Canopy density 0.025

Time-averaged streamwise velocity

y/H	2.16	2.01	1.89	1.78	1.67	1.56	1.44	1.33	1.22	1.11	1.00	0.89	0.78	0.67	0.56	0.44	0.33	0.25	0.17	0.11	0.06	0.00	-0.06	-0.14	-0.22	-0.33	-0.44	-0.56	-0.67	-0.78	-0.89	-1.00	-1.11	-1.22	-1.33	-1.44	-1.56	-1.67	-1.78	-1.89	-2.00
0.048	1.793	1.726	1.243	0.964	0.685	0.720	0.756	0.798	1.061	1.062	0.937	0.814	0.720	0.858	0.997	1.090	1.184	1.245	1.305	1.830	2.260	3.500	4.739	5.070	5.401	5.507	5.497	5.283	5.371	5.450	5.528	5.969	6.060	6.423	6.553	6.663	6.747	6.722	6.697	6.545	6.392
0.113	1.655	2.013	1.401	1.230	1.060	1.200	1.340	1.147	1.437	1.238	1.533	1.359	1.126	1.271	1.416	1.671	1.925	1.923	1.920	2.290	3.361	4.190	5.018	5.412	5.806	6.248	6.075	5.941	5.996	6.113	6.230	6.701	6.931	7.410	7.569	7.531	7.736	7.667	7.597	7.417	7.237
0.189	2.291	2.320	1.589	1.413	1.238	1.508	1.778	1.408	1.708	1.601	1.797	1.708	1.514	1.654	1.794	2.139	2.484	2.356	2.228	2.997	3.850	4.718	5.584	5.876	6.167	6.446	6.486	6.393	6.307	6.517	6.727	7.214	7.441	7.805	8.047	8.210	8.217	8.196	8.174	8.026	7.878
0.257	2.965	2.633	1.430	1.599	1.767	2.076	2.384	1.617	2.278	2.019	2.533	2.364	2.106	2.105	2.103	2.739	3.374	3.406	3.439	3.624	4.672	5.362	6.052	6.381	6.709	6.823	6.882	6.614	6.783	6.954	7.125	7.636	7.801	8.235	8.436	8.601	8.724	8.627	8.530	8.340	8.150
0.337	5.104	3.915	2.788	2.789	2.791	2.858	2.926	2.946	3.491	3.694	3.580	3.326	3.729	3.860	3.991	4.437	4.882	4.910	4.939	5.557	6.082	6.369	6.657	6.783	6.909	7.139	7.036	7.123	7.193	7.378	7.563	7.923	8.149	8.413	8.668	8.765	8.831	8.734	8.637	8.432	8.228
z/H **0.408**	6.131	5.397	4.050	3.848	3.647	3.918	4.188	4.130	4.325	4.466	4.161	4.624	5.054	5.063	5.073	5.434	5.794	6.013	6.232	6.545	6.720	6.848	6.976	7.212	7.448	7.580	7.581	7.530	7.525	7.730	7.934	8.164	8.382	8.540	8.716	8.795	8.978	8.827	8.676	8.480	8.285
0.481	6.835	6.354	5.026	4.686	4.347	4.873	5.399	5.052	4.989	5.525	5.238	5.399	5.807	5.818	5.829	6.170	6.510	6.684	6.857	7.245	7.380	7.466	7.553	7.599	7.646	7.769	7.872	7.735	7.868	8.050	8.231	8.477	8.678	8.692	8.880	8.923	8.989	8.905	8.821	8.564	8.308
0.558	7.764	7.307	6.254	5.849	5.444	5.761	6.077	5.987	5.931	6.243	6.004	6.020	6.555	6.545	6.535	6.916	7.296	7.419	7.542	7.588	7.817	7.914	8.010	8.068	8.127	8.134	8.152	8.149	8.213	8.373	8.534	8.715	8.918	8.863	9.081	9.112	9.083	8.985	8.887	8.639	8.391
0.633	8.170	8.434	7.493	7.130	6.768	6.745	6.722	6.525	6.761	6.716	6.667	6.824	7.209	7.278	7.348	7.550	7.751	7.940	8.130	8.125	8.313	8.370	8.428	8.453	8.478	8.476	8.447	8.586	8.579	8.696	8.813	8.975	9.155	9.037	9.336	9.306	9.240	9.154	9.067	8.800	8.534
0.705	8.705	9.252	8.178	7.809	7.440	7.319	7.197	7.197	7.463	7.601	7.346	7.345	7.790	7.876	7.962	8.177	8.392	8.515	8.637	8.726	8.738	8.769	8.800	8.818	8.836	8.902	8.950	8.887	9.054	9.003	8.952	9.117	9.274	9.294	9.501	9.474	9.446	9.298	9.151	8.931	8.712
0.778	9.250	9.869	8.784	8.281	7.778	7.725	7.671	7.709	7.961	7.933	7.608	7.814	8.313	8.398	8.484	8.653	8.821	8.982	9.143	9.326	9.224	9.258	9.293	9.284	9.275	9.210	9.216	9.275	9.417	9.257	9.096	9.244	9.401	9.400	9.608	9.576	9.540	9.387	9.235	9.013	8.791

Time-averaged spanwise velocity

y/H	2.16	2.01	1.89	1.78	1.67	1.56	1.44	1.33	1.22	1.11	1.00	0.89	0.78	0.67	0.56	0.44	0.33	0.25	0.17	0.11	0.06	0.00	-0.06	-0.14	-0.22	-0.33	-0.44	-0.56	-0.67	-0.78	-0.89	-1.00	-1.11	-1.22	-1.33	-1.44	-1.56	-1.67	-1.78	-1.89	-2.00
0.048	-0.051	-0.952	-0.661	-0.321	0.018	0.080	0.141	0.049	0.301	0.480	0.103	0.384	0.276	0.339	0.403	0.367	0.331	0.215	0.098	0.005	-0.033	-0.027	-0.021	-0.188	-0.356	-0.413	-0.582	-0.517	-0.420	-0.279	-0.139	-0.011	0.008	0.029	0.047	0.071	0.066	0.075	0.085	0.066	0.048
0.113	0.053	-0.715	-0.475	-0.176	0.123	0.153	0.184	-0.064	0.232	0.390	0.065	0.344	0.259	0.258	0.256	0.340	0.425	0.282	0.141	-0.151	-0.383	-0.269	-0.156	-0.156	-0.156	-0.124	-0.223	-0.258	-0.249	-0.163	-0.076	-0.014	-0.002	0.062	0.057	0.040	-0.001	0.012	0.025	0.014	0.003
0.189	0.377	-0.580	-0.329	-0.073	0.184	0.157	0.130	-0.037	0.206	0.324	-0.002	0.273	0.138	0.200	0.262	0.320	0.379	0.246	0.113	-0.115	-0.364	-0.213	-0.062	-0.039	-0.017	-0.052	0.010	-0.030	-0.060	-0.044	-0.028	0.022	0.008	0.022	0.048	0.070	-0.035	-0.047	-0.059	-0.064	-0.069
0.257	0.533	-0.457	0.055	0.149	0.242	0.208	0.175	-0.050	0.087	0.416	-0.111	0.193	0.152	0.207	0.261	0.370	0.479	0.374	0.269	-0.004	-0.152	-0.078	-0.004	0.025	0.054	0.080	0.071	0.077	0.039	0.011	-0.016	0.009	-0.011	0.011	-0.009	-0.017	-0.011	-0.033	-0.054	-0.063	-0.071
0.337	0.422	-0.179	0.117	0.164	0.212	0.162	0.112	0.012	0.195	0.251	0.047	0.123	0.185	0.206	0.227	0.270	0.313	0.240	0.166	0.209	0.045	0.088	0.130	0.133	0.136	0.080	0.071	0.108	0.055	0.024	-0.008	-0.033	-0.040	-0.022	-0.005	-0.016	-0.018	-0.022	-0.026	-0.027	-0.028
z/H **0.408**	0.192	0.214	0.232	0.201	0.171	0.134	0.097	0.071	0.027	0.241	0.058	0.025	0.020	0.075	0.130	0.119	0.108	0.101	0.094	0.081	0.084	0.079	0.074	0.092	0.111	0.118	0.093	0.069	0.061	0.014	-0.034	-0.081	-0.089	-0.034	-0.054	-0.024	-0.002	0.003	0.007	0.027	0.046
0.481	0.195	0.246	0.223	0.226	0.228	0.092	-0.044	0.072	0.136	0.056	0.011	0.044	-0.047	-0.038	-0.029	-0.054	-0.079	-0.092	-0.104	-0.012	0.086	0.072	0.058	0.061	0.063	0.098	0.133	0.125	0.057	0.018	-0.022	-0.079	-0.087	-0.049	-0.038	0.003	0.018	0.045	0.072	0.088	0.104
0.558	0.153	0.266	0.111	0.085	0.059	-0.027	-0.113	0.065	-0.043	-0.018	-0.093	-0.132	-0.024	-0.053	-0.082	-0.064	-0.046	-0.055	-0.064	-0.044	0.025	0.036	0.046	0.058	0.070	0.114	0.133	0.101	0.092	0.047	0.002	-0.005	0.001	-0.015	-0.003	0.018	0.050	0.071	0.092	0.123	0.154
0.633	0.122	0.217	0.200	0.096	-0.008	-0.016	-0.024	-0.141	-0.175	-0.106	-0.052	-0.171	-0.188	-0.185	-0.181	-0.153	-0.124	-0.078	-0.032	-0.027	-0.035	0.001	0.037	0.056	0.076	0.100	0.139	0.169	0.168	0.148	0.129	0.091	0.061	0.052	0.032	0.064	0.032	0.055	0.077	0.111	0.145
0.705	0.027	0.104	0.073	0.068	0.063	-0.045	-0.152	-0.240	-0.136	-0.221	-0.217	-0.216	-0.149	-0.163	-0.178	-0.179	-0.180	-0.116	-0.051	-0.056	-0.025	0.010	0.045	0.044	0.043	0.072	0.146	0.159	0.153	0.160	0.166	0.127	0.110	0.101	0.063	0.076	0.024	0.031	0.038	0.034	0.030
0.778	-0.016	0.166	0.117	0.022	-0.073	-0.136	-0.198	-0.244	-0.258	-0.224	-0.285	-0.252	-0.314	-0.270	-0.226	-0.174	-0.121	-0.076	-0.031	-0.005	-0.015	0.016	0.047	0.056	0.065	0.072	0.116	0.099	0.153	0.163	0.173	0.168	0.127	0.152	0.117	0.107	0.079	0.066	0.052	0.048	0.043

Time-averaged vertical velocity

y/H	2.16	2.01	1.89	1.78	1.67	1.56	1.44	1.33	1.22	1.11	1.00	0.89	0.78	0.67	0.56	0.44	0.33	0.25	0.17	0.11	0.06	0.00	-0.06	-0.14	-0.22	-0.33	-0.44	-0.56	-0.67	-0.78	-0.89	-1.00	-1.11	-1.22	-1.33	-1.44	-1.56	-1.67	-1.78	-1.89	-2.00
0.048	0.088	0.131	0.081	0.053	0.026	0.030	0.034	0.043	0.037	0.021	0.004	0.011	0.035	0.026	0.016	-0.004	-0.025	0.015	0.054	0.070	-0.052	-0.042	-0.033	-0.027	-0.022	0.000	0.078	0.133	0.078	0.080	0.082	0.042	0.039	0.023	0.058	0.015	0.034	0.020	0.007	0.004	0.001
0.113	-0.143	0.217	0.158	0.124	0.089	0.050	0.012	0.048	0.017	0.008	-0.086	0.061	0.054	0.032	0.010	-0.046	-0.102	-0.046	0.011	0.073	-0.071	-0.134	-0.197	-0.172	-0.147	-0.122	0.013	0.072	0.109	0.107	0.105	0.020	0.006	-0.030	-0.019	-0.008	-0.031	-0.037	-0.043	-0.046	-0.050
0.189	-0.161	-0.010	0.230	0.186	0.141	0.072	0.002	0.102	0.032	-0.006	-0.022	0.025	0.018	0.003	-0.012	-0.098	-0.183	-0.073	0.036	-0.093	-0.168	-0.207	-0.245	-0.227	-0.208	-0.161	-0.079	0.023	0.108	0.103	0.097	0.036	0.004	-0.016	-0.036	-0.022	-0.040	-0.048	-0.055	-0.065	-0.075
0.257	-0.251	0.004	0.217	0.221	0.224	0.115	0.006	0.155	0.010	-0.032	-0.087	0.061	0.058	0.083	0.108	-0.069	-0.246	-0.077	0.091	-0.175	-0.131	-0.172	-0.214	-0.189	-0.164	-0.210	-0.093	0.016	0.087	0.103	0.120	0.067	0.031	-0.008	-0.031	-0.033	-0.051	-0.060	-0.069	-0.058	-0.047
0.337	-0.810	-0.111	-0.006	0.115	0.235	0.169	0.103	-0.021	-0.032	-0.155	-0.014	-0.001	-0.116	-0.158	-0.201	-0.206	-0.210	-0.298	-0.385	-0.343	-0.132	-0.180	-0.227	-0.197	-0.167	-0.184	-0.048	0.002	0.077	0.079	0.081	0.038	0.007	-0.019	-0.029	-0.056	-0.062	-0.067	-0.072	-0.054	-0.036
z/H **0.408**	-0.420	-0.175	0.247	0.260	0.274	0.168	0.062	0.082	0.010	-0.086	0.038	0.046	-0.155	-0.100	-0.046	-0.083	-0.121	-0.139	-0.158	-0.303	-0.126	-0.150	-0.175	-0.202	-0.230	-0.169	-0.092	-0.024	0.071	0.062	0.052	0.057	0.021	0.032	-0.007	-0.030	-0.037	-0.040	-0.042	-0.030	-0.018
0.481	-0.315	-0.213	0.249	0.267	0.285	0.145	0.004	0.048	0.001	0.009	0.003	-0.039	-0.067	-0.077	-0.087	-0.173	-0.259	-0.237	-0.214	-0.284	-0.219	-0.213	-0.206	-0.188	-0.169	-0.163	-0.064	-0.009	0.021	0.051	0.081	0.047	0.073	0.041	0.034	0.019	-0.004	-0.009	-0.013	0.008	0.030
0.558	-0.355	-0.185	0.085	0.161	0.236	0.166	0.096	0.086	-0.027	-0.046	-0.057	-0.088	-0.095	-0.125	-0.155	-0.202	-0.248	-0.252	-0.255	-0.248	-0.201	-0.214	-0.227	-0.203	-0.178	-0.160	-0.101	-0.074	-0.010	0.010	0.030	0.034	0.038	0.022	0.042	0.048	-0.008	-0.014	-0.020	-0.015	-0.010
0.633	-0.265	-0.165	-0.067	0.018	0.103	0.081	0.059	0.004	-0.065	-0.068	-0.081	-0.091	-0.083	-0.114	-0.144	-0.190	-0.236	-0.242	-0.248	-0.198	-0.237	-0.238	-0.240	-0.210	-0.180	-0.164	-0.131	-0.072	-0.062	-0.035	-0.009	-0.003	0.001	0.013	0.017	0.010	-0.023	-0.023	-0.023	-0.036	-0.048
0.705	-0.196	-0.369	-0.109	0.020	0.149	0.082	0.016	-0.081	-0.057	-0.079	-0.118	-0.179	-0.135	-0.130	-0.124	-0.180	-0.235	-0.234	-0.233	-0.250	-0.194	-0.174	-0.155	-0.154	-0.152	-0.114	-0.105	-0.082	-0.057	-0.041	-0.025	-0.005	-0.013	0.010	0.019	0.027	-0.004	-0.021	-0.038	-0.039	-0.039
0.778	-0.014	-0.060	0.037	0.096	0.155	0.145	0.135	0.094	0.010	-0.020	0.090	0.094	0.014	0.001	-0.012	-0.039	-0.067	-0.073	-0.078	-0.137	-0.108	-0.075	-0.041	-0.004	0.033	-0.021	0.031	-0.019	0.052	0.074	0.096	0.087	0.081	0.098	0.099	0.089	0.105	0.114	0.123	0.131	0.139

Vertical stresses*

	$-\langle\widetilde{u}''\widetilde{w}''\rangle_{A_y}$	$-\langle\overline{u'w'}\rangle_{A_y}$	$-\langle\widetilde{\hat{u}}\widetilde{\hat{w}}\rangle_{A_y}$	$\langle\overline{\tau_{zx}}\rangle_{A_y}$		$-\langle\widetilde{u}''\widetilde{w}''\rangle_{A_{V_z}}$	$-\langle\overline{u'w'}\rangle_{A_{V_z}}$	$-\langle\widetilde{\hat{u}}\widetilde{\hat{w}}\rangle_{A_{V_z}}$	$\langle\overline{\tau_{zx}}\rangle_{A_{V_z}}$
0.048	0.0005846	0.0032597	-0.0019876	0.0018567		0.0008809	0.0012146	-0.0012965	0.000799
0.113	0.0007912	0.0056585	0.0004226	0.0068723		0.0012659	0.0037133	0.0016286	0.0066078
0.189	0.0003391	0.0098997	0.0017545	0.0119933		0.0005642	0.0094526	0.0037657	0.0137825
0.257	0.0045946	0.0185786	0.0036584	0.0268316		0.0082971	0.0262857	0.006509	0.0410918
0.337	-0.0005181	0.032299	-0.0029939	0.028787		-0.0010092	0.0528149	0.0012544	0.0530601
z/H **0.408**	0.0008039	0.0278168	0.0012353	0.029856		0.0014814	0.0472538	0.004051	0.0527862
0.481	0.0006359	0.0241667	0.0006317	0.0254343		0.0010936	0.0410085	0.0041034	0.0462055
0.558	0.0004529	0.0254488	0.0010329	0.0269346		0.0007781	0.0438265	0.0039632	0.0485678
0.633	0.0003436	0.0229449	0.0006863	0.0239748		0.0006988	0.0398613	0.0026332	0.0431933
0.705	-0.0015549	0.0214004	-0.0005106	0.0193349		-0.0021599	0.0368028	0.0007562	0.0353991
0.778	-0.0023803	0.0180709	0.0000334	0.015724		-0.0007465	0.0296966	0.0012117	0.0301618

*All stresses are divided by $(U_{u_{\tau}} - U_1)^2$

Lateral stresses*

y/H	$\langle\widetilde{u}''\widetilde{v}''\rangle_d$	$\langle\widetilde{\hat{u}}\widetilde{\hat{v}}\rangle_d$	$\langle\overline{u'v'}\rangle_d$	$\langle\overline{\tau_{xy}}\rangle_d$
1.89	0.001223	0.021254	-0.010650	0.022477
1.67	-0.001981	-0.006876	-0.000985	-0.008857
1.44	-0.001355	-0.012860	0.004536	-0.024865
1.33	-0.000452	-0.011706	0.002408	-0.013143
1.22	-0.001209	-0.016445	0.001443	-0.013118
1.11	-0.003515	-0.016581	0.004795	-0.017688
1.00	-0.001549	-0.018787	-0.001146	-0.018893
0.89	-0.001703	-0.016804	0.000493	-0.013713
0.78	-0.001996	-0.019058	0.000822	-0.022199
0.56	-0.001291	-0.022830	0.007090	-0.023628
0.33	-0.002028	-0.025859	0.006380	-0.027065
0.17	-0.001767	-0.011474	0.010705	-0.006152
0.11	-0.000838	0.002479	0.007644	0.008020
0.06	0.002216	0.010912	0.013828	0.023832
-0.06	0.000555	0.003024	0.007840	0.011223
-0.22	0.000628	0.003807	0.002438	0.018264
-0.33	0.000496	0.004295	0.000566	0.012631
-0.44	0.000878	0.006650	-0.000138	0.009966
-0.56	0.000577	0.007148	-0.000183	0.008291
-0.67	0.001103	0.007173	0.000582	0.008139
-0.89	0.001307	0.004164	0.001853	0.005288
-1.00	0.001158	0.001846	0.002142	0.003587
-1.11	0.000869	0.001430	0.002150	0.004152
-1.22	0.001069	0.000633	0.001195	0.003845
-1.33	0.000754	0.000050	0.001001	0.002954
-1.44	0.000588	0.000110	0.000473	0.001893
-1.56	0.000469	0.000213	-0.000138	0.001683
-1.78	0.000128	0.000103	-0.001314	0.000705
-2.00	0.003598	0.000391	-0.001974	0.003850

*All stresses are divided by $(U_{u_{\tau}} - U_1)^2$