

Deep SOLO:

SIO Deep SOLO

1st prototype Deep SOLO deployment by RV Bell Shimada

Deployed at CalCOFI Station 77.90, 24 Jan 2013



Initial dives shallow for engineering data

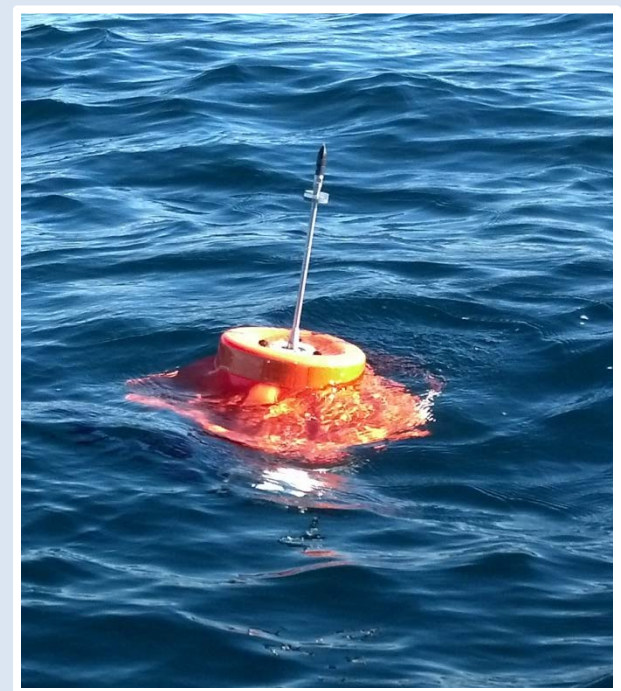
Gradually deeper; 15 profiles to 4000m so far (6000 m max)

Rapid cycling to 4000m; terminate & recover if:

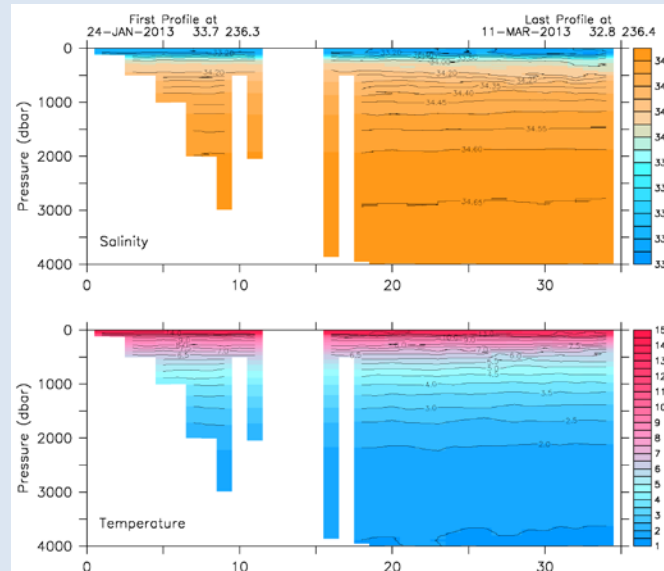
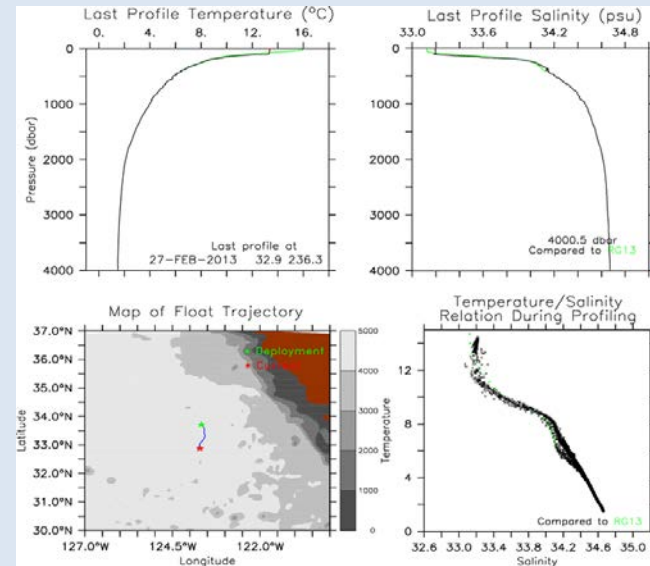
- (i) problems develop
- (ii) float drifts into shallower water
- (iii) batteries are mostly expended

2nd prototype float completed; 2nd deployment will be > 5000 m.

Does not yet have compressibility compensation or bottom detection.

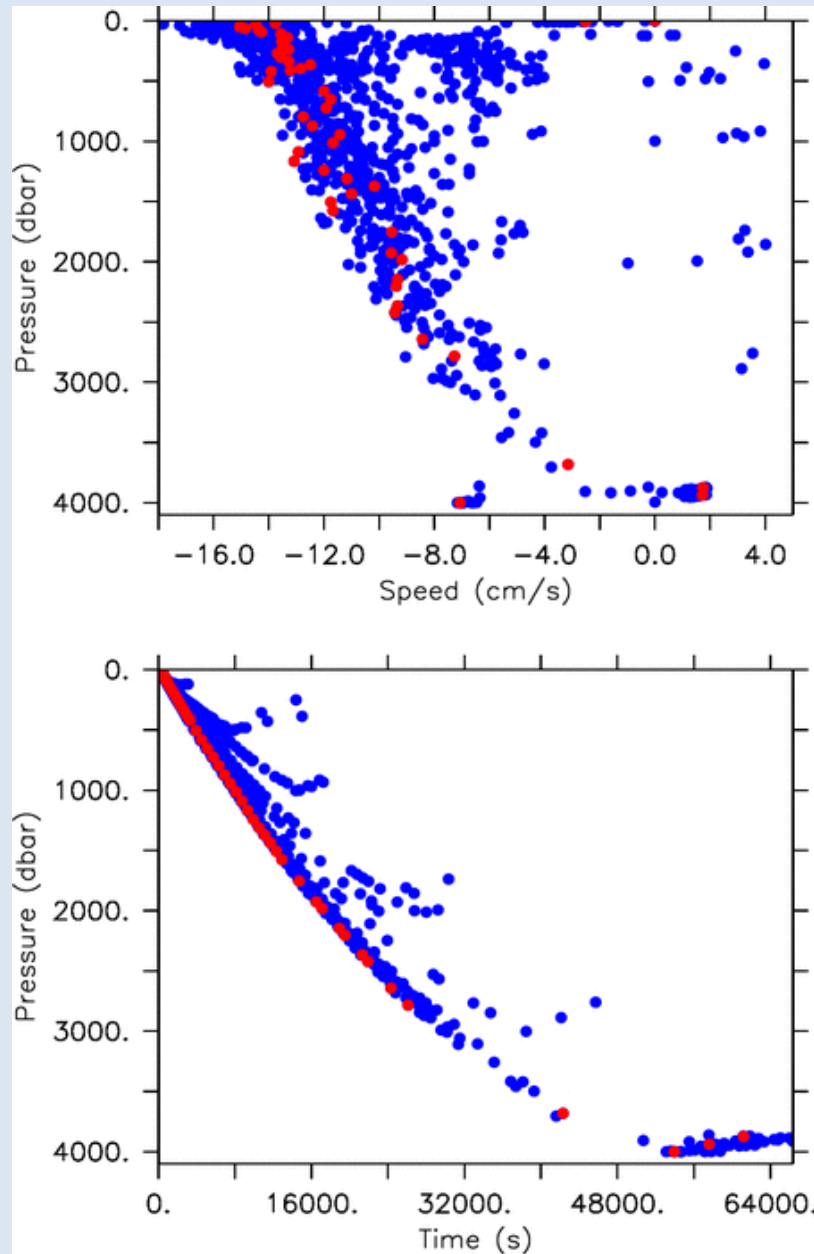


The SIO Deep SOLO is engineered by J. Sherman, R. Davis, and D. Black

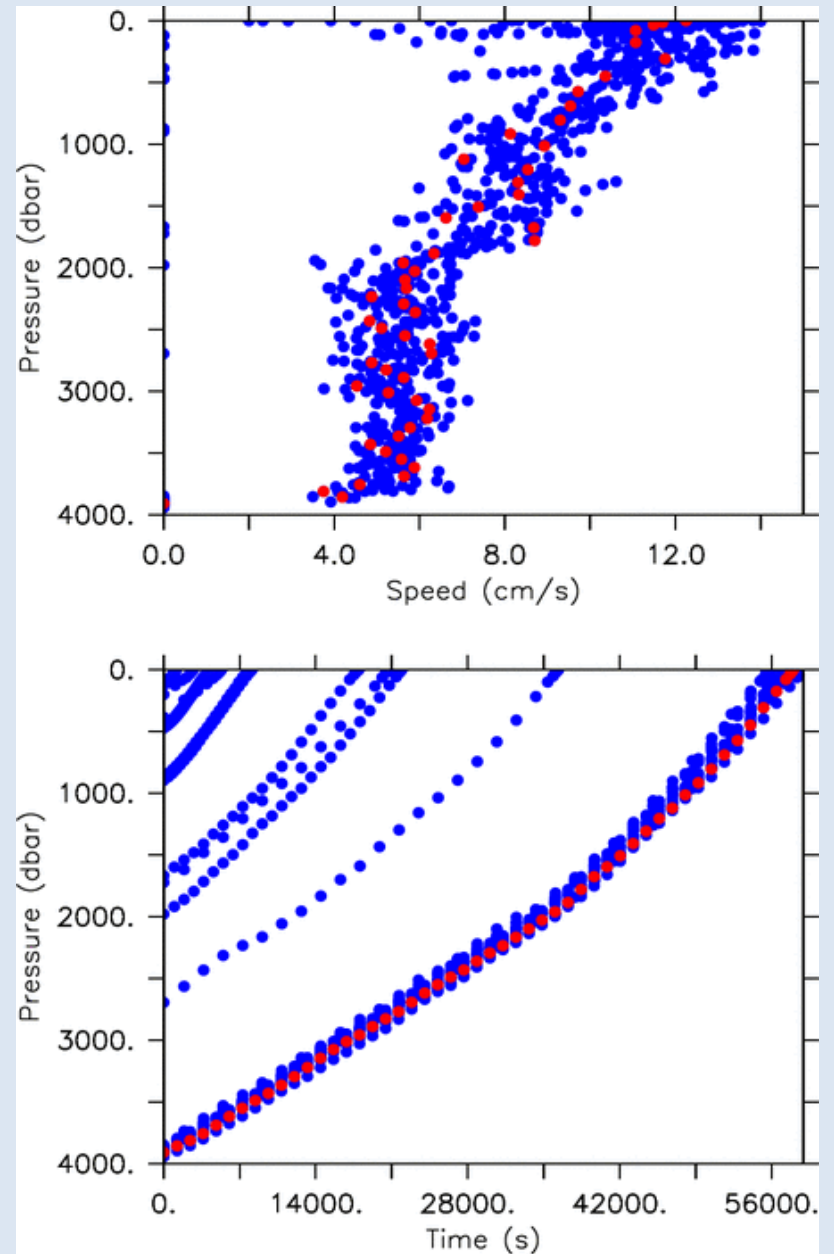




Fall plot



Rise plot



Pumping times and energy for 4000 dbar cycle.

Number	Pressure (db)	Time (s)	Voltage (V)	Current (ma)	Energy (J)	Cumulative Energy (KJ)	Vacuum0 (load-start)	Vacuum1 (load-stop)
1	107.60	10	14.57	495	72	0.07 / 298.45	7	59
2	4000.80	14	13.20	3289	608	0.68 / 299.05	6	100
3	3938.20	2	13.93	3202	89	0.77 / 299.14	6	110
4	3908.10	40	12.49	3219	1608	2.38 / 300.75	6	104
5	3811.10	25	13.16	3106	1022	3.40 / 301.77	6	112
6	3755.90	25	13.12	3068	1006	4.41 / 302.78	6	111
7	3430.00	25	13.39	2906	973	5.38 / 303.75	6	113
8	2957.00	25	13.57	2561	869	6.25 / 304.62	6	126
9	2768.30	25	13.62	2399	817	7.06 / 305.44	7	122
10	2431.00	25	13.78	2159	744	7.81 / 306.18	7	134
11	2234.20	25	13.77	2030	699	8.51 / 306.88	8	136
12	1959.90	25	13.91	1828	636	9.14 / 307.52	7	139
13	1883.80	25	13.78	1787	616	9.76 / 308.13	8	141
14	1595.90	25	14.11	1544	545	10.30 / 308.68	7	142
15	1507.30	25	13.97	1497	523	10.83 / 309.20	8	142
16	1120.70	25	14.30	1201	429	11.25 / 309.63	7	141
17	915.90	25	14.36	1063	382	11.64 / 310.01	7	139
18	804.30	25	14.29	966	345	11.98 / 310.35	7	139
19	689.80	25	14.35	875	314	12.30 / 310.67	7	138
20	573.20	25	14.45	780	282	12.58 / 310.95	7	137
21	448.90	25	14.52	697	253	12.83 / 311.20	7	136
22	307.80	25	14.60	592	216	13.05 / 311.42	7	135
23	175.00	25	14.67	488	179	13.23 / 311.60	7	130
24	78.70	25	14.67	420	154	13.38 / 311.75	7	124
25	33.90	25	14.67	387	142	13.52 / 311.89	7	121
26	14.60	25	14.59	363	132	13.65 / 312.03	7	120
27	0.00	453	13.87	324	2036	15.69 / 314.06	8	228

Total pumping energy is 15.81 kJ