## 2nd Order Regression

| | |
|---|---|
| **N** | 9 |
| **Σ for i = 1 to N** | |
| **ΣT** | 101.62611 |
| **$ΣT^2$** | 1147.621571 |
| **$ΣT^3$** | 12960.52886 |
| **$ΣT^4$** | 146378.534 |
| **ΣHs** | 489.6917 |
| **ΣT Hs** | 5530.118494 |
| **$ΣT^2$ Hs** | 62456.37909 |

| T | $T^2$ | $T^3$ | $T^4$ | hs | T Hs | $T^2$ Hs |
|---|---|---|---|---|---|---|
| 11.14750 | 124.2667563 | 1385.263665 | 15442.22671 | 53.3367 | 594.5704917 | 6627.974556 |
| 11.19056 | 125.2285336 | 1401.376863 | 15682.18564 | 53.6117 | 599.9443343 | 6713.710403 |
| 11.21528 | 125.7824556 | 1410.685179 | 15821.22614 | 53.8133 | 603.5314815 | 6768.773212 |
| 11.25444 | 126.6625198 | 1425.516292 | 16043.39391 | 54.0800 | 608.6403556 | 6849.909068 |
| 11.28556 | 127.3637642 | 1437.370837 | 16221.52843 | 54.3533 | 613.407563 | 6922.64513 |
| 11.32111 | 128.1675568 | 1450.999151 | 16426.92261 | 54.6450 | 618.6421167 | 7003.716141 |
| 11.35583 | 128.9549507 | 1464.390928 | 16629.37931 | 54.9333 | 623.8137778 | 7083.925291 |
| 11.41250 | 130.2451563 | 1486.422846 | 16963.80073 | 55.3650 | 631.8530625 | 7211.023076 |
| 11.44333 | 130.9498778 | 1498.503101 | 17147.87049 | 55.5533 | 635.7153111 | 7274.70221 |
| 0.00000 | 0 | 0 | 0 | 0.0000 | 0 | 0 |

$$\begin{vmatrix} N & ΣT & ΣT^2 \\ ΣT & ΣT^2 & ΣT^3 \\ ΣT^2 & ΣT^3 & ΣT^4 \end{vmatrix}^{-1} \times \begin{vmatrix} ΣHs \\ ΣT\ Hs \\ ΣT^2\ Hs \end{vmatrix} = \begin{vmatrix} a_0 \\ a_1 \\ a_2 \end{vmatrix}$$

$$\begin{vmatrix} 9 & 101.62611 & 1147.621571 \\ 101.62611 & 1147.621571 & 12960.52886 \\ 1147.621571 & 12960.52886 & 146378.534 \end{vmatrix}^{-1} \times \begin{vmatrix} ΣHs \\ ΣT\ Hs \\ ΣT^2\ Hs \end{vmatrix} = \begin{vmatrix} a_0 \\ a_1 \\ a_2 \end{vmatrix}$$

**INVERSE**

$$\begin{vmatrix} 27443751.49 & -4858415.373 & 215008.2435 \\ -4858415.373 & 860106.127 & -38064.37904 \\ 215008.2435 & -38064.37904 & 1684.580241 \end{vmatrix} \times \begin{vmatrix} 489.6917 \\ 5530.118494 \\ 62456.37909 \end{vmatrix} = \begin{vmatrix} 60.20758247 \\ -8.72406292 \\ 0.727082893 \end{vmatrix}$$

$$Hs = a_0 + a_1 T + a_2 T^2$$

| | |
|---|---|
| $a_0$ | **60.20758** |
| $a_1$ | **-8.72406** |
| $a_2$ | **0.72708289** |