Co-Editor Decision: Publish subject to technical corrections (30 Aug 2016) by Dr. Matthias Tesche

RS - omit the acronym and write out remote sensing on the very few occasions its used.
OK, done

GC - I recommend sticking to GEOS-Chem in the text, you can keep GC as index in the formulas.
We looked at this in detail and, in our opinion, the employment of two acronyms for the model (one for the text and one for the variable subscripts) would confuse slightly more than it would help. We did however delay the definition of GC to the GEOS-Chem overview section (and replaced "GEOS-Chem global chemical transport model (GC)" by "GEOS-Chem global chemical transport model (hereafter referred to as GC)")

SS - I think the readability of the text is better when you stick to sea salt.
OK, done

CALIOP and CALIPSO - acronyms are not introduced at all while others like AWI or PEARL are. Please be consistent.
OK both acronyms are now defined where they appear in the abstract and the first time they appear in the text (but footnotes were used to do this; please see the comment immediately below)

DR and PBL are introduced as footnotes which is rather unusual. Please put the full name in the text.
Here is where we do not agree with commonly accepted editorial practice. The type of unwieldy, omnibus sentences that result from long-winded acronyms, detailed technical elaborations or a combination of the two should, in our opinion be minimized, whenever their inclusion excessively obscures the central message that one wants to get across. Expanding CALIOP and CALIPSO in one sentence is a very good example of an excessively unwieldy sentence[1]

Also please make sure to point out if you are using the volume or particle depolarisation ratio.
Done ("depolarization ratio" changed to "volume depolarization ratio" wherever it appeared)

Finally, I think it should be mentioned what is meant with PBL event. Do you mean PBL development event?
We added the following sentence to the PBL definition in the Symbol and acronym glossary; "We attribute no special meteorological significance to this term : rather we confine its usage to the empirical observation of low altitude, highly backscattering and horizontally extensive CALIOP profiles of low DR"

[1] Which would have been "Pan-Arctic AOD map products from the CALIOP (Cloud-Aerosol Lidar with Orthogonal Polarization) lidar aboard the CALIPSO (Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations) polar orbiting satellite (Winker et al., 2013) were also used in this study."