



# TRATAREA INFORMAȚIILOR LIPSA

# Cuprins

## ➤ Metode de estimare

### Metode de regresie

*Procedura de regresie*

*Procedura predictiva*

*Rezultate numerice*

### Grafice tip de sarcina

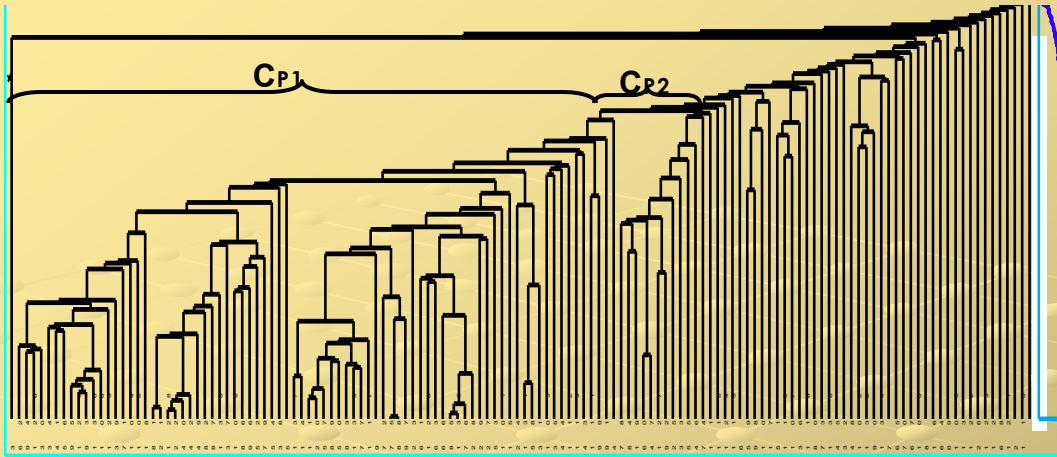
### Metoda interpolarii

*Polinomiala*

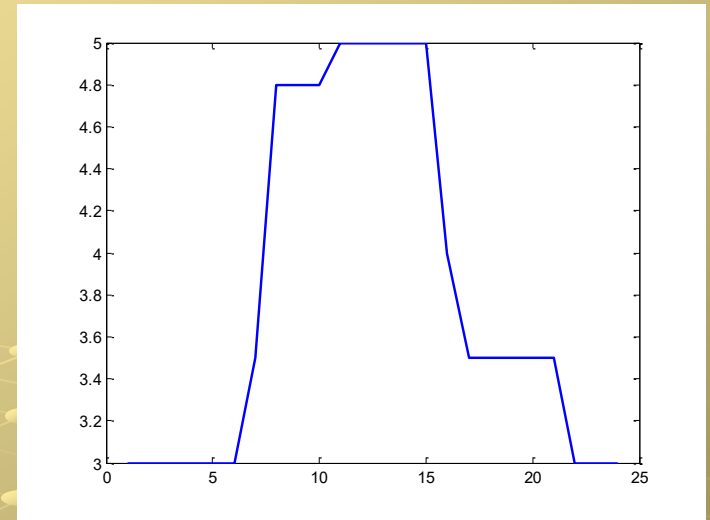
*Liniara*

*Celor mai apropiati k-vecini*

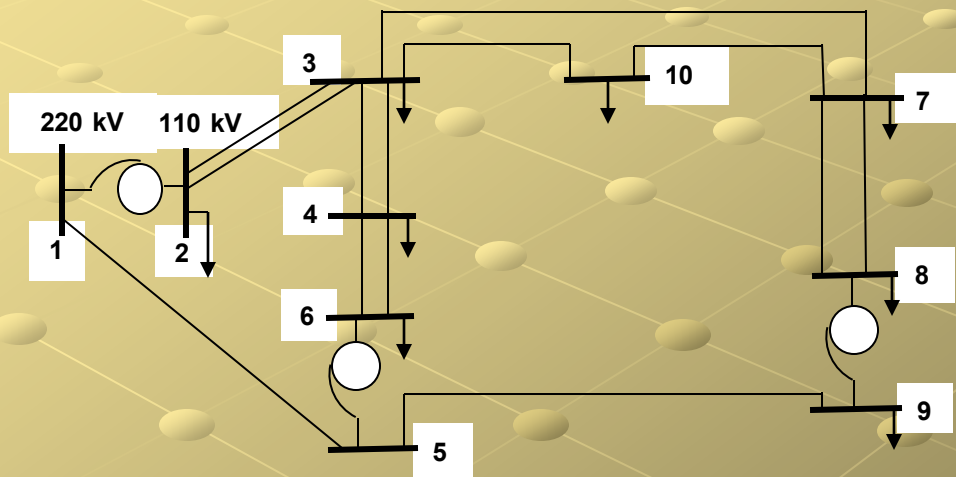
## ➤ Concluzii



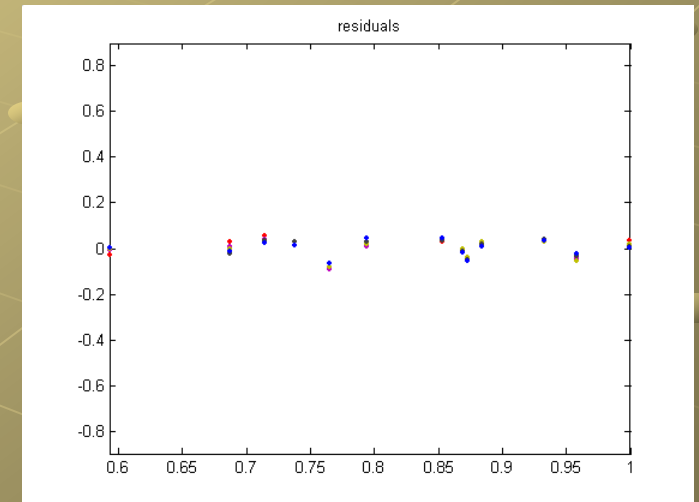
**Fig. 1. Dendrograma pentru gruparea nodurilor dupa puterea activa**



**Fig. 3. Grafic tip de sarcina a nodului 10**



**Fig. 2 Schema rețelei test (220/110 kV)**



**Fig. 4. Scatter plot intre nodul 10 si 9**

**Tabelul 1. Matricea de corelatie a grupei P2 reale**

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	1.0000	0.9332	0.7763	0.8902	0.6612	0.8515	0.7132	0.8187	0.5768	0.8969	0.8580	0.8387	0.7959
2	0.9332	1.0000	0.7375	0.8688	0.6874	0.8534	0.7654	0.8838	0.5931	0.9584	0.8728	0.7941	0.7146
3	0.7763	0.7375	1.0000	0.7552	0.7141	0.6229	0.5496	0.7453	0.4206	0.7121	0.6661	0.4780	0.6209
4	0.8902	0.8688	0.7552	1.0000	0.5854	0.7803	0.7403	0.8484	0.5296	0.8842	0.8941	0.7153	0.7277
5	0.6612	0.6874	0.7141	0.5854	1.0000	0.4448	0.5267	0.6545	0.6033	0.6635	0.4945	0.6555	0.2873
6	0.8515	0.8534	0.6229	0.7803	0.4448	1.0000	0.6661	0.7343	0.6106	0.8222	0.8635	0.7147	0.8724
7	0.7132	0.7654	0.5496	0.7403	0.5267	0.6661	1.0000	0.7140	0.4556	0.8468	0.7270	0.6328	0.5098
8	0.8187	0.8838	0.7453	0.8484	0.6545	0.7343	0.7140	1.0000	0.4549	0.8642	0.7932	0.6087	0.6635
9	0.5768	0.5931	0.4206	0.5296	0.6033	0.6106	0.4556	0.4549	1.0000	0.6318	0.6489	0.6270	0.4481
10	<b>0.8969</b>	<b>0.9584</b>	<b>0.7121</b>	<b>0.8842</b>	<b>0.6635</b>	<b>0.8222</b>	<b>0.8468</b>	<b>0.8642</b>	<b>0.6318</b>	<b>1.0000</b>	<b>0.9235</b>	<b>0.7829</b>	<b>0.6600</b>
11	0.8580	0.8728	0.6661	0.8941	0.4945	0.8635	0.7270	0.7932	0.6489	0.9235	1.0000	0.7162	0.7472
12	0.8387	0.7941	0.4780	0.7153	0.6555	0.7147	0.6328	0.6087	0.6270	0.7829	0.7162	1.0000	0.5716
13	0.7959	0.7146	0.6209	0.7277	0.2873	0.8724	0.5098	0.6635	0.4481	0.6600	0.7472	0.5716	1.0000

Nd=10	
i	Cn(i)
1	0.8969
2	0.9584
4	0.8842
6	0.8222
7	0.8468
8	0.8642
11	0.9235

**Tabelul 2**  
**Regresorii nodului**  
**10. Grupa P2**

**Model de regresie liniara**

$$\hat{y} = \beta_0 + \sum_{j=0}^k \beta_j * x_j$$

### Tabelul 3. Estimarea valorilor si erorile

un regresor				doi regresori			trei regresori			toti regresorii		
regresor=2				regresor=2;11			regresor=2;11;1			regresor=2;11;1;4;8;7;6		
ore	yreal	yestim	err	yreal	yestim	err	yreal	yestim	err	yreal	yestim	err
1	3	2,97	-0,9	3	3,04	1,43	3	3,04	1,45	3	2,97	-1
2	3	2,97	-0,9	3	3,04	1,43	3	3,03	0,91	3	2,99	-0,3
3	3	2,97	-0,9	3	3,04	1,43	3	3,01	0,38	3	2,99	-0,3
4	3	2,97	-0,9	3	3,04	1,43	3	3,03	0,91	3	2,99	-0,3
5	3	3,12	3,9	3	3,14	4,61	3	3,15	5,06	3	3,12	4,11
6	3	3,33	11,1	3	3,28	9,38	3	3,3	9,93	3	3,27	8,93
7	3,5	3,9	11,5	3,5	3,66	4,67	3,5	3,59	2,7	3,5	3,46	-1,1
8	4,8	4,76	-0,8	4,8	4,79	-0,2	4,8	4,81	0,14	4,8	4,46	-7
9	4,8	5,12	6,65	4,8	5,31	10,6	4,8	5,29	10,2	4,8	5,03	4,71
10	4,8	4,48	-6,8	4,8	4,6	-4,1	4,8	4,51	-6	4,8	4,72	-1,7
11	5	5,12	2,39	5	5,03	0,62	5	5,04	0,75	5	5,07	1,31
12	5	5,12	2,39	5	5,03	0,62	5	5,04	0,75	5	5,03	0,62
13	5	4,98	-0,5	5	4,94	-1,3	5	4,93	-1,4	5	5,11	2,24
14	5	4,83	-3,3	5	4,84	-3,2	5	4,9	-2	5	4,99	-0,1
15	5	4,26	-15	5	4,74	-5,3	5	4,76	-4,8	5	4,92	-1,6
16	4	3,69	-7,8	4	3,52	-12	4	3,55	-11	4	3,82	-4,5
17	3,5	3,55	1,32	3,5	3,42	-2,2	3,5	3,42	-2,3	3,5	3,56	1,69
18	3,5	3,55	1,32	3,5	3,42	-2,2	3,5	3,42	-2,3	3,5	3,46	-1,2
19	3,5	3,69	5,4	3,5	3,52	0,58	3,5	3,53	0,81	3,5	3,52	0,57
20	3,5	3,69	5,4	3,5	3,52	0,58	3,5	3,54	1,04	3,5	3,48	-0,5
21	3,5	3,47	-0,7	3,5	3,38	-3,5	3,5	3,39	-3,1	3,5	3,37	-3,7
22	3	3,12	3,9	3	3,14	4,61	3	3,15	5,06	3	3,13	4,28
23	3	2,97	-0,9	3	3,04	1,43	3	3,09	3,06	3	3	-0
24	3	2,76	-8	3	2,9	-3,3	3	2,88	-4	3	2,94	-2



# Comparatii intre graficele tip de sarcina reale si estimate pe 24 de ore

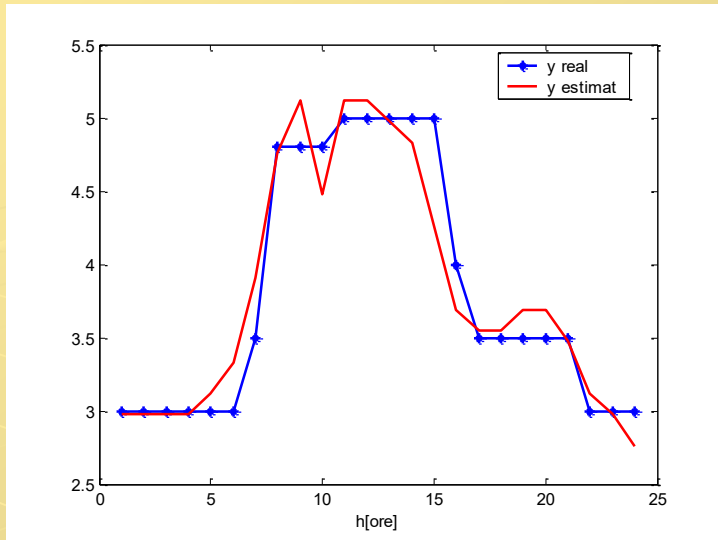


Fig. 5.Cazul unui regresor

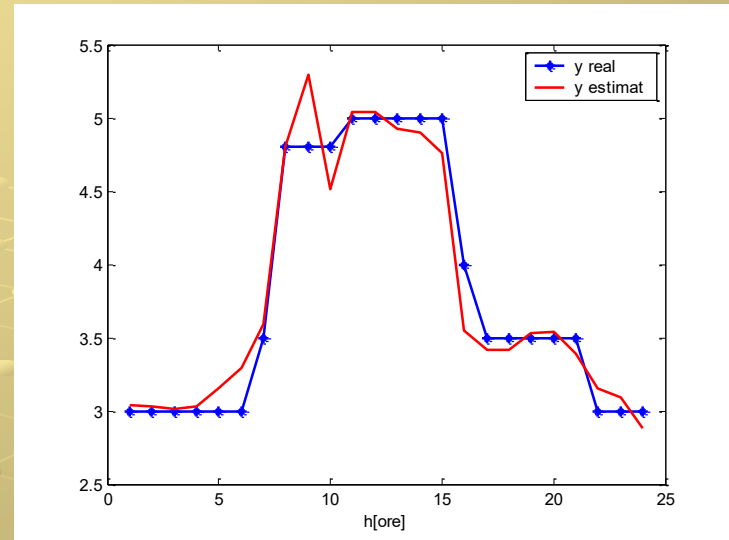


Fig. 7.Cazul a trei regresori

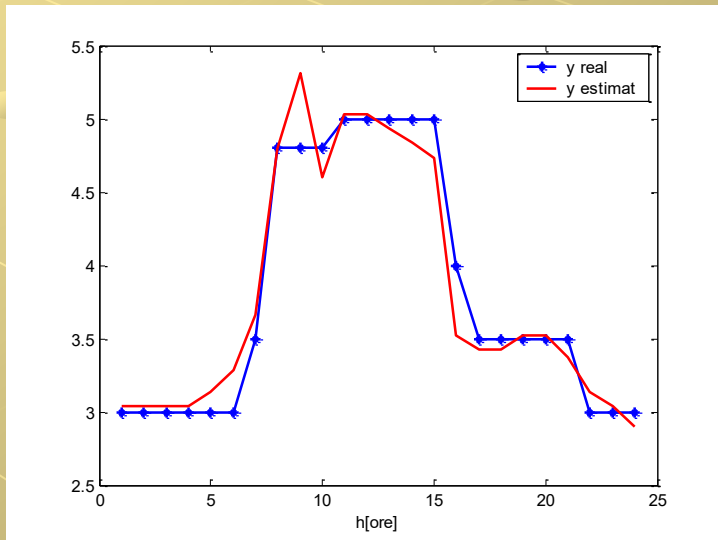


Fig. 6.Cazul a doi regresori

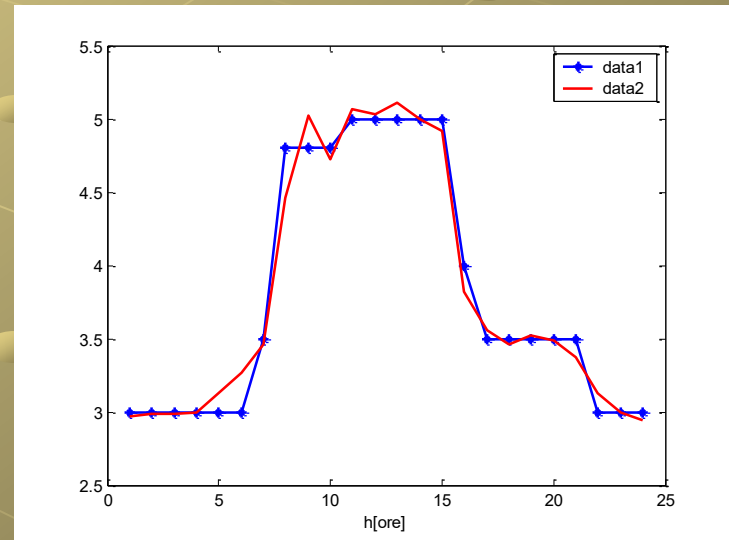
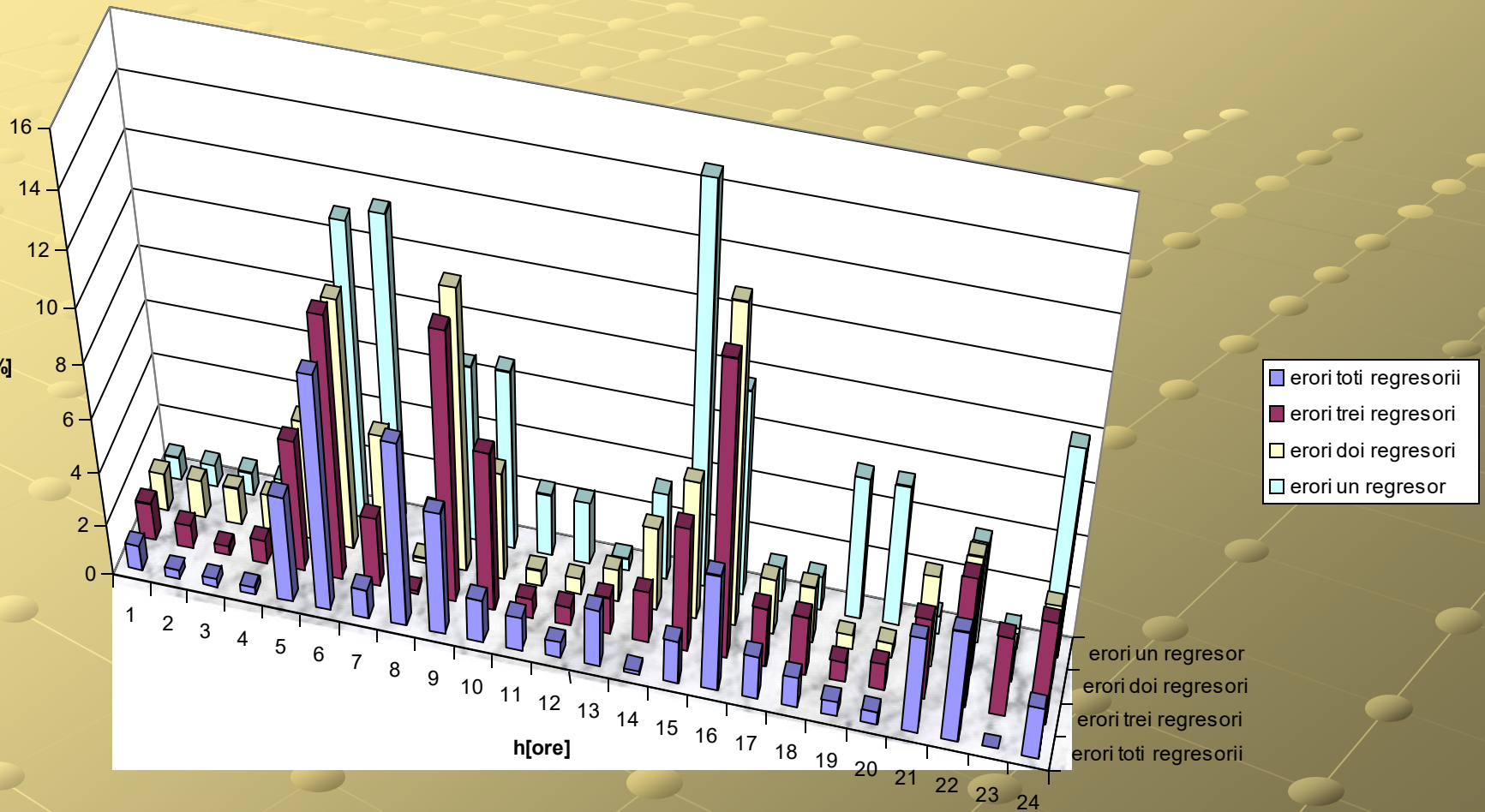
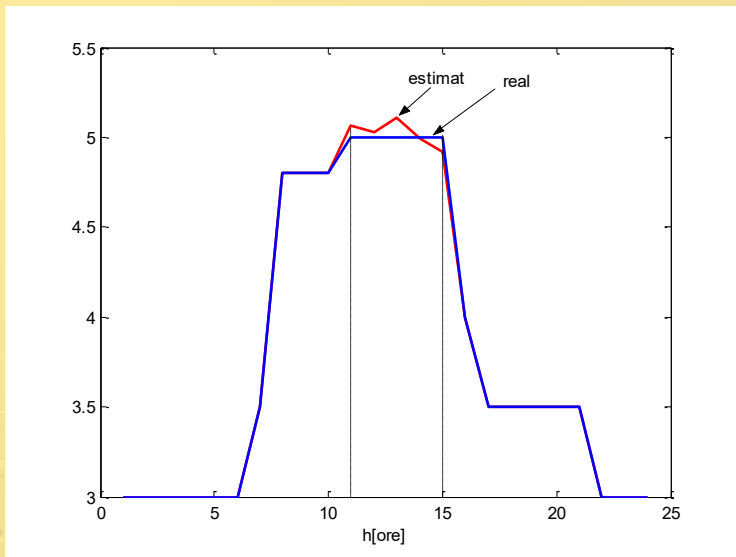


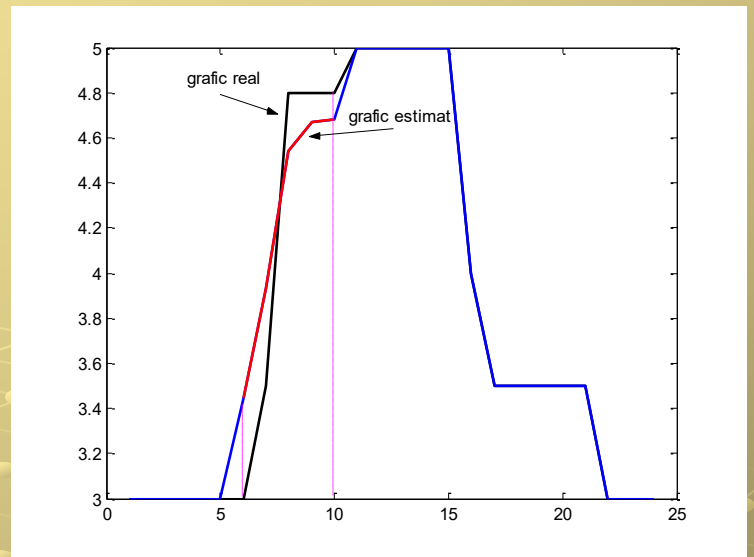
Fig. 8.Cazul tuturor regresorilor

**Fig. 9 Erori intre valorile reale si cele estimate ale puterilor**

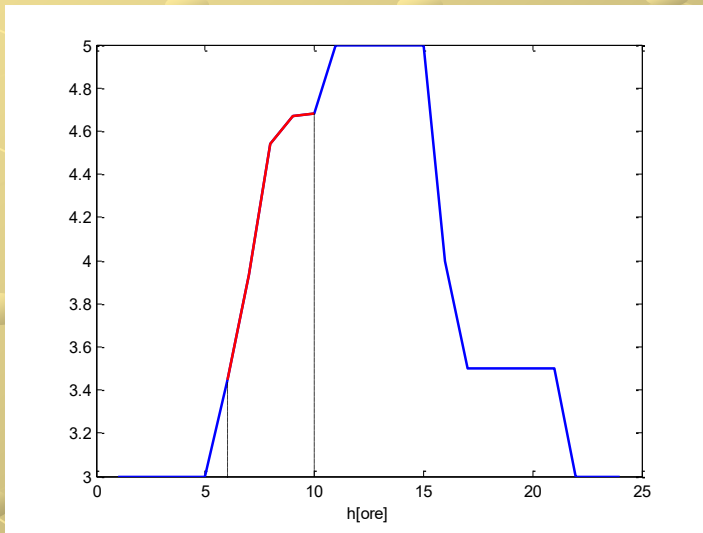




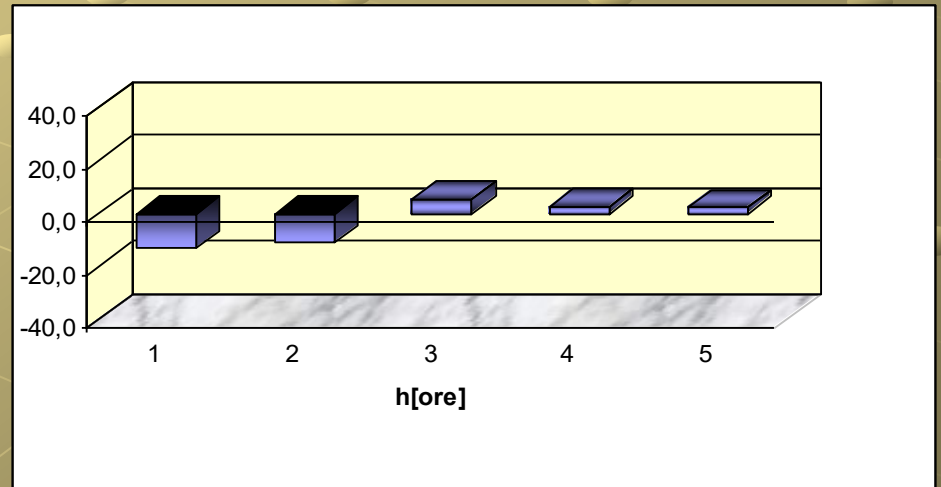
**Fig. 10 Comparatia intre graficul tip de sarcina real si estimat pentru date lipsa intre orele 11-15**



**Fig. 12. Graficul tip da sarcina pentru nodul 10 real vs. cel estimat intre orele 6 si 10**



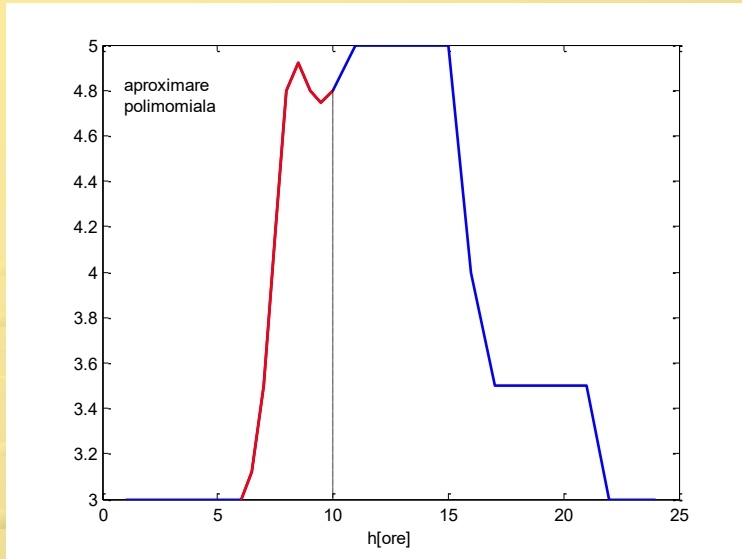
**Fig. 11. Graficul tip da sarcina pentru nodul 10 si graficul estimat intre orele 6 si 10.**



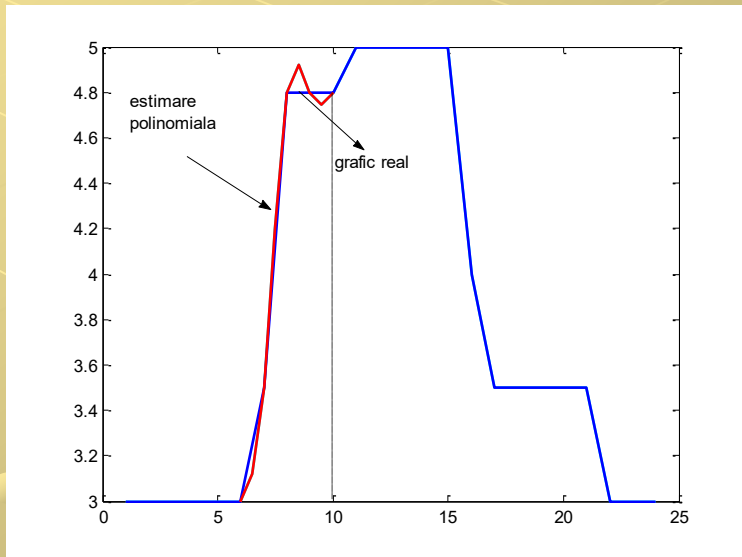
**Fig. 13 .Erorile determinate cu metoda de estimare a graficului tip de sarcina**



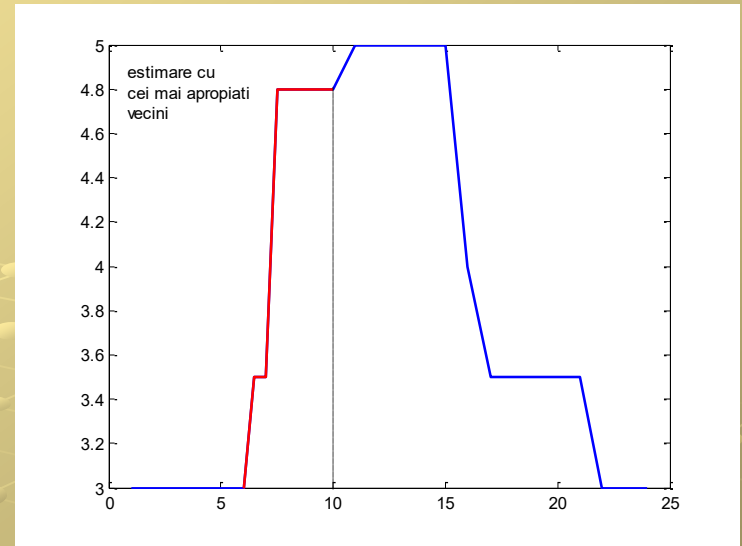
# Grafice tip de sarcina



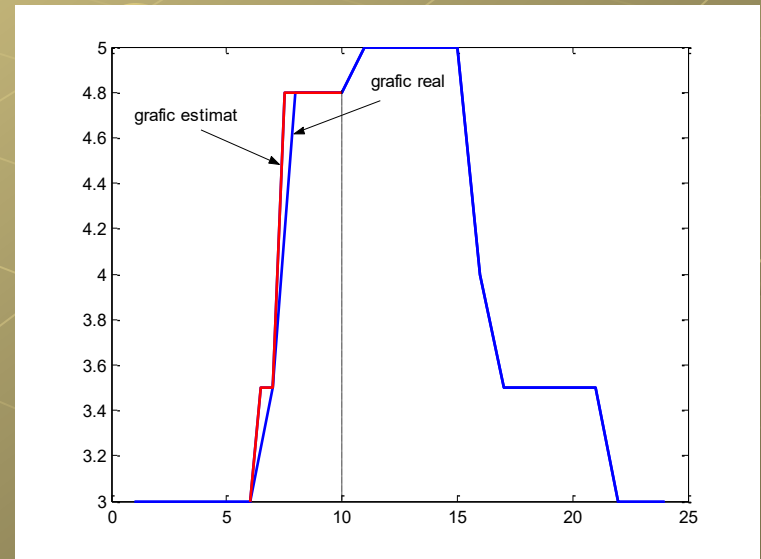
**Fig. 14. Estimare prin interpolare polinomiala**



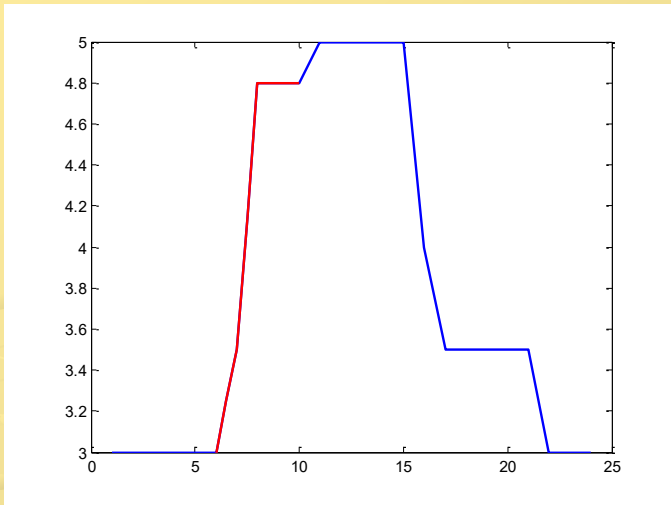
**Fig. 15. Comparatie real vs estimat - interpolare polinomiala**



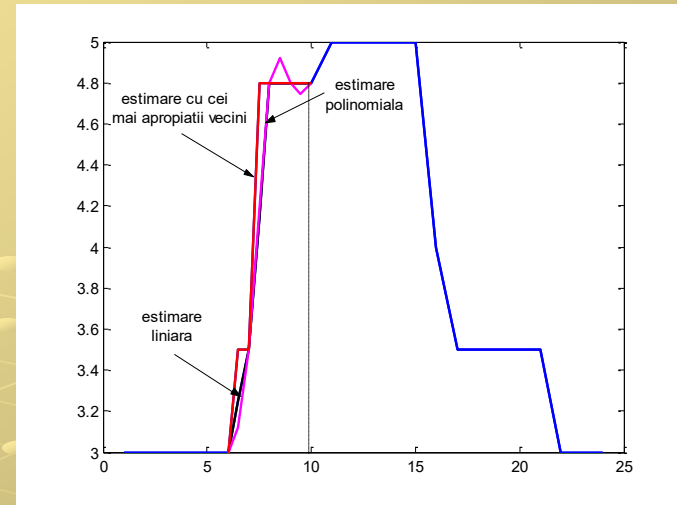
**Fig. 16. Estimare prin metoda celor mai apropiati k-vecini**



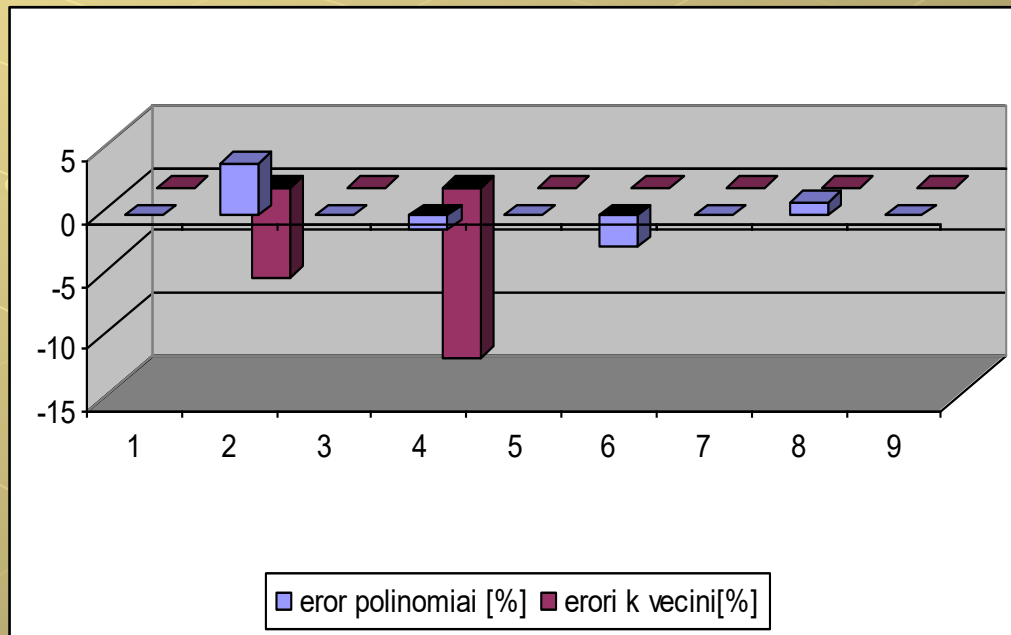
**Fig. 17. Comparatie grafic real vs estimat**



**Fig. 18. Estimare prin interpolare liniara**



**Fig. 19. Estimare prin toate metodele de interpolare**



**Fig. 20. Erori (regresia polinomiala si metoda celor mai apropiatii k-vecini)**