

DNS22 Reynolds–Stress Budgets

July 12, 2026

1 Stations

Table 1: Boundary-layer parameters at the eight stations.

Position	x/δ_{avg}	H	C_f	Re_τ	Re_θ	β_{ZS}	β_{RC}
P1	3.32	1.50	0.0030	639	2177	0.343	1.79
P2 (APG1)	5.88	1.66	0.0022	649	3000	0.312	4.60
P3	7.94	1.85	0.0015	626	3802	0.231	8.94
P4	10.20	2.16	0.0009	571	4731	0.153	17.98
P5	12.27	2.50	0.0005	496	5524	0.103	33.96
P6 (APG3)	13.01	2.63	0.0004	467	5784	0.090	42.21
P7	14.38	2.87	0.0002	402	6221	0.073	68.05
P8	16.04	3.13	0.0001	336	6695	0.064	122.46

2 Reynolds-stress budgets

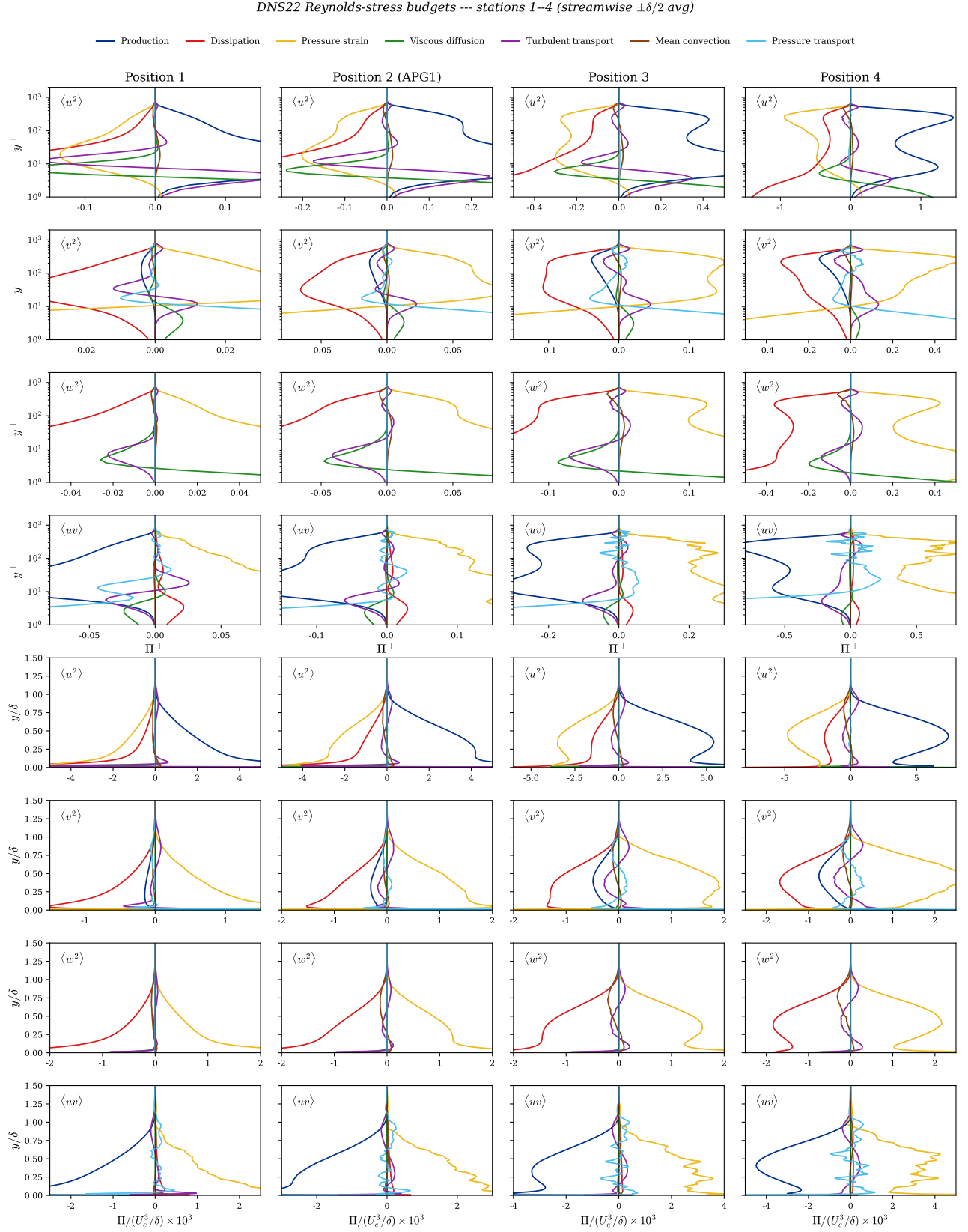


Figure 1: The Reynolds stress budgets (positions P1–P4). The levels and axes are normalized with the friction-viscous scales (a) and outer scales (b). The rows are for $\langle u^2 \rangle$, $\langle v^2 \rangle$, $\langle w^2 \rangle$, and $\langle uv \rangle$ for each figure. Production, dark blue solid line; dissipation, red solid line; pressure-strain, yellow solid line; viscous diffusion, green solid line; turbulent transport, purple solid line; mean convection, brown solid line; pressure transport, light blue solid line.

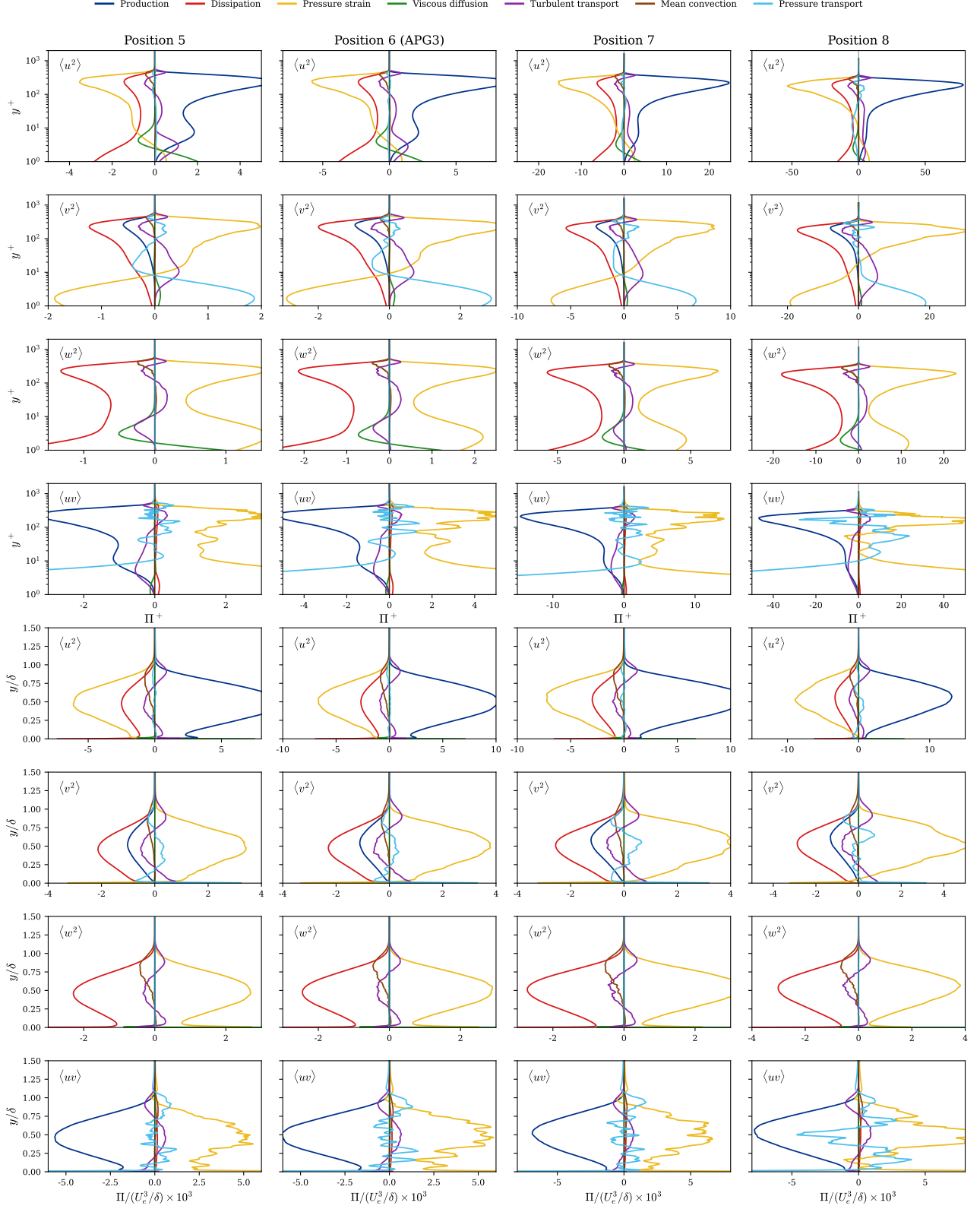


Figure 2: The Reynolds stress budgets (positions P5–P8). The levels and axes are normalized with the friction-viscous scales (a) and outer scales (b). The rows are for $\langle u^2 \rangle$, $\langle v^2 \rangle$, $\langle w^2 \rangle$, and $\langle uv \rangle$ for each figure. Production, dark blue solid line; dissipation, red solid line; pressure-strain, yellow solid line; viscous diffusion, green solid line; turbulent transport, purple solid line; mean convection, brown solid line; pressure transport, light blue solid line.