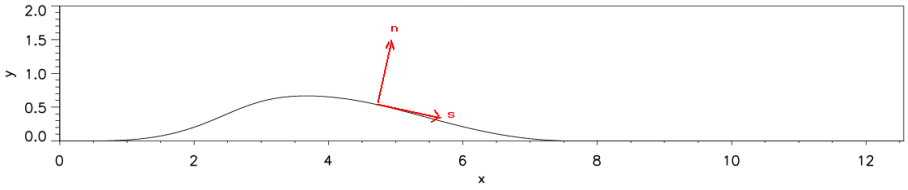
Definitions



Velocity:	$\vec{u}$	$=$	$u_x\vec{x} + u_y\vec{y} + u_z\vec{z}$
		$=$	$u_s\vec{s} + u_n\vec{n} + u_z\vec{z}$
Vorticity	$\vec{\omega}$	$=$	$rot(\vec{u}) = \omega_x\vec{x} + \omega_y\vec{y} + \omega_z\vec{z}$
Fluctuations	a_i'	$=$	$a_i - \langle a_i \rangle$
Viscosity	ν	$=$	$1/Re$
Density	ρ	$=$	1

Description of Variables

Each statistic is computed both in the global (x, y, z) coordonate system and in the bump coordinate (s, n, z). In the following definition table, the coordinate system **"rep"** stand for either **"xyz"** or **"snz"**.

In order to reduce the list of variables, the following notation will be used:

(u, v, w)	$\rightarrow$	(u_1, u_2, u_3)
(dxa, dya, dza)	$\rightarrow$	(d_1a, d_2a, d_3a)
(um, vm, wm)	$\rightarrow$	(um_1, um_2, um_3)

Name of Variable	Definition
grid_x	streamwise coordinates (function of x)
grid_yx	normal coordinates (function of x & y)
grid_z	spanwise coordinates (function of z)
angle	angle $(\vec{x}, \vec{s})$
mean_u_i_rep	$\langle u_i \rangle$
mean_pressure_rep	$\langle p \rangle$
d_j_mean_u_i_rep	$\frac{\partial \langle u_i \rangle}{\partial x_j}$
reynolds_stress_$u_i u_j$_rep	$\langle u_i' u_j' \rangle$
correlation_p_u_i_rep	$\langle u_i' p' \rangle$
triple_correlation_$u_i u_j u_k$_rep	$\langle u_i' u_j' u_k' \rangle$
dissipation_$u_i u_j$_rep	$\left\langle \frac{\partial u_i'}{\partial x_k} \frac{\partial u_j'}{\partial x_k} \right\rangle$
dissipation_$d_l u_i d_k u_j$_rep	$\left\langle \frac{\partial u_i'}{\partial x_l} \frac{\partial u_j'}{\partial x_k} \right\rangle$
pressure_strain_$u_i u_j$_rep	$\left\langle \frac{p'}{\rho} \left(\frac{\partial u_i'}{\partial x_j} + \frac{\partial u_j'}{\partial x_i} \right) \right\rangle$
pressure_strain_$d_j u_i$_rep	$\left\langle \frac{p'}{\rho} \left(\frac{\partial u_i'}{\partial x_j} \right) \right\rangle$
pressure_diffusion_$u_i u_j$_rep	$-\frac{1}{\rho} \left(\frac{\partial \langle u_j' p' \rangle}{\partial x_i} + \frac{\partial \langle u_i' p' \rangle}{\partial x_j} \right)$
production_$u_i u_j$_rep	$-\langle u_j' u_k' \rangle \frac{\partial \langle u_i \rangle}{\partial x_k} - \langle u_i' u_k' \rangle \frac{\partial \langle u_j \rangle}{\partial x_k}$
production_$u_i u_j d_k u m_l$_rep	$\langle u_j' u_j' \rangle \frac{\partial \langle u_l \rangle}{\partial x_k}$
convective_term_$u_i u_j$_rep	$\langle u_k \rangle \frac{\partial \langle u_i' u_j' \rangle}{\partial x_k}$
convective_term_$u m_l d_k u_i u_j$_rep	$\langle u_l \rangle \frac{\partial \langle u_i' u_j' \rangle}{\partial x_k}$
viscous_diffusion_$u_i u_j$_rep	$\frac{\partial^2 \langle u_i' u_j' \rangle}{\partial x_k \partial x_k}$
viscous_diffusion_$d d_k u_i u_j$_rep	$\frac{\partial^2 \langle u_i' u_j' \rangle}{\partial^2 x_k}$
turbulent_transport_$u_i u_j$_rep	$-\frac{\partial \langle u_i' u_j' u_k' \rangle}{\partial x_k}$
turbulent_transport_$d_l u_i u_j u_k$_rep	$\frac{\partial \langle u_i' u_j' u_k' \rangle}{\partial x_l}$