

$$\begin{aligned} \text{Where } x &= d\gamma \\ y &= dK_1 \\ z &= dK_2 \\ u &= de \\ v &= 100d\omega \\ w &= \frac{100\mu dT}{(1-e^2)^{\frac{3}{2}}} \end{aligned}$$

The normal equations are

$$\begin{aligned} 18.300x - 14.362y + 7.180z + 1.881u + 0.091v - 0.034w + 7.222 &= 0 \\ + 17.876y - 0.000z - 3.882u - 0.049v - 0.306w - 5.231 &= 0 \\ + 8.933z - 2.367u - 0.030v - 0.189w + 2.798 &= 0 \\ + 9.607u + 0.978v - 1.485w + 6.571 &= 0 \\ + 3.031v - 4.774w + 9.460 &= 0 \\ + 7.809w - 14.932 &= 0 \end{aligned}$$

$$\begin{aligned} \text{Whence } x &= -0.293 & \text{or } d\gamma &= -0.29 \text{ km.} \\ y &= -0.030 & dK_1 &= -0.03 \text{ km.} \\ z &= -0.186 & dK_2 &= -0.19 \text{ km.} \\ u &= -0.380 & de &= -0.0038 \\ v &= -2.808 & d\omega &= -1^{\circ}.60 \\ w &= +0.116 & dT &= +.003 \text{ day} \end{aligned}$$

and the final elements with their probable errors become,

$$\begin{aligned} P &= 28.28 \text{ days} & \pm .005 \text{ (estimated)} \\ T &= \text{J.D. } 2,420,468.197 & \pm .088 \text{ day} \\ e &= 0.556 & \pm .0065 \\ \omega_1 &= 178^{\circ}.41 & \pm 3^{\circ}.1 \\ \omega_2 &= 1^{\circ}.60 & \pm 3^{\circ}.1 \\ K_1 &= 51.38 \text{ km.} & \pm 1.50 \text{ km.} \\ K_2 &= 62.51 \text{ km.} & \pm 1.64 \text{ km.} \\ \gamma &= +16.91 \text{ km.} & \pm 1.83 \text{ km.} \\ a_1 \sin i &= 16,550,000 \text{ km.} \\ a_2 \sin i &= 20,140,000 \text{ km.} \\ m_1 \sin^3 i &= 1.354 \odot \\ m_2 \sin^3 i &= 1.113 \odot \end{aligned}$$

Dominion Observatory

Ottawa

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