Correction to: Three-Dimensional Consensus-Based Control of Autonomous UAV Swarm Formations

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Correction to:

Chapter 5 in: A. Ronzhin and V. Shishlakov (eds.),
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The original version of the book was published with incorrect figure 5.2 and equation 5.7 are updated as in below:

$$\mathbf{h}^{incl} = (h_i^{incl})_{i=1,\overline{N}} = \left(-r_d - \sqrt{(s_n^i)^2 + (s_e^i)^2} \left(q_d / \sqrt{q_n^2 + q_e^2} \right) \right)_{i=1,\overline{N}} + \mathbf{F}^{\Delta h}, \quad (5.7)$$

where $\mathbf{h}^{incl} \in \mathbb{R}^{N \times 1}$ is the vector of flight altitude commands for the UAV group; s_n^i, s_e^i are the coordinates of the vector $\mathbf{s}^i = \mathbf{e}_p^i - (\mathbf{e}_p^i \cdot \mathbf{n})\mathbf{n}$, which in its turn is calculated from the normal vector $\mathbf{n} = (\mathbf{q} \times \mathbf{k}^i) / \|\mathbf{q} \times \mathbf{k}^i\|$ and the ICS UAV position error vector $\mathbf{e}_p^i \triangleq [p_n^i - r_n \quad p_e^i - r_e \quad p_d^i - r_d]^T$; here vector $[p_n^i \quad p_e^i \quad p_d^i]^T$ describes the i th UAV coordinates in the ICS; vector $\mathbf{F}^{\Delta h}$ is determined as in the Eq. (5.5).

The chapter and book have been updated with the changes.

The updated version of this chapter can be found at
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Fig. 5.2 An example of how symbols could be defined for a UAV formation following a descending path. Figure partly adapted from [15]