

space - hold in files

WAVES AND TURBULENCE					WAVES ONLY					WAVES AND TURBULENCE					WAVES ONLY					
ID #	E_w mm ²	\tilde{E}_w mm ²	r cm	E_{wo} mm ²	\tilde{E}_{wo} mm ²	ID #	E_w mm ²	\tilde{E}_w mm ²	r cm	E_{wo} mm ²	\tilde{E}_{wo} mm ²	ID #	E_w mm ²	\tilde{E}_w mm ²	r cm	E_{wo} mm ²	\tilde{E}_{wo} mm ²			
1	.1844	.1990	30.5	.1910	.1907	6	.1288	.1427	30.5	.1567	.1572	11	.1383	.1518	30.5	.1641	.1678			
	.0694	.0947	61.0	.0863	.0869		.0763	.0622	61.0	.0758	.0755		.0647	.0691	61.0	.0985	.0844			
	.0905	.0601	91.4	.0552	.0529		.0410	.0361	91.4	.0498	.0483		.0475	.0419	91.4	.0590	.0566			
	.0538	.0429	121.9	.0387	.0361		.0324	.0236	121.9	.0328	.0348		.0485	.0286	121.9	.0414	.0427			
	.0455	.0326	152.4	.0254	.0264		.0400	.0165	152.4	.0250	.0267		.0168	.0208	152.4	.0270	.0344			
	.0386	.0259	182.9	.0154	.0200		.0515	.0120	182.9	.0190	.0214		.0652	.0158	182.9	.0219	.0288			
	Fit Error=.0218 (4)				Fit Error=.0024				.0443 .0089 213.4 .0184 .0176				Fit Error=.0113 (5)				Fit Error=.0073			
	Mean E_g =.0059				SD E_g =.0016				.0157 .0068 243.8 .0187 .0148				Mean E_g =.0066				SD E_g =.0007			
									Fit Error=.0111 (4)				Fit Error=.0020							
									Mean E_g =.0177				SD E_g =.0037							
2	.1643	.1750	30.5	.1910	.1907	7	.1669	.1686	30.5	.1910	.1907	12	.1653	.1651	30.5	.1910	.1907			
	.0611	.0732	61.0	.0863	.0869		.0390	.0679	61.0	.0863	.0869		.0585	.0652	61.0	.0863	.0869			
	.0519	.0408	91.4	.0552	.0529		.0363	.0365	91.4	.0552	.0529		.0477	.0343	91.4	.0552	.0529			
	.0397	.0256	121.9	.0387	.0361		.0337	.0221	121.9	.0387	.0361		.0151	.0203	121.9	.0387	.0361			
	.0189	.0171	152.4	.0254	.0264		.0308	.0142	152.4	.0254	.0264		.0136	.0128	152.4	.0254	.0264			
	.0180	.0119	182.9	.0154	.0200		.0275	.0096	182.9	.0154	.0200		.0125	.0084	182.9	.0154	.0200			
	Fit Error=.0102 (6)				Fit Error=.0024				Fit Error=.0162 (6)				Fit Error=.0024							
	Mean E_g =.0065				SD E_g =.0015				Mean E_g =.0072				SD E_g =.0013							
									Mean E_g =.0043				SD E_g =.0002							
3	.0764	.0819	30.5	.0861	.0865	8	.0946	.0993	30.5	.1187	.1190	13	.1286	.1612	30.5	.1910	.1907			
	.0272	.0367	61.0	.0445	.0409		.0420	.0381	61.0	.0553	.0547		.0751	.0621	61.0	.0863	.0869			
	.0245	.0219	91.4	.0235	.0258		.0226	.0195	91.4	.0346	.0335		.0574	.0319	91.4	.0552	.0529			
	.0274	.0147	121.9	.0211	.0183		.0112	.0112	121.9	.0209	.0231		.0282	.0184	121.9	.0387	.0361			
	.0141	.0106	152.4	.0128	.0139		.0199	.0069	152.4	.0186	.0170		.0127	.0114	152.4	.0254	.0264			
	.0103	.0079	182.9	.0092	.0110		.0071	.0044	182.9	.0127	.0130		.0046	.0073	182.9	.0154	.0200			
	Fit Error=.0071 (6)				Fit Error=.0023				Fit Error=.0034 (4)				Fit Error=.0013							
	Mean E_g =.0023				SD E_g =.0015				Mean E_g =.0068				SD E_g =.0006							
									Mean E_g =.0119				SD E_g =.0017							
4	.1220	.1678	30.5	.1910	.1907	9	.0946	.1415	30.5	.1512	.1493	14	.0749	.0619	30.5	.0861	.0865			
	.0873	.0673	61.0	.0863	.0869		.0918	.0610	61.0	.0628	.0678		.0004	.0210	61.0	.0445	.0409			
	.0521	.0360	91.4	.0552	.0529		.0525	.0350	91.4	.0394	.0411		.0029	.0095	91.4	.0235	.0258			
	.0424	.0216	121.9	.0387	.0361		.0341	.0226	121.9	.0269	.0280		.0108	.0048	121.9	.0211	.0183			
	.0235	.0139	152.4	.0254	.0264		.0161	.0156	152.4	.0215	.0204		.0086	.0026	152.4	.0128	.0139			
	.0166	.0093	182.9	.0154	.0200		.0303	.0112	182.9	.0171	.0154		.0000	.0015	182.9	.0092	.0110			
	Fit Error=.0256 (5)				Fit Error=.0024				.0165 .0083 213.4 .0144 .0120				Fit Error=.0119 (5)				Fit Error=.0023			
	Mean E_g =.0026				SD E_g =.0016				.0028 .0062 243.8 .0126 .0096				Mean E_g =.0473				SD E_g =.0130			
									Fit Error=.0268 (5)				Fit Error=.0026							
									Mean E_g =.0179				SD E_g =.0033							
5	.1432	.1587	30.5	.1910	.1907	10	.7466	.7791	30.5	.9008	.8750	15	.4923	.4911	30.5	.6620	.6369			
	.0460	.0602	61.0	.0863	.0869		.4430	.3420	61.0	.4861	.4314		.2549	.1834	61.0	.2463	.3084			
	.0436	.0304	91.4	.0552	.0529		.1243	.2001	91.4	.2971	.2835		.0140	.0913	91.4	.2060	.1991			
	.0300	.0173	121.9	.0387	.0361		.4105	.1318	121.9	.1405	.2097		.0000	.0511	121.9	.1623	.1446			
	.0183	.0105	152.4	.0254	.0264		.4456	.0925	152.4	.0815	.1654		.0009	.0305	152.4	.1189	.1120			
	.0291	.0066	182.9	.0154	.0200		.3584	.0677	182.9	.0478	.1359		.0008	.0190	182.9	.0982	.0904			
	Fit Error=.0149 (6)				Fit Error=.0024				.2172 .0509 213.4 .0243 .1148				.0041 .0122 213.4 .0965 .0750							
	Mean E_g =.0018				SD E_g =.0005				.1210 .0391 243.8 .0285 .0991				.0046 .0080 243.8 .0751 .0636							
									Fit Error=.0753 (3)				Fit Error=.0676							
									Mean E_g =.0068				SD E_g =.0035							
									Mean E_g =.0312				SD E_g =.0074							

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ID #	E_w	\tilde{E}_w	r	E_{wo}	\tilde{E}_{wo}	ID #	E_w	\tilde{E}_w	r	E_{wo}	\tilde{E}_{wo}	ID #	E_w	\tilde{E}_w	r	E_{wo}	\tilde{E}_{wo}				
	mm ²	mm ²	cm	mm ²	mm ²		mm ²	mm ²	cm	mm ²	mm ²		mm ²	mm ²	cm	mm ²	mm ²				
1	.1844	.1990	30.5	.1910	.1907	6	.1288	.1427	30.5	.1567	.1572	11	.1383	.1518	30.5	.1641	.1678				
	.0694	.0947	61.0	.0863	.0869		.0763	.0622	61.0	.0758	.0755		.0647	.0691	61.0	.0985	.0844				
	.0905	.0601	91.4	.0552	.0529		.0410	.0361	91.4	.0498	.0483		.0475	.0419	91.4	.0590	.0566				
	.0538	.0429	121.9	.0387	.0361		.0324	.0236	121.9	.0328	.0348		.0485	.0286	121.9	.0414	.0427				
	.0455	.0326	152.4	.0254	.0264		.0400	.0165	152.4	.0250	.0267		.0168	.0208	152.4	.0270	.0344				
	.0386	.0259	182.9	.0154	.0200		.0515	.0120	182.9	.0190	.0214		.0652	.0158	182.9	.0219	.0288				
	Fit Error=.0218 (4)		Fit Error=.0024			.0443		.0089		.0184		.0176		Fit Error=.0113 (5)		Fit Error=.0073					
	Mean E_g = .0059		SD E_g = .0016			.0157		.0068		243.8		.0187		.0148		Mean E_g = .0066		SD E_g = .0007			
					Fit Error=.0111 (4)				Fit Error=.0020												
					Mean E_g = .0177				SD E_g = .0037												
2	.1643	.1750	30.5	.1910	.1907	7	.1669	.1686	30.5	.1910	.1907	12	.1653	.1651	30.5	.1910	.1907				
	.0611	.0732	61.0	.0863	.0869		.0390	.0679	61.0	.0863	.0869		.0585	.0652	61.0	.0863	.0869				
	.0519	.0408	91.4	.0552	.0529		.0363	.0365	91.4	.0552	.0529		.0477	.0343	91.4	.0552	.0529				
	.0397	.0256	121.9	.0387	.0361		.0337	.0221	121.9	.0387	.0361		.0151	.0203	121.9	.0387	.0361				
	.0189	.0171	152.4	.0254	.0264		.0308	.0142	152.4	.0254	.0264		.0136	.0128	152.4	.0254	.0264				
	.0180	.0119	182.9	.0154	.0200		.0275	.0096	182.9	.0154	.0200		.0125	.0084	182.9	.0154	.0200				
	Fit Error=.0102 (6)		Fit Error=.0024			Fit Error=.0162 (6)		Fit Error=.0024			Fit Error=.0079 (4)		Fit Error=.0024			Fit Error=.0024					
	Mean E_g = .0065		SD E_g = .0015			Mean E_g = .0072		SD E_g = .0013			Mean E_g = .0043		SD E_g = .0002			SD E_g = .0002					
3	.0764	.0819	30.5	.0861	.0865	8	.0946	.0993	30.5	.1187	.1190	13	.1286	.1612	30.5	.1910	.1907				
	.0272	.0367	61.0	.0445	.0409		.0420	.0381	61.0	.0553	.0547		.0751	.0621	61.0	.0863	.0869				
	.0245	.0219	91.4	.0235	.0258		.0226	.0195	91.4	.0346	.0335		.0574	.0319	91.4	.0552	.0529				
	.0274	.0147	121.9	.0211	.0183		.0112	.0112	121.9	.0209	.0231		.0282	.0184	121.9	.0387	.0361				
	.0141	.0106	152.4	.0128	.0139		.0199	.0069	152.4	.0186	.0170		.0127	.0114	152.4	.0254	.0264				
	.0103	.0079	182.9	.0092	.0110		.0071	.0044	182.9	.0127	.0130		.0046	.0073	182.9	.0154	.0200				
	Fit Error=.0071 (6)		Fit Error=.0023			Fit Error=.0034 (4)		Fit Error=.0013			Fit Error=.0182 (6)		Fit Error=.0024			Fit Error=.0024					
	Mean E_g = .0023		SD E_g = .0015			Mean E_g = .0068		SD E_g = .0006			Mean E_g = .0119		SD E_g = .0017			SD E_g = .0017					
4	.1220	.1678	30.5	.1910	.1907	9	.0946	.1415	30.5	.1512	.1493	14	.0749	.0619	30.5	.0861	.0865				
	.0873	.0673	61.0	.0863	.0869		.0918	.0610	61.0	.0628	.0678		.0004	.0210	61.0	.0445	.0409				
	.0521	.0360	91.4	.0552	.0529		.0525	.0350	91.4	.0394	.0411		.0029	.0095	91.4	.0235	.0258				
	.0424	.0216	121.9	.0387	.0361		.0341	.0226	121.9	.0269	.0280		.0108	.0048	121.9	.0211	.0183				
	.0235	.0139	152.4	.0254	.0264		.0161	.0156	152.4	.0215	.0204		.0086	.0026	152.4	.0128	.0139				
	.0166	.0073	182.9	.0154	.0200		.0303	.0112	182.9	.0171	.0154		.0000	.0015	182.9	.0092	.0110				
	Fit Error=.0256 (5)		Fit Error=.0024			.0165		.0083		.0144		.0120		Fit Error=.0119 (5)		Fit Error=.0023					
	Mean E_g = .0026		SD E_g = .0016			.0028		.0062		243.8		.0126		.0096		Mean E_g = .0473		SD E_g = .0130			
					Fit Error=.0268 (5)				Fit Error=.0026												
					Mean E_g = .0179				SD E_g = .0033												
5	.1432	.1587	30.5	.1910	.1907	10	.7466	.7791	30.5	.9008	.8750	15	.4923	.4911	30.5	.6620	.6369				
	.0460	.0602	61.0	.0863	.0869		.4430	.3420	61.0	.4861	.4314		.2549	.1834	61.0	.2463	.3084				
	.0436	.0304	91.4	.0552	.0529		.1243	.2001	91.4	.2971	.2835		.0140	.0913	91.4	.2060	.1991				
	.0300	.0173	121.9	.0387	.0361		.4105	.1318	121.9	.1405	.2097		.0000	.0511	121.9	.1623	.1446				
	.0183	.0105	152.4	.0254	.0264		.4456	.0925	152.4	.0815	.1654		.0009	.0305	152.4	.1189	.1120				
	.0291	.0066	182.9	.0154	.0200		.3584	.0677	182.9	.0478	.1359		.0008	.0190	182.9	.0982	.0904				
	Fit Error=.0149 (6)		Fit Error=.0024			.2172		.0509		.0243		.1148		.0041		.0122		.0965		.0750	
	Mean E_g = .0018		SD E_g = .0005			.1210		.0391		243.8		.0285		.0991		.0046		.0080		.0636	
					Fit Error=.0753 (3)				Fit Error=.0676				Fit Error=.0585 (4)				Fit Error=.0263				
					Mean E_g = .0068				SD E_g = .0035				Mean E_g = .0312				SD E_g = .0074				

Table 1: Measured Energy Levels, E_w and E_{wo} and their Approximations \tilde{E}_w and \tilde{E}_{wo} .

Following the energy vs distance data for each run the rms of the differences between the experimental data and their approximations are given and labeled "Fit Error". For the data in the presence of turbulence, the number of data points used in generating the approximation and calculating the Fit Error is given in parenthesis. The following line shows the mean and standard deviation of the turbulence energy levels, E_g . Test conditions for each ID number are shown in Table 2.