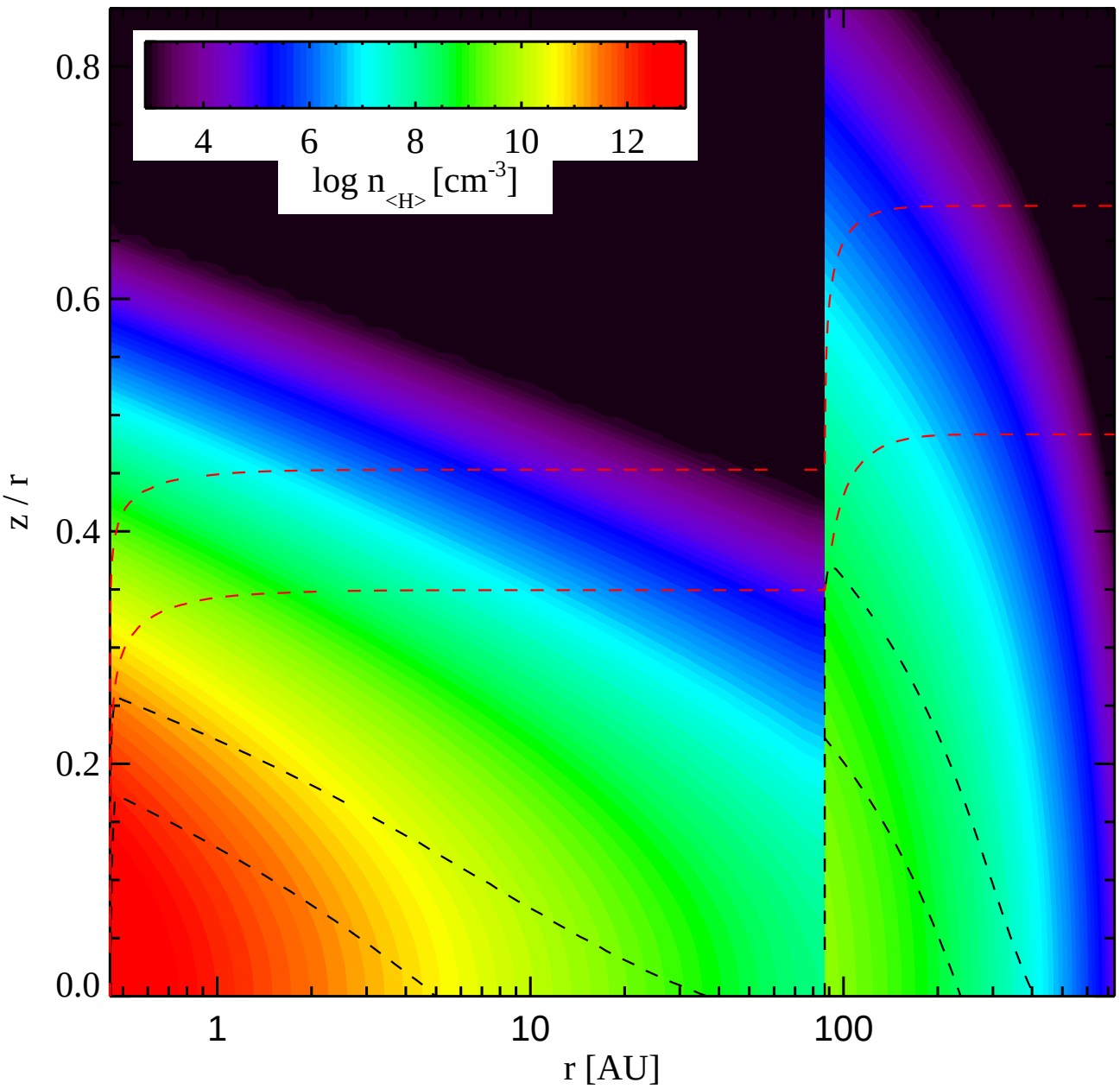
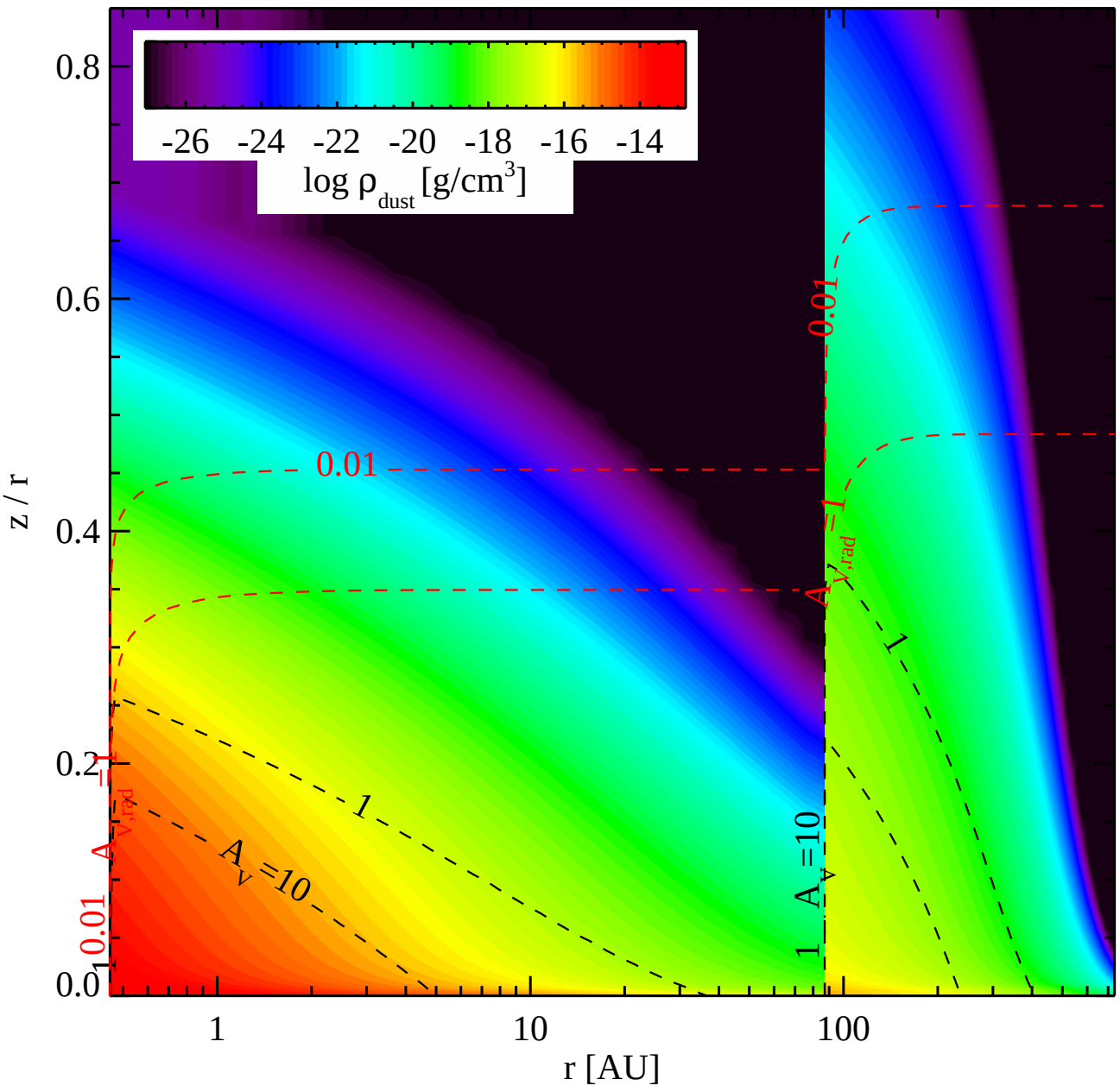
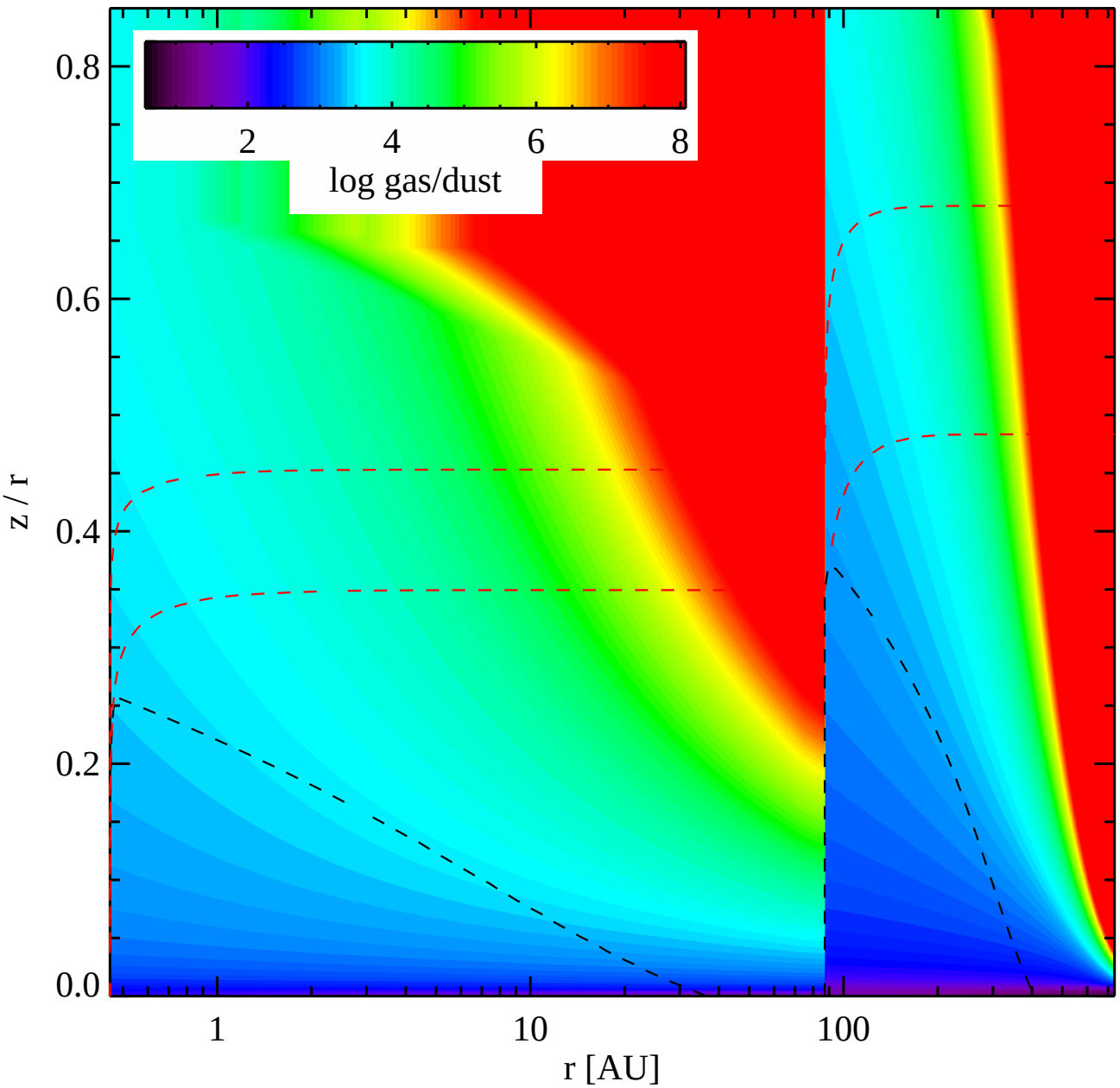
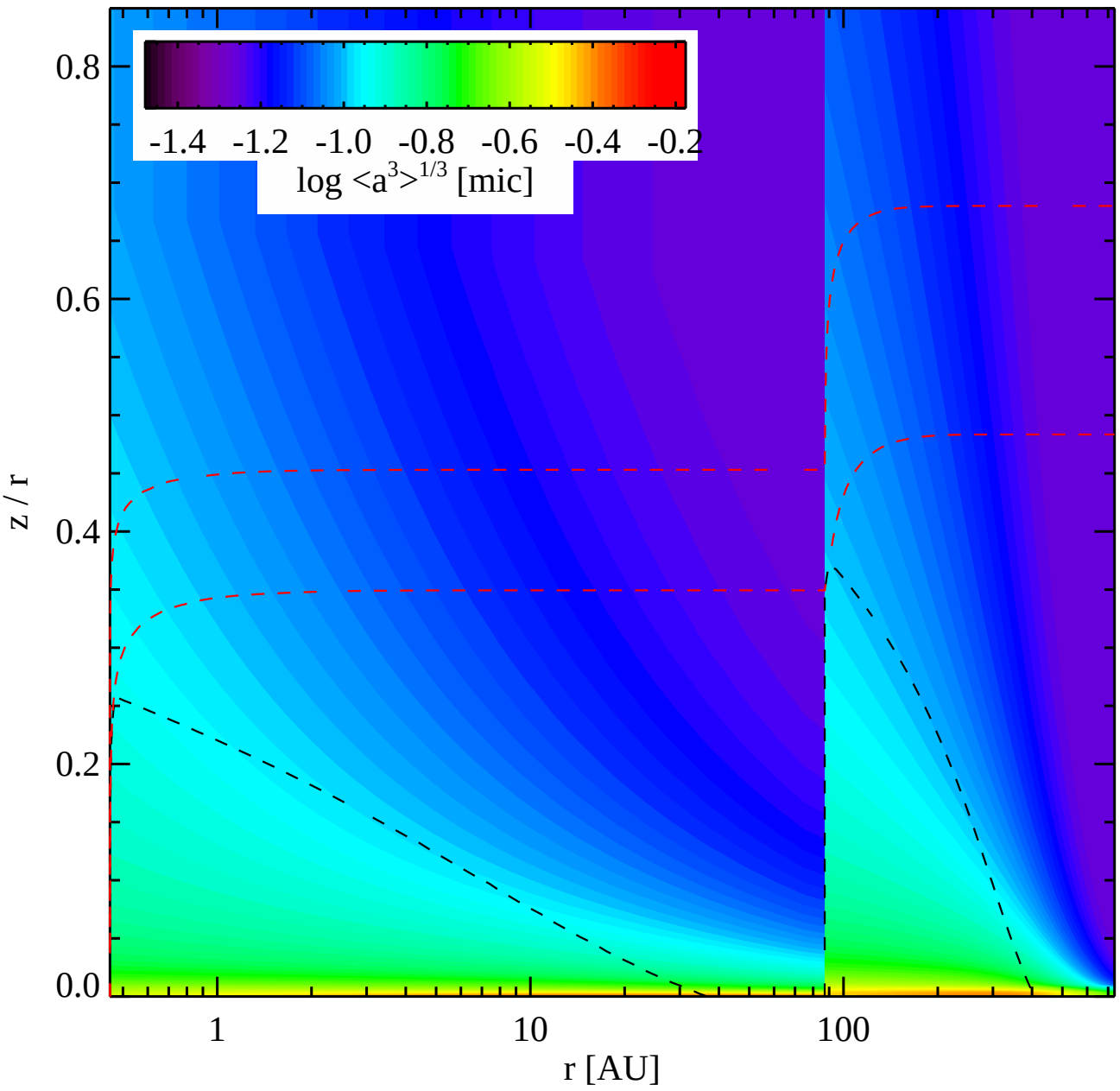
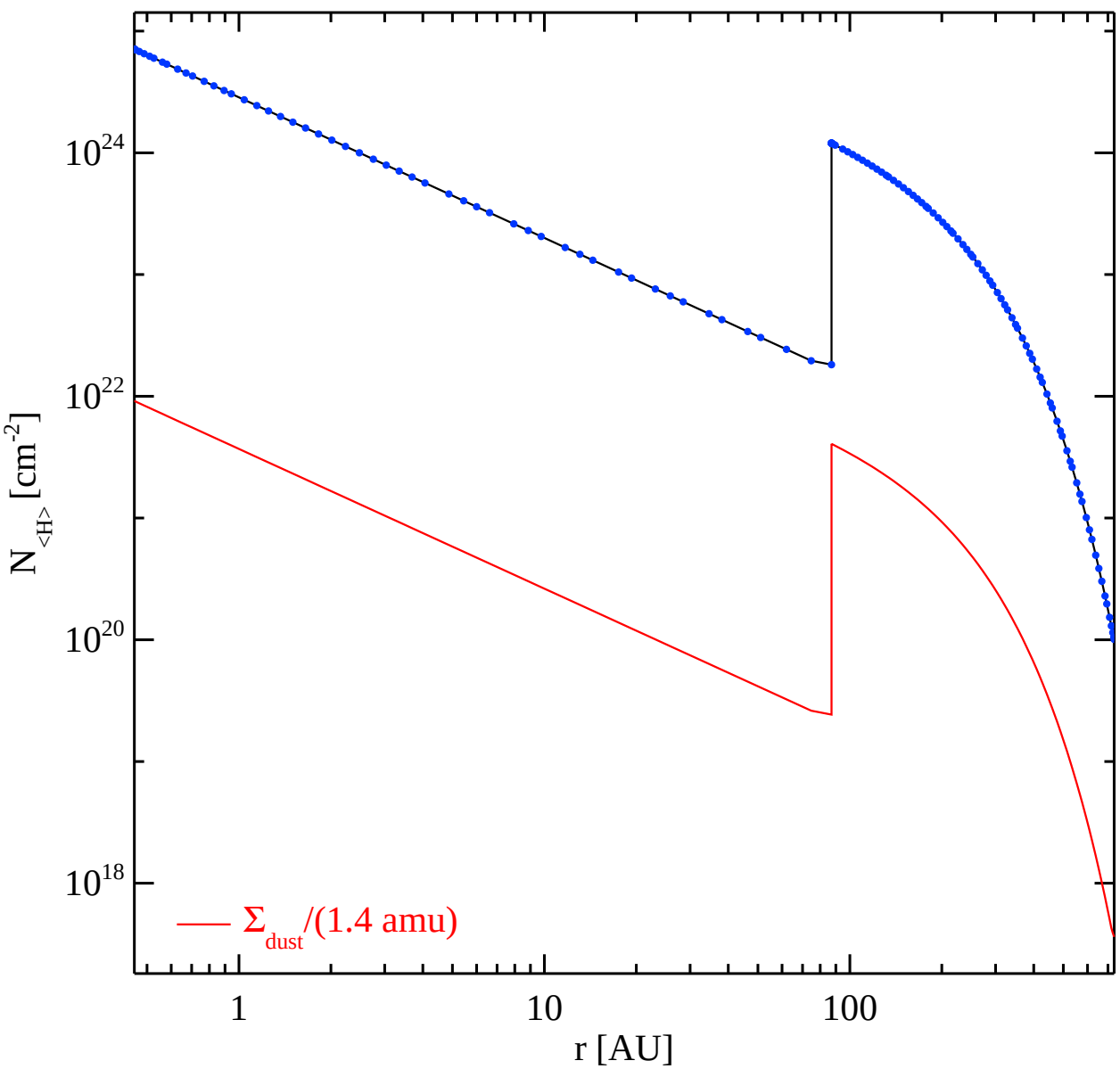

4
6
8
10
12
log n<H> [cm-3]
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

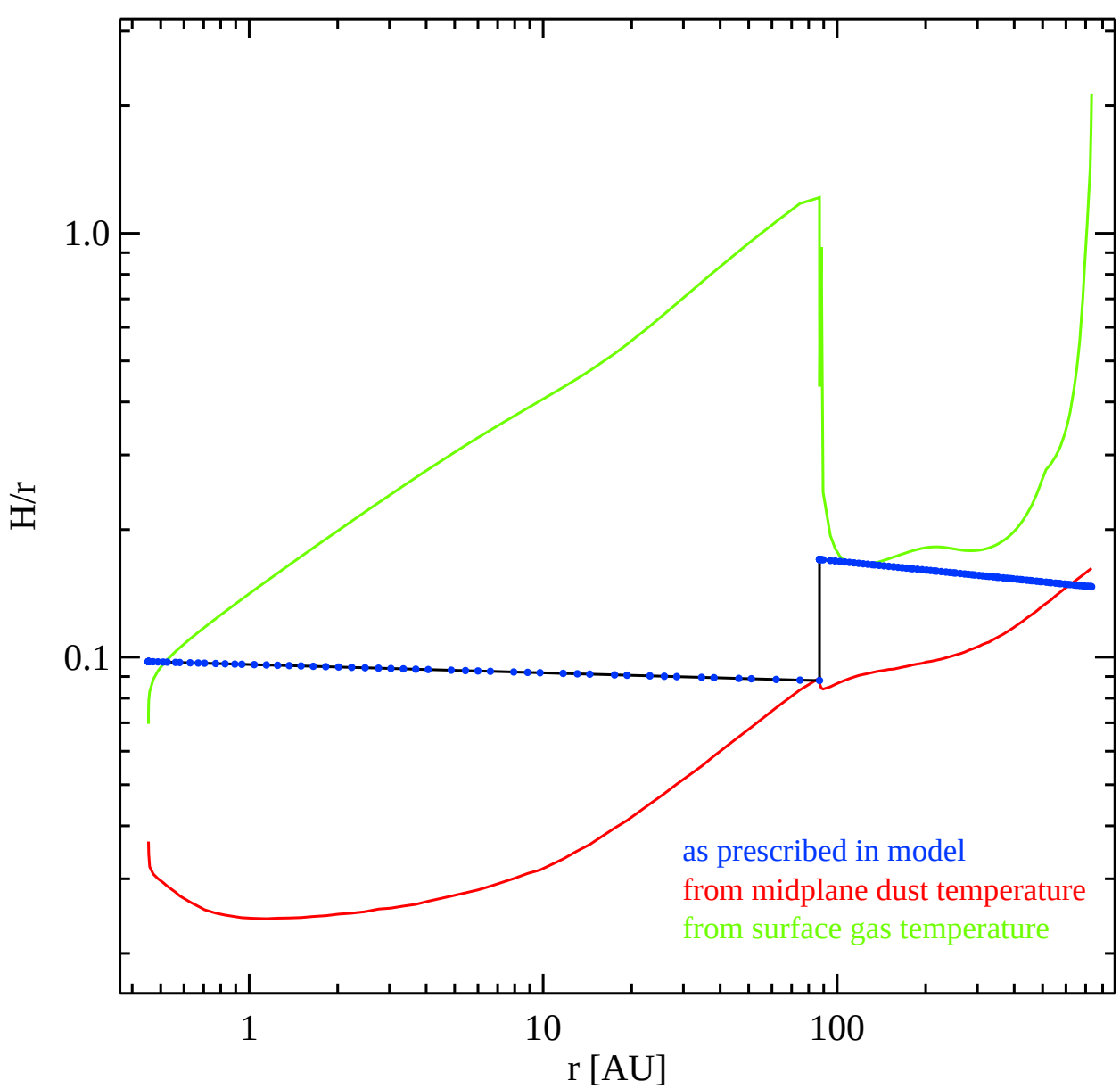


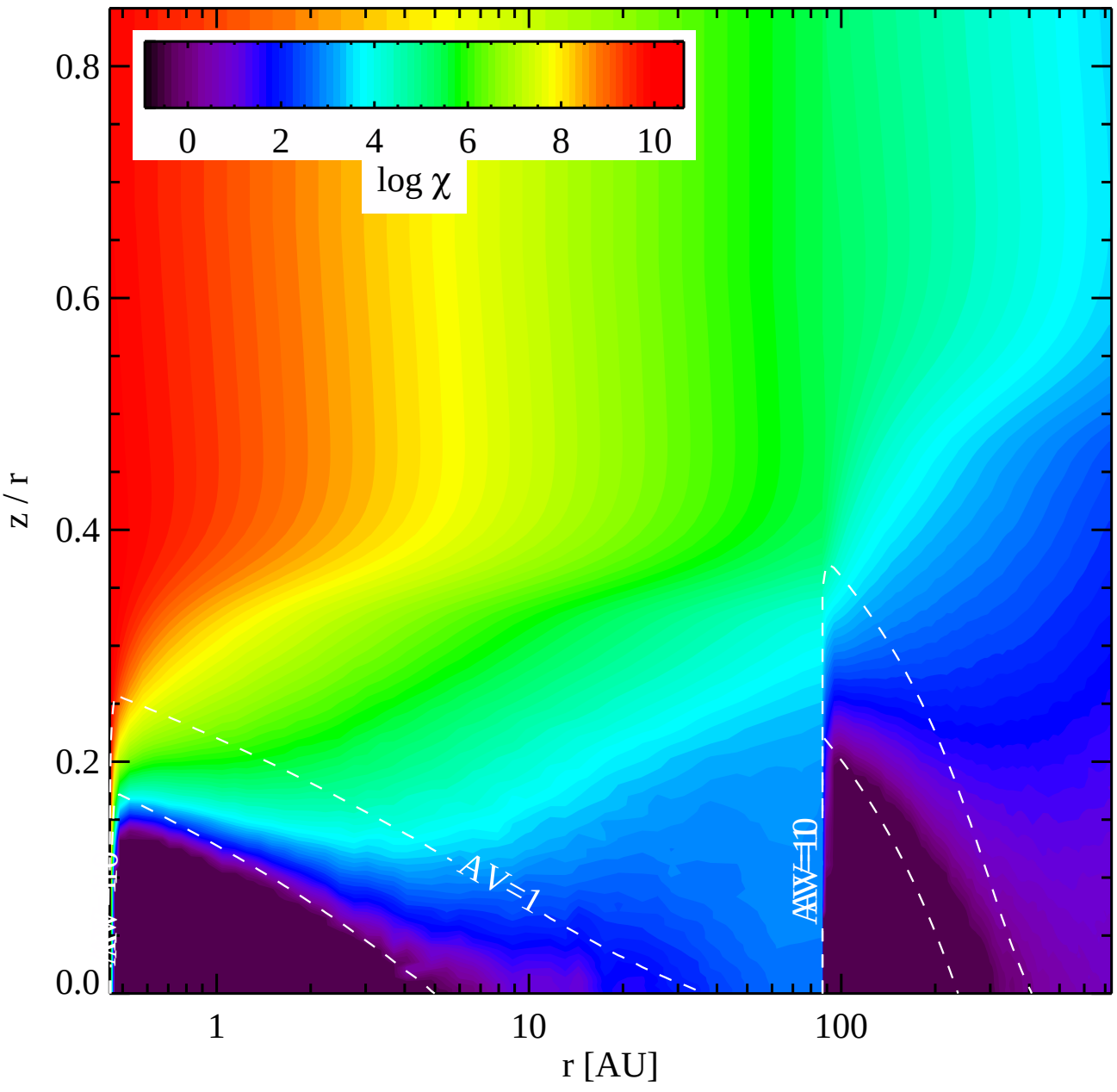
-26 -24 -22 -20 -18 -16 -14
log ρ dust [g/cm3]
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]
0.01
0.01
0.01
1
1
1
A V,rad =1
A V,rad =1
A V =10
A V =10

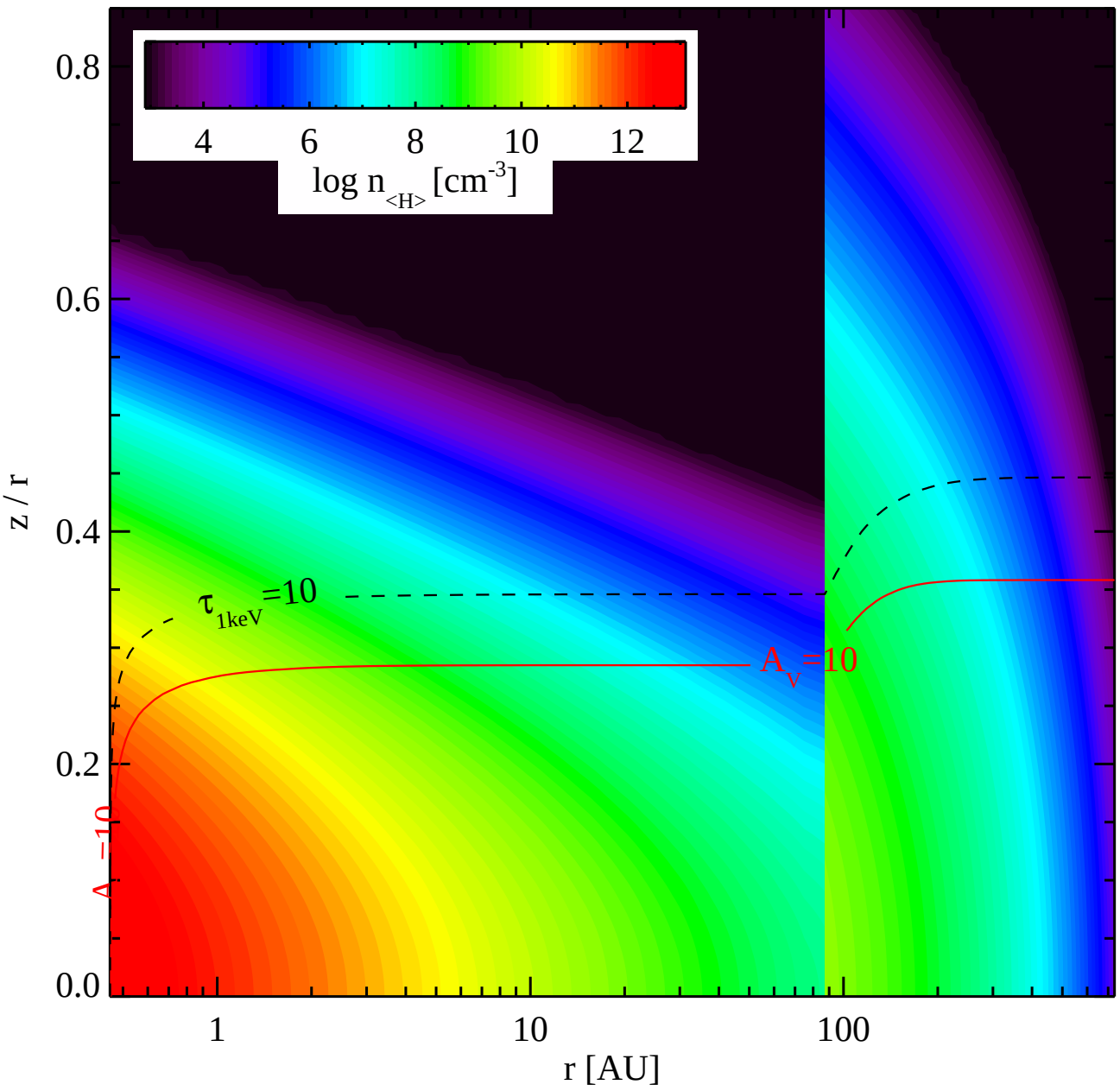

0.8
0.6
0.4
0.2
0.0
z / r
2
4
6
8
log gas/dust
1
10
100
r [AU]

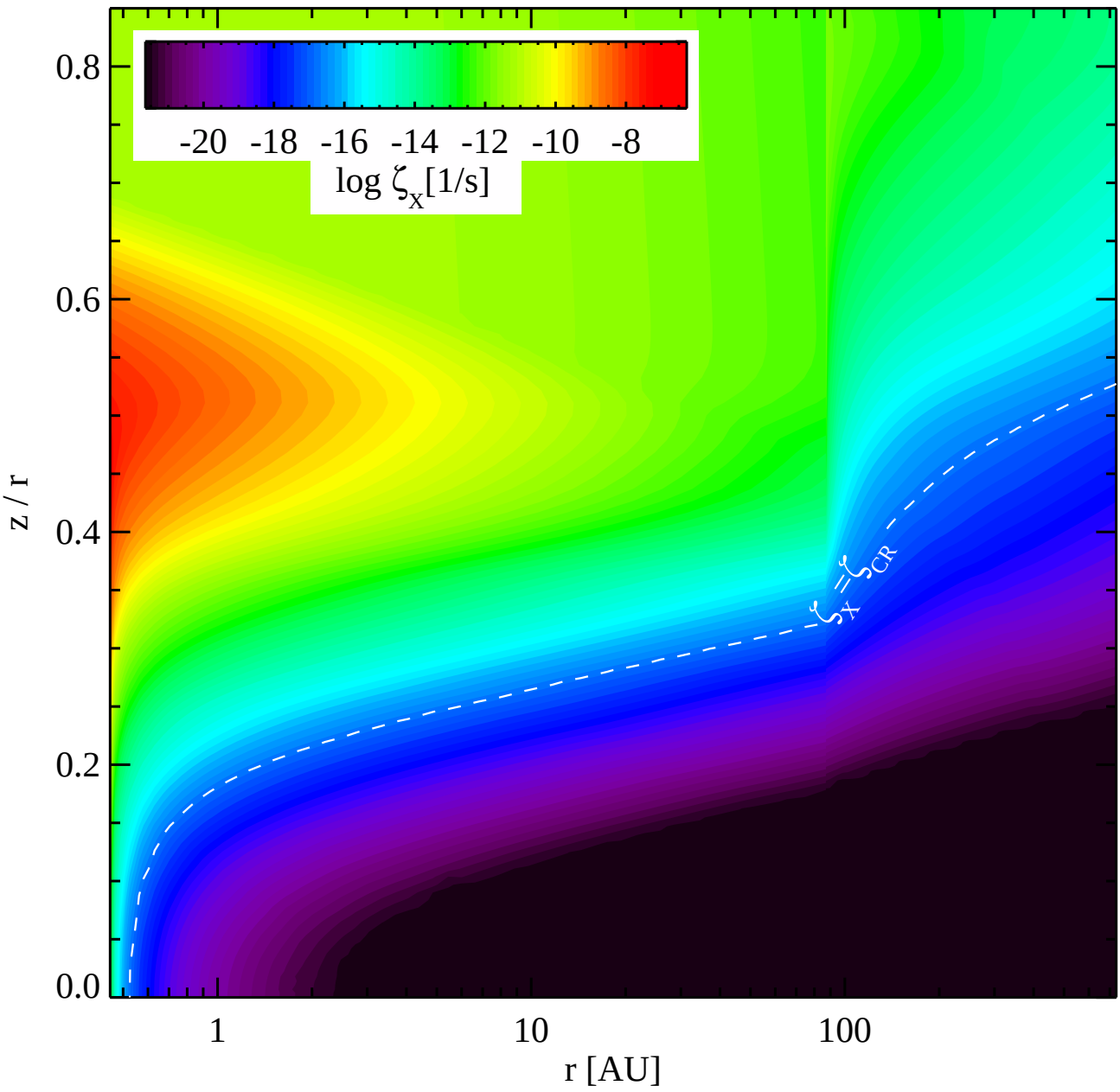

-1.4 -1.2 -1.0 -0.8 -0.6 -0.4 -0.2
log <a^3>^1/3 [mic]
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

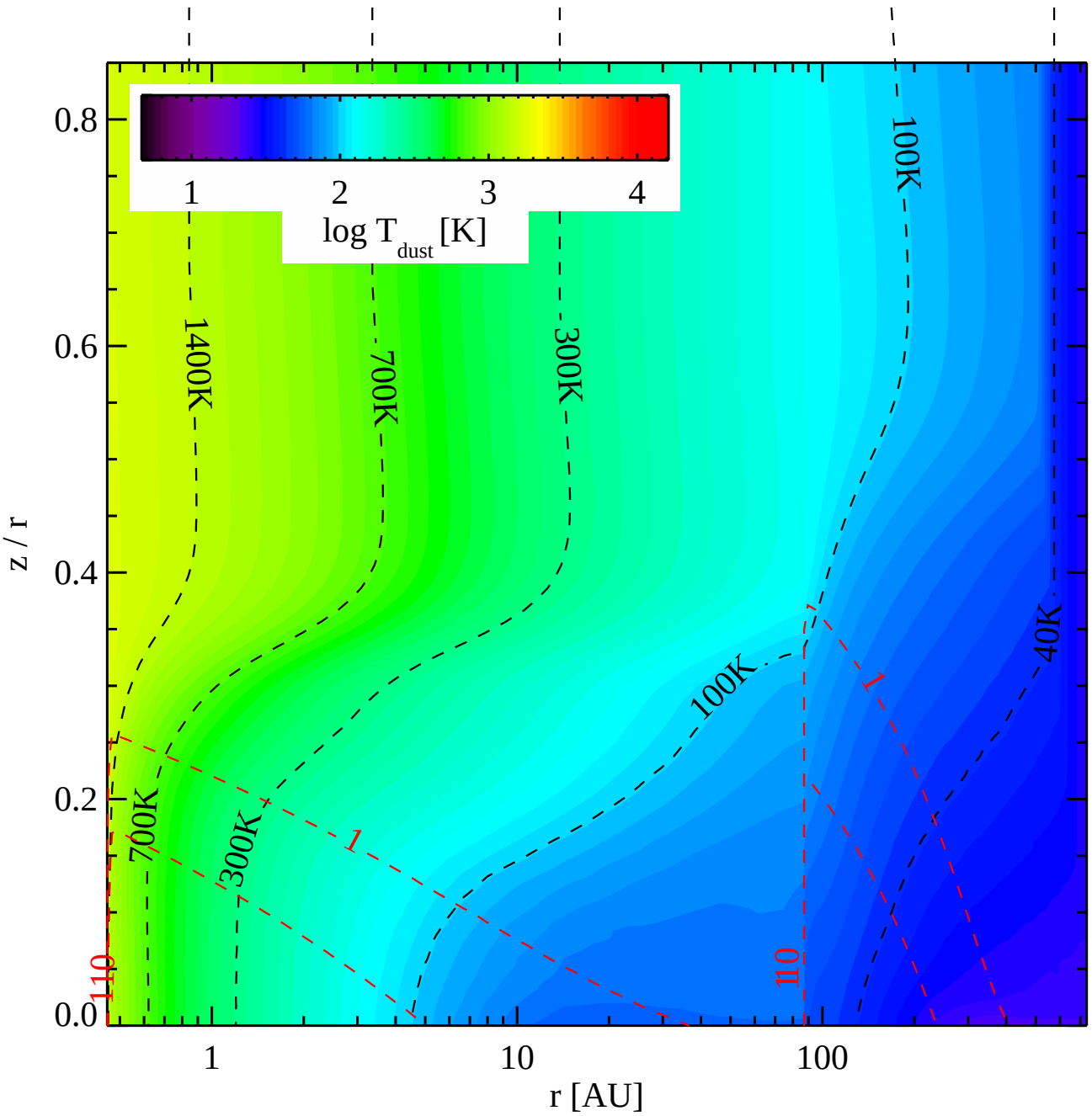

10^{24}
10^{22}
10^{20}
10^{18}
$N_{<H>}$ [cm^{-2}]
1
10
100
r [AU]
Σ_{dust}/(1.4 amu)

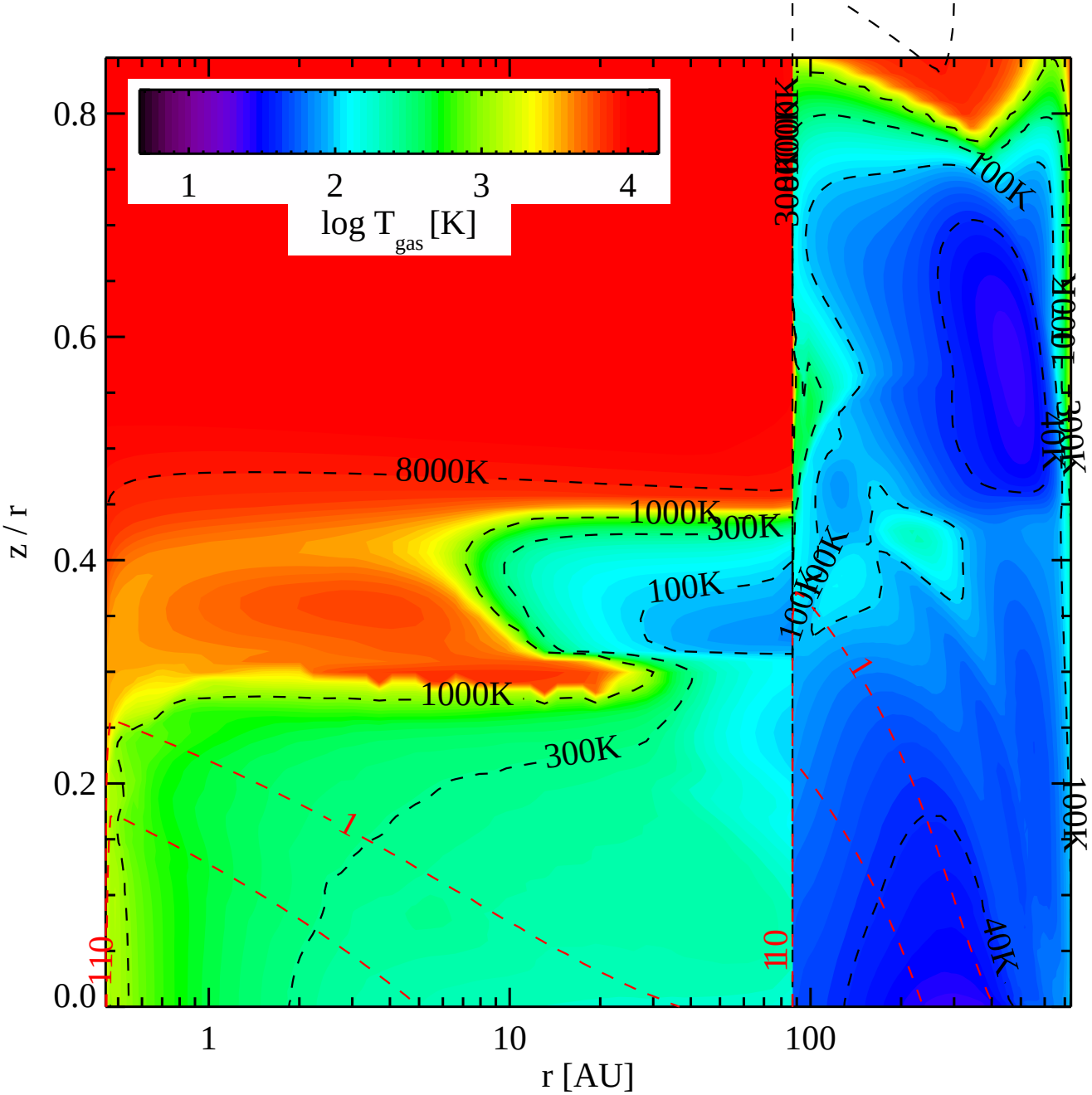

1.0
0.1
H/r
1
10
100
r [AU]
as prescribed in model
from midplane dust temperature
from surface gas temperature

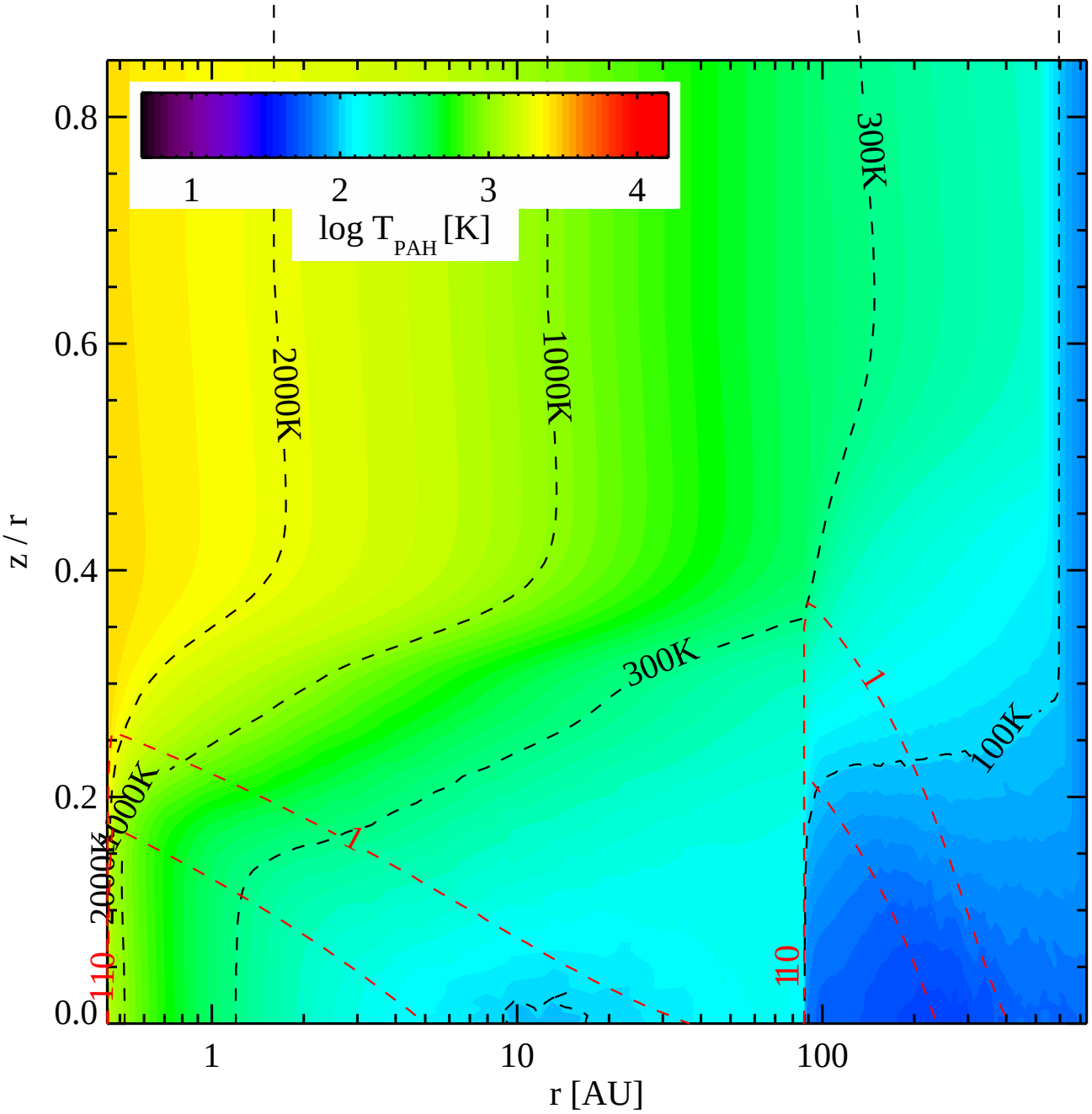

0
2
4
6
8
10
log χ
0.8
0.6
0.4
0.2
0.0
z / r
AV=1
AV=10
1
10
100
r [AU]

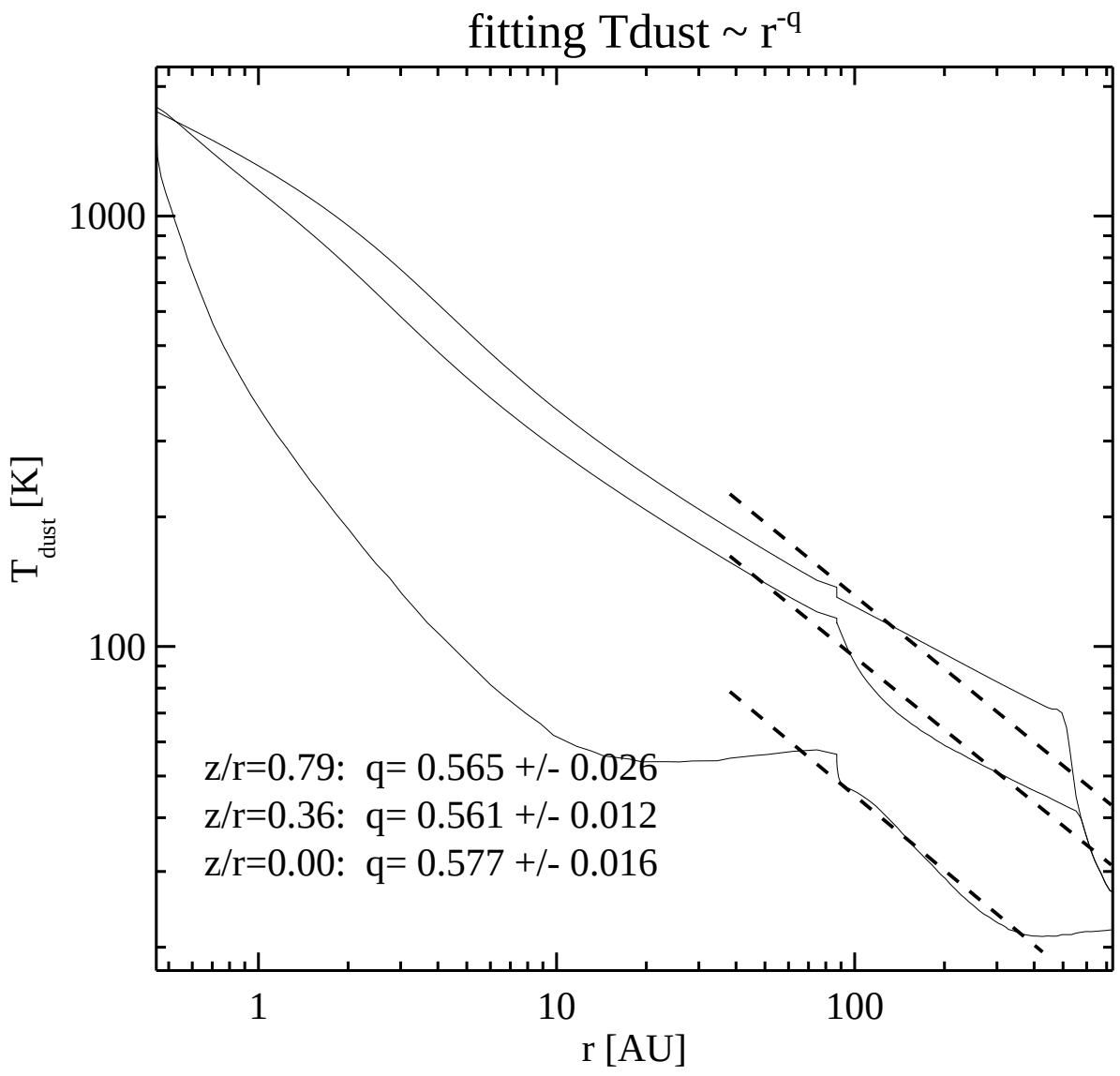

0.8
0.6
0.4
0.2
0.0
z / r
4
6
8
10
12
log n<H> [cm-3]
τ1keV=10
AV=10
AV=10
1
10
100
r [AU]

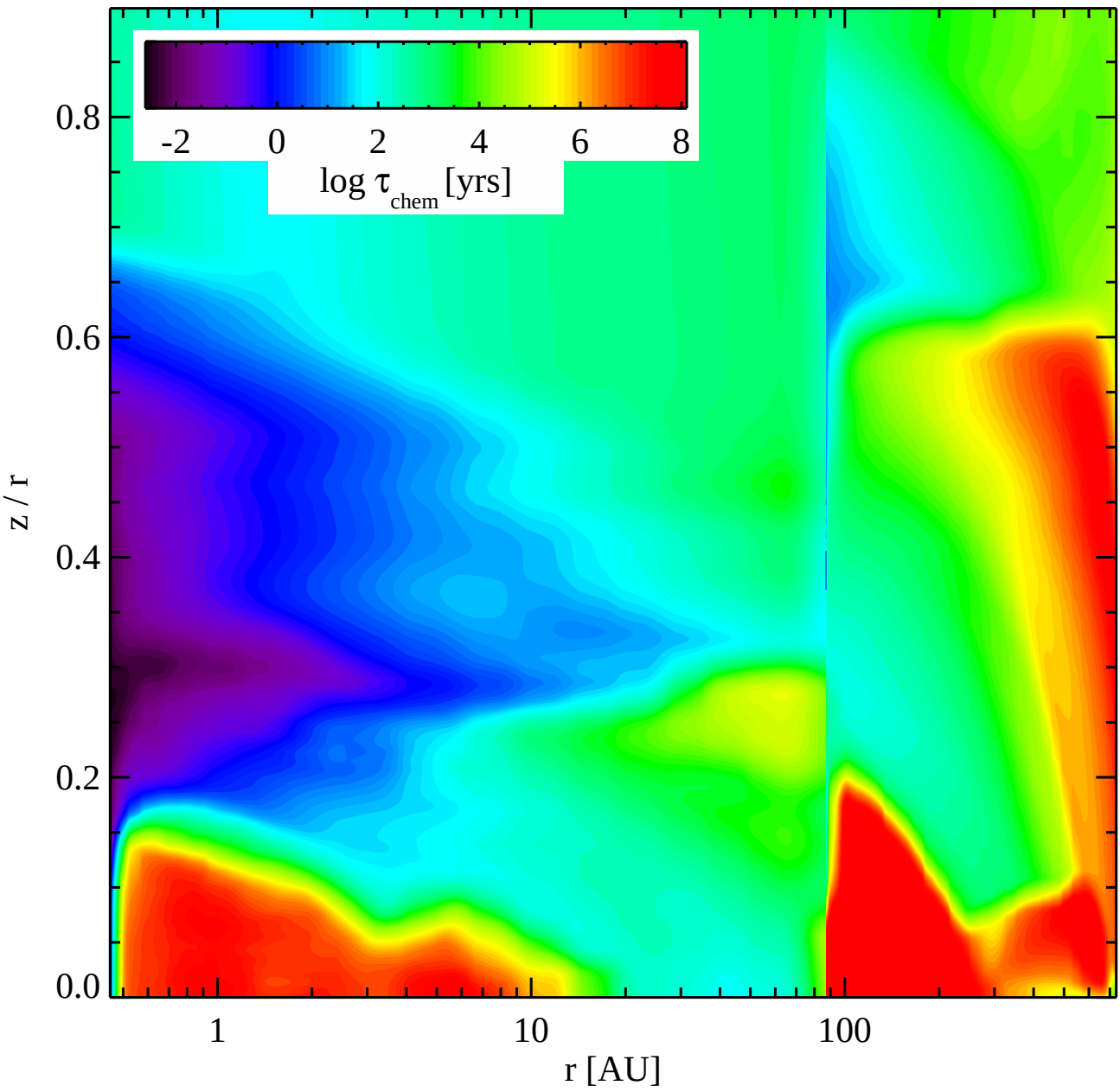

-20 -18 -16 -14 -12 -10 -8
log ζX[1/s]
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]
ζX=ζCR

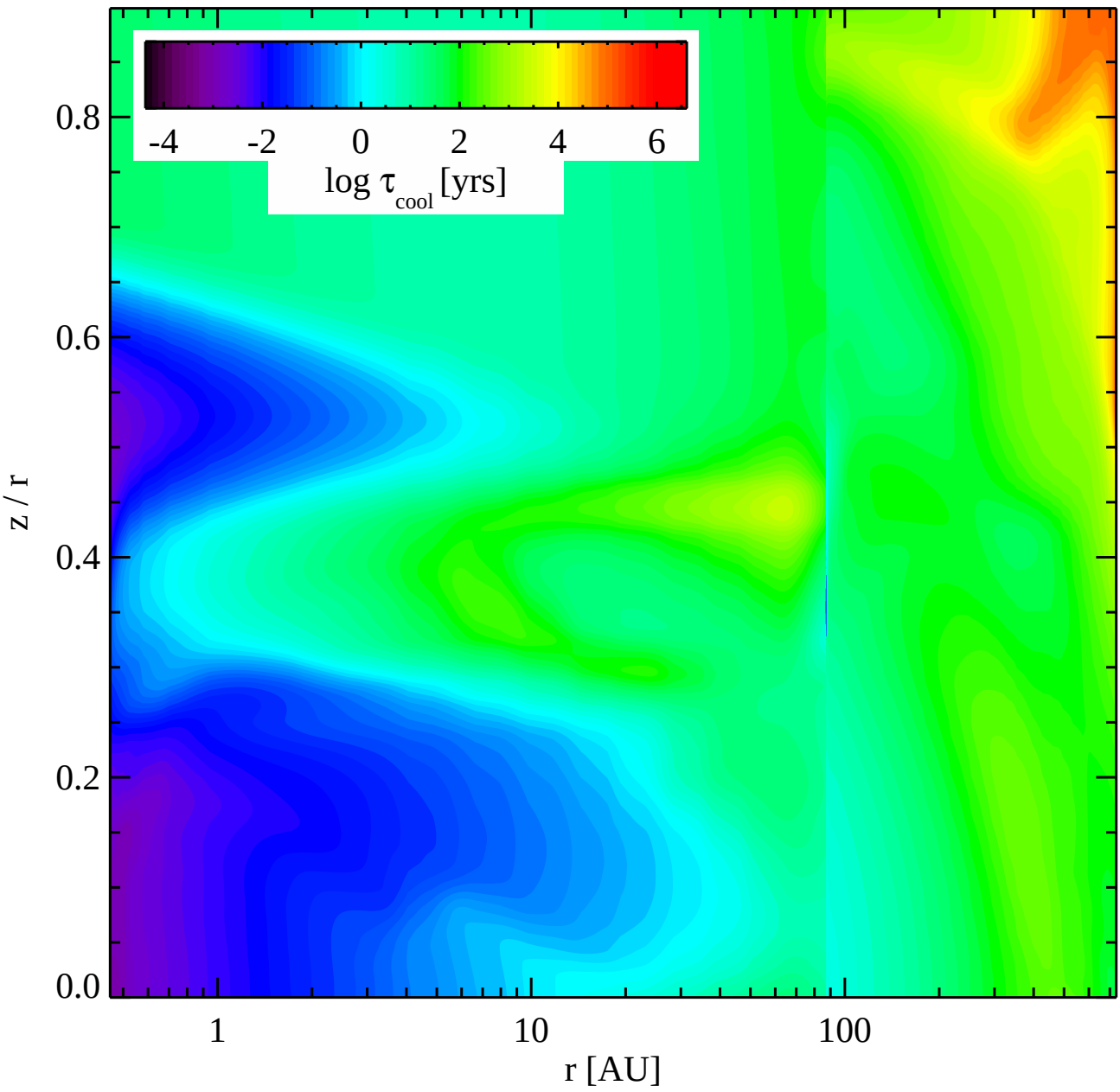

log T dust [K]
1
2
3
4
z / r
0.0
0.2
0.4
0.6
0.8
1
10
100
r [AU]
1400K
700K
300K
100K
40K
700K
300K
100K
1
1
1
10
10

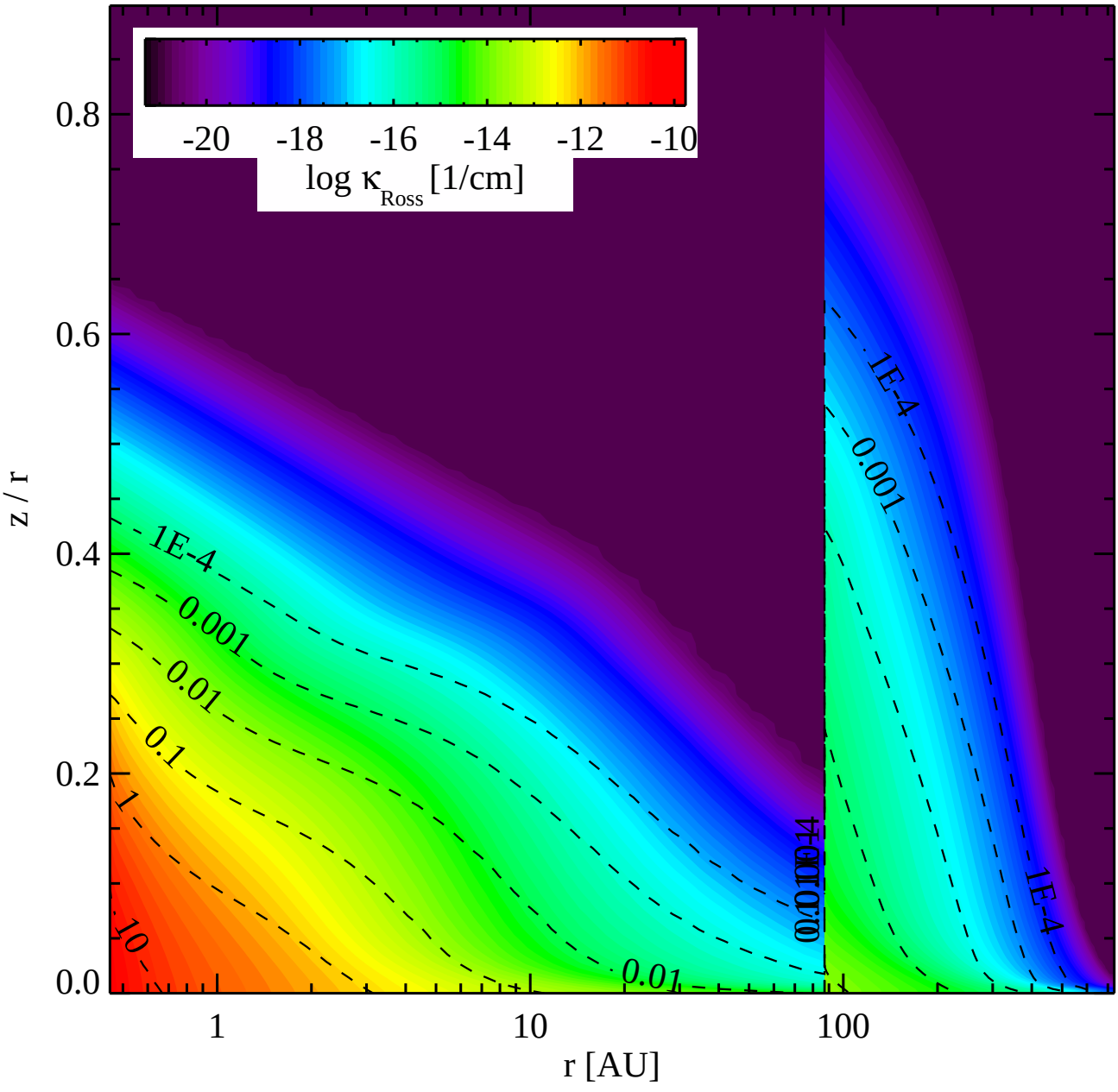

1
2
3
4
log T gas [K]
8000K
1000K
300K
100K
40K
1
10
z / r
r [AU]
0.0
0.2
0.4
0.6
0.8
1
10
100

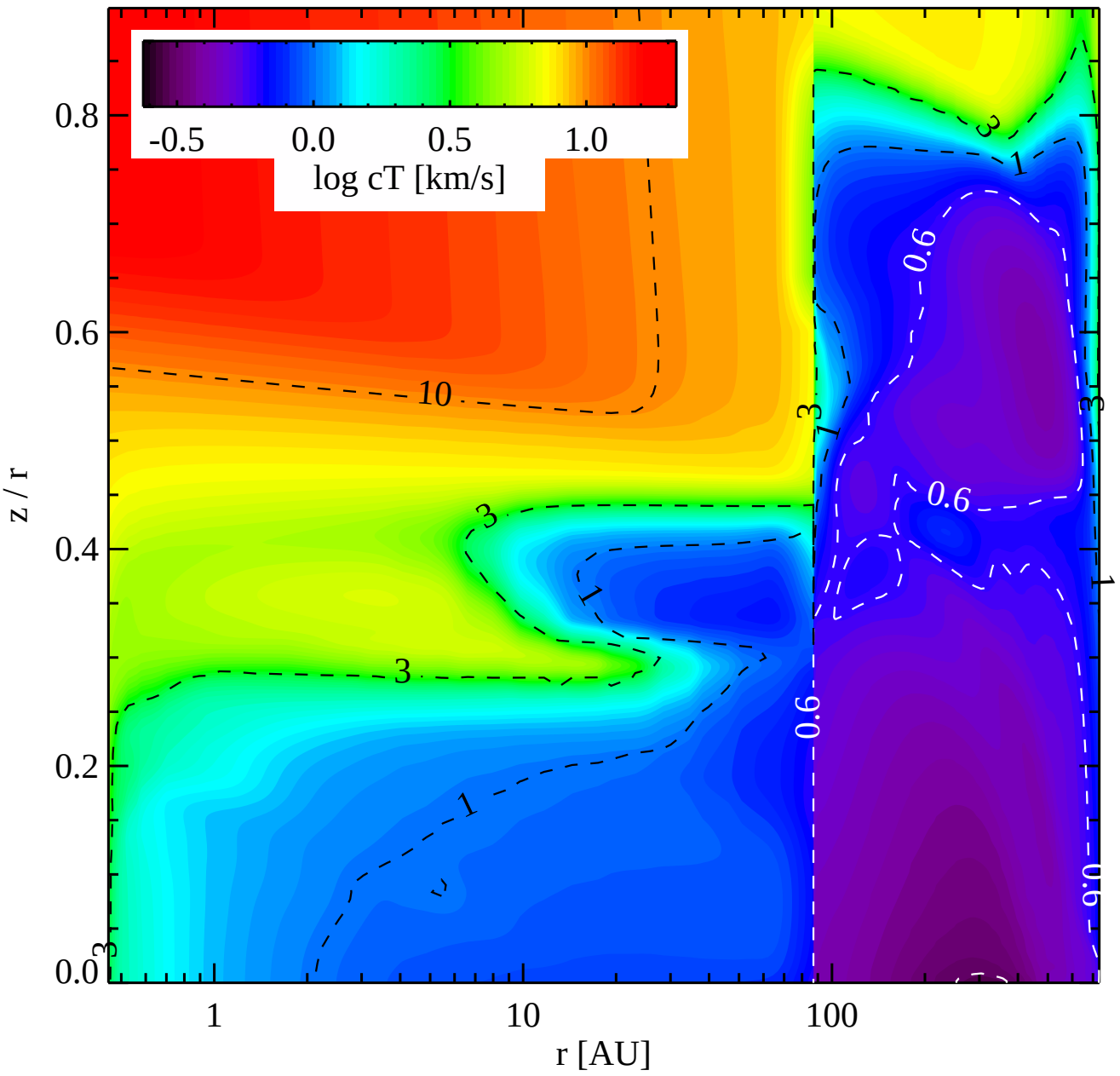

log T_PAH [K]
1
2
3
4
2000K
1000K
300K
100K
300K
1000K
2000K
1
1
1
0.0
0.2
0.4
0.6
0.8
z / r
1
10
100
r [AU]

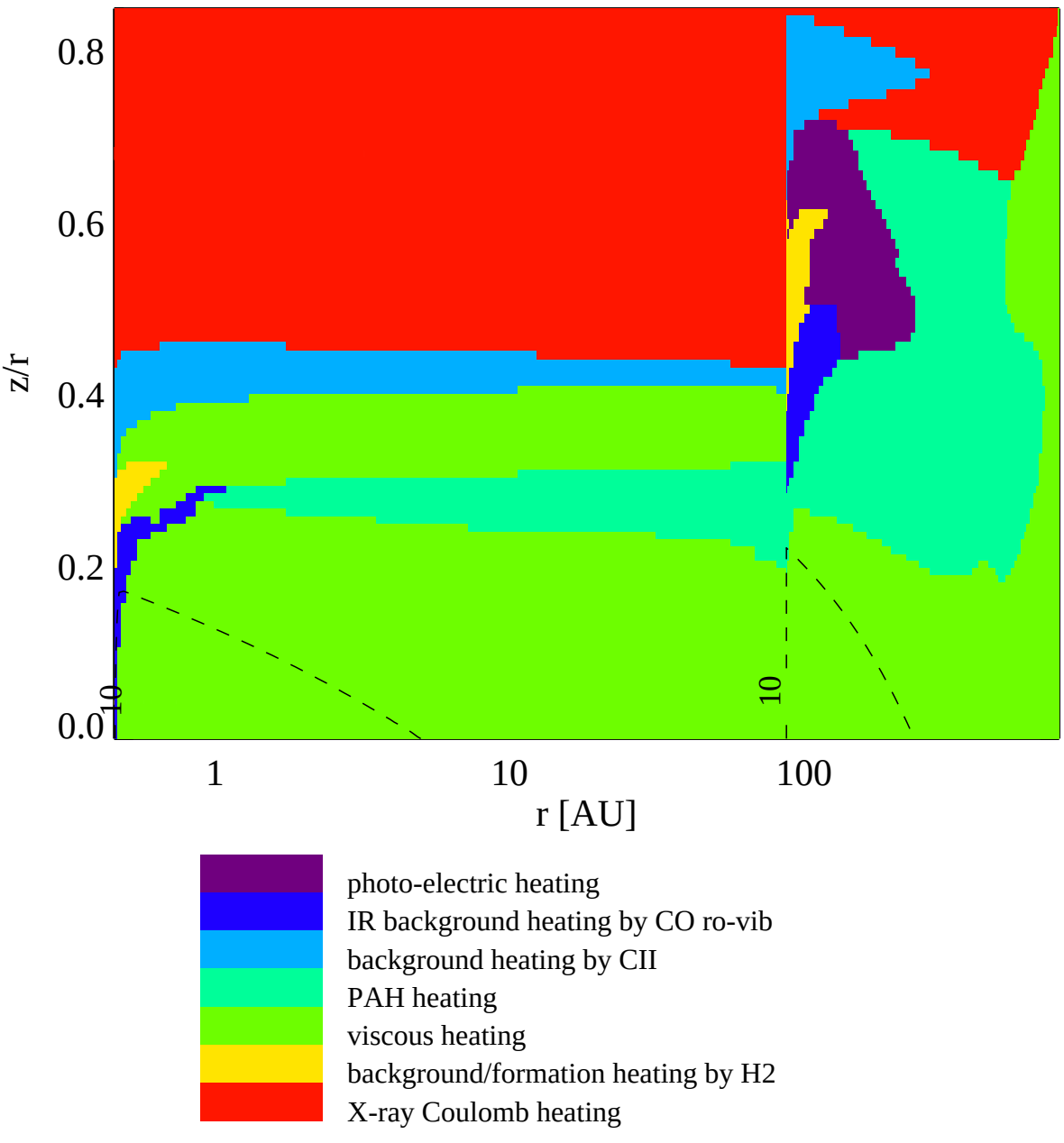

fitting Tdust ~ r^-q
1000
100
T dust [K]
1
10
100
r [AU]
z/r=0.79: q= 0.565 +/- 0.026
z/r=0.36: q= 0.561 +/- 0.012
z/r=0.00: q= 0.577 +/- 0.016

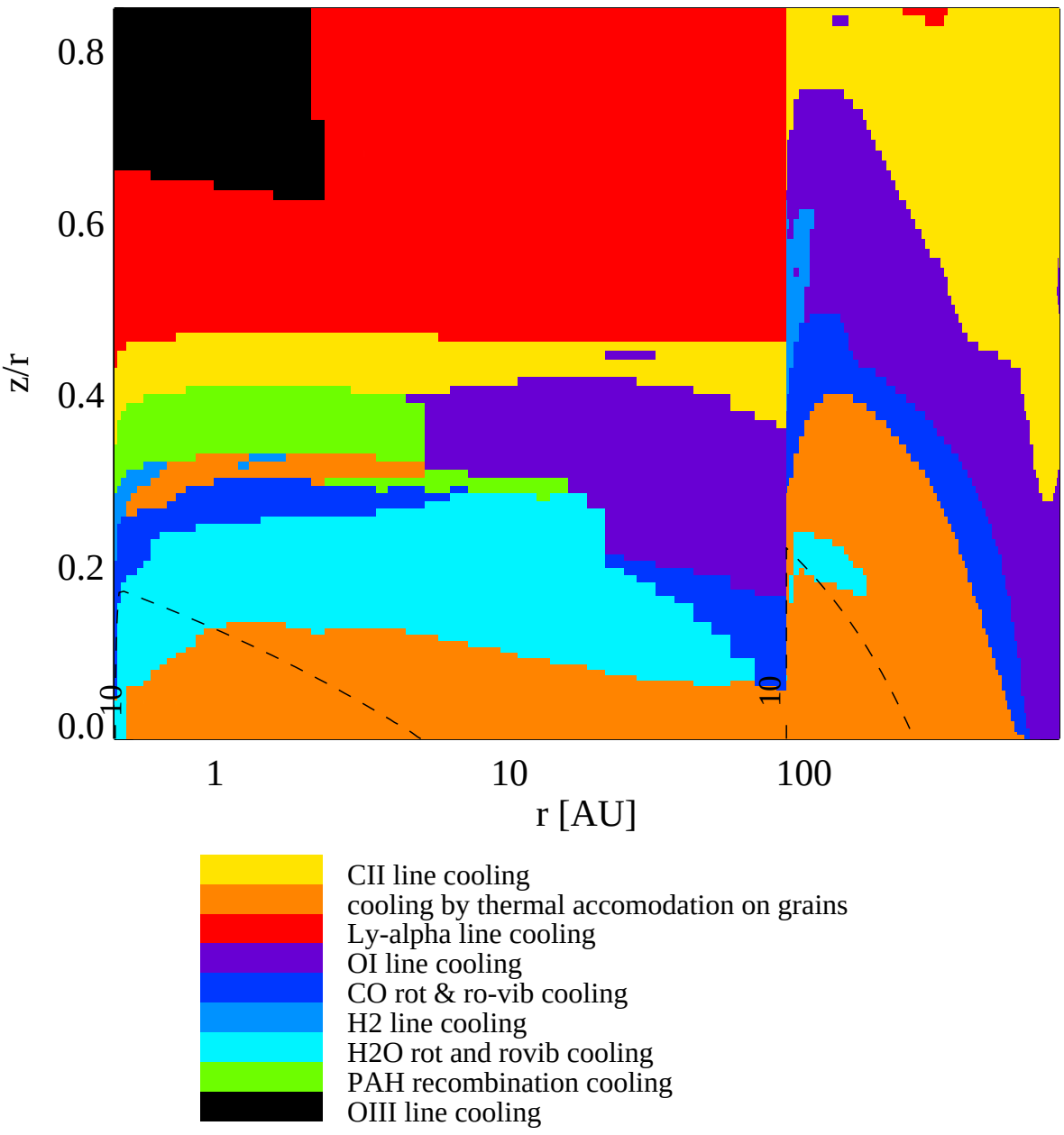

-2
0
2
4
6
8
log τ chem [yrs]
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

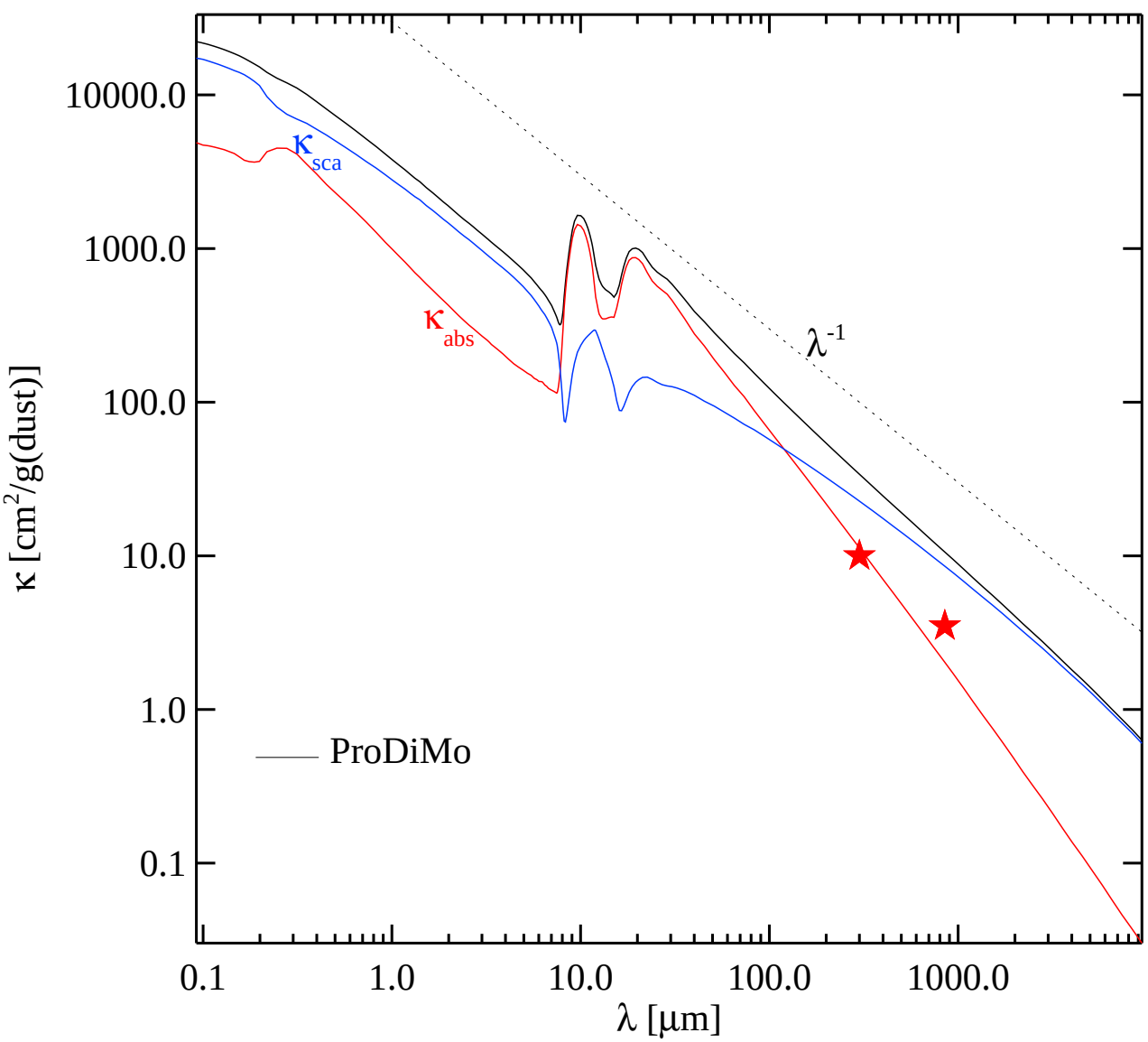

-4
-2
0
2
4
6
log τ cool [yrs]
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

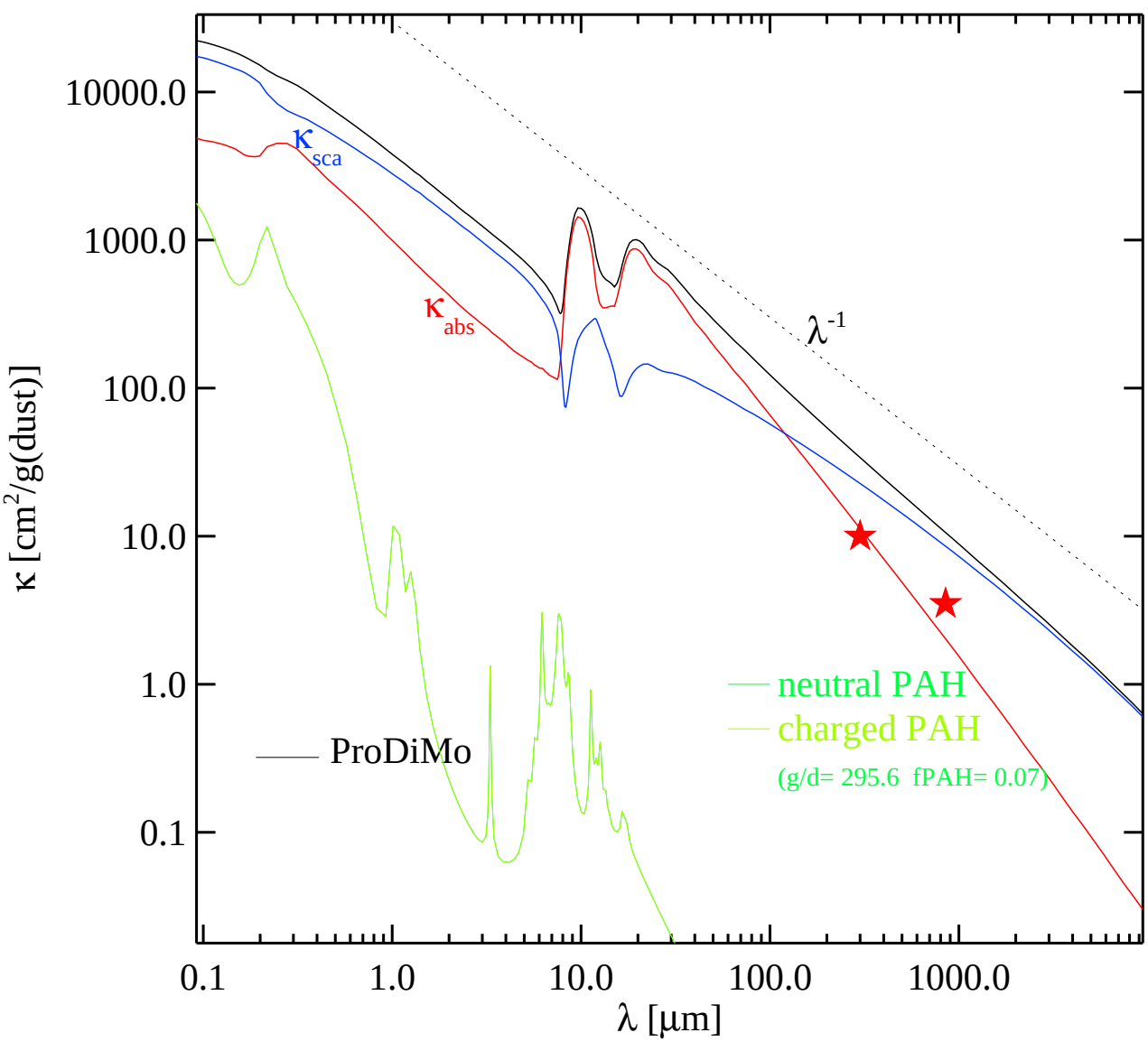

-20
-18
-16
-14
-12
-10
log κ Ross [1/cm]
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]
1E-4
0.001
0.01
0.1
1
10
0.01
1E-4
0.001
1E-4

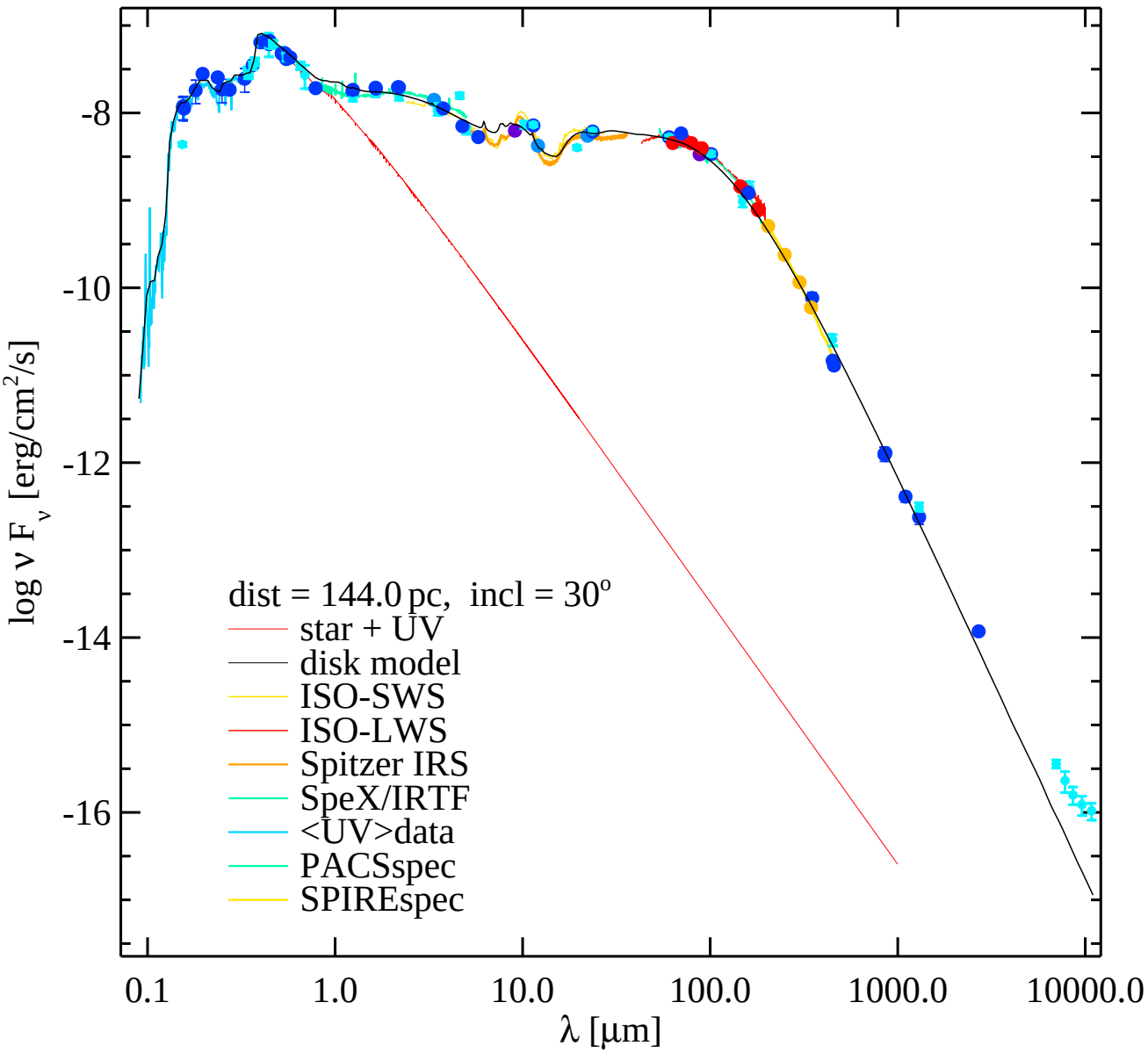

-0.5
0.0
0.5
1.0
log cT [km/s]
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]
10
3
1
0.6

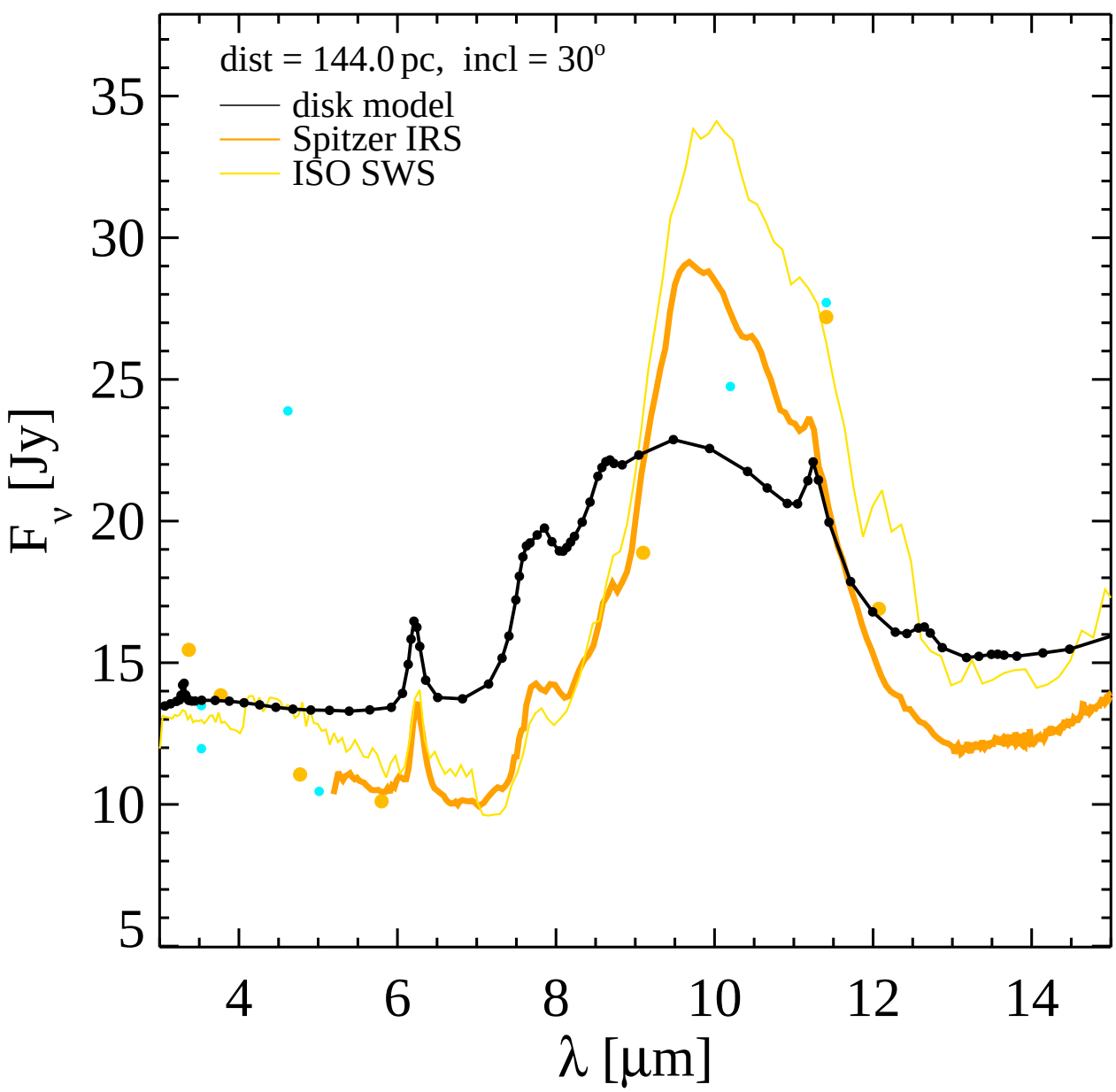

0.8
0.6
0.4
0.2
0.0
z/r
10
10
1
10
100
r [AU]
photo-electric heating
IR background heating by CO ro-vib
background heating by CII
PAH heating
viscous heating
background/formation heating by H2
X-ray Coulomb heating

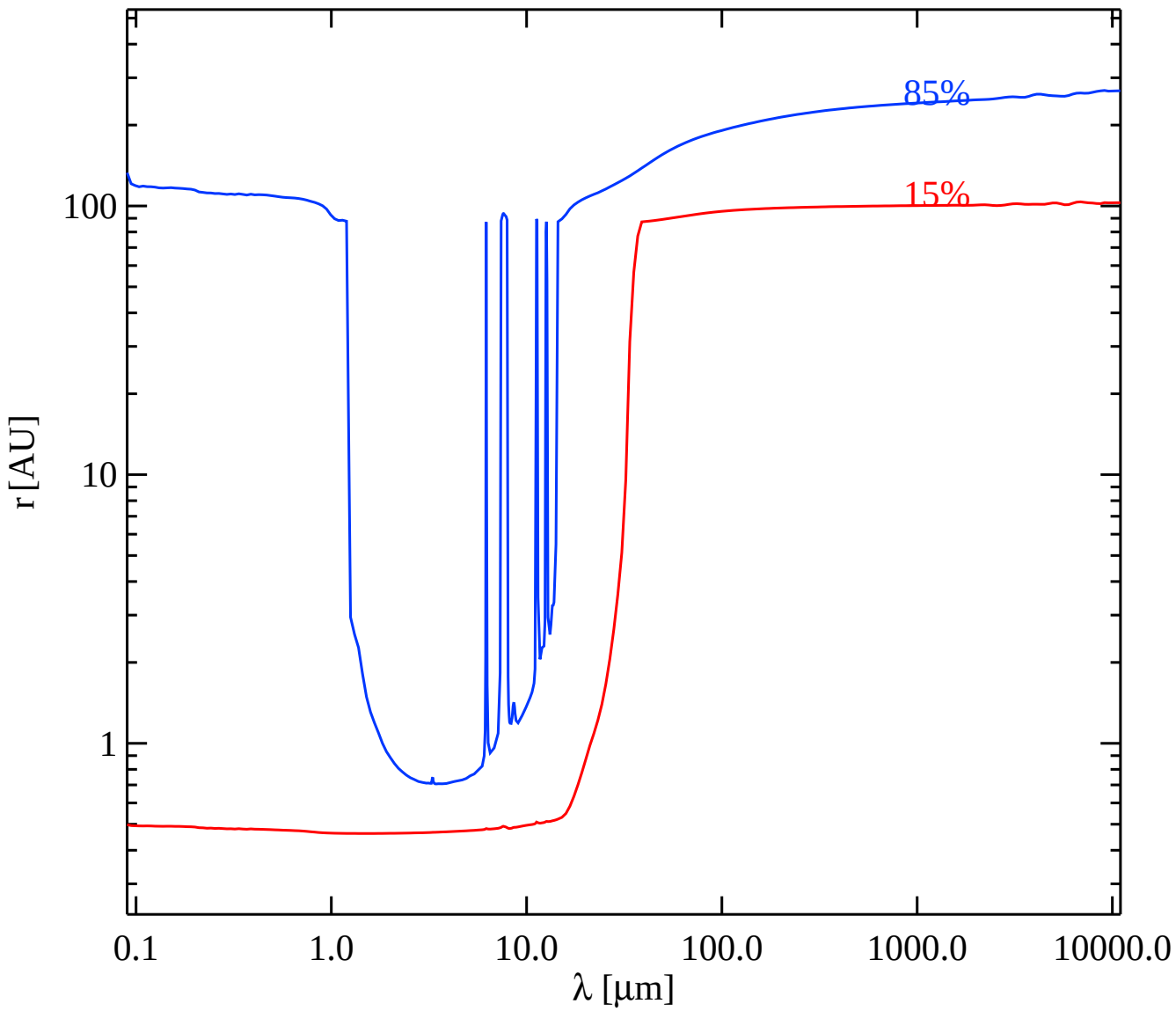

0.8
0.6
0.4
0.2
0.0
z/r
10
10
1
10
100
r [AU]
CII line cooling
cooling by thermal accomodation on grains
Ly-alpha line cooling
OI line cooling
CO rot & ro-vib cooling
H2 line cooling
H2O rot and rovib cooling
PAH recombination cooling
OIII line cooling

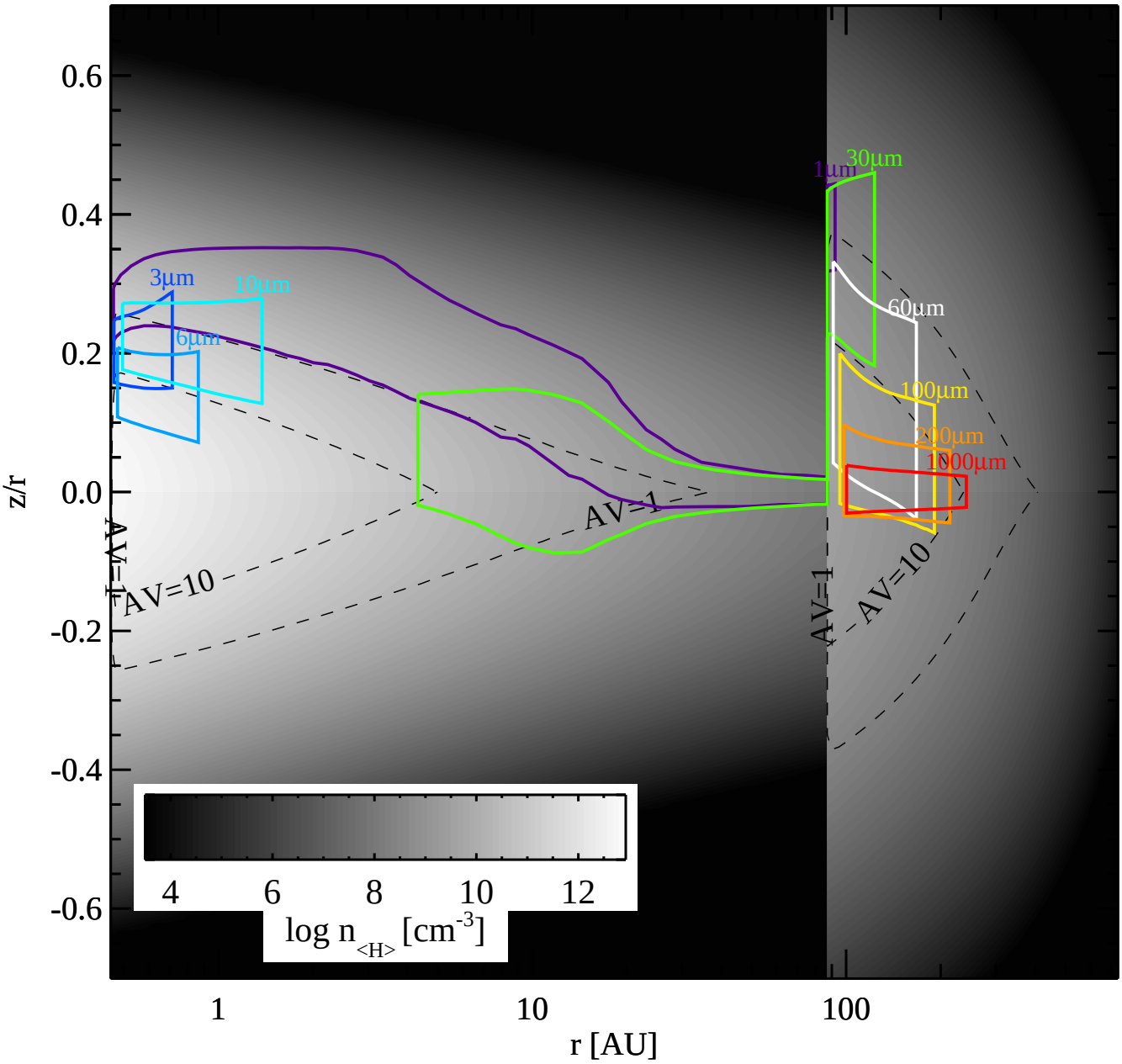

10000.0
1000.0
100.0
10.0
1.0
0.1
κ [cm²/g(dust)]
κsca
κabs
λ-1
ProDiMo
0.1
1.0
10.0
100.0
1000.0
λ [μm]

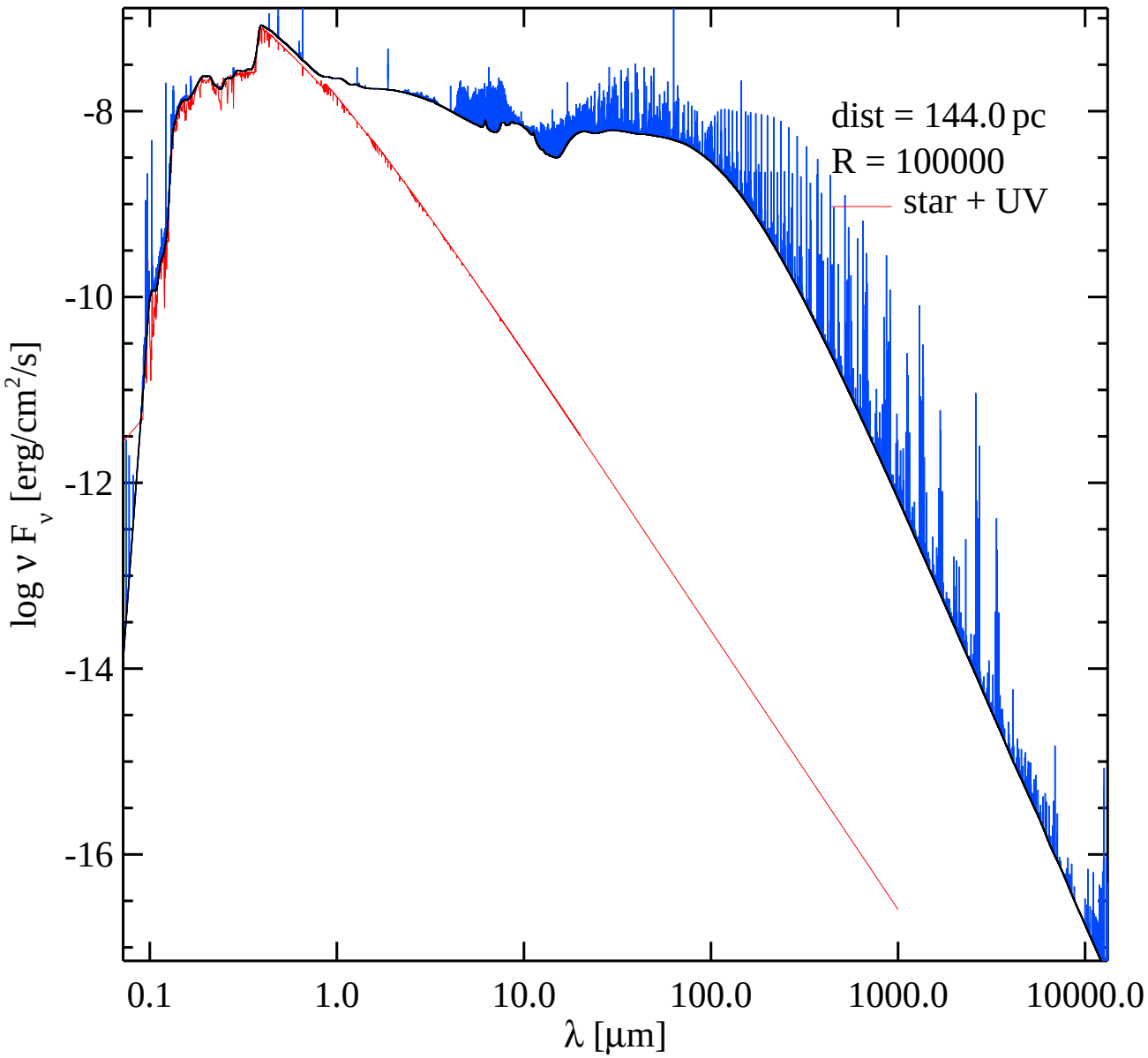

10000.0
1000.0
100.0
10.0
1.0
0.1
κ [cm²/g(dust)]
κsca
κabs
λ-1
neutral PAH
charged PAH
(g/d= 295.6 fPAH= 0.07)
ProDiMo
0.1
1.0
10.0
100.0
1000.0
λ [μm]

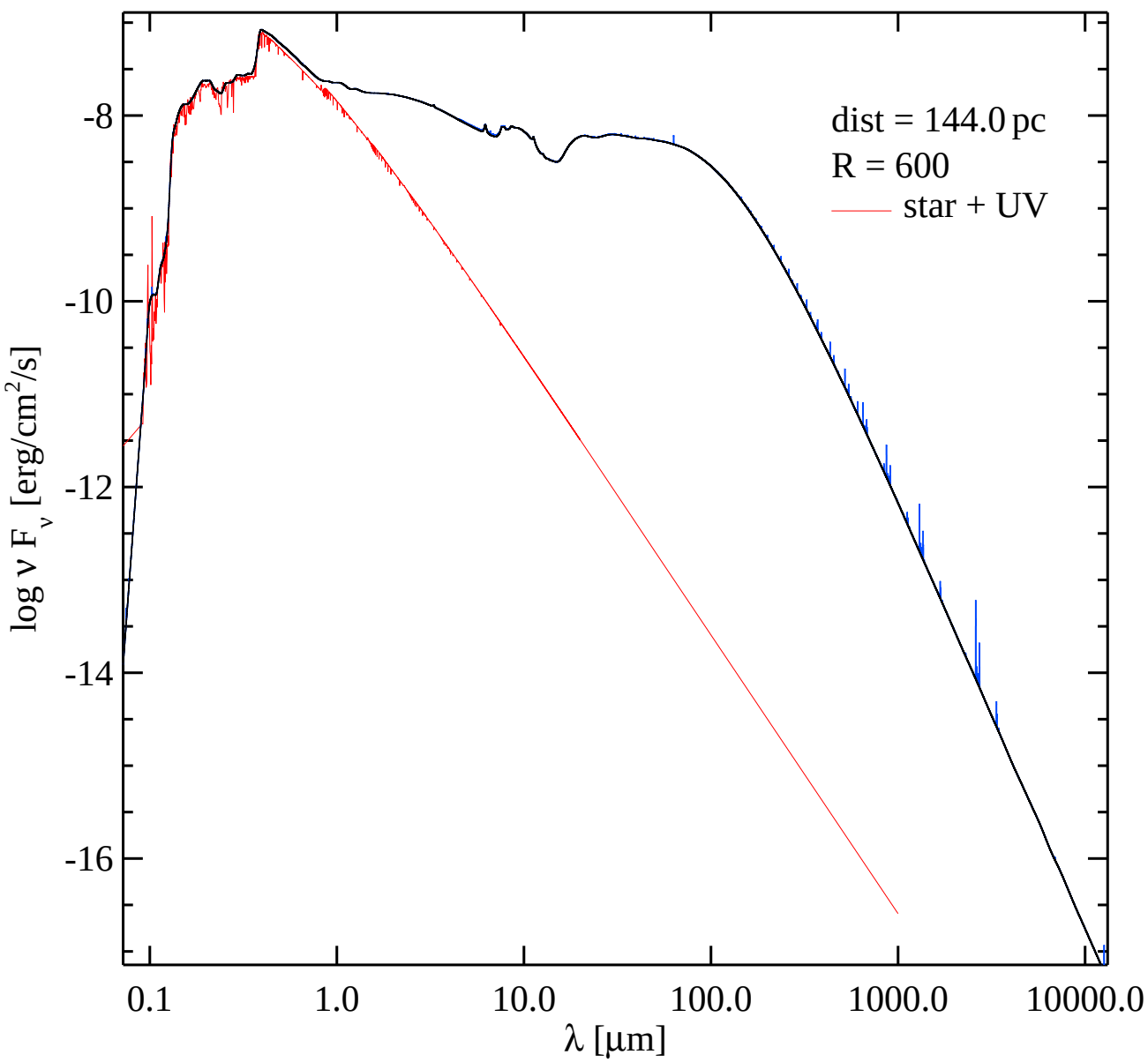

dist = 144.0 pc, incl = 30°
star + UV
disk model
ISO-SWS
ISO-LWS
Spitzer IRS
SpeX/IRTF
<UV>data
PACSspec
SPIREspec
log ν F_ν [erg/cm²/s]
λ [μm]
-8
-10
-12
-14
-16
0.1
1.0
10.0
100.0
1000.0
10000.0

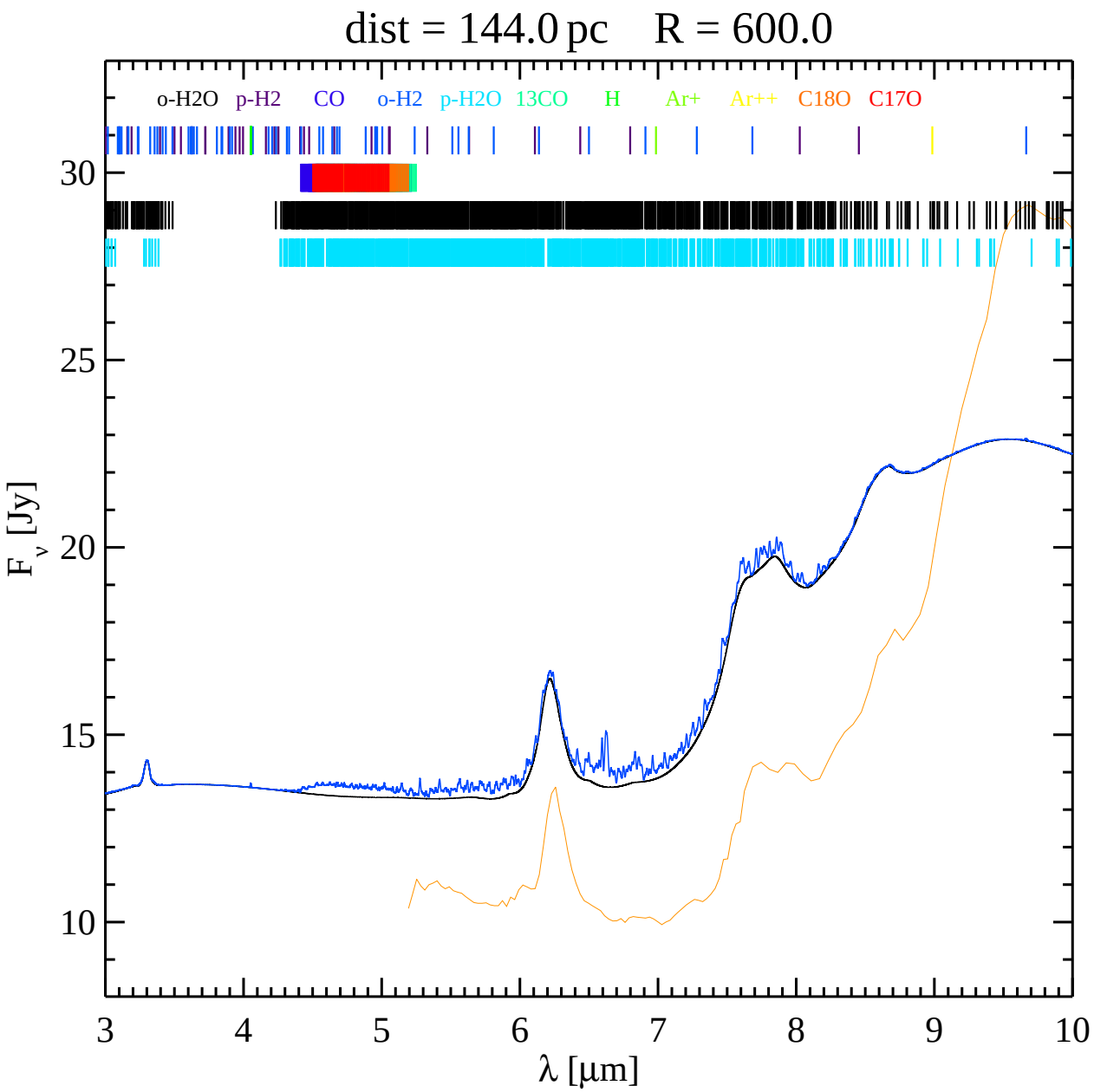

dist = 144.0 pc, incl = 30°
disk model
Spitzer IRS
ISO SWS
35
30
25
20
15
10
5
F_ν [Jy]
4
6
8
10
12
14
λ [μm]

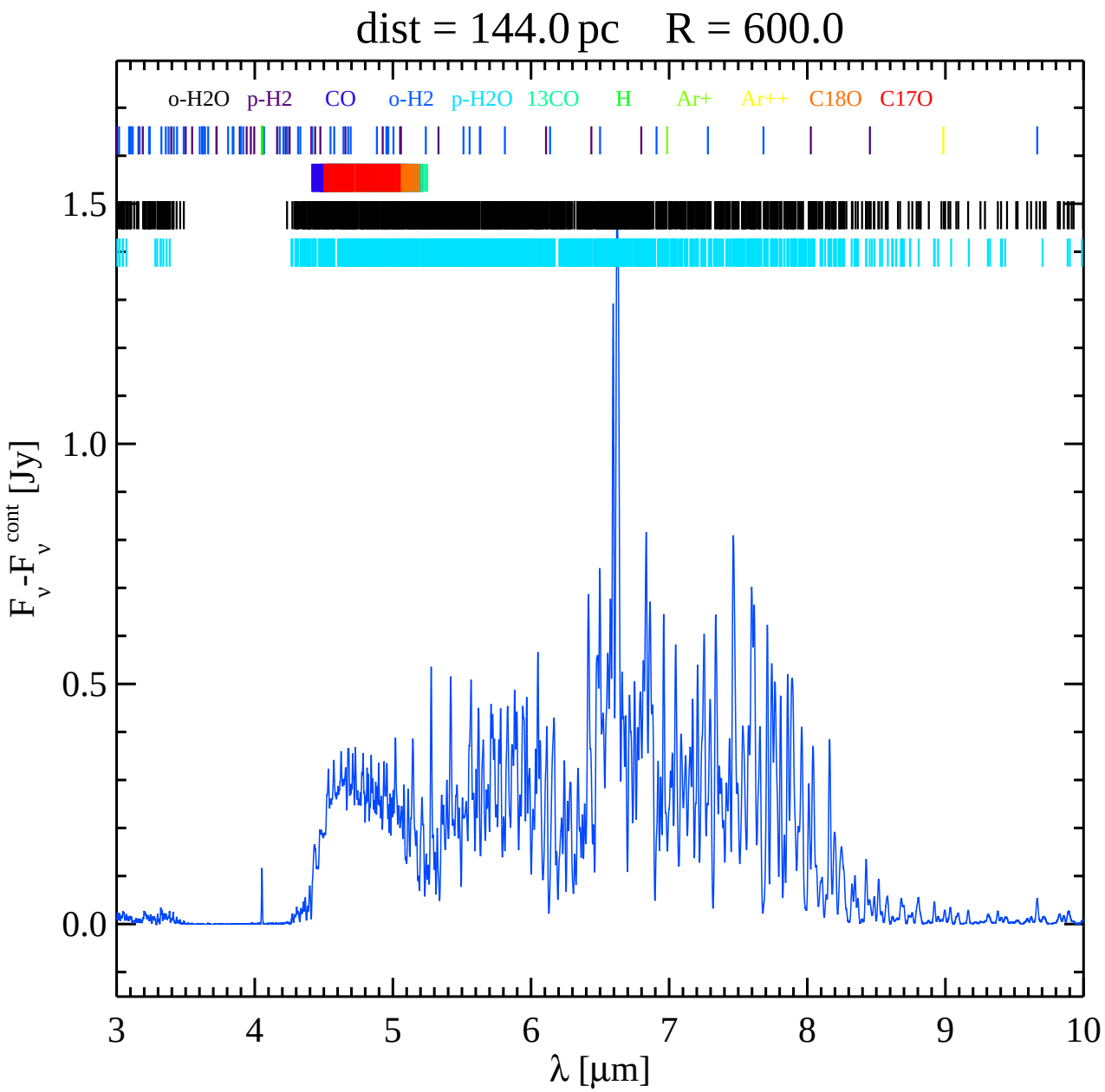

85%
15%
100
10
1
r [AU]
0.1
1.0
10.0
100.0
1000.0
10000.0
λ [μm]

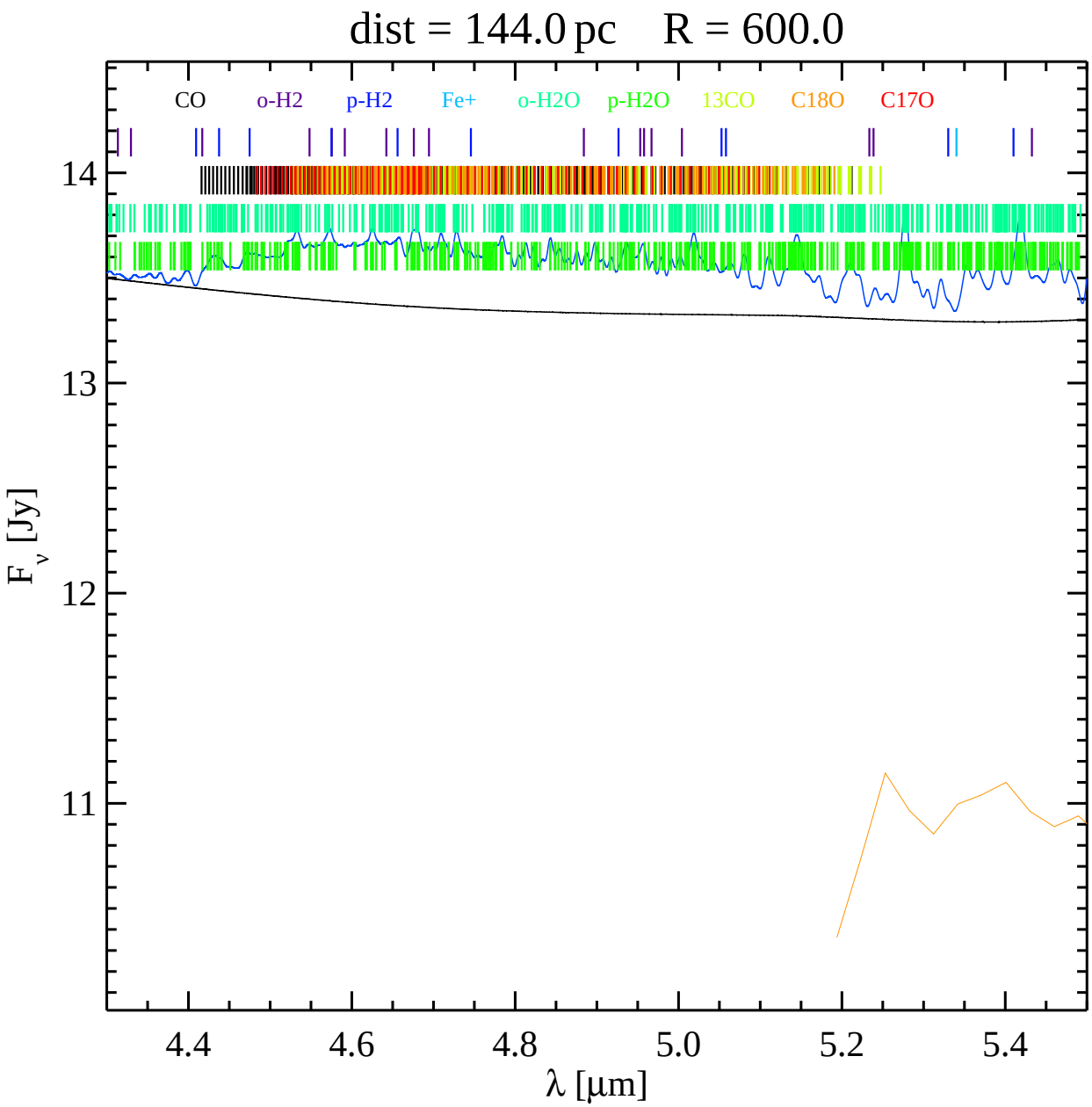

0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
z/r
1
10
100
r [AU]
3µm
6µm
10µm
1µm
30µm
60µm
100µm
200µm
1000µm
AV=1
AV=10
AV=1
AV=10
AV=1
AV=10
4
6
8
10
12
log n<H> [cm-3]

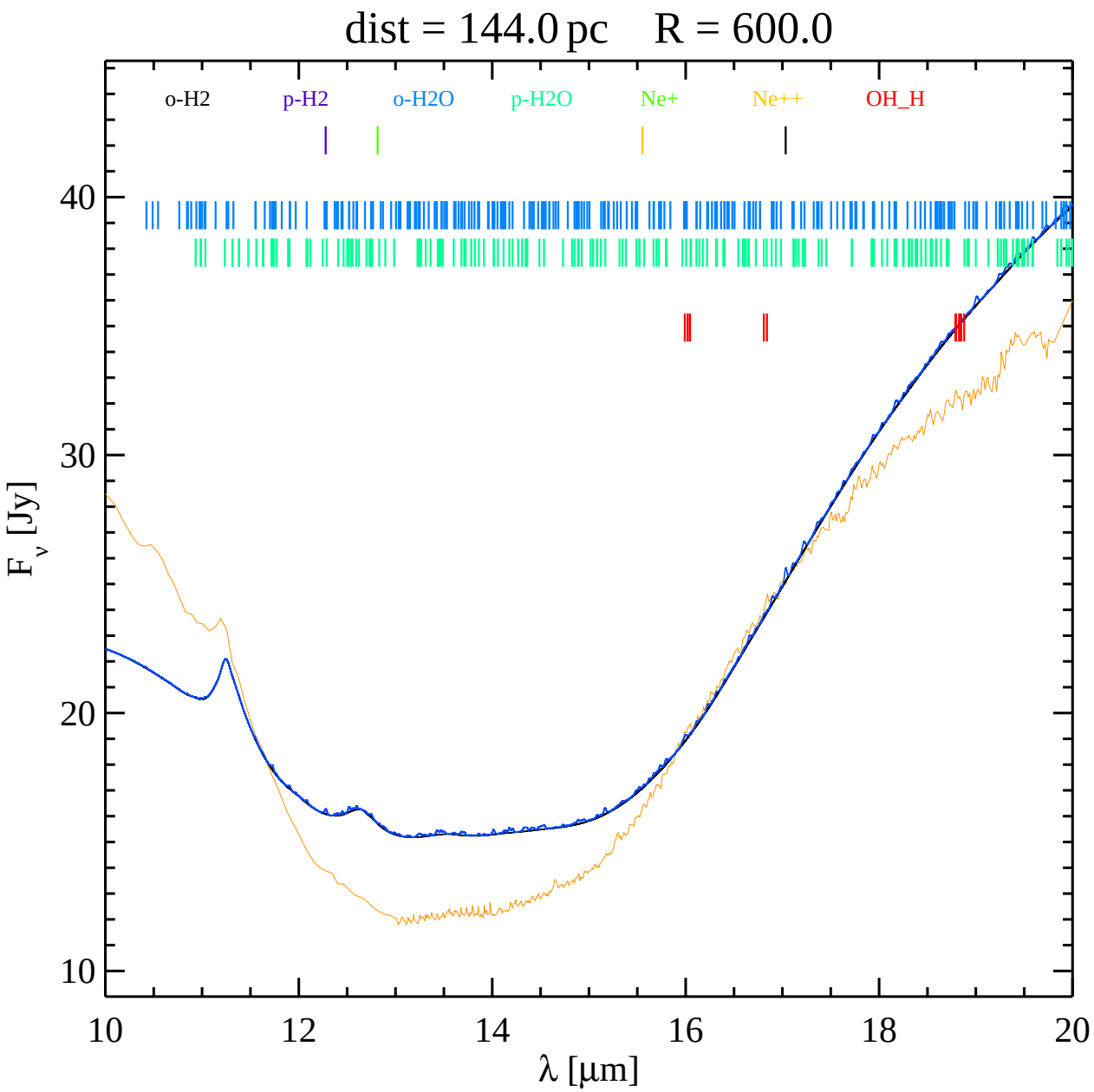

dist = 144.0 pc
R = 100000
star + UV
-8
-10
-12
-14
-16
log ν F_ν [erg/cm²/s]
0.1
1.0
10.0
100.0
1000.0
10000.0
λ [μm]

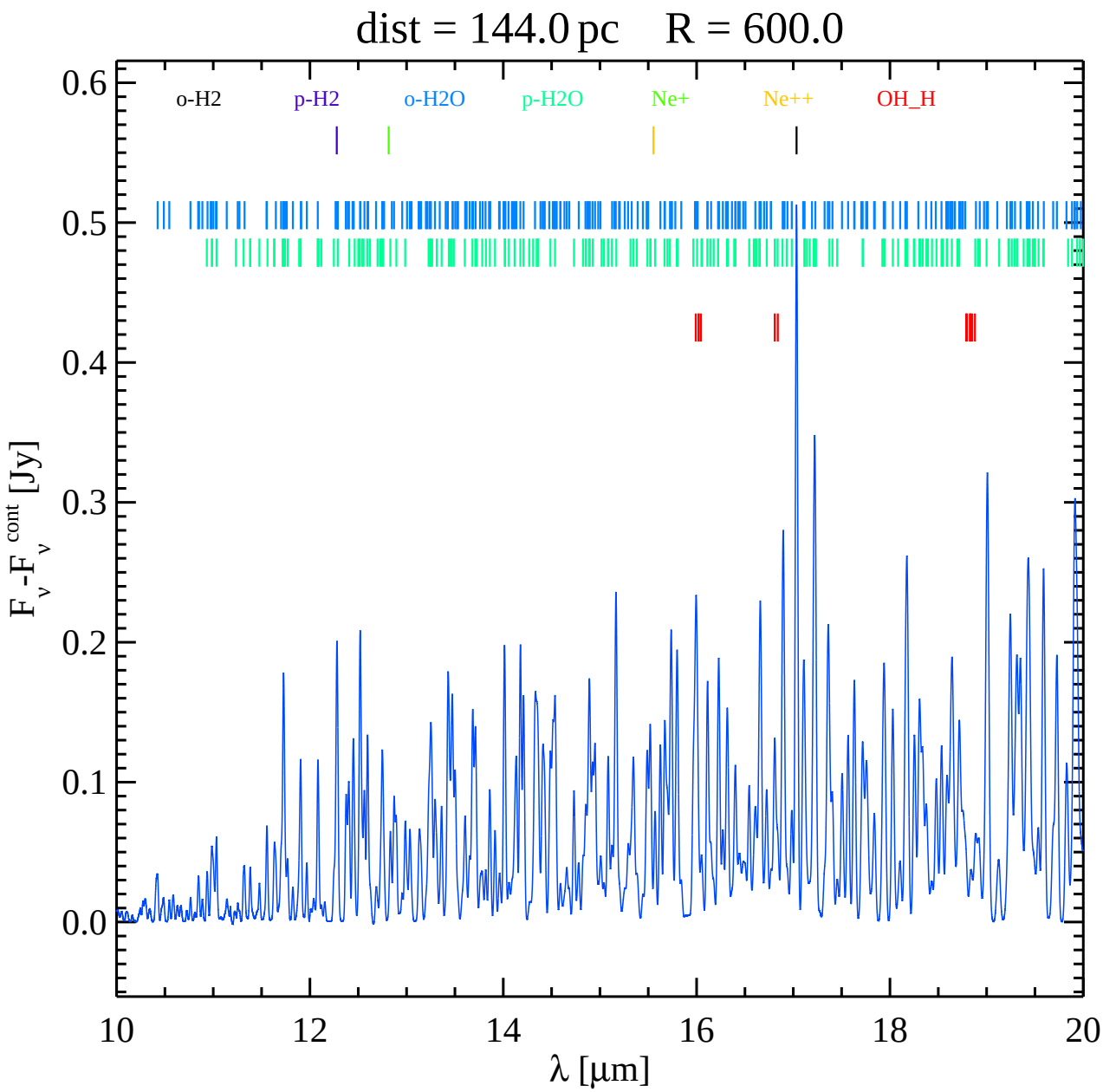

dist = 144.0 pc
R = 600
star + UV
-8
-10
-12
-14
-16
log ν F_ν [erg/cm²/s]
0.1
1.0
10.0
100.0
1000.0
10000.0
λ [μm]

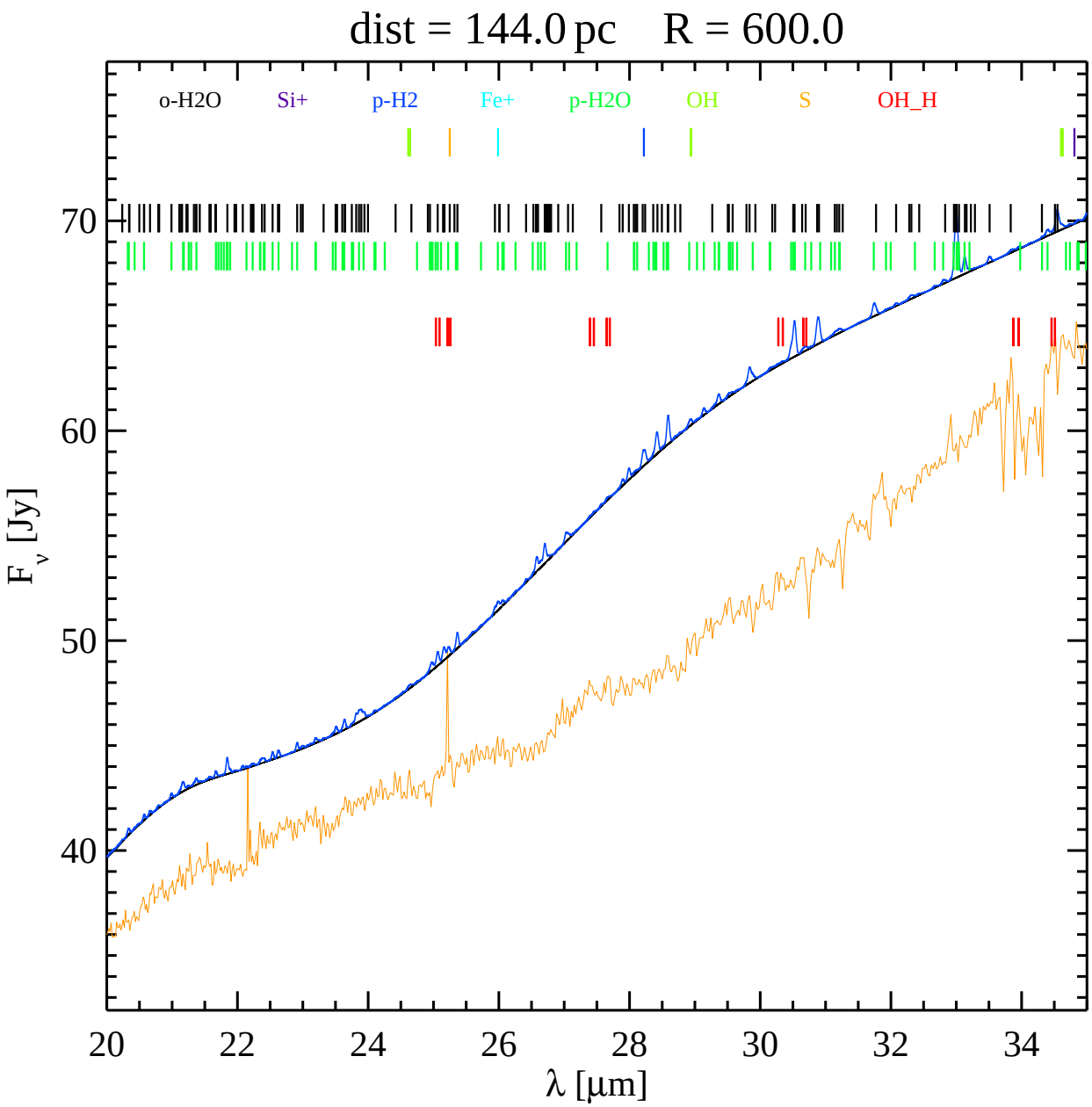

dist = 144.0 pc R = 600.0
o-H2O p-H2 CO o-H2 p-H2O 13CO H Ar+ Ar++ C18O C17O
30
25
20
15
10
F_ν [Jy]
3
4
5
6
7
8
9
10
λ [μm]

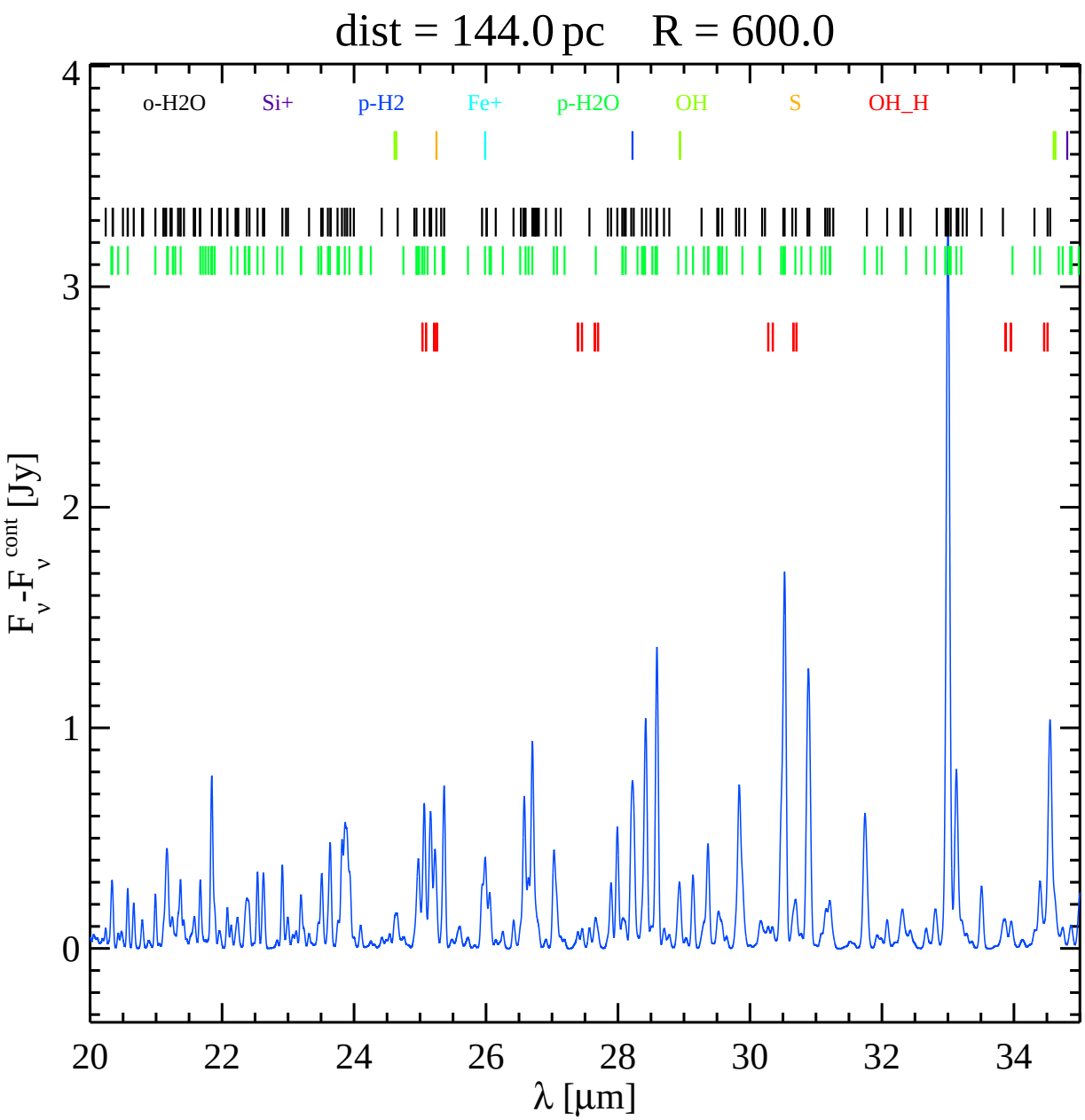

dist = 144.0 pc R = 600.0
o-H2O p-H2 CO o-H2 p-H2O 13CO H Ar+ Ar++ C18O C17O
1.5
1.0
0.5
0.0
F_ν-F_ν^cont [Jy]
3
4
5
6
7
8
9
10
λ [μm]

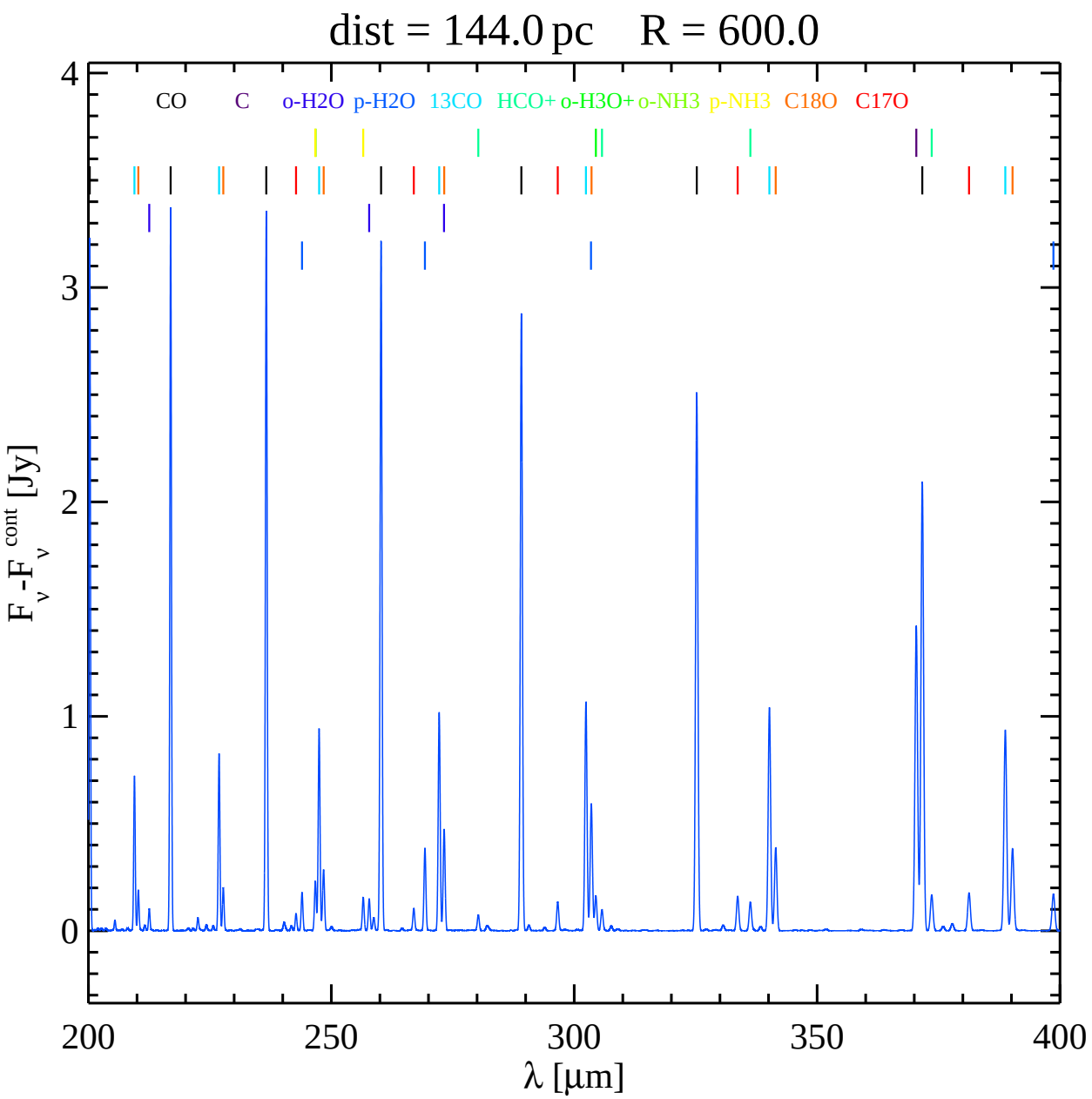

dist = 144.0 pc R = 600.0
CO
o-H2
p-H2
Fe+
o-H2O
p-H2O
13CO
C18O
C17O
14
13
12
11
F_ν [Jy]
4.4
4.6
4.8
5.0
5.2
5.4
λ [μm]

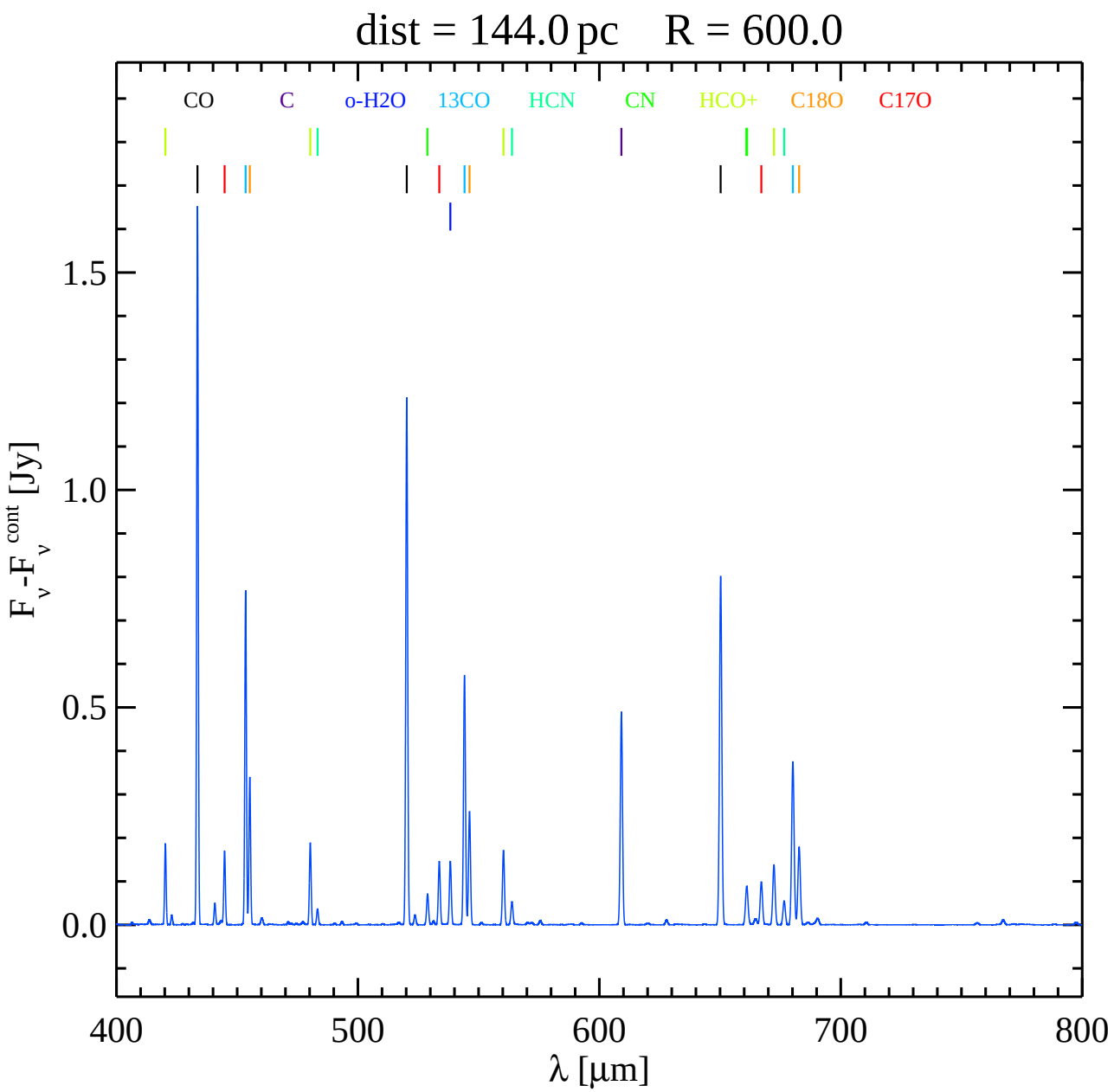

dist = 144.0 pc R = 600.0
o-H2
p-H2
o-H2O
p-H2O
Ne+
Ne++
OH_H
40
30
20
10
F_v [Jy]
10
12
14
16
18
20
λ [μm]

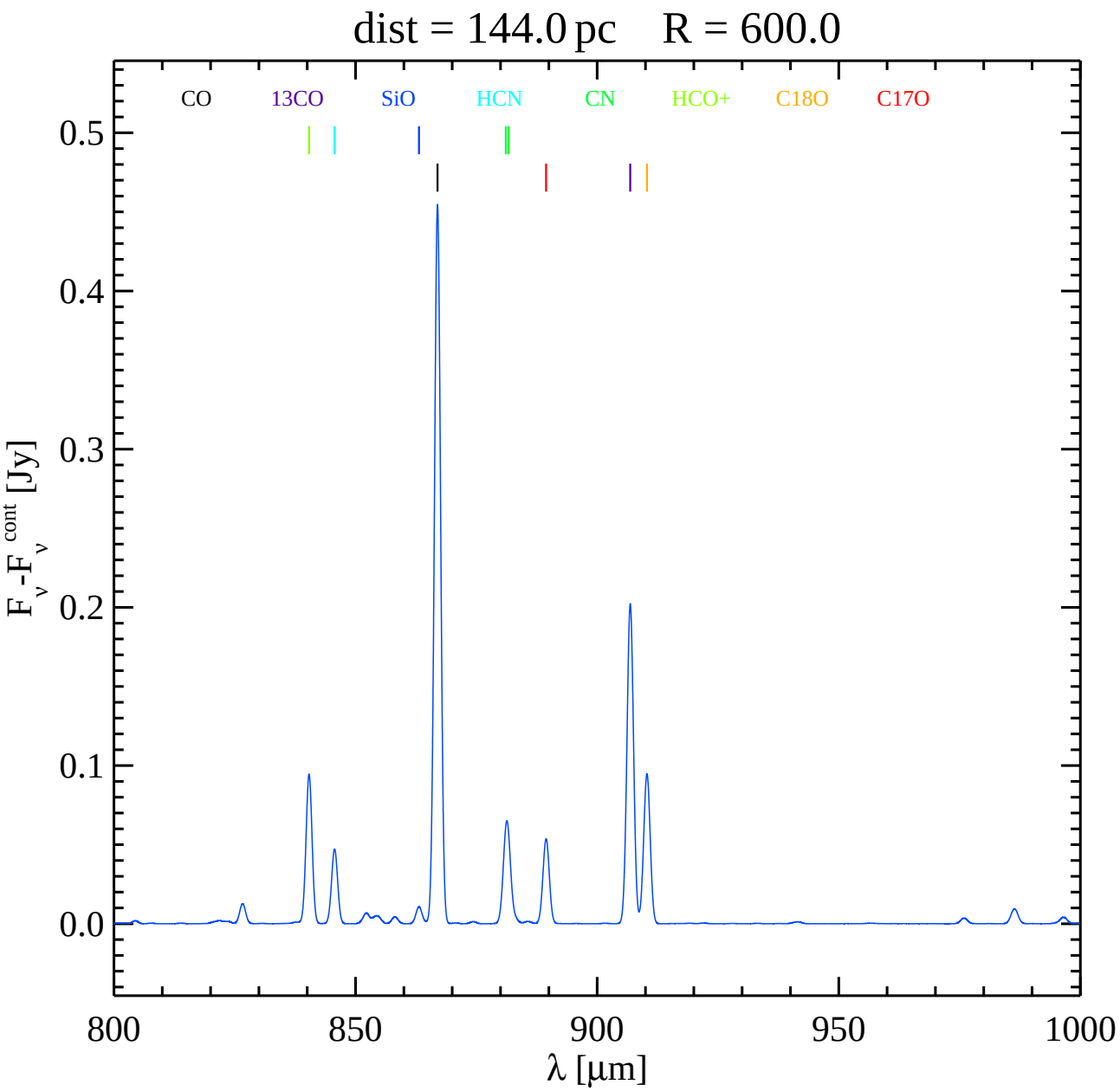

dist = 144.0 pc R = 600.0
o-H2
p-H2
o-H2O
p-H2O
Ne+
Ne++
OH_H
0.6
0.5
0.4
0.3
0.2
0.1
0.0
F_ν-F_ν^cont [Jy]
10
12
14
16
18
20
λ [μm]

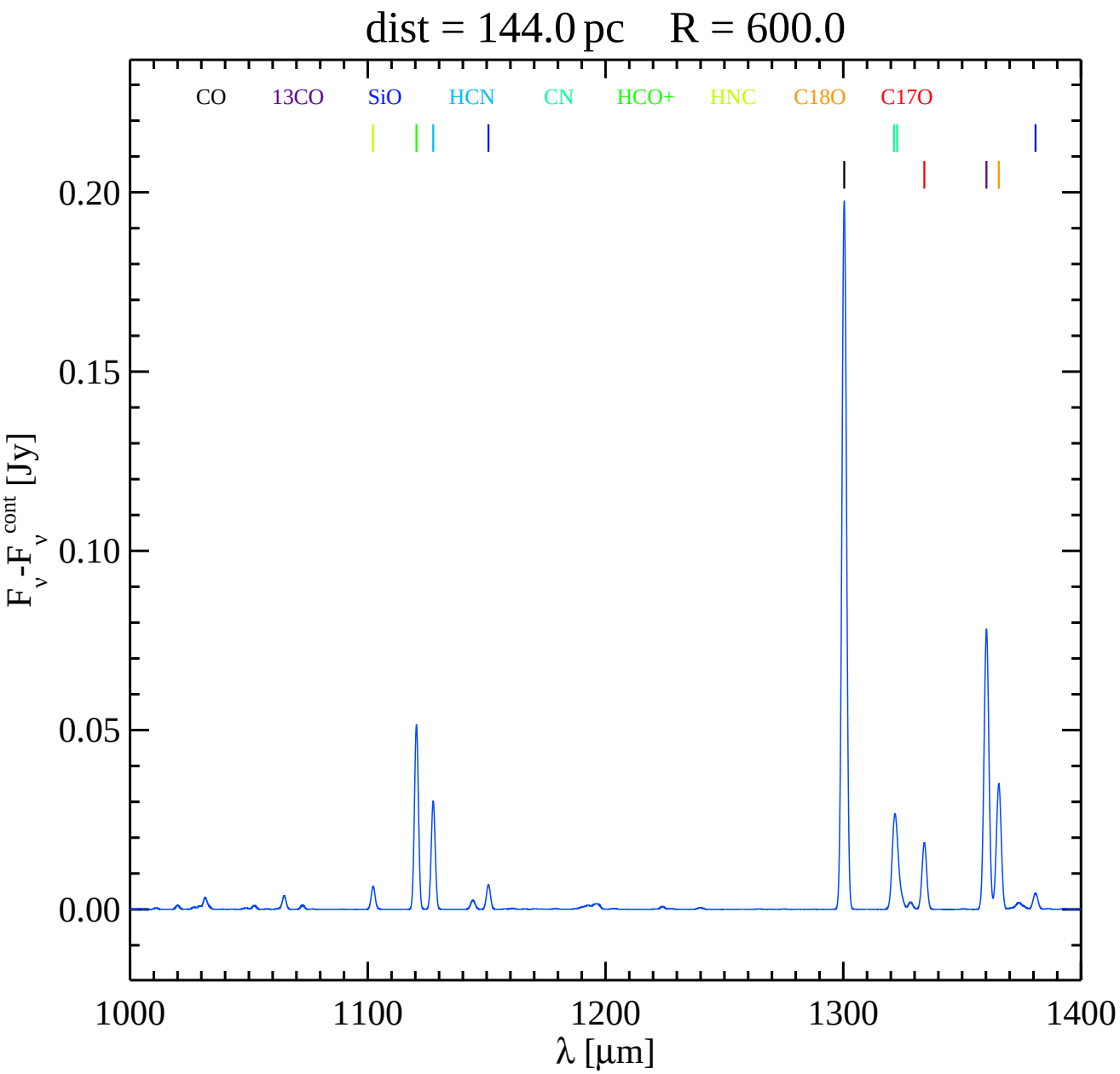

dist = 144.0 pc R = 600.0
o-H2O
Si+
p-H2
Fe+
p-H2O
OH
S
OH_H
70
60
50
40
F_ν [Jy]
20
22
24
26
28
30
32
34
λ [μm]

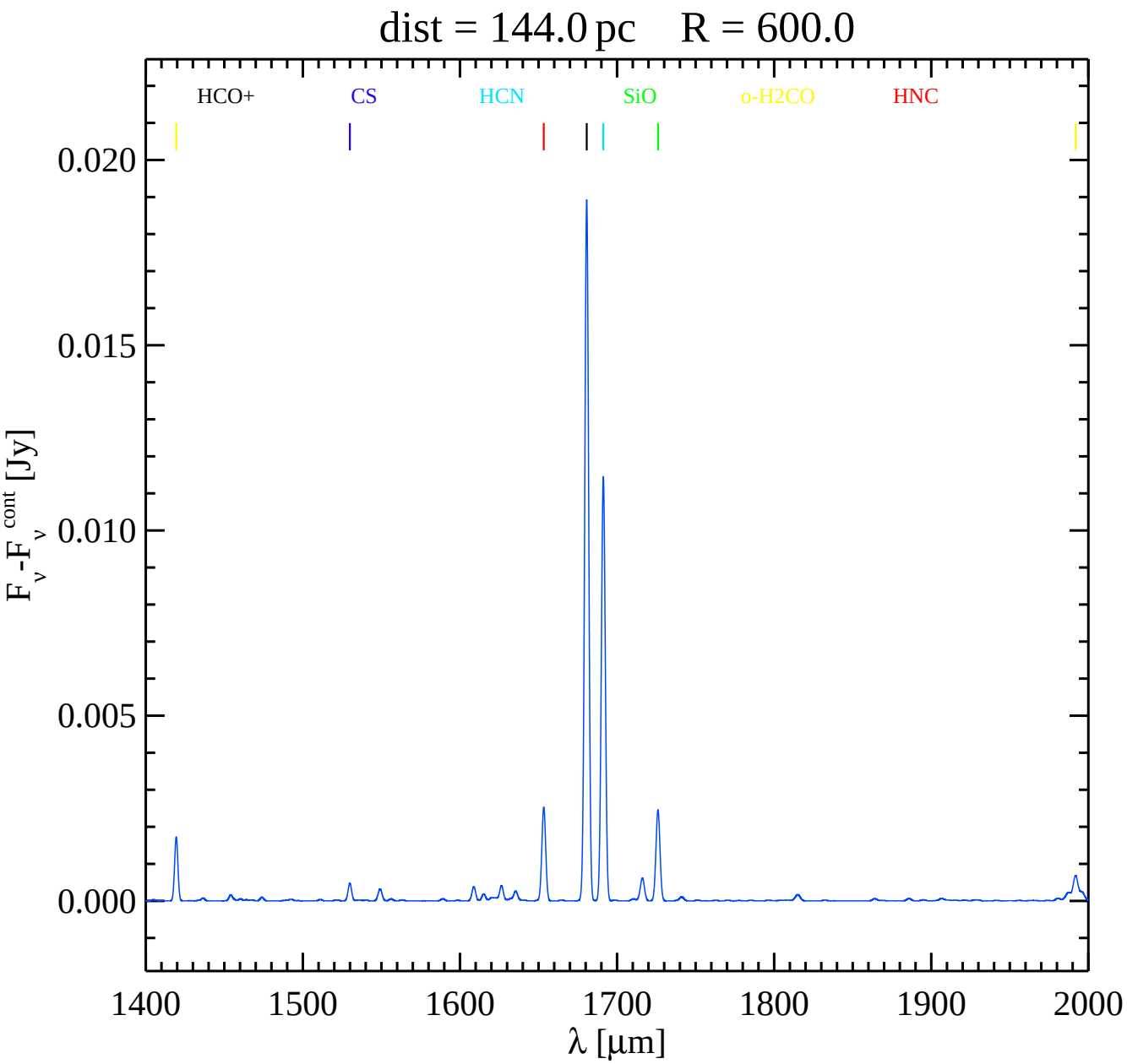

dist = 144.0 pc R = 600.0
o-H2O
Si+
p-H2
Fe+
p-H2O
OH
S
OH_H
F_ν -F_ν^cont [Jy]
λ [μm]
0
1
2
3
4
20
22
24
26
28
30
32
34

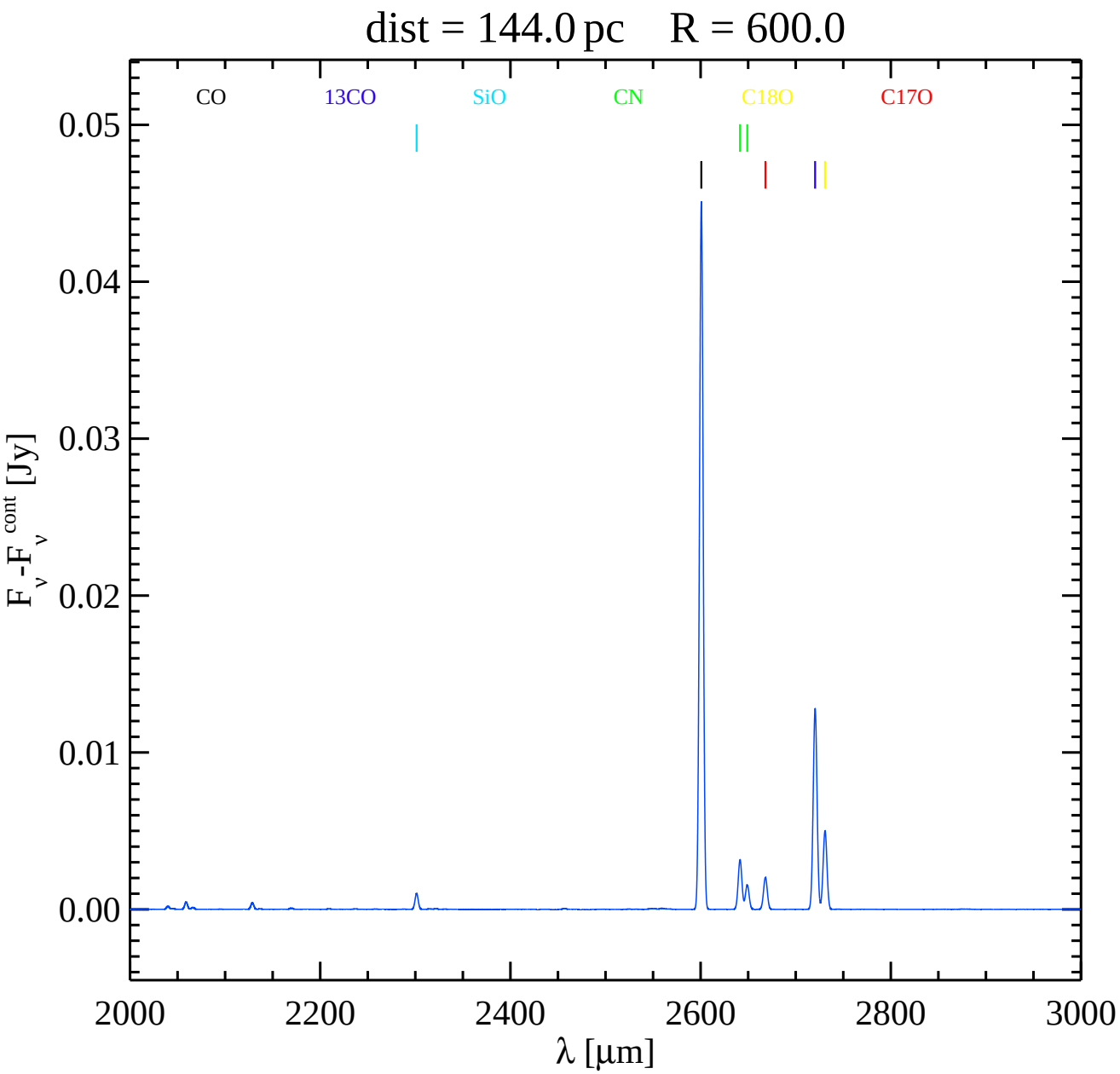

dist = 144.0 pc R = 600.0
CO
C
o-H2O
p-H2O
13CO
HCO+
o-H3O+
o-NH3
p-NH3
C18O
C17O
F_ν -F_ν^cont [Jy]
λ [μm]
0
1
2
3
4
200
250
300
350
400

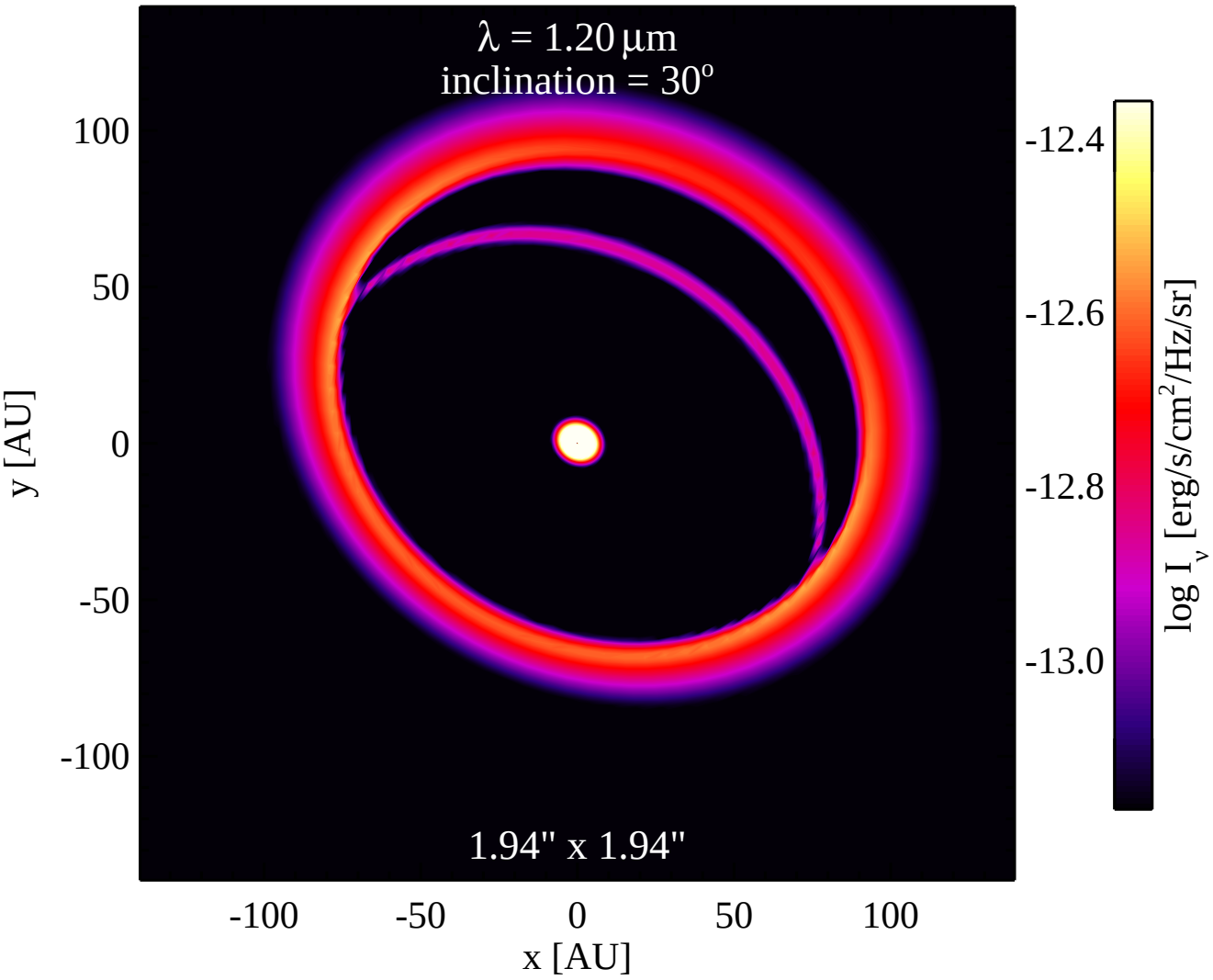

dist = 144.0 pc R = 600.0
CO
C
o-H2O
13CO
HCN
CN
HCO+
C18O
C17O
1.5
1.0
0.5
0.0
F_ν -F_ν^cont [Jy]
400
500
600
700
800
λ [μm]

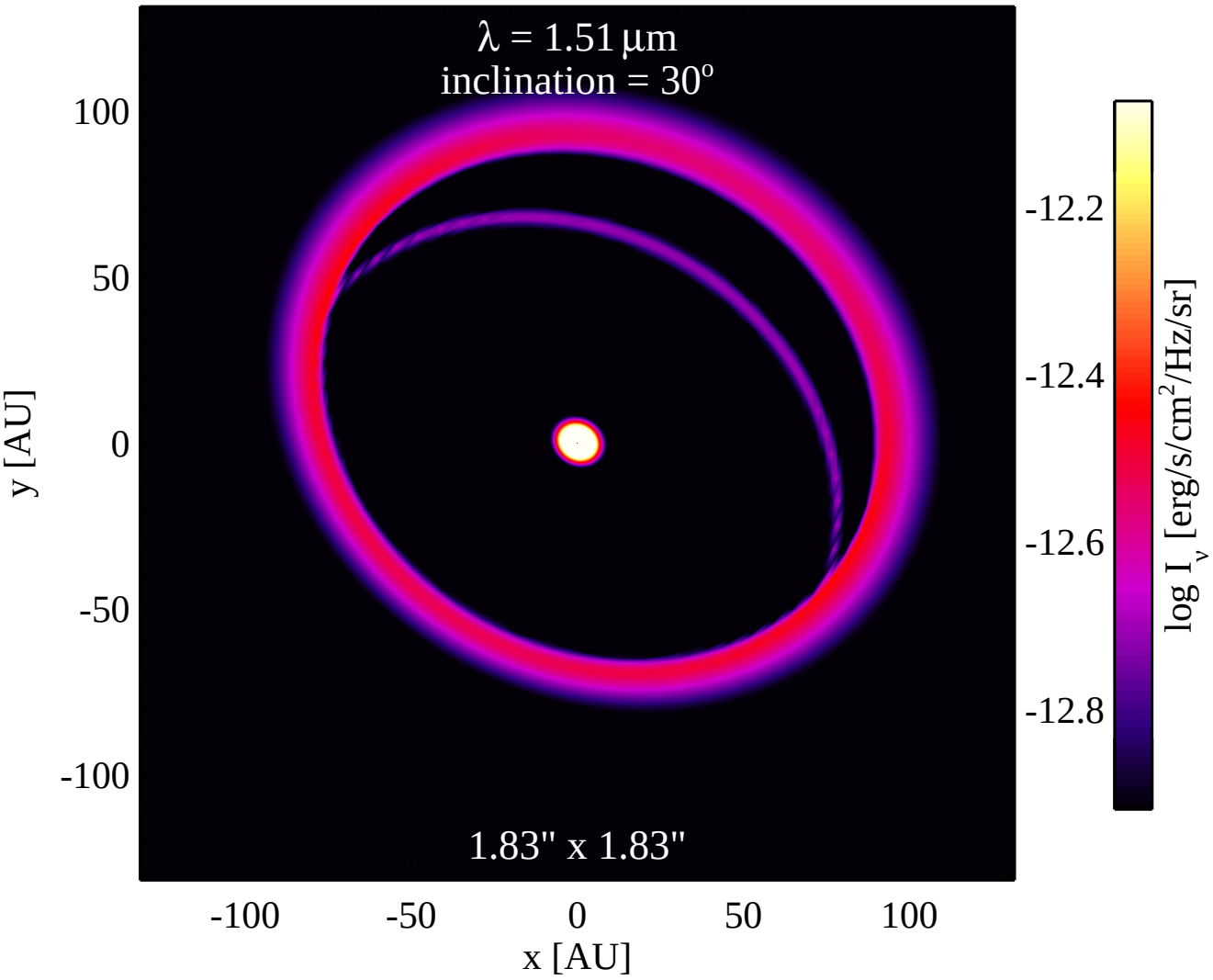

dist = 144.0 pc R = 600.0
CO
13CO
SiO
HCN
CN
HCO+
C18O
C17O
0.5
0.4
0.3
0.2
0.1
0.0
F_ν-F_ν^cont [Jy]
800
850
900
950
1000
λ [μm]

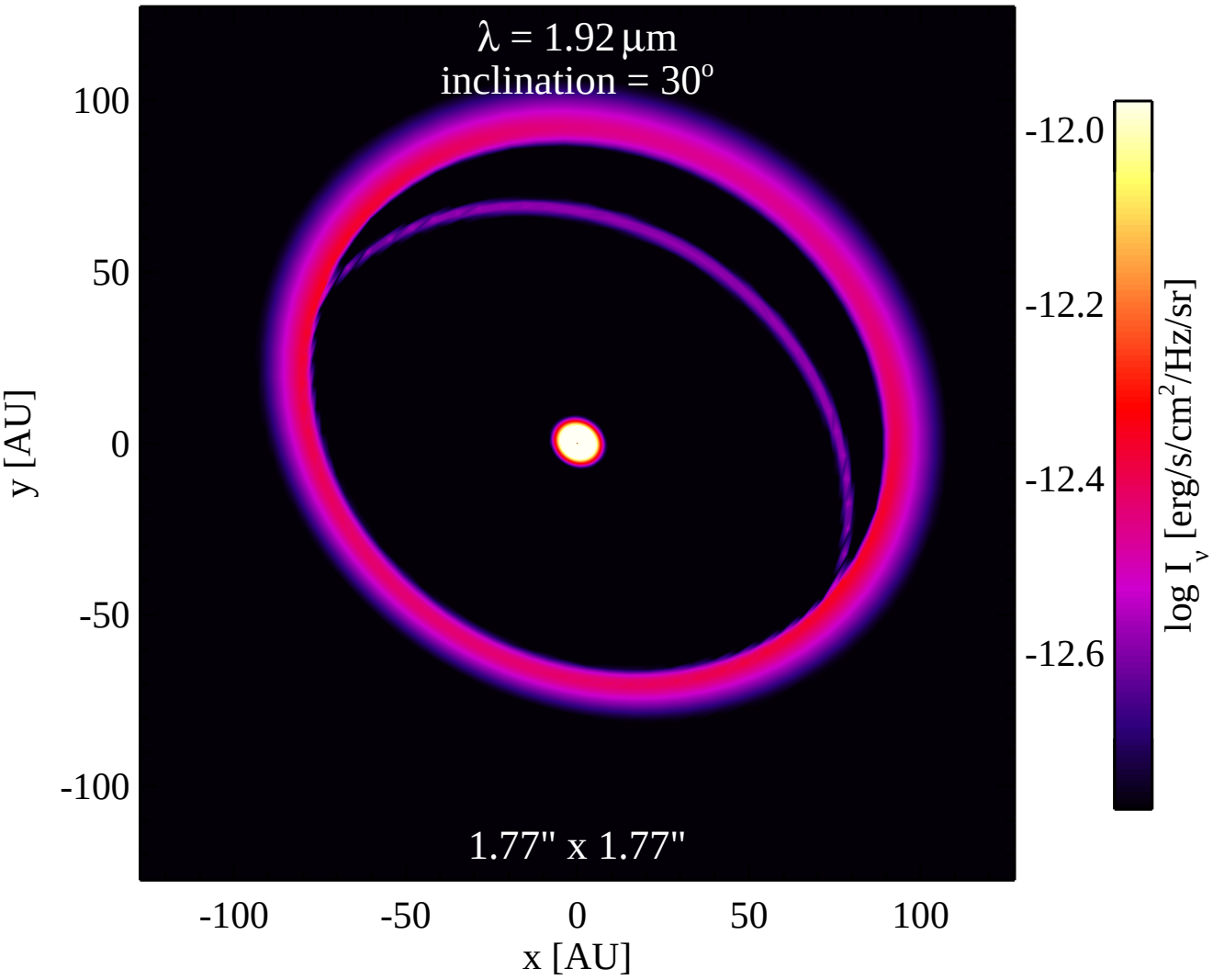

dist = 144.0 pc R = 600.0
CO
13CO
SiO
HCN
CN
HCO+
HNC
C18O
C17O
0.20
0.15
0.10
0.05
0.00
F_ν -F_ν^cont [Jy]
1000
1100
1200
1300
1400
λ [μm]

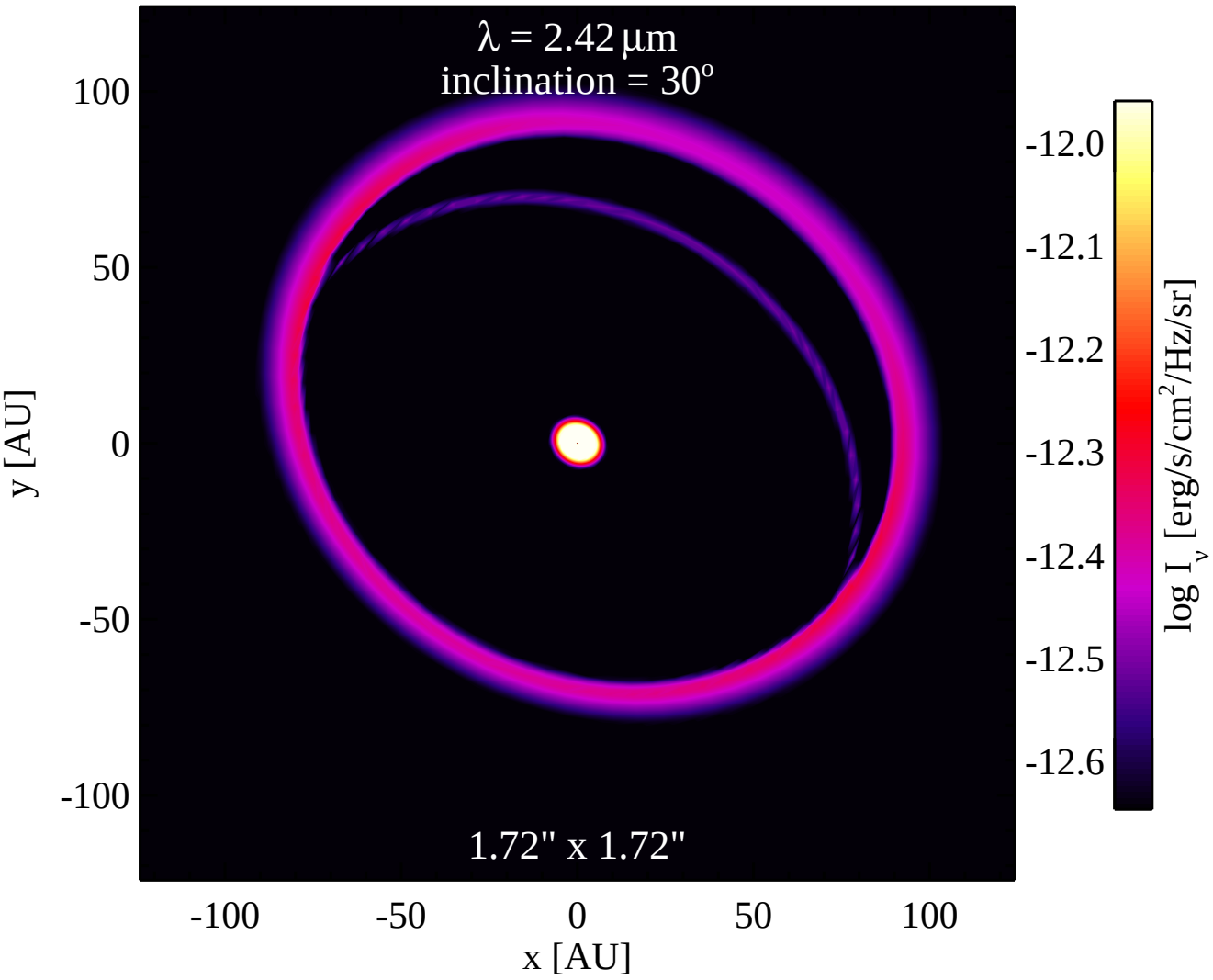

dist = 144.0 pc R = 600.0
HCO+
CS
HCN
SiO
o-H2CO
HNC
0.020
0.015
0.010
0.005
0.000
F_ν - F_ν^cont [Jy]
1400
1500
1600
1700
1800
1900
2000
λ [μm]

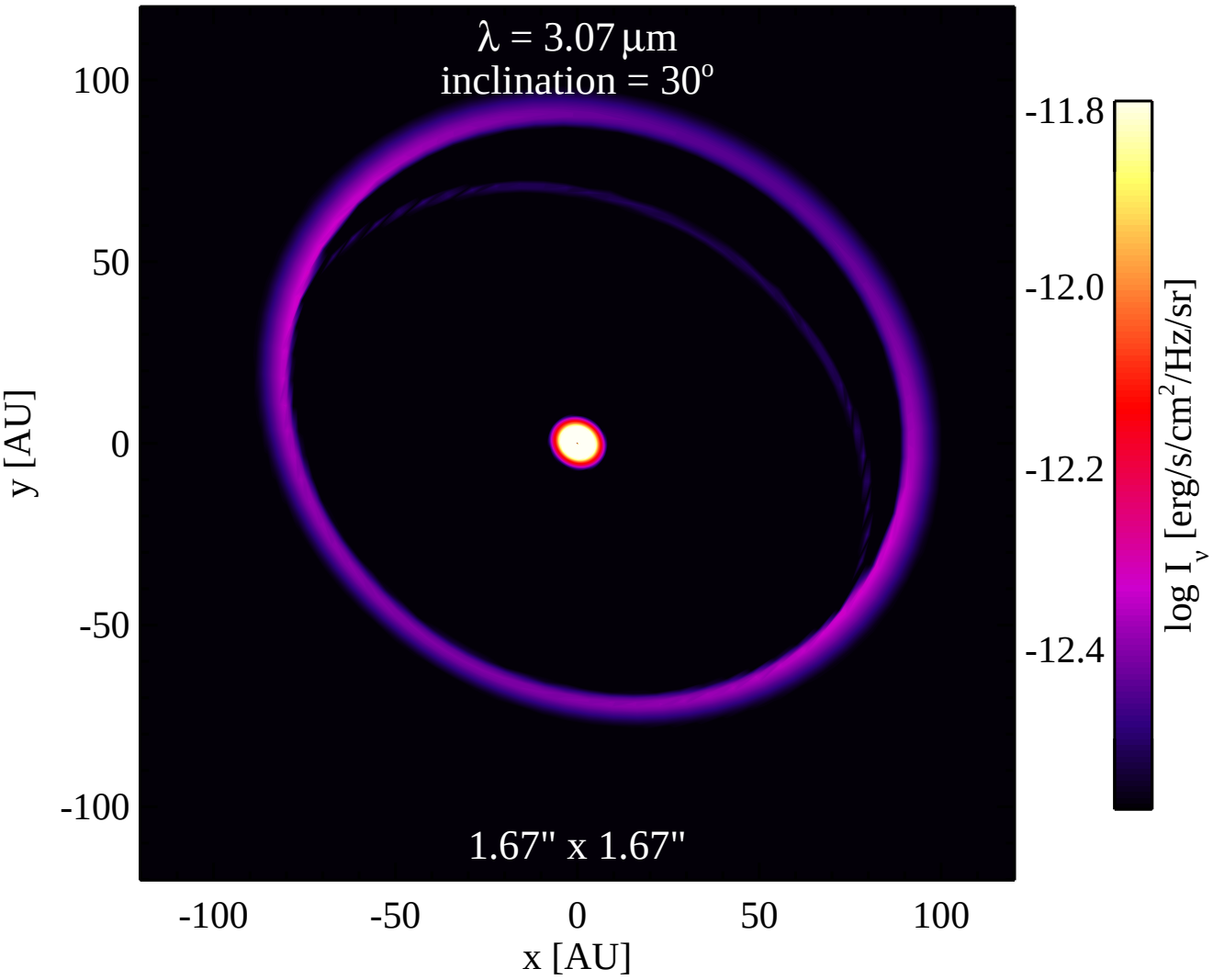

dist = 144.0 pc R = 600.0
CO
13CO
SiO
CN
C18O
C17O
0.05
0.04
0.03
0.02
0.01
0.00
F_ν -F_ν^cont [Jy]
2000
2200
2400
2600
2800
3000
λ [μm]

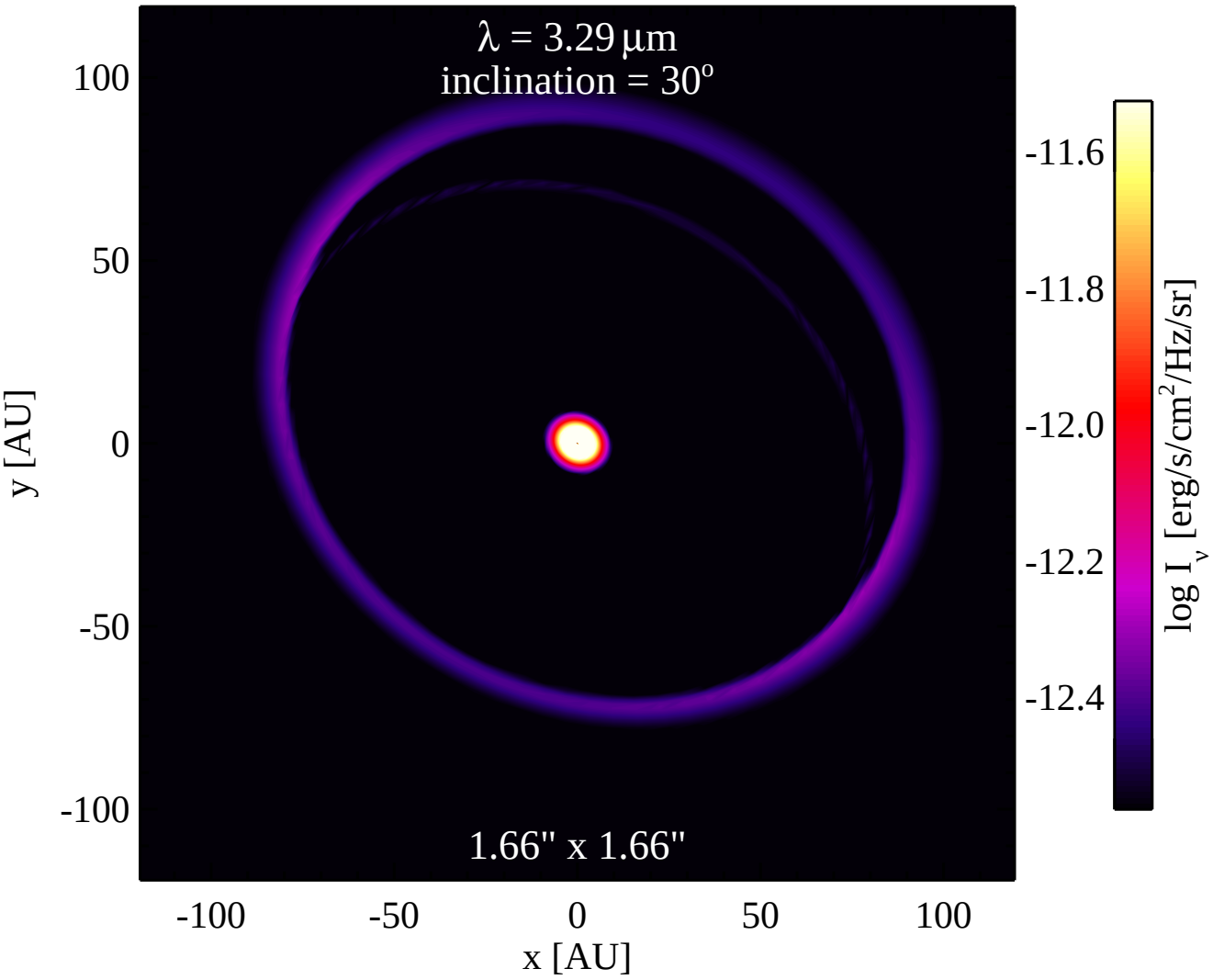

λ = 1.20 μm
inclination = 30°
1.94" x 1.94"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-12.4
-12.6
-12.8
-13.0
log I_ν [erg/s/cm²/Hz/sr]

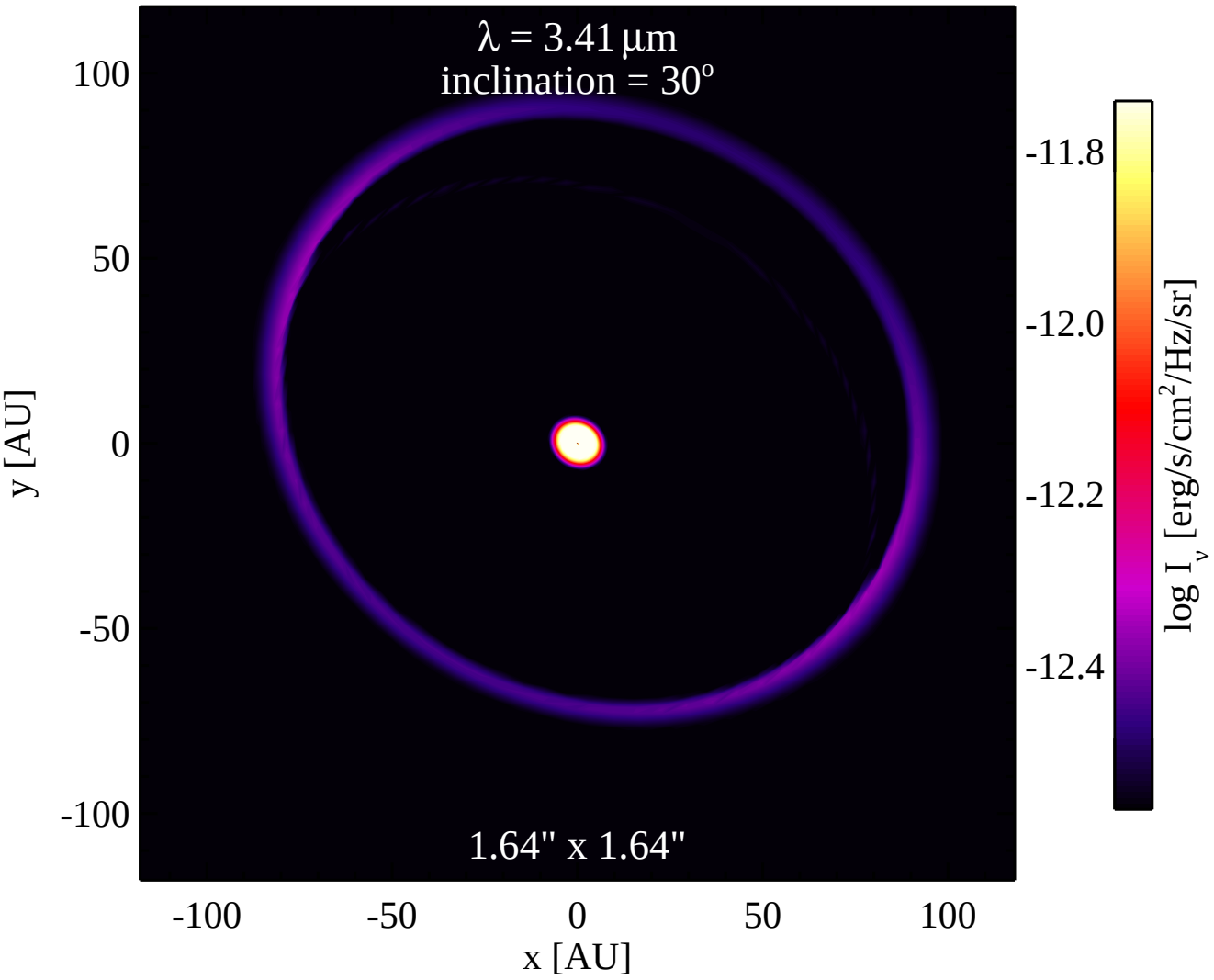

λ = 1.51 μm
inclination = 30°
1.83" x 1.83"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-12.2
-12.4
-12.6
-12.8
log I_ν [erg/s/cm²/Hz/sr]

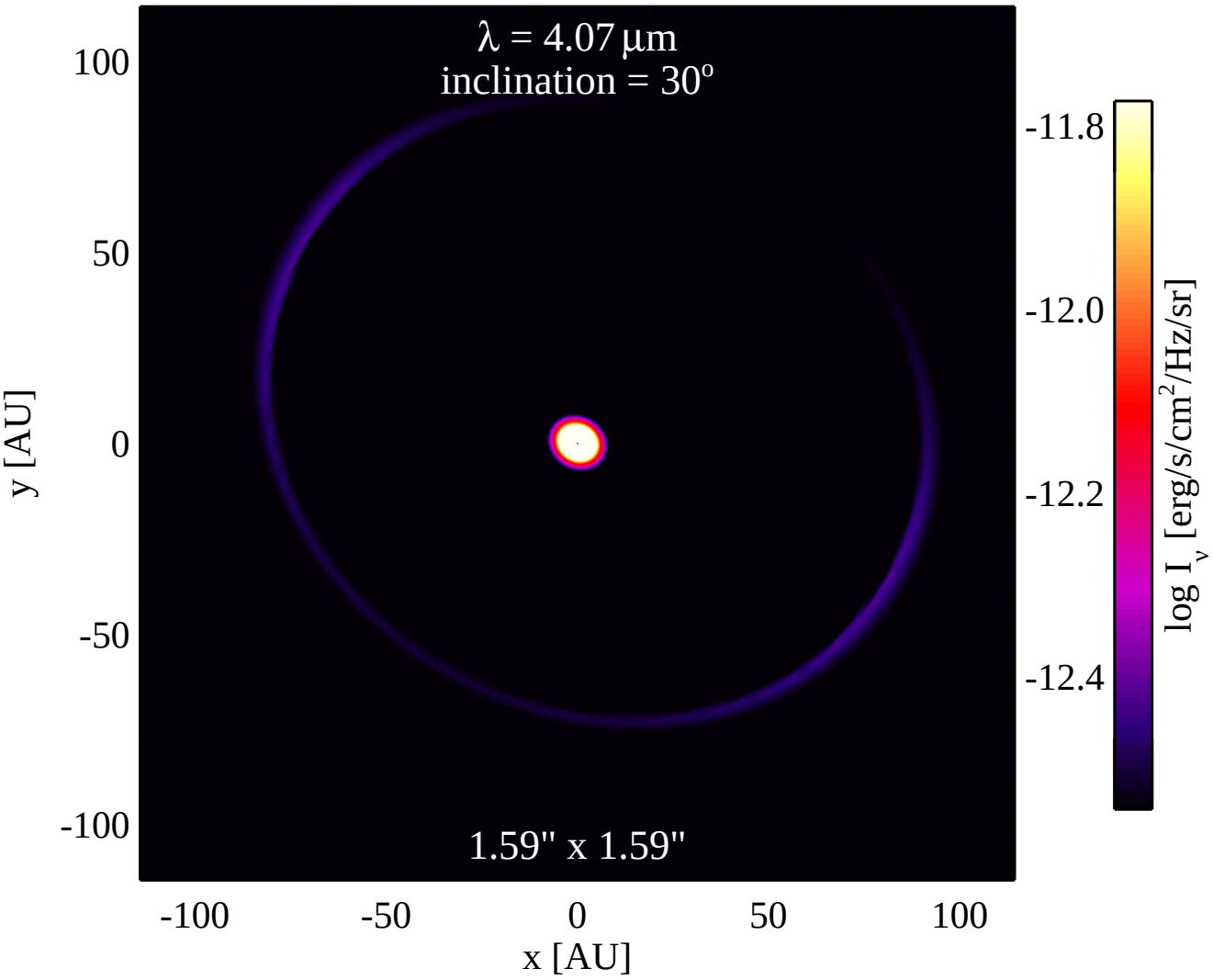

λ = 1.92 μm
inclination = 30°
1.77" x 1.77"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-12.0
-12.2
-12.4
-12.6
log I_ν [erg/s/cm²/Hz/sr]

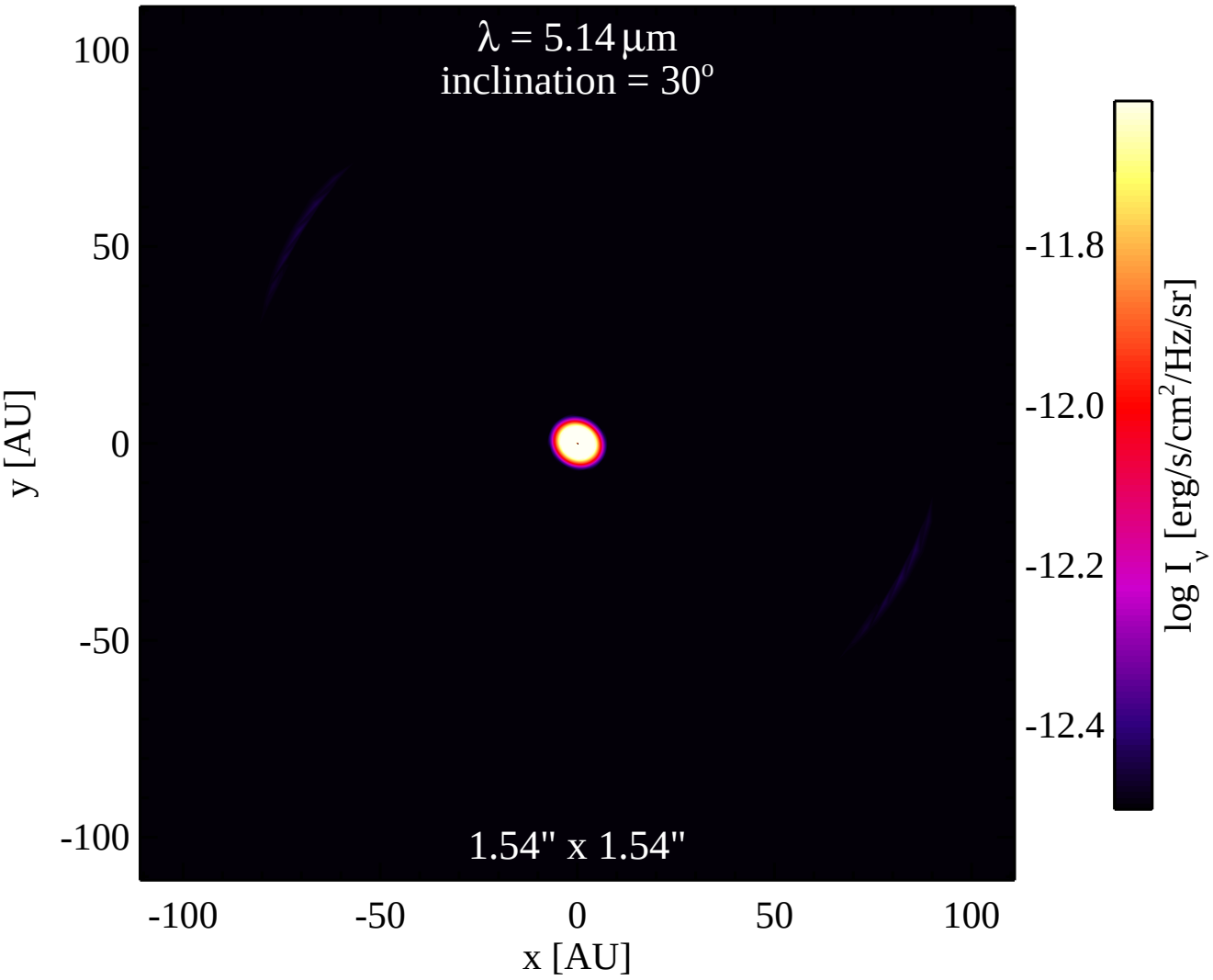

λ = 2.42 μm
inclination = 30°
1.72" x 1.72"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-12.0
-12.1
-12.2
-12.3
-12.4
-12.5
-12.6
log I_ν [erg/s/cm²/Hz/sr]

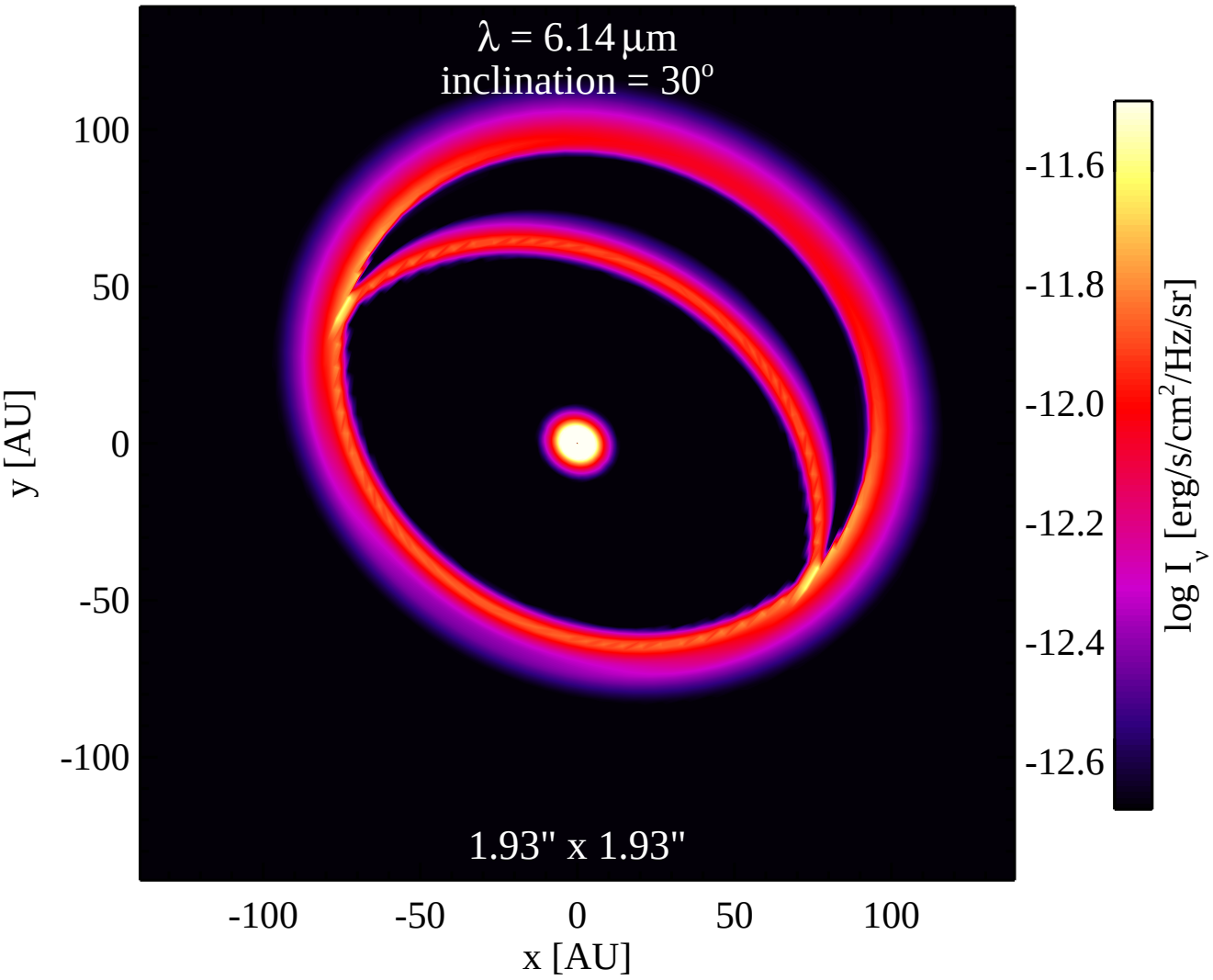

λ = 3.07 μm
inclination = 30°
1.67" x 1.67"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.8
-12.0
-12.2
-12.4
log I_ν [erg/s/cm²/Hz/sr]

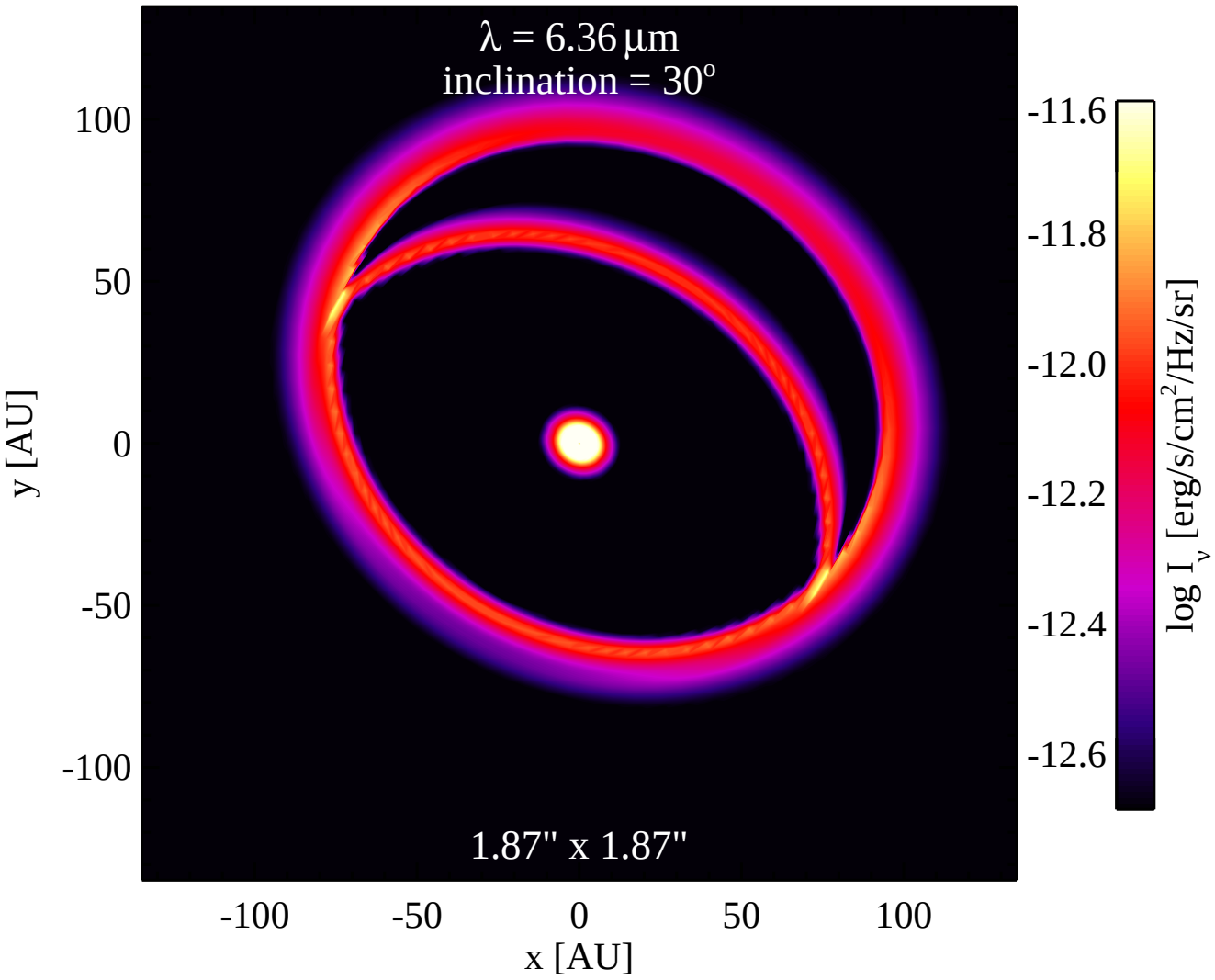

λ = 3.29 μm
inclination = 30°
1.66" x 1.66"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.6
-11.8
-12.0
-12.2
-12.4
log I_ν [erg/s/cm²/Hz/sr]

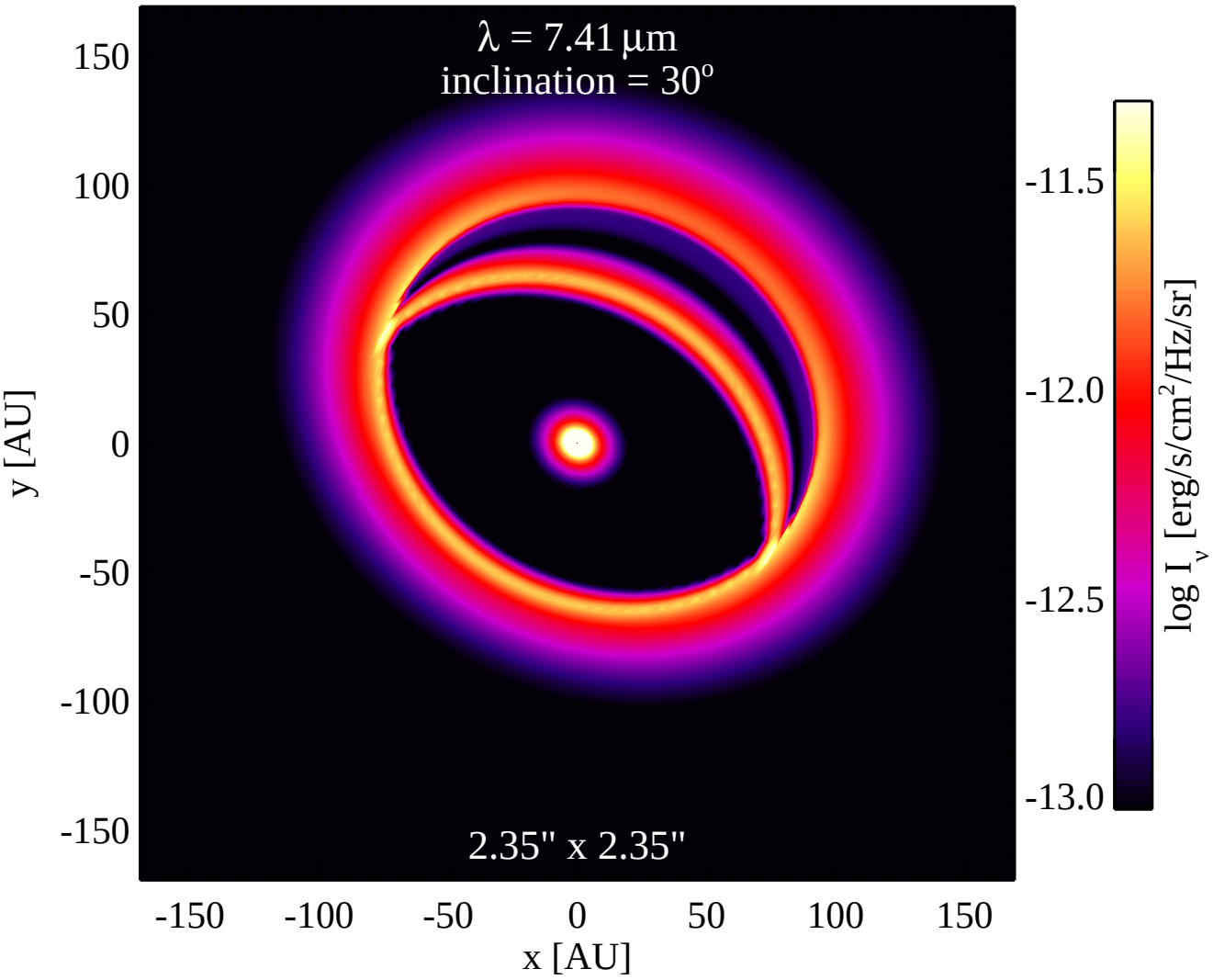

λ = 3.41 μm
inclination = 30°
1.64" x 1.64"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.8
-12.0
-12.2
-12.4
log I_ν [erg/s/cm²/Hz/sr]

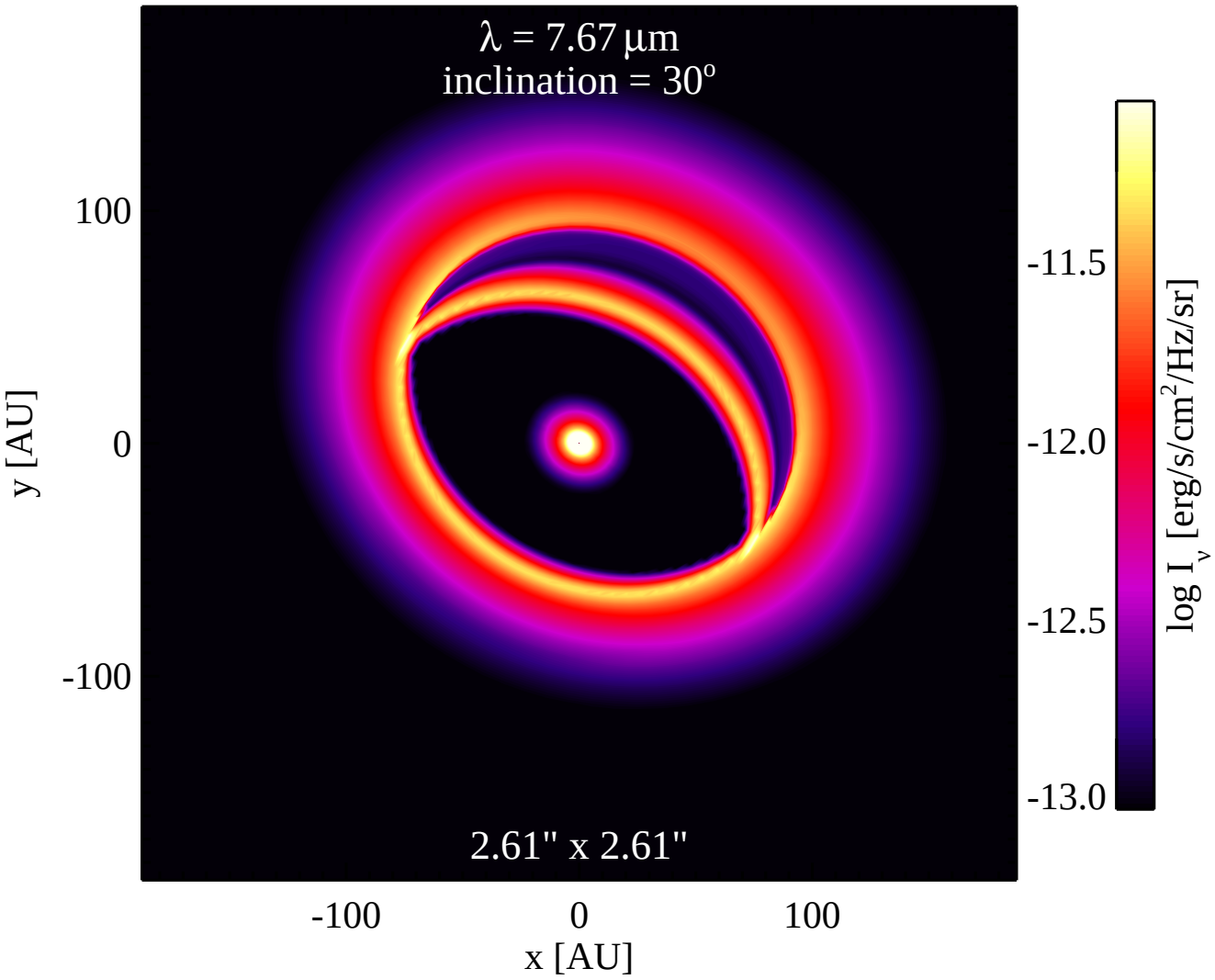

λ = 4.07 μm
inclination = 30°
1.59" x 1.59"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.8
-12.0
-12.2
-12.4
log I_ν [erg/s/cm²/Hz/sr]

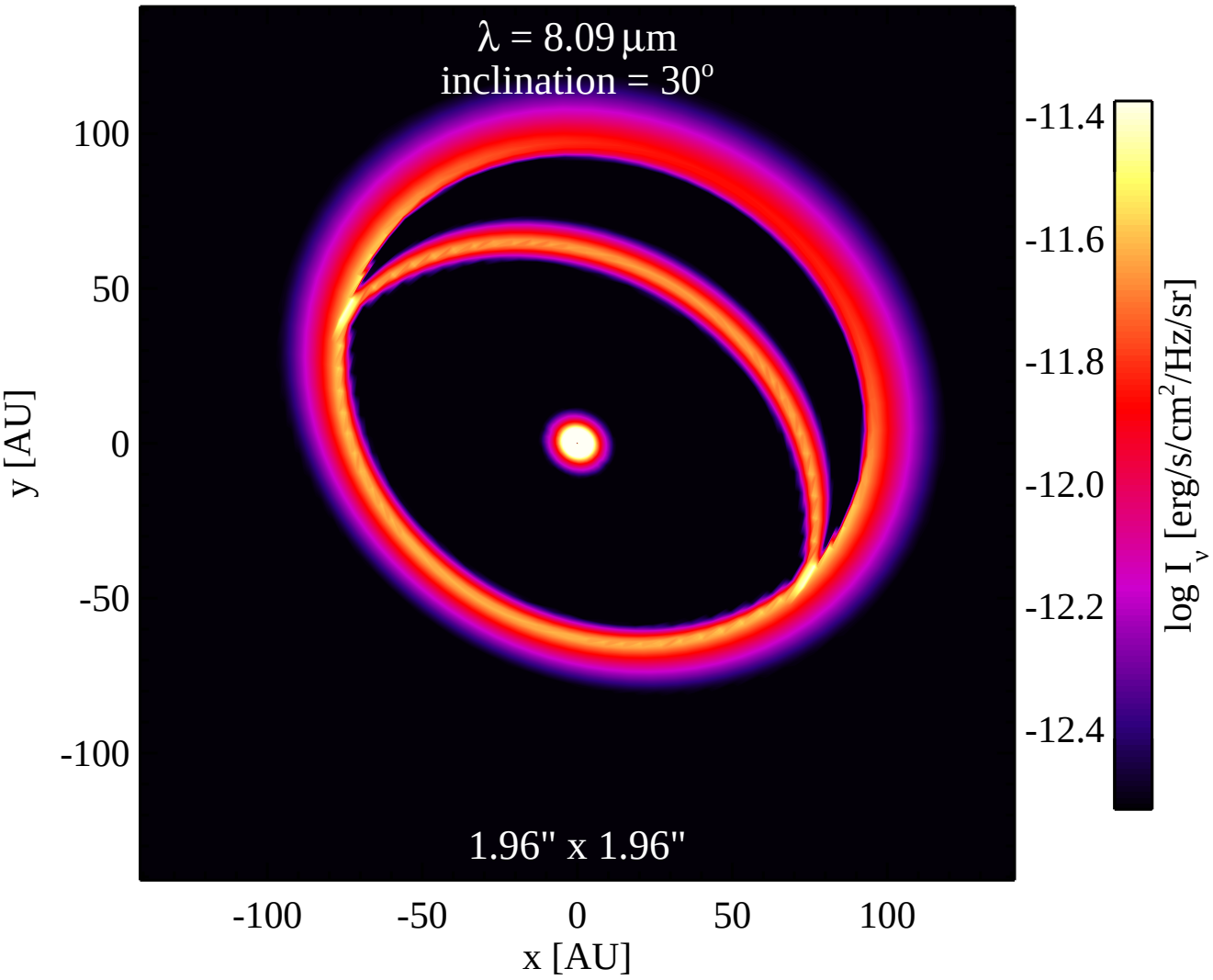

λ = 5.14 μm
inclination = 30°
1.54" x 1.54"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.8
-12.0
-12.2
-12.4
log I_ν [erg/s/cm²/Hz/sr]

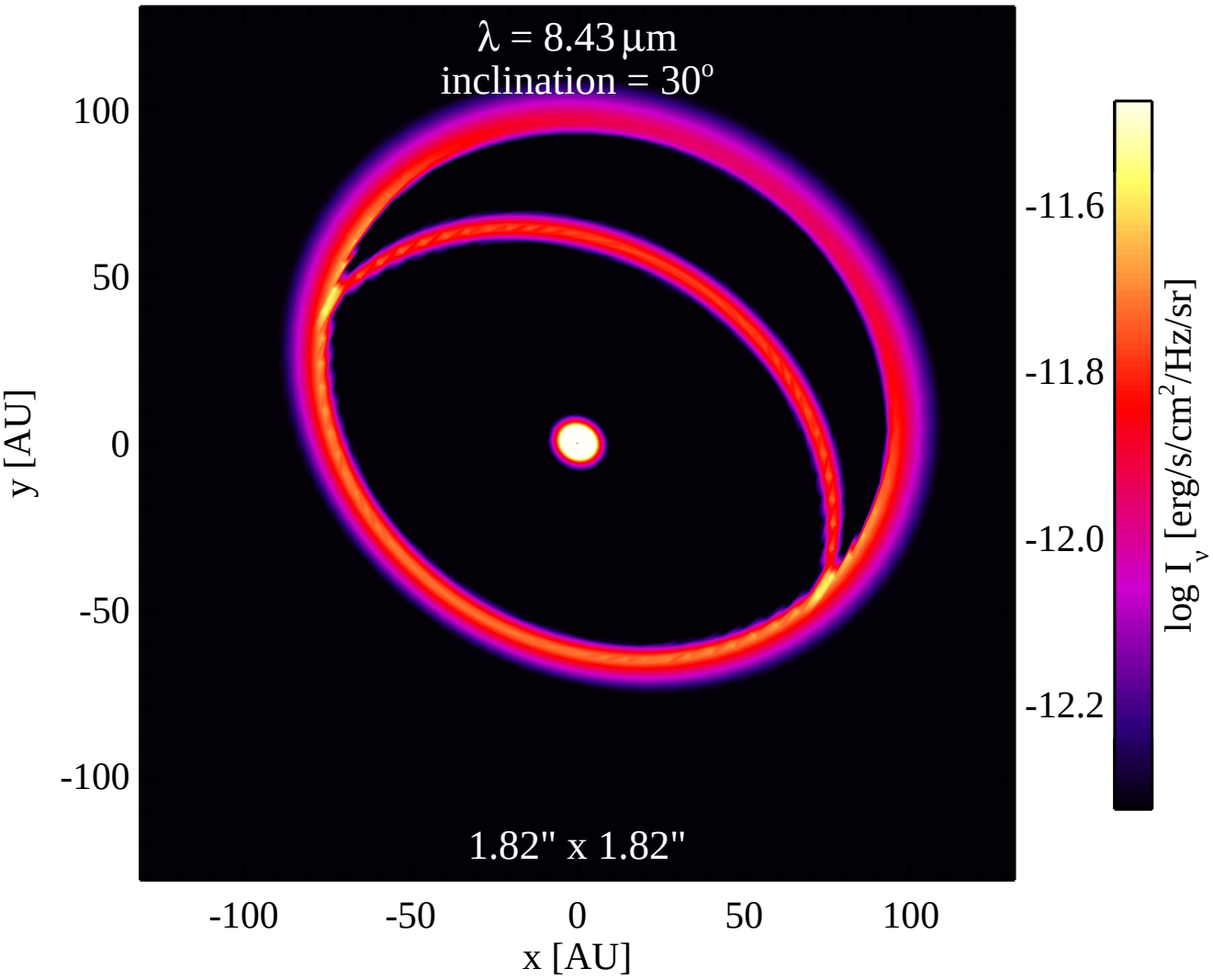

λ = 6.14 μm
inclination = 30°
1.93" x 1.93"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.6
-11.8
-12.0
-12.2
-12.4
-12.6
log I_ν [erg/s/cm²/Hz/sr]

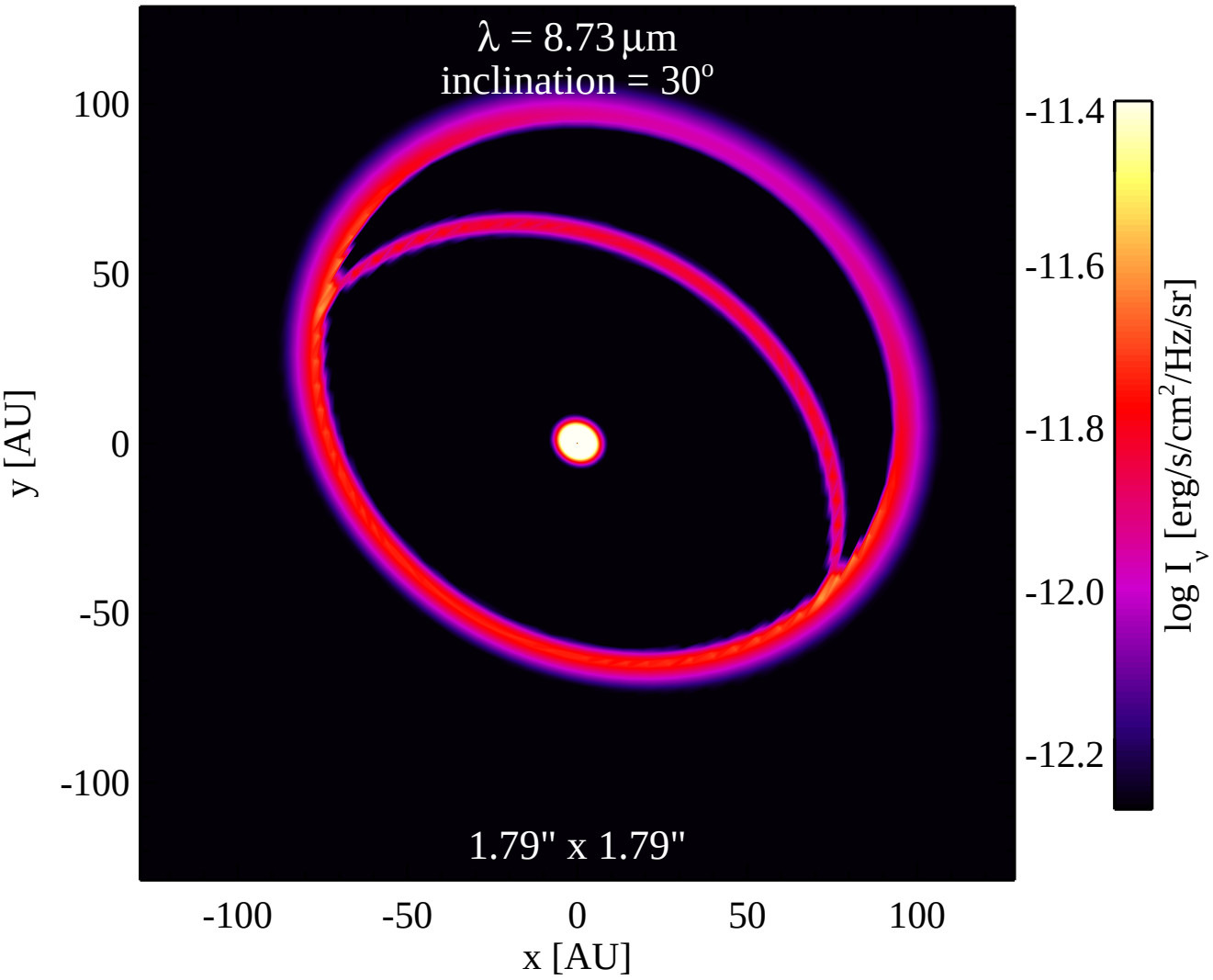

λ = 6.36 μm
inclination = 30°
1.87" x 1.87"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.6
-11.8
-12.0
-12.2
-12.4
-12.6
log I_ν [erg/s/cm²/Hz/sr]

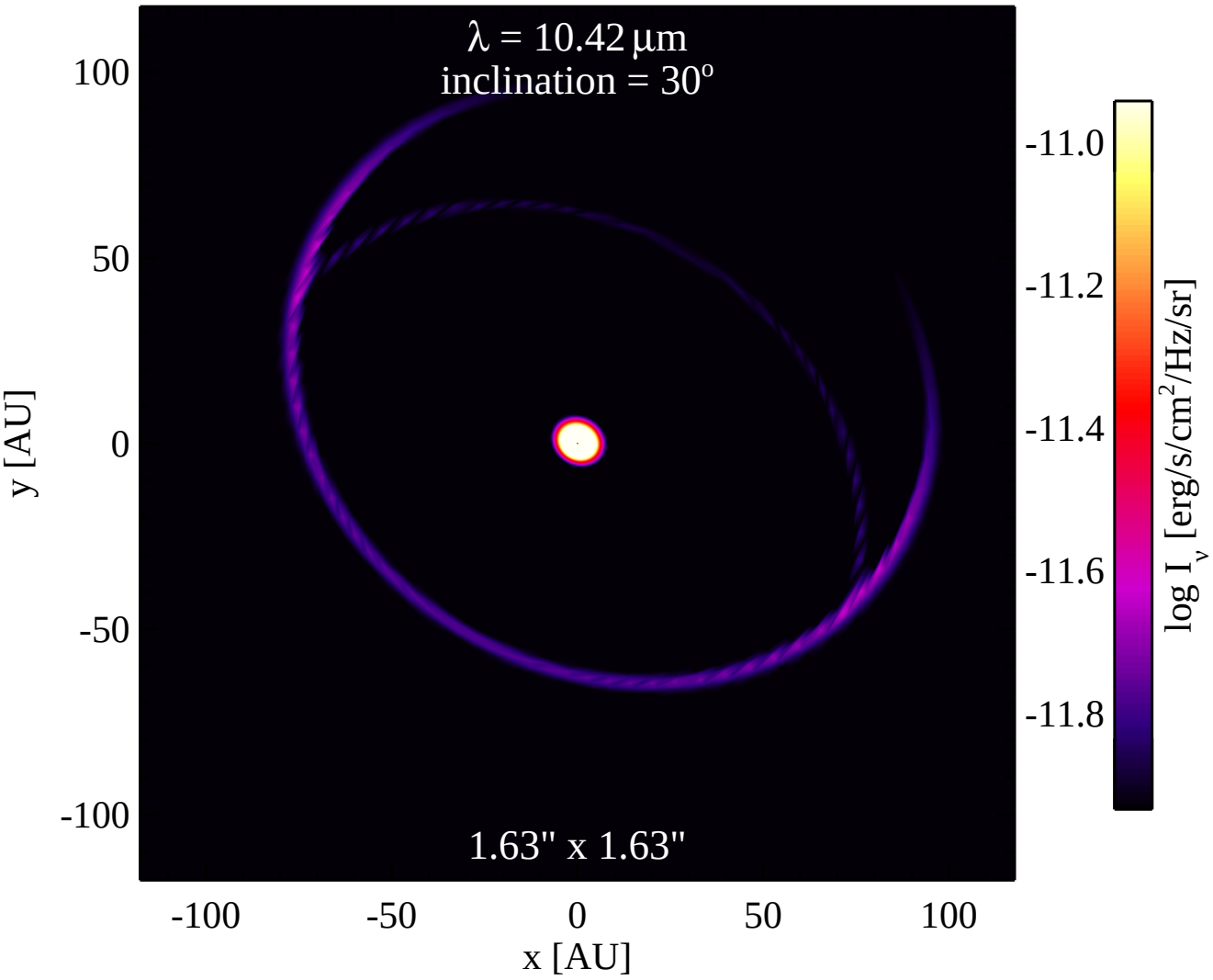

λ = 7.41 μm
inclination = 30°
2.35" x 2.35"
150
100
50
0
-50
-100
-150
y [AU]
-150
-100
-50
0
50
100
150
x [AU]
-11.5
-12.0
-12.5
-13.0
log I_ν [erg/s/cm²/Hz/sr]

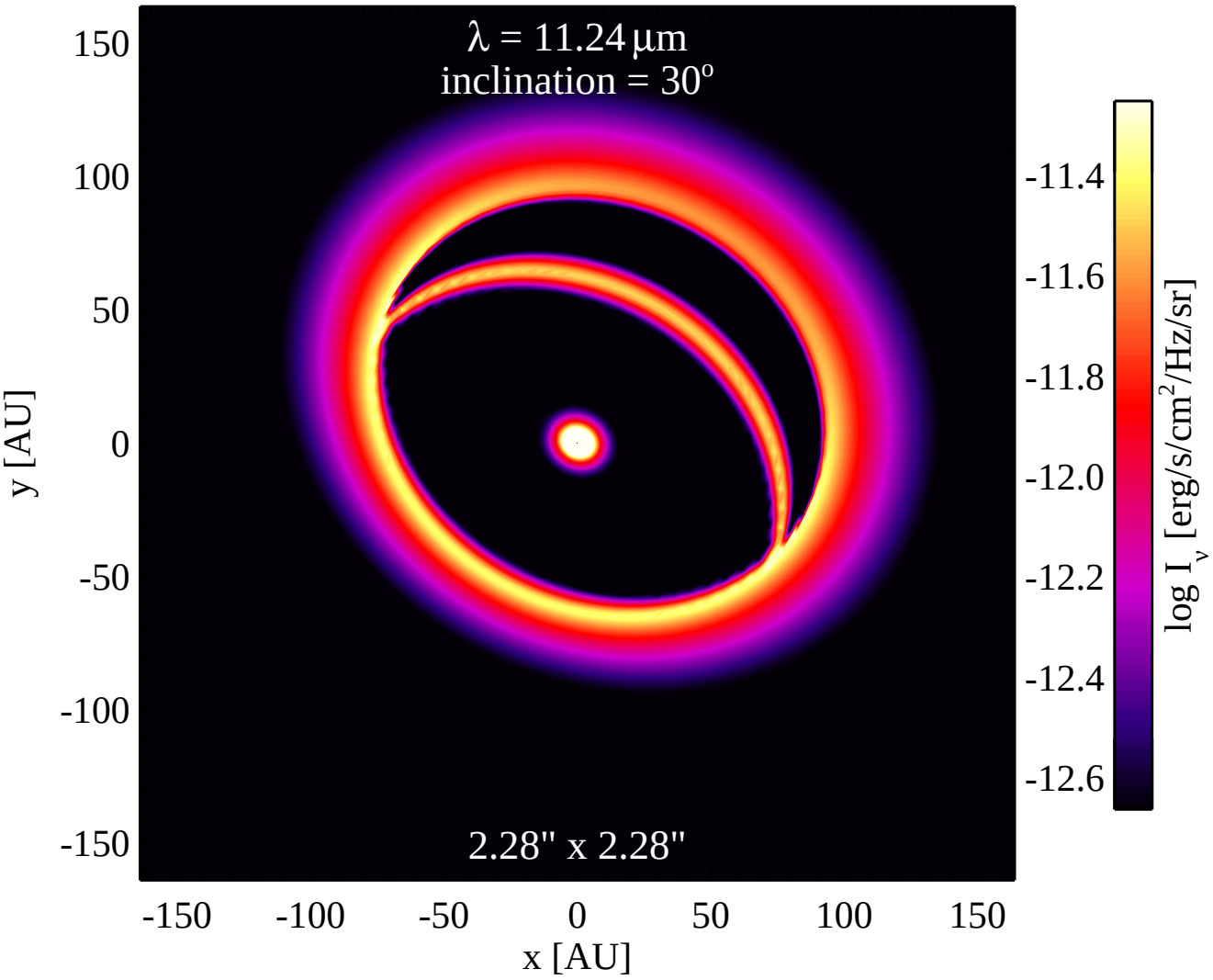

λ = 7.67 μm
inclination = 30°
2.61" x 2.61"
100
0
-100
y [AU]
-100
0
100
x [AU]
-11.5
-12.0
-12.5
-13.0
log I_ν [erg/s/cm²/Hz/sr]

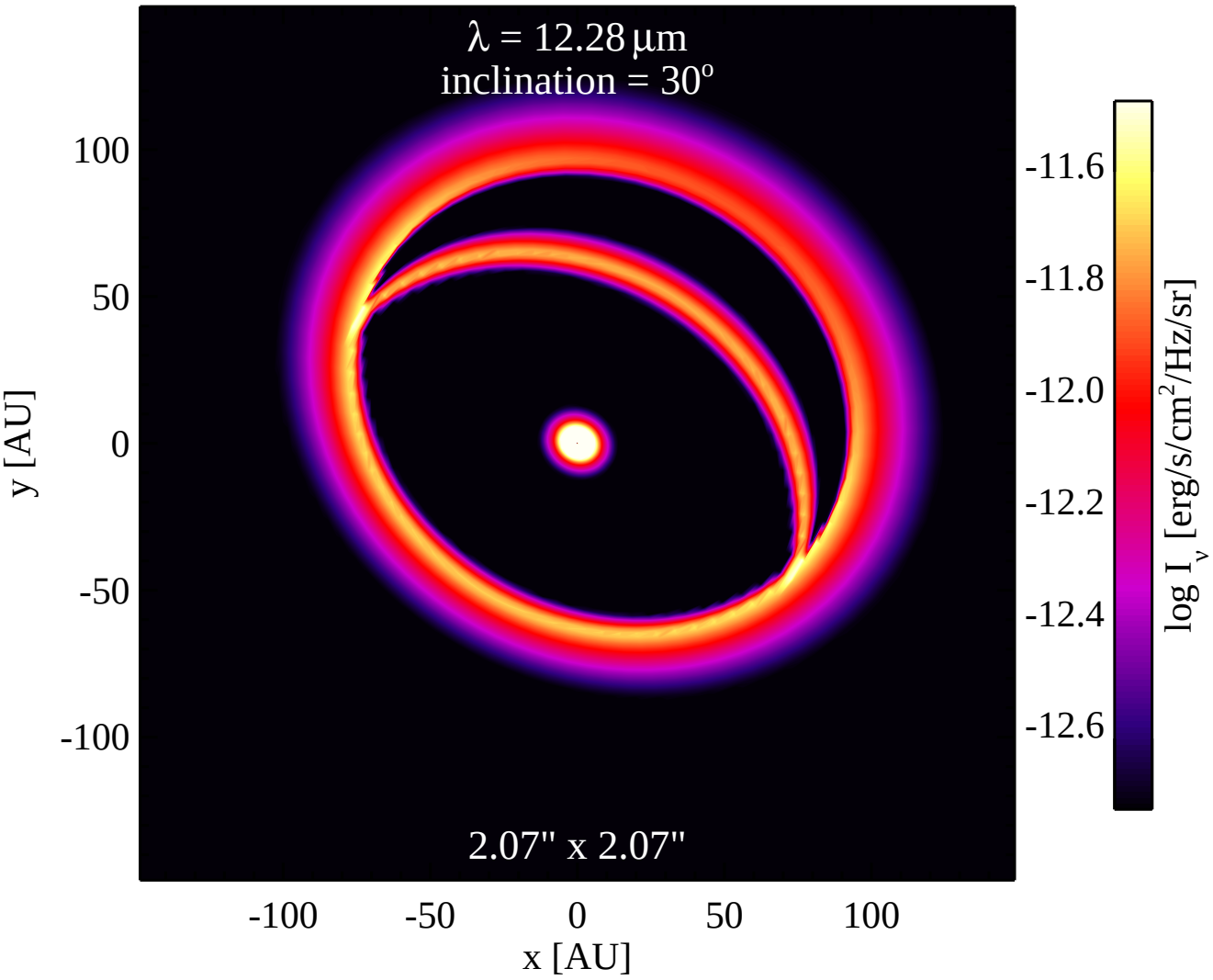

λ = 8.09 μm
inclination = 30°
1.96" x 1.96"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.4
-11.6
-11.8
-12.0
-12.2
-12.4
log I_ν [erg/s/cm²/Hz/sr]

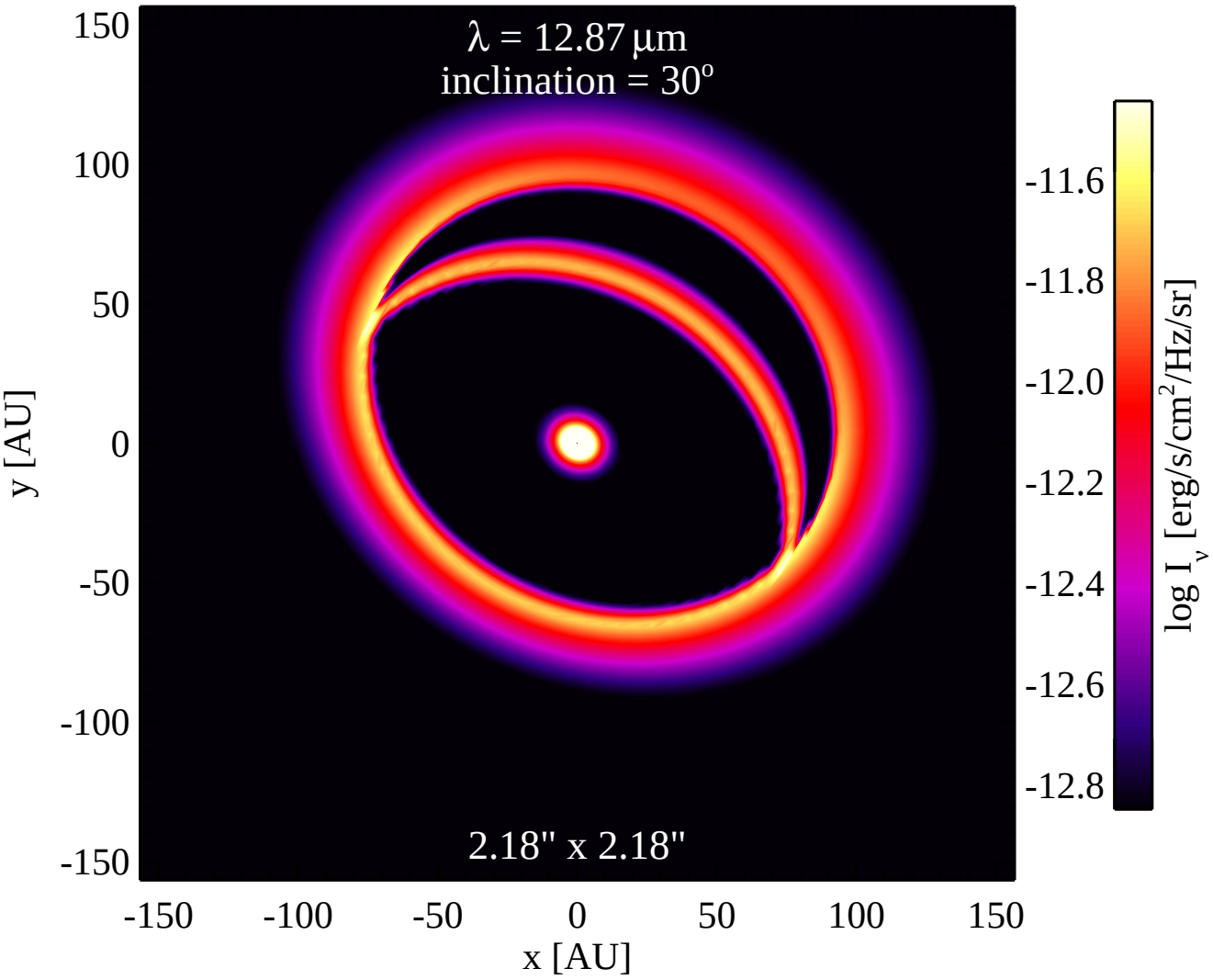

λ = 8.43 μm
inclination = 30°
1.82" x 1.82"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.6
-11.8
-12.0
-12.2
log I_ν [erg/s/cm²/Hz/sr]

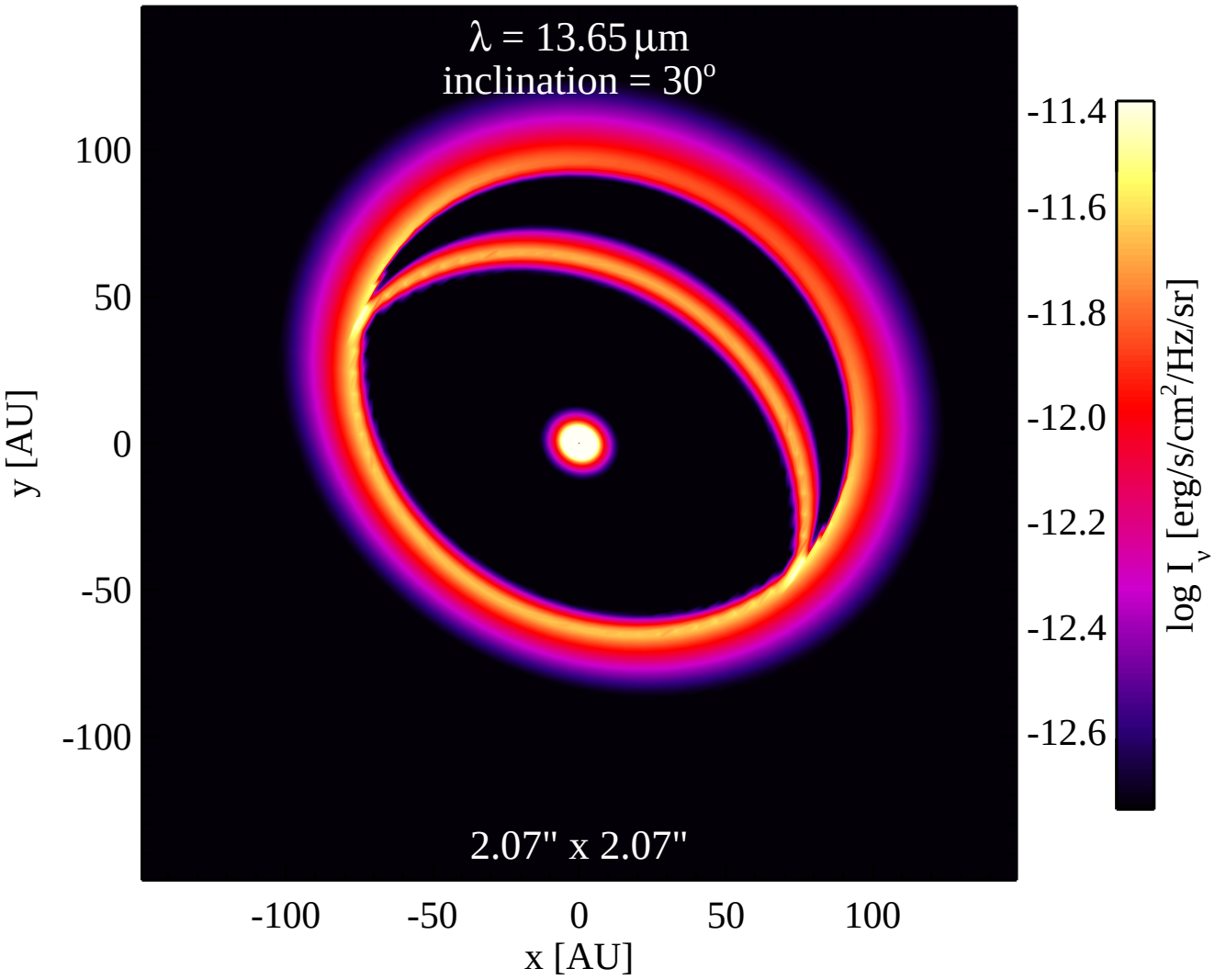

λ = 8.73 μm
inclination = 30°
1.79" x 1.79"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.4
-11.6
-11.8
-12.0
-12.2
log I_ν [erg/s/cm²/Hz/sr]

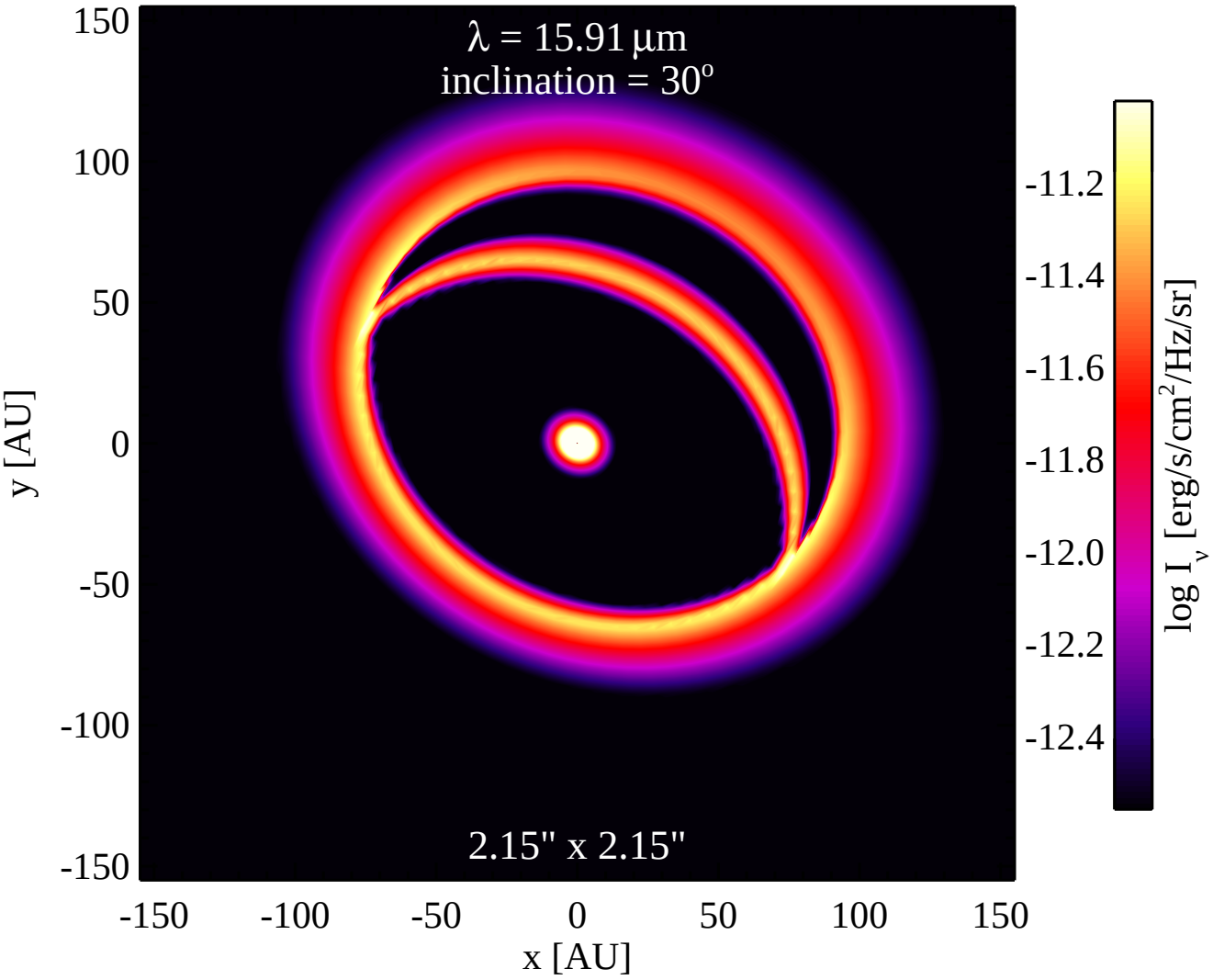

λ = 10.42 μm
inclination = 30°
1.63" x 1.63"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.0
-11.2
-11.4
-11.6
-11.8
log I_ν [erg/s/cm²/Hz/sr]

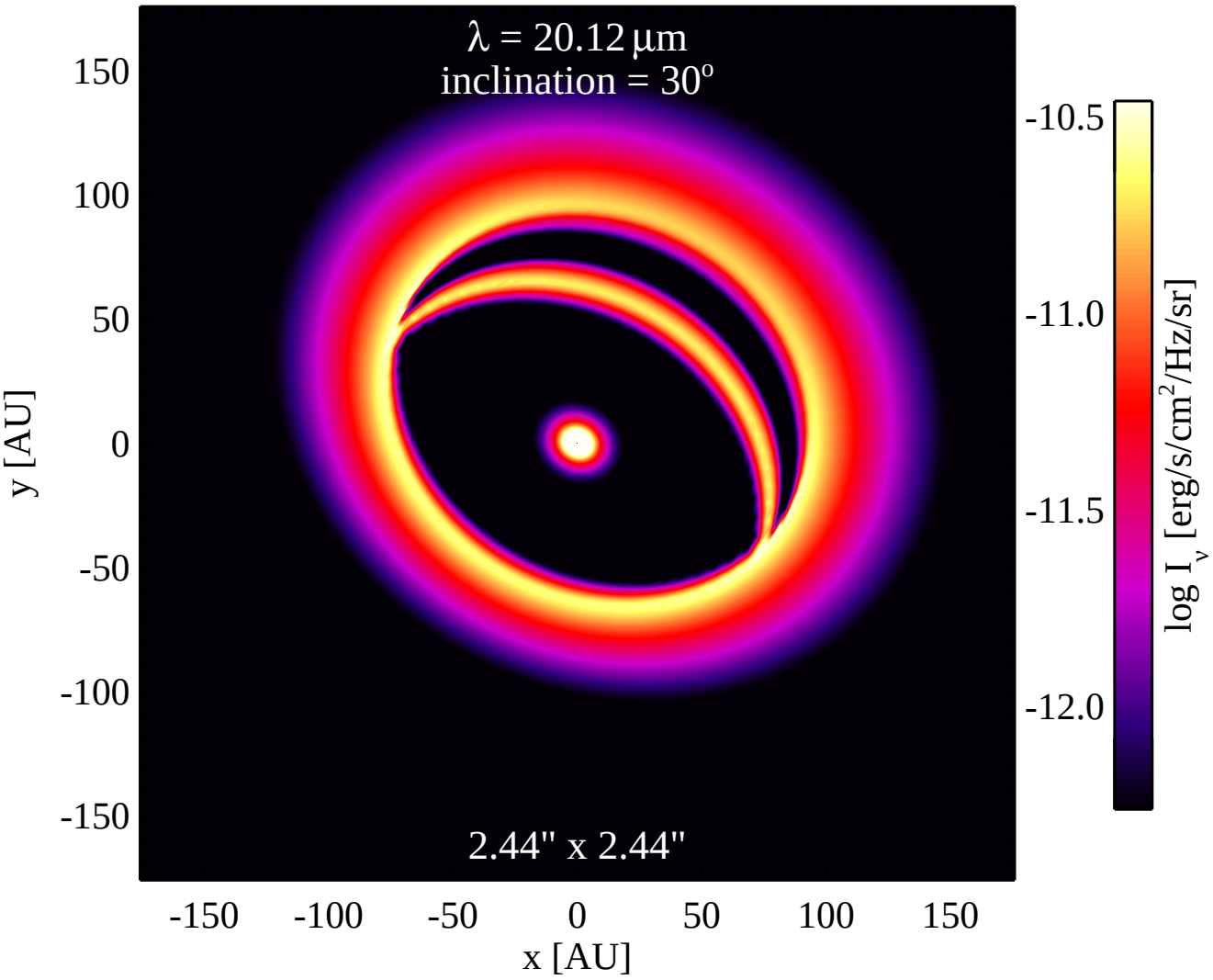

λ = 11.24 μm
inclination = 30°
2.28" x 2.28"
150
100
50
0
-50
-100
-150
y [AU]
-150
-100
-50
0
50
100
150
x [AU]
-11.4
-11.6
-11.8
-12.0
-12.2
-12.4
-12.6
log I_ν [erg/s/cm²/Hz/sr]

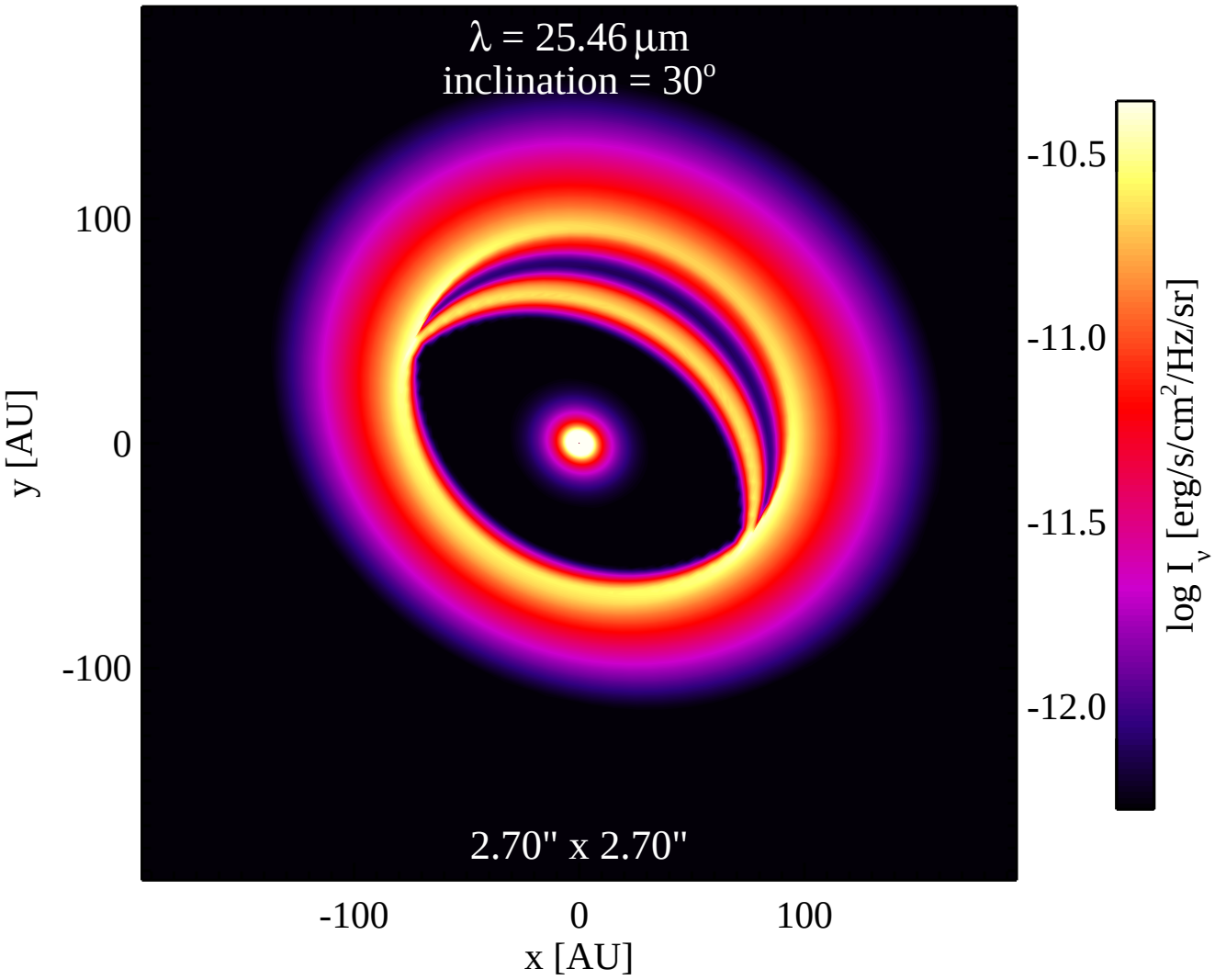

λ = 12.28 μm
inclination = 30°
2.07" x 2.07"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.6
-11.8
-12.0
-12.2
-12.4
-12.6
log I_ν [erg/s/cm²/Hz/sr]

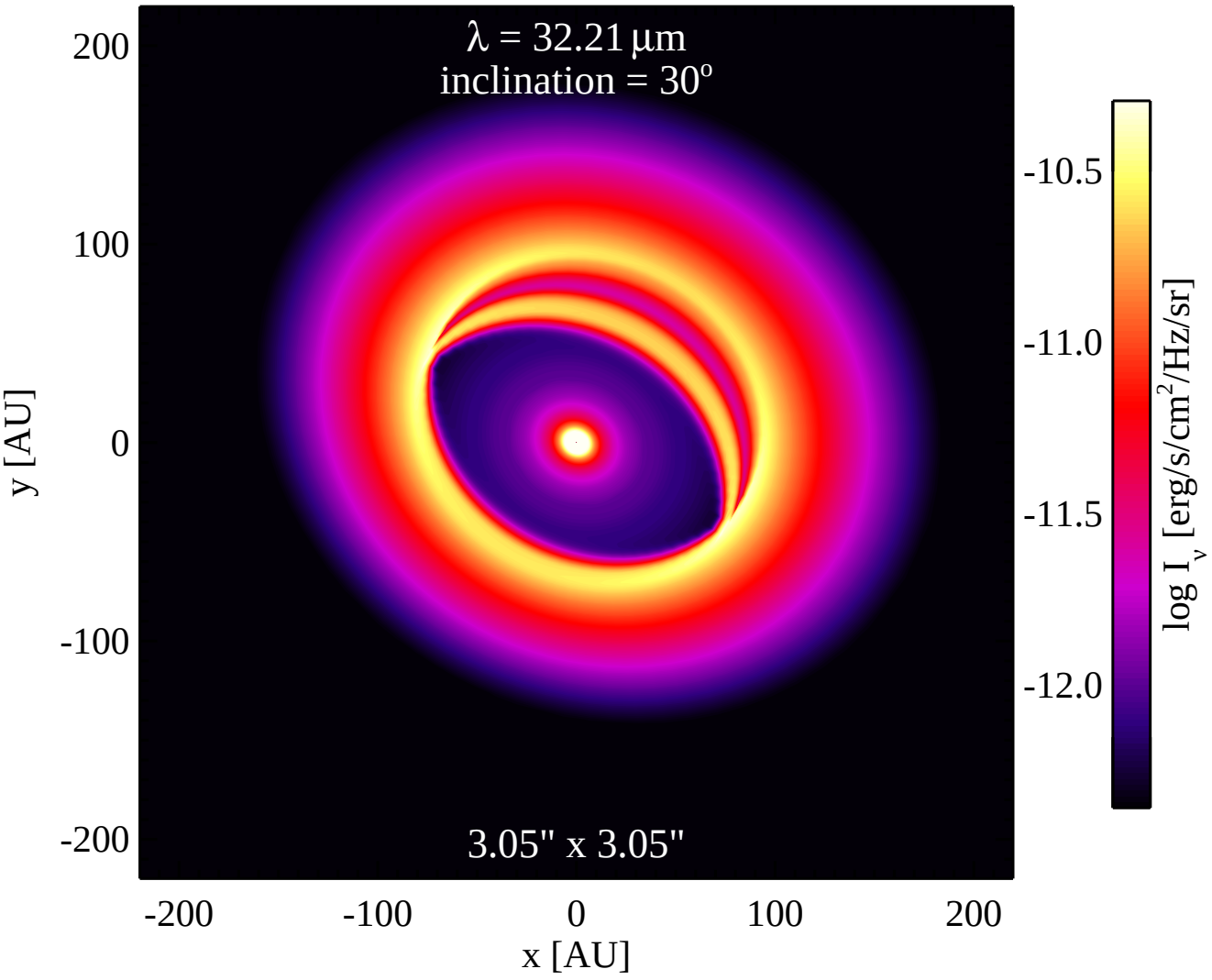

λ = 12.87 μm
inclination = 30°
2.18" x 2.18"
150
100
50
0
-50
-100
-150
y [AU]
-150
-100
-50
0
50
100
150
x [AU]
-11.6
-11.8
-12.0
-12.2
-12.4
-12.6
-12.8
log I_ν [erg/s/cm²/Hz/sr]

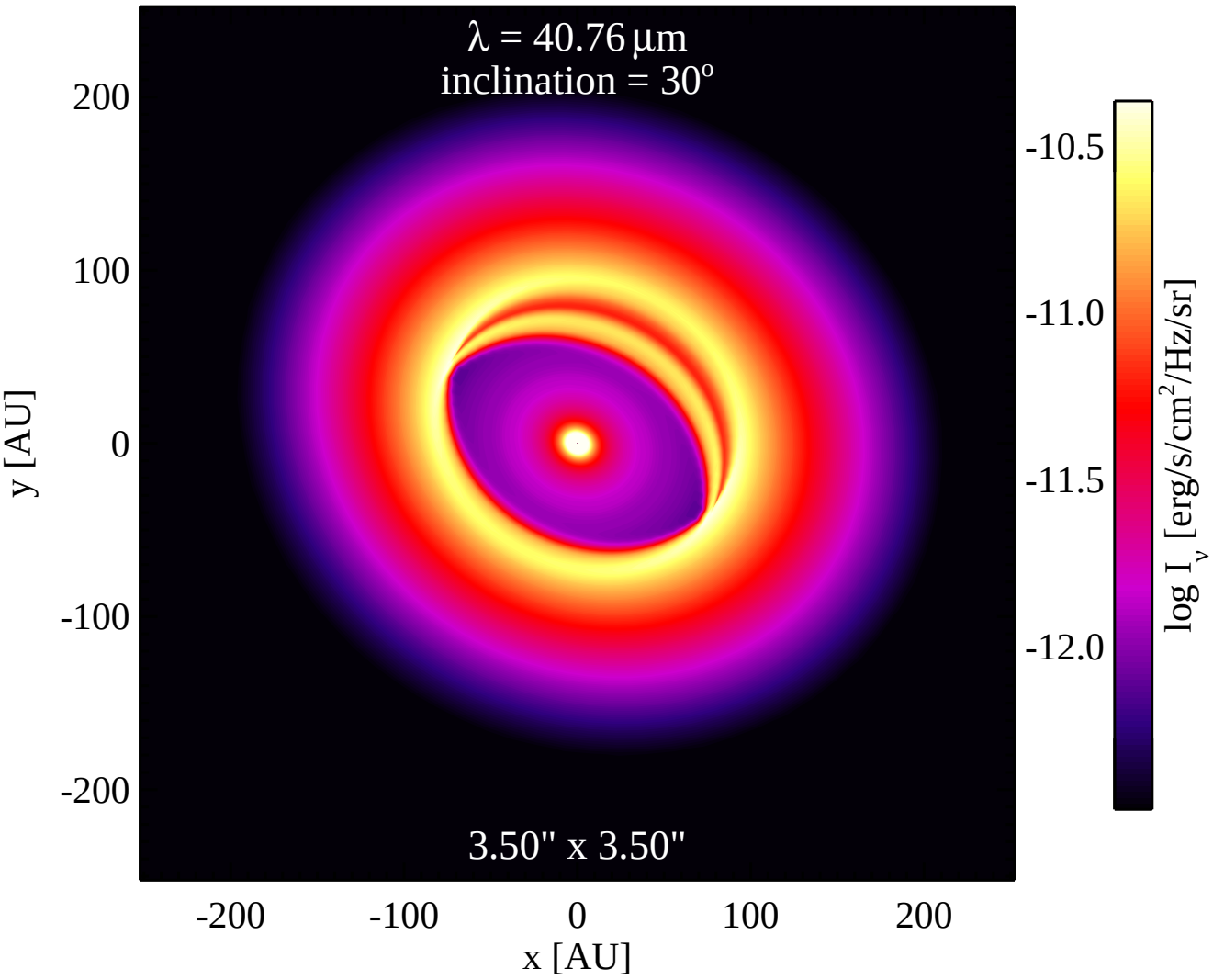

λ = 13.65 μm
inclination = 30°
2.07" x 2.07"
100
50
0
-50
-100
y [AU]
-100
-50
0
50
100
x [AU]
-11.4
-11.6
-11.8
-12.0
-12.2
-12.4
-12.6
log I_ν [erg/s/cm²/Hz/sr]

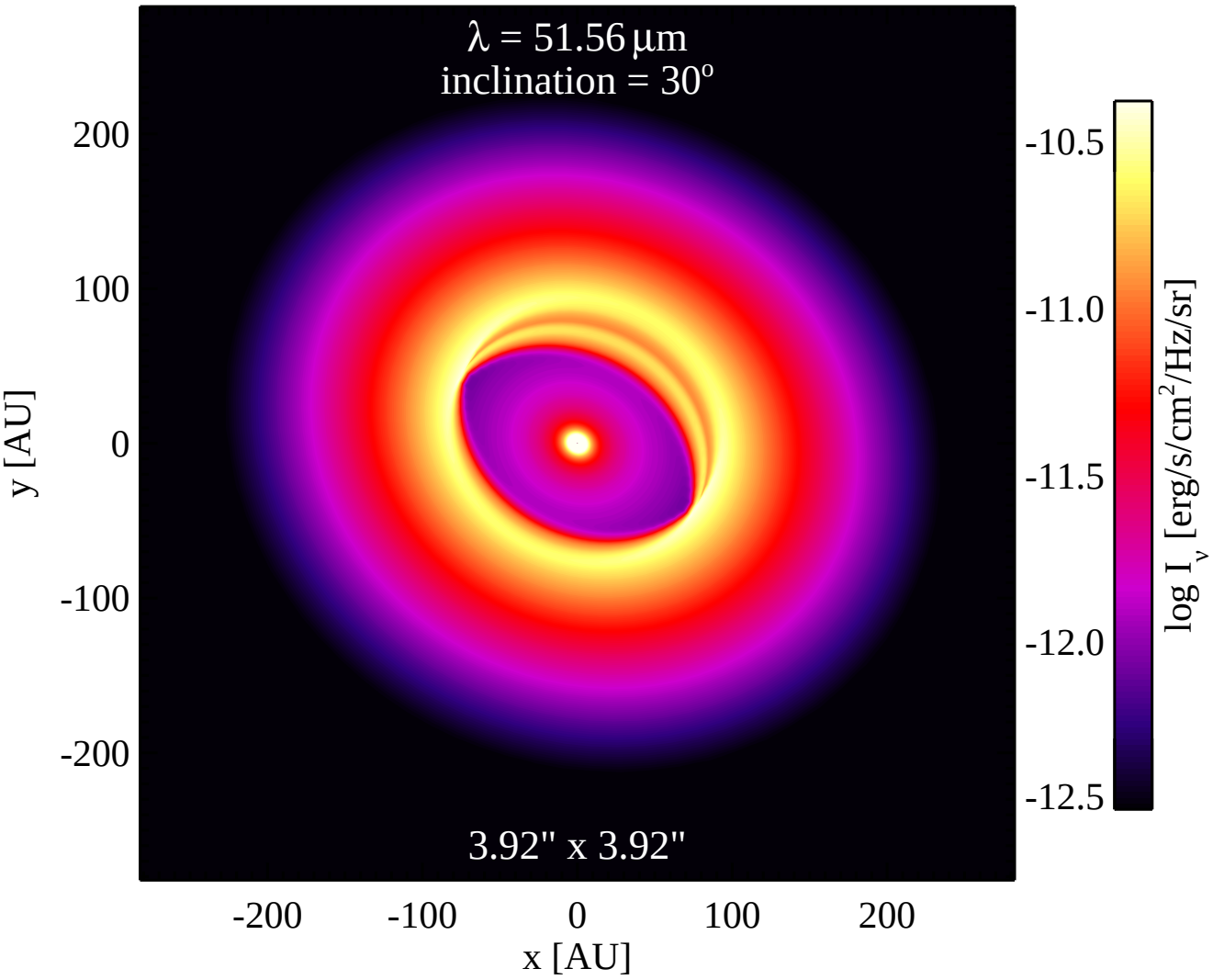

λ = 15.91 μm
inclination = 30°
2.15" x 2.15"
150
100
50
0
-50
-100
-150
y [AU]
-150
-100
-50
0
50
100
150
x [AU]
-11.2
-11.4
-11.6
-11.8
-12.0
-12.2
-12.4
log I_ν [erg/s/cm²/Hz/sr]

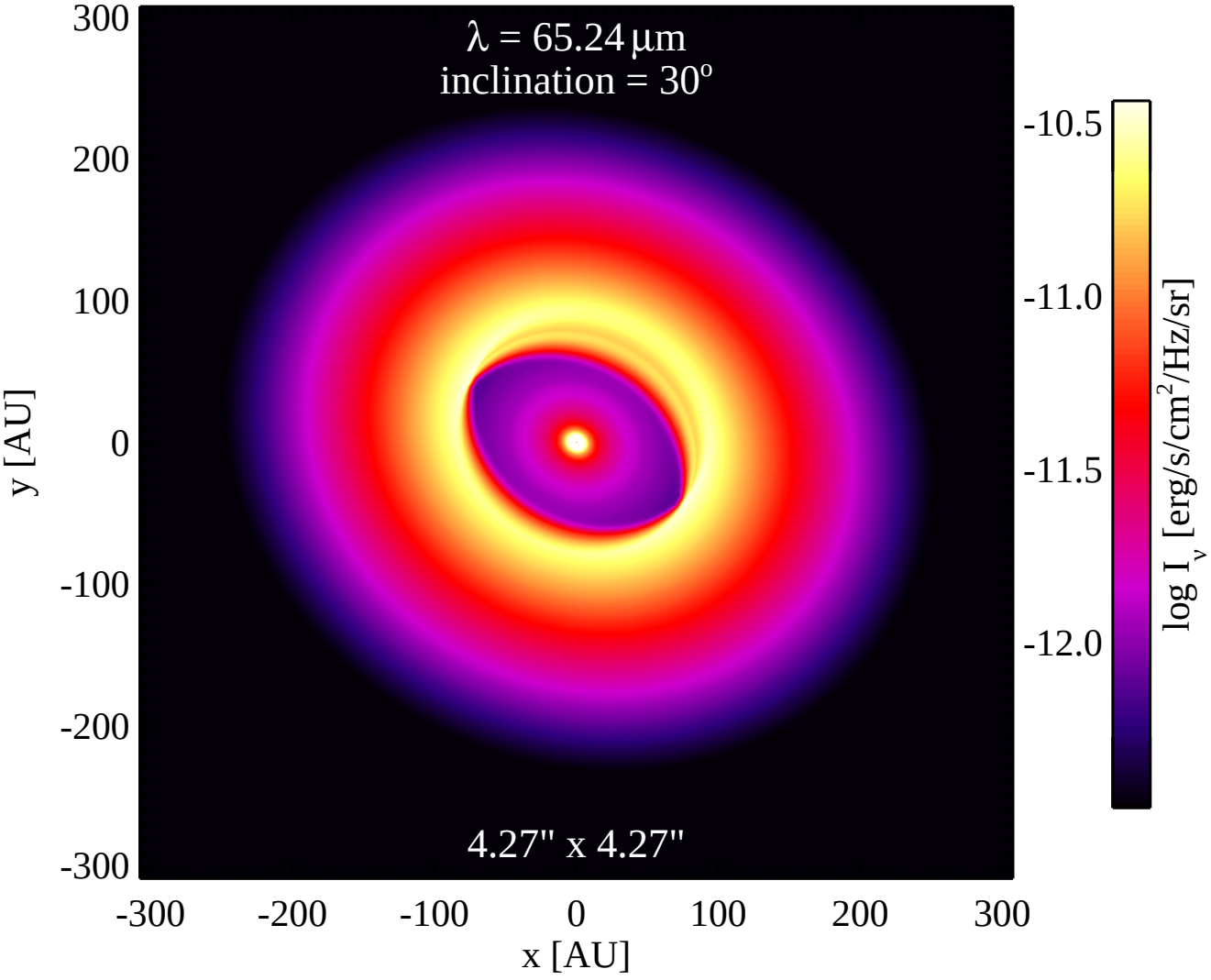

λ = 20.12 μm
inclination = 30°
2.44" x 2.44"
150
100
50
0
-50
-100
-150
y [AU]
-150
-100
-50
0
50
100
150
x [AU]
-10.5
-11.0
-11.5
-12.0
log I_ν [erg/s/cm²/Hz/sr]

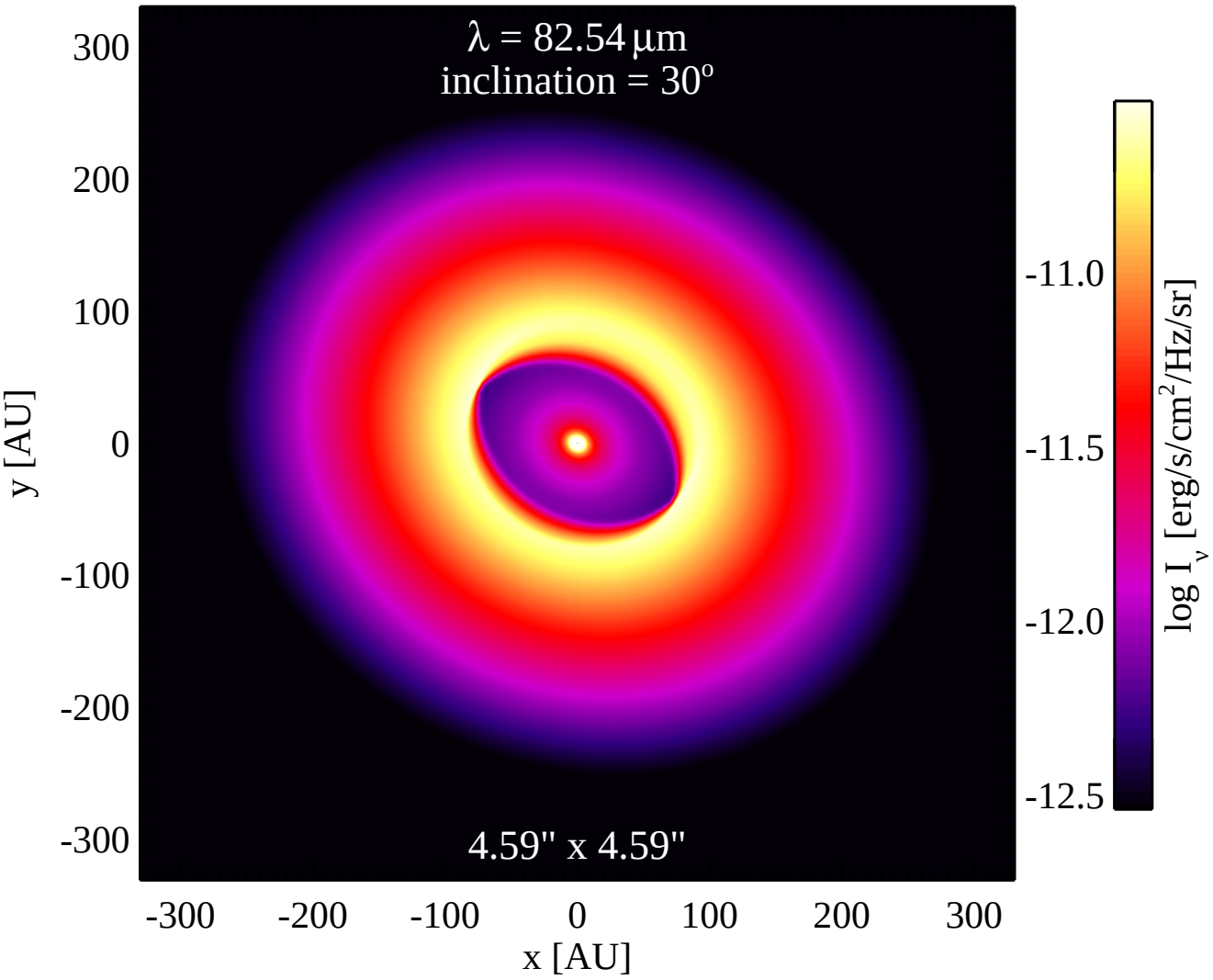

λ = 25.46 μm
inclination = 30°
2.70" x 2.70"
100
0
-100
y [AU]
-100
0
100
x [AU]
-10.5
-11.0
-11.5
-12.0
log I_ν [erg/s/cm²/Hz/sr]

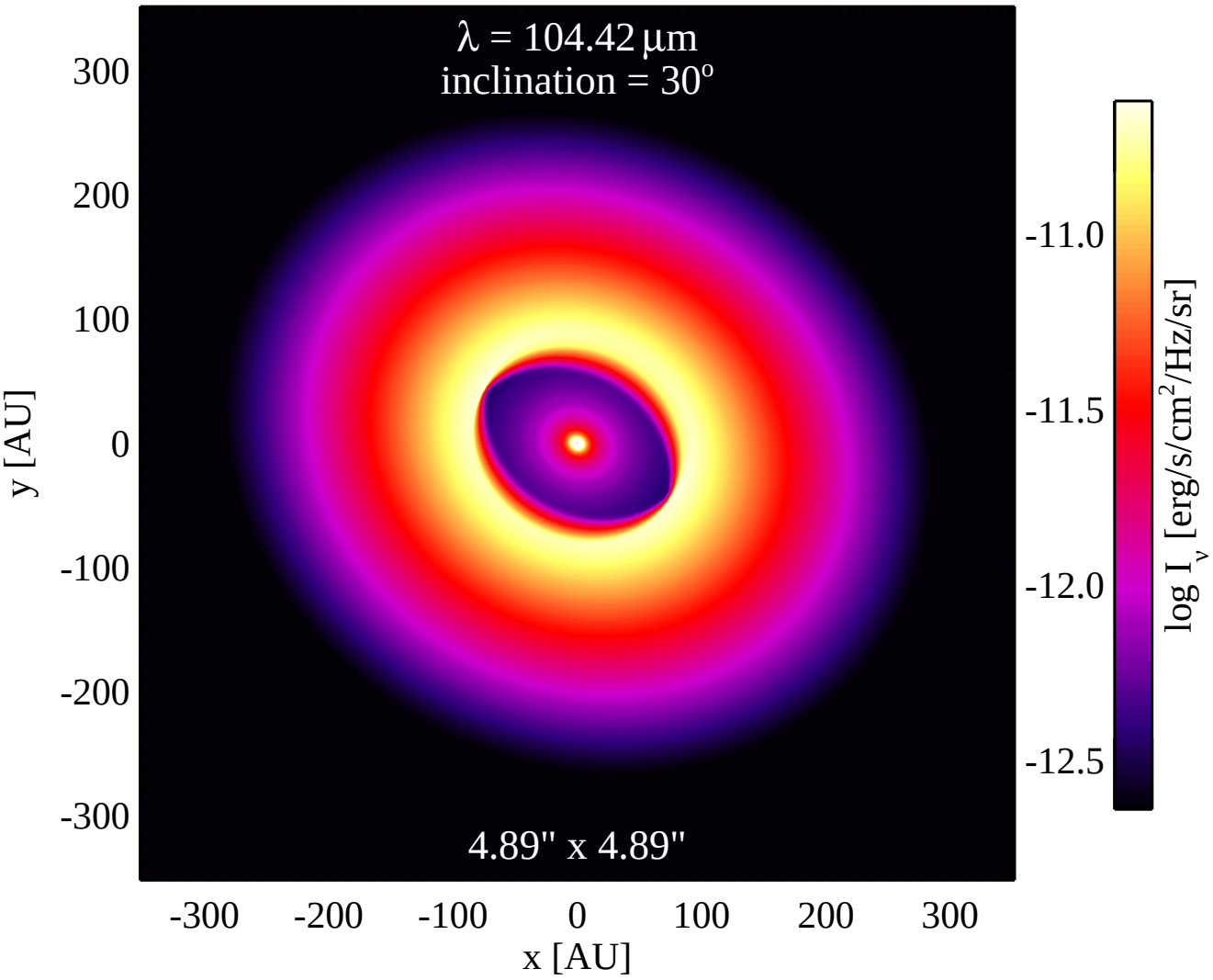

λ = 32.21 μm
inclination = 30°
3.05" x 3.05"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-10.5
-11.0
-11.5
-12.0
log I_ν [erg/s/cm²/Hz/sr]

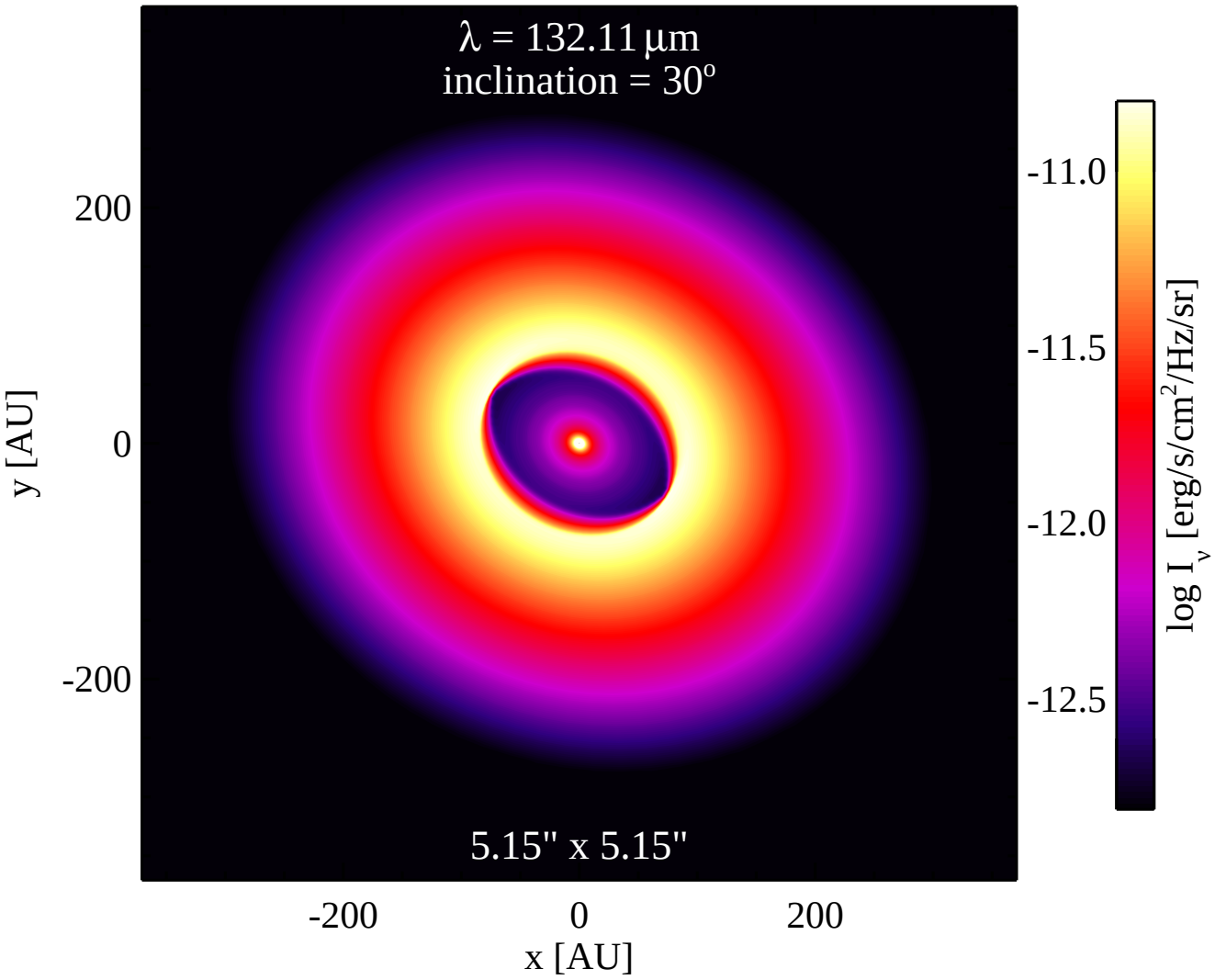

λ = 40.76 μm
inclination = 30°
3.50" x 3.50"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-10.5
-11.0
-11.5
-12.0
log I_ν [erg/s/cm²/Hz/sr]

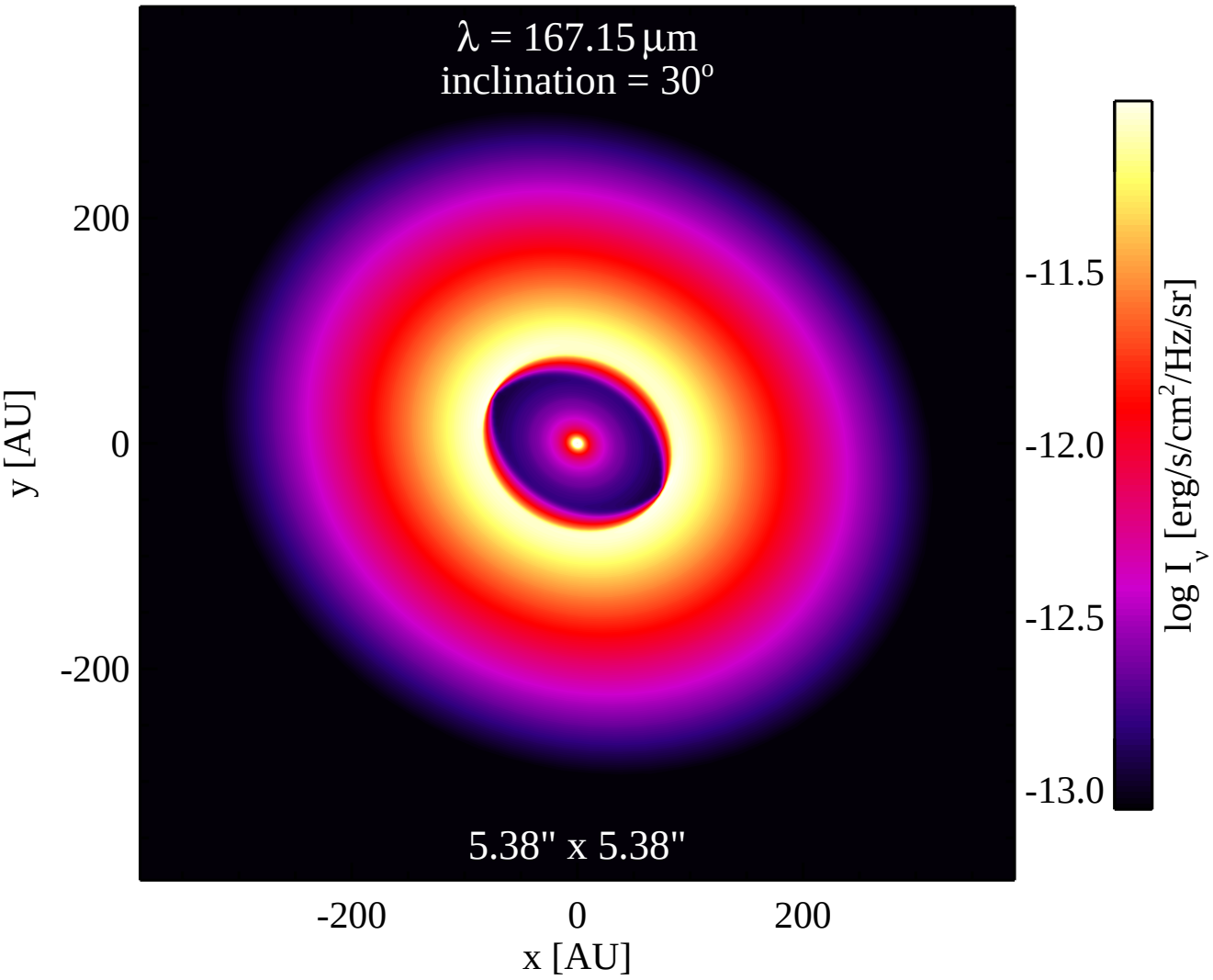

λ = 51.56 μm
inclination = 30°
3.92" x 3.92"
200
100
0
-100
-200
y [AU]
-200
-100
0
100
200
x [AU]
-10.5
-11.0
-11.5
-12.0
-12.5
log I_ν [erg/s/cm²/Hz/sr]

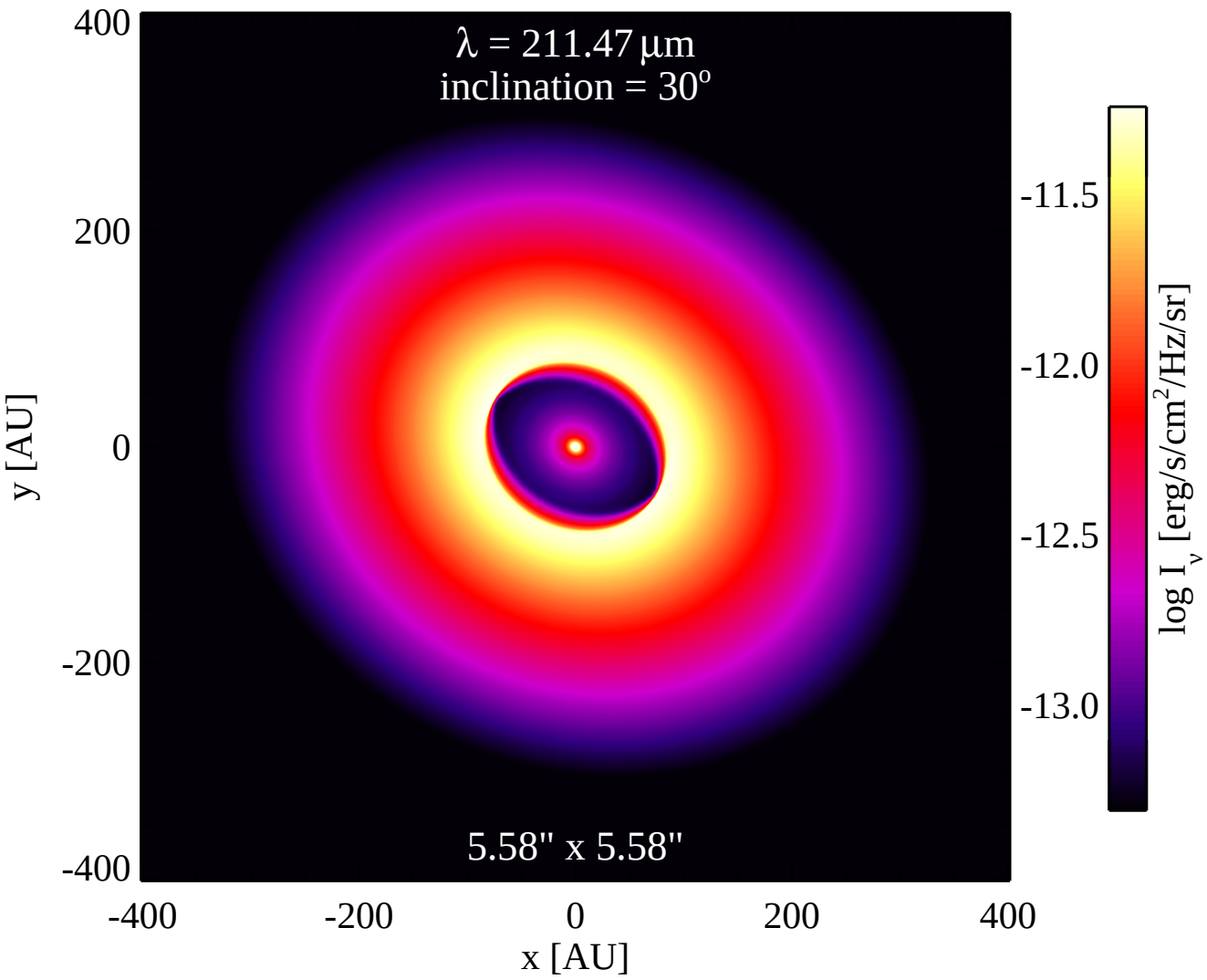

λ = 65.24 μm
inclination = 30°
4.27" x 4.27"
300
200
100
0
-100
-200
-300
y [AU]
-300
-200
-100
0
100
200
300
x [AU]
-10.5
-11.0
-11.5
-12.0
log I_ν [erg/s/cm²/Hz/sr]

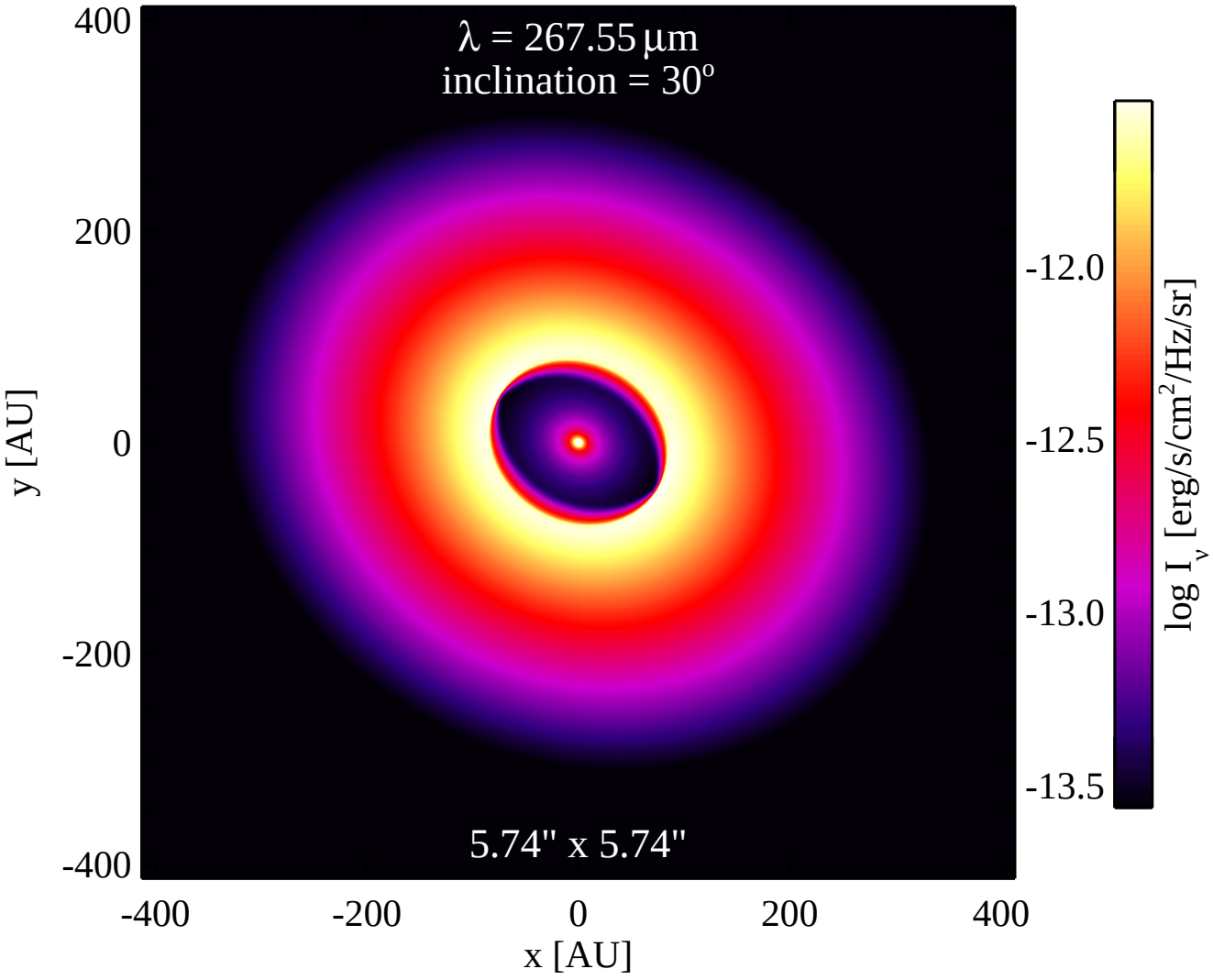

λ = 82.54 μm
inclination = 30°
4.59" x 4.59"
300
200
100
0
-100
-200
-300
y [AU]
-300
-200
-100
0
100
200
300
x [AU]
-11.0
-11.5
-12.0
-12.5
log I_ν [erg/s/cm²/Hz/sr]

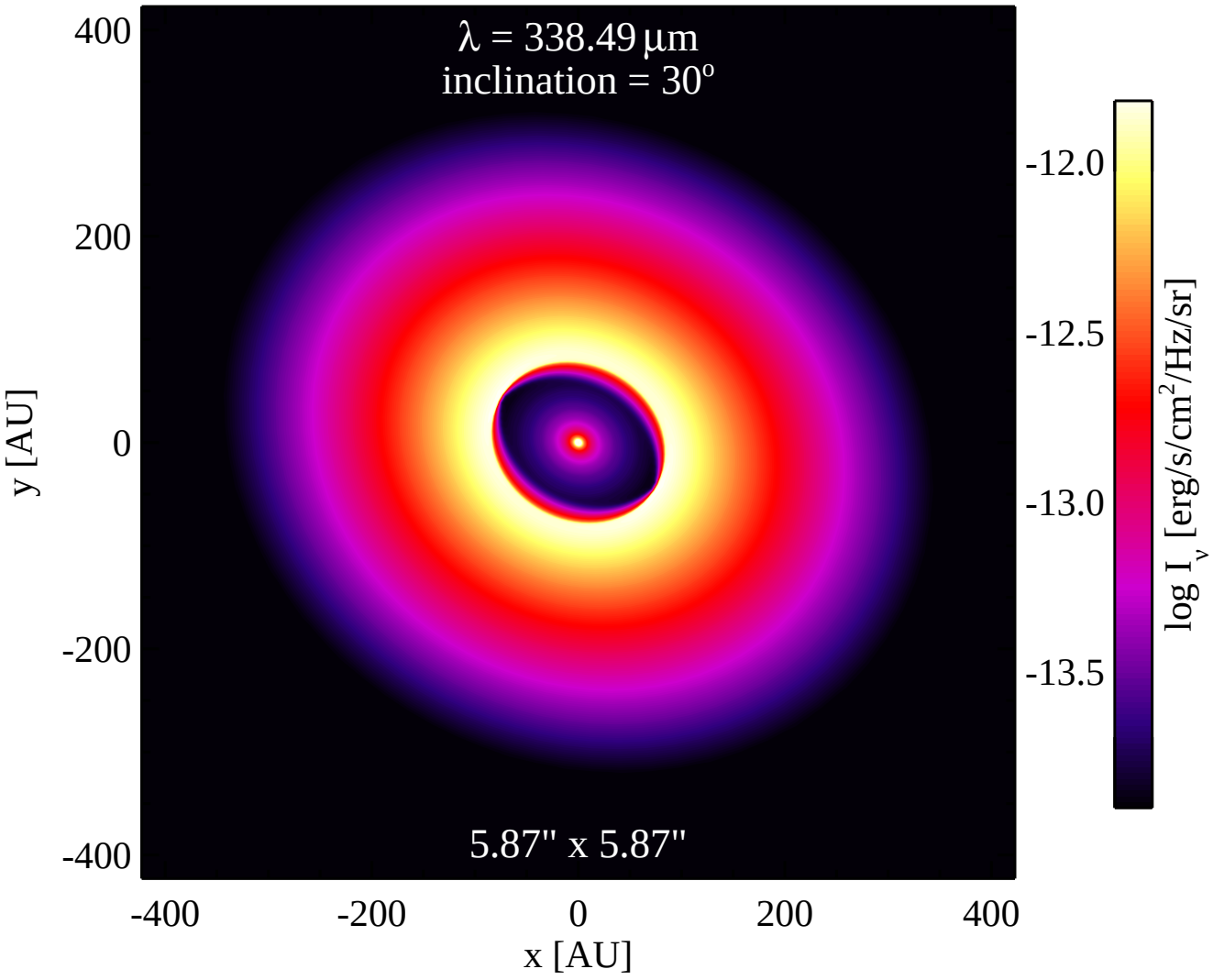

λ = 104.42 μm
inclination = 30°
4.89" x 4.89"
300
200
100
0
-100
-200
-300
y [AU]
-300
-200
-100
0
100
200
300
x [AU]
-11.0
-11.5
-12.0
-12.5
log I_ν [erg/s/cm²/Hz/sr]

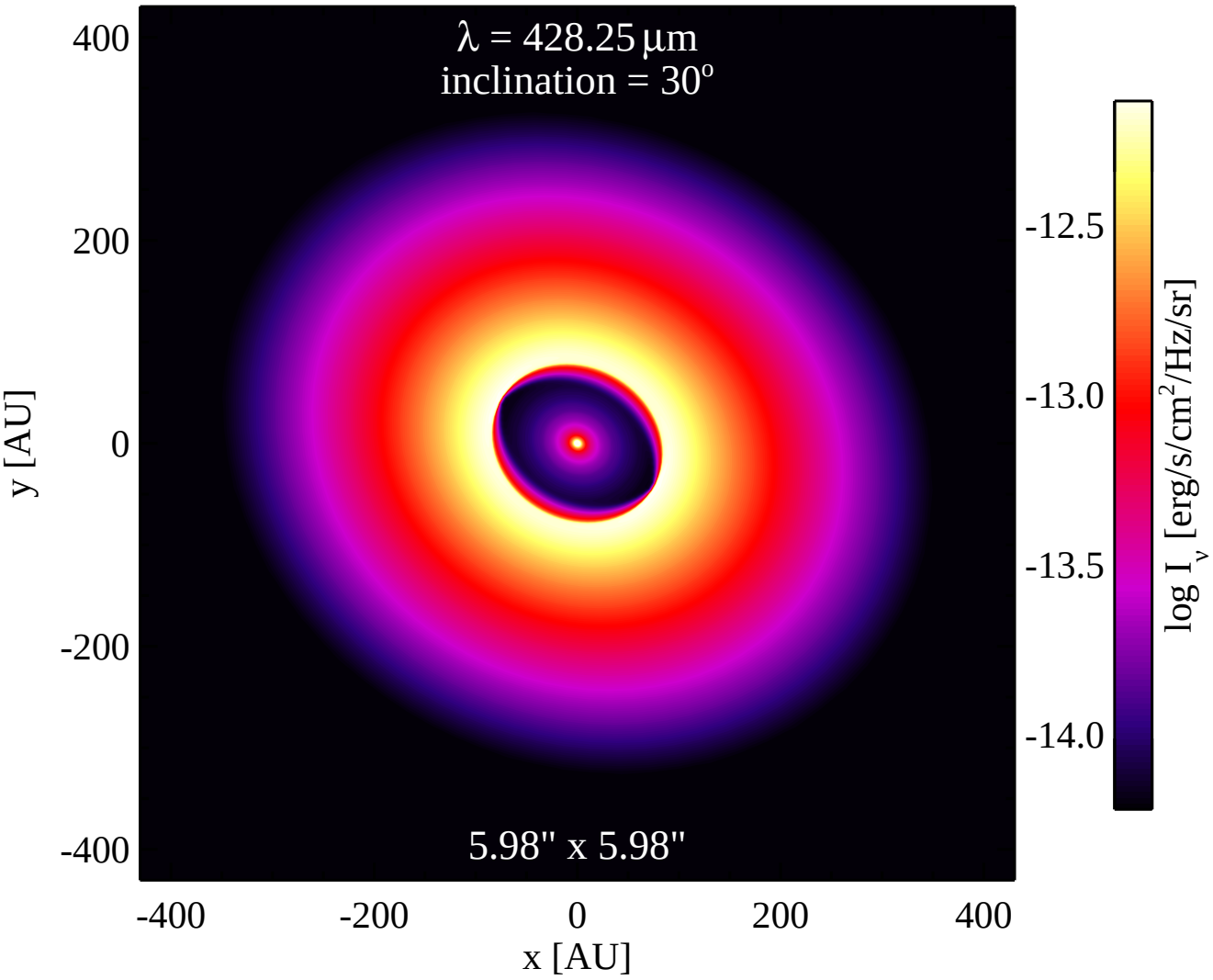

λ = 132.11 μm
inclination = 30°
5.15" x 5.15"
200
0
-200
y [AU]
-200
0
200
x [AU]
-11.0
-11.5
-12.0
-12.5
log I_ν [erg/s/cm²/Hz/sr]

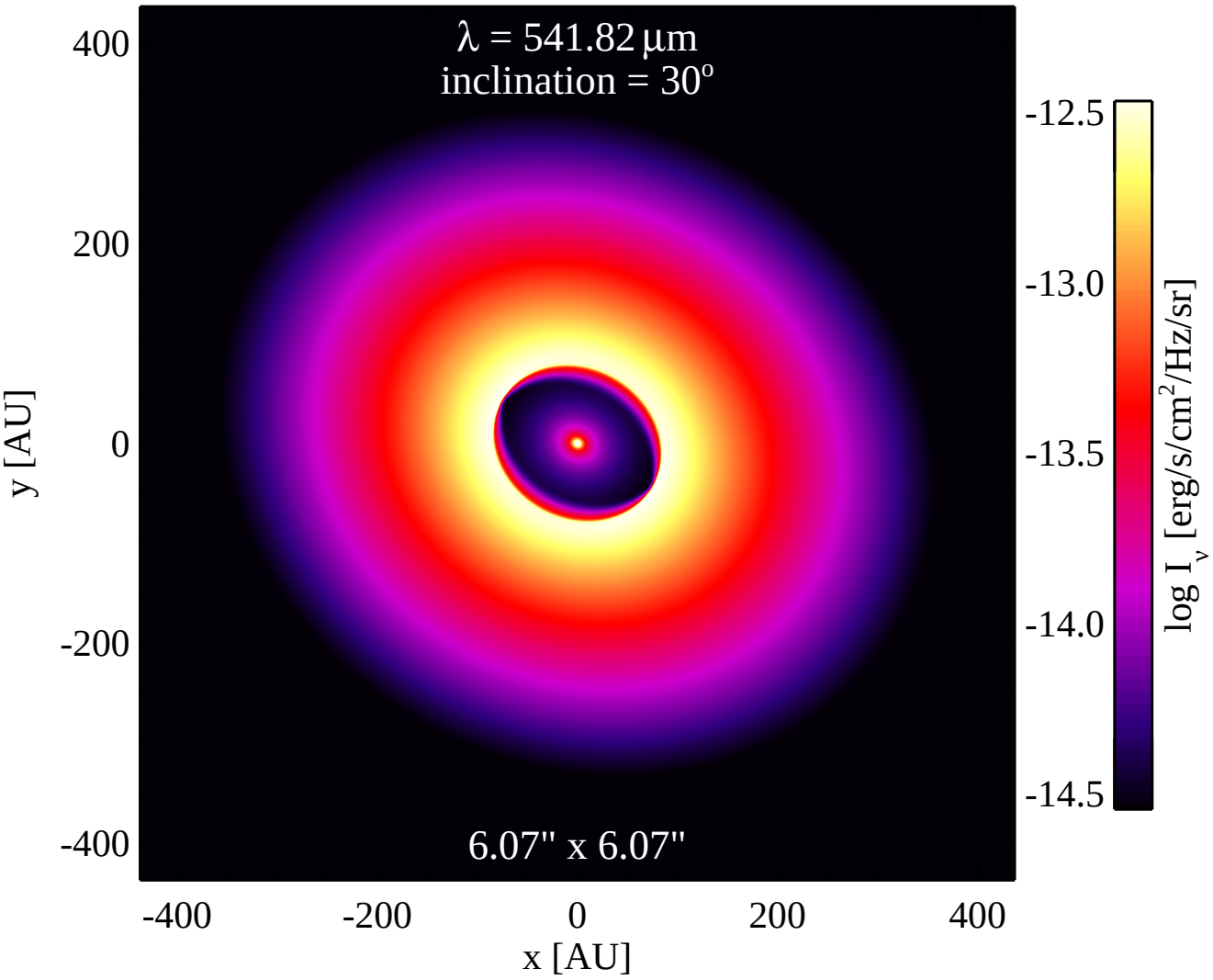

λ = 167.15 μm
inclination = 30°
5.38" x 5.38"
200
0
-200
y [AU]
-200
0
200
x [AU]
-11.5
-12.0
-12.5
-13.0
log I_ν [erg/s/cm²/Hz/sr]

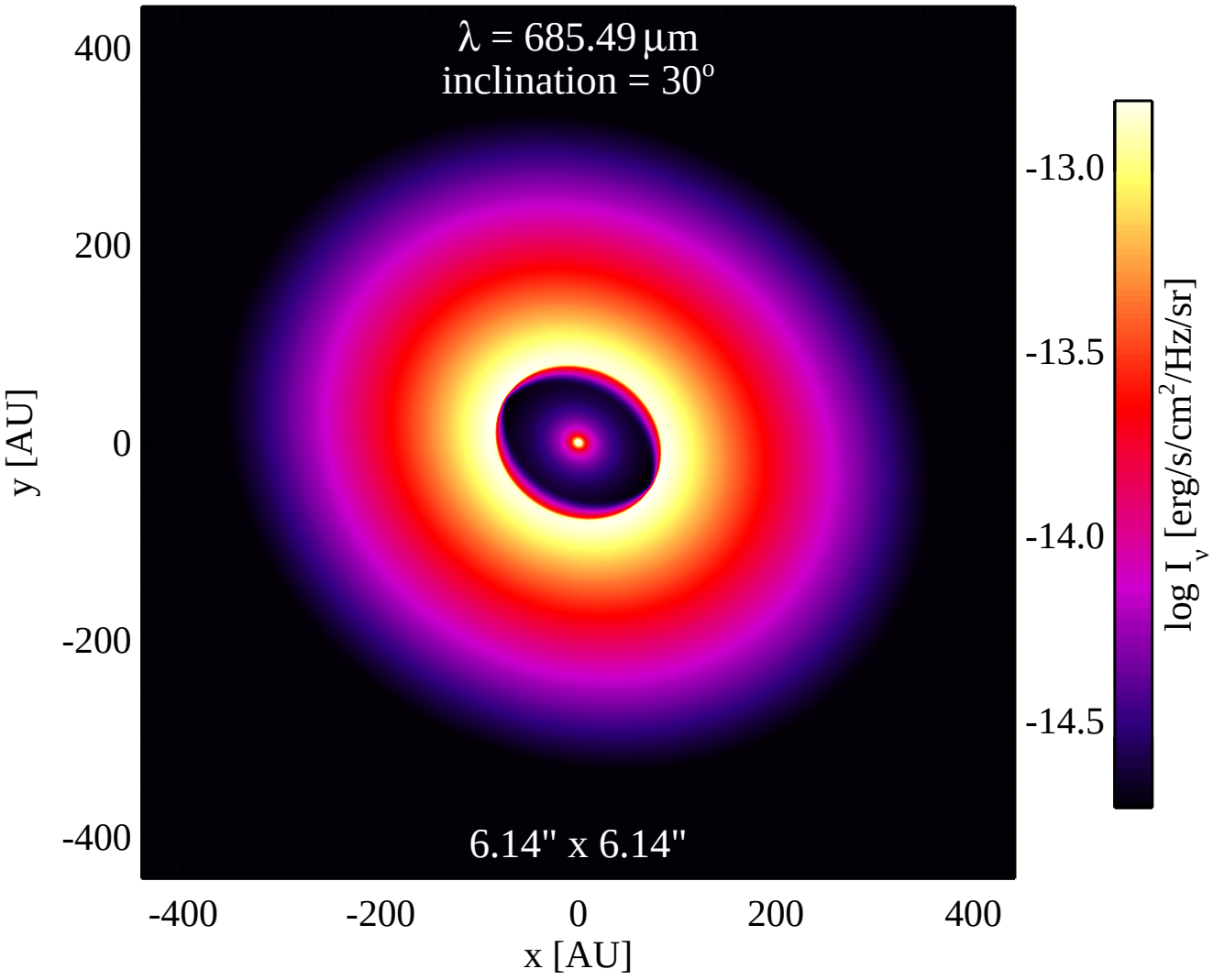

λ = 211.47 μm
inclination = 30°
5.58" x 5.58"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
-11.5
-12.0
-12.5
-13.0
log I_ν [erg/s/cm²/Hz/sr]

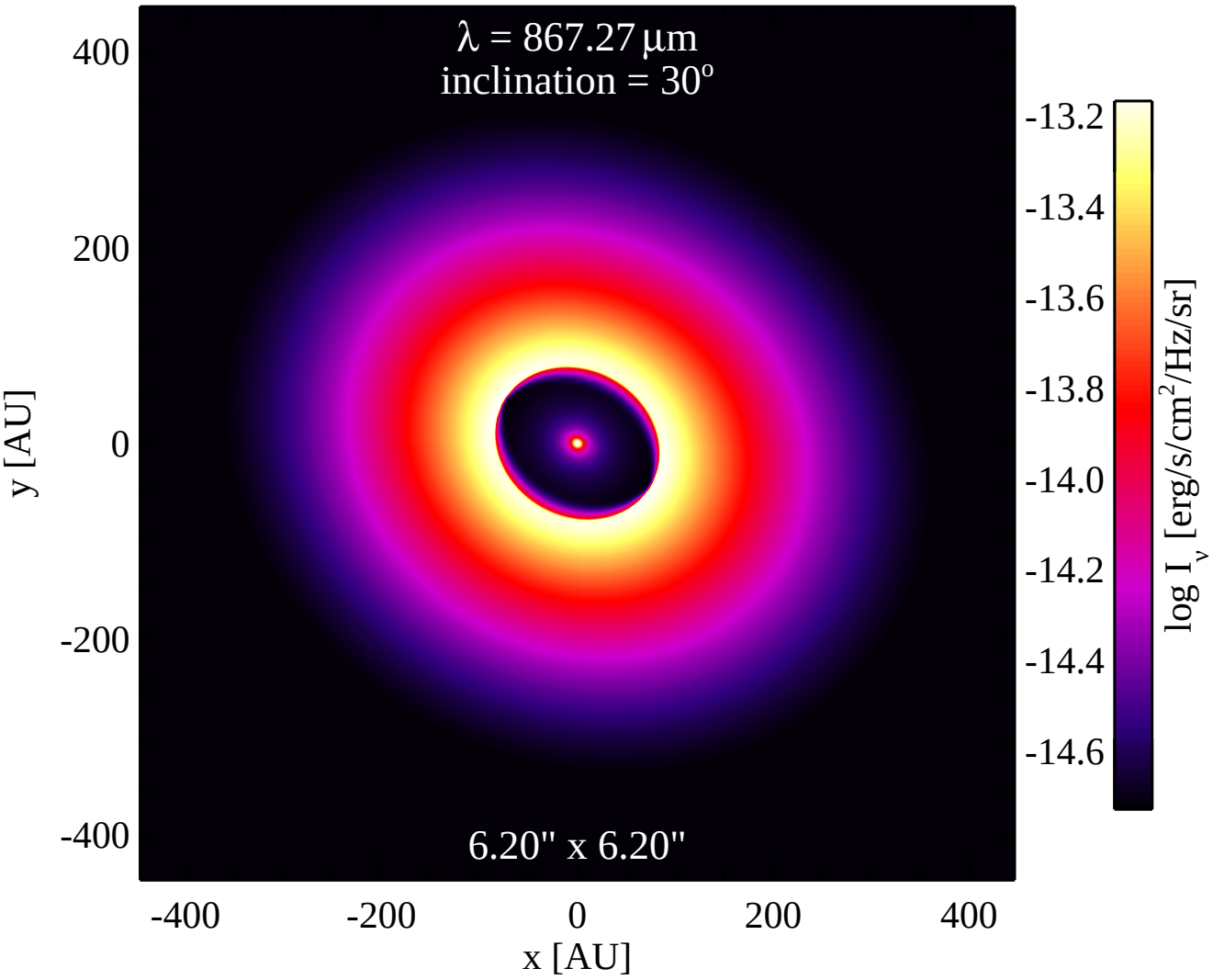

λ = 267.55 μm
inclination = 30°
5.74" x 5.74"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

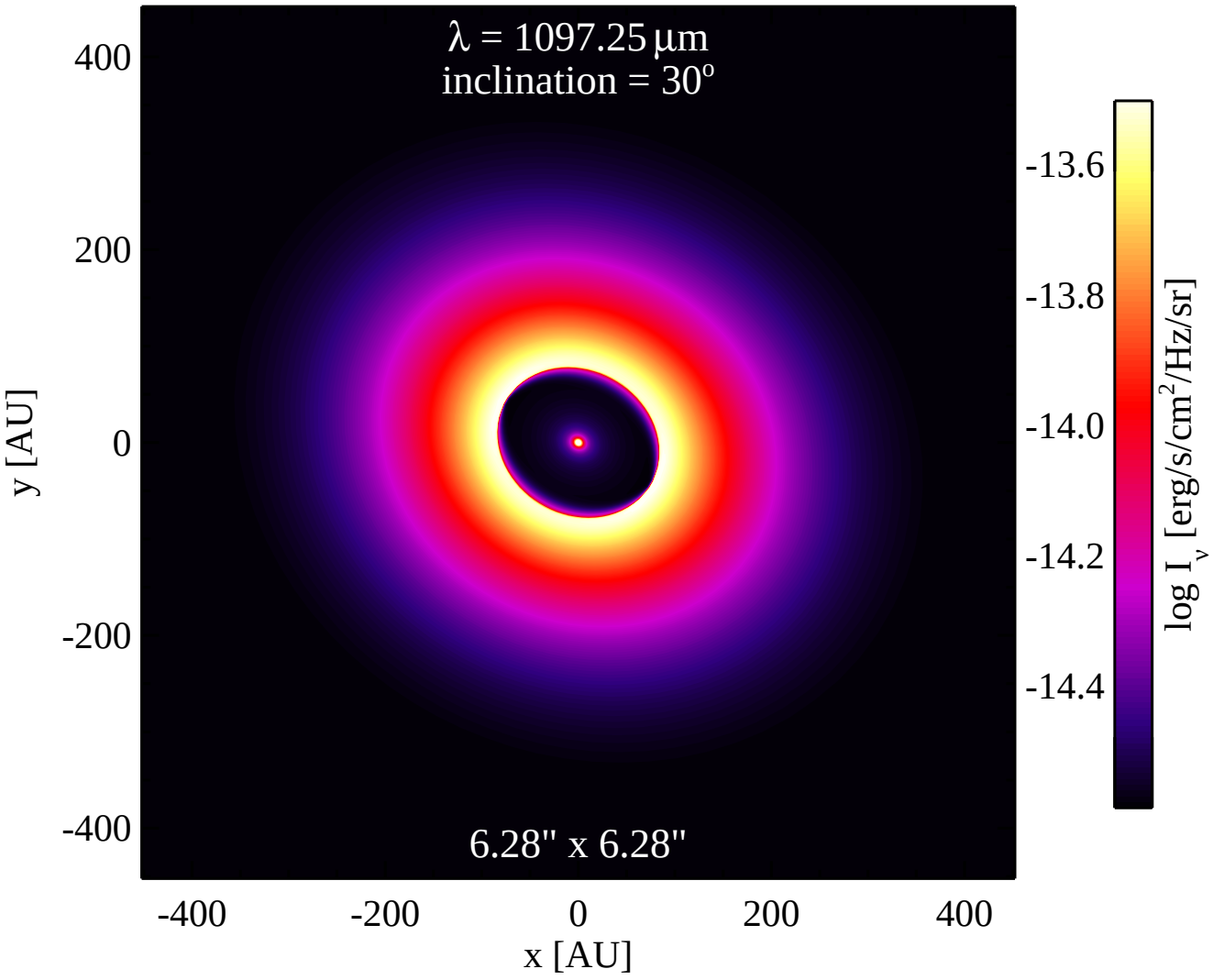

λ = 338.49 μm
inclination = 30°
5.87" x 5.87"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
-12.0
-12.5
-13.0
-13.5
log I_ν [erg/s/cm²/Hz/sr]

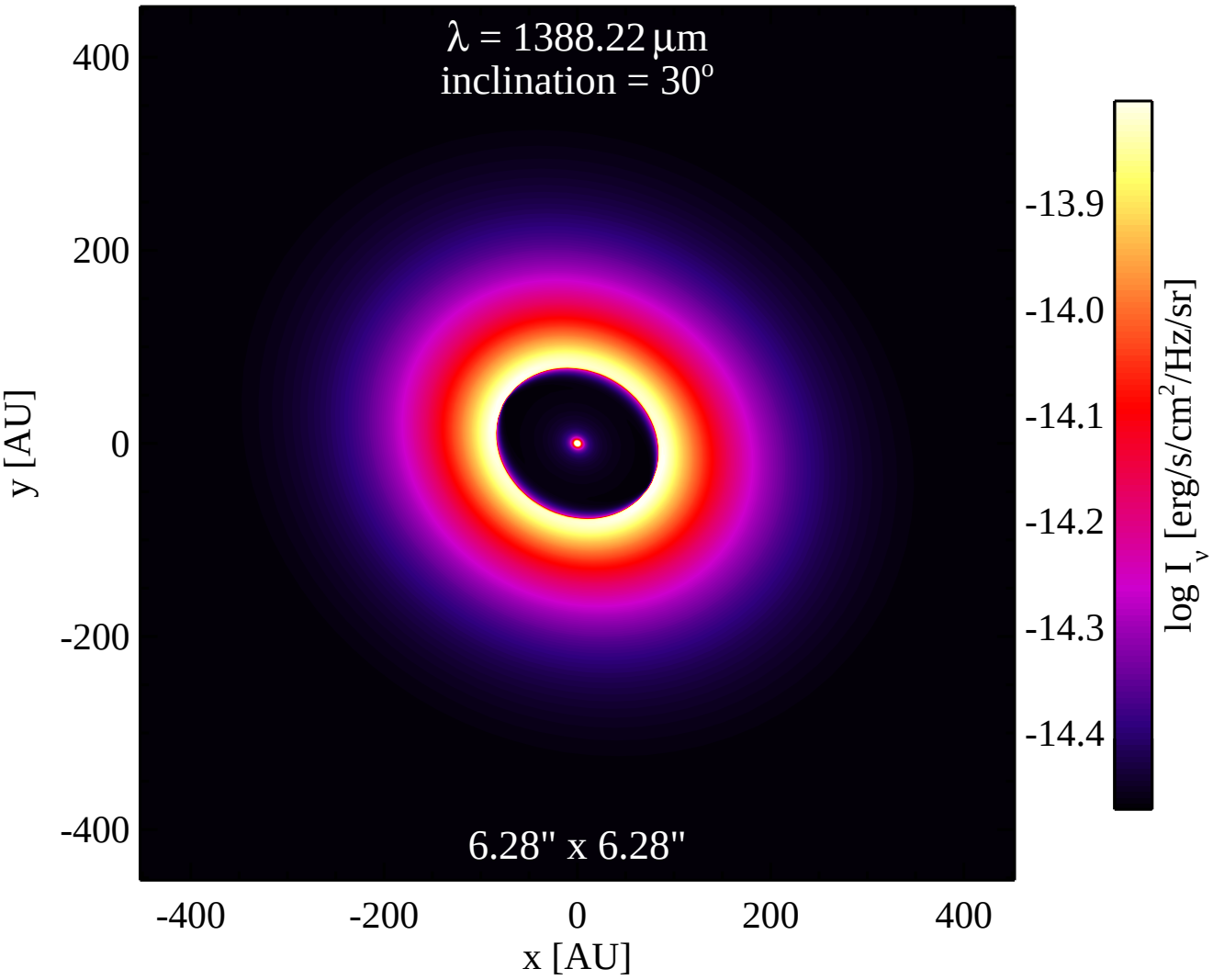

λ = 428.25 μm
inclination = 30°
5.98" x 5.98"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
-12.5
-13.0
-13.5
-14.0
log I_ν [erg/s/cm²/Hz/sr]

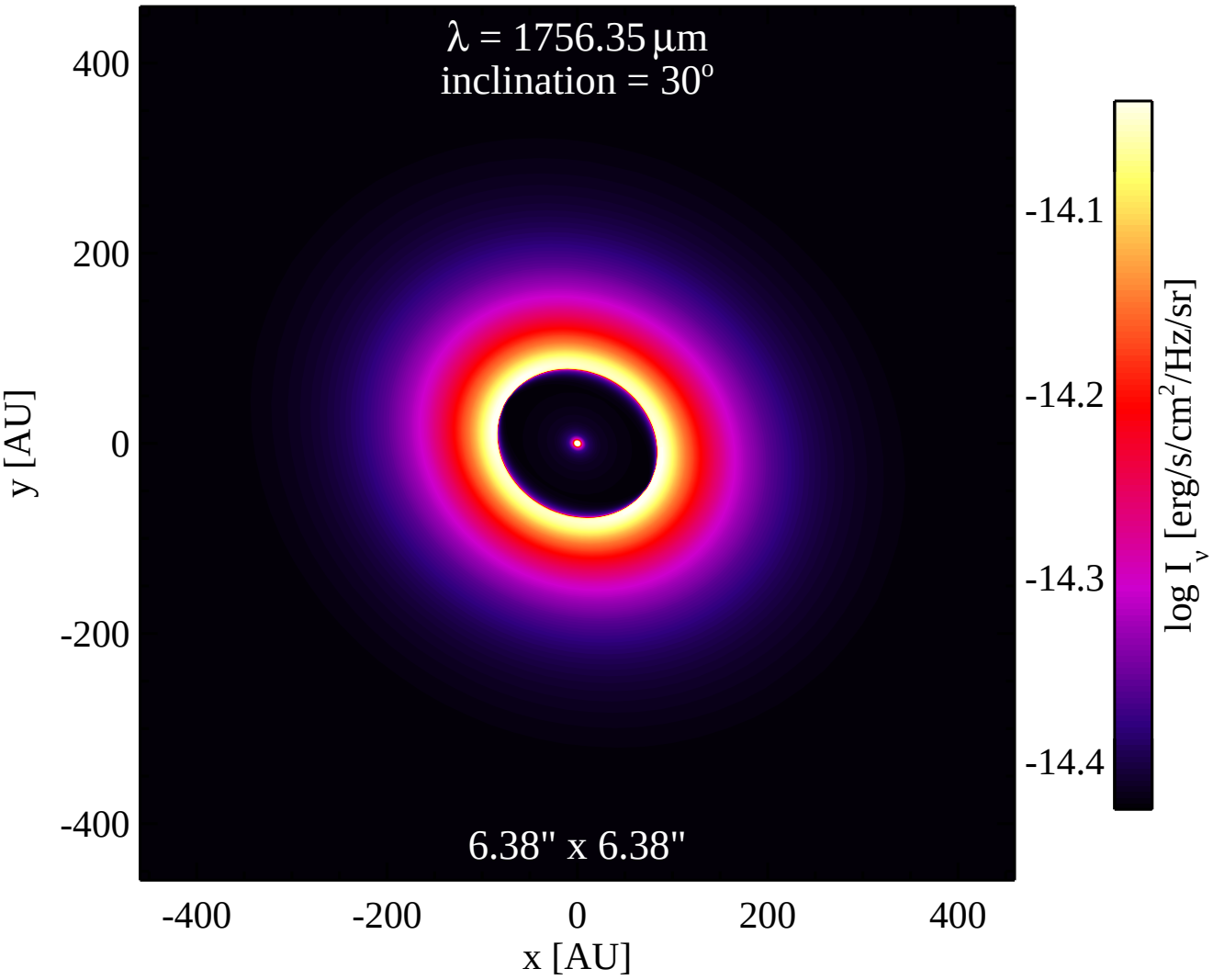

λ = 541.82 μm
inclination = 30°
6.07" x 6.07"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
-12.5
-13.0
-13.5
-14.0
-14.5
log I_ν [erg/s/cm²/Hz/sr]

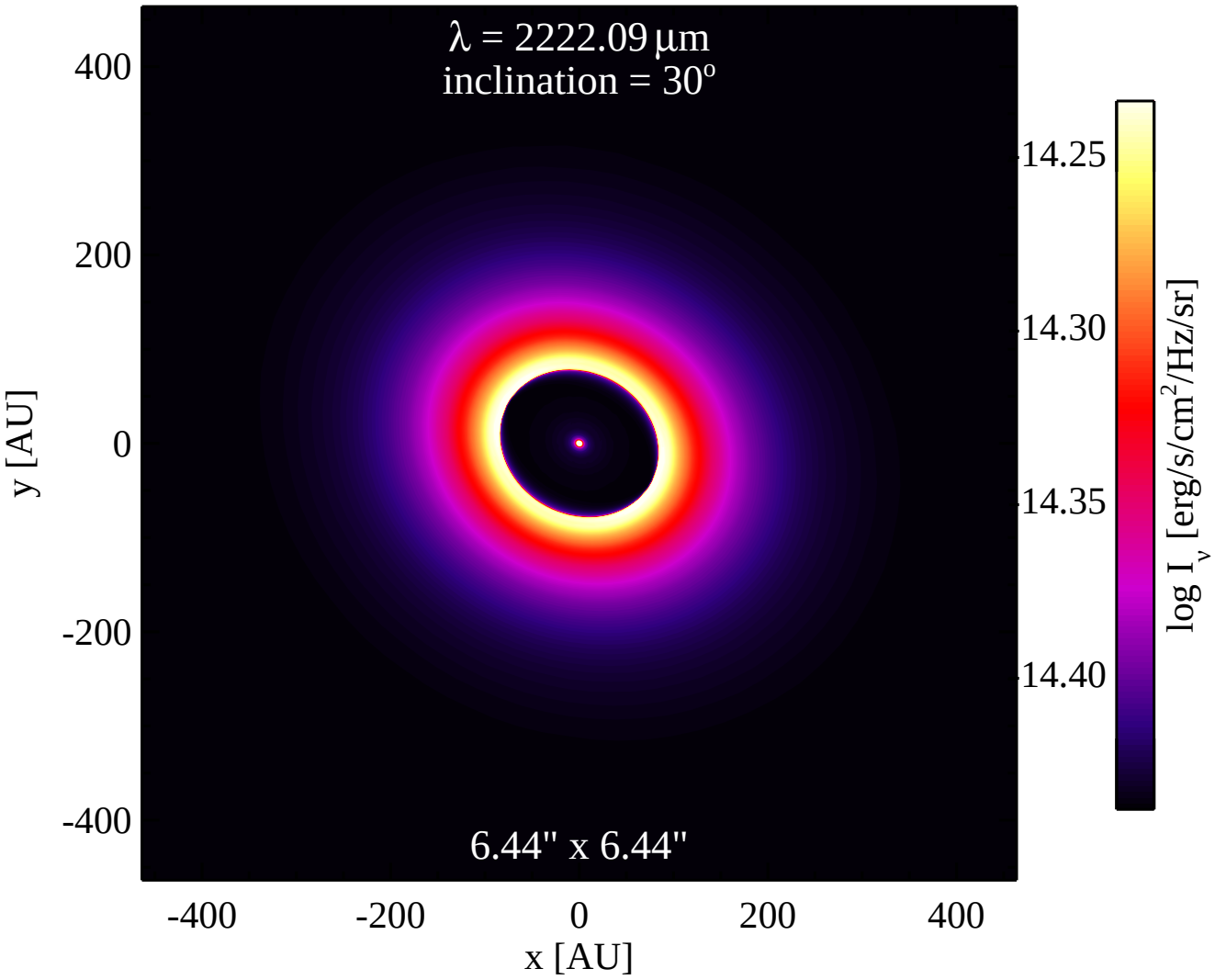

λ = 685.49 μm
inclination = 30°
6.14" x 6.14"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
-13.0
-13.5
-14.0
-14.5
log I_ν [erg/s/cm²/Hz/sr]

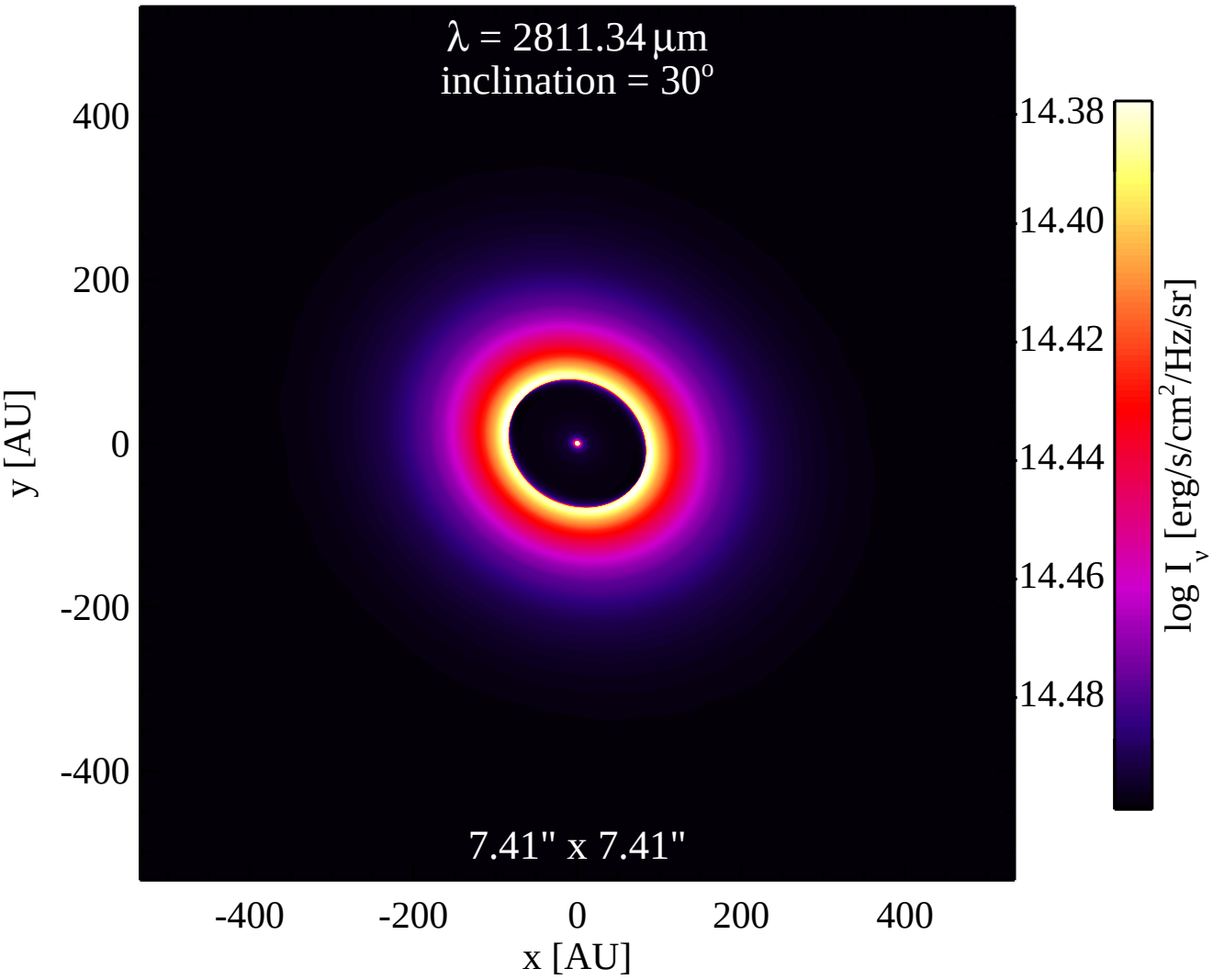

λ = 867.27 μm
inclination = 30°
6.20" x 6.20"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
-13.2
-13.4
-13.6
-13.8
-14.0
-14.2
-14.4
-14.6
log I_ν [erg/s/cm²/Hz/sr]

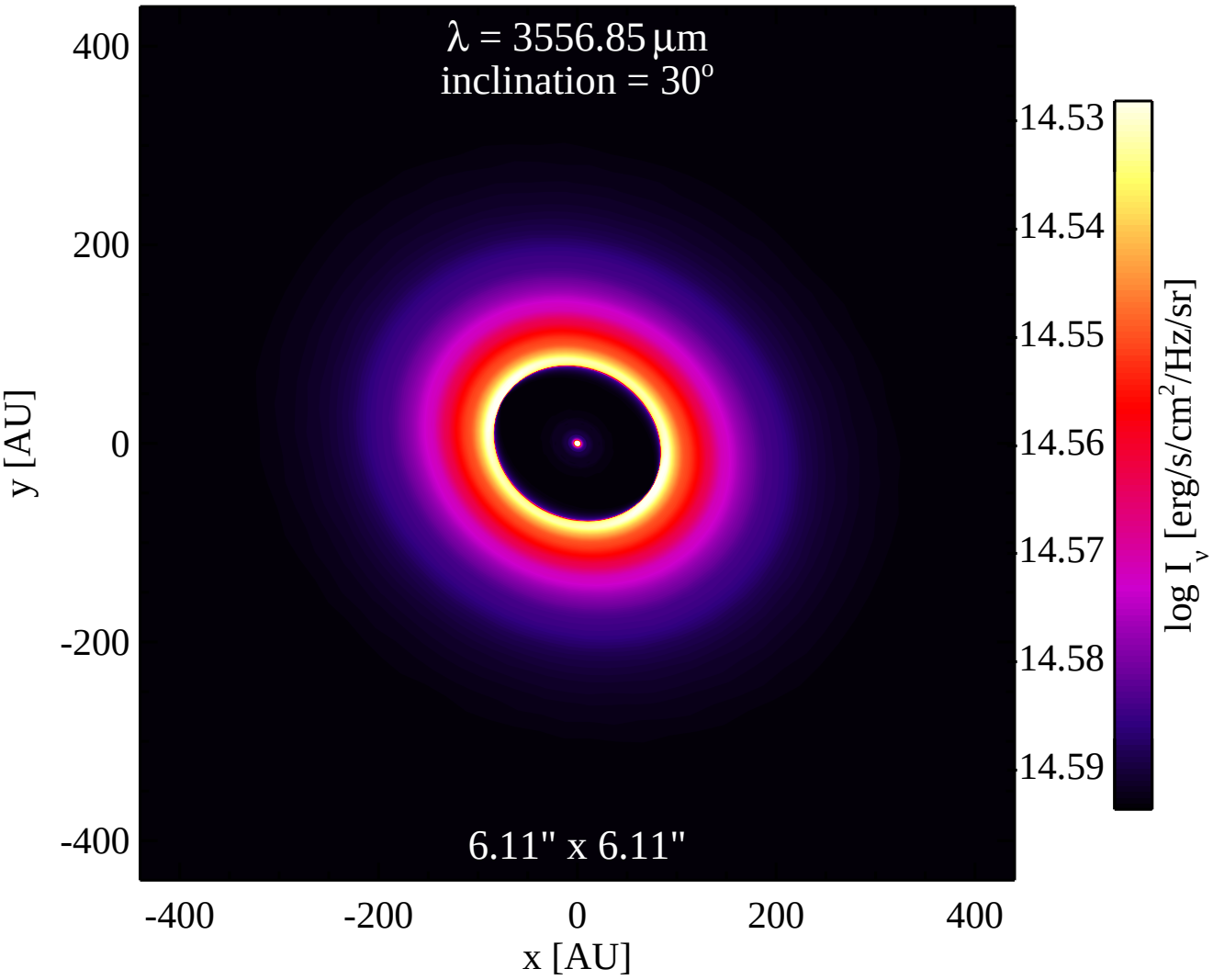

λ = 1097.25 μm
inclination = 30°
6.28" x 6.28"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
-13.6
-13.8
-14.0
-14.2
-14.4
log I_ν [erg/s/cm²/Hz/sr]

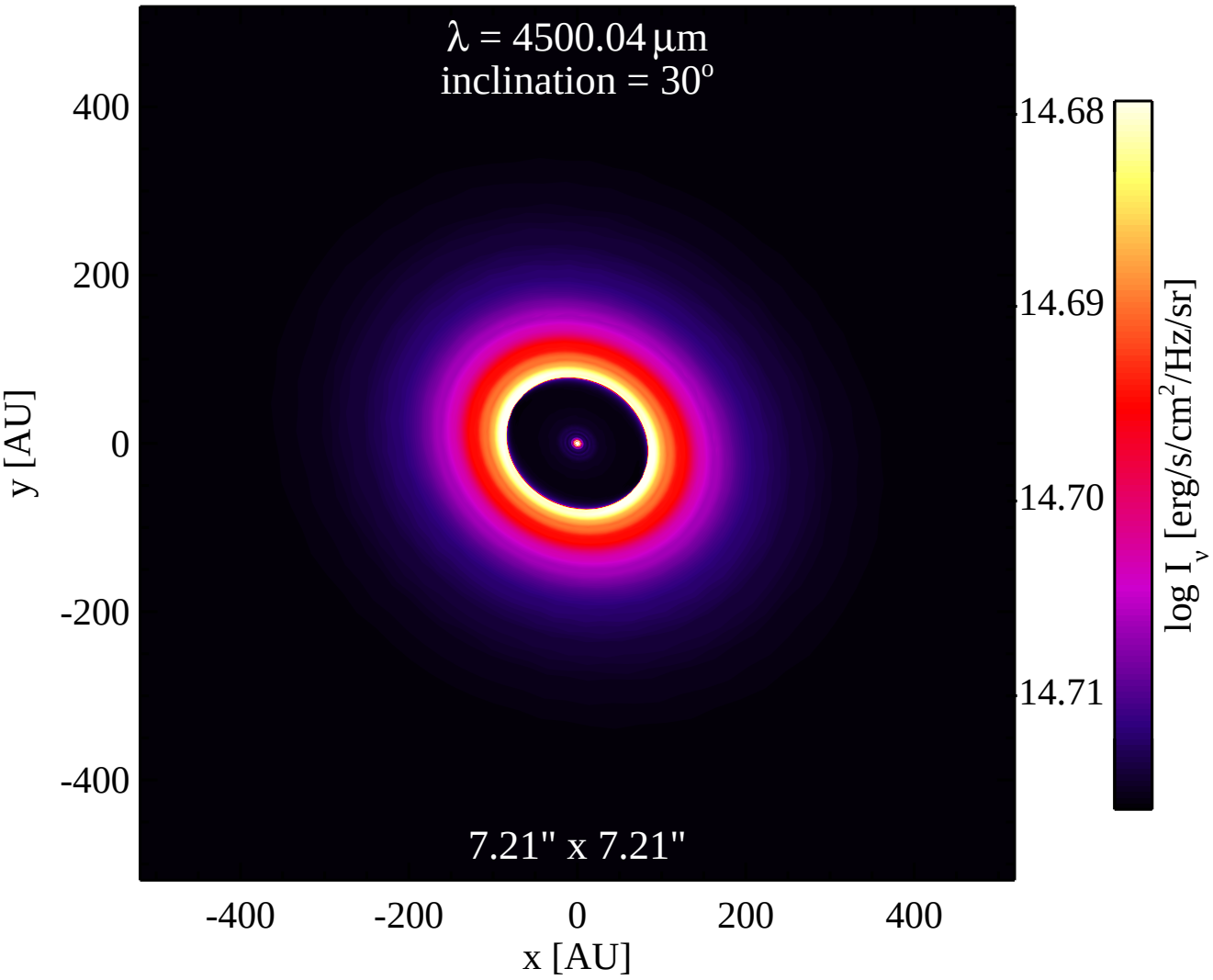

λ = 1388.22 μm
inclination = 30°
6.28" x 6.28"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
-13.9
-14.0
-14.1
-14.2
-14.3
-14.4
log I_ν [erg/s/cm²/Hz/sr]

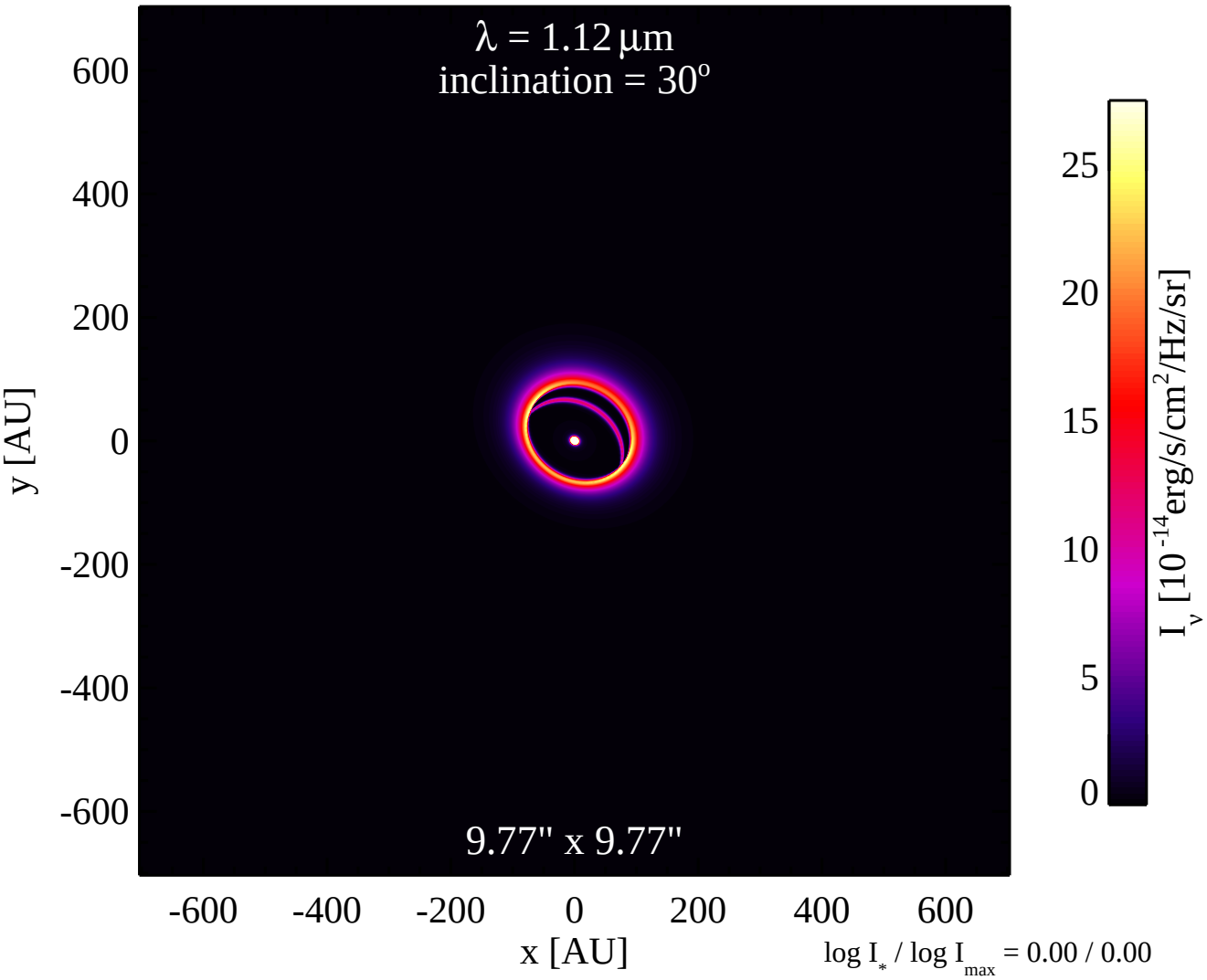

λ = 1756.35 μm
inclination = 30°
6.38" x 6.38"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
-14.1
-14.2
-14.3
-14.4
log I_ν [erg/s/cm²/Hz/sr]

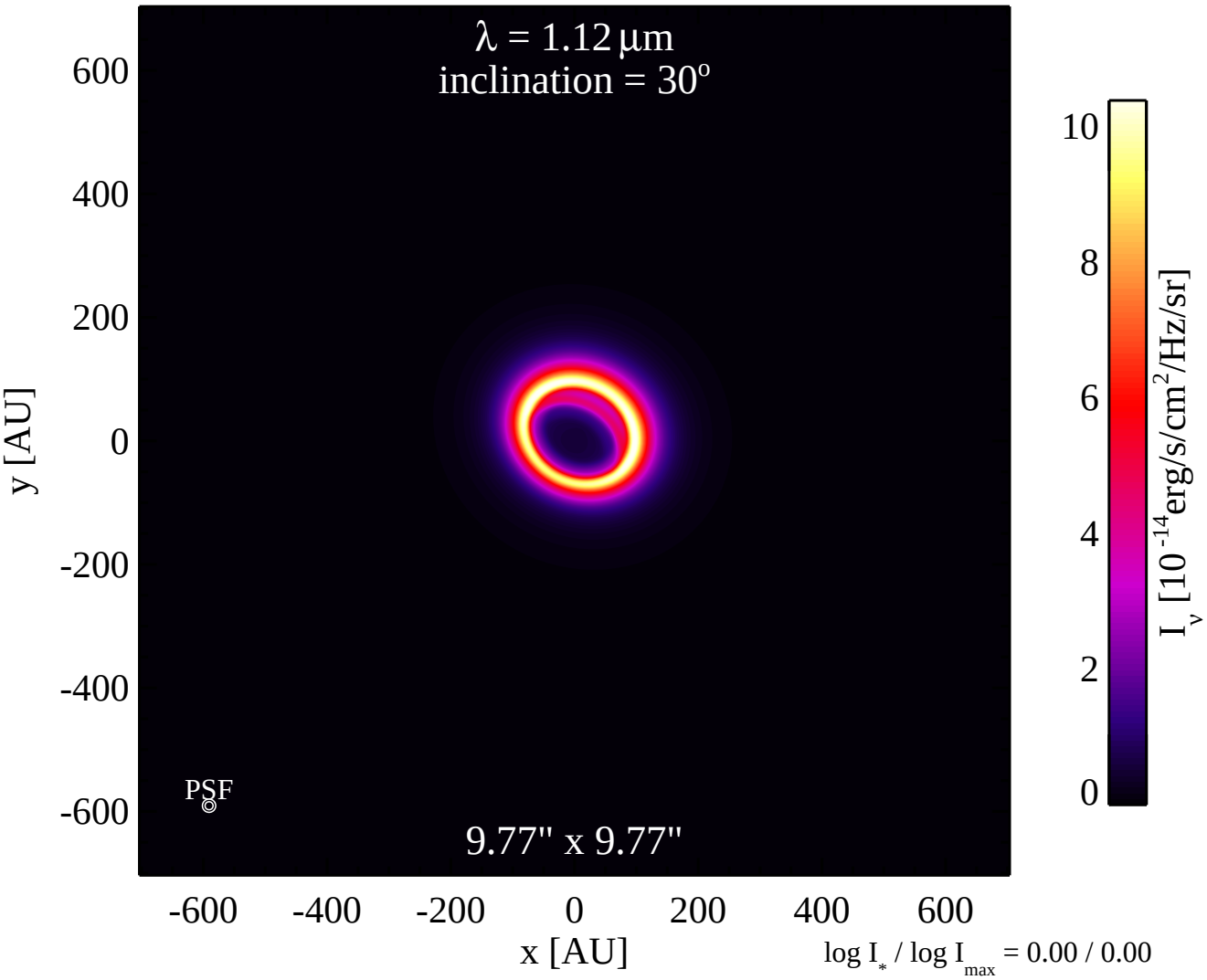

λ = 2222.09 μm
inclination = 30°
6.44" x 6.44"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
14.25
14.30
14.35
14.40
log I_ν [erg/s/cm²/Hz/sr]

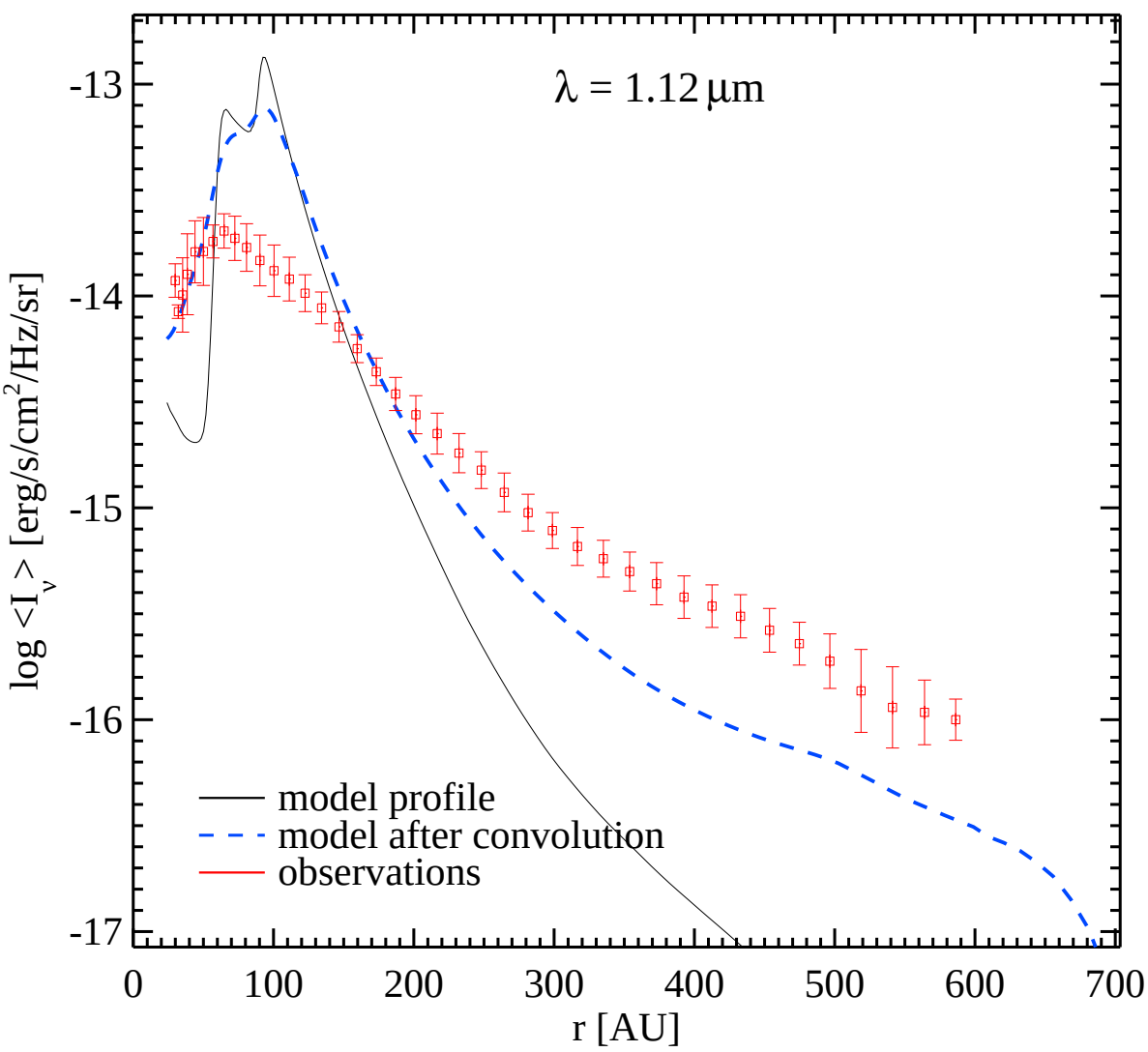

λ = 2811.34 μm
inclination = 30°
7.41" x 7.41"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
14.38
14.40
14.42
14.44
14.46
14.48
log I_ν [erg/s/cm²/Hz/sr]

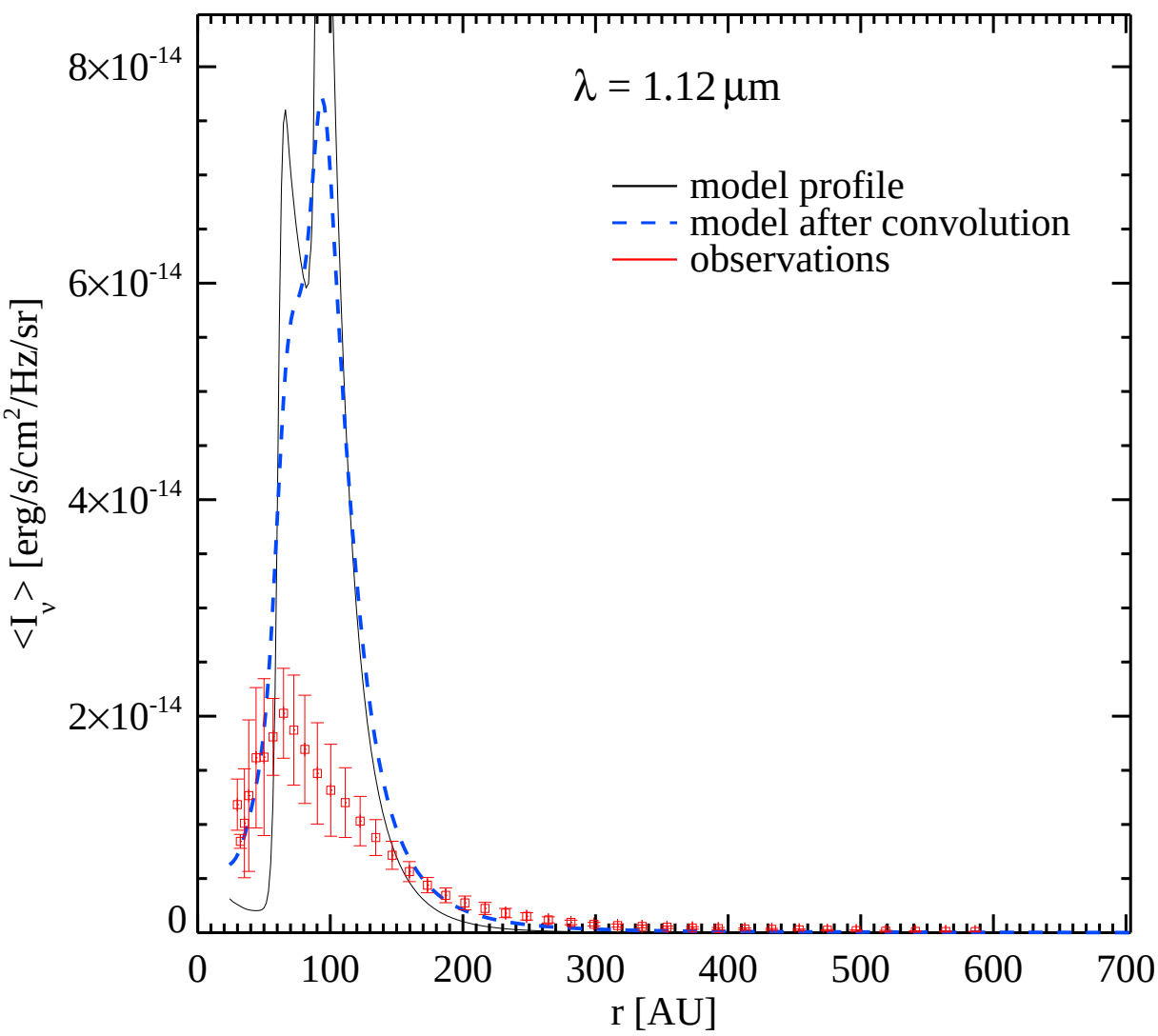

λ = 3556.85 μm
inclination = 30°
6.11" x 6.11"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
14.53
14.54
14.55
14.56
14.57
14.58
14.59
log I_ν [erg/s/cm²/Hz/sr]

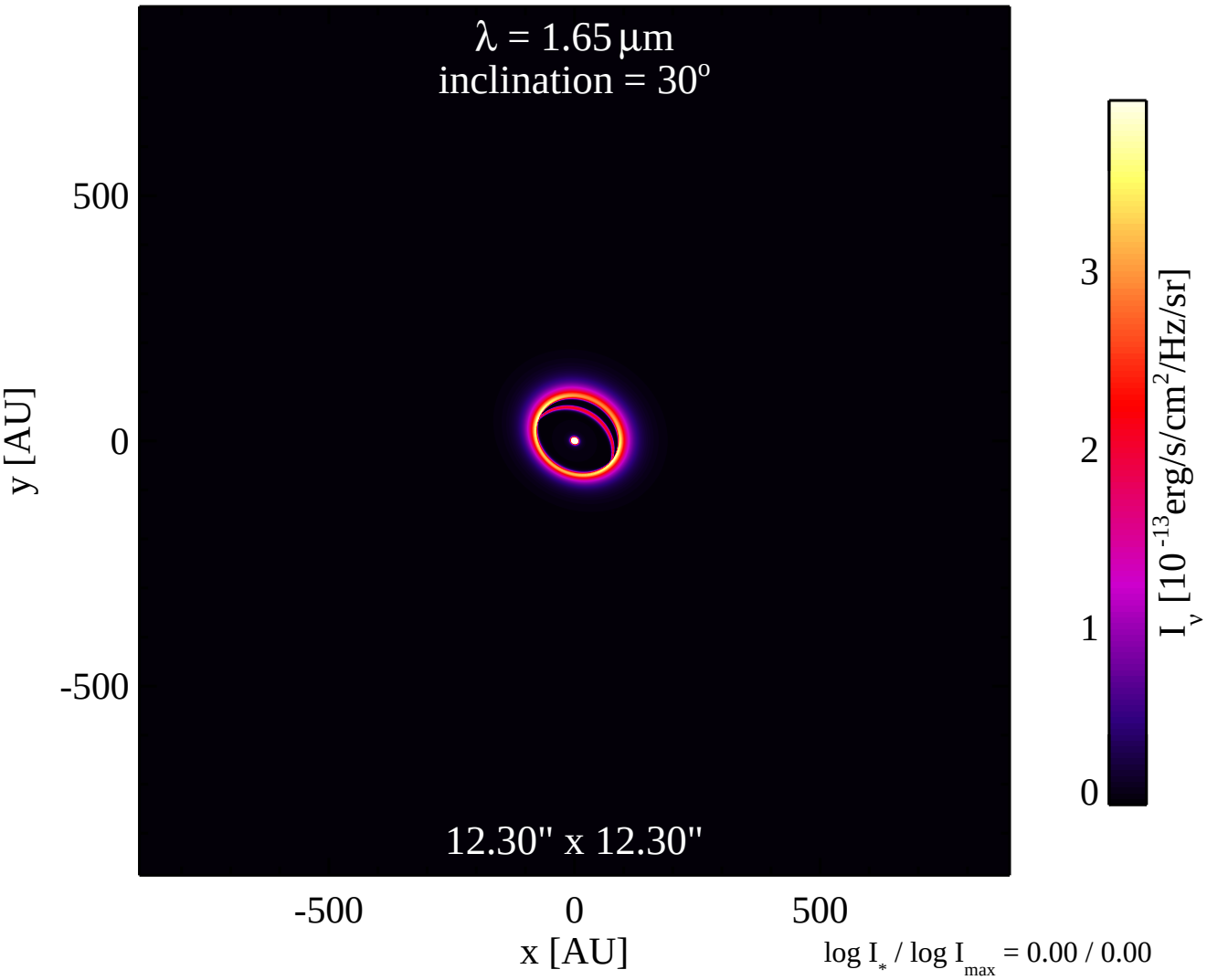

λ = 4500.04 μm
inclination = 30°
7.21" x 7.21"
400
200
0
-200
-400
y [AU]
-400
-200
0
200
400
x [AU]
14.68
14.69
14.70
14.71
log I_ν [erg/s/cm²/Hz/sr]

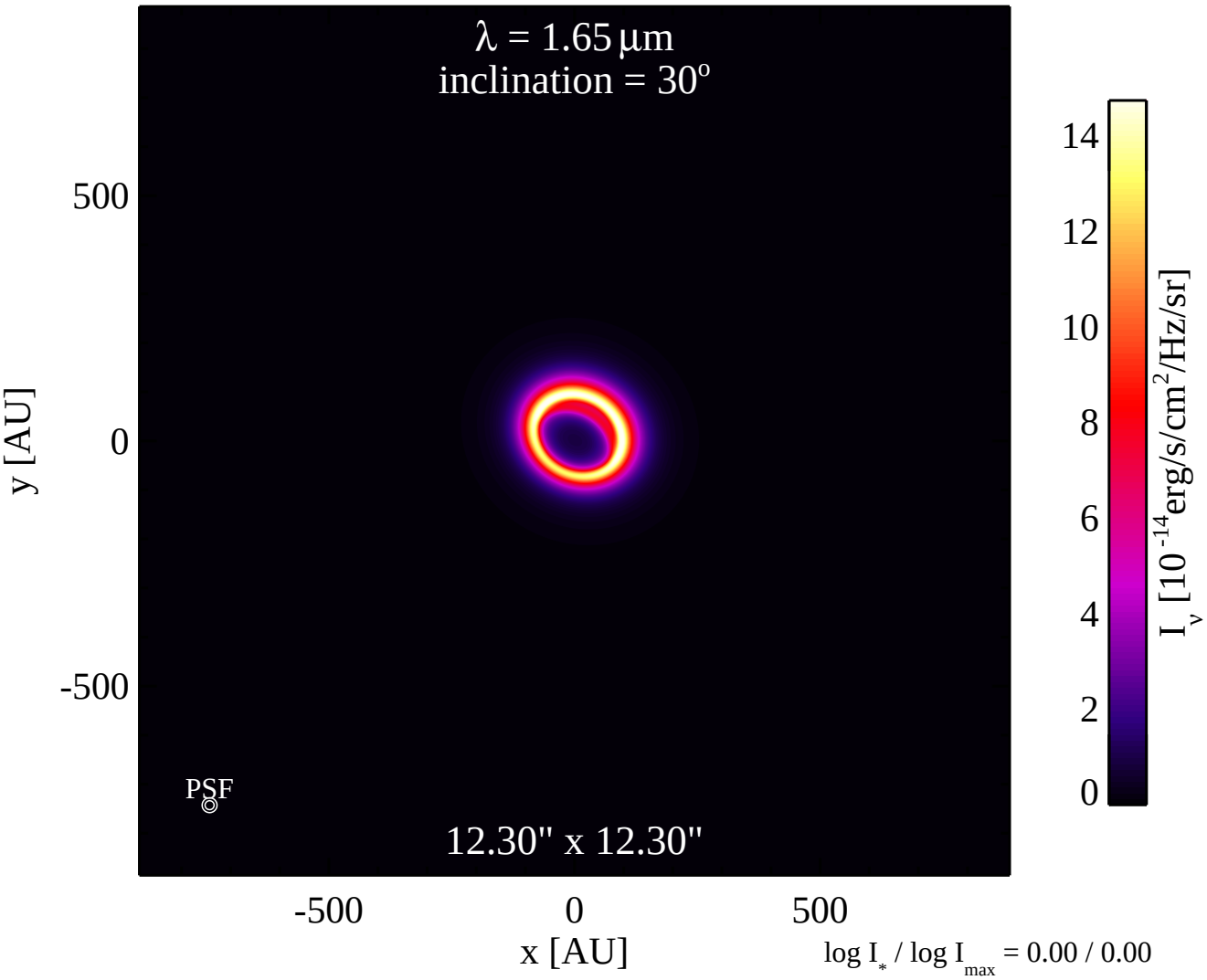

λ = 1.12 μm
inclination = 30°
9.77" x 9.77"
600
400
200
0
-200
-400
-600
y [AU]
-600
-400
-200
0
200
400
600
x [AU]
25
20
15
10
5
0
I_ν [10^-14 erg/s/cm^2/Hz/sr]
log I_* / log I_max = 0.00 / 0.00

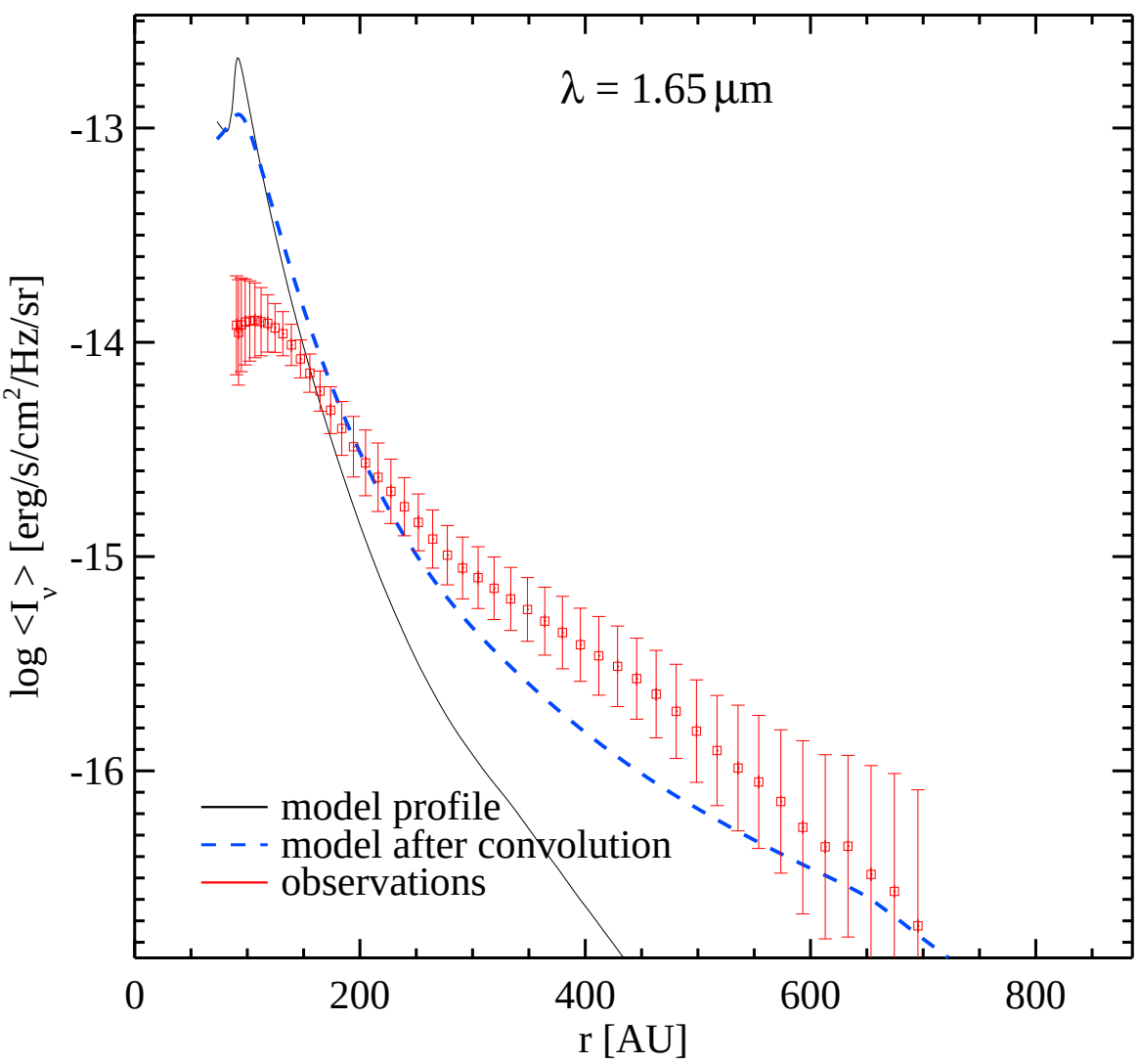

λ = 1.12 μm
inclination = 30°
PSF
9.77" x 9.77"
600
400
200
0
-200
-400
-600
y [AU]
-600
-400
-200
0
200
400
600
x [AU]
10
8
6
4
2
0
I_ν [10^-14 erg/s/cm^2/Hz/sr]
log I_* / log I_max = 0.00 / 0.00

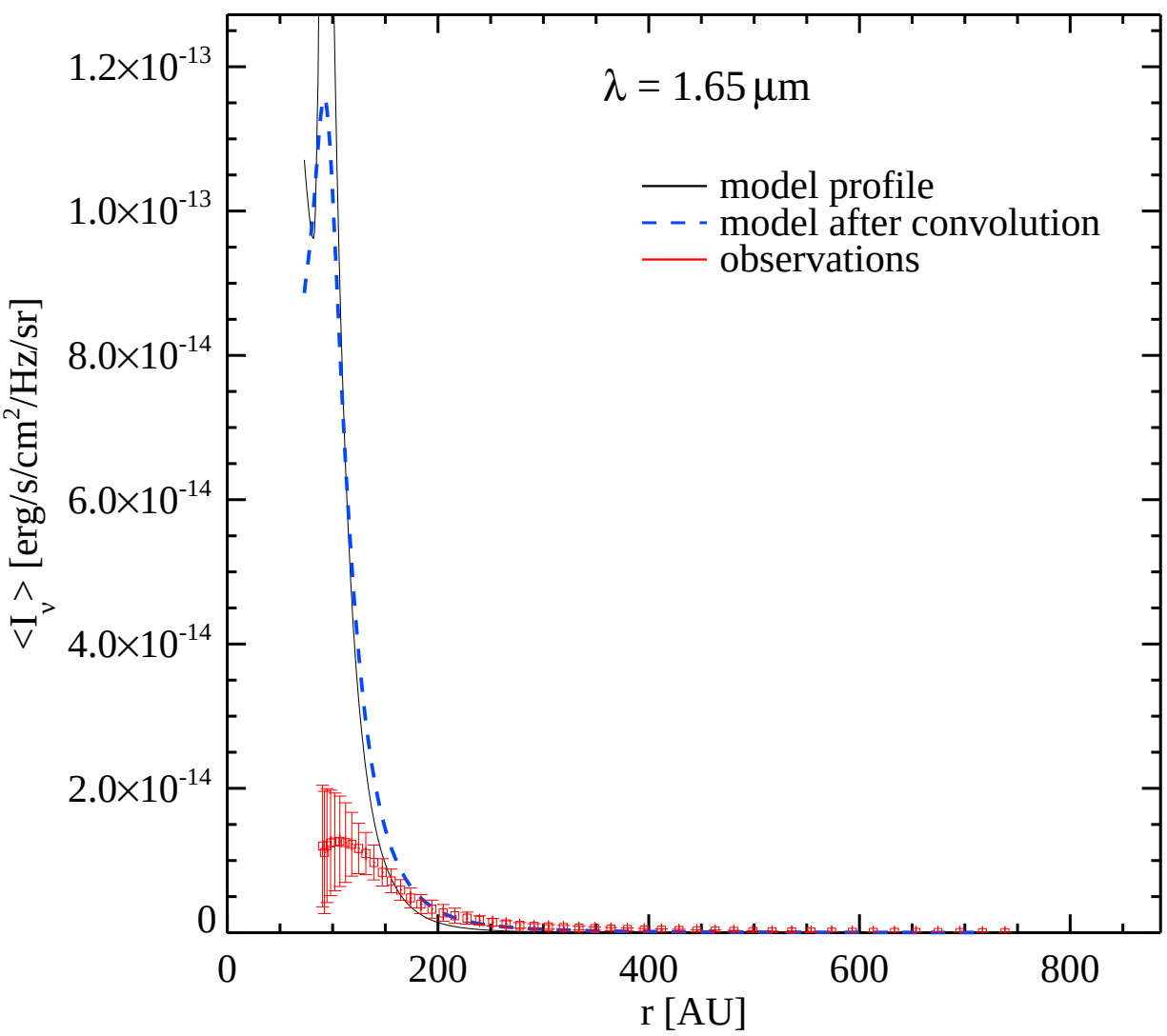

λ = 1.12 μm
model profile
model after convolution
observations
log <I_ν> [erg/s/cm²/Hz/sr]
r [AU]
-13
-14
-15
-16
-17
0
100
200
300
400
500
600
700

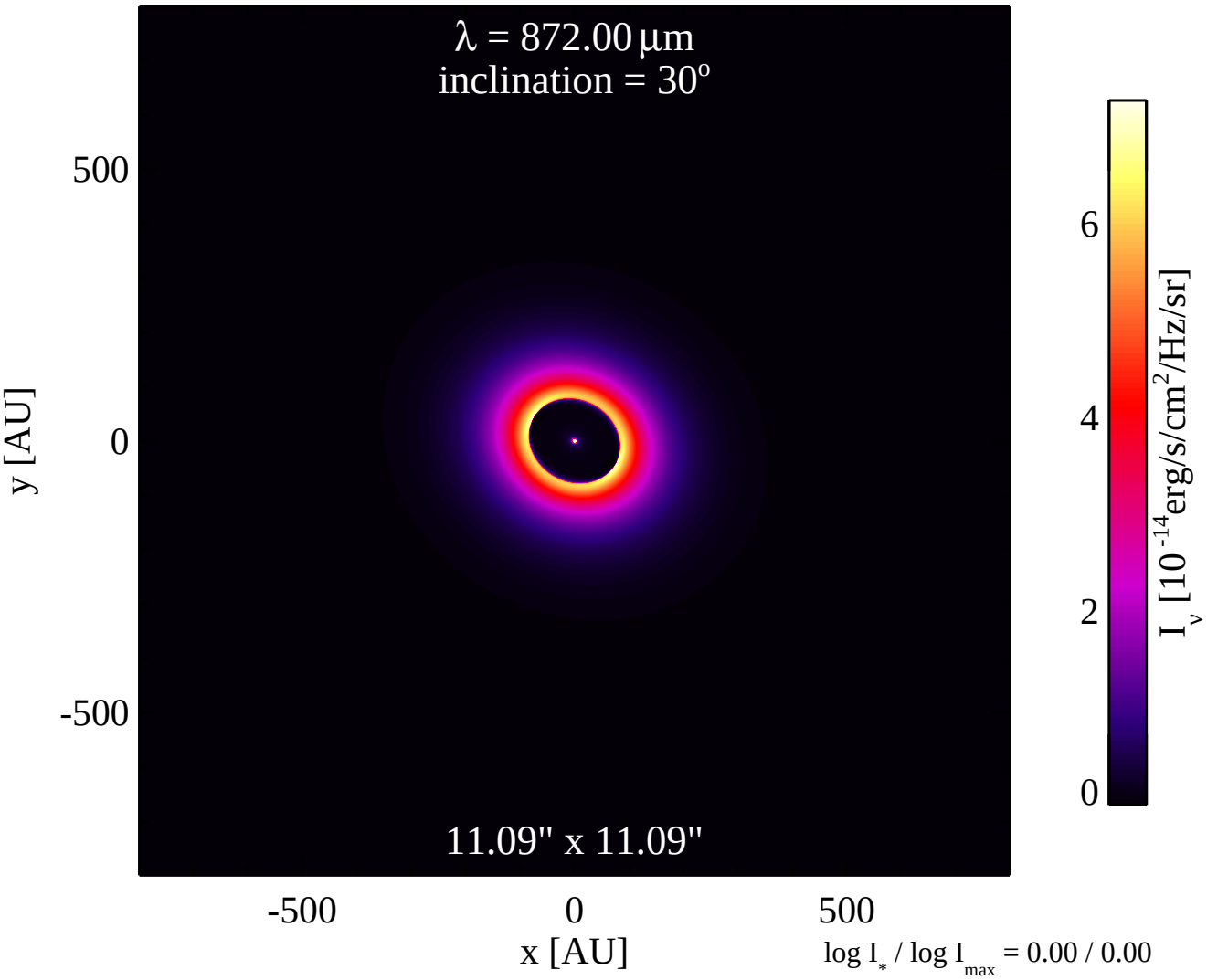

λ = 1.12 μm
model profile
model after convolution
observations
8×10-14
6×10-14
4×10-14
2×10-14
0
<I ν> [erg/s/cm2/Hz/sr]
0
100
200
300
400
500
600
700
r [AU]

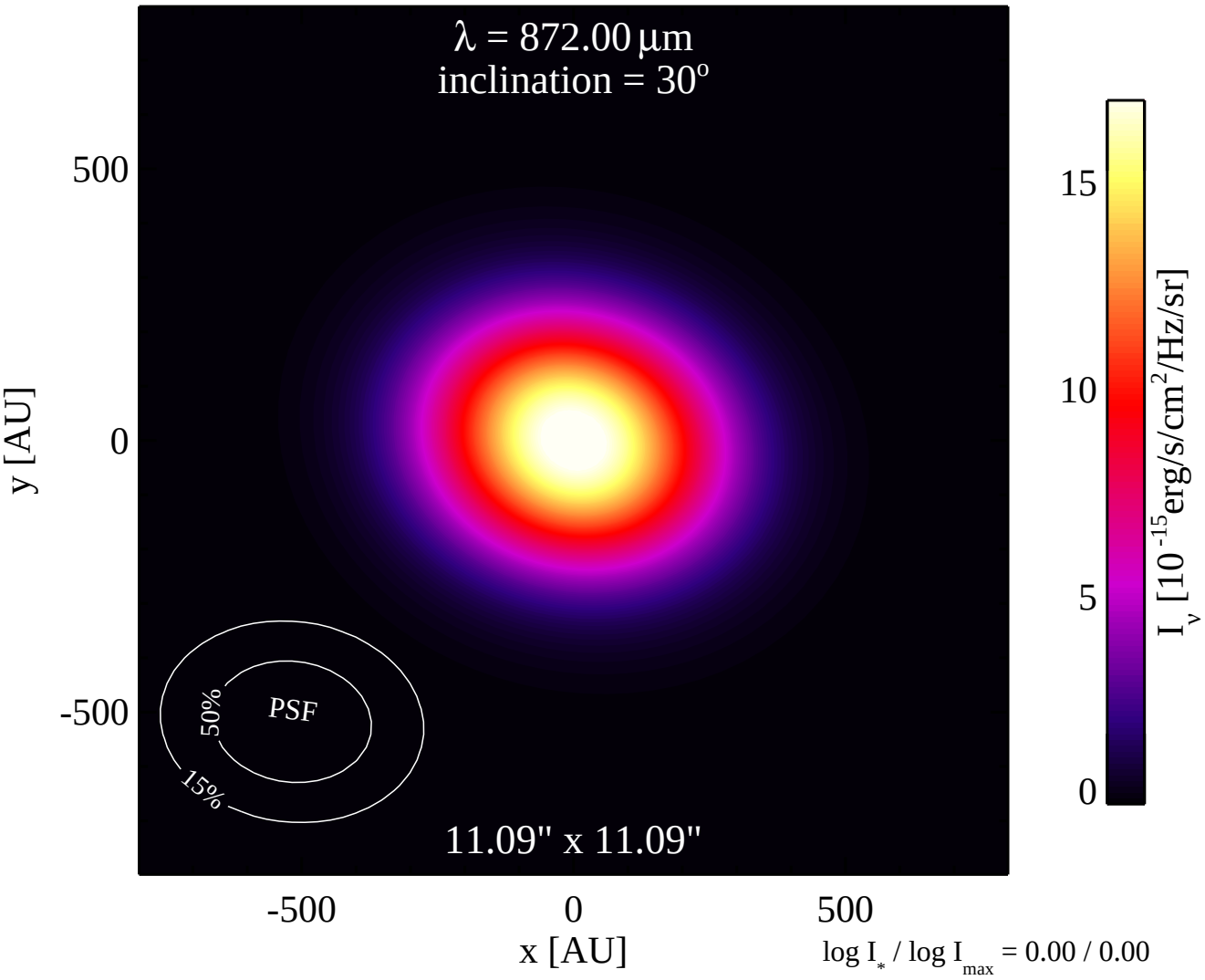

λ = 1.65 μm
inclination = 30°
500
0
-500
y [AU]
12.30" x 12.30"
-500
0
500
x [AU]
3
2
1
0
I_ν [10^-13 erg/s/cm^2/Hz/sr]
log I_* / log I_max = 0.00 / 0.00

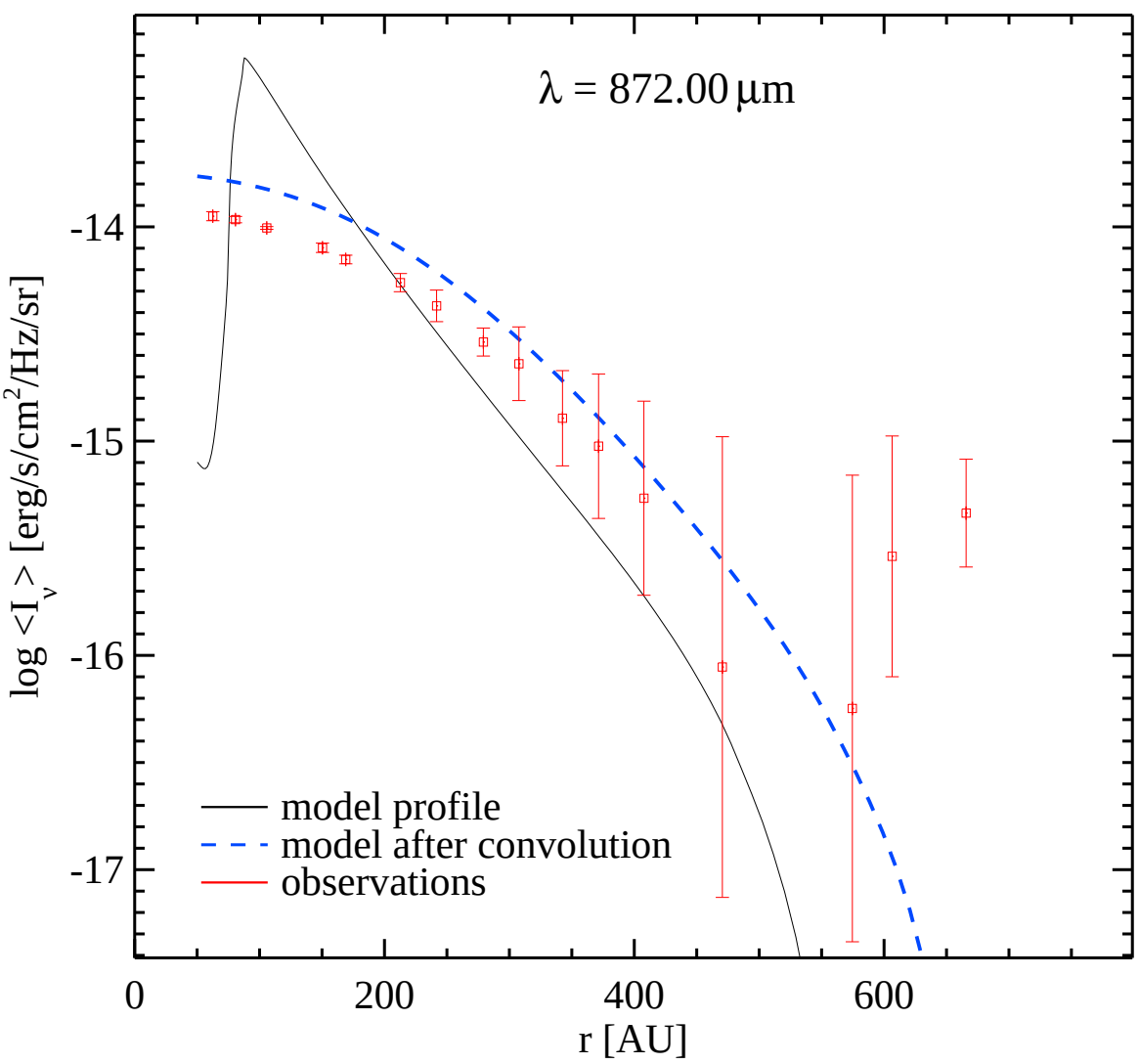

λ = 1.65 μm
inclination = 30°
500
0
-500
y [AU]
PSF
12.30" x 12.30"
-500
0
500
x [AU]
log I* / log Imax = 0.00 / 0.00
14
12
10
8
6
4
2
0
Iν [10-14erg/s/cm2/Hz/sr]

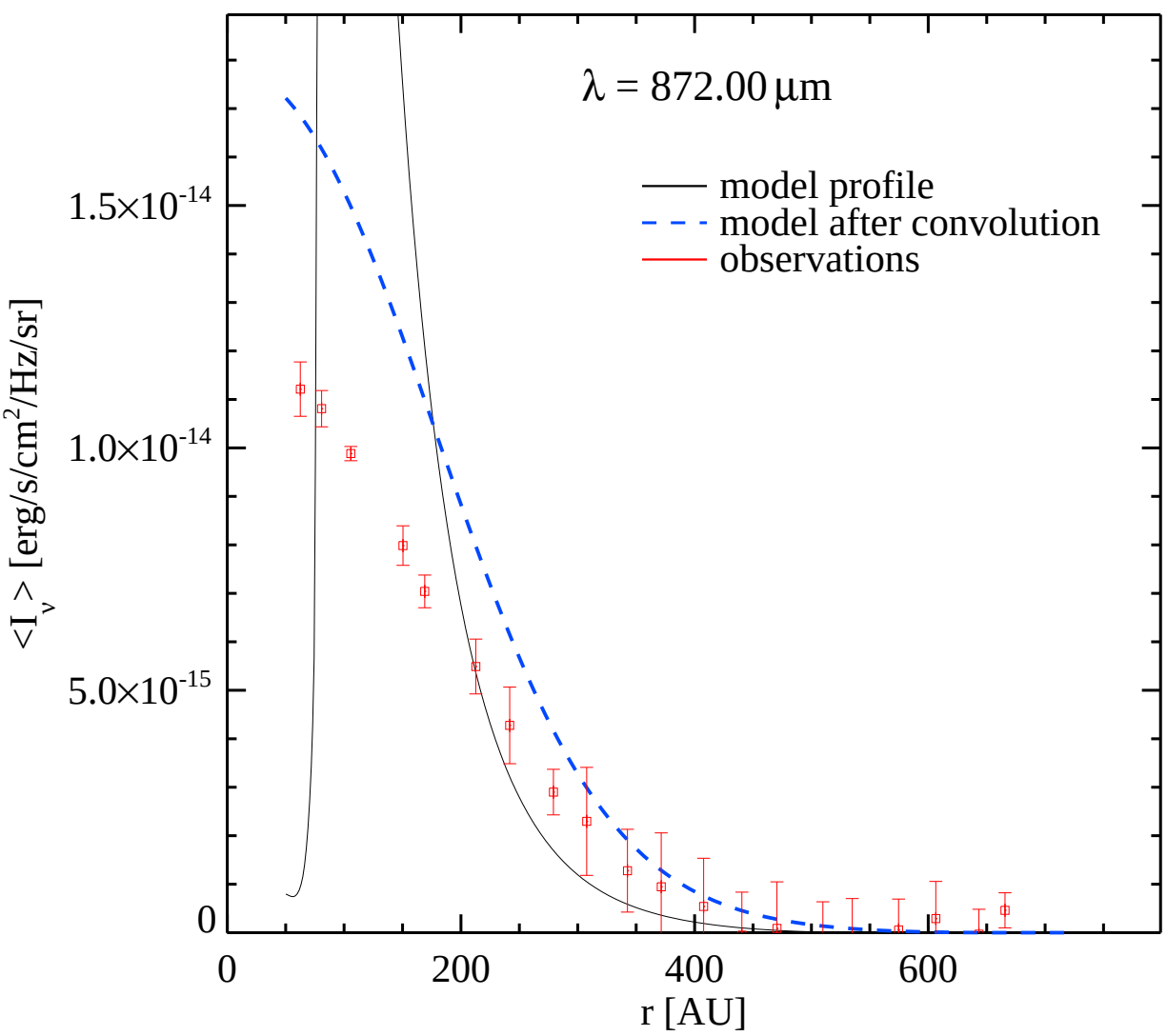

λ = 1.65 μm
-13
-14
-15
-16
log <I_ν> [erg/s/cm²/Hz/sr]
0
200
400
600
800
r [AU]
model profile
model after convolution
observations

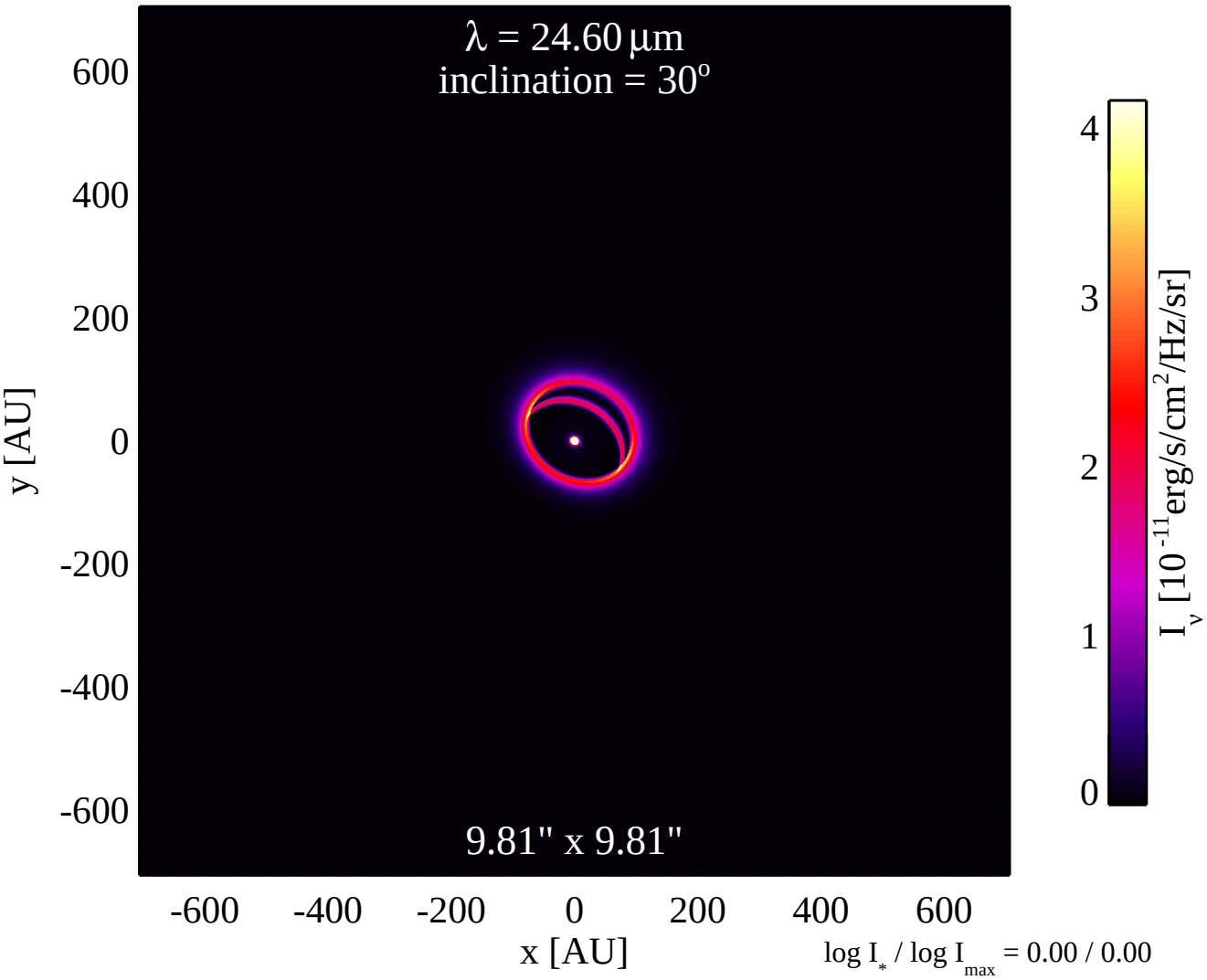

λ = 1.65 μm
model profile
model after convolution
observations
<I_ν> [erg/s/cm²/Hz/sr]
1.2×10^-13
1.0×10^-13
8.0×10^-14
6.0×10^-14
4.0×10^-14
2.0×10^-14
0
0
200
400
600
800
r [AU]

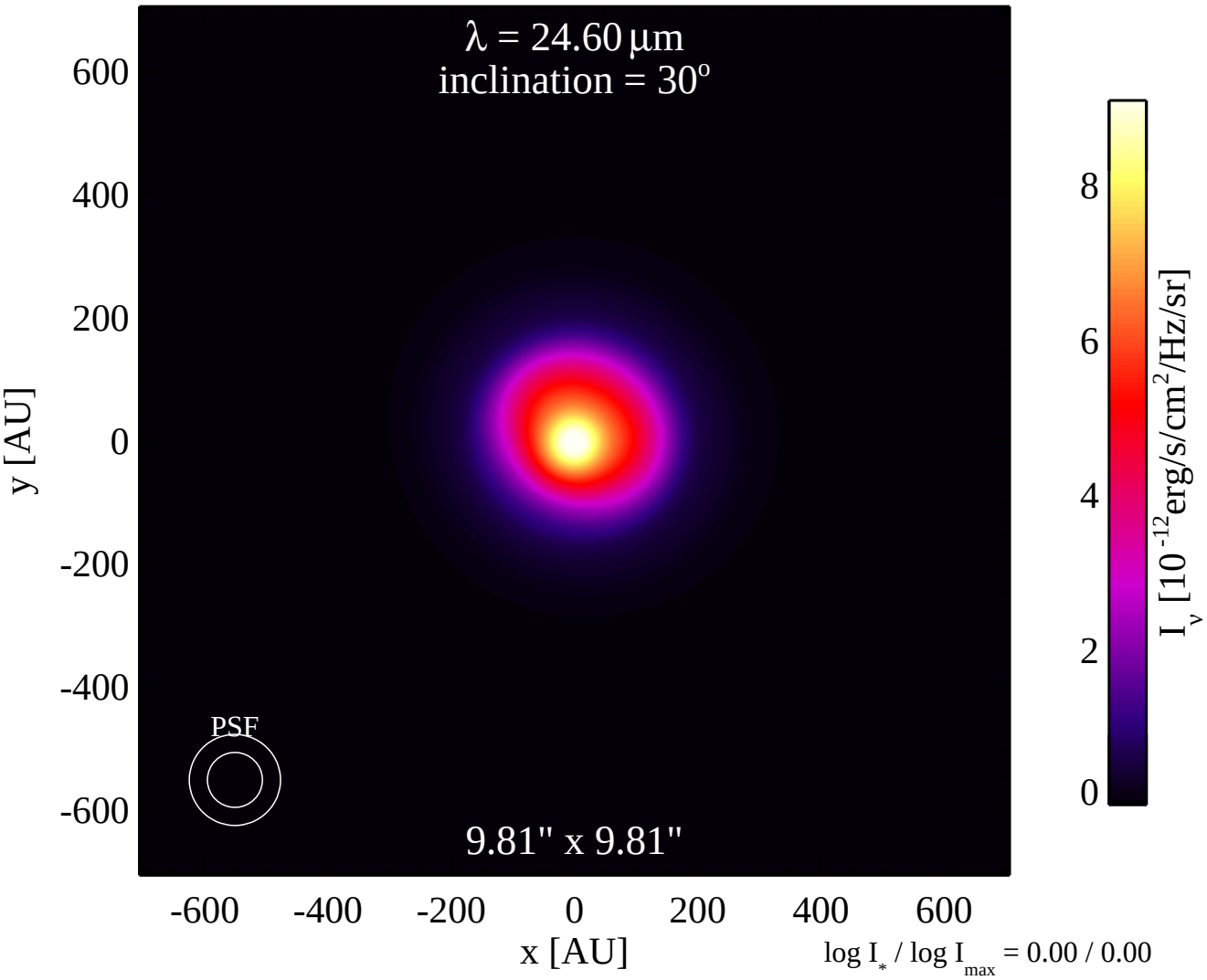

λ = 872.00 μm
inclination = 30°
11.09" x 11.09"
500
0
-500
y [AU]
-500
0
500
x [AU]
6
4
2
0
I_ν [10^-14 erg/s/cm^2/Hz/sr]
log I_* / log I_max = 0.00 / 0.00

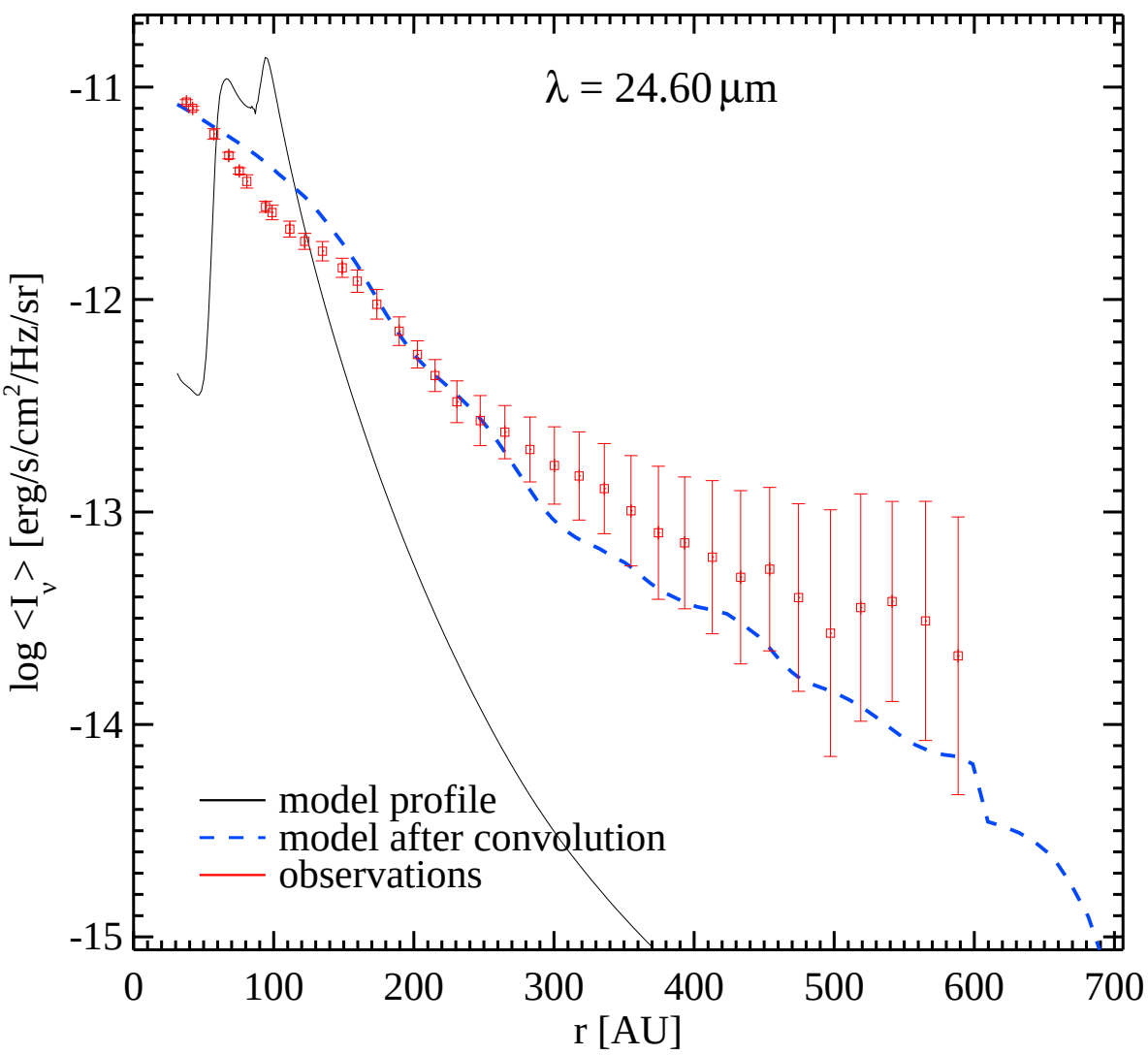

λ = 872.00 μm
inclination = 30°
500
0
-500
y [AU]
-500
0
500
x [AU]
PSF
50%
15%
11.09" x 11.09"
15
10
5
0
I_ν [10^-15 erg/s/cm^2/Hz/sr]
log I_* / log I_max = 0.00 / 0.00

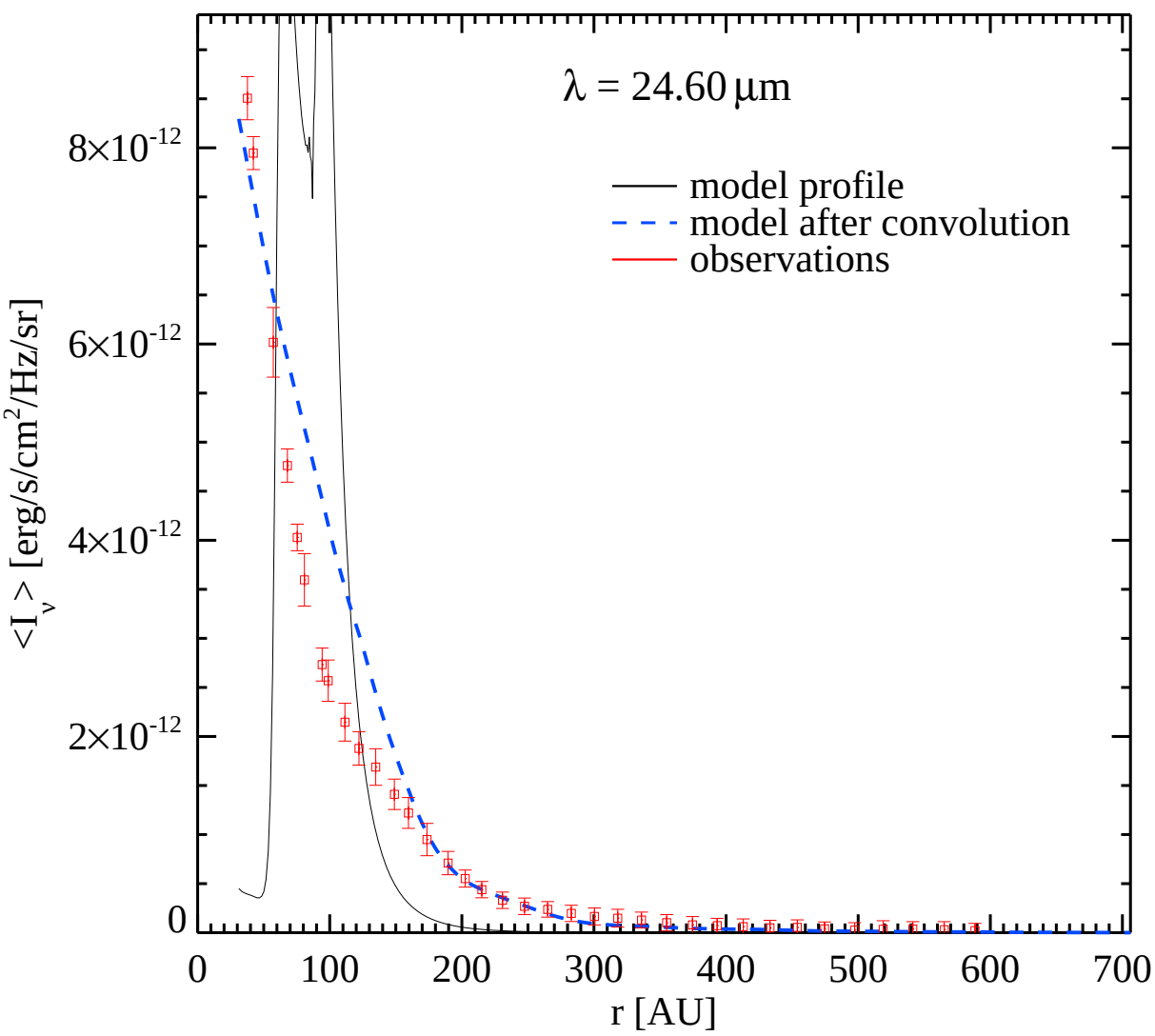

λ = 872.00 μm
log <I_ν> [erg/s/cm²/Hz/sr]
-14
-15
-16
-17
0
200
400
600
r [AU]
model profile
model after convolution
observations

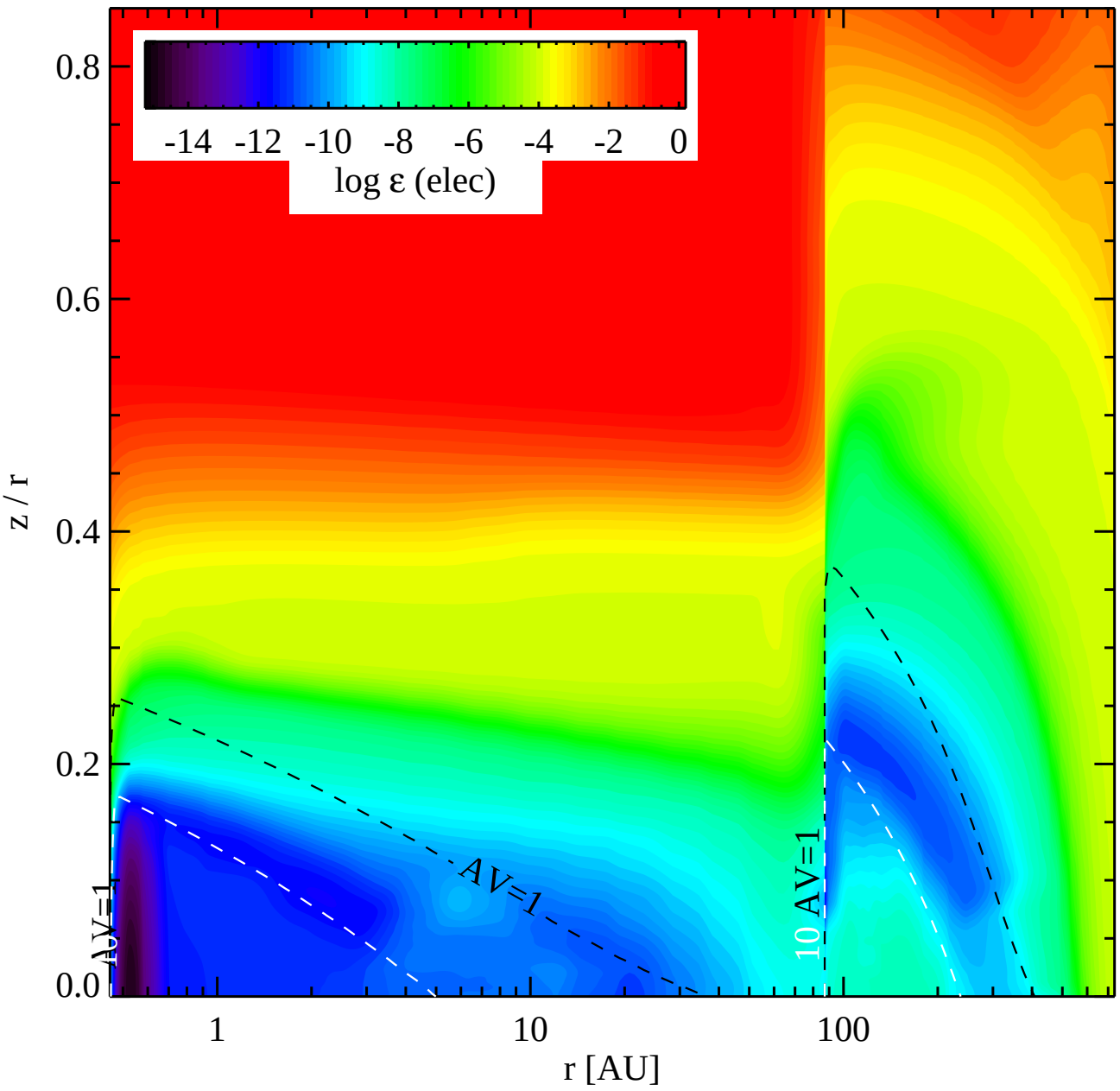

λ = 872.00 μm
model profile
model after convolution
observations
1.5×10-14
1.0×10-14
5.0×10-15
0
<Iν> [erg/s/cm2/Hz/sr]
0
200
400
600
r [AU]

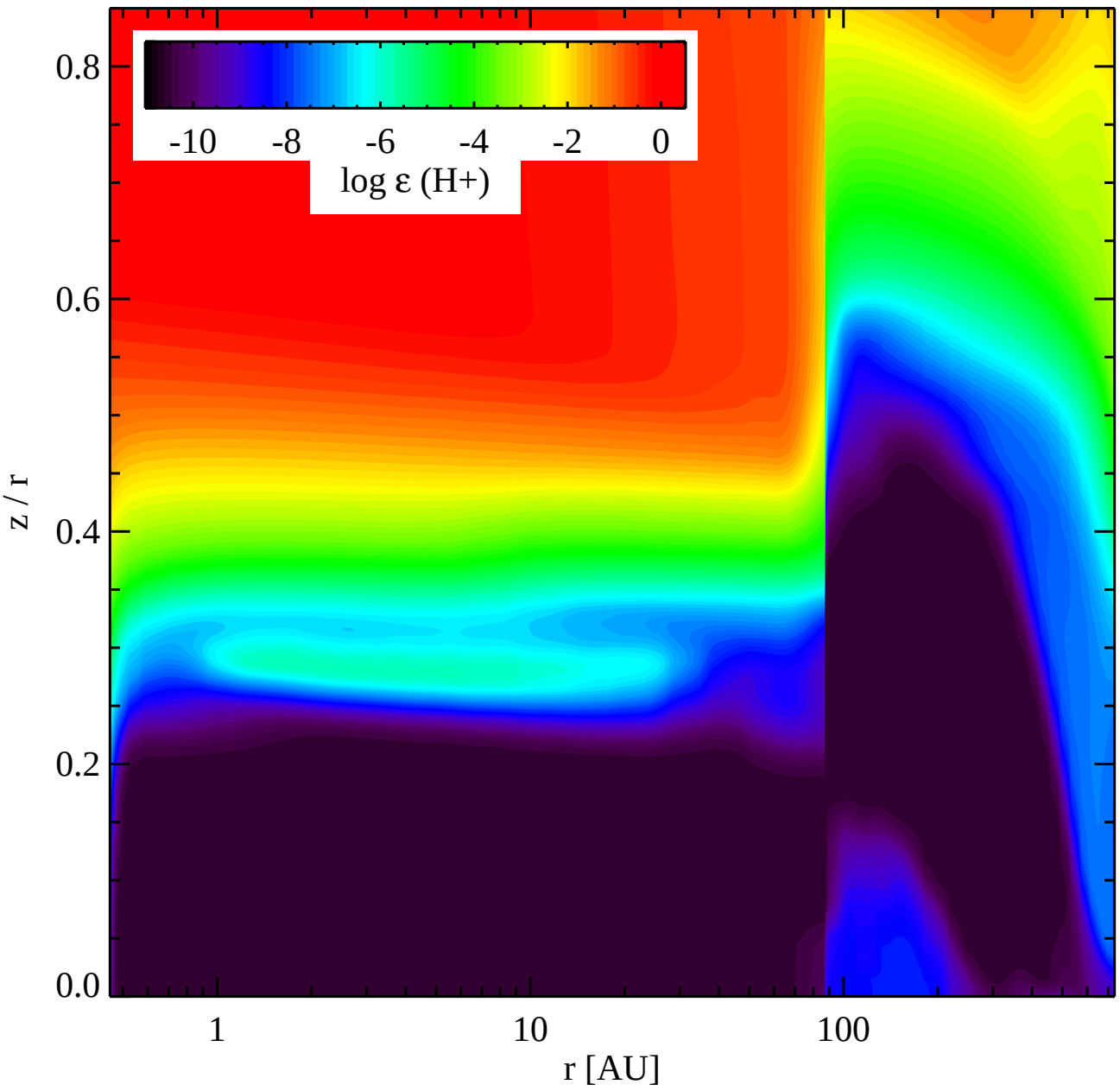

λ = 24.60 μm
inclination = 30°
9.81" x 9.81"
600
400
200
0
-200
-400
-600
y [AU]
-600
-400
-200
0
200
400
600
x [AU]
4
3
2
1
0
I_ν [10^-11 erg/s/cm^2/Hz/sr]
log I_* / log I_max = 0.00 / 0.00

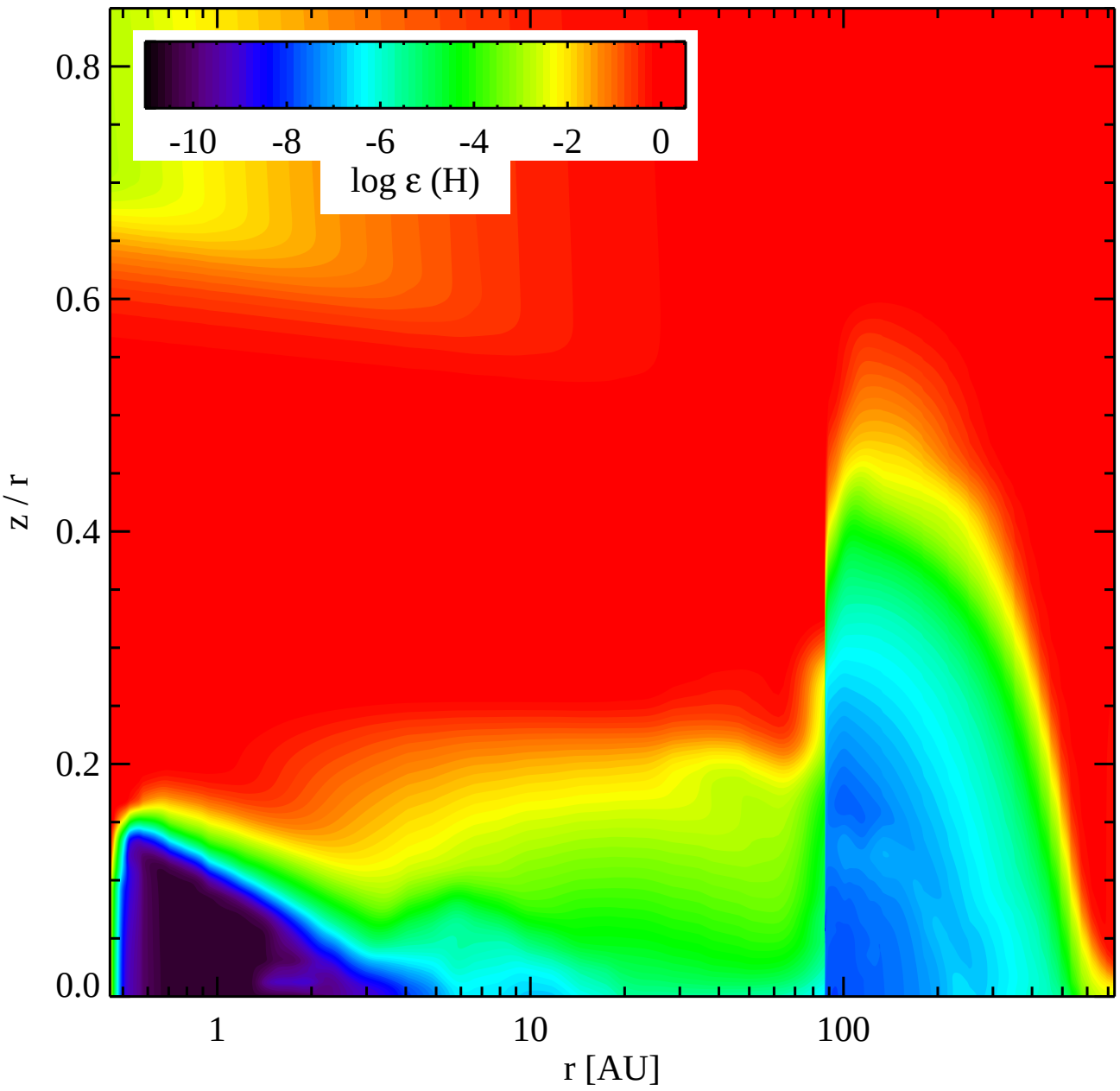

λ = 24.60 μm
inclination = 30°
PSF
9.81" x 9.81"
600
400
200
0
-200
-400
-600
y [AU]
-600
-400
-200
0
200
400
600
x [AU]
8
6
4
2
0
I_ν [10^-12 erg/s/cm^2/Hz/sr]
log I_* / log I_max = 0.00 / 0.00

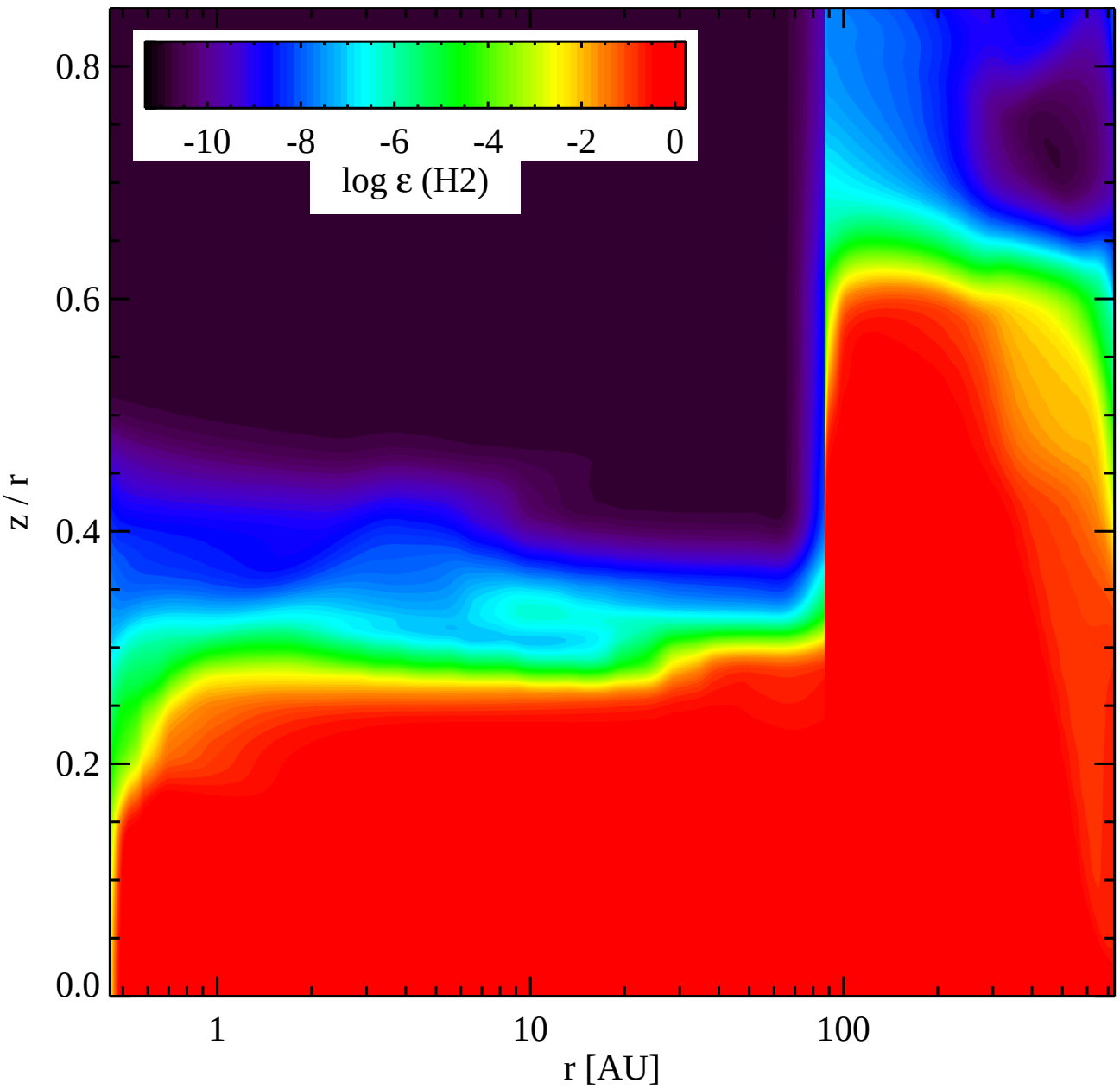

λ = 24.60 μm
-11
-12
-13
-14
-15
0
100
200
300
400
500
600
700
r [AU]
log <I_ν> [erg/s/cm²/Hz/sr]
model profile
model after convolution
observations

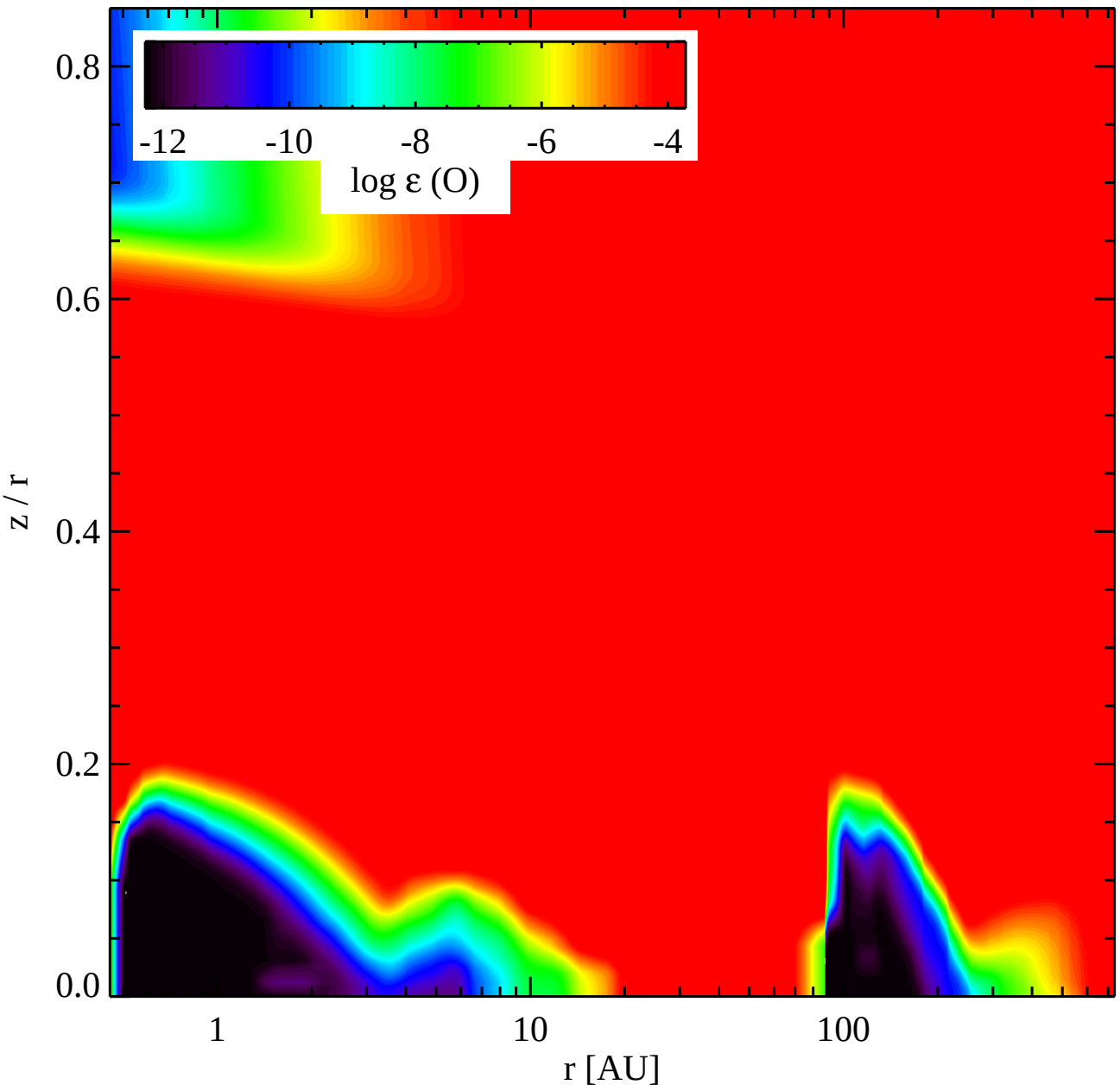

λ = 24.60 μm
model profile
model after convolution
observations
8×10-12
6×10-12
4×10-12
2×10-12
0
<Iν> [erg/s/cm2/Hz/sr]
0
100
200
300
400
500
600
700
r [AU]

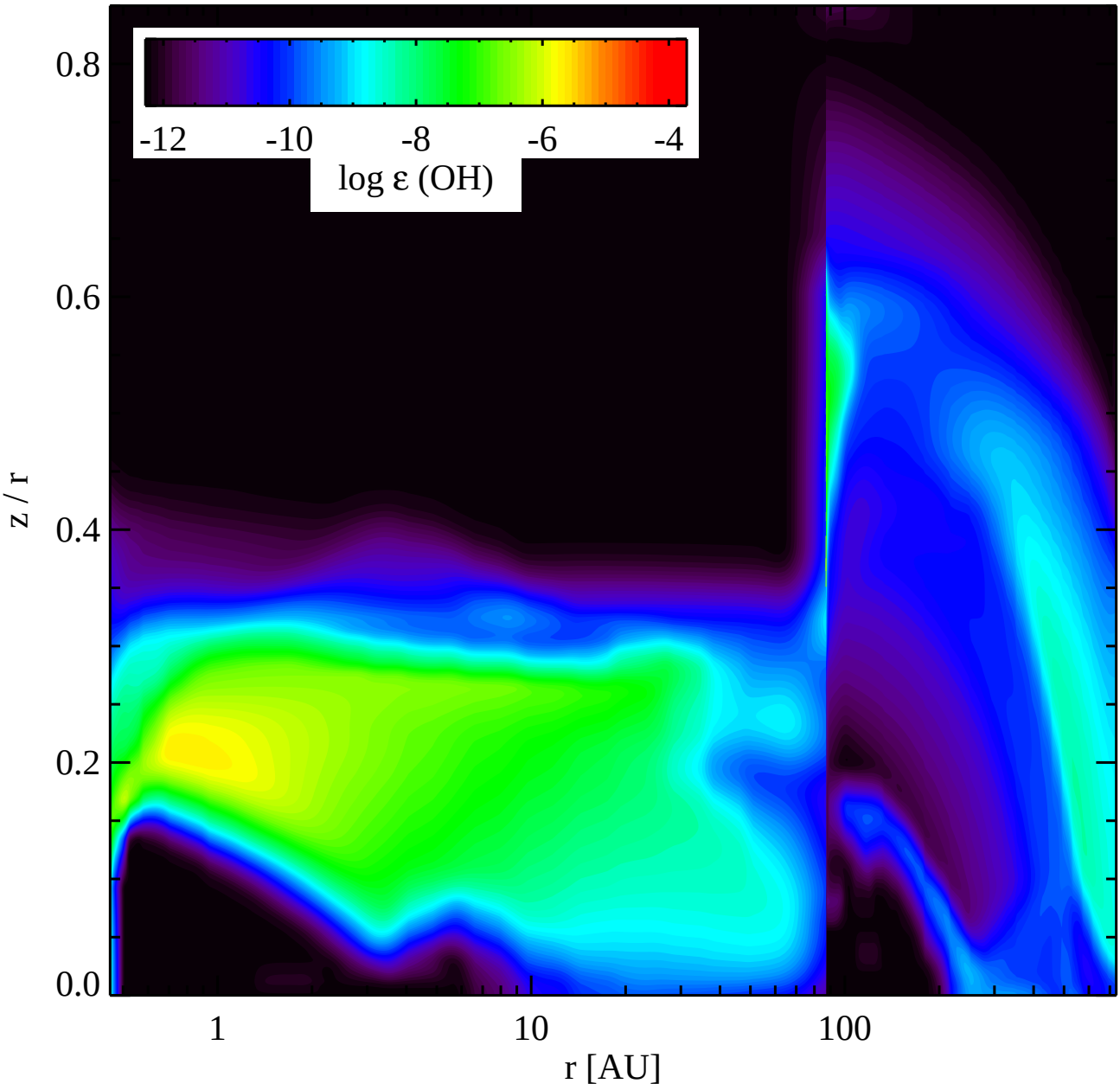

-14 -12 -10 -8 -6 -4 -2 0
log ε (elec)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]
AV=1
AV=1
10 AV=1

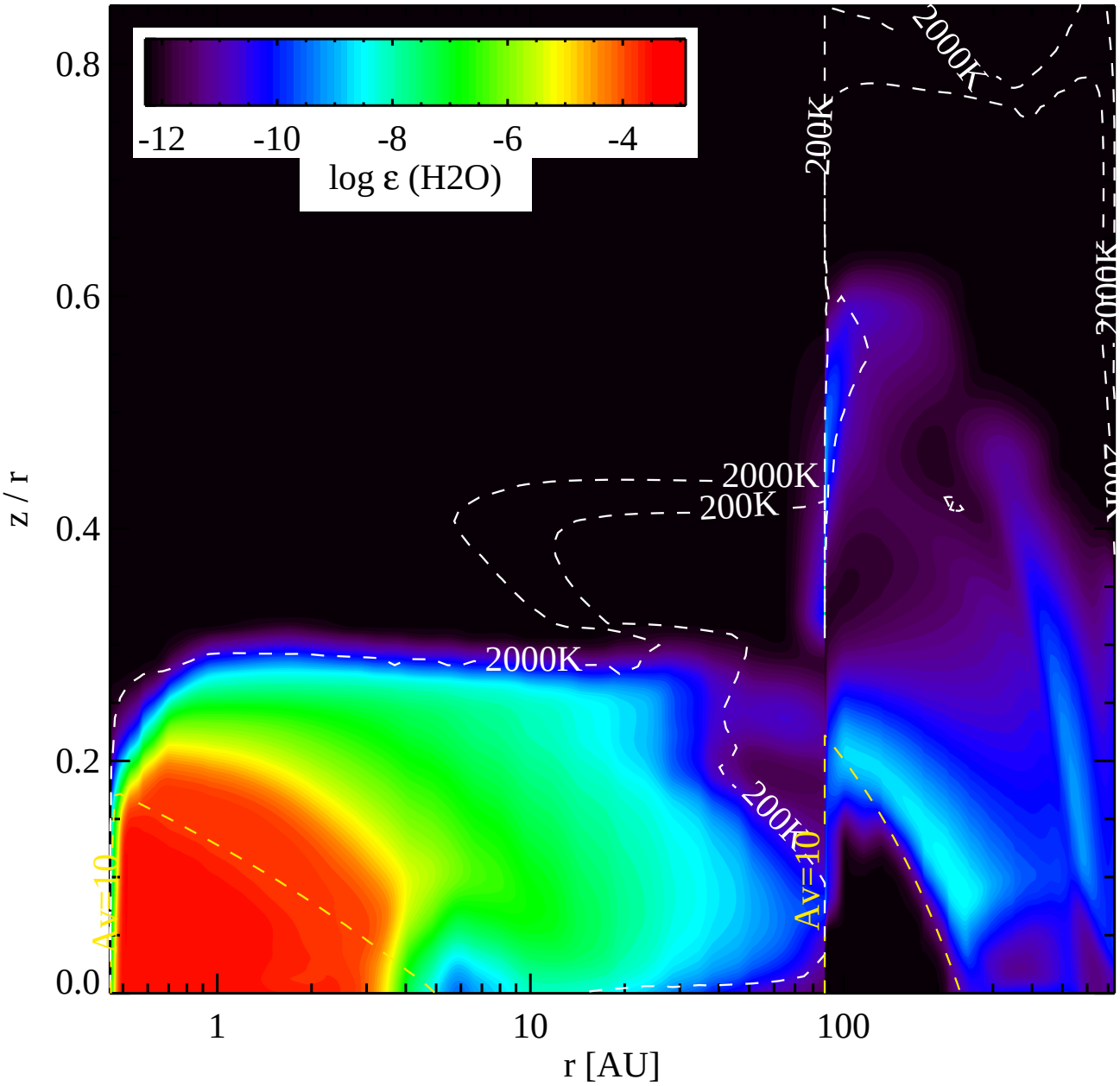

-10
-8
-6
-4
-2
0
log ε (H+)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

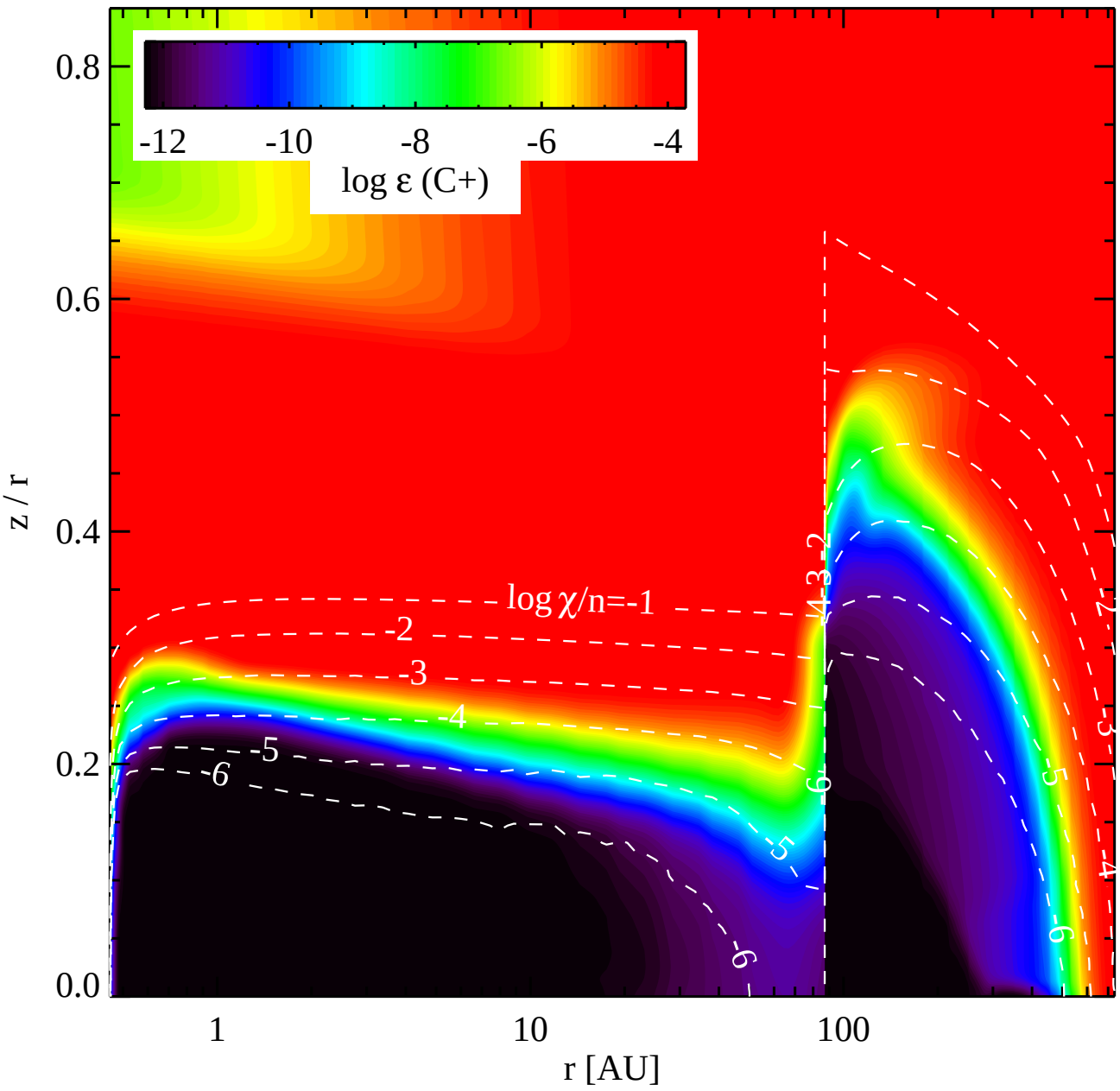

-10
-8
-6
-4
-2
0
log ε (H)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

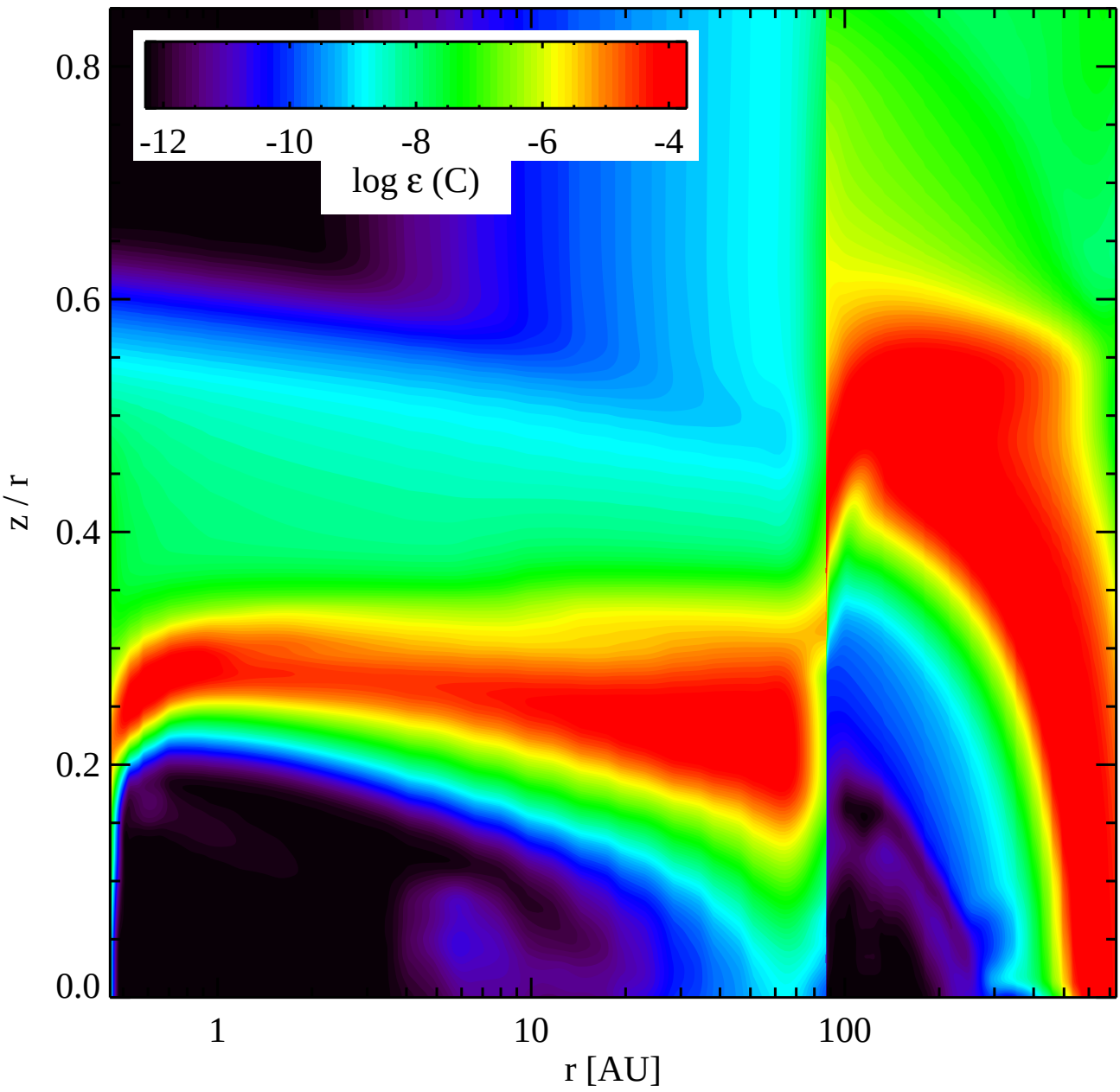

-10
-8
-6
-4
-2
0
log ε (H2)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

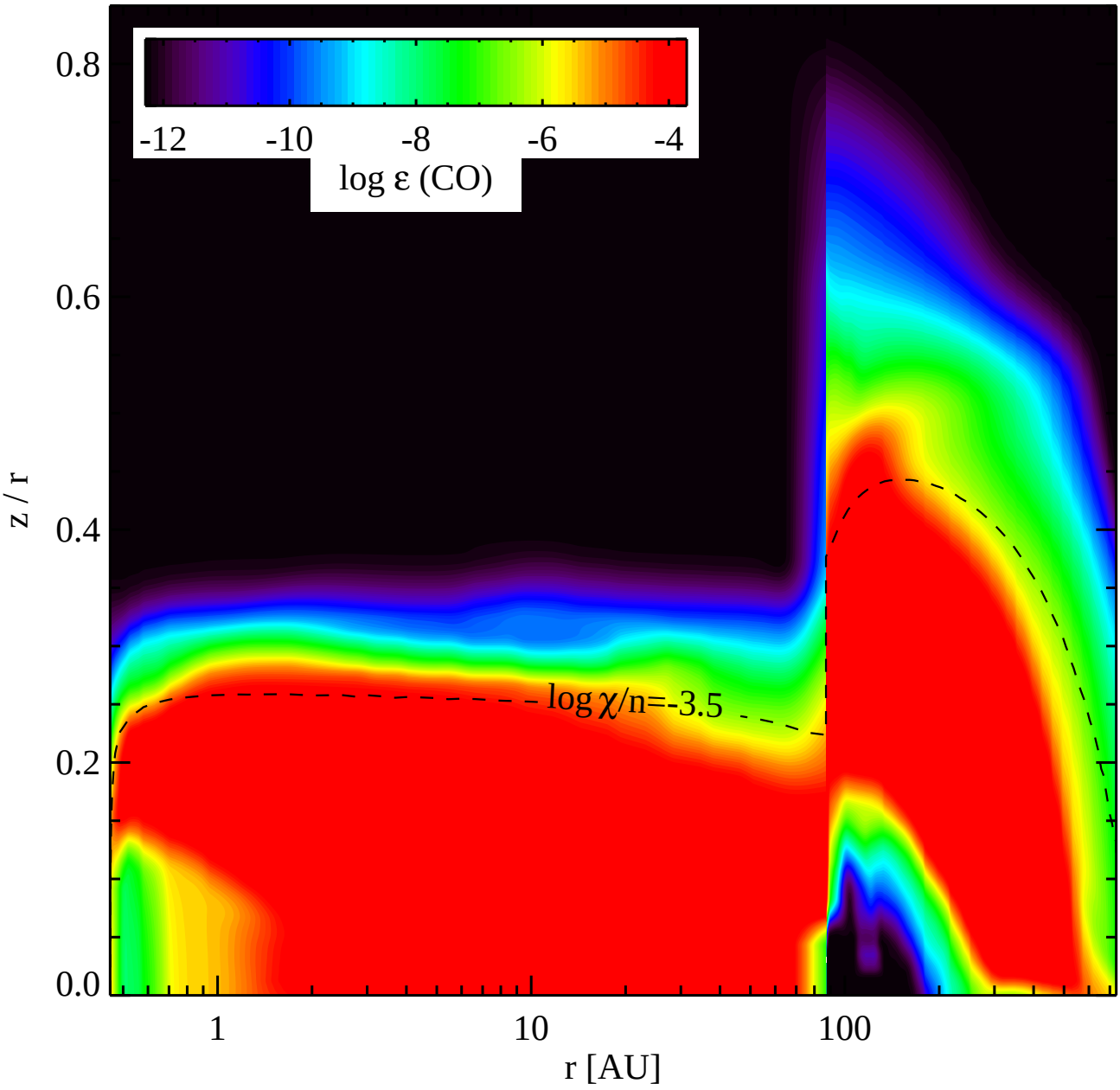

-12
-10
-8
-6
-4
log ε (O)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

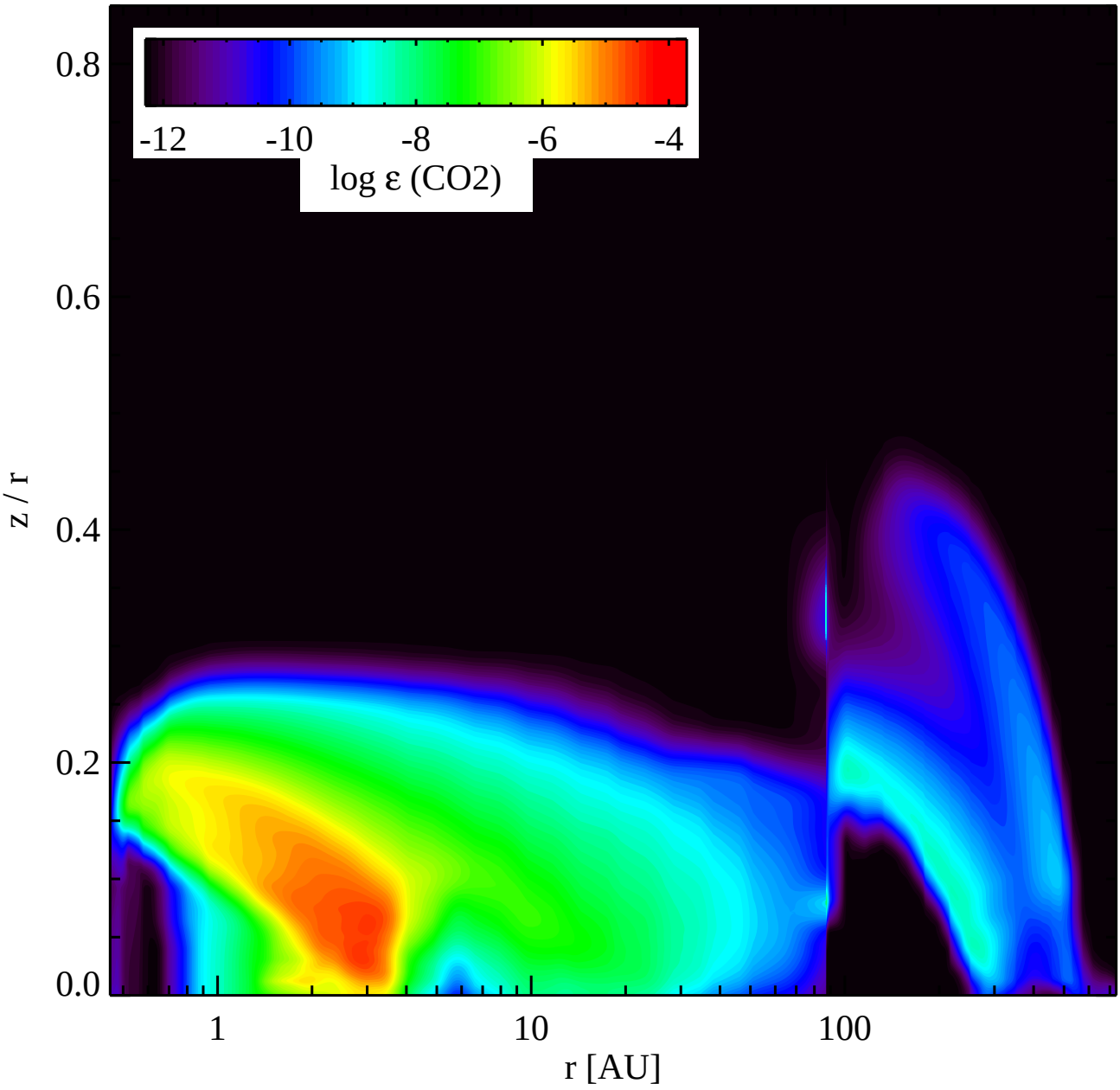

-12
-10
-8
-6
-4
log ε (OH)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

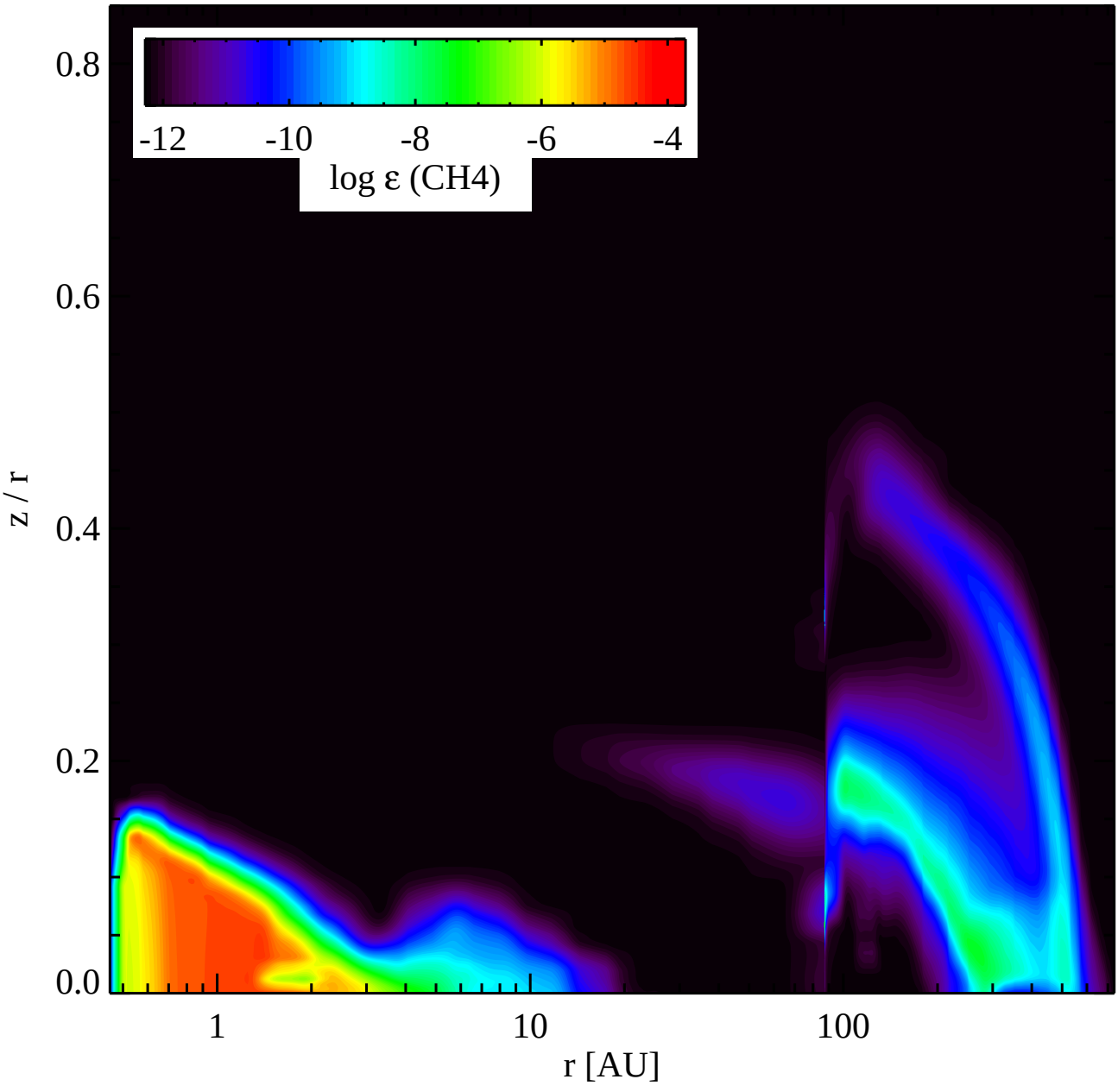

-12
-10
-8
-6
-4
log ε (H2O)
2000K
200K
2000K
200K
2000K
200K
Av=10
Av=10
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

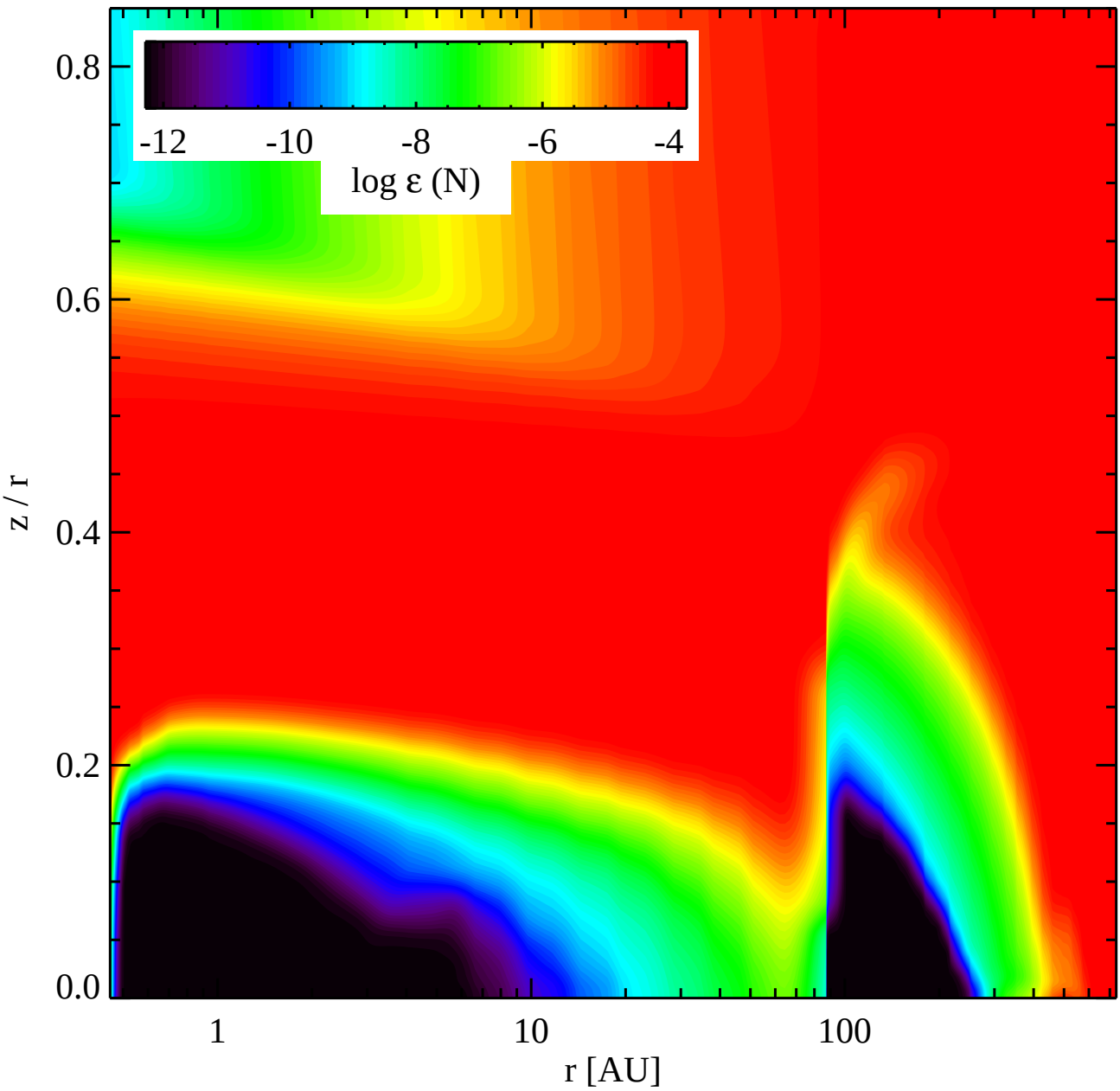

-12
-10
-8
-6
-4
log ε (C+)
0.8
0.6
0.4
0.2
0.0
z / r
log χ/n=-1
-2
-3
-4
-5
-6
1
10
100
r [AU]

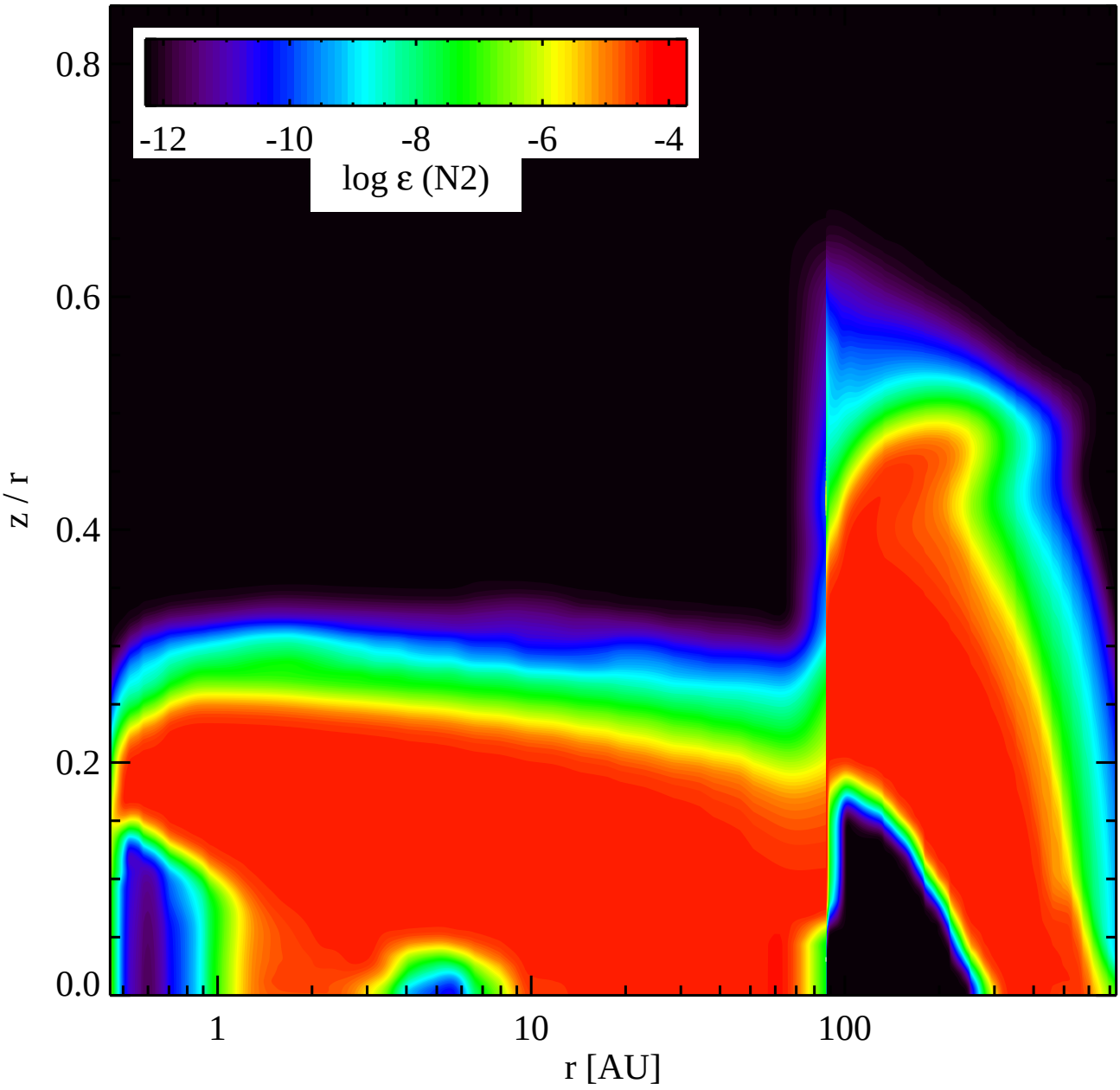

-12
-10
-8
-6
-4
log ε (C)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

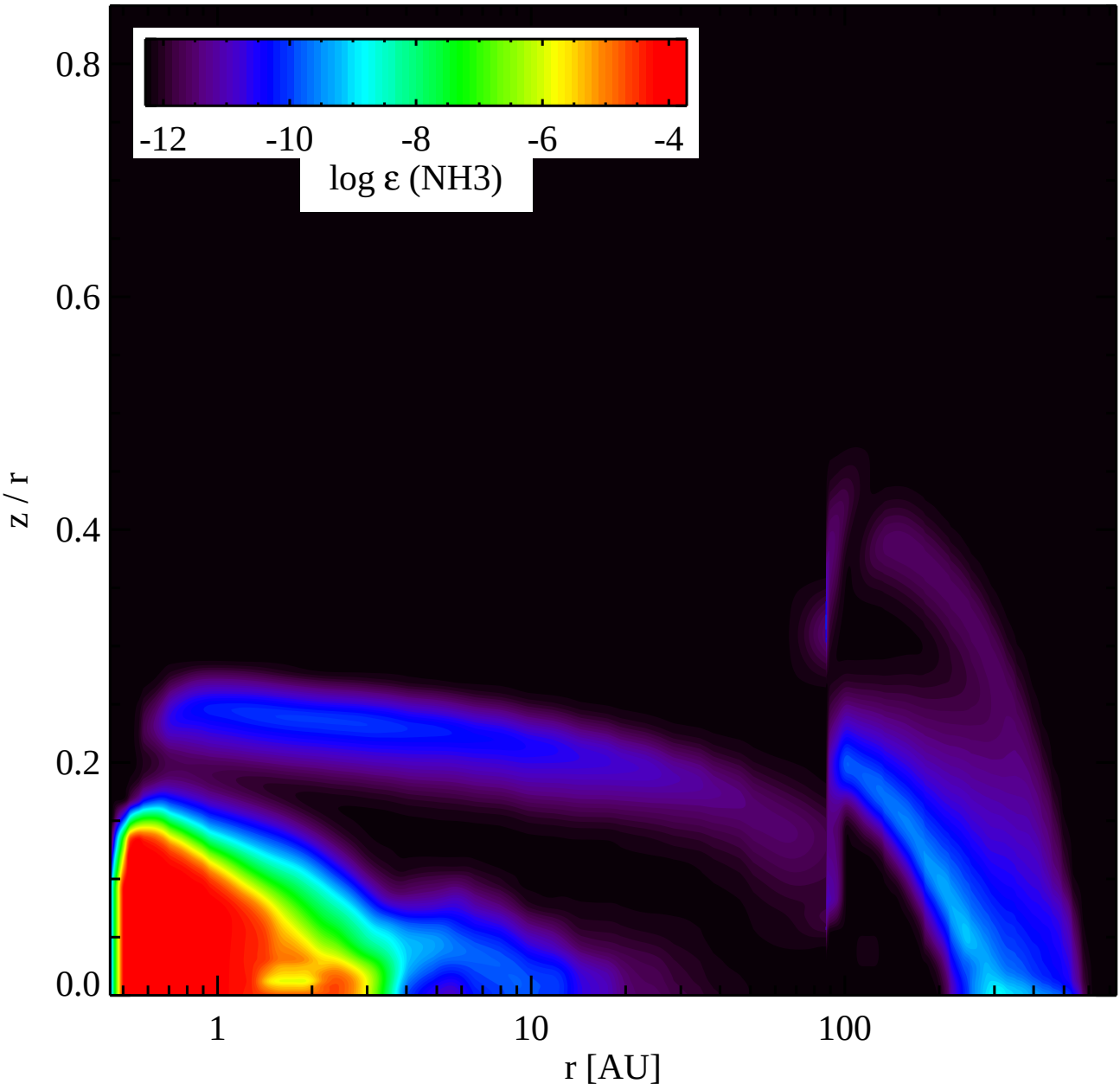

-12
-10
-8
-6
-4
log ε (CO)
log χ/n=-3.5
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

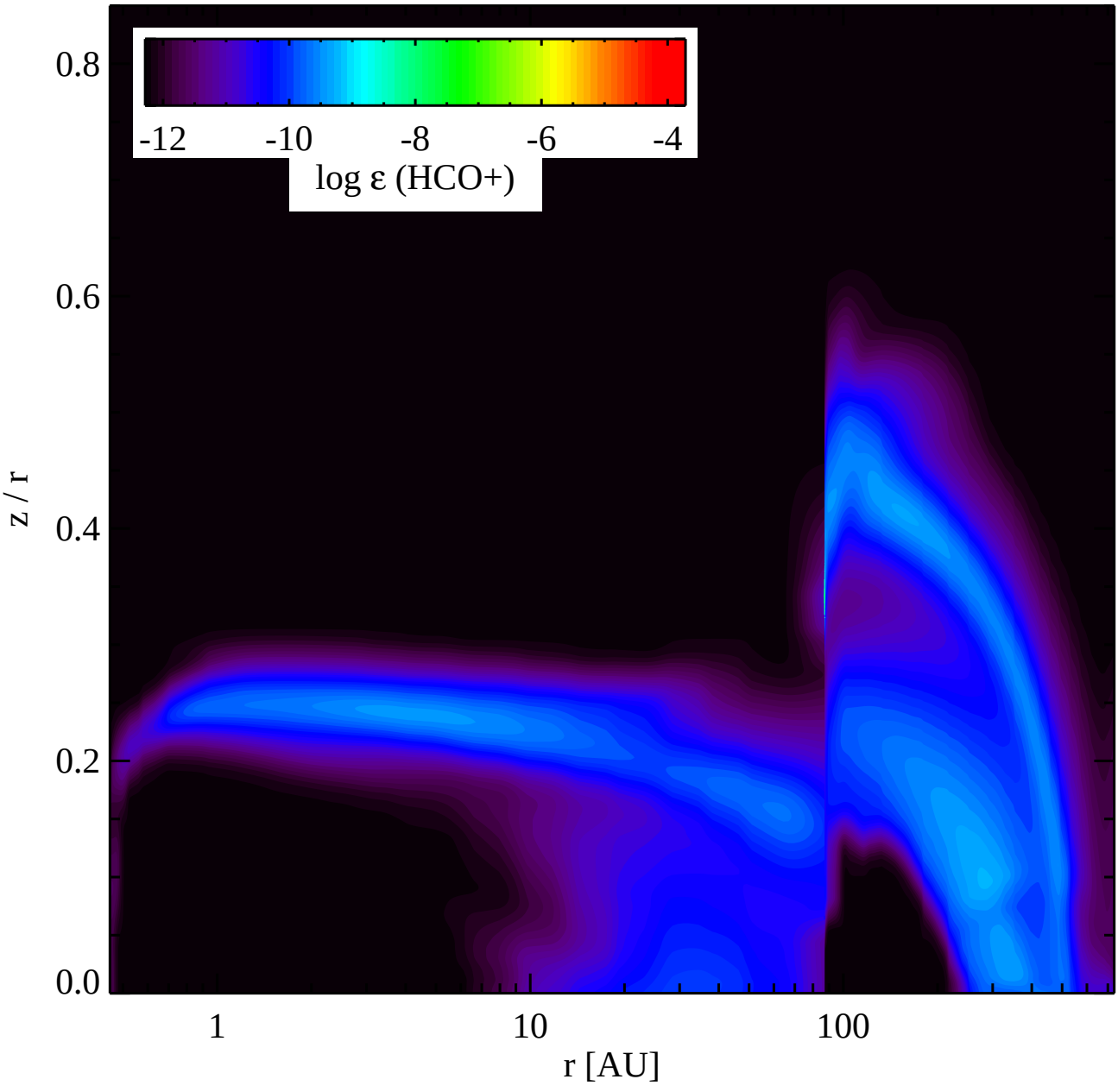

-12
-10
-8
-6
-4
log ε (CO2)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

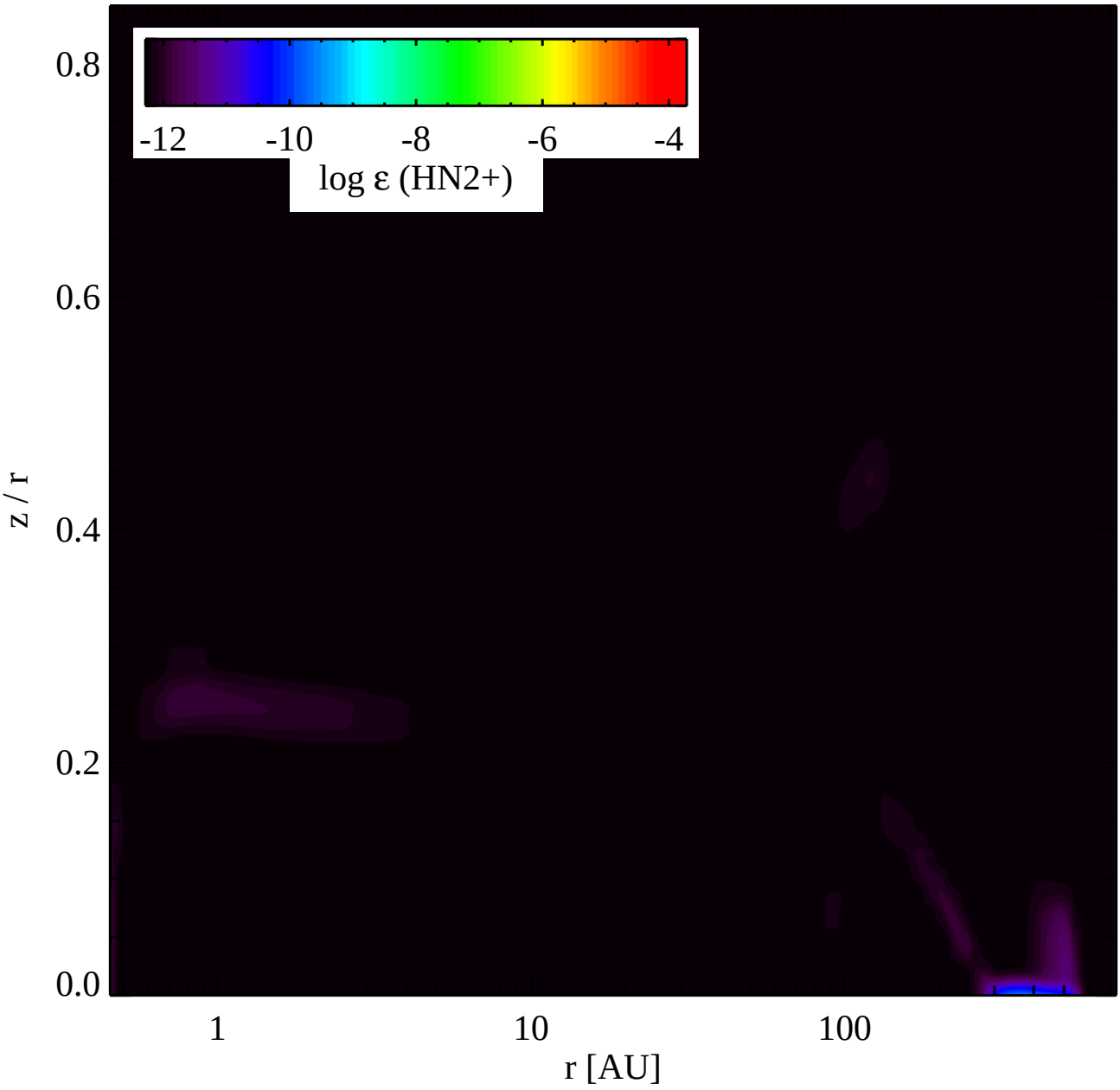

-12
-10
-8
-6
-4
log ε (CH4)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

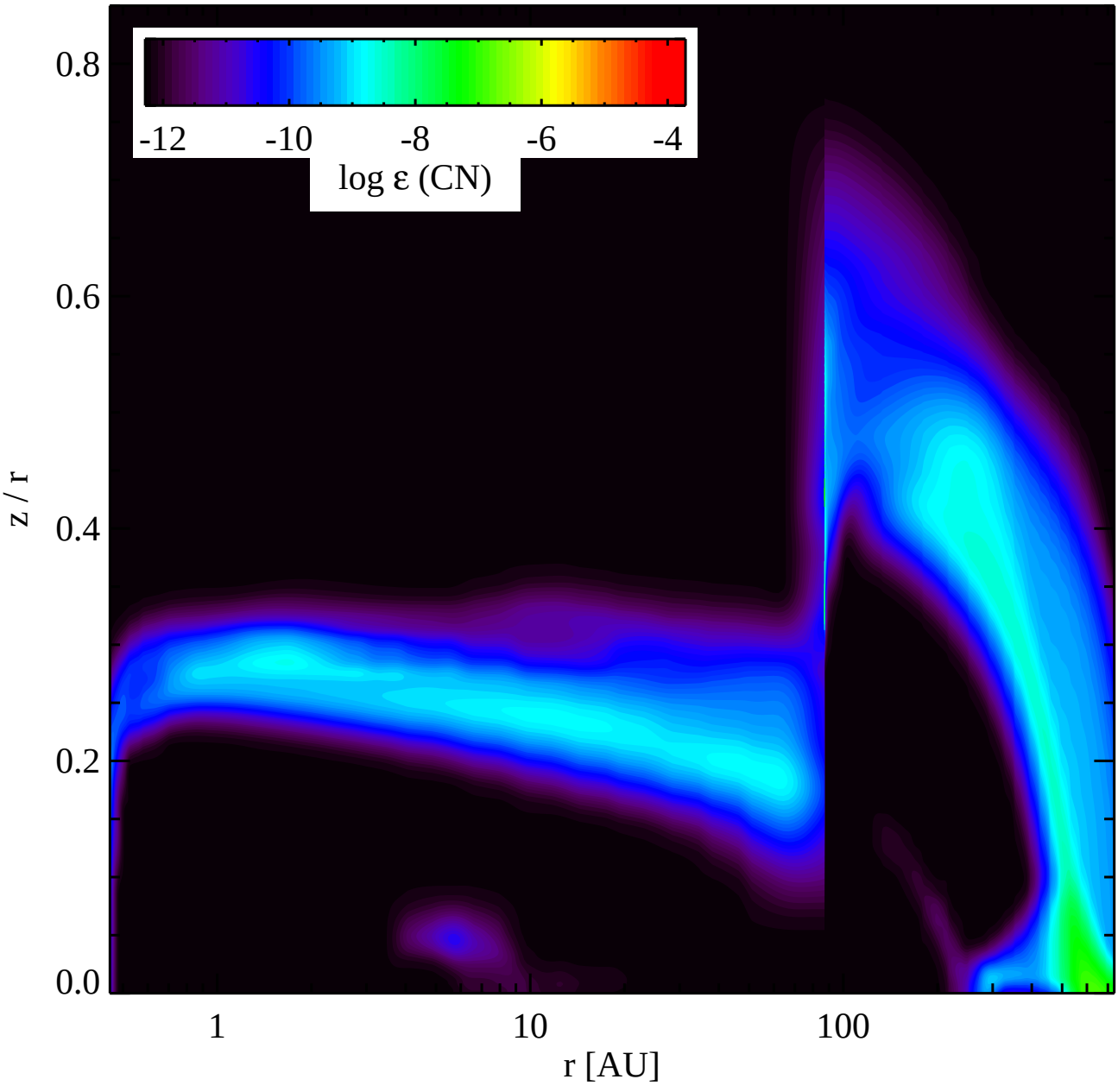

-12
-10
-8
-6
-4
log ε (N)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

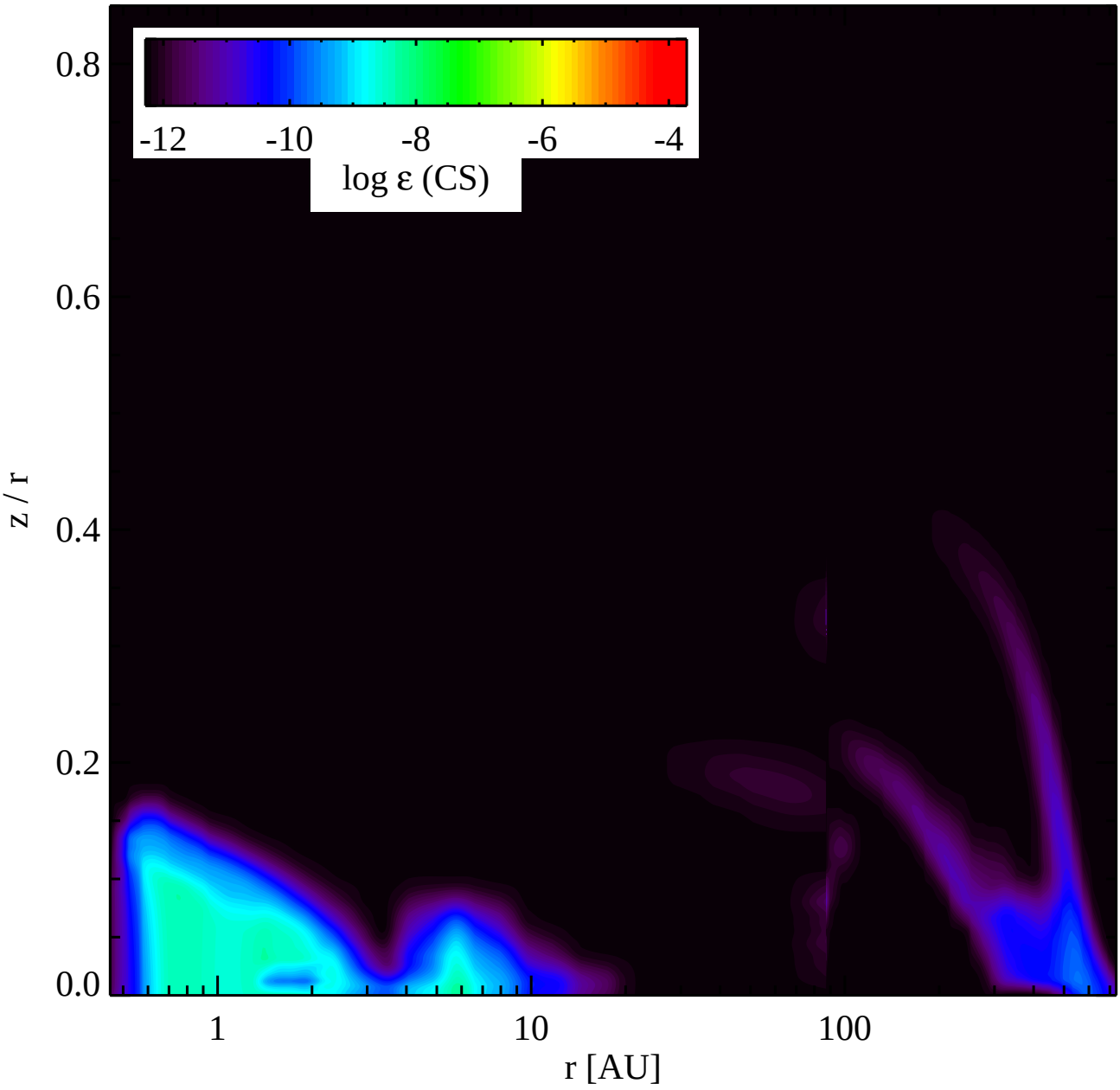

-12
-10
-8
-6
-4
log ε (N2)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

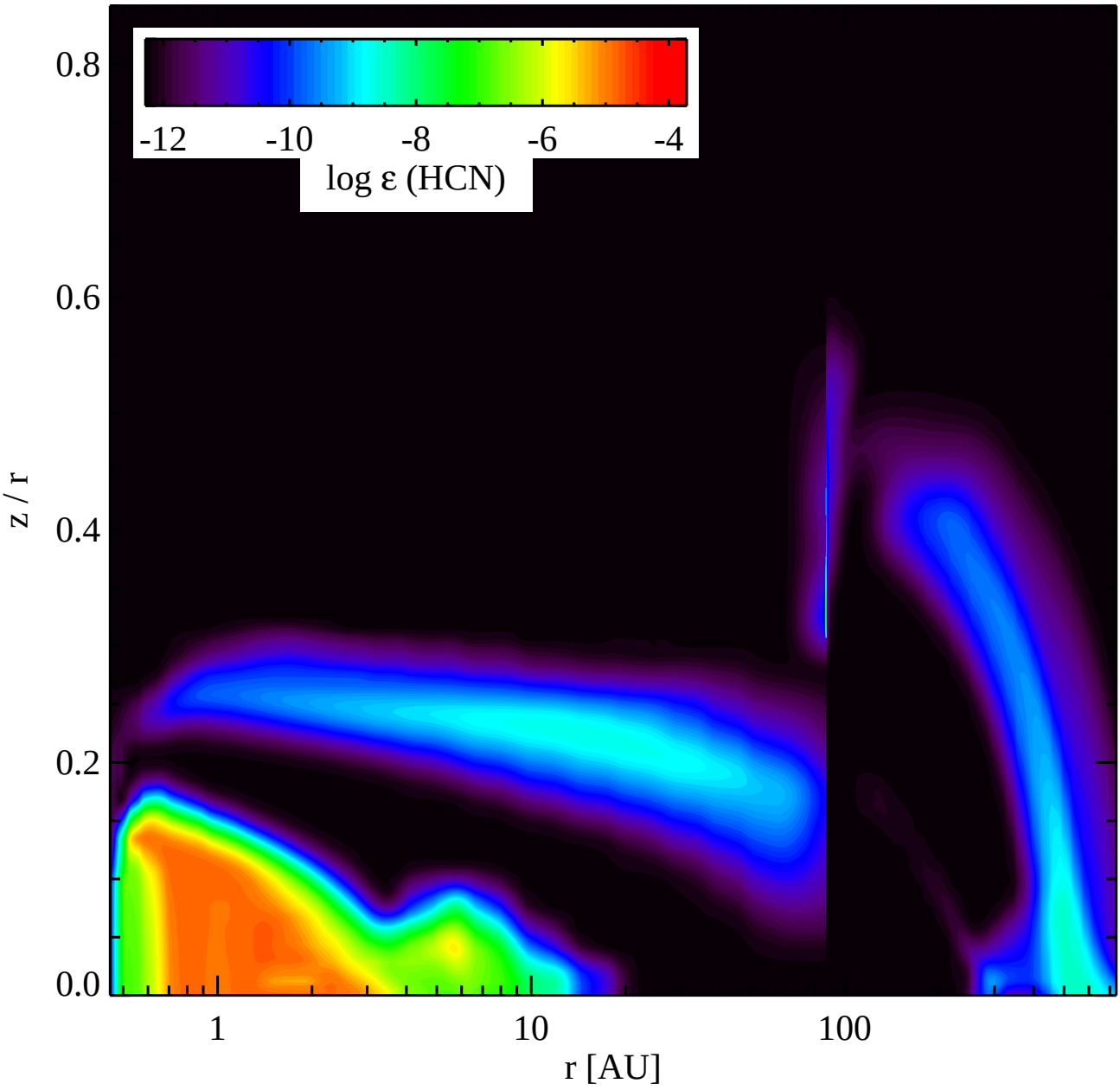

-12
-10
-8
-6
-4
log ε (NH3)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

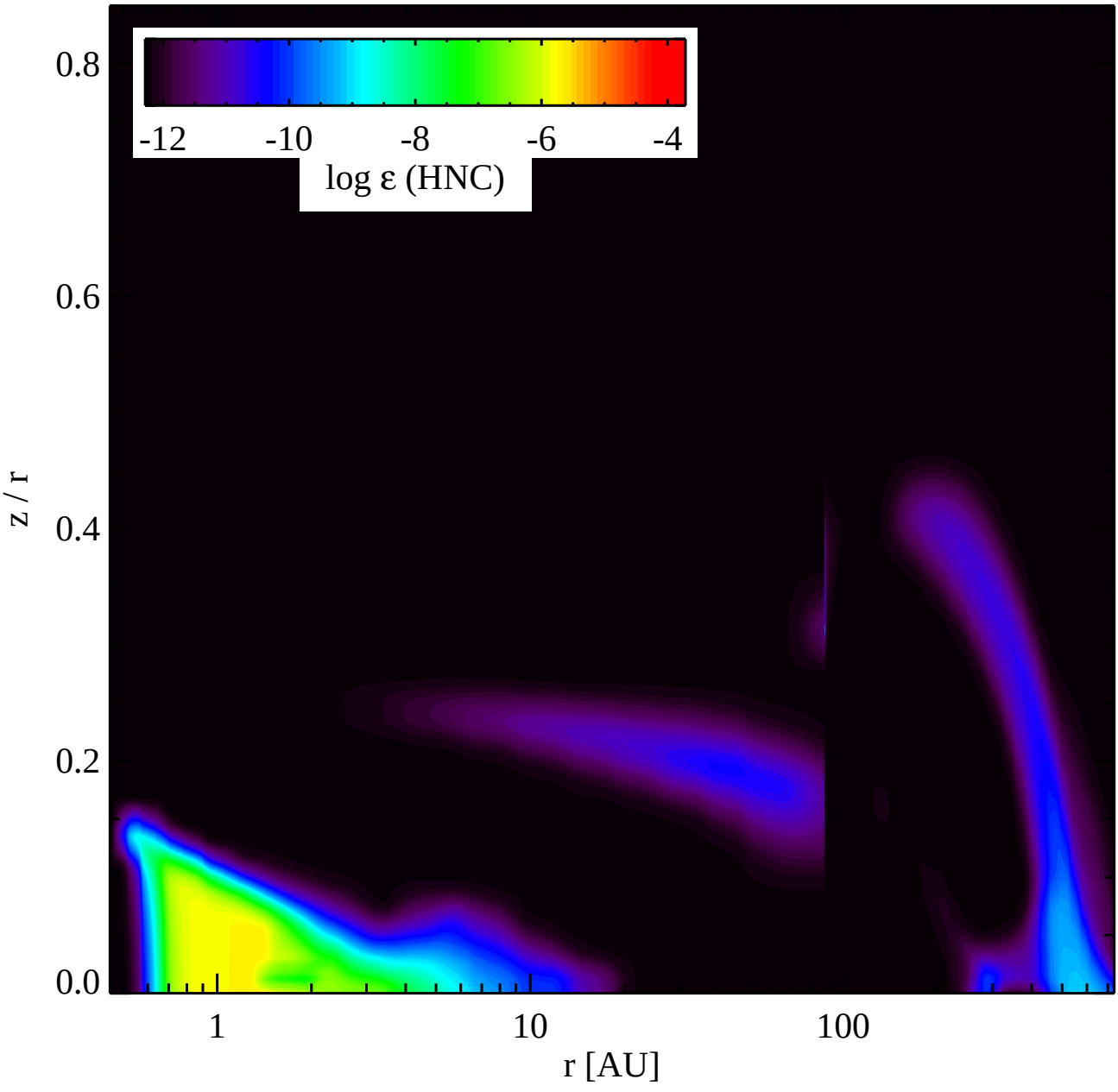

0.8
0.6
0.4
0.2
0.0
z / r
-12
-10
-8
-6
-4
log ε (HCO+)
1
10
100
r [AU]

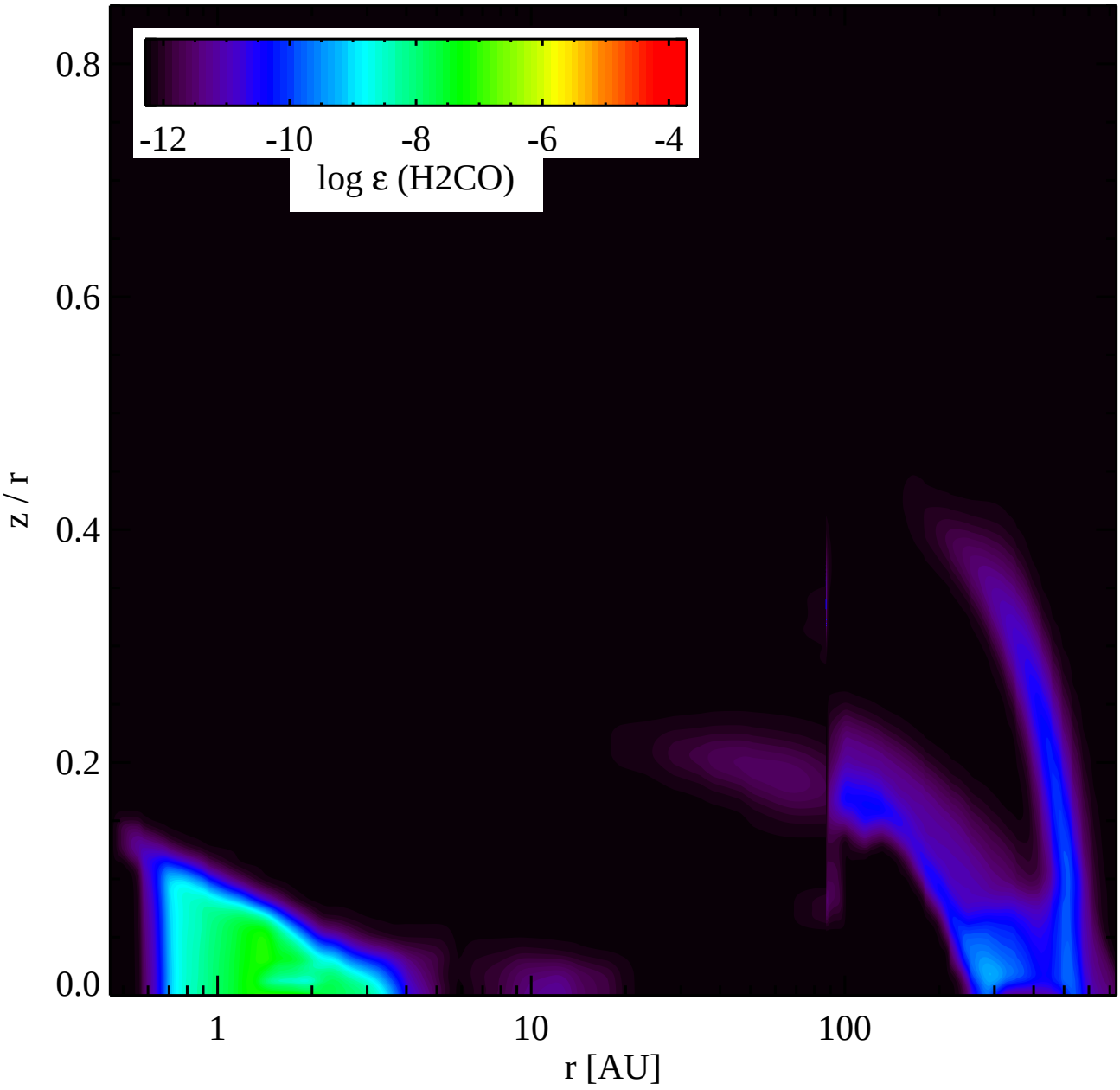

-12
-10
-8
-6
-4
log ε (HN2+)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

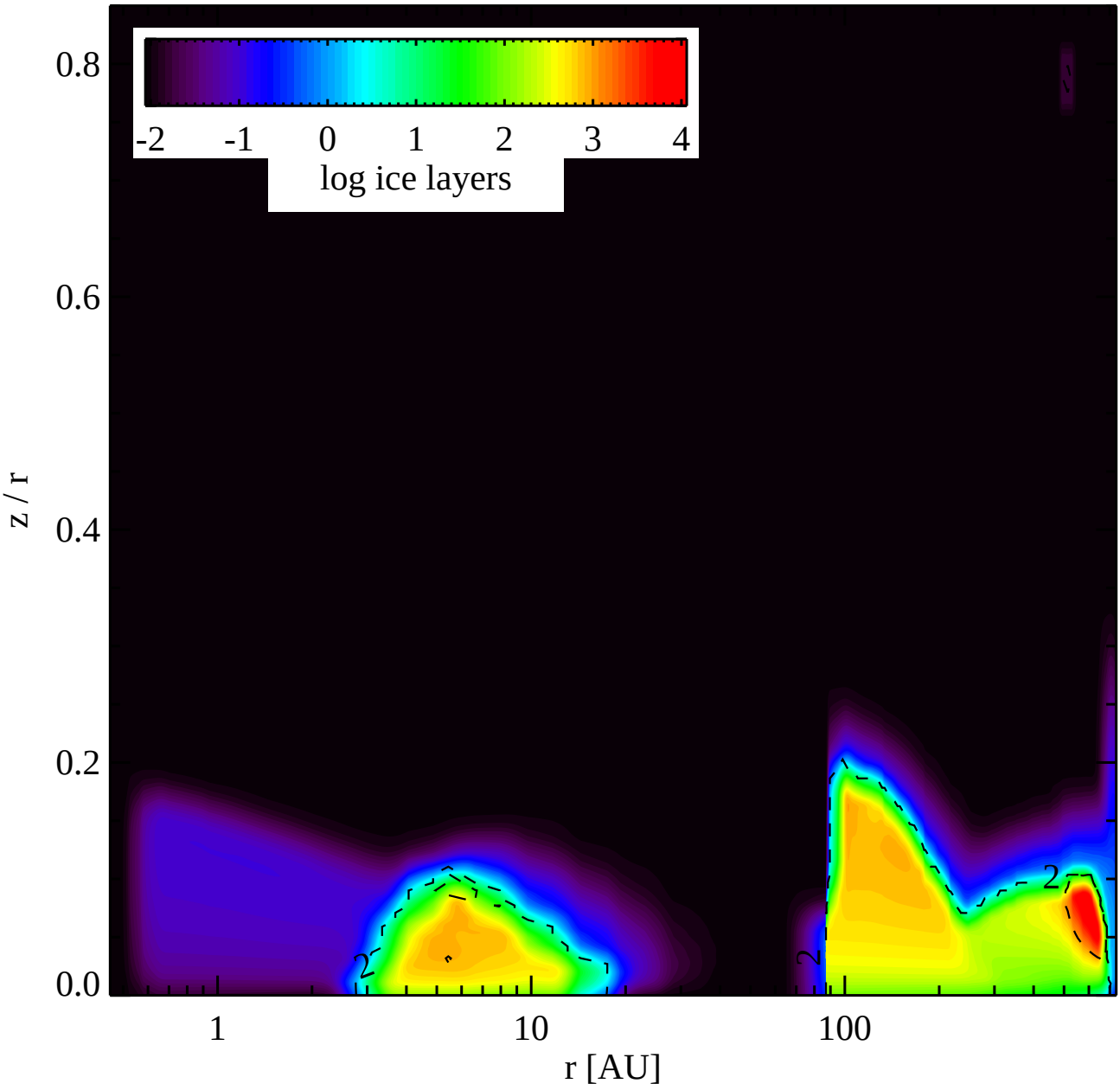

-12
-10
-8
-6
-4
log ε (CN)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

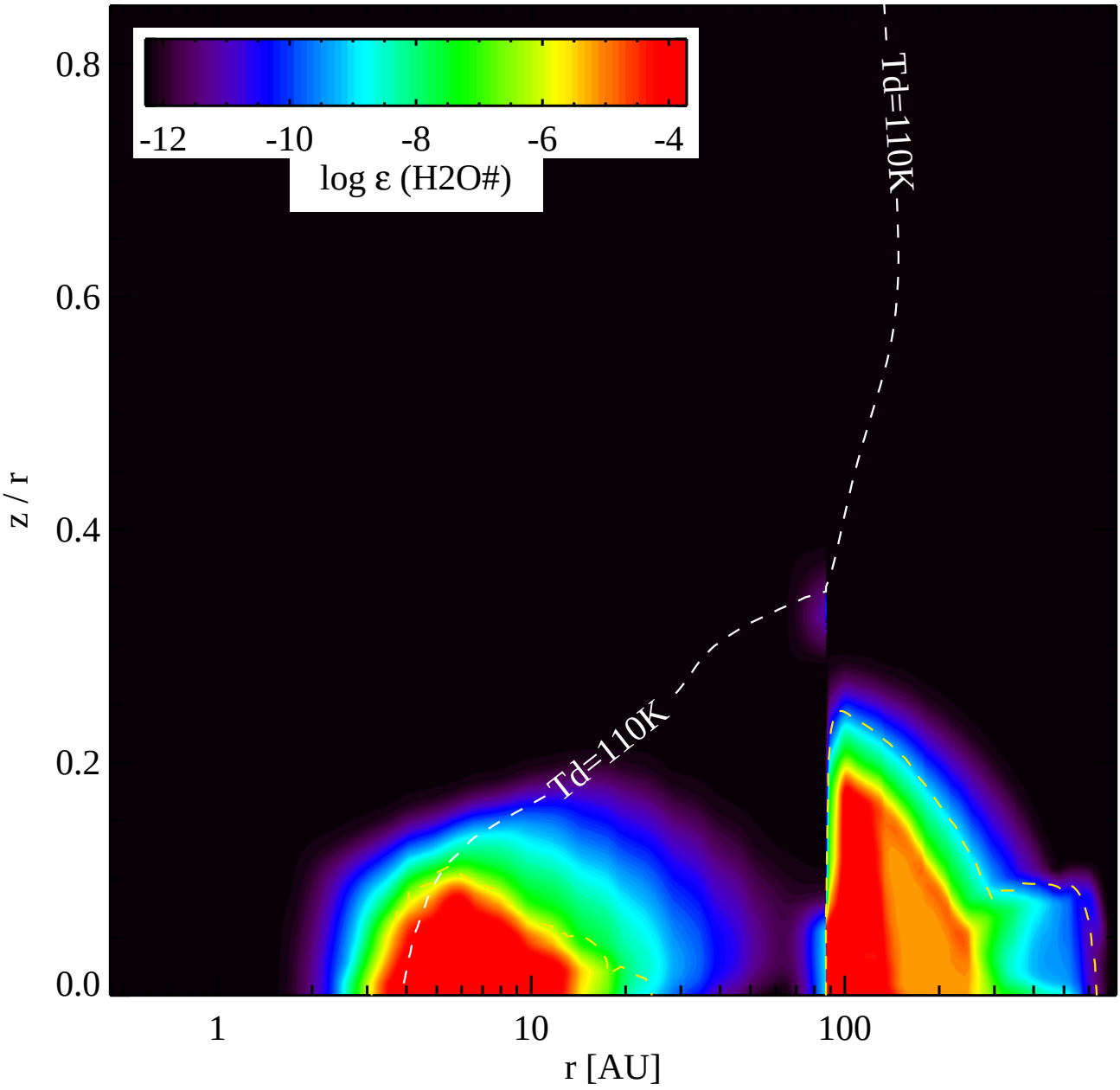

-12
-10
-8
-6
-4
log ε (CS)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

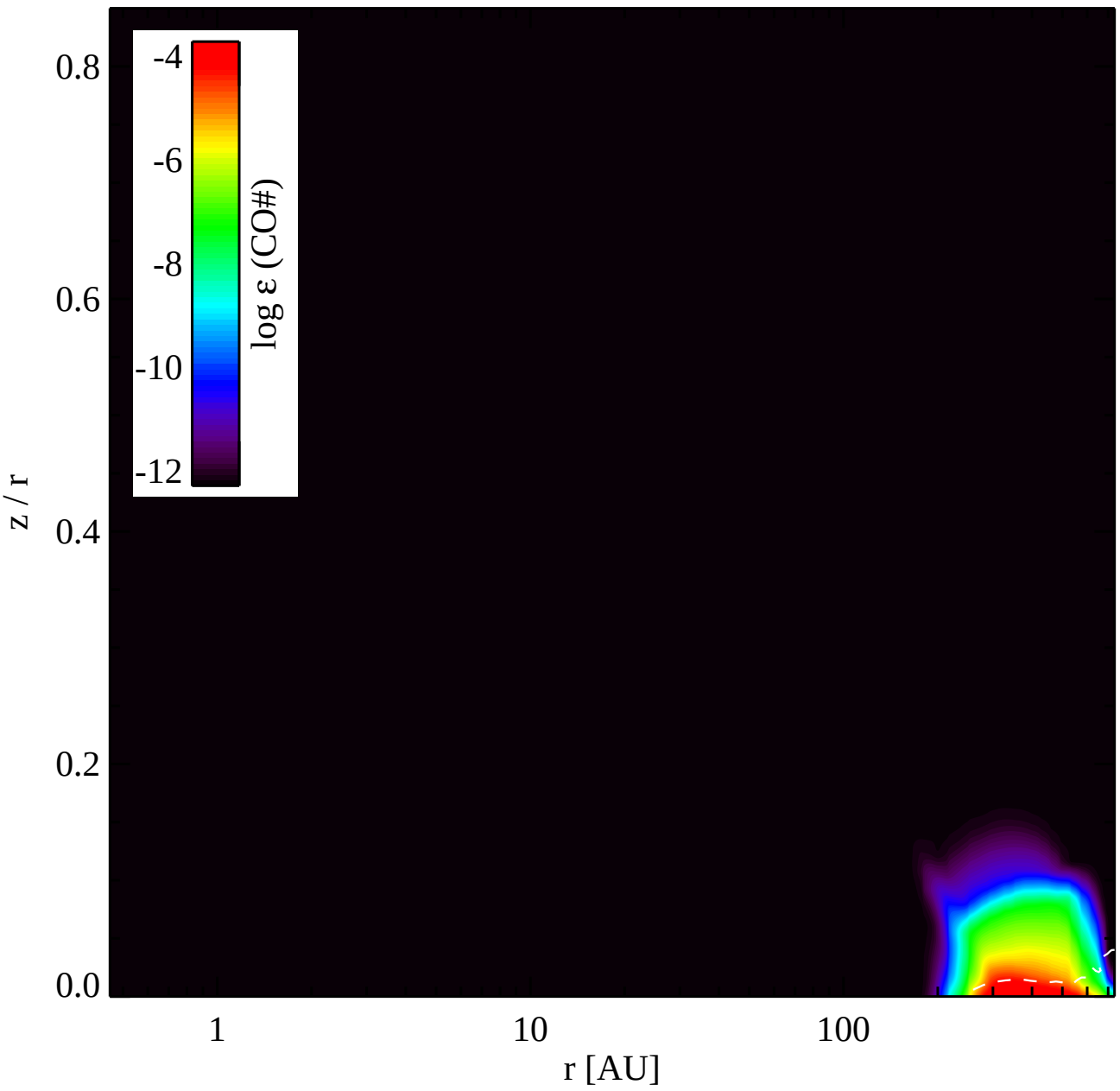

-12
-10
-8
-6
-4
log ε (HCN)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

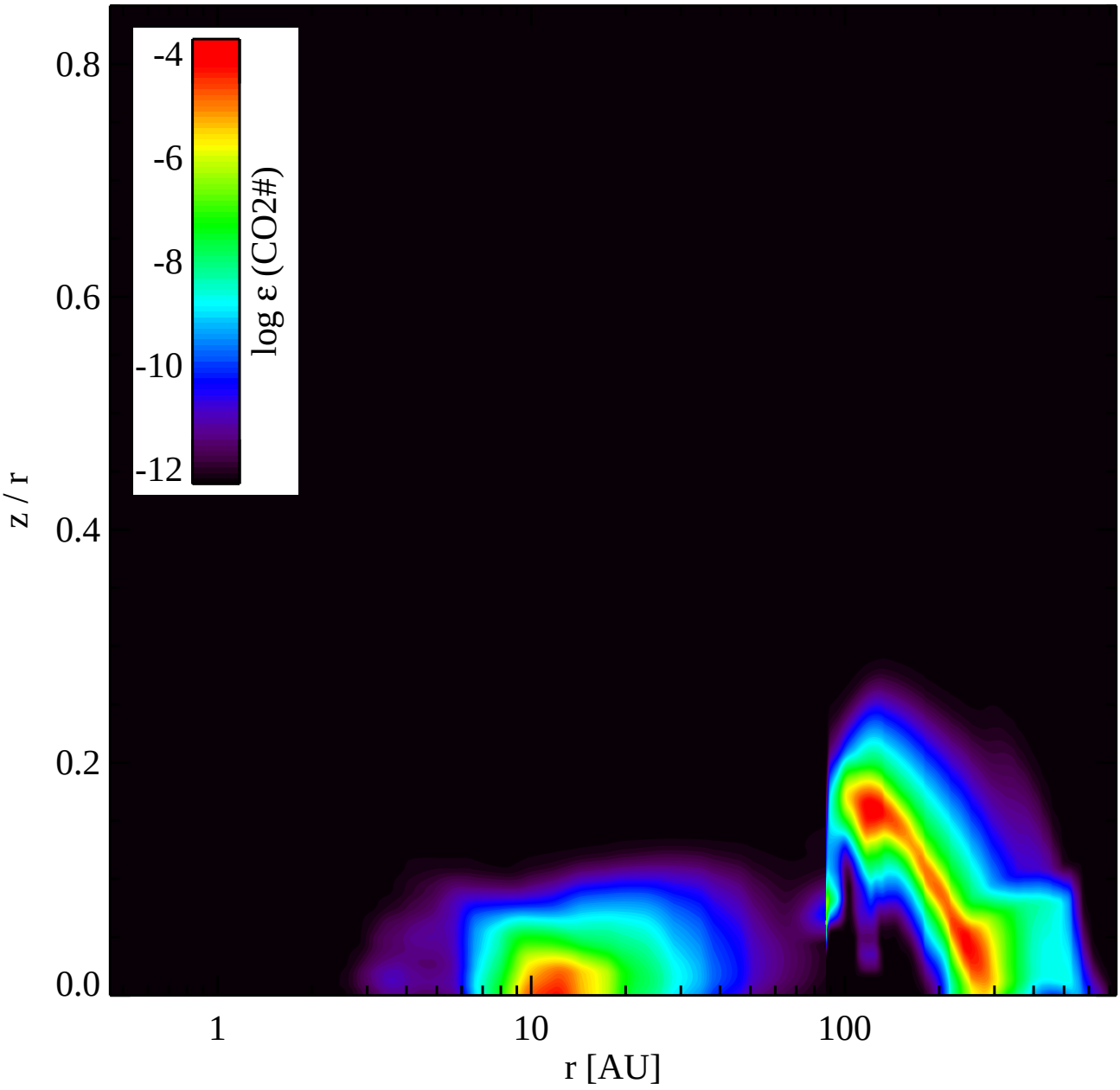

-12
-10
-8
-6
-4
log ε (HNC)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

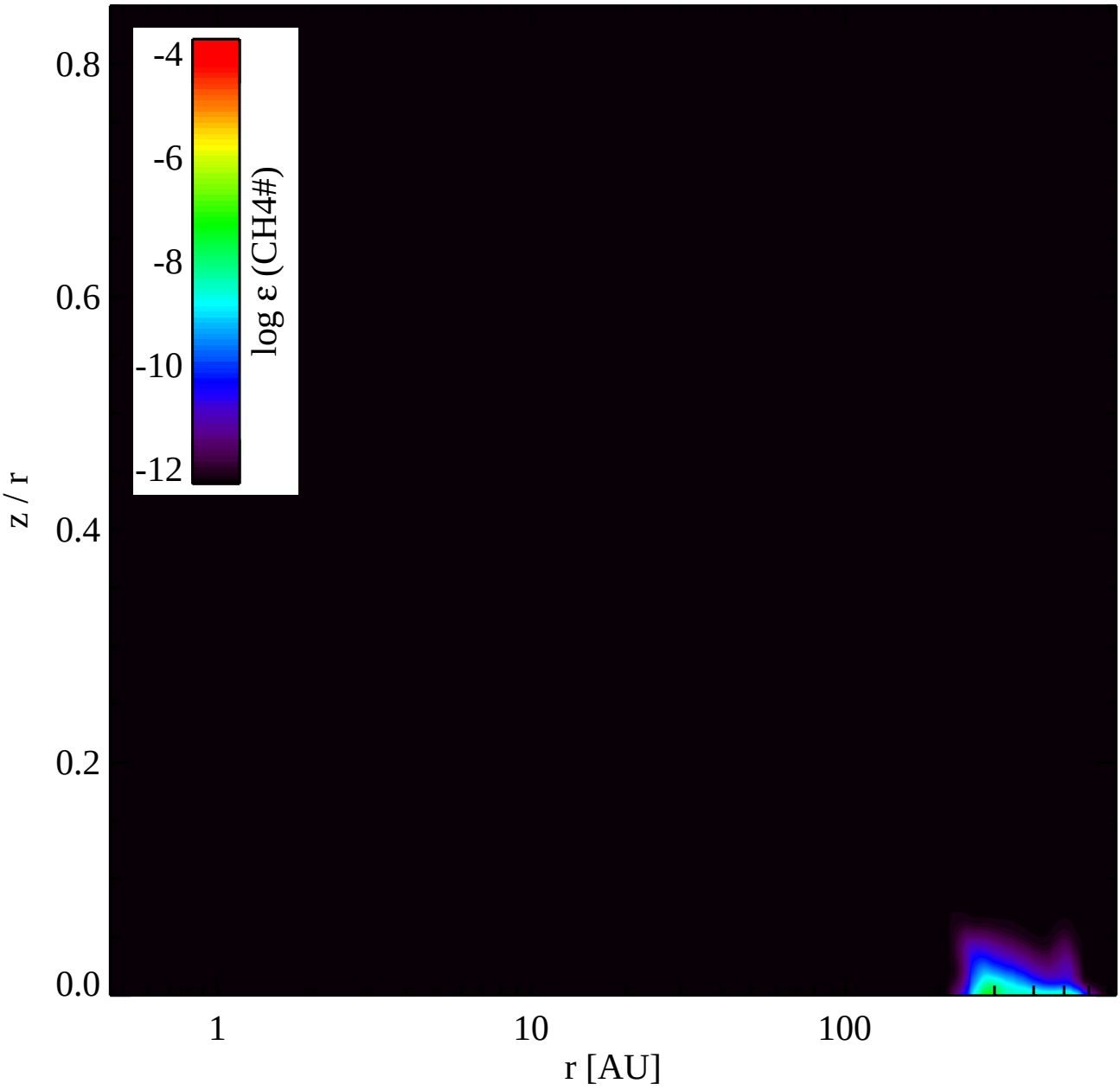

-12
-10
-8
-6
-4
log ε (H2CO)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

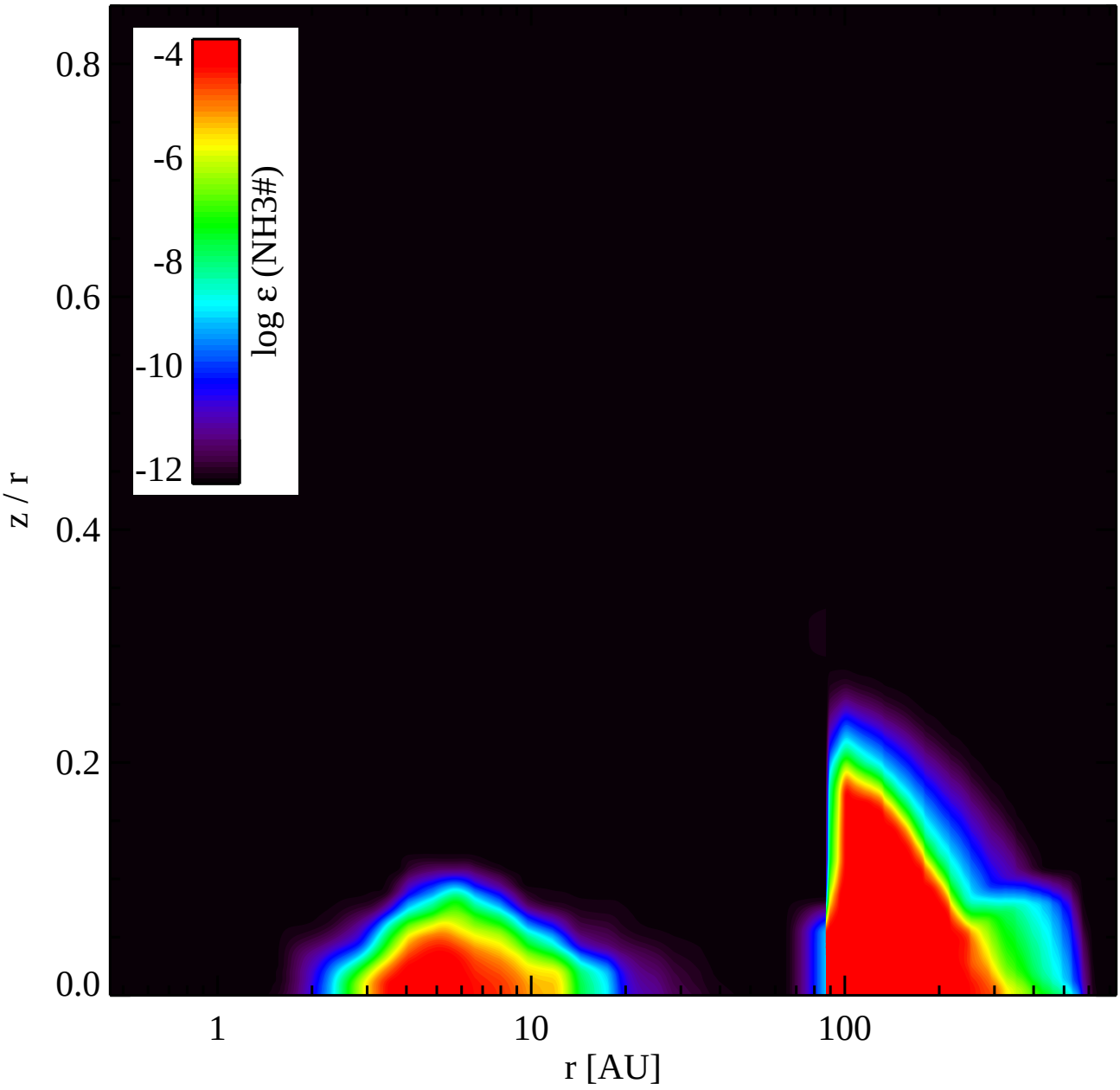

-2
-1
0
1
2
3
4
log ice layers
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]
2
2
2

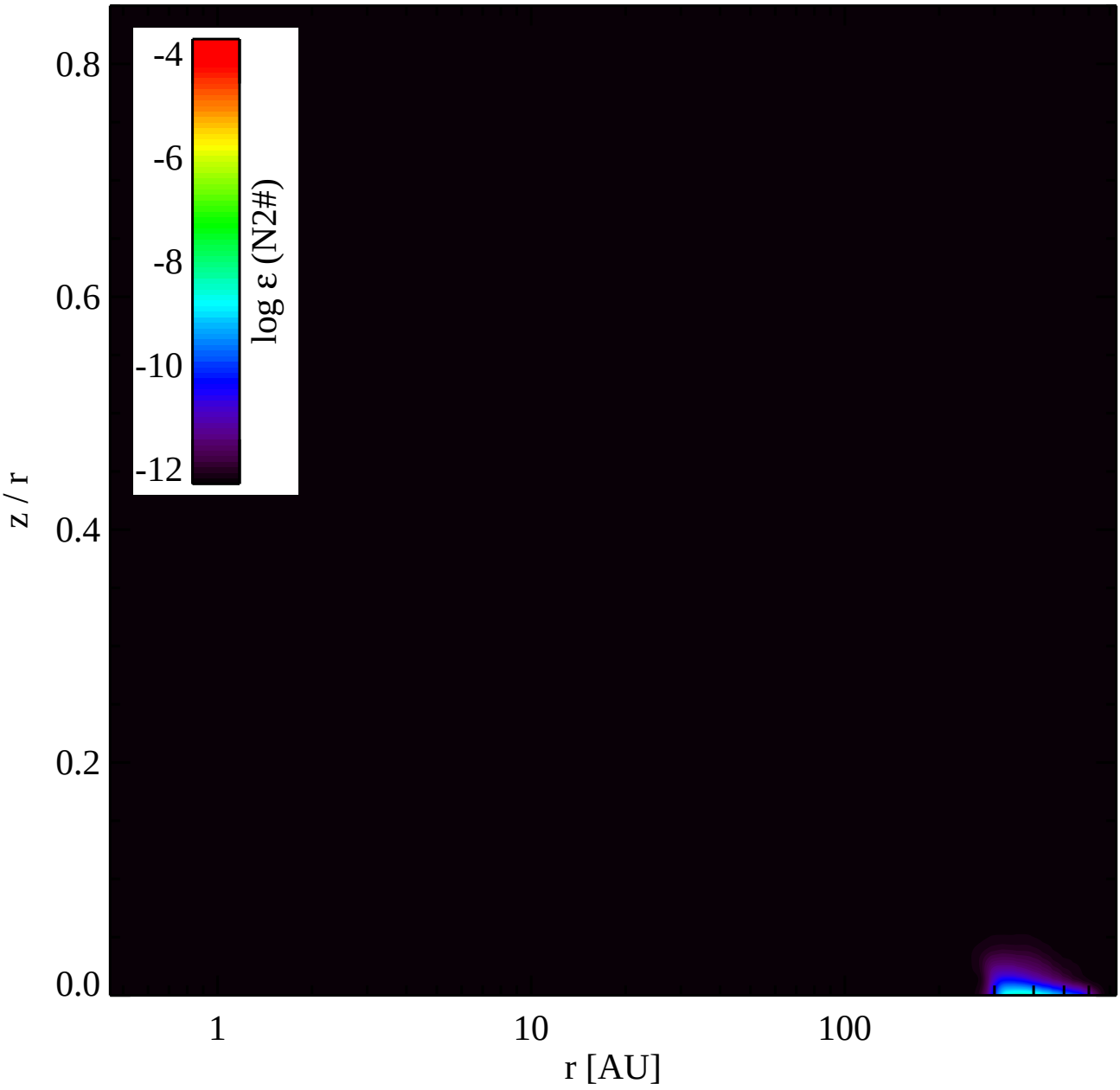

-12
-10
-8
-6
-4
log ε (H2O#)
Td=110K
Td=110K
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

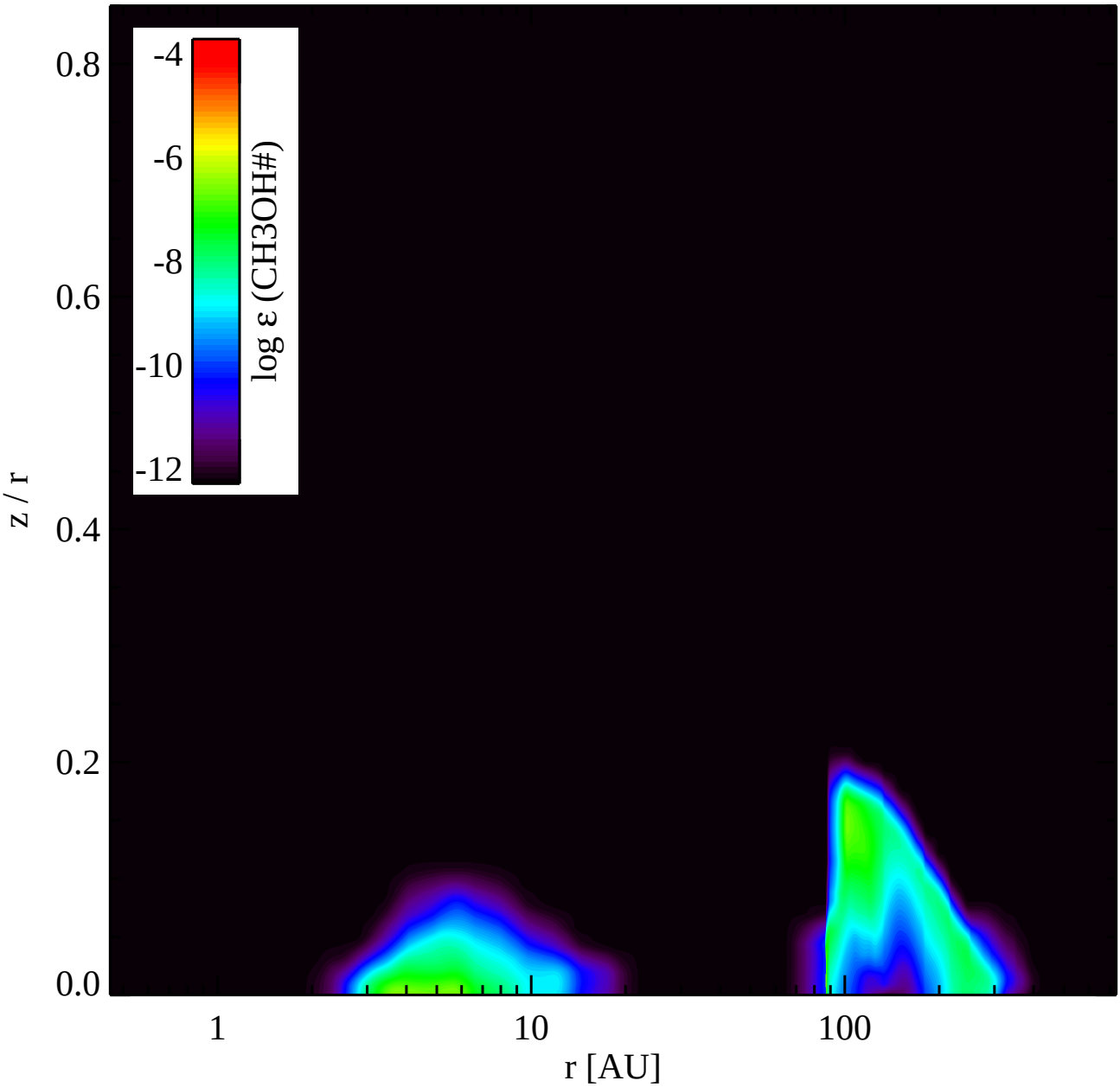

-4
-6
-8
-10
-12
log ε (CO#)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

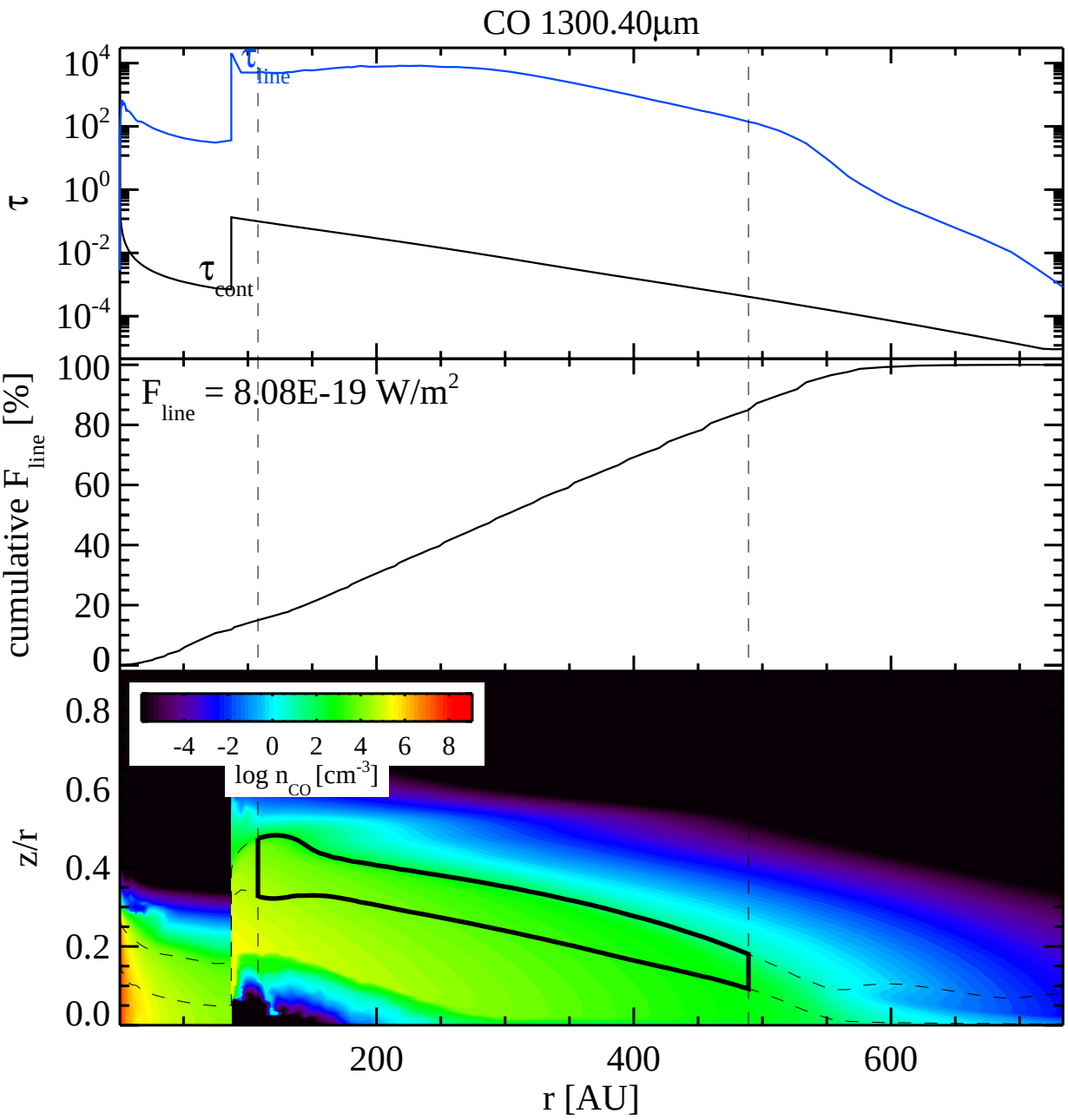

-4
-6
-8
-10
-12
log ε (CO2#)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

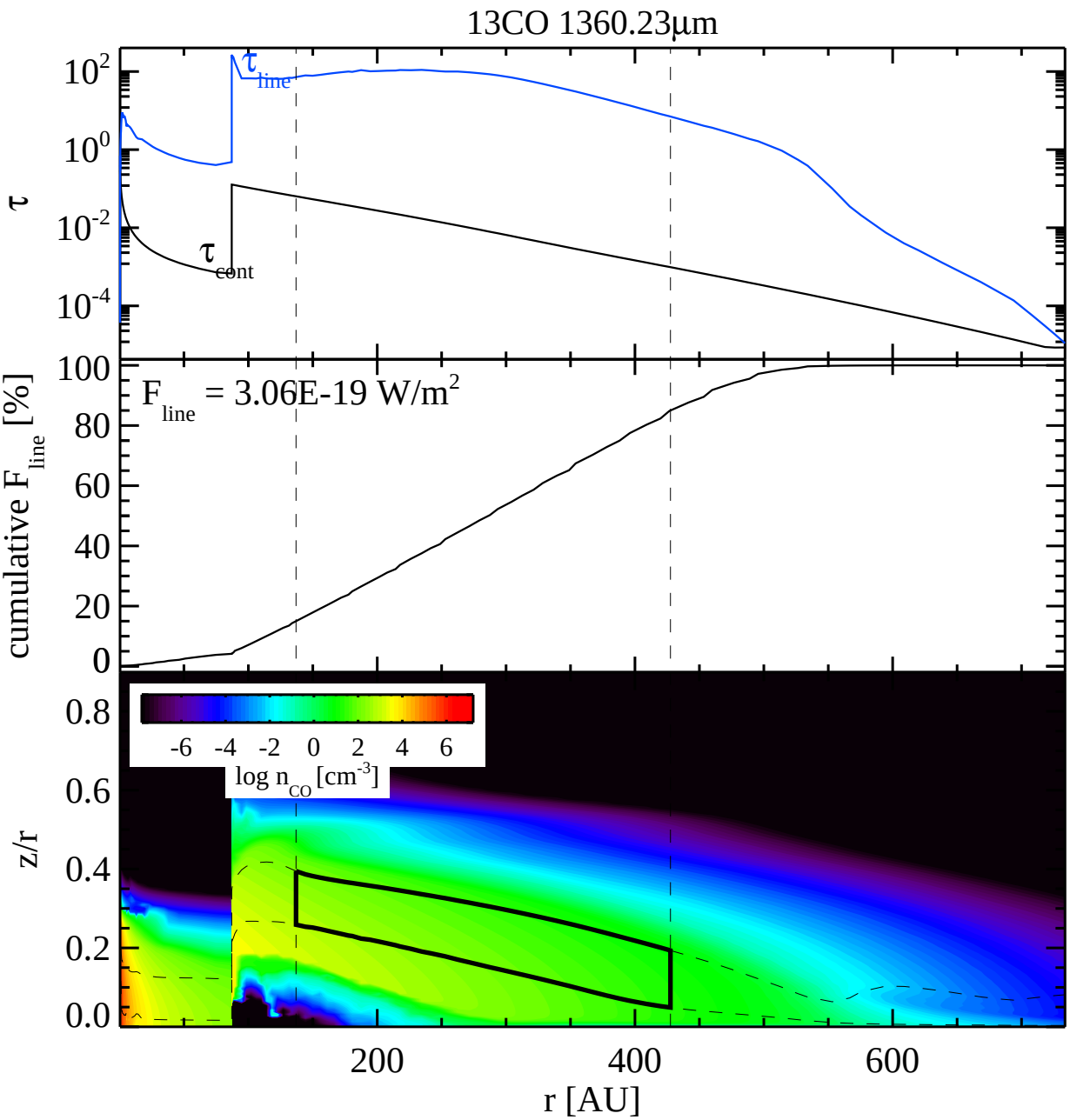

-4
-6
-8
-10
-12
log ε (CH4#)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

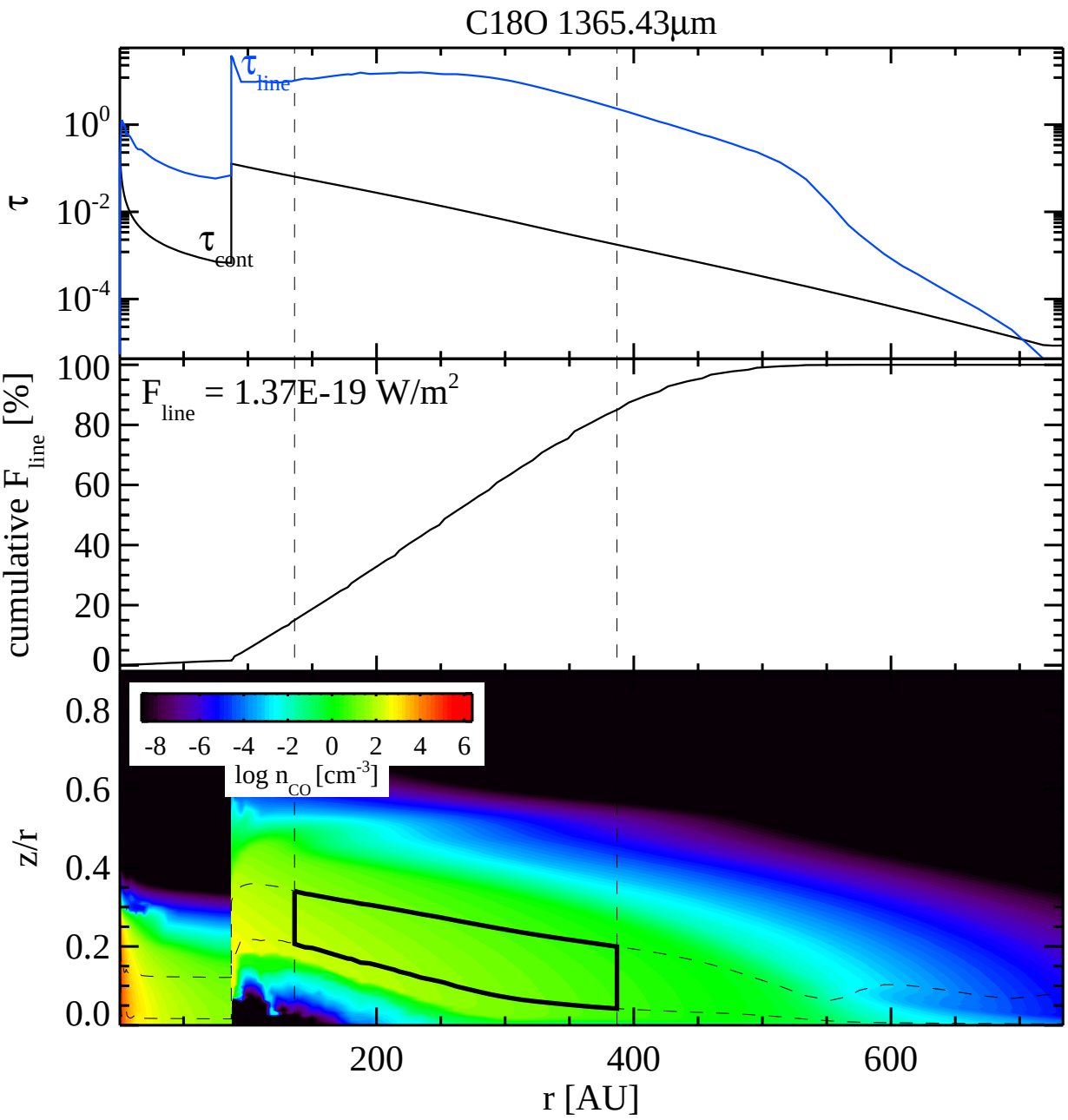

-4
-6
-8
-10
-12
log ε (NH3#)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

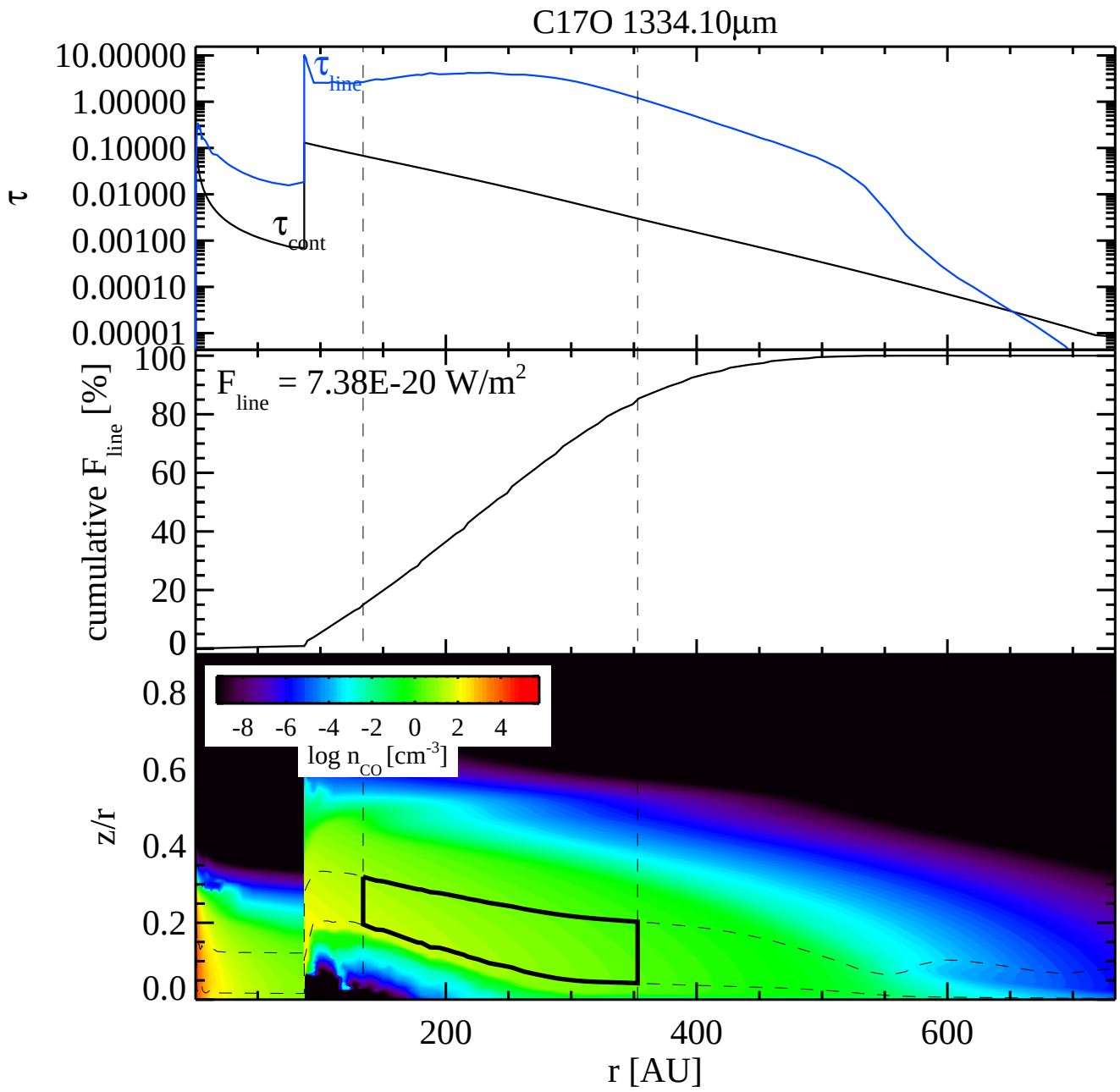

-4
-6
-8
-10
-12
log ε (N2#)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

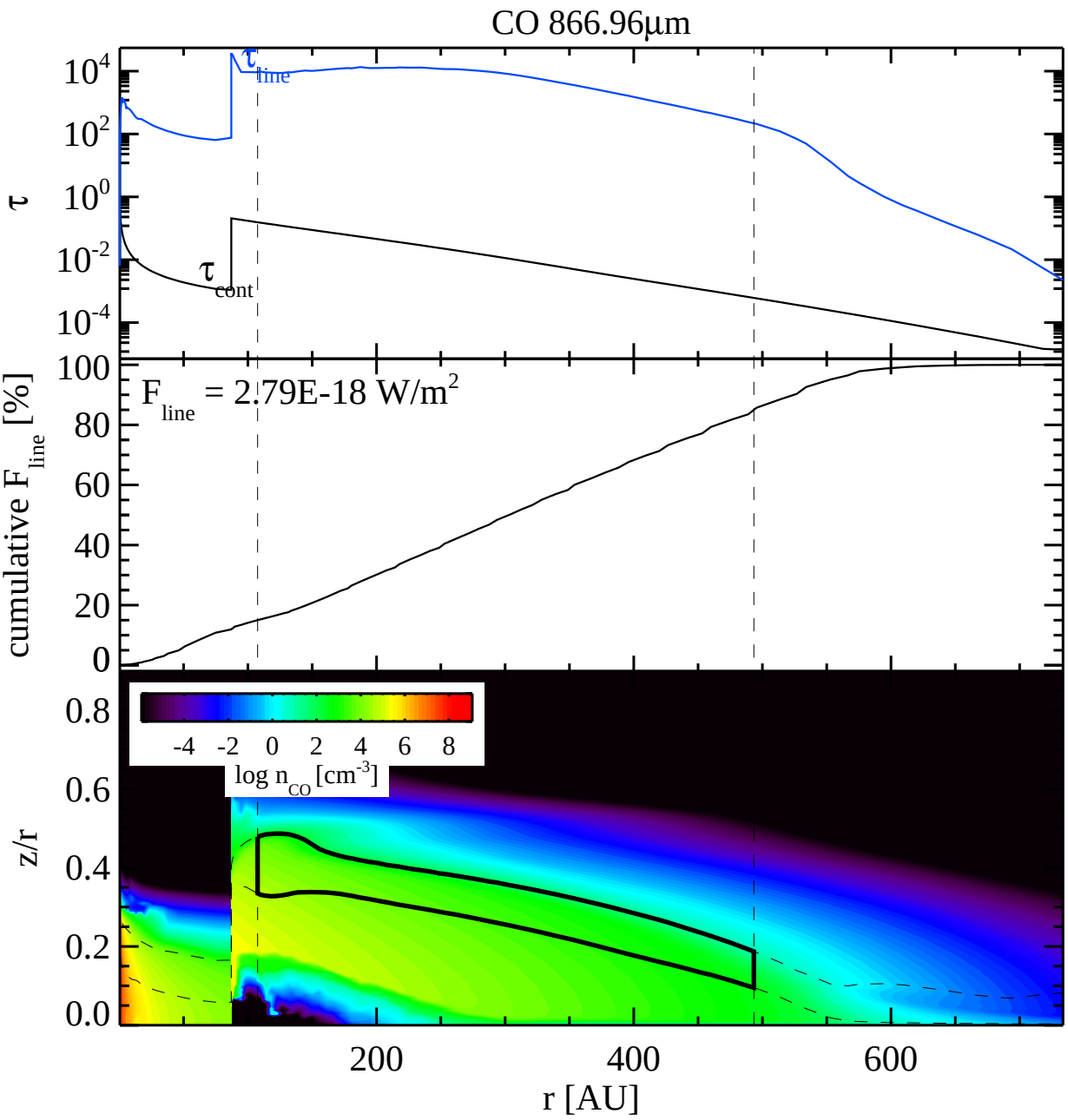

-4
-6
-8
-10
-12
log ε (CH3OH#)
0.8
0.6
0.4
0.2
0.0
z / r
1
10
100
r [AU]

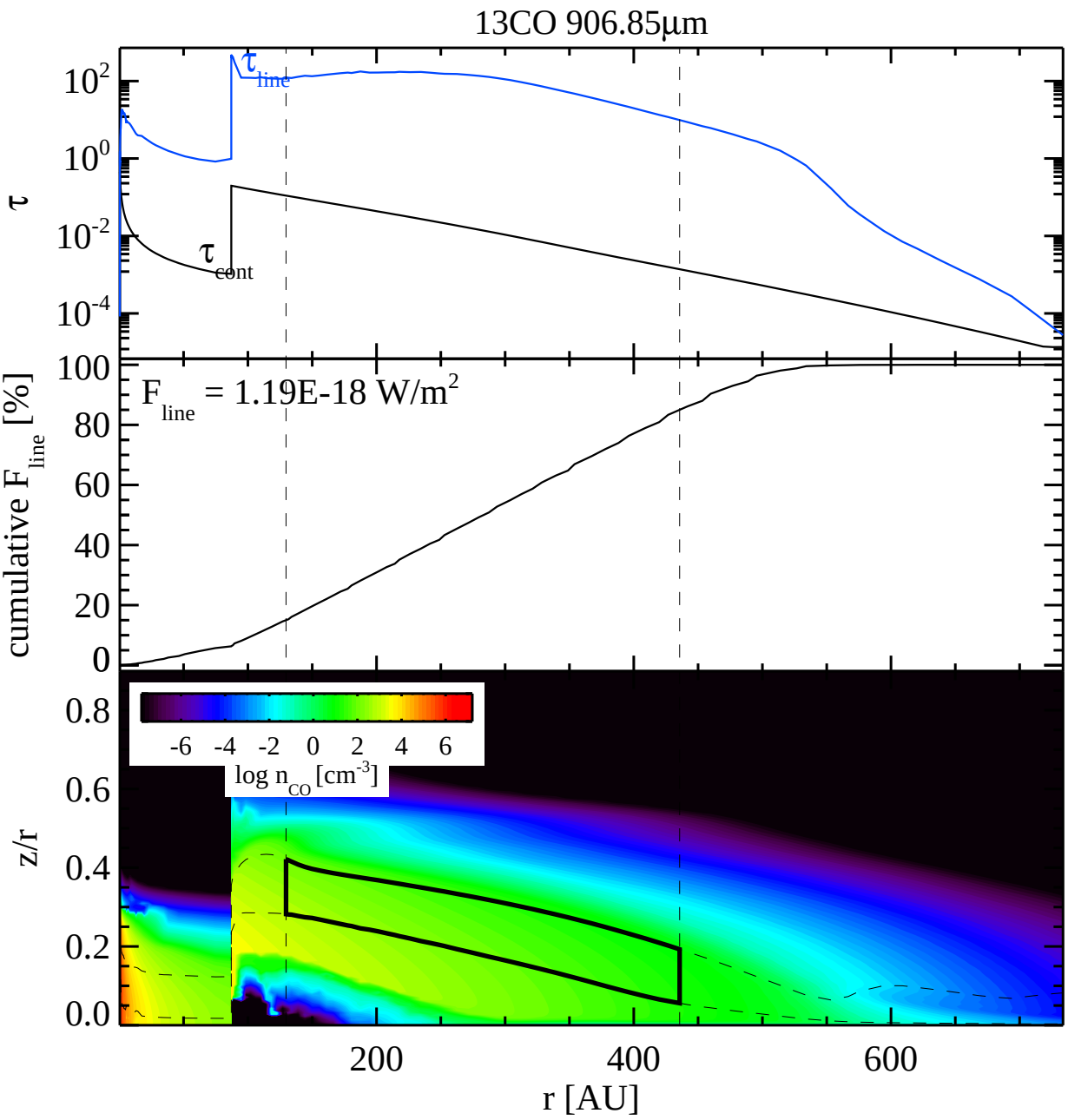

CO 1300.40µm
τ
τ line
τ cont
cumulative F line [%]
F line = 8.08E-19 W/m2
log n CO [cm-3]
-4 -2 0 2 4 6 8
z/r
r [AU]
200
400
600

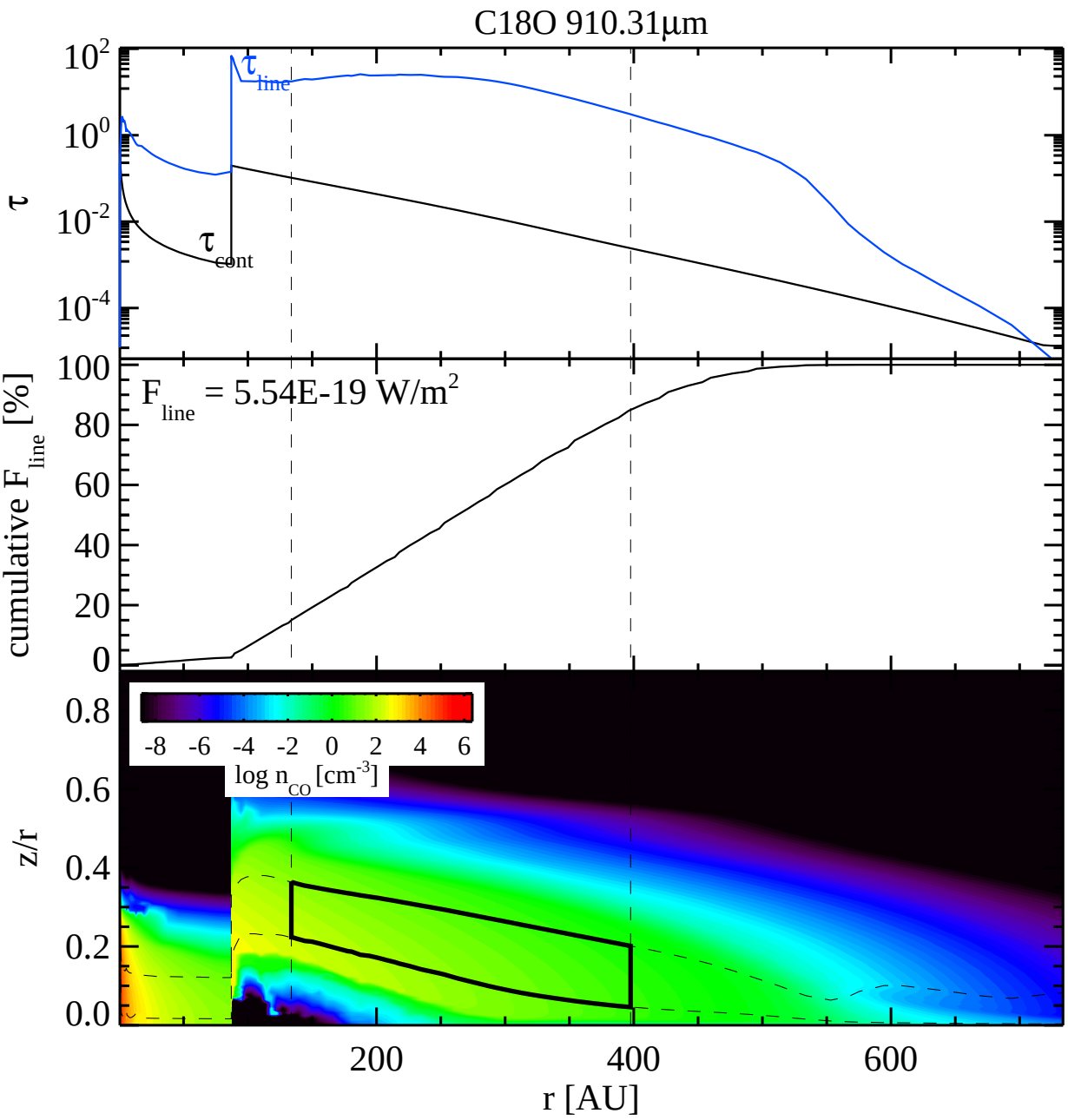

13CO 1360.23µm
τ
τ line
τ cont
cumulative F line [%]
F line = 3.06E-19 W/m2
log n CO [cm-3]
z/r
r [AU]

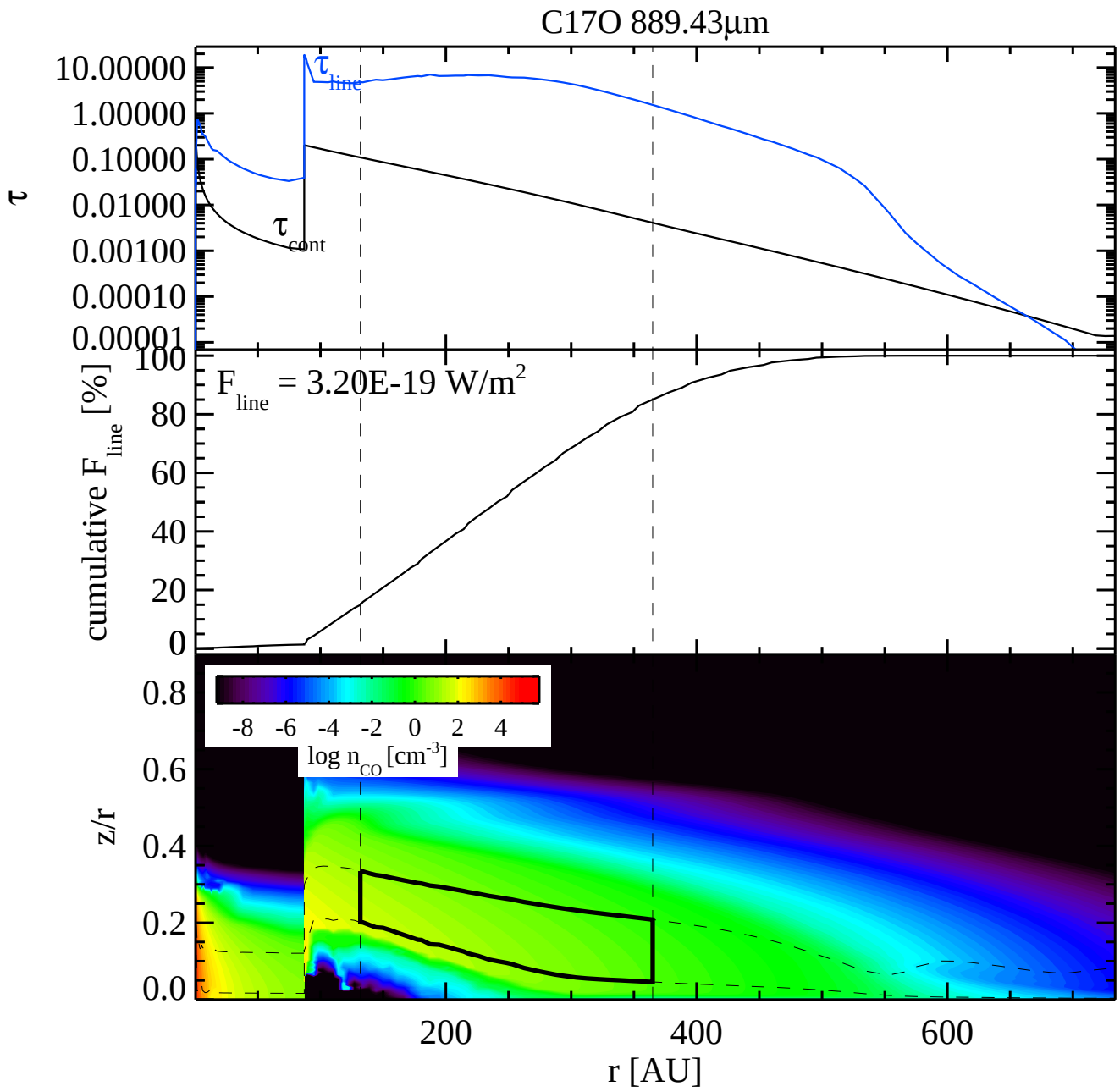

C18O 1365.43µm
τ
τ line
τ cont
10^0
10^-2
10^-4
cumulative F line [%]
F line = 1.37E-19 W/m^2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-8 -6 -4 -2 0 2 4 6
log n CO [cm^-3]
200
400
600
r [AU]

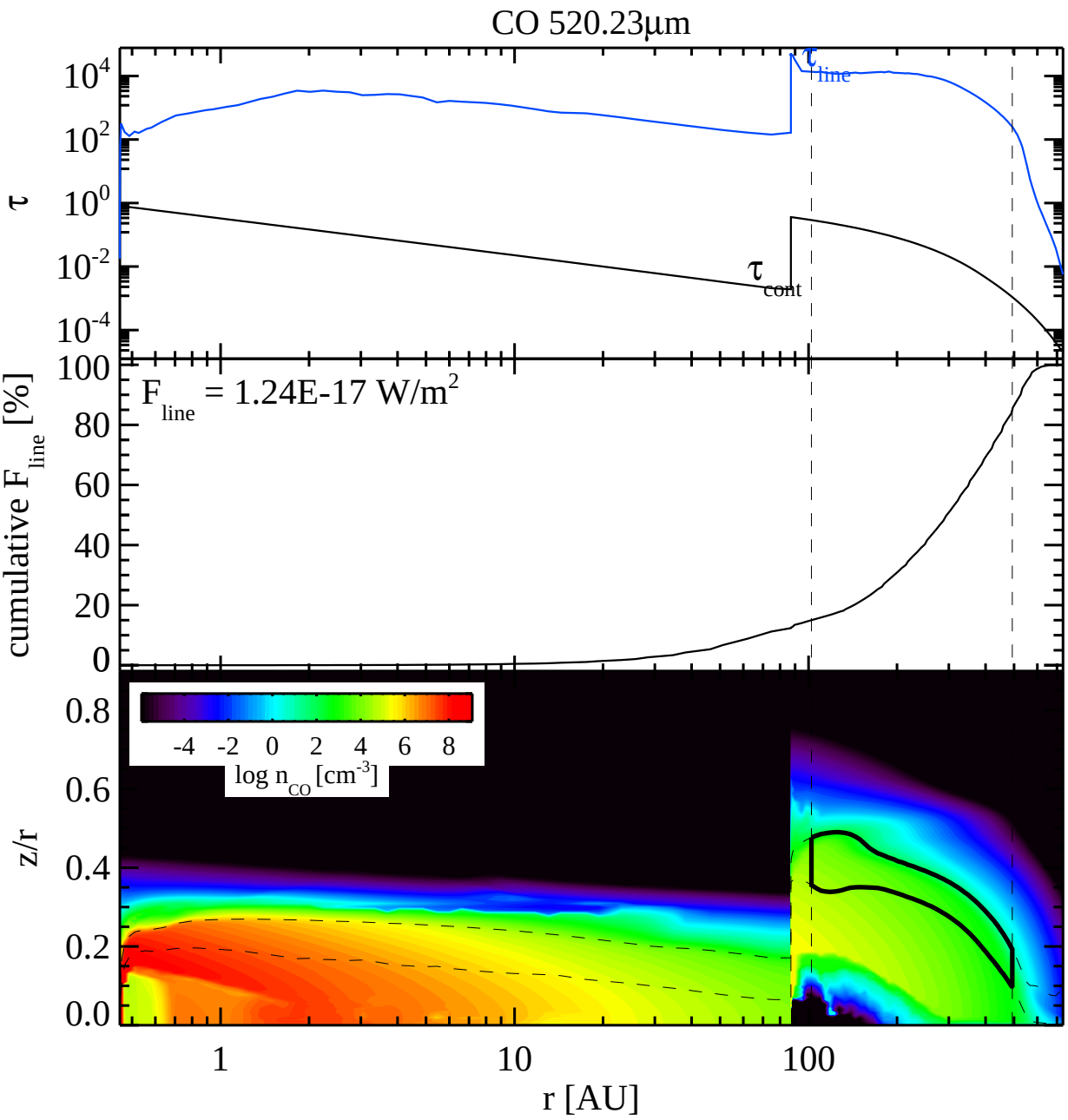

C17O 1334.10µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 7.38E-20 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-8 -6 -4 -2 0 2 4
log n CO [cm-3]
200
400
600
r [AU]

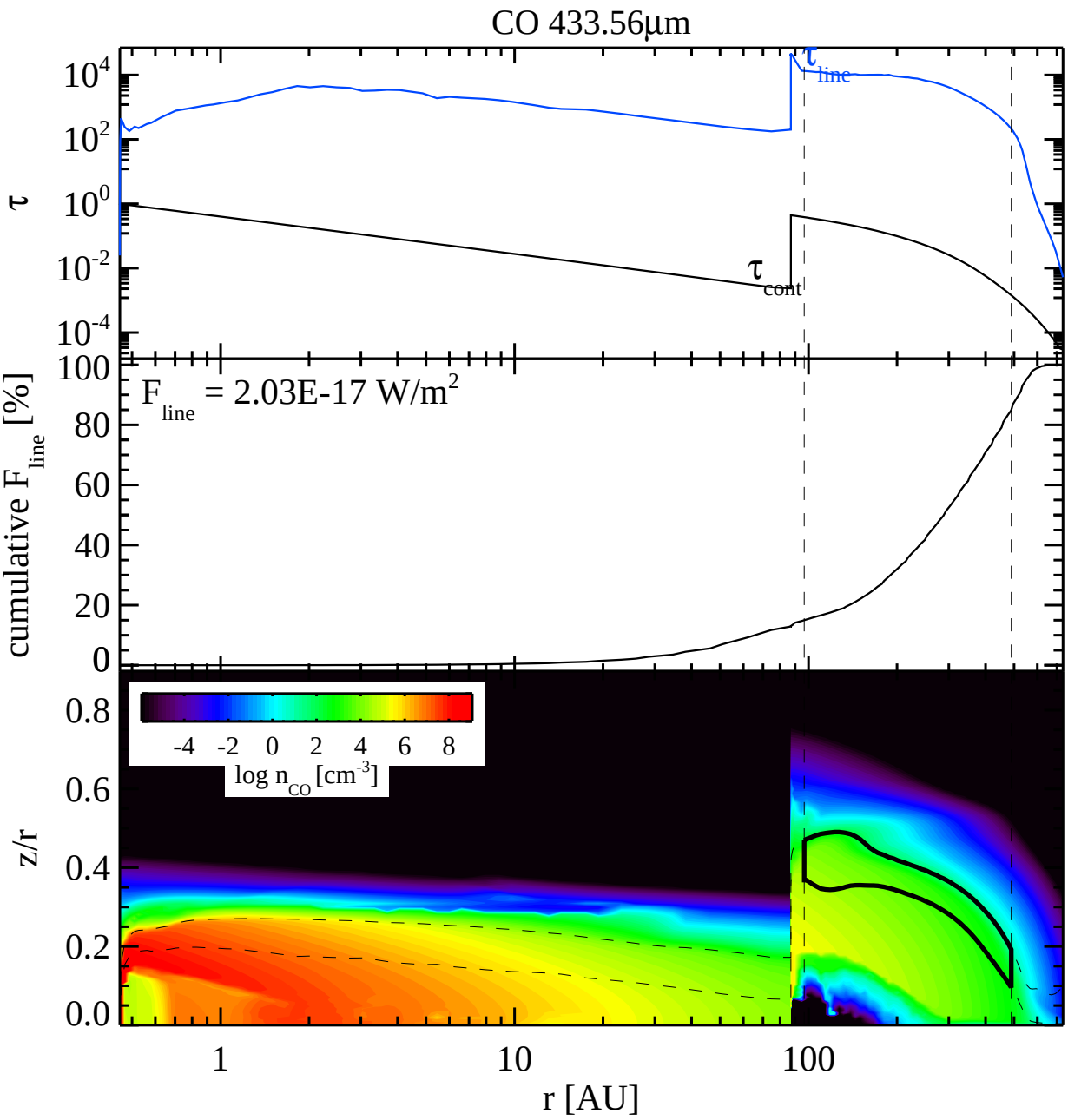

CO 866.96µm
τ
τ line
τ cont
cumulative F line [%]
F line = 2.79E-18 W/m2
log n CO [cm-3]
z/r
r [AU]

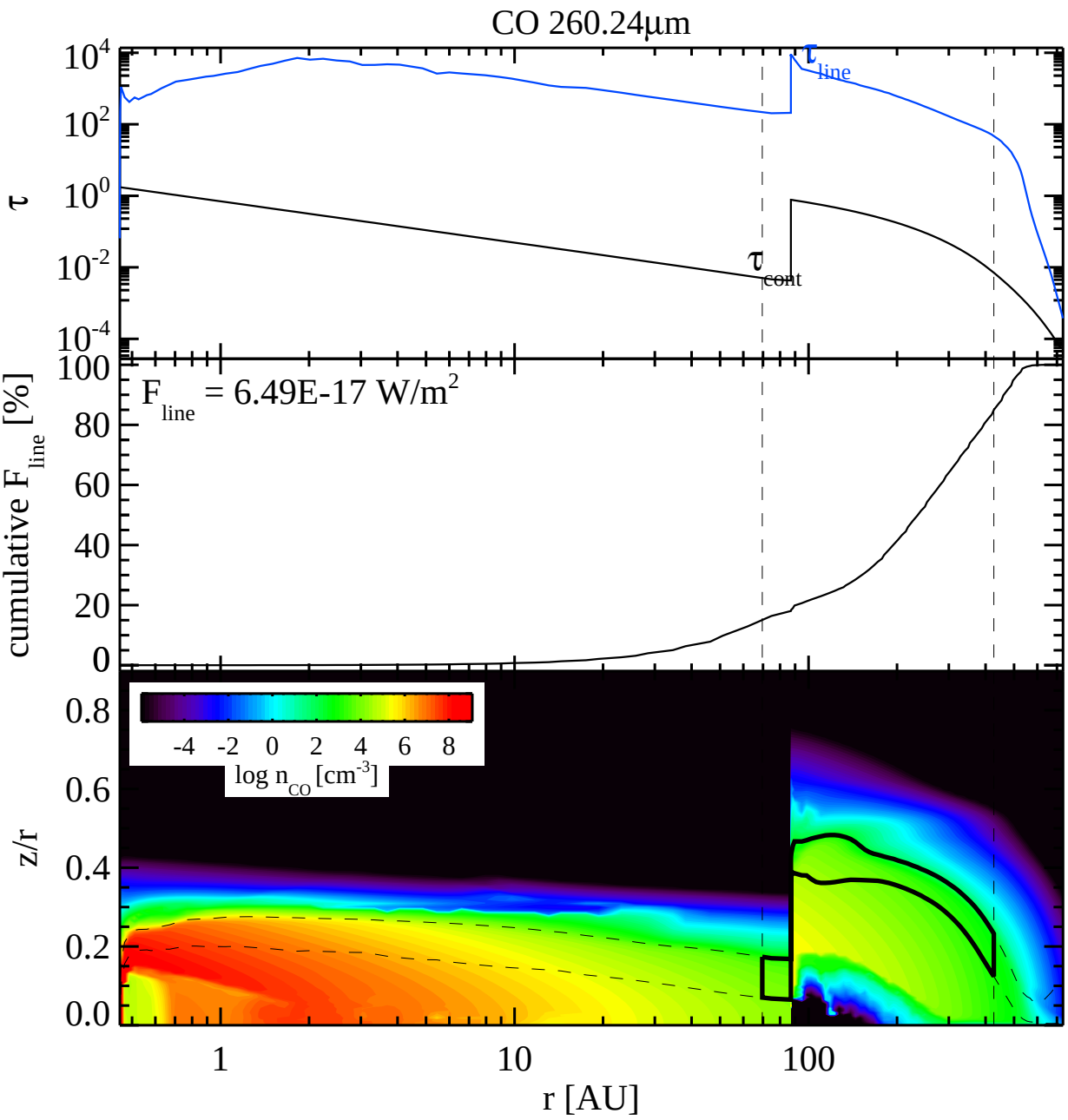

13CO 906.85µm
τ
τ line
τ cont
cumulative F line [%]
F line = 1.19E-18 W/m2
log n CO [cm-3]
z/r
r [AU]

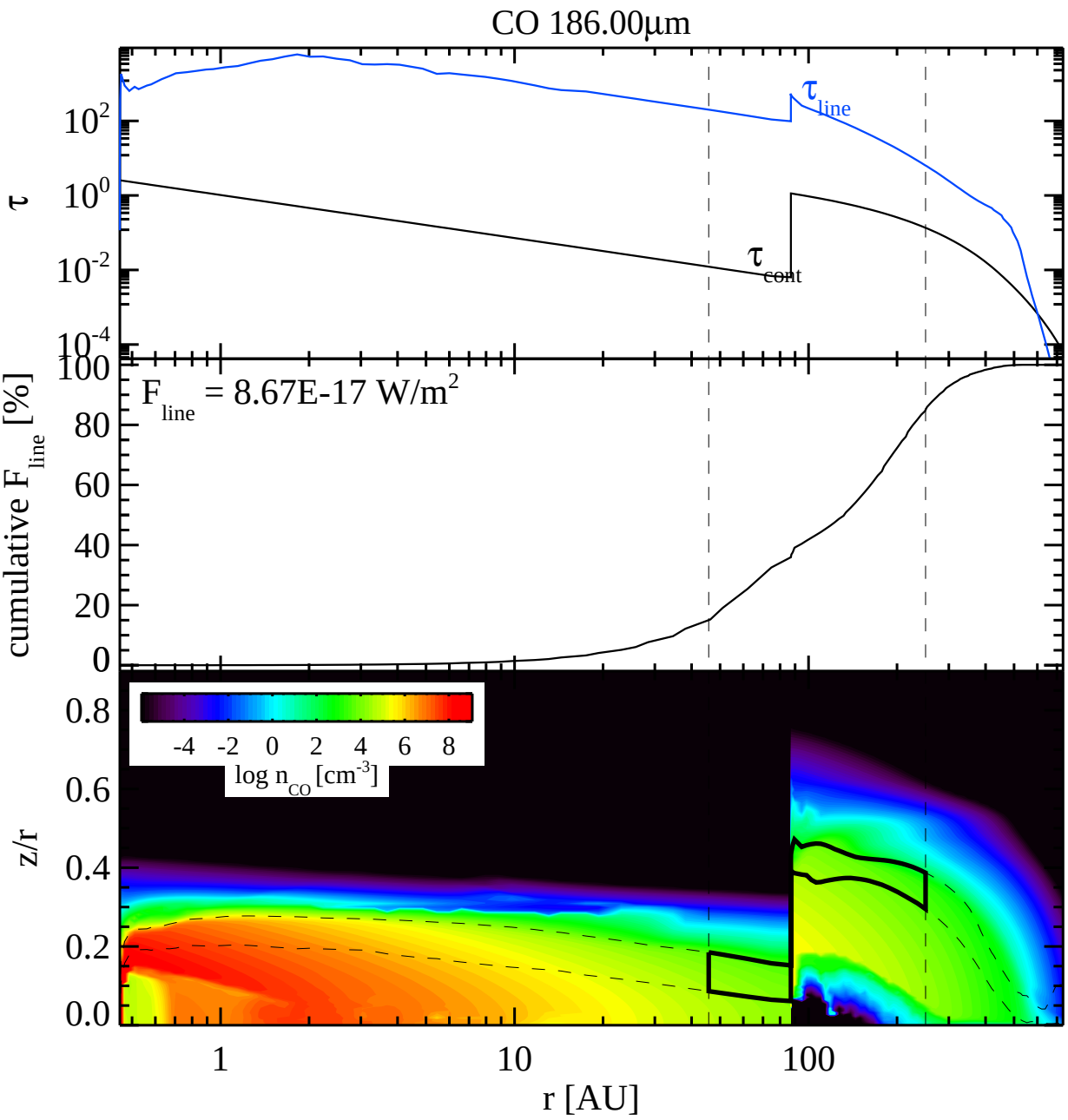

C18O 910.31µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 5.54E-19 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-8 -6 -4 -2 0 2 4 6
log n_{CO} [cm^{-3}]
200
400
600
r [AU]

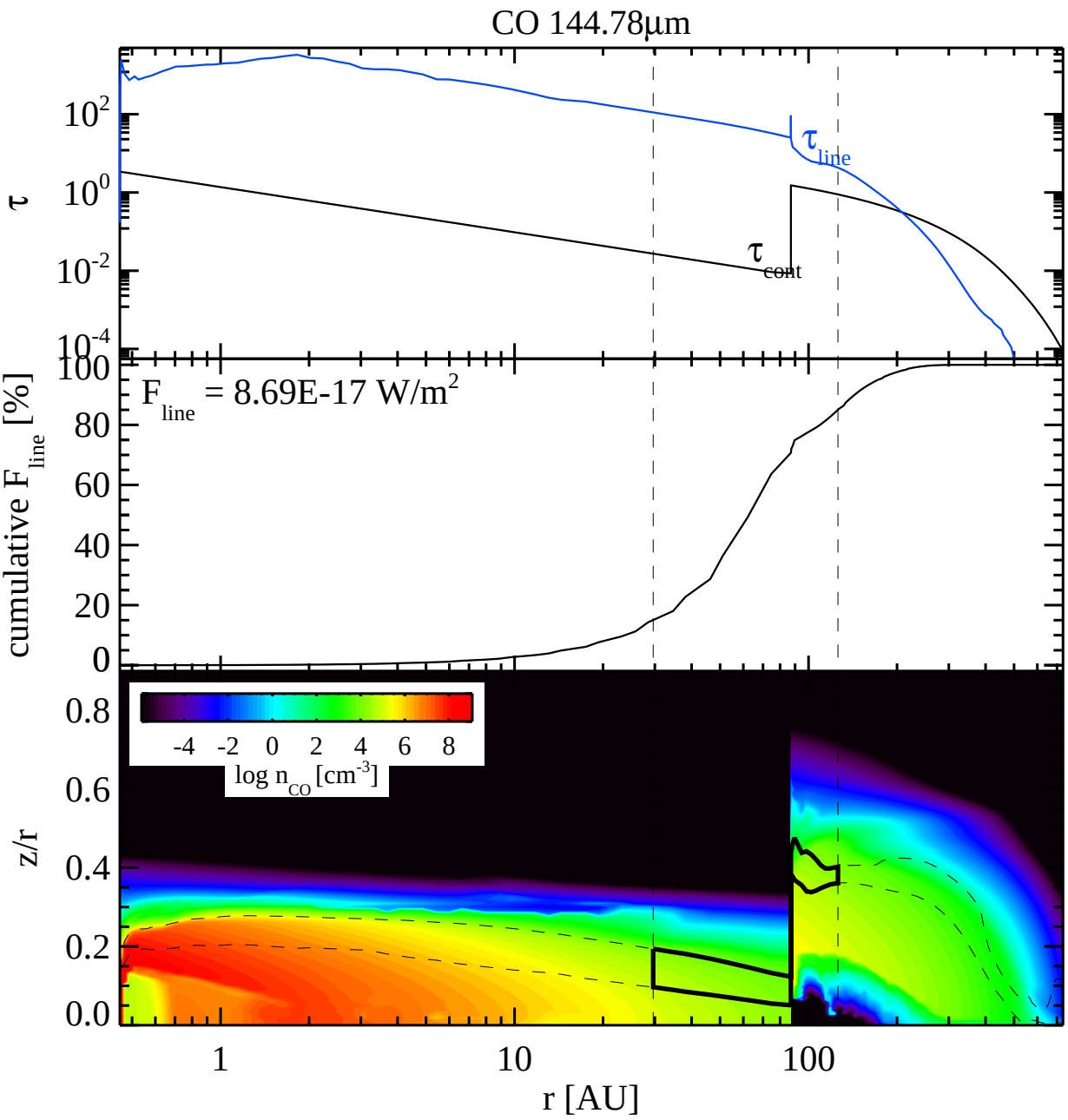

C17O 889.43µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 3.20E-19 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-8 -6 -4 -2 0 2 4
log n CO [cm-3]
200
400
600
r [AU]

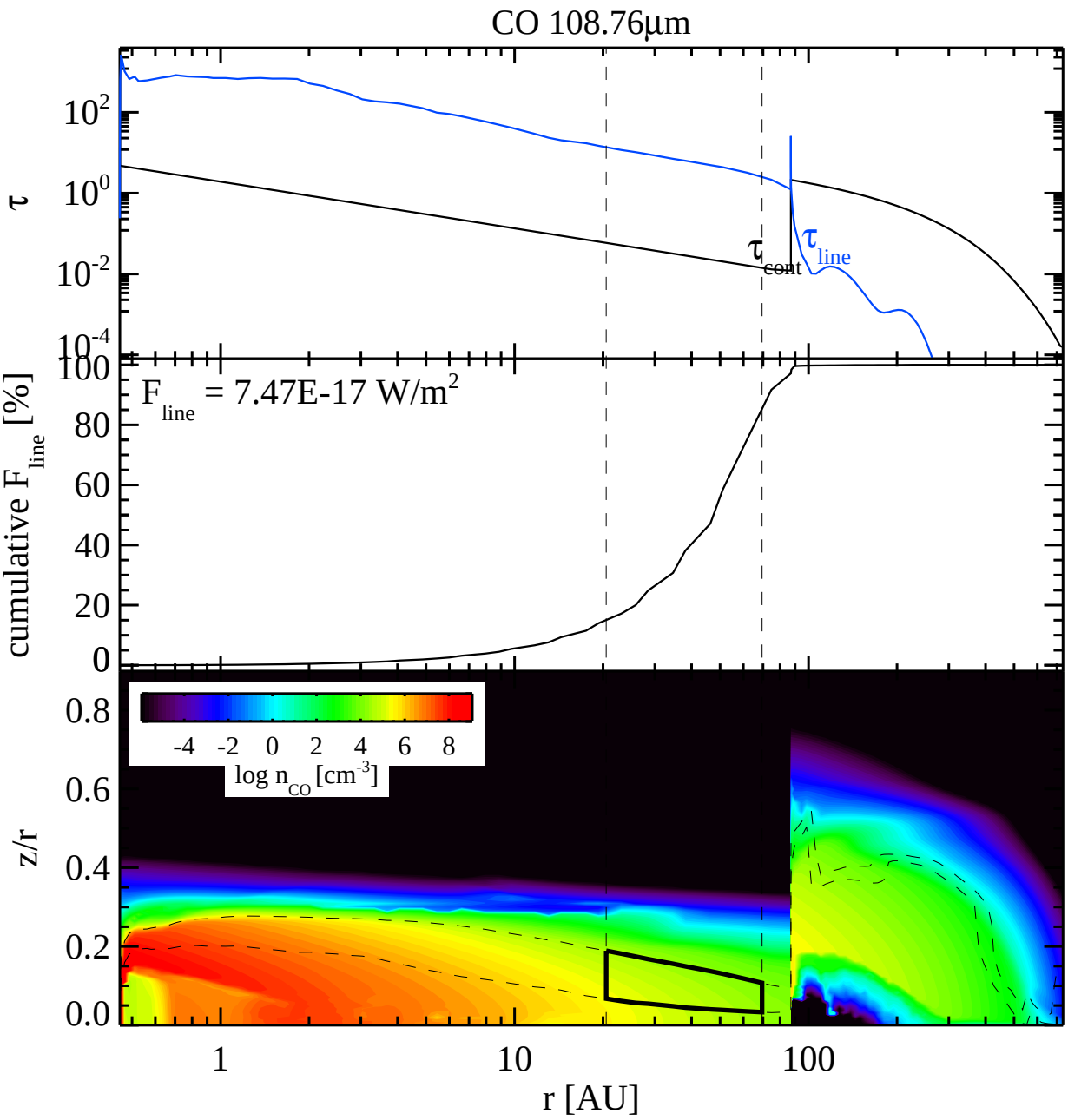

CO 520.23µm
τ
τ line
τ cont
cumulative F line [%]
F line = 1.24E-17 W/m2
log n CO [cm-3]
z/r
r [AU]

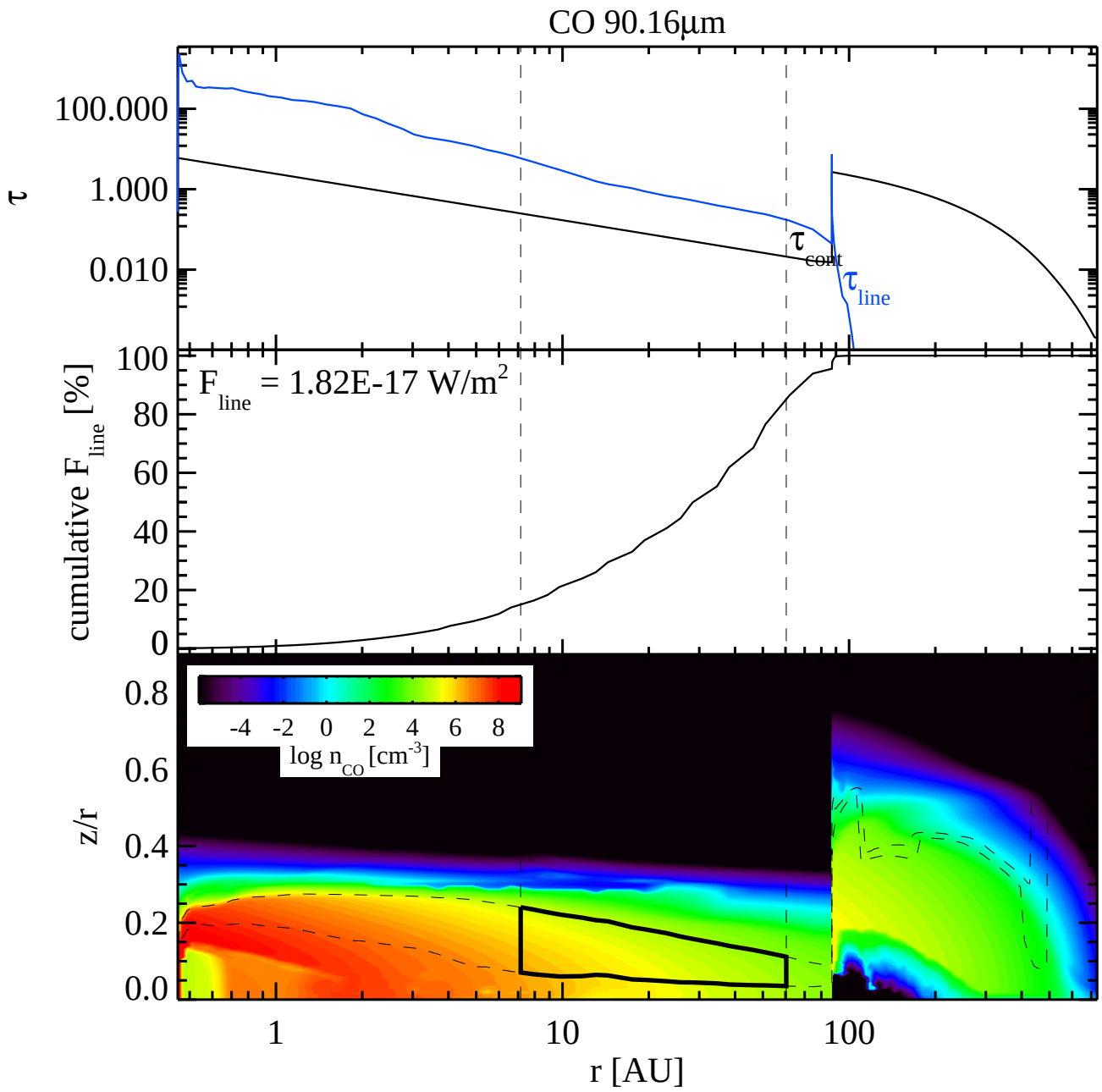

CO 433.56µm
τ
τ line
τ cont
cumulative F line [%]
F line = 2.03E-17 W/m2
log n CO [cm-3]
z/r
r [AU]

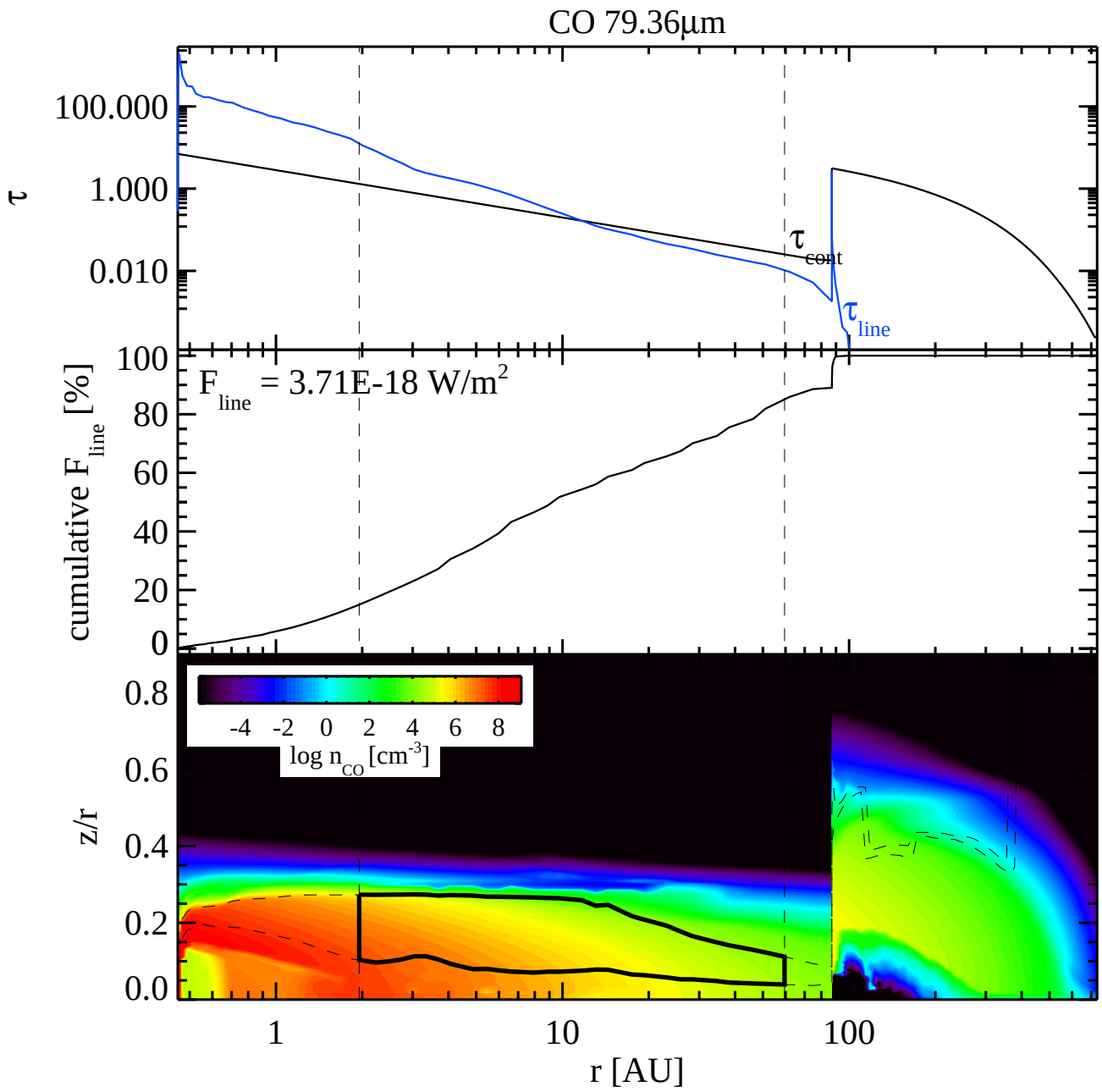

CO 260.24μm
τ
τ line
τ cont
cumulative F line [%]
F line = 6.49E-17 W/m2
log n CO [cm-3]
-4 -2 0 2 4 6 8
z/r
r [AU]
1
10
100

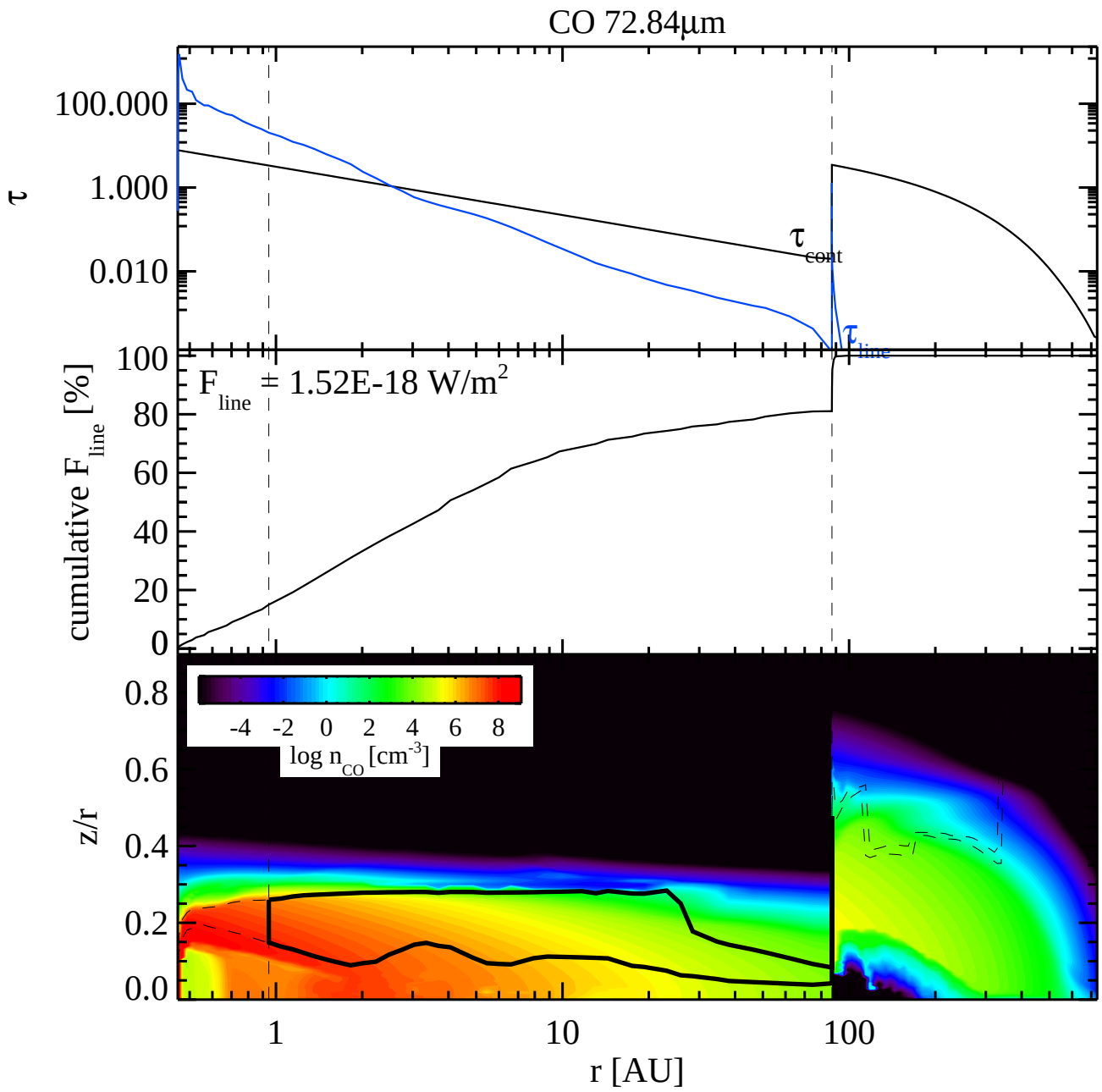

CO 186.00μm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 8.67E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

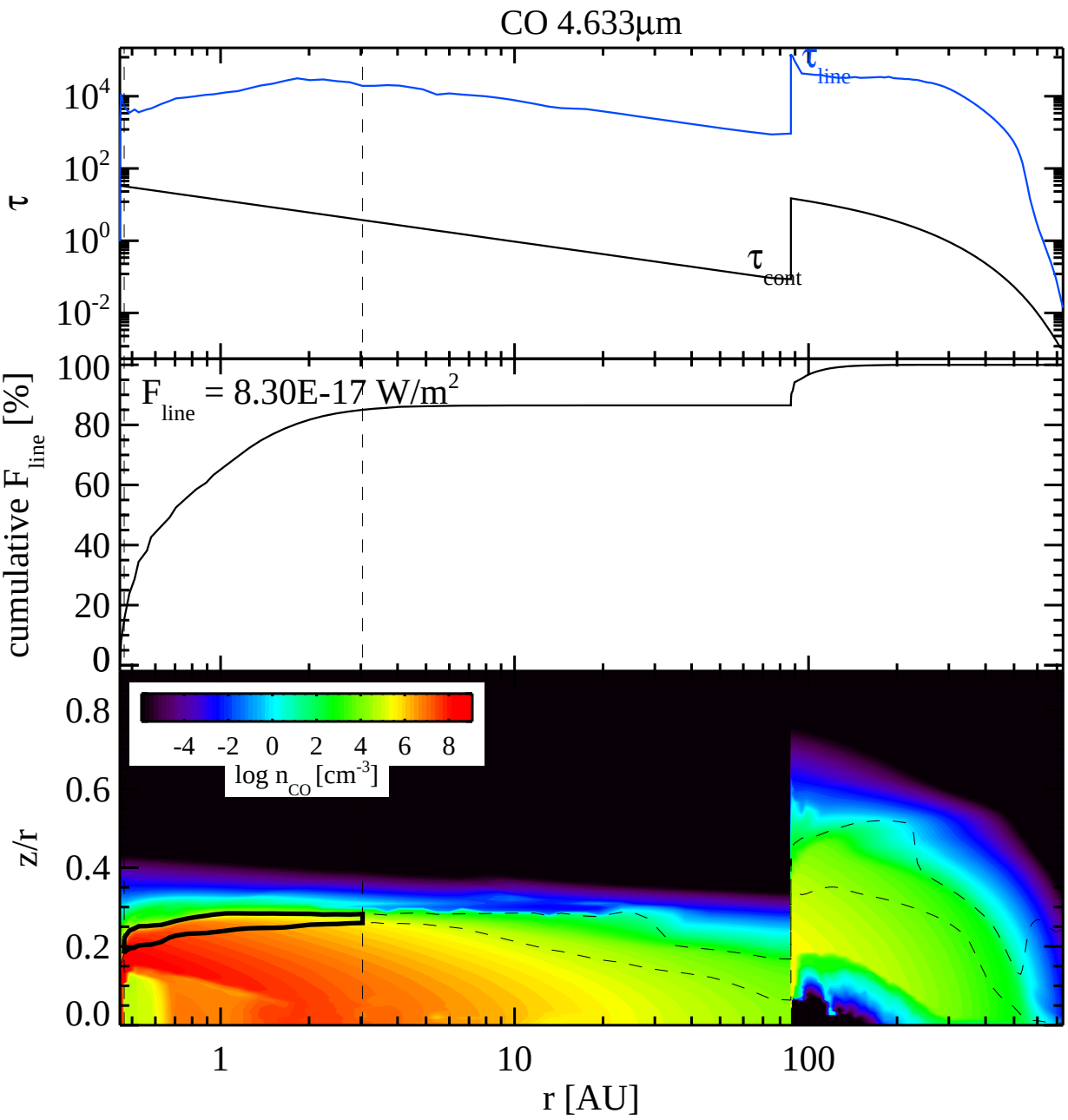

CO 144.78μm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 8.69E-17 W/m^2
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
z/r
0.8
0.6
0.4
0.2
0.0
1
10
100
r [AU]

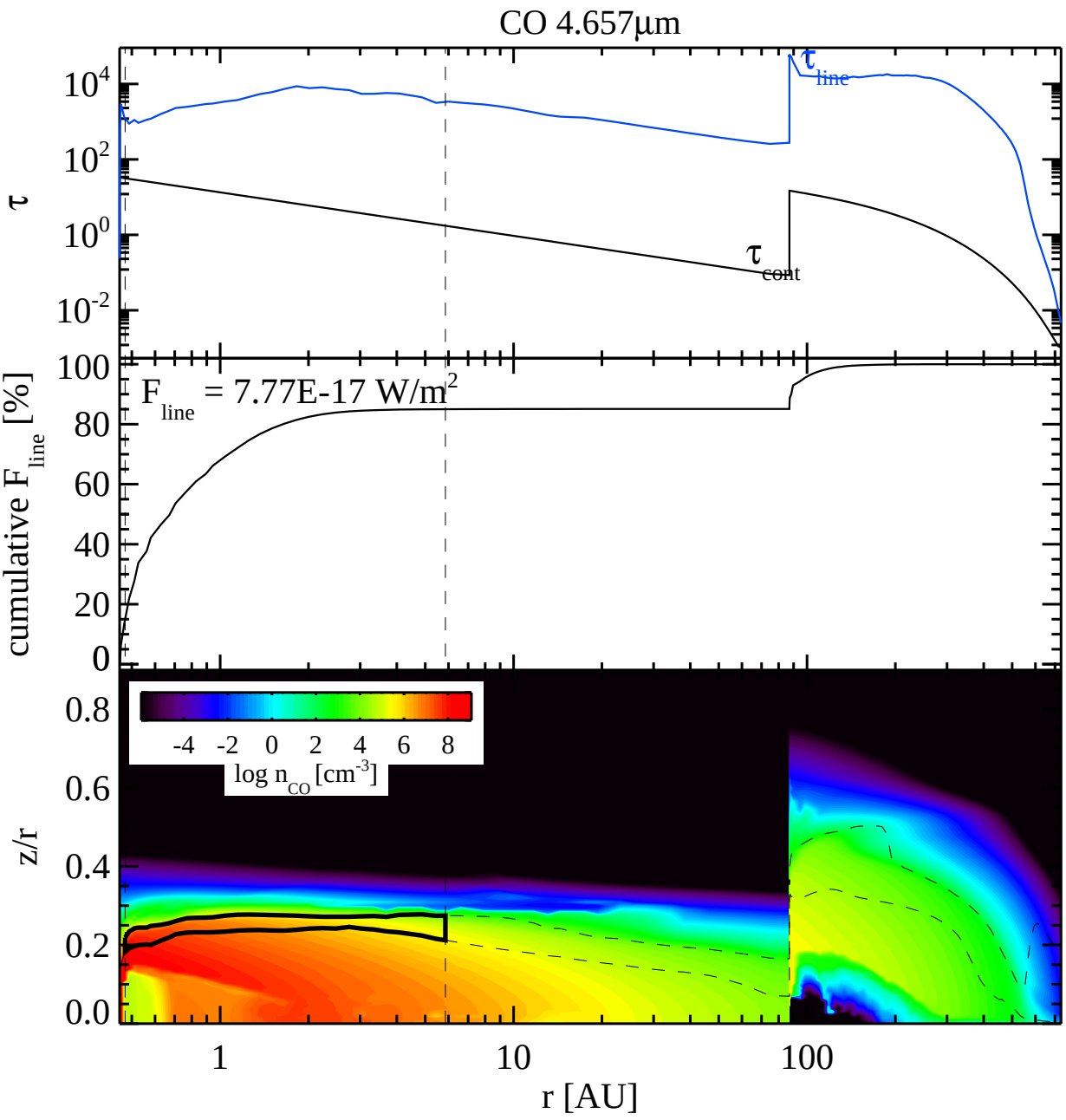

CO 108.76μm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 7.47E-17 W/m^2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

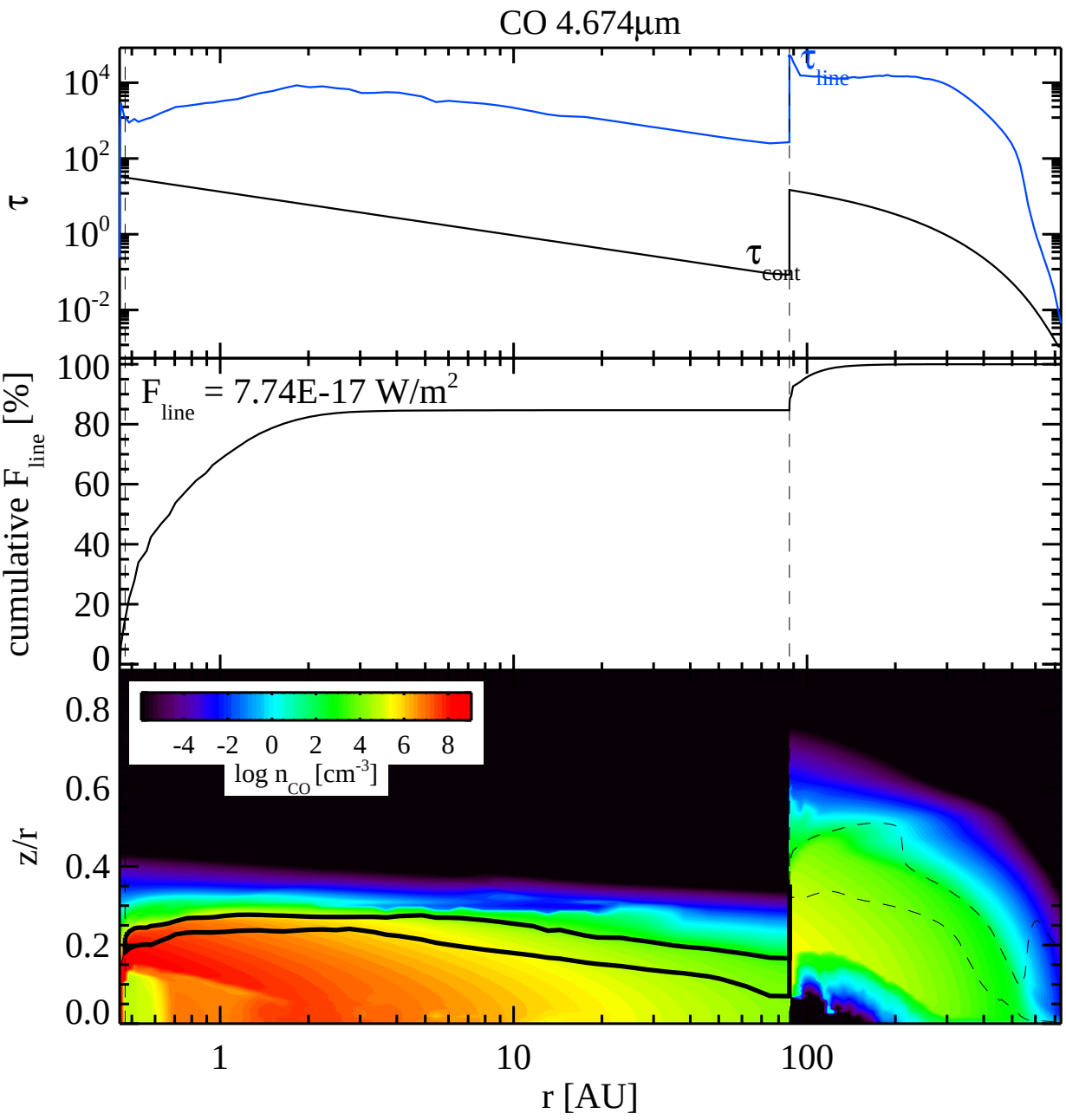

CO 90.16µm
τ
100.000
1.000
0.010
τ cont
τ line
cumulative F line [%]
F line = 1.82E-17 W/m2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n CO [cm-3]
1
10
100
r [AU]

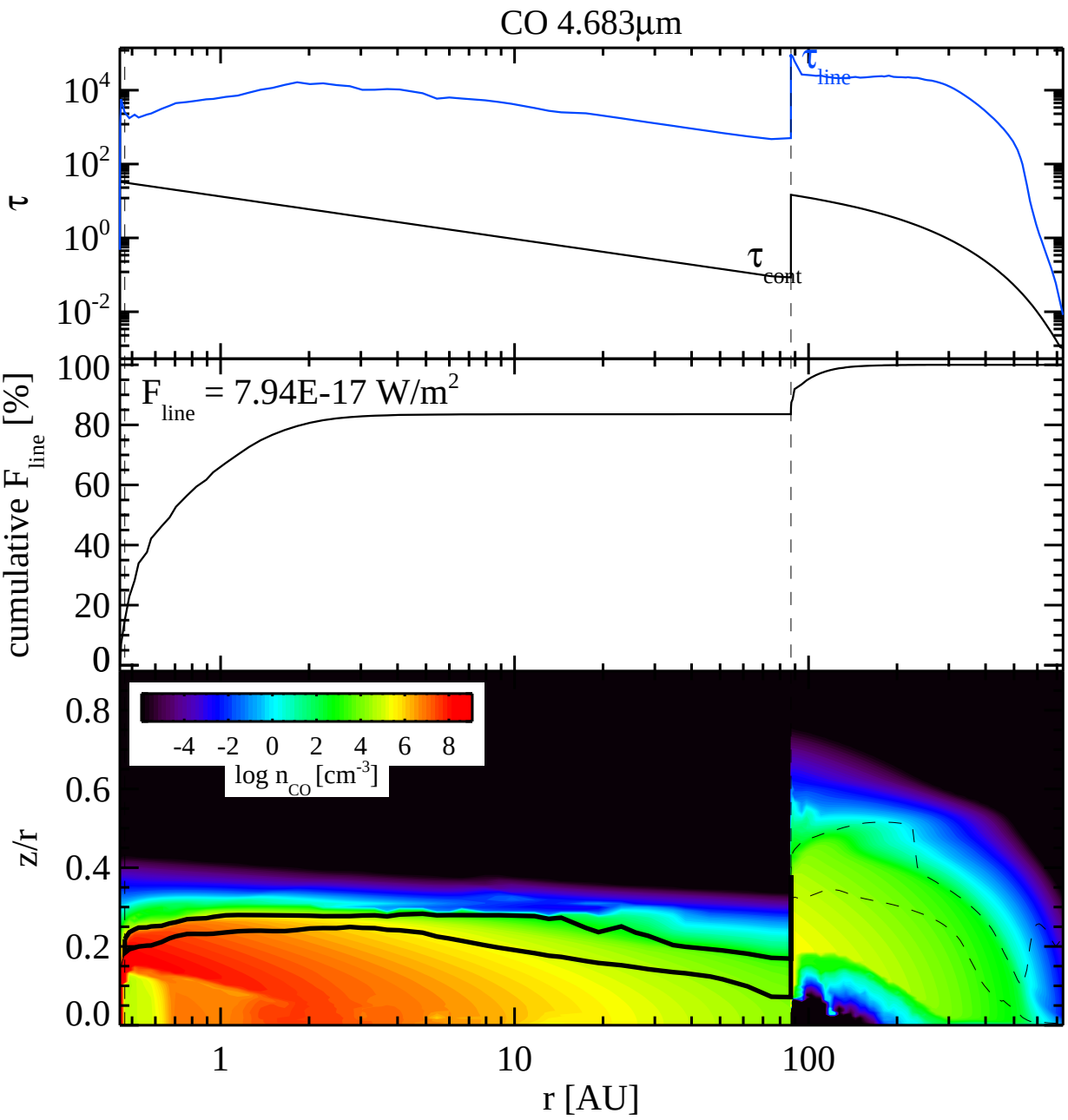

CO 79.36µm
τ
100.000
1.000
0.010
τ cont
τ line
cumulative F line [%]
F line = 3.71E-18 W/m2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n CO [cm-3]
1
10
100
r [AU]

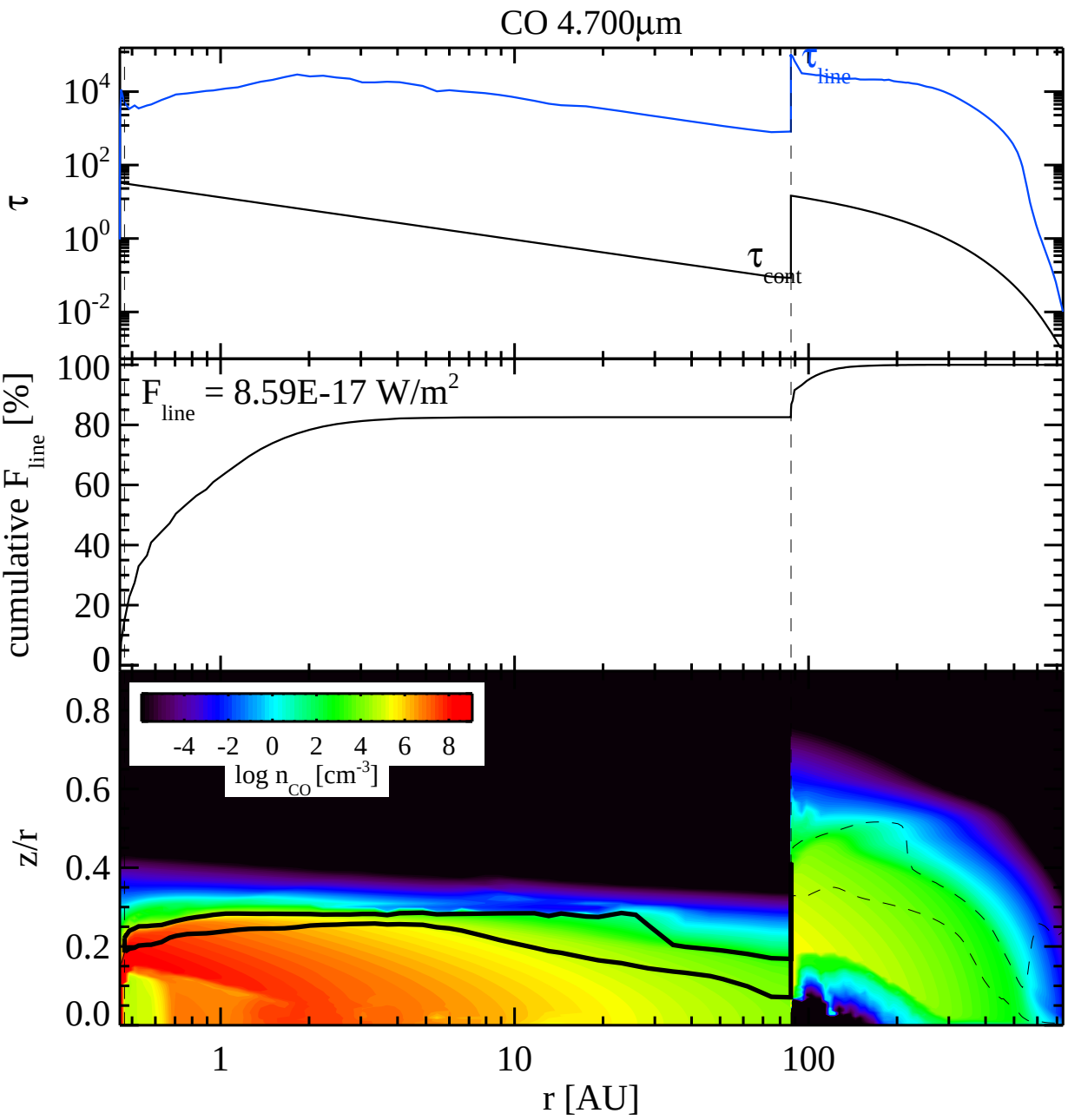

CO 72.84µm
τ
100.000
1.000
0.010
τ cont
τ line
cumulative F line [%]
F line = 1.52E-18 W/m2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n CO [cm-3]
1
10
100
r [AU]

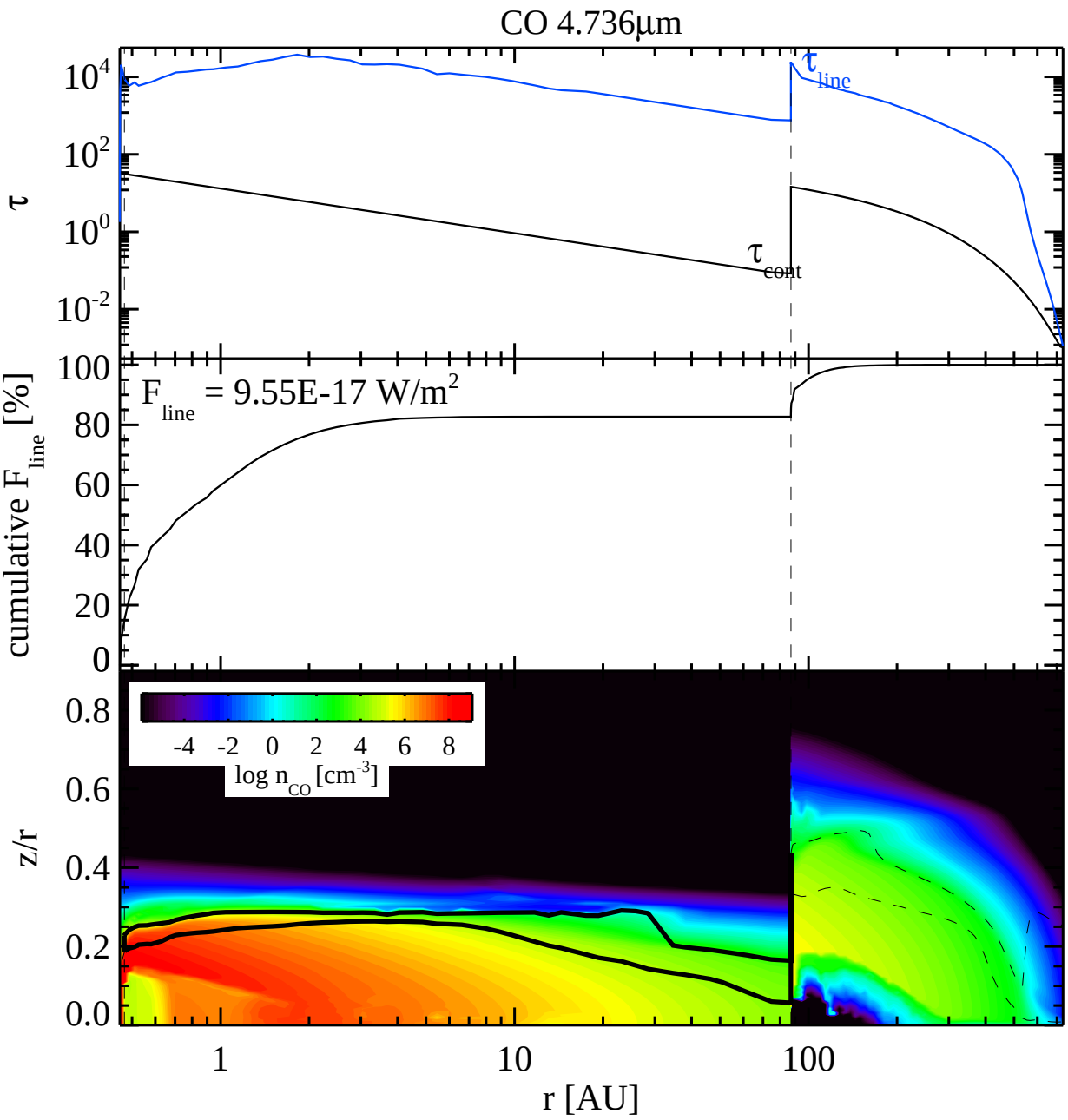

CO 4.633µm
τ
10^4
10^2
10^0
10^{-2}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 8.30E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

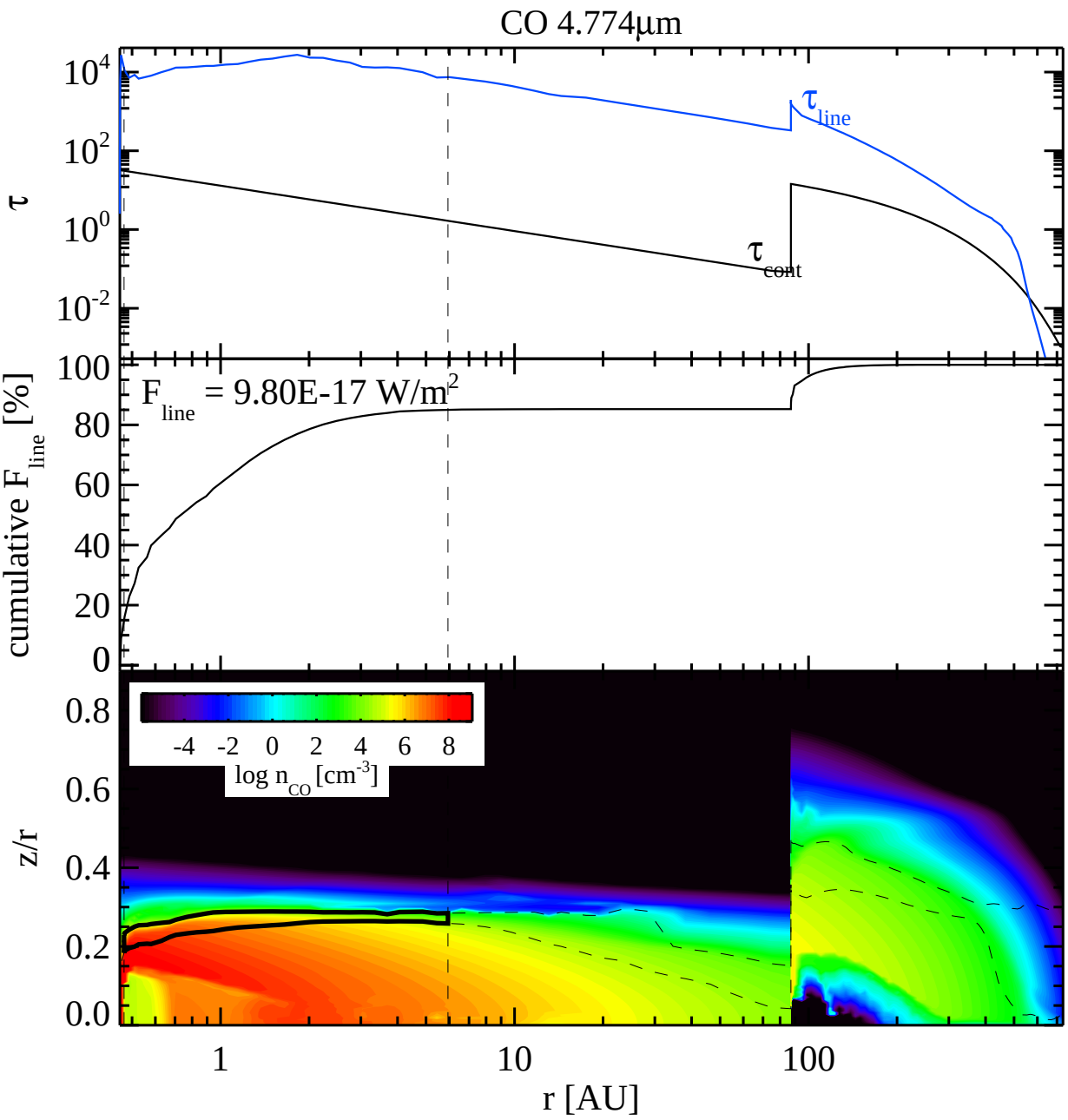

CO 4.657µm
τ
10^4
10^2
10^0
10^{-2}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 7.77E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

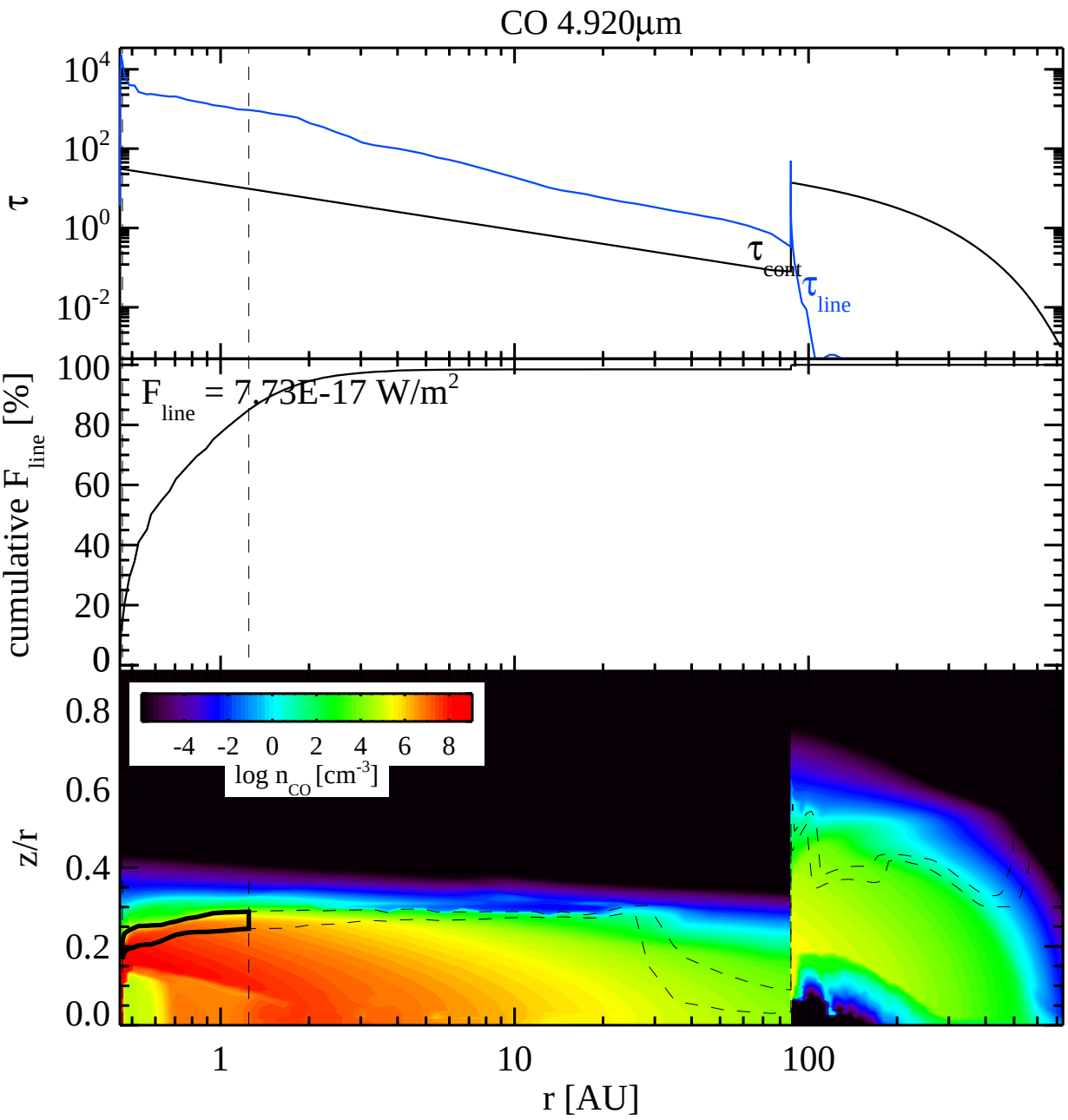

CO 4.674µm
τ
10^4
10^2
10^0
10^{-2}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 7.74E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

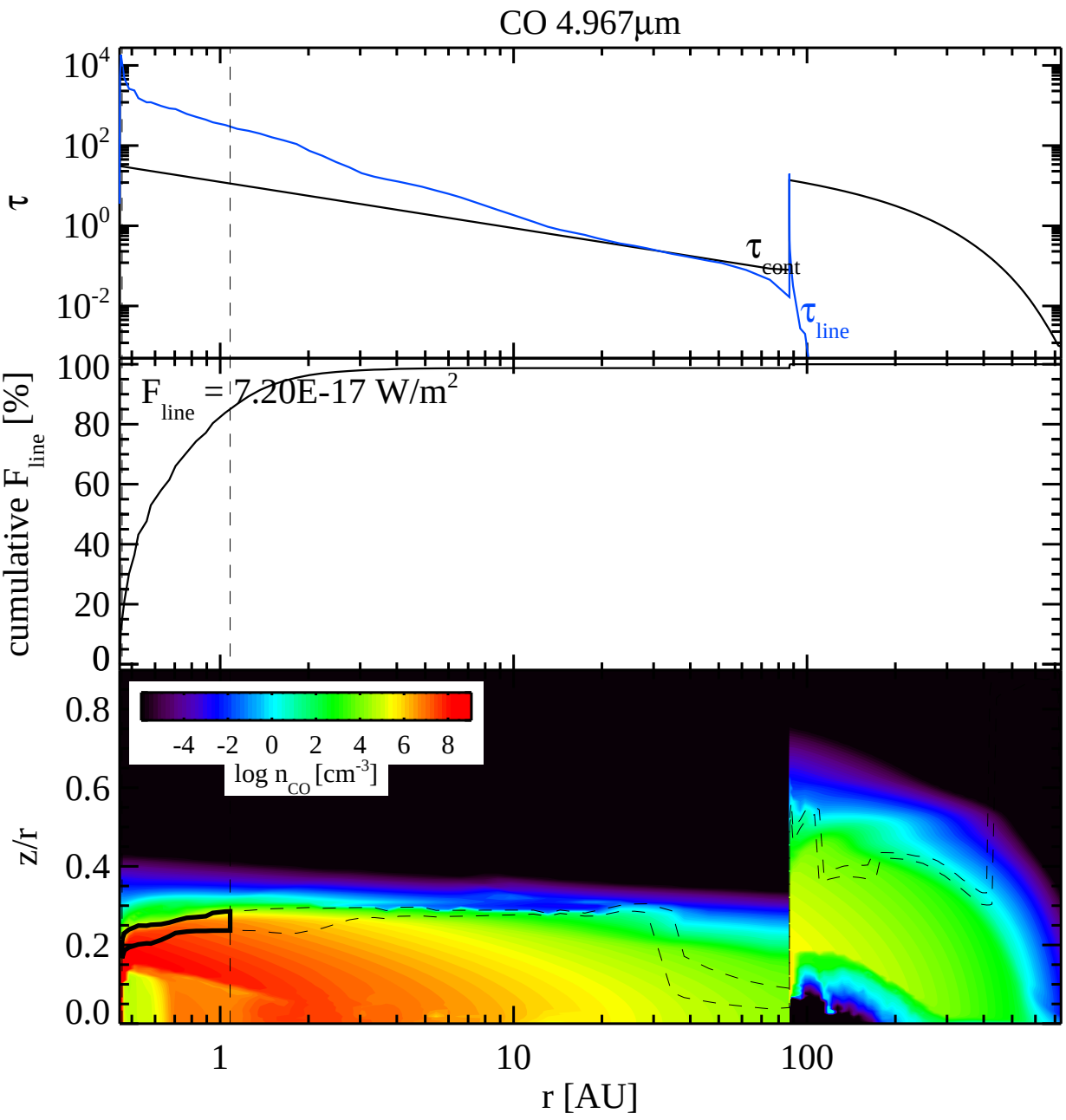

CO 4.683µm
τ
10^4
10^2
10^0
10^{-2}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 7.94E-17 W/m^2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

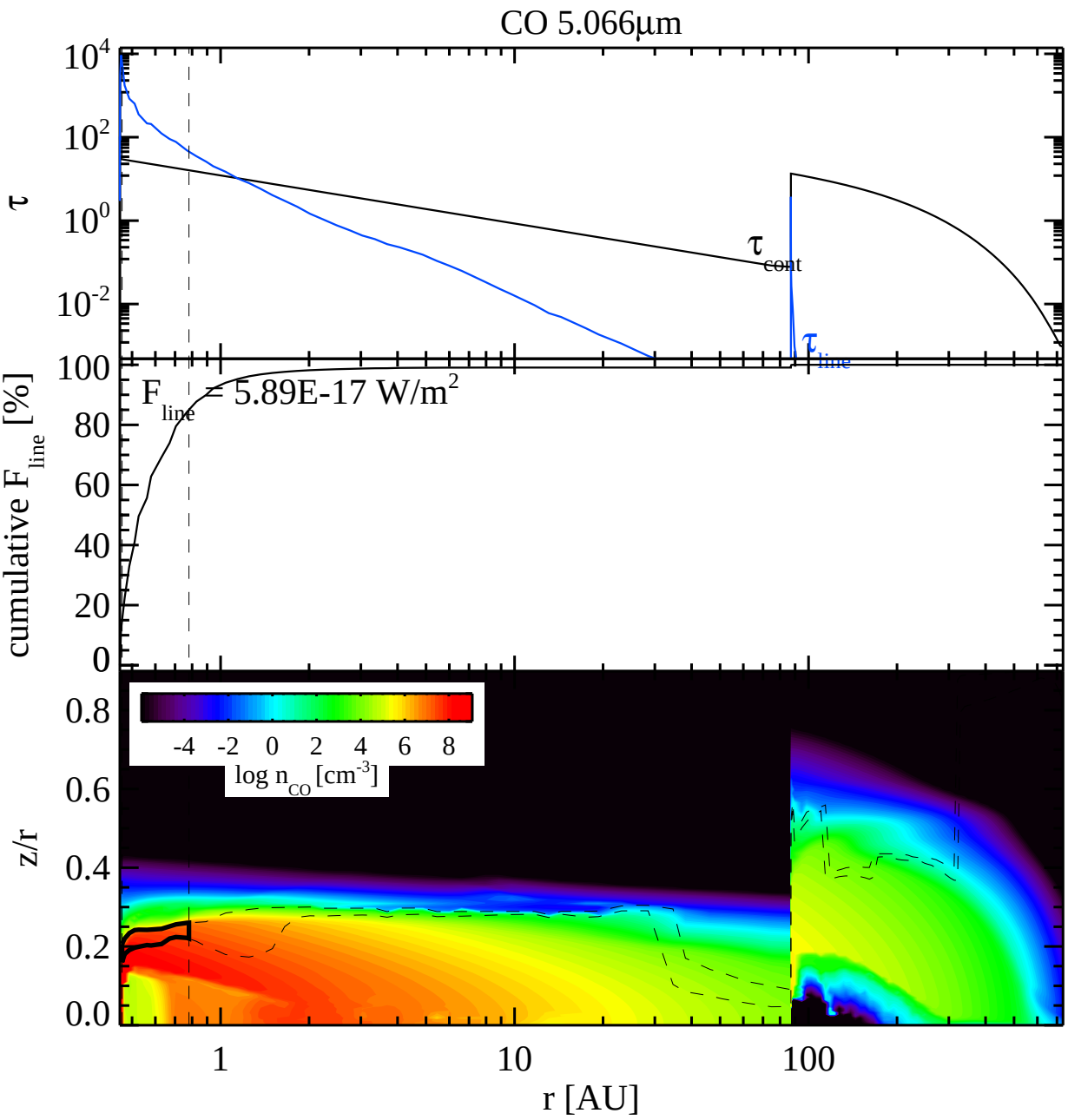

CO 4.700µm
τ
10^4
10^2
10^0
10^{-2}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 8.59E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

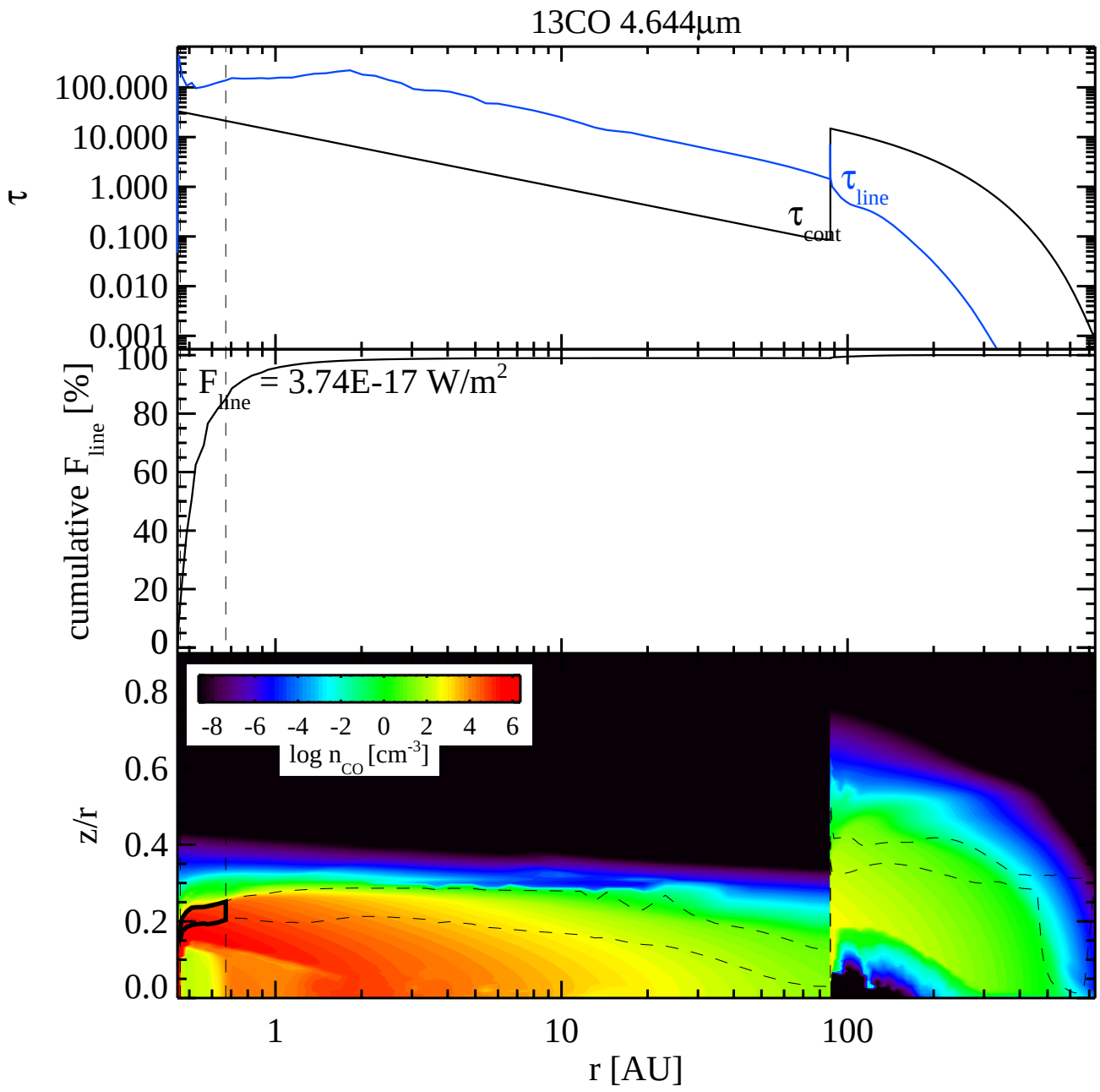

CO 4.736µm
τ
10^4
10^2
10^0
10^{-2}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 9.55E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

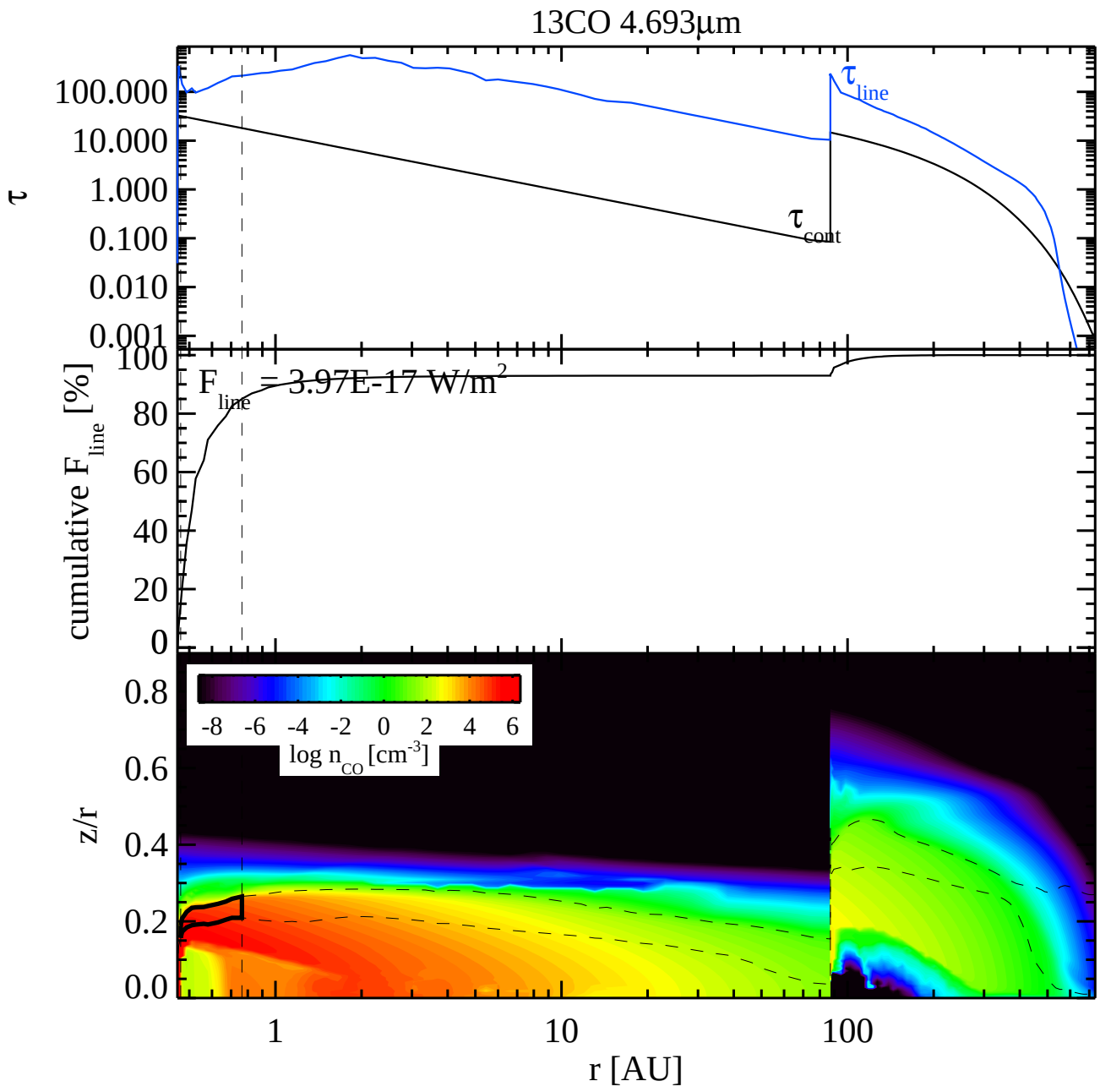

CO 4.774µm
τ
10^4
10^2
10^0
10^{-2}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 9.80E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

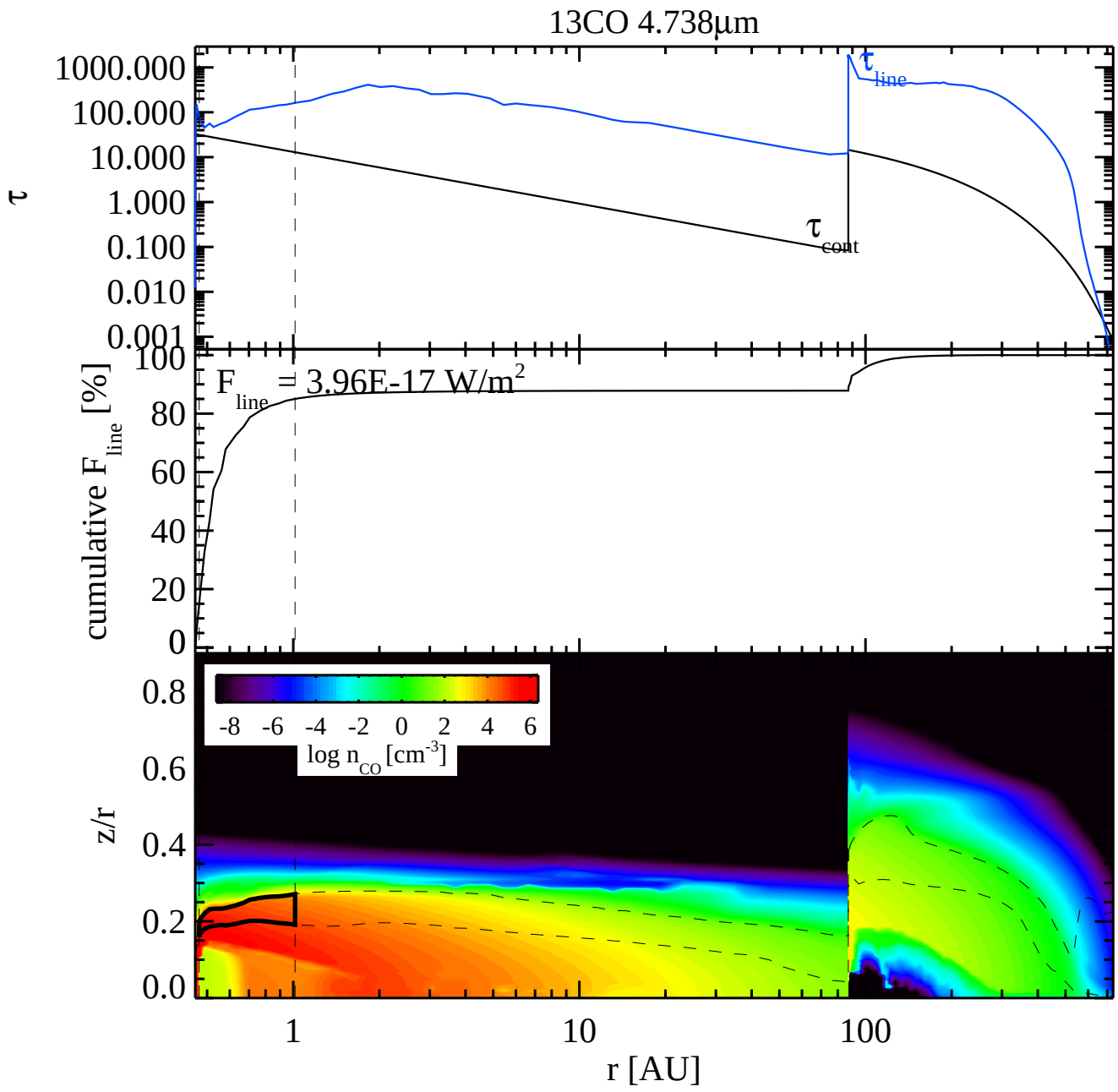

CO 4.920µm
τ
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 7.73E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

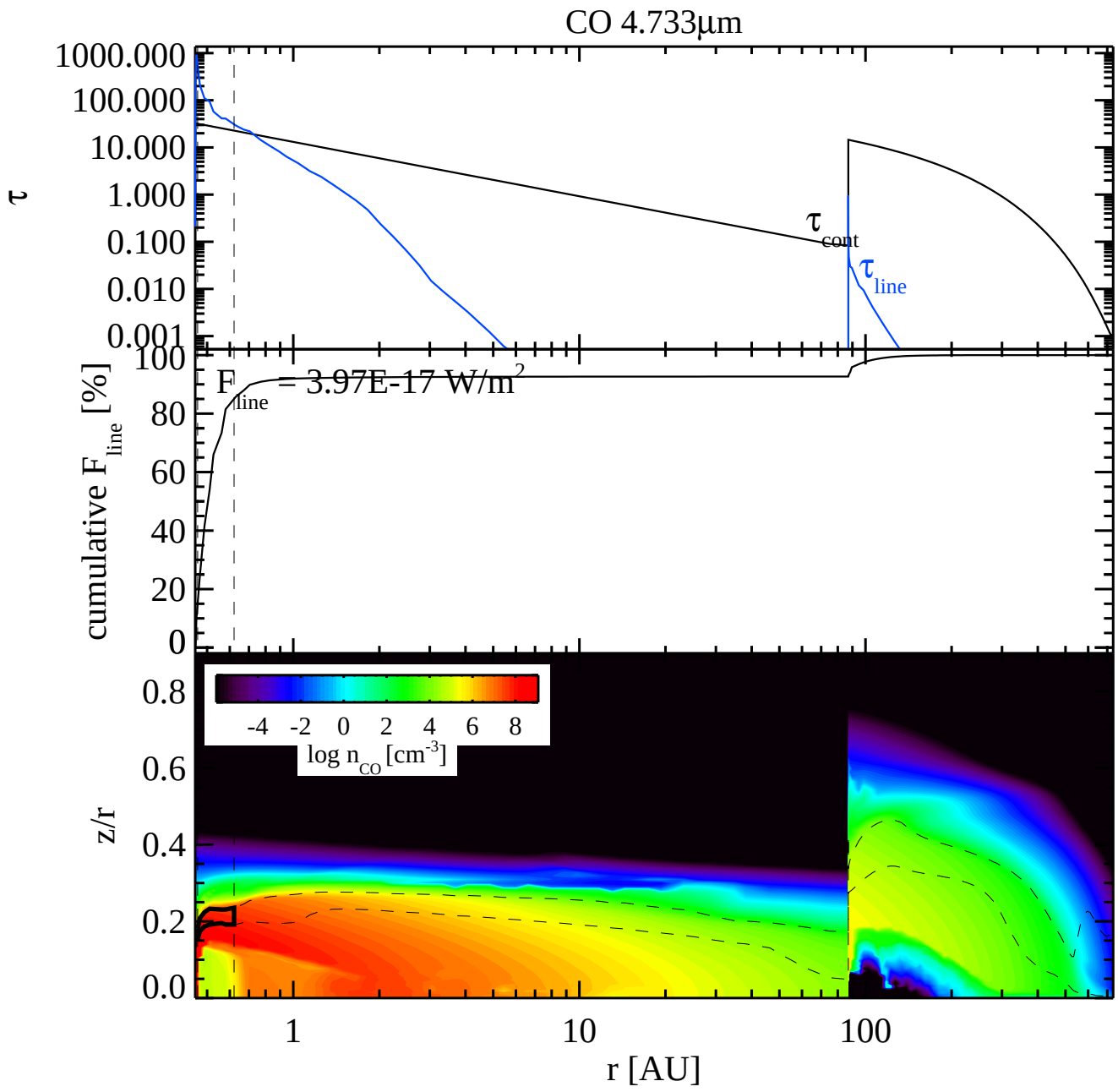

CO 4.967µm
τ
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 7.20E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

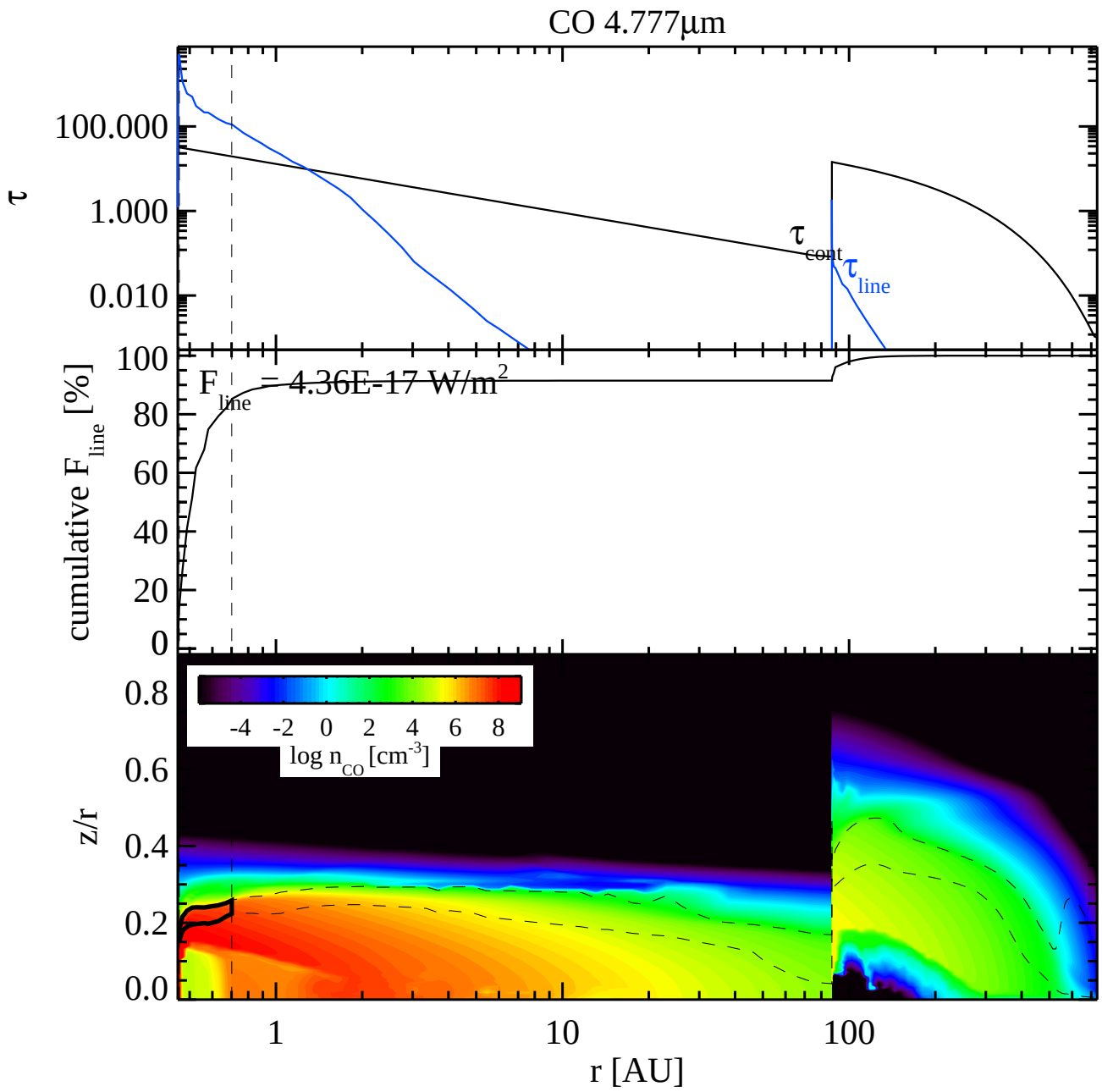

CO 5.066µm
τ
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 5.89E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

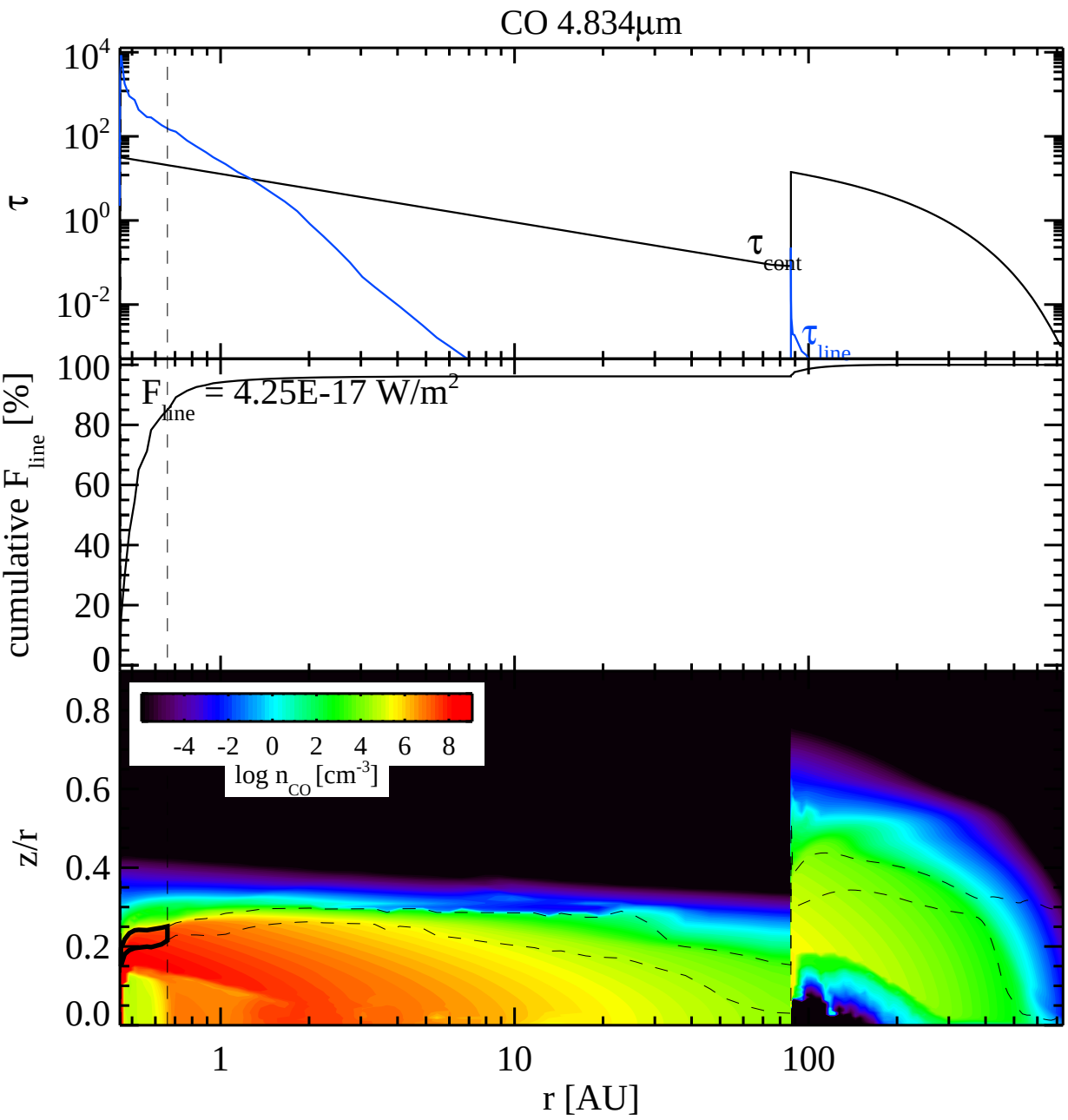

13CO 4.644µm
τ
100.000
10.000
1.000
0.100
0.010
0.001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 3.74E-17 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-8 -6 -4 -2 0 2 4 6
log n CO [cm-3]
1
10
100
r [AU]

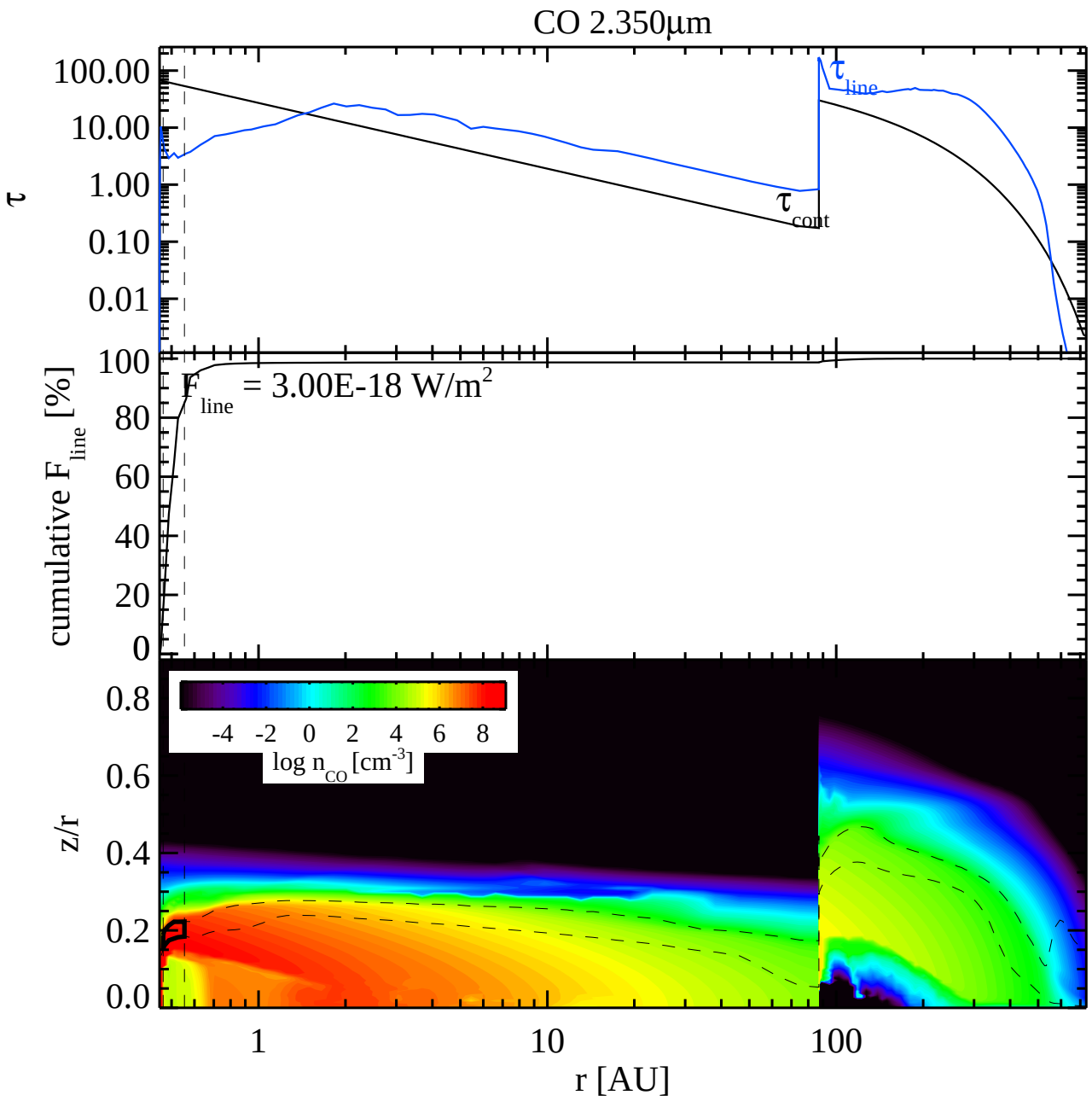

13CO 4.693µm
τ
100.000
10.000
1.000
0.100
0.010
0.001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 3.97E-17 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-8 -6 -4 -2 0 2 4 6
log n CO [cm-3]
1
10
100
r [AU]

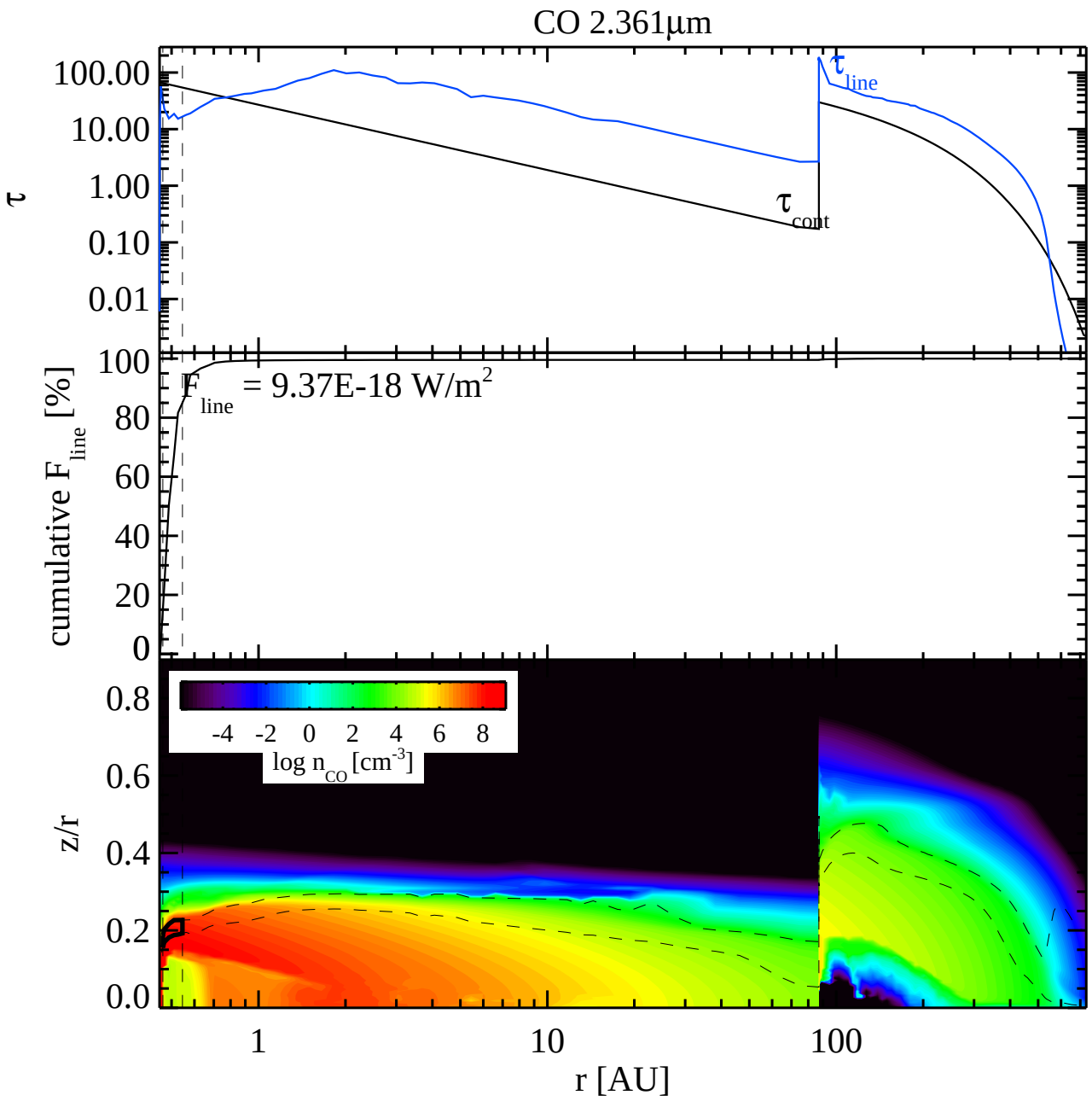

13CO 4.738µm
τ
1000.000
100.000
10.000
1.000
0.100
0.010
0.001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 3.96E-17 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-8 -6 -4 -2 0 2 4 6
log n CO [cm-3]
1
10
100
r [AU]

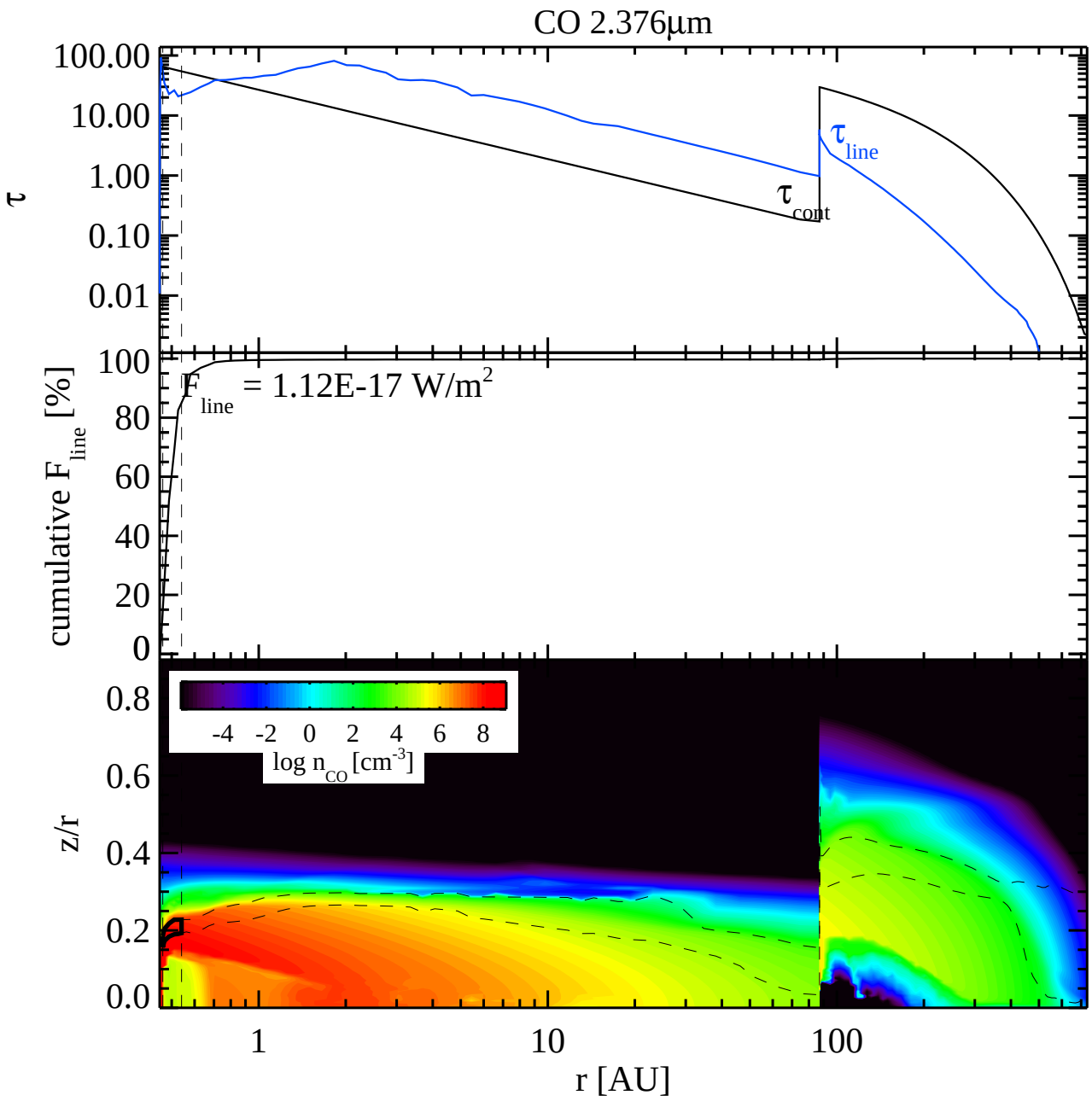

CO 4.733µm
τ
1000.000
100.000
10.000
1.000
0.100
0.010
0.001
τ cont
τ line
cumulative F line [%]
100
80
60
40
20
0
F line = 3.97E-17 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n CO [cm-3]
1
10
100
r [AU]

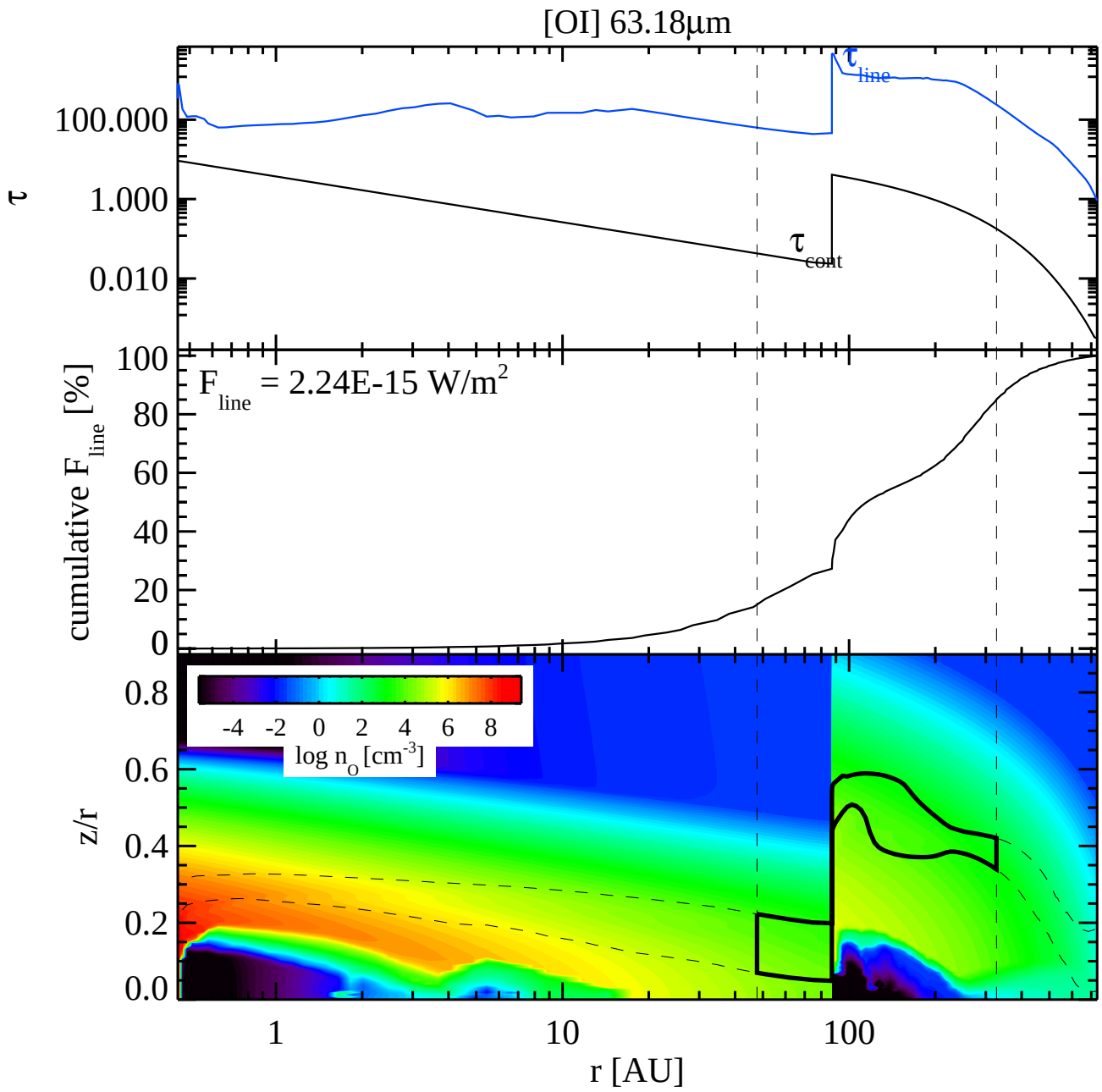

CO 4.777µm
τ
100.000
1.000
0.010
τ cont
τ line
cumulative F line [%]
F line = 4.36E-17 W/m2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n CO [cm-3]
1
10
100
r [AU]

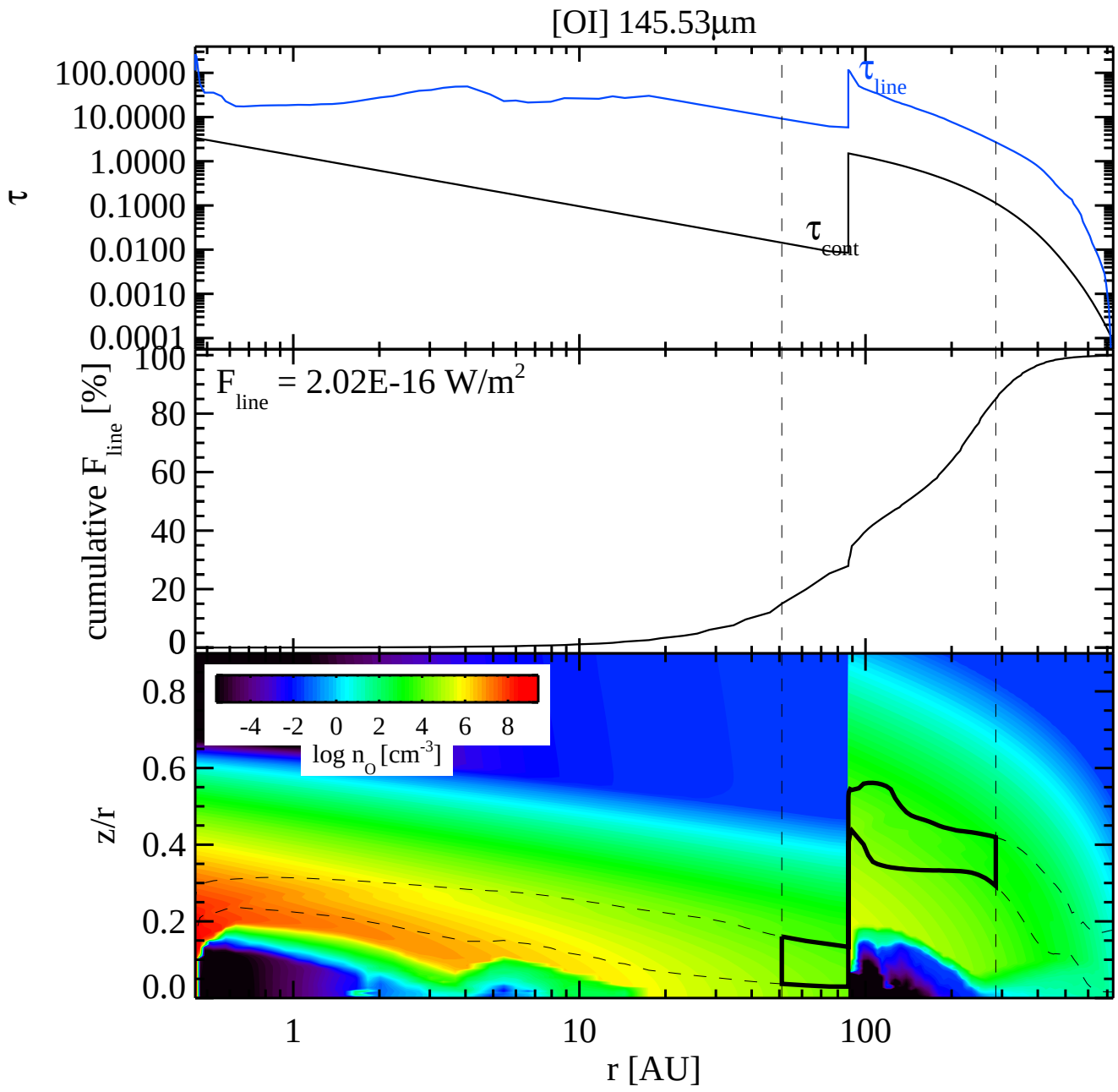

CO 4.834µm
τ
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 4.25E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{CO} [cm^{-3}]
1
10
100
r [AU]

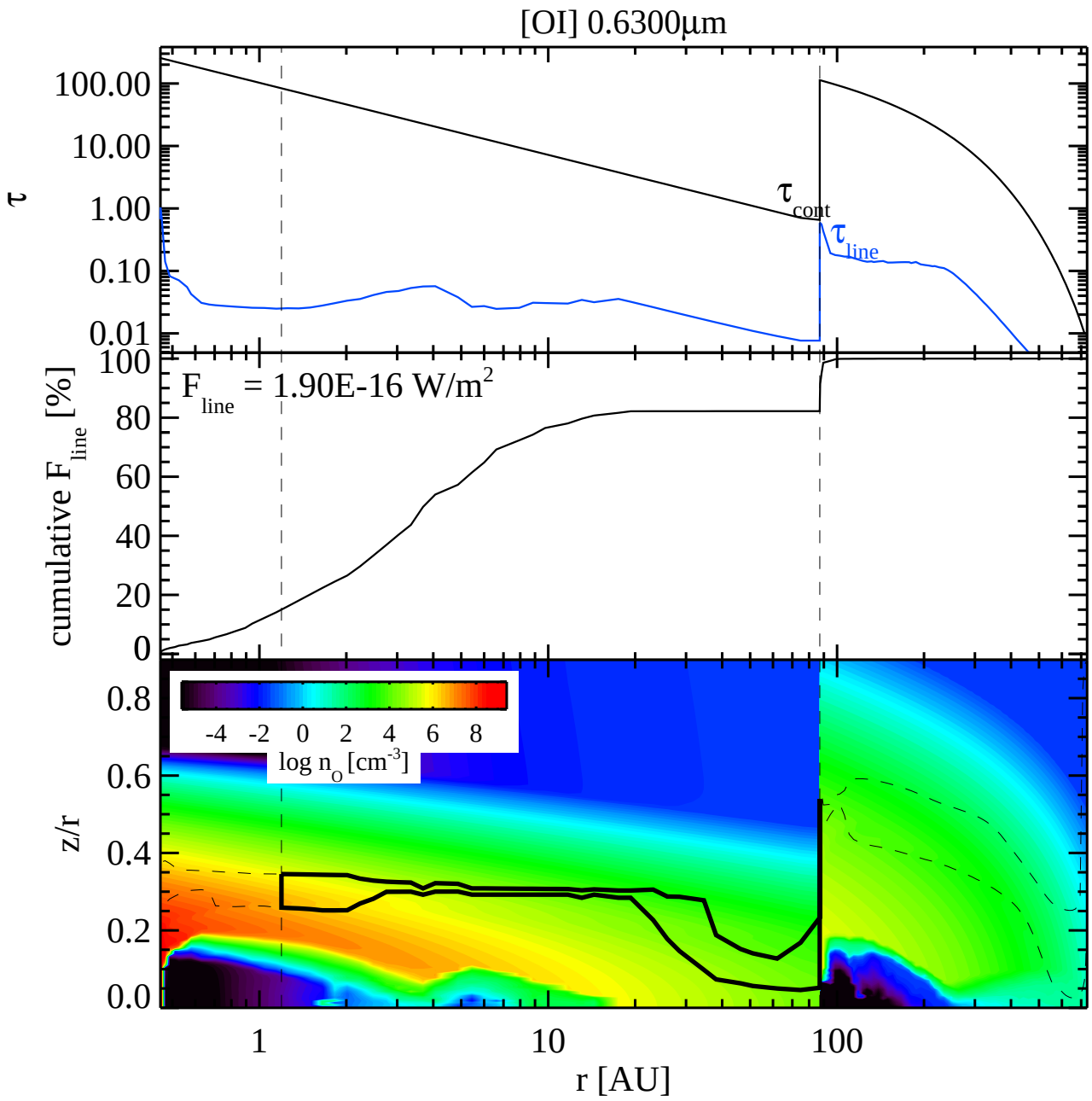

CO 2.350µm
τ
100.00
10.00
1.00
0.10
0.01
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 3.00E-18 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n CO [cm-3]
1
10
100
r [AU]

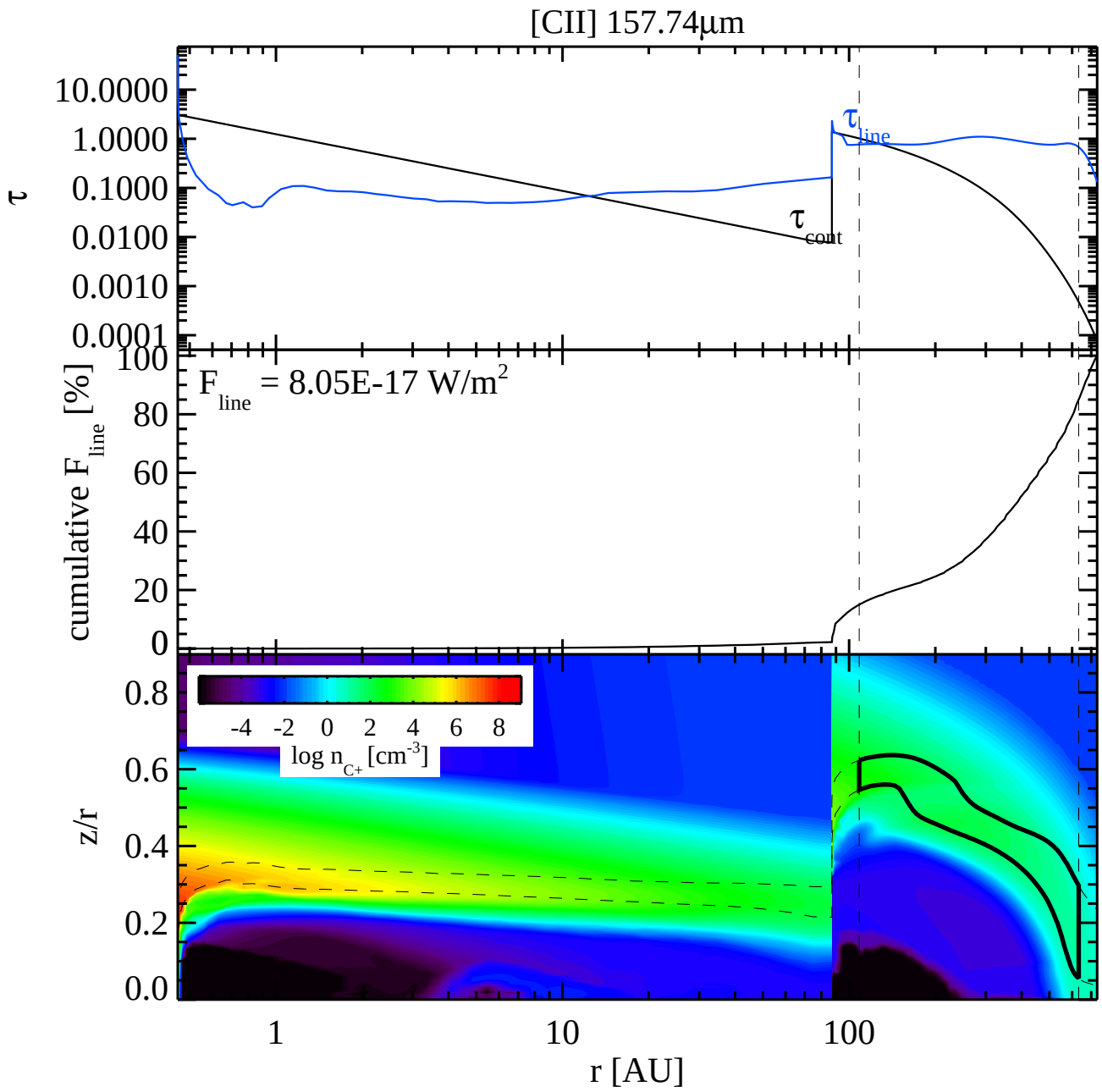

CO 2.361µm
τ
100.00
10.00
1.00
0.10
0.01
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 9.37E-18 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n CO [cm-3]
1
10
100
r [AU]

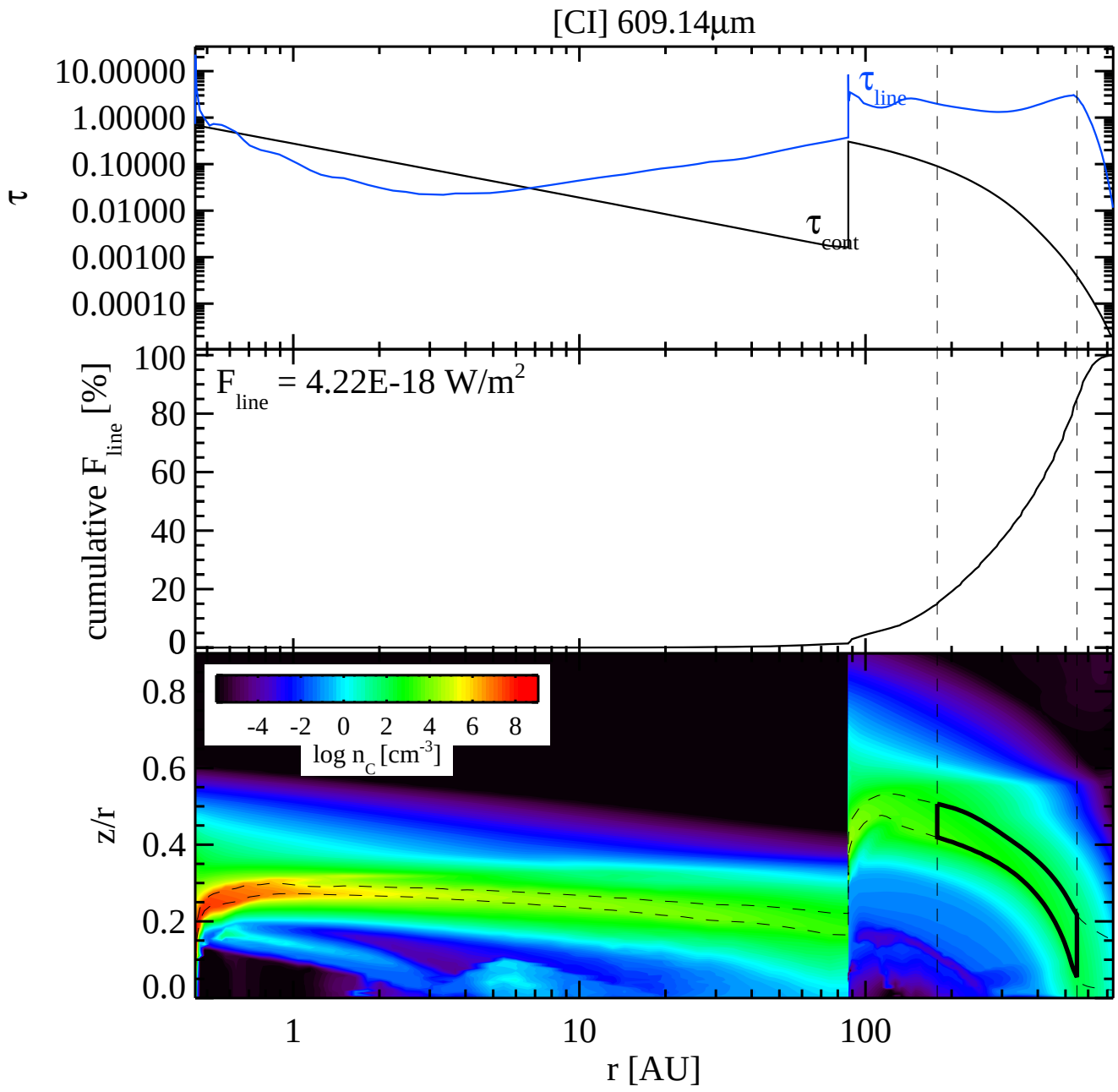

CO 2.376µm
100.00
10.00
1.00
0.10
0.01
τ
τ line
τ cont
100
80
60
40
20
0
cumulative F line [%]
F line = 1.12E-17 W/m2
0.8
0.6
0.4
0.2
0.0
z/r
-4 -2 0 2 4 6 8
log n CO [cm-3]
1
10
100
r [AU]

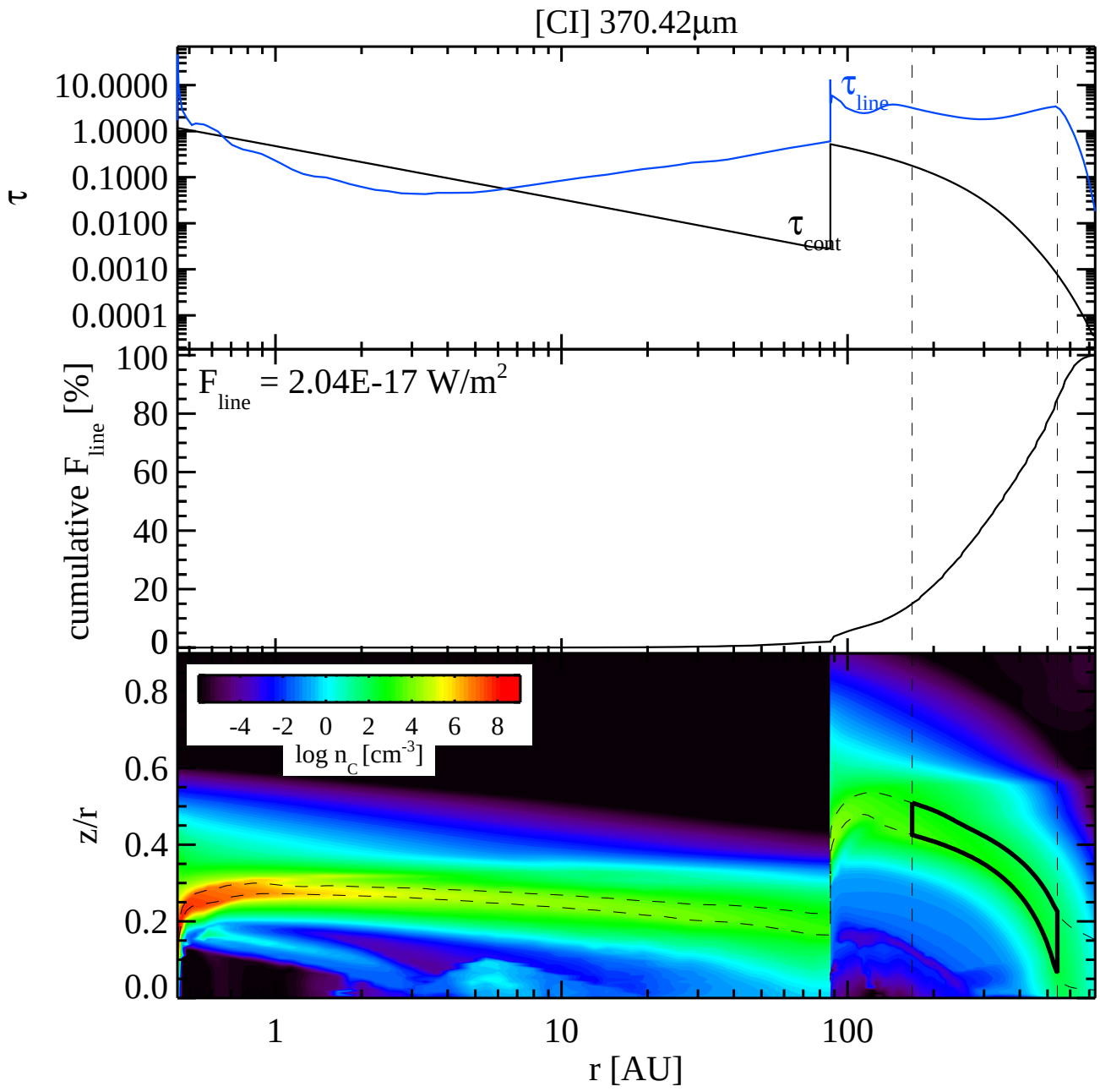

[OI] 63.18µm
τ
100.000
1.000
0.010
τ line
τ cont
100
80
60
40
20
0
cumulative F line [%]
F line = 2.24E-15 W/m2
0.8
0.6
0.4
0.2
0.0
z/r
-4 -2 0 2 4 6 8
log n O [cm-3]
1
10
100
r [AU]

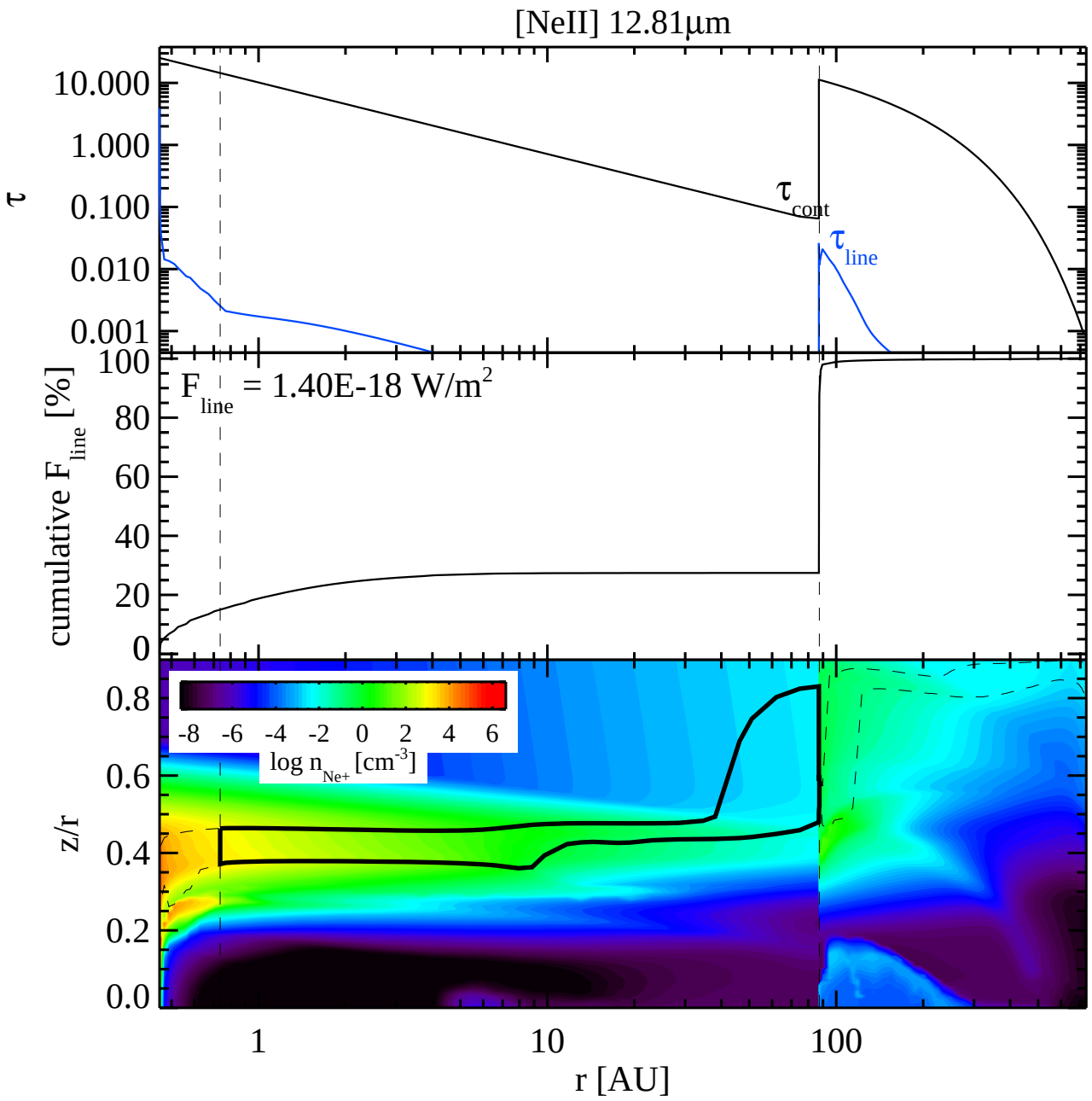

[OI] 145.53µm
τ
100.0000
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 2.02E-16 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n O [cm-3]
1
10
100
r [AU]

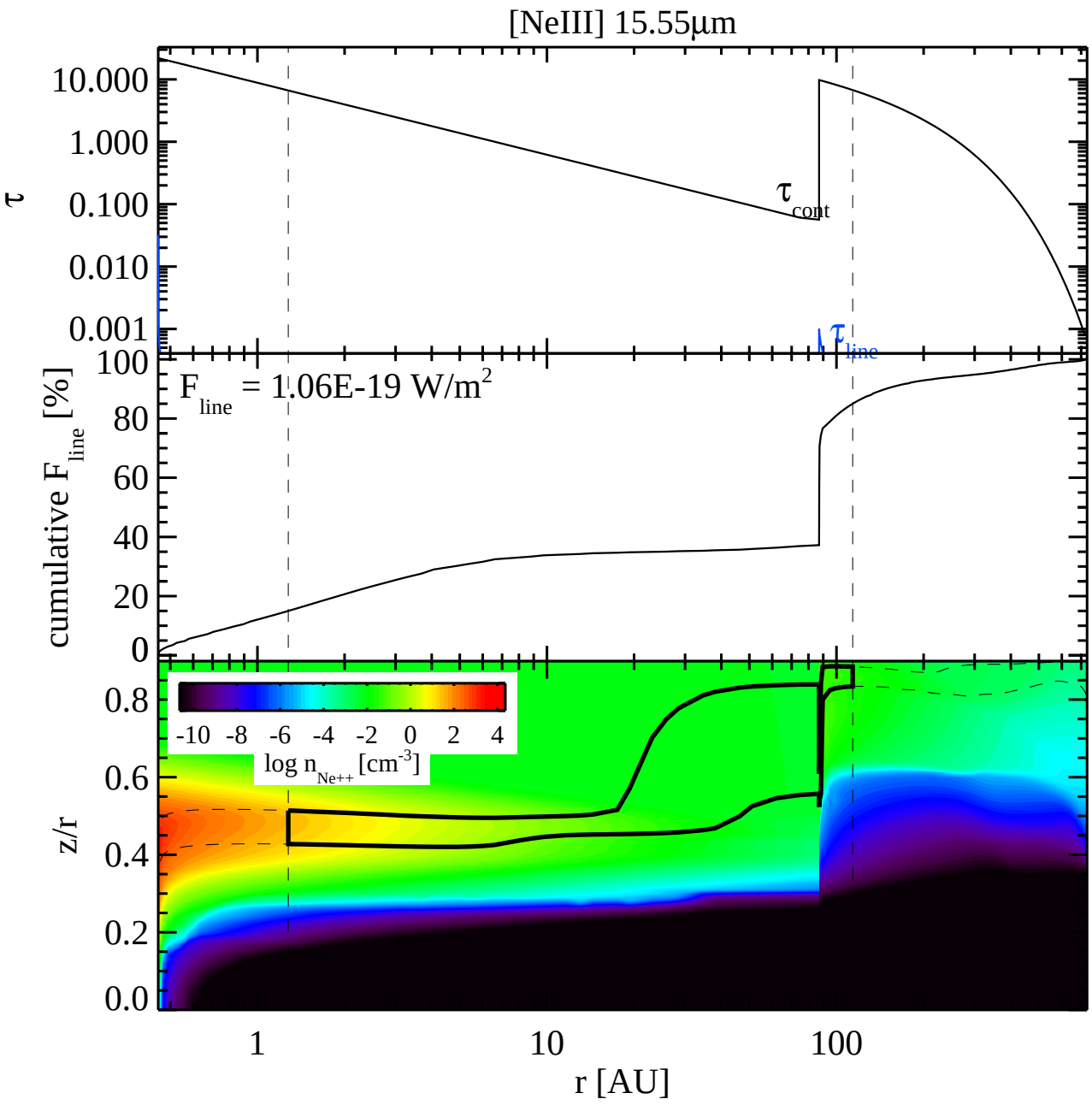

[OI] 0.6300µm
τ
100.00
10.00
1.00
0.10
0.01
τ cont
τ line
cumulative F line [%]
F line = 1.90E-16 W/m2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n O [cm-3]
1
10
100
r [AU]

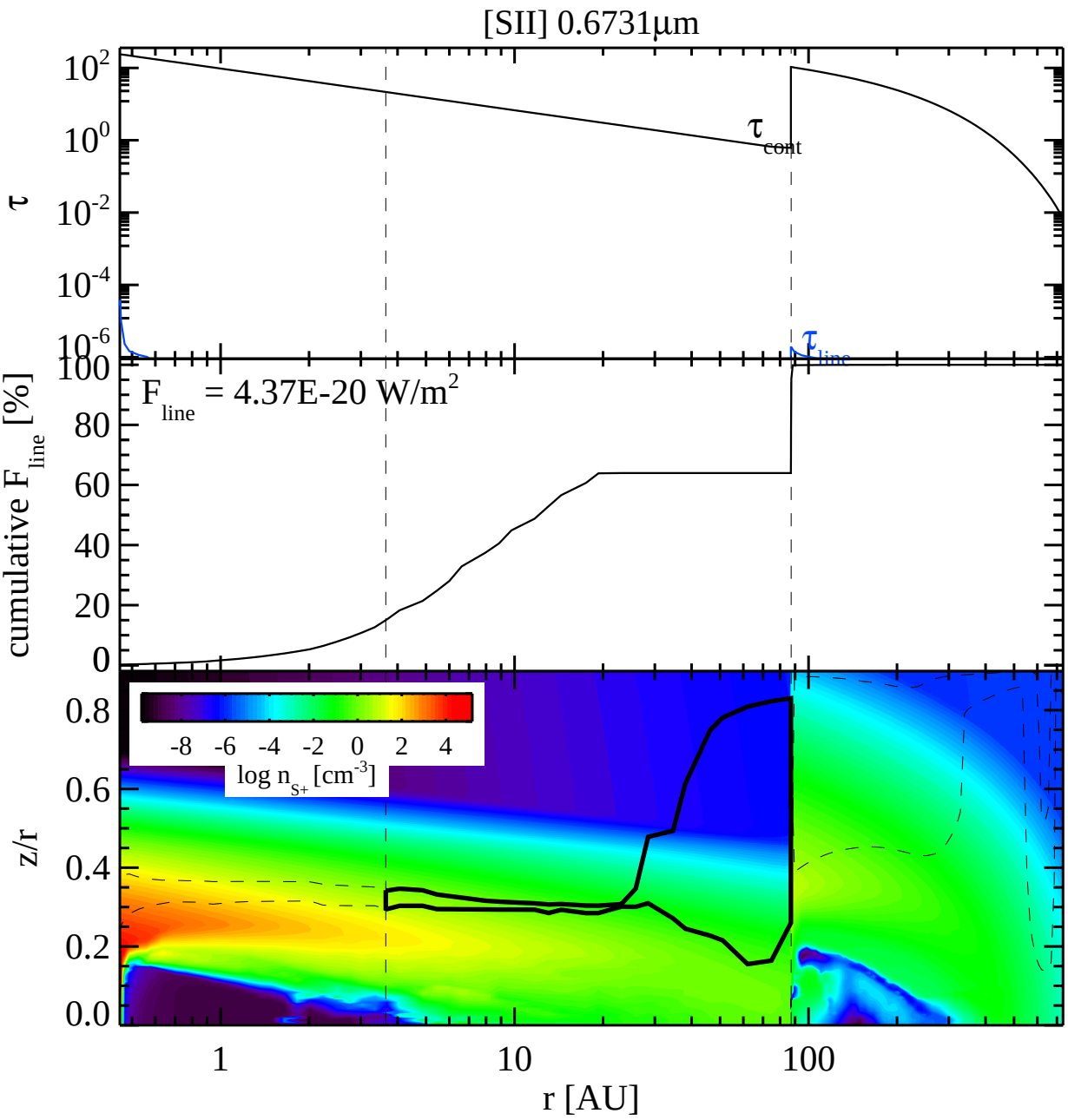

[CII] 157.74µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 8.05E-17 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n C+ [cm-3]
1
10
100
r [AU]

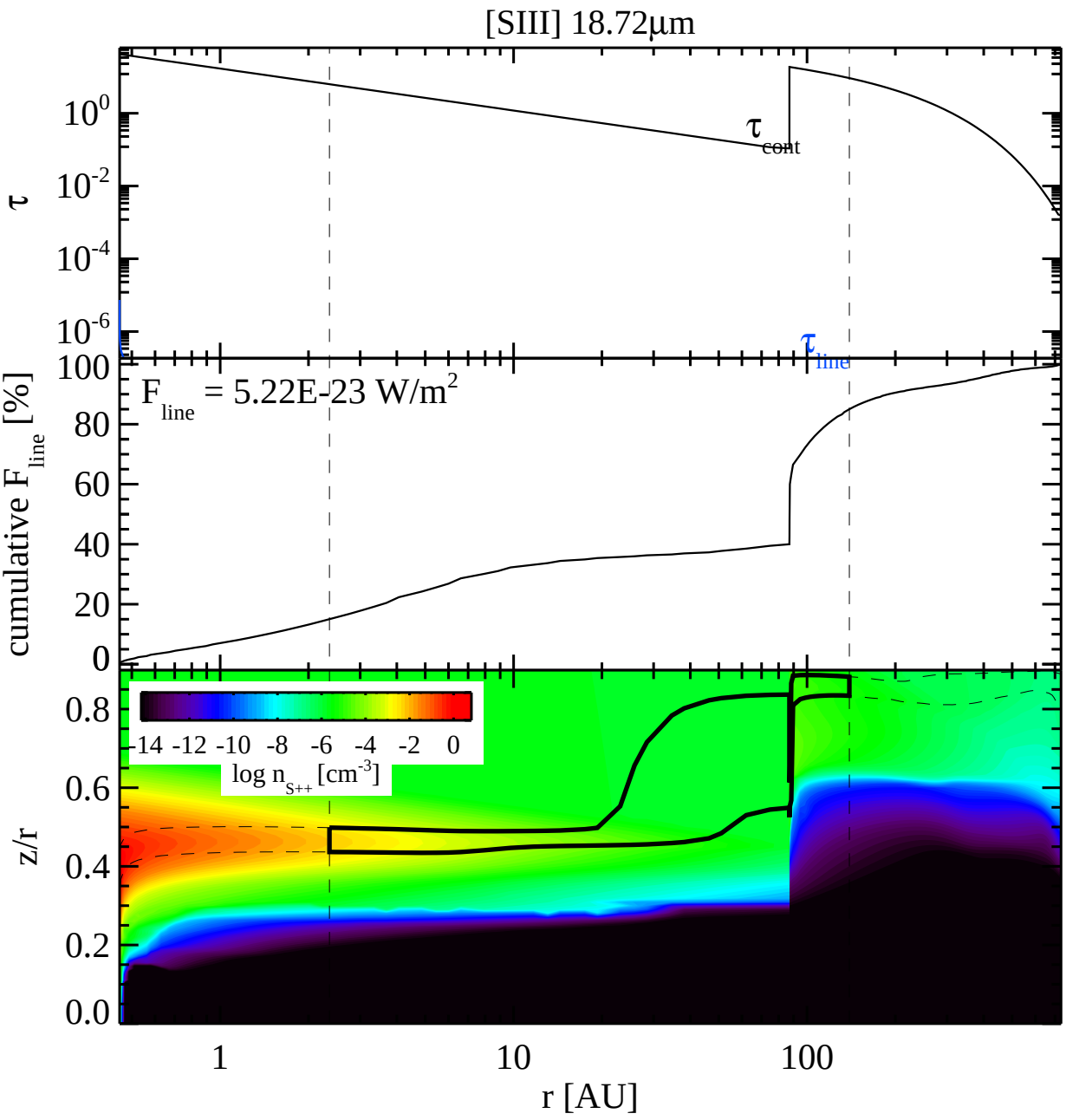

[CI] 609.14µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 4.22E-18 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n C [cm-3]
1
10
100
r [AU]

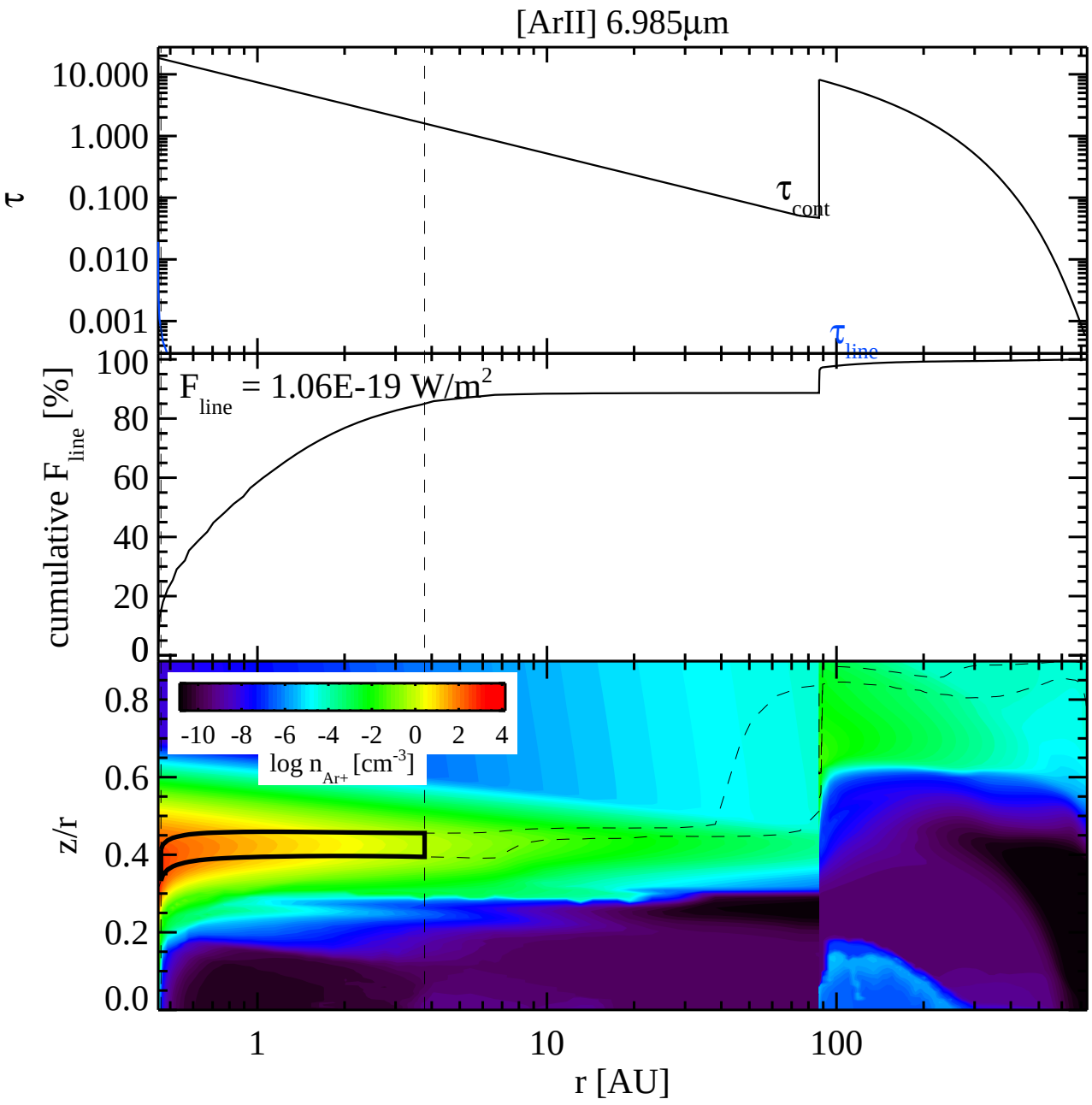

[CI] 370.42µm
τ
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 2.04E-17 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n C [cm-3]
1
10
100
r [AU]

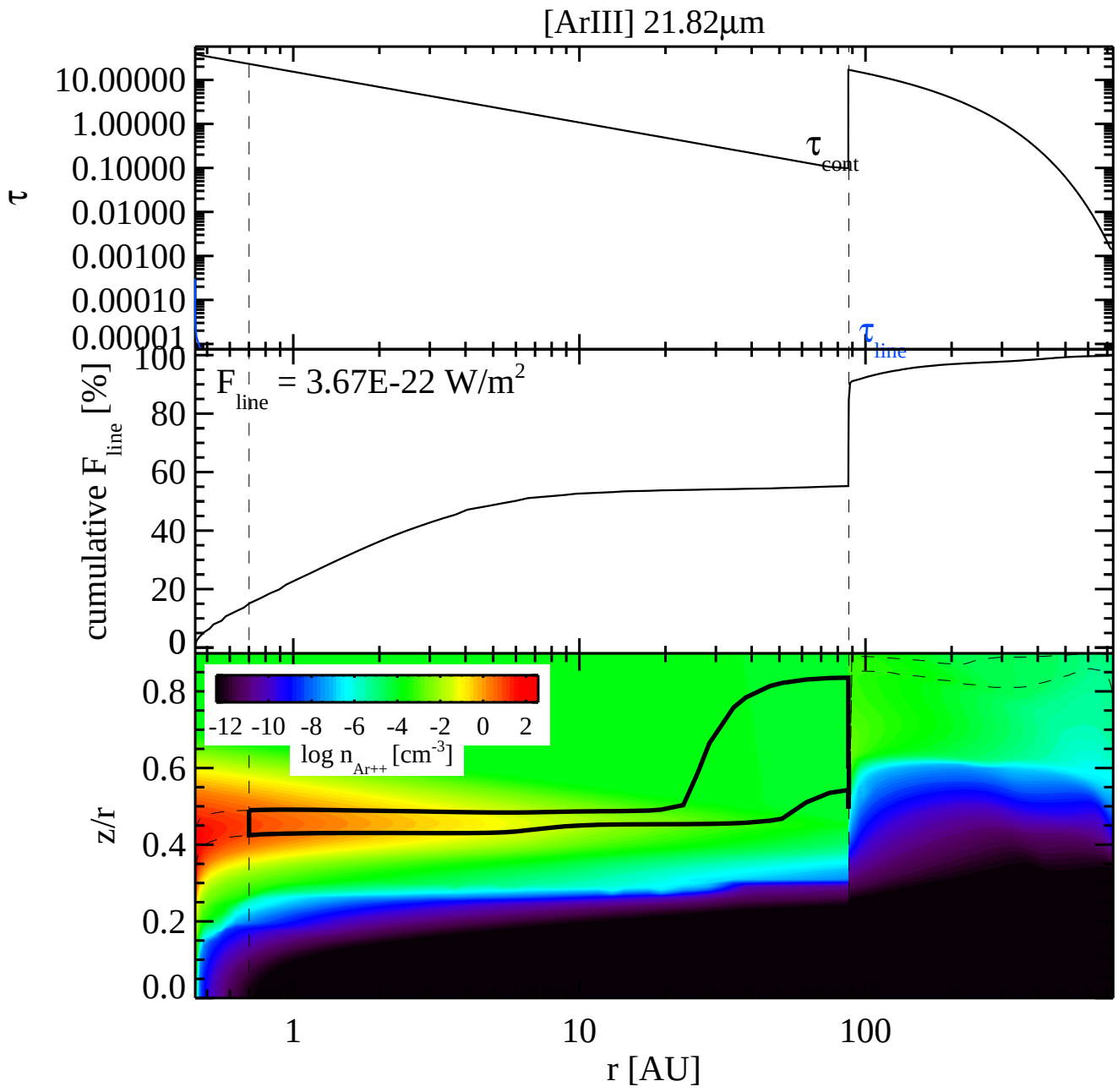

[NeII] 12.81µm
τ
10.000
1.000
0.100
0.010
0.001
τ cont
τ line
cumulative F line [%]
100
80
60
40
20
0
F line = 1.40E-18 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-8 -6 -4 -2 0 2 4 6
log n Ne+ [cm-3]
1
10
100
r [AU]

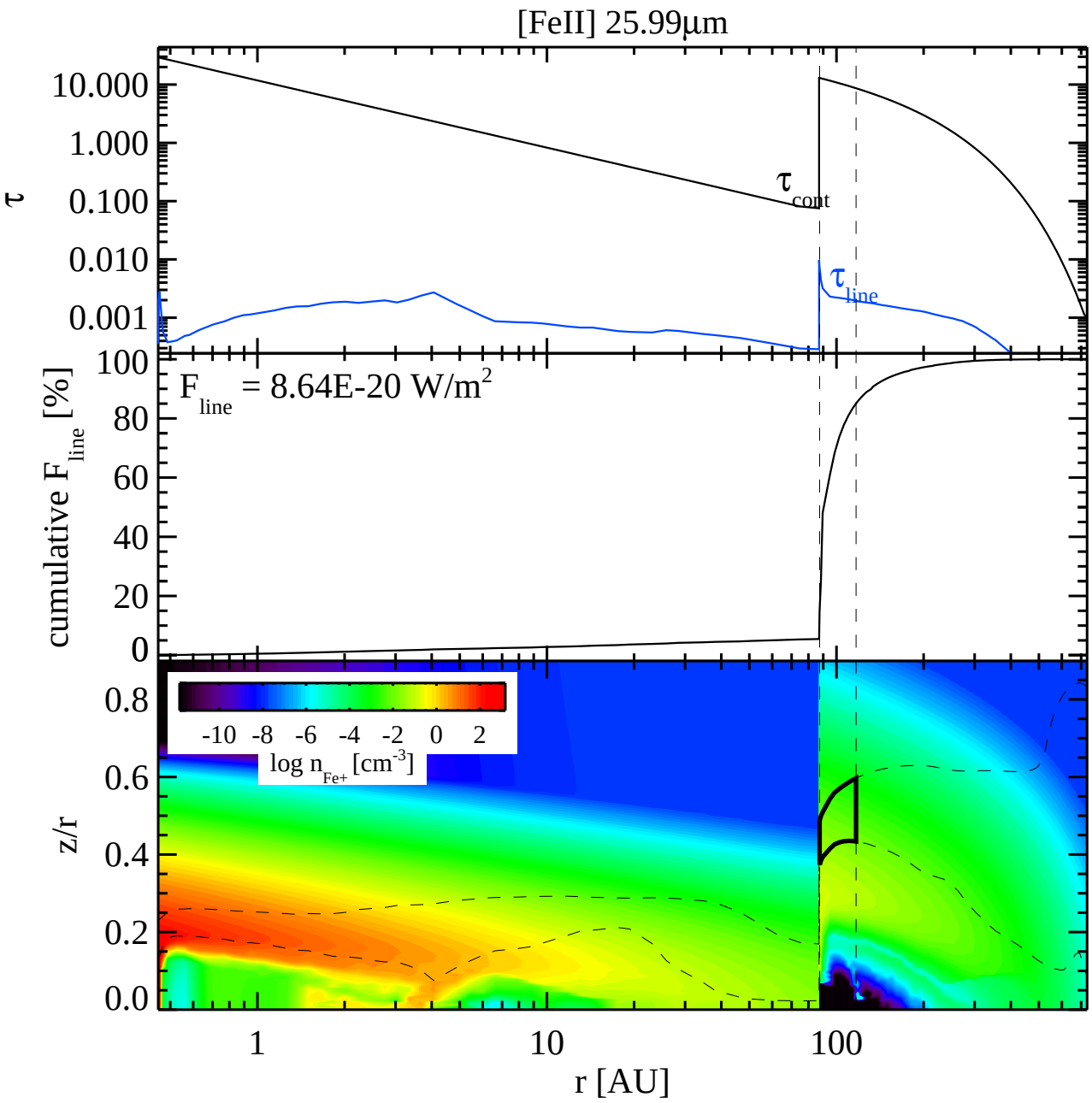

[NeIII] 15.55µm
τ
10.000
1.000
0.100
0.010
0.001
τ cont
τ line
cumulative F line [%]
F line = 1.06E-19 W/m2
100
80
60
40
20
0
-10 -8 -6 -4 -2 0 2 4
log n Ne++ [cm-3]
z/r
0.8
0.6
0.4
0.2
0.0
1
10
100
r [AU]

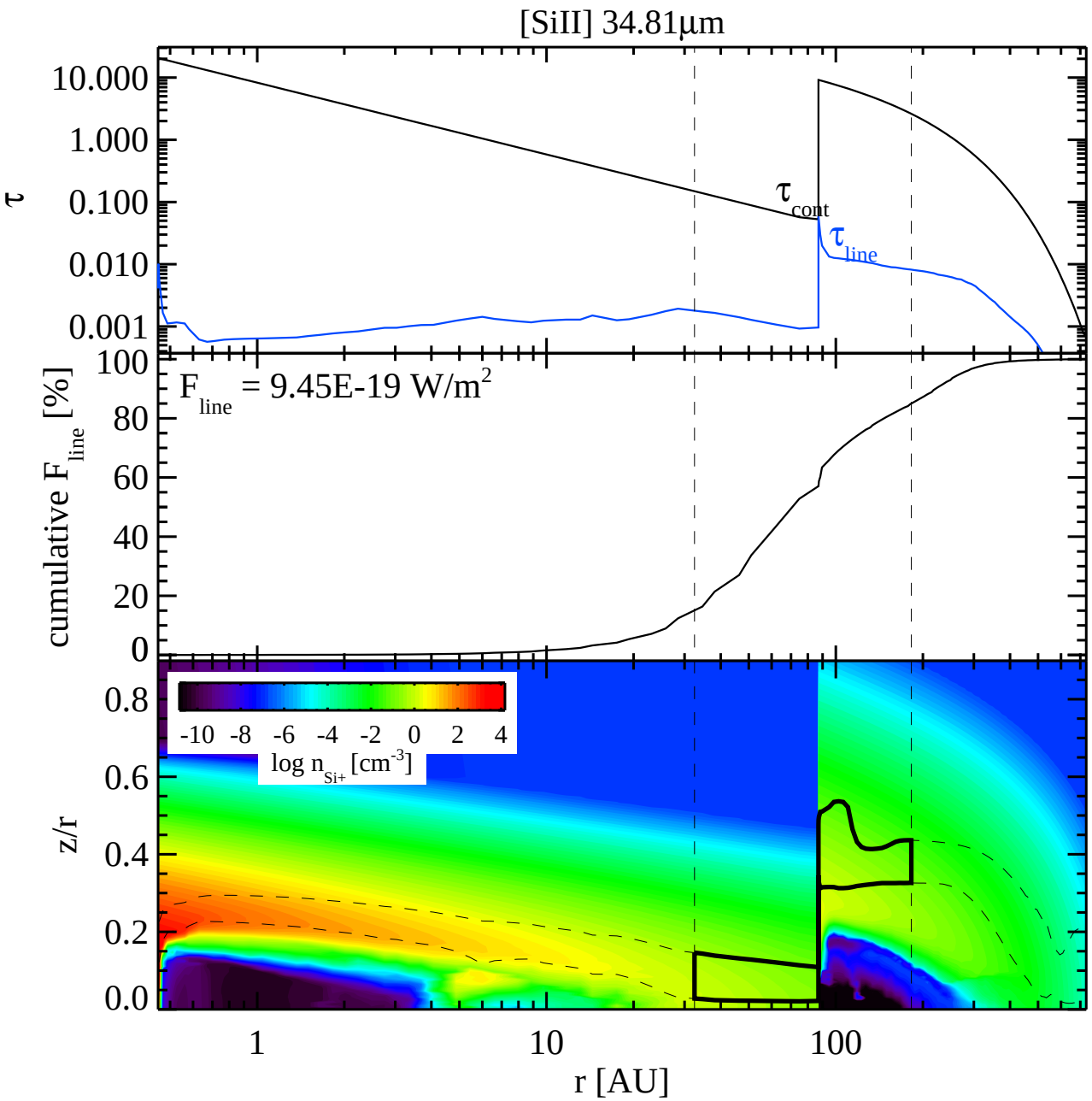

[SII] 0.6731µm
τ
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 4.37E-20 W/m^2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-8 -6 -4 -2 0 2 4
log n_{S+} [cm^{-3}]
1
10
100
r [AU]

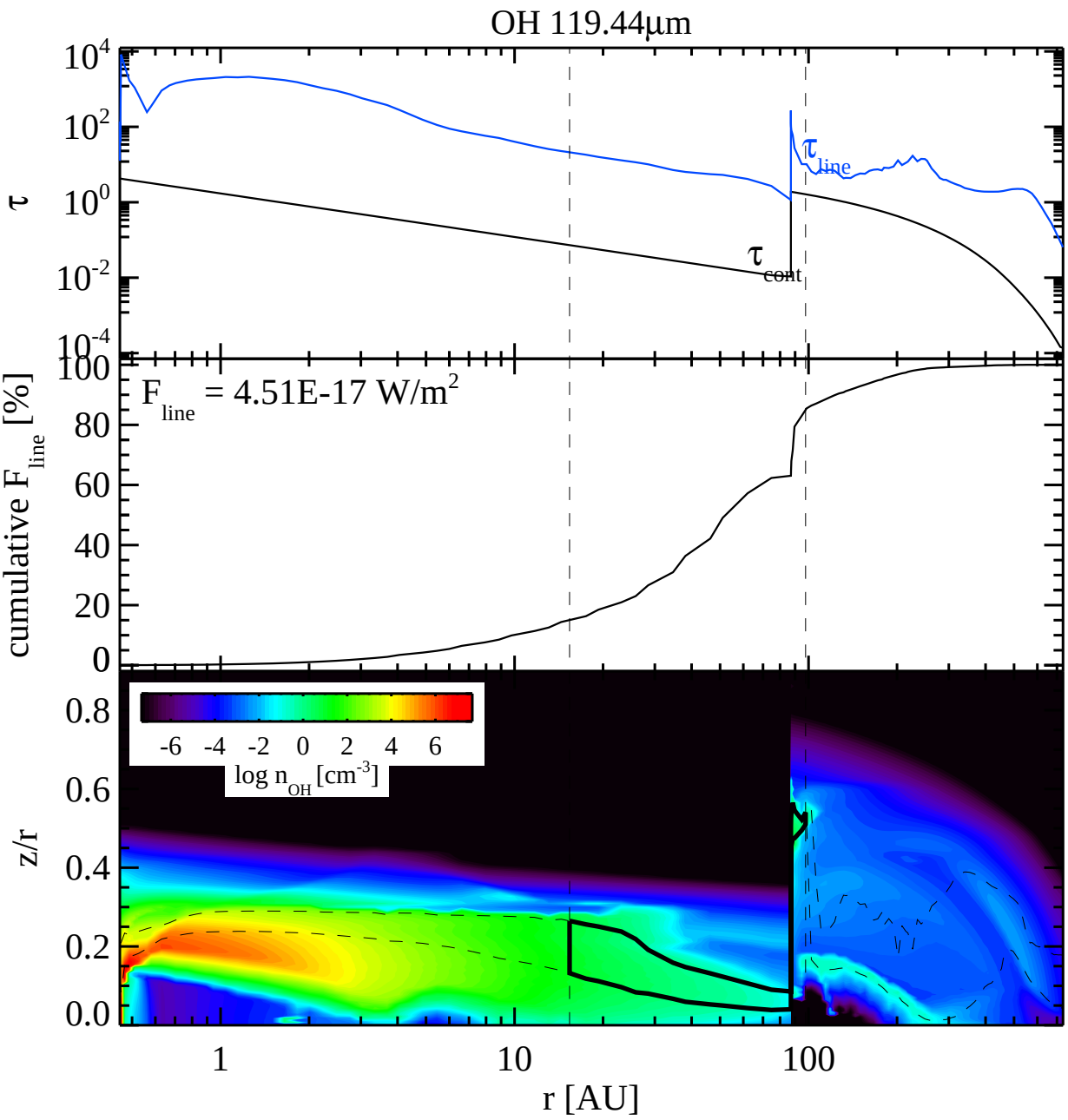

[SIII] 18.72µm
τ
10^{0}
10^{-2}
10^{-4}
10^{-6}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 5.22E-23 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-14 -12 -10 -8 -6 -4 -2 0
log n_{S++} [cm^{-3}]
1
10
100
r [AU]

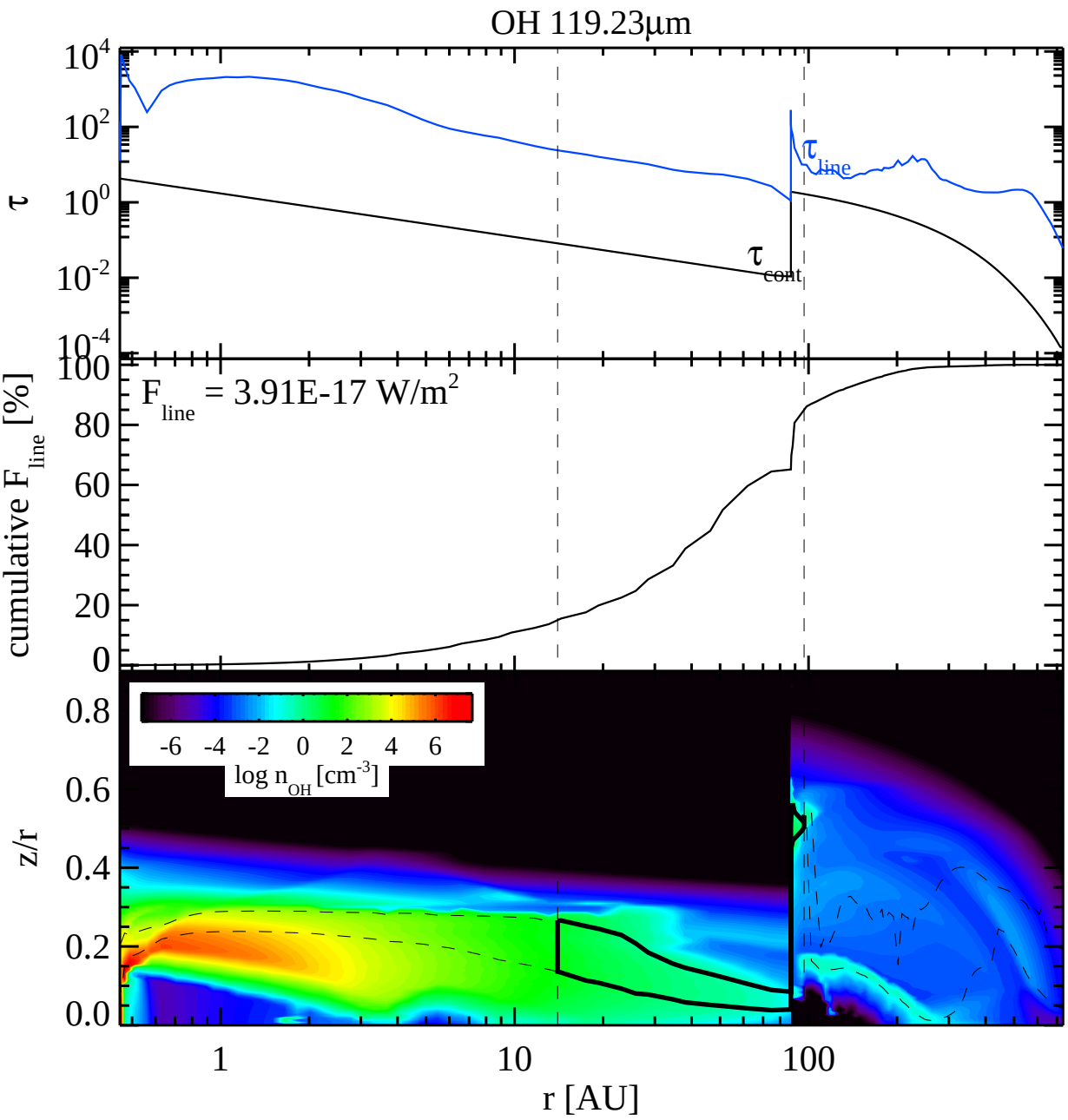

[ArII] 6.985µm
τ
10.000
1.000
0.100
0.010
0.001
τ cont
τ line
cumulative F line [%]
100
80
60
40
20
0
F line = 1.06E-19 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-10 -8 -6 -4 -2 0 2 4
log n Ar+ [cm-3]
1
10
100
r [AU]

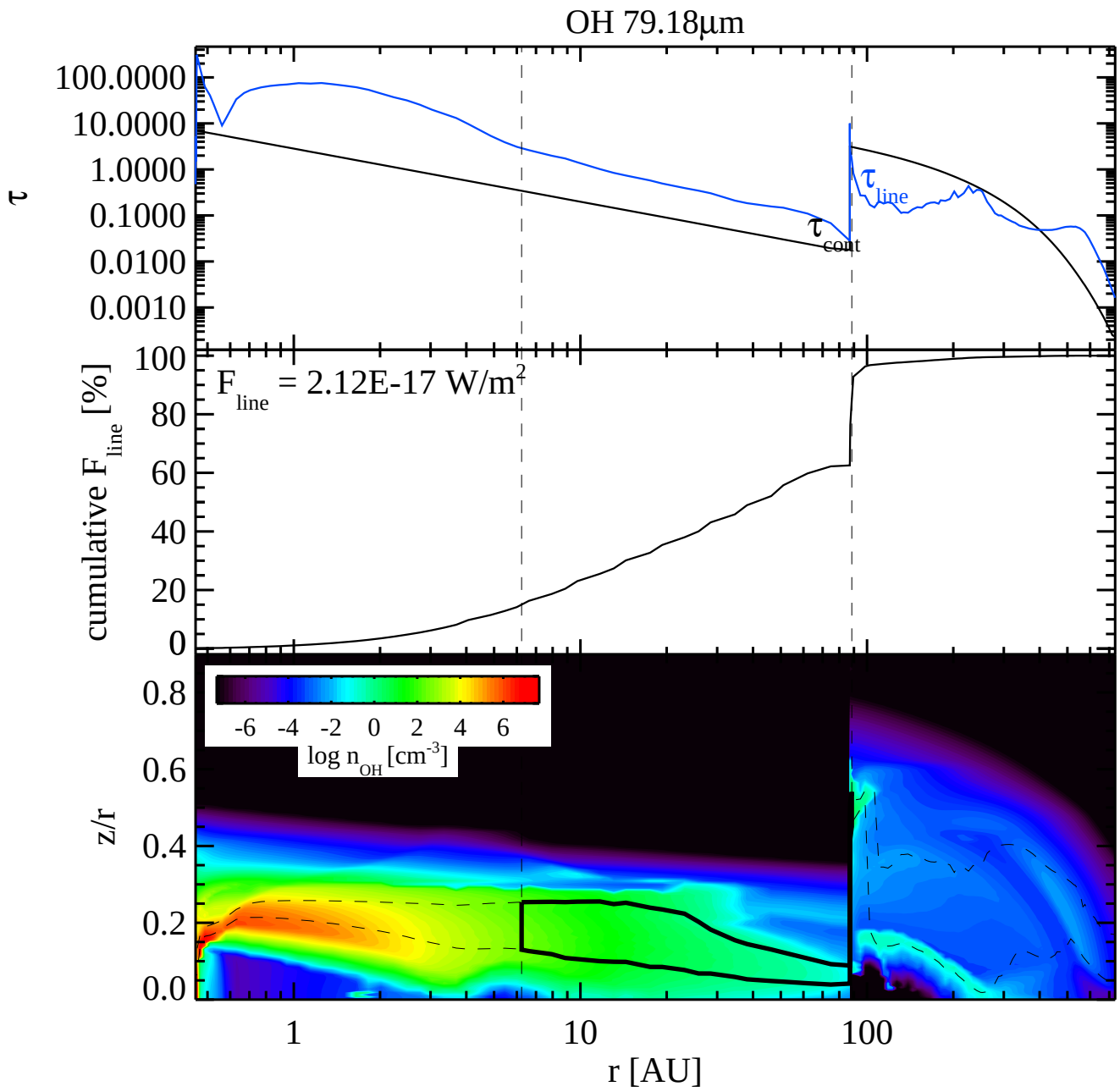

[ArIII] 21.82µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
τ cont
τ line
cumulative F line [%]
100
80
60
40
20
0
F line = 3.67E-22 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-12 -10 -8 -6 -4 -2 0 2
log n Ar++ [cm-3]
1
10
100
r [AU]

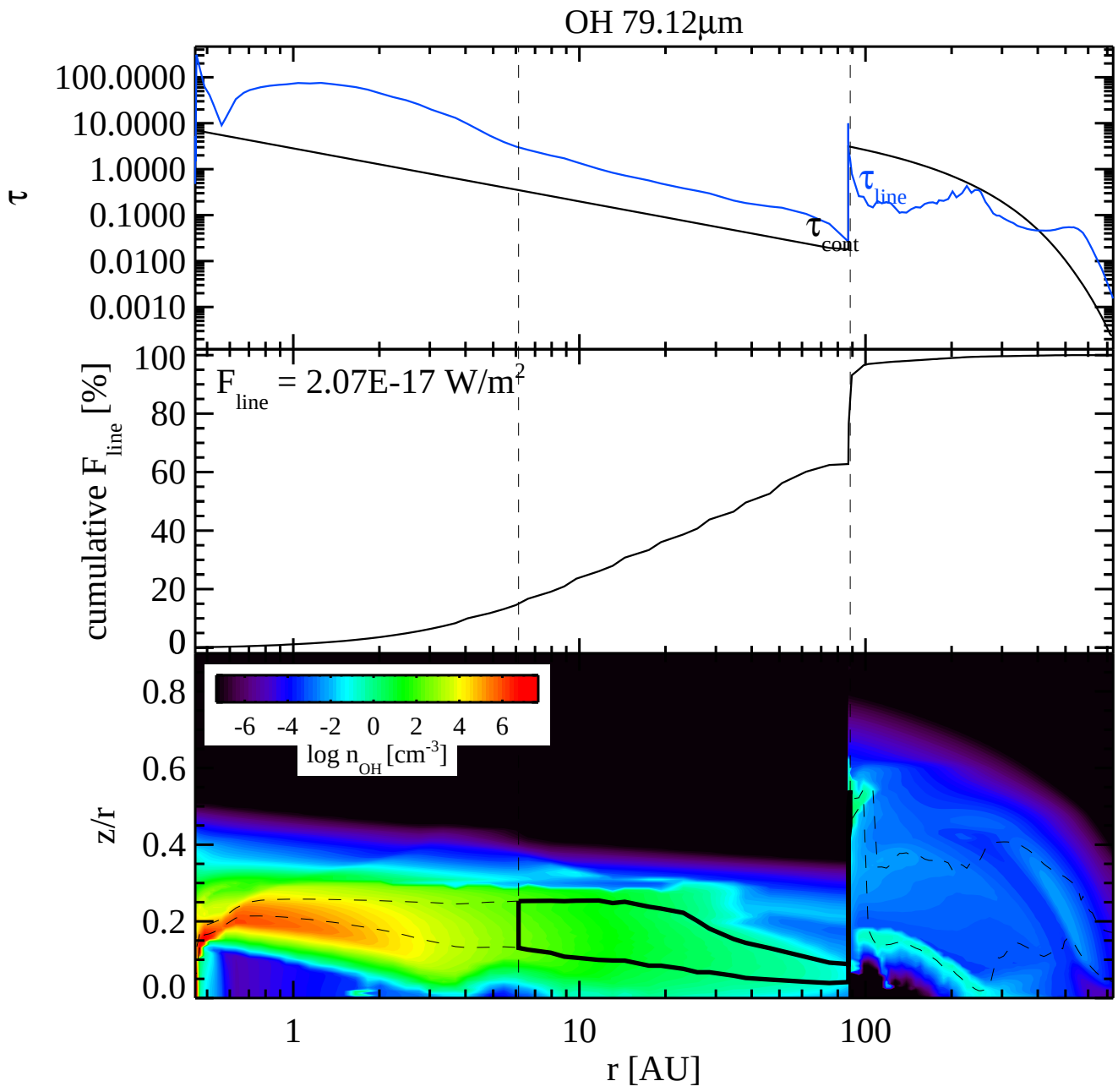

[FeII] 25.99µm
τ
10.000
1.000
0.100
0.010
0.001
τ cont
τ line
cumulative F line [%]
100
80
60
40
20
0
F line = 8.64E-20 W/m2
-10 -8 -6 -4 -2 0 2
log n Fe+ [cm-3]
z/r
0.8
0.6
0.4
0.2
0.0
1
10
100
r [AU]

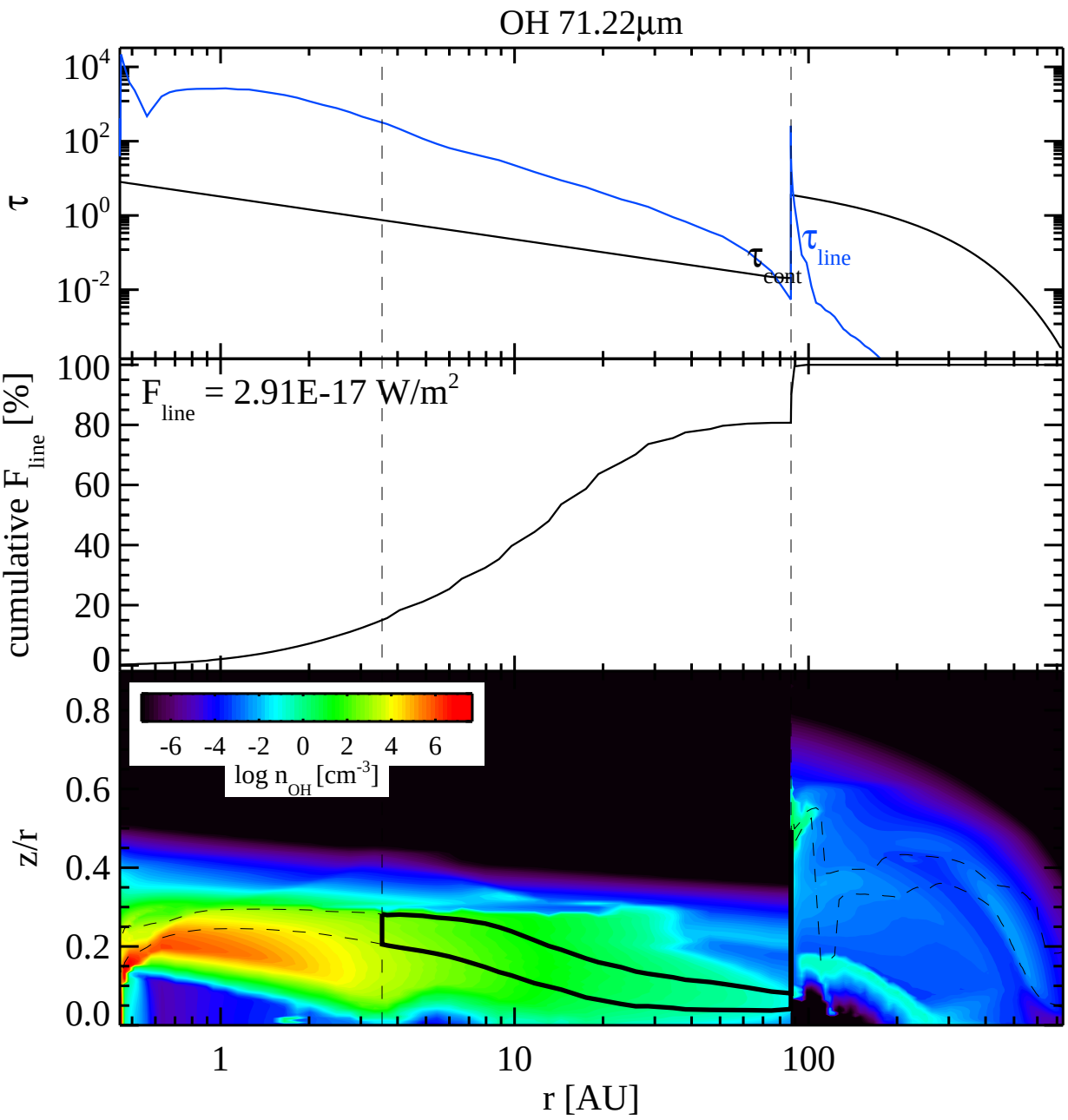

[SiII] 34.81µm
τ
10.000
1.000
0.100
0.010
0.001
τ cont
τ line
cumulative F line [%]
F line = 9.45E-19 W/m2
100
80
60
40
20
0
-10 -8 -6 -4 -2 0 2 4
log n Si+ [cm-3]
z/r
0.8
0.6
0.4
0.2
0.0
1
10
100
r [AU]

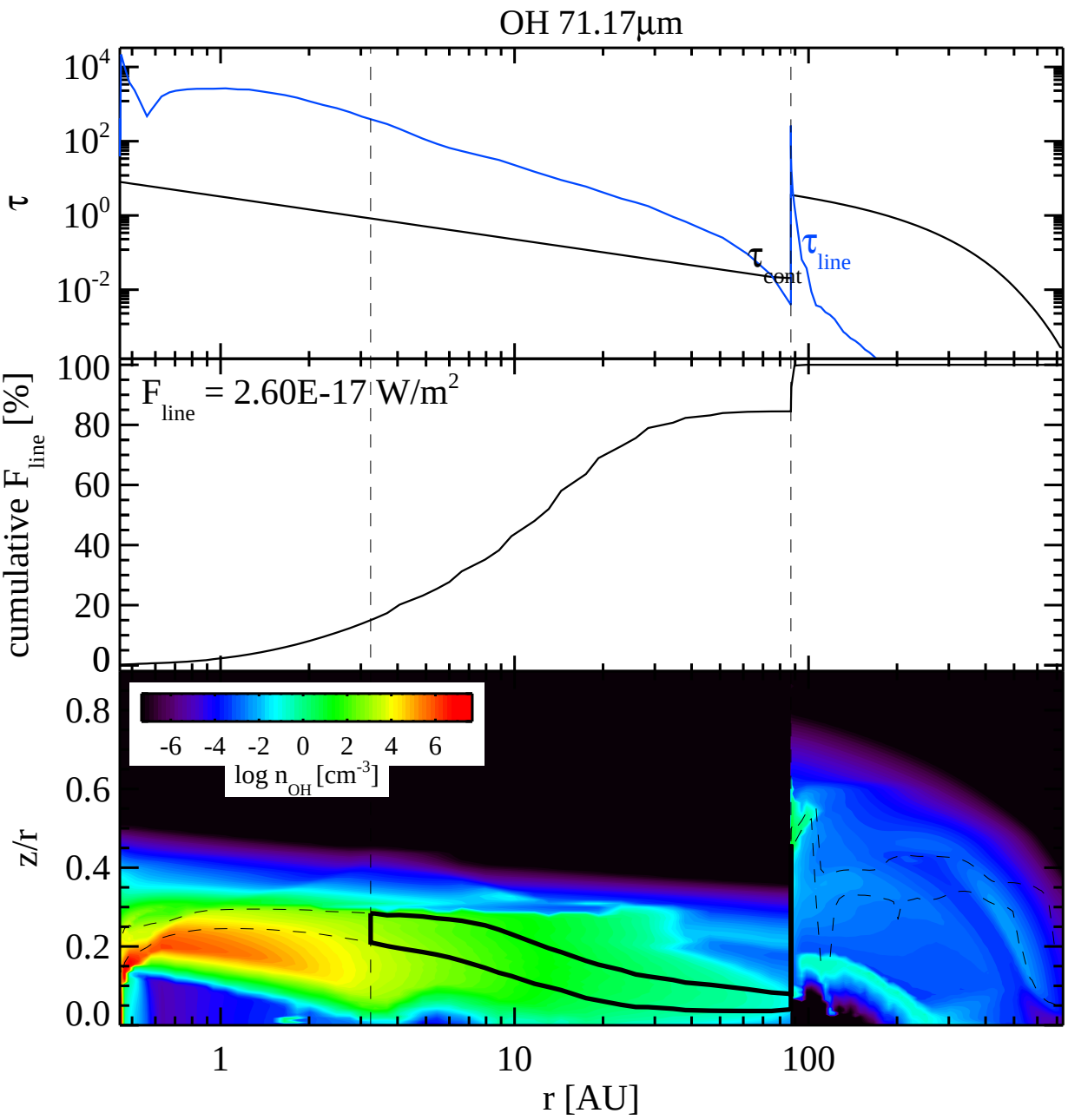

OH 119.44μm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 4.51E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
1
10
100
r [AU]

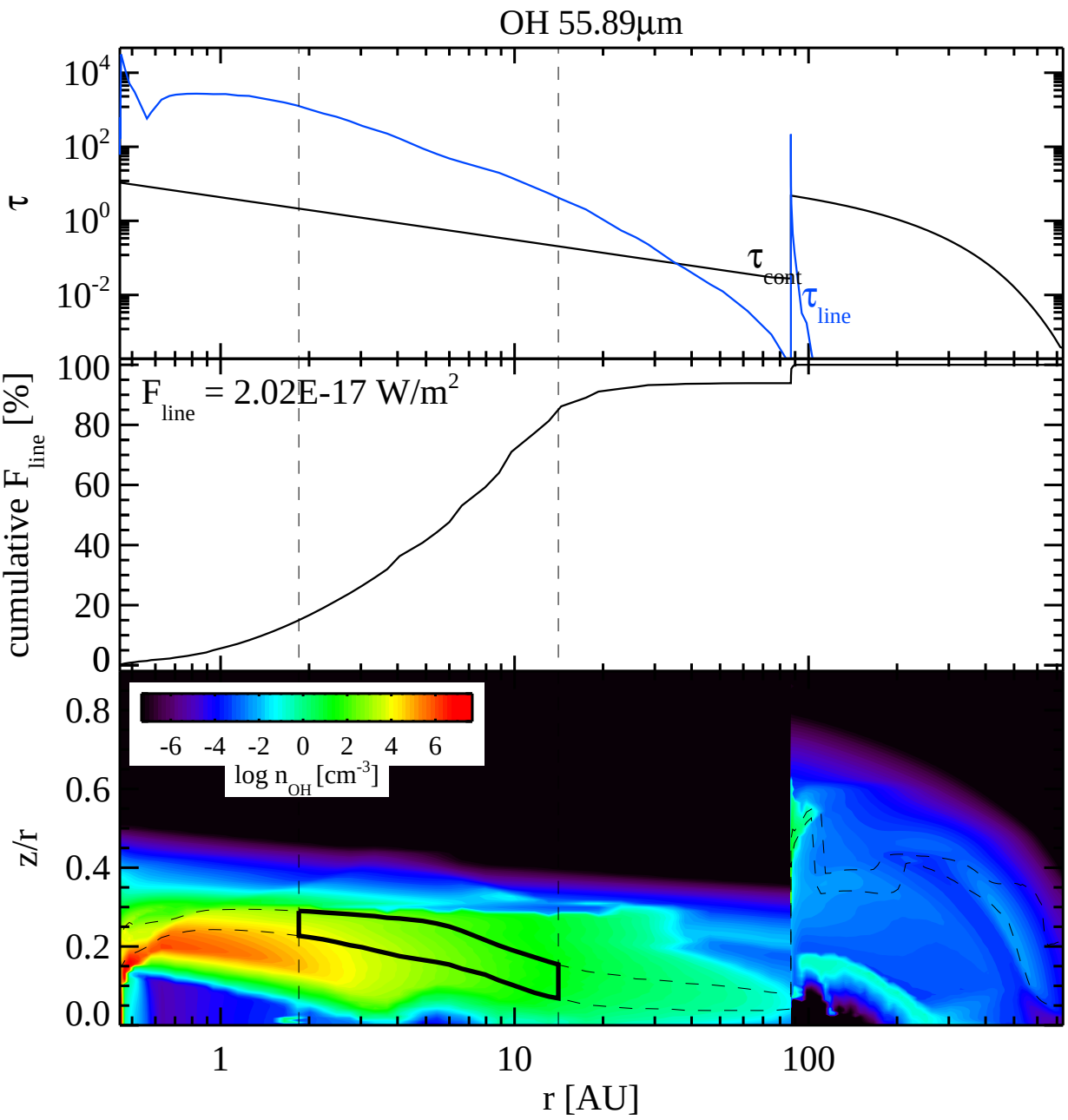

OH 119.23µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 3.91E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
1
10
100
r [AU]

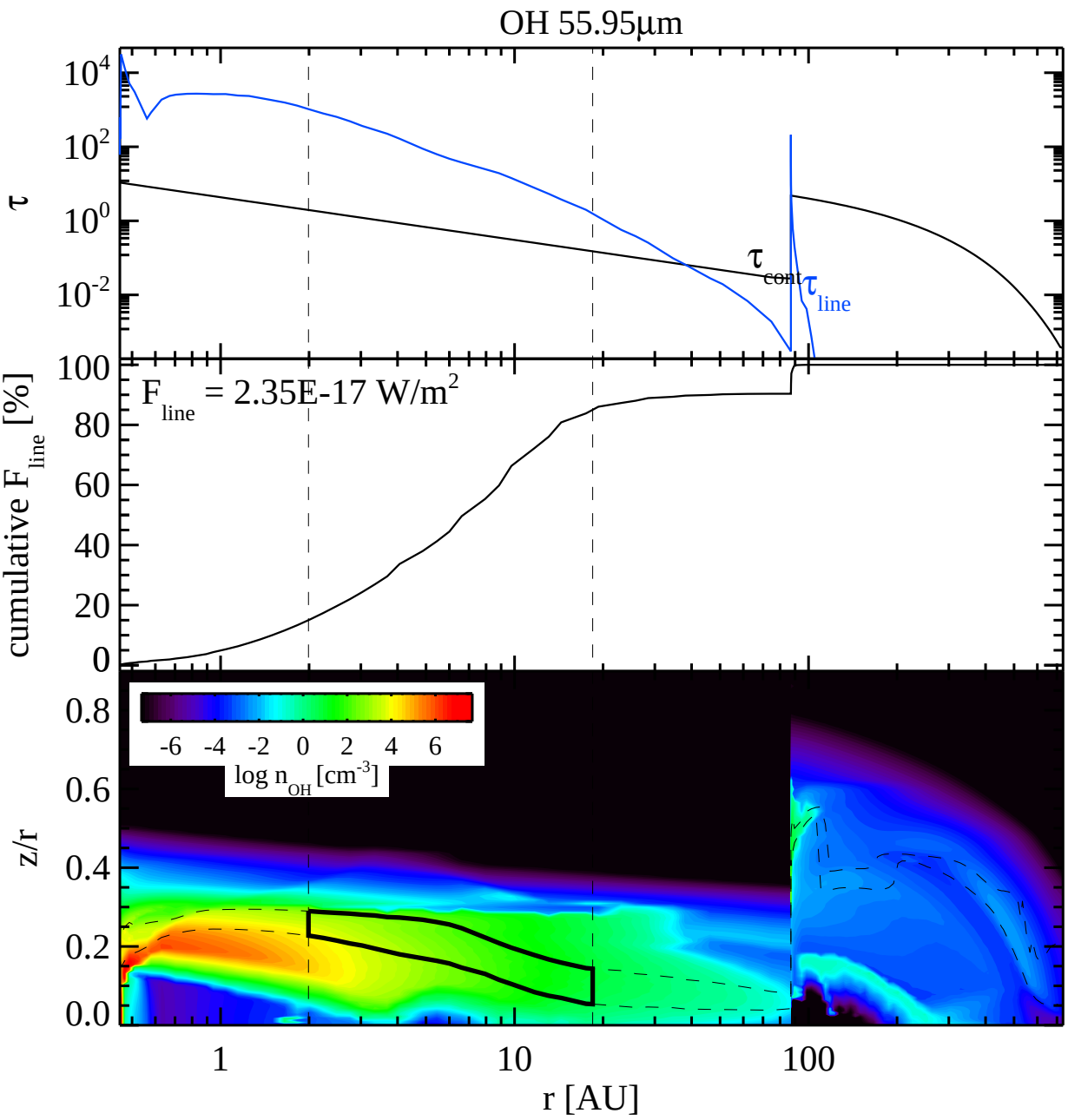

OH 79.18µm
τ
100.0000
10.0000
1.0000
0.1000
0.0100
0.0010
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 2.12E-17 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n OH [cm-3]
1
10
100
r [AU]

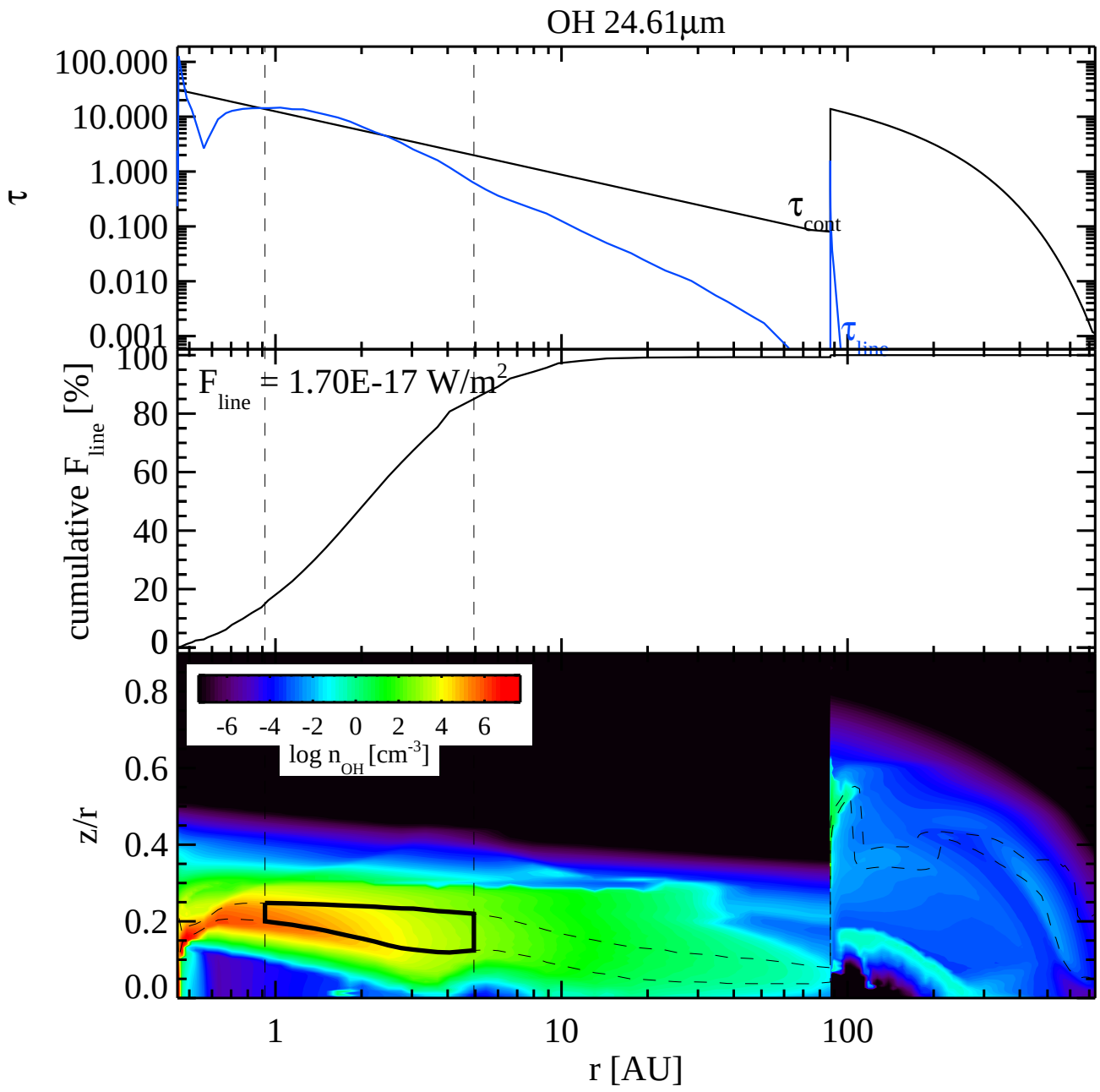

OH 79.12µm
τ
100.0000
10.0000
1.0000
0.1000
0.0100
0.0010
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 2.07E-17 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n OH [cm-3]
1
10
100
r [AU]

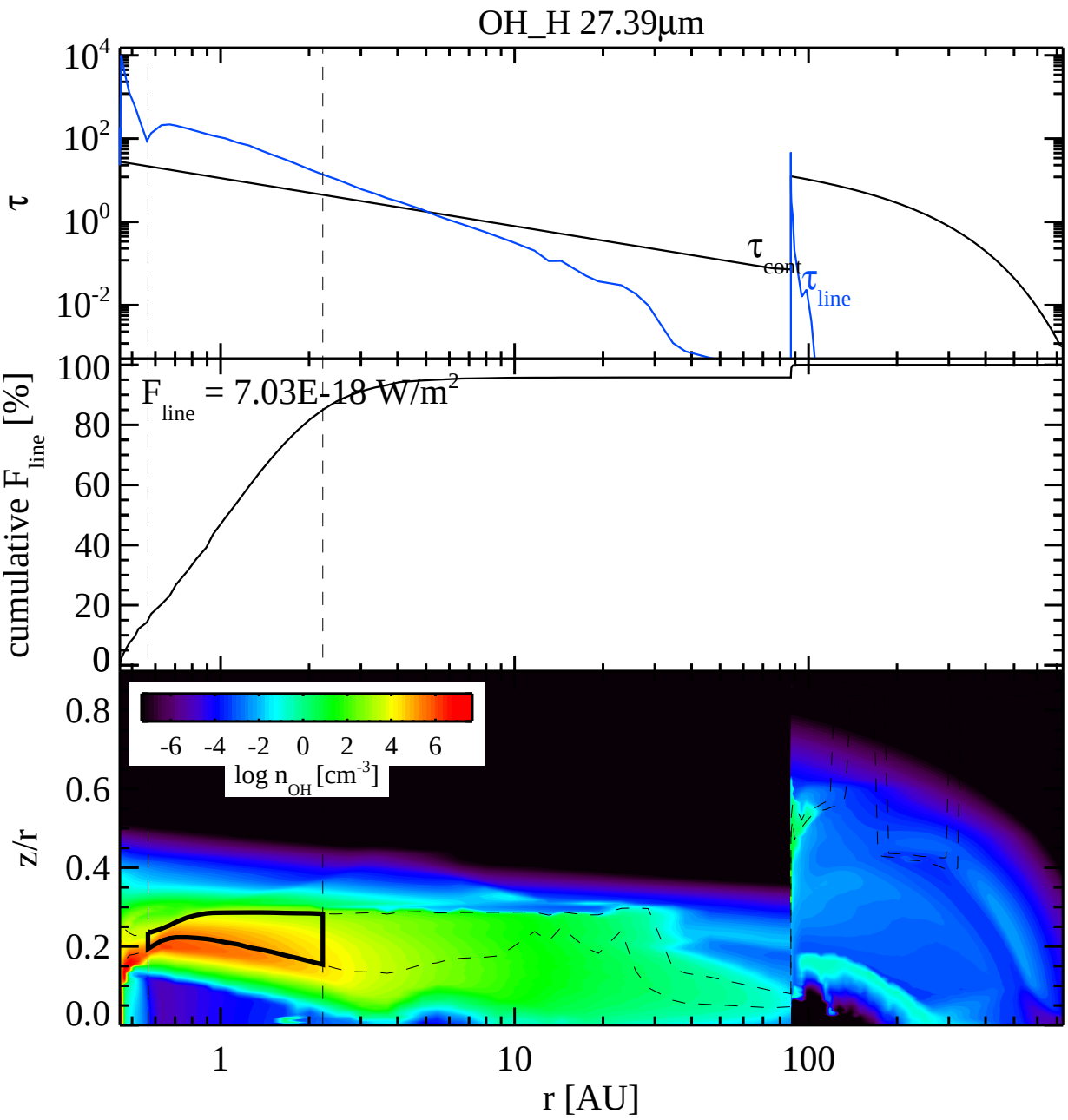

OH 71.22µm
τ
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 2.91E-17 W/m^2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
1
10
100
r [AU]

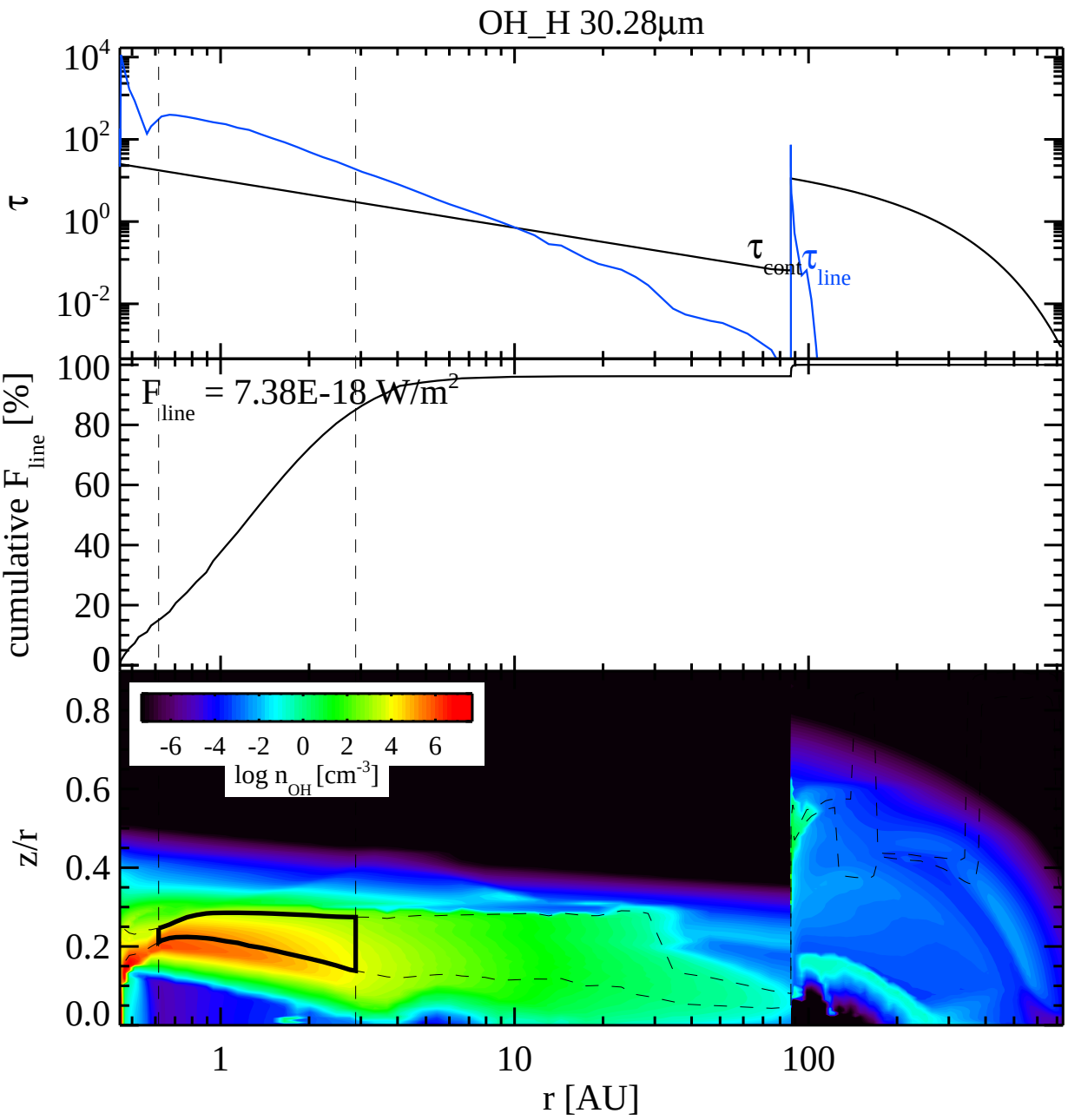

OH 71.17µm
τ
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.60E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
1
10
100
r [AU]

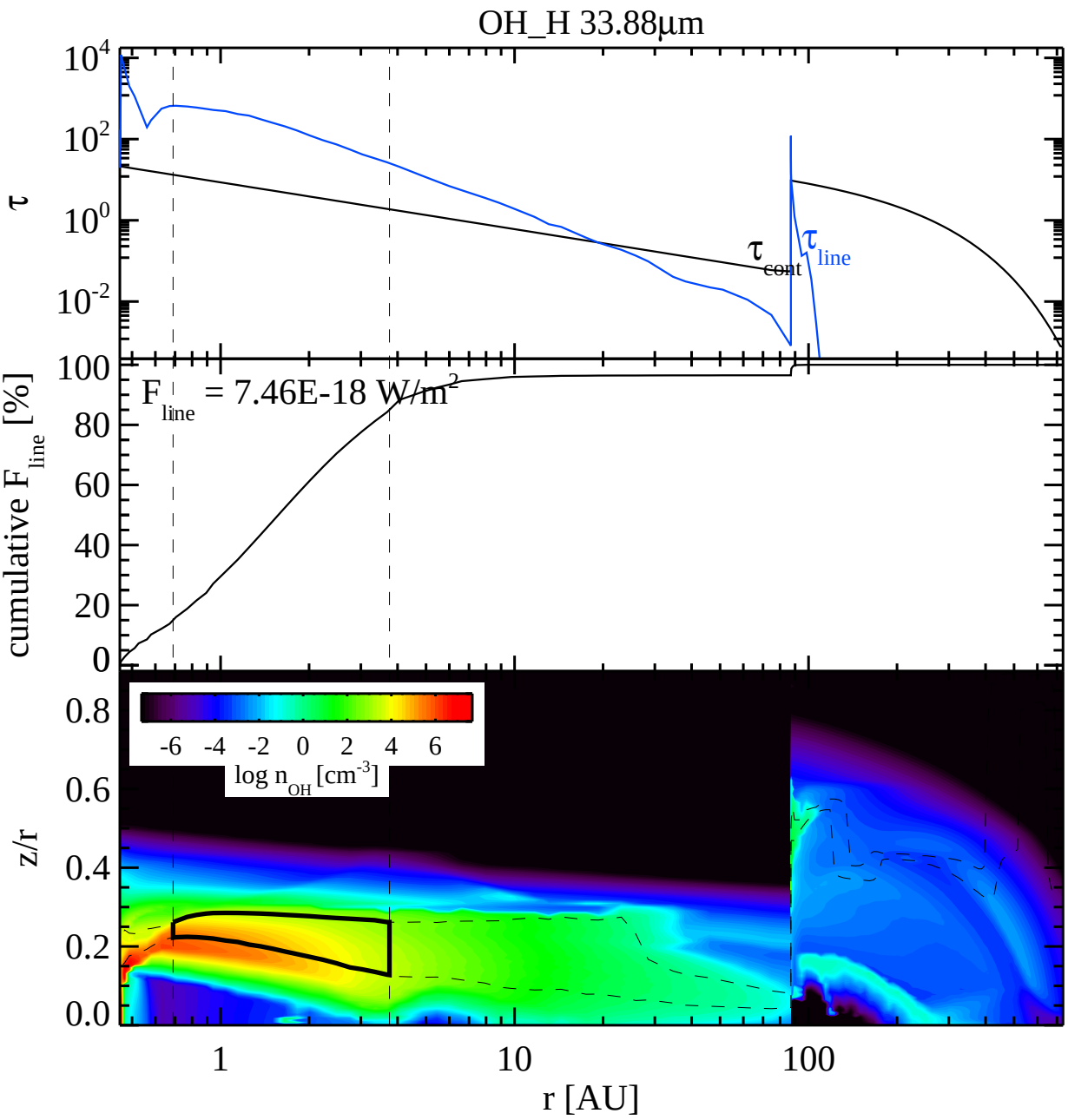

OH 55.89µm
τ
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.02E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
1
10
100
r [AU]

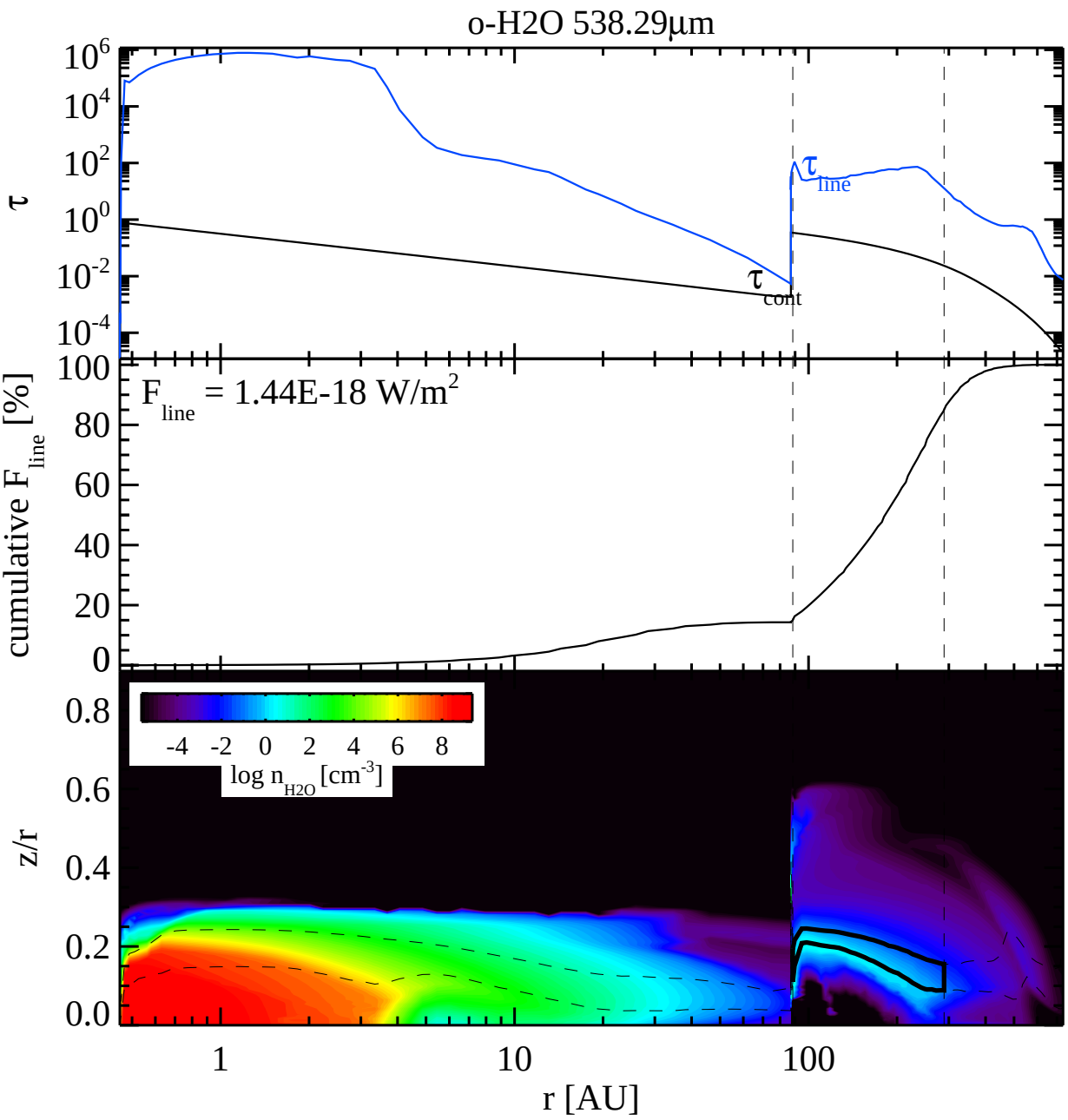

OH 55.95µm
τ
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.35E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
1
10
100
r [AU]

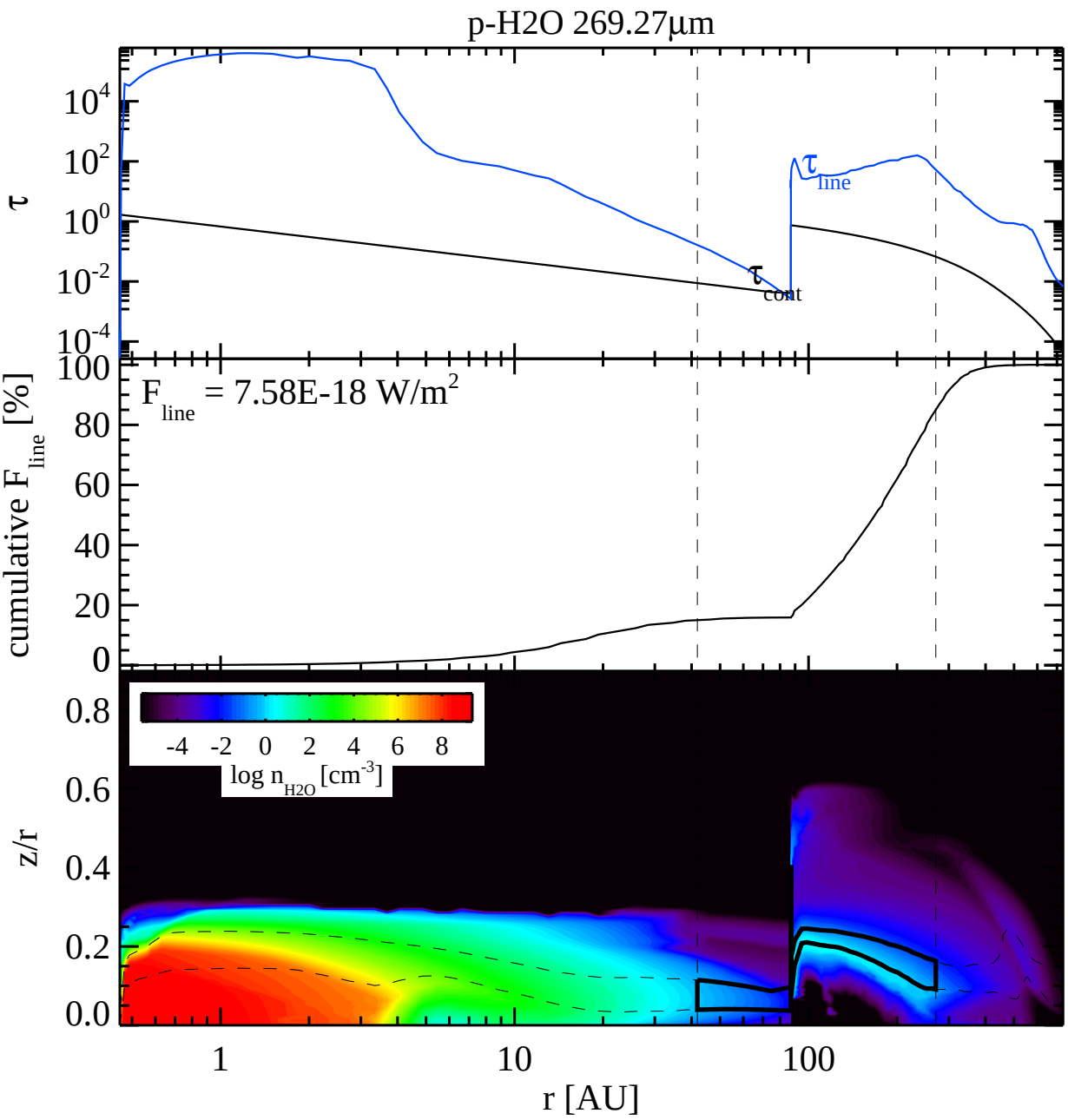

OH 24.61µm
100.000
10.000
1.000
0.100
0.010
0.001
τ
τ cont
τ line
100
80
60
40
20
0
cumulative F line [%]
F line = 1.70E-17 W/m2
0.8
0.6
0.4
0.2
0.0
z/r
-6 -4 -2 0 2 4 6
log n OH [cm-3]
1
10
100
r [AU]

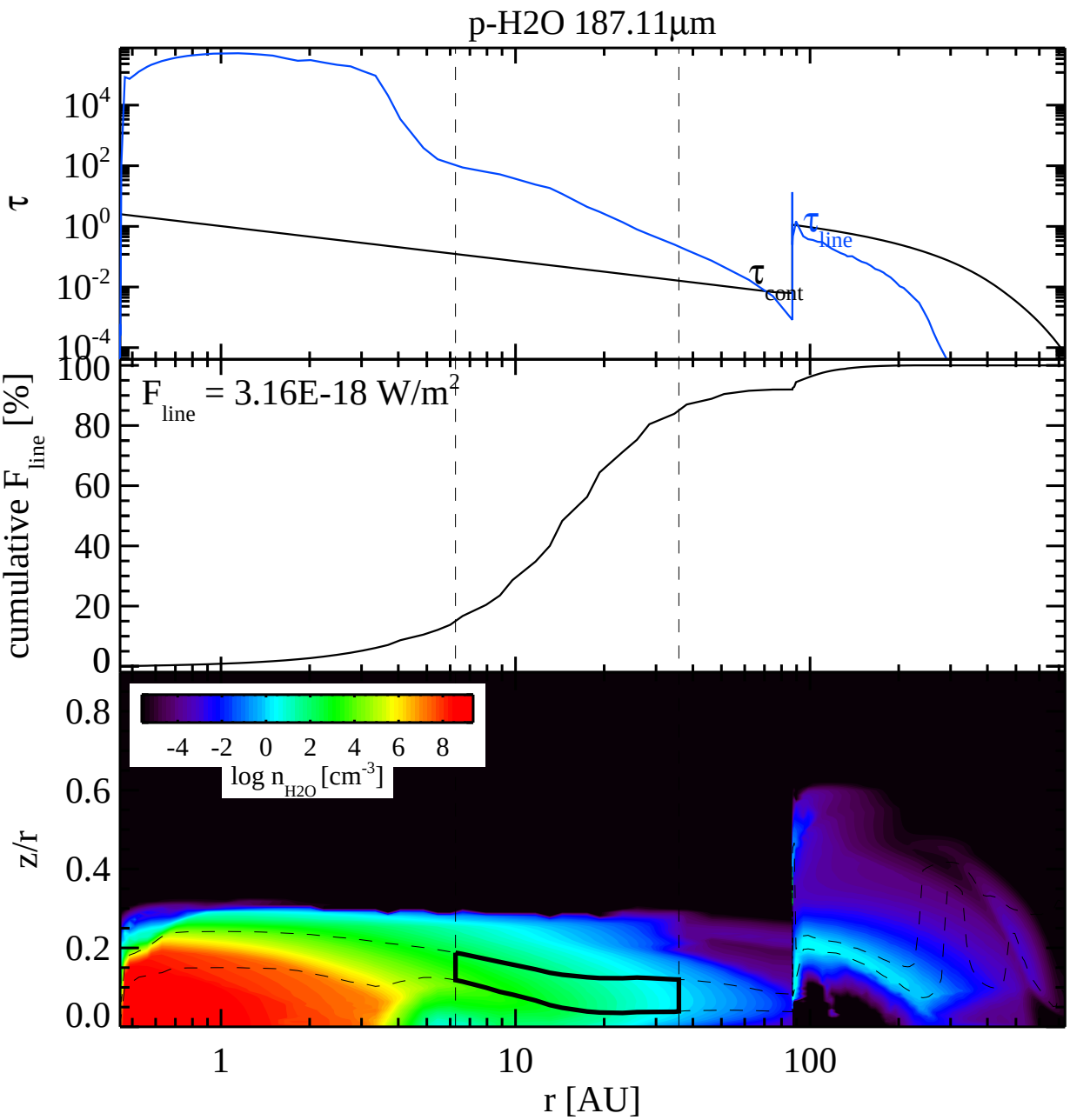

OH_H 27.39µm
τ
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 7.03E-18 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
1
10
100
r [AU]

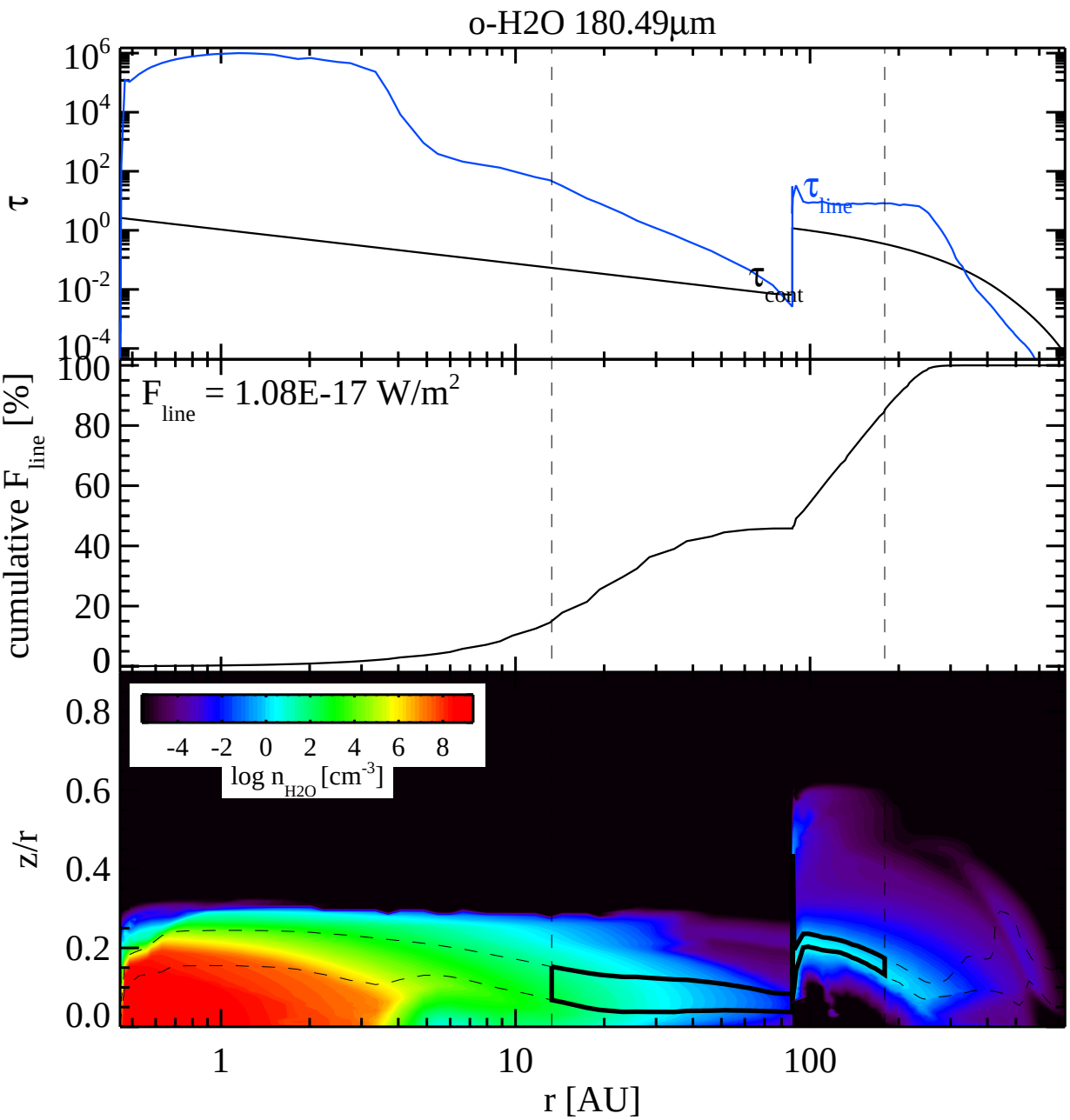

OH_H 30.28µm
τ
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 7.38E-18 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
1
10
100
r [AU]

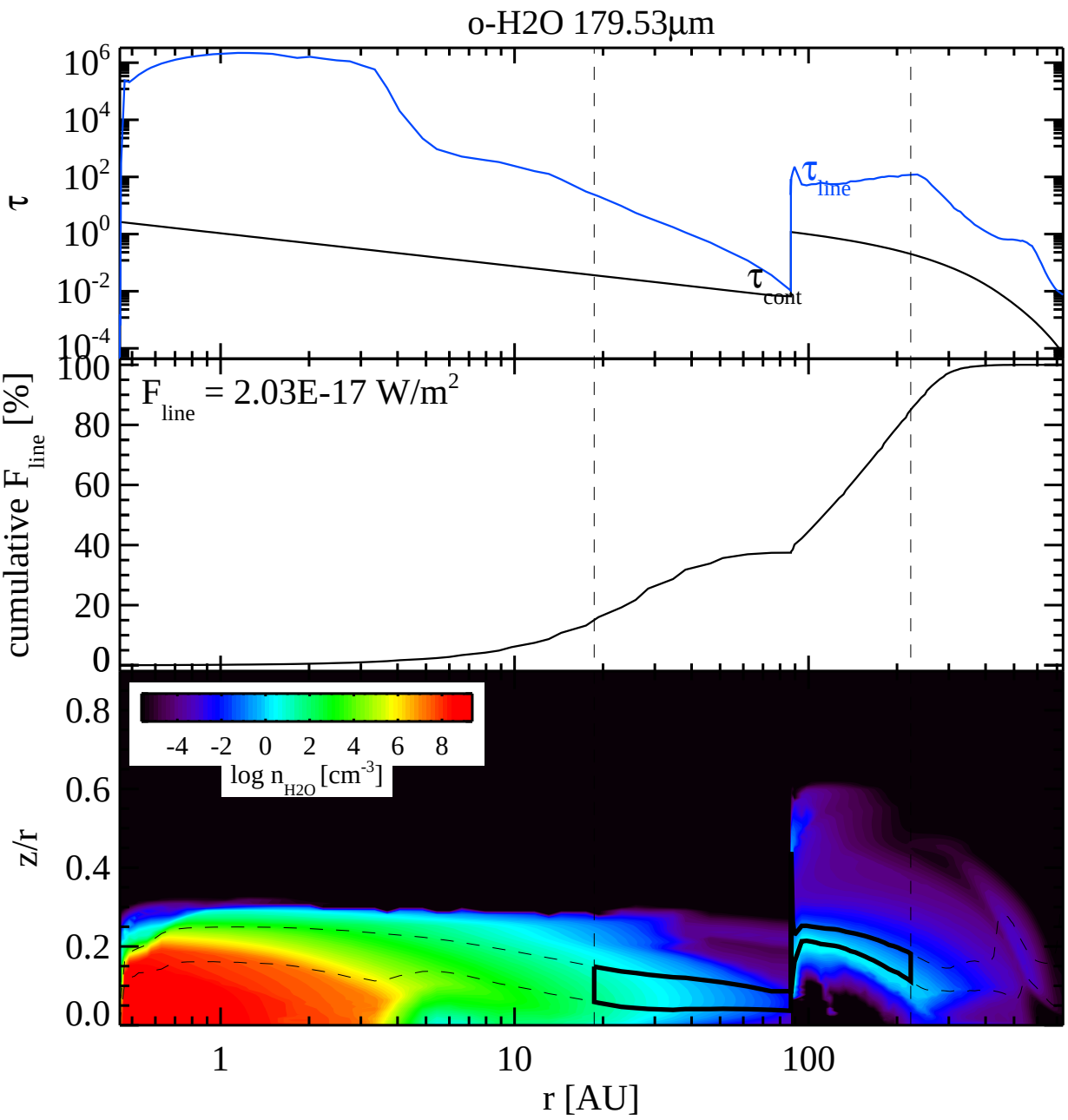

OH_H 33.88µm
τ
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 7.46E-18 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n_{OH} [cm^{-3}]
1
10
100
r [AU]

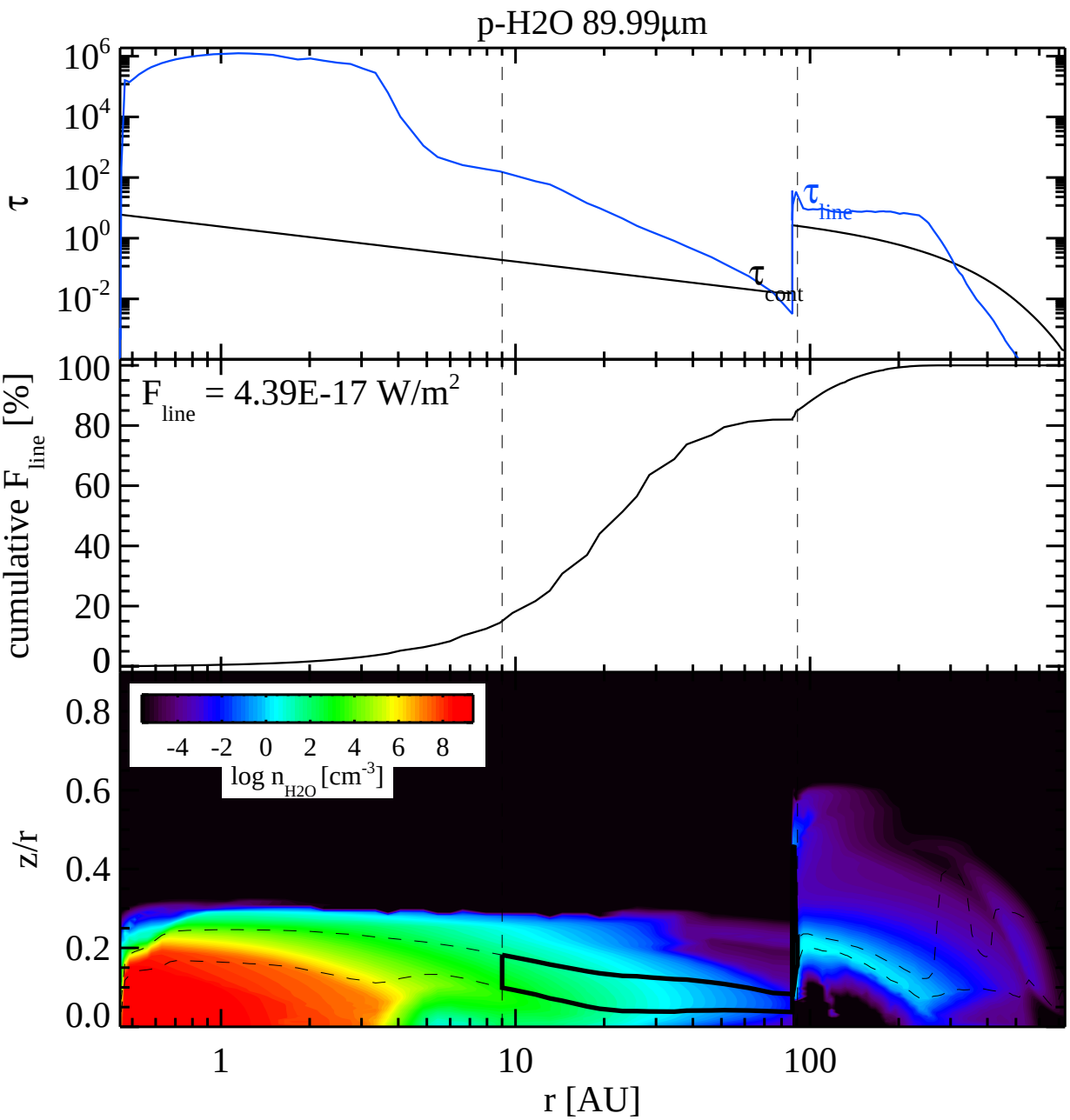

o-H2O 538.29µm
τ
10^6
10^4
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.44E-18 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
1
10
100
r [AU]

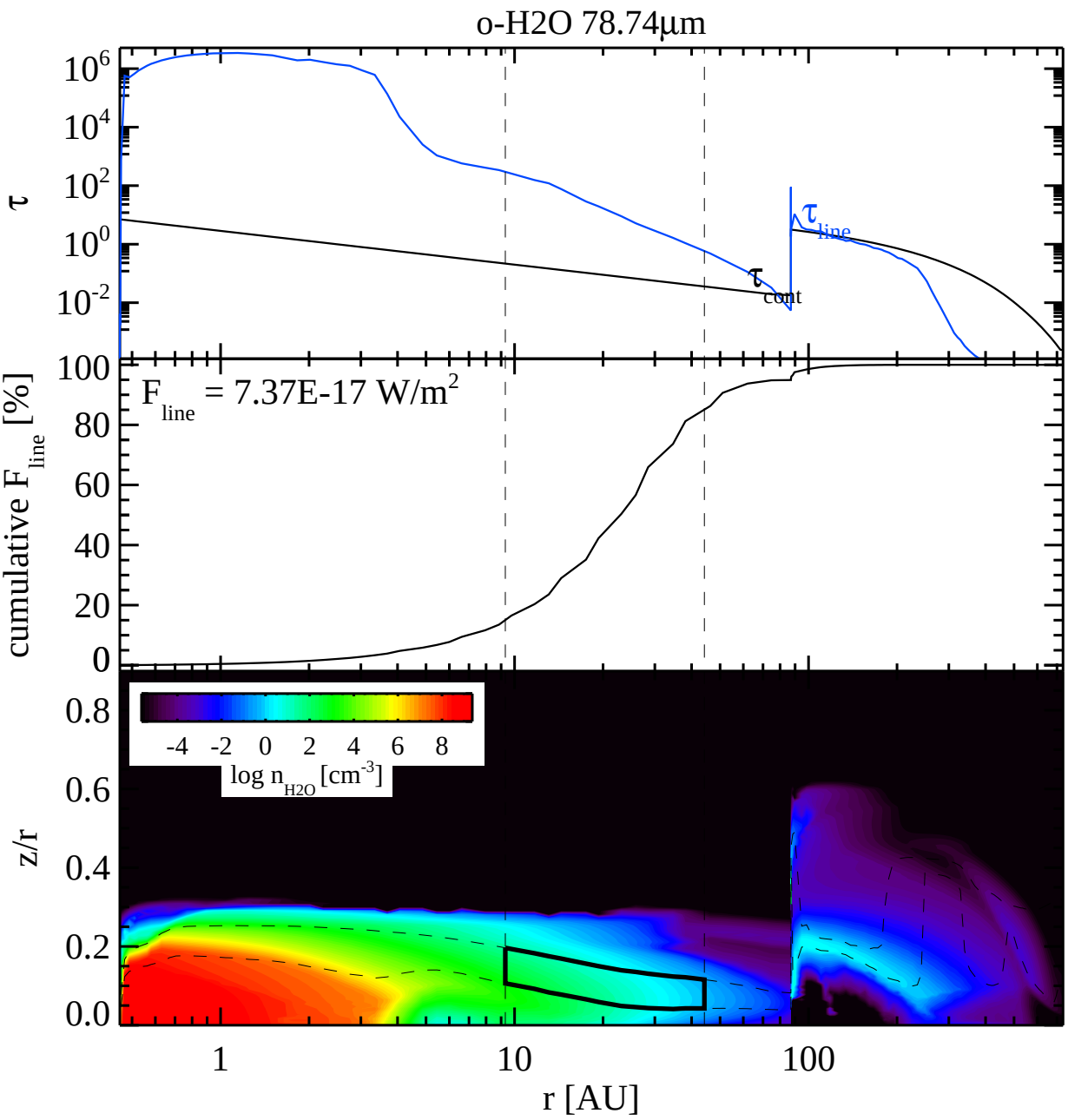

p-H2O 269.27µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 7.58E-18 W/m^2
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.8
0.6
0.4
0.2
0.0
1
10
100
r [AU]

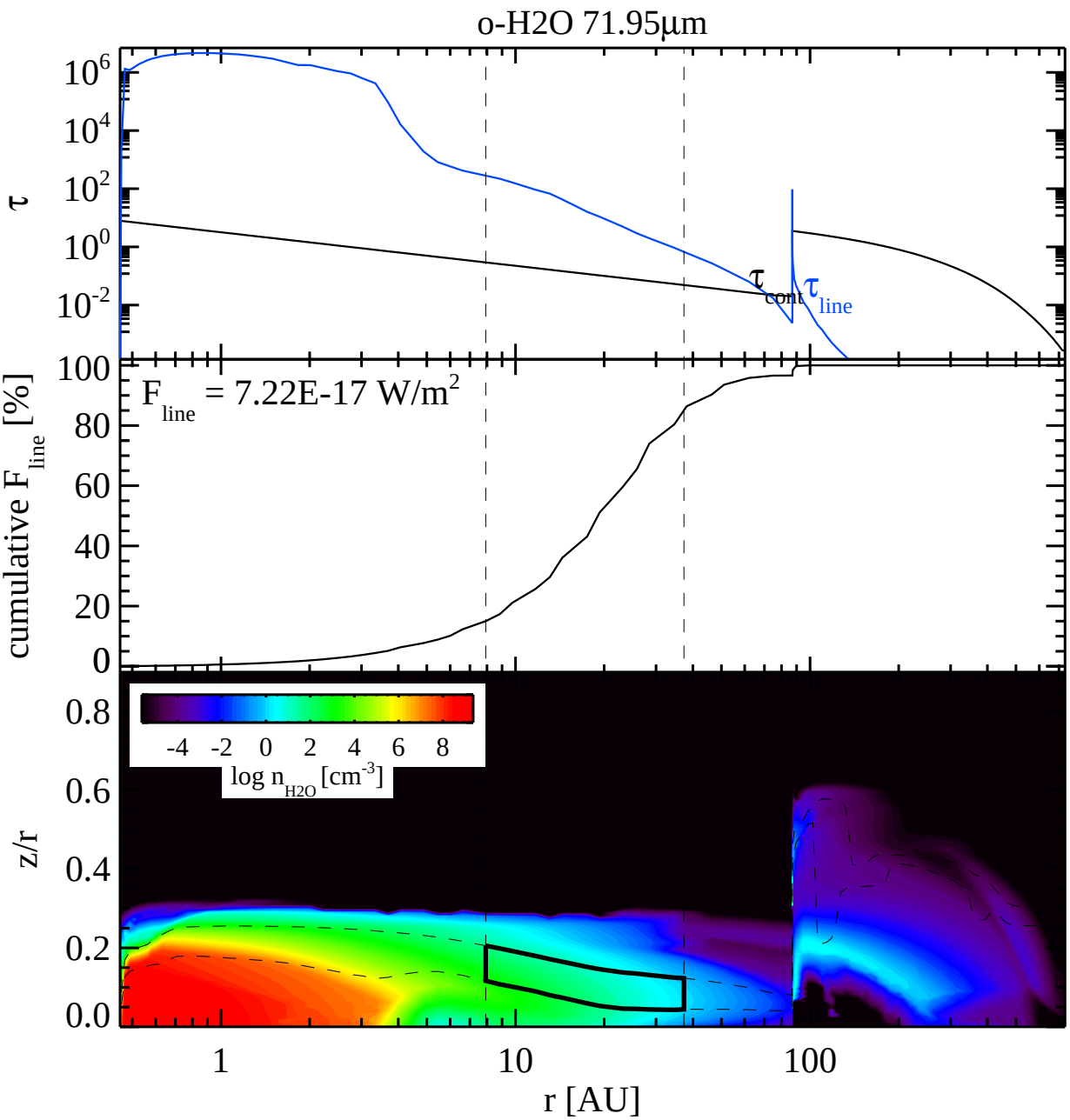

p-H2O 187.11µm
τ
10^4
10^2
10^0
10^-2
10^-4
τ_line
τ_cont
cumulative F_line [%]
F_line = 3.16E-18 W/m^2
100
80
60
40
20
0
0.8
0.6
0.4
0.2
0.0
z/r
-4 -2 0 2 4 6 8
log n_H2O [cm^-3]
1
10
100
r [AU]

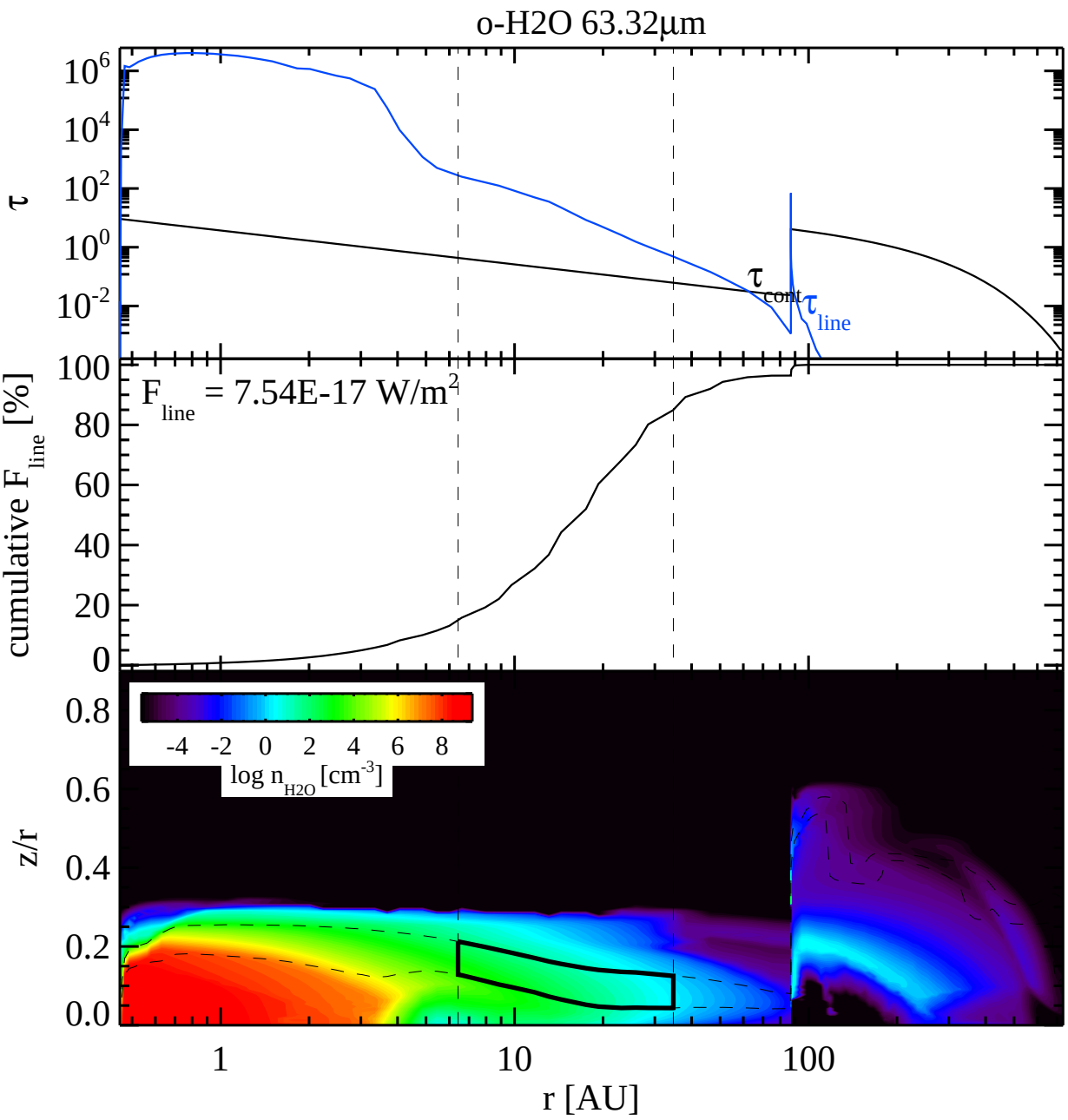

o-H2O 180.49µm
τ
10^6
10^4
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.08E-17 W/m^2
0.8
0.6
0.4
0.2
0.0
z/r
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
1
10
100
r [AU]

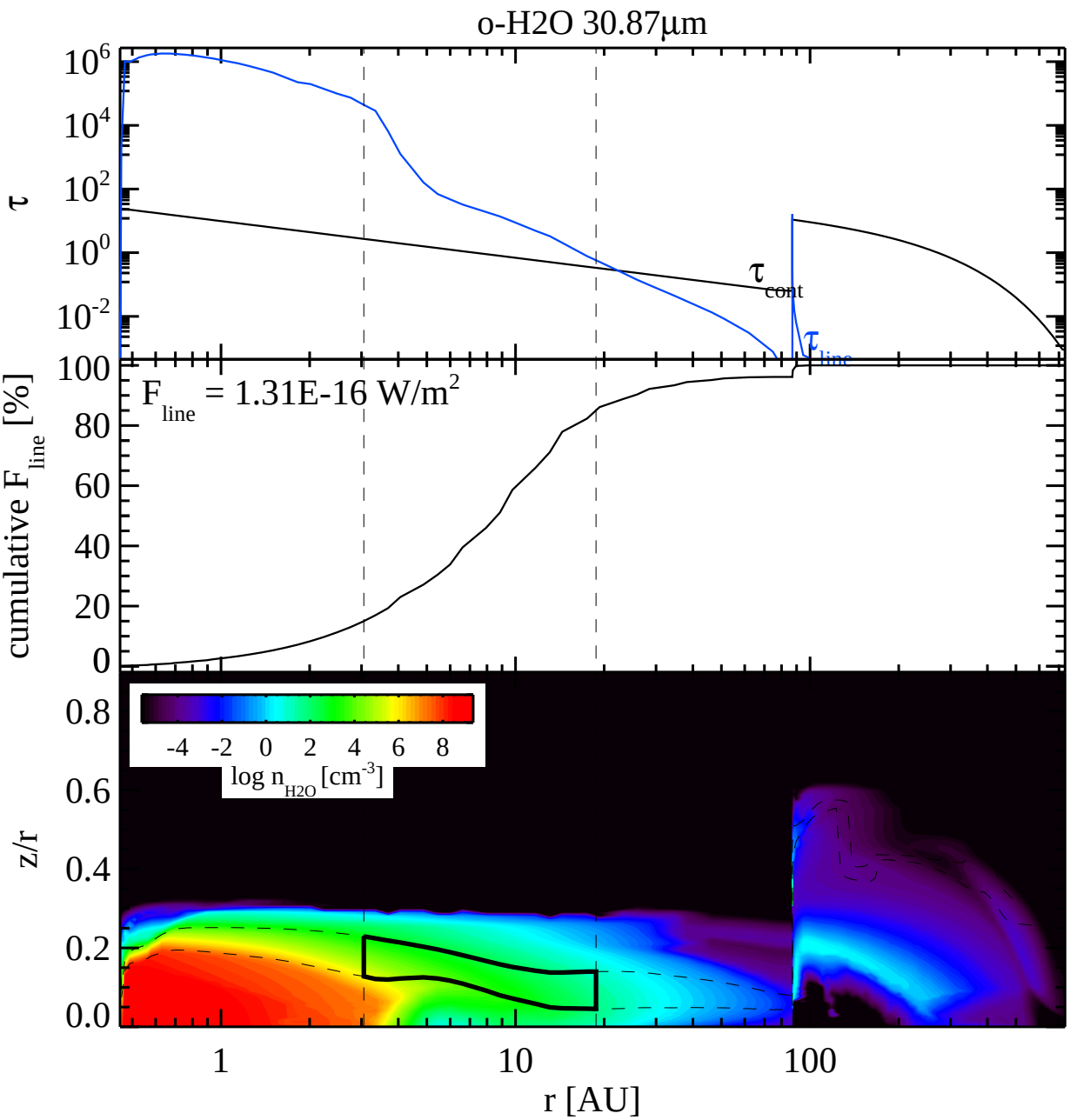

o-H2O 179.53µm
τ
10^6
10^4
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 2.03E-17 W/m^2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
1
10
100
r [AU]

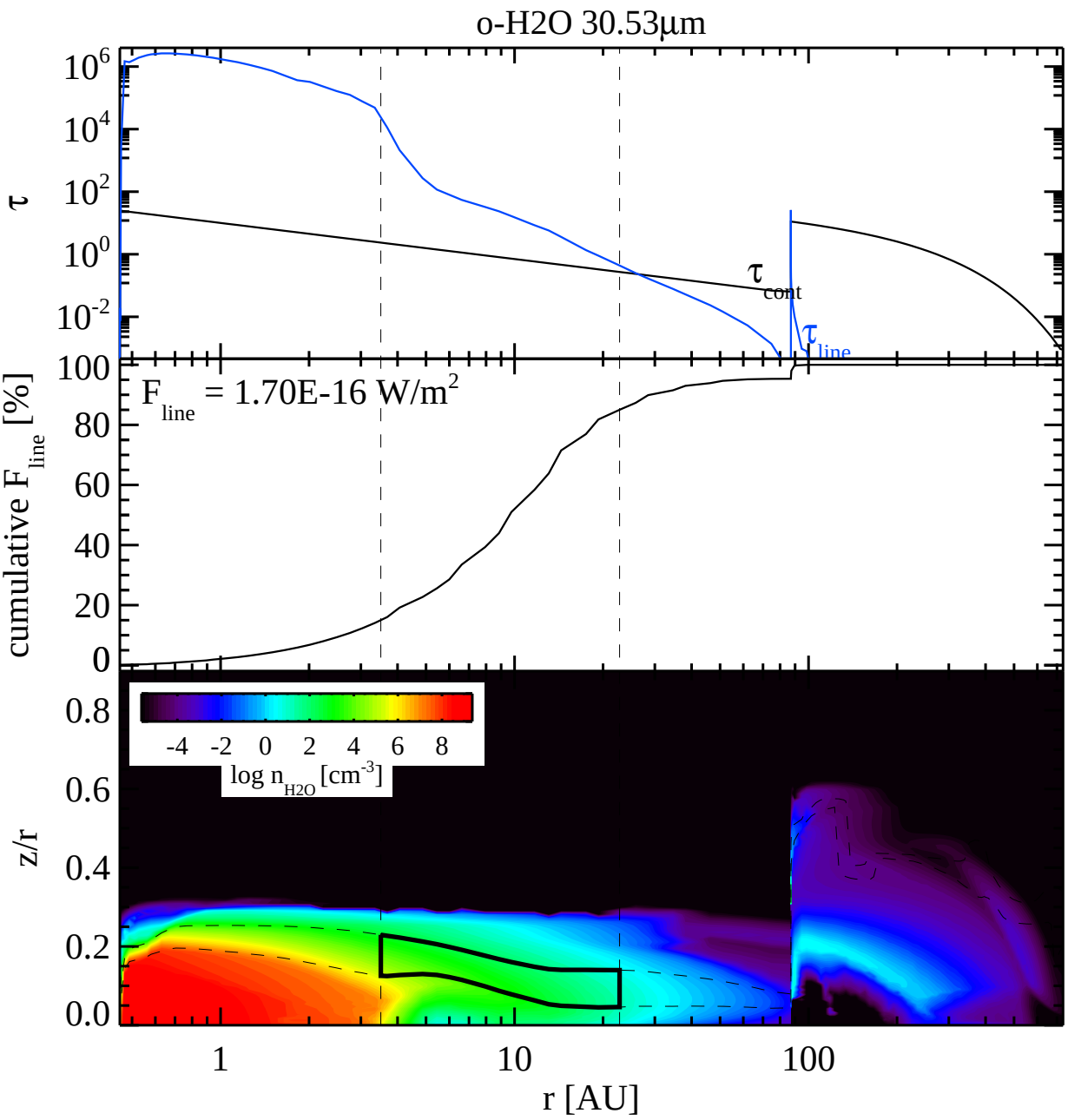

p-H2O 89.99µm
τ
10^6
10^4
10^2
10^0
10^{-2}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 4.39E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
1
10
100
r [AU]

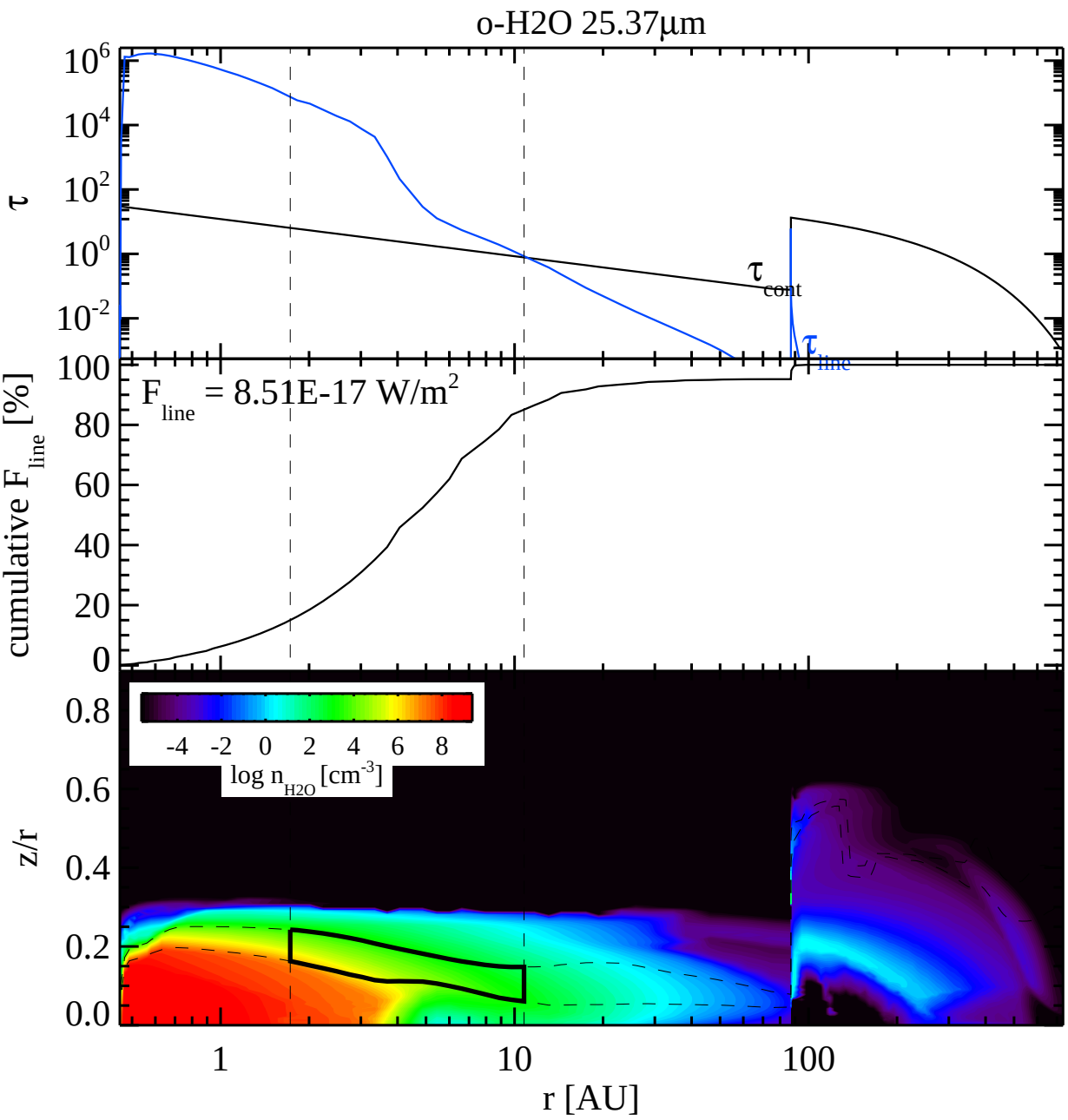

o-H2O 78.74µm
τ
10^6
10^4
10^2
10^0
10^{-2}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
F_{line} = 7.37E-17 W/m^2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
1
10
100
r [AU]

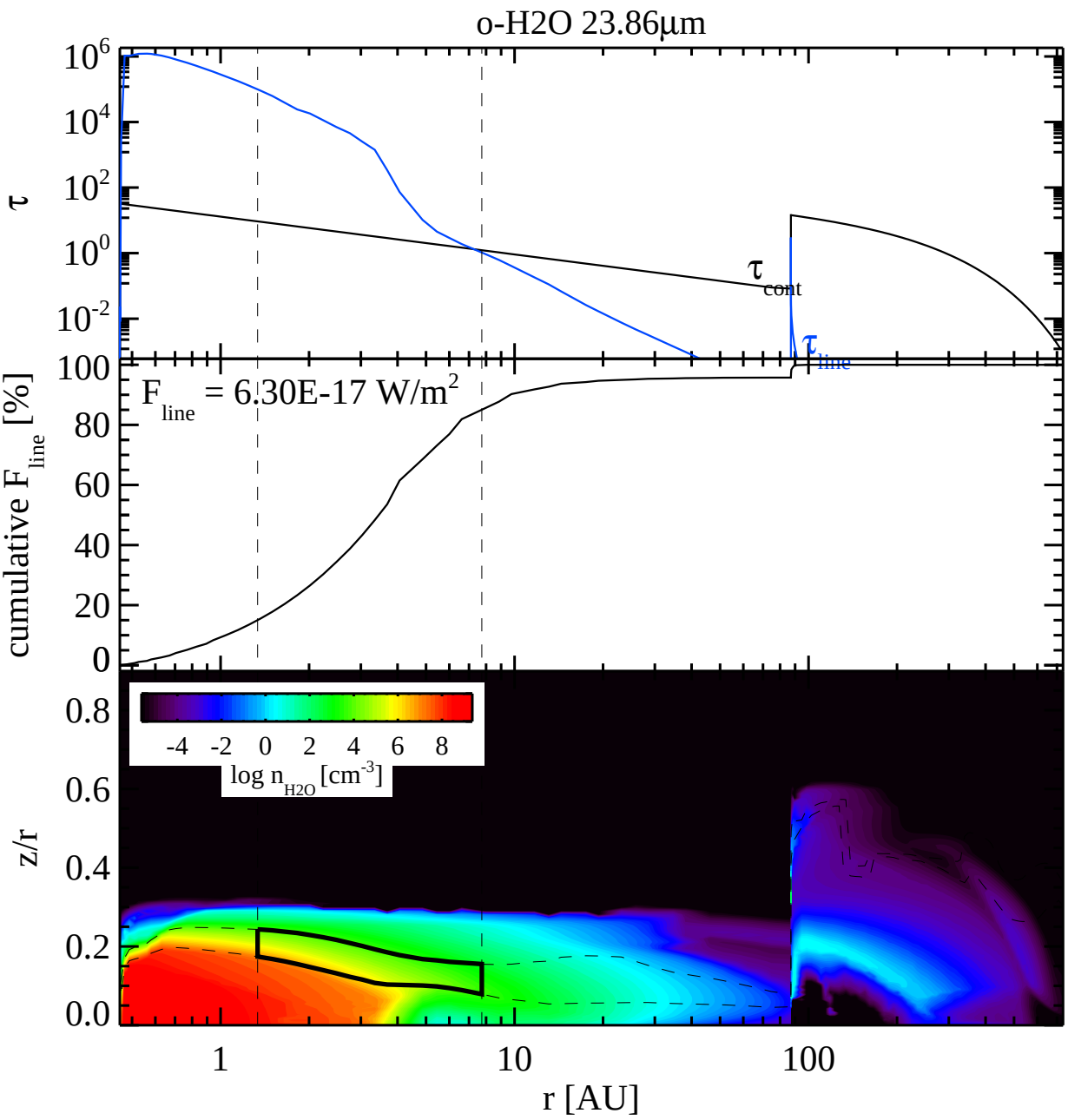

o-H2O 71.95µm
τ
10^6
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 7.22E-17 W/m^2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
1
10
100
r [AU]

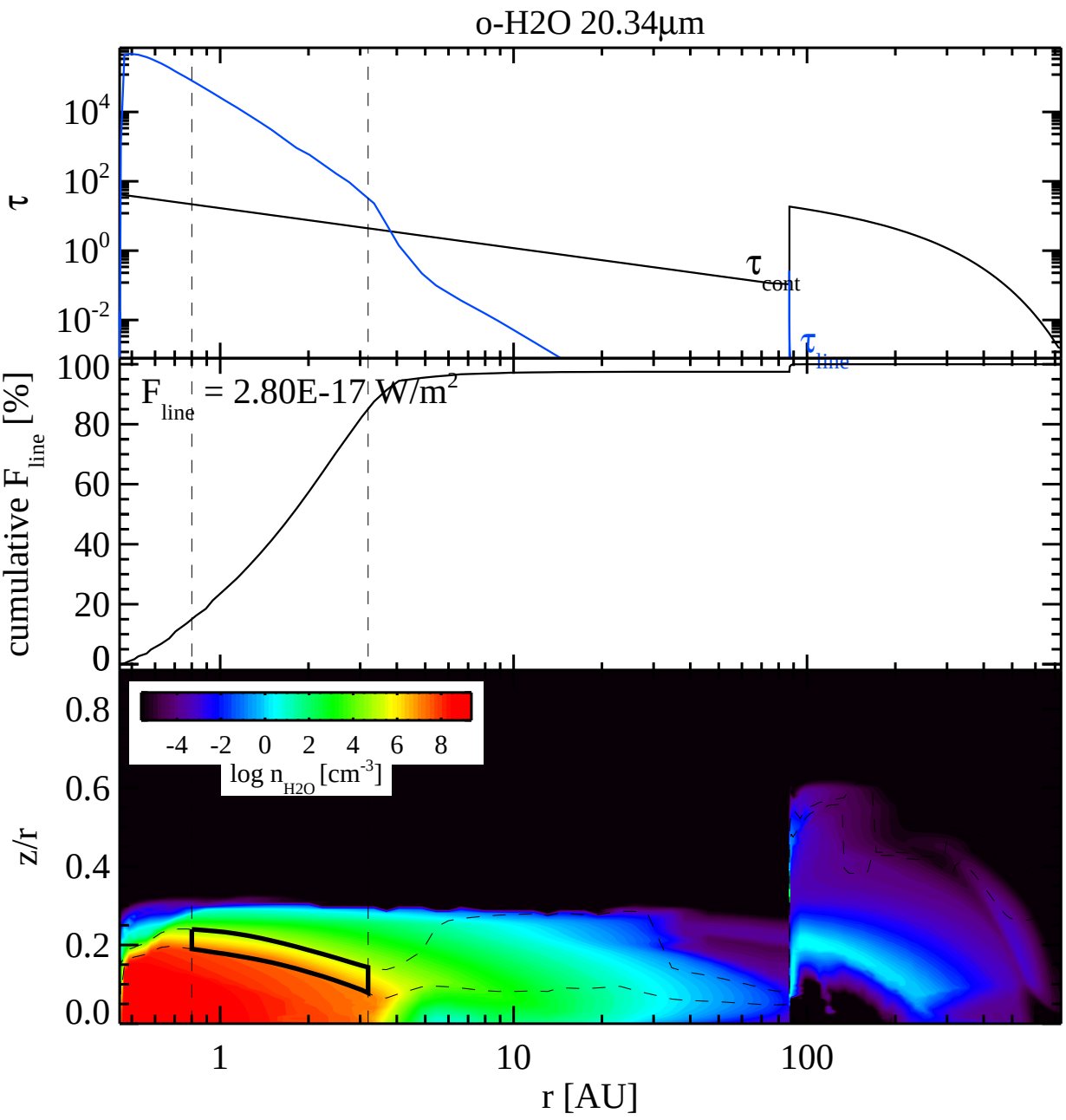

o-H2O 63.32µm
τ
10^6
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 7.54E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
1
10
100
r [AU]

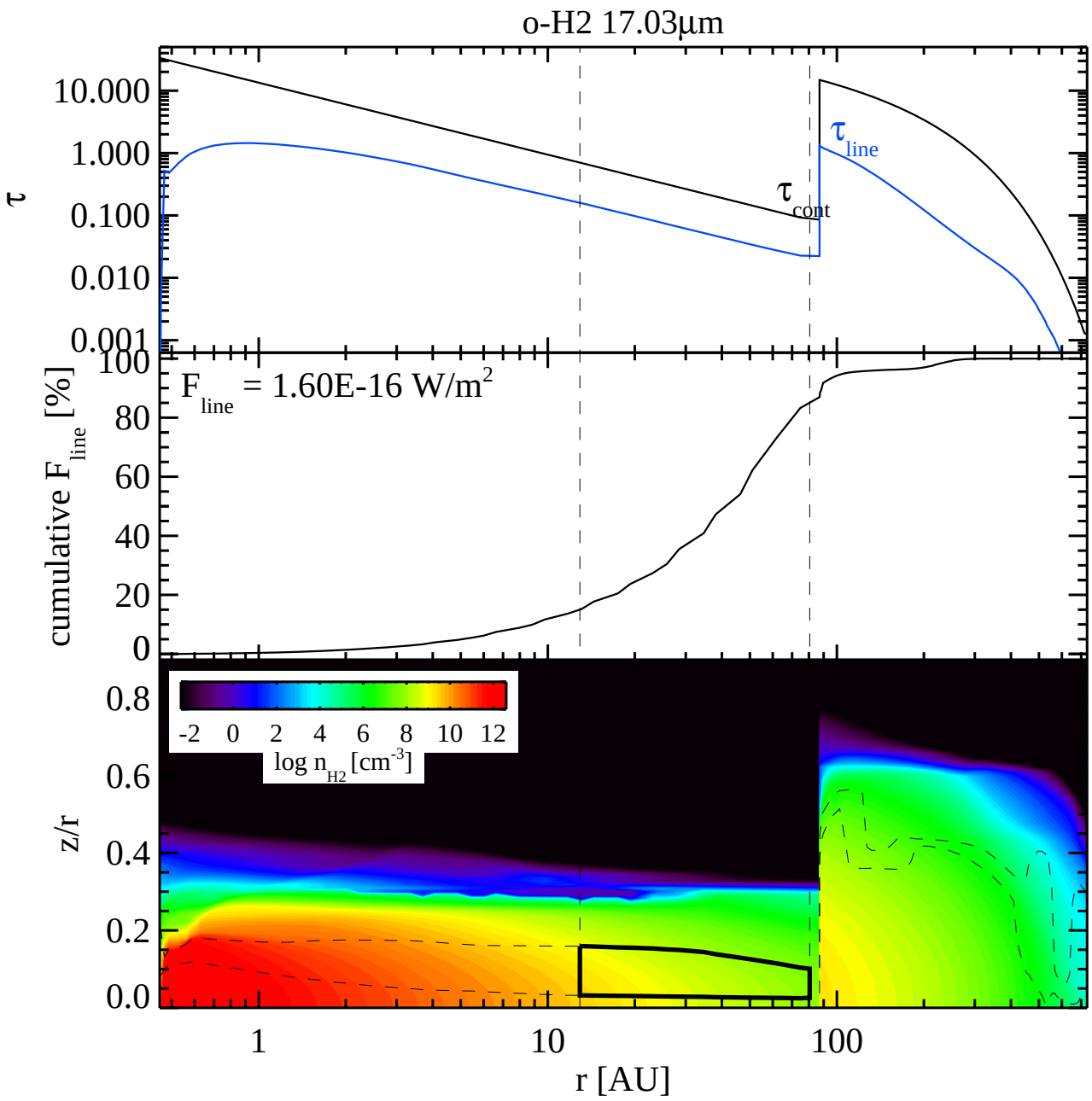

o-H2O 30.87µm
τ
10^6
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 1.31E-16 W/m^2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
1
10
100
r [AU]

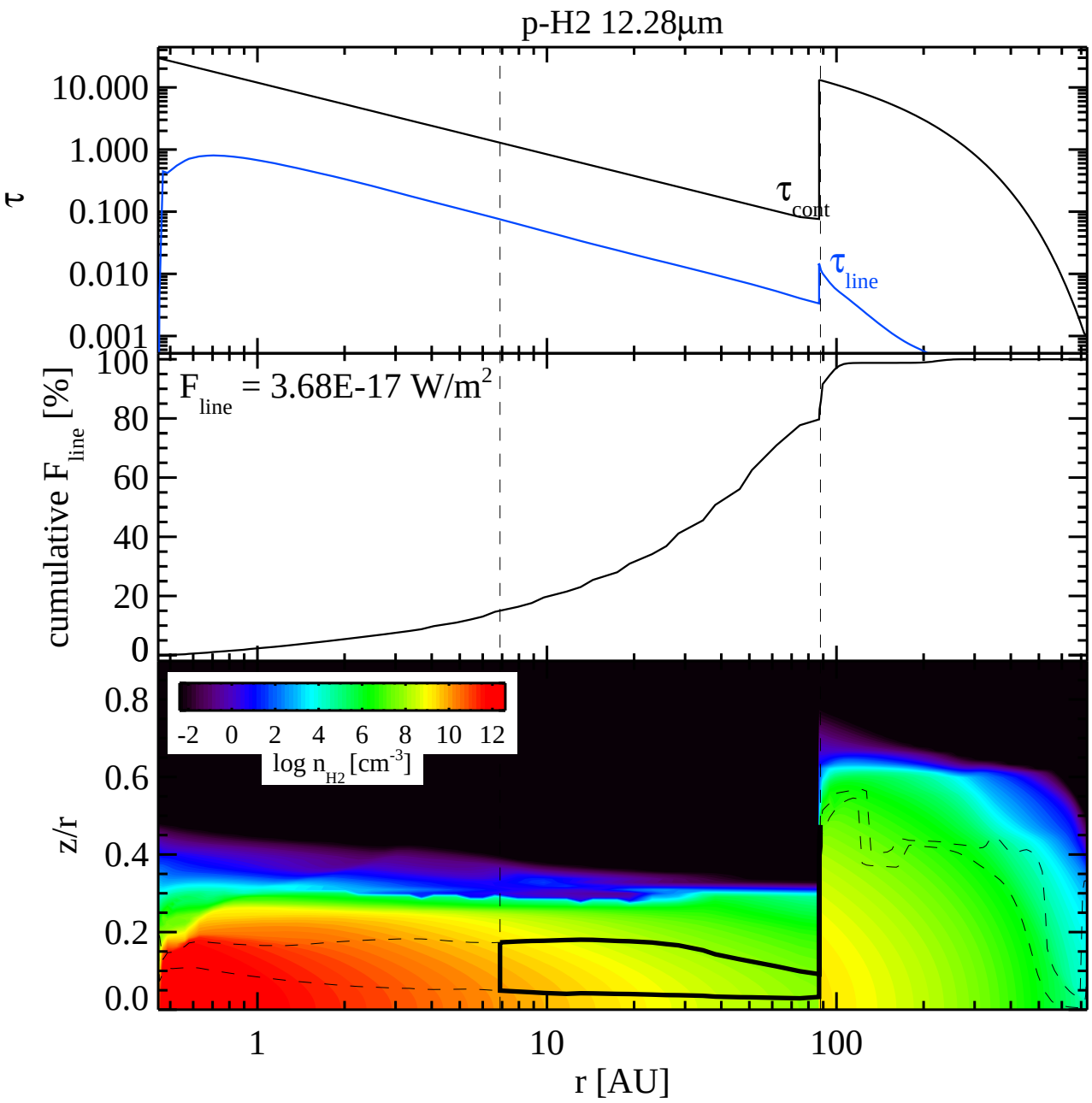

o-H2O 30.53µm
τ
10^6
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 1.70E-16 W/m^2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
1
10
100
r [AU]

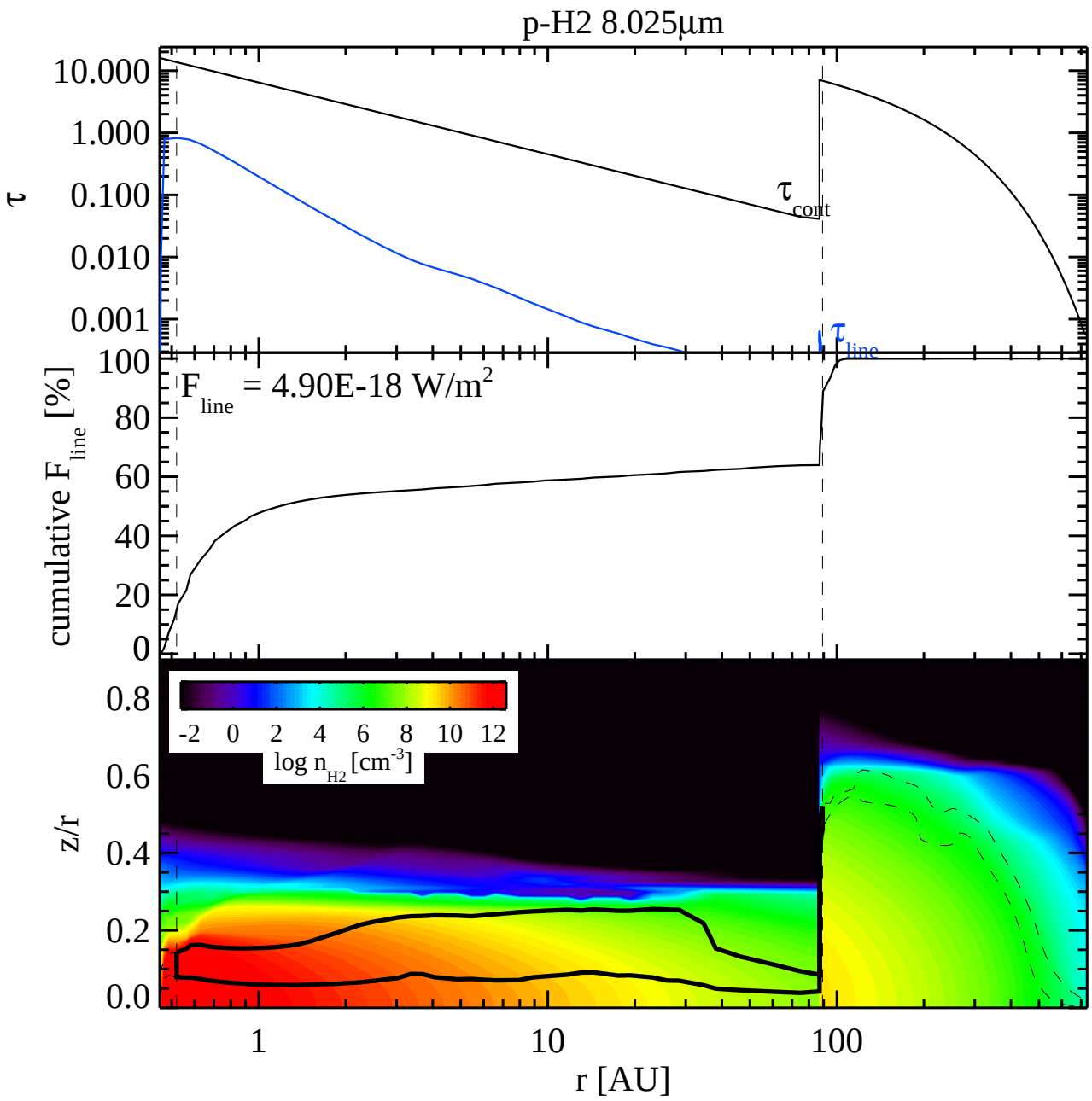

o-H2O 25.37µm
τ
10^6
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 8.51E-17 W/m^2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
1
10
100
r [AU]

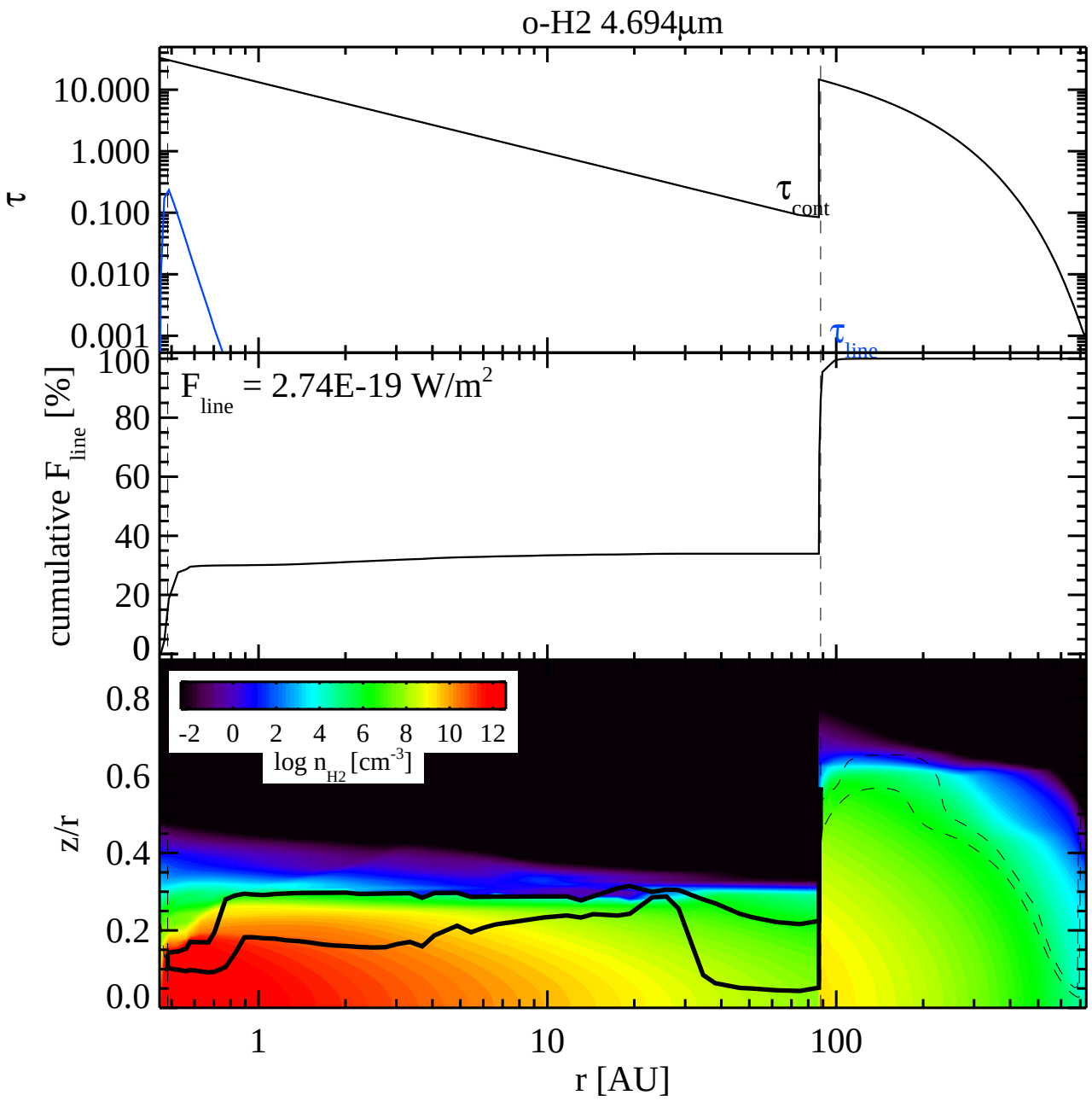

o-H2O 23.86µm
τ
10^6
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 6.30E-17 W/m^2
100
80
60
40
20
0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
z/r
0.8
0.6
0.4
0.2
0.0
1
10
100
r [AU]

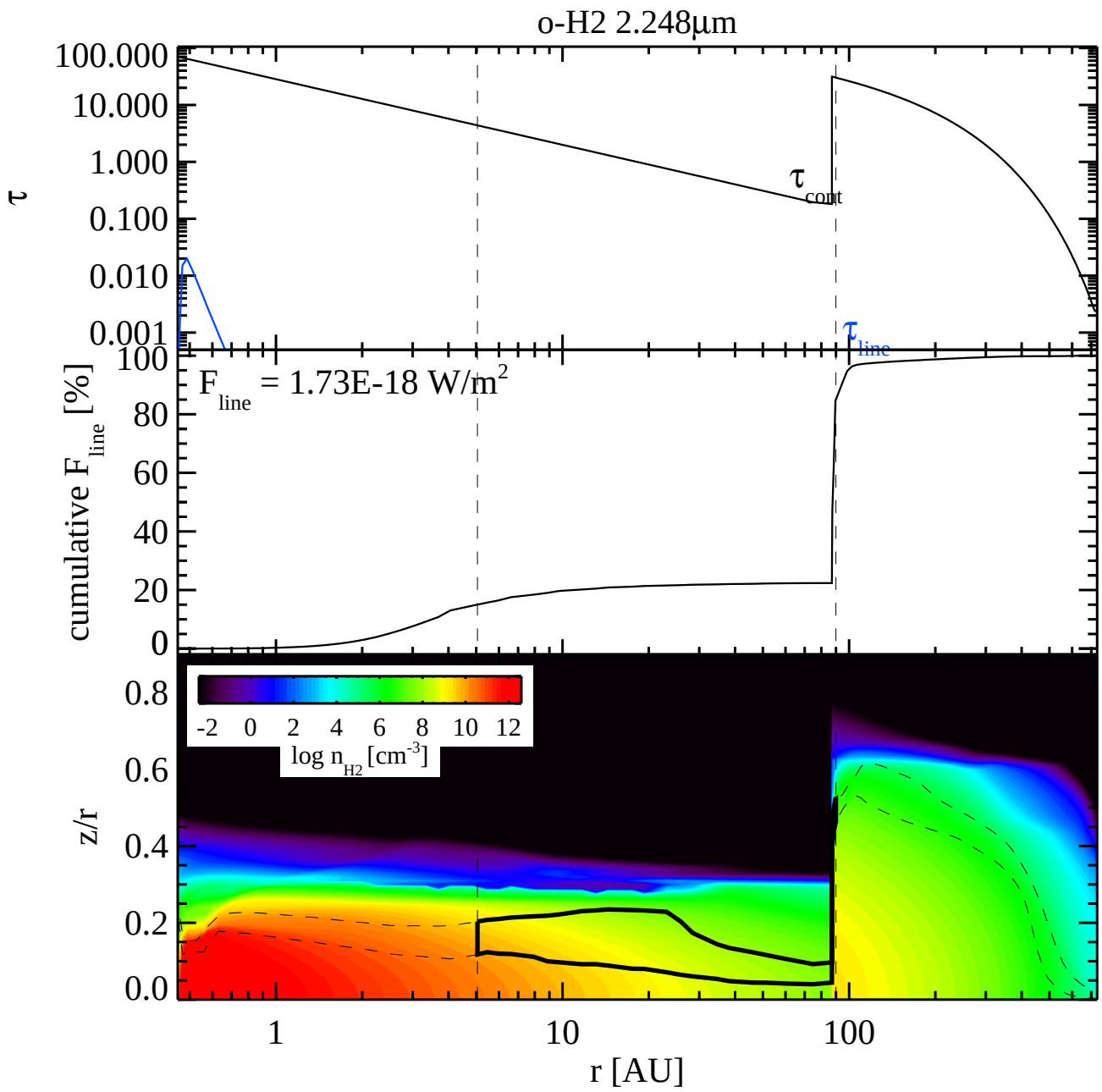

o-H2O 20.34µm
τ
10^4
10^2
10^0
10^{-2}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.80E-17 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-4 -2 0 2 4 6 8
log n_{H2O} [cm^{-3}]
1
10
100
r [AU]

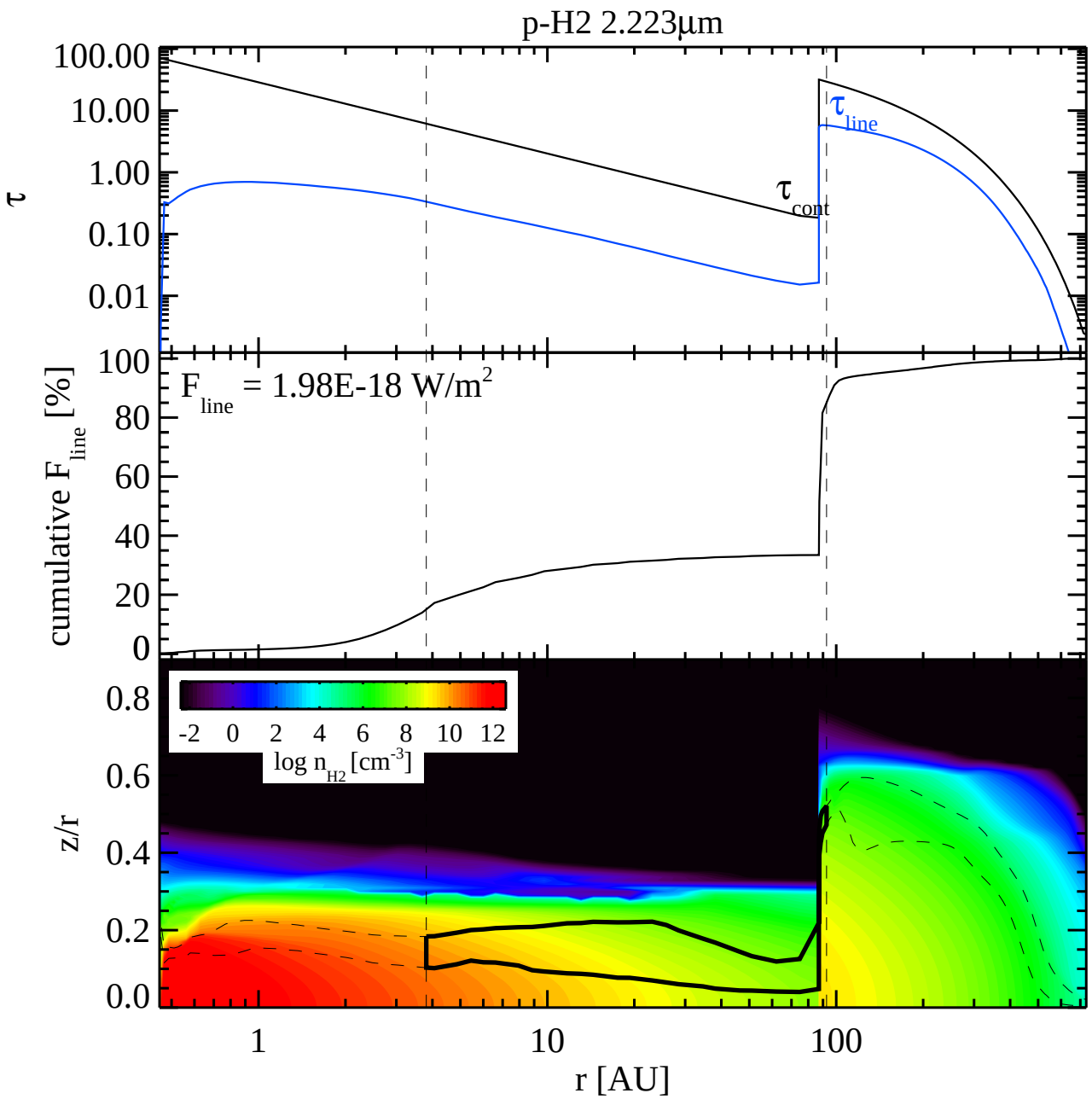

o-H2 17.03µm
τ
10.000
1.000
0.100
0.010
0.001
τ cont
τ line
cumulative F line [%]
100
80
60
40
20
0
F line = 1.60E-16 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-2 0 2 4 6 8 10 12
log n H2 [cm-3]
1
10
100
r [AU]

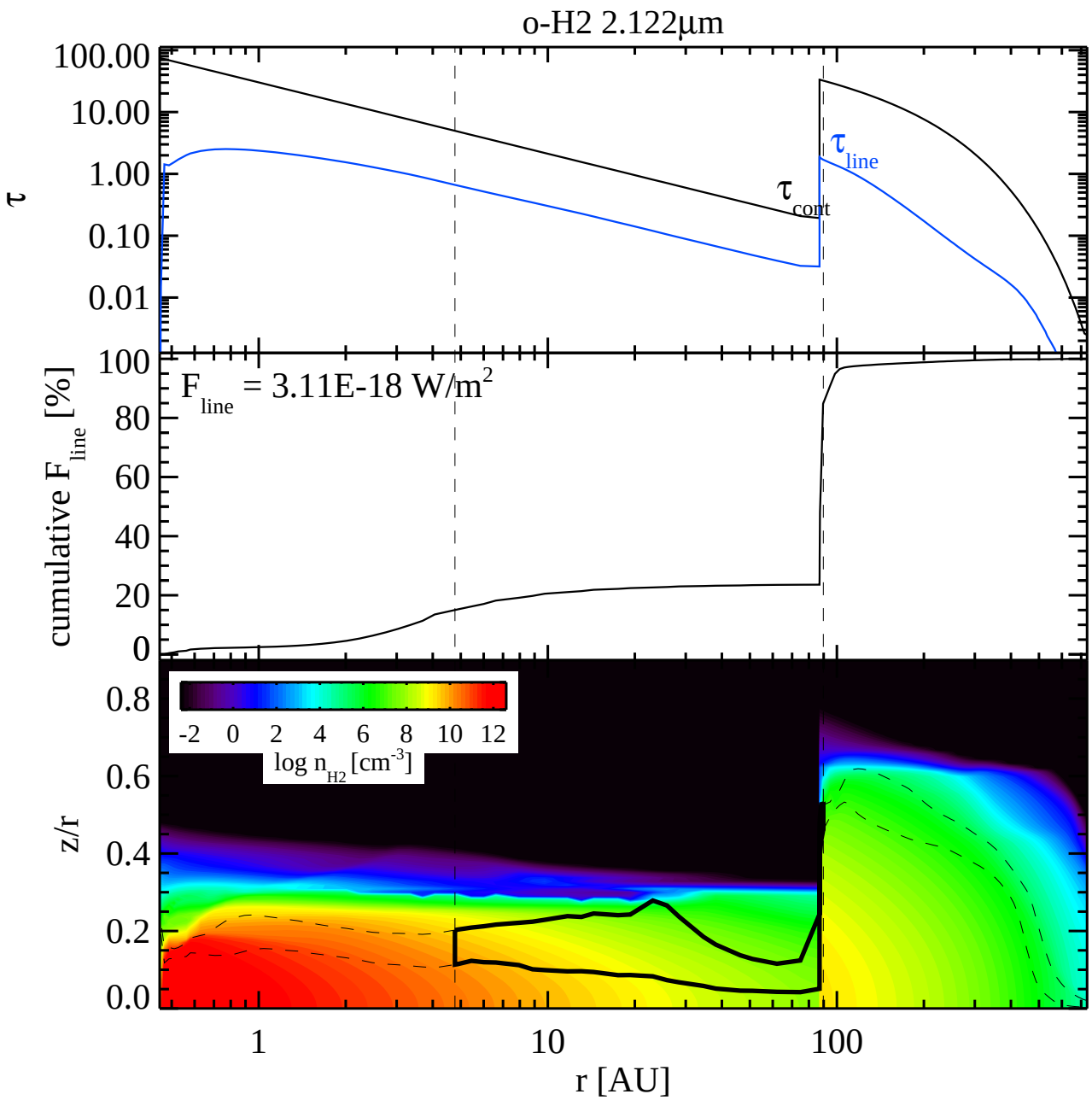

p-H2 12.28µm
τ
10.000
1.000
0.100
0.010
0.001
τ cont
τ line
cumulative F line [%]
100
80
60
40
20
0
F line = 3.68E-17 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-2 0 2 4 6 8 10 12
log n H2 [cm-3]
1
10
100
r [AU]

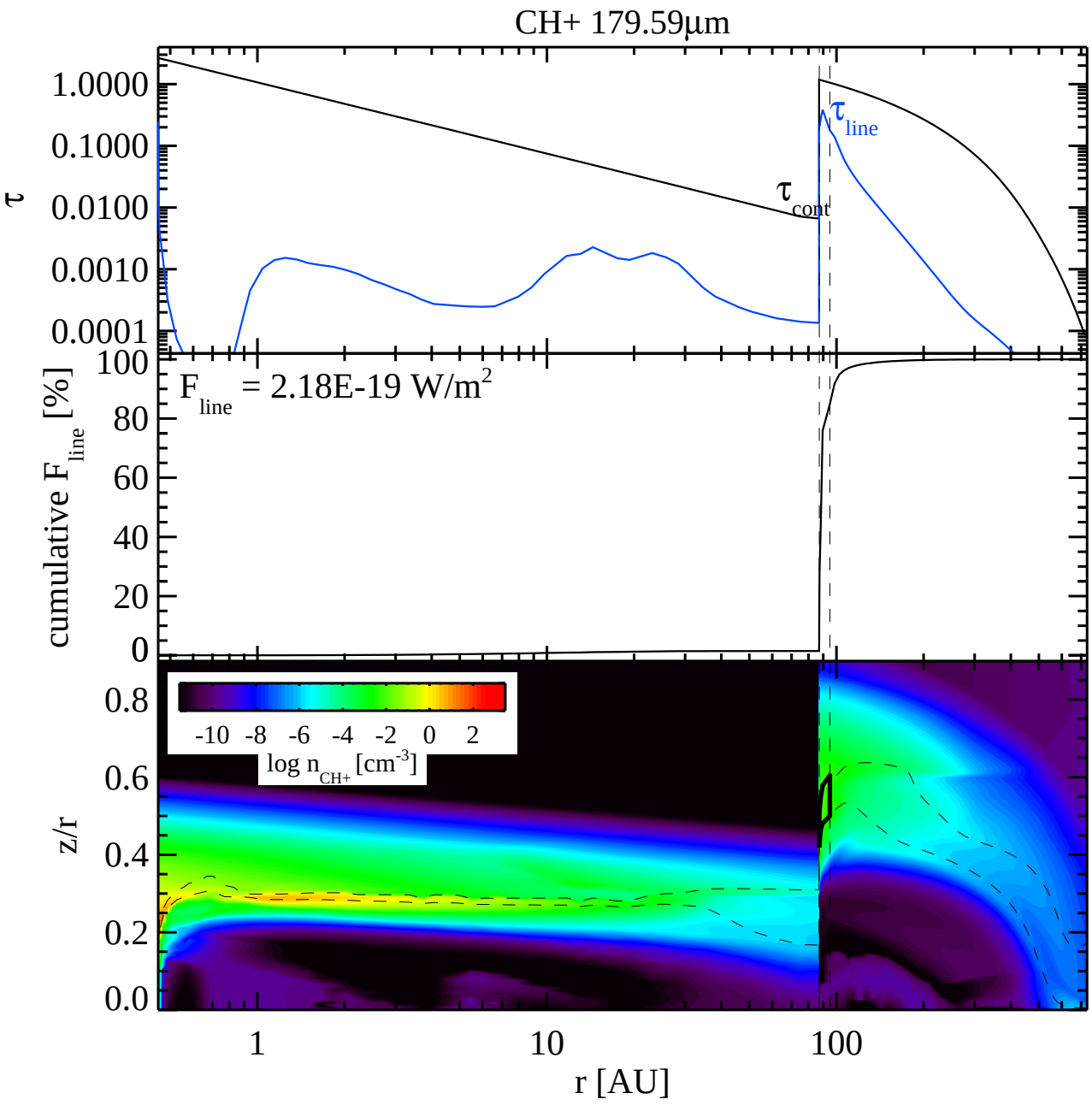

p-H2 8.025µm
τ
10.000
1.000
0.100
0.010
0.001
τ cont
τ line
cumulative F line [%]
F line = 4.90E-18 W/m2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-2 0 2 4 6 8 10 12
log n H2 [cm-3]
1
10
100
r [AU]

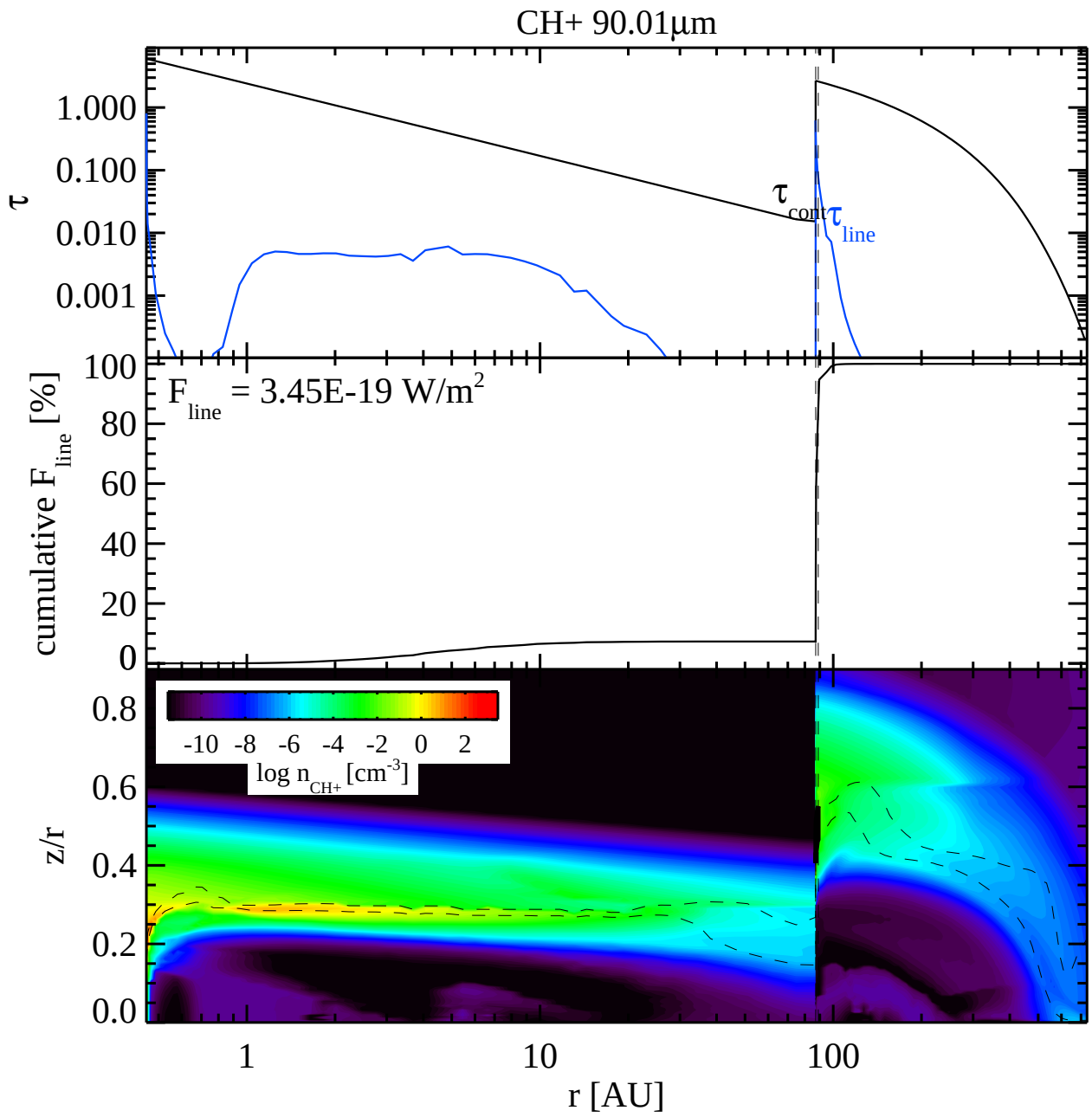

o-H2 4.694µm
τ
10.000
1.000
0.100
0.010
0.001
τ cont
τ line
F line = 2.74E-19 W/m2
cumulative F line [%]
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-2 0 2 4 6 8 10 12
log n H2 [cm-3]
1
10
100
r [AU]

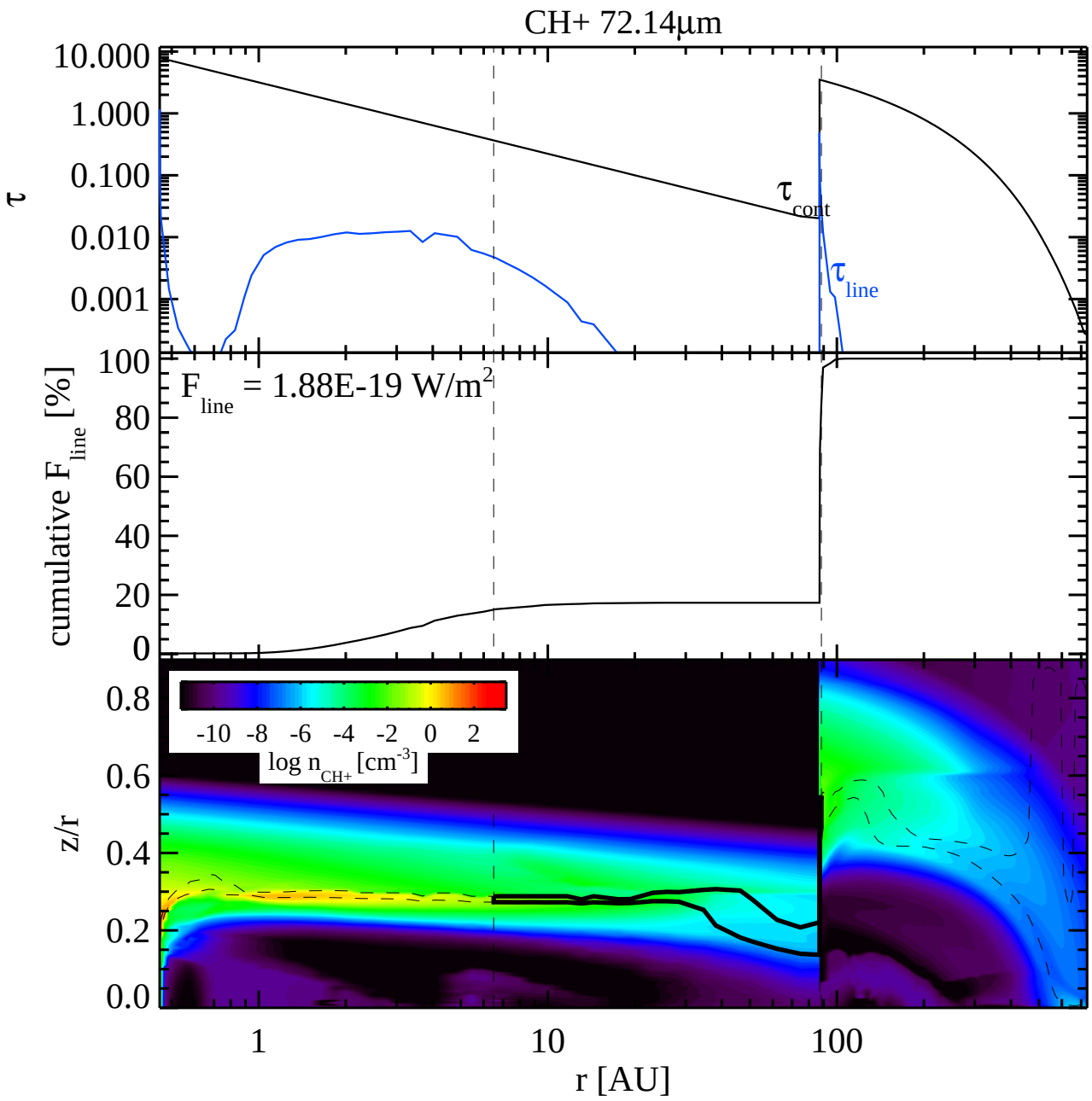

o-H2 2.248µm
τ
100.000
10.000
1.000
0.100
0.010
0.001
τ cont
τ line
F line = 1.73E-18 W/m2
cumulative F line [%]
100
80
60
40
20
0
-2 0 2 4 6 8 10 12
log n H2 [cm-3]
z/r
0.8
0.6
0.4
0.2
0.0
1
10
100
r [AU]

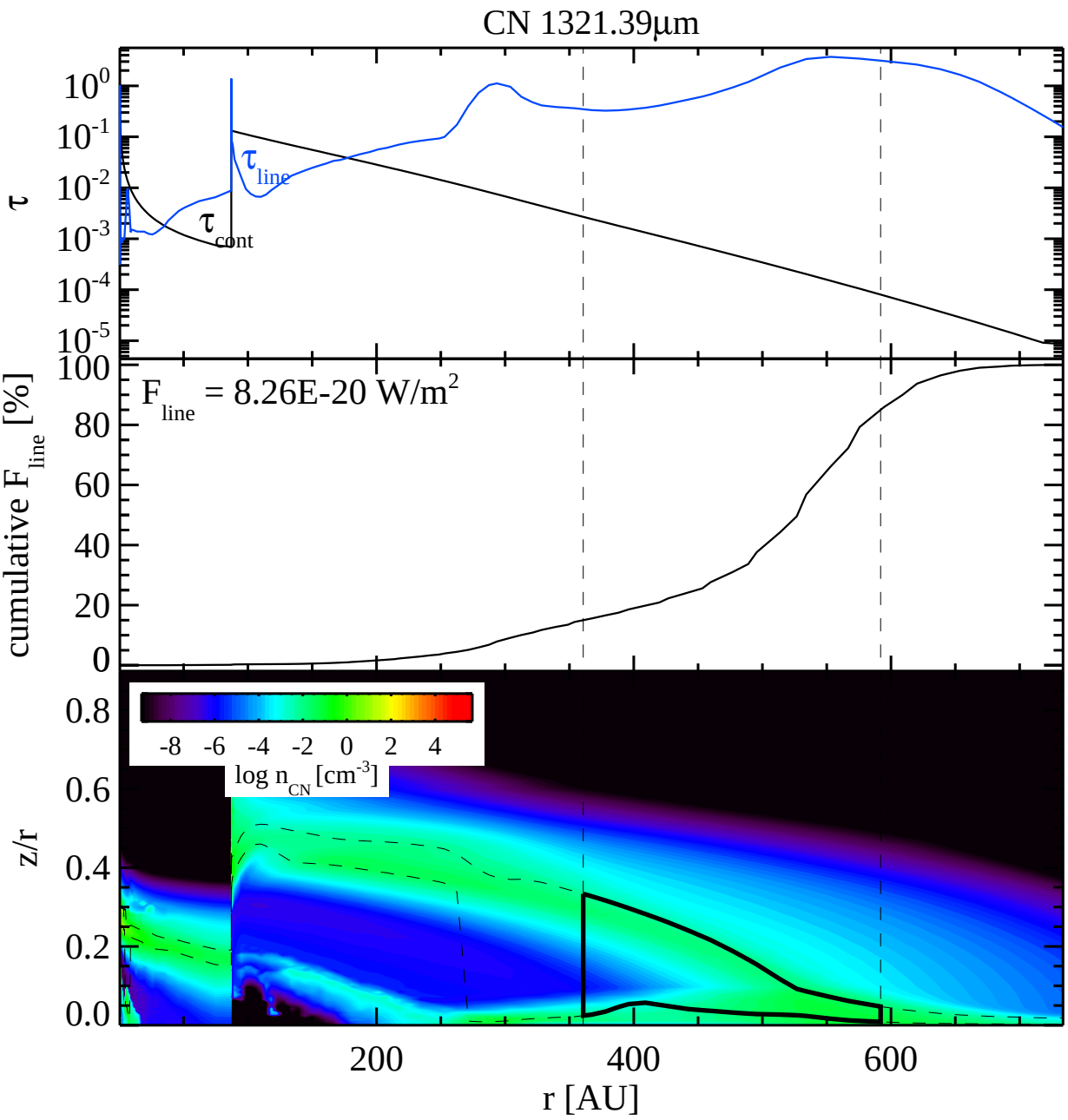

p-H2 2.223µm
τ
100.00
10.00
1.00
0.10
0.01
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 1.98E-18 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-2 0 2 4 6 8 10 12
log n H2 [cm-3]
1
10
100
r [AU]

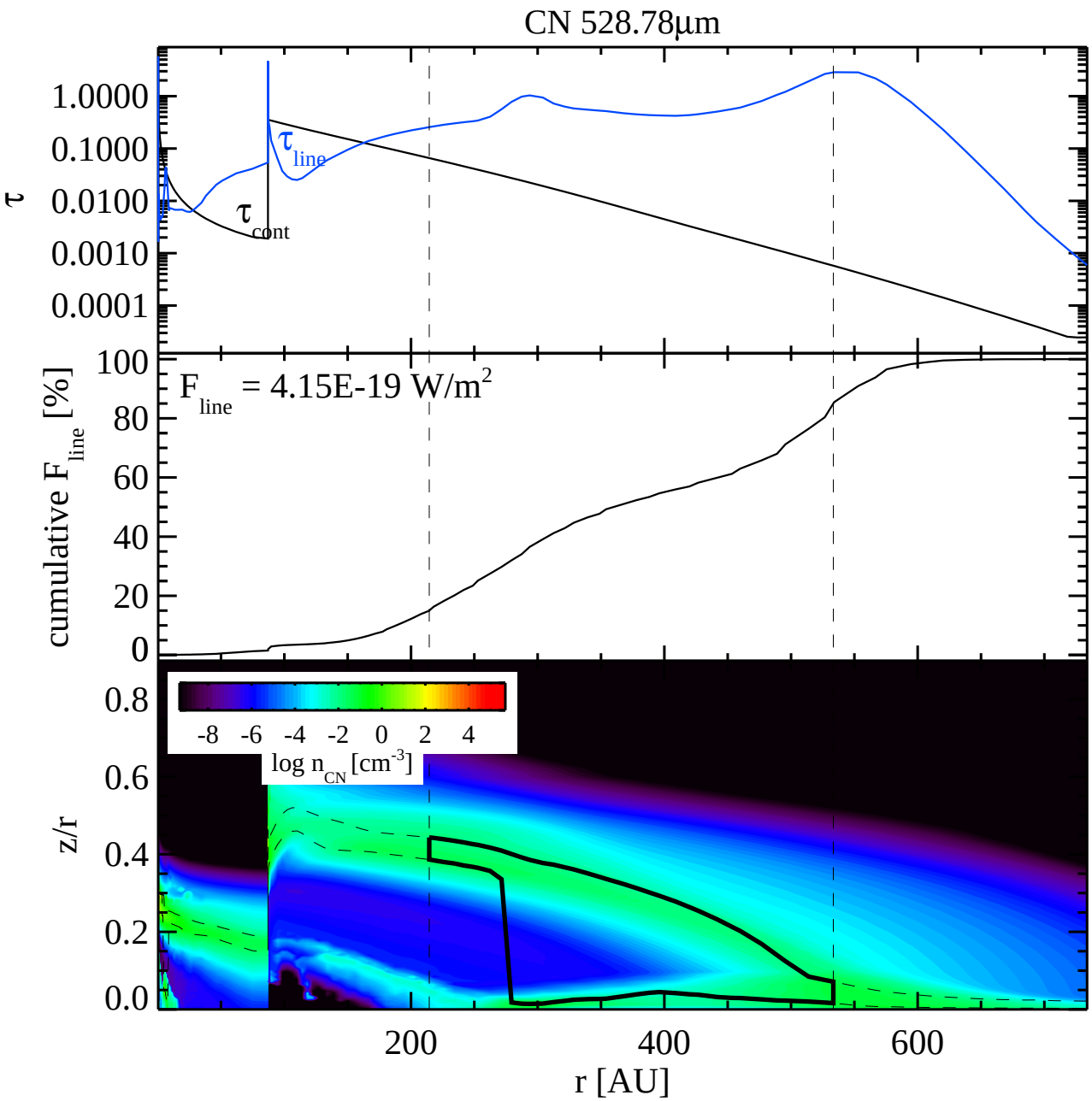

o-H2 2.122µm
100.00
10.00
1.00
0.10
0.01
τ
τ cont
τ line
100
80
60
40
20
0
cumulative F line [%]
F line = 3.11E-18 W/m2
0.8
0.6
0.4
0.2
0.0
z/r
-2 0 2 4 6 8 10 12
log n H2 [cm-3]
1
10
100
r [AU]

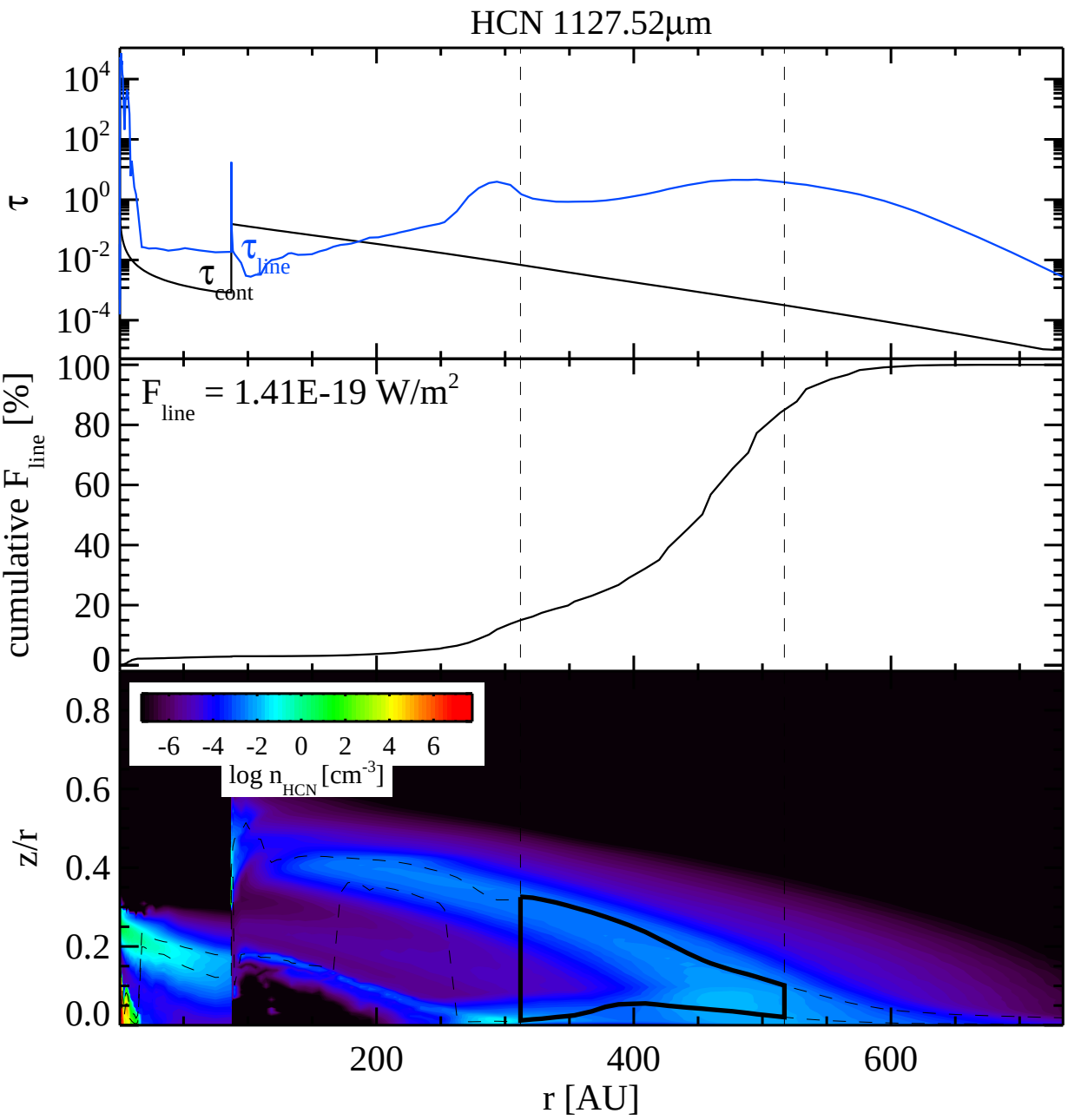

CH+ 179.59µm
τ
1.0000
0.1000
0.0100
0.0010
0.0001
τ cont
τ line
cumulative F line [%]
100
80
60
40
20
0
F line = 2.18E-19 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-10 -8 -6 -4 -2 0 2
log n CH+ [cm-3]
1
10
100
r [AU]

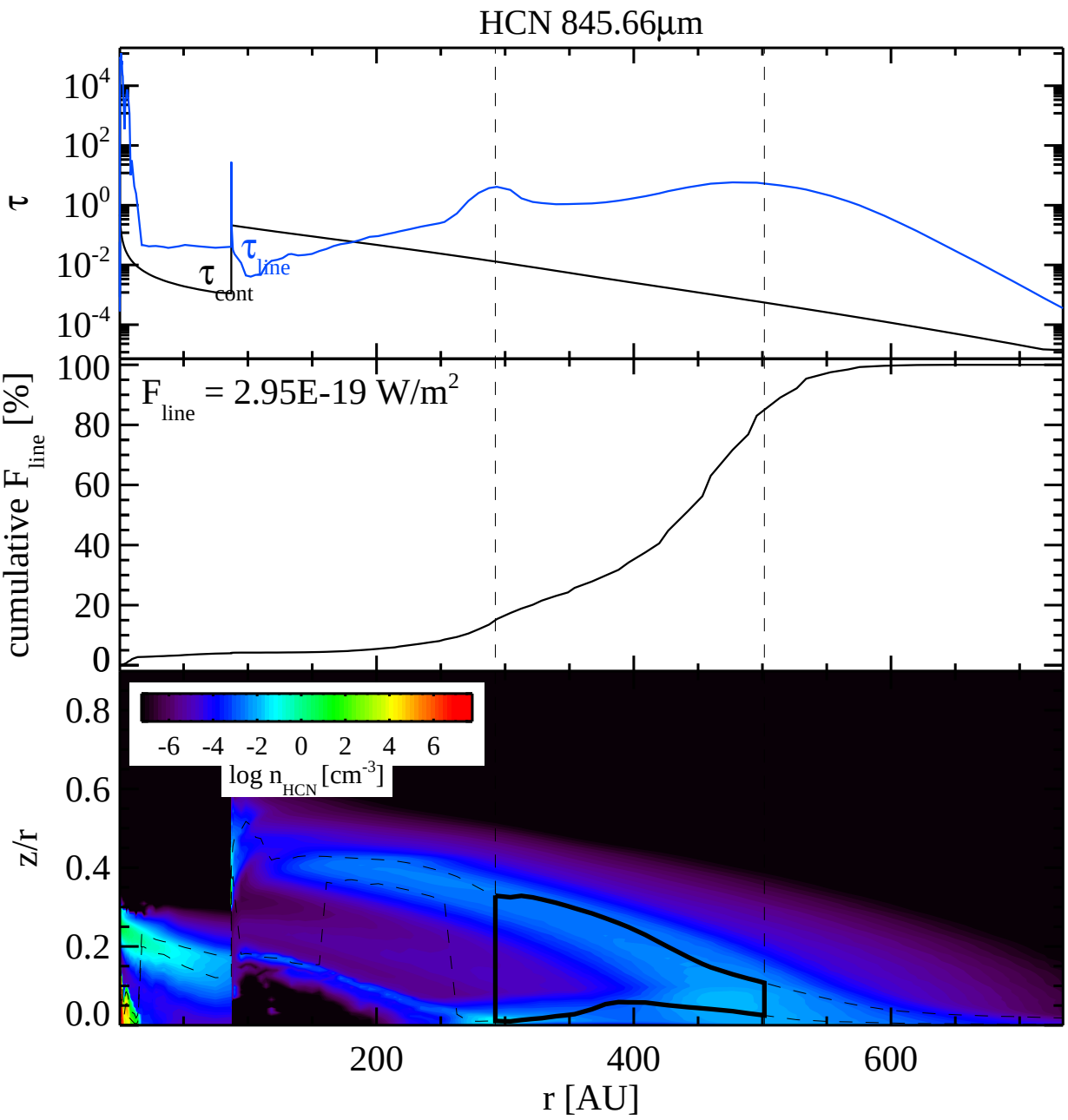

CH+ 90.01µm
τ
1.000
0.100
0.010
0.001
τ cont
τ line
cumulative F line [%]
100
80
60
40
20
0
F line = 3.45E-19 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-10 -8 -6 -4 -2 0 2
log n CH+ [cm-3]
1
10
100
r [AU]

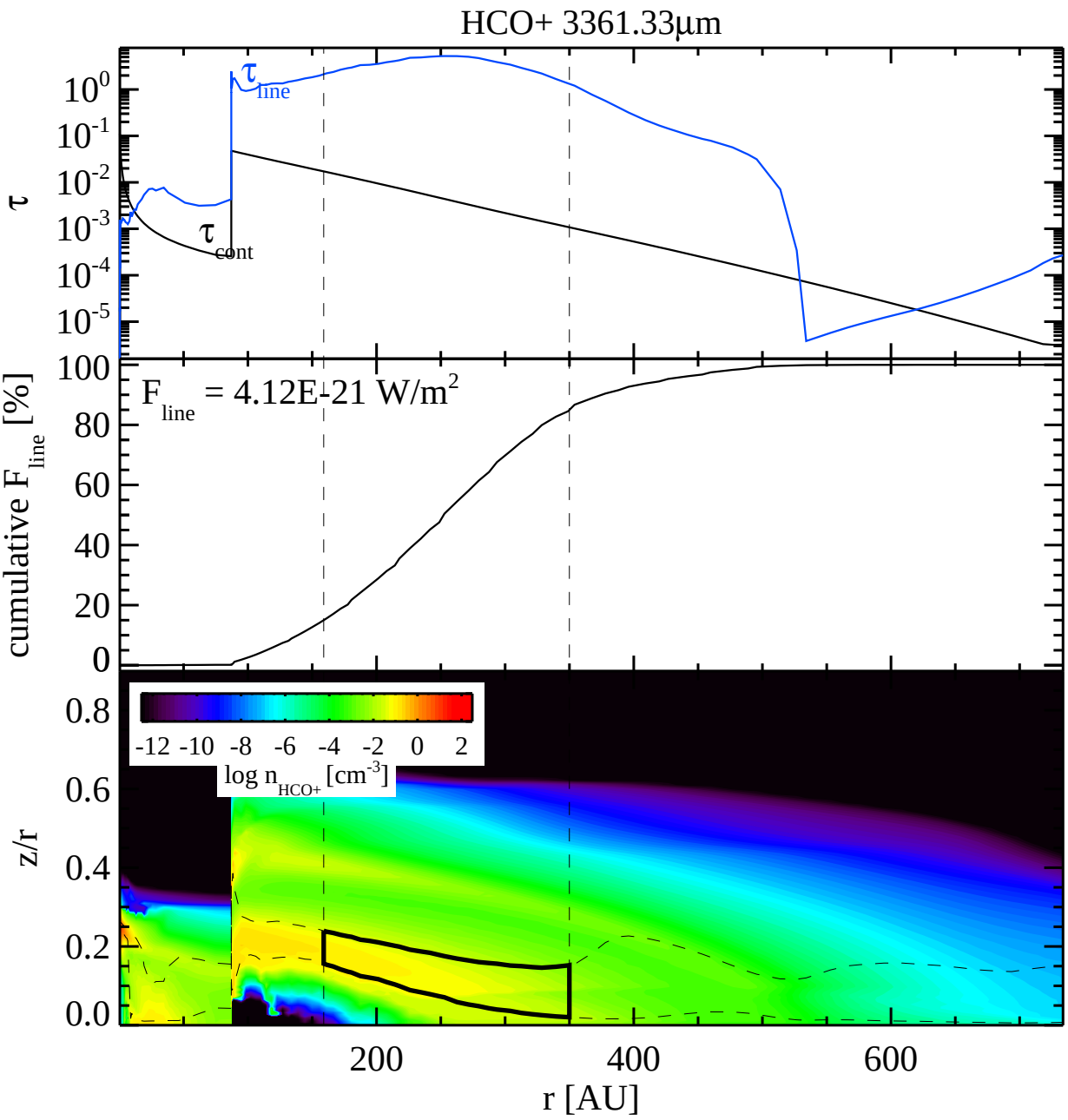

CH+ 72.14µm
10.000
1.000
0.100
0.010
0.001
τ
τ cont
τ line
100
80
60
40
20
0
cumulative F line [%]
F line = 1.88E-19 W/m2
0.8
0.6
0.4
0.2
0.0
z/r
-10 -8 -6 -4 -2 0 2
log n CH+ [cm-3]
1
10
100
r [AU]

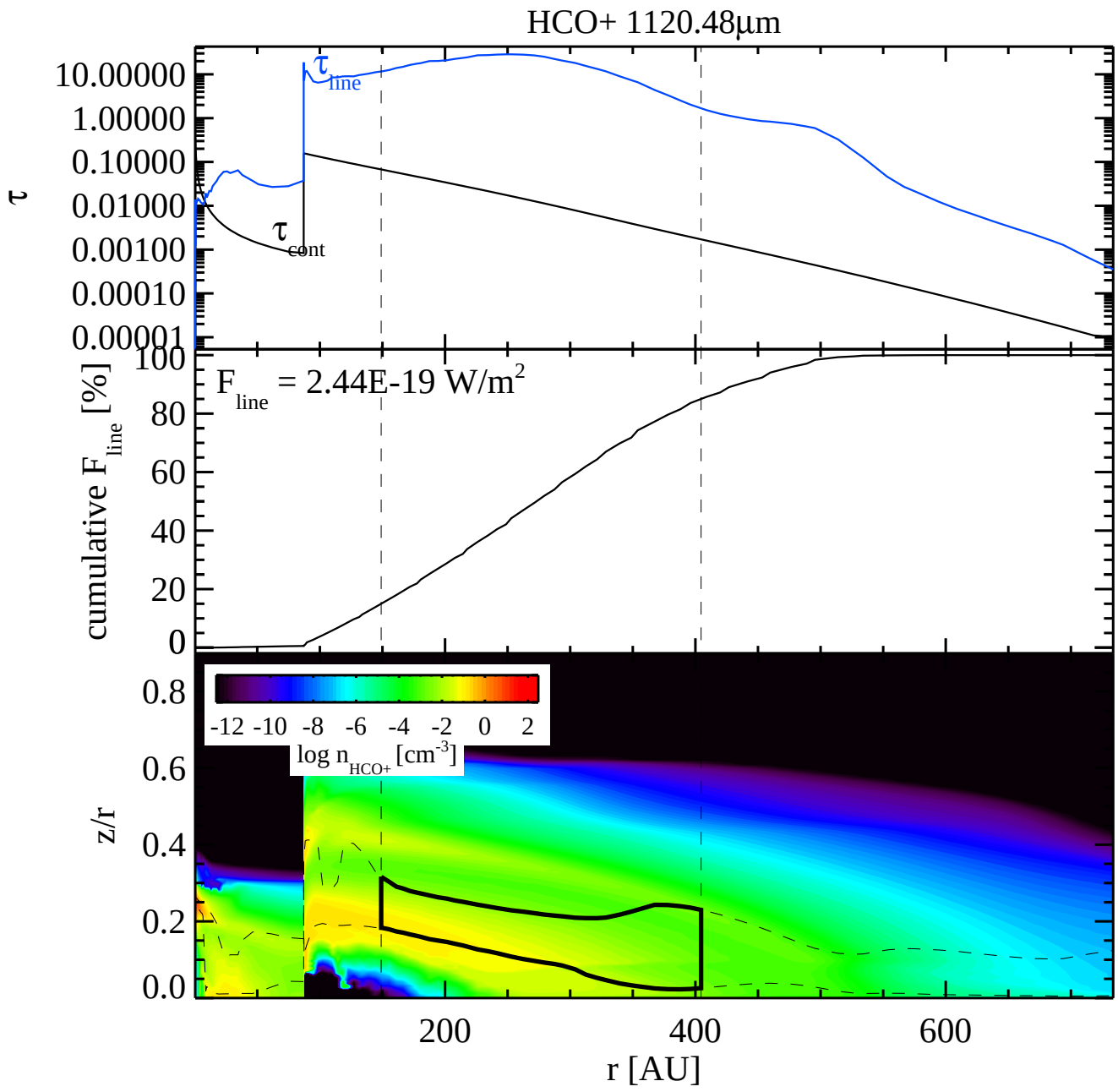

CN 1321.39µm
τ
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 8.26E-20 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-8 -6 -4 -2 0 2 4
log n_{CN} [cm^{-3}]
200
400
600
r [AU]

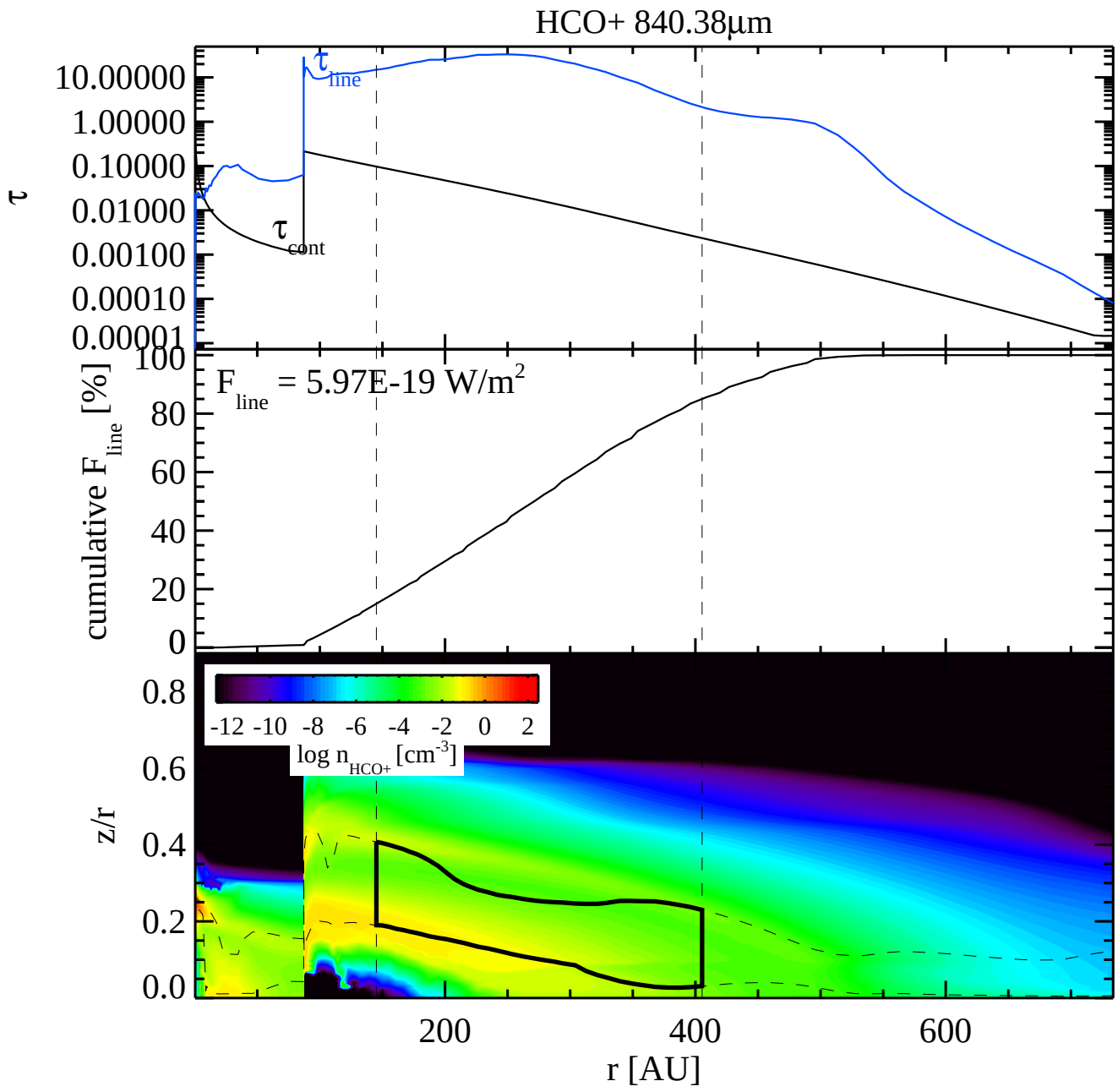

CN 528.78µm
τ
1.0000
0.1000
0.0100
0.0010
0.0001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 4.15E-19 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-8 -6 -4 -2 0 2 4
log n CN [cm-3]
200
400
600
r [AU]

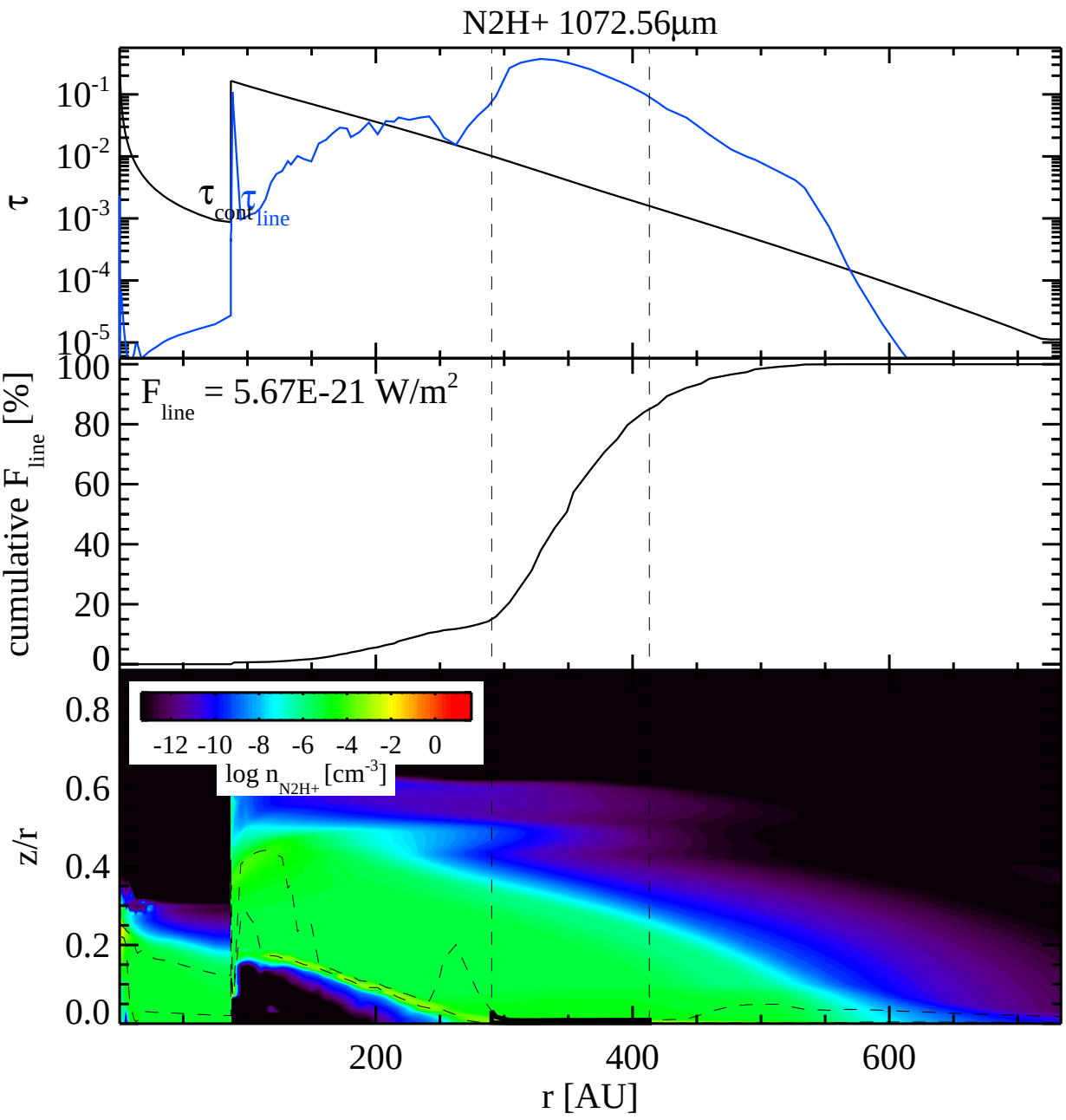

HCN 1127.52µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.41E-19 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n_{HCN} [cm^{-3}]
200
400
600
r [AU]

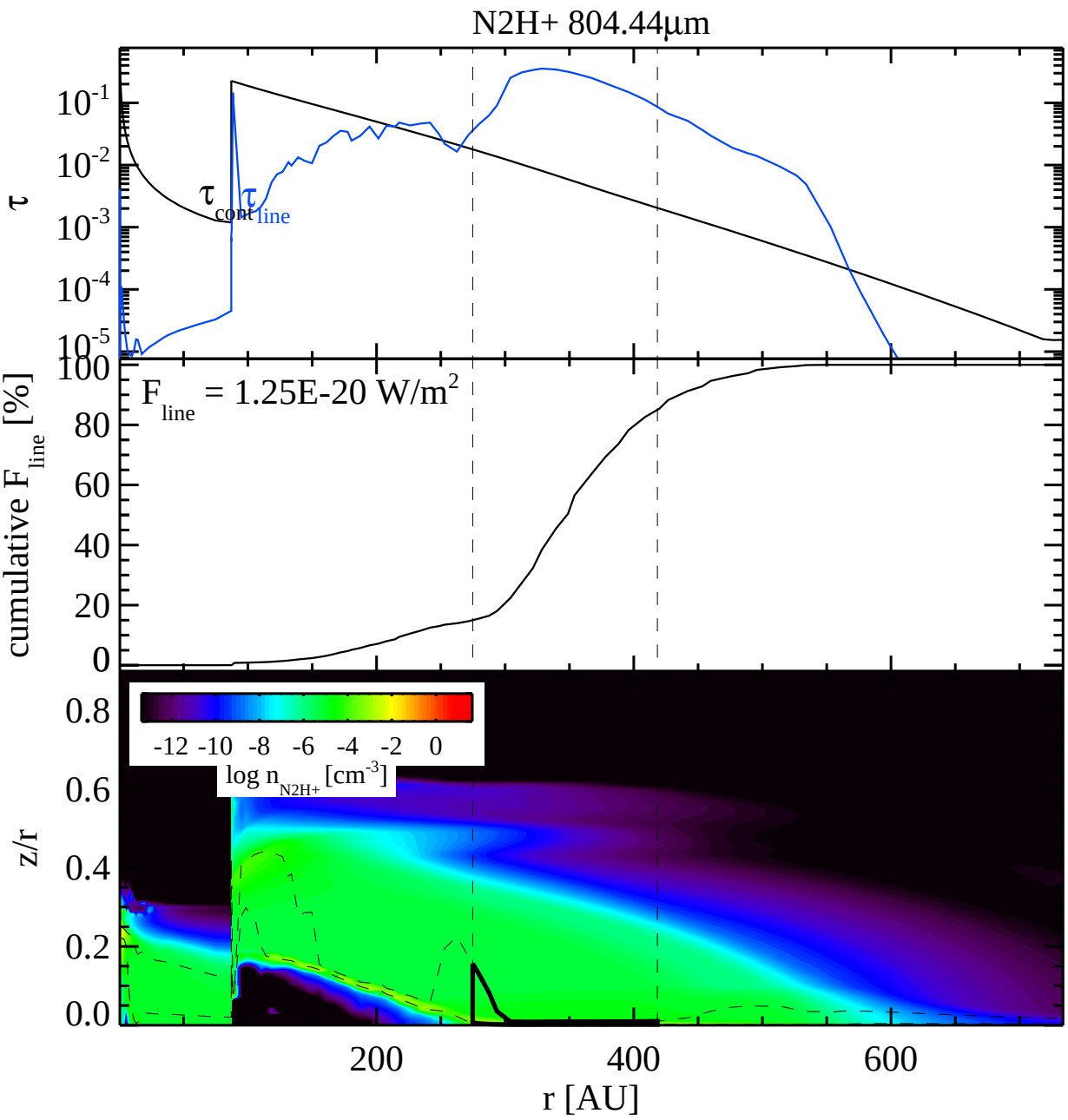

HCN 845.66µm
τ
10^4
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 2.95E-19 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-6 -4 -2 0 2 4 6
log n_{HCN} [cm^{-3}]
200
400
600
r [AU]

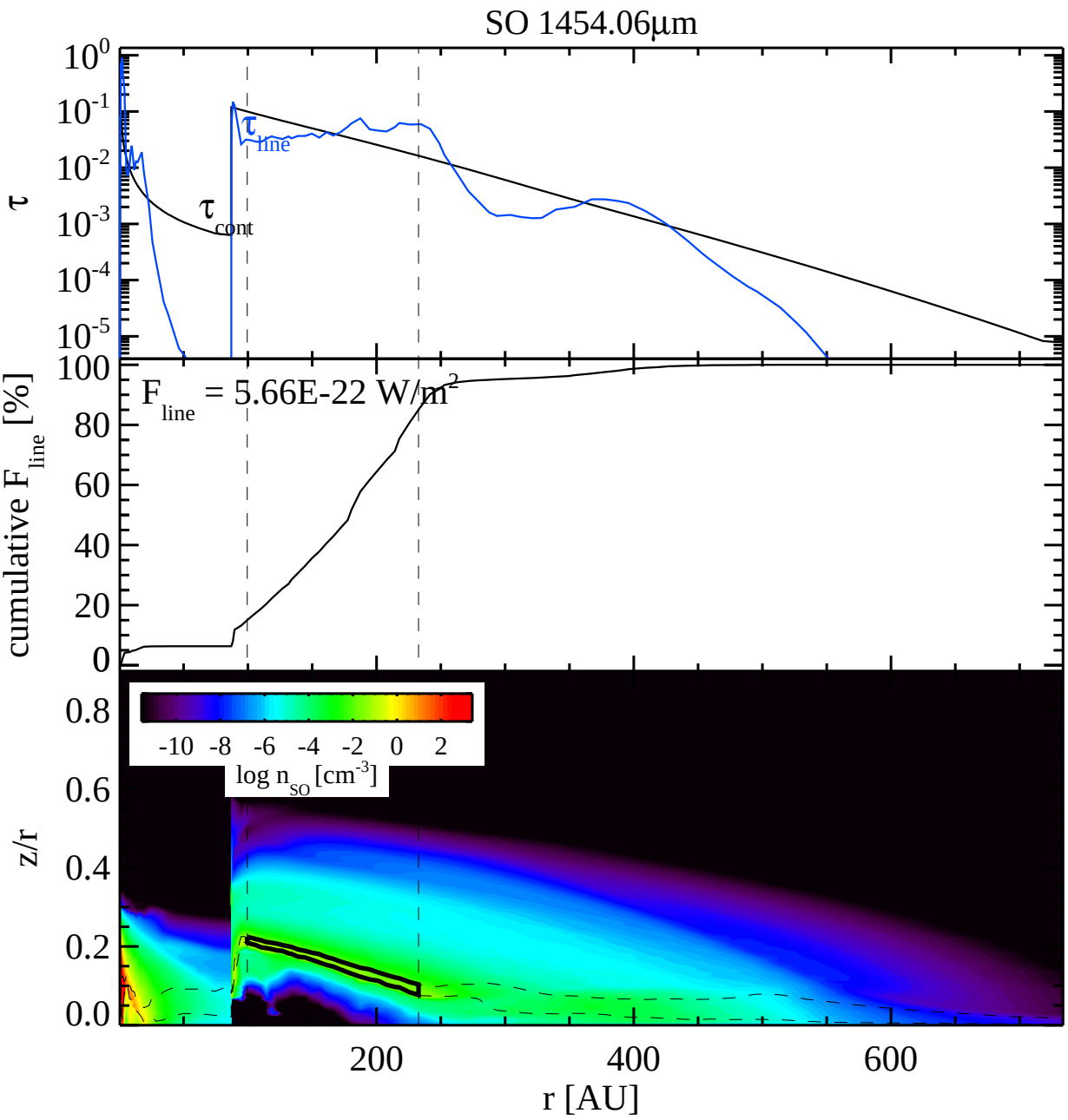

HCO+ 3361.33µm
τ
τ line
τ cont
cumulative F line [%]
F line = 4.12E-21 W/m2
log n HCO+ [cm-3]
z/r
r [AU]

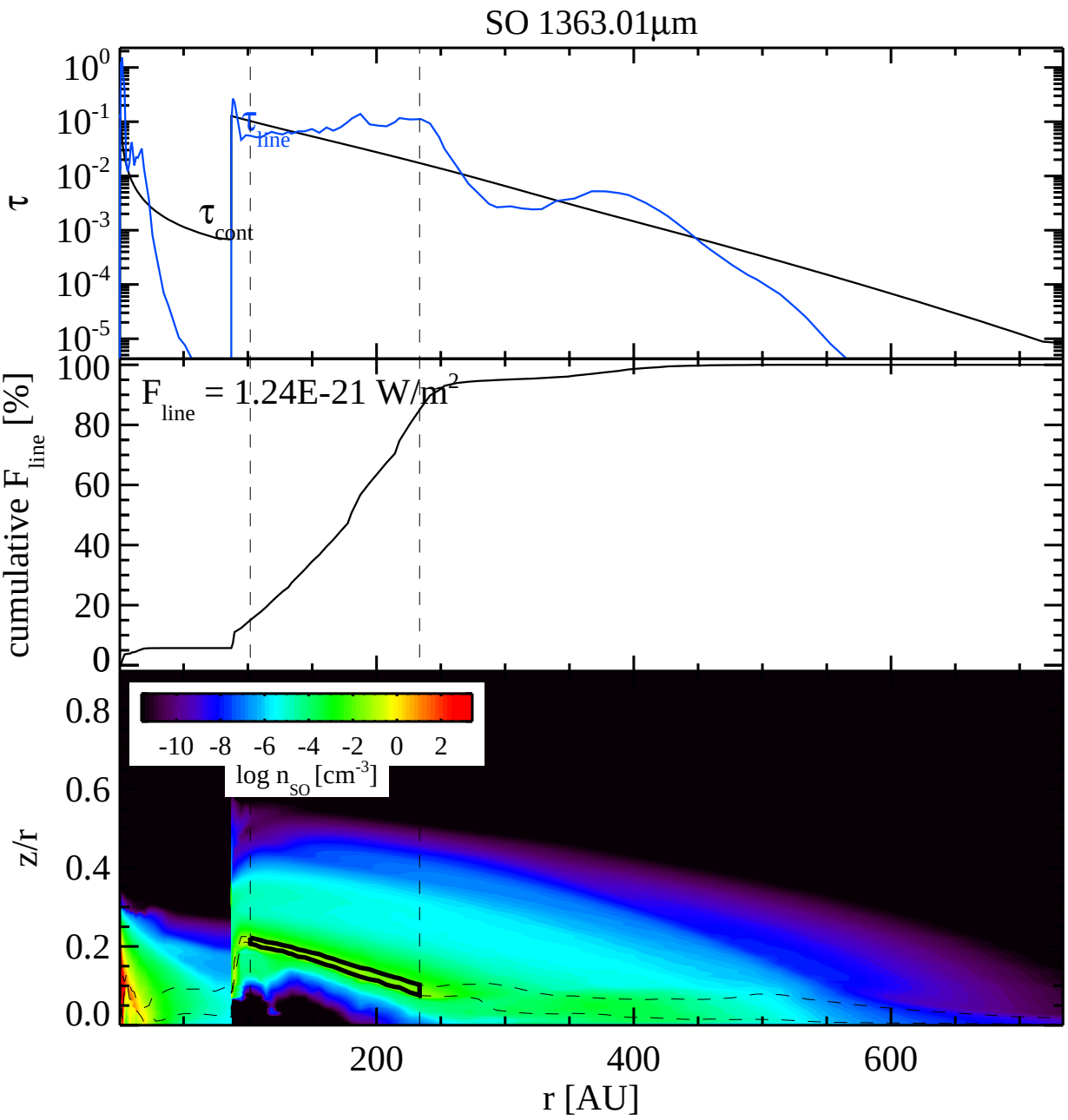

HCO+ 1120.48µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 2.44E-19 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-12 -10 -8 -6 -4 -2 0 2
log n HCO+ [cm-3]
200
400
600
r [AU]

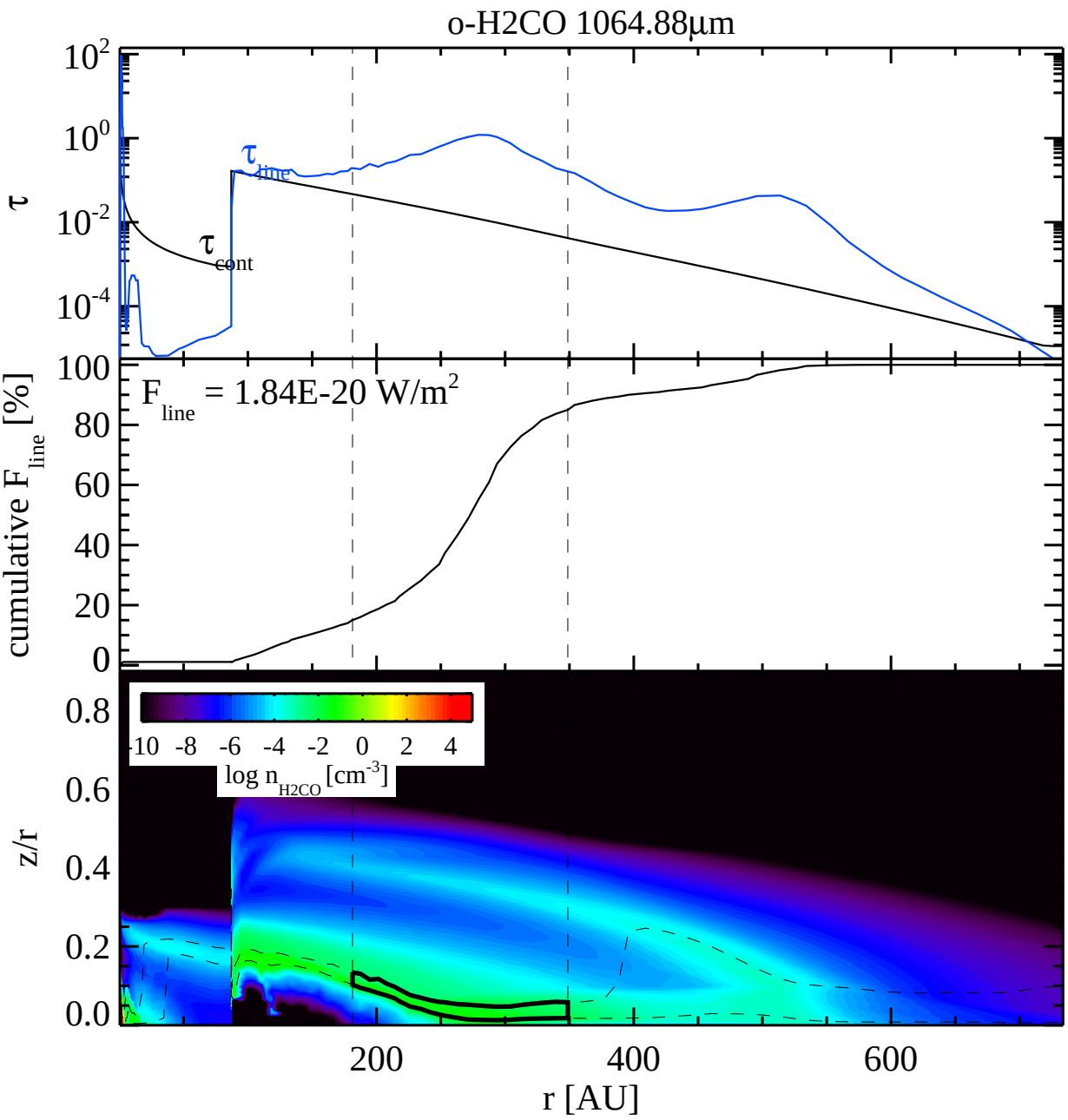

HCO+ 840.38µm
τ
10.00000
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
τ line
τ cont
cumulative F line [%]
100
80
60
40
20
0
F line = 5.97E-19 W/m2
z/r
0.8
0.6
0.4
0.2
0.0
-12 -10 -8 -6 -4 -2 0 2
log n HCO+ [cm-3]
200
400
600
r [AU]

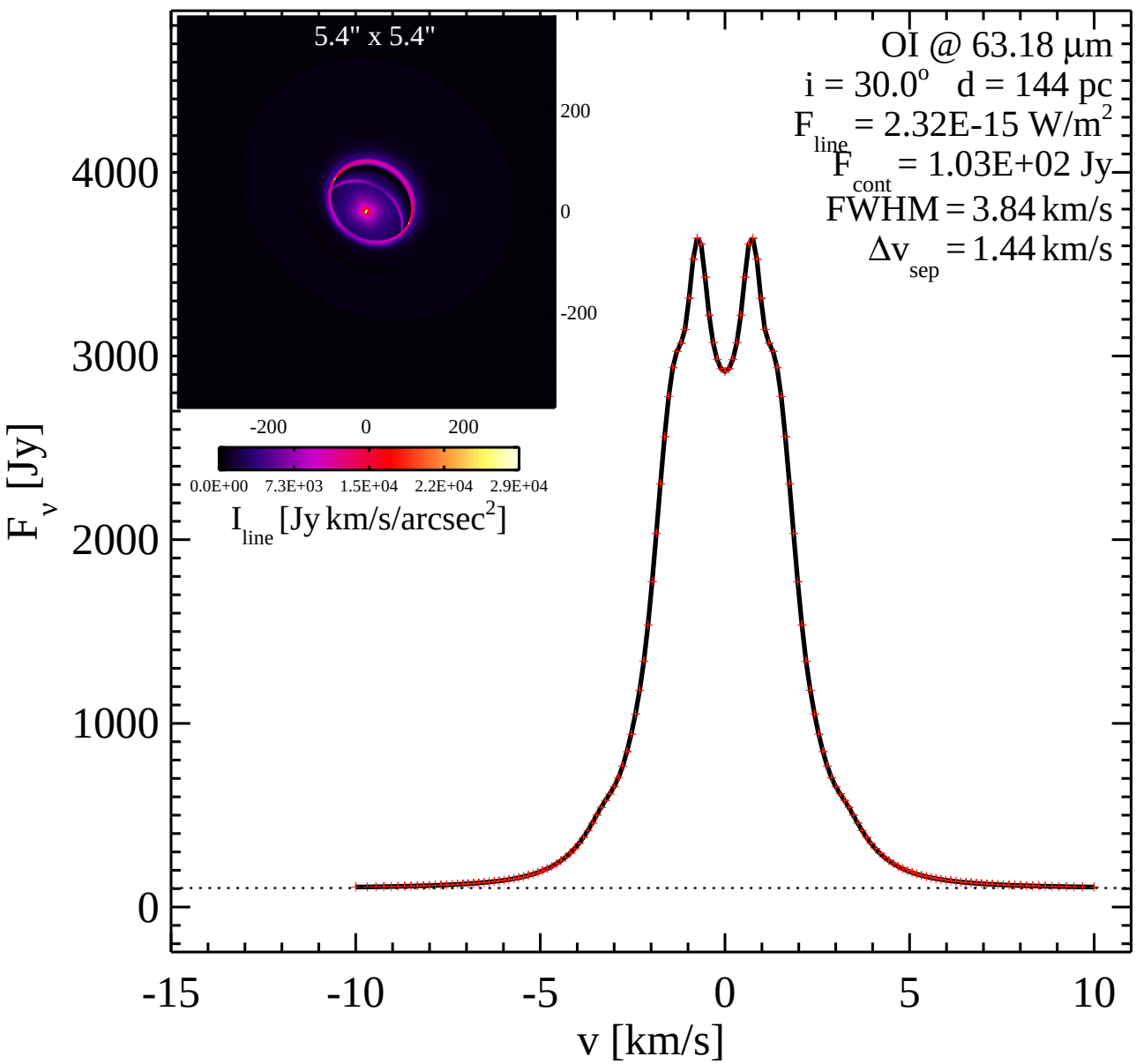

N2H+ 1072.56µm
τ
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 5.67E-21 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-12 -10 -8 -6 -4 -2 0
log n_{N2H+} [cm^{-3}]
200
400
600
r [AU]

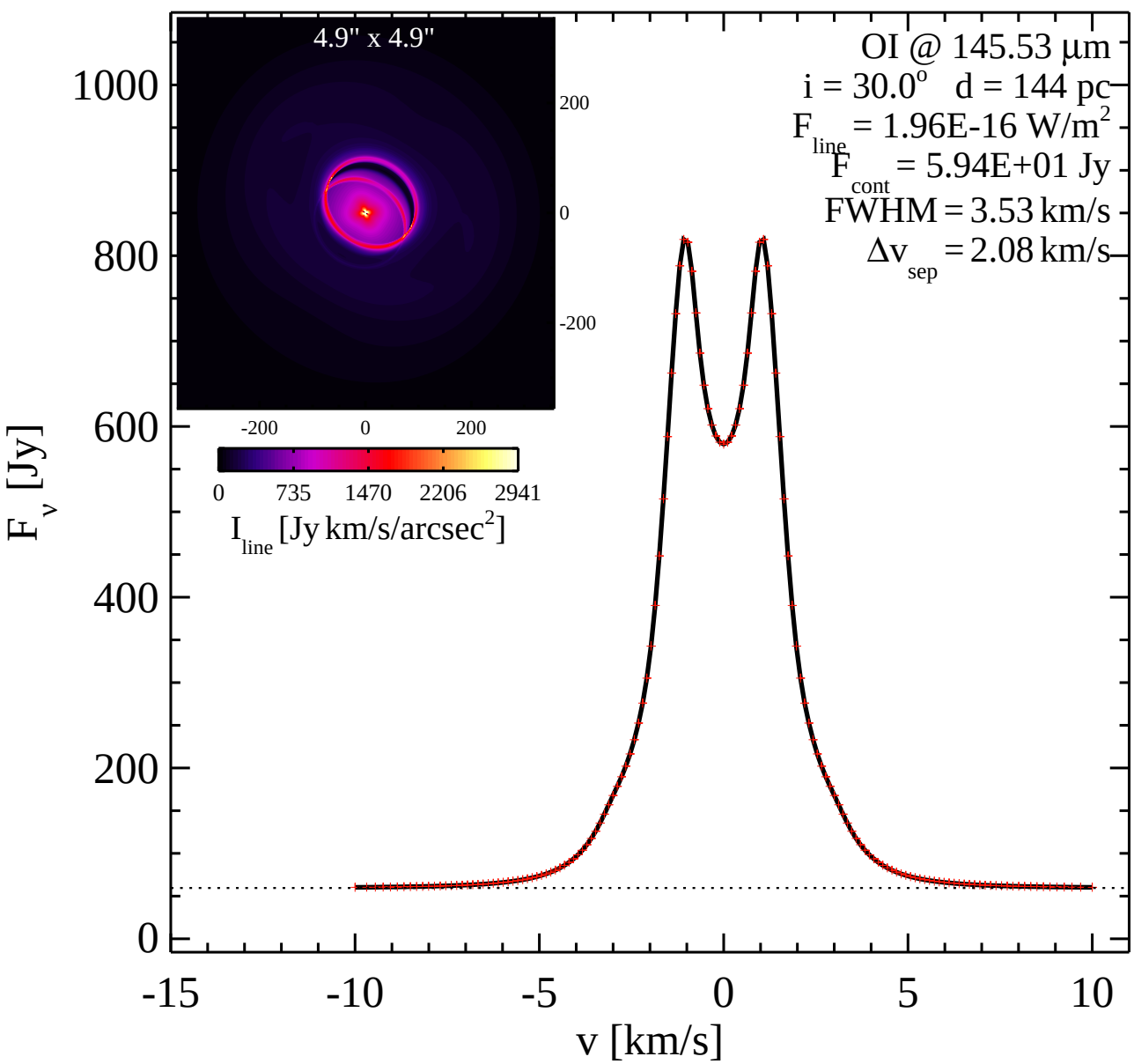

N2H+ 804.44μm
τ
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
τ_{cont}
τ_{line}
cumulative F_{line} [%]
F_{line} = 1.25E-20 W/m^2
100
80
60
40
20
0
z/r
0.8
0.6
0.4
0.2
0.0
-12 -10 -8 -6 -4 -2 0
log n_{N2H+} [cm^{-3}]
200
400
600
r [AU]

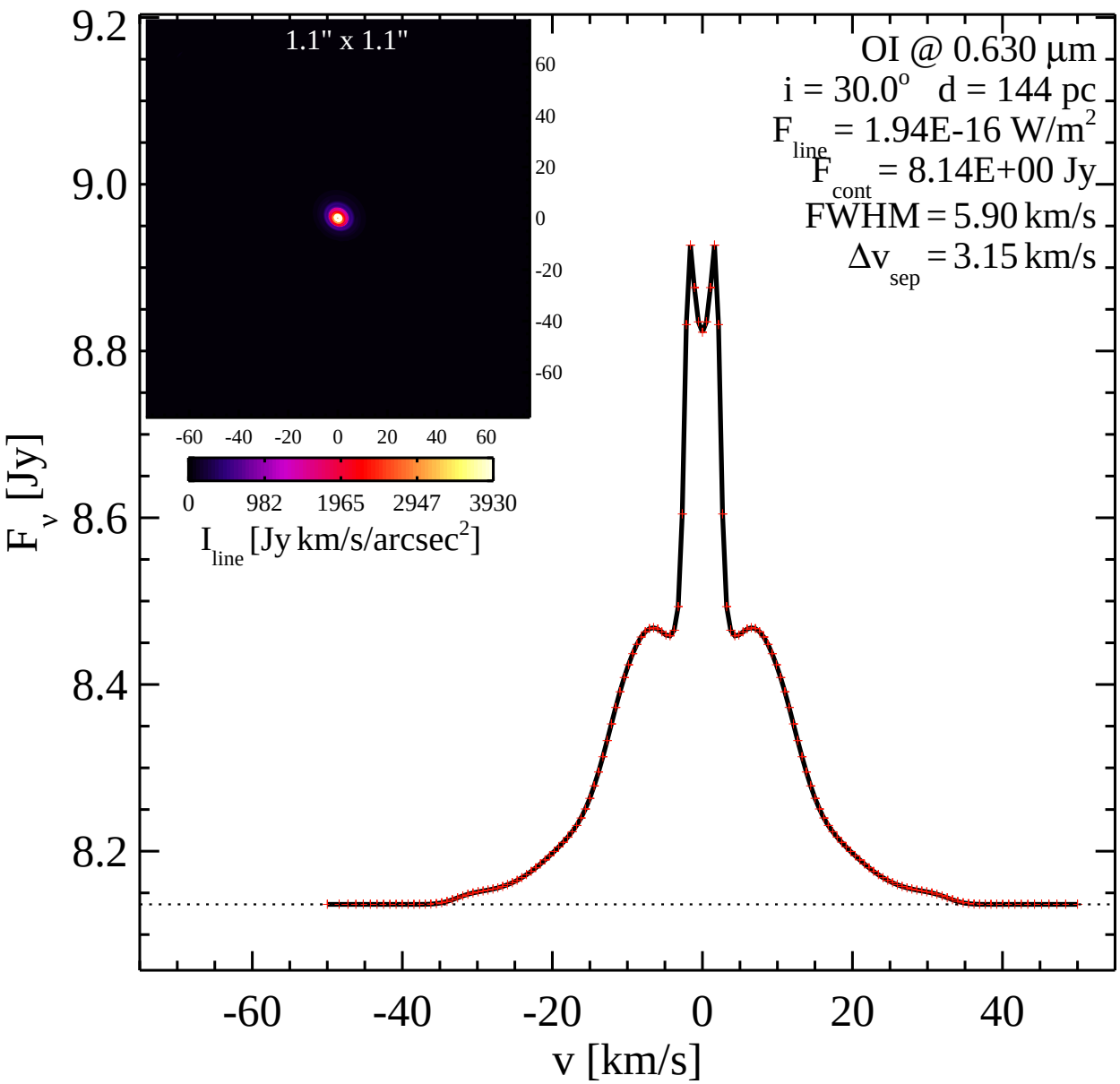

SO 1454.06µm
τ
τ line
τ cont
cumulative F line [%]
F line = 5.66E-22 W/m2
log n SO [cm-3]
z/r
r [AU]

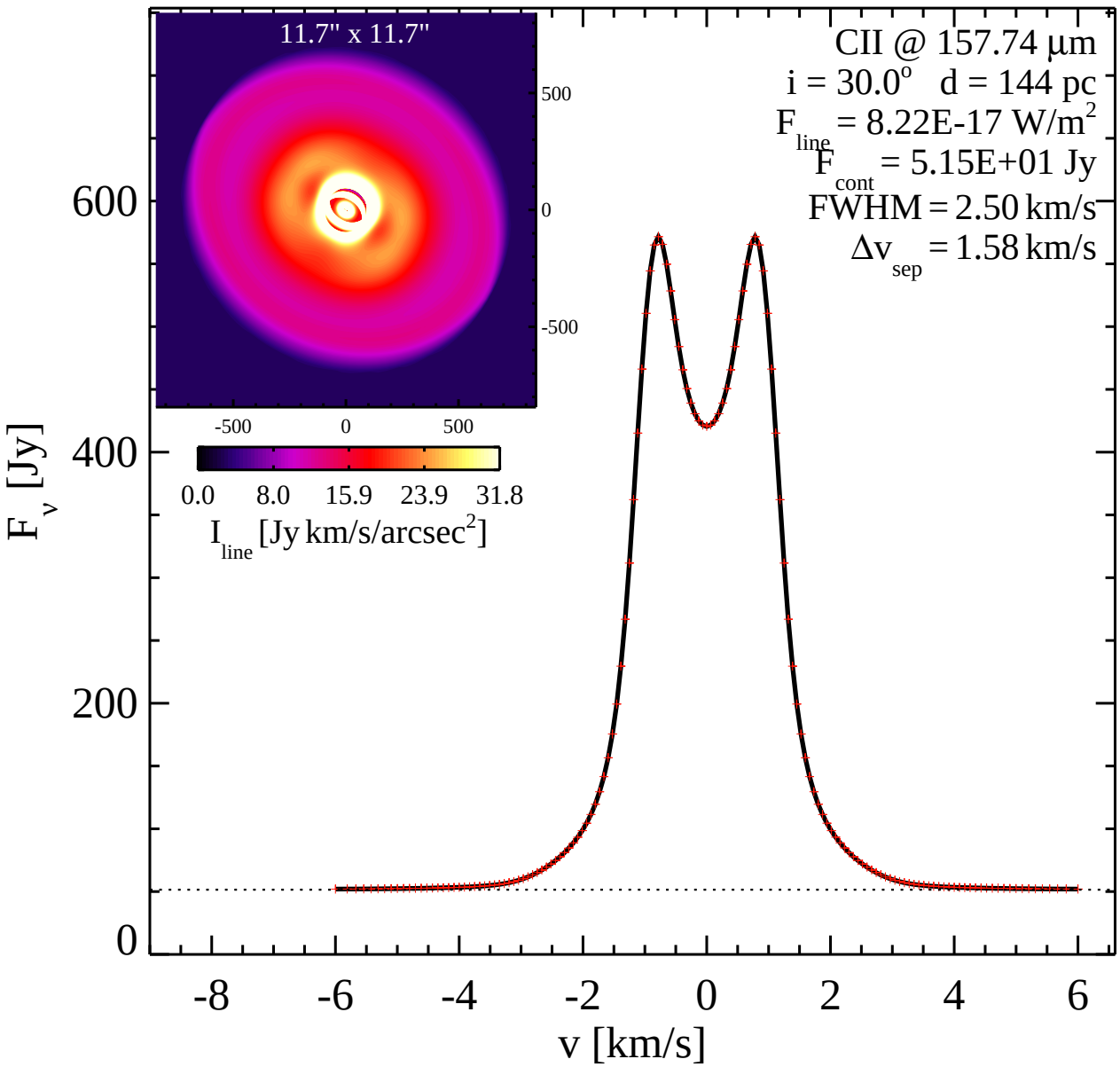

SO 1363.01µm
τ
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.24E-21 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-10 -8 -6 -4 -2 0 2
log n_{SO} [cm^{-3}]
200
400
600
r [AU]

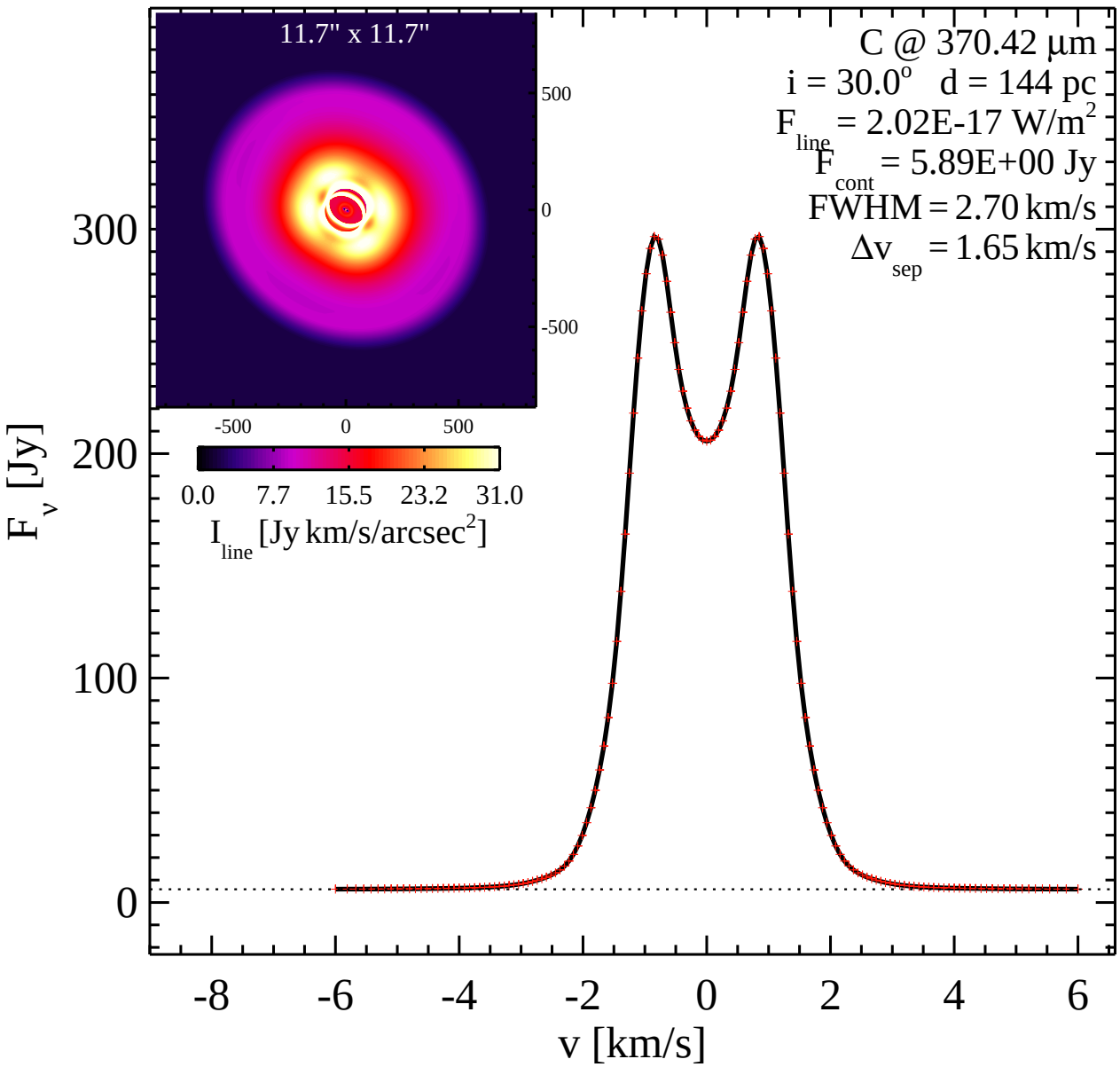

o-H2CO 1064.88µm
τ
10^2
10^0
10^{-2}
10^{-4}
τ_{line}
τ_{cont}
cumulative F_{line} [%]
100
80
60
40
20
0
F_{line} = 1.84E-20 W/m^2
z/r
0.8
0.6
0.4
0.2
0.0
-10 -8 -6 -4 -2 0 2 4
log n_{H2CO} [cm^{-3}]
200
400
600
r [AU]

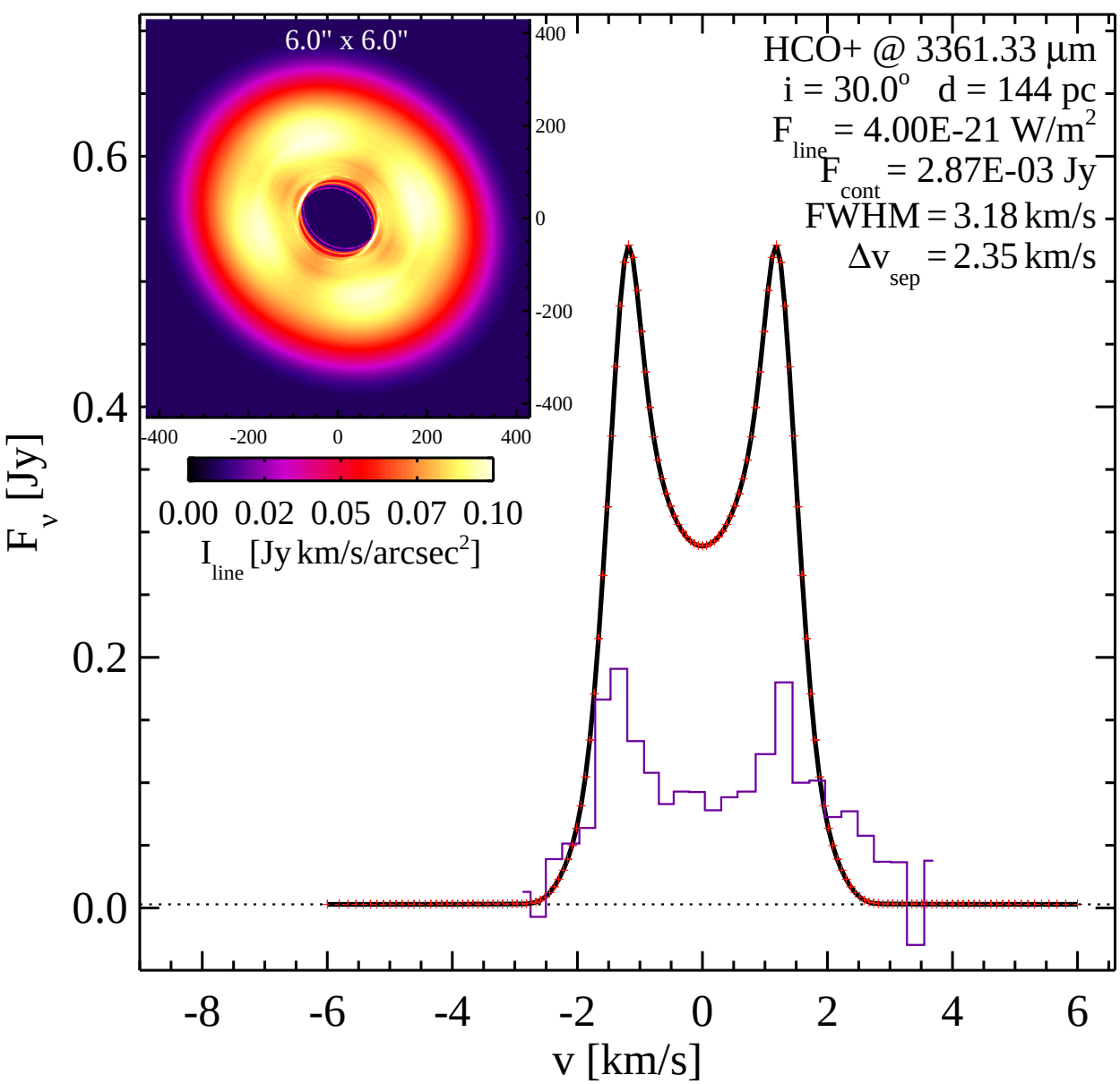

5.4" x 5.4"
200
0
-200
-200
0
200
0.0E+00
7.3E+03
1.5E+04
2.2E+04
2.9E+04
I line [Jy km/s/arcsec2]
OI @ 63.18 µm
i = 30.0o d = 144 pc
F line = 2.32E-15 W/m2
F cont = 1.03E+02 Jy
FWHM = 3.84 km/s
Δv sep = 1.44 km/s
F v [Jy]
4000
3000
2000
1000
0
-15
-10
-5
0
5
10
v [km/s]

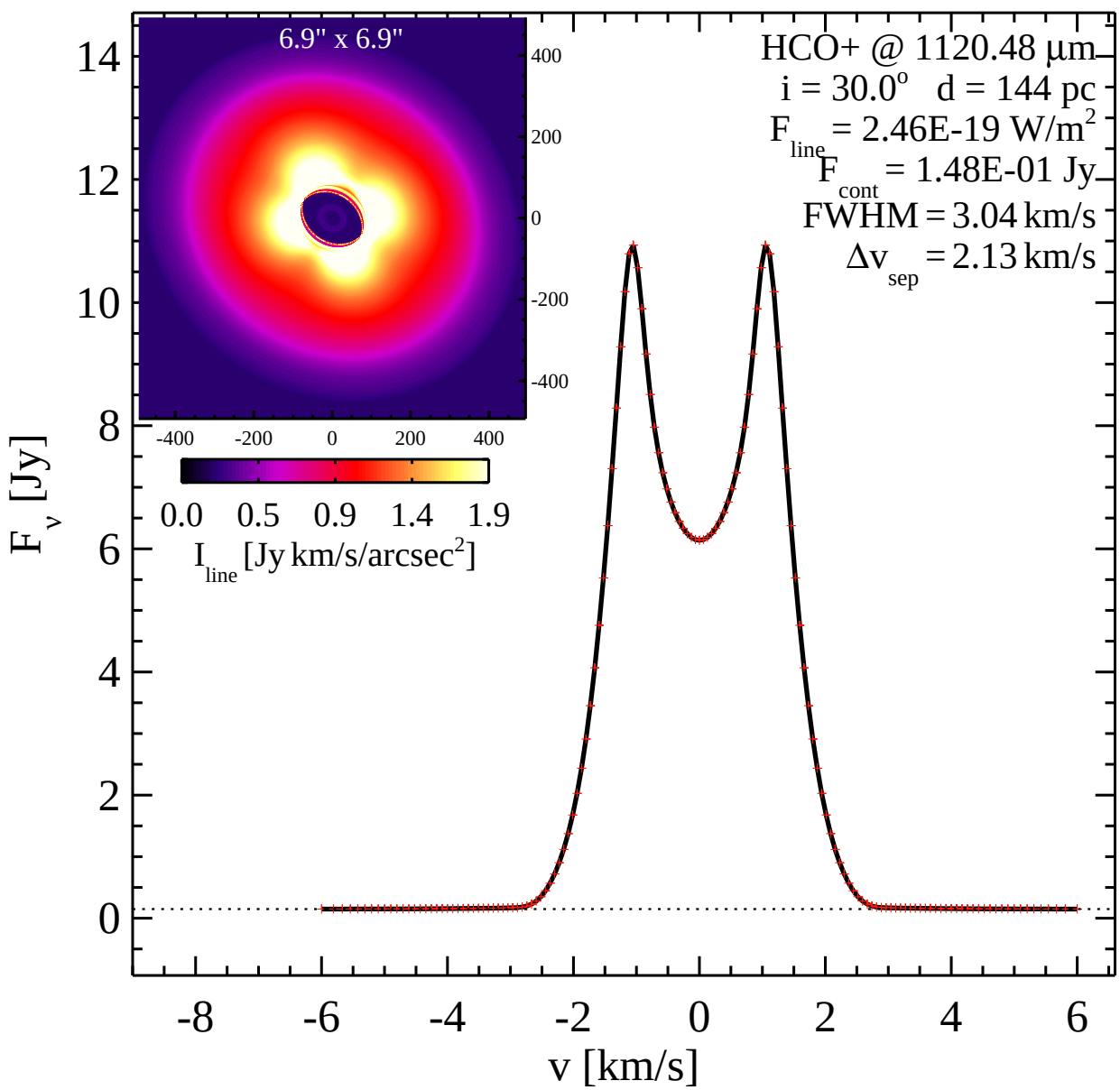

4.9" x 4.9"
200
0
-200
-200
0
200
0
735
1470
2206
2941
I line [Jy km/s/arcsec2]
OI @ 145.53 µm
i = 30.0o d = 144 pc
F line = 1.96E-16 W/m2
F cont = 5.94E+01 Jy
FWHM = 3.53 km/s
Δv sep = 2.08 km/s
F v [Jy]
1000
800
600
400
200
0
-15
-10
-5
0
5
10
v [km/s]

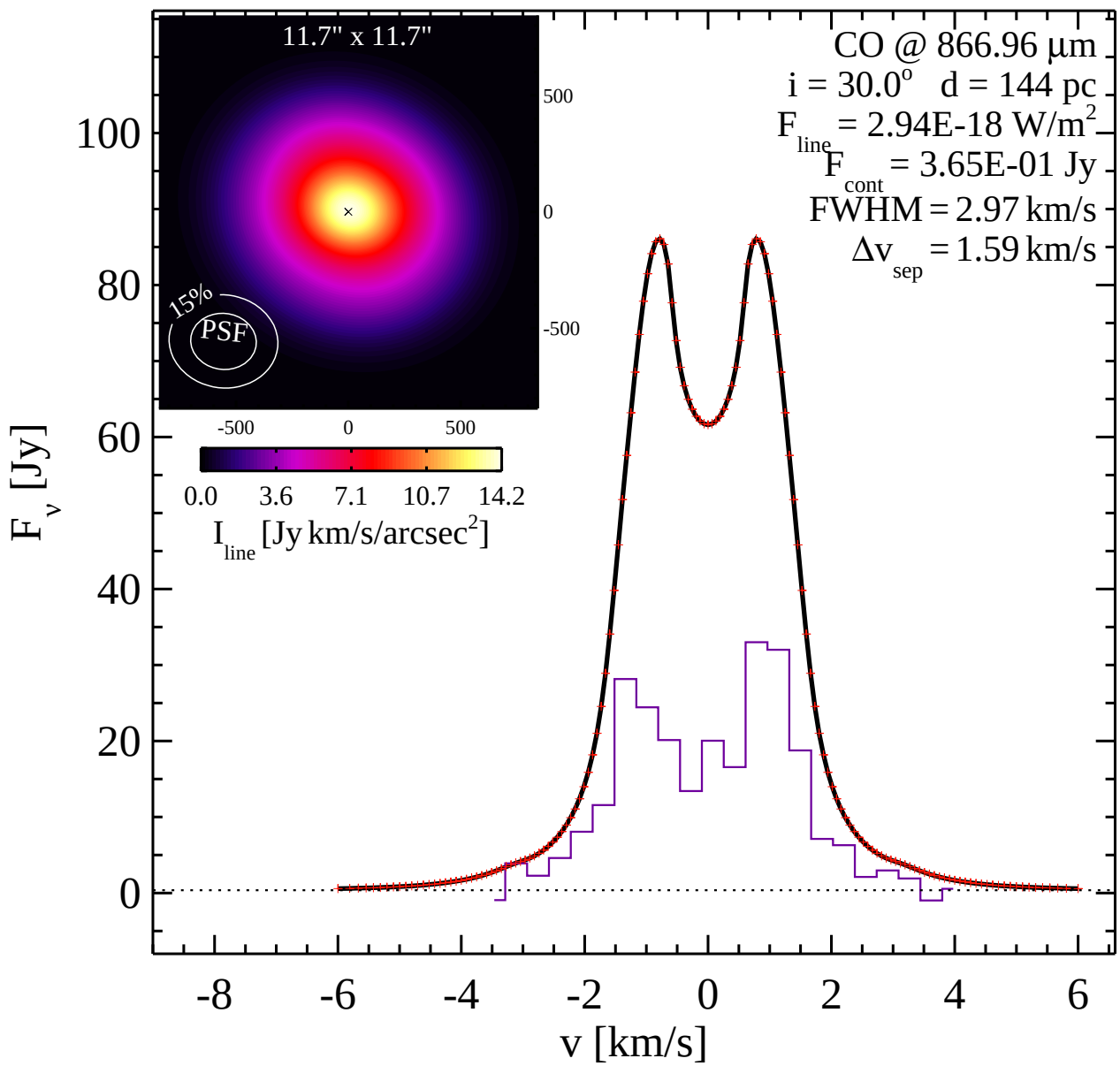

1.1" x 1.1"
60
40
20
0
-20
-40
-60
-60 -40 -20 0 20 40 60
0 982 1965 2947 3930
I line [Jy km/s/arcsec2]
OI @ 0.630 µm
i = 30.0o d = 144 pc
F line = 1.94E-16 W/m2
F cont = 8.14E+00 Jy
FWHM = 5.90 km/s
Δv sep = 3.15 km/s
F v [Jy]
9.2
9.0
8.8
8.6
8.4
8.2
-60 -40 -20 0 20 40
v [km/s]

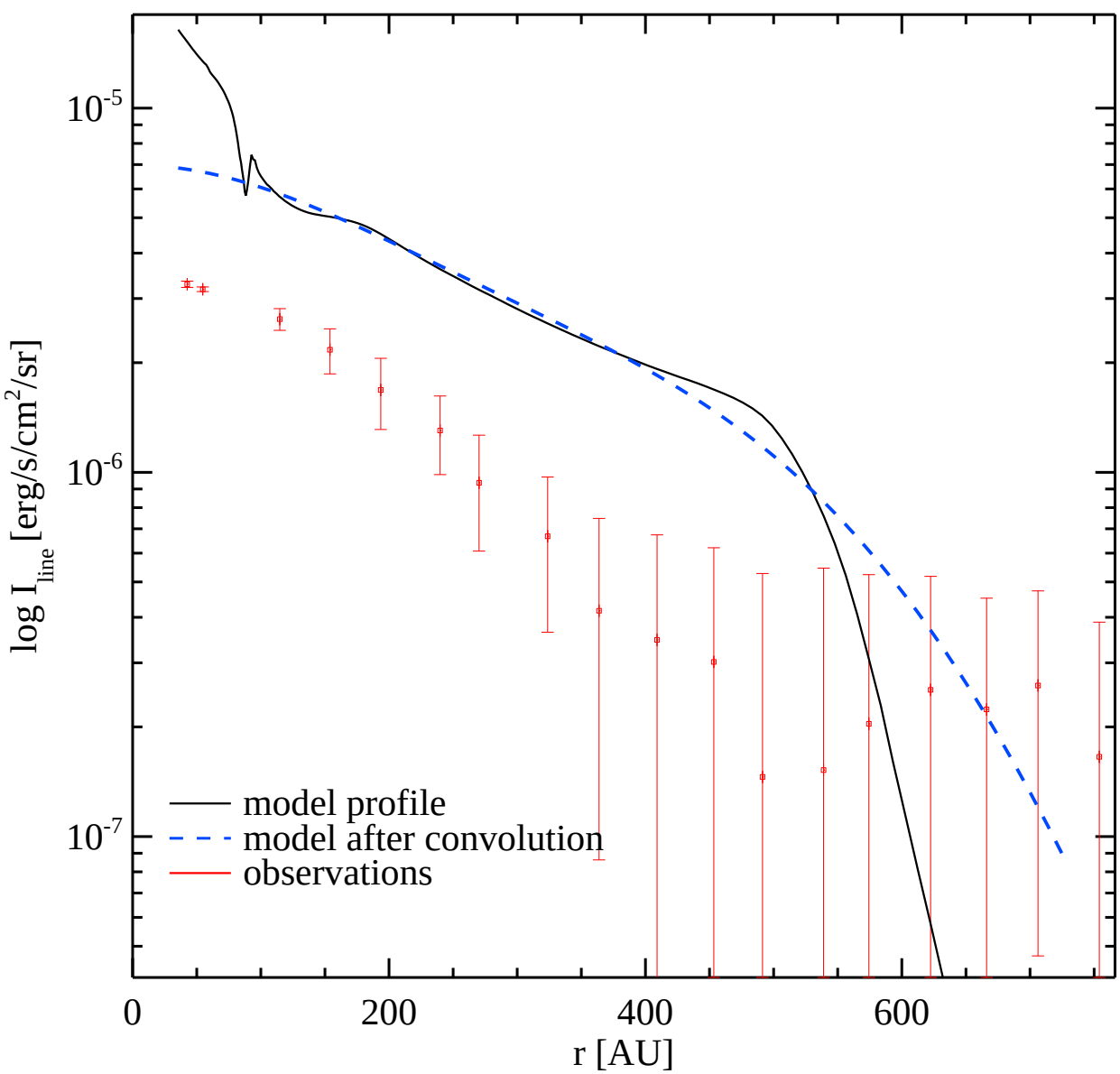

11.7" x 11.7"
500
0
-500
-500
0
500
0.0
8.0
15.9
23.9
31.8
I line [Jy km/s/arcsec2]
CII @ 157.74 µm
i = 30.0o d = 144 pc
F line = 8.22E-17 W/m2
F cont = 5.15E+01 Jy
FWHM = 2.50 km/s
Δv sep = 1.58 km/s
F v [Jy]
600
400
200
0
-8
-6
-4
-2
0
2
4
6
v [km/s]

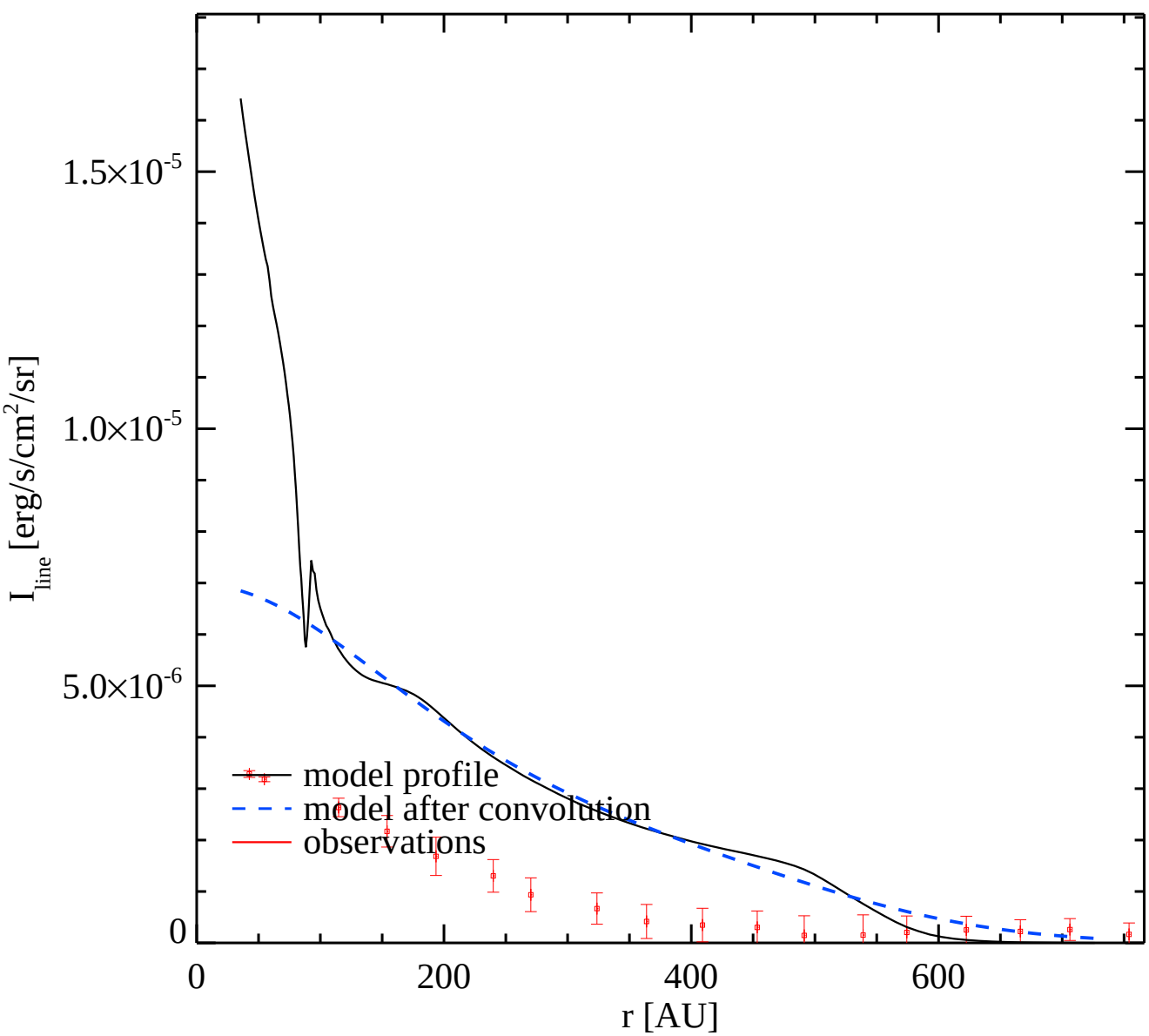

11.7" x 11.7"
500
0
-500
-500
0
500
0.0
7.7
15.5
23.2
31.0
I line [Jy km/s/arcsec2]
C @ 370.42 µm
i = 30.0o d = 144 pc
F line = 2.02E-17 W/m2
F cont = 5.89E+00 Jy
FWHM = 2.70 km/s
Δv sep = 1.65 km/s
F v [Jy]
300
200
100
0
-8
-6
-4
-2
0
2
4
6
v [km/s]

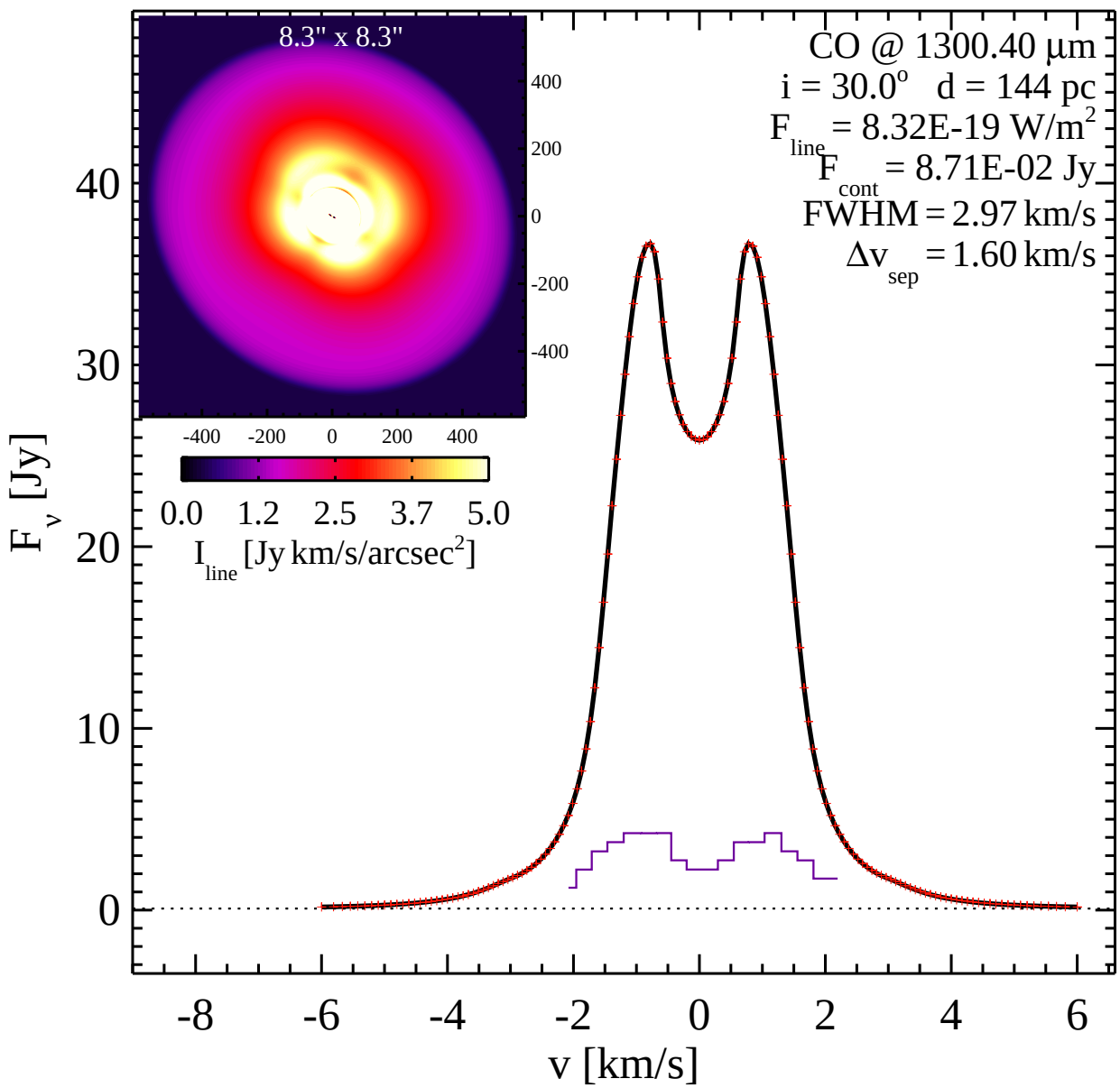

6.0" x 6.0"
HCO+ @ 3361.33 µm
i = 30.0° d = 144 pc
F line = 4.00E-21 W/m2
F cont = 2.87E-03 Jy
FWHM = 3.18 km/s
Δv sep = 2.35 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0.00 0.02 0.05 0.07 0.10

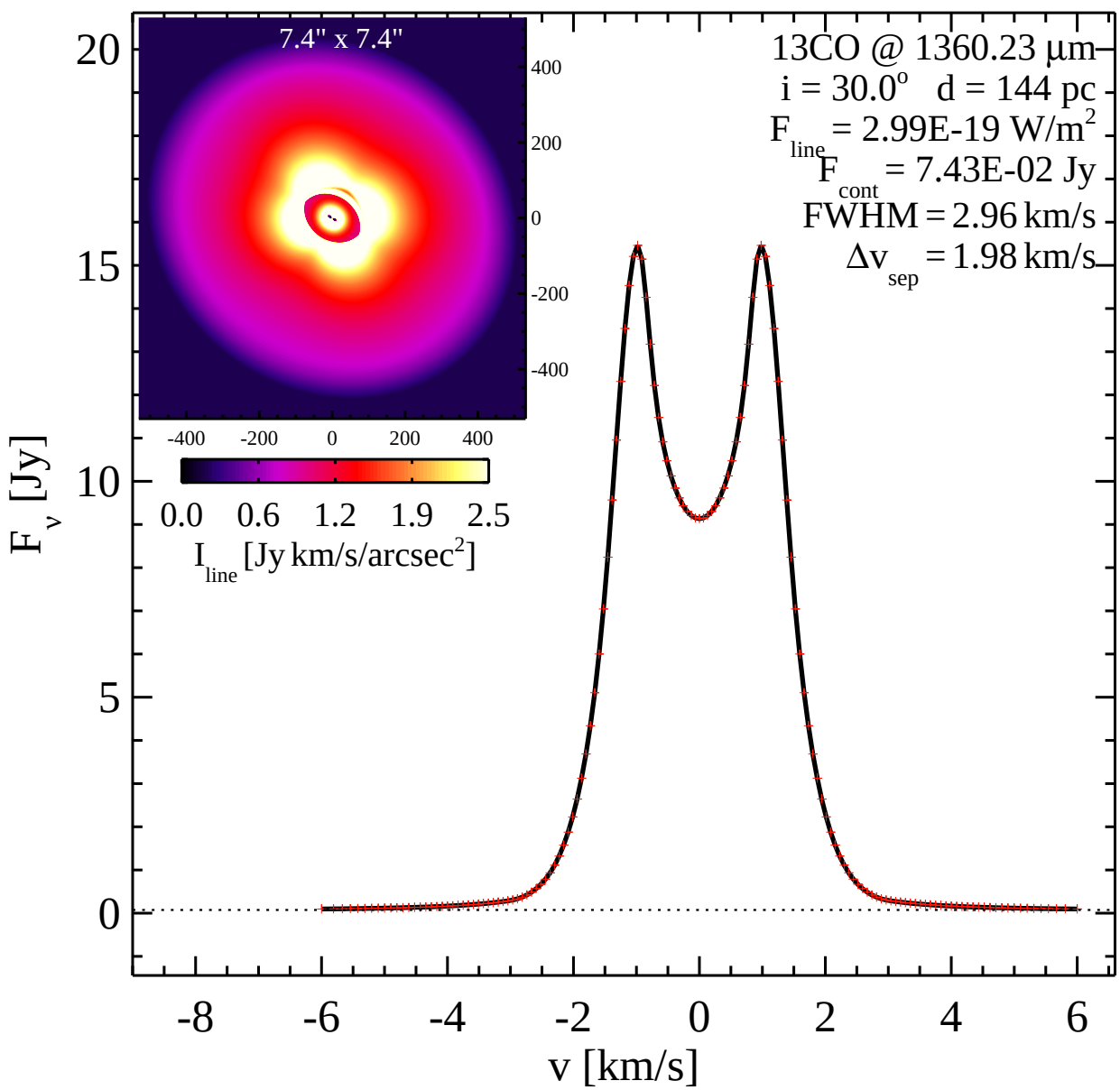

6.9" x 6.9"
HCO+ @ 1120.48 µm
i = 30.0° d = 144 pc
F line = 2.46E-19 W/m2
F cont = 1.48E-01 Jy
FWHM = 3.04 km/s
Δv sep = 2.13 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0.0 0.5 0.9 1.4 1.9

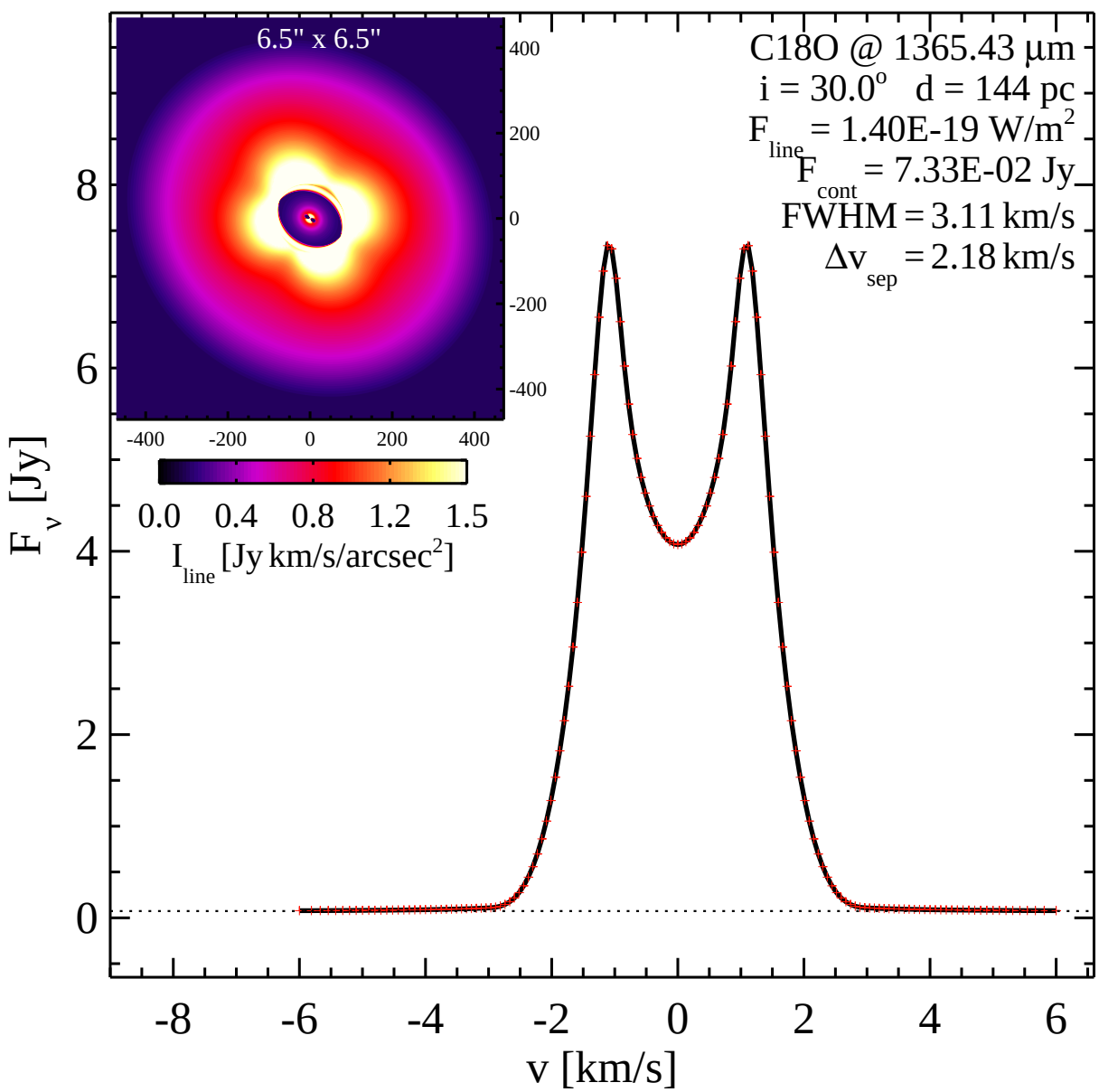

11.7" x 11.7"
500
0
-500
15%
PSF
-500
0
500
0.0
3.6
7.1
10.7
14.2
I line [Jy km/s/arcsec2]
CO @ 866.96 µm
i = 30.0o d = 144 pc
F line = 2.94E-18 W/m2
F cont = 3.65E-01 Jy
FWHM = 2.97 km/s
Δv sep = 1.59 km/s
F v [Jy]
v [km/s]
100
80
60
40
20
0
-8
-6
-4
-2
0
2
4
6

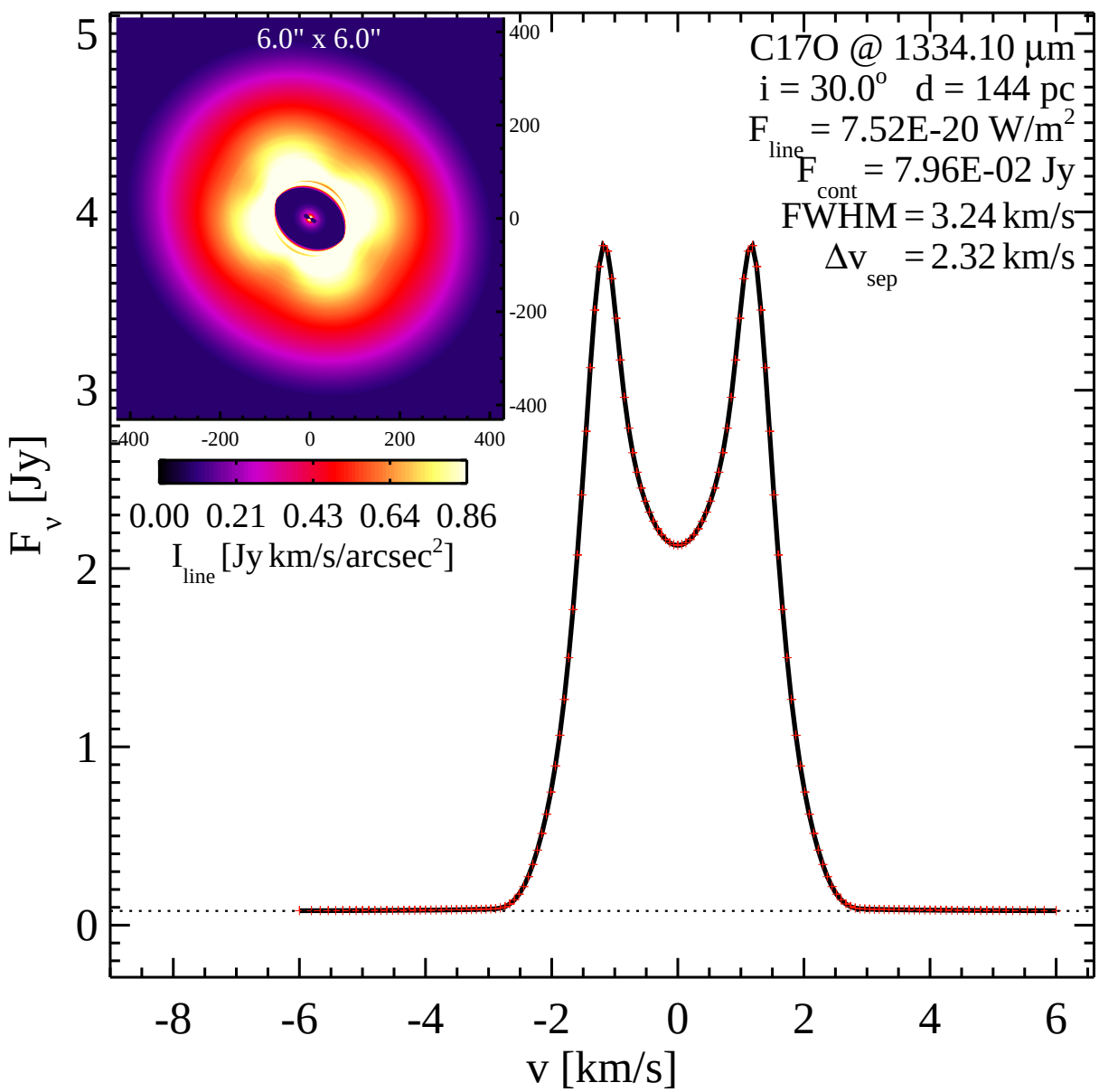

10^-5
10^-6
10^-7
log I_line [erg/s/cm^2/sr]
0
200
400
600
r [AU]
model profile
model after convolution
observations

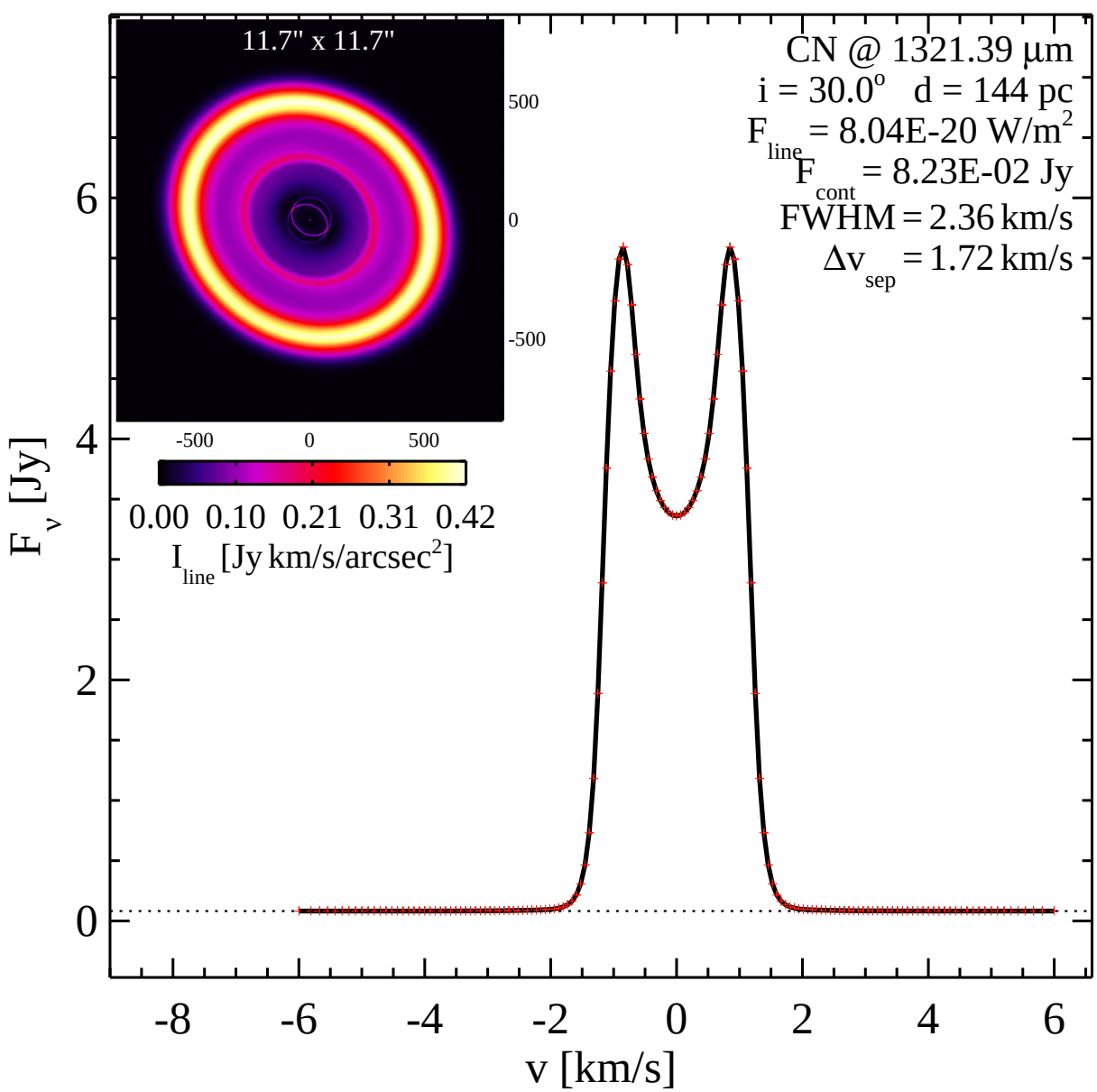

1.5×10-5
1.0×10-5
5.0×10-6
0
I line [erg/s/cm2/sr]
0
200
400
600
r [AU]
model profile
model after convolution
observations

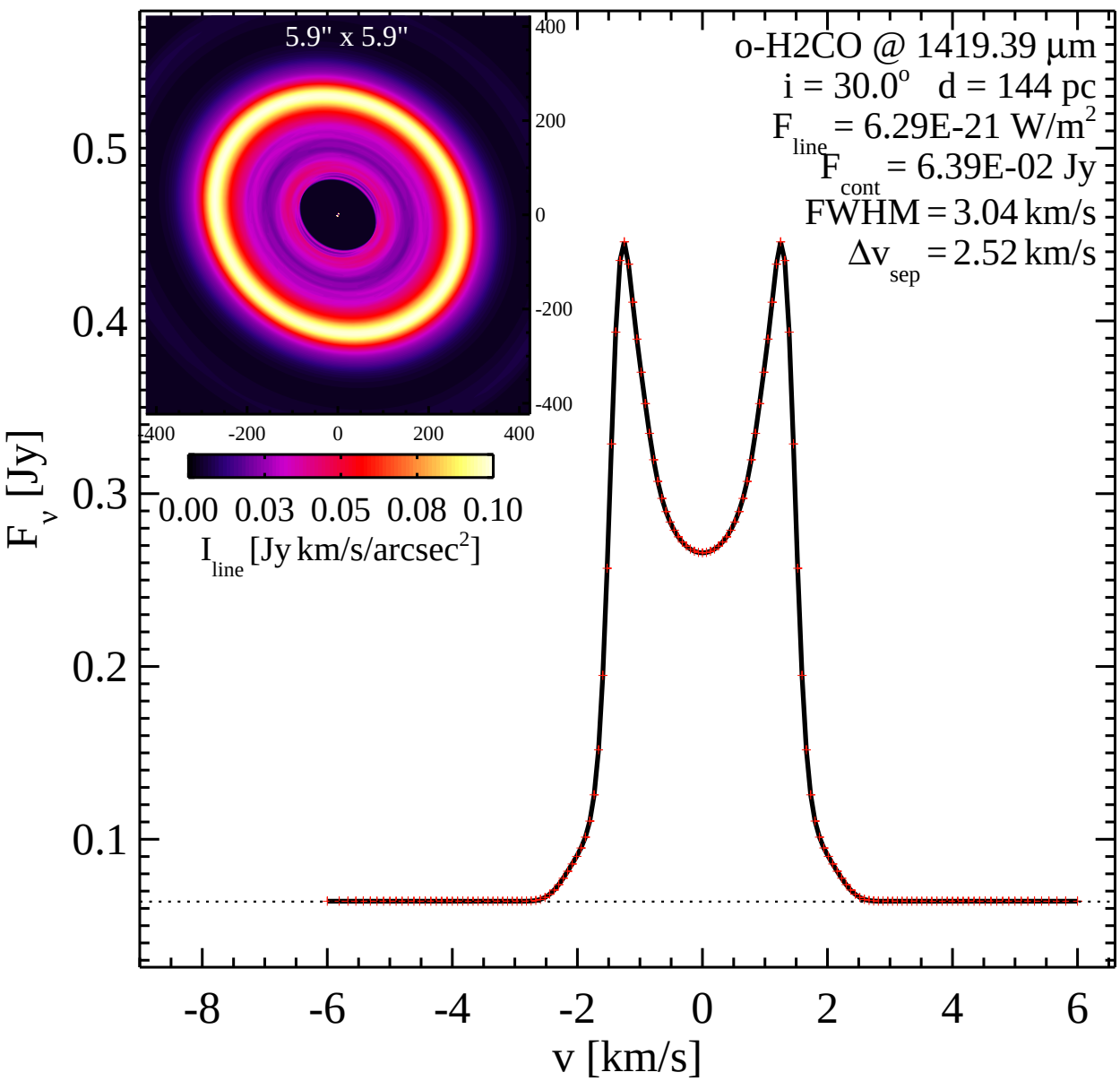

8.3" x 8.3"
400
200
0
-200
-400
-400 -200 0 200 400
0.0 1.2 2.5 3.7 5.0
I line [Jy km/s/arcsec2]
CO @ 1300.40 µm
i = 30.0o d = 144 pc
F line = 8.32E-19 W/m2
F cont = 8.71E-02 Jy
FWHM = 2.97 km/s
Δv sep = 1.60 km/s
F v [Jy]
40
30
20
10
0
-8 -6 -4 -2 0 2 4 6
v [km/s]

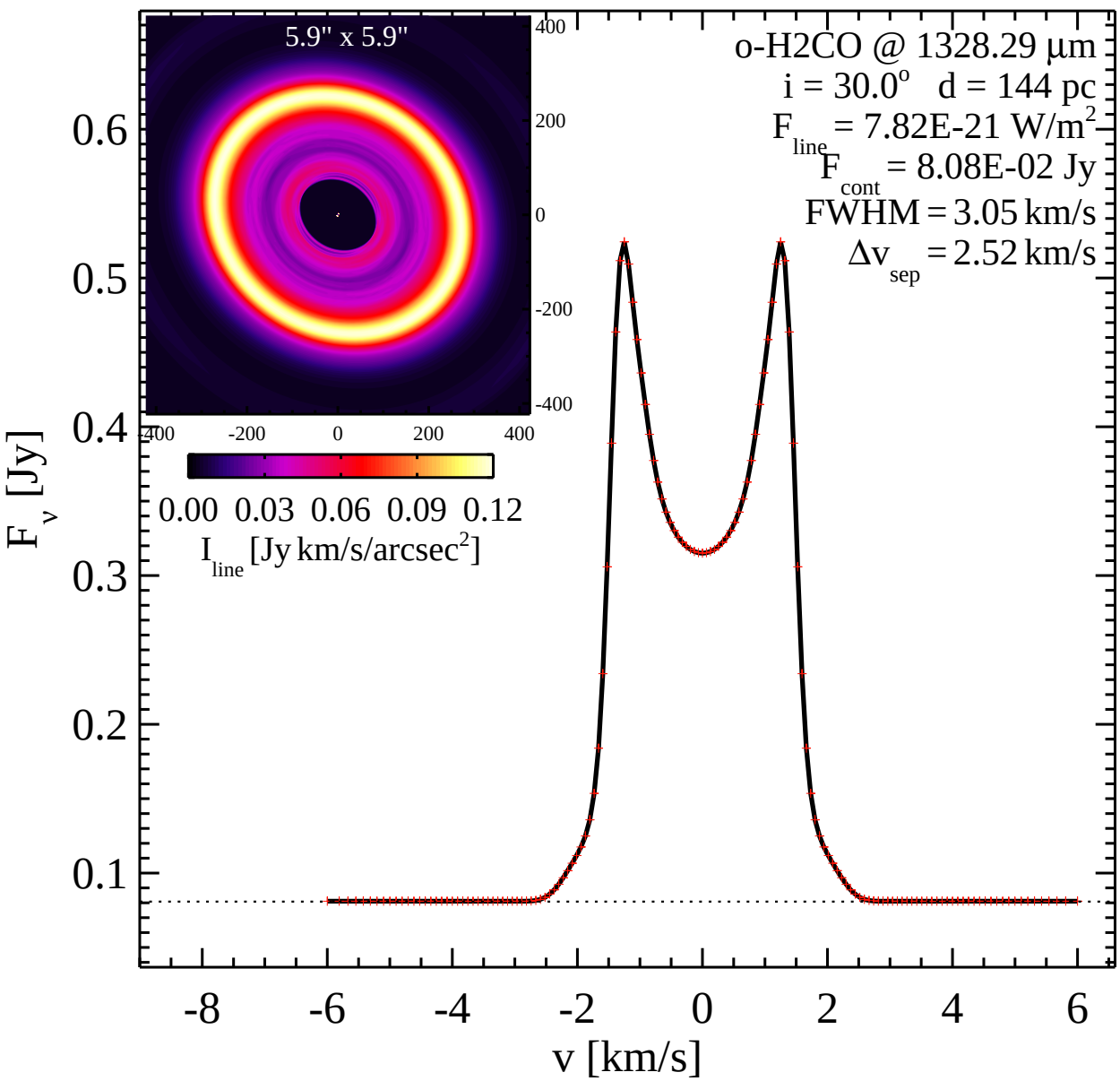

7.4" x 7.4"
13CO @ 1360.23 µm
i = 30.0° d = 144 pc
F line = 2.99E-19 W/m2
F cont = 7.43E-02 Jy
FWHM = 2.96 km/s
Δv sep = 1.98 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0.0 0.6 1.2 1.9 2.5
-400 -200 0 200 400
20 15 10 5 0
-8 -6 -4 -2 0 2 4 6

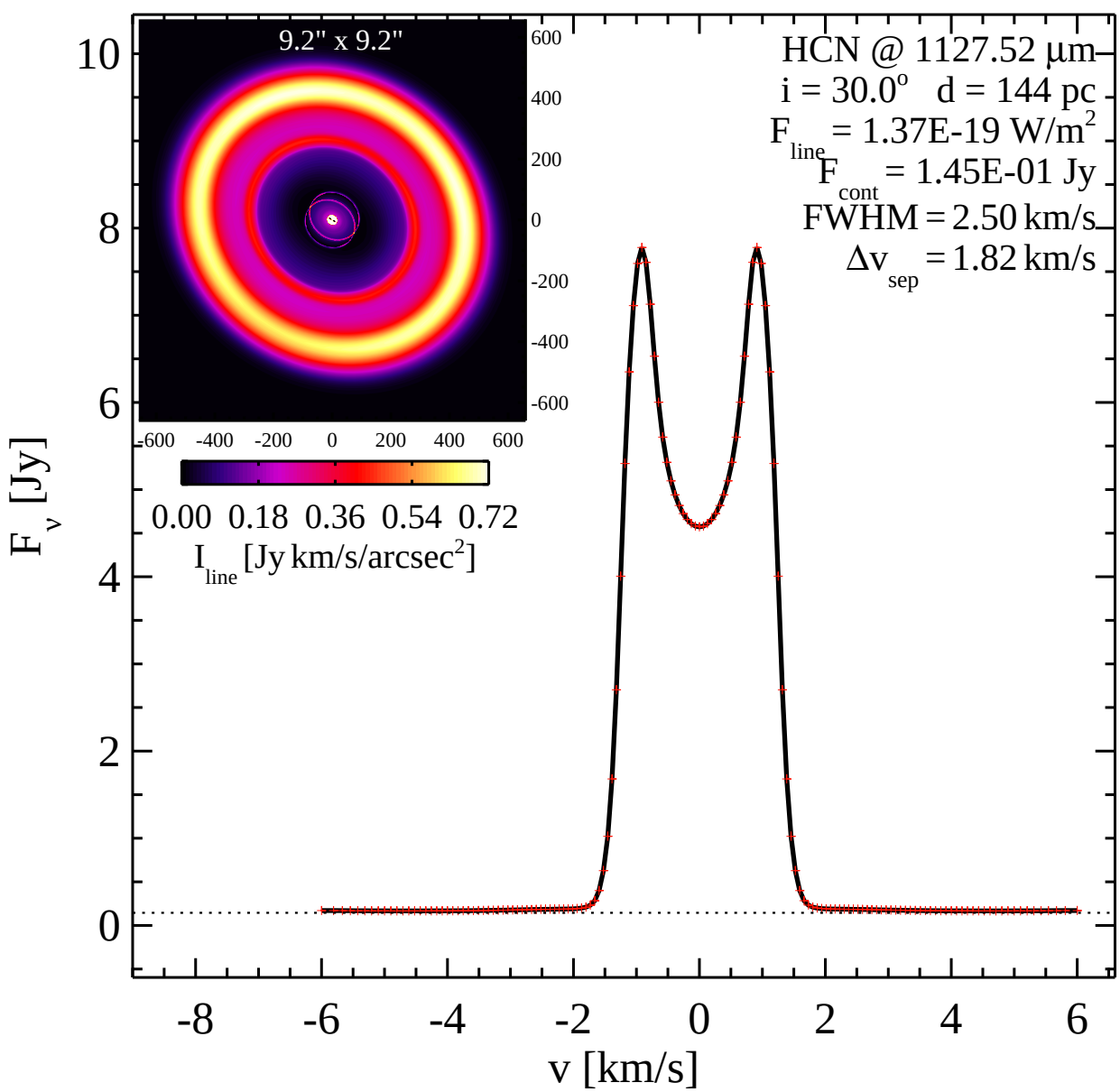

6.5" x 6.5"
400
200
0
-200
-400
-400 -200 0 200 400
0.0 0.4 0.8 1.2 1.5
I line [Jy km/s/arcsec2]
C18O @ 1365.43 µm
i = 30.0o d = 144 pc
F line = 1.40E-19 W/m2
F cont = 7.33E-02 Jy
FWHM = 3.11 km/s
Δv sep = 2.18 km/s
F v [Jy]
0
2
4
6
8
-8 -6 -4 -2 0 2 4 6
v [km/s]

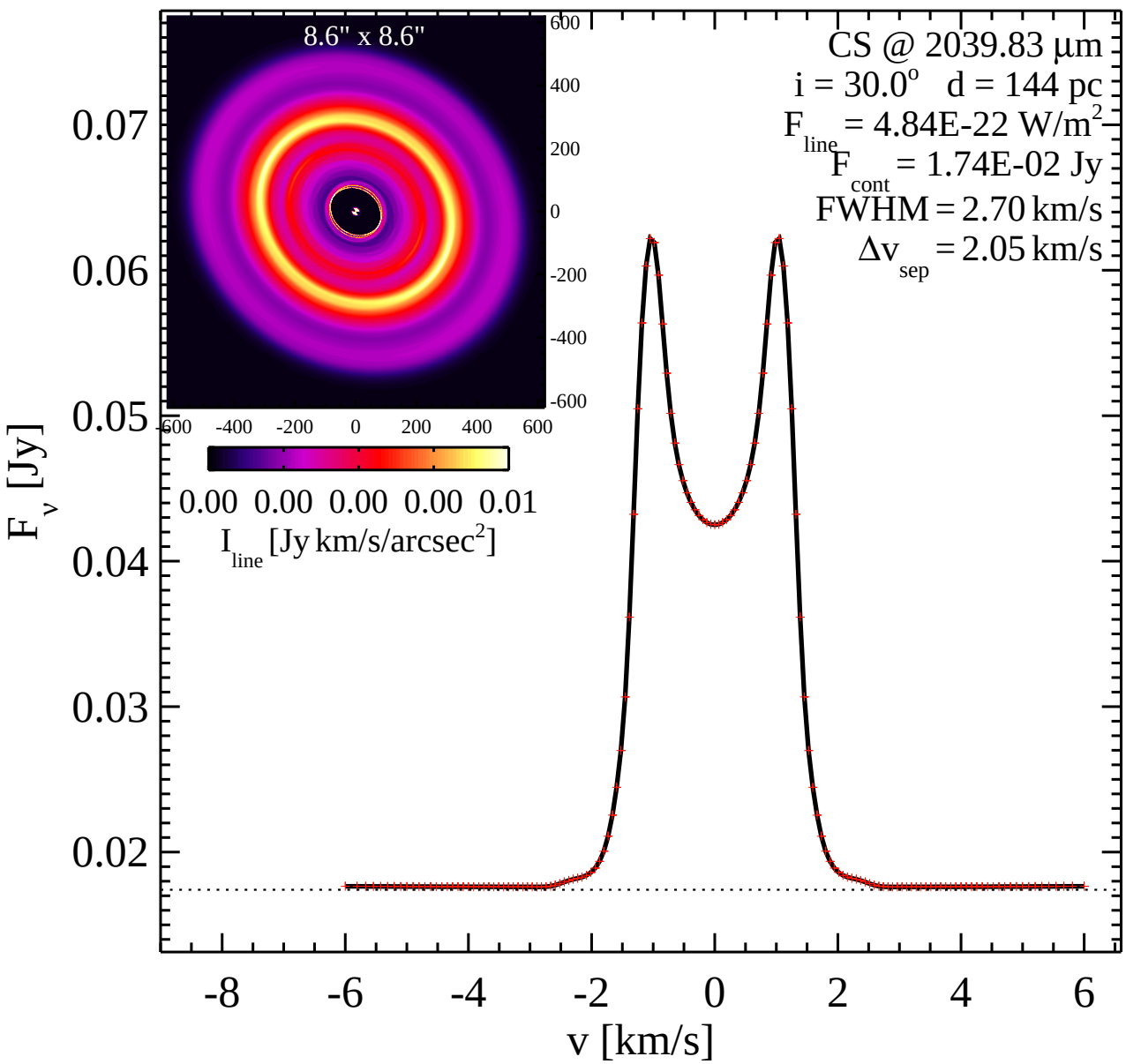

6.0" x 6.0"
C17O @ 1334.10 µm
i = 30.0° d = 144 pc
F line = 7.52E-20 W/m2
F cont = 7.96E-02 Jy
FWHM = 3.24 km/s
Δv sep = 2.32 km/s
0.00 0.21 0.43 0.64 0.86
I line [Jy km/s/arcsec2]
F v [Jy]
v [km/s]

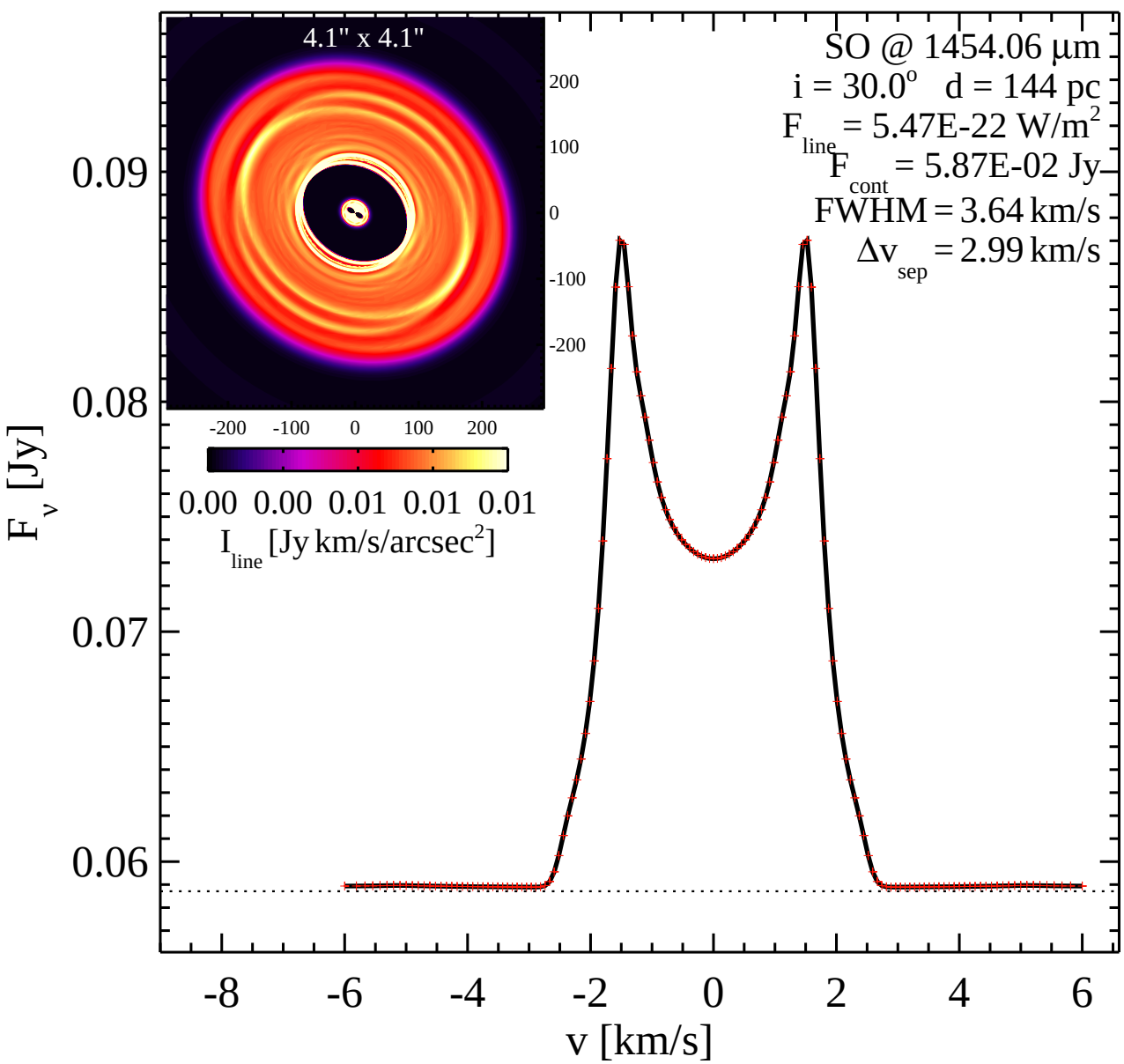

11.7" x 11.7"
500
0
-500
-500
0
500
0.00 0.10 0.21 0.31 0.42
I line [Jy km/s/arcsec2]
CN @ 1321.39 µm
i = 30.0o d = 144 pc
F line = 8.04E-20 W/m2
F cont = 8.23E-02 Jy
FWHM = 2.36 km/s
Δv sep = 1.72 km/s
F v [Jy]
0
2
4
6
-8
-6
-4
-2
0
2
4
6
v [km/s]

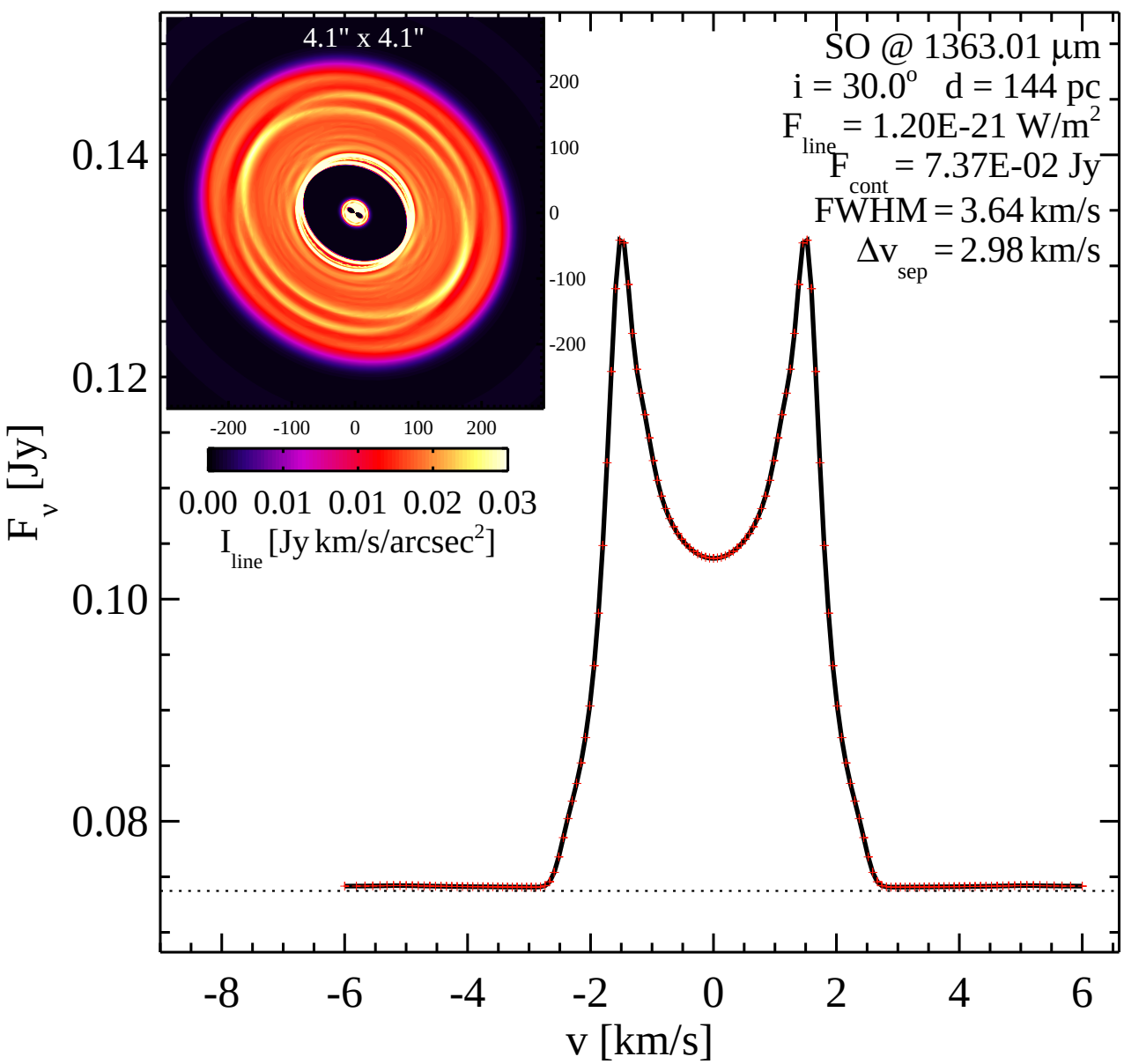

5.9" x 5.9"
o-H2CO @ 1419.39 µm
i = 30.0° d = 144 pc
F line = 6.29E-21 W/m2
F cont = 6.39E-02 Jy
FWHM = 3.04 km/s
Δv sep = 2.52 km/s
0.00 0.03 0.05 0.08 0.10
I line [Jy km/s/arcsec2]
F v [Jy]
v [km/s]

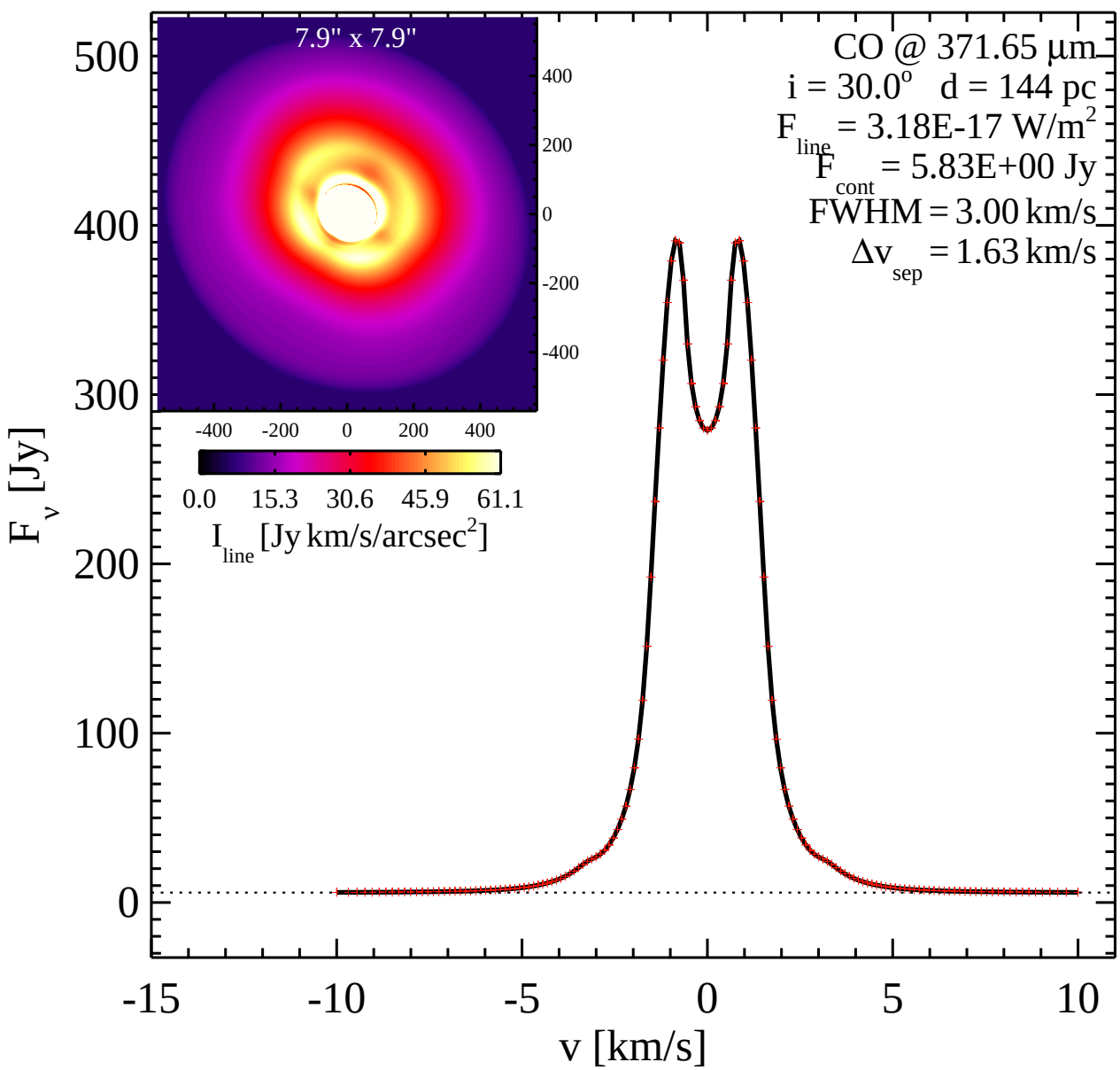

5.9" x 5.9"
o-H2CO @ 1328.29 µm
i = 30.0° d = 144 pc
F line = 7.82E-21 W/m2
F cont = 8.08E-02 Jy
FWHM = 3.05 km/s
Δv sep = 2.52 km/s
0.00 0.03 0.06 0.09 0.12
I line [Jy km/s/arcsec2]
F v [Jy]
v [km/s]

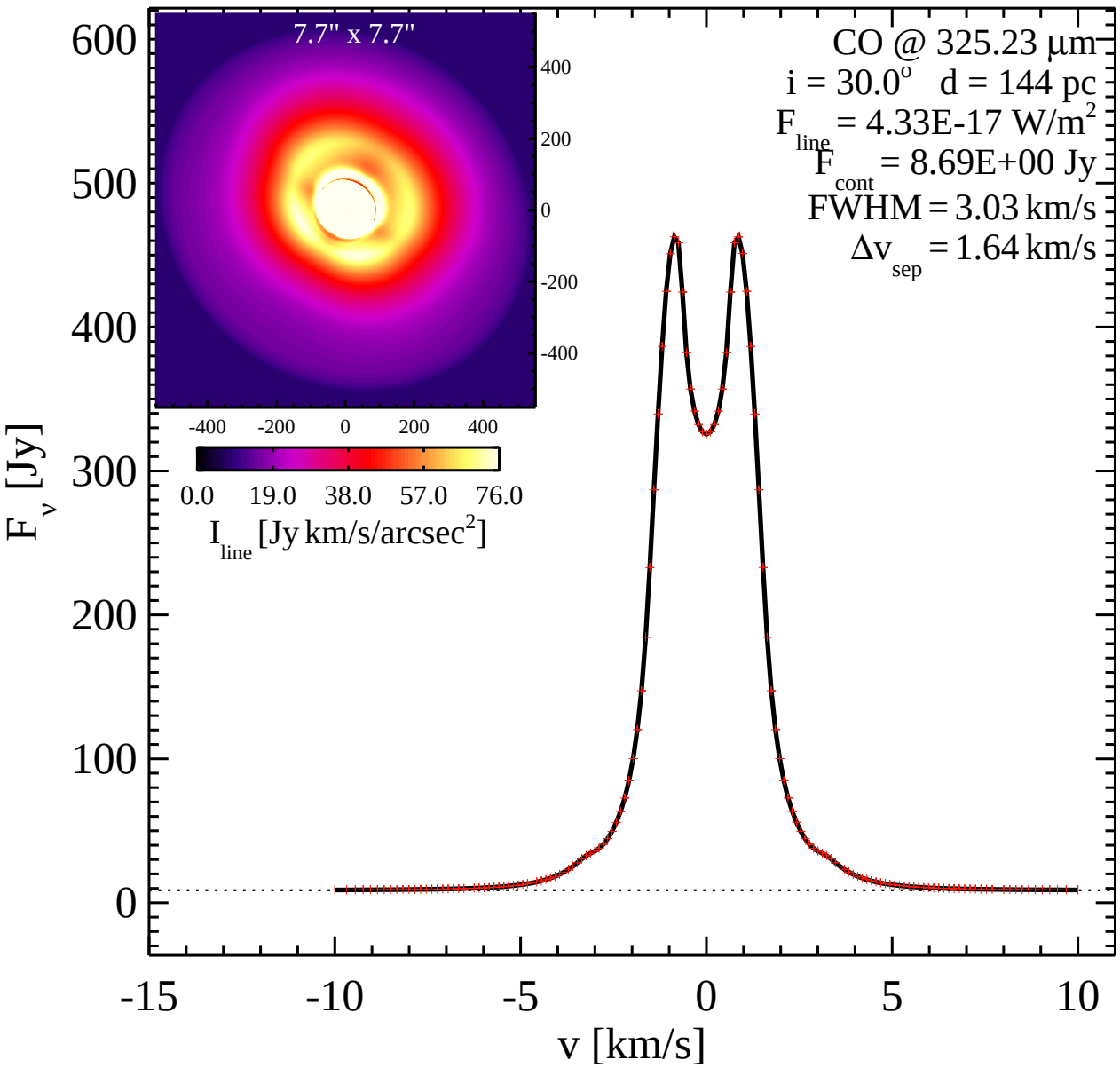

9.2" x 9.2"
HCN @ 1127.52 µm
i = 30.0° d = 144 pc
F line = 1.37E-19 W/m2
F cont = 1.45E-01 Jy
FWHM = 2.50 km/s
Δv sep = 1.82 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0.00 0.18 0.36 0.54 0.72
-600 -400 -200 0 200 400 600
10
8
6
4
2
0
-8 -6 -4 -2 0 2 4 6

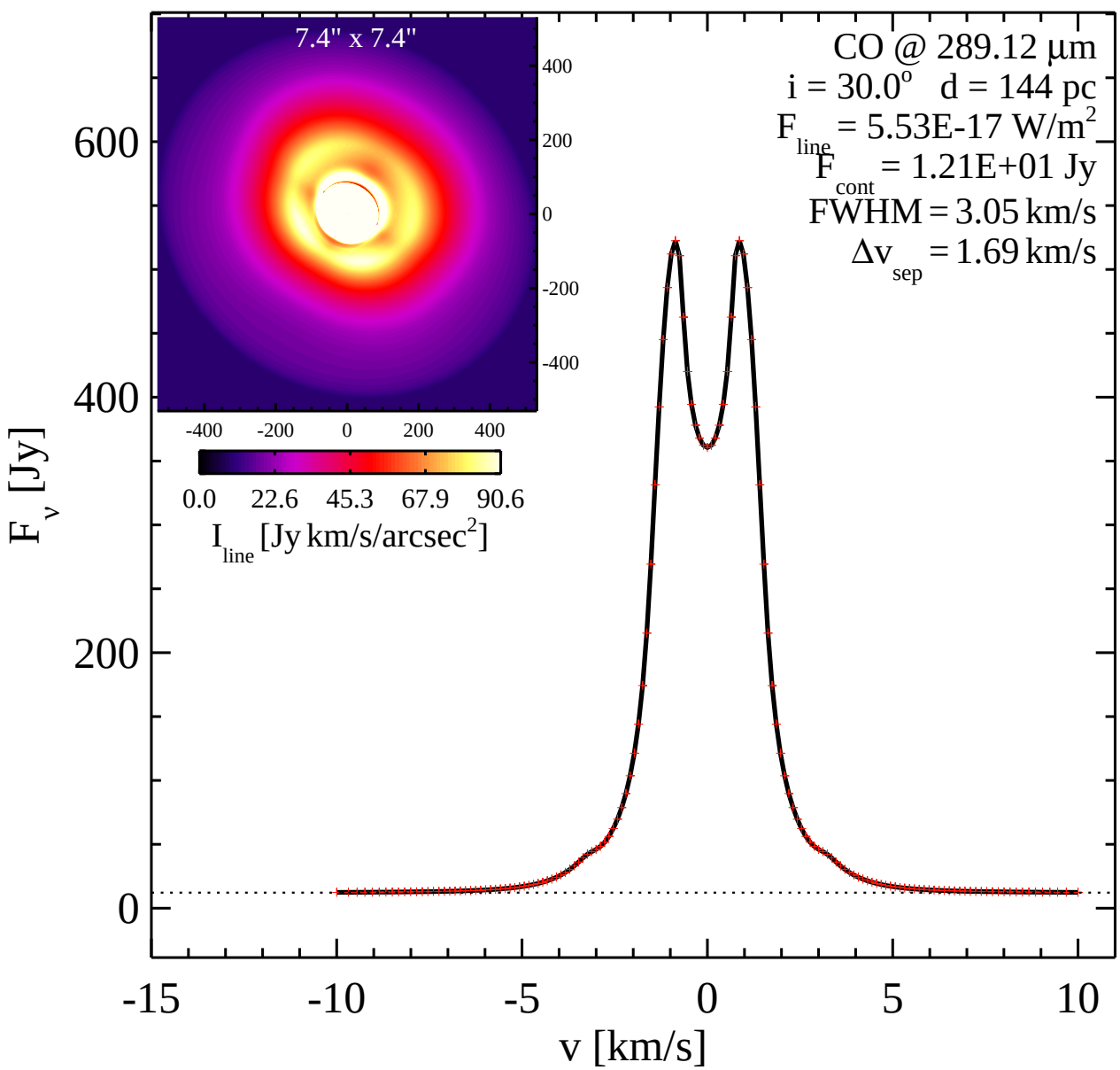

8.6" x 8.6"
CS @ 2039.83 µm
i = 30.0° d = 144 pc
F line = 4.84E-22 W/m2
F cont = 1.74E-02 Jy
FWHM = 2.70 km/s
Δv sep = 2.05 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0.00 0.00 0.00 0.00 0.01
-600 -400 -200 0 200 400 600
0.02 0.03 0.04 0.05 0.06 0.07
-8 -6 -4 -2 0 2 4 6

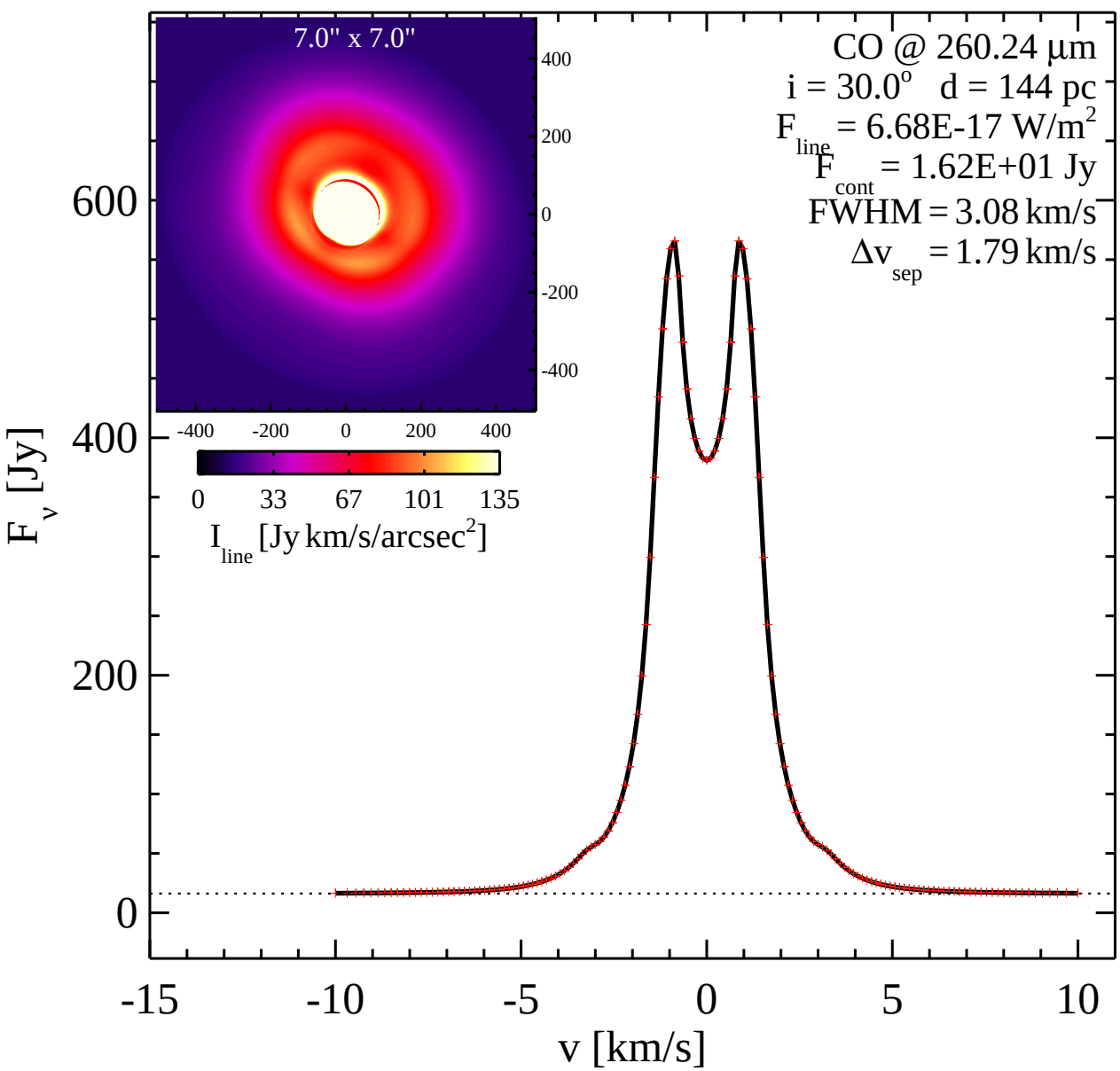

4.1" x 4.1"
200
100
0
-100
-200
-200 -100 0 100 200
0.00 0.00 0.01 0.01 0.01
I line [Jy km/s/arcsec2]
SO @ 1454.06 µm
i = 30.0o d = 144 pc
F line = 5.47E-22 W/m2
F cont = 5.87E-02 Jy
FWHM = 3.64 km/s
Δv sep = 2.99 km/s
F v [Jy]
0.09
0.08
0.07
0.06
-8 -6 -4 -2 0 2 4 6
v [km/s]

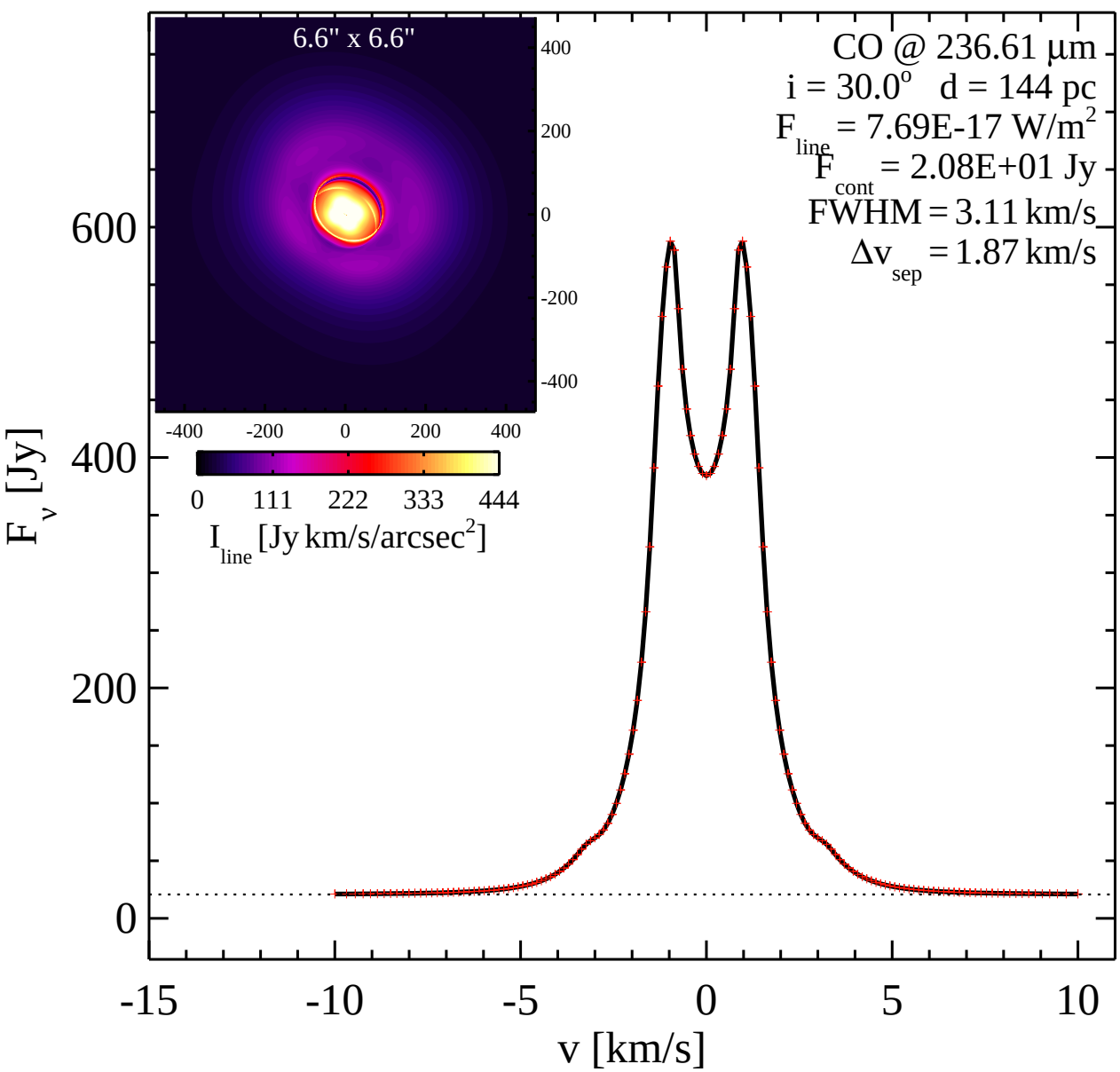

4.1" x 4.1"
200
100
0
-100
-200
-200 -100 0 100 200
0.00 0.01 0.01 0.02 0.03
I line [Jy km/s/arcsec2]
SO @ 1363.01 µm
i = 30.0o d = 144 pc
F line = 1.20E-21 W/m2
F cont = 7.37E-02 Jy
FWHM = 3.64 km/s
Δv sep = 2.98 km/s
F v [Jy]
0.14
0.12
0.10
0.08
-8 -6 -4 -2 0 2 4 6
v [km/s]

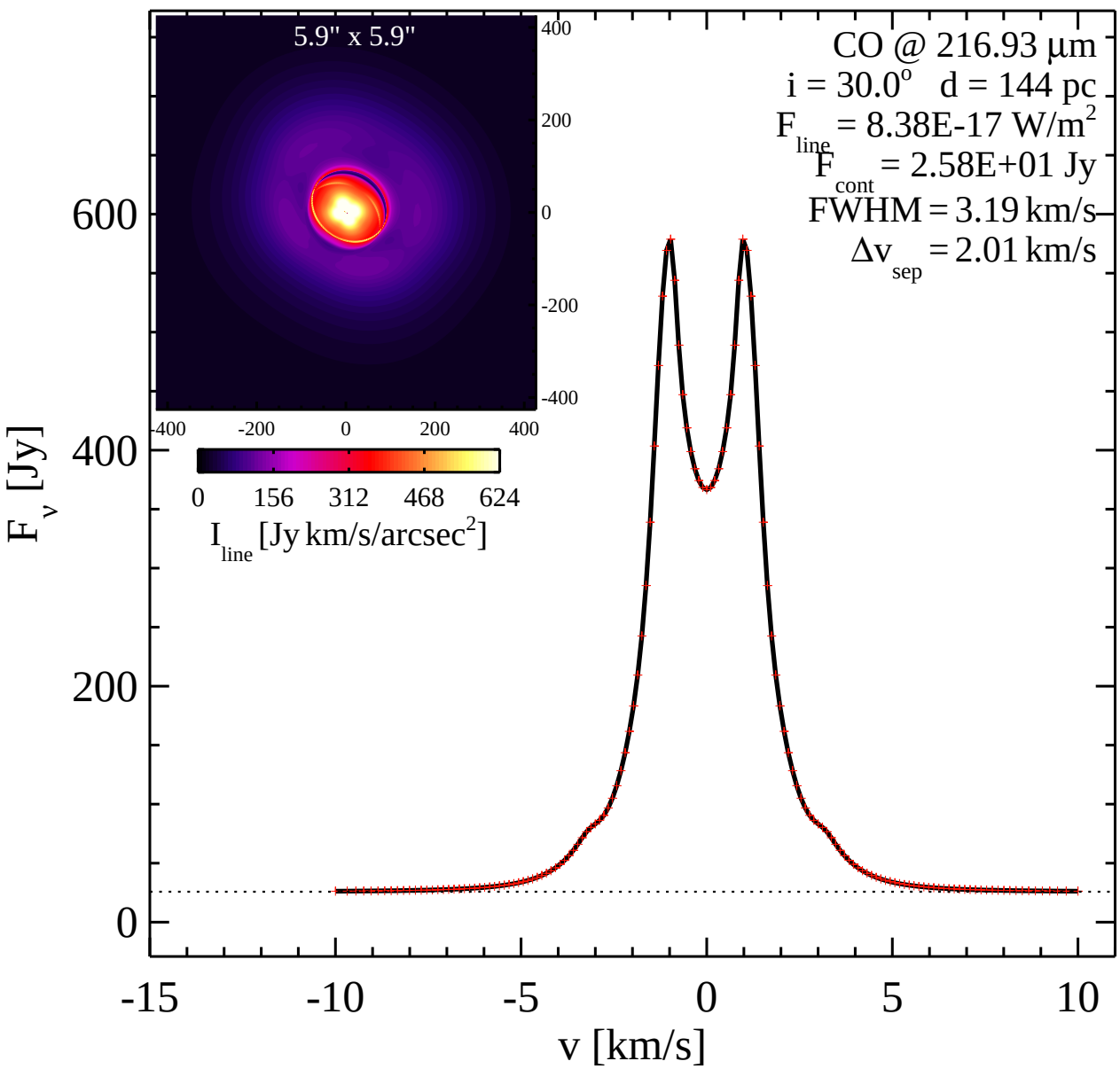

7.9" x 7.9"
CO @ 371.65 µm
i = 30.0° d = 144 pc
F line = 3.18E-17 W/m2
F cont = 5.83E+00 Jy
FWHM = 3.00 km/s
Δv sep = 1.63 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0.0 15.3 30.6 45.9 61.1

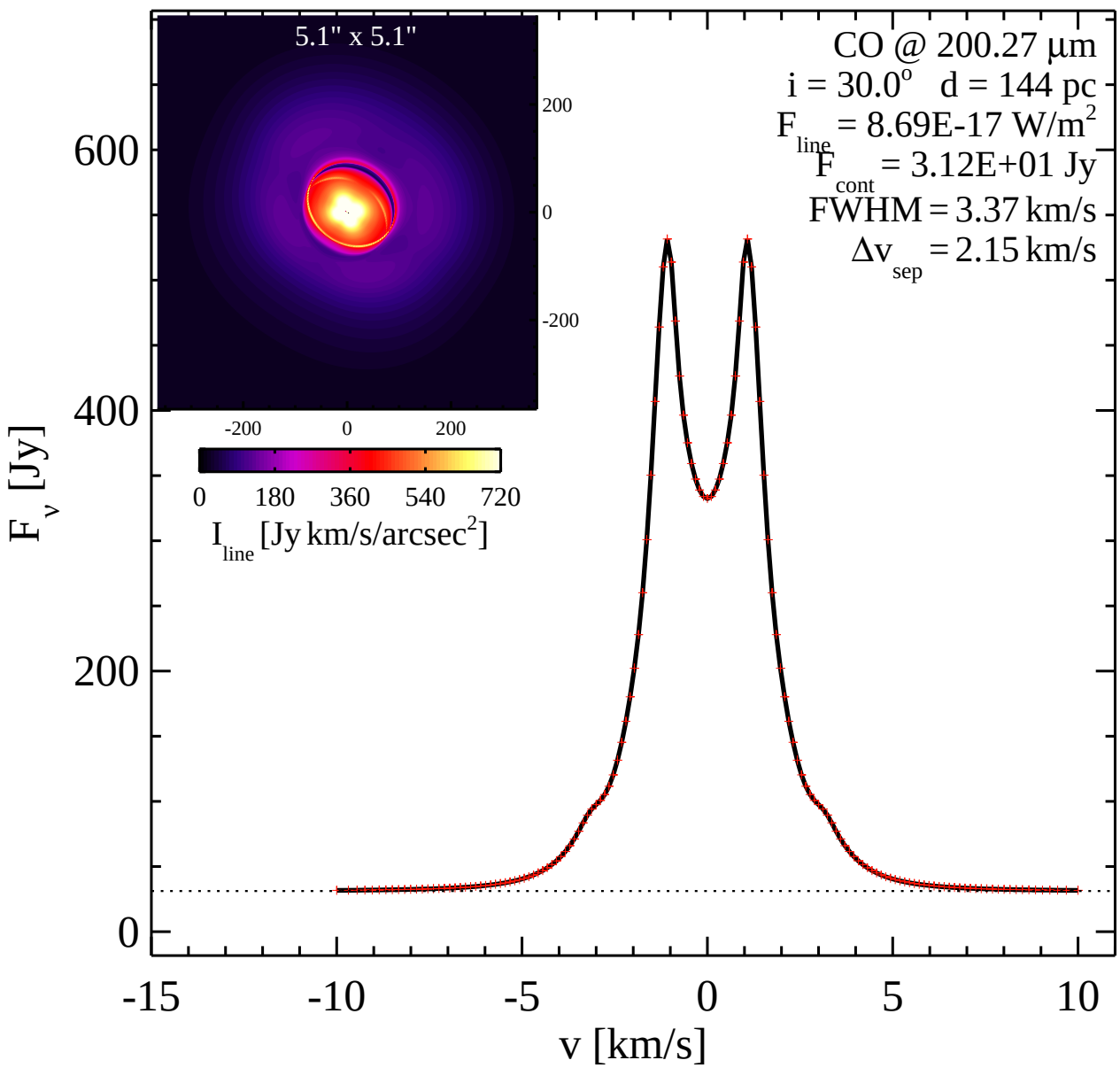

7.7" x 7.7"
CO @ 325.23 µm
i = 30.0° d = 144 pc
F line = 4.33E-17 W/m2
F cont = 8.69E+00 Jy
FWHM = 3.03 km/s
Δv sep = 1.64 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0.0 19.0 38.0 57.0 76.0
-400 -200 0 200 400
600 500 400 300 200 100 0
-15 -10 -5 0 5 10

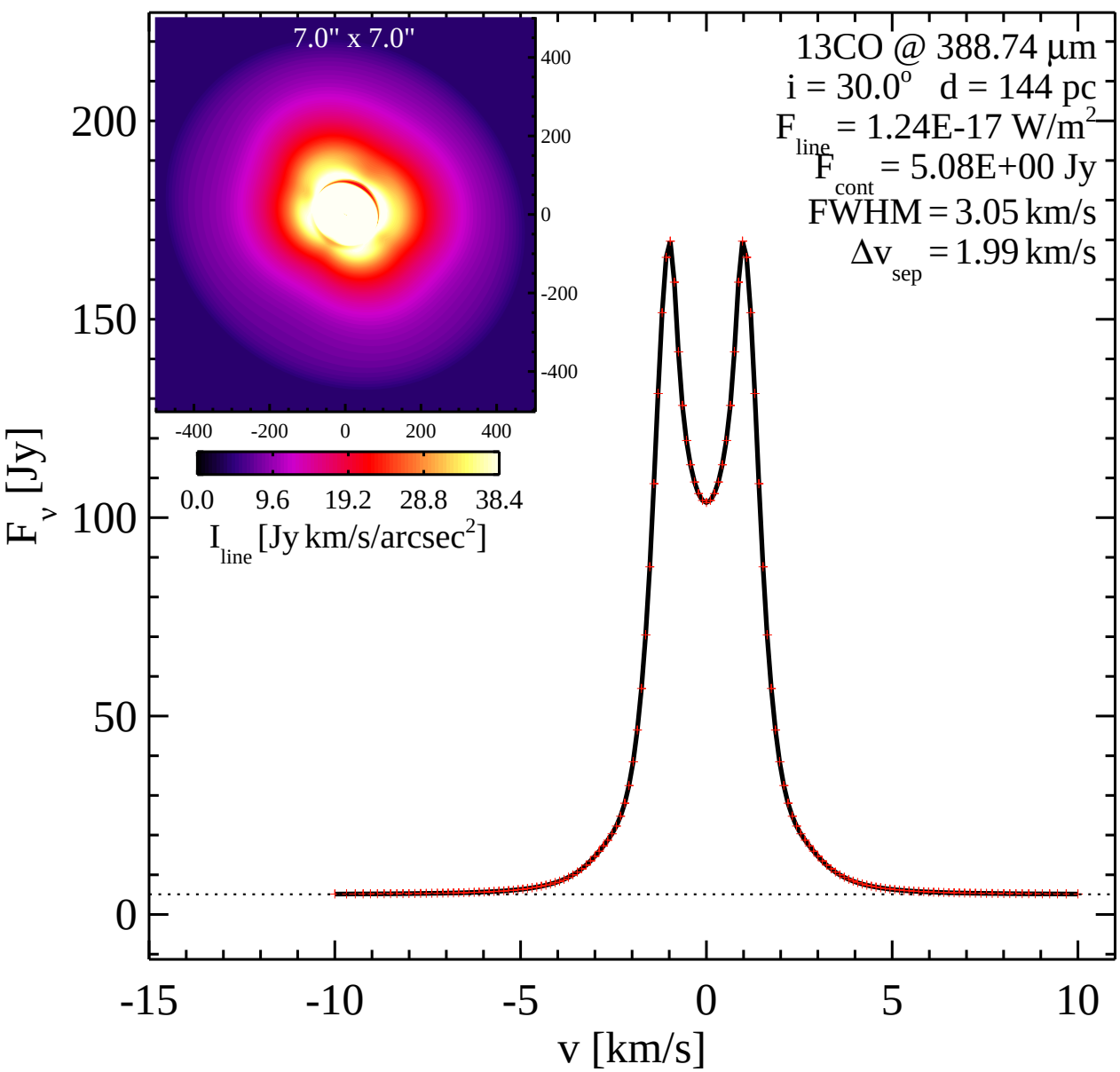

7.4" x 7.4"
400
200
0
-200
-400
-400 -200 0 200 400
0.0 22.6 45.3 67.9 90.6
I line [Jy km/s/arcsec2]
CO @ 289.12 µm
i = 30.0o d = 144 pc
F line = 5.53E-17 W/m2
F cont = 1.21E+01 Jy
FWHM = 3.05 km/s
Δv sep = 1.69 km/s
600
400
200
0
F v [Jy]
-15 -10 -5 0 5 10
v [km/s]

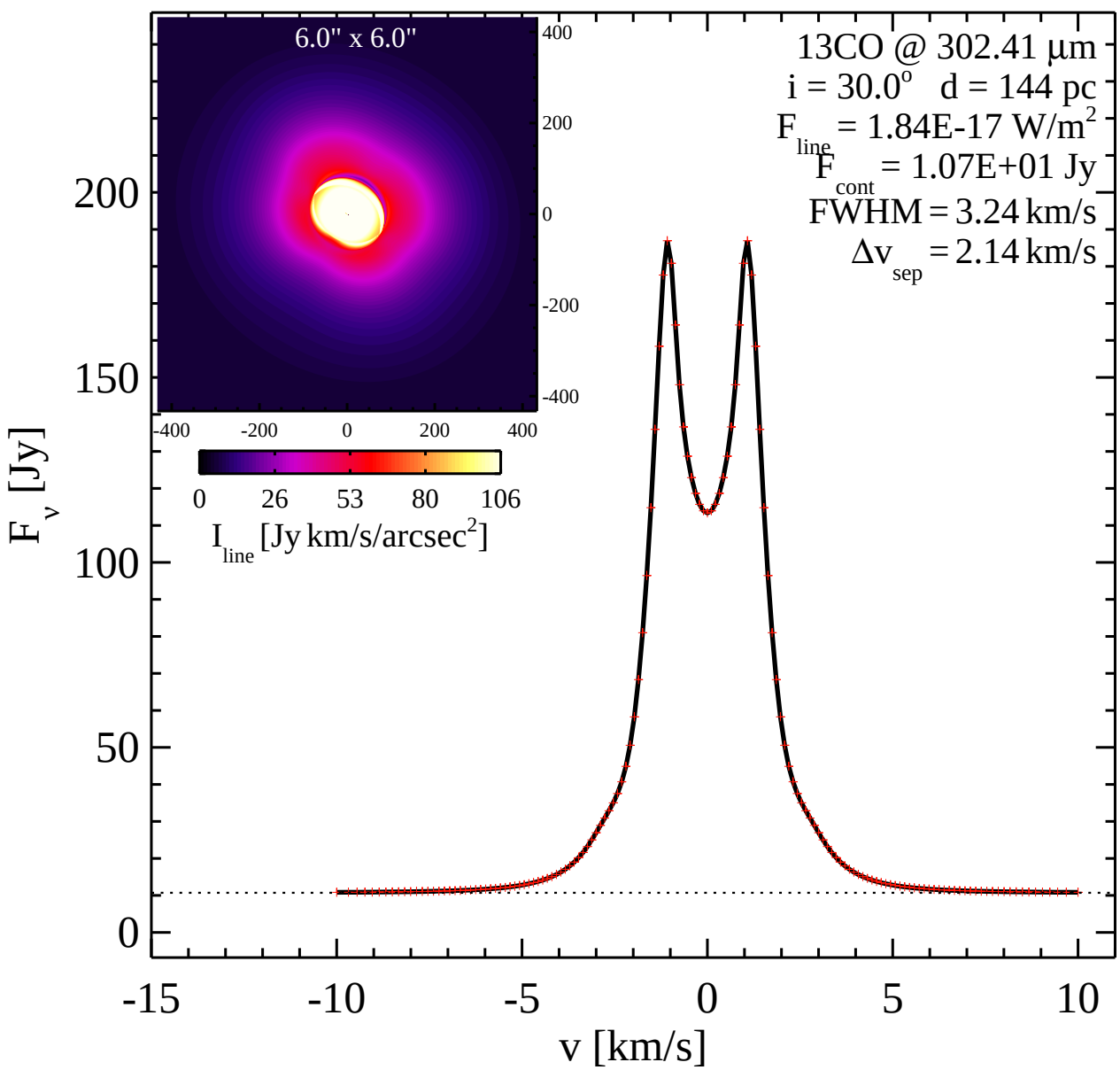

7.0" x 7.0"
400
200
0
-200
-400
-400 -200 0 200 400
0 33 67 101 135
I line [Jy km/s/arcsec2]
CO @ 260.24 µm
i = 30.0o d = 144 pc
F line = 6.68E-17 W/m2
F cont = 1.62E+01 Jy
FWHM = 3.08 km/s
Δv sep = 1.79 km/s
F v [Jy]
600
400
200
0
-15 -10 -5 0 5 10
v [km/s]

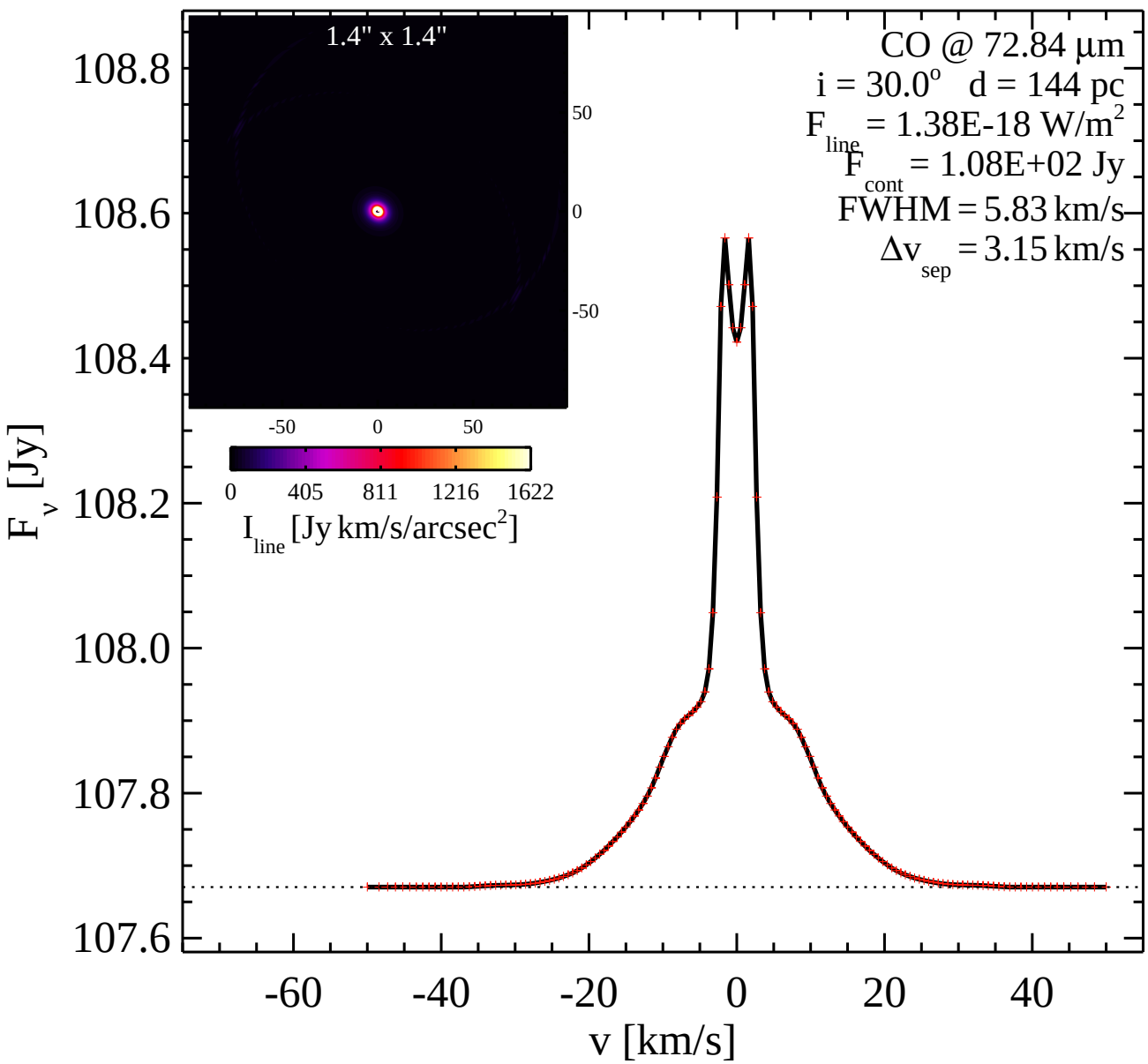

6.6" x 6.6"
400
200
0
-200
-400
-400 -200 0 200 400
0 111 222 333 444
I line [Jy km/s/arcsec2]
CO @ 236.61 µm
i = 30.0o d = 144 pc
F line = 7.69E-17 W/m2
F cont = 2.08E+01 Jy
FWHM = 3.11 km/s
Δv sep = 1.87 km/s
F v [Jy]
600
400
200
0
-15 -10 -5 0 5 10
v [km/s]

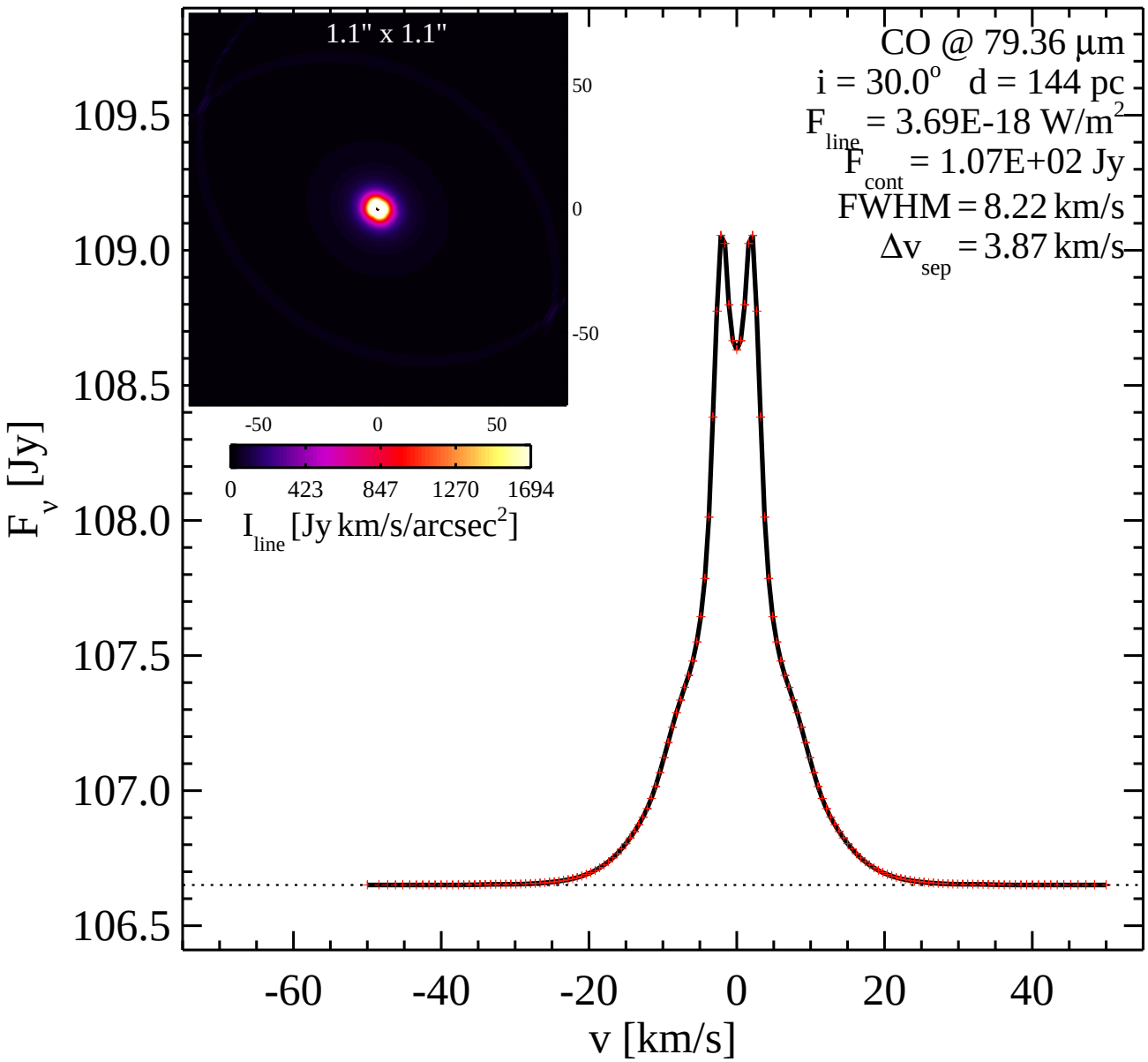

5.9" x 5.9"
CO @ 216.93 µm
i = 30.0° d = 144 pc
F line = 8.38E-17 W/m2
F cont = 2.58E+01 Jy
FWHM = 3.19 km/s
Δv sep = 2.01 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0
156
312
468
624
-400
-200
0
200
400
600
-15
-10
-5
5
10

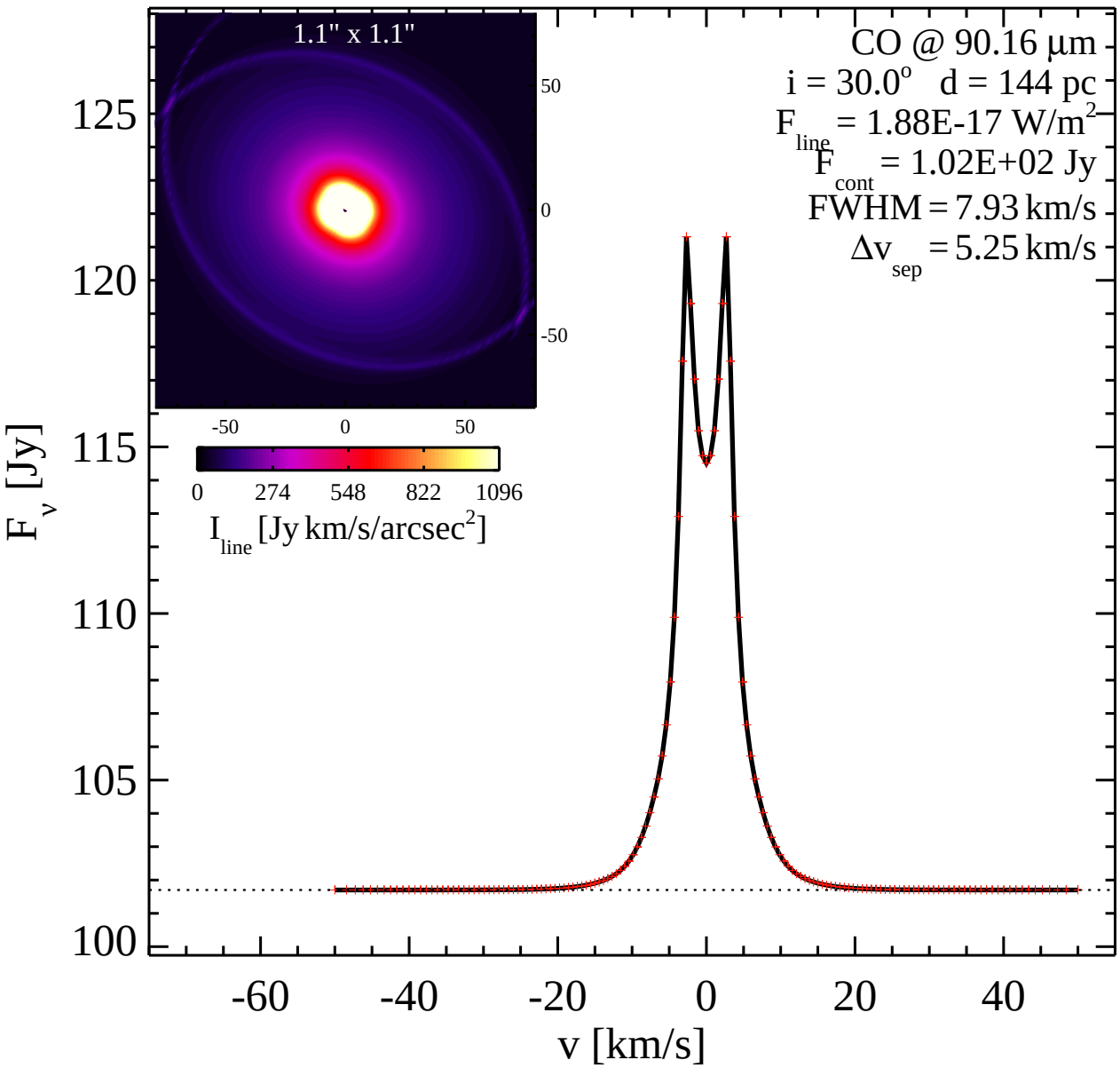

5.1" x 5.1"
200
0
-200
-200
0
200
0
180
360
540
720
I line [Jy km/s/arcsec2]
CO @ 200.27 µm
i = 30.0o d = 144 pc
F line = 8.69E-17 W/m2
F cont = 3.12E+01 Jy
FWHM = 3.37 km/s
Δv sep = 2.15 km/s
F v [Jy]
600
400
200
0
-15
-10
-5
0
5
10
v [km/s]

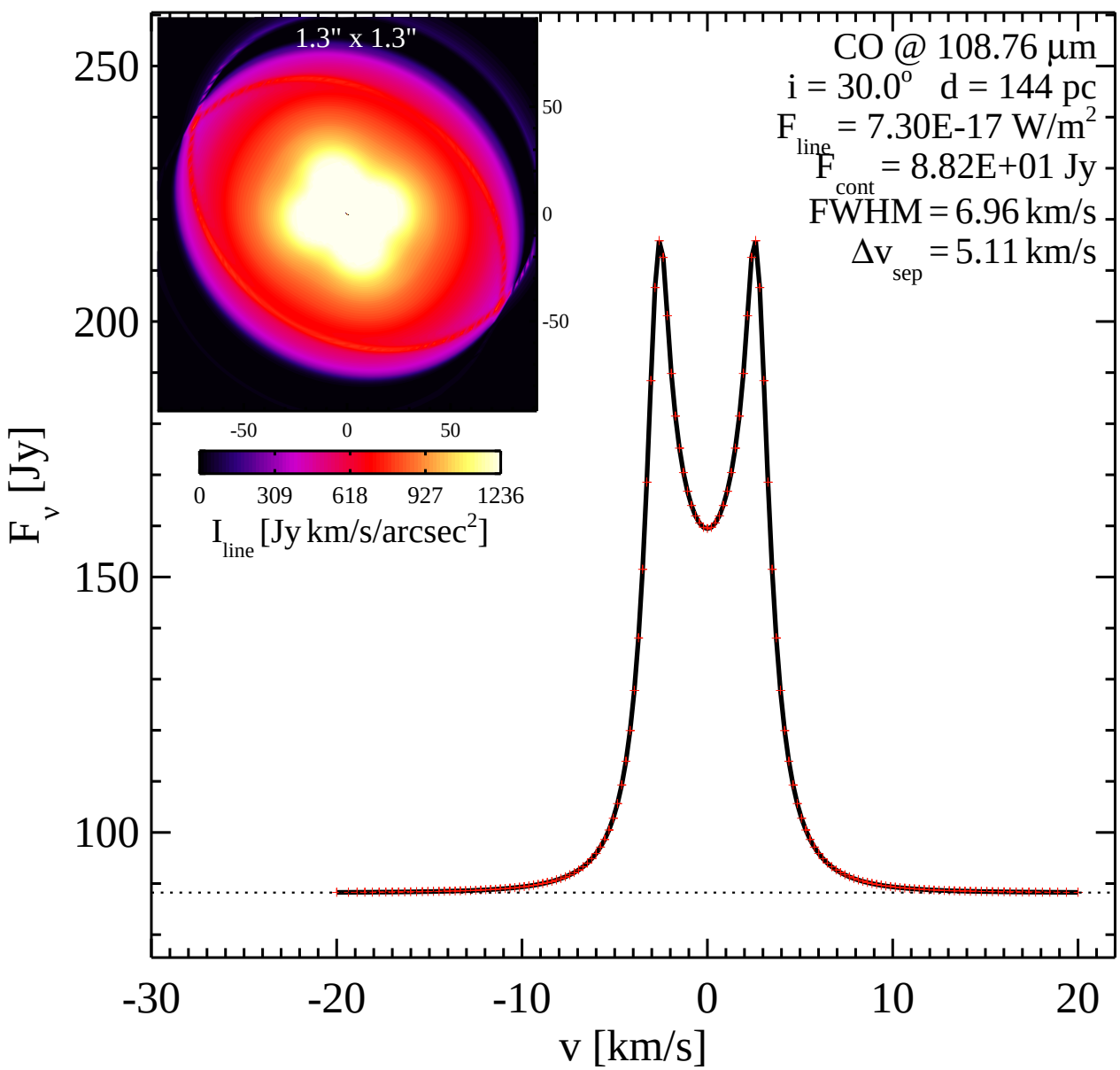

7.0" x 7.0"
400
200
0
-200
-400
-400 -200 0 200 400
0.0 9.6 19.2 28.8 38.4
I line [Jy km/s/arcsec2]
13CO @ 388.74 µm
i = 30.0o d = 144 pc
F line = 1.24E-17 W/m2
F cont = 5.08E+00 Jy
FWHM = 3.05 km/s
Δv sep = 1.99 km/s
F v [Jy]
200
150
100
50
0
-15 -10 -5 0 5 10
v [km/s]

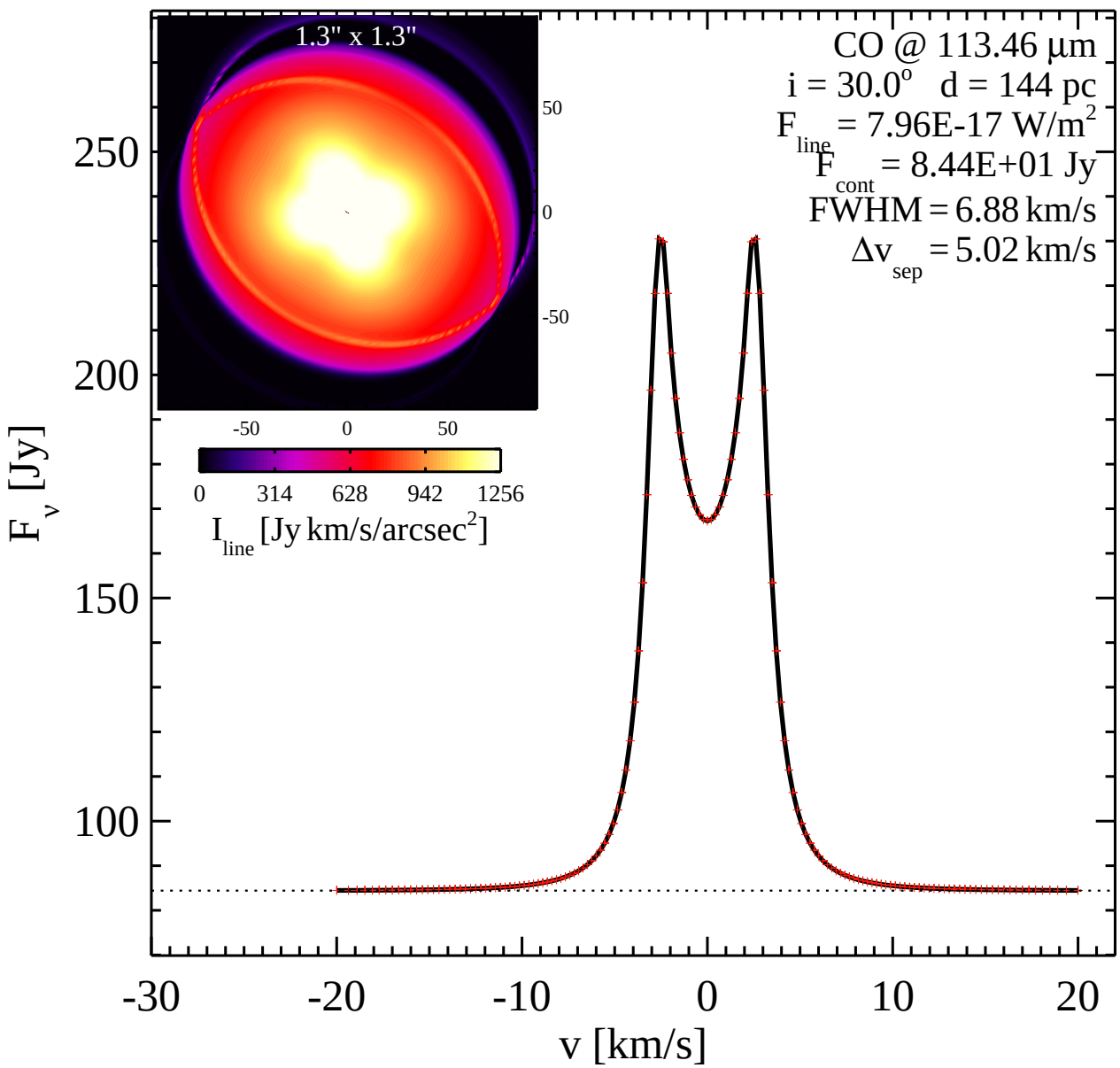

6.0" x 6.0"
400
200
0
-200
-400
-400
-200
0
200
400
0
26
53
80
106
I line [Jy km/s/arcsec2]
13CO @ 302.41 µm
i = 30.0o d = 144 pc
F line = 1.84E-17 W/m2
F cont = 1.07E+01 Jy
FWHM = 3.24 km/s
Δv sep = 2.14 km/s
F v [Jy]
200
150
100
50
0
-15
-10
-5
0
5
10
v [km/s]

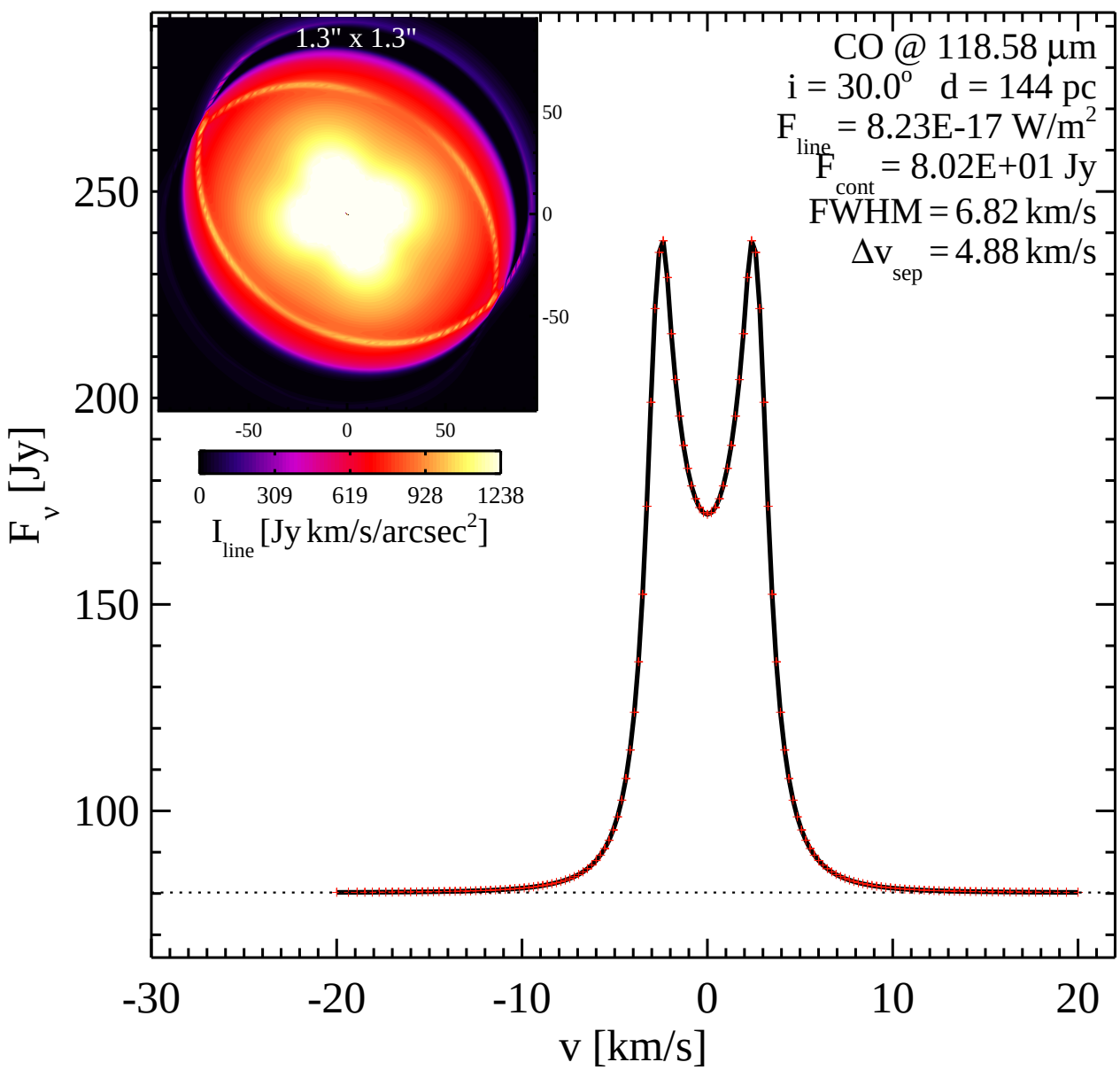

1.4" x 1.4"
50
0
-50
-50
0
50
0
405
811
1216
1622
I line [Jy km/s/arcsec2]
CO @ 72.84 µm
i = 30.0o d = 144 pc
F line = 1.38E-18 W/m2
F cont = 1.08E+02 Jy
FWHM = 5.83 km/s
Δv sep = 3.15 km/s
F v [Jy]
108.8
108.6
108.4
108.2
108.0
107.8
107.6
-60
-40
-20
0
20
40
v [km/s]

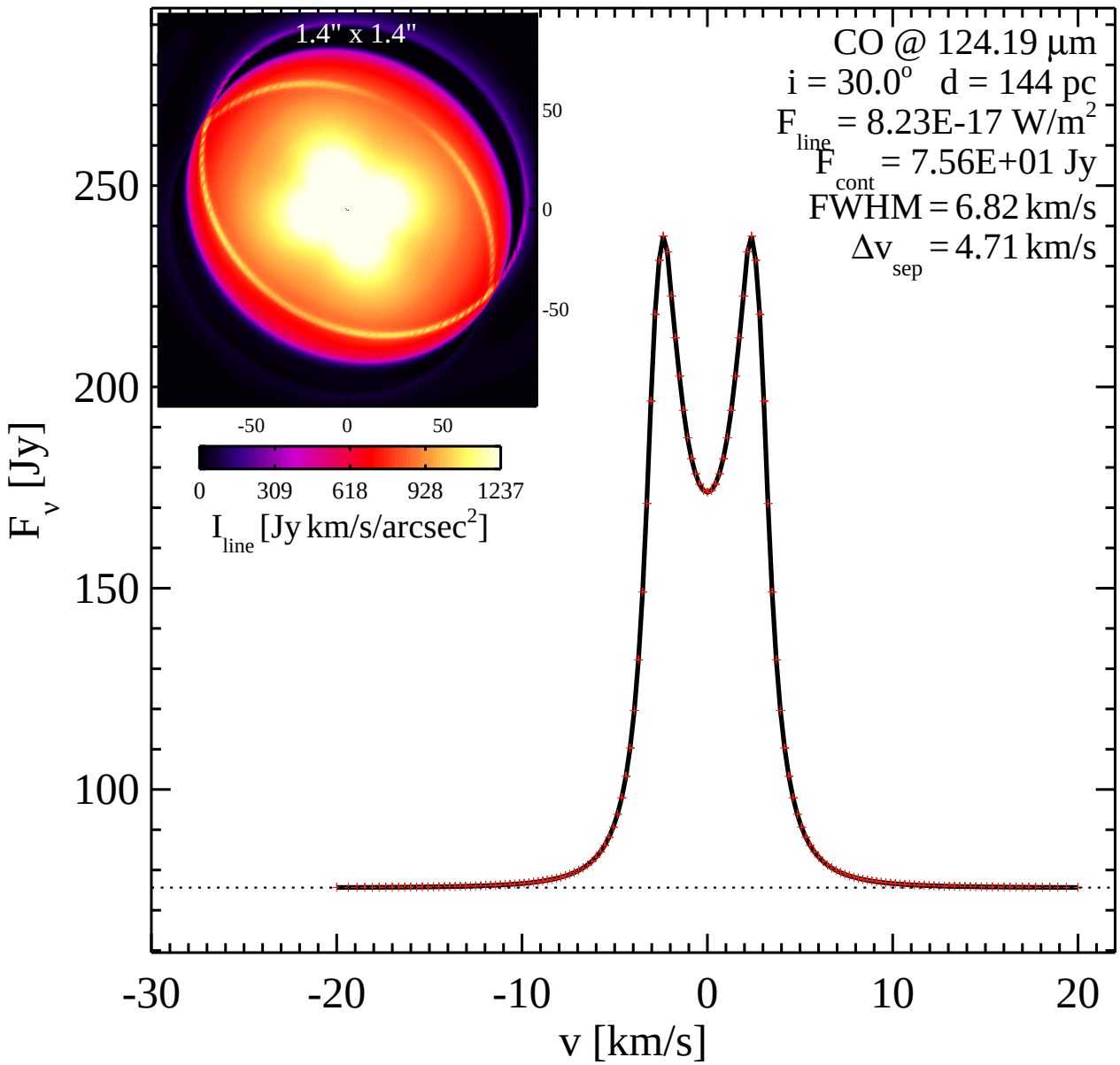

1.1" x 1.1"
50
0
-50
-50
0
50
0
423
847
1270
1694
I line [Jy km/s/arcsec2]
CO @ 79.36 µm
i = 30.0o d = 144 pc
F line = 3.69E-18 W/m2
F cont = 1.07E+02 Jy
FWHM = 8.22 km/s
Δv sep = 3.87 km/s
109.5
109.0
108.5
108.0
107.5
107.0
106.5
F v [Jy]
-60
-40
-20
0
20
40
v [km/s]

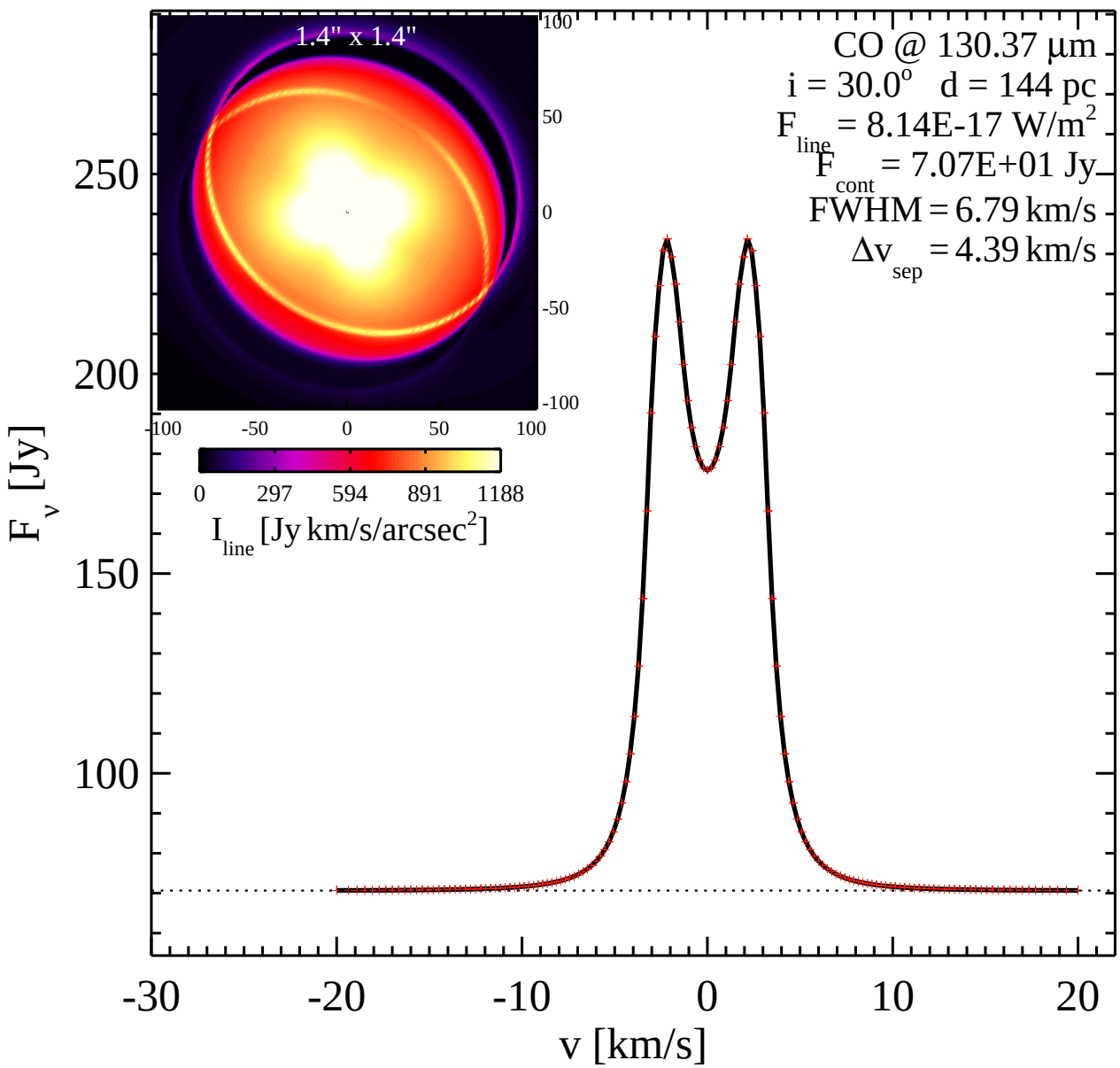

1.1" x 1.1"
50
0
-50
-50
0
50
0
274
548
822
1096
I line [Jy km/s/arcsec2]
CO @ 90.16 µm
i = 30.0o d = 144 pc
F line = 1.88E-17 W/m2
F cont = 1.02E+02 Jy
FWHM = 7.93 km/s
Δv sep = 5.25 km/s
F v [Jy]
125
120
115
110
105
100
-60
-40
-20
0
20
40
v [km/s]

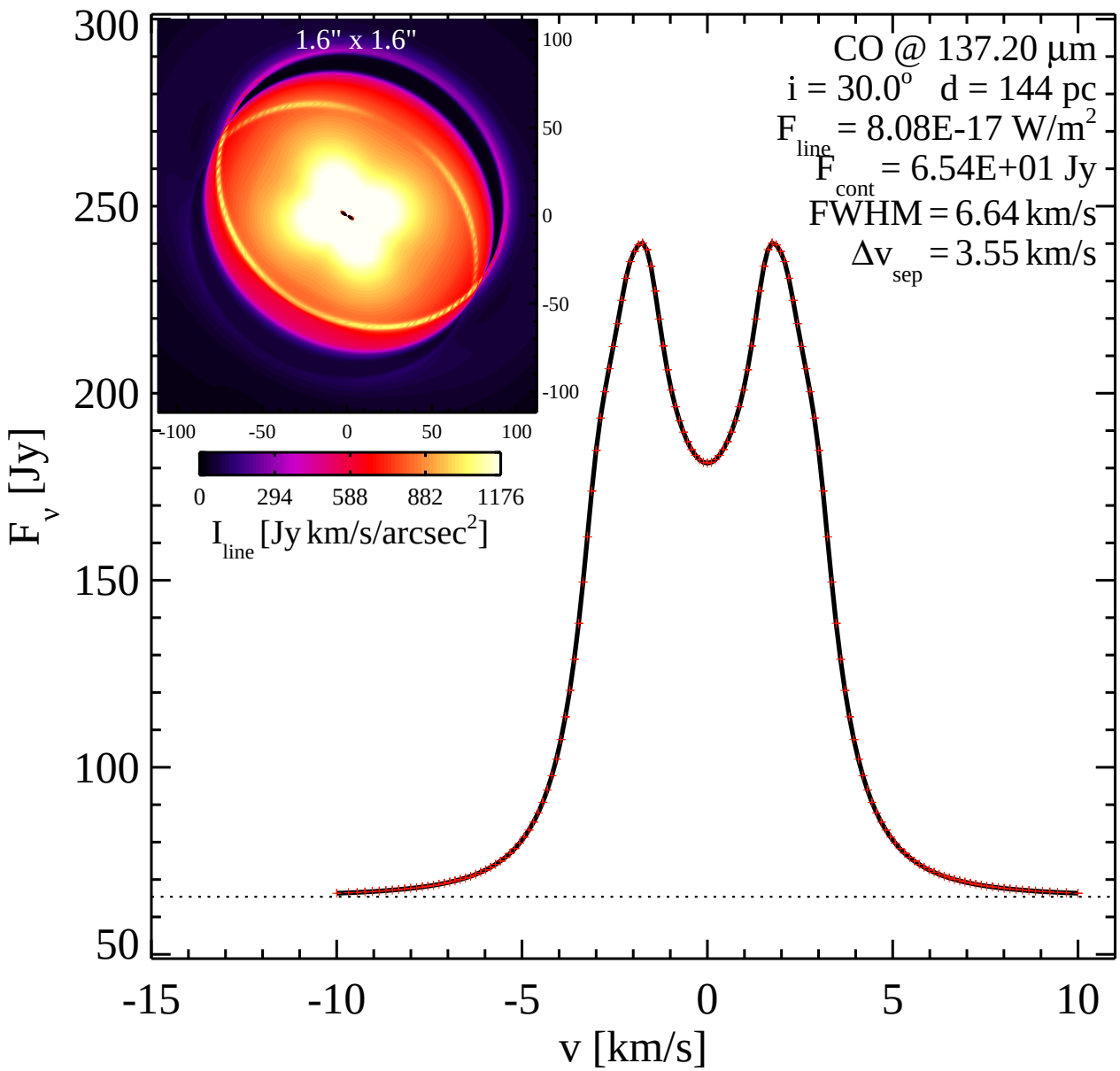

CO @ 108.76 µm
i = 30.0° d = 144 pc
F_line = 7.30E-17 W/m²
F_cont = 8.82E+01 Jy
FWHM = 6.96 km/s
Δv_sep = 5.11 km/s
1.3" x 1.3"
50
0
-50
-50 0 50
0 309 618 927 1236
I_line [Jy km/s/arcsec²]
F_v [Jy]
250
200
150
100
-30 -20 -10 0 10 20
v [km/s]

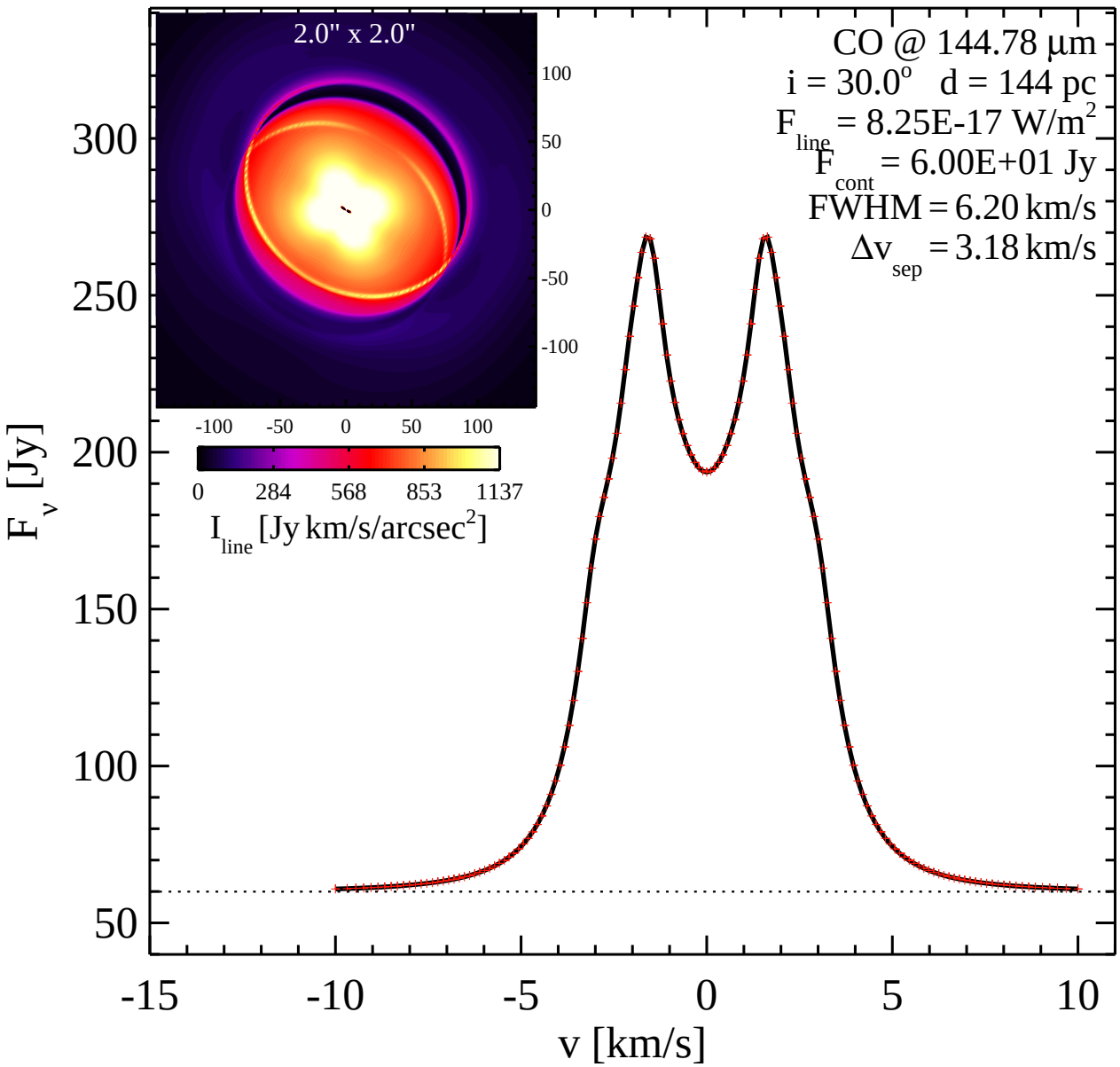

1.3" x 1.3"
50
0
-50
-50
0
50
0
314
628
942
1256
I line [Jy km/s/arcsec2]
CO @ 113.46 µm
i = 30.0o d = 144 pc
F line = 7.96E-17 W/m2
F cont = 8.44E+01 Jy
FWHM = 6.88 km/s
Δv sep = 5.02 km/s
F v [Jy]
250
200
150
100
-30
-20
-10
0
10
20
v [km/s]

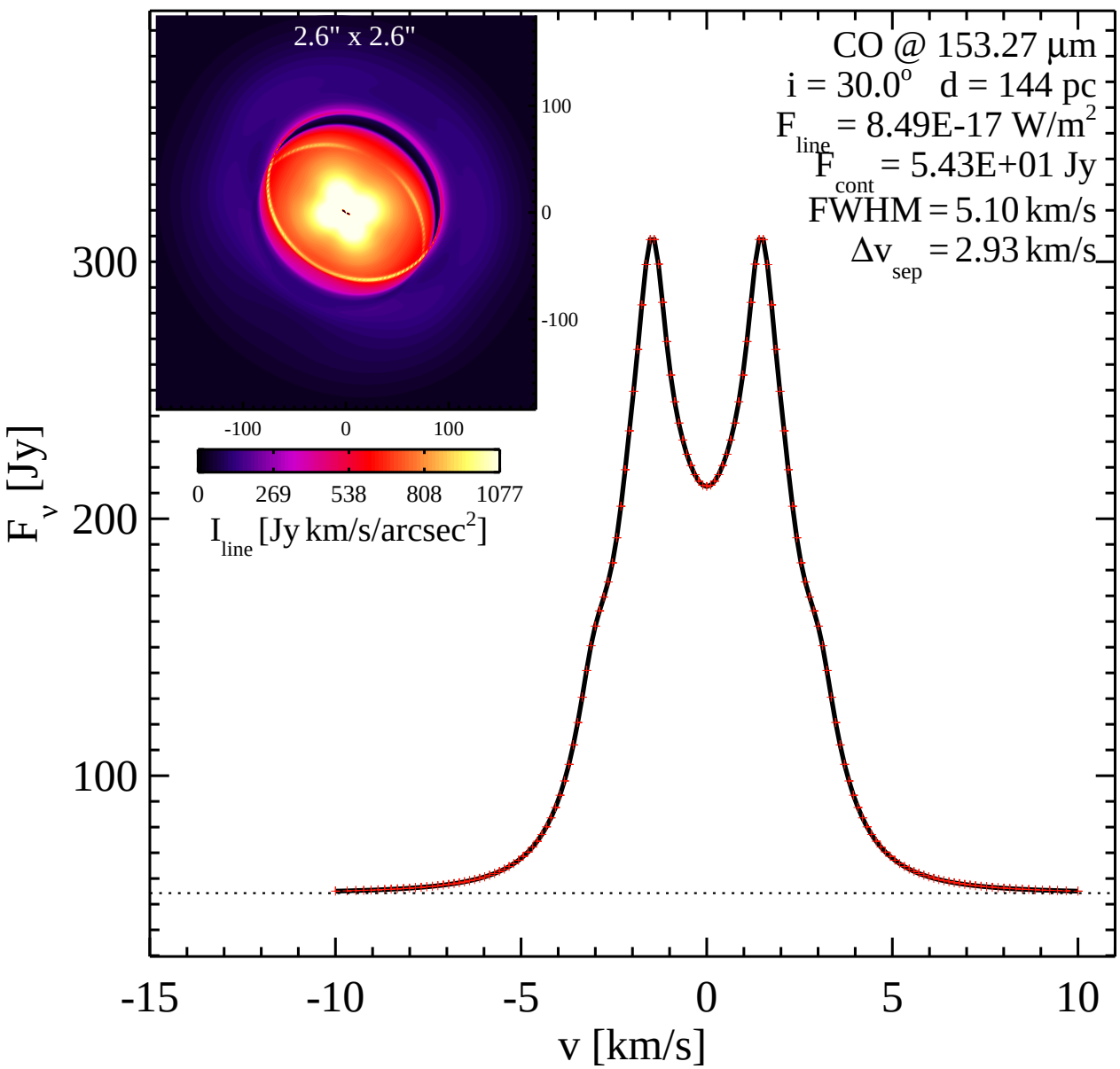

1.3" x 1.3"
50
0
-50
-50
0
50
0
309
619
928
1238
I line [Jy km/s/arcsec2]
CO @ 118.58 µm
i = 30.0o d = 144 pc
F line = 8.23E-17 W/m2
F cont = 8.02E+01 Jy
FWHM = 6.82 km/s
Δv sep = 4.88 km/s
F v [Jy]
250
200
150
100
-30
-20
-10
0
10
20
v [km/s]

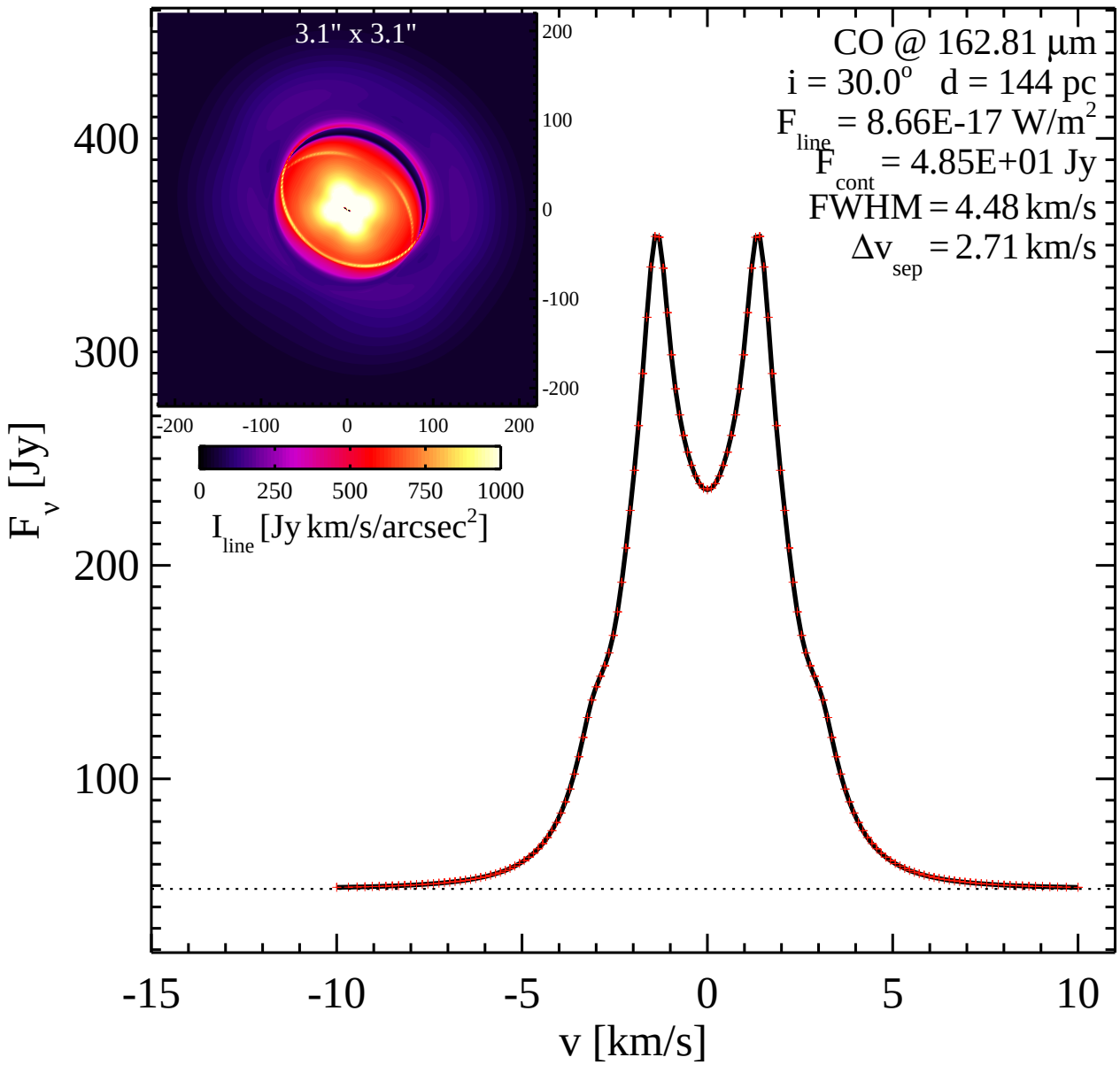

1.4" x 1.4"
50
0
-50
-50
0
50
0
309
618
928
1237
I line [Jy km/s/arcsec2]
CO @ 124.19 µm
i = 30.0o d = 144 pc
F line = 8.23E-17 W/m2
F cont = 7.56E+01 Jy
FWHM = 6.82 km/s
Δv sep = 4.71 km/s
F v [Jy]
250
200
150
100
-30
-20
-10
0
10
20
v [km/s]

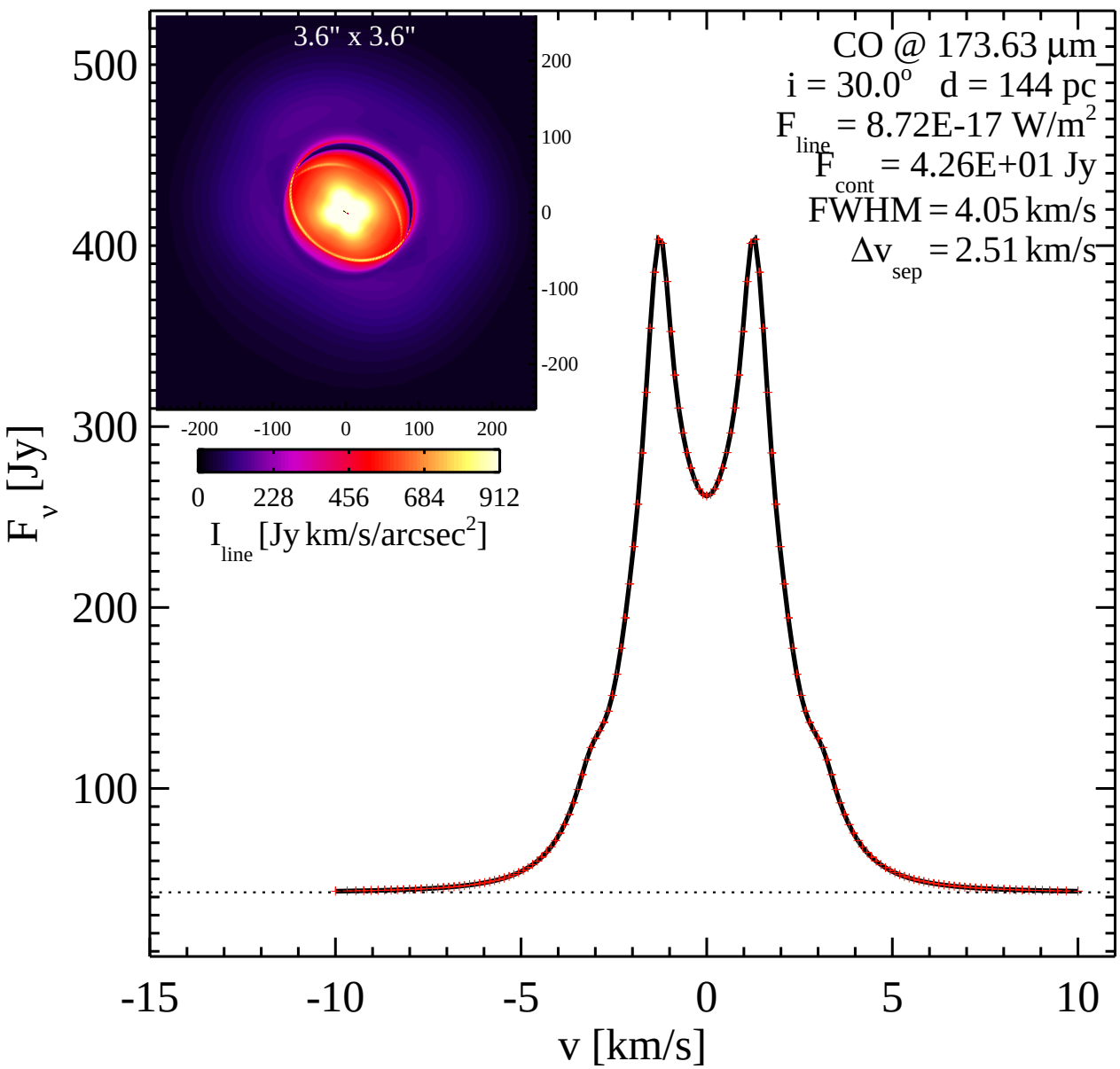

1.4" x 1.4"
100
50
0
-50
-100
-100
-50
0
50
100
0
297
594
891
1188
I line [Jy km/s/arcsec2]
CO @ 130.37 µm
i = 30.0o d = 144 pc
F line = 8.14E-17 W/m2
F cont = 7.07E+01 Jy
FWHM = 6.79 km/s
Δv sep = 4.39 km/s
F v [Jy]
250
200
150
100
-30
-20
-10
0
10
20
v [km/s]

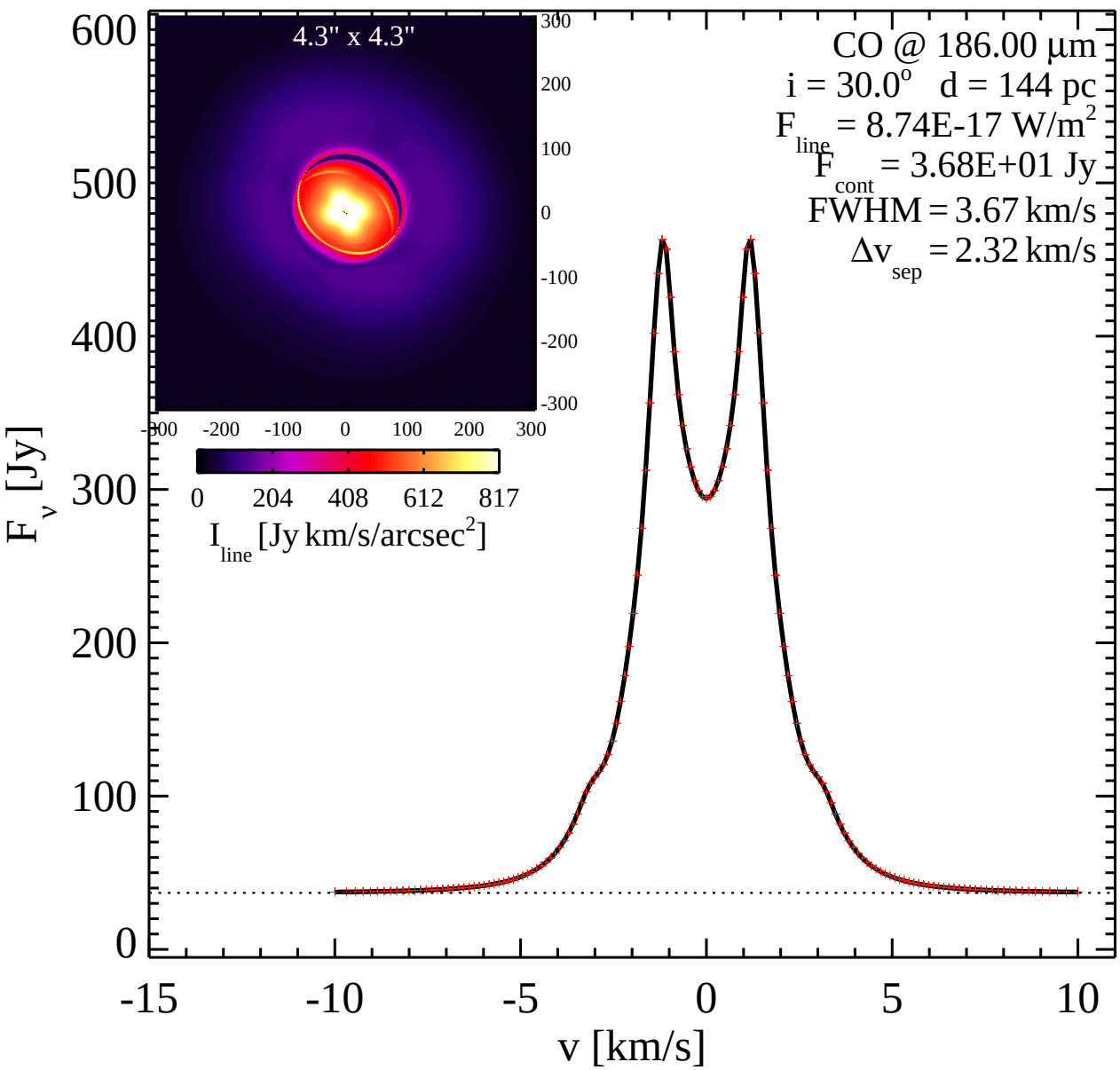

CO @ 137.20 µm
i = 30.0° d = 144 pc
F line = 8.08E-17 W/m2
F cont = 6.54E+01 Jy
FWHM = 6.64 km/s
Δv sep = 3.55 km/s
1.6" x 1.6"
I line [Jy km/s/arcsec2]
F v [Jy]
v [km/s]

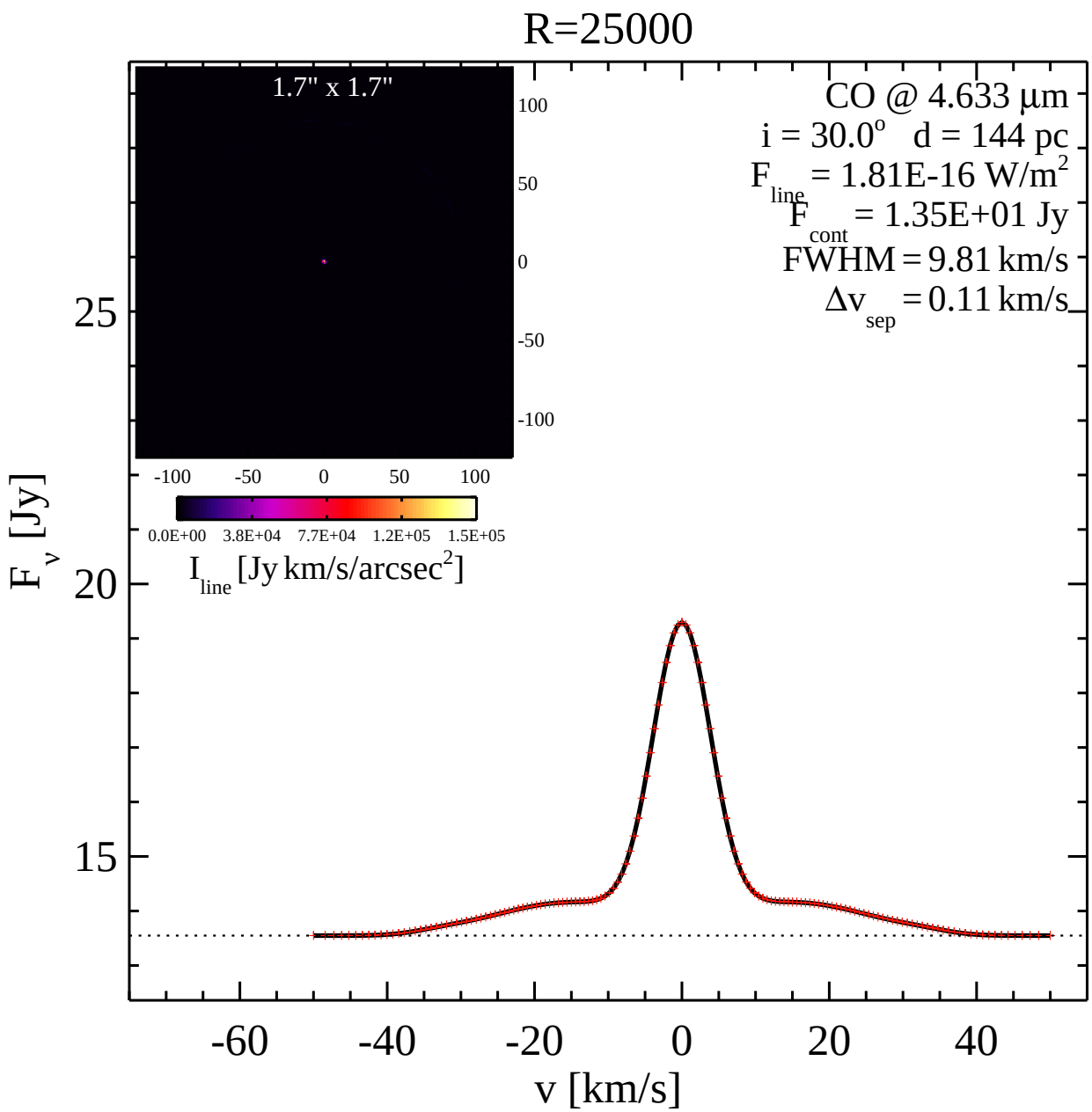

2.0" x 2.0"
100
50
0
-50
-100
-100 -50 0 50 100
0 284 568 853 1137
I line [Jy km/s/arcsec2]
CO @ 144.78 µm
i = 30.0o d = 144 pc
F line = 8.25E-17 W/m2
F cont = 6.00E+01 Jy
FWHM = 6.20 km/s
Δv sep = 3.18 km/s
F v [Jy]
300
250
200
150
100
50
-15 -10 -5 0 5 10
v [km/s]

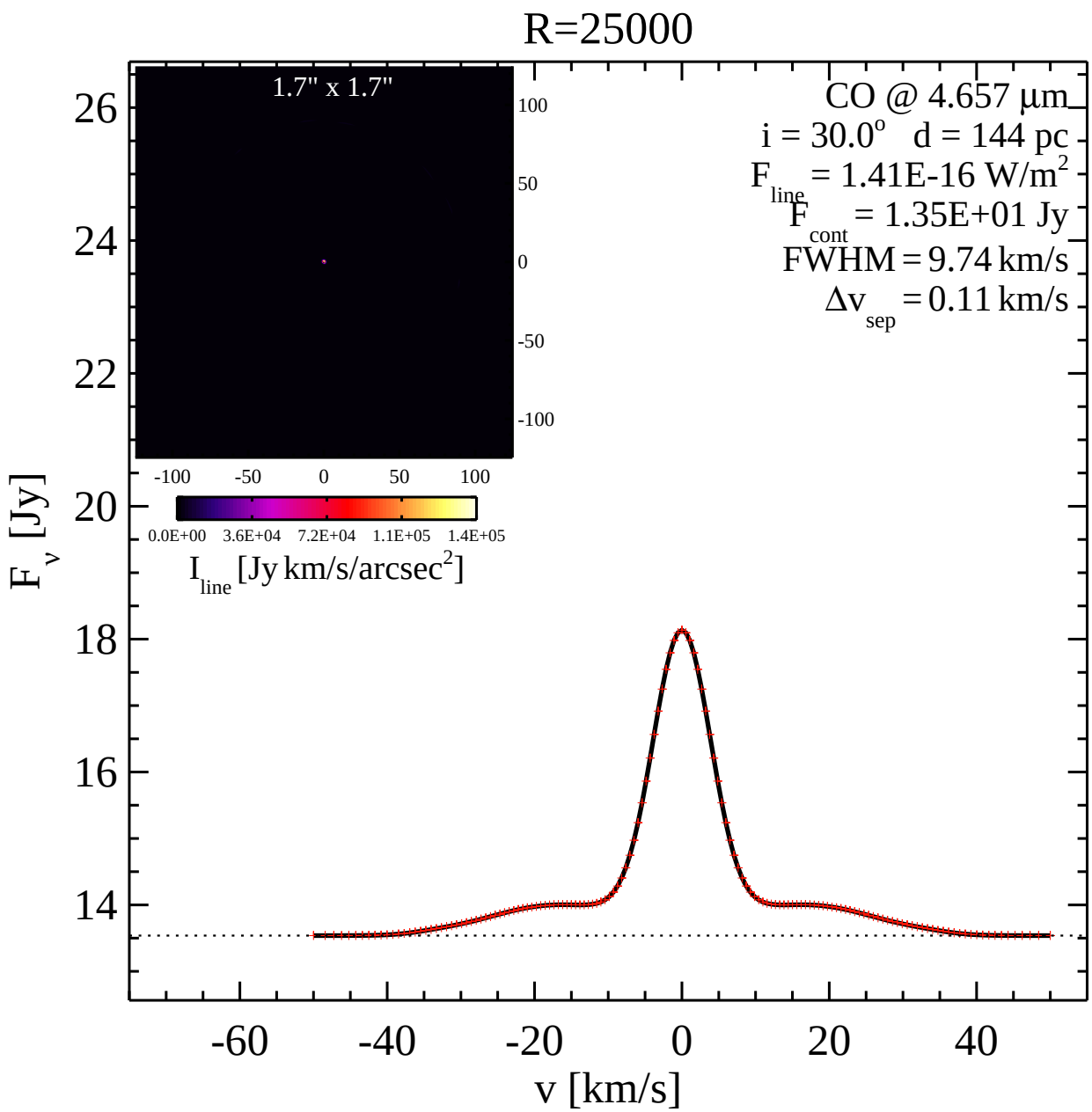

2.6" x 2.6"
100
0
-100
-100
0
100
0
269
538
808
1077
I line [Jy km/s/arcsec2]
CO @ 153.27 µm
i = 30.0o d = 144 pc
F line = 8.49E-17 W/m2
F cont = 5.43E+01 Jy
FWHM = 5.10 km/s
Δv sep = 2.93 km/s
F v [Jy]
300
200
100
-15
-10
-5
0
5
10
v [km/s]

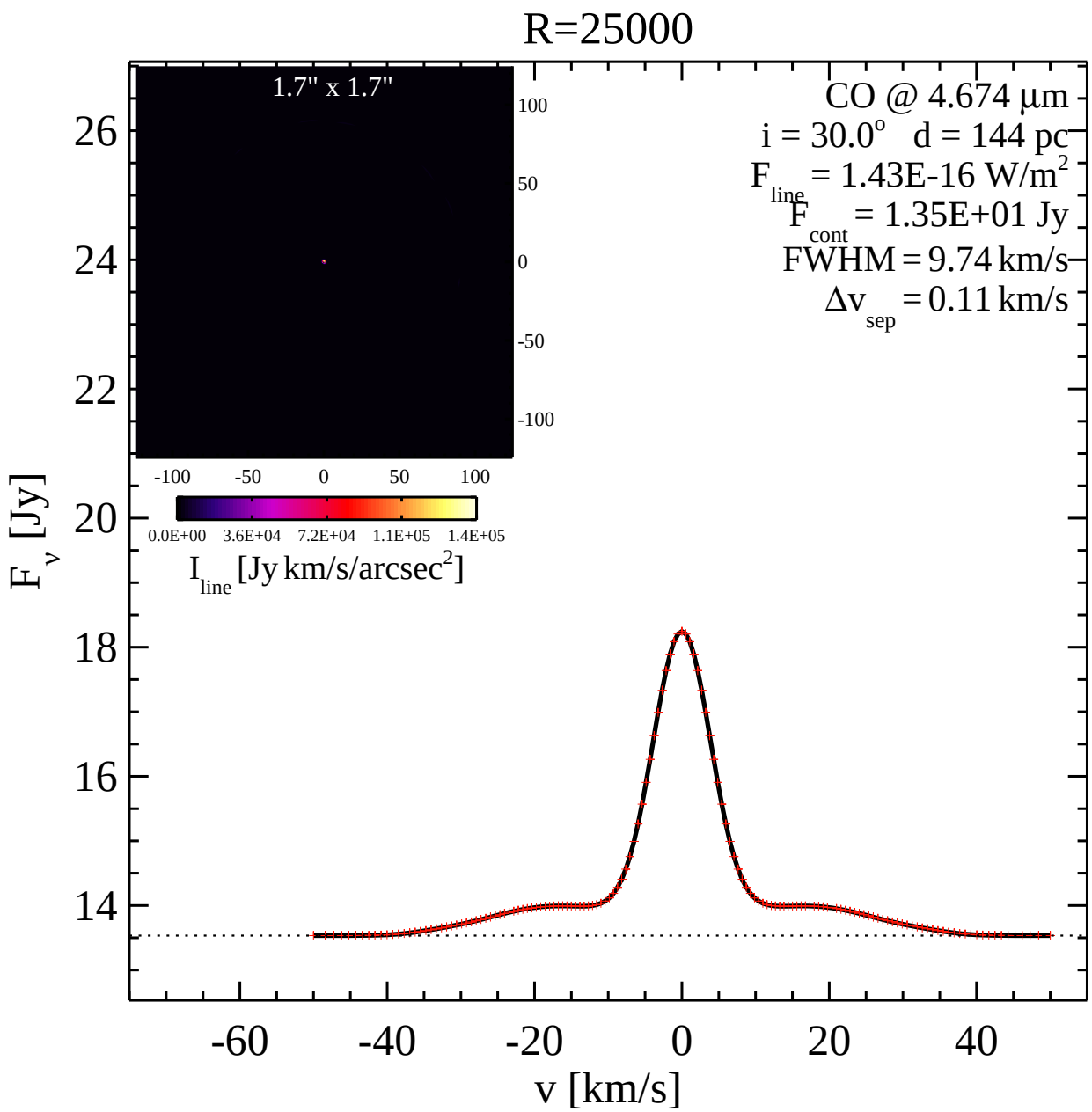

3.1" x 3.1"
CO @ 162.81 µm
i = 30.0° d = 144 pc
F line = 8.66E-17 W/m2
F cont = 4.85E+01 Jy
FWHM = 4.48 km/s
Δv sep = 2.71 km/s
I line [Jy km/s/arcsec2]
F v [Jy]
v [km/s]

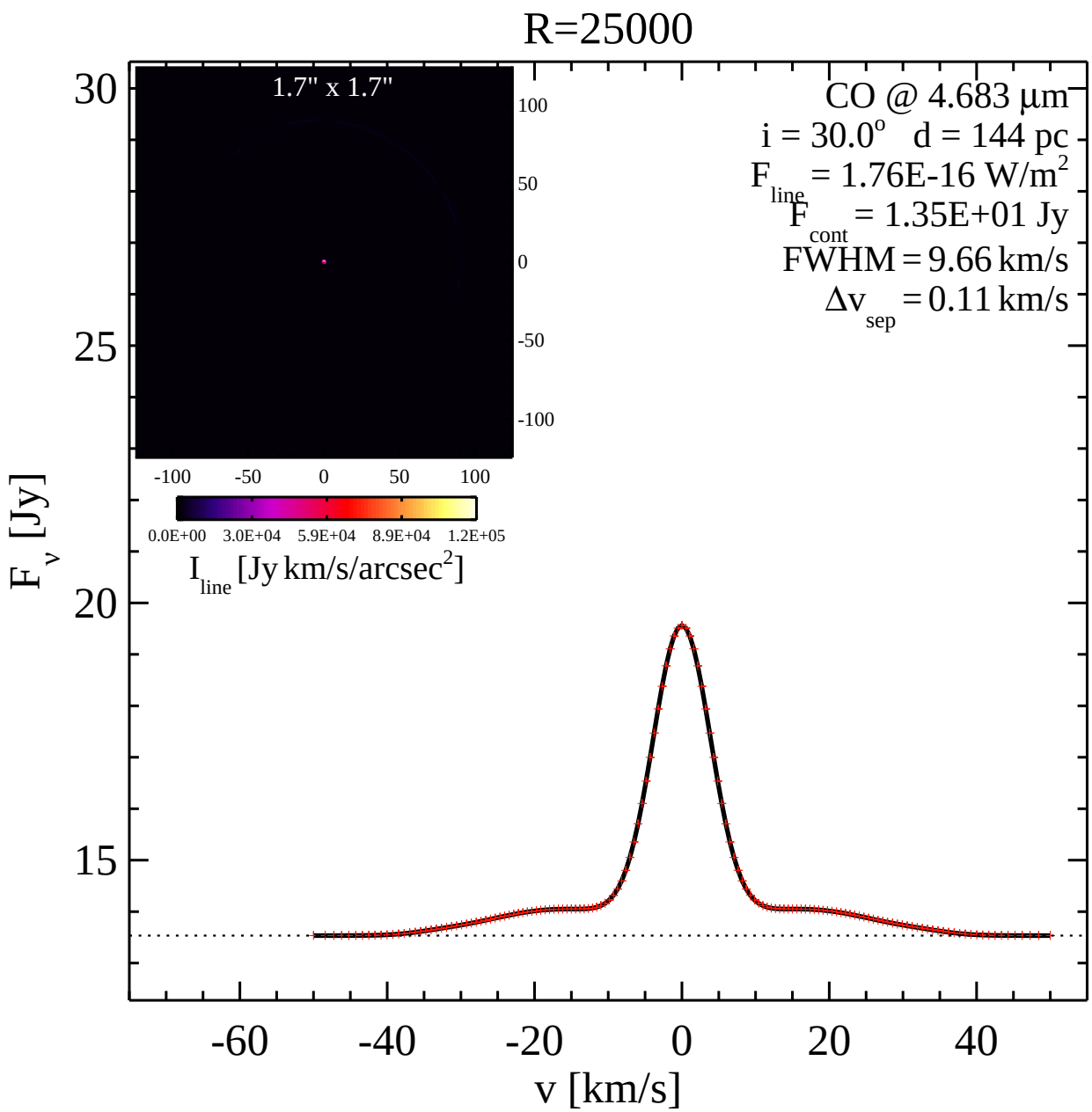

3.6" x 3.6"
200
100
0
-100
-200
-200 -100 0 100 200
0 228 456 684 912
I line [Jy km/s/arcsec2]
CO @ 173.63 µm
i = 30.0o d = 144 pc
F line = 8.72E-17 W/m2
F cont = 4.26E+01 Jy
FWHM = 4.05 km/s
Δv sep = 2.51 km/s
F v [Jy]
500
400
300
200
100
-15 -10 -5 0 5 10
v [km/s]

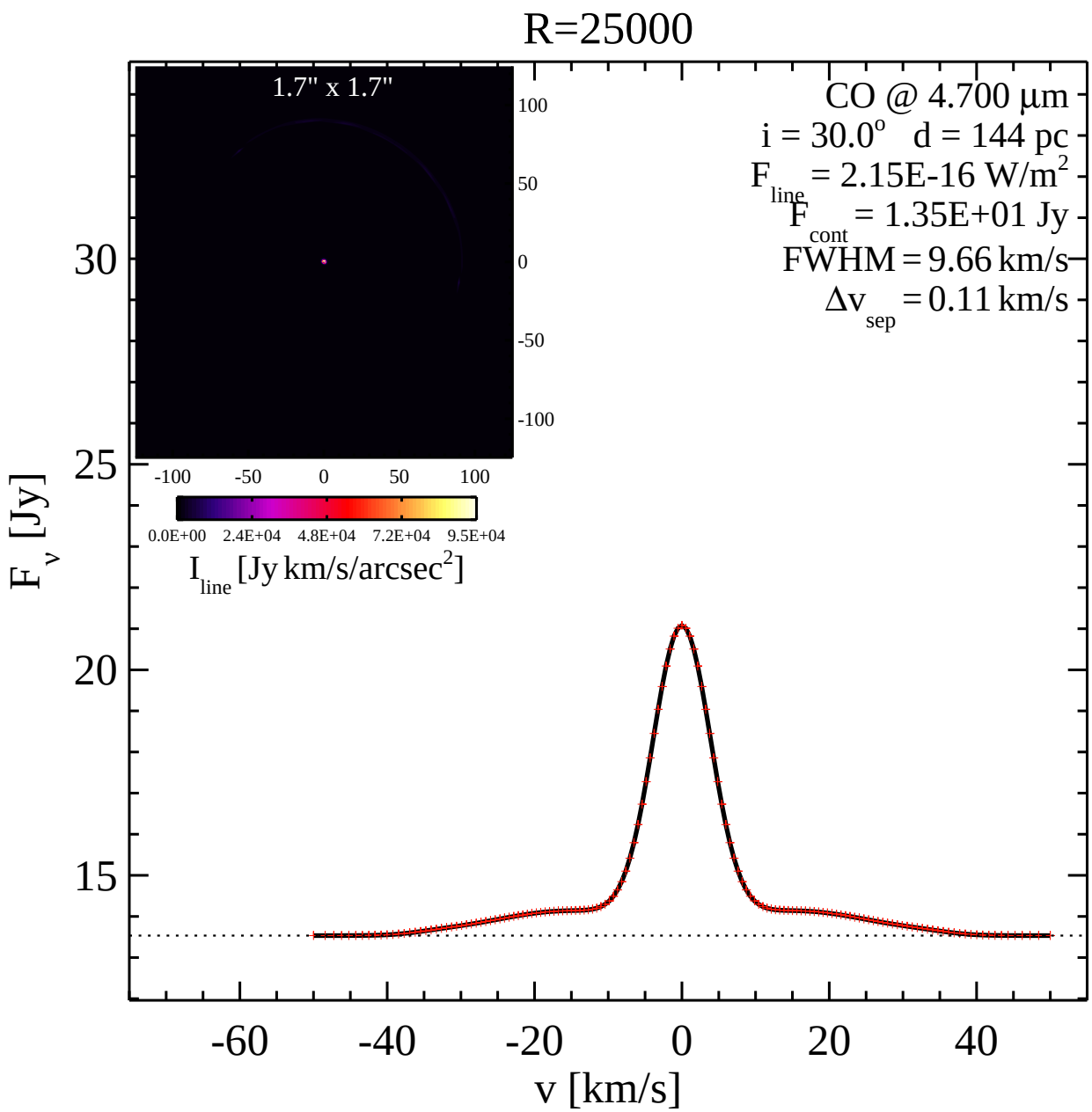

4.3" x 4.3"
CO @ 186.00 µm
i = 30.0° d = 144 pc
F line = 8.74E-17 W/m2
F cont = 3.68E+01 Jy
FWHM = 3.67 km/s
Δv sep = 2.32 km/s
F v [Jy]
v [km/s]
I line [Jy km/s/arcsec2]
0 204 408 612 817
600
500
400
300
200
100
0
-15 -10 -5 0 5 10
-300 -200 -100 0 100 200 300

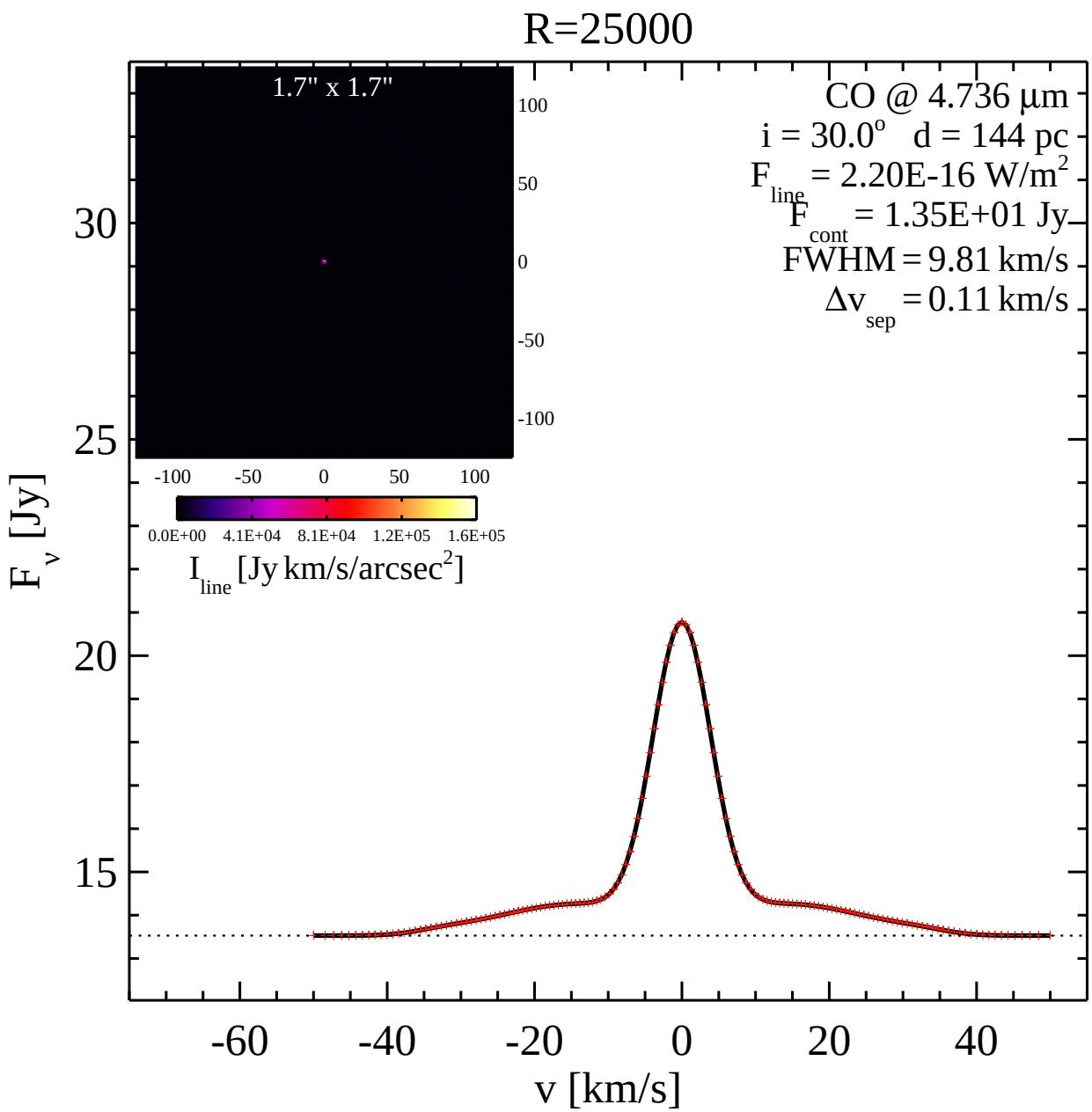

R=25000
1.7" x 1.7"
100
50
0
-50
-100
-100 -50 0 50 100
0.0E+00 3.8E+04 7.7E+04 1.2E+05 1.5E+05
I line [Jy km/s/arcsec2]
CO @ 4.633 µm
i = 30.0o d = 144 pc
F line = 1.81E-16 W/m2
F cont = 1.35E+01 Jy
FWHM = 9.81 km/s
Δv sep = 0.11 km/s
F v [Jy]
25
20
15
-60 -40 -20 0 20 40
v [km/s]

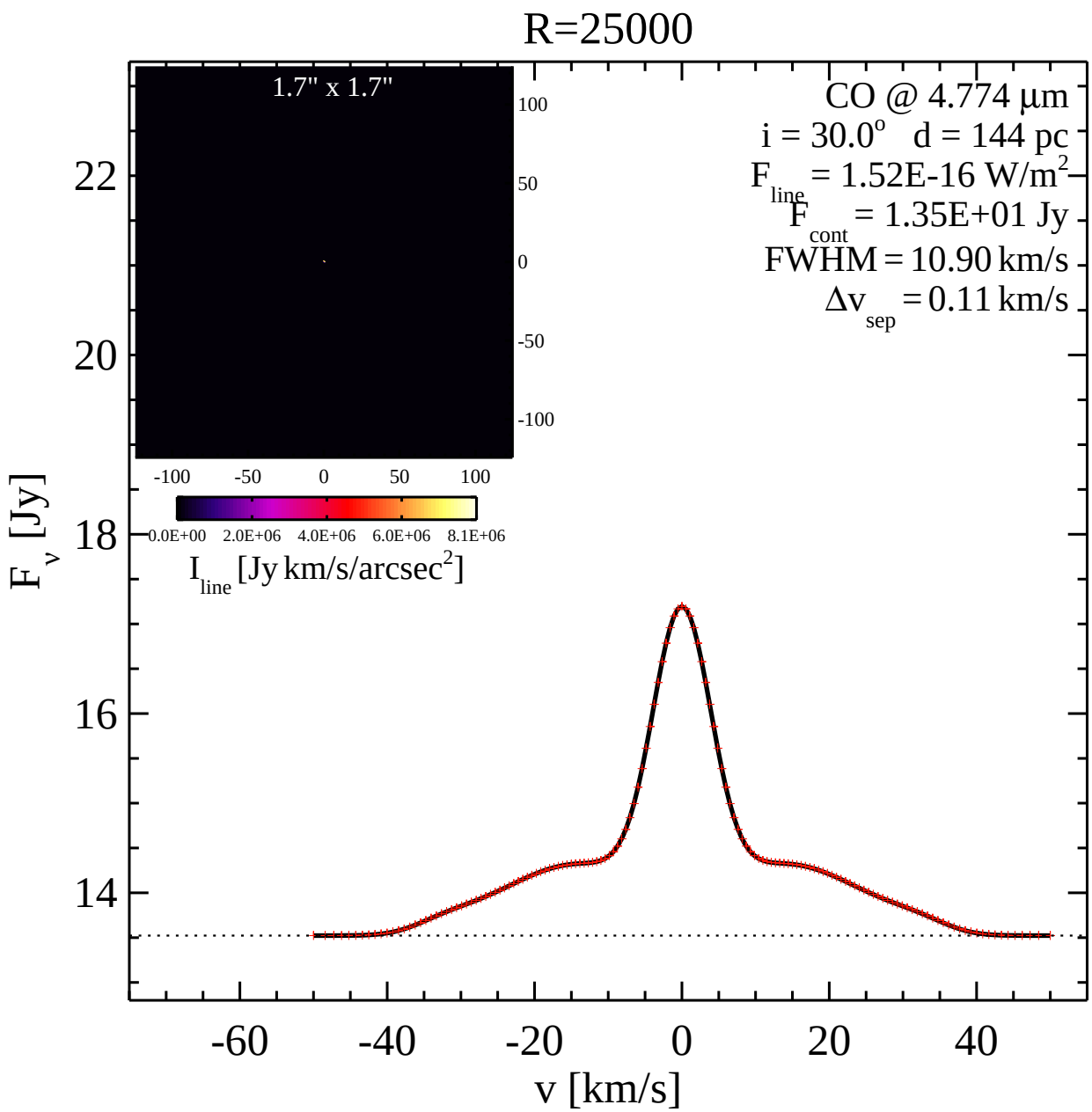

R=25000
1.7" x 1.7"
100
50
0
-50
-100
-100 -50 0 50 100
0.0E+00 3.6E+04 7.2E+04 1.1E+05 1.4E+05
I line [Jy km/s/arcsec2]
CO @ 4.657 µm
i = 30.0o d = 144 pc
F line = 1.41E-16 W/m2
F cont = 1.35E+01 Jy
FWHM = 9.74 km/s
Δv sep = 0.11 km/s
F v [Jy]
26
24
22
20
18
16
14
-60 -40 -20 0 20 40
v [km/s]

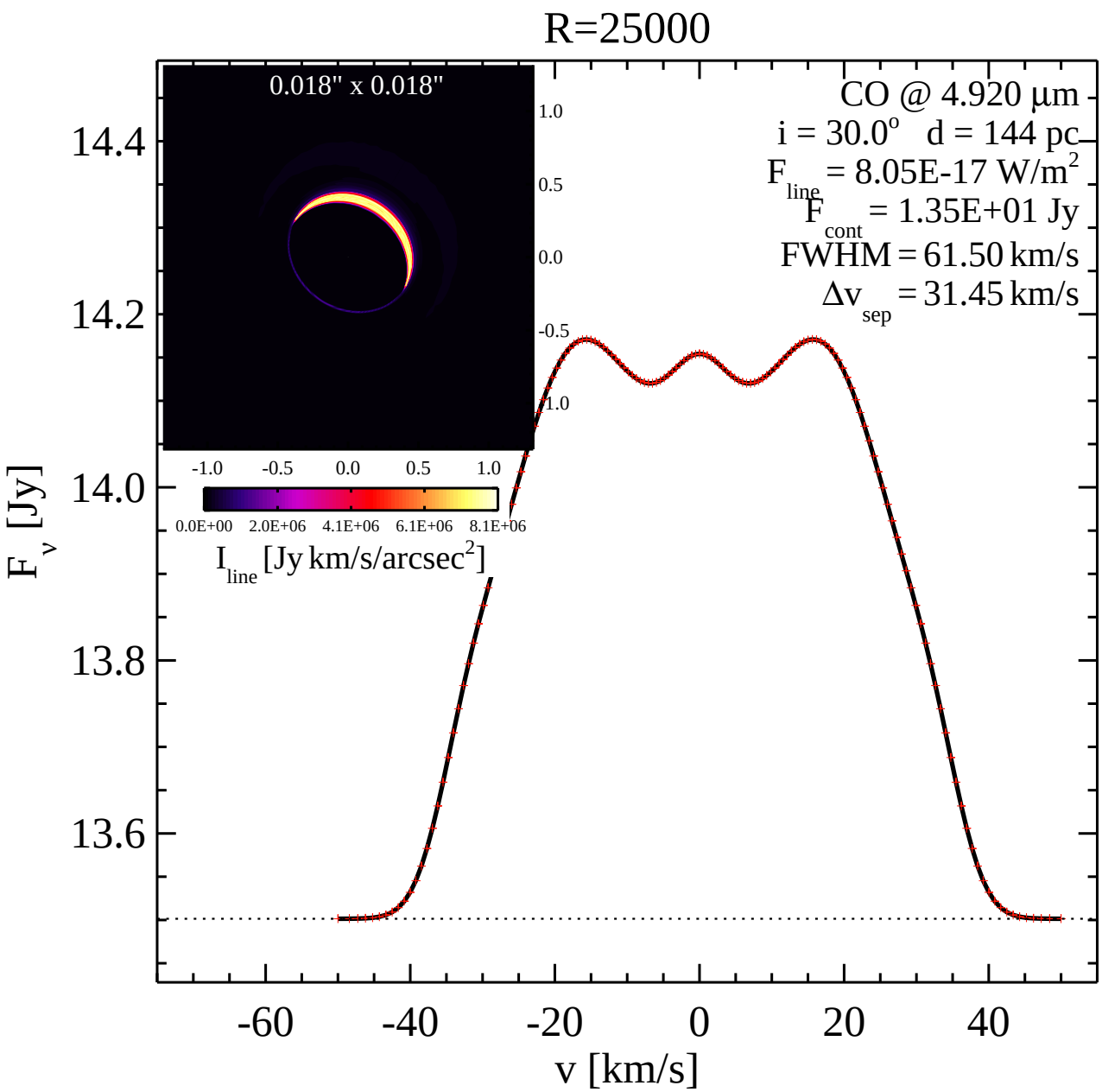

R=25000
1.7" x 1.7"
100
50
0
-50
-100
-100 -50 0 50 100
0.0E+00 3.6E+04 7.2E+04 1.1E+05 1.4E+05
I line [Jy km/s/arcsec2]
CO @ 4.674 µm
i = 30.0° d = 144 pc
F line = 1.43E-16 W/m2
F cont = 1.35E+01 Jy
FWHM = 9.74 km/s
Δv sep = 0.11 km/s
F v [Jy]
26
24
22
20
18
16
14
-60 -40 -20 0 20 40
v [km/s]

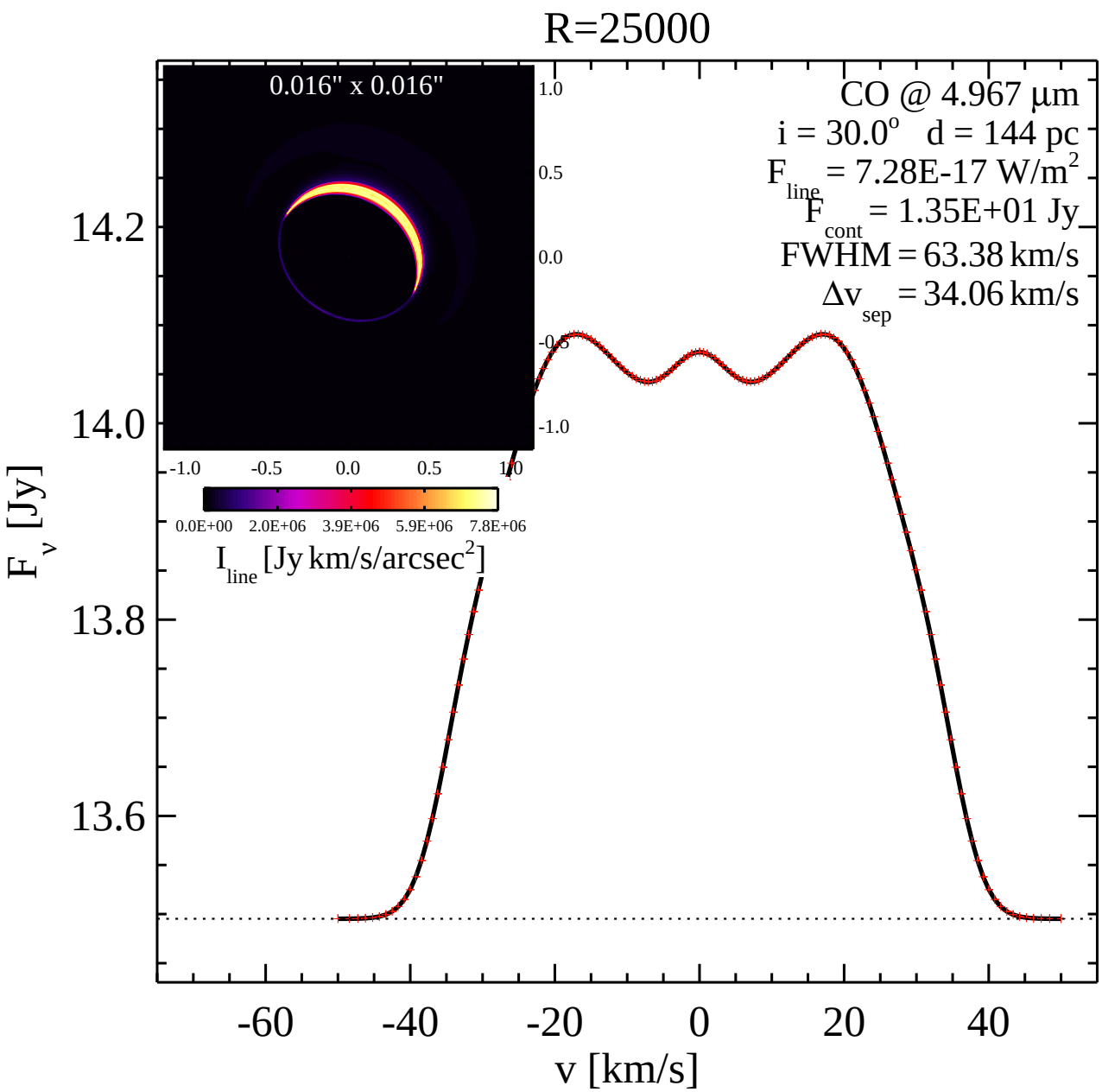

R=25000
1.7" x 1.7"
100
50
0
-50
-100
-100 -50 0 50 100
0.0E+00 3.0E+04 5.9E+04 8.9E+04 1.2E+05
I line [Jy km/s/arcsec2]
CO @ 4.683 µm
i = 30.0o d = 144 pc
F line = 1.76E-16 W/m2
F cont = 1.35E+01 Jy
FWHM = 9.66 km/s
Δv sep = 0.11 km/s
F v [Jy]
30
25
20
15
-60 -40 -20 0 20 40
v [km/s]

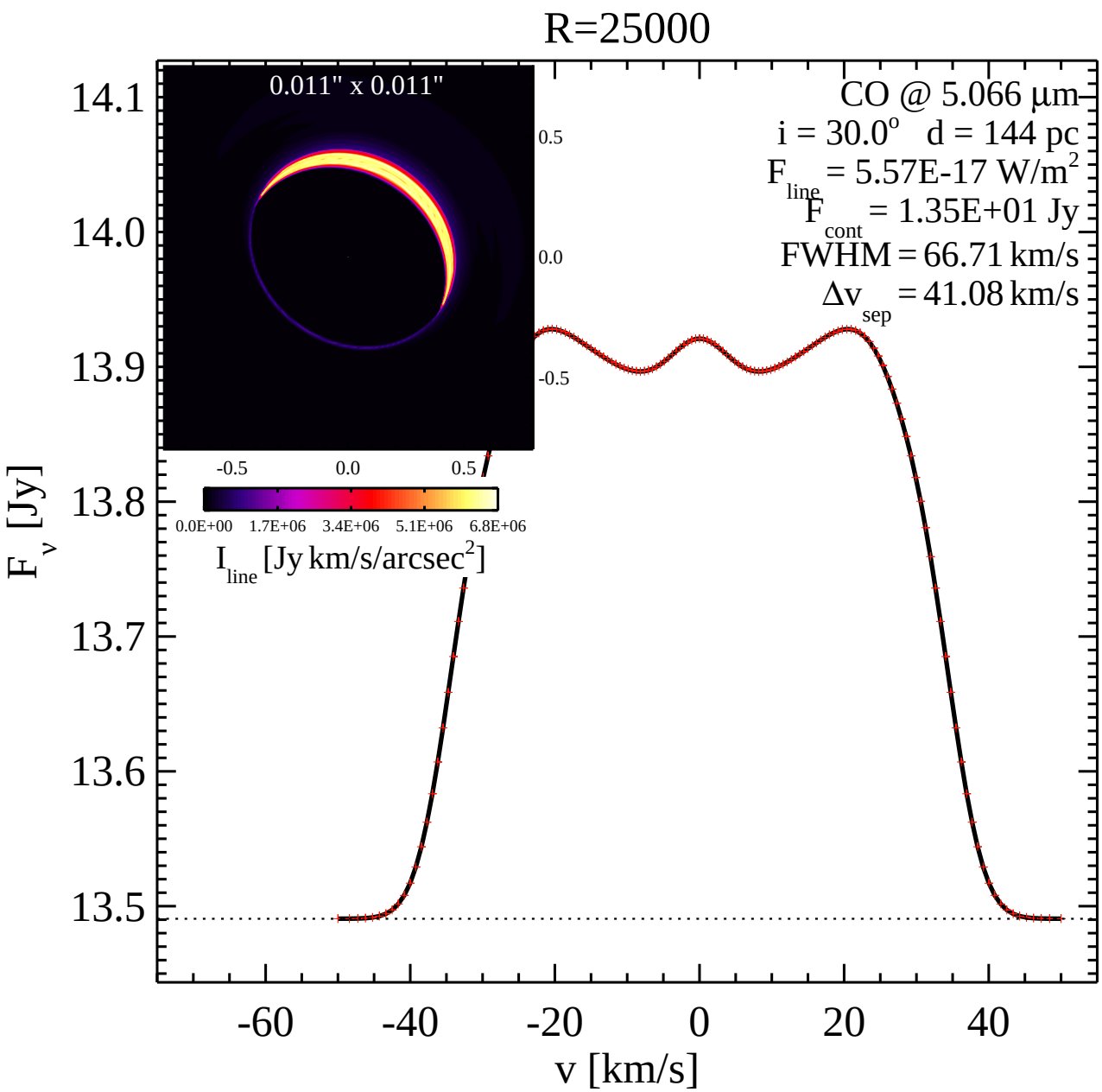

R=25000
1.7" x 1.7"
100
50
0
-50
-100
-100 -50 0 50 100
0.0E+00 2.4E+04 4.8E+04 7.2E+04 9.5E+04
I line [Jy km/s/arcsec2]
CO @ 4.700 µm
i = 30.0o d = 144 pc
F line = 2.15E-16 W/m2
F cont = 1.35E+01 Jy
FWHM = 9.66 km/s
Δv sep = 0.11 km/s
F v [Jy]
30
25
20
15
-60 -40 -20 0 20 40
v [km/s]

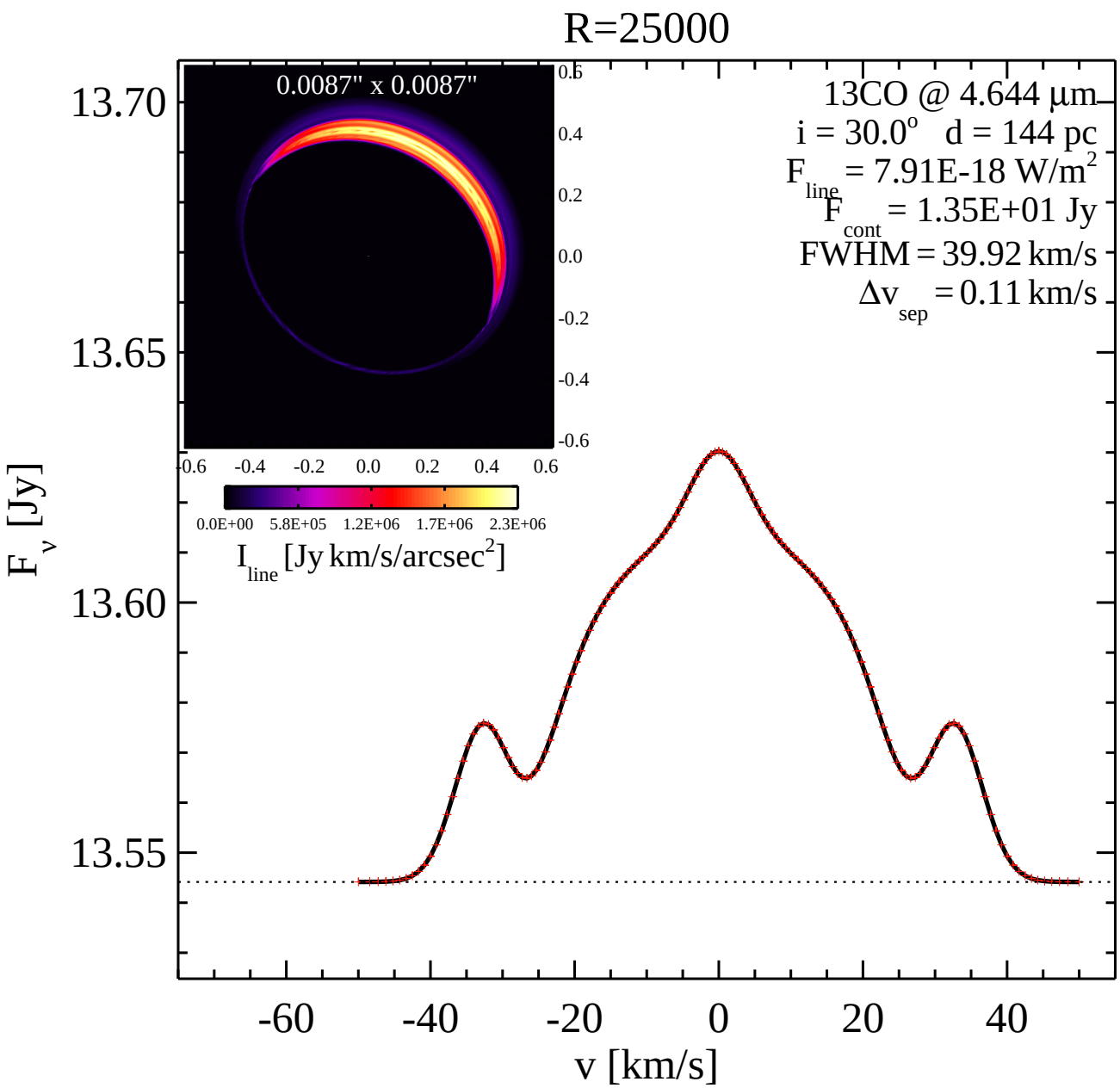

R=25000
1.7" x 1.7"
100
50
0
-50
-100
-100 -50 0 50 100
0.0E+00 4.1E+04 8.1E+04 1.2E+05 1.6E+05
I line [Jy km/s/arcsec2]
CO @ 4.736 µm
i = 30.0o d = 144 pc
F line = 2.20E-16 W/m2
F cont = 1.35E+01 Jy
FWHM = 9.81 km/s
Δv sep = 0.11 km/s
F v [Jy]
30
25
20
15
-60 -40 -20 0 20 40
v [km/s]

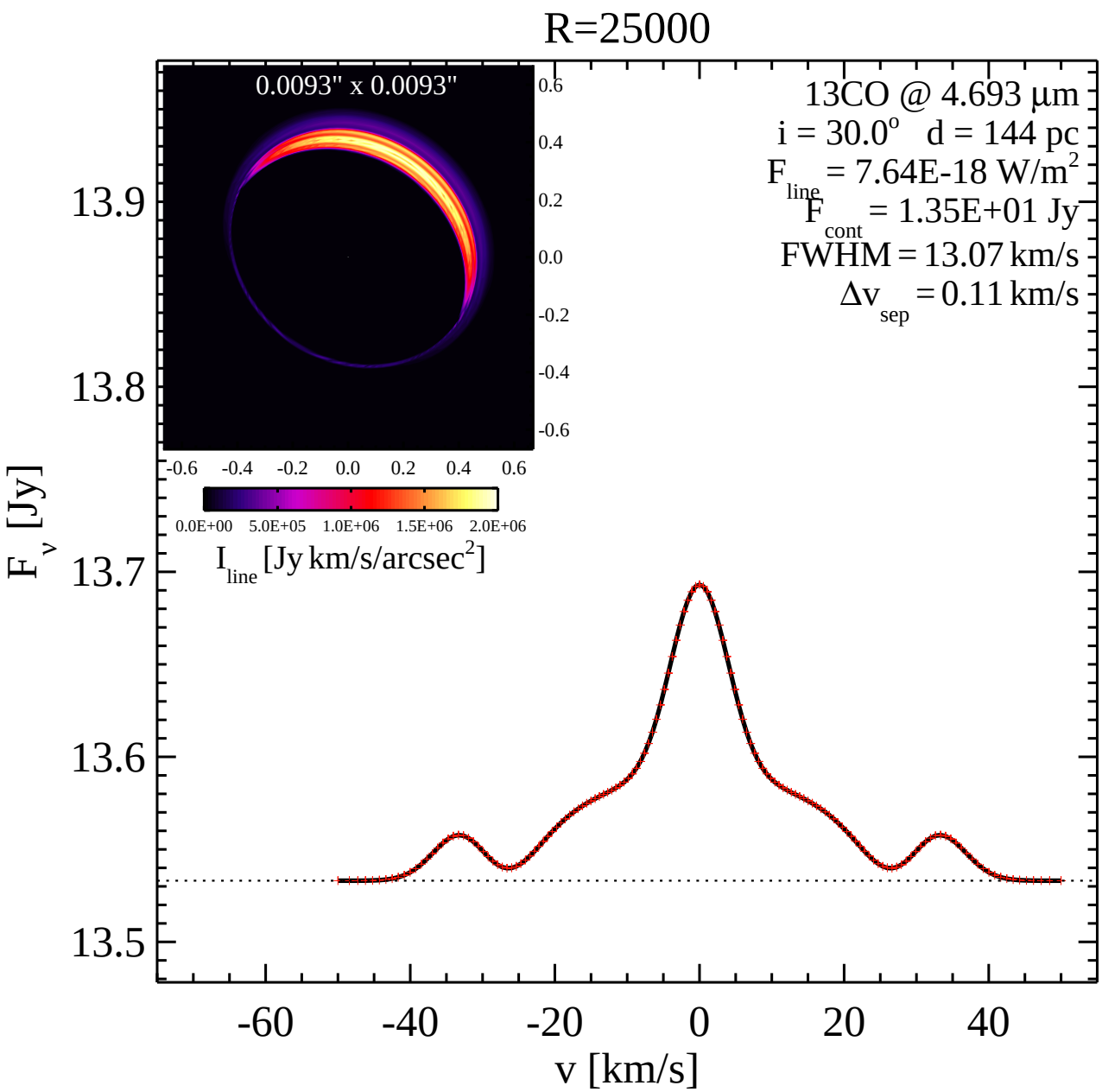

R=25000
1.7" x 1.7"
100
50
0
-50
-100
-100 -50 0 50 100
0.0E+00 2.0E+06 4.0E+06 6.0E+06 8.1E+06
I line [Jy km/s/arcsec2]
CO @ 4.774 µm
i = 30.0o d = 144 pc
F line = 1.52E-16 W/m2
F cont = 1.35E+01 Jy
FWHM = 10.90 km/s
Δv sep = 0.11 km/s
F v [Jy]
22
20
18
16
14
-60 -40 -20 0 20 40
v [km/s]

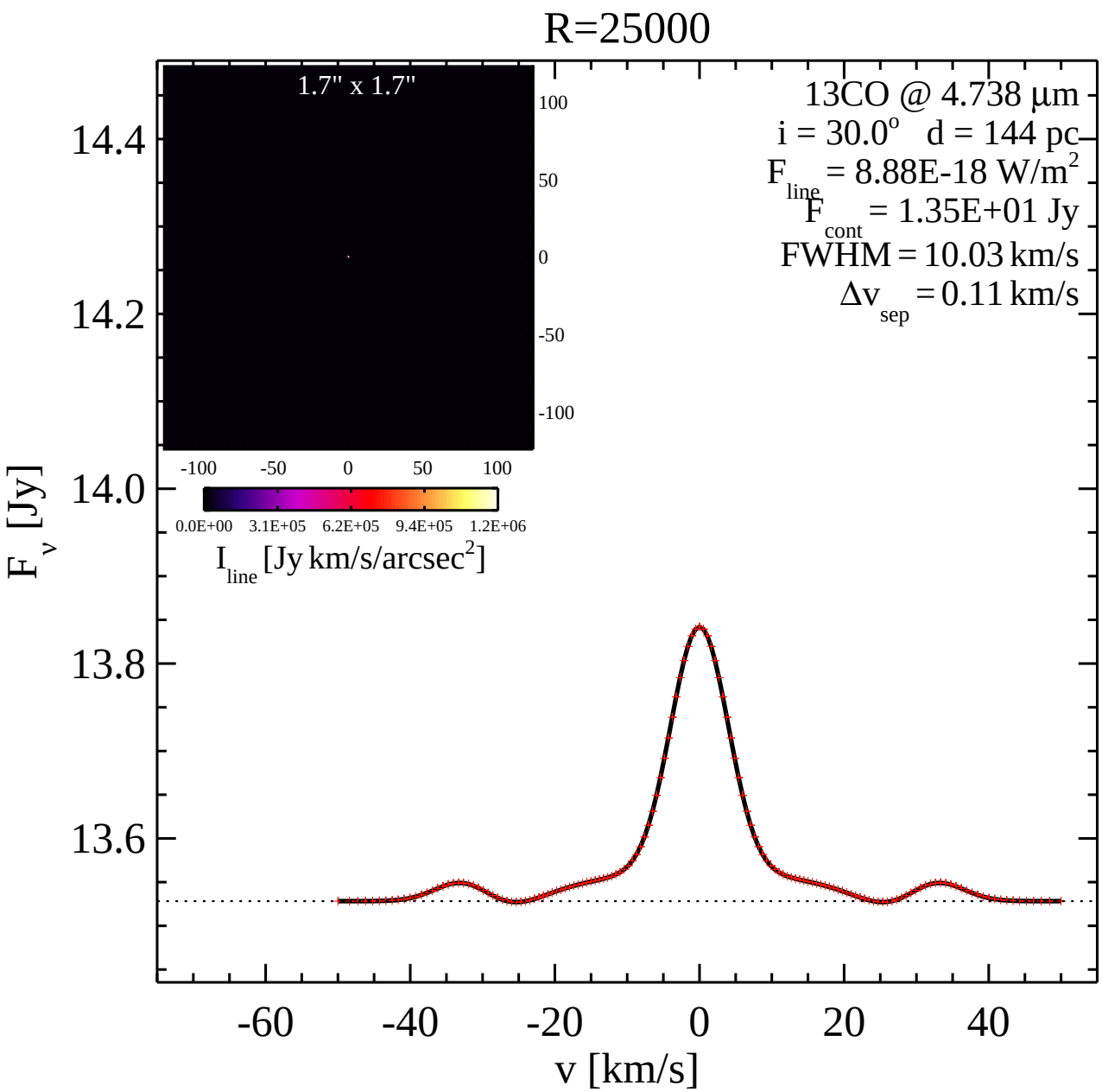

R=25000
0.018" x 0.018"
CO @ 4.920 µm
i = 30.0° d = 144 pc
F line = 8.05E-17 W/m2
F cont = 1.35E+01 Jy
FWHM = 61.50 km/s
Δv sep = 31.45 km/s
1.0
0.5
0.0
-0.5
-1.0
-1.0 -0.5 0.0 0.5 1.0
0.0E+00 2.0E+06 4.1E+06 6.1E+06 8.1E+06
I line [Jy km/s/arcsec2]
F v [Jy]
14.4
14.2
14.0
13.8
13.6
-60 -40 -20 0 20 40
v [km/s]

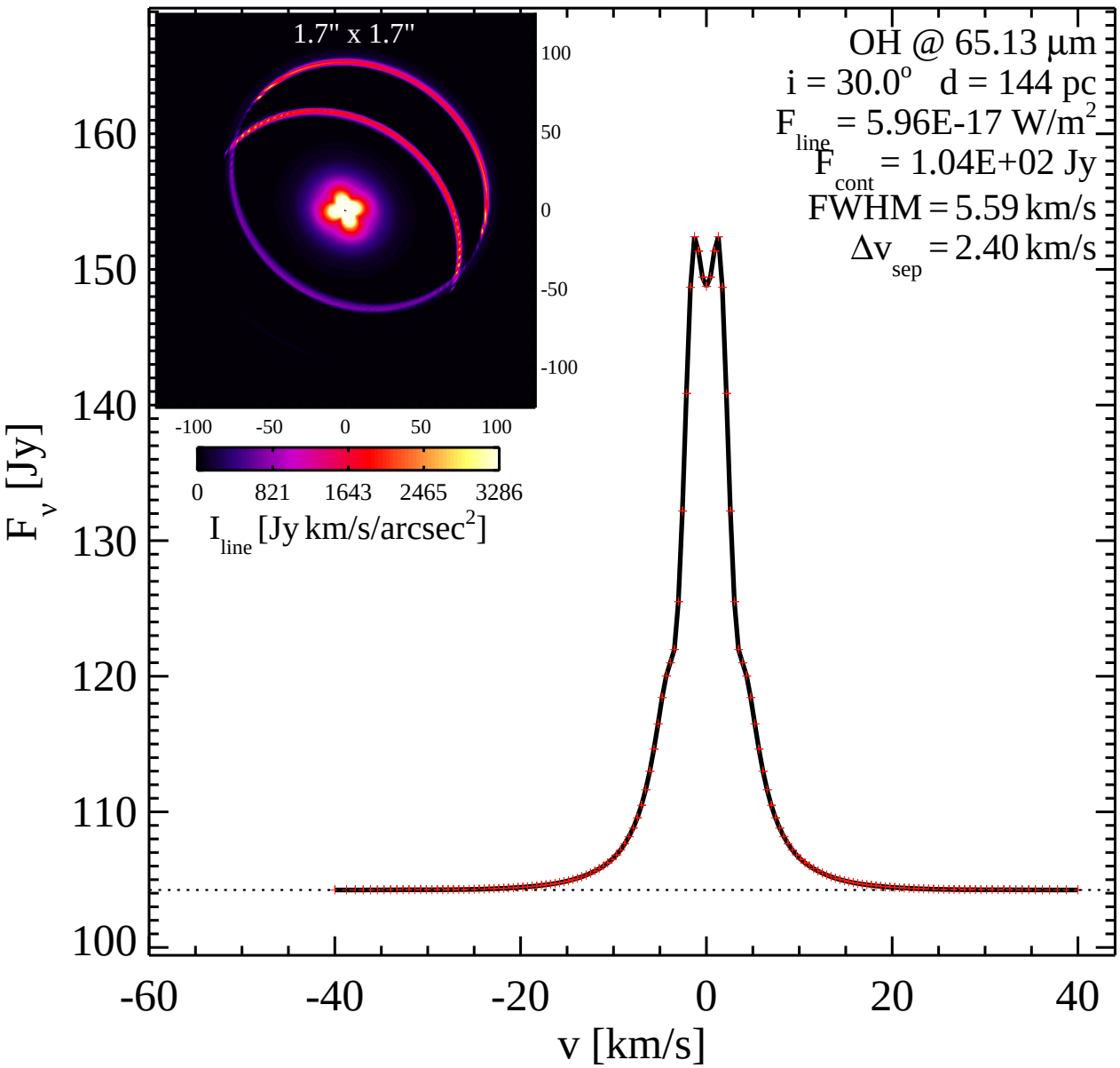

R=25000
0.016" x 0.016"
CO @ 4.967 μm
i = 30.0° d = 144 pc
F line = 7.28E-17 W/m2
F cont = 1.35E+01 Jy
FWHM = 63.38 km/s
Δv sep = 34.06 km/s
I line [Jy km/s/arcsec2]
0.0E+00 2.0E+06 3.9E+06 5.9E+06 7.8E+06
F v [Jy]
v [km/s]

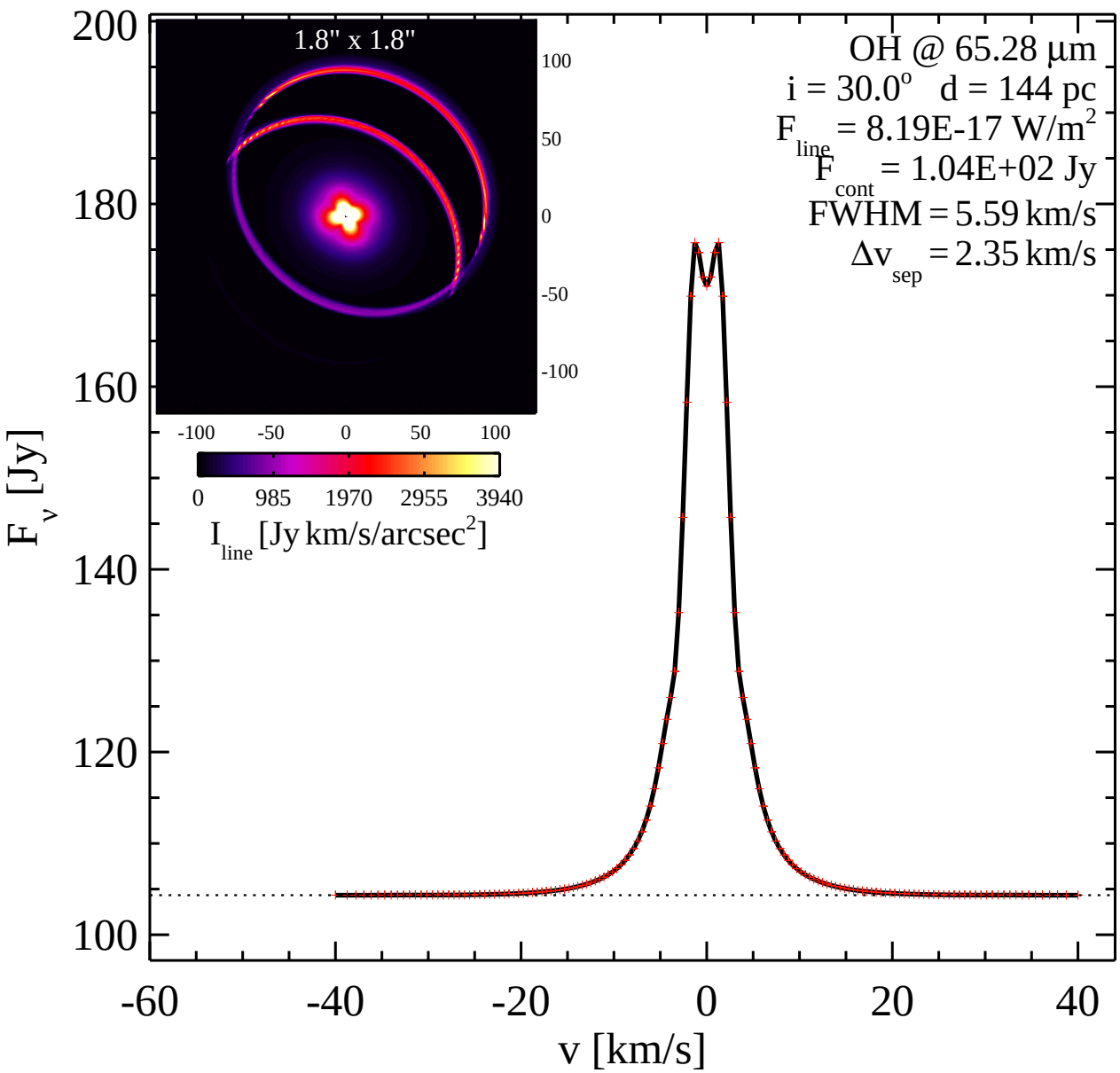

R=25000
0.011" x 0.011"
CO @ 5.066 µm
i = 30.0° d = 144 pc
F line = 5.57E-17 W/m2
F cont = 1.35E+01 Jy
FWHM = 66.71 km/s
Δv sep = 41.08 km/s
0.5
0.0
-0.5
-0.5 0.0 0.5
0.0E+00 1.7E+06 3.4E+06 5.1E+06 6.8E+06
I line [Jy km/s/arcsec2]
F v [Jy]
14.1
14.0
13.9
13.8
13.7
13.6
13.5
-60 -40 -20 0 20 40
v [km/s]

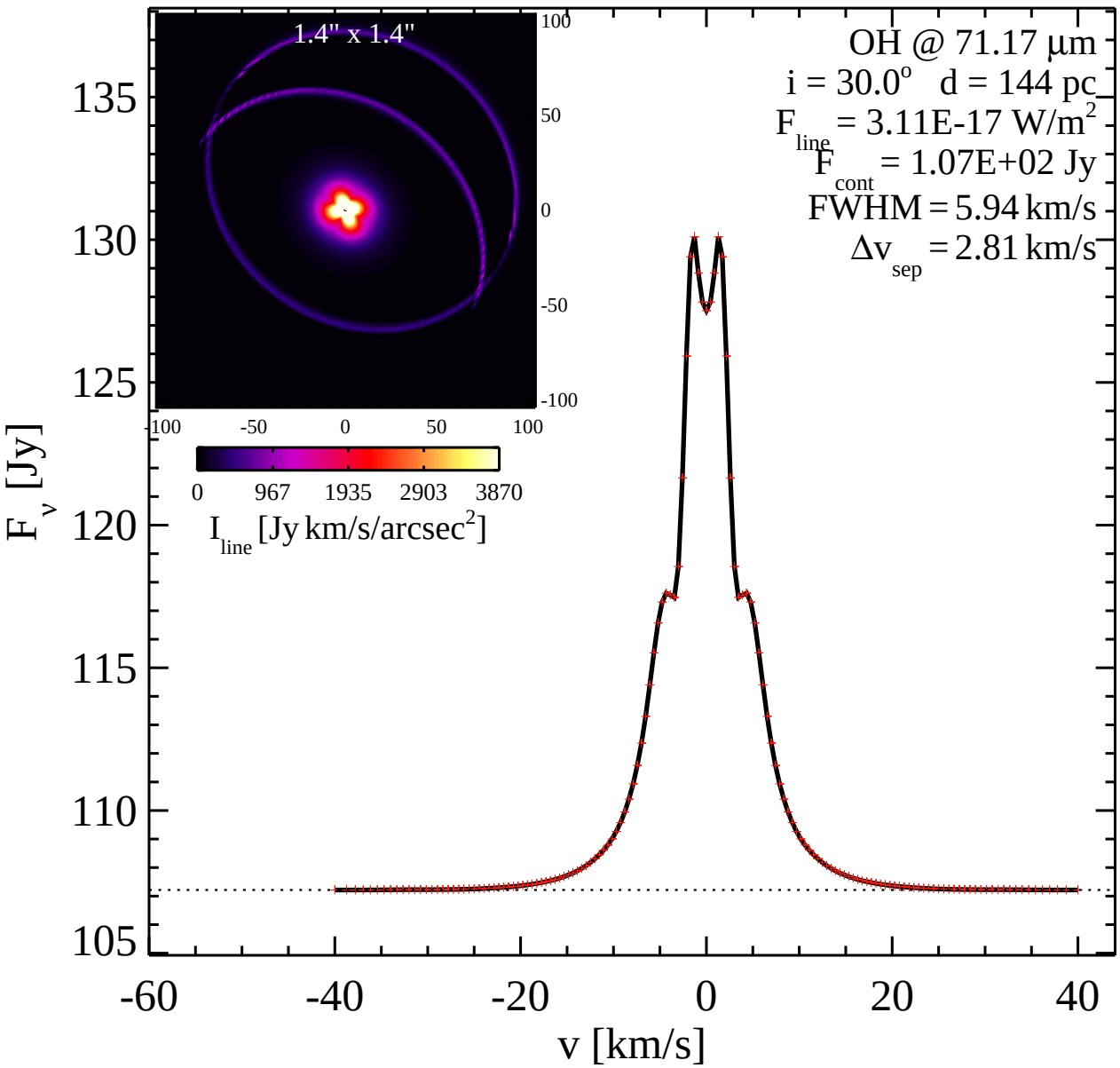

R=25000
13CO @ 4.644 µm
i = 30.0° d = 144 pc
F line = 7.91E-18 W/m2
F cont = 1.35E+01 Jy
FWHM = 39.92 km/s
Δv sep = 0.11 km/s
0.0087" x 0.0087"
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
0.0E+00 5.8E+05 1.2E+06 1.7E+06 2.3E+06
I line [Jy km/s/arcsec2]
13.70
13.65
13.60
13.55
F v [Jy]
-60 -40 -20 0 20 40
v [km/s]

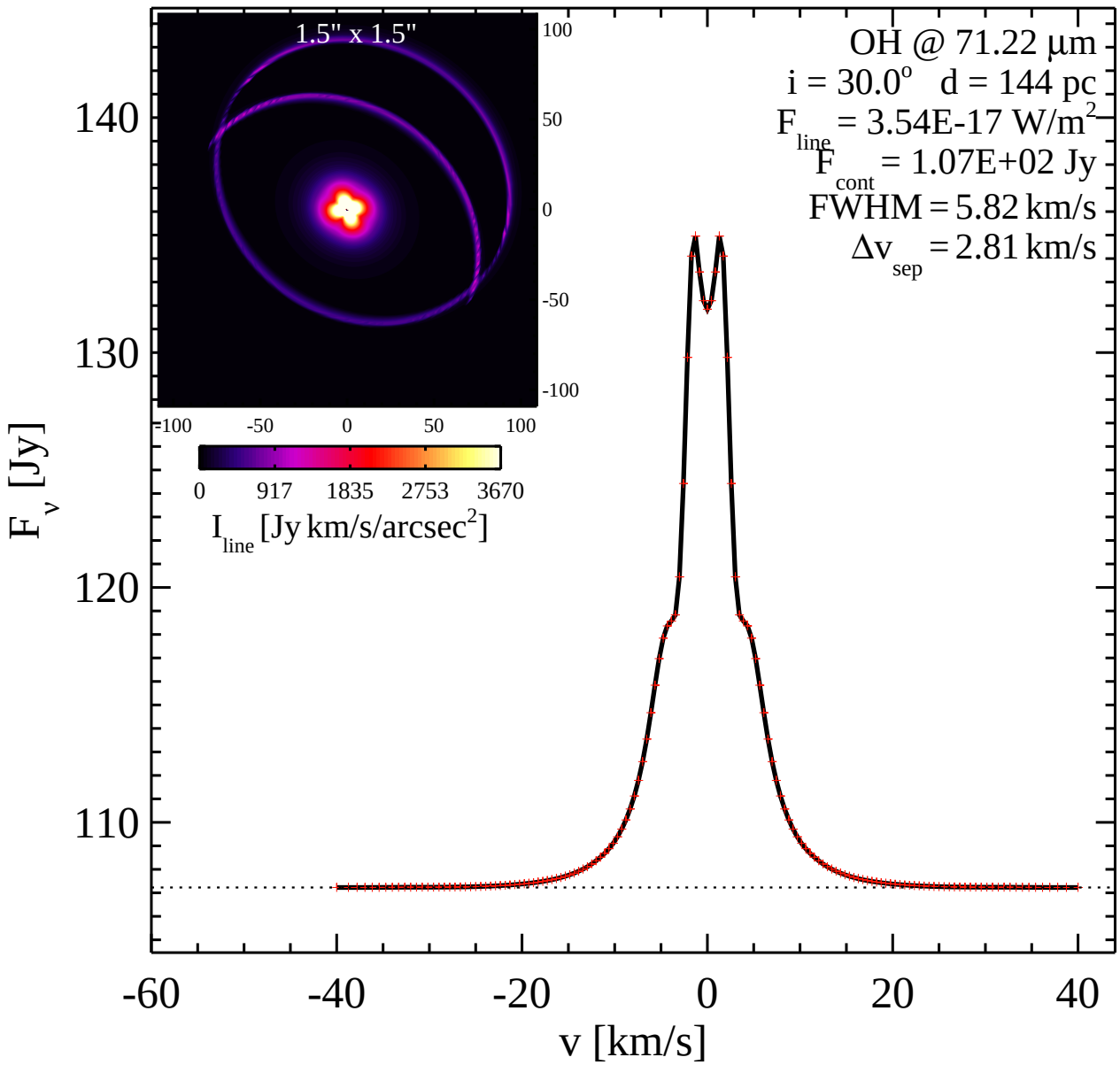

R=25000
0.0093" x 0.0093"
13CO @ 4.693 µm
i = 30.0° d = 144 pc
F line = 7.64E-18 W/m2
F cont = 1.35E+01 Jy
FWHM = 13.07 km/s
Δv sep = 0.11 km/s
I line [Jy km/s/arcsec2]
F v [Jy]
v [km/s]

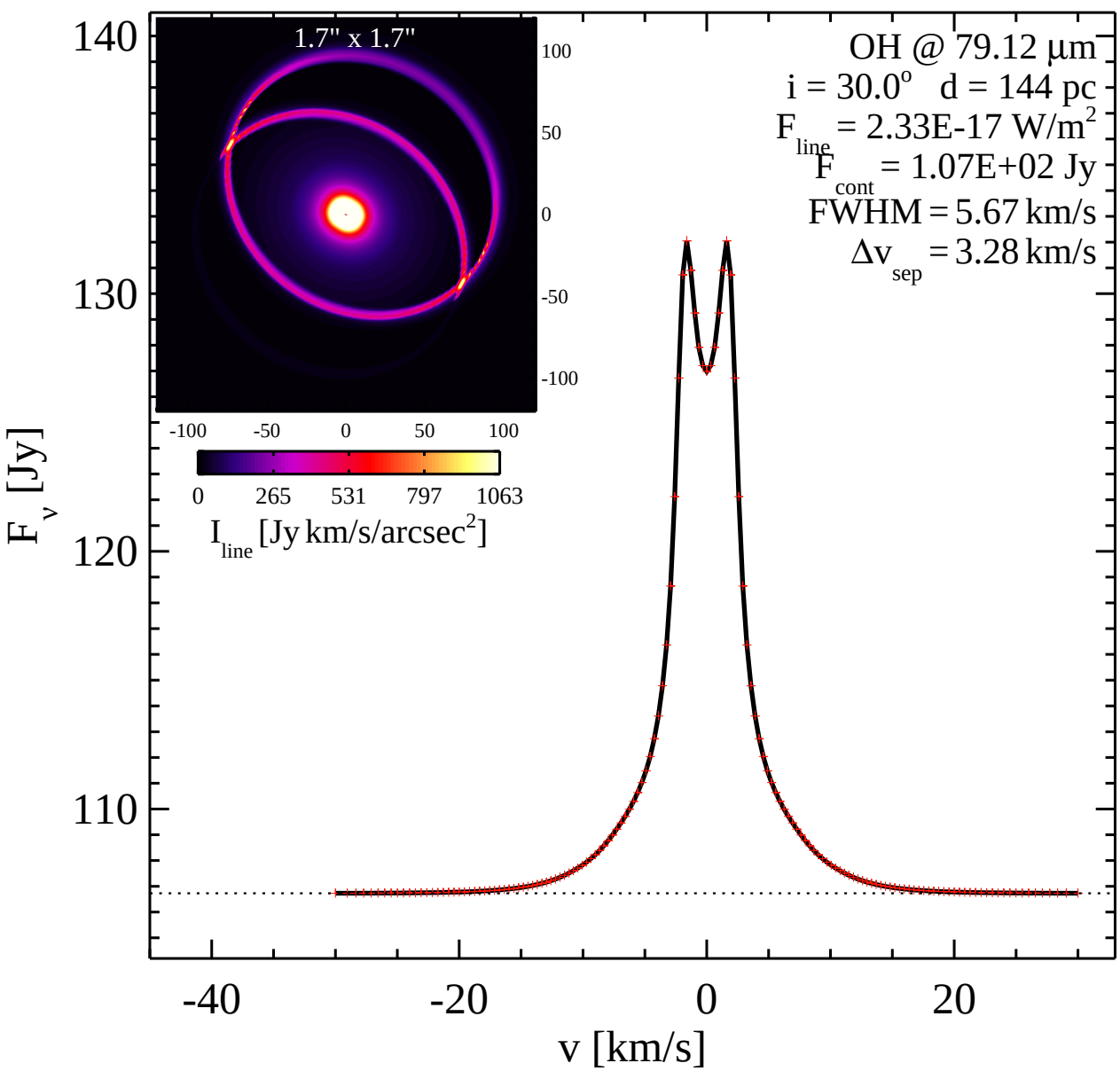

R=25000
1.7" x 1.7"
100
50
0
-50
-100
-100 -50 0 50 100
0.0E+00 3.1E+05 6.2E+05 9.4E+05 1.2E+06
I line [Jy km/s/arcsec2]
13CO @ 4.738 µm
i = 30.0° d = 144 pc
F line = 8.88E-18 W/m2
F cont = 1.35E+01 Jy
FWHM = 10.03 km/s
Δv sep = 0.11 km/s
F v [Jy]
14.4
14.2
14.0
13.8
13.6
-60 -40 -20 0 20 40
v [km/s]

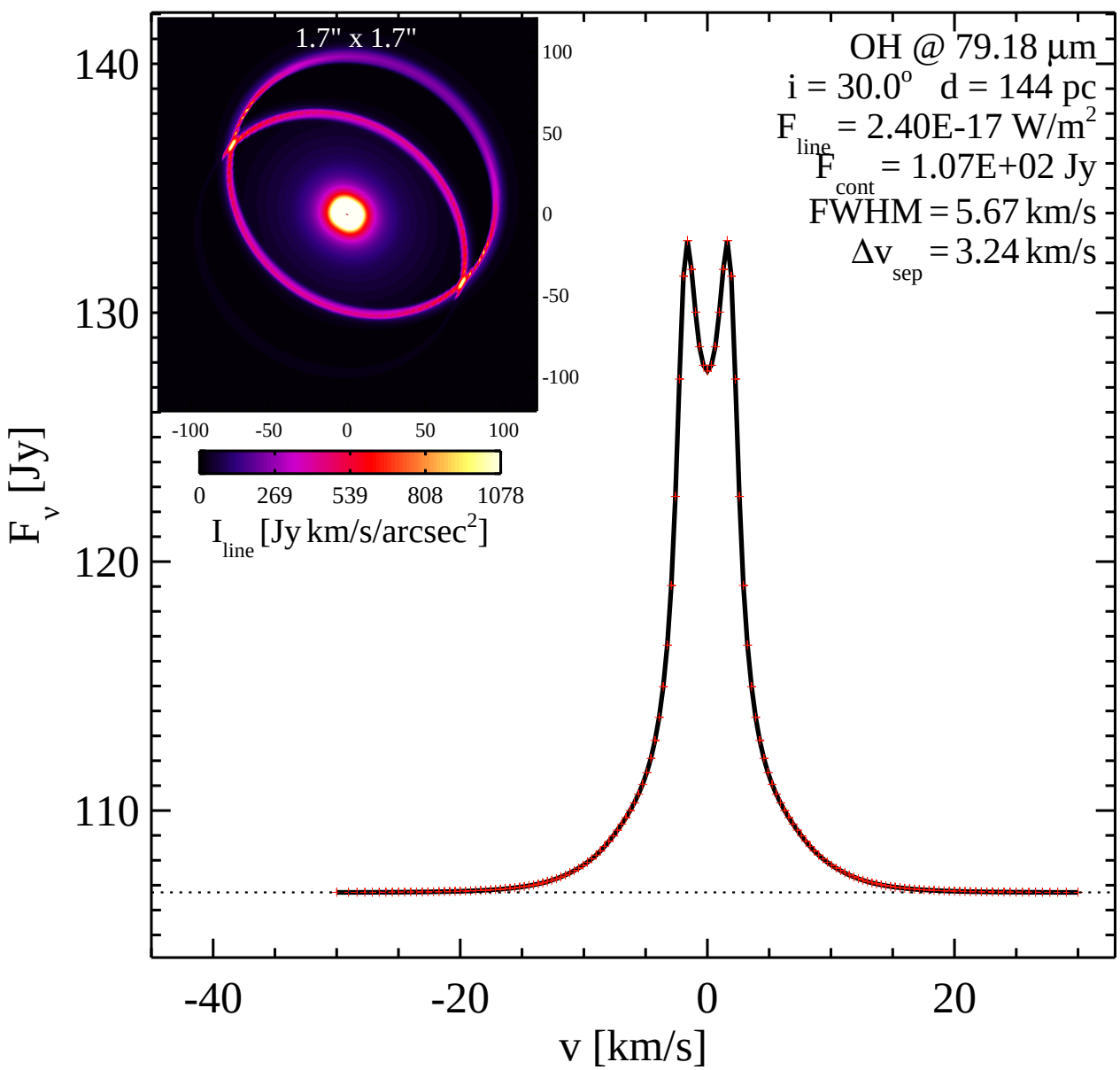

1.7" x 1.7"
100
50
0
-50
-100
-100 -50 0 50 100
0 821 1643 2465 3286
I line [Jy km/s/arcsec2]
OH @ 65.13 µm
i = 30.0° d = 144 pc
F line = 5.96E-17 W/m2
F cont = 1.04E+02 Jy
FWHM = 5.59 km/s
Δv sep = 2.40 km/s
F v [Jy]
160
150
140
130
120
110
100
-60 -40 -20 0 20 40
v [km/s]

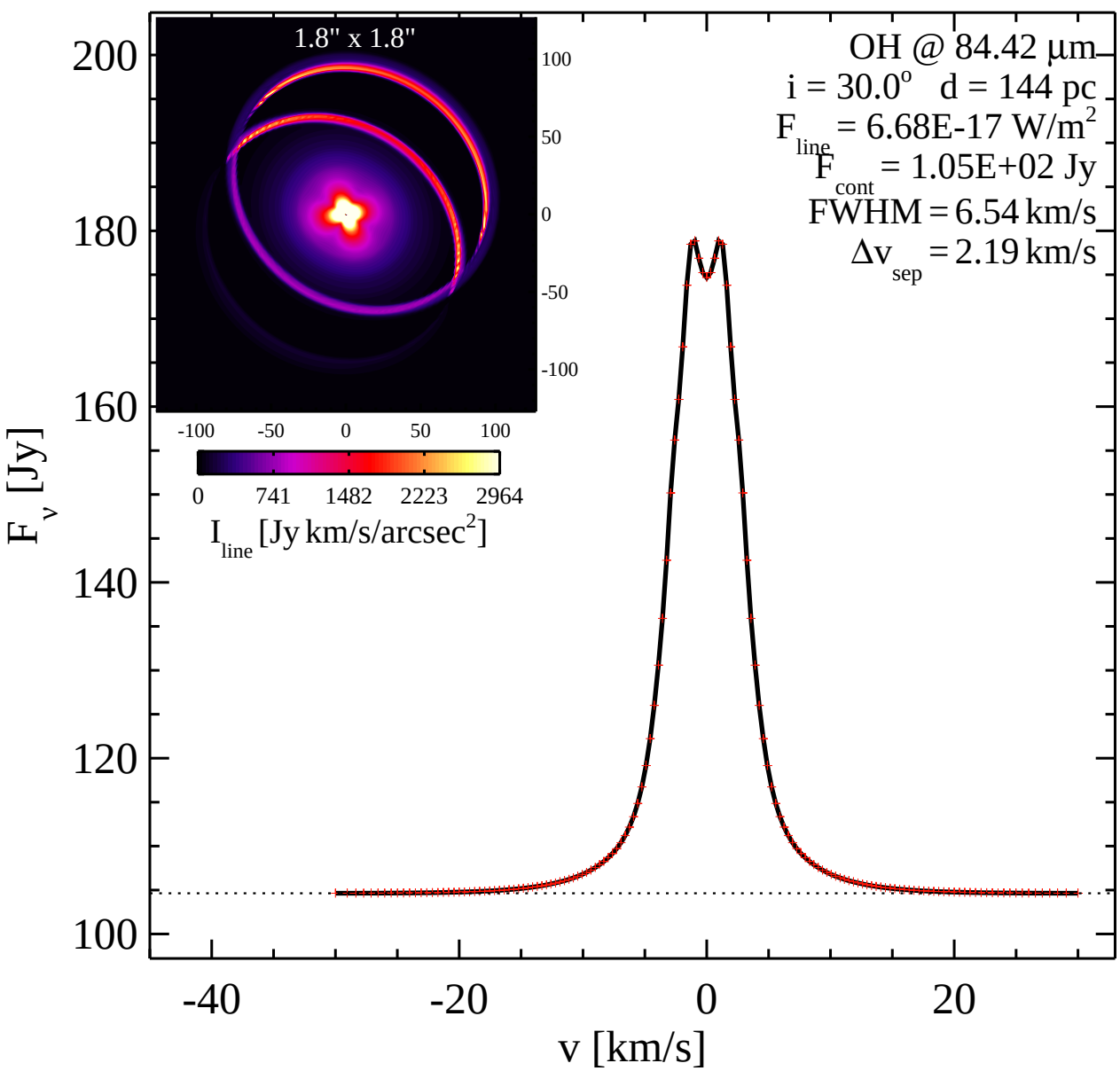

1.8" x 1.8"
100
50
0
-50
-100
-100 -50 0 50 100
0 985 1970 2955 3940
I line [Jy km/s/arcsec2]
OH @ 65.28 µm
i = 30.0o d = 144 pc
F line = 8.19E-17 W/m2
F cont = 1.04E+02 Jy
FWHM = 5.59 km/s
Δv sep = 2.35 km/s
F v [Jy]
200
180
160
140
120
100
-60 -40 -20 0 20 40
v [km/s]

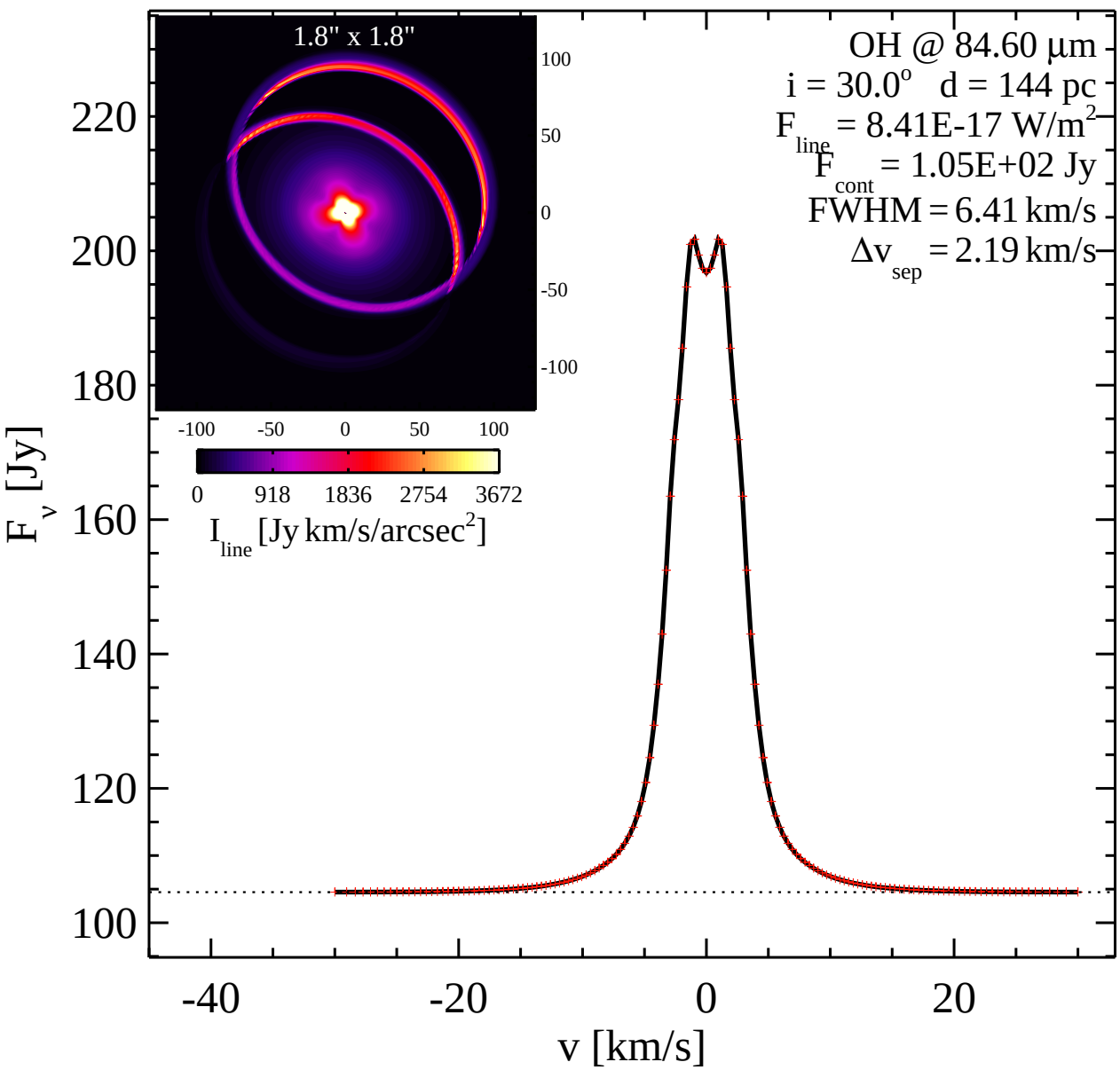

OH @ 71.17 μm
i = 30.0° d = 144 pc
F line = 3.11E-17 W/m2
F cont = 1.07E+02 Jy
FWHM = 5.94 km/s
Δv sep = 2.81 km/s
1.4" x 1.4"
100
50
0
-50
-100
-100 -50 0 50 100
0 967 1935 2903 3870
I line [Jy km/s/arcsec2]
F v [Jy]
135
130
125
120
115
110
105
-60 -40 -20 0 20 40
v [km/s]

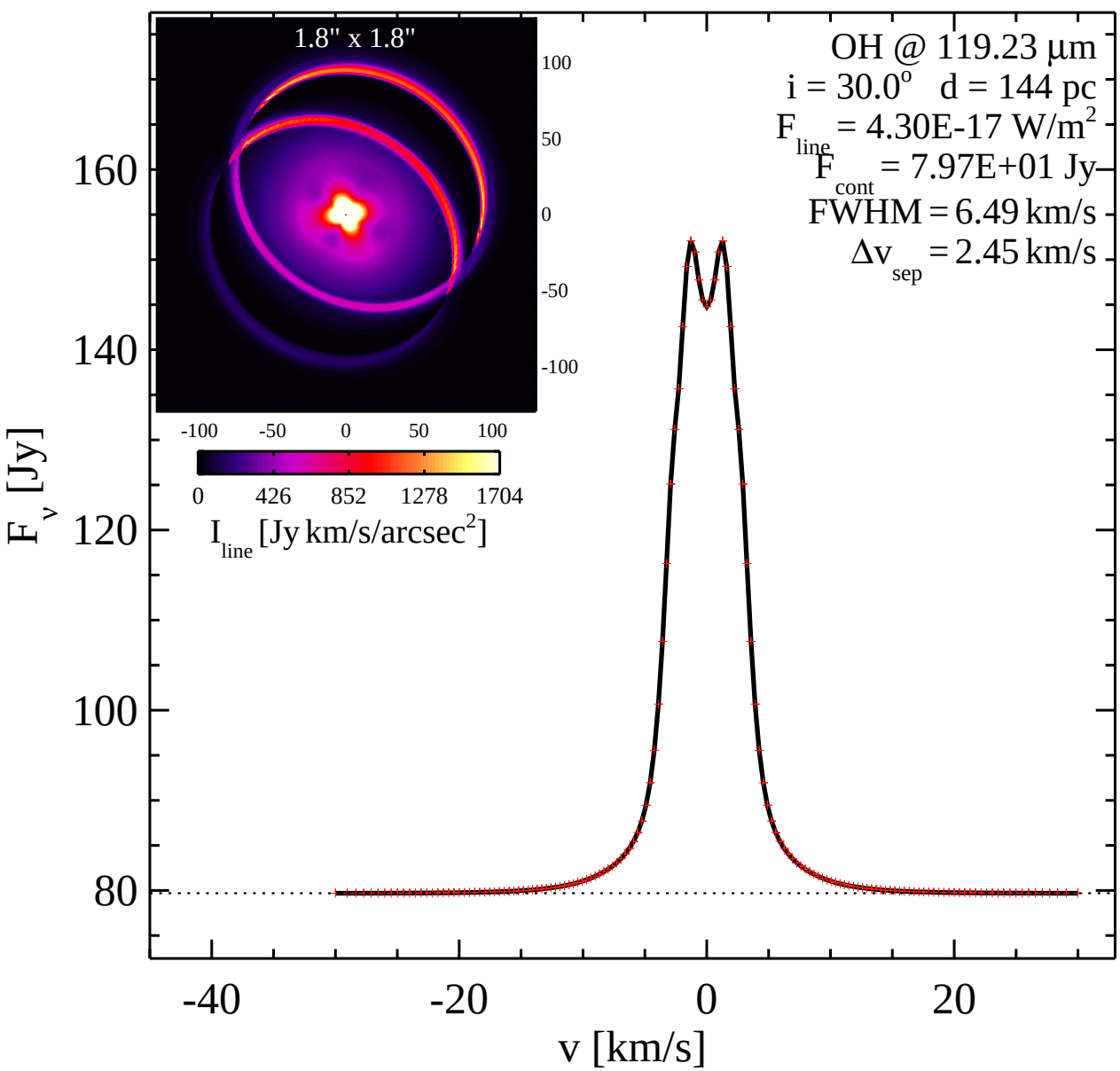

1.5" x 1.5"
100
50
0
-50
-100
-100
-50
0
50
100
0
917
1835
2753
3670
I line [Jy km/s/arcsec2]
OH @ 71.22 µm
i = 30.0o d = 144 pc
F line = 3.54E-17 W/m2
F cont = 1.07E+02 Jy
FWHM = 5.82 km/s
Δv sep = 2.81 km/s
F v [Jy]
140
130
120
110
-60
-40
-20
0
20
40
v [km/s]

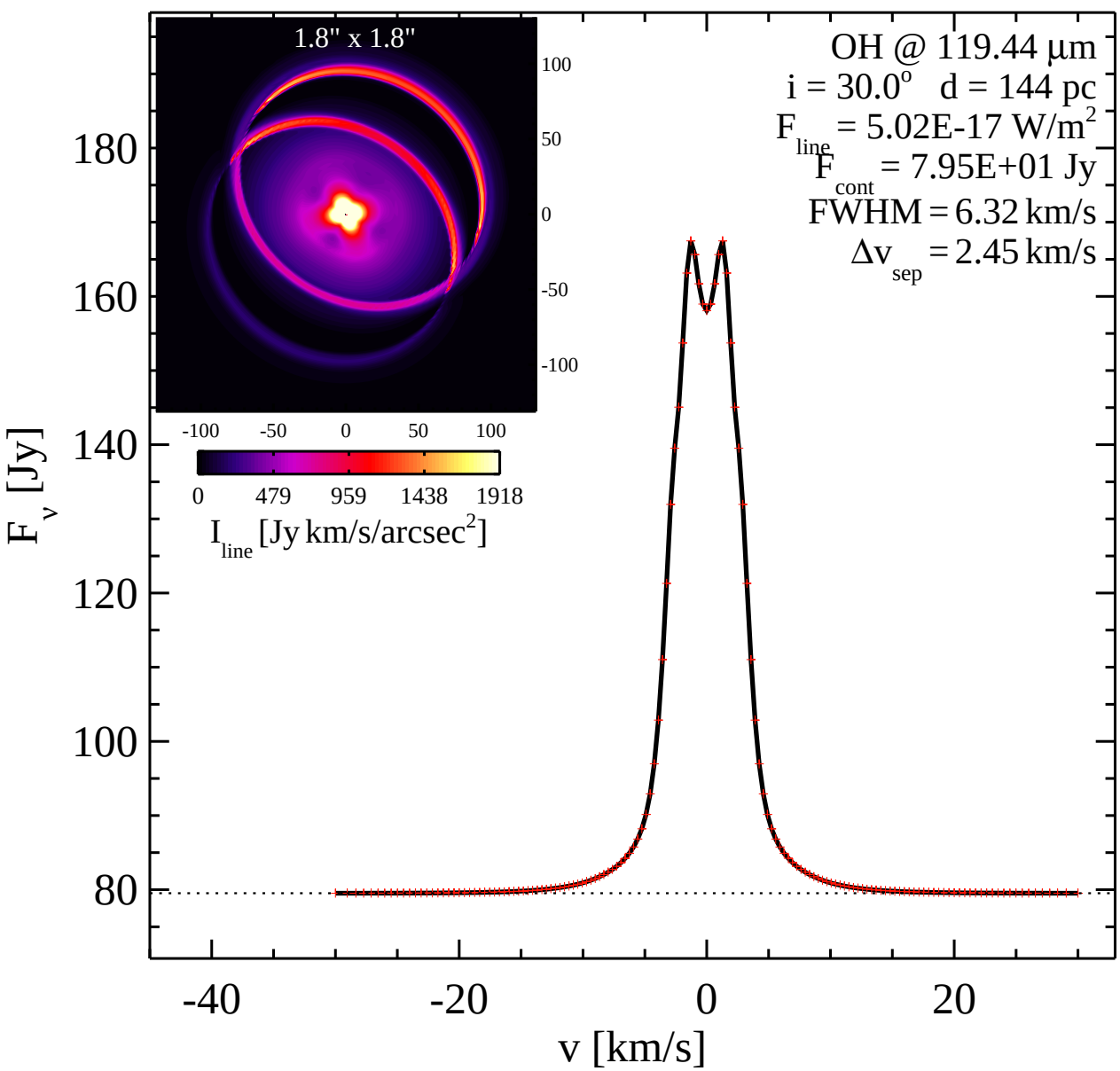

OH @ 79.12 µm
i = 30.0° d = 144 pc
F line = 2.33E-17 W/m2
F cont = 1.07E+02 Jy
FWHM = 5.67 km/s
Δv sep = 3.28 km/s
1.7" x 1.7"
100
50
0
-50
-100
-100 -50 0 50 100
0 265 531 797 1063
I line [Jy km/s/arcsec2]
F v [Jy]
140
130
120
110
-40 -20 0 20
v [km/s]

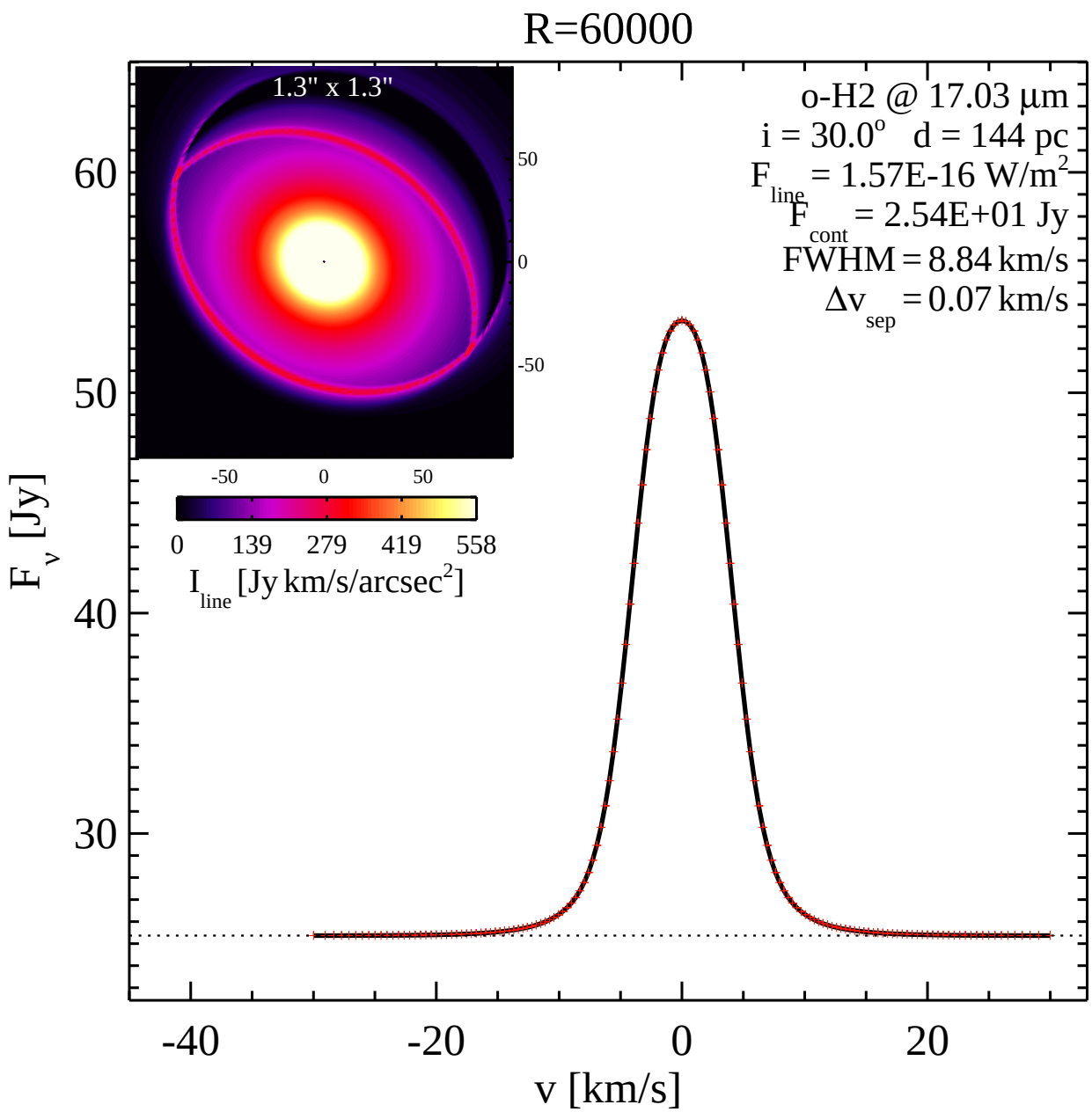

1.7" x 1.7"
100
50
0
-50
-100
-100 -50 0 50 100
0 269 539 808 1078
I line [Jy km/s/arcsec2]
OH @ 79.18 µm
i = 30.0o d = 144 pc
F line = 2.40E-17 W/m2
F cont = 1.07E+02 Jy
FWHM = 5.67 km/s
Δv sep = 3.24 km/s
F v [Jy]
140
130
120
110
-40
-20
0
20
v [km/s]

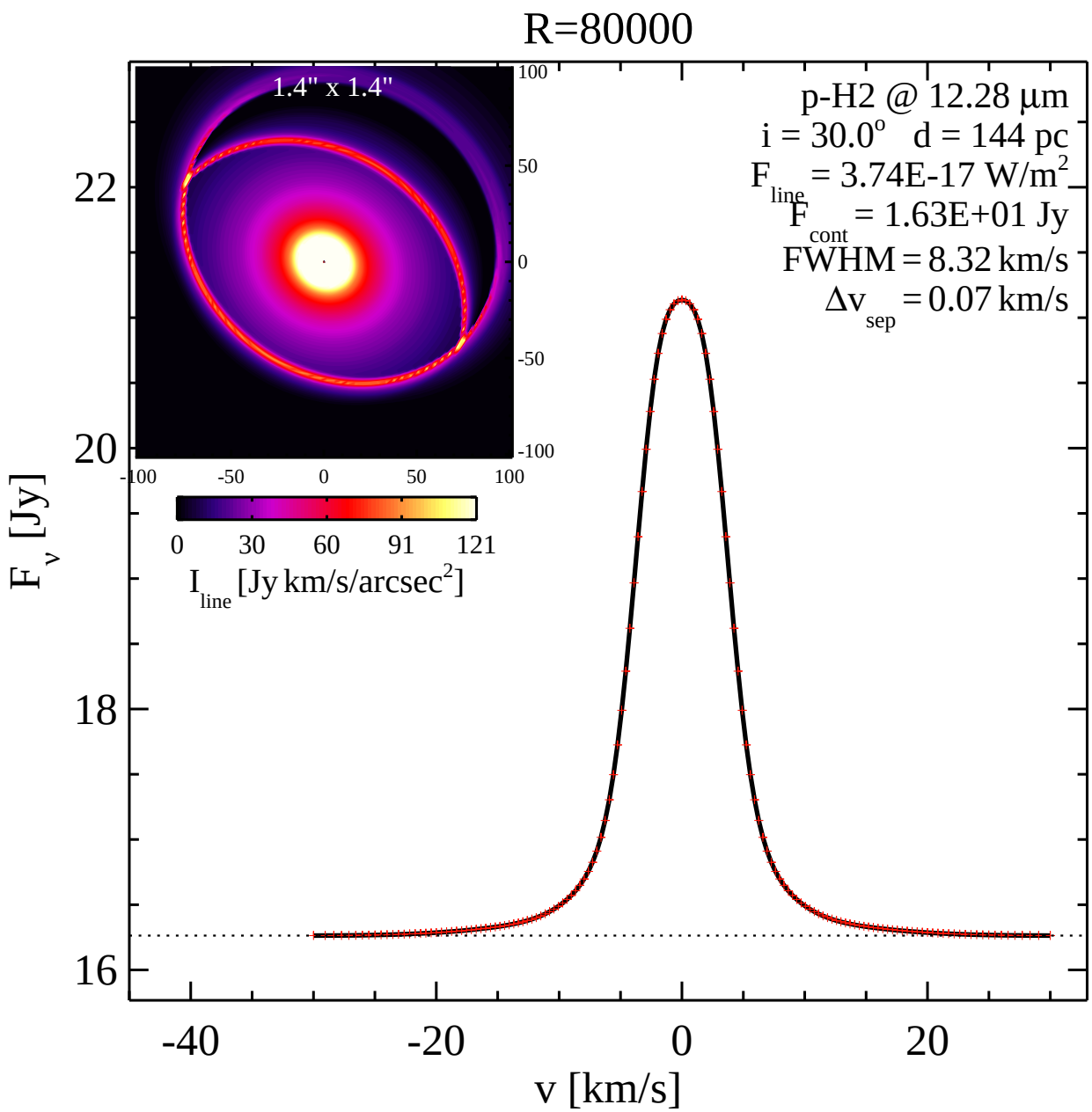

OH @ 84.42 µm
i = 30.0° d = 144 pc
F line = 6.68E-17 W/m2
F cont = 1.05E+02 Jy
FWHM = 6.54 km/s
Δv sep = 2.19 km/s
1.8" x 1.8"
100
50
0
-50
-100
-100 -50 0 50 100
0 741 1482 2223 2964
I line [Jy km/s/arcsec2]
F v [Jy]
200
180
160
140
120
100
-40 -20 0 20
v [km/s]

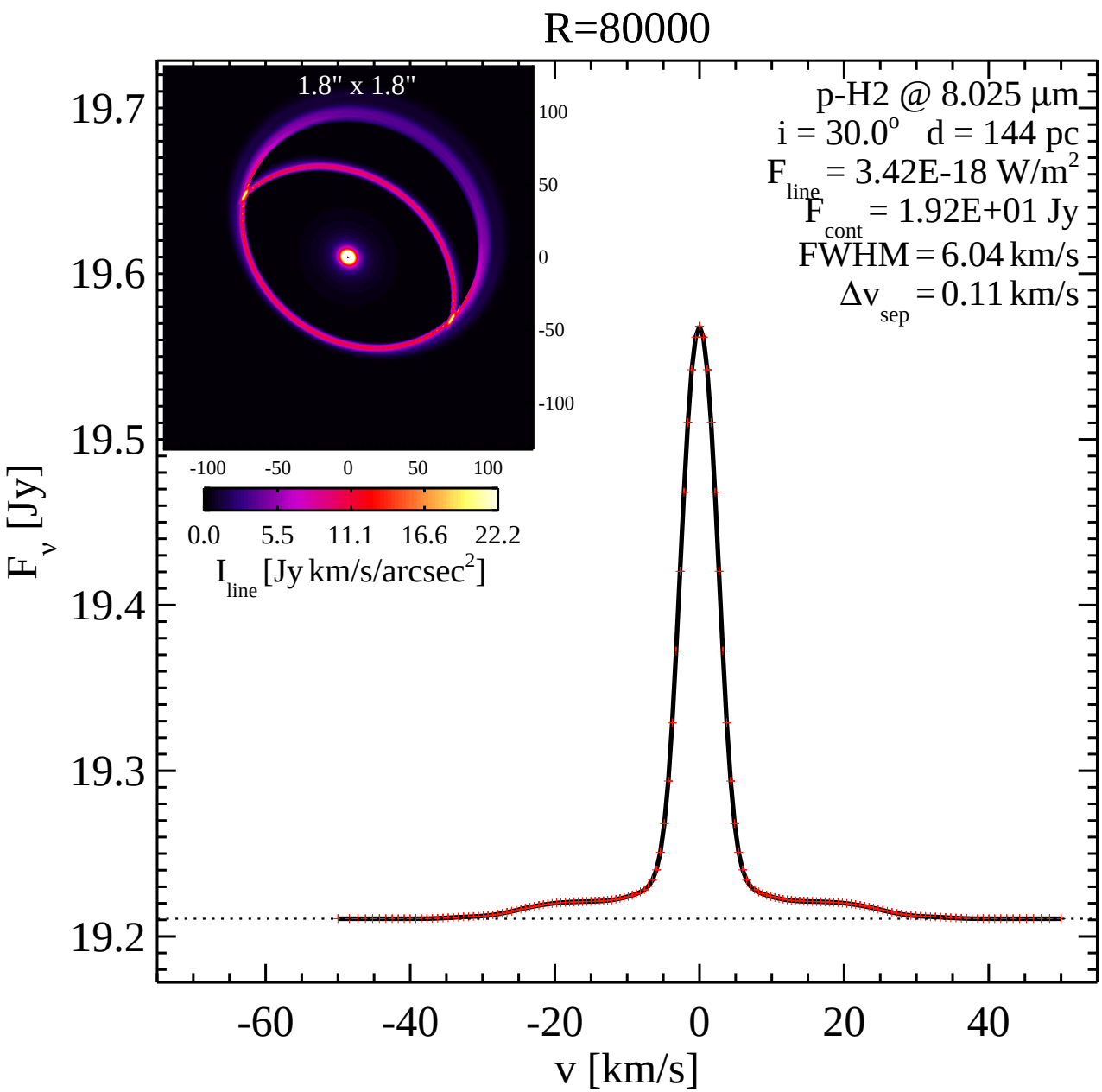

1.8" x 1.8"
100
50
0
-50
-100
-100 -50 0 50 100
0 918 1836 2754 3672
I line [Jy km/s/arcsec2]
OH @ 84.60 µm
i = 30.0o d = 144 pc
F line = 8.41E-17 W/m2
F cont = 1.05E+02 Jy
FWHM = 6.41 km/s
Δv sep = 2.19 km/s
F v [Jy]
220
200
180
160
140
120
100
-40
-20
0
20
v [km/s]

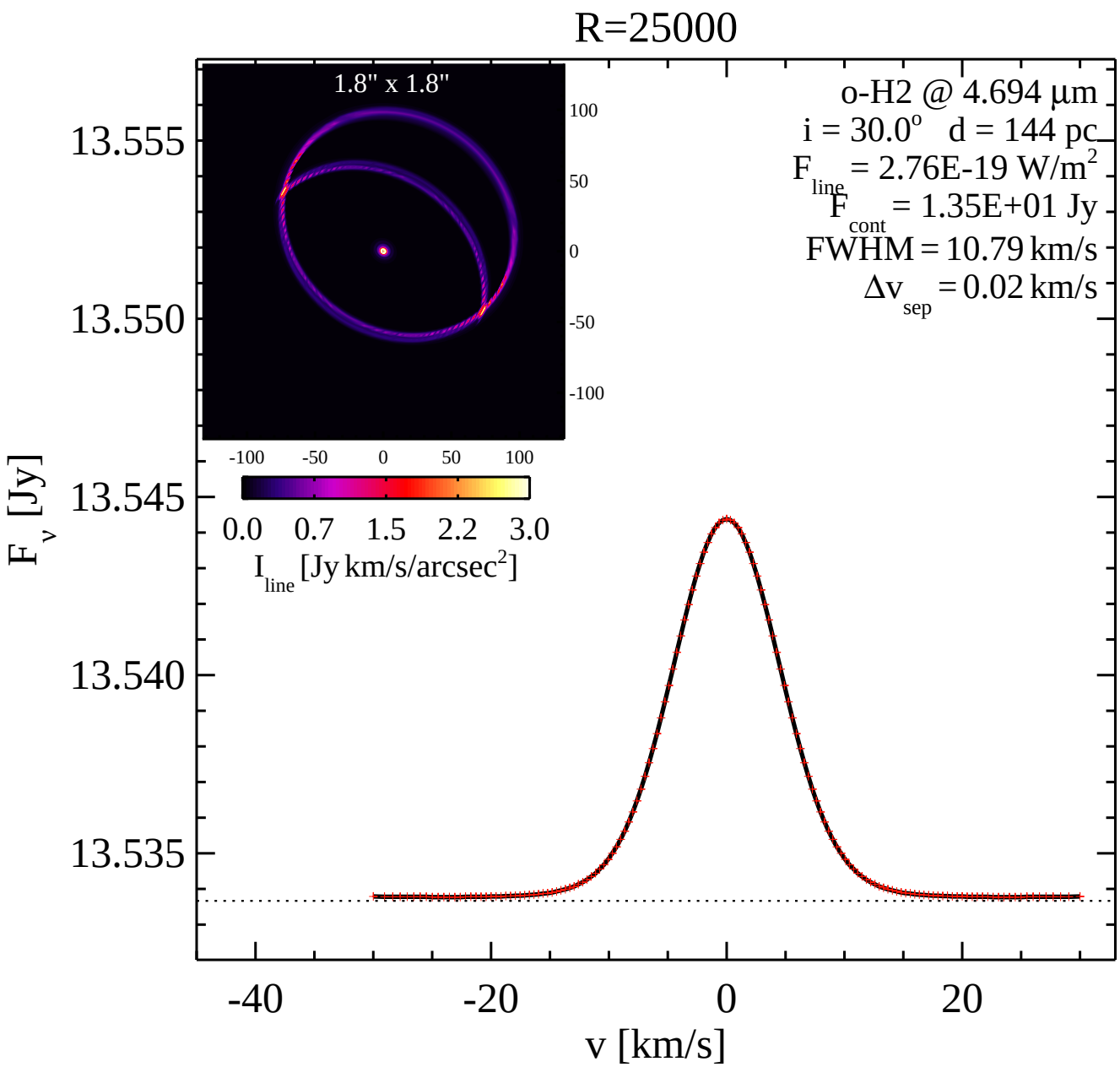

1.8" x 1.8"
100
50
0
-50
-100
-100 -50 0 50 100
0 426 852 1278 1704
I line [Jy km/s/arcsec2]
OH @ 119.23 µm
i = 30.0o d = 144 pc
F line = 4.30E-17 W/m2
F cont = 7.97E+01 Jy
FWHM = 6.49 km/s
Δv sep = 2.45 km/s
160
140
120
100
80
F v [Jy]
-40
-20
0
20
v [km/s]


1.8" x 1.8"
100
50
0
-50
-100
-100 -50 0 50 100
0 479 959 1438 1918
I line [Jy km/s/arcsec2]
OH @ 119.44 µm
i = 30.0o d = 144 pc
F line = 5.02E-17 W/m2
F cont = 7.95E+01 Jy
FWHM = 6.32 km/s
Δv sep = 2.45 km/s
F v [Jy]
180
160
140
120
100
80
-40
-20
0
20
v [km/s]


R=60000
1.3" x 1.3"
50
0
-50
-50
0
50
0
139
279
419
558
I line [Jy km/s/arcsec2]
o-H2 @ 17.03 µm
i = 30.0o d = 144 pc
F line = 1.57E-16 W/m2
F cont = 2.54E+01 Jy
FWHM = 8.84 km/s
Δv sep = 0.07 km/s
F v [Jy]
60
50
40
30
-40
-20
0
20
v [km/s]


R=80000
1.4" x 1.4"
p-H2 @ 12.28 µm
i = 30.0° d = 144 pc
F line = 3.74E-17 W/m2
F cont = 1.63E+01 Jy
FWHM = 8.32 km/s
Δv sep = 0.07 km/s
I line [Jy km/s/arcsec2]
F v [Jy]
v [km/s]


R=80000
1.8" x 1.8"
p-H2 @ 8.025 µm
i = 30.0° d = 144 pc
F line = 3.42E-18 W/m2
F cont = 1.92E+01 Jy
FWHM = 6.04 km/s
Δv sep = 0.11 km/s
I line [Jy km/s/arcsec2]
F v [Jy]
v [km/s]


R=25000
1.8" x 1.8"
100
50
0
-50
-100
-100 -50 0 50 100
0.0 0.7 1.5 2.2 3.0
I line [Jy km/s/arcsec2]
o-H2 @ 4.694 µm
i = 30.0° d = 144 pc
F line = 2.76E-19 W/m2
F cont = 1.35E+01 Jy
FWHM = 10.79 km/s
Δv sep = 0.02 km/s
13.555
13.550
13.545
13.540
13.535
F v [Jy]
-40
-20
0
20
v [km/s]