

Applied Microsystem's Equation for Salinity Calculation from SV,T&P

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Abstract

An equation for computing salinity from sound velocity, temperature and pressure data has been developed. The equation was developed from Chen and Millero's seawater sound speed equation¹. Accuracy of the AML equation with respect to Chen and Millero's equation is 0.035 m/s.

Purpose

Calculating salinity from sound velocity, temperature and pressure data allows sound velocity profiler users to generate salinity and density² profiles from the sound velocity profiles. This allows highly accurate sound velocity data to be collected in support of acoustic devices and still provide salinity and density data without having to use a CTD in addition to the SVP.

Method

1631 data points spanning the 4 dimensional space of temperature, pressure, salinity and sound velocity were computed using Chen and Millero's equation. This data set was then used to curve fit a salinity equation from the independent variables of sound speed, temperature and data.

Equation

$$S = a + b * T + c * T^2 + d * T^3 + e * T^4 + f * P + g * P^2 + h * P^3 + i * SV + j * SV^2 + k * SV^3 + l * T * P + m * T^2 * P + n * T^3 * P + o * T * SV + p * T^2 * SV + q * T^3 * SV$$

Where SV=sound velocity in m/s
T= temperature in degrees Celsius
P=pressure in bar
S=salinity in psu

Coefficients

a = -4.786247207E+03	j = -5.037682211E-03
b = -1.685747079E+01	k = 1.122556021E-06
c = 1.006980128E-01	l = -1.385709017E-03
d = 1.379452564E-05	m = 6.226417911E-06
e = -1.593358617E-06	n = -2.248727942E-07
f = -1.212132607E-01	o = 9.282543659E-03
g = -5.306973488E-06	p = -6.799791461E-05
h = -3.748148644E-09	q = 2.180492636E-07
i = 8.269920197E+00	

Data Set

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
0	0	0	1402.388	-0.0973	-0.0973	6	0	10	1443.309	10.0978	0.0978
1	0	0	1407.367	-0.0916	-0.0916	7	0	10	1447.516	10.0951	0.0951
2	0	0	1412.233	-0.0854	-0.0854	8	0	10	1451.622	10.0925	0.0925
3	0	0	1416.985	-0.0809	-0.0809	9	0	10	1455.628	10.0895	0.0895
4	0	0	1421.628	-0.0756	-0.0756	10	0	10	1459.538	10.0876	0.0876
5	0	0	1426.162	-0.0710	-0.0710	11	0	10	1463.352	10.0856	0.0856
6	0	0	1430.590	-0.0661	-0.0661	12	0	10	1467.072	10.0835	0.0835
7	0	0	1434.913	-0.0618	-0.0618	13	0	10	1470.699	10.0809	0.0809
8	0	0	1439.133	-0.0576	-0.0576	14	0	10	1474.236	10.0788	0.0788
9	0	0	1443.251	-0.0544	-0.0544	15	0	10	1477.685	10.0776	0.0776
10	0	0	1447.270	-0.0511	-0.0511	16	0	10	1481.045	10.0752	0.0752
11	0	0	1451.192	-0.0474	-0.0474	17	0	10	1484.320	10.0737	0.0737
12	0	0	1455.017	-0.0448	-0.0448	18	0	10	1487.510	10.0719	0.0719
13	0	0	1458.747	-0.0430	-0.0430	19	0	10	1490.617	10.0701	0.0701
14	0	0	1462.385	-0.0408	-0.0408	20	0	10	1493.642	10.0682	0.0682
15	0	0	1465.931	-0.0395	-0.0395	21	0	10	1496.587	10.0667	0.0667
16	0	0	1469.387	-0.0387	-0.0387	22	0	10	1499.453	10.0654	0.0654
17	0	0	1472.755	-0.0381	-0.0381	23	0	10	1502.241	10.0640	0.0640
18	0	0	1476.036	-0.0379	-0.0379	24	0	10	1504.952	10.0624	0.0624
19	0	0	1479.232	-0.0378	-0.0378	25	0	10	1507.589	10.0622	0.0622
20	0	0	1482.343	-0.0389	-0.0389	26	0	10	1510.151	10.0615	0.0615
21	0	0	1485.372	-0.0397	-0.0397	27	0	10	1512.640	10.0611	0.0611
22	0	0	1488.320	-0.0405	-0.0405	28	0	10	1515.057	10.0610	0.0610
23	0	0	1491.187	-0.0425	-0.0425	29	0	10	1517.404	10.0620	0.0620
24	0	0	1493.976	-0.0440	-0.0440	30	0	10	1519.681	10.0633	0.0633
25	0	0	1496.688	-0.0453	-0.0453	31	0	10	1521.889	10.0648	0.0648
26	0	0	1499.323	-0.0473	-0.0473	32	0	10	1524.029	10.0665	0.0665
27	0	0	1501.884	-0.0483	-0.0483	33	0	10	1526.103	10.0697	0.0697
28	0	0	1504.370	-0.0503	-0.0503	34	0	10	1528.111	10.0733	0.0733
29	0	0	1506.785	-0.0506	-0.0506	35	0	10	1530.054	10.0775	0.0775
30	0	0	1509.127	-0.0519	-0.0519	36	0	10	1531.932	10.0815	0.0815
31	0	0	1511.400	-0.0515	-0.0515	37	0	10	1533.748	10.0874	0.0874
32	0	0	1513.603	-0.0511	-0.0511	38	0	10	1535.501	10.0933	0.0933
33	0	0	1515.738	-0.0499	-0.0499	39	0	10	1537.192	10.0996	0.0996
34	0	0	1517.806	-0.0476	-0.0476	40	0	10	1538.823	10.1074	0.1074
35	0	0	1519.809	-0.0433	-0.0433	0	0	20	1429.140	20.1245	0.1245
36	0	0	1521.746	-0.0388	-0.0388	1	0	20	1433.864	20.1142	0.1142
37	0	0	1523.619	-0.0328	-0.0328	2	0	20	1438.478	20.1053	0.1053
38	0	0	1525.429	-0.0254	-0.0254	3	0	20	1442.982	20.0963	0.0963
39	0	0	1527.177	-0.0162	-0.0162	4	0	20	1447.380	20.0884	0.0884
40	0	0	1528.863	-0.0060	-0.0060	5	0	20	1451.673	20.0808	0.0808
0	0	10	1415.843	10.1216	0.1216	6	0	20	1455.863	20.0736	0.0736
1	0	10	1420.695	10.1164	0.1164	7	0	20	1459.952	20.0665	0.0665
2	0	10	1425.435	10.1120	0.1120	8	0	20	1463.943	20.0605	0.0605
3	0	10	1430.065	10.1084	0.1084	9	0	20	1467.837	20.0549	0.0549
4	0	10	1434.585	10.1041	0.1041	10	0	20	1471.635	20.0489	0.0489
5	0	10	1438.999	10.1005	0.1005	11	0	20	1475.341	20.0443	0.0443

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
12	0	20	1478.954	20.0388	0.0388	19	0	30	1513.030	29.9649	-0.0351
13	0	20	1482.478	20.0344	0.0344	20	0	30	1515.879	29.9630	-0.0370
14	0	20	1485.914	20.0305	0.0305	21	0	30	1518.653	29.9622	-0.0378
15	0	20	1489.263	20.0266	0.0266	22	0	30	1521.352	29.9615	-0.0385
16	0	20	1492.526	20.0223	0.0223	23	0	30	1523.978	29.9617	-0.0383
17	0	20	1495.706	20.0188	0.0188	24	0	30	1526.532	29.9625	-0.0375
18	0	20	1498.804	20.0157	0.0157	25	0	30	1529.015	29.9640	-0.0360
19	0	20	1501.822	20.0137	0.0137	26	0	30	1531.427	29.9651	-0.0349
20	0	20	1504.759	20.0106	0.0106	27	0	30	1533.771	29.9677	-0.0323
21	0	20	1507.619	20.0088	0.0088	28	0	30	1536.046	29.9699	-0.0301
22	0	20	1510.402	20.0071	0.0071	29	0	30	1538.255	29.9737	-0.0263
23	0	20	1513.109	20.0055	0.0055	30	0	30	1540.397	29.9772	-0.0228
24	0	20	1515.742	20.0047	0.0047	31	0	30	1542.473	29.9804	-0.0196
25	0	20	1518.302	20.0044	0.0044	32	0	30	1544.485	29.9845	-0.0155
26	0	20	1520.790	20.0048	0.0048	33	0	30	1546.432	29.9877	-0.0123
27	0	20	1523.207	20.0056	0.0056	34	0	30	1548.316	29.9911	-0.0089
28	0	20	1525.554	20.0068	0.0068	35	0	30	1550.137	29.9939	-0.0061
29	0	20	1527.831	20.0076	0.0076	36	0	30	1551.896	29.9962	-0.0038
30	0	20	1530.041	20.0098	0.0098	37	0	30	1553.594	29.9984	-0.0016
31	0	20	1532.184	20.0125	0.0125	38	0	30	1555.230	29.9986	-0.0014
32	0	20	1534.260	20.0150	0.0150	39	0	30	1556.805	29.9970	-0.0030
33	0	20	1536.271	20.0181	0.0181	40	0	30	1558.320	29.9940	-0.0060
34	0	20	1538.217	20.0211	0.0211	0	0	33	1446.462	33.0384	0.0384
35	0	20	1540.100	20.0251	0.0251	1	0	33	1451.019	33.0317	0.0317
36	0	20	1541.919	20.0284	0.0284	2	0	33	1455.467	33.0256	0.0256
37	0	20	1543.676	20.0320	0.0320	3	0	33	1459.808	33.0196	0.0196
38	0	20	1545.371	20.0353	0.0353	4	0	33	1464.045	33.0145	0.0145
39	0	20	1547.005	20.0384	0.0384	5	0	33	1468.179	33.0091	0.0091
40	0	20	1548.578	20.0405	0.0405	6	0	33	1472.213	33.0041	0.0041
0	0	30	1442.454	30.0605	0.0605	7	0	33	1476.149	32.9994	-0.0006
1	0	30	1447.050	30.0522	0.0522	8	0	33	1479.989	32.9951	-0.0049
2	0	30	1451.536	30.0442	0.0442	9	0	33	1483.735	32.9910	-0.0090
3	0	30	1455.915	30.0369	0.0369	10	0	33	1487.388	32.9866	-0.0134
4	0	30	1460.189	30.0300	0.0300	11	0	33	1490.951	32.9827	-0.0173
5	0	30	1464.360	30.0235	0.0235	12	0	33	1494.426	32.9796	-0.0204
6	0	30	1468.430	30.0171	0.0171	13	0	33	1497.813	32.9757	-0.0243
7	0	30	1472.401	30.0109	0.0109	14	0	33	1501.116	32.9732	-0.0268
8	0	30	1476.276	30.0055	0.0055	15	0	33	1504.334	32.9698	-0.0302
9	0	30	1480.056	30.0003	0.0003	16	0	33	1507.471	32.9676	-0.0324
10	0	30	1483.743	29.9952	-0.0048	17	0	33	1510.527	32.9654	-0.0346
11	0	30	1487.339	29.9905	-0.0095	18	0	33	1513.504	32.9637	-0.0363
12	0	30	1490.846	29.9864	-0.0136	19	0	33	1516.403	32.9621	-0.0379
13	0	30	1494.265	29.9822	-0.0178	20	0	33	1519.226	32.9614	-0.0386
14	0	30	1497.598	29.9782	-0.0218	21	0	33	1521.974	32.9612	-0.0388
15	0	30	1500.847	29.9748	-0.0252	22	0	33	1524.648	32.9614	-0.0386
16	0	30	1504.013	29.9716	-0.0284	23	0	33	1527.250	32.9628	-0.0372
17	0	30	1507.098	29.9689	-0.0311	24	0	33	1529.780	32.9643	-0.0357
18	0	30	1510.103	29.9665	-0.0335	25	0	33	1532.239	32.9659	-0.0341

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
26	0	33	1534.629	32.9684	-0.0316	33	0	34	1550.511	33.9994	-0.0006
27	0	33	1536.951	32.9718	-0.0282	34	0	34	1552.370	34.0031	0.0031
28	0	33	1539.205	32.9752	-0.0248	35	0	34	1554.166	34.0054	0.0054
29	0	33	1541.392	32.9786	-0.0214	36	0	34	1555.901	34.0077	0.0077
30	0	33	1543.513	32.9822	-0.0178	37	0	34	1557.574	34.0082	0.0082
31	0	33	1545.570	32.9869	-0.0131	38	0	34	1559.187	34.0080	0.0080
32	0	33	1547.562	32.9911	-0.0089	39	0	34	1560.739	34.0054	0.0054
33	0	33	1549.490	32.9947	-0.0053	40	0	34	1562.230	33.9997	-0.0003
34	0	33	1551.355	32.9980	-0.0020	0	0	35	1449.139	35.0243	0.0243
35	0	33	1553.158	33.0012	0.0012	1	0	35	1453.670	35.0191	0.0191
36	0	33	1554.899	33.0035	0.0035	2	0	35	1458.092	35.0140	0.0140
37	0	33	1556.578	33.0041	0.0041	3	0	35	1462.408	35.0096	0.0096
38	0	33	1558.197	33.0043	0.0043	4	0	35	1466.620	35.0056	0.0056
39	0	33	1559.754	33.0012	0.0012	5	0	35	1470.730	35.0018	0.0018
40	0	33	1561.251	32.9961	-0.0039	6	0	35	1474.740	34.9980	-0.0020
0	0	34	1447.800	34.0313	0.0313	7	0	35	1478.652	34.9942	-0.0058
1	0	34	1452.344	34.0253	0.0253	8	0	35	1482.468	34.9902	-0.0098
2	0	34	1456.779	34.0197	0.0197	9	0	35	1486.191	34.9870	-0.0130
3	0	34	1461.108	34.0148	0.0148	10	0	35	1489.822	34.9837	-0.0163
4	0	34	1465.332	34.0098	0.0098	11	0	35	1493.363	34.9806	-0.0194
5	0	34	1469.454	34.0052	0.0052	12	0	35	1496.816	34.9777	-0.0223
6	0	34	1473.476	34.0008	0.0008	13	0	35	1500.183	34.9755	-0.0245
7	0	34	1477.400	33.9965	-0.0035	14	0	35	1503.465	34.9732	-0.0268
8	0	34	1481.228	33.9923	-0.0077	15	0	35	1506.663	34.9705	-0.0295
9	0	34	1484.962	33.9882	-0.0118	16	0	35	1509.780	34.9686	-0.0314
10	0	34	1488.605	33.9852	-0.0148	17	0	35	1512.817	34.9671	-0.0329
11	0	34	1492.157	33.9817	-0.0183	18	0	35	1515.776	34.9666	-0.0334
12	0	34	1495.621	33.9786	-0.0214	19	0	35	1518.657	34.9658	-0.0342
13	0	34	1498.998	33.9756	-0.0244	20	0	35	1521.462	34.9655	-0.0345
14	0	34	1502.290	33.9728	-0.0272	21	0	35	1524.193	34.9661	-0.0339
15	0	34	1505.498	33.9697	-0.0303	22	0	35	1526.850	34.9668	-0.0332
16	0	34	1508.625	33.9676	-0.0324	23	0	35	1529.435	34.9682	-0.0318
17	0	34	1511.672	33.9662	-0.0338	24	0	35	1531.949	34.9703	-0.0297
18	0	34	1514.639	33.9642	-0.0358	25	0	35	1534.393	34.9729	-0.0271
19	0	34	1517.530	33.9639	-0.0361	26	0	35	1536.767	34.9751	-0.0249
20	0	34	1520.344	33.9633	-0.0367	27	0	35	1539.074	34.9788	-0.0212
21	0	34	1523.083	33.9631	-0.0369	28	0	35	1541.314	34.9831	-0.0169
22	0	34	1525.749	33.9640	-0.0360	29	0	35	1543.487	34.9871	-0.0129
23	0	34	1528.342	33.9649	-0.0351	30	0	35	1545.595	34.9918	-0.0082
24	0	34	1530.864	33.9667	-0.0333	31	0	35	1547.638	34.9963	-0.0037
25	0	34	1533.315	33.9683	-0.0317	32	0	35	1549.617	35.0008	0.0008
26	0	34	1535.698	33.9716	-0.0284	33	0	35	1551.532	35.0045	0.0045
27	0	34	1538.012	33.9747	-0.0253	34	0	35	1553.385	35.0085	0.0085
28	0	34	1540.259	33.9785	-0.0215	35	0	35	1555.176	35.0120	0.0120
29	0	34	1542.439	33.9822	-0.0178	36	0	35	1556.904	35.0134	0.0134
30	0	34	1544.554	33.9868	-0.0132	37	0	35	1558.571	35.0136	0.0136
31	0	34	1546.603	33.9905	-0.0095	38	0	35	1560.178	35.0131	0.0131
32	0	34	1548.589	33.9953	-0.0047	39	0	35	1561.724	35.0101	0.0101

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
40	0	35	1563.209	35.0038	0.0038	6	0	37	1477.270	36.9934	-0.0066
0	0	36	1450.479	36.0176	0.0176	7	0	37	1481.159	36.9914	-0.0086
1	0	36	1454.997	36.0131	0.0131	8	0	37	1484.952	36.9888	-0.0112
2	0	36	1459.406	36.0088	0.0088	9	0	37	1488.652	36.9865	-0.0135
3	0	36	1463.710	36.0056	0.0056	10	0	37	1492.260	36.9838	-0.0162
4	0	36	1467.909	36.0019	0.0019	11	0	37	1495.780	36.9824	-0.0176
5	0	36	1472.006	35.9982	-0.0018	12	0	37	1499.211	36.9801	-0.0199
6	0	36	1476.004	35.9950	-0.0050	13	0	37	1502.556	36.9779	-0.0221
7	0	36	1479.905	35.9925	-0.0075	14	0	37	1505.818	36.9769	-0.0231
8	0	36	1483.710	35.9896	-0.0104	15	0	37	1508.996	36.9751	-0.0249
9	0	36	1487.421	35.9864	-0.0136	16	0	37	1512.093	36.9736	-0.0264
10	0	36	1491.041	35.9838	-0.0162	17	0	37	1515.111	36.9730	-0.0270
11	0	36	1494.571	35.9811	-0.0189	18	0	37	1518.051	36.9729	-0.0271
12	0	36	1498.013	35.9785	-0.0215	19	0	37	1520.914	36.9730	-0.0270
13	0	36	1501.369	35.9762	-0.0238	20	0	37	1523.701	36.9731	-0.0269
14	0	36	1504.641	35.9746	-0.0254	21	0	37	1526.414	36.9738	-0.0262
15	0	36	1507.829	35.9723	-0.0277	22	0	37	1529.055	36.9759	-0.0241
16	0	36	1510.936	35.9706	-0.0294	23	0	37	1531.623	36.9774	-0.0226
17	0	36	1513.964	35.9700	-0.0300	24	0	37	1534.121	36.9801	-0.0199
18	0	36	1516.913	35.9692	-0.0308	25	0	37	1536.550	36.9839	-0.0161
19	0	36	1519.785	35.9689	-0.0311	26	0	37	1538.909	36.9869	-0.0131
20	0	36	1522.581	35.9687	-0.0313	27	0	37	1541.201	36.9910	-0.0090
21	0	36	1525.303	35.9694	-0.0306	28	0	37	1543.426	36.9953	-0.0047
22	0	36	1527.952	35.9708	-0.0292	29	0	37	1545.586	37.0008	0.0008
23	0	36	1530.529	35.9727	-0.0273	30	0	37	1547.680	37.0057	0.0057
24	0	36	1533.035	35.9750	-0.0250	31	0	37	1549.709	37.0100	0.0100
25	0	36	1535.471	35.9778	-0.0222	32	0	37	1551.675	37.0150	0.0150
26	0	36	1537.838	35.9809	-0.0191	33	0	37	1553.578	37.0198	0.0198
27	0	36	1540.137	35.9843	-0.0157	34	0	37	1555.418	37.0235	0.0235
28	0	36	1542.370	35.9890	-0.0110	35	0	37	1557.196	37.0265	0.0265
29	0	36	1544.536	35.9933	-0.0067	36	0	37	1558.913	37.0289	0.0289
30	0	36	1546.637	35.9980	-0.0020	37	0	37	1560.568	37.0289	0.0289
31	0	36	1548.673	36.0025	0.0025	38	0	37	1562.162	37.0268	0.0268
32	0	36	1550.646	36.0077	0.0077	39	0	37	1563.696	37.0228	0.0228
33	0	36	1552.555	36.0119	0.0119	40	0	37	1565.170	37.0162	0.0162
34	0	36	1554.401	36.0153	0.0153	0	0	38	1453.162	38.0046	0.0046
35	0	36	1556.185	36.0181	0.0181	1	0	38	1457.654	38.0021	0.0021
36	0	36	1557.908	36.0204	0.0204	2	0	38	1462.038	38.0000	0.0000
37	0	36	1559.569	36.0205	0.0205	3	0	38	1466.316	37.9980	-0.0020
38	0	36	1561.170	36.0197	0.0197	4	0	38	1470.490	37.9958	-0.0042
39	0	36	1562.710	36.0162	0.0162	5	0	38	1474.563	37.9940	-0.0060
40	0	36	1564.189	36.0093	0.0093	6	0	38	1478.537	37.9924	-0.0076
0	0	37	1451.820	37.0110	0.0110	7	0	38	1482.413	37.9901	-0.0099
1	0	37	1456.325	37.0075	0.0075	8	0	38	1486.195	37.9887	-0.0113
2	0	37	1460.721	37.0038	0.0038	9	0	38	1489.884	37.9874	-0.0126
3	0	37	1465.012	37.0012	0.0012	10	0	38	1493.481	37.9855	-0.0145
4	0	37	1469.199	36.9986	-0.0014	11	0	38	1496.989	37.9838	-0.0162
5	0	37	1473.284	36.9958	-0.0042	12	0	38	1500.410	37.9826	-0.0174

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
13	0	38	1503.745	37.9813	-0.0187	20	0	40	1527.067	39.9931	-0.0069
14	0	38	1506.995	37.9793	-0.0207	21	0	40	1529.755	39.9958	-0.0042
15	0	38	1510.164	37.9788	-0.0212	22	0	40	1532.370	39.9985	-0.0015
16	0	38	1513.251	37.9776	-0.0224	23	0	40	1534.913	40.0008	0.0008
17	0	38	1516.260	37.9779	-0.0221	24	0	40	1537.387	40.0046	0.0046
18	0	38	1519.190	37.9777	-0.0223	25	0	40	1539.792	40.0089	0.0089
19	0	38	1522.044	37.9783	-0.0217	26	0	40	1542.129	40.0137	0.0137
20	0	38	1524.822	37.9786	-0.0214	27	0	40	1544.399	40.0190	0.0190
21	0	38	1527.527	37.9803	-0.0197	28	0	40	1546.603	40.0248	0.0248
22	0	38	1530.159	37.9822	-0.0178	29	0	40	1548.741	40.0304	0.0304
23	0	38	1532.719	37.9843	-0.0157	30	0	40	1550.814	40.0357	0.0357
24	0	38	1535.209	37.9873	-0.0127	31	0	40	1552.824	40.0419	0.0419
25	0	38	1537.629	37.9904	-0.0096	32	0	40	1554.770	40.0472	0.0472
26	0	38	1539.982	37.9952	-0.0048	33	0	40	1556.653	40.0517	0.0517
27	0	38	1542.266	37.9990	-0.0010	34	0	40	1558.475	40.0567	0.0567
28	0	38	1544.484	38.0038	0.0038	35	0	40	1560.234	40.0593	0.0593
29	0	38	1546.636	38.0087	0.0087	36	0	40	1561.932	40.0609	0.0609
30	0	38	1548.724	38.0146	0.0146	37	0	40	1563.569	40.0606	0.0606
31	0	38	1550.747	38.0199	0.0199	38	0	40	1565.146	40.0586	0.0586
32	0	38	1552.706	38.0247	0.0247	39	0	40	1566.662	40.0534	0.0534
33	0	38	1554.602	38.0290	0.0290	40	0	40	1568.118	40.0450	0.0450
34	0	38	1556.436	38.0332	0.0332	0	10	0	1403.927	-0.1356	-0.1356
35	0	38	1558.208	38.0363	0.0363	1	10	0	1408.913	-0.1288	-0.1288
36	0	38	1559.918	38.0378	0.0378	2	10	0	1413.784	-0.1227	-0.1227
37	0	38	1561.568	38.0387	0.0387	3	10	0	1418.544	-0.1157	-0.1157
38	0	38	1563.156	38.0363	0.0363	4	10	0	1423.193	-0.1091	-0.1091
39	0	38	1564.684	38.0318	0.0318	5	10	0	1427.733	-0.1030	-0.1030
40	0	38	1566.152	38.0247	0.0247	6	10	0	1432.166	-0.0972	-0.0972
0	0	40	1455.849	39.9926	-0.0074	7	10	0	1436.495	-0.0909	-0.0909
1	0	40	1460.315	39.9922	-0.0078	8	10	0	1440.721	-0.0847	-0.0847
2	0	40	1464.674	39.9926	-0.0074	9	10	0	1444.845	-0.0792	-0.0792
3	0	40	1468.926	39.9920	-0.0080	10	10	0	1448.870	-0.0735	-0.0735
4	0	40	1473.076	39.9924	-0.0076	11	10	0	1452.796	-0.0691	-0.0691
5	0	40	1477.124	39.9920	-0.0080	12	10	0	1456.627	-0.0640	-0.0640
6	0	40	1481.074	39.9922	-0.0078	13	10	0	1460.363	-0.0596	-0.0596
7	0	40	1484.927	39.9920	-0.0080	14	10	0	1464.006	-0.0556	-0.0556
8	0	40	1488.685	39.9915	-0.0085	15	10	0	1467.557	-0.0526	-0.0526
9	0	40	1492.350	39.9907	-0.0093	16	10	0	1471.018	-0.0502	-0.0502
10	0	40	1495.925	39.9903	-0.0097	17	10	0	1474.391	-0.0479	-0.0479
11	0	40	1499.411	39.9898	-0.0102	18	10	0	1477.678	-0.0454	-0.0454
12	0	40	1502.810	39.9893	-0.0107	19	10	0	1480.878	-0.0447	-0.0447
13	0	40	1506.124	39.9892	-0.0108	20	10	0	1483.995	-0.0435	-0.0435
14	0	40	1509.354	39.9888	-0.0112	21	10	0	1487.028	-0.0441	-0.0441
15	0	40	1512.503	39.9893	-0.0107	22	10	0	1489.981	-0.0439	-0.0439
16	0	40	1515.571	39.9896	-0.0104	23	10	0	1492.853	-0.0451	-0.0451
17	0	40	1518.560	39.9901	-0.0099	24	10	0	1495.647	-0.0460	-0.0460
18	0	40	1521.471	39.9904	-0.0096	25	10	0	1498.364	-0.0468	-0.0468
19	0	40	1524.307	39.9921	-0.0079	26	10	0	1501.004	-0.0487	-0.0487

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
27	10	0	1503.569	-0.0508	-0.0508	34	10	10	1529.822	10.0555	0.0555
28	10	0	1506.061	-0.0523	-0.0523	35	10	10	1531.769	10.0561	0.0561
29	10	0	1508.480	-0.0542	-0.0542	36	10	10	1533.651	10.0559	0.0559
30	10	0	1510.828	-0.0556	-0.0556	37	10	10	1535.471	10.0572	0.0572
31	10	0	1513.105	-0.0574	-0.0574	38	10	10	1537.227	10.0571	0.0571
32	10	0	1515.314	-0.0578	-0.0578	39	10	10	1538.922	10.0579	0.0579
33	10	0	1517.454	-0.0587	-0.0587	40	10	10	1540.556	10.0586	0.0586
34	10	0	1519.527	-0.0589	-0.0589	0	10	20	1430.731	20.1030	0.1030
35	10	0	1521.534	-0.0584	-0.0584	1	10	20	1435.459	20.0934	0.0934
36	10	0	1523.476	-0.0571	-0.0571	2	10	20	1440.077	20.0855	0.0855
37	10	0	1525.355	-0.0539	-0.0539	3	10	20	1444.585	20.0776	0.0776
38	10	0	1527.170	-0.0506	-0.0506	4	10	20	1448.987	20.0710	0.0710
39	10	0	1528.923	-0.0461	-0.0461	5	10	20	1453.284	20.0650	0.0650
40	10	0	1530.615	-0.0401	-0.0401	6	10	20	1457.477	20.0587	0.0587
0	10	10	1417.406	10.0893	0.0893	7	10	20	1461.571	20.0542	0.0542
1	10	10	1422.264	10.0854	0.0854	8	10	20	1465.565	20.0494	0.0494
2	10	10	1427.009	10.0818	0.0818	9	10	20	1469.462	20.0449	0.0449
3	10	10	1431.644	10.0793	0.0793	10	10	20	1473.264	20.0409	0.0409
4	10	10	1436.169	10.0763	0.0763	11	10	20	1476.973	20.0376	0.0376
5	10	10	1440.588	10.0742	0.0742	12	10	20	1480.590	20.0341	0.0341
6	10	10	1444.903	10.0732	0.0732	13	10	20	1484.117	20.0309	0.0309
7	10	10	1449.114	10.0715	0.0715	14	10	20	1487.556	20.0282	0.0282
8	10	10	1453.225	10.0710	0.0710	15	10	20	1490.908	20.0254	0.0254
9	10	10	1457.236	10.0700	0.0700	16	10	20	1494.175	20.0228	0.0228
10	10	10	1461.150	10.0696	0.0696	17	10	20	1497.358	20.0202	0.0202
11	10	10	1464.968	10.0689	0.0689	18	10	20	1500.460	20.0187	0.0187
12	10	10	1468.692	10.0683	0.0683	19	10	20	1503.480	20.0163	0.0163
13	10	10	1472.324	10.0679	0.0679	20	10	20	1506.421	20.0145	0.0145
14	10	10	1475.866	10.0681	0.0681	21	10	20	1509.284	20.0128	0.0128
15	10	10	1479.318	10.0675	0.0675	22	10	20	1512.071	20.0121	0.0121
16	10	10	1482.683	10.0673	0.0673	23	10	20	1514.781	20.0102	0.0102
17	10	10	1485.962	10.0670	0.0670	24	10	20	1517.418	20.0097	0.0097
18	10	10	1489.156	10.0663	0.0663	25	10	20	1519.981	20.0087	0.0087
19	10	10	1492.267	10.0655	0.0655	26	10	20	1522.472	20.0079	0.0079
20	10	10	1495.296	10.0644	0.0644	27	10	20	1524.892	20.0073	0.0073
21	10	10	1498.245	10.0636	0.0636	28	10	20	1527.242	20.0068	0.0068
22	10	10	1501.115	10.0628	0.0628	29	10	20	1529.523	20.0065	0.0065
23	10	10	1503.908	10.0626	0.0626	30	10	20	1531.736	20.0062	0.0062
24	10	10	1506.623	10.0610	0.0610	31	10	20	1533.882	20.0062	0.0062
25	10	10	1509.264	10.0606	0.0606	32	10	20	1535.961	20.0054	0.0054
26	10	10	1511.830	10.0594	0.0594	33	10	20	1537.975	20.0049	0.0049
27	10	10	1514.323	10.0582	0.0582	34	10	20	1539.925	20.0048	0.0048
28	10	10	1516.745	10.0580	0.0580	35	10	20	1541.810	20.0034	0.0034
29	10	10	1519.095	10.0567	0.0567	36	10	20	1543.632	20.0017	0.0017
30	10	10	1521.376	10.0562	0.0562	37	10	20	1545.391	19.9989	-0.0011
31	10	10	1523.588	10.0556	0.0556	38	10	20	1547.088	19.9952	-0.0048
32	10	10	1525.733	10.0559	0.0559	39	10	20	1548.724	19.9908	-0.0092
33	10	10	1527.810	10.0552	0.0552	40	10	20	1550.299	19.9850	-0.0150

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
0	10	30	1444.069	30.0484	0.0484	7	10	33	1477.788	32.9983	-0.0017
1	10	30	1448.668	30.0410	0.0410	8	10	33	1481.630	32.9952	-0.0048
2	10	30	1453.157	30.0340	0.0340	9	10	33	1485.377	32.9915	-0.0085
3	10	30	1457.539	30.0279	0.0279	10	10	33	1489.033	32.9891	-0.0109
4	10	30	1461.816	30.0224	0.0224	11	10	33	1492.598	32.9864	-0.0136
5	10	30	1465.989	30.0167	0.0167	12	10	33	1496.075	32.9843	-0.0157
6	10	30	1470.062	30.0120	0.0120	13	10	33	1499.464	32.9815	-0.0185
7	10	30	1474.036	30.0074	0.0074	14	10	33	1502.769	32.9800	-0.0200
8	10	30	1477.913	30.0031	0.0031	15	10	33	1505.990	32.9782	-0.0218
9	10	30	1481.696	29.9997	-0.0003	16	10	33	1509.129	32.9767	-0.0233
10	10	30	1485.385	29.9957	-0.0043	17	10	33	1512.187	32.9751	-0.0249
11	10	30	1488.984	29.9928	-0.0072	18	10	33	1515.166	32.9737	-0.0263
12	10	30	1492.493	29.9896	-0.0104	19	10	33	1518.068	32.9733	-0.0267
13	10	30	1495.914	29.9863	-0.0137	20	10	33	1520.893	32.9725	-0.0275
14	10	30	1499.250	29.9839	-0.0161	21	10	33	1523.644	32.9730	-0.0270
15	10	30	1502.501	29.9812	-0.0188	22	10	33	1526.320	32.9727	-0.0273
16	10	30	1505.669	29.9786	-0.0214	23	10	33	1528.924	32.9733	-0.0267
17	10	30	1508.757	29.9772	-0.0228	24	10	33	1531.456	32.9738	-0.0262
18	10	30	1511.764	29.9751	-0.0249	25	10	33	1533.918	32.9749	-0.0251
19	10	30	1514.694	29.9745	-0.0255	26	10	33	1536.310	32.9757	-0.0243
20	10	30	1517.546	29.9733	-0.0267	27	10	33	1538.634	32.9771	-0.0229
21	10	30	1520.322	29.9721	-0.0279	28	10	33	1540.891	32.9791	-0.0209
22	10	30	1523.024	29.9717	-0.0283	29	10	33	1543.080	32.9798	-0.0202
23	10	30	1525.653	29.9719	-0.0281	30	10	33	1545.204	32.9812	-0.0188
24	10	30	1528.209	29.9717	-0.0283	31	10	33	1547.262	32.9814	-0.0186
25	10	30	1530.694	29.9717	-0.0283	32	10	33	1549.256	32.9816	-0.0184
26	10	30	1533.110	29.9730	-0.0270	33	10	33	1551.186	32.9809	-0.0191
27	10	30	1535.456	29.9735	-0.0265	34	10	33	1553.053	32.9794	-0.0206
28	10	30	1537.734	29.9742	-0.0258	35	10	33	1554.857	32.9763	-0.0237
29	10	30	1539.945	29.9752	-0.0248	36	10	33	1556.599	32.9718	-0.0282
30	10	30	1542.089	29.9755	-0.0245	37	10	33	1558.279	32.9651	-0.0349
31	10	30	1544.168	29.9761	-0.0239	38	10	33	1559.898	32.9564	-0.0436
32	10	30	1546.181	29.9753	-0.0247	39	10	33	1561.456	32.9449	-0.0551
33	10	30	1548.131	29.9750	-0.0250	40	10	33	1562.953	32.9299	-0.0701
34	10	30	1550.017	29.9735	-0.0265	0	10	34	1449.423	34.0222	0.0222
35	10	30	1551.840	29.9709	-0.0291	1	10	34	1453.970	34.0174	0.0174
36	10	30	1553.600	29.9665	-0.0335	2	10	34	1458.408	34.0132	0.0132
37	10	30	1555.299	29.9613	-0.0387	3	10	34	1462.739	34.0091	0.0091
38	10	30	1556.936	29.9537	-0.0463	4	10	34	1466.965	34.0051	0.0051
39	10	30	1558.511	29.9427	-0.0573	5	10	34	1471.089	34.0015	0.0015
40	10	30	1560.026	29.9297	-0.0703	6	10	34	1475.113	33.9982	-0.0018
0	10	33	1448.084	33.0293	0.0293	7	10	34	1479.040	33.9959	-0.0041
1	10	33	1452.643	33.0230	0.0230	8	10	34	1482.870	33.9930	-0.0070
2	10	33	1457.094	33.0181	0.0181	9	10	34	1486.606	33.9902	-0.0098
3	10	33	1461.438	33.0137	0.0137	10	10	34	1490.250	33.9876	-0.0124
4	10	33	1465.677	33.0094	0.0094	11	10	34	1493.805	33.9861	-0.0139
5	10	33	1469.813	33.0049	0.0049	12	10	34	1497.270	33.9834	-0.0166
6	10	33	1473.849	33.0010	0.0010	13	10	34	1500.649	33.9814	-0.0186

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
14	10	34	1503.943	33.9796	-0.0204	21	10	35	1525.862	34.9777	-0.0223
15	10	34	1507.154	33.9783	-0.0217	22	10	35	1528.521	34.9779	-0.0221
16	10	34	1510.283	33.9769	-0.0231	23	10	35	1531.109	34.9795	-0.0205
17	10	34	1513.332	33.9761	-0.0239	24	10	35	1533.625	34.9806	-0.0194
18	10	34	1516.302	33.9754	-0.0246	25	10	35	1536.071	34.9819	-0.0181
19	10	34	1519.194	33.9744	-0.0256	26	10	35	1538.448	34.9834	-0.0166
20	10	34	1522.011	33.9748	-0.0252	27	10	35	1540.757	34.9852	-0.0148
21	10	34	1524.752	33.9743	-0.0257	28	10	35	1542.999	34.9872	-0.0128
22	10	34	1527.420	33.9747	-0.0253	29	10	35	1545.174	34.9884	-0.0116
23	10	34	1530.016	33.9758	-0.0242	30	10	35	1547.284	34.9900	-0.0100
24	10	34	1532.540	33.9766	-0.0234	31	10	35	1549.329	34.9910	-0.0090
25	10	34	1534.994	33.9778	-0.0222	32	10	35	1551.309	34.9907	-0.0093
26	10	34	1537.379	33.9794	-0.0206	33	10	35	1553.227	34.9910	-0.0090
27	10	34	1539.695	33.9805	-0.0195	34	10	35	1555.081	34.9892	-0.0108
28	10	34	1541.944	33.9820	-0.0180	35	10	35	1556.872	34.9855	-0.0145
29	10	34	1544.127	33.9839	-0.0161	36	10	35	1558.602	34.9810	-0.0190
30	10	34	1546.243	33.9844	-0.0156	37	10	35	1560.270	34.9740	-0.0260
31	10	34	1548.295	33.9856	-0.0144	38	10	35	1561.876	34.9637	-0.0363
32	10	34	1550.282	33.9855	-0.0145	39	10	35	1563.422	34.9513	-0.0487
33	10	34	1552.206	33.9852	-0.0148	40	10	35	1564.907	34.9350	-0.0650
34	10	34	1554.066	33.9831	-0.0169	0	10	36	1452.106	36.0101	0.0101
35	10	34	1555.864	33.9802	-0.0198	1	10	36	1456.626	36.0063	0.0063
36	10	34	1557.600	33.9757	-0.0243	2	10	36	1461.038	36.0035	0.0035
37	10	34	1559.274	33.9688	-0.0312	3	10	36	1465.344	36.0013	0.0013
38	10	34	1560.887	33.9598	-0.0402	4	10	36	1469.545	35.9986	-0.0014
39	10	34	1562.438	33.9469	-0.0531	5	10	36	1473.645	35.9969	-0.0031
40	10	34	1563.929	33.9312	-0.0688	6	10	36	1477.644	35.9943	-0.0057
0	10	35	1450.764	35.0161	0.0161	7	10	36	1481.547	35.9930	-0.0070
1	10	35	1455.298	35.0121	0.0121	8	10	36	1485.353	35.9907	-0.0093
2	10	35	1459.723	35.0085	0.0085	9	10	36	1489.067	35.9897	-0.0103
3	10	35	1464.041	35.0050	0.0050	10	10	36	1492.688	35.9877	-0.0123
4	10	35	1468.255	35.0020	0.0020	11	10	36	1496.220	35.9863	-0.0137
5	10	35	1472.366	34.9985	-0.0015	12	10	36	1499.664	35.9850	-0.0150
6	10	35	1476.378	34.9960	-0.0040	13	10	36	1503.022	35.9839	-0.0161
7	10	35	1480.293	34.9942	-0.0058	14	10	36	1506.295	35.9825	-0.0175
8	10	35	1484.111	34.9915	-0.0085	15	10	36	1509.486	35.9821	-0.0179
9	10	35	1487.836	34.9896	-0.0104	16	10	36	1512.595	35.9812	-0.0188
10	10	35	1491.469	34.9876	-0.0124	17	10	36	1515.624	35.9804	-0.0196
11	10	35	1495.012	34.9858	-0.0142	18	10	36	1518.575	35.9801	-0.0199
12	10	35	1498.467	34.9842	-0.0158	19	10	36	1521.449	35.9800	-0.0200
13	10	35	1501.835	34.9822	-0.0178	20	10	36	1524.248	35.9808	-0.0192
14	10	35	1505.119	34.9810	-0.0190	21	10	36	1526.972	35.9813	-0.0187
15	10	35	1508.319	34.9792	-0.0208	22	10	36	1529.623	35.9823	-0.0177
16	10	35	1511.439	34.9790	-0.0210	23	10	36	1532.202	35.9835	-0.0165
17	10	35	1514.478	34.9782	-0.0218	24	10	36	1534.710	35.9849	-0.0151
18	10	35	1517.438	34.9772	-0.0228	25	10	36	1537.148	35.9863	-0.0137
19	10	35	1520.321	34.9767	-0.0233	26	10	36	1539.518	35.9887	-0.0113
20	10	35	1523.129	34.9772	-0.0228	27	10	36	1541.819	35.9902	-0.0098

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
28	10	36	1544.054	35.9927	-0.0073	35	10	37	1558.890	36.9993	-0.0007
29	10	36	1546.222	35.9942	-0.0058	36	10	37	1560.607	36.9939	-0.0061
30	10	36	1548.325	35.9959	-0.0041	37	10	37	1562.263	36.9867	-0.0133
31	10	36	1550.363	35.9969	-0.0031	38	10	37	1563.857	36.9757	-0.0243
32	10	36	1552.337	35.9972	-0.0028	39	10	37	1565.391	36.9624	-0.0376
33	10	36	1554.248	35.9971	-0.0029	40	10	37	1566.864	36.9449	-0.0551
34	10	36	1556.096	35.9957	-0.0043	0	10	38	1454.792	37.9981	-0.0019
35	10	36	1557.881	35.9922	-0.0078	1	10	38	1459.287	37.9971	-0.0029
36	10	36	1559.604	35.9868	-0.0132	2	10	38	1463.673	37.9959	-0.0041
37	10	36	1561.266	35.9796	-0.0204	3	10	38	1467.953	37.9950	-0.0050
38	10	36	1562.866	35.9690	-0.0310	4	10	38	1472.129	37.9941	-0.0059
39	10	36	1564.406	35.9561	-0.0439	5	10	38	1476.204	37.9937	-0.0063
40	10	36	1565.885	35.9392	-0.0608	6	10	38	1480.179	37.9927	-0.0073
0	10	37	1453.448	37.0037	0.0037	7	10	38	1484.057	37.9919	-0.0081
1	10	37	1457.956	37.0016	0.0016	8	10	38	1487.841	37.9920	-0.0080
2	10	37	1462.355	36.9995	-0.0005	9	10	38	1491.531	37.9914	-0.0086
3	10	37	1466.648	36.9979	-0.0021	10	10	38	1495.130	37.9909	-0.0091
4	10	37	1470.836	36.9957	-0.0043	11	10	38	1498.639	37.9898	-0.0102
5	10	37	1474.924	36.9950	-0.0050	12	10	38	1502.062	37.9900	-0.0100
6	10	37	1478.911	36.9932	-0.0068	13	10	38	1505.398	37.9892	-0.0108
7	10	37	1482.801	36.9918	-0.0082	14	10	38	1508.651	37.9892	-0.0108
8	10	37	1486.596	36.9906	-0.0094	15	10	38	1511.821	37.9890	-0.0110
9	10	37	1490.298	36.9898	-0.0102	16	10	38	1514.910	37.9887	-0.0113
10	10	37	1493.908	36.9885	-0.0115	17	10	38	1517.920	37.9888	-0.0112
11	10	37	1497.429	36.9876	-0.0124	18	10	38	1520.852	37.9891	-0.0109
12	10	37	1500.862	36.9866	-0.0134	19	10	38	1523.708	37.9900	-0.0100
13	10	37	1504.209	36.9856	-0.0144	20	10	38	1526.489	37.9914	-0.0086
14	10	37	1507.472	36.9850	-0.0150	21	10	38	1529.195	37.9921	-0.0079
15	10	37	1510.653	36.9850	-0.0150	22	10	38	1531.829	37.9937	-0.0063
16	10	37	1513.752	36.9844	-0.0156	23	10	38	1534.392	37.9960	-0.0040
17	10	37	1516.772	36.9845	-0.0155	24	10	38	1536.884	37.9981	-0.0019
18	10	37	1519.713	36.9840	-0.0160	25	10	38	1539.306	37.9999	-0.0001
19	10	37	1522.578	36.9845	-0.0155	26	10	38	1541.660	38.0022	0.0022
20	10	37	1525.368	36.9856	-0.0144	27	10	38	1543.947	38.0051	0.0051
21	10	37	1528.083	36.9861	-0.0139	28	10	38	1546.167	38.0077	0.0077
22	10	37	1530.726	36.9878	-0.0122	29	10	38	1548.321	38.0099	0.0099
23	10	37	1533.296	36.9887	-0.0113	30	10	38	1550.410	38.0118	0.0118
24	10	37	1535.796	36.9904	-0.0096	31	10	38	1552.435	38.0137	0.0137
25	10	37	1538.227	36.9930	-0.0070	32	10	38	1554.395	38.0136	0.0136
26	10	37	1540.589	36.9953	-0.0047	33	10	38	1556.293	38.0136	0.0136
27	10	37	1542.883	36.9975	-0.0025	34	10	38	1558.128	38.0120	0.0120
28	10	37	1545.110	36.9995	-0.0005	35	10	38	1559.900	38.0079	0.0079
29	10	37	1547.271	37.0014	0.0014	36	10	38	1561.611	38.0026	0.0026
30	10	37	1549.367	37.0032	0.0032	37	10	38	1563.261	37.9952	-0.0048
31	10	37	1551.399	37.0051	0.0051	38	10	38	1564.849	37.9840	-0.0160
32	10	37	1553.366	37.0052	0.0052	39	10	38	1566.377	37.9702	-0.0298
33	10	37	1555.270	37.0047	0.0047	40	10	38	1567.843	37.9510	-0.0490
34	10	37	1557.111	37.0026	0.0026	0	10	40	1457.483	39.9879	-0.0121

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
1	10	40	1461.951	39.9884	-0.0116	8	50	10	1459.668	9.9918	-0.0082
2	10	40	1466.311	39.9892	-0.0108	9	50	10	1463.695	9.9969	-0.0031
3	10	40	1470.566	39.9906	-0.0094	10	50	10	1467.624	10.0019	0.0019
4	10	40	1474.717	39.9916	-0.0084	11	50	10	1471.458	10.0077	0.0077
5	10	40	1478.767	39.9927	-0.0073	12	50	10	1475.197	10.0129	0.0129
6	10	40	1482.718	39.9936	-0.0064	13	50	10	1478.845	10.0191	0.0191
7	10	40	1486.572	39.9943	-0.0057	14	50	10	1482.401	10.0240	0.0240
8	10	40	1490.332	39.9954	-0.0046	15	50	10	1485.868	10.0288	0.0288
9	10	40	1493.999	39.9962	-0.0038	16	50	10	1489.248	10.0337	0.0337
10	10	40	1497.575	39.9966	-0.0034	17	50	10	1492.542	10.0381	0.0381
11	10	40	1501.062	39.9968	-0.0032	18	50	10	1495.751	10.0416	0.0416
12	10	40	1504.463	39.9978	-0.0022	19	50	10	1498.877	10.0446	0.0446
13	10	40	1507.778	39.9982	-0.0018	20	50	10	1501.921	10.0466	0.0466
14	10	40	1511.010	39.9990	-0.0010	0	50	20	1437.140	20.0289	0.0289
15	10	40	1514.160	39.9999	-0.0001	1	50	20	1441.883	20.0222	0.0222
16	10	40	1517.229	40.0003	0.0003	2	50	20	1446.514	20.0168	0.0168
17	10	40	1520.220	40.0016	0.0016	3	50	20	1451.036	20.0131	0.0131
18	10	40	1523.133	40.0025	0.0025	4	50	20	1455.450	20.0099	0.0099
19	10	40	1525.970	40.0037	0.0037	5	50	20	1459.759	20.0080	0.0080
20	10	40	1528.733	40.0058	0.0058	6	50	20	1463.965	20.0069	0.0069
21	10	40	1531.422	40.0076	0.0076	7	50	20	1468.070	20.0067	0.0067
22	10	40	1534.039	40.0099	0.0099	8	50	20	1472.076	20.0071	0.0071
23	10	40	1536.585	40.0126	0.0126	9	50	20	1475.985	20.0082	0.0082
24	10	40	1539.061	40.0155	0.0155	10	50	20	1479.798	20.0091	0.0091
25	10	40	1541.468	40.0186	0.0186	11	50	20	1483.518	20.0106	0.0106
26	10	40	1543.807	40.0219	0.0219	12	50	20	1487.147	20.0128	0.0128
27	10	40	1546.078	40.0244	0.0244	13	50	20	1490.685	20.0143	0.0143
28	10	40	1548.284	40.0280	0.0280	14	50	20	1494.136	20.0168	0.0168
29	10	40	1550.423	40.0299	0.0299	15	50	20	1497.499	20.0180	0.0180
30	10	40	1552.499	40.0332	0.0332	16	50	20	1500.778	20.0200	0.0200
31	10	40	1554.510	40.0350	0.0350	17	50	20	1503.973	20.0214	0.0214
32	10	40	1556.457	40.0355	0.0355	18	50	20	1507.086	20.0225	0.0225
33	10	40	1558.342	40.0357	0.0357	19	50	20	1510.118	20.0229	0.0229
34	10	40	1560.164	40.0340	0.0340	20	50	20	1513.071	20.0231	0.0231
35	10	40	1561.924	40.0304	0.0304	0	50	30	1450.568	30.0091	0.0091
36	10	40	1563.622	40.0242	0.0242	1	50	30	1455.177	30.0046	0.0046
37	10	40	1565.259	40.0156	0.0156	2	50	30	1459.676	30.0013	0.0013
38	10	40	1566.835	40.0039	0.0039	3	50	30	1464.066	29.9981	-0.0019
39	10	40	1568.351	39.9892	-0.0108	4	50	30	1468.351	29.9961	-0.0039
40	10	40	1569.805	39.9688	-0.0312	5	50	30	1472.533	29.9951	-0.0049
0	50	10	1423.712	9.9773	-0.0227	6	50	30	1476.614	29.9948	-0.0052
1	50	10	1428.589	9.9756	-0.0244	7	50	30	1480.595	29.9941	-0.0059
2	50	10	1433.352	9.9747	-0.0253	8	50	30	1484.480	29.9946	-0.0054
3	50	10	1438.004	9.9752	-0.0248	9	50	30	1488.270	29.9952	-0.0048
4	50	10	1442.547	9.9768	-0.0232	10	50	30	1491.967	29.9961	-0.0039
5	50	10	1446.983	9.9795	-0.0205	11	50	30	1495.573	29.9971	-0.0029
6	50	10	1451.314	9.9831	-0.0169	12	50	30	1499.089	29.9977	-0.0023
7	50	10	1455.541	9.9866	-0.0134	13	50	30	1502.519	29.9994	-0.0006

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
14	50	30	1505.862	30.0002	0.0002	20	50	34	1528.675	34.0111	0.0111
15	50	30	1509.122	30.0018	0.0018	0	50	35	1457.299	34.9901	-0.0099
16	50	30	1512.299	30.0029	0.0029	1	50	35	1461.841	34.9893	-0.0107
17	50	30	1515.395	30.0039	0.0039	2	50	35	1466.273	34.9888	-0.0112
18	50	30	1518.411	30.0042	0.0042	3	50	35	1470.598	34.9890	-0.0110
19	50	30	1521.349	30.0044	0.0044	4	50	35	1474.818	34.9895	-0.0105
20	50	30	1524.210	30.0041	0.0041	5	50	35	1478.936	34.9907	-0.0093
0	50	33	1454.605	32.9981	-0.0019	6	50	35	1482.954	34.9923	-0.0077
1	50	33	1459.174	32.9957	-0.0043	7	50	35	1486.873	34.9933	-0.0067
2	50	33	1463.632	32.9933	-0.0067	8	50	35	1490.698	34.9959	-0.0041
3	50	33	1467.983	32.9919	-0.0081	9	50	35	1494.428	34.9977	-0.0023
4	50	33	1472.230	32.9920	-0.0080	10	50	35	1498.066	34.9993	-0.0007
5	50	33	1476.373	32.9917	-0.0083	11	50	35	1501.615	35.0016	0.0016
6	50	33	1480.416	32.9922	-0.0078	12	50	35	1505.076	35.0039	0.0039
7	50	33	1484.360	32.9926	-0.0074	13	50	35	1508.450	35.0055	0.0055
8	50	33	1488.209	32.9942	-0.0058	14	50	35	1511.740	35.0074	0.0074
9	50	33	1491.963	32.9954	-0.0046	15	50	35	1514.947	35.0091	0.0091
10	50	33	1495.625	32.9969	-0.0031	16	50	35	1518.073	35.0109	0.0109
11	50	33	1499.196	32.9979	-0.0021	17	50	35	1521.119	35.0123	0.0123
12	50	33	1502.680	33.0002	0.0002	18	50	35	1524.087	35.0137	0.0137
13	50	33	1506.076	33.0015	0.0015	19	50	35	1526.978	35.0147	0.0147
14	50	33	1509.387	33.0026	0.0026	20	50	35	1529.793	35.0150	0.0150
15	50	33	1512.615	33.0040	0.0040	0	50	36	1458.648	35.9869	-0.0131
16	50	33	1515.762	33.0060	0.0060	1	50	36	1463.176	35.9866	-0.0134
17	50	33	1518.828	33.0071	0.0071	2	50	36	1467.594	35.9864	-0.0136
18	50	33	1521.815	33.0078	0.0078	3	50	36	1471.906	35.9875	-0.0125
19	50	33	1524.725	33.0086	0.0086	4	50	36	1476.113	35.9886	-0.0114
20	50	33	1527.558	33.0083	0.0083	5	50	36	1480.218	35.9903	-0.0097
0	50	34	1455.952	33.9943	-0.0057	6	50	36	1484.224	35.9929	-0.0071
1	50	34	1460.507	33.9923	-0.0077	7	50	36	1488.131	35.9947	-0.0053
2	50	34	1464.952	33.9908	-0.0092	8	50	36	1491.943	35.9971	-0.0029
3	50	34	1469.290	33.9902	-0.0098	9	50	36	1495.661	35.9992	-0.0008
4	50	34	1473.523	33.9901	-0.0099	10	50	36	1499.288	36.0017	0.0017
5	50	34	1477.654	33.9909	-0.0091	11	50	36	1502.825	36.0039	0.0039
6	50	34	1481.684	33.9916	-0.0084	12	50	36	1506.275	36.0067	0.0067
7	50	34	1485.617	33.9934	-0.0066	13	50	36	1509.638	36.0085	0.0085
8	50	34	1489.453	33.9947	-0.0053	14	50	36	1512.917	36.0105	0.0105
9	50	34	1493.195	33.9961	-0.0039	15	50	36	1516.114	36.0128	0.0128
10	50	34	1496.845	33.9976	-0.0024	16	50	36	1519.230	36.0150	0.0150
11	50	34	1500.405	33.9993	-0.0007	17	50	36	1522.266	36.0165	0.0165
12	50	34	1503.877	34.0012	0.0012	18	50	36	1525.224	36.0178	0.0178
13	50	34	1507.263	34.0034	0.0034	19	50	36	1528.105	36.0186	0.0186
14	50	34	1510.563	34.0045	0.0045	20	50	36	1530.911	36.0193	0.0193
15	50	34	1513.781	34.0065	0.0065	0	50	37	1459.996	36.9825	-0.0175
16	50	34	1516.917	34.0079	0.0079	1	50	37	1464.511	36.9835	-0.0165
17	50	34	1519.973	34.0091	0.0091	2	50	37	1468.916	36.9844	-0.0156
18	50	34	1522.951	34.0106	0.0106	3	50	37	1473.215	36.9864	-0.0136
19	50	34	1525.851	34.0111	0.0111	4	50	37	1477.409	36.9883	-0.0117

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
5	50	37	1481.502	36.9912	-0.0088	11	50	40	1507.673	40.0207	0.0207
6	50	37	1485.494	36.9934	-0.0066	12	50	40	1511.078	40.0249	0.0249
7	50	37	1489.389	36.9960	-0.0040	13	50	40	1514.397	40.0281	0.0281
8	50	37	1493.189	36.9990	-0.0010	14	50	40	1517.634	40.0321	0.0321
9	50	37	1496.895	37.0015	0.0015	15	50	40	1520.788	40.0346	0.0346
10	50	37	1500.510	37.0042	0.0042	16	50	40	1523.863	40.0378	0.0378
11	50	37	1504.036	37.0072	0.0072	17	50	40	1526.859	40.0403	0.0403
12	50	37	1507.474	37.0096	0.0096	18	50	40	1529.778	40.0425	0.0425
13	50	37	1510.827	37.0126	0.0126	19	50	40	1532.622	40.0450	0.0450
14	50	37	1514.095	37.0145	0.0145	20	50	40	1535.391	40.0466	0.0466
15	50	37	1517.282	37.0175	0.0175	0	100	20	1445.252	19.9618	-0.0382
16	50	37	1520.387	37.0193	0.0193	1	100	20	1450.006	19.9556	-0.0444
17	50	37	1523.413	37.0210	0.0210	2	100	20	1454.648	19.9518	-0.0482
18	50	37	1526.362	37.0232	0.0232	3	100	20	1459.180	19.9499	-0.0501
19	50	37	1529.233	37.0236	0.0236	4	100	20	1463.605	19.9502	-0.0498
20	50	37	1532.030	37.0247	0.0247	5	100	20	1467.924	19.9515	-0.0485
0	50	38	1461.346	37.9792	-0.0208	6	100	20	1472.139	19.9537	-0.0463
1	50	38	1465.847	37.9807	-0.0193	7	100	20	1476.254	19.9578	-0.0422
2	50	38	1470.239	37.9829	-0.0171	8	100	20	1480.269	19.9621	-0.0379
3	50	38	1474.525	37.9859	-0.0141	9	100	20	1484.187	19.9672	-0.0328
4	50	38	1478.706	37.9886	-0.0114	10	100	20	1488.010	19.9729	-0.0271
5	50	38	1482.785	37.9913	-0.0087	11	100	20	1491.740	19.9792	-0.0208
6	50	38	1486.765	37.9945	-0.0055	12	100	20	1495.378	19.9853	-0.0147
7	50	38	1490.648	37.9981	-0.0019	13	100	20	1498.927	19.9919	-0.0081
8	50	38	1494.436	38.0018	0.0018	14	100	20	1502.387	19.9975	-0.0025
9	50	38	1498.130	38.0047	0.0047	15	100	20	1505.761	20.0031	0.0031
10	50	38	1501.733	38.0076	0.0076	16	100	20	1509.051	20.0088	0.0088
11	50	38	1505.248	38.0113	0.0113	17	100	20	1512.257	20.0132	0.0132
12	50	38	1508.675	38.0143	0.0143	18	100	20	1515.381	20.0165	0.0165
13	50	38	1512.016	38.0167	0.0167	19	100	20	1518.425	20.0191	0.0191
14	50	38	1515.274	38.0196	0.0196	20	100	20	1521.390	20.0205	0.0205
15	50	38	1518.450	38.0224	0.0224	0	100	30	1458.775	29.9770	-0.0230
16	50	38	1521.545	38.0246	0.0246	1	100	30	1463.390	29.9737	-0.0263
17	50	38	1524.561	38.0266	0.0266	2	100	30	1467.895	29.9725	-0.0275
18	50	38	1527.500	38.0287	0.0287	3	100	30	1472.291	29.9722	-0.0278
19	50	38	1530.362	38.0299	0.0299	4	100	30	1476.581	29.9730	-0.0270
20	50	38	1533.150	38.0314	0.0314	5	100	30	1480.768	29.9753	-0.0247
0	50	40	1464.048	39.9727	-0.0273	6	100	30	1484.853	29.9777	-0.0223
1	50	40	1468.522	39.9765	-0.0235	7	100	30	1488.839	29.9809	-0.0191
2	50	40	1472.887	39.9804	-0.0196	8	100	30	1492.729	29.9853	-0.0147
3	50	40	1477.146	39.9849	-0.0151	9	100	30	1496.523	29.9891	-0.0109
4	50	40	1481.302	39.9900	-0.0100	10	100	30	1500.225	29.9937	-0.0063
5	50	40	1485.355	39.9940	-0.0060	11	100	30	1503.836	29.9983	-0.0017
6	50	40	1489.310	39.9989	-0.0011	12	100	30	1507.359	30.0036	0.0036
7	50	40	1493.168	40.0036	0.0036	13	100	30	1510.794	30.0082	0.0082
8	50	40	1496.931	40.0080	0.0080	14	100	30	1514.144	30.0127	0.0127
9	50	40	1500.602	40.0127	0.0127	15	100	30	1517.410	30.0167	0.0167
10	50	40	1504.182	40.0169	0.0169	16	100	30	1520.594	30.0203	0.0203

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
17	100	30	1523.697	30.0229	0.0229	2	100	35	1474.525	34.9744	-0.0256
18	100	30	1526.721	30.0248	0.0248	3	100	35	1478.852	34.9764	-0.0236
19	100	30	1529.668	30.0264	0.0264	4	100	35	1483.075	34.9800	-0.0200
20	100	30	1532.538	30.0264	0.0264	5	100	35	1487.196	34.9846	-0.0154
0	100	33	1462.835	32.9742	-0.0258	6	100	35	1491.216	34.9891	-0.0109
1	100	33	1467.409	32.9735	-0.0265	7	100	35	1495.138	34.9940	-0.0060
2	100	33	1471.872	32.9737	-0.0263	8	100	35	1498.964	34.9989	-0.0011
3	100	33	1476.227	32.9750	-0.0250	9	100	35	1502.697	35.0043	0.0043
4	100	33	1480.477	32.9774	-0.0226	10	100	35	1506.338	35.0095	0.0095
5	100	33	1484.623	32.9799	-0.0201	11	100	35	1509.890	35.0150	0.0150
6	100	33	1488.670	32.9842	-0.0158	12	100	35	1513.354	35.0200	0.0200
7	100	33	1492.617	32.9878	-0.0122	13	100	35	1516.732	35.0247	0.0247
8	100	33	1496.469	32.9926	-0.0074	14	100	35	1520.027	35.0299	0.0299
9	100	33	1500.227	32.9978	-0.0022	15	100	35	1523.239	35.0341	0.0341
10	100	33	1503.892	33.0023	0.0023	16	100	35	1526.370	35.0376	0.0376
11	100	33	1507.468	33.0076	0.0076	17	100	35	1529.422	35.0406	0.0406
12	100	33	1510.955	33.0122	0.0122	18	100	35	1532.396	35.0427	0.0427
13	100	33	1514.356	33.0169	0.0169	19	100	35	1535.294	35.0443	0.0443
14	100	33	1517.673	33.0217	0.0217	20	100	35	1538.116	35.0439	0.0439
15	100	33	1520.906	33.0253	0.0253	0	100	36	1466.898	35.9699	-0.0301
16	100	33	1524.059	33.0294	0.0294	1	100	36	1471.430	35.9718	-0.0282
17	100	33	1527.131	33.0318	0.0318	2	100	36	1475.851	35.9739	-0.0261
18	100	33	1530.125	33.0338	0.0338	3	100	36	1480.166	35.9779	-0.0221
19	100	33	1533.043	33.0356	0.0356	4	100	36	1484.375	35.9818	-0.0182
20	100	33	1535.884	33.0352	0.0352	5	100	36	1488.482	35.9864	-0.0136
0	100	34	1464.189	33.9729	-0.0271	6	100	36	1492.489	35.9915	-0.0085
1	100	34	1468.749	33.9730	-0.0270	7	100	36	1496.398	35.9967	-0.0033
2	100	34	1473.198	33.9738	-0.0262	8	100	36	1500.212	36.0024	0.0024
3	100	34	1477.540	33.9762	-0.0238	9	100	36	1503.932	36.0077	0.0077
4	100	34	1481.776	33.9788	-0.0212	10	100	36	1507.562	36.0140	0.0140
5	100	34	1485.909	33.9819	-0.0181	11	100	36	1511.101	36.0188	0.0188
6	100	34	1489.942	33.9859	-0.0141	12	100	36	1514.554	36.0246	0.0246
7	100	34	1493.877	33.9905	-0.0095	13	100	36	1517.921	36.0297	0.0297
8	100	34	1497.716	33.9953	-0.0047	14	100	36	1521.204	36.0343	0.0343
9	100	34	1501.462	34.0010	0.0010	15	100	36	1524.405	36.0385	0.0385
10	100	34	1505.115	34.0058	0.0058	16	100	36	1527.526	36.0425	0.0425
11	100	34	1508.679	34.0112	0.0112	17	100	36	1530.567	36.0451	0.0451
12	100	34	1512.154	34.0156	0.0156	18	100	36	1533.531	36.0472	0.0472
13	100	34	1515.544	34.0207	0.0207	19	100	36	1536.419	36.0486	0.0486
14	100	34	1518.850	34.0257	0.0257	20	100	36	1539.233	36.0497	0.0497
15	100	34	1522.072	34.0291	0.0291	0	100	37	1468.253	36.9682	-0.0318
16	100	34	1525.214	34.0329	0.0329	1	100	37	1472.771	36.9711	-0.0289
17	100	34	1528.276	34.0357	0.0357	2	100	37	1477.179	36.9747	-0.0253
18	100	34	1531.260	34.0377	0.0377	3	100	37	1481.479	36.9786	-0.0214
19	100	34	1534.168	34.0393	0.0393	4	100	37	1485.675	36.9835	-0.0165
20	100	34	1537.000	34.0394	0.0394	5	100	37	1489.769	36.9890	-0.0110
0	100	35	1465.543	34.9712	-0.0288	6	100	37	1493.763	36.9947	-0.0053
1	100	35	1470.089	34.9722	-0.0278	7	100	37	1497.659	37.0002	0.0002

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
8	100	37	1501.460	37.0060	0.0060	14	100	40	1525.917	40.0586	0.0586
9	100	37	1505.168	37.0120	0.0120	15	100	40	1529.075	40.0638	0.0638
10	100	37	1508.785	37.0179	0.0179	16	100	40	1532.153	40.0679	0.0679
11	100	37	1512.313	37.0237	0.0237	17	100	40	1535.154	40.0720	0.0720
12	100	37	1515.754	37.0293	0.0293	18	100	40	1538.078	40.0748	0.0748
13	100	37	1519.110	37.0349	0.0349	19	100	40	1540.926	40.0759	0.0759
14	100	37	1522.382	37.0398	0.0398	20	100	40	1543.701	40.0765	0.0765
15	100	37	1525.572	37.0439	0.0439	0	200	33	1479.539	32.9650	-0.0350
16	100	37	1528.682	37.0478	0.0478	1	200	33	1484.105	32.9628	-0.0372
17	100	37	1531.713	37.0506	0.0506	2	200	33	1488.559	32.9620	-0.0380
18	100	37	1534.667	37.0529	0.0529	3	200	33	1492.906	32.9639	-0.0361
19	100	37	1537.546	37.0551	0.0551	4	200	33	1497.146	32.9662	-0.0338
20	100	37	1540.349	37.0549	0.0549	5	200	33	1501.284	32.9705	-0.0295
0	100	38	1469.609	37.9670	-0.0330	6	200	33	1505.321	32.9753	-0.0247
1	100	38	1474.112	37.9701	-0.0299	7	200	33	1509.261	32.9816	-0.0184
2	100	38	1478.506	37.9746	-0.0254	8	200	33	1513.105	32.9882	-0.0118
3	100	38	1482.793	37.9798	-0.0202	9	200	33	1516.855	32.9945	-0.0055
4	100	38	1486.976	37.9858	-0.0142	10	200	33	1520.515	33.0018	0.0018
5	100	38	1491.056	37.9914	-0.0086	0	200	34	1480.902	33.9666	-0.0334
6	100	38	1495.037	37.9978	-0.0022	1	200	34	1485.453	33.9653	-0.0347
7	100	38	1498.921	38.0045	0.0045	2	200	34	1489.893	33.9658	-0.0342
8	100	38	1502.709	38.0105	0.0105	3	200	34	1494.225	33.9681	-0.0319
9	100	38	1506.405	38.0172	0.0172	4	200	34	1498.451	33.9713	-0.0287
10	100	38	1510.010	38.0235	0.0235	5	200	34	1502.575	33.9761	-0.0239
11	100	38	1513.526	38.0295	0.0295	6	200	34	1506.598	33.9812	-0.0188
12	100	38	1516.955	38.0351	0.0351	7	200	34	1510.524	33.9876	-0.0124
13	100	38	1520.299	38.0404	0.0404	8	200	34	1514.354	33.9938	-0.0062
14	100	38	1523.560	38.0455	0.0455	9	200	34	1518.092	34.0012	0.0012
15	100	38	1526.739	38.0497	0.0497	10	200	34	1521.738	34.0077	0.0077
16	100	38	1529.839	38.0541	0.0541	0	200	35	1482.264	34.9674	-0.0326
17	100	38	1532.860	38.0574	0.0574	1	200	35	1486.801	34.9677	-0.0323
18	100	38	1535.804	38.0599	0.0599	2	200	35	1491.226	34.9689	-0.0311
19	100	38	1538.672	38.0611	0.0611	3	200	35	1495.543	34.9715	-0.0285
20	100	38	1541.466	38.0614	0.0614	4	200	35	1499.756	34.9763	-0.0237
0	100	40	1472.321	39.9634	-0.0366	5	200	35	1503.865	34.9810	-0.0190
1	100	40	1476.796	39.9689	-0.0311	6	200	35	1507.875	34.9873	-0.0127
2	100	40	1481.163	39.9759	-0.0241	7	200	35	1511.787	34.9936	-0.0064
3	100	40	1485.423	39.9832	-0.0168	8	200	35	1515.604	35.0005	0.0005
4	100	40	1489.578	39.9902	-0.0098	9	200	35	1519.328	35.0073	0.0073
5	100	40	1493.632	39.9978	-0.0022	10	200	35	1522.962	35.0146	0.0146
6	100	40	1497.587	40.0056	0.0056	0	200	36	1483.627	35.9687	-0.0313
7	100	40	1501.444	40.0124	0.0124	1	200	36	1488.148	35.9692	-0.0308
8	100	40	1505.208	40.0205	0.0205	2	200	36	1492.559	35.9718	-0.0282
9	100	40	1508.878	40.0270	0.0270	3	200	36	1496.862	35.9757	-0.0243
10	100	40	1512.459	40.0344	0.0344	4	200	36	1501.060	35.9807	-0.0193
11	100	40	1515.951	40.0409	0.0409	5	200	36	1505.155	35.9860	-0.0140
12	100	40	1519.357	40.0473	0.0473	6	200	36	1509.151	35.9926	-0.0074
13	100	40	1522.679	40.0537	0.0537	7	200	36	1513.049	35.9991	-0.0009

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
8	200	36	1516.853	36.0065	0.0065	1	300	35	1503.773	34.9882	-0.0118
9	200	36	1520.564	36.0137	0.0137	2	300	35	1508.168	34.9849	-0.0151
10	200	36	1524.185	36.0210	0.0210	3	300	35	1512.456	34.9841	-0.0159
0	200	37	1484.989	36.9691	-0.0309	4	300	35	1516.639	34.9847	-0.0153
1	200	37	1489.495	36.9706	-0.0294	5	300	35	1520.719	34.9857	-0.0143
2	200	37	1493.892	36.9748	-0.0252	6	300	35	1524.701	34.9886	-0.0114
3	200	37	1498.180	36.9791	-0.0209	7	300	35	1528.585	34.9909	-0.0091
4	200	37	1502.364	36.9851	-0.0149	8	300	35	1532.376	34.9945	-0.0055
5	200	37	1506.445	36.9911	-0.0089	9	300	35	1536.076	34.9985	-0.0015
6	200	37	1510.427	36.9981	-0.0019	10	300	35	1539.686	35.0017	0.0017
7	200	37	1514.311	37.0047	0.0047	0	300	36	1500.629	35.9937	-0.0063
8	200	37	1518.102	37.0128	0.0128	1	300	36	1505.121	35.9905	-0.0095
9	200	37	1521.800	37.0203	0.0203	2	300	36	1509.501	35.9885	-0.0115
10	200	37	1525.408	37.0277	0.0277	3	300	36	1513.774	35.9888	-0.0112
0	200	38	1486.350	37.9687	-0.0313	4	300	36	1517.942	35.9902	-0.0098
1	200	38	1490.842	37.9720	-0.0280	5	300	36	1522.008	35.9924	-0.0076
2	200	38	1495.224	37.9769	-0.0231	6	300	36	1525.974	35.9946	-0.0054
3	200	38	1499.498	37.9826	-0.0174	7	300	36	1529.845	35.9984	-0.0016
4	200	38	1503.667	37.9888	-0.0112	8	300	36	1533.622	36.0021	0.0021
5	200	38	1507.734	37.9955	-0.0045	9	300	36	1537.307	36.0053	0.0053
6	200	38	1511.702	38.0030	0.0030	10	300	36	1540.904	36.0090	0.0090
7	200	38	1515.573	38.0106	0.0106	0	300	37	1501.992	36.9943	-0.0057
8	200	38	1519.350	38.0185	0.0185	1	300	37	1506.468	36.9922	-0.0078
9	200	38	1523.035	38.0264	0.0264	2	300	37	1510.833	36.9916	-0.0084
10	200	38	1526.630	38.0339	0.0339	3	300	37	1515.091	36.9930	-0.0070
0	300	33	1496.536	32.9890	-0.0110	4	300	37	1519.244	36.9951	-0.0049
1	300	33	1501.073	32.9810	-0.0190	5	300	37	1523.295	36.9978	-0.0022
2	300	33	1505.499	32.9758	-0.0242	6	300	37	1527.247	37.0010	0.0010
3	300	33	1509.817	32.9729	-0.0271	7	300	37	1531.103	37.0045	0.0045
4	300	33	1514.030	32.9721	-0.0279	8	300	37	1534.866	37.0086	0.0086
5	300	33	1518.140	32.9723	-0.0277	9	300	37	1538.538	37.0125	0.0125
6	300	33	1522.150	32.9735	-0.0265	10	300	37	1542.122	37.0166	0.0166
7	300	33	1526.063	32.9756	-0.0244	0	300	38	1503.353	37.9936	-0.0064
8	300	33	1529.882	32.9786	-0.0214	1	300	38	1507.814	37.9932	-0.0068
9	300	33	1533.610	32.9829	-0.0171	2	300	38	1512.164	37.9941	-0.0059
10	300	33	1537.247	32.9861	-0.0139	3	300	38	1516.407	37.9966	-0.0034
0	300	34	1497.901	33.9910	-0.0090	4	300	38	1520.545	37.9996	-0.0004
1	300	34	1502.424	33.9853	-0.0147	5	300	38	1524.581	38.0028	0.0028
2	300	34	1506.834	33.9806	-0.0194	6	300	38	1528.519	38.0069	0.0069
3	300	34	1511.137	33.9788	-0.0212	7	300	38	1532.361	38.0111	0.0111
4	300	34	1515.335	33.9787	-0.0213	8	300	38	1536.110	38.0154	0.0154
5	300	34	1519.430	33.9793	-0.0207	9	300	38	1539.768	38.0193	0.0193
6	300	34	1523.426	33.9813	-0.0187	10	300	38	1543.338	38.0231	0.0231
7	300	34	1527.325	33.9839	-0.0161	0	400	33	1513.790	33.0296	0.0296
8	300	34	1531.130	33.9872	-0.0128	1	400	33	1518.282	33.0151	0.0151
9	300	34	1534.843	33.9905	-0.0095	2	400	33	1522.663	33.0035	0.0035
10	300	34	1538.467	33.9941	-0.0059	3	400	33	1526.935	32.9934	-0.0066
0	300	35	1499.266	34.9930	-0.0070	4	400	33	1531.103	32.9855	-0.0145

T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
5	400	33	1535.170	32.9795	-0.0205	9	400	37	1555.377	36.9948	-0.0052
6	400	33	1539.138	32.9743	-0.0257	10	400	37	1558.922	36.9906	-0.0094
7	400	33	1543.010	32.9697	-0.0303	0	400	38	1520.584	38.0273	0.0273
8	400	33	1546.790	32.9664	-0.0336	1	400	38	1524.998	38.0221	0.0221
9	400	33	1550.479	32.9627	-0.0373	2	400	38	1529.301	38.0181	0.0181
10	400	33	1554.080	32.9587	-0.0413	3	400	38	1533.497	38.0152	0.0152
0	400	34	1515.152	34.0309	0.0309	4	400	38	1537.589	38.0129	0.0129
1	400	34	1519.628	34.0180	0.0180	5	400	38	1541.580	38.0107	0.0107
2	400	34	1523.994	34.0083	0.0083	6	400	38	1545.473	38.0083	0.0083
3	400	34	1528.251	33.9997	-0.0003	7	400	38	1549.272	38.0063	0.0063
4	400	34	1532.404	33.9931	-0.0069	8	400	38	1552.979	38.0037	0.0037
5	400	34	1536.455	33.9872	-0.0128	9	400	38	1556.597	38.0006	0.0006
6	400	34	1540.408	33.9825	-0.0175	10	400	38	1560.129	37.9972	-0.0028
7	400	34	1544.266	33.9789	-0.0211	0	500	33	1531.264	33.0723	0.0723
8	400	34	1548.031	33.9753	-0.0247	1	500	33	1535.697	33.0521	0.0521
9	400	34	1551.706	33.9719	-0.0281	2	500	33	1540.019	33.0341	0.0341
10	400	34	1555.293	33.9679	-0.0321	3	500	33	1544.233	33.0174	0.0174
0	400	35	1516.512	35.0311	0.0311	4	500	33	1548.344	33.0028	0.0028
1	400	35	1520.973	35.0204	0.0204	5	500	33	1552.354	32.9889	-0.0111
2	400	35	1525.323	35.0119	0.0119	6	500	33	1556.267	32.9759	-0.0241
3	400	35	1529.565	35.0049	0.0049	7	500	33	1560.085	32.9625	-0.0375
4	400	35	1533.702	34.9987	-0.0013	8	500	33	1563.813	32.9503	-0.0497
5	400	35	1537.739	34.9945	-0.0055	9	500	33	1567.452	32.9373	-0.0627
6	400	35	1541.677	34.9904	-0.0096	10	500	33	1571.006	32.9244	-0.0756
7	400	35	1545.520	34.9869	-0.0131	0	500	34	1532.617	34.0715	0.0715
8	400	35	1549.270	34.9832	-0.0168	1	500	34	1537.035	34.0540	0.0540
9	400	35	1552.931	34.9801	-0.0199	2	500	34	1541.341	34.0376	0.0376
10	400	35	1556.504	34.9760	-0.0240	3	500	34	1545.540	34.0230	0.0230
0	400	36	1517.871	36.0308	0.0308	4	500	34	1549.635	34.0093	0.0093
1	400	36	1522.317	36.0224	0.0224	5	500	34	1553.630	33.9967	-0.0033
2	400	36	1526.651	36.0151	0.0151	6	500	34	1557.528	33.9845	-0.0155
3	400	36	1530.877	36.0089	0.0089	7	500	34	1561.332	33.9725	-0.0275
4	400	36	1535.000	36.0048	0.0048	8	500	34	1565.045	33.9604	-0.0396
5	400	36	1539.021	36.0007	0.0007	9	500	34	1568.669	33.9471	-0.0529
6	400	36	1542.944	35.9972	-0.0028	10	500	34	1572.209	33.9345	-0.0655
7	400	36	1546.772	35.9939	-0.0061	0	500	35	1533.969	35.0703	0.0703
8	400	36	1550.508	35.9908	-0.0092	1	500	35	1538.371	35.0548	0.0548
9	400	36	1554.155	35.9880	-0.0120	2	500	35	1542.661	35.0402	0.0402
10	400	36	1557.714	35.9838	-0.0162	3	500	35	1546.845	35.0277	0.0277
0	400	37	1519.228	37.0293	0.0293	4	500	35	1550.925	35.0156	0.0156
1	400	37	1523.658	37.0225	0.0225	5	500	35	1554.904	35.0035	0.0035
2	400	37	1527.977	37.0172	0.0172	6	500	35	1558.787	34.9923	-0.0077
3	400	37	1532.188	37.0126	0.0126	7	500	35	1562.576	34.9808	-0.0192
4	400	37	1536.295	37.0090	0.0090	8	500	35	1566.274	34.9688	-0.0312
5	400	37	1540.301	37.0059	0.0059	9	500	35	1569.884	34.9561	-0.0439
6	400	37	1544.209	37.0029	0.0029	10	500	35	1573.409	34.9427	-0.0573
7	400	37	1548.023	37.0006	0.0006	0	500	36	1535.318	36.0674	0.0674
8	400	37	1551.744	36.9974	-0.0026	1	500	36	1539.704	36.0540	0.0540

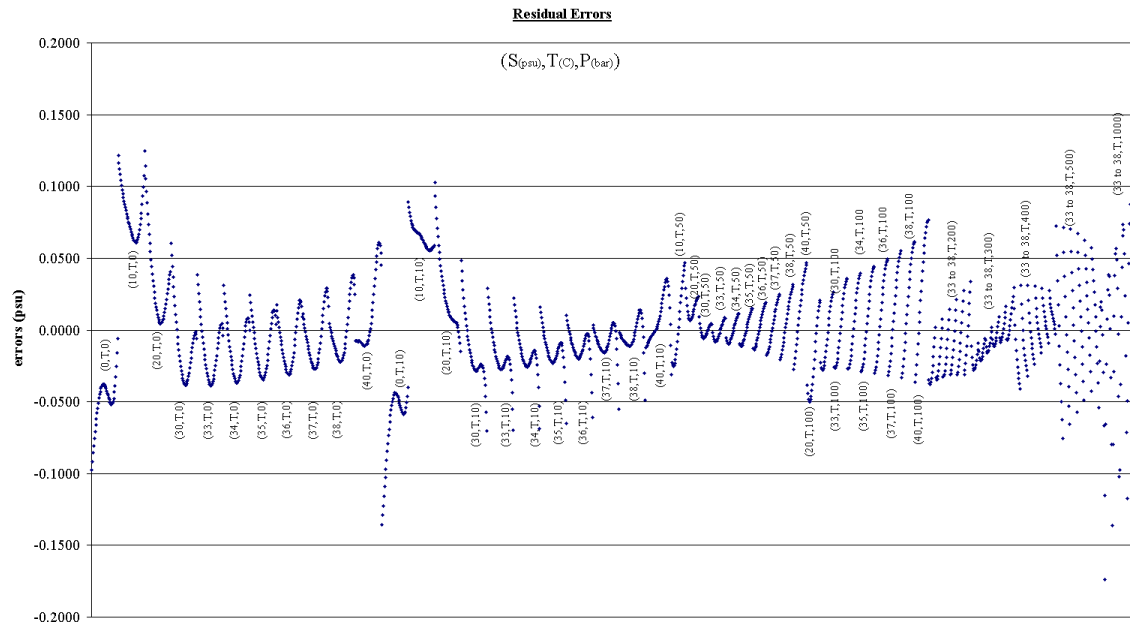
T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)	T (C)	P (bar)	S (psu)	C&M Eqn SV (m/s)	AML Eqn S (psu)	Error (psu)
2	500	36	1543.980	36.0426	0.0426	6	1000	34	1644.588	34.0242	0.0242
3	500	36	1548.148	36.0313	0.0313	7	1000	34	1648.029	34.0007	0.0007
4	500	36	1552.212	36.0202	0.0202	8	1000	34	1651.385	33.9666	-0.0334
5	500	36	1556.176	36.0094	0.0094	9	1000	34	1654.658	33.9204	-0.0796
6	500	36	1560.044	35.9991	-0.0009	10	1000	34	1657.854	33.8640	-0.1360
7	500	36	1563.818	35.9881	-0.0119	0	1000	35	1623.150	34.9202	-0.0798
8	500	36	1567.501	35.9762	-0.0238	1	1000	35	1627.190	34.9709	-0.0291
9	500	36	1571.097	35.9641	-0.0359	2	1000	35	1631.115	35.0098	0.0098
10	500	36	1574.608	35.9509	-0.0491	3	1000	35	1634.932	35.0379	0.0379
0	500	37	1536.664	37.0627	0.0627	4	1000	35	1638.644	35.0532	0.0532
1	500	37	1541.035	37.0522	0.0522	5	1000	35	1642.257	35.0568	0.0568
2	500	37	1545.295	37.0424	0.0424	6	1000	35	1645.776	35.0488	0.0488
3	500	37	1549.448	37.0333	0.0333	7	1000	35	1649.205	35.0289	0.0289
4	500	37	1553.497	37.0239	0.0239	8	1000	35	1652.548	34.9972	-0.0028
5	500	37	1557.446	37.0144	0.0144	9	1000	35	1655.809	34.9537	-0.0463
6	500	37	1561.299	37.0049	0.0049	10	1000	35	1658.991	34.8979	-0.1021
7	500	37	1565.058	36.9945	-0.0055	0	1000	36	1624.395	35.9027	-0.0973
8	500	37	1568.726	36.9827	-0.0173	1	1000	36	1628.426	35.9620	-0.0380
9	500	37	1572.308	36.9712	-0.0288	2	1000	36	1632.342	36.0092	0.0092
10	500	37	1575.804	36.9574	-0.0426	3	1000	36	1636.148	36.0435	0.0435
0	500	38	1538.008	38.0571	0.0571	4	1000	36	1639.850	36.0655	0.0655
1	500	38	1542.364	38.0494	0.0494	5	1000	36	1643.451	36.0735	0.0735
2	500	38	1546.609	38.0421	0.0421	6	1000	36	1646.958	36.0696	0.0696
3	500	38	1550.746	38.0343	0.0343	7	1000	36	1650.375	36.0533	0.0533
4	500	38	1554.780	38.0266	0.0266	8	1000	36	1653.705	36.0239	0.0239
5	500	38	1558.713	38.0176	0.0176	9	1000	36	1656.953	35.9822	-0.0178
6	500	38	1562.551	38.0091	0.0091	10	1000	36	1660.123	35.9286	-0.0714
7	500	38	1566.295	37.9992	-0.0008	0	1000	37	1625.635	36.8825	-0.1175
8	500	38	1569.949	37.9883	-0.0117	1	1000	37	1629.657	36.9505	-0.0495
9	500	38	1573.516	37.9765	-0.0235	2	1000	37	1633.563	37.0050	0.0050
10	500	38	1576.998	37.9629	-0.0371	3	1000	37	1637.359	37.0463	0.0463
0	1000	33	1620.643	32.9458	-0.0542	4	1000	37	1641.050	37.0741	0.0741
1	1000	33	1624.700	32.9783	-0.0217	5	1000	37	1644.640	37.0874	0.0874
2	1000	33	1628.645	33.0021	0.0021	6	1000	37	1648.135	37.0875	0.0875
3	1000	33	1632.482	33.0159	0.0159	7	1000	37	1651.539	37.0739	0.0739
4	1000	33	1636.216	33.0196	0.0196	8	1000	37	1654.857	37.0475	0.0475
5	1000	33	1639.853	33.0139	0.0139	9	1000	37	1658.092	37.0075	0.0075
6	1000	33	1643.395	32.9968	-0.0032	10	1000	37	1661.249	36.9552	-0.0448
7	1000	33	1646.849	32.9704	-0.0296	0	1000	38	1626.869	37.8590	-0.1410
8	1000	33	1650.217	32.9331	-0.0669	1	1000	38	1630.882	37.9355	-0.0645
9	1000	33	1653.503	32.8849	-0.1151	2	1000	38	1634.779	37.9982	-0.0018
10	1000	33	1656.711	32.8262	-0.1738	3	1000	38	1638.564	38.0456	0.0456
0	1000	34	1621.899	33.9343	-0.0657	4	1000	38	1642.244	38.0790	0.0790
1	1000	34	1625.948	33.9763	-0.0237	5	1000	38	1645.823	38.0976	0.0976
2	1000	34	1629.883	34.0077	0.0077	6	1000	38	1649.306	38.1016	0.1016
3	1000	34	1633.709	34.0278	0.0278	7	1000	38	1652.698	38.0915	0.0915
4	1000	34	1637.433	34.0382	0.0382	8	1000	38	1656.003	38.0672	0.0672
5	1000	34	1641.058	34.0372	0.0372	9	1000	38	1659.226	38.0298	0.0298

10 1000 38 1662.370 37.9787 -0.0213

Statistics

Count	1631	data points
RMS Error	0.0345	psu
Average error	0.0000	psu
Max error	0.1245	psu
Min error	-0.1738	psu

Residuals Plot



Conclusions

The equation allows the calculation of salinity from sound velocity, temperature and pressure data with an accuracy of 0.035 psu rms with respect to Chen and Millero's equation.

References

¹ C.-T. Chen and F. J. Millero, "Speed of sound in seawater at high pressures," J. Acoust. Soc. Am. 62, 1129–1135 ~1977

² Background papers and supporting data on the International Equation of State of Seawater 1980, 1981, Unesco Technical Papers in Marine Science No. 38.