

## ***Interactive comment on “Ten-year global distribution of downwelling longwave radiation” by K. G. Pavlakis, et al.***

**K. G. Pavlakis, et al.**

Received and published: 18 December 2003

### **Comment 1.**

We agree with the referee that part of the differences in DLF over areas of rough topography can be due to remapping of reanalyses data on a 2.5 by 2.5 degree grid. We have added an appropriate comment in the text, at the end of section 4.1.

### **Comment 2.**

The referee suggests that synoptic station data could be used to validate the reanalyses, locally. This can indeed be the subject of a future investigation (as was also suggested by the referee). However, care must be taken not to use station data that

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

have already been included in the reanalyses.

### Comment 3.

(a) We have added comments in the text clarifying the spatial and temporal resolution of all types of data used (abstract, 2nd and 3rd lines; Section 2.1, 1st paragraph, 7th-8th line; Section 2.2, 3rd paragraph, 6th line)

(b) The referee pointed out the issue of nonlinearities, biasing the estimation of monthly fluxes from monthly climatologies. This is an interesting point, so we explored it using the following methodology: first, we produced daily meteorological data from BSRN station measurements and used them to calculate daily downwelling longwave fluxes with our model. These daily fluxes were then averaged to monthly fluxes. Subsequently, we produced monthly meteorological data from BSRN stations and used them to directly calculate monthly fluxes. We then compared the daily-to-monthly and monthly fluxes calculated from the two approaches. The agreement is very good, with the monthly fluxes exceeding the daily-to-monthly by  $3.5 \text{ Wm}^{-2}$  on average. The slope of the least squares line is  $0.981 \pm 0.004$  at the 95% confidence level. A new paragraph (entitled **f. Temporal resolution**) has been added at the end of Section 3, describing these results, and a new figure 4 (a scatter plot) has been included in the manuscript.

### Comment 4.

We agree with the point of the referee. We have added a comment to this effect, in Section 6, paragraph 2, lines 12-14.

## Technical comments

- We have revised Figures 2, and now 7 and 9 to include a zero line as suggested by the referee.
- We have replaced **lower 100mb** by **lowest 100mb**, everywhere in the text.

---

Interactive comment on Atmos. Chem. Phys. Discuss., 3, 5099, 2003.

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper