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Estimation of Watershed Erosion and Sediment Delivery Ratio Formulas

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List of 10 Estimation of Watershed Erosion and Sediment Delivery Ratio Formulas

Estimation of Watershed Erosion and Sediment Delivery Ratio

1) Area of Catchment given Annual Sediment Yield Rate

Open Calculator

fx $$A = \left(\frac{0.00323}{q_{sv}}\right)^{\frac{1}{0.28}}$$

ex $$0.530433\text{km}^2 = \left(\frac{0.00323}{0.0038575}\right)^{\frac{1}{0.28}}$$

2) Area of Catchment given Volume of Sediment Yield per Year

Open Calculator

fx $$A = \left(\frac{Q_{sv}}{0.00323}\right)^{\frac{1}{0.72}}$$

ex $$3.351084\text{km}^2 = \left(\frac{0.007715}{0.00323}\right)^{\frac{1}{0.72}}$$

3) Catchment Area given Annual Sediment Yield Rate

Open Calculator

$$A = \left(\frac{0.00597}{q_{sv}}\right)^{\frac{1}{0.24}}$$

$$6.169997\text{km}^2 = \left(\frac{0.00597}{0.0038575}\right)^{\frac{1}{0.24}}$$

4) Catchment Area given Volume of Sediment Yield per Year

Open Calculator

$$A = \left(\frac{Q_{sv}}{0.00597}\right)^{\frac{1}{0.76}}$$

$$1.401291\text{km}^2 = \left(\frac{0.007715}{0.00597}\right)^{\frac{1}{0.76}}$$

5) Dhruv Narayan Et Al's Equation for Annual Runoff Volume

Open Calculator

$$Q_V = \frac{Q_s - 5.5}{11.1}$$

$$19.5\text{m}^3 = \frac{221.95 - 5.5}{11.1}$$

6) Dhruv Narayan Et Al's Equation for Annual Sediment Yield Rate

Open Calculator

$$Q_s = (5.5 + (11.1 \cdot Q_V))$$

$$221.95 = (5.5 + (11.1 \cdot 19.5\text{m}^3))$$

7) Joglekar's Equation for Annual Sediment Yield Rate

Open Calculator

fx $$q_{sv} = \left(\frac{0.00597}{A^{0.24}}\right)$$

ex $$0.005055 = \left(\frac{0.00597}{(2.0\text{km}^2)^{0.24}}\right)$$

8) Joglekar's Equation for Volume of Sediment Yield per Year from Catchment Area

Open Calculator

fx $$Q_{sv} = \left(0.00597 \cdot A^{0.76}\right)$$

ex $$0.01011 = \left(0.00597 \cdot (2.0\text{km}^2)^{0.76}\right)$$

9) Khosla's Equation for Annual Sediment Yield Rate

Open Calculator

fx $$q_{sv} = \frac{0.00323}{A^{0.28}}$$

ex $$0.00266 = \frac{0.00323}{(2.0\text{km}^2)^{0.28}}$$

10) Khosla's Equation for Volume of Sediment Yield per Year from Catchment Area

Open Calculator

fx $$Q_{sv} = 0.00323 \cdot \left(A^{0.72}\right)$$

ex $$0.00532 = 0.00323 \cdot \left((2.0\text{km}^2)^{0.72}\right)$$

Variables Used

- **A** Area of Catchment *(Square Kilometer)*
- Q_s Annual Sediment Yield Rate from Watershed
- q_{sv} Annual Sediment Yield Rate
- Q_{sv} Volume of Sediment Yield per Year
- Q_V Runoff Volume *(Cubic Meter)*

Constants, Functions, Measurements used

- Measurement: **Volume** in Cubic Meter (m^3)
  Volume Unit Conversion
- Measurement: **Area** in Square Kilometer (km^2)
  Area Unit Conversion

Check other formula lists

- Erosion and Sediment Deposits Formulas
- Estimation of Watershed Erosion and Sediment Delivery Ratio Formulas
- Prediction of Sediment Distribution Formulas
- Soil Loss Equation Formulas

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