1056-35-1492     **Matthew Rudd\*** (`mrudd@uidaho.edu`), Department of Mathematics, University of Idaho, 300 Brink Hall, Moscow, ID 83844. *Statistics of p-harmonic functions.* Preliminary report.

The mean value property characterizes continuous harmonic functions, and it is natural to wonder if $p$-harmonic functions have analogous statistical descriptions. Some basic calculations suggest that a continuous function $u$ is $p$-harmonic in $\Omega$ if and only if

$$u(x) = (2 - p)\operatorname{median}\{u(s)\} + (p - 1)\operatorname{mean}\{u(s)\}$$

at each $x \in \Omega$, where $s \in \partial B(x, r)$ and $B(x, r) \Subset \Omega$. We will report on ongoing work on these ideas and their applications. (Received September 22, 2009)