ELECTRIC PROSPECTING

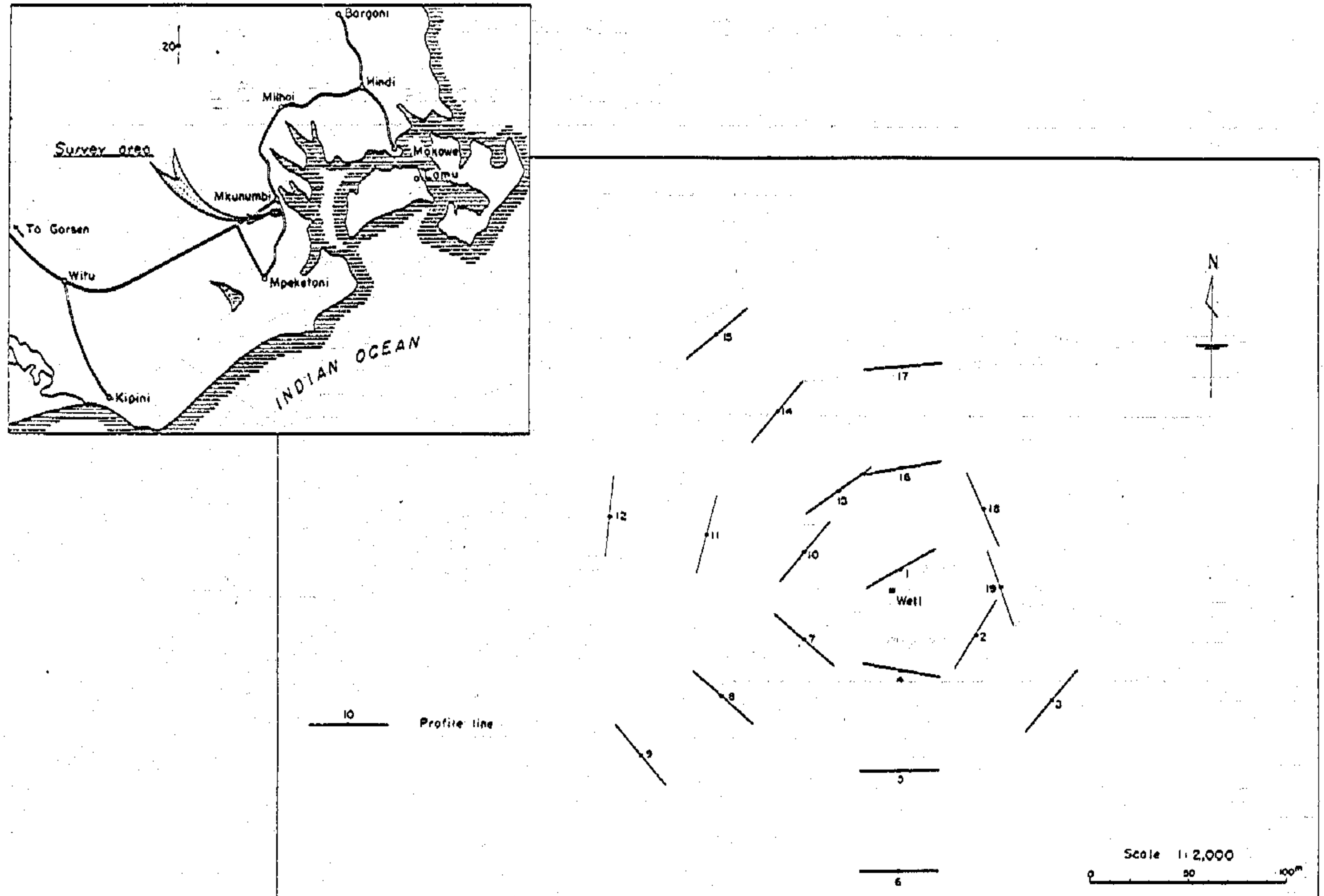


Fig. 1 Location of profile line
(location 1~19: near Mkunumbi
location 20: northwest Mkunumbi)

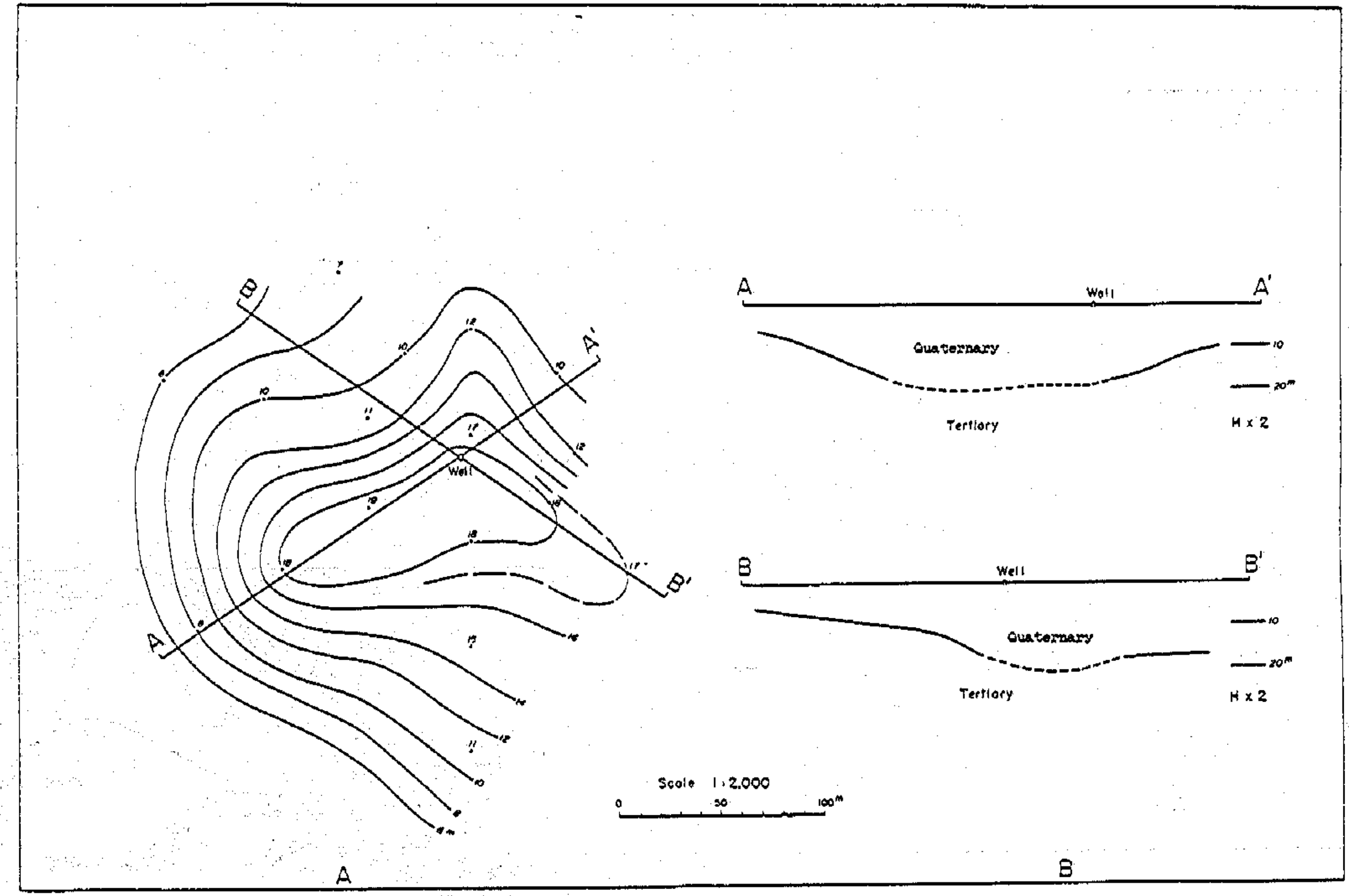
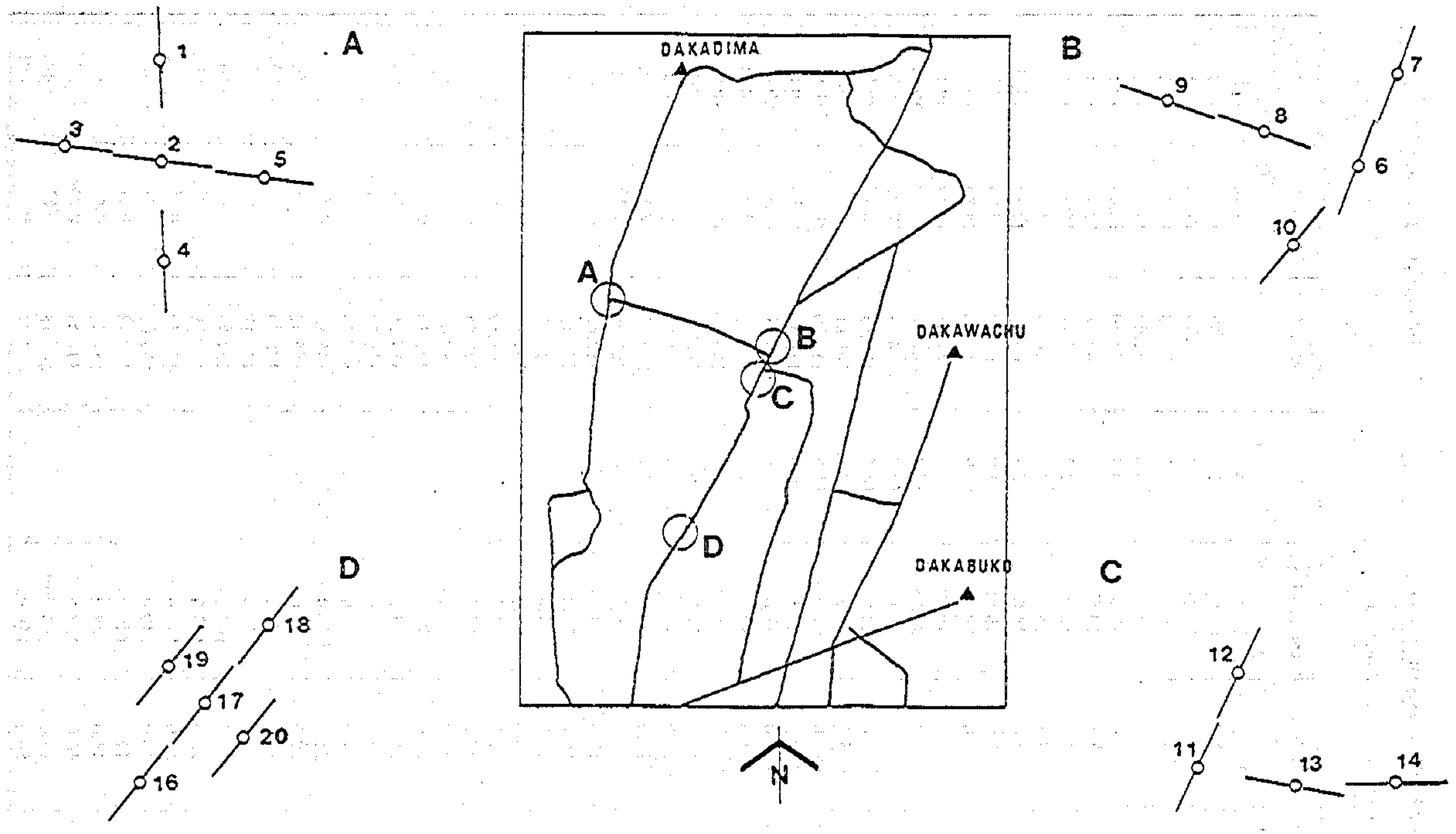


Fig. 2 Upper surface of Tertiary

A : contour (m) B : profile



LOCATION OF PROFILE LINES

LOCATION: Near Mkunumbi 1 DATE: 18th Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	2πa	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	4.5	6.28	28.26	x1
2	1.0	3.0	11.1	12.57	13.95	x0.1
3	1.5	4.5	7.4	18.85	13.95	x0.1
4	2.0	6.0	5.5	25.13	13.82	x0.1
5	2.5	7.5	4.5	31.42	14.14	x0.1
6	3.0	9.0	3.3	37.70	12.44	x0.1
7	3.5	10.5	2.9	43.98	12.75	x0.1
8	4.0	12.0	2.7	50.27	13.57	x0.1
9	4.5	13.5	2.3	56.55	13.01	x0.1
10	5.0	15.0	2.2	62.83	13.82	x0.1
11	5.5	16.5	1.9	69.12	13.13	x0.1
12	6.0	18.0	1.9	75.40	14.33	x0.1
13	6.5	19.5	1.7	81.68	13.89	x0.1
14	7.0	21.0	15.2	87.96	13.37	x0.01
15	7.5	22.5	13.7	94.25	12.91	x0.01
16	8.0	24.0	13.1	100.53	13.17	x0.01
17	8.5	25.5	12.8	106.81	13.67	x0.01
18	9.0	27.0	11.4	113.10	12.89	x0.01
19	9.5	28.5	10.0	119.38	11.94	x0.01
20	10.0	30.0	9.4	125.66	11.81	x0.01
22	11.0	33.0	8.2	138.23	11.33	x0.01
24	12.0	36.0	6.8	150.80	10.25	x0.01
26	13.0	39.0	6.6	163.36	10.78	x0.01
28	14.0	42.0	5.3	175.93	9.32	x0.01
30	15.0	45.0	4.7	188.50	8.86	x0.01
32	16.0	48.0	3.3	201.06	6.63	x0.01
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 2 DATE: 18th Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	1.7	6.28	106.76	x10
2	1.0	3.0	2.2	12.57	27.65	x1
3	1.5	4.5	8.6	18.85	16.21	x0.1
4	2.0	6.0	5.9	25.13	14.83	x0.1
5	2.5	7.5	5.0	31.42	15.71	x0.1
6	3.0	9.0	4.4	37.70	16.59	x0.1
7	3.5	10.5	3.9	43.98	17.15	x0.1
8	4.0	12.0	3.6	50.27	18.10	x0.1
9	4.5	13.5	3.1	56.55	17.53	x0.1
10	5.0	15.0	2.8	62.83	17.59	x0.1
11	5.5	16.5	2.6	69.12	17.97	x0.1
12	6.0	18.0	2.3	75.40	17.34	x0.1
13	6.5	19.5	2.2	81.68	17.97	x0.1
14	7.0	21.0	1.8	87.96	15.83	x0.1
15	7.5	22.5	1.8	94.25	16.97	x0.1
16	8.0	24.0	15.8	100.53	15.88	x0.01
17	8.5	25.5	13.7	106.81	14.63	x0.01
18	9.0	27.0	12.6	113.10	14.25	x0.01
19	9.5	28.5	7.8	119.38	9.31	x0.01
20	10.0	30.0	6.0	125.66	7.54	x0.01
22	11.0	33.0	6.5	138.23	8.98	x0.01
24	12.0	36.0	7.2	150.80	10.86	x0.01
26	13.0	39.0	5.8	163.36	9.47	x0.01
28	14.0	42.0	3.0	175.93	5.28	x0.01
30	15.0	45.0	2.8	188.50	5.28	x0.01
32	16.0	48.0	1.7	201.06	3.42	x0.01
34	17.0	51.0	1.2	213.63	2.56	x0.01
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 3 DATE: 18th Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole($\frac{3a}{2}$)	R	2πa	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	7.1	6.28	445.88	x10
2	1.0	3.0	4.9	12.57	61.59	x1
3	1.5	4.5	1.6	18.85	30.16	x1
4	2.0	6.0	7.2	25.13	18.09	x0.1
5	2.5	7.5	5.4	31.42	16.97	x0.1
6	3.0	9.0	4.8	37.70	18.10	x0.1
7	3.5	10.5	2.8	43.98	12.31	x0.1
8	4.0	12.0	2.4	50.27	12.06	x0.1
9	4.5	13.5	22.0	56.55	12.44	x0.01
10	5.0	15.0	1.8	62.83	11.31	x0.1
11	5.5	16.5	1.5	69.12	10.37	x0.1
12	6.0	18.0	1.8	75.40	13.57	x0.1
13	6.5	19.5	16.5	81.68	13.48	x0.01
14	7.0	21.0	16.0	87.96	14.07	x0.01
15	7.5	22.5	12.8	94.25	12.06	x0.01
16	8.0	24.0	10.3	100.53	10.35	x0.01
17	8.5	25.5	10.0	106.81	10.68	x0.01
18	9.0	27.0	3.2	113.10	3.62	x0.01
19	9.5	28.5	2.1	119.38	2.51	x0.01
20	10.0	30.0	7.2	125.66	9.05	x0.01
22	11.0	33.0	3.5	138.23	4.84	x0.01
24	12.0	36.0	6.0	150.80	9.05	x0.01
26	13.0	39.0	7.8	163.36	12.74	x0.01
28	14.0	42.0	5.0	175.93	8.80	x0.01
30	15.0	45.0	3.3	188.50	6.22	x0.01
32	16.0	48.0	2.0	201.06	4.02	x0.01
34	17.0	51.0	1.4	213.63	2.99	x0.01
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 4 DATE: 18th Jan., 1982

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	7.8	6.28	48.98	x1
2	1.0	3.0	1.7	12.57	21.37	x1
3	1.5	4.5	0.9	18.85	16.97	x1
4	2.0	6.0	6.7	25.13	16.84	x0.1
5	2.5	7.5	5.2	31.42	16.34	x0.1
6	3.0	9.0	4.6	37.70	17.34	x0.1
7	3.5	10.5	3.8	43.98	16.71	x0.1
8	4.0	12.0	3.5	50.27	17.59	x0.1
9	4.5	13.5	3.2	56.55	18.10	x0.1
10	5.0	15.0	2.8	62.83	17.59	x0.1
11	5.5	16.5	2.7	69.12	18.66	x0.1
12	6.0	18.0	2.4	75.40	18.10	x0.1
13	6.5	19.5	2.3	81.68	18.79	x0.1
14	7.0	21.0	2.1	87.96	18.47	x0.1
15	7.5	22.5	1.9	94.25	17.91	x0.1
16	8.0	24.0	1.8	100.53	18.10	x0.1
17	8.5	25.5	1.6	106.81	17.09	x0.1
18	9.0	27.0	1.6	113.10	18.10	x0.1
19	9.5	28.5	13.7	119.38	16.36	x0.01
20	10.0	30.0	12.8	125.66	16.08	x0.01
22	11.0	33.0	11.3	138.23	15.62	x0.01
24	12.0	36.0	10.3	150.80	15.53	x0.01
26	13.0	39.0	8.9	163.36	14.54	x0.01
28	14.0	42.0	7.6	175.93	13.37	x0.01
30	15.0	45.0	6.7	188.50	12.63	x0.01
32	16.0	48.0	6.0	201.06	12.06	x0.01
34	17.0	51.0	5.3	213.63	11.32	x0.01
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 5 DATE: 19th Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole($\frac{3a}{2}$)	R	2πa	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	2.4	6.28	150.72	x10
2	1.0	3.0	3.2	12.57	40.22	x1
3	1.5	4.5	0.9	18.85	16.97	x1
4	2.0	6.0	6.5	25.13	16.33	x0.1
5	2.5	7.5	5.6	31.42	17.60	x0.1
6	3.0	9.0	5.1	37.70	19.23	x0.1
7	3.5	10.5	4.3	43.98	18.91	x0.1
8	4.0	12.0	4.2	50.27	21.11	x0.1
9	4.5	13.5	3.7	56.55	20.92	x0.1
10	5.0	15.0	3.2	62.83	20.11	x0.1
11	5.5	16.5	2.8	69.12	19.35	x0.1
12	6.0	18.0	2.8	75.40	21.11	x0.1
13	6.5	19.5	2.5	81.68	20.42	x0.1
14	7.0	21.0	2.3	87.96	20.23	x0.1
15	7.5	22.5	2.3	94.25	21.68	x0.1
16	8.0	24.0	1.9	100.53	19.10	x0.1
17	8.5	25.5	1.8	106.81	19.23	x0.1
18	9.0	27.0	1.6	113.10	18.10	x0.1
19	9.5	28.5	1.5	119.38	17.91	x0.1
20	10.0	30.0	1.2	125.66	15.08	x0.1
22	11.0	33.0	9.4	138.23	12.99	x0.01
24	12.0	36.0	6.7	150.80	10.10	x0.01
26	13.0	39.0	6.8	163.36	11.11	x0.01
28	14.0	42.0	1.6	175.93	2.81	x0.01
30	15.0	45.0	0	188.50		x0.01
32	16.0	48.0	1.8	201.06	3.62	x0.01
34	17.0	51.0	1.0	213.63	2.14	x0.01
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 6 DATE: 19th Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	6.3	6.28	39.56	x1
2	1.0	3.0	3.3	12.57	4.15	x0.1
3	1.5	4.5	2.1	18.85	3.96	x0.1
4	2.0	6.0	2.0	25.13	5.03	x0.1
5	2.5	7.5	1.5	31.42	4.71	x0.1
6	3.0	9.0	1.2	37.70	4.52	x0.1
7	3.5	10.5	1.3	43.98	5.72	x0.1
8	4.0	12.0	0.8	50.27	4.02	x0.1
9	4.5	13.5	9.2	56.55	5.20	x0.01
10	5.0	15.0	6.0	62.83	3.77	x0.01
11	5.5	16.5	6.5	69.12	4.49	x0.01
12	6.0	18.0	11.6	75.40	8.75	x0.01
13	6.5	19.5	11.2	81.68	9.15	x0.01
14	7.0	21.0	10.5	87.96	9.24	x0.01
15	7.5	22.5	10.9	94.25	10.27	x0.01
16	8.0	24.0	8.4	100.53	8.44	x0.01
17	8.5	25.5	5.3	106.81	5.66	x0.01
18	9.0	27.0	3.0	113.10	3.39	x0.01
19	9.5	28.5	4.7	119.38	5.61	x0.01
20	10.0	30.0	6.7	125.66	8.42	x0.01
22	11.0	33.0	2.4	138.23	3.32	x0.01
24	12.0	36.0	2.0	150.80	3.02	x0.01
26	13.0	39.0	0.8	163.36	1.31	x0.01
28	14.0	42.0	0.7	175.93	1.23	x0.01
30	15.0	45.0		188.50		
32	16.0	48.0		201.06		
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 7 DATE: 20th Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	4.8	6.28	30.14	x1
2	1.0	3.0	1.4	12.57	17.60	x1
3	1.5	4.5	0.8	18.85	15.08	x1
4	2.0	6.0	6.6	25.13	16.59	x0.1
5	2.5	7.5	5.1	31.42	16.02	x0.1
6	3.0	9.0	4.3	37.70	16.21	x0.1
7	3.5	10.5	3.7	43.98	16.27	x0.1
8	4.0	12.0	3.1	50.27	15.58	x0.1
9	4.5	13.5	2.7	56.55	15.27	x0.1
10	5.0	15.0	2.4	62.83	15.08	x0.1
11	5.5	16.5	2.2	69.12	15.21	x0.1
12	6.0	18.0	2.1	75.40	15.83	x0.1
13	6.5	19.5	1.8	81.68	14.70	x0.1
14	7.0	21.0	1.7	87.96	14.95	x0.1
15	7.5	22.5	1.7	94.25	16.02	x0.1
16	8.0	24.0	1.4	100.53	14.07	x0.1
17	8.5	25.5	1.4	106.81	14.95	x0.1
18	9.0	27.0	1.3	113.10	14.70	x0.1
19	9.5	28.5	1.3	119.38	15.52	x0.1
20	10.0	30.0	1.0	125.66	12.57	x0.1
22	11.0	33.0	9.6	138.23	13.27	x0.01
24	12.0	36.0	8.4	150.80	12.67	x0.01
26	13.0	39.0	7.1	163.36	11.60	x0.01
28	14.0	42.0	5.0	175.93	8.80	x0.01
30	15.0	45.0	5.3	188.50	9.99	x0.01
32	16.0	48.0	5.0	201.06	10.05	x0.01
34	17.0	51.0	4.3	213.63	9.19	x0.01
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Mkunumbi 8 DATE: 20th Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	6.8	6.28	427.04	x10
2	1.0	3.0	4.2	12.57	52.79	x1
3	1.5	4.5	0.9	18.85	16.97	x1
4	2.0	6.0	7.3	25.13	18.34	x0.1
5	2.5	7.5	5.9	31.42	18.54	x0.1
6	3.0	9.0	5.1	37.70	19.23	x0.1
7	3.5	10.5	4.5	43.98	19.79	x0.1
8	4.0	12.0	3.8	50.27	19.10	x0.1
9	4.5	13.5	3.5	56.55	19.79	x0.1
10	5.0	15.0	3.2	62.83	20.11	x0.1
11	5.5	16.5	2.8	69.12	19.35	x0.1
12	6.0	18.0	2.8	75.40	21.11	x0.1
13	6.5	19.5	2.5	81.68	20.42	x0.1
14	7.0	21.0	1.8	87.96	15.83	x0.1
15	7.5	22.5	2.2	94.25	20.74	x0.1
16	8.0	24.0	1.3	100.53	13.07	x0.1
17	8.5	25.5	1.6	106.81	17.09	x0.1
18	9.0	27.0	1.6	113.10	18.10	x0.1
19	9.5	28.5	1.3	119.38	15.52	x0.1
20	10.0	30.0	1.3	125.66	16.34	x0.1
22	11.0	33.0	1.1	138.23	15.21	x0.1
24	12.0	36.0	1.0	150.80	15.08	x0.1
26	13.0	39.0	7.7	163.36	12.58	x0.01
28	14.0	42.0	6.5	175.93	11.44	x0.01
30	15.0	45.0	5.6	188.50	10.56	x0.01
32	16.0	48.0	6.0	201.06	12.06	x0.01
34	17.0	51.0	4.9	213.63	10.47	x0.01
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 9   DATE: 20th Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	1.9	6.28	119.32	x10
2	1.0	3.0	1.2	12.57	15.08	x1
3	1.5	4.5	3.5	18.85	6.60	x0.1
4	2.0	6.0	2.7	25.13	6.79	x0.1
5	2.5	7.5	2.3	31.42	7.23	x0.1
6	3.0	9.0	2.4	37.70	9.05	x0.1
7	3.5	10.5	2.3	43.98	10.12	x0.1
8	4.0	12.0	2.5	50.27	12.57	x0.1
9	4.5	13.5	1.3	56.55	7.35	x0.1
10	5.0	15.0	2.0	62.83	12.57	x0.1
11	5.5	16.5	1.6	69.12	11.06	x0.1
12	6.0	18.0	0.8	75.40	6.03	x0.1
13	6.5	19.5	1.6	81.68	13.07	x0.1
14	7.0	21.0	1.4	87.96	12.31	x0.1
15	7.5	22.5	1.6	94.25	15.08	x0.1
16	8.0	24.0	1.6	100.53	16.08	x0.1
17	8.5	25.5	1.5	106.81	16.02	x0.1
18	9.0	27.0	1.3	113.10	14.70	x0.1
19	9.5	28.5	1.3	119.38	15.52	x0.1
20	10.0	30.0	1.3	125.66	16.34	x0.1
22	11.0	33.0	1.2	138.23	16.59	x0.1
24	12.0	36.0	1.0	150.80	15.08	x0.1
26	13.0	39.0	1.0	163.36	16.34	x0.1
28	14.0	42.0	0.3	175.93	5.28	x0.1
30	15.0	45.0	0.4	188.50	7.54	x0.1
32	16.0	48.0	4.0	201.06	8.04	x0.01
34	17.0	51.0	3.3	213.63	7.05	x0.01
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 10 DATE: 20th Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	5.9	6.28	37.05	x1
2	1.0	3.0	1.4	12.57	17.60	x1
3	1.5	4.5	0.9	18.85	16.97	x1
4	2.0	6.0	8.3	25.13	20.86	x0.1
5	2.5	7.5	7.0	31.42	21.99	x0.1
6	3.0	9.0	7.3	37.70	27.52	x0.1
7	3.5	10.5	5.7	43.98	25.07	x0.1
8	4.0	12.0	5.0	50.27	25.14	x0.1
9	4.5	13.5	4.9	56.55	27.71	x0.1
10	5.0	15.0	5.7	62.83	35.81	x0.1
11	5.5	16.5	6.2	69.12	42.85	x0.1
12	6.0	18.0	5.8	75.40	43.73	x0.1
13	6.5	19.5	5.4	81.68	44.11	x0.1
14	7.0	21.0	5.3	87.96	46.62	x0.1
15	7.5	22.5	5.0	94.25	47.13	x0.1
16	8.0	24.0	4.6	100.53	46.24	x0.1
17	8.5	25.5	5.3	106.81	56.61	x0.1
18	9.0	27.0	4.3	113.10	48.63	x0.1
19	9.5	28.5	4.8	119.38	57.30	x0.1
20	10.0	30.0	4.3	125.66	54.03	x0.1
22	11.0	33.0	4.8	138.23	66.35	x0.1
24	12.0	36.0	4.7	150.80	70.88	x0.1
26	13.0	39.0	3.3	163.36	53.91	x0.1
28	14.0	42.0	4.5	175.93	79.17	x0.1
30	15.0	45.0	4.4	188.50	82.94	x0.1
32	16.0	48.0	4.3	201.06	86.46	x0.1
34	17.0	51.0	4.3	213.63	91.86	x0.1
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi a R$

LOCATION: Near Mkunumbi 11 DATE: 20th Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	10.1	6.28	634.28	x10
2	1.0	3.0	4.3	12.57	54.05	x1
3	1.5	4.5	1.2	18.85	22.62	x1
4	2.0	6.0	0.8	25.13	20.20	x1
5	2.5	7.5	7.5	31.42	23.57	x0.1
6	3.0	9.0	8.2	37.70	30.91	x0.1
7	3.5	10.5	7.3	43.98	32.11	x0.1
8	4.0	12.0	7.1	50.27	35.69	x0.1
9	4.5	13.5	6.3	56.55	35.63	x0.1
10	5.0	15.0	7.2	62.83	45.24	x0.1
11	5.5	16.5	6.7	69.12	46.31	x0.1
12	6.0	18.0	6.2	75.40	46.75	x0.1
13	6.5	19.5	5.3	81.68	43.29	x0.1
14	7.0	21.0	4.3	87.96	37.82	x0.1
15	7.5	22.5	4.9	94.25	46.18	x0.1
16	8.0	24.0	3.2	100.53	32.17	x0.1
17	8.5	25.5	4.8	106.81	51.27	x0.1
18	9.0	27.0	4.2	113.10	47.50	x0.1
19	9.5	28.5	4.2	119.38	50.14	x0.1
20	10.0	30.0	4.7	125.66	59.06	x0.1
22	11.0	33.0	2.8	138.23	38.70	x0.1
24	12.0	36.0	4.4	150.80	66.35	x0.1
26	13.0	39.0	3.8	163.36	62.08	x0.1
28	14.0	42.0	2.8	175.93	49.26	x0.1
30	15.0	45.0	3.2	188.50	60.32	x0.1
32	16.0	48.0	2.9	201.06	58.31	x0.1
34	17.0	51.0	1.0	213.63	21.36	x0.1
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 12 DATE: 20th Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	2πa	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	5.7	6.28	357.96	x10
2	1.0	3.0	3.3	12.57	41.48	x1
3	1.5	4.5	0.2	18.85	3.77	x1
4	2.0	6.0	0.2	25.13	5.03	x1
5	2.5	7.5	0.2	31.42	6.28	x1
6	3.0	9.0	0.2	37.70	7.54	x1
7	3.5	10.5		43.98		
8	4.0	12.0		50.27		
9	4.5	13.5		56.55		
10	5.0	15.0		62.83		
11	5.5	16.5		69.12		
12	6.0	18.0		75.40		
13	6.5	19.5		81.68		
14	7.0	21.0		87.96		
15	7.5	22.5		94.25		
16	8.0	24.0		100.53		
17	8.5	25.5		106.81		
18	9.0	27.0		113.10		
19	9.5	28.5		119.38		
20	10.0	30.0		125.66		
22	11.0	33.0		138.23		
24	12.0	36.0		150.80		
26	13.0	39.0		163.36		
28	14.0	42.0		175.93		
30	15.0	45.0		188.50		
32	16.0	48.0		201.06		
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 13 DATE: 21st Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	8.8	6.28	55.26	x1
2	1.0	3.0	1.8	12.57	22.63	x1
3	1.5	4.5	1.1	18.85	20.74	x1
4	2.0	6.0	6.2	25.13	15.58	x0.1
5	2.5	7.5	4.8	31.42	15.08	x0.1
6	3.0	9.0	4.3	37.70	16.21	x0.1
7	3.5	10.5	4.4	43.98	19.35	x0.1
8	4.0	12.0	2.6	50.27	13.07	x0.1
9	4.5	13.5	2.6	56.55	14.70	x0.1
10	5.0	15.0	2.3	62.83	14.45	x0.1
11	5.5	16.5	3.1	69.12	21.43	x0.1
12	6.0	18.0	3.1	75.40	23.37	x0.1
13	6.5	19.5	4.9	81.68	40.02	x0.1
14	7.0	21.0	7.4	87.96	65.09	x0.1
15	7.5	22.5	5.8	94.25	54.67	x0.1
16	8.0	24.0	2.6	100.53	26.14	x0.1
17	8.5	25.5	1.2	106.81	12.82	x0.1
18	9.0	27.0	6.7	113.10	7.58	x0.01
19	9.5	28.5	7.4	119.38	8.83	x0.01
20	10.0	30.0	5.5	125.66	6.91	x0.01
22	11.0	33.0	4.0	138.23	5.53	x0.01
24	12.0	36.0	0.2	150.80	0.30	x0.01
26	13.0	39.0		163.36		
28	14.0	42.0		175.93		
30	15.0	45.0		188.50		
32	16.0	48.0		201.06		
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 14 DATE: 21st Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	2πa	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	14.7	6.28	923.16	x10
2	1.0	3.0	2.4	12.57	301.68	x10
3	1.5	4.5	3.5	18.85	65.98	x1
4	2.0	6.0	1.6	25.13	40.21	x1
5	2.5	7.5	1.1	31.42	34.56	x1
6	3.0	9.0	0.8	37.70	30.16	x1
7	3.5	10.5	5.3	43.98	23.31	x0.1
8	4.0	12.0	6.3	50.27	31.67	x0.1
9	4.5	13.5	7.4	56.55	41.85	x0.1
10	5.0	15.0	6.6	62.83	41.47	x0.1
11	5.5	16.5	2.6	69.12	27.97	x0.1
12	6.0	18.0	2.8	75.40	21.11	x0.1
13	6.5	19.5	1.8	81.68	14.70	x0.1
14	7.0	21.0	2.3	87.96	20.23	x0.1
15	7.5	22.5	2.4	94.25	22.62	x0.1
16	8.0	24.0	2.7	100.53	27.14	x0.1
17	8.5	25.5	2.2	106.81	23.50	x0.1
18	9.0	27.0	2.4	113.10	27.14	x0.1
19	9.5	28.5		119.38		
20	10.0	30.0		125.66		
22	11.0	33.0		138.23		
24	12.0	36.0		150.80		
26	13.0	39.0		163.36		
28	14.0	42.0		175.93		
30	15.0	45.0		188.50		
32	16.0	48.0		201.06		
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 15 DATE: 21st Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	28.9	6.28	1814.92	x10
2	1.0	3.0	3.2	12.57	402.24	x10
3	1.5	4.5	4.1	18.85	77.29	x1
4	2.0	6.0	0.3	25.13	7.54	x1
5	2.5	7.5	0.4	31.42	12.57	x1
6	3.0	9.0	0.3	37.70	11.31	x1
7	3.5	10.5	0.1	43.98	4.40	x1
8	4.0	12.0		50.27		
9	4.5	13.5		56.55		
10	5.0	15.0		62.83		
11	5.5	16.5		69.12		
12	6.0	18.0		75.40		
13	6.5	19.5		81.68		
14	7.0	21.0		87.96		
15	7.5	22.5		94.25		
16	8.0	24.0		100.53		
17	8.5	25.5		106.81		
18	9.0	27.0		113.10		
19	9.5	28.5		119.38		
20	10.0	30.0		125.66		
22	11.0	33.0		138.23		
24	12.0	36.0		150.80		
26	13.0	39.0		163.36		
28	14.0	42.0		175.93		
30	15.0	45.0		188.50		
32	16.0	48.0		201.06		
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 16 DATE: 21st Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	2πa	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	2.1	6.28	131.88	x10
2	1.0	3.0	2.3	12.57	28.91	x1
3	1.5	4.5	1.2	18.85	22.62	x1
4	2.0	6.0	9.6	25.13	24.12	x0.1
5	2.5	7.5	7.2	31.42	22.62	x0.1
6	3.0	9.0	6.7	37.70	25.26	x0.1
7	3.5	10.5	5.3	43.98	23.31	x0.1
8	4.0	12.0	5.4	50.27	27.15	x0.1
9	4.5	13.5	5.4	56.55	30.54	x0.1
10	5.0	15.0	4.2	62.83	26.39	x0.1
11	5.5	16.5	3.8	69.12	26.27	x0.1
12	6.0	18.0	2.9	75.40	21.87	x0.1
13	6.5	19.5	1.7	81.68	13.89	x0.1
14	7.0	21.0	2.6	87.96	22.87	x0.1
15	7.5	22.5	2.6	94.25	24.51	x0.1
16	8.0	24.0	2.8	100.53	28.15	x0.1
17	8.5	25.5	3.8	106.81	40.59	x0.1
18	9.0	27.0	2.3	113.10	26.01	x0.1
19	9.5	28.5	2.2	119.38	26.26	x0.1
20	10.0	30.0	2.7	125.66	33.93	x0.1
22	11.0	33.0	3.0	138.23	41.47	x0.1
24	12.0	36.0	1.8	150.80	27.14	x0.1
26	13.0	39.0	2.5	163.36	40.84	x0.1
28	14.0	42.0	10.4	175.93	18.30	x0.01
30	15.0	45.0	12.0	188.50	22.62	x0.01
32	16.0	48.0	10.8	201.06	21.71	x0.01
34	17.0	51.0	0.2	213.63	0.43	x0.01
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi a R$

LOCATION: Near Mkunumbi 17 DATE: 21st Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	9.1	6.28	571.48	x10
2	1.0	3.0	3.6	12.57	45.25	x1
3	1.5	4.5		18.85		
4	2.0	6.0		25.13		
5	2.5	7.5		31.42		
6	3.0	9.0		37.70		
7	3.5	10.5		43.98		
8	4.0	12.0		50.27		
9	4.5	13.5		56.55		
10	5.0	15.0		62.83		
11	5.5	16.5		69.12		
12	6.0	18.0		75.40		
13	6.5	19.5		81.68		
14	7.0	21.0		87.96		
15	7.5	22.5		94.25		
16	8.0	24.0		100.53		
17	8.5	25.5		106.81		
18	9.0	27.0		113.10		
19	9.5	28.5		119.38		
20	10.0	30.0		125.66		
22	11.0	33.0		138.23		
24	12.0	36.0		150.80		
26	13.0	39.0		163.36		
28	14.0	42.0		175.93		
30	15.0	45.0		188.50		
32	16.0	48.0		201.06		
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 18 DATE: 21st Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	2πa	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	6.2	6.28	389.36	x10
2	1.0	3.0	4.9	12.57	61.59	x1
3	1.5	4.5	0.7	18.85	13.20	x1
4	2.0	6.0	0.2	25.13	5.03	x1
5	2.5	7.5	0.2	31.42	6.28	x1
6	3.0	9.0	0.3	37.70	11.31	x1
7	3.5	10.5	0.2	43.98	8.80	x1
8	4.0	12.0	0.2	50.27	10.05	x1
9	4.5	13.5	0.2	56.55	11.31	x1
10	5.0	15.0	0.2	62.83	12.57	x1
11	5.5	16.5		69.12		
12	6.0	18.0		75.40		
13	6.5	19.5		81.68		
14	7.0	21.0		87.96		
15	7.5	22.5		94.25		
16	8.0	24.0		100.53		
17	8.5	25.5		106.81		
18	9.0	27.0		113.10		
19	9.5	28.5		119.38		
20	10.0	30.0		125.66		
22	11.0	33.0		138.23		
24	12.0	36.0		150.80		
26	13.0	39.0		163.36		
28	14.0	42.0		175.93		
30	15.0	45.0		188.50		
32	16.0	48.0		201.06		
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Near Mkunumbi 19 DATE: 21st Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	6.3	6.28	395.64	x10
2	1.0	3.0	4.6	12.57	57.82	x1
3	1.5	4.5	0.9	18.85	16.97	x1
4	2.0	6.0	5.3	25.13	13.32	x0.1
5	2.5	7.5	1.7	31.42	5.34	x0.1
6	3.0	9.0	2.4	37.70	9.05	x0.1
7	3.5	10.5	1.8	43.98	7.92	x0.1
8	4.0	12.0	2.3	50.27	11.56	x0.1
9	4.5	13.5	0.6	56.55	3.39	x0.1
10	5.0	15.0	0.6	62.83	3.77	x0.1
11	5.5	16.5	0.2	69.12	1.38	x0.1
12	6.0	18.0	1.1	75.40	8.29	x0.1
13	6.5	19.5		81.68		
14	7.0	21.0		87.96		
15	7.5	22.5		94.25		
16	8.0	24.0		100.53		
17	8.5	25.5		106.81		
18	9.0	27.0		113.10		
19	9.5	28.5		119.38		
20	10.0	30.0		125.66		
22	11.0	33.0		138.23		
24	12.0	36.0		150.80		
26	13.0	39.0		163.36		
28	14.0	42.0		175.93		
30	15.0	45.0		188.50		
32	16.0	48.0		201.06		
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Northwest Mkunumbi 20 DATE: 22nd Jan., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	6.6	6.28	4.14	x0.1
2	1.0	3.0	3.6	12.57	4.53	x0.1
3	1.5	4.5	2.8	18.85	5.28	x0.1
4	2.0	6.0	2.6	25.13	6.53	x0.1
5	2.5	7.5	2.2	31.42	6.91	x0.1
6	3.0	9.0	2.6	37.70	9.80	x0.1
7	3.5	10.5	2.0	43.98	8.80	x0.1
8	4.0	12.0	2.1	50.27	10.56	x0.1
9	4.5	13.5	2.4	56.55	13.57	x0.1
10	5.0	15.0	2.1	62.83	13.19	x0.1
11	5.5	16.5	1.8	69.12	12.44	x0.1
12	6.0	18.0	1.9	75.40	14.33	x0.1
13	6.5	19.5	2.3	81.68	18.79	x0.1
14	7.0	21.0	2.1	87.96	18.47	x0.1
15	7.5	22.5	2.4	94.25	22.62	x0.1
16	8.0	24.0	1.8	100.53	18.10	x0.1
17	8.5	25.5	1.8	106.81	19.23	x0.1
18	9.0	27.0	2.1	113.10	23.75	x0.1
19	9.5	28.5	2.1	119.38	25.07	x0.1
20	10.0	30.0	1.8	125.66	22.62	x0.1
22	11.0	33.0	2.3	138.23	31.79	x0.1
24	12.0	36.0	2.3	150.80	34.68	x0.1
26	13.0	39.0	2.8	163.36	45.74	x0.1
28	14.0	42.0	1.6	175.93	28.15	x0.1
30	15.0	45.0	1.6	188.50	30.16	x0.1
32	16.0	48.0	1.7	201.06	34.18	x0.1
34	17.0	51.0	1.8	213.63	38.45	x0.1
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Galana 1 DATE: 8th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	0.85	6.28	5.34	x1
2	1.0	3.0	0.25	12.57	3.14	x1
3	1.5	4.5	13.0	18.85	24.51	x0.1
4	2.0	6.0	7.5	25.13	18.83	x0.1
5	2.5	7.5	4.2	31.42	13.19	x0.1
6	3.0	9.0	3.0	37.70	11.31	x0.1
7	3.5	10.5	2.2	43.98	9.68	x0.1
8	4.0	12.0	1.5	50.27	7.55	x0.1
9	4.5	13.5	9.7	56.55	5.48	x0.01
10	5.0	15.0	4.4	62.83	2.76	x0.01
11	5.5	16.5	1.6	69.12	1.11	x0.01
12	6.0	18.0	0	75.40	0	x0.01
13	6.5	19.5	0	81.68	0	x0.01
14	7.0	21.0		87.96		
15	7.5	22.5		94.25		
16	8.0	24.0		100.53		
17	8.5	25.5		106.81		
18	9.0	27.0		113.10		
19	9.5	28.5		119.38		
20	10.0	30.0		125.66		
22	11.0	33.0		138.23		
24	12.0	36.0		150.80		
26	13.0	39.0		163.36		
28	14.0	42.0		175.93		
30	15.0	45.0		188.50		
32	16.0	48.0		201.06		
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Gulana 2 DATE: 19th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	1.3	6.28	8.16	x1
2	1.0	3.0	0.3	12.57	3.77	x1
3	1.5	4.5	1.3	18.85	2.45	x0.1
4	2.0	6.0	0.7	25.13	1.76	x0.1
5	2.5	7.5	0.5	31.42	1.57	x0.1
6	3.0	9.0	0.3	37.70	1.13	x0.1
7	3.5	10.5	0.3	43.98	1.32	x0.1
8	4.0	12.0	0.2	50.27	1.01	x0.1
9	4.5	13.5	0.2	56.55	1.13	x0.1
10	5.0	15.0	2.4	62.83	1.51	x0.01
11	5.5	16.5	2.1	69.12	1.45	x0.01
12	6.0	18.0	1.8	75.40	1.36	x0.01
13	6.5	19.5	1.2	81.68	0.98	x0.01
14	7.0	21.0	1.3	87.96	1.44	x0.01
15	7.5	22.5	1.1	94.25	1.04	x0.01
16	8.0	24.0	0.9	100.53	0.90	x0.01
17	8.5	25.5	0.8	106.81	0.85	x0.01
18	9.0	27.0	1.3	113.10	1.47	x0.01
19	9.5	28.5	1.2	119.38	1.43	x0.01
20	10.0	30.0	1.2	125.66	1.51	x0.01
22	11.0	33.0	0.9	138.23	1.24	x0.01
24	12.0	36.0	1.1	150.80	1.66	x0.01
26	13.0	39.0	1.0	163.36	1.63	x0.01
28	14.0	42.0	0.8	175.93	1.41	x0.01
30	15.0	45.0	0.6	188.50	1.13	x0.01
32	16.0	48.0	0.7	201.06	1.41	x0.01
34	17.0	51.0	0.8	213.63	1.71	x0.01
36	18.0	54.0	0.7	226.19	1.58	x0.01
38	19.0	57.0	0.7	238.76	1.67	x0.01
40	20.0	60.0	0.6	251.33	1.51	x0.01
42	21.0	63.0	0.7	263.89	1.85	x0.01
44	22.0	66.0	0.6	276.46	1.66	x0.01
46	23.0	69.0	0.6	289.03	1.73	x0.01
48	24.0	72.0	0.5	301.59	1.51	x0.01
50	25.0	75.0	0.4	314.15	1.26	x0.01
52	26.0	78.0	0.3	326.72	0.98	x0.01
54	27.0	81.0	0.4	339.29	1.36	x0.01
56	28.0	84.0	0.3	351.85	1.06	x0.01
58	29.0	87.0	0.3	364.42	1.09	x0.01
60	30.0	90.0	0.2	376.99	0.75	x0.01
64	32.0	96.0	0.1	402.12	0.40	x0.01
68	34.0	102.0	–	427.25	–	
72	36.0	108.0	–	452.38	–	
76	38.0	114.0	–	477.52	–	
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Galana 3 DATE: 19th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	2πa	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	4.7	6.28	29.52	x1
2	1.0	3.0	7.1	12.57	8.92	x0.1
3	1.5	4.5	3.7	18.85	6.97	x0.1
4	2.0	6.0	2.2	25.13	5.52	x0.1
5	2.5	7.5	1.7	31.42	5.34	x0.1
6	3.0	9.0	1.3	37.70	4.90	x0.1
7	3.5	10.5	0.9	43.98	3.96	x0.1
8	4.0	12.0	0.7	50.27	3.52	x0.1
9	4.5	13.5	0.6	56.55	3.39	x0.1
10	5.0	15.0	0.5	62.83	3.14	x0.1
11	5.5	16.5	3.2	69.12	2.21	x0.01
12	6.0	18.0	1.9	75.40	1.43	x0.01
13	6.5	19.5	1.6	81.68	1.31	x0.01
14	7.0	21.0	1.2	87.96	1.06	x0.01
15	7.5	22.5	0.4	94.25	0.38	x0.01
16	8.0	24.0	1.1	100.53	1.11	x0.01
17	8.5	25.5	1.2	106.81	1.28	x0.01
18	9.0	27.0	0.3	113.10	0.34	x0.01
19	9.5	28.5	0.2	119.38	0.24	x0.01
20	10.0	30.0	0.3	125.66	0.38	x0.01
22	11.0	33.0	0.3	138.23	0.42	x0.01
24	12.0	36.0	0.2	150.80	0.30	x0.01
26	13.0	39.0	0.1	163.36	0.16	x0.01
28	14.0	42.0	0.1	175.93	0.18	x0.01
30	15.0	45.0	0.1	188.50	0.19	x0.01
32	16.0	48.0	–	201.06	–	
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Galana 4 DATE: 20th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	1.3	6.28	8.16	x1
2	1.0	3.0	3.2	12.57	4.02	x0.1
3	1.5	4.5	–	18.85	–	
4	2.0	6.0	1.3	25.13	3.26	x0.1
5	2.5	7.5	1.0	31.42	3.14	x0.1
6	3.0	9.0	0.8	37.70	3.02	x0.1
7	3.5	10.5	0.7	43.98	3.08	x0.1
8	4.0	12.0	5	50.27	2.52	x0.01
9	4.5	13.5	4.5	56.55	2.54	x0.01
10	5.0	15.0	4.1	62.83	2.57	x0.01
11	5.5	16.5	3.8	69.12	2.63	
12	6.0	18.0	3.6	75.40	2.71	
13	6.5	19.5	3.3	81.68	2.69	
14	7.0	21.0	–	87.96		
15	7.5	22.5	–	94.25		
16	8.0	24.0	2.8	100.53	2.81	
17	8.5	25.5	2.7	106.81	2.88	
18	9.0	27.0	2.5	113.10	2.83	
19	9.5	28.5	2.4	119.38	2.86	
20	10.0	30.0	2.4	125.66	3.02	
22	11.0	33.0	2.3	138.23	3.18	
24	12.0	36.0	2.2	150.80	3.32	
26	13.0	39.0	2.0	163.36	3.27	
28	14.0	42.0	1.9	175.93	3.34	
30	15.0	45.0	1.8	188.50	3.39	
32	16.0	48.0	1.7	201.06	3.42	
34	17.0	51.0	–	213.63		
36	18.0	54.0	–	226.19		
38	19.0	57.0	1.4	238.76	3.35	
40	20.0	60.0	1.3	251.33	2.80	
42	21.0	63.0	–	263.89		
44	22.0	66.0	–	276.46		
46	23.0	69.0	–	289.03		
48	24.0	72.0	1.1	301.59	3.32	
50	25.0	75.0	1.1	314.15	3.45	
52	26.0	78.0	1.0	326.72	3.27	
54	27.0	81.0	0.8	339.29	2.71	
56	28.0	84.0	0.8	351.85	2.82	
58	29.0	87.0	–	364.42		
60	30.0	90.0	0.8	376.99	3.02	
64	32.0	96.0	–	402.12		
68	34.0	102.0	0.6	427.25	2.56	
72	36.0	108.0	0.6	452.38	2.71	
76	38.0	114.0	–	477.52		
80	40.0	120.0	–	502.65		
84	42.0	126.0	–	527.78		
88	44.0	132.0	–	552.92		
92	46.0	138.0	–	578.05		
96	48.0	144.0	–	603.18		
100	50.0	150.0	–	628.31		

$\rho = 2\pi aR$

LOCATION: Galana 5　　　　DATE: 20th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	–	6.28		
2	1.0	3.0	–	12.57		
3	1.5	4.5	–	18.85		
4	2.0	6.0		25.13		
5	2.5	7.5		31.42		
6	3.0	9.0		37.70		
7	3.5	10.5		43.98		
8	4.0	12.0		50.27		
9	4.5	13.5		56.55		
10	5.0	15.0	–	62.83		
11	5.5	16.5		69.12		
12	6.0	18.0		75.40		
13	6.5	19.5		81.68		
14	7.0	21.0		87.96		
15	7.5	22.5		94.25		
16	8.0	24.0		100.53		
17	8.5	25.5		106.81		
18	9.0	27.0		113.10		
19	9.5	28.5		119.38		
20	10.0	30.0	–	125.66		
22	11.0	33.0		138.23		
24	12.0	36.0		150.80		
26	13.0	39.0		163.36		
28	14.0	42.0		175.93		
30	15.0	45.0		188.50		
32	16.0	48.0		201.06		
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0	–	251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Galana 6 DATE: 21st Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	9.9	6.28	62.17	x1
2	1.0	3.0	1.6	12.57	20.11	x1
3	1.5	4.5	4.8	18.85	9.05	x0.1
4	2.0	6.0	2.4	25.13	6.02	x0.1
5	2.5	7.5	1.6	31.42	5.02	x0.1
6	3.0	9.0	1.2	37.70	4.52	x0.1
7	3.5	10.5	0.8	43.98	3.52	x0.1
8	4.0	12.0	0.7	50.27	3.52	x0.1
9	4.5	13.5	0.7	56.55	3.96	x0.1
10	5.0	15.0	0.7	62.83	4.40	x0.1
11	5.5	16.5	0.6	69.12	4.15	x0.1
12	6.0	18.0	0.6	75.40	4.52	x0.1
13	6.5	19.5	0.5	81.68	4.08	x0.1
14	7.0	21.0	0.4	87.96	3.52	x0.1
15	7.5	22.5	0.4	94.25	3.77	x0.1
16	8.0	24.0	0.3	100.53	3.02	x0.1
17	8.5	25.5	3.3	106.81	3.52	x0.01
18	9.0	27.0		113.10		
19	9.5	28.5		119.38		
20	10.0	30.0	2.8	125.66	3.52	x0.01
22	11.0	33.0	2.6	138.23	3.59	x0.01
24	12.0	36.0		150.80		
26	13.0	39.0	1.8	163.36	2.94	x0.01
28	14.0	42.0		175.93		
30	15.0	45.0		188.50		
32	16.0	48.0	1.2	201.06	2.41	x0.01
34	17.0	51.0	0.9	213.63	1.93	x0.01
36	18.0	54.0	0.8	226.19	1.81	x0.01
38	19.0	57.0	0.7	238.76	1.67	x0.01
40	20.0	60.0	0.5	251.33	1.26	x0.01
42	21.0	63.0	0.2	263.89	0.53	x0.01
44	22.0	66.0	0.3	276.46	0.83	x0.01
46	23.0	69.0	0.2	289.03	0.58	x0.01
48	24.0	72.0	0.2	301.59	0.60	x0.01
50	25.0	75.0	0.2	314.15	0.63	x0.01
52	26.0	78.0	–	326.72		
54	27.0	81.0	–	339.29		
56	28.0	84.0	–	351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Gulana 7 DATE: 21st Aug., 82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	3.2	6.28	20.10	x1
2	1.0	3.0	0.7	12.57	8.80	x1
3	1.5	4.5	2.6	18.85	4.90	x0.1
4	2.0	6.0	1.7	25.13	4.27	x0.1
5	2.5	7.5	1.2	31.42	3.77	x0.1
6	3.0	9.0	0.8	37.70	3.02	x0.1
7	3.5	10.5	0.8	43.98	3.52	x0.1
8	4.0	12.0	0.7	50.27	3.52	x0.1
9	4.5	13.5	0.6	56.55	3.39	x0.1
10	5.0	15.0	0.5	62.83	3.14	x0.1
11	5.5	16.5	0.4	69.12	2.76	x0.1
12	6.0	18.0	0.3	75.40	2.26	x0.1
13	6.5	19.5	0.4	81.68	3.26	x0.1
14	7.0	21.0	0.3	87.96	2.64	x0.1
15	7.5	22.5	0.3	94.25	2.83	x0.1
16	8.0	24.0	0.3	100.53	3.02	x0.1
17	8.5	25.5	0.3	106.81	3.20	x0.1
18	9.0	27.0	0.3	113.10	3.39	x0.1
19	9.5	28.5	0.3	119.38	3.58	x0.1
20	10.0	30.0	0.3	125.66	3.77	x0.1
22	11.0	33.0	0.3	138.23	4.15	x0.1
24	12.0	36.0	0.2	150.80	3.02	x0.1
26	13.0	39.0	0.2	163.36	3.27	x0.1
28	14.0	42.0	0.1	175.93	1.76	x0.1
30	15.0	45.0	7.1	188.50	3.96	x0.01
32	16.0	48.0	0.8	201.06	1.61	x0.01
34	17.0	51.0	1.6	213.63	3.42	x0.01
36	18.0	54.0	0.8	226.19	1.81	x0.01
38	19.0	57.0	1.0	238.76	2.39	x0.01
40	20.0	60.0	1.3	251.33	3.26	x0.01
42	21.0	63.0	0.8	263.89	2.11	x0.01
44	22.0	66.0	0.8	276.46	2.21	x0.01
46	23.0	69.0	0.9	289.03	2.60	x0.01
48	24.0	72.0	0.8	301.59	2.42	x0.01
50	25.0	75.0	0.7	314.15	2.20	x0.01
52	26.0	78.0	0.8	326.72	2.62	x0.01
54	27.0	81.0	0.8	339.29	2.71	x0.01
56	28.0	84.0	0.4	351.85	1.41	x0.01
58	29.0	87.0	0.5	364.42	1.82	x0.01
60	30.0	90.0	0.1	376.99	0.38	x0.01
64	32.0	96.0	0.6	402.12	2.41	x0.01
68	34.0	102.0	0.2	427.25	854.0	x10
72	36.0	108.0	0.6	452.38	2,712.0	x10
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Galana 8 DATE: 23rd Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	–	6.28		
2	1.0	3.0	–	12.57		
3	1.5	4.5	0.2	18.85	27.7	x10
4	2.0	6.0	–	25.13		
5	2.5	7.5	–	31.42		
6	3.0	9.0	–	37.70		
7	3.5	10.5		43.98		
8	4.0	12.0		50.27		
9	4.5	13.5		56.55		
10	5.0	15.0	–	62.83		
11	5.5	16.5		69.12		
12	6.0	18.0		75.40		
13	6.5	19.5		81.68		
14	7.0	21.0		87.96		
15	7.5	22.5		94.25		
16	8.0	24.0		100.53		
17	8.5	25.5		106.81		
18	9.0	27.0		113.10		
19	9.5	28.5		119.38		
20	10.0	30.0	–	125.66		
22	11.0	33.0		138.23		
24	12.0	36.0		150.80		
26	13.0	39.0		163.36		
28	14.0	42.0		175.93		
30	15.0	45.0		188.50		
32	16.0	48.0		201.06		
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0	–	251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Gulana 9 DATE: 23rd Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5		6.28		
2	1.0	3.0		12.57		
3	1.5	4.5		18.85		
4	2.0	6.0		25.13		
5	2.5	7.5		31.42		
6	3.0	9.0		37.70		
7	3.5	10.5		43.98		
8	4.0	12.0		50.27		
9	4.5	13.5		56.55		
10	5.0	15.0		62.83		
11	5.5	16.5		69.12		
12	6.0	18.0		75.40		
13	6.5	19.5		81.68		
14	7.0	21.0		87.96		
15	7.5	22.5		94.25		
16	8.0	24.0		100.53		
17	8.5	25.5		106.81		
18	9.0	27.0		113.10		
19	9.5	28.5		119.38		
20	10.0	30.0		125.66		
22	11.0	33.0		138.23		
24	12.0	36.0		150.80		
26	13.0	39.0		163.36		
28	14.0	42.0		175.93		
30	15.0	45.0		188.50		
32	16.0	48.0		201.06		
34	17.0	51.0		213.63		
36	18.0	54.0		226.19		
38	19.0	57.0		238.76		
40	20.0	60.0		251.33		
42	21.0	63.0		263.89		
44	22.0	66.0		276.46		
46	23.0	69.0		289.03		
48	24.0	72.0		301.59		
50	25.0	75.0		314.15		
52	26.0	78.0		326.72		
54	27.0	81.0		339.29		
56	28.0	84.0		351.85		
58	29.0	87.0		364.42		
60	30.0	90.0		376.99		
64	32.0	96.0		402.12		
68	34.0	102.0		427.25		
72	36.0	108.0		452.38		
76	38.0	114.0		477.52		
80	40.0	120.0		502.65		
84	42.0	126.0		527.78		
88	44.0	132.0		552.92		
92	46.0	138.0		578.05		
96	48.0	144.0		603.18		
100	50.0	150.0		628.31		

$\rho = 2\pi aR$

LOCATION: Gulana 10 DATE: 23rd Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	10.6	6.28	66.57	x1
2	1.0	3.0	8.3	12.57	104.33	x1
3	1.5	4.5	9.0	18.85	169.65	x1
4	2.0	6.0	9.5	25.13	238.45	x1
5	2.5	7.5	9.2	31.42	288.88	x1
6	3.0	9.0	11.5	37.70	433.55	x1
7	3.5	10.5	4.6	43.98	202.40	x1
8	4.0	12.0	7.1	50.27	357.13	
9	4.5	13.5	3.2	56.55	180.80	
10	5.0	15.0	7.2	62.83	452.16	
11	5.5	16.5	6.2	69.12	428.42	
12	6.0	18.0	5.3	75.40	399.62	
13	6.5	19.5	5.2	81.68	424.32	
14	7.0	21.0	5.8	87.96	510.40	
15	7.5	22.5	8.8	94.25	828.96	
16	8.0	24.0	9.0	100.53	904.50	
17	8.5	25.5	15.4	106.81	1,644.72	
18	9.0	27.0	11.0	113.10	1,244.10	
19	9.5	28.5	11.2	119.38	1,336.16	
20	10.0	30.0	7.6	125.66	955.32	
22	11.0	33.0	9.0	138.23	1,243.80	
24	12.0	36.0	11.1	150.80	1,673.88	
26	13.0	39.0	5.4	163.36	882.36	
28	14.0	42.0	5.8	175.93	1,020.22	
30	15.0	45.0	9.1	188.50	1,715.35	
32	16.0	48.0	12.2	201.06	2,452.20	
34	17.0	51.0	5.7	213.63	1,219.80	
36	18.0	54.0	4.8	226.19	1,084.80	
38	19.0	57.0	5.8	238.76	1,386.20	
40	20.0	60.0	3.2	251.33	803.20	
42	21.0	63.0	3.5	263.89	924.00	
44	22.0	66.0	2.4	276.46	662.40	
46	23.0	69.0	3.2	289.03	924.80	
48	24.0	72.0	4.1	301.59	1,238.20	
50	25.0	75.0	2.7	314.15	847.80	
52	26.0	78.0	3.3	326.72	1,079.10	
54	27.0	81.0	3.2	339.29	1,084.80	
56	28.0	84.0	3.0	351.85	1,056.00	
58	29.0	87.0	2.0	364.42	728.00	
60	30.0	90.0	4.4	376.99	1,658.80	
64	32.0	96.0	5.4	402.12	2,170.80	
68	34.0	102.0	9.2	427.25	3,928.40	
72	36.0	108.0	10.7	452.38	4,836.40	
76	38.0	114.0	13.0	477.52	6,214.00	
80	40.0	120.0	9.4	502.65	4,728.20	
84	42.0	126.0	5.2	527.78	2,745.60	
88	44.0	132.0	10.2	552.92	5,640.60	
92	46.0	138.0	8.1	578.05	4,681.80	
96	48.0	144.0	8.8	603.18	5,306.40	
100	50.0	150.0	4.7	628.31	2,951.60	

$\rho = 2\pi aR$

LOCATION: Galana 11 DATE: 24th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	0.6	6.28	37.68	x10
2	1.0	3.0		12.57	n.d.	
3	1.5	4.5		18.85	n.d.	
4	2.0	6.0		25.13	n.d.	
5	2.5	7.5		31.42	n.d.	
6	3.0	9.0		37.70	n.d.	
7	3.5	10.5		43.98	n.d.	
8	4.0	12.0		50.27	n.d.	
9	4.5	13.5		56.55	n.d.	
10	5.0	15.0	8.2	62.83	514.96	x1
11	5.5	16.5	9.0	69.12	621.90	x1
12	6.0	18.0	12.3	75.40	927.42	x1
13	6.5	19.5	13.8	81.68	1126.08	x1
14	7.0	21.0	25.6	87.96	2252.80	x1
15	7.5	22.5	15.7	94.25	1478.94	x1
16	8.0	24.0	8.0	100.53	804.00	x1
17	8.5	25.5	4.5	106.81	480.60	x1
18	9.0	27.0	12.6	113.10	1425.06	x1
19	9.5	28.5	14.7	119.38	1753.71	x1
20	10.0	30.0	11.4	125.66	1432.98	x1
22	11.0	33.0	8.4	138.23	1160.80	x1
24	12.0	36.0	12.1	150.80	1824.68	x1
26	13.0	39.0	8.0	163.36	1307.20	x1
28	14.0	42.0	6.7	175.93	1178.53	x1
30	15.0	45.0	5.3	188.50	999.05	x1
32	16.0	48.0	7.1	201.06	1427.10	x1
34	17.0	51.0	4.2	213.63	898.80	x1
36	18.0	54.0	1.7	226.19	384.20	x1
38	19.0	57.0	1.7	238.76	406.30	x1
40	20.0	60.0	3.3	251.33	828.30	x1
42	21.0	63.0	5.2	263.89	1372.80	x1
44	22.0	66.0	14.3	276.46	3946.80	x1
46	23.0	69.0	3.3	289.03	953.70	x1
48	24.0	72.0	4.4	301.59	1328.80	x1
50	25.0	75.0	8.7	314.15	2731.80	x1
52	26.0	78.0		326.72	n.d.	
54	27.0	81.0	2.3	339.29	779.70	x1
56	28.0	84.0	1.0	351.85	352.00	x1
58	29.0	87.0	7.6	364.42	2766.40	x1
60	30.0	90.0	10.2	376.99	3845.40	x1
64	32.0	96.0	14.3	402.12	5748.60	x1
68	34.0	102.0	4.8	427.25	2049.60	x1
72	36.0	108.0	28.3	452.38	12791.60	x1
76	38.0	114.0		477.52	n.d.	
80	40.0	120.0	8.8	502.65	4426.40	x1
84	42.0	126.0	21.2	527.78	11193.60	x1
88	44.0	132.0	5.8	552.92	3207.40	x1
92	46.0	138.0	2.7	578.05	1560.60	x1
96	48.0	144.0	3.6	603.18	2170.80	x1
100	50.0	150.0	0.8	628.31	502.40	x1

$\rho = 2\pi aR$

LOCATION: Galana 12 DATE: 24th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5		6.28		
2	1.0	3.0	7.8	12.57	980.46	x10
3	1.5	4.5	4.3	18.85	810.55	x10
4	2.0	6.0	2.8	25.13	702.8	x10
5	2.5	7.5	4.4	31.42	1381.6	x10
6	3.0	9.0	9.0	37.70	3393.0	x10
7	3.5	10.5	7.1	43.98	3124.0	x10
8	4.0	12.0	8.2	50.27	4124.6	x10
9	4.5	13.5	8.8	56.55	4972.0	x10
10	5.0	15.0	9.4	62.83	5903.2	x10
11	5.5	16.5	9.3	69.12	6426.3	x10
12	6.0	18.0	9.5	75.40	7163.0	x10
13	6.5	19.5	8.5	81.68	6936.0	x10
14	7.0	21.0	4.5	87.96	3960.0	x10
15	7.5	22.5	8.5	94.25	8007.0	x10
16	8.0	24.0	4.2	100.53	4221.0	x10
17	8.5	25.5	9.3	106.81	9932.4	x10
18	9.0	27.0	7.8	113.10	8821.8	x10
19	9.5	28.5	7.7	119.38	9186.1	x10
20	10.0	30.0	8.3	125.66	10433.1	x10
22	11.0	33.0	7.7	138.23	10641.4	x10
24	12.0	36.0	6.4	150.80	9651.2	x10
26	13.0	39.0	6.1	163.36	9967.4	x10
28	14.0	42.0	4.9	175.93	8619.1	x10
30	15.0	45.0	4.3	188.50	8155.5	x10
32	16.0	48.0	4.3	201.06	8643.0	x10
34	17.0	51.0	4.5	213.63	9630.0	x10
36	18.0	54.0	5.0	226.19	11300.0	x10
38	19.0	57.0	4.6	238.76	10994.0	x10
40	20.0	60.0	5.0	251.33	12550.0	x10
42	21.0	63.0	4.3	263.89	11352.0	x10
44	22.0	66.0	4.5	276.46	12420.0	x10
46	23.0	69.0	4.5	289.03	13005.0	x10
48	24.0	72.0	3.5	301.59	10570.0	x10
50	25.0	75.0	5.2	314.15	10048.0	x10
52	26.0	78.0	5.5	326.72	17985.0	x10
54	27.0	81.0	4.3	339.29	14577.0	x10
56	28.0	84.0	4.8	351.85	16896.0	x10
58	29.0	87.0	4.0	364.42	14560.0	x10
60	30.0	90.0	1.2	376.99	4524.0	x10
64	32.0	96.0	4.1	402.12	16482.0	x10
68	34.0	102.0	3.6	427.25	15372.0	x10
72	36.0	108.0	2.6	452.38	11752.0	x10
76	38.0	114.0	3.9	477.52	18642.0	x10
80	40.0	120.0	3.1	502.65	15593.0	x10
84	42.0	126.0	2.4	527.78	12672.0	x10
88	44.0	132.0	3.6	552.92	19909.0	x10
92	46.0	138.0	3.5	578.05	20230.0	x10
96	48.0	144.0		603.18	n.d.	
100	50.0	150.0		628.31	n.d.	

$\rho = 2\pi aR$

LOCATION: Galana 13 DATE: 25th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	2πa	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	6.0	6.28	376.8	x10
2	1.0	3.0	6.0	12.57	754.2	x10
3	1.5	4.5	6.1	18.85	1,149.85	x10
4	2.0	6.0	5.5	25.13	1,380.50	x10
5	2.5	7.5	5.3	31.42	1,664.20	x10
6	3.0	9.0	5.3	37.70	1,998.10	x10
7	3.5	10.5	5.7	43.98	2,508.00	x10
8	4.0	12.0	5.8	50.27	2,917.4	x10
9	4.5	13.5	6.0	56.55	3,390.0	x10
10	5.0	15.0	5.2	62.83	3,265.6	x10
11	5.5	16.5	4.9	69.12	3,385.9	x10
12	6.0	18.0	5.1	75.40	3,845.4	x10
13	6.5	19.5	4.8	81.68	3,916.8	x10
14	7.0	21.0	4.6	87.96	4,048.0	x10
15	7.5	22.5	4.4	94.25	4,144.8	x10
16	8.0	24.0	4.7	100.53	4,723.5	x10
17	8.5	25.5	4.2	106.81	4,485.6	x10
18	9.0	27.0	4.3	113.10	4,863.3	x10
19	9.5	28.5	4.3	119.38	5,129.9	x10
20	10.0	30.0	4.3	125.66	5,405.1	x10
22	11.0	33.0	4.1	138.23	5,666.2	x10
24	12.0	36.0	3.8	150.80	5,730.4	x10
26	13.0	39.0	3.8	163.36	6,209.2	x10
28	14.0	42.0	2.9	175.93	5,101.1	x10
30	15.0	45.0	3.4	188.50	6,409.0	x10
32	16.0	48.0	3.2	201.06	6,432.0	x10
34	17.0	51.0	3.4	213.63	7,276.0	x10
36	18.0	54.0	4.8	226.19	10,848.0	x10
38	19.0	57.0	3.3	238.76	7,887.0	x10
40	20.0	60.0	2.7	251.33	6,777.0	x10
42	21.0	63.0	3.1	263.89	8,184.0	x10
44	22.0	66.0	2.8	276.46	7,728.0	x10
46	23.0	69.0	2.5	289.03	7,225.0	x10
48	24.0	72.0	2.7	301.59	8,154.0	x10
50	25.0	75.0	3.0	314.15	9,420.0	x10
52	26.0	78.0	2.2	326.72	7,194.0	x10
54	27.0	81.0	2.2	339.29	7,458.0	x10
56	28.0	84.0	2.3	351.85	8,096.0	x10
58	29.0	87.0	2.1	364.42	7,644.0	x10
60	30.0	90.0	2.1	376.99	7,917.0	x10
64	32.0	96.0	2.6	402.12	10,452.0	x10
68	34.0	102.0	1.8	427.25	7,686.0	x10
72	36.0	108.0	1.5	452.38	6,780.0	x10
76	38.0	114.0	1.8	477.52	8,604.0	x10
80	40.0	120.0	2.2	502.65	11,066.0	x10
84	42.0	126.0	2.2	527.78	11,616.0	x10
88	44.0	132.0	2.4	552.92	13,272.0	x10
92	46.0	138.0	2.4	578.05	13,872.0	x10
96	48.0	144.0	2.4	603.18	14,472.0	x10
100	50.0	150.0	2.4	628.31	15,072.0	x10

$\rho = 2\pi aR$

LOCATION: Galana 14 DATE: 25th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	10.0	6.28	628	x10
2	1.0	3.0	9.0	12.57	1,131.3	x10
3	1.5	4.5	9.1	18.85	1,715.35	x10
4	2.0	6.0	8.2	25.13	2,058.20	x10
5	2.5	7.5	7.8	31.42	2,449.2	x10
6	3.0	9.0	7.9	37.70	2,978.3	x10
7	3.5	10.5	7.3	43.98	3,212.0	x10
8	4.0	12.0	7.2	50.27	3,621.6	x10
9	4.5	13.5	6.9	56.55	3,898.5	x10
10	5.0	15.0	7.6	62.83	4,772.8	x10
11	5.5	16.5	7.8	69.12	5,389.8	x10
12	6.0	18.0	7.6	75.40	5,730.4	x10
13	6.5	19.5	7.0	81.68	5,712.0	x10
14	7.0	21.0	7.0	87.96	6,160.0	x10
15	7.5	22.5	7.0	94.25	6,594.0	x10
16	8.0	24.0	5.7	100.53	5,728.5	x10
17	8.5	25.5	6.4	106.81	6,835.2	x10
18	9.0	27.0	6.6	113.10	7,464.6	x10
19	9.5	28.5	6.0	119.38	7,158.0	x10
20	10.0	30.0	6.0	125.66	7,542.0	x10
22	11.0	33.0	4.7	138.23	6,495.4	x10
24	12.0	36.0	6.1	150.80	9,198.8	x10
26	13.0	39.0	5.1	163.36	8,333.4	x10
28	14.0	42.0	5.1	175.93	8,970.9	x10
30	15.0	45.0	4.7	188.50	8,859.5	x10
32	16.0	48.0	5.1	201.06	10,251.0	x10
34	17.0	51.0	5.5	213.63	11,770.0	x10
36	18.0	54.0	4.4	226.19	9,944.0	x10
38	19.0	57.0	4.9	238.76	11,711.0	x10
40	20.0	60.0	5.3	251.33	13,303.0	x10
42	21.0	63.0	5.1	263.89	13,464.0	x10
44	22.0	66.0	4.6	276.46	12,696.0	x10
46	23.0	69.0	4.3	289.03	12,427.0	x10
48	24.0	72.0	4.1	301.59	12,382.0	x10
50	25.0	75.0	4.2	314.15	13,188.0	x10
52	26.0	78.0	4.7	326.72	15,369.0	x10
54	27.0	81.0	4.0	339.29	13,560.0	x10
56	28.0	84.0	3.8	351.85	13,376.0	x10
58	29.0	87.0	4.4	364.42	16,016.0	x10
60	30.0	90.0	5.2	376.99	19,604.0	x10
64	32.0	96.0	4.4	402.12	17,688.0	x10
68	34.0	102.0	3.3	427.25	14,091.0	x10
72	36.0	108.0	2.7	452.38	12,204.0	x10
76	38.0	114.0	3.3	477.52	15,774.0	x10
80	40.0	120.0	3.1	502.65	15,593.0	x10
84	42.0	126.0	2.7	527.78	14,256.0	x10
88	44.0	132.0	2.7	552.92	14,931.0	x10
92	46.0	138.0	2.7	578.05	15,606.0	x10
96	48.0	144.0	2.3	603.18	13,869.0	x10
100	50.0	150.0	0.6	628.31	3,768.0	x10

$\rho = 2\pi aR$

LOCATION: Galana 15 DATE: 25th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	7.6	6.28	477.28	x10
2	1.0	3.0	8.9	12.57	1118.73	x10
3	1.5	4.5	6.9	18.85	1300.65	x10
4	2.0	6.0	8.4	25.13	2108.40	x10
5	2.5	7.5	8.3	31.42	2606.2	x10
6	3.0	9.0	8.2	37.70	3091.4	x10
7	3.5	10.5	8.8	43.98	3872.0	
8	4.0	12.0	8.1	50.27	4074.3	x10
9	4.5	13.5	8.1	56.55	4576.5	x10
10	5.0	15.0	7.1	62.83	4458.8	x10
11	5.5	16.5	7.3	69.12	5044.3	x10
12	6.0	18.0	7.0	75.40	5278.0	x10
13	6.5	19.5	6.9	81.68	5630.4	x10
14	7.0	21.0	5.8	87.96	5104.0	x10
15	7.5	22.5	6.2	94.25	5840.4	x10
16	8.0	24.0	5.5	100.53	5527.5	x10
17	8.5	25.5	5.5	106.81	5874.0	x10
18	9.0	27.0	5.0	113.10	5655.0	x10
19	9.5	28.5	5.5	119.38	6561.5	x10
20	10.0	30.0	5.7	125.66	7164.9	x10
22	11.0	33.0	6.0	138.23	8292.0	x10
24	12.0	36.0	5.2	150.80	7841.6	x10
26	13.0	39.0	4.8	163.36	7843.2	x10
28	14.0	42.0	4.7	175.93	8262.3	x10
30	15.0	45.0	3.8	188.50	7163.0	x10
32	16.0	48.0	3.9	201.06	7889.0	x10
34	17.0	51.0	3.6	213.63	7704.0	x10
36	18.0	54.0	4.6	226.19	10396.0	x10
38	19.0	57.0	5.0	238.76	11950.0	x10
40	20.0	60.0	4.5	251.33	11295.0	x10
42	21.0	63.0	4.1	263.89	10824.0	x10
44	22.0	66.0	3.7	276.46	10213.0	x10
46	23.0	69.0	5.2	289.03	9248.0	x10
48	24.0	72.0	3.6	301.59	10872.0	x10
50	25.0	75.0	3.2	314.15	10048.0	x10
52	26.0	78.0	2.3	326.72	7521.0	x10
54	27.0	81.0	3.1	339.29	10509.0	x10
56	28.0	84.0	3.1	351.85	10912.0	x10
58	29.0	87.0	2.5	364.42	9100.0	x10
60	30.0	90.0	2.9	376.99	10933.0	x10
64	32.0	96.0	1.5	402.12	6030.0	x10
68	34.0	102.0	2.2	427.25	9394.0	x10
72	36.0	108.0	2.0	452.38	9040.0	x10
76	38.0	114.0	2.1	477.52	10038.0	x10
80	40.0	120.0	1.7	502.65	8551.0	x10
84	42.0	126.0	2.8	527.78	14784.0	x10
88	44.0	132.0	1.6	552.92	8848.0	x10
92	46.0	138.0	2.2	578.05	12716.0	x10
96	48.0	144.0	2.2	603.18	13266.0	x10
100	50.0	150.0	1.1	628.31	6908.0	x10

$\rho = 2\pi aR$

LOCATION: Galana 16 DATE: 26th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	2.9	6.28	182.12	x10
2	1.0	3.0	3.1	12.57	389.67	x10
3	1.5	4.5	2.8	18.85	527.8	x10
4	2.0	6.0	2.8	25.13	702.8	x10
5	2.5	7.5	2.8	31.42	879.2	x10
6	3.0	9.0	2.7	37.70	1017.9	x10
7	3.5	10.5	2.6	43.98	1144.0	x10
8	4.0	12.0	2.8	50.27	1408.4	x10
9	4.5	13.5	2.8	56.55	1582.0	x10
10	5.0	15.0	2.7	62.83	1695.6	x10
11	5.5	16.5	2.7	69.12	1865.7	x10
12	6.0	18.0	2.7	75.40	2035.8	x10
13	6.5	19.5	2.5	81.68	2040.0	x10
14	7.0	21.0	2.3	87.96	2024.0	x10
15	7.5	22.5	2.6	94.25	2449.2	x10
16	8.0	24.0	2.5	100.53	2512.5	x10
17	8.5	25.5	2.3	106.81	2456.4	x10
18	9.0	27.0	2.3	113.10	2601.3	x10
19	9.5	28.5	2.2	119.38	2624.6	x10
20	10.0	30.0	2.2	125.66	2765.4	x10
22	11.0	33.0	2.3	138.23	3178.6	x10
24	12.0	36.0	2.2	150.80	3317.6	x10
26	13.0	39.0	2.1	163.36	3431.4	x10
28	14.0	42.0	1.8	175.93	3166.2	x10
30	15.0	45.0	1.8	188.50	3393.0	x10
32	16.0	48.0	1.8	201.06	3618.0	x10
34	17.0	51.0	1.8	213.63	3852.0	x10
36	18.0	54.0	1.6	226.19	3616.0	x10
38	19.0	57.0	1.4	238.76	3346.0	x10
40	20.0	60.0	1.4	251.33	3514.0	x10
42	21.0	63.0	1.3	263.89	3432.0	x10
44	22.0	66.0	1.2	276.46	3312.0	x10
46	23.0	69.0	1.2	289.03	3468.0	x10
48	24.0	72.0	1.2	301.59	3624.0	x10
50	25.0	75.0	1.1	314.15	3454.0	x10
52	26.0	78.0	0.9	326.72	2943.0	x10
54	27.0	81.0	1.1	339.29	3729.0	x10
56	28.0	84.0	0.8	351.85	2816.0	x10
58	29.0	87.0	0.9	364.42	3276.0	x10
60	30.0	90.0	0.8	376.99	3016.0	x10
64	32.0	96.0	0.8	402.12	3216.0	x10
68	34.0	102.0	0.8	427.25	3416.0	x10
72	36.0	108.0	0.8	452.38	3616.0	x10
76	38.0	114.0	0.8	477.52	3824.0	x10
80	40.0	120.0	0.8	502.65	4024.0	x10
84	42.0	126.0	0.7	527.78	3696.0	x10
88	44.0	132.0	0.4	552.92	2212.0	x10
92	46.0	138.0	0.5	578.05	2890.0	x10
96	48.0	144.0	0.3	603.18	1809.0	x10
100	50.0	150.0	0.5	628.31	3140.0	x10

$\rho = 2\pi aR$

LOCATION: Galana 17 DATE: 26th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	2πa	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	6.8	6.28	427.04	x10
2	1.0	3.0	6.8	12.57	854.76	x10
3	1.5	4.5	6.6	18.85	1244.1	x10
4	2.0	6.0	6.4	25.13	1606.4	x10
5	2.5	7.5	6.4	31.42	2009.6	x10
6	3.0	9.0	6.1	37.70	2299.7	x10
7	3.5	10.5	6.1	43.98	2684.0	x10
8	4.0	12.0	5.9	50.27	2967.7	x10
9	4.5	13.5	5.8	56.55	3277.0	x10
10	5.0	15.0	5.5	62.83	3454.0	x10
11	5.5	16.5	5.8	69.12	4007.8	x10
12	6.0	18.0	5.4	75.40	4071.6	x10
13	6.5	19.5	5.4	81.68	4406.4	x10
14	7.0	21.0	5.6	87.96	4928.0	x10
15	7.5	22.5	5.3	94.25	4992.0	x10
16	8.0	24.0	5.2	100.53	5226.0	x10
17	8.5	25.5	4.9	106.81	5233.2	x10
18	9.0	27.0	5.6	113.10	6333.6	x10
19	9.5	28.5	5.1	119.38	6084.3	x10
20	10.0	30.0	5.0	125.66	6285.0	x10
22	11.0	33.0	4.6	138.23	6357.2	x10
24	12.0	36.0	4.8	150.80	7238.4	x10
26	13.0	39.0	4.2	163.36	6862.8	x10
28	14.0	42.0	4.2	175.93	7387.8	x10
30	15.0	45.0	4.3	188.50	8105.5	x10
32	16.0	48.0	3.8	201.06	7638.0	x10
34	17.0	51.0	3.8	213.63	8132.0	x10
36	18.0	54.0	3.3	226.19	7458.7	x10
38	19.0	57.0	3.4	238.76	8126.2	x10
40	20.0	60.0	2.8	251.33	7028.0	x10
42	21.0	63.0	2.6	263.89	6864.0	x10
44	22.0	66.0	2.7	276.46	7452.0	x10
46	23.0	69.0	2.7	289.03	7803.0	x10
48	24.0	72.0	2.6	301.59	7852.0	x10
50	25.0	75.0	2.0	314.15	6280.0	x10
52	26.0	78.0	1.8	326.72	5886.0	x10
54	27.0	81.0	1.4	339.29	4746.0	x10
56	28.0	84.0	1.8	351.85	6336.0	x10
58	29.0	87.0	1.6	364.42	5824.0	x10
60	30.0	90.0	1.8	376.99	6786.0	x10
64	32.0	96.0	2.1	402.12	8442.0	x10
68	34.0	102.0	1.7	427.25	7259.0	x10
72	36.0	108.0	2.0	452.38	9040.0	x10
76	38.0	114.0	1.8	477.52	8604.0	x10
80	40.0	120.0	1.3	502.65	6539.0	x10
84	42.0	126.0	1.6	527.78	8448.0	x10
88	44.0	132.0	1.6	552.92	8848.0	x10
92	46.0	138.0	1.3	578.05	7514.0	x10
96	48.0	144.0	1.3	603.18	7839.0	x10
100	50.0	150.0	1.1	628.31	6908.0	x10

$\rho = 2\pi aR$

LOCATION: Galana 18 DATE: 26th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	2πa	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	7.8	6.28	489.84	x10
2	1.0	3.0	7.8	12.57	980.46	x10
3	1.5	4.5	7.6	18.85	1,432.6	x10
4	2.0	6.0	6.3	25.13	1,581.3	x10
5	2.5	7.5	6.3	31.42	1,978.2	x10
6	3.0	9.0	6.2	37.70	2,337.4	x10
7	3.5	10.5	6.2	43.98	2,728.0	x10
8	4.0	12.0	6.1	50.27	3,068.3	x10
9	4.5	13.5	5.8	56.55	3,277.0	x10
10	5.0	15.0	5.9	62.83	3,705.2	x10
11	5.5	16.5	6.2	69.12	4,284.2	x10
12	6.0	18.0	5.6	75.40	4,222.4	x10
13	6.5	19.5	5.2	81.68	4,243.2	x10
14	7.0	21.0	5.2	87.96	4,576.0	x10
15	7.5	22.5	5.1	94.25	4,804.2	x10
16	8.0	24.0	4.7	100.53	4,723.5	x10
17	8.5	25.5	4.6	106.81	4,912.8	x10
18	9.0	27.0	4.7	113.10	5,315.7	x10
19	9.5	28.5	4.1	119.38	4,891.3	x10
20	10.0	30.0	4.1	125.66	5,153.7	x10
22	11.0	33.0	3.7	138.23	5,113.4	x10
24	12.0	36.0	3.7	150.80	5,579.6	x10
26	13.0	39.0	3.6	163.36	5,882.4	x10
28	14.0	42.0	3.3	175.93	5,804.7	x10
30	15.0	45.0	3.2	188.50	6,032.0	x10
32	16.0	48.0	3.3	201.06	6,633.0	x10
34	17.0	51.0	2.8	213.63	5,992.0	x10
36	18.0	54.0	3.2	226.19	7,232.0	x10
38	19.0	57.0	2.9	238.76	6,931.0	x10
40	20.0	60.0	2.8	251.33	7,028.0	x10
42	21.0	63.0	3.0	263.89	7,920.0	x10
44	22.0	66.0	2.8	276.46	7,728.0	x10
46	23.0	69.0	2.8	289.03	8,092.0	x10
48	24.0	72.0	2.9	301.59	8,758.0	x10
50	25.0	75.0	2.8	314.15	8,792.0	x10
52	26.0	78.0	2.6	326.72	8,502.0	x10
54	27.0	81.0	2.7	339.29	9,153.0	x10
56	28.0	84.0	2.7	351.85	9,504.0	x10
58	29.0	87.0	2.7	364.42	9,828.0	x10
60	30.0	90.0	2.7	376.99	10,179.0	x10
64	32.0	96.0	3.0	402.12	12,060.0	x10
68	34.0	102.0	2.6	427.25	11,102.0	x10
72	36.0	108.0	2.9	452.38	13,108.0	x10
76	38.0	114.0	2.9	477.52	13,862.0	x10
80	40.0	120.0	2.8	502.65	14,084.0	x10
84	42.0	126.0	2.8	527.78	14,784.0	x10
88	44.0	132.0	2.9	552.92	16,037.0	x10
92	46.0	138.0	2.9	578.05	16,762.0	x10
96	48.0	144.0	3.2	603.18	19,296.0	x10
100	50.0	150.0	2.8	628.31	17,584.0	x10

$\rho = 2\pi aR$

LOCATION: Galana 19 DATE: 27th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	2πa	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	6.1	6.28	383.08	x10
2	1.0	3.0	4.9	12.57	615.93	x10
3	1.5	4.5	5.4	18.85	1,017.9	x10
4	2.0	6.0	4.9	25.13	1,229.9	x10
5	2.5	7.5	5.2	31.42	1,632.8	x10
6	3.0	9.0	4.9	37.70	1,847.3	x10
7	3.5	10.5	4.8	43.98	2,112.0	x10
8	4.0	12.0	4.8	50.27	2,414.4	x10
9	4.5	13.5	4.7	56.55	2,655.5	x10
10	5.0	15.0	4.7	62.83	2,951.6	x10
11	5.5	16.5	4.8	69.12	3,316.8	x10
12	6.0	18.0	4.8	75.40	3,619.2	x10
13	6.5	19.5	4.7	81.68	3,835.2	x10
14	7.0	21.0	4.9	87.96	4,312.0	x10
15	7.5	22.5	4.8	94.25	4,521.6	x10
16	8.0	24.0	4.7	100.53	4,723.5	x10
17	8.5	25.5	4.9	106.81	5,233.2	x10
18	9.0	27.0	4.8	113.10	5,428.8	x10
19	9.5	28.5	4.8	119.38	5,726.4	x10
20	10.0	30.0	4.7	125.66	5,907.9	x10
22	11.0	33.0	4.4	138.23	6,080.8	x10
24	12.0	36.0	4.7	150.80	7,087.6	x10
26	13.0	39.0	4.7	163.36	7,679.8	x10
28	14.0	42.0	4.3	175.93	7,563.7	x10
30	15.0	45.0	4.3	188.50	8,105.5	x10
32	16.0	48.0	4.1	201.06	8,241	x10
34	17.0	51.0	4.1	213.63	8,774	x10
36	18.0	54.0	3.7	226.19	8,362	x10
38	19.0	57.0	3.4	238.76	8,126	x10
40	20.0	60.0	3.4	251.33	8,534	x10
42	21.0	63.0	3.3	263.89	8,712	x10
44	22.0	66.0	3.4	276.46	9,384	x10
46	23.0	69.0	3.2	289.03	9,248	x10
48	24.0	72.0	3.3	301.59	9,966	x10
50	25.0	75.0	3.2	314.15	10,048	x10
52	26.0	78.0	3.1	326.72	10,137	x10
54	27.0	81.0	3.8	339.29	9,492	x10
56	28.0	84.0	3.3	351.85	11,616	x10
58	29.0	87.0	3.4	364.42	17,376	x10
60	30.0	90.0	3.2	376.99	12,064	x10
64	32.0	96.0	3.4	402.12	13,668	x10
68	34.0	102.0	3.2	427.25	13,664	x10
72	36.0	108.0	2.8	452.38	12,656	x10
76	38.0	114.0	2.8	477.52	13,384	x10
80	40.0	120.0	2.5	502.65	12,575	x10
84	42.0	126.0	2.8	527.78	14,784	x10
88	44.0	132.0	2.8	552.92	15,484	x10
92	46.0	138.0	2.4	578.05	13,872	x10
96	48.0	144.0	2.3	603.18	13,869	x10
100	50.0	150.0	2.1	628.31	13,188	x10

$\rho = 2\pi aR$

LOCATION: Galana 20 DATE: 27th Aug., '82

OBSERVER: N. Yunohara

Depth (a)	Inpole ($\frac{a}{2}$)	Outpole ($\frac{3a}{2}$)	R	$2\pi a$	ρ	Range
m	m	m	Ω	m	Ω	
1	0.5	1.5	8.1	6.28	508.68	x10
2	1.0	3.0	7.4	12.57	930.18	x10
3	1.5	4.5	8.3	18.85	1,564.55	x10
4	2.0	6.0	8.2	25.13	2,058.2	x10
5	2.5	7.5	8.2	31.42	2,574.8	x10
6	3.0	9.0	7.3	37.70	2,752.1	x10
7	3.5	10.5	7.3	43.98	3,212.0	x10
8	4.0	12.0	7.5	50.27	3,772.5	x10
9	4.5	13.5	7.3	56.55	4,124.5	x10
10	5.0	15.0	7.3	62.83	4,584.4	x10
11	5.5	16.5	7.3	69.12	5,044.3	x10
12	6.0	18.0	7.4	75.40	5,579.6	x10
13	6.5	19.5	7.3	81.68	5,956.8	x10
14	7.0	21.0	7.3	87.96	6,424.0	x10
15	7.5	22.5	7.1	94.25	6,688.2	x10
16	8.0	24.0	7.2	100.53	7,236.0	x10
17	8.5	25.5	7.2	106.81	7,689.6	x10
18	9.0	27.0	6.8	113.10	7,690.8	x10
19	9.5	28.5	6.8	119.38	8,112.4	x10
20	10.0	30.0	6.8	125.66	8,547.6	x10
22	11.0	33.0	6.5	138.23	8,983.0	x10
24	12.0	36.0	5.6	150.80	8,444.8	x10
26	13.0	39.0	6.1	163.36	9,967.4	x10
28	14.0	42.0	5.8	175.93	10,202.2	x10
30	15.0	45.0	5.8	188.50	10,933.0	x10
32	16.0	48.0	5.6	201.06	11,256.0	x10
34	17.0	51.0	5.8	213.63	12,412.0	x10
36	18.0	54.0	5.2	226.19	11,752.0	x10
38	19.0	57.0	4.8	238.76	11,472.0	x10
40	20.0	60.0	4.7	251.33	11,797.0	x10
42	21.0	63.0	5.3	263.89	13,992.0	x10
44	22.0	66.0	5.3	276.46	14,628.0	x10
46	23.0	69.0	5.4	289.03	15,606.0	x10
48	24.0	72.0	5.5	301.59	16,610.0	x10
50	25.0	75.0	5.4	314.15	16,956.0	x10
52	26.0	78.0	4.7	326.72	15,369.0	x10
54	27.0	81.0	5.2	339.29	17,628.0	x10
56	28.0	84.0	4.9	351.85	17,248.0	x10
58	29.0	87.0	5.3	364.42	19,292.0	x10
60	30.0	90.0	4.9	376.99	18,473.0	x10
64	32.0	96.0	4.2	402.12	16,884.0	x10
68	34.0	102.0	4.6	427.25	19,642.0	x10
72	36.0	108.0	4.1	452.38	18,532.0	x10
76	38.0	114.0	3.4	477.52	16,252.0	x10
80	40.0	120.0	3.8	502.65	19,114.0	x10
84	42.0	126.0	3.6	527.78	19,008.0	x10
88	44.0	132.0	3.8	552.92	21,014.0	x10
92	46.0	138.0	3.2	578.05	18,496.0	x10
96	48.0	144.0	3.7	603.18	22,311.0	x10
100	50.0	150.0	4.0	628.31	25,120.0	x10

$\rho = 2\pi aR$

Kenya Soil Survey

S472/OW/RFW - 8th November, 1977

KSS Internal Communication No.7

PROPOSALS FOR RATING OF LAND QUALITIES

2ND APPROXIMATION

(follow up of stencil S269 of 1-10-74)

The first draft of the " proposals for rating of land qualities" of late 1974 was used and tested during land evaluation exercises carried out for several soil surveys, in particular for the Kindaruma, Kapenguria and Kwale reconnaissance surveys. During the land evaluation procedures more and more changes were made in the original "proposals". New approaches were tested and several ratings systems were completely changed.

It was felt timely to compile a second approximation of the "proposals" taking into account the experience gained during the last three years when applying the ratings.

The first approximation was completely "overhauled" and it is felt that the new proposals will be much more applicable.

The second approximation is attached for your comments. The new rating system will be discussed during one or two technical meetings in the near future and you are requested to give your first comments as soon as possible in writing.

It is planned to publish the third approximation (taking into account comments of the KSS staff) in January 1978. This third approximation should be tested then in the forthcoming land evaluation exercises.

H.M.H. Braun

R.F. van de Weg

(a) **AVAILABILITY OF WATER**

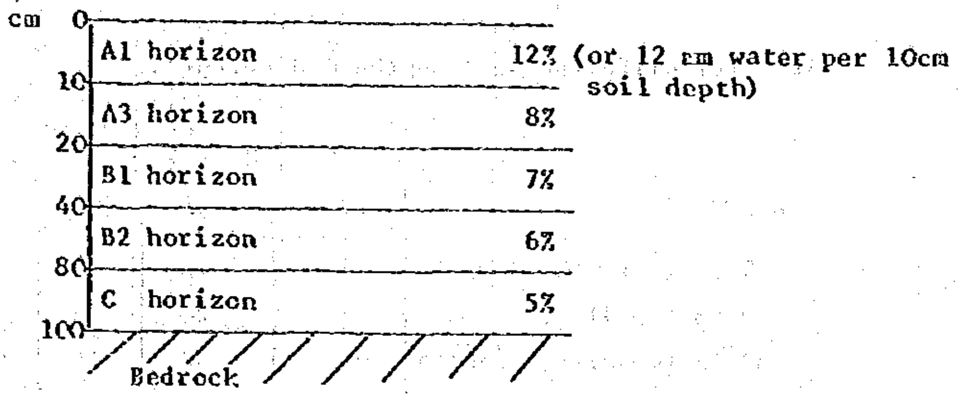
a1) Climate/ecological zones (climatic characteristics) see separate stencil with final proposals. (Braun) cf. Technical Meeting 17th Nov. 1977

a2) Soil moisture storage capacity (soil characteristics)

depends on: TPAM (total productive available moisture) (function of depth and texture)
: hindrance to root development.

(I) If sufficient pF data are available:
Calculate Productive available moisture (PAM) which is taken as pF 2.3 minus pF 3.7.
Calculate TPAM for effective soil depth. (total productive available moisture)

Example: Profile PAM



TPAM for whole profile 1 x 12 + 1 x 8 + 2 x 7 + 4 x 6 + 2 x 5 =
12 + 8 + 14 + 24 + 10 = 68

Rating: Soil moisture storage capacity:

rating		TPAM
1	very high	160-200
2	high	120-160
3	moderate	80-120
4	low	40-80
5	very low	less than 40

Adjust final rating taking into account "hindrance to root development"

no adjustment if hindrance is slight: in case of oxic, argillic and cambic horizon

downgrade rating with one classes if hindrance is moderate: in case of pronounced argillic horizon/ pronounced sedimentary stratification

downgrade rating two classes if hindrance is strong: in case of planic horizon (abrupt textural change)/ natric horizon/impermeable layer

II) If no or unreliable P^F data are available, the TPAM can be estimated from the table below.
This table was derived from graphical correlations between water and clay content and equations derived from these graphs.
(Braun, internal paper KSS or Kwale rec. survey)

TPAM for different soil depths and textures

	T E X T U R E				
DEPTH	LS	SL	SCL	SC	C
25 cm (very shallow)	8	10	14	20	28
50 cm (shallow)	15	20	28	40	55
80 cm (moderately deep)	24	32	44	64	83
120 cm (deep)	36	48	66	96	132
150 cm (very deep)	45	60	83	120	165
180 cm (extremely deep)	54	72	99	144	198

(b) CHEMICAL SOIL FERTILITY

components for rating: (compound topsoil samples 0-30 cm)

1. CEC soil or Σ cations
2. Available nutrients
3. Mineral reserve (total mineral content of soil)

subrating

I R_1	CECp or ≤cations m.e.%	sub-rating R2
1	>16	
2	12-16	1
3	6-12	2
4	2-6	3
5	0-2	

II

R2	Hp me%	exch.K* me%	avail.P** ppm	Psorbtion*** %	C %
1	0-tr	>0.6	>60	<25	>2.5
2	tr-0.5	0.2-0.6	20-60	25-50	1.5-2.5
3	> 0.5	0-0.2	< 20	>50	0-1.5

III

25% HCl extractable

sub-rating R3	Ca me%	Mg me%	K me%	P ppm
1	>75	> 40	>25	>500
2	25-75	10-40	5-25	250-500
3	0-25	0-10	0-5	0-250

Subrating:

II ΣR_2 = 0-5 ——> R_2 = 1
" " = 6-10 " = 2
" " = 11-15 " = 3

Subrating:

III ΣR_3 = 0-4 ——> R_3 = 1
" " = 5-8 " = 2
" " = 9-12 " = 3

For final rating:

Rf is a combination of R1 R2 R3 (3 digits) in 5 classes, which are set out in a trapezoid arrangement (see p.4)

Footnotes:

* exch.K must be > 2.5% of Σ cations

** Avail.P figures depict Mehlich procedure. For Olsen extraction different levels are to be set.

*** see Bache.

TRIANGLE FOR FERTILITY RATING

Rf	Combination of P1, P2 and P3								
I	111 112	211 212							Rf1 very high chemical soil fertility
2	113 121 122	213 221							Rf2 high ......
3	123 131	222 223	311 312 313	321					Rf3 moderate
4	132 133	231	322 323 331 332		411 412 413	421 422 431			Rf4 low....
5		232 233	333		423 432 433	511 512 513	521 522 523	531 532 533	Rf4 very low.

(c) Presence/hazard of SALINITY:

cf. FAO classification:

saline phase: ECe of more than 4 within 100 cm of surface

Solonchak: "high salinity": ECe of more than 15 within 125 cm if coarse texture
ECe of more than 15 within 90 cm if medium texture
ECe of more than 15 within 75 cm if fine texture
ECe of more than 4 within 25 cm if pH is >8.5

As root systems of most crops are best developed in the upper 30 cm of the soil, more weight is given to the surface soil and less severe criteria are used for the subsoil. For tree crops however, the more severe criteria of the surface soil should be maintained for the whole profile.

Rating	ECe (0-30cm)	ECe (30-120cm)
1	<2	<4
2	2-4	4-8
3	4-8	8-15
4	8-15	16-24
5	≥ 16	>24

ECe electrical conductivity of saturation extract

(d) Presence/hazard of ALKALINITY: /sodicity or alkalization

cf. FAO classification:

sodic phase: more than 6% saturation with exch. Na within 100 cm

natric B: more than 15% sat. with exch. Na within the upper 40 cm of the horizon.

Rating	ESP (0-30cm)	ESP (30-100cm)
1	<6	<15
2	6-15	15-30
3	15-30	30-50
4	30-50	>50
5	>50	>50

(for note see salinity)

(e) RESISTANCE TO EROSION:

(sheet and gully erosion hazard after clearing)

I sheet erosion

depends on:

A) slope class

B) climate

C) slope length

D) "erodability" (before called "susceptability to sealing")

A) subrating slope classes

rating	slope class	
1	A + AB	dominant, so "heavy" subrating
3	B + BC + C	
5	CD + D	
7	E + F	

B) subrating climate:

rating	eco zone
0	I and II
1	III
2	IV and V

C) subrating slope length

rating	slope length
1	less than 50 m
2	50 to 200 m
3	more than 200 m

D) subrating "erodability"

"erodability" based on lab. data

based upon:
1. organic matter content
2. flocculation index
3. silt/clay ratio in topsoil
4. bulkdensity in topsoil

ad 1: %C
>2% 1
1-2% 2
<1% 3

ad 2: flocculation index
>70% 1
50-70% 2
<50% 3

ad 3) silt/clay ratio

< 0.20 1
0.20-0.40 2
> 0.40 3

ad 4) bulkdensity

< 1.2 1
1.2-1.5 2
> 1.5 3

subrating "erodability" to be found by adding 1, 2, 3 and 4:

	subrating "erodability"	Σ 1, 2, 3, 4,	Σ 1, 2, 3
1	none	4-5	3-4
2	slight	6-7	5
3	moderate	8-9	6
4	strong	10-11	7
5	very strong	12	8-9

note: not applicable when every sandy topsoil: LS(excl. vfLS), S,SL (excl. fSL and vfSL) these soils fall directly in subrating 1.

Proposals are awaited how to bring field observations and infiltration measurements into line with the "erodability" rating based on lab. data.

Combined the subratings A), B), C) and D) give the following final rating for RESISTANCE TO EROSION:

final rating	combined subratings
1. very high resistance	3-4-5
2. high "	6-7-8
3. moderate "	9-10-11
4. slight "	12-13-14
5. very slight "	15-16-17

Alternative proposal by Kisii group for sheet erosion hazard rating depends on: A) Slope classes
B) Climate
C) "erodability"

subrating A): see above

B): see above

C): "erodability"

C1) soil characteristics: rating 1 .... no problem

rating 2 .... soils on granite, quartzite or for soils with a silt/clay ratio in the topsoil. higher than 0.5.

rating 3 ... soils like those of rating 1, but without a humic topsoil

C2) infiltration rates: rating 0 ..... for Nitosols Luvisols, Luvic Phaeozems, Humic Acrisols and Humic Ferralsols

rating 1 .... for shallow soils (Rankers, Lithosols, Cambisols) and moderately well to imperfectly drained soils (gleyic Luvisols, Vertisols)

rating 2 ...... for Planosols and Solonetz soils

C3) Run-off hazard: rating 1 if a paralithic contact (semi-permeable layer) occurs within 50 cm depth, or an impermeable layer between 50 and 100 cm depth)

rating: 2 ...... if an impermeable layer (claypan, or continuous laterite) occurs within 50 cm depth

Final rating for sheet erosion resistance is found by adding up subratings A, B, C1, C2 and C3

$\sum$ A, B, C1, C2, C3	resistance to sheet erosion
0-3	very high
4-6	slight
7-9	moderate
10-12	strong
13-15	very strong

<u>Note:</u> This rating was devised in particular for the Kisij reconnaissance soil map.

II Gully erosion (proposal of Kisii group)

depends on: (only applicable if subrating D is 1 or more)

A) Slope class

B) Climate

C) Run-off hazard

D) "soil characteristics"

Subrating A: see above

Subrating B: see above

Subrating C: Run-off hazard:

rating:	description
1	paralithic contact (semi-permeable layer) within 50cm depth or impermeable layer between 50 and 100cm depth
2	impermeable layer (claypan, or continuous laterite) within 50cm depth

Subrating D: "soil characteristics"

rating:	description
0	no soil hazard
1	Vertisols
2	Vertisols with a dense compact subsoil and planosols with a dense layer deeper than 50cm
3	Planosol with a dense layer shallower than 50 cm and Solonetz soils.

Final subrating: adding up of subrating A,B,C,D,

Σ A.B.C.D	resistance to gully erosion
0-3	very high
4-6	slight
7-9	moderate
10-12	strong
13-15	very strong

(f) POSSIBILITIES OF MECHANISATION

(possibilities for the use of agricultural implements)

based on: 1)steepness of slope

2)stoniness/rockiness/shallowness of the soil

3)"workability" of the soil

4)slope length

5)width of field

1. Subrating for steepness of slope:

rating:	1	slope classes:	A-B-C	(up to 8%)
:	2	" :	CD-D	(up to 16%)
:	3	" :	DE-E	(up to 30%)
:	4	" :	F	(up to 70%)
:	5	" :	G	(over 70%)

2. Subrating for stoniness/rockiness/shallowness of the soil

rating:	1	non-stony, non to little rocky and not shallow
:	2	fairly stony, fairly rocky and/or shallow
:	3	stony-rocky and/or shallow
:	4	very stony, very rocky and/or very shallow
:	5	exceedingly stony, and/or very rocky

3. Subrating for "workability" of the soil (ease of cultivation)

For practical reasons use is made of dry and moist consistence:

subrating r1:	dry consistence	subrating r2:	moist consistence
1	loose	1	loose
2	soft	2	very friable
3	slightly hard	3	slightly hard
4	hard	4	hard
5	very hard	5	very hard/extr.h.

combined subrating for "workability":

combined subrating (r 1 + r2)	rating "workability"
2-3	1
4-5	2
6-7	3
8-9	4
10	5

note: downgrade rating "workability" one class if sticky and plastic when wet, and downgrade two classes if very sticky and very plastic when wet

note: in future use should be made of results "tooth-test" in field; experimental data may call for new rating system.

4. Subrating for slope length

rating:	
1	slopes longer than 200m
2	slopes from 50 to 200m
3	slopes shorter than 50m

5. Subrating for minimum width of field

rating:	
1	more than 100m
2	more than 50m, less than 100m
3	less than 50m

To find final rating make use of tables underneath .
Most limiting subrating will determine final rating for the land quality under consideration.

Cultivation by hand only:

	final rating	steepness slope	stoniness etc.	"workability"
1.	very good	1	2	2
2	good	2	3	3
3	moderate	3	4	4
4	poor	4	5	5
5	very poor	5	5	5

Cultivation with mechanisation

	final rating	steepness slope	stoniness etc.	"workability"	slope length	width of field
1	very good	1 (1)	1	3	1	1
2	good	1 (2)	2	4	2	2
3	moderate	2 (3)	3	5	3	3
4	poor	3	4	5	3	3
5	very poor	4	5	5	5	5

( )applies to ox cultivation

(g) PRESENCE/HAZARD OF WATERLOGGING

Availability of oxygen for root growth

ratings:	drainage class	colour and mottling
1. No....	well to excessively drained soils	... no distinct mottling within 90cm, and/or reduced colours within 150 cm
2. Slight ...	moderately well drained soils	... no distinct mottling within 50cm and/or reduced colours within 120 cm
3. Moderate..	imperfectly drained soils	... no reduced colours or distinct mottles within 50 cm
4. High....	poorly drained soils	... partly reduced colours and distinct mottles within 50 cm
5. Very high..	very poorly drained soils	... predominantly reduced colours

(h) FLOODING HAZARD

rating	flooding frequency	inundation frequency/duration
1. very low	ev. 10 years or more	none
2. low	ev. 5 to 10 years	1-2 months every 3-5 years
3. moderate	ev. 3 to 5 years	2-3 months in 5 out of 10 years
4. high	ev. 1-3 years	2-4 months almost every year
5. very high	ev. year	more than 4 months every year

(i) Hindrance by vegetation/ease of land clearing
vegetation cover in terms of favourable or unfavourable effects for cropping (clearing) or range

rating:		physiognomic type:
1.	none to very slight	grassland (G) bushed wooded grassland (BWG) wooded grassland (WG)
2.	slight	bushed grassland (BG) wooded bushed grassland (WBG)
3.	moderate	bushland (B) wooded bushland (WB) bushed woodland (BW) woodland (W)
4.	high	dense bushland (Bd) dense wooded bushland (WBd) dense bushed woodland (BWd) dense woodland (Wd)
5.	very high	bushland thicket (Bt) wooded bushland thicket (WBt)

For percentages tree/scrub cover in physiognomic types see: Guidelines for Soil Profile Description Forms, stencil S202/JK/REW - 9/1/74

(j) Presence of overgrazing (and other mismanagements)
rating based on visual observations and estimates of the surveyors

rating:

1. no to very slight overgrazing/
   actual production = 80-100% of potential one
2. slight overgrazing/
   actual production = 60-80% of potential one
3. moderate overgrazing/
   actual production = 40-60% of potential one
4. strong/severe overgrazing/
   actual production = 20-40% of potential one
5. very strong/very severe overgrazing
   actual production = 0-20% of potential one

(k) Conditions for germination (seedbed o.a.)

(" for seedling establishment)

("tilth")

depends on: soil moisture storage capacity topsoil
structure topsoil/consistence
"susceptability to (re) sealing and crusting"

ad 1) Soil moisture storage capacity: the higher the moisture/storage c.the greater the chance that a seed germinates and survives the early growth stages.

ad 2) Contact of soil with seed; field structure might be used and perhaps the results of aggregate distribution of our future field experiments.

ad 3) "susceptability to (re) sealing and crusting: rating based on lab. tests, field observations etc. See part on resistance to erosion

Preliminary proposal:

rating:	topsoil structure	"erodability based on lab. data"
1 very high	single grain, crumby, granular	4-5
2 high	medium subangular blocky	6-7
3 moderate	coarse subangular blocky	8-9
4 low	massive	10-11
5 very low	platy	12

The rating is determined by any one of the listed characteristics, singly or in combination with the other.

(l) Availability of foothold for roots

up till now only used in "Land utilization type: Forestry/Silviculture)

Criterion taken: depth to bedrock

rating:	depth to bedrock	depth classes
1 very high	more than 150cm	very deep
2 high	80 to 150cm	deep
3 moderate	50 to 80cm	moderately deep
4 low	25 to 50cm	shallow
5 very low	less than 25cm	very shallow

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