



UNIVERSIDAD POLITECNICA DE CATALUÑA

**ESCUELA TECNICA SUPERIOR DE INGENIEROS
INDUSTRIALES DE TERRASSA**

**ANALISIS DEL COMPORTAMIENTO DEL SUELO
RADIANTE POR CABLE ELECTRICO EN LA
CALEFACCION DE LOS EDIFICIOS
INDUSTRIALES**

(ANEJOS)

Tesis Doctoral presentada por:

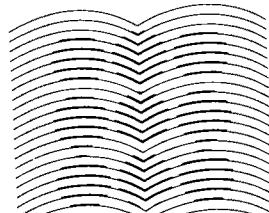
MONTSE SANCHEZ ROMERO
Ingeniero Industrial
por la E.T.S.I.I. de Terrassa

Dirigida por:

PERE ALAVEDRA RIBOT
Dr. Ingeniero Industrial (U.P.C.)

Terrassa, Septiembre 1994

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ANALISIS DEL COMPORTAMIENTO DEL SUELO RADIANTE POR CABLE ELECTRICO EN LA CALEFACCION DE LOS EDIFICIOS INDUSTRIALES

ANEJOS

Tesis Doctoral presentada por:
MONTSE SANCHEZ ROMERO
Ingeniero Industrial

ADMITE LA UNIVERSITAT POLITÈCNICA DE CATALUNYA por la E.T.S.I.I de Terrassa

ADMITE LA UNIVERSITAT POLITÈCNICA DE CATALUNYA per les seves ACADEMIES

Dirigida por:

a la profa. 68 P. PERE ALAVEDRA RIBOT
Dirigida per el catedràtic 66 Dr. Ingeniero Industrial (U.P.C.)

Barcelona, 28-12-94

L'ENCARREGAT DEL REGISTRE,

Terrassa, Septiembre 1994



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RESULTADOS MODELIZACION

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I.1 RESULTADOS EVOLUCION TEMPERATURA

x = DOSIFICACION DE HORMIGON
1 (C1), 2 (C2), 3 (C3)

y = PROFUNDIDAD DE EMBEBIDO
1 (P1), 2 (P2), 3 (P3)

TABLAS MODHxy

		TEMPERATURA					
POSICION		TZ20	TZ16	TZ12	TZ8	TZ0	
NODO		1 2 3	7 8 9	16 17 18	25 26 27	31 32 33	
T I E M P O	tc=0						
	..						
	tc=8						
	td=0						
	..						
	td=16						

GRAFICOS MODH_{XY}

DENOMINACION GRAFICO	POSICION	NODOS		
Z20CHAN	Z20	1	2	3
Z16CHAN	Z16	7	8	9
Z12CHAN	Z12	16	17	18
Z8CHAN	Z8	25	26	27
ZOCHAN	ZO	31	32	33

I.2 RESULTADOS ANALISIS 1^a VARIABLE : DOSIFICACION DE HORMIGON

D = DOSIFICACION (C1/C2/C3)

x = N^o DE ANALISIS

x = 1 (GRAFICO MODHD1) (PROFUNDIDAD 1)

x = 2 (GRAFICO MODHD2) (PROFUNDIDAD 2)

x = 3 (GRAFICO MODHD3) (PROFUNDIDAD 3)

GRAFICOS MODHD_X

DENOMINACION	POSICION	NODO	COMPOSICIONES COMPARADAS
HxT3Z20	Z20	3	C1/C2/C3
HxT9Z16	Z16	9	C1/C2/C3
HxT18Z12	Z12	18	C1/C2/C3
HxT27Z8	Z8	27	C1/C2/C3
HxT33Z0	Z0	33	C1/C2/C3

I.3 RESULTADOS ANALISIS 2^a VARIABLE : PROFUNDIDAD DE EMBEBIDO

P = PROFUNDIDAD EMBEBIDO (P1/P2/P3)

x = N° DE ANALISIS

x = 1 (GRAFICO MODH1P) (COMPOSICION 1)

x = 2 (GRAFICO MODH2P) (COMPOSICION 2)

x = 3 (GRAFICO MODH3P) (COMPOSICION 3)

GRAFICOS MODHxP

DENOMINACION	POSICION	NODO	DOSIFICACIONES COMPARADAS
HxT3Z20	Z20	3	P1/P2/P3
HxT9Z16	Z16	9	P1/P2/P3
HxT18Z12	Z12	18	P1/P2/P3
HxT27Z8	Z8	27	P1/P2/P3
HxT33Z0	Z0	33	P1/P2/P3

I.1 RESULTADOS MODELIZACION EVOLUCION TEMPERATURA TABLAS Y GRAFICOS MODHxy

TABLAS MODHxy

MODH11

t	T	T	TZ20	X	TZ16	X	TZ8	X	TZ12	X	TZ0	X
	AMB	CABL	NODO1	NODO2	NODO3	NODO4	NODO5	NODO6	NODO7	NODO8	NODO9	NODO31
23,00	tc=0	13	52	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5
24,00	tc=1	13	52	21,5	21,9	20,5	23,7	23,7	20,5	20,8	19,7	19,5
1,00	tc=2	13	52	23,1	23,8	23,7	22	25,3	21,5	21,9	20,3	18,1
2,00	tc=3	13	52	24,4	24,4	25	25	25,3	25,3	21,9	20,3	18,2
3,00	tc=4	13	52	25,3	26	25,9	24,2	27,2	27,1	22,5	20,3	18,6
4,00	tc=5	13	52	26,1	26,8	26,7	24,9	24,9	27,9	27,8	23,7	19,1
5,00	tc=6	13	52	26,8	26,8	27,4	27,3	25,6	28,5	28,4	24,4	19,1
6,00	tc=7	13	52	27,3	28	27,9	26,2	26,2	28,5	24,6	24,6	19,6
7,00	tc=8	13	52	27,8	28,4	28,4	26,7	26,7	29,4	25,6	25,5	19,6
8,00	td=1	15	21	26,2	26,3	26,3	25,9	25,9	25,6	26	23,8	20,8
9,00	td=2	15	21	24,8	24,8	24,8	24,7	24,7	24,3	24,8	24,8	20,4
10,00	td=3	15	21	23,8	23,7	23,7	23,7	23,7	23,4	23,9	23,4	20,4
11,00	td=4	15	21	23	22,9	22,9	22,9	22,9	22,7	22,6	23,1	20,8
12,00	td=5	15	21	22,3	22,3	22,3	22,3	22,3	22,2	22,4	22,4	21,2
13,00	td=6	15	21	21,7	21,7	21,7	21,7	21,6	21,6	21,5	23,9	21,2
14,00	td=7	15	21	21,2	21,2	21,2	21,2	21,1	21,1	21,1	23,1	20,7
15,00	td=8	15	21	20,8	20,8	20,8	20,8	20,7	20,7	20,8	20,8	20,3
16,00	td=9	15	21	20,4	20,5	20,5	20,5	20,3	20,4	20,4	20,4	19,1
17,00	td=10	15	21	20,1	20,1	20,1	20,1	20,1	19,7	19,7	19,7	19,8
18,00	td=11	15	21	19,8	19,9	19,9	19,9	19,7	19,8	19,4	19,4	19,4
19,00	td=12	15	21	19,6	19,6	19,6	19,6	19,4	19,4	19,4	19,4	19,1
20,00	td=13	15	21	19,4	19,4	19,4	19,4	19,2	19,2	19,4	19,2	18,8
21,00	td=14	15	21	19,2	19,2	19,2	19,2	19	19	19	19	18,6
22,00	td=15	15	21	19	19	19	19	18,8	18,8	18,8	18,4	17,6
23,00	td=16	15	21	18,8	18,9	18,9	18,9	18,7	18,9	18,5	18,5	17,3

MODH12		t	T	T	T	TZ20	NODO1	NODO2	NODO3	NODO7	NODO8	NODO9	NODO16	NODO17	NODO18	NODO25	NODO26	NODO27	NODO31	NODO32	NODO33	TZ0	
AMB	CABL	NODO1	NODO1	NODO1	NODO1	NODO1	NODO1	NODO1	NODO1	NODO1	X	TZ8											
23, 00	tc=0	13	52	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19	19
24, 00	tc=1	13	52	20, 5	20, 6	20, 6	20, 6	20, 6	20, 6	20, 6	20, 6	20, 6	20, 6	20, 6	20, 6	20, 6	20, 6	20, 6	20, 6	20, 6	20, 6	18, 4	18, 4
1, 00	tc=2	13	52	21, 7	21, 8	21, 8	21, 8	21, 8	21, 8	21, 8	21, 8	21, 8	21, 8	21, 8	21, 8	21, 8	21, 8	21, 8	21, 8	21, 8	21, 8	18, 8	18, 8
2, 00	tc=3	13	52	22, 8	22, 9	22, 9	22, 9	22, 9	22, 9	22, 9	22, 9	22, 9	22, 9	22, 9	22, 9	22, 9	22, 9	22, 9	22, 9	22, 9	22, 9	19, 3	19, 3
3, 00	tc=4	13	52	23, 7	23, 8	23, 8	23, 8	23, 8	23, 8	23, 8	23, 8	23, 8	23, 8	23, 8	23, 8	23, 8	23, 8	23, 8	23, 8	23, 8	23, 8	19, 8	19, 8
4, 00	tc=5	13	52	24, 5	24, 6	24, 6	24, 6	24, 6	24, 6	24, 6	24, 6	24, 6	24, 6	24, 6	24, 6	24, 6	24, 6	24, 6	24, 6	24, 6	24, 6	18, 4	18, 4
5, 00	tc=6	13	52	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	25, 2	21, 7	22, 2
6, 00	tc=7	13	52	25, 8	25, 9	25, 9	25, 9	25, 9	25, 9	25, 9	25, 9	25, 9	25, 9	25, 9	25, 9	25, 9	25, 9	25, 9	25, 9	25, 9	25, 9	21, 4	18, 8
7, 00	tc=8	13	52	26, 3	26, 4	26, 4	26, 4	26, 4	26, 4	26, 4	26, 4	26, 4	26, 4	26, 4	26, 4	26, 4	26, 4	26, 4	26, 4	26, 4	26, 4	22, 9	22, 9
8, 00	td=1	15	21	25, 6	25, 7	25, 7	25, 7	25, 7	25, 7	25, 7	25, 7	25, 7	25, 7	25, 7	25, 7	25, 7	25, 7	25, 7	25, 7	25, 7	25, 7	21, 4	18, 8
9, 00	td=2	15	21	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	21, 4	18, 8
10, 00	td=3	15	21	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	23, 9	20, 7	20, 7
11, 00	td=4	15	21	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	23, 1	21, 1	21, 1
12, 00	td=5	15	21	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	22, 5	21, 4	21, 4
13, 00	td=6	15	21	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 9	21, 6	21, 6
14, 00	td=7	15	21	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 4	21, 2	21, 2
15, 00	td=8	15	21	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	20, 7	20, 7
16, 00	td=9	15	21	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 5	20, 2	20, 2
17, 00	td=10	15	21	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	19, 8	19, 8
18, 00	td=11	15	21	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 9	19, 4	19, 4
19, 00	td=12	15	21	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 6	19, 1	19, 1
20, 00	td=13	15	21	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 8	19, 8
21, 00	td=14	15	21	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	19, 2	17, 8	17, 8
22, 00	td=15	15	21	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	19, 1	17, 7	17, 7
23, 00	td=16	15	21	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	17, 4	17, 4

MODH21

t	T	T	AMB	CABL	NODO1	NODO2	NODO3	NODO7	NODO8	NODO9	NODO16	NODO17	NODO18	NODO25	NODO26	NODO27	NODO31	NODO32	NODO33
23,00	tc=0	13	52	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5
24,00	tc=1	13	52	21,3	21,7	21,7	21,6	20,6	22,7	22,8	20,5	20,7	20,7	19,8	19,8	19,8	18,6	18,6	18,6
1,00	tc=2	13	52	22,7	23,1	23,1	21,9	24	24	21,4	21,7	21,7	20,5	20,5	20,5	18,9	18,9	18,9	
2,00	tc=3	13	52	23,7	24,1	24,1	22,9	25	24,9	22,3	22,6	21,2	21,2	21,2	19,5	19,5	19,5		
3,00	tc=4	13	52	24,5	24,9	24,9	23,7	25,7	25,6	23	23,3	21,9	21,9	21,9	20,1	20,1	20,1		
4,00	tc=5	13	52	25,2	25,6	25,5	24,4	26,3	23,7	23,9	23,9	22,5	22,5	20,6	20,6	20,6	20,6		
5,00	tc=6	13	52	25,8	26,2	26,1	25	26,9	26,8	24,3	24,5	23	23,1	23,1	21	21	21		
6,00	tc=7	13	52	26,3	26,7	26,6	25,5	27,4	27,3	24,8	25	23,5	23,5	23,5	21,4	21,4	21,4		
7,00	tc=8	13	52	26,7	27,1	27,1	25,9	27,8	27,7	25,2	25,4	23,9	24	24	21,8	21,8	21,8		
8,00	td=1	15	21	25,1	25,2	25,2	25	24,8	24,7	24,3	24,3	23,5	23,5	23,5	21,9	21,9	21,9		
9,00	td=2	15	21	24	23,9	23,9	23,9	23,7	23,6	23,4	23,4	22,9	22,9	22,9	21,6	21,6	21,6		
10,00	td=3	15	21	23,1	23	23	23	22,8	22,8	22,7	22,6	22,6	22,6	22,6	21,1	21,1	21,1		
11,00	td=4	15	21	22,4	22,3	22,3	22,3	22,2	22,2	22	21,6	21,6	21,6	21,6	20,5	20,5	20,5		
12,00	td=5	15	21	21,7	21,7	21,7	21,7	21,6	21,6	21,4	21,4	21,4	21,4	21,4	20,1	20,1	20,1		
13,00	td=6	15	21	21,2	21,2	21,2	21,1	21,1	21,1	20,9	20,9	20,9	20,9	20,9	20,6	20,6	20,6		
14,00	td=7	15	21	20,8	20,8	20,8	20,7	20,7	20,7	20,5	20,5	20,5	20,5	20,5	20,1	20,1	20,1		
15,00	td=8	15	21	20,4	20,4	20,4	20,3	20,3	20,3	20,1	20,1	19,8	19,8	19,8	19,7	19,7	19,7		
16,00	td=9	15	21	20	20	20	19,9	20	19,7	19,7	19,7	19,4	19,4	19,4	19,7	19,7	19,7		
17,00	td=10	15	21	19,7	19,7	19,6	19,7	19,7	19,4	19,4	19,1	19,1	19,1	19,1	18,5	18,5	18,5		
18,00	td=11	15	21	19,4	19,5	19,5	19,4	19,4	19,2	19,2	18,9	18,9	18,9	18,9	18,2	18,2	18,2		
19,00	td=12	15	21	19,2	19,2	19,1	19,2	19,2	18,9	18,9	18,7	18,7	18,7	18,7	17,7	17,7	17,7		
20,00	td=13	15	21	19	19	19	18,9	18,9	18,9	18,7	18,7	18,7	18,7	18,7	17,6	17,6	17,6		
21,00	td=14	15	21	18,8	18,9	18,7	18,9	18,7	18,6	18,6	18,5	18,5	18,5	18,5	17,5	17,5	17,5		
22,00	td=15	15	21	18,7	18,7	18,6	18,7	18,7	18,6	18,6	18,4	18,4	18,4	18,4	17,6	17,6	17,6		
23,00	td=16	15	21	18,6	18,6	18,6	18,4	18,4	18,4	18,3	18,3	18,2	18,2	18,2	17,5	17,5	17,5		

MODH23		t	T	T	TZ20	NODO1	NODO16	NODO17	NODO18	NODO25	NODO26	NODO27	NODO31	NODO32	NODO33	x	TZ0	TZ8	TZ12	TZ16	
AMB	CABLNO	NODO1	NODO2	NODO3	NODO7	NODO8	NODO9	NODO10	NODO11	NODO18	NODO25	NODO26	NODO27	NODO31	NODO32	NODO33	x	TZ0	TZ8	TZ12	TZ16
23, 00	tc=0	13	52	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19	19	19	19	19
24, 00	tc=1	13	52	20, 1	20, 1	20, 1	20, 1	20, 1	20, 1	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	20, 2	21, 9	19, 5	19, 3	19, 2	19, 1
1, 00	tc=2	13	52	20, 9	20, 9	20, 9	20, 9	20, 9	20, 9	21	21	21	21	21	21	21	22, 9	22, 9	20, 2	20, 2	20, 2
2, 00	tc=3	13	52	21, 7	21, 7	21, 7	21, 7	21, 7	21, 8	21, 8	21, 8	22	22	22	22	22	21, 6	20, 8	20, 8	20, 7	20, 6
3, 00	tc=4	13	52	22, 4	22, 4	22, 4	22, 4	22, 4	22, 5	22, 6	22, 6	22, 7	23, 1	23, 1	23, 1	23, 1	22, 2	24, 2	24, 2	21, 4	21, 2
4, 00	tc=5	13	52	23, 1	23, 1	23, 1	23, 1	23, 1	23, 2	23, 2	23, 2	23, 3	23, 3	23, 3	23, 3	23, 3	23, 7	23, 7	24, 8	24, 7	21, 9
5, 00	tc=6	13	52	23, 7	23, 7	23, 7	23, 7	23, 7	23, 8	23, 8	23, 8	23, 9	24, 2	24, 2	24, 2	24, 2	23, 3	25, 3	25, 2	22, 3	22, 1
6, 00	tc=7	13	52	24, 2	24, 2	24, 2	24, 2	24, 2	24, 3	24, 3	24, 3	24, 3	24, 3	24, 3	24, 3	24, 3	24, 7	24, 7	24, 7	24, 7	24, 7
7, 00	tc=8	13	52	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	24, 7	23, 8	25, 7	25, 6	22, 6	22, 5
8, 00	td=1	15	21	24, 3	24, 3	24, 3	24, 3	24, 3	24, 4	24, 4	24, 4	24, 4	24, 4	24, 4	24, 4	24, 4	24, 8	24, 8	24, 7	21, 9	21, 6
9, 00	td=2	15	21	23, 6	23, 6	23, 6	23, 6	23, 6	23, 5	23, 5	23, 5	23, 5	23, 5	23, 5	23, 5	23, 5	23, 4	22, 2	22, 3	22, 3	22, 3
10, 00	td=3	15	21	23	23	23	23	23	22, 8	22, 8	22, 8	22, 8	22, 8	22, 8	22, 8	22, 8	22, 6	22, 6	21, 5	21, 5	21, 5
11, 00	td=4	15	21	22, 3	22, 3	22, 3	22, 3	22, 3	22, 2	22, 2	22, 2	22, 2	22, 2	22, 2	22, 2	22, 2	21, 9	21, 9	20, 9	20, 9	20, 9
12, 00	td=5	15	21	21, 7	21, 7	21, 7	21, 7	21, 7	21, 7	21, 7	21, 7	21, 7	21, 7	21, 7	21, 7	21, 7	21, 4	21, 4	20, 4	20, 4	20, 4
13, 00	td=6	15	21	21, 2	21, 2	21, 2	21, 2	21, 2	21, 1	21, 1	21, 1	21, 1	21, 1	21, 1	21, 1	21, 1	21, 4	21, 4	21, 4	20, 9	20, 9
14, 00	td=7	15	21	20, 8	20, 8	20, 8	20, 8	20, 8	20, 7	20, 7	20, 7	20, 7	20, 7	20, 7	20, 7	20, 7	20, 5	20, 5	20, 5	20, 5	20, 5
15, 00	td=8	15	21	20, 4	20, 4	20, 4	20, 4	20, 4	20, 3	20, 3	20, 3	20, 3	20, 3	20, 3	20, 3	20, 3	20, 1	20, 1	20, 1	20, 1	20, 1
16, 00	td=9	15	21	20	20	20	20	20	20	19, 8	19, 8	19, 8	19, 8	19, 8	19, 8	19, 8	19, 5	19, 5	19, 5	19, 5	19, 5
17, 00	td=10	15	21	19, 7	19, 7	19, 7	19, 7	19, 7	19, 6	19, 7	19, 7	19, 7	19, 5	19, 5	19, 5	19, 5	19, 6	19, 6	19, 6	19, 6	19, 6
18, 00	td=11	15	21	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 4	19, 2	19, 3	19, 3	19, 3	19, 3	19, 3	19, 3	19, 3	19, 3
19, 00	td=12	15	21	19, 2	19, 2	19, 2	19, 2	19, 2	19, 1	19, 1	19, 1	19, 1	19	19	19	19	19	19	19	19	19
20, 00	td=13	15	21	19	19	19	19	19	18, 9	18, 9	18, 9	18, 9	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	18, 8	
21, 00	td=14	15	21	18, 8	18, 8	18, 8	18, 8	18, 8	18, 7	18, 7	18, 7	18, 7	18, 7	18, 7	18, 7	18, 7	18, 7	18, 7	18, 7	18, 7	
22, 00	td=15	15	21	18, 6	18, 6	18, 6	18, 6	18, 6	18, 6	18, 6	18, 6	18, 6	18, 6	18, 6	18, 6	18, 6	18, 5	18, 5	18, 4	18, 4	
23, 00	td=16	15	21	18, 4	18, 4	18, 4	18, 4	18, 4	18, 4	18, 4	18, 4	18, 4	18, 4	18, 4	18, 4	18, 4	17, 7	17, 7	17, 7	17, 7	17, 7

MODH31

t	T	T	TZ0	TZ12	TZ8	TZ0	TZ12	TZ8	TZ0	TZ12	TZ8
	AMB	CABL	NOD01	NOD02	NOD03	NOD07	NOD08	NOD09	NOD016	NOD017	NOD018
23, 00	tc=0	13	52	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5	19, 5
24, 00	tc=1	13	52	22, 6	23, 8	23, 5	20, 3	28, 6	28, 8	21, 8	19, 7
1, 00	tc=2	13	52	25, 6	27, 3	27, 1	23, 1	31, 4	22, 7	23, 7	20, 3
2, 00	tc=3	13	52	27, 9	29, 6	29, 4	25, 4	33, 1	33, 3	24, 2	25, 1
3, 00	tc=4	13	52	29, 7	31, 3	31, 1	27, 1	34, 3	34, 2	25, 4	26, 4
4, 00	tc=5	13	52	31	32, 5	32, 3	28, 4	35, 3	35, 1	26, 5	27, 4
5, 00	tc=6	13	52	32, 1	33, 5	33, 3	29, 5	36	35, 8	27, 4	28, 2
6, 00	tc=7	13	52	32, 9	34, 3	34, 1	30	36, 6	36, 4	28, 1	28, 9
7, 00	tc=8	13	52	33, 6	34, 9	34, 7	31, 1	37, 1	36, 9	28, 8	28, 9
8, 00	td=1	15	21	21	31	31, 2	31, 2	30, 7	30, 7	28, 6	27, 6
9, 00	td=2	15	21	28, 5	28, 1	28, 2	28, 3	28, 6	28, 3	27, 6	27, 6
10, 00	td=3	15	21	26, 5	26, 1	26, 2	26, 3	26, 2	26, 2	25, 9	25, 9
11, 00	td=4	15	21	25	24, 7	24, 7	24, 9	23, 7	23, 6	24, 8	24, 6
12, 00	td=5,	15	21	23, 8	23, 6	23, 6	23, 7	23, 7	23, 6	23, 5	23, 5
13, 00	td=6	15	21	22, 9	22, 8	22, 8	22, 8	22, 9	22, 8	22, 7	22, 6
14, 00	td=7	15	21	22, 2	22, 1	22, 1	22	21, 7	22, 1	21, 6	21, 6
15, 00	td=8	15	21	21, 6	21, 5	21, 5	21, 4	21, 4	21, 2	21, 2	21, 2
16, 00	td=9	15	21	21, 1	21, 1	21, 1	21	20, 8	20, 9	20, 7	20, 6
17, 00	td=10	15	21	20, 6	20, 7	20, 7	20, 4	20, 4	20, 5	20, 5	20, 8
18, 00	td=11	15	21	20, 3	20, 4	20, 4	20, 1	20, 1	20, 3	20, 2	20, 2
19, 00	td=12	15	21	20	20	20	19, 7	19, 7	19, 5	19, 5	19, 6
20, 00	td=13	15	21	19, 8	19, 9	19, 9	19, 5	19, 5	19, 2	19, 3	19, 3
21, 00	td=14	15	21	19, 6	19, 7	19, 7	19, 3	19, 3	19, 8	18, 8	18, 9
22, 00	td=15	15	21	19, 4	19, 5	19, 5	19, 1	19, 1	19, 6	18, 6	18, 7
23, 00	td=16	15	21	19, 3	19, 4	19, 4	19	19, 5	18, 5	18, 6	17, 8

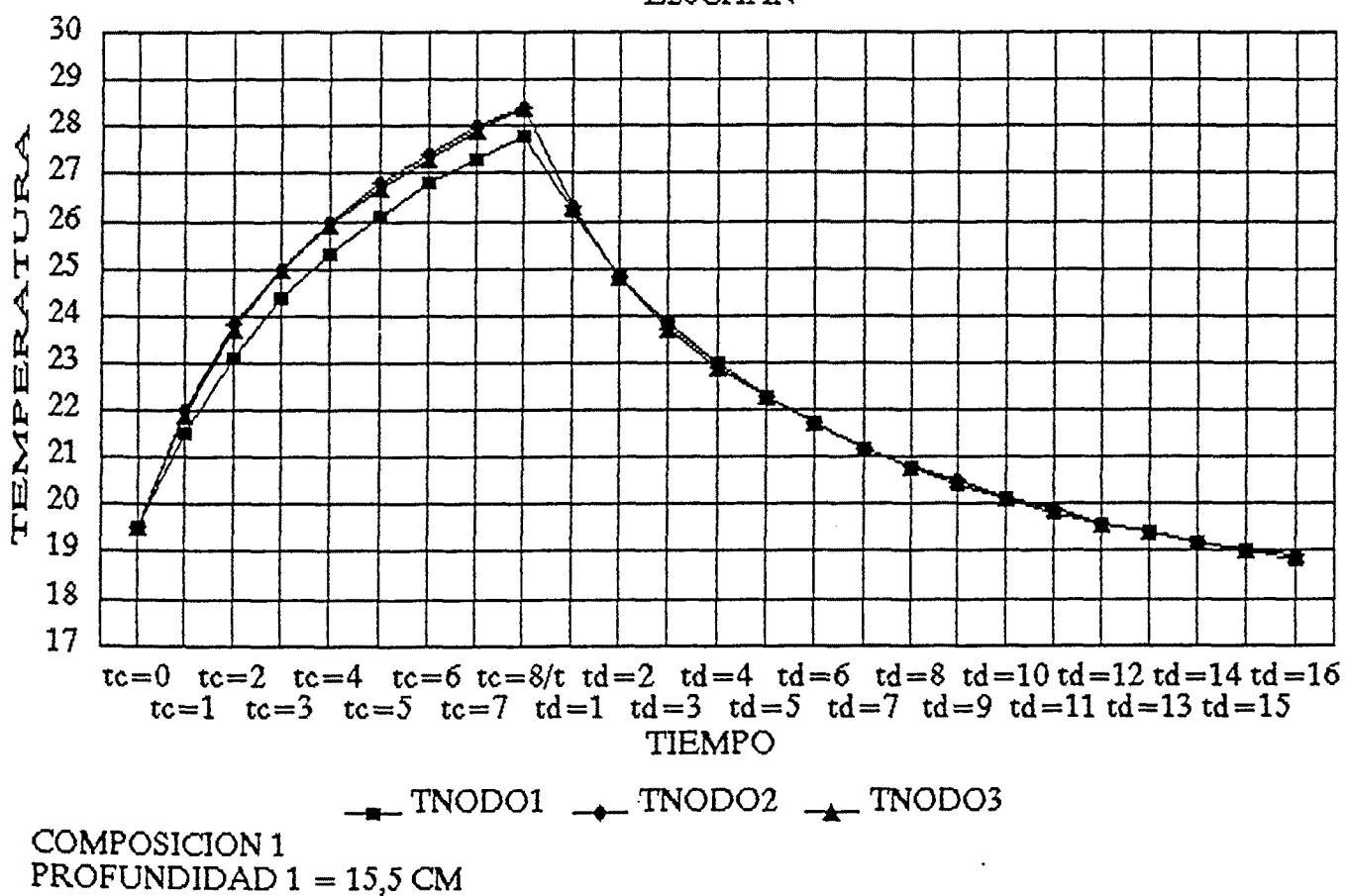
MODH32		t	T	T	TZ20	NODO1	NODO2	NODO3	NODO7	NODO8	NODO9	NODO16	NODO17	NODO18	NODO25	NODO26	NODO27	NODO31	NODO32	NODO33
23,00	tc=0	13	52	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5
24,00	tc=1	13	52	20,8	20,9	20,9	21,2	22	19,4	28,1	28,4	20,4	21,6	21,6	17,1	17	17	17	17	19
1,00	tc=2	13	52	22,7	22,9	22,9	23,1	24,2	24,2	21,4	30,2	30,4	21,6	23	17,1	17	17	17	17	19
2,00	tc=3	13	52	24,6	24,8	24,8	24,9	26	26	23	31,4	31,6	22,7	24,1	24,1	17,5	17,4	17,4	17,4	17
3,00	tc=4	13	52	26,2	26,4	26,4	27,5	27,5	27,5	24,3	32,4	32,5	23,7	25	17,9	17,8	17,8	17,8	17	
4,00	tc=5	13	52	27,5	27,7	27,7	27,7	28,7	28,7	25,5	33,2	33,2	24,5	25,8	25,8	18,3	18,2	18,2	18,2	17
5,00	tc=6	13	52	28,7	28,9	28,9	28,9	29,7	29,7	26,4	33,9	33,8	25,3	26,5	26,5	18,7	18,6	18,6	18,6	17
6,00	tc=7	13	52	29,7	29,8	29,8	29,7	30,6	30,6	27,2	34,4	34,4	25,9	27,1	27,1	19	18,9	18,9	18,9	17
7,00	tc=8	13	52	30,5	30,7	30,7	30,5	31,4	31,4	27,9	34,9	34,9	26,4	27,6	27,6	19,2	19,2	19,2	19,2	17
8,00	ta=1	15	21	29,8	29,9	29,9	29,4	29,5	29,5	28,3	26,9	26,5	25,4	25,5	25,5	19,8	19,8	19,8	19,8	17
9,00	ta=2	15	21	28,5	28,5	28,5	27,9	27,7	27,7	26,7	25	24,7	24,3	24	19,4	19,4	19,5	19,5	19,5	19
10,00	ta=3	15	21	27,1	27	27	26,5	26,3	26,3	25,3	24	23,7	23,2	23	19	19	19	19	19	19
11,00	ta=4	15	21	25,8	25,8	25,8	25,1	25,1	25,1	24,1	23,2	22,9	22,3	22,2	22,2	18,6	18,6	18,6	18,6	18
12,00	ta=5	15	21	24,7	24,7	24,7	24,2	24,1	24,1	23,2	22,5	22,3	21,6	21,5	21,5	18,2	18,2	18,2	18,2	18
13,00	td=6	15	21	23,7	23,7	23,7	23,3	23,3	23,3	22,4	21,9	21,7	21	20,9	20,9	17,9	17,9	17,9	17,9	17
14,00	td=7	15	21	22,9	22,9	22,9	22,6	22,5	22,5	22,5	21,7	21,5	21,3	20,4	20,4	17,6	17,6	17,6	17,6	17
15,00	ta=8	15	21	22,2	22,2	22,2	21,9	21,9	21,9	21,1	21	20,9	20,9	20,9	17,4	17,4	17,4	17,4	17	
16,00	ta=9	15	21	21,6	21,6	21,6	21,4	21,4	21,4	20,6	20,7	20,6	19,6	19,6	19,6	17,2	17,2	17,2	17,2	17
17,00	td=10	15	21	21,1	21,2	21,2	20,9	20,9	20,9	20,2	20,4	20,3	19,3	19,3	19,3	17	17	17	17	17
18,00	td=11	15	21	20,7	20,7	20,7	20,5	20,6	20,6	19,8	20,2	20,1	19	19,1	19,1	16,9	16,9	16,9	16,9	16
19,00	ta=12	15	21	20,4	20,4	20,4	20,2	20,2	20,2	19,5	19,9	18,8	18,8	18,8	16,8	16,8	16,8	16,8	16,8	16
20,00	td=13	15	21	20,1	20,1	20,1	19,9	20	20	19,3	19,8	19,7	18,6	18,7	18,7	16,7	16,7	16,7	16,7	16
21,00	td=14	15	21	19,8	19,8	19,8	19,7	19,7	19,7	19,1	19,6	19,5	18,4	18,5	18,5	16,6	16,6	16,6	16,6	16
22,00	ta=15	15	21	19,6	19,6	19,6	19,5	19,5	19,5	19,4	19,4	19,3	18,3	18,4	18,4	16,5	16,5	16,5	16,5	16
23,00	td=16	15	21	19,4	19,4	19,4	19,3	19,3	19,3	18,2	18,3	18,3	18,3	18,3	18,3	16,5	16,5	16,5	16,5	16

MODH33		t	T	TZ20	NODO1	NODO2	NODO3	NODO7	NODO8	NODO9	TZ12	TZ8	X	TZ0
	AMB	CABLNOD01												
23,00	tc=0	13	52	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5	19,5
24,00	tc=1	13	52	20	20	20,3	20,4	20,4	20,8	22	22	27,4	18,2	17,3
1,00	tc=2	13	52	21	21,1	21,5	21,6	21,6	22,4	23,8	23,8	27,5	18,7	17,1
2,00	tc=3	13	52	22,2	22,3	22,7	22,9	22,9	23,7	25,1	25,1	29,4	19,2	17,8
3,00	tc=4	13	52	23,4	23,4	23,9	24	24	24,8	26,2	26,2	30,8	19,7	18,6
4,00	tc=5	13	52	24,5	24,5	24,9	25,1	25,1	25,7	27,1	27,1	31,1	19,7	18,5
5,00	tc=6	13	52	25,5	25,5	25,5	26	26	26,5	27,9	27,9	31,7	20,1	19,5
6,00	tc=7	13	52	26,4	26,4	26,7	26,9	26,9	26,9	27,9	27,9	32,1	20,3	19,6
7,00	tc=8	13	52	27,2	27,2	27,5	27,5	27,5	27,6	28,5	28,5	32,1	20,6	19,6
8,00	td=1	15	21	27,2	27,2	27,2	27,3	27,3	27,8	29,1	29,1	32,6	20,8	20,2
9,00	td=2	15	21	26,7	26,7	26,7	26,5	26,5	26,8	27	27	25,7	20,2	20,6
10,00	td=3	15	21	26	26	26	25,6	25,6	25,6	25,5	25,5	24,9	20,2	20,5
11,00	td=4	15	21	25,1	25,1	24,8	24,8	24,8	24,8	23,6	23,6	22,2	20,8	20,1
12,00	td=5	15	21	24,3	24,3	24	24	24	23,9	23,9	22,9	21,5	21,8	20,1
13,00	td=6,	15	21	23,6	23,6	23,6	23,2	23,2	23,2	22,9	22,9	21,5	21,3	20,6
14,00	td=7	15	21	22,9	22,9	22,9	22,6	22,6	22,6	21,7	21,7	20,9	20,7	19,6
15,00	td=8	15	21	22,3	22,3	22,3	22,3	22,3	22,3	21,2	21,3	20,1	20,1	18,1
16,00	td=9	15	21	21,7	21,7	21,7	21,5	21,5	20,8	20,9	20,9	19,7	20,1	18,1
17,00	td=10	15	21	21,3	21,3	21,3	21,1	21,1	20,4	20,5	20,5	19,4	19,4	17,4
18,00	td=11	15	21	20,9	20,9	20,9	20,7	20,7	20,1	20,2	20,2	19,2	19,5	17,6
19,00	td=12	15	21	20,5	20,5	20,5	20,3	20,3	19,8	19,9	19,9	19,5	19,4	17,1
20,00	td=13	15	21	20,2	20,2	20,2	20,1	20,1	19,6	19,7	19,7	19,5	19,4	17,1
21,00	td=14	15	21	19,9	19,9	19,9	19,8	19,8	19,8	19,5	19,5	18,6	19,1	16,9
22,00	td=15	15	21	19,7	19,7	19,7	19,6	19,6	19,6	19,3	19,3	18,5	19,1	16,8
23,00	td=16	15	21	19,5	19,5	19,4	19,4	19,4	19,4	19,2	19,2	18,3	19	16,7

GRAFICOS MODH11

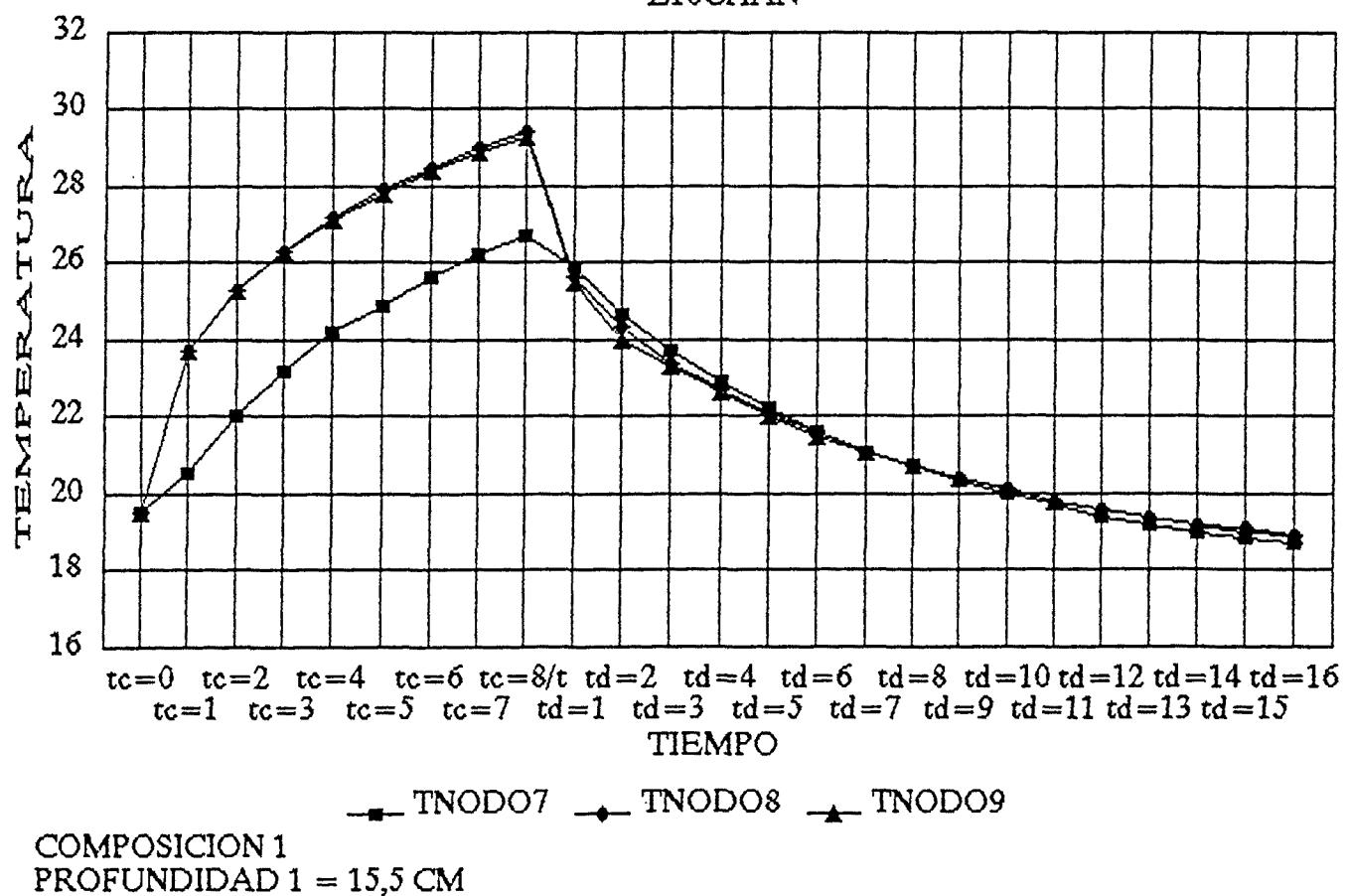
MODH11

Z20CHAN



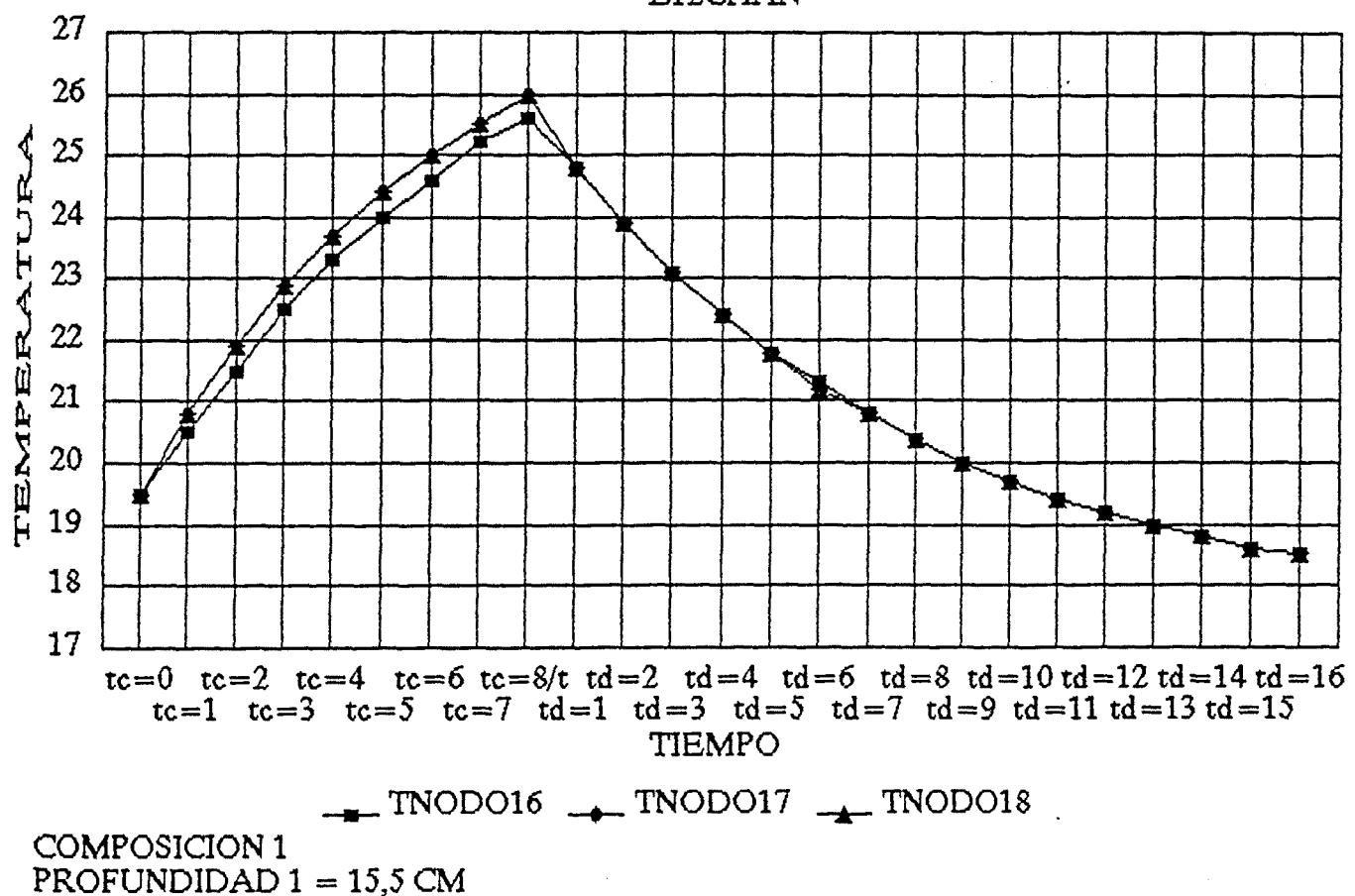
MODH11

Z16CHAN



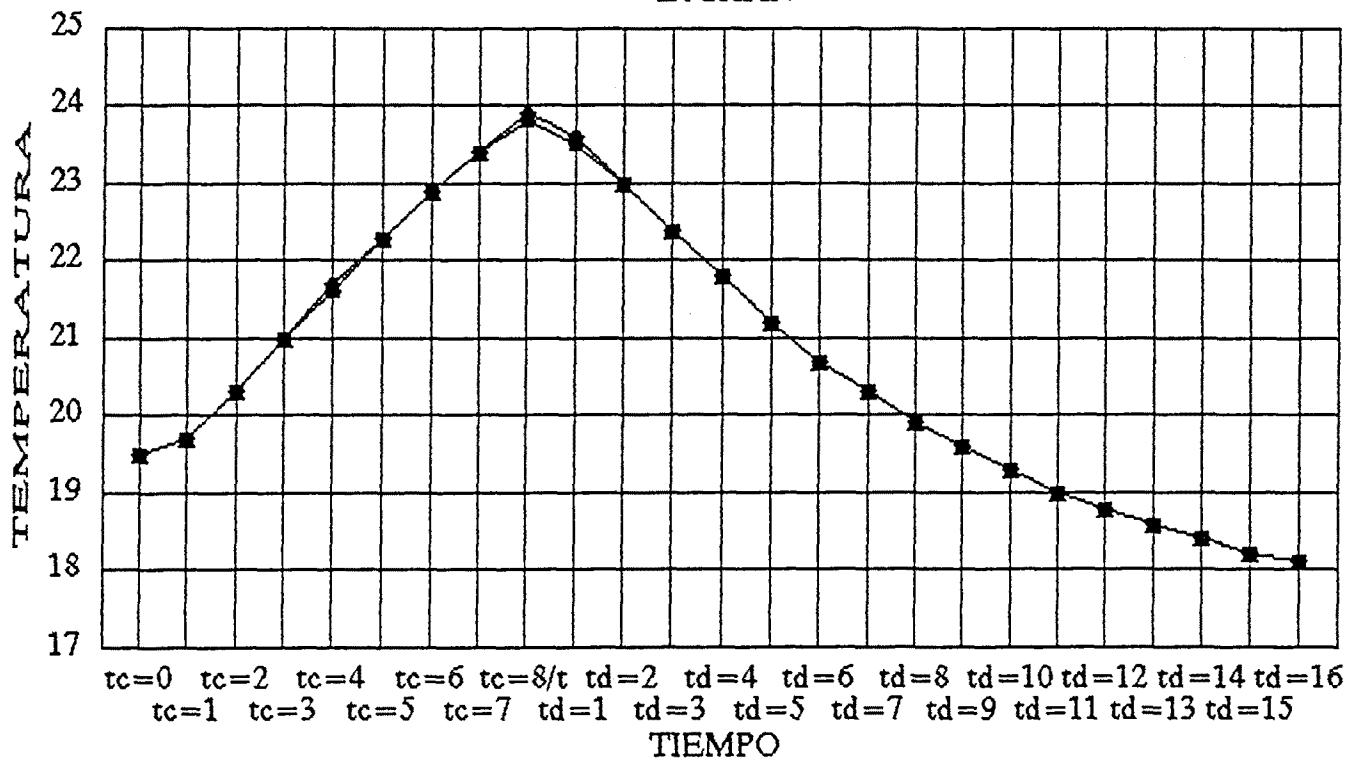
MODH11

Z12CHAN



MODH11

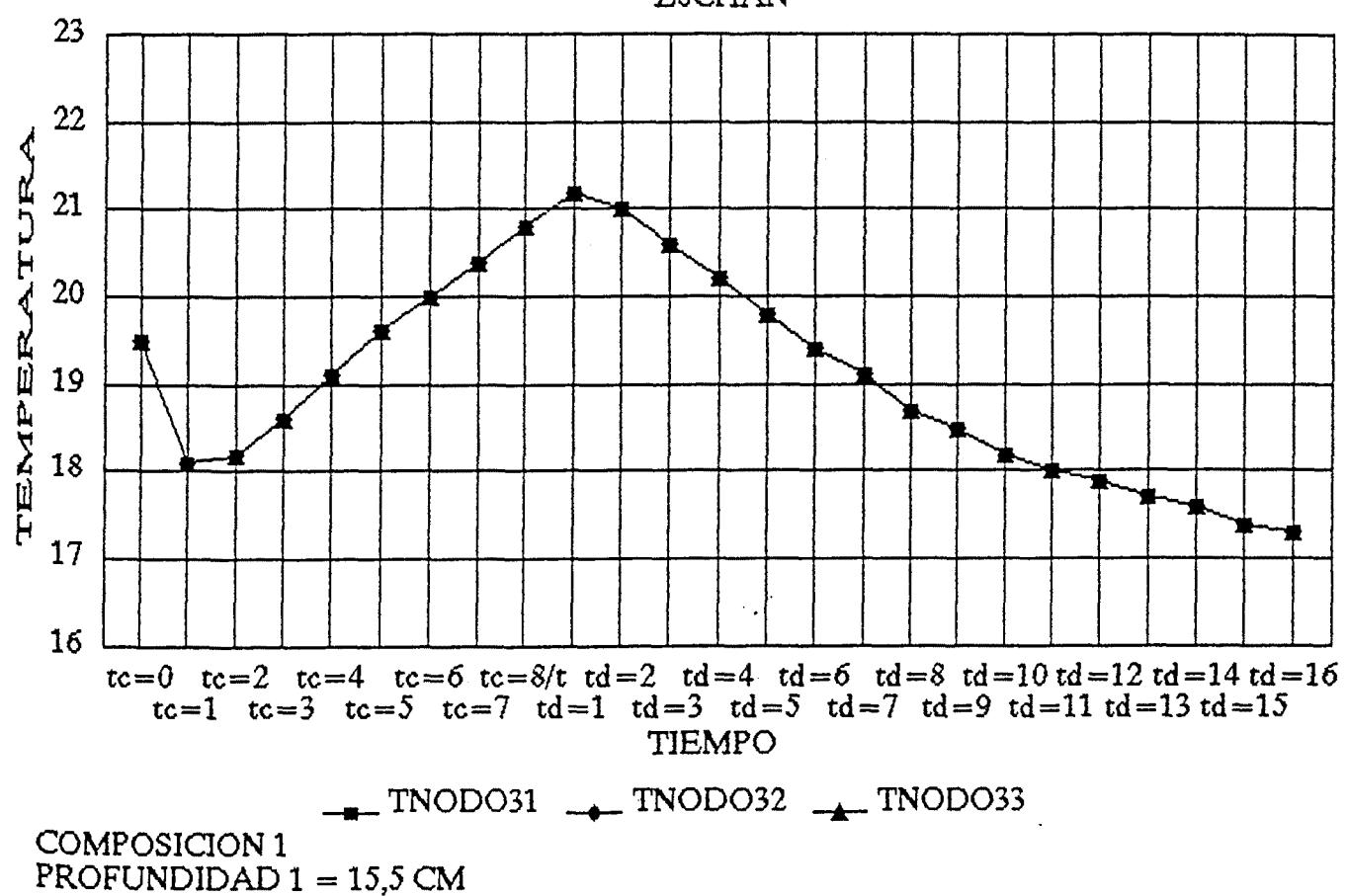
Z&CHAN



COMPOSICION 1
PROFUNDIDAD 1 = 15,5 CM

MODH11

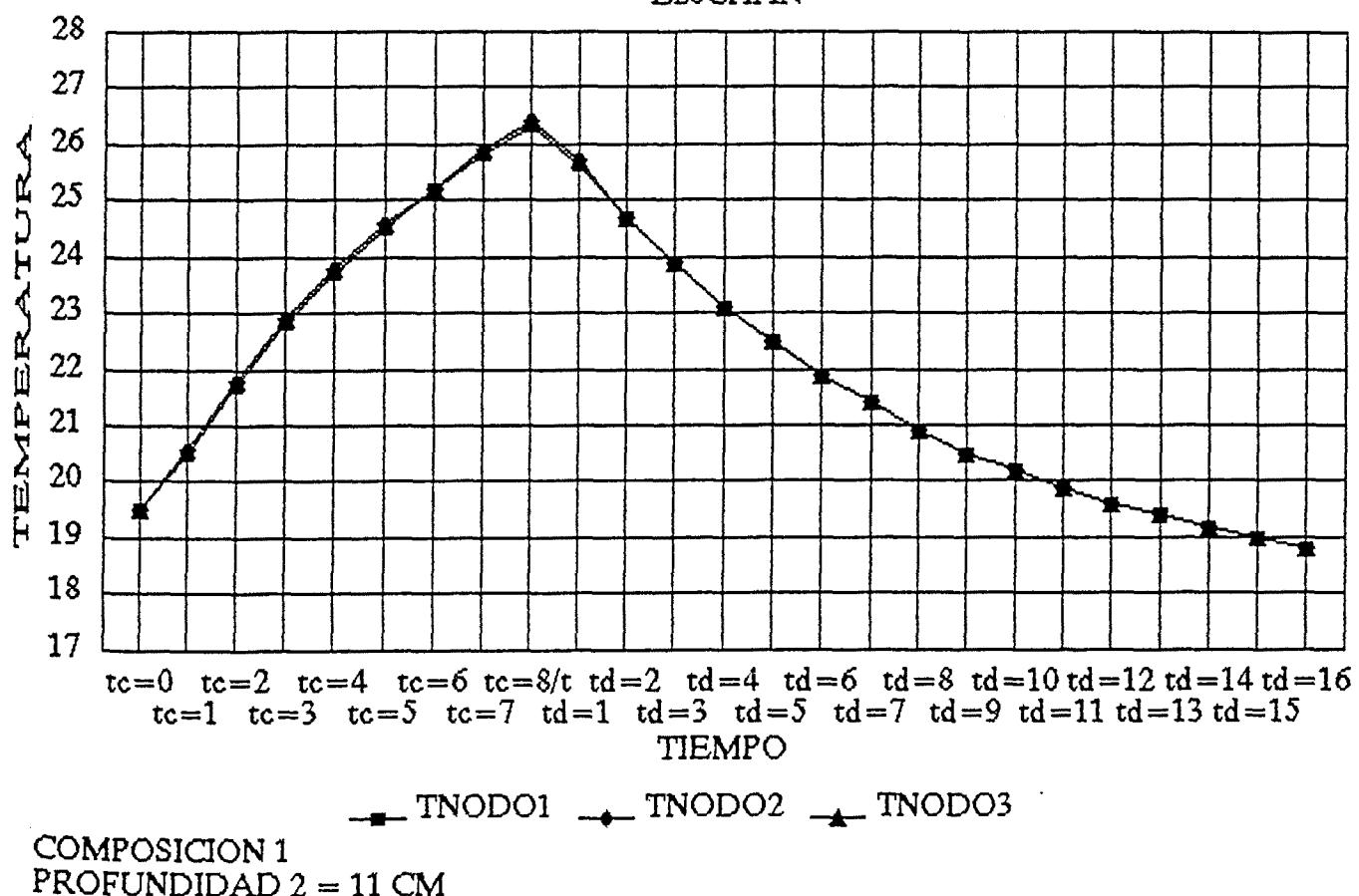
Z0CHAN



GRAFICOS MODH12

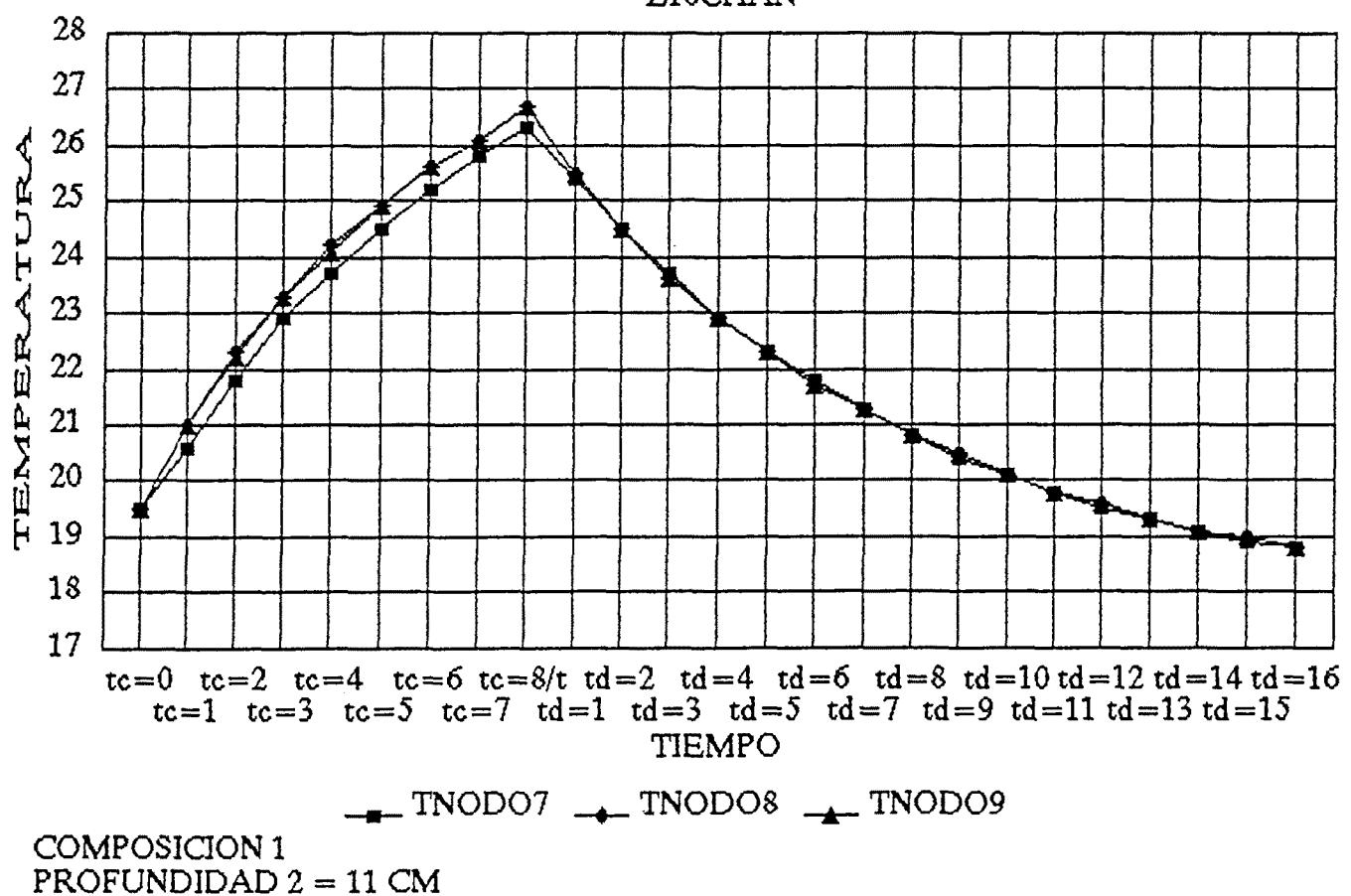
MODH12

Z20CHAN



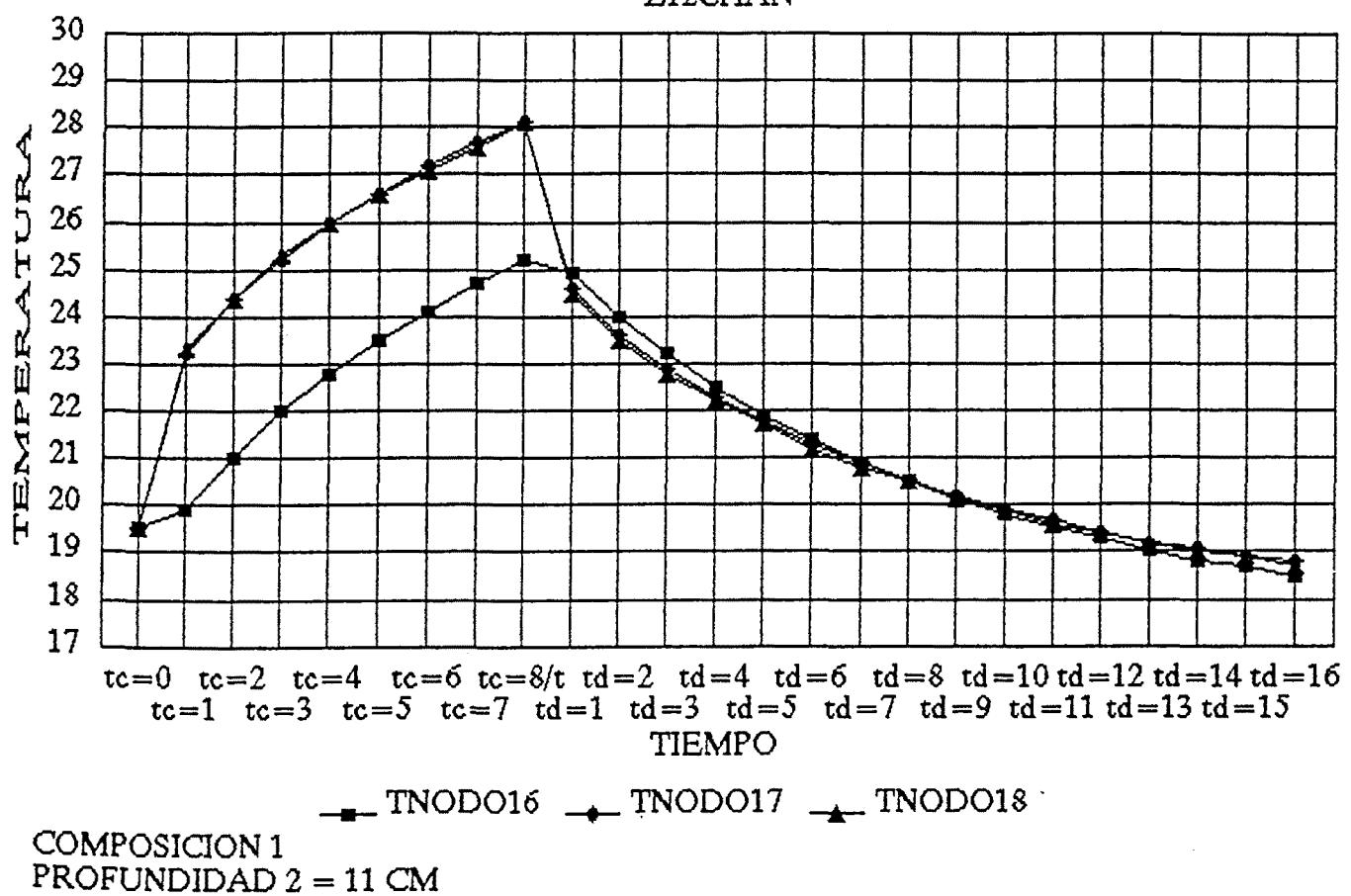
MODH12

Z16CHAN



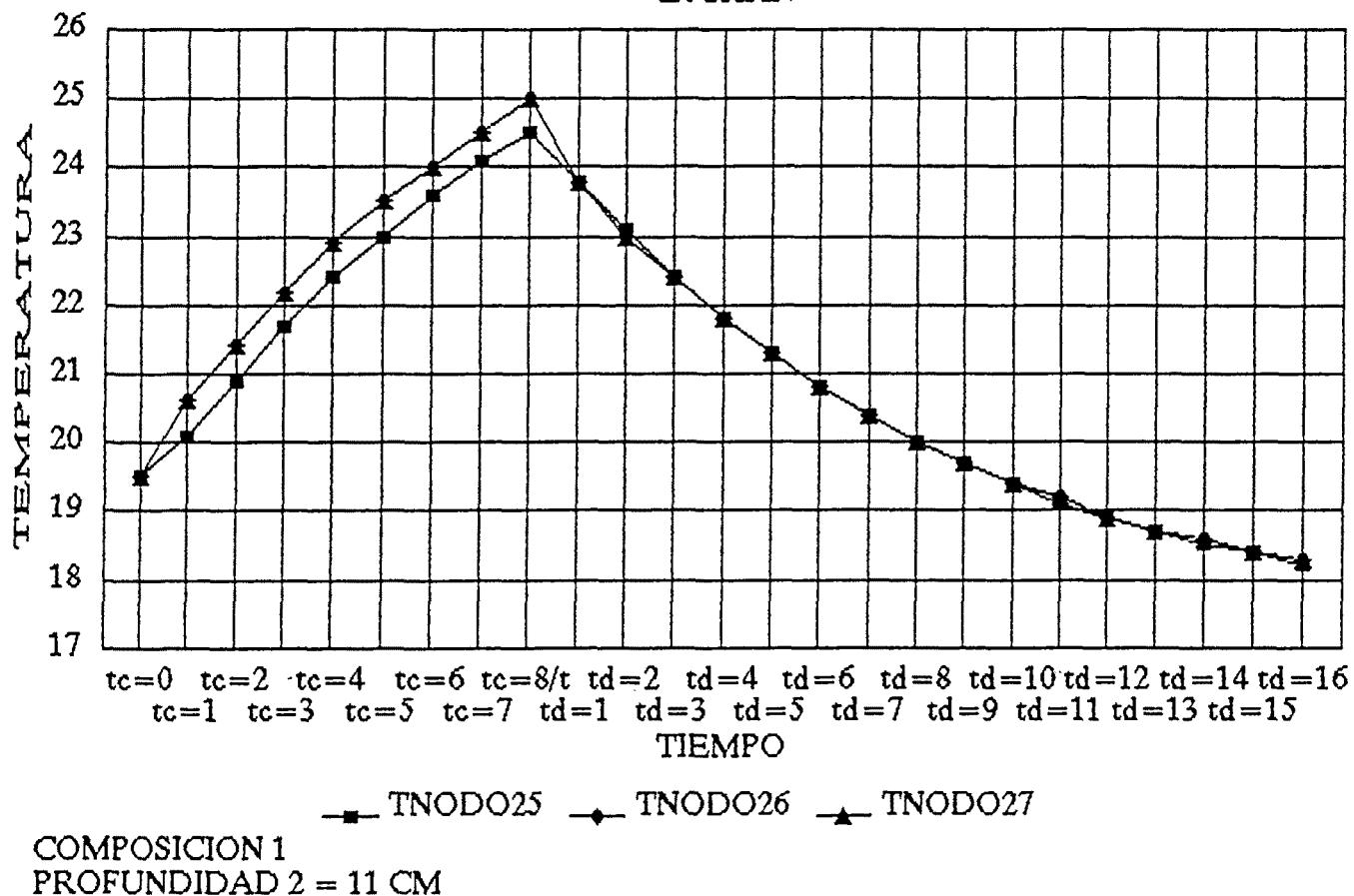
MODH12

Z12CHAN



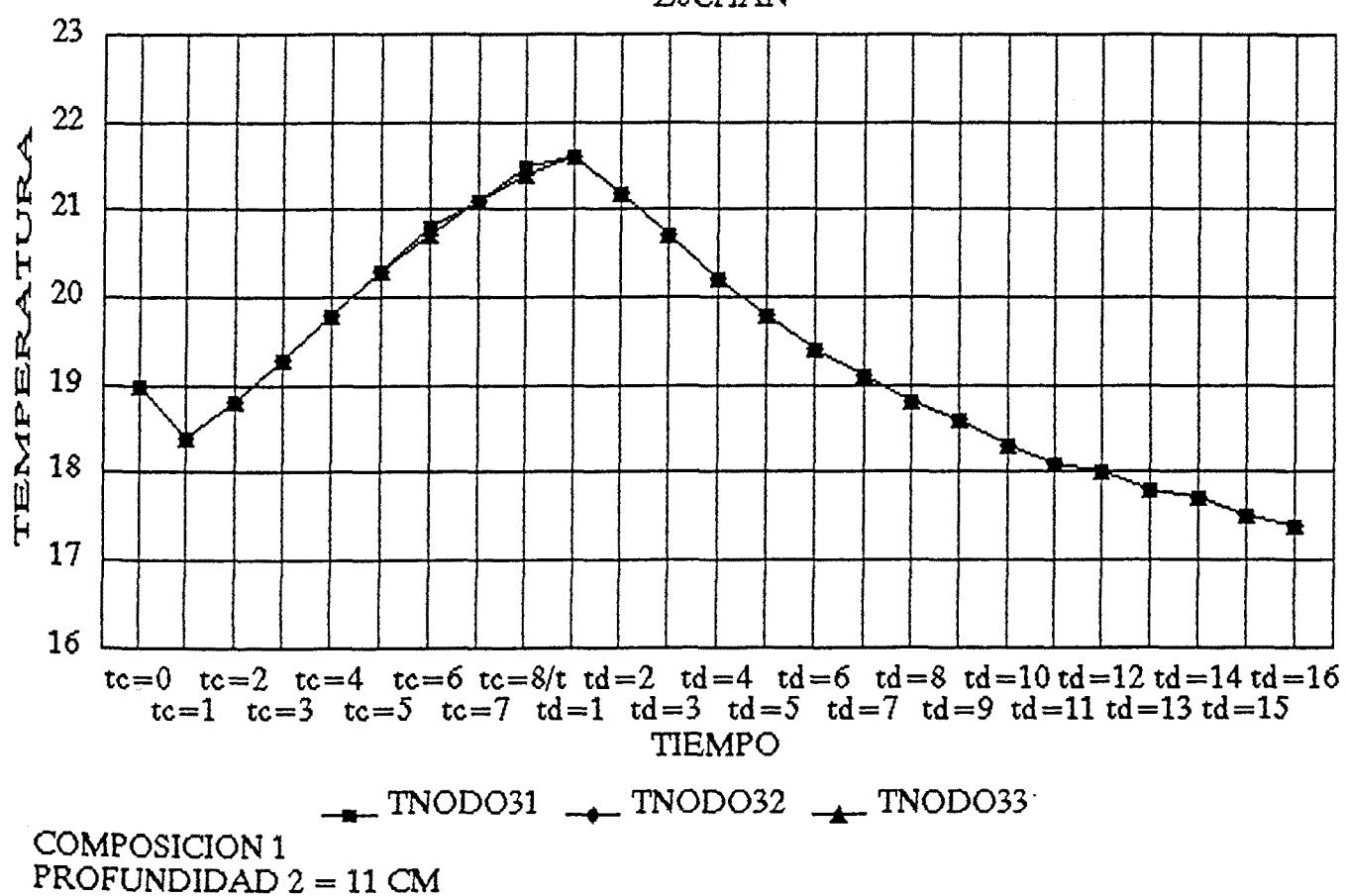
MODH12

Z&CHAN



MODH12

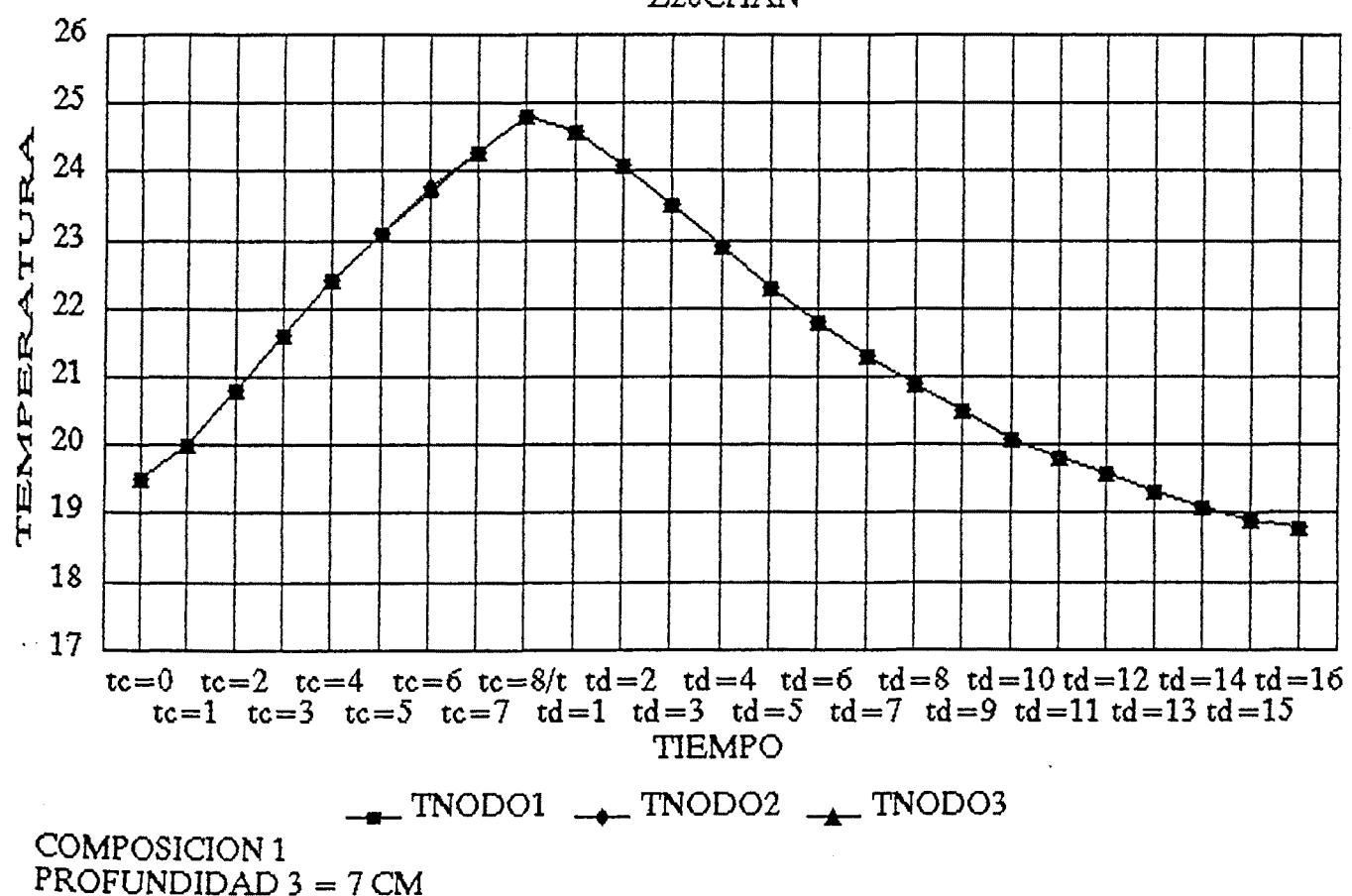
Z0CHAN



GRAFICOS MODH13

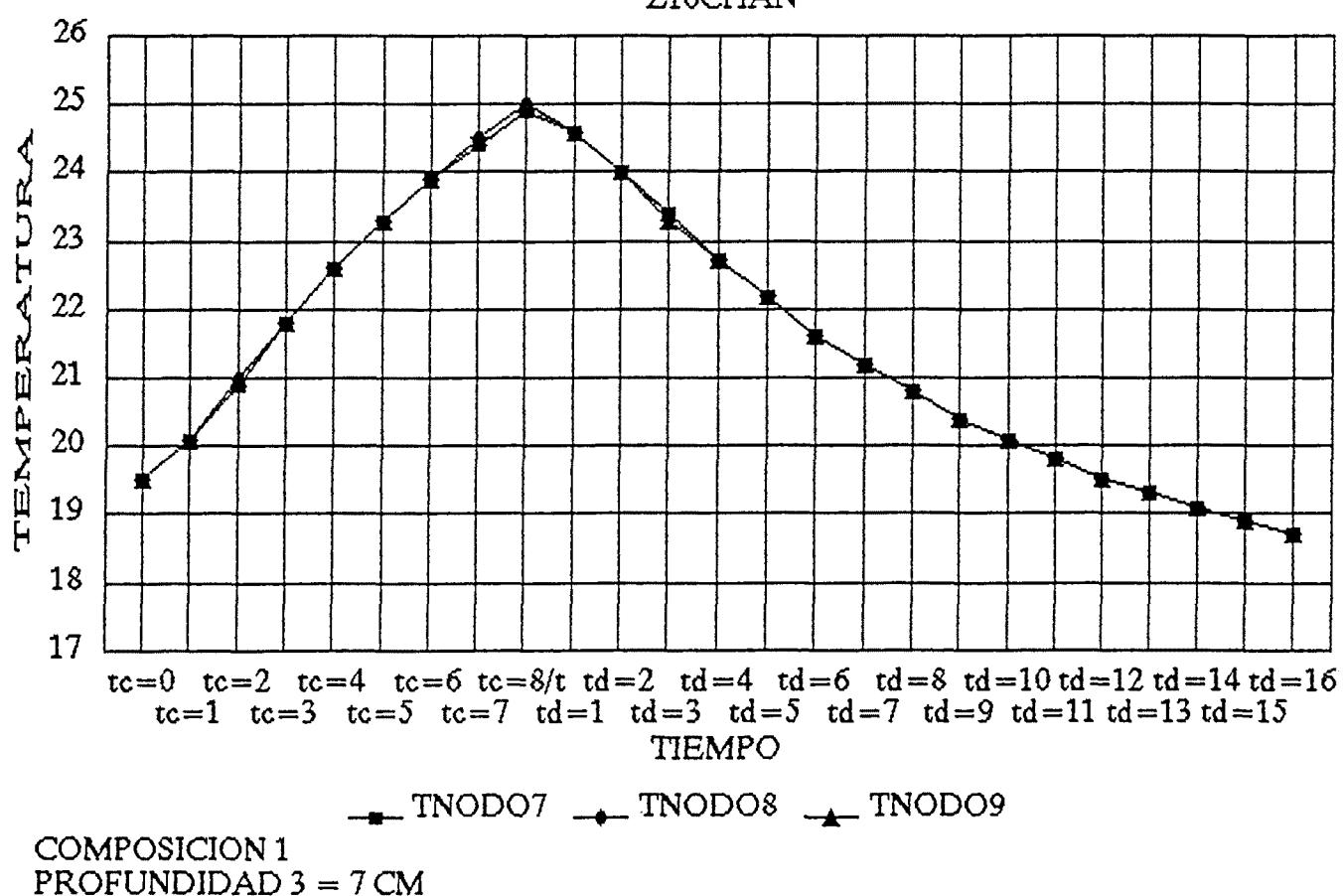
MODH13

Z20CHAN



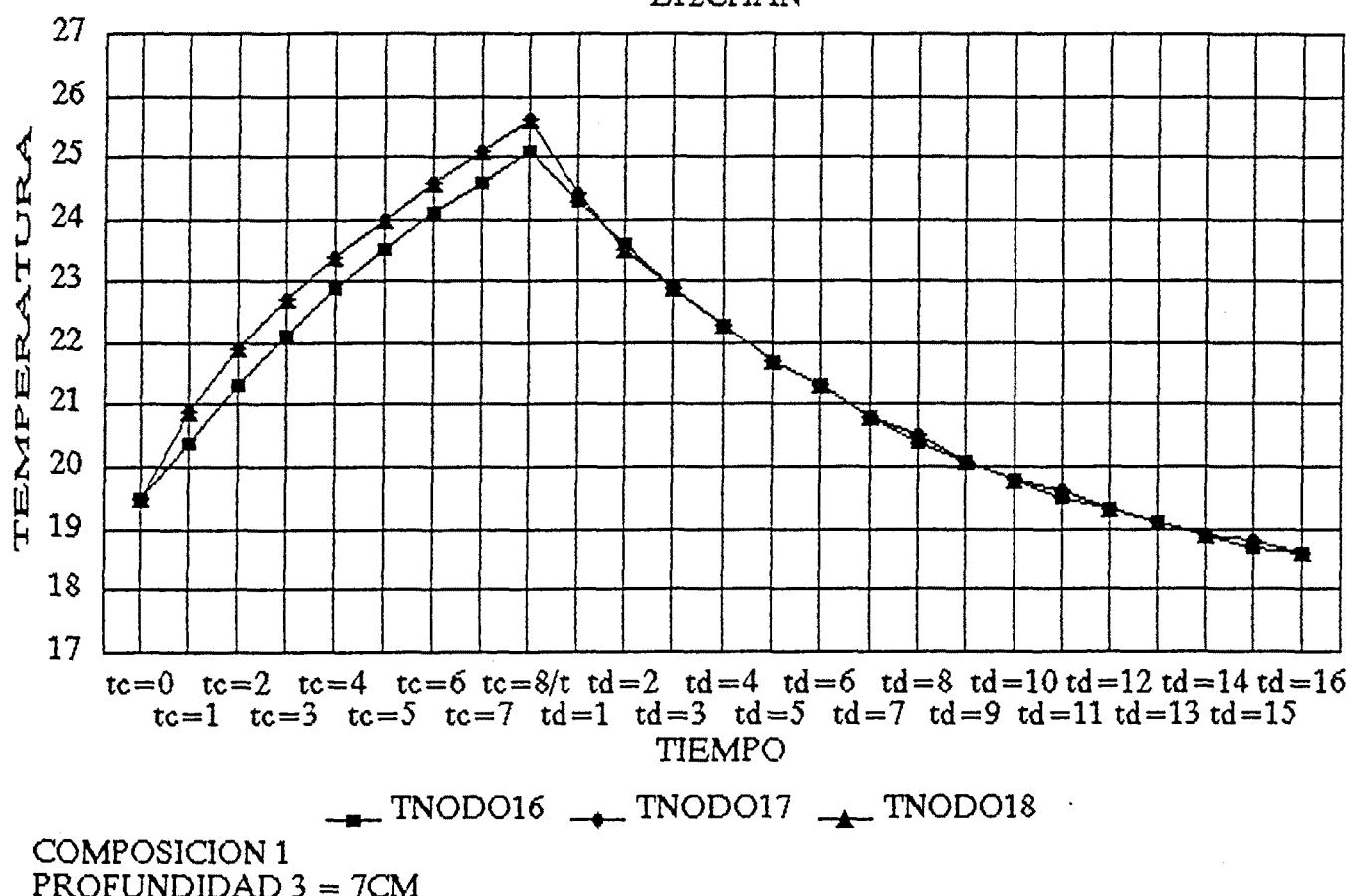
MODH13

Z16CHAN



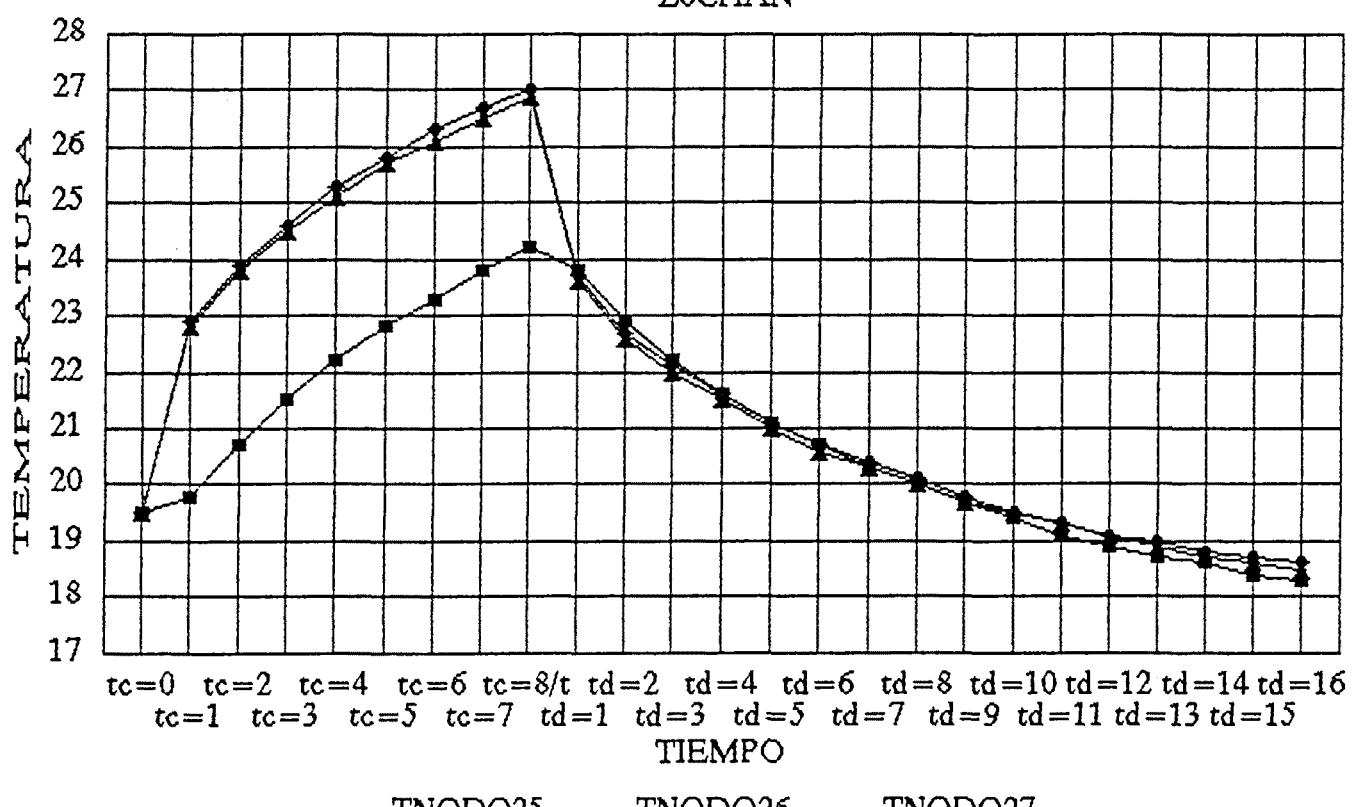
MODH13

Z12CHAN



MODH13

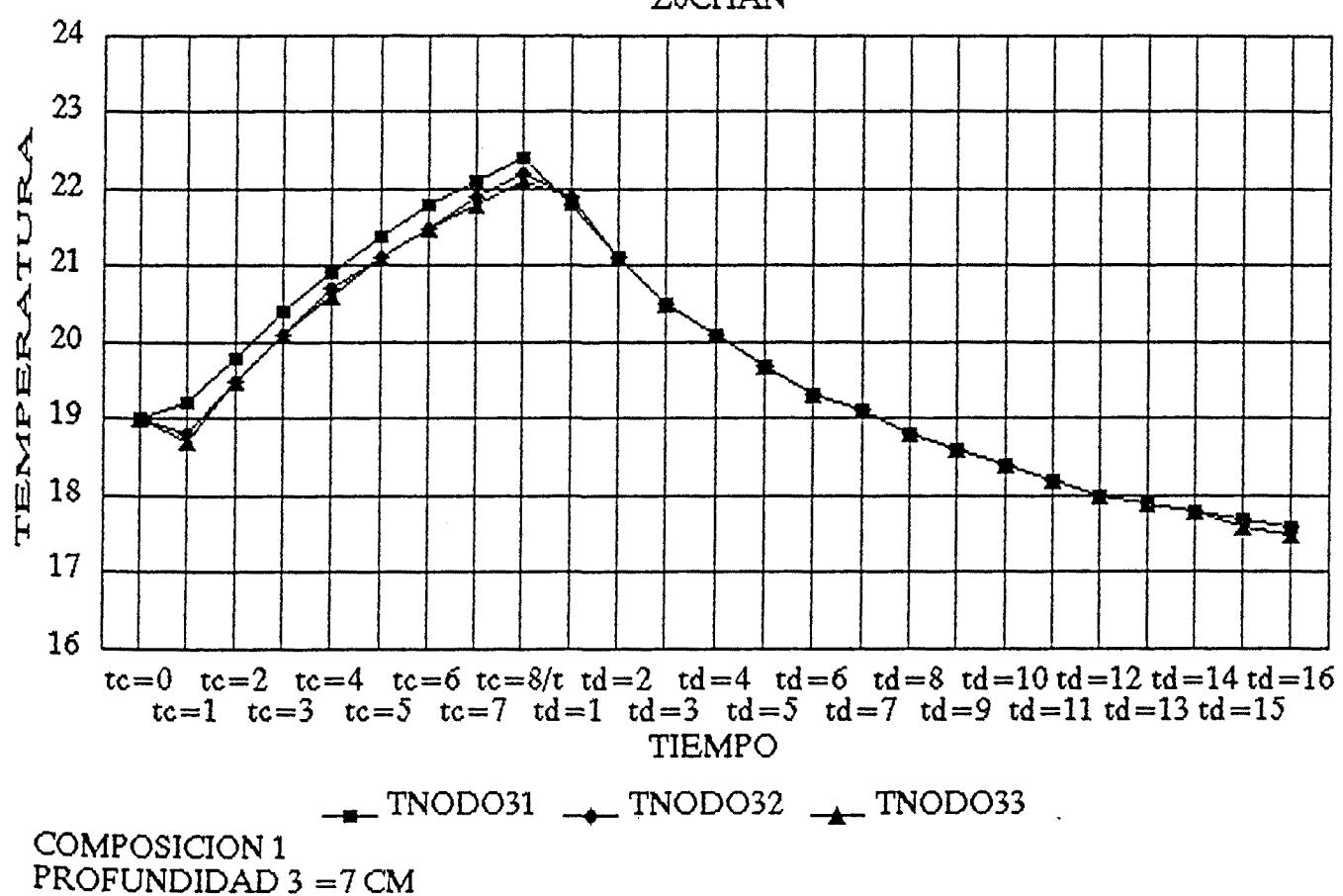
Z&CHAN



COMPOSICION 1
PROFUNDIDAD 3 = 7CM

MODH13

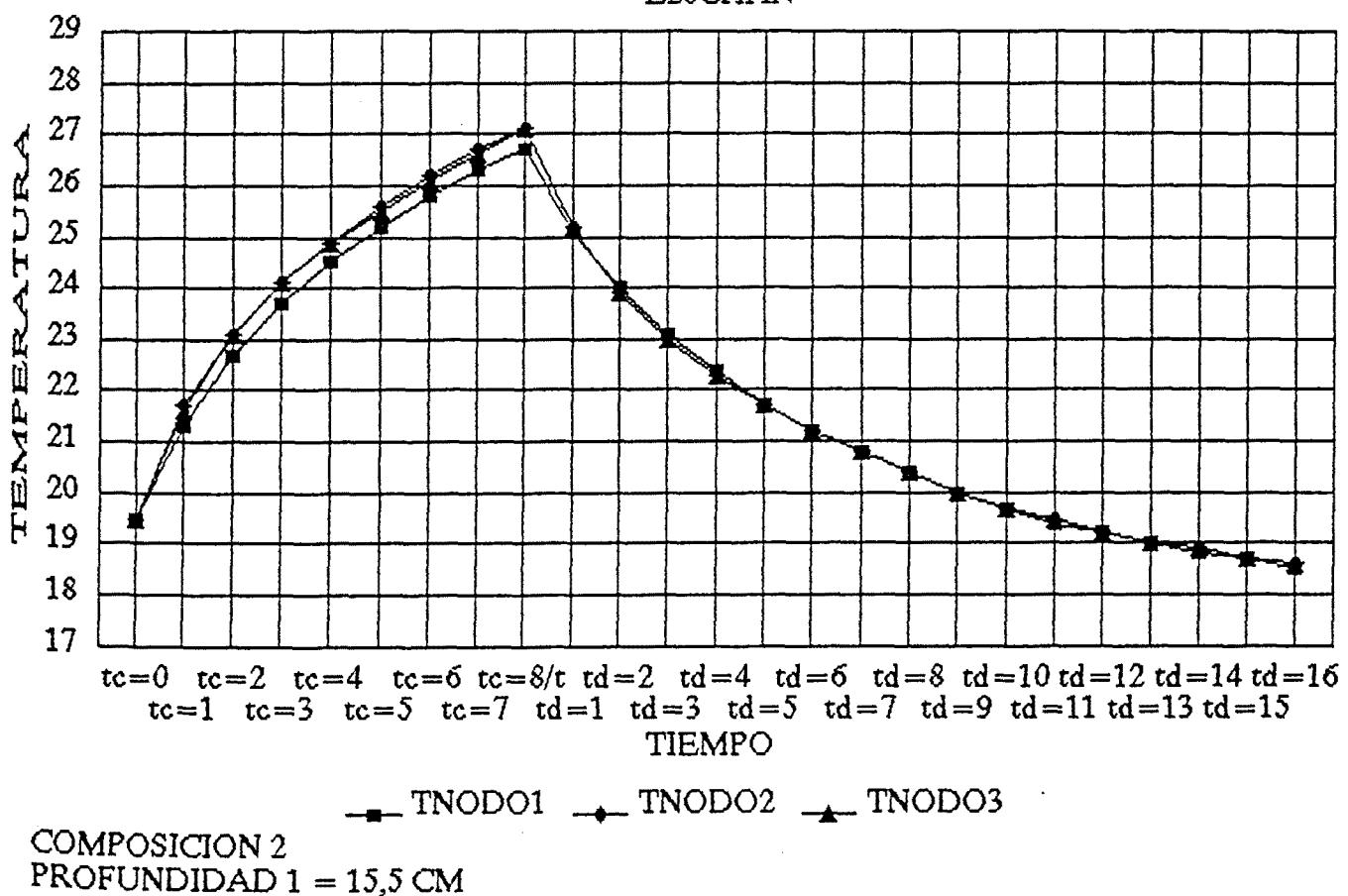
ZOCHAN



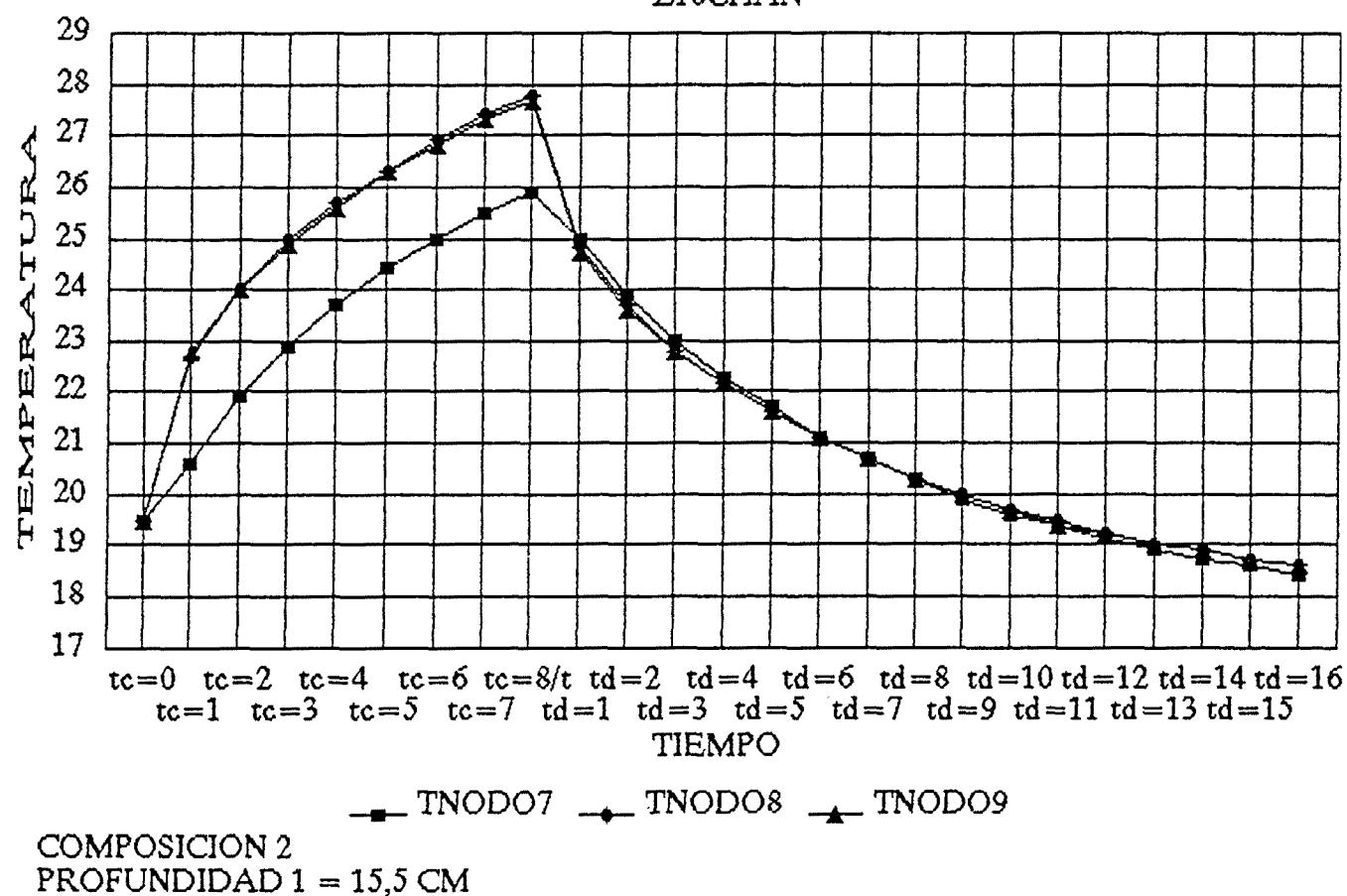
GRAFICOS MODH21

MODH21

Z20CHAN

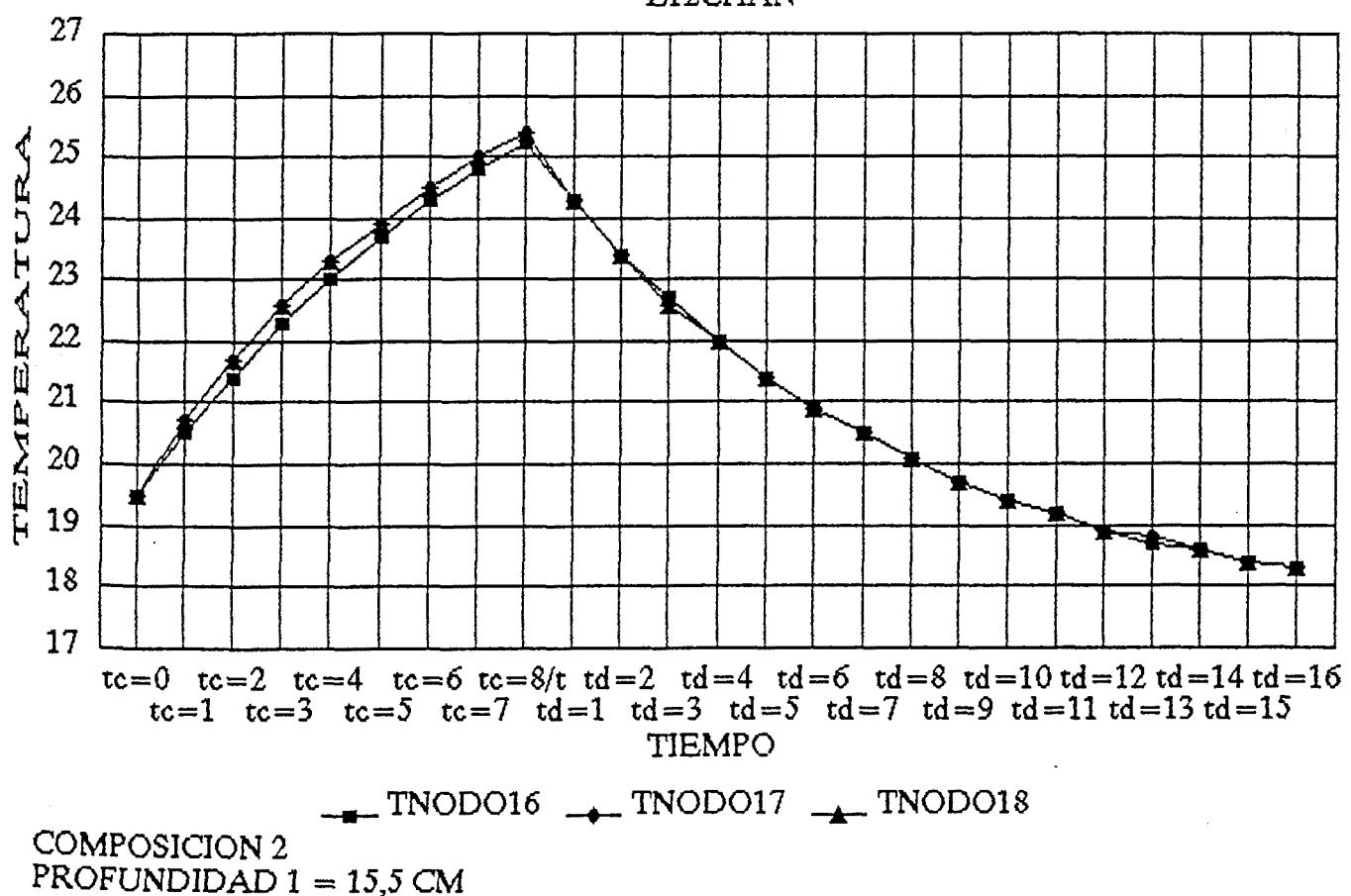


MODH21
Z16CHAN



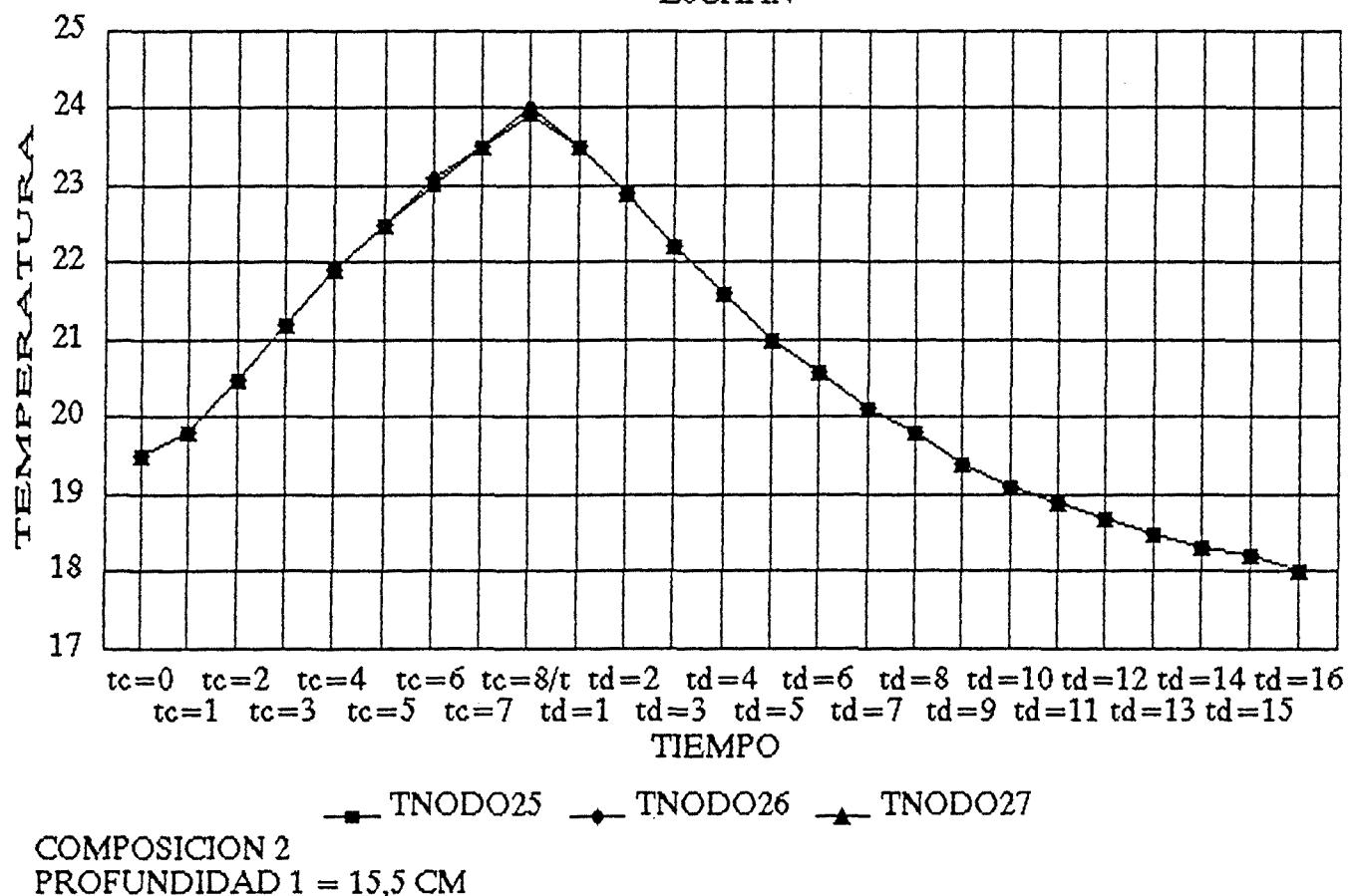
MODH21

Z12CHAN



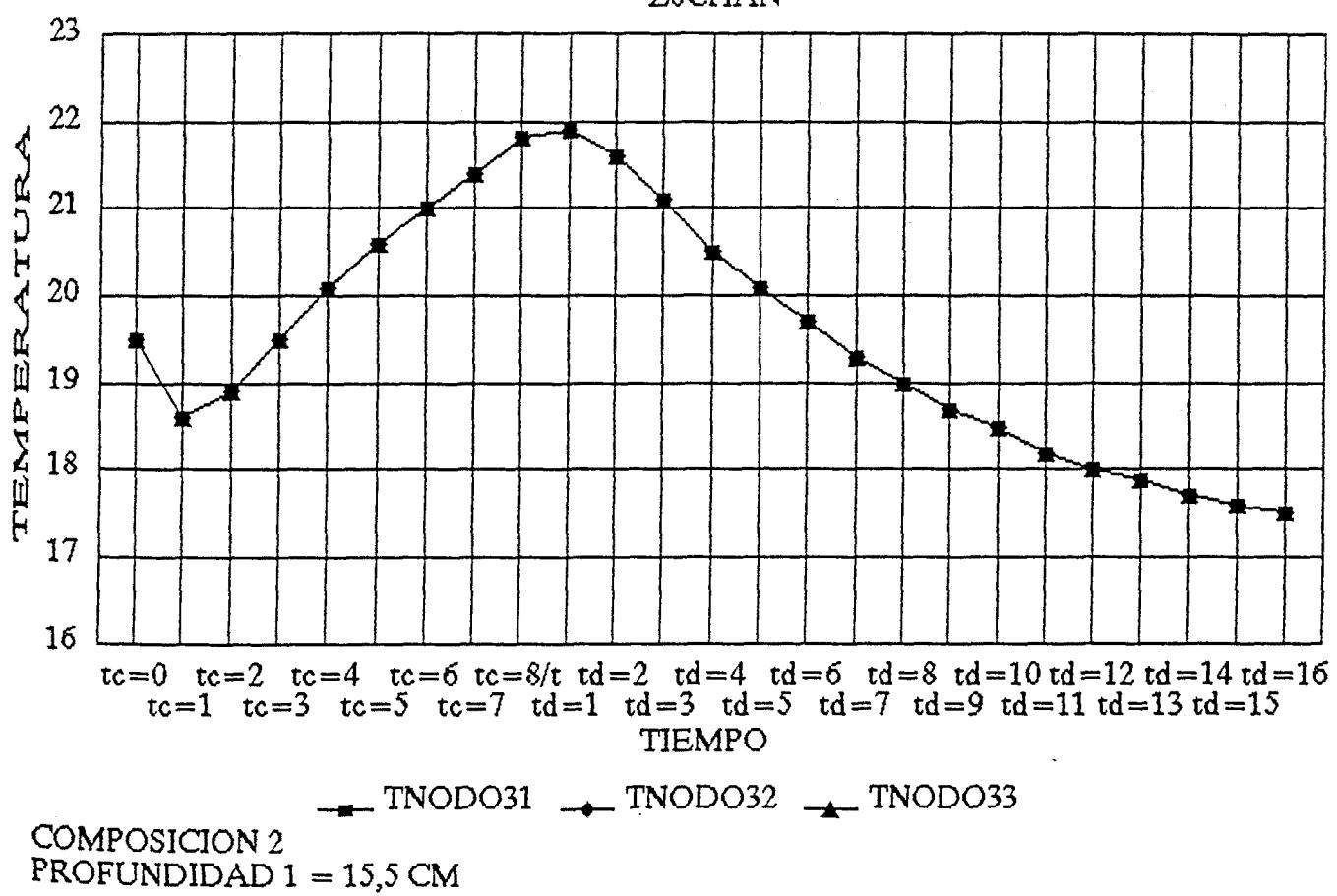
MODH21

Z8CHAN



MODH21

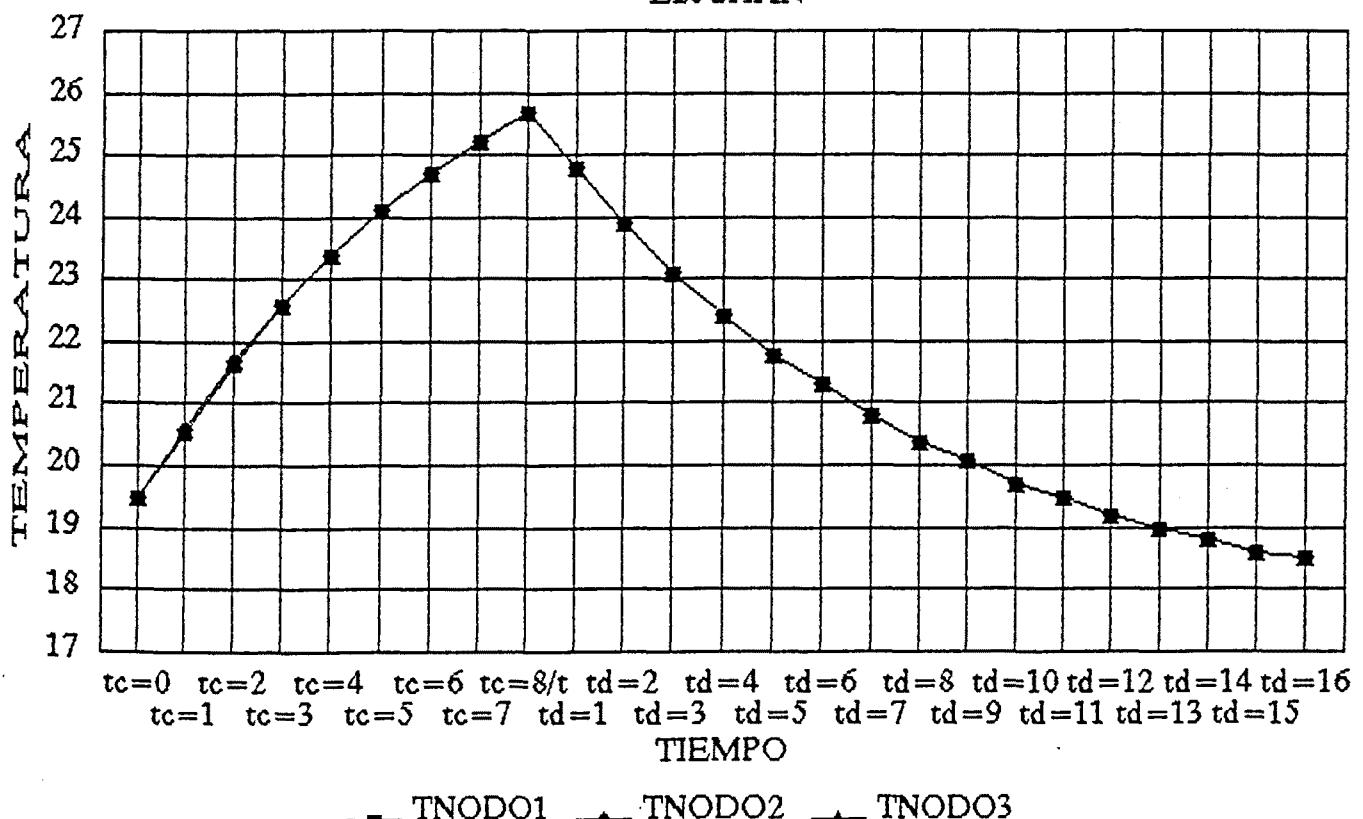
Z0CHAN



GRAFICOS MODH22

MODH22

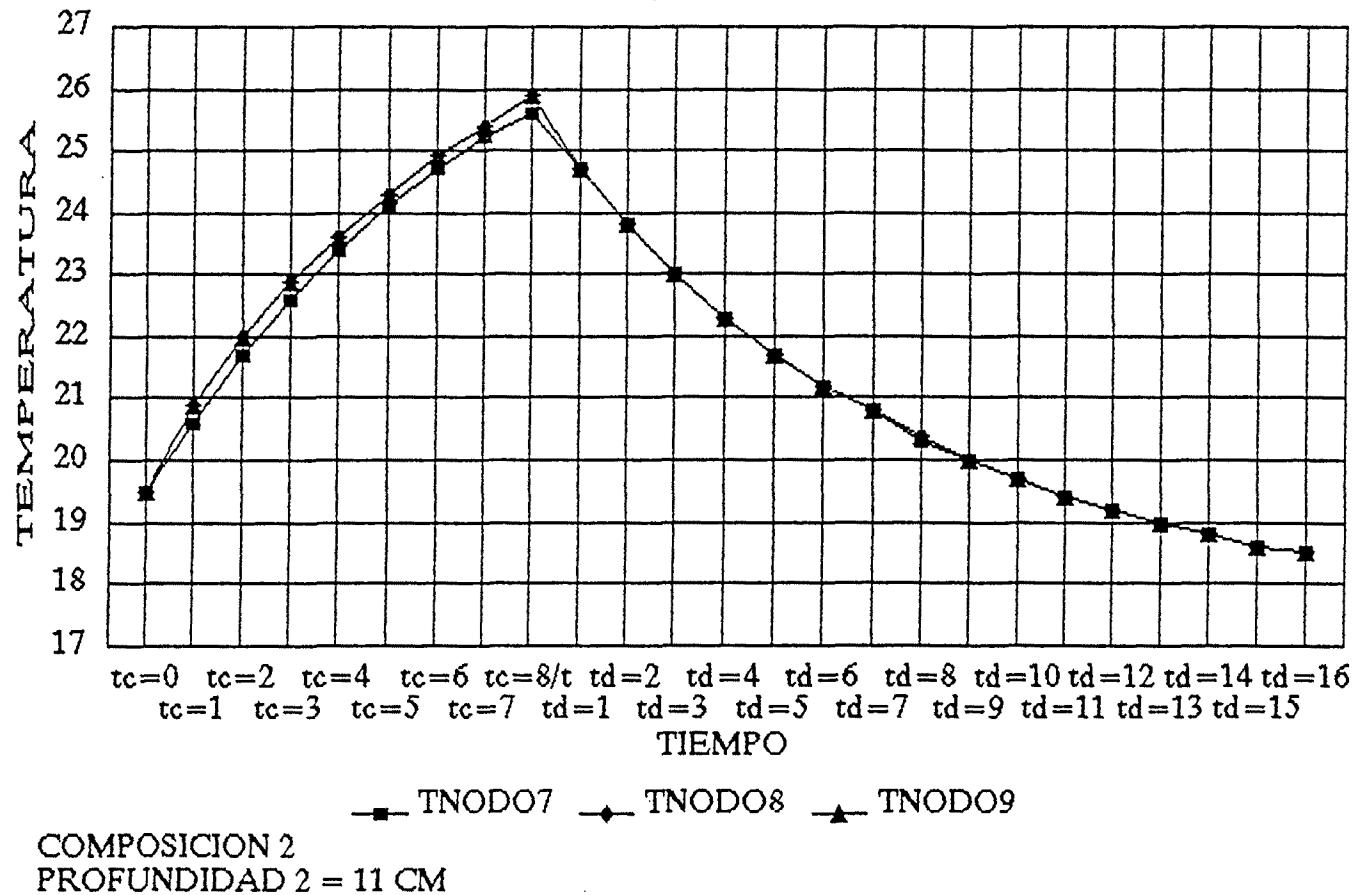
Z20CHAN



COMPOSICION 2
PROFUNDIDAD 2 = 11 CM

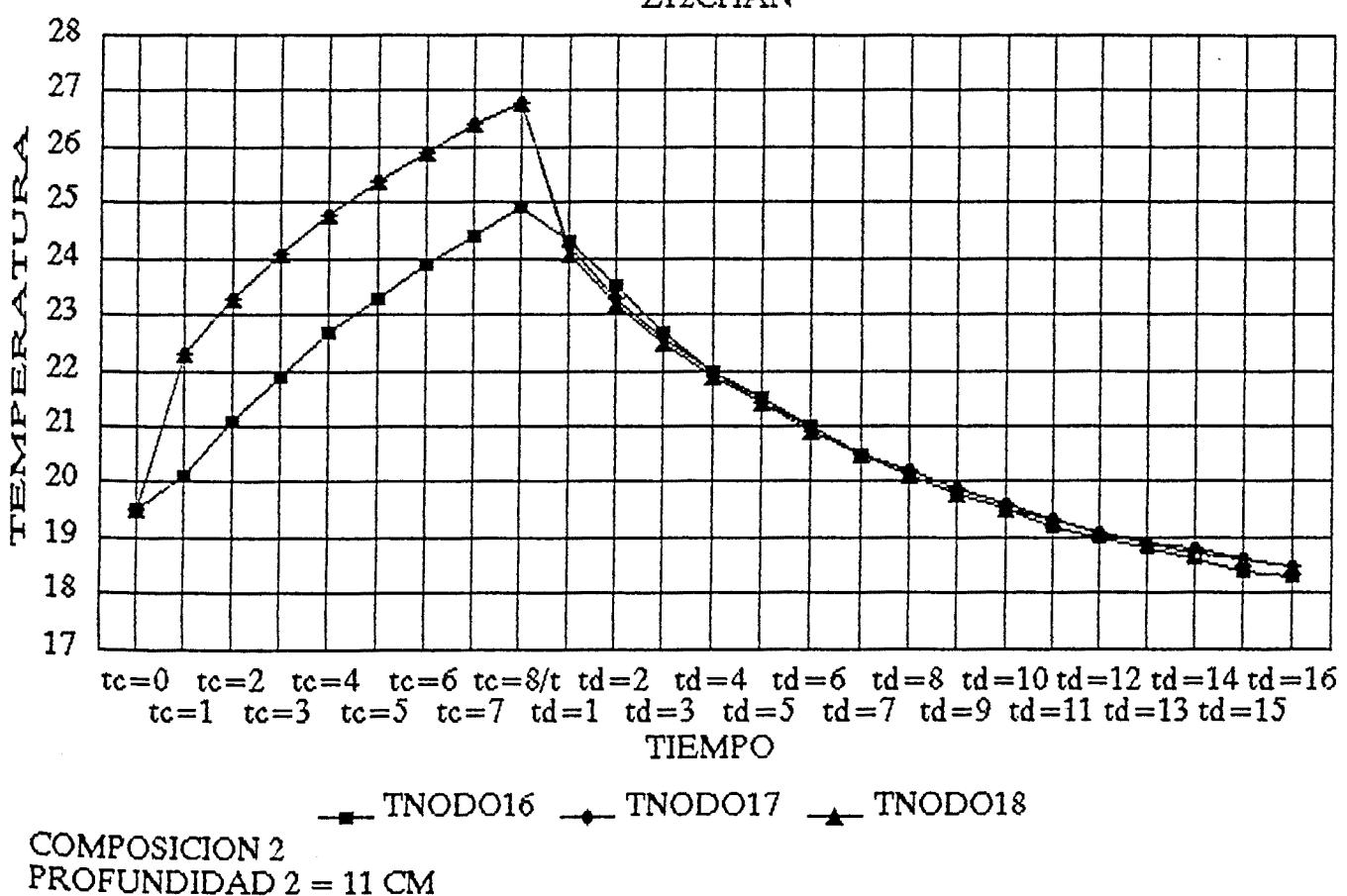
MODH22

Z16CHAN



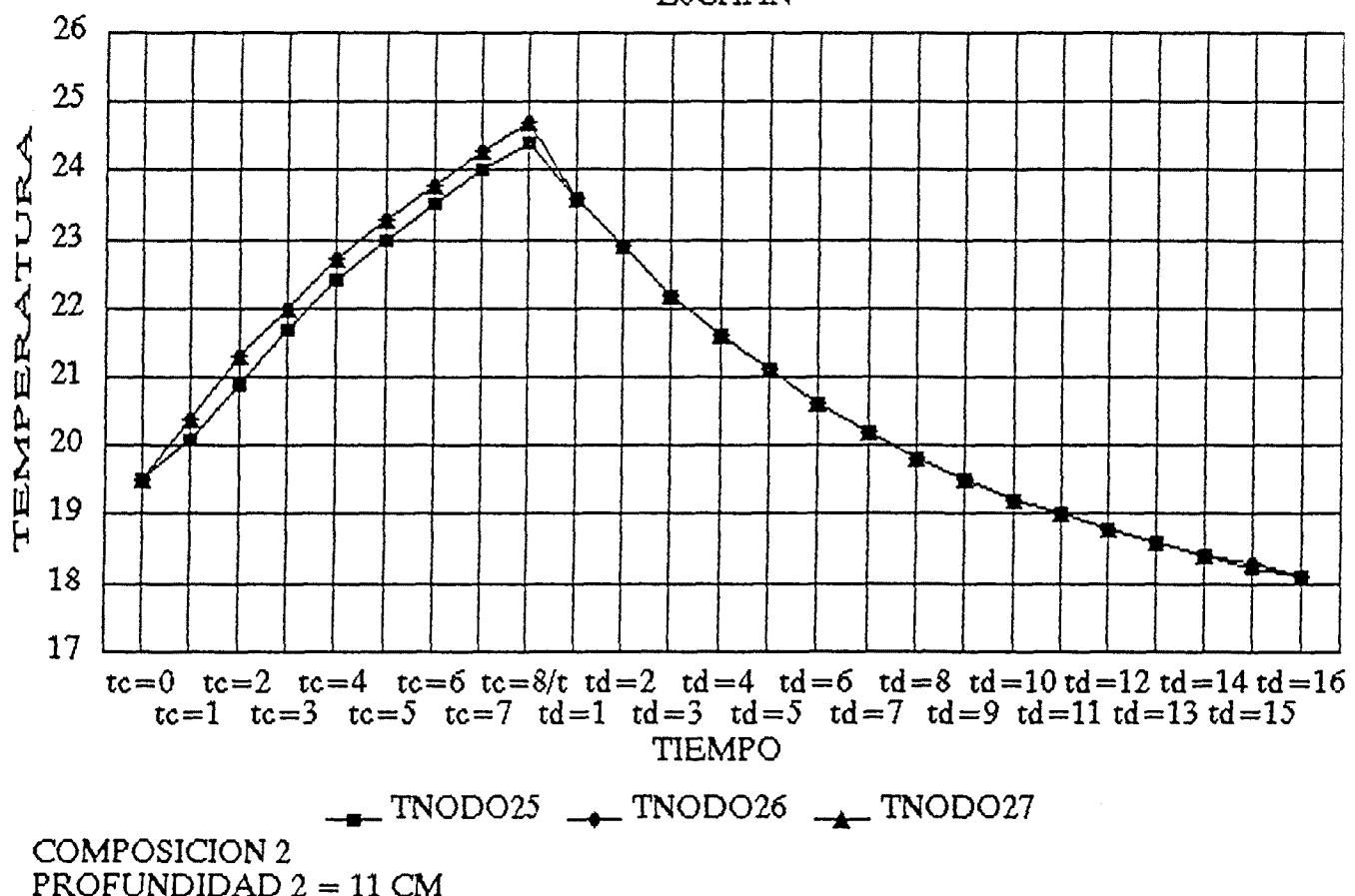
MODH22

Z12CHAN



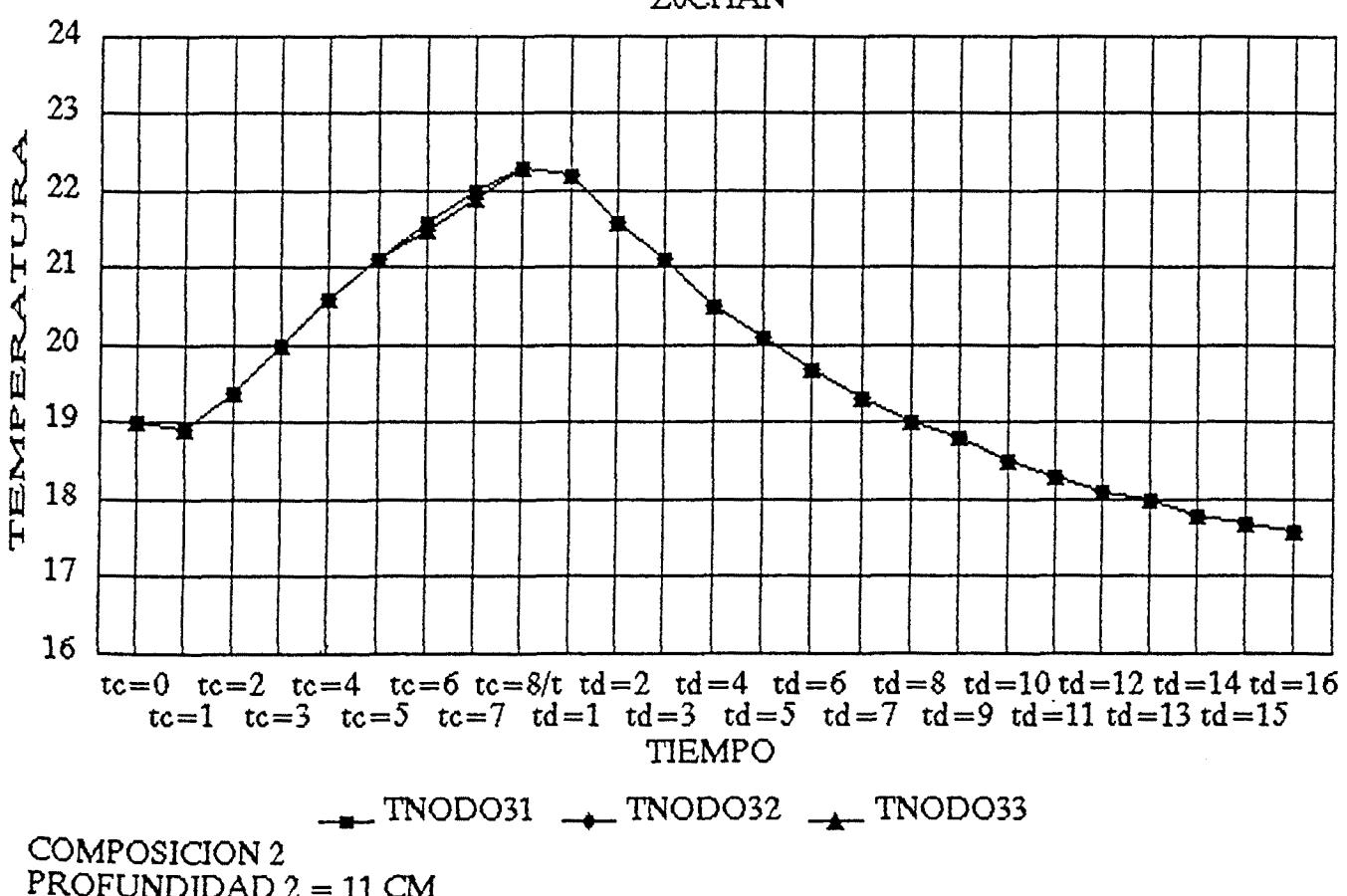
MODH22

Z&CHAN



MODH22

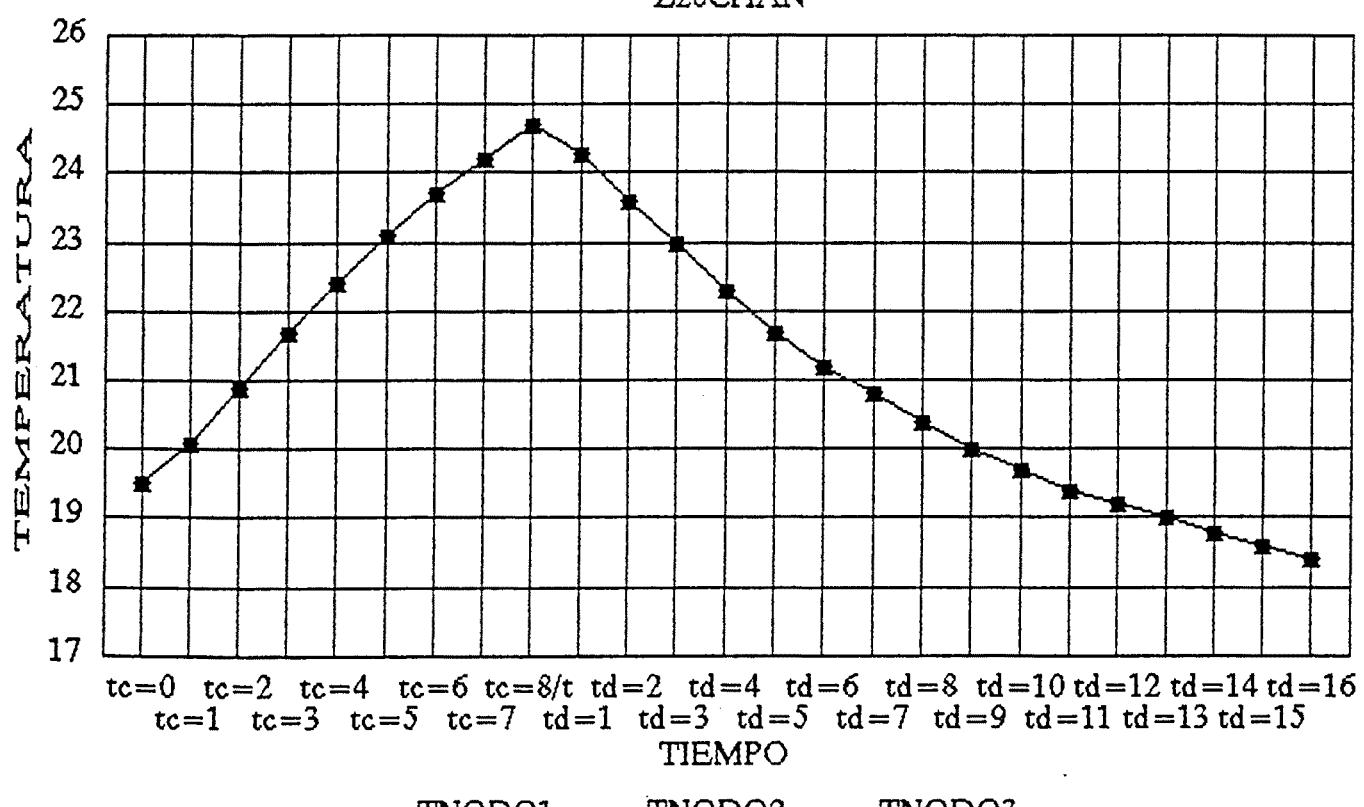
Z0CHAN



GRAFICOS MODH23

MODH23

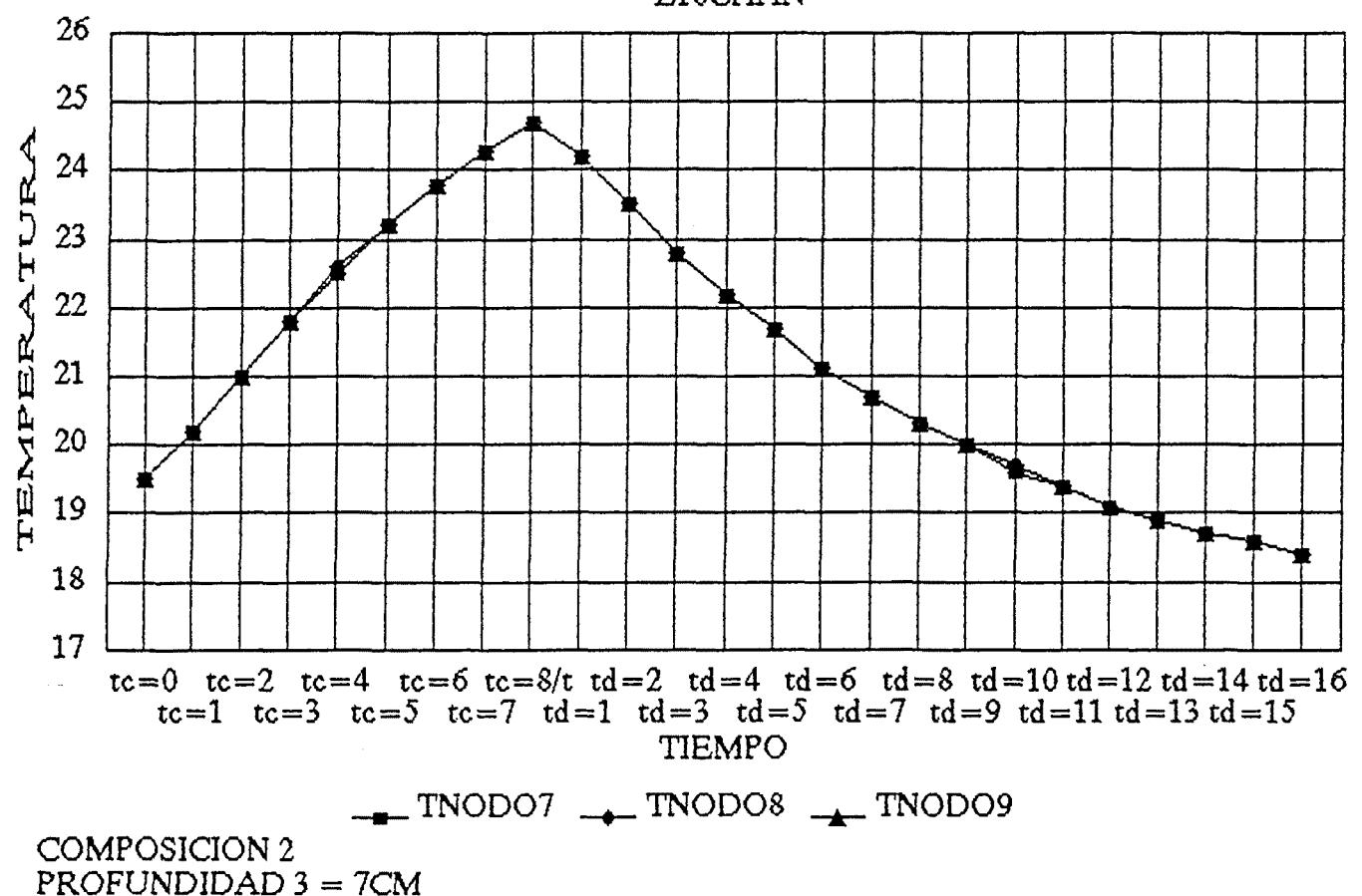
Z20CHAN



COMPOSICION 2
PROFUNDIDAD 3 = 7CM

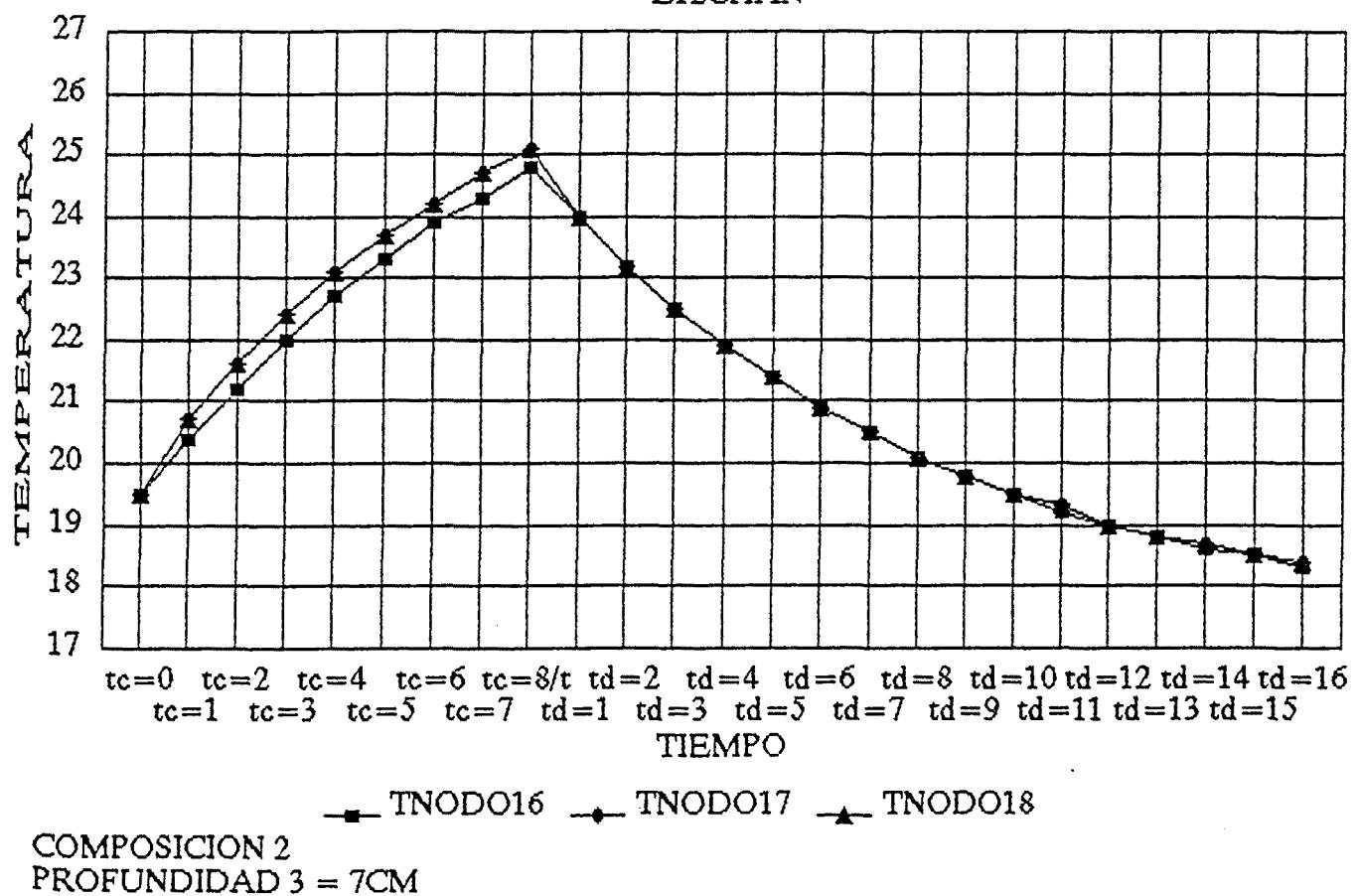
MODH23

Z16CHAN



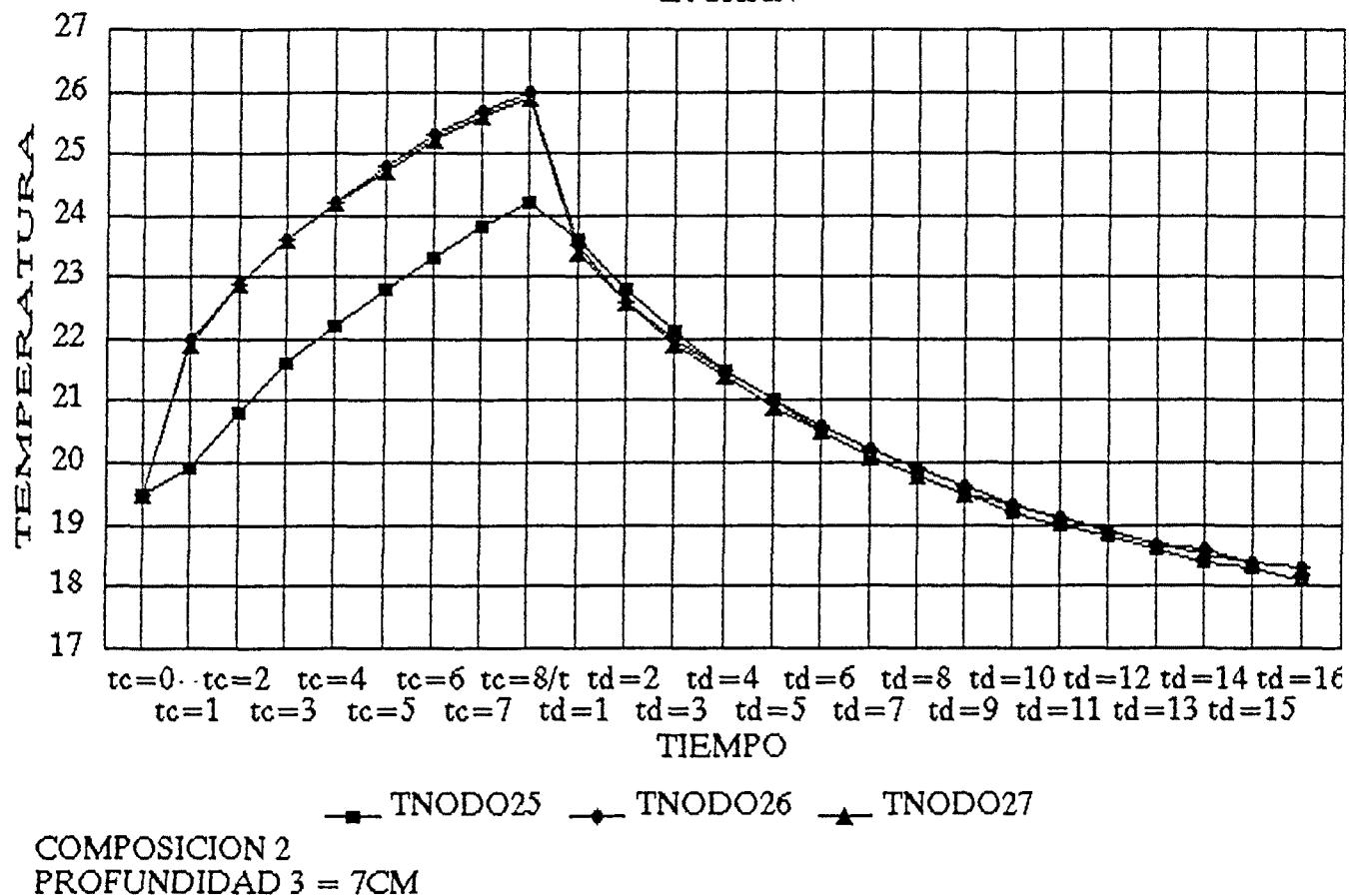
MODH23

Z12CHAN



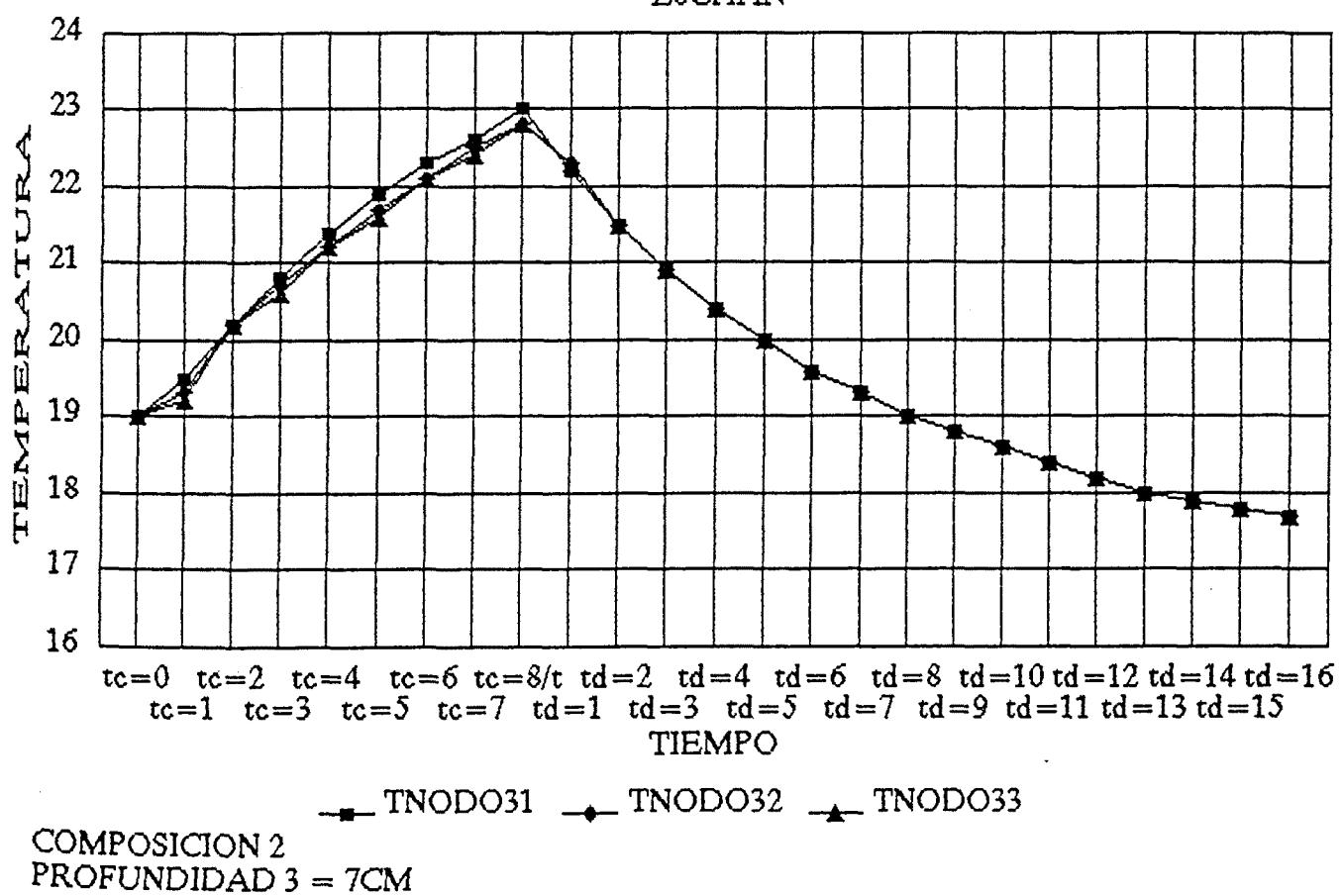
MODH23

Z8CHAN



MODH23

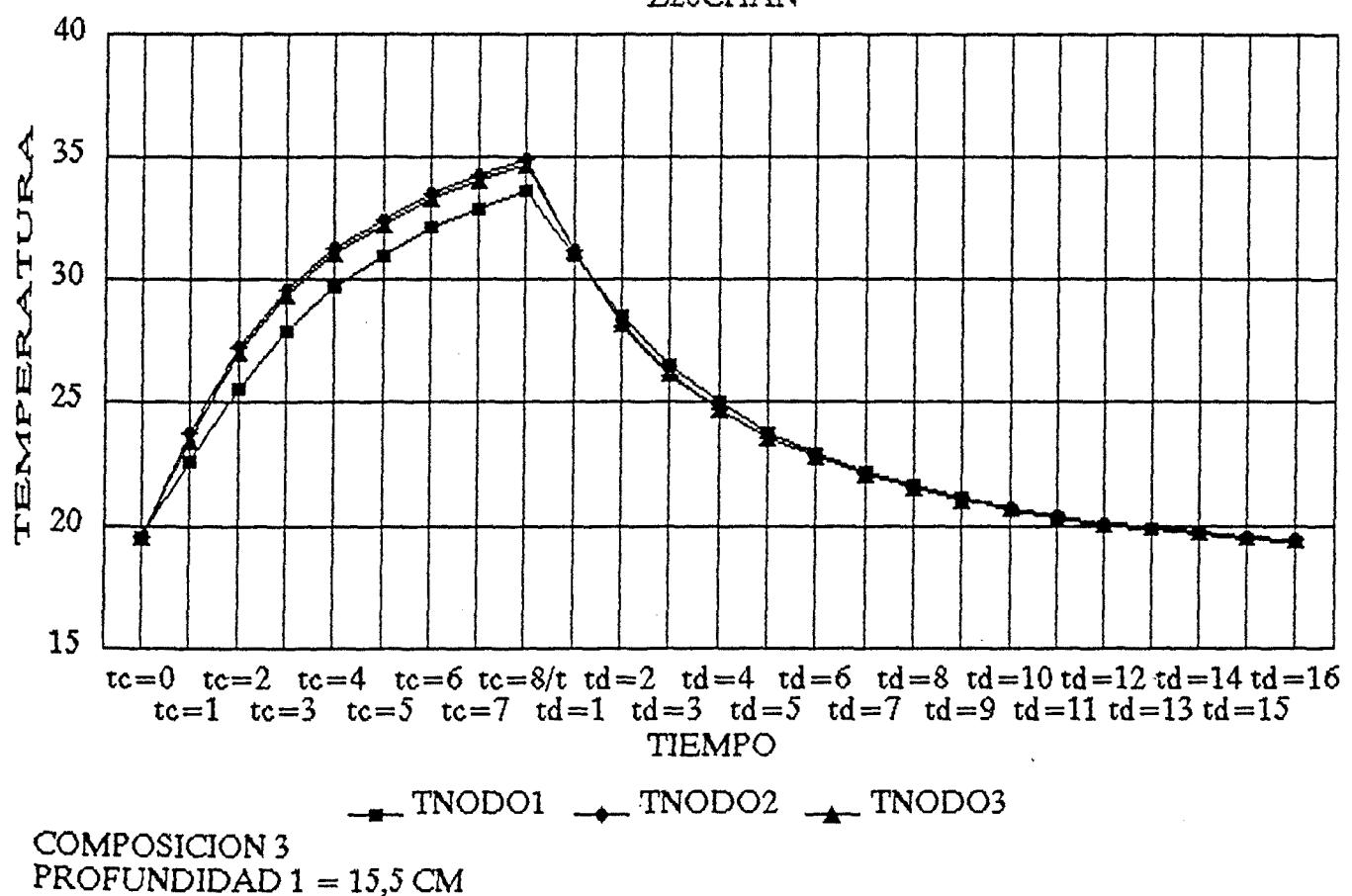
Z0CHAN



COMPOSICION 2
PROFUNDIDAD 3 = 7CM

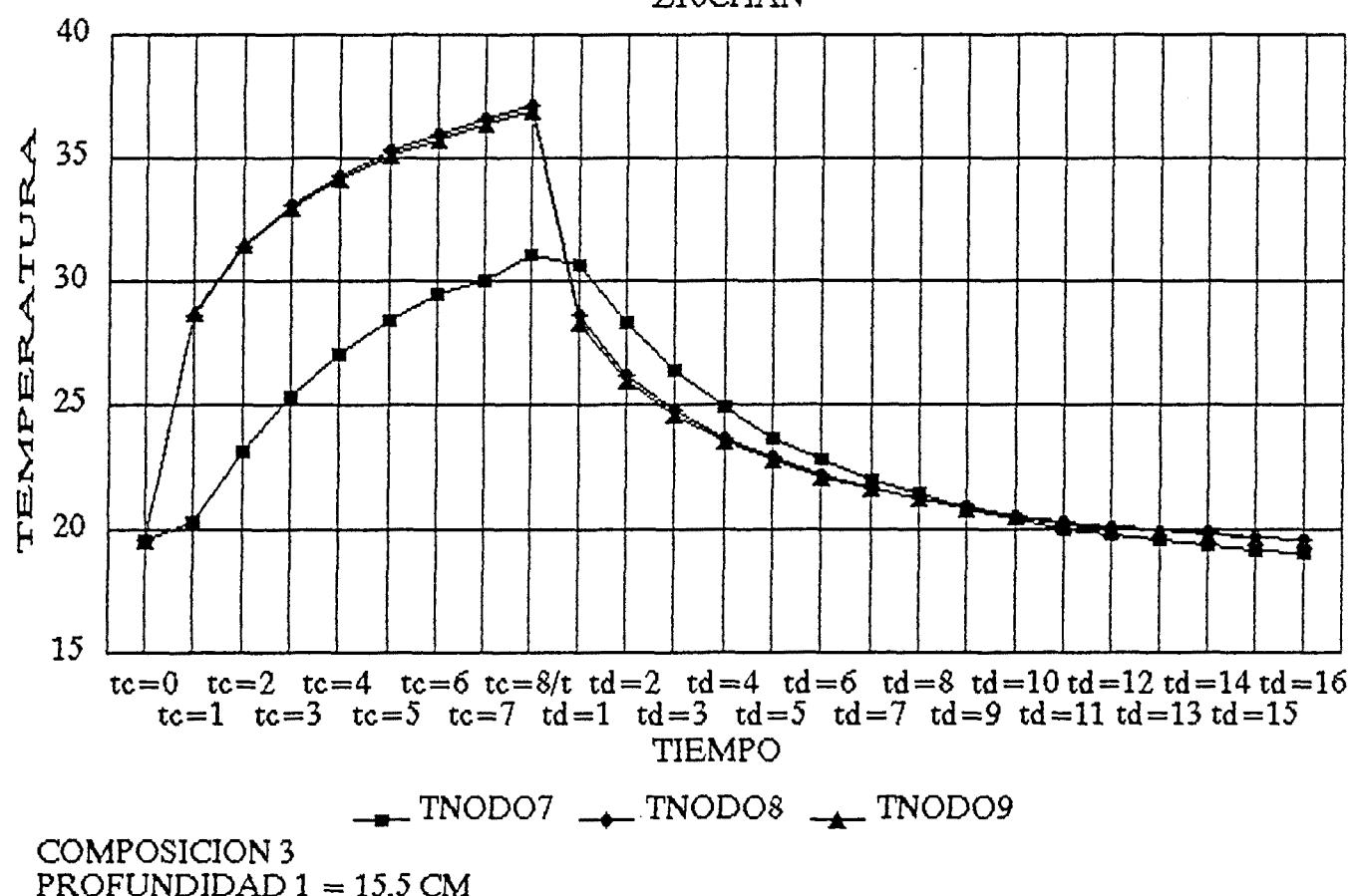
GRAFICOS MODH31

MODH31
Z20CHAN



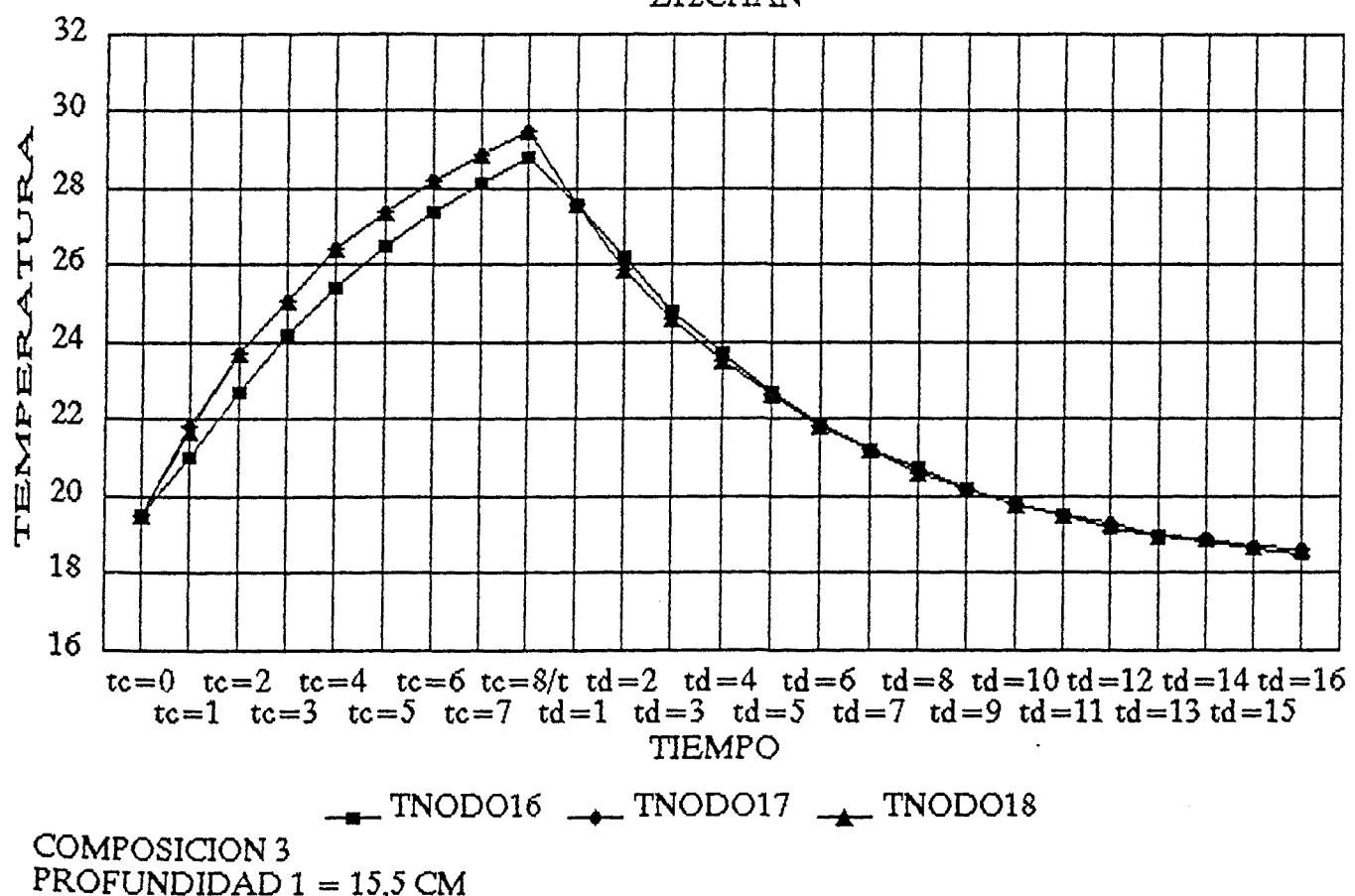
MODH31

Z16CHAN



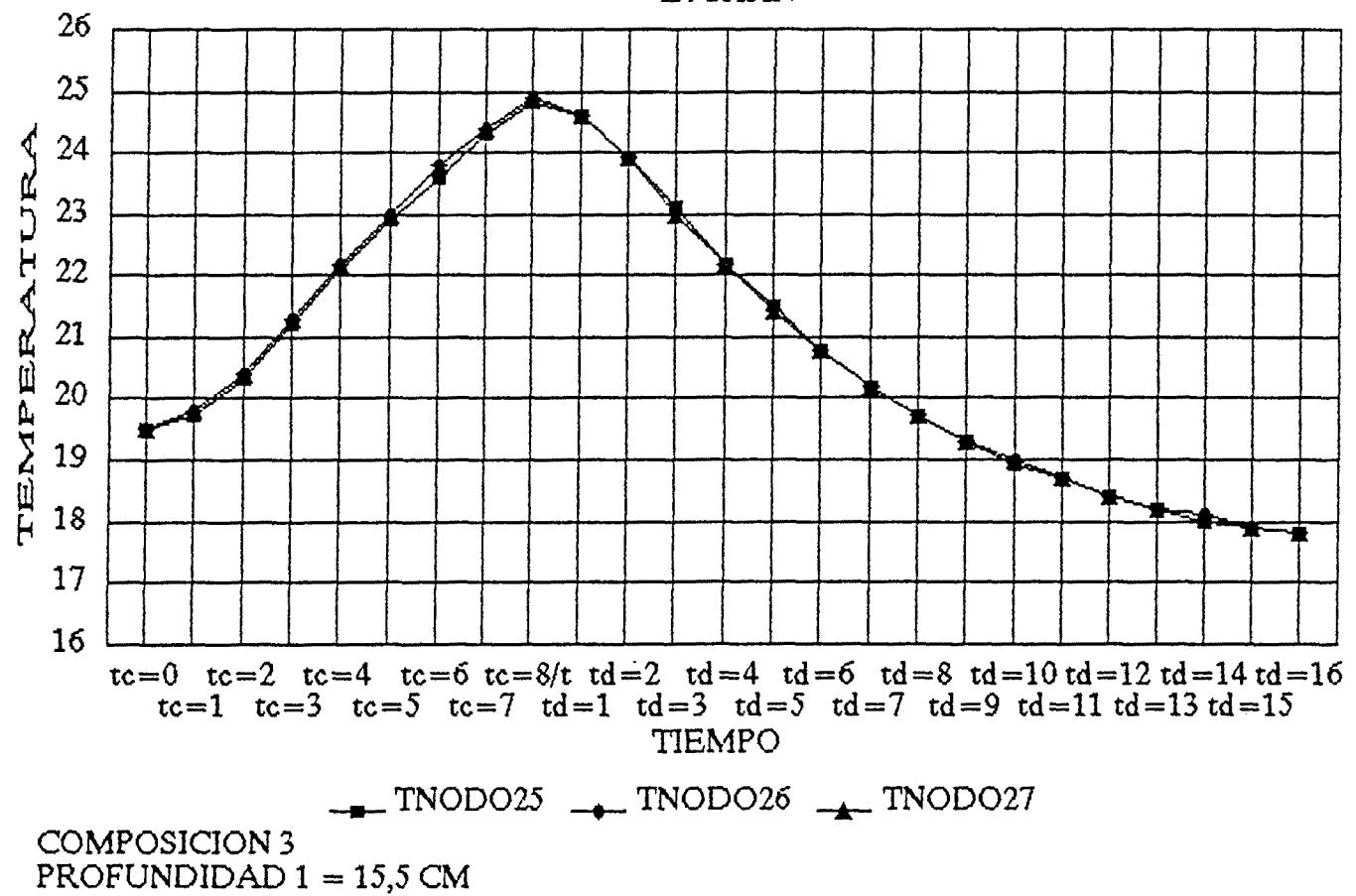
MODH31

Z12CHAN



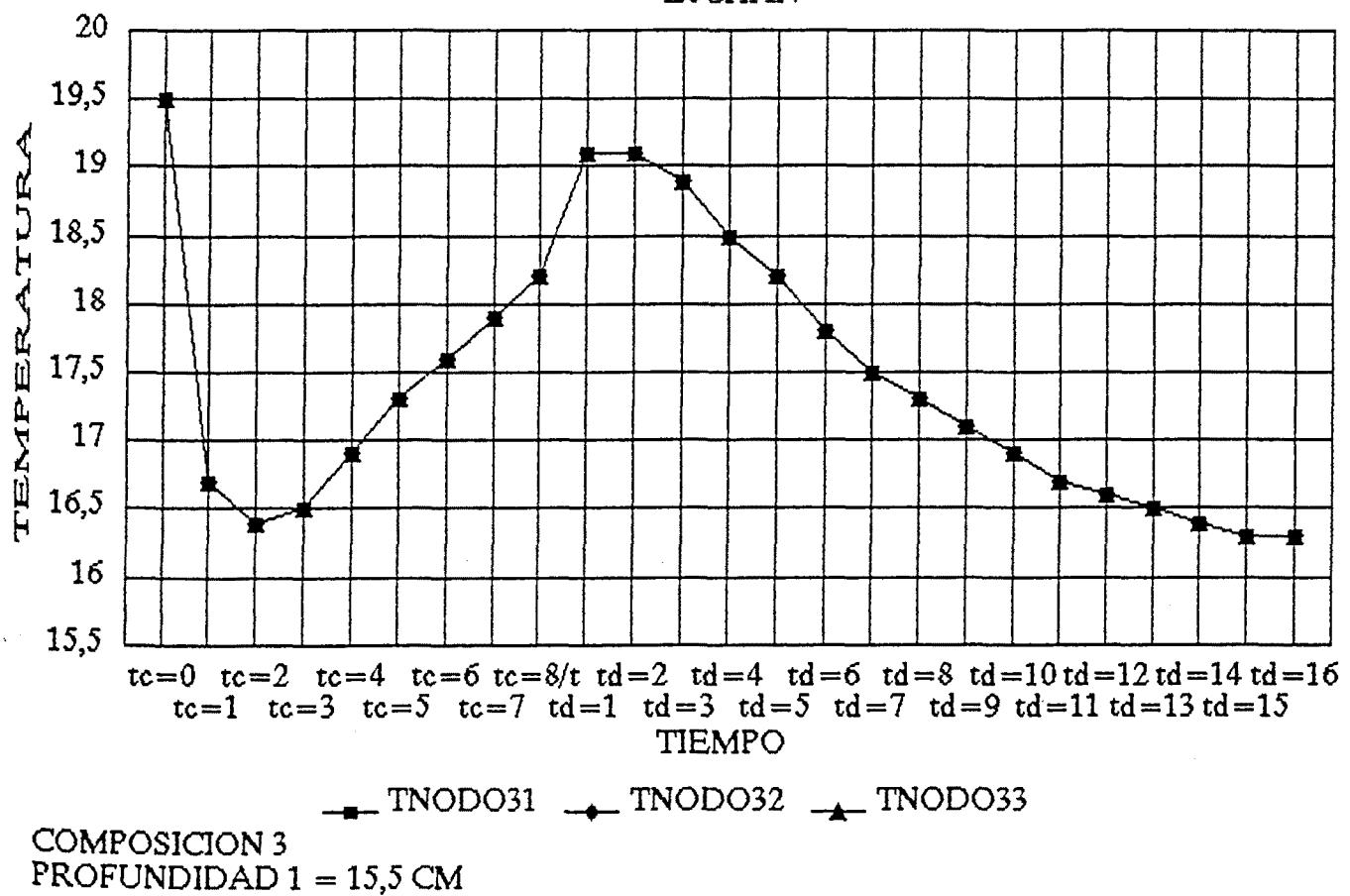
MODH31

Z8CHAN



MODH31

Z0CHAN

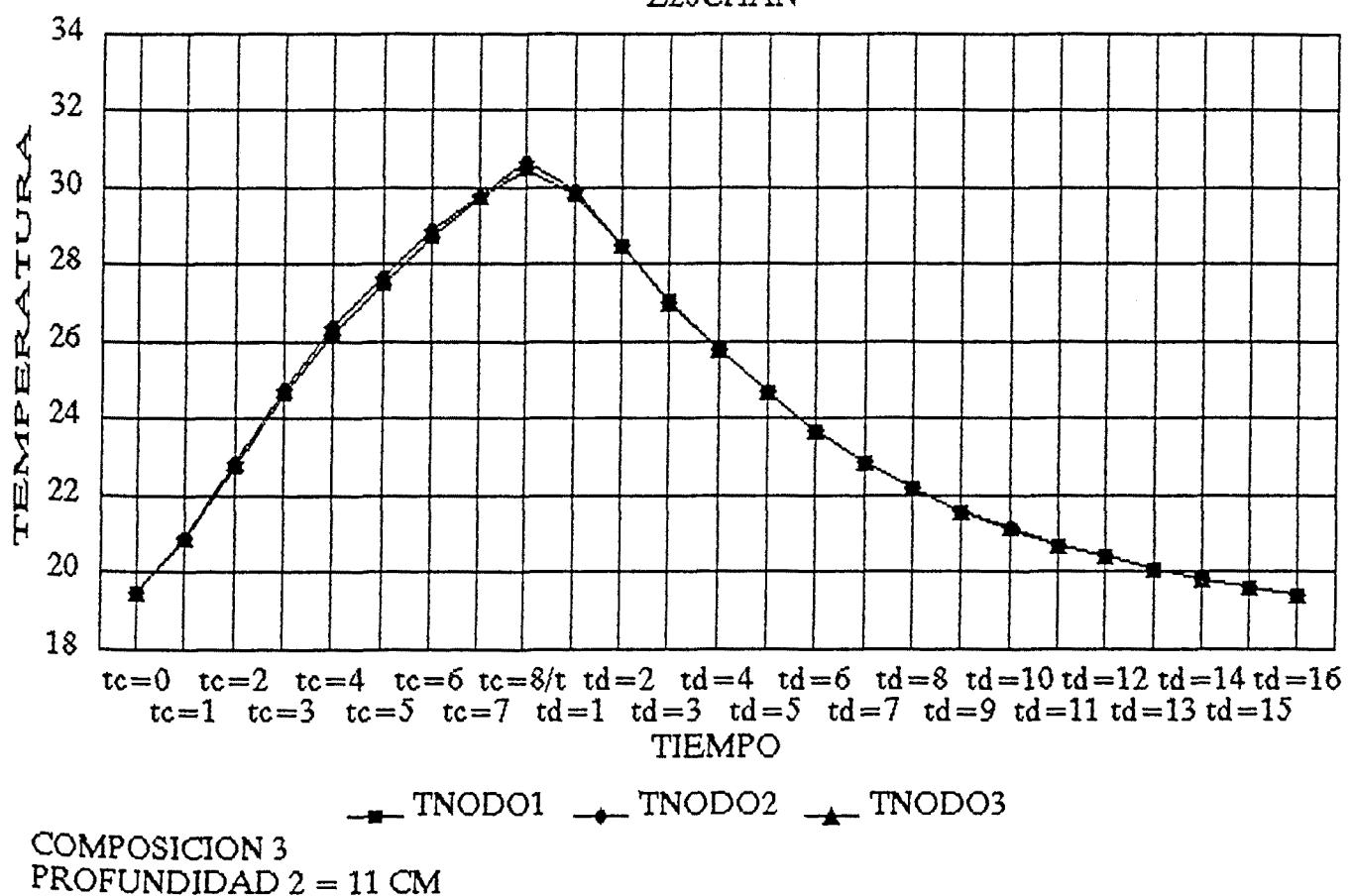


GRAFICOS MODH32



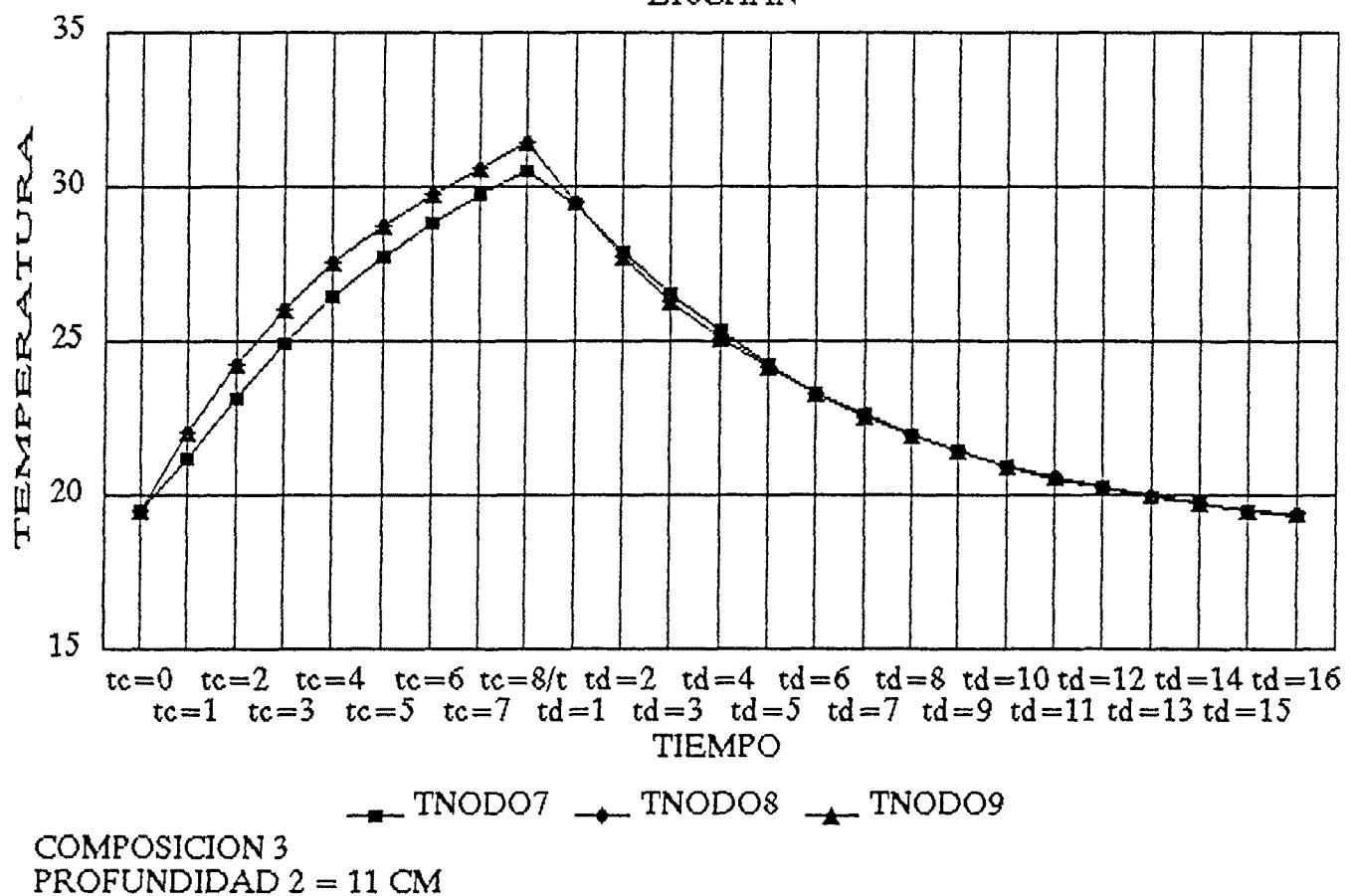
MODH32

Z20CHAN



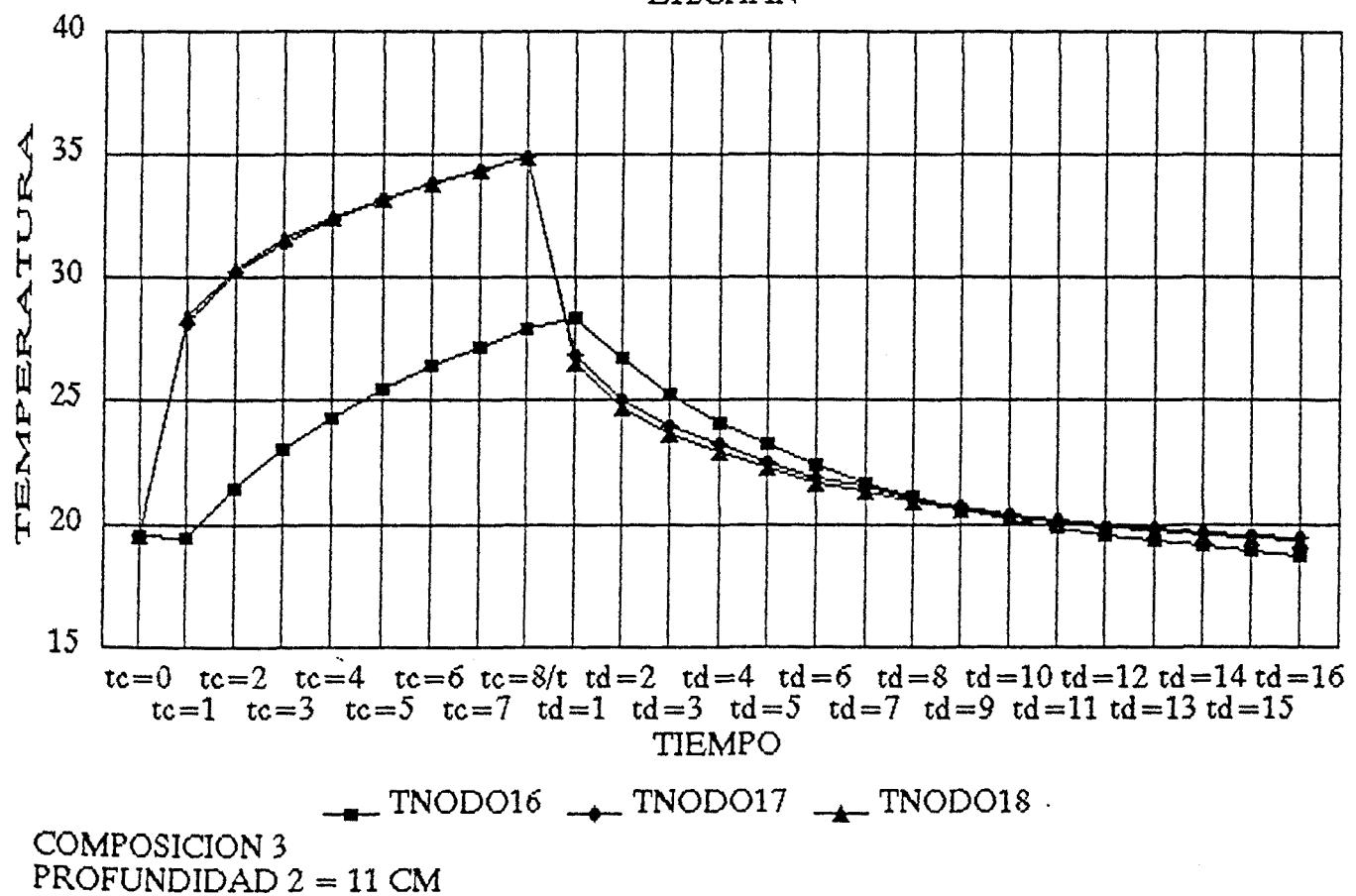
MODH32

Z16CHAN



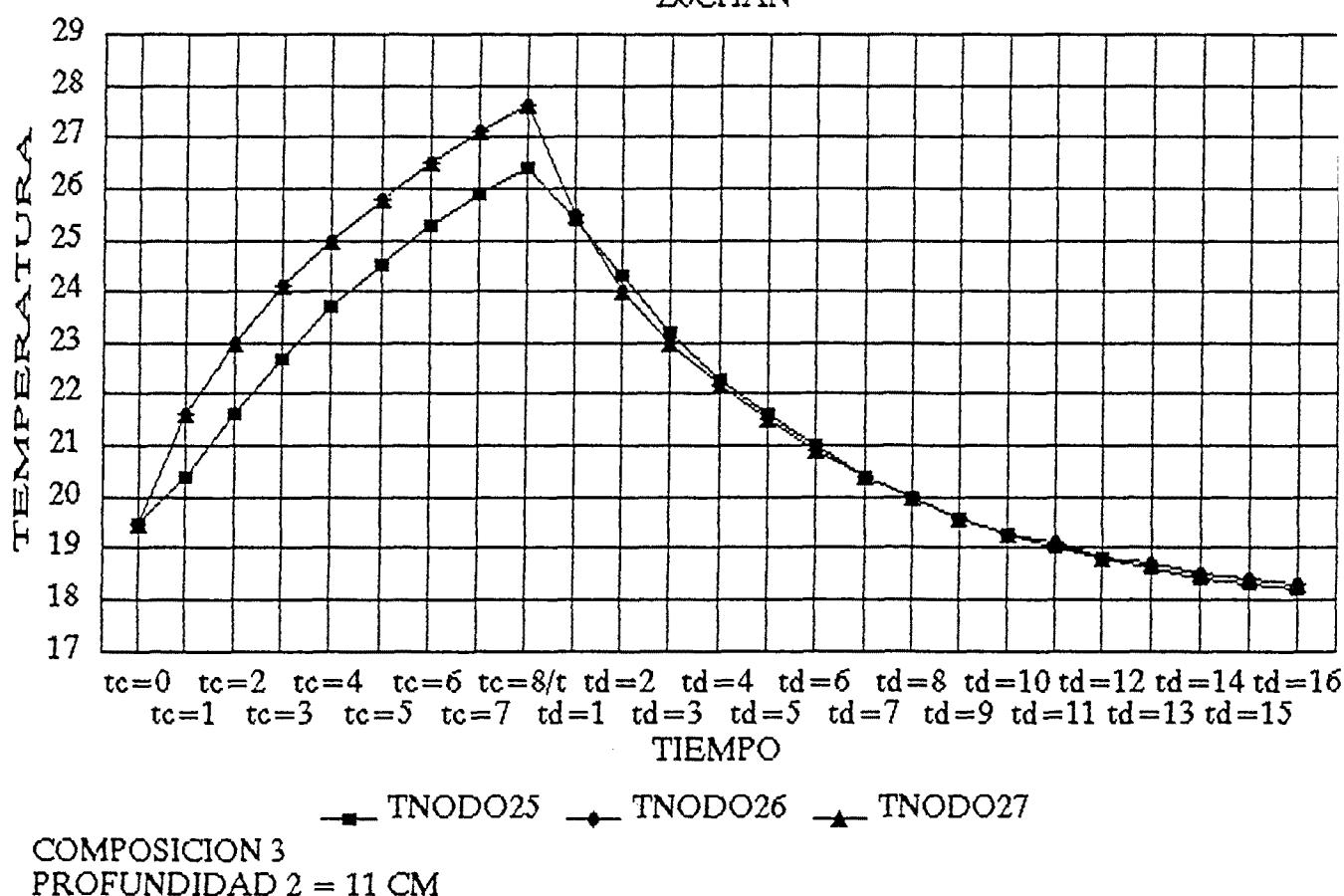
MODH32

Z12CHAN



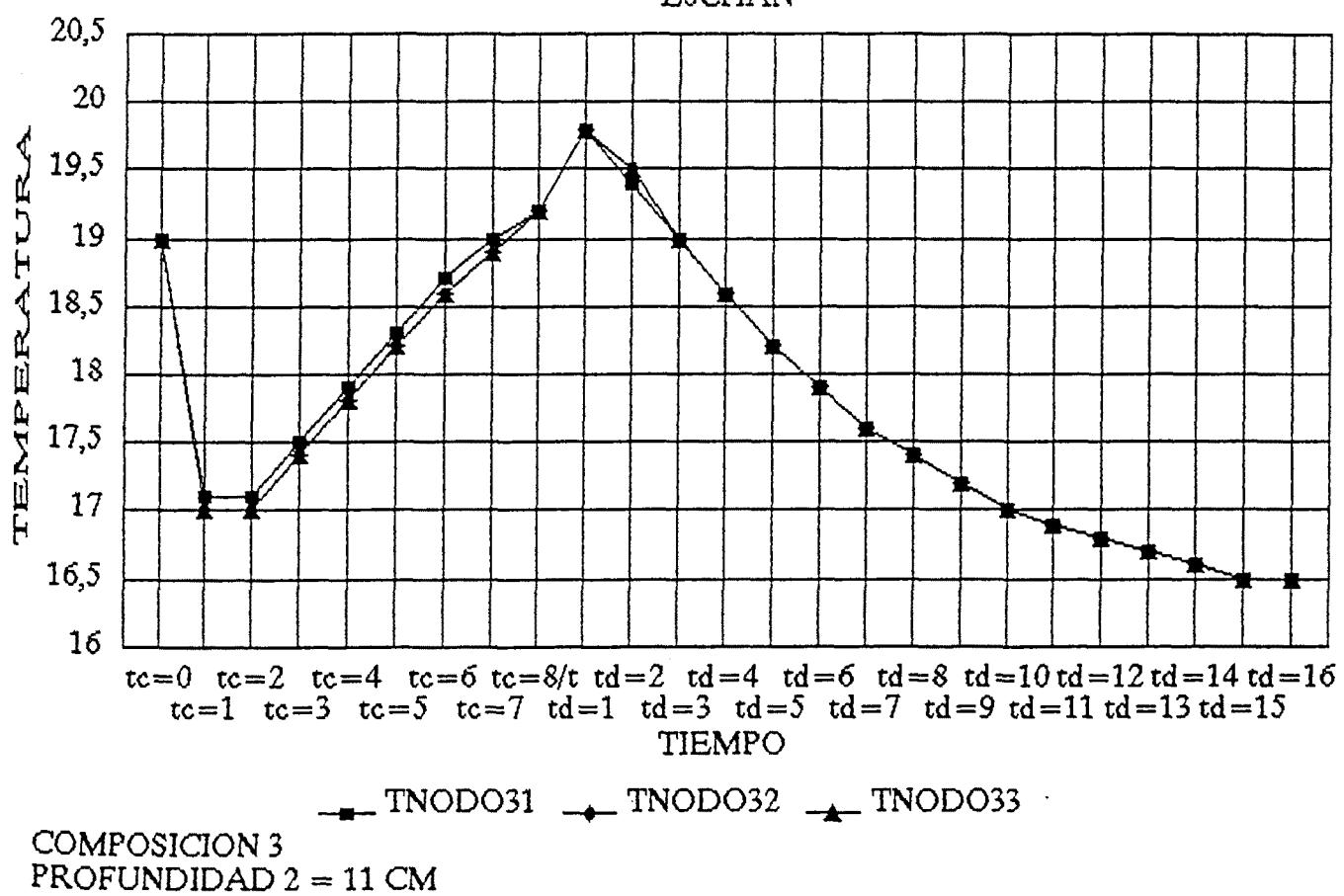
MODH32

Z8CHAN



MODH32

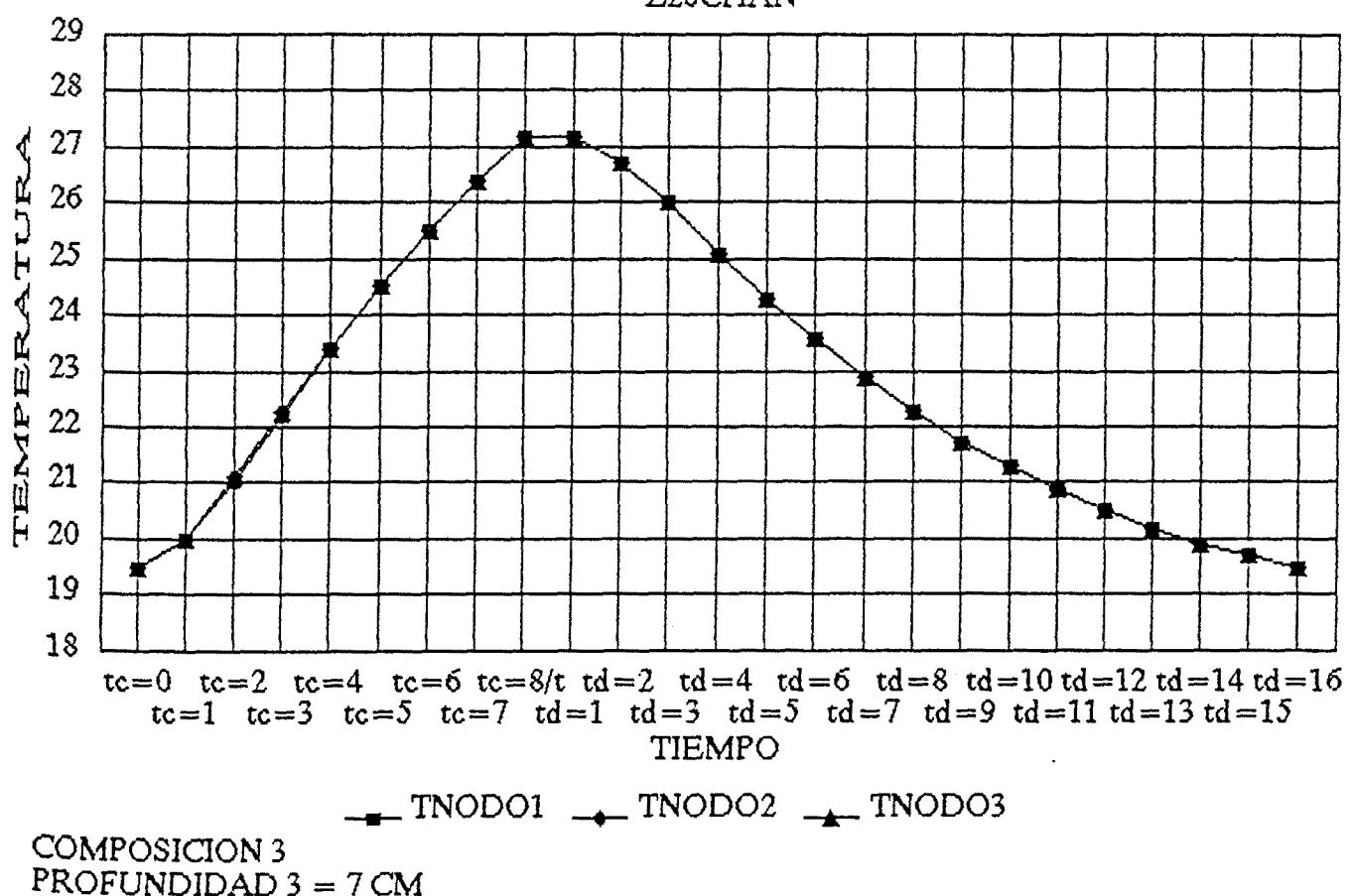
Z0CHAN



GRAFICOS MODH33

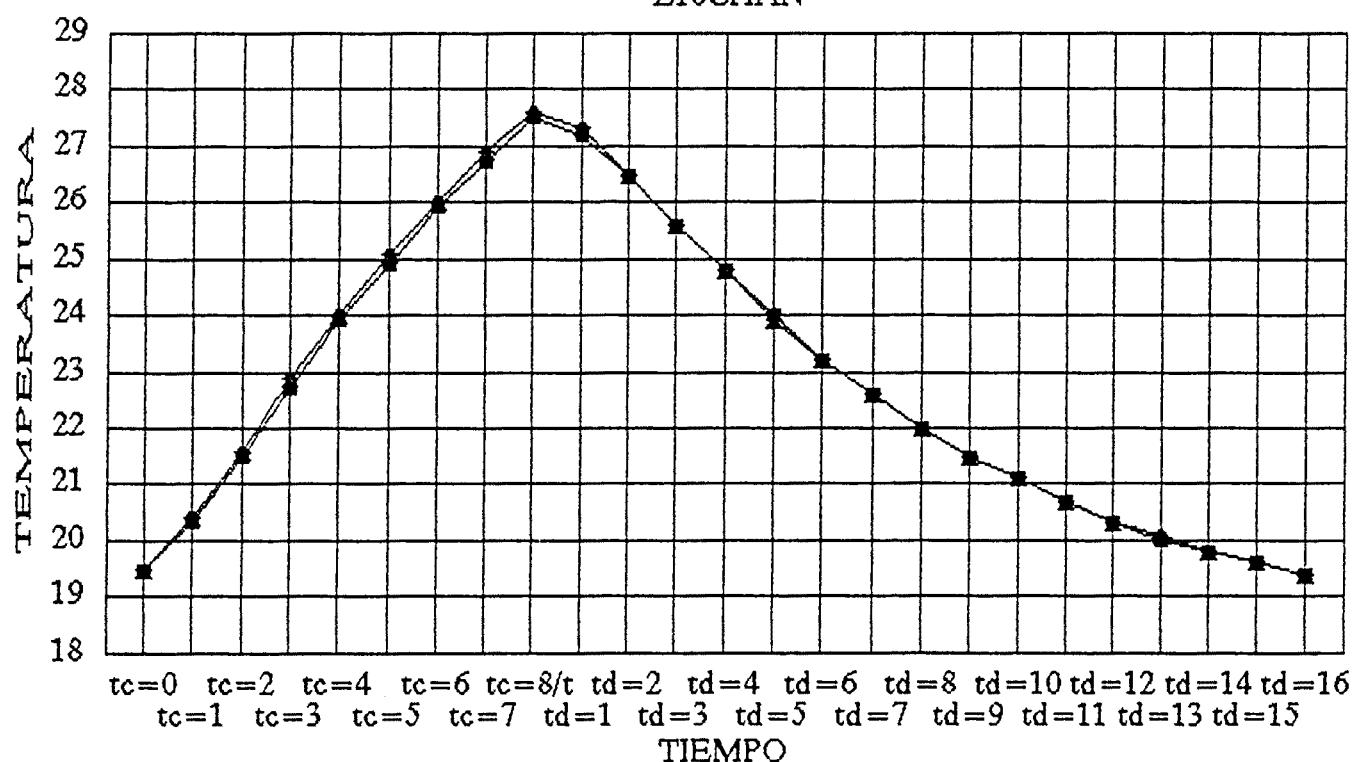
MODH33

Z20CHAN



MODH33

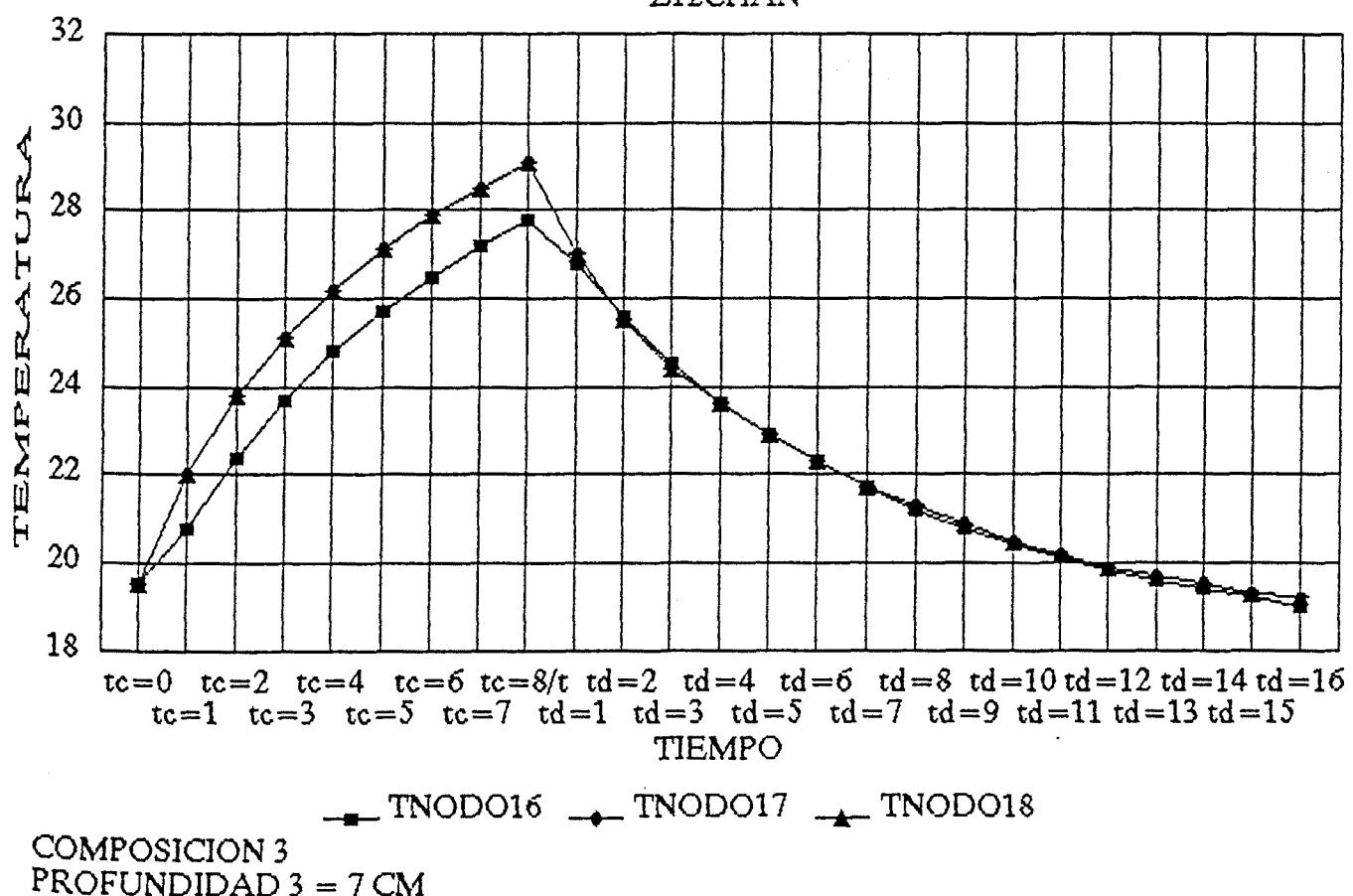
Z16CHAN



COMPOSICION 3
PROFUNDIDAD 3 = 7 CM

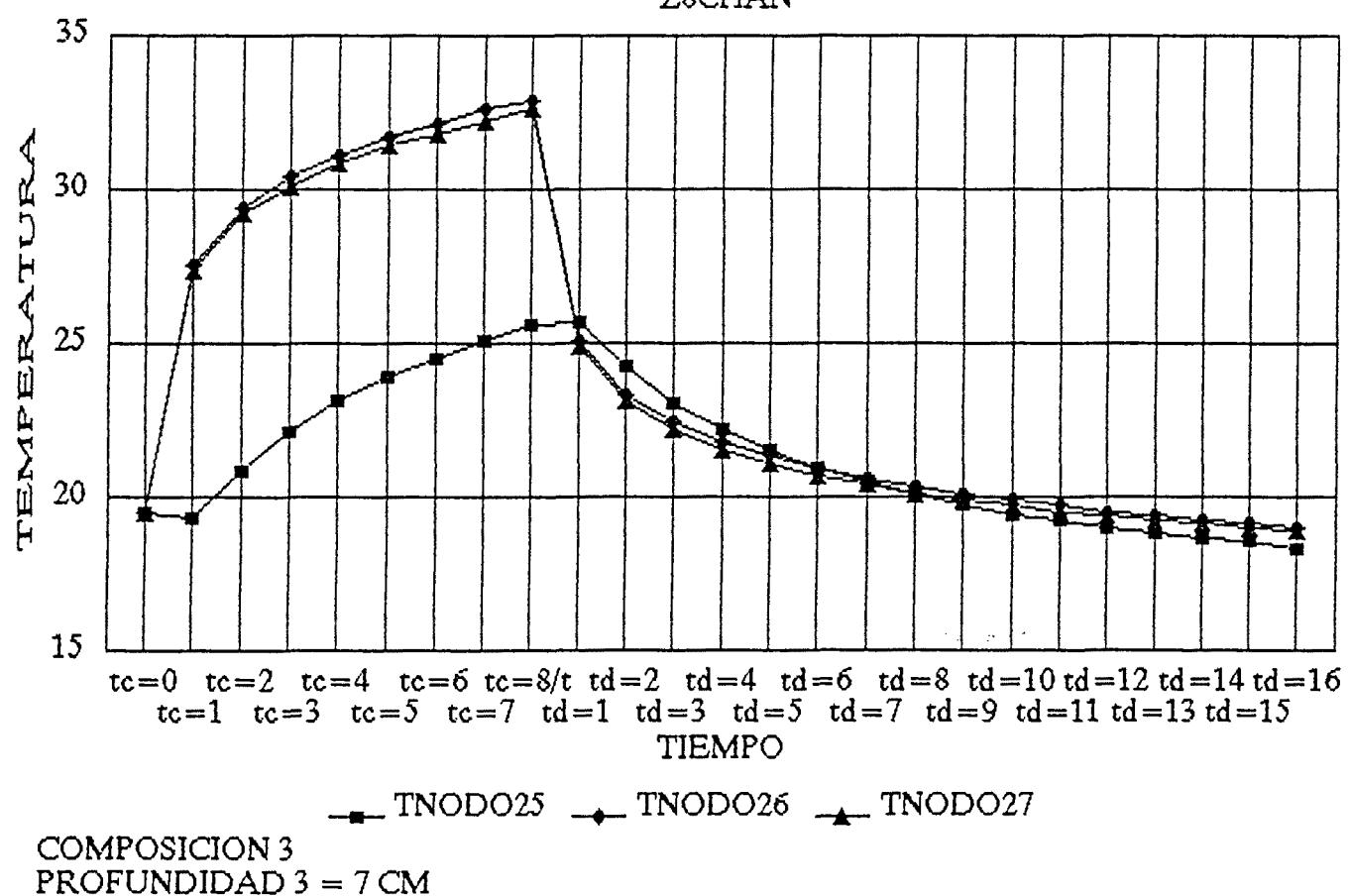
MODH33

Z12CHAN



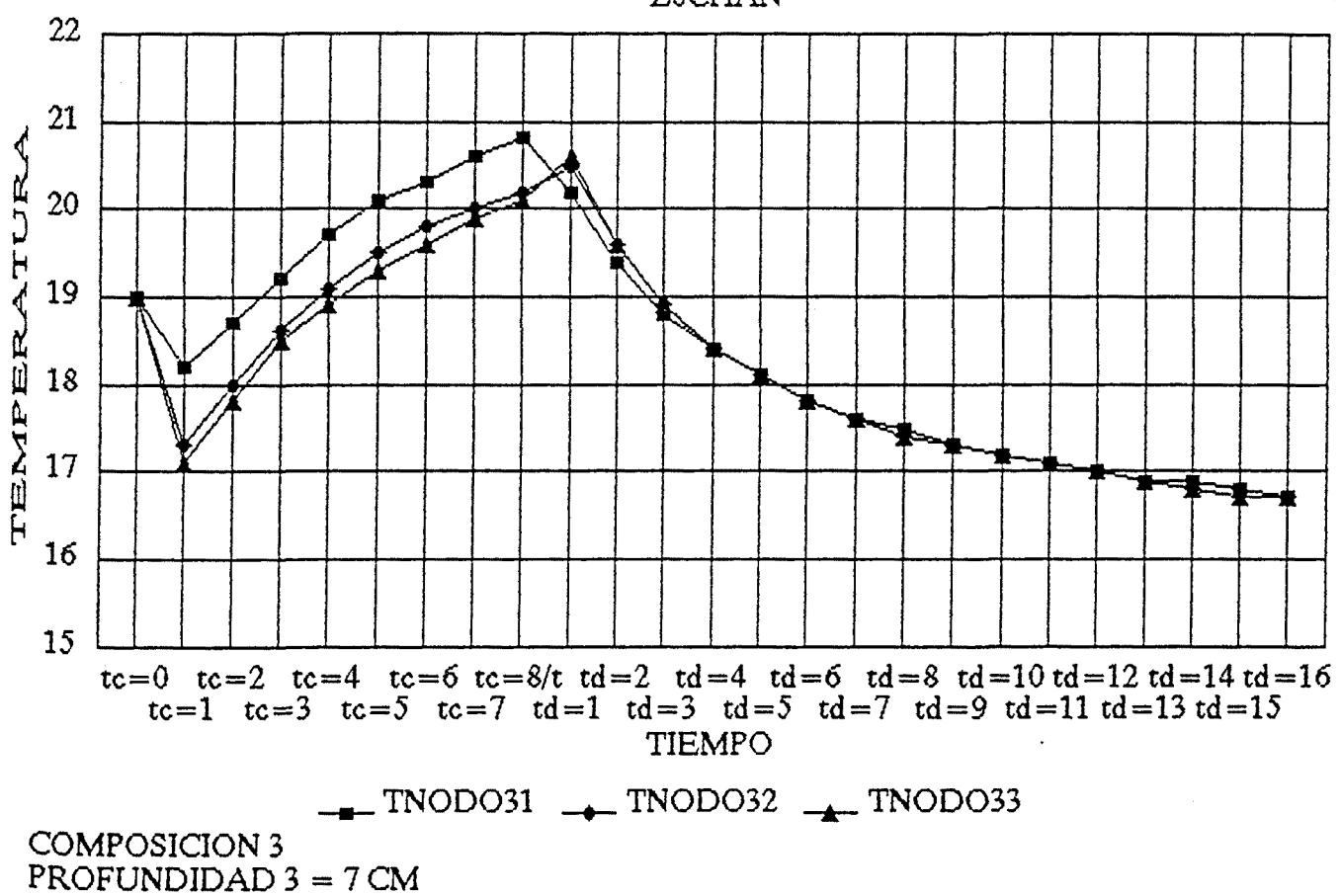
MODH33

Z8CHAN



MODH33

Z0CHAN





I.2 R E S U L T A D O S MODELIZACION ANALISIS DOSIFICACION HORMIGON GRAFICOS MODHDx

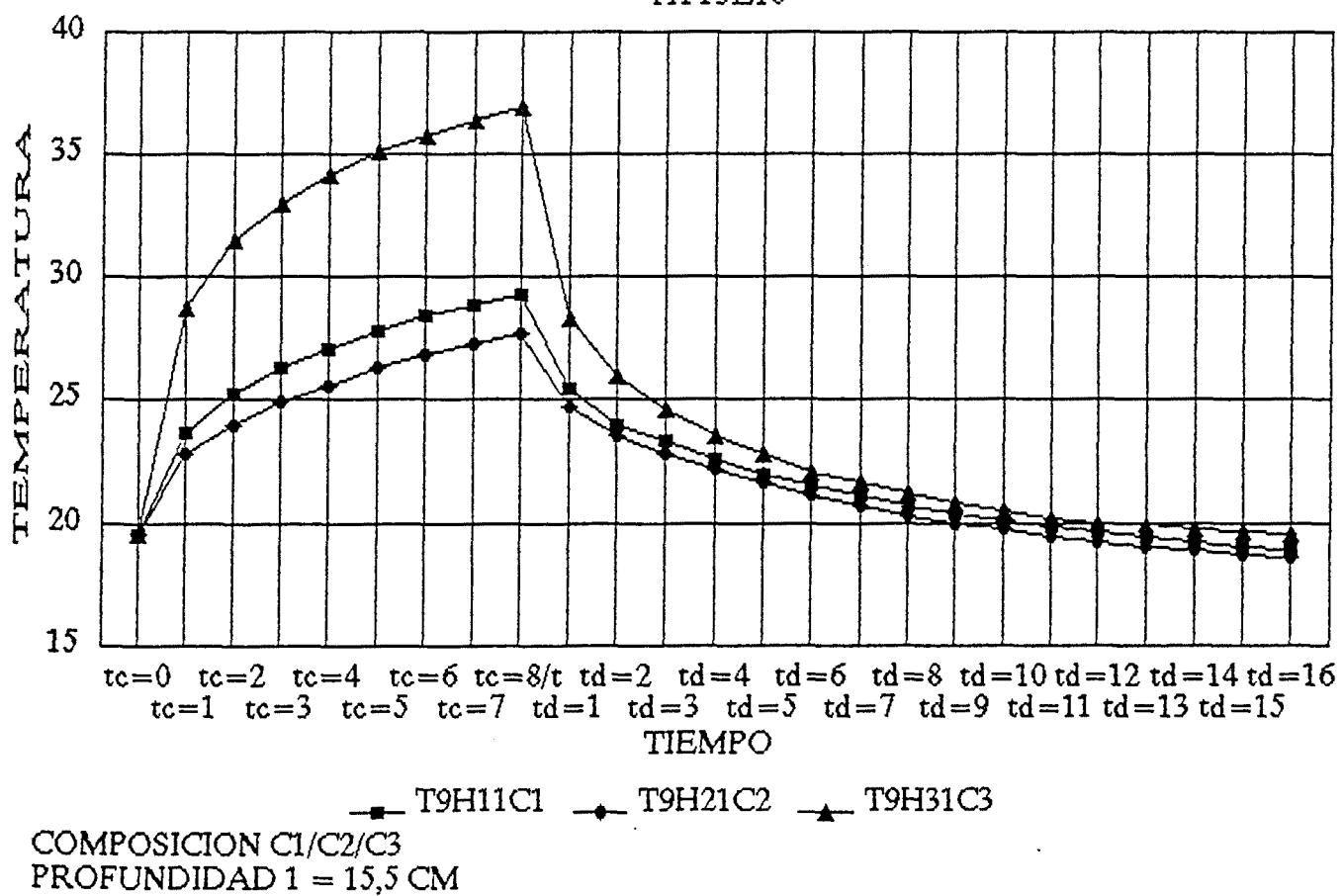
GRAFICOS MODHD1

LOSAS COMPARADAS	H11	H21	H31
COMPOSICIONES	C1	C2	C3
PROFUNDIDAD	P1	P1	P1



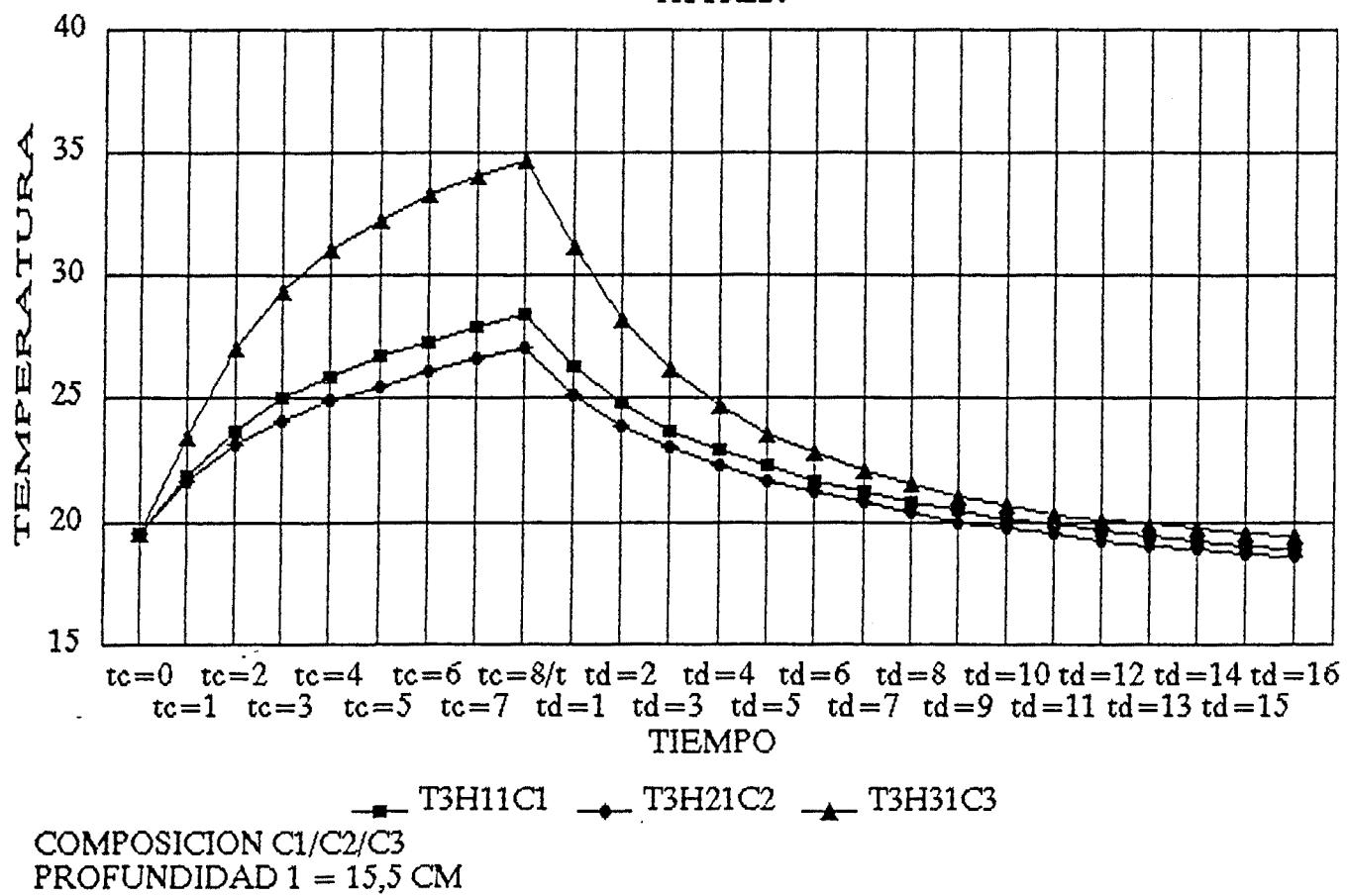
MODHD1 (H11-H21-H31)

H1T9Z16



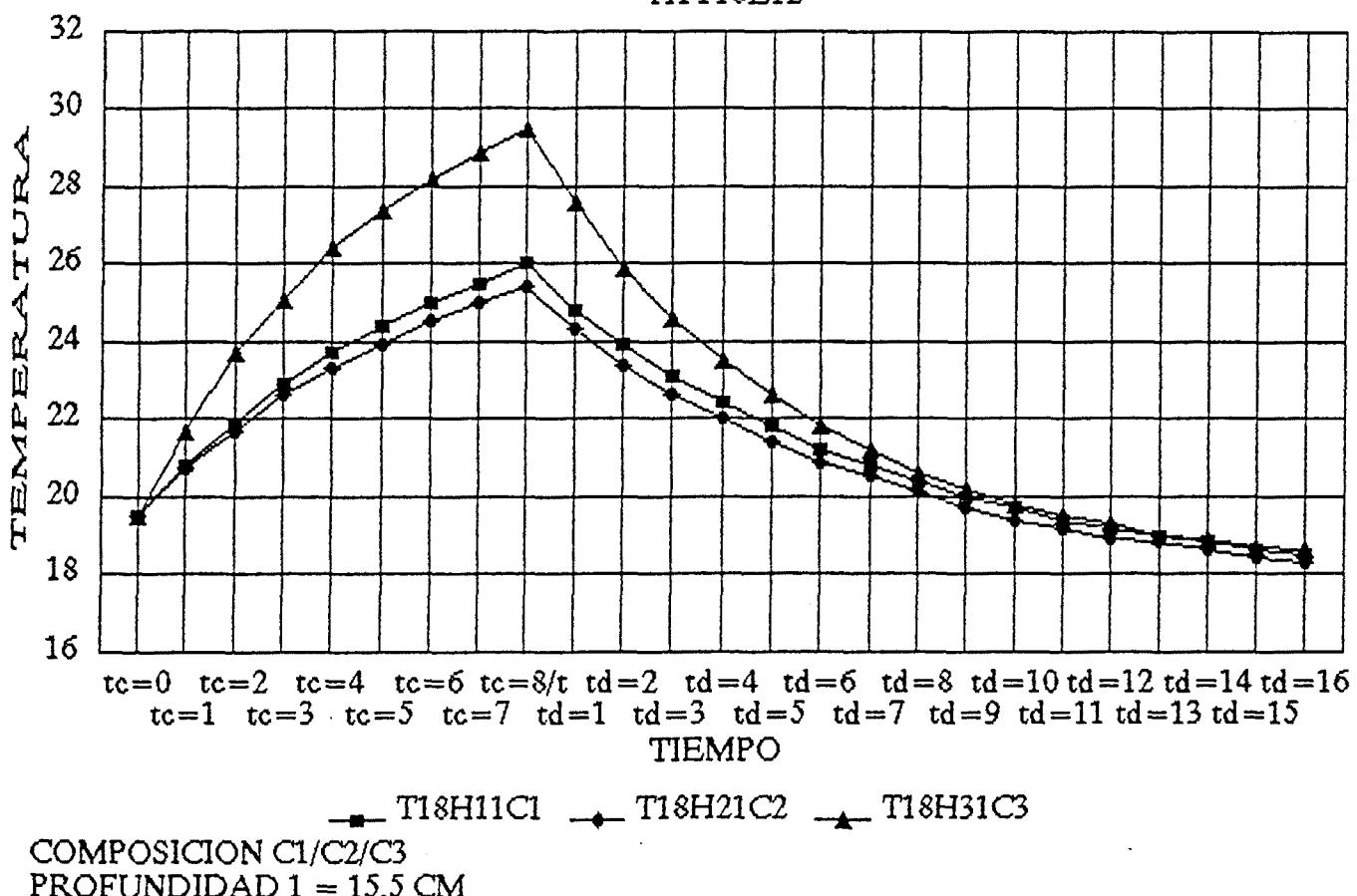
MODHD1 (H11-H21-H31)

H1T3Z20



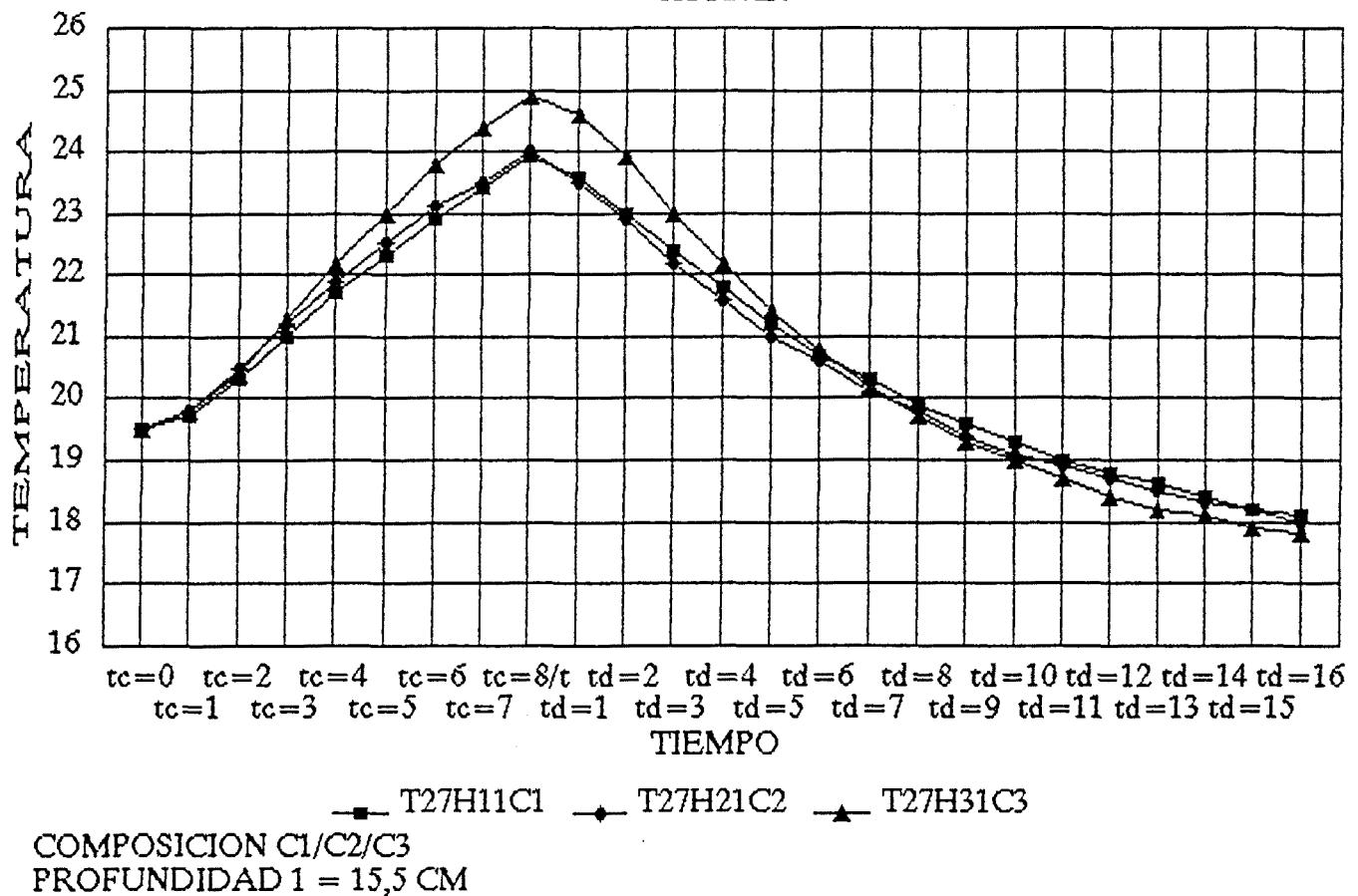
MODHD1 (H11-H21-H31)

H1T18Z12



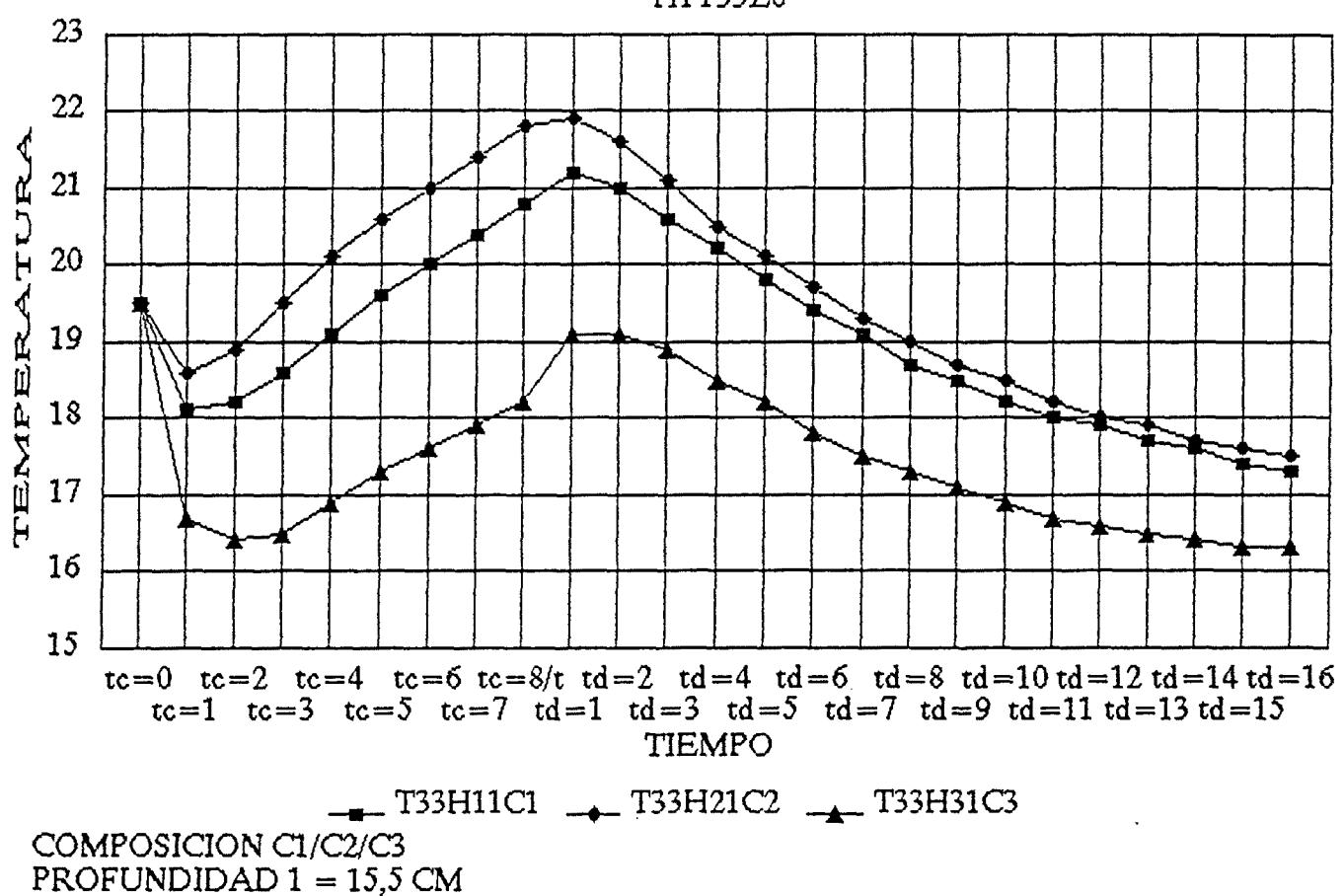
MODHD1 (H11-H21-H31)

H1T27Z8



MODHD1 (H11-H21-H31)

H1T33Z0

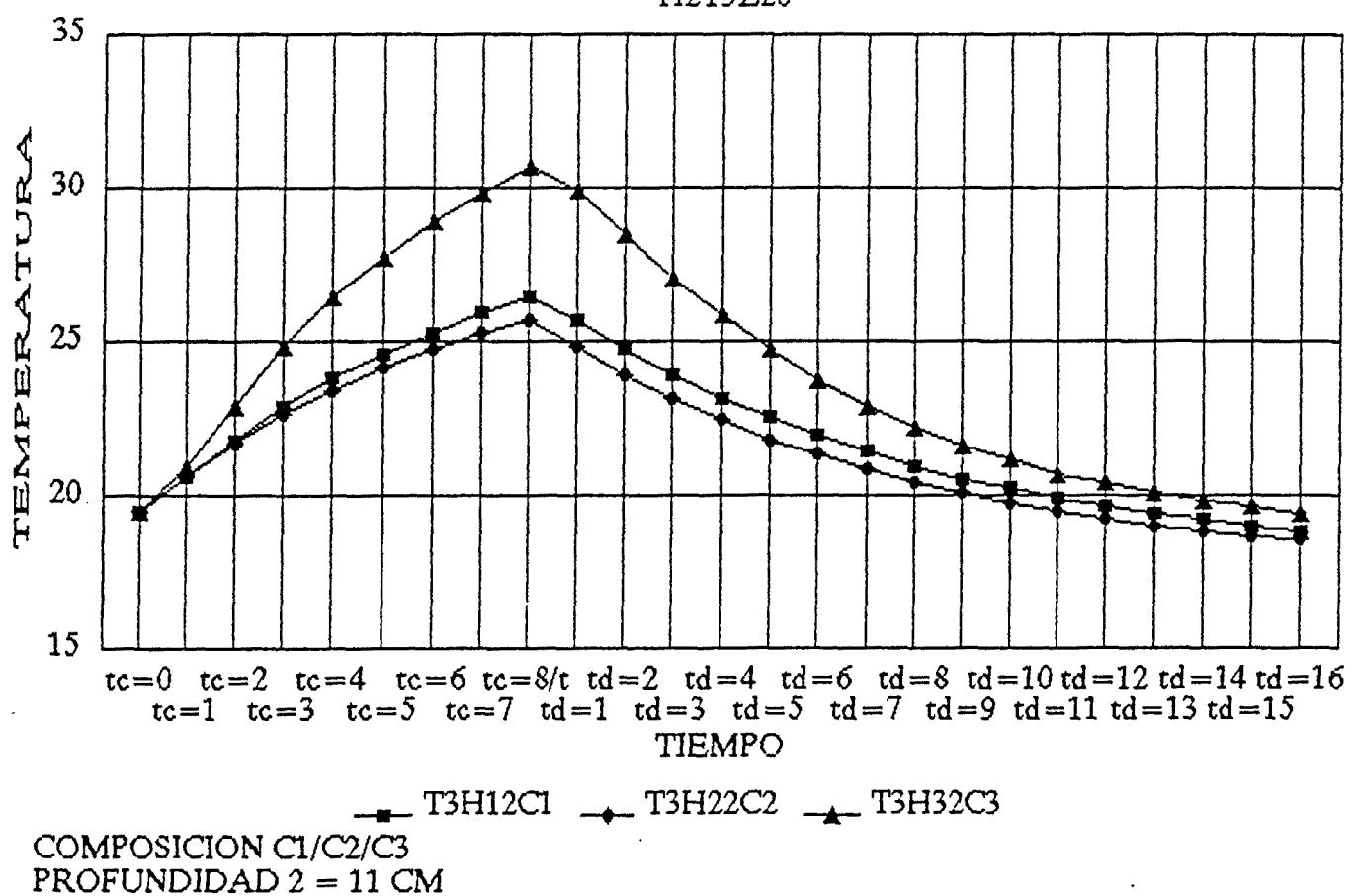


GRAFICOS MODHD2

LOSAS COMPARADAS	H12	H22	H32
COMPOSICIONES	C1	C2	C3
PROFUNDIDAD	P2	P2	P2

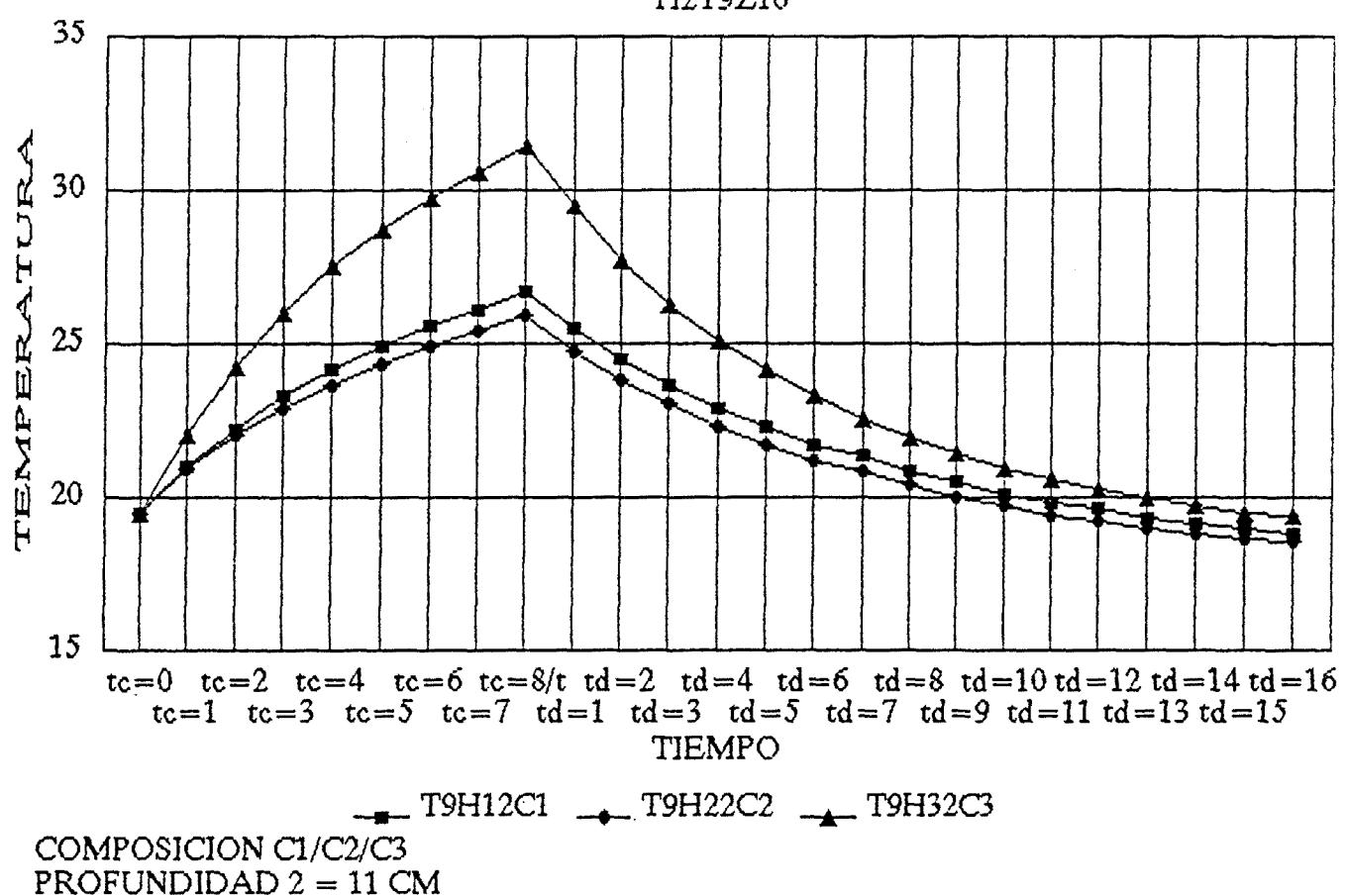
MODHD2 (H12-H22-H32)

H2T3Z20



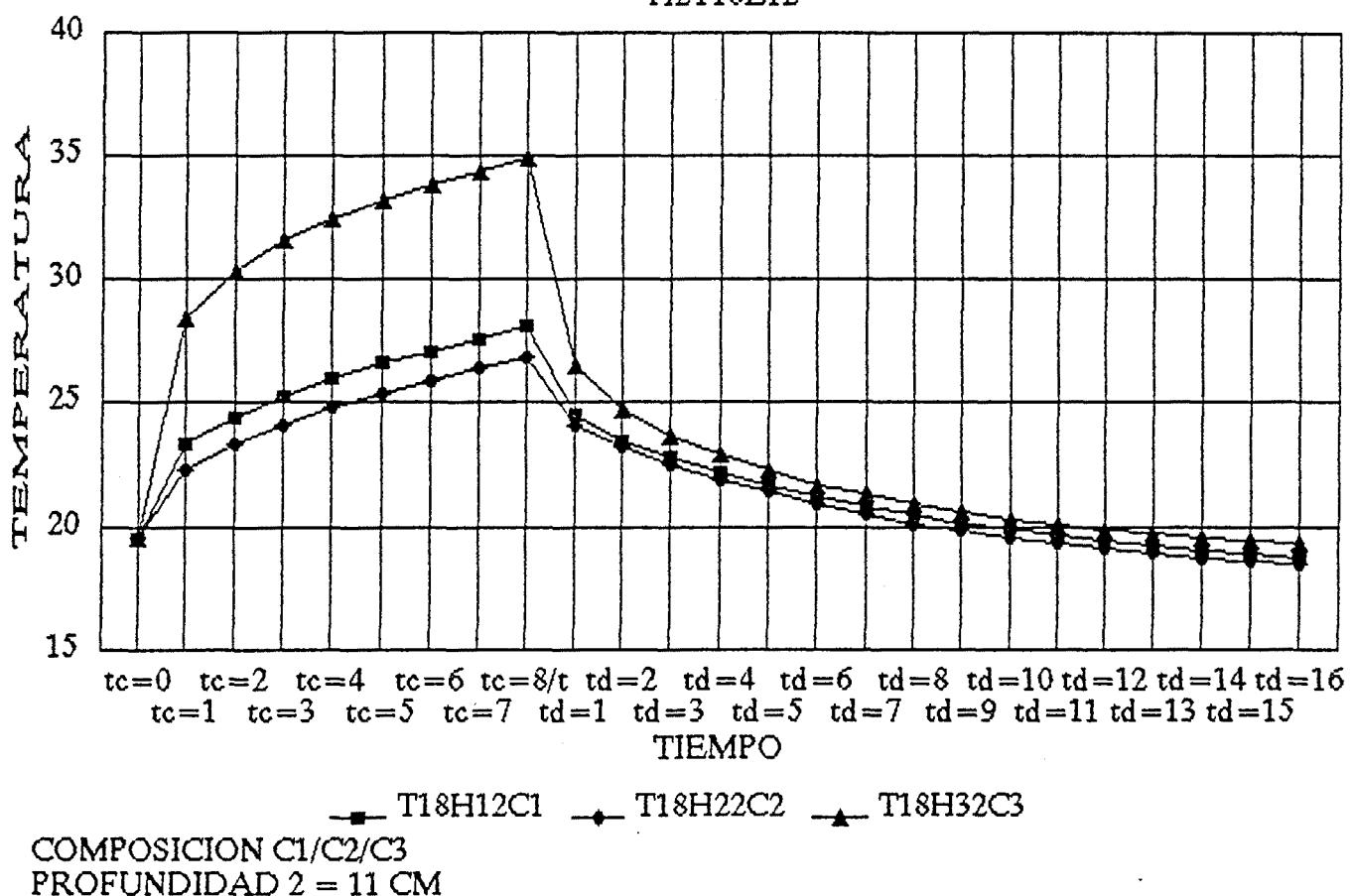
MODHD2 (H12-H22-H32)

H2T9Z16



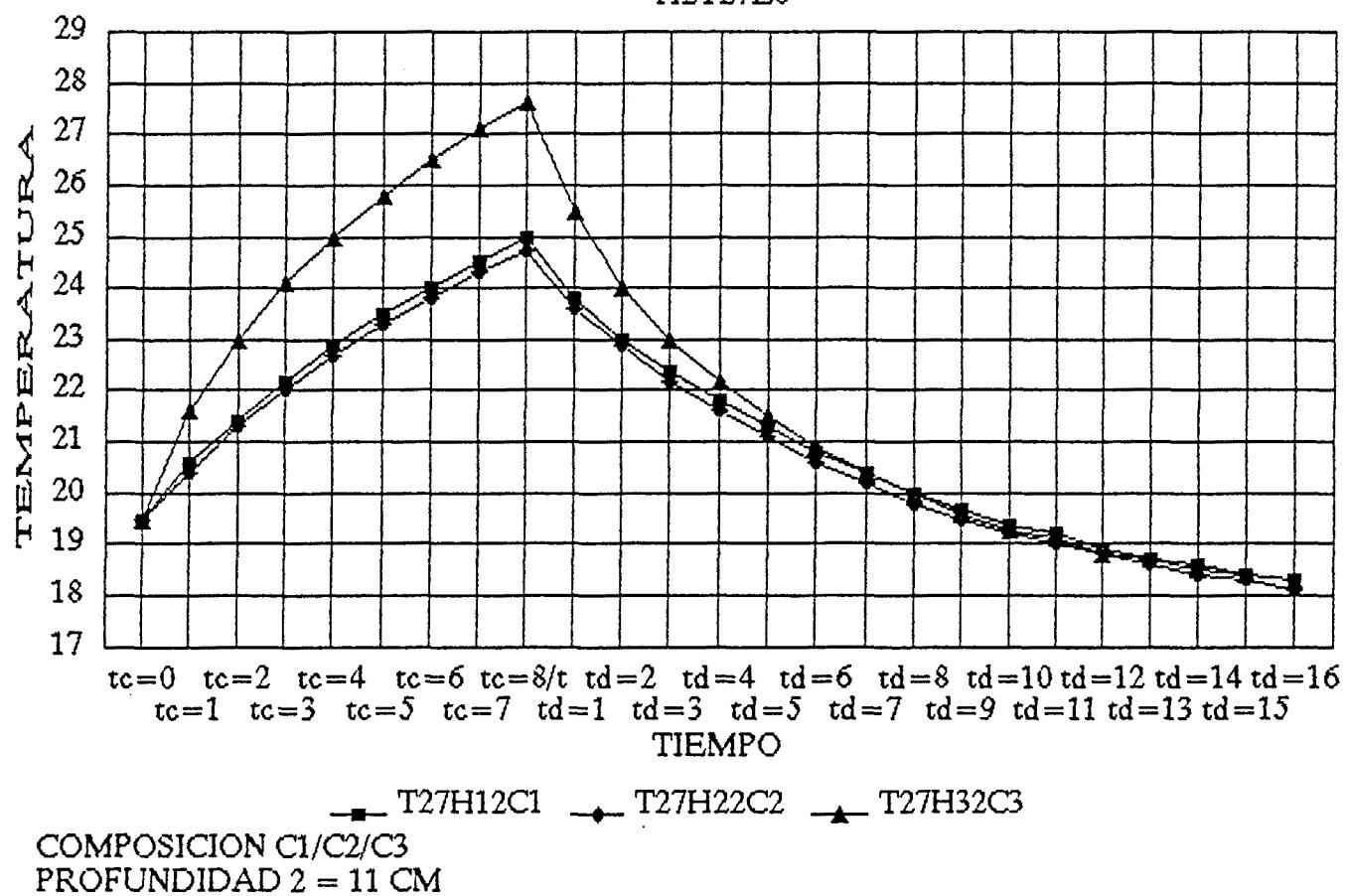
MODHD2 (H12-H22-H32)

H2T18Z12



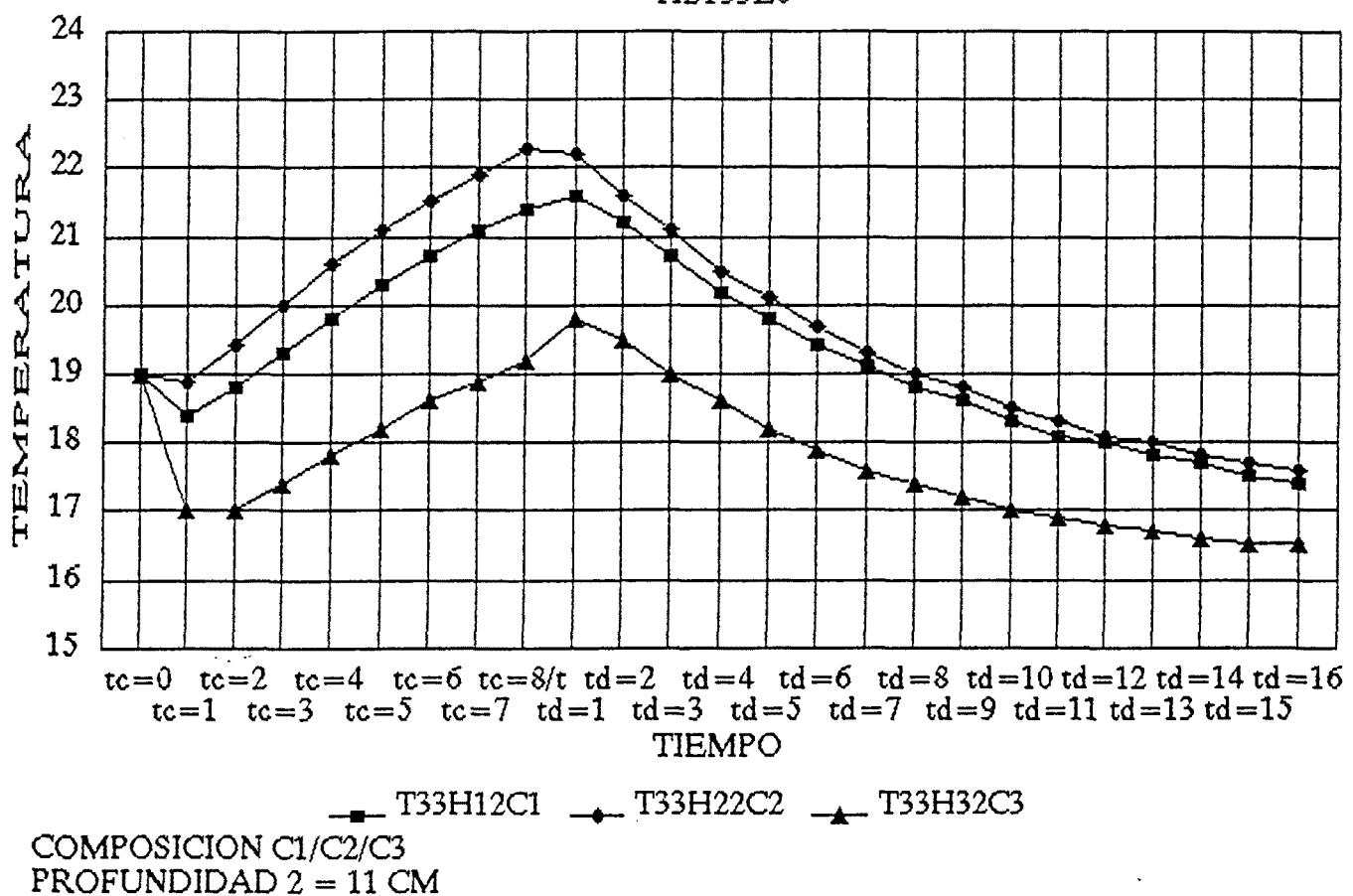
MODHD2 (H12-H22-H32)

H2T27Z8



MODHD2 (H12–H22–H32)

H2T33Z0

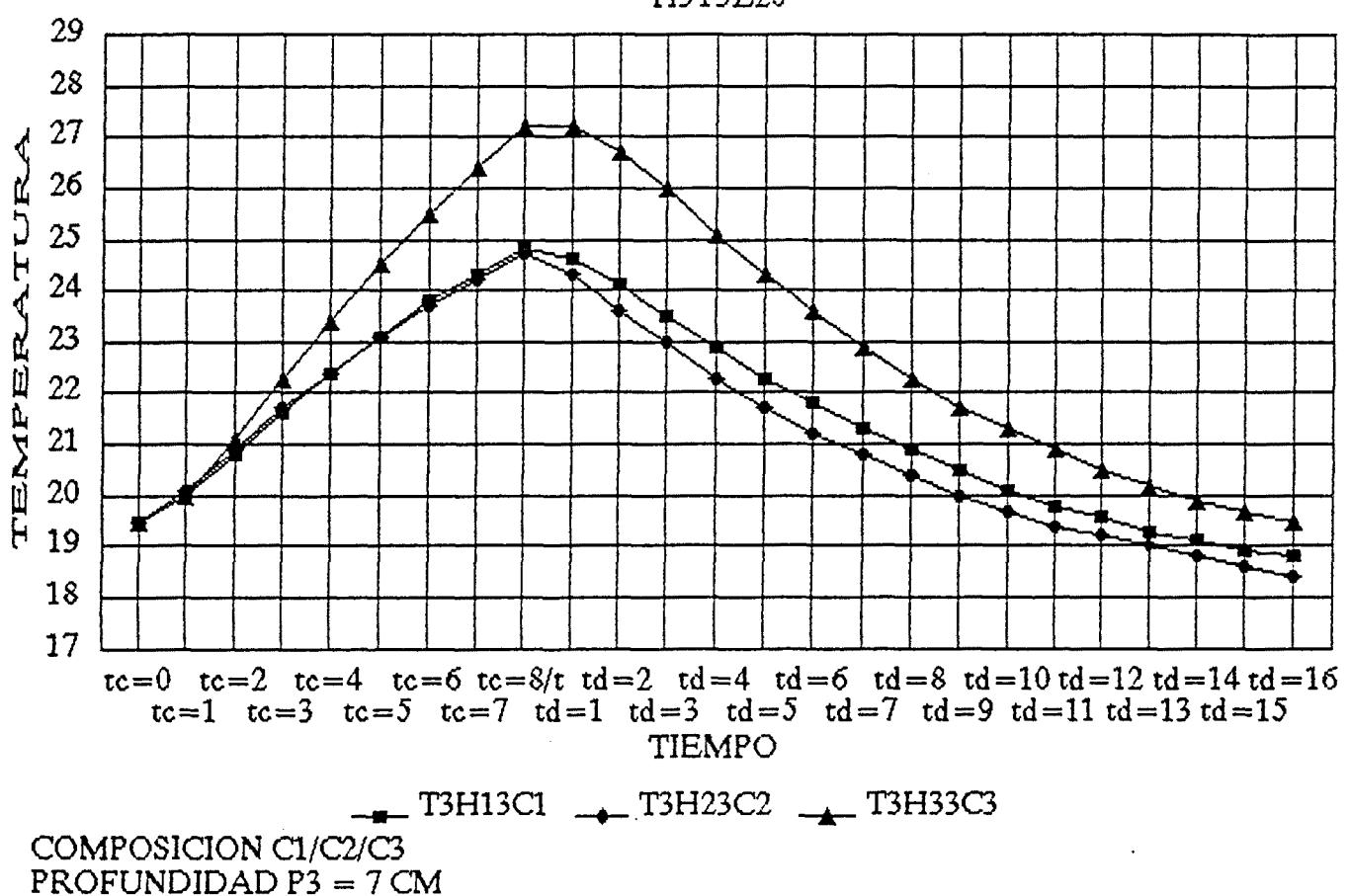


GRAFICOS MODHD3

LOSAS COMPARADAS	H13	H23	H33
COMPOSICIONES	C1	C2	C3
PROFUNDIDAD	P3	P3	P3

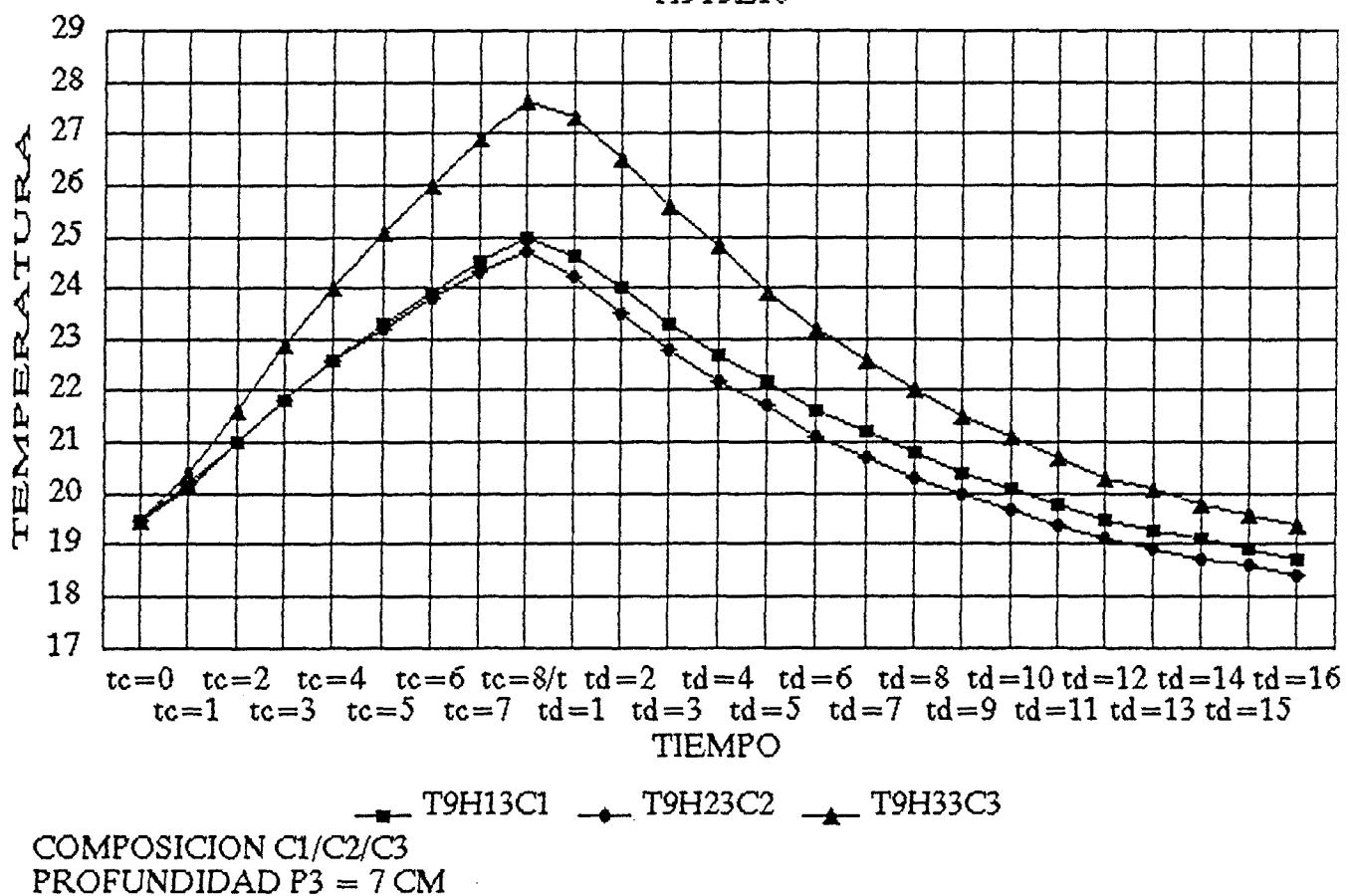
MODHD3 (H13-H23-H33)

H3T3Z20



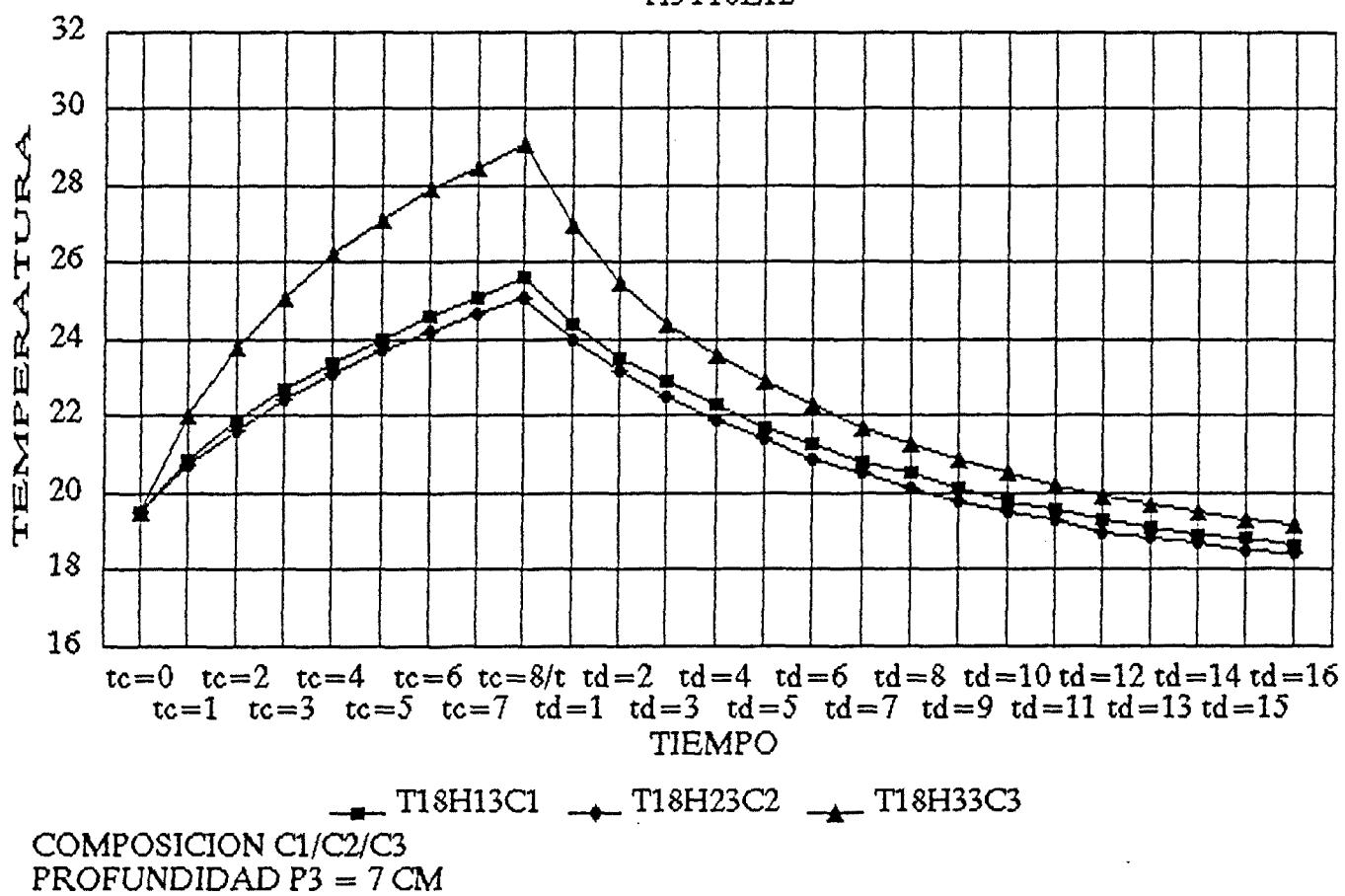
MODHD3 (H13-H23-H33)

H3T9Z16



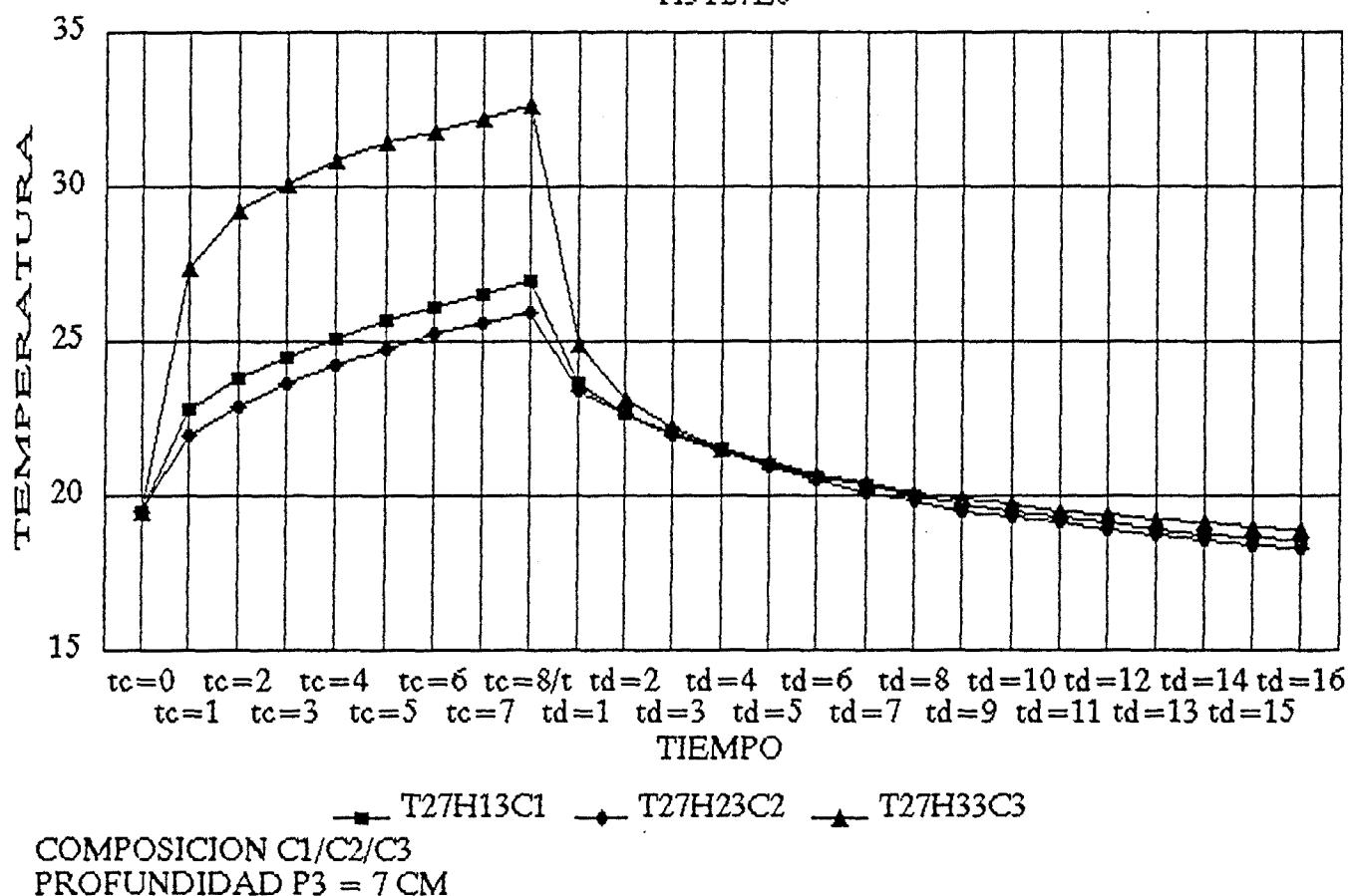
MODHD3 (H13-H23-H33)

H3T18Z12



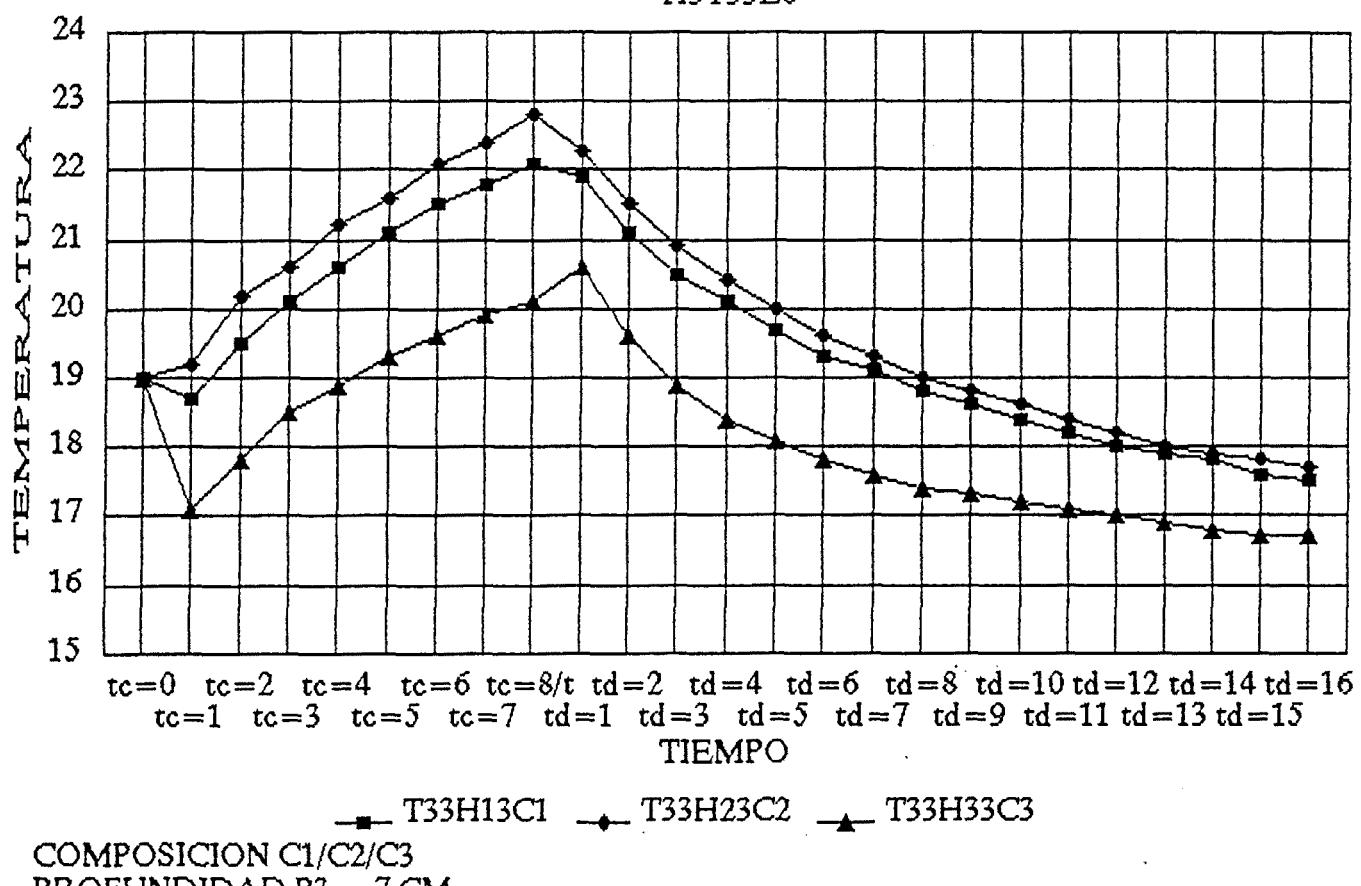
MODHD3 (H13-H23-H33)

H3T27Z8



MODHD3 (H13–H23–H33)

H3T33Z0



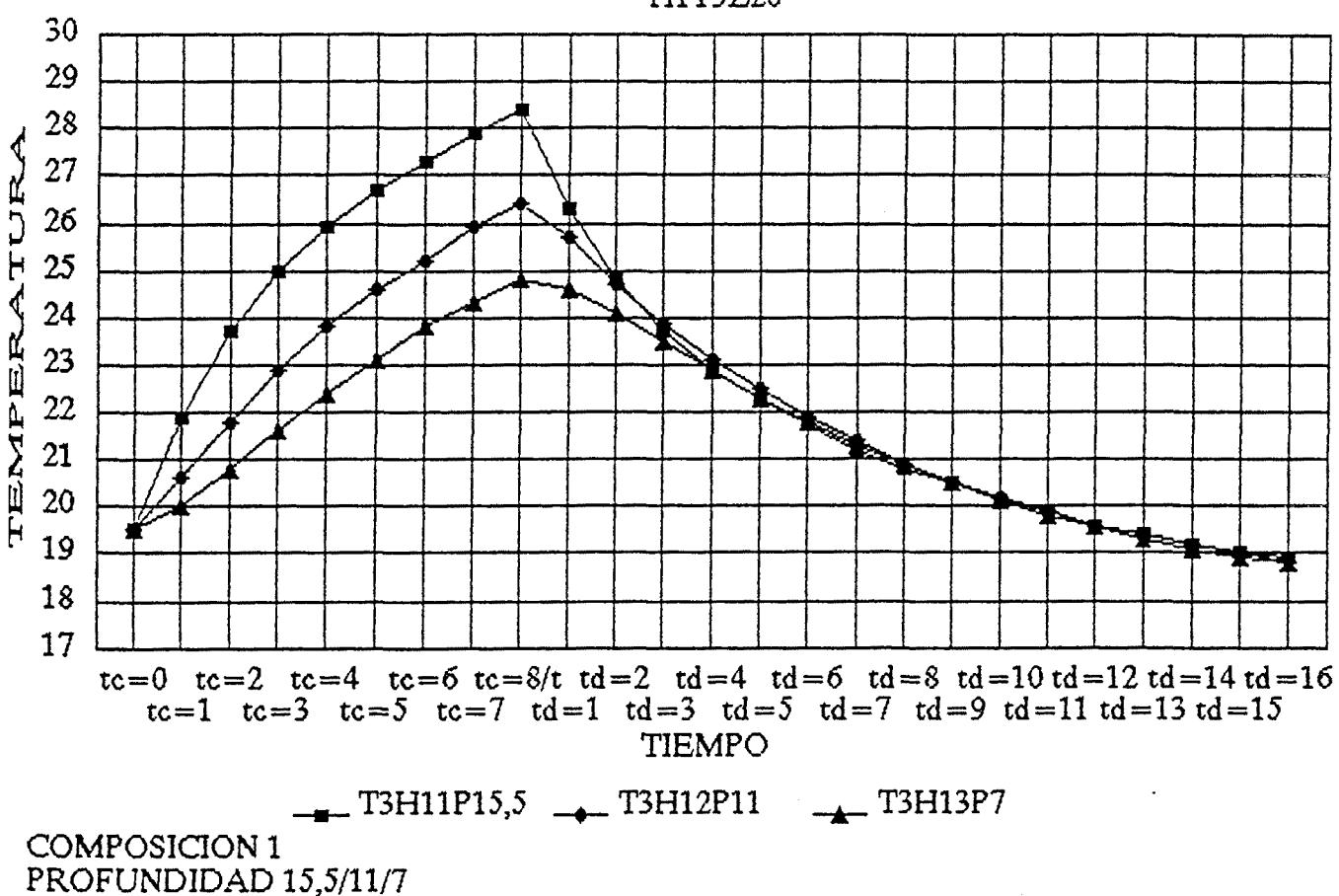
I.3 R E S U L T A D O S MODELIZACION ANALISIS PROFUNDIDAD DE EMBEBIDO GRAFICOS MODHxP

GRAFICOS MODH1P

LOSAS COMPARADAS	H11	H12	H13
PROFUNDIDADES	P1	P2	P3
COMPOSICION	C1	C1	C1

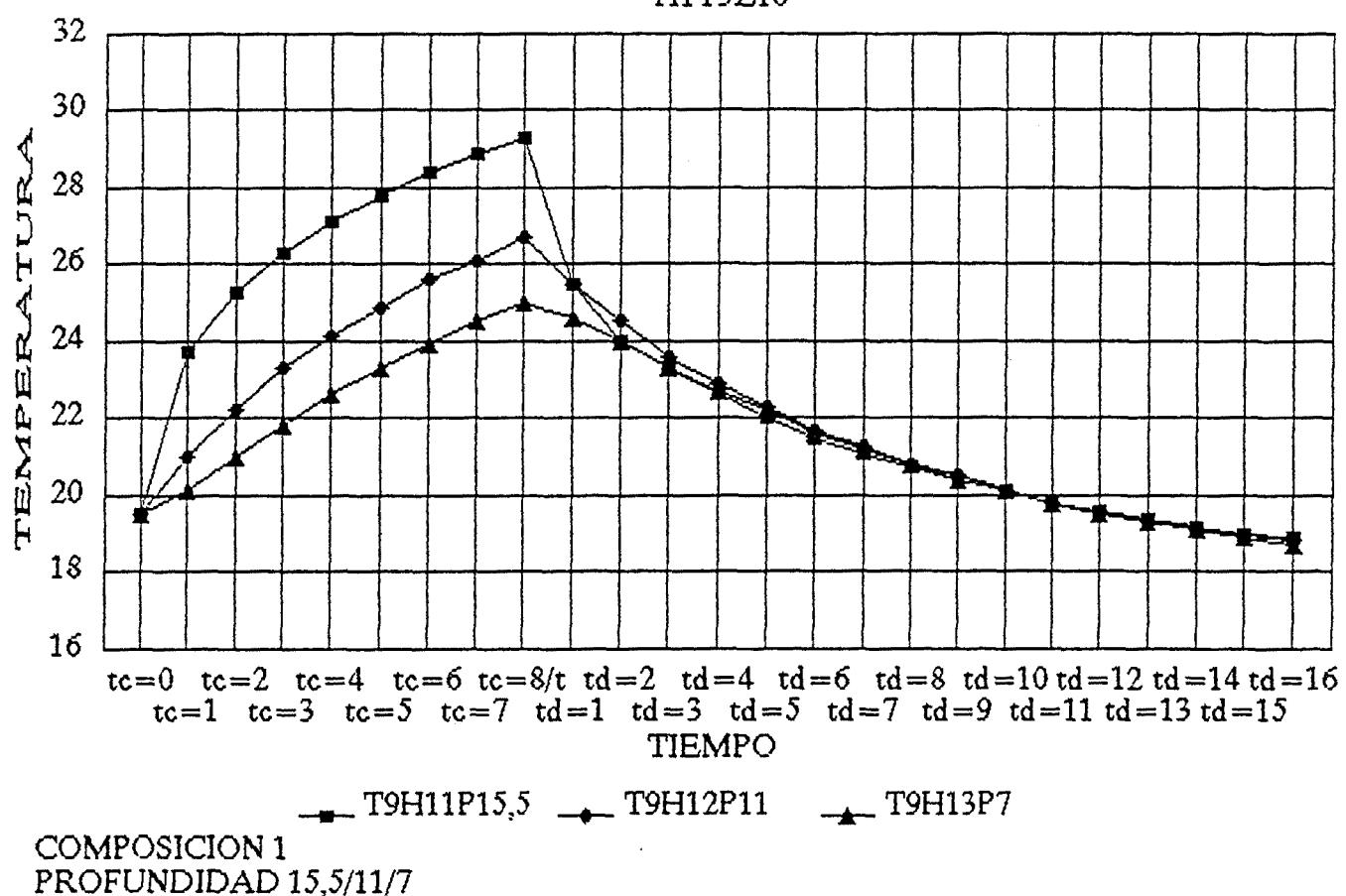
MODH1P (H11-H12-H13)

H1T3Z20



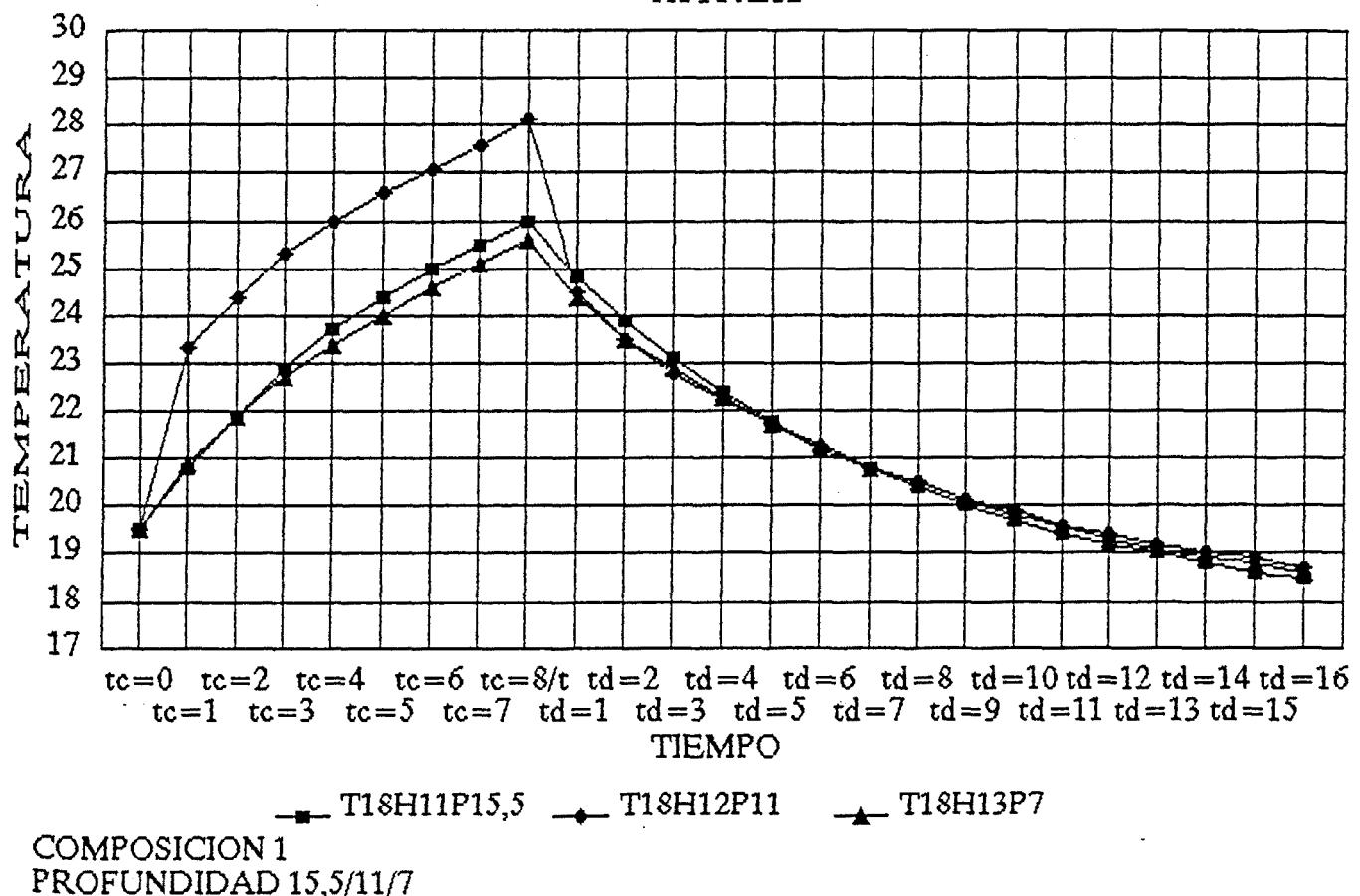
MODH1P (H11-H12-H13)

H1T9Z16



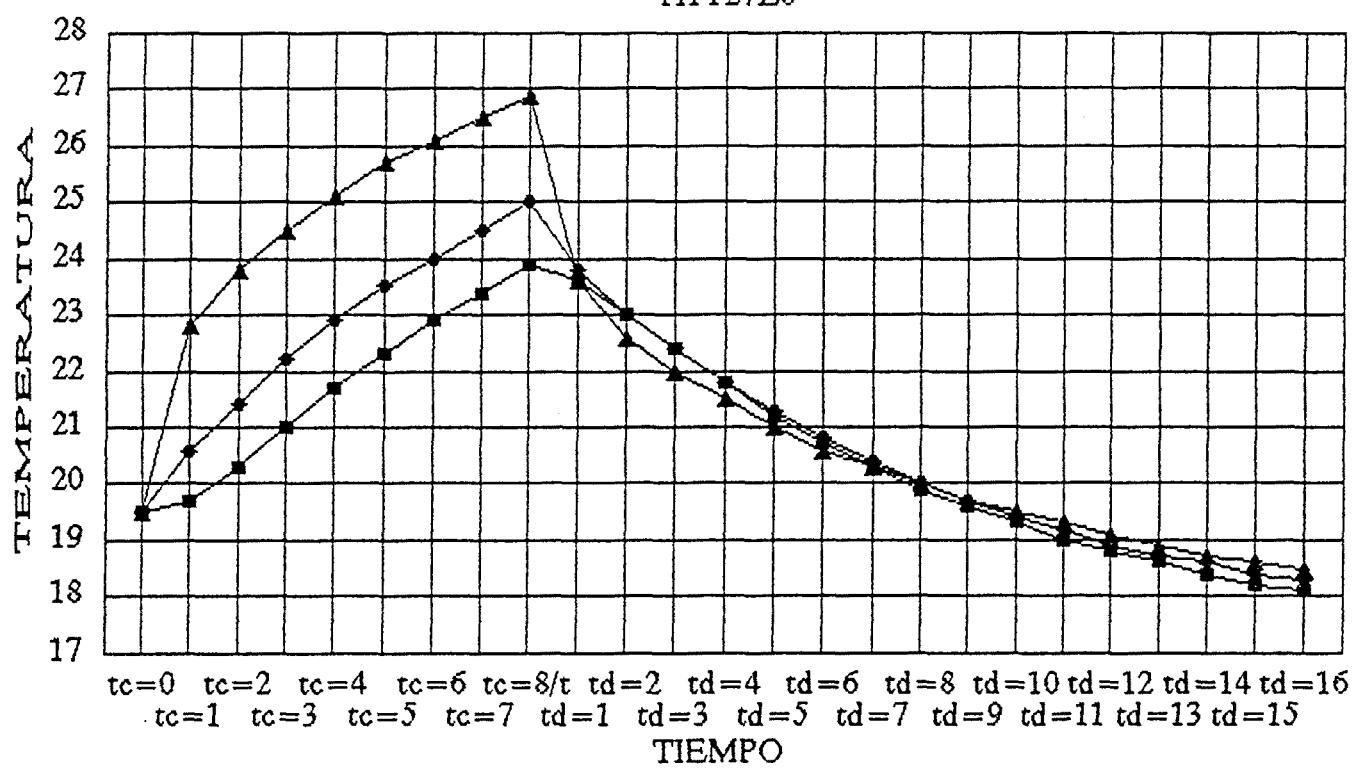
MODH1P (H11-H12-H13)

H1T18Z12



MODH1P (H11-H12-H13)

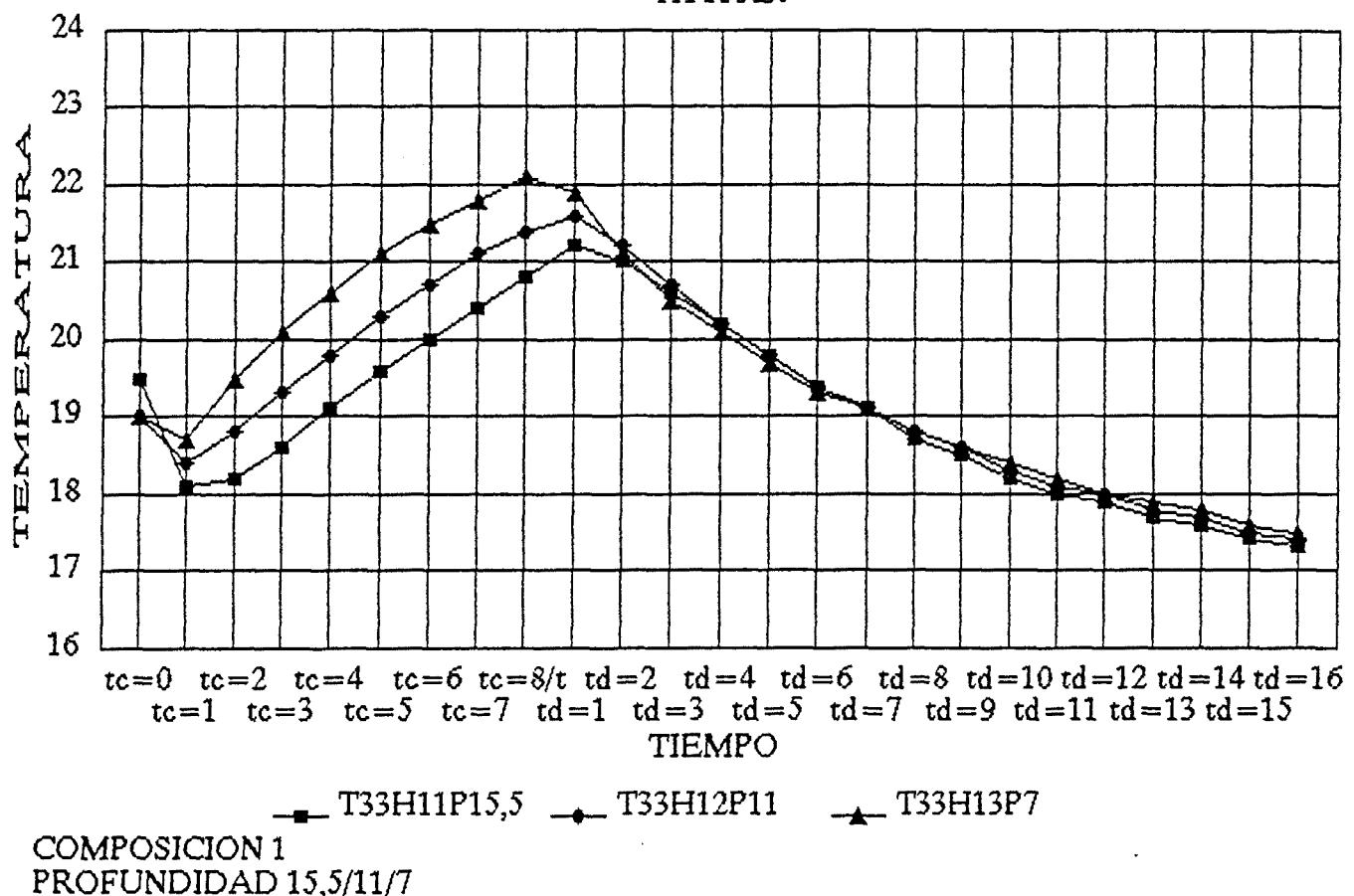
H1T27Z8



COMPOSICION 1
PROFUNDIDAD 15,5/11/7

MODH1P (H11-H12-H13)

H1T33Z0





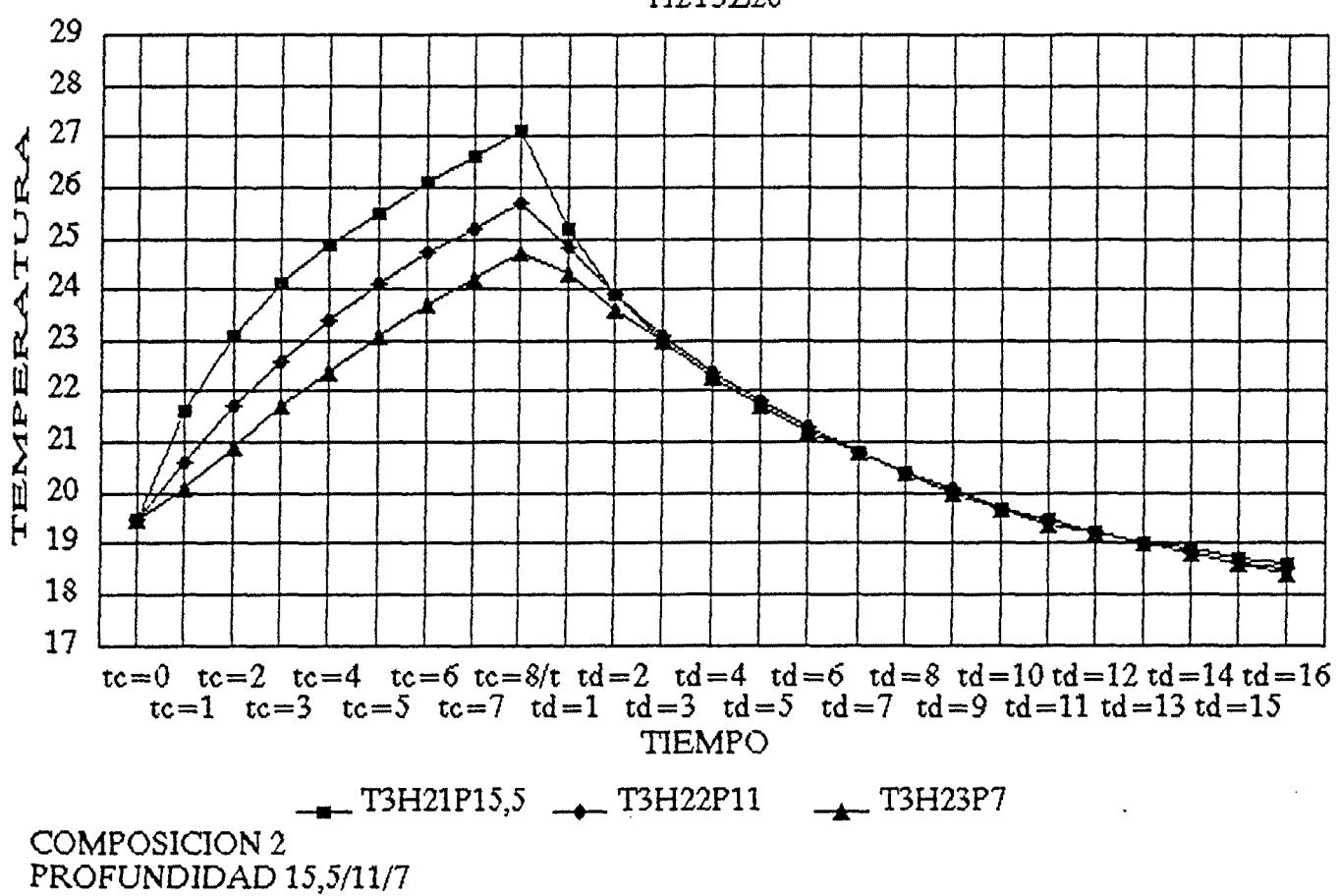
GRAFICOS MODH2P

LOSAS COMPARADAS	H21	H22	H23
PROFUNDIDADES	P1	P2	P3
COMPOSICION	C2	C2	C2



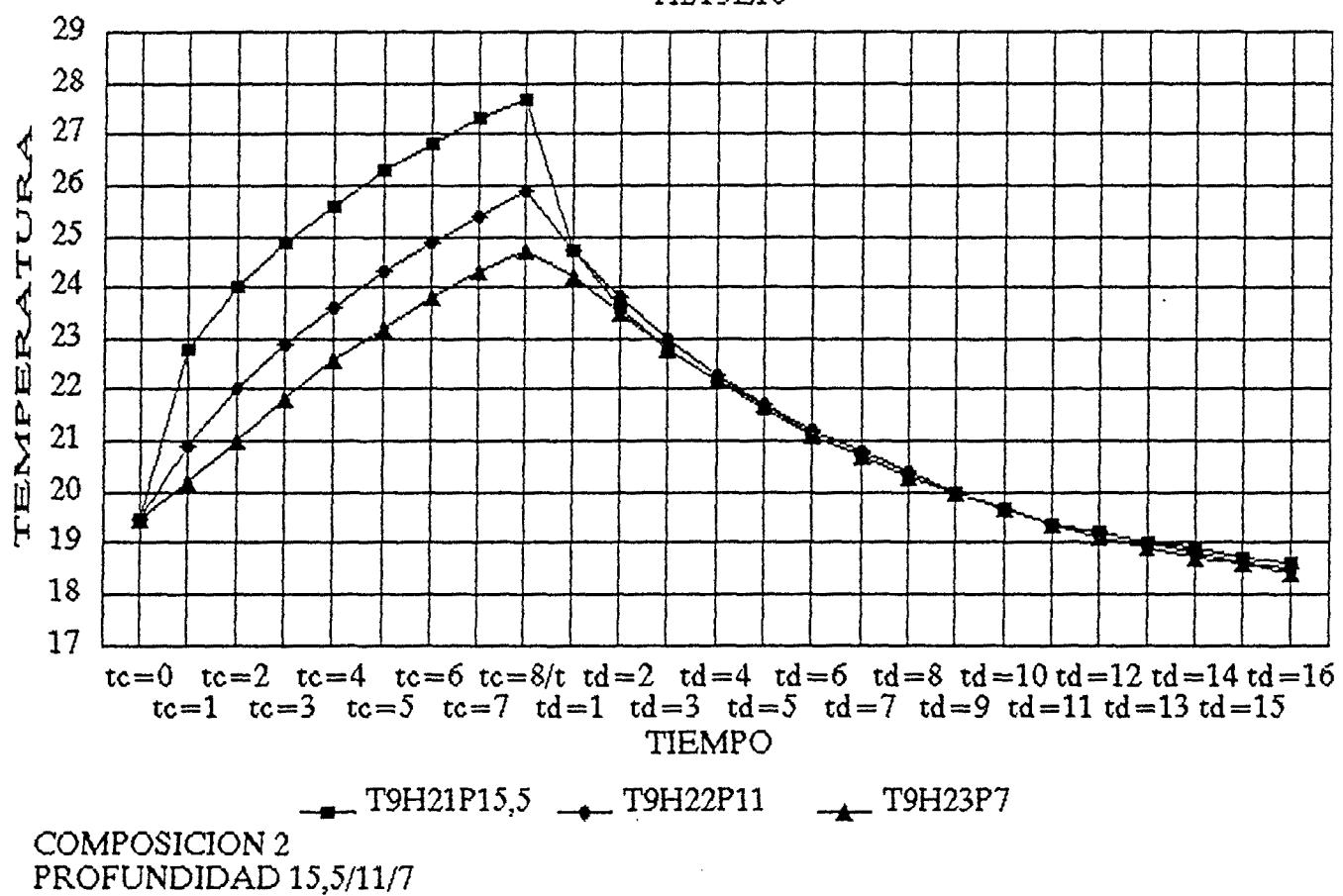
MODH2P (H21-H22-H23)

H2T3Z20



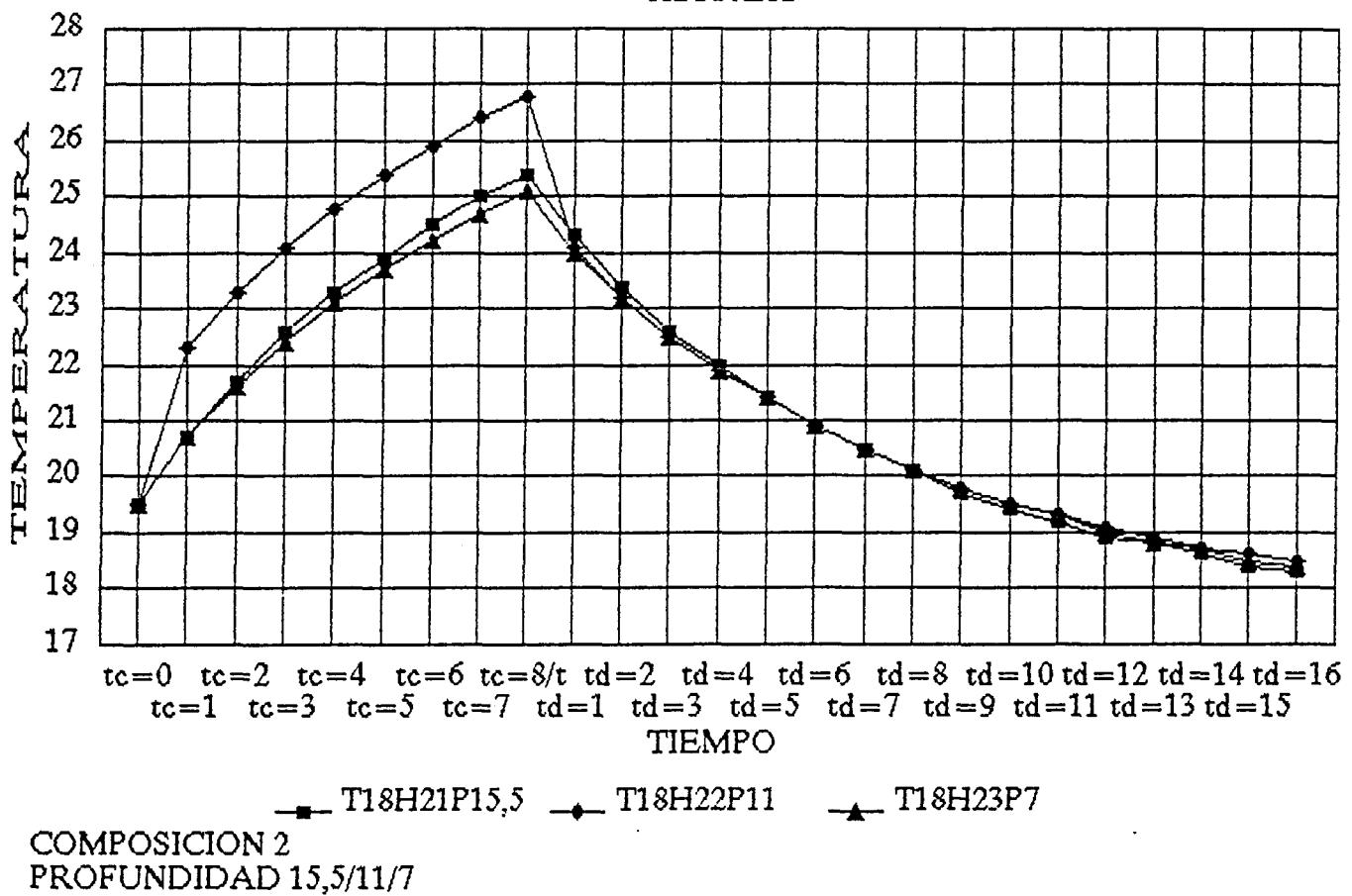
MODH2P (H21-H22-H23)

H2T9Z16



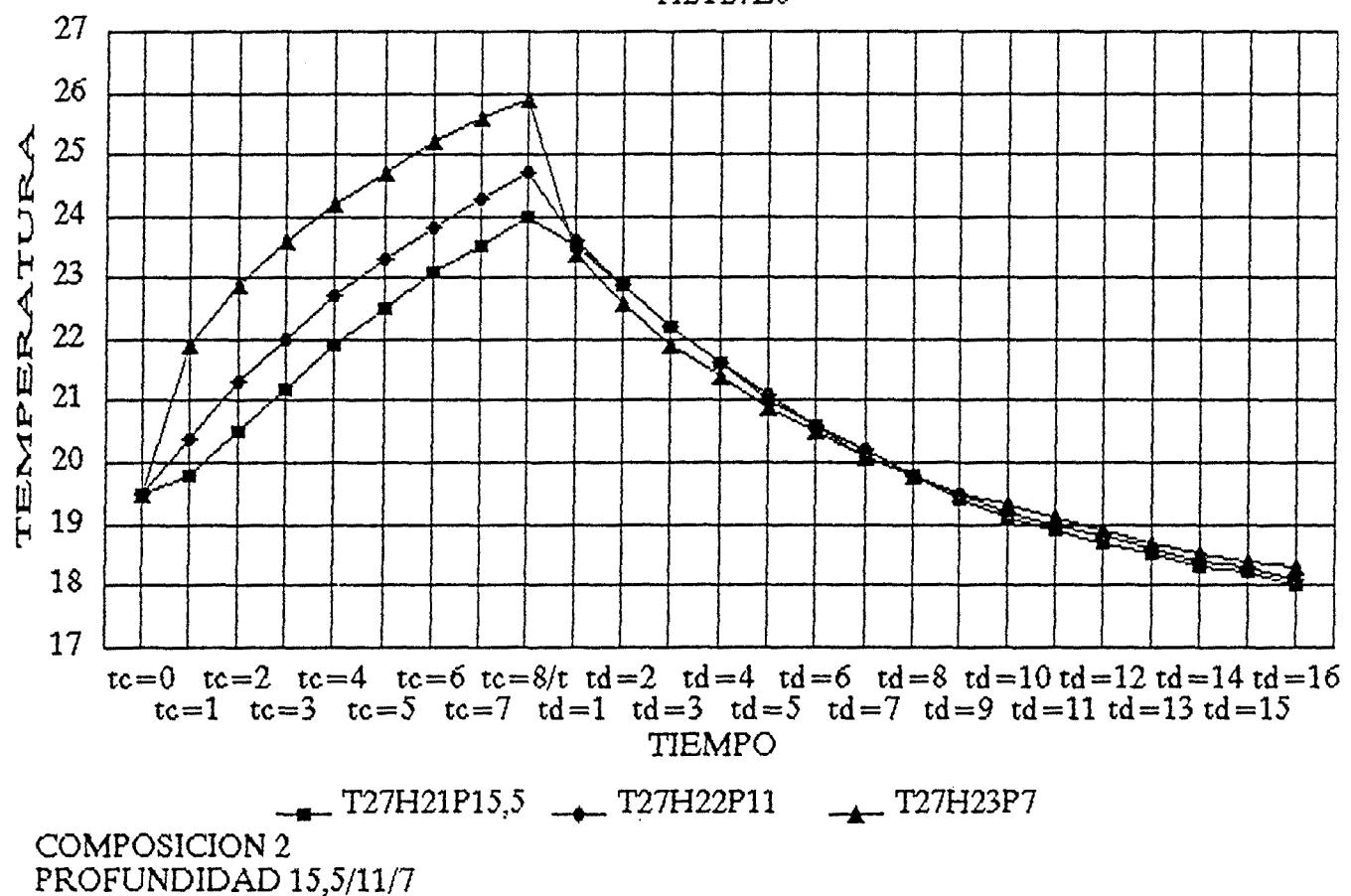
MODH2P (H21 – H22 – H23)

H2T18Z12



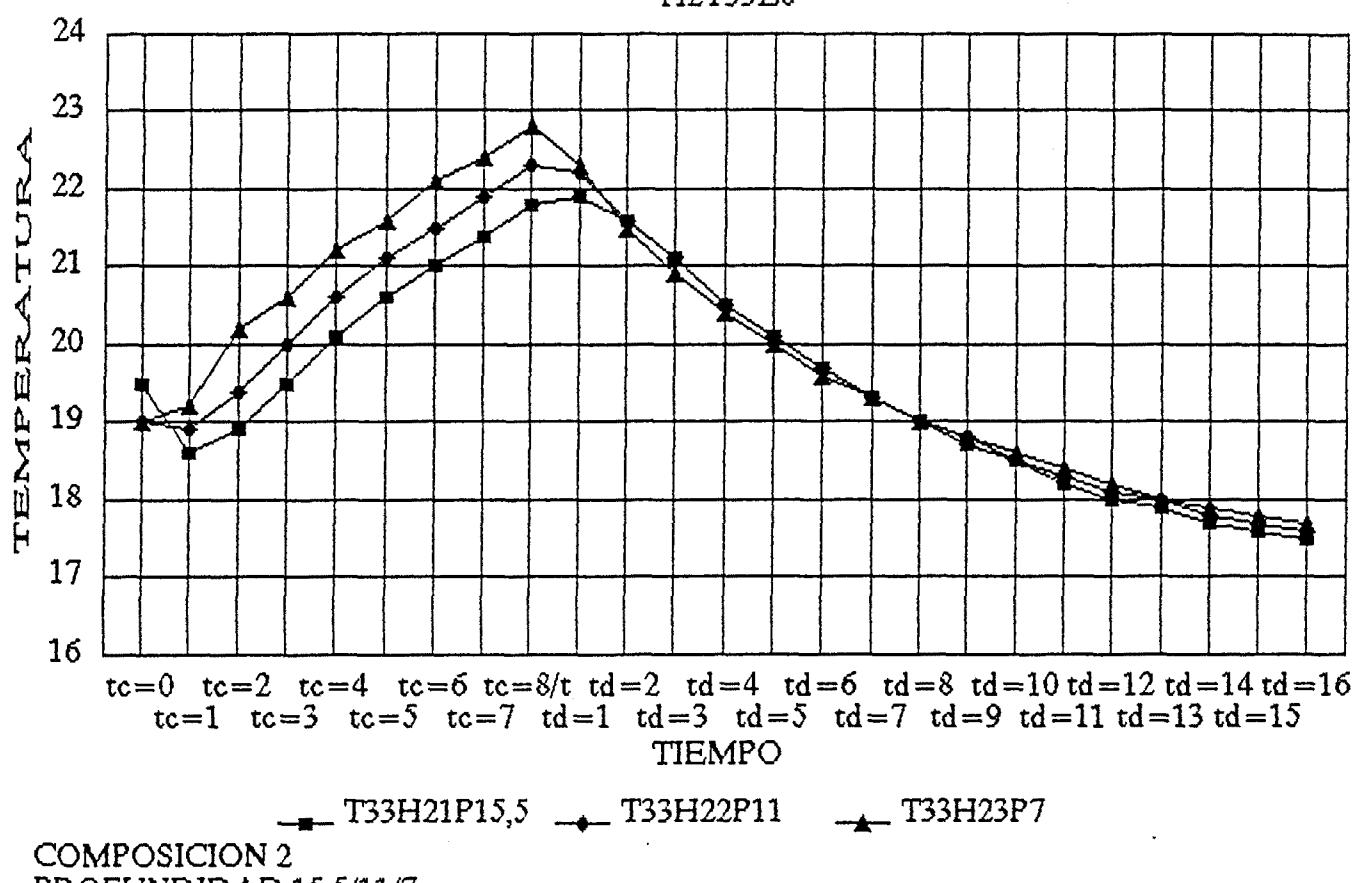
MODH2P (H21-H22-H23)

H2T27Z8



MODH2P (H21 – H22 – H23)

H2T33Z0

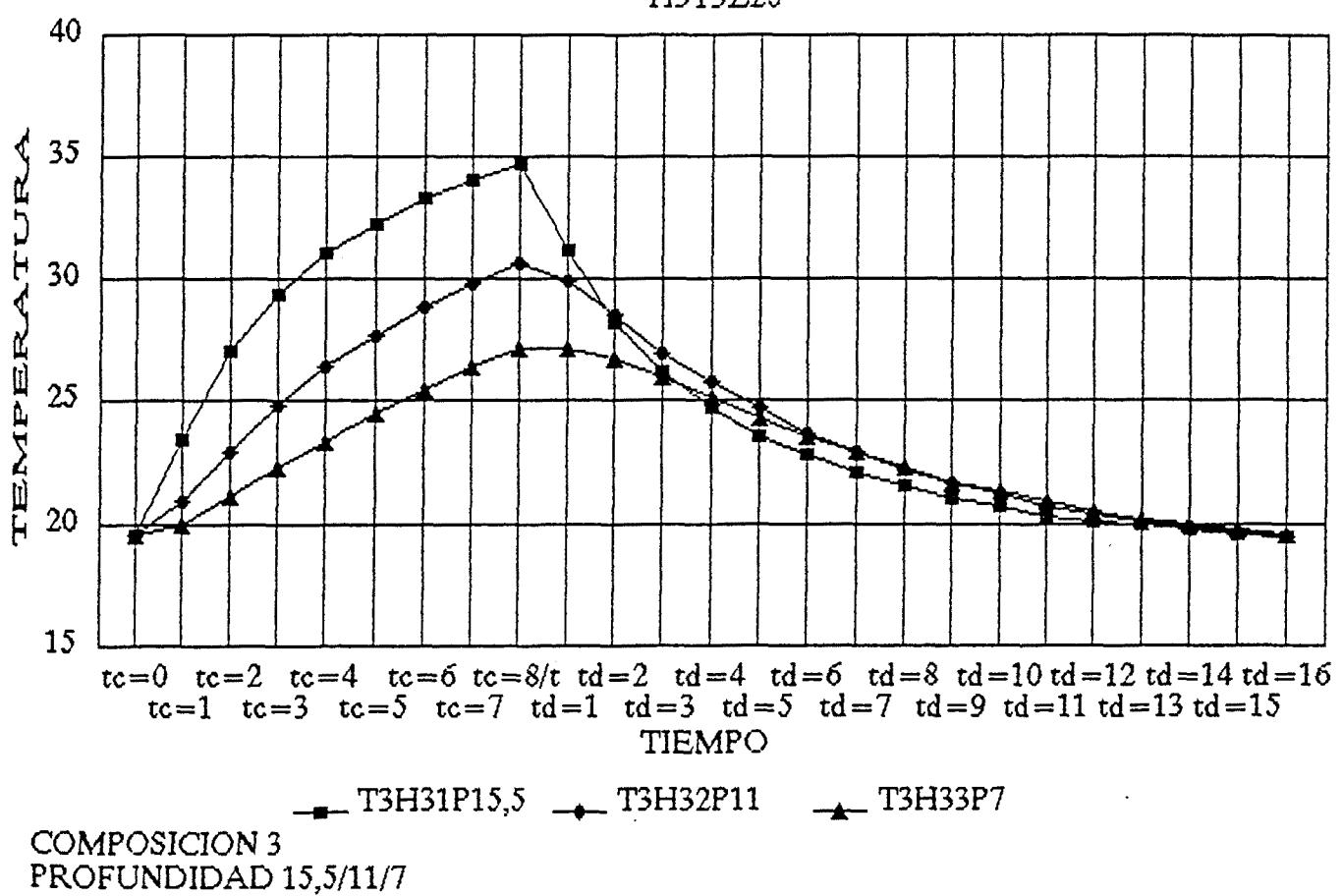


GRAFICOS MODH3P

LOSAS COMPARADAS	H31	H32	H33
PROFUNDIDADES	P1	P2	P3
COMPOSICION	C3	C3	C3

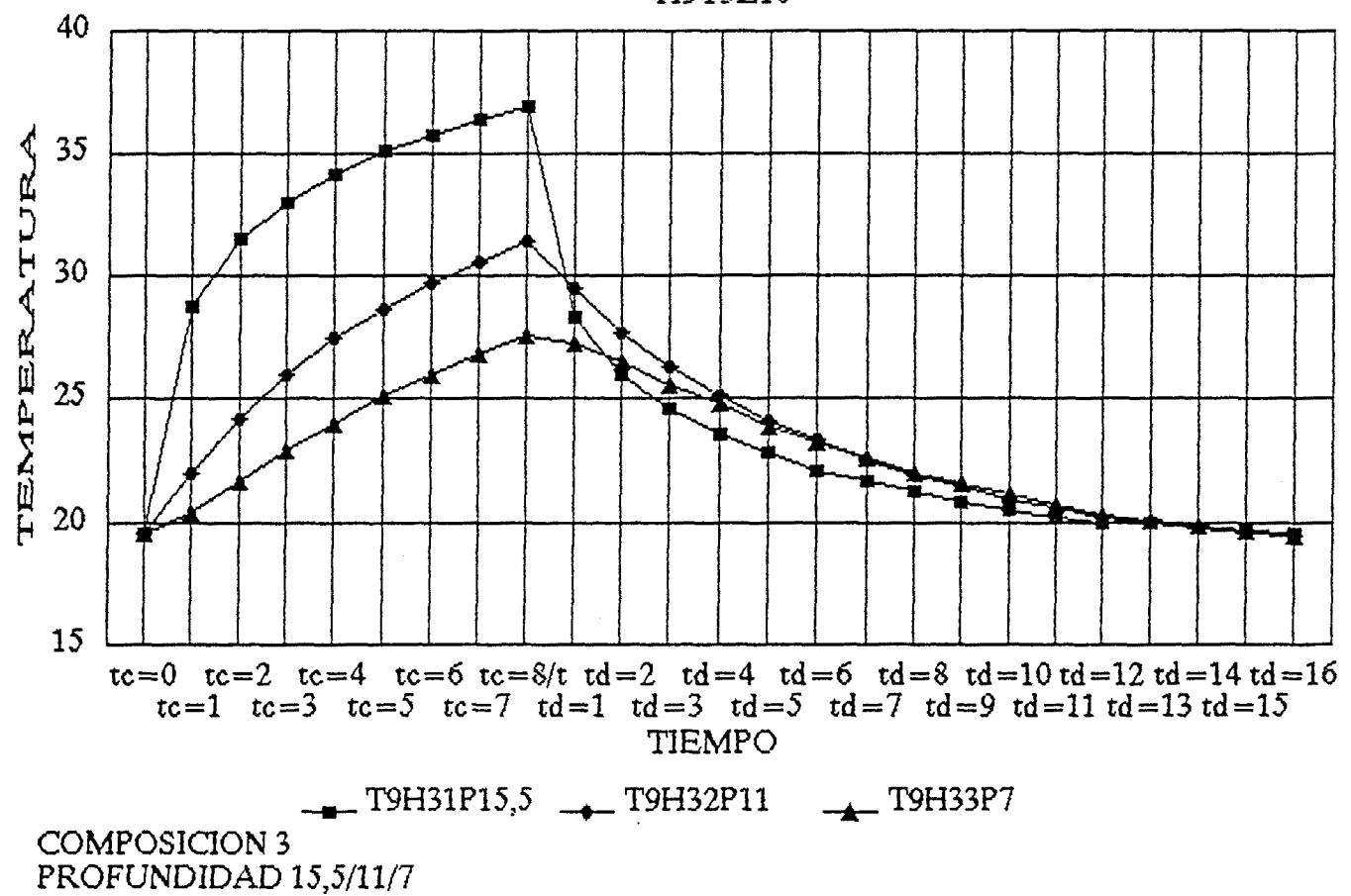
MODH3P (H31 – H32 – H33)

H3T3Z20



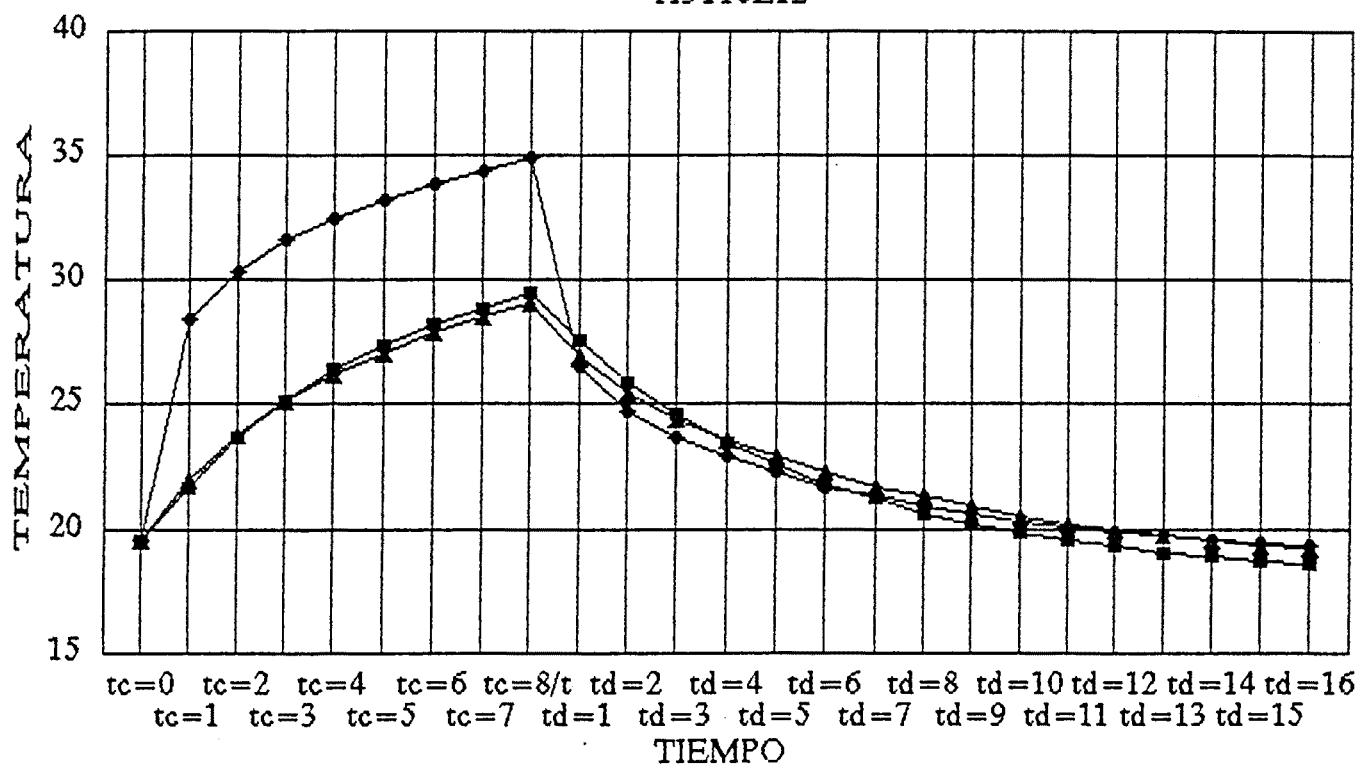
MODH3P (H31-H32-H33)

H3T9Z16



MODH3P (H31-H32-H33)

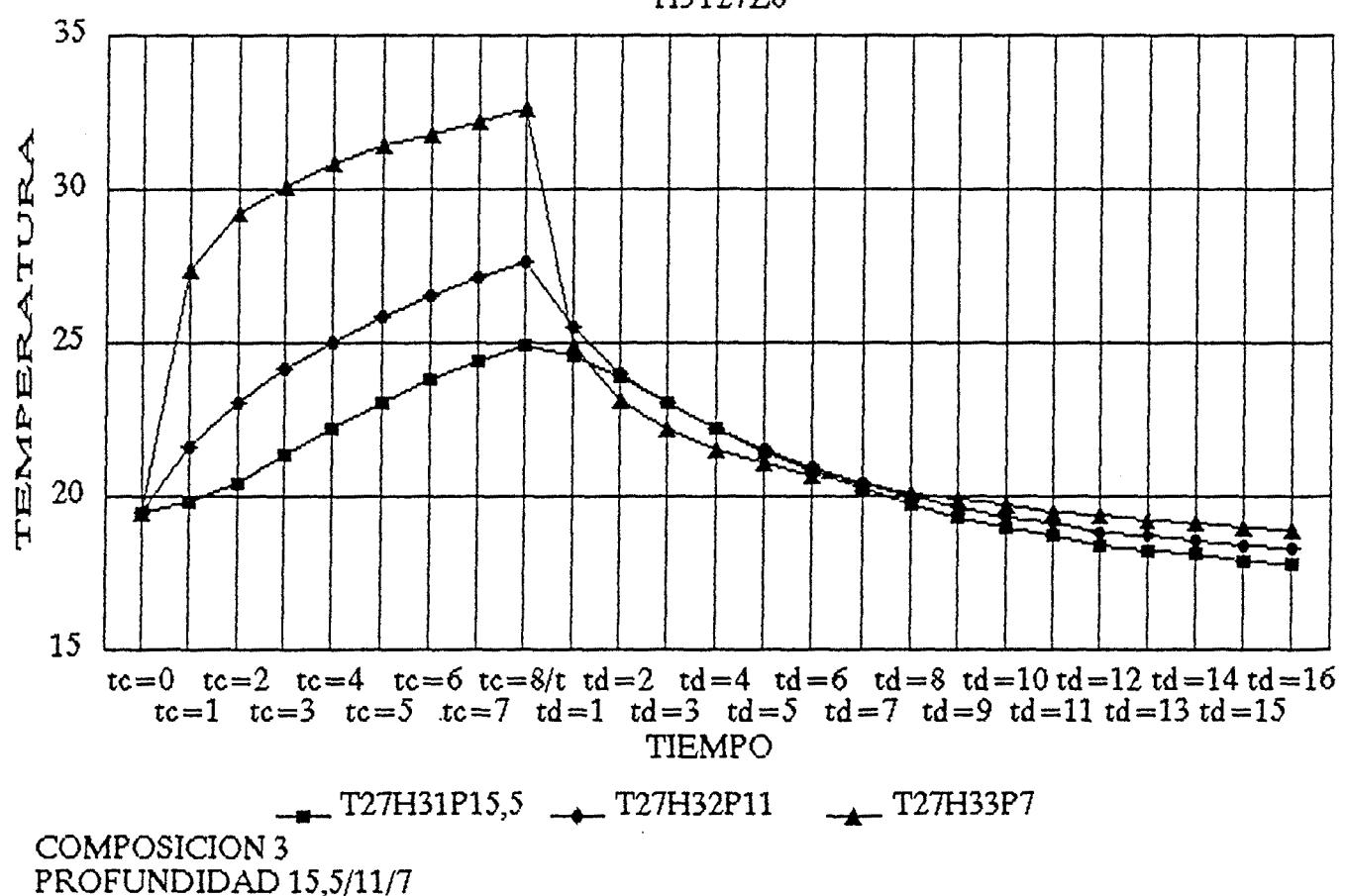
H3T18Z12



COMPOSICION 3
PROFUNDIDAD 15,5/11/7

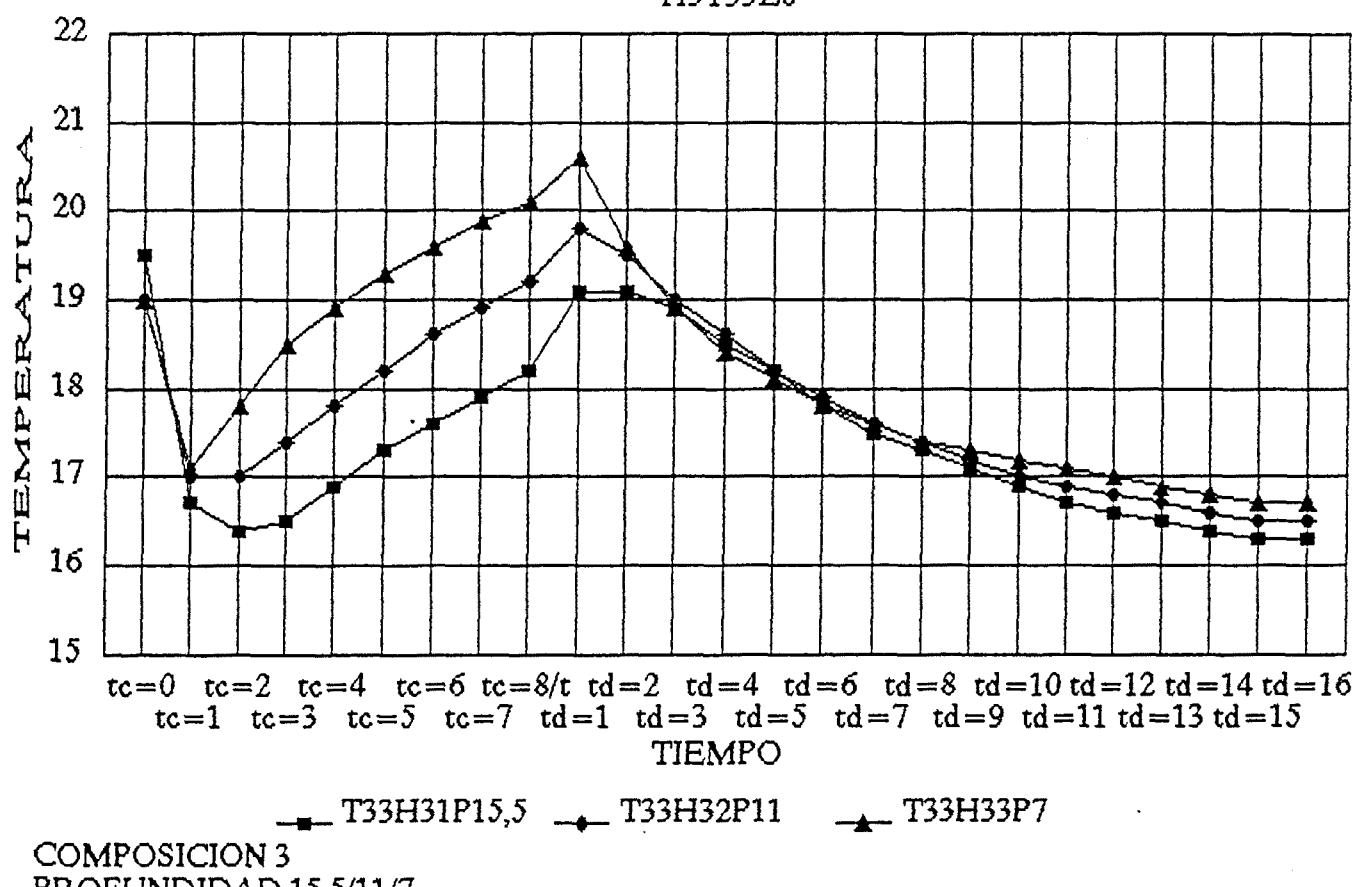
MODH3P (H31-H32-H33)

H3T27Z8



MODH3P (H31-H32-H33)

H3T33Z0



ANEJO II

RESULTADOS EXPERIMENTALES

ANEJO II

RESULTADOS EXPERIMENTALES

CAPITULO VIII Metodología experimental y análisis de resultados experimentales

CAPITULO IX Forma de clasificación de resultados experimentales

II.1 RESULTADOS EVOLUCION TEMPERATURA (INTERVALO 1 HORA)

X = DOSIFICACION DE HORMIGON

1 (C1), 2 (C2), 3 (C3)

y = PROFUNDIDAD DE EMBEBIDO

1 (P1), 2 (P2), 3 (P3)

TABLAS EXPH_{xy}

GRAFICOS EXPHxy

DENOMINACION GRAFICO	POSICION	SONDAS
Z20CHAN	Z20	2
Z16CHAN	Z16	5
Z12CHAN	Z12	8
Z8CHAN	Z8	11
Z0CHAN	Z0	14
CHAN0	AMBIENTE	0
CHANX	CABLE	16

II.2 RESULTADOS EVOLUCION TEMPERATURA (INTERVALO 10 MINUTOS)

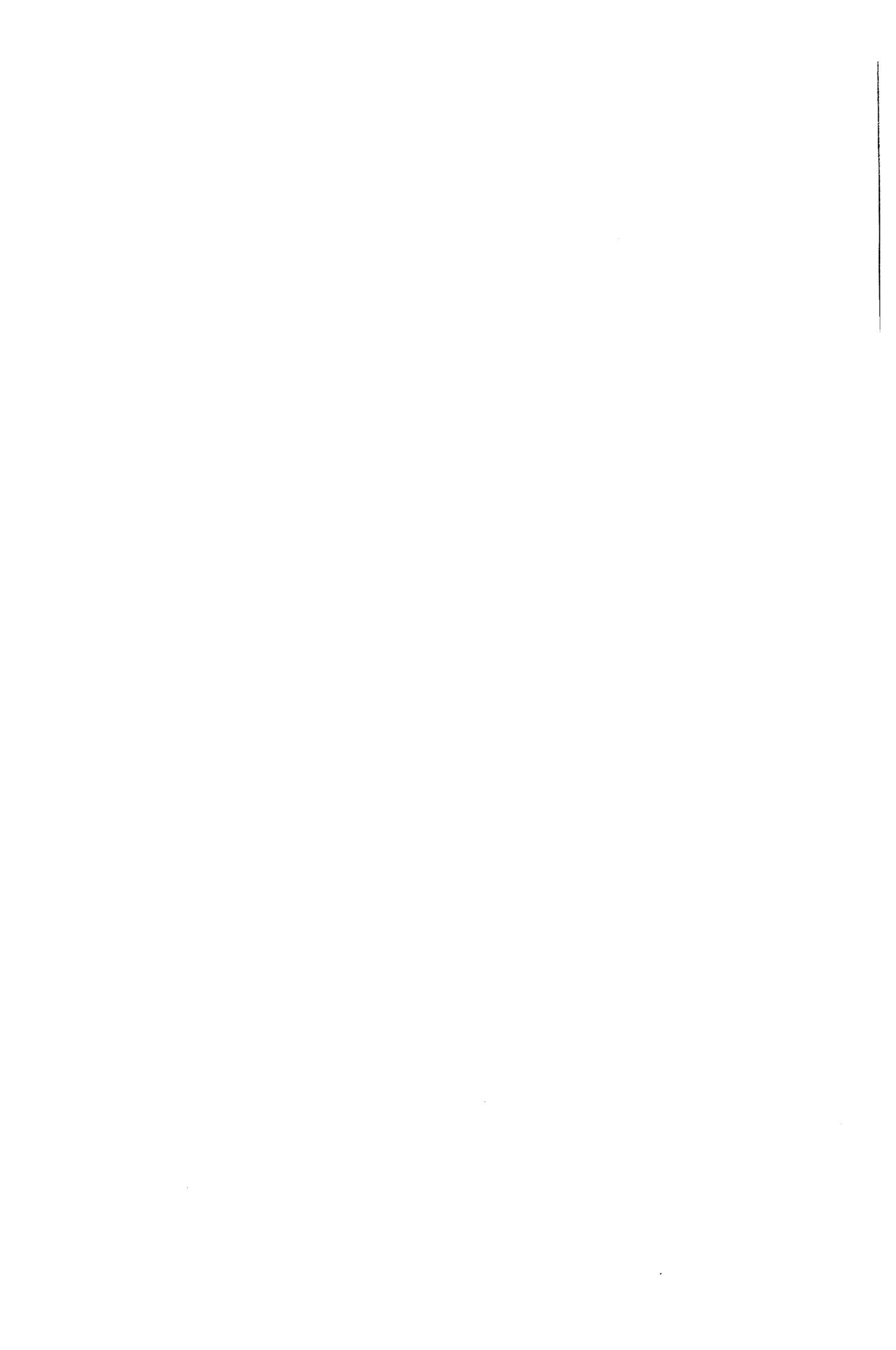
GRAFICOS EXPH11 Y EXPH32

DENOMINACION GRAFICO	TEMPERATURA REPRESENTADA				
Z20CHAN	TAMB	TCABLE		TSONDA	2
Z16CHAN	TAMB	TCABLE		TSONDA	5
Z12CHAN	TAMB	TCABLE		TSONDA	8
Z8CHAN	TAMB	TCABLE		TSONDA	11
Z0CHAN	TAMB	TCABLE		TSONDA	14
CHAN0			TAMB		
CHANX			TCABLE		
Z20, Z16, Z12, Z8, Z0	TSONDA 2	TSONDA 5	TSONDA 8	TSONDA 11	TSONDA 14

GRAFICOS EXPHX = (EXPH21)

DENOMINACION GRAFICO	TEMPERATURA REPRESENTADA			
Z20CHAN	TAMB	TCABLE	TSONDA 1 Y 3	TSONDA 2
Z16CHAN	TAMB	TCABLE	TSONDA 4 Y 6	TSONDA 5
Z12CHAN	TAMB	TCABLE	TSONDA 7 Y 9	TSONDA 8
Z8CHAN	TAMB	TCABLE	TSONDA 10 Y 12	TSONDA 11
ZOCHAN	TAMB	TCABLE	TSONDA 13 Y 15	TSONDA 14
CHANO	TAMB			
CHANX	TCABLE			

**II.1 RESULTADOS EVOLUCION
TEMPERATURA
INTERVALO 1 HORA
TABLAS Y GRAFICOS
EXPHxy**



TABLAS EXPHxy

EXPH11

	TIEMPOTAMB	TCABLE	Z20	Z16	Z12	Z8	ZO
	EXP	EXP	EXP	EXP	EXP	EXP	EXP
	chan0	chanx	chan2	chan5	chan8	chan11	chan14
CARGA	23,00	tc=0	16,5	57	19,5	19,6	19,5
	24,00	tc=1	15,2	57,1	20,7	24,1	20,7
	1,00	tc=2	12,5	54,9	22,2	25,4	21,8
	2,00	tc=3	14,4	50,8	23,2	26,2	22,6
	3,00	tc=4	12,6	54,9	23,8	26,9	23,2
	4,00	tc=5	12	55,5	24,6	27,7	23,8
	5,00	tc=6	12,4	55,4	25,2	28,2	24,4
	6,00	tc=7	11,8	53,6	25,7	28,6	24,9
DESCARGA	7,00	tc=8	12,3	54,3	26,2	29,2	25,4
	8,00	td=1	10,3	15,4	25,3	24,8	24,5
	9,00	td=2	13,4	17,3	24,2	23,8	23,7
	10,00	td=3	16	19,2	23,5	23,3	23,3
	11,00	td=4	18,1	19,4	23,3	23,2	23
	12,00	td=5	18,6	22,1	23	22,9	22,8
	13,00	td=6	19,7	22	22,8	22,7	22,6
	14,00	td=7	20,7	22,2	22,7	22,6	22,4
	15,00	td=8	21,6	22,3	22,6	22,5	22,3
	16,00	td=9	20,9	22,2	22,5	22,4	22,2
	17,00	td=10	21,4	22,3	22,4	22,3	22,1
	18,00	td=11	21,6	22	22,4	22,3	22
	19,00	td=12	20,9	21,7	22,4	22,2	22
	20,00	td=13	19,7	20,4	22,2	22,2	21,9
	21,00	td=14	18,5	19,7	22,2	22,2	21,9
	22,00	td=15	17,3	19	22,2	22,1	21,9
	23,00	td=16	15,2	18,3	22	22,1	21,8

EXPH12

	TIEMPOTAMB	TCABLE	Z20	Z16	Z12	Z8	ZO
	EXP	EXP	EXP	EXP	EXP	EXP	EXP
	chan0	chanx	chan2	chan5	chan8	chan11	chan14
CARGA	23,00 tc=0	15	57	21	21	23	21
	24,00 tc=1	14	53	21,8	22	25	22
	1,00 tc=2	13	57	22,5	22,7	25,4	22,9
	2,00 tc=3	12	46	23,2	23,5	26	23,4
	3,00 tc=4	12	52	23,7	24,1	26,4	23,8
	4,00 tc=5	10	46	24	24,5	27	24,1
	5,00 tc=6	9	38	24,2	24,9	27,1	24,5
	6,00 tc=7	11	50	24,5	25,1	27,6	24,8
DESCARGA	7,00 tc=8	9	42	24,8	25,2	28	25
	8,00 td=1	10	12	24,3	24,4	24	24
	9,00 td=2	13	15	23,7	24	24	23
	10,00 td=3	15	22	23	23	23	21,7
	11,00 td=4	18	23	22,6	23	23	22,5
	12,00 td=5	19	20	22,4	22,5	23	22,5
	13,00 td=6	19	20	22	22	22,4	22
	14,00 td=7	17	18	22	22	22,4	21,6
	15,00 td=8	17	19	21,6	22	22	21,5
	16,00 td=9	19	20	21,6	21,4	22	21,5
	17,00 td=10	20	20	21,6	21,4	22	21,5
	18,00 td=11	20	19	21	21,4	21,4	21
	19,00 td=12	19	20	21	21,4	21,4	21
	20,00 td=13	18	18	21	21,4	21,4	21
	21,00 td=14	16	17	21	21	21	21
	22,00 td=15	15	16	21	21	21	21
	23,00 td=16	14	16	21	21	21	20,6

EXPH13

	TIEMPOTAMB	TCABLE	Z20	Z16	Z12	Z8	Z0
	EXP	EXP	EXP	EXP	EXP	EXP	EXP
	chan0	chanx	chan2	chan5	chan8	chan11	chan14
CARGA	23,00 tc=0	11	57	13	13	18	14
	24,00 tc=1	11	60	13,7	14	19,5	15
	1,00 tc=2	11	58	14,6	15	20,7	16
	2,00 tc=3	10	57	15,2	15,8	21,2	16,6
	3,00 tc=4	10	55	16	16,6	22	17
	4,00 tc=5	9	54	16,5	17,1	22,6	17,5
	5,00 tc=6	8	47	16,9	17,7	23	18
	6,00 tc=7	9	52	17,2	18,1	23,3	18,3
DESCARGA	7,00 tc=8	8	52	17,4	18,5	23,7	18,6
	8,00 td=1	9	11	19	18,8	19,5	19,1
	9,00 td=2	11	17	18,9	18,7	19	18,8
	10,00 td=3	12	22	18,8	18,6	18,8	18,5
	11,00 td=4	14	16	18,6	18,4	18,4	17,8
	12,00 td=5	15	16	18,4	18,2	18,2	17,8
	13,00 td=6	16	17	18,3	18,1	18,1	17,8
	14,00 td=7	16	17	18,1	18	18,1	17,3
	15,00 td=8	17	17	18	18	18	17,3
	16,00 td=9	17	18	18	18	18	17,6
	17,00 td=10	18	18	18	18	18	17,6
	18,00 td=11	18	18	18	18	18	17,6
	19,00 td=12	18	19	18	18	18	17,3
	20,00 td=13	17	17	18	18	18	17,3
	21,00 td=14	16	16	18	18	18	17,3
	22,00 td=15	15	14	18	18	18	17,3
	23,00 td=16	14	14	18	18	18	17,3

EXPH21

	TIEMPOTAMB	TCABLE	Z20	Z16	Z12	Z8	Z0
	EXP	EXP	EXP	EXP	EXP	EXP	EXP
	chan0	chanx	chan2	chan5	chan8	chan11	chan14
CARGA	23,00 tc=0	13	48	15	18	15	14
	24,00 tc=1	12	59	16,8	20	17	15
	1,00 tc=2	12	59	18	21	18	16
	2,00 tc=3	11	56	19,2	22	19	16,7
	3,00 tc=4	9	50	20	23	19,8	17,4
	4,00 tc=5	10	54	20,5	23,4	20,4	18
	5,00 tc=6	8	45	21	23,9	21	18,5
	6,00 tc=7	7	44	21,4	24,2	21,5	19
DESCARGA	7,00 tc=8	8	48	21,6	24,5	22	19,5
	8,00 td=1	9	12	20,5	20	20	18,8
	9,00 td=2	10	12	19,3	20	20	18,8
	10,00 td=3	12	14	18	19	18,5	17,5
	11,00 td=4	14	15	18	19	18,5	17,5
	12,00 td=5	14	15	18	17,5	17,3	17,5
	13,00 td=6	14	15	17	17,5	17,3	16,5
	14,00 td=7	14	15	17	17,5	17,3	16,5
	15,00 td=8	15	16	17	17,5	17,3	16,5
	16,00 td=9	15	15	17	17,5	17,3	16,5
	17,00 td=10	13	14	17	17,5	17,3	16,1
	18,00 td=11	13	14	16,5	17	16,5	16,1
	19,00 td=12	13	14	16,5	17	16,5	16,1
	20,00 td=13	12	13	16,5	17	16,5	16,1
	21,00 td=14	10	11	16,5	17	16,5	15,6
	22,00 td=15	9	11	16,2	16,5	16	15,6
	23,00 td=16	9	11	16,2	16,5	16	15,6

EXPH22

	TIEMPOTAMB	TCABLE	Z20	Z16	Z12	Z8	Z0
	EXP	EXP	EXP	EXP	EXP	EXP	EXP
	chan0	chanx	chan2	chan5	chan8	chan11	chan14
CARGA	23,00 tc=0	12	40	12	13	15	13
	24,00 tc=1	12	39	13,5	14,5	18	14
	1,00 tc=2	9	54	15	15,6	19	15
	2,00 tc=3	10	42	15,8	16,6	19,8	15,9
	3,00 tc=4	9	46	16,5	17,6	20,5	16,9
	4,00 tc=5	9	48	17	18,3	21	17,7
	5,00 tc=6	8	49	17,6	18,9	21,8	18,3
	6,00 tc=7	8	41	18	19,3	22	18,8
DESCARGA	7,00 tc=8	8	46	18,5	20	22,4	19,4
	8,00 td=1	9	10	18,6	19	18,8	18
	9,00 td=2	12	14	18,2	19	18	17,3
	10,00 td=3	11	19	17,3	17,5	18	17,2
	11,00 td=4	13	13	17,3	17,5	18	17,2
	12,00 td=5	13	14	17,3	17,5	18	17,5
	13,00 td=6	14	15	17,3	17,5	18	17,5
	14,00 td=7	14	15	17,3	17,5	18	17
	15,00 td=8	15	15	16,6	16,7	17	17
	16,00 td=9	15	16	16,6	16,7	17	16,3
	17,00 td=10	15	16	16,6	16,7	17	17
	18,00 td=11	16	16	16,6	16,7	17	16,3
	19,00 td=12	16	16	16,6	16,7	17	17
	20,00 td=13	16	16	16,6	16,7	17	17
	21,00 td=14	15	15	16,6	16,7	17	17
	22,00 td=15	13	13	16,6	16,7	17	16,3
	23,00 td=16	13	13	16	16,5	17	16,3

EXPH23

		TIEMPOTAMB	TCABLE	Z20	Z16	Z12	Z8	Z0	
		EXP	EXP	EXP	EXP	EXP	EXP	EXP	
		chan0	chanx	chan2	chan5	chan8	chan11	chan14	
CARGA	23,00	tc=0	10	40	14	14	14	17	13
	24,00	tc=1	10	47	14,4	14,7	15,3	18	14,3
	1,00	tc=2	9	58	14,9	15,3	16,3	18,7	15,1
	2,00	tc=3	11	60	15,7	16	17,1	19,2	15,6
	3,00	tc=4	10	45	16,3	16,8	17,8	19,8	16
	4,00	tc=5	8	44	17	17,4	18,3	20,2	16,5
	5,00	tc=6	8	41	17,6	18	19	20,7	16,7
	6,00	tc=7	7	49	18,1	18,5	19,4	21	17
DESCARGA	7,00	tc=8	6	33	18,6	19	19,8	21,2	17,3
	8,00	td=1	7	9	19	19	19	19	17,3
	9,00	td=2	8	10	18,7	19	19	18	16,8
	10,00	td=3	10	13	18,5	19	17,4	18	16,5
	11,00	td=4	12	14	17,7	17,5	17,4	18	16,5
	12,00	td=5	13	14	17,7	17,5	17,4	18	16,5
	13,00	td=6	14	15	17,7	17,5	17,4	18	16,5
	14,00	td=7	15	15	17,7	17,5	17,4	17	16,5
	15,00	td=8	14	15	16,6	16,5	16,5	17	15,7
	16,00	td=9	14	15	16,6	16,5	16,5	17	15,7
	17,00	td=10	14	15	16,6	16,5	16,5	17	15,7
	18,00	td=11	14	15	16,6	16,5	16,5	17	15,7
	19,00	td=12	15	15	16,6	16,5	16,5	17	15,7
	20,00	td=13	15	14	16,6	16,5	16,5	17	15,7
	21,00	td=14	14	14	16,6	16,5	16,5	16	15,7
	22,00	td=15	13	13	16,6	16,5	16	16	15
	23,00	td=16	12	12	16	16	16	16	15

EXPH31

	TIEMPOTAMB	TCABLE	Z20	Z16	Z12	Z8	ZO
	EXP	EXP	EXP	EXP	EXP	EXP	EXP
	chan0	chanx	chan2	chan5	chan8	chan11	chan14
CARGA	23,00 tc=0	12	49	14	17	14	13
	24,00 tc=1	11	58	17,5	22	15,8	14
	1,00 tc=2	9	57	20	25	17,5	15
	2,00 tc=3	9	58	21,9	27	19	16
	3,00 tc=4	8	62	23	28	20,8	17
	4,00 tc=5	9	61	24	29	21,8	18
	5,00 tc=6	8	58	25	30	22,8	19
	6,00 tc=7	8	61	25,4	31	23,7	20
DESCARGA	7,00 tc=8	7	63	26	32	24,5	20,8
	8,00 td=1	7	10	25	24	23,4	20,8
	9,00 td=2	10	12	23	23	22	20,8
	10,00 td=3	12	17	21,2	23	21	20,8
	11,00 td=4	13	15	21,2	22	21	20,8
	12,00 td=5	13	15	21,2	22	21	20,8
	13,00 td=6	15	15	19,8	21	21	19,2
	14,00 td=7	15	16	19,8	21	21	19,2
	15,00 td=8	16	17	19,8	21	20	19,2
	16,00 td=9	16	16	19,3	20	20	19,2
	17,00 td=10	15	16	19,3	20	20	19,2
	18,00 td=11	15	16	19,3	20	20	18,4
	19,00 td=12	15	16	19,3	20	20	18,4
	20,00 td=13	15	15	19	19,5	19	18,4
	21,00 td=14	14	14	19	19,5	19	18,4
	22,00 td=15	14	14	19	19,5	19	18
	23,00 td=16	13	13	19	19,5	18	18

EXPH32

	TIEMPO	TAMB	TCABLE	Z20	Z16	Z12	Z8	ZO
	EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP
	chan0	chanx	chan2	chan5	chan8	chan11	chan14	
CARGA	23,00	tc=0	14,1	50,8	15,2	15,3	15,5	15,6
	24,00	tc=1	13,4	53,4	17	17,6	21,5	18,3
	1,00	tc=2	13,1	60,1	18,5	19,2	24,5	19,8
	2,00	tc=3	13,5	60,4	20	20,8	26,4	21,1
	3,00	tc=4	13,5	54,1	21,5	22,2	27,8	22,4
	4,00	tc=5	13,1	63,6	22,7	23,5	28,9	23,4
	5,00	tc=6	13,3	62,8	23,3	24,7	29,8	24,4
	6,00	tc=7	13,2	60,1	24,3	25,8	30,4	25,5
DESCARGA	7,00	tc=8	13	60,5	25,4	26,8	31	26,4
	8,00	td=1	13,2	14,6	25,2	25,9	25,8	24,4
	9,00	td=2	15,8	16,6	24,7	24,9	25	23,6
	10,00	td=3	16,4	18	24,3	24,5	25	23,6
	11,00	td=4	17,3	18	23,8	24	24	23,6
	12,00	td=5	18	18,9	23,4	23,6	24	23,1
	13,00	td=6	19,1	19,3	23,1	23,3	23,3	22,9
	14,00	td=7	19,4	20,2	22,8	23,1	23,3	22,7
	15,00	td=8	19,5	20,3	22,6	22,9	23,3	22,6
	16,00	td=9	20,1	21,1	22,4	22,7	22,2	22,6
	17,00	td=10	19,9	20,6	22,3	22,6	22,2	22,5
	18,00	td=11	18,3	18,6	22,2	22,4	22,2	22,4
	19,00	td=12	18,5	19,3	22	22,3	22,2	22,1
	20,00	td=13	18,4	18,8	21,9	22,1	22,2	21,9
	21,00	td=14	17,2	17,7	21,7	21,9	22,2	21,6
	22,00	td=15	16,5	16,6	21,4	21,6	22,2	21,3
	23,00	td=16	15	15,6	21,2	21,4	22,1	21

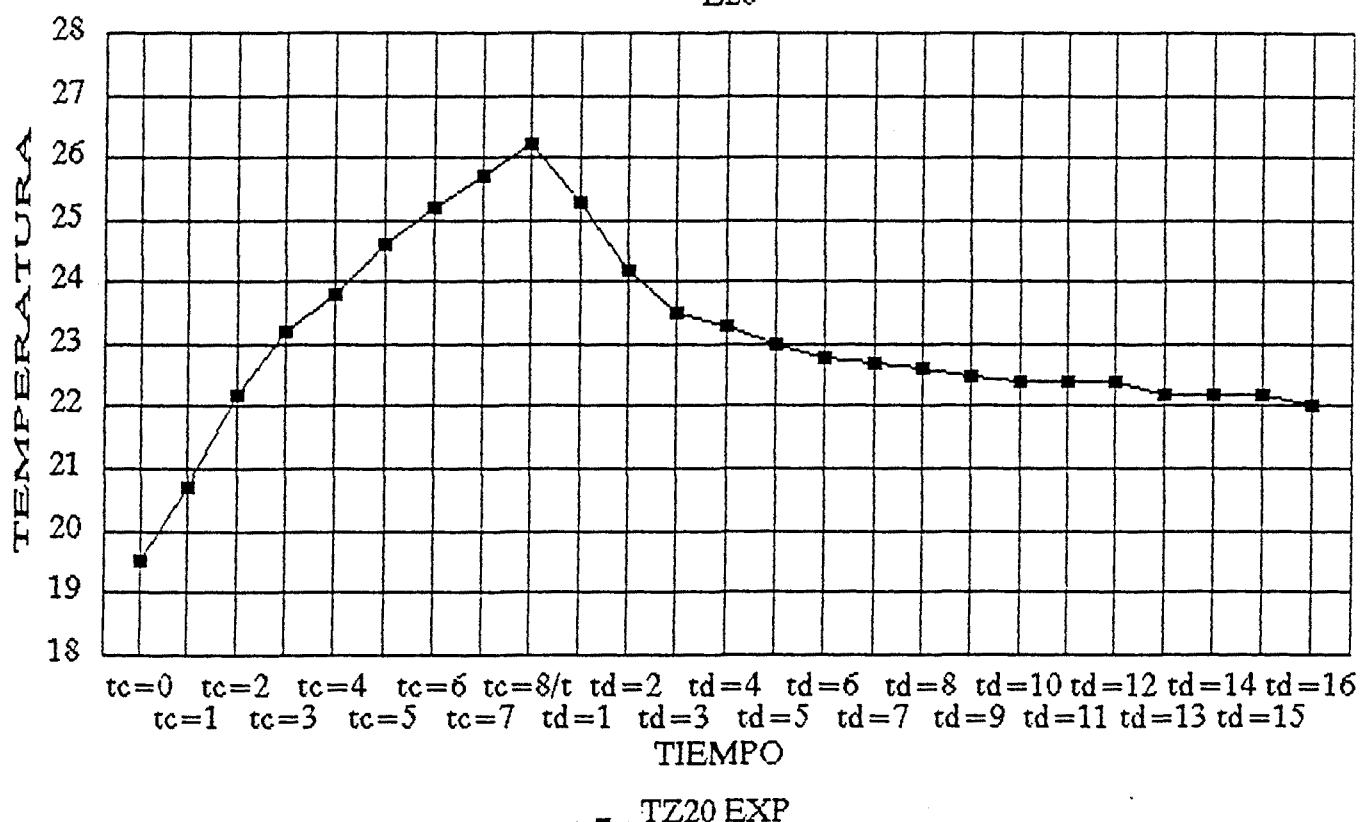
EXPH33

		TIEMPOTAMB	TCABLE	Z20	Z16	Z12	Z8	ZO
		EXP	EXP	EXP	EXP	EXP	EXP	EXP
		chan0	chanx	chan2	chan5	chan8	chan11	chan14
CARGA	23,00	tc=0	17,8	59,7	18	18,2	18,3	26,2
	24,00	tc=1	15,7	58,8	18,5	18,6	19,9	25
	1,00	tc=2	16,2	63,3	19,2	19,3	20,9	26,7
	2,00	tc=3	14,3	49,6	19,9	20,3	22	27,7
	3,00	tc=4	12,8	56,3	20,6	21,3	23	28,5
	4,00	tc=5	13	61,5	21,4	22,2	23,7	29,2
	5,00	tc=6	12,5	56,3	22	23	24,6	29,8
	6,00	tc=7	12,2	60,3	22,5	23,7	25,2	30,2
DESCARGA	7,00	tc=8	12,1	54	23	24,3	25,8	30,5
	8,00	td=1	13,3	16,5	24	24,7	25,1	24,5
	9,00	td=2	16,7	18,5	24	24,6	24,5	23,9
	10,00	td=3	17,2	19,2	24	24,2	24,1	23,6
	11,00	td=4	18,7	19,6	23,7	24	23,9	23,4
	12,00	td=5	19,2	20,5	23,5	23,6	23,6	23,2
	13,00	td=6	19,4	20,2	23,3	23,6	23,5	23,1
	14,00	td=7	19,3	20,7	22,9	23,2	23,1	22,8
	15,00	td=8	19,4	20,6	22,8	23,1	23,1	22,8
	16,00	td=9	19,7	20,8	22,6	22,8	22,9	22,7
	17,00	td=10	19,8	20,6	22,5	22,8	22,8	22,7
	18,00	td=11	19,8	20,6	22,4	22,6	22,7	22,4
	19,00	td=12	22,8	21,2	22,4	22,6	22,6	22,7
	20,00	td=13	19,5	20	22,1	22,3	22,5	22,4
	21,00	td=14	18,4	18,9	22	22,2	22,3	22
	22,00	td=15	16,4	16,9	21,9	22,1	22,1	21,5
	23,00	td=16	15,6	16,6	21,7	21,9	21,8	21,5

GRAFICOS EXPH11

EXPH11

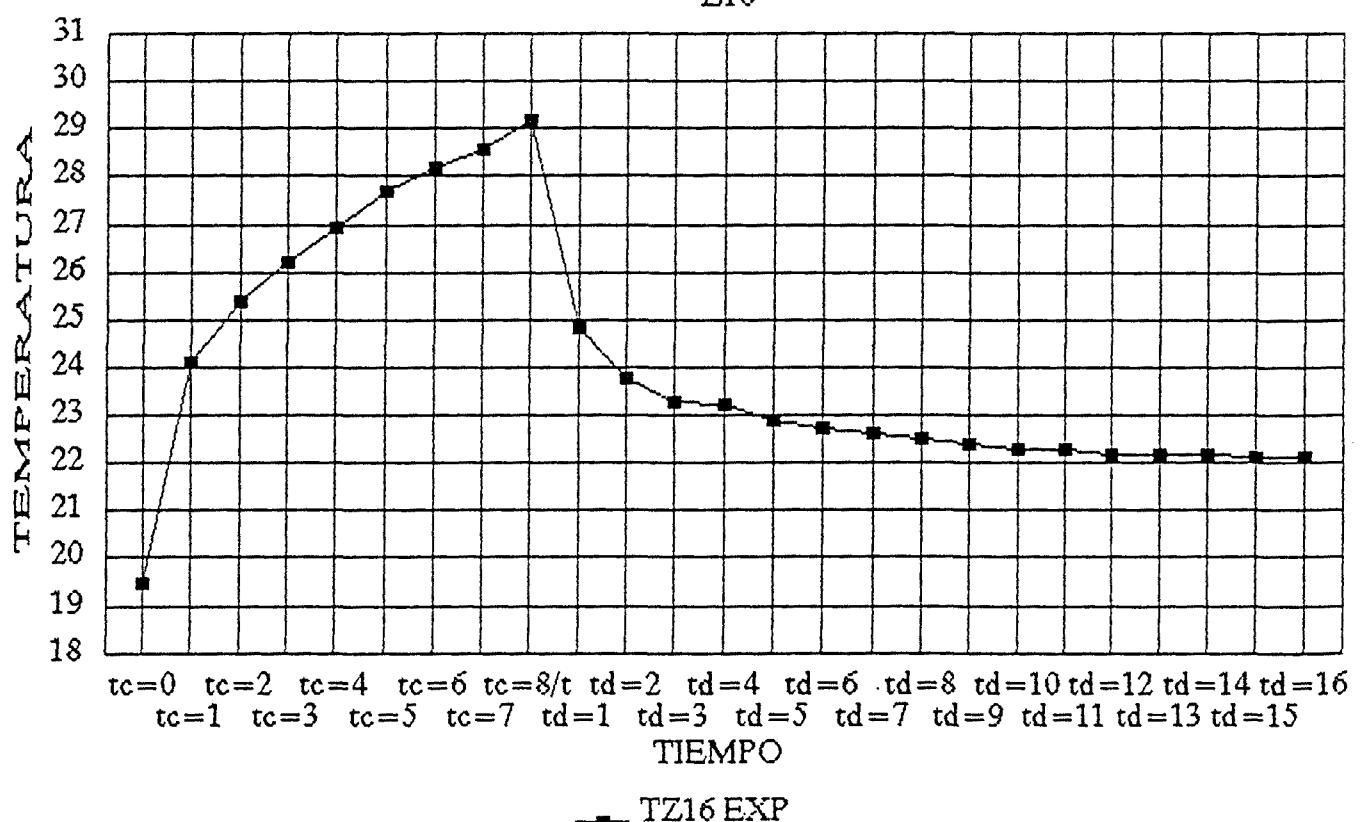
Z20



COMPOSICION 1
PROFUNDIDAD 1

EXPH11

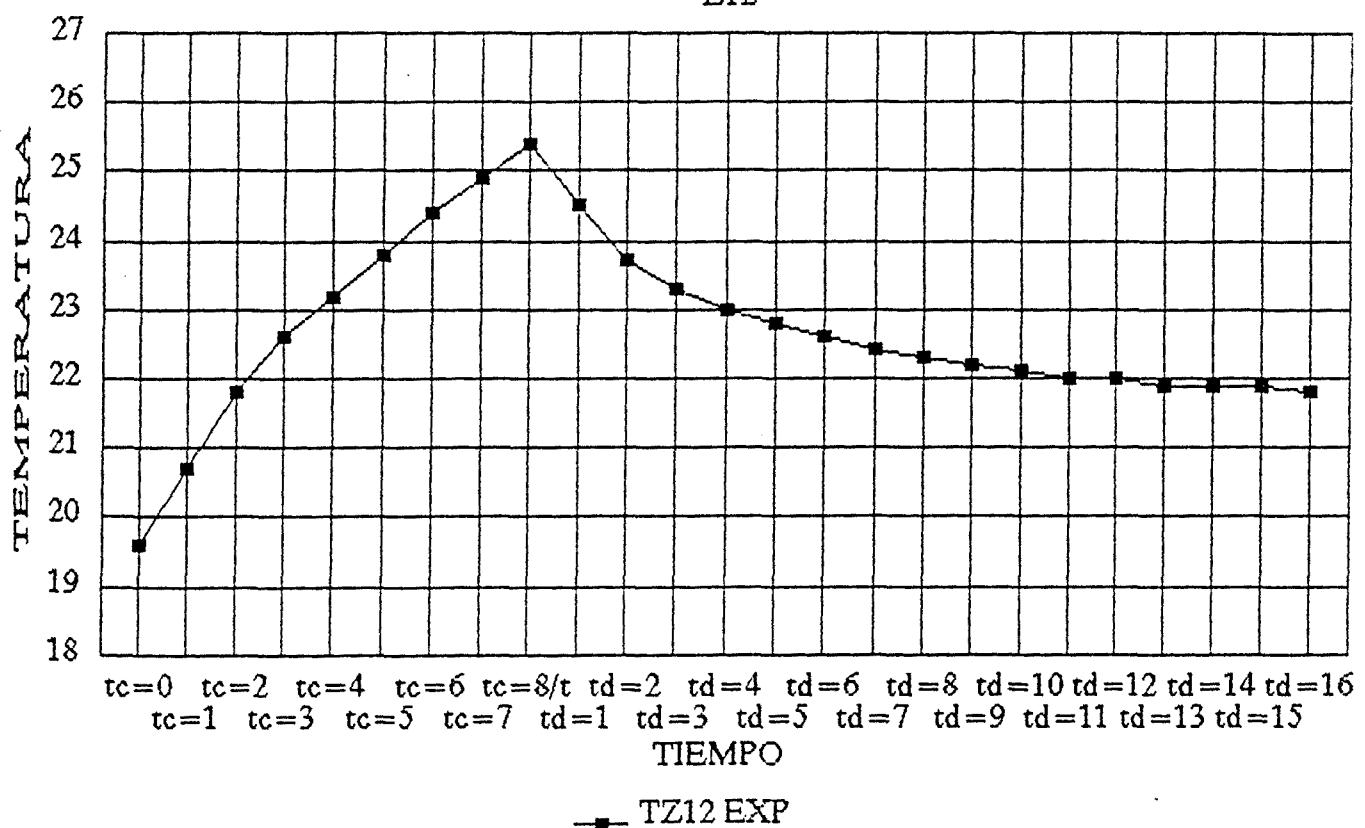
Z16



COMPOSICION 1
PROFUNDIDAD 1

EXPH11

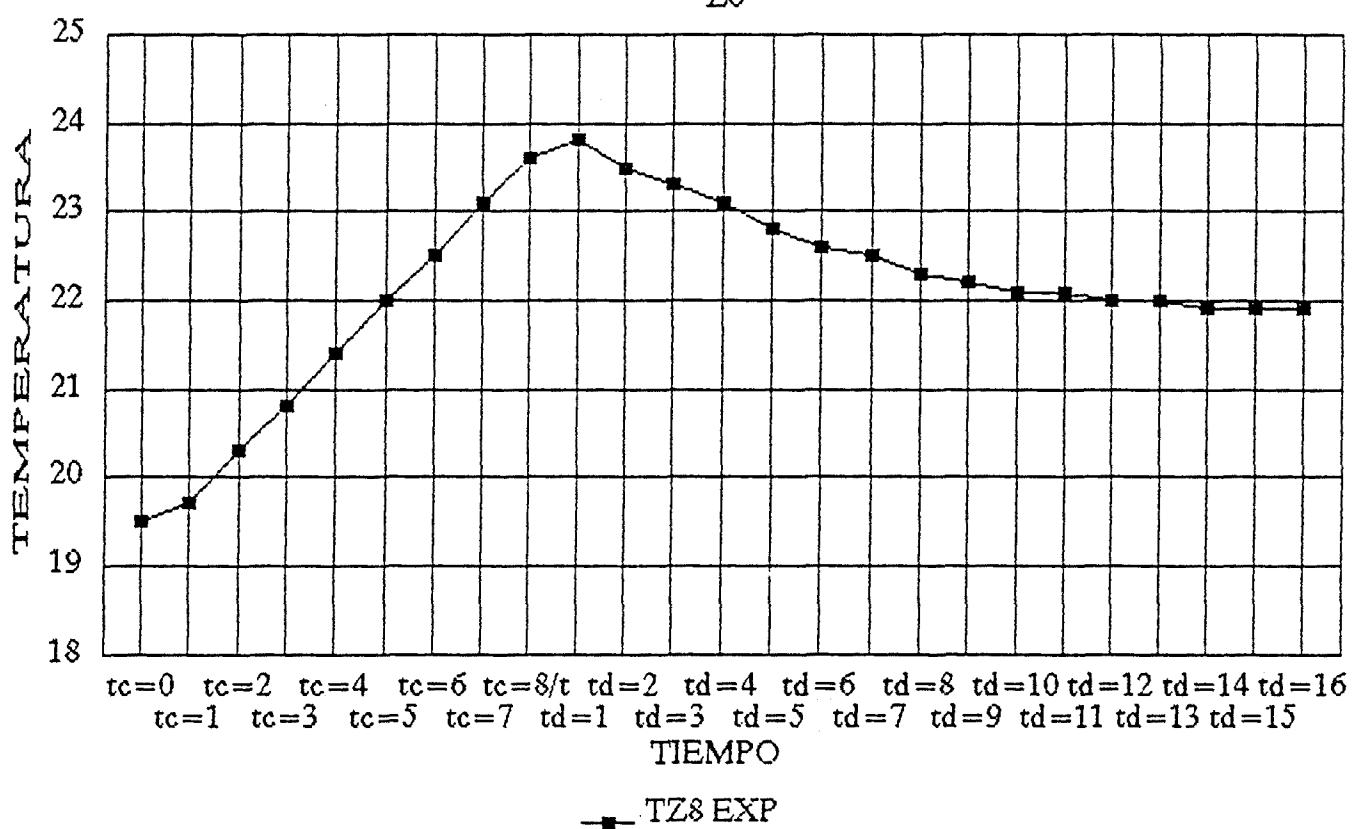
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COMPOSICION 1
PROFUNDIDAD 1

EXPH11

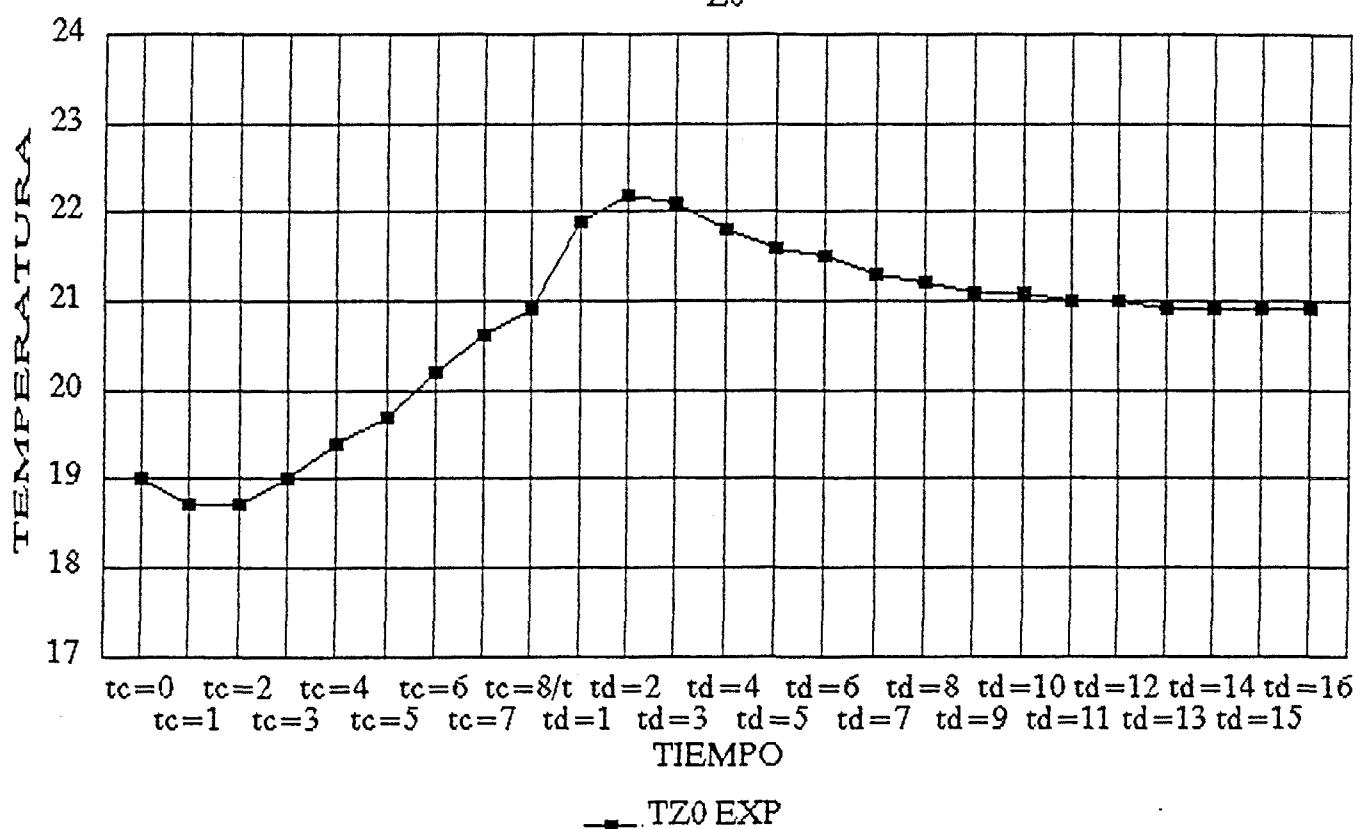
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COMPOSICION 1
PROFUNDIDAD 1

EXPH11

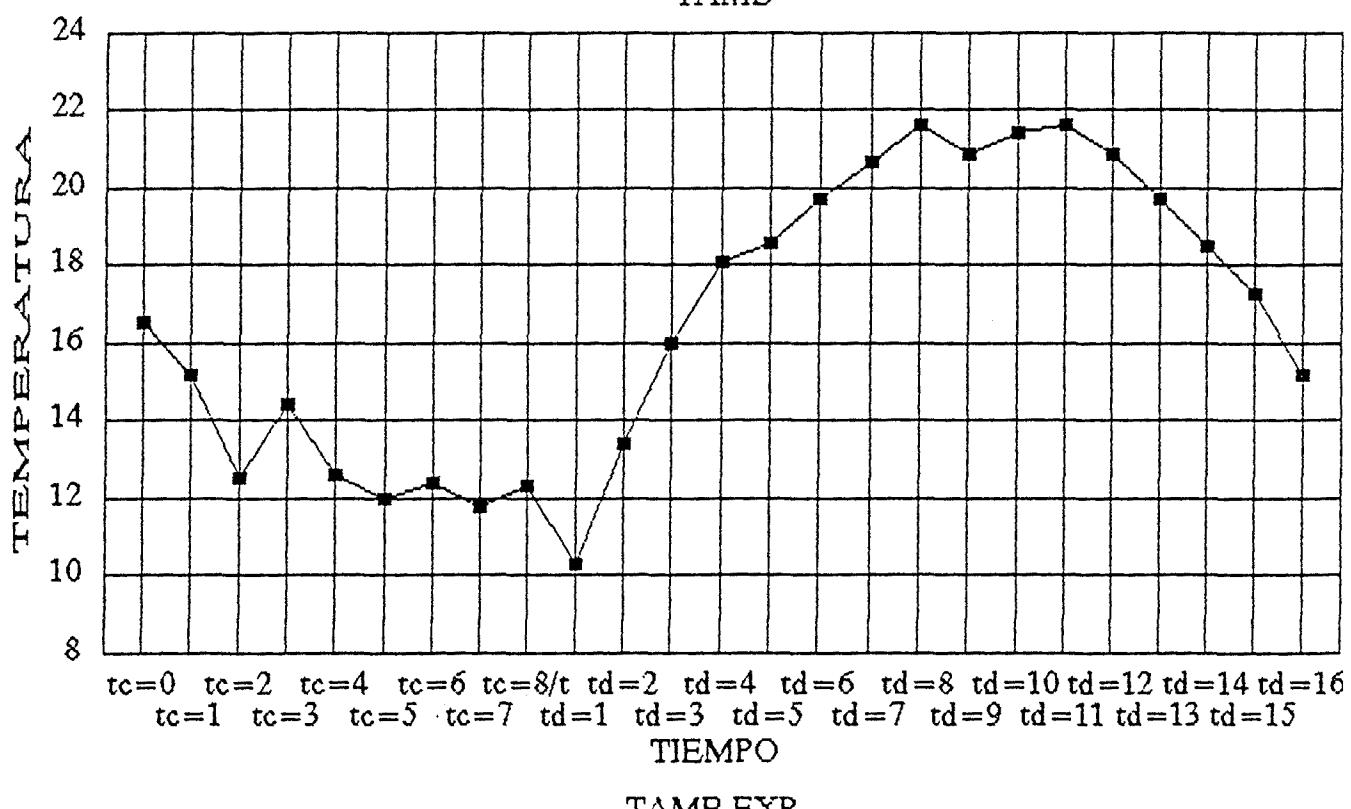
Z0



COMPOSICION 1
PROFUNDIDAD 1

EXPH11

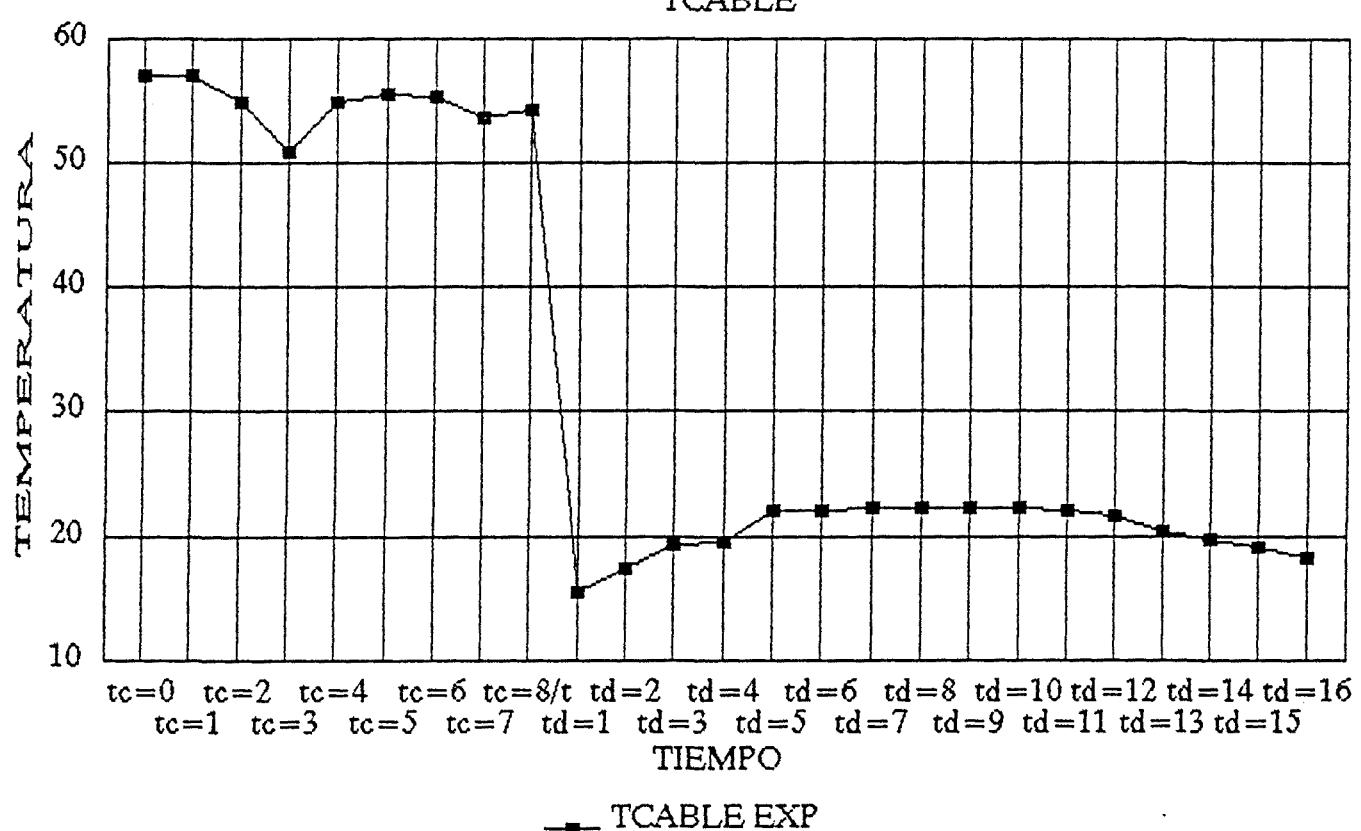
TAMB



COMPOSICION 1
PROFUNDIDAD 1

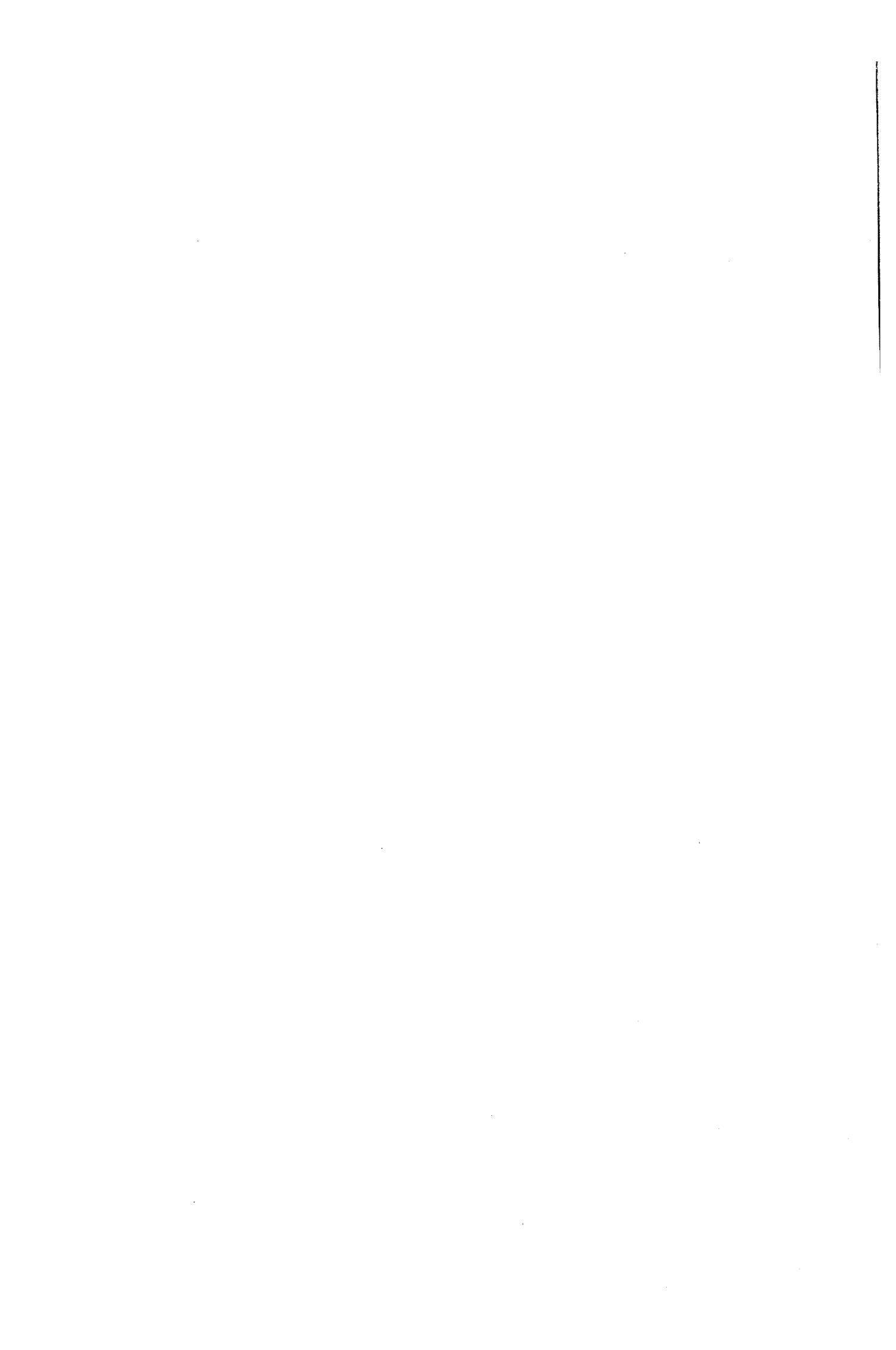
EXPH11

TCABLE



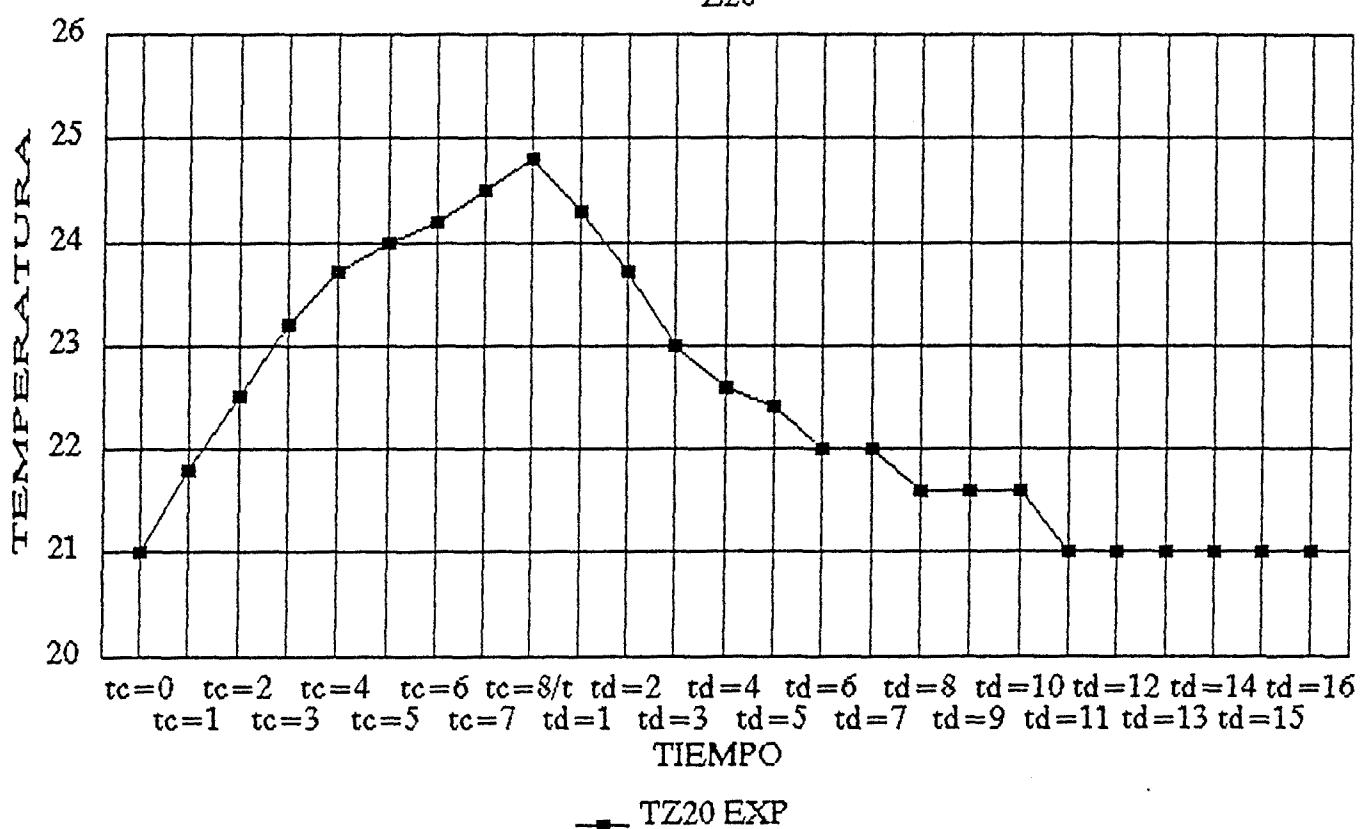
COMPOSICION 1
PROFUNDIDAD 1

GRAFICOS EXPH12



EXPH12

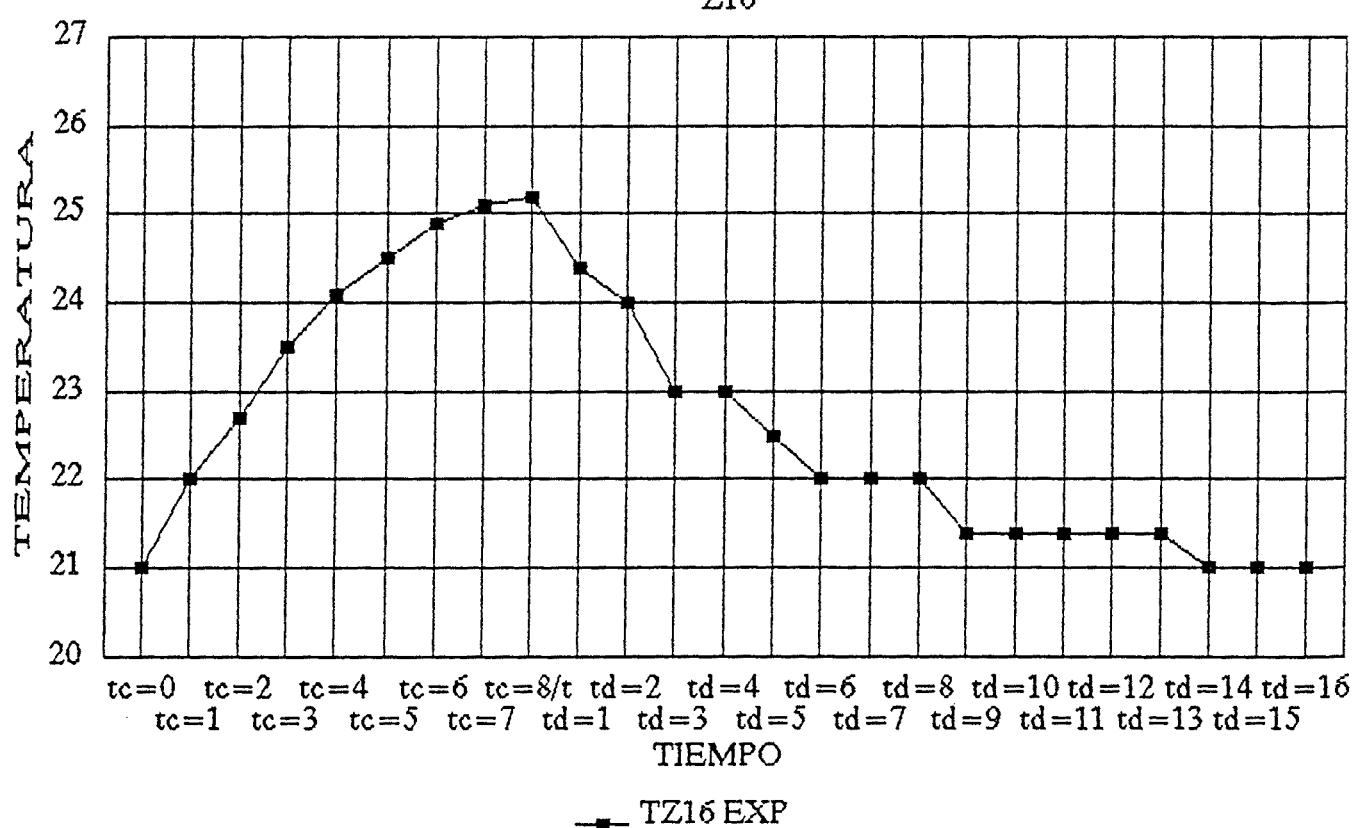
Z20



COMPOSICION 1
PROFUNDIDAD 2

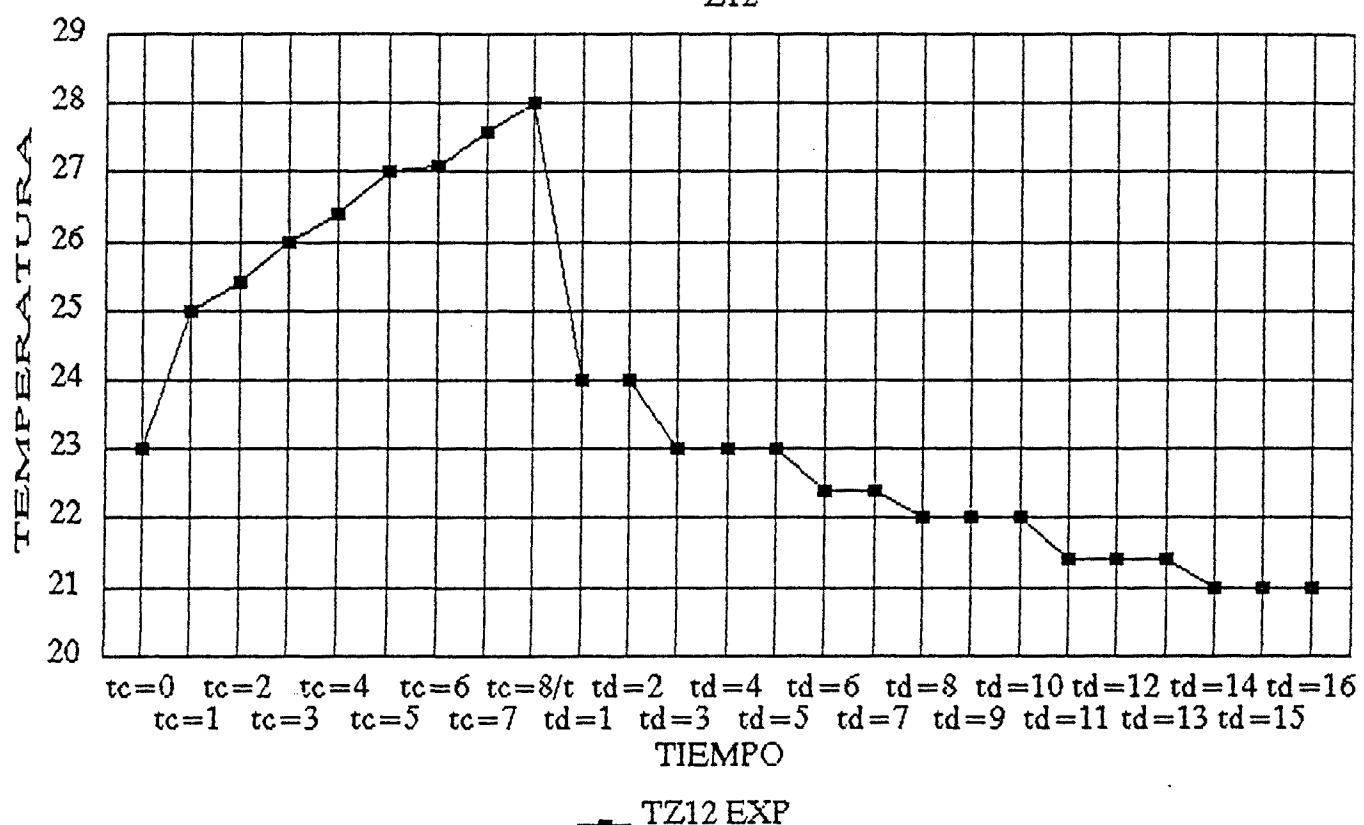
EXPH12

Z16



EXPH12

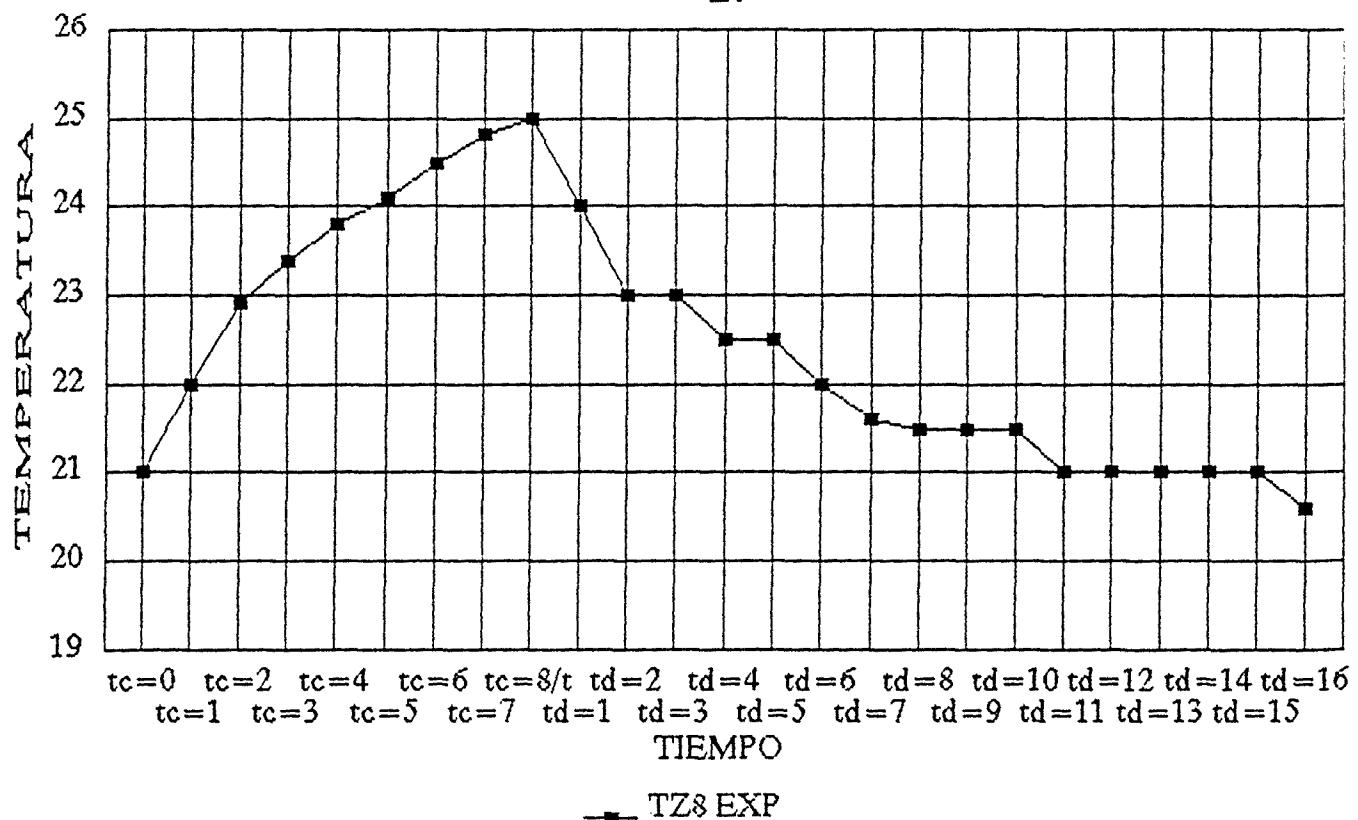
Z12



COMPOSICION 1
PROFUNDIDAD 2

EXPH12

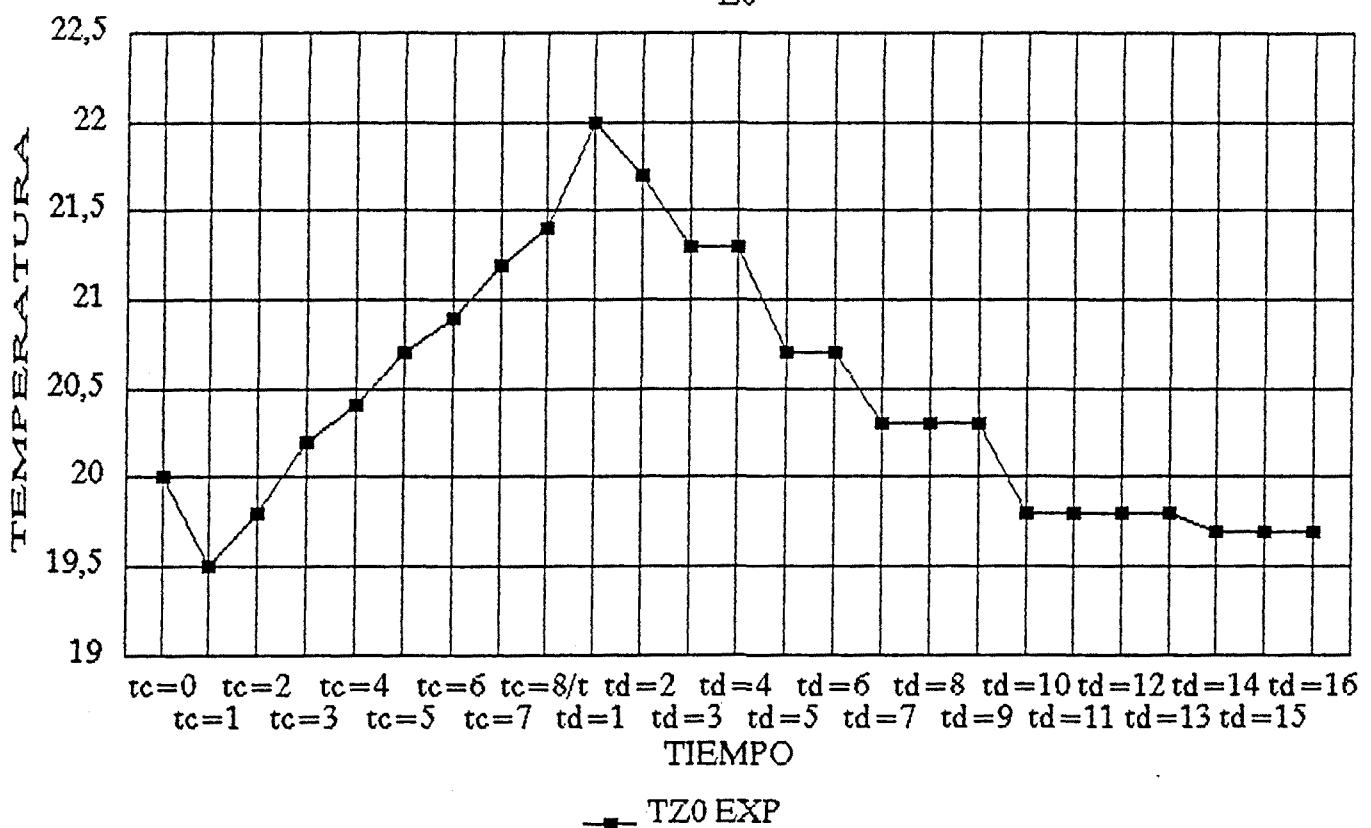
Z8



COMPOSICION 1
PROFUNDIDAD 2

EXPH12

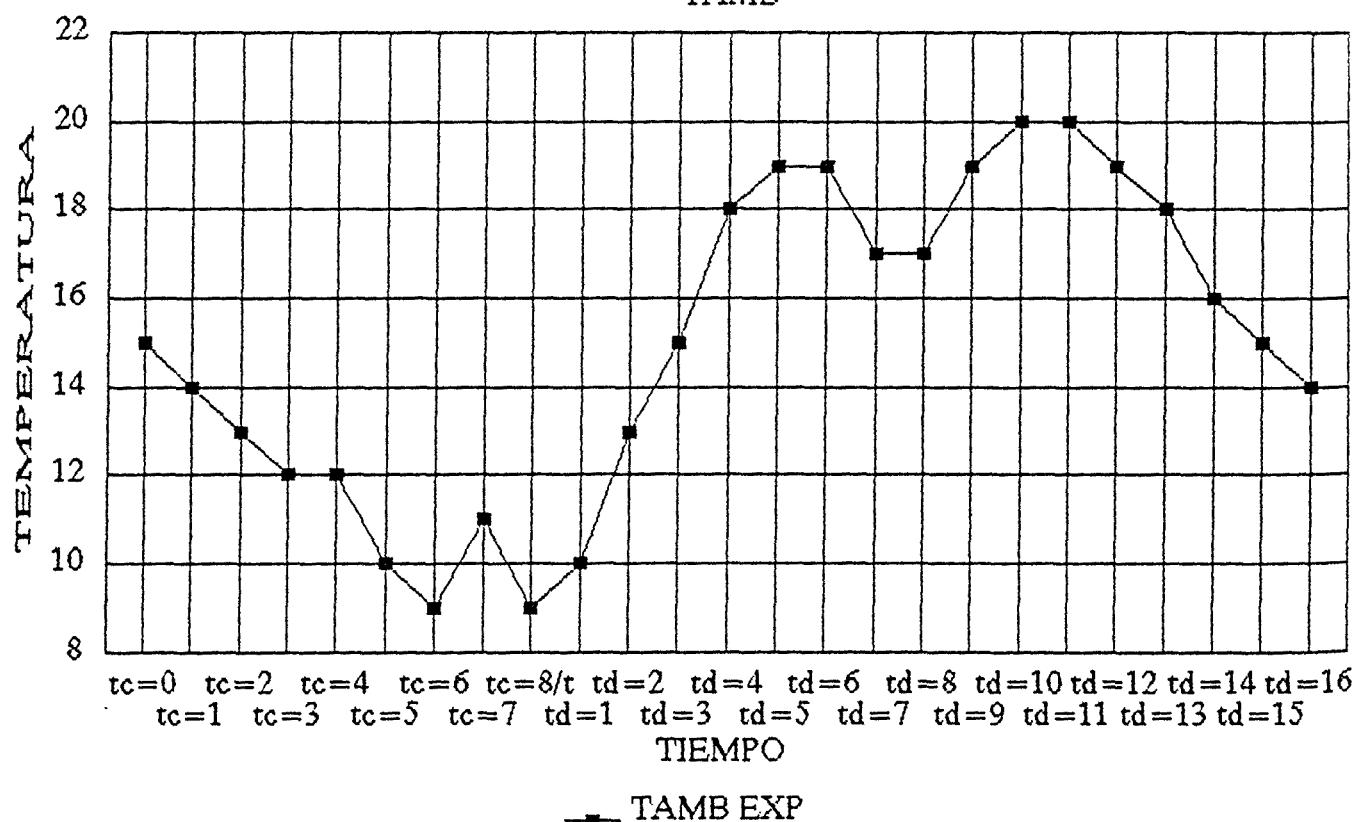
Z_0



COMPOSICION 1
PROFUNDIDAD 2

EXPH12

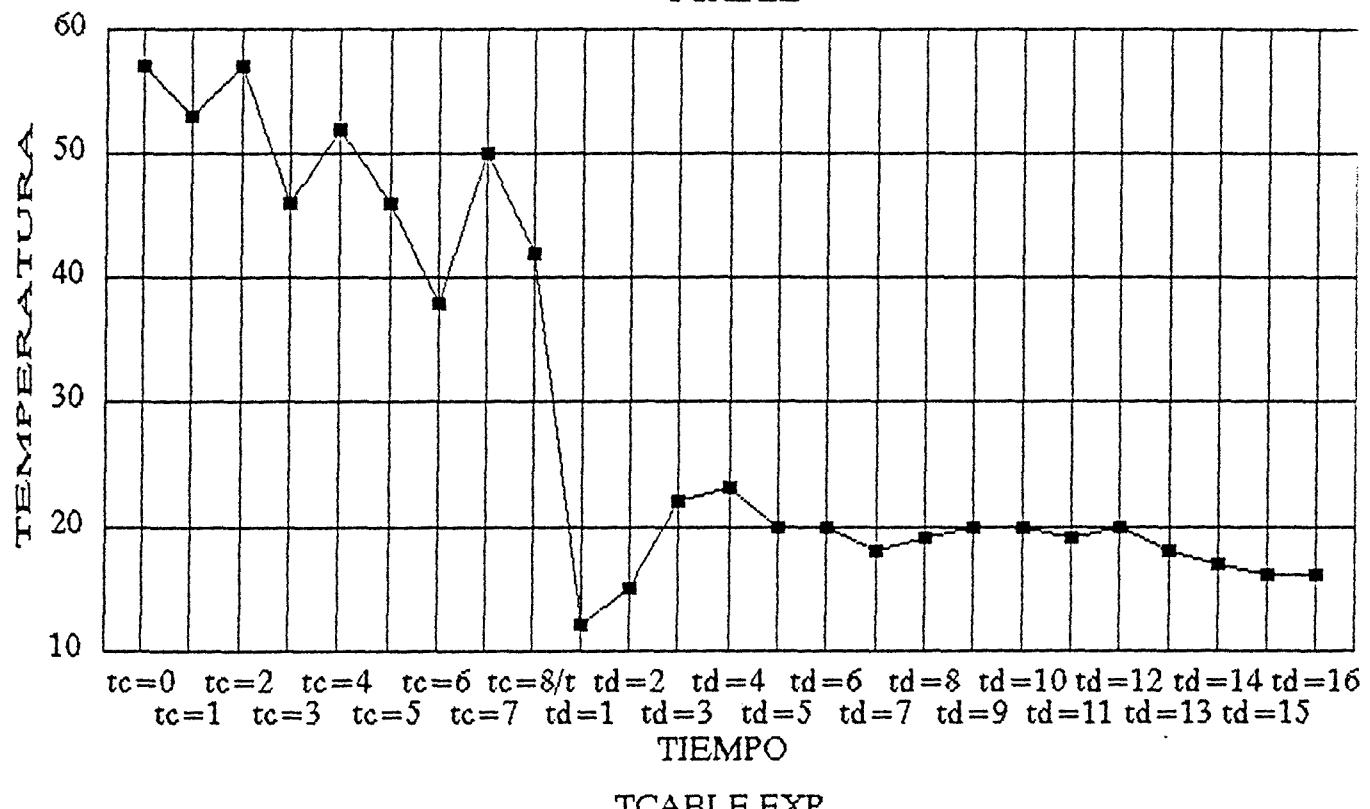
TAMB



COMPOSICION 1
PROFUNDIDAD 2

EXPH12

TCABLE

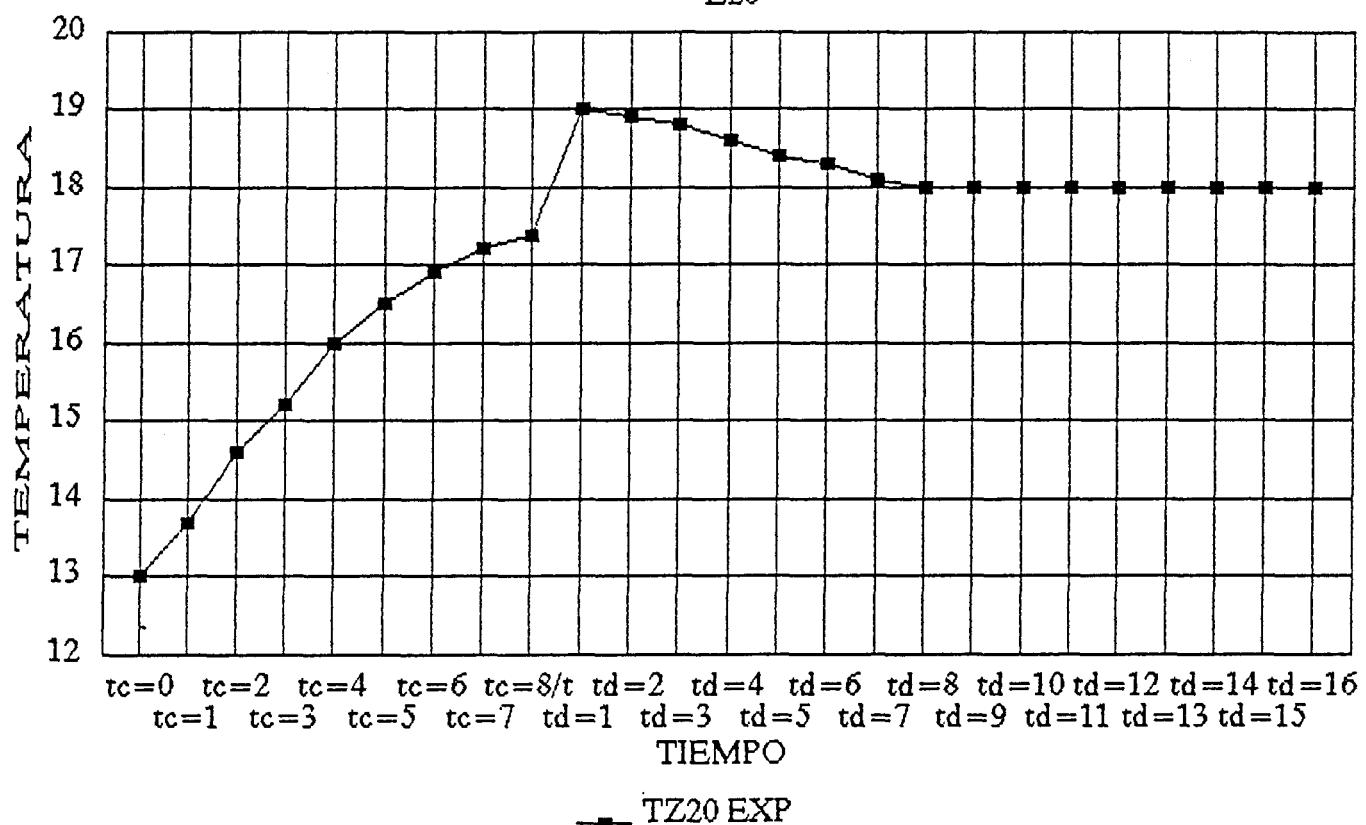


COMPOSICION 1
PROFUNDIDAD 2

GRAFICOS EXPH13

EXPH13

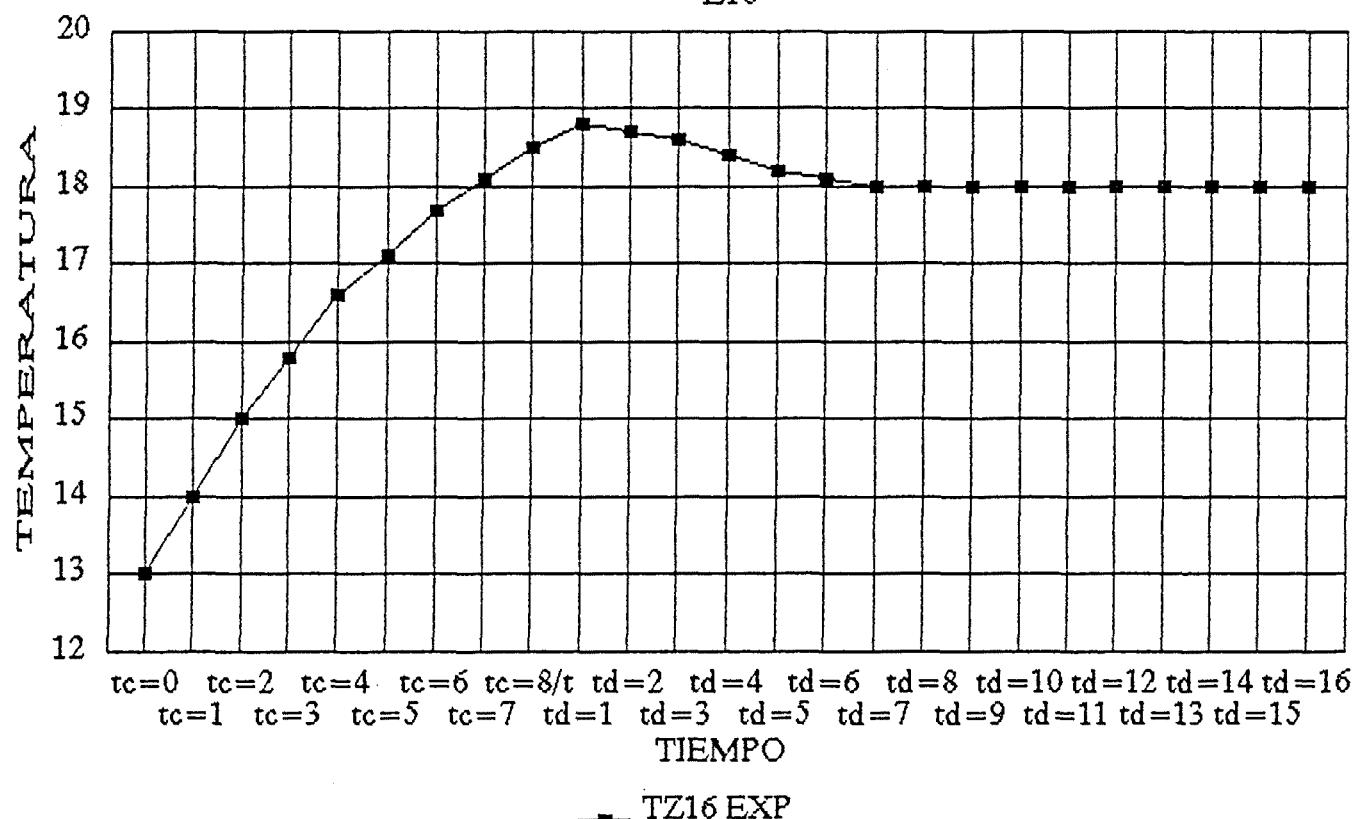
Z20



COMPOSICION 1
PROFUNDIDAD 3

EXPH13

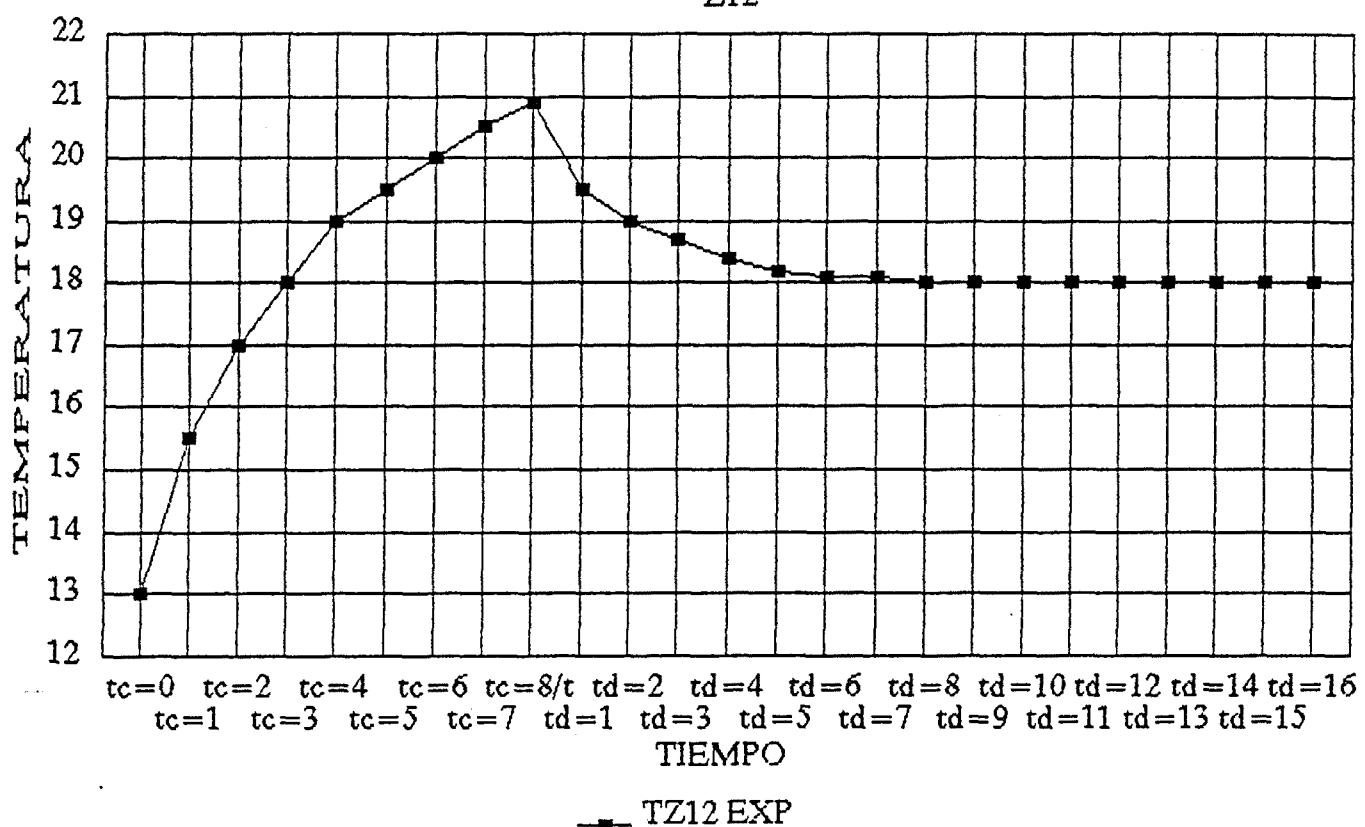
Z16



COMPOSICION 1
PROFUNDIDAD 3

EXPH13

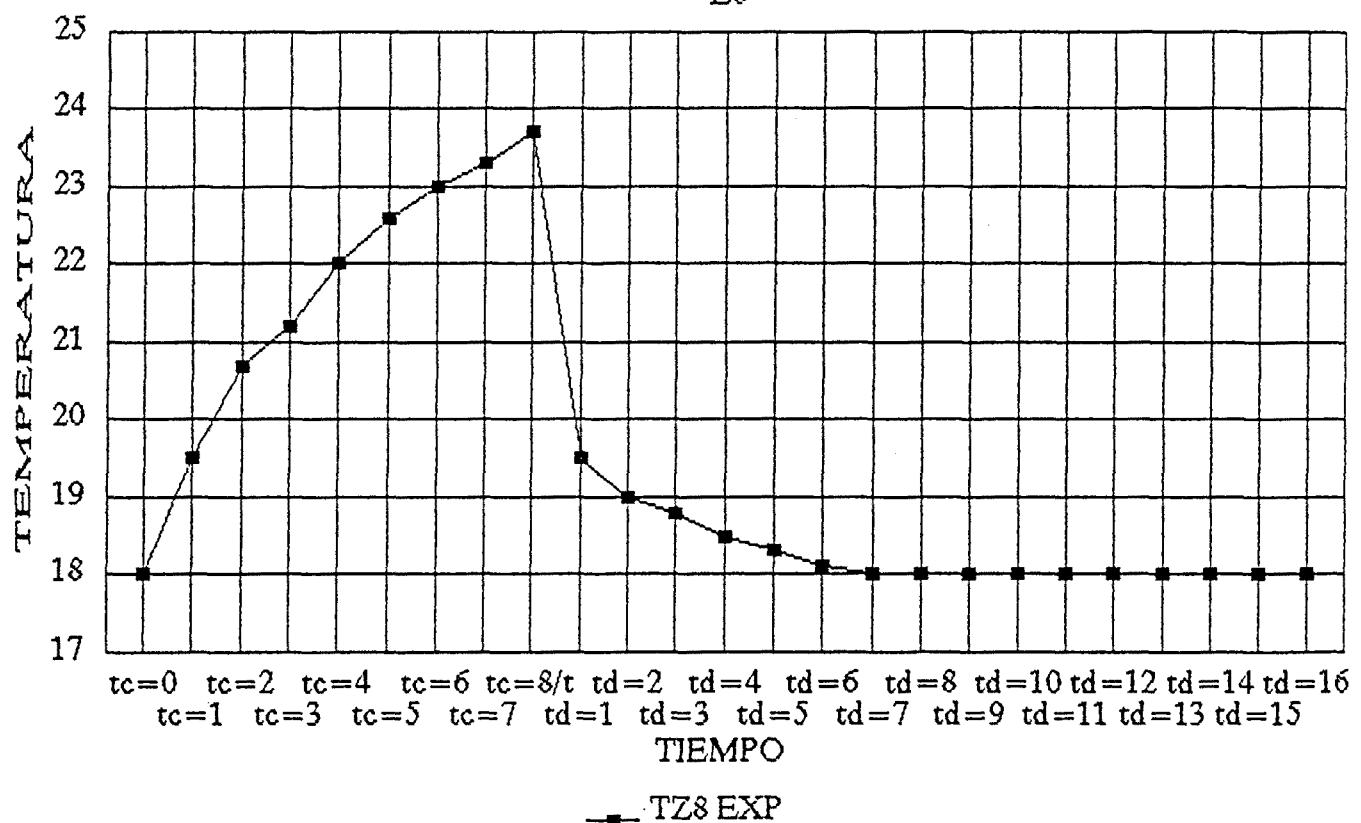
Z12



COMPOSICION 1
PROFUNDIDAD 3

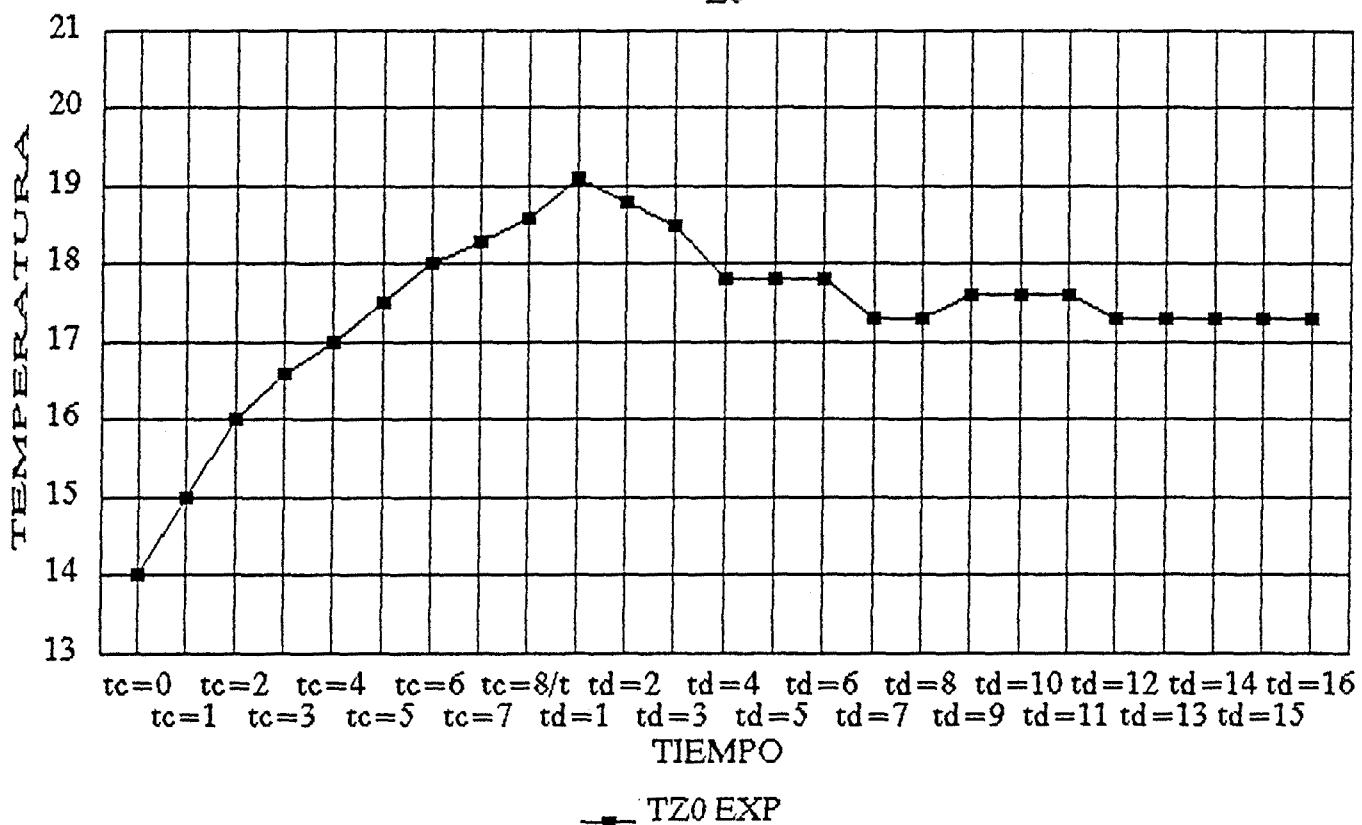
EXPH13

Z8



EXPH13

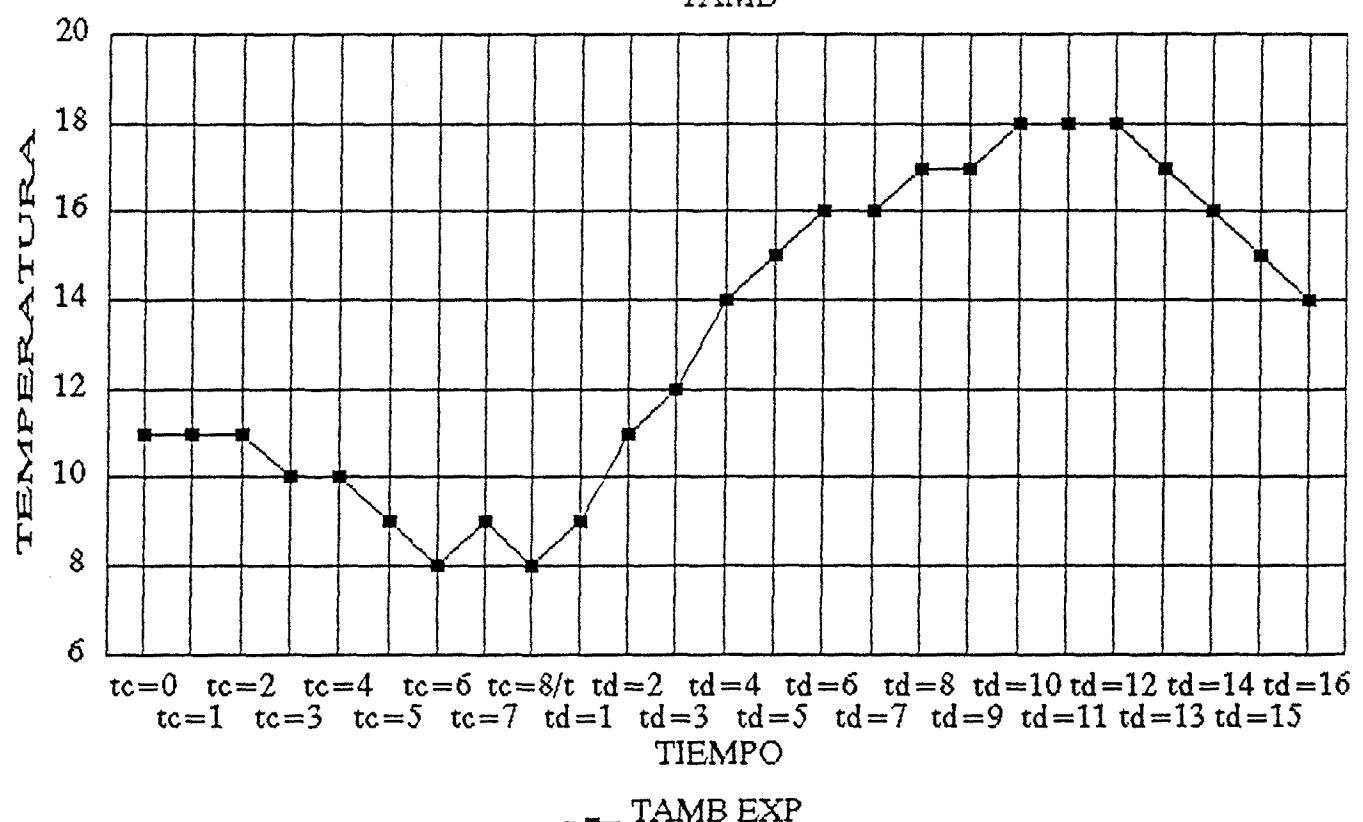
Z0



COMPOSICION 1
PROFUNDIDAD 3

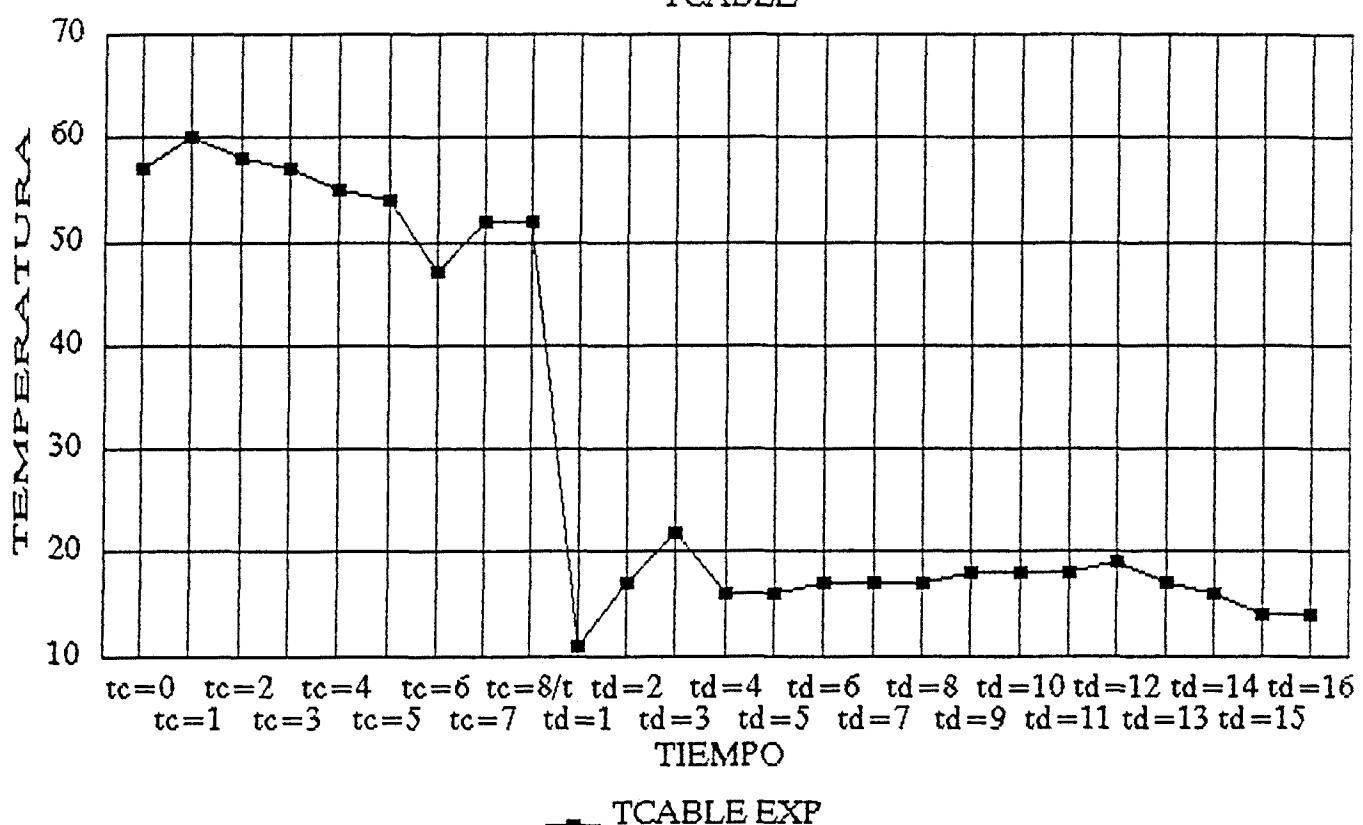
EXPH13

TAMB



EXPH13

TCABLE

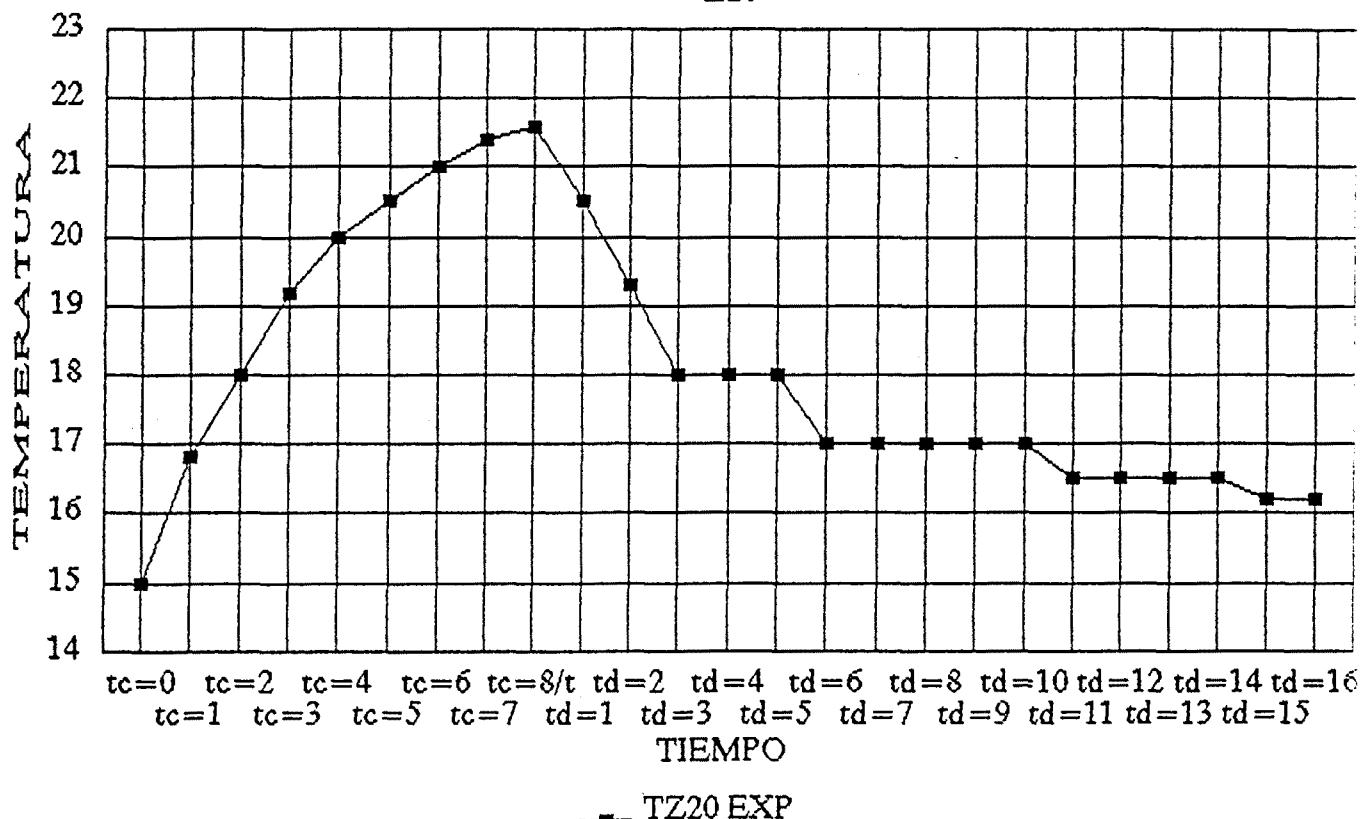


COMPOSICION 1
PROFUNDIDAD 3

GRAFICOS EXPH21

EXPH21

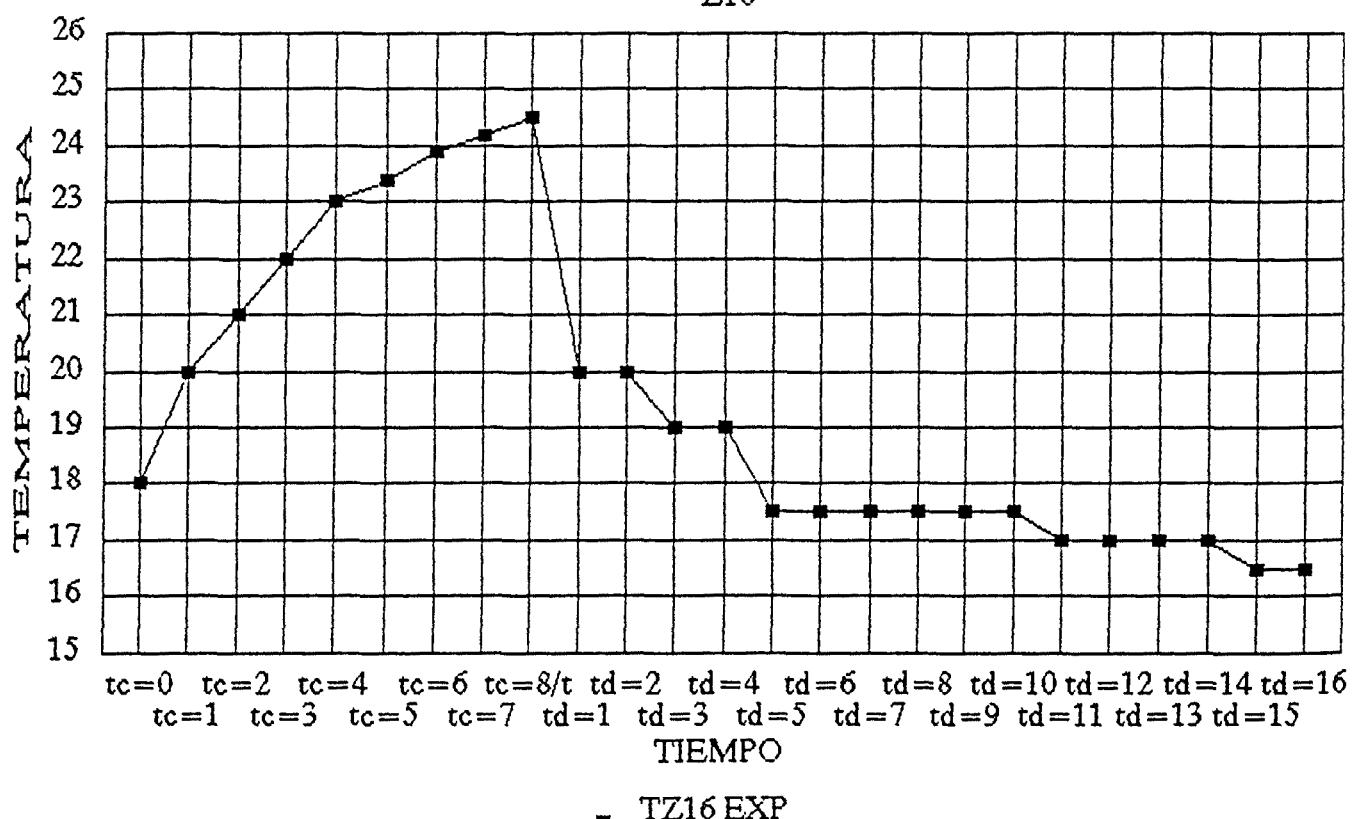
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COMPOSICION 2
PROFUNDIDAD 1

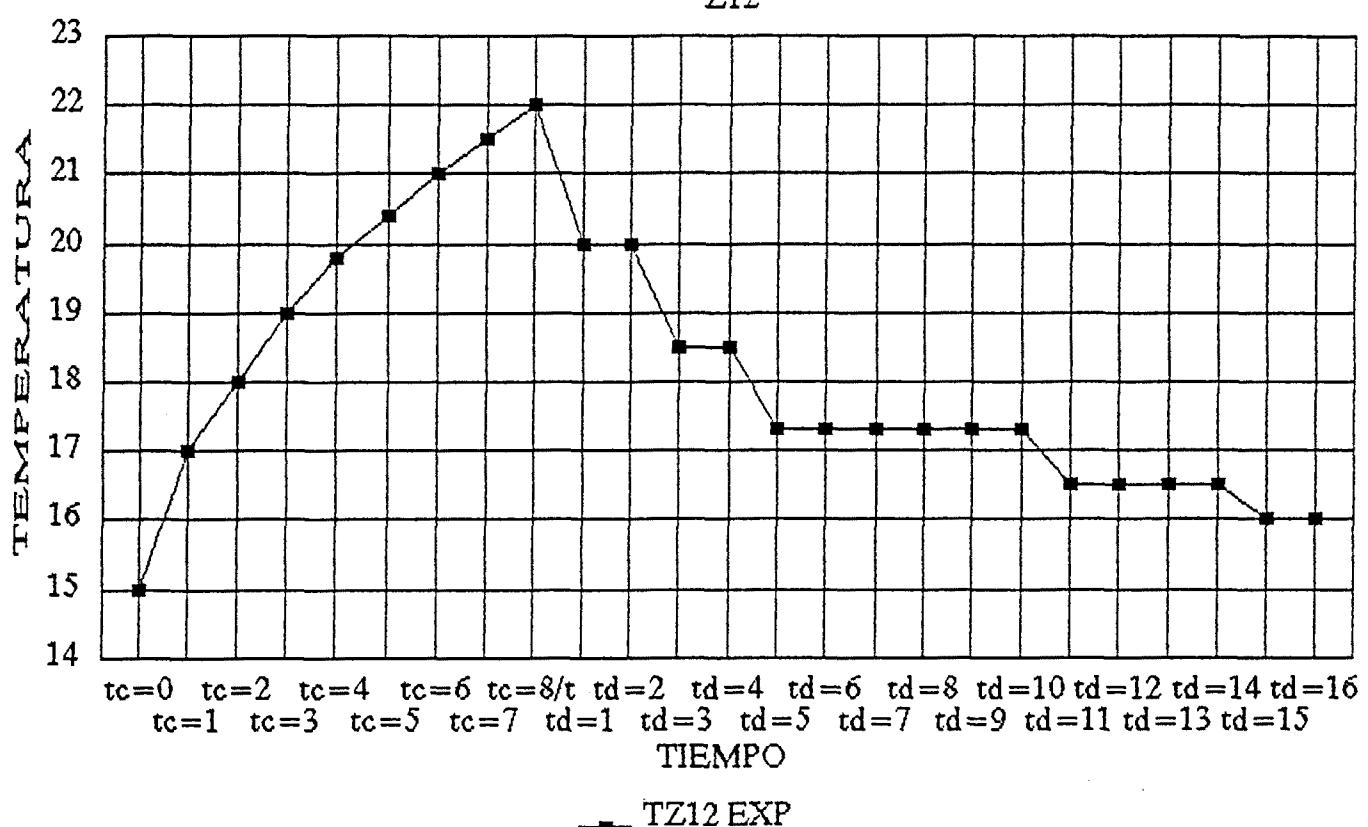
EXPH21

Z16



EXPH21

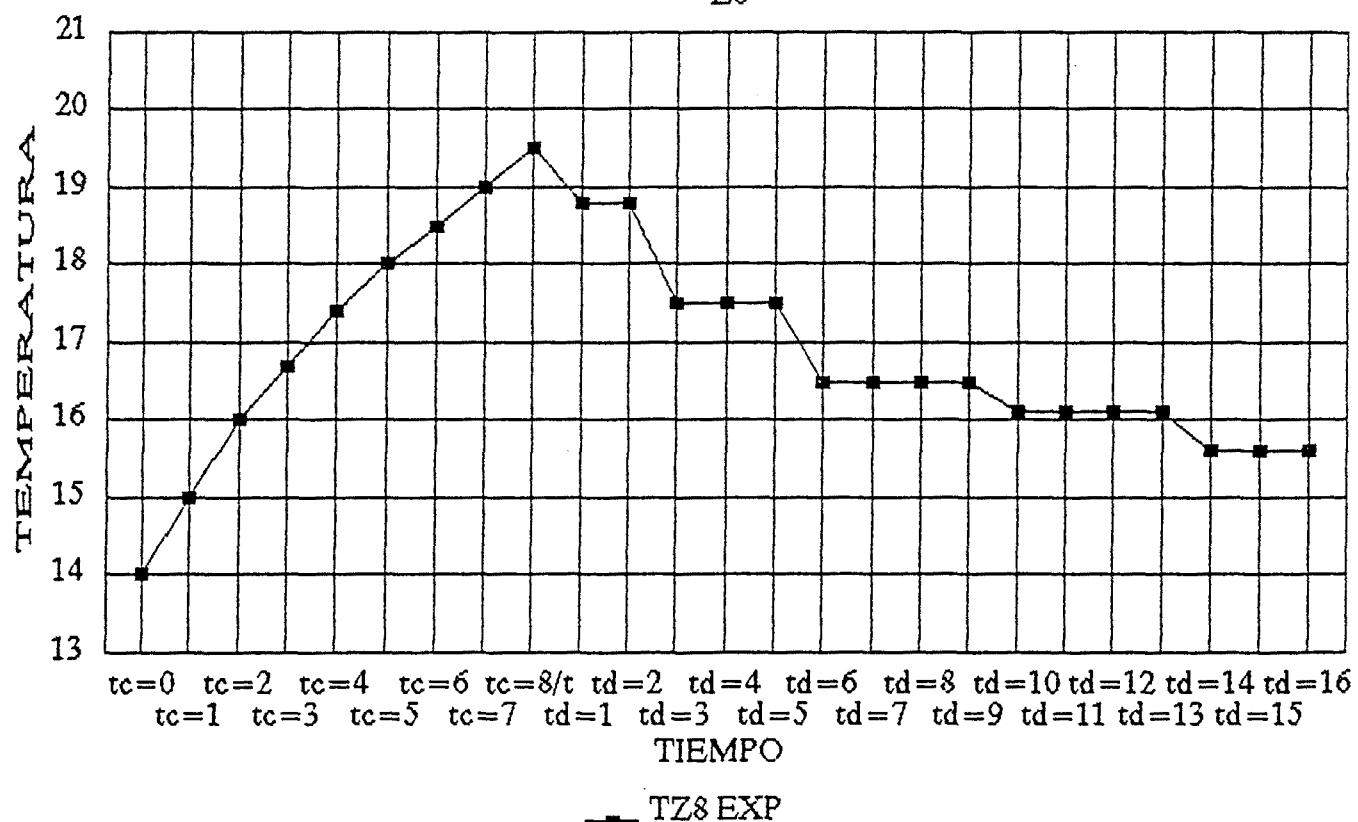
Z12



COMPOSICION 2
PROFUNDIDAD 1

EXPH21

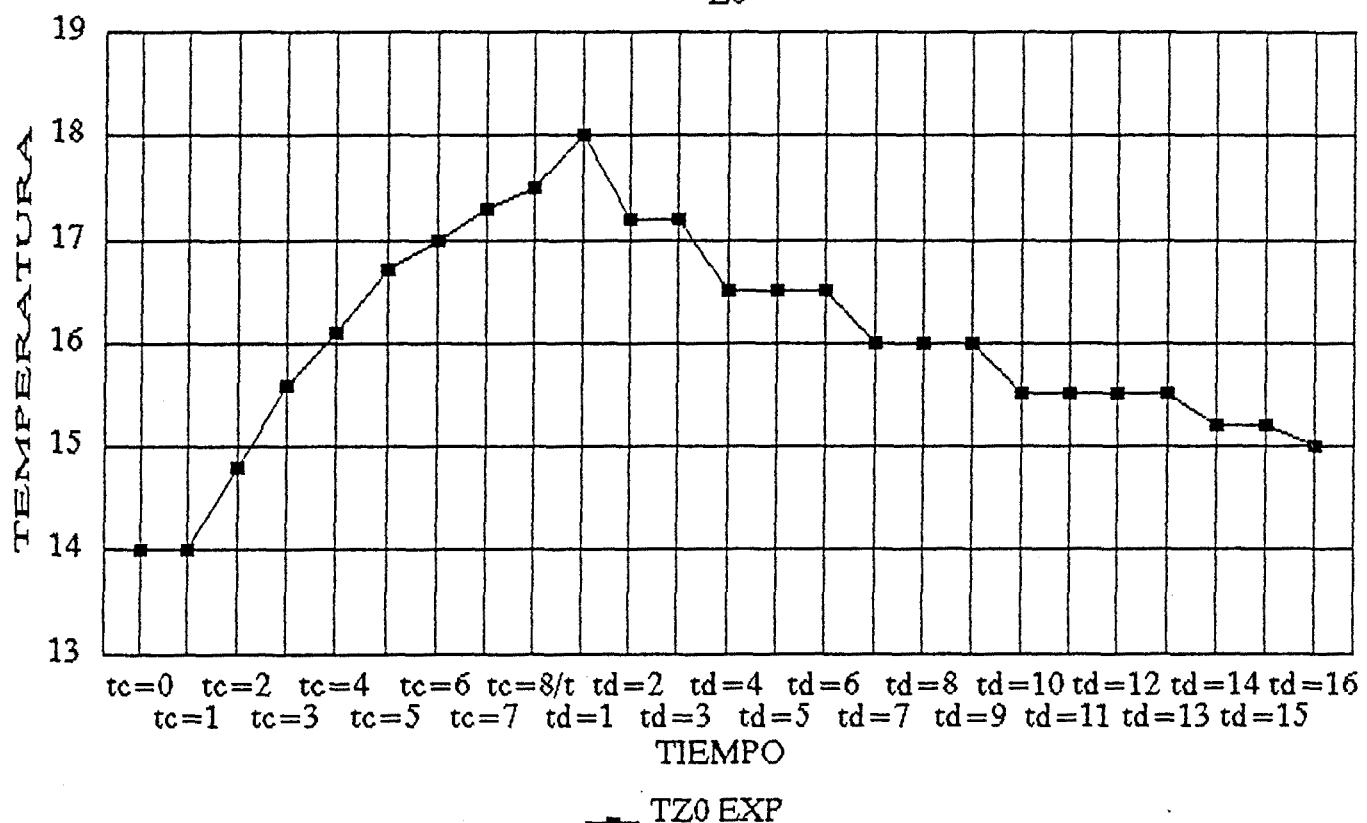
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COMPOSICION 2
PROFUNDIDAD 1

EXPH21

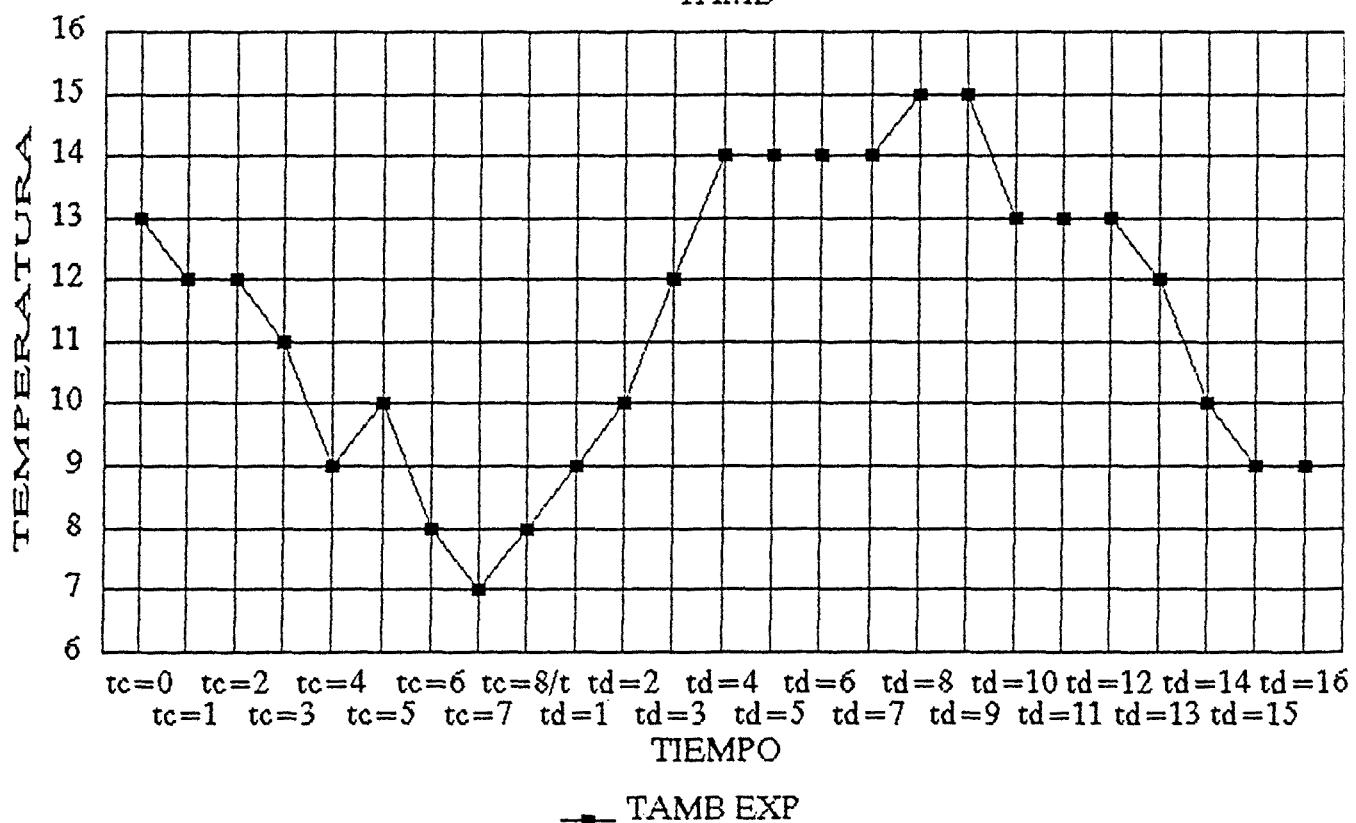
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COMPOSICION 2
PROFUNDIDAD 1

EXPH21

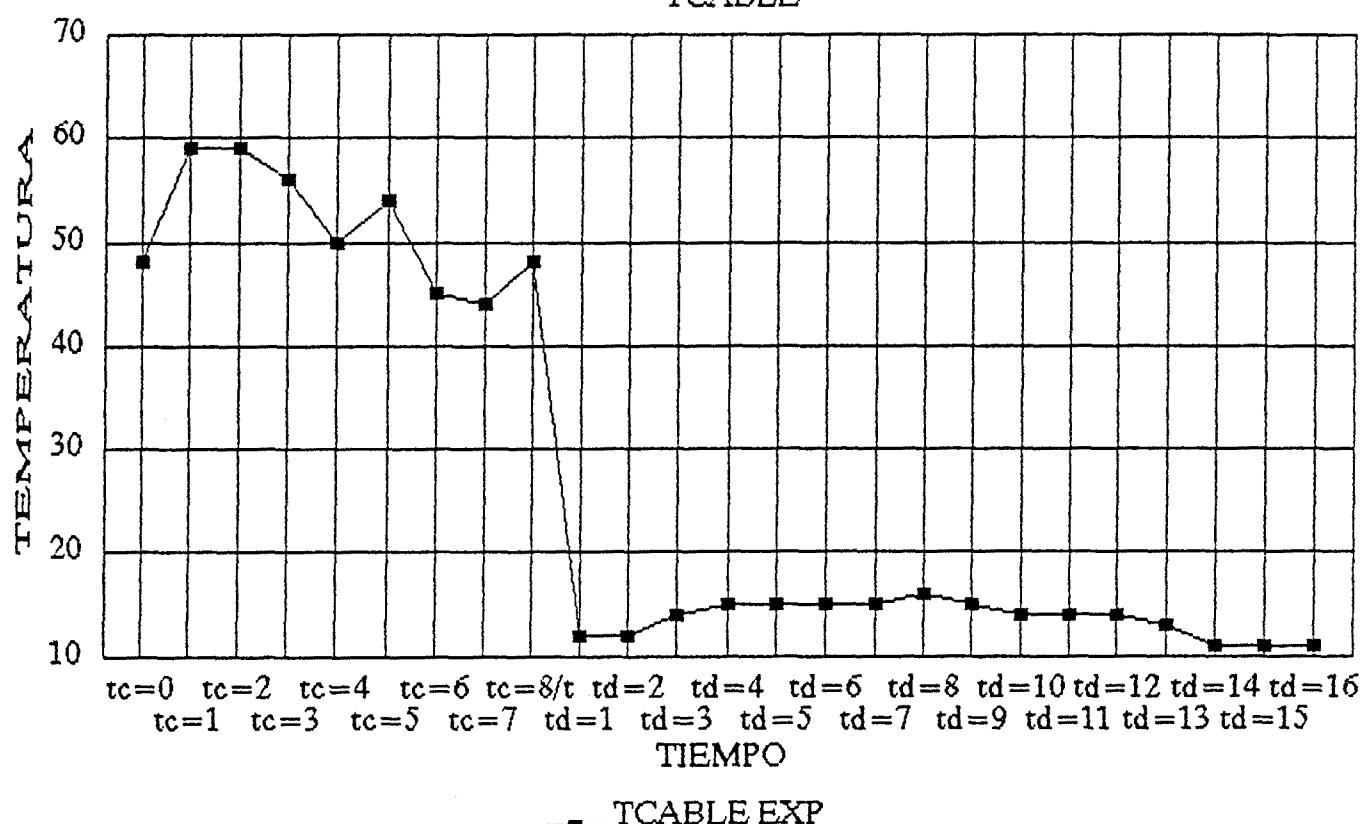
TAMB



COMPOSICION 2
PROFUNDIDAD 1

EXPH21

TCABLE

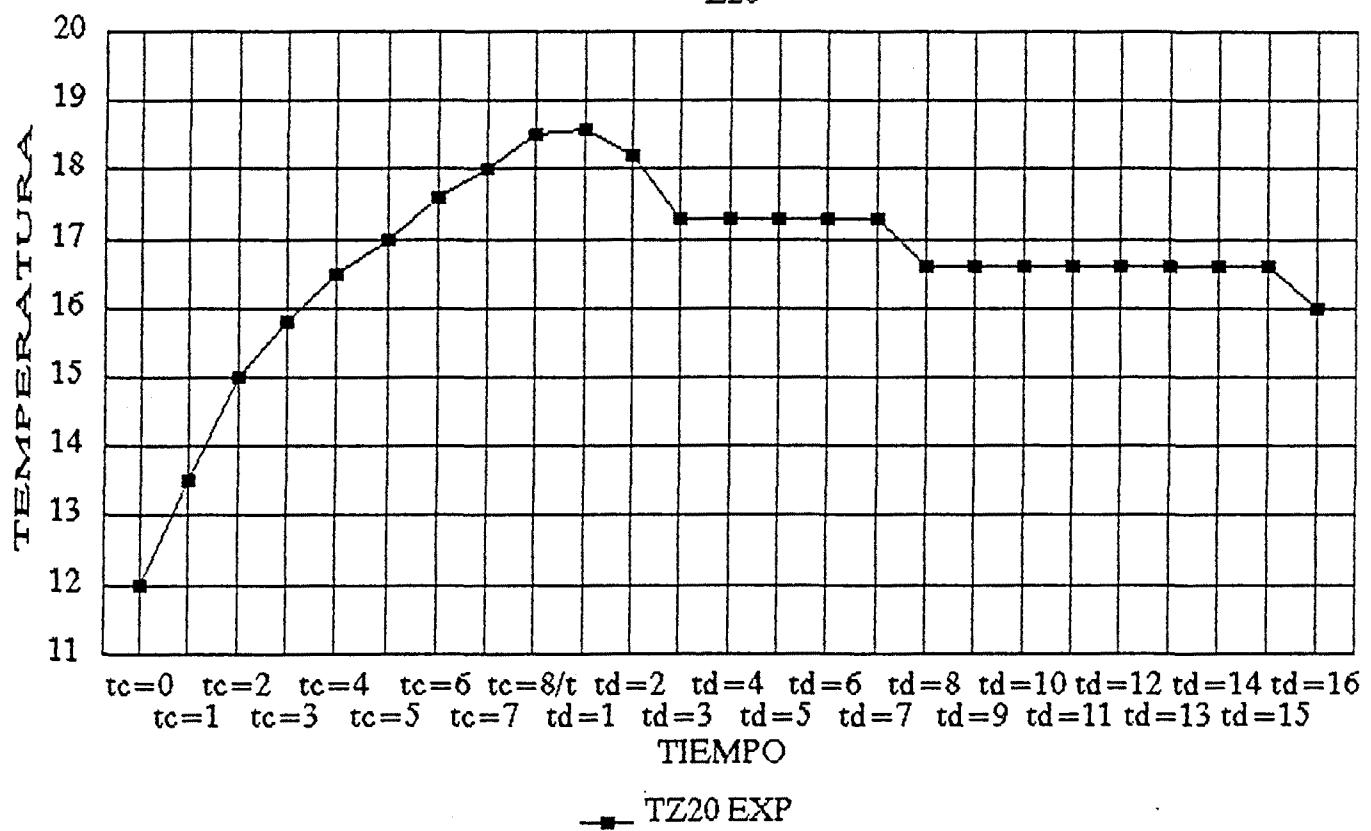


COMPOSICION 2
PROFUNDIDAD 1

GRAFICOS EXPH22

EXPH22

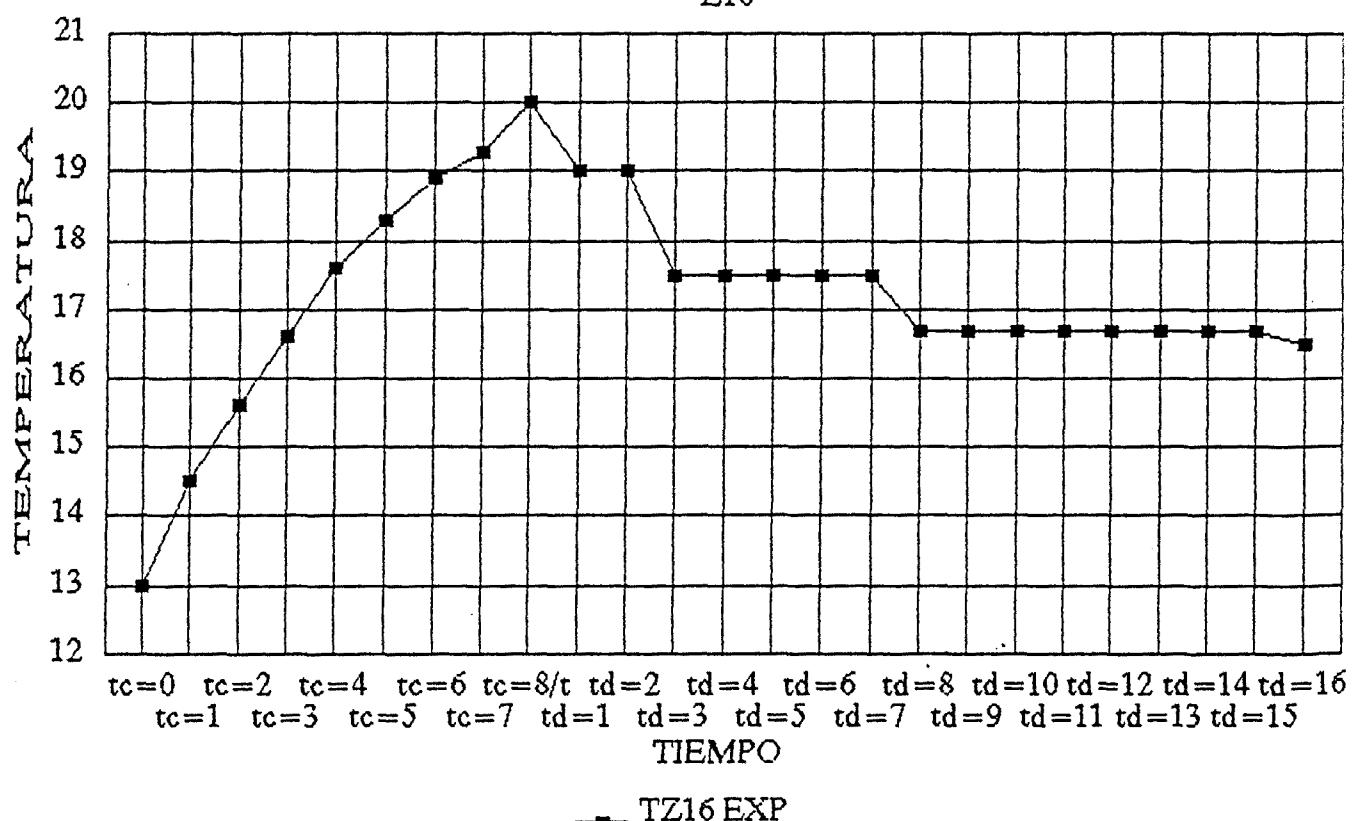
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COMPOSICION 2
PROFUNDIDAD 2

EXPH22

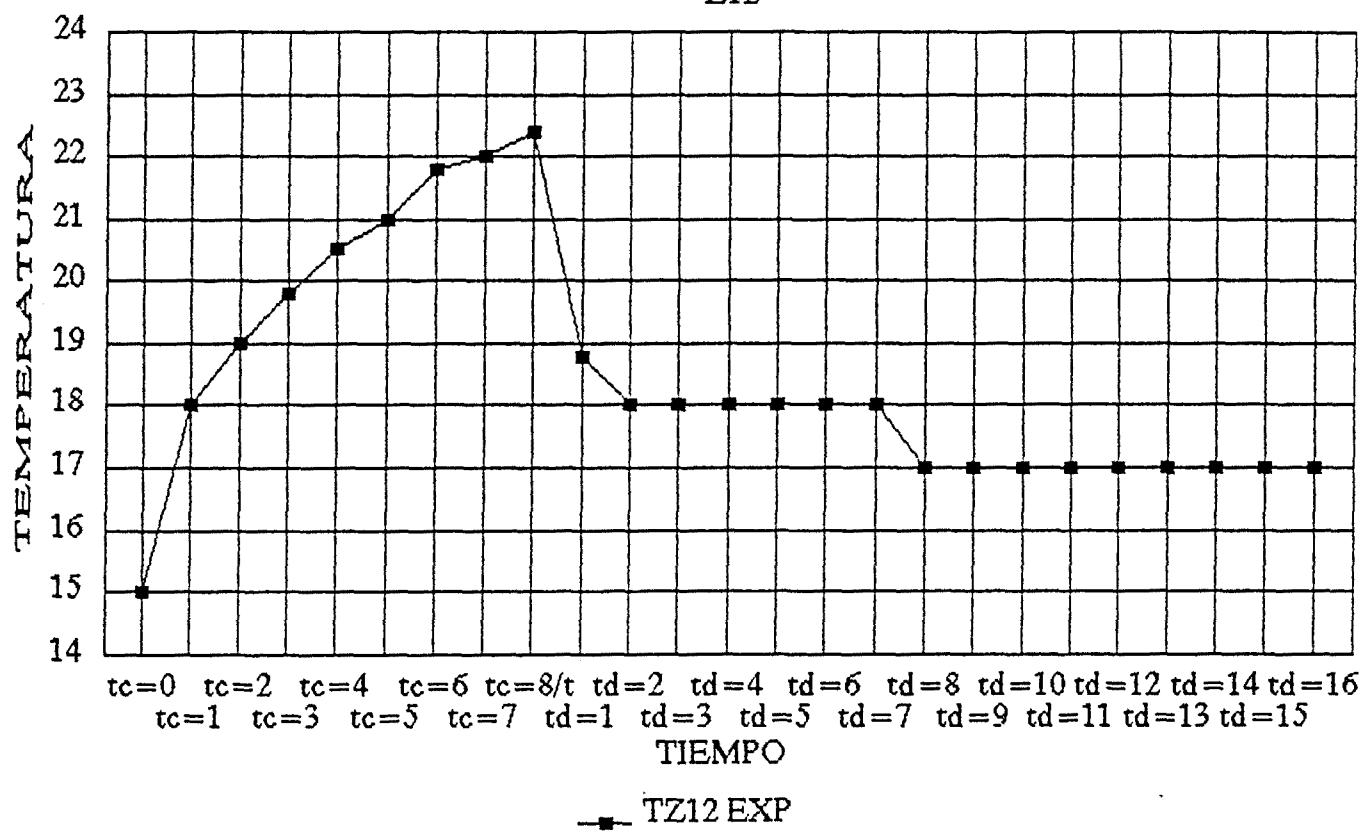
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COMPOSICION 2
PROFUNDIDAD 2

EXPH22

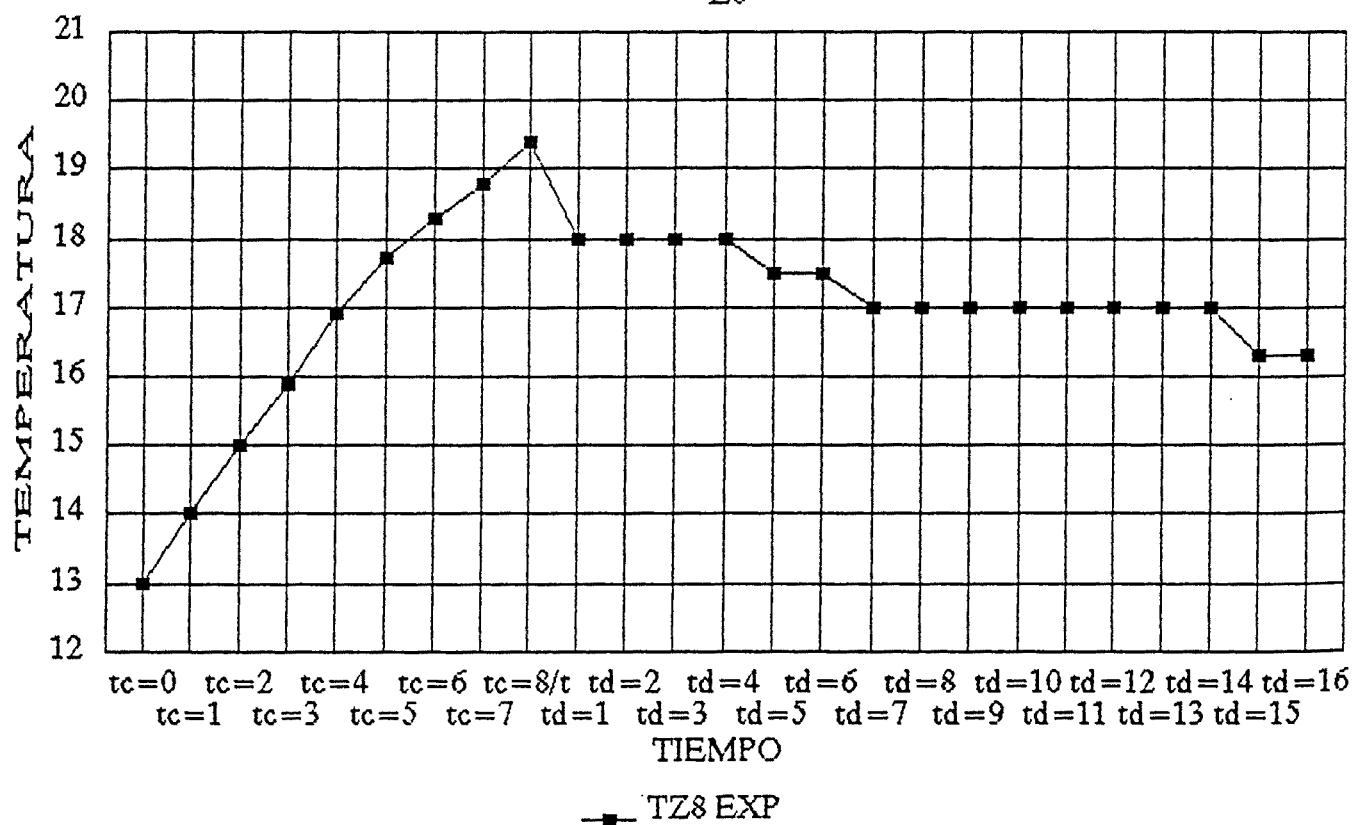
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COMPOSICION 2
PROFUNDIDAD 2

EXPH22

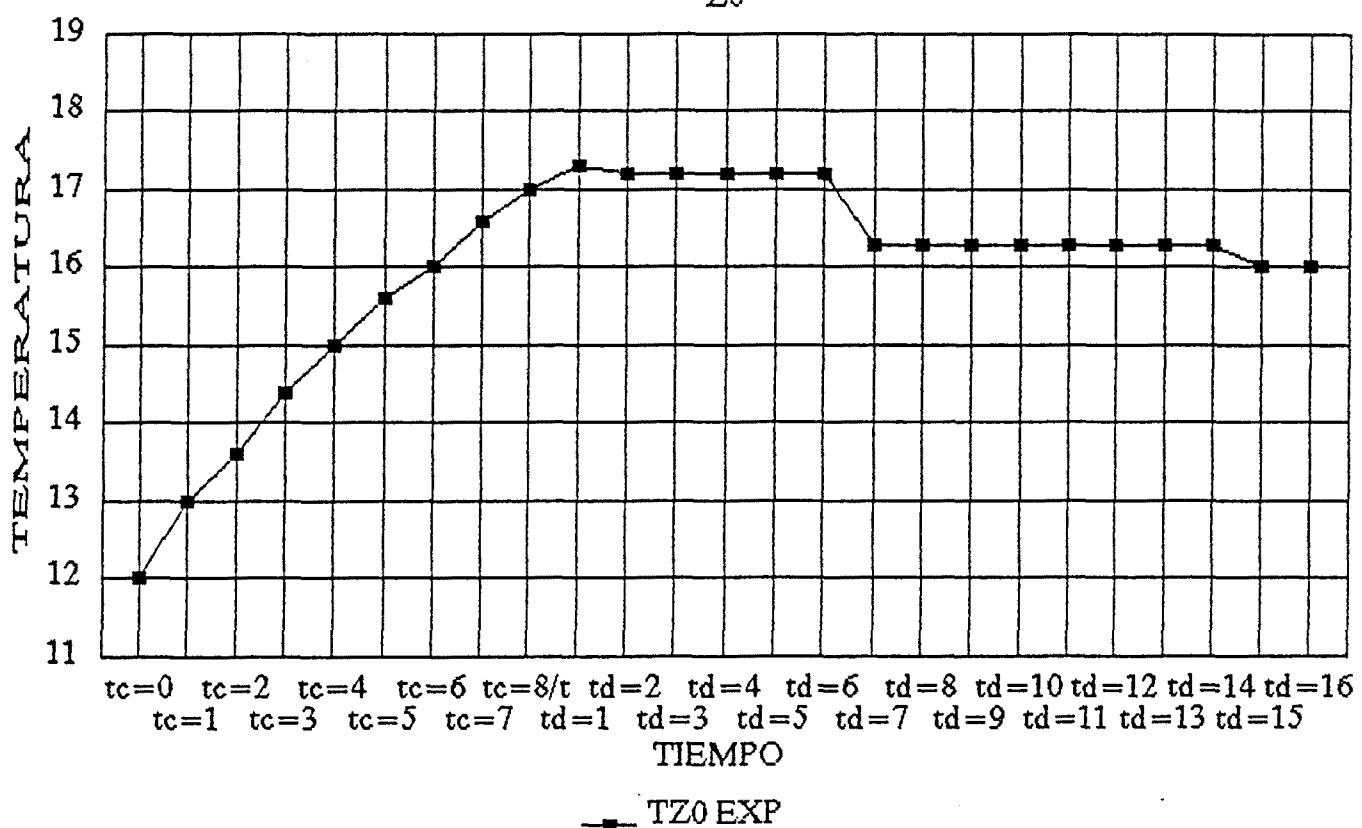
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COMPOSICION 2
PROFUNDIDAD 2

EXPH22

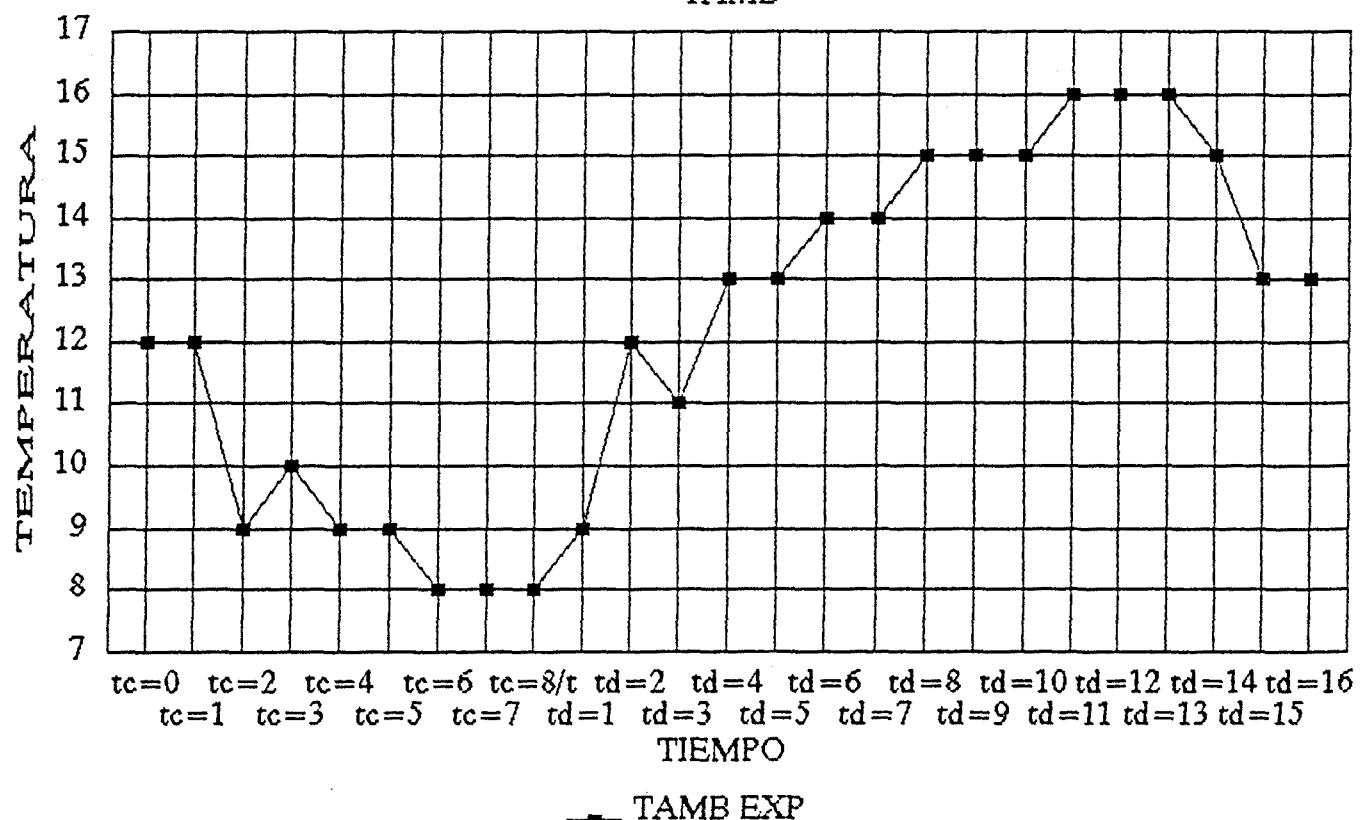
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COMPOSICION 2
PROFUNDIDAD 2

EXPH22

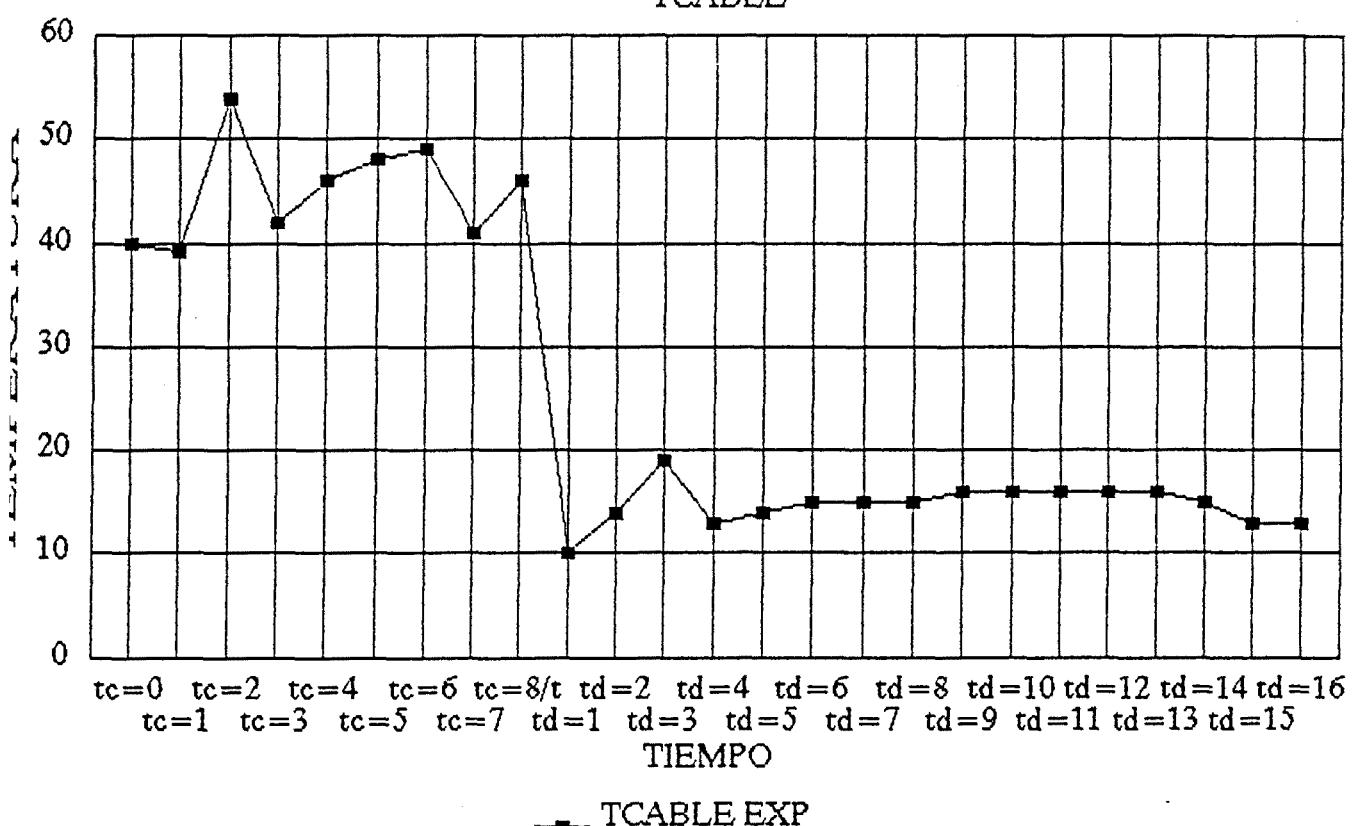
TAMB



COMPOSICION 2
PROFUNDIDAD 2

EXPH22

TCABLE

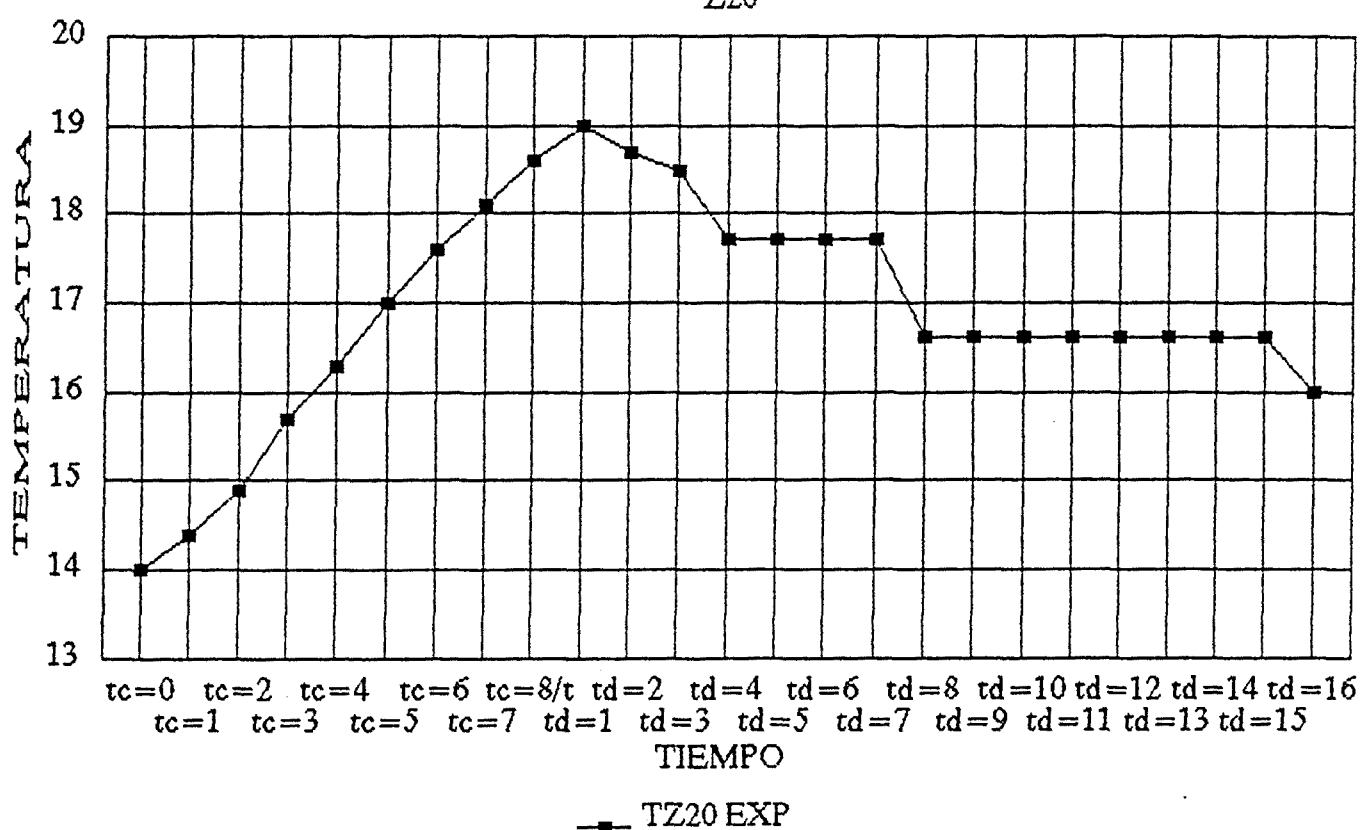


COMPOSICION 2
PROFUNDIDAD 2

GRAFICOS EXPH23

EXPH23

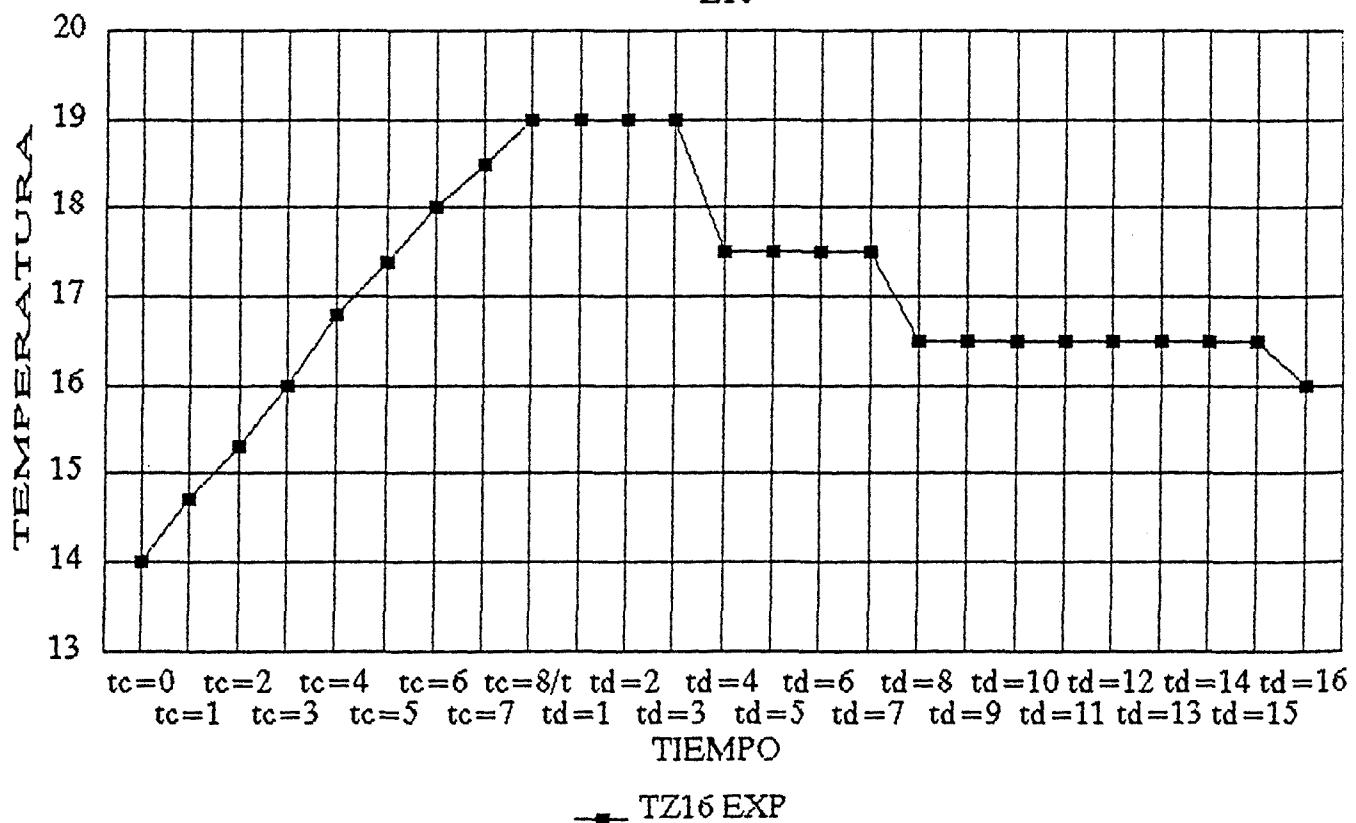
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COMPOSICION 2
PROFUNDIDAD 3

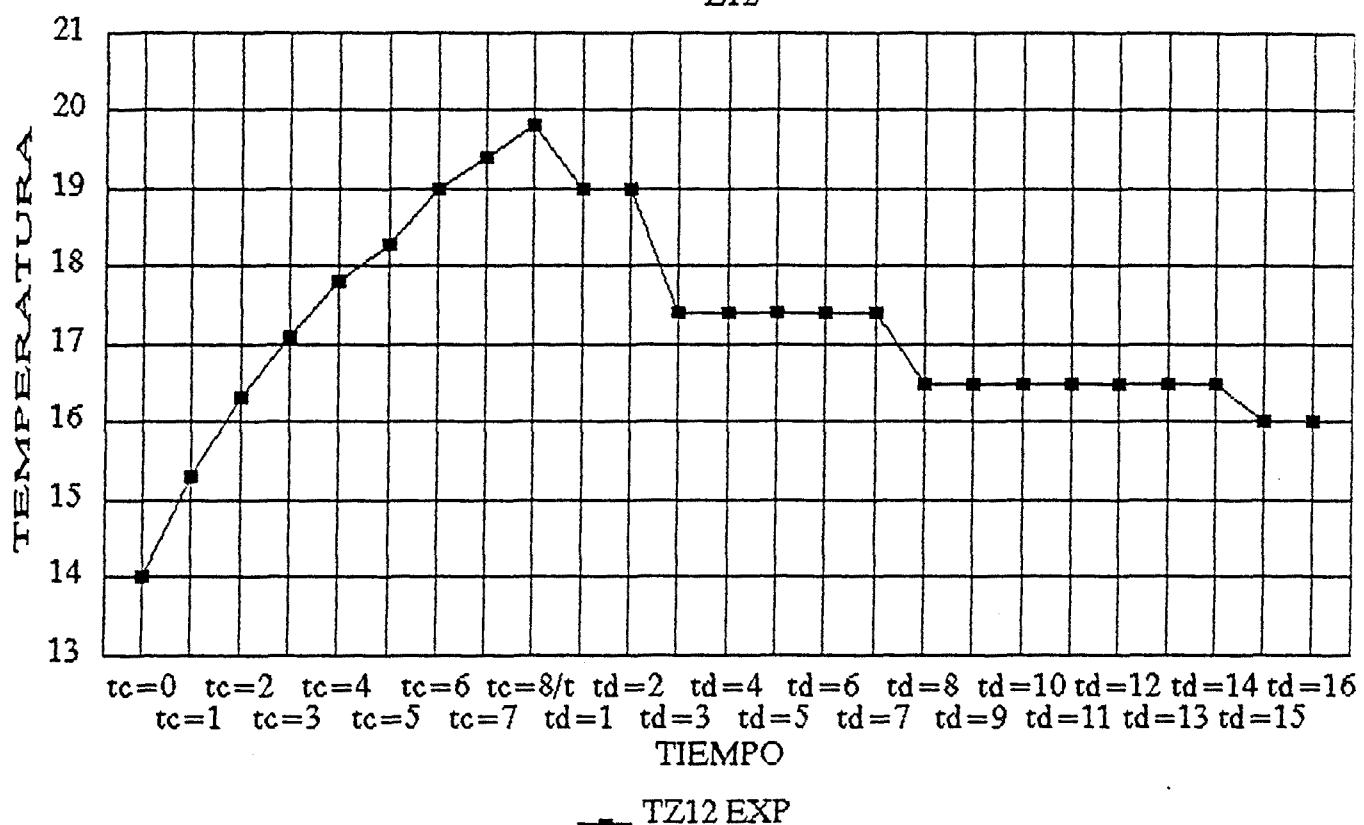
EXPH23

Z16



EXPH23

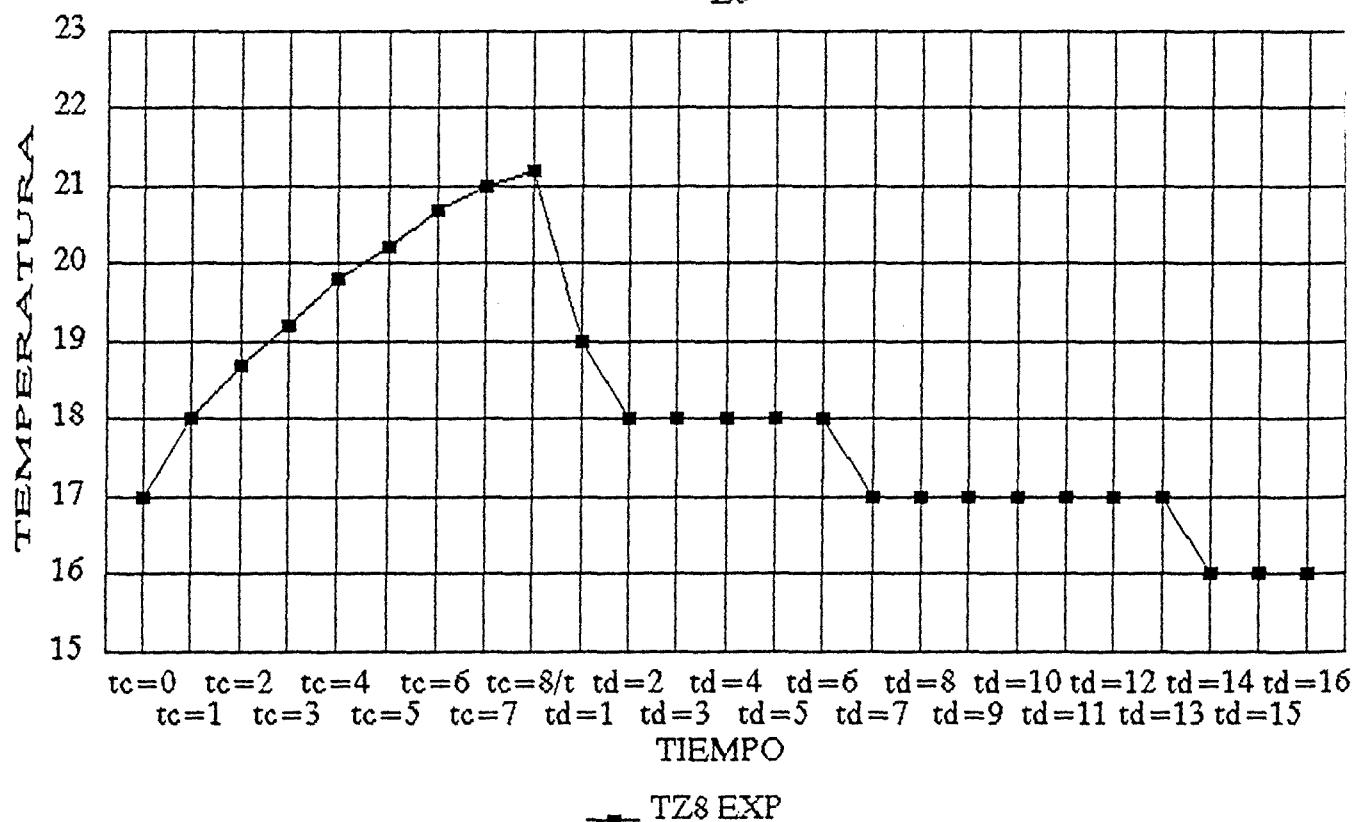
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COMPOSICION 2
PROFUNDIDAD 3

EXPH23

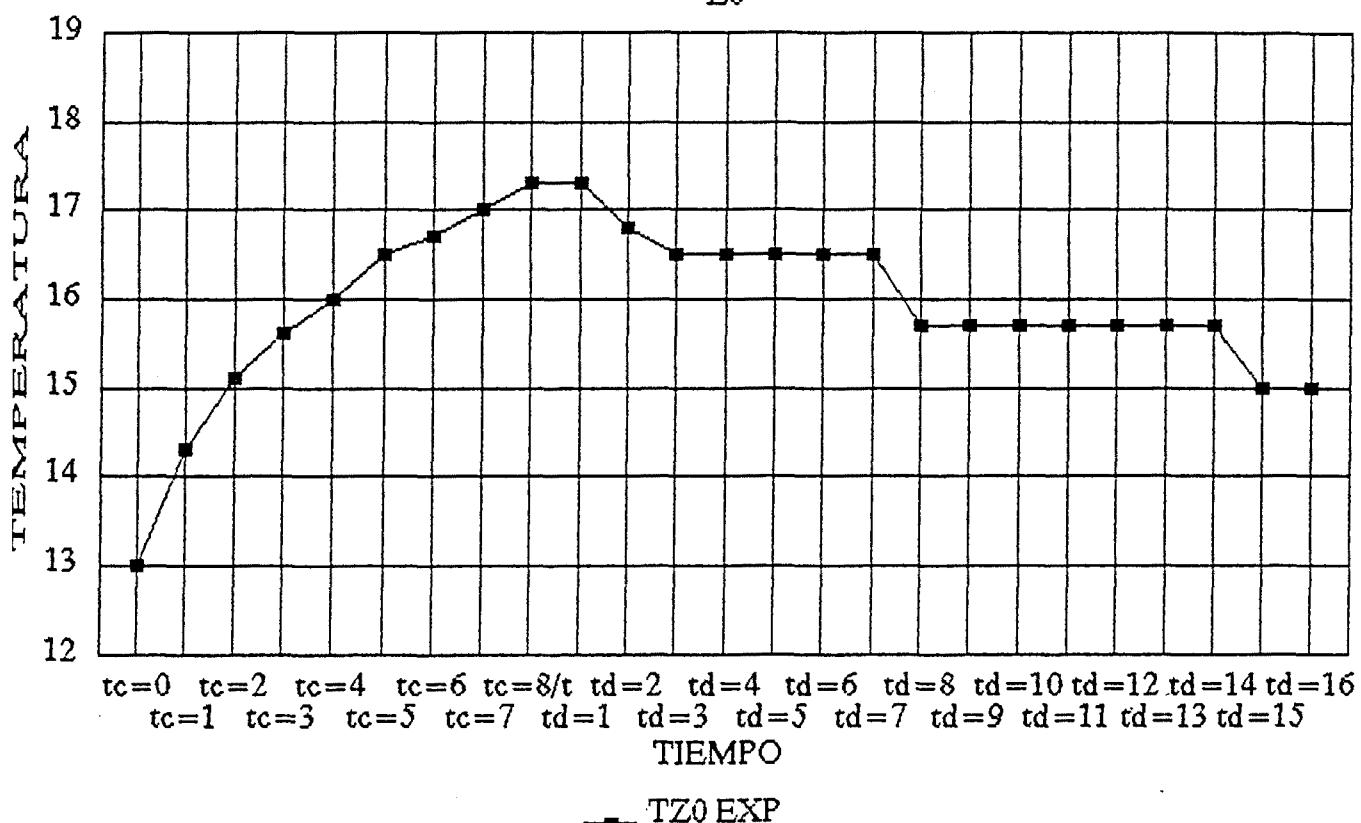
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COMPOSICION 2
PROFUNDIDAD 3

EXPH23

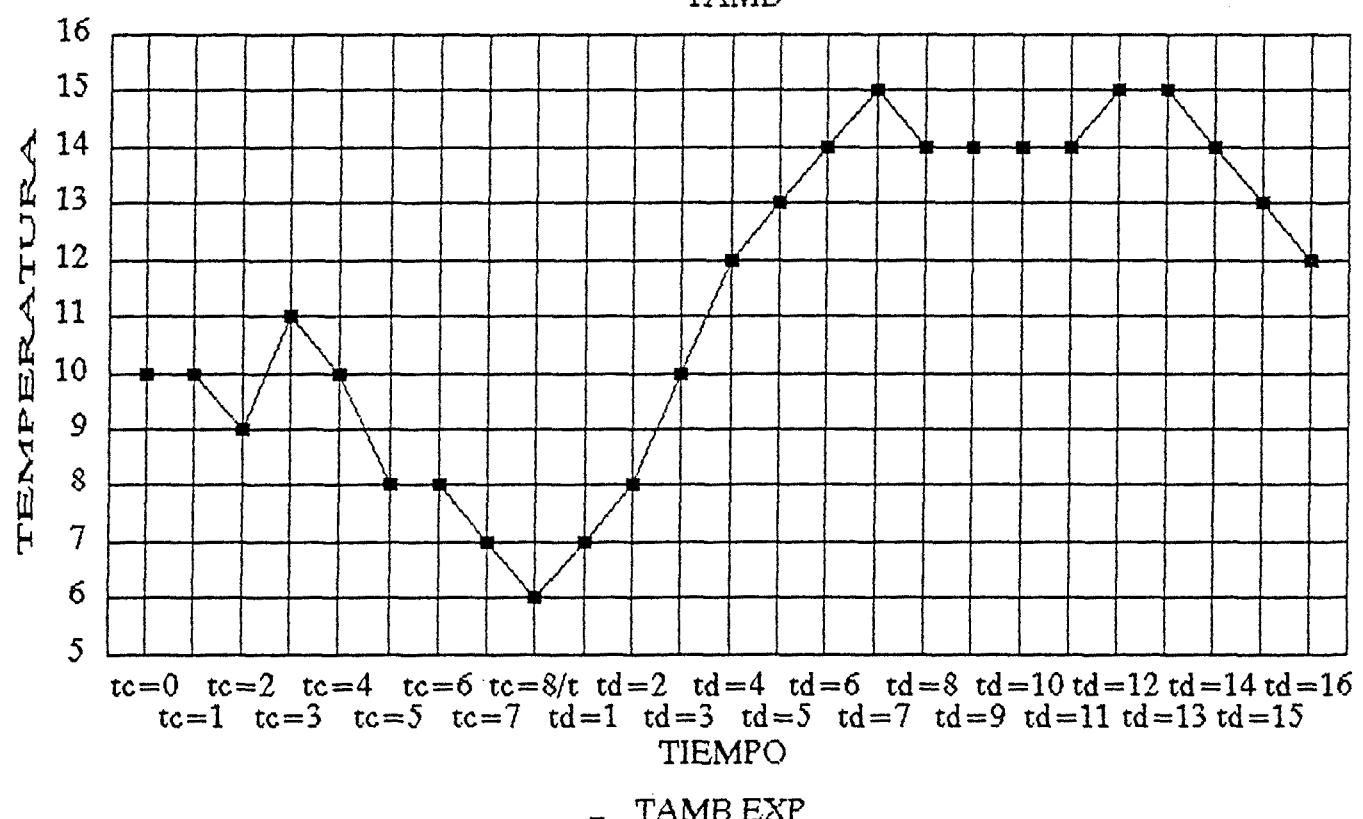
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COMPOSICION 2
PROFUNDIDAD 3

EXPH23

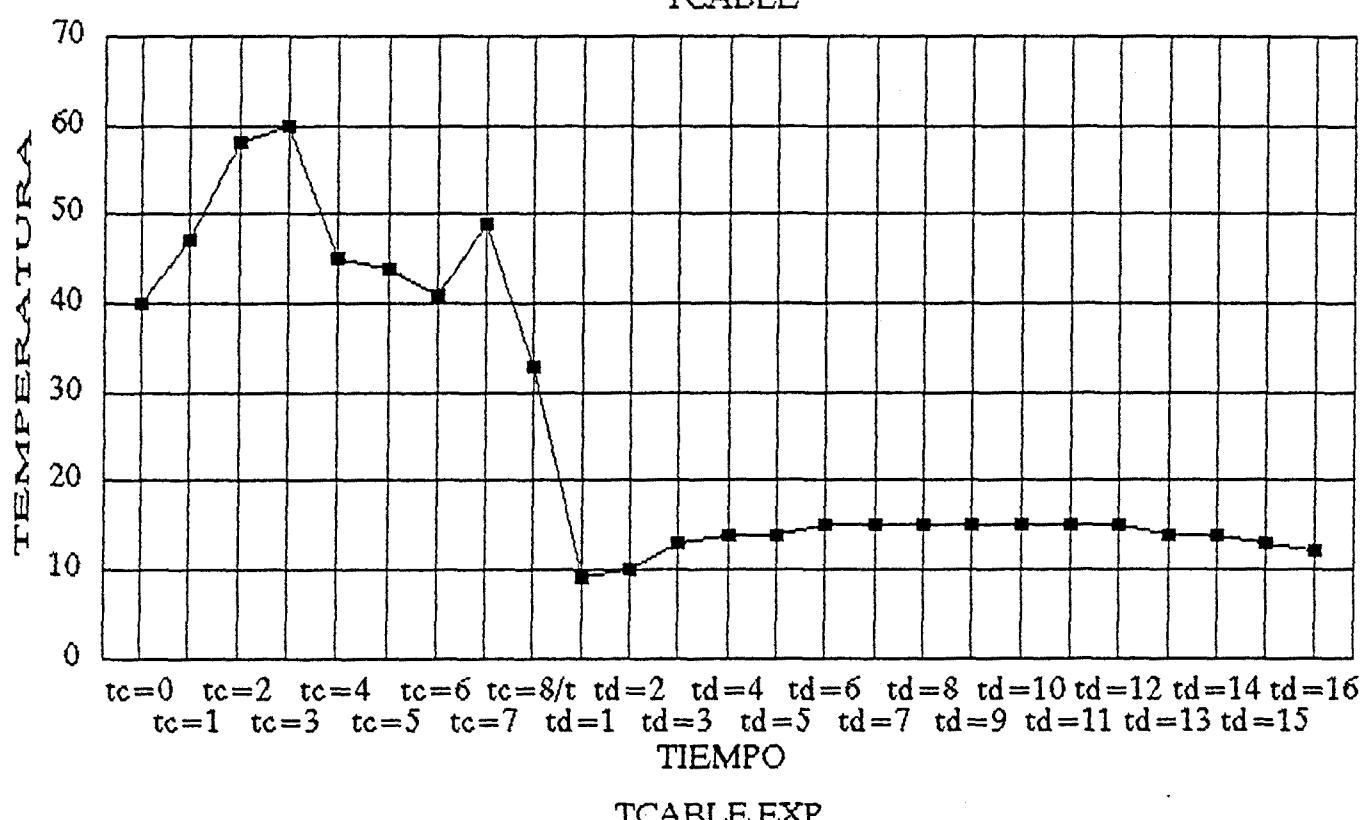
TAMB



COMPOSICION 2
PROFUNDIDAD 3

EXPH23

TCABLE

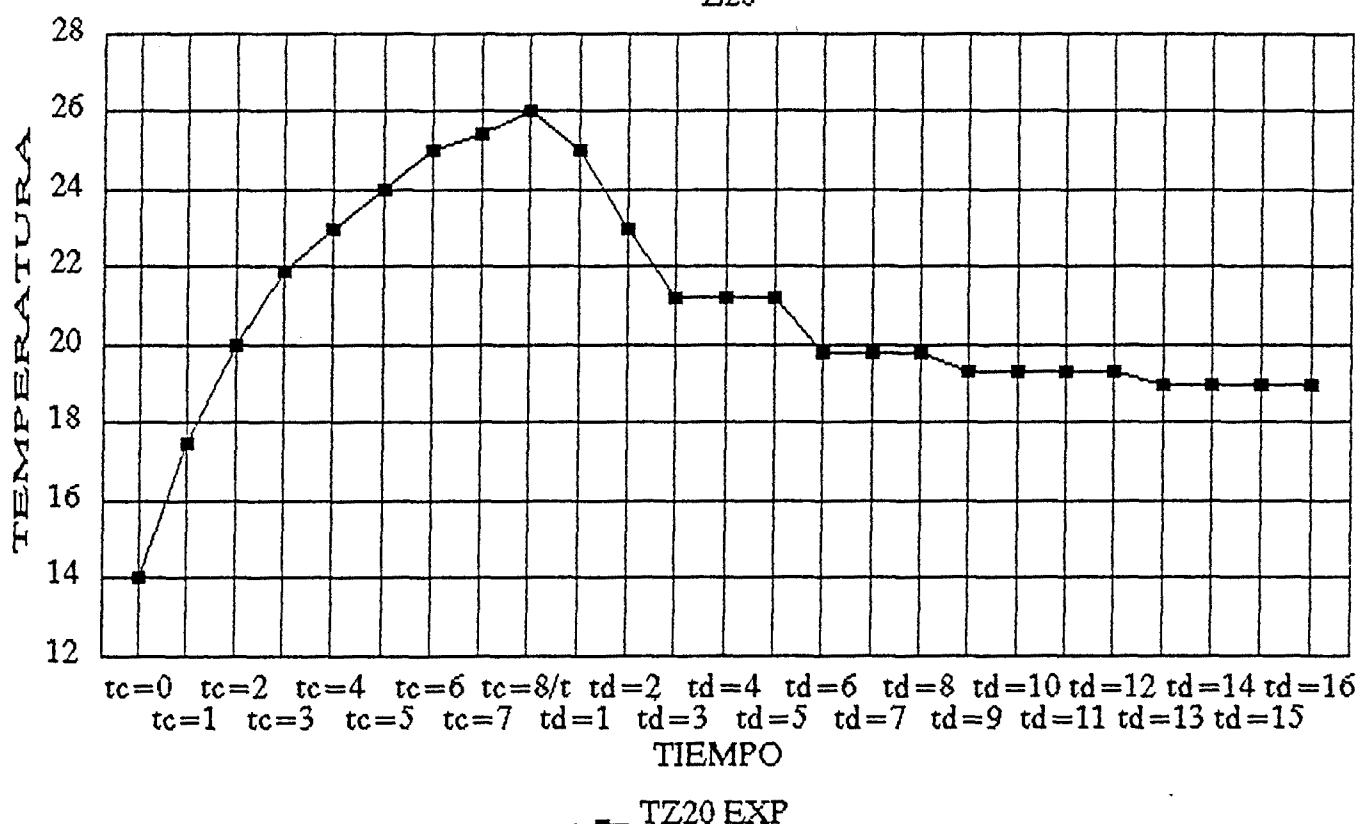


COMPOSICION 2
PROFUNDIDAD 3

GRAFICOS EXPH31

EXPH31

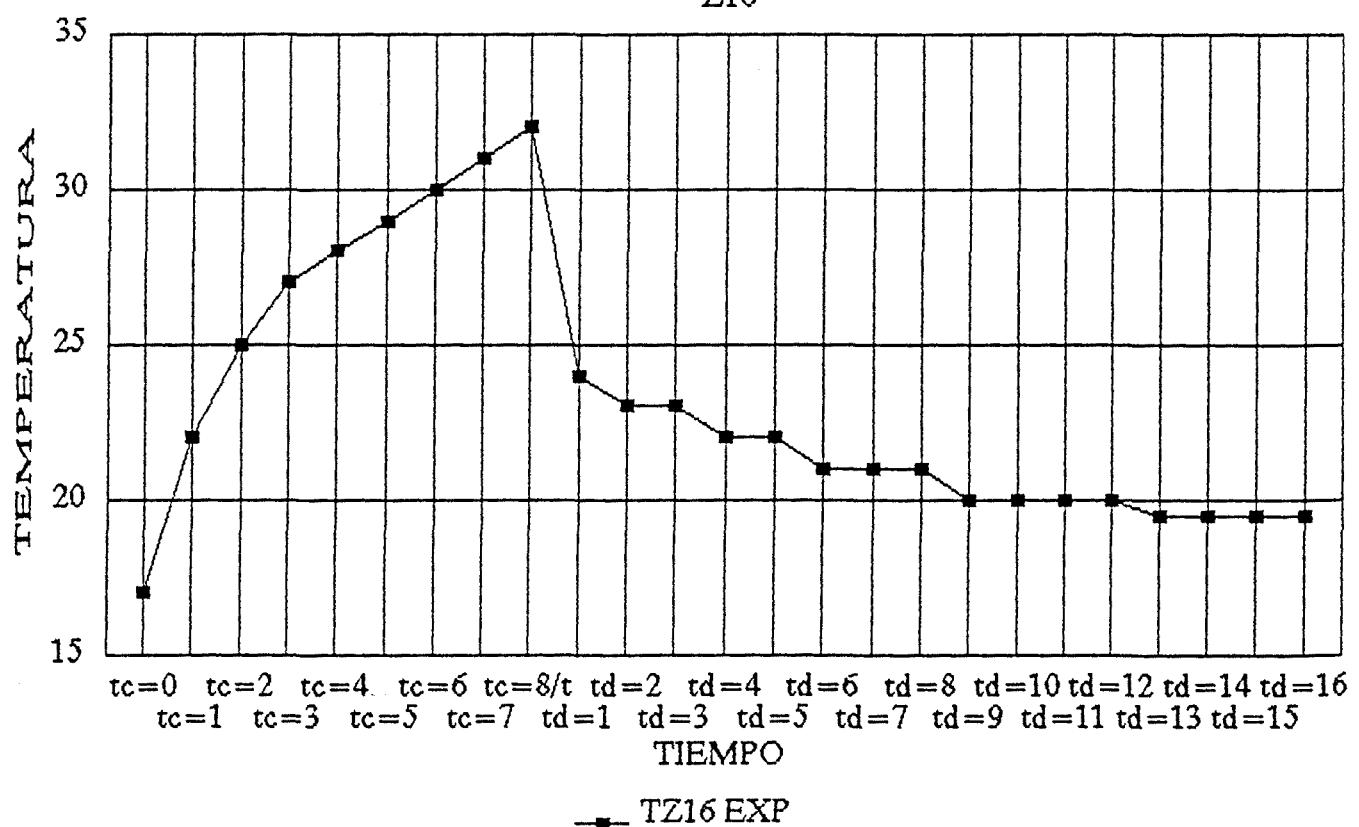
Z20



COMPOSICION 3
PROFUNDIDAD 1

EXPH31

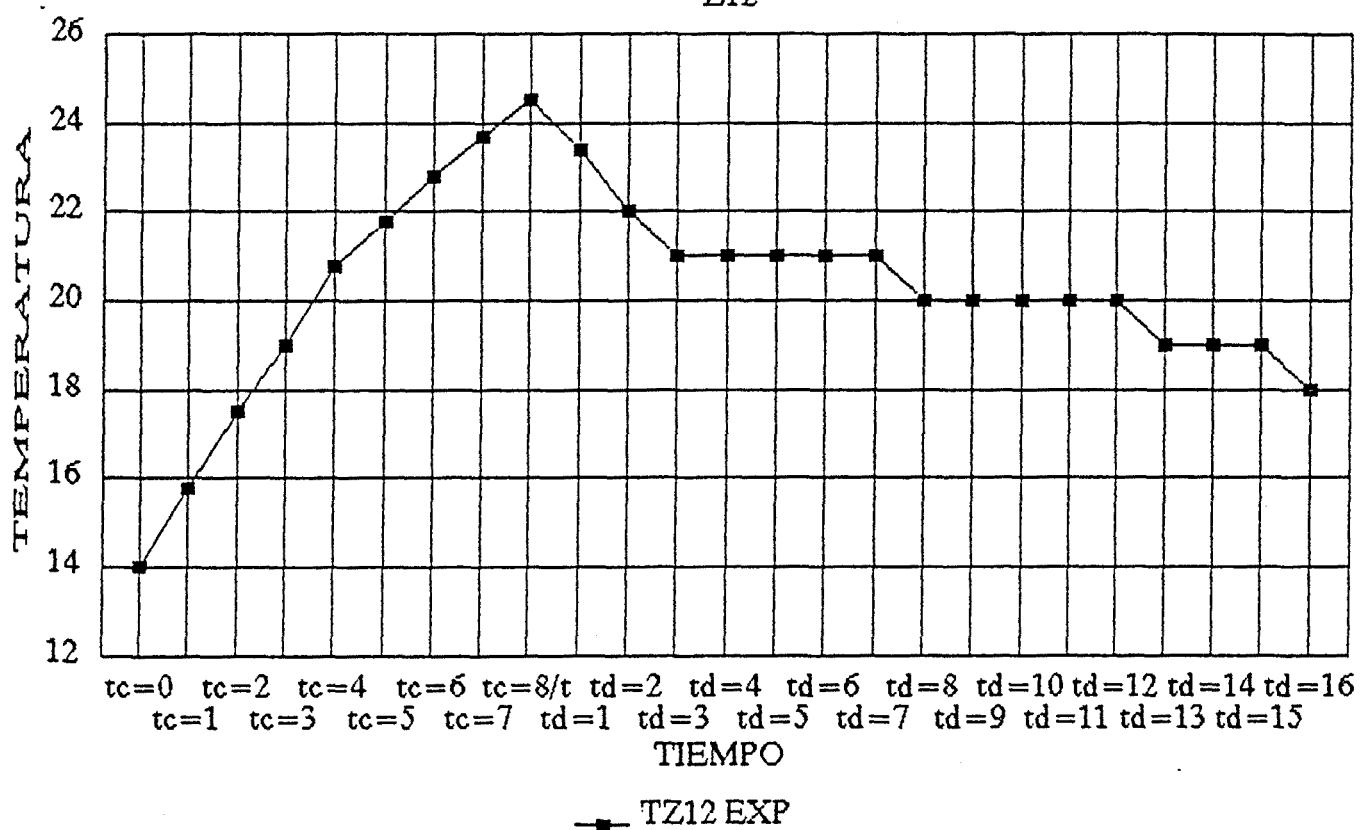
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COMPOSICION 3
PROFUNDIDAD 1

EXPH31

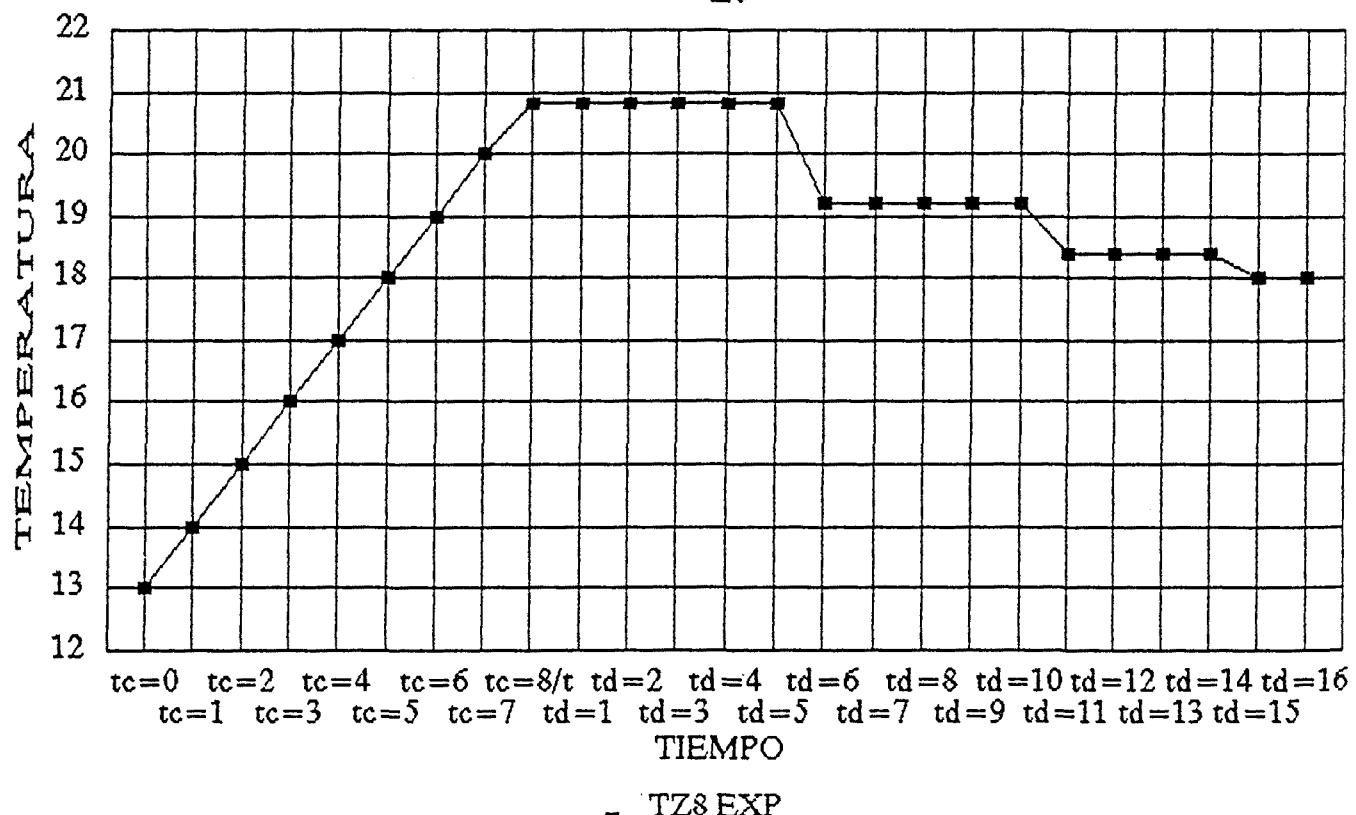
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COMPOSICION 3
PROFUNDIDAD 1

EXPH31

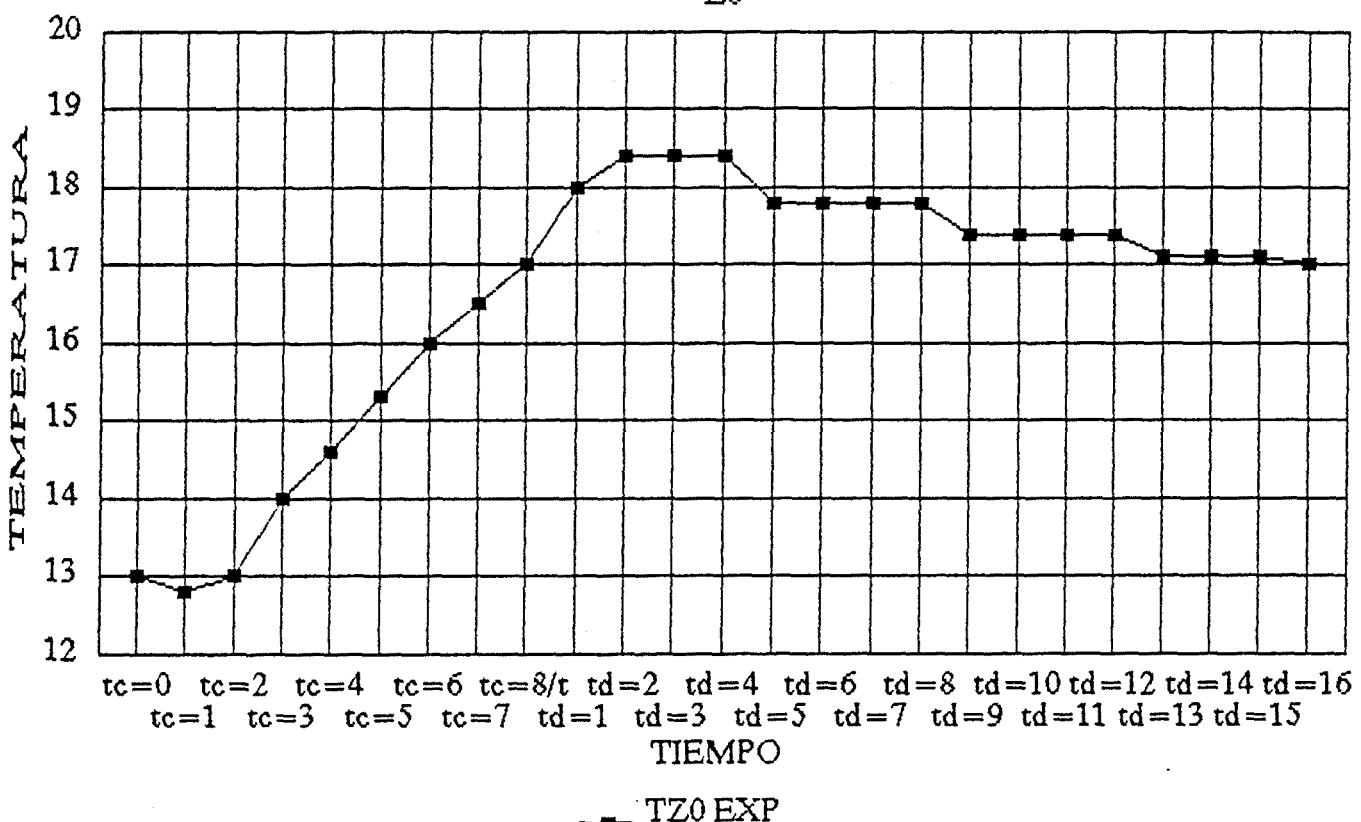
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COMPOSICION 3
PROFUNDIDAD 1

EXPH31

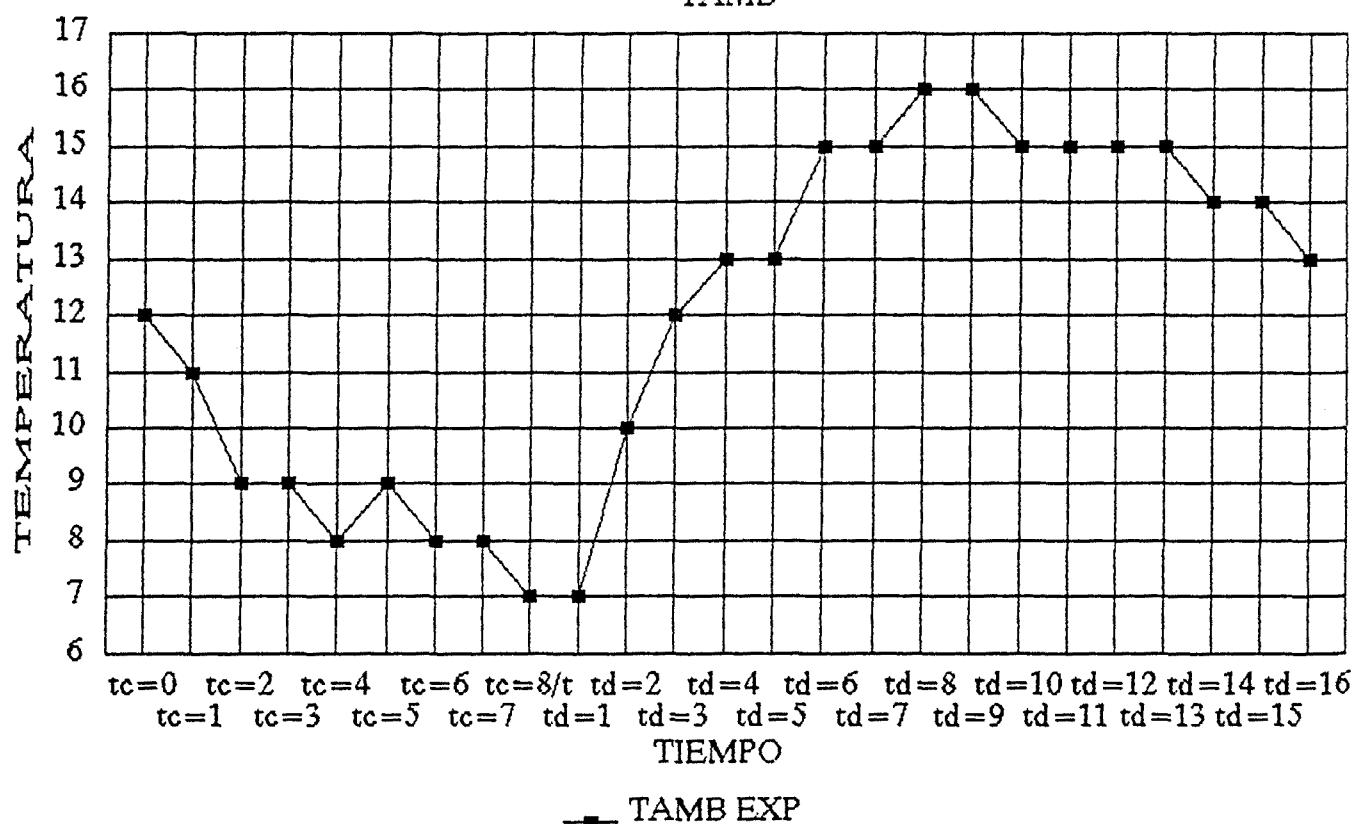
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COMPOSICION 3
PROFUNDIDAD 1

EXPH31

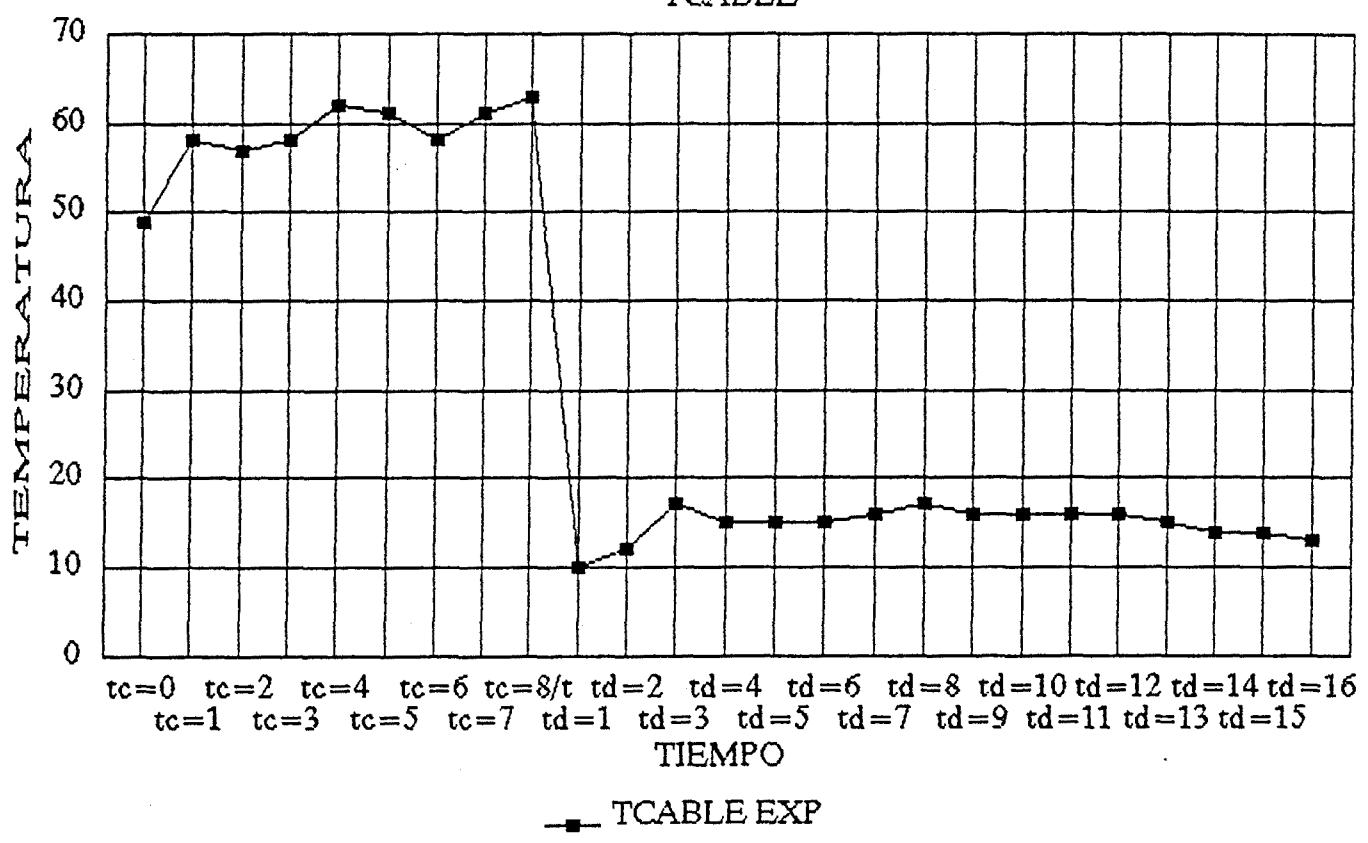
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COMPOSICION 3
PROFUNDIDAD 1

EXPH31

TCABLE

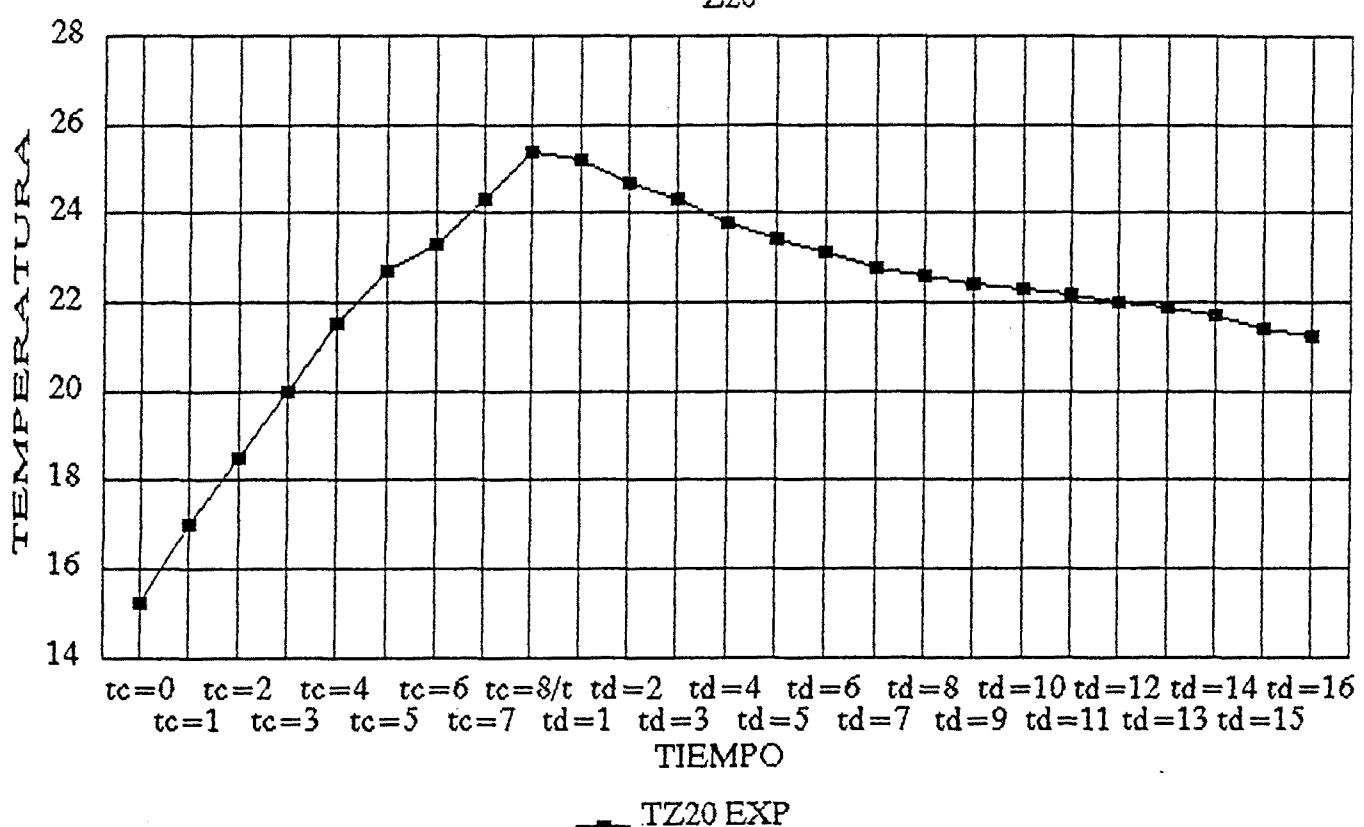


COMPOSICIÓN 3 PROFUNDIDAD 1

GRAFICOS EXPH32

EXPH32

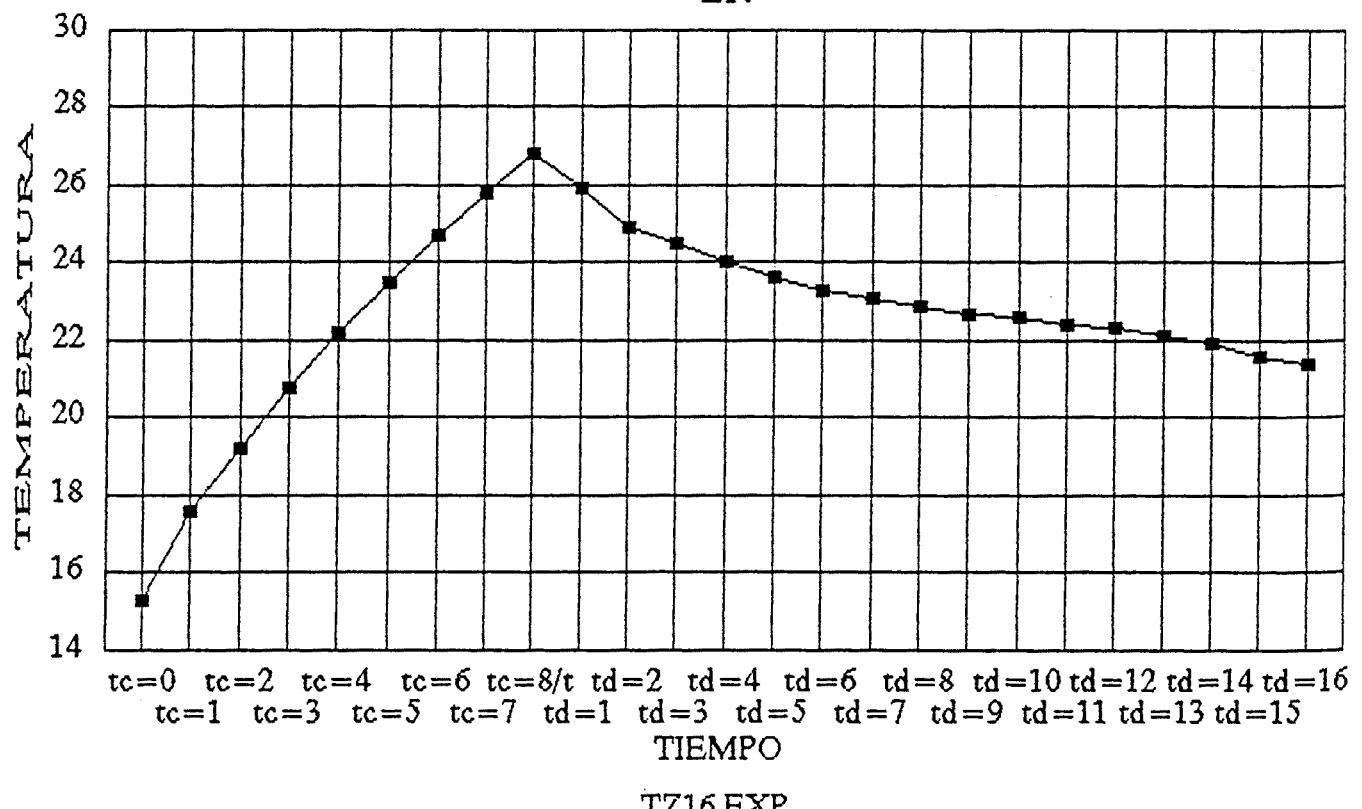
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COMPOSICION 3
PROFUNDIDAD 2

EXPH32

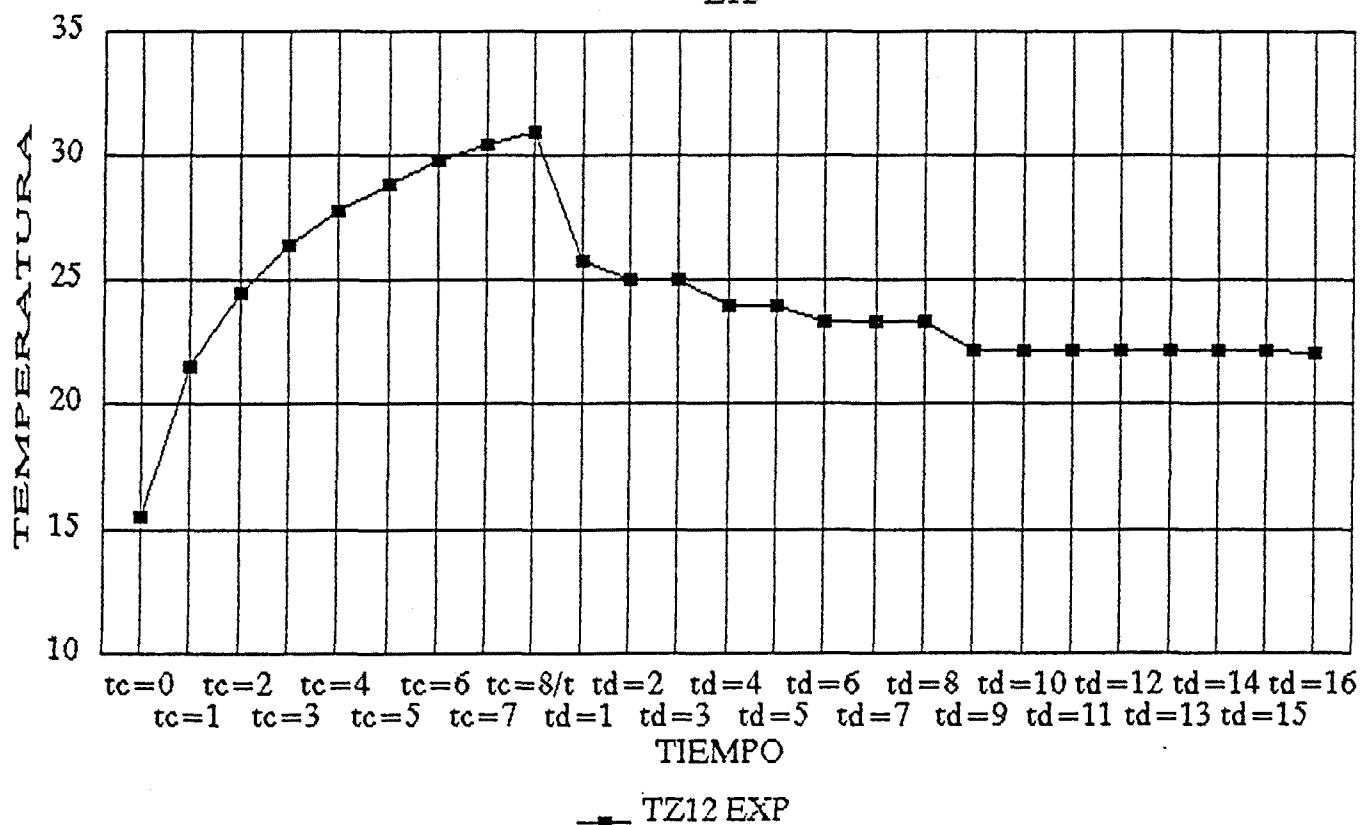
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COMPOSICION 3
PROFUNDIDAD 2

EXPH32

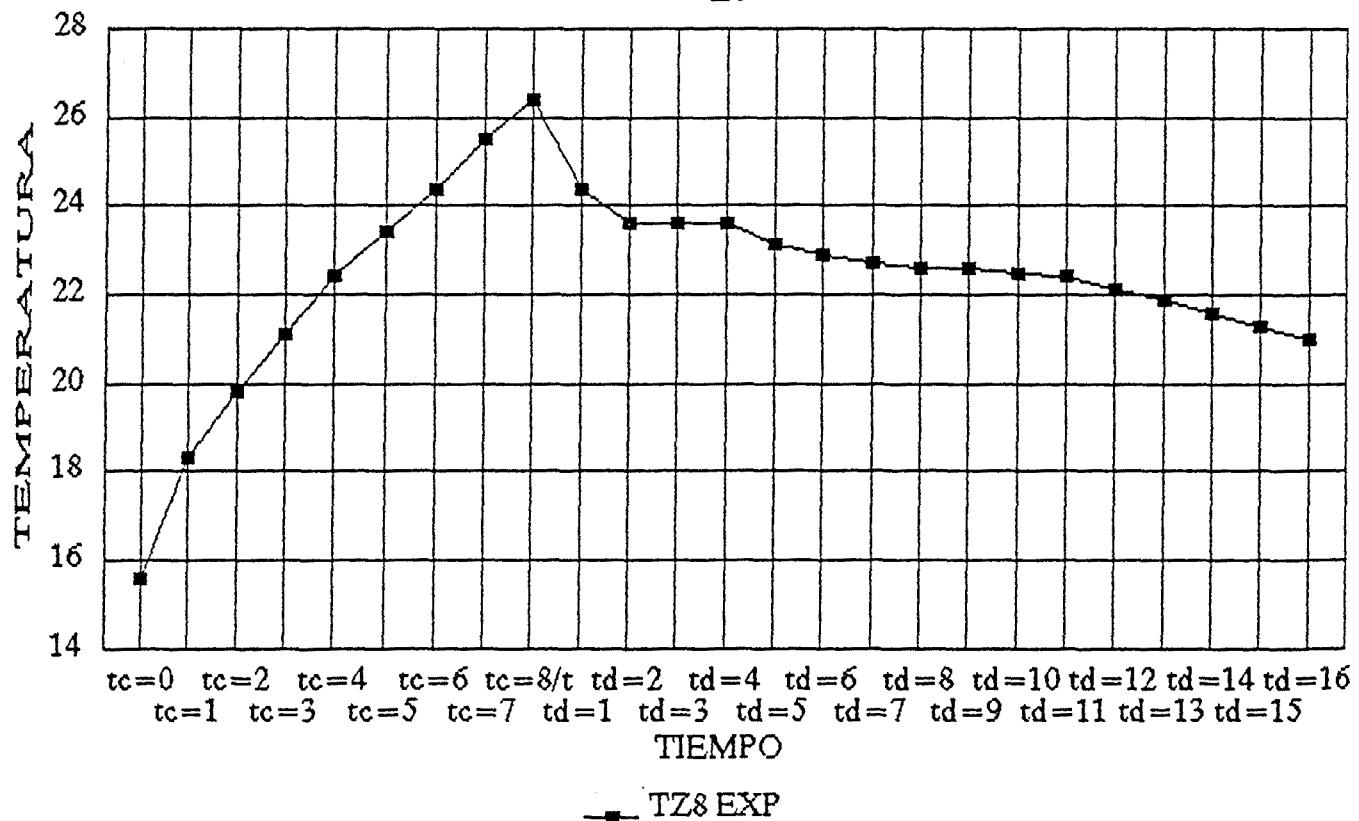
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COMPOSICION 3
PROFUNDIDAD 2

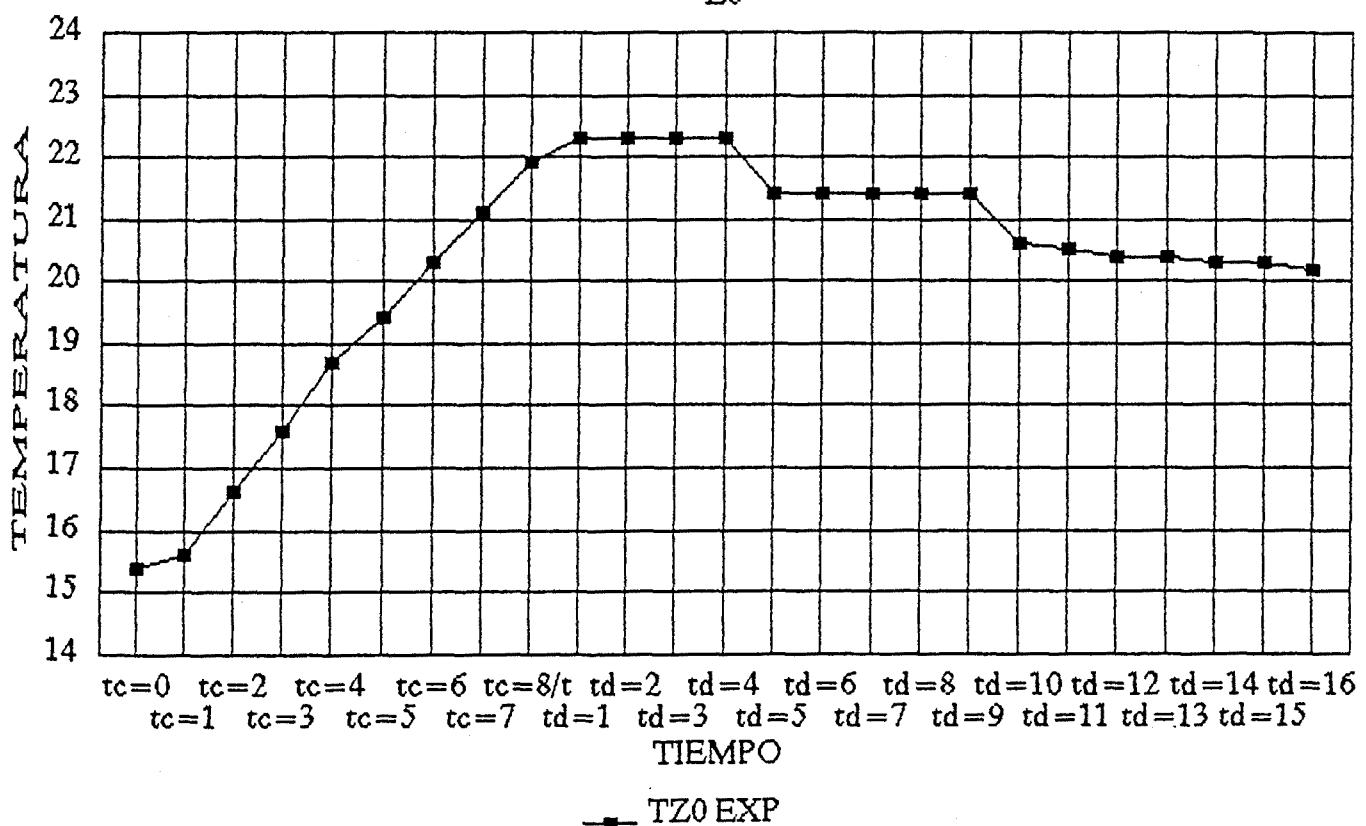
EXPH32

Z8



EXPH32

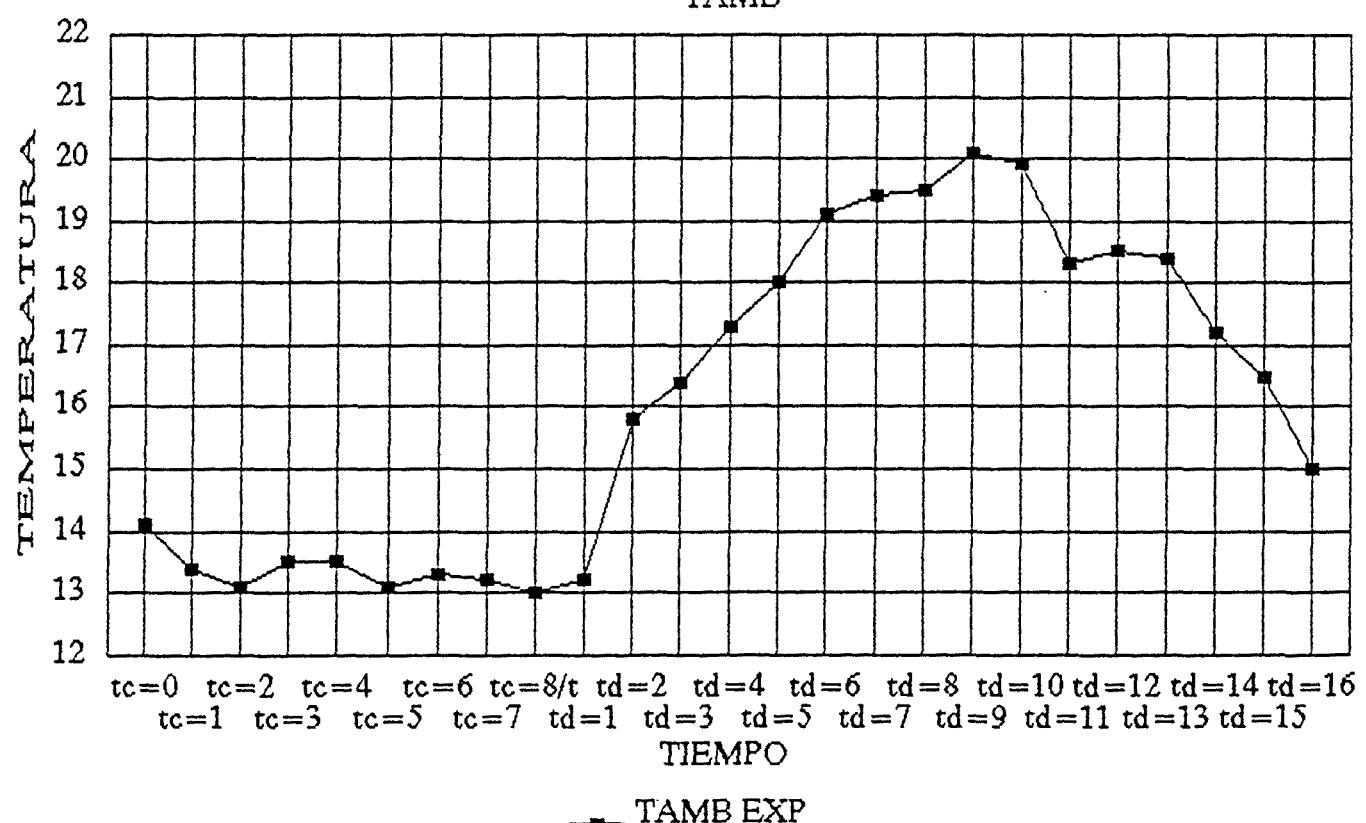
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COMPOSICION 3
PROFUNDIDAD 2

EXPH32

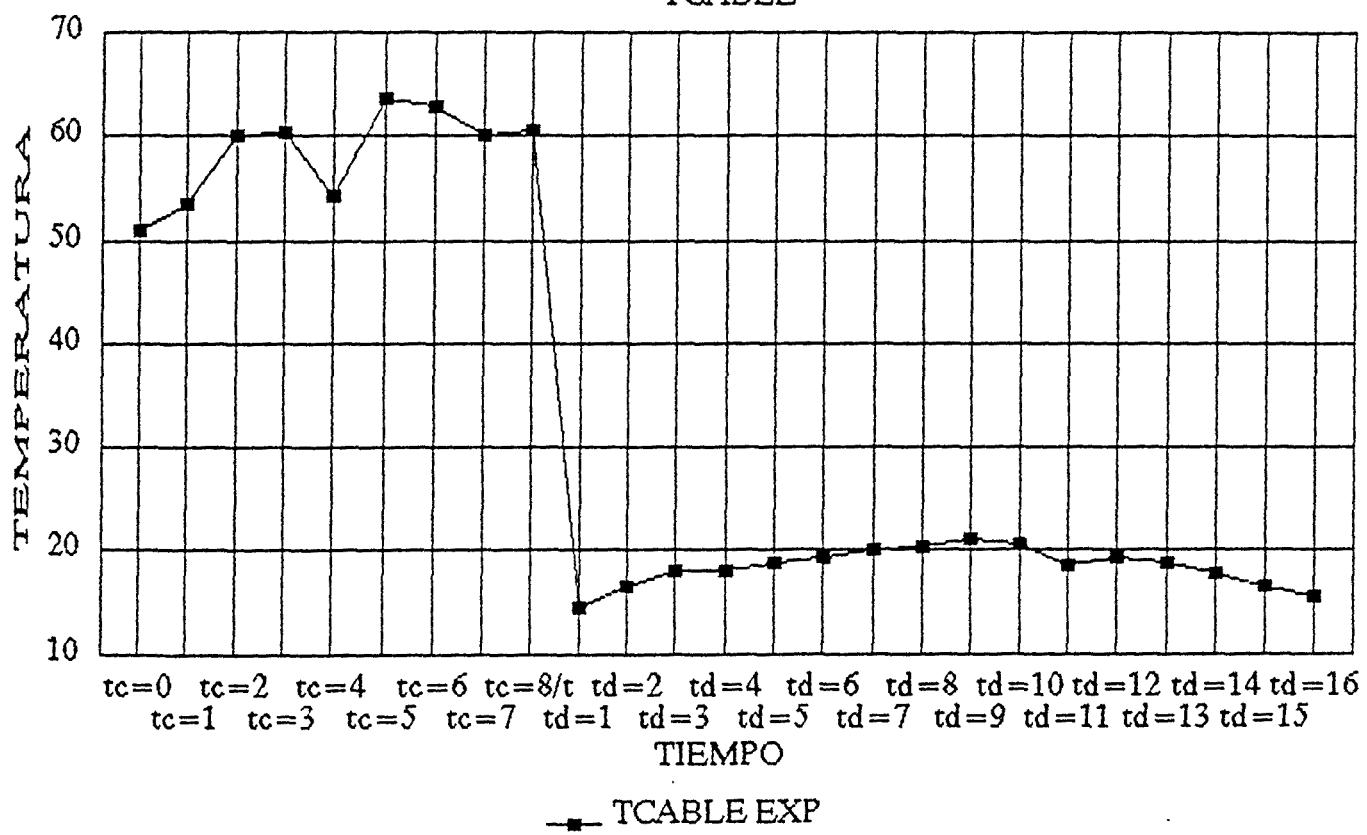
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COMPOSICION 3
PROFUNDIDAD 2

EXPH32

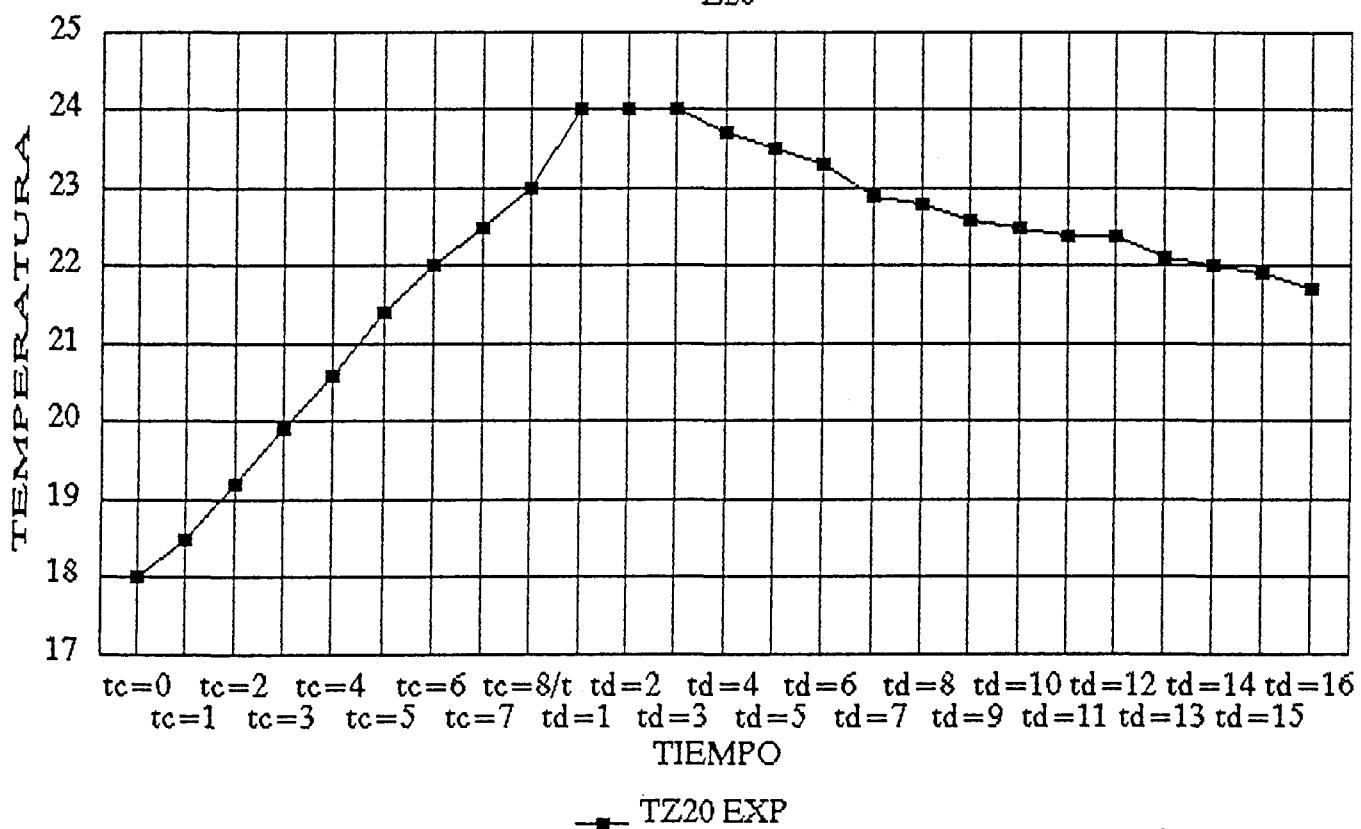
TCABLE



GRAFICOS EXPH33

EXPH33

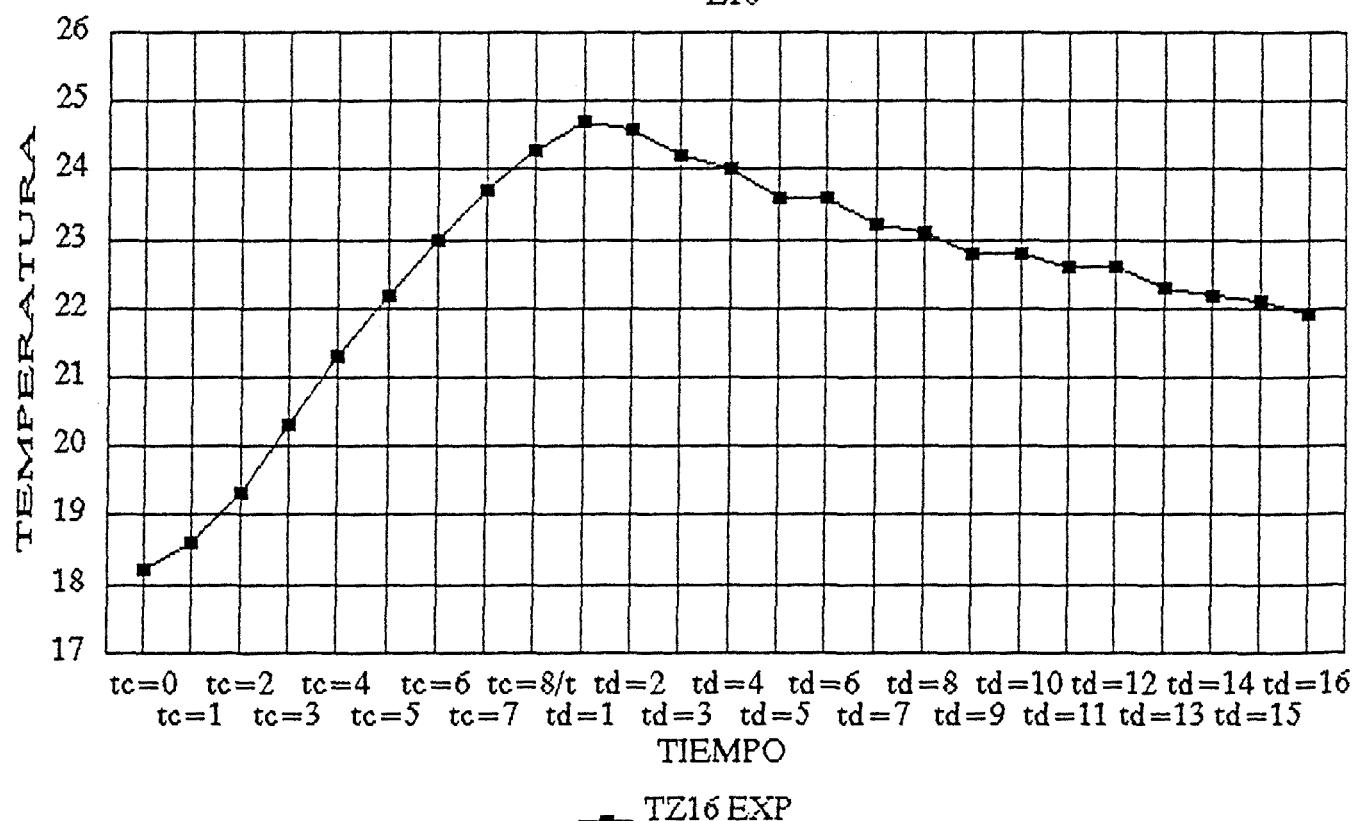
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COMPOSICION 3
PROFUNDIDAD 3

EXPH33

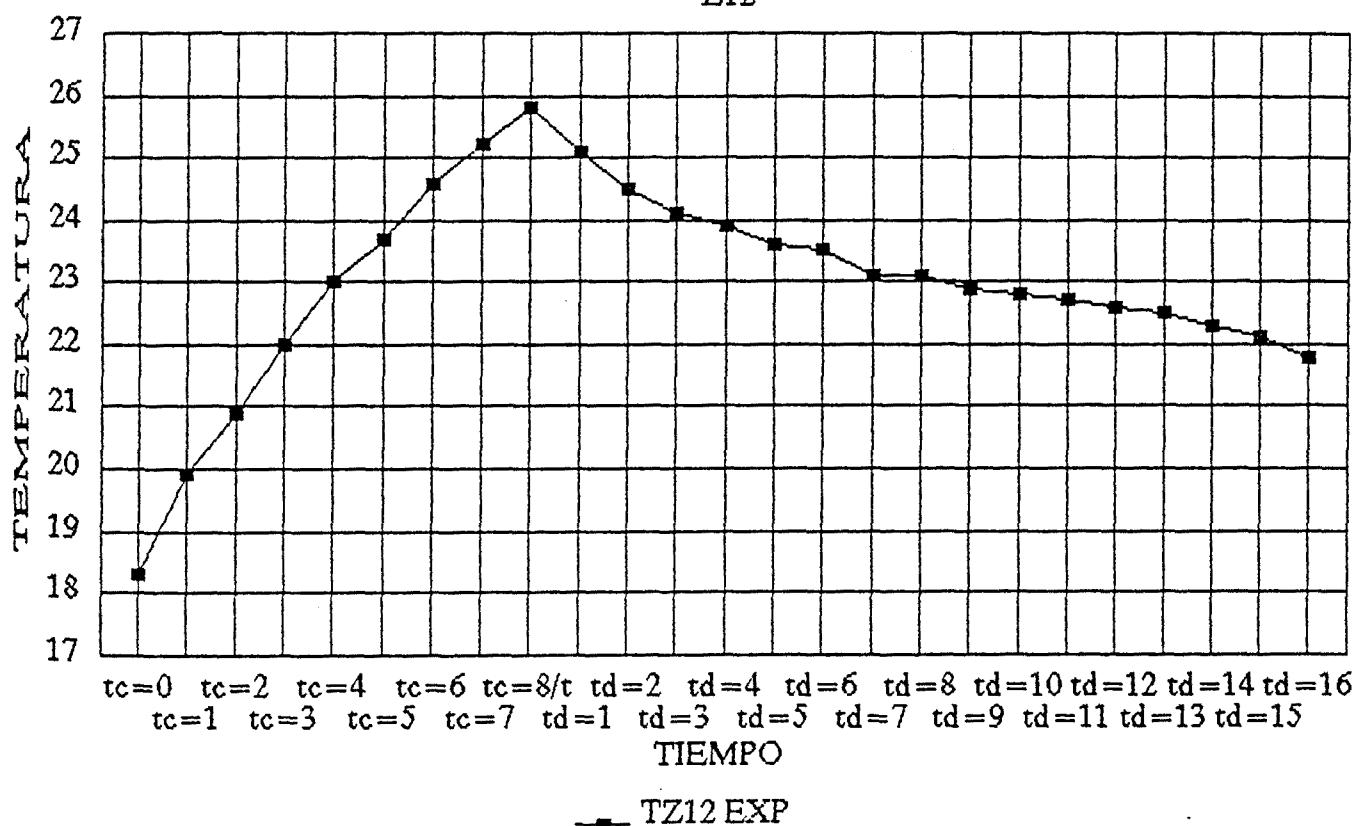
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COMPOSICION 3
PROFUNDIDAD 3

EXPH33

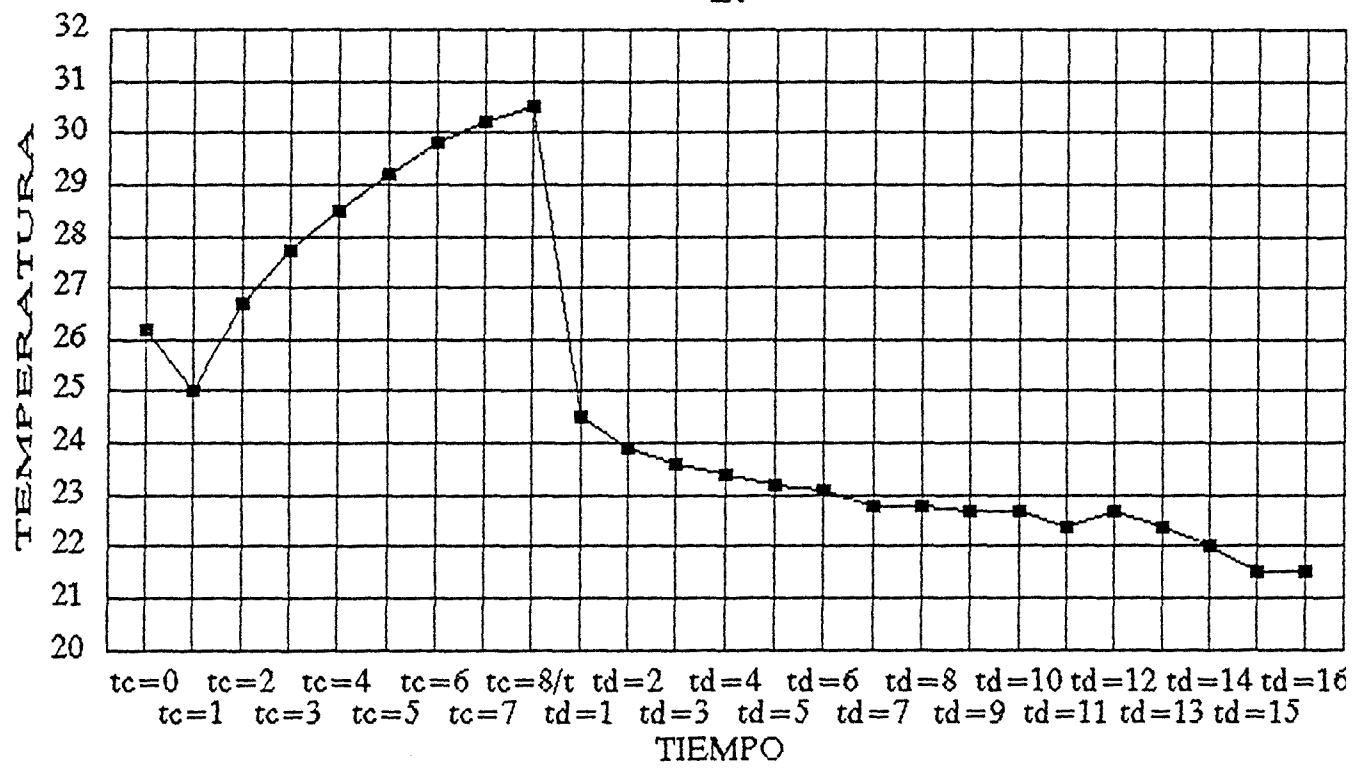
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COMPOSICION 3
PROFUNDIDAD 3

EXPH33

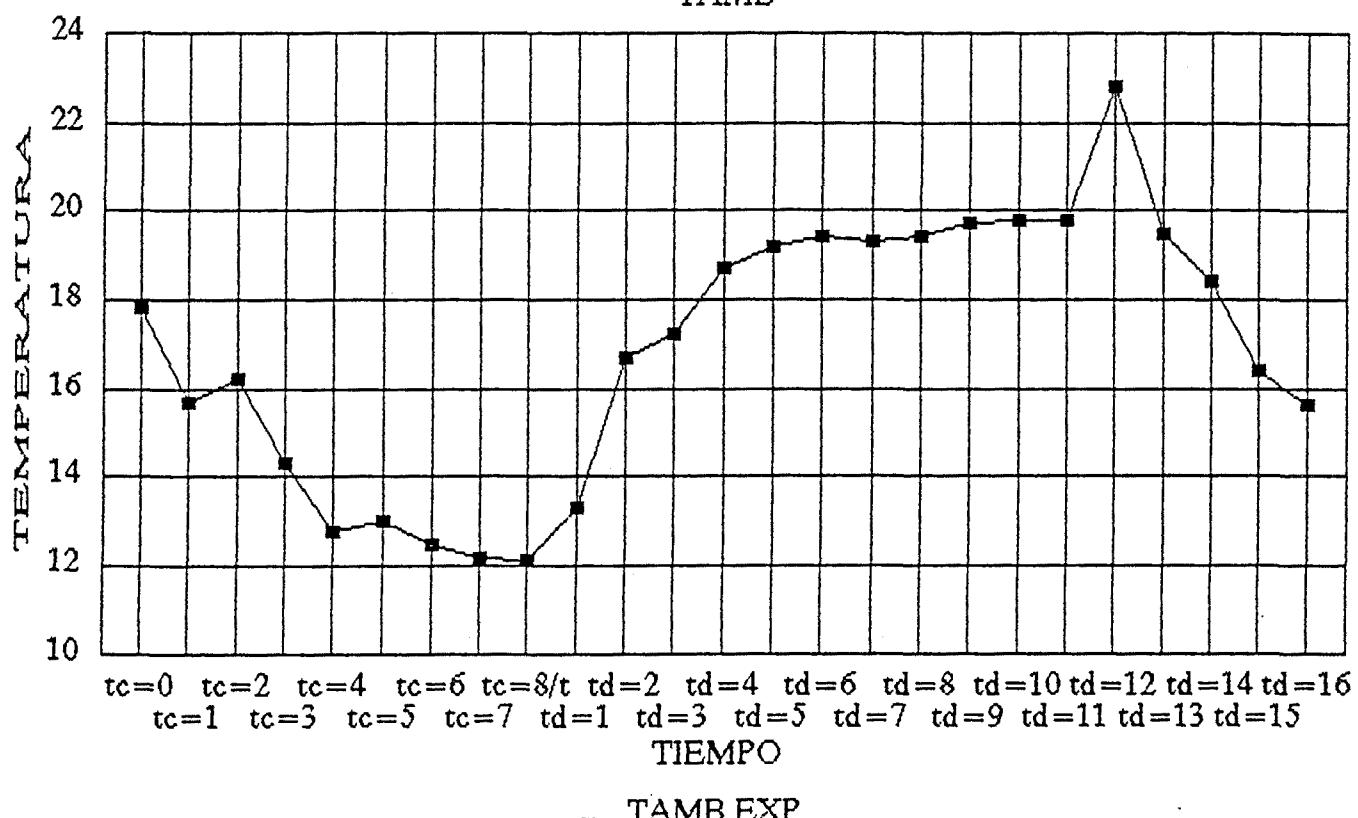
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COMPOSICION 3
PROFUNDIDAD 3

EXPH33

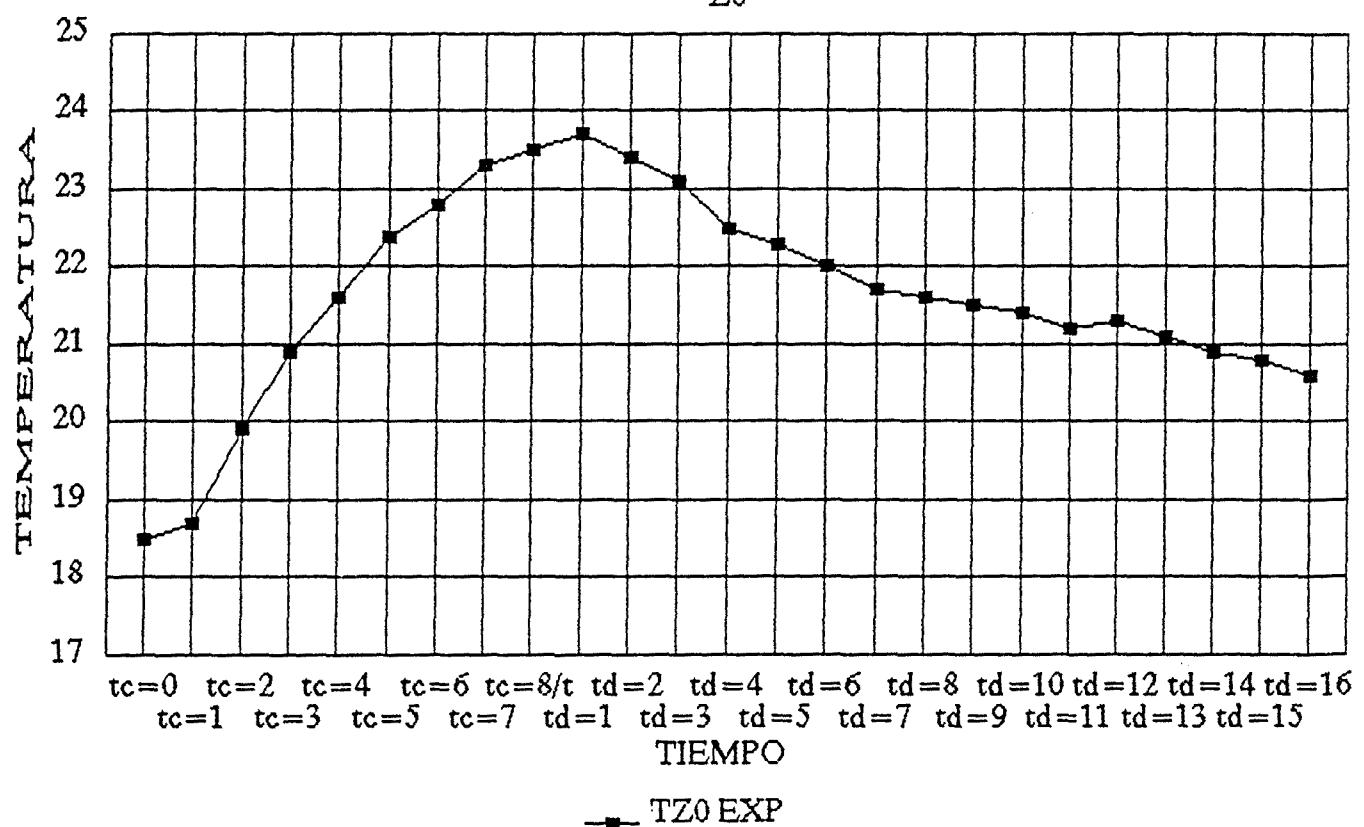
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COMPOSICION 3
PROFUNDIDAD 3

EXPH33

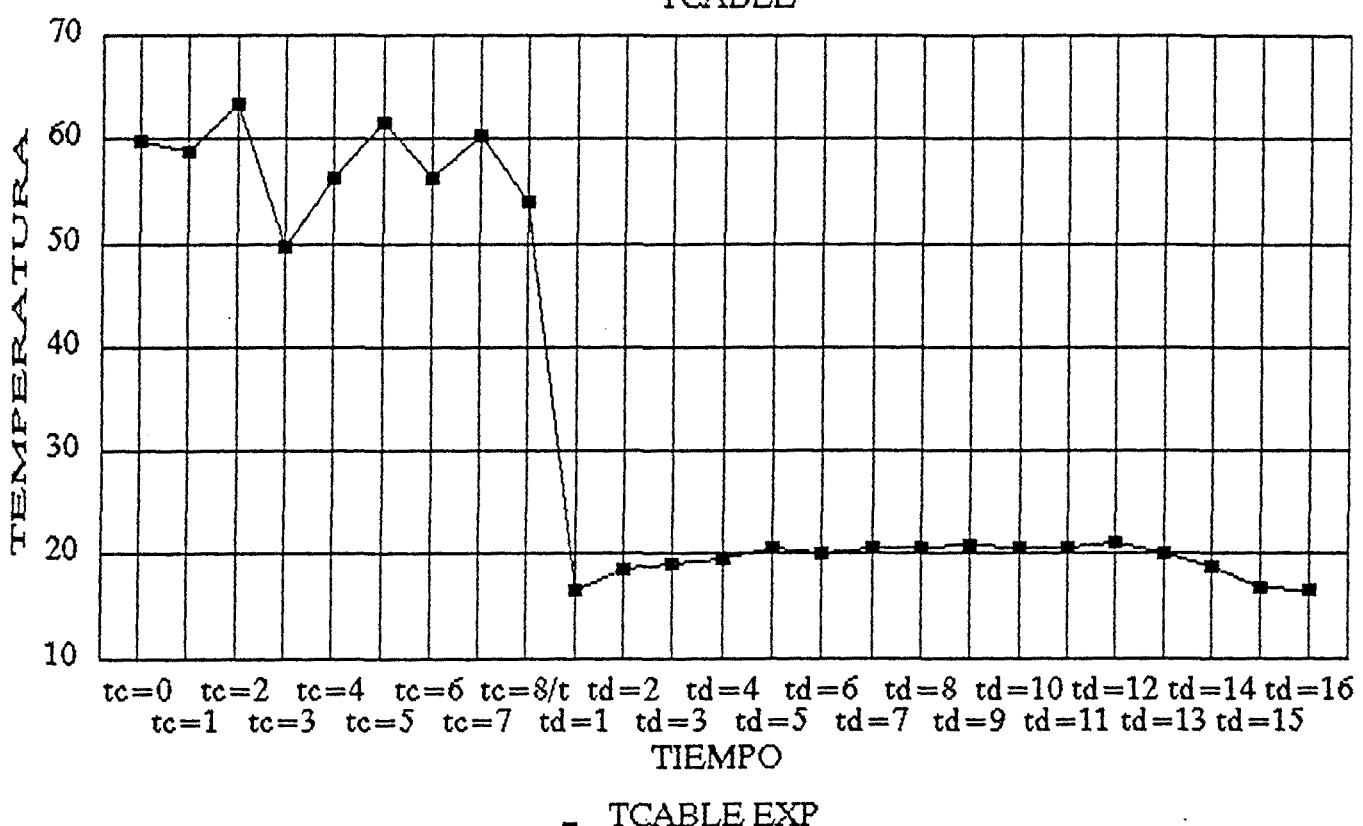
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COMPOSICION 3
PROFUNDIDAD 3

EXPH33

TCABLE



COMPOSICION 3
PROFUNDIDAD 3

