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Corrigendum to "Drifting dynamics of the bluebottle (*Physalia physalis*)" published in Ocean Sci., 17, 1341–1351, 2021

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The authors regret that an error occurred during the modelling in the article "Drifting dynamics of the bluebottle (*Physalia physalis*)", which was published in Ocean Sci., 17, 1341–1351, 2021. The angle β, between the main bluebottle (x') axis and the relative current vector ($\boldsymbol{V}_{\mathrm{RH}}$) resulting from the wind forcing (Fig. 2), was thought to be acute but actually must be obtuse (Eqs. 5, 7, 8). Since the angle β is close to 90°, this does not significantly change the bluebottle course (by about 6°) and does not change the bluebottle speed at all. Hence, the conclusions of the paper are unchanged. The corrections to the paper are listed below.

In Sects. 5.2 and 5.3, the original angle β was calculated to have the value 87.1° for an angle of attack of 40° (varying from 86.2 to 87.7° for an angle of attack of 30 to 50°), resulting in a bluebottle course 52.9° from the wind direction (Sects. 5.2, 5.3 and 6). Similarly, the course of the Portuguese man-of-war was calculated to be 51.5° from the wind direction in Sect. 6.

With the correction applied to the model, β should have a value of 92.9° for an angle of attack of 40° (varying from 92.3 to 93.8° for an angle of attack of 30 to 50°). The corrected course is then 47.1° from the wind direction (instead of 52.9°) for the bluebottle and 47.5° (instead of 51.5°) for the Portuguese man-of-war.

Equations (5), (7), and (8) should read (note the minus signs) as follows:

$$\begin{cases} F_{\mathrm{H}x'} &= F_{\mathrm{H}}\cos(180-\beta) = -F_{\mathrm{H}}\cos\beta \\ F_{\mathrm{H}y'} &= F_{\mathrm{H}}\sin(180-\beta) = F_{\mathrm{H}}\sin\beta \end{cases} \tag{5}$$

$$\begin{cases} \rho_{\mathrm{A}} S_{\mathrm{x}'} V_{\mathrm{A}}^2 C_{\mathrm{A}x'} &= -\rho_{\mathrm{H}} S_{\mathrm{H}} \boldsymbol{V}_{\mathrm{RH}}^2 C_{\mathrm{H}} \cos\beta \\ \rho_{\mathrm{A}} S_{\mathrm{y}'} V_{\mathrm{A}}^2 C_{\mathrm{A}y'} &= \rho_{\mathrm{H}} S_{\mathrm{H}} \boldsymbol{V}_{\mathrm{RH}}^2 C_{\mathrm{H}} \sin\beta. \end{cases} \tag{7}$$

$$-\frac{S_{y'}}{S_{x'}}\frac{C_{\mathrm{A}y'}}{C_{\mathrm{A}x'}} = \tan\beta, \text{ hence } \beta \text{ is obtuse.} \tag{8}$$

Below are several figures that have been adapted accordingly to represent this change.

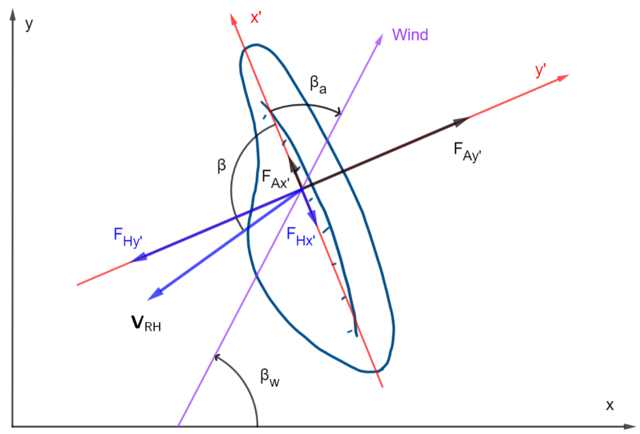

Figure 2. Top–down view of a left-handed (right-sailing) bluebottle. x', y', x and y axes are defined in Sect. 2. $F_{\mathrm{A}x'}$ and $F_{\mathrm{A}y'}$ are the components of the aerodynamic force on the x' and y' axes respectively. Similarly, $F_{\mathrm{H}x'}$ and $F_{\mathrm{H}y'}$ are the components of the hydrodynamic force. β_a is the angle of attack. β_w is the angle of the wind.

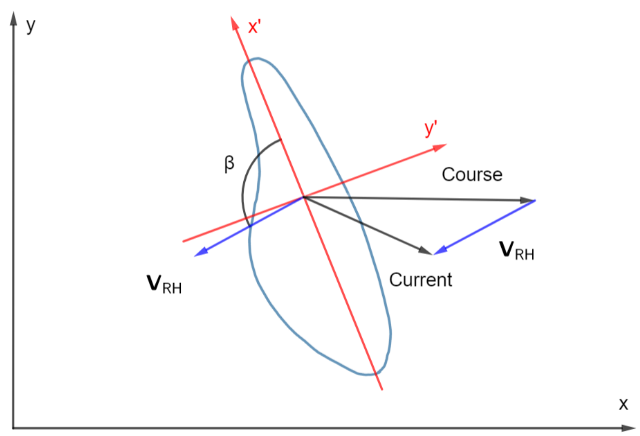

Figure 3. Relative current velocity $\boldsymbol{V}_{\mathrm{RH}}$ is the difference between the ocean current velocity and the bluebottle's velocity (called course). β is the angle between the x' axis and the relative velocity of the current.

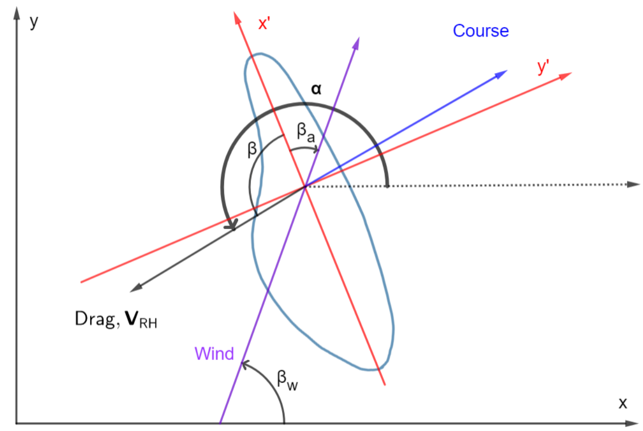

Figure 8. Case with no current for a left-handed (right-sailing) bluebottle ($\beta_\mathrm{a} = -40°$). Note that β_a is negative because it is the angle between the x' axis and the wind, which is clockwise. Length of course and $\boldsymbol{V}_{\mathrm{RH}}$ are to scale. Wind vector length has been scaled down by a factor of 8.

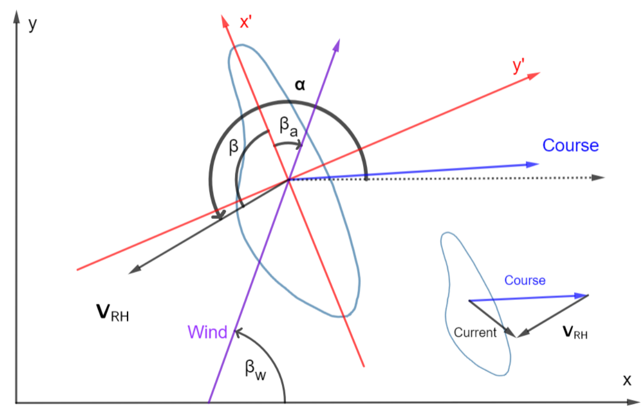

Figure 9. Case with current running south-east for a left-handed (right-sailing) bluebottle ($\beta_\mathrm{a} = -40°$). Diagram in the bottom right shows the vector addition between the bluebottle's course, the current and the relative current felt by the bluebottle. Length of course, current and $\boldsymbol{V}_{\mathrm{RH}}$ are to scale, based on a current speed that is 5 % of the wind speed. Wind vector length has been scaled down by a factor of 8.

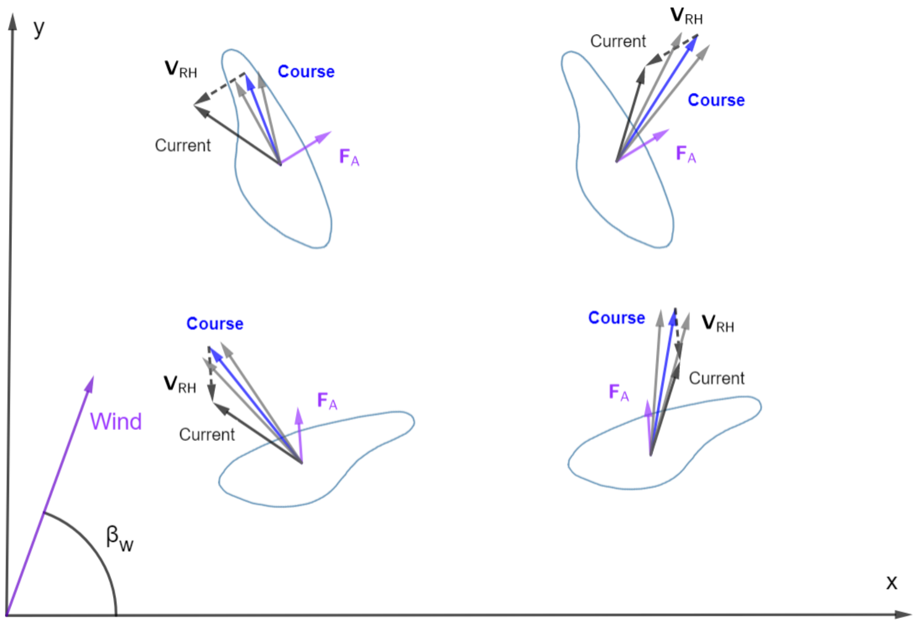

Figure 10. Examples of different ocean current directions for a constant wind. Top row depicts left-handed (right-sailing) bluebottles. Bottom row depicts right-handed (left-sailing) bluebottles for the same wind and current conditions. Grey vectors indicate confidence intervals for the bluebottle course if we consider that the angle of attack (β_a) could be 30 to 50°. Note that for each form, $\boldsymbol{V}_{RH}$ must always point in the same direction. Length of course, current and $\boldsymbol{V}_{RH}$ are to scale, based on a current speed that is 5 % of the wind speed. Wind vector length has been scaled down by a factor of 8.

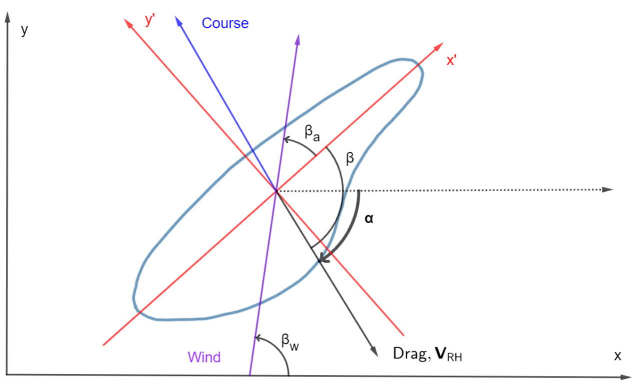

Figure A1. Case with no current for a right-handed (left-sailing) bluebottle ($\beta_a = 40°$). Length of course and $\boldsymbol{V}_{RH}$ are to scale. Wind vector length has been scaled down by a factor of 8.