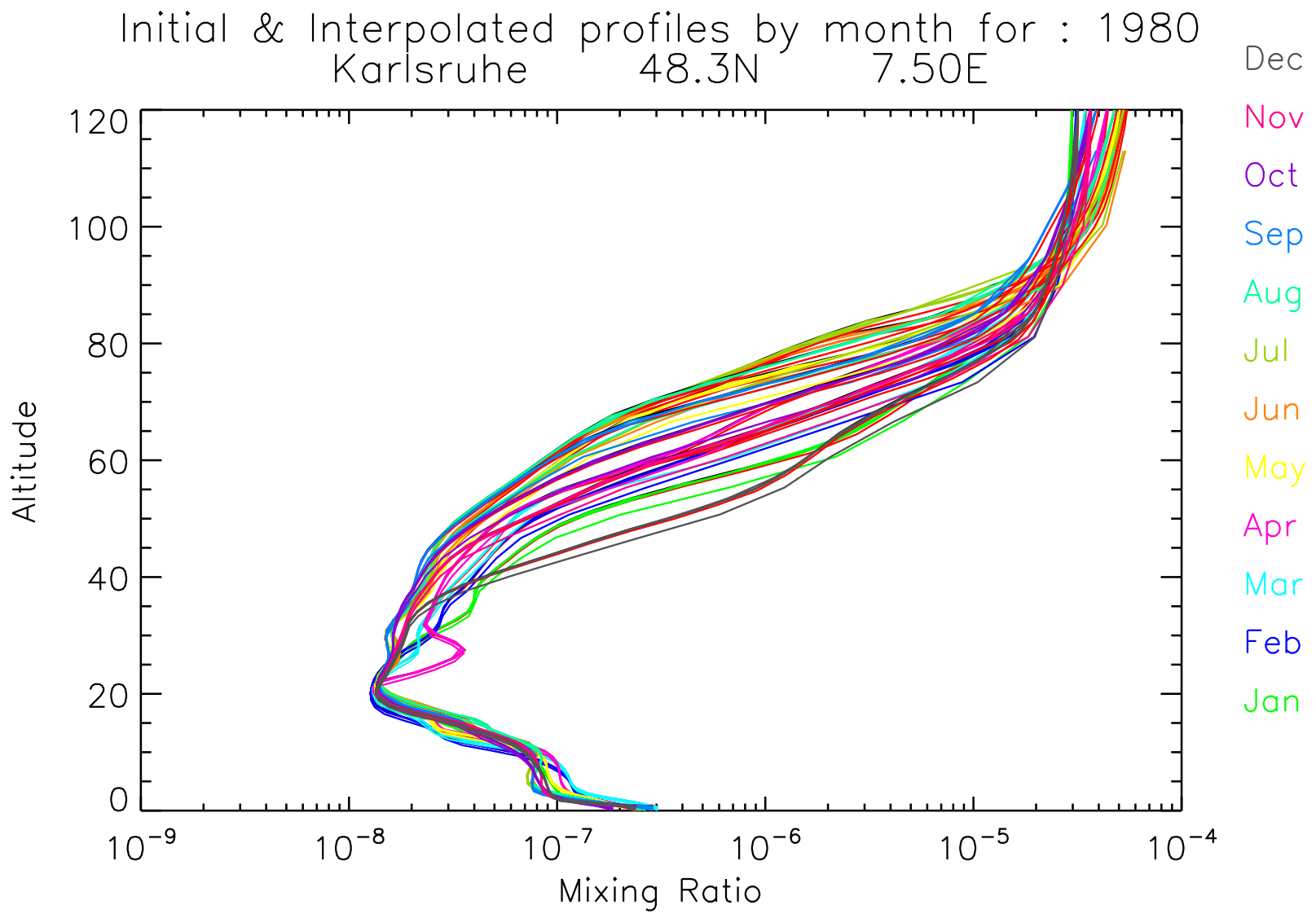
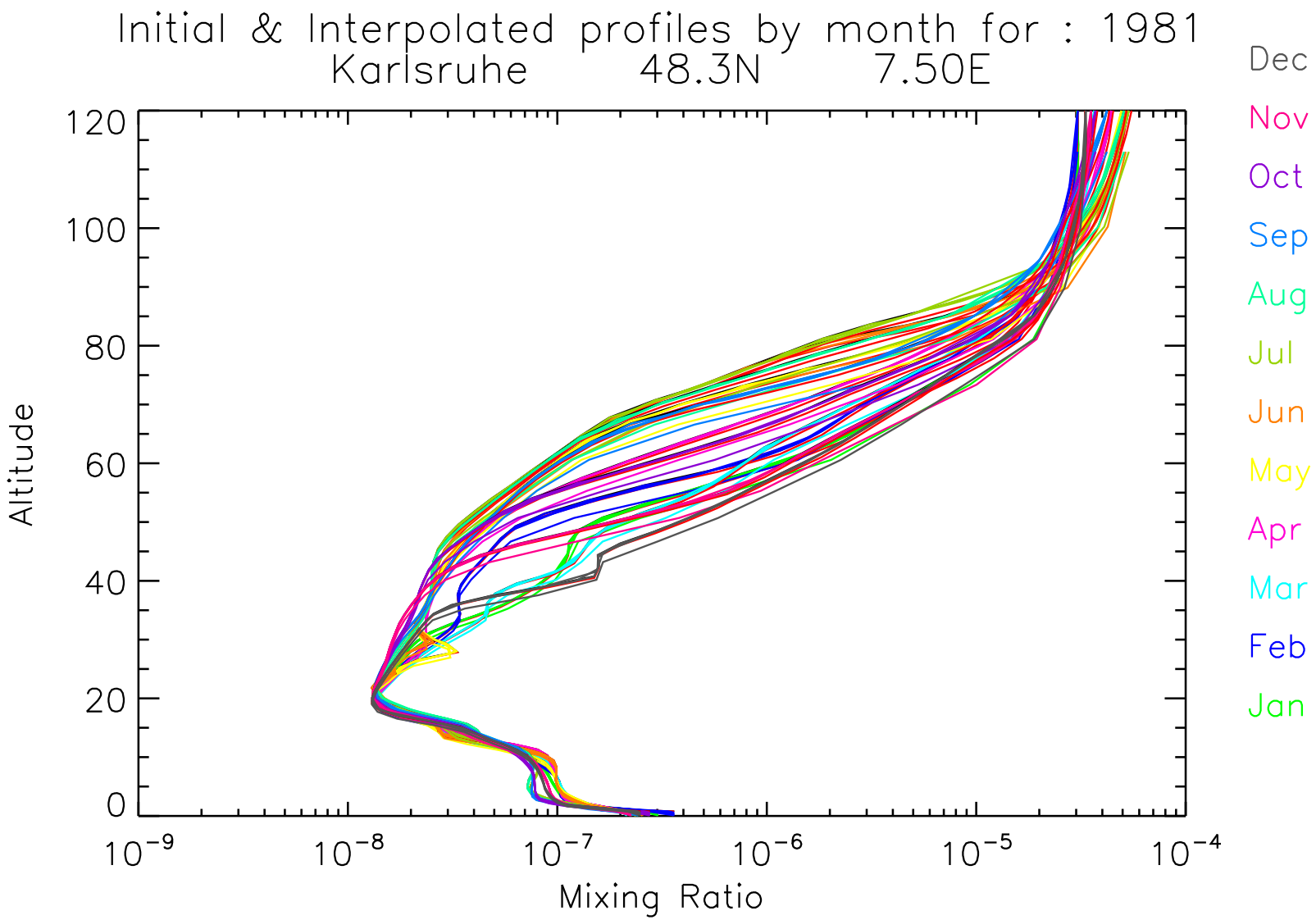
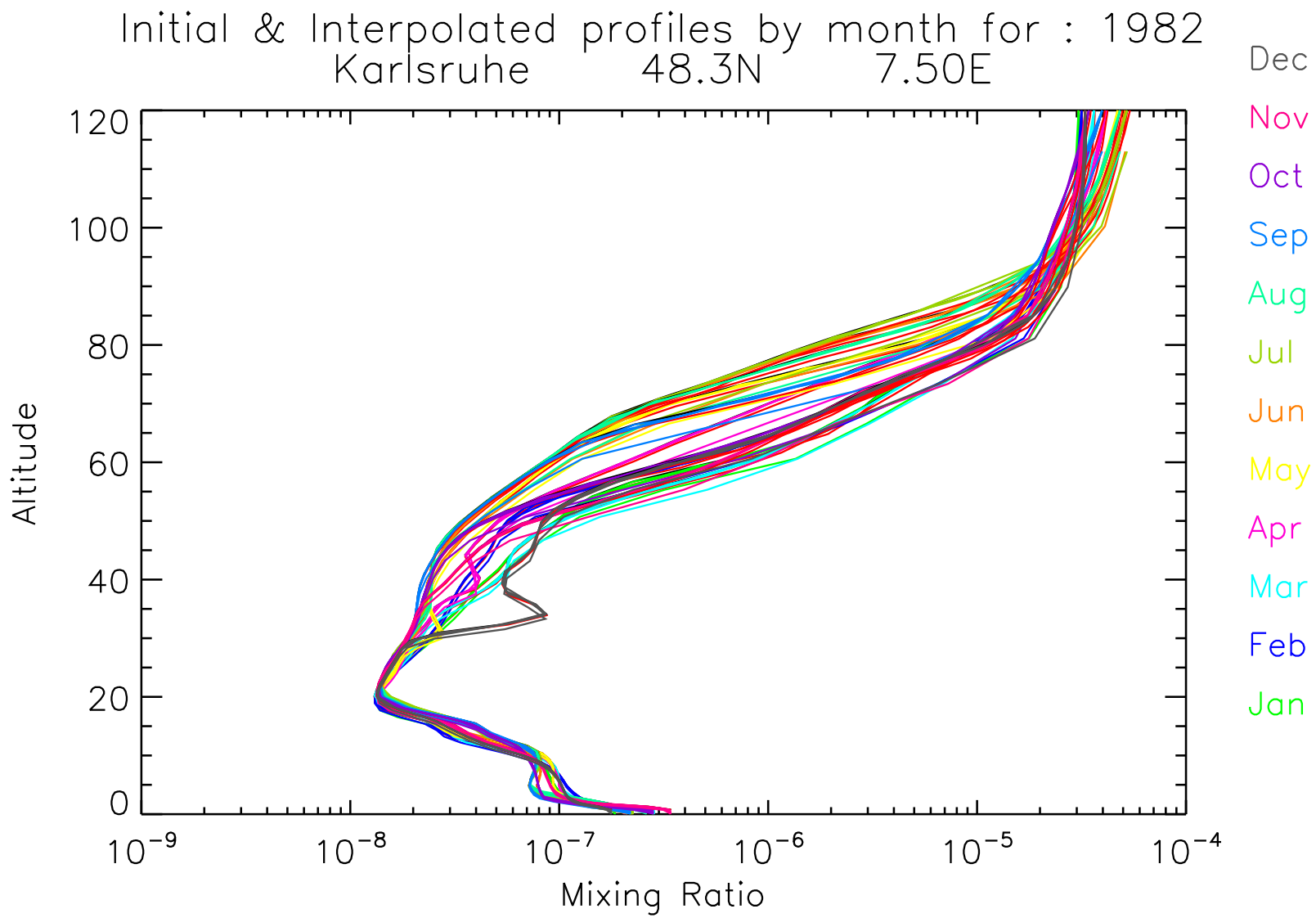
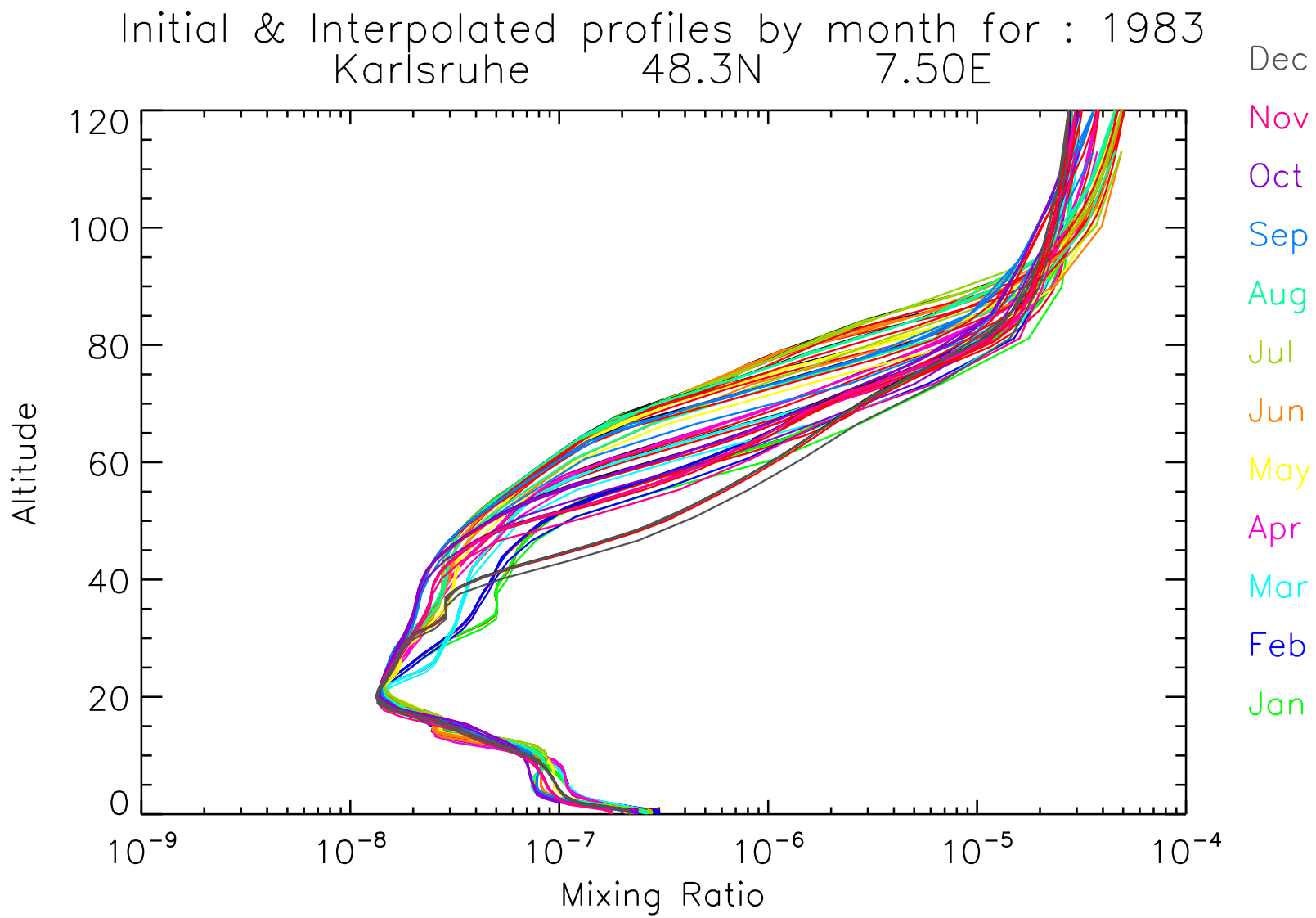
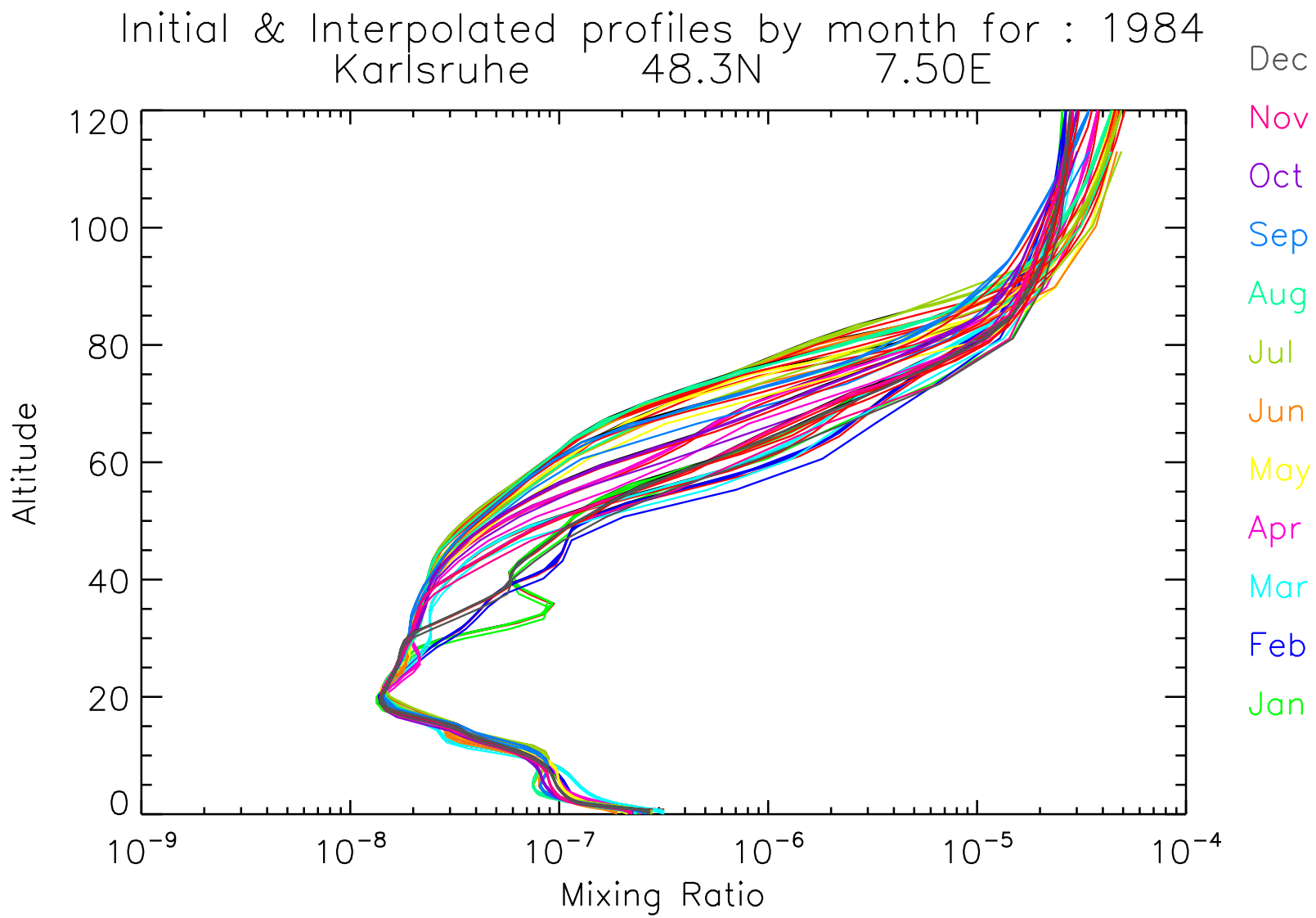
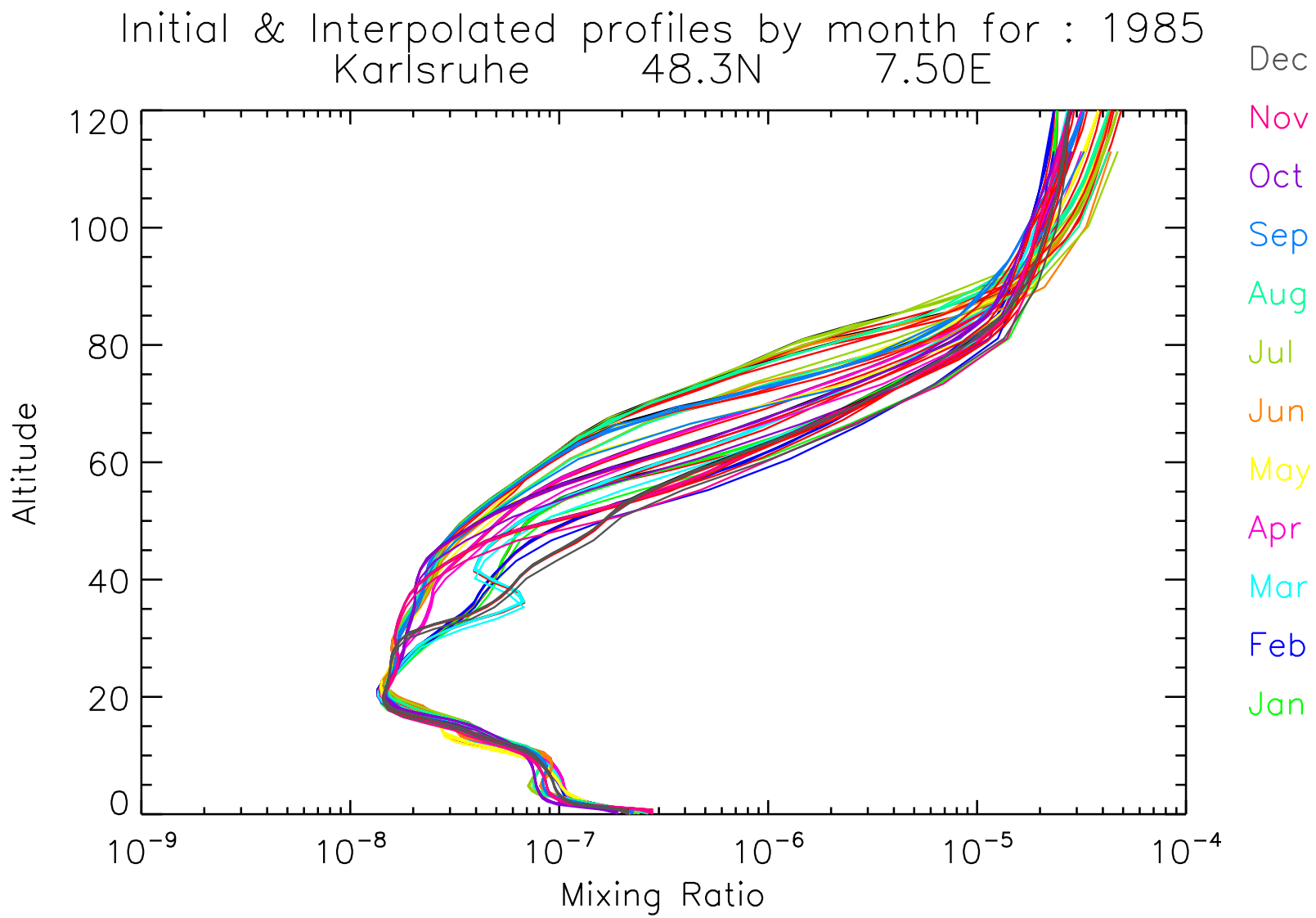

Initial & Interpolated profiles by month for : 1980
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

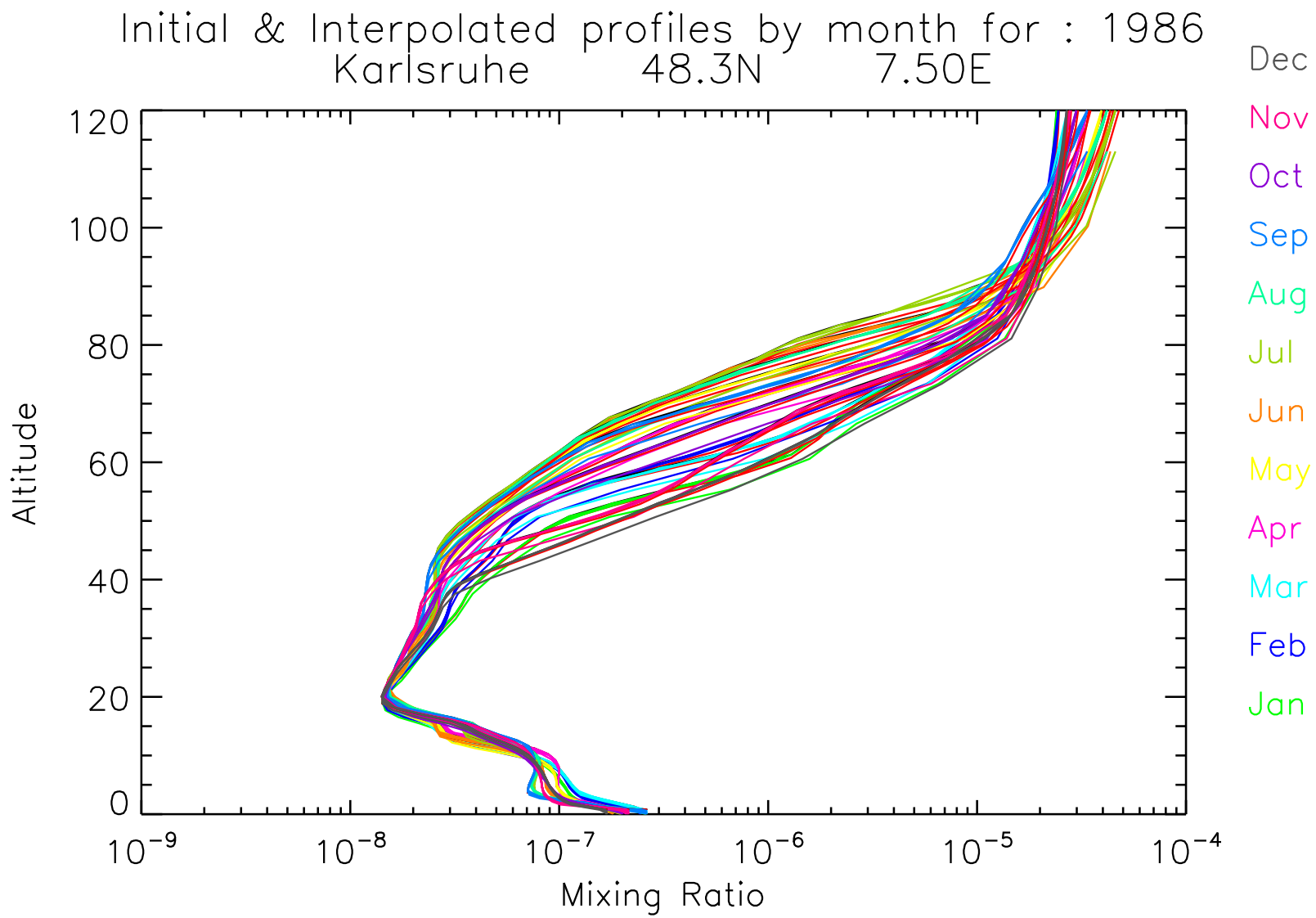

Initial & Interpolated profiles by month for : 1981
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

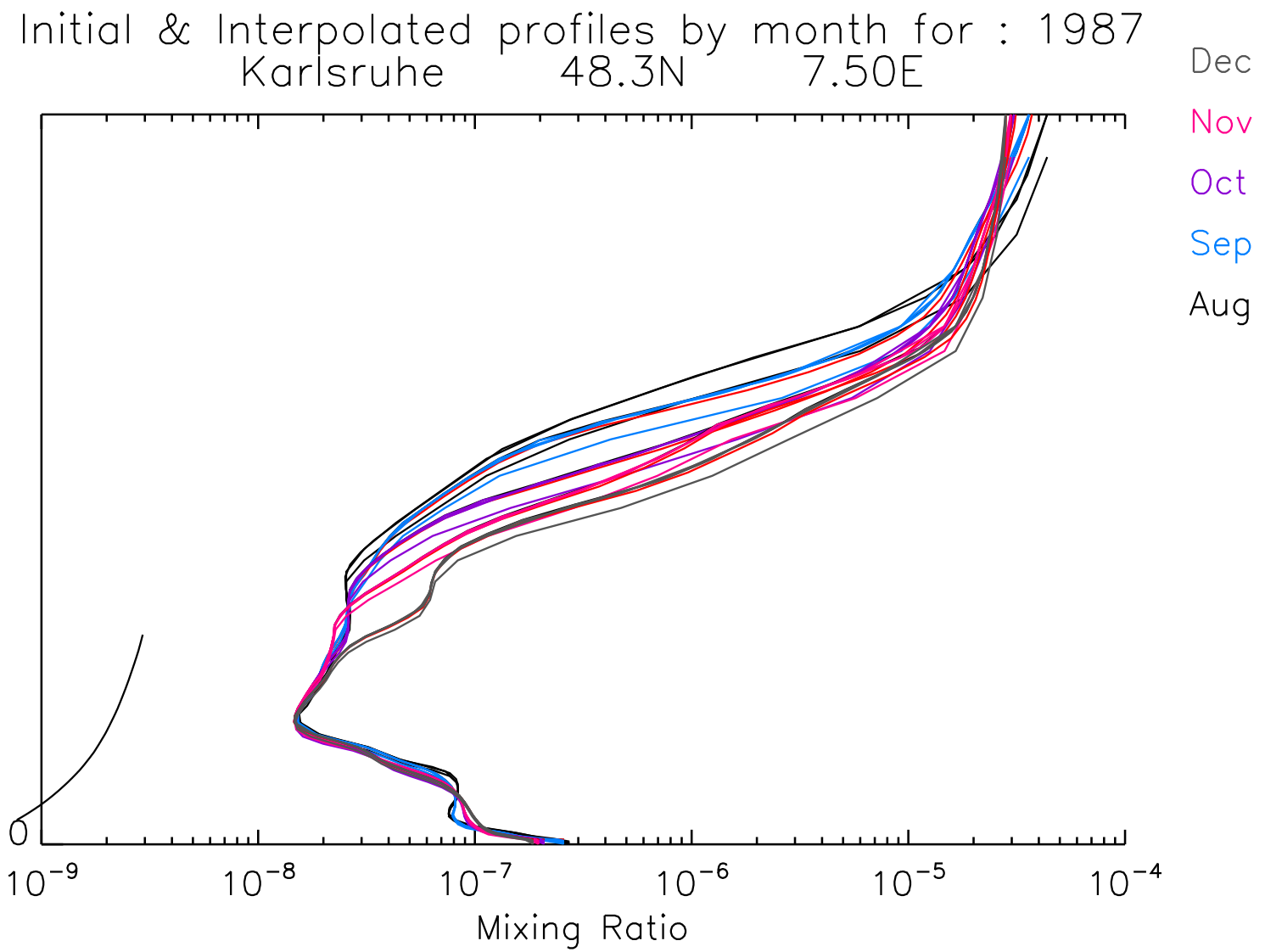

Initial & Interpolated profiles by month for : 1982
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

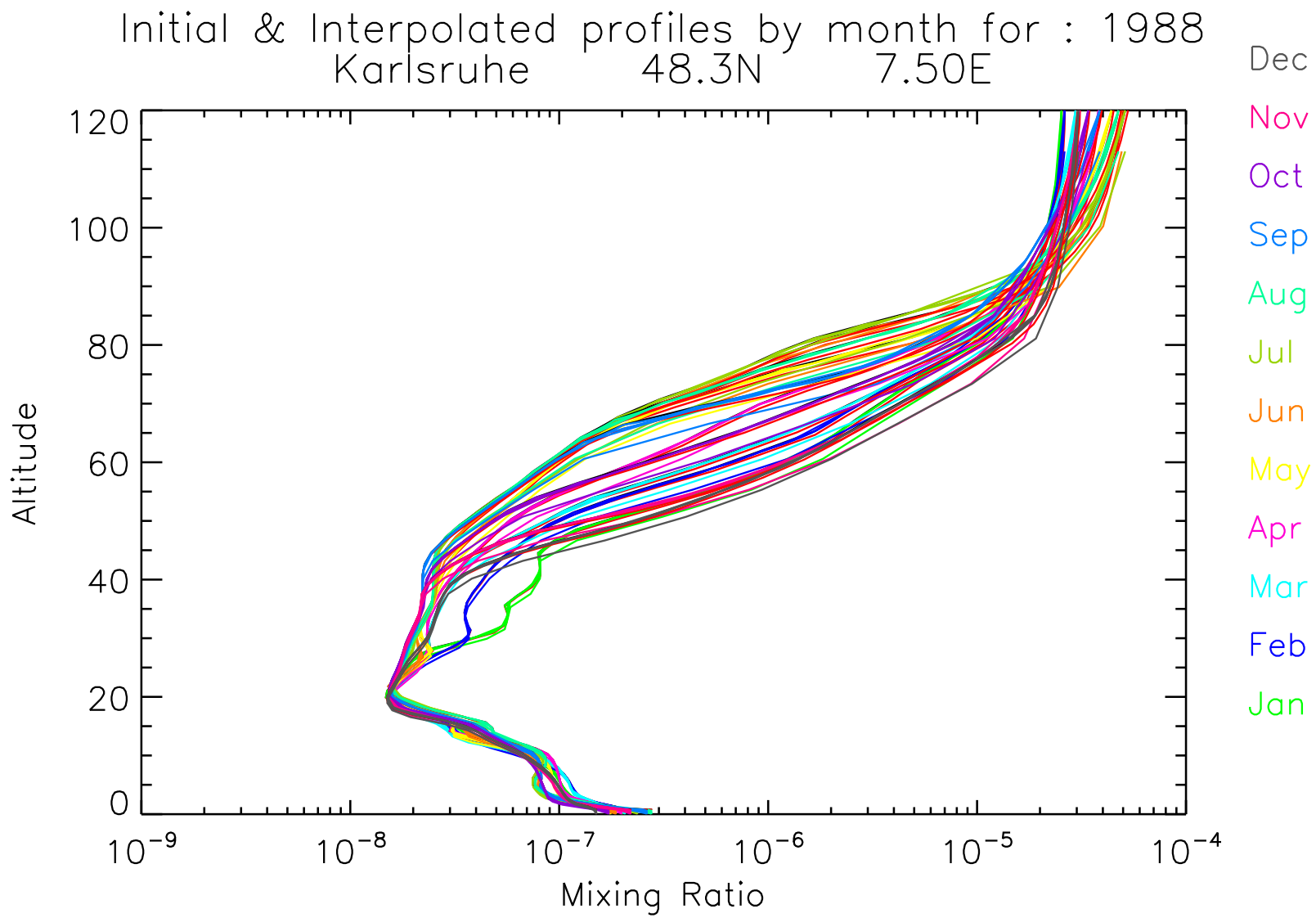

Initial & Interpolated profiles by month for : 1983
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

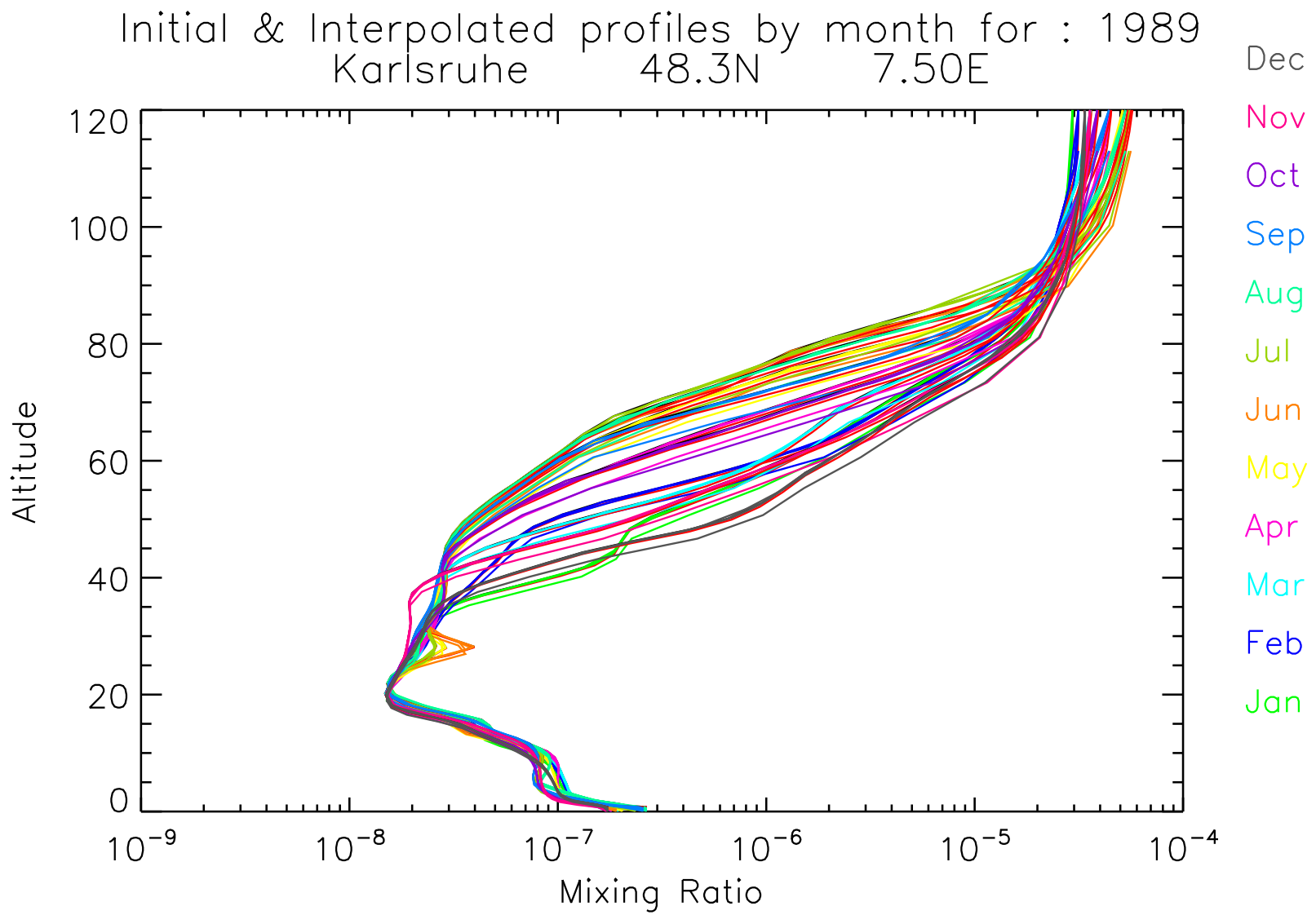

Initial & Interpolated profiles by month for : 1984
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

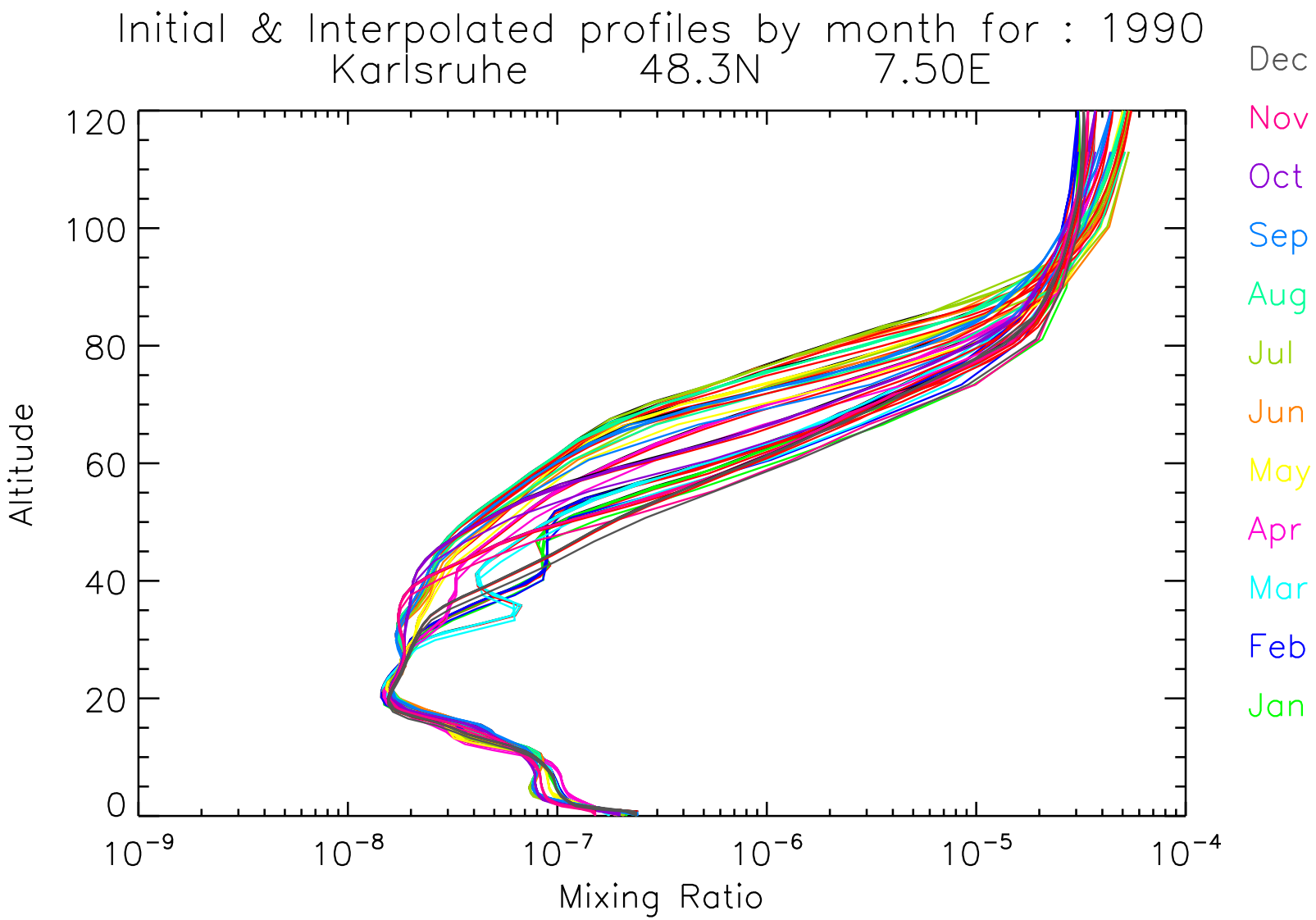

Initial & Interpolated profiles by month for : 1985
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

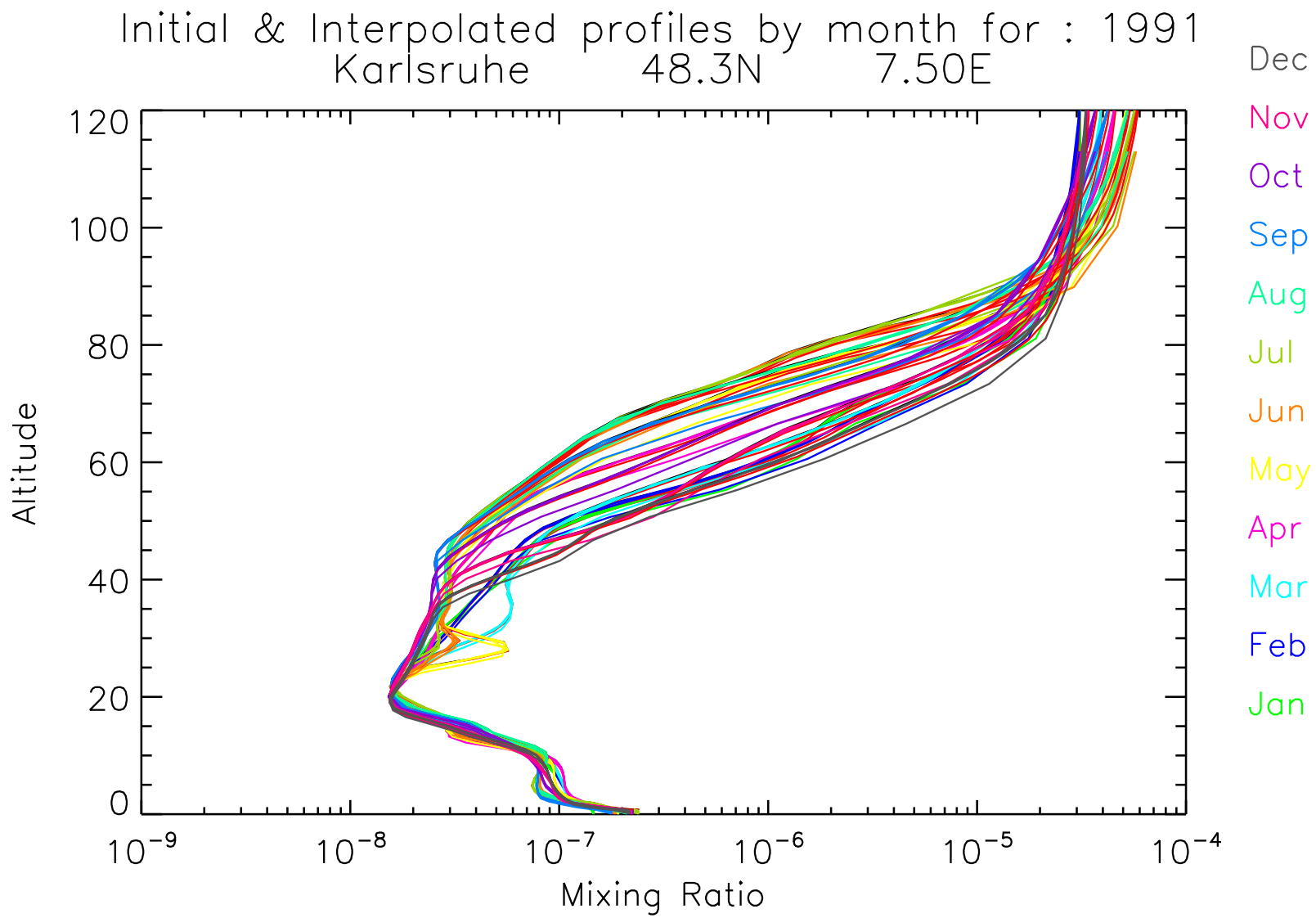

Initial & Interpolated profiles by month for : 1986
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

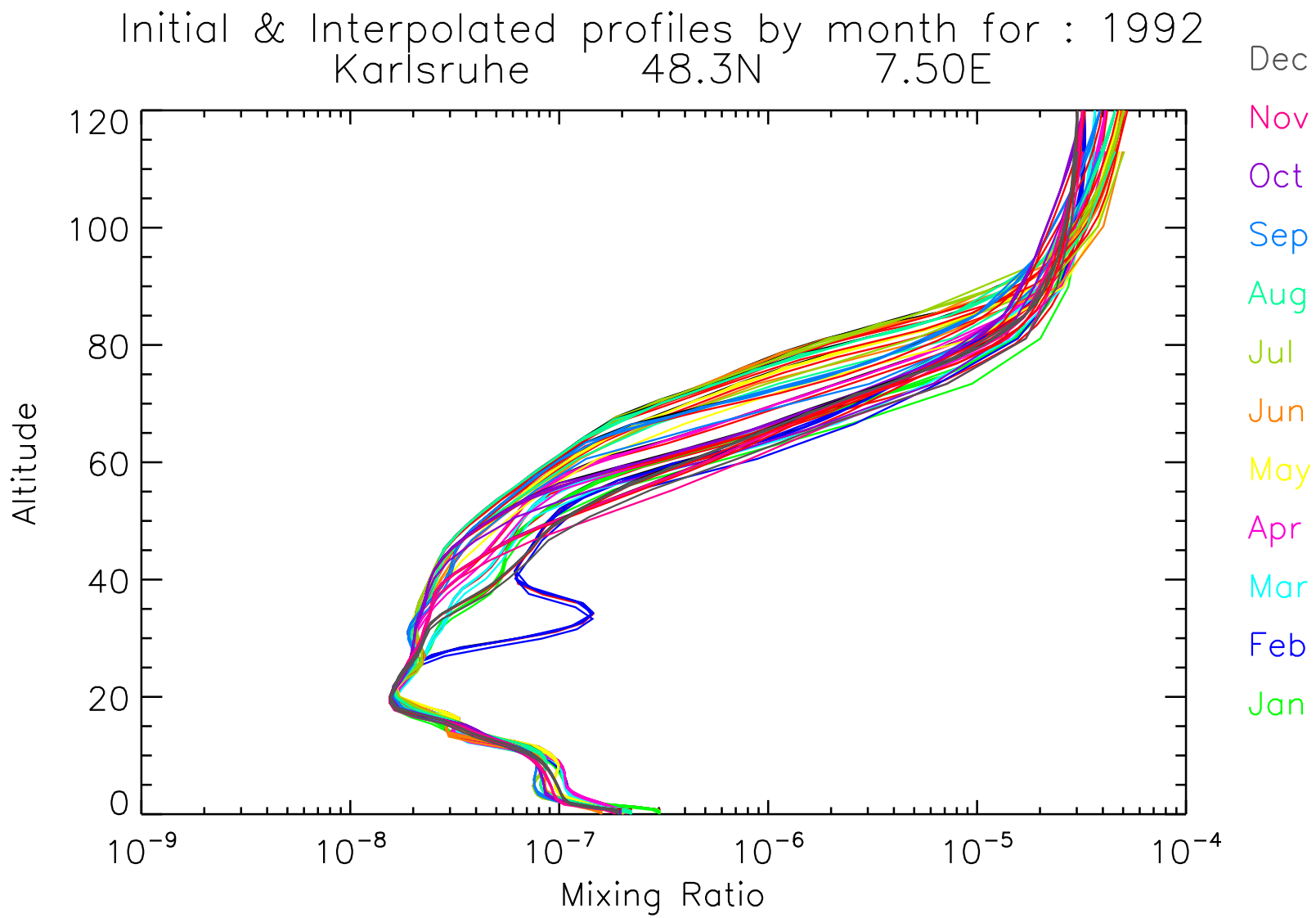

Initial & Interpolated profiles by month for : 1987
Karlsruhe 48.3N 7.50E
Dec
Nov
Oct
Sep
Aug
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio

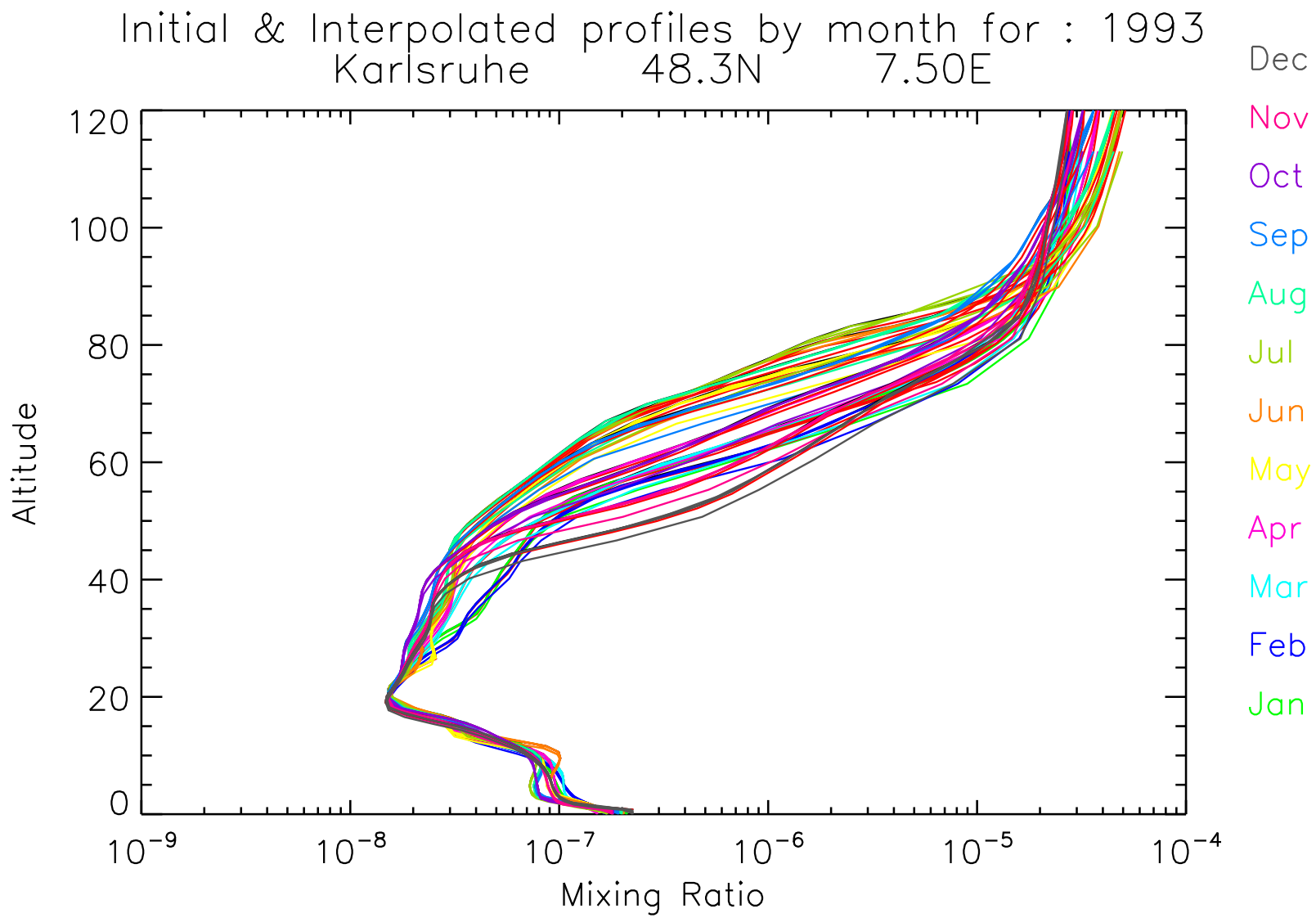

Initial & Interpolated profiles by month for : 1988
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

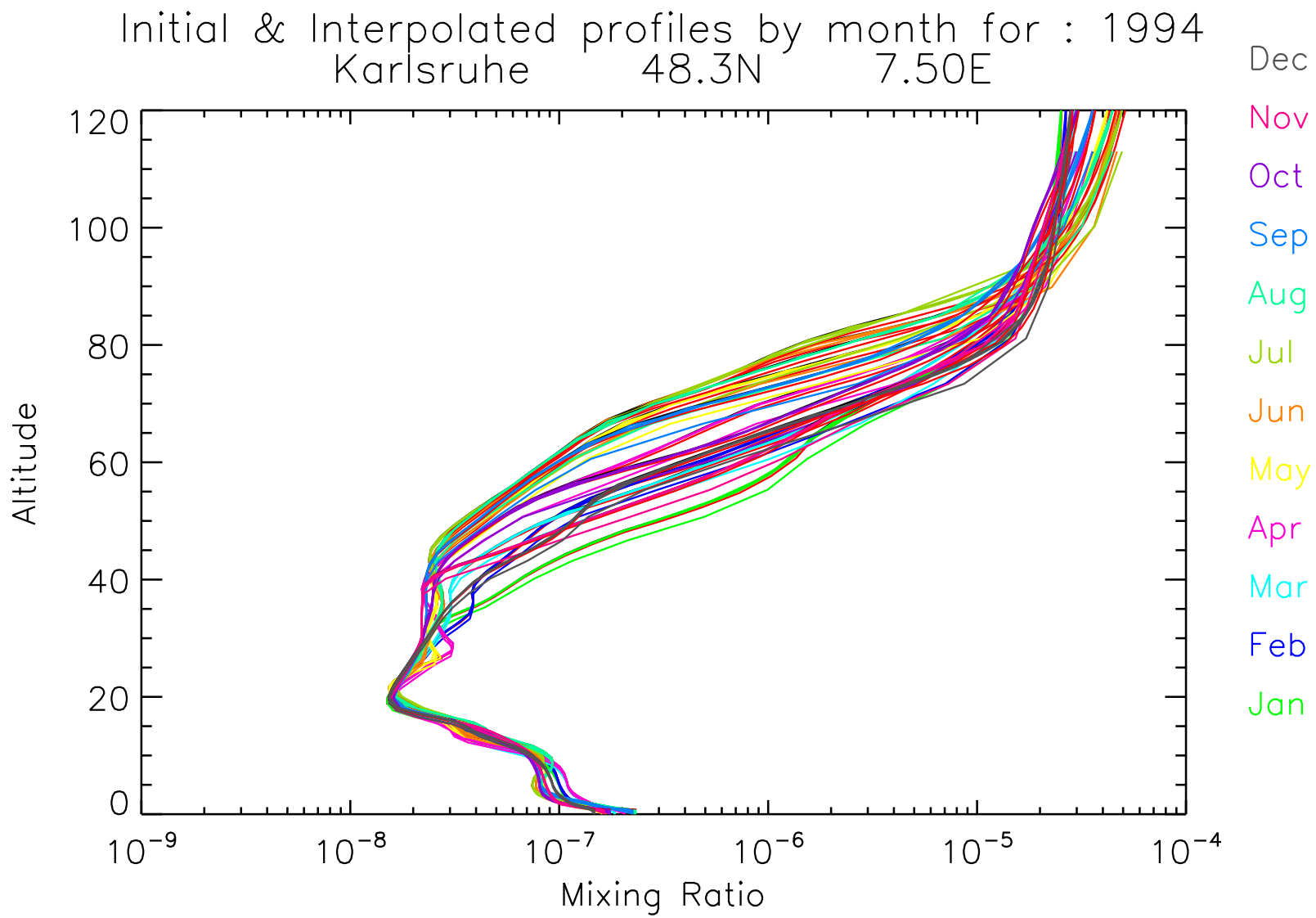

Initial & Interpolated profiles by month for : 1989
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

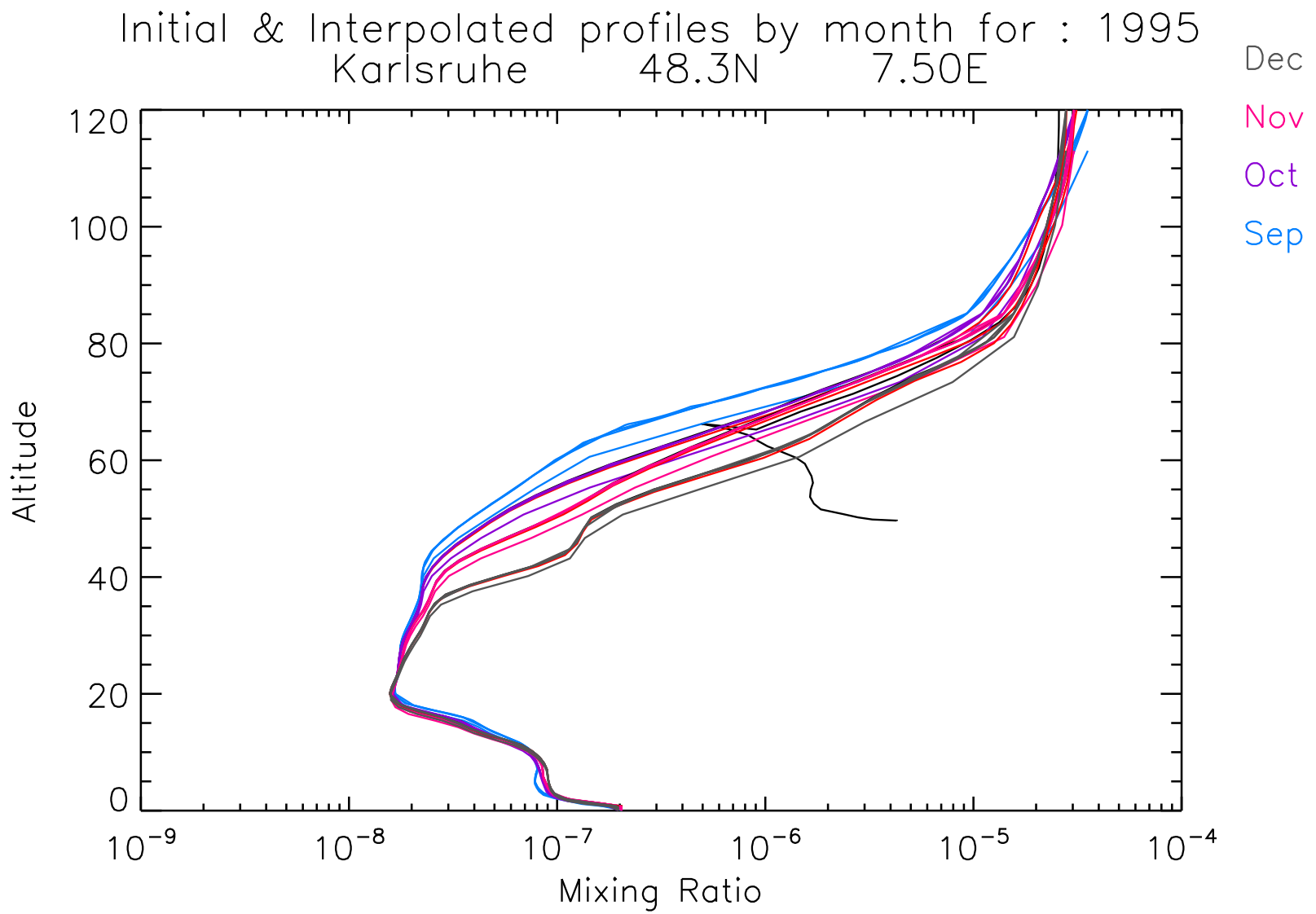

Initial & Interpolated profiles by month for : 1990
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

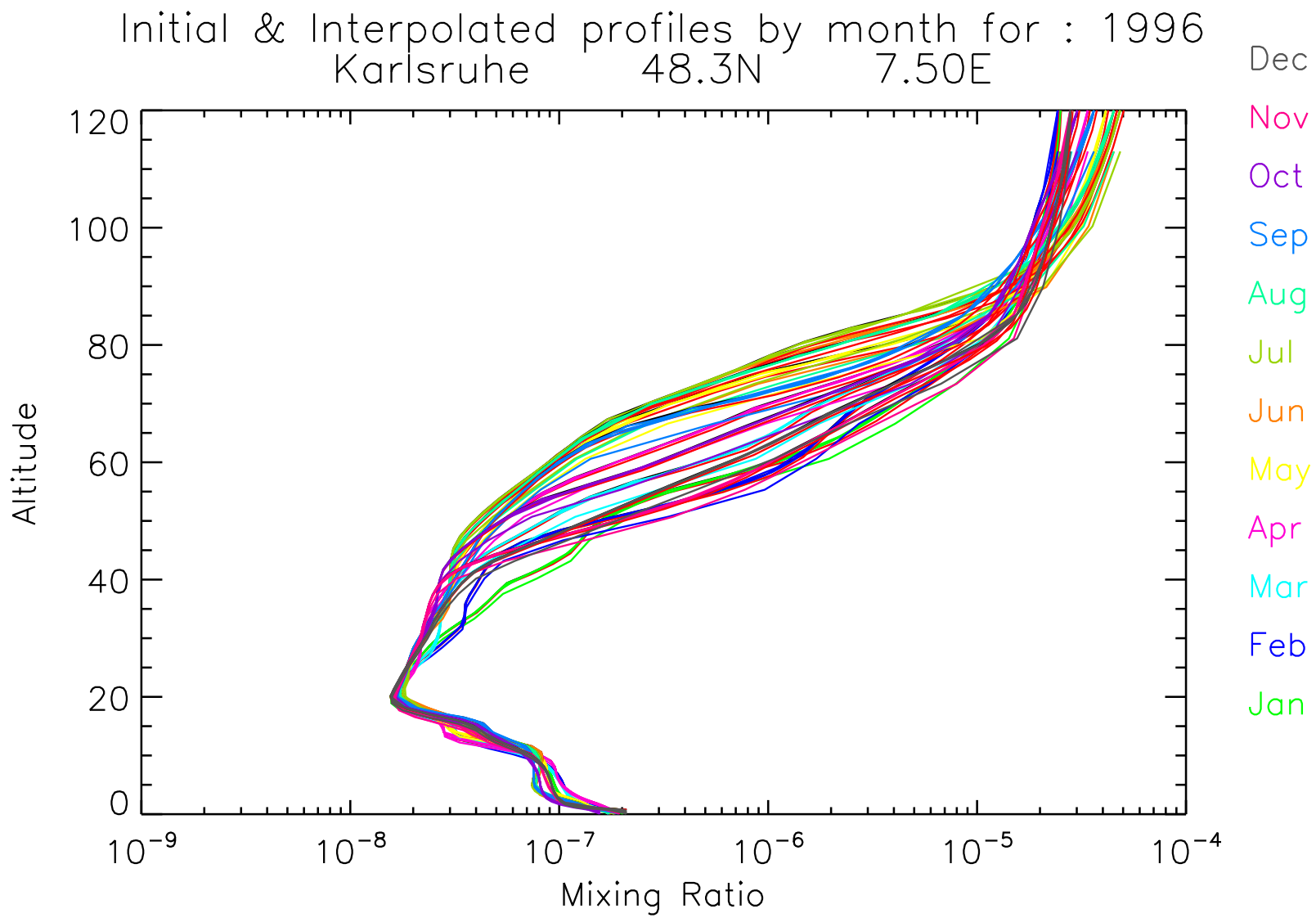

Initial & Interpolated profiles by month for : 1991
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

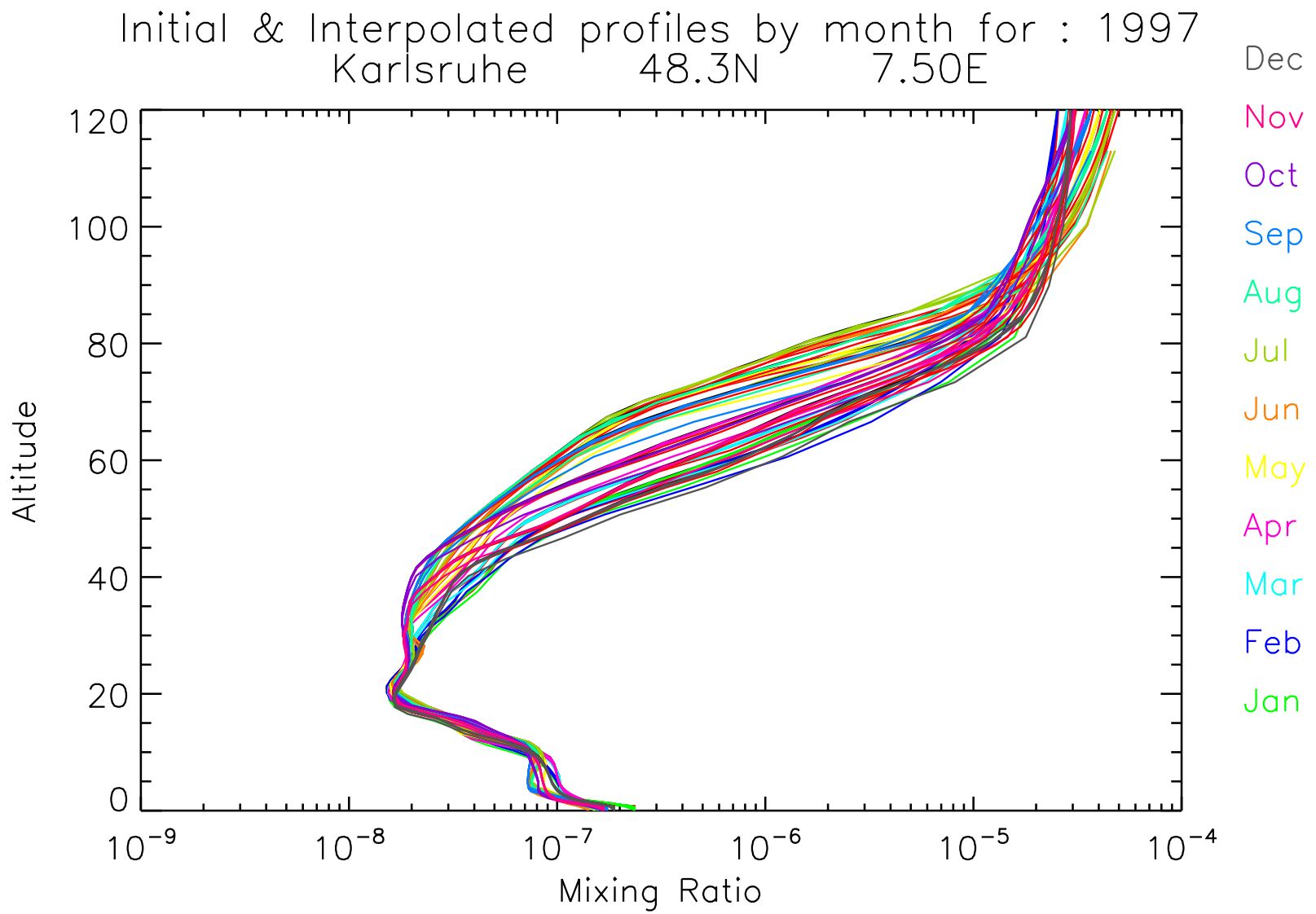

Initial & Interpolated profiles by month for : 1992
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

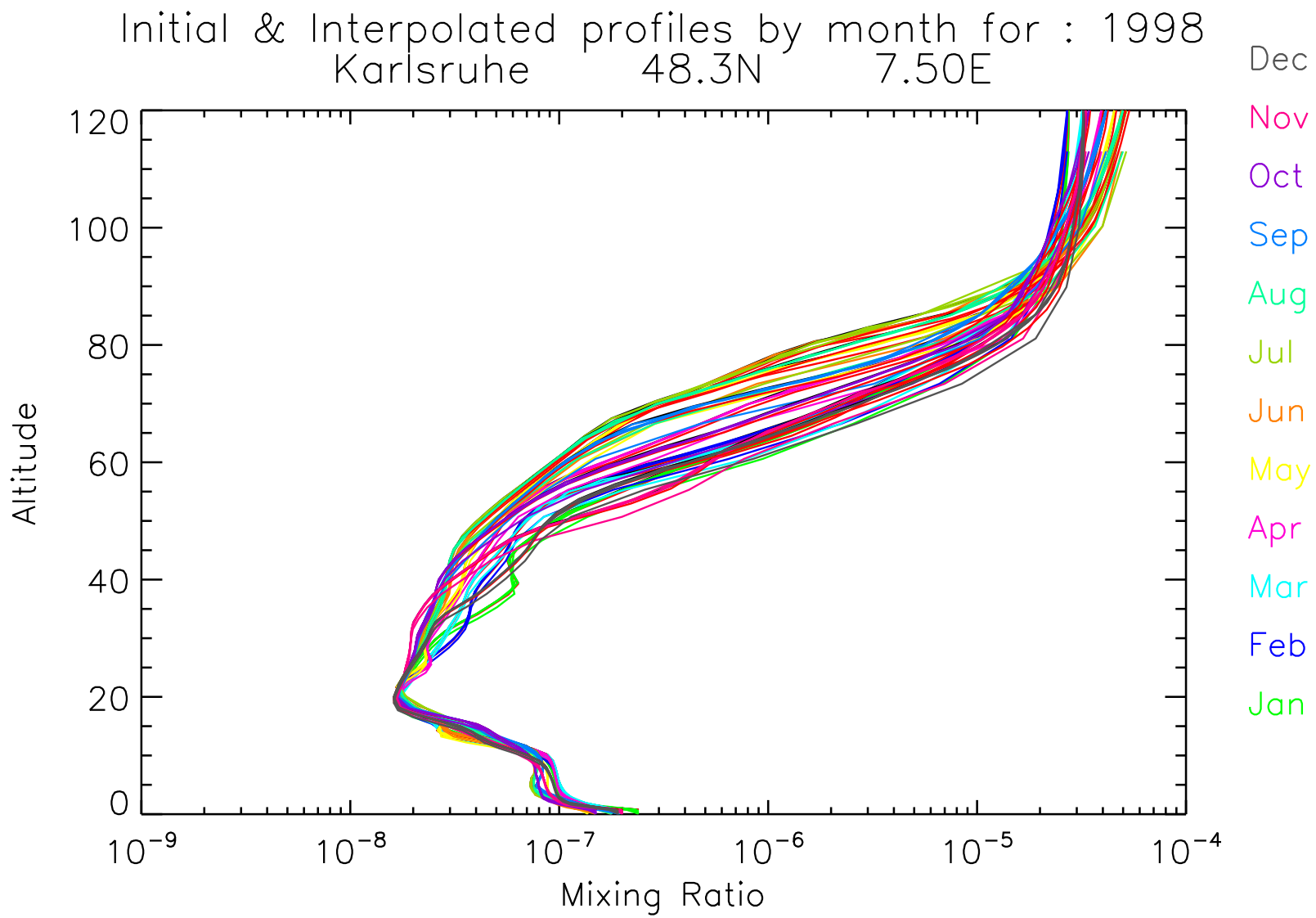

Initial & Interpolated profiles by month for : 1993
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

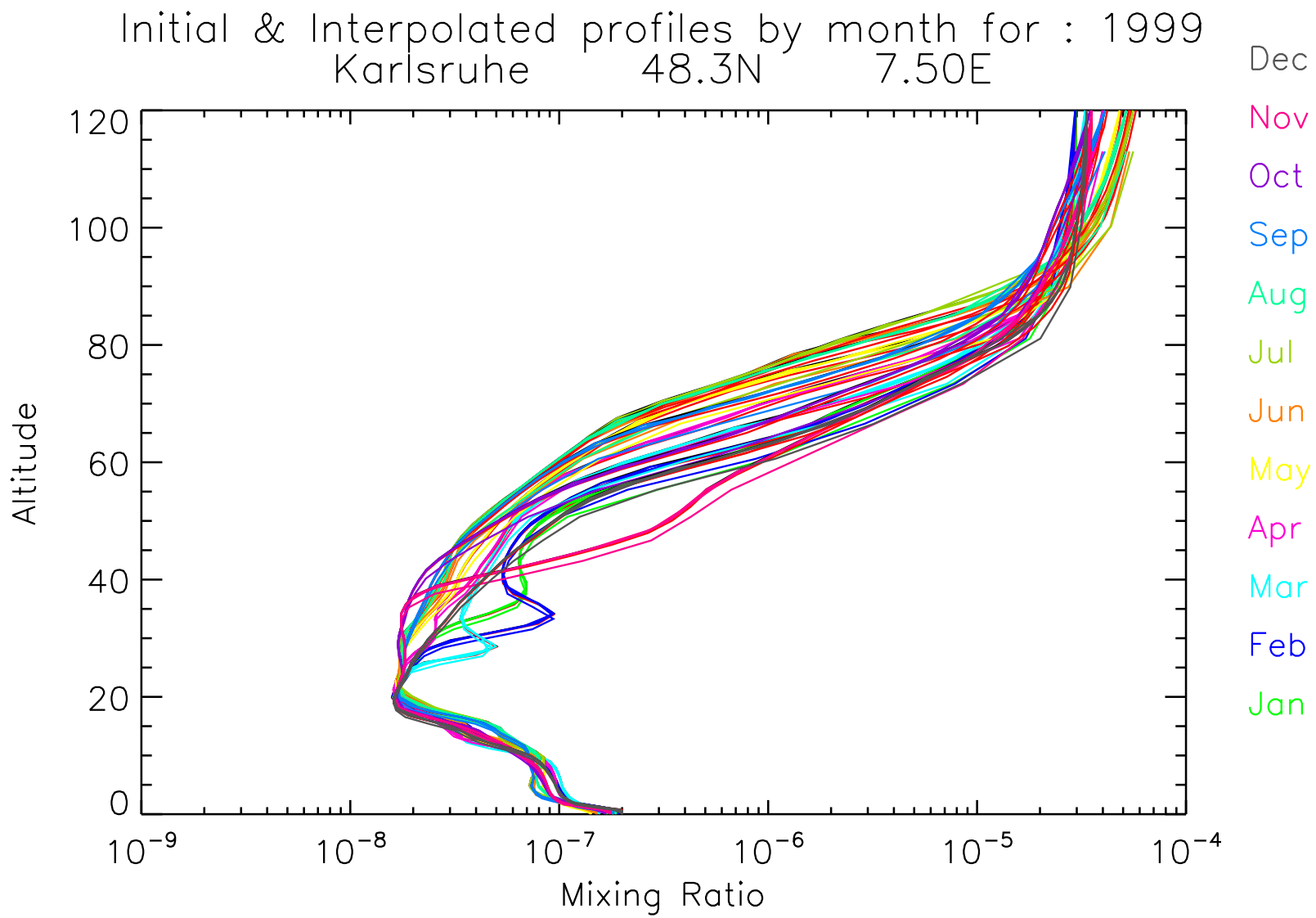

Initial & Interpolated profiles by month for : 1994
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

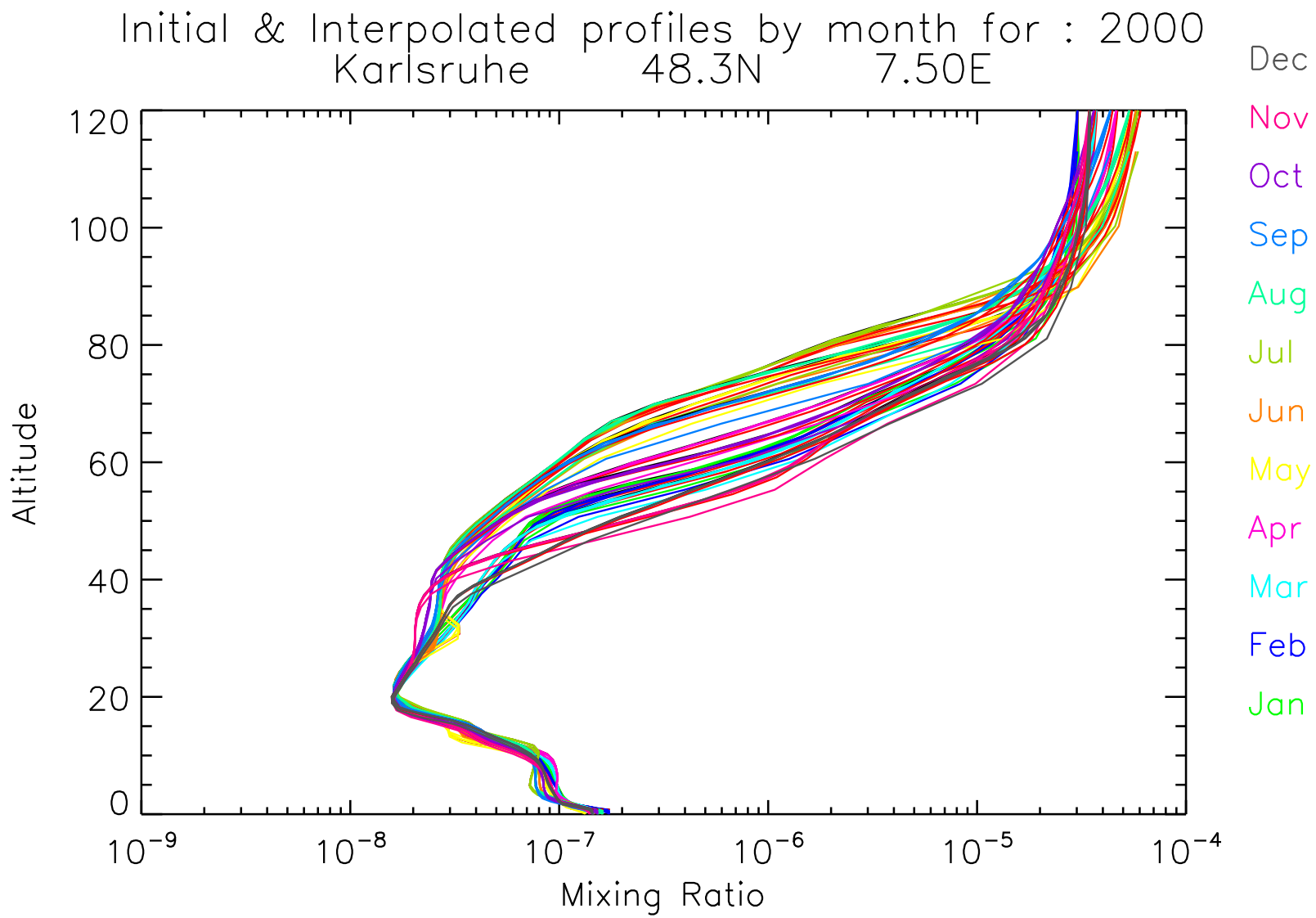

Initial & Interpolated profiles by month for : 1995
Karlsruhe 48.3N 7.50E
Dec
Nov
Oct
Sep
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio

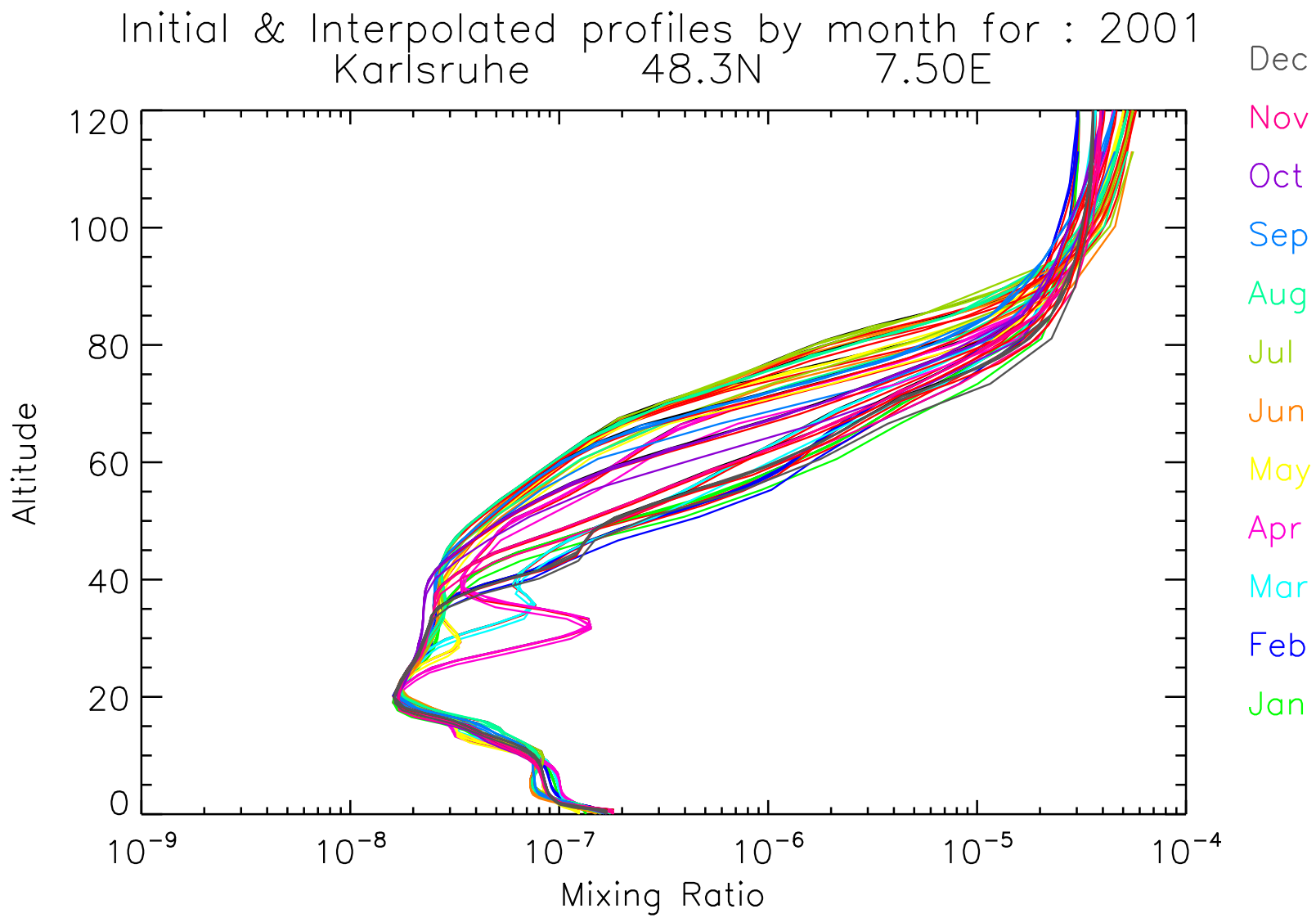

Initial & Interpolated profiles by month for : 1996
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

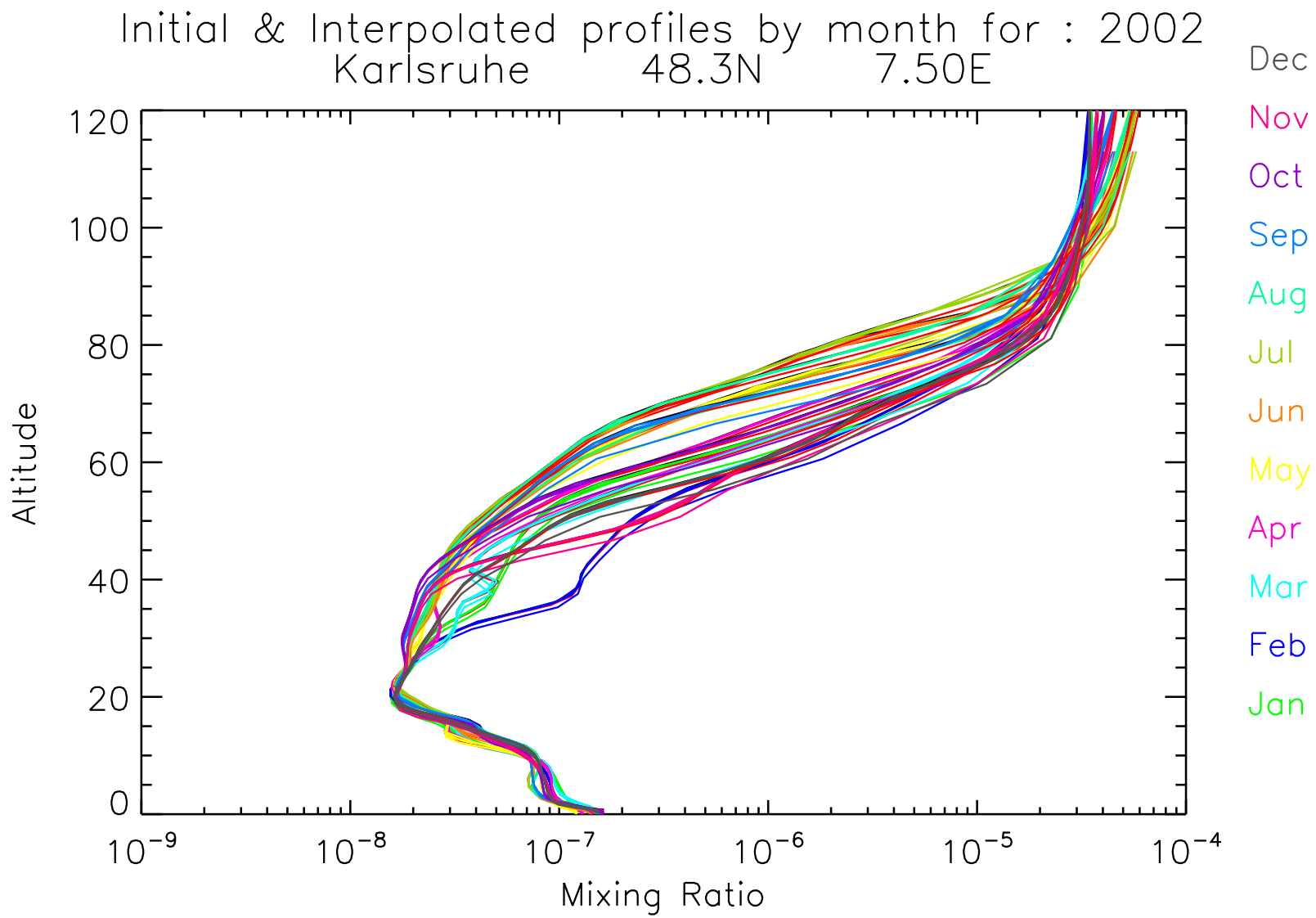

Initial & Interpolated profiles by month for : 1997
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

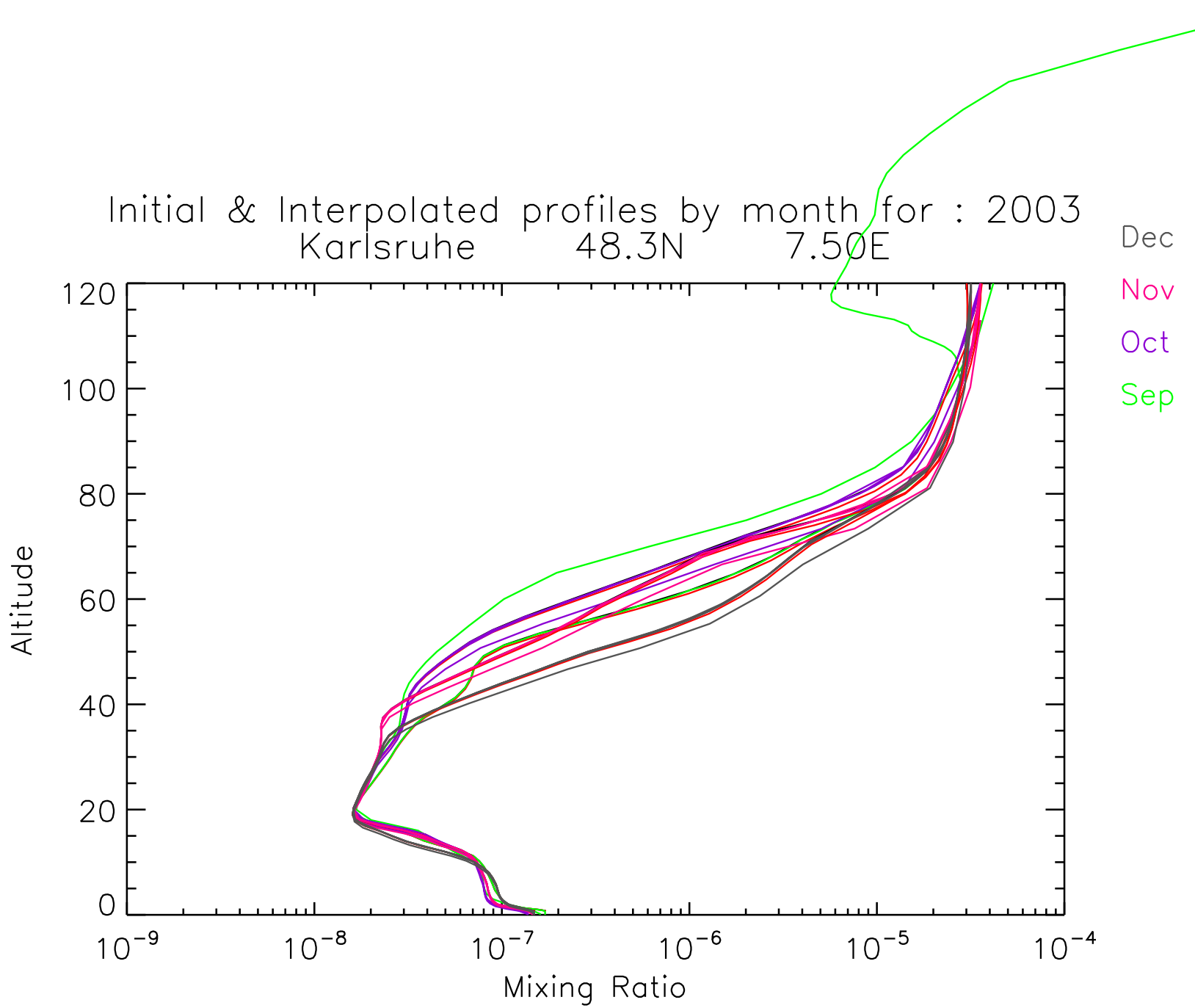

Initial & Interpolated profiles by month for : 1998
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

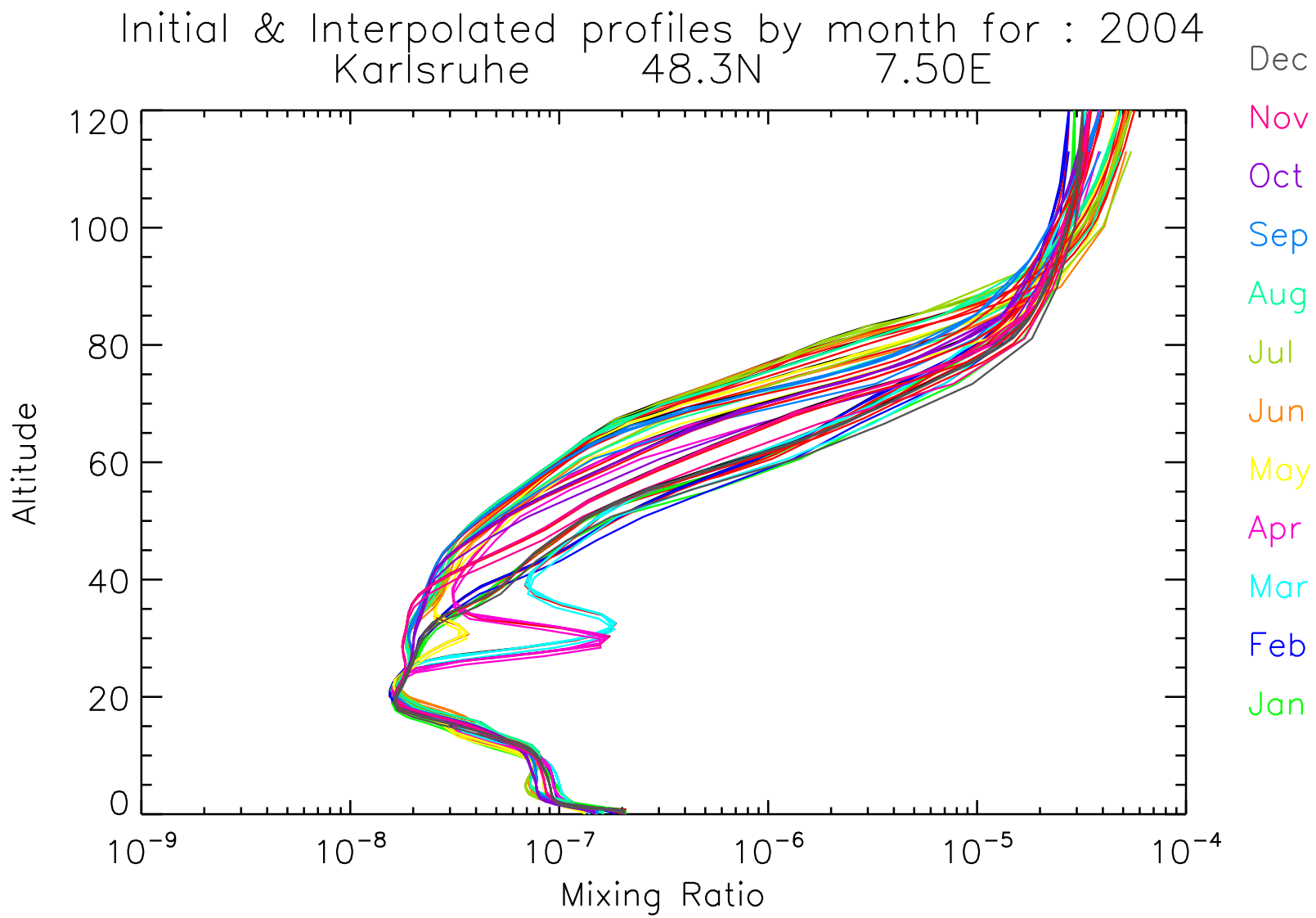

Initial & Interpolated profiles by month for : 1999
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

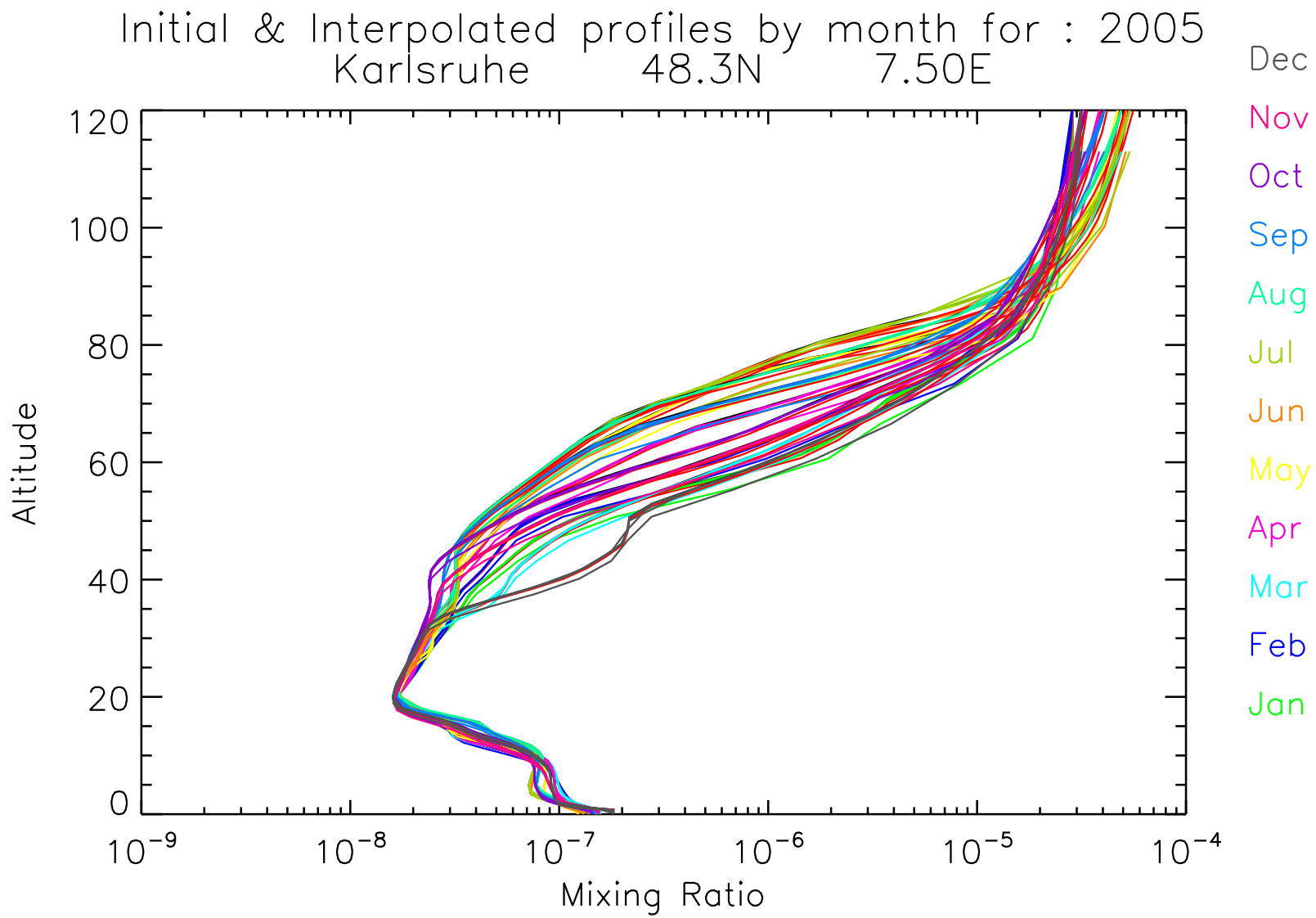

Initial & Interpolated profiles by month for : 2000
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

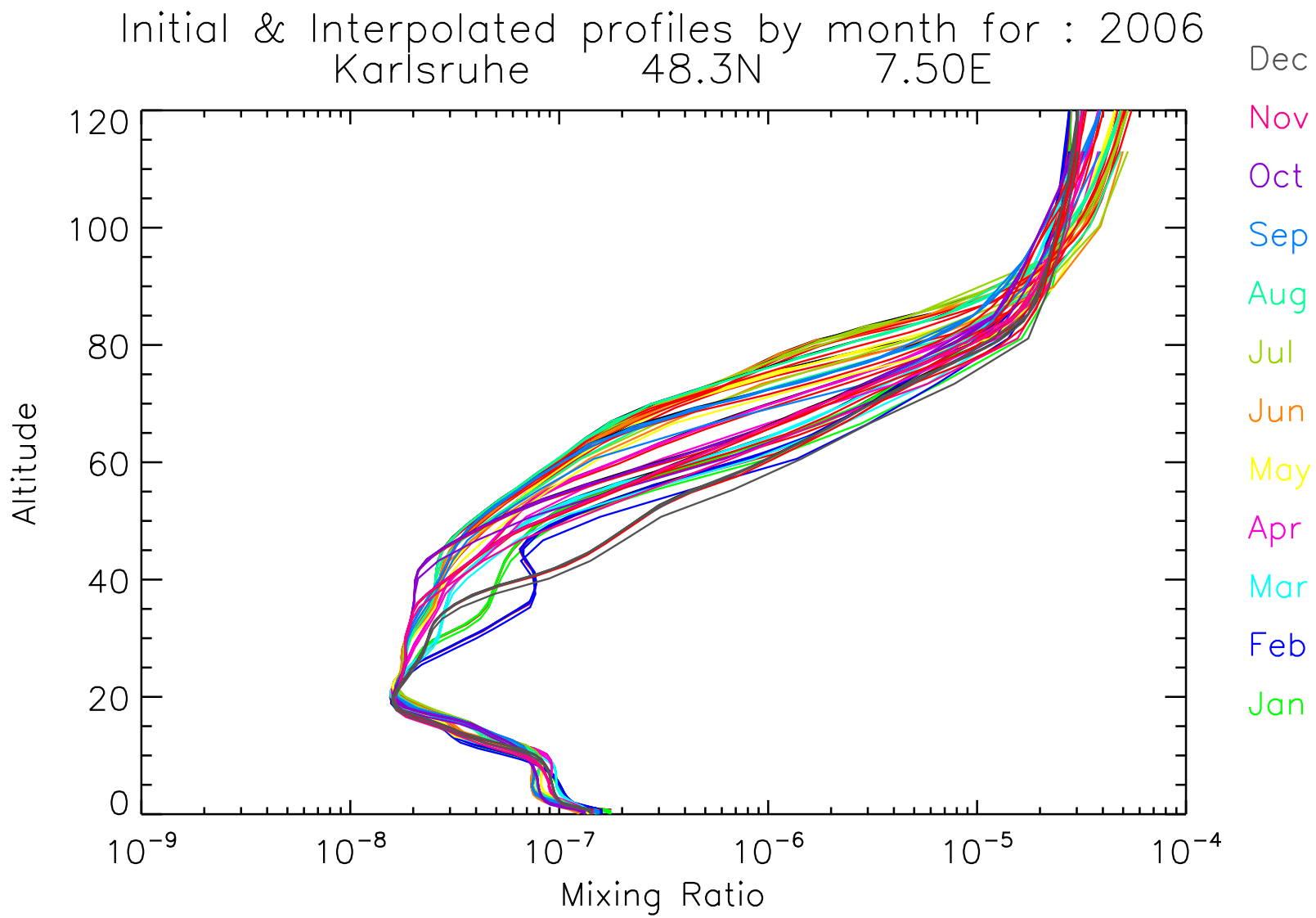

Initial & Interpolated profiles by month for : 2001
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

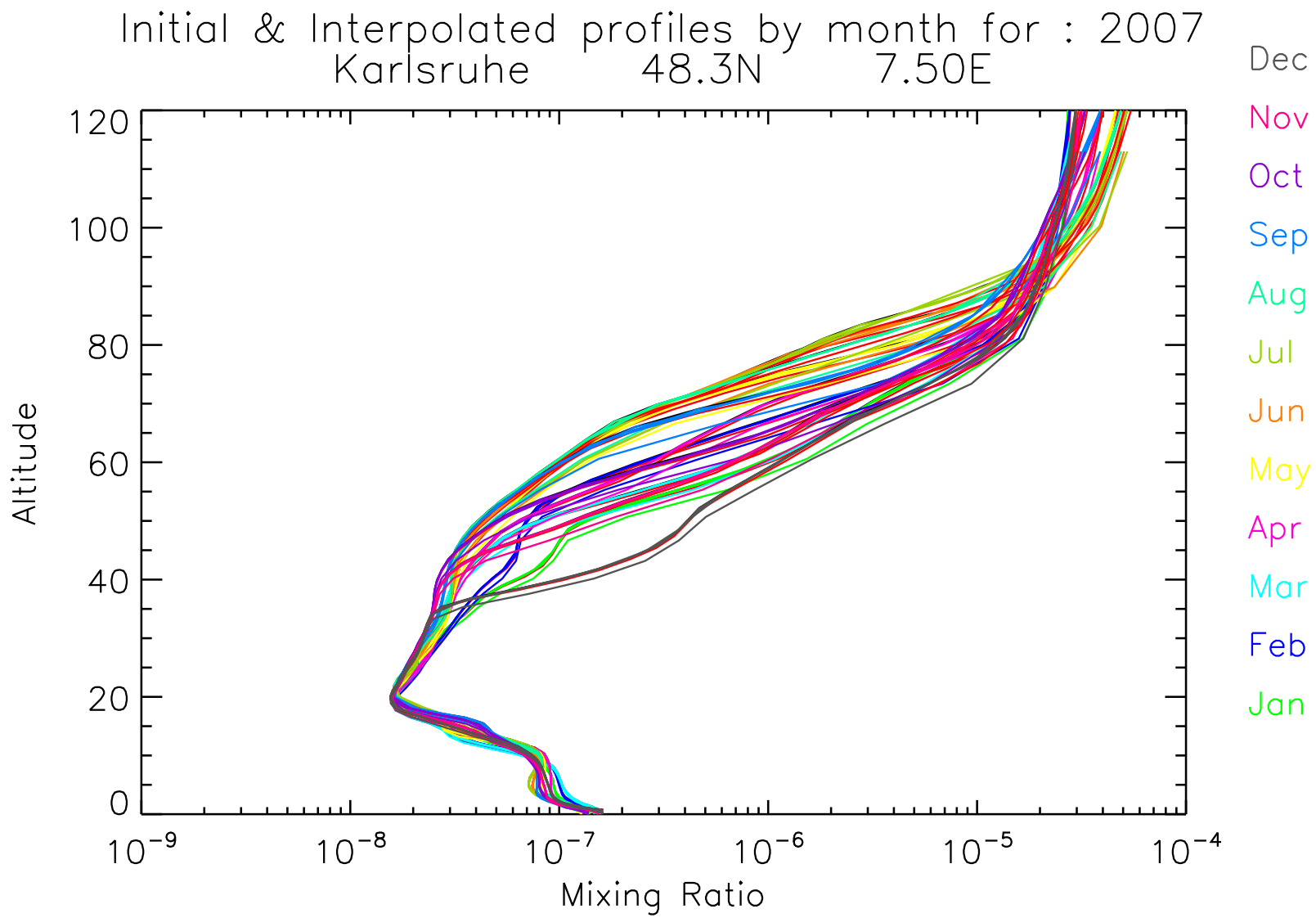

Initial & Interpolated profiles by month for : 2002
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

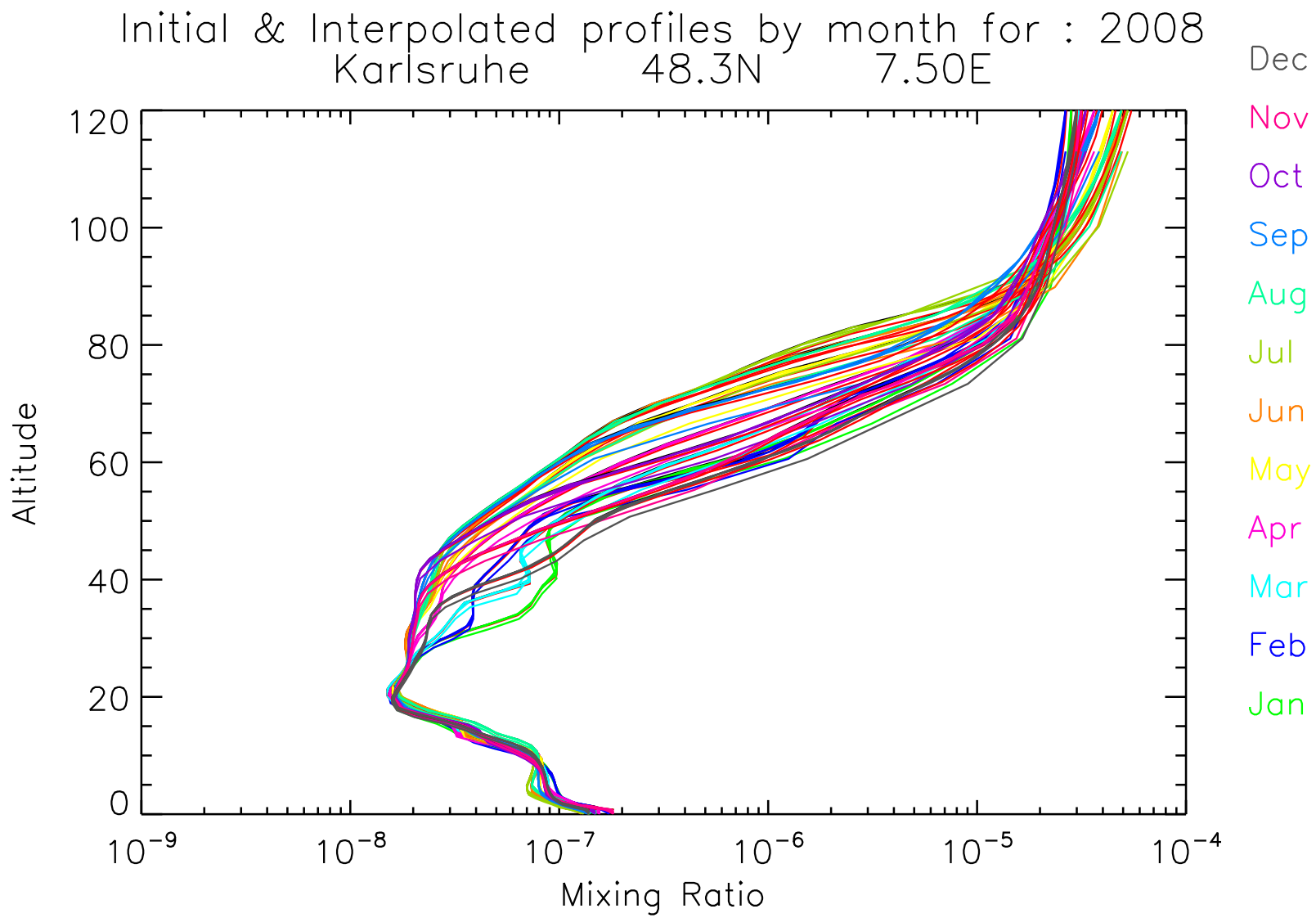

Initial & Interpolated profiles by month for : 2003
Karlsruhe 48.3N 7.50E
Dec
Nov
Oct
Sep
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio

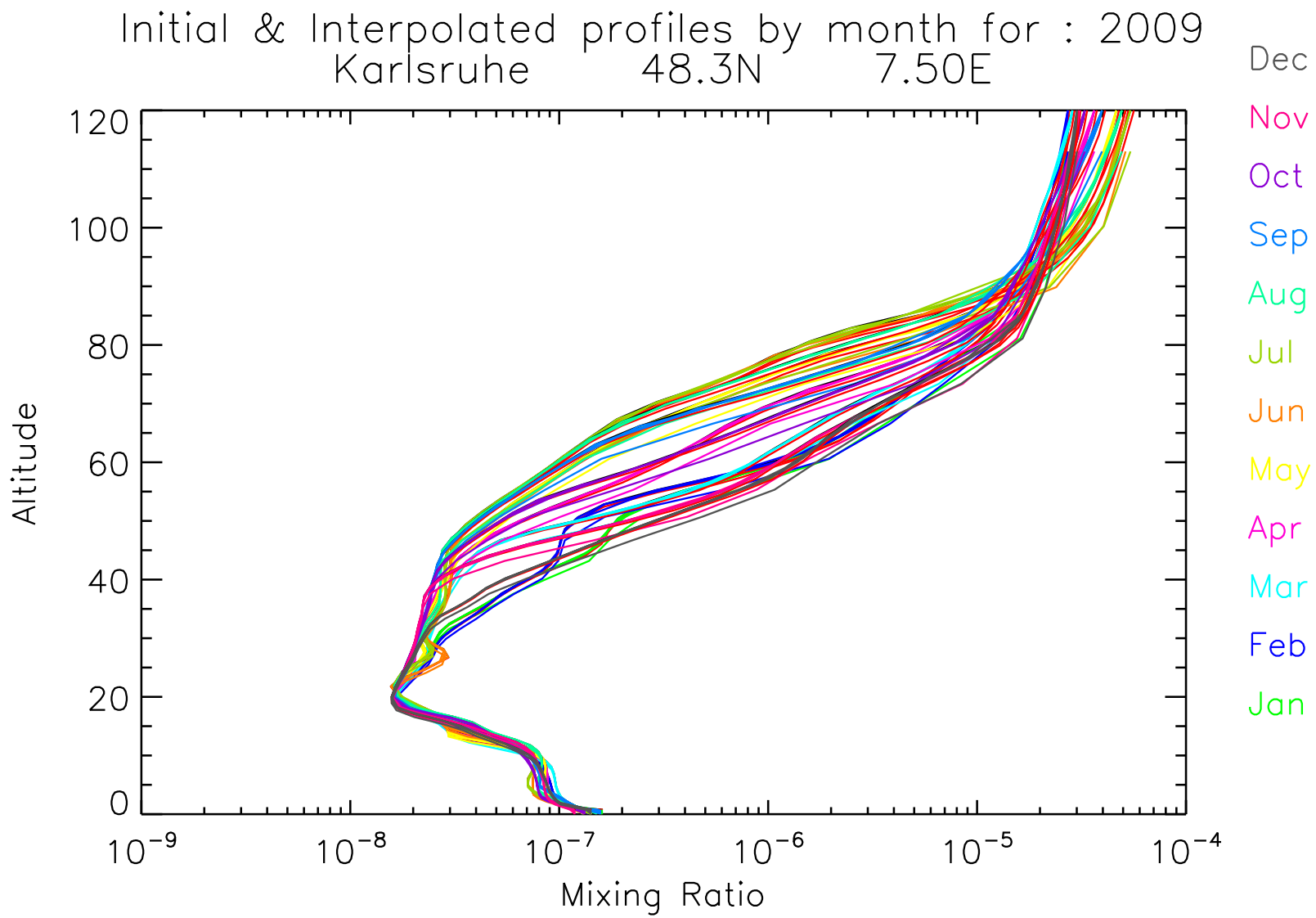

Initial & Interpolated profiles by month for : 2004
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

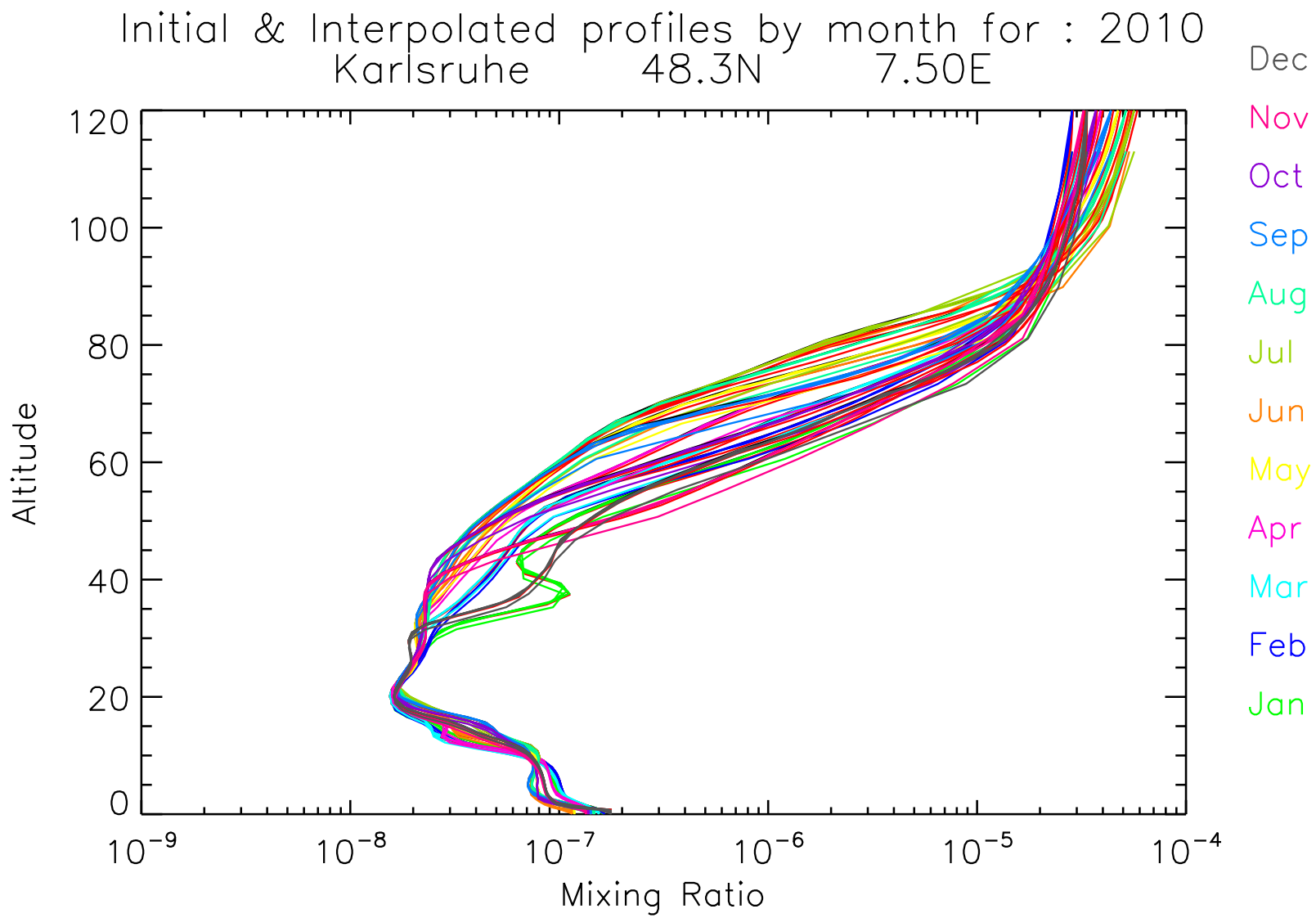

Initial & Interpolated profiles by month for : 2005
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

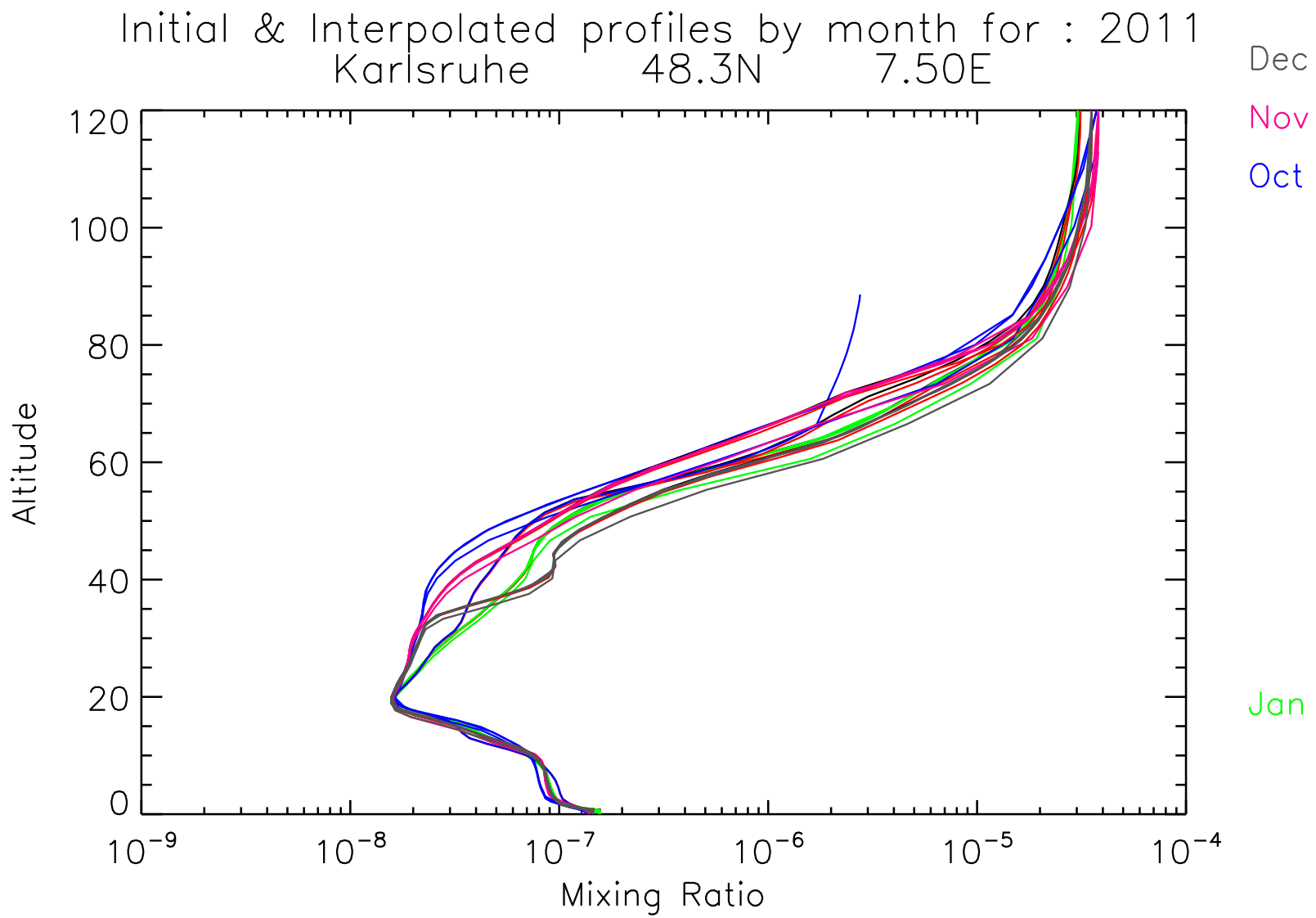

Initial & Interpolated profiles by month for : 2006
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

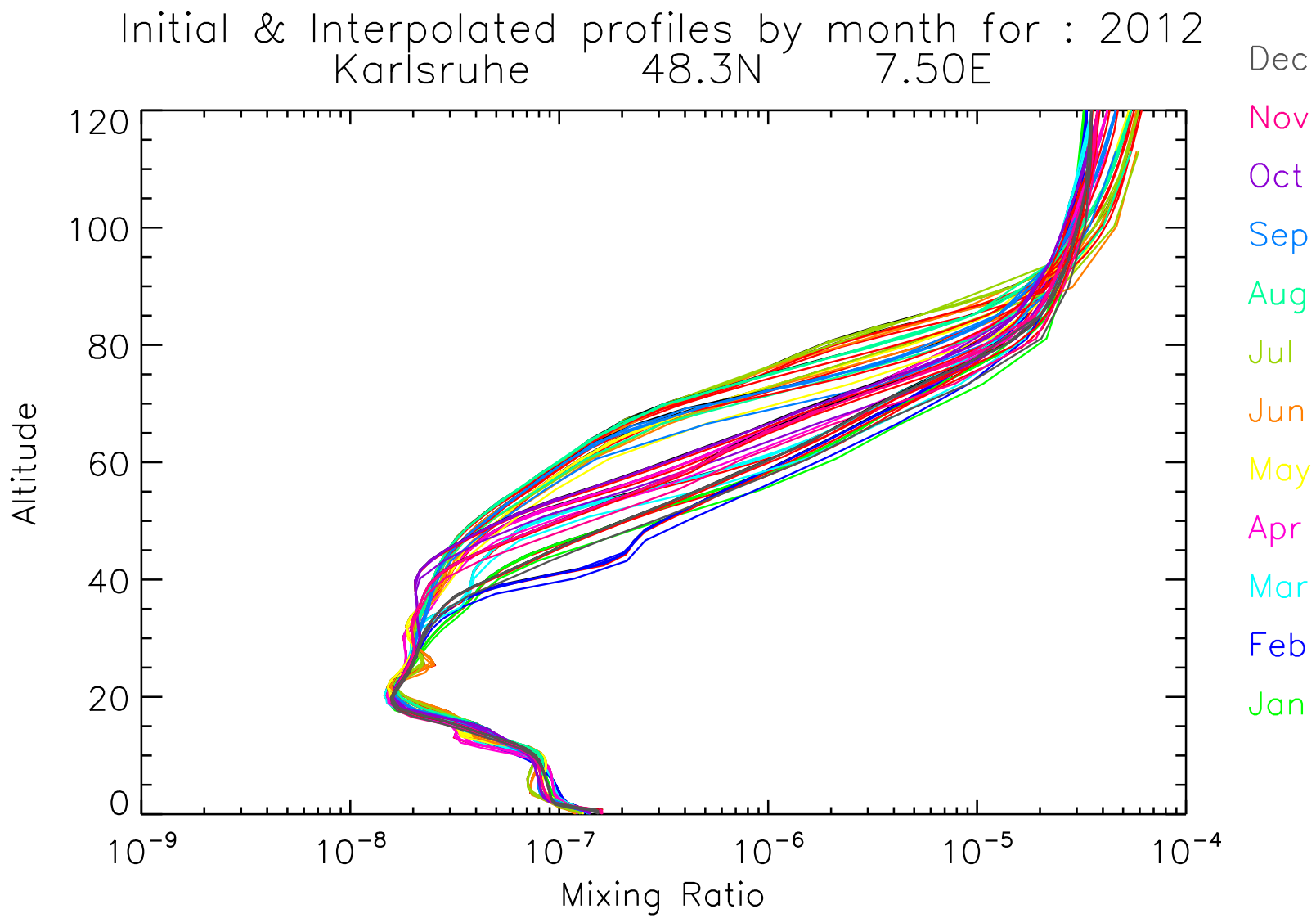

Initial & Interpolated profiles by month for : 2007
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

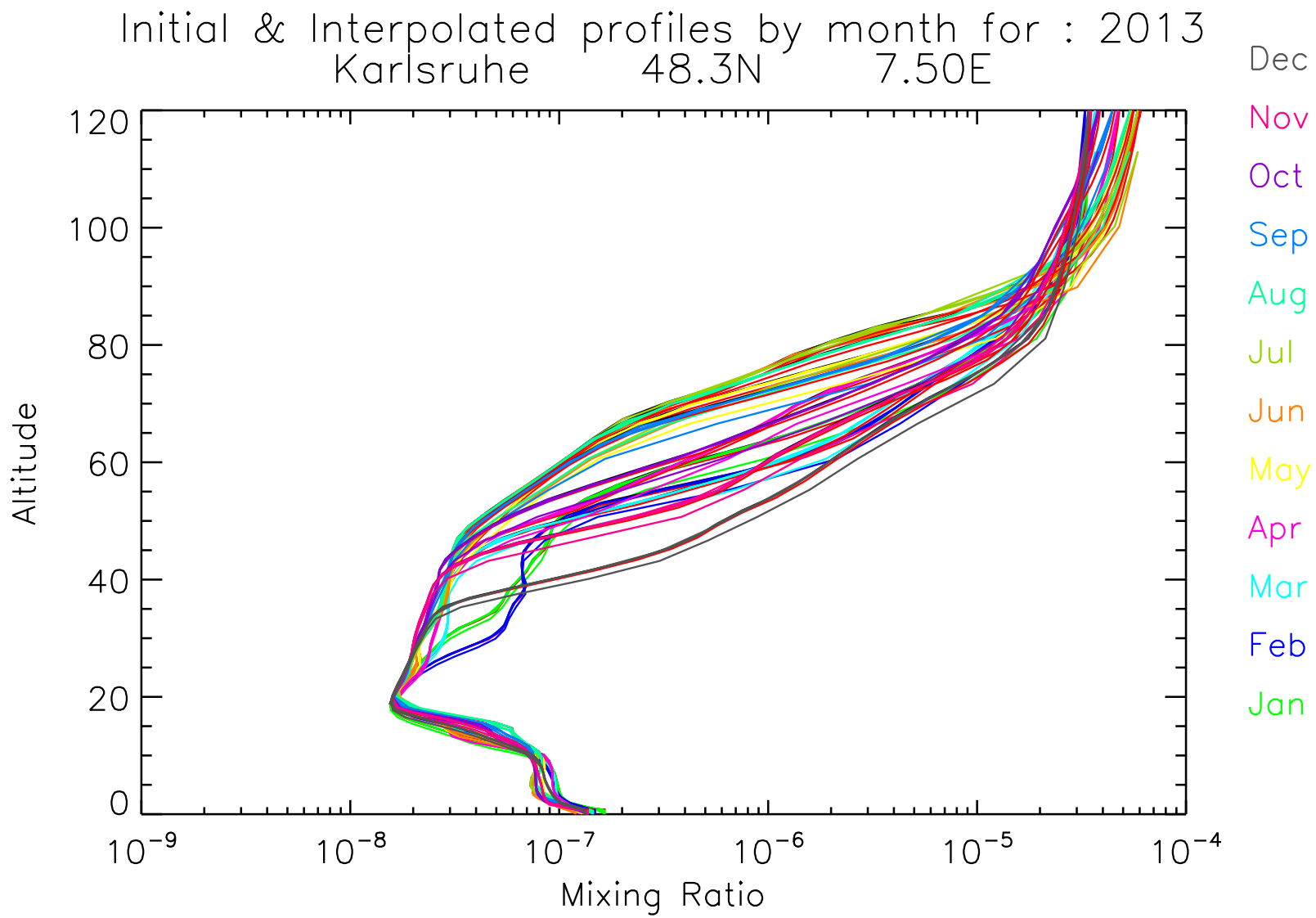

Initial & Interpolated profiles by month for : 2008
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

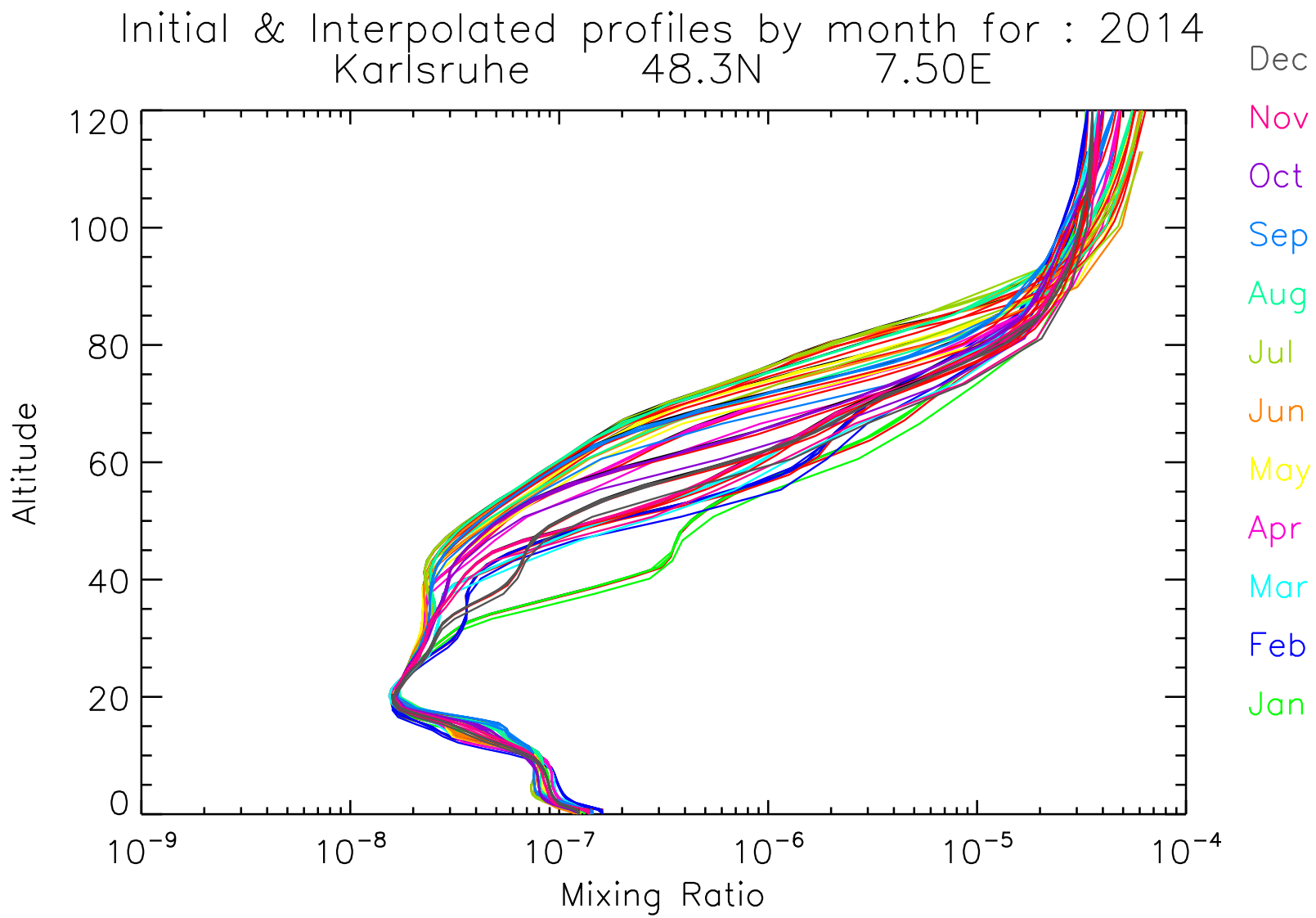

Initial & Interpolated profiles by month for : 2009
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

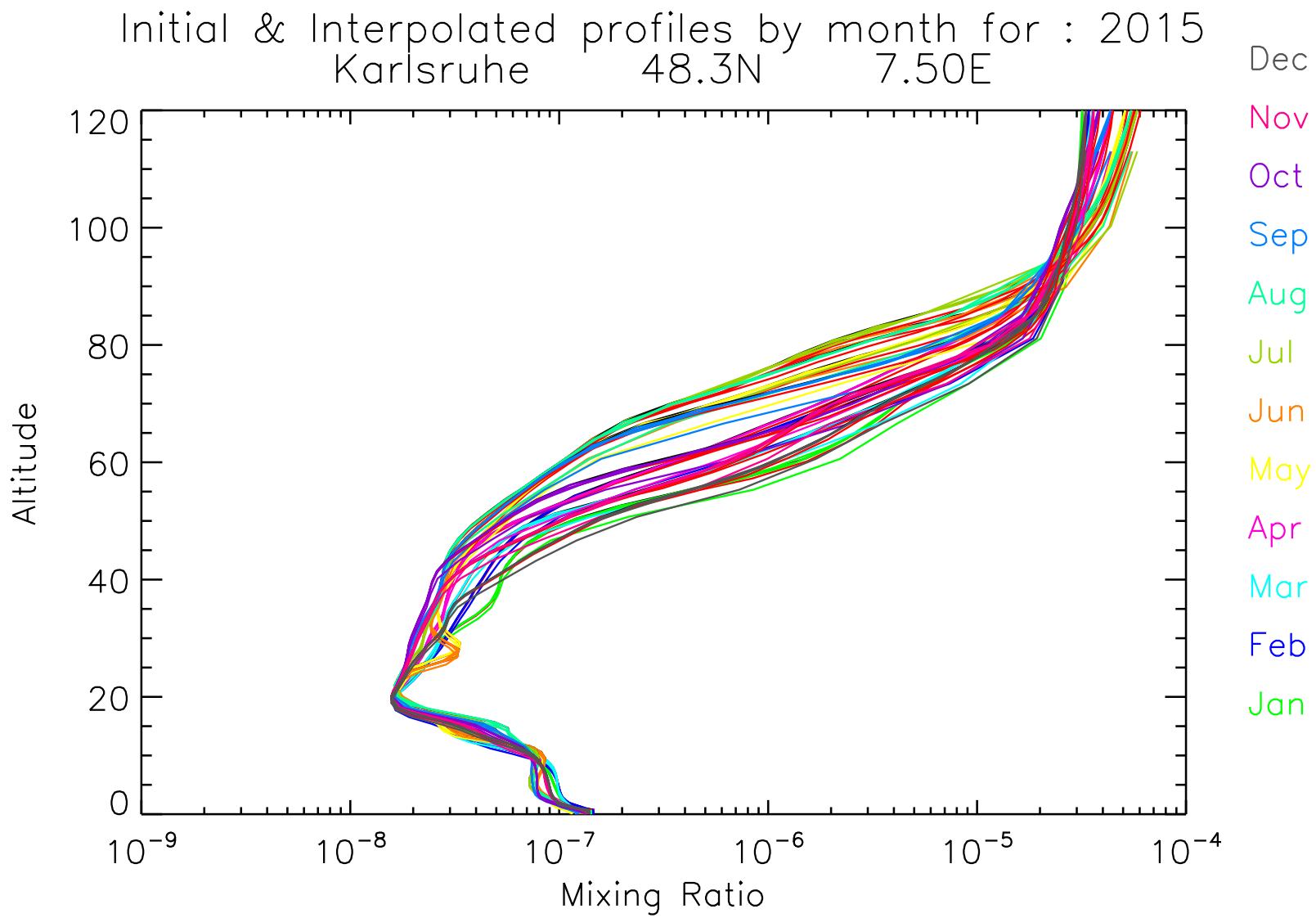

Initial & Interpolated profiles by month for : 2010
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

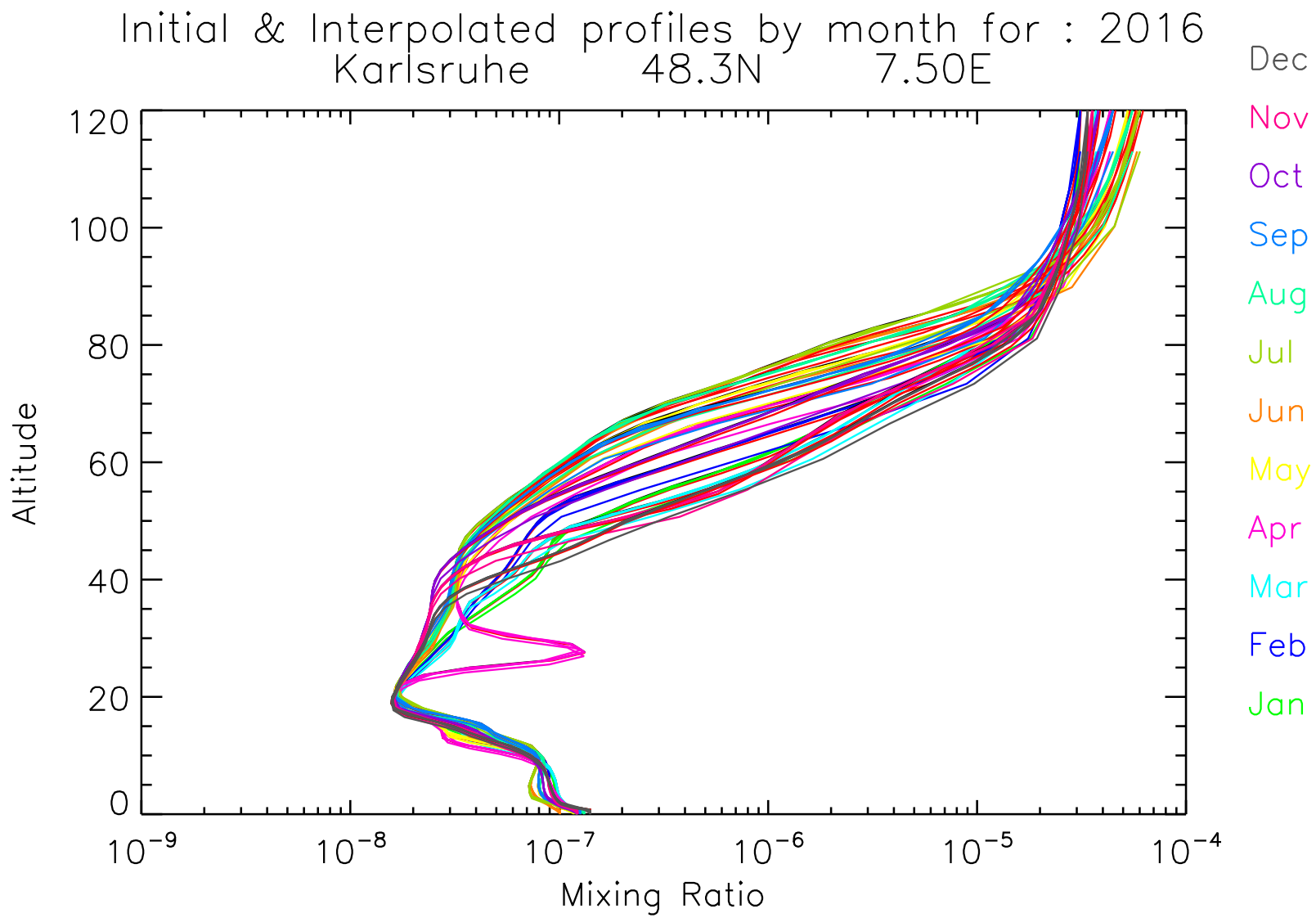

Initial & Interpolated profiles by month for : 2011
Karlsruhe 48.3N 7.50E
Dec
Nov
Oct
Jan
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio

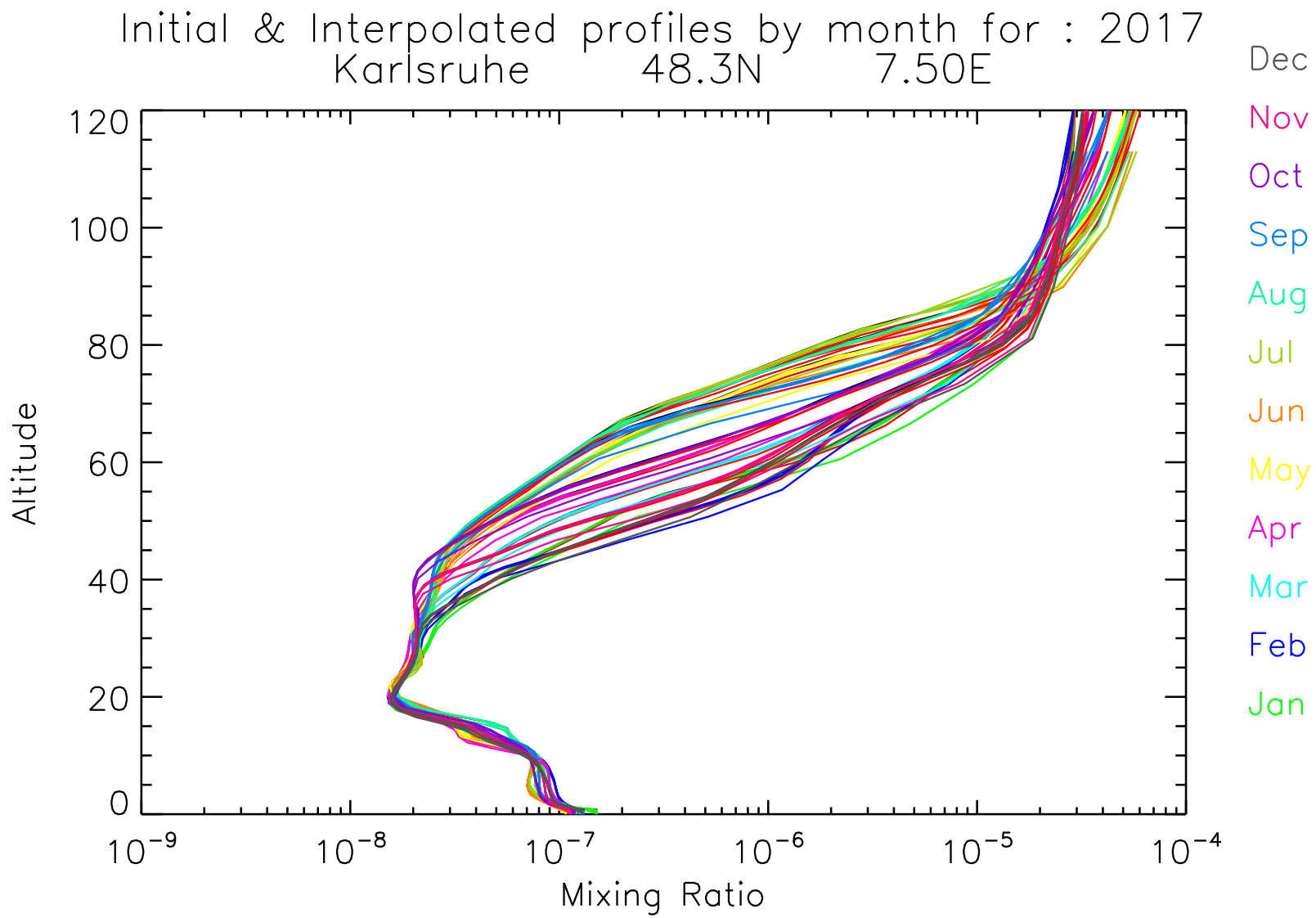

Initial & Interpolated profiles by month for : 2012
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

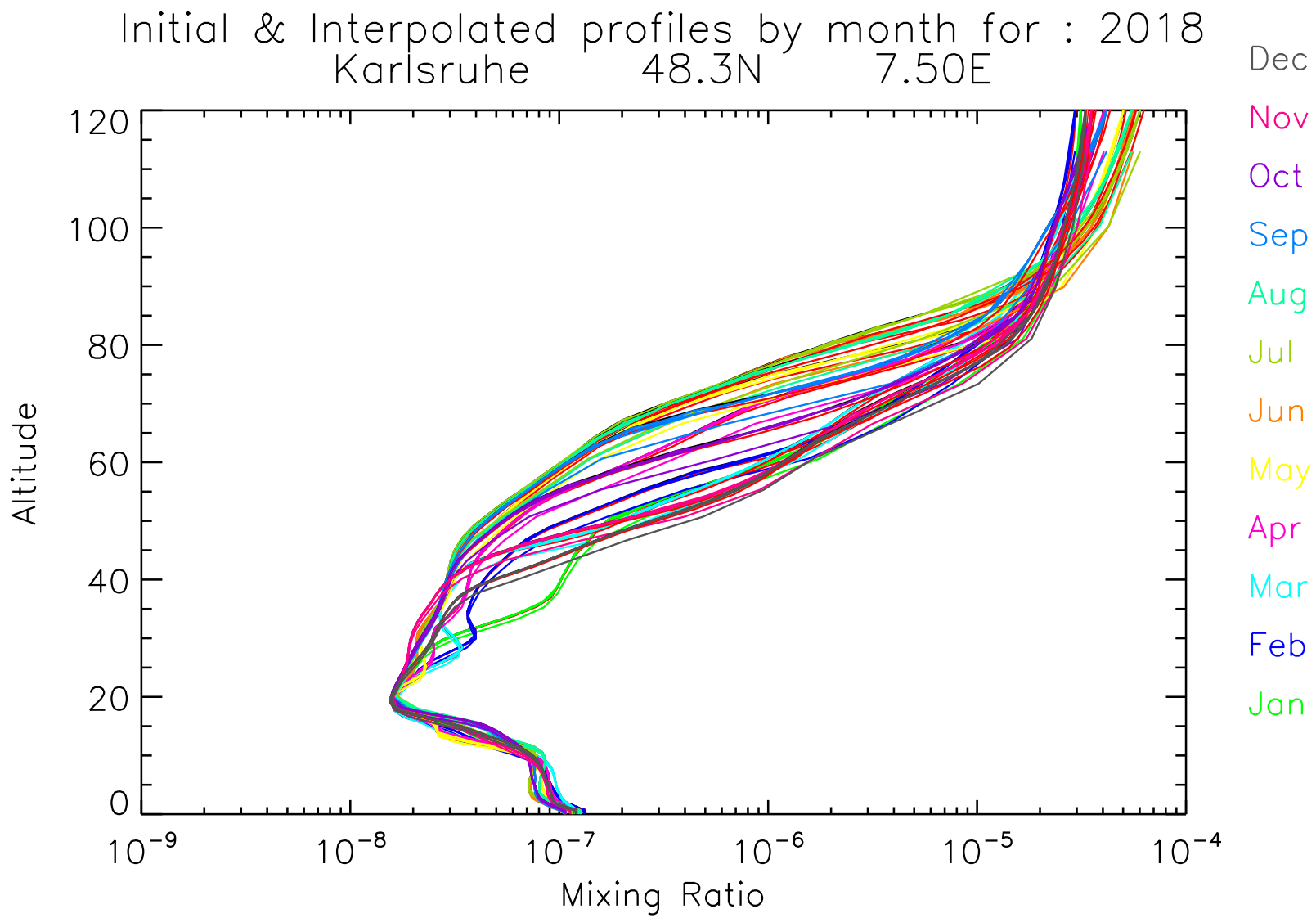

Initial & Interpolated profiles by month for : 2013
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

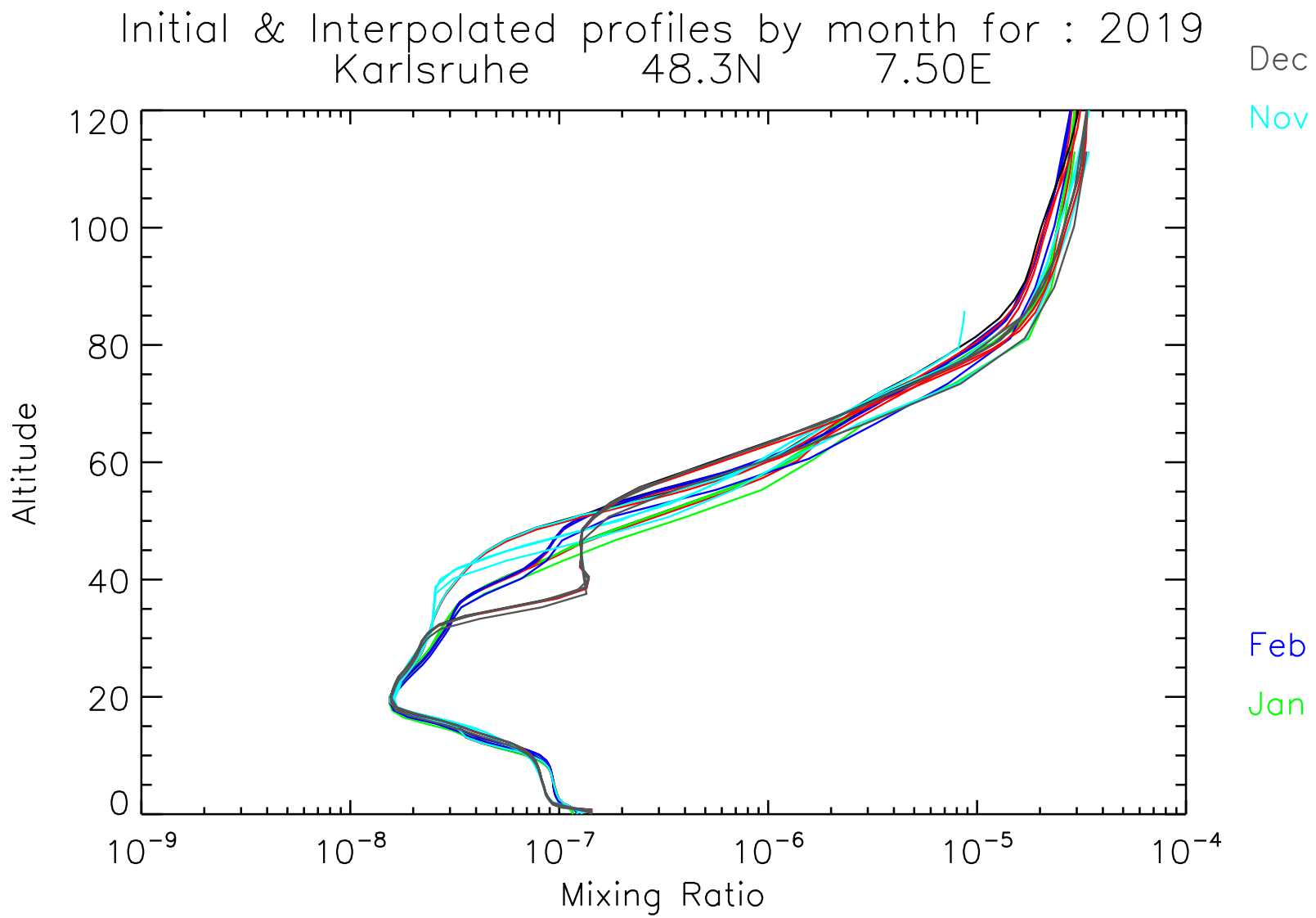

Initial & Interpolated profiles by month for : 2014
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

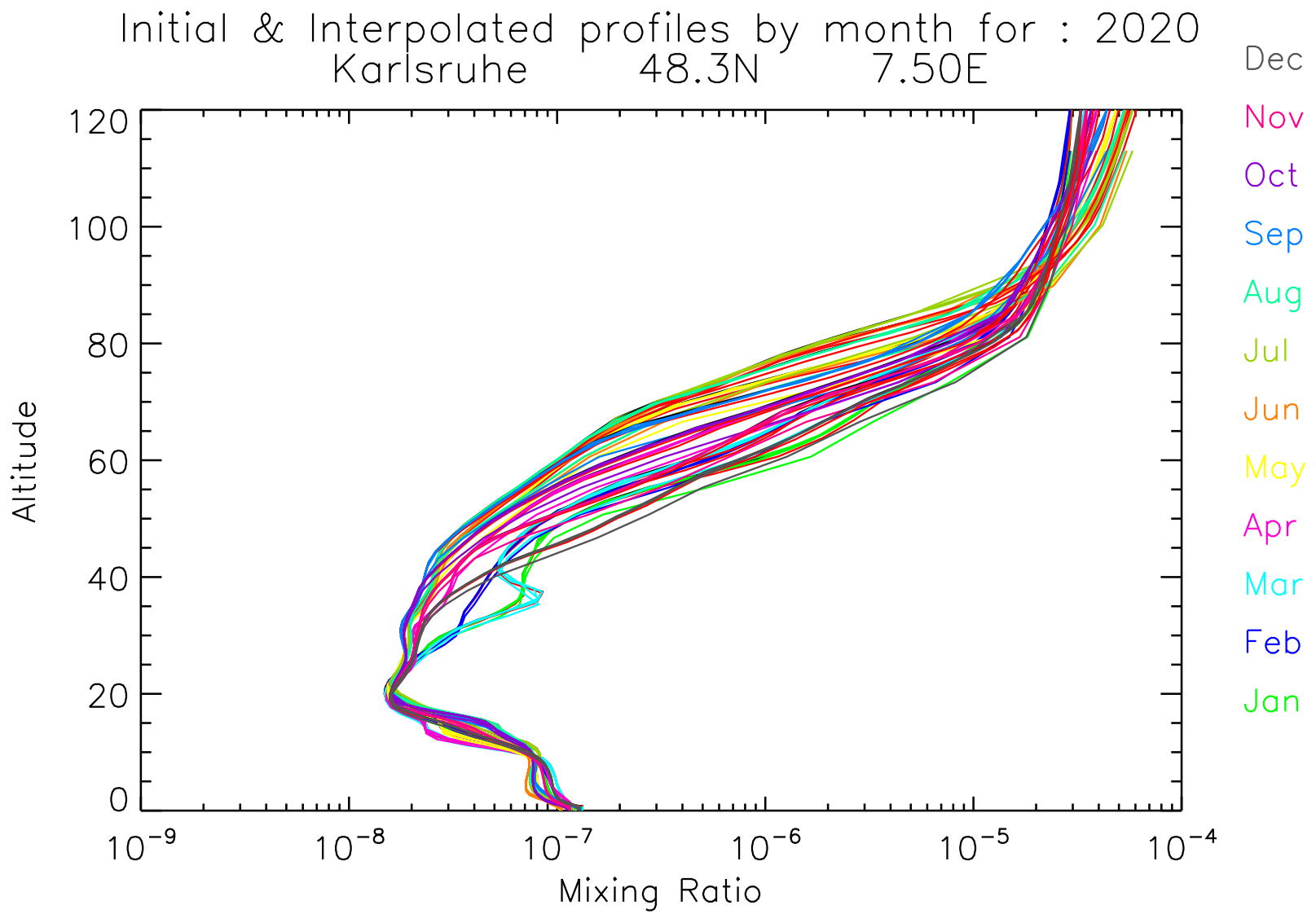

Initial & Interpolated profiles by month for : 2015
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

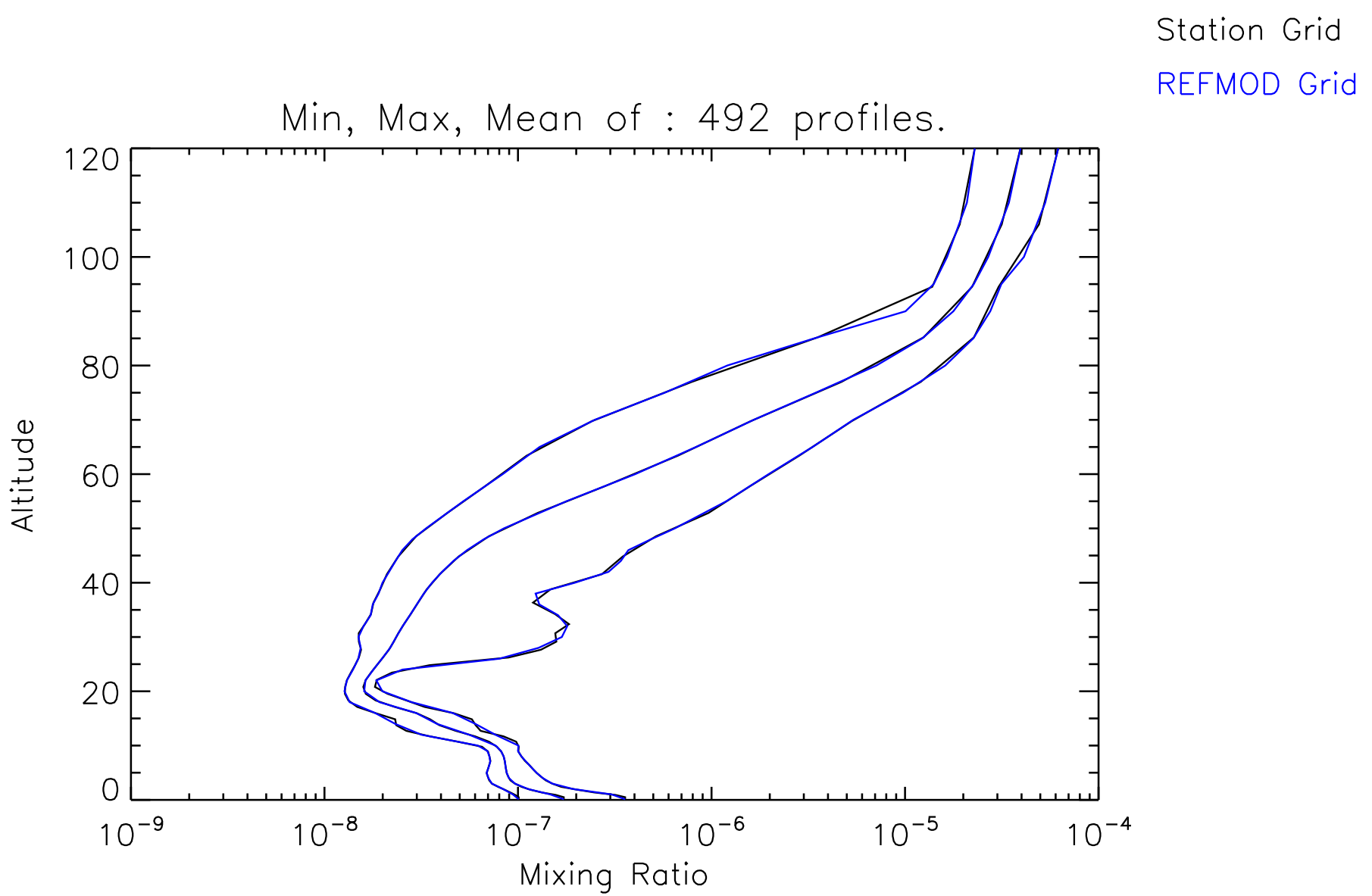

Initial & Interpolated profiles by month for : 2016
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

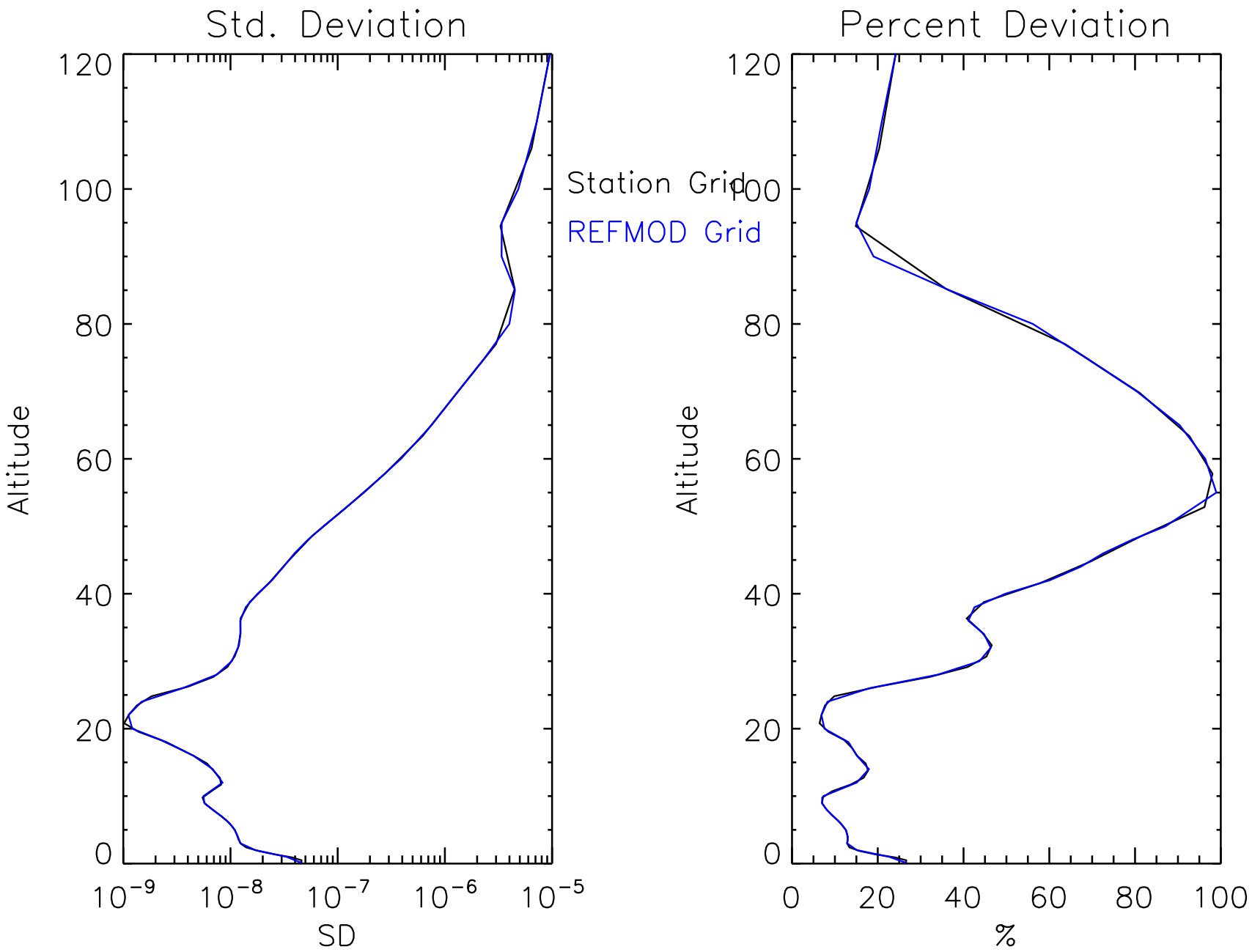

Initial & Interpolated profiles by month for : 2017
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

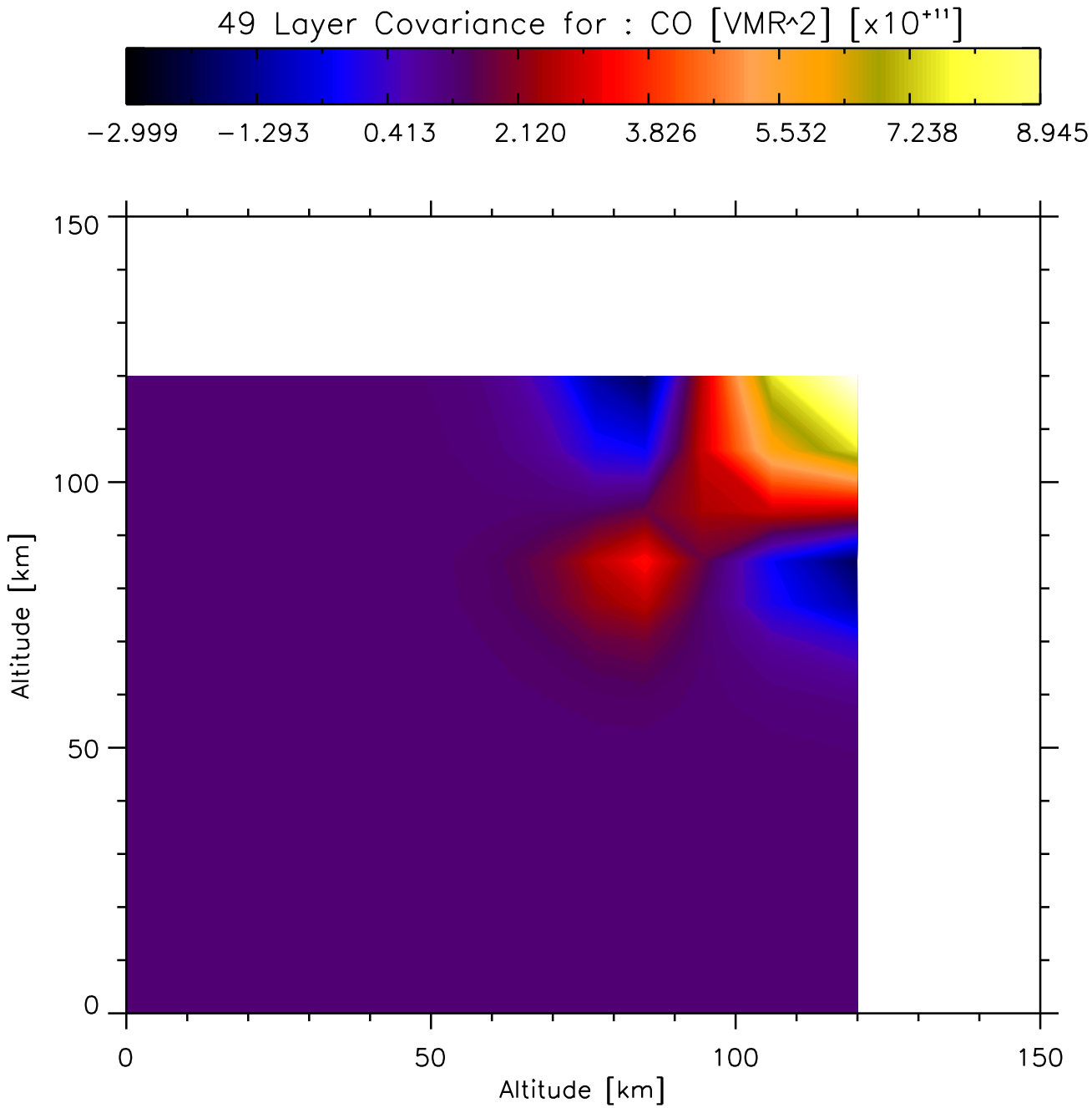

Initial & Interpolated profiles by month for : 2018
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

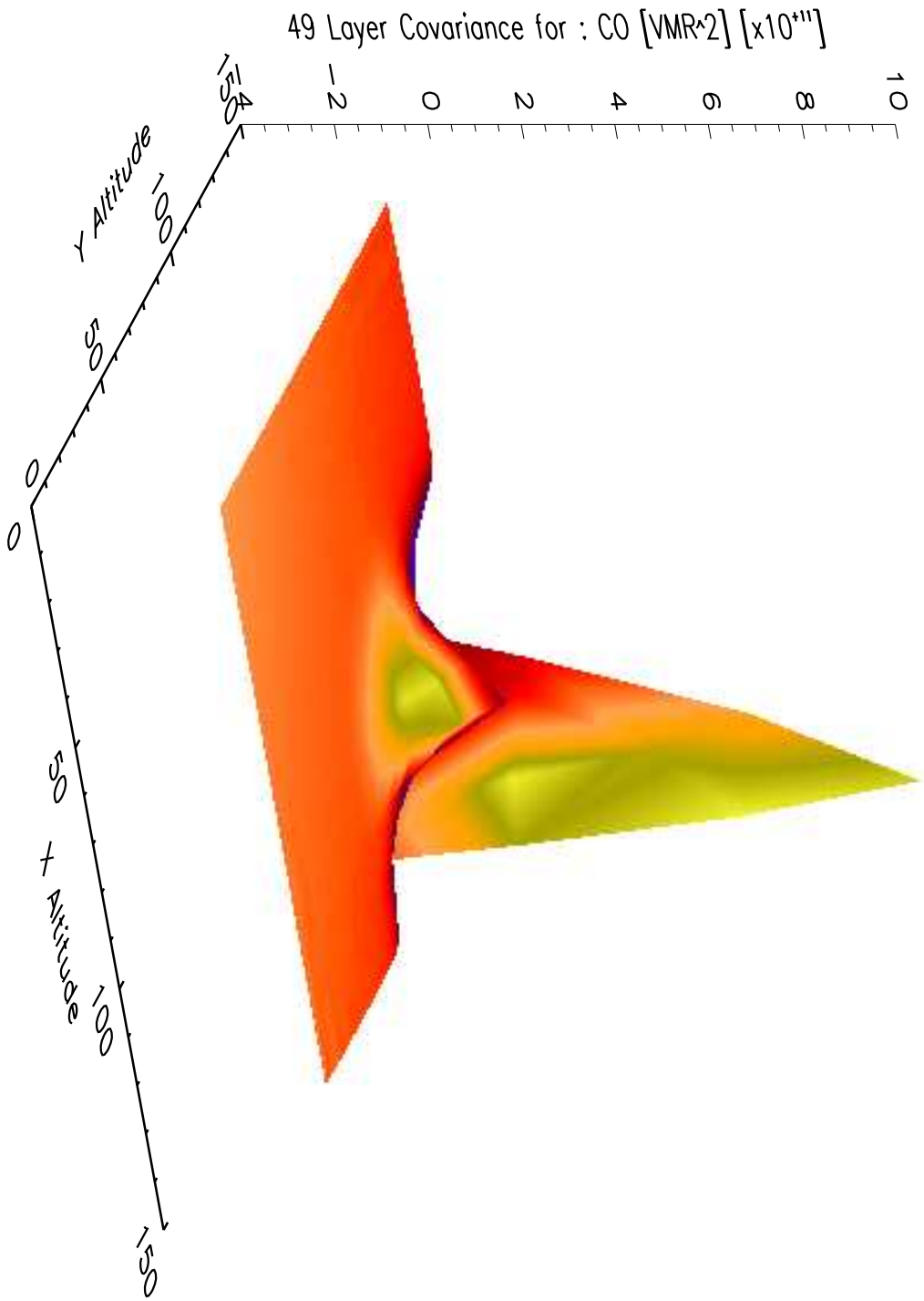

Initial & Interpolated profiles by month for : 2019
Karlsruhe 48.3N 7.50E
Dec
Nov
Feb
Jan
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio

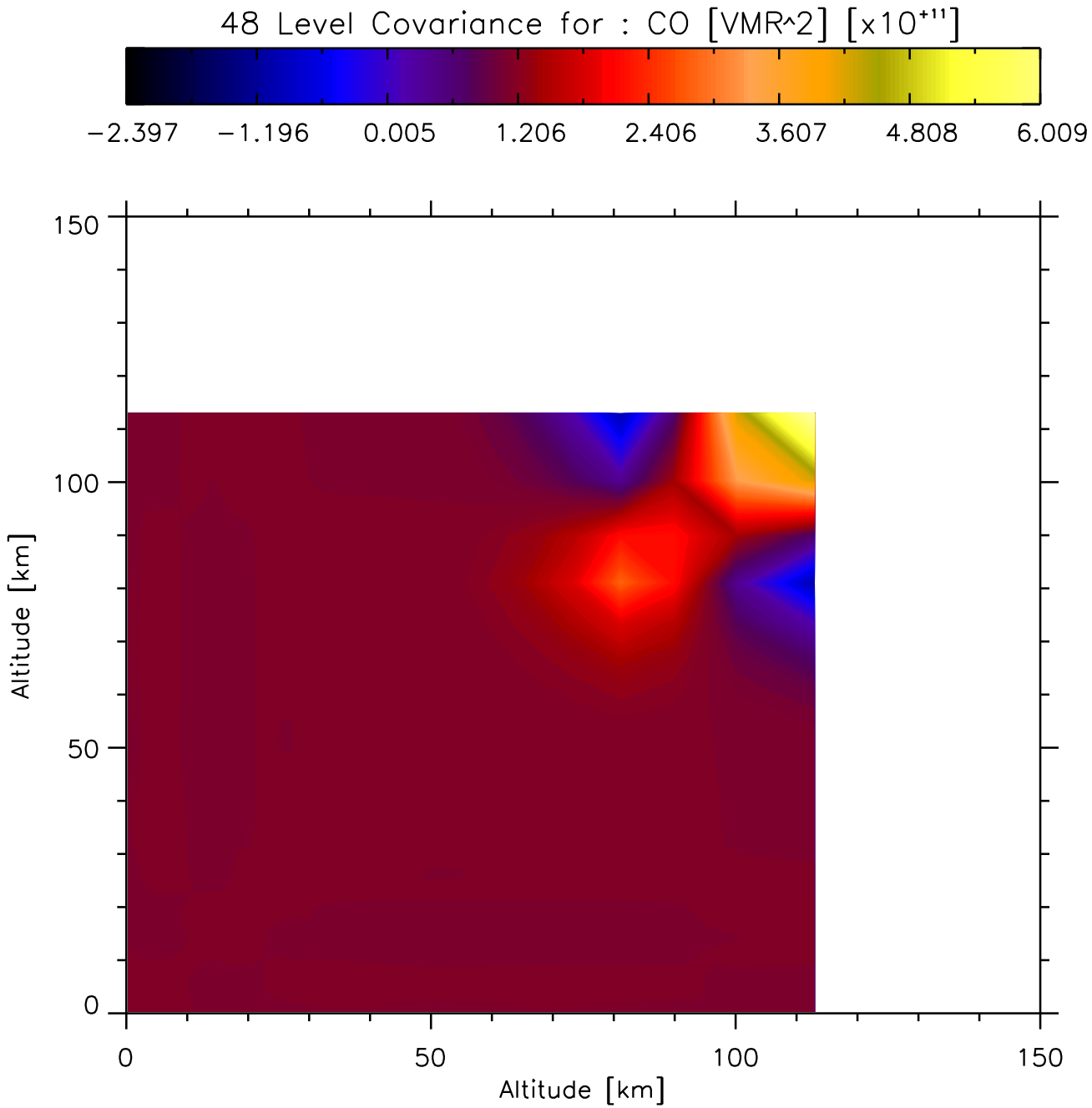

Initial & Interpolated profiles by month for : 2020
Karlsruhe 48.3N 7.50E
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio
Dec
Nov
Oct
Sep
Aug
Jul
Jun
May
Apr
Mar
Feb
Jan

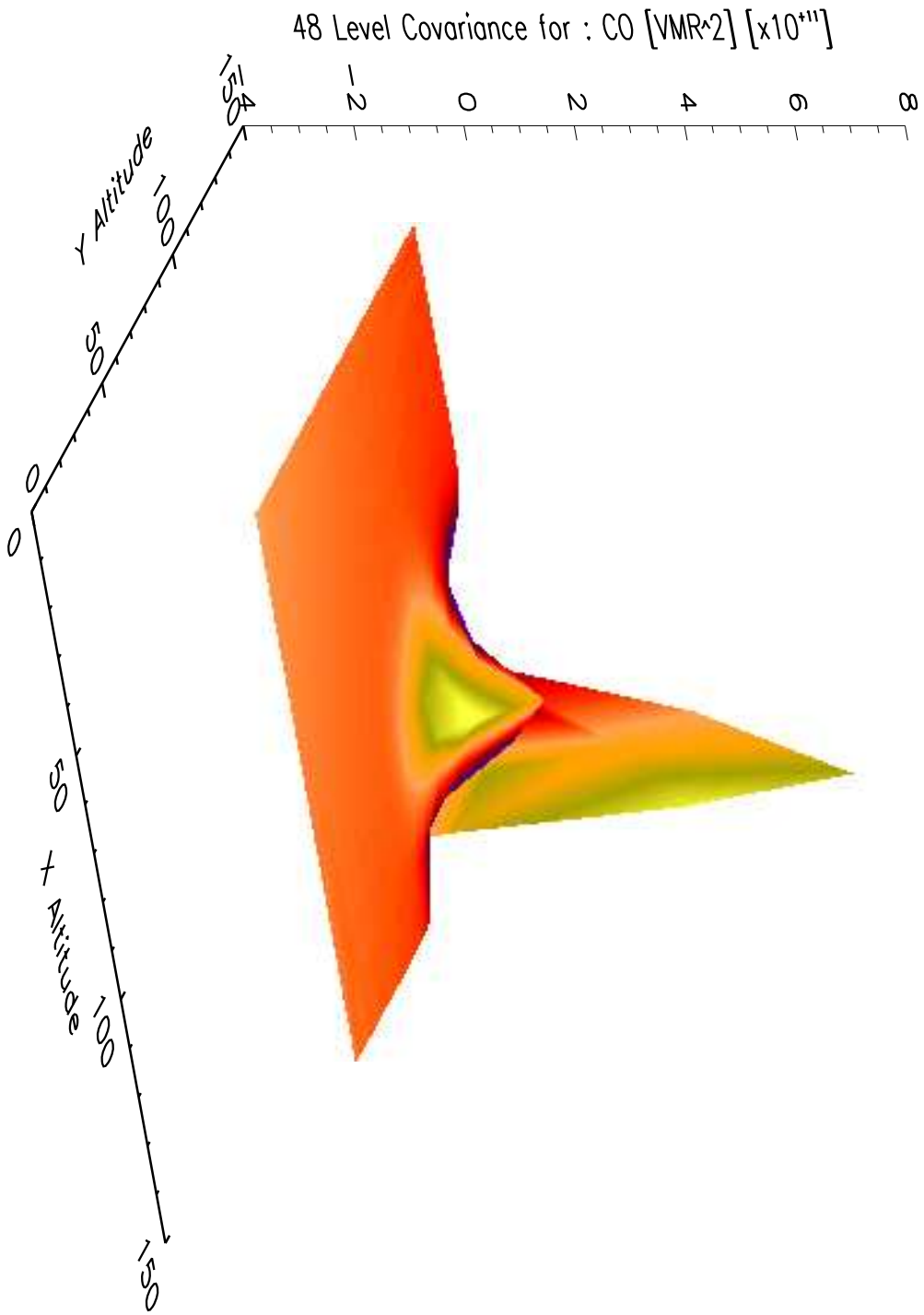

Station Grid
REFMOD Grid
Min, Max, Mean of : 492 profiles.
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
Mixing Ratio


Std. Deviation
Percent Deviation
Station Grid
REFMOD Grid
Altitude
Altitude
120
100
80
60
40
20
0
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
SD
0
20
40
60
80
100
%


49 Layer Covariance for : CO [VMR^2] [x10^+11]
−2.999
−1.293
0.413
2.120
3.826
5.532
7.238
8.945
150
100
50
0
Altitude [km]
0
50
100
150
Altitude [km]


49 Layer Covariance for : CO [VMR^2] [x10^+11]
-4
-2
0
2
4
6
8
10
Y Altitude
150
100
50
0
0
50
100
150
X Altitude


48 Level Covariance for : CO [VMR^2] [x10^+11]
−2.397
−1.196
0.005
1.206
2.406
3.607
4.808
6.009
150
100
50
0
Altitude [km]
0
50
100
150
Altitude [km]


48 Level Covariance for : CO [VMR^2] [x10^+11]
-4
-2
0
2
4
6
8
Y Altitude
150
100
50
0
X Altitude
0
50
100
150