3.3 Equations

The preferred method of creating equations is MicroSoft Word Equation Editor. Cutting an equation from an alternative equation editor and then pasting as a graphic is also permissible, but has the disadvantage of disabling future electronic publishing capabilities. A final option is to create and paste MathML equations (using MathType for example), an approach that retains all the benefits of XML objects.

Shown below are examples of equations. **All equations wider than 3.5 inches must be wrapped to the next line as shown in equation (2)**.

$$\frac{d\lambda}{dt} = \left[\frac{\sqrt{1+161\left(\frac{x}{x^+}\right)^2}-12}{2(A/F)_{st}} - \frac{\sqrt{1+161\left(\frac{x_{prev}}{x^+}\right)^2}-1}{2(A/F)_{st}}\right](1-BGF_{st}) \cdot \frac{12}{(t-t_{prev})}$$

$$(1)$$

$$\Delta K_{aero\_f}(0) = -\frac{1}{2}\frac{\partial K_f}{\partial W_f}L_{aero\_f} + \ldots$$

$$+\frac{1}{2l}\left(l_r\frac{\partial F_{aero\_y}}{\partial \beta} + \frac{\partial M_{aero\_z}}{\partial \beta}\right)\left(\frac{l_f}{l_r K_r} - \frac{l}{mV^2}\right)K_f$$

$$\Delta K_{aero\_r}(0) = -\frac{1}{2}\frac{\partial K_r}{\partial W_r}L_{aero\_r} + \ldots$$

$$+\frac{1}{2l}\left(l_f\frac{\partial F_{aero\_y}}{\partial \beta} - \frac{\partial M_{aero\_z}}{\partial \beta}\right)\left(\frac{1}{K_r} - \frac{l}{mV^2}\frac{l_r}{l_f}\right)K_r$$

$$(2)$$

If necessary, break long equations before an operational sign or a major bracket. If it is necessary to break an equation do so at an operational sign or major bracket followed by three dots (ellipsis). On the second line of the equation begin by repeating the same operator that you broke after and then align the first and second lines by aligning the first character of the second line. Enter equations on separate lines and apply the [Equation] style which will center the equations.

Number equations consecutively with the number enclosed in parentheses and following the equation on the same line (right justifying the numbers is not required). Equation numbering continues across the main body sections without restarting, except in appendices (see Style Guide, Section 3). Note that simple equations may be incorporated into the text without numbering.

References to the equations can be abbreviated as follows (except at the beginning of a sentence): Eq. (7). If possible, the typeface and type style of symbols placed in the text should match those of the equations (achieved by applying e.g., [Symbol] or [Emphasis-Italic] styles).