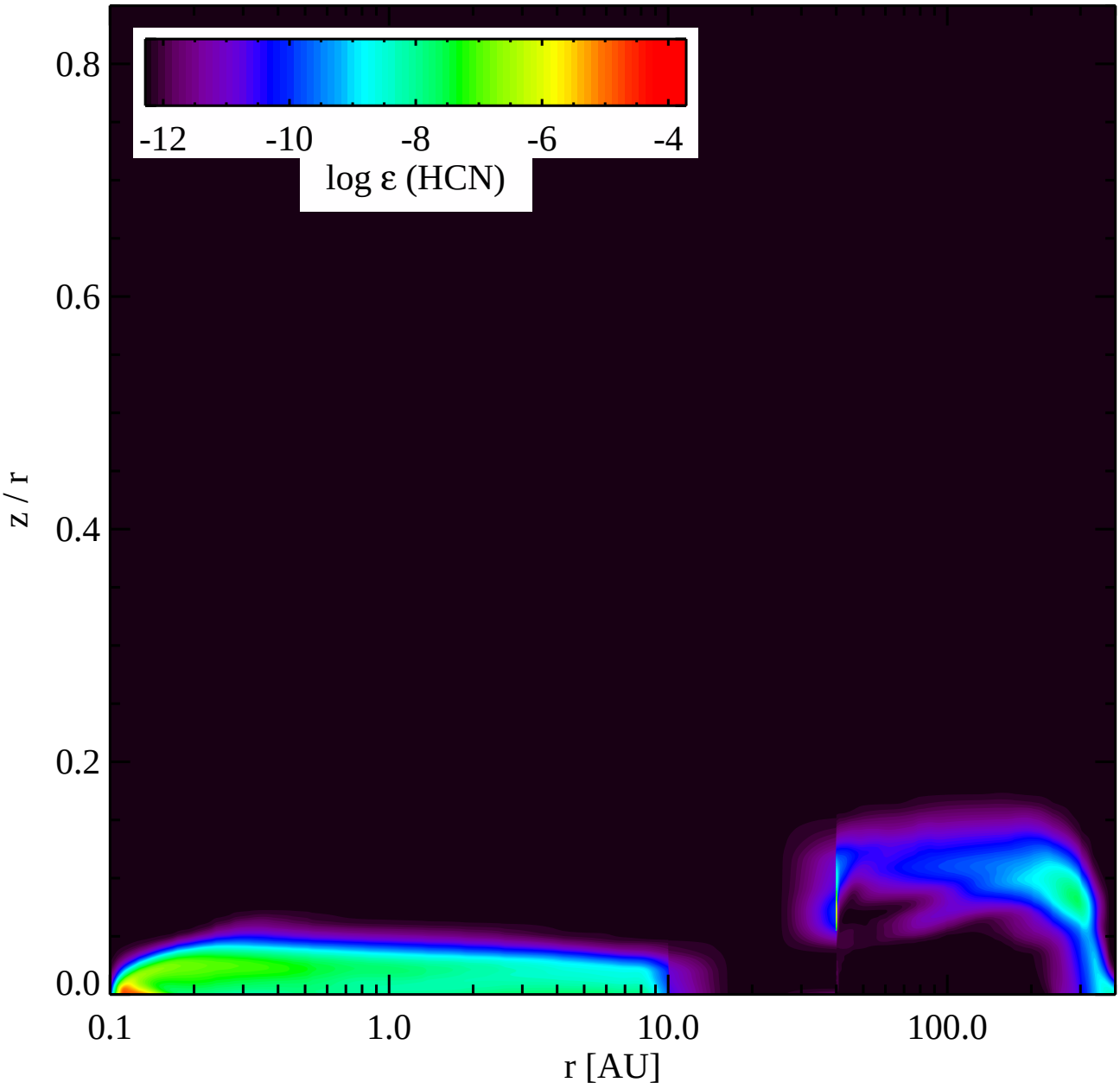

-12
-10
-8
-6
-4
log ε (NH3)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

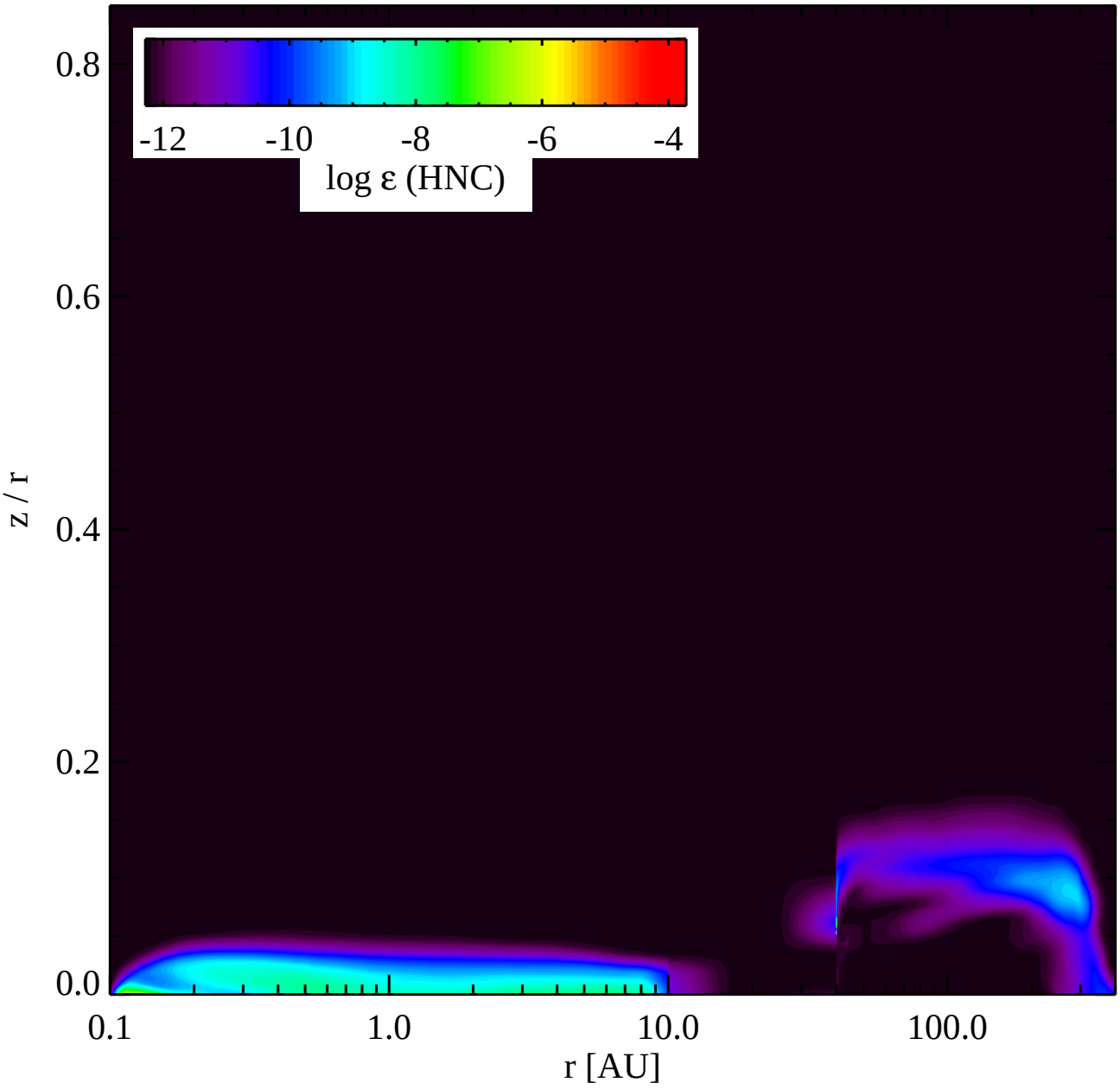

-12
-10
-8
-6
-4
log ε (HCO+)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

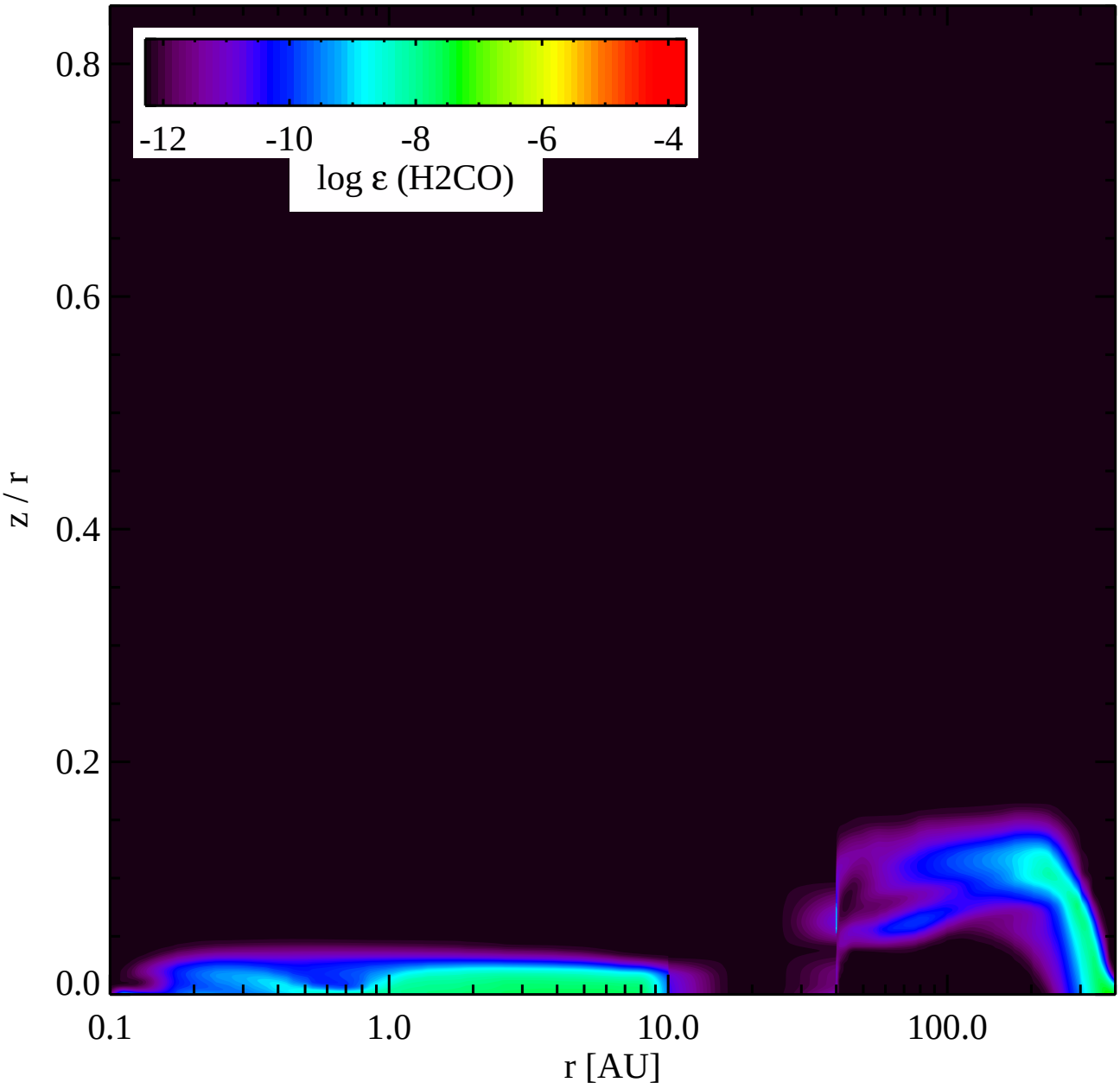

-12
-10
-8
-6
-4
log ε (HN2+)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

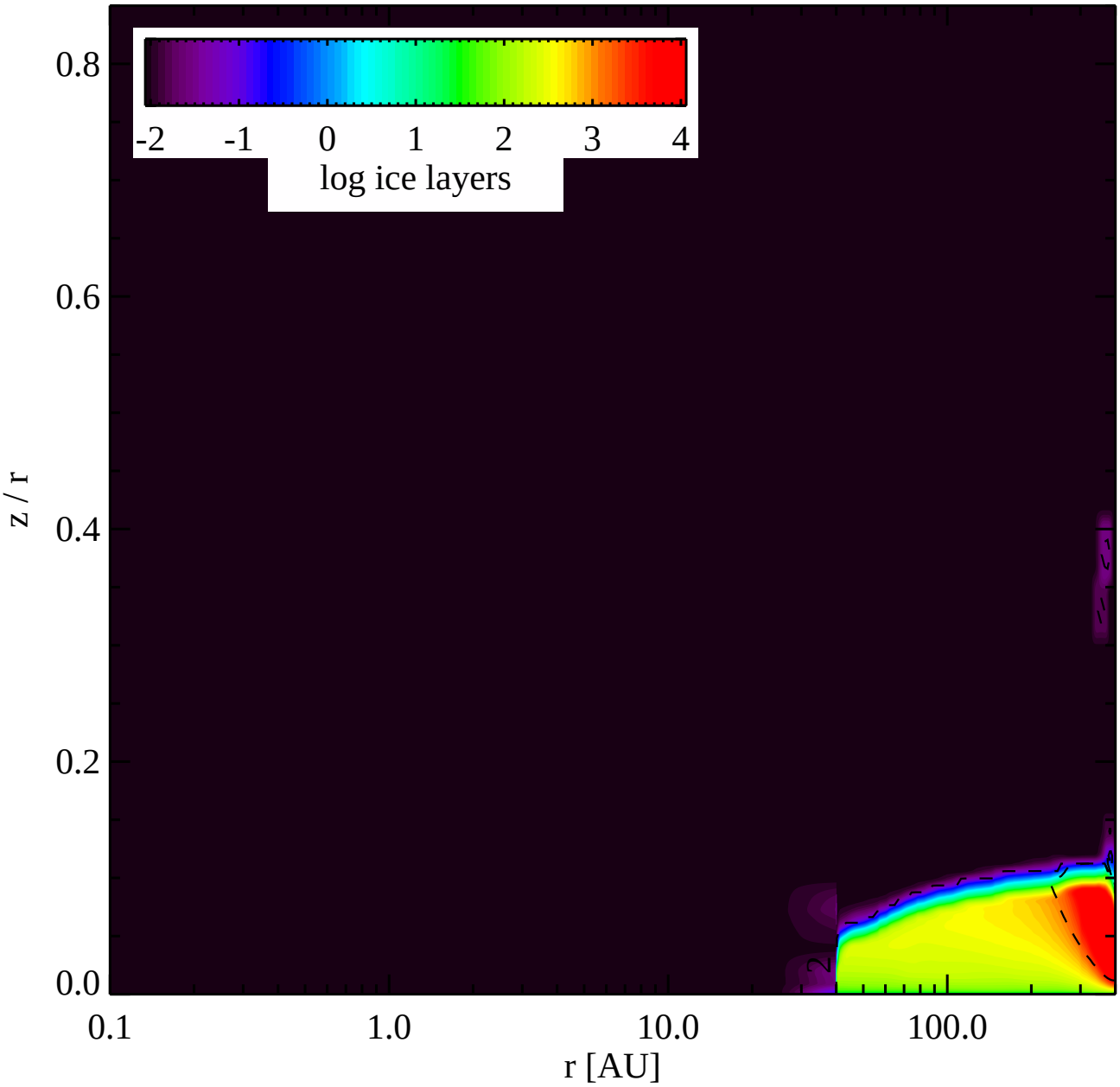

-12
-10
-8
-6
-4
log ε (CN)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

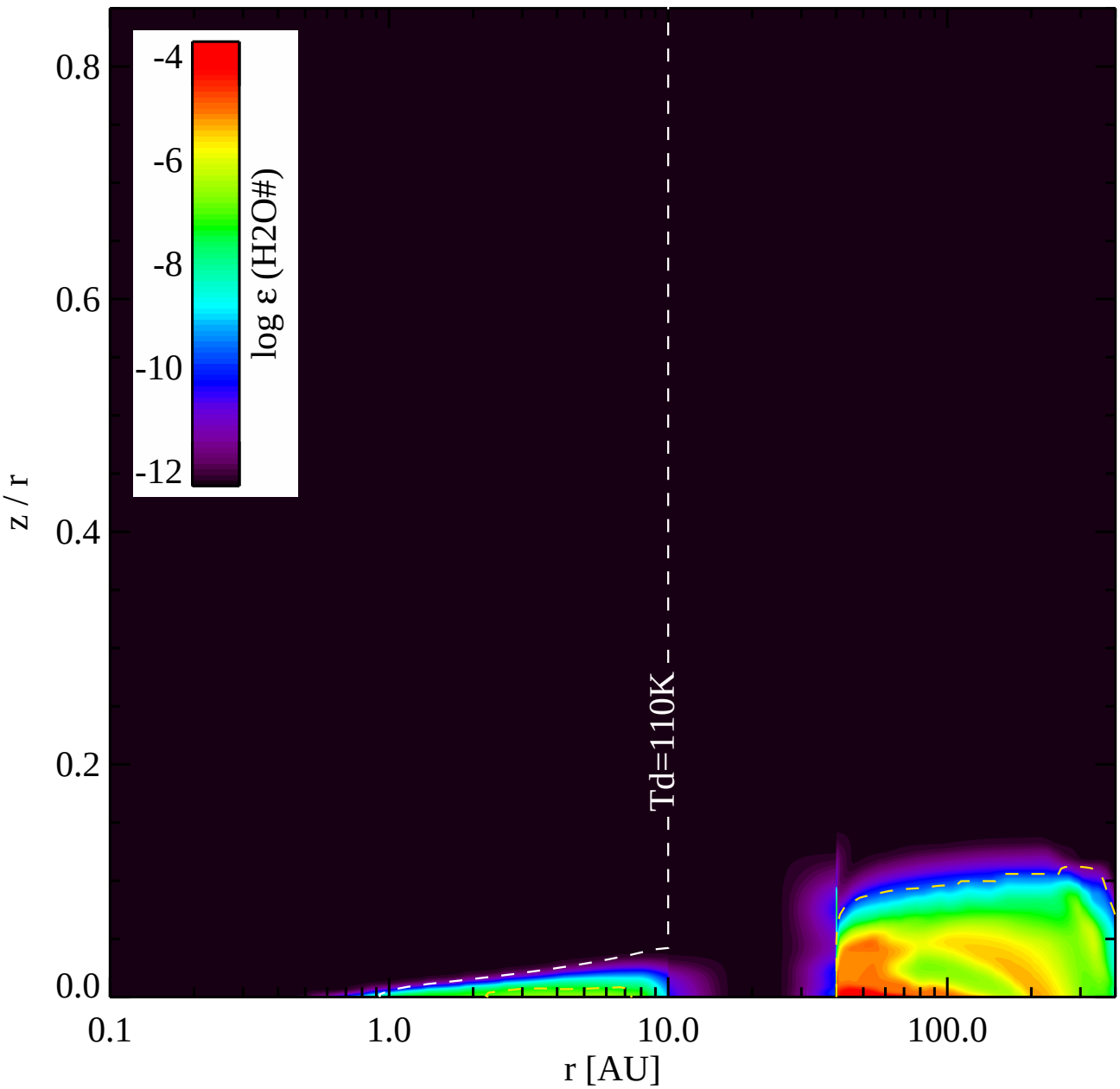

-12
-10
-8
-6
-4
log ε (CS)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

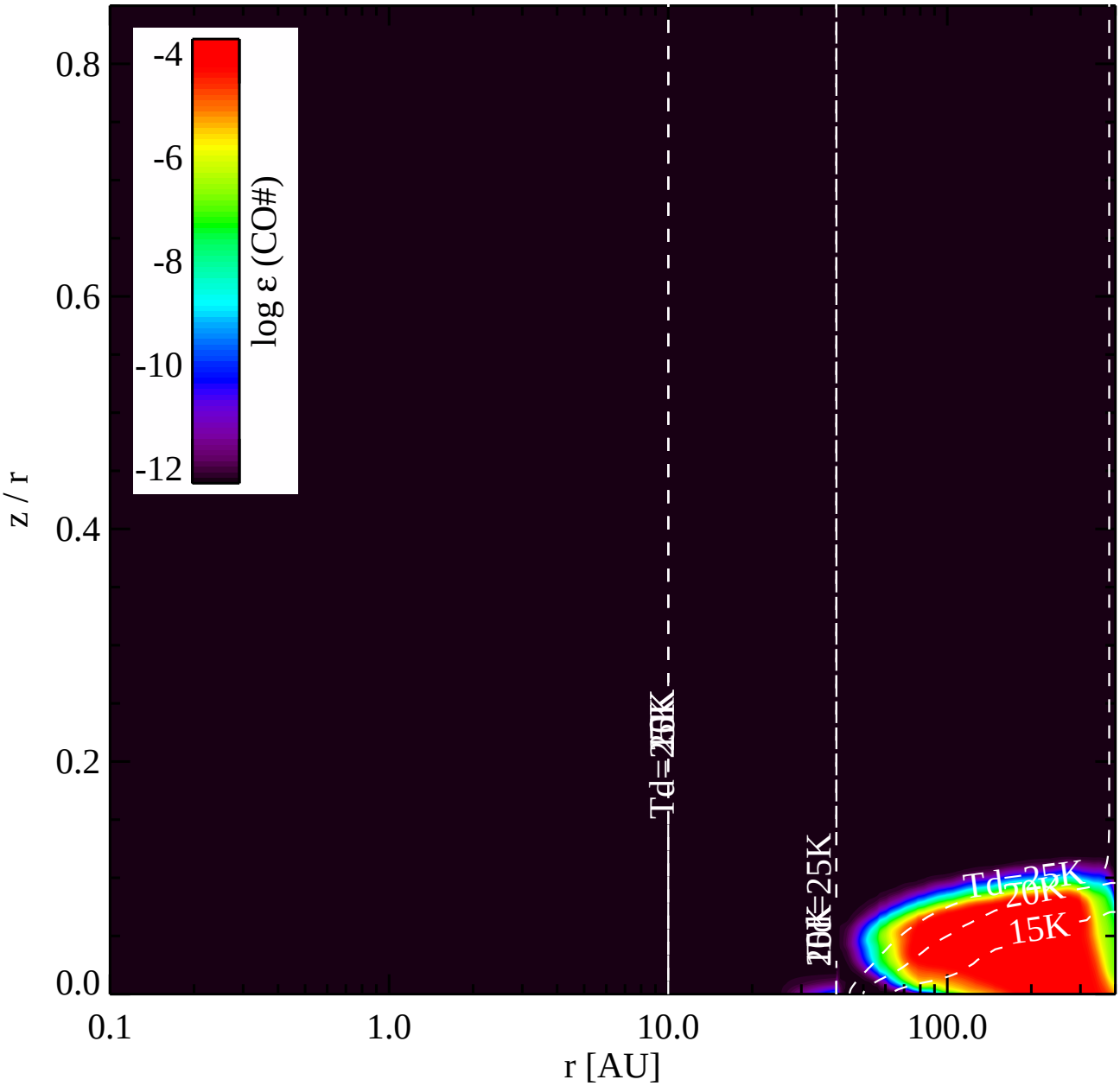

-12
-10
-8
-6
-4
log ε (HCN)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

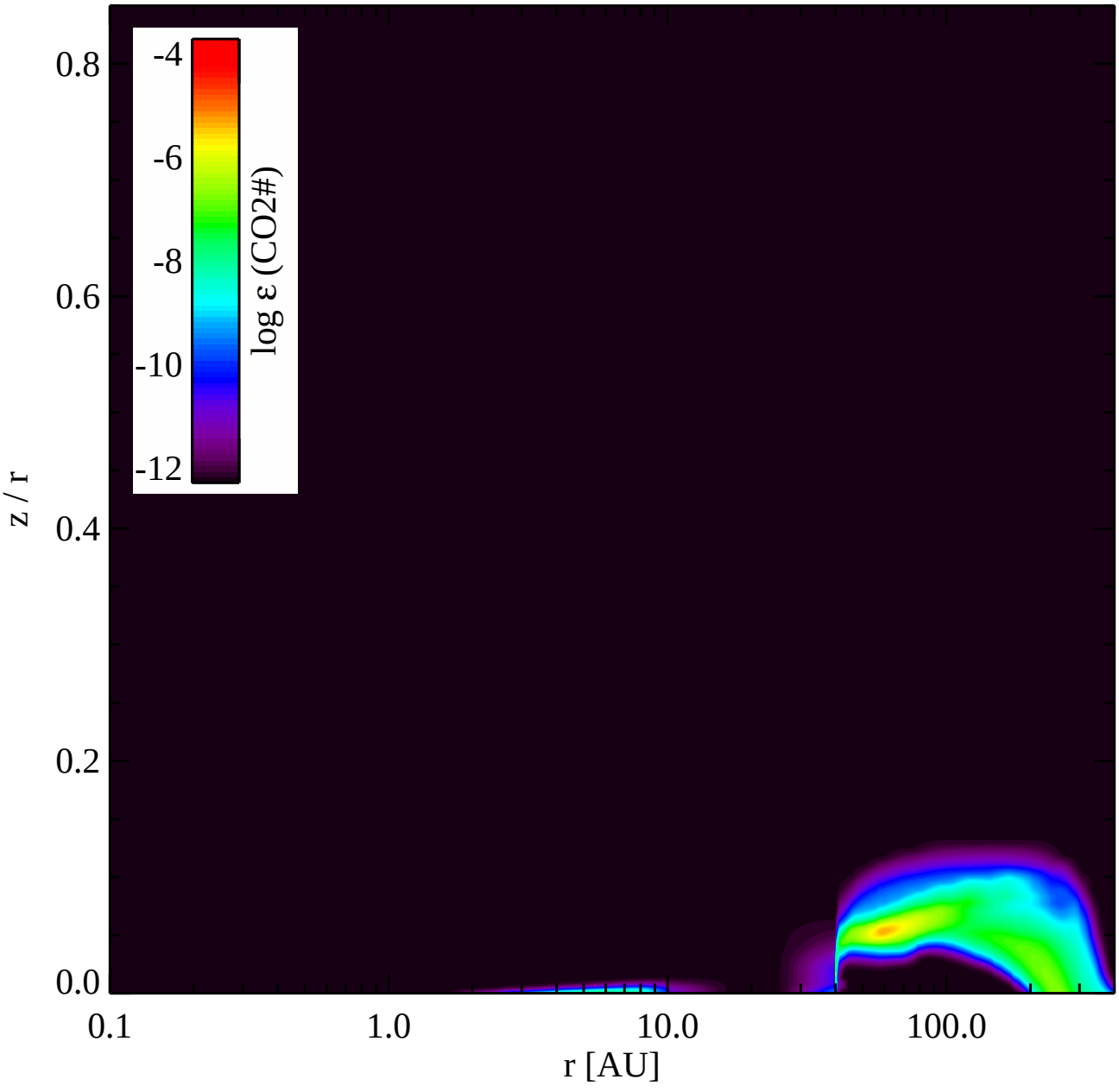

-12
-10
-8
-6
-4
log ε (HNC)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

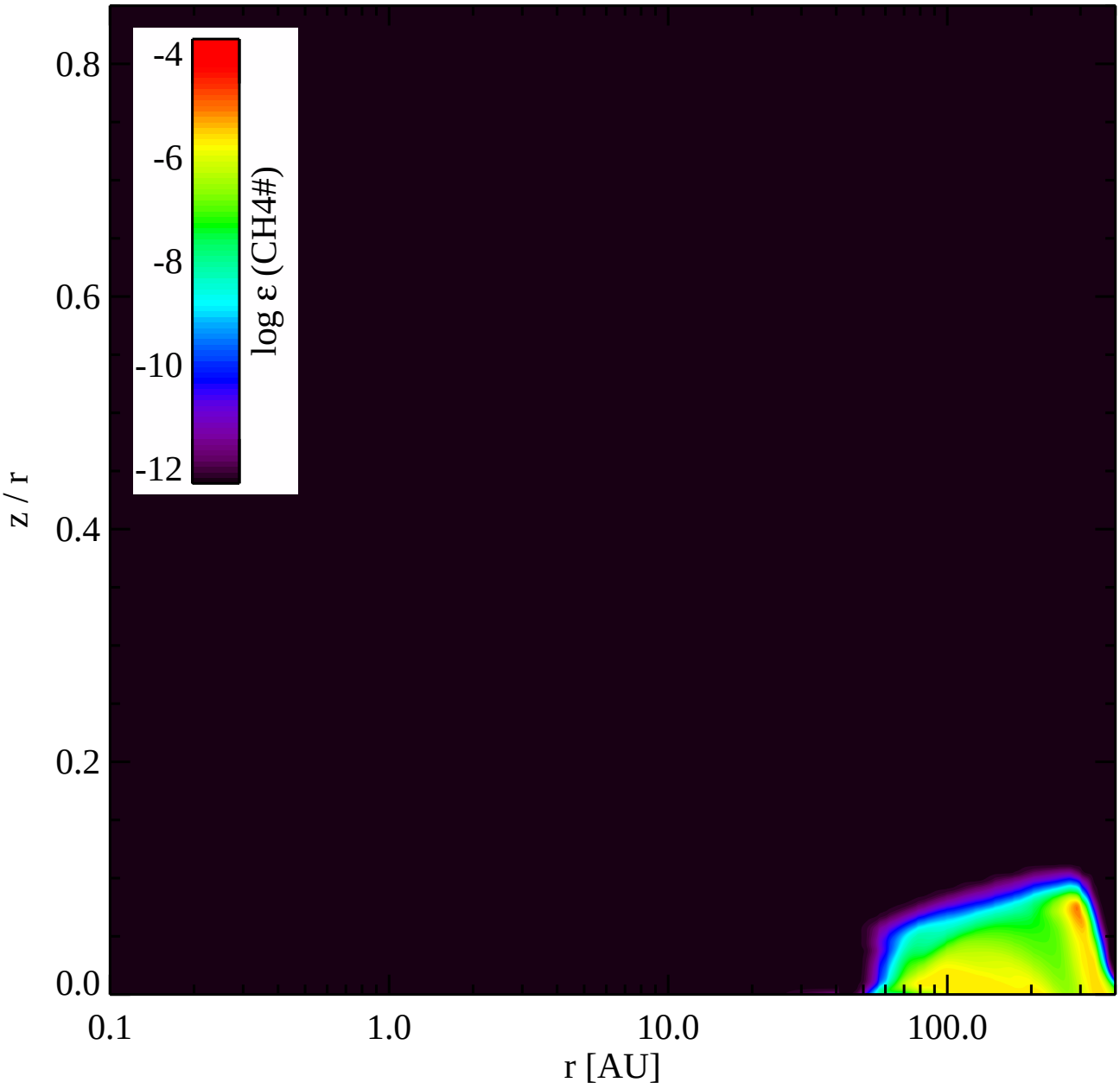

-12
-10
-8
-6
-4
log ε (H2CO)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

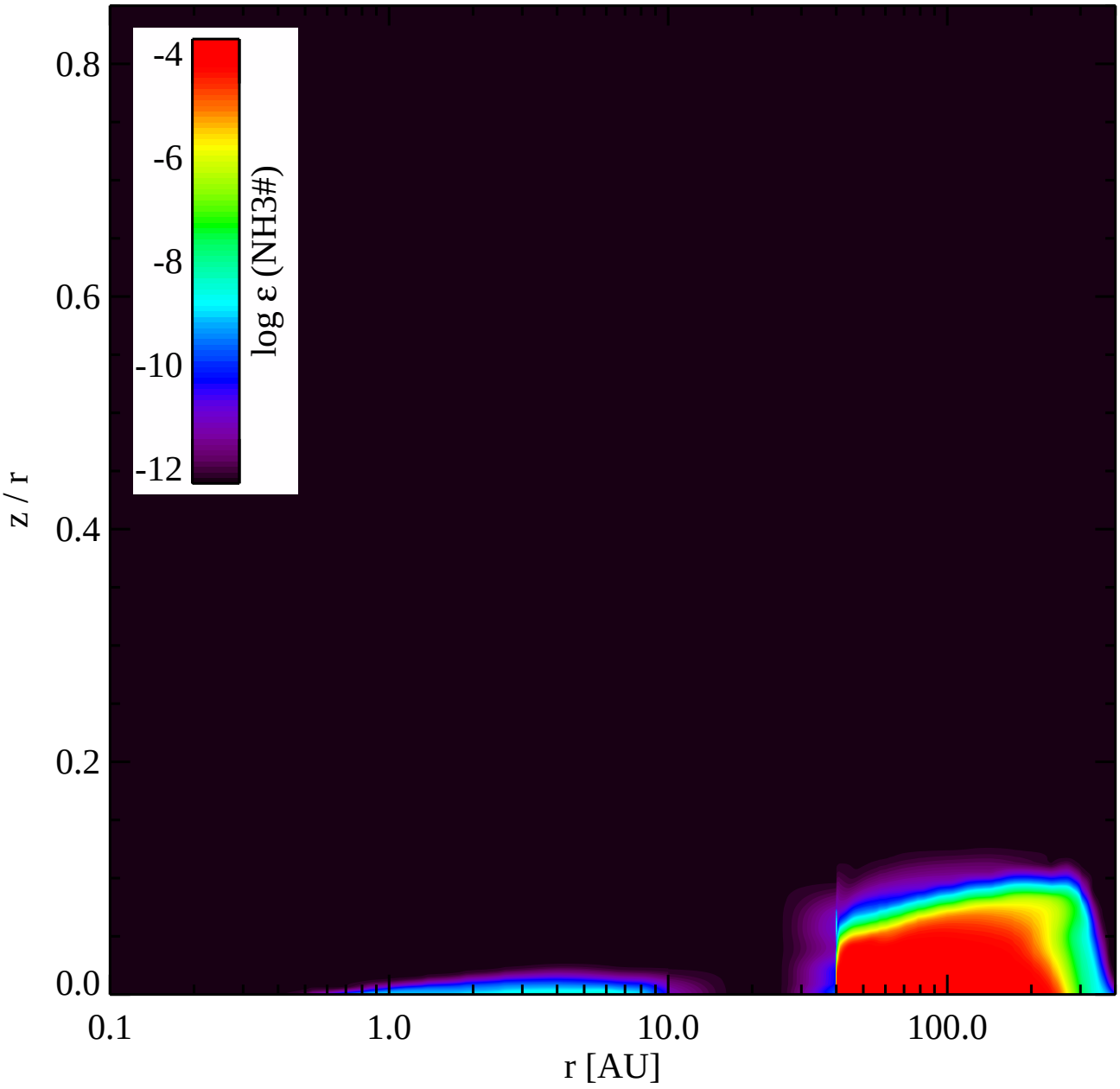

-2
-1
0
1
2
3
4
log ice layers
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

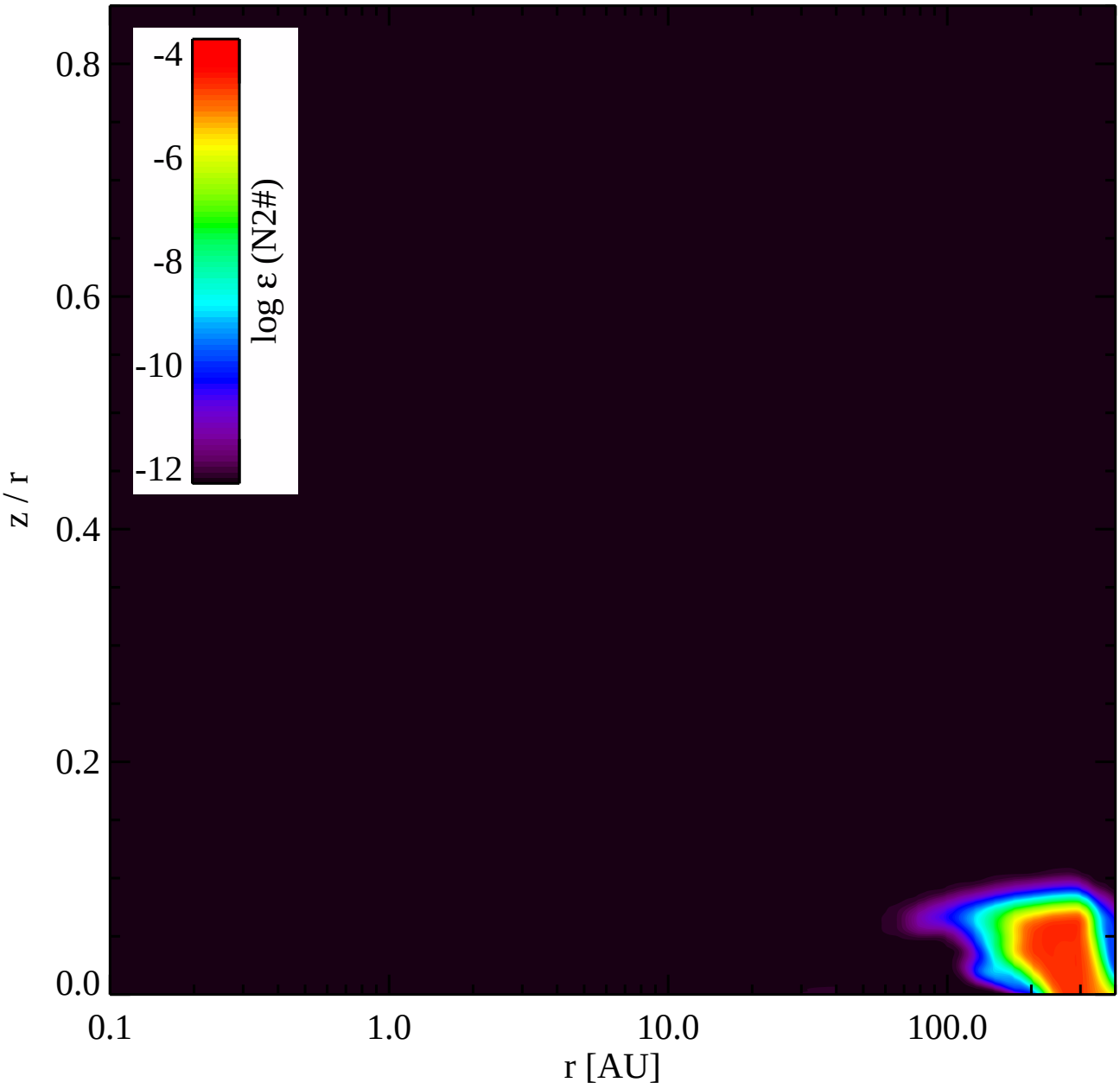

-4
-6
-8
-10
-12
log ε (H2O#)
Td=110K
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

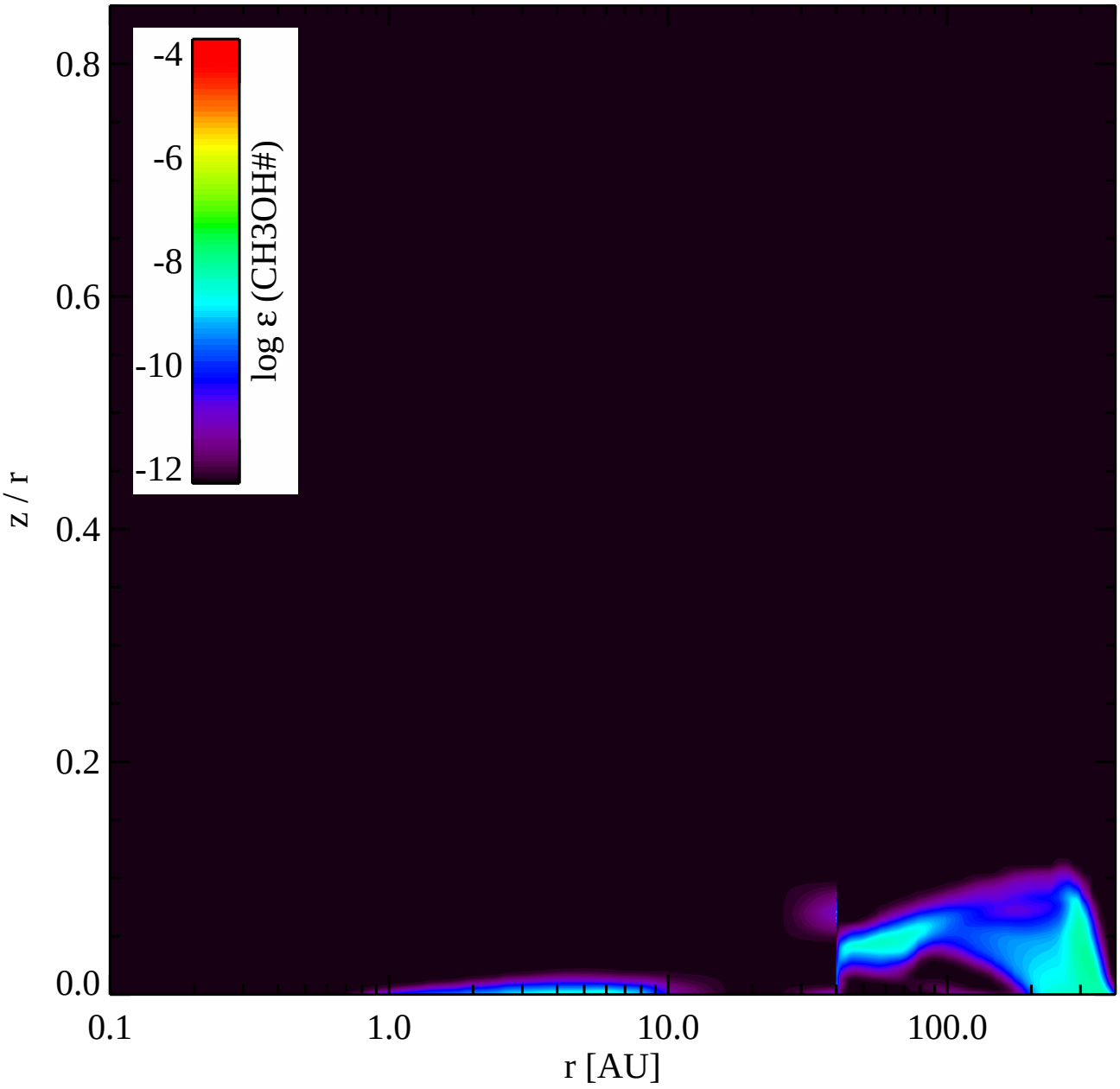

-4
-6
-8
-10
-12
log ε (CO#)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]
Td=25K
Td=25K
Td=25K
20K
15K

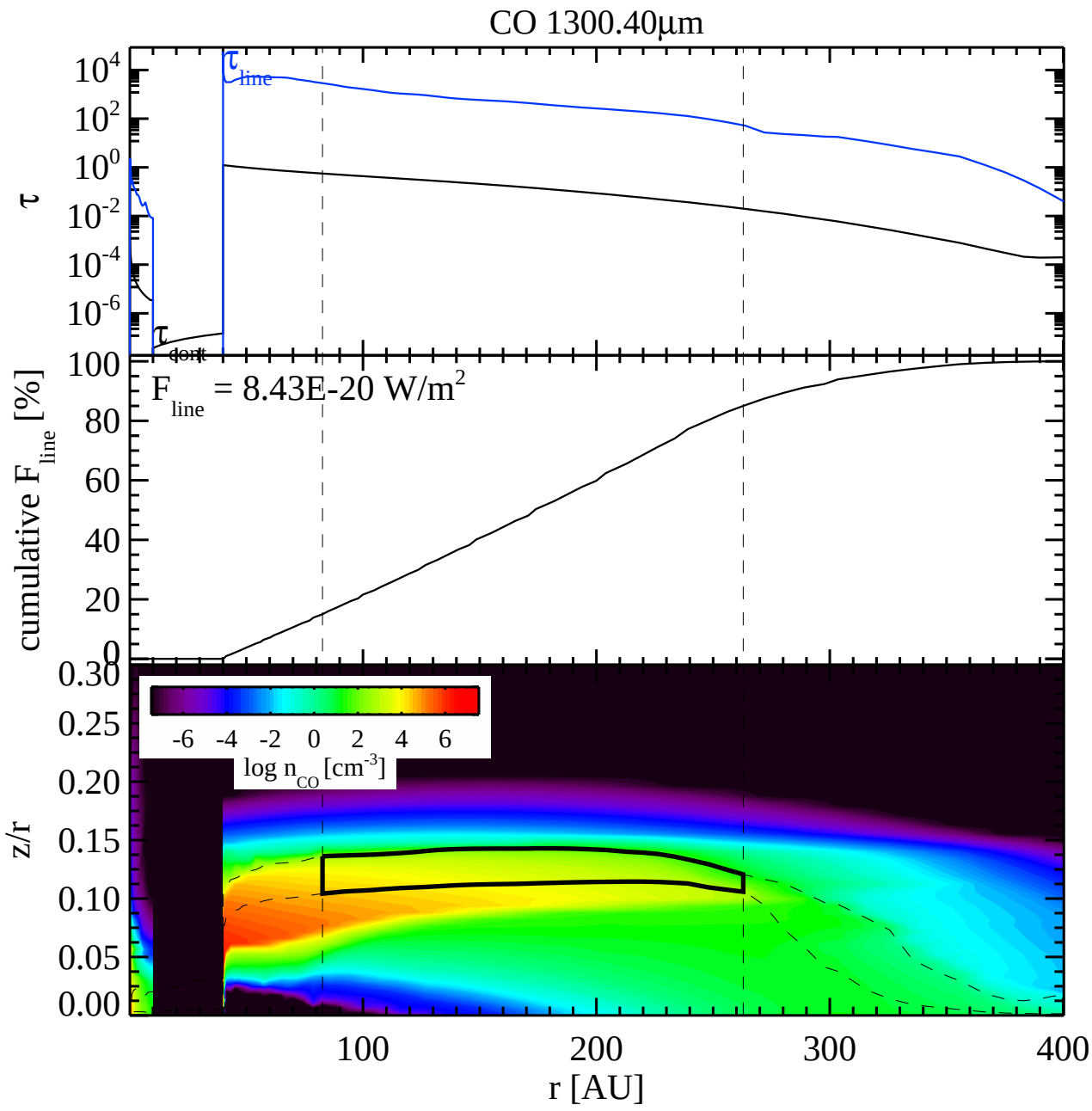

-4
-6
-8
-10
-12
log ε (CO2#)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

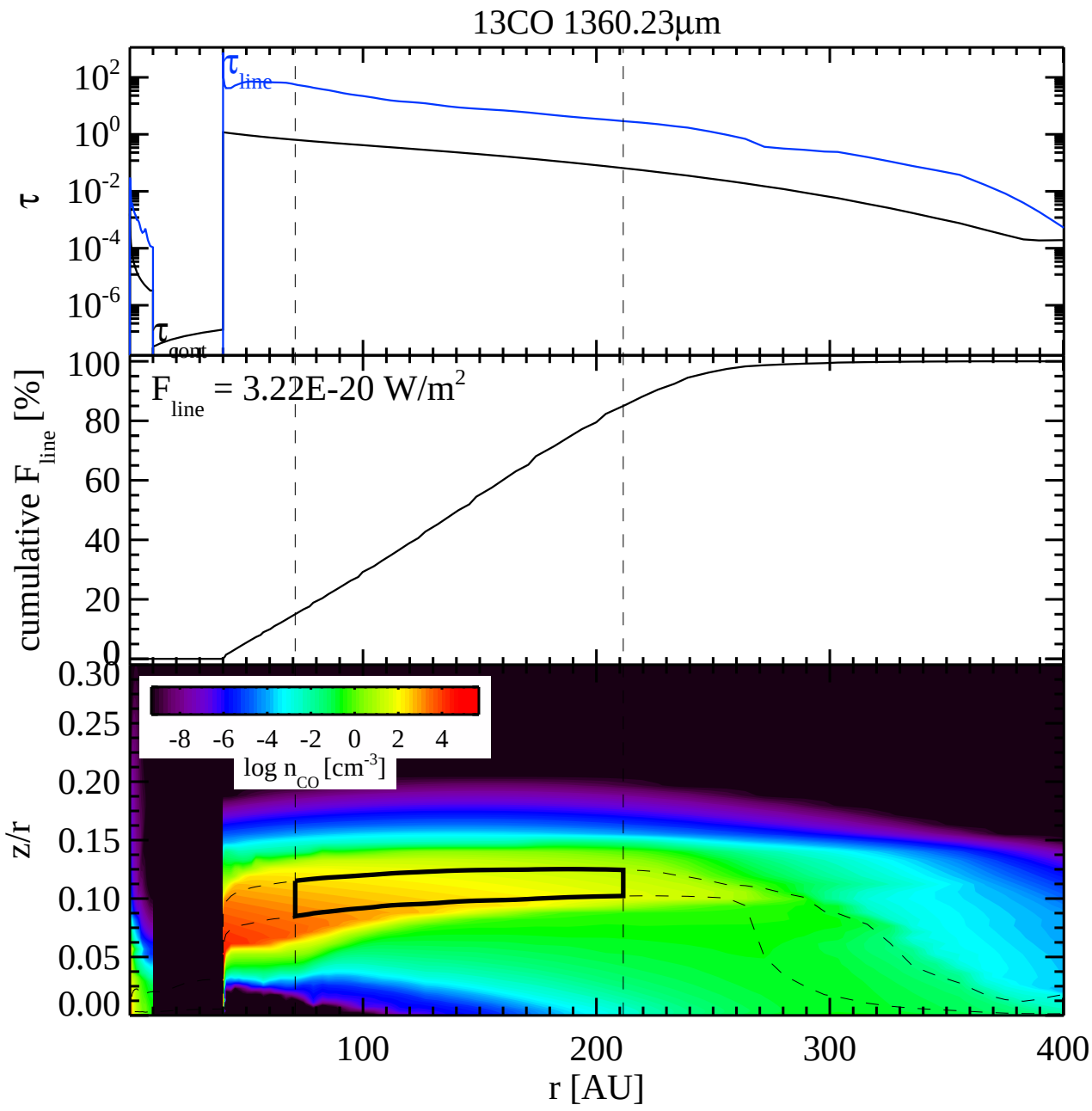

-4
-6
-8
-10
-12
log ε (CH4#)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

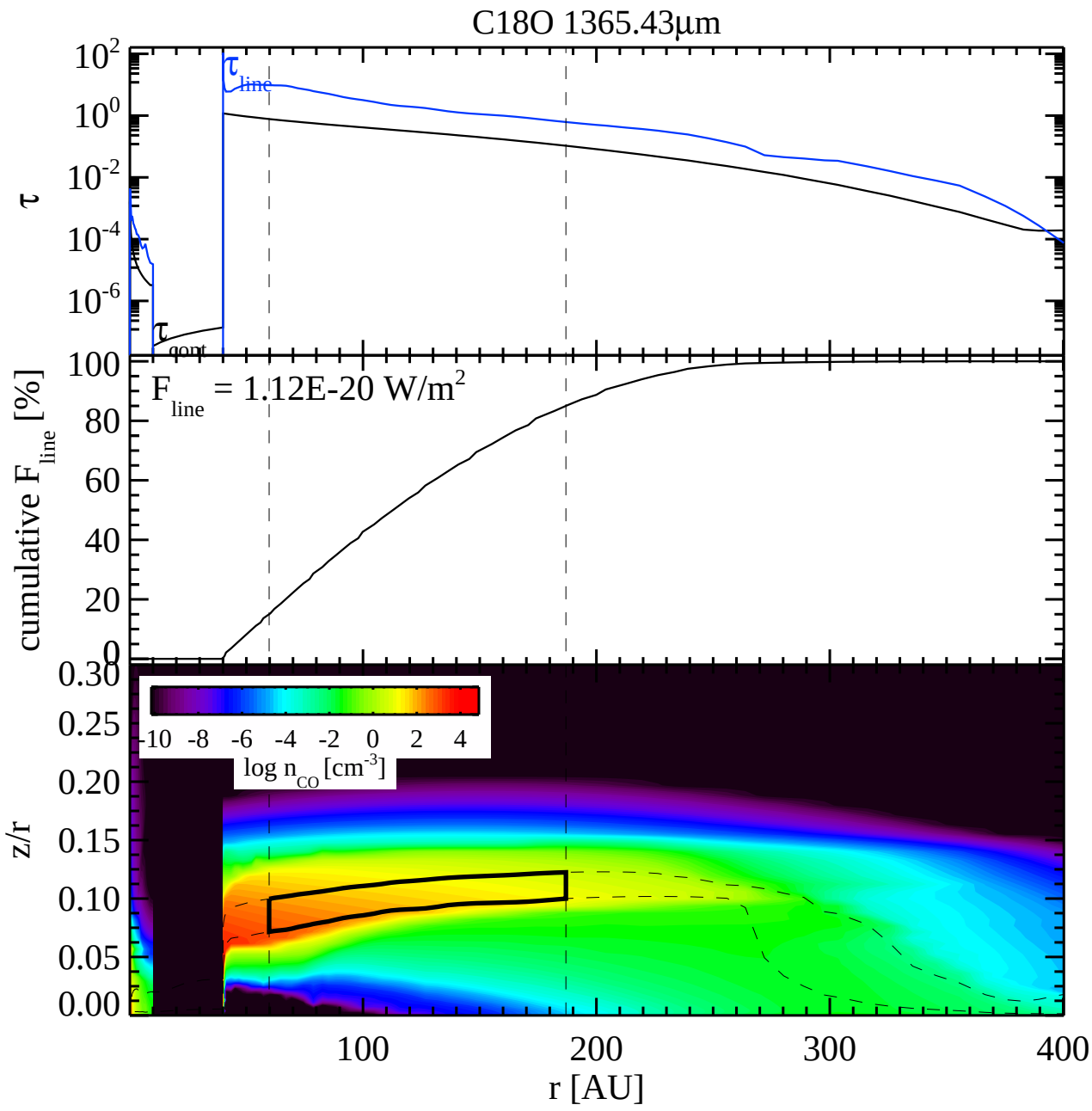

-4
-6
-8
-10
-12
log ε (NH3#)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

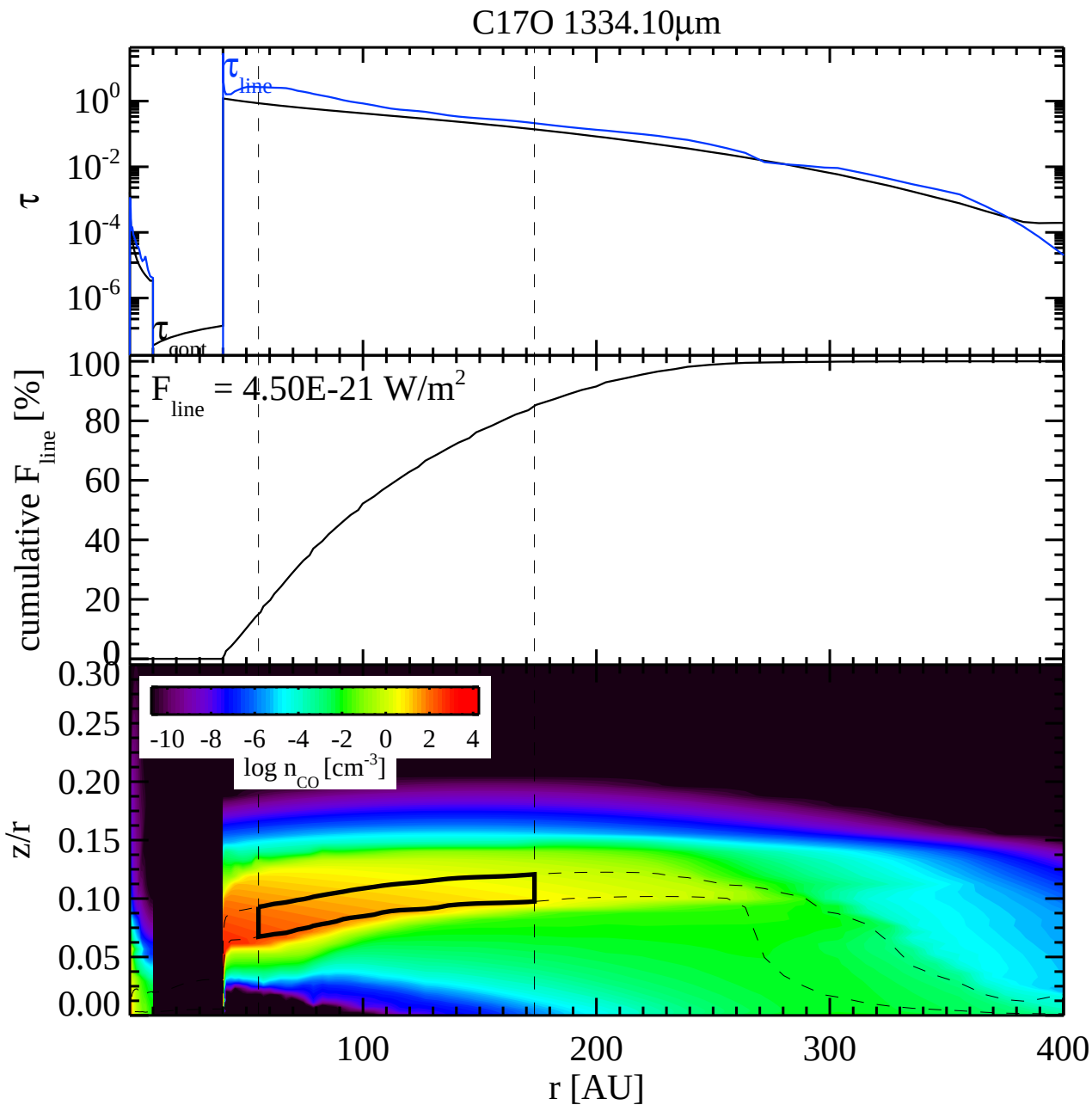

-4
-6
-8
-10
-12
log ε (N2#)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

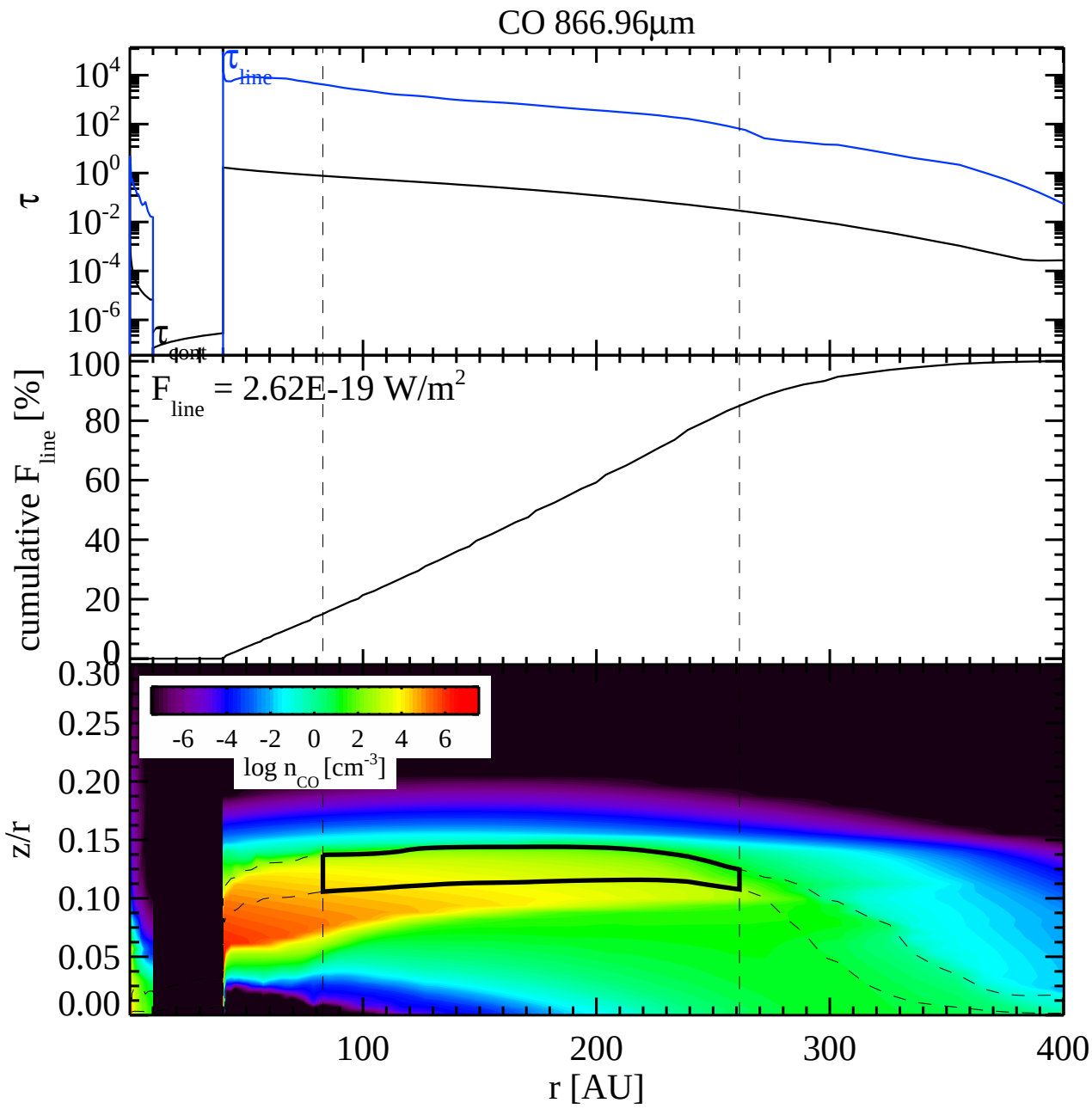

-4
-6
-8
-10
-12
log ε (CH3OH#)
0.8
0.6
0.4
0.2
0.0
z / r
0.1
1.0
10.0
100.0
r [AU]

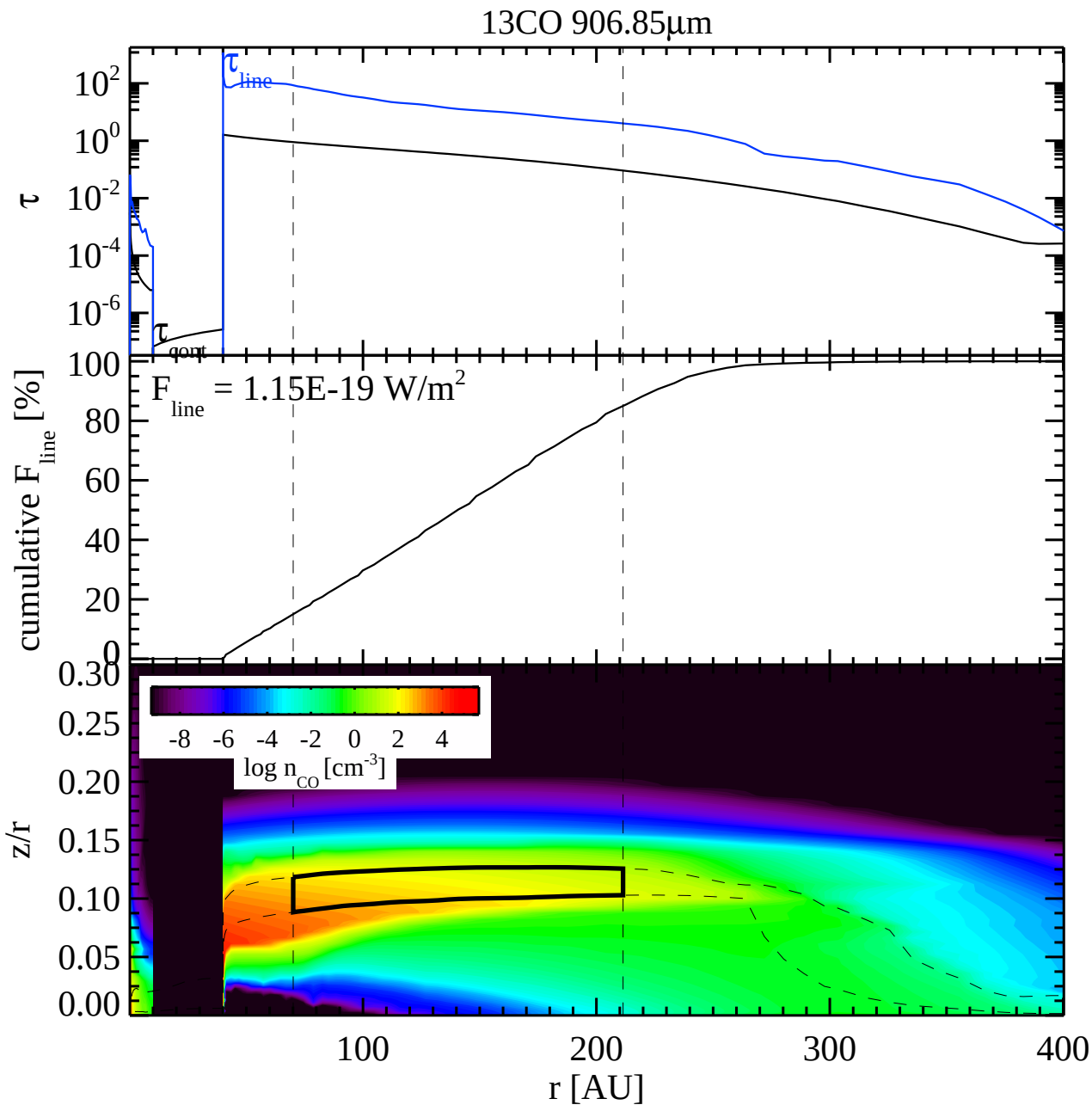

CO 1300.40µm
τ
τ line
τ dust
cumulative F line [%]
F line = 8.43E-20 W/m2
log n CO [cm-3]
z/r
r [AU]

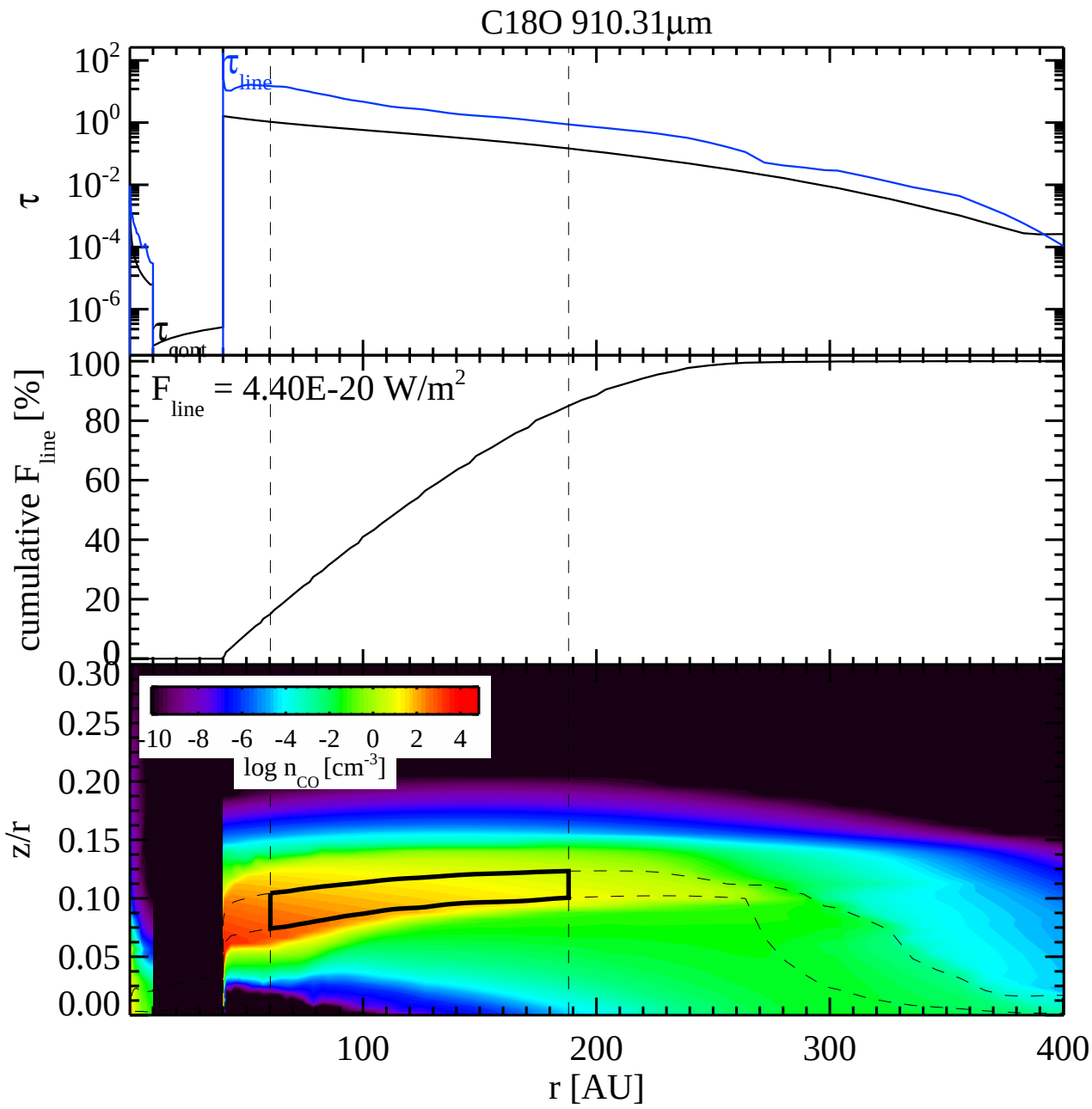

13CO 1360.23µm
τ
τ line
τ cont
cumulative F line [%]
F line = 3.22E-20 W/m2
log n CO [cm-3]
-8 -6 -4 -2 0 2 4
z/r
r [AU]
100
200
300
400

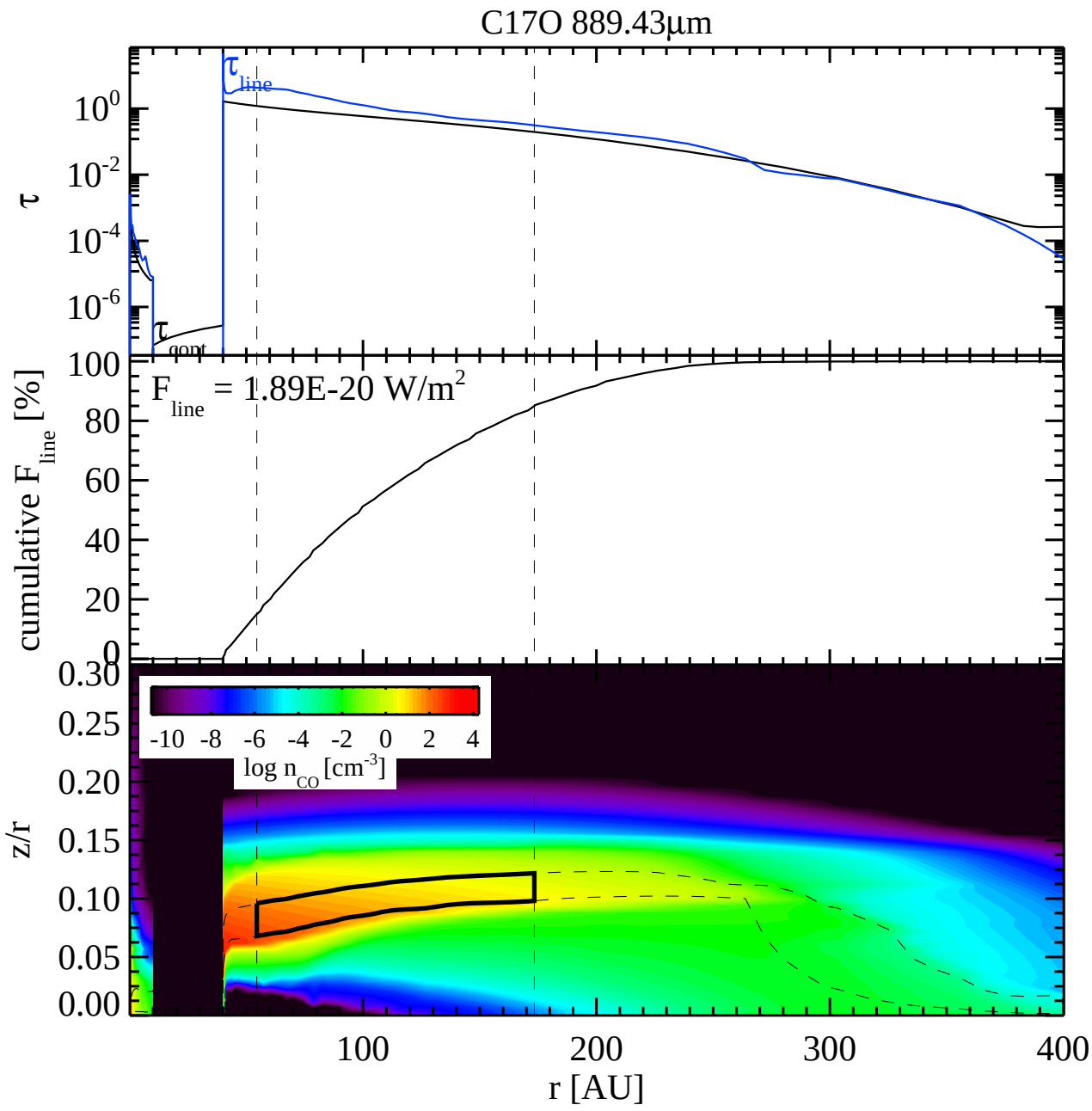

C18O 1365.43µm
τ
τ line
τ cont
cumulative F line [%]
F line = 1.12E-20 W/m2
log n CO [cm-3]
z/r
r [AU]

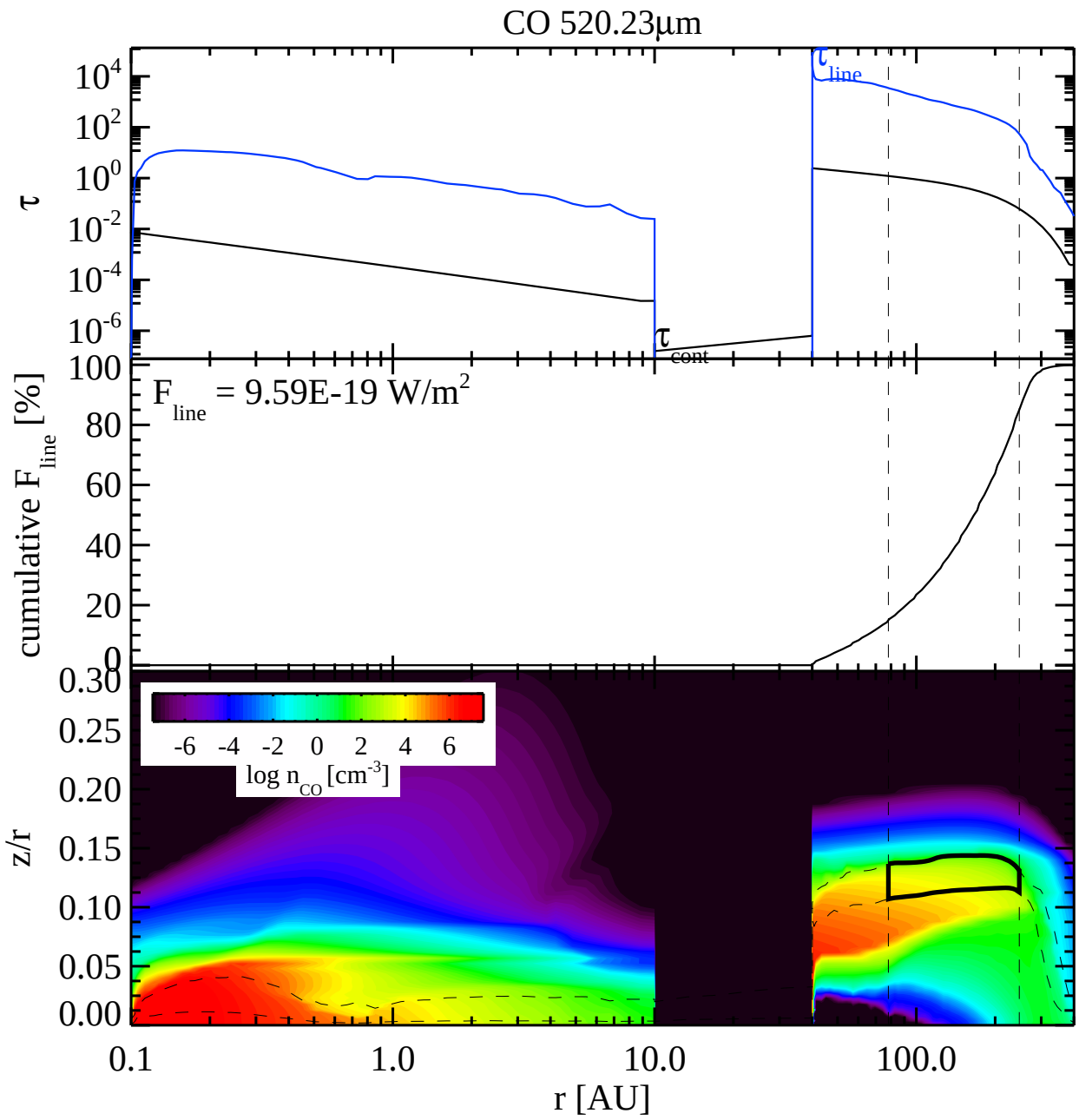

C17O 1334.10µm
τ
τ line
τ cont
10^0
10^-2
10^-4
10^-6
cumulative F line [%]
F line = 4.50E-21 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-10 -8 -6 -4 -2 0 2 4
log n CO [cm^-3]
100
200
300
400
r [AU]

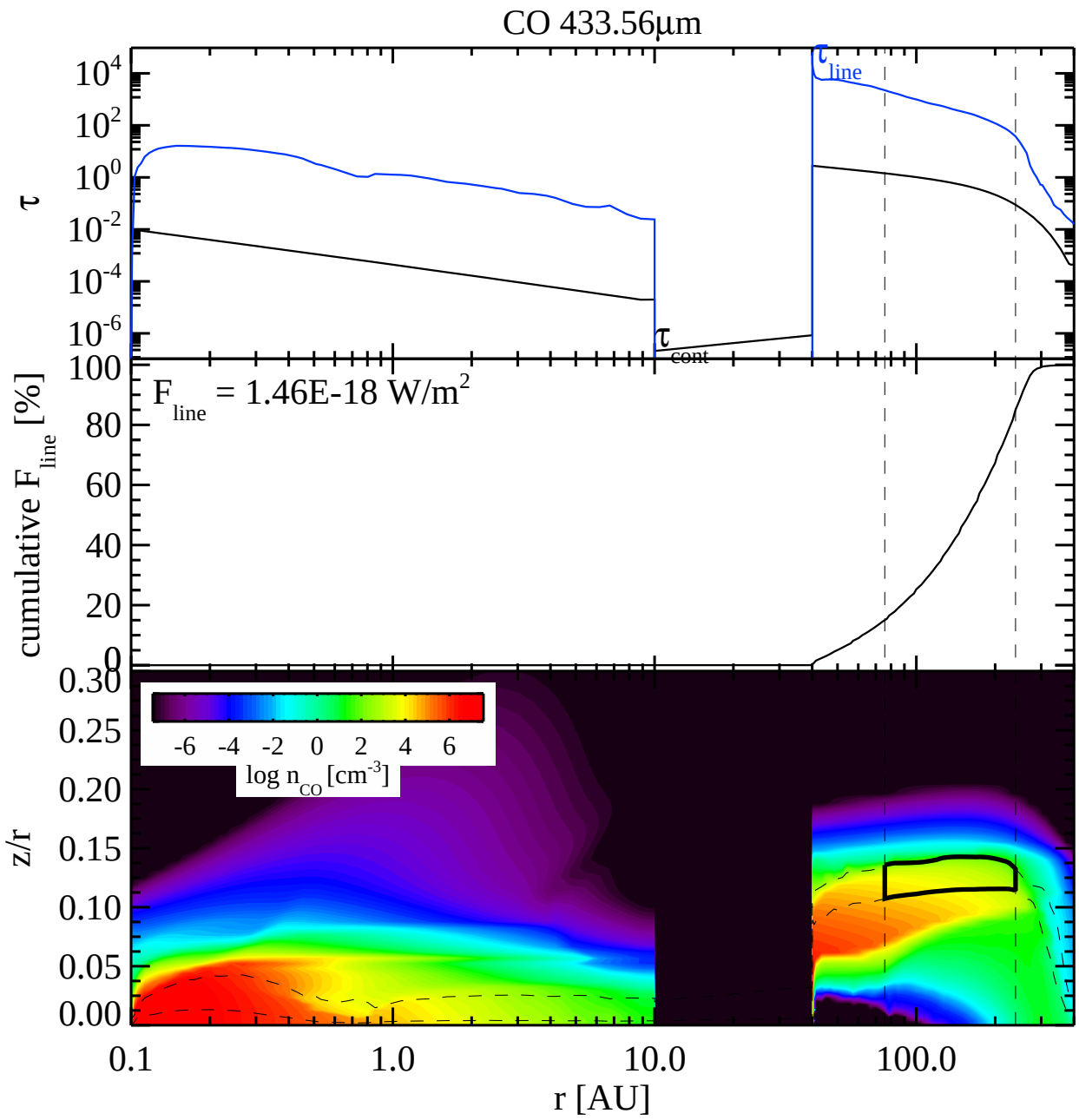

CO 866.96µm
τ
τ line
τ cont
cumulative F line [%]
F line = 2.62E-19 W/m2
log n CO [cm-3]
z/r
r [AU]

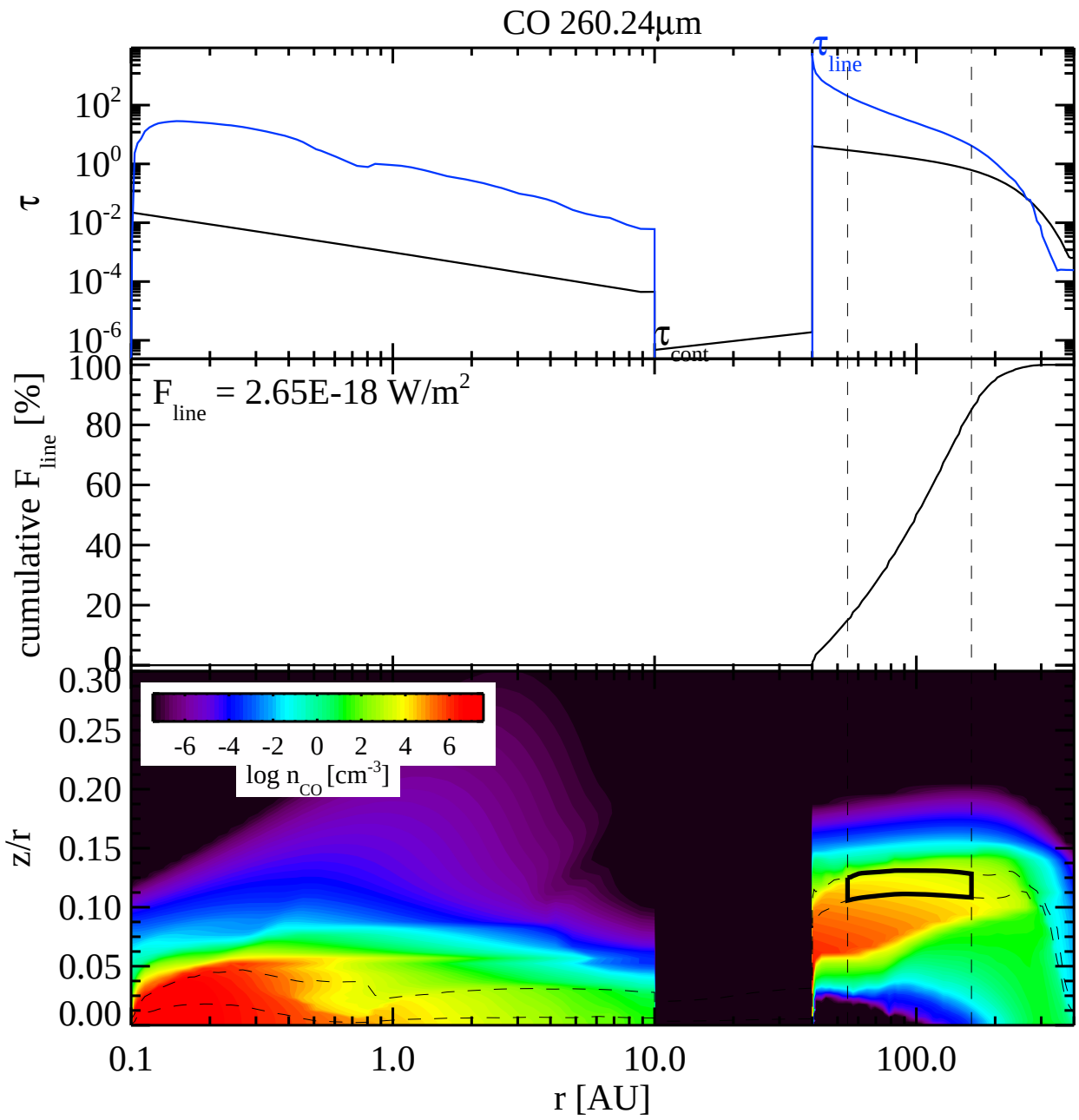

13CO 906.85µm
τ
τ line
τ cont
cumulative F line [%]
F line = 1.15E-19 W/m2
log n CO [cm-3]
z/r
r [AU]

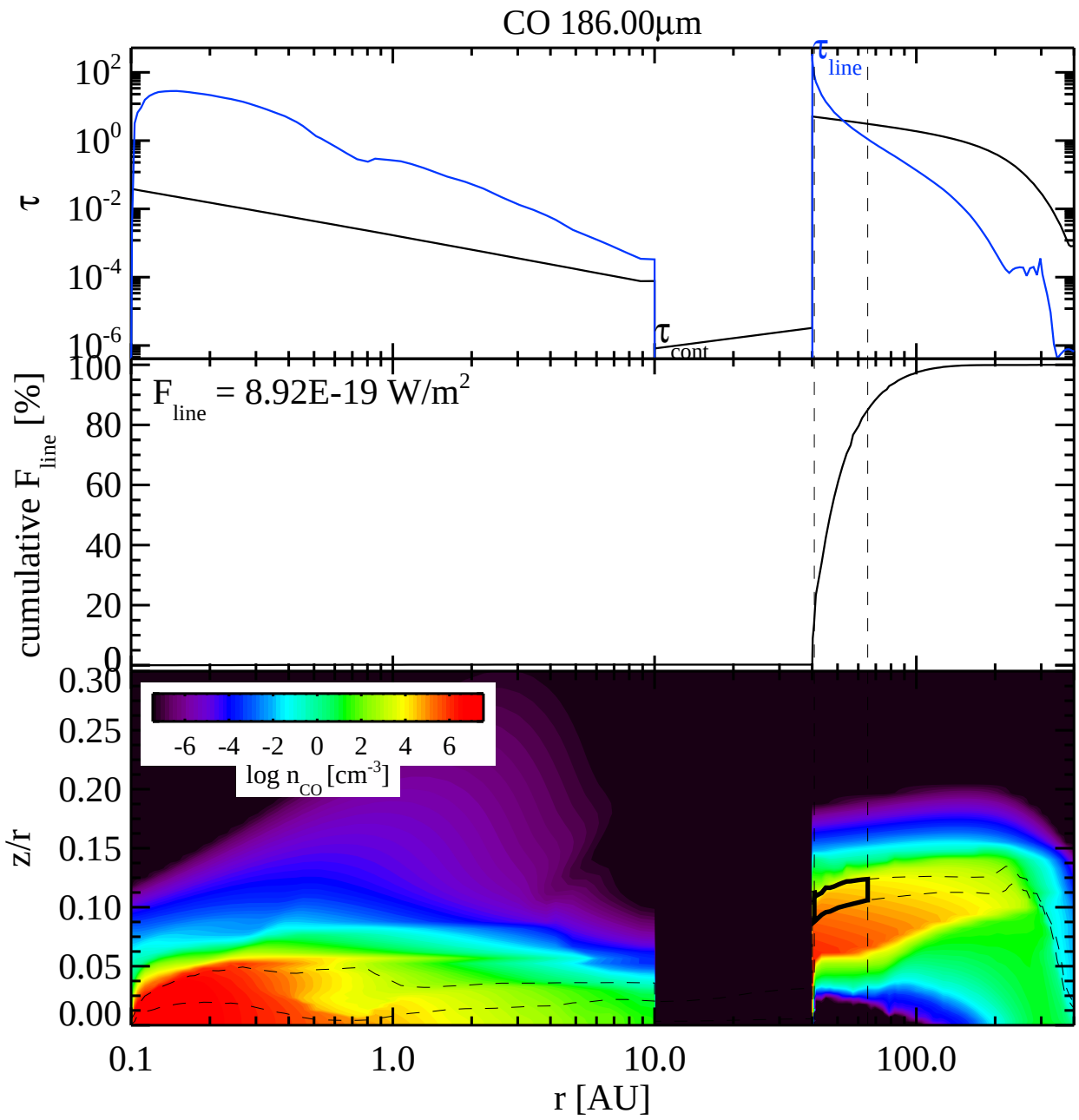

C18O 910.31µm
τ
τ line
τ cont
cumulative F line [%]
F line = 4.40E-20 W/m2
log n CO [cm-3]
z/r
r [AU]

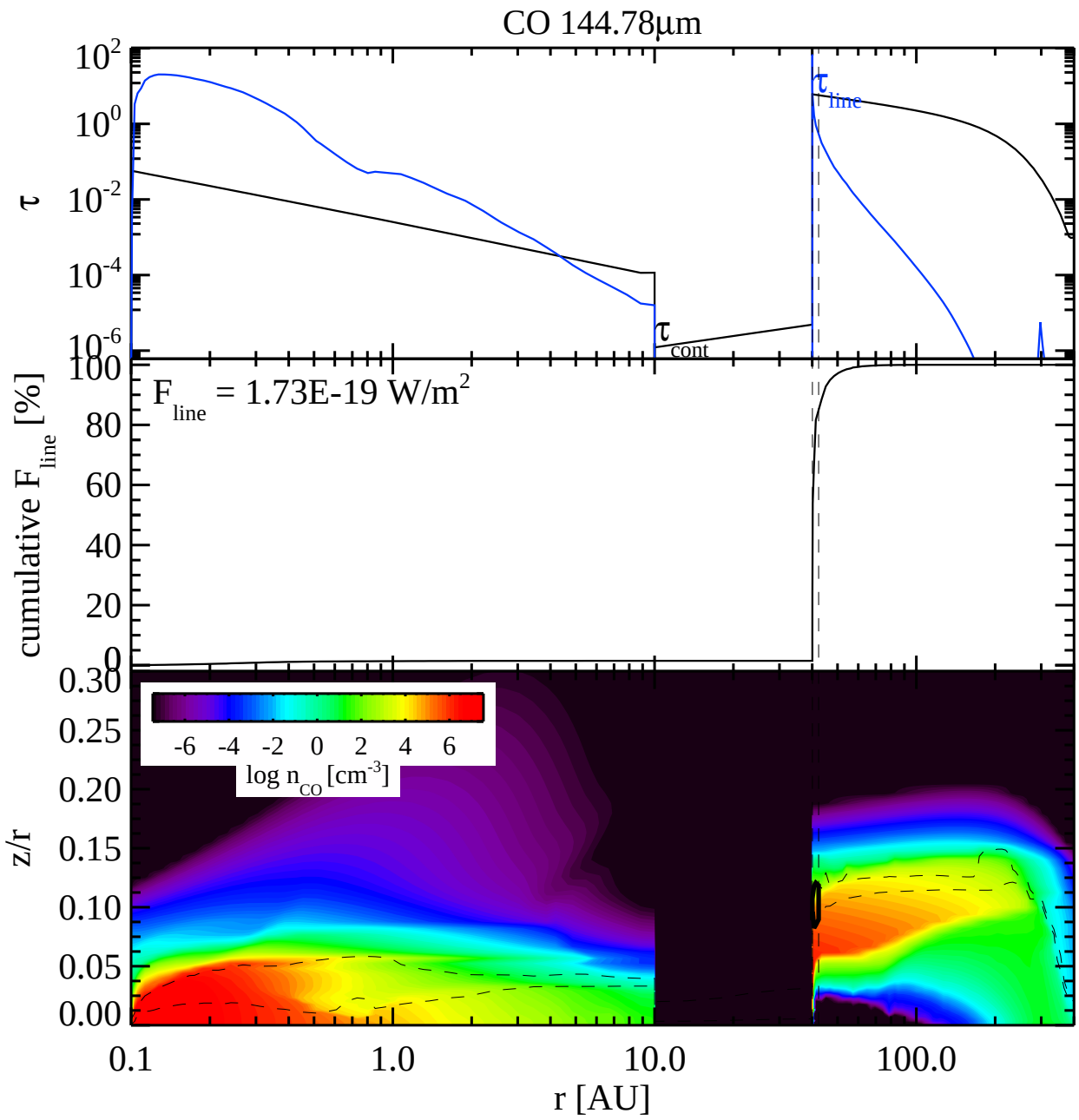

C17O 889.43µm
τ
τ line
τ cont
10^0
10^-2
10^-4
10^-6
cumulative F line [%]
F line = 1.89E-20 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-10 -8 -6 -4 -2 0 2 4
log n CO [cm^-3]
100
200
300
400
r [AU]

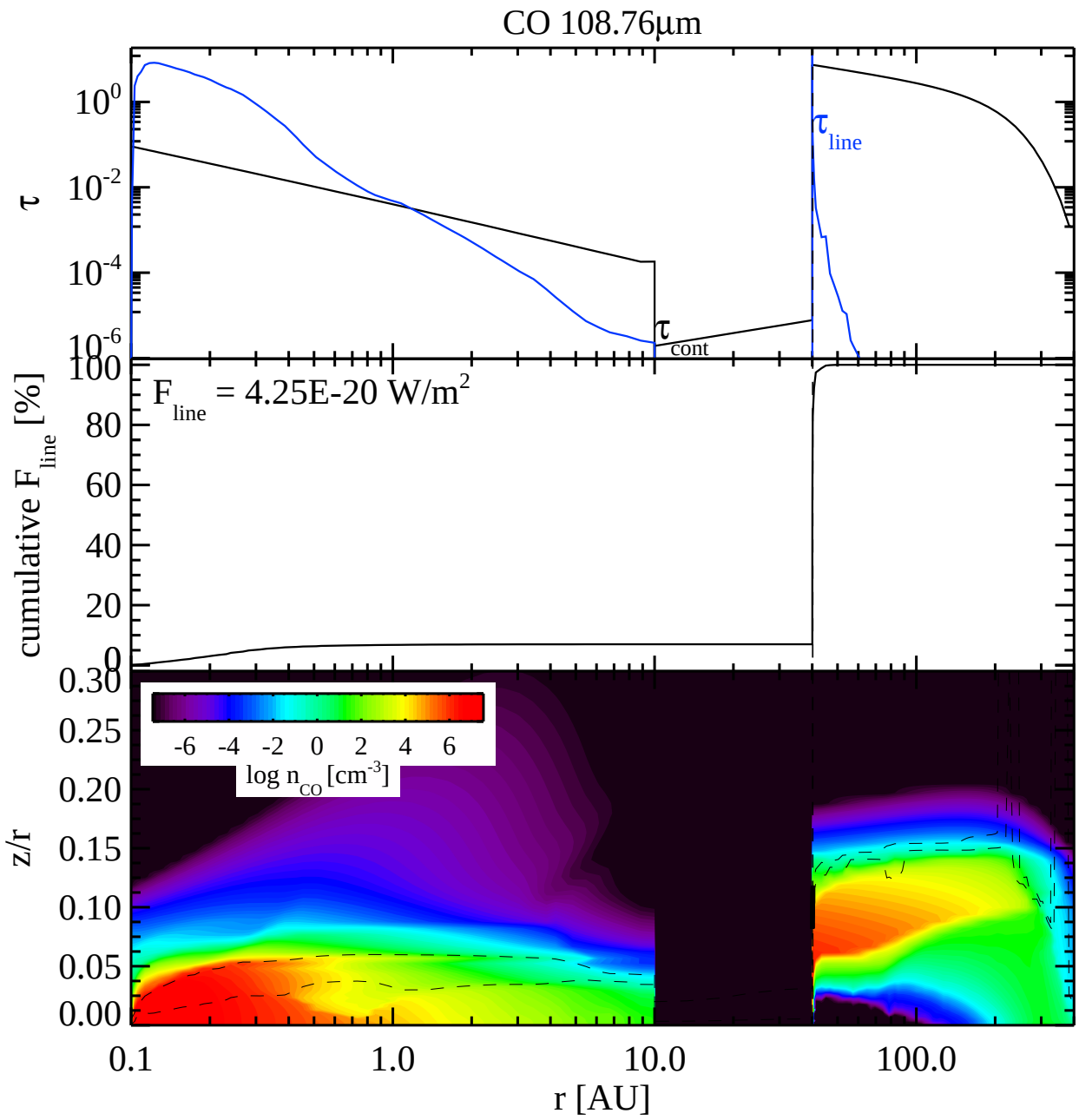

CO 520.23µm
τ
τ line
τ cont
cumulative F line [%]
F line = 9.59E-19 W/m2
log n CO [cm-3]
z/r
r [AU]

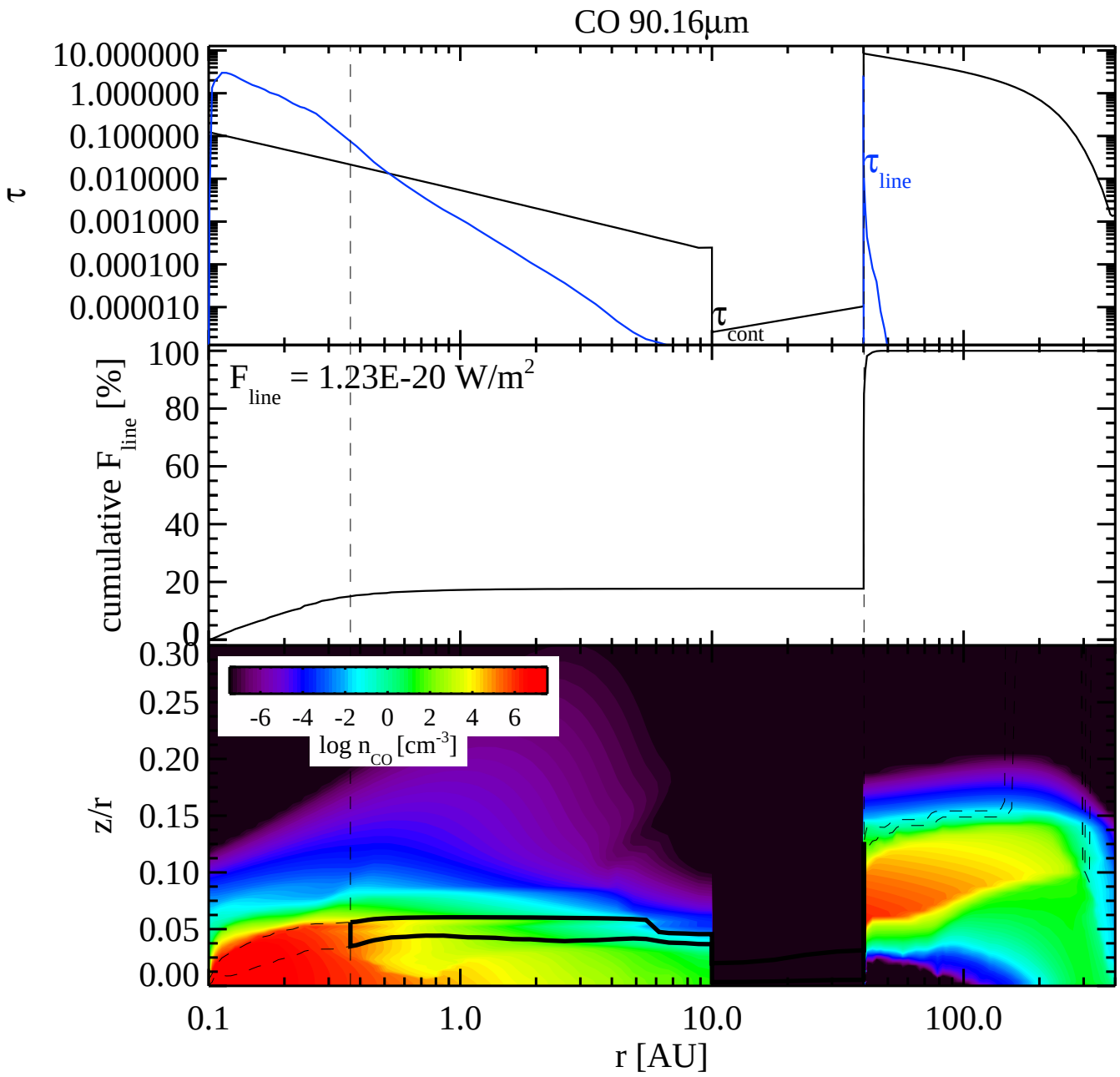

CO 433.56µm
τ
τ line
τ cont
cumulative F line [%]
F line = 1.46E-18 W/m2
log n CO [cm-3]
z/r
r [AU]

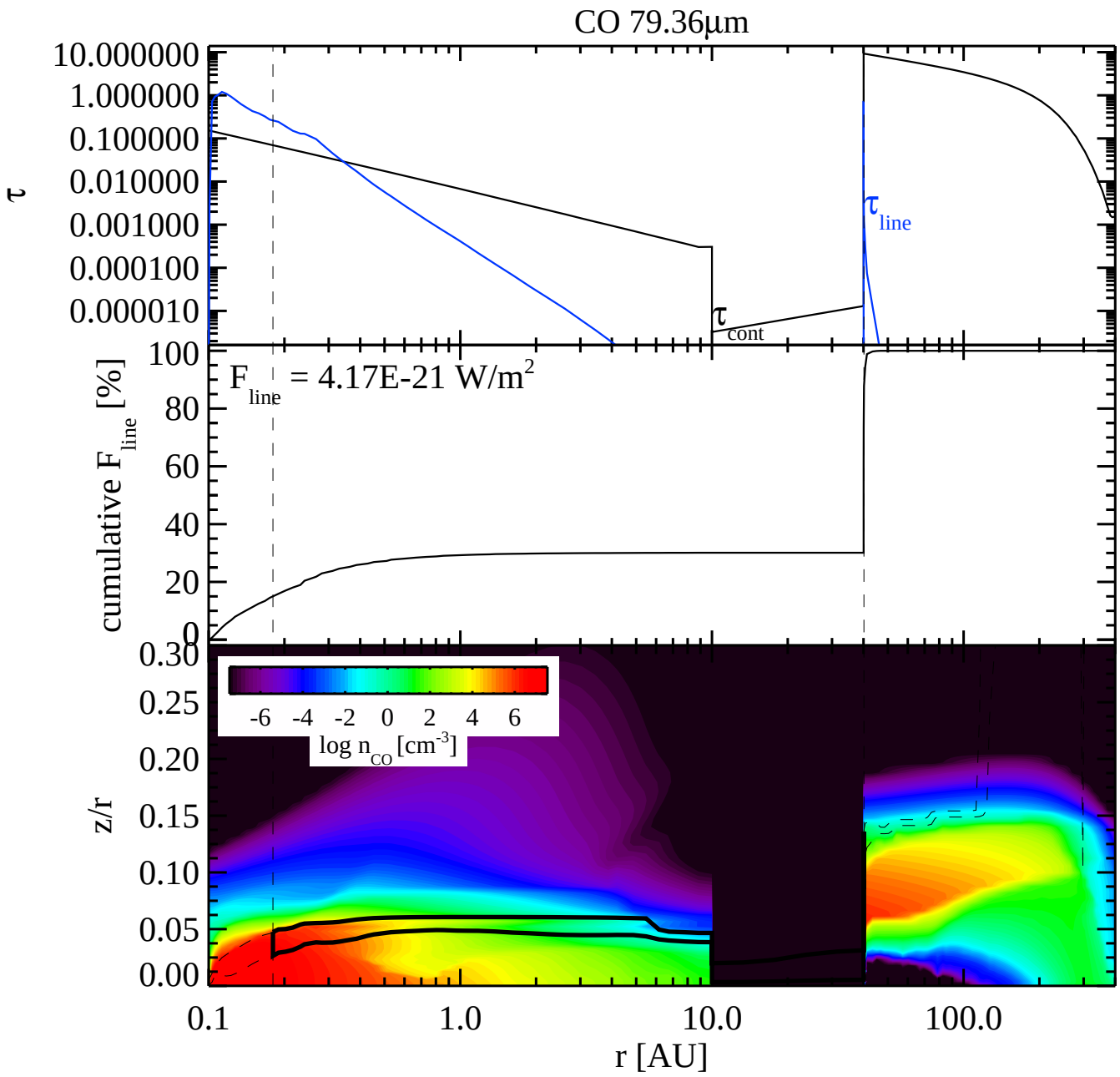

CO 260.24µm
τ
τ line
τ cont
cumulative F line [%]
F line = 2.65E-18 W/m2
log n CO [cm-3]
z/r
r [AU]

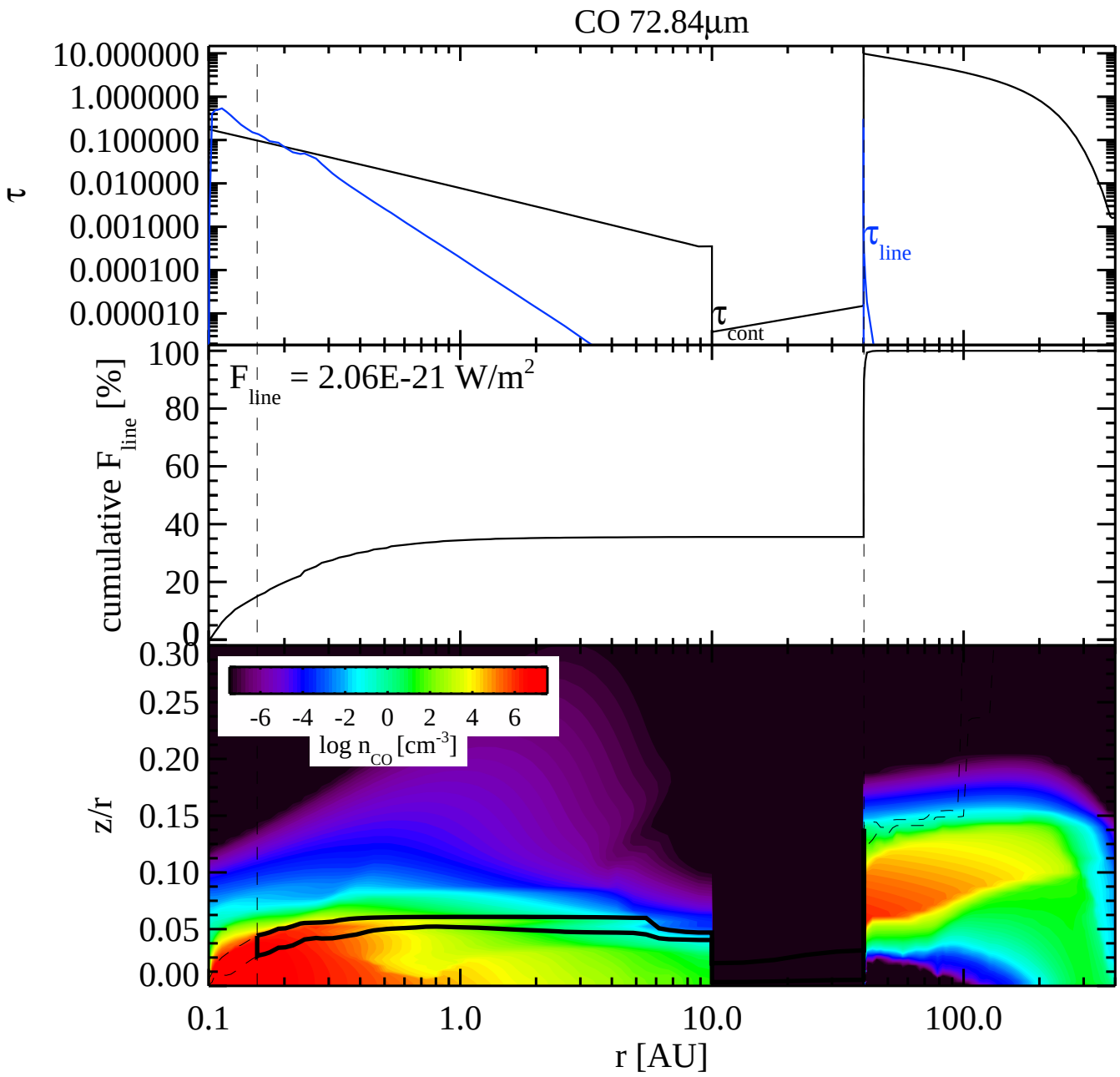

CO 186.00µm
τ
τ line
τ cont
cumulative F line [%]
F line = 8.92E-19 W/m2
log n CO [cm-3]
z/r
r [AU]

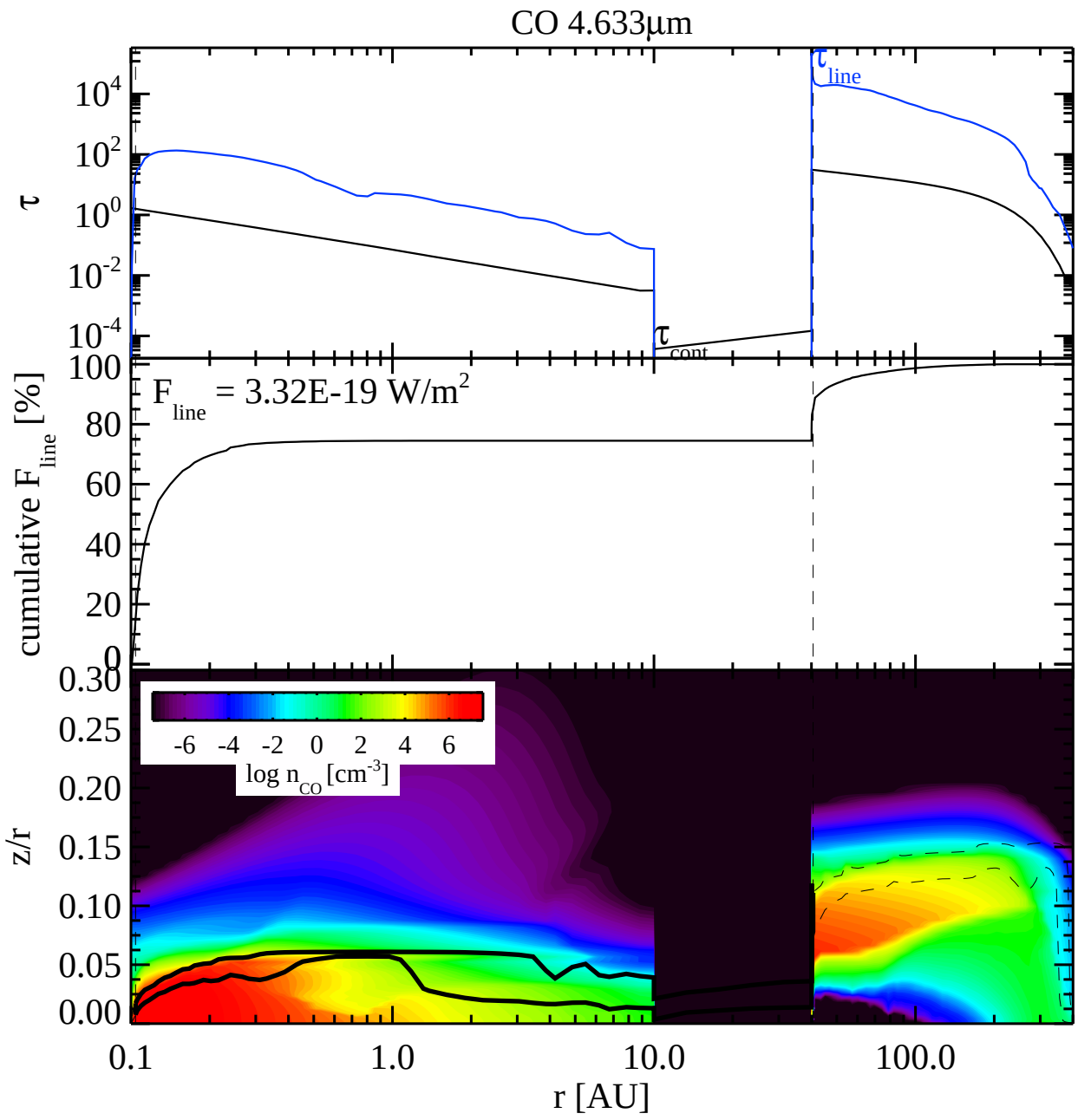

CO 144.78µm
τ
τ line
τ cont
cumulative F line [%]
F line = 1.73E-19 W/m2
log n CO [cm-3]
z/r
r [AU]

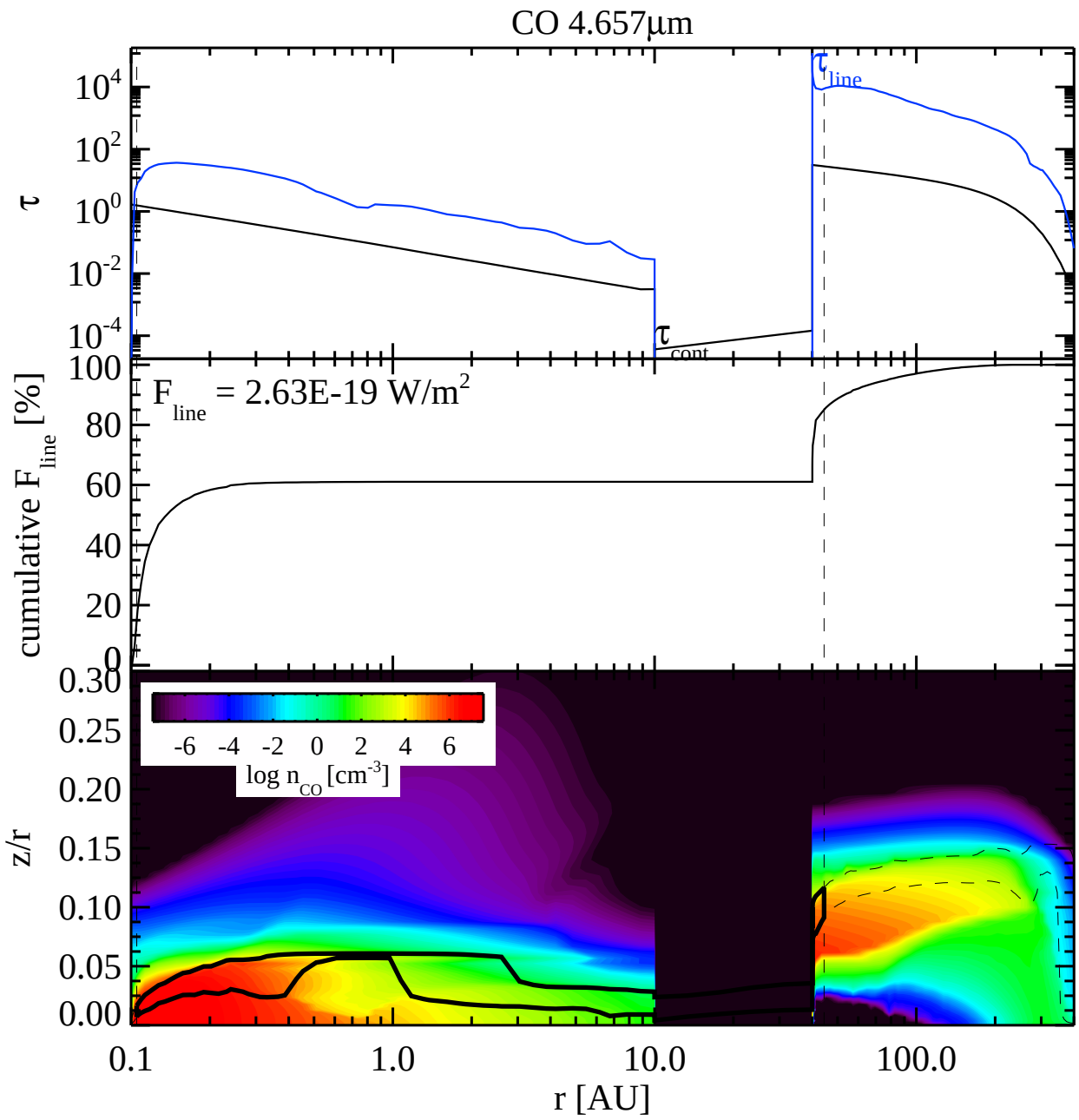

CO 108.76µm
τ
10^0
10^-2
10^-4
10^-6
τ line
τ cont
cumulative F line [%]
F line = 4.25E-20 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n CO [cm^-3]
0.1
1.0
10.0
100.0
r [AU]

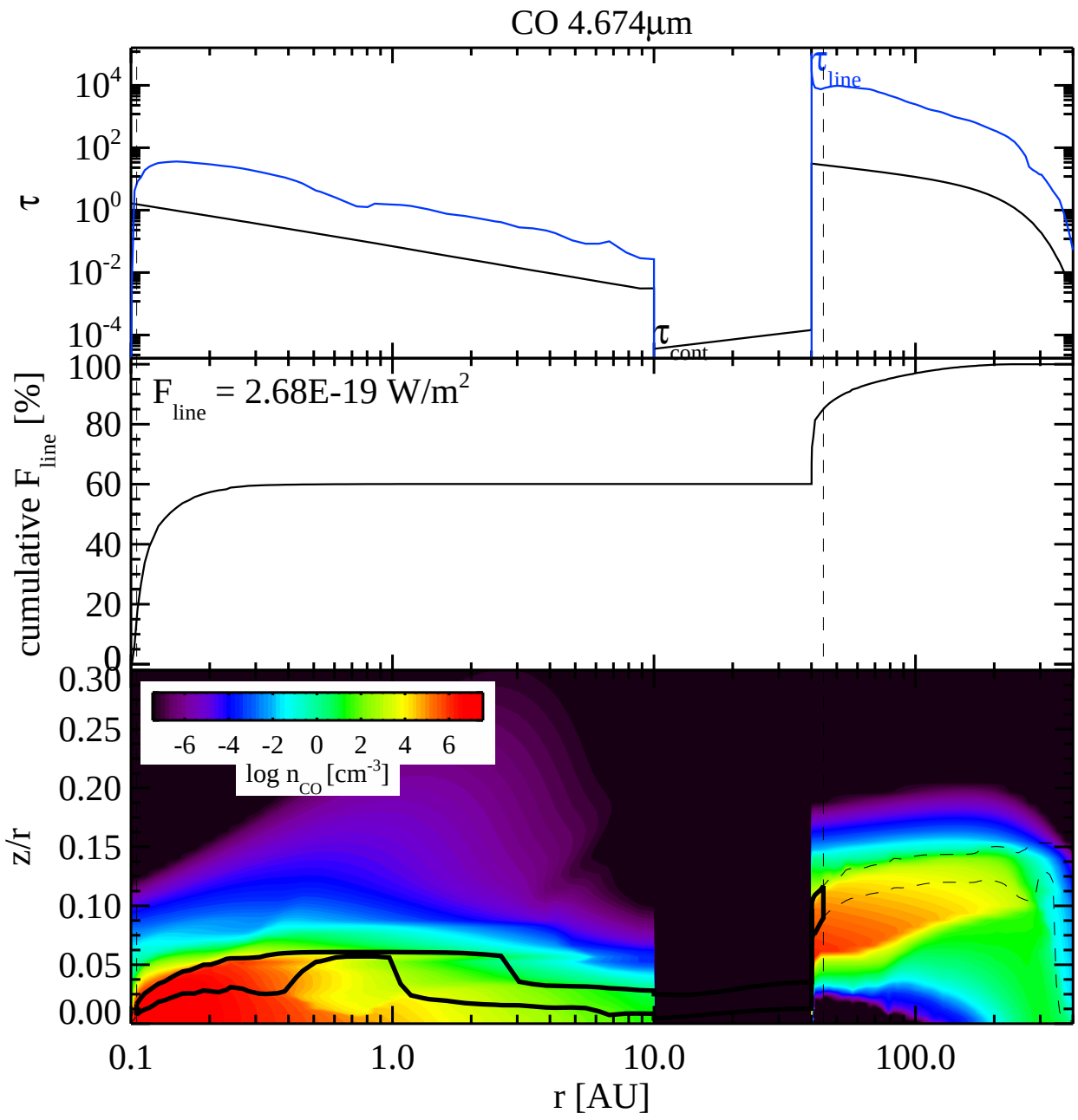

CO 90.16µm
τ
10.000000
1.000000
0.100000
0.010000
0.001000
0.000100
0.000010
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 1.23E-20 W/m2
0.30
0.25
0.20
0.15
0.10
0.05
0.00
z/r
-6 -4 -2 0 2 4 6
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

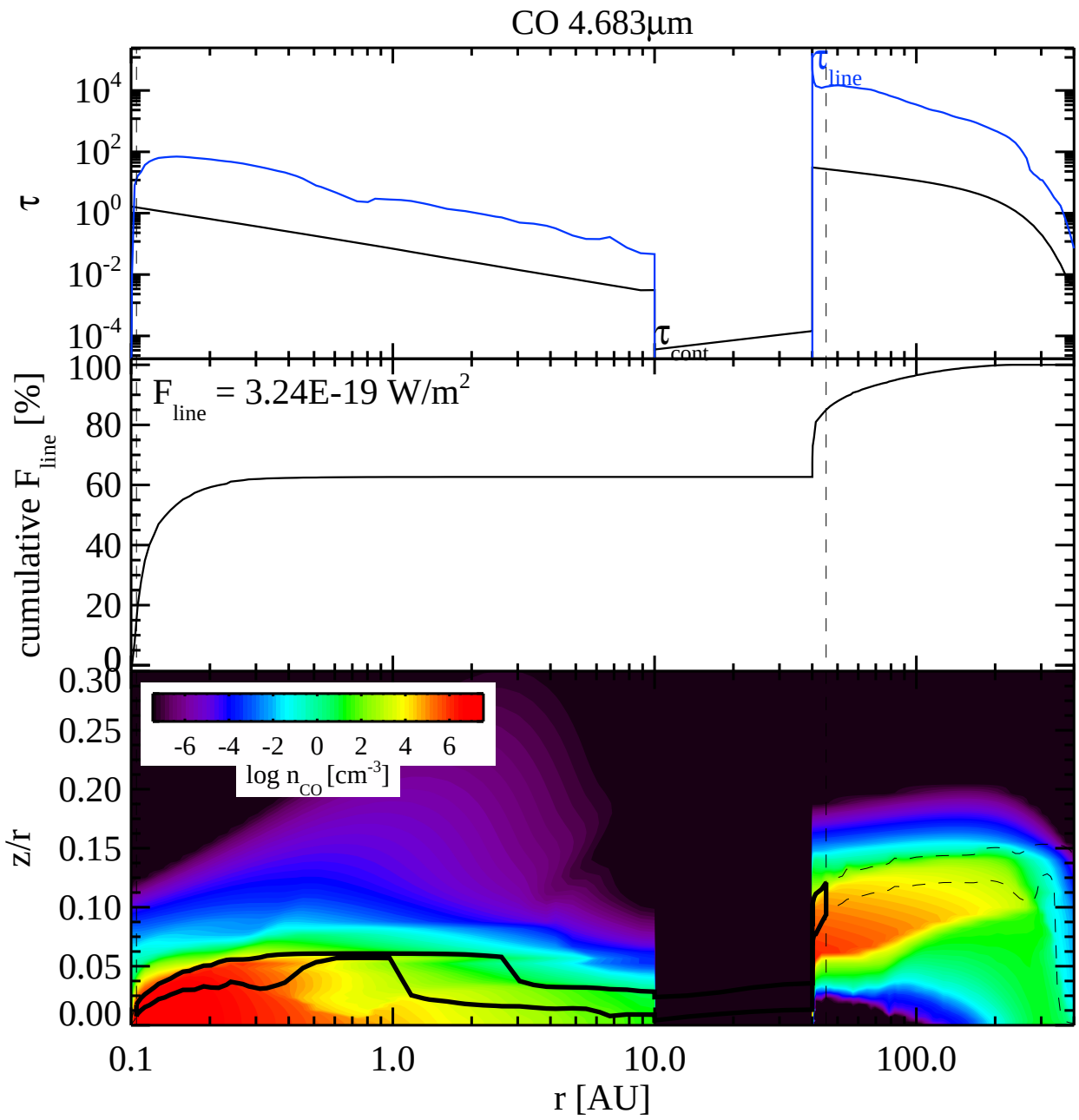

CO 79.36µm
τ
10.000000
1.000000
0.100000
0.010000
0.001000
0.000100
0.000010
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 4.17E-21 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

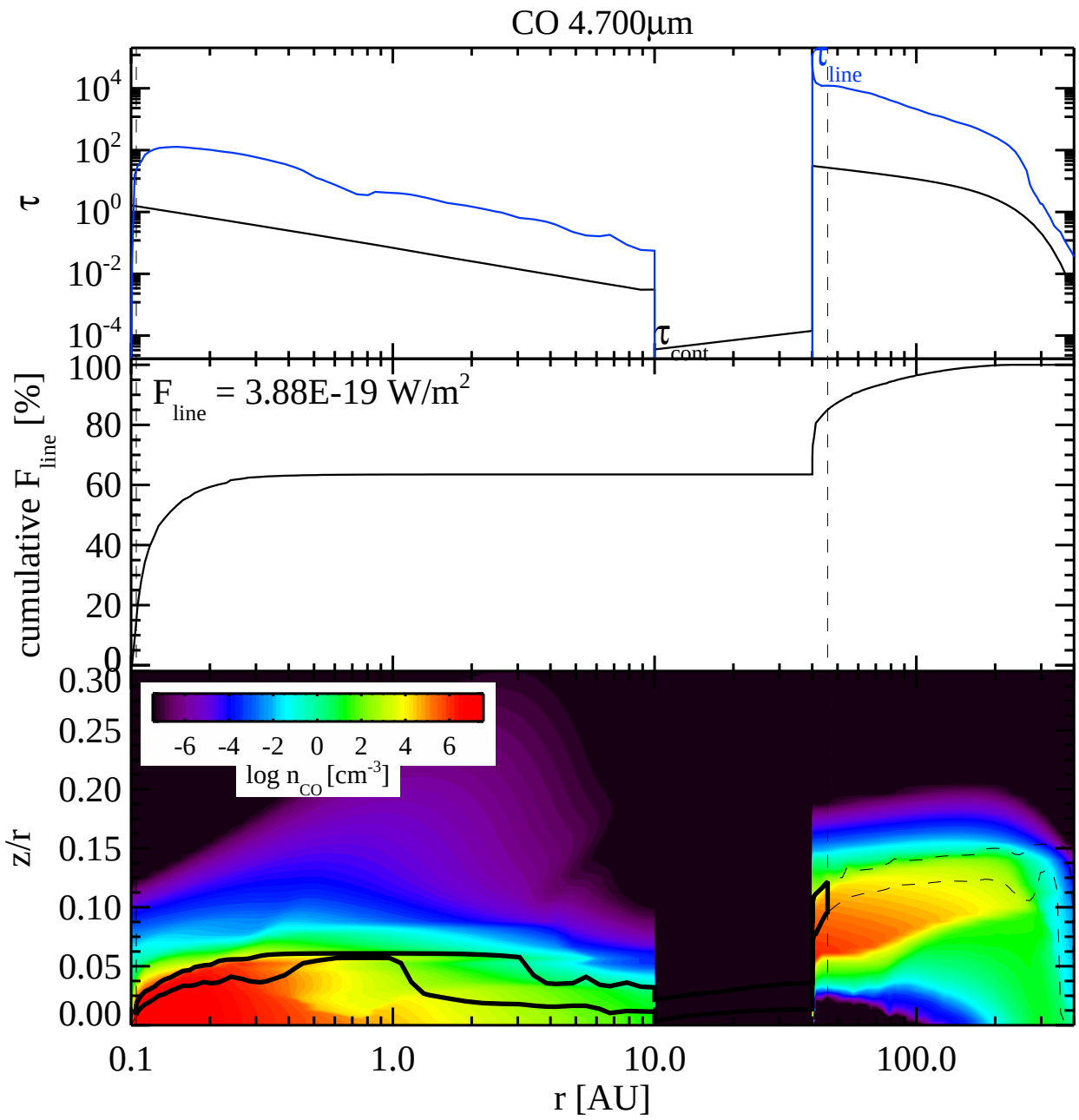

CO 72.84μm
τ
10.000000
1.000000
0.100000
0.010000
0.001000
0.000100
0.000010
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 2.06E-21 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

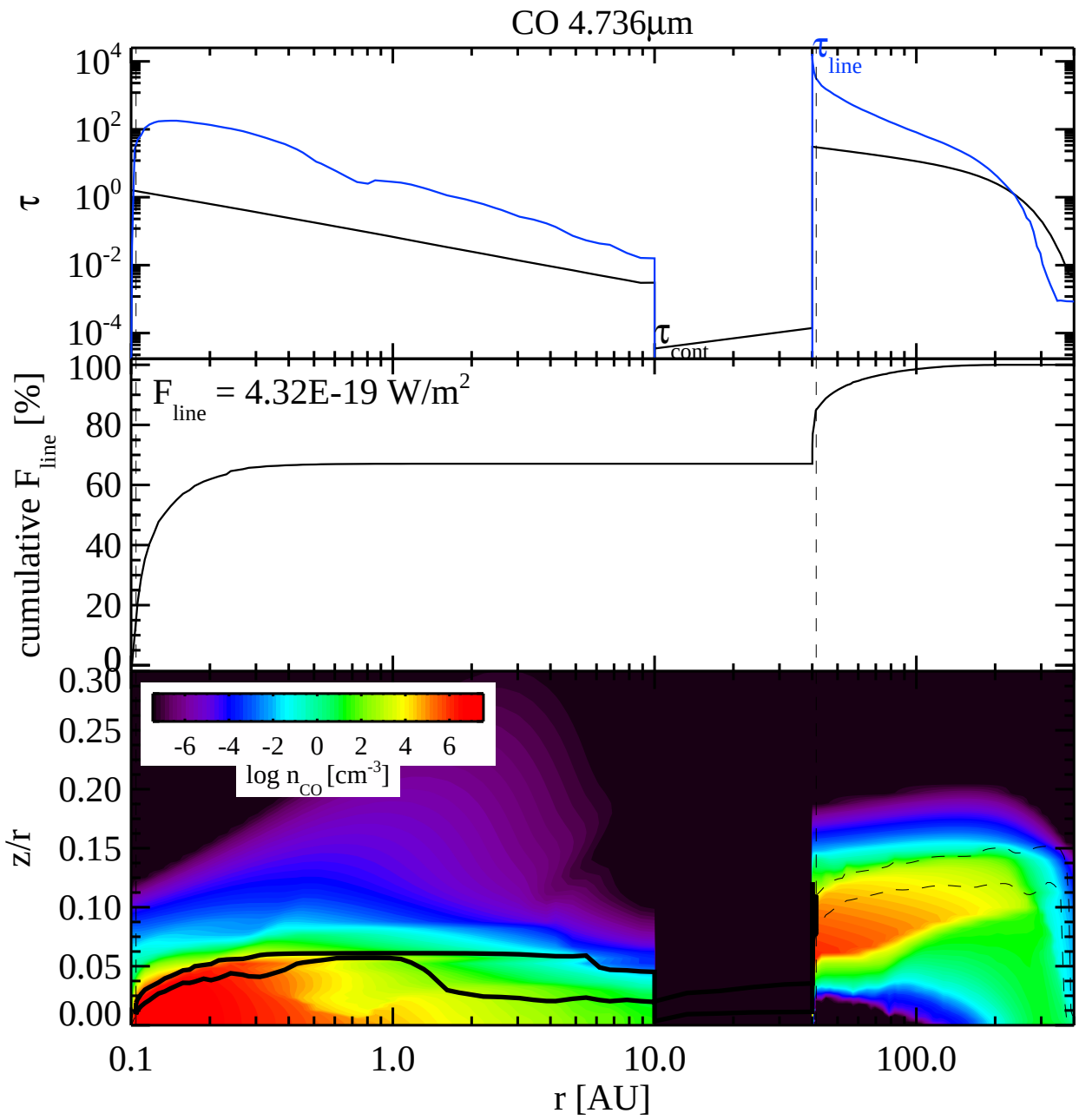

CO 4.633µm
τ
τ line
τ cont
cumulative F line [%]
F line = 3.32E-19 W/m2
log n CO [cm-3]
z/r
r [AU]

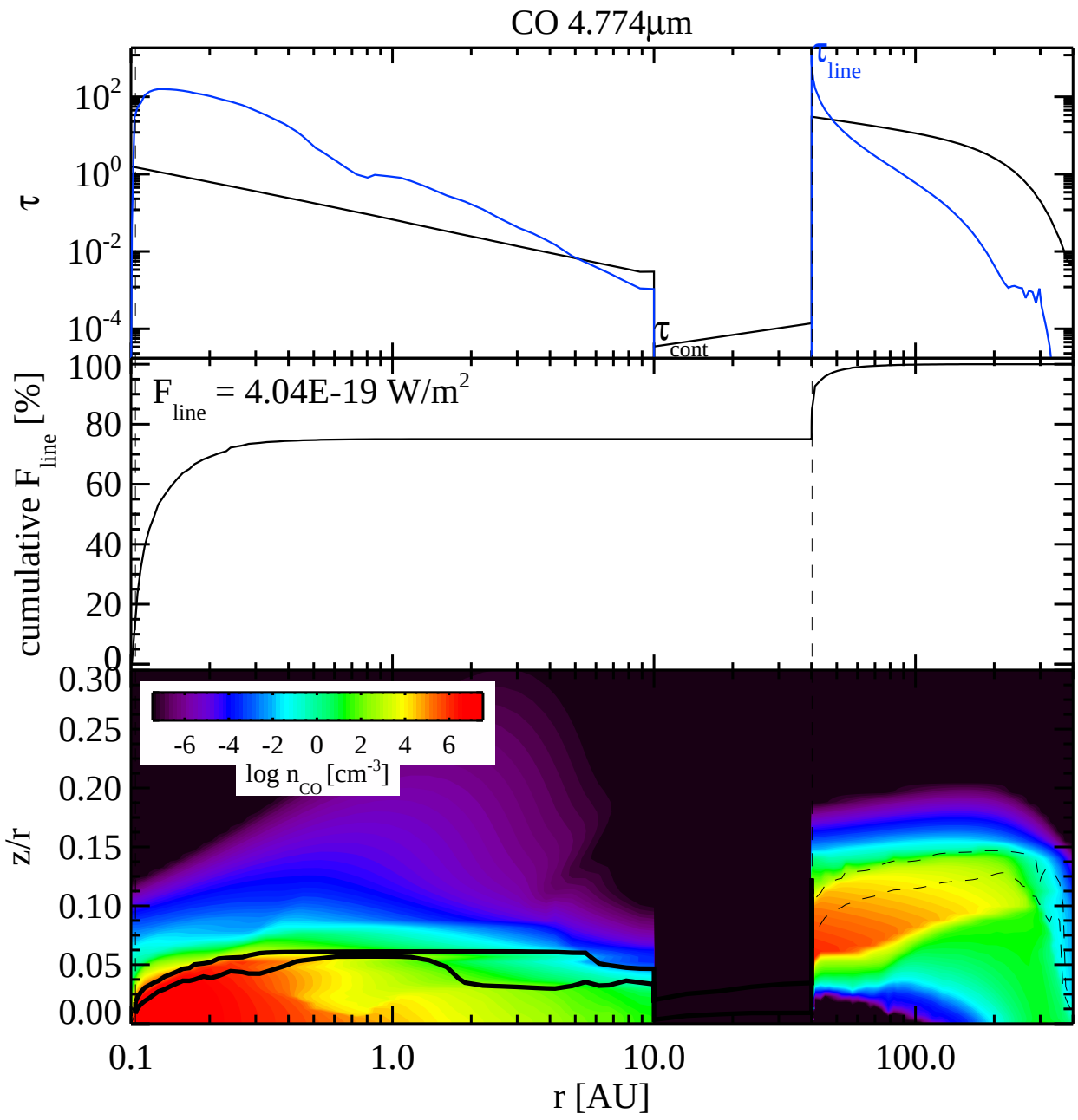

CO 4.657µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.63E-19 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{CO} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

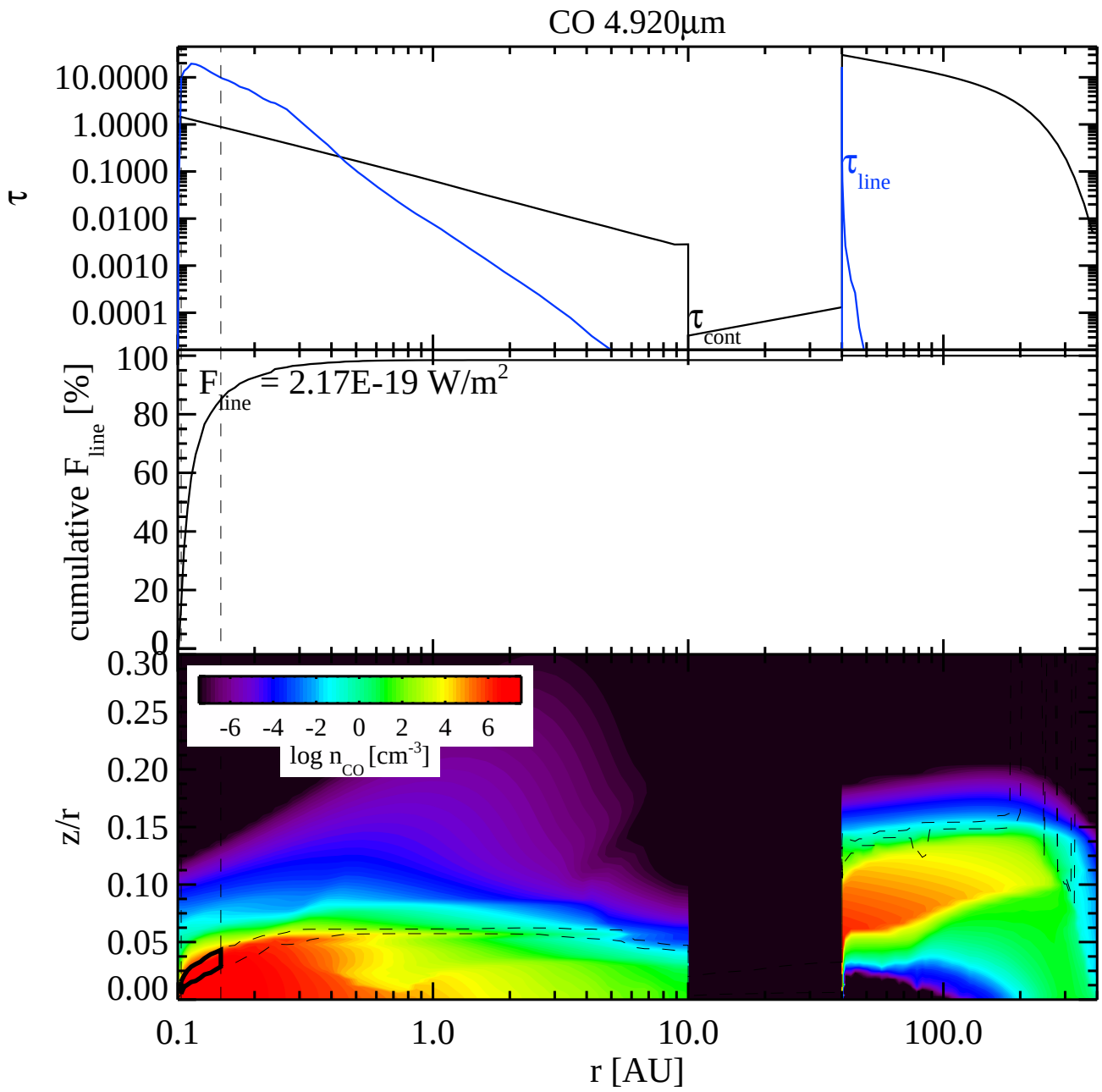

CO 4.674µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.68E-19 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{CO} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

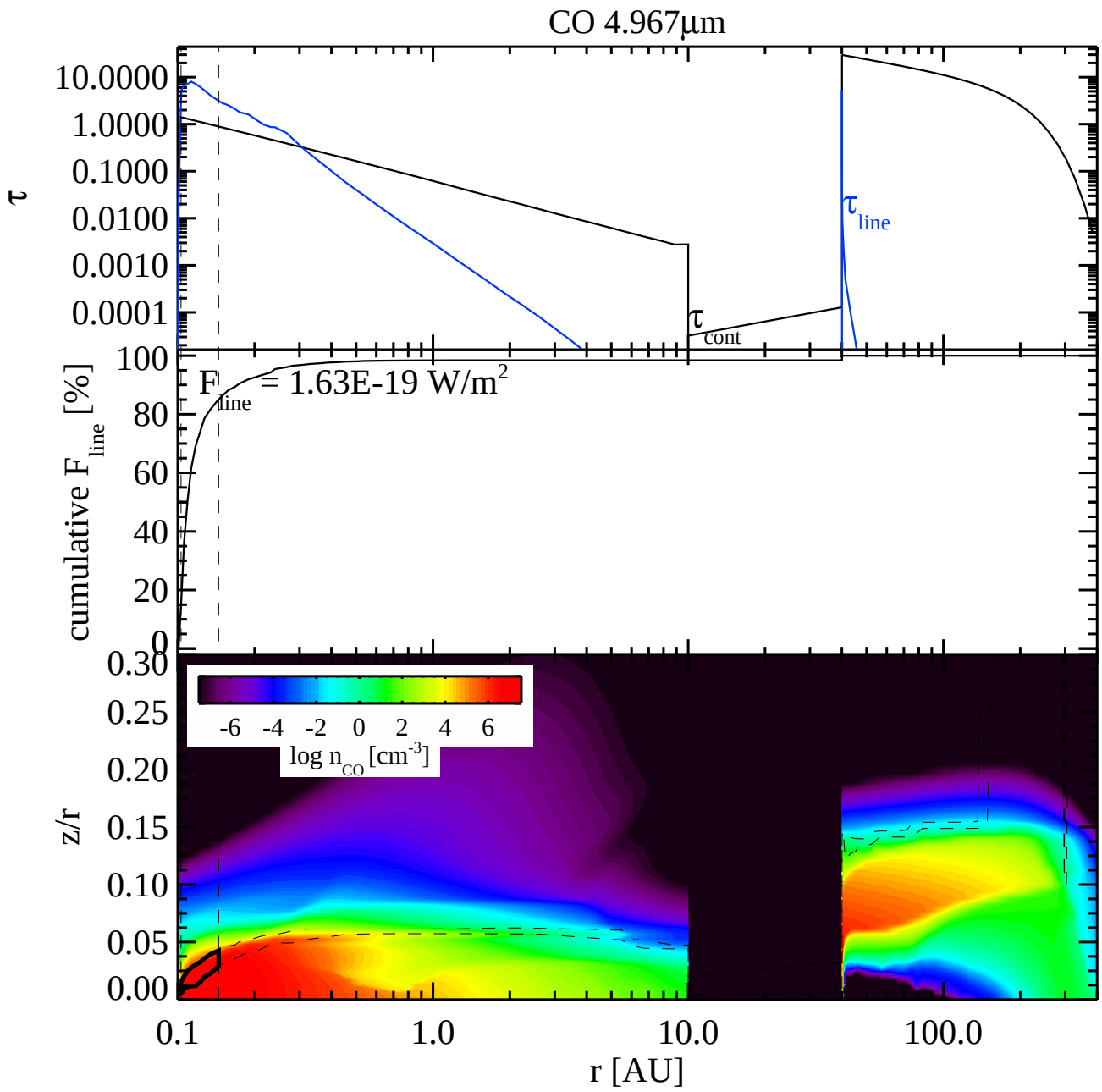

CO 4.683µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 3.24E-19 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{CO} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

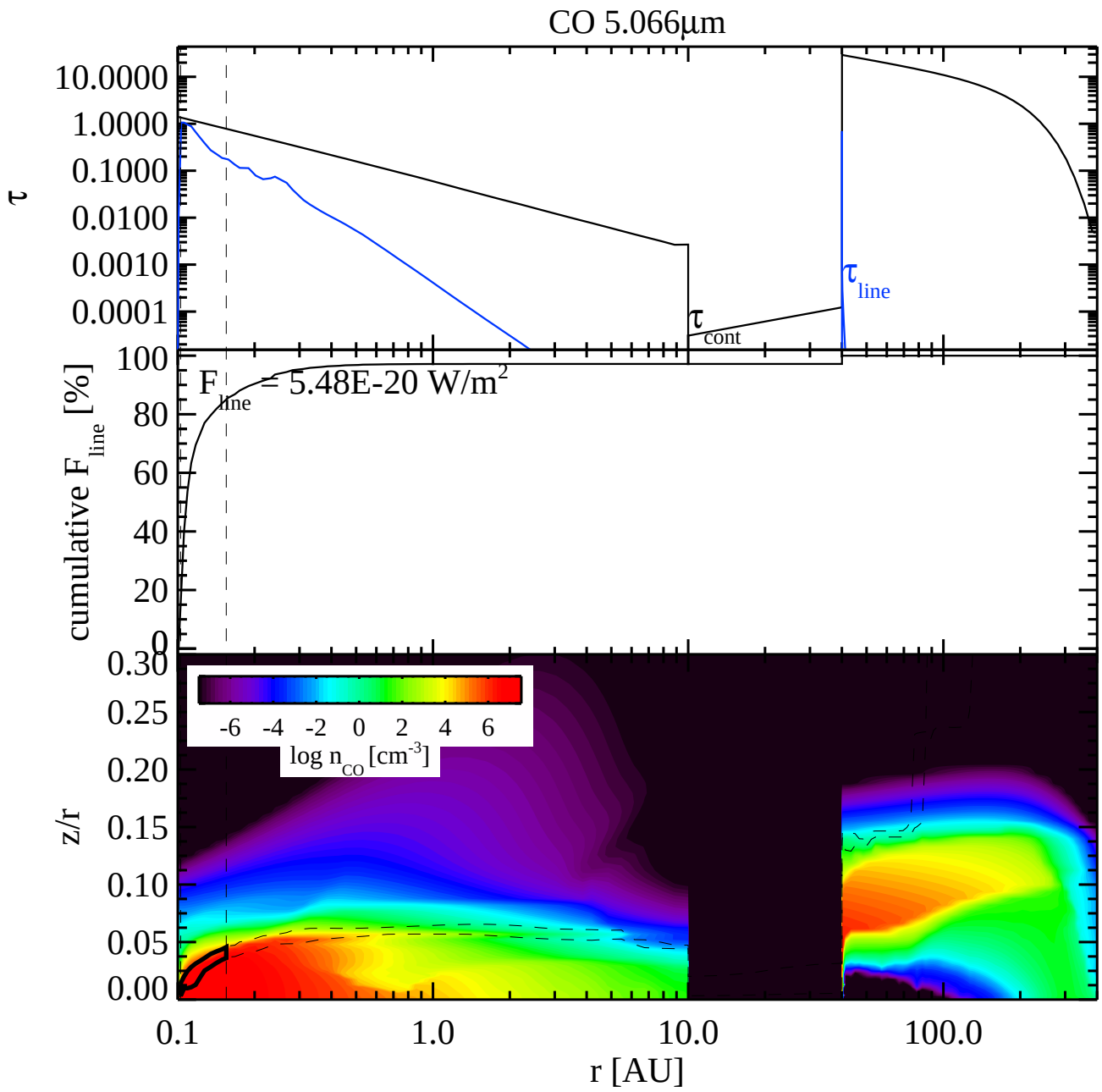

CO 4.700µm
τ
τ line
τ cont
cumulative F line [%]
F line = 3.88E-19 W/m2
log n CO [cm-3]
z/r
r [AU]

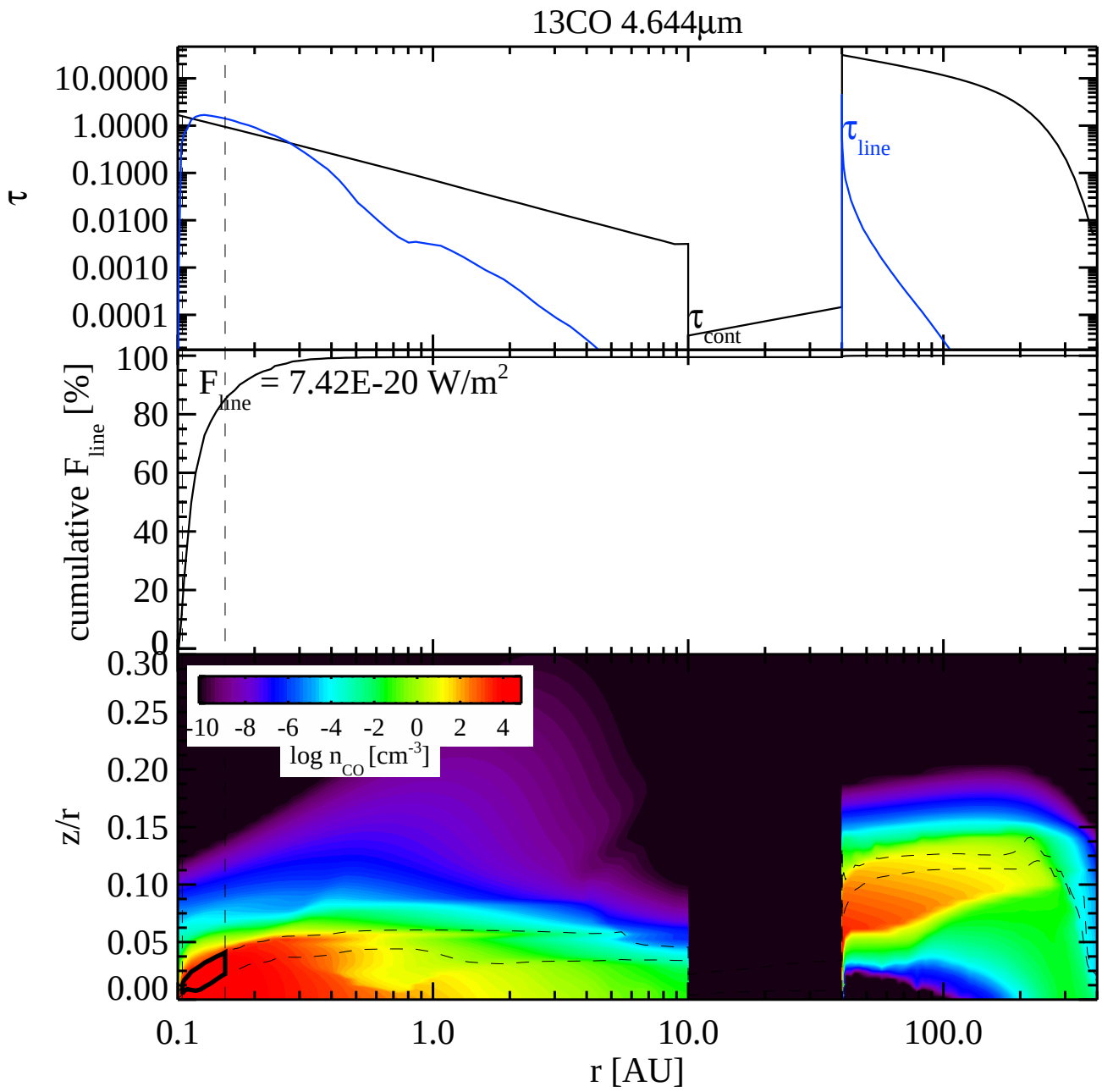

CO 4.736µm
τ
τ line
τ cont
cumulative F line [%]
F line = 4.32E-19 W/m2
log n CO [cm-3]
z/r
r [AU]

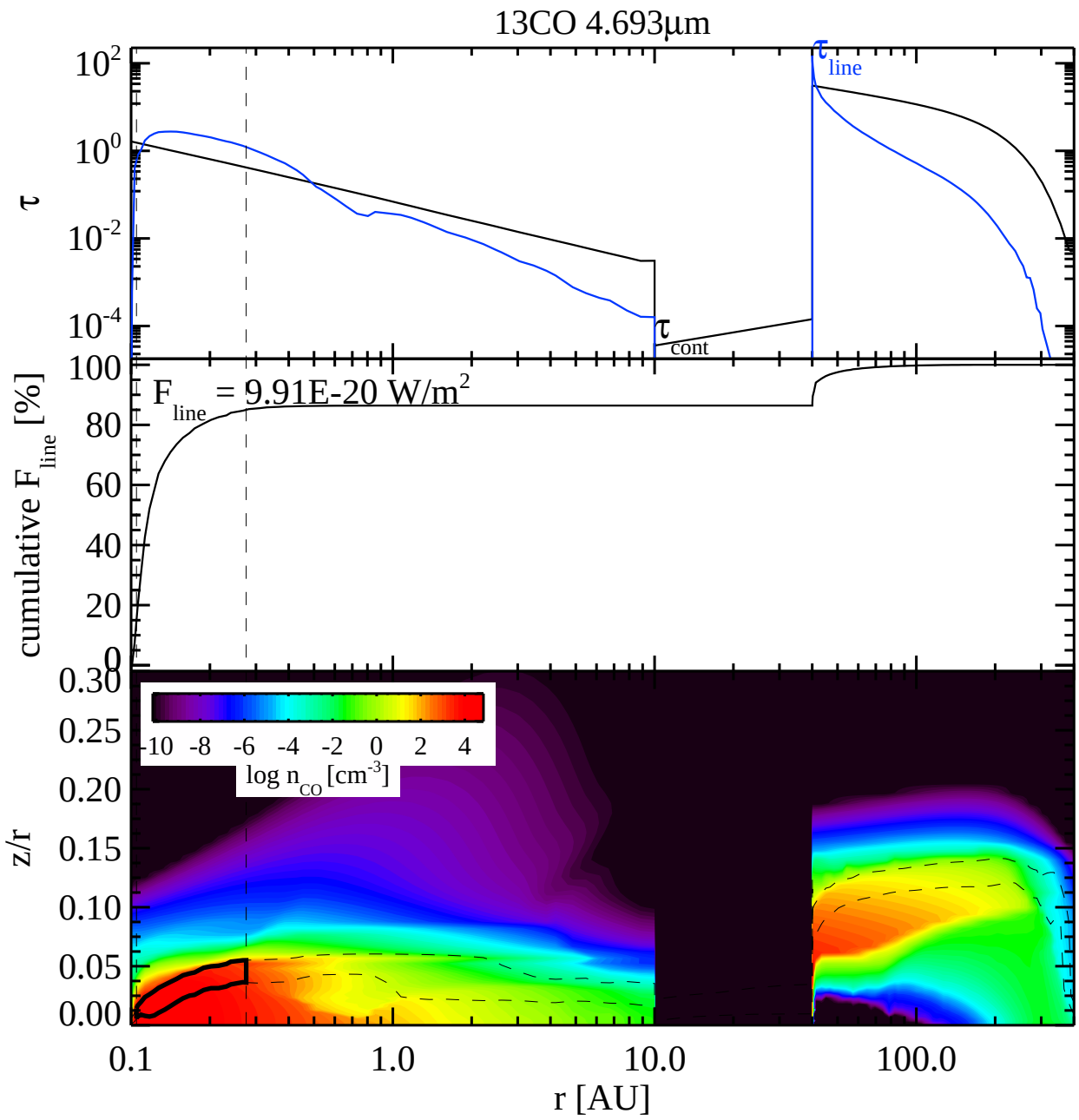

CO 4.774µm
τ
10^2
10^0
10^-2
10^-4
τ line
τ cont
cumulative F line [%]
F line = 4.04E-19 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n CO [cm^-3]
0.1
1.0
10.0
100.0
r [AU]

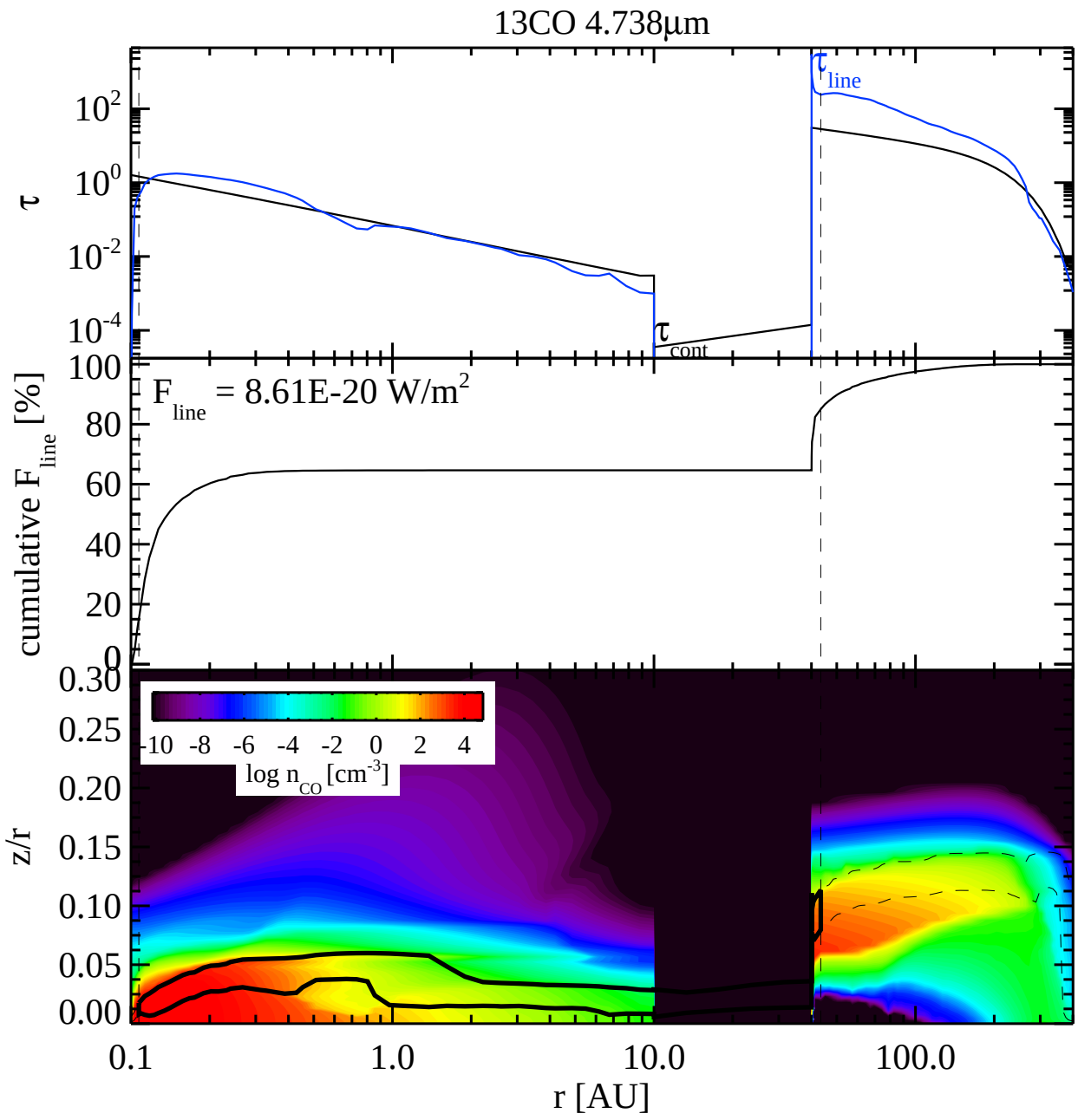

CO 4.920µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 2.17E-19 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

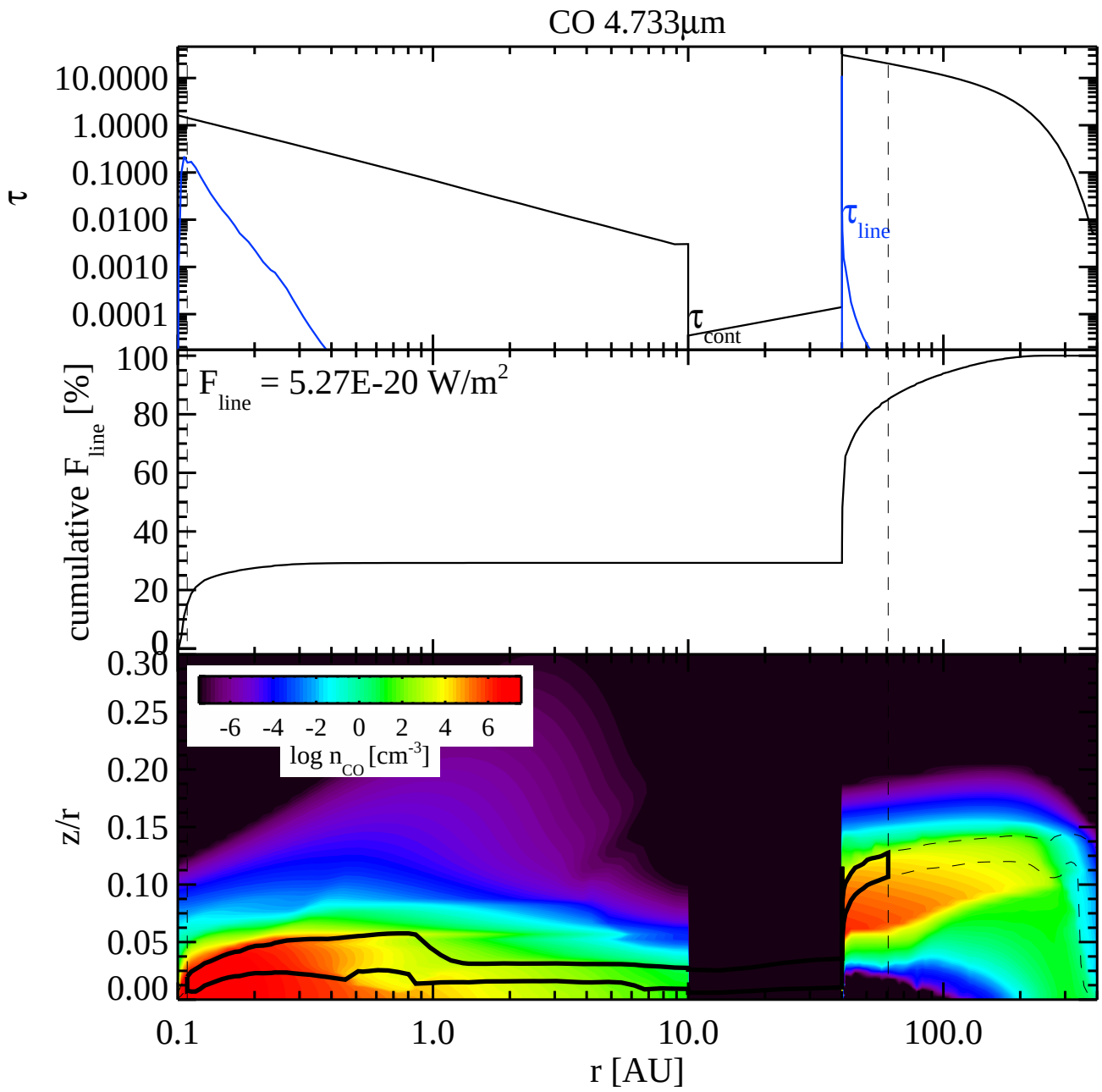

CO 4.967µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 1.63E-19 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

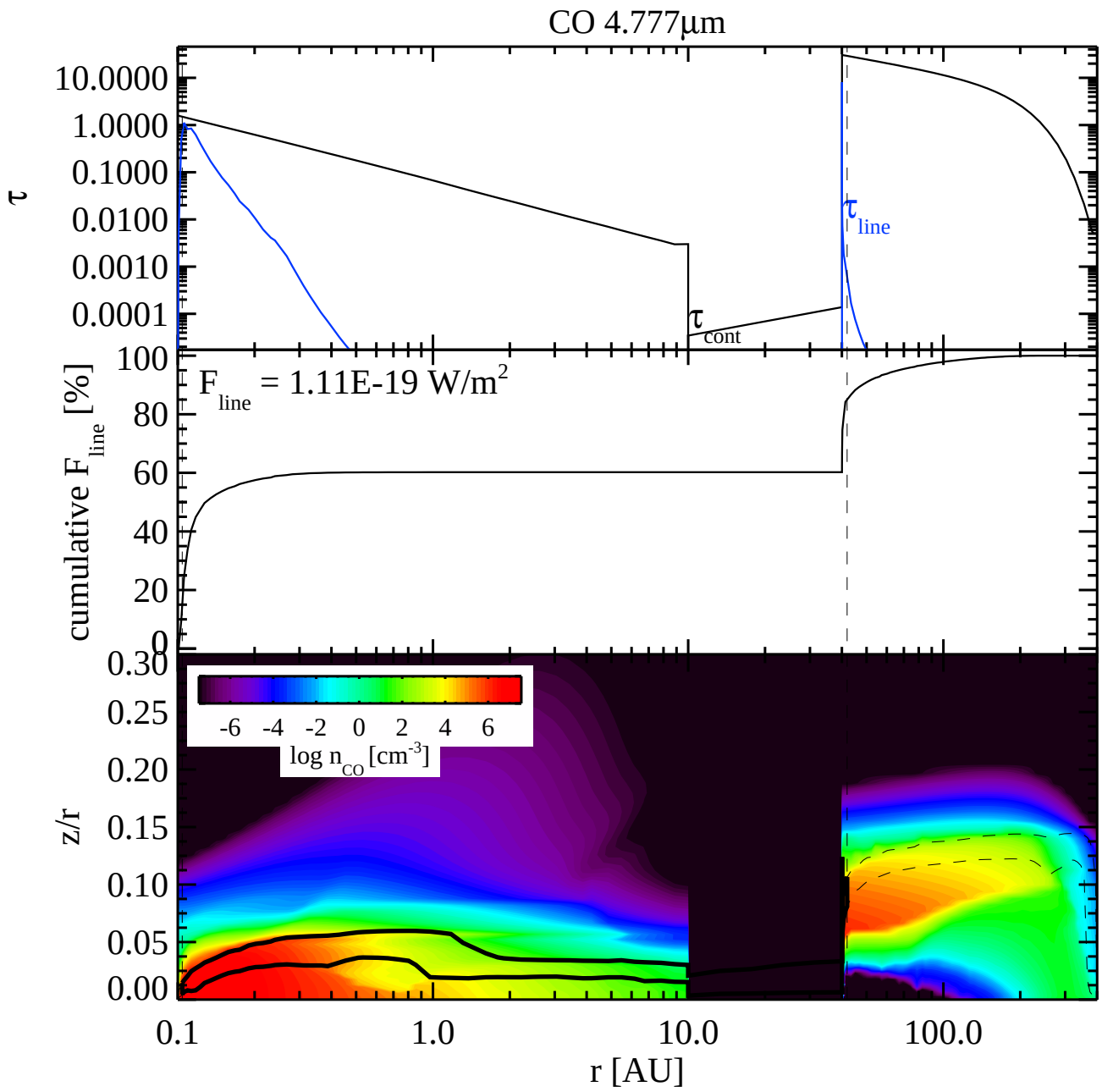

CO 5.066µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 5.48E-20 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

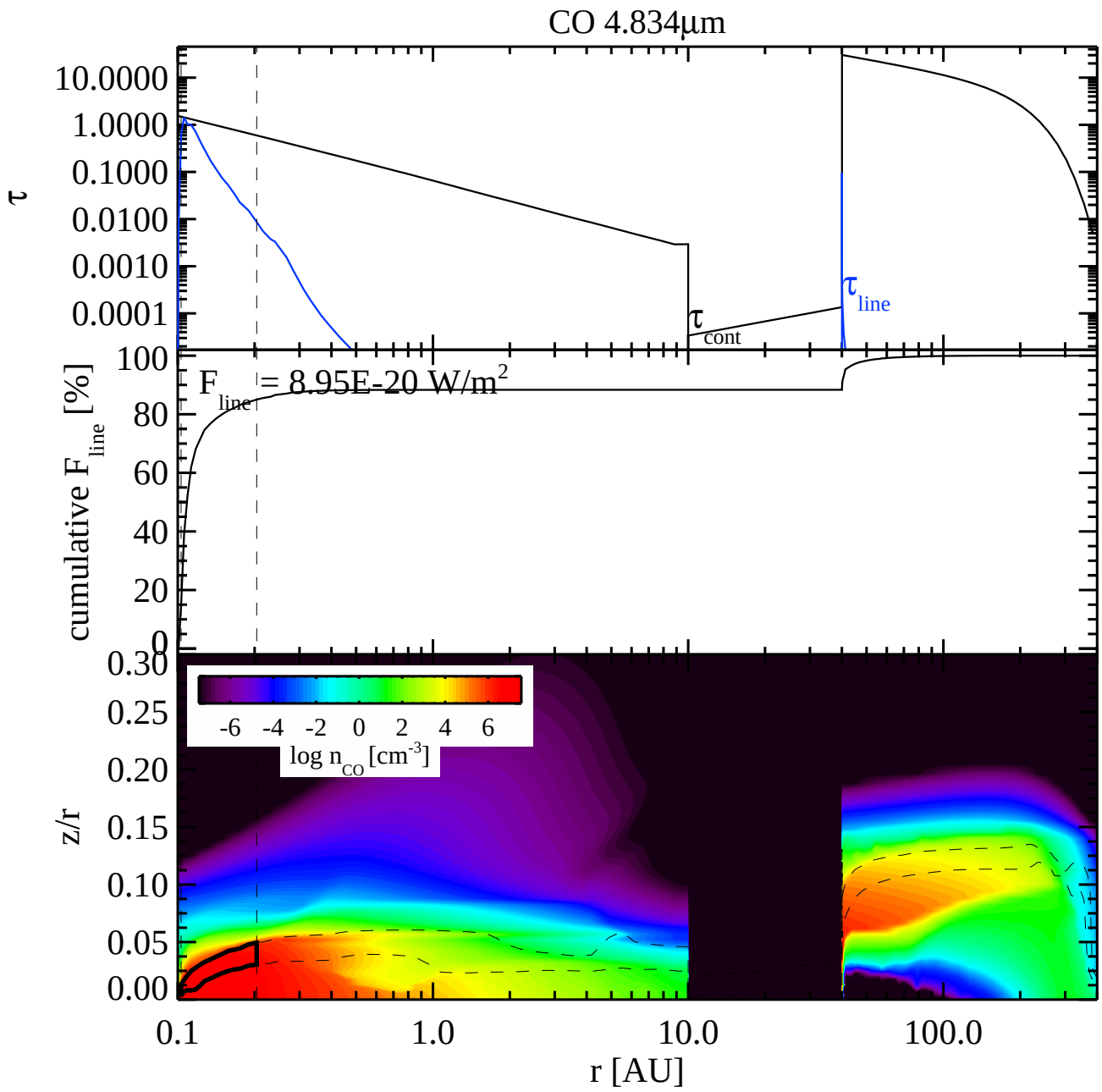

13CO 4.644µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 7.42E-20 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-10 -8 -6 -4 -2 0 2 4
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

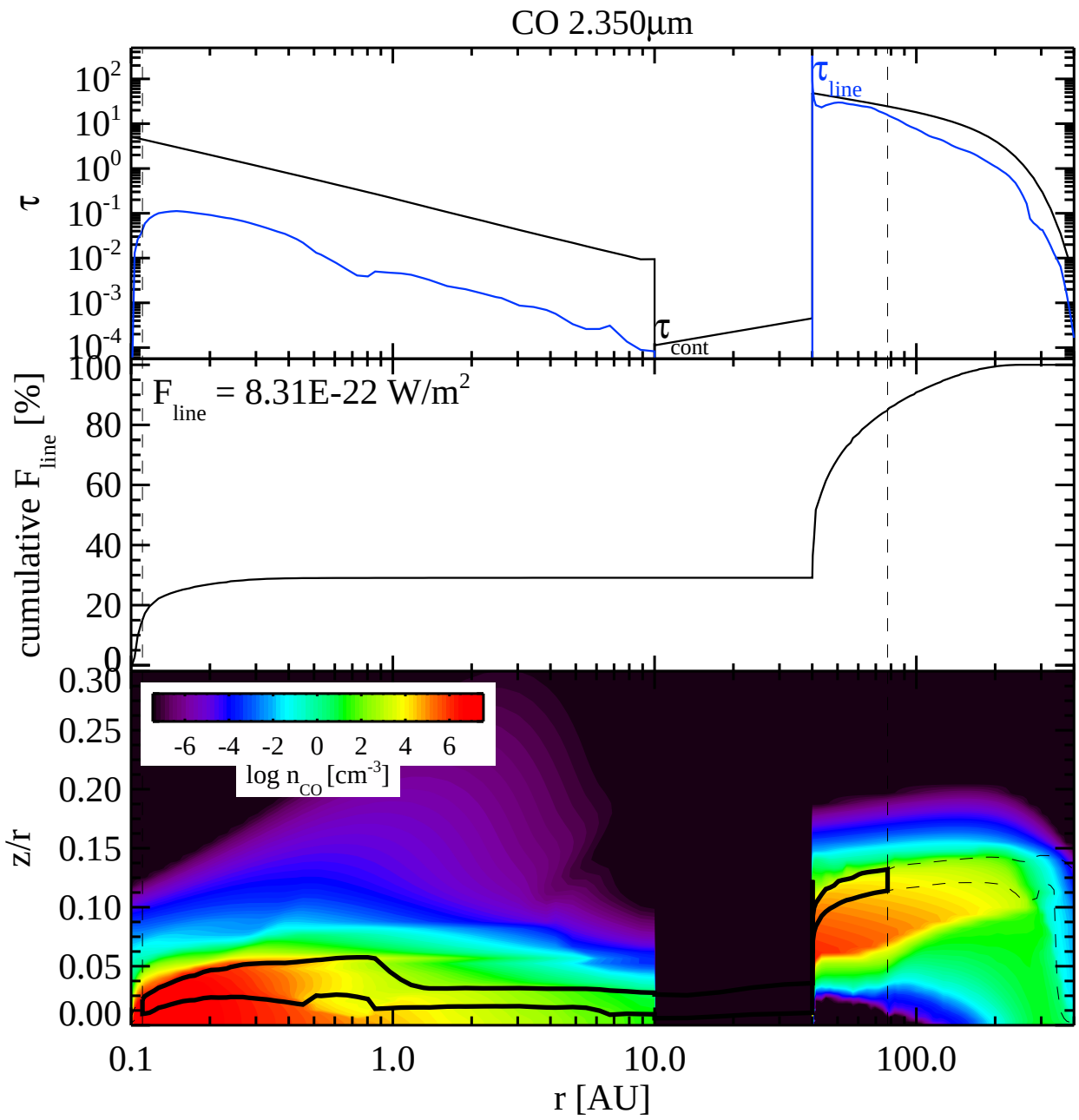

13CO 4.693µm
τ
τ line
τ cont
cumulative F line [%]
F line = 9.91E-20 W/m2
log n CO [cm-3]
z/r
r [AU]

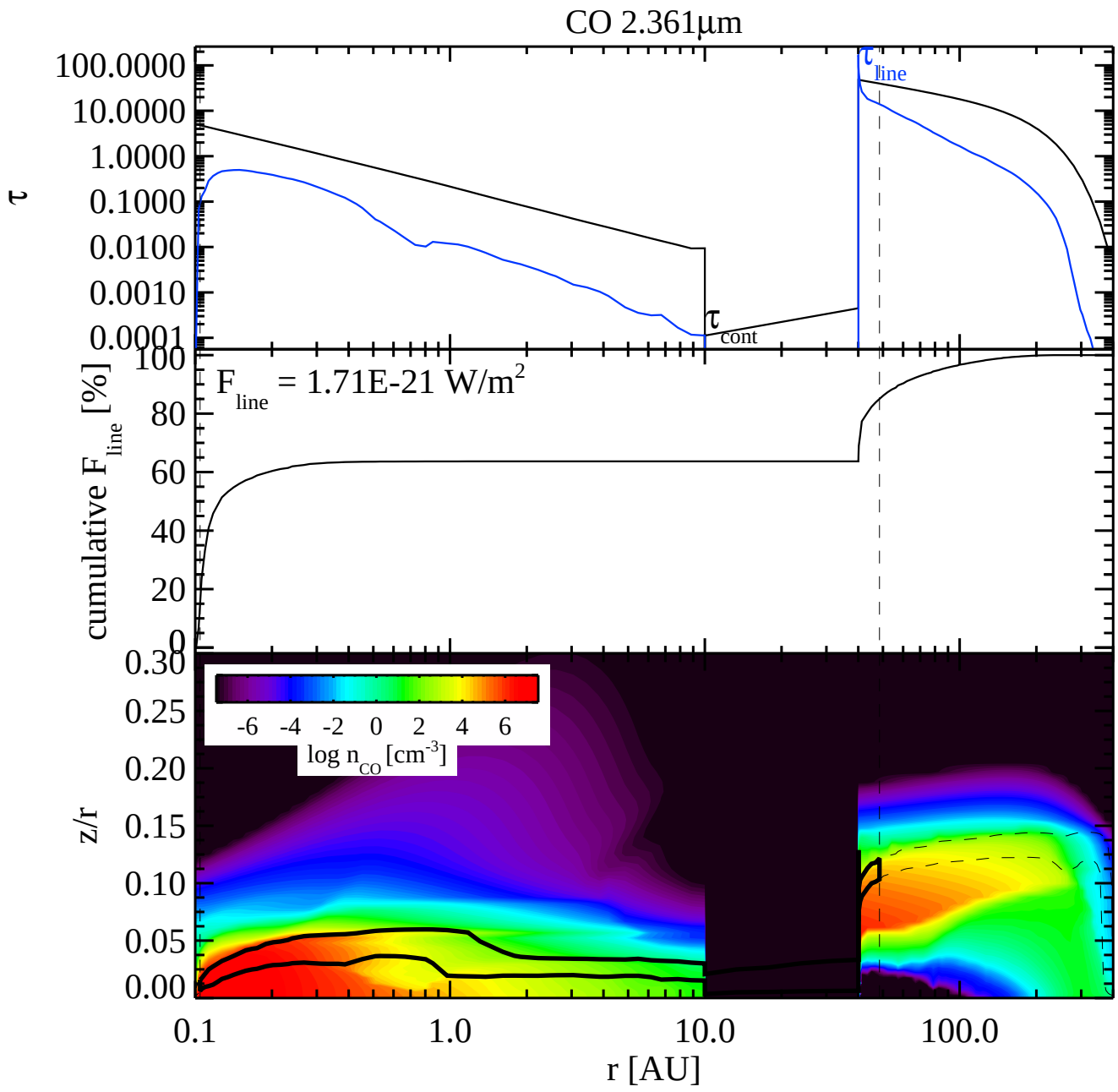

13CO 4.738µm
τ
τ line
τ cont
cumulative F line [%]
F line = 8.61E-20 W/m2
log n CO [cm-3]
z/r
r [AU]

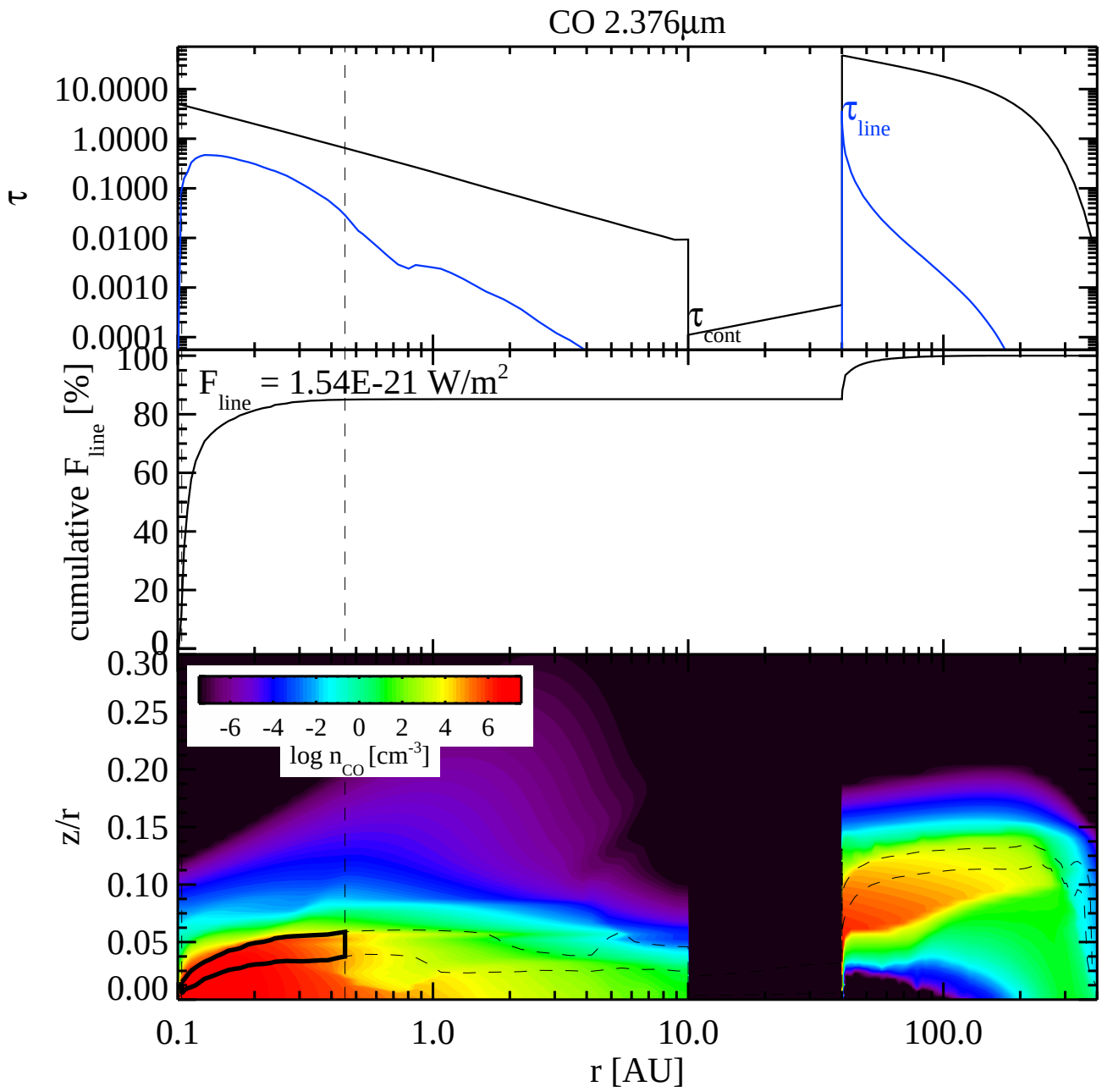

CO 4.733µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ cont
τ line
τ cont
F line = 5.27E-20 W/m2
cumulative F line [%]
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

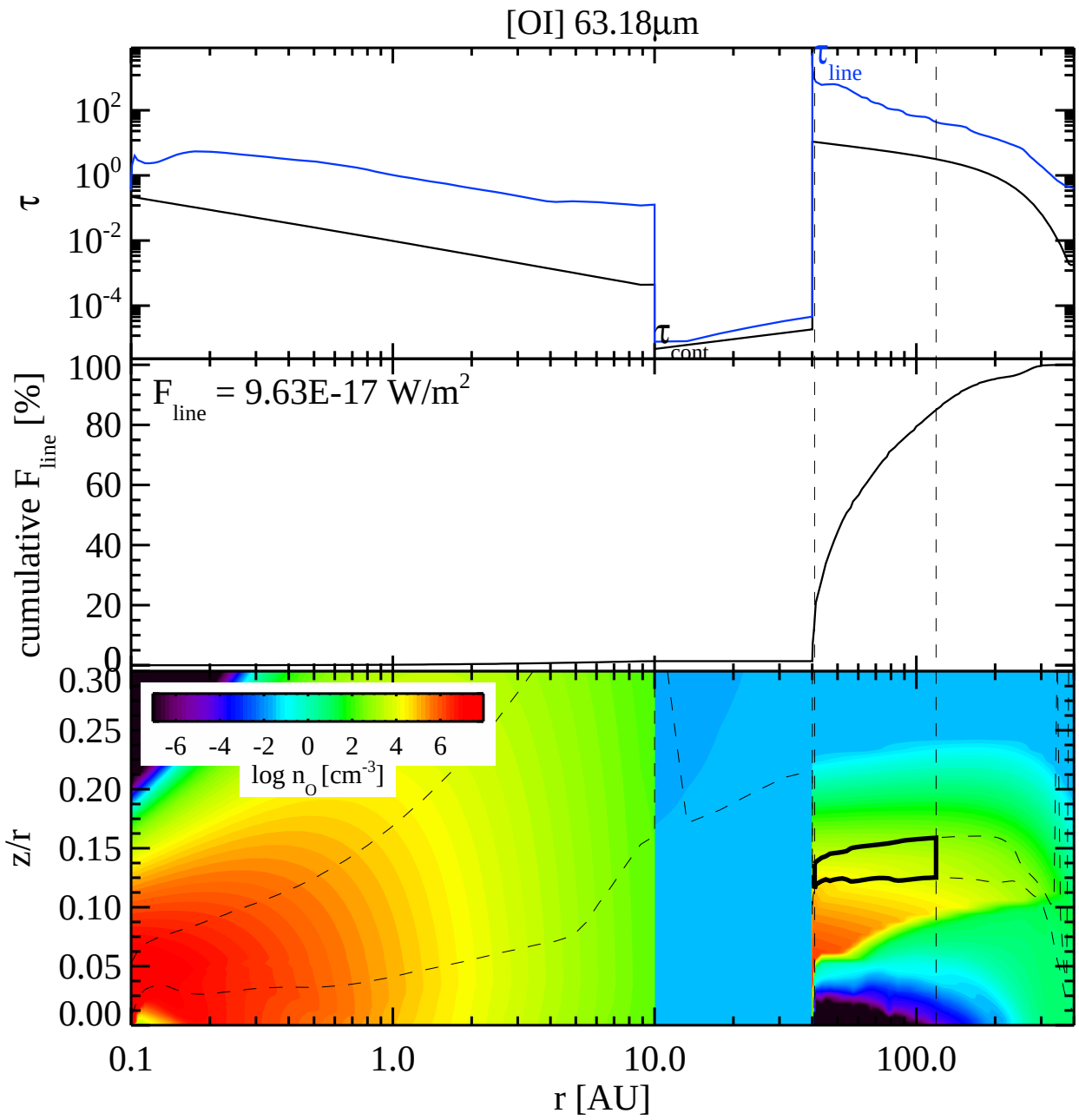

CO 4.777µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 1.11E-19 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

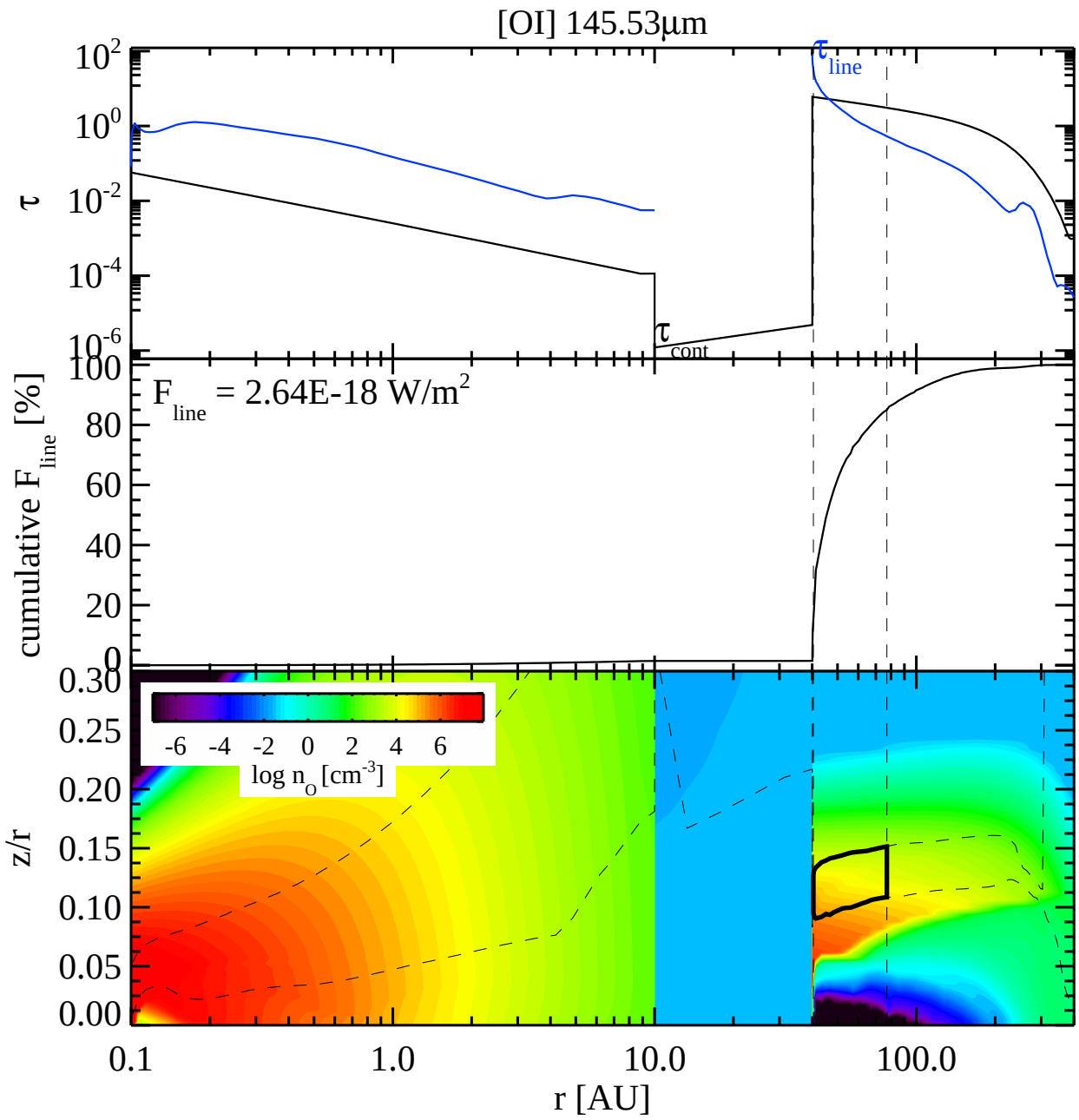

CO 4.834µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ cont
τ line
cumulative F line [%]
F line = 8.95E-20 W/m2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

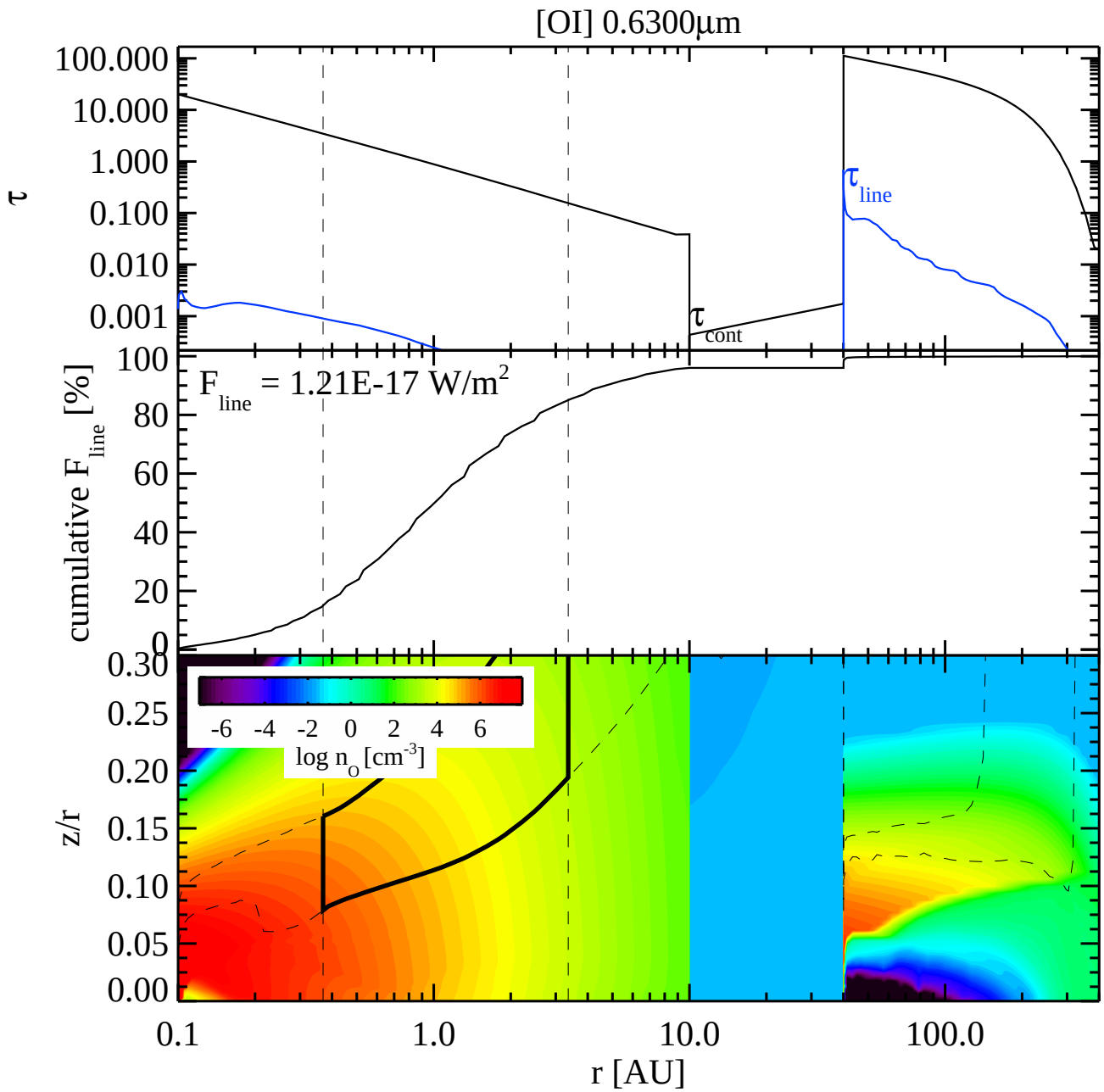

CO 2.350µm
τ
τ line
τ cont
cumulative F line [%]
F line = 8.31E-22 W/m2
log n CO [cm-3]
z/r
r [AU]

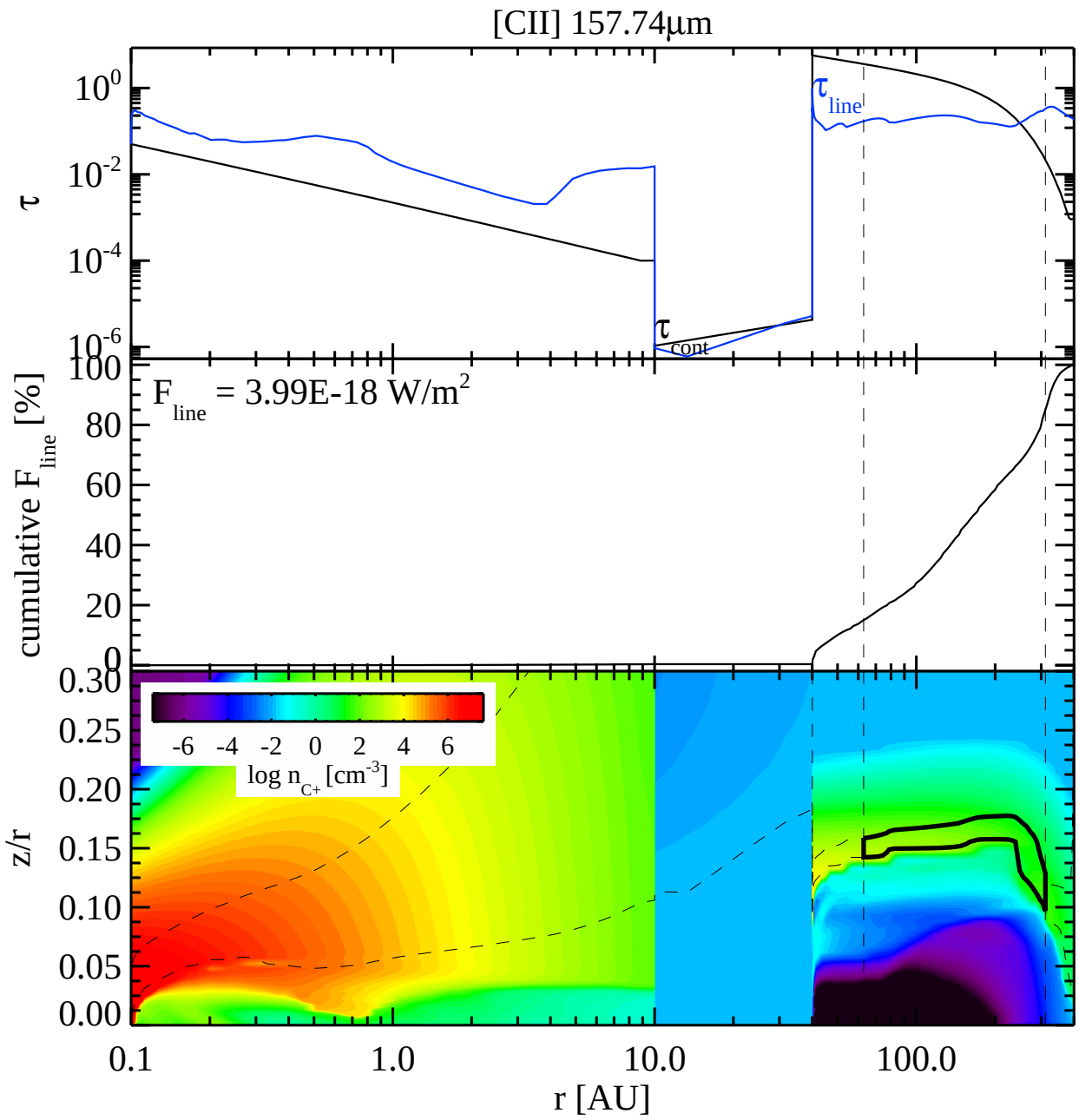

CO 2.361µm
τ
100.0000
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 1.71E-21 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

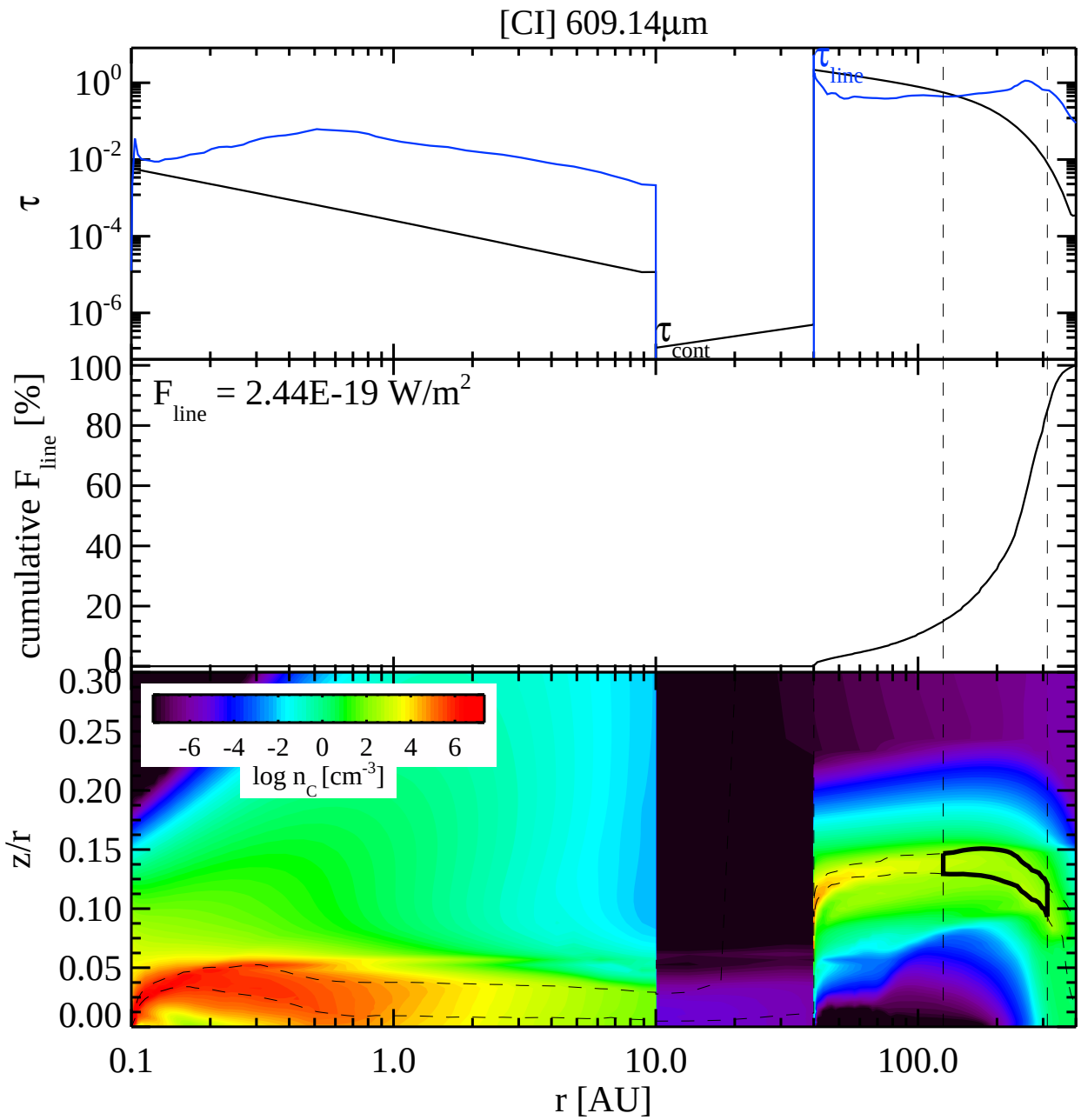

CO 2.376µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 1.54E-21 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n CO [cm-3]
0.1
1.0
10.0
100.0
r [AU]

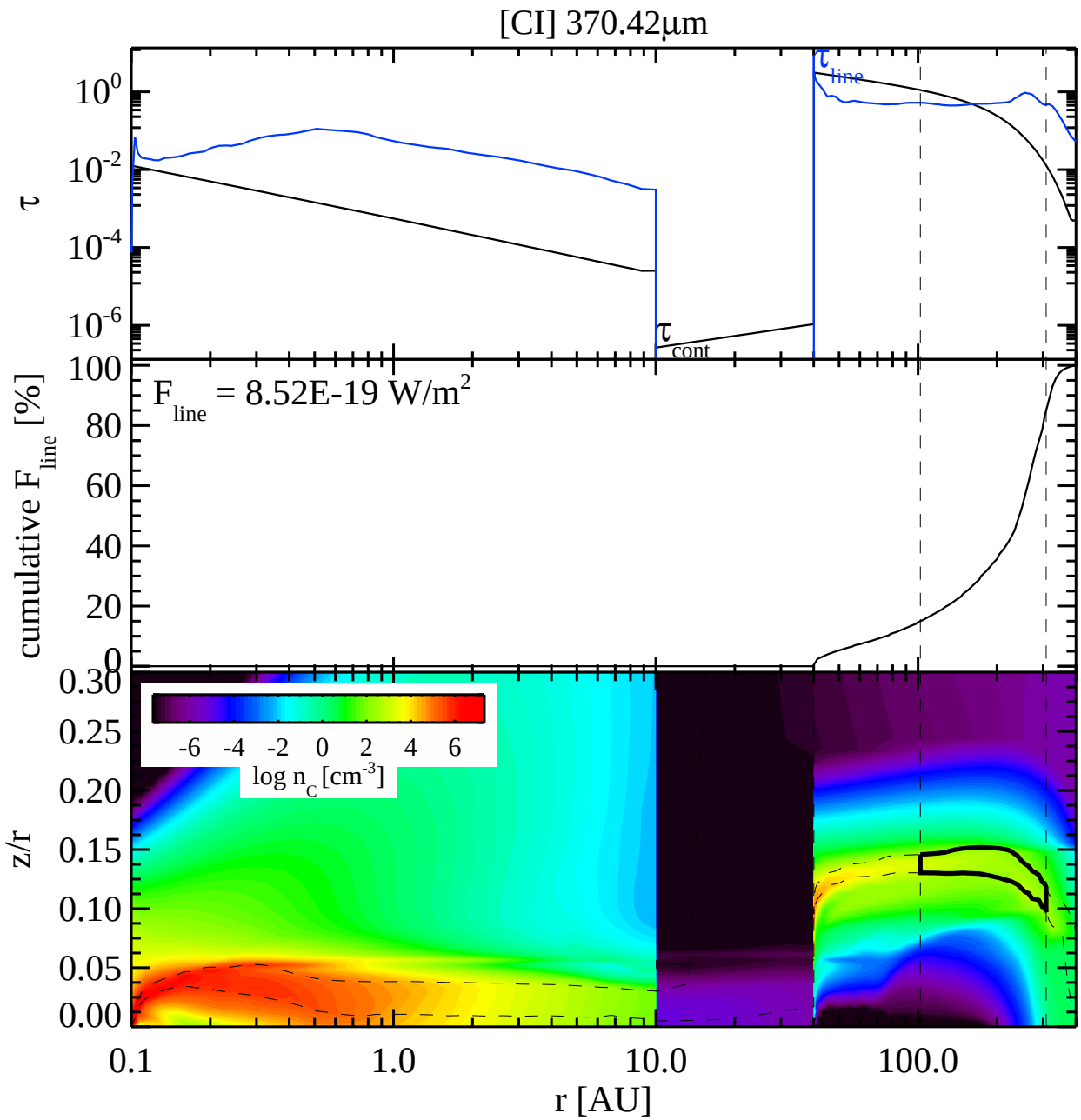

[OI] 63.18µm
τ
τ line
τ cont
cumulative F line [%]
F line = 9.63E-17 W/m2
log n O [cm-3]
z/r
r [AU]

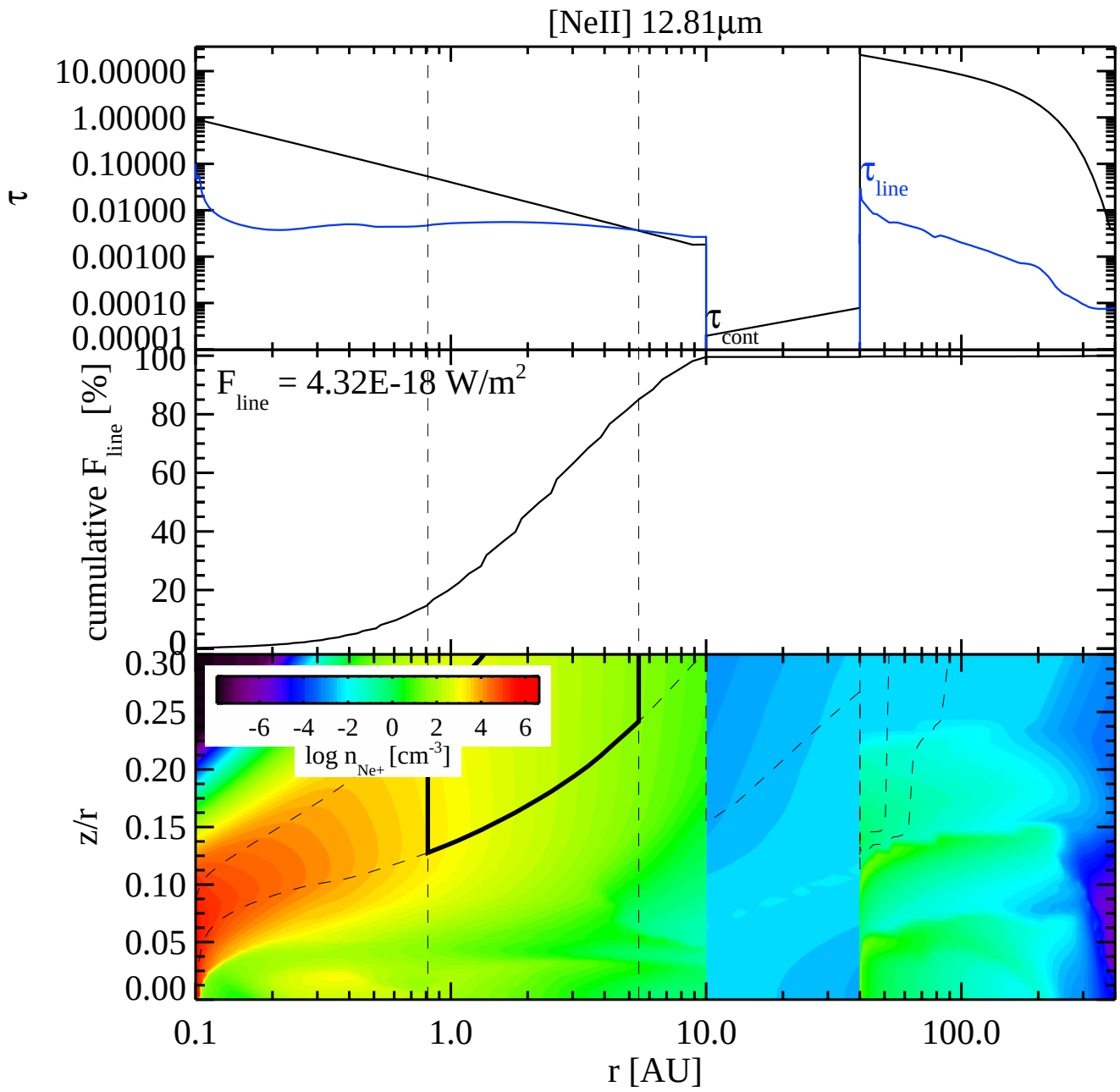

[OI] 145.53µm
τ
τ line
τ cont
cumulative F line [%]
F line = 2.64E-18 W/m2
-6 -4 -2 0 2 4 6
log n O [cm-3]
z/r
r [AU]
0.1
1.0
10.0
100.0

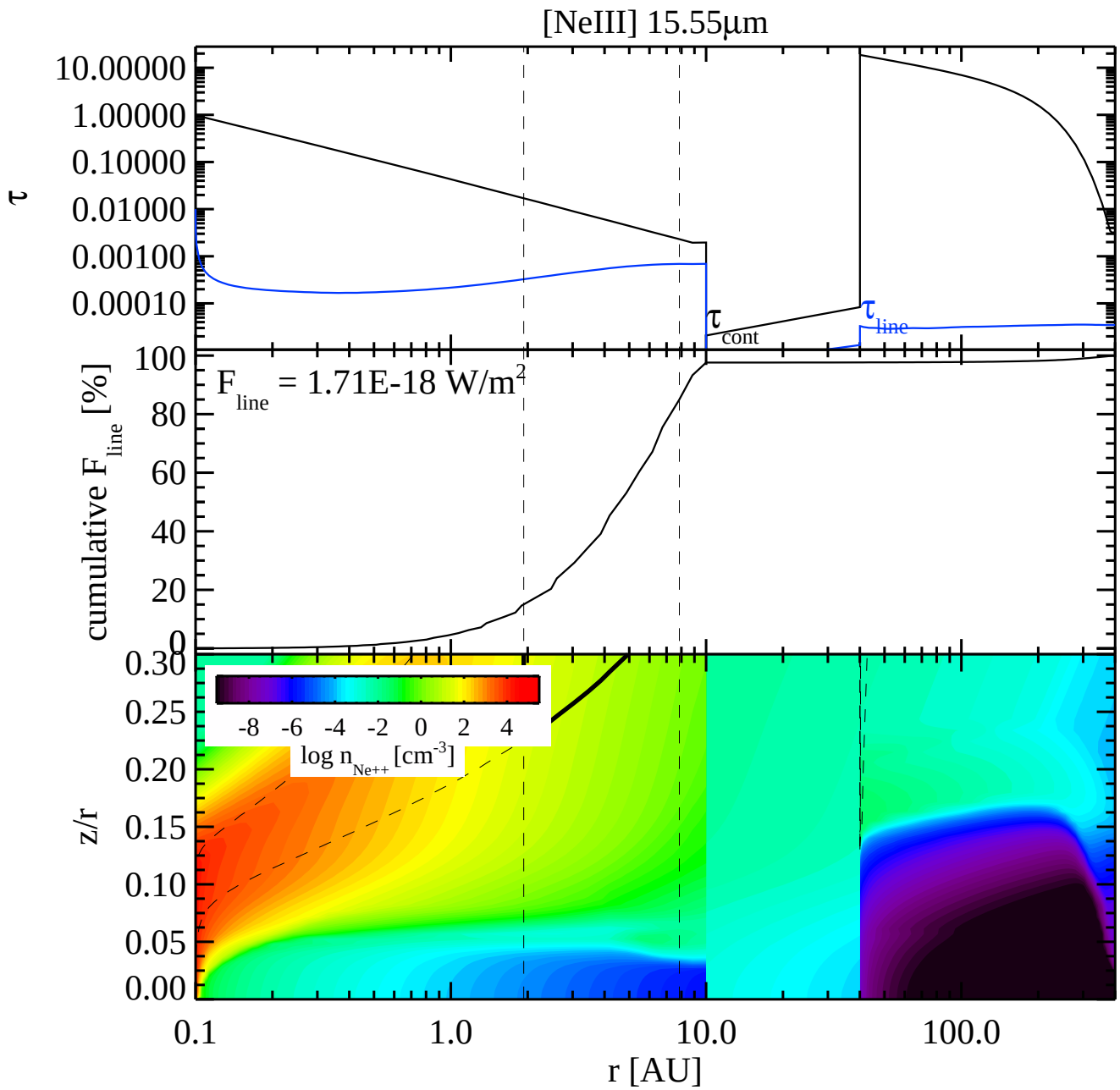

[OI] 0.6300µm
τ
100.000
10.000
1.000
0.100
0.010
0.001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 1.21E-17 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n O [cm-3]
0.1
1.0
10.0
100.0
r [AU]

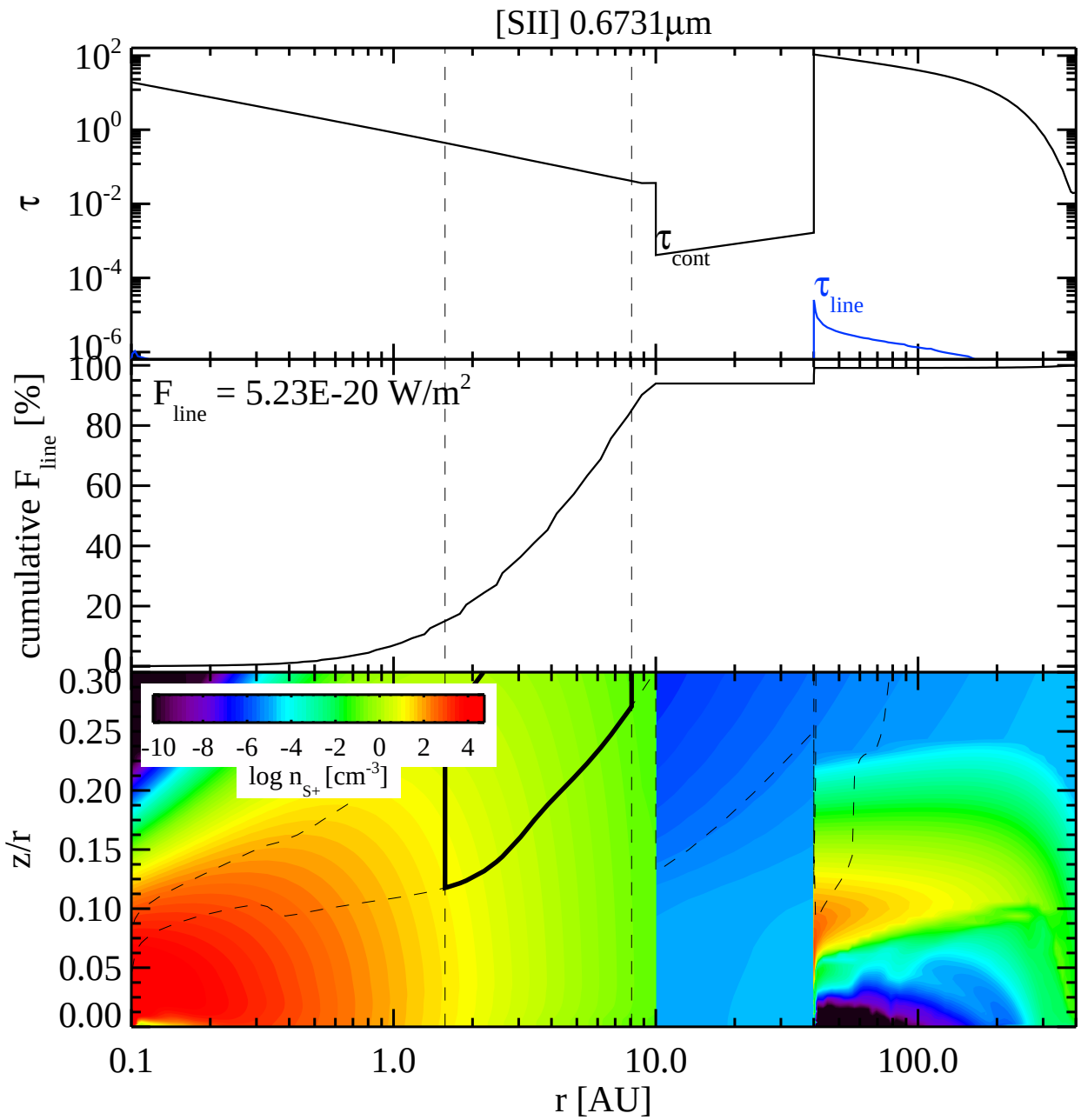

[CII] 157.74µm
τ
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 3.99E-18 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{C+} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

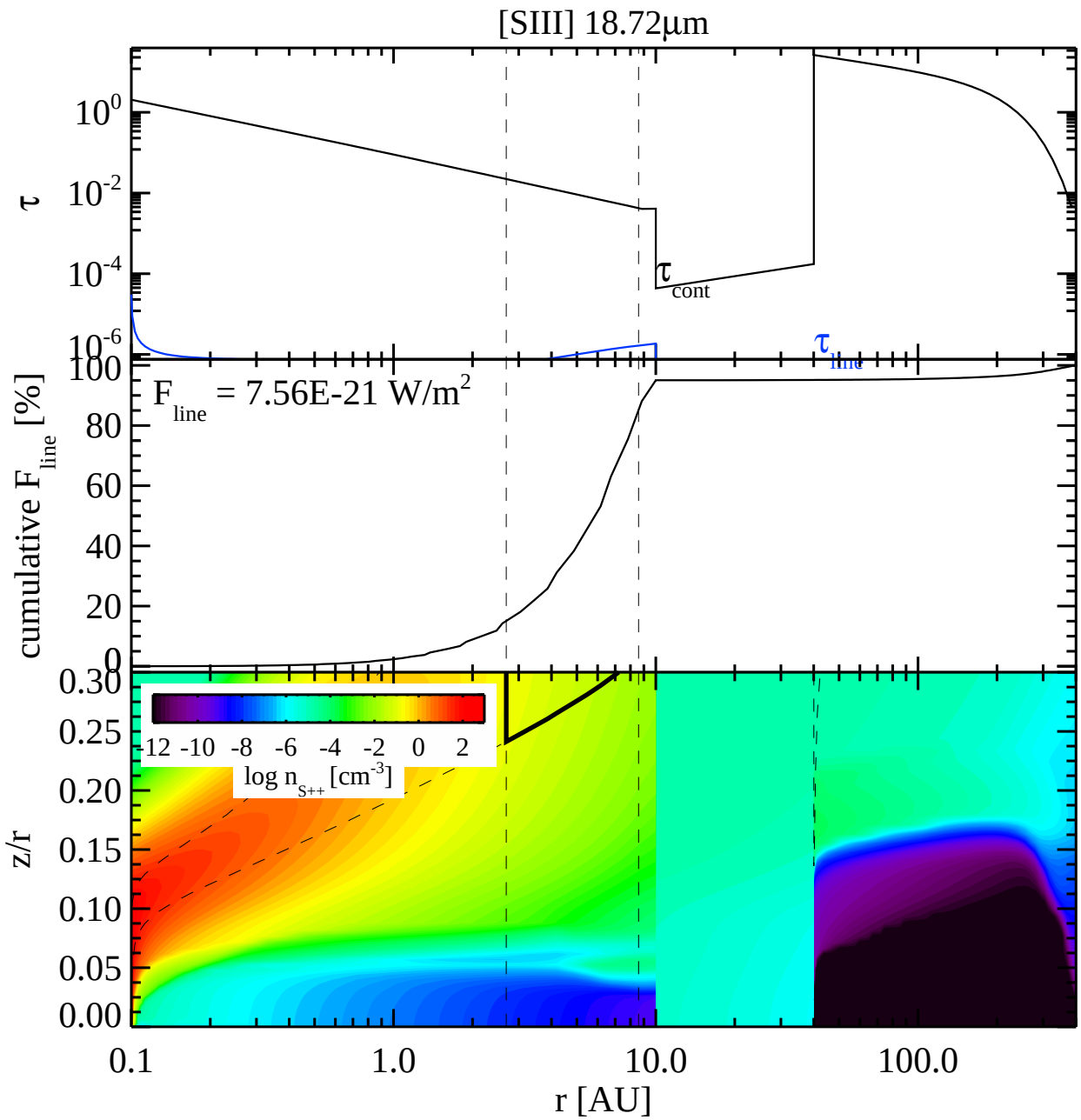

[CI] 609.14µm
τ
τ line
τ cont
cumulative F line [%]
F line = 2.44E-19 W/m2
log n C [cm-3]
z/r
r [AU]

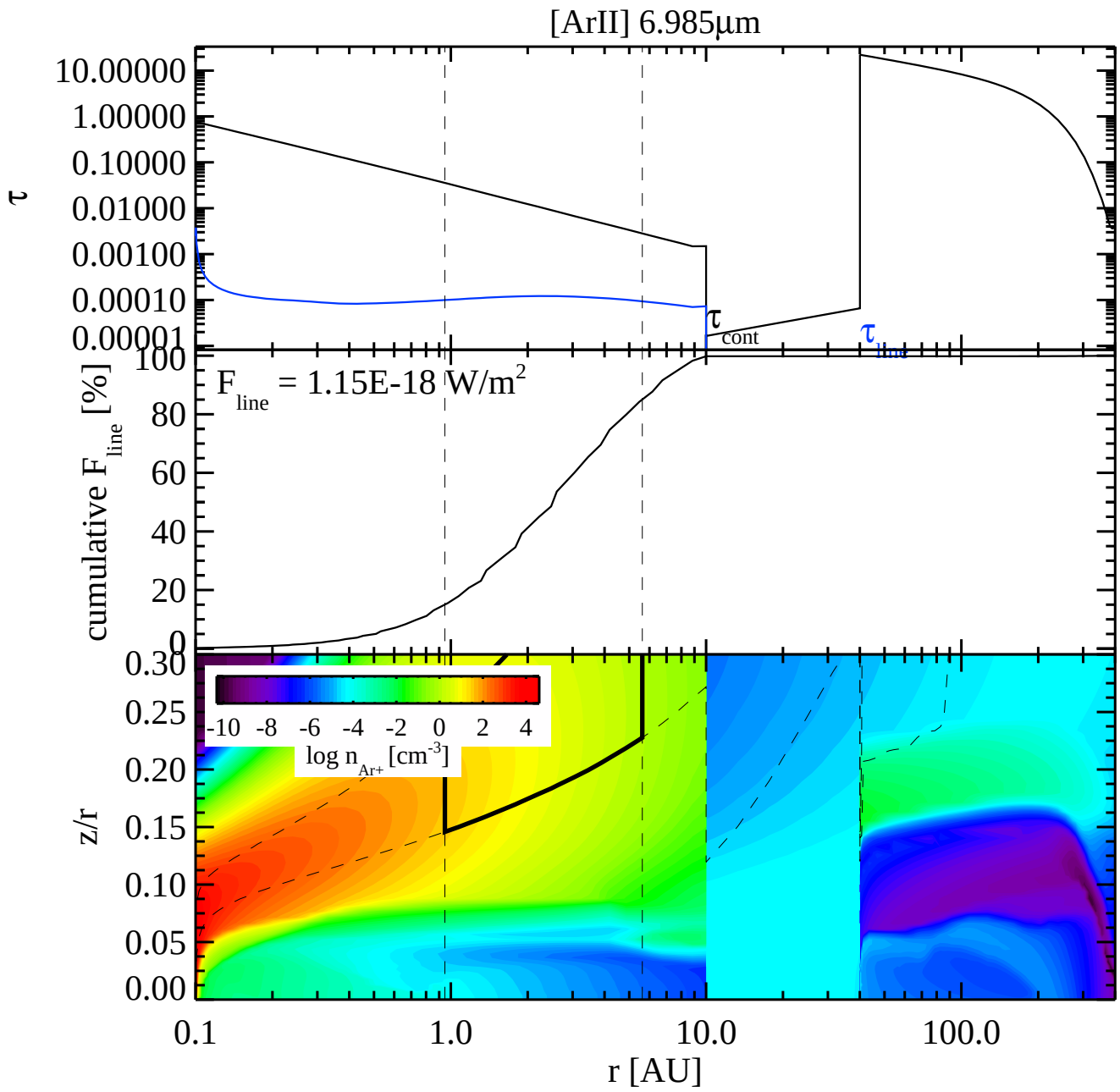

[CI] 370.42µm
τ
10^0
10^-2
10^-4
10^-6
τ line
τ cont
cumulative F line [%]
F line = 8.52E-19 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n C [cm^-3]
0.1
1.0
10.0
100.0
r [AU]

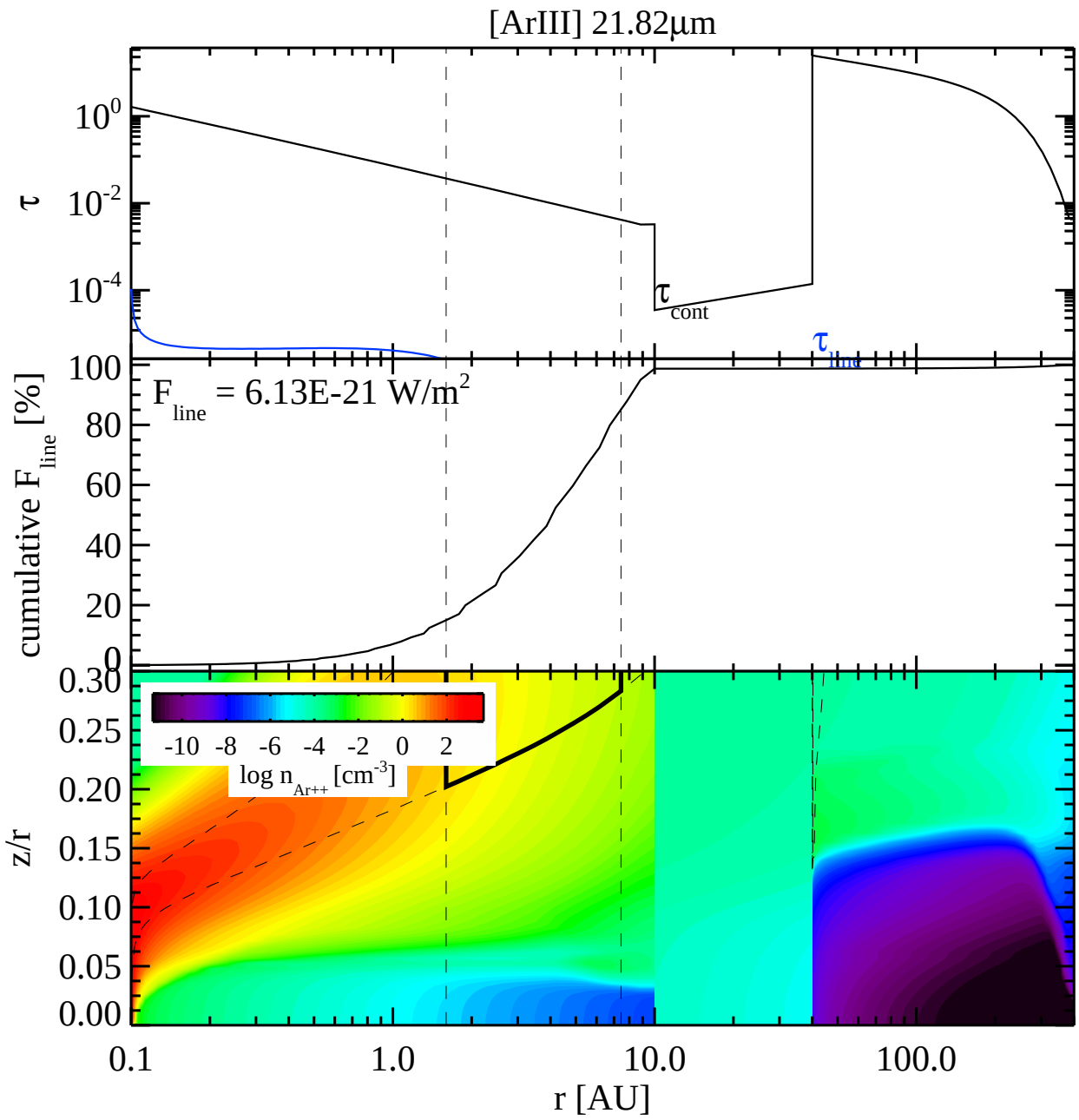

[NeII] 12.81µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 4.32E-18 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n Ne+ [cm-3]
0.1
1.0
10.0
100.0
r [AU]

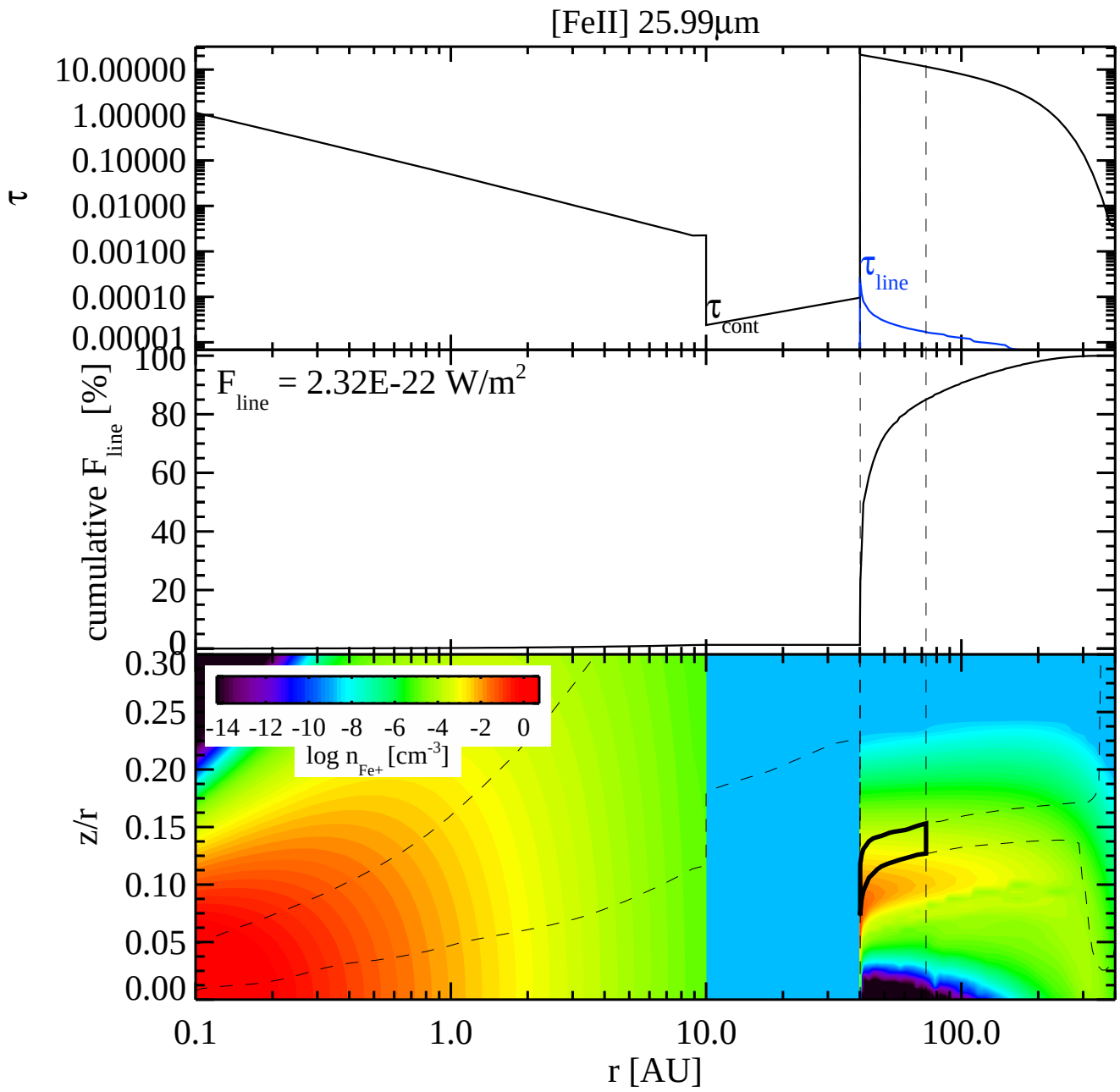

[NeIII] 15.55µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
τ cont
τ line
cumulative F line [%]
100
80
60
40
20
0
F line = 1.71E-18 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -6 -4 -2 0 2 4
log n Ne++ [cm-3]
0.1
1.0
10.0
100.0
r [AU]

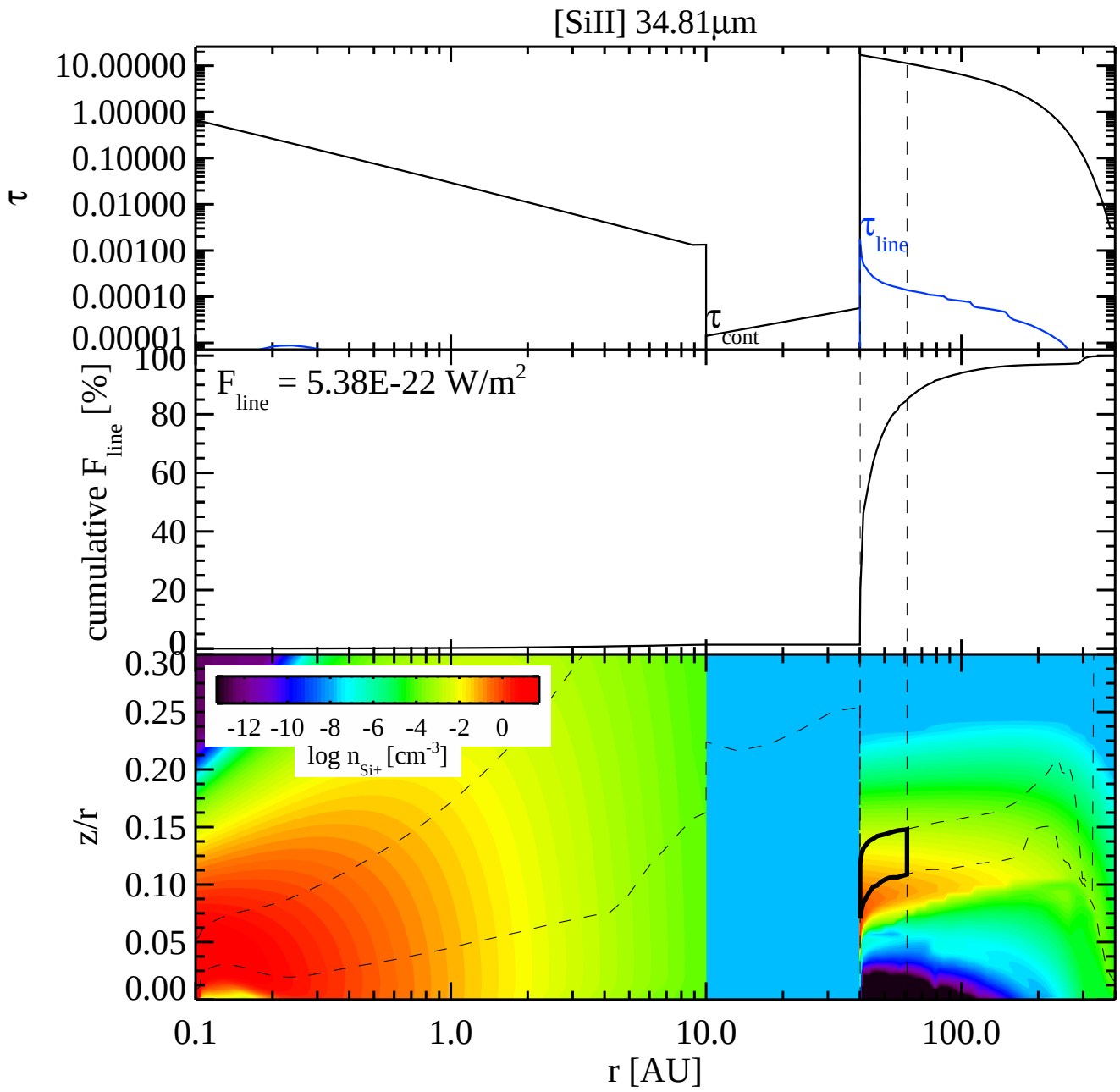

[SII] 0.6731µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 5.23E-20 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-10 -8 -6 -4 -2 0 2 4
log n_{S+} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

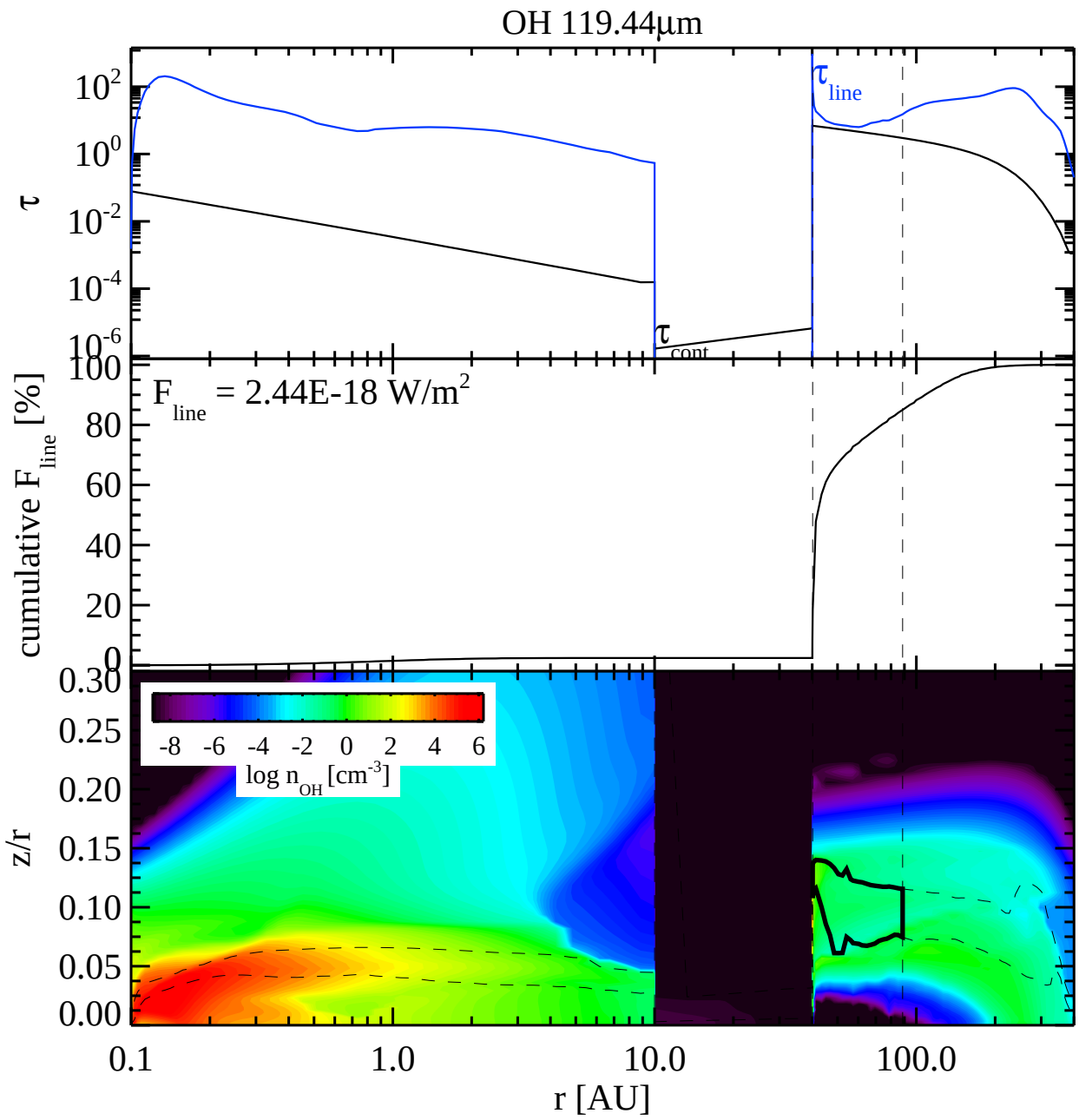

[SIII] 18.72µm
τ
10^0
10^-2
10^-4
10^-6
τ cont
τ line
cumulative F line [%]
F line = 7.56E-21 W/m^2
100
80
60
40
20
0
log n S++ [cm^-3]
-12 -10 -8 -6 -4 -2 0 2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.1
1.0
10.0
100.0
r [AU]

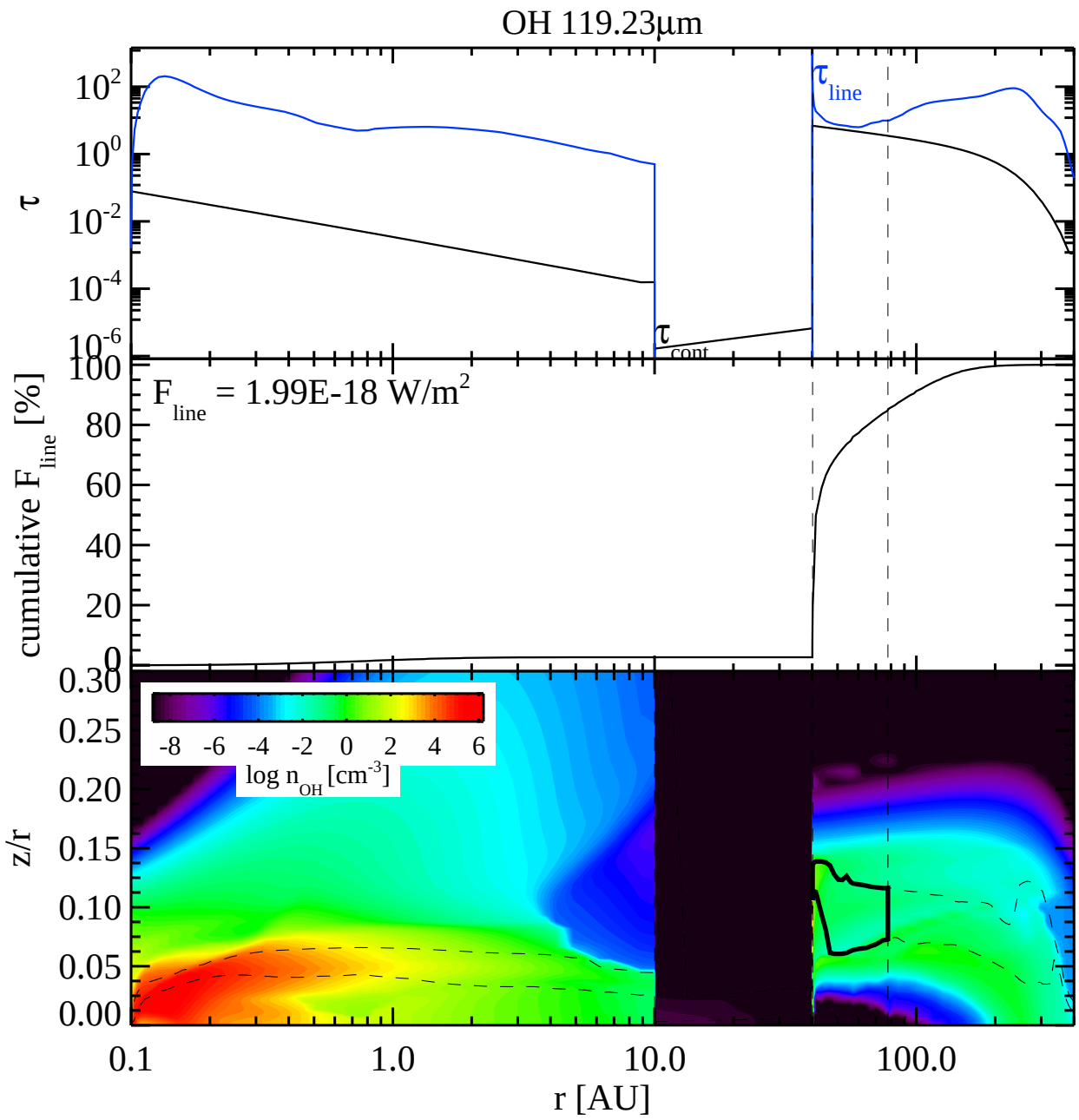

[ArII] 6.985µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
τ cont
τ line
F line = 1.15E-18 W/m2
cumulative F line [%]
100
80
60
40
20
0
-10 -8 -6 -4 -2 0 2 4
log n Ar+ [cm-3]
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.1
1.0
10.0
100.0
r [AU]

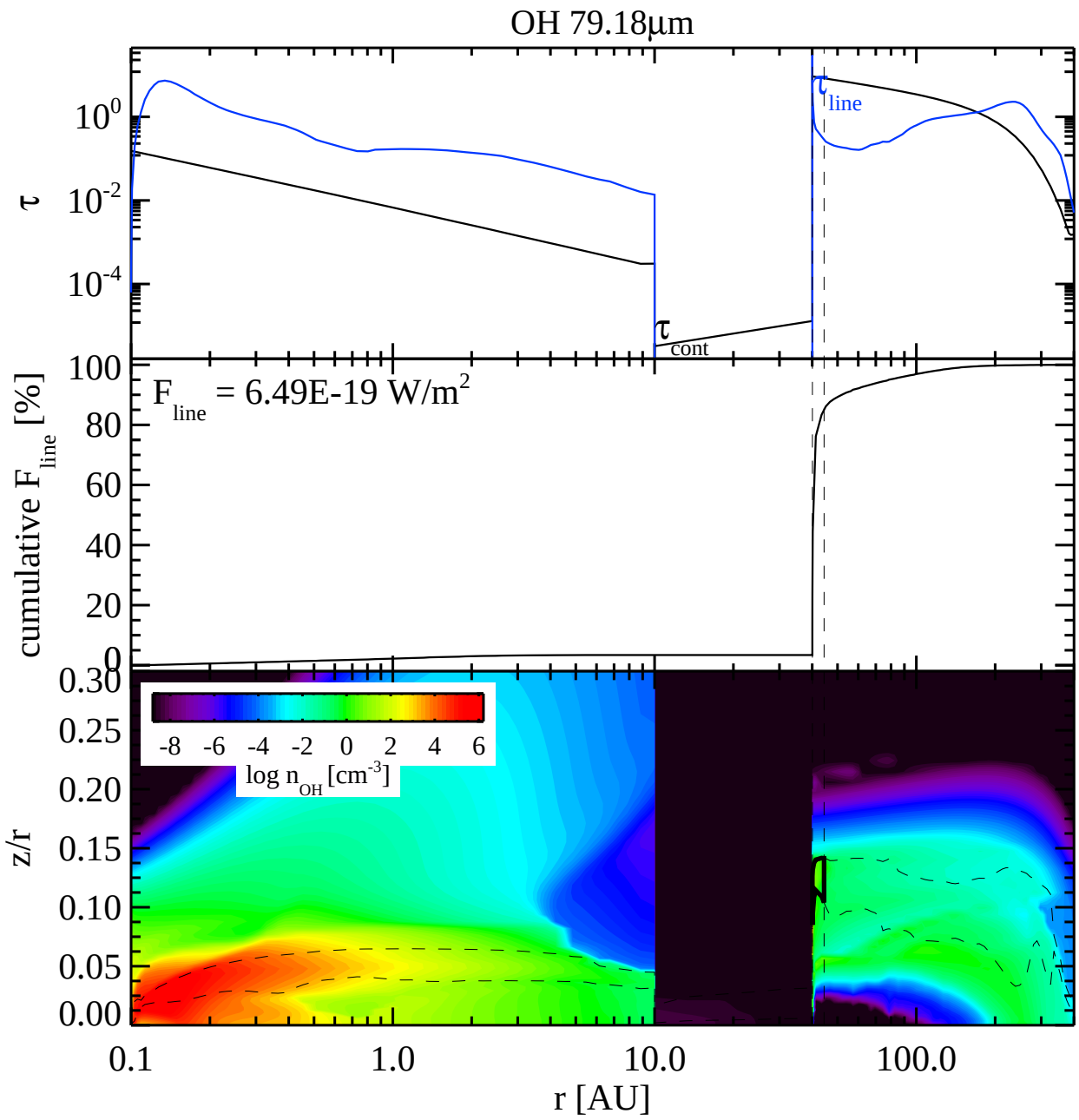

[ArIII] 21.82µm
τ
10^0
10^-2
10^-4
τ cont
τ line
cumulative F line [%]
F line = 6.13E-21 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-10 -8 -6 -4 -2 0 2
log n Ar++ [cm^-3]
0.1
1.0
10.0
100.0
r [AU]

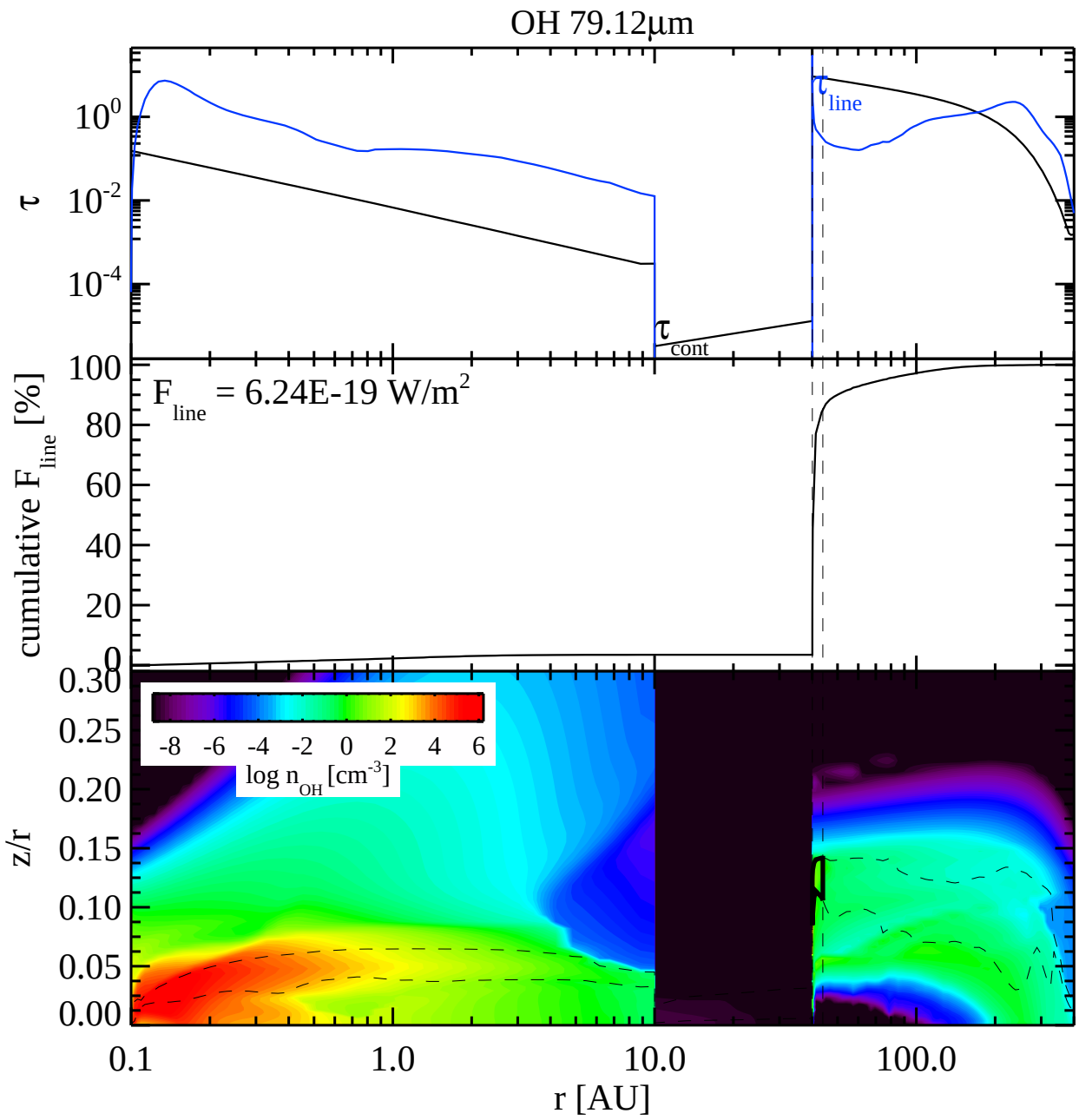

[FeII] 25.99µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
τ cont
τ line
cumulative F line [%]
100
80
60
40
20
0
F line = 2.32E-22 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-14 -12 -10 -8 -6 -4 -2 0
log n Fe+ [cm-3]
0.1
1.0
10.0
100.0
r [AU]

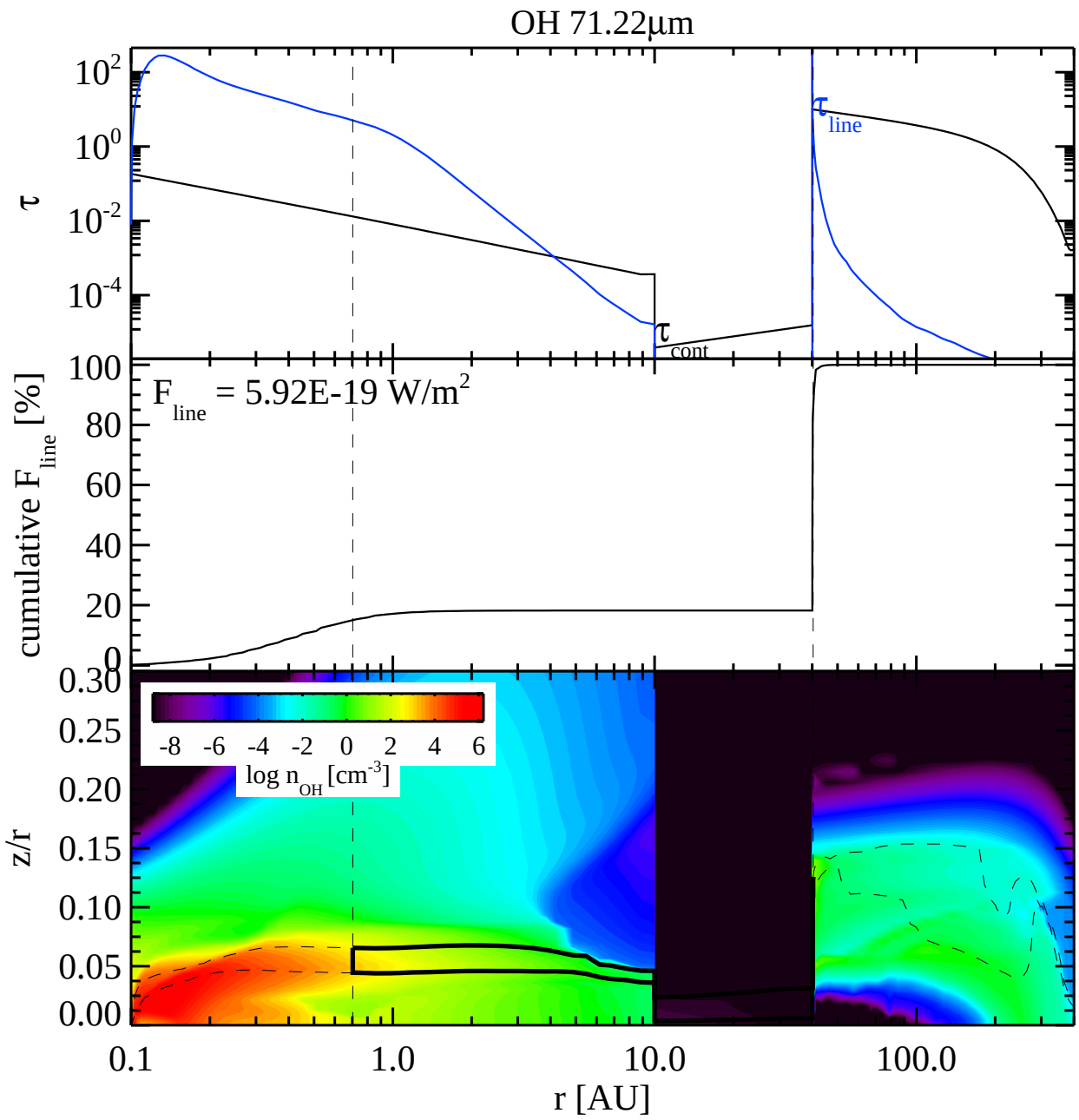

[SiII] 34.81µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
τ line
τ cont
F line = 5.38E-22 W/m2
cumulative F line [%]
100
80
60
40
20
0
-12 -10 -8 -6 -4 -2 0
log n Si+ [cm-3]
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.1
1.0
10.0
100.0
r [AU]

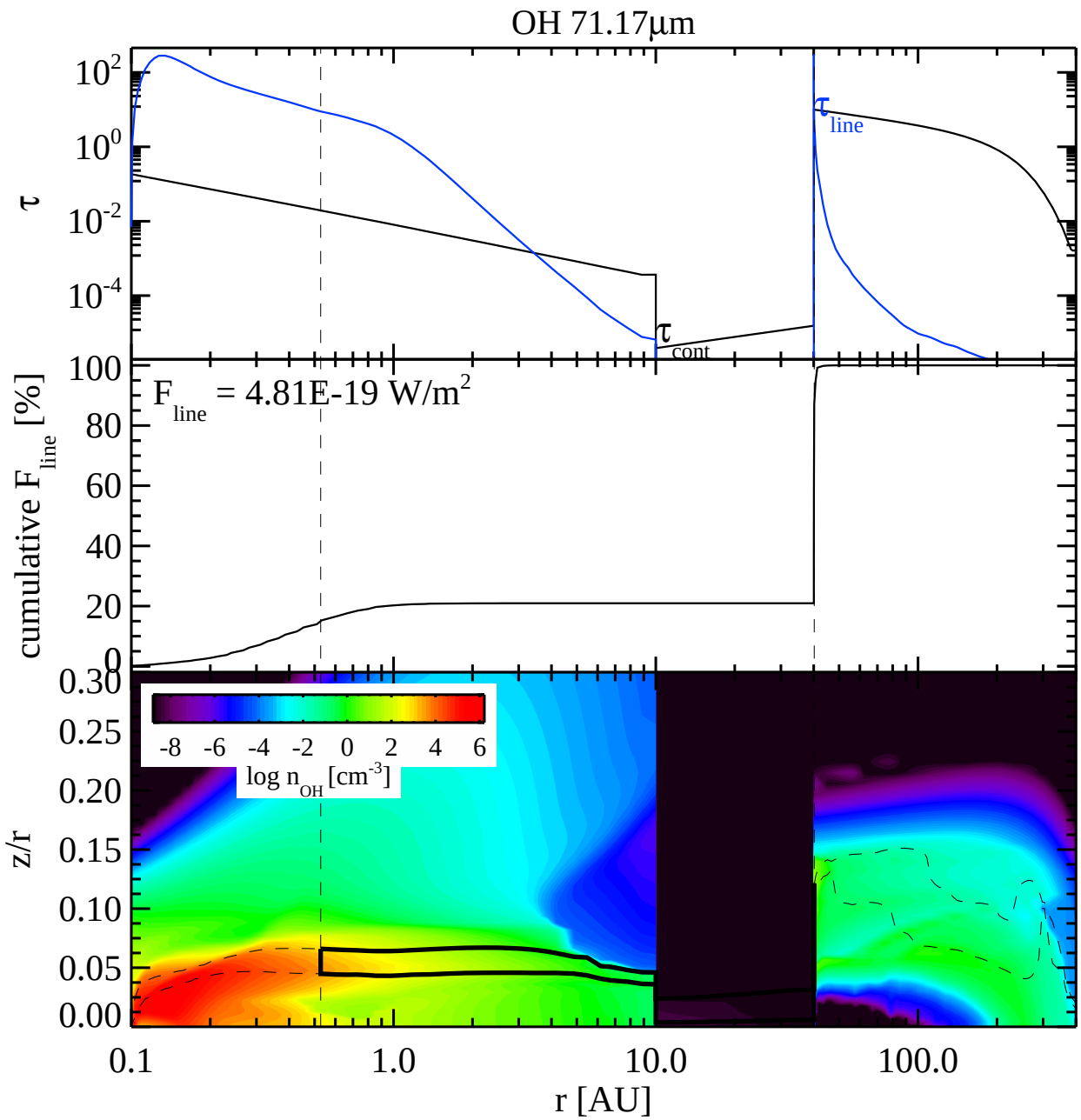

OH 119.44µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.44E-18 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

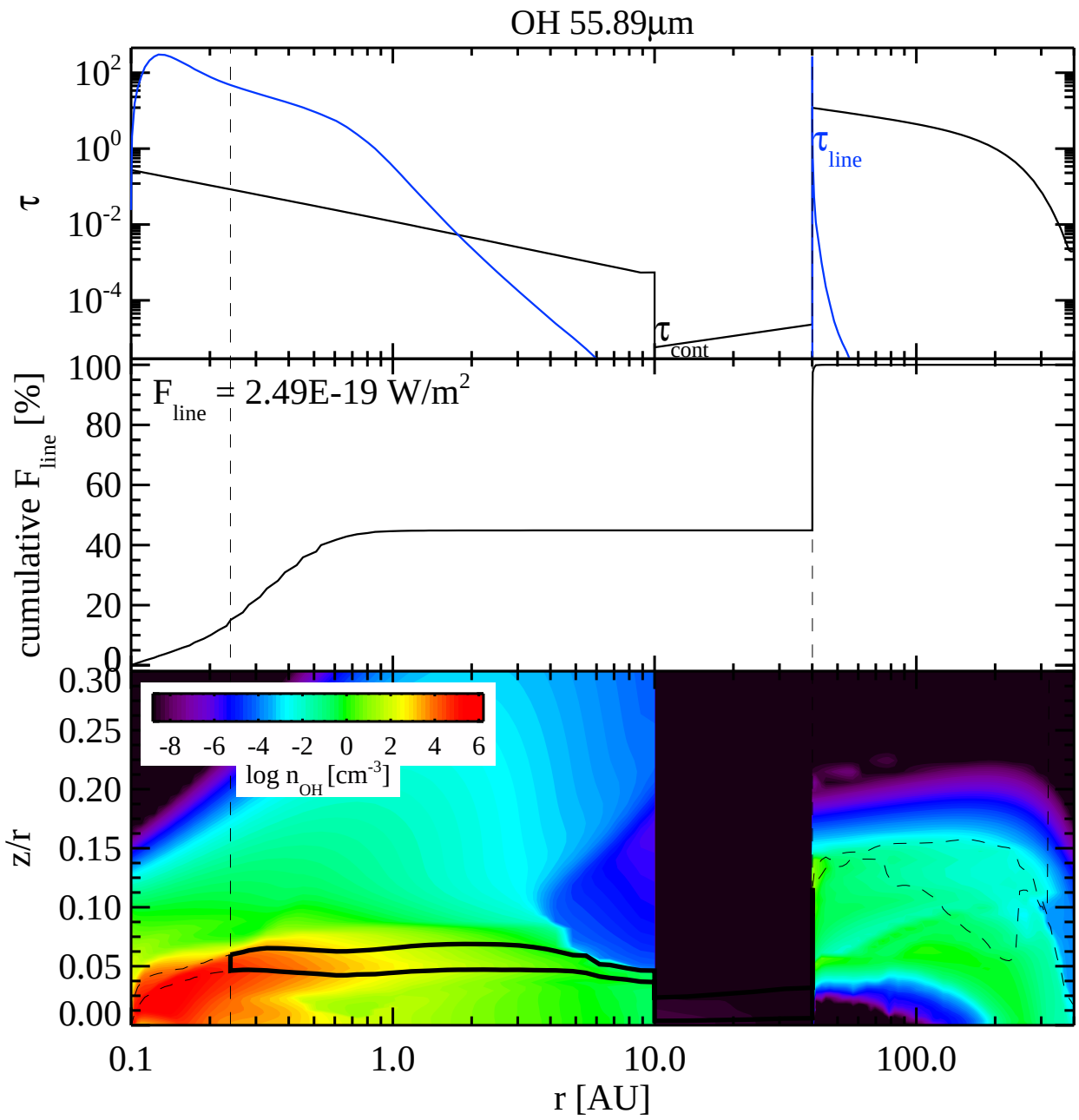

OH 119.23µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.99E-18 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

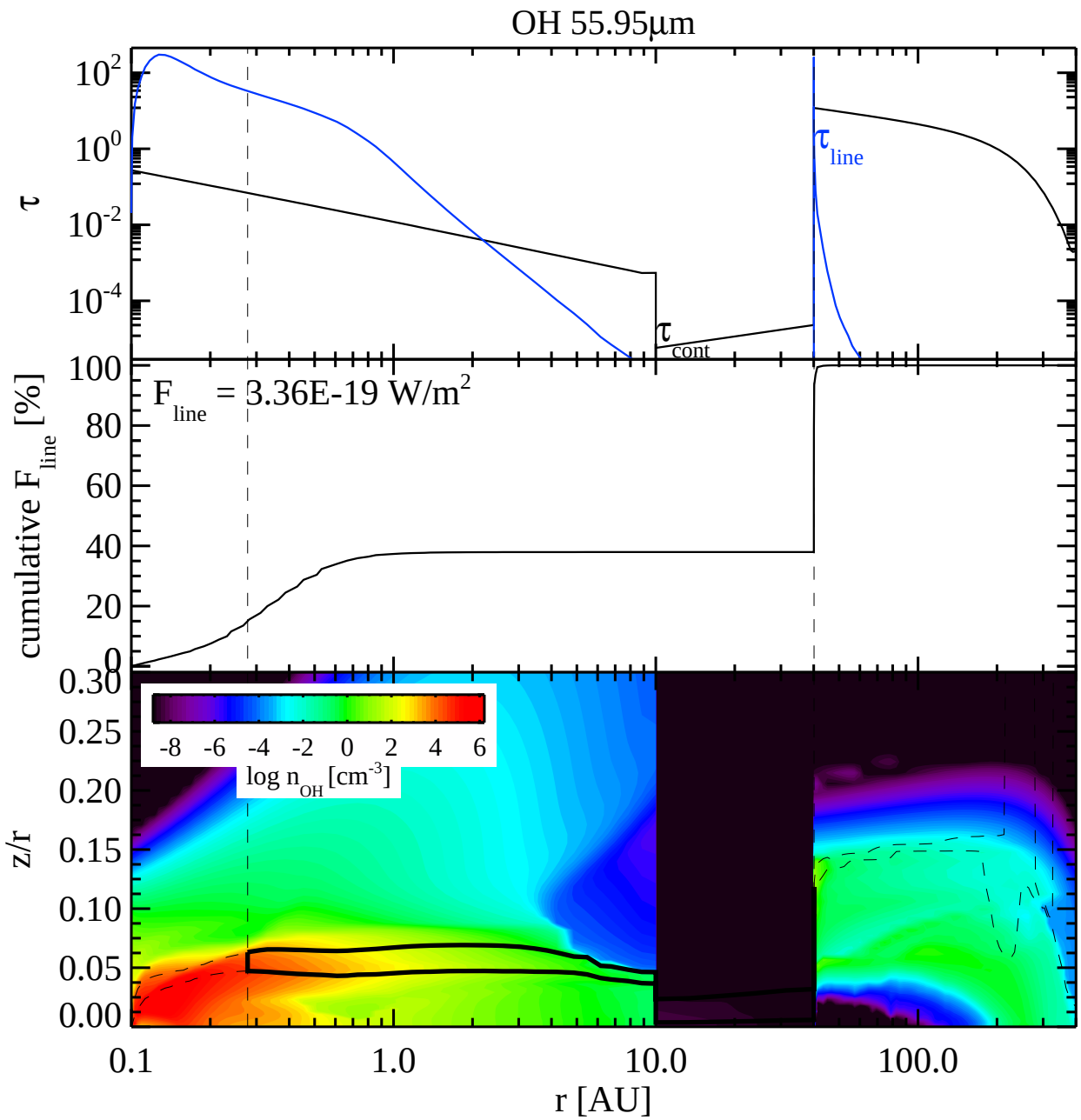

OH 79.18µm
τ
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
F_{line} = 6.49E-19 W/m^2
cumulative F_{line} [%]
100
80
60
40
20
0
-8 -6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.1
1.0
10.0
100.0
r [AU]

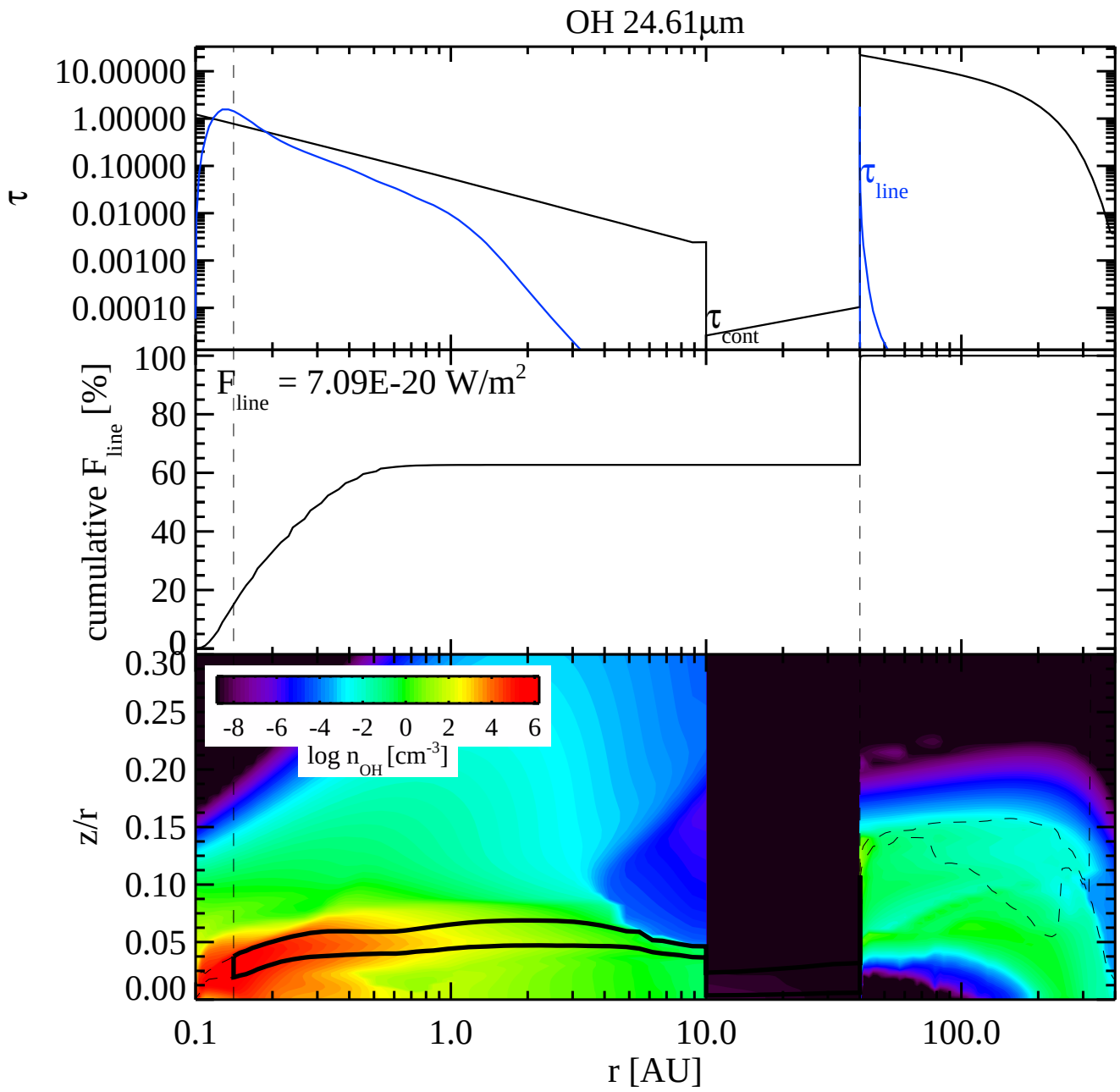

OH 79.12µm
τ
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
F_{line} = 6.24E-19 W/m^2
cumulative F_{line} [%]
100
80
60
40
20
0
-8 -6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.1
1.0
10.0
100.0
r [AU]

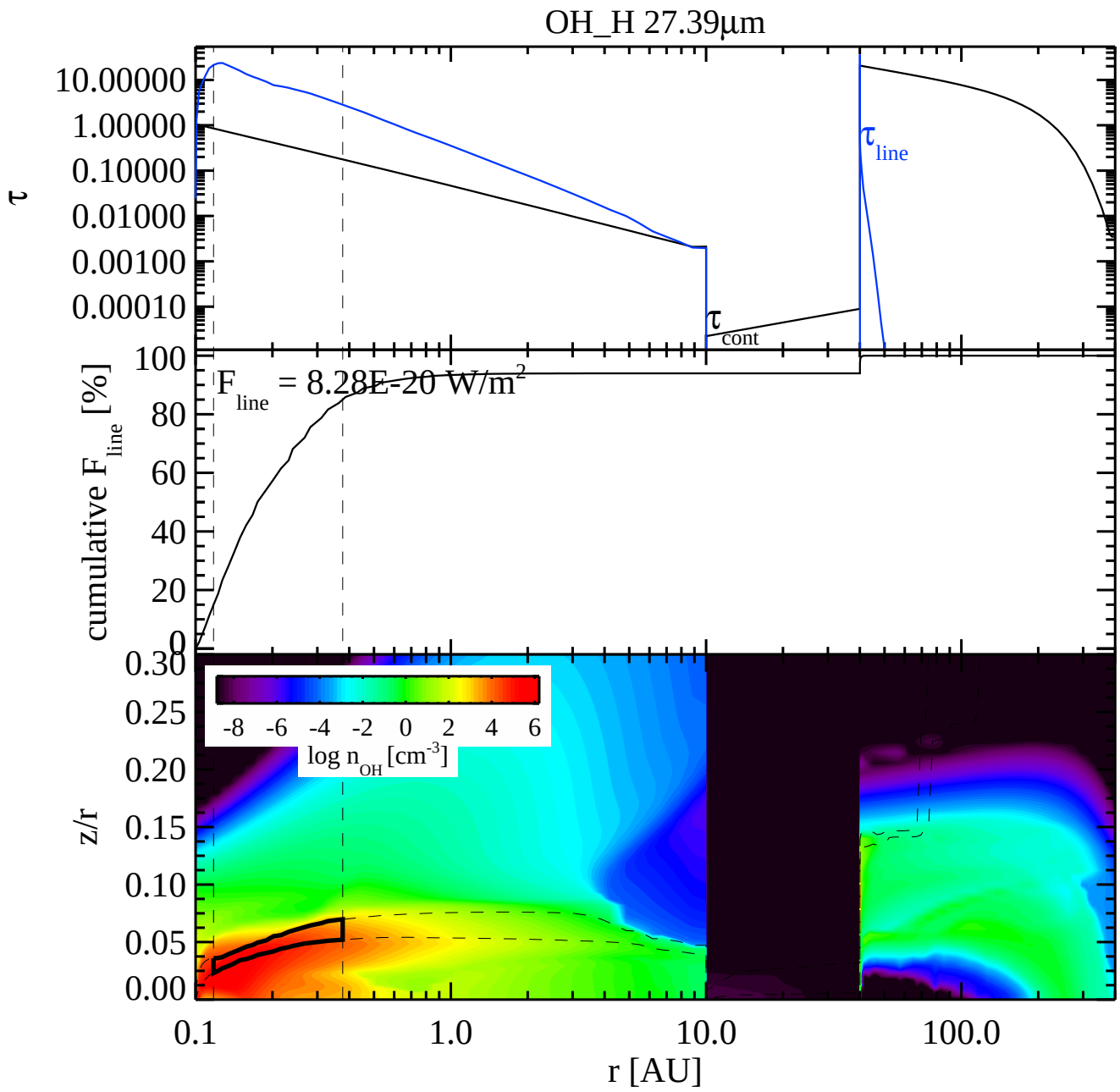

OH 71.22µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 5.92E-19 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

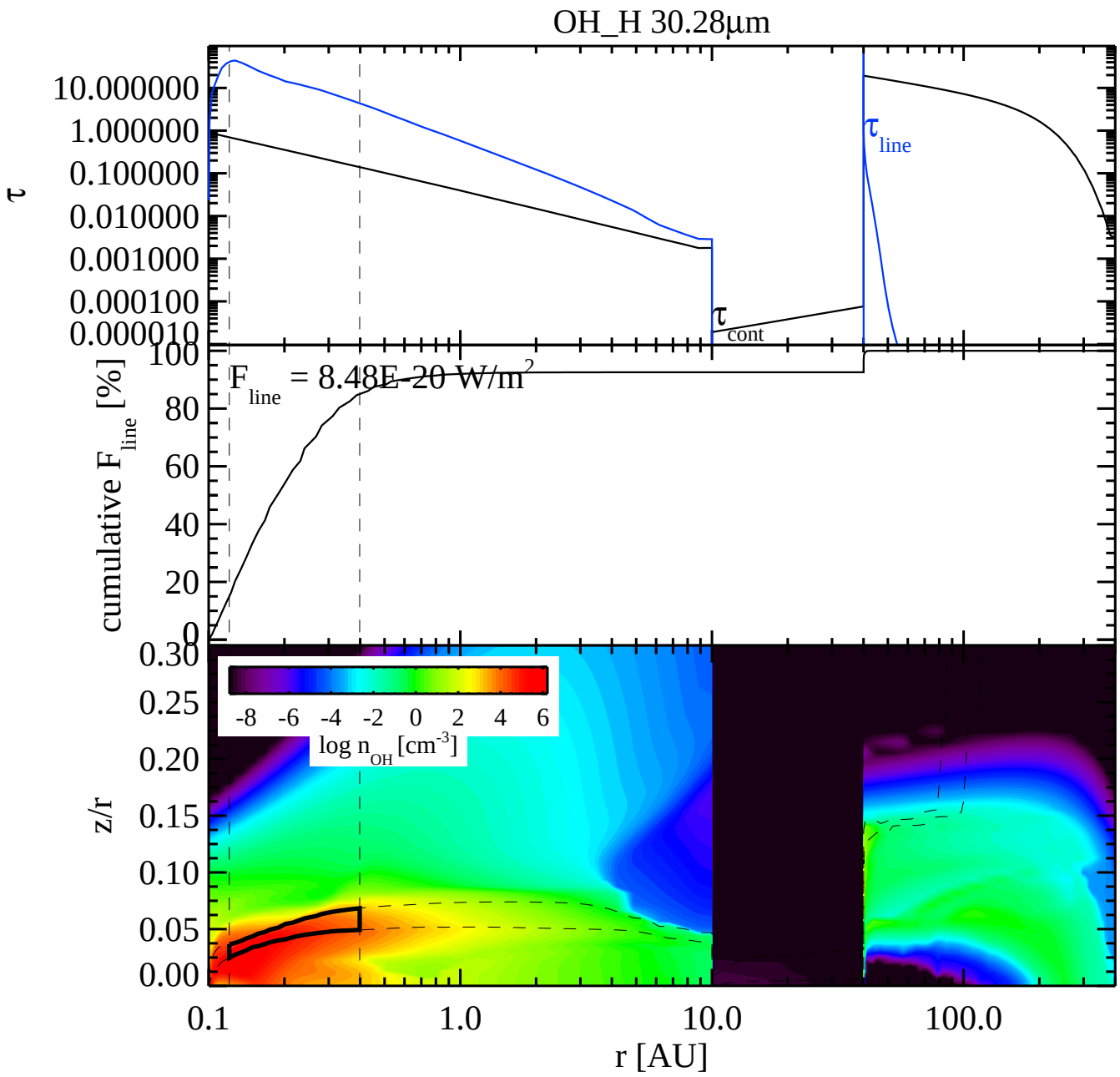

OH 71.17µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 4.81E-19 W/m^2
100
80
60
40
20
0
-8 -6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.1
1.0
10.0
100.0
r [AU]

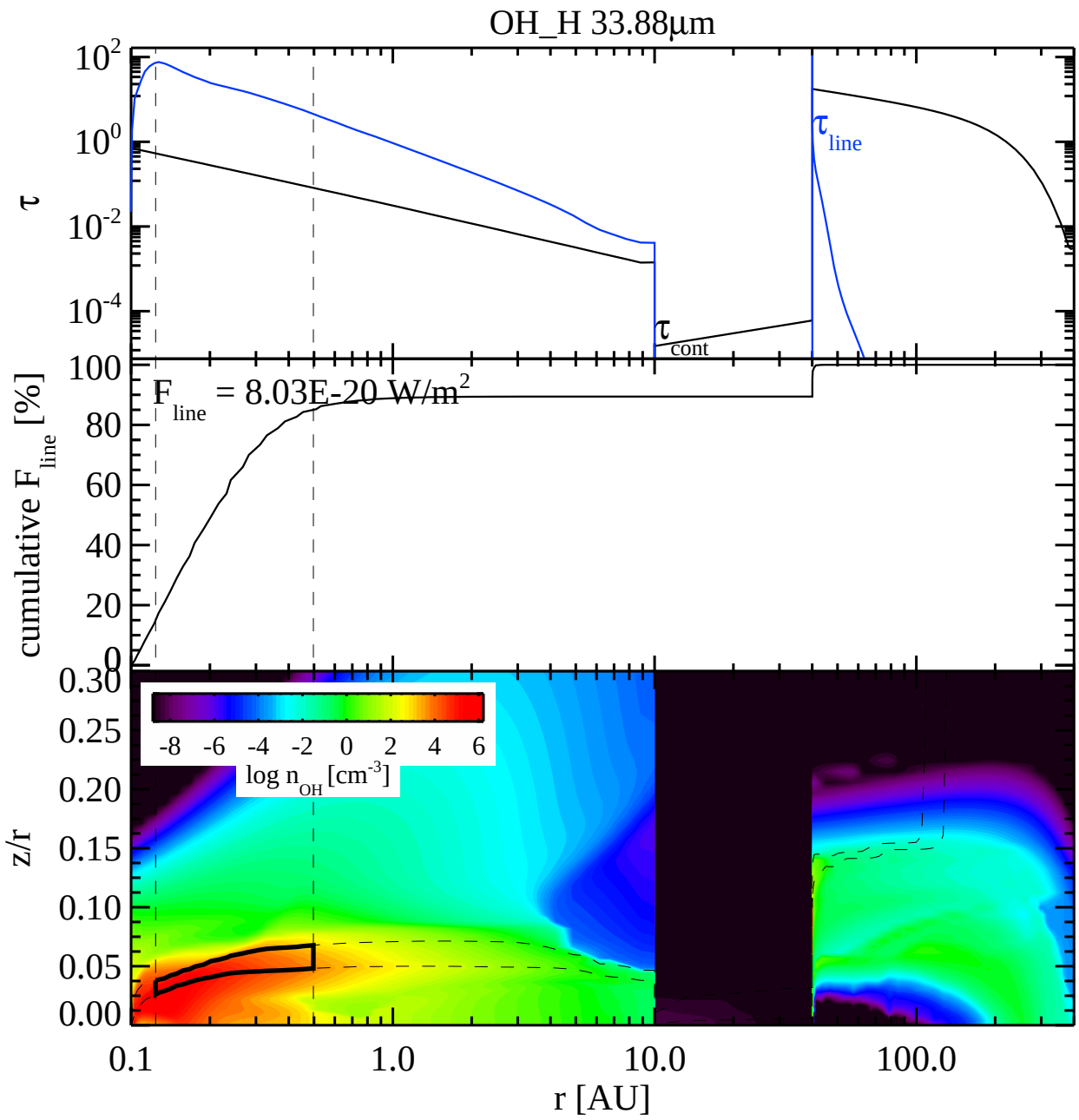

OH 55.89µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.49E-19 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

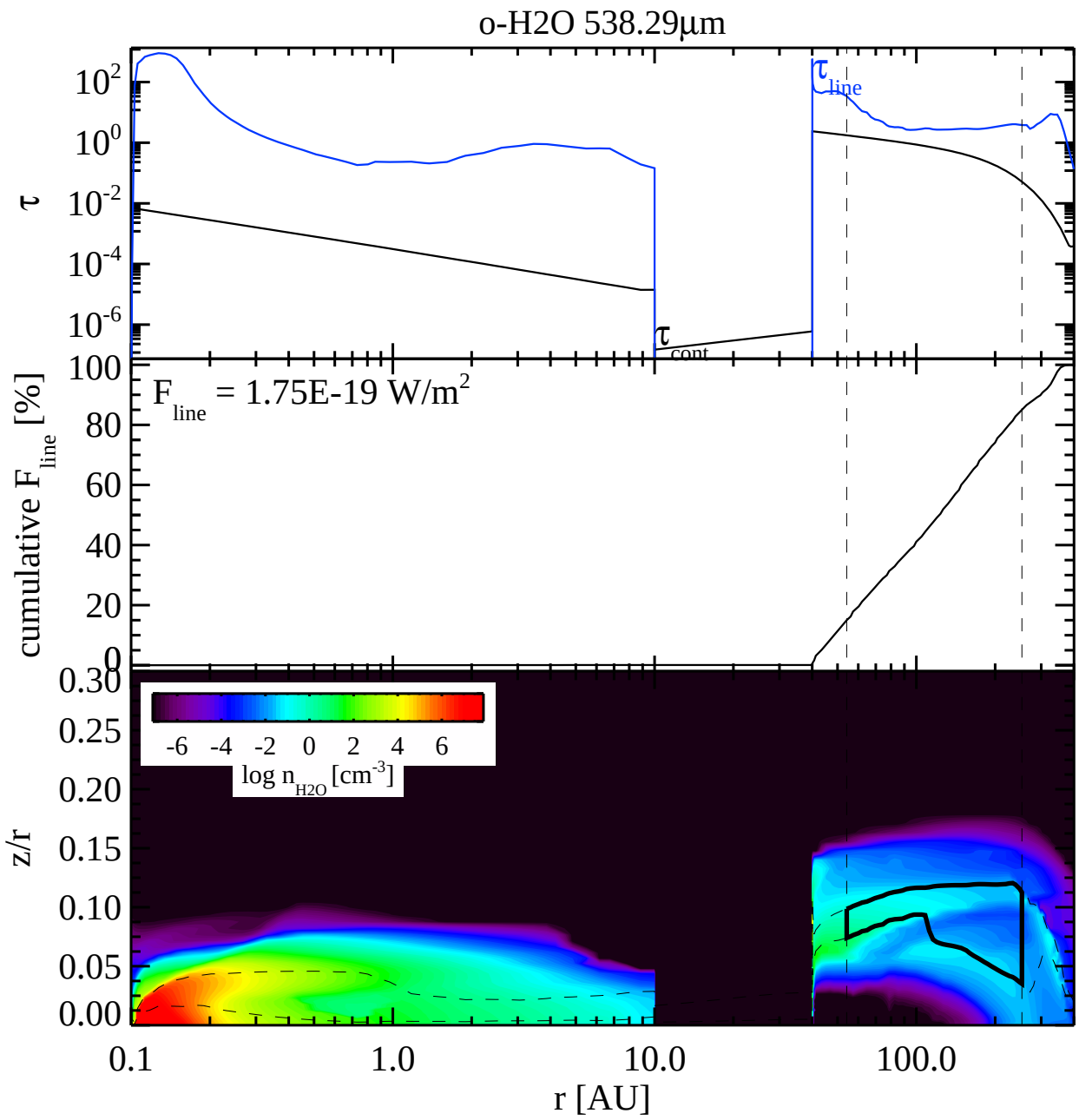

OH 55.95µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 3.36E-19 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

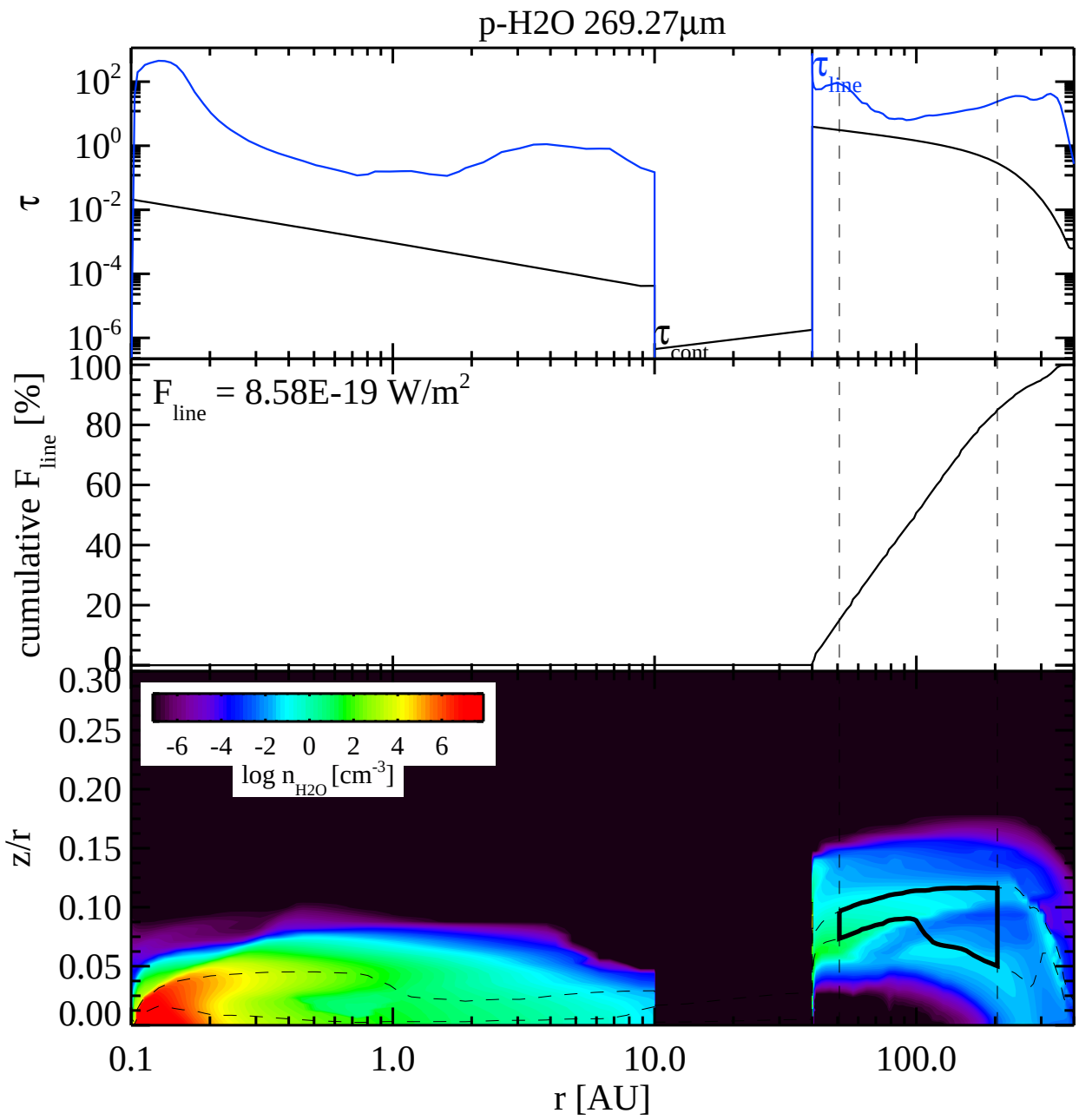

OH 24.61µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 7.09E-20 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -6 -4 -2 0 2 4 6
log n OH [cm-3]
0.1
1.0
10.0
100.0
r [AU]

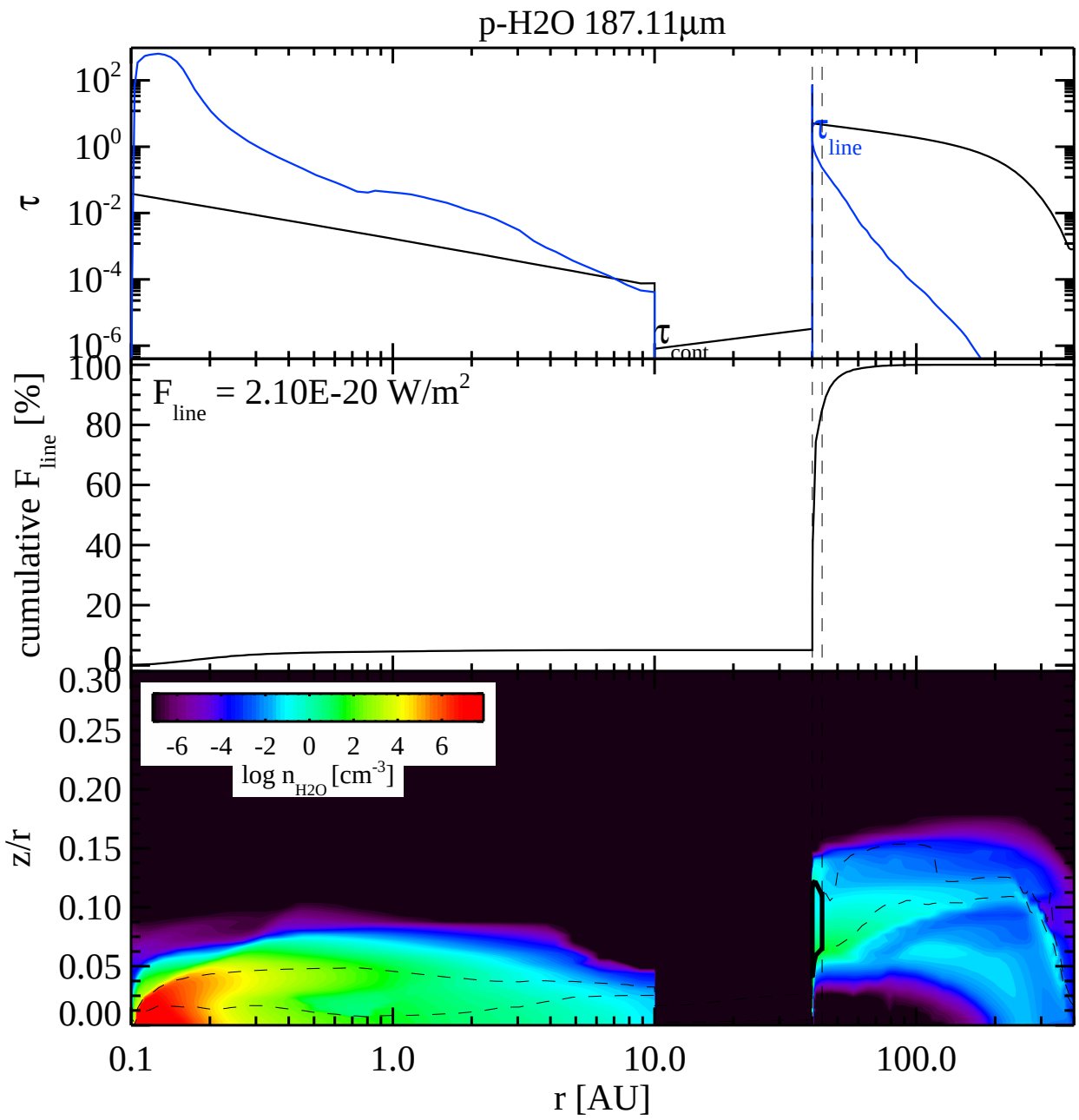

OH_H 27.39µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 8.28E-20 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -6 -4 -2 0 2 4 6
log n OH [cm-3]
0.1
1.0
10.0
100.0
r [AU]

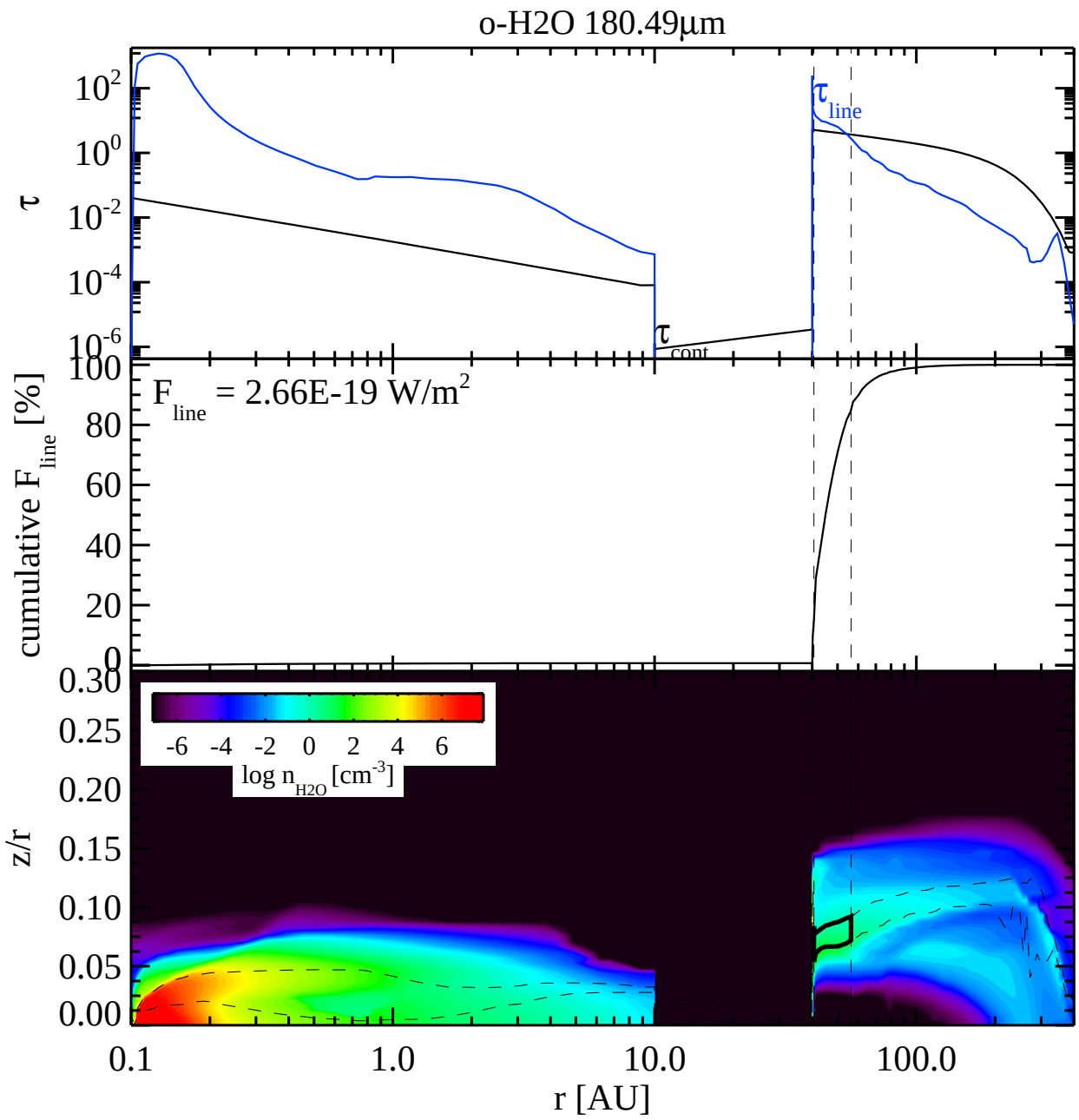

OH_H 30.28µm
τ
10.000000
1.000000
0.100000
0.010000
0.001000
0.000100
0.000010
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 8.48E-20 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -6 -4 -2 0 2 4 6
log n OH [cm-3]
0.1
1.0
10.0
100.0
r [AU]

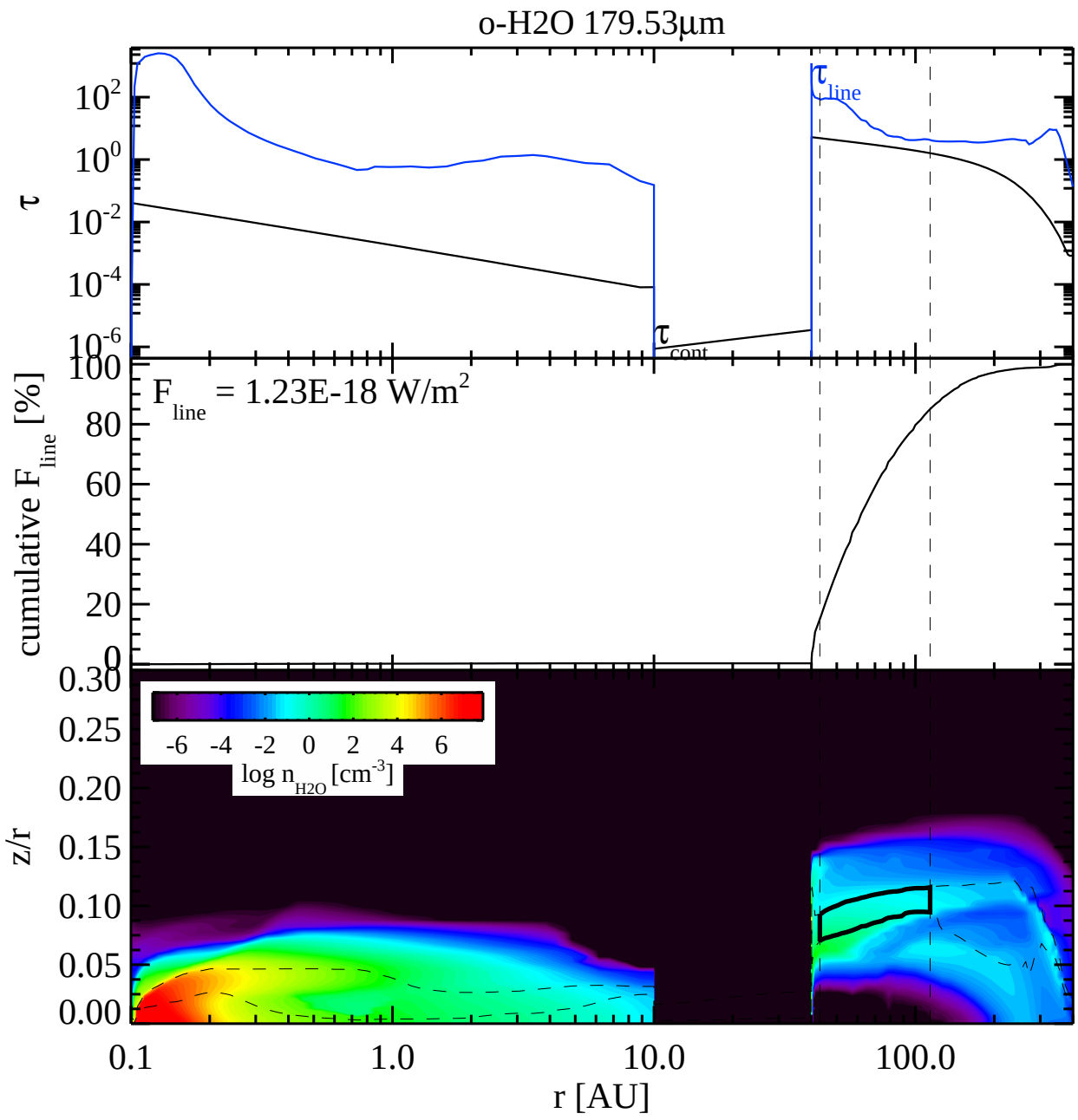

OH_H 33.88µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 8.03E-20 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

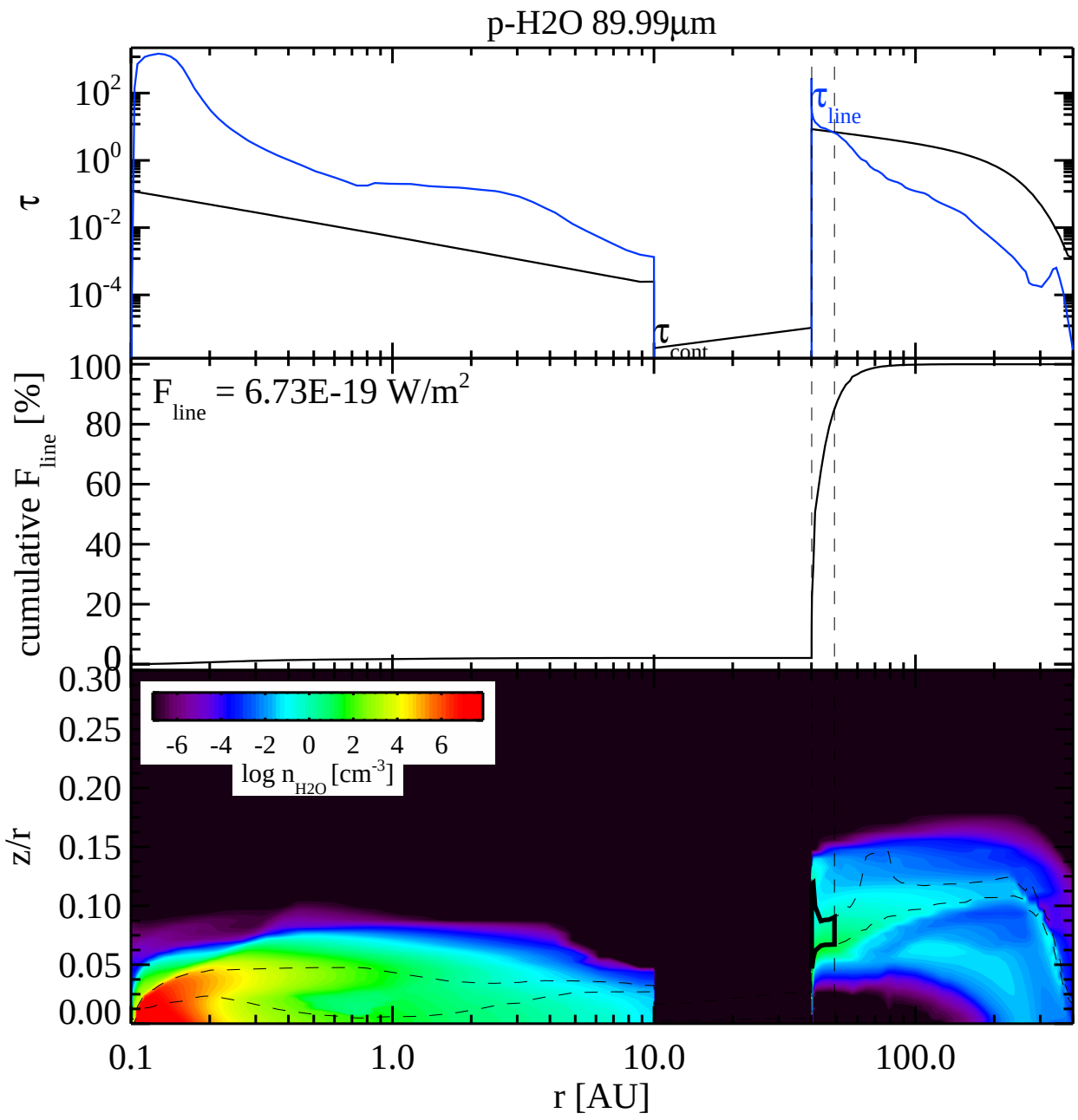

o-H2O 538.29µm
τ
τ line
τ cont
cumulative F line [%]
F line = 1.75E-19 W/m2
log n H2O [cm-3]
z/r
r [AU]

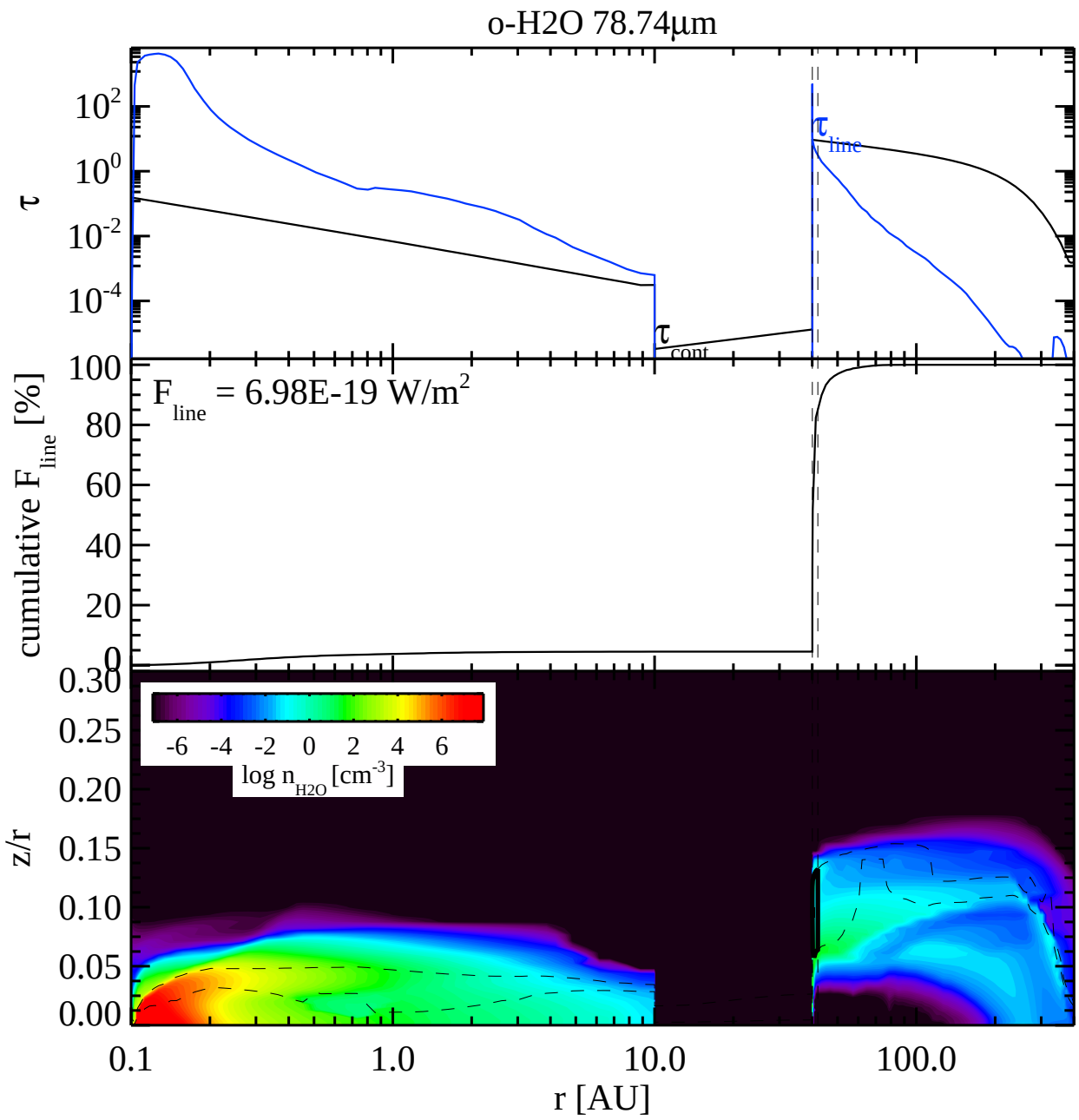

p-H2O 269.27µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 8.58E-19 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{H2O} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

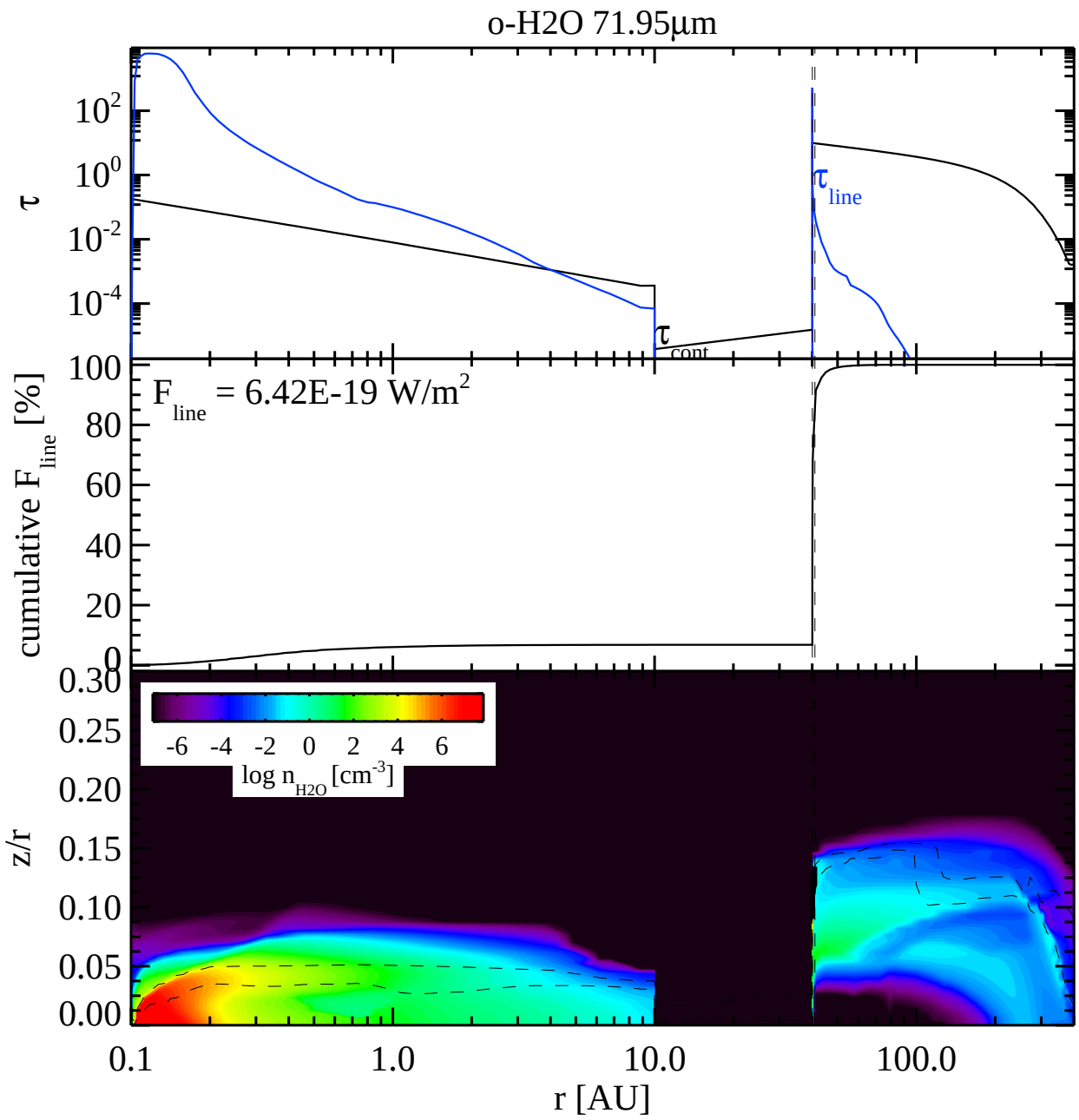

p-H2O 187.11µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 2.10E-20 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{H2O} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

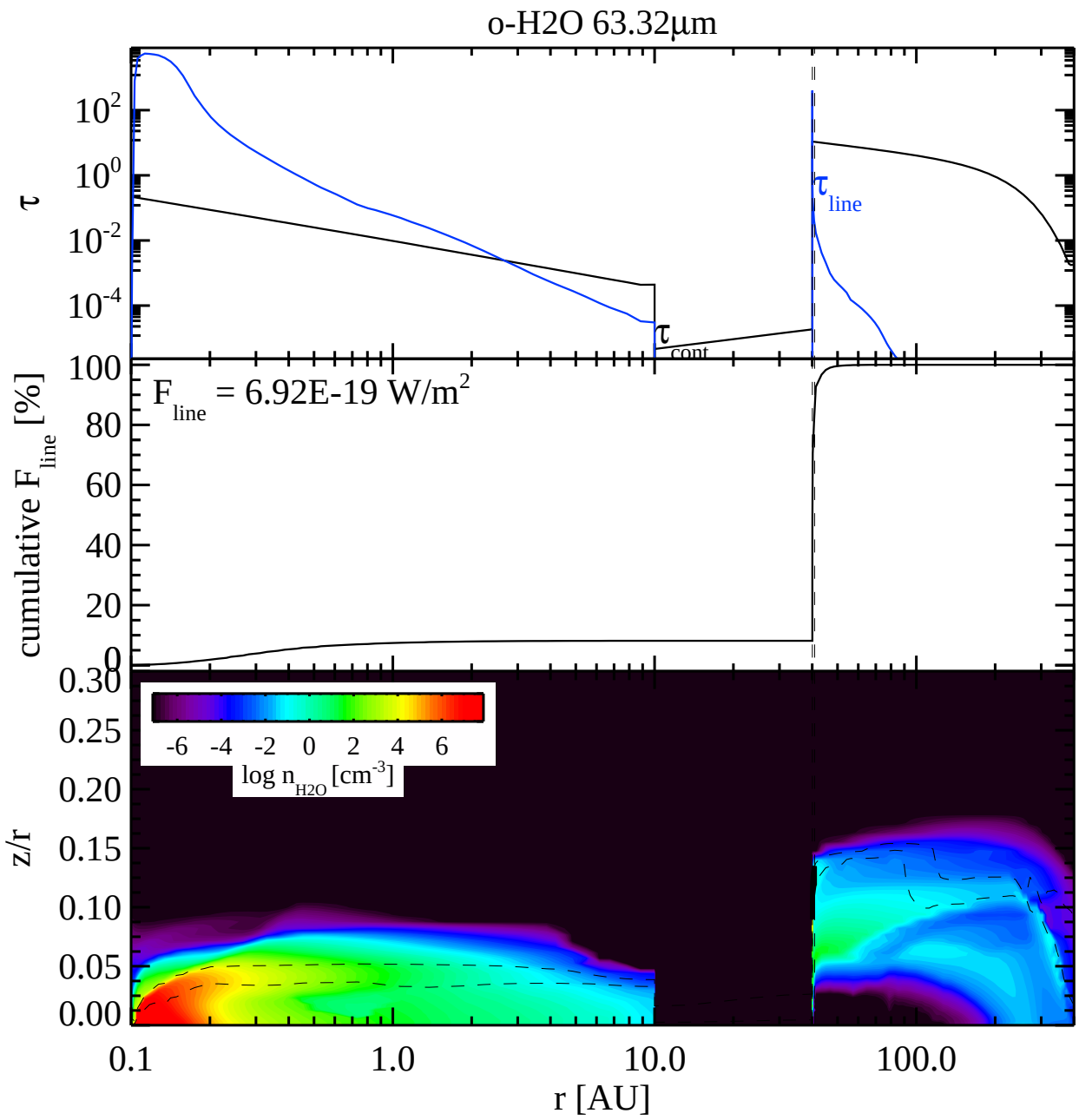

o-H2O 180.49µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 2.66E-19 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{H2O} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

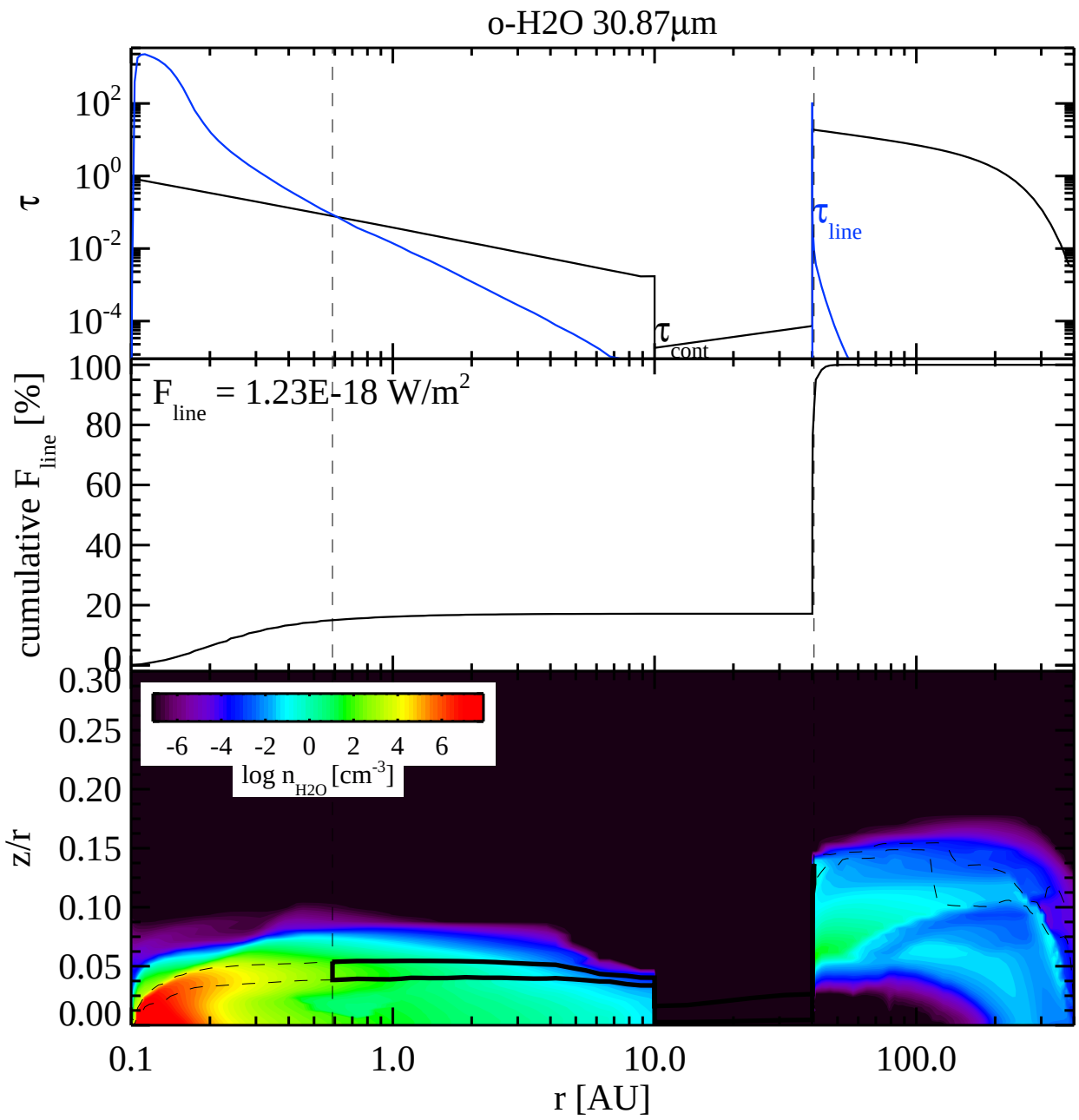

o-H2O 179.53µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ line
τ cont
cumulative F line [%]
F line = 1.23E-18 W/m2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n H2O [cm-3]
0.1
1.0
10.0
100.0
r [AU]

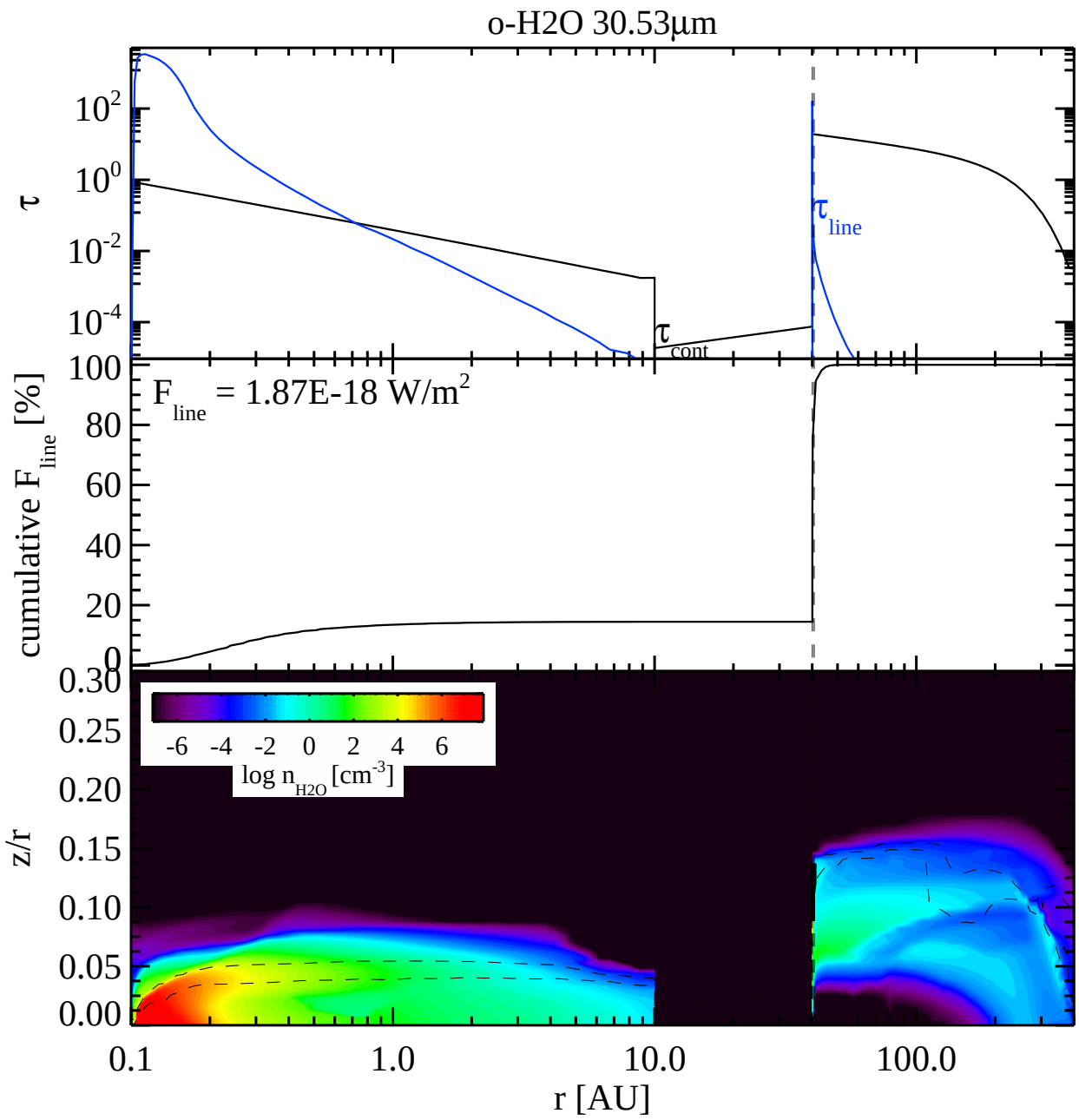

p-H2O 89.99µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 6.73E-19 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{H2O} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

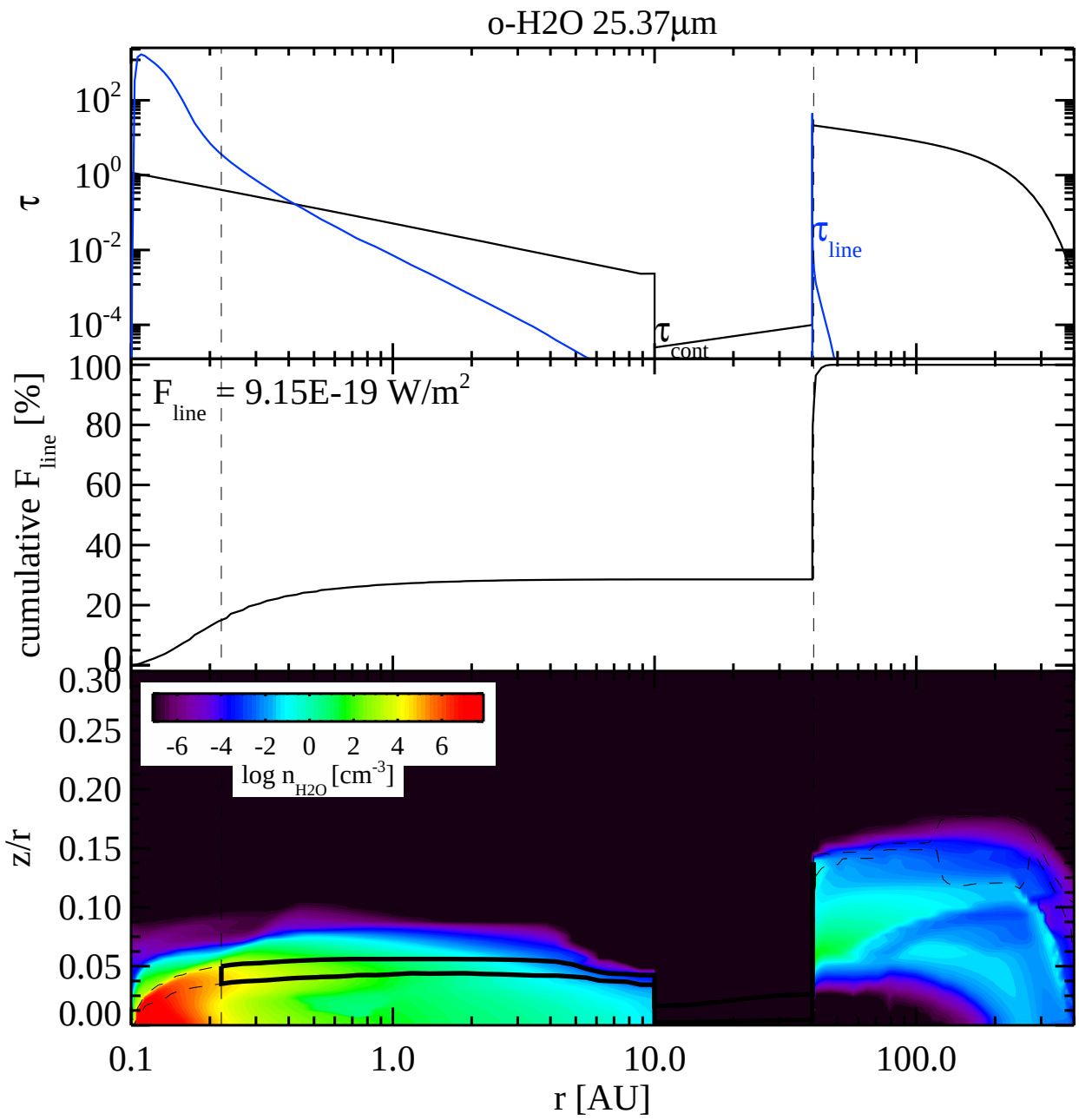

o-H2O 78.74µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 6.98E-19 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{H2O} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

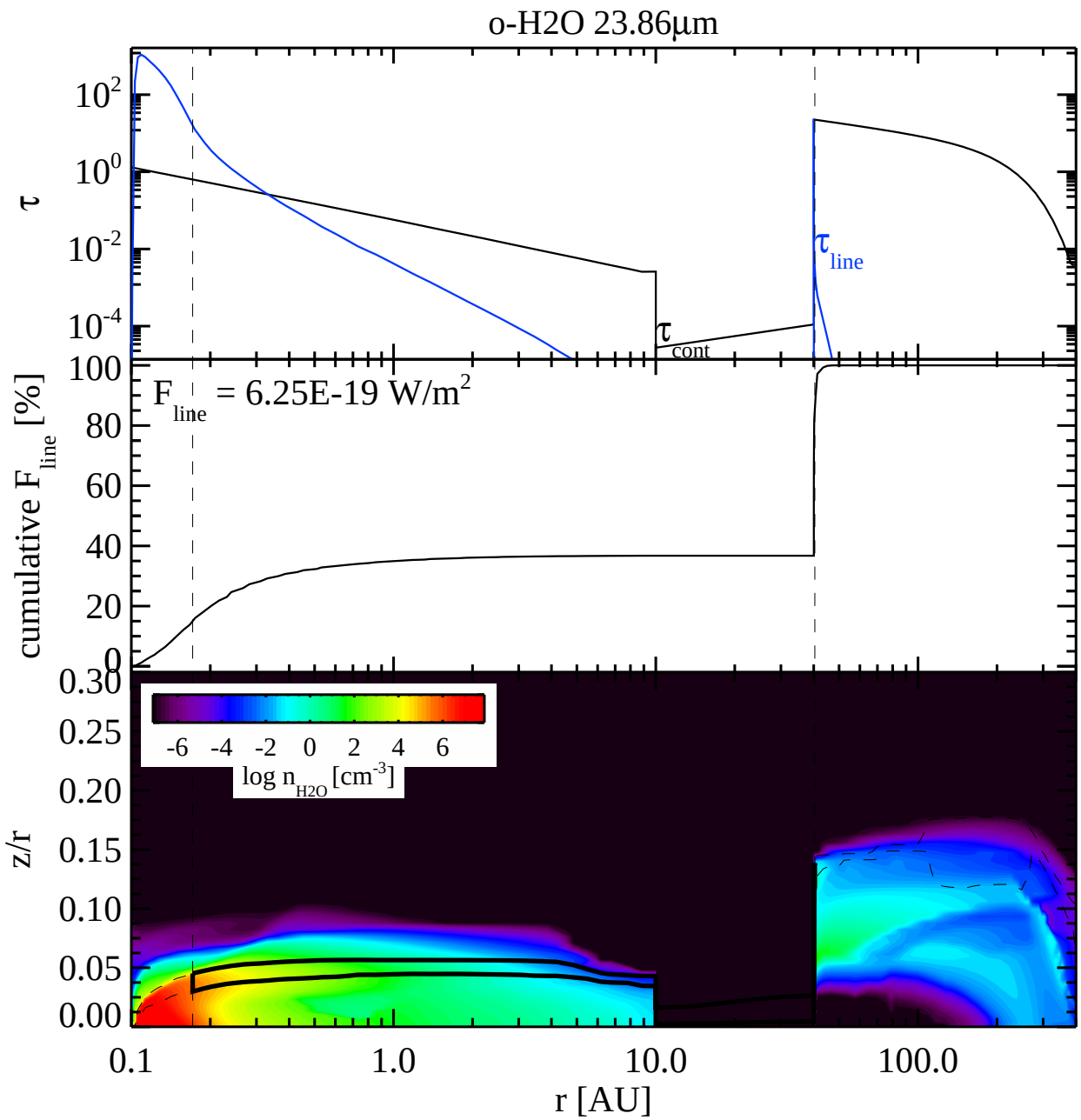

o-H2O 71.95µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 6.42E-19 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{H2O} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

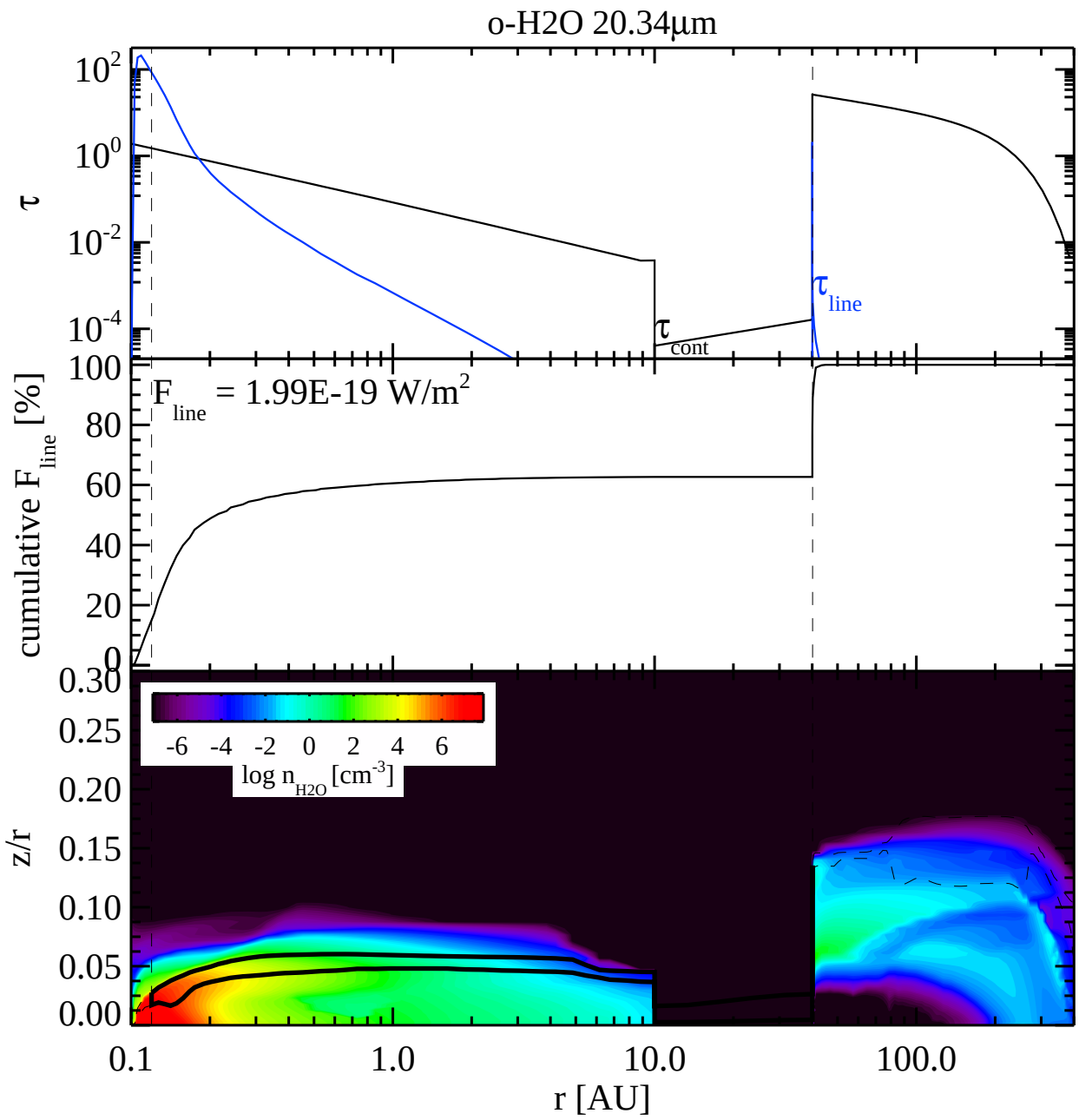

o-H2O 63.32µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 6.92E-19 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{H2O} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

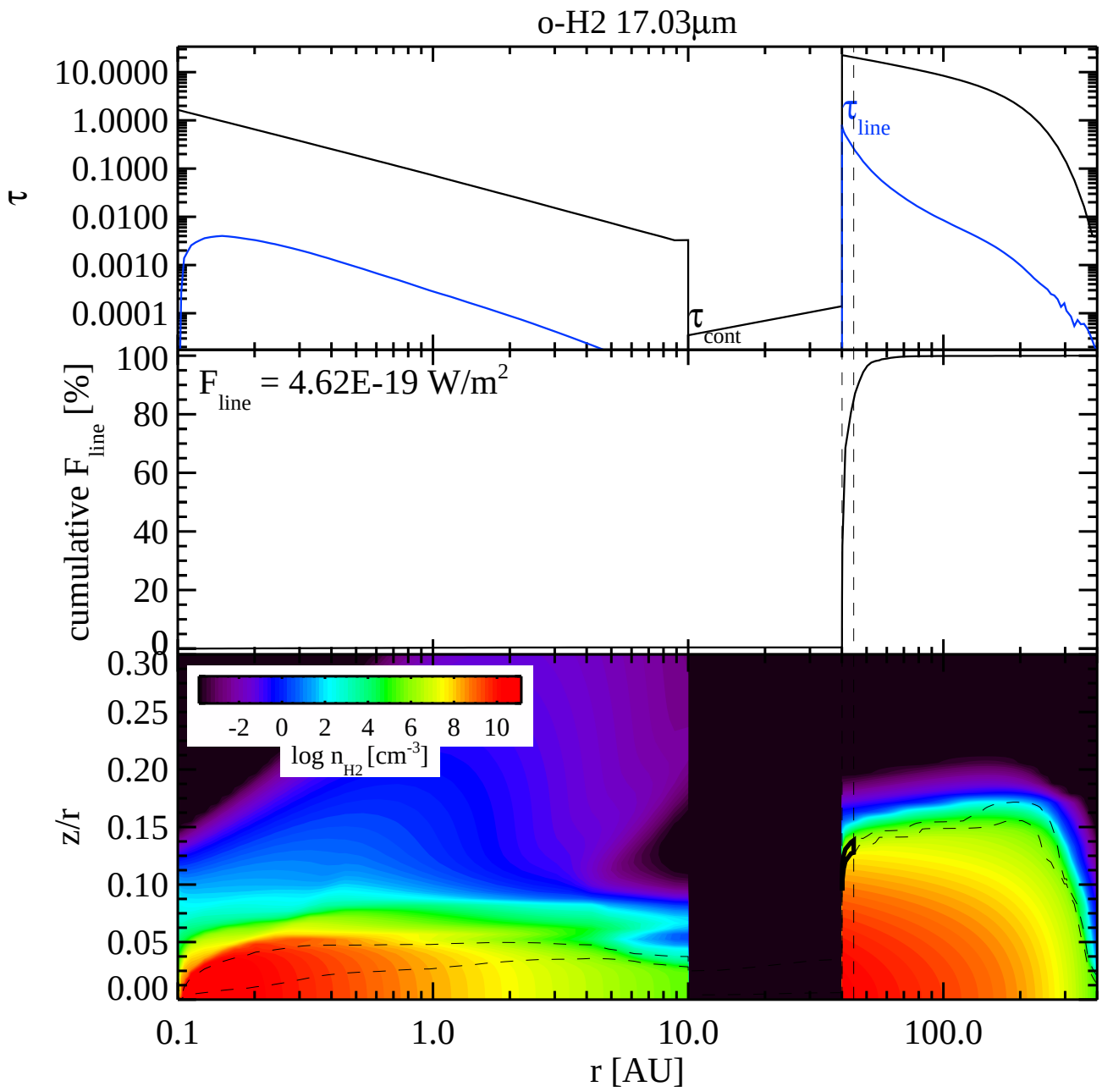

o-H2O 30.87µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 1.23E-18 W/m^2
100
80
60
40
20
0
-6 -4 -2 0 2 4 6
log n_{H2O} [cm^{-3}]
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.1
1.0
10.0
100.0
r [AU]

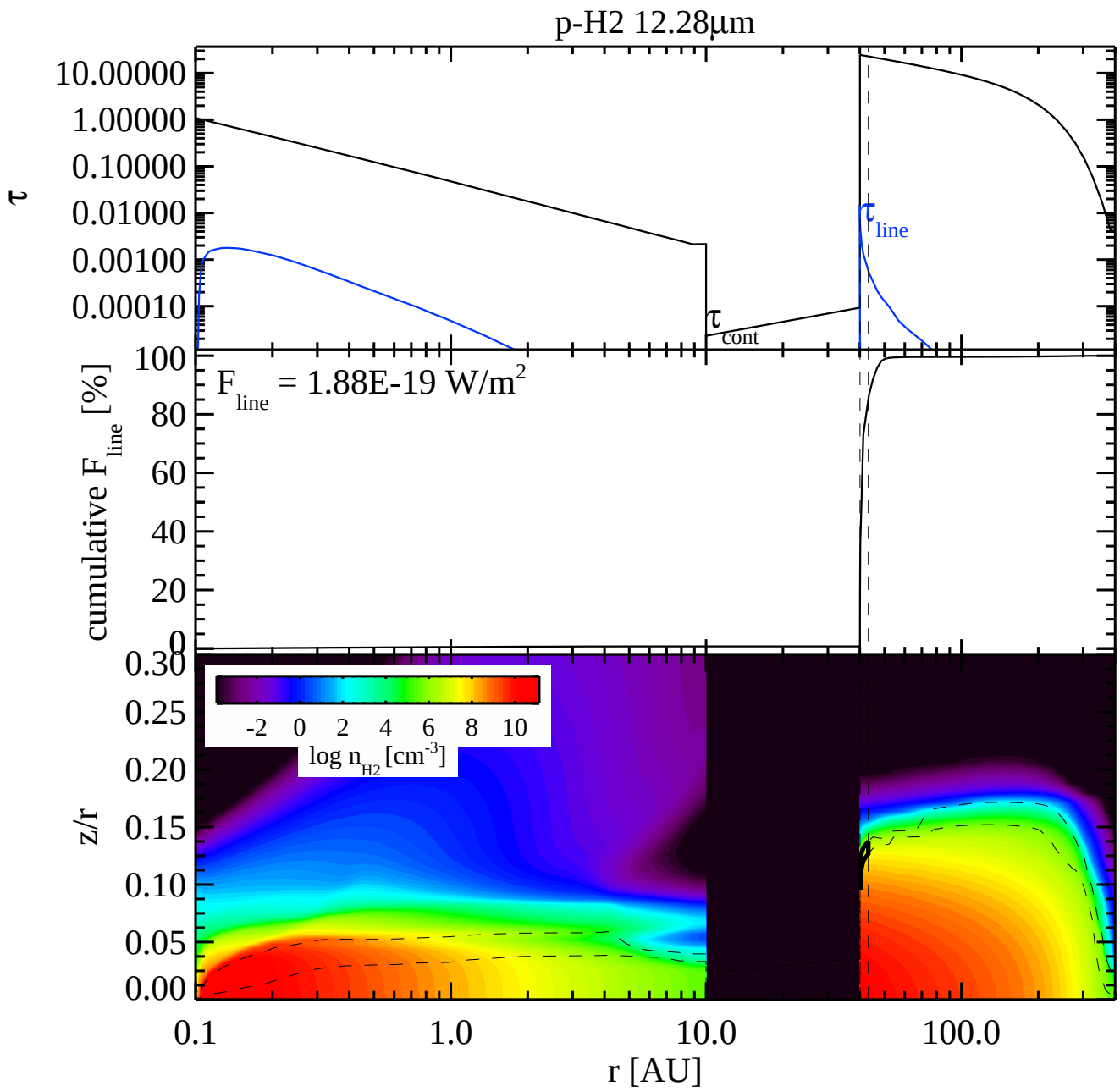

o-H2O 30.53µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 1.87E-18 W/m^2
100
80
60
40
20
0
-6 -4 -2 0 2 4 6
log n_{H2O} [cm^{-3}]
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.1
1.0
10.0
100.0
r [AU]

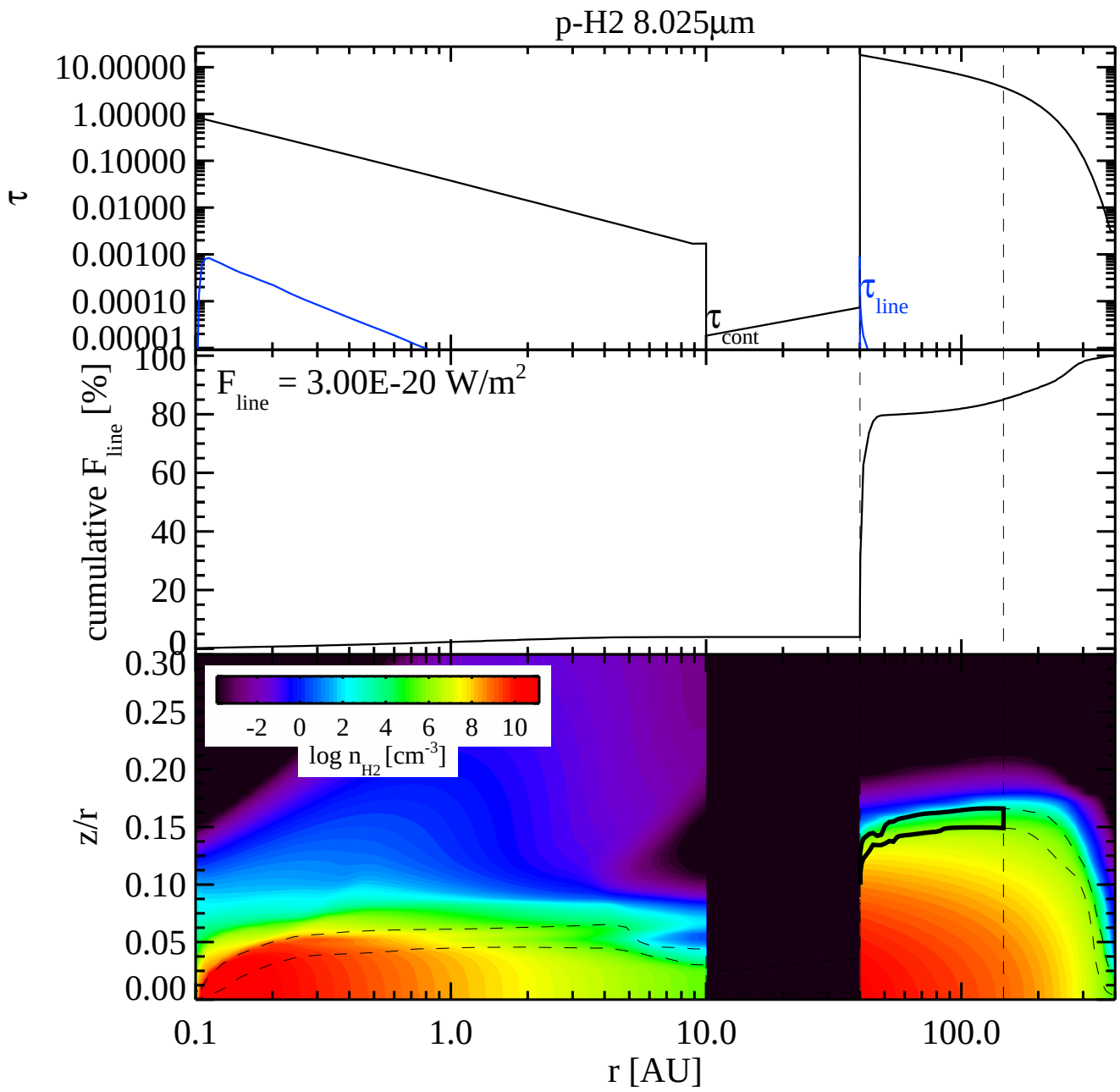

o-H2O 25.37µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 9.15E-19 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{H2O} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

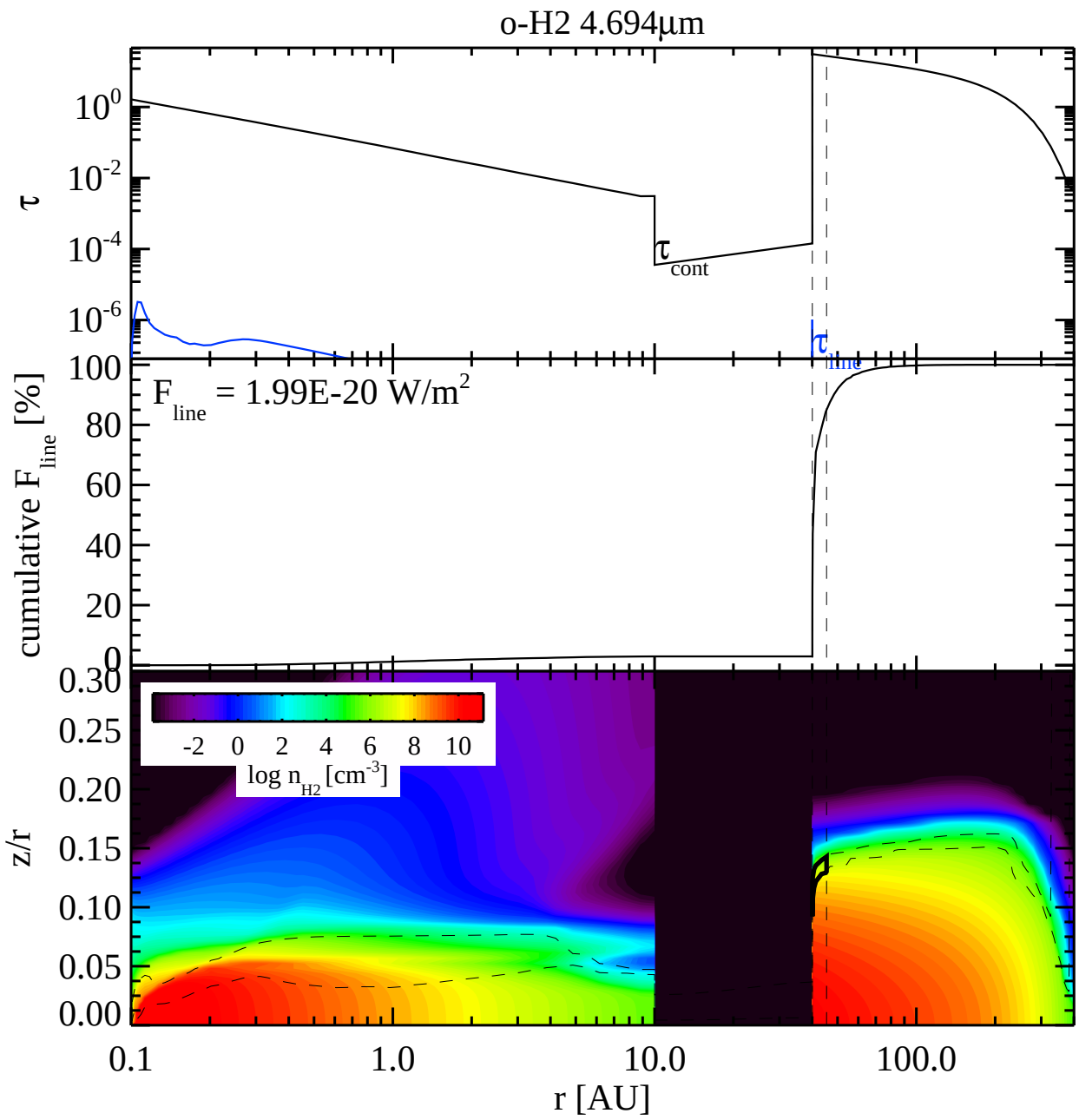

o-H2O 23.86µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 6.25E-19 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-6 -4 -2 0 2 4 6
log n_{H2O} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

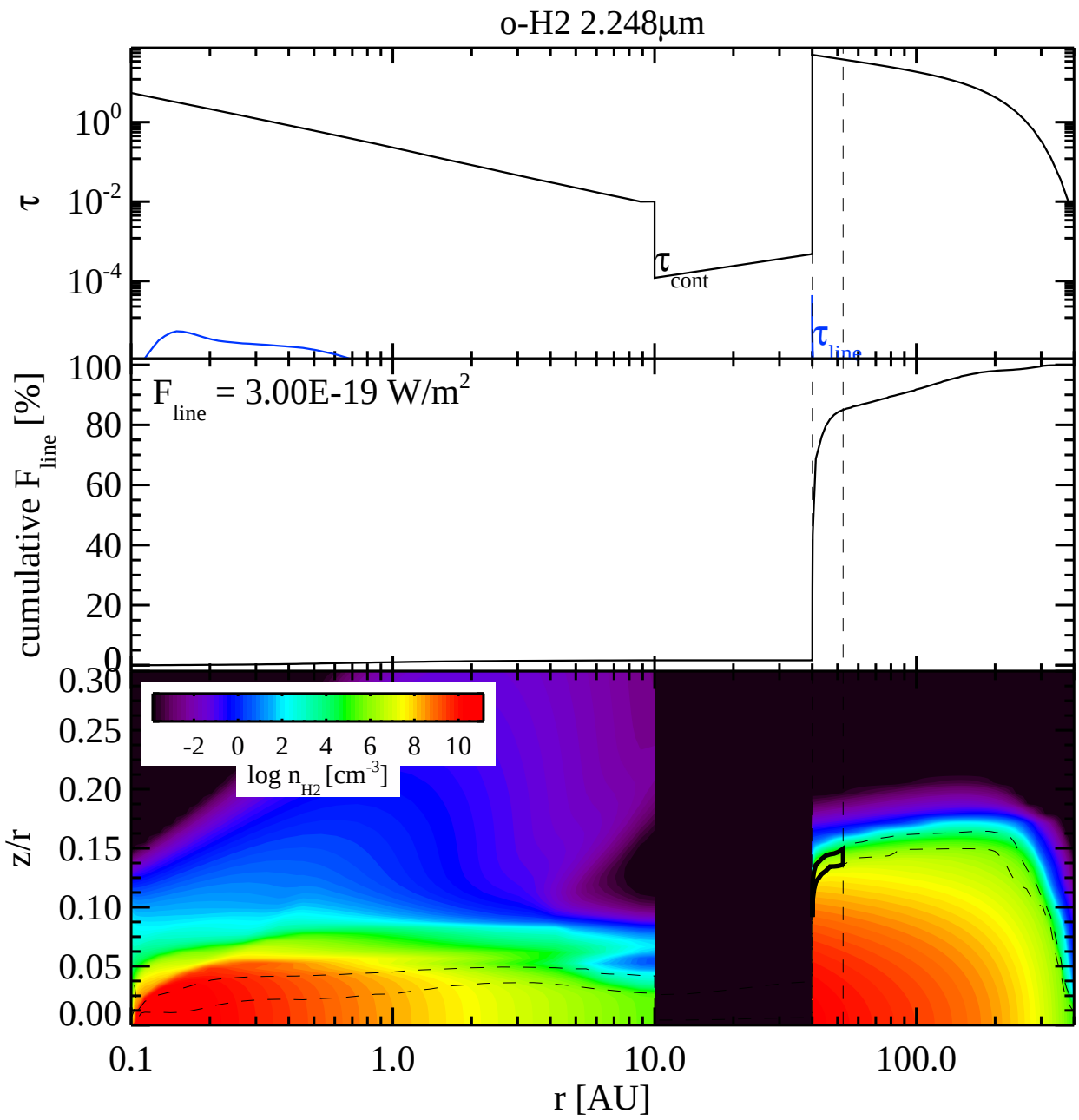

o-H2O 20.34µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{cont}
τ_{line}
F_{line} = 1.99E-19 W/m^2
cumulative F_{line} [%]
100
80
60
40
20
0
log n_{H2O} [cm^{-3}]
-6 -4 -2 0 2 4 6
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.1
1.0
10.0
100.0
r [AU]

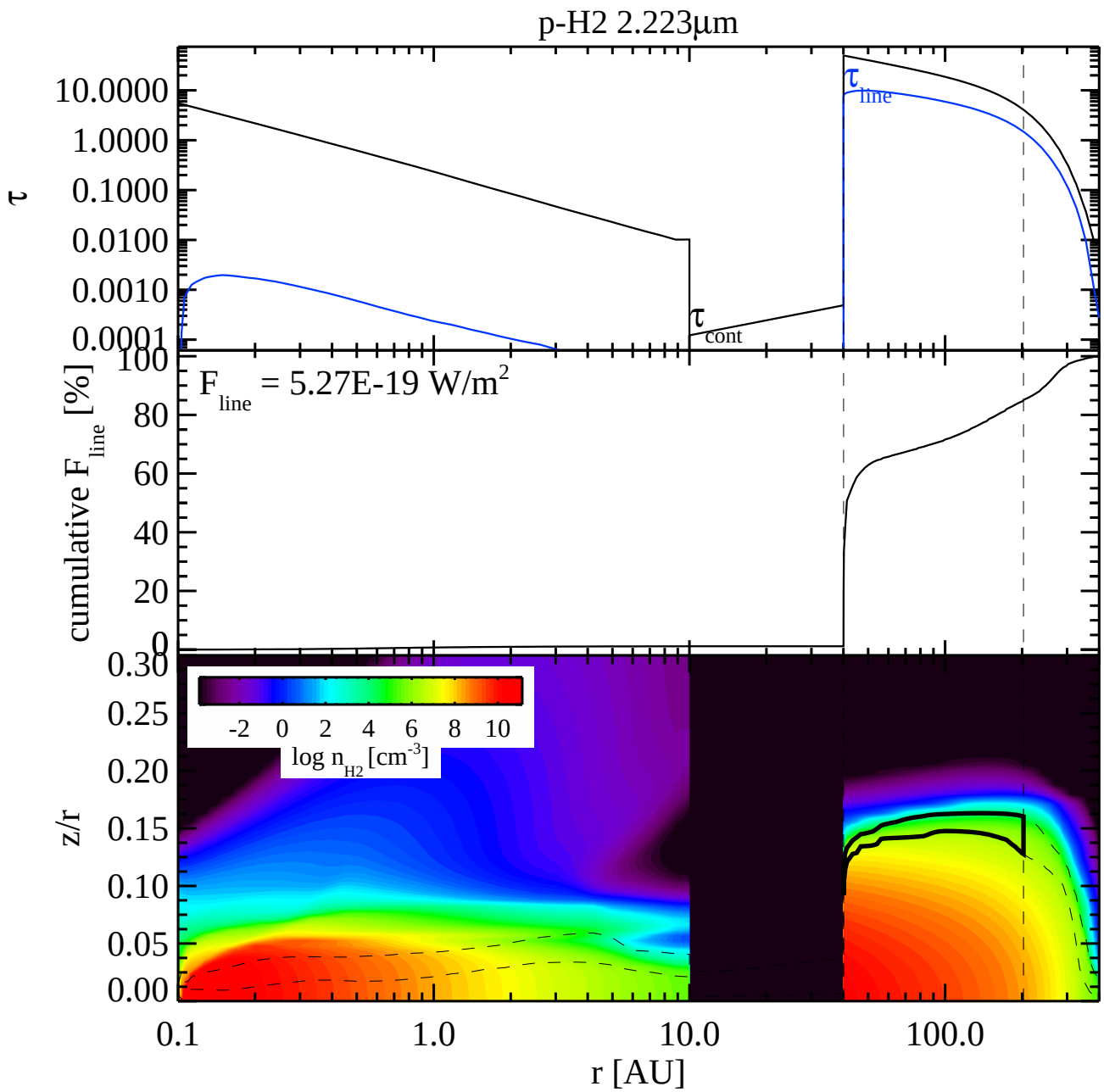

o-H2 17.03µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
F line = 4.62E-19 W/m2
cumulative F line [%]
100
80
60
40
20
0
-2 0 2 4 6 8 10
log n H2 [cm-3]
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.1
1.0
10.0
100.0
r [AU]

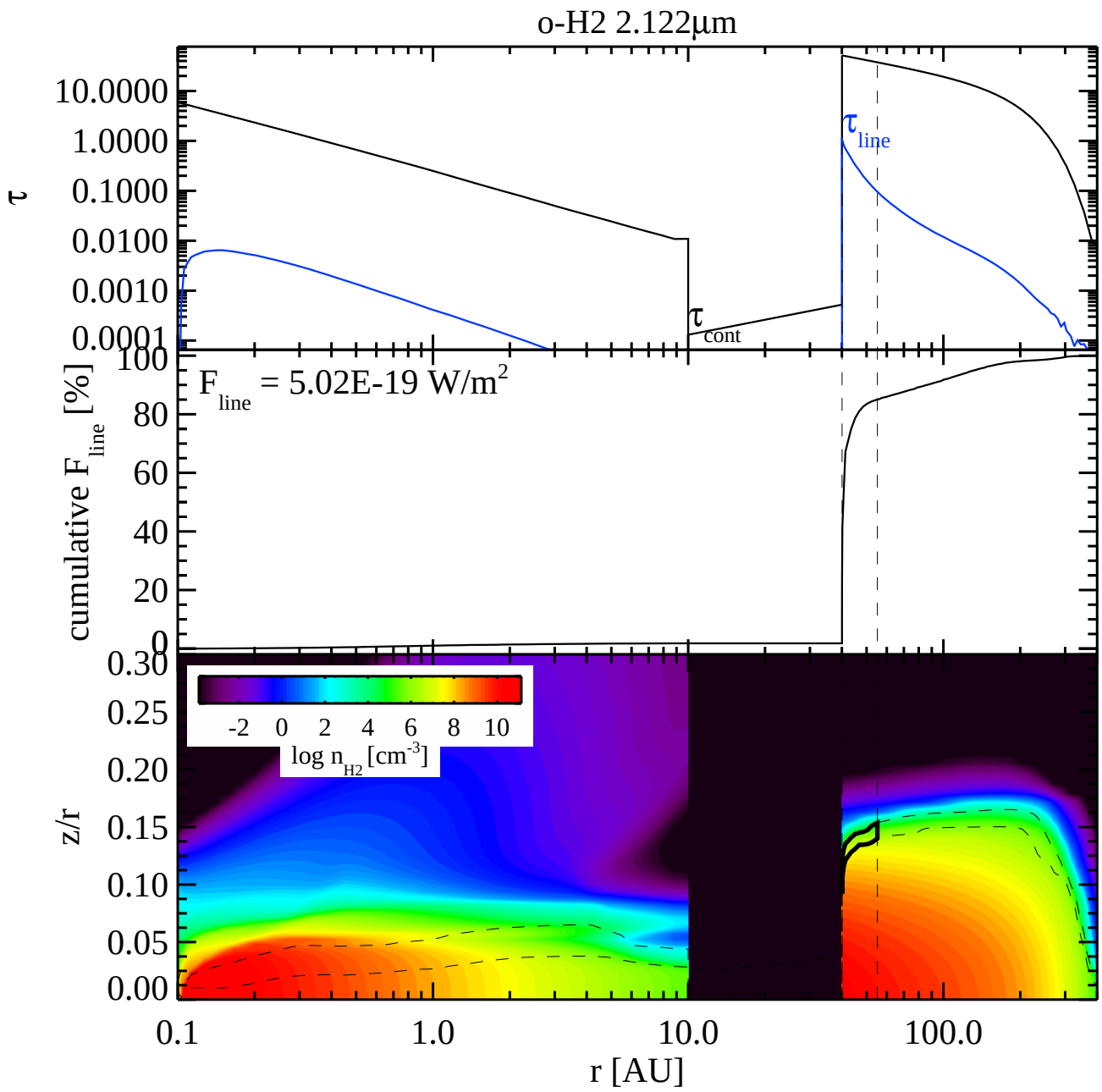

p-H2 12.28µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 1.88E-19 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-2 0 2 4 6 8 10
log n H2 [cm-3]
0.1
1.0
10.0
100.0
r [AU]

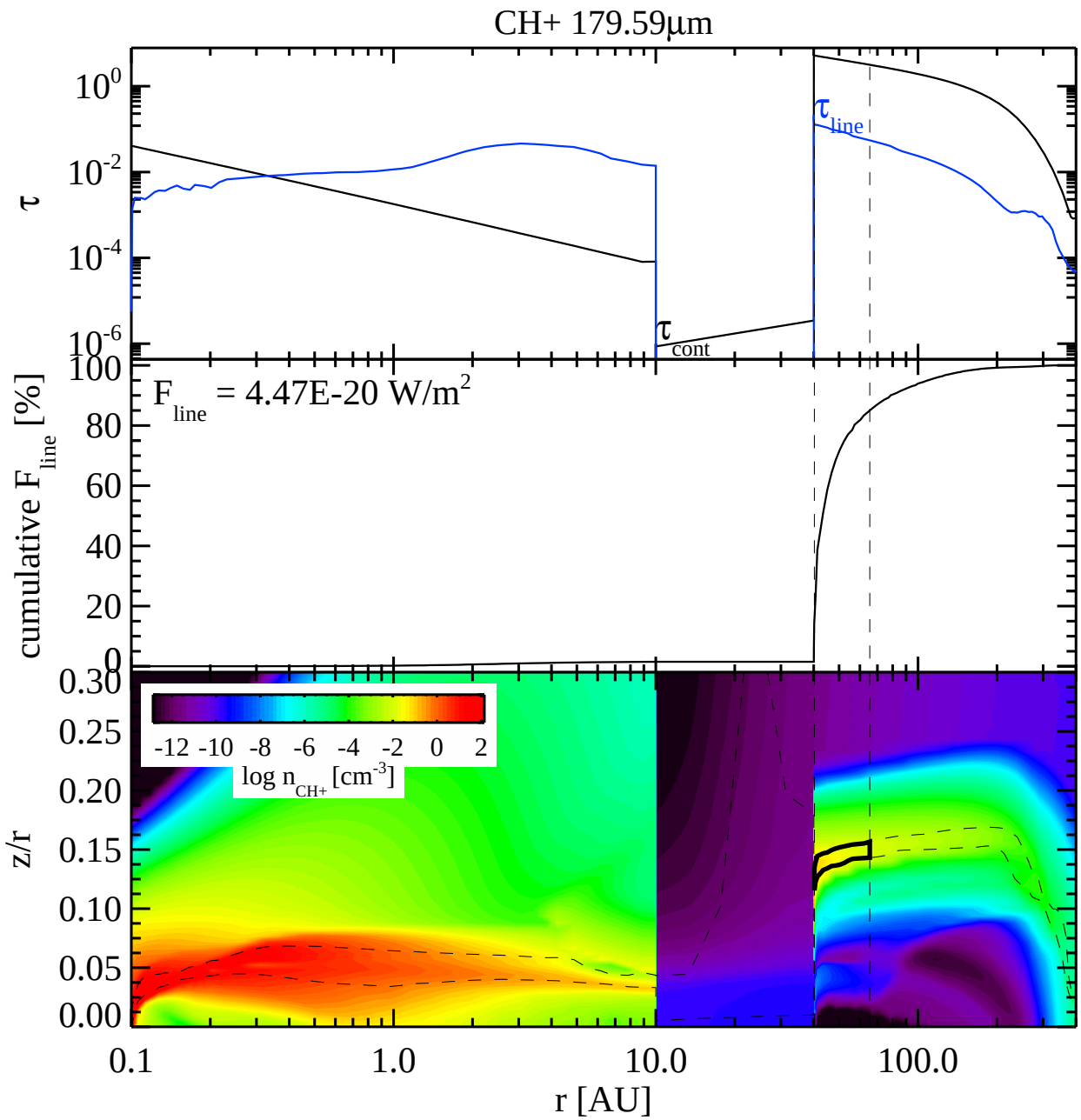

p-H2 8.025µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
τ cont
τ line
F line = 3.00E-20 W/m2
cumulative F line [%]
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-2 0 2 4 6 8 10
log n H2 [cm-3]
0.1
1.0
10.0
100.0
r [AU]

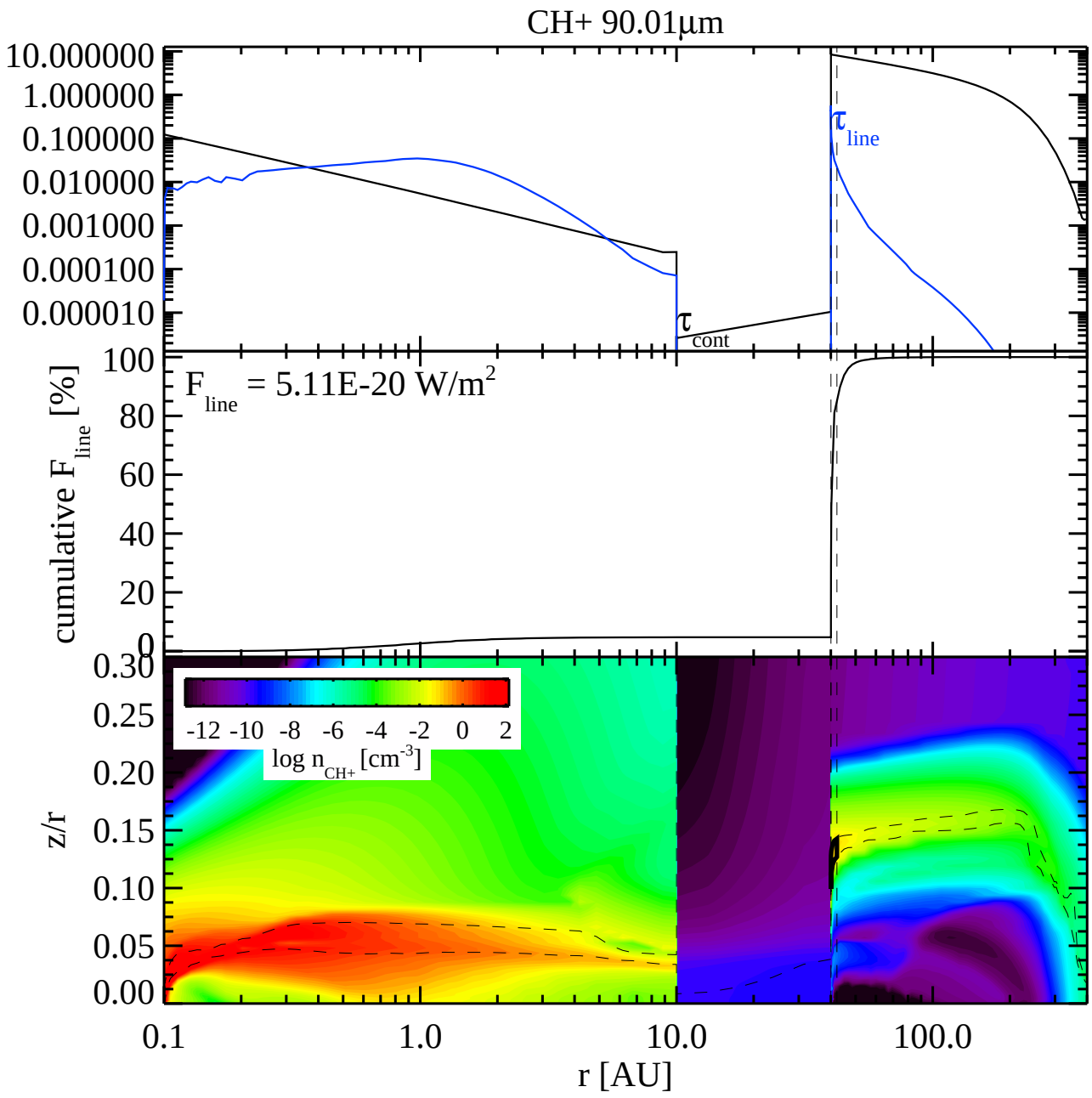

o-H2 4.694µm
τ
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 1.99E-20 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-2 0 2 4 6 8 10
log n_{H2} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

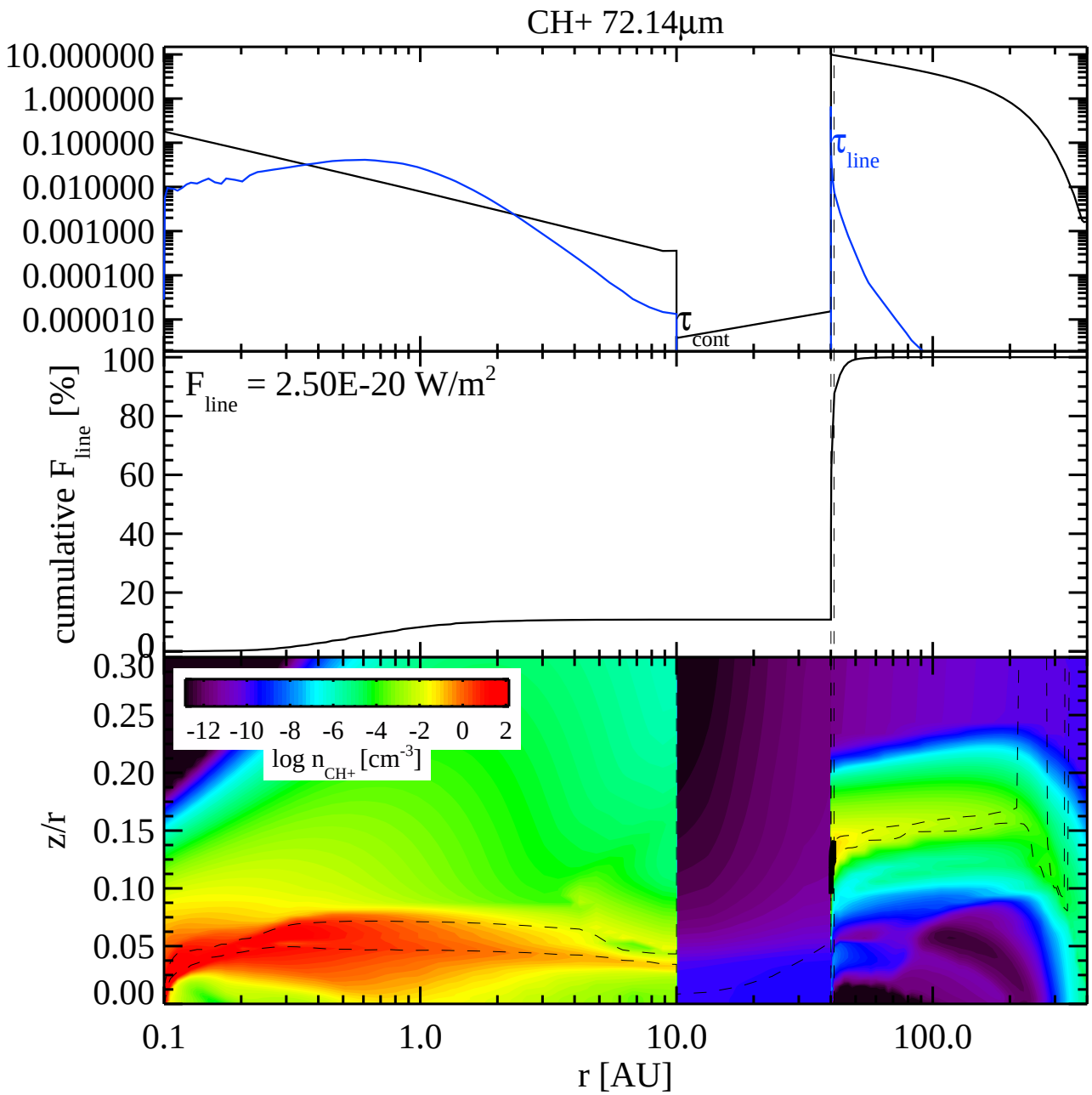

o-H2 2.248µm
τ
10^0
10^-2
10^-4
τ cont
τ line
cumulative F line [%]
F line = 3.00E-19 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-2 0 2 4 6 8 10
log n H2 [cm^-3]
0.1
1.0
10.0
100.0
r [AU]

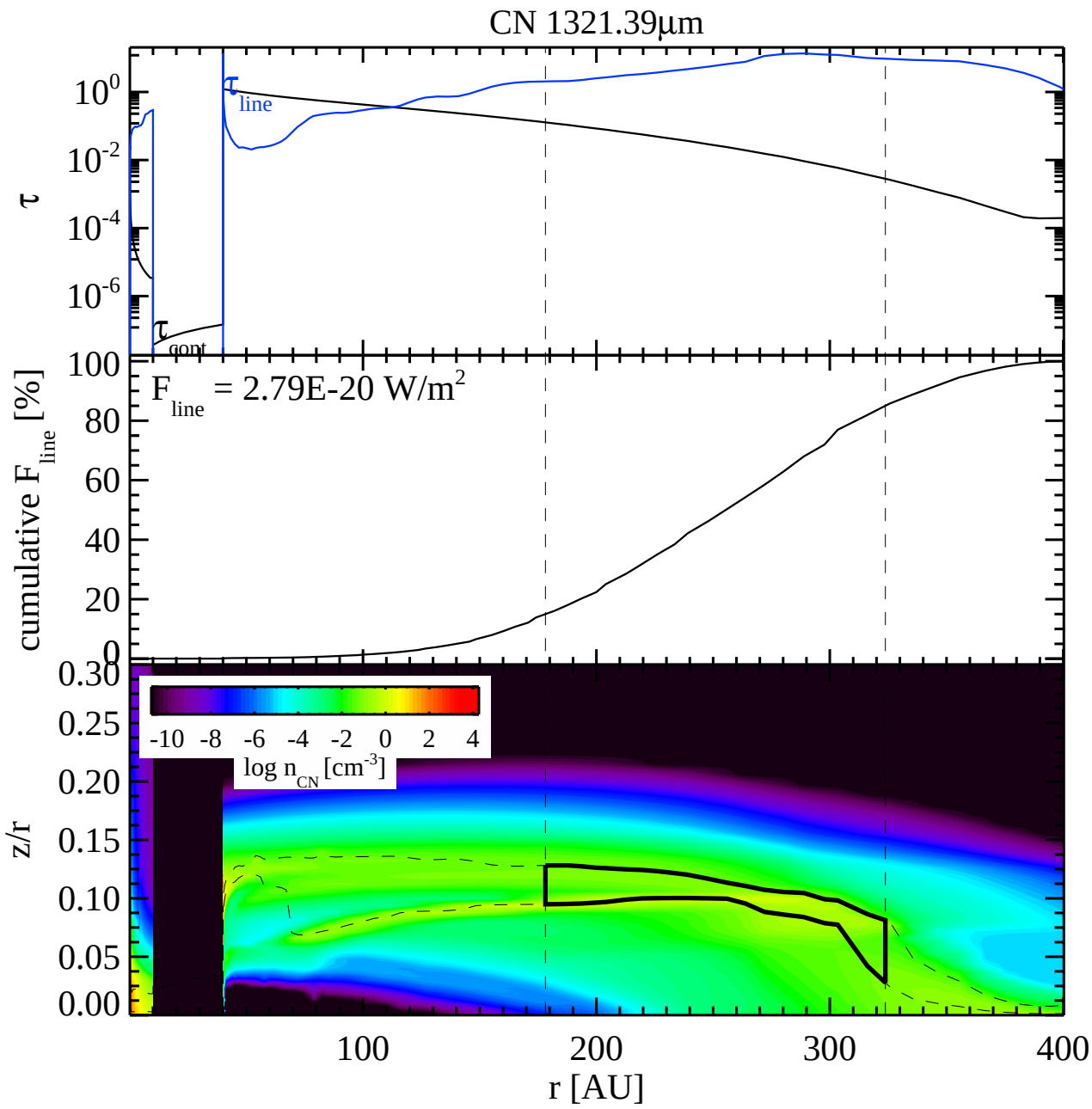

p-H2 2.223µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 5.27E-19 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-2 0 2 4 6 8 10
log n H2 [cm-3]
0.1
1.0
10.0
100.0
r [AU]

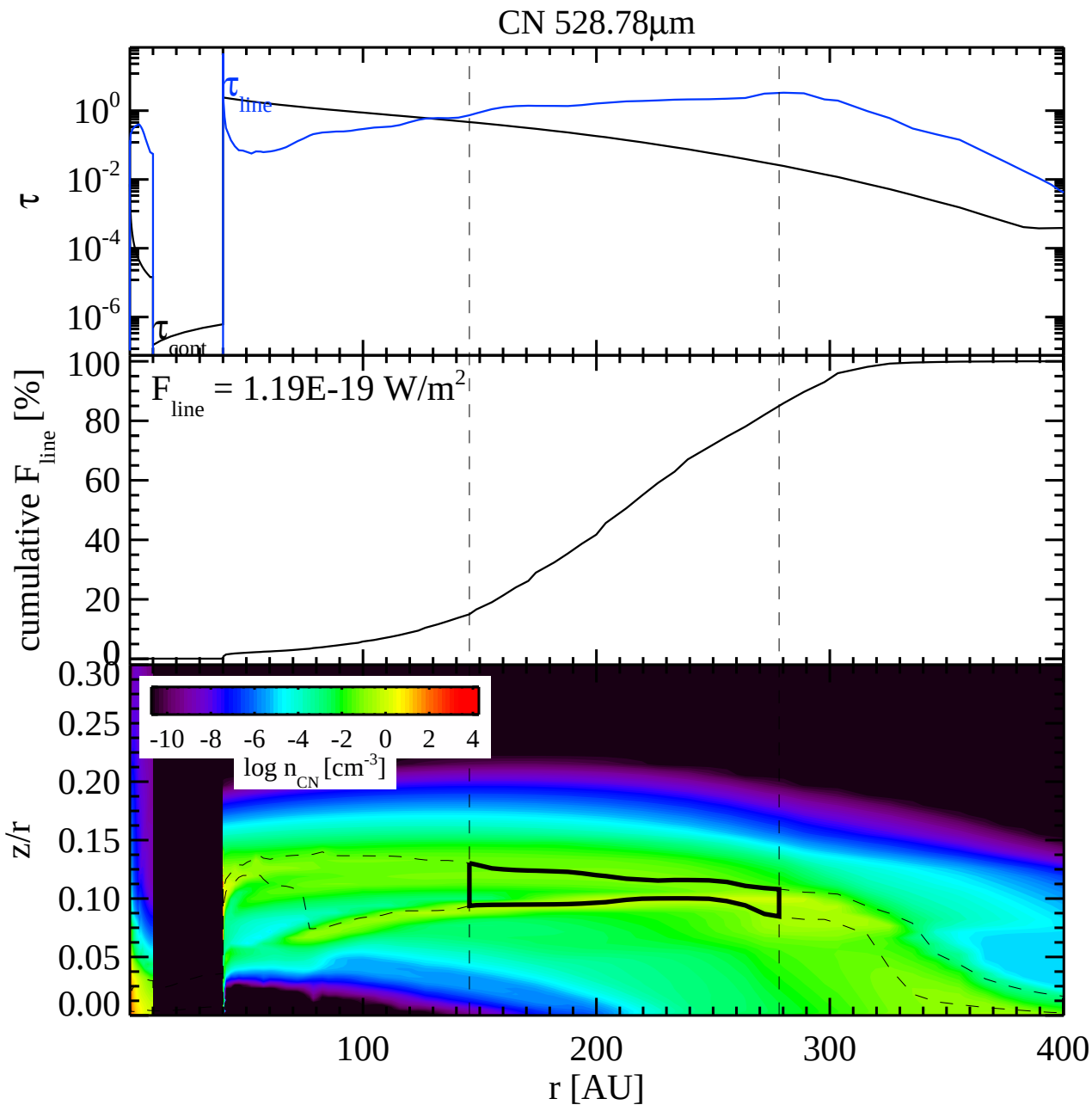

o-H2 2.122µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
F line = 5.02E-19 W/m2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-2 0 2 4 6 8 10
log n H2 [cm-3]
0.1
1.0
10.0
100.0
r [AU]

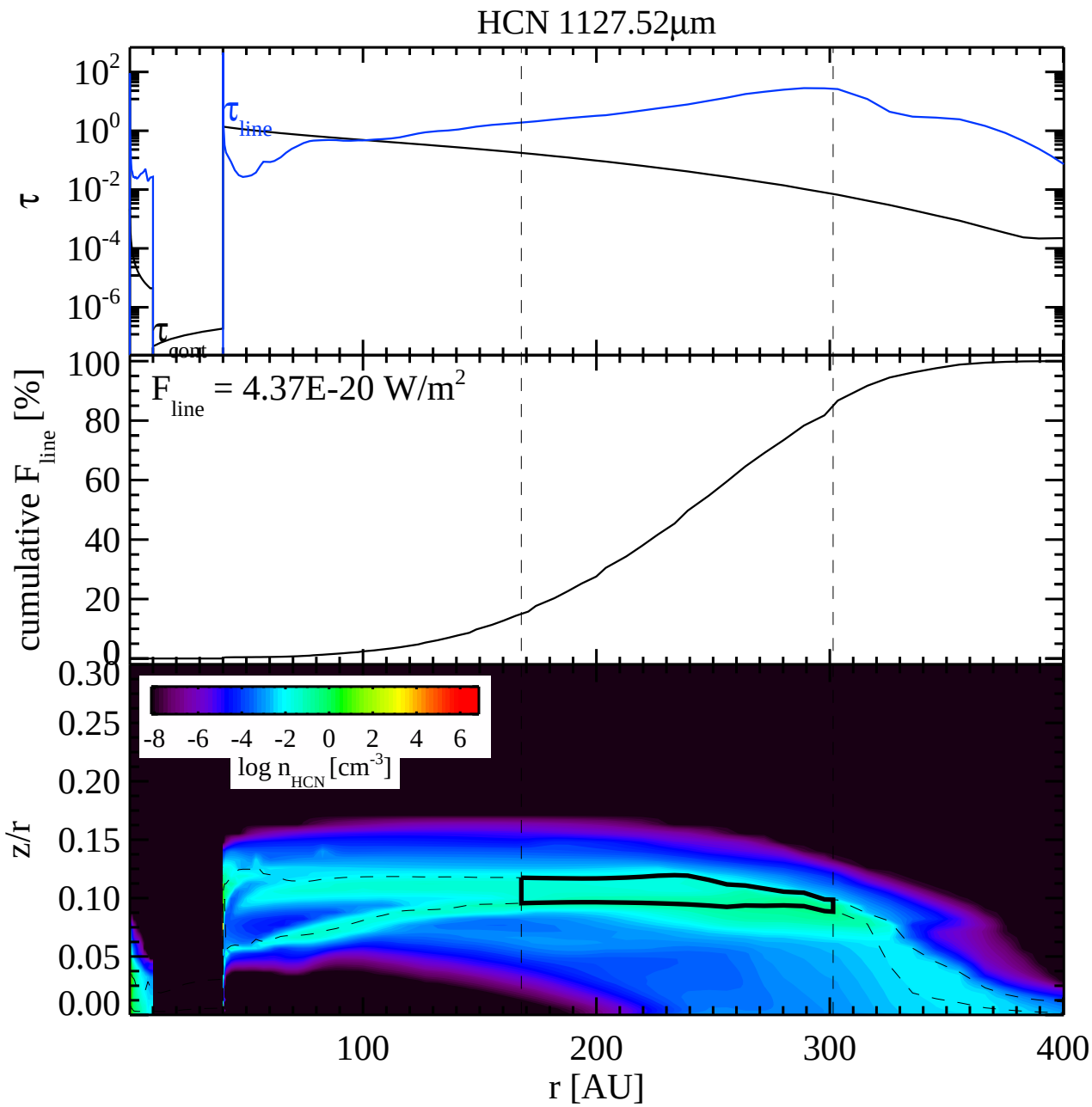

CH+ 179.59µm
τ
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 4.47E-20 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-12 -10 -8 -6 -4 -2 0 2
log n_{CH+} [cm^{-3}]
0.1
1.0
10.0
100.0
r [AU]

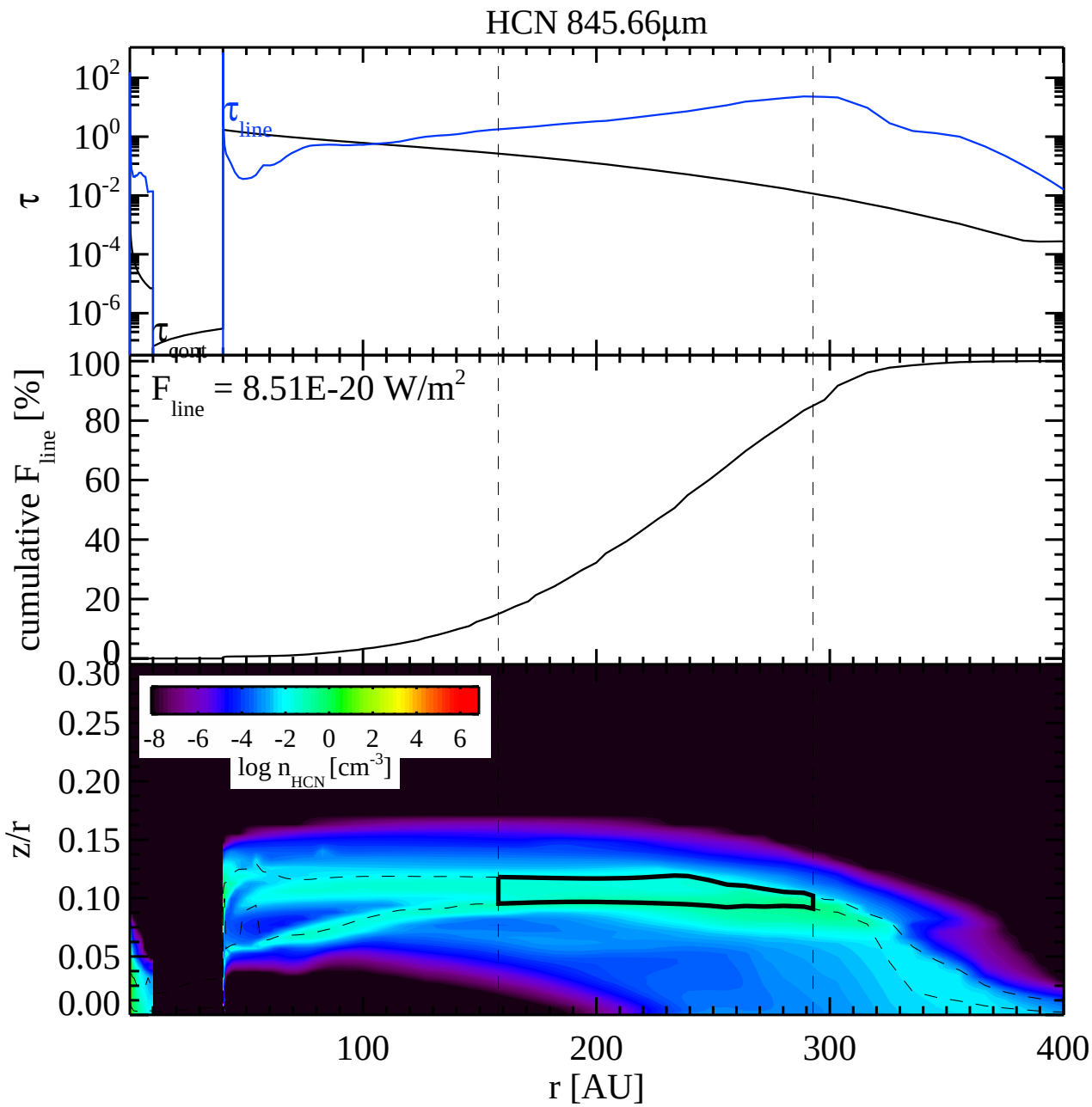

CH+ 90.01µm
τ
10.000000
1.000000
0.100000
0.010000
0.001000
0.000100
0.000010
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 5.11E-20 W/m2
0.30
0.25
0.20
0.15
0.10
0.05
0.00
z/r
-12 -10 -8 -6 -4 -2 0 2
log n CH+ [cm-3]
0.1
1.0
10.0
100.0
r [AU]

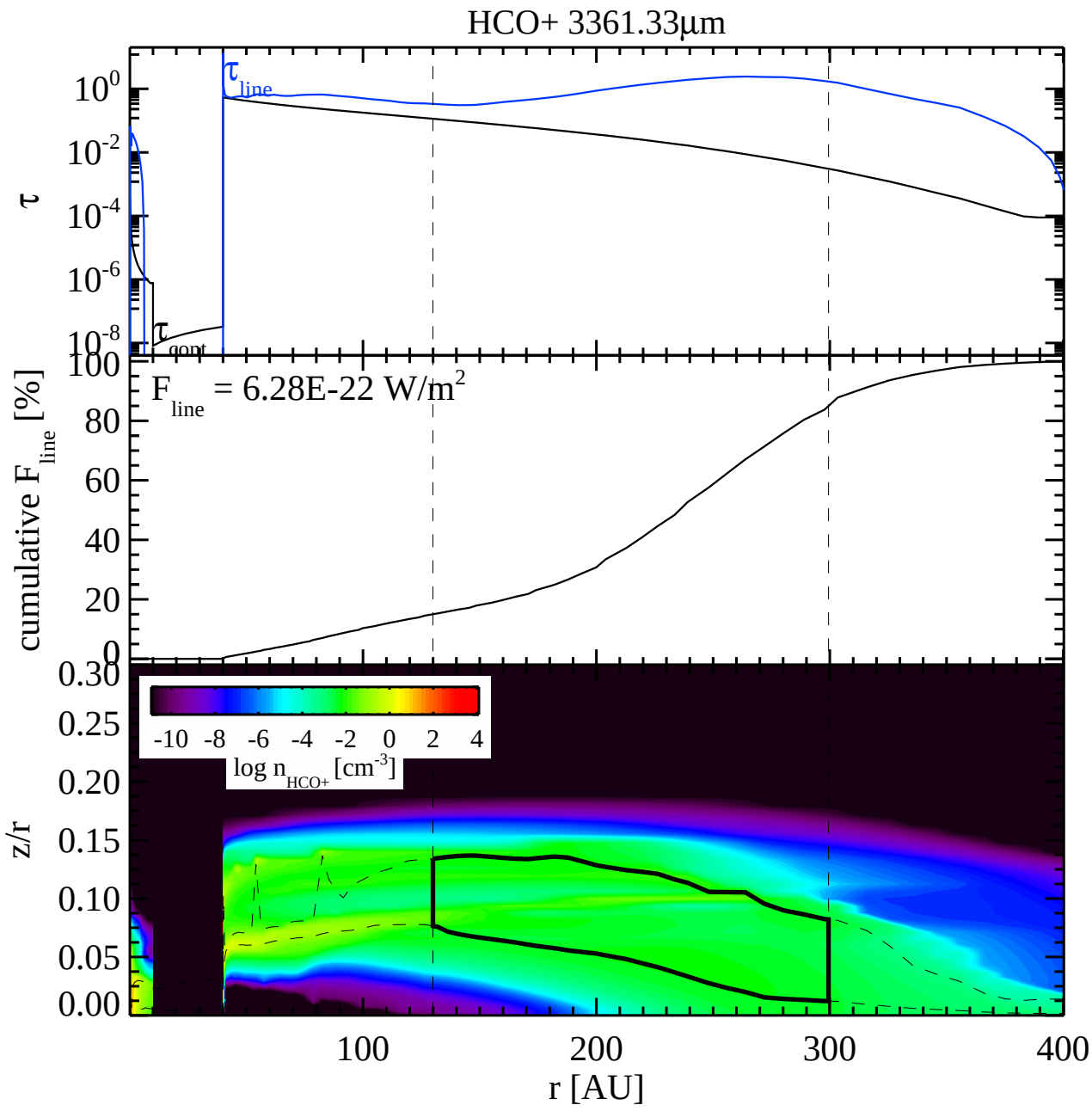

CH+ 72.14µm
τ
10.000000
1.000000
0.100000
0.010000
0.001000
0.000100
0.000010
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 2.50E-20 W/m2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-12 -10 -8 -6 -4 -2 0 2
log n CH+ [cm-3]
0.1
1.0
10.0
100.0
r [AU]

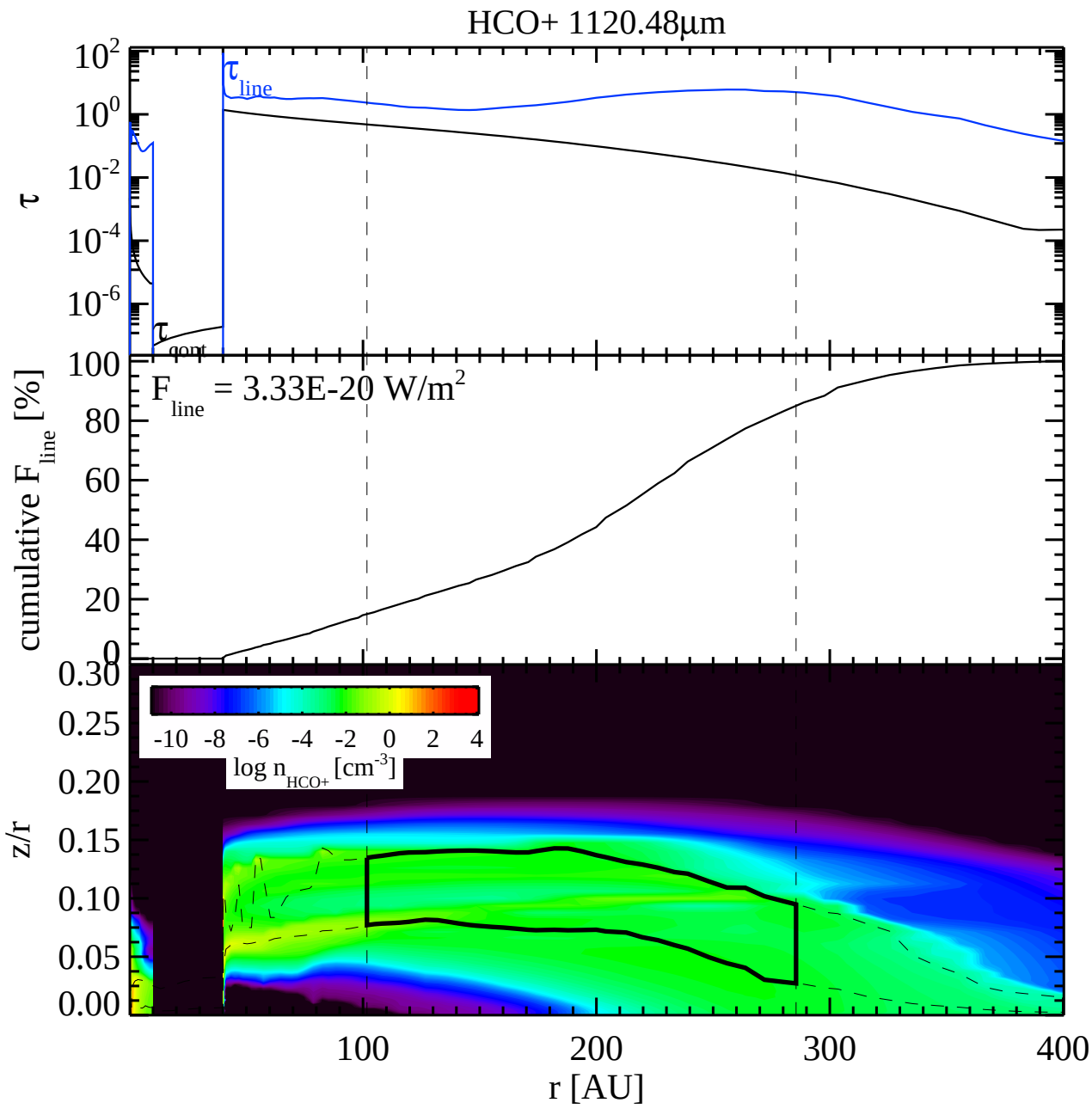

CN 1321.39µm
τ
10^0
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.79E-20 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-10 -8 -6 -4 -2 0 2 4
log n_{CN} [cm^{-3}]
100
200
300
400
r [AU]

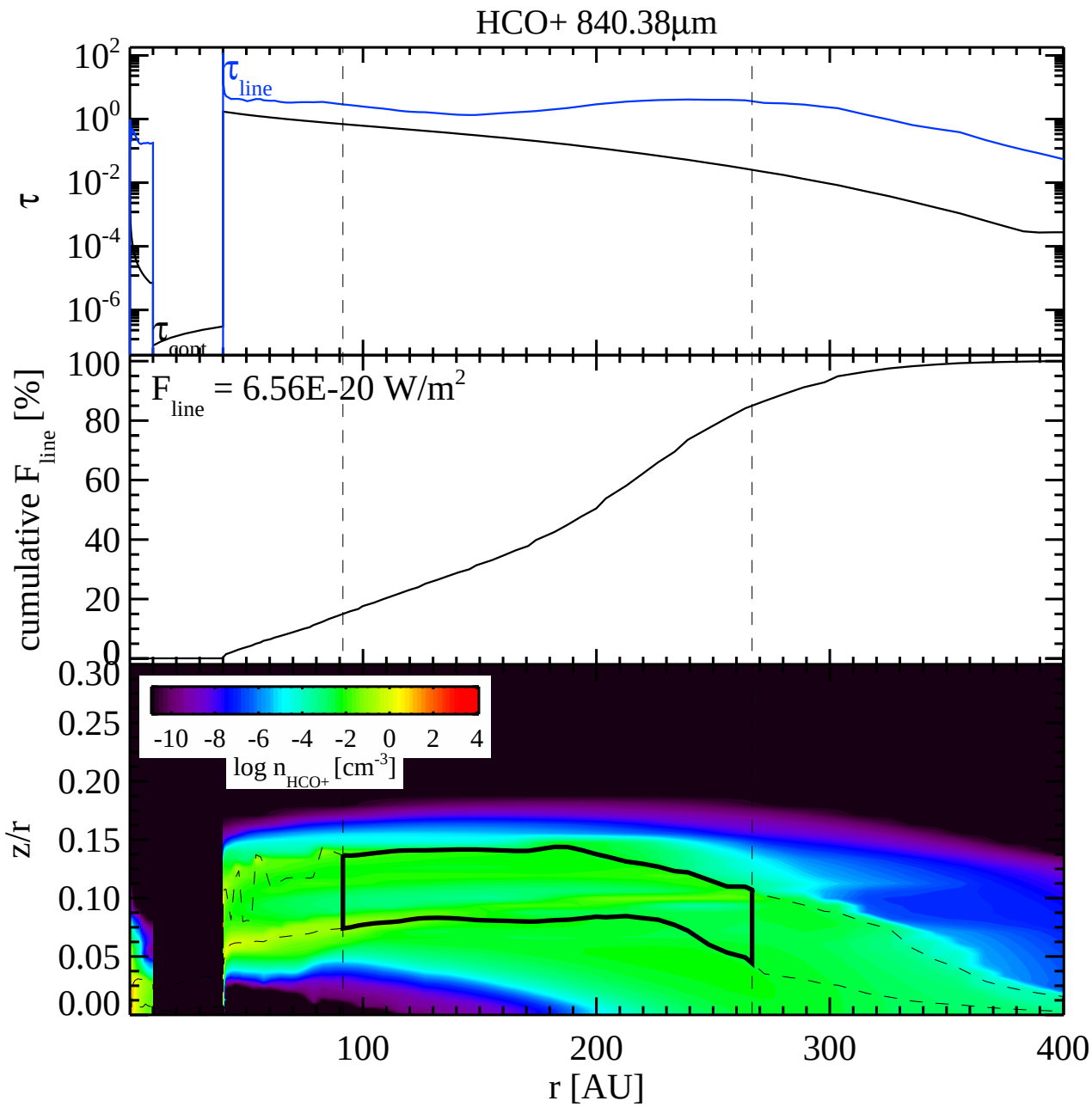

CN 528.78µm
τ
τ line
τ cont
10^0
10^-2
10^-4
10^-6
cumulative F line [%]
F line = 1.19E-19 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-10 -8 -6 -4 -2 0 2 4
log n CN [cm^-3]
100
200
300
400
r [AU]

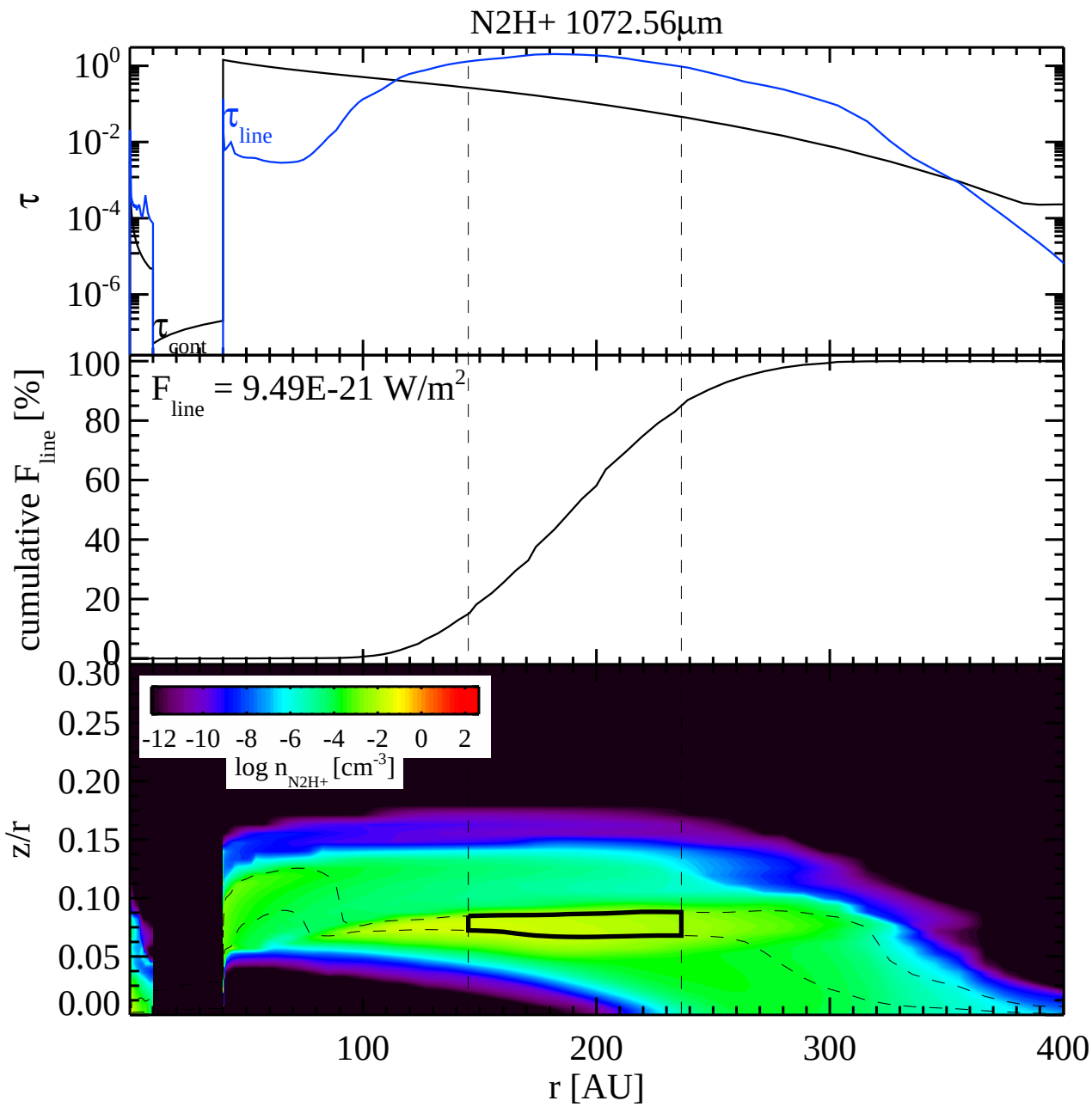

HCN 1127.52µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 4.37E-20 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -6 -4 -2 0 2 4 6
log n_{HCN} [cm^{-3}]
100
200
300
400
r [AU]

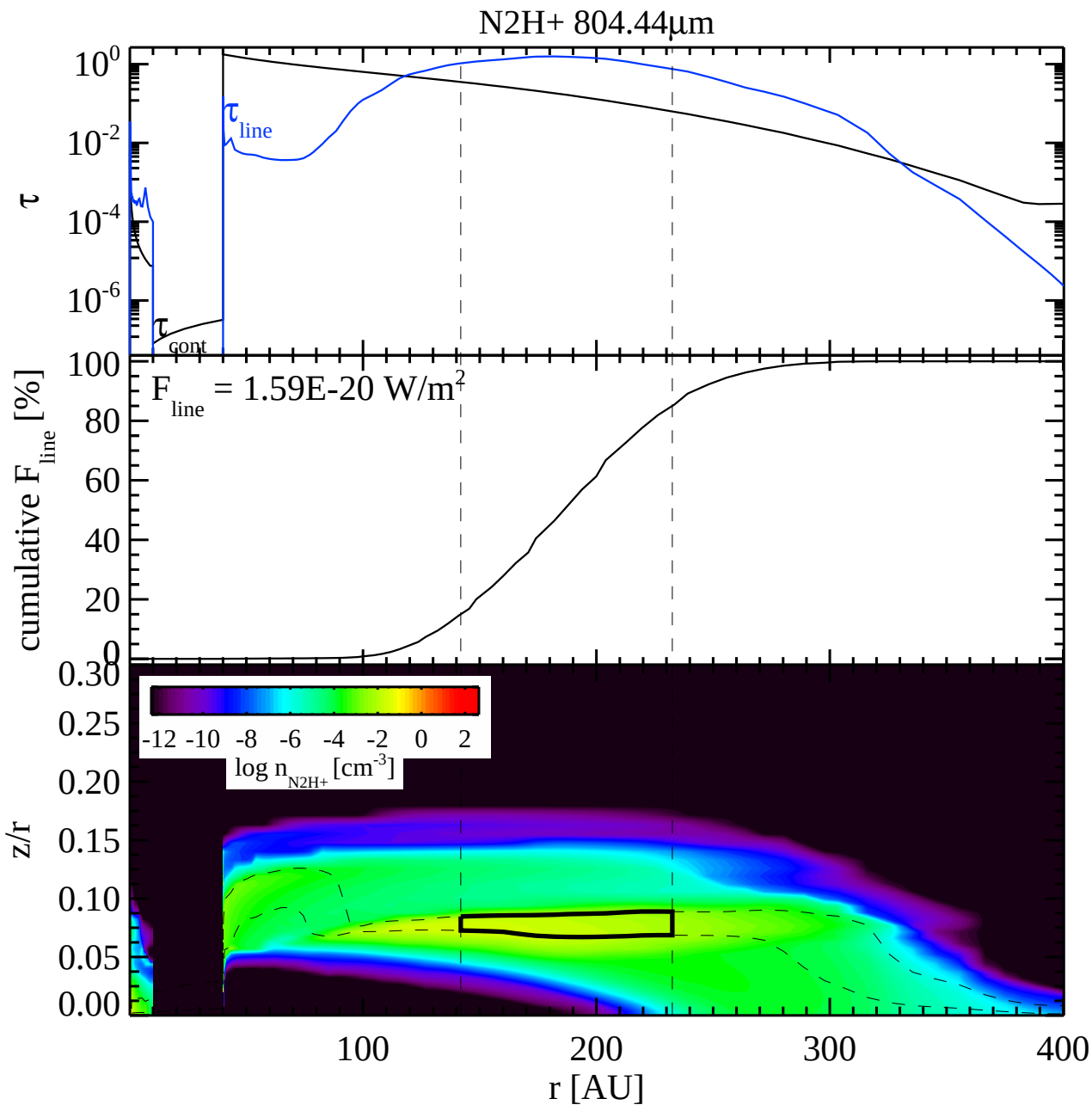

HCN 845.66µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 8.51E-20 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -6 -4 -2 0 2 4 6
log n_{HCN} [cm^{-3}]
100
200
300
400
r [AU]

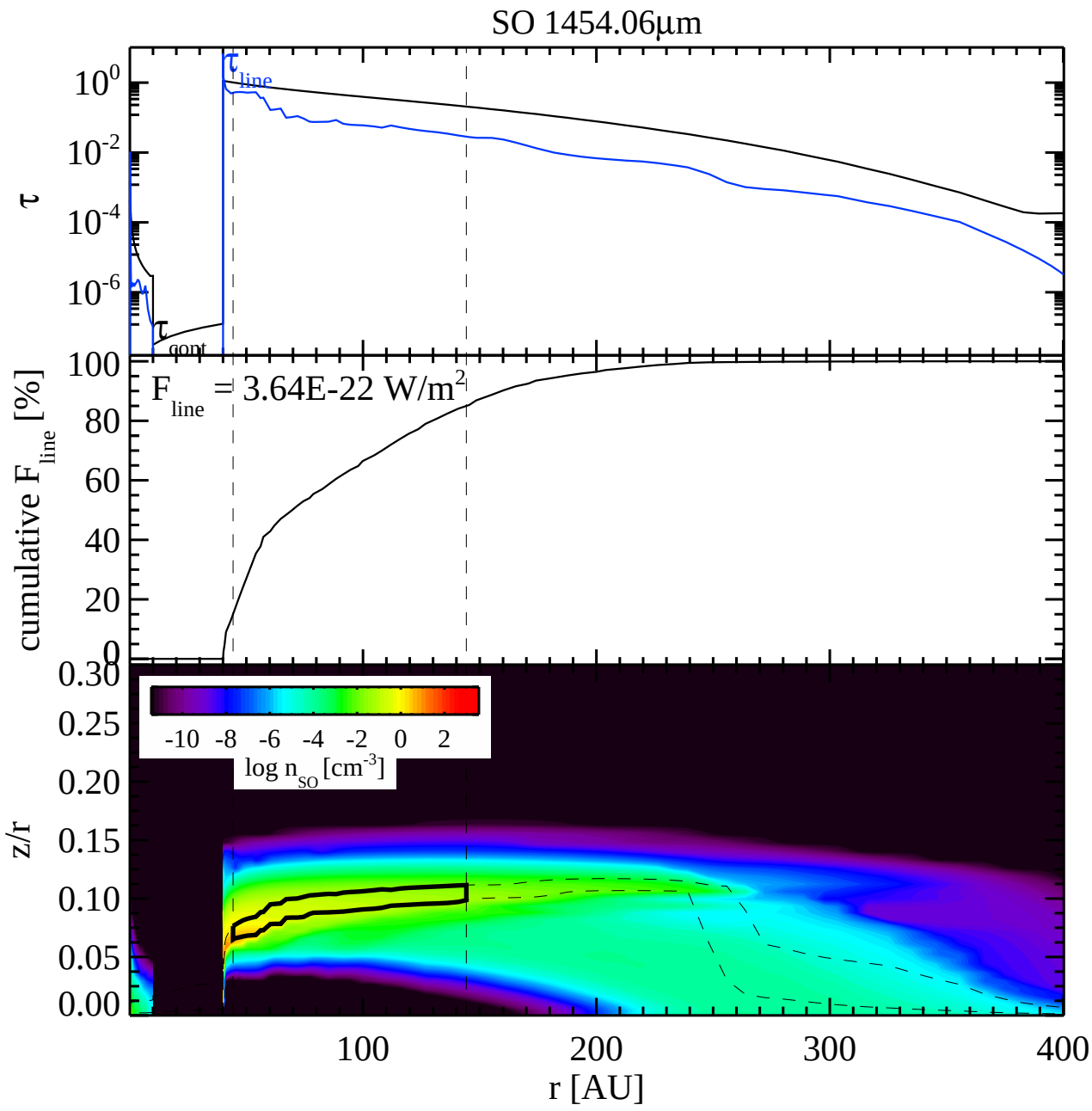

HCO+ 3361.33µm
τ
τ line
τ cont
cumulative F line [%]
F line = 6.28E-22 W/m2
log n HCO+ [cm-3]
-10 -8 -6 -4 -2 0 2 4
z/r
r [AU]
100
200
300
400

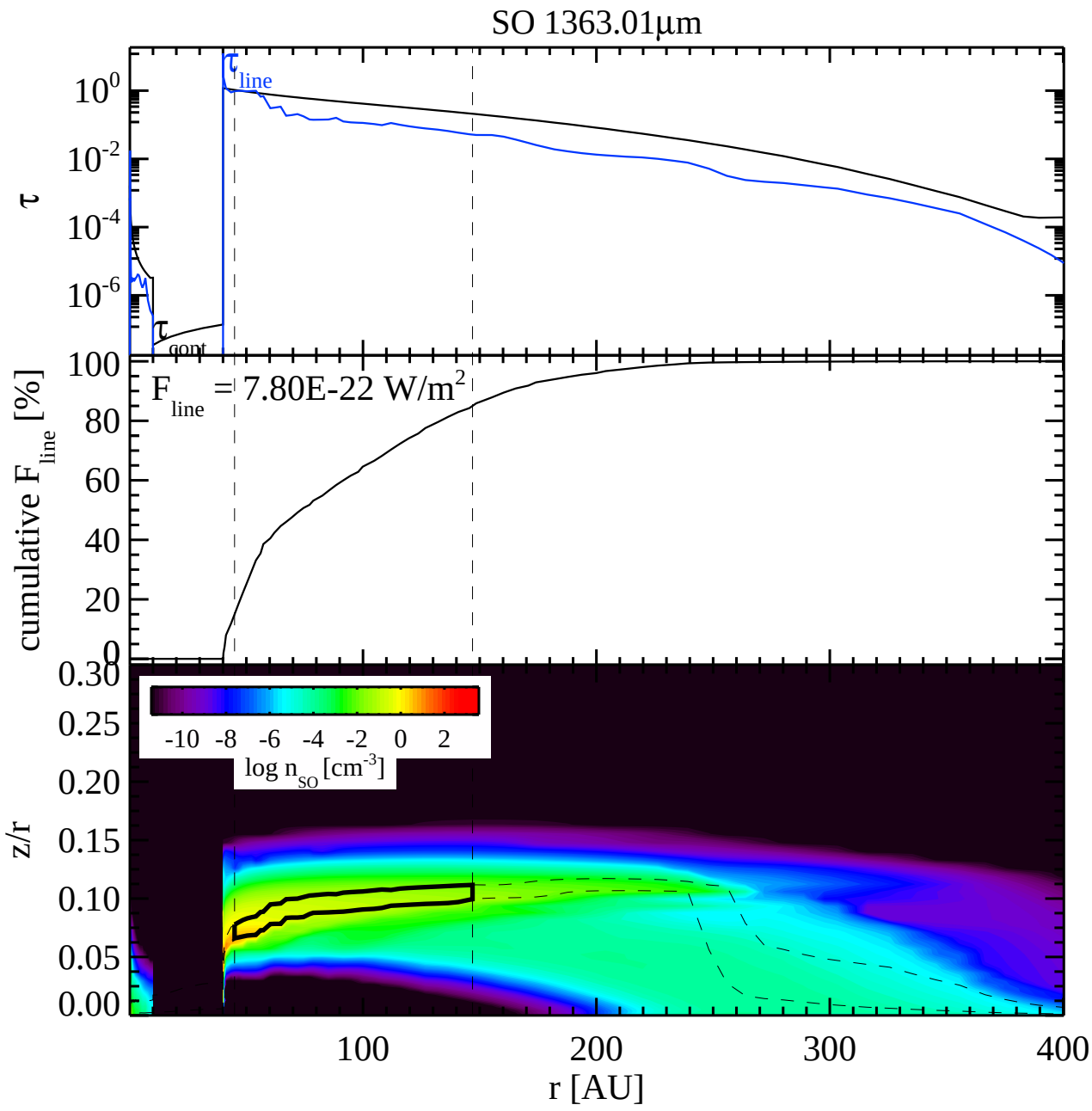

HCO+ 1120.48µm
τ
τ line
τ cont
cumulative F line [%]
F line = 3.33E-20 W/m2
log n HCO+ [cm-3]
-10 -8 -6 -4 -2 0 2 4
z/r
r [AU]
100
200
300
400

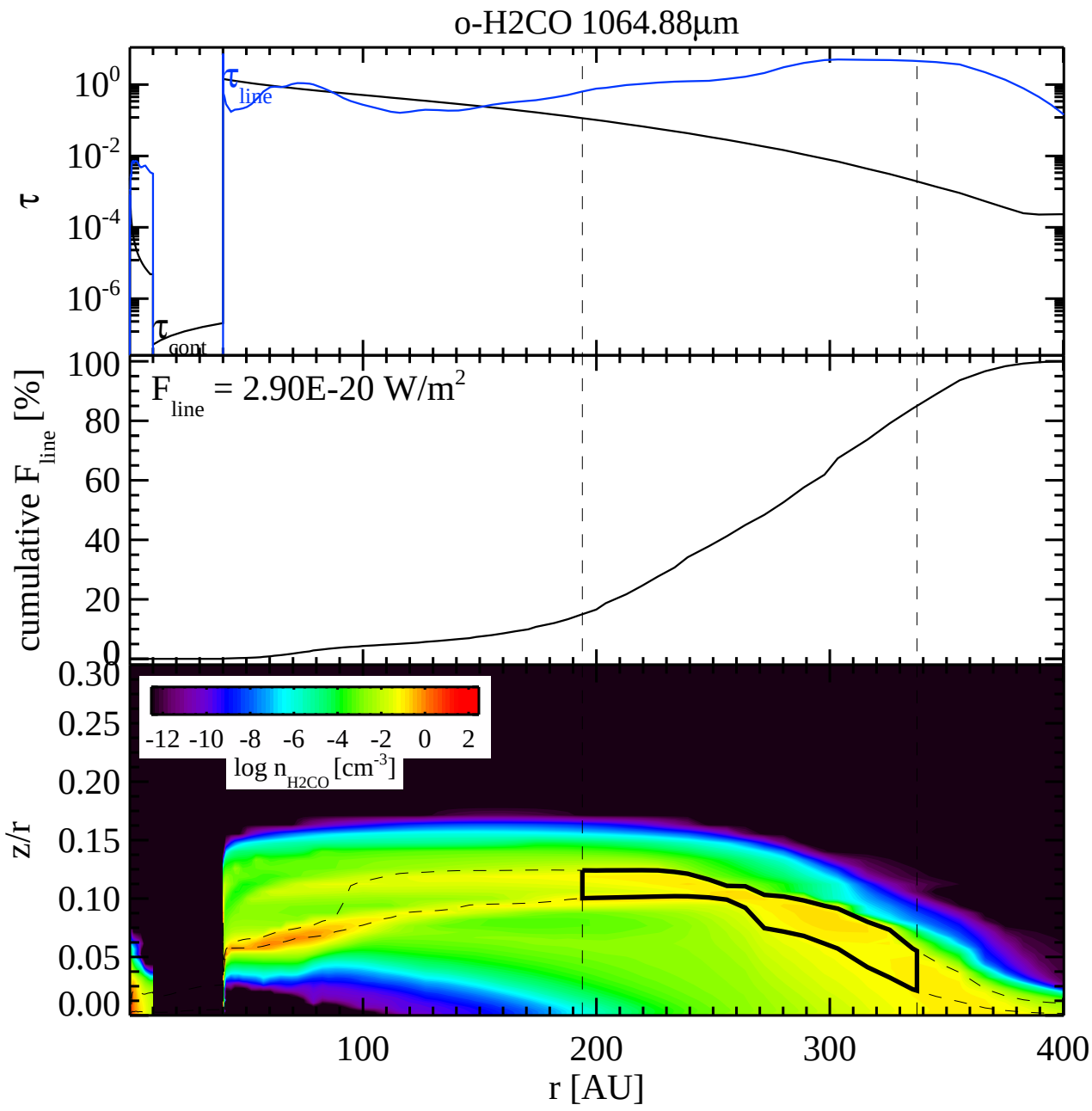

HCO+ 840.38µm
τ
τ line
τ cont
cumulative F line [%]
F line = 6.56E-20 W/m2
log n HCO+ [cm-3]
z/r
r [AU]

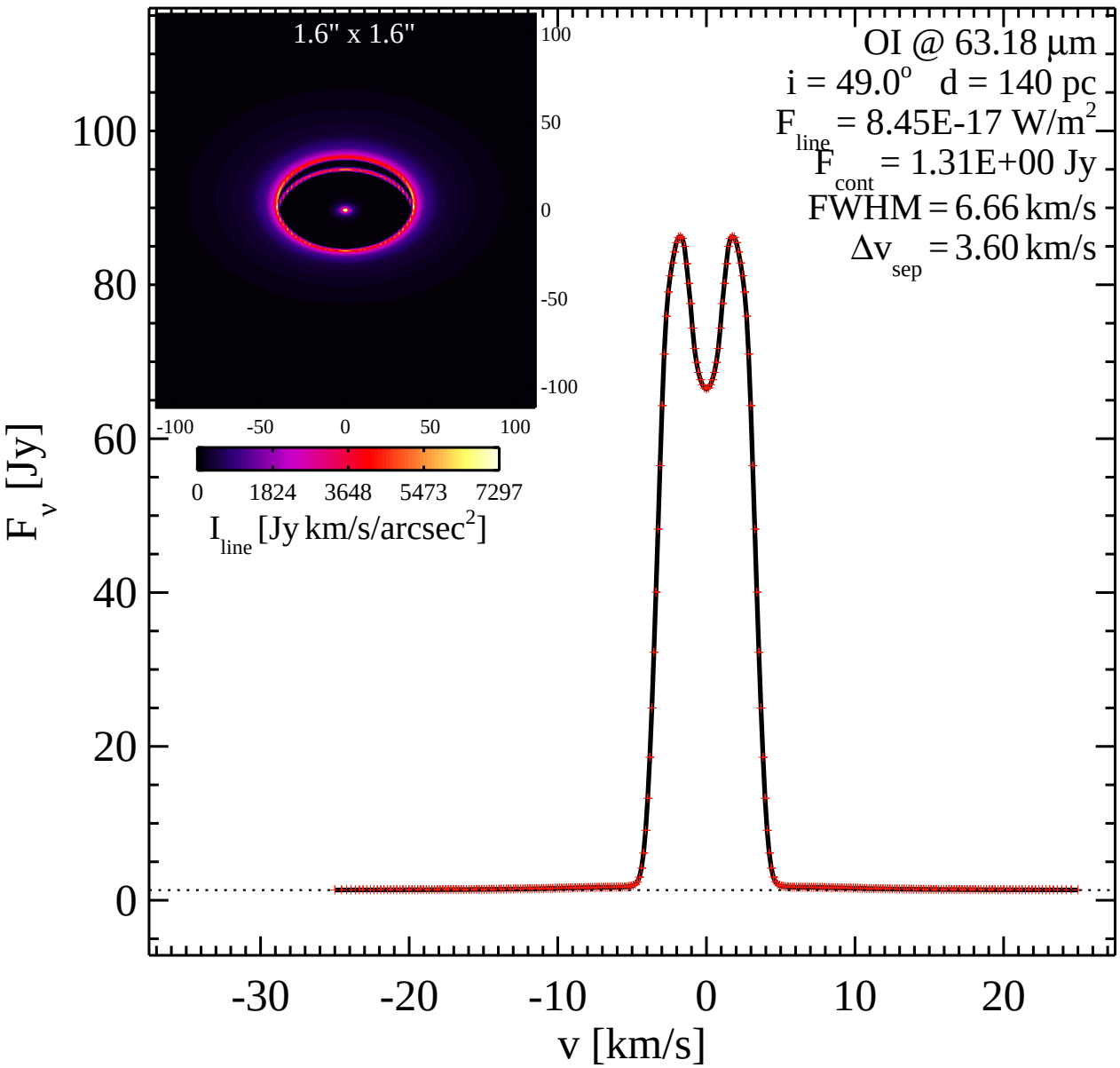

N2H+ 1072.56µm
τ
τ line
τ cont
cumulative F line [%]
F line = 9.49E-21 W/m2
-12 -10 -8 -6 -4 -2 0 2
log n N2H+ [cm-3]
z/r
r [AU]

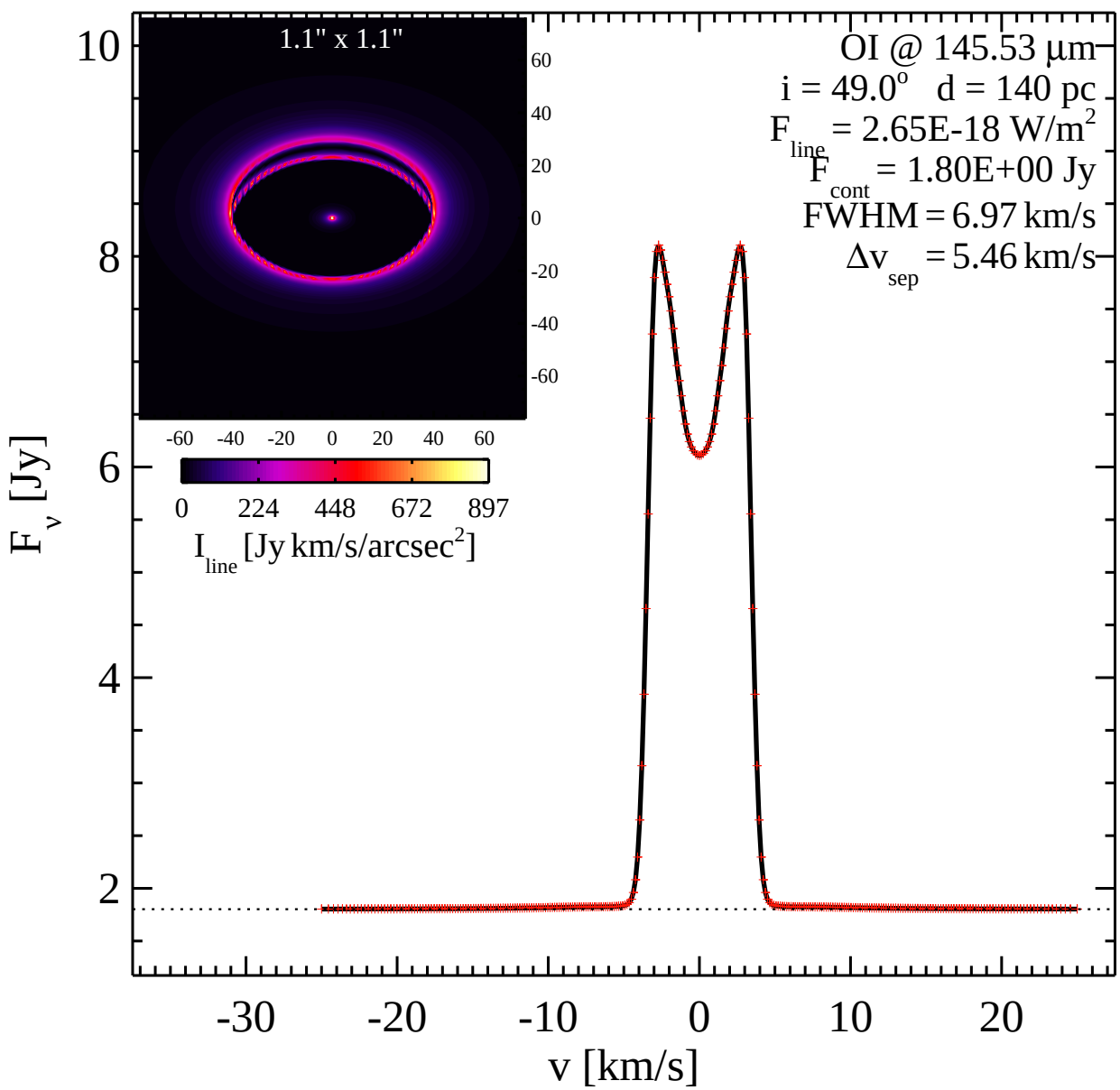

N2H+ 804.44μm
τ
τ line
τ cont
cumulative F line [%]
F line = 1.59E-20 W/m2
-12 -10 -8 -6 -4 -2 0 2
log n N2H+ [cm-3]
z/r
r [AU]

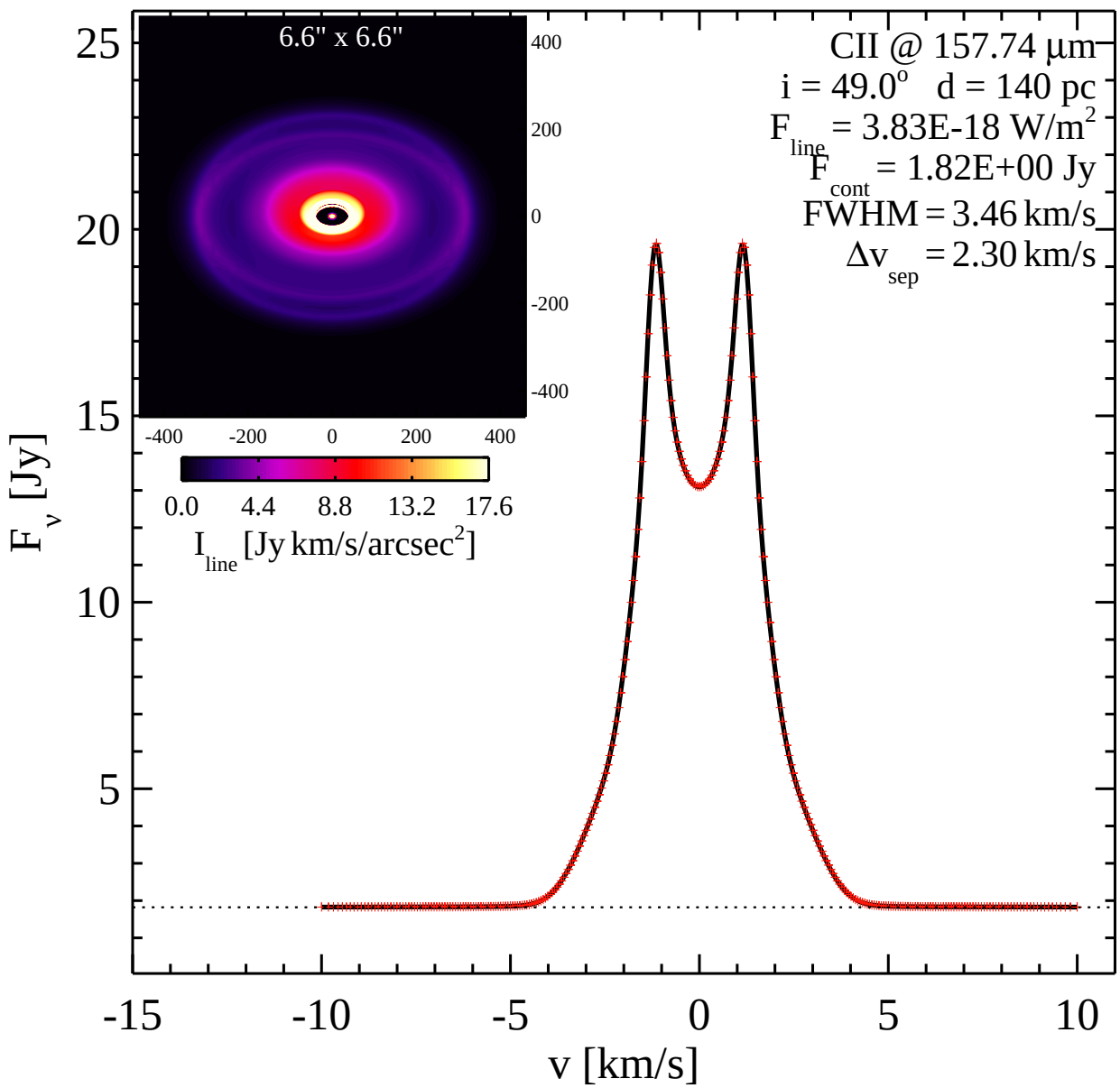

SO 1454.06µm
τ
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 3.64E-22 W/m^2
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-10 -8 -6 -4 -2 0 2
log n_{SO} [cm^{-3}]
100
200
300
400
r [AU]

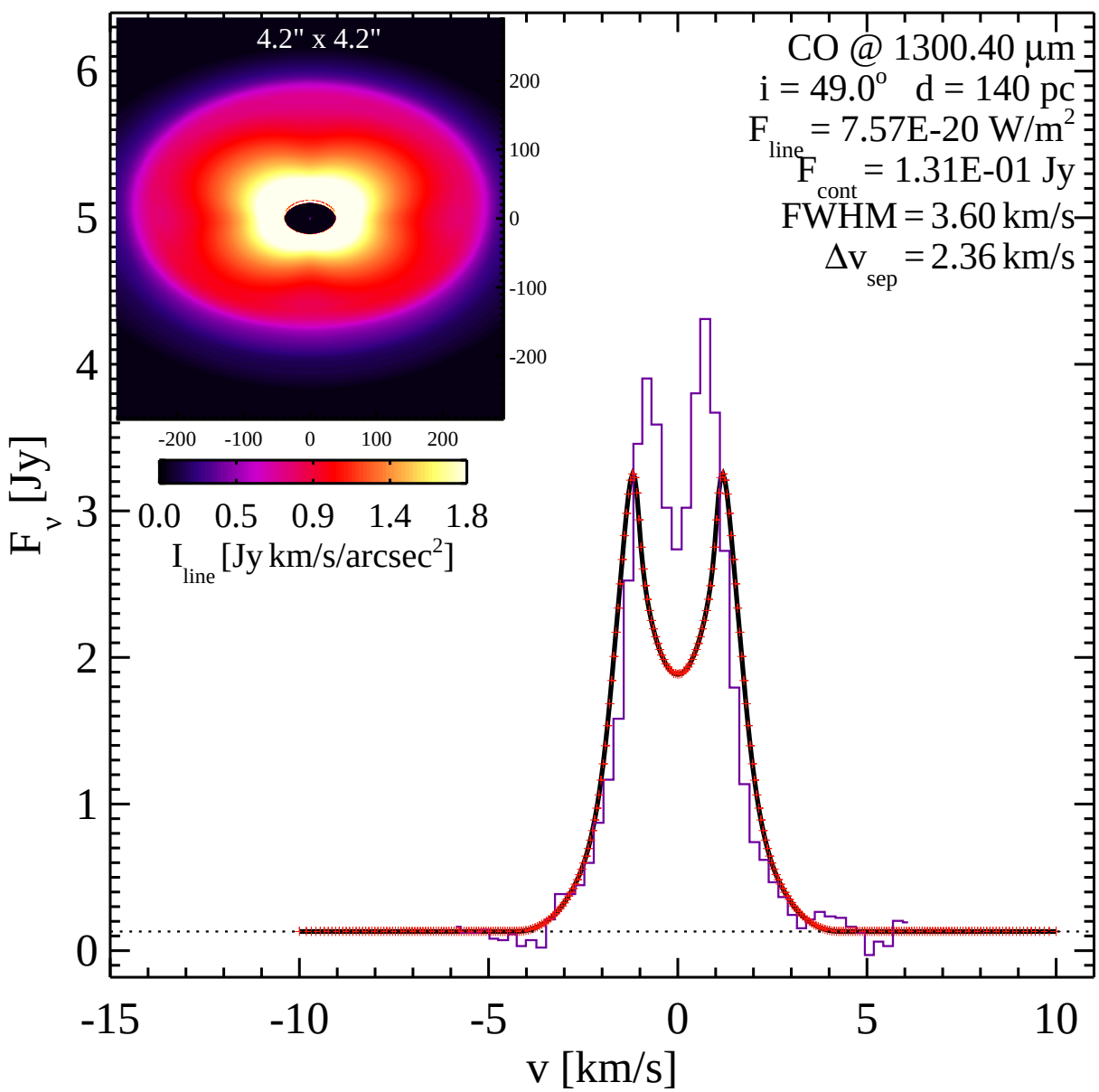

SO 1363.01µm
τ
τ line
τ cont
cumulative F line [%]
F line = 7.80E-22 W/m2
log n SO [cm-3]
z/r
r [AU]

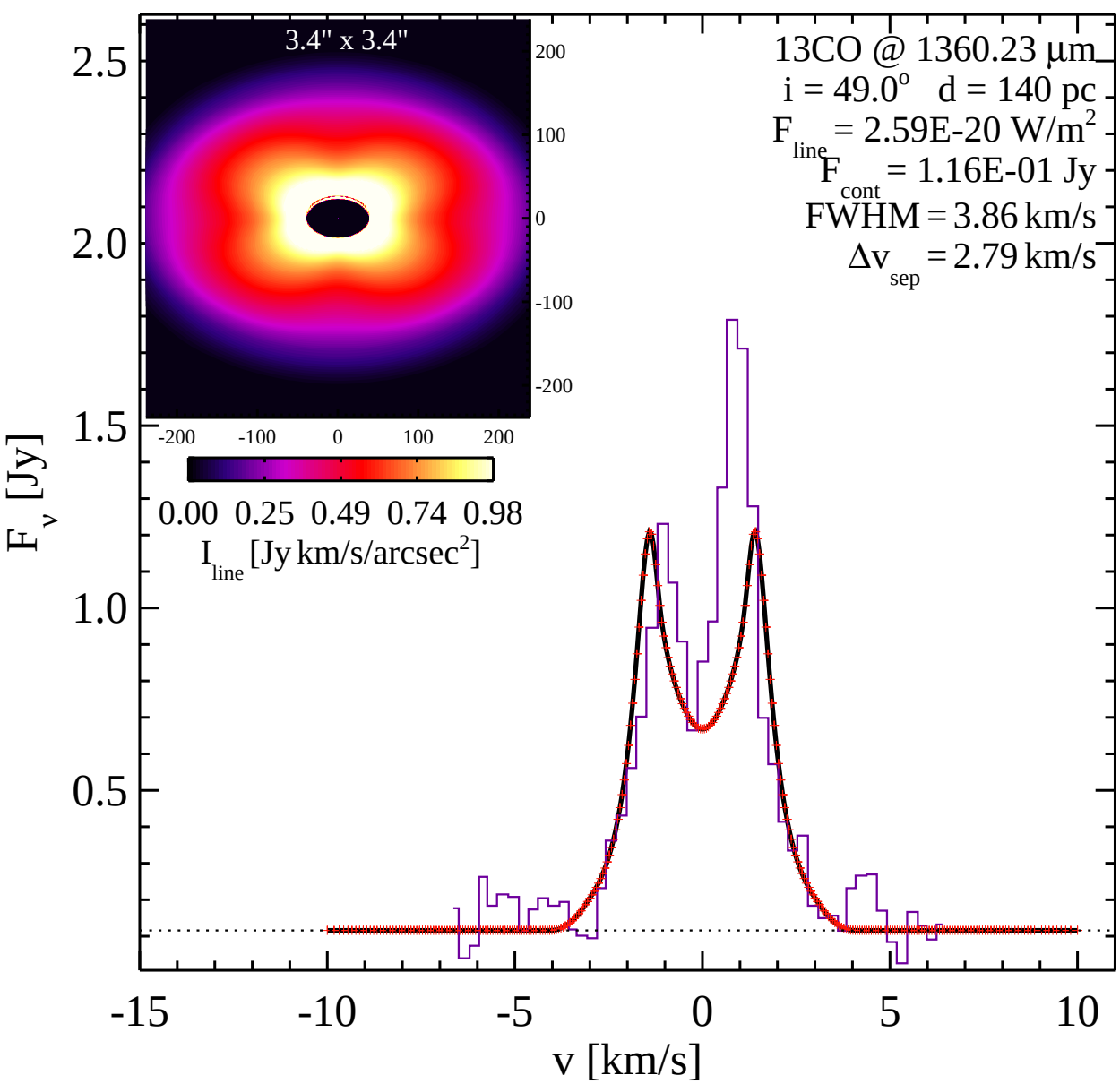

o-H2CO 1064.88µm
τ
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 2.90E-20 W/m^2
100
80
60
40
20
0
z/r
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-12 -10 -8 -6 -4 -2 0 2
log n_{H2CO} [cm^{-3}]
100
200
300
400
r [AU]

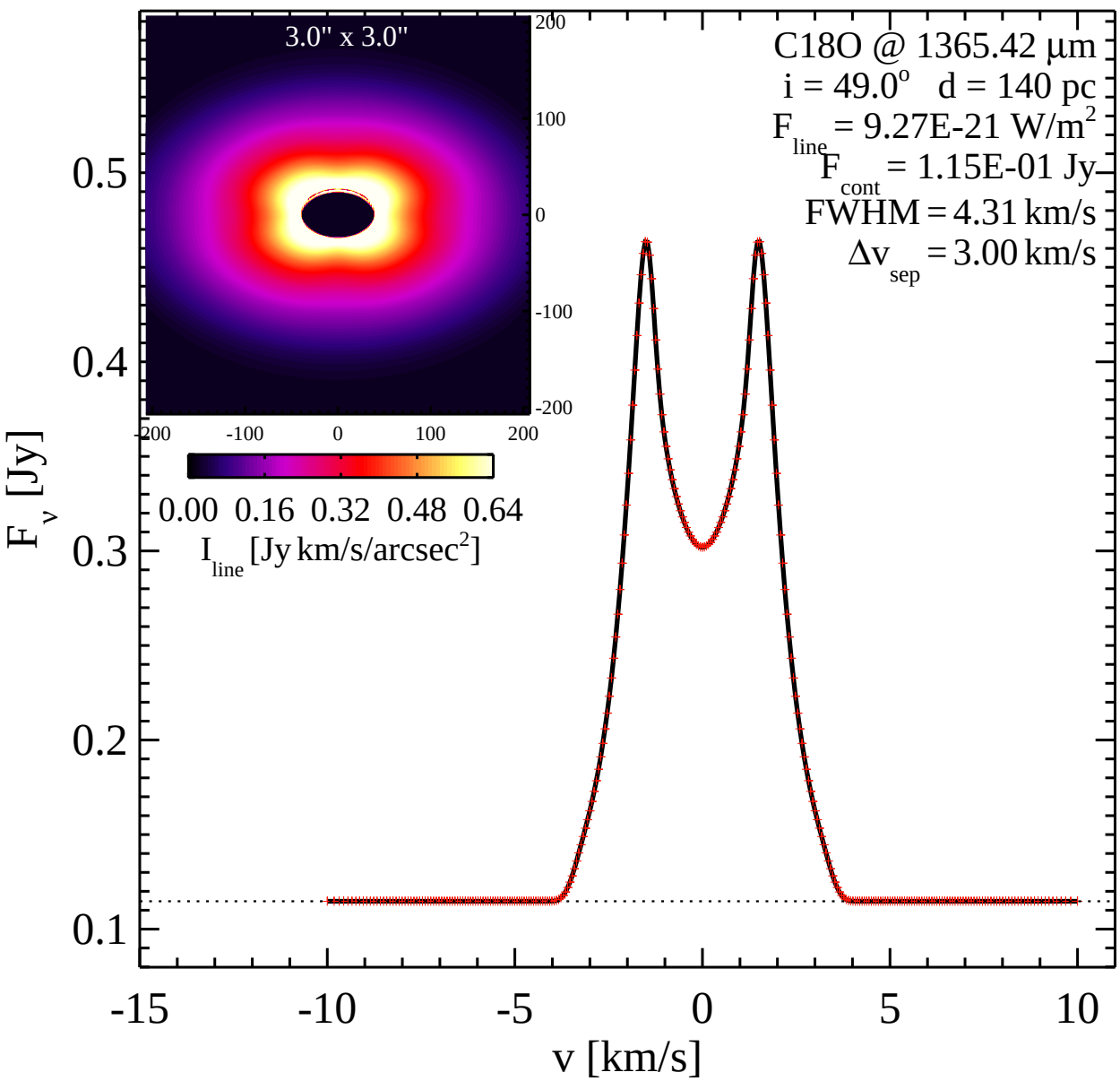

1.6" x 1.6"
100
50
0
-50
-100
-100
-50
0
50
100
0
1824
3648
5473
7297
I line [Jy km/s/arcsec2]
OI @ 63.18 µm
i = 49.0o d = 140 pc
F line = 8.45E-17 W/m2
F cont = 1.31E+00 Jy
FWHM = 6.66 km/s
Δv sep = 3.60 km/s
F v [Jy]
100
80
60
40
20
0
-30
-20
-10
0
10
20
v [km/s]

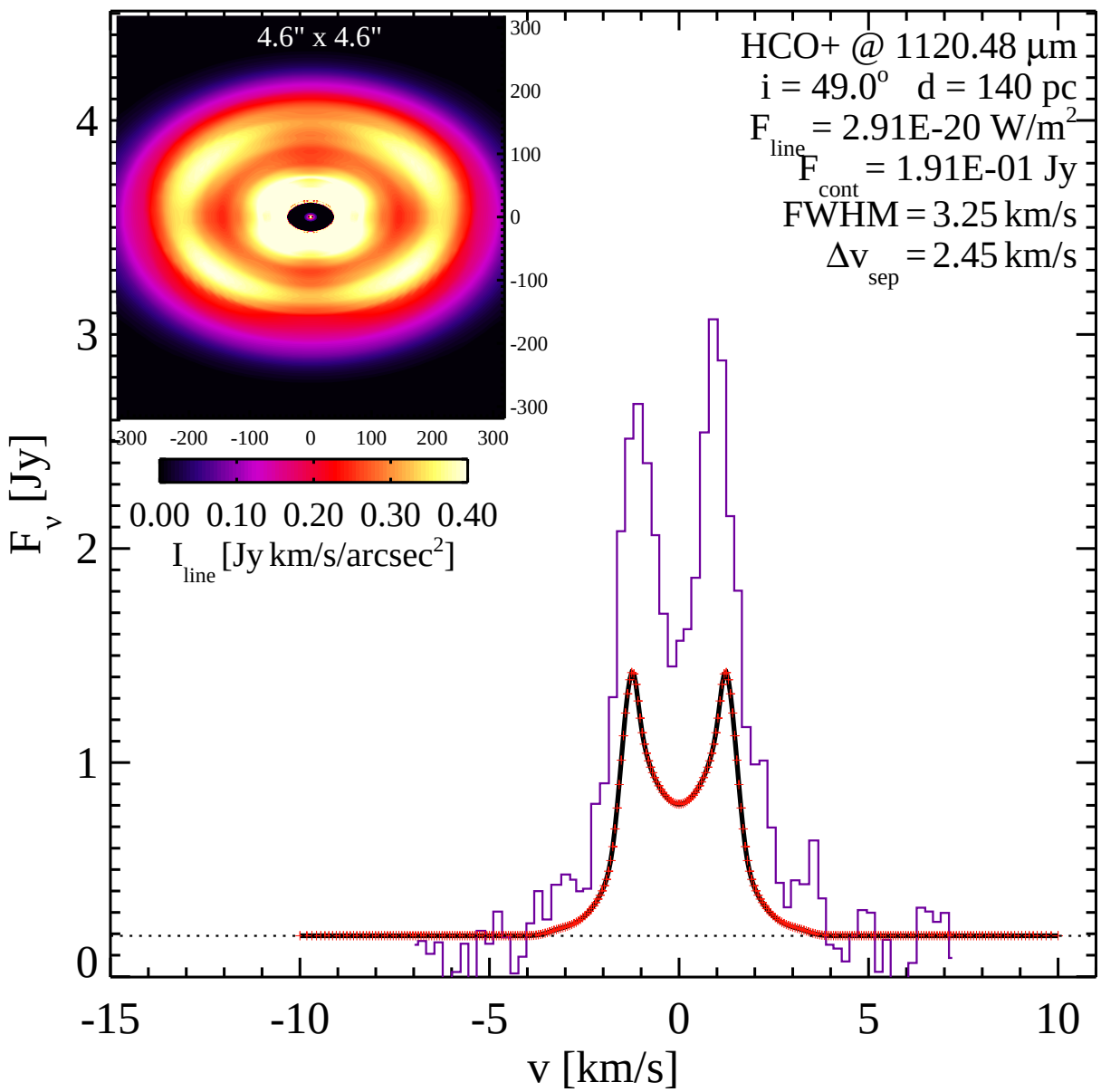

1.1" x 1.1"
60
40
20
0
-20
-40
-60
-60 -40 -20 0 20 40 60
0 224 448 672 897
I line [Jy km/s/arcsec2]
OI @ 145.53 µm
i = 49.0o d = 140 pc
F line = 2.65E-18 W/m2
F cont = 1.80E+00 Jy
FWHM = 6.97 km/s
Δv sep = 5.46 km/s
F v [Jy]
10
8
6
4
2
-30 -20 -10 0 10 20
v [km/s]

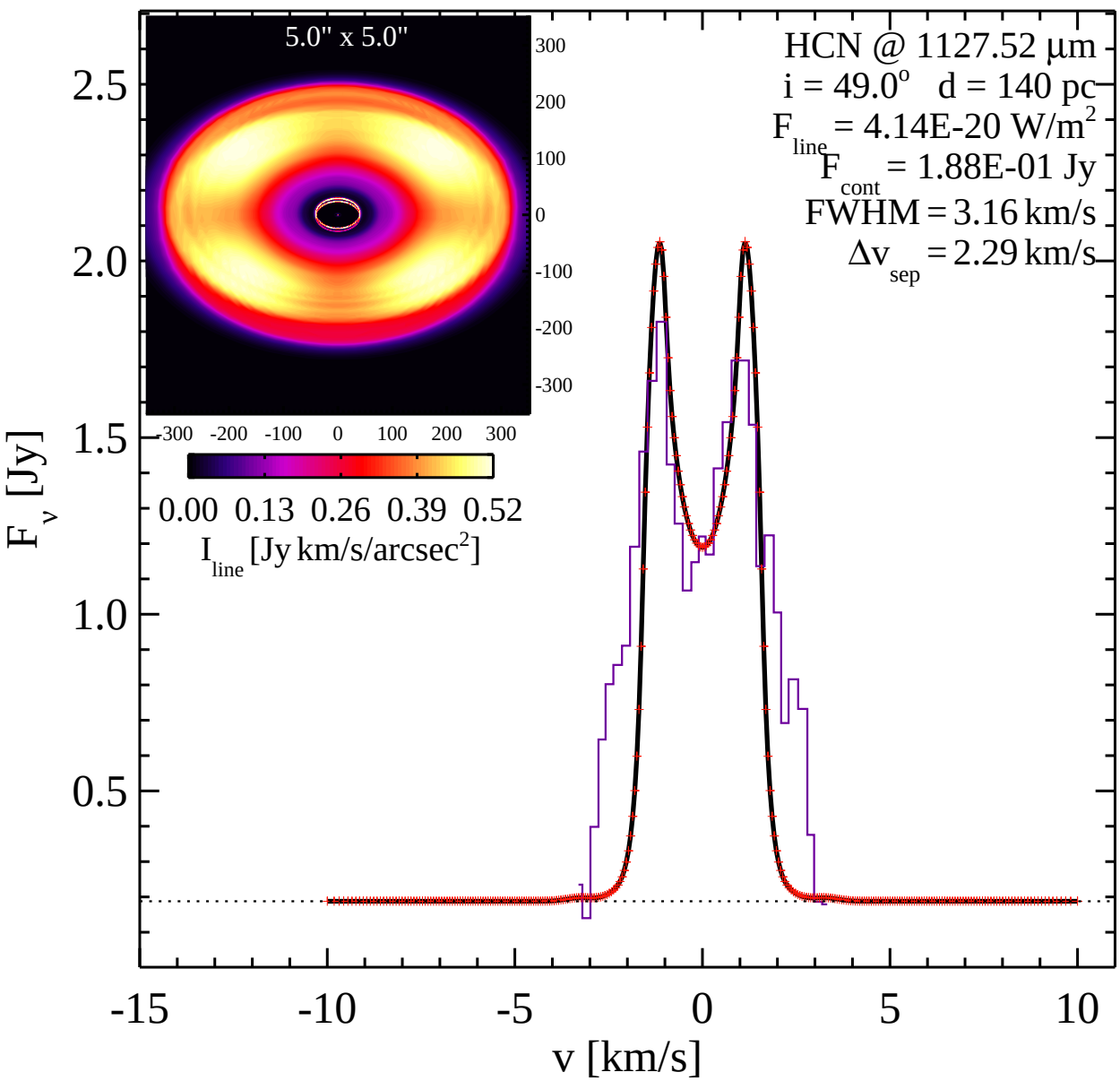

6.6" x 6.6"
400
200
0
-200
-400
-400 -200 0 200 400
0.0 4.4 8.8 13.2 17.6
I line [Jy km/s/arcsec2]
CII @ 157.74 µm
i = 49.0o d = 140 pc
F line = 3.83E-18 W/m2
F cont = 1.82E+00 Jy
FWHM = 3.46 km/s
Δv sep = 2.30 km/s
F v [Jy]
25
20
15
10
5
-15 -10 -5 0 5 10
v [km/s]

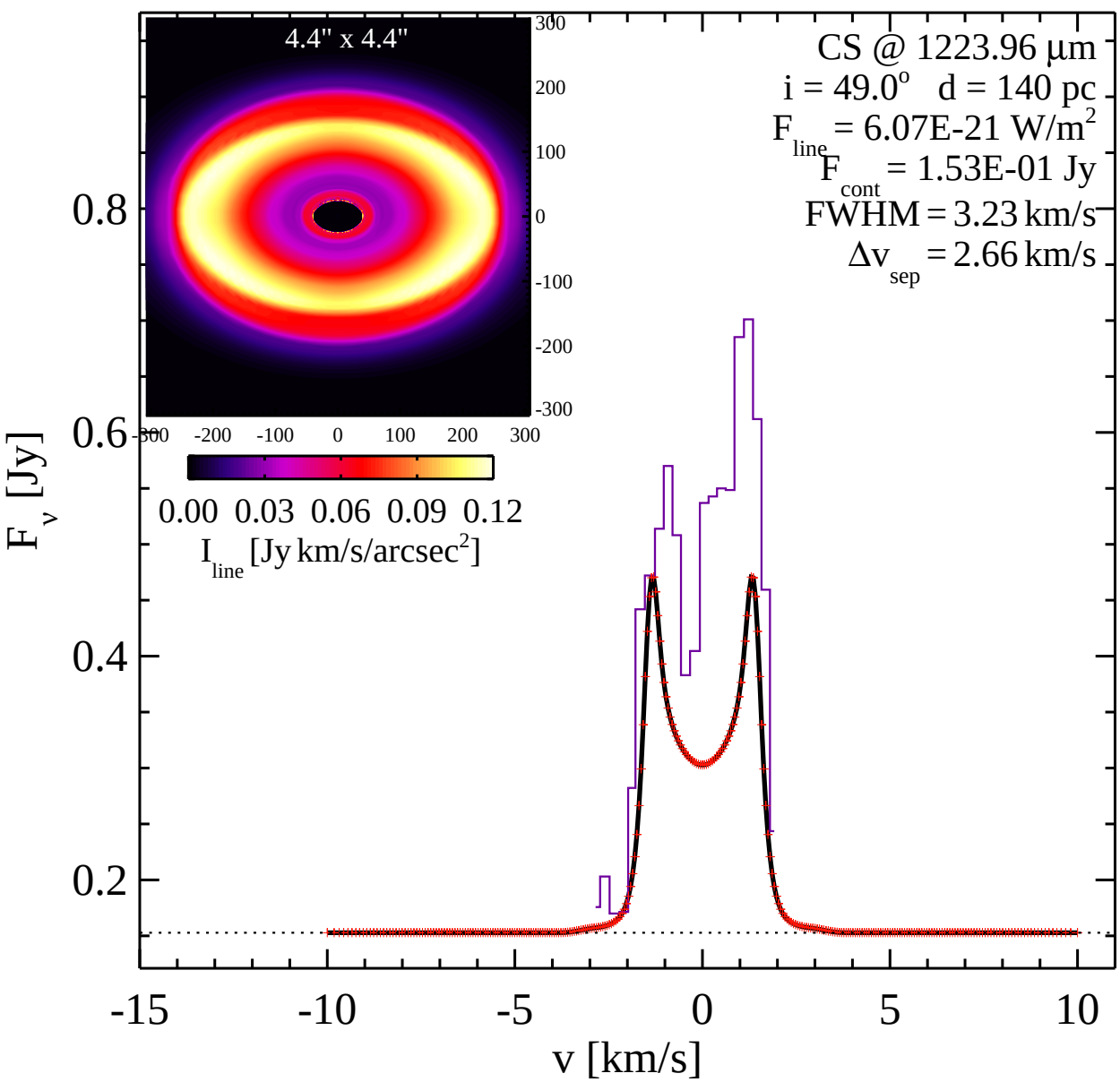

4.2" x 4.2"
200
100
0
-100
-200
-200 -100 0 100 200
0.0 0.5 0.9 1.4 1.8
I line [Jy km/s/arcsec2]
CO @ 1300.40 µm
i = 49.0o d = 140 pc
F line = 7.57E-20 W/m2
F cont = 1.31E-01 Jy
FWHM = 3.60 km/s
Δv sep = 2.36 km/s
F v [Jy]
v [km/s]
0
1
2
3
4
5
6
-15
-10
-5
0
5
10

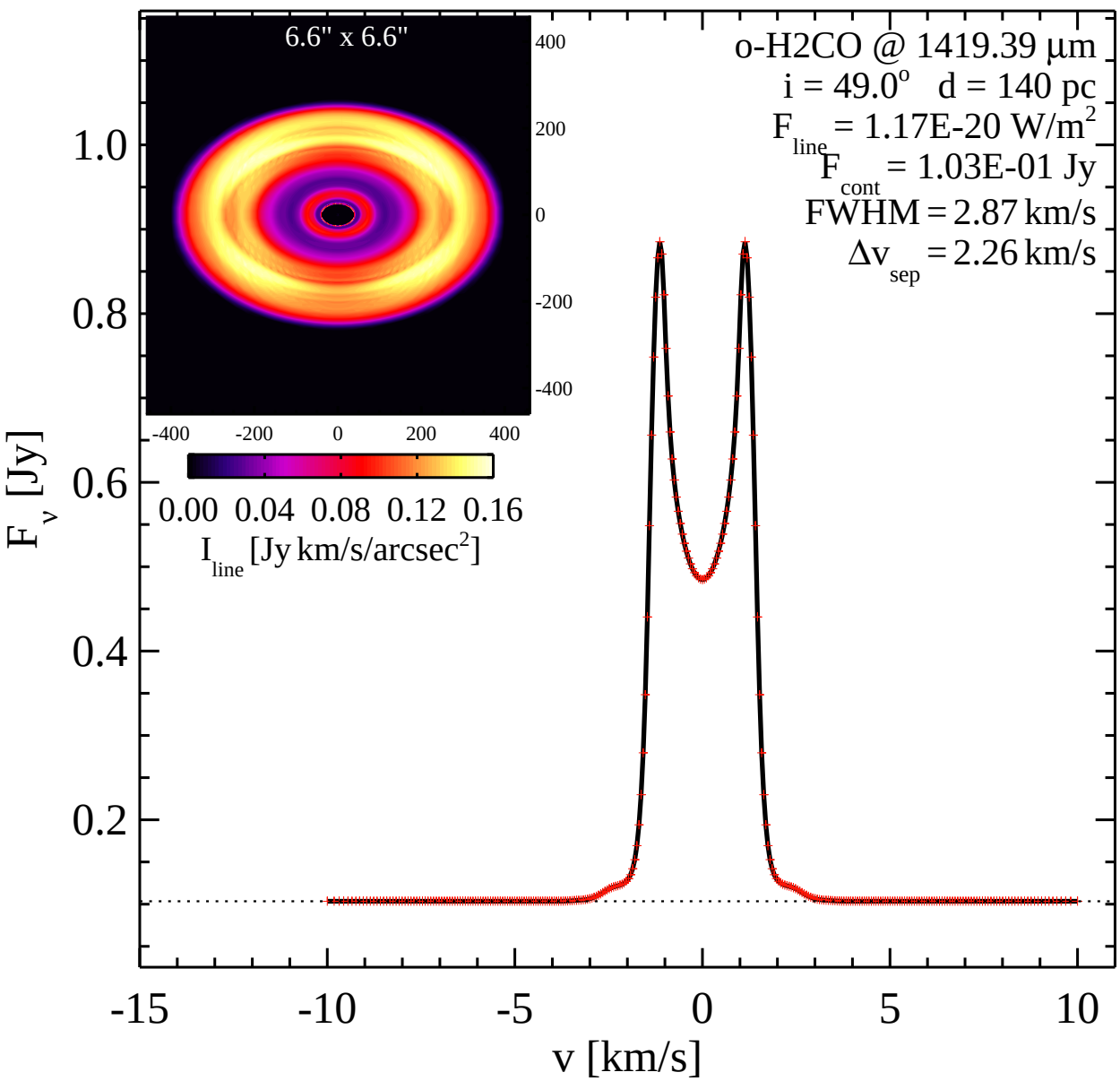

3.4" x 3.4"
200
100
0
-100
-200
-200 -100 0 100 200
0.00 0.25 0.49 0.74 0.98
I line [Jy km/s/arcsec2]
13CO @ 1360.23 µm
i = 49.0o d = 140 pc
F line = 2.59E-20 W/m2
F cont = 1.16E-01 Jy
FWHM = 3.86 km/s
Δv sep = 2.79 km/s
F v [Jy]
2.5
2.0
1.5
1.0
0.5
-15 -10 -5 0 5 10
v [km/s]

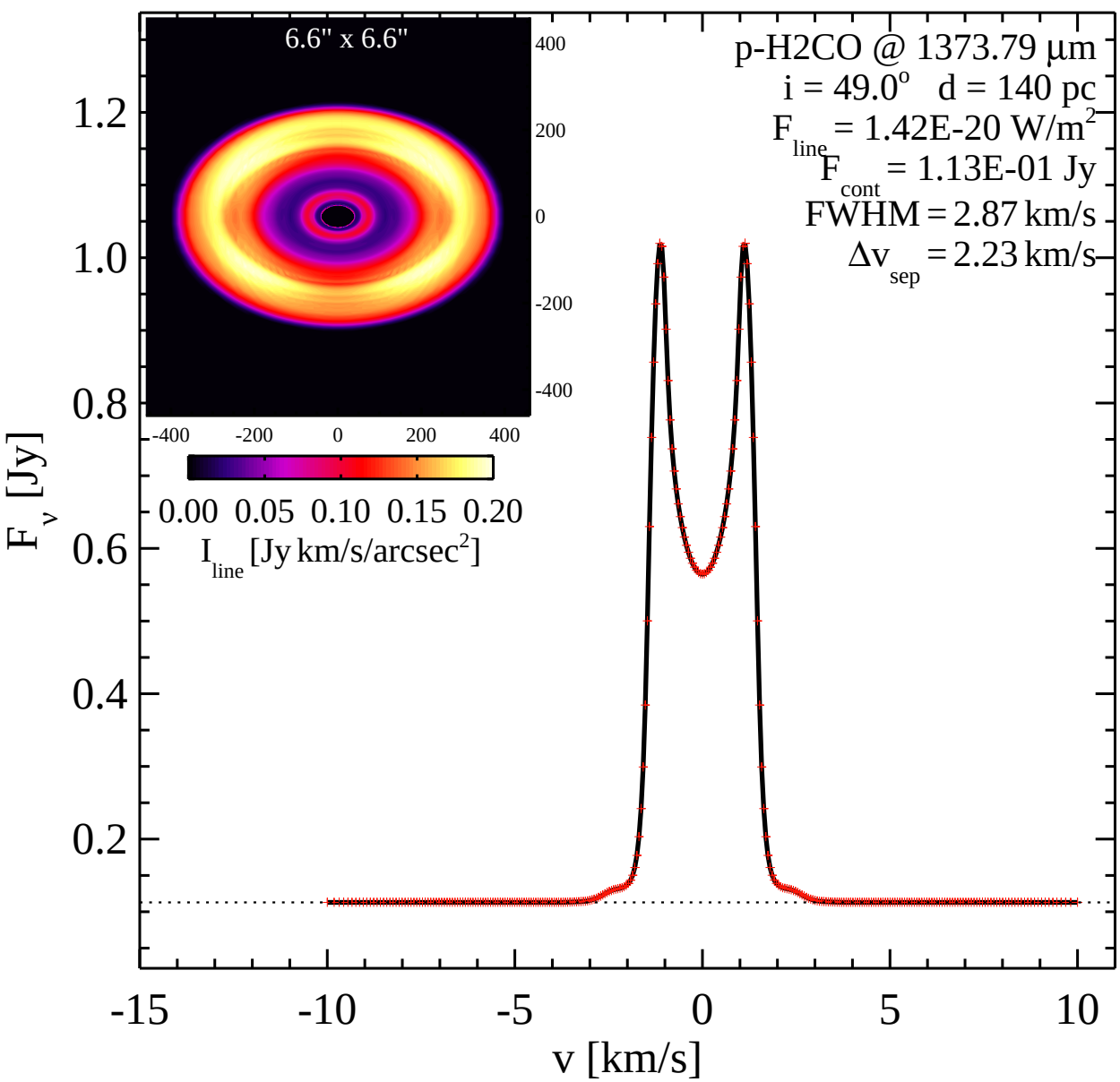

3.0" x 3.0"
C18O @ 1365.42 µm
i = 49.0° d = 140 pc
F_line = 9.27E-21 W/m²
F_cont = 1.15E-01 Jy
FWHM = 4.31 km/s
Δv_sep = 3.00 km/s
0.00 0.16 0.32 0.48 0.64
I_line [Jy km/s/arcsec²]
F_v [Jy]
v [km/s]

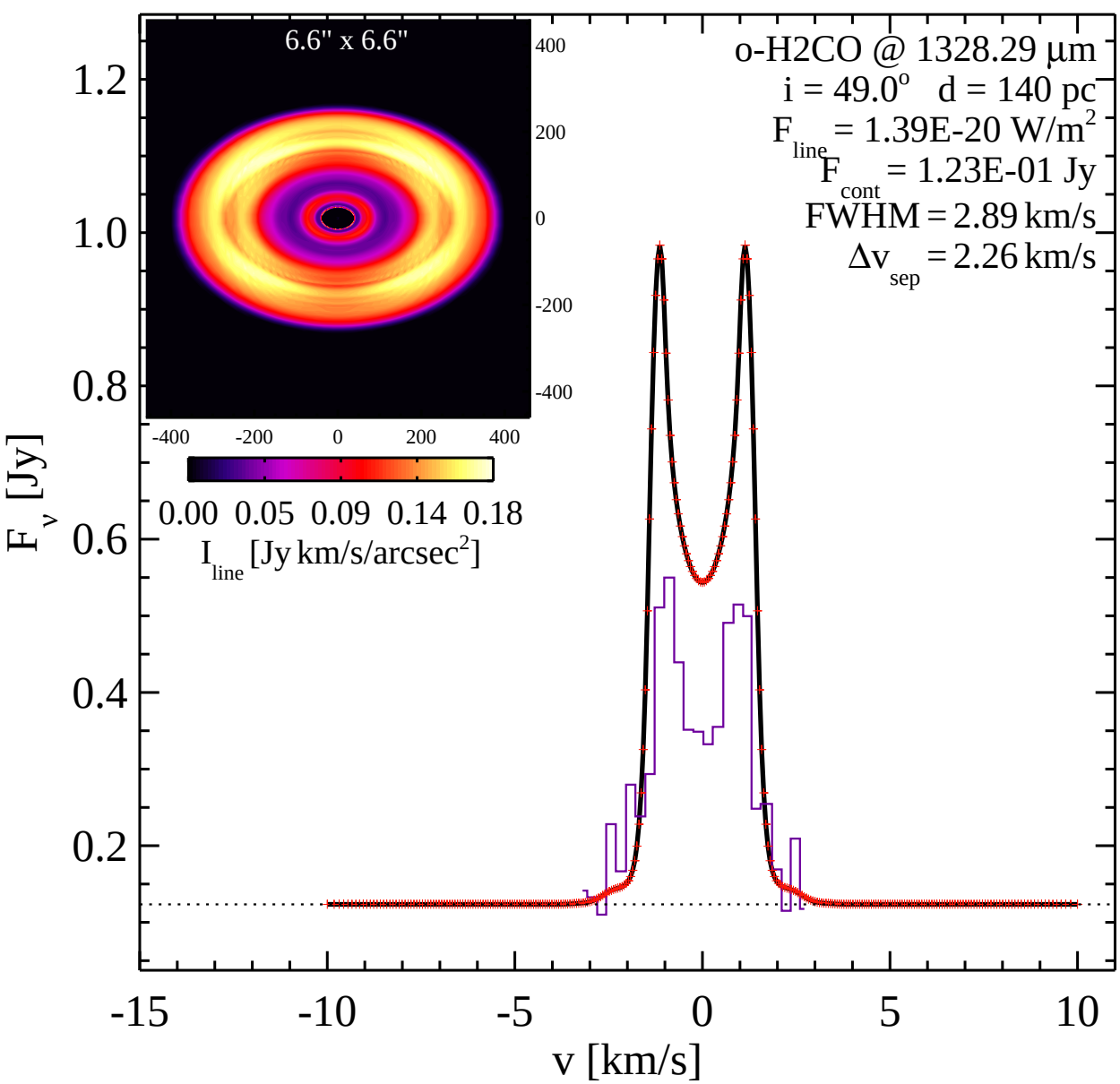

4.6" x 4.6"
300
200
100
0
-100
-200
-300
-300 -200 -100 0 100 200 300
0.00 0.10 0.20 0.30 0.40
I line [Jy km/s/arcsec2]
HCO+ @ 1120.48 µm
i = 49.0o d = 140 pc
F line = 2.91E-20 W/m2
F cont = 1.91E-01 Jy
FWHM = 3.25 km/s
Δv sep = 2.45 km/s
F v [Jy]
0
1
2
3
4
-15 -10 -5 0 5 10
v [km/s]

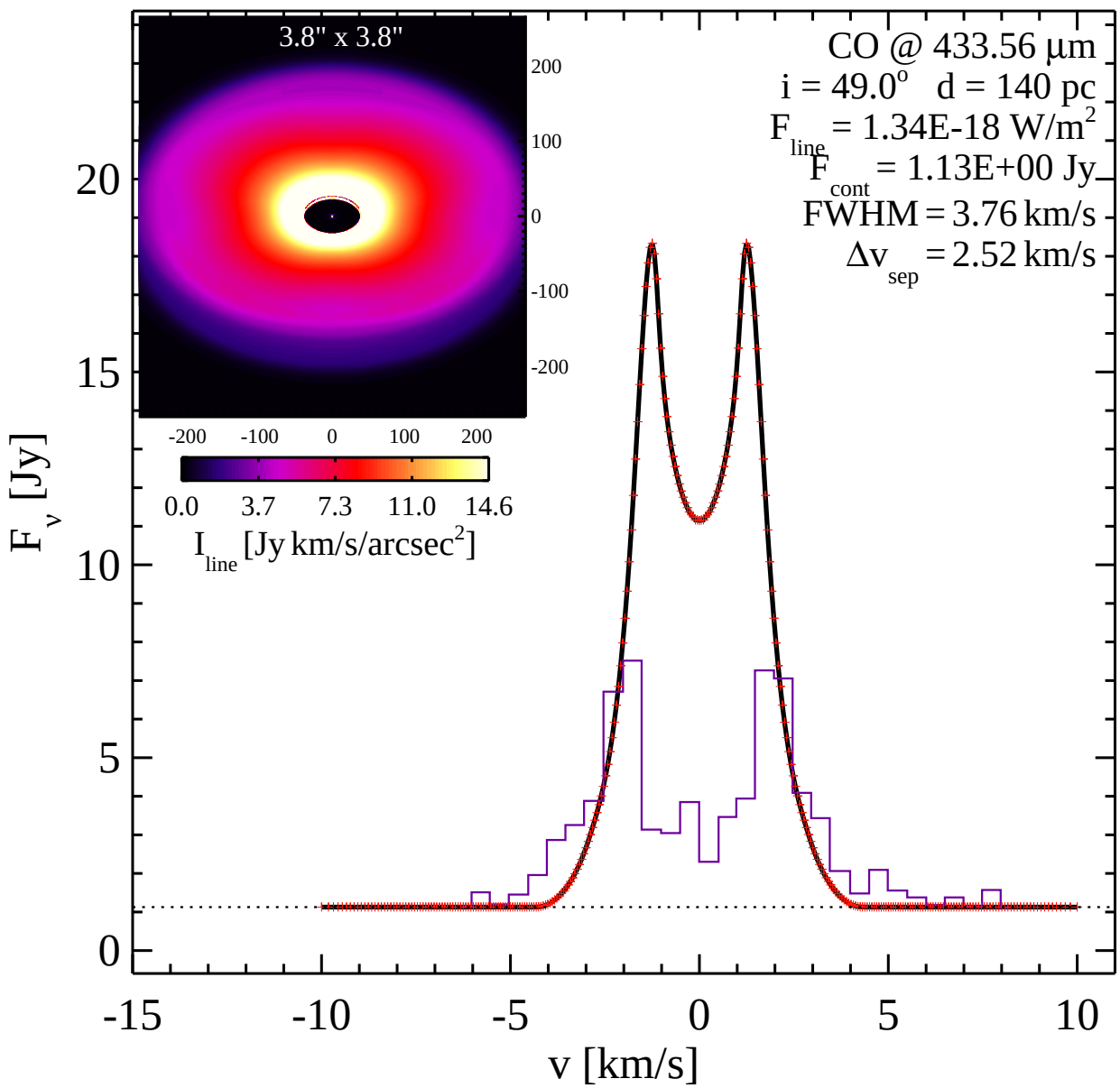

5.0" x 5.0"
300
200
100
0
-100
-200
-300
-300 -200 -100 0 100 200 300
0.00 0.13 0.26 0.39 0.52
I line [Jy km/s/arcsec2]
HCN @ 1127.52 µm
i = 49.0o d = 140 pc
F line = 4.14E-20 W/m2
F cont = 1.88E-01 Jy
FWHM = 3.16 km/s
Δv sep = 2.29 km/s
F v [Jy]
2.5
2.0
1.5
1.0
0.5
-15 -10 -5 0 5 10
v [km/s]

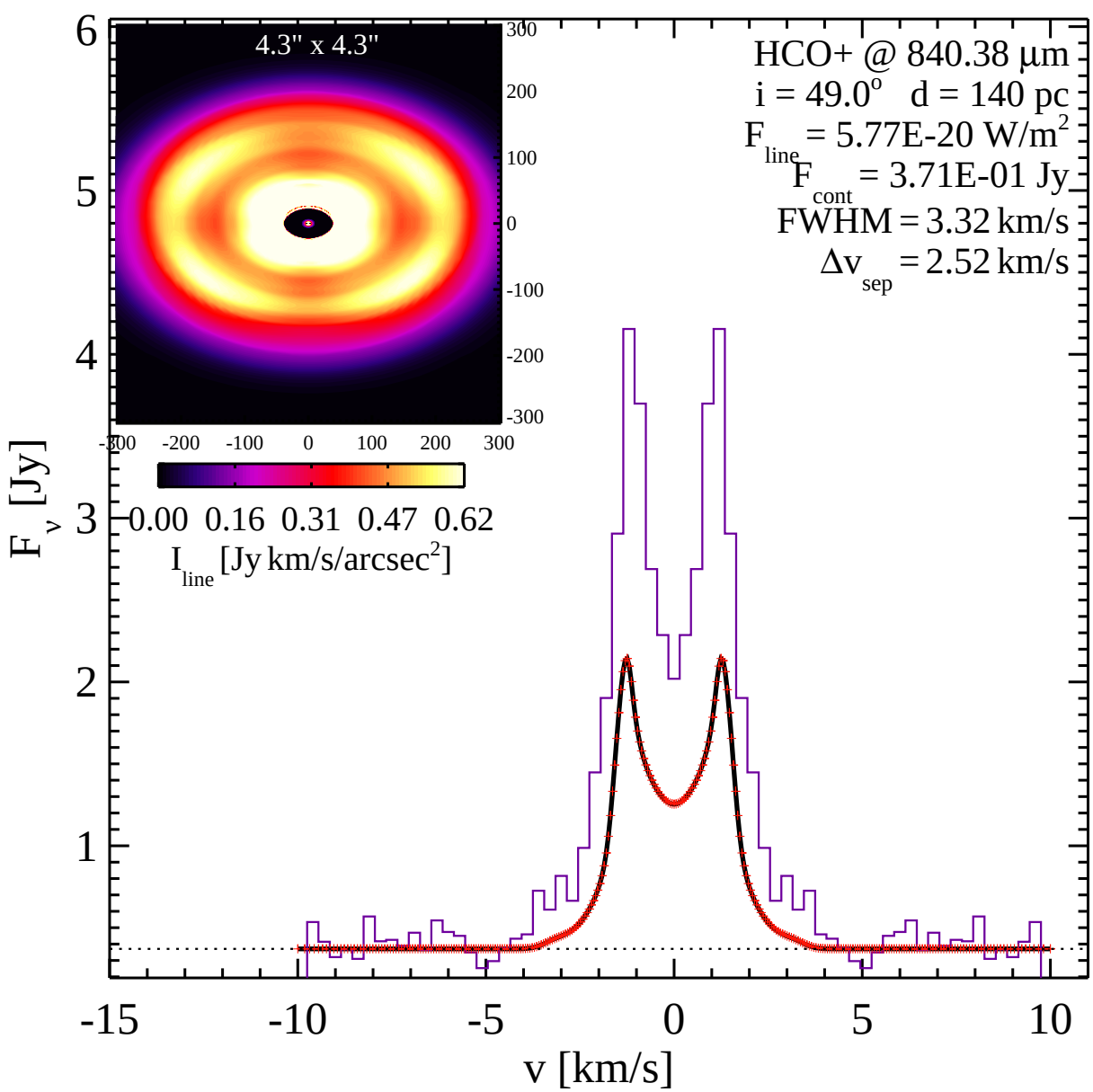

4.4" x 4.4"
CS @ 1223.96 µm
i = 49.0° d = 140 pc
F line = 6.07E-21 W/m2
F cont = 1.53E-01 Jy
FWHM = 3.23 km/s
Δv sep = 2.66 km/s
0.00 0.03 0.06 0.09 0.12
I line [Jy km/s/arcsec2]
F v [Jy]
v [km/s]


6.6" x 6.6"
400
200
0
-200
-400
-400 -200 0 200 400
0.00 0.04 0.08 0.12 0.16
I line [Jy km/s/arcsec2]
o-H2CO @ 1419.39 µm
i = 49.0o d = 140 pc
F line = 1.17E-20 W/m2
F cont = 1.03E-01 Jy
FWHM = 2.87 km/s
Δv sep = 2.26 km/s
F v [Jy]
1.0
0.8
0.6
0.4
0.2
-15 -10 -5 0 5 10
v [km/s]


6.6" x 6.6"
400
200
0
-200
-400
-400 -200 0 200 400
0.00 0.05 0.10 0.15 0.20
I line [Jy km/s/arcsec2]
p-H2CO @ 1373.79 µm
i = 49.0o d = 140 pc
F line = 1.42E-20 W/m2
F cont = 1.13E-01 Jy
FWHM = 2.87 km/s
Δv sep = 2.23 km/s
F v [Jy]
1.2
1.0
0.8
0.6
0.4
0.2
-15 -10 -5 0 5 10
v [km/s]


6.6" x 6.6"
400
200
0
-200
-400
-400 -200 0 200 400
0.00 0.05 0.09 0.14 0.18
I line [Jy km/s/arcsec2]
o-H2CO @ 1328.29 µm
i = 49.0o d = 140 pc
F line = 1.39E-20 W/m2
F cont = 1.23E-01 Jy
FWHM = 2.89 km/s
Δv sep = 2.26 km/s
F v [Jy]
1.2
1.0
0.8
0.6
0.4
0.2
-15 -10 -5 0 5 10
v [km/s]


3.8" x 3.8"
200
100
0
-100
-200
-200 -100 0 100 200
0.0 3.7 7.3 11.0 14.6
I line [Jy km/s/arcsec2]
CO @ 433.56 µm
i = 49.0o d = 140 pc
F line = 1.34E-18 W/m2
F cont = 1.13E+00 Jy
FWHM = 3.76 km/s
Δv sep = 2.52 km/s
F v [Jy]
v [km/s]
0
5
10
15
20
-15
-10
-5
0
5
10


4.3" x 4.3"
HCO+ @ 840.38 µm
i = 49.0° d = 140 pc
F line = 5.77E-20 W/m2
F cont = 3.71E-01 Jy
FWHM = 3.32 km/s
Δv sep = 2.52 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0.00 0.16 0.31 0.47 0.62