1059-42-31   **Jill Pipher** and **Lesley A. Ward*** (`Lesley.Ward@unisa.edu.au`), School of Mathematics and Statistics, University of South Australia, Mawson Lakes Campus, Mawson Lakes, SA, 5095, Australia, and **Xiao Xiao**. *Geometric-arithmetic averaging of dyadic weights.*

The theory of Muckenhoupt weights arises in many areas of analysis, for example in connection with bounds for singular integrals and maximal functions on weighted spaces. We show that a certain averaging process gives a method for constructing A_p weights from a measurably varying family of dyadic A_p weights. This averaging process is suggested by the exponential/logarithmic relationship between the A_p weight class and the space BMO of functions of bounded mean oscillation. The same averaging process also constructs weights satisfying the reverse Hölder (RH_p) condition from families of dyadic RH_p weights. Moreover, it applies to the multiparameter weight classes A_p and RH_p on the polydisc as well. (Received February 03, 2010)