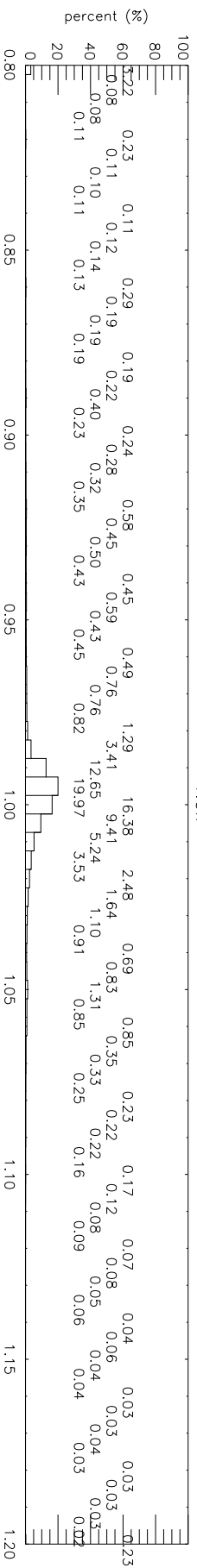
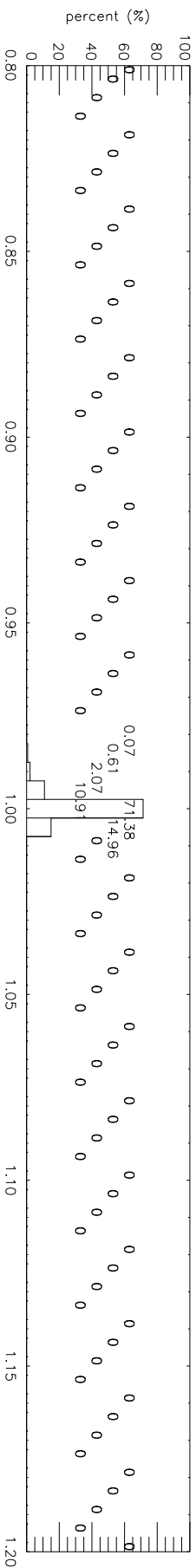


GEOS-Chem v9-02f Frequency Distribution  
ctm.bpch.v9-02f / ctm.bpch.v9-02e

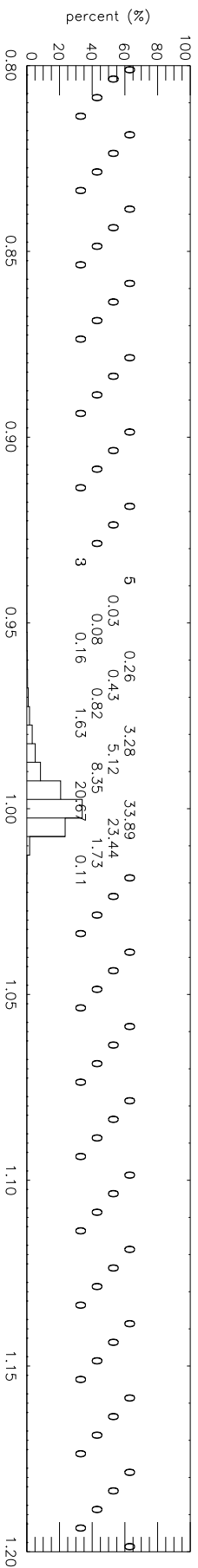
NOx



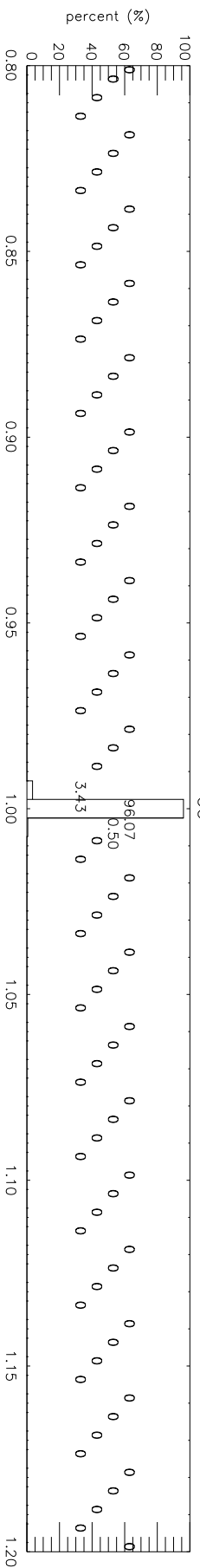
Ox



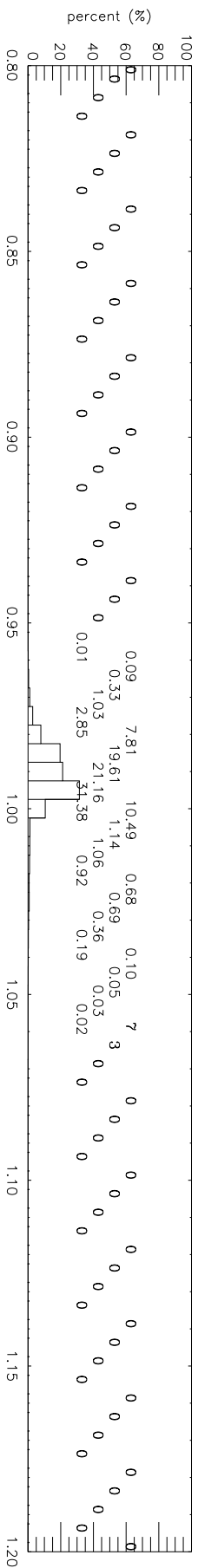
PAN



CO

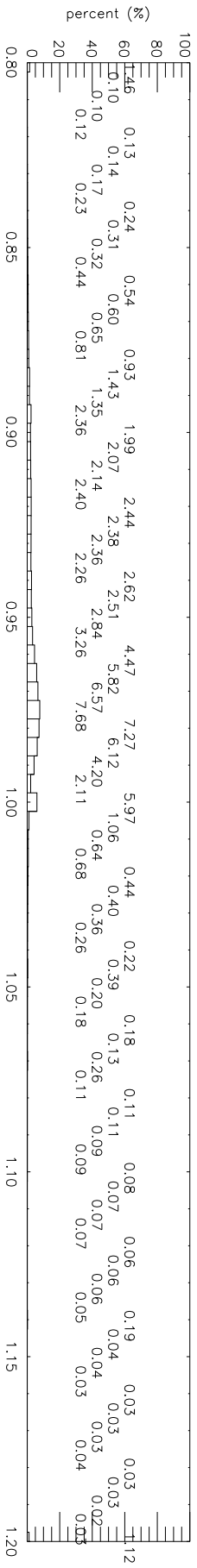


ALK4

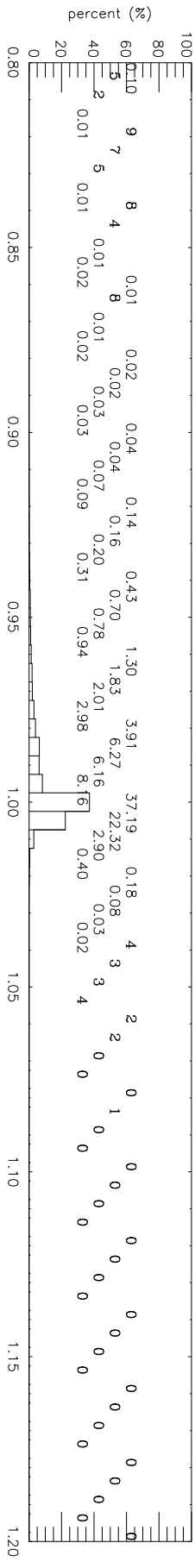


GEOS-Chem v9-02f Frequency Distribution  
ctm.bpch.v9-02f / ctm.bpch.v9-02e

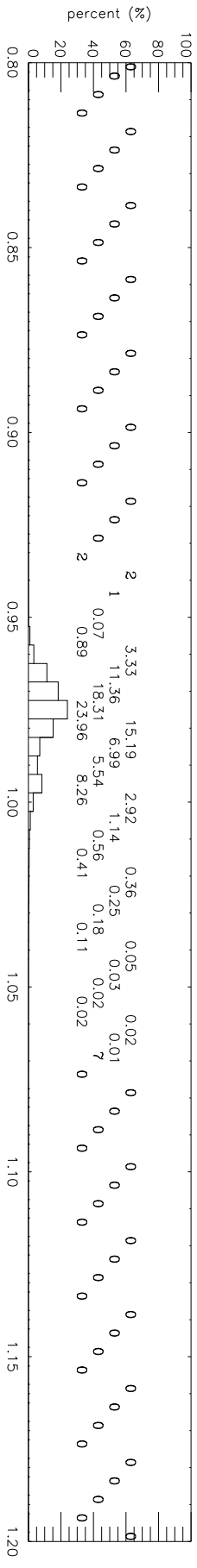
ISOP



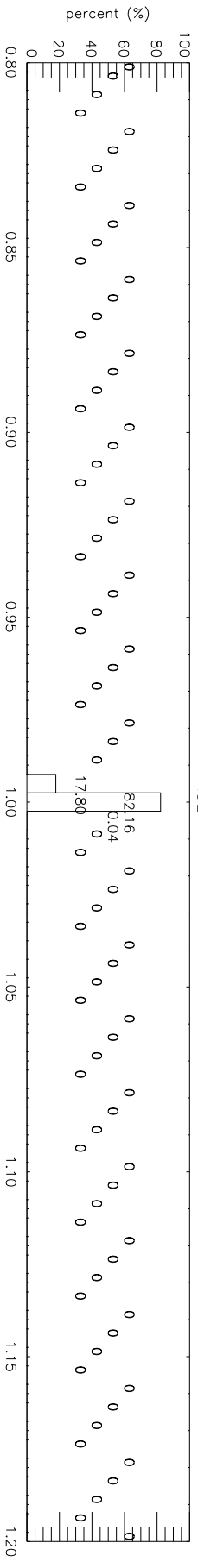
HNO3



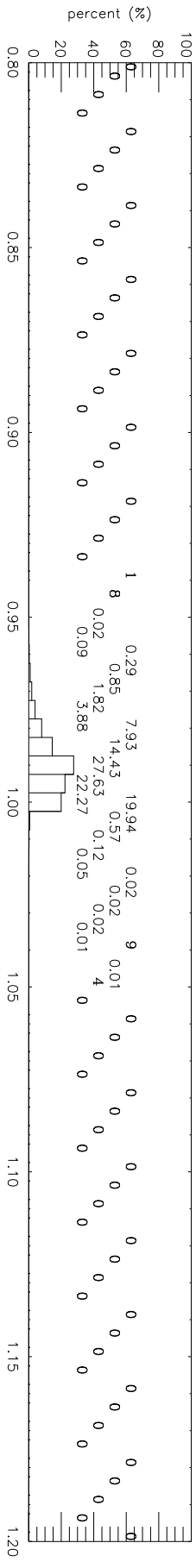
H2O2



ACET

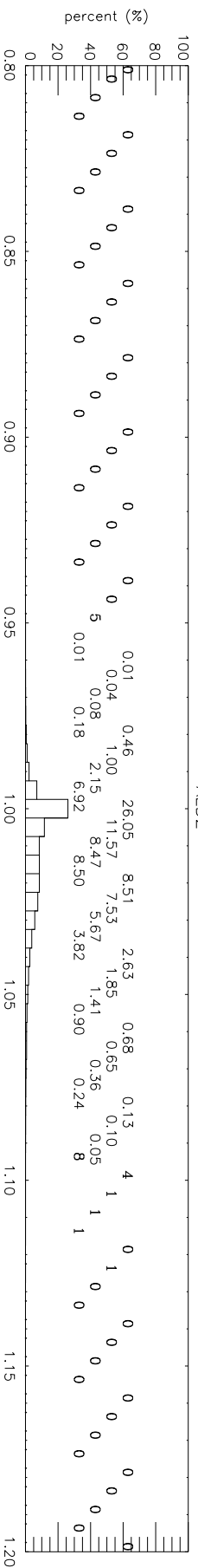


MEK

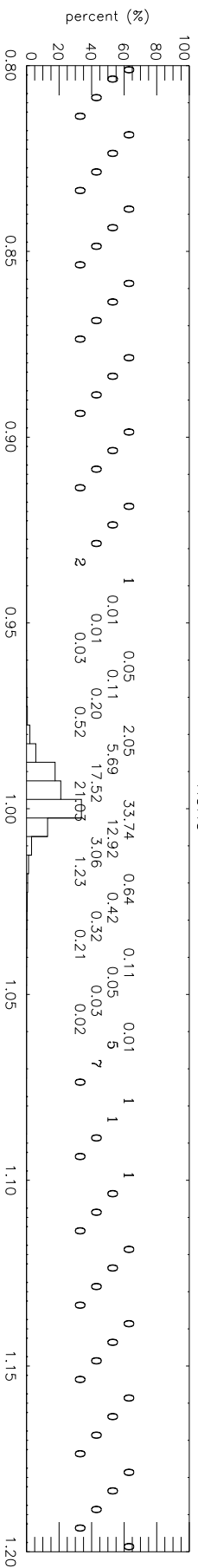


GEOS-Chem v9-02f Frequency Distribution  
ctm.bpch.v9-02f / ctm.bpch.v9-02e

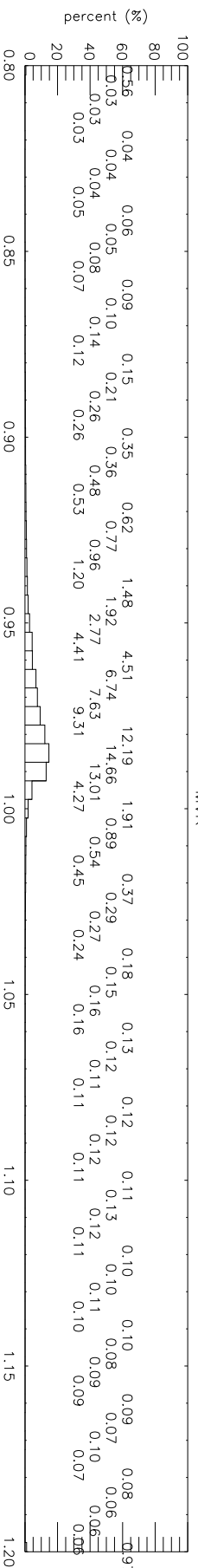
ALD2



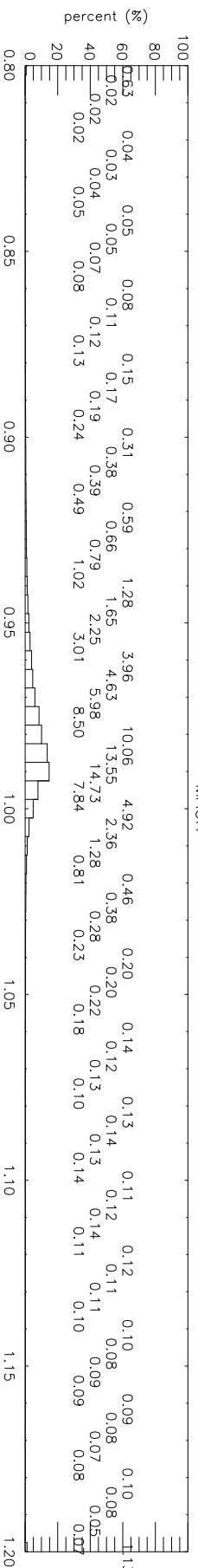
RCHO



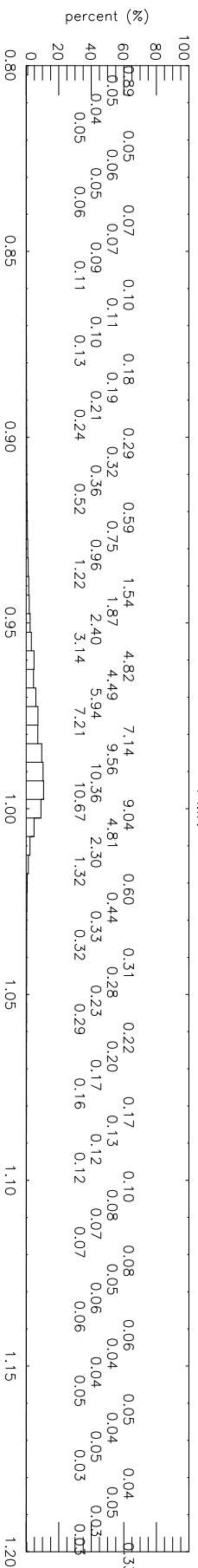
MVK



MACR



PMN



## ctm.bpch.v9-02f / ctm.bpch.v9-02e

[illegible]

Figure 1 is a histogram showing the distribution of the number of non-zero elements in the sparse matrix. The x-axis represents the number of non-zero elements, ranging from 0.80 to 1.20. The y-axis represents the percentage of matrices, ranging from 0 to 100%. The distribution is unimodal and centered around 1.00, with a peak percentage of approximately 15%.

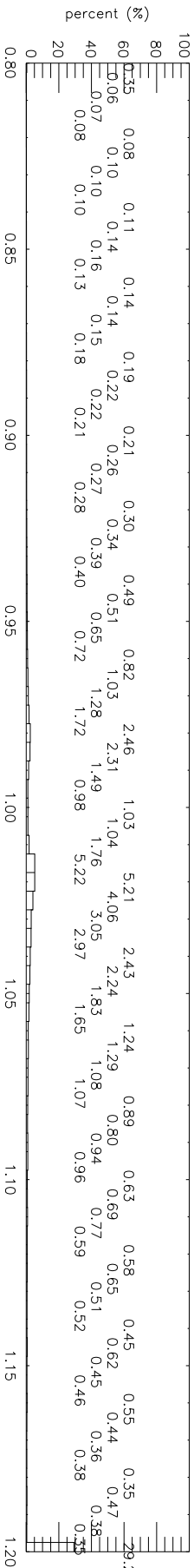
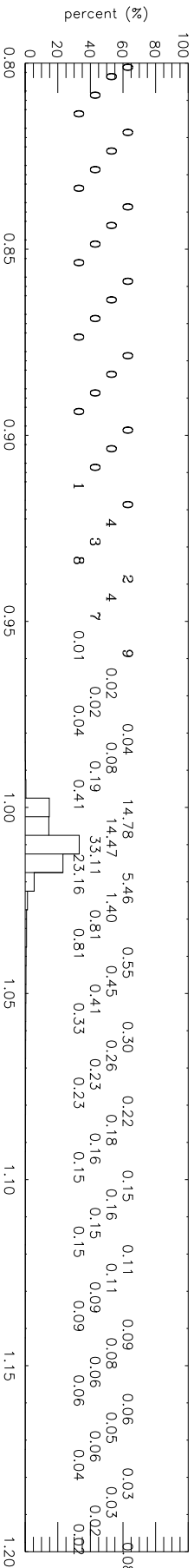
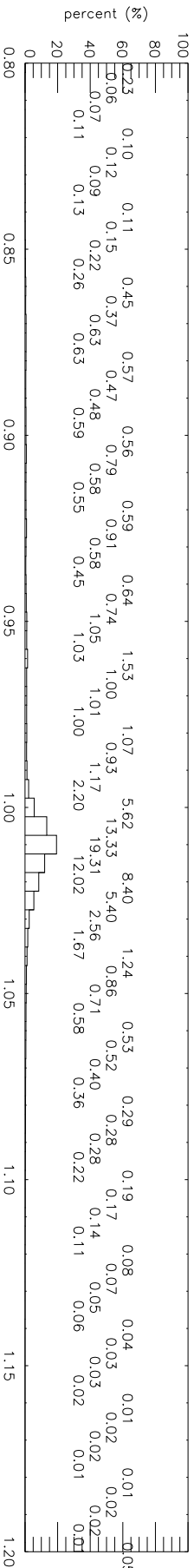
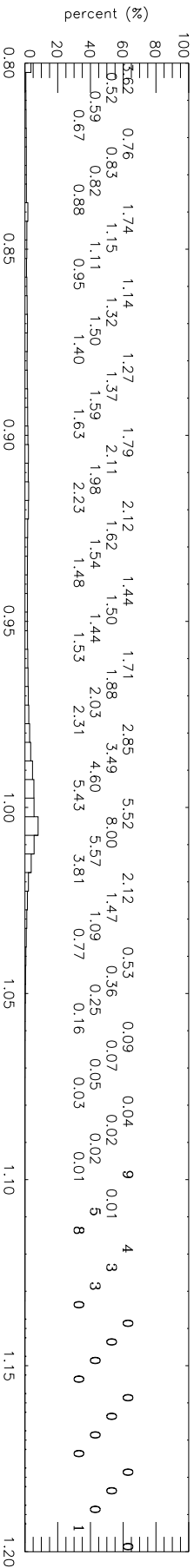
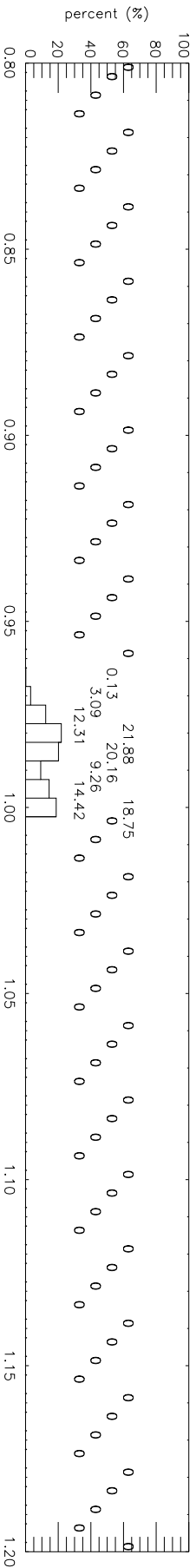
Number of non-zero elements	Percent (%)
0.80	0.01
0.81	0.01
0.82	0.01
0.83	0.01
0.84	0.01
0.85	0.01
0.86	0.01
0.87	0.01
0.88	0.01
0.89	0.01
0.90	0.01
0.91	0.01
0.92	0.01
0.93	0.01
0.94	0.01
0.95	0.01
0.96	0.01
0.97	0.01
0.98	0.01
0.99	0.01
1.00	15.00
1.01	0.01
1.02	0.01
1.03	0.01
1.04	0.01
1.05	0.01
1.06	0.01
1.07	0.01
1.08	0.01
1.09	0.01
1.10	0.01
1.11	0.01
1.12	0.01
1.13	0.01
1.14	0.01
1.15	0.01
1.16	0.01
1.17	0.01
1.18	0.01
1.19	0.01
1.20	0.01

[illegible]

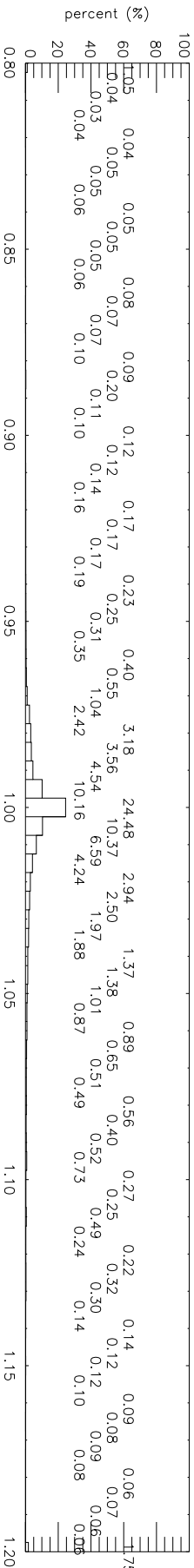
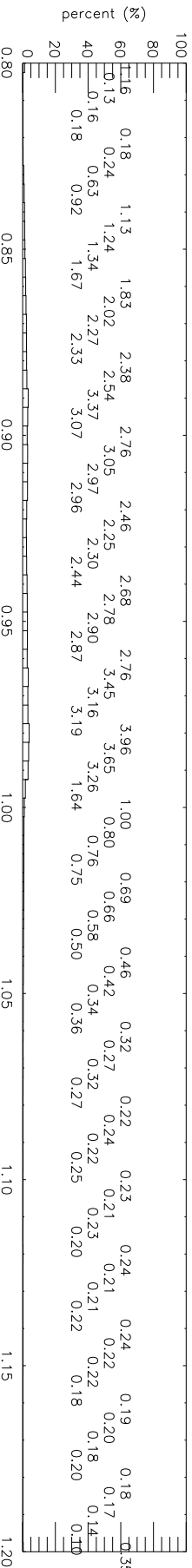
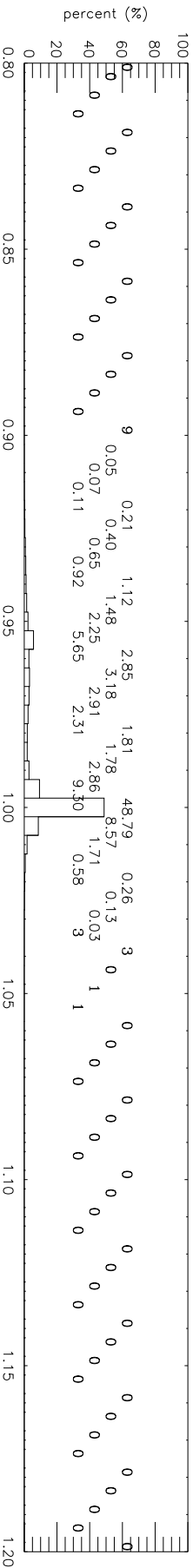
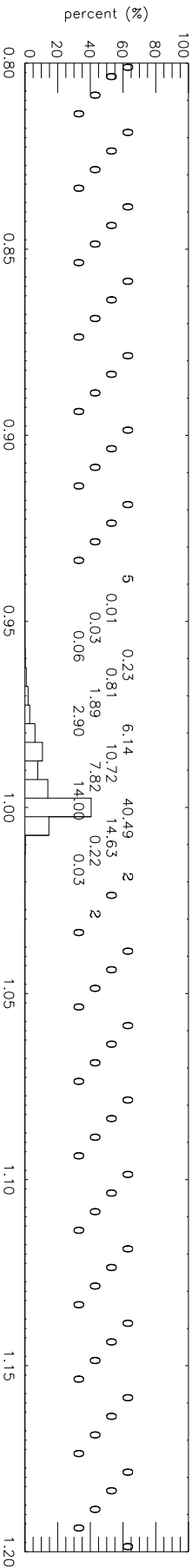
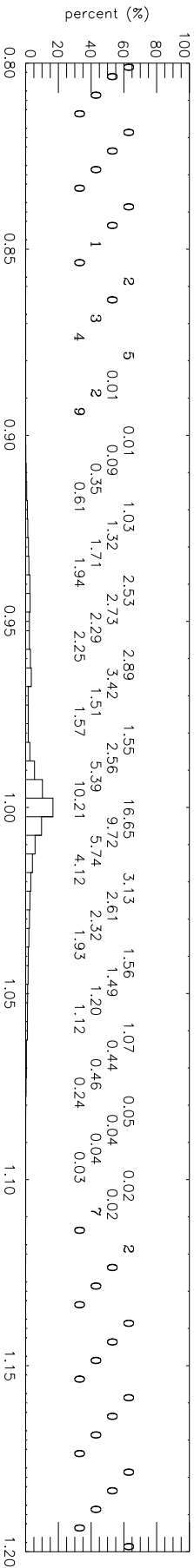
Figure 1 is a histogram showing the distribution of the number of non-zero elements in the matrix  $A$ . The x-axis represents the number of non-zero elements, ranging from 0 to 1.20. The y-axis represents the percentage of matrices, ranging from 0 to 100%. The distribution is unimodal and centered around 1.00.

Number of non-zero elements	Percent (%)
0.80	0
0.85	0
0.90	0
0.95	0
1.00	32.30
1.05	21.17
1.10	6.67
1.15	2.76
1.20	0

## ctm.bpch.v9-02f / ctm.bpch.v9-02e

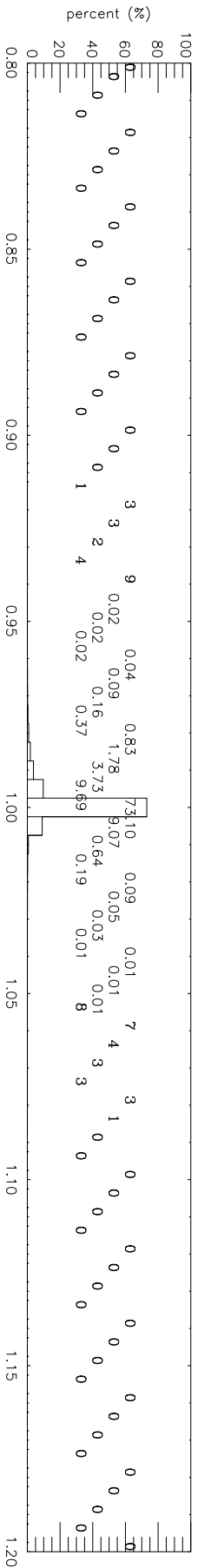


## ctm.bpch.v9-02f / ctm.bpch.v9-02e

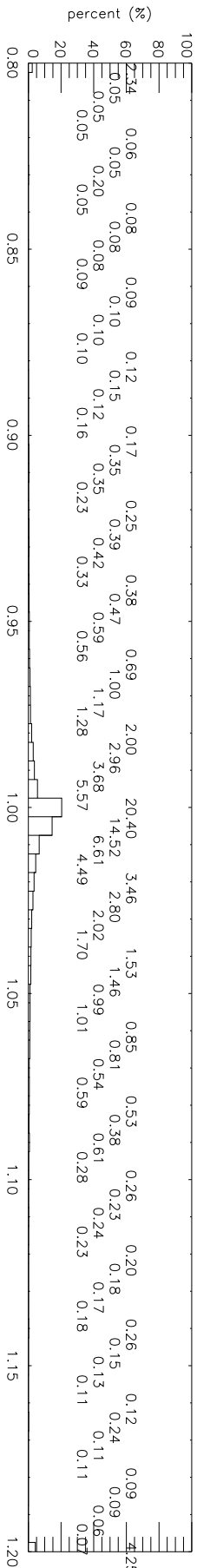


GEOS-Chem v9-02f Frequency Distribution  
ctm.bpch.v9-02f / ctm.bpch.v9-02e

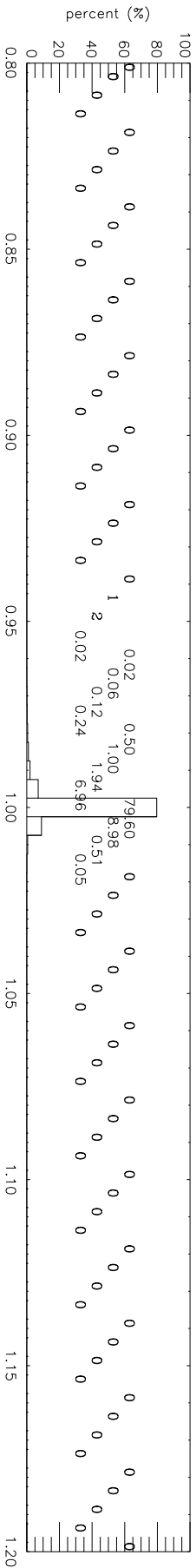
NH4



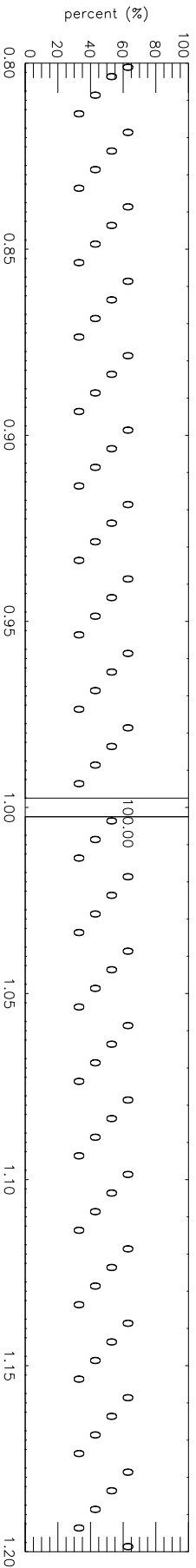
NIT



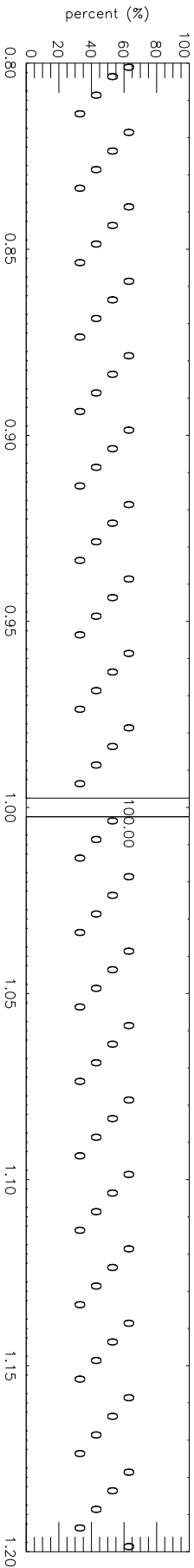
NITs



BCPI

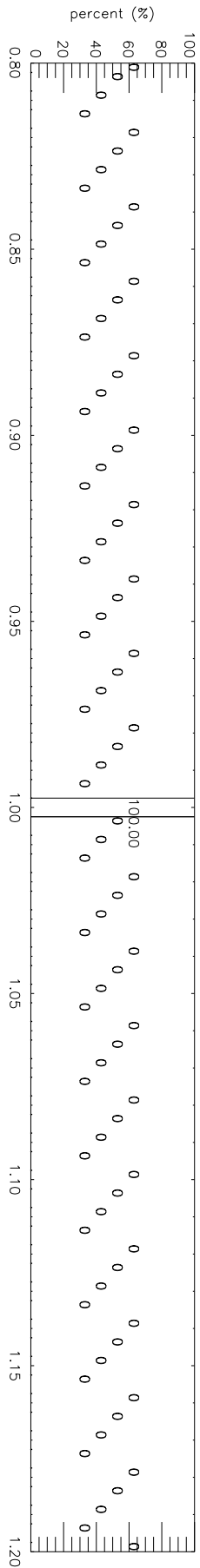


OCPI

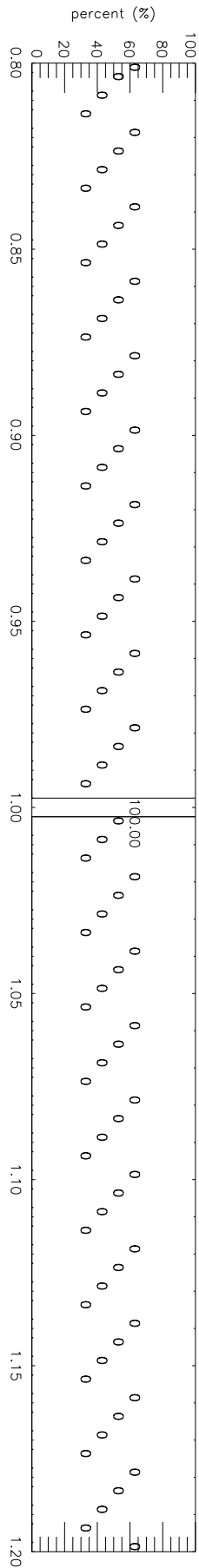


GEO5-Chem v9-02f Frequency Distribution  
ctm.bpch.v9-02f / ctm.bpch.v9-02e

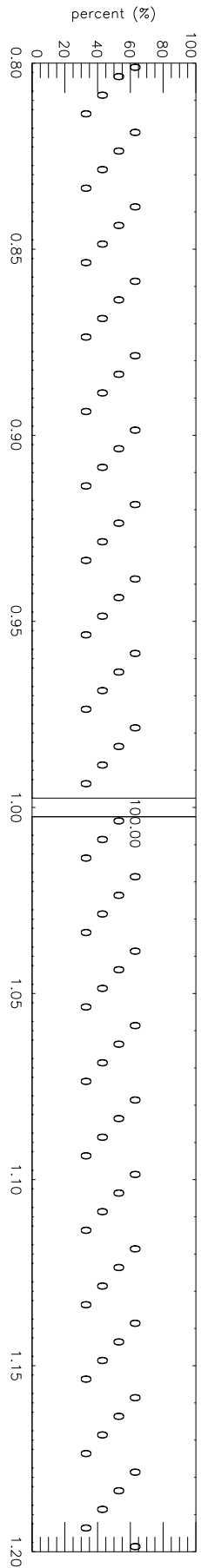
BCPO



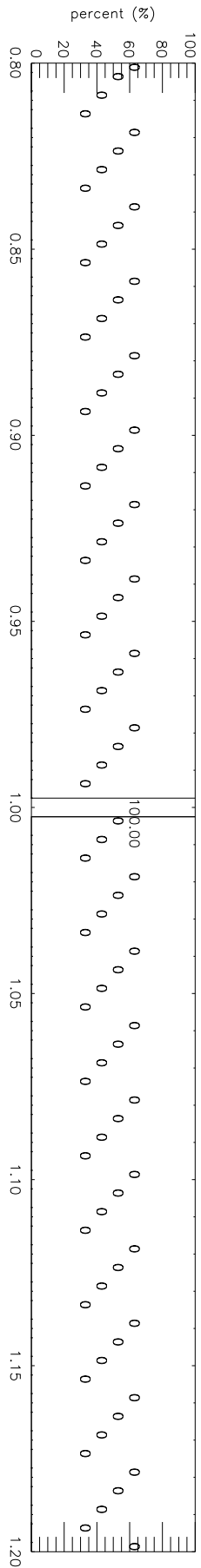
OCPO



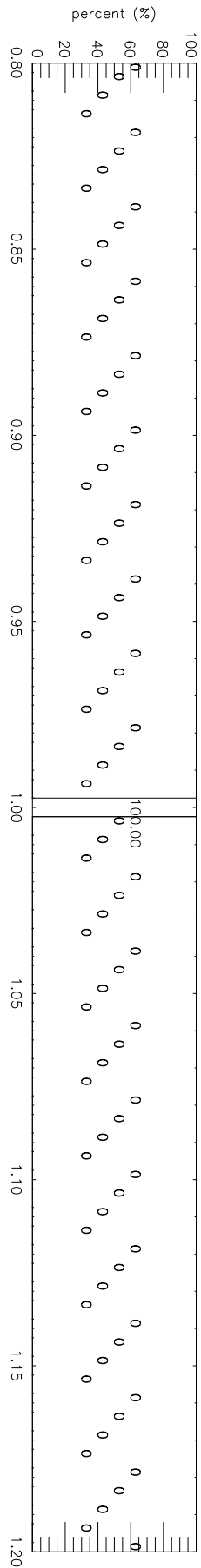
DST1



DST2



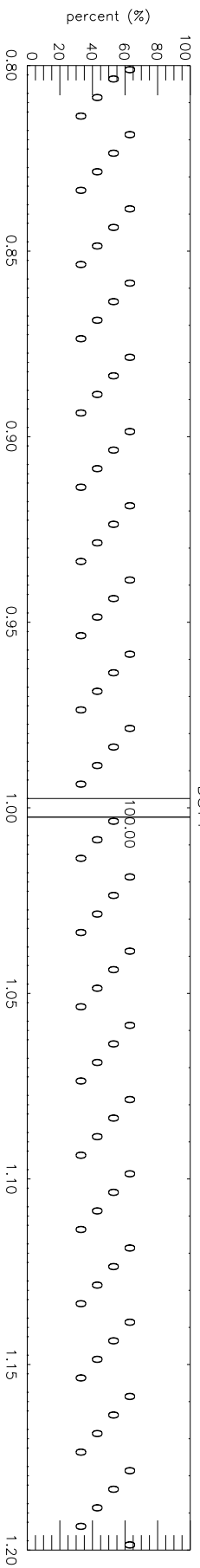
DST3



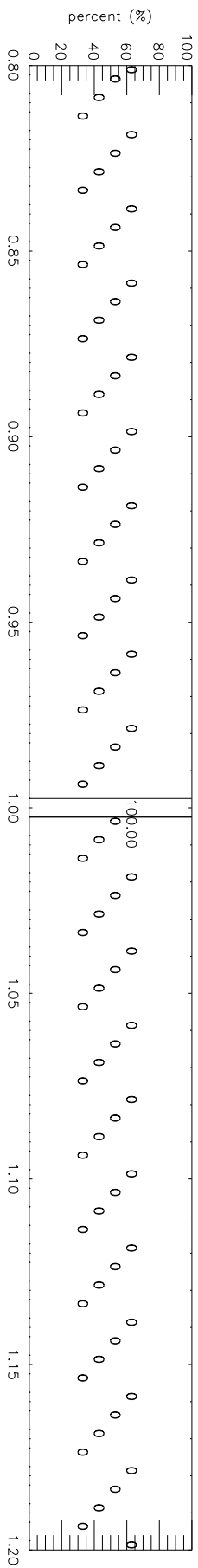


GEOS-Chem v9-02f Frequency Distribution  
ctm.bpch.v9-02f / ctm.bpch.v9-02e

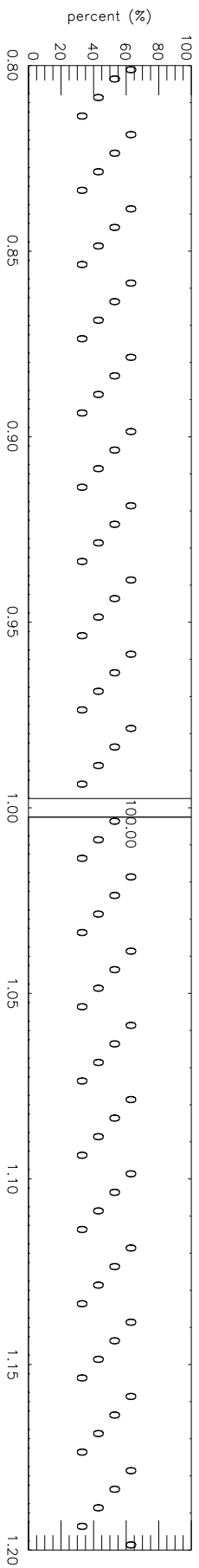
DST4



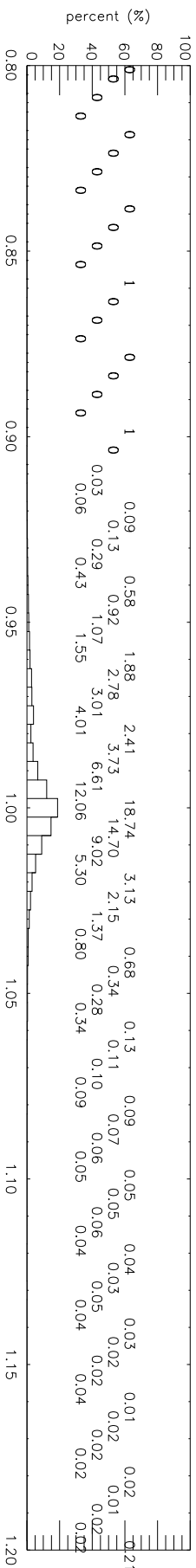
SALA



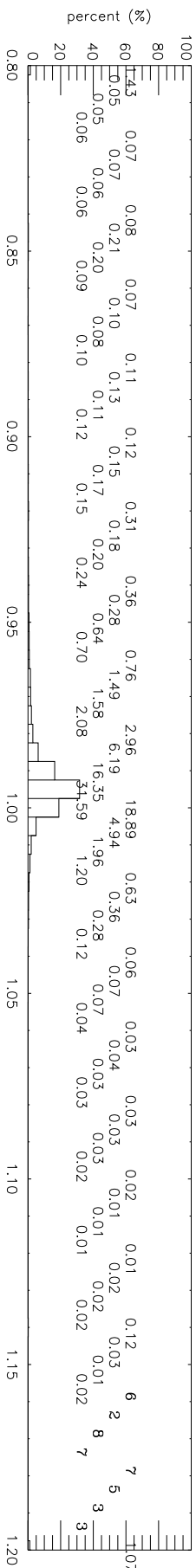
SALC



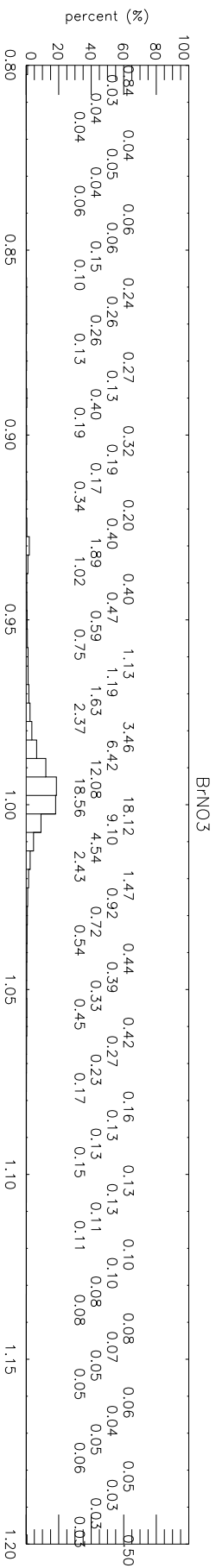
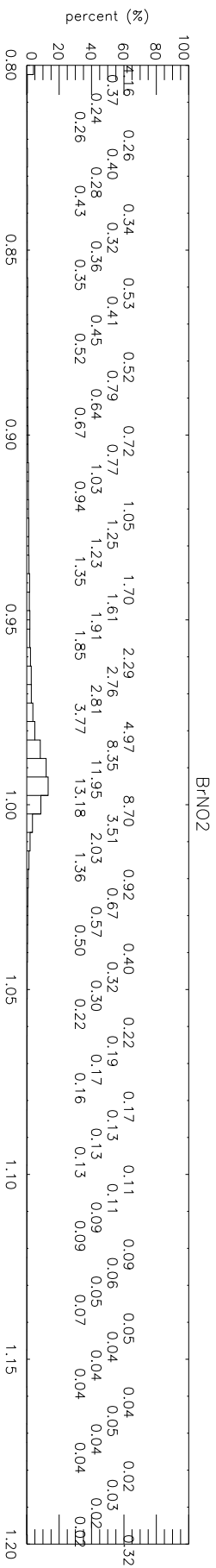
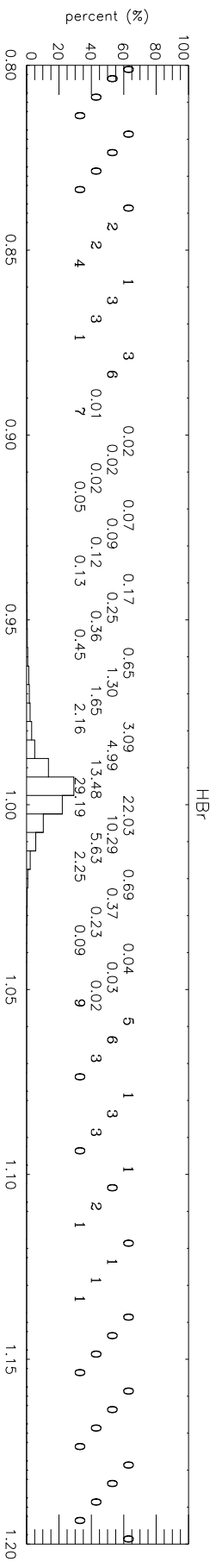
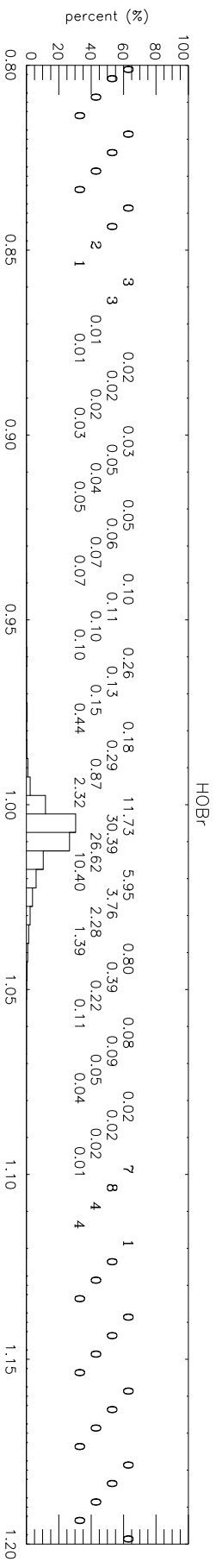
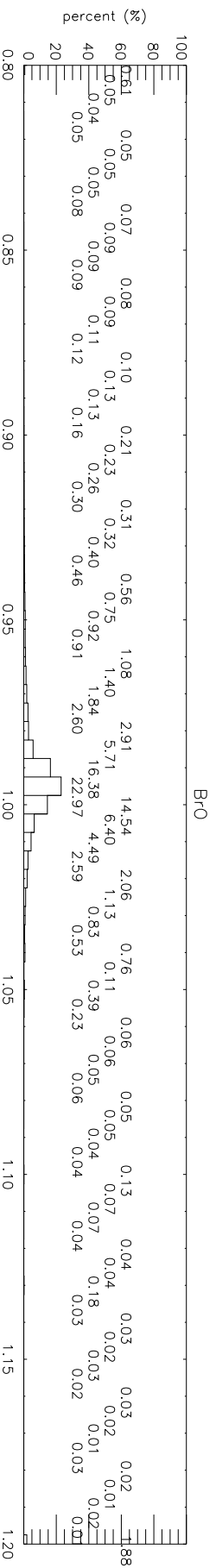
Br-2



Br

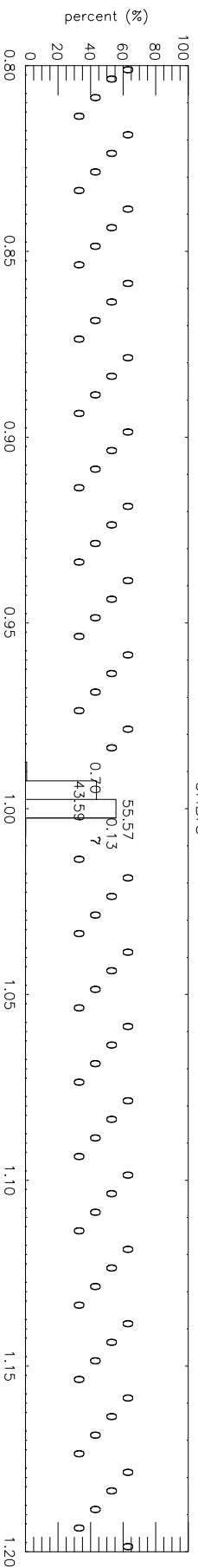


GEOS-Chem v9-02f Frequency Distribution  
ctm.bpch.v9-02f / ctm.bpch.v9-02e

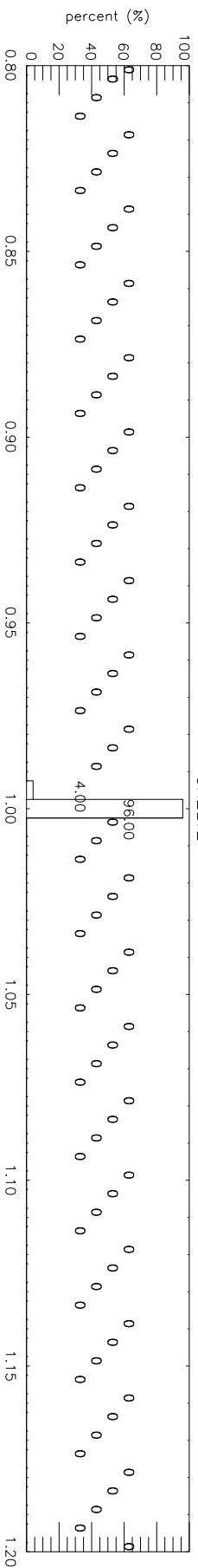


GEOS-Chem v9-02f Frequency Distribution  
ctm.bpch.v9-02f / ctm.bpch.v9-02e

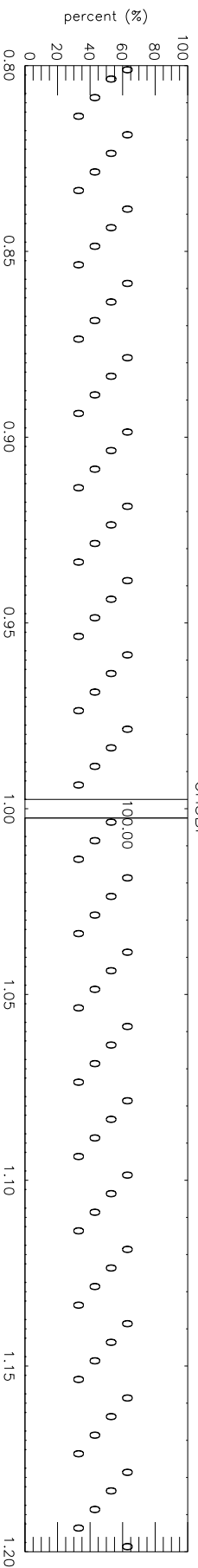
CHBr3



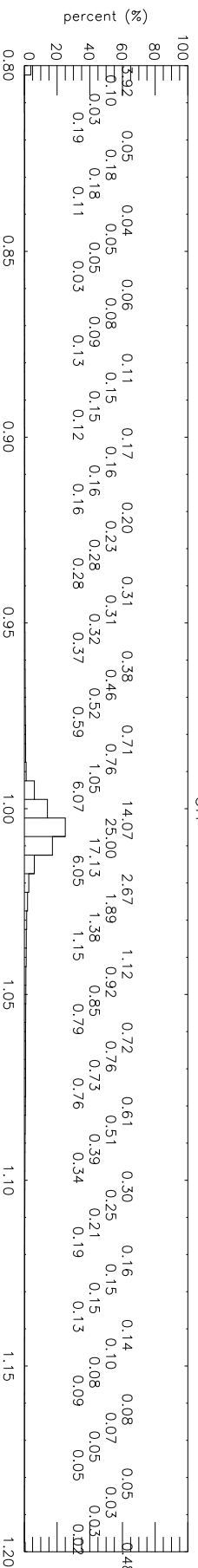
CH2Br2



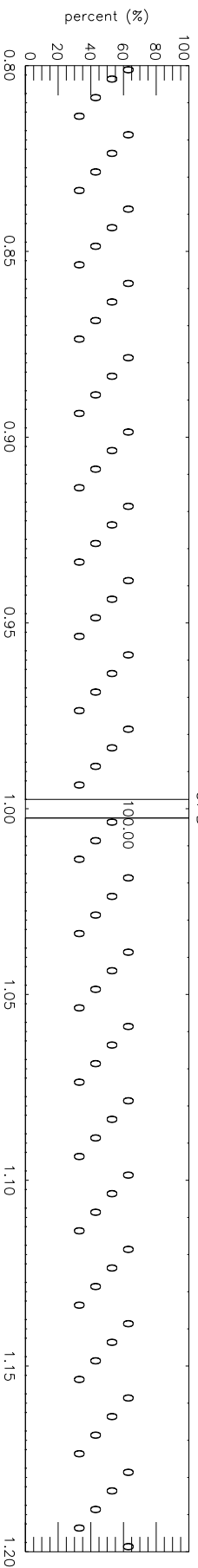
CH3Br



OH

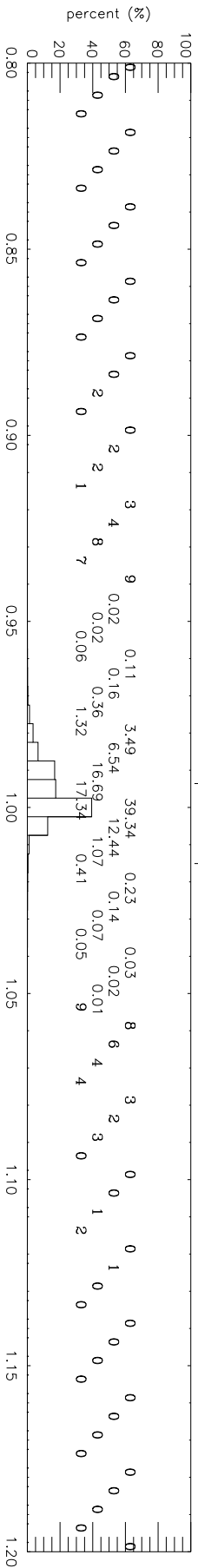


OPD

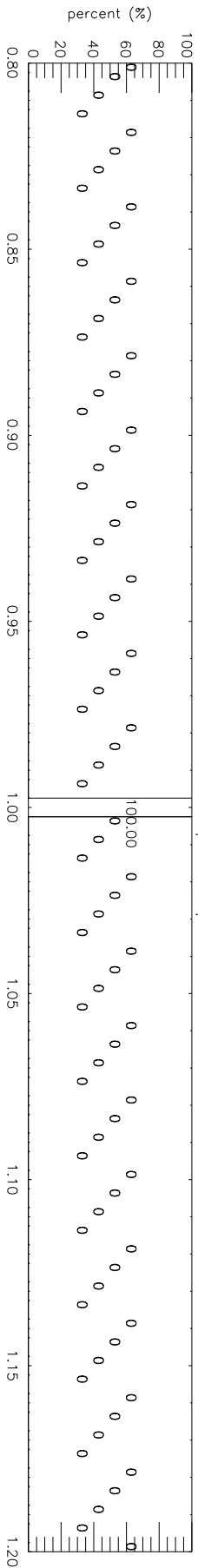


GEO5-Chem v9-02f Frequency Distribution  
ctm.bpch.v9-02f / ctm.bpch.v9-02e

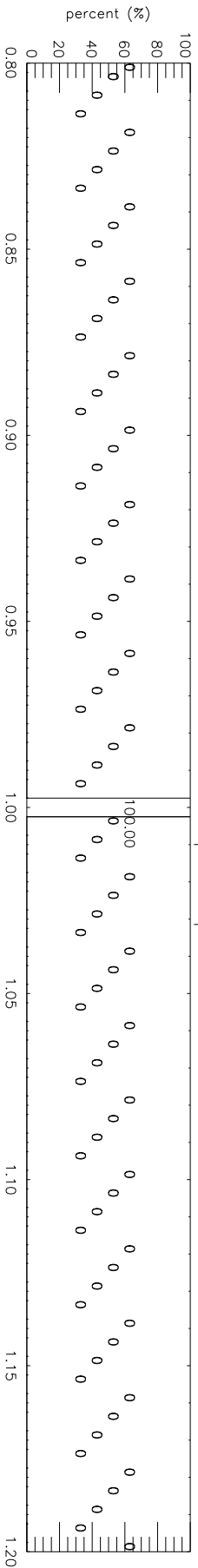
SO4 Optical Depth



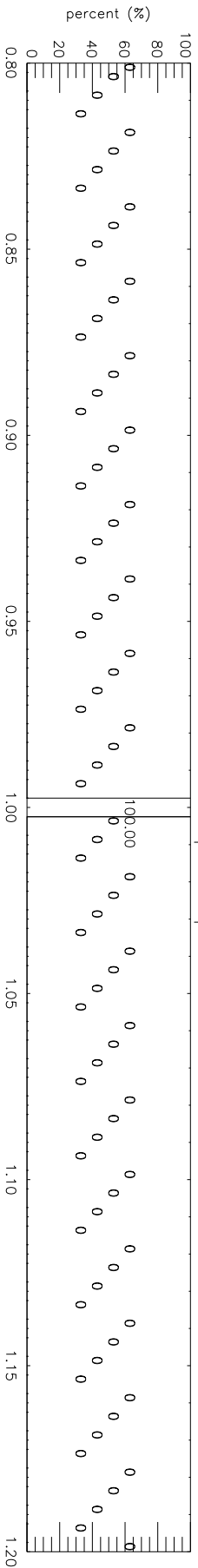
BLACK CARBON Optical Depth



ORGANIC CARBON Optical Depth



ACCUM SEA SALT Optical Depth



COARSE SEA SALT Optical Depth

