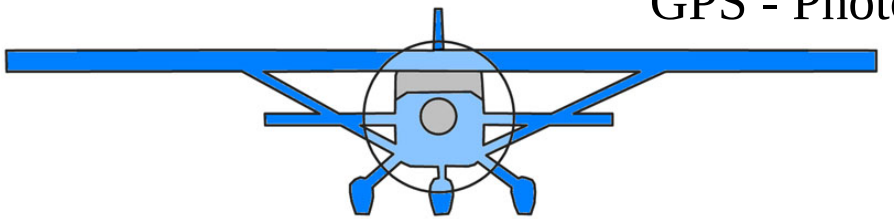
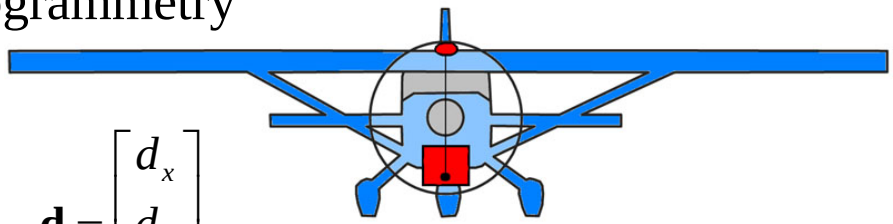
GPS - Photogrammetry

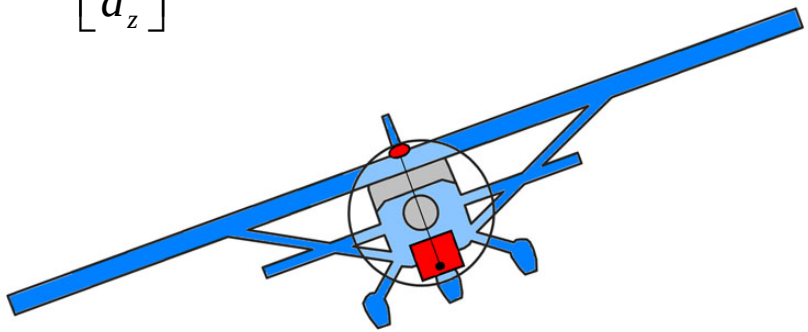




$$\mathbf{d} = \begin{bmatrix} d_x \\ d_y \\ d_z \end{bmatrix}$$

Vector from camera to antenna

$$\begin{bmatrix} X \\ Y \\ Z \end{bmatrix}_{ANT} = \begin{bmatrix} X_L \\ Y_L \\ Z_L \end{bmatrix} + \mathbf{M}^T \begin{bmatrix} d_x \\ d_y \\ d_z \end{bmatrix}$$



With stabilized mount, M decomposed into ground-aircraft and aircraft-camera

$$\mathbf{M} = \mathbf{M}_{CA}\mathbf{M}_{AG}$$

We need only the ground-aircraft part for the vector to the antenna, for Mca we need to read out stabilizer angles

$$\begin{bmatrix} X \\ Y \\ Z \end{bmatrix}_{ANT} = \begin{bmatrix} X_L \\ Y_L \\ Z_L \end{bmatrix} + \mathbf{M}_{AG}^T \begin{bmatrix} d_x \\ d_y \\ d_z \end{bmatrix}$$