

PM₁₀ CO

*

(// : // :)

() PM₁₀ CO

SPSS
Student T-Test

CO

CO PM₁₀ CO PM₁₀ PM₁₀

CO PM₁₀ T-Test %

CO PM₁₀ CO PM₁₀ PM₁₀ %

CO PM₁₀ :

...

()

(Bioan, 2005)

EPA

ppm () ppm

(Harrison 2007) ()

Wanner, 1993;)

(Pope & Dockeery, 1993; Jennings, 1993

GEMS/Air

()

()

) PM₁₀ PM_{2.5} PM₁

/

PM ()

Sharma & Maloo,).

(2005)

µg/m³

(Wilson et al., 2002) %

(PM₁₀) µm

µg/ m³

EPA

%

%

(Harrison, 2007)

µg/m³

(WHO, 2007)

HC² PM¹ SO₂)

(CO NO_x

(EPA, 2007) .

PM CO .

¹ Particle Mater

² Hydrocarbon

(Toselli, 2002)

(Wanner, 1993)

(PM₁₀ SO₂) (

SO₂ PM₁₀

Bahattin & Kadi,)

(2007)

PM₁₀ PM_{2.5} PM₁

PM₁

(Verea *et al.*, 2009)

Alijani

(Milionis & Davies, 2002)

(Alijani, 2006)

(Romer, *et al.*, 1999)

PM₁₀ NO_x CO

PM₁₀

NO_x CO

NO_x CO

Olces &) NO_x CO

...

PM₁₀ CO

)PM₁₀ CO

(µg/m³ ppm

()

)

(PM₁₀ CO

)

(

)

()

(

/ T-Test

(P value < /

(R²)

PM₁₀ CO

()

PM₁₀ CO

SPSS₁₆ Excel

Origin

% /

)

()

% /

%

(

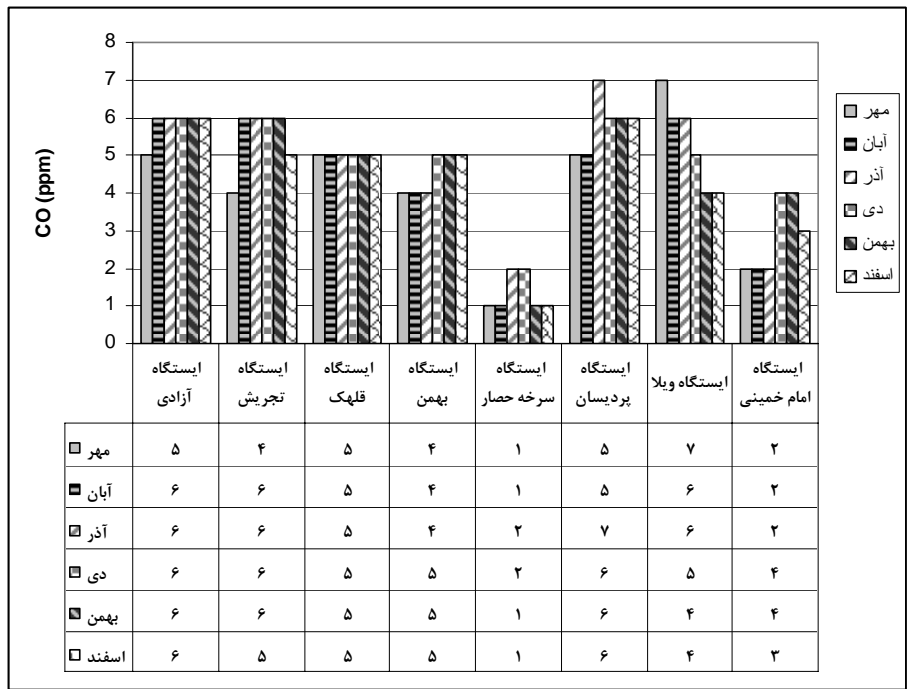
)

)

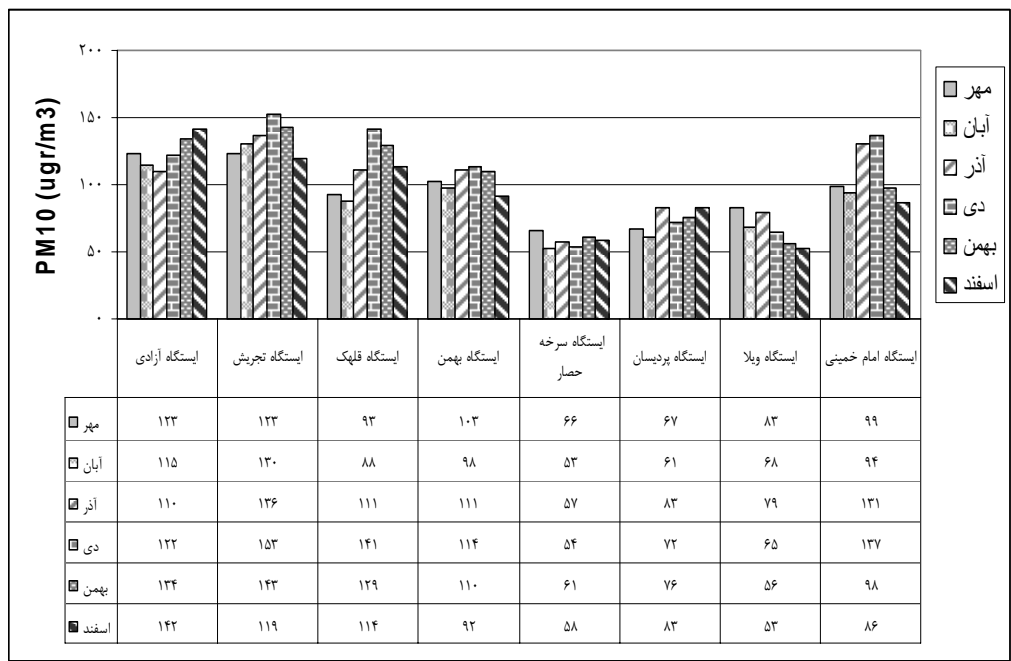
T

(

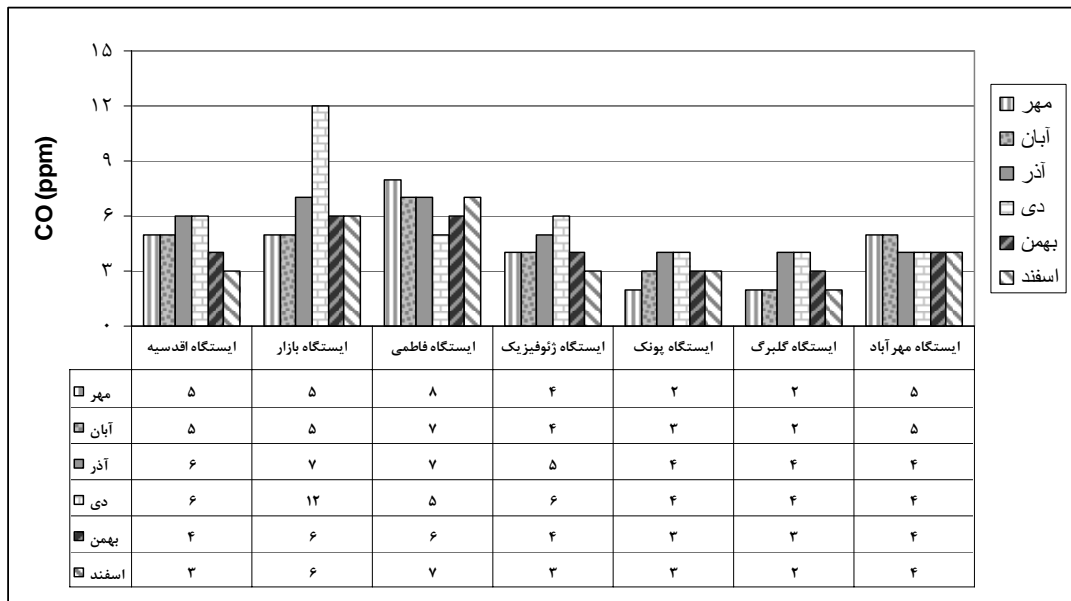
(m)



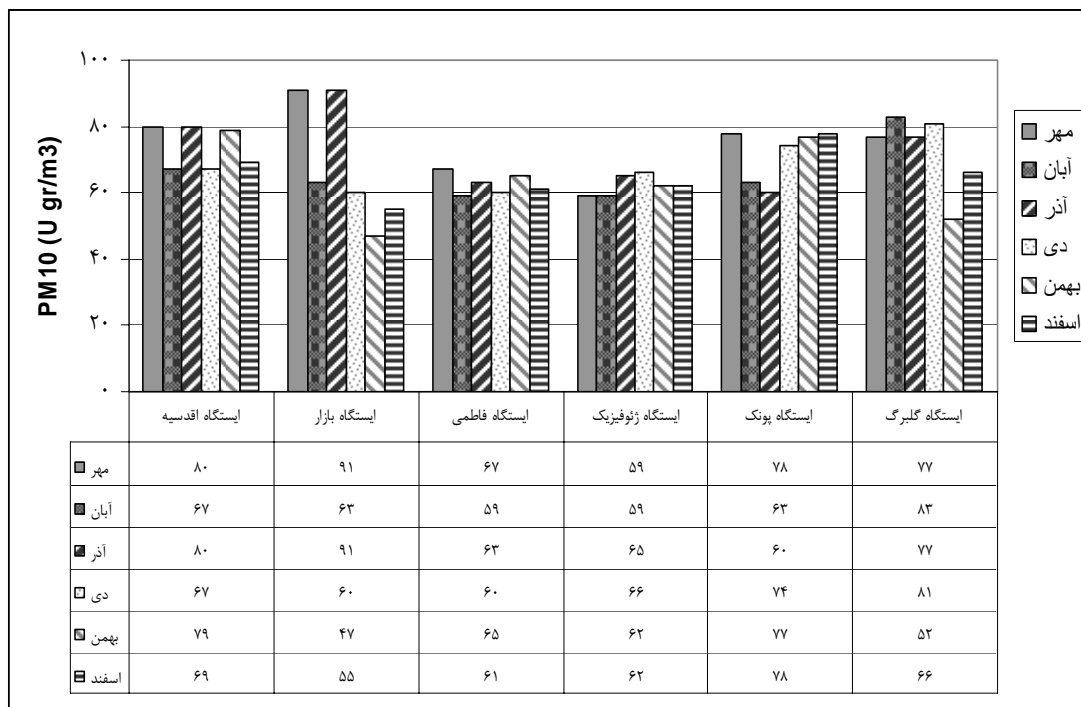
(ppm) CO
()



(ug/m3) PM10
()



(ppm) CO
()



($\mu\text{gr}/\text{m}^3$) PM10
()

...

) PM₁₀ CO PM₁₀

(

) CO

(ppm) PM₁₀

) PM₁₀

(μ g/m³)

CO)

(ppm)

PM₁₀ (μ g/m³) ()

PM₁₀ CO

2003 Shariipour

CO

PM₁₀ %

(Shariipour & Bidokhti, 2003) Pvalue < /) %

CO (

CO %

(Pvalue < /) %

PM₁₀

CO %

(Pvalue < /) %

(/ / ppm)

μ g/m³ PM₁₀ %

CO Shariipour (% %

Shariipour &) (Pvalue < /)

(Bidokhti, 2003) PM₁₀

() PM₁₀

Viana, et) ()

(al., 2002

PM₁₀

PM10 CO

()

T-Test		R ² (%)						
* /				CO/		CO		
/ *				PM ₁₀ /				
/				CO/				
----			----	PM ₁₀ /				
/				CO/				
* /				PM ₁₀ /		CO		
/				CO/				
/ *				PM ₁₀ /				
* /				CO/				
----	----	----		PM ₁₀ /				
/				CO/		PM ₁₀		
/				PM ₁₀ /				
/				CO/				
* /				PM ₁₀ /				
/				CO/				
* /				PM ₁₀ /		CO		
/				CO/				
----	----	----	----	PM ₁₀ /				
* /				CO/				
* /				PM ₁₀ /				
/				CO/		CO		
* /				PM ₁₀ /				
/				CO/				
* /				PM ₁₀ /				
/				CO/				
* /				PM ₁₀ /		CO		
* /				CO/				
/				PM ₁₀ /				
* /				CO/				
* /				PM ₁₀ /				
----	----	----	----	PM ₁₀ /				

*

...

PM10 CO

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T-Test		R2(%)						
/				CO/		CO PM10		
/ *				PM10/				
* /				CO/				
* /				PM10/				
* /				CO/				
/				PM10/		CO PM10		
/				CO/				
/ *				PM10/				
* /				CO/				
/				PM10/				
/				CO/		CO PM10		
* /				PM10/				
* /				CO/				
/				PM10/				
* /				CO/				
* /				PM10/		CO PM10		
/				CO/				
/				PM10/				
* /				CO/				
* /				PM10/				
/				CO/		CO PM10		
/				PM10/				
* /				CO/				
* /				PM10/				
/				CO/				
/				PM10/		CO PM10		
/				CO/				
* /				PM10/				
* /				CO/				
* /				PM10/				
/				CO/		CO PM10		
/				PM10/				
* /				CO/				
* /				PM10/				
* /				CO/				

*

NO₂ SO₂ CO

PM₁₀

.(Olces & Toselli, 2002)

(Priyantha, 2007)

% /

(% /)

CO

(% /) PM₁₀

% /)

SO₂ PM₁₀

(

/ m/s

CO

()

(%) PM₁₀

Shariipour

%

CO

PM₁₀

Olces

Toselli

SO₂ PM₁₀

(Bahattin & Kadi, 2007)

NO_x CO

% / T-Test

NO_x

CO

CO % / PM₁₀

Olces &)

(Toselli,2002

CO

CO

PM₁₀

% /

% /)

PM₁₀

%

% / (

%)

PM₁₀

% /

.(

()

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Statistical correlation of CO and PM₁₀ concentrations with wind speed in a five-year period in Tehran

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Abstract

One of the major environmental problems in large cities is air pollution. In this study, the monthly and annual changes in the average concentrations of carbon monoxide and PM₁₀ were investigated during a five-year period (winter and fall of 1383-1387 A.H.S) in Tehran. The effects of meteorological parameters on these parameters were also investigated. The study area was divided into three zones (light, medium, and heavy traffic areas). Linear regression was employed to correlate [CO] with speed of wind (SoW). The significance of changes and the validity of assumptions were evaluated using student's t-test. Comparison of the data acquired from EO's in the five-year period indicated that Azadi and Sorkhehesar stations have the most and the least [CO], respectively. Also, Tajrish and Sorkhehesar stations demonstrated the most and the least [PM₁₀], respectively. The AQCC, Bazar and Golbarg stations have the most and the least CO pollution, respectively. Besides, Aghdasieh and Geophysics stations showed the most and the least [PM₁₀], respectively. The highest concentrations of CO were observed in November and December and PM₁₀ in September. Negative correlations were observed between the decrease in [CO] and the increase in the SoW. However, no significant relationship was found between the increase of [PM₁₀] and SoW.

Keywords: Linear regression, PM₁₀, CO, Correlation, Wind speed