$$f(h_i) = T(h_i, \varphi_i, \lambda_i) - \gamma(h_i, \varphi_i)\, h_i$$

$$\bar{f}(\bar{h}) = \begin{bmatrix} f(h_1) \\ \vdots \\ \vdots \\ f(h_N) \end{bmatrix}$$

$$\phi(\bar{h}) = \frac{1}{N} \|\bar{f}(\bar{h})\|_2^2$$

$$\left(\bar{\bar{F}}(\bar{h}^0)^T \bar{\bar{F}}(\bar{h}^0) + \mu \bar{\bar{I}} \right) \Delta \bar{h} = \bar{\bar{F}}(\bar{h}^0)^T \bar{f}(\bar{h}^0)$$

$$\left[\bar{\bar{F}}(\bar{h}^0) \right]_{ij} = \begin{cases} 0, & i \neq j \\ \frac{\partial}{\partial h} f(\bar{h}_i^0), & i = j \end{cases}$$

$$\frac{\partial}{\partial h} f(h_i^0) = \frac{\partial}{\partial h} T(h_i^0, \varphi_i^0, \lambda_i^0) - \frac{\partial}{\partial h} \gamma(h_i^0, \varphi_i^0)\, h_i^0 - \gamma(h_i^0, \varphi_i^0)$$

$$\frac{\partial}{\partial h} T(h_i^0, \varphi_i^0, \lambda_i^0) = \bar{\nabla}_{TCS} T(x_i^0, y_i^0, z_i^0)^T \hat{u}_i$$