Vertical profiles flow

Mean		
rR	density (RA)	$\overline{\rho}$
rU	u, x-component of the velocity (RA)	$\overline{u}$
rV	v, y-component of the velocity (RA)	$\overline{v}$
rW	w, z-component of the velocity (RA)	$\overline{w}$
rP	π dynamic, reduced pressure (RA)	$\overline{\pi}$
rT	T, caloric temperature (RA)	$\overline{T}$
re	e, internal energy (RA)	$\overline{e}$
rh	h, enthalpy (RA)	$\overline{e + (\Gamma_0 - 1)Ma^2 \frac{p}{\rho}}$
rs	s, entropy (RA)	$\overline{s}$
rB	B, buoyancy (RA)	$\overline{B}$
fU	u, x-component of the velocity (FA)	$\langle u \rangle$
fV	v, y-component of the velocity (FA)	$\langle v \rangle$
fW	w, z-component of the velocity (FA)	$\langle w \rangle$
fT	T, caloric Temperature (FA)	$\langle T \rangle$
fe	e, internal energy (FA)	$\langle e \rangle$
fh	h, enthalpy (FA)	$\left\langle e + (\Gamma_0 - 1)Ma^2 \frac{p}{\rho} \right\rangle$
fs	s, entropy (FA)	$\langle s \rangle$
Fluctuations		
Tke	turbulence kinetic energy	$\overline{\frac{1}{2} u_i' u_i'}$
Rxx	Reynolds stress R_{11}	$\overline{u'u'}$
Ryy	Reynolds stress R_{22}	$\overline{v'v'}$
Rzz	Reynolds stress R_{33}	$\overline{w'w'}$
Rxy	Reynolds stress R_{12}	$\overline{u'v'}$
Rxz	Reynolds stress R_{13}	$\overline{u'w'}$
Ryz	Reynolds stress R_{23}	$\overline{v'w'}$
rP2	pressure fluctuation (RA)	$\overline{\pi'\pi'}$
rR2	density fluctuation (RA)	$\overline{\rho'\rho'}$
rT2	temperature fluctuation (RA)	$\overline{T'T'}$
fT2	temperature fluctuation (FA)	$\langle T'T' \rangle$
re2	internal energy fluctuation (RA)	$\overline{e'e'}$
fe2	internal energy fluctuation (FA)	$\langle e'e' \rangle$
rh2	enthalpy fluctuation (RA)	$\overline{h'h'}$
fh2	enthalpy fluctuation (FA)	$\langle h'h' \rangle$
rs2	entropy fluctuation (RA)	$\overline{s's'}$
fs2	entropy fluctuation (FA)	$\langle s's' \rangle$
DerivativeFluctuations		
U_y1		$\overline{\partial_y u}$
V_y1		$\overline{\partial_y v}$
W_y1		$\overline{\partial_y w}$
U_ii2		
U_x2		$\overline{(\partial_x u')^2}$
U_y2		$\overline{(\partial_y u')^2}$
U_z2		$\overline{(\partial_z u')^2}$
V_x2		$\overline{(\partial_x v')^2}$
V_y2		$\overline{(\partial_y v')^2}$
V_z2		$\overline{(\partial_z v')^2}$
W_x2		$\overline{(\partial_x w')^2}$
W_y2		$\overline{(\partial_y w')^2}$
W_z2		$\overline{(\partial_z w')^2}$
U_x3		$\overline{(\partial_x u')^3}$
U_y3		$\overline{(\partial_y u')^3}$
U_z3		$\overline{(\partial_z u')^3}$
V_x3		$\overline{(\partial_x v')^3}$
V_y3		$\overline{(\partial_y v')^3}$
V_z3		$\overline{(\partial_z v')^3}$
W_x3		$\overline{(\partial_x w')^3}$
W_y3		$\overline{(\partial_y w')^3}$
W_z3		$\overline{(\partial_z w')^3}$
U_x4		$\overline{(\partial_x u')^4}$
U_y4		$\overline{(\partial_y u')^4}$
U_z4		$\overline{(\partial_z u')^4}$
V_x4		$\overline{(\partial_x v')^4}$
V_y4		$\overline{(\partial_y v')^4}$
V_z4		$\overline{(\partial_z v')^4}$
W_x4		$\overline{(\partial_x w')^4}$
W_y4		$\overline{(\partial_y w')^4}$
W_z4		$\overline{(\partial_z w')^4}$
Vorticity		
Wx	vorticity (x-component)	$\overline{\partial_z v - \partial_y w}$
Wy	vorticity (y-component)	$\overline{\partial_x w - \partial_z u}$
Wz	vorticity (z-component)	$\overline{\partial_y u - \partial_x v}$
Wx2	fluctuation of x-Vorticity	$\overline{\partial_z v' - \partial_y w'}$
Wy2	fluctuation of y-Vorticity	$\overline{\partial_x w' - \partial_z u'}$
Wz2	fluctuation of z-Vorticity	$\overline{\partial_y u' - \partial_x v'}$
RxxBudget		
Rxx_t	time-rate of change of R_{11}	$\overline{\partial_t R_{11}}$
Bxx	buoyancy production	$2b_x \overline{u'B'}$
Cxx	advection in y-direction	$-\overline{v}\ \partial_y \overline{u'u'}$
Pxx	shear-production	$-2\ \overline{u'v'}\ \partial_y \overline{u}$
Exx	viscous dissipation	
PIxx	pressure-velocity correlation Π_{11}	$2\ \overline{u'p'}$
Fxx	Coriolis production	$2 f_y \overline{u'w'}$
Txxy_y	divergence of T_{112} turbulent transport	$\partial_y R_{112}$
Txxy	vertical transport T_{112}	$\overline{u'u'v'} - 2\nu \overline{\partial_y (u - \langle u \rangle)}$
Gxx	pressure variable-density term	0
Dxx	viscous variable-density term	
RyyBudget		
Ryy_t	time-rate of change of R_{22}	$\overline{\partial_t R_{22}}$
Byy	buoyancy production of Ryy	$2b_y \overline{v'B'}$
Cyy	advection in y-direction	$\overline{v}\ \partial_y \overline{v'v'}$
Pyy	shear production	$-2\overline{v'v'} \partial_y \overline{v}$
Eyy	viscous dissipation	
PIyy	pressure–velocity correlation Π_{22}	$2\overline{v'p'}$
Fyy	Coriolis production	0
Tyyy_y	divergence of T_{222} turbulent transport	$\partial_y R_{222}$
Tyyy	vertical transport T_{222}	$\overline{v'v'v'} + 2\overline{v'p'} - 2\nu \overline{(\partial_y v)(v - \langle v \rangle)}$
Gyy	pressure variable-density term	$2(\overline{v} - \langle v \rangle) \partial_y \overline{p}$
Dyy	viscous variable-density term	
RzzBudget		
Rzz_t	time-rate of change of R_{33}	$\overline{\partial_t R_{33}}$
Bzz	buoyancy production	$2b_z \overline{w'B'}$
Czz	advection in y-direction	$-\overline{v}\ \partial_y\ \overline{w'w'}$
Pzz	shear production	$-2\overline{v'w'} \partial_y\ \overline{w}$
Ezz	viscous dissipation	
PIzz	pressure–velocity correlation Π_{33}	$2\overline{w'p'}$
Fzz	Coriolis production of Rzz	$-2 f_y \overline{u'w'}$
Tzzy_y	divergence of T_{332} turbulent transport	$\partial_y R_{332}$
Tzzy	vertical transport T_{332}	$\overline{w'w'v'} - 2\nu \overline{(\partial_y w)(w - \langle w \rangle)}$
Gzz	pressure variable-density term	0
Dzz	viscous variable-density term	
RxyBudget		
Rxy_t	time-rate of change of R_{12}	$\overline{\partial_t R_{12}}$
Bxy	buoyancy production	$b_x \overline{u'B'} + b_y \overline{v'B'}$
Cxy	advection in y-direction	$-\overline{v} \partial_y \overline{u'v'}$
Pxy	shear production	$-\overline{u'v'} \partial_y \overline{v} - \overline{v'v'}\ \partial_y \overline{u}$
Exy	viscous dissipation	
PIxy	pressure-velocity correlation Π_{12}	$\overline{p'\ (\partial_y u - \partial_x v)}$
Fxy	Coriolis production of Rxy	$f_y \overline{v'w'}$
Txyy_y	divergence of T_{122} turbulent transport	$\partial_y R_{122}$
Txyy	vertical transport T_{122}	$\overline{u'v'v'} + \overline{u'p'}$
Gxy	pressure variable-density term	$(\overline{u} - \langle u \rangle) \partial_y \overline{p}$
Dxy	viscous variable-density term	
RxzBudget		
Rxz_t	time-rate of change of R_{13}	$\overline{\partial_t R_{13}}$
Bxz	buoyancy production	$b_x u'B' + b_z u'B'$
Cxz	advection in y-direction	$-\overline{v}\ \partial_y \overline{u'w'}$
Pxz	shear production	$-\overline{u'w'}\ \partial_y\ \overline{w} - \overline{v'w'}\ \partial_y \overline{u}$
Exz	viscous dissipation	
PIxz	pressure–velocity correlation Π_{13}	$\overline{p'\ (\partial_z u - \partial_x w)}$
Fxz	Coriolis production	$f_y(\overline{w'w'} - \overline{u'u'})$
Txzy_y	divergence of T_{132} turbulent transport	$\partial_y R_{132}$
Txzy	vertical transport T_{132}	$\overline{u'w'v'}$
Gxz	pressure variable-density term	0
Dxz	viscous variable-density term	
RyzBudget		
Ryz_t	time-rate of change of R_{23}	$\overline{\partial_t R_{23}}$
Byz	buoyancy production	$b_y \overline{v'B'} + b_z \overline{w'B'}$
Cyz	advection in y-direction	$-\overline{v} \partial_y \overline{v'w'}$
Pyz	shear production	$-\overline{v'v'}\ \partial_y\ \overline{w} - \overline{v'w'}\ \partial_y \overline{v}$
Eyz	viscous dissipation	
PIyz	pressure–velocity correlation Π_{23}	$\overline{p'\ (\partial_z v - \partial_y w)}$
Fyz	Coriolis production	$-f_y \overline{u'v'}$
Tyzy_y	turbulent transport divergence	$\partial_y R_{232}$
Tyzy	vertical transport T_{232}	$\overline{v'w'v'} + \overline{w'p'}$
Gyz	pressure variable-density term	$(\overline{w} - \langle w \rangle) \partial_y \overline{p}$
Dyz	viscous variable-density term	
TkeBudget		
Tke_t	time-rate of change of Tke	$\overline{\partial_t \frac{1}{2} R_{ii}}$
Tke	turbulence kinetic energy	$\frac{1}{2} R_{ii}$
Buo	buoyancy production of Tke	$\frac{1}{2} B_{ii}$
Con	advection in y-direction	$\frac{1}{2} C_{ii}$
Prd	shear production	$\frac{1}{2} P_{ii}$
Eps	dissipation	$\frac{1}{2} E_{ii}$
Pi	pressure–velocity correlation	$\frac{1}{2} \Pi_{ii}$
Trp	sum of transport terms	$\frac{1}{2} T_{ii2}$
Trp1	transport due to triple correlation terms	$\overline{u_i' u_i' v'}$
Trp2	transport by pressure–velocity correlation	$2\overline{v'p'}$
Trp3	viscous transport	$-2\nu \overline{(\partial_y u_i)(u_i - \langle u_i \rangle)}$
Trp1_y	divergence of triple correlations	$\partial_y \overline{u_i' u_i' v'}$
Trp2_y	divergence of pressure–velocity correltion	$2\partial_y \overline{v'p'}$
Trp3_y	divergence of viscous transport	$-2\nu \partial_y \overline{(\partial_y u_i)(u_i - \langle u_i \rangle)}$
G	pressure variable-density term	$\frac{1}{2} G_{ii}$
D	viscous variable-density term	$\frac{1}{2} D_{ii}$
Phi	mean viscous dissipation rate	
UgradP		$\overline{u_i \partial_{x_i} p}$
HigherOrder		
rU3		
rU4		
rV3		
rV4		
rW3		
rW4		
Acoustics		
gamma		
C2		
Rho_ac		
Rho_en		
T_ac		
T_en		
M_t		
rRP		
rRT		
RhoBudget		
RhoFluxX		
RhoFluxY		
RhoFluxZ		
RhoDil1		
RhoDil2		
RhoTrp		
RhoProd		
RhoConv		$-\overline{v} \partial_y \overline{\rho' \rho'}$
Stratification		
Pot	potential energy	
rRref	background density profile	
rTref	background temperature profile	
BuoyFreq_fr	buoyancy frequency	
BuoyFreq_eq	buoyancy frequency	
LapseRate_fr	lapse rate	
LapseRate_eq	lapse rate	
PotTemp		
PotTemp_v		
SaturationPressure		
rPref	background pressure profile	
RelativeHumidity		
Dewpoint	dewpoint temperature	
LapseRate_dew		
Roughness		
eps_0	fluid fraction (grid-based approach)	
eps_1	solid fraction (grid-based approach)	
eps_f	fluid fraction (volume-based approach)	
eps_s	solid fraction (volume-based approach)	