

実験結果 整理表 ～力計測～

実験日

2015-

実験環境の設定

送風機回転数	[rpm]	1400
ピトー管差圧	[Pa]	858.0
試験時の平均温度	[℃]	33.665853659

試験時の平均Re数

164224.0543

較正係数

F_x	[N/V]	10
F_y	[N/V]	10
M_z	[Nm/V]	1

測定範囲(定格負荷の何%か)

F_x	[%]	0.004～1.47
F_y	[%]	0.086～9.610
M_z	[%]	0.0025～1.92

実験結果

迎角	風洞内温度	風洞静圧	天秤出力(無風時)			天秤出力(通風時)	
α [deg]	t [℃]	P [hPa]	F_x [V]	F_y [V]	M_z [V]	F_x [V]	F_y [V]
-20	33.3	1003.55	-0.53935851	-0.99798082	0.245672082	-0.48694152	-1.8073639
-19	33.4	1003.52	-0.51461179	-1.00344935	0.247628397	-0.47026681	-1.8122711
-18	33.5	1003.52	-0.49332887	-1.00882732	0.248188067	-0.455423	-1.81902777
-17	33.6	1003.55	-0.4719788	-1.01896535	0.249249427	-0.44093018	-1.81882024
-16	33.7	1003.54	-0.45217286	-1.02133081	0.248652032	-0.42694395	-1.82439267
-15	33.8	1003.55	-0.42864681	-1.02884701	0.25119835	-0.41625976	-1.8322327
-14	33.8	1003.57	-0.4075103	-1.03696697	0.25024742	-0.40788879	-1.85849
-13	33.9	1003.57	-0.39071046	-1.03905112	0.248831909	-0.41649474	-1.90858156
-12	34.0	1003.59	-0.36630552	-1.04410192	0.251088501	-0.51324765	-2.00510865
-11	34.0	1003.58	-0.34270933	-1.0485198	0.251123642	-0.47742312	-1.96326297
-10	34.1	1003.58	-0.3243988	-1.0520172	0.250588208	-0.43553767	-1.9092987
-9	34.2	1003.57	-0.30235291	-1.05457381	0.251145562	-0.39593809	-1.85375061
-8	34.2	1003.57	-0.27944947	-1.05915138	0.252036666	-0.3604004	-1.79072568
-7	34.3	1003.60	-0.25942386	-1.06107507	0.251065289	-0.32130426	-1.7250275
-6	0.4	1003.60	-0.22526546	-1.06478622	0.251589698	-0.28288576	-1.65030212
-5	34.5	1003.60	-0.21530155	-1.06494907	0.252042769	-0.24803771	-1.58088984
-4	34.6	1003.61	-0.1939758	-1.06887706	0.251741039	-0.2150452	-1.5086334
-3	34.6	1003.60	-0.17249446	-1.07005378	0.253007932	-0.17933961	-1.40848695
-2	34.7	1003.61	-0.14961552	-1.0698738	0.251798192	-0.14780573	-1.29679564
-1	34.8	1003.61	-0.12647096	-1.07053657	0.251886164	-0.12018736	-1.18657835
0	34.9	1003.63	-0.10690919	-1.07090851	0.251067685	-0.09282529	-1.07947392
1	33.8	1003.66	-0.0861847	-1.07033819	0.251235098	-0.06612549	-0.95911866
2	34.0	1003.67	-0.06594538	-1.07034327	0.250707057	-0.047111613	-0.85138242
3	34.1	1003.68	-0.04227594	-1.06888895	0.250593481	-0.03176577	-0.73956297
4	34.3	1003.70	-0.02071532	-1.06762049	0.250673265	-0.01565244	-0.6401184
5	34.4	1003.68	0.01788027	-1.06519288	0.254365801	-0.00094604	-0.55352784
6	34.5	1003.66	0.02486262	-1.06662148	0.254082895	0.01566165	-0.47508239
7	34.6	1003.66	0.04946595	-1.0608915	0.255458585	0.0225311	-0.40312193
8	34.7	1003.60	0.06672364	-1.05891829	0.252316667	0.02513123	-0.33307492
9	34.8	1003.62	0.08992619	-1.05519822	0.252250138	0.03217773	-0.26572877
10	34.9	1003.61	0.11119688	-1.05205276	0.252486022	0.03901678	-0.20337223
11	35.0	1003.60	0.13262025	-1.04963209	2.52E-01	0.04570009	-0.1417542
12	35.1	1003.61	0.15365914	-1.04521632	0.252920647	0.0557495	-0.09122314
13	35.2	1003.60	0.1756409	-1.04057143	0.252802336	0.19821166	-0.20963741
14	35.2	1003.60	0.19810178	-1.03580586	0.251757441	0.23872681	-0.23036811
15	35.4	1003.58	0.21749277	-1.03038125	0.251591917	0.26774906	-0.22839359
16	35.4	1003.60	0.23849489	-1.0246872	0.252381278	0.29912412	-0.22641294

17	35.5	1003.60	0.25896306	-1.01901068	0.250564283	0.32502749	-0.22105407
18	35.6	1003.58	0.27946162	-1.01386189	0.251006411	0.35502009	-0.21071168
19	35.7	1003.59	0.30245058	-1.00566996	0.2517048	0.37739256	-0.20954585
20	35.8	1003.59	0.3230652	-0.99990045	0.251948626	0.40680543	-0.19344173

静圧平均	Pa	1003.60024
空気密度	ρ	1.13960848
粘性係数	μ	1.88494094
風速	V	38.8043851

実験結果

寺)	迎角	天秤出力 (正味)			揚力	抗力	ピッチング モーメント
M_z [V]	α [deg]	F_x [N]	F_y [N]	M_z [Nm]	L [N]	D [N]	$M_{C/4}$ [Nm]
0.33863522	-20	0.5241699	-8.0938309	0.09296314	-7.42643646	3.260811774	0.048678902
0.33876954	-19	0.4434498	-8.0882175	0.09114114	-7.50318678	3.052556074	0.050402664
0.34023744	-18	0.3790587	-8.1020045	0.09204937	-7.5883286	2.864163329	0.049735706
0.33940732	-17	0.3104862	-7.9985489	0.09015789	-7.55827299	2.635468813	0.049816713
0.34119564	-16	0.2522891	-8.0306186	0.09254361	-7.64998576	2.456054327	0.047992218
0.34339301	-15	0.1238705	-8.0338569	0.09219466	-7.72804984	2.198964892	0.048397836
0.35015562	-14	-0.0037849	-8.2152303	0.0999082	-7.97211847	1.983771607	0.04385833
0.37127987	-13	-0.2578428	-8.6953045	0.12244796	-8.53044637	1.704783598	0.029719867
0.44267885	-12	-1.4694213	-9.6100674	0.19159035	-9.70557419	0.560734433	-0.02341417
0.43209837	-11	-1.3471379	-9.1474317	0.18097473	-9.23641362	0.423025065	-0.02089467
0.41867064	-10	-1.1113887	-8.572815	0.16808243	-8.63556532	0.394149497	-0.01805817
0.40299075	-9	-0.9358518	-7.991768	0.15184519	-8.03977556	0.325858042	-0.01198925
0.386911	-8	-0.8095093	-7.3157431	0.13487433	-7.35720866	0.216523435	-0.00684883
0.37128911	-7	-0.618804	-6.6395243	0.12022382	-6.66544754	0.194962939	-0.00403215
0.35355837	-6	-0.576203	-5.8551591	0.10196867	-5.88331349	0.038984278	0.000496611
0.33958132	-5	-0.3273616	-5.1594077	0.08753855	-5.16830608	0.123556123	0.002751084
0.32197268	-4	-0.210694	-4.3975634	0.07023164	-4.40154845	0.096577757	0.006725719
0.30511172	-3	-0.0684515	-3.3843318	0.05210379	-3.38327612	0.108764549	0.007122018
0.2887451	-2	0.0180979	-2.2692185	0.03694691	-2.2672045	0.097281457	0.002764415
0.2739532	-1	0.062836	-1.1604178	0.02206704	-1.15914442	0.083078513	-0.00175972
0.25363769	0	0.140839	-0.0856541	0.00257	-0.08565408	0.140839	-0.00107106
0.24696352	1	0.2005921	1.11219527	-0.0042716	1.108525062	0.219972033	-0.01519184
0.2317657	2	0.1882925	2.18960854	-0.0189414	2.181703376	0.264594033	-0.01937679
0.21422117	3	0.1051017	3.29325979	-0.0363723	3.283245894	0.277313562	-0.02125974
0.19686276	4	0.0506288	4.27502093	-0.0538105	4.261075507	0.348715856	-0.02100236
0.18089599	5	-0.1882631	5.11665037	-0.0734698	5.113588181	0.258398761	-0.01607157
0.16666877	6	-0.0920097	5.91539094	-0.0874141	5.892603442	0.526821063	-0.01610522
0.15147402	7	-0.2693485	6.57769571	-0.1039846	6.561491888	0.53427864	-0.01112511
0.1325073	8	-0.4159241	7.25843374	-0.1198094	7.245680609	0.598302376	-0.00721322
0.11731872	9	-0.5774846	7.89469448	-0.1349314	7.887836185	0.664627501	-0.00322574
0.1031769	10	-0.721801	8.48680531	-0.1493091	8.483211096	0.762883055	0.000790029
0.08810126	11	-0.8692016	9.07877888	-0.1634873	9.077827625	0.879080759	0.004608659
0.07720949	12	-0.9790964	9.53993179	-0.1757112	9.53502698	1.025762554	0.008762351
0.16121833	13	0.2257076	8.30934021	-0.091584	8.045599196	2.08911757	-0.05382945
0.17364196	14	0.4062503	8.05437752	-0.0781155	7.716847243	2.342713207	-0.06283613
0.174588	15	0.5025629	8.01987662	-0.0770039	7.616533101	2.561135293	-0.06334392
0.1779724	16	0.6062923	7.98274261	-0.0744089	7.506387893	2.78314763	-0.06528912

0.17832336	17	0.6606443	7.97956609	-0.0722409	7.437743302	2.964776627	-0.06740148
0.18022766	18	0.7555847	8.03150214	-0.0707788	7.404923933	3.200474404	-0.06977254
0.18012086	19	0.7494198	7.96124114	-0.0715839	7.283514161	3.300516927	-0.06773778
0.18121036	20	0.8374023	8.06458718	-0.0707383	7.291824608	3.545152025	-0.07039201

揚力係数	抗力係数	モーメント 係数	中立点
C_L	C_D	$C_{M_{c/4}}$	N_0
-0.58883332	0.25854589	0.003859692	
-0.59491876	0.242033543	0.003996367	0.006527828
-0.60166956	0.227096106	0.003943485	-0.01063697
-0.59928648	0.20896319	0.003949908	-0.02827714
-0.60655828	0.194737628	0.003805246	-0.00835731
-0.61274789	0.174353313	0.003837407	-0.01283287
-0.6320998	0.157290893	0.003477475	-0.02327773
-0.67636895	0.135170265	0.002356453	-0.03880832
-0.76954344	0.044459967	-0.00185648	-0.07169531
-0.73234426	0.033541155	-0.00165671	-0.00500557
-0.68470371	0.031251645	-0.00143181	-0.00744204
-0.63746425	0.025836897	-0.00095061	-0.00876855
-0.58334433	0.017167886	-0.00054304	-0.00578981
-0.52849541	0.01545838	-0.0003197	-0.00498369
-0.46648093	0.003091017	3.9376E-005	-0.00453079
-0.40978885	0.009796618	0.00021813	-0.00420384
-0.34899354	0.007657536	0.000533274	-0.00244866
-0.26825594	0.008623812	0.000564696	0.001855982
-0.17976395	0.007713331	0.000219187	0.003993353
-0.09190718	0.006587197	-0.00013953	0.001758141
-0.00679141	0.011166957	-8.492E-005	0.005923312
0.087893635	0.017441321	-0.00120454	0.008073599
0.172984668	0.020979346	-0.00153636	0.002790195
0.260324665	0.021987863	-0.00168566	0.000781759
0.337855612	0.027649266	-0.00166525	-0.00283453
0.405450329	0.020488131	-0.0012743	-0.00300157
0.467217523	0.041771016	-0.00127696	-0.00341629
0.520252893	0.042362318	-0.0008821	-0.00657168
0.574501403	0.047438684	-0.00057193	-0.00595575
0.625417156	0.052697525	-0.00025576	-0.00646712
0.672623725	0.060488091	6.2640E-005	-0.00658357
0.719770163	0.069701269	0.000365415	-0.00757958
0.756020956	0.081331494	0.000694756	-0.05661354
0.637925997	0.165643649	-0.00426807	-0.03937921
0.611859646	0.185750946	-0.0049822	-0.02217485
0.603905857	0.203069373	-0.00502246	-0.01165542
0.595172574	0.220672468	-0.0051767	-0.02269458

0.589729826	0.235073615	-0.00534418	-0.0441873
0.587127617	0.253761812	-0.00553218	-0.0021805
0.577501181	0.261694064	-0.00537085	-0.00547725
0.578160106	0.28109089	-0.0055813	

実験結果 整理表 ~圧力測定~

実験日

実験装置の定数			測定範囲(定常流力の圧力計)			測定平均 Pa						
圧力計の目盛	[Pa]	1000	$P_{静}$	[Pa]	0.001~20.0	静圧差 Pa	1.131200451					
管の長さ L	[m]	0.010				動圧差 Pa	1.870					
管の内径 d	[m]	0.007540				流速 m/s	20.68709163					
管の温度 T	[℃]	21.0007740										
測定範囲(定常流力の流速計)												

[illegible]

年份	地区	项目	投资额				营业收入			
			2010	2011	2012	2013	2010	2011	2012	2013
2010	北京	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	北京	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	北京	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	北京	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	上海	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2011	上海	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2012	上海	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2013	上海	固定资产投资	2200000	2500000	2800000	3200000	3500000	3800000	4200000	
2010	广东	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2011	广东	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2012	广东	固定资产投资	2200000	2500000	2800000	3200000	3500000	3800000	4200000	
2013	广东	固定资产投资	2500000	2800000	3200000	3500000	3800000	4200000	4500000	
2010	浙江	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2011	浙江	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2012	浙江	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2013	浙江	固定资产投资	2200000	2500000	2800000	3200000	3500000	3800000	4200000	
2010	江苏	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	江苏	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	江苏	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	江苏	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	山东	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2011	山东	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2012	山东	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2013	山东	固定资产投资	2200000	2500000	2800000	3200000	3500000	3800000	4200000	
2010	河南	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	河南	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	河南	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	河南	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	湖北	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	湖北	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	湖北	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	湖北	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	湖南	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	湖南	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	湖南	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	湖南	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	四川	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	四川	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	四川	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	四川	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	江西	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	江西	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	江西	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	江西	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	安徽	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	安徽	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	安徽	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	安徽	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	福建	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	福建	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	福建	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	福建	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	广西	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	广西	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	广西	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	广西	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	贵州	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	贵州	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	贵州	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	贵州	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	云南	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	云南	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	云南	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	云南	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	陕西	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	陕西	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	陕西	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	陕西	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	甘肃	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	甘肃	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	甘肃	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	甘肃	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	宁夏	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	宁夏	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	宁夏	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	宁夏	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	青海	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	青海	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	青海	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	青海	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	
2010	新疆	固定资产投资	1000000	1200000	1500000	1800000	2000000	2200000	2500000	
2011	新疆	固定资产投资	1200000	1500000	1800000	2200000	2500000	2800000	3200000	
2012	新疆	固定资产投资	1500000	1800000	2200000	2500000	2800000	3200000	3500000	
2013	新疆	固定资产投资	1800000	2200000	2500000	2800000	3200000	3500000	3800000	

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α	β	γ	δ	ϵ	ζ	η	θ	ι	κ	λ	μ	ν	ξ	π	ρ	σ	τ	υ	ϕ	χ	ψ	ω	Ω
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001
3	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0
4	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001
5	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0	0.000001
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0	0.000001
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000001	0.0	0.000001

[illegible][illegible]

A		B		C		D		E		F		G		H		I		J		K		L		M		N		O		P		Q		R		S		T		U		V		W		X		Y		Z		AA		AB		AC		AD		AE		AF		AG		AH		AI		AJ		AK		AL		AM		AN		AO		AP		AQ		AR		AS		AT		AU		AV		AW		AX		AY		AZ		BA		BB		BC		BD		BE		BF		BG		BH		BI		BJ		BK		BL		BM		BN		BO		BP		BQ		BR		BS		BT		BU		BV		BW		BX		BY		BZ		CA		CB		CC		CD		CE		CF		CG		CH		CI		CJ		CK		CL		CM		CN		CO		CP		CQ		CR		CS		CT		CU		CV		CW		CX		CY		CZ		DA		DB		DC		DD		DE		DF		DG		DH		DI		DJ		DK		DL		DM		DN		DO		DP		DQ		DR		DS		DT		DU		DV		DW		DX		DY		DZ		EA		EB		EC		ED		EE		EF		EG		EH		EI		EJ		EK		EL		EM		EN		EO		EP		EQ		ER		ES		ET		EU		EV		EW		EX		EY		EZ		FA		FB		FC		FD		FE		FF		FG		FH		FI		FJ		FK		FL		FM		FN		FO		FP		FQ		FR		FS		FT		FU		FV		FW		FX		FY		FZ		GA		GB		GC		GD		GE		GF		GG		GH		GI		GJ		GK		GL		GM		GN		GO		GP		GQ		GR		GS		GT		GU		GV		GW		GX		GY		GZ		HA		HB		HC		HD		HE		HF		HG		HH		HI		HJ		HK		HL		HM		HN		HO		HP		HQ		HR		HS		HT		HU		HV		HW		HX		HY		HZ		IA		IB		IC		ID		IE		IF		IG		IH		IJ		IK		IL		IM		IN		IO		IP		IQ		IR		IS		IT		IU		IV		IW		IX		IY		IZ		JA		JB		JC		JD		JE		JF		JG		JH		JI		JJ		JK		JL		JM		JN		JO		JP		JQ		JR		JS		JT		JU		JV		JW		JX		JY		JZ		KA		KB		KC		KD		KE		KF		KG		KH		KI		KJ		KK		KL		KM		KN		KO		KP		KQ		KR		KS		KT		KU		KV		KW		KX		KY		KZ		LA		LB		LC		LD		LE		LF		LG		LH		LI		LJ		LK		LM		LN		LO		LP		LQ		LR		LS		LT		LU		LV		LW		LX		LY		LZ		MA		MB		MC		MD		ME		MF		MG		MH		MI		MJ		MK		ML		MM		MN		MO		MP		MQ		MR		MS		MT		MU		MV		MW		MX		MY		MZ		NA		NB		NC		ND		NE		NF		NG		NH		NI		NJ		NK		NL		NM		NN		NO		NP		NQ		NR		NS		NT		NU		NV		NW		NX		NY		NZ		OA		OB		OC		OD		OE		OF		OG		OH		OI		OJ		OK		OL		OM		ON		OO	
1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										

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九州工業大学
工学部 機械知能工学科

平成27年度 機械工学実験II
三次元翼空力実験・報告書

実験日：（力試験） 平成 年 月 日
（圧力試験）平成 年 月 日
提出日：平成 年 月 日

グループ番号：

報告書作成者

学籍番号：

氏 名：

-目次-

1. 目的
2. 実験装置と実験方法
3. 実験結果
4. 考察
5. まとめ
6. 参考文献
7. 風洞実験に対する感想・要望

ノク欄

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三

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実験環境の設定

送風機回転数	[rpm]	1350
ピトー管差圧	[Pa]	858.0
試験時の平均温度	[℃]	31.8857143

試験時の平均Re数

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実験結果

迎角	風洞内温度	風洞静圧			
α [deg]	t [℃]	P [hPa]	圧力孔1	圧力孔2	圧力孔3
-20	31.6	1008.05	0.00706475	0.68333429	0.41777345
-18	31.9	1008.03	0.00687864	0.61859434	0.3506653
-16	32.1	1008.03	0.00674134	0.55474849	0.28746031
-14	32.2	1008.02	0.00658571	0.49957582	0.23680117
-12	32.4	1008.01	0.00653389	0.68254391	0.38778992
-10	32.6	1008.02	0.00631714	0.57780459	0.28522649
-8	32.7	1008.01	0.00577083	0.43405151	0.15975341
-6	32.9	1008.01	0.00600592	0.26147156	0.02017207
-4	33.0	1008.00	0.0055542	0.06056213	-0.13572998
-2	33.3	1008.01	0.00503543	-0.18831488	-0.31828619
0	33.4	1007.99	0.00429689	-0.50289922	-0.541864
2	31.0	1007.93	0.0014435	-0.81726684	-0.75354001
4	31.0	1007.96	0.00073247	-1.16149902	-0.97901916
6	31.1	1007.97	-0.00083314	-1.49368898	-1.19239806
8	31.1	1007.98	-0.00158997	-1.85636596	-1.4404938
10	31.2	1007.98	-0.00298772	-2.56560055	-1.4817444
12	31.2	1008.00	-0.00342716	-2.98770752	-1.58061829
14	31.2	1007.99	0.00048828	-0.69167174	-0.69510197
16	31.2	1008.02	0.00014348	-0.63526	-0.63055419
18	31.2	1008.01	0.00113831	-0.64010011	-0.63039555
20	31.3	1008.02	0.00062864	-0.64943238	-0.63814087

実験結果 整理表 ～圧力測定

測定範囲(定格出力の何%か)

$P_i - P_s$	[%]	-37.2～9.4
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翼上面側の出力電圧 ($P_i - P_s$) [V]

圧力孔4	圧力孔5	圧力孔6	圧力孔7	圧力孔8	圧力孔9	圧力孔10
0.20350953	0.12472535	-0.05316771	-0.09737853	-0.18098147	-0.27864073	-0.2935608
0.1434845	0.07772214	-0.09228826	-0.1263855	-0.20056455	-0.28583985	-0.28648989
0.08799745	0.03594971	-0.12515567	-0.14970396	-0.21488036	-0.28659968	-0.27445063
0.04679561	0.0087982	-0.14205928	-0.15623477	-0.21069032	-0.26708373	-0.23735045
0.17454533	0.12182614	-0.02460939	-0.02949833	-0.06732785	-0.08146058	0.03279725
0.08786316	0.0567108	-0.07589114	-0.06640625	-0.09081116	-0.08328861	0.06217345
-0.01381831	-0.01860353	-0.13501284	-0.10960389	-0.11882628	-0.08965758	0.08211054
-0.12285158	-0.09630738	-0.19433589	-0.15179446	-0.14577634	-0.09487609	0.09191591
-0.24310303	-0.18255309	-0.26162721	-0.20115669	-0.17897645	-0.10797427	0.07154845
-0.38170777	-0.28291015	-0.34281614	-0.26641844	-0.23173522	-0.15602419	0.01269228
-0.54937747	-0.40580137	-0.44392396	-0.35009461	-0.30577995	-0.2313904	-0.02879945
-0.70377812	-0.51317447	-0.53555294	-0.42944329	-0.38428646	-0.25799258	0.0300995
-0.86462093	-0.63022767	-0.64122623	-0.53005068	-0.39667974	-0.26482234	-0.024234
-1.02481386	-0.76416628	-0.64510495	-0.49617008	-0.42012939	-0.28476261	-0.01643367
-1.10101927	-0.75553894	-0.71568297	-0.54846802	-0.44777532	-0.28823551	-0.00191042
-1.19803472	-0.82868352	-0.75816958	-0.56977537	-0.45333864	-0.27867431	0.00458682
-1.22214354	-0.84965512	-0.76223145	-0.56204833	-0.43825077	-0.2691925	-0.0215332
-0.72758492	-0.6318665	-0.75383908	-0.72609862	-0.73558964	-0.69982906	-0.49142146
-0.65995485	-0.56091308	-0.67384646	-0.64683224	-0.66895139	-0.66958006	-0.50993645
-0.65936891	-0.56070862	-0.67355035	-0.64609681	-0.66711724	-0.66761166	-0.51678469
-0.66862183	-0.57329096	-0.68728028	-0.66086426	-0.6810638	-0.68057253	-0.53148499

E~

実験日

翼下面側の出力電圧 ($P_i - P_s$) [V]						
圧力孔11	圧力孔12	圧力孔13	圧力孔14	圧力孔15	圧力孔16	圧力孔17
-0.65368649	-0.6813843	-0.68557433	-0.63322145	-0.65000916	-0.66517335	-0.61360774
-0.65268252	-0.67097474	-0.67622374	-0.62221984	-0.6362427	-0.65009769	-0.59726259
-0.66947634	-0.67573242	-0.68246769	-0.62846675	-0.64139095	-0.65609439	-0.60596317
-0.73759462	-0.72669985	-0.73011169	-0.67651365	-0.68998416	-0.70944525	-0.65863341
-3.71938783	-3.54561765	-1.93070068	-1.4090179	-1.10887759	-0.85724794	-0.6009613
-3.47015382	-2.63666074	-2.09943844	-1.30014955	-1.06074524	-0.84086917	-0.60362548
-2.66653743	-2.17777705	-1.75655514	-1.19786072	-0.94540404	-0.78180845	-0.57268984
-1.87466737	-1.79105222	-1.39811093	-1.08443907	-0.94908148	-0.69659729	-0.50932922
-1.15765685	-1.38848266	-1.15459903	-0.91459659	-0.79621586	-0.69052128	-0.54561159
-0.47094423	-0.95227964	-0.88107905	-0.73071288	-0.65720217	-0.57364196	-0.43591619
0.13182067	-0.51873469	-0.60092471	-0.53786317	-0.51188358	-0.46083365	-0.34220583
0.53623655	-0.16640626	-0.36030275	-0.36598507	-0.38139029	-0.35926816	-0.26174616
0.8013	0.13922118	-0.13799133	-0.20173646	-0.25412595	-0.25994258	-0.1825287
0.91906734	0.36966554	0.04016718	-0.06940917	-0.15322573	-0.18407286	-0.12902217
0.9355804	0.5513397	0.19442441	0.04994202	-0.06066591	-0.11459048	-0.0787689
0.91987616	0.68828733	0.32598572	0.15717773	0.02378238	-0.05026857	-0.03219907
0.85264889	0.78455508	0.43699956	0.25440671	0.10192567	0.00964969	0.01102293
0.93732303	0.61219174	0.28326415	0.13014221	-0.00656437	-0.095636	-0.09730223
0.94080807	0.66087951	0.33477477	0.17435304	0.0270996	-0.07392578	-0.08705443
0.9370056	0.71777343	0.39895326	0.23216551	0.07439879	-0.03675236	-0.06060491
0.92734988	0.77055965	0.46199029	0.2911194	0.12439267	0.00279233	-0.03106382

圧力孔18	圧力孔19	圧力孔20
-0.69745179	-0.64285887	-0.66892091
-0.68130794	-0.62861939	-0.65430297
-0.69195558	-0.64042963	-0.66138915
-0.74047849	-0.67122192	-0.65844421
-0.51606443	-0.27386169	-0.16849673
-0.52937318	-0.29054871	-0.16082158
-0.51522828	-0.29580076	-0.17256158
-0.4774872	-0.28493344	-0.18055418
-0.45844113	-0.26267397	-0.18642276
-0.44363098	-0.2856598	-0.14531548
-0.35173332	-0.21951898	-0.19173281
-0.28146669	-0.15404661	-0.1292633
-0.21509394	-0.09810486	-0.06492004
-0.17646175	-0.08048101	-0.04716183
-0.14151614	-0.06718135	-0.05357057
-0.10894774	-0.05524601	-0.06600341
-0.07958675	-0.04723204	-0.08563541
-0.20060727	-0.19881592	-0.29981993
-0.20104068	-0.21588748	-0.33520509
-0.1841339	-0.21140139	-0.34444886
-0.16234133	-0.20226439	-0.34794312

実験結果 整理表 ～圧力測定～

実験環境の設定

送風機回転数	[rpm]	1350
ピトー管静圧	[Pa]	858.0
送風機出口平均流速	[℃]	31.8857143

測定範囲(定格出力の何%か)

$P-P_s$	[%]	0.001～37.2
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静圧平均 P_s 1008.00190空気密度 ρ 1.15128639粘性係数 μ 1.876風速 V 38.6878801

実験日 ##

実験結果

α [deg]	迎角	風洞内 静圧	風洞 静圧	翼上表面の出力電圧 ($P-P_s$) [V]										翼下表面の出力電圧 ($P-P_s$) [V]									
				圧力孔1	圧力孔2	圧力孔4	圧力孔5	圧力孔6	圧力孔7	圧力孔8	圧力孔9	圧力孔10	圧力孔11	圧力孔12	圧力孔13	圧力孔14	圧力孔15	圧力孔16	圧力孔17	圧力孔18	圧力孔19	圧力孔20	
-20	31.6	1008.05	0.00678647	0.68533429	0.41777345	0.20350953	0.12472535	-0.053316771	-0.09737853	-0.18088147	-0.27864073	-0.2935688	-0.65368649	-0.6813843	-0.68557433	-0.63322145	-0.65000916	-0.66517335	-0.61388774	-0.69745179	-0.64285887	-0.66882891	
-18	31.9	1008.03	0.00687864	0.61859434	0.3506653	0.1434845	0.07772214	-0.09228826	-0.1263855	-0.20856455	-0.23583885	-0.28648989	-0.65268252	-0.67807474	-0.67622374	-0.62221984	-0.6362427	-0.65008769	-0.59726259	-0.68138794	-0.62361939	-0.65438297	
-16	32.1	1008.03	0.00674134	0.55474549	0.28746831	0.08799745	0.035949371	-0.12515567	-0.14978396	-0.21488835	-0.23955958	-0.27445863	-0.66947634	-0.67573242	-0.68246169	-0.62846675	-0.64138995	-0.65089439	-0.60536317	-0.69195558	-0.64842953	-0.66138915	
-14	32.2	1008.02	0.00658571	0.49973562	0.23889117	0.04672651	0.00678982	-0.14395209	-0.1562477	-0.21809832	-0.23786373	-0.27358445	-0.72599462	-0.72659865	-0.73811169	-0.67851345	-0.65999416	-0.70445255	-0.65863341	-0.74467369	-0.67121232	-0.65844421	
-12	32.4	1008.01	0.00653389	0.46254391	0.38778992	0.17454533	0.12182614	-0.02488839	-0.02948833	-0.06732785	-0.06146868	0.03279725	-3.71938793	-3.54561765	-1.93878668	-1.4800179	-1.18887759	-0.85724794	-0.6889613	-0.51886443	-0.27386169	-0.16849673	
-10	32.6	1008.02	0.00631714	0.57788459	0.28522649	0.08786316	0.0567188	-0.07589114	-0.06648625	-0.08081116	-0.06328851	0.06217345	-3.47815382	-2.63668874	-2.89943844	-1.38014955	-1.06874524	-0.84088917	-0.68362548	-0.28654871	-0.16882158		
-8	32.7	1008.01	0.00577883	0.43495151	0.15975341	-0.01381831	-0.01868353	-0.13581284	-0.18968389	-0.11882628	-0.08965758	0.06211854	-2.66653743	-2.17777795	-1.75655514	-1.19786872	-0.94548484	-0.78188845	-0.57288984	-0.51522828	-0.29588876	-0.17258158	
-6	32.9	1008.01	0.00609592	0.26147158	0.82817287	-0.12285158	-0.09658738	-0.19435589	-0.15178446	-0.14577634	-0.09487889	0.09191581	-1.87468737	-1.79185222	-1.38611893	-1.88443987	-0.34988148	-0.69559729	-0.58932922	-0.47746172	-0.28493344	-0.18955416	
-4	33.0	1008.00	0.0055542	0.86865213	-0.13572889	-0.24318385	-0.18255389	-0.26162721	-0.28115669	-0.17897645	-0.18707427	0.07154845	-1.15765865	-1.38448286	-1.15458989	-0.91458959	-0.78621356	-0.68851239	-0.54551159	-0.45844113	-0.26287787	-0.18642795	
-2	33.3	1008.01	0.00636343	-0.18831488	-0.31828619	-0.38178777	-0.28291815	-0.34281614	-0.26641844	-0.23173522	-0.15682419	0.01269228	-0.47094423	-0.95227964	-0.88187085	-0.73871286	-0.65782817	-0.57354196	-0.43591619	-0.44363888	-0.2856588	-0.14531548	
0	33.4	1007.99	0.00426889	-0.58289922	-0.541864	-0.54937747	-0.40588137	-0.44392396	-0.35809461	-0.38573995	-0.2313884	-0.62879945	0.13182867	-0.51873469	-0.68892471	-0.53786317	-0.51188358	-0.46883365	-0.34228583	-0.35173332	-0.21951888	-0.19173281	
2	31.0	1007.93	0.0014435	-0.81728684	-0.75354081	-0.78377812	-0.51317447	-0.53555294	-0.42944329	-0.38428646	-0.25799258	0.6389995	0.53623655	-0.16648626	-0.36838275	-0.36588587	-0.38138929	-0.35828816	-0.26174616	-0.23146689	-0.15484661	-0.1293533	
4	31.0	1007.95	0.0073247	-1.16149882	-0.97981916	-0.86462093	-0.63827767	-0.54122823	-0.53889868	-0.39667974	-0.25482234	-0.042434	0.0813	0.13922118	-0.13799133	-0.29173546	-0.25412395	-0.25594259	-0.18255297	-0.21889384	-0.08878488	-0.04403884	
6	31.1	1007.97	-0.00833314	-1.49368898	-1.19238986	-1.02481386	-0.76416528	-0.64518495	-0.49617988	-0.42812939	-0.28476251	-0.01643367	0.01986734	0.36968554	0.04816718	-0.06949917	-0.15323573	-0.18487286	-0.12982217	-0.17549175	-0.08848181	-0.04718183	
8	31.1	1007.98	-0.00158997	-1.85636596	-1.4484838	-1.10181927	-0.75553894	-0.51586297	-0.54846882	-0.4477532	-0.28823551	-0.00191842	0.0355884	0.5513397	0.19442441	0.84994282	-0.06866591	-0.11458488	-0.0787689	-0.14151614	-0.06718135	-0.05357857	
10	31.2	1007.98	-0.00287772	-2.56568895	-1.4817444	-1.19883472	-0.82868352	-0.75818958	-0.56977537	-0.45333864	-0.27887431	0.00456882	0.01887616	0.68828733	0.32598572	0.15717773	0.02378238	-0.05826857	-0.03219987	-0.18894774	-0.05246881	-0.06688341	
12	31.2	1008.00	-0.00342716	-2.88787852	-1.58861823	-1.22214354	-0.84969512	-0.76223145	-0.56284833	-0.43825877	-0.2691925	-0.021532	0.05264889	0.78455986	0.43699956	0.25448671	0.10182567	0.08964869	0.01182293	-0.0788875	-0.04723284	-0.08563541	
14	31.2	1007.99	0.00848828	-0.0161774	-0.09518197	-0.72758482	-0.4313665	-0.73383380	-0.72698662	-0.73558964	-0.69842986	0.49142146	0.07322383	0.01219774	0.03254415	0.13814221	0.08956437	0.0953636	0.09788223	-0.28869727	-0.18881892	-0.25931993	
16	31.2	1008.02	0.00814348	-0.63326	-0.63955419	-0.6595485	-0.56891388	-0.67384846	-0.64683224	-0.68895139	-0.66588886	-0.58993645	0.04888887	0.68887951	0.33477477	0.17435384	0.0278998	0.07392578	-0.08785443	-0.28184888	-0.21588748	-0.23528989	
18	31.2	1008.01	0.00113831	-0.64818811	-0.63839555	-0.65938891	-0.56878862	-0.67358535	-0.64889681	-0.66711724	-0.66761166	-0.51678469	0.03788956	0.71777343	0.38885326	0.23216551	0.07438879	0.08775236	-0.06884891	-0.18413339	-0.21148139	-0.34444886	
20	31.3	1008.02	0.00828864	-0.64943238	-0.63814887	-0.66882183	-0.57328086	-0.68728828	-0.66886426	-0.6818638	-0.68857253	-0.53148499	0.02734888	0.77855965	0.46119829	0.2911184	0.12438267	0.08278233	-0.03186382	-0.16234133	-0.28225439	-0.34794312	