

**Review of the manuscript entitled: "New spectral functions of the near-ground albedo derived from aircraft diffraction spectrometer observations" by C.A. Varotsos, I.N. Melnikova, A.P. Cracknell, C. Tzanis, and A.V. Vasilyev.**

The paper presents and discusses the dependence of the near-ground albedo as a function of wavelength in the entire solar spectrum for different surfaces and in different conditions, using high resolution observations from the ultraviolet to the near-infrared that were acquired by multiple aircraft flights. The results obtained can be used to improve the accuracy and precision of the assessment of the Earth's "radiation budget", as well as to the solution of the remote sensing problems stemmed from the heterogeneity of albedo and reflectance anisotropy.

The topic of the paper is definitely of crucial importance for climate change and remote sensing applications. Therefore this is an interesting study with significant results and the topic is certainly within the scope of ACPD and ACP. I recommend publication of this paper after a few minor specific comments have been addressed.

**Specific comments:**

Page 3, line 22-23: Replace "Moderate-resolution" with "Moderate Resolution".

Page 3, line 22: Replace "Seidel and Popp, 2011" with "Seidel and Popp, 2012".

Page 4, line 22: Give "GCMs" in full.

In the main text (after page 4) replace "ultraviolet" with "UV".

Page 11, line 15: Add in parenthesis the date just after "brown line".

Page 17, line 8-9: Replace "2011" with "2012" and then replace "4, 7725–7750" with "5, 1653–1665".

Page 26, line 6, in the caption of Figure 2: Insert "and" before "17 May 1984".

**Recommendation: Minor revision**