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Interactive comment on "A BRDF-BPDF database for the analysis of Earth targets reflectances" *by* Francois-Marie Breon and Fabienne Maignan

Anonymous Referee #2

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The POLDER/PARASOL database constitutes an unrivaled historical record for understanding polarization effects of surface directional reflectance. We know that polarization can have a very large effect on reflectance, particularly in the case of specular reflectance, so this database is a great resource for understanding polarization effects on BRDF. I recommend publication in ESSD but think that some technical points and discussions should be updated first to enhance the clarity and technical correctness of the paper.

General comments: 1. According to Nicodemus et al. (1977): the BRDF is a derivative, a distribution function, relating the irradiance incident from one given direction to its contribution to the reflected radiance in another direction. So the question I now have is how do we define BPDF (bidirectional polarization distribution function)? Does BPDF follow the same nomenclature as BRDF without any modification? The

authors need to show how the two are related. 2. This publication is too similar to published posters shown below and raises the questions whether there is any need to publish the material in ESSD: a. Bréon, F.M., E. Fédèle, F. Maignan, and R. Lacaze, A database of directional reflectance signature (IGBP) with an analysis tool, A-Train Symposium, Lille, 22-25 October 2007 – http://postel.obs-mip.fr/IMG/pdf/Poster_BRDF_PARASOL_ColloqueAtrain2007_IGBP.pdf & b. Bréon, F.M., E. Fédèle, F. Maignan, and R. Lacaze, A database of directional reflectance signature (GLC2000) with an analysis tool, A-Train Symposium, Lille, 22-25 October 2007 – http://postel.obs-mip.fr/IMG/pdf/Poster_BRDF_PARASOL_ColloqueAtrain2007_GLC2000.pdf

3. Some of the comments in the code (visu_brdf.pro) are in French. Why not include English translation, where applicable. 4. Atmospheric correction should be clearly described, how in particular the radiative transfer problem is modeled in terms of surface BRDF and how polarization is taken into account. 5. Also, describe how E0 is derived in Eq. 1 and 2.

Other minor technical corrections 1. there are negative values in the database, which need to be explained. 2. Pg. 2, line 8, clarify with some examples the statement "Many land surface characteristics can be inferred from the spectral signature of their albedo" 3. Pg. 2, line #21, change "optic" to "optical" 4. Pg. 2, line #22, change "properly at" to "properly as" 5. Pg. 3, line #2, clarify the statement "the azimuths are only significant by their difference." 6. Pg. 3, line #4, add "respectfully" after "angles" 7. Pg. 3, line #26, what does "confrontation to analytical models" mean? 8. Pg. 4, line #10, change "name" to "named" 9. Pg. 4, line #17, change "by step" to "by a step" 10. Pg. 5, line #10, change "term" to "terms

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