|  |  |  |
| --- | --- | --- |
|  |  | Equation 1 |
| where *SSYEV* is suspended sediment yield (tons) for an event from t=0 at storm start to T=storm end, *SSC* is suspended sediment concentration (mg/L), and *Q* is water discharge (L/sec), and *k* converts from mg to tons (10-6). | | |

|  |  |  |
| --- | --- | --- |
|  |  | Equation 2 |
| where *SSYdisturbed* is SSY from disturbed areas only (tons), *SSYsubwatershed* is SSY (tons) measured from the disturbed subwatershed (SSYFG2, SSYFG3), *sSSYUPPER* is specific SSY (tons/km2) from the UPPER subwatershed (SSYFG3), and *Areaundist* is the area of undisturbed forest in the disturbed subwatershed (km2). | | |

|  |  |  |
| --- | --- | --- |
|  |  | Equation 3 |
|  |  |  |

|  |  |  |
| --- | --- | --- |
|  |  | Equation 4 |
| where *X* is a storm metric, and the regression coefficients α and β are obtained by ordinary least squares regression on the logarithms of *SSYEV* and *X* (Basher et al., 2011; Duvert et al., 2012; Hicks, 1990). Model fits for each storm metric were compared using coefficients of determination (r2) and Root Mean Square Error (RMSE). The correlation between storm metrics (X) and SSYEV was also quantified using both parametric (Pearson) and non-parametric (Spearman) correlation coefficients. | | |

|  |  |  |
| --- | --- | --- |
|  |  | Equation 5 |
| where *SSYannual* is estimated SSY from storms, *SSYmeasured* is SSY measured in storms (all, Tables 2 and 3), *measured precip* is precipitation measured during the sampled storms, and *expected annual storm precip* is the precipitation during all storms measured in 2014. | | |

|  |  |  |
| --- | --- | --- |
|  |  | Equation 6 |
| where *PE* is the cumulative probable error for individual measured values (±%), *EQmeas* is uncertainty in Q measurements (±%), *ESSCmeas* is uncertainty in SSC measurements (± %), *EQmod* is uncertainty in Q modeled by the Stage-Q relationship (RMSE, as ±% of the mean observed Q), *ESSCmod* is uncertainty in SSC modeled by the T-SSC relationship (RMSE, as ± % of the mean observed SSC)(Harmel et al., 2009). | | |