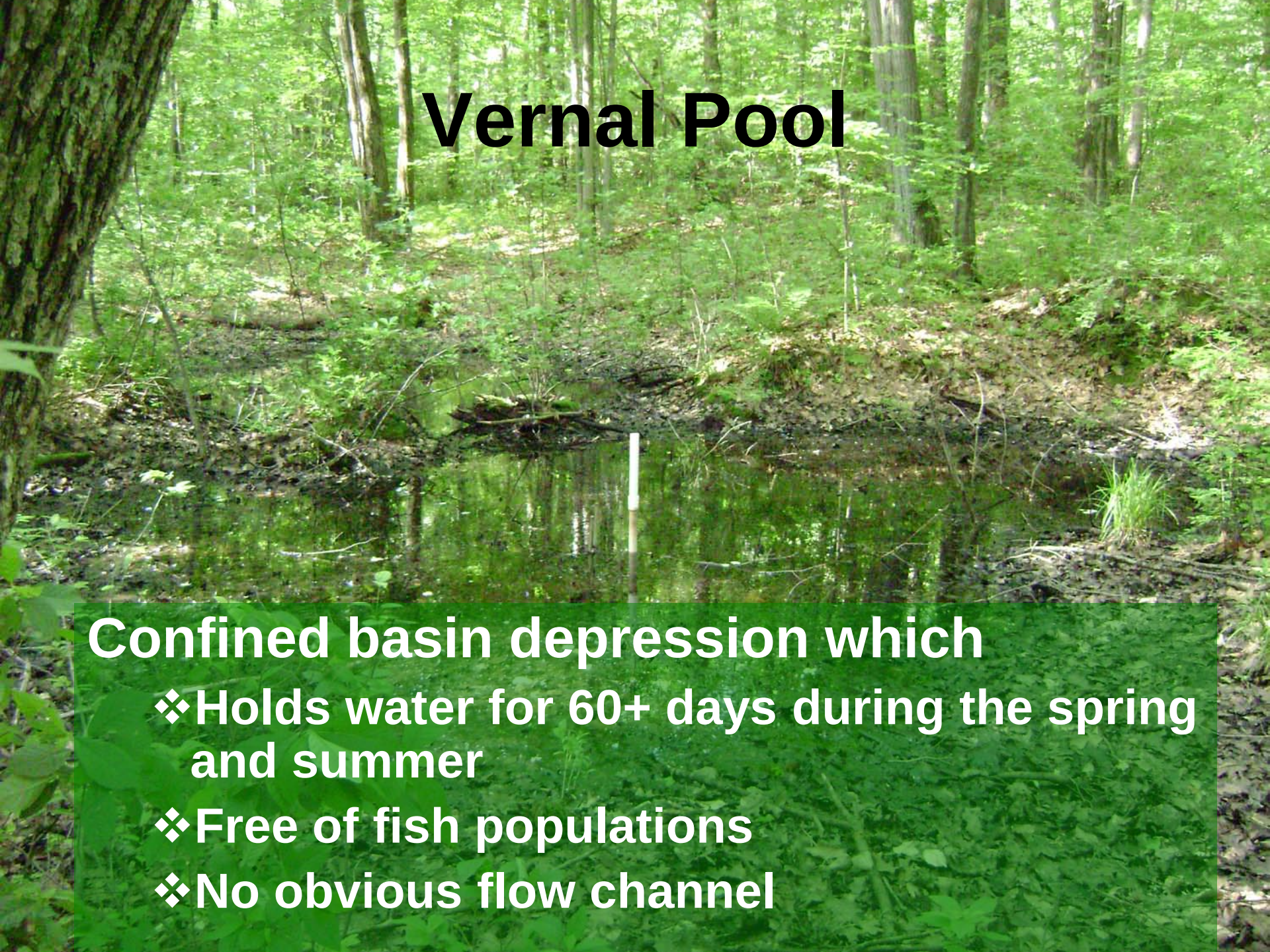
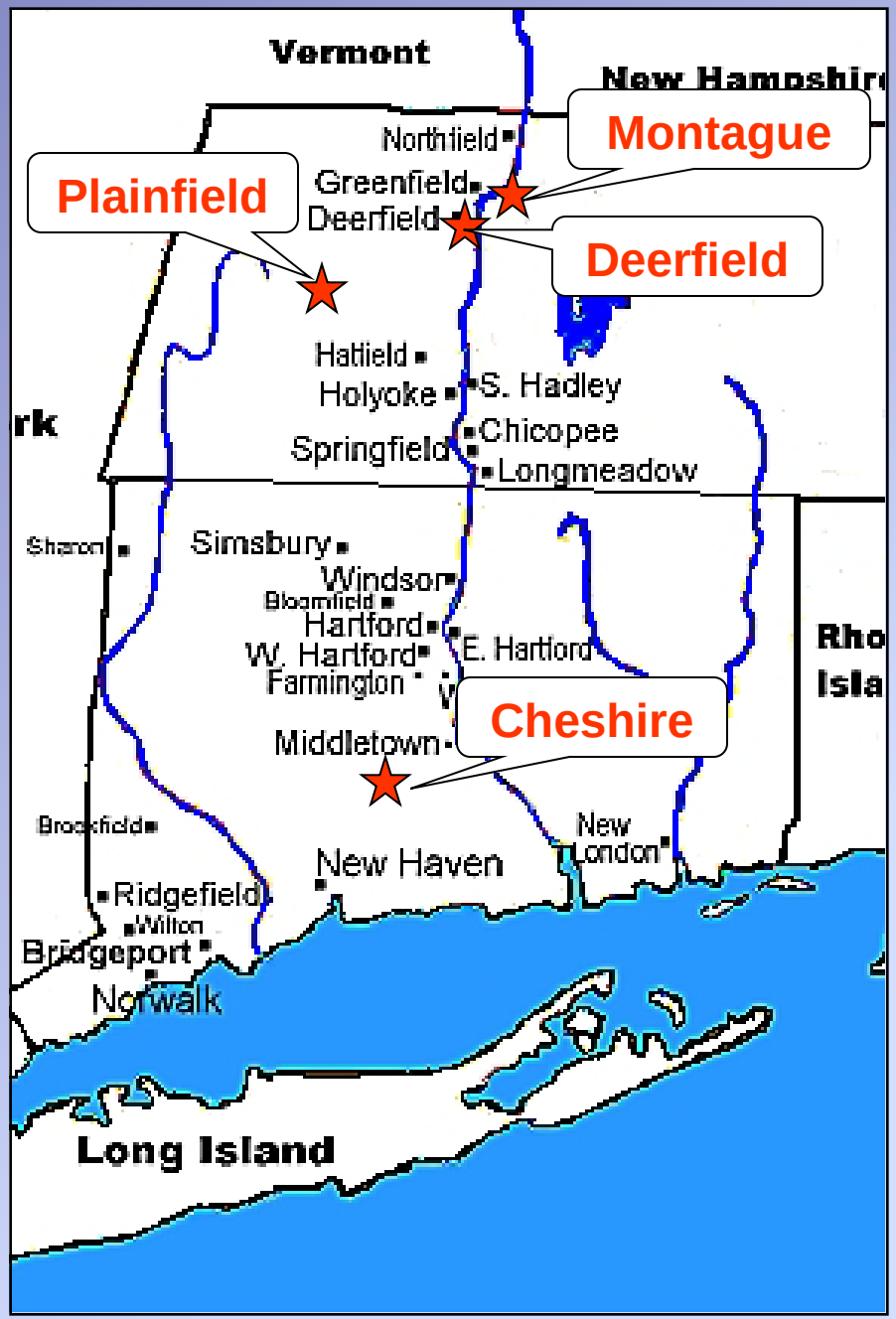
Vernal Pools in Southern New England



Vernal Pool

Confined basin depression which

- **Holds water for 60+ days during the spring and summer**
- **Free of fish populations**
- **No obvious flow channel**



Mass. Sites

Montague – Dr. Deb Picking,

Deerfield – Dr. Mickey Spokas,

Plainfield – Emily K.D. Stockman,

Stockman Associates

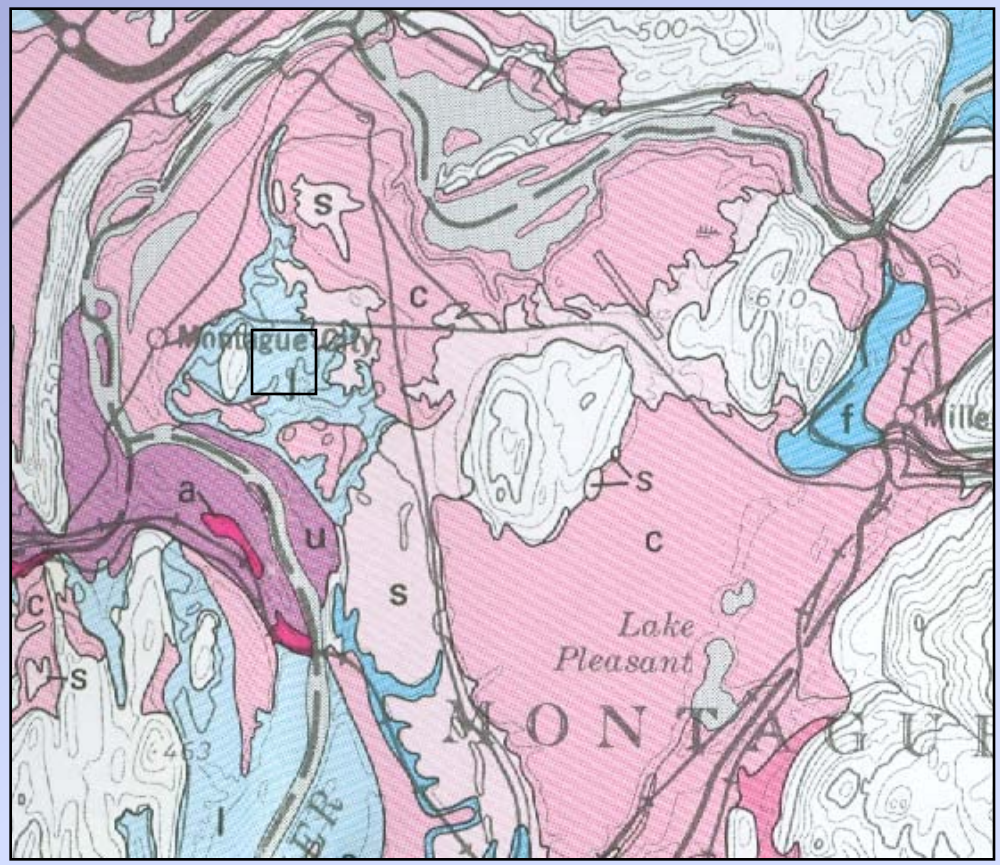
Stockman Associates
107 West Street
Plainfield, MA 01070

Conn. Site

Cheshire – Dr. Beth Johnson,

Post University

Montague VP

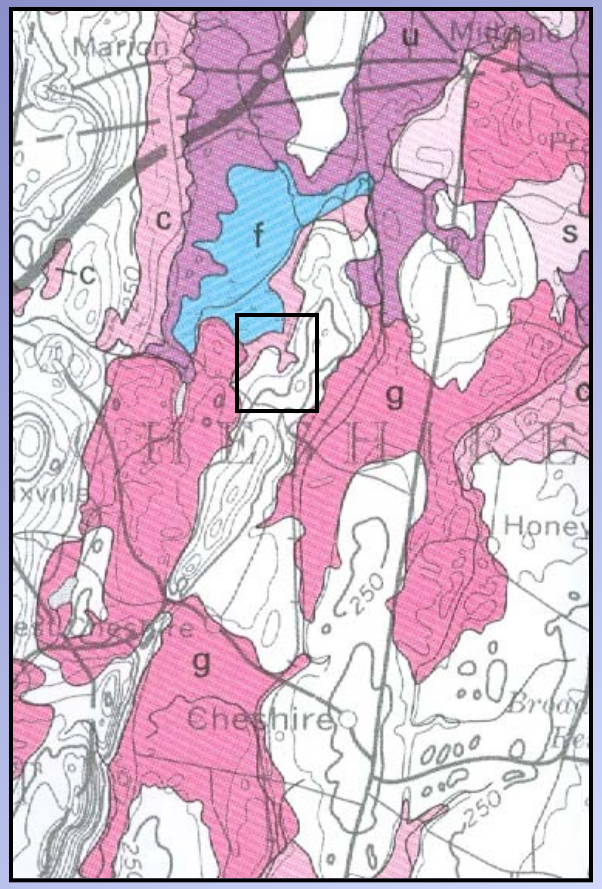


Light pink (c): sand and gravel deposits and sand deposits, undifferentiated,

Purple (u): undifferentiated outwash (all particle sizes),

Light Blue (l): sand and fine particles,

Cheshire VP



White: till

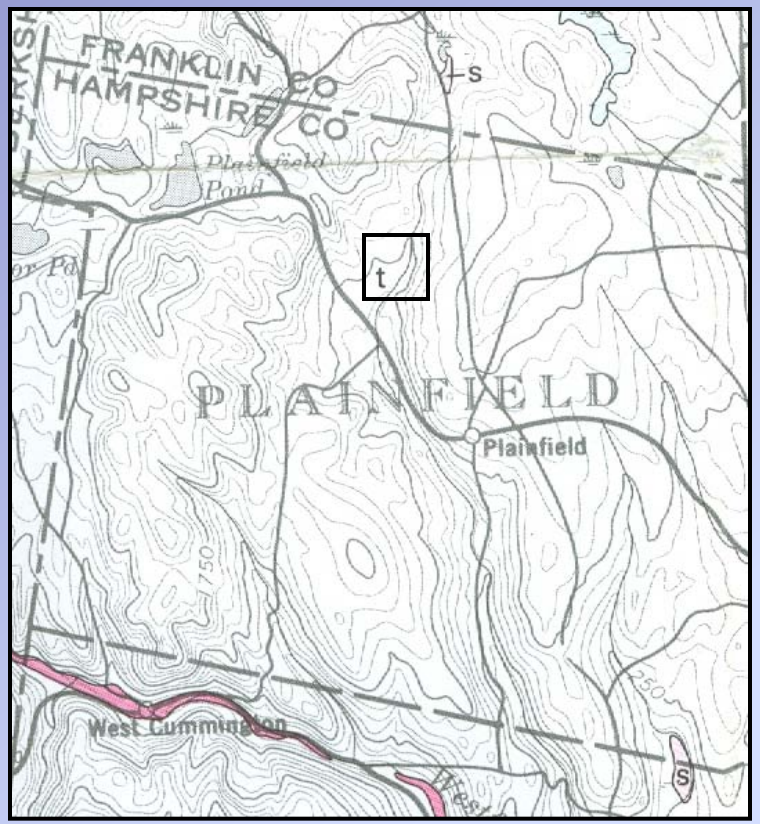
Light pink (c): sand deposits where as much as 50% may be fine particles

Blue (f): fine particles

Cheshire VP

Depth (cm)	Horizon	Color	Texture	Structure	Redox Features	USACOE Indicator	NE Indicator
---------- Summit ----------							
0-20	Ap	10YR 3/4	fsl	granular	5YR 3/4 pore linings 2%		--------
20-38	B	10YR 3/1	fsl	massive	5YR 3/4 pore linings 2% 2.5YR 6/2 -25%		
38-51	Cg	10YR 6/1	fsl	massive	10YR 3/4 pore linings 2% 10YR 3/1 – 10%		
51-68.5	C2	10YR 4/1	fsl	massive	2.5Y 5/1 – 40-50%		
68.5-92	C3	5YR 4/6		massive	10YR 4/2 ped interiors		
---------- Rim ----------							
0-19	Mucky A	10YR 2/1	sl	granular	10YR 5/25%	A11 Depleted Below Dark Surface	VI. Depleted or Gleyed Matrix
19-58	Cg	10YR 4/2	ls	single grain	10YR 4/6 pore linings 8% at boundary 2% elsewhere *		
58-79	Cg2	10YR 6/1	silt	massive	7.5YR 5/8 pore linings 8% 7.5YR 3/4 soft masses 10%		
79-86	Cg3	10YR 4/1	sil	massive	2.5Y 6/1 – 8% 7.5YR 3/4 soft masses10%		
---------- Basin ----------							
23-19	Oi					A2 Histic Epipedon	I. Ponded or Flooded Soils
19-6	Oe	10YR 2/2	sl	granular	10YR 4/3 streak through layer 45%		
6-0	Oa	2.5Y 2.5/1	sil	granular	10YR 3/4 root channels 5-8%		
0-53	C	2.5Y 4/4	vfsl	massive	unknown		

Plainfield VP

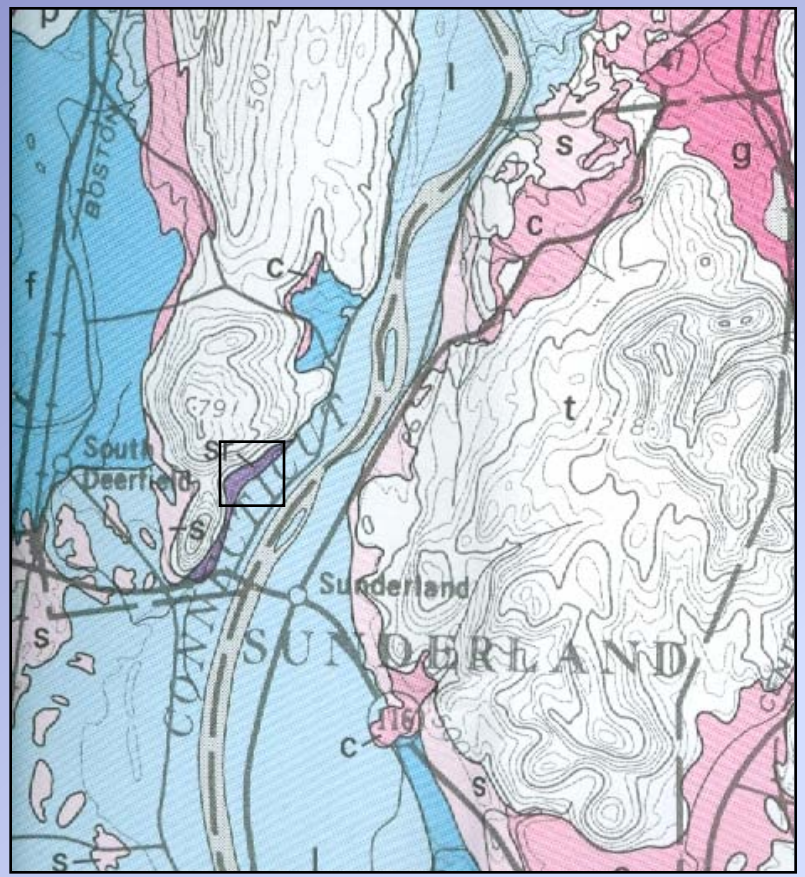


White: till.

Plainfield VP

Depth (cm)	Horizon	Color	Texture	Structure	Redox Features	US ACOE Indicator	NE Indicator
---------- Summit ----------							
0-30	Mucky A	10YR 3/2	fsl	granular	7.5YR 3/4, 5% fine, faint	---	---
30-60	Bw	10YR 4/6	fsl	granular	---		
---------- Rim ----------							
0-13	A	2.5Y 3/3	---	granular	2.5Y 5/2, 5% fine, faint	F3 depleted matrix	I. Ponded or Flooded Soil VI. Depleted or gleyed matrix
13-41	Eg	2.5Y 5/2	fsl	granular	7.5YR 3/4,10% med, prominent		
41-61	Bw	10YR 4/4	fsl	granular	---		
---------- Basin ----------							
33-23	Oa	10YR 2/2	---	granular	---	F3 Depleted Matrix F8 Redox Depressions	I. Ponded or Flooded Soil V. Mineral Histic
23-0	Oa2	10YR 2/1	fsl	massive	7.5YR 3/4 -20% fine, distinct		
0-23	Eg	2.5YR 5/2	fsl	massive	10YR 4/6 10%, med-coarse, prominent 5Y 5/1, 5% med, faint 10 YR 2/2 10% med, prominent		
23-61	C	2.5Y 4/3	fsl	massive	5YR 2.5/1, 5%, fine, distinct 7.5YR 3/4, 10%, med, distinct		

Deerfield VP



White: till,

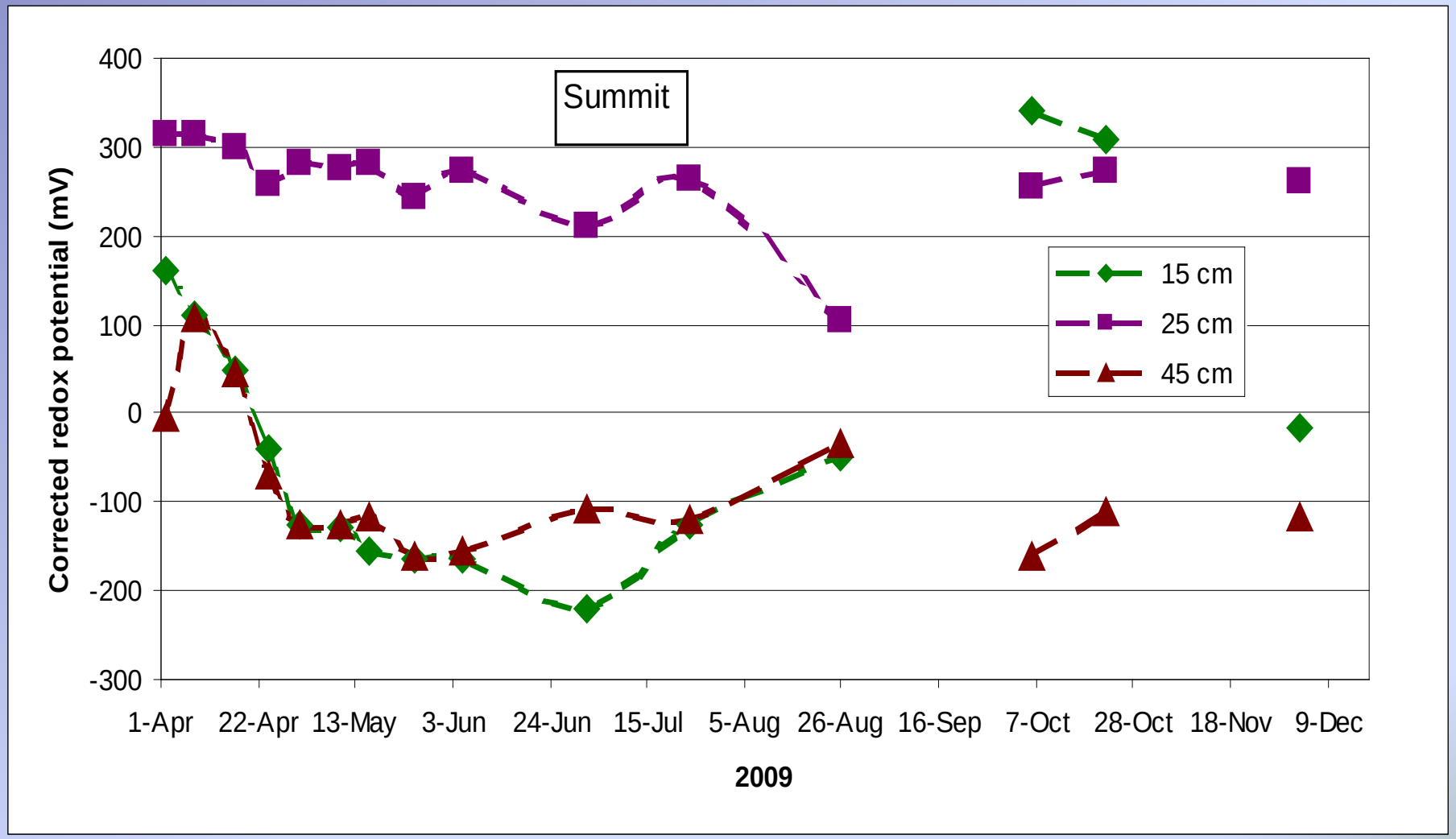
Purple (Sr): “slider rock”,

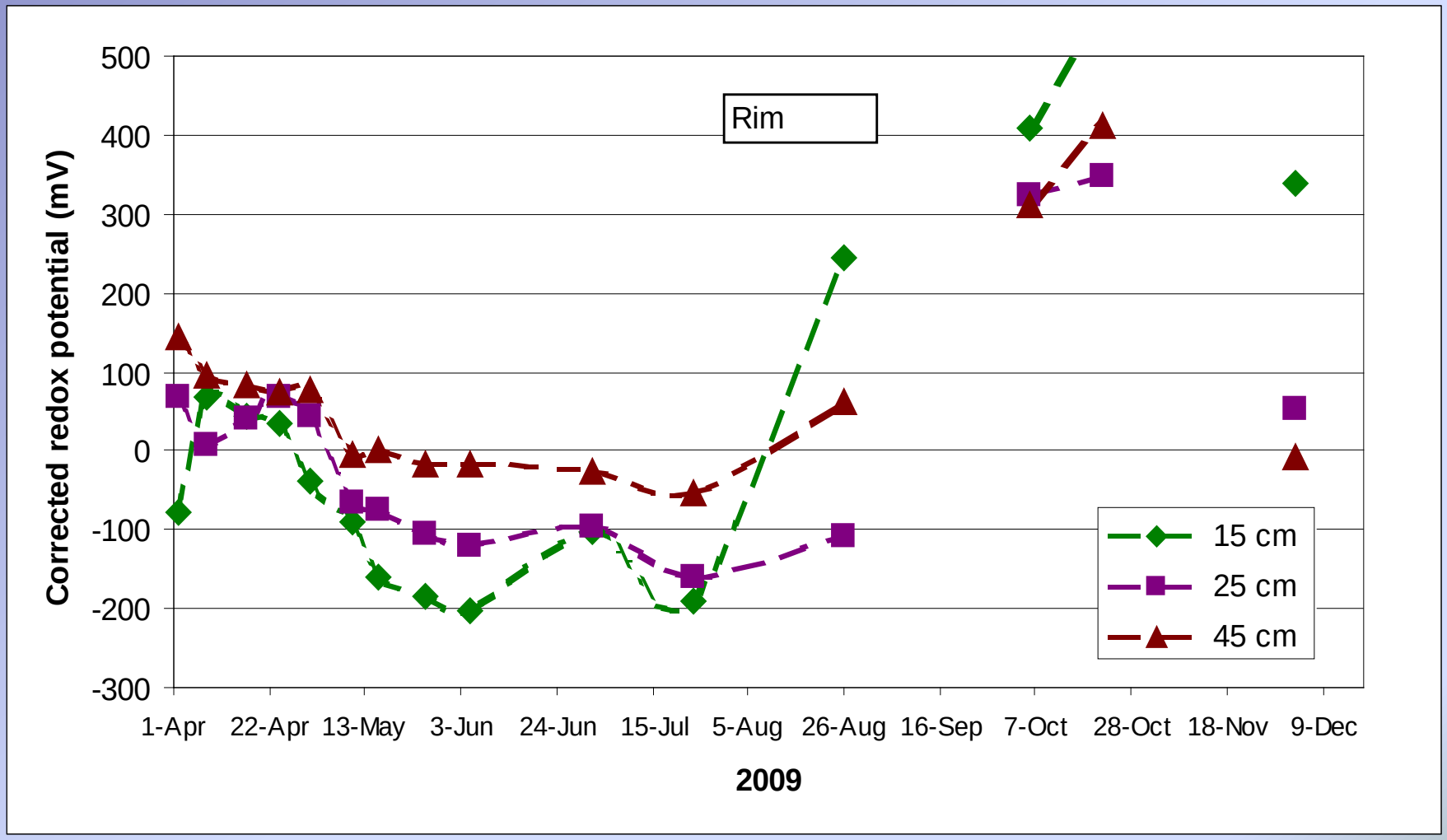
Light Blue (l): sand and fine particles.

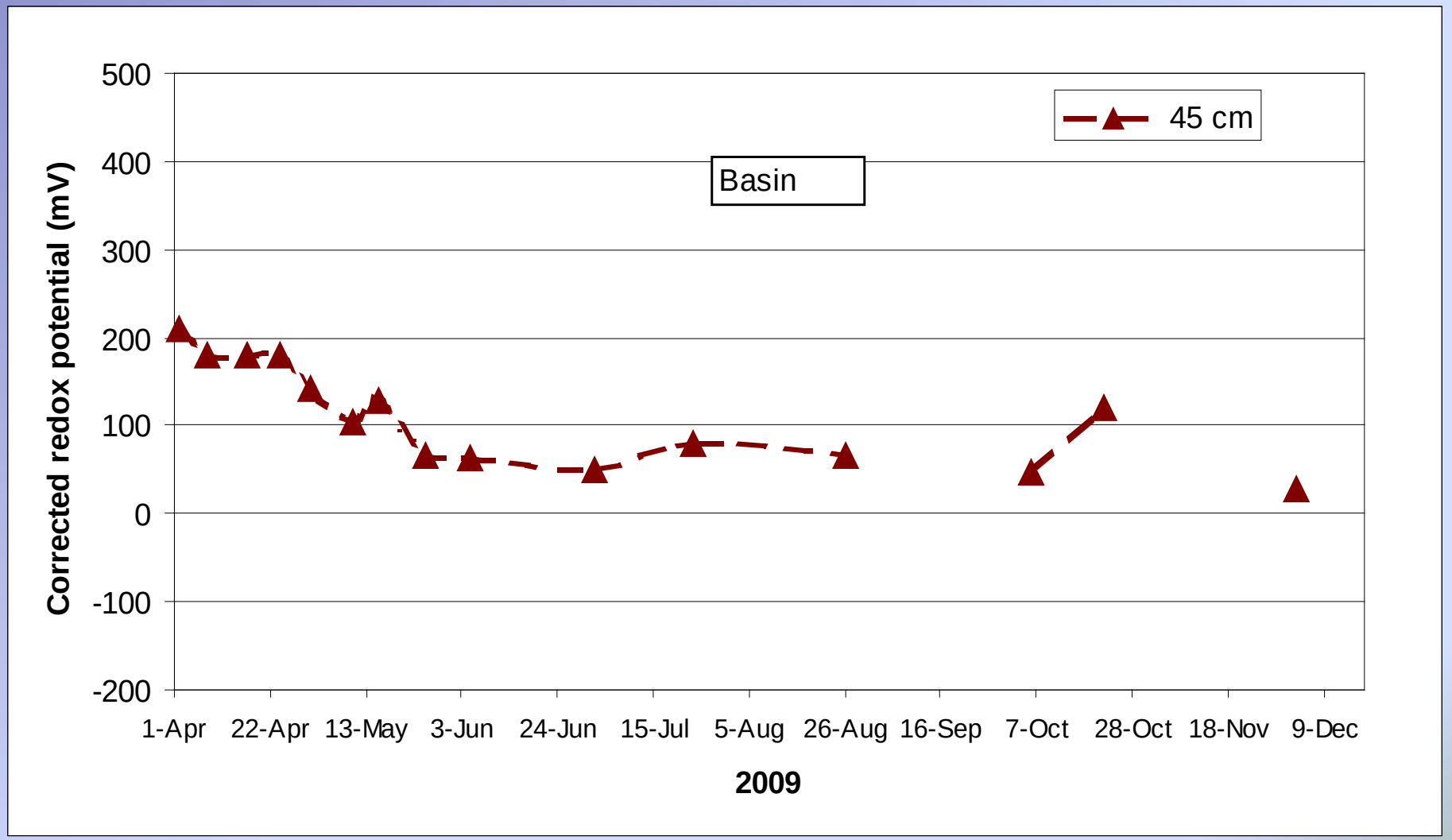
Deerfield VP

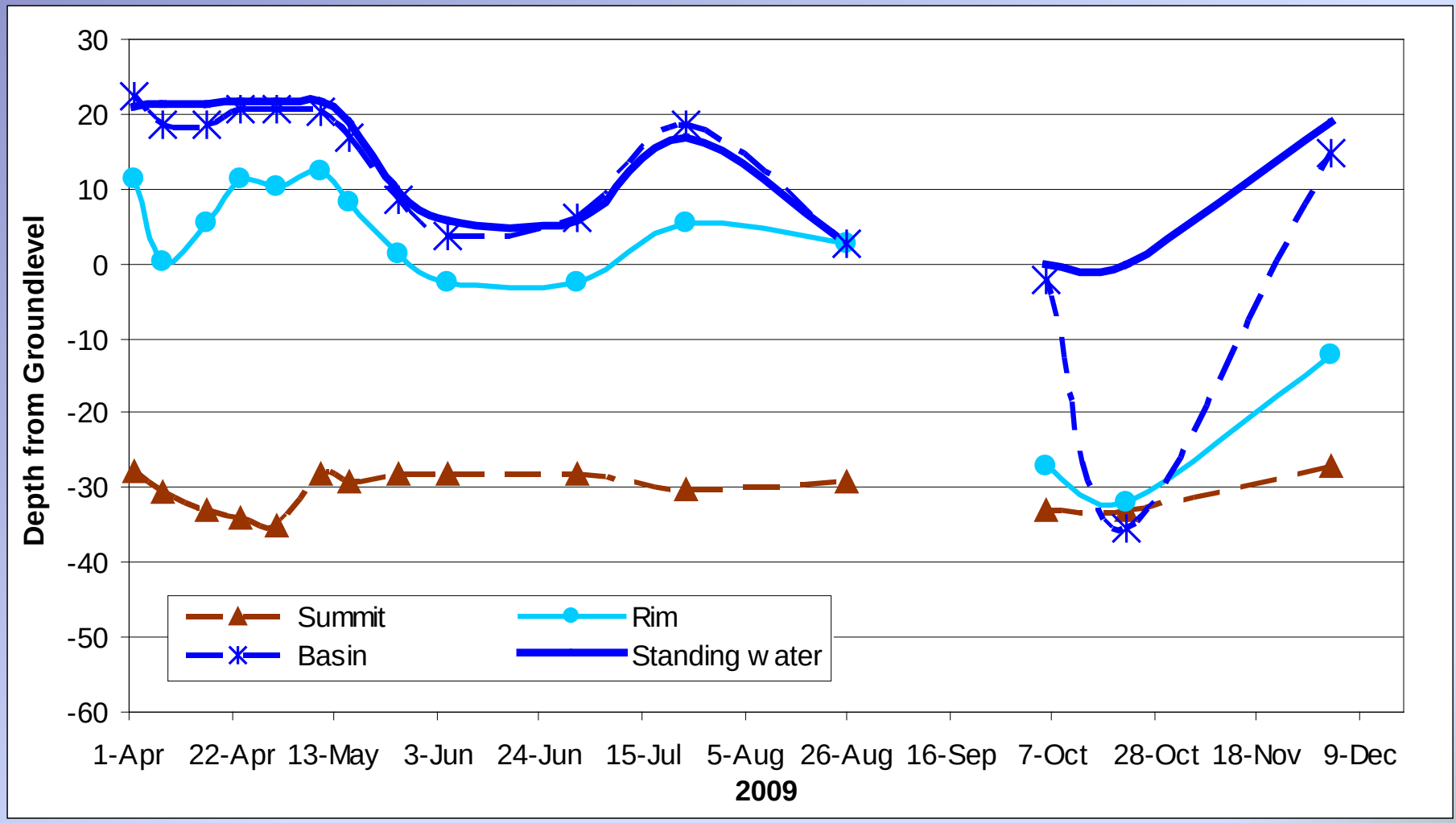
Depth (cm)	Horizon	Color	Texture	Structure	Redox Features	US ACOE Indicator	NE Indicator
---------- Summit ----------							
5-0	Oi	10YR 2/1	---	---	---	---	---
0-20	Mucky A	2.5Y 4/4	sil	granular	7.5YR 3/4,5% fine, distinct		
20-28	Bw	5Y 4/4	sil	granular	10YR 4/6, 5% med-fine, prominent		
28-58	C1	5Y 4/3	sil	massive	5Y 5/1, 10% coarse, distinct 10YR 4/6, 25%, coarse prominent		
58-68	Cg	5Y 4/1	l	massive	7.5YR 3/4, 10% coarse, prominent		
---------- Rim ----------							
2.5-0	Oi	10YR 2/2	---	---	---	F.6. Redox dark surface	I. Ponded or Flooded Soil
0-18	Mucky A	10YR 2/1	sil	granular	7.5YR 3/4, 5% fine, distinct		
18-43	A/C	2.5Y 3/3	sil	granular	---		
43-48	C1	5Y 4/3	silt	massive	5Y 5/1, 10% medium, distinct 10YR 4/6, 25%, med-coarse prominent		
48-61	Cg	5Y 4/1	sil	massive	10YR 4/6, 25%, coarse prominent		
---------- Basin ----------							
0-30	Mucky A	10 YR 2/1	sil	w. granular	7.5YR 3/4 pore linings -2% fine 10YR 5/1 – 2%	A.12 – Thick Dark Surface	XI Any Texture A1 Ponded or Flooded Soils
16-41	A/C	7.5YR 2.5/1	sil	massive	7.5YR 3/4 pore linings 5% med 10 YR 4/1 soft masses 5%		
41-65	Cg	5Y 4/1	silt	massive	7.5 YR 6/8 pore linings – 5% 7.5YR 5/8 soft masses		

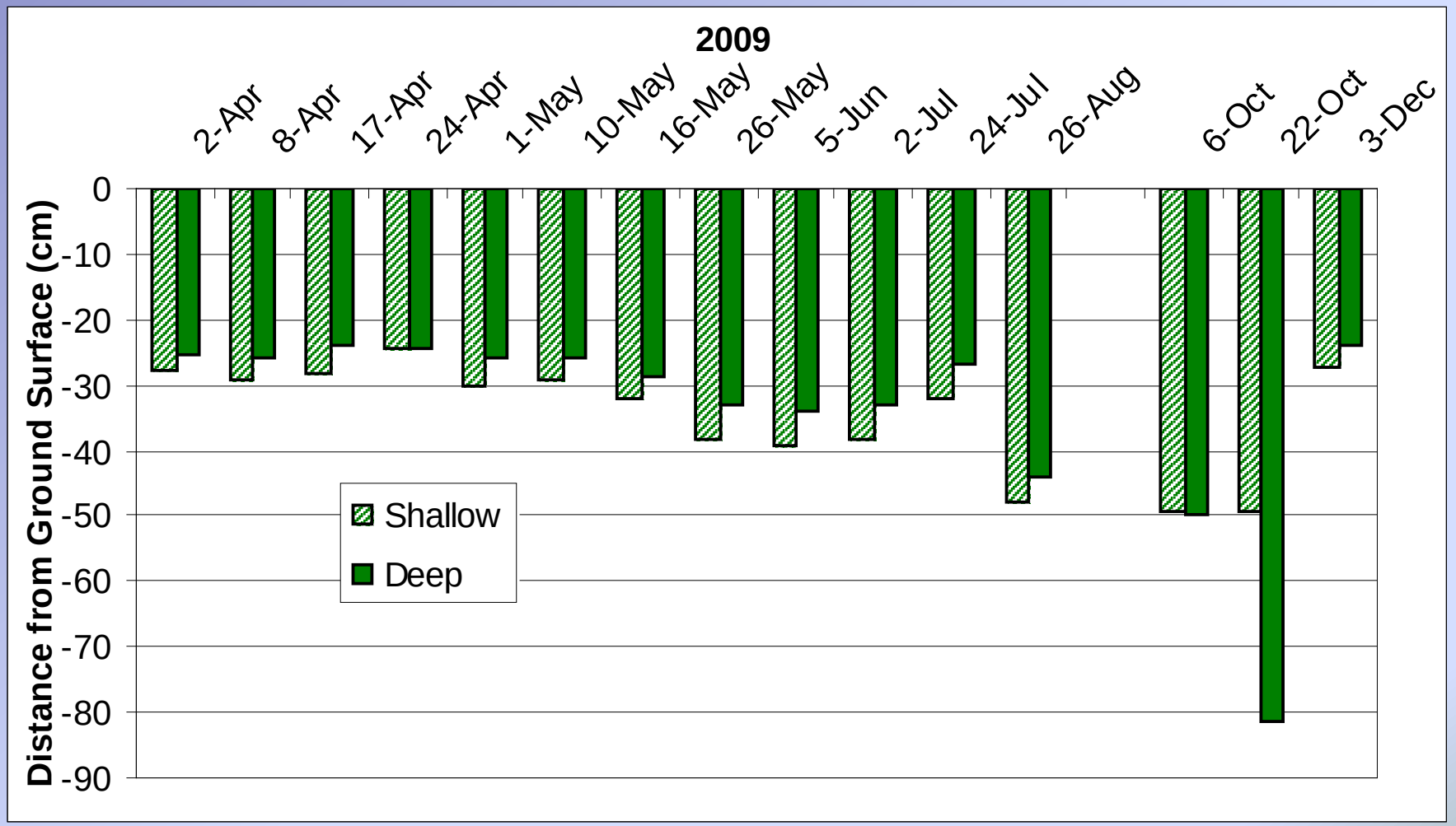
7
8
27
28
29
30
31
32
1/2

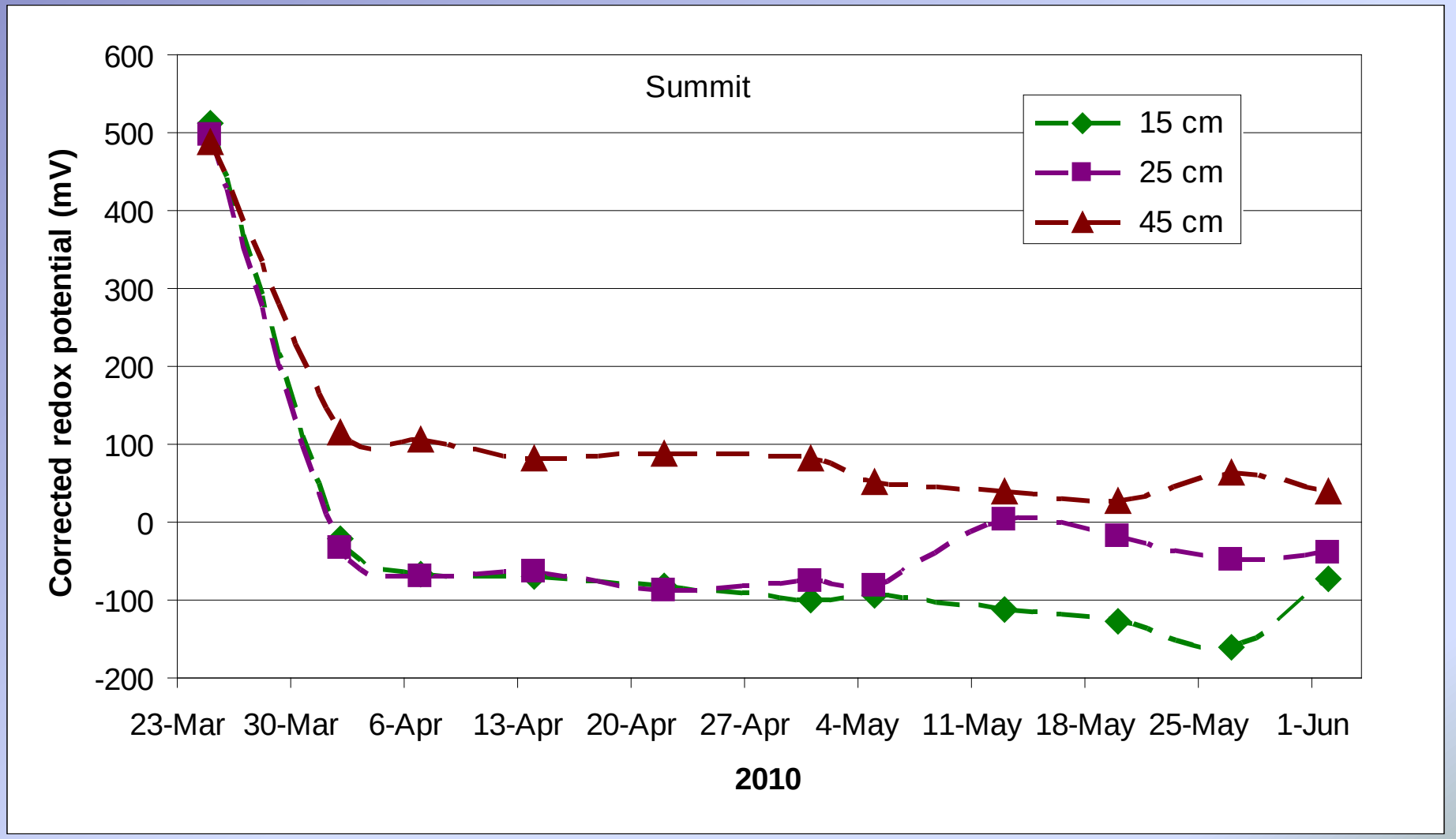

Summit
Corrected redox potential (mV)
400
300
200
100
0
-100
-200
-300
15 cm
25 cm
45 cm
1-Apr
22-Apr
13-May
3-Jun
24-Jun
15-Jul
5-Aug
26-Aug
16-Sep
7-Oct
28-Oct
18-Nov
9-Dec
2009

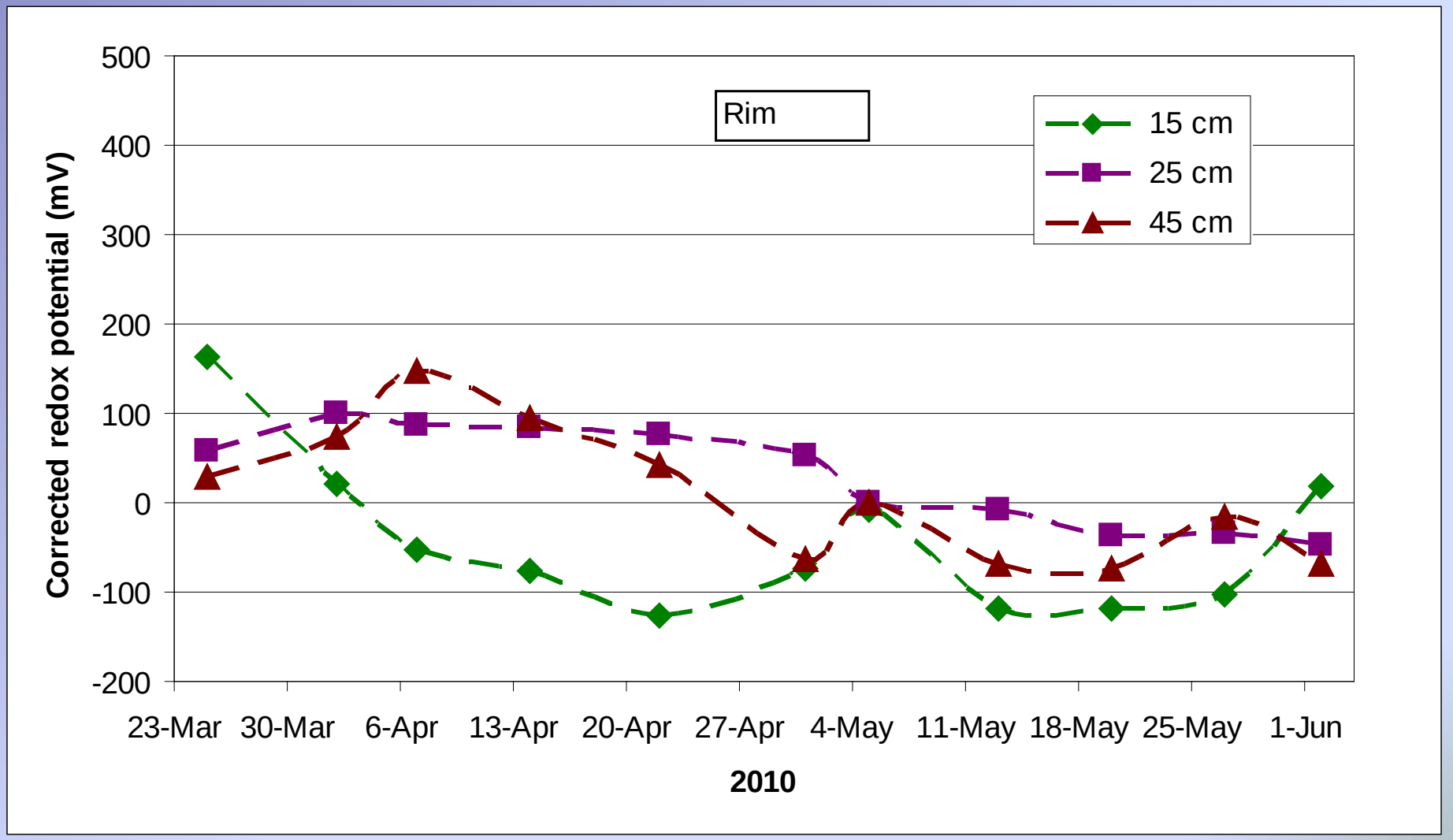

Rim
Corrected redox potential (mV)
500
400
300
200
100
0
-100
-200
-300
1-Apr
22-Apr
13-May
3-Jun
24-Jun
15-Jul
5-Aug
26-Aug
16-Sep
7-Oct
28-Oct
18-Nov
9-Dec
2009
15 cm
25 cm
45 cm

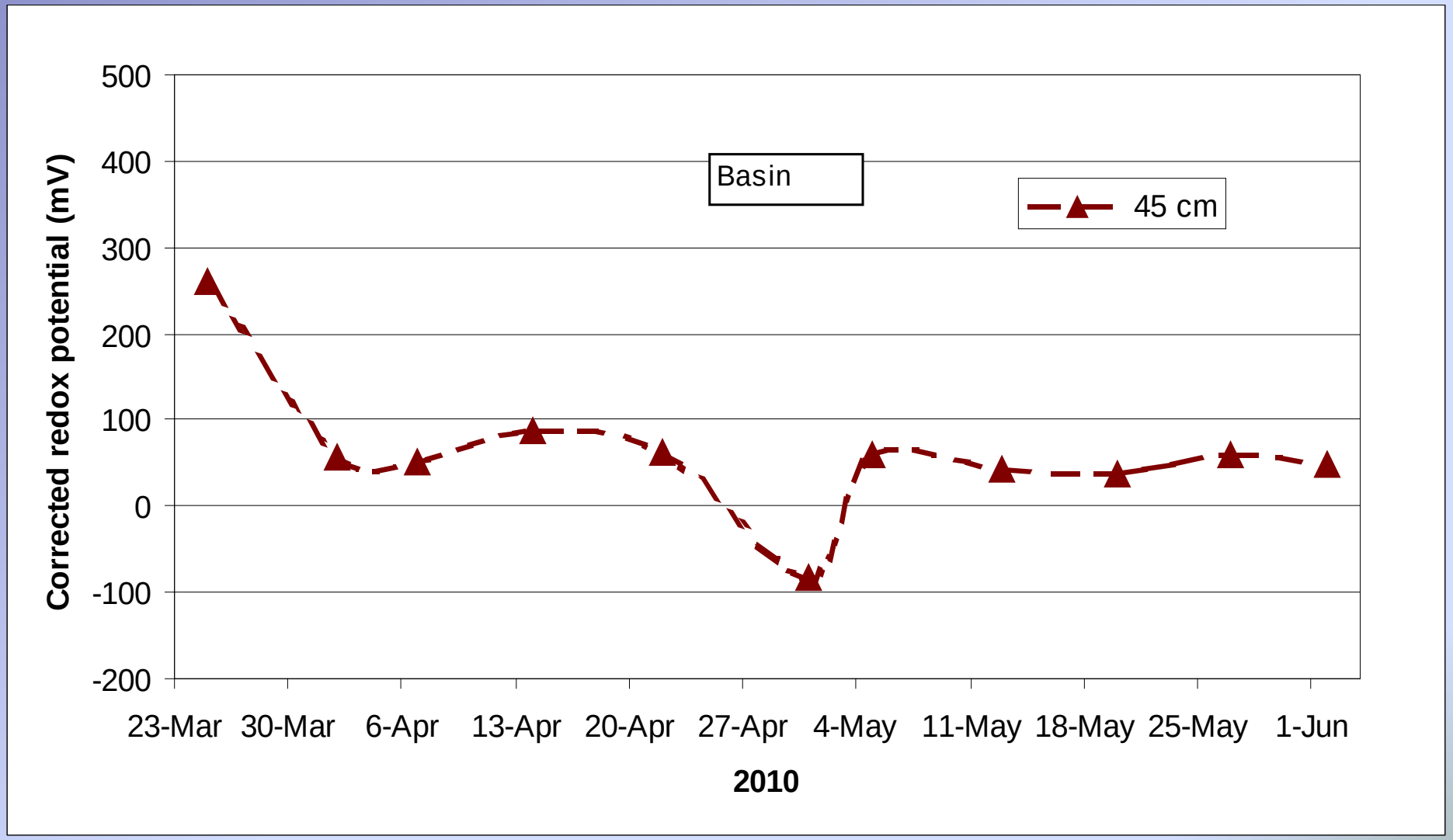

500
400
300
200
100
0
-100
-200
Corrected redox potential (mV)
45 cm
Basin
1-Apr
22-Apr
13-May
3-Jun
24-Jun
15-Jul
5-Aug
26-Aug
16-Sep
7-Oct
28-Oct
18-Nov
9-Dec
2009

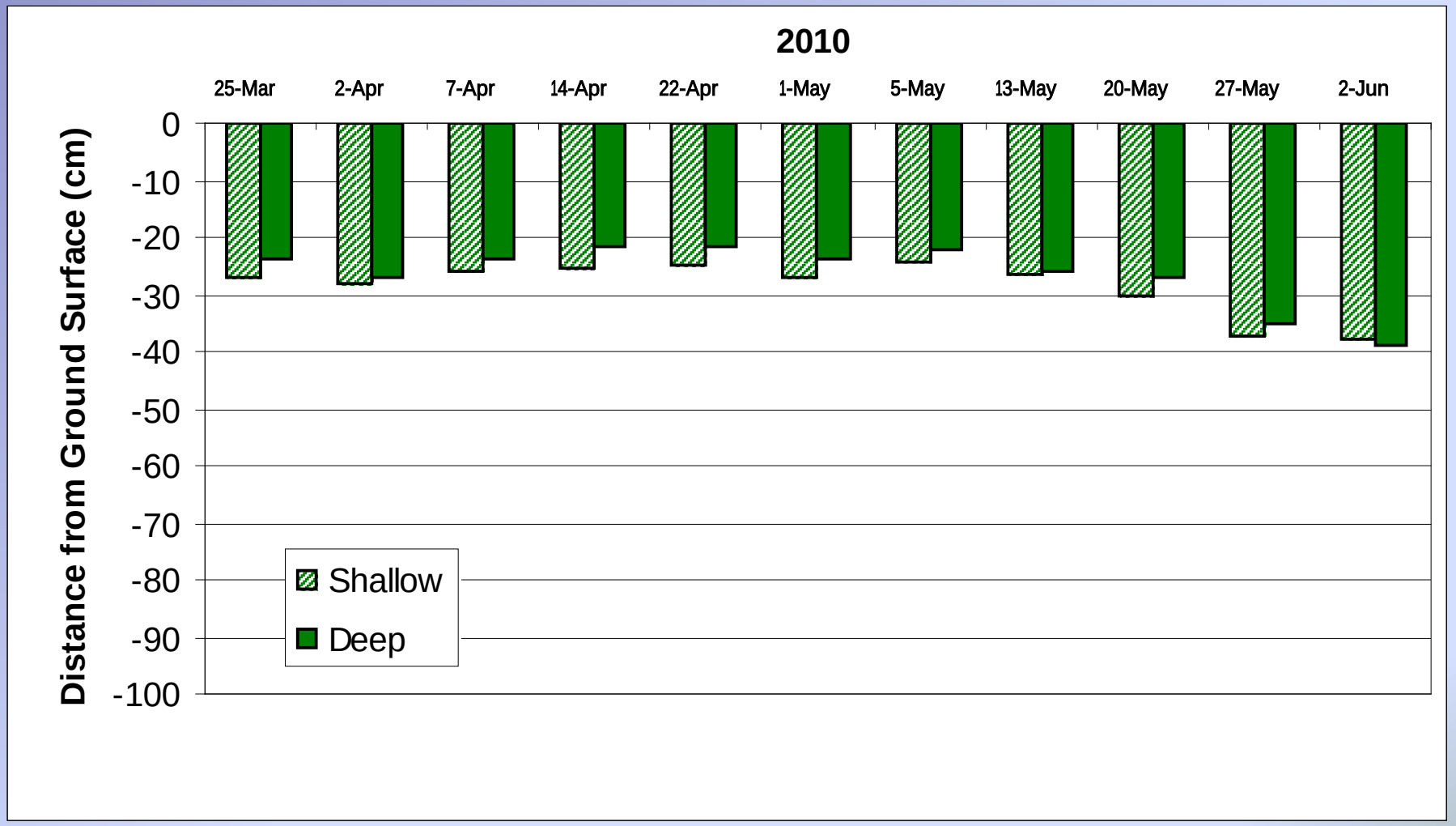

Depth from Groundlevel
30
20
10
0
-10
-20
-30
-40
-50
-60
1-Apr
22-Apr
13-May
3-Jun
24-Jun
15-Jul
5-Aug
26-Aug
16-Sep
7-Oct
28-Oct
18-Nov
9-Dec
2009
Summit
Rim
Basin
Standing w ater

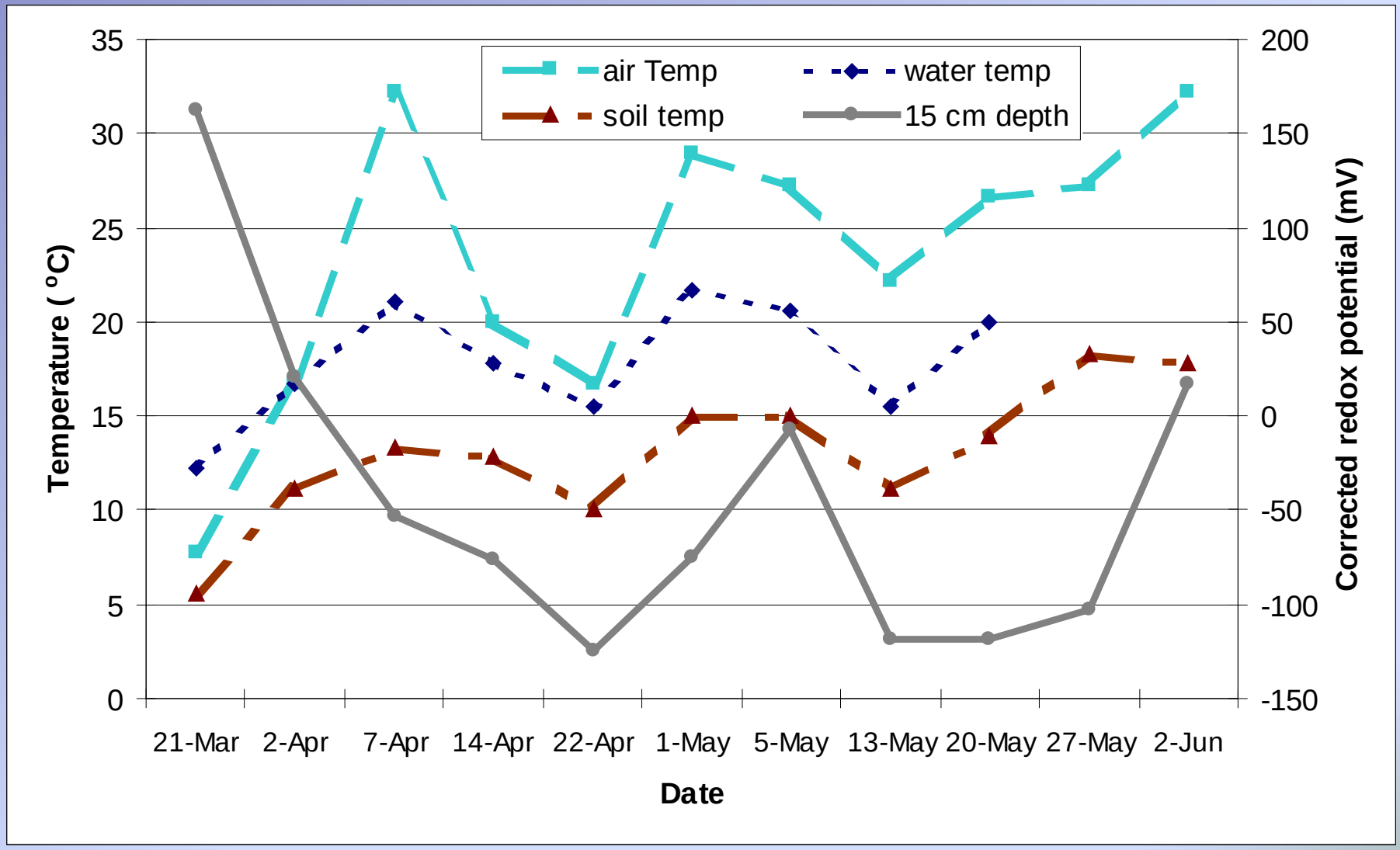

2009
2-Apr
8-Apr
17-Apr
24-Apr
1-May
10-May
16-May
26-May
5-Jun
2-Jul
24-Jul
26-Aug
6-Oct
22-Oct
3-Dec
Distance from Ground Surface (cm)
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
Shallow
Deep

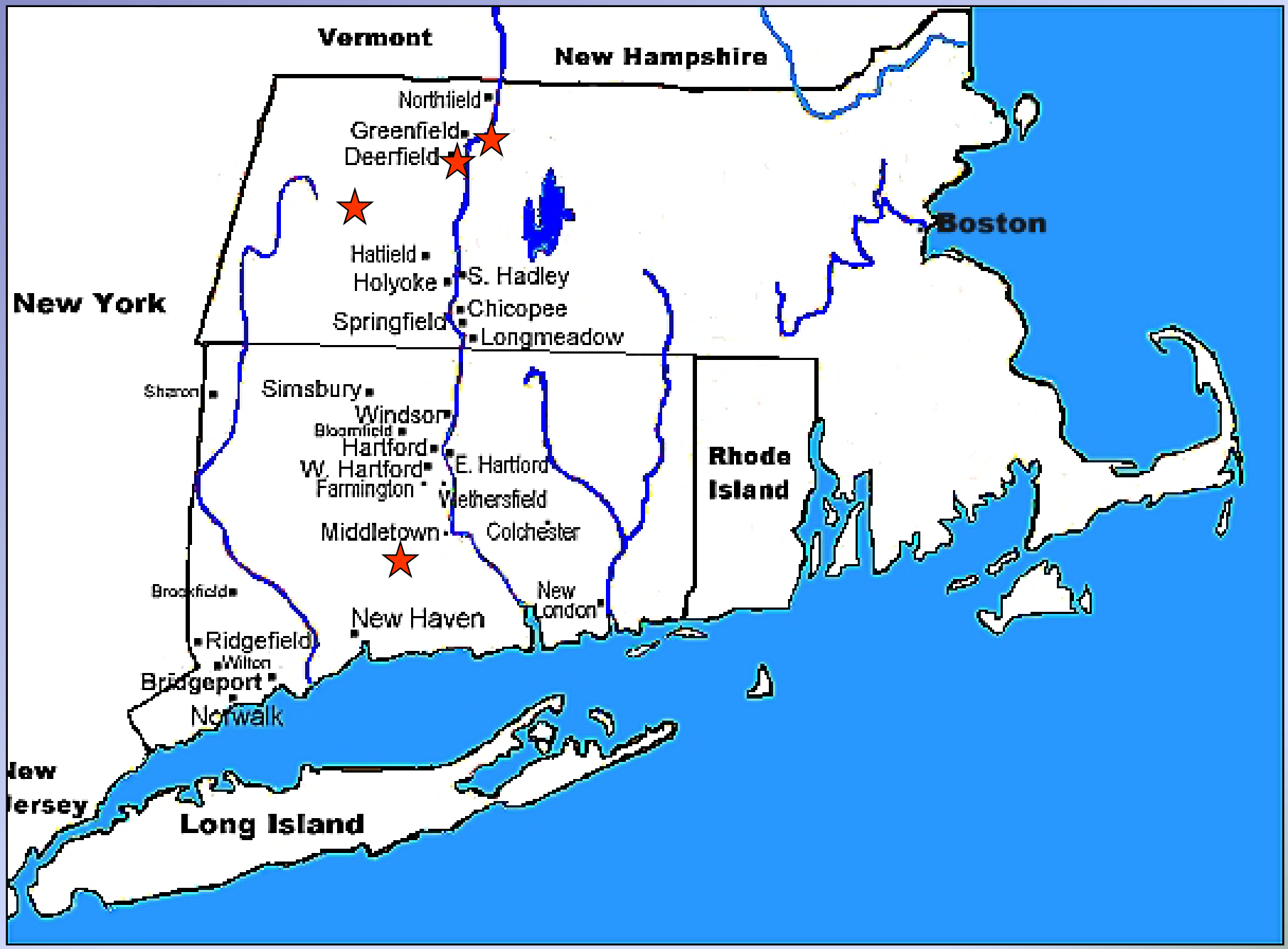

Summit
15 cm
25 cm
45 cm
Corrected redox potential (mV)
600
500
400
300
200
100
0
-100
-200
23-Mar
30-Mar
6-Apr
13-Apr
20-Apr
27-Apr
4-May
11-May
18-May
25-May
1-Jun
2010


Rim
15 cm
25 cm
45 cm
Corrected redox potential (mV)
500
400
300
200
100
0
-100
-200
23-Mar
30-Mar
6-Apr
13-Apr
20-Apr
27-Apr
4-May
11-May
18-May
25-May
1-Jun
2010


Basin
45 cm
Corrected redox potential (mV)
500
400
300
200
100
0
-100
-200
23-Mar
30-Mar
6-Apr
13-Apr
20-Apr
27-Apr
4-May
11-May
18-May
25-May
1-Jun
2010


2010
25-Mar
2-Apr
7-Apr
14-Apr
22-Apr
1-May
5-May
13-May
20-May
27-May
2-Jun
Distance from Ground Surface (cm)
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
Shallow
Deep


air Temp
water temp
soil temp
15 cm depth
Temperature (°C)
Corrected redox potential (mV)
Date
35
30
25
20
15
10
5
0
200
150
100
50
0
-50
-100
-150
21-Mar
2-Apr
7-Apr
14-Apr
22-Apr
1-May
5-May
13-May
20-May
27-May
2-Jun


Vermont
New Hampshire
Northfield
Greenfield
Deerfield
Boston
Hatfield
Holyoke
S. Hadley
New York
Chicopee
Springfield
Longmeadow
Sharon
Simsbury
Windsor
Bloomfield
Hartford
E. Hartford
W. Hartford
Farmington
Wethersfield
Rhode
Island
Middletown
Colchester
Brookfield
New
London
New Haven
Ridgefield
Wilton
Bridgeport
Norwalk
lew
ersey
Long Island