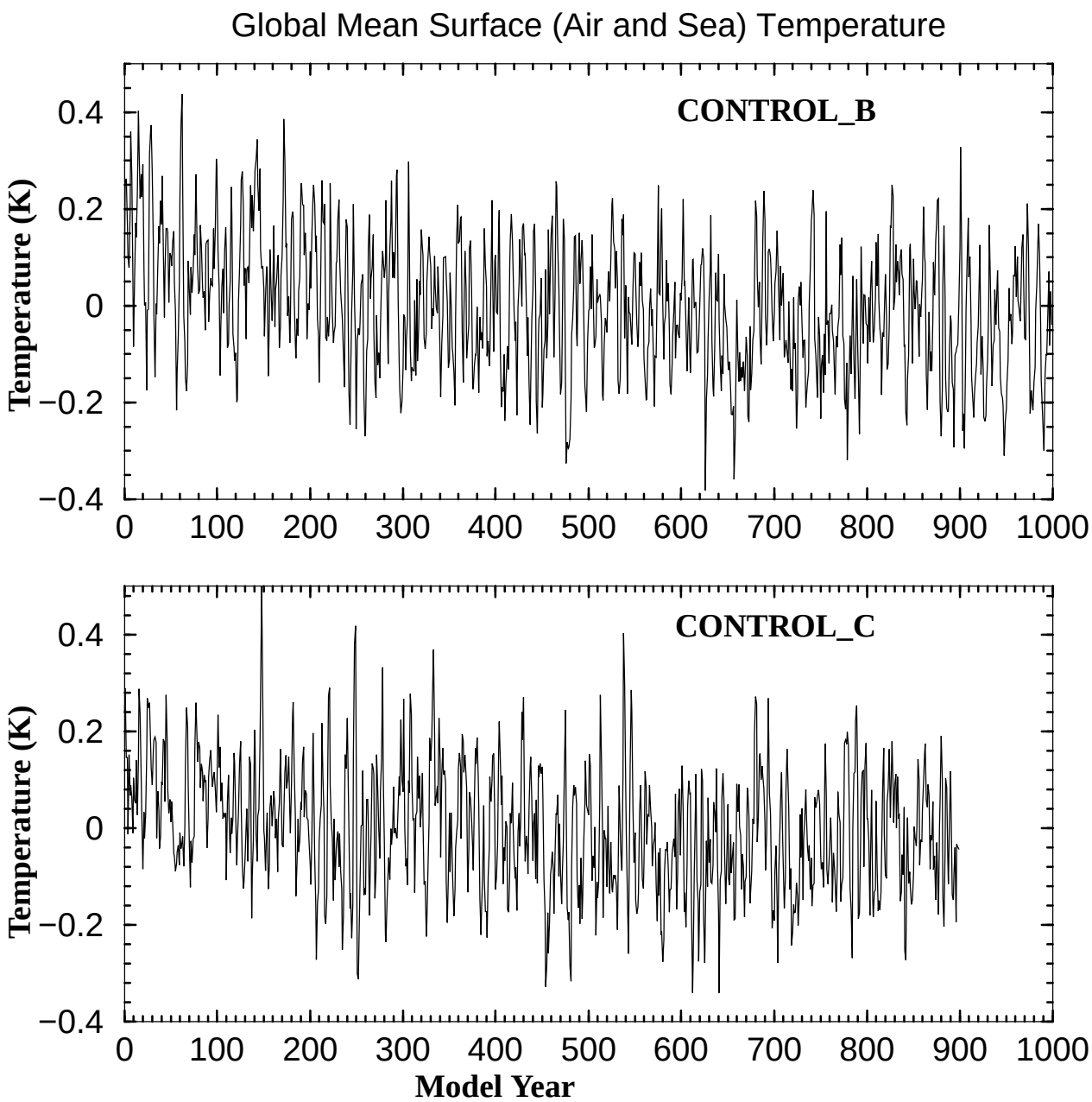
Global Mean Surface (Air and Sea) Temperature
CONTROL_B
CONTROL_C
Temperature (K)
0.4
0.2
0
−0.2
−0.4
0
100
200
300
400
500
600
700
800
900
1000
Model Year

Figure 1

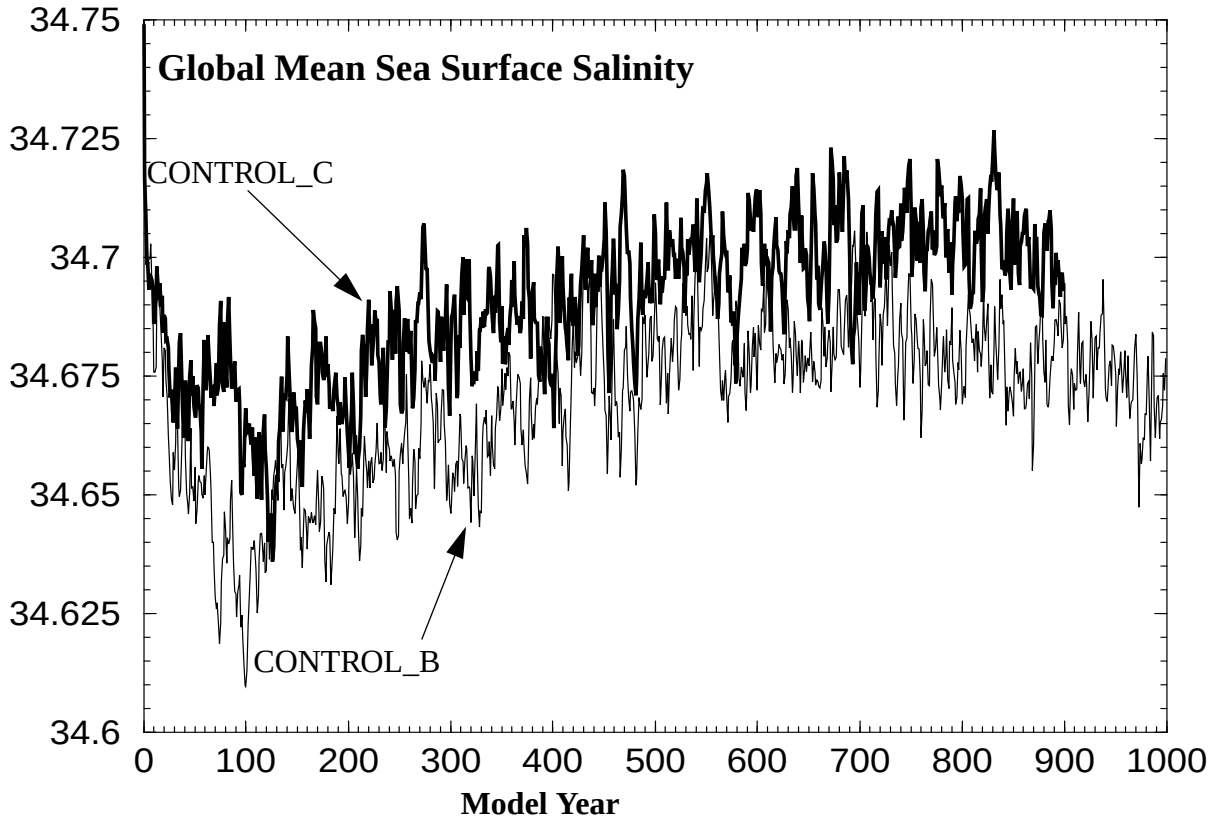
Global Mean Sea Surface Salinity
CONTROL_C
CONTROL_B
34.75
34.725
34.7
34.675
34.65
34.625
34.6
0
100
200
300
400
500
600
700
800
900
1000
Model Year

Figure 2

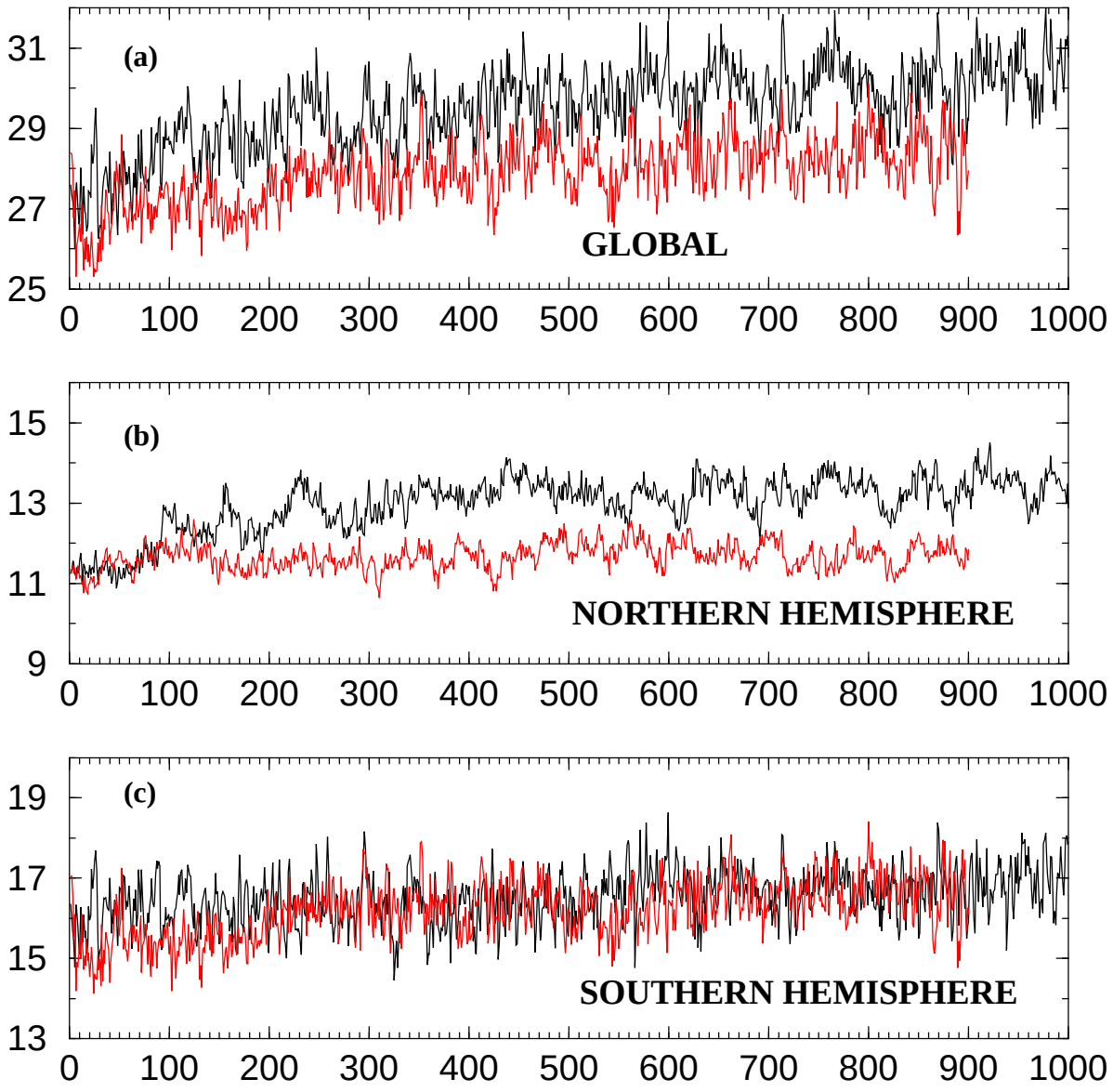
(a)
GLOBAL
31
29
27
25
0
100
200
300
400
500
600
700
800
900
1000
(b)
NORTHERN HEMISPHERE
15
13
11
9
0
100
200
300
400
500
600
700
800
900
1000
(c)
SOUTHERN HEMISPHERE
19
17
15
13
0
100
200
300
400
500
600
700
800
900
1000

Figure 3

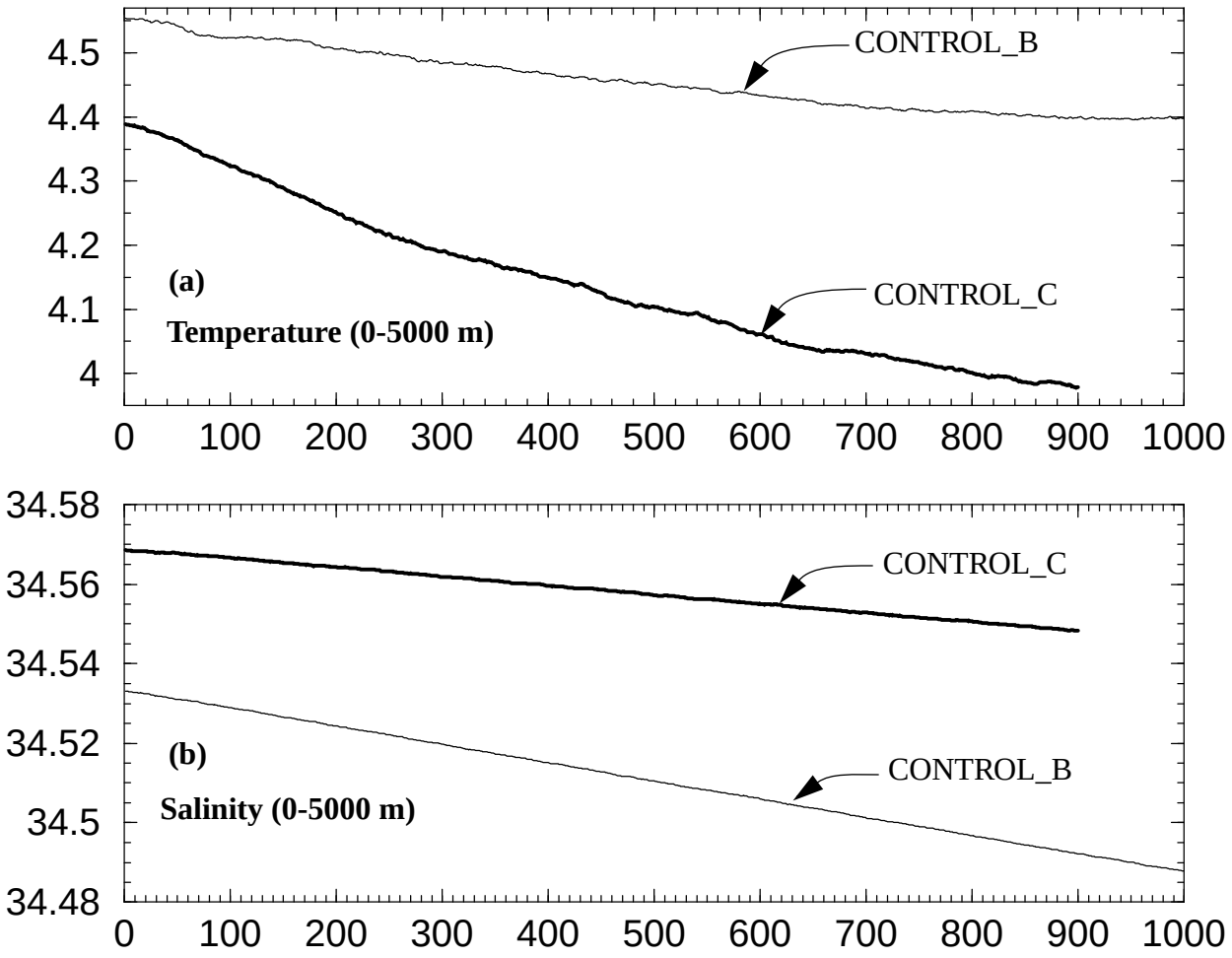
4.5
4.4
4.3
4.2
4.1
4
CONTROL_B
CONTROL_C
(a)
Temperature (0-5000 m)
0
100
200
300
400
500
600
700
800
900
1000
34.58
34.56
34.54
34.52
34.5
34.48
CONTROL_C
CONTROL_B
(b)
Salinity (0-5000 m)
0
100
200
300
400
500
600
700
800
900
1000

Figure 4

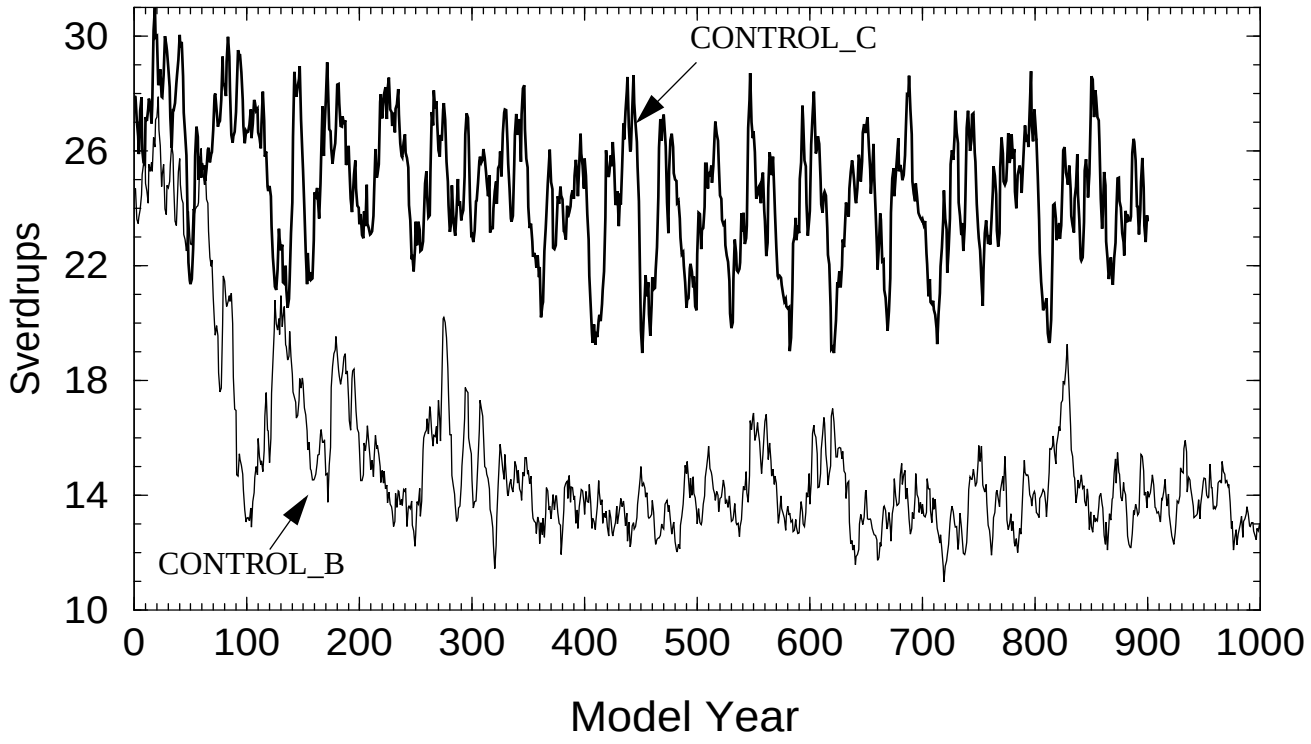
CONTROL_C
CONTROL_B
Sverdrups
Model Year
30
26
22
18
14
10
0
100
200
300
400
500
600
700
800
900
1000

Figure 5

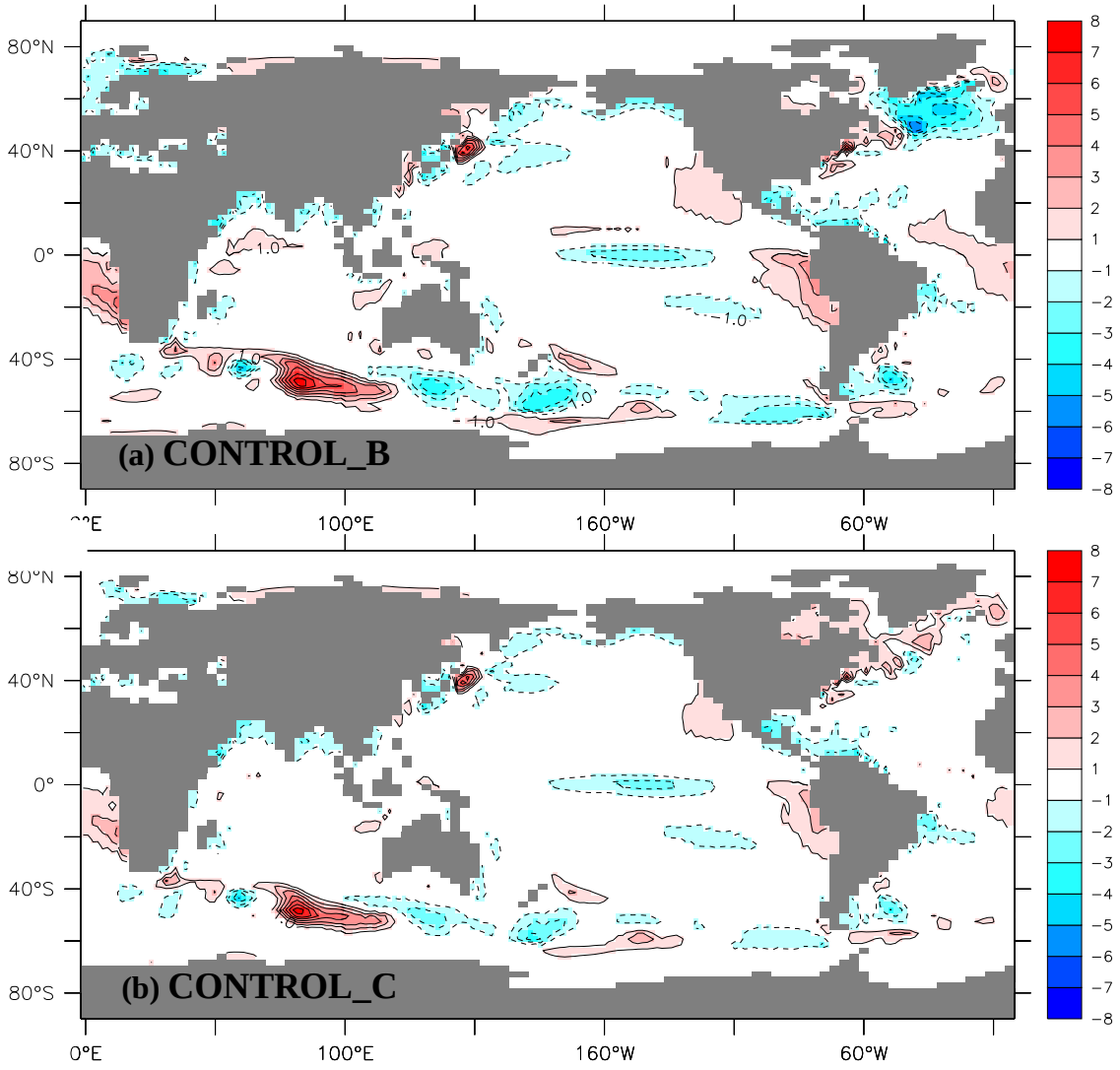
(a) CONTROL_B
(b) CONTROL_C
80°N
40°N
0°
40°S
80°S
100°E
160°W
60°W
8
7
6
5
4
3
2
1
−1
−2
−3
−4
−5
−6
−7
−8

Figure 6

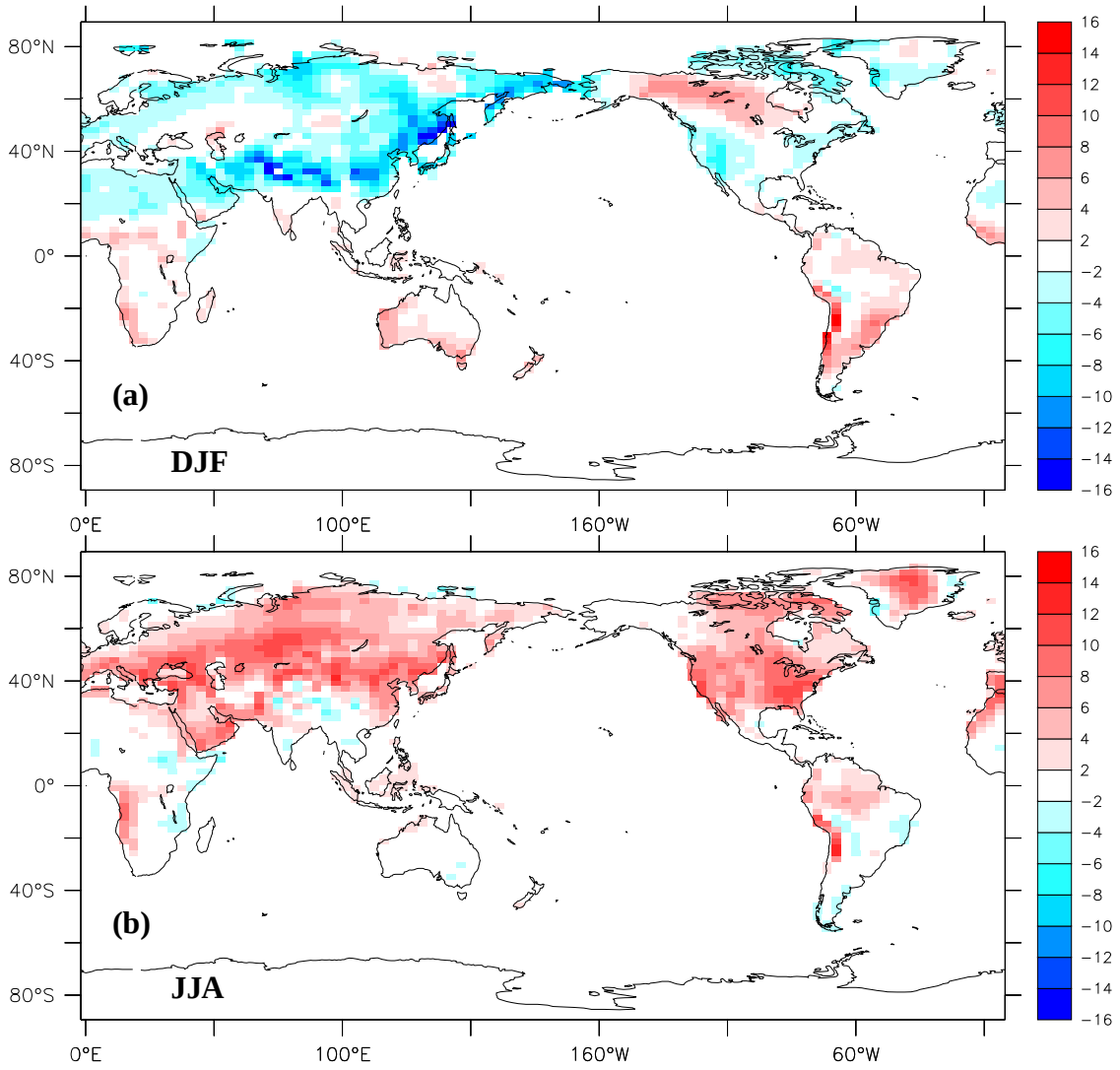
80°N
40°N
0°
40°S
80°S
(a)
DJF
0°E
100°E
160°W
60°W
16
14
12
10
8
6
4
2
−2
−4
−6
−8
−10
−12
−14
−16
(b)
JJA

Figure 7

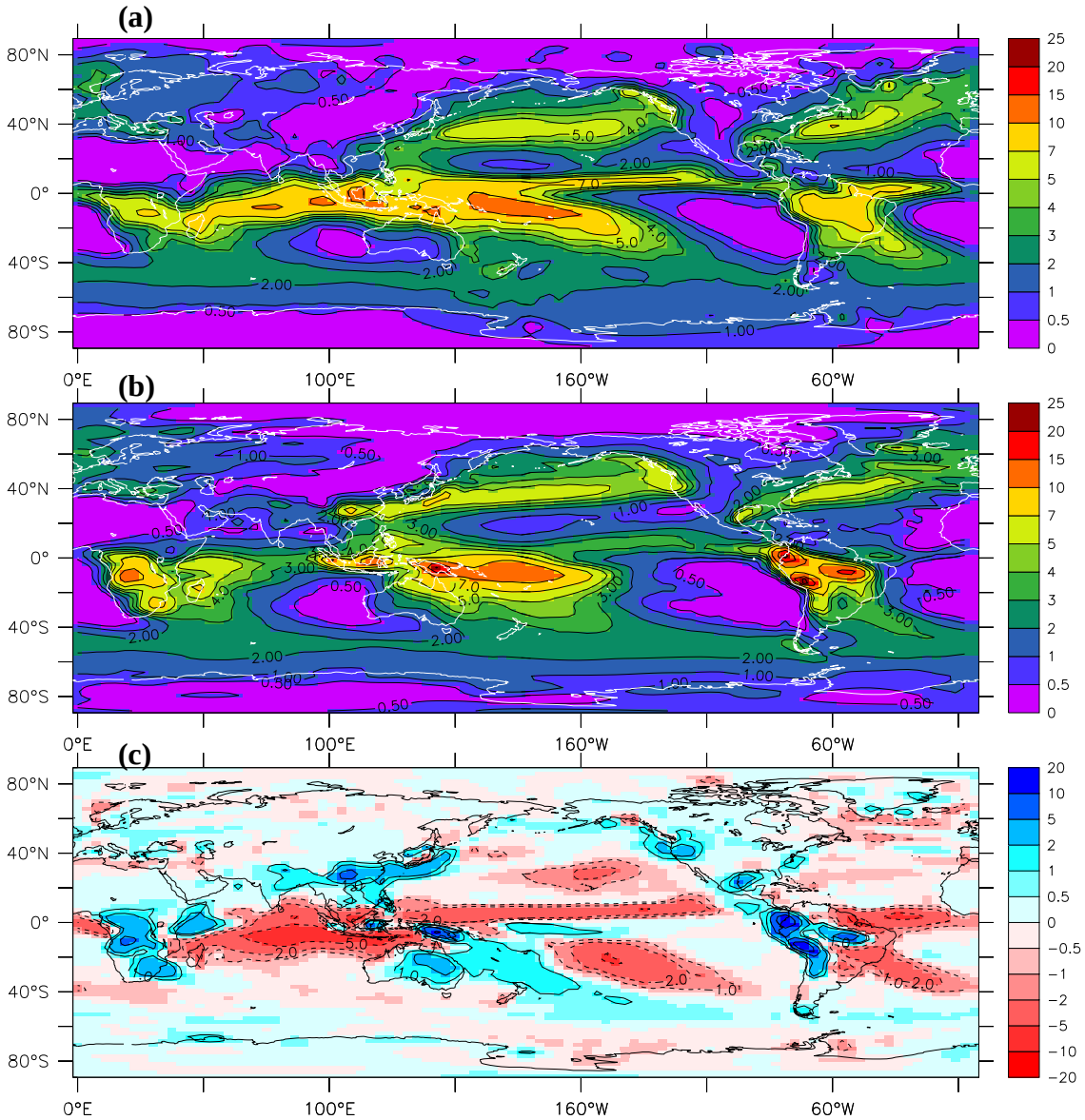
(a)
(b)
(c)
80°N
40°N
0°
40°S
80°S
0°E
100°E
160°W
60°W
25
20
15
10
7
5
4
3
2
1
0.5
0
20
10
5
2
1
0.5
0
−0.5
−1
−2
−5
−10
−20

Figure 8 (a)-(c)

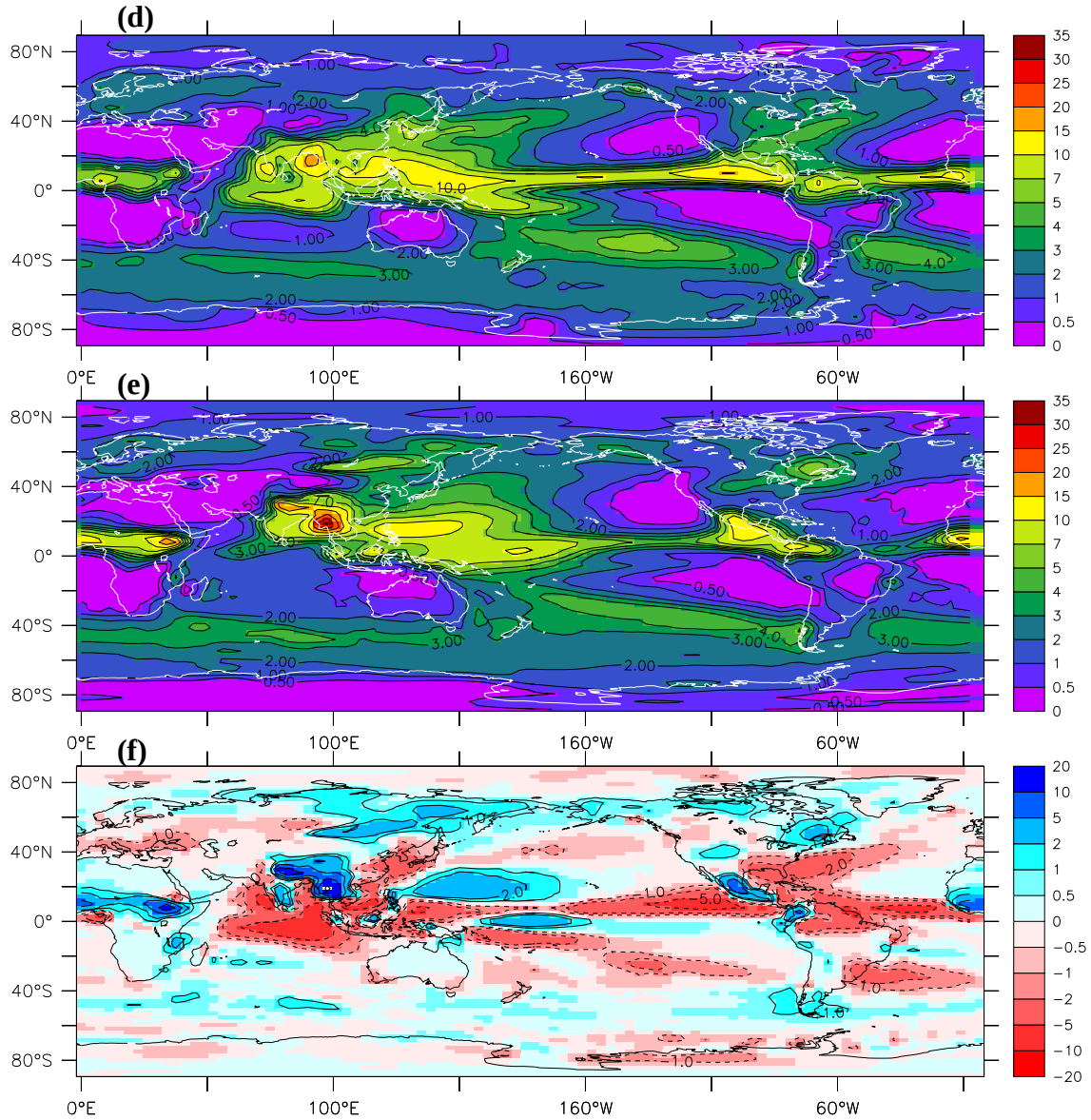
(d)
(e)
(f)
80°N
40°N
0°
40°S
80°S
0°E
100°E
160°W
60°W
35
30
25
20
15
10
7
5
4
3
2
1
0.5
0
20
10
5
2
1
0.5
0
−0.5
−1
−2
−5
−10
−20

Figure 8 (d)-(f)

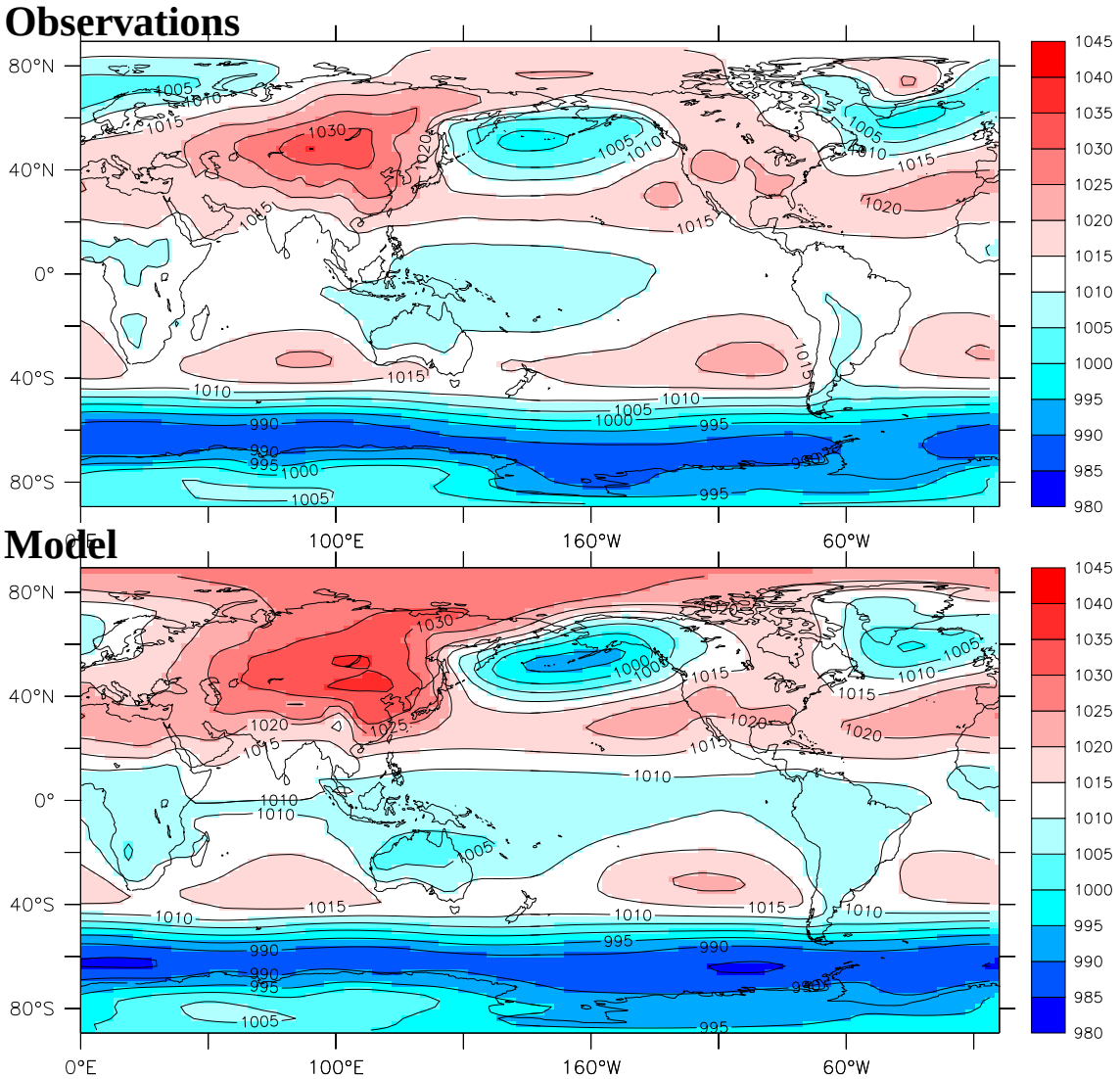
Observations
Model
80°N
40°N
0°
40°S
80°S
0°E
100°E
160°W
60°W
1045
1040
1035
1030
1025
1020
1015
1010
1005
1000
995
990
985
980

Figure 9a

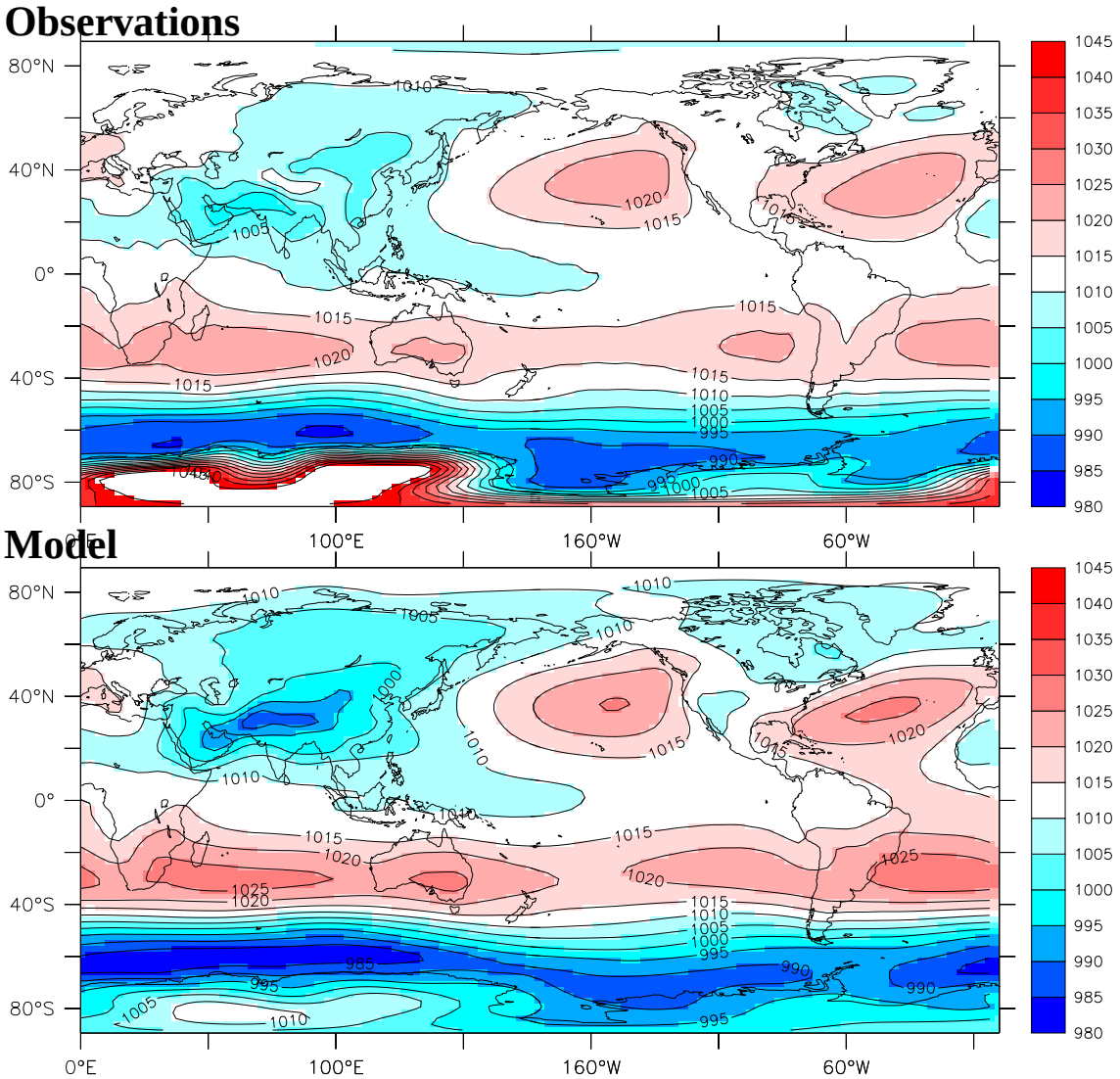
Observations
Model
80°N
40°N
0°
40°S
80°S
0°E
100°E
160°W
60°W
1045
1040
1035
1030
1025
1020
1015
1010
1005
1000
995
990
985
980

Figure 9b

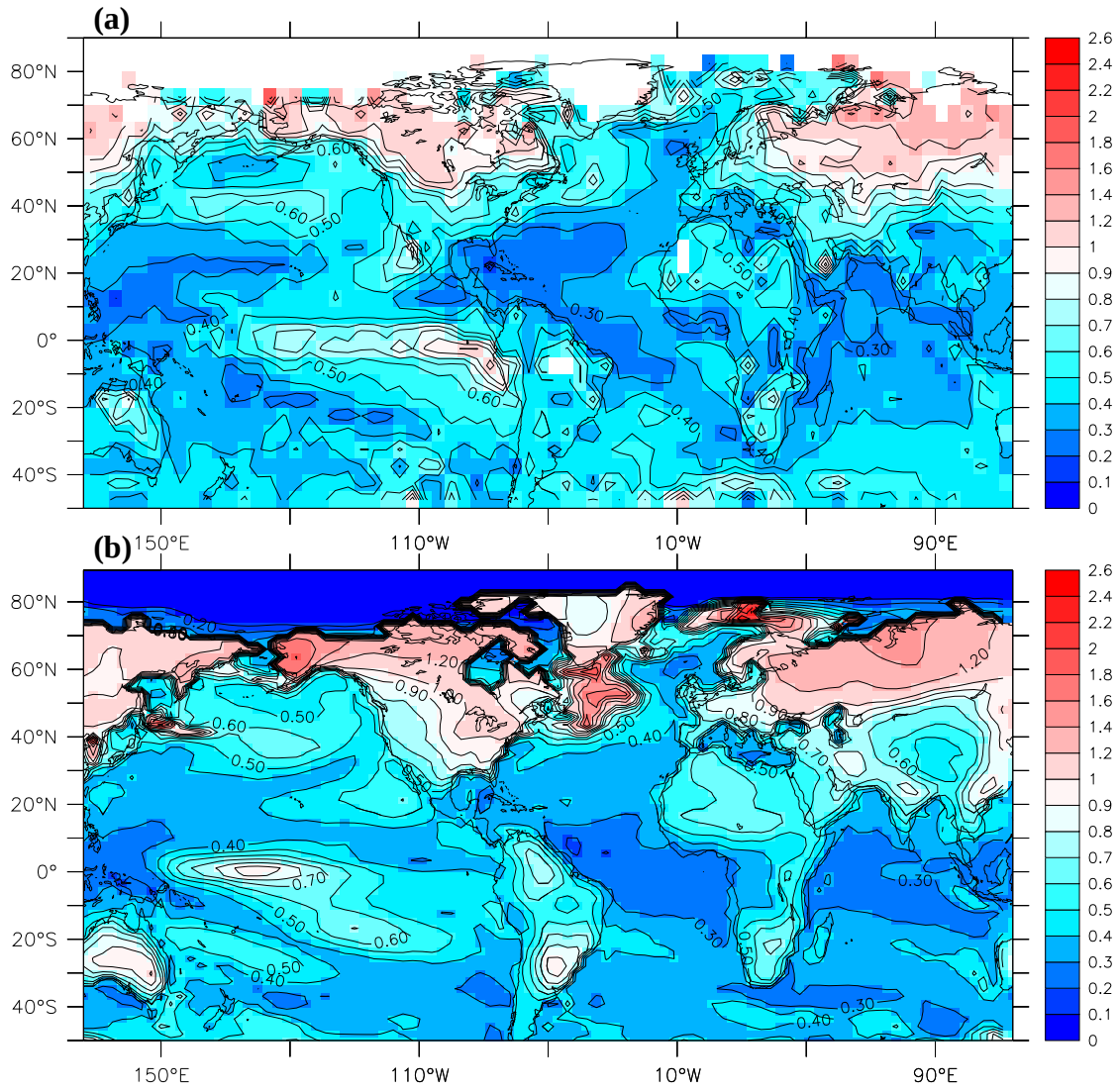
(a)
(b)
80°N
60°N
40°N
20°N
0°
20°S
40°S
150°E
110°W
10°W
90°E
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0

Figure 10

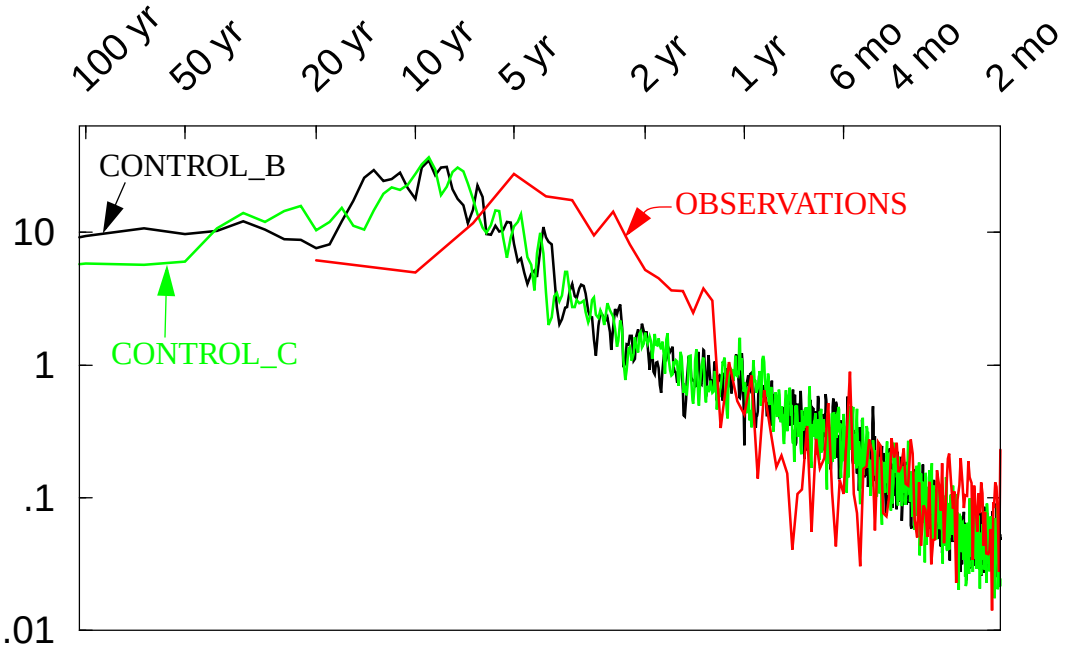
100 yr
50 yr
20 yr
10 yr
5 yr
2 yr
1 yr
6 mo
4 mo
2 mo
CONTROL_B
OBSERVATIONS
CONTROL_C
10
1
.1
.01

Figure 11

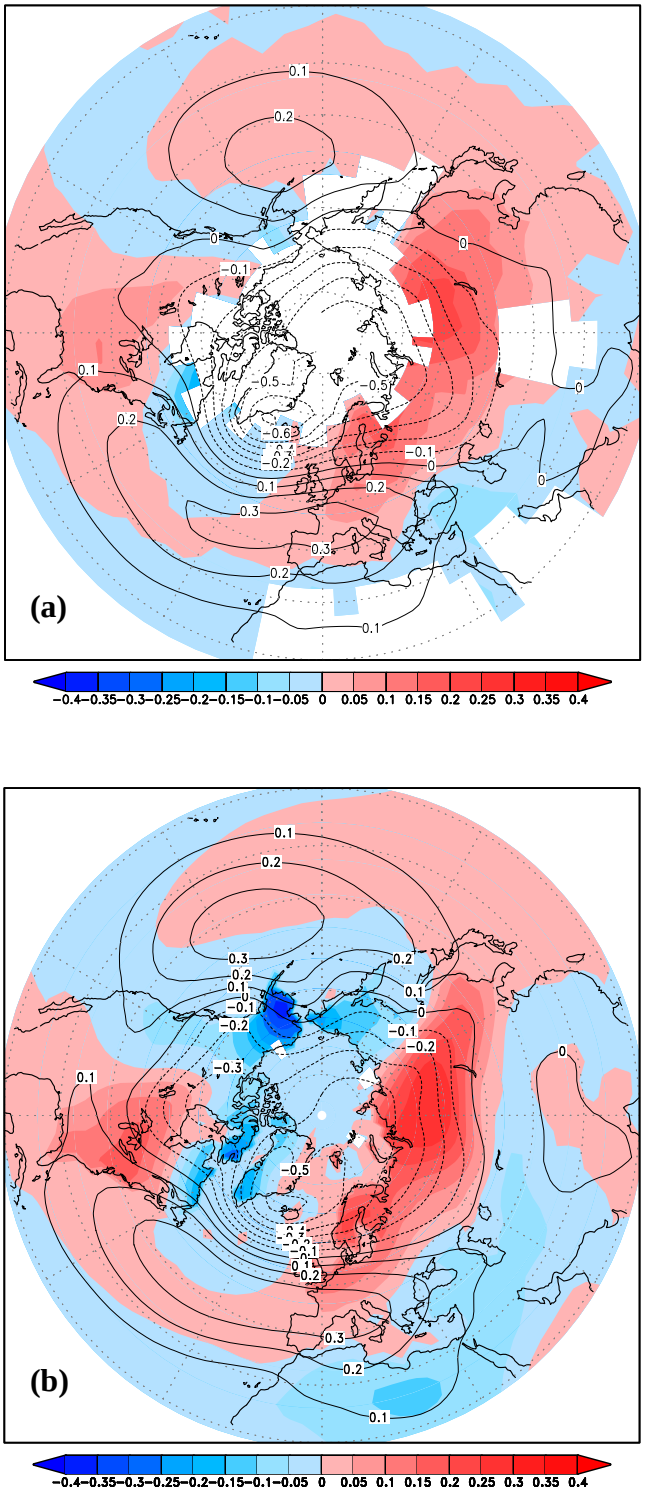

Fig. 12

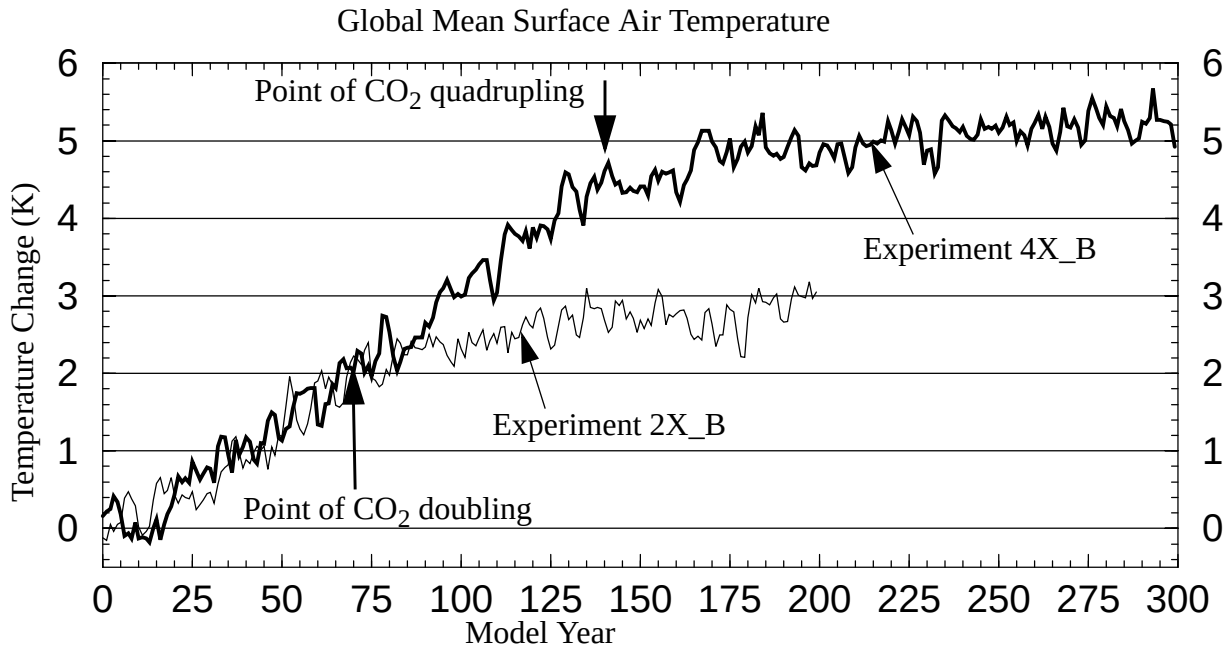
Global Mean Surface Air Temperature
Point of CO_2 quadrupling
Experiment 4X_B
Experiment 2X_B
Point of CO_2 doubling
Temperature Change (K)
Model Year
0
1
2
3
4
5
6
0
25
50
75
100
125
150
175
200
225
250
275
300

Figure 13

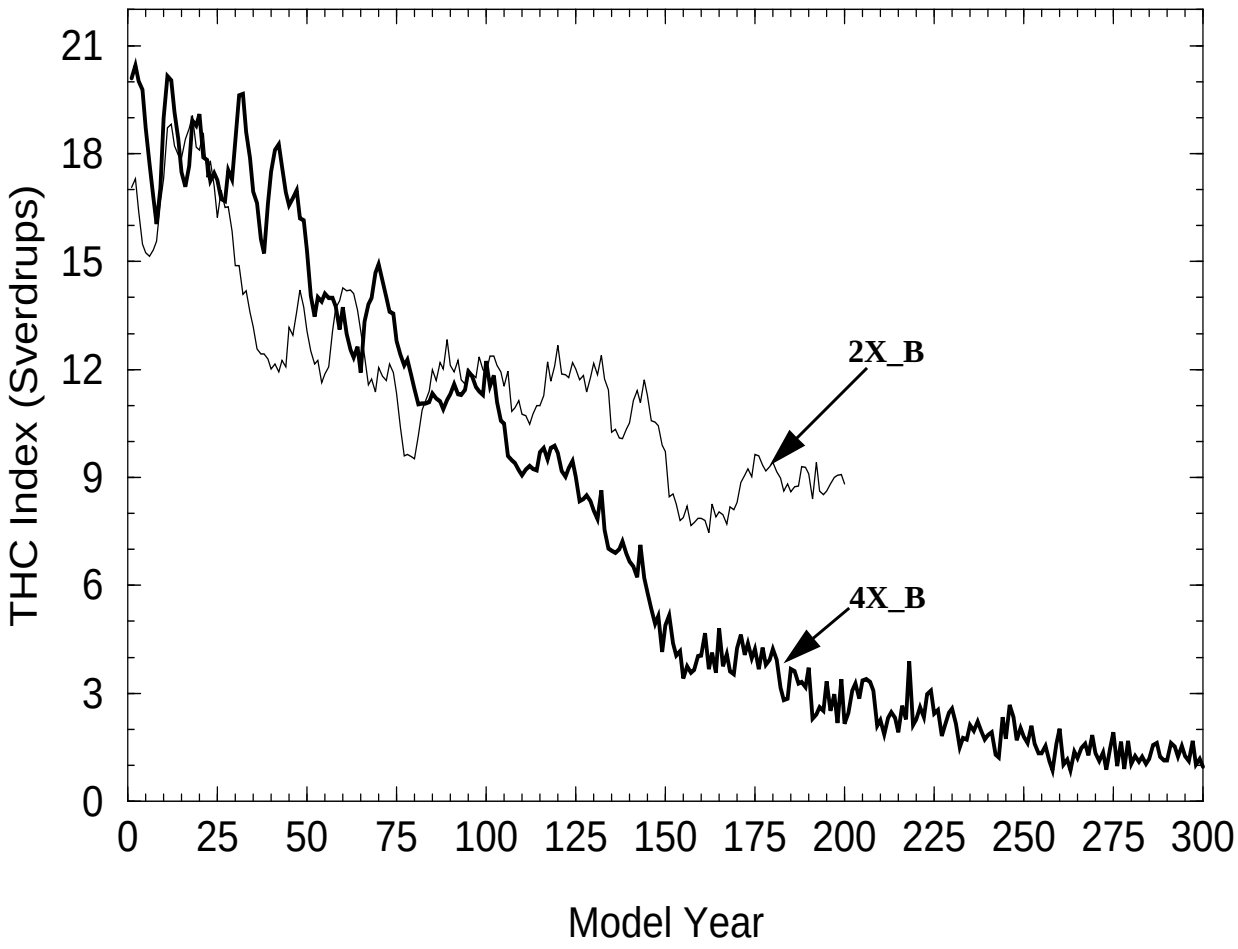
THC Index (Sverdrups)
21
18
15
12
9
6
3
0
0
25
50
75
100
125
150
175
200
225
250
275
300
Model Year
2X_B
4X_B

Figure 14

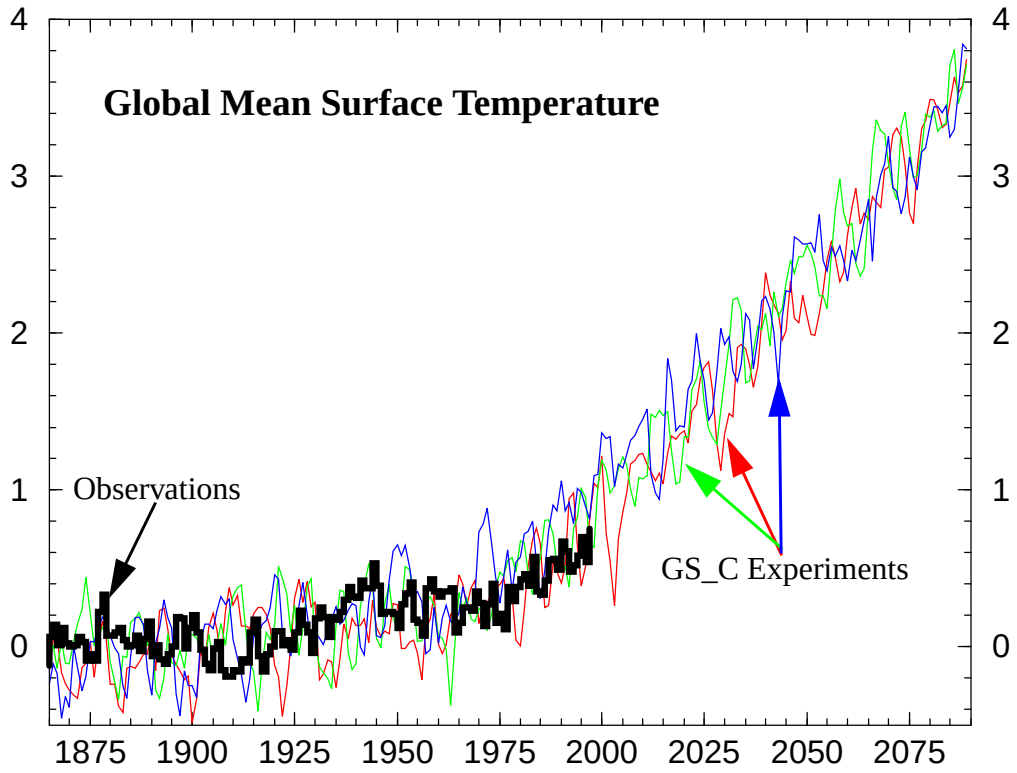
Global Mean Surface Temperature
Observations
GS_C Experiments
4
3
2
1
0
1875
1900
1925
1950
1975
2000
2025
2050
2075

Figure 15

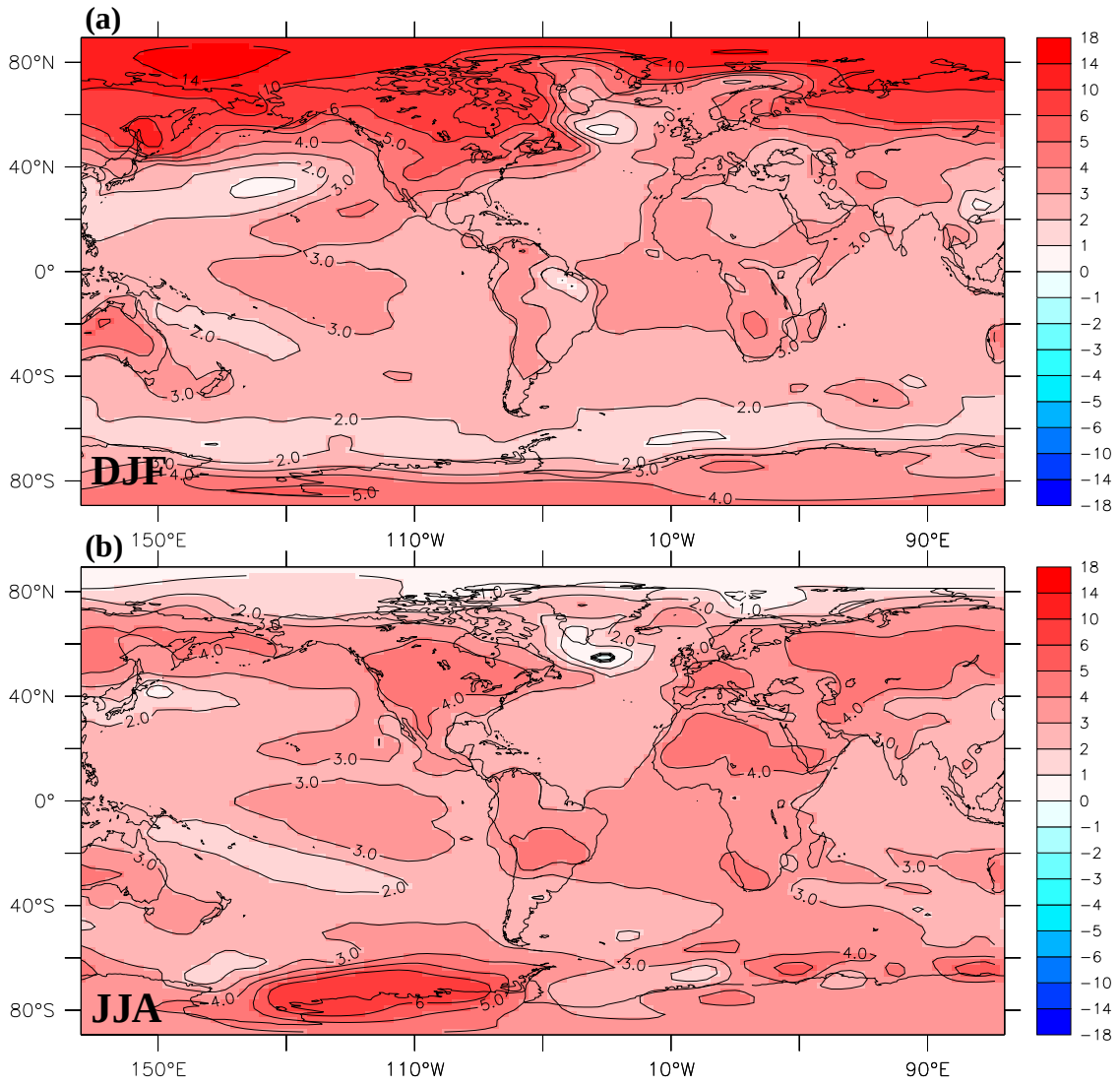
(a)
DJF
(b)
JJA
80°N
40°N
0°
40°S
80°S
150°E
110°W
10°W
90°E
18
14
10
6
5
4
3
2
1
0
−1
−2
−3
−4
−5
−6
−10
−14
−18

Figure 16

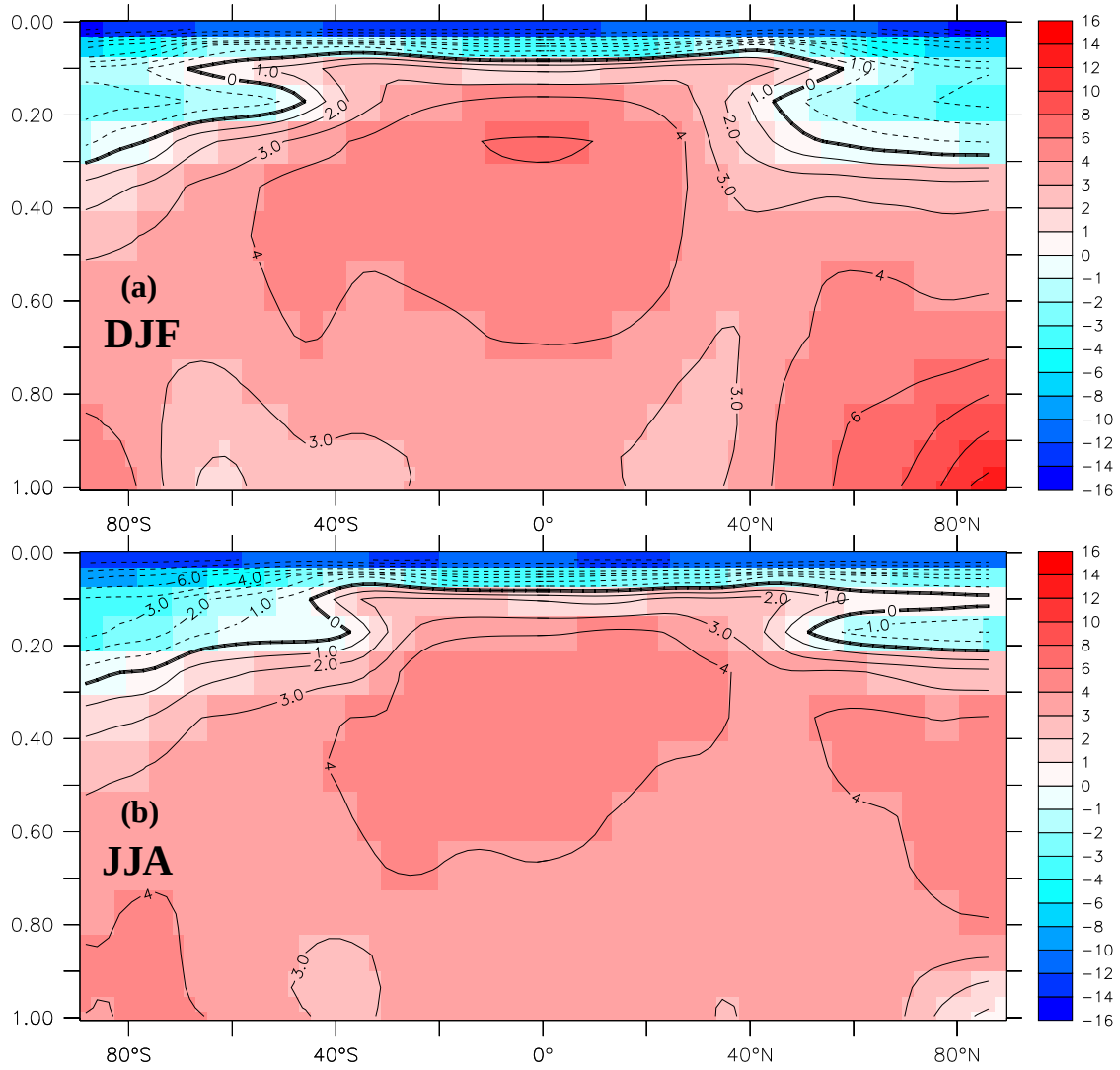
(a)
DJF
(b)
JJA
0.00
0.20
0.40
0.60
0.80
1.00
80°S
40°S
0°
40°N
80°N
16
14
12
10
8
6
4
3
2
1
0
−1
−2
−3
−4
−6
−8
−10
−12
−14
−16

Figure 17

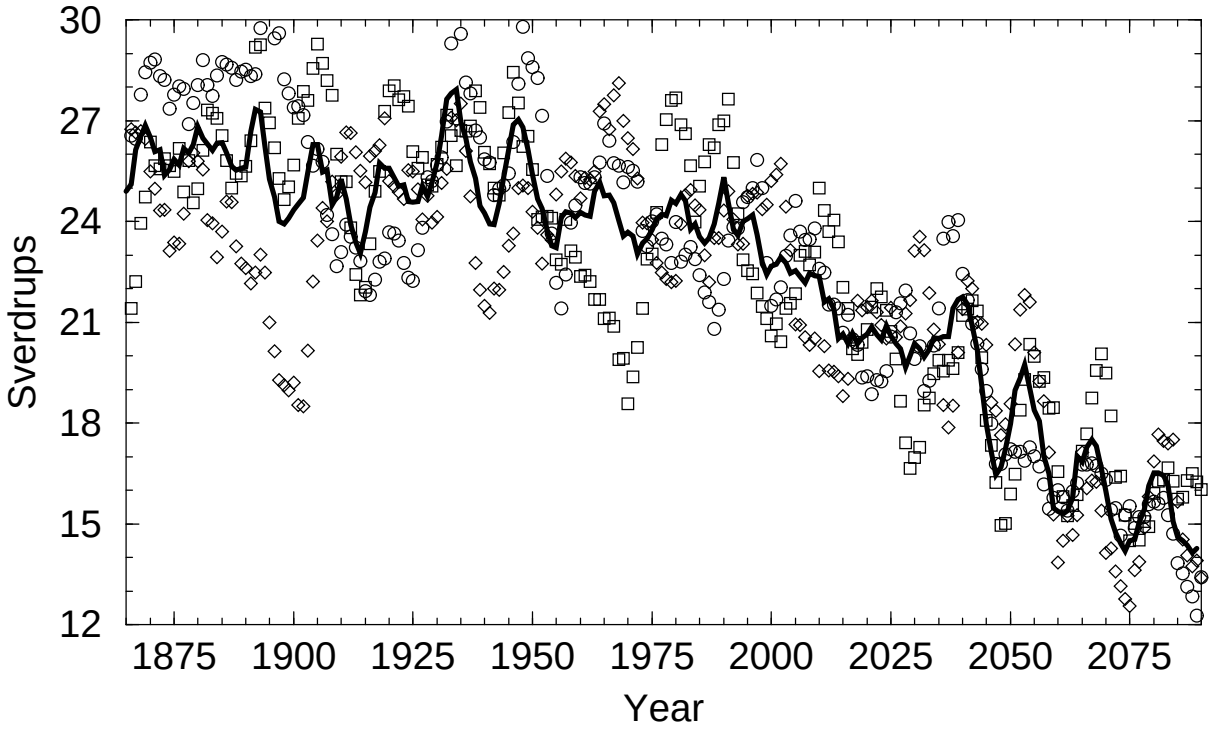
30
27
24
21
18
15
12
Sverdrups
1875
1900
1925
1950
1975
2000
2025
2050
2075
Year

Figure 18