

Series Editor
Jean-Paul Bourrières

Dynamics of Aircraft Flight

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Color Section

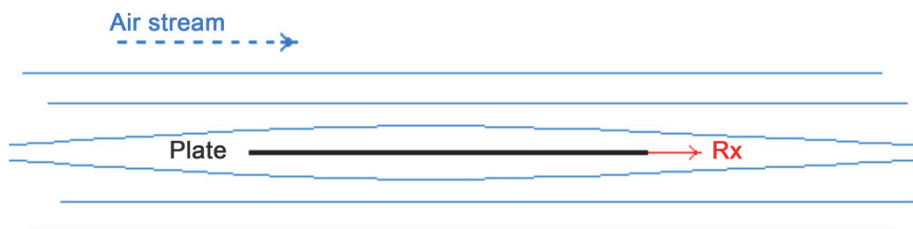


Figure 1.1. Horizontal plate

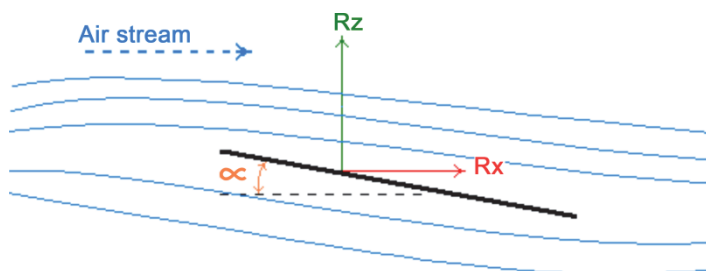


Figure 1.2. Inclined plate

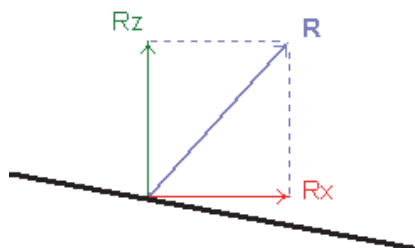


Figure 1.3. Aerodynamic resultant

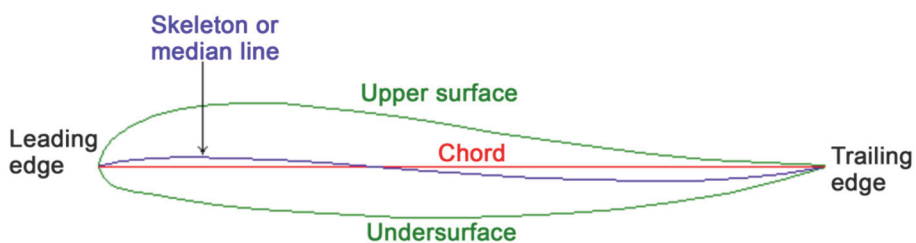


Figure 1.5. Wing section

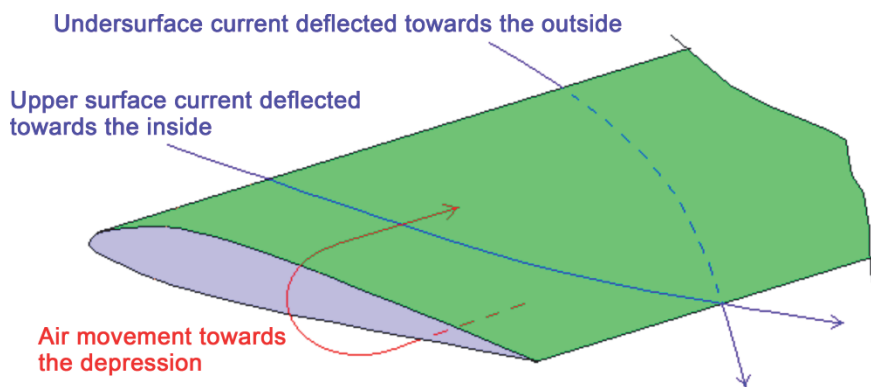


Figure 1.8. Deflection of air streams

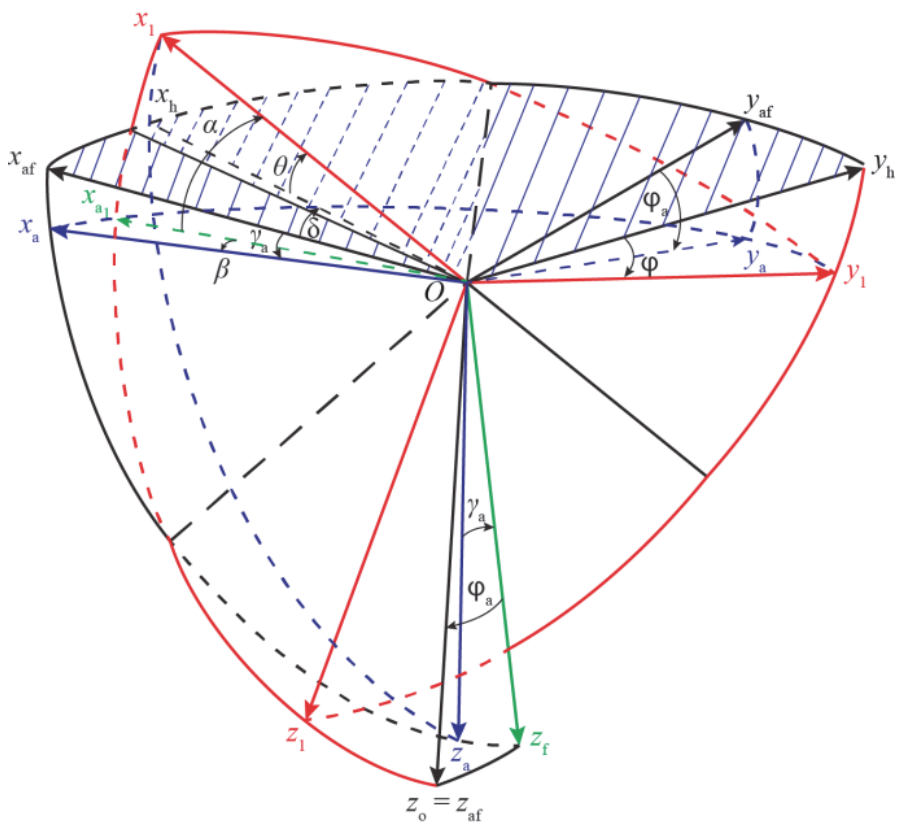


Figure 4.1. Reference trihedra of the machine. Passage from the aircraft reference to the local geographical reference. $\beta < 0$; $\gamma_a < 0$

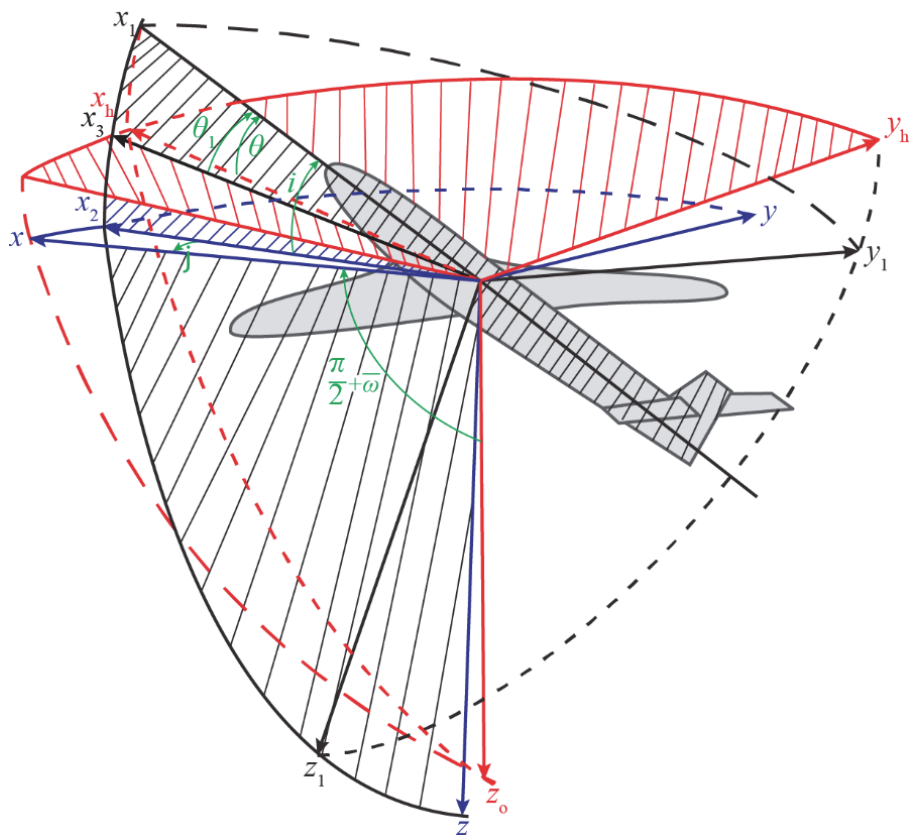


Figure 4.2. Reference trihedrons linked to the plane and the trajectory. In black: trihedron (G, x_1, y_1, z_1) linked to the aircraft; in red: trihedron (G, x_h, y_h, z_o) linked to the vertical; in blue: trihedron (G, x, y, z) linked to the speed. The angle i shown is positive, and the angle j shown is negative

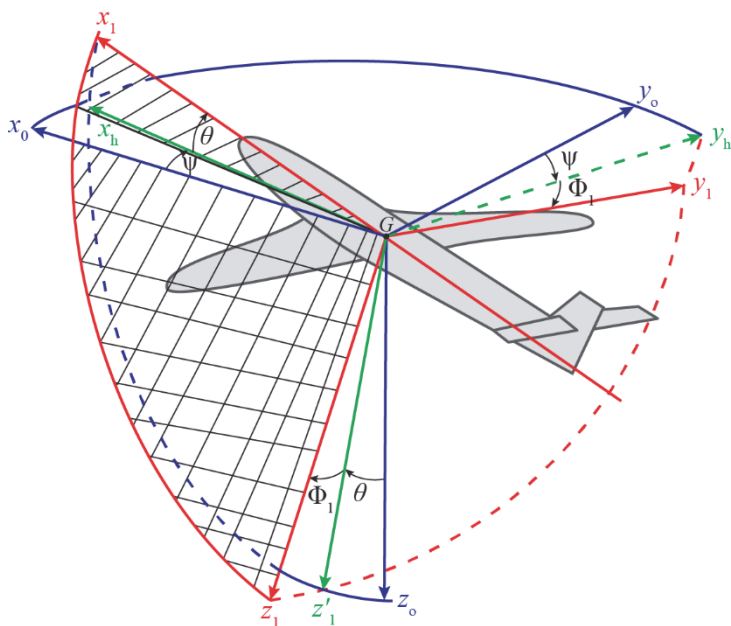


Figure 4.3. Reference trihedra defining the angular position of the aircraft in space $\Phi_1 = \Phi$. In blue: the reference trihedron (G, x_0, y_0, z_0) , Gz_0 depends on the gravity; in red: the plane trihedron (G, x_1, y_1, z_1) . The hatched area is in the plane of symmetry of the aircraft

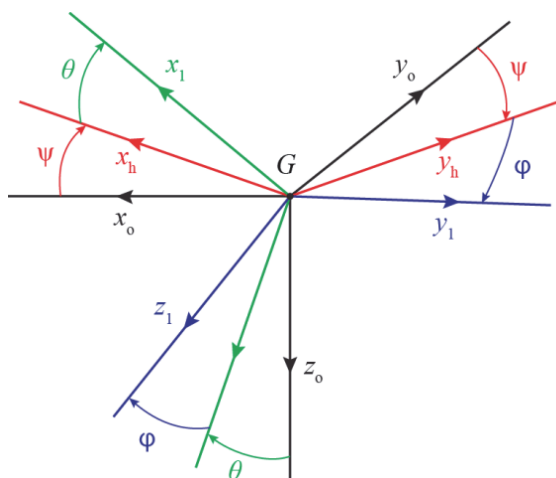


Figure 4.4. Position of the aircraft trihedron with respect to the reference trihedron. The planes (G, x_0, y_0) and (G, x_h, y_h) are parallel. In black: the reference trihedron (G, x_0, y_0, z_0) with Gz_0 directed towards the center of the Earth (axis of gravity). The machine trihedron is represented by (G, x_1, y_1, z_1)

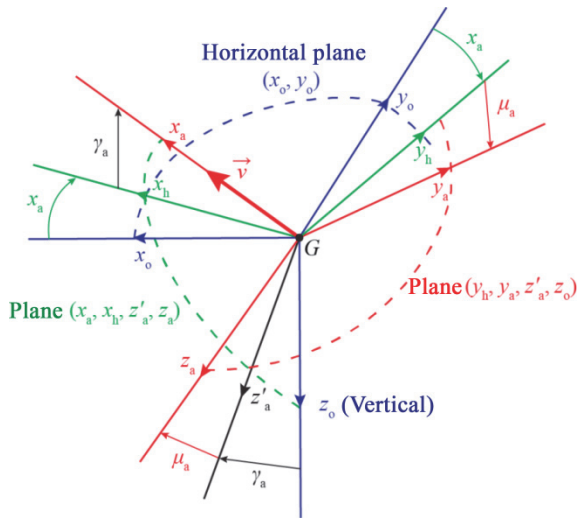


Figure 4.5. Position of the aerodynamic trihedron with respect to the terrestrial trihedron. In blue: the terrestrial trihedron (G, x_o, y_o, z_o), Gz_o depends on the gravity; in red: the trihedron of the aerodynamic speed (G, x_a, y_a, z_a)

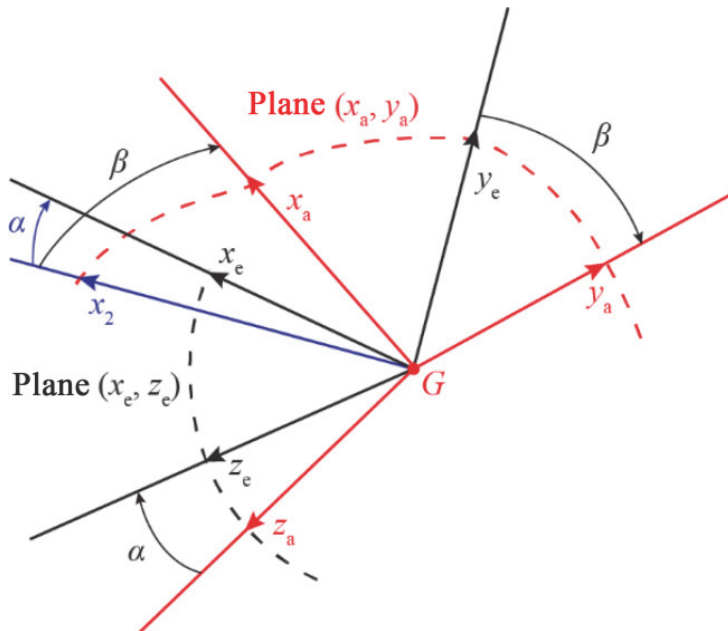


Figure 4.6. Position of the aerodynamic trihedron with respect to the aircraft trihedron. In red: the aerodynamic speed trihedron (G, x_a, y_a, z_a); in black: the machine trihedron (G, x_e, y_e, z_e); in blue: the projection α of the axis (G, x_e) on the plane (G, x_a, y_a); in black: the projection of the axis (G, x_a) on the plane (G, x_e, z_e). Plane (G, x_a, y_a) comprises points (x_2, x_a, y_e, y_a); plane (G, x_e, z_e) comprises points (z_a, z_e, x_2, x_e)

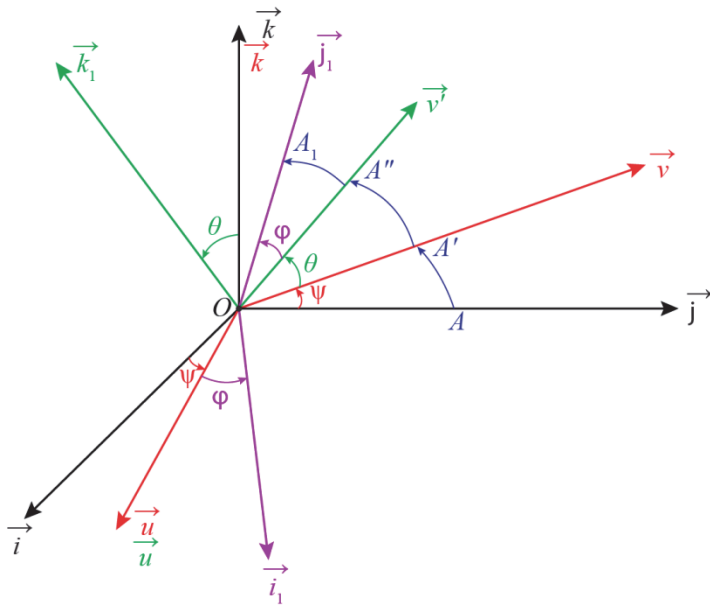


Figure 5.1. Rotation of a solid around a fixed point

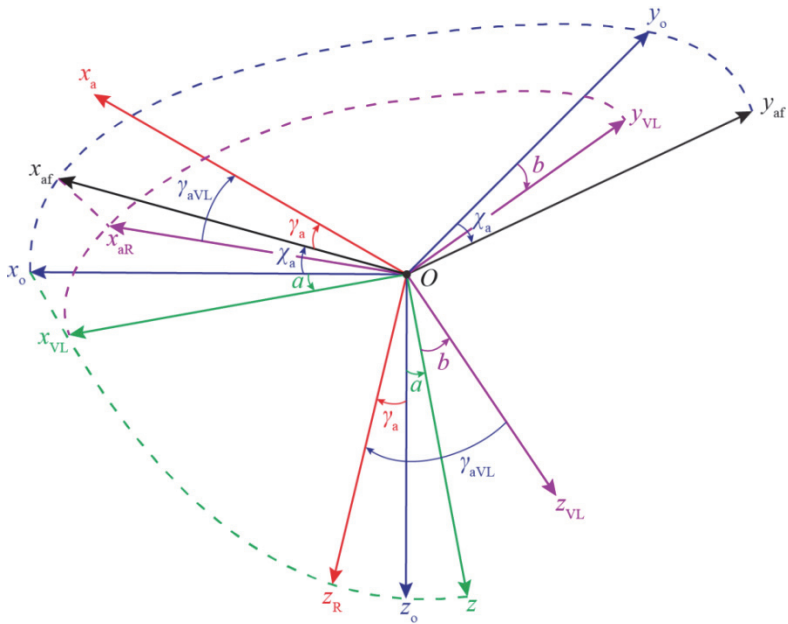


Figure 8.1. Trihedron related to the route and the aerodynamic slope. The points $(X_0, X_{aF}, Y_0, Y_{aF})$ are in the same plane; X_{aR} is the projection of X_{aF} on the plane (O, X_{VL}, Y_{VL}) ; the points (X_{VL}, X_{aR}, Y_{VL}) are in the same plane

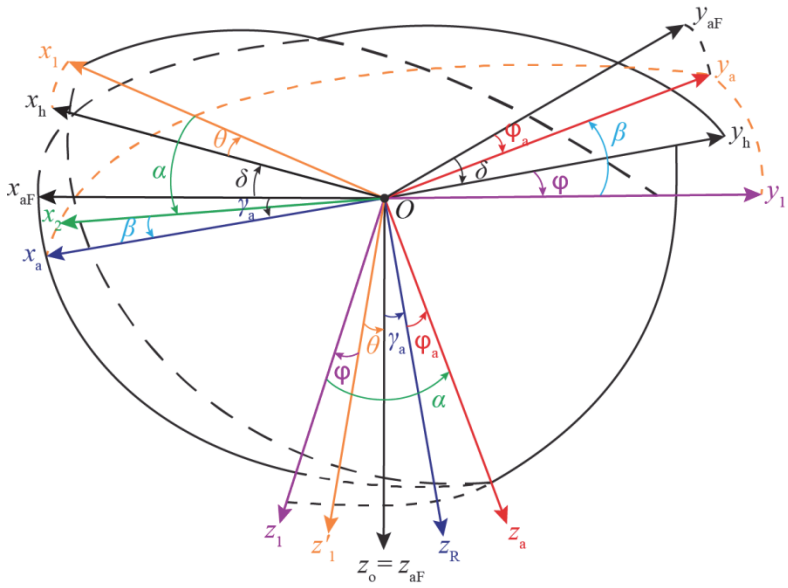


Figure 8.2. Aerodynamic speed trihedron. The points $(X_a, X_2, Y_a, Y_1), (X_{aF}, X_h, Y_{aF}, Y_n), (Y_n, Y_1, Z_1), (X_1, Y_1), (X_1, X_2, Z_a, Z_R), (X_{aF}, X_a, Z_a)$ and (X_1, X_n, Z_a) are in the same plane

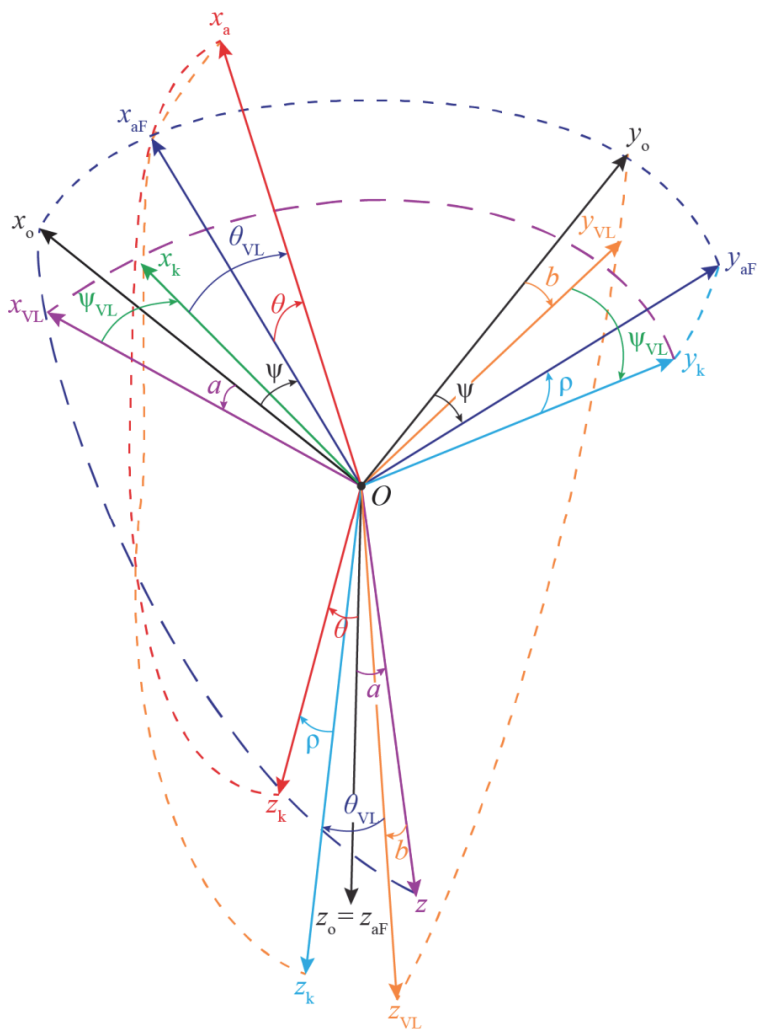


Figure 8.3. Trihedron linked to local vertical

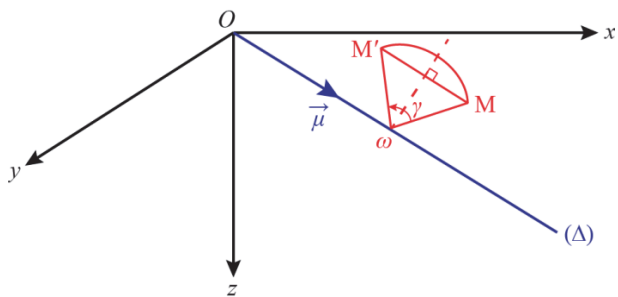


Figure 9.1. *Rotation axis Δ*