This document serves as a notification of a correction to the mathematics for equations 4 and 7. It was discovered that the matrix used to find the preflight calibration orthogonality and extract the orthogonality values for trending the in-situ calibration parameters contained an incorrect sign for the term in row 2, column 1. To minimize confusion, the matrices have been changed to match the form used in the Swarm l1b Processor Algorithms (SW-RS-DSC-SY-0002 Issue 6.11), Olsen et al, 2003, and Olsen et al, 2020.

It should be noted that this only affects the sign of the extracted parameters and not the calibration itself. The calibration uses the coupled matrix outlined in equation 9. It does not alter the conclusions drawn from the results nor does it change the scope of the next steps to be taken. In addition to the updated matrices, the values in Table 1 and Figure 4 have been updated to reflect this change.

Equation 4 has changed from

$$\boldsymbol{P} = \begin{vmatrix} 1 & 0 & 0 \\ \sin(u_1) & \cos(u_1) & 0 \\ \dfrac{\sin(u_2)\cos(u_3)}{\cos(u_1)} & \cos(u_2)\sin(u_3) & \cos(u_2)\cos(u_3) \end{vmatrix} \tag{4}$$

To

$$\boldsymbol{P} = \begin{vmatrix} 1 & 0 & 0 \\ -\sin(u_1) & \cos(u_1) & 0 \\ \sin(u_2) & \sin(u_3) & \sqrt{1 - \sin^2(u_2) - \sin^2(u_3)} \end{vmatrix} \tag{4}$$

Equation 7 has changed from

$$\boldsymbol{P}^{-1} = \begin{vmatrix} 1 & 0 & 0 \\ -\tan(u_1) & \dfrac{1}{\cos(u_1)} & 0 \\ \tan(u_1)\tan(u_3) - \dfrac{\tan(u_2)}{\cos(u_1)} & -\dfrac{\tan(u_3)}{\cos(u_1)} & \dfrac{1}{\cos(u_2)\cos(u_3)} \end{vmatrix} \tag{7}$$

To

$$\boldsymbol{P}^{-1} = \begin{vmatrix} 1 & 0 & 0 \\ \dfrac{\sin(u_1)}{\cos(u_1)} & \dfrac{1}{\cos(u_1)} & 0 \\ -\dfrac{\sin(u_1)\sin(u_3) + \cos(u_1)\sin(u_2)}{w\cos(u_1)} & -\dfrac{\sin(u_3)}{w\cos(u_1)} & \dfrac{1}{w} \end{vmatrix} \tag{7}$$

With line 90 now including the definition for w:

Where $w = \sqrt{1 - \sin^2(u_2) - \sin^2(u_3)}$ and $\boldsymbol{R}_A^{-1} = \boldsymbol{R}_A^{T}$ from the properties of rotation matrices.

Additionally, text has been added to the description of