$$\dot{\epsilon} = \begin{bmatrix} \frac{\partial u}{\partial x} & \frac{1}{2}\left(\frac{\partial v}{\partial x} + \frac{\partial u}{\partial y}\right) \\ \frac{1}{2}\left(\frac{\partial v}{\partial x} + \frac{\partial u}{\partial y}\right) & \frac{\partial v}{\partial y} \end{bmatrix} = \begin{bmatrix} \dot{\epsilon}_x & \dot{\epsilon}_{xy} \\ \dot{\epsilon}_{xy} & \dot{\epsilon}_y \end{bmatrix} \tag{1}$$

$$\dot{\epsilon}_{lon} = \dot{\epsilon}_x \cos^2 \alpha + 2\dot{\epsilon}_{xy} \cos \alpha \sin \alpha + \dot{\epsilon}_y \sin^2 \alpha \tag{2}$$

$$\dot{\epsilon}_{trans} = \dot{\epsilon}_x \sin^2 \alpha - 2\dot{\epsilon}_{xy} \cos \alpha \sin \alpha + \dot{\epsilon}_y \cos^2 \alpha \tag{3}$$

$$\dot{\epsilon}_{shear} = \left(\dot{\epsilon}_y - \dot{\epsilon}_x\right) \cos \alpha \sin \alpha + \dot{\epsilon}_{xy}(\cos^2 \alpha - \sin^2 \alpha) \tag{4}$$

$$\dot{e} = \frac{\delta L / L_o}{\delta t} \tag{5}$$

$$\dot{\epsilon} = \frac{1}{\Delta t} \ln\left(\frac{L_f}{L_o}\right) \tag{6}$$

$$\frac{du}{dx} = \frac{u2 - u1}{\Delta x} \tag{7}$$

$$\frac{\partial H}{\partial t} = \dot{\alpha}_s + \dot{\alpha}_b - \nabla \cdot (H\mathbf{u}) \tag{8}$$

$$\frac{\partial H}{\partial t} = \dot{\alpha}_s + \dot{\alpha}_b - H\left(\dot{\epsilon}_x + \dot{\epsilon}_y\right) + u\frac{\partial H}{\partial x} + v\frac{\partial H}{\partial y} \tag{9}$$