Guideline to writing a Turbulence model description for posting to the website
(Current as of 12/15/2010)

Rules:

1. Look at the existing web pages for Turbulence Models, and follow a similar pattern.
2. At least one reference describing the model must be listed.
3. List complete equations. Give equations in LaTeX format (see below). Equations should be in dimensional form (i.e., do not use non-dimensionalized variables). Conservation form of the equation(s) is preferred.
4. To be consistent with the rest of the website, use standard derivative (Leibniz) notation with respect to Cartesian coordinates (x_j), with summation convention implied. Look at existing web pages on the website for examples. Do not use generalized coordinates (avoid Jacobians). Do not use polar or cylindrical coordinates. Avoid vector calculus notation (dels, grads, curls, dot products, cross products, etc.).
5. All terms, functions, and limiters must be defined, and all constants must be provided.
6. Boundary conditions must be listed, if available. If there are no recommended boundary conditions for the model, this must be explicitly stated.
7. Do not give numerical details such as how to discretize the equations. These pages are only for listing the equations themselves.

Submit either: (a) LaTeX file of text and equations (we will convert it to HTML) or (b) HTML file along with all associated LaTeX documents and images. If your equations are a different version of a model already listed, please specify what existing web page they should be added to.

Directions for creating an HTML file are as follows. Copy an existing sample HTML page (for example, use the following as a template: http://turbmodels.larc.nasa.gov/nut92.html). Then edit it.

Currently, all equations are given as .png images. This was done via the following steps.

Step 1: create a LaTeX document with desired equations in it. The following is an example named equations1.tex:

```
\begin{document}

\begin{equation}
 \frac{\partial \hat \nu}{\partial t} + u_j \frac{\partial \hat \nu}{\partial x_j} =
   c_{b1}(1-f_{t2})\hat S \hat \nu -
   \left[c_{w1}f_w - \frac{c_{b1}}{\kappa^2}f_{t2}\right]
   \left(\frac{\hat \nu}{d} \right)^2
 + \frac{1}{\sigma} \left[ \frac{\partial}{\partial x_j}
   \left( \left( \nu + \hat \nu \right) \frac{\partial \hat \nu}{\partial x_j} \right)
   + c_{b2}\frac{\partial \hat \nu}{\partial x_i} \frac{\partial \hat \nu}{\partial x_i}
   \right]
```

```
\label{Eq:saeqn}
\end{equation}

\begin{equation}
\mu_t = \rho \nu_t
\end{equation}

\begin{equation}
\mu_t = \rho \hat \nu \frac{\chi^3}{\chi^3+c_{v1}^3}
\end{equation}

\begin{equation}
B=1
\end{equation}

\end{document}
```

Step 2: use:
latex2html equations1.tex

to create .png images. These images get automatically named img1.png, img2.png, etc.

Step 3: these .png images of the equations can then be easily inserted into the HTML document, via something like the following:

```
<dl>
<dd><img class="tex" alt="\mu_t = \rho \nu_t"
  src="img2.png" /></dd>
</dl>
```

Note the use of the alt text, which is required for compliance to NASA web-posting guidelines. Submit your newly-created HTML file plus all LaTeX documents and .png files to the page curator.

Questions?
Please contact the page curator: C.L.Rumsey@nasa.gov