Monitoring period general analysis of methane concentration

The trend shows variability in the methane concentration but a light increasing trend is observed.The points are single daily values

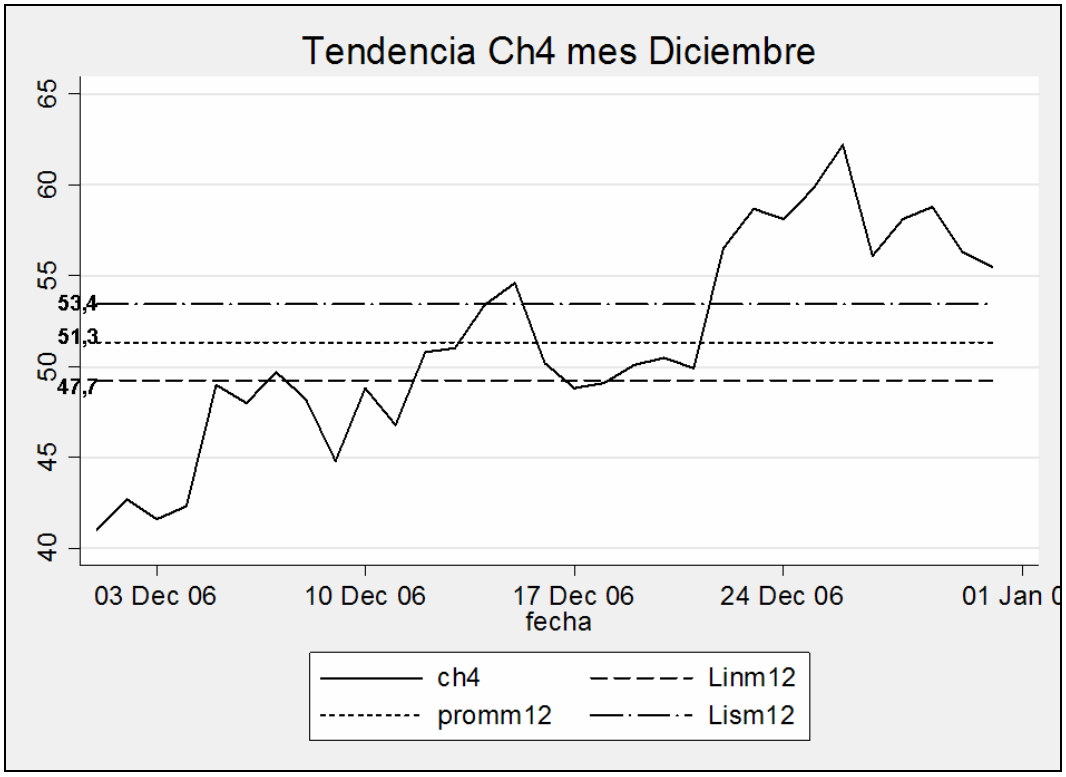
Monthly analysis

Different trends can be seen when data are observed in monthly intervals.

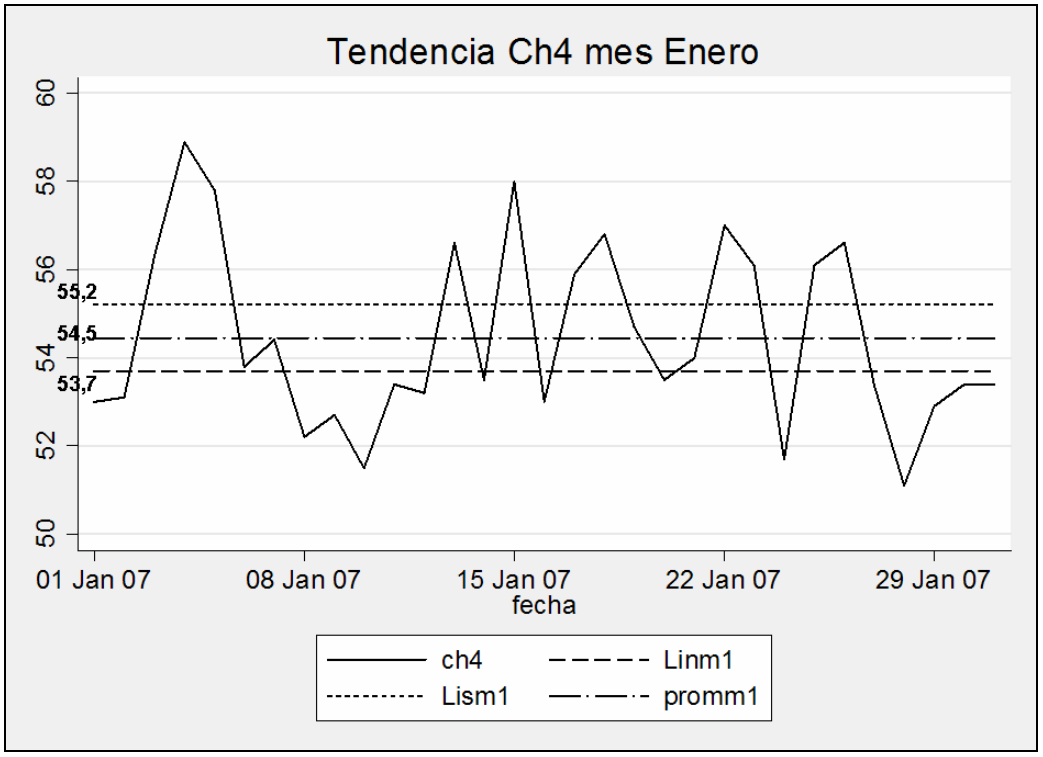
Concentrations

Monthly confidence intervals were built for each month

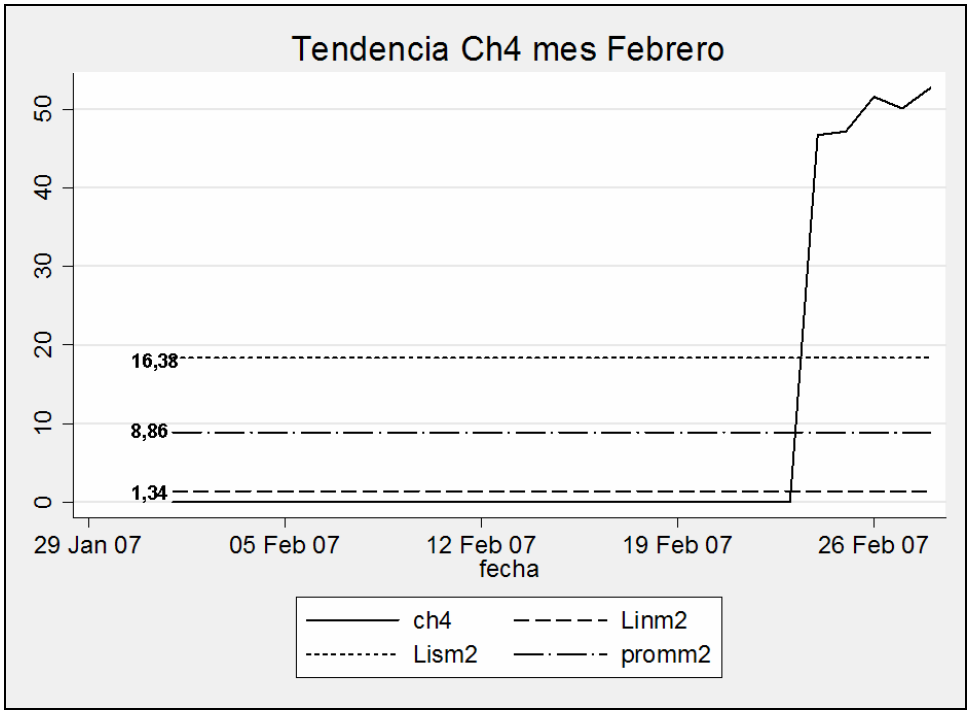
Variable	sample (n)	$\bar{x}$	Standard deviation	Standard error	IC 95%
Ch4 Anual	243	49,8	16,58	1,06	(47,71 ; 51,90)
Ch4 December	31	51,3	5,69	1,02	(49,25 ; 53,42)
Ch4 January	31	54,5	2,7	0,37	(53,69 ; 55,21)
Ch4 February	28	8,86	19,39	3,66	(1,34 ; 16,38)
Ch4 March	31	54,7	2,22	0,39	(53,92 ; 55,56)
Ch4 April	30	57,7	1,69	0,31	(57,08 ; 58,35)
Ch4 May	31	55,08	2,10	0,38	(54,3 ; 55,85)
Ch4 June	30	53,2	2,95	0,54	(52,09 ; 54,29)
Ch4 July	31	59,4	3,17	0,57	(58,28 ; 60,60)



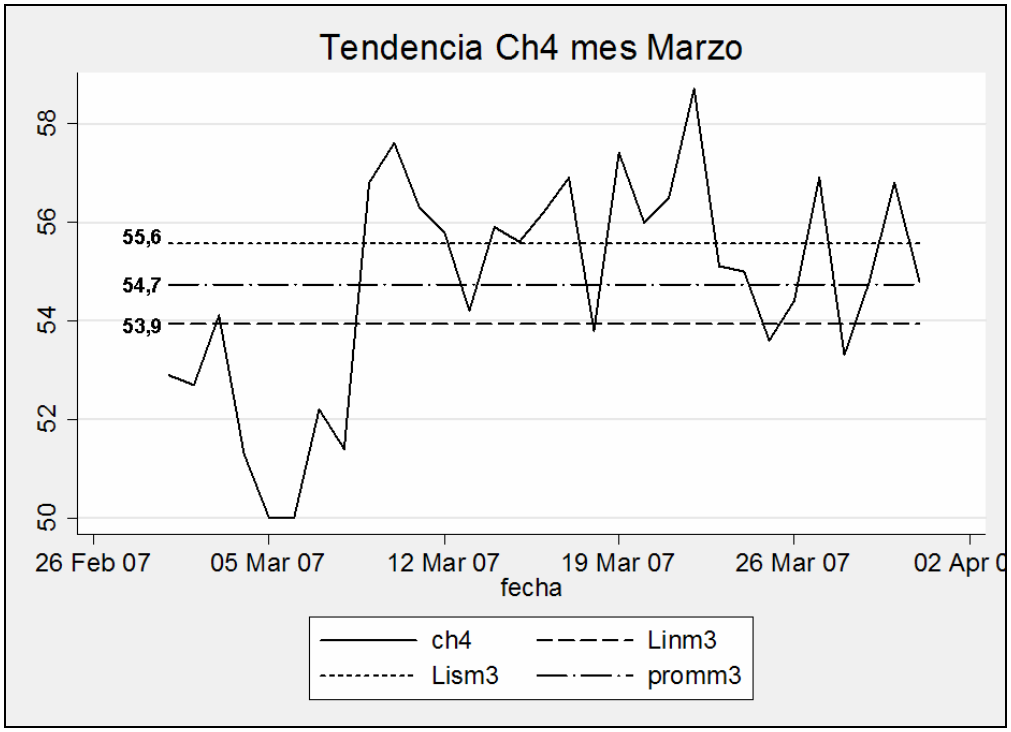
Grafica 1. trend of December



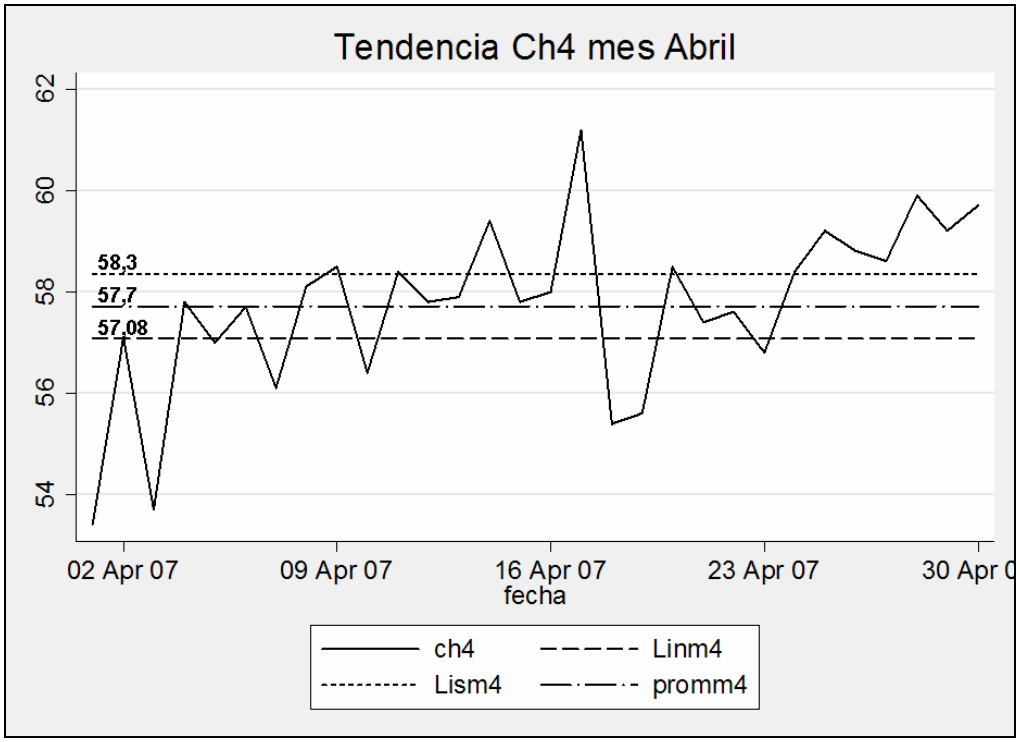
Grafica 2. trend of january



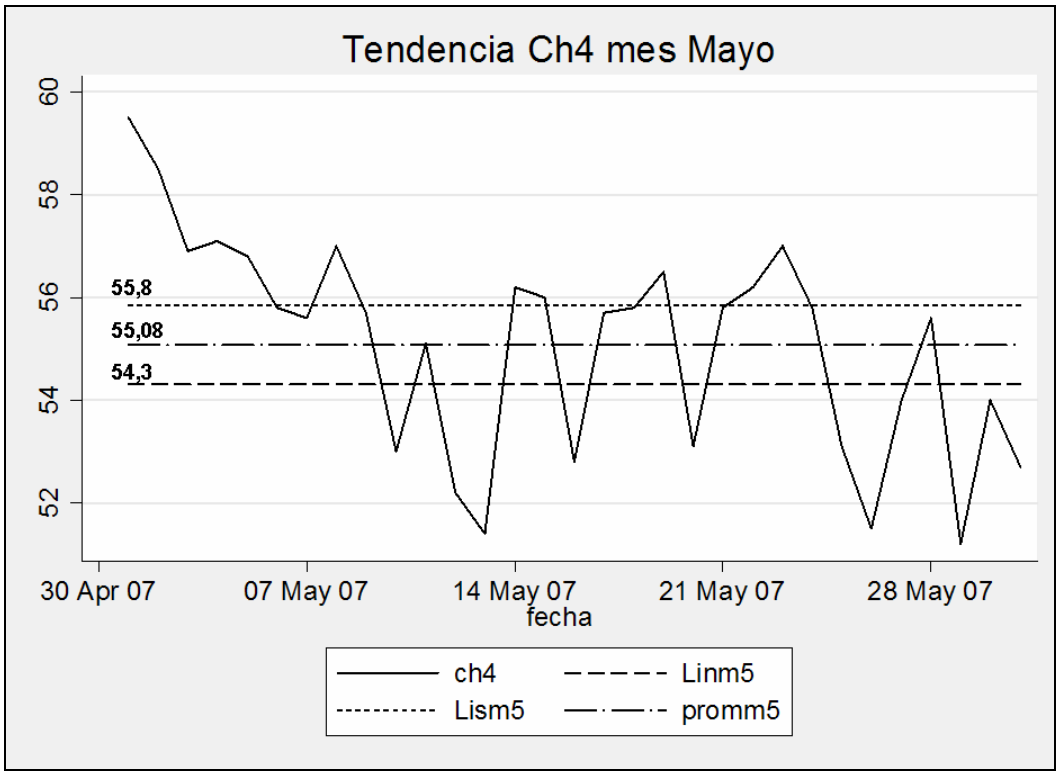
Grafica 3. trend of February



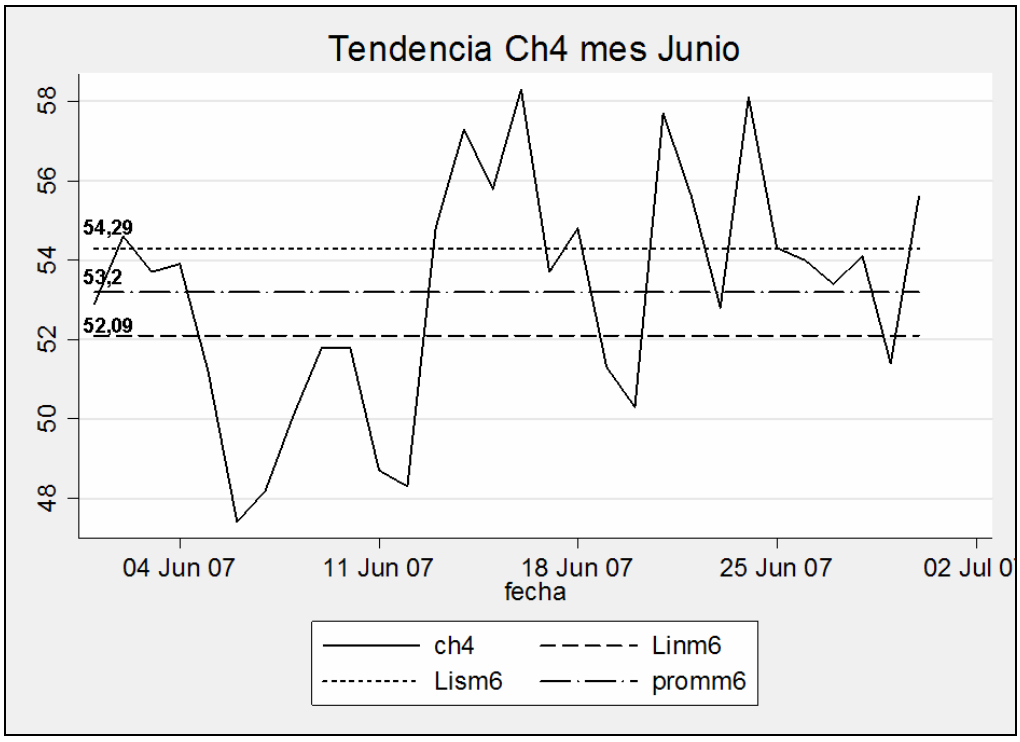
Grafica 4. trend of march



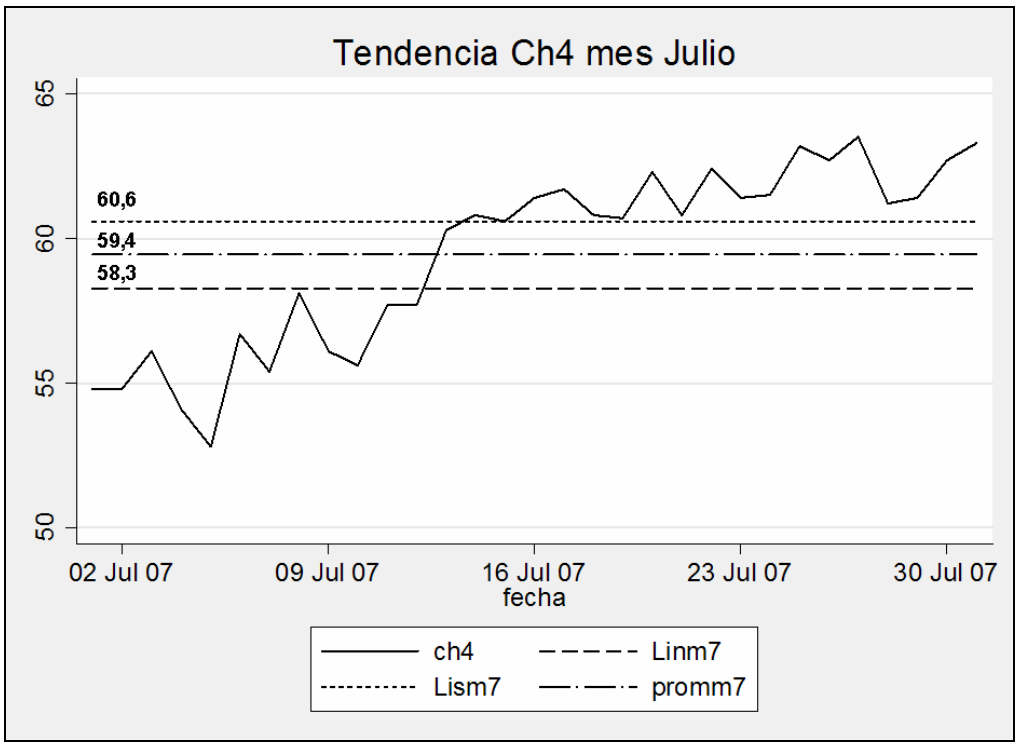
Grafica 5. trend of April



Grafica 6. Trend of May



Grafica 7. trend of July

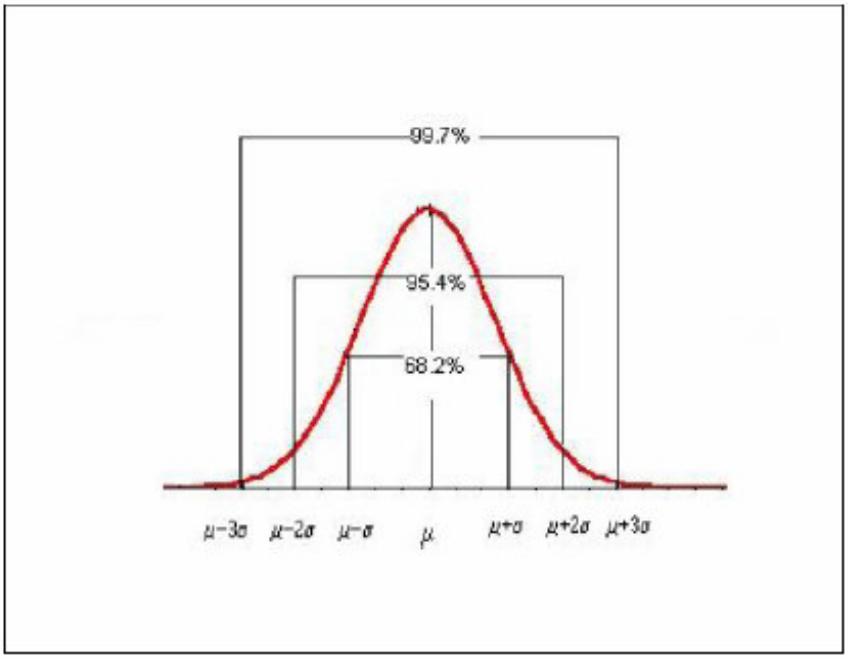


Grafica 8. trend of July

Note
Confidence Intervals

Starting from a sample named *n*, it can be determined the range of values where the mean value of a variable is located in the population named μ. Having a sample *n*, the mean value and Standard deviation was determined then the confidence interval can be defined $(1-\alpha)100\,\%$ where 95%, that contains the population mean μ with a probability $(1-\alpha)$ =95%. The interval is:

$$\bar{x} - 1{,}96 * \frac{s}{\sqrt{n}} < \mu < \bar{x} + 1{,}96 * \frac{s}{\sqrt{n}}$$



Confidence intervals around the mean

The graph shows that

$\mu \pm \sigma$ has the 68,26% of the values

$\mu \pm 2\sigma$ has the 95,46% of the values

$\mu \pm 3\sigma$ has the 99,73% of the values