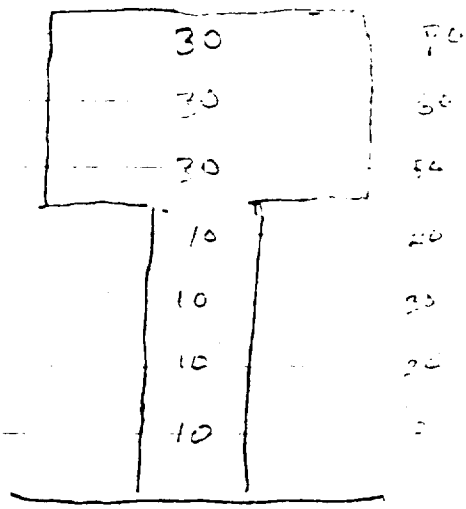
ROENTGENS/HOUR AT D+1

410583

	Y+1		R+1		U+1	
	OBS	CALC	OBS	CALC	OBS	CALC
HOW	25	30	0	.6	8.5	9
NAN	2	7	0	<.6	.09	2
OBOE	.04	3	0	.6	0	.7
UNCLE	~0	5				
BRAVO	.5	.3				
ABLE	2	5	[50	70]		
D-E-F-G			0-.6	~10	[10-15	30-60]

	E+1	
	OBS	CALC
BOGALLUA	1.2	10^{-6}
ELUGELAB	.14	.4
KIRINIAN	.12	1
ACMAN	.06	.6
PIIRAAI	.033	.4
PARRY		10
ENIWETOK		2

HYPO (NECTAR) + 1 day
(EASY WINDS)



F-23
B-195
Records Center
Fallout Forcasting
Fast Method

Nectar 14 May 0620

	Hodo 0600	
10	31	
20	31	62
30	24	86
40	34	120
50	69	189
60	40	229
70	62	291

Elmer 0

Fred 0

Leroy 0

Alia .26 Bogashna

Janet .08 Engebi

Sally 0

.12 Bogon

Bogashna (Alia) 700

Engebi (Janet) 180

Aomon (Sally) 27

Bogon (Ursula)

Parry (Elmer) 0

YANKEE LOCAL
FALL-OUT ANALYSIS

WINDS OF
Y 0600 5 May 54

r/a

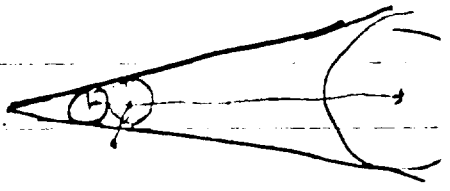
		H	N	O	U	Br	A	B	C		
12	70	1.0	1.5	1.8	2.0	2.2	1.8	1.7	1.6		
11	60	1.2	1.7	2.0	2.4	2.6	2.2	2.1	2.0		
10.5	50	1.0	1.6	1.9	2.3	2.6	2.2	2.1	2.0		
5.7	40	1.2	2.4	2.8	—	—	—	—	2.8		
4.2	30	1.9	—	2.6	—	—	2.4	2.3	2.0		
3.2	20	—	—	2.2	2.5	2.7	2.2	2.1	1.9		
2.7	10	—	—	—	—	—	1.7	2.2	1.4		

$\exp\left(-\frac{r^2}{a^2}\right)$

	H	N	O	U	Br	A	B	C		conc
70	.36	.10	040	018	0075	040	055	078		.25
60	.24	06	018	003	0012	008	012	018		.28
50	.36	08	026	005	0012	008	012	018		.30
40	.24	01	000	—	—	—	—	000		.11
30	03	—	001	—	—	003	005	018		.21
20	—	—	005	002	0007	008	012	027		.35
10	—	—	—	—	—	055	008	140		.51

70	.090	.025	.0100	045	0019	0100	014	020		
60	068	017	0050	001	0003	0022	003	005		
50	109	024	0078	002	0004	0024	004	005		
40	026	001	~~000~~	—	—	~~0006~~	~~001~~	~~004~~		
30	.006	—	0002	—	—	0006	001	004		
20	—	—	.0028	001	0002	0028	004	009		
10	—	—	—	—	—	0280	004	072		
	29.9	6.7	.0258	.049	.0028	.0460	.030	.115		

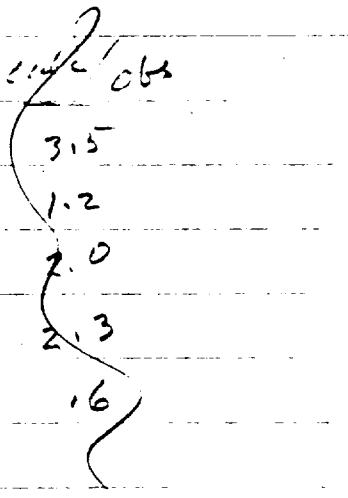
h	$D_o = S_o$	S	S_o+S	a_o	$\frac{D_o}{S_o+S}$ c	$\left(\frac{S_o}{S_o+S}\right)^2$ a
70	30	300	330	5.8	.008	64
60	30	270	300	5.8	.010	58
50	30	250	280	5.8	.011	54
40	10	200	210	1.9	.0023	40
30	10	124	134	1.9	.0056	25
20	10	67	77	1.9	.017	15

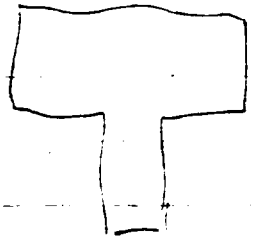


$(\Delta t)_{new} = \frac{1}{10}$ old Δt

h	$D_o = S_o$	S	S_o+S	a_o	$c_o = 1$ c_1	$a = \frac{S_o+D_o}{S_o}$ a
70	30	30	60	5.8	.25	12
60	30	27	57	5.8	.28	11
50	30	25	55	5.8	.30	10.5
40	10	20	30	1.9	.11	5.2
30	10	12	22	1.9	.21	4.2
20	10	7	17	1.9	.35	3.2
10	10	4	14	1.9	.51	2.7

$\frac{2.0}{.3}$ | 1





Bikini Obs 5 May 0600 M.

	0824	4.8 ✓	
1	0723	4.6 ✓	
2	0825	5 ✓	
3	0824	4.8 ✓	
4	0823	4.6 ✓	
5	0720	4 ✓	
6	0720	4 ✓	
7	0718	3.6 ✓	
8	0711	2.2 ✓	
9	0406	1.2 ✓	39
10	0205	2 ✓	
12	0102	.8 ✓	4
14	3405	2 ✓	43
16	3213	5.2 ✓	
18	2809	3.6	24
20	2914	—	67
25	2323	✓	90
30	2234	✓	124
35	— 2440	✓	164
40	— 2640	"	200
45	(2544		244
52	2015	9	253
55	2015	9	262
60	1806		268
65	1112		280
70	0920		300
80	0945		390
90	0955		500

FCS

Bikini Obs 5 May 1500 M.

	0713
1	0715
2	0819
3	0822
4	0920
5	18
6	16
7	1012
8	1110
9	1209
10	1409
12	1806
14	2104
16	2305
18	2410
20	2609
25	2528
30	2637
35	—
40	—
45	2757
50	2650
55	2812
60	1726
65	1432
70	1440
71	1138

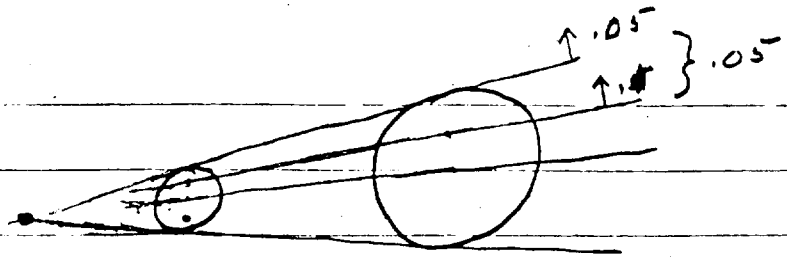
Forecast.

Bikini 05/0610 M May
made 05/0200 M (Fox)

0	07 20
2	06 25
4	07 25
6	08 28
8	08 25
10	06 15
12	04 08
14	36 01
16	31 10
18	30 15
20	26 15
25	23 25
30	22 30
35	22 40
40	24 55
45	24 50
50	20 40
55	20 15
60	18 06
65	11 12
70	09 20
80	09 45
90	09 55

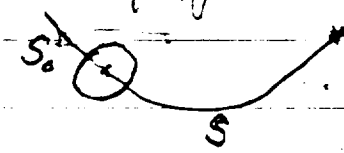
Bikini Obs May 05/0900M

	0516
2	0725
4	0722
6	0920
8	0411
10	3202
12	2902
14	3508
16	2406
18	3313
20	2609
25	2535
30	2416
35	2614
40	2625
43	2651
49	2639

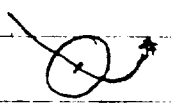


The problem of local heavy fall-out is primarily one of adapting the method to short distances, not much greater than the height of the cloud itself.

The distance travelled by a hydrograph particle before reaching ground is calculated as $S_0 + S$, and the size of the fallen drop as $a_0 \frac{S_0 + S}{S_0}$



where S was $\Sigma w \Delta t$ and S_0 was finally taken as equal to D_0. If we rule out cases when the hydrograph comes back over ground zero, then a small R can be achieved only by a reduction of Δt, which means (1) an emphasis on large particles



(2) a need to allow for the distance of descent. It is probably reasonable to write

$$a^2 = h^2 + a_0^2 \left(\frac{S_0 + \Sigma w \Delta t}{S_0} \right)^2$$

$$= h^2 + a_0^2 \left(1 + \frac{\Sigma w \Delta t}{S_0} \right)^2$$

$$= h^2 + a_0^2 \left(\frac{\Sigma w \Delta t}{S_0} \right)^2 \left[1 + \frac{2 S_0}{\Sigma w \Delta t} + \cdots \right.$$

A	15.5	41	8.1	~~-8.0~~	1		
B	16	41.3	7.6	-7.5	1.3	-3.8	.6
C	17.5	41.8	6.3	~~-5~~ 6	1.8	-2.5	9
→ D	23	41.2		-.5	1.2		
→ E	24.5	41.4		+.5	1.4		
→ F	24.8	41.5		1.3	1.5		
→ G	25.5	41.1		2.0	1.1		
H	32.5	37.3	9.3	+9	-2.7	4.5	-1.4
L	33.5	34					
N	34	31	13.0	9.5	-9	4.8	-4.5
O	24.8	30.4	9.6	1.3	-9.6	.6	-4.8
T	22.5	29.7					
U	20.5	29.6	10.8	-3	-10.4		
Z	14	33.4	11.6	-9.5	-6.6	-4.6	-3.3
B	13.3	34.2					
	23.5	40					

BRAVO LOCAL - FAST METHOD

	δ_0	S	δ_0+S	p	t_{40}	Br	U	N	H	F
70	30	31	61		5.8	23.6	23	19.3	13.1	10.6
60	30	27	57		5.8	26.6	25	19.2	13.2	13.2
50	30	24	54		5.8	26.6	24.3	18	12	13
40	10	17	27		1.9	19	18	15.6	9.6	5.7
30	10	9.7	20		1.9	12	12.4	15	10.8	2.3
20	10	15	15		1.9	7.9	10.8	17.2	14.5	6.8
10	10	2	12		1.9	8.2	12.7	20	17	9.2

	p					
70	2.0	4.1	4.0	3.3	2.3	1.8
	1.9	4.6	4.3	3.3	2.3	2.3
	1.8	4.6	4.2	3.1	2.1	2.2
	2.7	10	–	–	5.1	3.0
	2.0	6.4	6.6	–	5.7	1.2
	1.5	4.2	5.7	–	–	3.6
	1.2	4.3	6.7	–	–	4.9

Br	U	N	H	F
.004	005	017	070	115
001	002	013	064	064
001	002	016	080	070
—	—	—	004	038
—	—	—	—	180
—	—	—	—	001
—	—	—	—	—
.006	.009	.046	.218	.468
×100 .6	.9	4.6	22	47
Obs 1.0	1.0	9.0	24	55

R

$a = \frac{S_o + S}{S_o} a_o$ $\quad C = 30$

h	$D_o = S_o$	S	$S_o + S$	a_o	a	
70	30	25	50	5.8	95	9.7
60	30	16	46	5.8	86	8.9
50	30	14	44	5.8	84	8.5
40	10	12	22	1.9	18	1.2
30	10	6	16	1.9	29	3.1
20	10	4	14	1.9	35	2.7
10	10	1	11	1.9	10	2.1

30^0

Summary of results

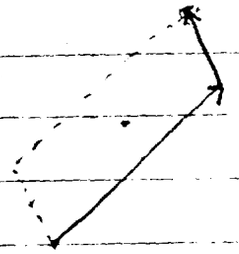
12

ROMEO WIND OBS 0600
27 Mar 54

~~Sfc.~~	~~04~~ 06	2	} 2H
2	07	2.8	}
4	06	2.2	
6	04	1	
8	17	1.6	
10	18	1.6	8.8
12	15	2	
14	10	2	
16	09	3	30
18	10	3.4	
20	10	20	39
25	17	14	
30	22	08	61
35	18	18	
40	20	36	115
45	30	05	
50	14	15	135
55	27	15	
60	27	13	163
65	32	10	
[67]	08	22)	
70	09	30	203
80	09	90	
90	09	110	

$S = \Sigma w \Delta t$

$\frac{S_0 + S}{30} = \frac{S_0 + \Sigma w \Delta t}{S_0}$



ROMEO

Date 27 Mar. 1954 Taken at Time 0600 L Local Observation Time 0600 L

Clouds lower 2/8 CU Base 2500 Tops 5,000 Middle None Base

3/8 of Cirrus Stratus Visibility 15 Miles

Sea Level Pressure 1012.4 Mb Wind direction 040 degrees Velocity 10 Kts

Surface temp 80 °F Dew Point 72 °F Humidity 77 % Vapor pressure .783

Local weather Partly Cloudy Remarks No Showers Observed

Latest winds aloft taken on Curtiss Position Bikini Time 0600

ALTITUDE	DEGREES	KNOTS	PRESSURE	TEMP	DEW POINT	R H
Surface	040	10	1012.4	80 °C	72 °C	77 Ft
1,000 Ft						
1,500						
2,000	070	14		21.5	18.2	79
3,000						
4,000	060	11		17.8	14.0	76
5,000						
6,000	080	05		14.0	8.0	58
6 900				12.5	4.0	44
8,000	170	08		14.8	-77	21
9,000						
10,000	180	08		13.0		
12,000	150	10		8.8		
14,000	100	10		5.2		
16,000	090	15		1.1		
18,000	100	17		-3.5		
20,000	100	20		-7.0		
25,000	170	14		-14.2		
30,000	220	08		-27.0	-35.0	46
35,000	180	18		-39.5		
40,000	200	36		-52.5		
45,000	300	05		-64.3		
50,000	140	15		-75.0		
55,000	270	15		-82.2		
60,000	270	13		-77.2		
65,000	320	10		-70.5		
67 000	080	22		-66.3		
75,000						
80,000						
85,000						
90,000						
95,000						
100,000						
105,000						
110,000						
115,000						
120,000						

HYPO & HYPOTHETICAL

$a = \frac{S_o + S - D_o}{S_o} = \frac{S_o + S}{3.2}$

Using EASY DATA.

h.	$D_o \div S_o$	S	$S_o + S$	D_o	a	c
70	30	21	51	5.8	9.8	.35
60	30	18	48	5.8	9.2	.31
50	30	15	45	5.8	8.6	.44
10	10	9.8	20	1.9	3.85	.25
30	10	4.7	14.7	1.9	2.8	.46
20	10	2.6	12.6	1.9	2.4	.63
10	10	1.8	11.8	1.9	2.3	.85

$5.8/30 = 0.193$

$1.9/10 = 0.19$

FRED	.29	5	.03		.3
ELMER	.62	14	.13		1.3
YVONNE	2.1	44	.76	X 10+?	
JANET	2.7		.93		
ALICE	.93				

EASY

$a_o = \frac{D_o}{5.2}$

$a = \frac{S_o + S}{S_o} \times a_o$

h	$D_o = S_o$	S	$S_o + S$	a_o	a
70	32/4.62 = 6.5"			1.25"	
60	6.5"	18	24.5"	1.25"	4.7
→ 50	6.5"	15"	21.5"	1.25"	4.1
40	6.5"	9.8	16.3	1.25"	3.1
30	2.2	4.7	6.9	.48	1.5"
20	2.2	2.6	4.8	.48	1.2
10	2.2	1.8	4.0	.48	0.37

$1.25/6.5" = 0.192$

$.48/2.2 = 0.218$

		E+9hr	H+10yr
Flora	.38	1.1	.140
Jornada	1.2		
Lucy	.96	1.0	.120
Salty	.55"	~.5"	.06
Wilford	.39	.3	.033
Ymore	.09	.04	.005"
Alice	—	10000	1.2

EASY 21 APRIL 1951 0600

Ratio 59/3000

Sfc		knots (.9 for 2000 int)
2	06	6.9
4	08	4.8
6	16	2.9
8	15⁻	2.0
10	07	2.8 ~~10.4~~ 18
12	12	0.8
14	21	1.2
16	28	2.9
18	33	1.6
20	31	1.2 ~~25.6~~ 26
25⁻	295⁻	6.0
30	27	15⁻ ~~46.6~~ 47
35⁻	28	23
40	28	28 ~~97.6~~ 98
45⁻	265⁻	31
50	260	25⁻ ~~153.6~~ 157
55⁻	330	13
60	330	13 ~~179.6~~ 18.0
70	090	30 21.0

WEATHER CONDITIONS

21 APRIL (M) 1951

SURFACE

0629 (M)

2/10 Cumulus at 2000 feet (est)
8/10 Cirrostratus at 30,000 feet (est)
Wind ENE 9 knots
Visibility 12 miles plus
Pressure 1010.2 mb
Temperature 80.4° F
Dew Point 73.0° F
Relative Humidity 70%

UPPER AIR

0600 (M):

LEVEL (ft)	Wind (kts)	Temp (°C)	Dew Pt (°C)
SFC.	050/14	26.2	22.5
2000	070/18	21.2	18.5
4000	080/12	17.5	14.3
6000	160/06	14.5	9.8
8000	150/05	11.2	0.0
10,000	070/07	10.0	-9.2
12,000	120/02	10.0	M*
14,000	210/03	5.2	M
16,000	280/06	0.9	M
18,000	330/04	-2.9	M
20,000	310/03	-5.7	M
22,000	290/04	-9.1	M
24,000	300/07	-14.2	M
26,000	290/14	-20.0	M
28,000	270/13	-24.9	M
30,000	260/17	-28.0	M
32,000	290/21	-33.5	M
34,000	260/21	-38.0	M
36,000	270/27	-41.5	M
38,000	270/28	-46.7	M
40,000	280/28	-50.0	M
42,000	270/32	-55.0	M
44,000	260/32	-60.0	M
46,000	260/26	-65.7	M
48,000	260/23	-68.5	M
50,000	270/24	-70.8	M
52,000	290/20	-73.9	M
54,000	340/32	-76.2	M
55,000	320/13		

* Missing

60,000	330/13
70,000	090/30

U FALL-OUT ANALYSIS

0600 Rm.

R/r

	H	N	Q	G	D	A
70	.23	~~.55~~ .065	04	.32	26	084
60	08	02	004	04	03	002
50	12	02	01	06	03	003
40	02	—	—	01	—	—
30	07	—	—	.26	.13	—
20	—	—	—	.55	1.00	.003
10	—	—	—	.02	.30	.045

70	3.9	~~9.5~~ 1.1	.68	5.5	4.4	1.4
60	1.9	.5	.01	1.0	.8	.05
50	3.0	.6	02	1.5	.7	07
40	.2	—	—	.1	—	—
30	.1	—	—	4.4	2.2	—
20	—	—	—	19.4	35.0	.10
10	—	—	—	1.1	16.5	2.4
	9.1	~~10.4~~ 2.2	.71	33.0	59.6	4.02

V Run 0600 26 Apr 54

$a_f = \frac{S_o + S}{S_o} a_o$ c

Rec			h	$D_o = S_o$	S	$S_o + S$	a_o	a	
~~1~~			70	30	42	72	5.8	14	17
2	065	08	60	30	32	62	5.8	12	21
~~3~~			50	30	30	60	5.8	11.5	21
4	090	07.2	40	10	23	33	1.9	6.2	9
~~5~~			30	10	14	24	1.9	4.6	11
6	105	07.5	20	10	7	17	1.9	3.2	3
~~7~~			10	10	3.5	13.5	1.9	2.6	5
8	125	07.0							
~~9~~									
10	115	05.5	~~35.2~~ 35						
12	350	1.6							
14	360	2.4							
16	240	10							
18	290	5.6							
20	260	15	~~69.2~~ 70						
25	200	33							
30	250	40	143						
35	240	44							
40	250	40	227						
45	250	40							
50	260	28	295						
55	220	09							
60	180	15	319						
65	110	20							
70	90	80	419						

	g.	r	S_0	G_0	ϕ	λ	
10	4	22	10	2	1.40	∞	
20	6	23	10	2	1.60	∞	
30	9	21	10	2	1.90	∞	
40	17	17.5	10	2	2.70	10	
50	24.5	18	30	6	1.82	3	.02
60	27	15.5	30	6	1.90	2.6	.045
70	31	14.5	30	6	2.04	2.4	.06

.125

× 30 = 4 r/hr

@ D+1 days

UNION

Date 26 APRIL 1954 Time 0610 L Local Observation Time 0600 L

Clouds lower 2/10 CU SC Base 1800 Tops 3500 Middle 1/10 SC Base 12000

FEW VERY THIN CI Visibility 8 Miles

Sea Level Pressure 1007.4 Mb Wind direction 062 degrees Velocity 18 Kts

Surface temp 81 °F Dew Point 76 °F Humidity 86 % Vapor pressure 1.056

Local weather PARTLY CLOUDY Remarks NO INDUCED SHOWER ACTIVITY OBSERVE

Latest winds aloft taken on CURTISS Position BIKINI Time 0600 L

ALTITUDE	DEGREES	KNOTS	PRESSURE	TEMP	DEW POINT	REL. HUMIDITY
Surface	050	17	1006	26.8°C	24.2 °C	81 %
1,000 Ft	060	21	979	24.8	21.7	78
1,500	070	19	958	23.3	20.3	79
2,000	080	18	942	22.0	19.4	83
3,000	090	17	908	19.4	17.1	85
4,000	090	18	877	17.1	15.0	85
5,000	100	19	846	16.2	14.2	68
6,000	110	18	817	16.3	09.8	30
7,000	120	18	788	15.9	- 02.2	45
8,000	130	17	760	13.8	00.0	70
9,000	120	16	733	11.2	04.5	57
10,000	110	12	707	09.9	01.8	41
12,000	350	04	655	05.8	- 05.4	62
14,000	360	06	608	03.5	- 06.7	50
16,000	240	25	563	-01.2	- 11.7	45
18,000	290	14	522	-06.0	- 15.5	56
20,000	260	15	483	-09.0	- 16.3	63
25,000	200	33	397	-17.9	- 23.5	62
30,000	250	40	322	-26.0	MB	
35,000	240	44	259	-37.8	MB	
40,000	250	40	207	-49.5	M	
45,000	250	40	157	-61.4	M	
50,000	260	28	123	-73.5	M	
55,000	220	09	097	-77.5	M	
60,000 (57000)	180	15	074	-79.8	M	
65,000			057	-67.7	M	
70,000						
75,000						
80,000						
85,000						
90,000						
95,000						