

Note on GOES 8-15 HEPAD Processing

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The GOES 8-15 HEPAD channels P8-P11 and A7-A8 have been processed by NOAA consistently using the following geometrical factors and units:

Channel	Energy Range (MeV)	Geometrical Factor (cm ² sr MeV)
P8	330-420	67.5
P9	420-510	67.5
P10	510-700	162
P11	>700 (processed as 1000 MeV)	1565
A7	2560-3400	189
A8	>3400	0.9 (cm ² sr)

The proton channel geometrical factors are consistent with Smart and Shea (1999), Appendix C, step 4. However, the rear-entry correction described in that paper has not been applied.

The galactic cosmic ray (GCR) 'backgrounds' are not removed. After all, most of the data consist of GCRs.

Historically, the metadata for P11 have been incorrect. While P11 is an integral channel, it has been processed consistently as differential flux with effective energy of 1000 MeV.

In contrast, channel A8 is processed as an integral channel.

Reference:

D. F. Smart and M. A. Shea, Comment on the use of GOES solar proton data and spectra in solar proton dose calculations, *Radiation Measurements*, 30, 327-335, 1999.