Binning procedure for xray flare ionization parameterization.

Break up the three shortest wavelength bins of Solomon and Qian into 12 higher resolution bins. Bins to be expanded are the 0.5-4 A, 4-8A and 8-18A

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| --- | --- | --- | --- | --- | --- |
| Bin # |  min |  max | Mean  | Mean N2abs  (mega-barns) | Alt of tau=1 (km) |
| 1 | 0.5 | 1 | 0.75 | 2.48e-5 | 43 |
| 2 | 1 | 1.5 | 1.25 | 1.47e-4 | 55.5 |
| 3 | 1.5 | 2 | 1.75 | 4.57e-4 | 63.5 |
| 4 | 2 | 2.5 | 2.25 | 1.02e-3 | 69.1 |
| 5 | 2.5 | 3 | 2.75 | 1.9e-3 | 73.3 |
| 6 | 3 | 4 | 3.5 | 4.0e-3 | 78.7 |
| 7 | 4 | 5 | 4.5 | 8.55e-3 | 84 |
| 8 | 5 | 6 | 5.5 | 1.55e-2 | 88.1 |
| 9 | 6 | 8 | 7 | 3.12e-2 | 93 |
| 10 | 8 | 10 | 9 | 6.32e-2 | 98 |
| 11 | 10 | 14 | 12 | 0.14 | 103.5 |
| 12 | 14 | 18 | 16 | 0.30 | 109 |

The n2 cross section comes from Henke where I doubled the atomic nitrogen values they give to get N2. A test of this at 23.5 angstroms gave 7.95E-19 cm -2 and at 24 angstrom, 8.3E-19 cm-2 and Judy Fennelly’s table has 8E-19 at 23.7 angstroms. The altitudes are derived from assuming an exponential density with constant scale height (= 7 km) and solving tau = 1 = n(z)\*sigma\*H, for z. Overhead sun is assumed. If there is a 60 degree zenith angle, the altitudes of tau =1 go up by 5 km or so. The selection of bins gives roughly 5 km resolution between 60-100 km.