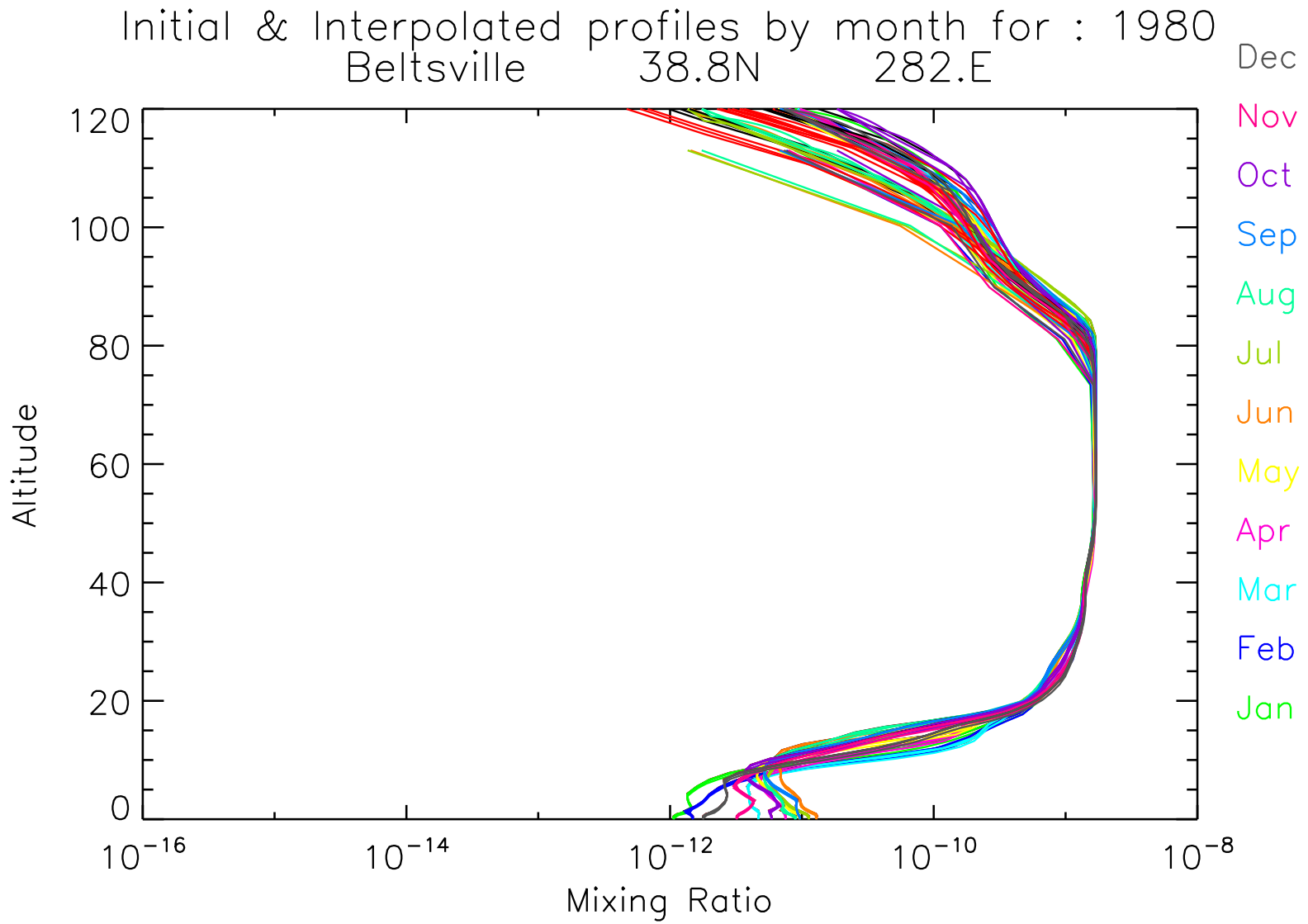
Initial & Interpolated profiles by month for : 1980
Beltsville 38.8N 282.E
Altitude
120
100
80
60
40
20
0
10^{-16}
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Mixing Ratio
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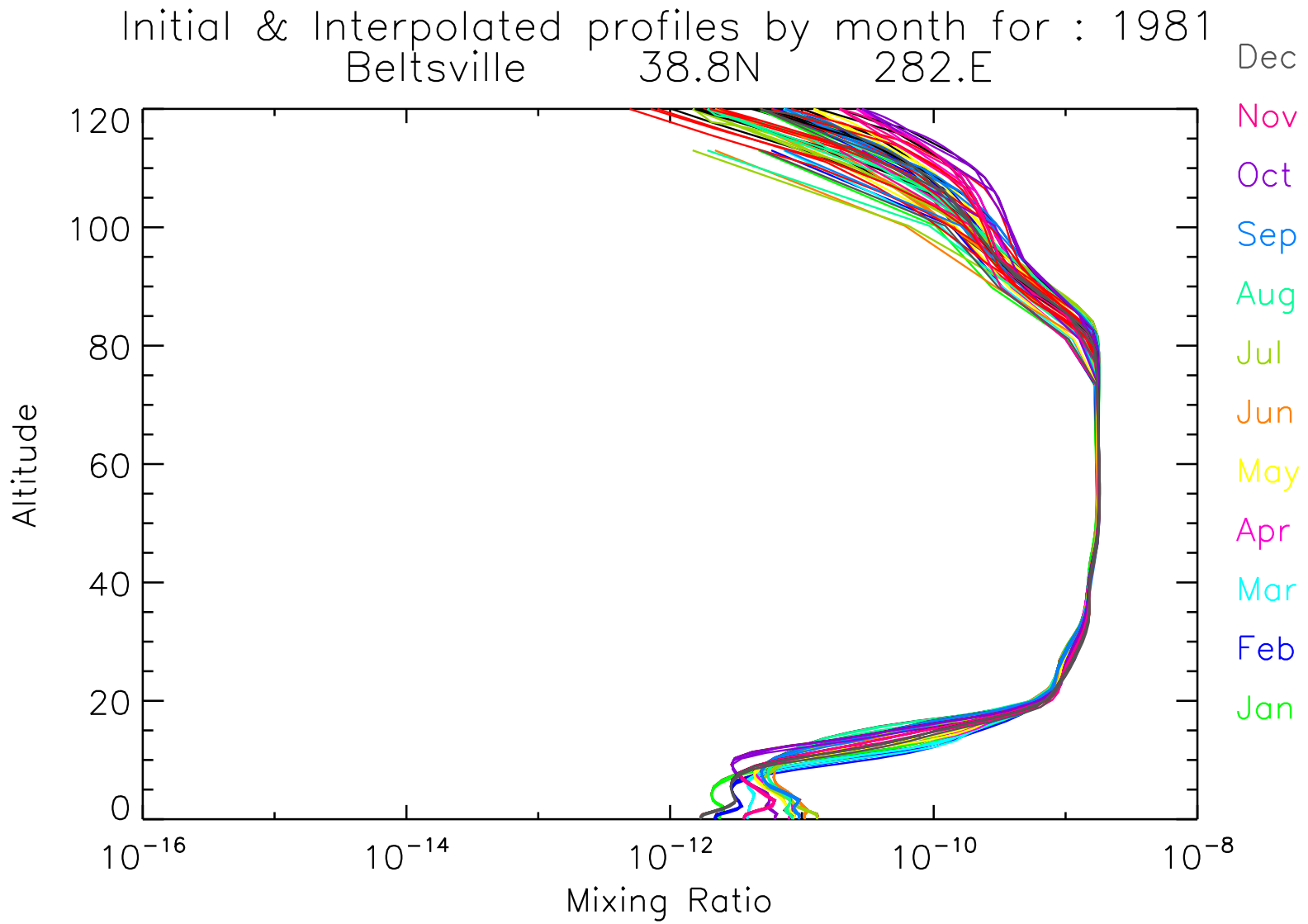
Feb
Jan


Initial & Interpolated profiles by month for : 1981
Beltsville 38.8N 282.E
Dec
Nov
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Jan
Altitude
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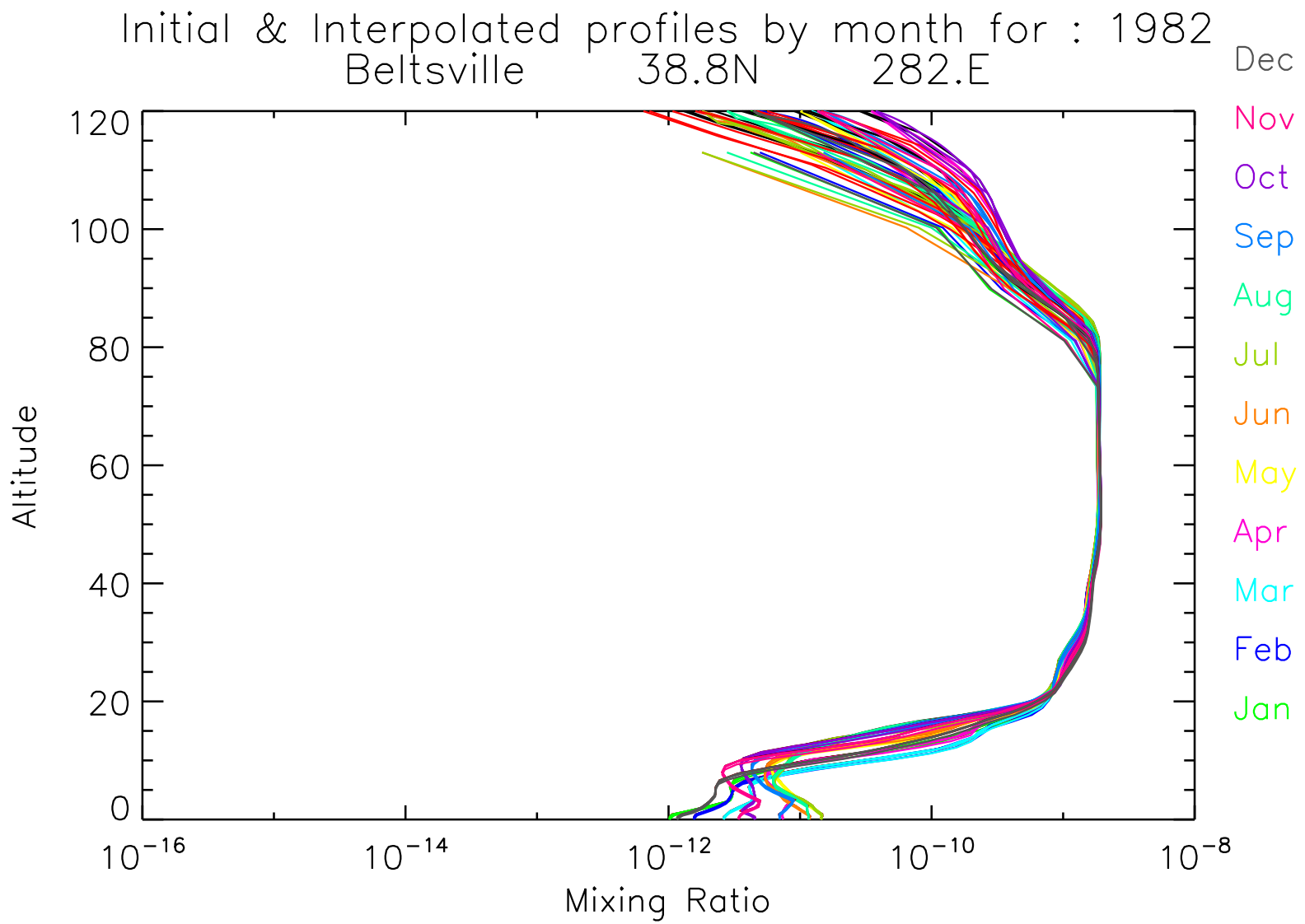
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1982
Beltsville 38.8N 282.E
Dec
Nov
Oct
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Altitude
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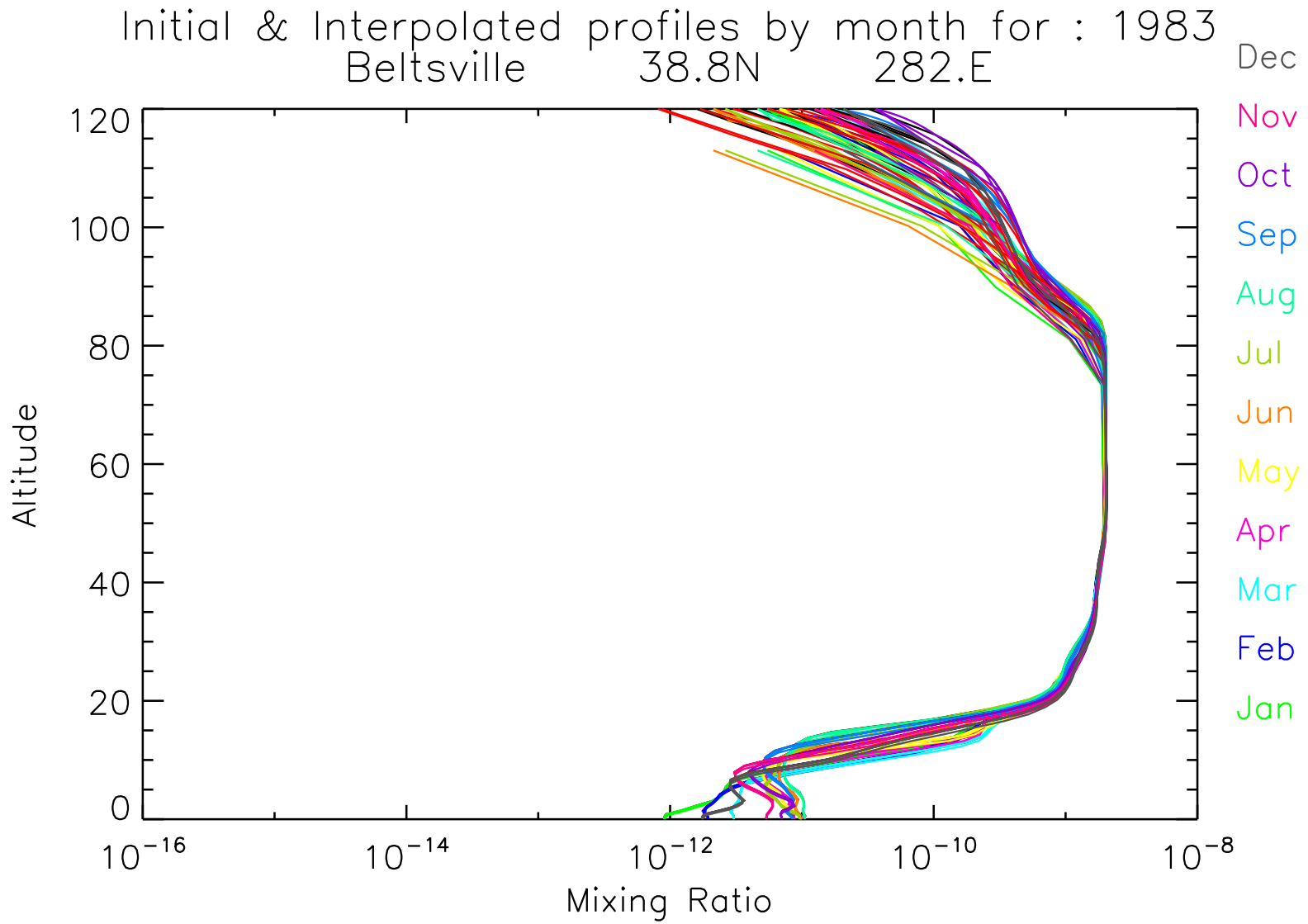
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1983
Beltsville 38.8N 282.E
Dec
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Altitude
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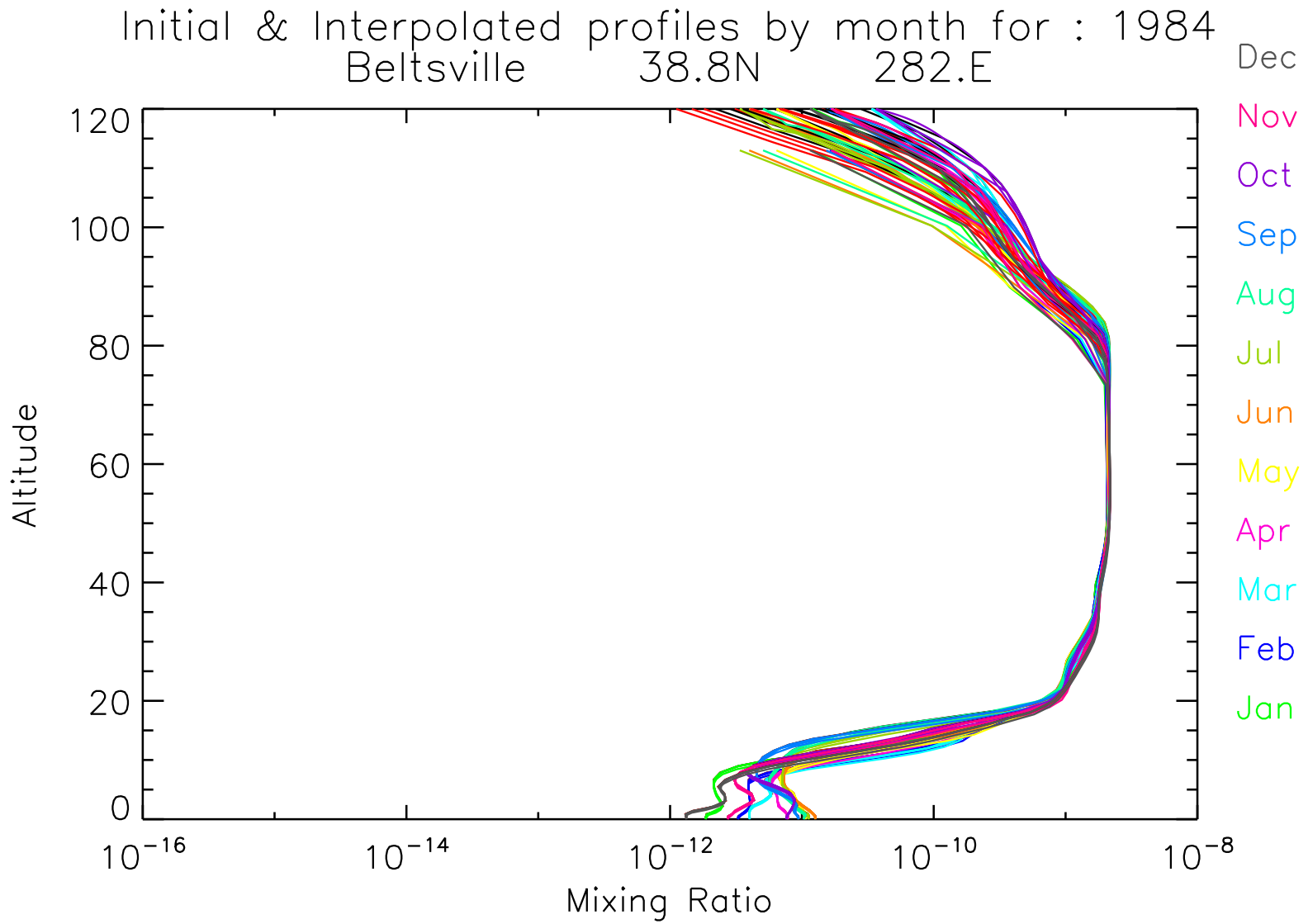
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1984
Beltsville 38.8N 282.E
Dec
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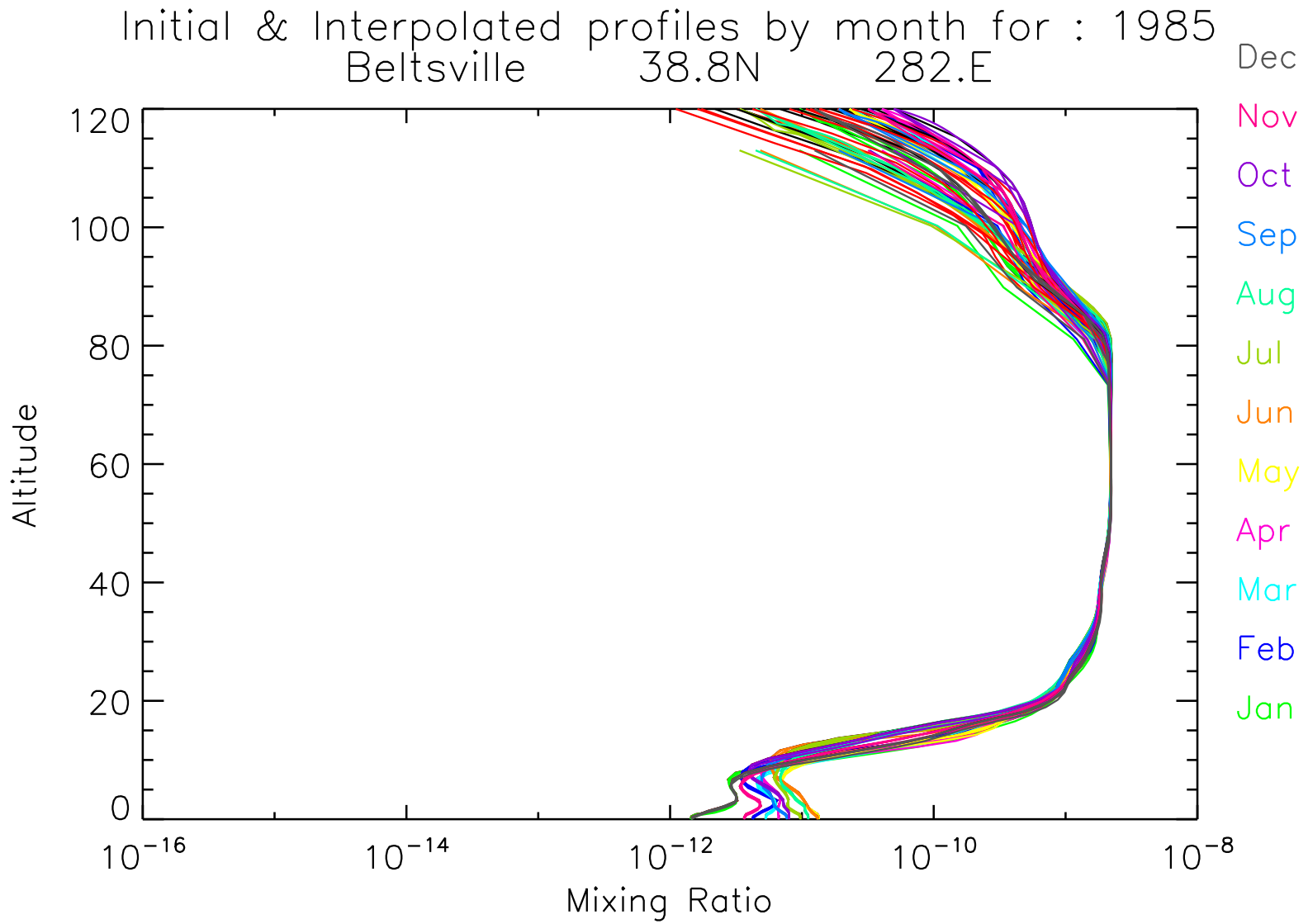
10^{-10}
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1985
Beltsville 38.8N 282.E
Dec
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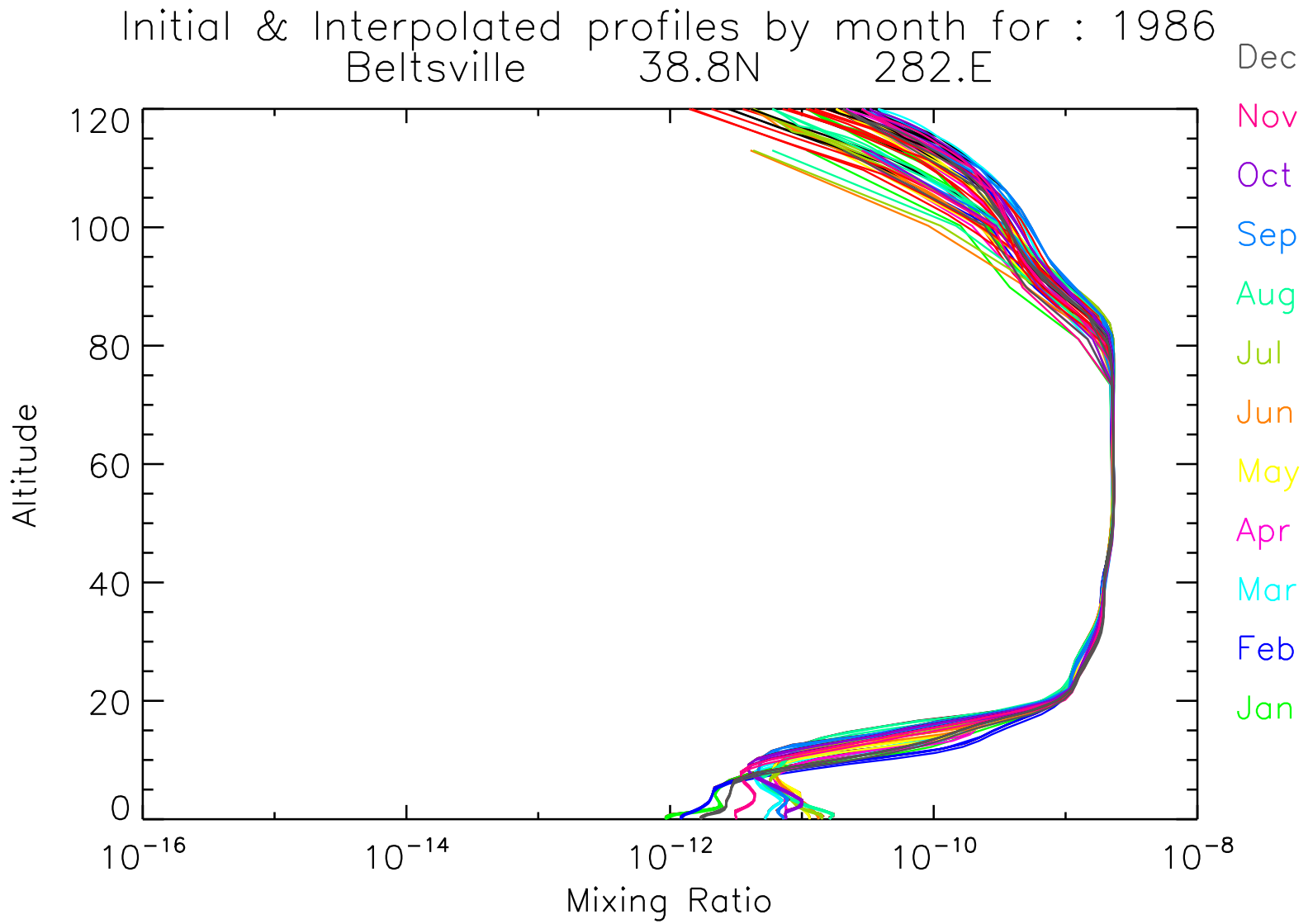
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1986
Beltsville 38.8N 282.E
Dec
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Altitude
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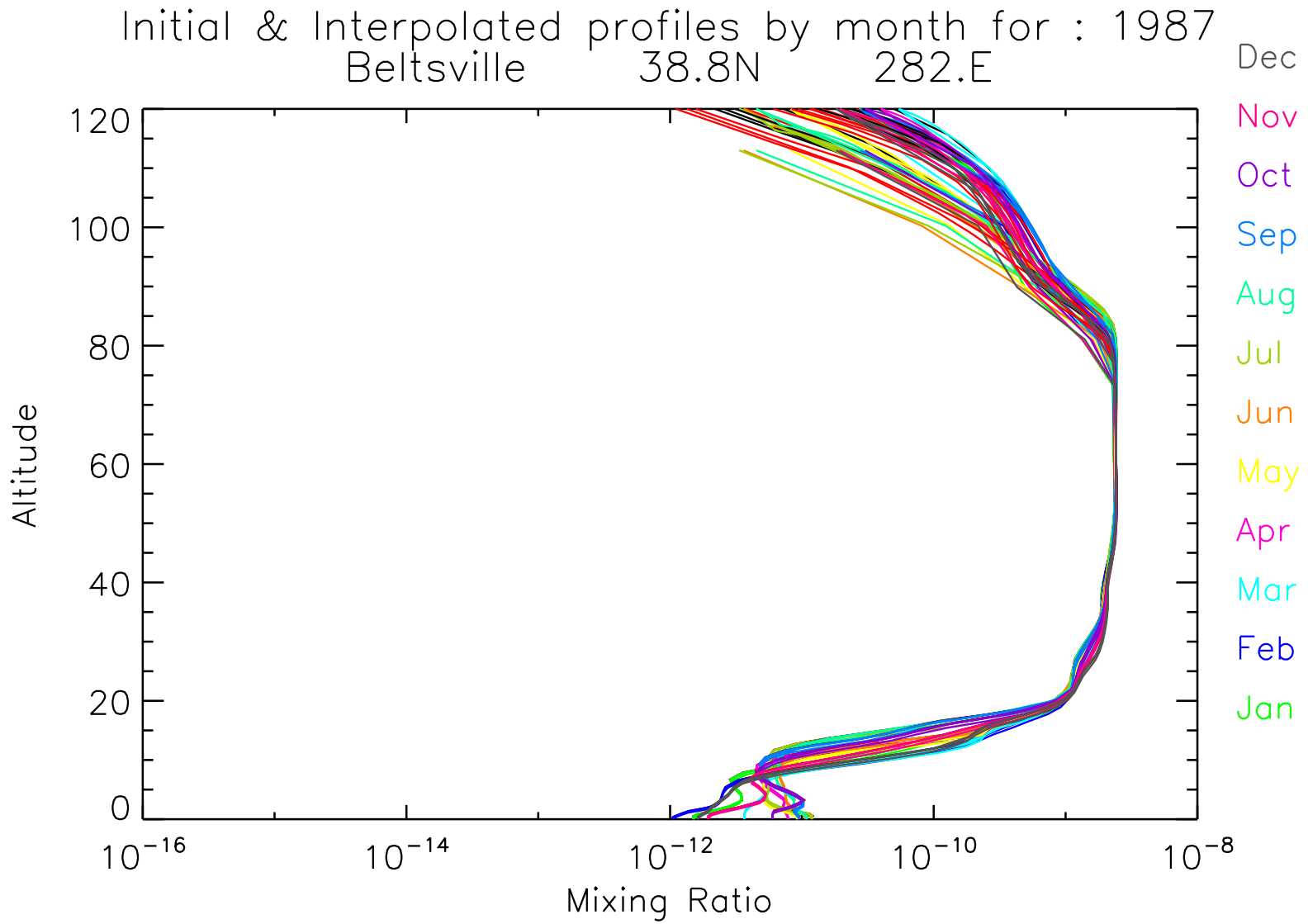
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1987
Beltsville 38.8N 282.E
Altitude
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10^{-16}
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Mixing Ratio
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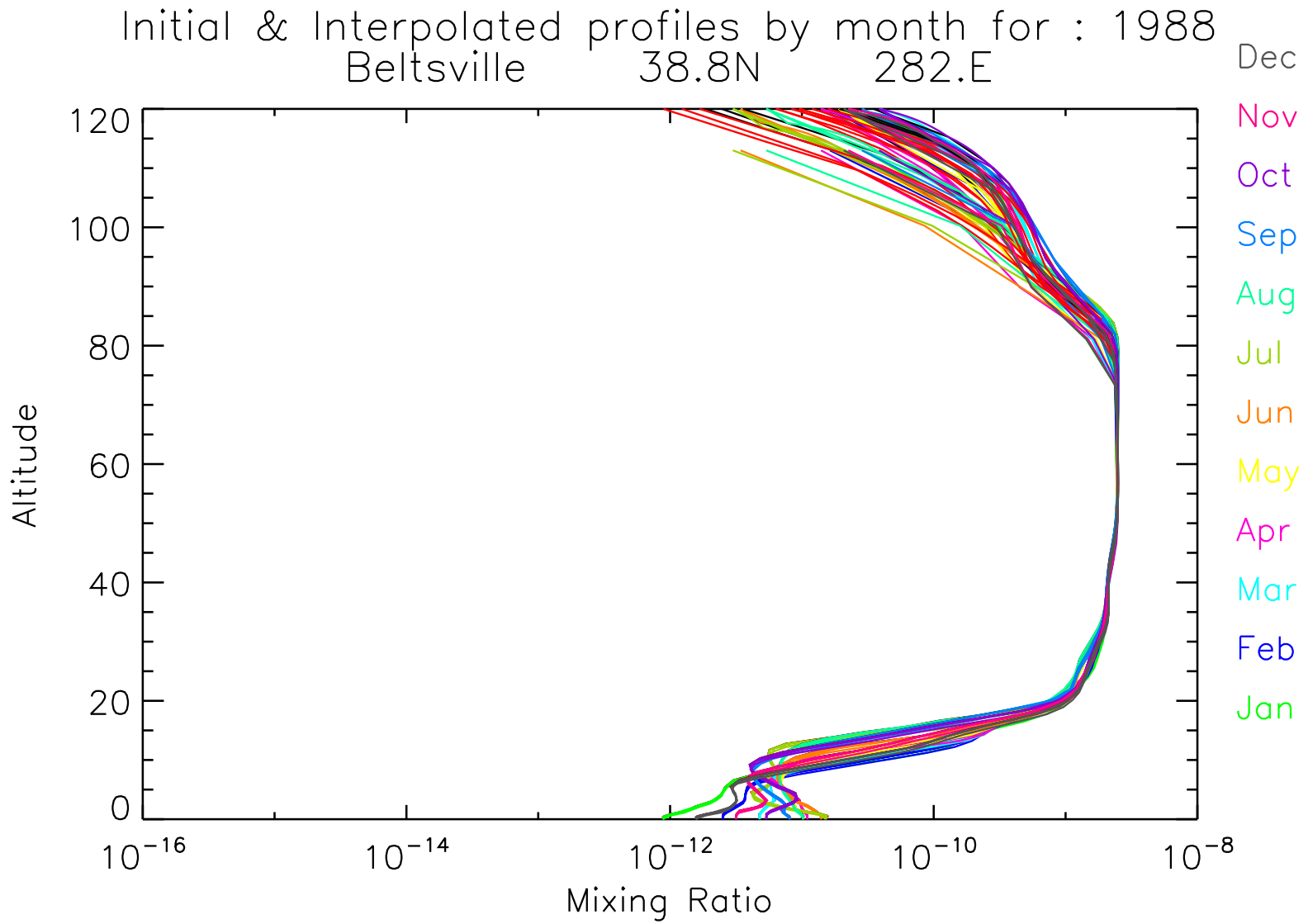
Initial & Interpolated profiles by month for : 1988
Beltsville 38.8N 282.E
Dec
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Altitude
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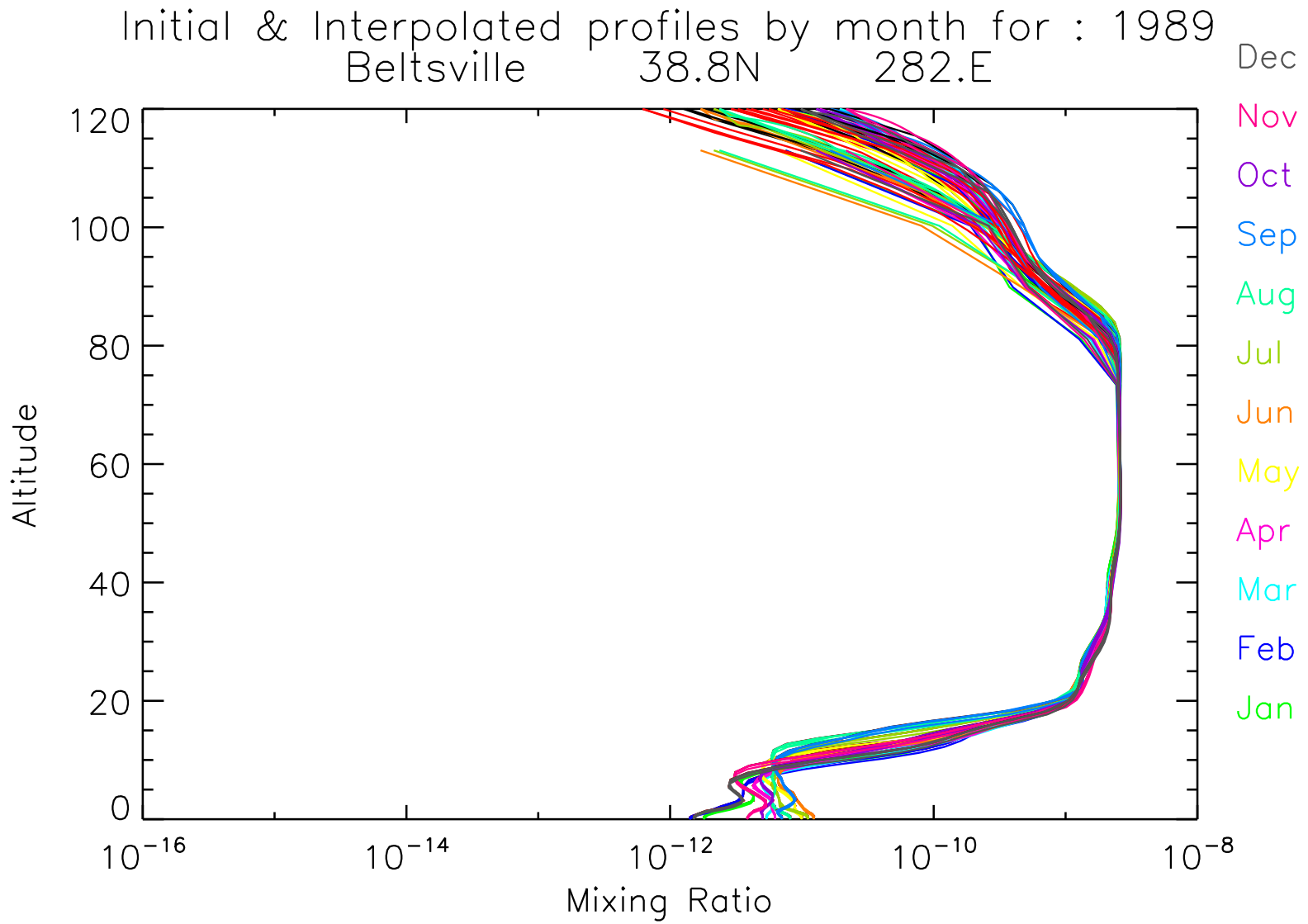
10^{-10}
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1989
Beltsville 38.8N 282.E
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Altitude
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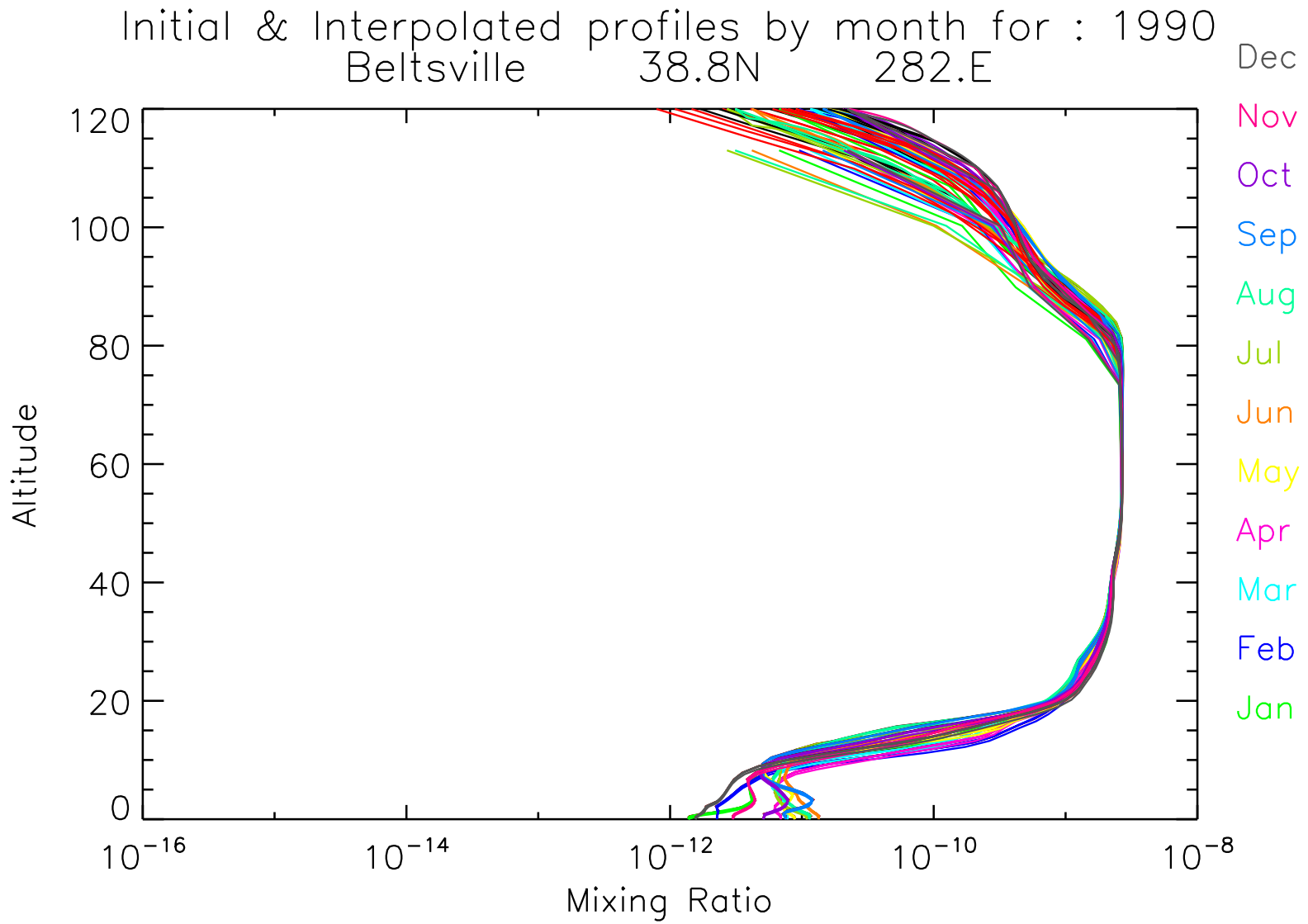
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1990
Beltsville 38.8N 282.E
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Altitude
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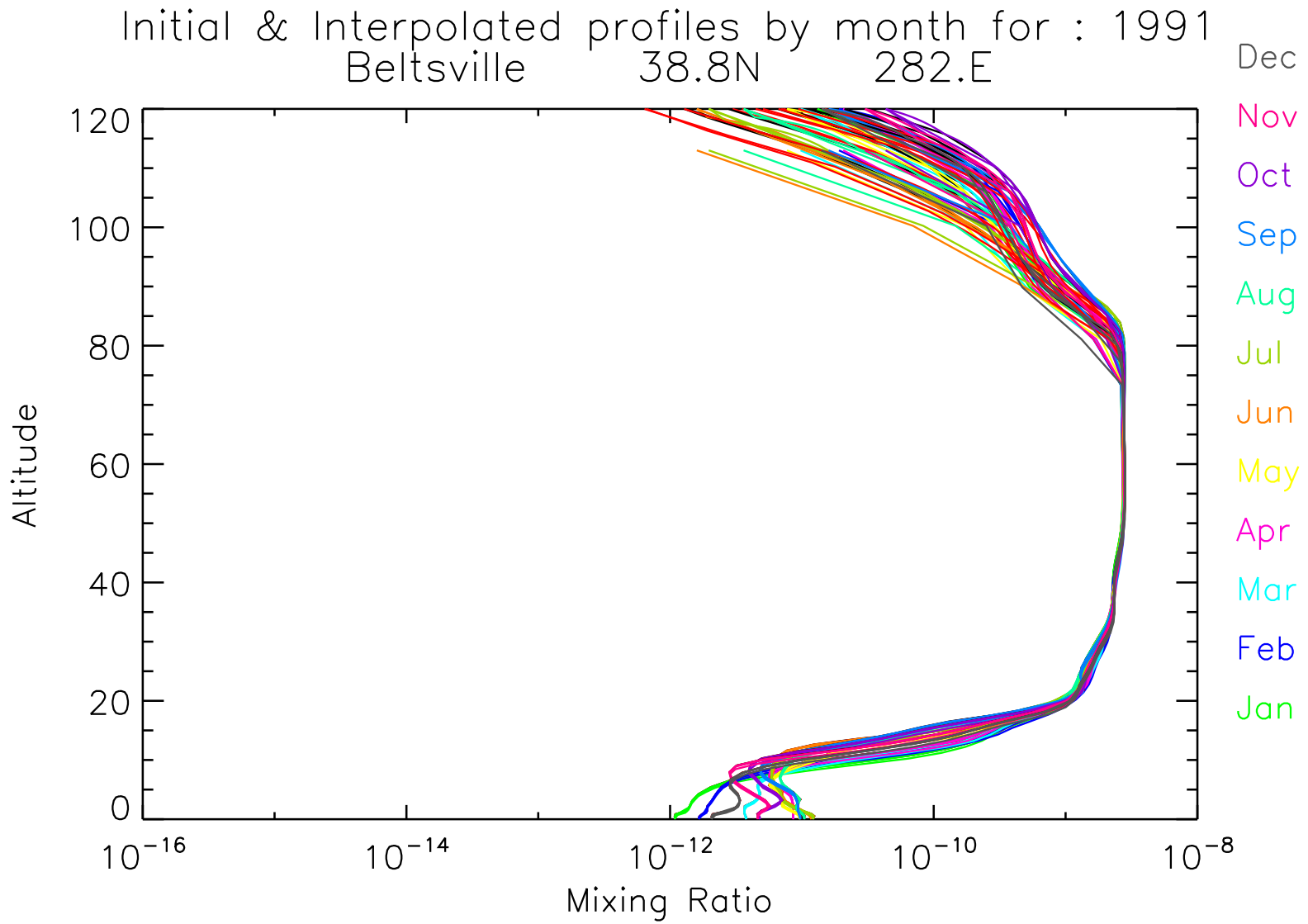
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1991
Beltsville 38.8N 282.E
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Altitude
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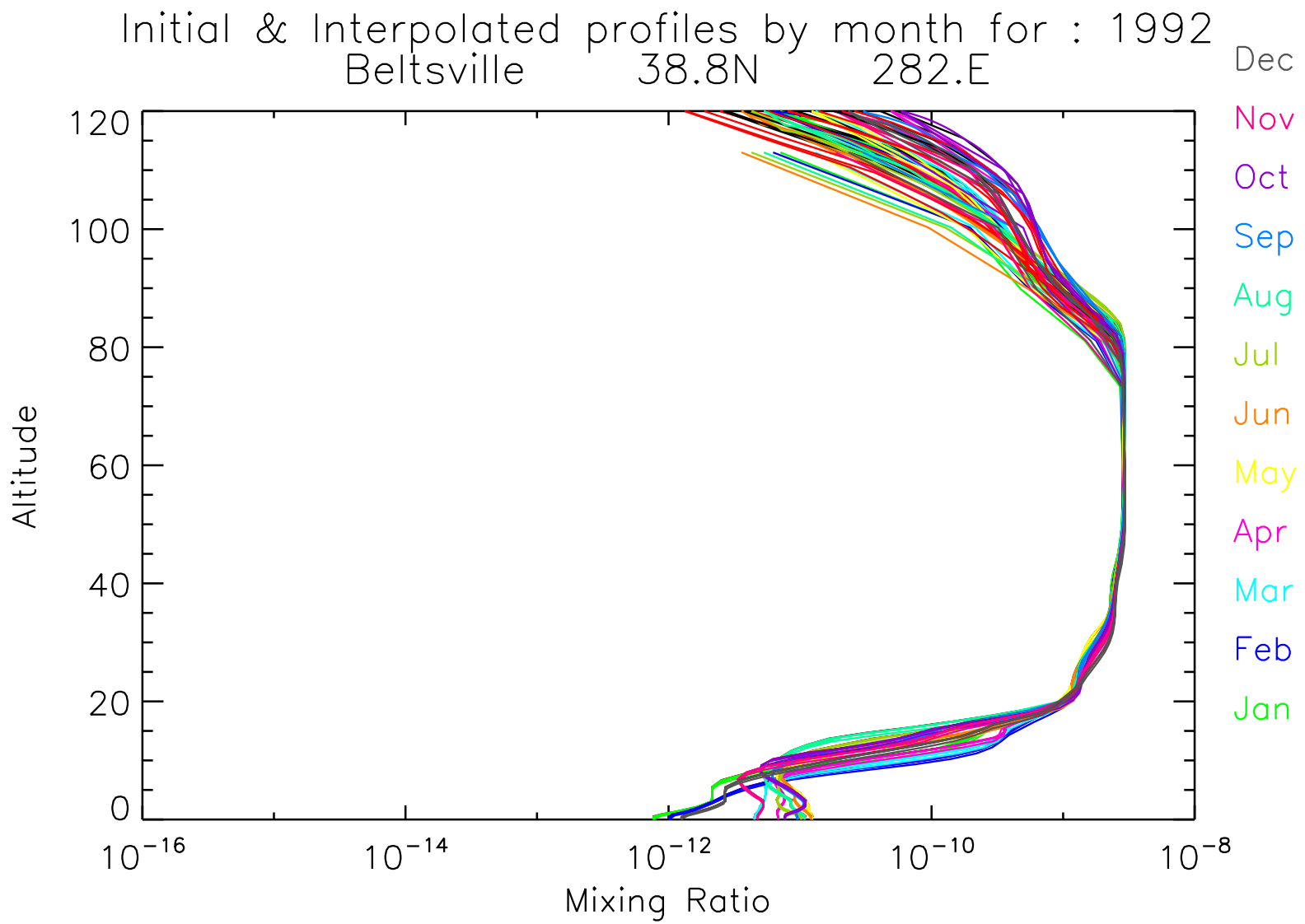
10^{-10}
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1992
Beltsville 38.8N 282.E
Dec
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Altitude
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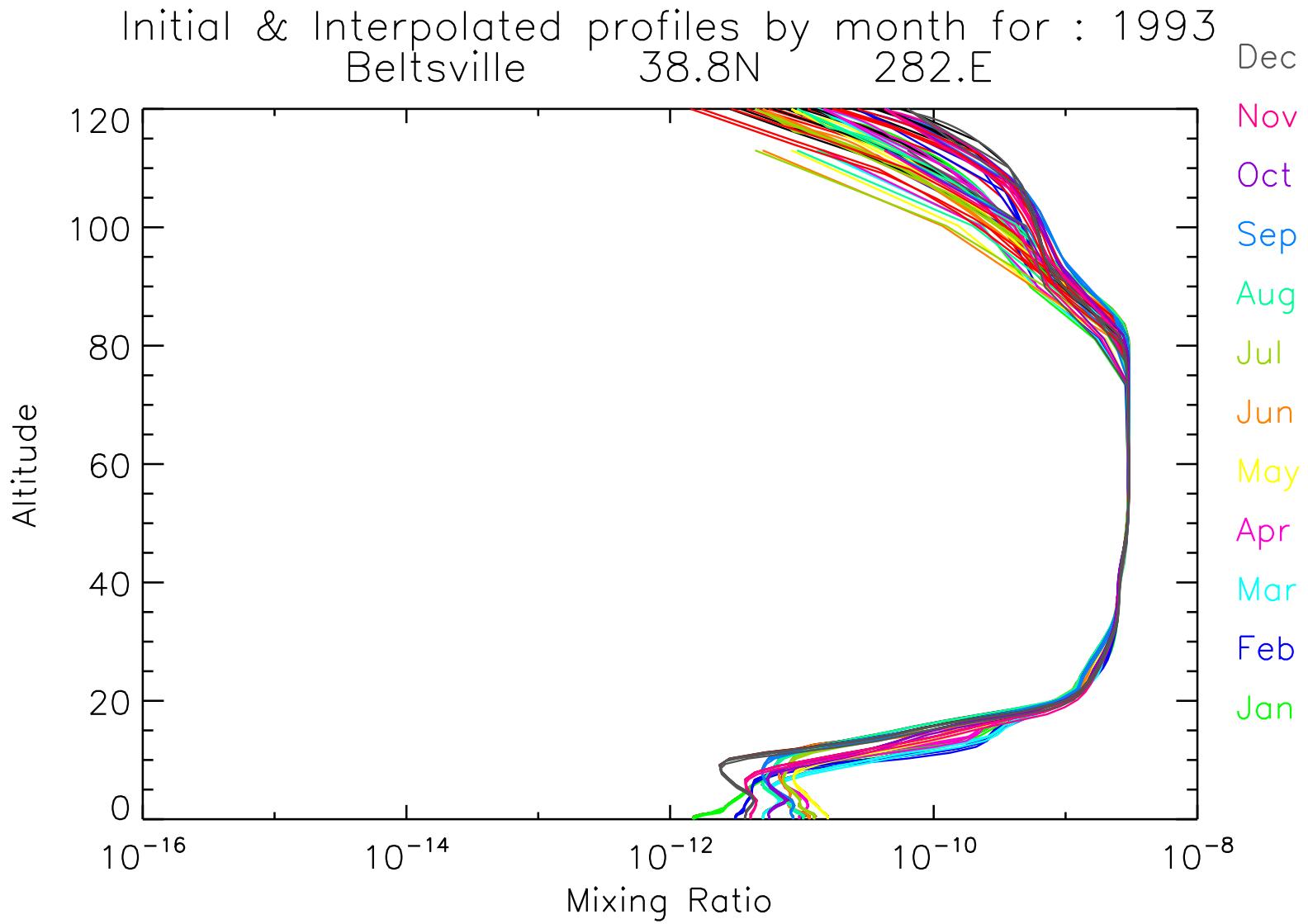
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1993
Beltsville 38.8N 282.E
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Altitude
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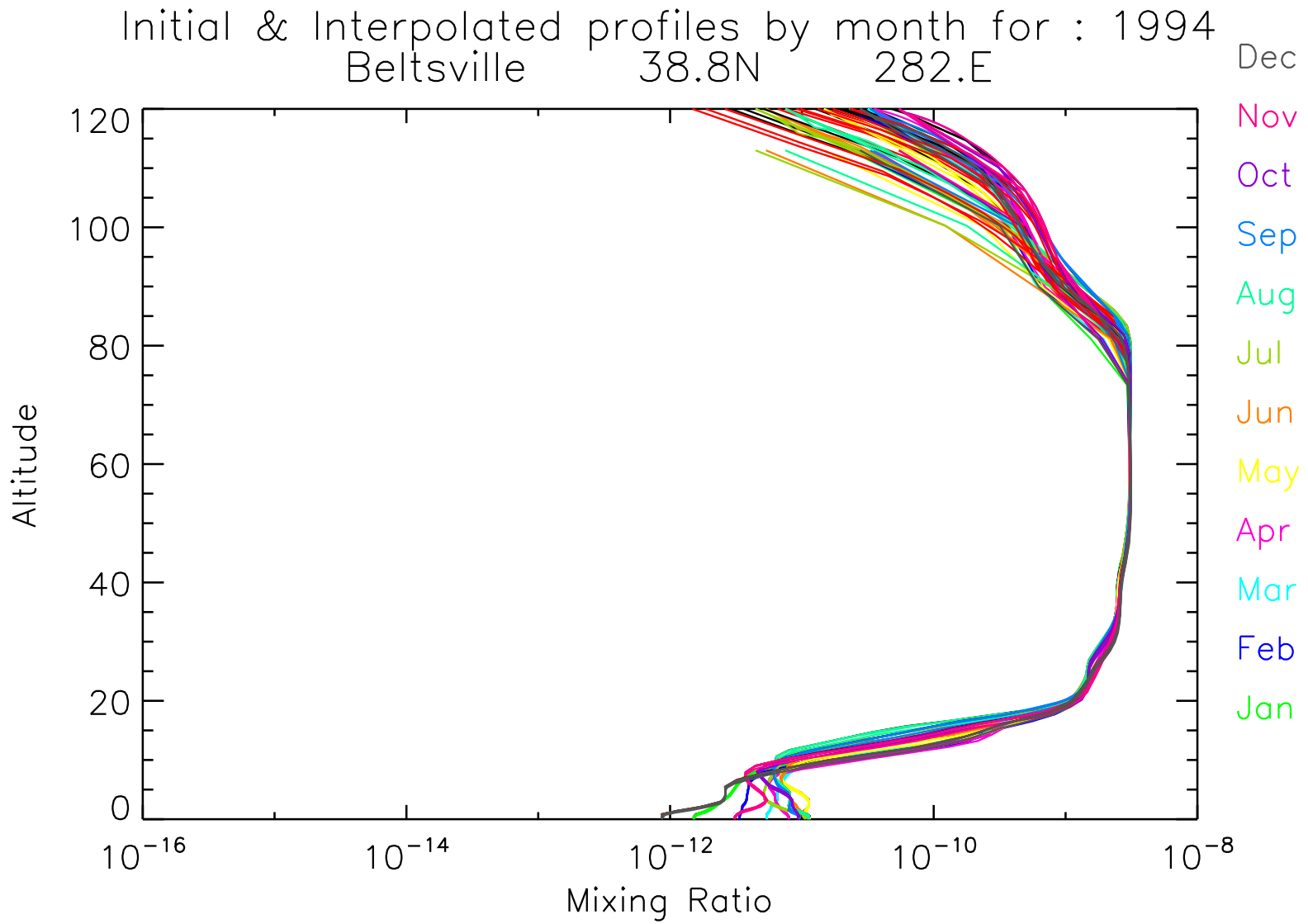
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1994
Beltsville 38.8N 282.E
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Altitude
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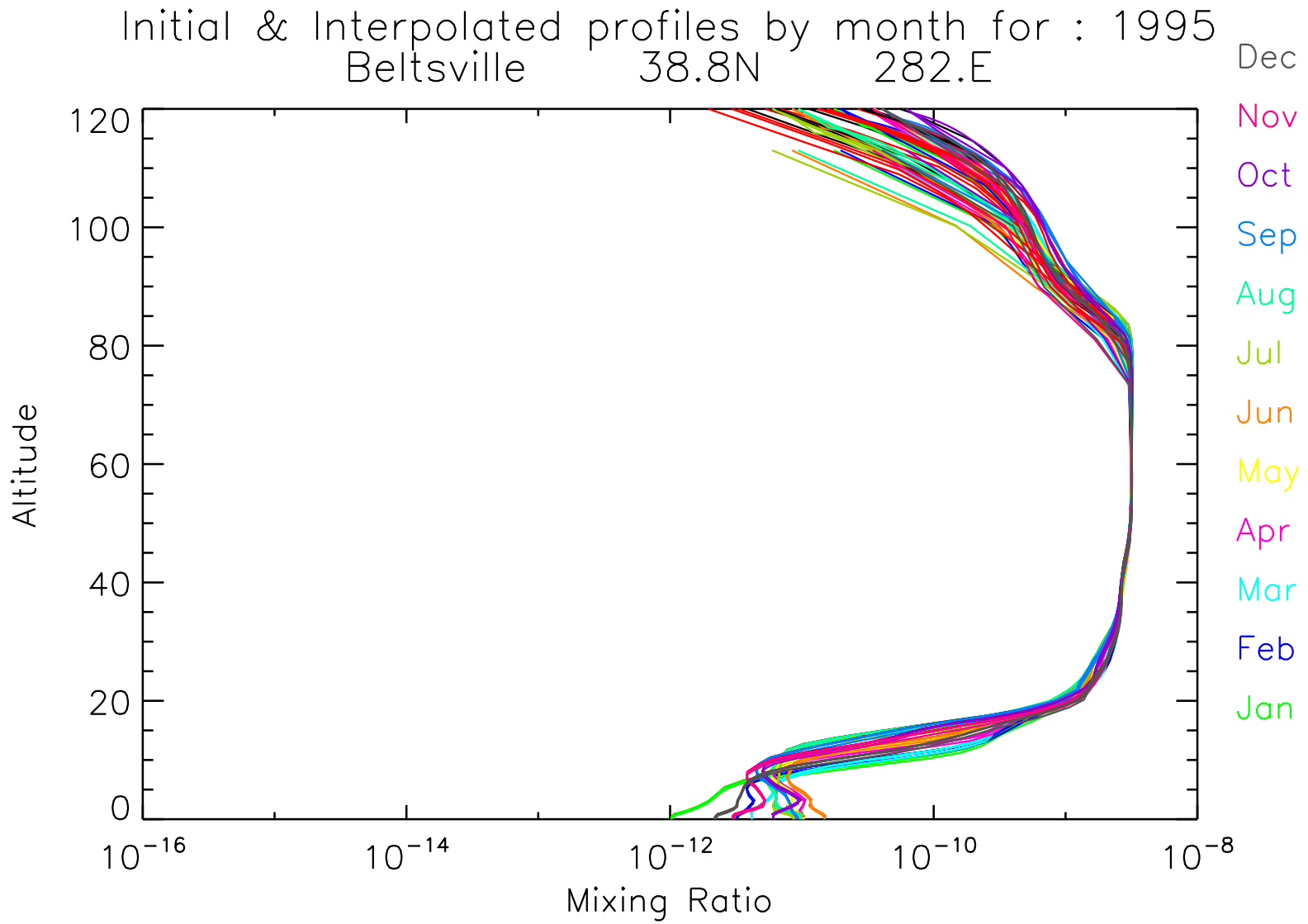
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1995
Beltsville 38.8N 282.E
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Altitude
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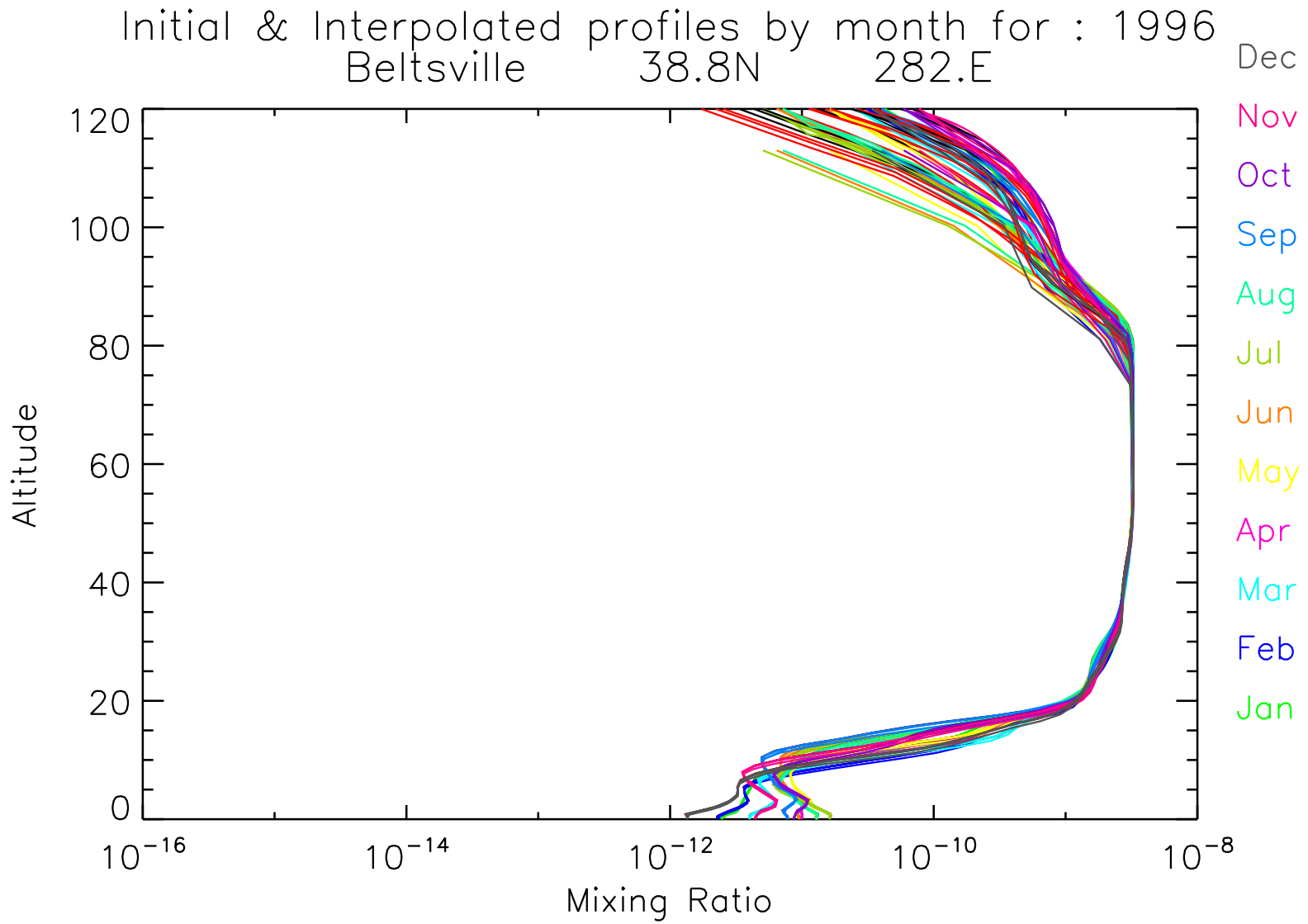
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1996
Beltsville 38.8N 282.E
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Altitude
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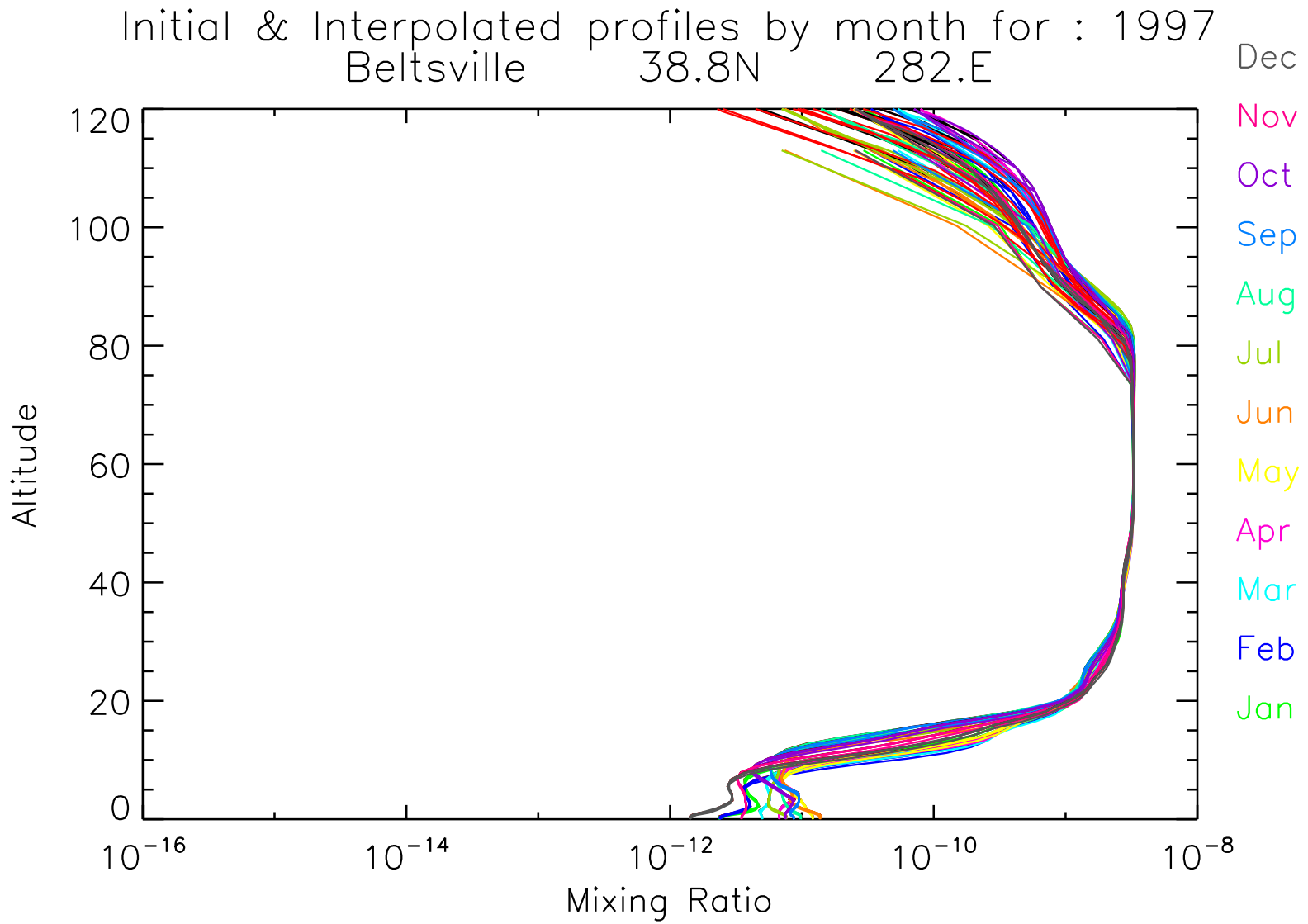
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1997
Beltsville 38.8N 282.E
Dec
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Altitude
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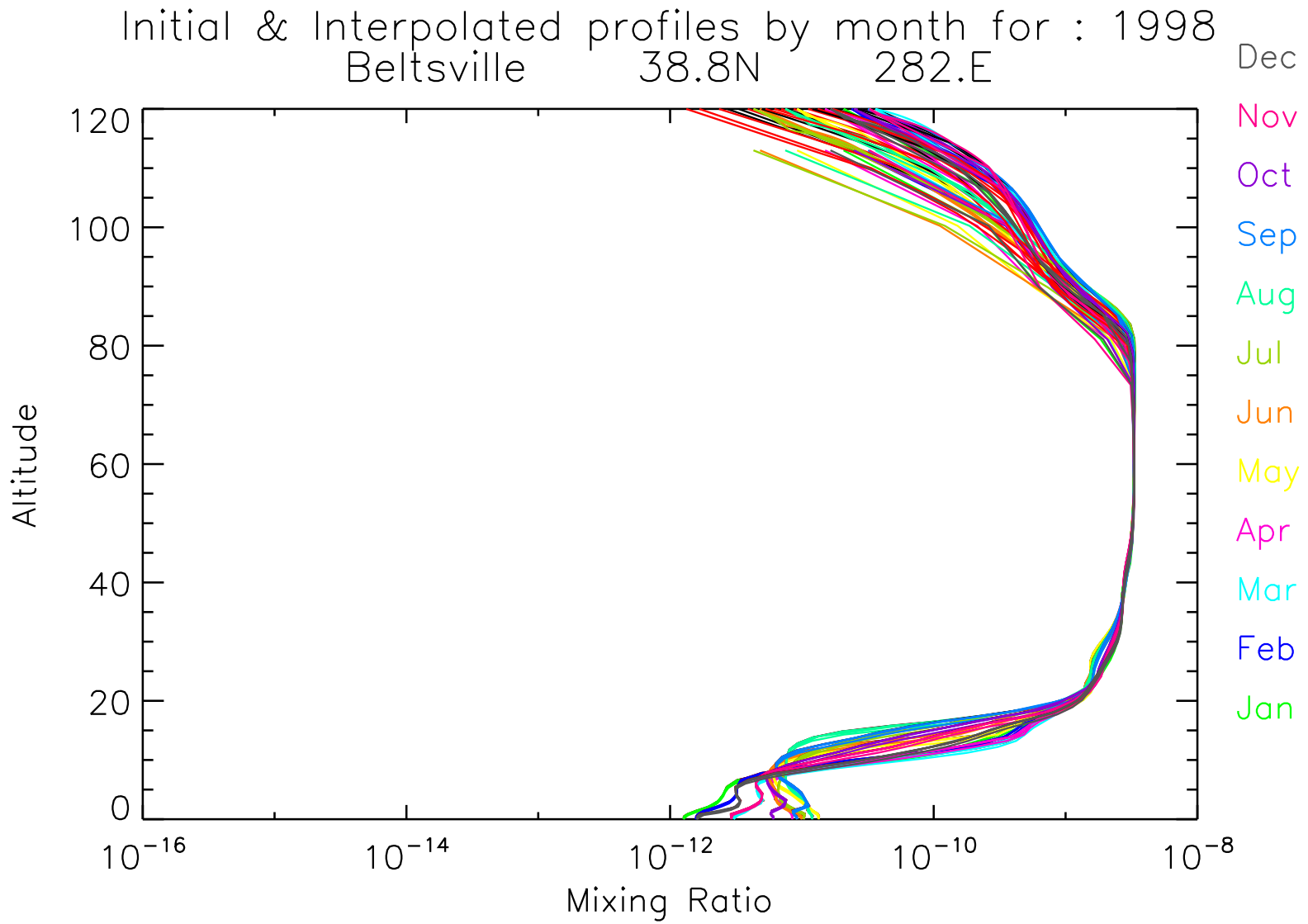
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1998
Beltsville 38.8N 282.E
Dec
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Altitude
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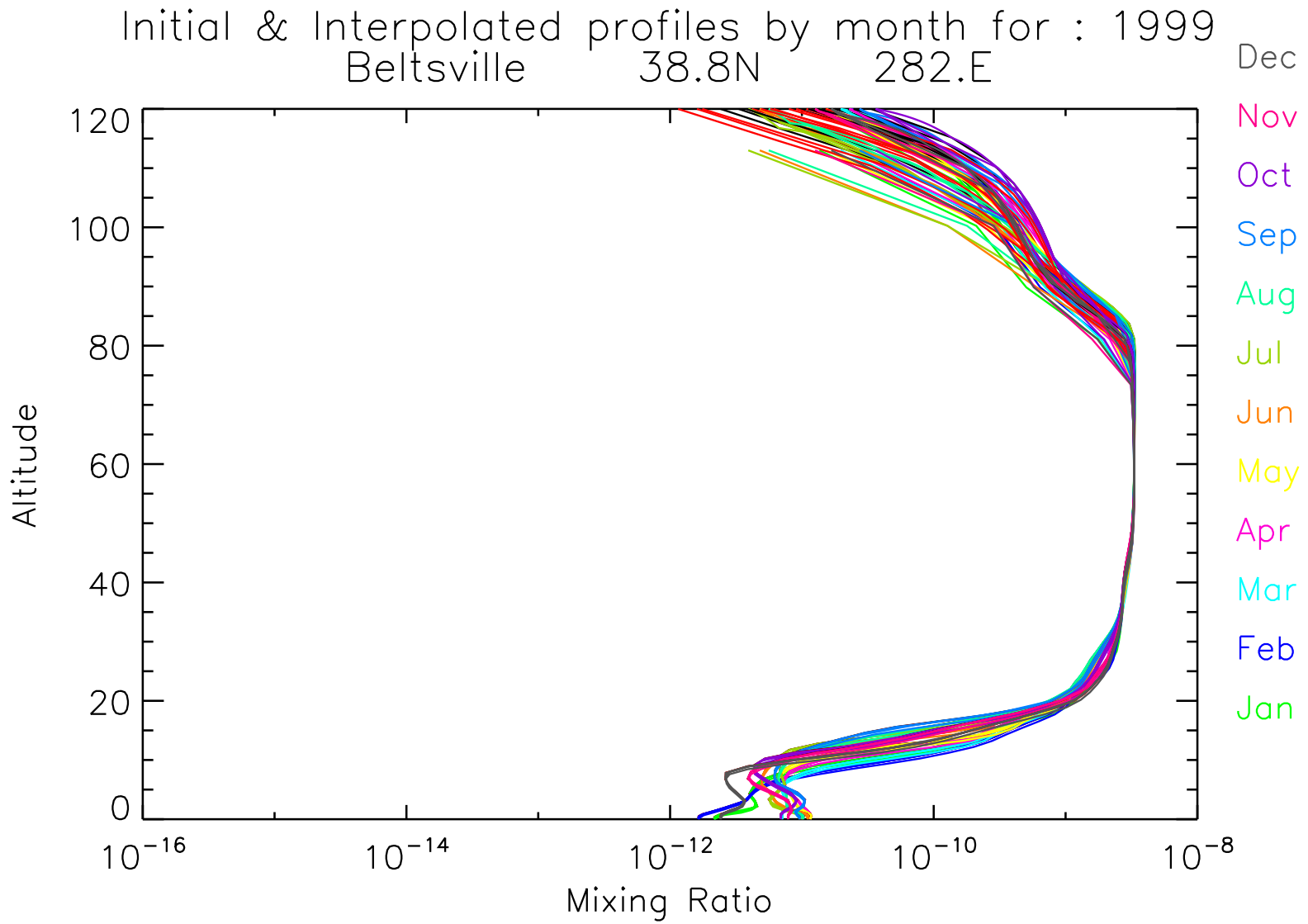
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 1999
Beltsville 38.8N 282.E
Dec
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Altitude
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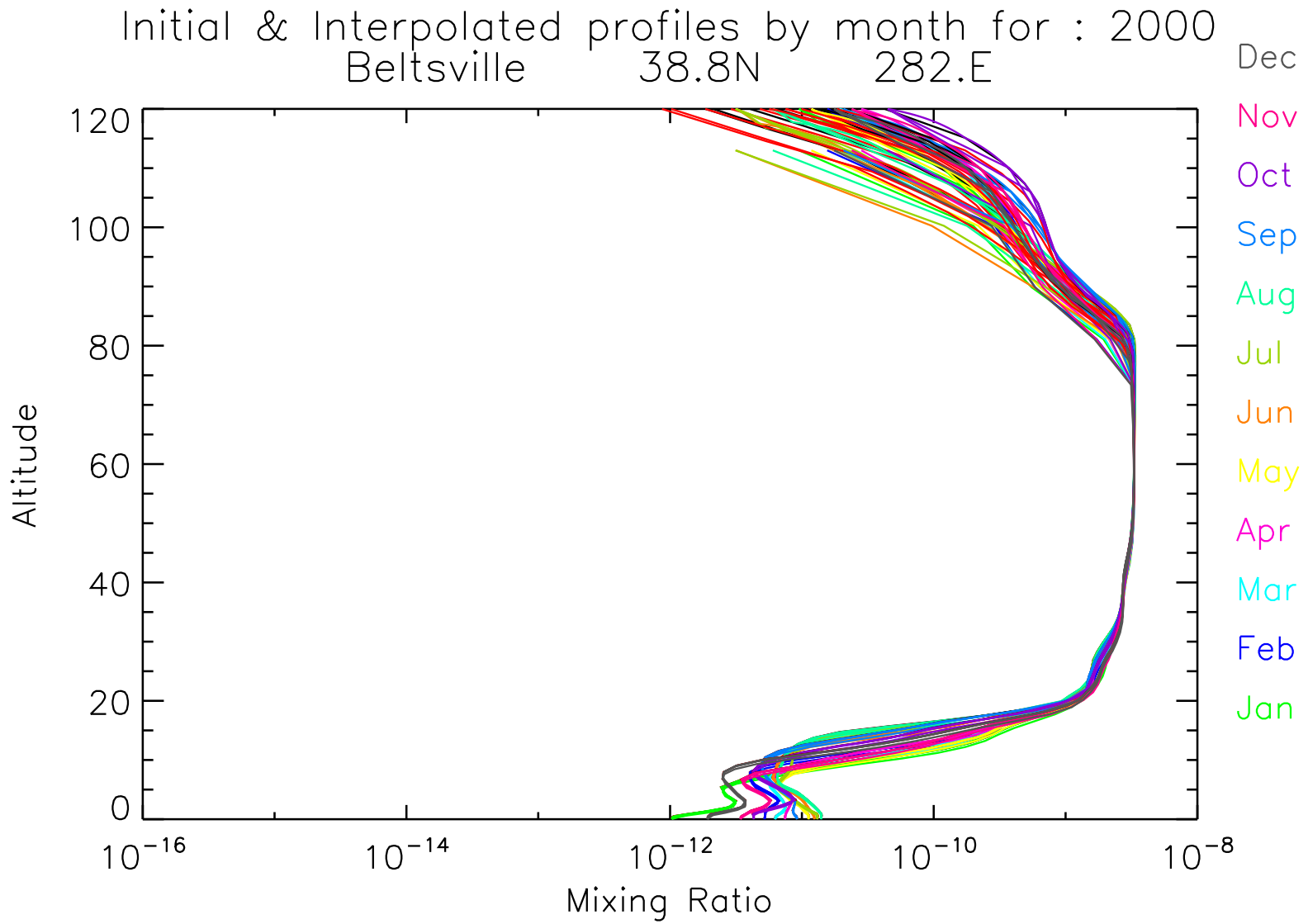
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 2000
Beltsville 38.8N 282.E
Dec
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Altitude
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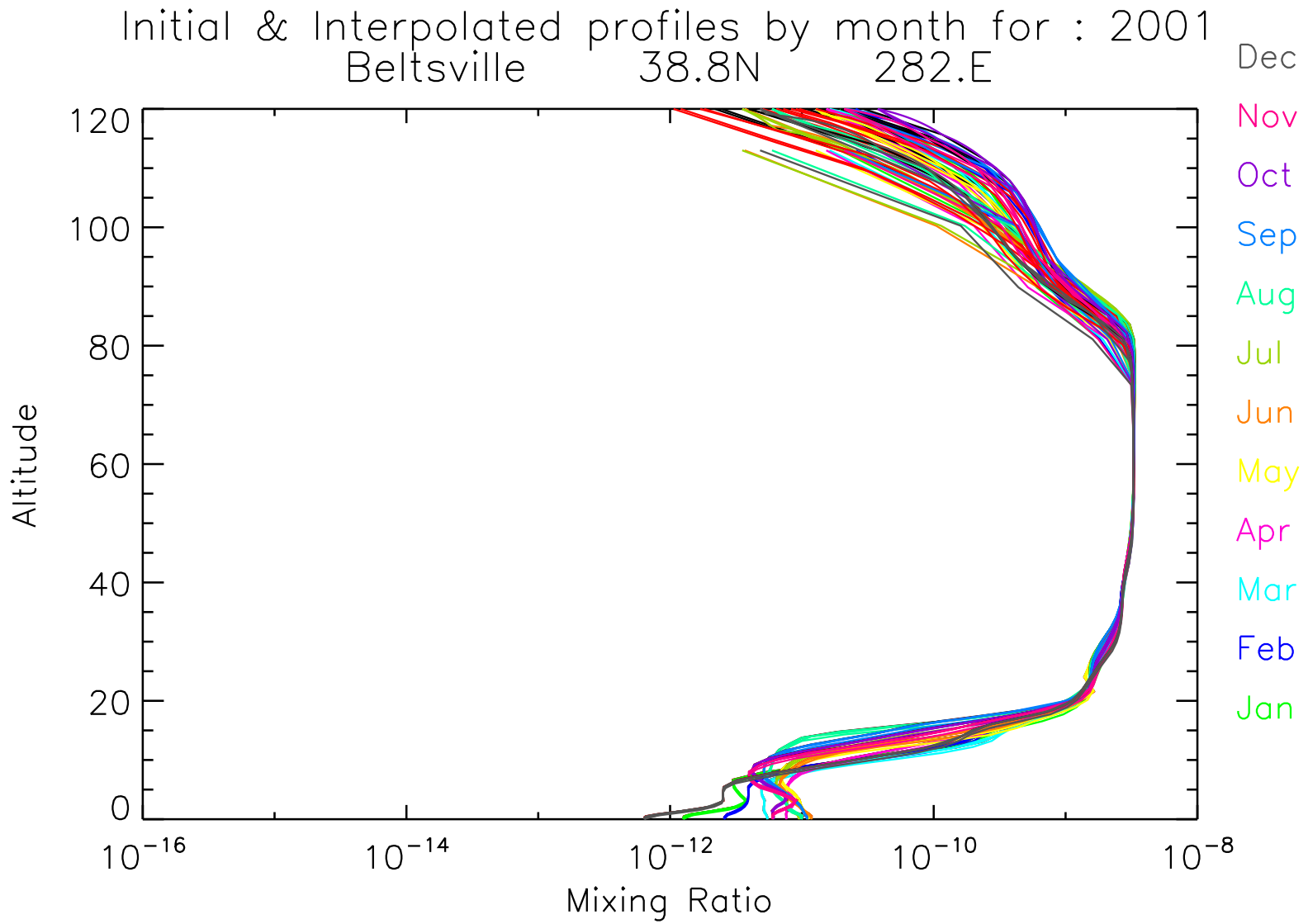
Mixing Ratio


Initial & Interpolated profiles by month for : 2001
Beltsville 38.8N 282.E
Dec
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Altitude
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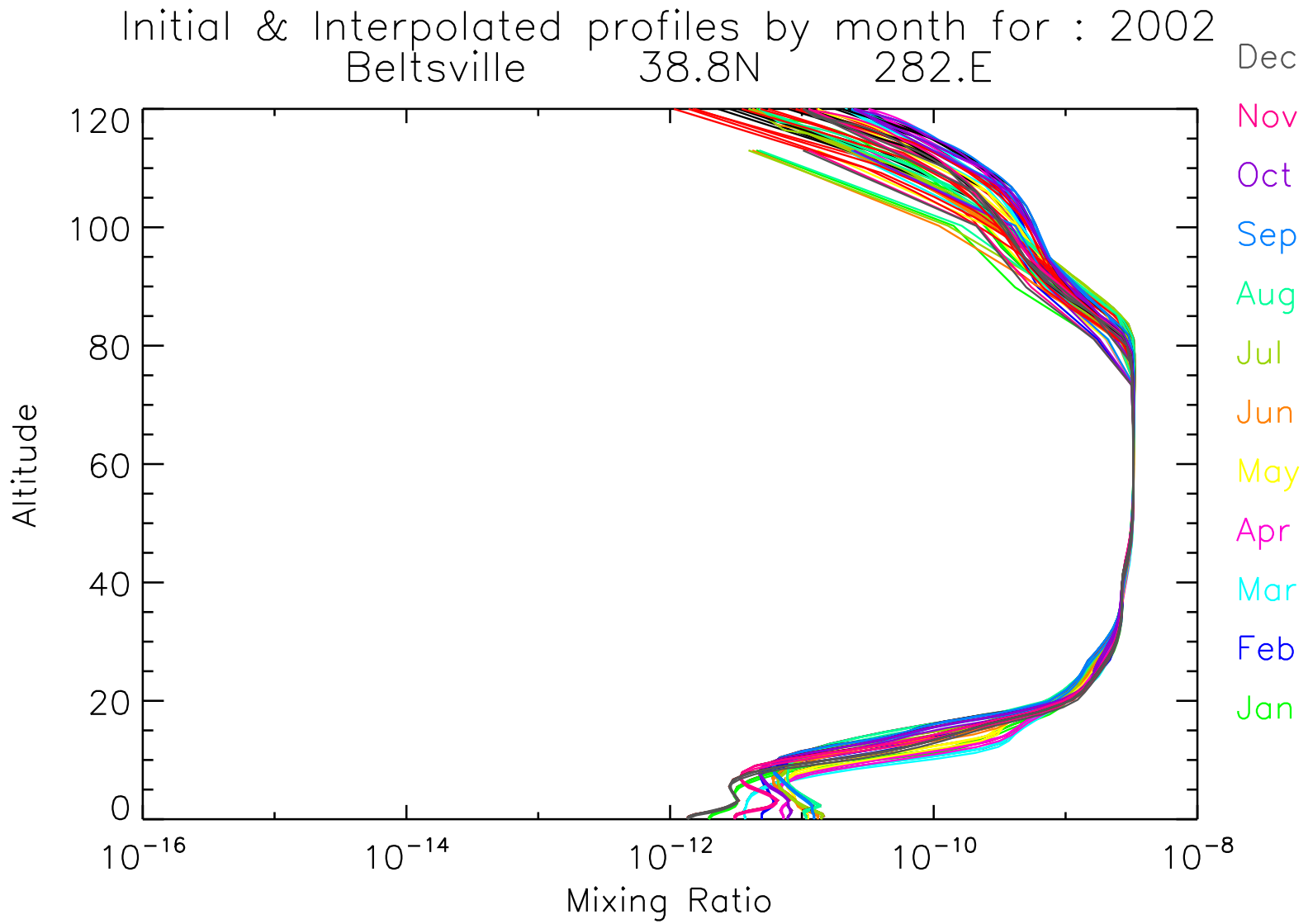
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 2002
Beltsville 38.8N 282.E
Dec
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Altitude
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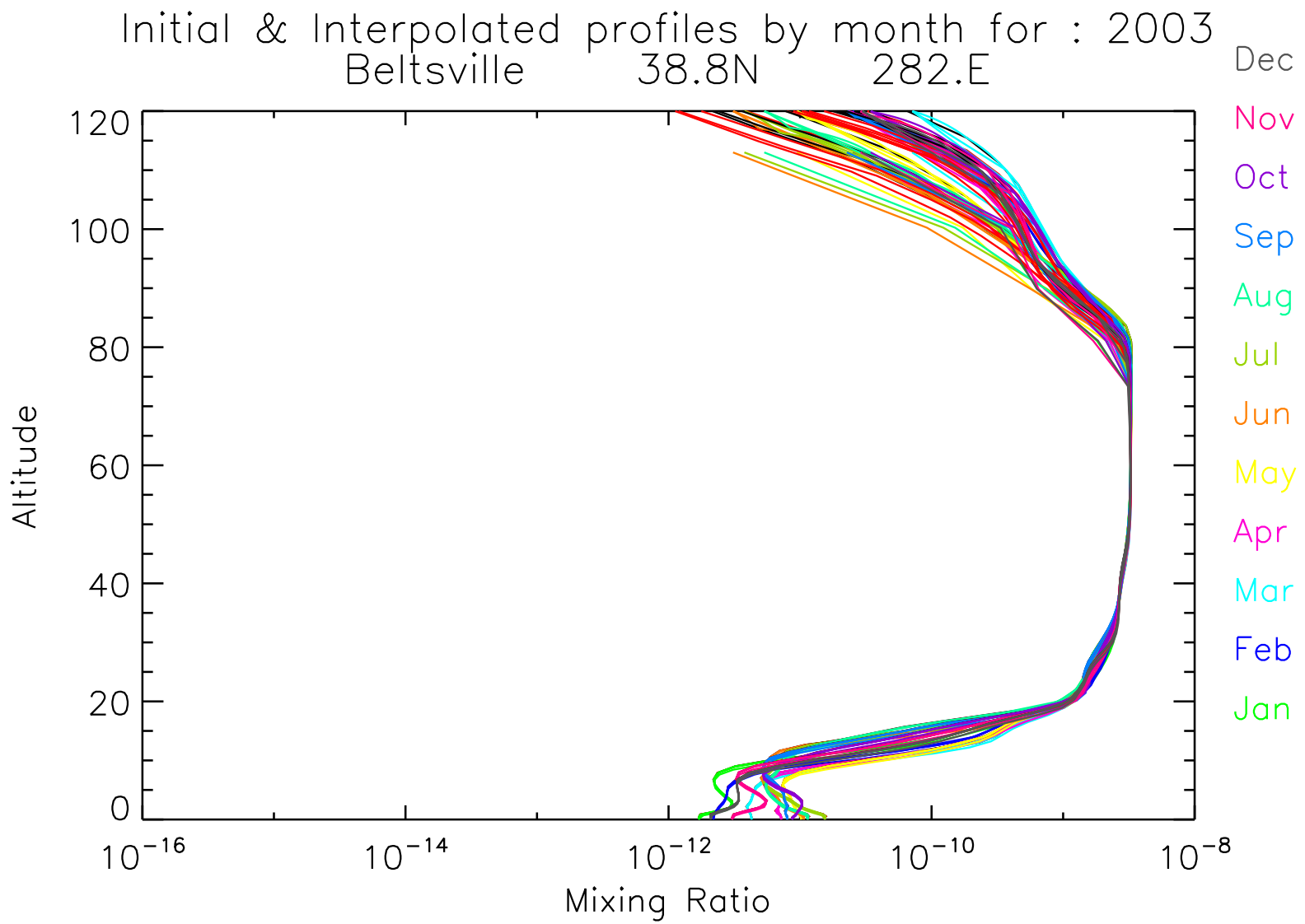
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 2003
Beltsville 38.8N 282.E
Dec
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Altitude
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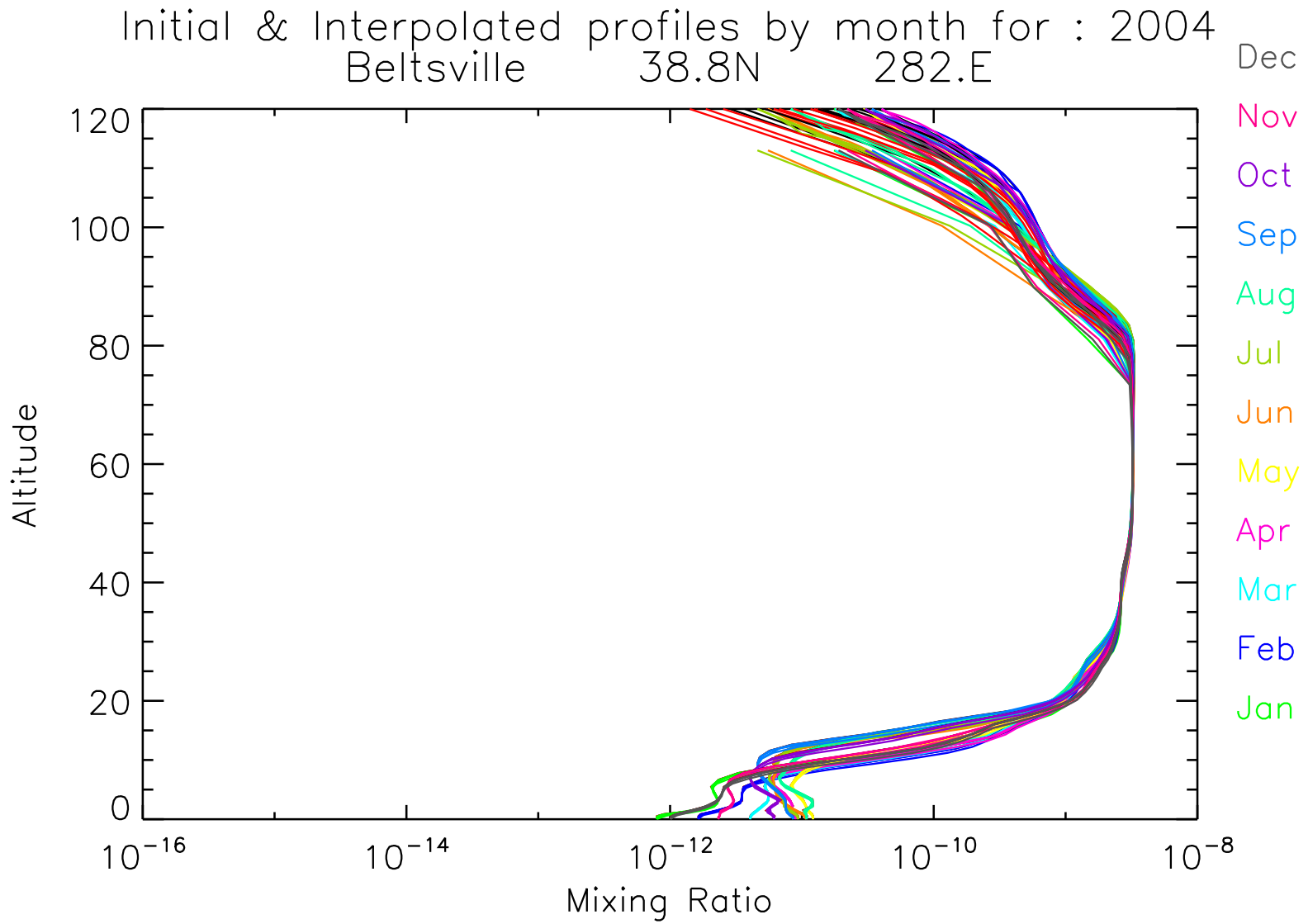
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 2004
Beltsville 38.8N 282.E
Dec
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Altitude
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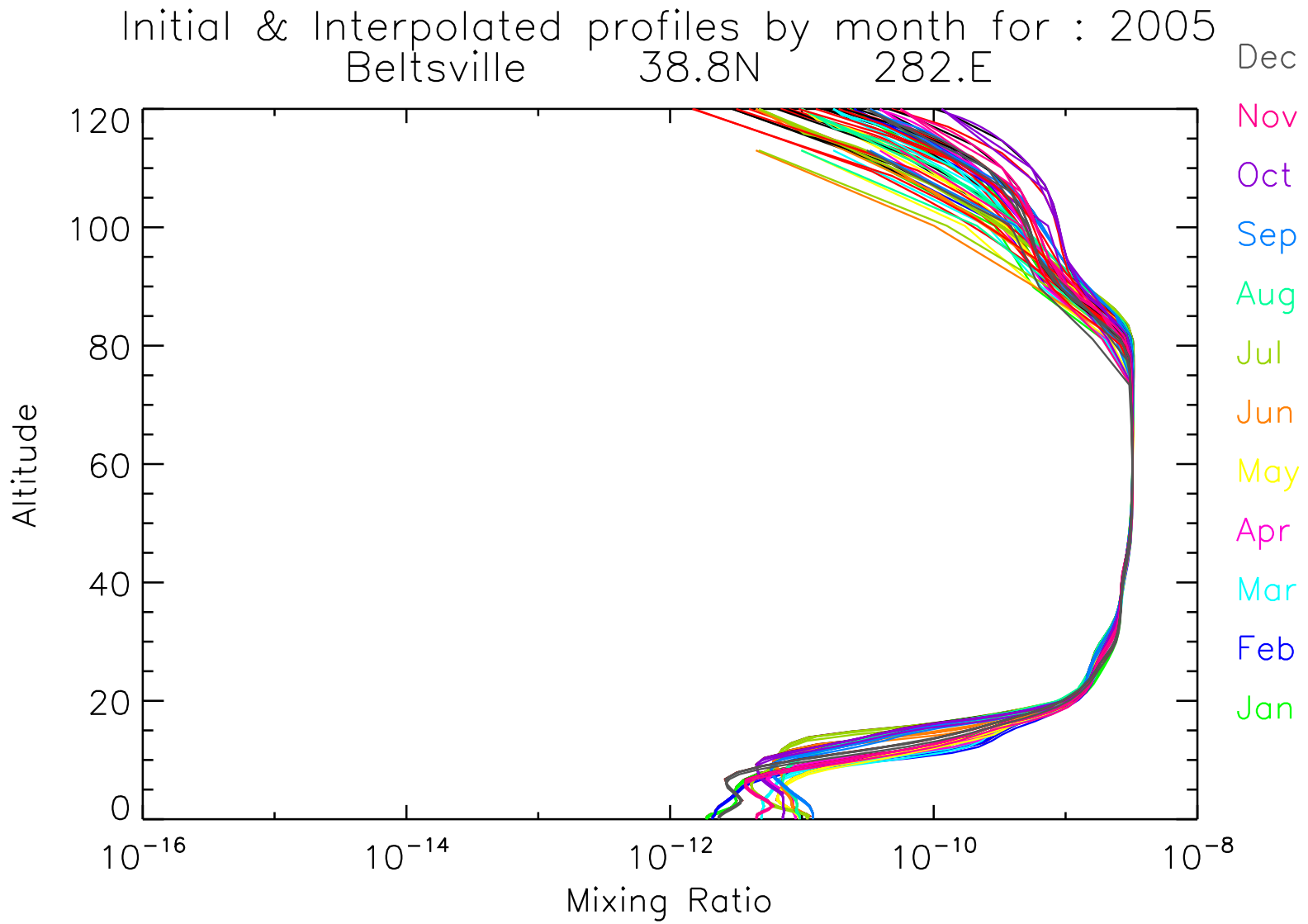
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 2005
Beltsville 38.8N 282.E
Dec
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Altitude
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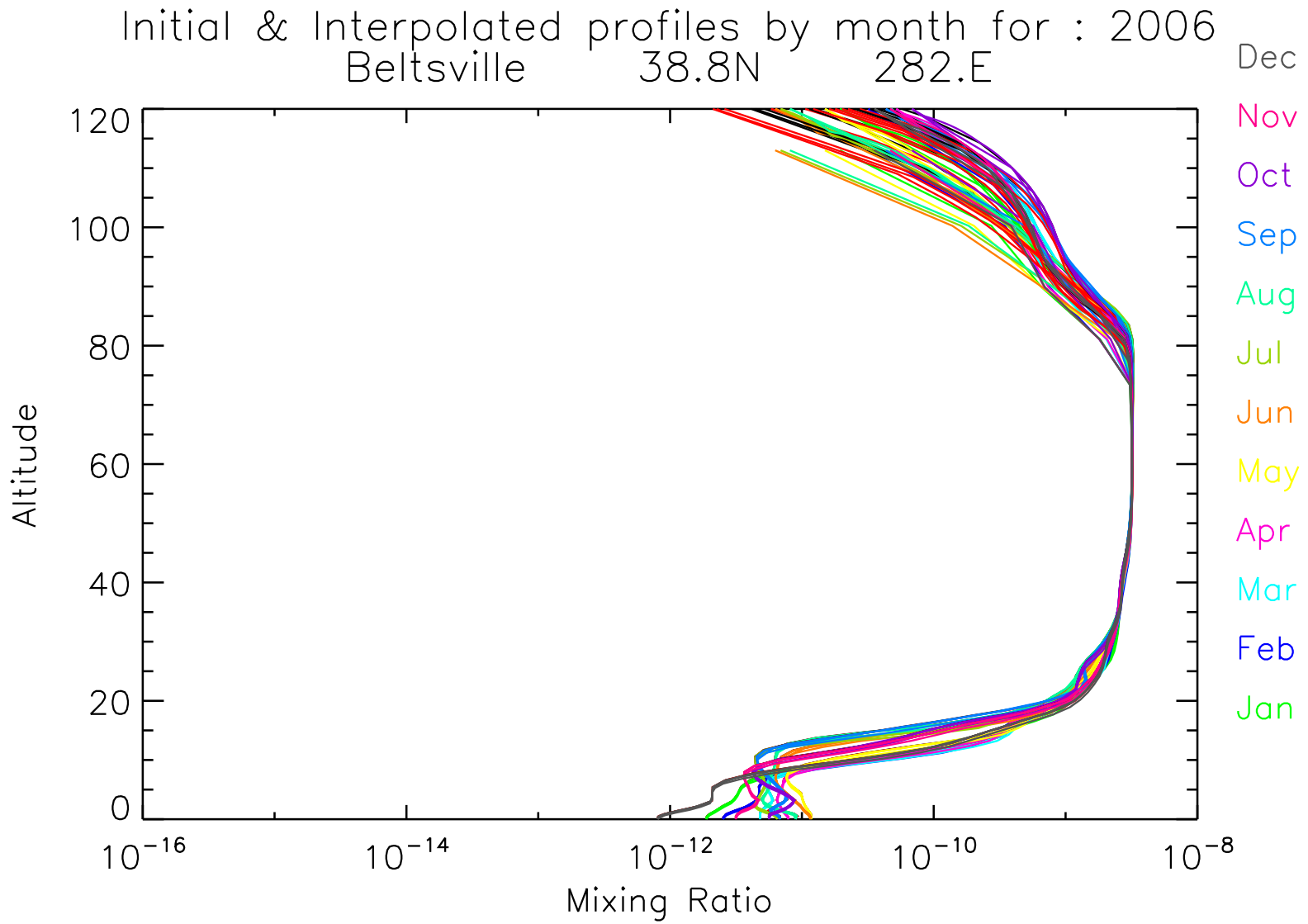
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 2006
Beltsville 38.8N 282.E
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Altitude
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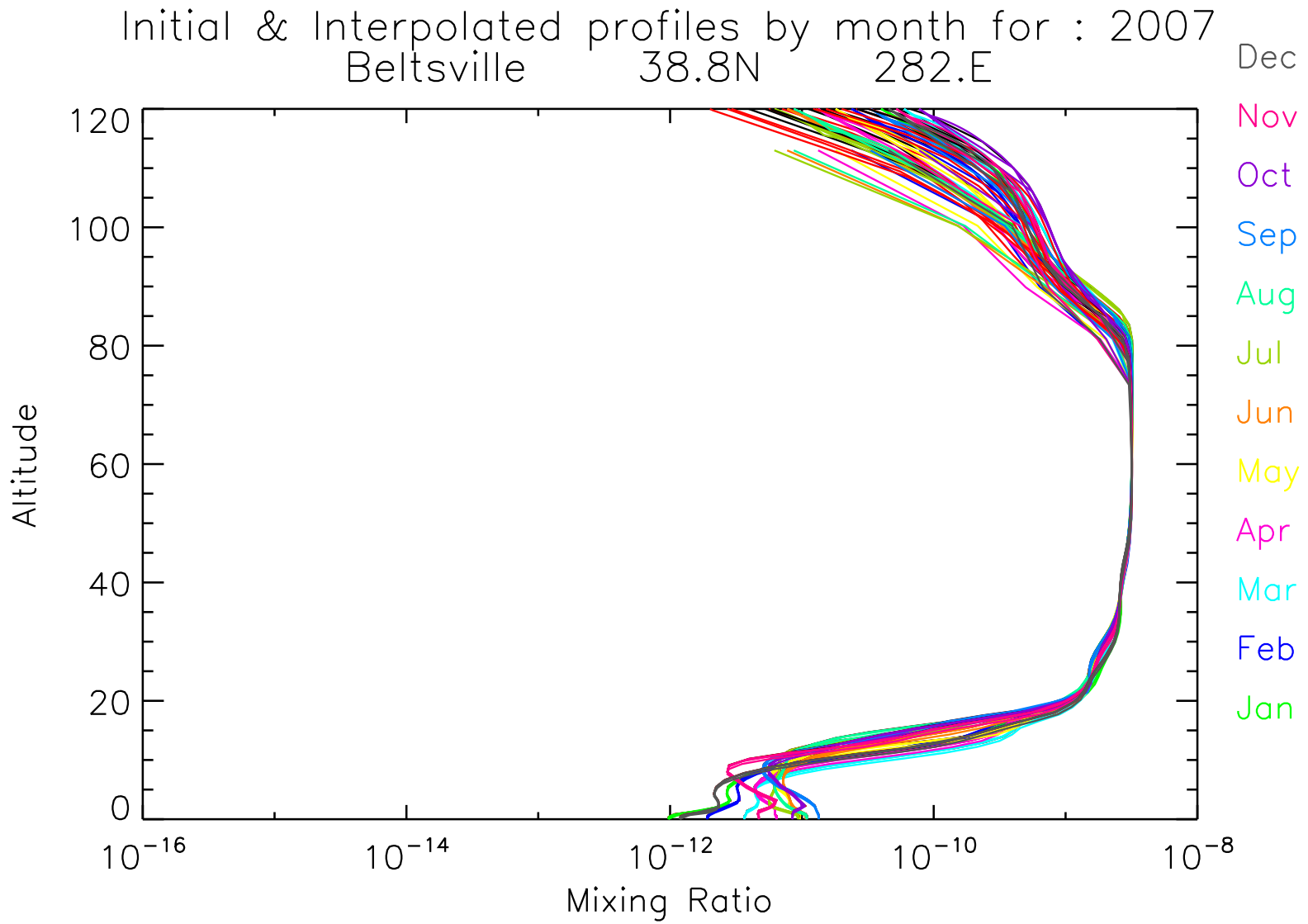
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 2007
Beltsville 38.8N 282.E
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Altitude
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10^{-16}
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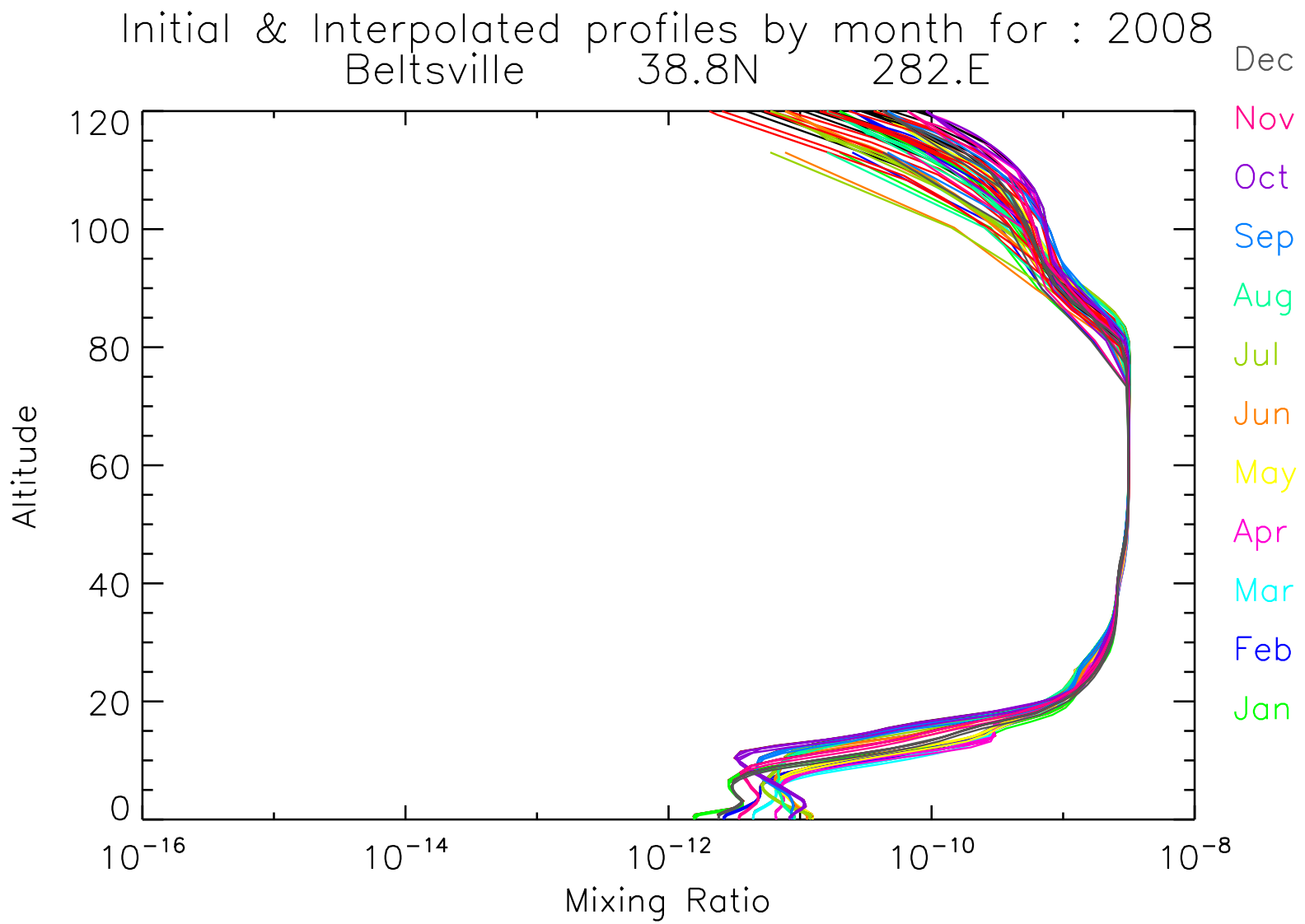
10^{-10}
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 2008
Beltsville 38.8N 282.E
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Altitude
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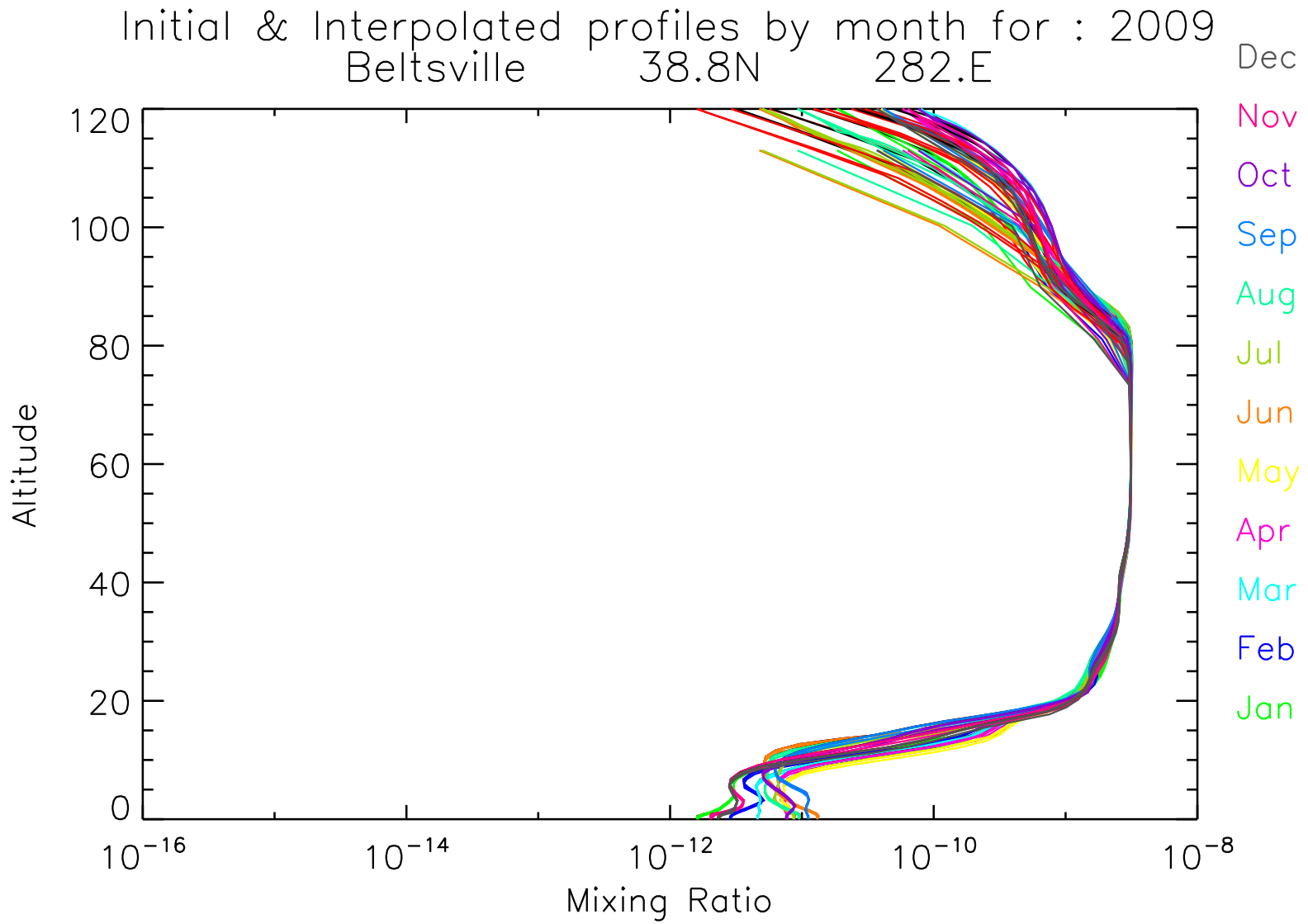
10^{-10}
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 2009
Beltsville 38.8N 282.E
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Altitude
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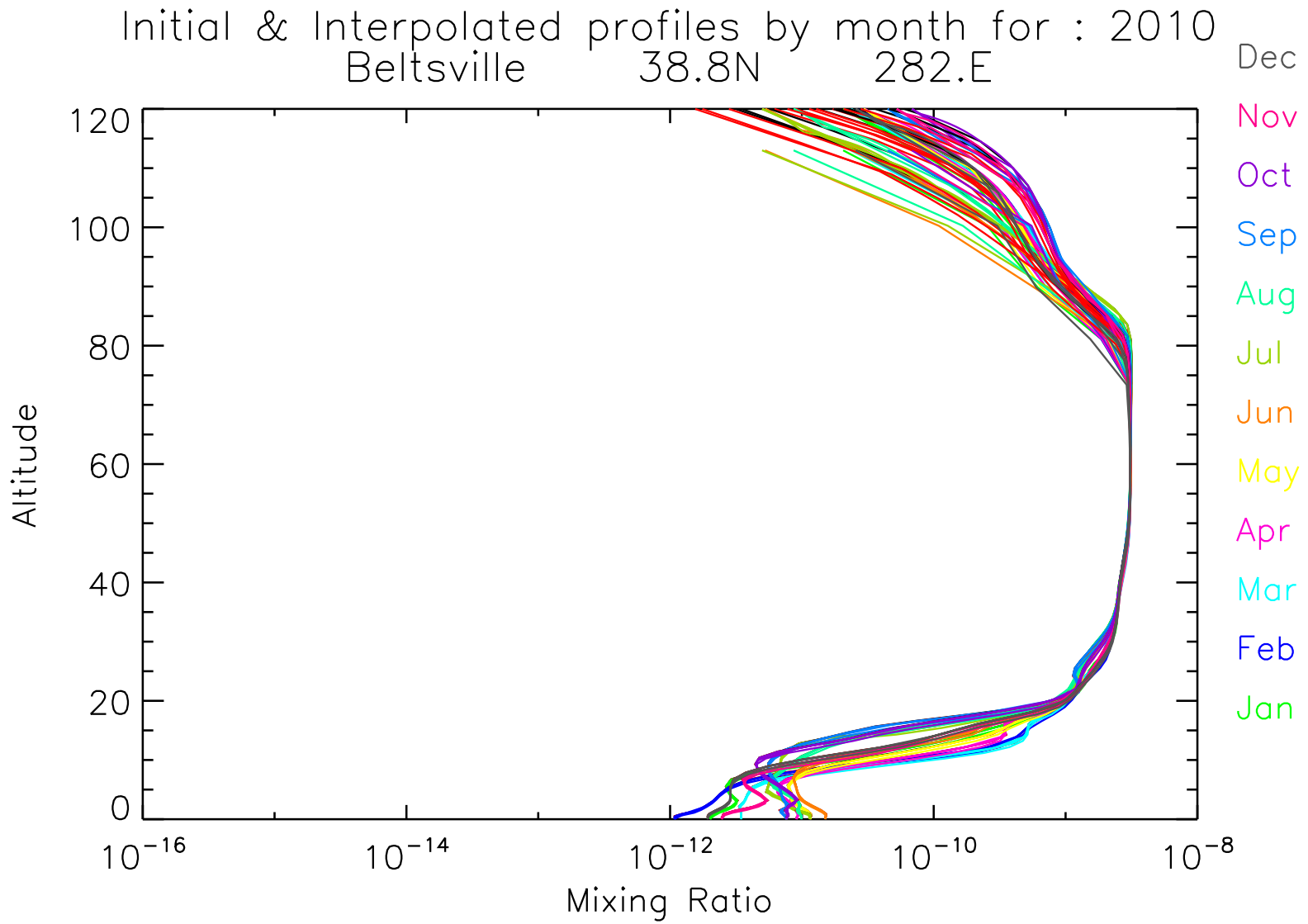
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 2010
Beltsville 38.8N 282.E
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Altitude
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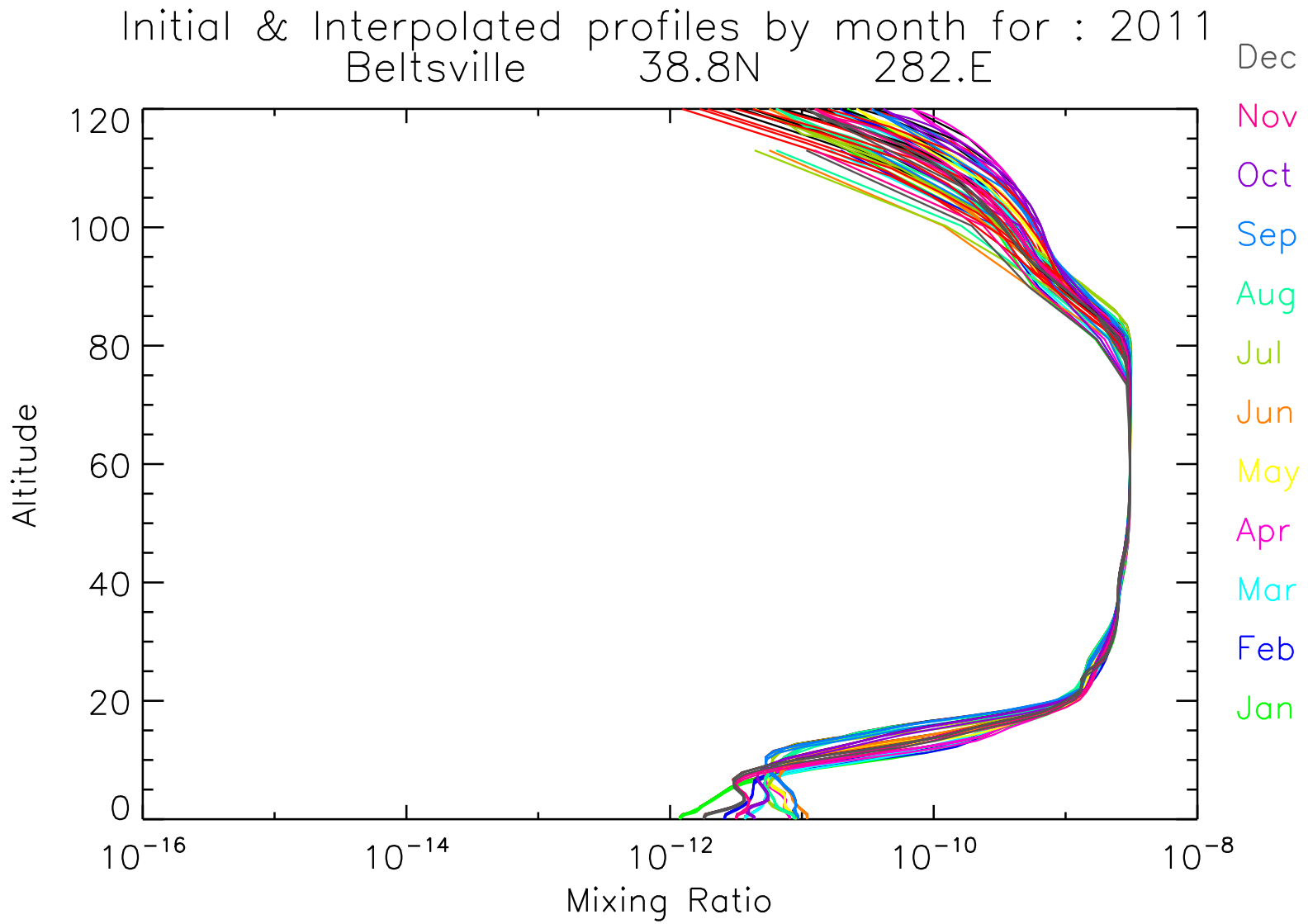
10^{-10}
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 2011
Beltsville 38.8N 282.E
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Altitude
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10^{-16}
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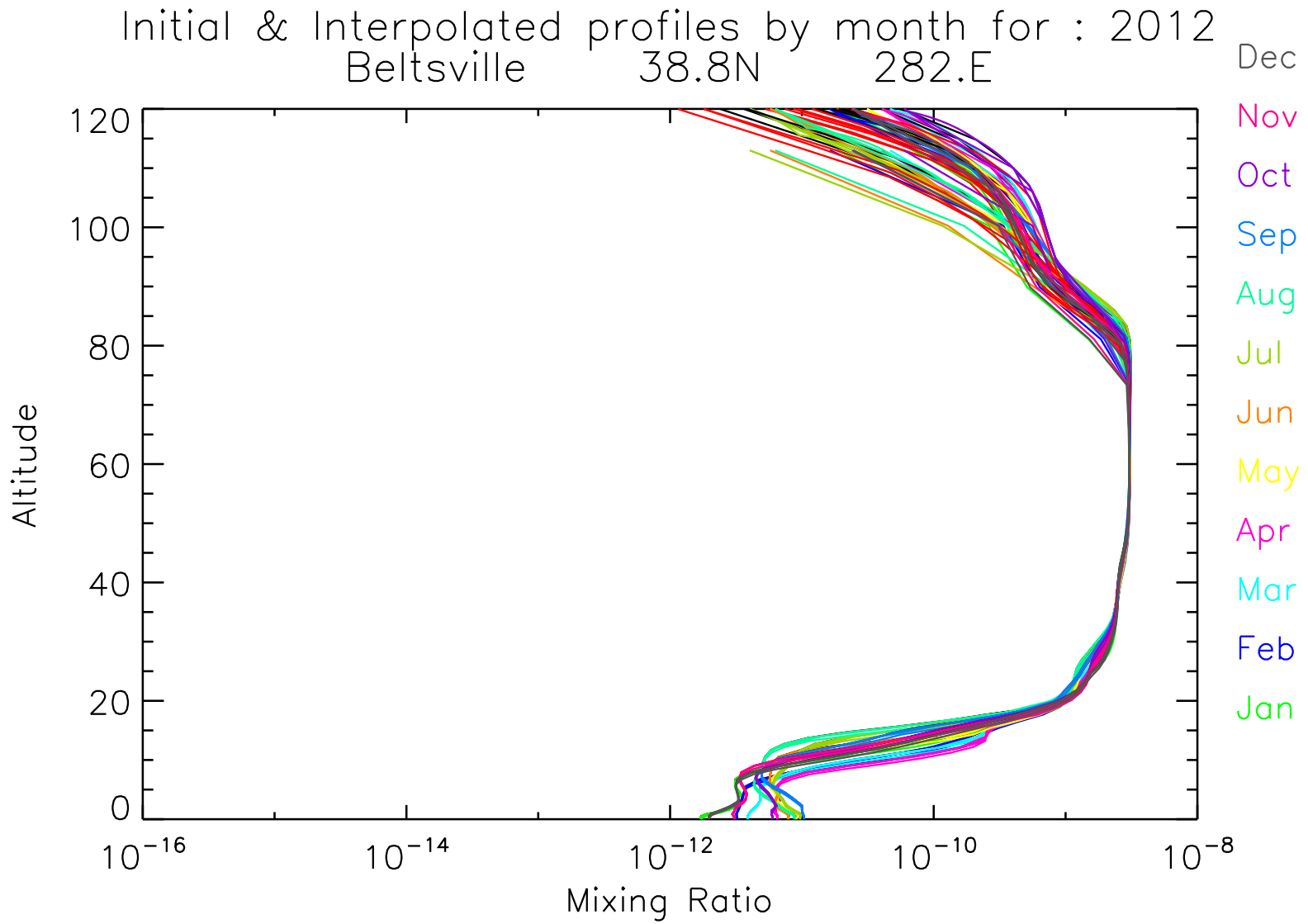
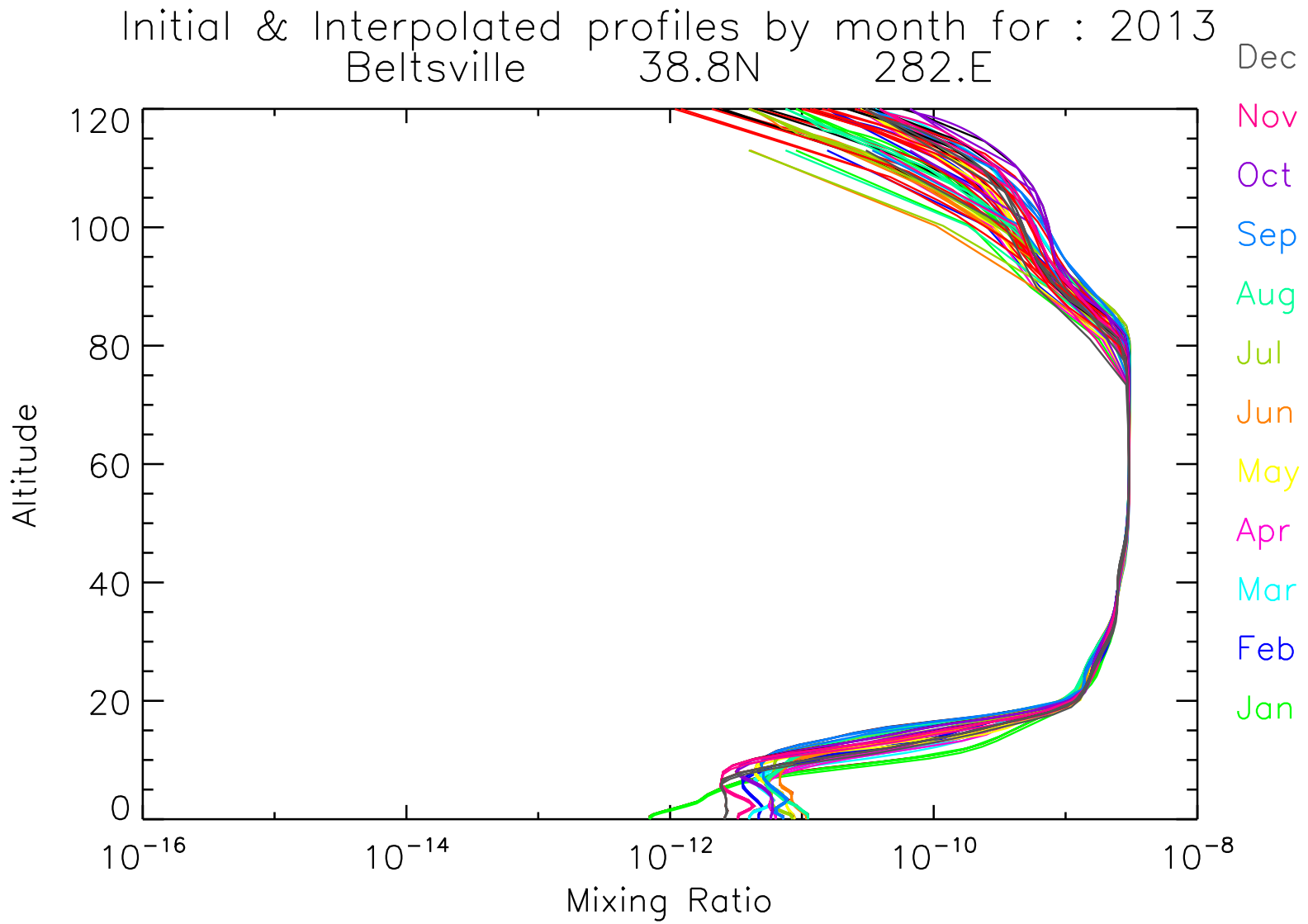
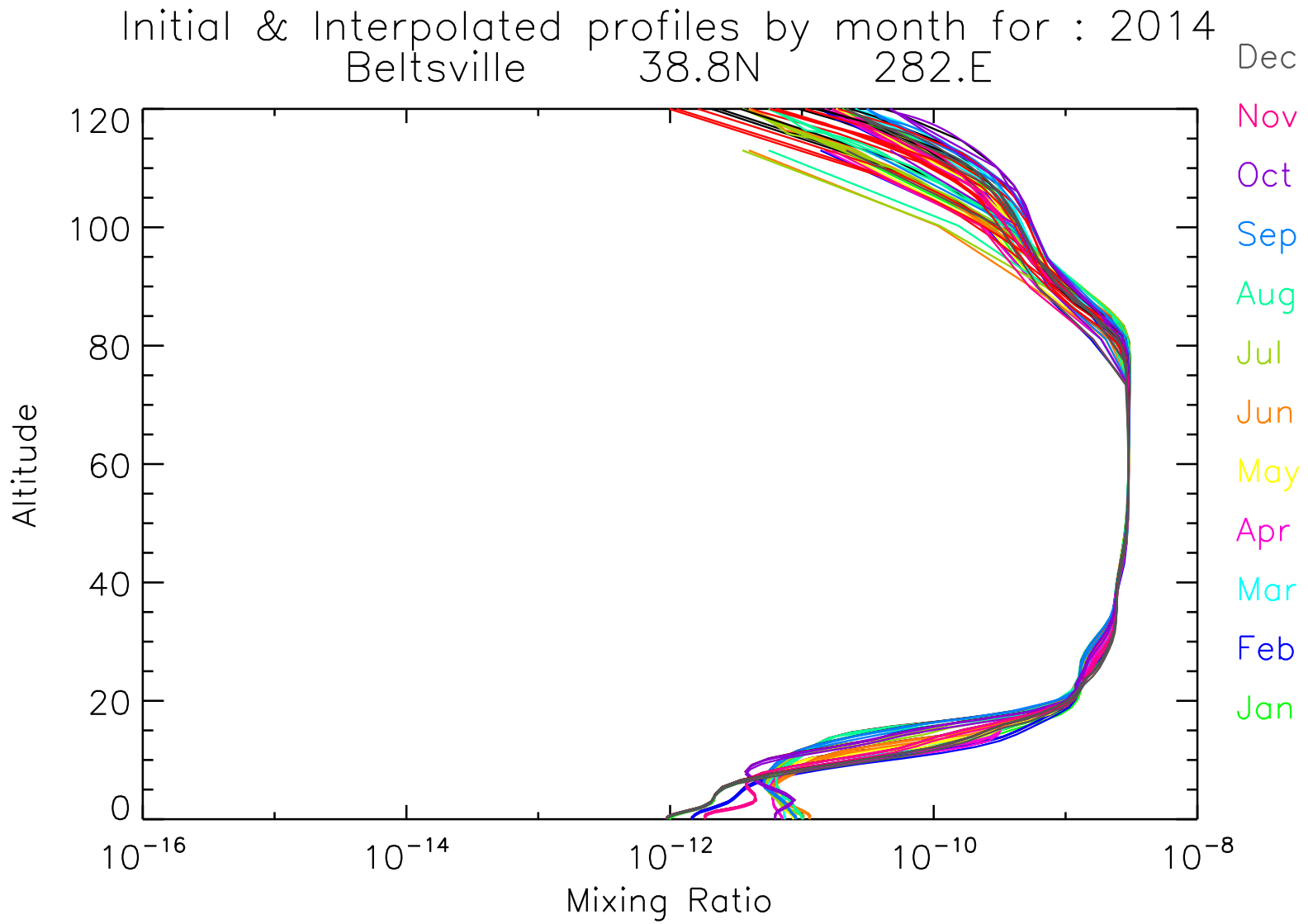
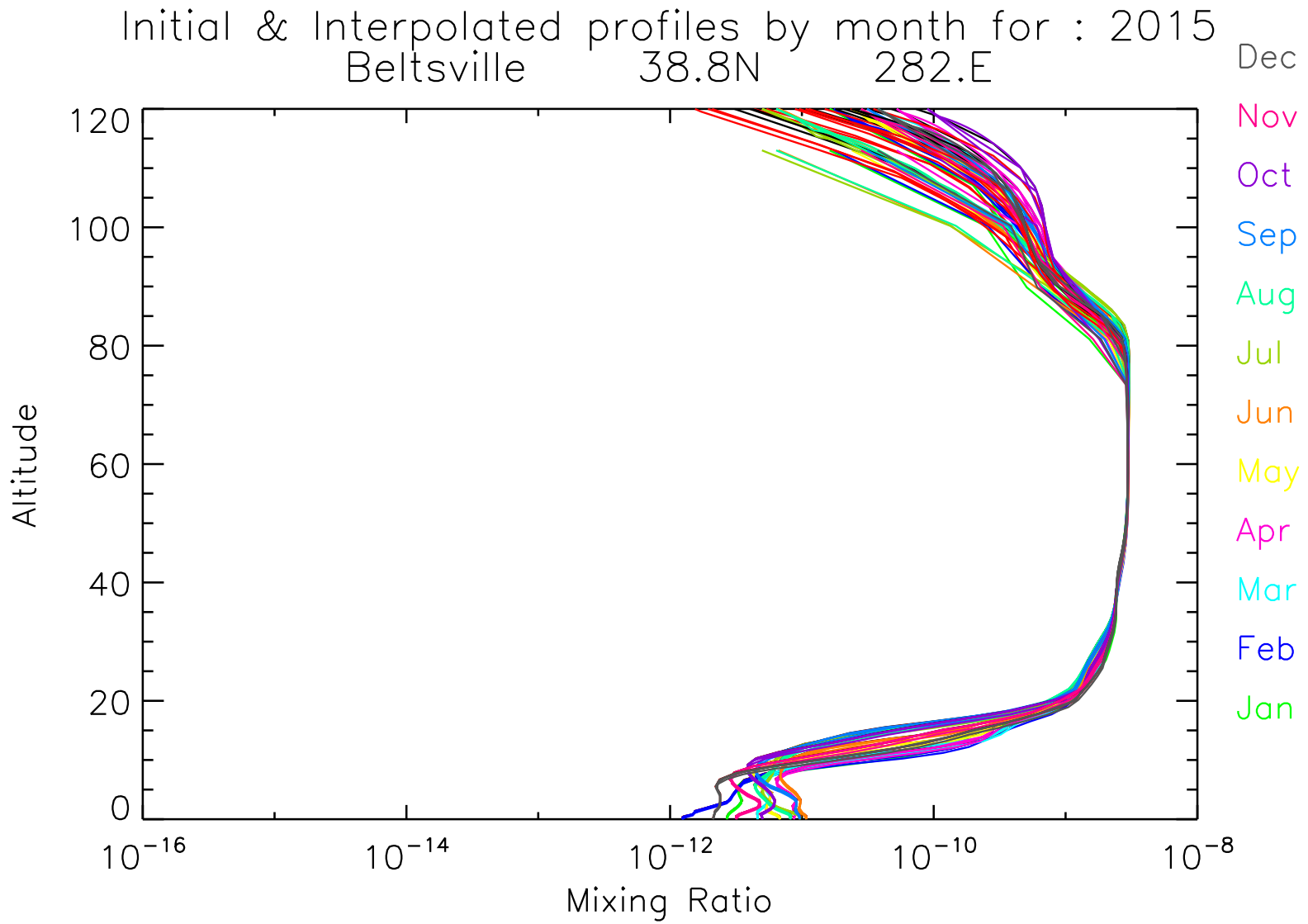
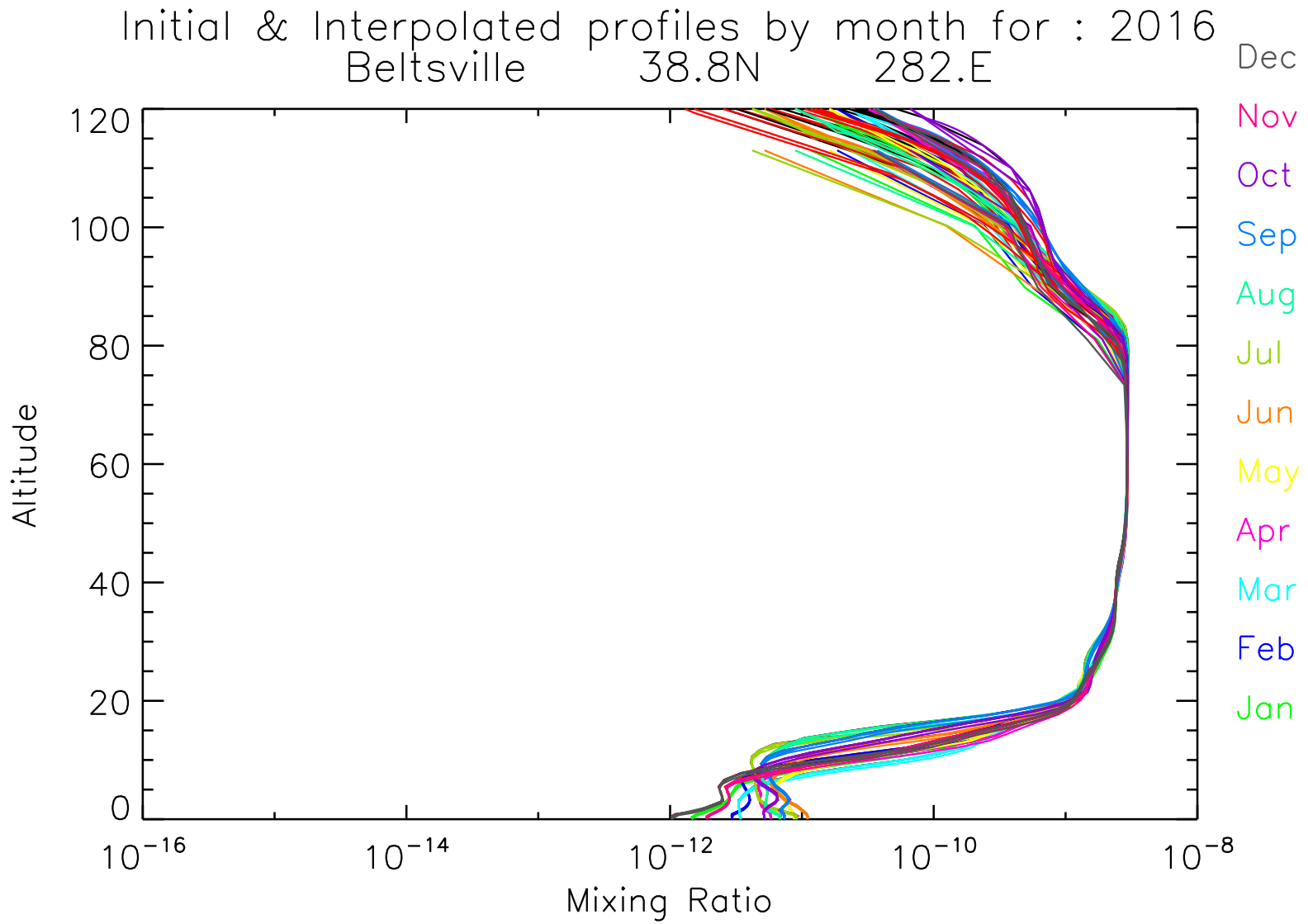
10^{-10}
10^{-8}
Mixing Ratio

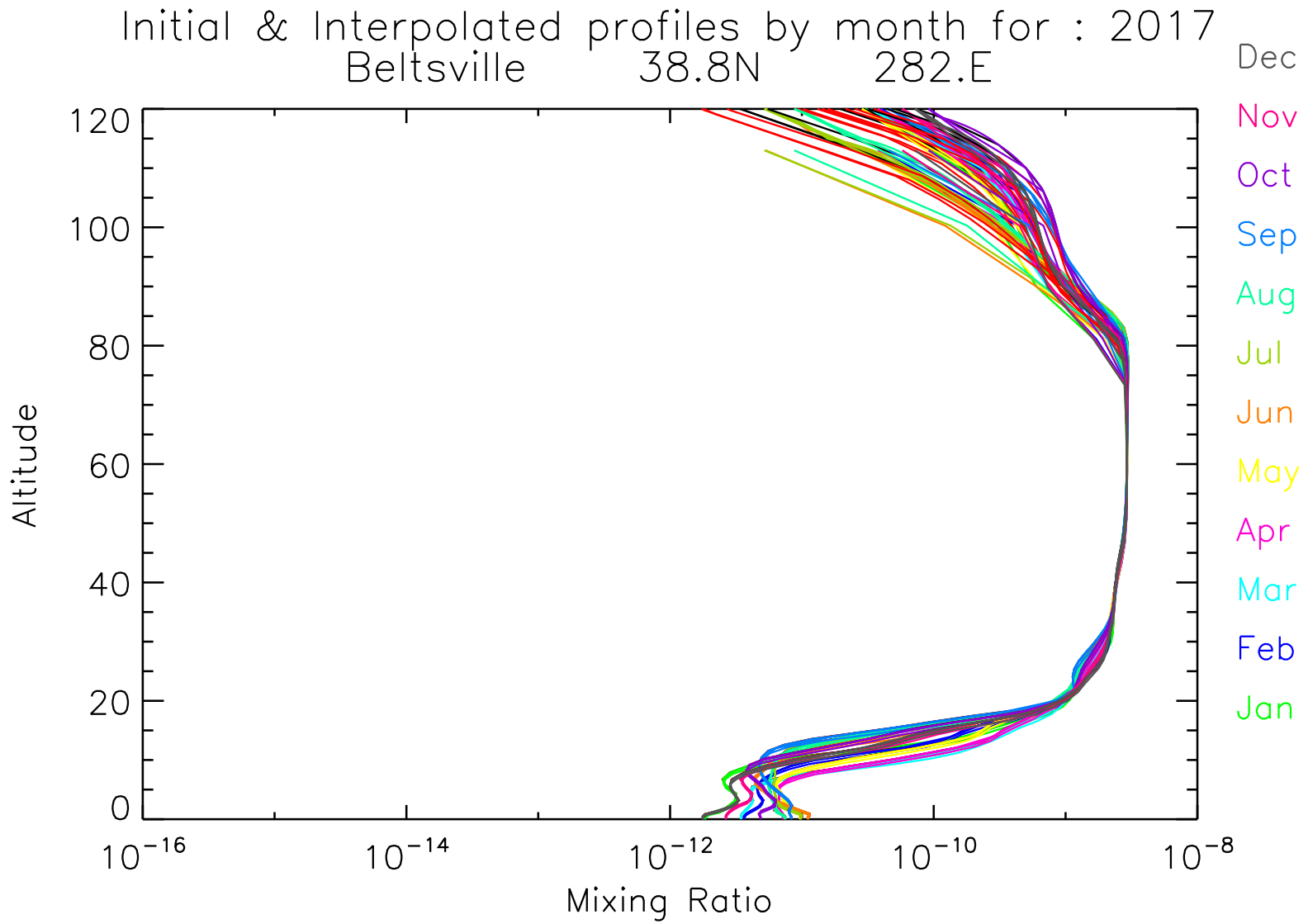

Initial & Interpolated profiles by month for : 2012
Beltsville 38.8N 282.E
Altitude
120
100
80
60
40
20
0
10^{-16}
10^{-14}
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

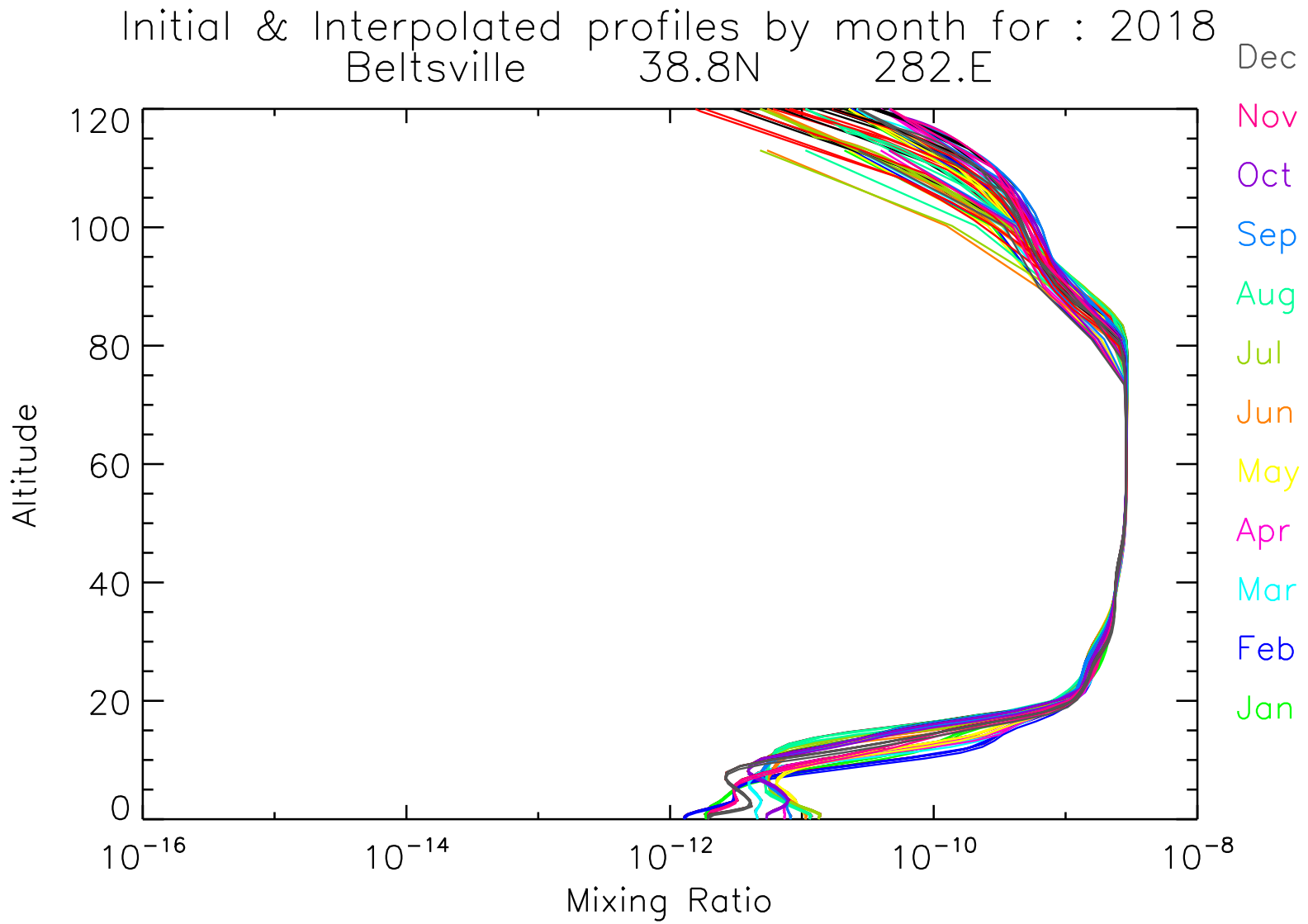

Initial & Interpolated profiles by month for : 2013
Beltsville 38.8N 282.E
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan
Altitude
120
100
80
60
40
20
0
10^{-16}
10^{-14}
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio

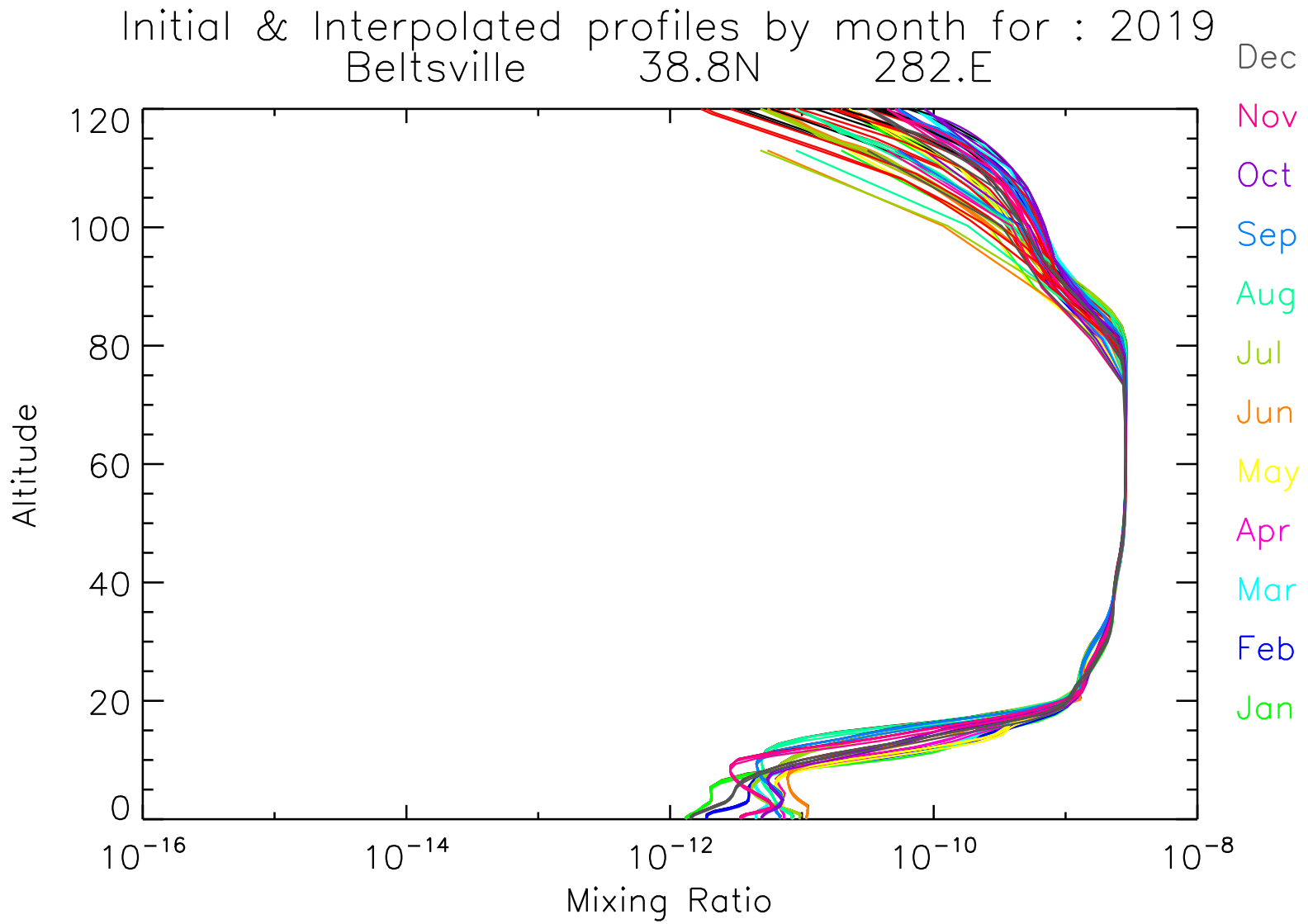

Initial & Interpolated profiles by month for : 2014
Beltsville 38.8N 282.E
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan
Altitude
120
100
80
60
40
20
0
10^{-16}
10^{-14}
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio

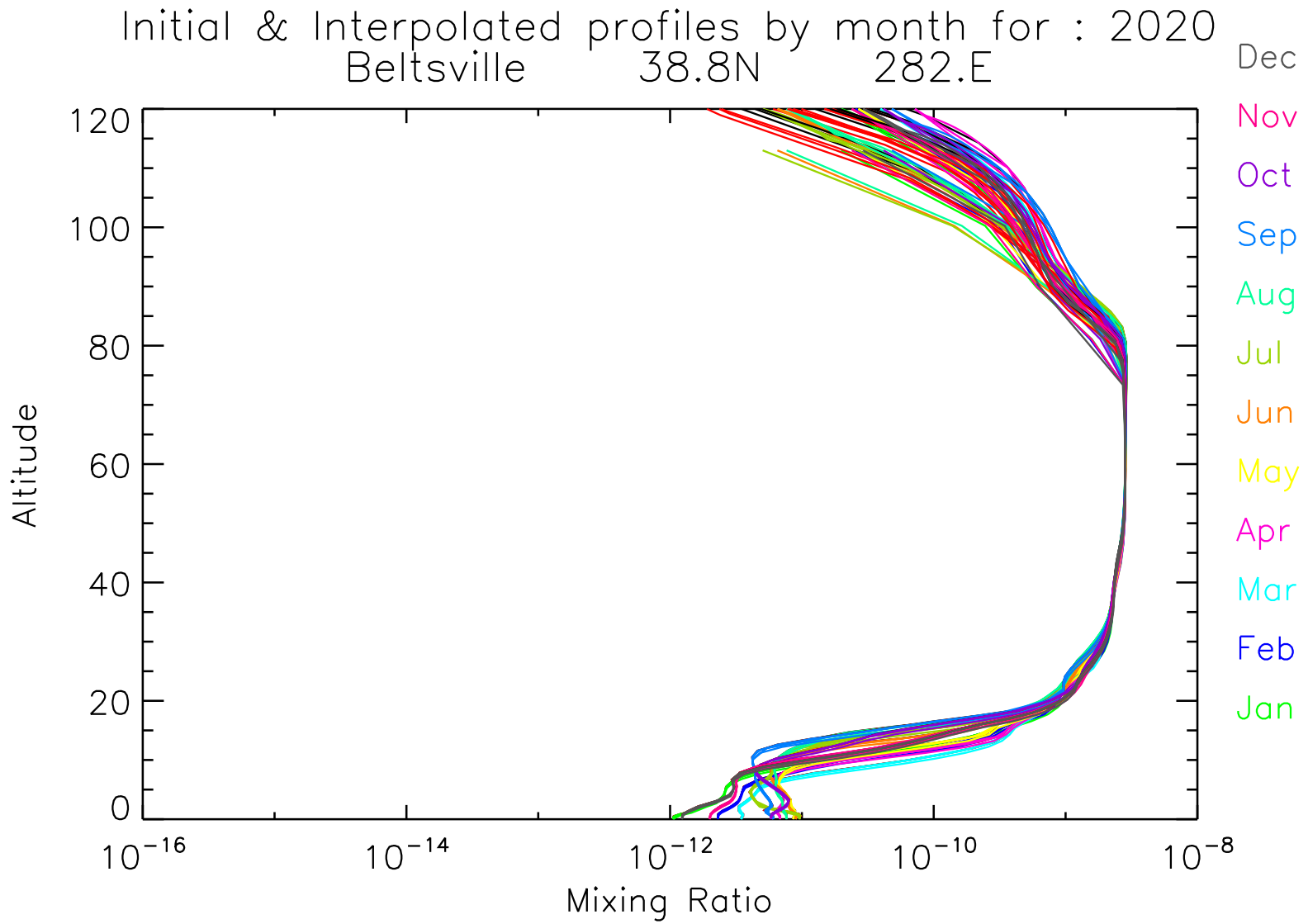

Initial & Interpolated profiles by month for : 2015
Beltsville 38.8N 282.E
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan
120
100
80
60
40
20
0
Altitude
10^{-16}
10^{-14}
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio

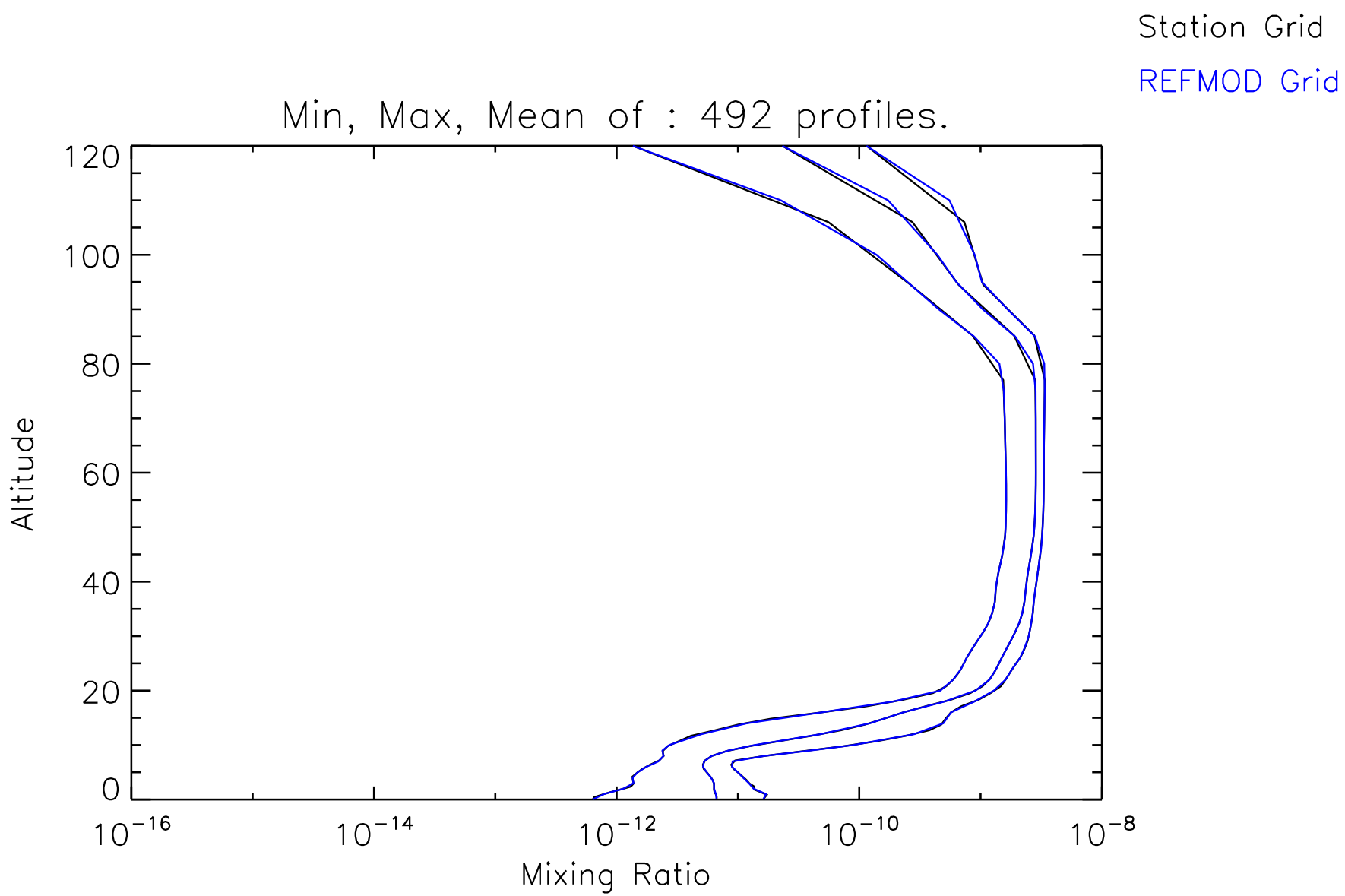

Initial & Interpolated profiles by month for : 2016
Beltsville 38.8N 282.E
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan
120
100
80
60
40
20
0
Altitude
10^{-16}
10^{-14}
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio

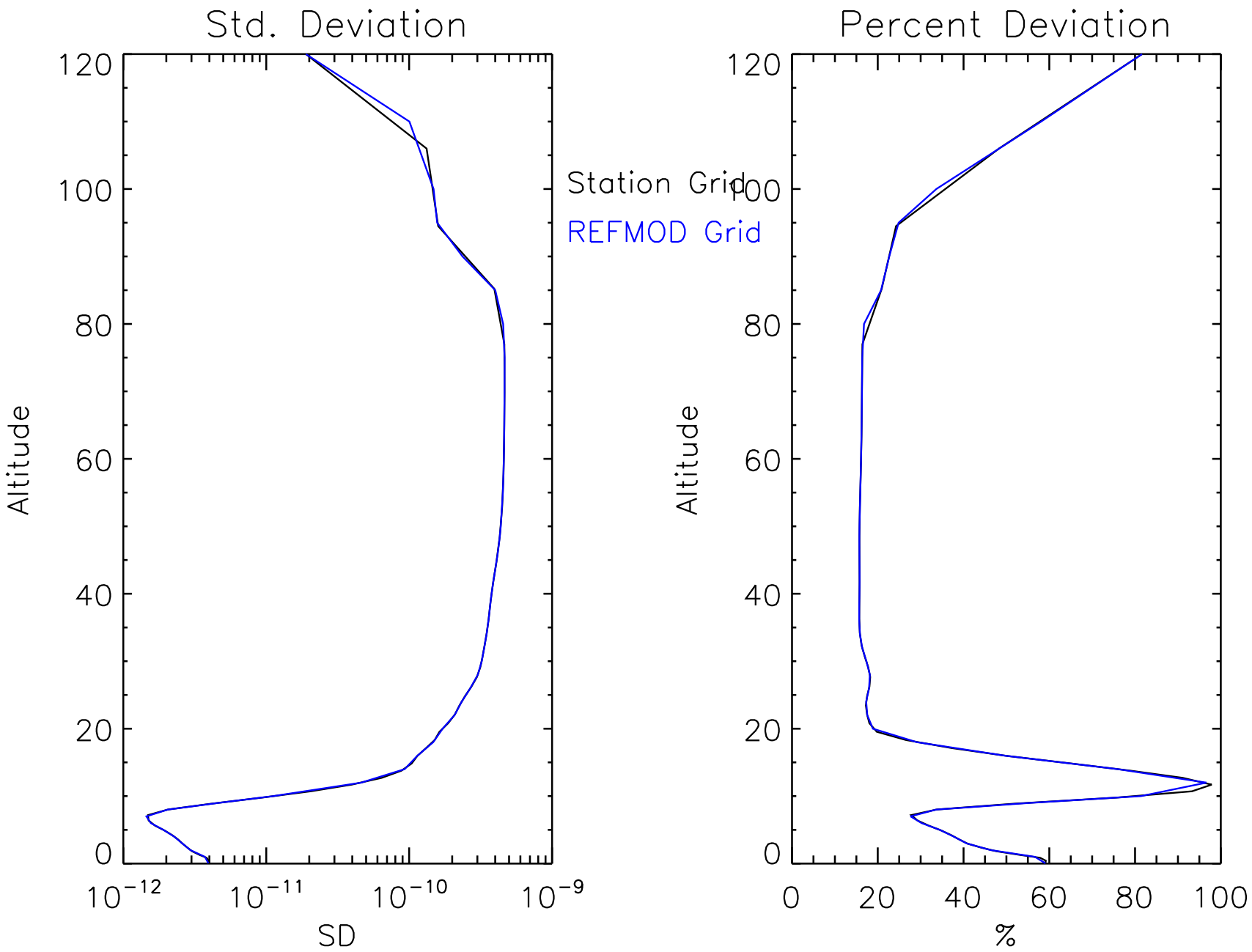

Initial & Interpolated profiles by month for : 2017
Beltsville 38.8N 282.E
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan
120
100
80
60
40
20
0
Altitude
10^{-16}
10^{-14}
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio

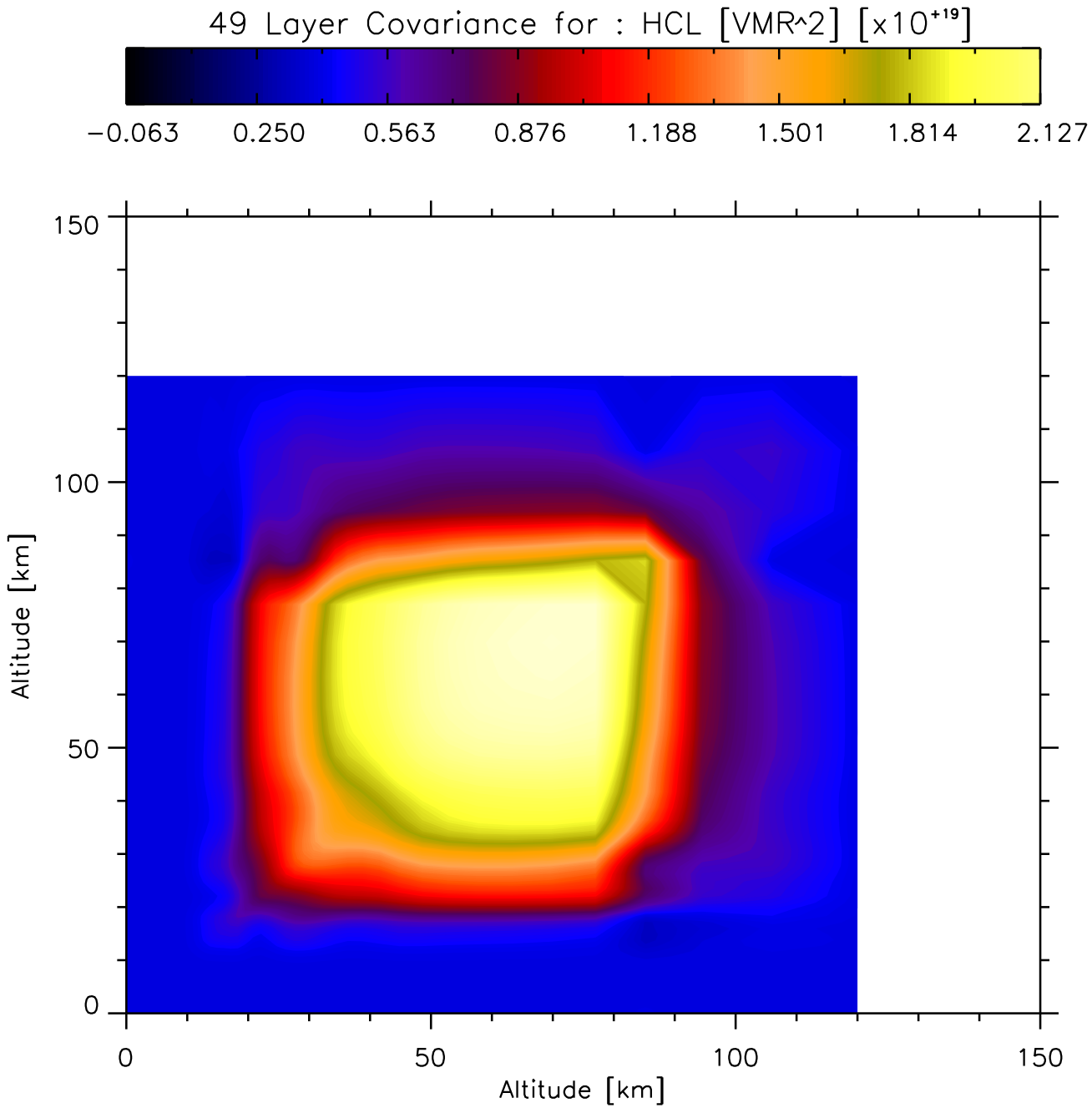

Initial & Interpolated profiles by month for : 2018
Beltsville 38.8N 282.E
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan
Altitude
120
100
80
60
40
20
0
10^{-16}
10^{-14}
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio


Initial & Interpolated profiles by month for : 2019
Beltsville 38.8N 282.E
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan
Altitude
120
100
80
60
40
20
0
10^{-16}
10^{-14}
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio

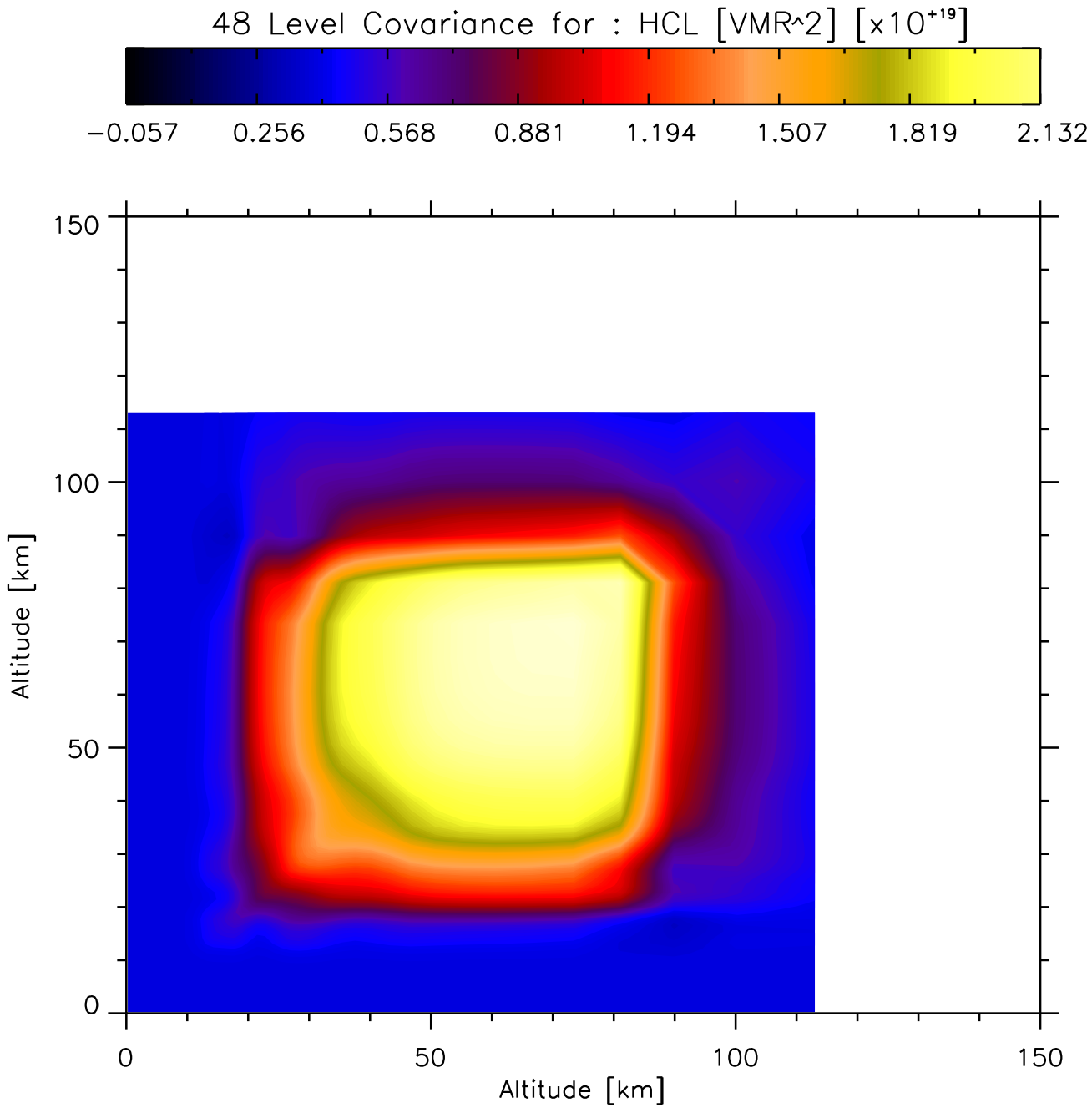

Initial & Interpolated profiles by month for : 2020
Beltsville 38.8N 282.E
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan
Altitude
120
100
80
60
40
20
0
10^{-16}
10^{-14}
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio


Station Grid
REFMOD Grid
Min, Max, Mean of : 492 profiles.
120
100
80
60
40
20
0
Altitude
10^{-16}
10^{-14}
10^{-12}
10^{-10}
10^{-8}
Mixing Ratio


Std. Deviation
Percent Deviation
Station Grid
REFMOD Grid
Altitude
Altitude
120
100
80
60
40
20
0
10^{-12}
10^{-11}
10^{-10}
10^{-9}
SD
0
20
40
60
80
100
%


49 Layer Covariance for : HCL [VMR^2] [x10^+19]
−0.063
0.250
0.563
0.876
1.188
1.501
1.814
2.127
150
100
50
0
Altitude [km]
0
50
100
150
Altitude [km]

49 Layer Covariance for : HCL [VMR^2] [x10^-19]
2.5
2.0
1.5
1.0
0.5
0.0
Y Altitude
0
30
60
90
0
50
100
150
X Altitude


48 Level Covariance for : HCL [VMR^2] [x10^+19]
−0.057
0.256
0.568
0.881
1.194
1.507
1.819
2.132
150
100
50
0
Altitude [km]
0
50
100
150
Altitude [km]

48 Level Covariance for : HCL [VMR^2] [x10^19]
2.5
2.0
1.5
1.0
0.5
0.0
Y Altitude
0
15
30
45
60
X Altitude
0
50
100
150