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# Summary of correlations of sensor kits and sensor modules

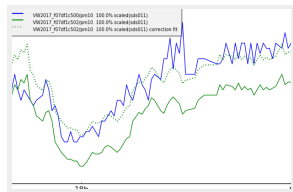
Sensorkits: VW2017\_f07df1c500 VW2017\_f07df1c502

Report generated on: Tue Dec 19 11:11:16 CET 2017

## R-square and statistical summary

### Measurement PM10 correlation key values

Correlation 1 - **PM10** - kit VW2017\_f07df1c500 sensor type**SDS011** with kit VW2017\_f07df1c502 sensor type**SDS011**:

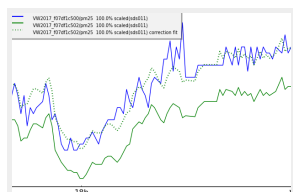


nr samples 85, min= 2.33, max= 4.10  
avg= 3.35, std dev= 0.54  
**R-squared:**  
**0.7020**

Best fit polynomial coefficients:  
[ 6.361e-01, 9.852e-01]

### Measurement PM2.5 correlation key values

Correlation 2 - **PM2.5** - kit VW2017\_f07df1c500 sensor type**SDS011** with kit VW2017\_f07df1c502 sensor type**SDS011**:

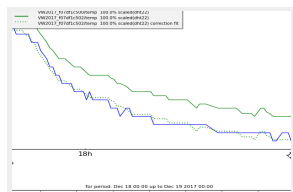


nr samples 85, min= 2.13, max= 3.80  
avg= 3.03, std dev= 0.47  
**R-squared:**  
**0.8352**

Best fit polynomial coefficients:  
[ 3.109e-01, 1.087e+00]

### Measurement TEMP correlation key values

Correlation 3 - **TEMP** - kit VW2017\_f07df1c500 sensor type**DHT22** with kit VW2017\_f07df1c502 sensor type**DHT22**:

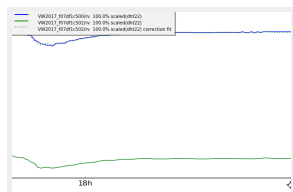


nr samples 83, min=23.80, max=25.10  
avg=24.24, std dev= 0.41  
**R-squared:**  
**0.9879**

Best fit polynomial coefficients:  
[ -8.330e-01, 1.023e+00]

### Measurement RH correlation key values

Correlation 4 - **RH** - kit VW2017\_f07df1c500 sensor type**DHT22** with kit VW2017\_f07df1c502 sensor type**DHT22**:



nr samples 83, min=27.00, max=28.50  
avg=27.82, std dev= 0.34  
**R-squared:**  
**0.9194**

Best fit polynomial coefficients:  
[ 4.997e+00, 1.287e+00]

Sensor sds011@VW2017\_f07df1c500 with  
sensor sds011@VW2017\_f07df1c502

correlation report for pm10 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c500 with project VW2017 sensor kit ID f07df1c502  
Date of correlation report: Tue Dec 19 11:11:07 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time serie data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c500 sensor (column) pm10: 86 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c502 sensor (column) pm10: 80 db records, deleted 0 NaN records.  
Collected 85 values in sample time frame (15m/0s) for the graph. Skipped 1 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c502, sensor (column) pm10:

number 85, min= 2.33, max= 4.10

avg= 3.35, std dev= 0.54

R-squared (R²) with VW2017\_f07df1c502/pm10: 0.7020

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c500/pm10 (sds011)-> best fit coefficients:

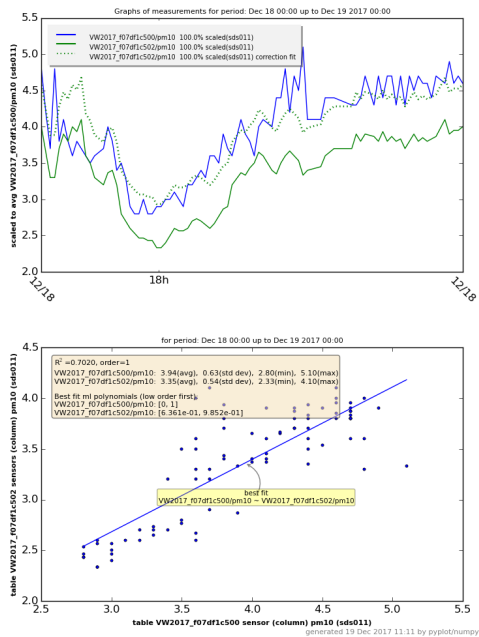
6.361e-01, 9.852e-01

Statistical summary linear regression for VW2017\_f07df1c500/pm10 with ['VW2017\_f07df1c502/pm10']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c500/pm10 | R-squared:          | 0.702    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.698    |
| Method:                | Least Squares          | F-statistic:        | 195.5    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 1.58e-23 |
| Time:                  | 11:11:12               | Log-Likelihood:     | -30.050  |
| No. Observations:      | 85                     | AIC:                | 64.10    |
| Df Residuals:          | 83                     | BIC:                | 68.99    |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c502/pm10 | 0.6361 | 0.239   | 2.658 | 0.009 | 0.160 1.112        |

|                |       |                   |         |
|----------------|-------|-------------------|---------|
| Omnibus:       | 6.530 | Durbin-Watson:    | 1.030   |
| Prob(Omnibus): | 0.038 | Jarque-Bera (JB): | 11.250  |
| Skew:          | 0.034 | Prob(JB):         | 0.00361 |
| Kurtosis:      | 4.781 | Cond. No.         | 23.3    |



Sensor sds011@VW2017\_f07df1c500 with  
sensor sds011@VW2017\_f07df1c502

correlation report for pm25 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c500 with project VW2017 sensor kit ID f07df1c502  
Date of correlation report: Tue Dec 19 11:11:16 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c500 sensor (column) pm25: 86 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c502 sensor (column) pm25: 80 db records, deleted 0 NaN records.  
Collected 85 values in sample time frame (15m/0s) for the graph. Skipped 1 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c502, sensor (column) pm25:

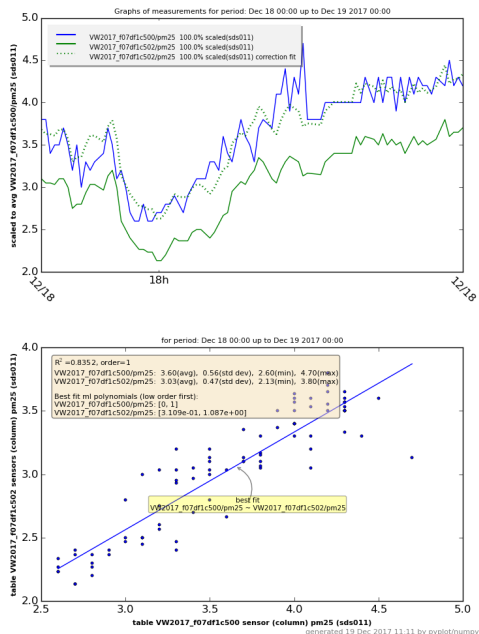
number 85, min= 2.13, max= 3.80  
  
avg= 3.03, std dev= 0.47  
  
R-squared (R²) with VW2017\_f07df1c502/pm25: 0.8352  
  
Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):  
  
VW2017\_f07df1c500/pm25 (sds011)-> best fit coefficients:  
  
3.109e-01, 1.087e+00

Statistical summary linear regression for VW2017\_f07df1c500/pm25 with ['VW2017\_f07df1c502/pm25']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c500/pm25 | R-squared:          | 0.835    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.833    |
| Method:                | Least Squares          | F-statistic:        | 420.5    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 3.07e-34 |
| Time:                  | 11:11:16               | Log-Likelihood:     | 5.4323   |
| No. Observations:      | 85                     | AIC:                | -6.865   |
| Df Residuals:          | 83                     | BIC:                | -1.979   |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c502/pm25 | 0.3109 | 0.162   | 1.915 | 0.059 | -0.012 0.634       |

|                |        |                   |          |
|----------------|--------|-------------------|----------|
| Omnibus:       | 21.531 | Durbin-Watson:    | 1.415    |
| Prob(Omnibus): | 0.000  | Jarque-Bera (JB): | 42.801   |
| Skew:          | 0.913  | Prob(JB):         | 5.08e-10 |
| Kurtosis:      | 5.958  | Cond. No.         | 22.0     |



Sensor dht22@VW2017\_f07df1c500 with  
sensor dht22@VW2017\_f07df1c502

correlation report for temp (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c500 with project VW2017 sensor kit ID f07df1c502  
Date of correlation report: Tue Dec 19 11:11:18 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c500 sensor (column) temp: 84 db records, deleted 2 NaN records.  
Database table VW2017\_f07df1c502 sensor (column) temp: 79 db records, deleted 1 NaN records.  
Collected 83 values in sample time frame (15m/0s) for the graph. Skipped 1 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c502, sensor (column) temp:

number 83, min=23.80, max=25.10

avg=24.24, std dev= 0.41

R-squared (R²) with VW2017\_f07df1c502/temp: 0.9879

Best fit linear single polynomial regression curve (A<sub>0</sub>\*X<sup>0</sup> + A<sub>1</sub>\*X<sup>1</sup>):

VW2017\_f07df1c500/temp (dht22)-> best fit coefficients:

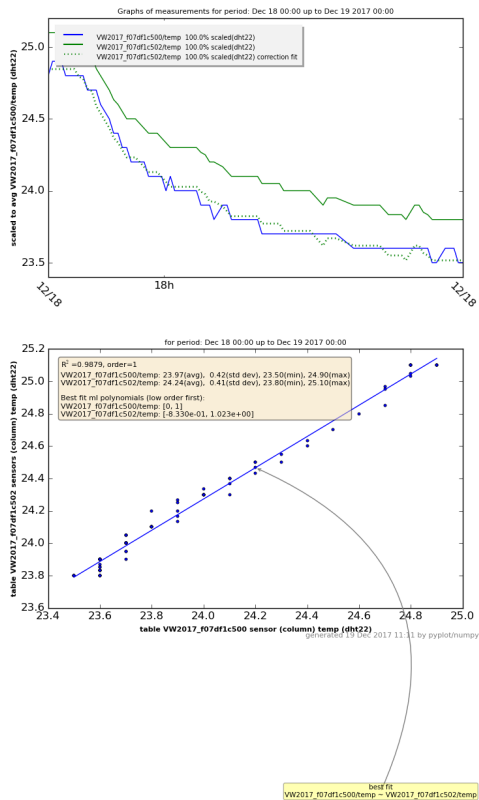
-8.330e-01, 1.023e+00

Statistical summary linear regression for VW2017\_f07df1c500/temp with ['VW2017\_f07df1c502/temp']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c500/temp | R-squared:          | 0.988    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.988    |
| Method:                | Least Squares          | F-statistic:        | 6635.    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 1.76e-79 |
| Time:                  | 11:11:18               | Log-Likelihood:     | 137.43   |
| No. Observations:      | 83                     | AIC:                | -270.9   |
| Df Residuals:          | 81                     | BIC:                | -266.0   |
| Df Model:              | 1                      |                     |          |

|                        | coef    | std err | t      | P> t  | [95.0% Conf. Int.] |
|------------------------|---------|---------|--------|-------|--------------------|
| VW2017_f07df1c502/temp | -0.8330 | 0.305   | -2.735 | 0.008 | -1.439 -0.227      |

|                |       |                   |          |
|----------------|-------|-------------------|----------|
| Omnibus:       | 0.772 | Durbin-Watson:    | 1.081    |
| Prob(Omnibus): | 0.680 | Jarque-Bera (JB): | 0.862    |
| Skew:          | 0.212 | Prob(JB):         | 0.650    |
| Kurtosis:      | 2.735 | Cond. No.         | 1.44e+03 |



Sensor dht22@VW2017\_f07df1c500 with  
sensor dht22@VW2017\_f07df1c502

correlation report for rh (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c500 with project VW2017 sensor kit ID f07df1c502  
Date of correlation report: Tue Dec 19 11:11:20 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c500 sensor (column) rv: 84 db records, deleted 2 NaN records.  
Database table VW2017\_f07df1c502 sensor (column) rv: 79 db records, deleted 1 NaN records.  
Collected 83 values in sample time frame (15m/0s) for the graph. Skipped 1 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c502, sensor (column) rv:

number 83, min=27.00, max=28.50

avg=27.82, std dev= 0.34

R-squared (R²) with VW2017\_f07df1c502/rv: 0.9194

Best fit linear single polynomial regression curve (A<sub>0</sub>\*X<sup>0</sup> + A<sub>1</sub>\*X<sup>1</sup>):

VW2017\_f07df1c500/rv (dht22)-> best fit coefficients:

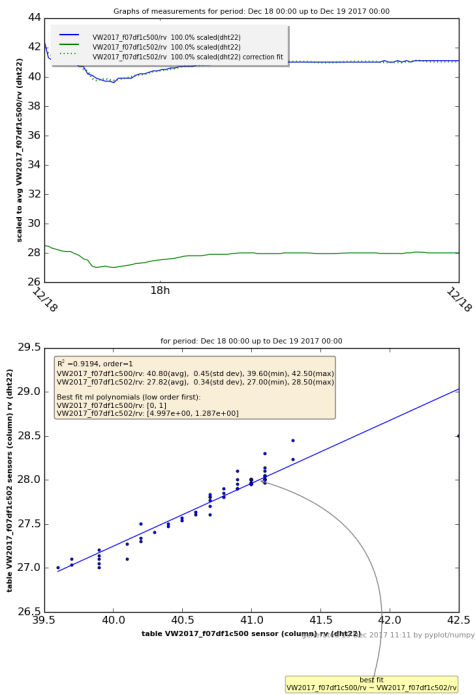
4.997e+00, 1.287e+00

Statistical summary linear regression for VW2017\_f07df1c500/rv with [VW2017\_f07df1c502/rv]:

| OLS Regression Results |                      |                     |          |
|------------------------|----------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c500/rv | R-squared:          | 0.919    |
| Model:                 | OLS                  | Adj. R-squared:     | 0.918    |
| Method:                | Least Squares        | F-statistic:        | 923.4    |
| Date:                  | Tue, 19 Dec 2017     | Prob (F-statistic): | 4.79e-46 |
| Time:                  | 11:11:20             | Log-Likelihood:     | 52.837   |
| No. Observations:      | 83                   | AIC:                | -101.7   |
| Df Residuals:          | 81                   | BIC:                | -96.84   |
| Df Model:              | 1                    |                     |          |

|                      | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|----------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c502/rv | 4.9966 | 1.178   | 4.241 | 0.000 | 2.652 7.341        |

|                |        |                   |           |
|----------------|--------|-------------------|-----------|
| Omnibus:       | 81.975 | Durbin-Watson:    | 1.673     |
| Prob(Omnibus): | 0.000  | Jarque-Bera (JB): | 1349.801  |
| Skew:          | 2.728  | Prob(JB):         | 7.84e-294 |
| Kurtosis:      | 21.988 | Cond. No.         | 2.31e+03  |



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| Sensor sds011@VW2017_f07df1c502 with sensor sds011@VW2017_f07df1c503 correlation report for pm25 (raw) measurements | 4 |
| General statistical information for the measurements graphs   | 4 |
| Sensor dht22@VW2017_f07df1c502 with sensor dht22@VW2017_f07df1c503 correlation report for temp (raw) measurements   | 5 |
| General statistical information for the measurements graphs   | 5 |
| Sensor dht22@VW2017_f07df1c502 with sensor dht22@VW2017_f07df1c503 correlation report for rh (raw) measurements     | 6 |
| General statistical information for the measurements graphs   | 6 |

# Summary of correlations of sensor kits and sensor modules

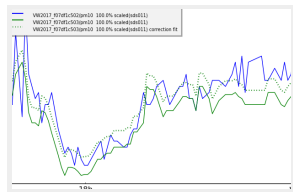
Sensorkits: VW2017\_f07df1c502 VW2017\_f07df1c503

Report generated on: Tue Dec 19 11:11:26 CET 2017

## R-square and statistical summary

### Measurement PM10 correlation key values

Correlation 1 - **PM10** - kit VW2017\_f07df1c502 sensor type**SDS011** with kit VW2017\_f07df1c503 sensor type**SDS011**:



nr samples 74, min= 2.13, max= 4.00

avg= 3.06, std dev= 0.49

**R-squared:**

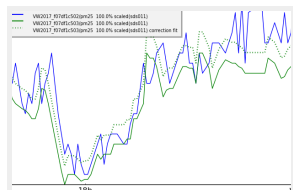
**0.6707**

Best fit polynomial coefficients:

[ 4.103e-01, 9.471e-01]

### Measurement PM2.5 correlation key values

Correlation 2 - **PM2.5** - kit VW2017\_f07df1c502 sensor type**SDS011** with kit VW2017\_f07df1c503 sensor type**SDS011**:



nr samples 74, min= 2.00, max= 3.30

avg= 2.79, std dev= 0.40

**R-squared:**

**0.7814**

Best fit polynomial coefficients:

[ 1.447e-01, 1.019e+00]

### Measurement TEMP correlation key values

Correlation 3 - **TEMP** - kit VW2017\_f07df1c502 sensor type**DHT22** with kit VW2017\_f07df1c503 sensor type**DHT22**:

nr samples 73, min=22.80, max=24.15

avg=23.25, std dev= 0.41

**R-squared:**

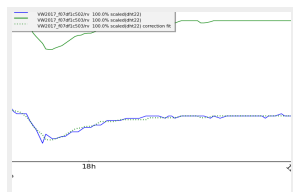
**0.9846**

Best fit polynomial coefficients:

[ 2.567e+00, 9.328e-01]

### Measurement RH correlation key values

Correlation 4 - **RH** - kit VW2017\_f07df1c502 sensor type**DHT22** with kit VW2017\_f07df1c503 sensor type**DHT22**:



nr samples 73, min=30.93, max=32.90

avg=31.96, std dev= 0.40

**R-squared:**

**0.9424**

Best fit polynomial coefficients:

[ 1.073e+00, 8.364e-01]



Sensor sds011@VW2017\_f07df1c502 with  
sensor sds011@VW2017\_f07df1c503

correlation report for pm10 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c502 with project VW2017 sensor kit ID f07df1c503  
Date of correlation report: Tue Dec 19 11:11:24 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c502 sensor (column) pm10: 80 db records, deleted 0 NaN records.  
Auto interval samples is (re)set to 1256 (avg+2\*stddev)  
Database table VW2017\_f07df1c503 sensor (column) pm10: 55 db records, deleted 0 NaN records.  
Collected 74 values in sample time frame (20m/56s) for the graph. Skipped 6 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 20m:56s.

Data from table/sheet VW2017\_f07df1c503, sensor (column) pm10:

number 74, min= 2.13, max= 4.00

avg= 3.06, std dev= 0.49

R-squared (R<sup>2</sup>) with VW2017\_f07df1c503/pm10: 0.6707

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c502/pm10 (sds011)-> best fit coefficients:

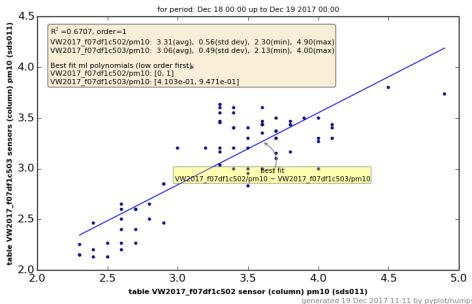
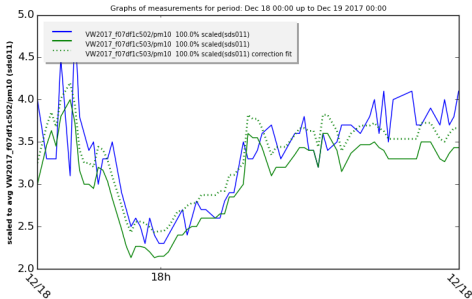
4.103e-01, 9.471e-01

Statistical summary linear regression for VW2017\_f07df1c502/pm10 with [VW2017\_f07df1c503/pm10]:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c502/pm10 | R-squared:          | 0.671    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.666    |
| Method:                | Least Squares          | F-statistic:        | 146.6    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 4.90e-19 |
| Time:                  | 11:11:24               | Log-Likelihood:     | -21.457  |
| No. Observations:      | 74                     | AIC:                | 46.91    |
| Df Residuals:          | 72                     | BIC:                | 51.52    |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c503/pm10 | 0.4103 | 0.242   | 1.693 | 0.095 | -0.073 0.893       |

|                |       |                   |        |
|----------------|-------|-------------------|--------|
| Omnibus:       | 4.212 | Durbin-Watson:    | 1.810  |
| Prob(Omnibus): | 0.122 | Jarque-Bera (JB): | 5.073  |
| Skew:          | 0.023 | Prob(JB):         | 0.0791 |
| Kurtosis:      | 4.282 | Cond. No.         | 21.7   |



Sensor sds011@VW2017\_f07df1c502 with  
sensor sds011@VW2017\_f07df1c503

correlation report for pm25 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c502 with project VW2017 sensor kit ID f07df1c503  
Date of correlation report: Tue Dec 19 11:11:26 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c502 sensor (column) pm25: 80 db records, deleted 0 NaN records.  
Auto interval samples is (re)set to 1256 (avg+2\*stddev)  
Database table VW2017\_f07df1c503 sensor (column) pm25: 55 db records, deleted 0 NaN records.  
Collected 74 values in sample time frame (20m/56s) for the graph. Skipped 6 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 20m:56s.

Data from table/sheet VW2017\_f07df1c503, sensor (column) pm25:

number 74, min= 2.00, max= 3.30

avg= 2.79, std dev= 0.40

R-squared (R²) with VW2017\_f07df1c503/pm25: 0.7814

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c502/pm25 (sds011)-> best fit coefficients:

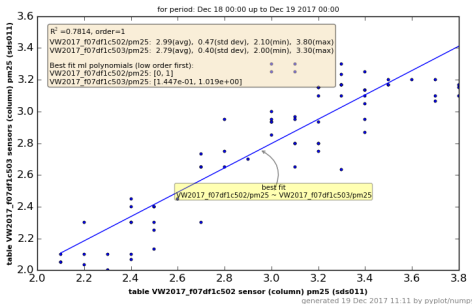
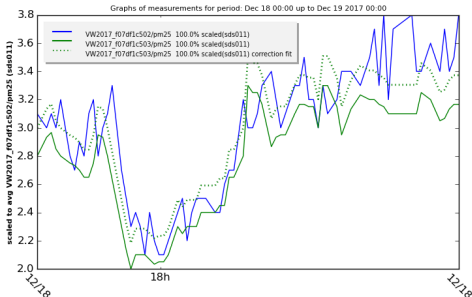
1.447e-01, 1.019e+00

Statistical summary linear regression for VW2017\_f07df1c502/pm25 with ['VW2017\_f07df1c503/pm25']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c502/pm25 | R-squared:          | 0.781    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.778    |
| Method:                | Least Squares          | F-statistic:        | 257.3    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 1.79e-25 |
| Time:                  | 11:11:26               | Log-Likelihood:     | 7.8871   |
| No. Observations:      | 74                     | AIC:                | -11.77   |
| Df Residuals:          | 72                     | BIC:                | -7.166   |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c503/pm25 | 0.1447 | 0.179   | 0.809 | 0.421 | -0.212 0.501       |

|                |       |                   |       |
|----------------|-------|-------------------|-------|
| Omnibus:       | 0.892 | Durbin-Watson:    | 1.328 |
| Prob(Omnibus): | 0.640 | Jarque-Bera (JB): | 0.807 |
| Skew:          | 0.249 | Prob(JB):         | 0.668 |
| Kurtosis:      | 2.882 | Cond. No.         | 22.1  |



Sensor dht22@VW2017\_f07df1c502 with  
sensor dht22@VW2017\_f07df1c503

correlation report for temp (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c502 with project VW2017 sensor kit ID f07df1c503  
Date of correlation report: Tue Dec 19 11:11:28 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c502 sensor (column) temp: 79 db records, deleted 1 NaN records.  
Auto interval samples is (re)set to 1256 (avg+2\*stddev)  
Database table VW2017\_f07df1c503 sensor (column) temp: 55 db records, deleted 0 NaN records.  
Collected 73 values in sample time frame (20m/56s) for the graph. Skipped 6 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 20m:56s.

Data from table/sheet VW2017\_f07df1c503, sensor (column) temp:

number 73, min=22.80, max=24.15

avg=23.25, std dev= 0.41

R-squared (R²) with VW2017\_f07df1c503/temp: 0.9846

Best fit linear single polynomial regression curve (A0\*X<sup>0</sup> + A1\*X<sup>1</sup>):

VW2017\_f07df1c502/temp (dht22)-> best fit coefficients:

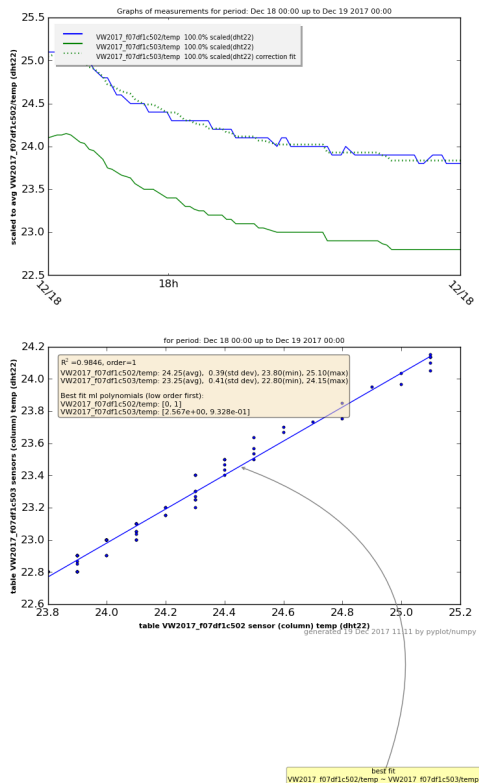
2.567e+00, 9.328e-01

Statistical summary linear regression for VW2017\_f07df1c502/temp with ['VW2017\_f07df1c503/temp']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c502/temp | R-squared:          | 0.985    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.984    |
| Method:                | Least Squares          | F-statistic:        | 4547.    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 4.07e-66 |
| Time:                  | 11:11:28               | Log-Likelihood:     | 118.02   |
| No. Observations:      | 73                     | AIC:                | -232.0   |
| Df Residuals:          | 71                     | BIC:                | -227.4   |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c503/temp | 2.5671 | 0.322   | 7.980 | 0.000 | 1.926 3.209        |

|                |       |                   |          |
|----------------|-------|-------------------|----------|
| Omnibus:       | 0.500 | Durbin-Watson:    | 1.229    |
| Prob(Omnibus): | 0.779 | Jarque-Bera (JB): | 0.630    |
| Skew:          | 0.038 | Prob(JB):         | 0.730    |
| Kurtosis:      | 2.551 | Cond. No.         | 1.31e+03 |



Sensor dht22@VW2017\_f07df1c502 with  
sensor dht22@VW2017\_f07df1c503

correlation report for rh (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c502 with project VW2017 sensor kit ID f07df1c503  
Date of correlation report: Tue Dec 19 11:11:30 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c502 sensor (column) rv: 79 db records, deleted 1 NaN records.  
Auto interval samples is (re)set to 1256 (avg+2\*stddev)  
Database table VW2017\_f07df1c503 sensor (column) rv: 55 db records, deleted 0 NaN records.  
Collected 73 values in sample time frame (20m/56s) for the graph. Skipped 6 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 20m:56s.

Data from table/sheet VW2017\_f07df1c503, sensor (column) rv:

number 73, min=30.93, max=32.90

avg=31.96, std dev= 0.40

R-squared (R²) with VW2017\_f07df1c503/rv: 0.9424

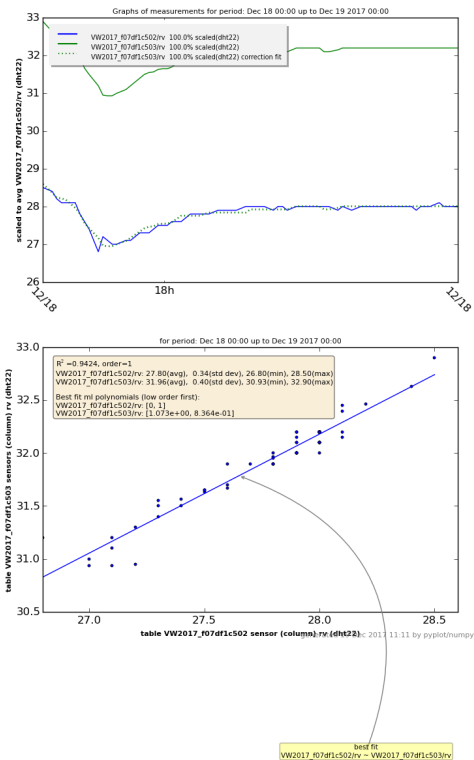
Best fit linear single polynomial regression curve (A<sub>0</sub>\*X<sup>0</sup> + A<sub>1</sub>\*X<sup>1</sup>):

VW2017\_f07df1c502/rv (dht22)-> best fit coefficients:

1.073e+00, 8.364e-01

Statistical summary linear regression for VW2017\_f07df1c502/rv with ['VW2017\_f07df1c503/rv']:

| OLS Regression Results |                      |                     |          |                          |
|------------------------|----------------------|---------------------|----------|--------------------------|
| Dep. Variable:         | VW2017_f07df1c502/rv | R-squared:          | 0.942    |                          |
| Model:                 | OLS                  | Adj. R-squared:     | 0.942    |                          |
| Method:                | Least Squares        | F-statistic:        | 1162.    |                          |
| Date:                  | Tue, 19 Dec 2017     | Prob (F-statistic): | 9.60e-46 |                          |
| Time:                  | 11:11:30             | Log-Likelihood:     | 78.617   |                          |
| No. Observations:      | 73                   | AIC:                | -153.2   |                          |
| Df Residuals:          | 71                   | BIC:                | -148.7   |                          |
| Df Model:              | 1                    |                     |          |                          |
|                        | coef                 | std err             | t        | P> t  [95.0% Conf. Int.] |
| VW2017_f07df1c503/rv   | 1.0733               | 0.784               | 1.369    | 0.175 -0.490 2.637       |
| Omnibus:               | 23.827               | Durbin-Watson:      | 1.697    |                          |
| Prob(Omnibus):         | 0.000                | Jarque-Bera (JB):   | 77.022   |                          |
| Skew:                  | -0.875               | Prob(JB):           | 1.88e-17 |                          |
| Kurtosis:              | 7.718                | Cond. No.           | 2.56e+03 |                          |



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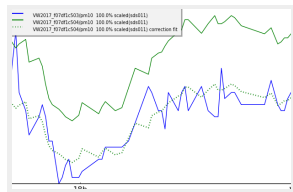
# Summary of correlations of sensor kits and sensor modules

Sensorkits: VW2017\_f07df1c503 VW2017\_f07df1c504  
Report generated on: Tue Dec 19 11:11:36 CET 2017

## R-square and statistical summary

### Measurement PM10 correlation key values

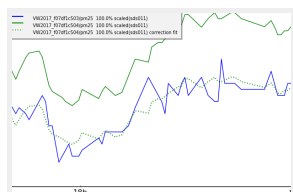
Correlation 1 - **PM10** - kit VW2017\_f07df1c503 sensor type**SDS011** with kit VW2017\_f07df1c504 sensor type**SDS011**:



nr samples 55, min= 3.03, max= 4.77  
avg= 4.05, std dev= 0.56  
**R-squared:**  
**0.6283**  
Best fit polynomial coefficients:  
[ 8.795e-02, 7.450e-01]

### Measurement PM2.5 correlation key values

Correlation 2 - **PM2.5** - kit VW2017\_f07df1c503 sensor type**SDS011** with kit VW2017\_f07df1c504 sensor type**SDS011**:



nr samples 55, min= 2.83, max= 4.37  
avg= 3.70, std dev= 0.50  
**R-squared:**  
**0.7492**  
Best fit polynomial coefficients:  
[ 1.545e-01, 7.205e-01]

### Measurement TEMP correlation key values

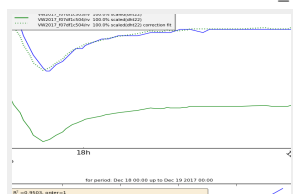
Correlation 3 - **TEMP** - kit VW2017\_f07df1c503 sensor type**DHT22** with kit VW2017\_f07df1c504 sensor type**DHT22**:

nr samples 55, min=22.60, max=24.05  
avg=23.04, std dev= 0.43  
**R-squared:**  
**0.9748**

Best fit polynomial coefficients:  
[ 3.807e-01, 9.928e-01]

### Measurement RH correlation key values

Correlation 4 - **RH** - kit VW2017\_f07df1c503 sensor type**DHT22** with kit VW2017\_f07df1c504 sensor type**DHT22**:



nr samples 55, min=28.70, max=30.13  
avg=29.58, std dev= 0.36  
**R-squared:**  
**0.9503**  
Best fit polynomial coefficients:  
[ -2.799e+00, 1.175e+00]

Sensor sds011@VW2017\_f07df1c503 with  
sensor sds011@VW2017\_f07df1c504

correlation report for pm10 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c503 with project VW2017 sensor kit ID f07df1c504  
Date of correlation report: Tue Dec 19 11:11:35 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Auto interval samples is (re)set to 1256 (avg+2\*stddev)  
Database table VW2017\_f07df1c503 sensor (column) pm10: 55 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c504 sensor (column) pm10: 83 db records, deleted 0 NaN records.  
Collected 55 values in sample time frame (20m/56s) for the graph.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 20m:56s.

Data from table/sheet VW2017\_f07df1c504, sensor (column) pm10:

number 55, min= 3.03, max= 4.77

avg= 4.05, std dev= 0.56

R-squared (R²) with VW2017\_f07df1c504/pm10: 0.6283

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c503/pm10 (sds011)-> best fit coefficients:

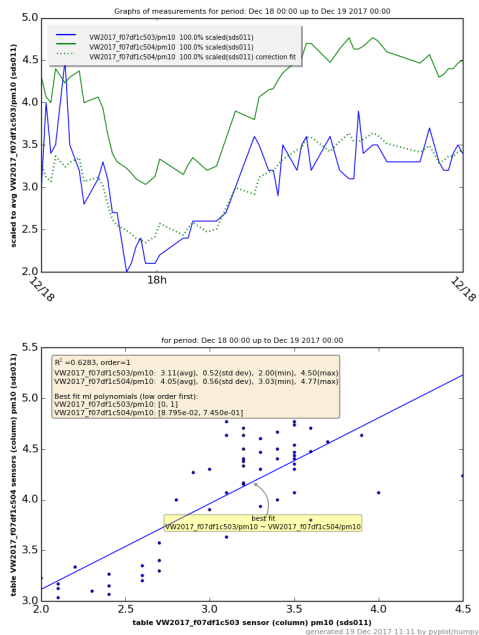
8.795e-02, 7.450e-01

Statistical summary linear regression for VW2017\_f07df1c503/pm10 with [VW2017\_f07df1c504/pm10]:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c503/pm10 | R-squared:          | 0.628    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.621    |
| Method:                | Least Squares          | F-statistic:        | 89.59    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 5.55e-13 |
| Time:                  | 11:11:35               | Log-Likelihood:     | -15.220  |
| No. Observations:      | 55                     | AIC:                | 34.44    |
| Df Residuals:          | 53                     | BIC:                | 38.46    |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c504/pm10 | 0.0879 | 0.322   | 0.273 | 0.786 | -0.558 0.733       |

|                |        |                   |          |
|----------------|--------|-------------------|----------|
| Omnibus:       | 24.468 | Durbin-Watson:    | 1.518    |
| Prob(Omnibus): | 0.000  | Jarque-Bera (JB): | 45.624   |
| Skew:          | 1.391  | Prob(JB):         | 1.24e-10 |
| Kurtosis:      | 6.489  | Cond. No.         | 31.8     |



Sensor sds011@VW2017\_f07df1c503 with  
sensor sds011@VW2017\_f07df1c504

correlation report for pm25 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c503 with project VW2017 sensor kit ID f07df1c504  
Date of correlation report: Tue Dec 19 11:11:36 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Auto interval samples is (re)set to 1256 (avg+2\*stddev)  
Database table VW2017\_f07df1c503 sensor (column) pm25: 55 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c504 sensor (column) pm25: 83 db records, deleted 0 NaN records.  
Collected 55 values in sample time frame (20m/56s) for the graph.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 20m:56s.

Data from table/sheet VW2017\_f07df1c504, sensor (column) pm25:

number 55, min= 2.83, max= 4.37

avg= 3.70, std dev= 0.50

R-squared (R²) with VW2017\_f07df1c504/pm25: 0.7492

Best fit linear single polynomial regression curve (A0\*X<sup>0</sup> + A1\*X<sup>1</sup>):

VW2017\_f07df1c503/pm25 (sds011)-> best fit coefficients:

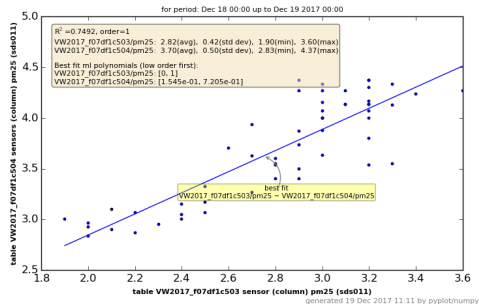
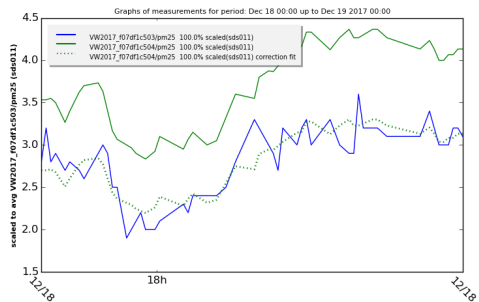
1.545e-01, 7.205e-01

Statistical summary linear regression for VW2017\_f07df1c503/pm25 with [VW2017\_f07df1c504/pm25]:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c503/pm25 | R-squared:          | 0.749    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.745    |
| Method:                | Least Squares          | F-statistic:        | 158.4    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 1.51e-17 |
| Time:                  | 11:11:37               | Log-Likelihood:     | 8.3414   |
| No. Observations:      | 55                     | AIC:                | -12.68   |
| Df Residuals:          | 53                     | BIC:                | -8.668   |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c504/pm25 | 0.1545 | 0.214   | 0.723 | 0.473 | -0.274 0.583       |

|                |       |                   |       |
|----------------|-------|-------------------|-------|
| Omnibus:       | 1.943 | Durbin-Watson:    | 1.399 |
| Prob(Omnibus): | 0.379 | Jarque-Bera (JB): | 1.227 |
| Skew:          | 0.338 | Prob(JB):         | 0.541 |
| Kurtosis:      | 3.279 | Cond. No.         | 29.9  |





Sensor dht22@VW2017\_f07df1c503 with  
sensor dht22@VW2017\_f07df1c504

correlation report for temp (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c503 with project VW2017 sensor kit ID f07df1c504  
Date of correlation report: Tue Dec 19 11:11:38 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time serie data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Auto interval samples is (re)set to 1256 (avg+2\*stddev)  
Database table VW2017\_f07df1c503 sensor (column) temp: 55 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c504 sensor (column) temp: 83 db records, deleted 0 NaN records.  
Collected 55 values in sample time frame (20m/56s) for the graph.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 20m:56s.

Data from table/sheet VW2017\_f07df1c504, sensor (column) temp:

number 55, min=22.60, max=24.05

avg=23.04, std dev= 0.43

R-squared (R²) with VW2017\_f07df1c504/temp: 0.9748

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c503/temp (dht22)-> best fit coefficients:

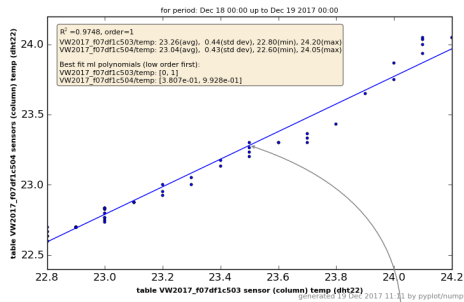
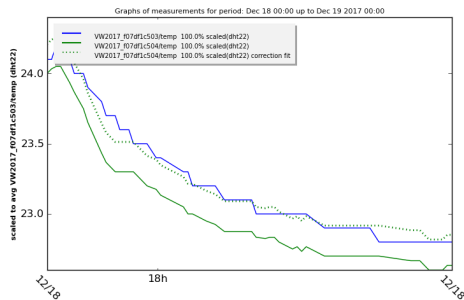
3.807e-01, 9.928e-01

Statistical summary linear regression for VW2017\_f07df1c503/temp with ['VW2017\_f07df1c504/temp']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c503/temp | R-squared:          | 0.975    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.974    |
| Method:                | Least Squares          | F-statistic:        | 2050.    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 4.79e-44 |
| Time:                  | 11:11:39               | Log-Likelihood:     | 68.893   |
| No. Observations:      | 55                     | AIC:                | -133.8   |
| Df Residuals:          | 53                     | BIC:                | -129.8   |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c504/temp | 0.3807 | 0.505   | 0.753 | 0.455 | -0.633 1.394       |

|                |       |                   |          |
|----------------|-------|-------------------|----------|
| Omnibus:       | 2.784 | Durbin-Watson:    | 0.520    |
| Prob(Omnibus): | 0.249 | Jarque-Bera (JB): | 1.863    |
| Skew:          | 0.383 | Prob(JB):         | 0.394    |
| Kurtosis:      | 3.476 | Cond. No.         | 1.23e+03 |



best fit  
VW2017\_f07df1c503temp - VW2017\_f07df1c504temp

Sensor dht22@VW2017\_f07df1c503 with  
sensor dht22@VW2017\_f07df1c504

correlation report for rh (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c503 with project VW2017 sensor kit ID f07df1c504  
Date of correlation report: Tue Dec 19 11:11:40 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Auto interval samples is (re)set to 1256 (avg+2\*stddev)  
Database table VW2017\_f07df1c503 sensor (column) rv: 55 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c504 sensor (column) rv: 83 db records, deleted 0 NaN records.  
Collected 55 values in sample time frame (20m/56s) for the graph.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 20m:56s.

Data from table/sheet VW2017\_f07df1c504, sensor (column) rv:

number 55, min=28.70, max=30.13

avg=29.58, std dev= 0.36

R-squared (R²) with VW2017\_f07df1c504/rv: 0.9503

Best fit linear single polynomial regression curve (A<sub>0</sub>\*X<sup>0</sup> + A<sub>1</sub>\*X<sup>1</sup>):

VW2017\_f07df1c503/rv (dht22)-> best fit coefficients:

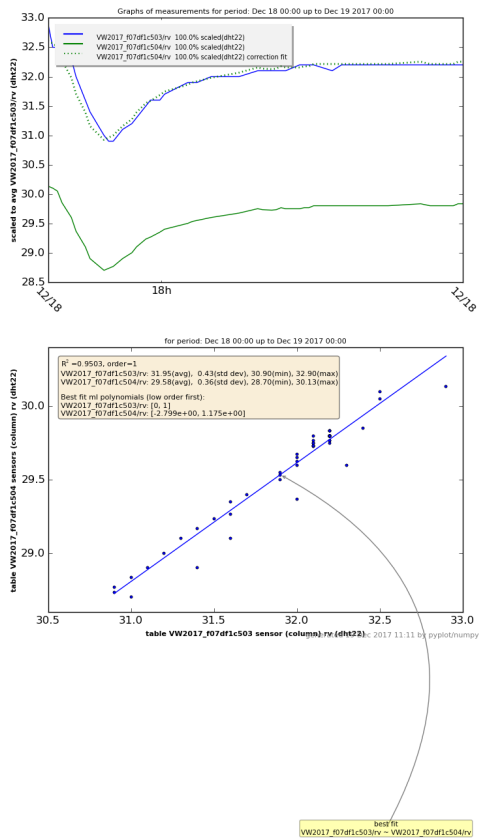
-2.799e+00, 1.175e+00

Statistical summary linear regression for VW2017\_f07df1c503/rv with [VW2017\_f07df1c504/rv]:

| OLS Regression Results |                      |                     |          |
|------------------------|----------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c503/rv | R-squared:          | 0.950    |
| Model:                 | OLS                  | Adj. R-squared:     | 0.949    |
| Method:                | Least Squares        | F-statistic:        | 1014.    |
| Date:                  | Tue, 19 Dec 2017     | Prob (F-statistic): | 3.15e-36 |
| Time:                  | 11:11:41             | Log-Likelihood:     | 50.642   |
| No. Observations:      | 55                   | AIC:                | -97.28   |
| Df Residuals:          | 53                   | BIC:                | -93.27   |
| Df Model:              | 1                    |                     |          |

|                      | coef    | std err | t      | P> t  | [95.0% Conf. Int.] |
|----------------------|---------|---------|--------|-------|--------------------|
| VW2017_f07df1c504/rv | -2.7985 | 1.092   | -2.564 | 0.013 | -4.988 -0.609      |

|                |        |                   |          |
|----------------|--------|-------------------|----------|
| Omnibus:       | 34.599 | Durbin-Watson:    | 0.620    |
| Prob(Omnibus): | 0.000  | Jarque-Bera (JB): | 69.904   |
| Skew:          | 2.060  | Prob(JB):         | 6.62e-16 |
| Kurtosis:      | 6.679  | Cond. No.         | 2.44e+03 |



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# Summary of correlations of sensor kits and sensor modules

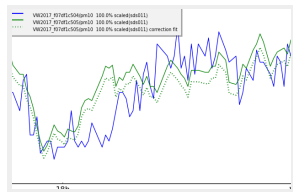
Sensorkits: VW2017\_f07df1c504 VW2017\_f07df1c505

Report generated on: Tue Dec 19 11:11:46 CET 2017

## R-square and statistical summary

### Measurement PM10 correlation key values

Correlation 1 - **PM10** - kit VW2017\_f07df1c504 sensor type**SDS011** with kit VW2017\_f07df1c505 sensor type**SDS011**:

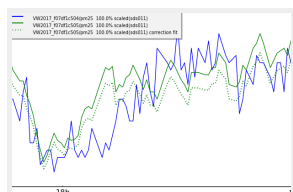


nr samples 77, min= 3.03, max= 4.97  
avg= 4.18, std dev= 0.46  
**R-squared:**  
**0.5091**

Best fit polynomial coefficients:  
[ 6.539e-02, 9.415e-01]

### Measurement PM2.5 correlation key values

Correlation 2 - **PM2.5** - kit VW2017\_f07df1c504 sensor type**SDS011** with kit VW2017\_f07df1c505 sensor type**SDS011**:

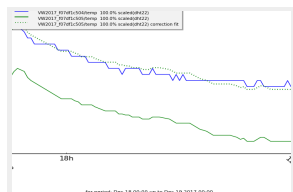


nr samples 77, min= 2.83, max= 4.60  
avg= 3.88, std dev= 0.43  
**R-squared:**  
**0.5057**

Best fit polynomial coefficients:  
[ 2.001e-01, 8.987e-01]

### Measurement TEMP correlation key values

Correlation 3 - **TEMP** - kit VW2017\_f07df1c504 sensor type**DHT22** with kit VW2017\_f07df1c505 sensor type**DHT22**:



nr samples 77, min=21.70, max=22.90  
avg=22.14, std dev= 0.34  
**R-squared:**  
**0.8794**

Best fit polynomial coefficients:  
[ 3.117e+00, 8.957e-01]

### Measurement RH correlation key values

Correlation 4 - **RH** - kit VW2017\_f07df1c504 sensor type**DHT22** with kit VW2017\_f07df1c505 sensor type**DHT22**:

nr samples 77, min=31.00, max=32.90  
avg=32.37, std dev= 0.54  
**R-squared:**  
**0.8973**

Best fit polynomial coefficients:  
[ 1.071e+01, 5.824e-01]

Sensor sds011@VW2017\_f07df1c504 with  
sensor sds011@VW2017\_f07df1c505

correlation report for pm10 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c504 with project VW2017 sensor kit ID f07df1c505  
Date of correlation report: Tue Dec 19 11:11:44 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time serie data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c504 sensor (column) pm10: 83 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c505 sensor (column) pm10: 81 db records, deleted 0 NaN records.  
Collected 77 values in sample time frame (15m/0s) for the graph. Skipped 6 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c505, sensor (column) pm10:

number 77, min= 3.03, max= 4.97

avg= 4.18, std dev= 0.46

R-squared (R²) with VW2017\_f07df1c505/pm10: 0.5091

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c504/pm10 (sds011)-> best fit coefficients:

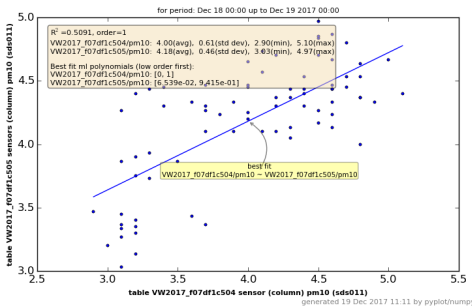
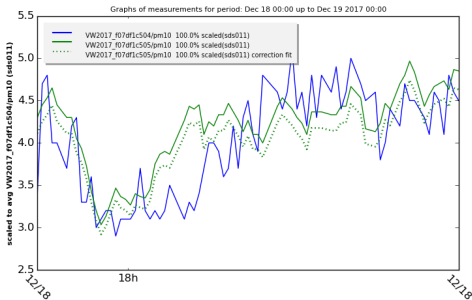
6.539e-02, 9.415e-01

Statistical summary linear regression for VW2017\_f07df1c504/pm10 with ['VW2017\_f07df1c505/pm10']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c504/pm10 | R-squared:          | 0.509    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.503    |
| Method:                | Least Squares          | F-statistic:        | 77.79    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 3.28e-13 |
| Time:                  | 11:11:45               | Log-Likelihood:     | -44.119  |
| No. Observations:      | 77                     | AIC:                | 92.24    |
| Df Residuals:          | 75                     | BIC:                | 96.93    |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c505/pm10 | 0.0654 | 0.449   | 0.146 | 0.885 | -0.830 0.960       |

|                |        |                   |       |
|----------------|--------|-------------------|-------|
| Omnibus:       | 0.512  | Durbin-Watson:    | 0.976 |
| Prob(Omnibus): | 0.774  | Jarque-Bera (JB): | 0.624 |
| Skew:          | -0.176 | Prob(JB):         | 0.732 |
| Kurtosis:      | 2.735  | Cond. No.         | 40.3  |



Sensor sds011@VW2017\_f07df1c504 with  
sensor sds011@VW2017\_f07df1c505

correlation report for pm25 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c504 with project VW2017 sensor kit ID f07df1c505  
Date of correlation report: Tue Dec 19 11:11:46 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c504 sensor (column) pm25: 83 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c505 sensor (column) pm25: 81 db records, deleted 0 NaN records.  
Collected 77 values in sample time frame (15m/0s) for the graph. Skipped 6 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c505, sensor (column) pm25:

number 77, min= 2.83, max= 4.60

avg= 3.88, std dev= 0.43

R-squared (R²) with VW2017\_f07df1c505/pm25: 0.5057

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c504/pm25 (sds011)-> best fit coefficients:

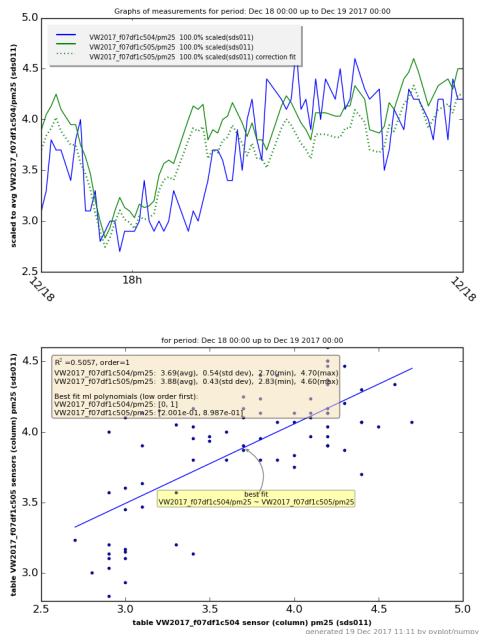
2.001e-01, 8.987e-01

Statistical summary linear regression for VW2017\_f07df1c504/pm25 with ['VW2017\_f07df1c505/pm25']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c504/pm25 | R-squared:          | 0.506    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.499    |
| Method:                | Least Squares          | F-statistic:        | 76.72    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 4.27e-13 |
| Time:                  | 11:11:47               | Log-Likelihood:     | -34.490  |
| No. Observations:      | 77                     | AIC:                | 72.98    |
| Df Residuals:          | 75                     | BIC:                | 77.67    |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c505/pm25 | 0.2001 | 0.401   | 0.499 | 0.619 | -0.598 0.998       |

|                |        |                   |       |
|----------------|--------|-------------------|-------|
| Omnibus:       | 0.197  | Durbin-Watson:    | 0.865 |
| Prob(Omnibus): | 0.906  | Jarque-Bera (JB): | 0.210 |
| Skew:          | -0.112 | Prob(JB):         | 0.900 |
| Kurtosis:      | 2.876  | Cond. No.         | 38.1  |



Sensor dht22@VW2017\_f07df1c504 with  
sensor dht22@VW2017\_f07df1c505

correlation report for temp (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c504 with project VW2017 sensor kit ID f07df1c505  
Date of correlation report: Tue Dec 19 11:11:48 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c504 sensor (column) temp: 83 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c505 sensor (column) temp: 80 db records, deleted 1 NaN records.  
Collected 77 values in sample time frame (15m/0s) for the graph. Skipped 6 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c505, sensor (column) temp:

number 77, min=21.70, max=22.90

avg=22.14, std dev= 0.34

R-squared (R²) with VW2017\_f07df1c505/temp: 0.8794

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c504/temp (dht22)-> best fit coefficients:

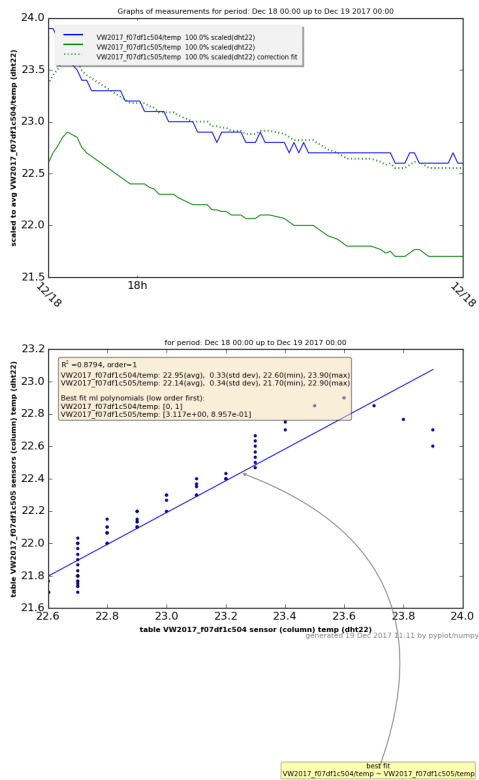
3.117e+00, 8.957e-01

Statistical summary linear regression for VW2017\_f07df1c504/temp with ['VW2017\_f07df1c505/temp']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c504/temp | R-squared:          | 0.879    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.878    |
| Method:                | Least Squares          | F-statistic:        | 546.8    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 3.50e-36 |
| Time:                  | 11:11:49               | Log-Likelihood:     | 58.632   |
| No. Observations:      | 77                     | AIC:                | -113.3   |
| Df Residuals:          | 75                     | BIC:                | -108.6   |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c505/temp | 3.1167 | 0.848   | 3.675 | 0.000 | 1.427 4.806        |

|                |        |                   |          |
|----------------|--------|-------------------|----------|
| Omnibus:       | 57.790 | Durbin-Watson:    | 0.297    |
| Prob(Omnibus): | 0.000  | Jarque-Bera (JB): | 274.778  |
| Skew:          | 2.313  | Prob(JB):         | 2.15e-60 |
| Kurtosis:      | 11.015 | Cond. No.         | 1.44e+03 |



Sensor dht22@VW2017\_f07df1c504 with  
sensor dht22@VW2017\_f07df1c505

correlation report for rh (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c504 with project VW2017 sensor kit ID f07df1c505  
Date of correlation report: Tue Dec 19 11:11:50 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c504 sensor (column) rv: 83 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c505 sensor (column) rv: 80 db records, deleted 1 NaN records.  
Collected 77 values in sample time frame (15m/0s) for the graph. Skipped 6 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c505, sensor (column) rv:

number 77, min=31.00, max=32.90

avg=32.37, std dev= 0.54

R-squared (R²) with VW2017\_f07df1c505/rv: 0.8973

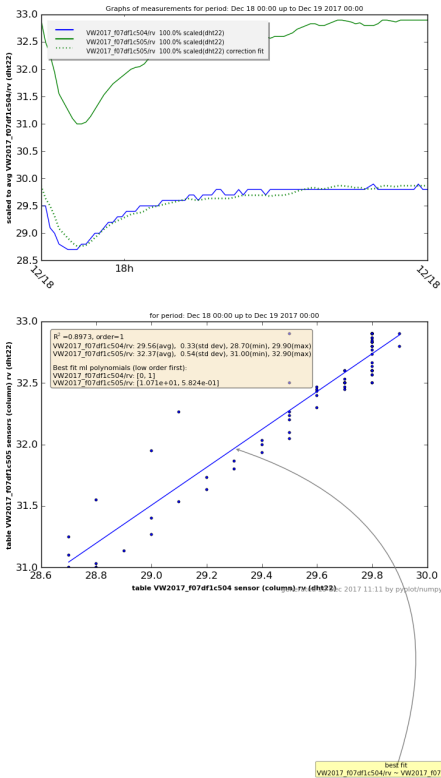
Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c504/rv (dht22)-> best fit coefficients:

1.071e+01, 5.824e-01

Statistical summary linear regression for VW2017\_f07df1c504/rv with [VW2017\_f07df1c505/rv]:

| OLS Regression Results |                      |                     |          |                          |
|------------------------|----------------------|---------------------|----------|--------------------------|
| Dep. Variable:         | VW2017_f07df1c504/rv | R-squared:          | 0.897    |                          |
| Model:                 | OLS                  | Adj. R-squared:     | 0.896    |                          |
| Method:                | Least Squares        | F-statistic:        | 655.3    |                          |
| Date:                  | Tue, 19 Dec 2017     | Prob (F-statistic): | 8.33e-39 |                          |
| Time:                  | 11:11:51             | Log-Likelihood:     | 62.575   |                          |
| No. Observations:      | 77                   | AIC:                | -121.2   |                          |
| Df Residuals:          | 75                   | BIC:                | -116.5   |                          |
| Df Model:              | 1                    |                     |          |                          |
|                        | coef                 | std err             | t        | P> t  [95.0% Conf. Int.] |
| VW2017_f07df1c505/rv   | 10.7090              | 0.737               | 14.538   | 0.000 9.242 12.176       |
| Omnibus:               | 35.431               | Durbin-Watson:      | 0.410    |                          |
| Prob(Omnibus):         | 0.000                | Jarque-Bera (JB):   | 75.108   |                          |
| Skew:                  | -1.650               | Prob(JB):           | 4.90e-17 |                          |
| Kurtosis:              | 6.539                | Cond. No.           | 1.93e+03 |                          |





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| Sensor sds011@VW2017_f07df1c505 with sensor sds011@VW2017_f07df1c506 correlation report for pm25 (raw) measurements | 4 |
| General statistical information for the measurements graphs   | 4 |
| Sensor dht22@VW2017_f07df1c505 with sensor dht22@VW2017_f07df1c506 correlation report for temp (raw) measurements   | 5 |
| General statistical information for the measurements graphs   | 5 |
| Sensor dht22@VW2017_f07df1c505 with sensor dht22@VW2017_f07df1c506 correlation report for rh (raw) measurements     | 6 |
| General statistical information for the measurements graphs   | 6 |

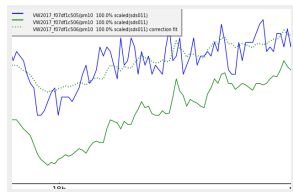
# Summary of correlations of sensor kits and sensor modules

Sensorkits: VW2017\_f07df1c505 VW2017\_f07df1c506  
Report generated on: Tue Dec 19 11:11:56 CET 2017

## R-square and statistical summary

### Measurement PM10 correlation key values

Correlation 1 - **PM10** - kit VW2017\_f07df1c505 sensor type**SDS011** with kit VW2017\_f07df1c506 sensor type**SDS011**:

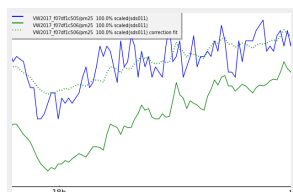


nr samples 81, min= 1.90, max= 4.20  
avg= 3.05, std dev= 0.63  
**R-squared:**  
**0.5510**

Best fit polynomial coefficients:  
[ 2.382e+00, 5.918e-01]

### Measurement PM2.5 correlation key values

Correlation 2 - **PM2.5** - kit VW2017\_f07df1c505 sensor type**SDS011** with kit VW2017\_f07df1c506 sensor type**SDS011**:



nr samples 81, min= 1.80, max= 3.90  
avg= 2.84, std dev= 0.58  
**R-squared:**  
**0.5420**

Best fit polynomial coefficients:  
[ 2.208e+00, 5.910e-01]

### Measurement TEMP correlation key values

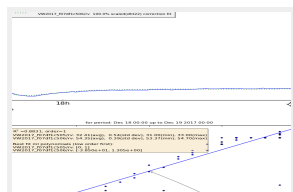
Correlation 3 - **TEMP** - kit VW2017\_f07df1c505 sensor type**DHT22** with kit VW2017\_f07df1c506 sensor type**DHT22**:

nr samples 80, min=23.70, max=25.00  
avg=24.10, std dev= 0.34  
**R-squared:**  
**0.9372**

Best fit polynomial coefficients:  
[ -6.822e-02, 9.204e-01]

### Measurement RH correlation key values

Correlation 4 - **RH** - kit VW2017\_f07df1c505 sensor type**DHT22** with kit VW2017\_f07df1c506 sensor type**DHT22**:



nr samples 80, min=53.37, max=54.70  
avg=54.35, std dev= 0.39  
**R-squared:**  
**0.8831**

Best fit polynomial coefficients:  
[ -3.850e+01, 1.305e+00]

Sensor sds011@VW2017\_f07df1c505 with  
sensor sds011@VW2017\_f07df1c506

correlation report for pm10 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c505 with project VW2017 sensor kit ID f07df1c506  
Date of correlation report: Tue Dec 19 11:11:54 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c505 sensor (column) pm10: 81 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c506 sensor (column) pm10: 84 db records, deleted 0 NaN records.  
Collected 81 values in sample time frame (15m/0s) for the graph.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c506, sensor (column) pm10:

number 81, min= 1.90, max= 4.20

avg= 3.05, std dev= 0.63

R-squared (R²) with VW2017\_f07df1c506/pm10: 0.5510

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c505/pm10 (sds011)-> best fit coefficients:

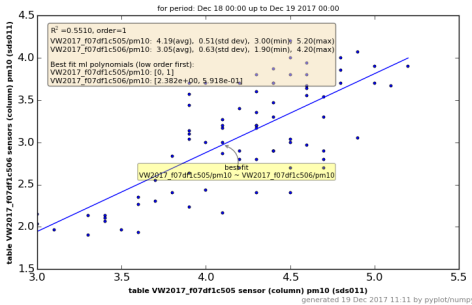
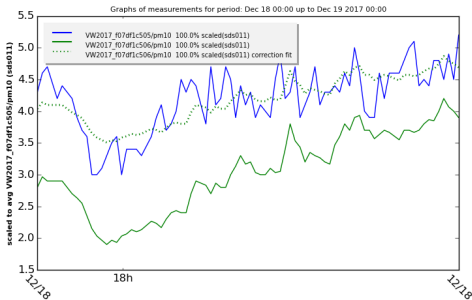
2.382e+00, 5.918e-01

Statistical summary linear regression for VW2017\_f07df1c505/pm10 with ['VW2017\_f07df1c506/pm10']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c505/pm10 | R-squared:          | 0.551    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.545    |
| Method:                | Least Squares          | F-statistic:        | 96.94    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 2.20e-15 |
| Time:                  | 11:11:55               | Log-Likelihood:     | -27.252  |
| No. Observations:      | 81                     | AIC:                | 58.50    |
| Df Residuals:          | 79                     | BIC:                | 63.29    |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t      | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|--------|-------|--------------------|
| VW2017_f07df1c506/pm10 | 2.3818 | 0.187   | 12.706 | 0.000 | 2.009 2.755        |

|                |       |                   |       |
|----------------|-------|-------------------|-------|
| Omnibus:       | 1.512 | Durbin-Watson:    | 1.252 |
| Prob(Omnibus): | 0.470 | Jarque-Bera (JB): | 1.429 |
| Skew:          | 0.209 | Prob(JB):         | 0.489 |
| Kurtosis:      | 2.502 | Cond. No.         | 16.9  |



Sensor sds011@VW2017\_f07df1c505 with  
sensor sds011@VW2017\_f07df1c506

correlation report for pm25 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c505 with project VW2017 sensor kit ID f07df1c506  
Date of correlation report: Tue Dec 19 11:11:56 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time serie data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c505 sensor (column) pm25: 81 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c506 sensor (column) pm25: 84 db records, deleted 0 NaN records.  
Collected 81 values in sample time frame (15m/0s) for the graph.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c506, sensor (column) pm25:

number 81, min= 1.80, max= 3.90

avg= 2.84, std dev= 0.58

R-squared (R²) with VW2017\_f07df1c506/pm25: 0.5420

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c505/pm25 (sds011)-> best fit coefficients:

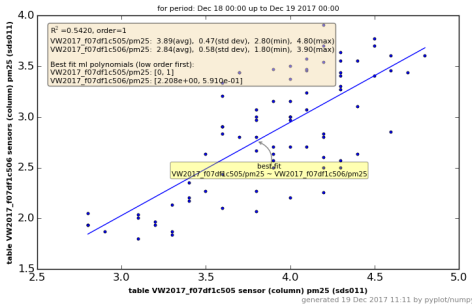
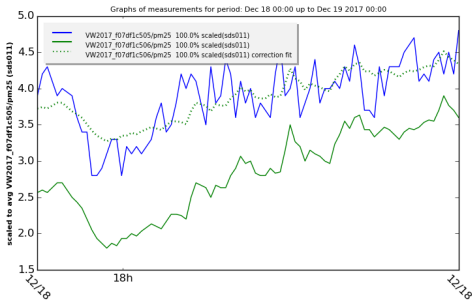
2.208e+00, 5.910e-01

Statistical summary linear regression for VW2017\_f07df1c505/pm25 with ['VW2017\_f07df1c506/pm25']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c505/pm25 | R-squared:          | 0.542    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.536    |
| Method:                | Least Squares          | F-statistic:        | 93.47    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 4.85e-15 |
| Time:                  | 11:11:56               | Log-Likelihood:     | -21.394  |
| No. Observations:      | 81                     | AIC:                | 46.79    |
| Df Residuals:          | 79                     | BIC:                | 51.58    |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t      | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|--------|-------|--------------------|
| VW2017_f07df1c506/pm25 | 2.2077 | 0.177   | 12.440 | 0.000 | 1.854 2.561        |

|                |       |                   |       |
|----------------|-------|-------------------|-------|
| Omnibus:       | 1.499 | Durbin-Watson:    | 1.259 |
| Prob(Omnibus): | 0.473 | Jarque-Bera (JB): | 1.471 |
| Skew:          | 0.234 | Prob(JB):         | 0.479 |
| Kurtosis:      | 2.535 | Cond. No.         | 16.2  |



Sensor dht22@VW2017\_f07df1c505 with  
sensor dht22@VW2017\_f07df1c506

correlation report for temp (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c505 with project VW2017 sensor kit ID f07df1c506  
Date of correlation report: Tue Dec 19 11:11:58 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c505 sensor (column) temp: 80 db records, deleted 1 NaN records.  
Database table VW2017\_f07df1c506 sensor (column) temp: 81 db records, deleted 3 NaN records.  
Collected 80 values in sample time frame (15m/0s) for the graph.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c506, sensor (column) temp:

number 80, min=23.70, max=25.00

avg=24.10, std dev= 0.34

R-squared (R²) with VW2017\_f07df1c506/temp: 0.9372

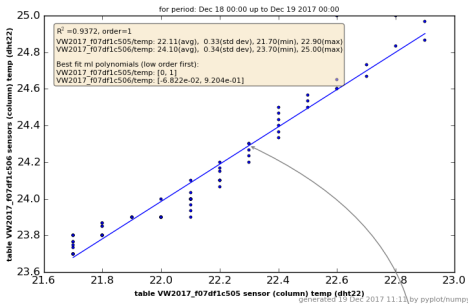
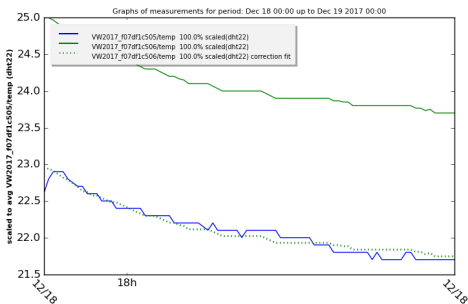
Best fit linear single polynomial regression curve (A<sub>0</sub>\*X<sup>0</sup> + A<sub>1</sub>\*X<sup>1</sup>):

VW2017\_f07df1c505/temp (dht22)-> best fit coefficients:

-6.822e-02, 9.204e-01

Statistical summary linear regression for VW2017\_f07df1c505/temp with ['VW2017\_f07df1c506/temp']:

| OLS Regression Results |                        |                     |          |                          |
|------------------------|------------------------|---------------------|----------|--------------------------|
| Dep. Variable:         | VW2017_f07df1c505/temp | R-squared:          | 0.937    |                          |
| Model:                 | OLS                    | Adj. R-squared:     | 0.936    |                          |
| Method:                | Least Squares          | F-statistic:        | 1164.    |                          |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 1.23e-48 |                          |
| Time:                  | 11:11:58               | Log-Likelihood:     | 86.538   |                          |
| No. Observations:      | 80                     | AIC:                | -169.1   |                          |
| Df Residuals:          | 78                     | BIC:                | -164.3   |                          |
| Df Model:              | 1                      |                     |          |                          |
|                        |                        |                     |          |                          |
|                        | coef                   | std err             | t        | P> t  [95.0% Conf. Int.] |
| VW2017_f07df1c506/temp | -0.0682                | 0.650               | -0.105   | 0.917 -1.362 1.226       |
|                        |                        |                     |          |                          |
| Omnibus:               | 16.872                 | Durbin-Watson:      | 0.477    |                          |
| Prob(Omnibus):         | 0.000                  | Jarque-Bera (JB):   | 24.806   |                          |
| Skew:                  | -0.871                 | Prob(JB):           | 4.11e-06 |                          |
| Kurtosis:              | 5.099                  | Cond. No.           | 1.69e+03 |                          |



best fit  
VW2017\_f07df1c505/temp - VW2017\_f07df1c506/temp

Sensor dht22@VW2017\_f07df1c505 with  
sensor dht22@VW2017\_f07df1c506

correlation report for rh (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c505 with project VW2017 sensor kit ID f07df1c506  
Date of correlation report: Tue Dec 19 11:12:00 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c505 sensor (column) rv: 80 db records, deleted 1 NaN records.  
Database table VW2017\_f07df1c506 sensor (column) rv: 81 db records, deleted 3 NaN records.  
Collected 80 values in sample time frame (15m/0s) for the graph.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c506, sensor (column) rv:

number 80, min=53.37, max=54.70

avg=54.35, std dev= 0.39

R-squared (R²) with VW2017\_f07df1c506/rv: 0.8831

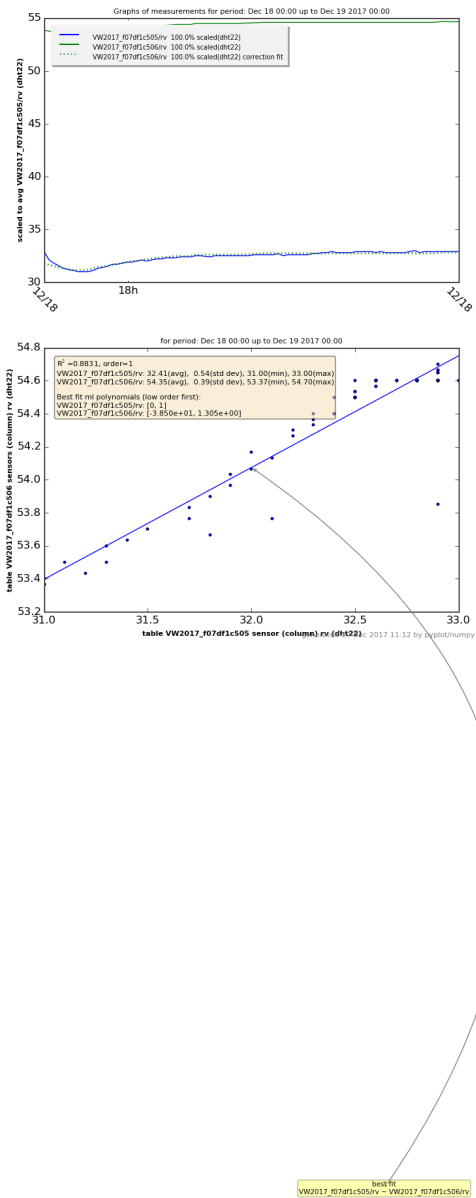
Best fit linear single polynomial regression curve (A<sub>0</sub>\*X<sup>0</sup> + A<sub>1</sub>\*X<sup>1</sup>):

VW2017\_f07df1c505/rv (dht22)-> best fit coefficients:

-3.850e+01, 1.305e+00

Statistical summary linear regression for VW2017\_f07df1c505/rv with [VW2017\_f07df1c506/rv]:

| OLS Regression Results |                      |                     |           |                          |
|------------------------|----------------------|---------------------|-----------|--------------------------|
| Dep. Variable:         | VW2017_f07df1c505/rv | R-squared:          | 0.883     |                          |
| Model:                 | OLS                  | Adj. R-squared:     | 0.882     |                          |
| Method:                | Least Squares        | F-statistic:        | 589.4     |                          |
| Date:                  | Tue, 19 Dec 2017     | Prob (F-statistic): | 4.18e-38  |                          |
| Time:                  | 11:12:00             | Log-Likelihood:     | 22.306    |                          |
| No. Observations:      | 80                   | AIC:                | -40.61    |                          |
| Df Residuals:          | 78                   | BIC:                | -35.85    |                          |
| Df Model:              | 1                    |                     |           |                          |
|                        |                      |                     |           |                          |
|                        | coef                 | std err             | t         | P> t  [95.0% Conf. Int.] |
| VW2017_f07df1c506/rv   | -38.4974             | 2.921               | -13.181   | 0.000 -44.312 -32.683    |
|                        |                      |                     |           |                          |
| Omnibus:               | 86.666               | Durbin-Watson:      | 0.349     |                          |
| Prob(Omnibus):         | 0.000                | Jarque-Bera (JB):   | 1103.480  |                          |
| Skew:                  | 3.252                | Prob(JB):           | 2.41e-240 |                          |
| Kurtosis:              | 19.993               | Cond. No.           | 7.66e+03  |                          |



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# Summary of correlations of sensor kits and sensor modules

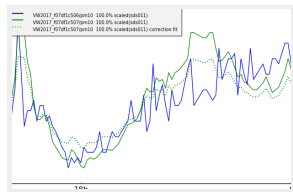
Sensorkits: VW2017\_f07df1c506 VW2017\_f07df1c507

Report generated on: Tue Dec 19 11:12:06 CET 2017

## R-square and statistical summary

### Measurement PM10 correlation key values

Correlation 1 - **PM10** - kit VW2017\_f07df1c506 sensor type**SDS011** with kit VW2017\_f07df1c507 sensor type**SDS011**:



nr samples 83, min= 1.80, max= 4.47

avg= 3.13, std dev= 0.77

**R-squared:**

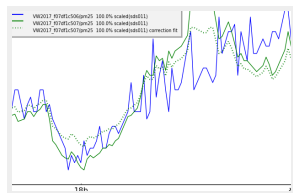
**0.5623**

Best fit polynomial coefficients:

[ 9.778e-01, 6.624e-01]

### Measurement PM2.5 correlation key values

Correlation 2 - **PM2.5** - kit VW2017\_f07df1c506 sensor type**SDS011** with kit VW2017\_f07df1c507 sensor type**SDS011**:



nr samples 83, min= 1.70, max= 4.00

avg= 2.80, std dev= 0.66

**R-squared:**

**0.6469**

Best fit polynomial coefficients:

[ 8.089e-01, 7.120e-01]

### Measurement TEMP correlation key values

Correlation 3 - **TEMP** - kit VW2017\_f07df1c506 sensor type**DHT22** with kit VW2017\_f07df1c507 sensor type**DHT22**:

nr samples 80, min=22.80, max=24.60

avg=23.33, std dev= 0.46

**R-squared:**

**0.9568**

Best fit polynomial coefficients:

[ 2.831e+00, 9.158e-01]

### Measurement RH correlation key values

Correlation 4 - **RH** - kit VW2017\_f07df1c506 sensor type**DHT22** with kit VW2017\_f07df1c507 sensor type**DHT22**:

nr samples 80, min=28.40, max=29.75

avg=29.19, std dev= 0.37

**R-squared:**

**0.9636**

Best fit polynomial coefficients:

[ 2.350e+01, 1.056e+00]



Sensor sds011@VW2017\_f07df1c506 with  
sensor sds011@VW2017\_f07df1c507

correlation report for pm10 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c506 with project VW2017 sensor kit ID f07df1c507  
Date of correlation report: Tue Dec 19 11:12:04 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time serie data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c506 sensor (column) pm10: 84 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c507 sensor (column) pm10: 79 db records, deleted 0 NaN records.  
Collected 83 values in sample time frame (15m/0s) for the graph. Skipped 1 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c507, sensor (column) pm10:

number 83, min= 1.80, max= 4.47

avg= 3.13, std dev= 0.77

R-squared (R²) with VW2017\_f07df1c507/pm10: 0.5623

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c506/pm10 (sds011)-> best fit coefficients:

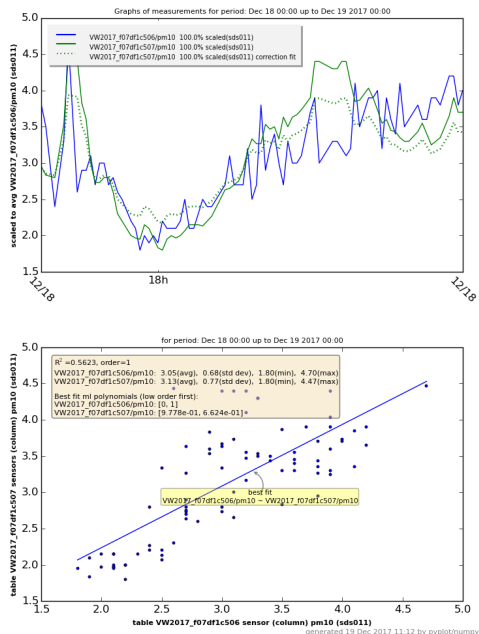
9.778e-01, 6.624e-01

Statistical summary linear regression for VW2017\_f07df1c506/pm10 with [VW2017\_f07df1c507/pm10]:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c506/pm10 | R-squared:          | 0.562    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.557    |
| Method:                | Least Squares          | F-statistic:        | 104.0    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 3.44e-16 |
| Time:                  | 11:12:04               | Log-Likelihood:     | -51.009  |
| No. Observations:      | 83                     | AIC:                | 106.0    |
| Df Residuals:          | 81                     | BIC:                | 110.9    |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c507/pm10 | 0.9778 | 0.209   | 4.671 | 0.000 | 0.561 1.394        |

|                |        |                   |       |
|----------------|--------|-------------------|-------|
| Omnibus:       | 0.080  | Durbin-Watson:    | 1.091 |
| Prob(Omnibus): | 0.961  | Jarque-Bera (JB): | 0.191 |
| Skew:          | -0.068 | Prob(JB):         | 0.909 |
| Kurtosis:      | 2.808  | Cond. No.         | 14.8  |



Sensor sds011@VW2017\_f07df1c506 with  
sensor sds011@VW2017\_f07df1c507

correlation report for pm25 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c506 with project VW2017 sensor kit ID f07df1c507  
Date of correlation report: Tue Dec 19 11:12:06 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time serie data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c506 sensor (column) pm25: 84 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c507 sensor (column) pm25: 79 db records, deleted 0 NaN records.  
Collected 83 values in sample time frame (15m/0s) for the graph. Skipped 1 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c507, sensor (column) pm25:

number 83, min= 1.70, max= 4.00

avg= 2.80, std dev= 0.66

R-squared (R²) with VW2017\_f07df1c507/pm25: 0.6469

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c506/pm25 (sds011)-> best fit coefficients:

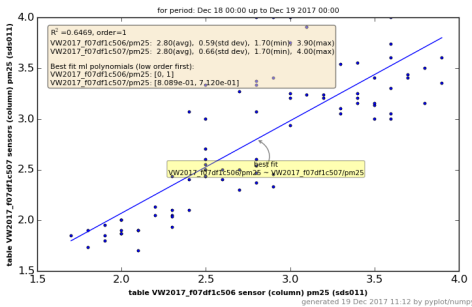
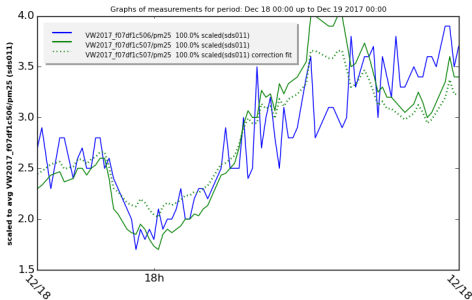
8.089e-01, 7.120e-01

Statistical summary linear regression for VW2017\_f07df1c506/pm25 with ['VW2017\_f07df1c507/pm25']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c506/pm25 | R-squared:          | 0.647    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.643    |
| Method:                | Least Squares          | F-statistic:        | 148.4    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 5.34e-20 |
| Time:                  | 11:12:06               | Log-Likelihood:     | -30.263  |
| No. Observations:      | 83                     | AIC:                | 64.53    |
| Df Residuals:          | 81                     | BIC:                | 69.36    |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c507/pm25 | 0.8089 | 0.168   | 4.805 | 0.000 | 0.474 1.144        |

|                |        |                   |       |
|----------------|--------|-------------------|-------|
| Omnibus:       | 0.313  | Durbin-Watson:    | 0.978 |
| Prob(Omnibus): | 0.855  | Jarque-Bera (JB): | 0.490 |
| Skew:          | -0.064 | Prob(JB):         | 0.783 |
| Kurtosis:      | 2.646  | Cond. No.         | 14.0  |



Sensor dht22@VW2017\_f07df1c506 with  
sensor dht22@VW2017\_f07df1c507

correlation report for temp (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c506 with project VW2017 sensor kit ID f07df1c507  
Date of correlation report: Tue Dec 19 11:12:08 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c506 sensor (column) temp: 81 db records, deleted 3 NaN records.  
Database table VW2017\_f07df1c507 sensor (column) temp: 79 db records, deleted 0 NaN records.  
Collected 80 values in sample time frame (15m/0s) for the graph. Skipped 1 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c507, sensor (column) temp:

number 80, min=22.80, max=24.60

avg=23.33, std dev= 0.46

R-squared (R²) with VW2017\_f07df1c507/temp: 0.9568

Best fit linear single polynomial regression curve (A<sub>0</sub>\*X<sup>0</sup> + A<sub>1</sub>\*X<sup>1</sup>):

VW2017\_f07df1c506/temp (dht22)-> best fit coefficients:

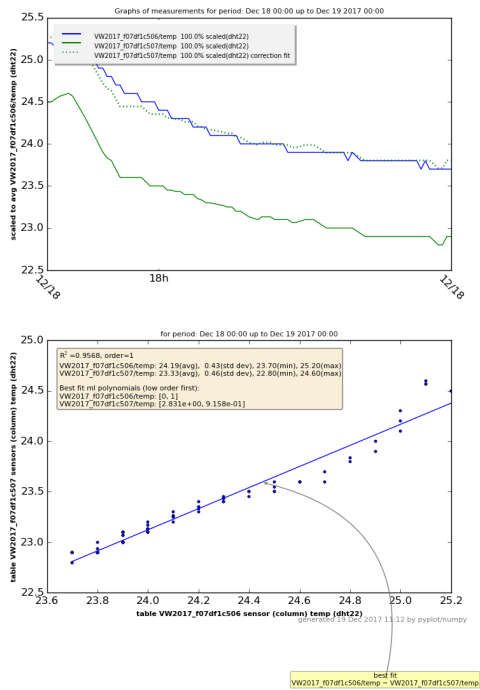
2.831e+00, 9.158e-01

Statistical summary linear regression for VW2017\_f07df1c506/temp with ['VW2017\_f07df1c507/temp']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c506/temp | R-squared:          | 0.957    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.956    |
| Method:                | Least Squares          | F-statistic:        | 1727.    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 5.66e-55 |
| Time:                  | 11:12:08               | Log-Likelihood:     | 79.573   |
| No. Observations:      | 80                     | AIC:                | -155.1   |
| Df Residuals:          | 78                     | BIC:                | -150.4   |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c507/temp | 2.8306 | 0.514   | 5.505 | 0.000 | 1.807 3.854        |

|                |       |                   |          |
|----------------|-------|-------------------|----------|
| Omnibus:       | 4.098 | Durbin-Watson:    | 0.410    |
| Prob(Omnibus): | 0.129 | Jarque-Bera (JB): | 4.823    |
| Skew:          | 0.069 | Prob(JB):         | 0.0897   |
| Kurtosis:      | 4.195 | Cond. No.         | 1.19e+03 |



Sensor dht22@VW2017\_f07df1c506 with  
sensor dht22@VW2017\_f07df1c507

correlation report for rh (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c506 with project VW2017 sensor kit ID f07df1c507  
Date of correlation report: Tue Dec 19 11:12:10 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c506 sensor (column) rv: 81 db records, deleted 3 NaN records.  
Database table VW2017\_f07df1c507 sensor (column) rv: 79 db records, deleted 0 NaN records.  
Collected 80 values in sample time frame (15m/0s) for the graph. Skipped 1 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c507, sensor (column) rv:

number 80, min=28.40, max=29.75

avg=29.19, std dev= 0.37

R-squared (R²) with VW2017\_f07df1c507/rv: 0.9636

Best fit linear single polynomial regression curve (A<sub>0</sub>\*X<sup>0</sup> + A<sub>1</sub>\*X<sup>1</sup>):

VW2017\_f07df1c506/rv (dht22)-> best fit coefficients:

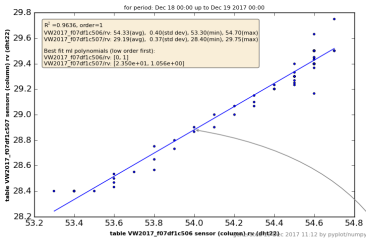
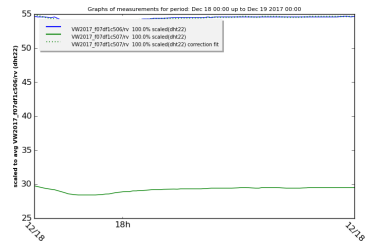
2.350e+01, 1.056e+00

Statistical summary linear regression for VW2017\_f07df1c506/rv with ['VW2017\_f07df1c507/rv']:

| OLS Regression Results |                      |                     |          |
|------------------------|----------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c506/rv | R-squared:          | 0.964    |
| Model:                 | OLS                  | Adj. R-squared:     | 0.963    |
| Method:                | Least Squares        | F-statistic:        | 2064.    |
| Date:                  | Tue, 19 Dec 2017     | Prob (F-statistic): | 7.12e-58 |
| Time:                  | 11:12:10             | Log-Likelihood:     | 92.240   |
| No. Observations:      | 80                   | AIC:                | -180.5   |
| Df Residuals:          | 78                   | BIC:                | -175.7   |
| Df Model:              | 1                    |                     |          |

|                      | coef    | std err | t      | P> t  | [95.0% Conf. Int.] |
|----------------------|---------|---------|--------|-------|--------------------|
| VW2017_f07df1c507/rv | 23.5025 | 0.679   | 34.629 | 0.000 | 22.151 24.854      |

|                |        |                   |          |
|----------------|--------|-------------------|----------|
| Omnibus:       | 9.084  | Durbin-Watson:    | 0.908    |
| Prob(Omnibus): | 0.011  | Jarque-Bera (JB): | 19.323   |
| Skew:          | -0.191 | Prob(JB):         | 6.37e-05 |
| Kurtosis:      | 5.377  | Cond. No.         | 2.29e+03 |



best fit  
VW2017\_f07df1c506/rv - VW2017\_f07df1c507/rv

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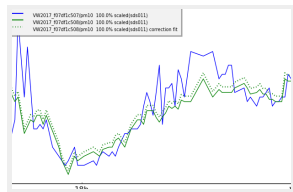
# Summary of correlations of sensor kits and sensor modules

Sensorkits: VW2017\_f07df1c507 VW2017\_f07df1c508  
Report generated on: Tue Dec 19 11:12:15 CET 2017

## R-square and statistical summary

### Measurement PM10 correlation key values

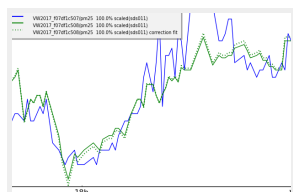
Correlation 1 - **PM10** - kit VW2017\_f07df1c507 sensor type**SDS011** with kit VW2017\_f07df1c508 sensor type**SDS011**:



nr samples 74, min= 1.70, max= 3.85  
avg= 3.01, std dev= 0.54  
**R-squared:**  
**0.5551**  
Best fit polynomial coefficients:  
[ 5.285e-02, 1.020e+00]

### Measurement PM2.5 correlation key values

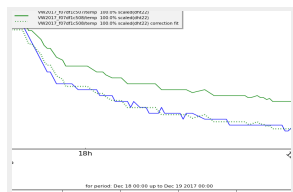
Correlation 2 - **PM2.5** - kit VW2017\_f07df1c507 sensor type**SDS011** with kit VW2017\_f07df1c508 sensor type**SDS011**:



nr samples 74, min= 1.60, max= 3.55  
avg= 2.79, std dev= 0.48  
**R-squared:**  
**0.7005**  
Best fit polynomial coefficients:  
[ -1.967e-01, 1.071e+00]

### Measurement TEMP correlation key values

Correlation 3 - **TEMP** - kit VW2017\_f07df1c507 sensor type**DHT22** with kit VW2017\_f07df1c508 sensor type**DHT22**:



nr samples 74, min=23.30, max=24.70  
avg=23.75, std dev= 0.44  
**R-squared:**  
**0.9862**  
Best fit polynomial coefficients:  
[ -5.063e+00, 1.197e+00]

### Measurement RH correlation key values

Correlation 4 - **RH** - kit VW2017\_f07df1c507 sensor type**DHT22** with kit VW2017\_f07df1c508 sensor type**DHT22**:

nr samples 74, min=29.00, max=30.40  
avg=29.84, std dev= 0.33  
**R-squared:**  
**0.8919**

Best fit polynomial coefficients:  
[ -2.750e+00, 1.071e+00]

Sensor sds011@VW2017\_f07df1c507 with  
sensor sds011@VW2017\_f07df1c508

correlation report for pm10 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c507 with project VW2017 sensor kit ID f07df1c508  
Date of correlation report: Tue Dec 19 11:12:14 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time serie data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c507 sensor (column) pm10: 79 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c508 sensor (column) pm10: 72 db records, deleted 0 NaN records.  
Collected 74 values in sample time frame (15m/0s) for the graph. Skipped 5 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c508, sensor (column) pm10:

number 74, min= 1.70, max= 3.85

avg= 3.01, std dev= 0.54

R-squared (R²) with VW2017\_f07df1c508/pm10: 0.5551

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c507/pm10 (sds011)-> best fit coefficients:

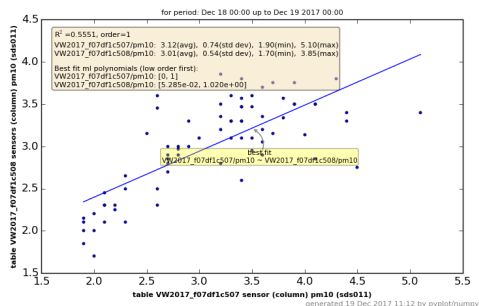
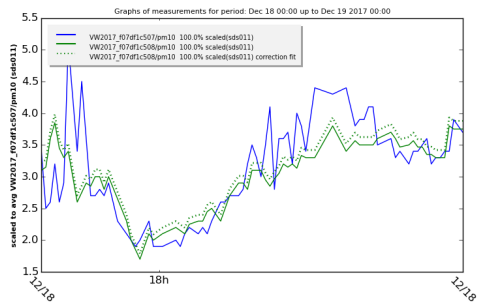
5.285e-02, 1.020e+00

Statistical summary linear regression for VW2017\_f07df1c507/pm10 with ['VW2017\_f07df1c508/pm10']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c507/pm10 | R-squared:          | 0.555    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.549    |
| Method:                | Least Squares          | F-statistic:        | 89.84    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 2.71e-14 |
| Time:                  | 11:12:14               | Log-Likelihood:     | -52.682  |
| No. Observations:      | 74                     | AIC:                | 109.4    |
| Df Residuals:          | 72                     | BIC:                | 114.0    |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_f07df1c508/pm10 | 0.0529 | 0.329   | 0.161 | 0.873 | -0.603 0.709       |

|                |        |                   |          |
|----------------|--------|-------------------|----------|
| Omnibus:       | 16.979 | Durbin-Watson:    | 1.069    |
| Prob(Omnibus): | 0.000  | Jarque-Bera (JB): | 22.558   |
| Skew:          | 0.980  | Prob(JB):         | 1.26e-05 |
| Kurtosis:      | 4.864  | Cond. No.         | 19.1     |



Sensor sds011@VW2017\_f07df1c507 with  
sensor sds011@VW2017\_f07df1c508

correlation report for pm25 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c507 with project VW2017 sensor kit ID f07df1c508  
Date of correlation report: Tue Dec 19 11:12:15 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time serie data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c507 sensor (column) pm25: 79 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c508 sensor (column) pm25: 72 db records, deleted 0 NaN records.  
Collected 74 values in sample time frame (15m/0s) for the graph. Skipped 5 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c508, sensor (column) pm25:

number 74, min= 1.60, max= 3.55

avg= 2.79, std dev= 0.48

R-squared (R²) with VW2017\_f07df1c508/pm25: 0.7005

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c507/pm25 (sds011)-> best fit coefficients:

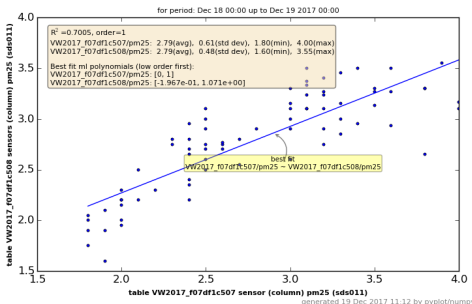
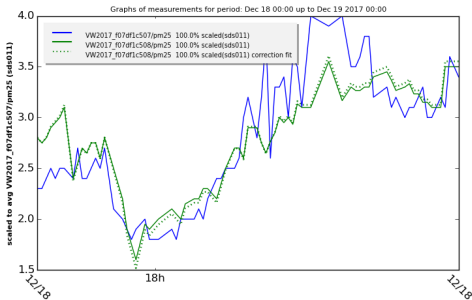
-1.967e-01, 1.071e+00

Statistical summary linear regression for VW2017\_f07df1c507/pm25 with ['VW2017\_f07df1c508/pm25']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c507/pm25 | R-squared:          | 0.701    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.696    |
| Method:                | Least Squares          | F-statistic:        | 168.4    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 1.57e-20 |
| Time:                  | 11:12:16               | Log-Likelihood:     | -24.344  |
| No. Observations:      | 74                     | AIC:                | 52.69    |
| Df Residuals:          | 72                     | BIC:                | 57.30    |
| Df Model:              | 1                      |                     |          |

|                        | coef    | std err | t      | P> t  | [95.0% Conf. Int.] |
|------------------------|---------|---------|--------|-------|--------------------|
| VW2017_f07df1c508/pm25 | -0.1967 | 0.234   | -0.842 | 0.403 | -0.662 0.269       |

|                |        |                   |         |
|----------------|--------|-------------------|---------|
| Omnibus:       | 12.472 | Durbin-Watson:    | 1.062   |
| Prob(Omnibus): | 0.002  | Jarque-Bera (JB): | 13.364  |
| Skew:          | 0.876  | Prob(JB):         | 0.00125 |
| Kurtosis:      | 4.123  | Cond. No.         | 18.7    |





Sensor dht22@VW2017\_f07df1c507 with  
sensor dht22@VW2017\_f07df1c508

correlation report for temp (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c507 with project VW2017 sensor kit ID f07df1c508  
Date of correlation report: Tue Dec 19 11:12:17 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c507 sensor (column) temp: 79 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c508 sensor (column) temp: 71 db records, deleted 1 NaN records.  
Collected 74 values in sample time frame (15m/0s) for the graph. Skipped 5 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c508, sensor (column) temp:

number 74, min=23.30, max=24.70

avg=23.75, std dev= 0.44

R-squared (R²) with VW2017\_f07df1c508/temp: 0.9862

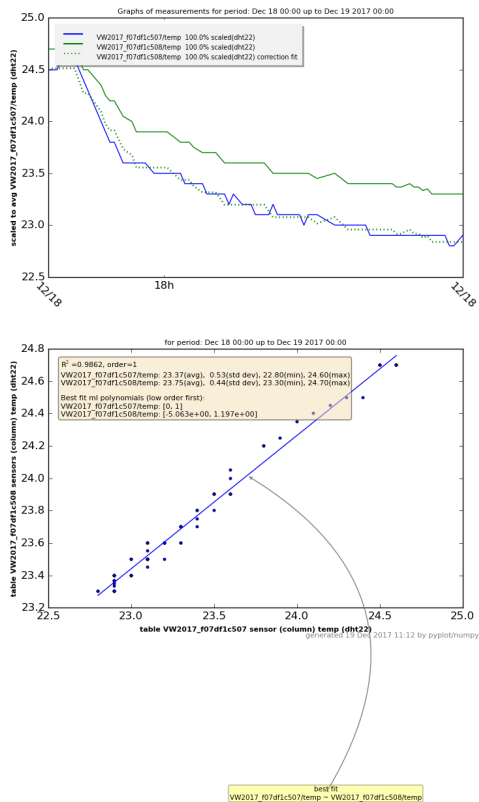
Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c507/temp (dht22)-> best fit coefficients:

-5.063e+00, 1.197e+00

Statistical summary linear regression for VW2017\_f07df1c507/temp with ['VW2017\_f07df1c508/temp']:

| OLS Regression Results |                        |                     |          |                          |
|------------------------|------------------------|---------------------|----------|--------------------------|
| Dep. Variable:         | VW2017_f07df1c507/temp | R-squared:          | 0.986    |                          |
| Model:                 | OLS                    | Adj. R-squared:     | 0.986    |                          |
| Method:                | Least Squares          | F-statistic:        | 5162.    |                          |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 9.16e-69 |                          |
| Time:                  | 11:12:18               | Log-Likelihood:     | 101.15   |                          |
| No. Observations:      | 74                     | AIC:                | -198.3   |                          |
| Df Residuals:          | 72                     | BIC:                | -193.7   |                          |
| Df Model:              | 1                      |                     |          |                          |
|                        | coef                   | std err             | t        | P> t  [95.0% Conf. Int.] |
| VW2017_f07df1c508/temp | -5.0632                | 0.396               | -12.789  | 0.000 -5.852 -4.274      |
| Omnibus:               | 3.078                  | Durbin-Watson:      | 1.050    |                          |
| Prob(Omnibus):         | 0.215                  | Jarque-Bera (JB):   | 1.742    |                          |
| Skew:                  | -0.031                 | Prob(JB):           | 0.419    |                          |
| Kurtosis:              | 2.251                  | Cond. No.           | 1.30e+03 |                          |



Sensor dht22@VW2017\_f07df1c507 with  
sensor dht22@VW2017\_f07df1c508

correlation report for rh (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c507 with project VW2017 sensor kit ID f07df1c508  
Date of correlation report: Tue Dec 19 11:12:19 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c507 sensor (column) rv: 79 db records, deleted 0 NaN records.  
Database table VW2017\_f07df1c508 sensor (column) rv: 70 db records, deleted 2 NaN records.  
Collected 74 values in sample time frame (15m/0s) for the graph. Skipped 5 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_f07df1c508, sensor (column) rv:

number 74, min=29.00, max=30.40

avg=29.84, std dev= 0.33

R-squared (R²) with VW2017\_f07df1c508/rv: 0.8919

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c507/rv (dht22)-> best fit coefficients:

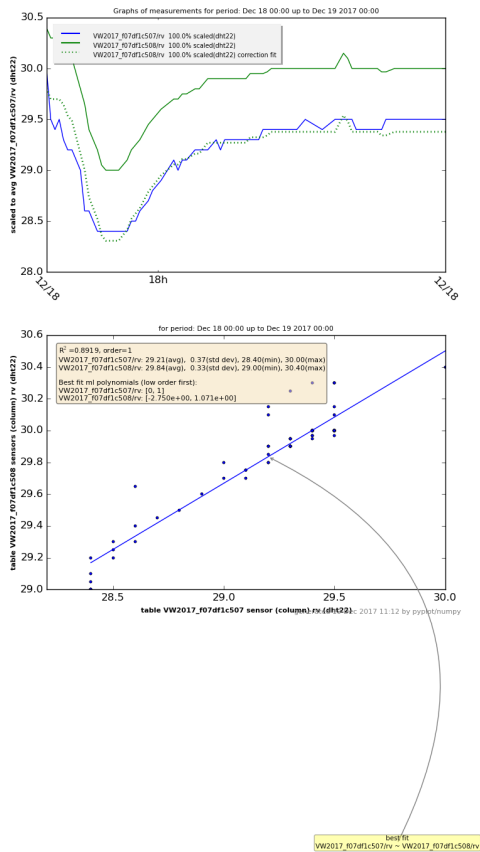
-2.750e+00, 1.071e+00

Statistical summary linear regression for VW2017\_f07df1c507/rv with [VW2017\_f07df1c508/rv]:

| OLS Regression Results |                      |                     |          |
|------------------------|----------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c507/rv | R-squared:          | 0.892    |
| Model:                 | OLS                  | Adj. R-squared:     | 0.890    |
| Method:                | Least Squares        | F-statistic:        | 593.7    |
| Date:                  | Tue, 19 Dec 2017     | Prob (F-statistic): | 1.66e-36 |
| Time:                  | 11:12:20             | Log-Likelihood:     | 50.698   |
| No. Observations:      | 74                   | AIC:                | -97.40   |
| Df Residuals:          | 72                   | BIC:                | -92.79   |
| Df Model:              | 1                    |                     |          |

|                      | coef    | std err | t      | P> t  | [95.0% Conf. Int.] |
|----------------------|---------|---------|--------|-------|--------------------|
| VW2017_f07df1c508/rv | -2.7500 | 1.312   | -2.097 | 0.040 | -5.364 -0.136      |

|                |        |                   |          |
|----------------|--------|-------------------|----------|
| Omnibus:       | 23.318 | Durbin-Watson:    | 0.508    |
| Prob(Omnibus): | 0.000  | Jarque-Bera (JB): | 32.556   |
| Skew:          | -1.350 | Prob(JB):         | 8.52e-08 |
| Kurtosis:      | 4.808  | Cond. No.         | 2.73e+03 |



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| Sensor sds011@VW2017_f07df1c508 with sensor sds011@VW2017_93d73279dd correlation report for pm25 (raw) measurements | 4 |
| General statistical information for the measurements graphs   | 4 |
| Sensor dht22@VW2017_f07df1c508 with sensor dht22@VW2017_93d73279dd correlation report for temp (raw) measurements   | 5 |
| General statistical information for the measurements graphs   | 5 |
| Sensor dht22@VW2017_f07df1c508 with sensor dht22@VW2017_93d73279dd correlation report for rh (raw) measurements     | 6 |
| General statistical information for the measurements graphs   | 6 |

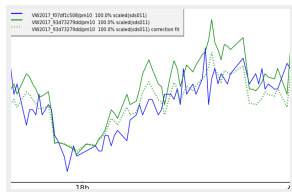
# Summary of correlations of sensor kits and sensor modules

Sensorkits: VW2017\_f07df1c508 VW2017\_93d73279dd  
Report generated on: Tue Dec 19 11:12:25 CET 2017

## R-square and statistical summary

### Measurement PM10 correlation key values

Correlation 1 - **PM10** - kit VW2017\_f07df1c508 sensor type**SDS011** with kit VW2017\_93d73279dd sensor type**SDS011**:

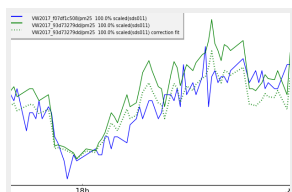


nr samples 71, min= 2.03, max= 4.65  
avg= 3.33, std dev= 0.60  
**R-squared:**  
**0.6304**

Best fit polynomial coefficients:  
[ 6.046e-01, 7.324e-01]

### Measurement PM2.5 correlation key values

Correlation 2 - **PM2.5** - kit VW2017\_f07df1c508 sensor type**SDS011** with kit VW2017\_93d73279dd sensor type**SDS011**:

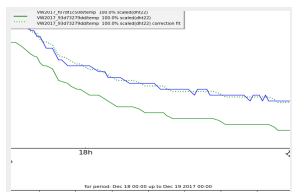


nr samples 71, min= 1.93, max= 4.25  
avg= 3.08, std dev= 0.53  
**R-squared:**  
**0.6991**

Best fit polynomial coefficients:  
[ 4.450e-01, 7.717e-01]

### Measurement TEMP correlation key values

Correlation 3 - **TEMP** - kit VW2017\_f07df1c508 sensor type**DHT22** with kit VW2017\_93d73279dd sensor type**DHT22**:



nr samples 70, min=22.80, max=24.30  
avg=23.31, std dev= 0.47  
**R-squared:**  
**0.9885**

Best fit polynomial coefficients:  
[ 1.921e+00, 9.366e-01]

### Measurement RH correlation key values

Correlation 4 - **RH** - kit VW2017\_f07df1c508 sensor type**DHT22** with kit VW2017\_93d73279dd sensor type**DHT22**:

nr samples 69, min=29.65, max=31.73  
avg=30.57, std dev= 0.44  
**R-squared:**  
**0.9169**

Best fit polynomial coefficients:  
[ 6.601e+00, 7.601e-01]

Sensor sds011@VW2017\_f07df1c508 with  
sensor sds011@VW2017\_93d73279dd

correlation report for pm10 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c508 with project VW2017 sensor kit ID 93d73279dd  
Date of correlation report: Tue Dec 19 11:12:23 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time serie data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c508 sensor (column) pm10: 72 db records, deleted 0 NaN records.  
Database table VW2017\_93d73279dd sensor (column) pm10: 81 db records, deleted 0 NaN records.  
Collected 71 values in sample time frame (15m/0s) for the graph. Skipped 1 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_93d73279dd, sensor (column) pm10:

number 71, min= 2.03, max= 4.65

avg= 3.33, std dev= 0.60

R-squared (R²) with VW2017\_93d73279dd/pm10: 0.6304

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c508/pm10 (sds011)-> best fit coefficients:

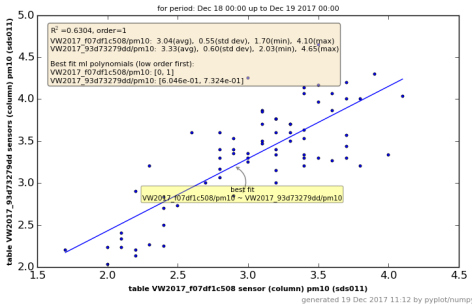
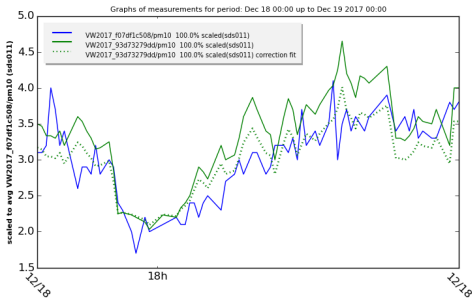
6.046e-01, 7.324e-01

Statistical summary linear regression for VW2017\_f07df1c508/pm10 with ['VW2017\_93d73279dd/pm10']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c508/pm10 | R-squared:          | 0.630    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.625    |
| Method:                | Least Squares          | F-statistic:        | 117.7    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 1.45e-16 |
| Time:                  | 11:12:24               | Log-Likelihood:     | -23.347  |
| No. Observations:      | 71                     | AIC:                | 50.69    |
| Df Residuals:          | 69                     | BIC:                | 55.22    |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_93d73279dd/pm10 | 0.6046 | 0.228   | 2.649 | 0.010 | 0.149 1.060        |

|                |       |                   |       |
|----------------|-------|-------------------|-------|
| Omnibus:       | 3.832 | Durbin-Watson:    | 1.317 |
| Prob(Omnibus): | 0.147 | Jarque-Bera (JB): | 3.015 |
| Skew:          | 0.468 | Prob(JB):         | 0.221 |
| Kurtosis:      | 3.377 | Cond. No.         | 20.7  |



Sensor sds011@VW2017\_f07df1c508 with  
sensor sds011@VW2017\_93d73279dd

correlation report for pm25 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c508 with project VW2017 sensor kit ID 93d73279dd  
Date of correlation report: Tue Dec 19 11:12:25 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time serie data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c508 sensor (column) pm25: 72 db records, deleted 0 NaN records.  
Database table VW2017\_93d73279dd sensor (column) pm25: 81 db records, deleted 0 NaN records.  
Collected 71 values in sample time frame (15m/0s) for the graph. Skipped 1 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_93d73279dd, sensor (column) pm25:

number 71, min= 1.93, max= 4.25

avg= 3.08, std dev= 0.53

R-squared (R²) with VW2017\_93d73279dd/pm25: 0.6991

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c508/pm25 (sds011)-> best fit coefficients:

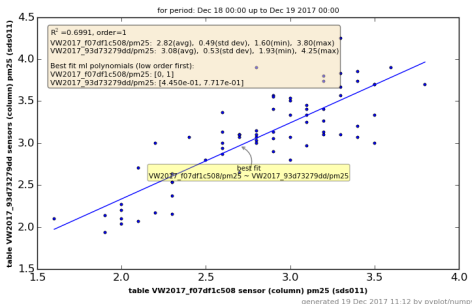
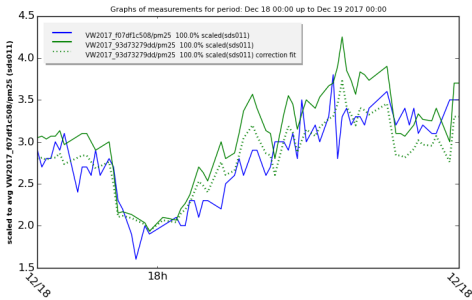
4.450e-01, 7.717e-01

Statistical summary linear regression for VW2017\_f07df1c508/pm25 with [VW2017\_93d73279dd/pm25]:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c508/pm25 | R-squared:          | 0.699    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.695    |
| Method:                | Least Squares          | F-statistic:        | 160.3    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 1.15e-19 |
| Time:                  | 11:12:26               | Log-Likelihood:     | -7.3593  |
| No. Observations:      | 71                     | AIC:                | 18.72    |
| Df Residuals:          | 69                     | BIC:                | 23.24    |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_93d73279dd/pm25 | 0.4450 | 0.190   | 2.337 | 0.022 | 0.065 0.825        |

|                |       |                   |       |
|----------------|-------|-------------------|-------|
| Omnibus:       | 1.575 | Durbin-Watson:    | 1.401 |
| Prob(Omnibus): | 0.455 | Jarque-Bera (JB): | 0.958 |
| Skew:          | 0.241 | Prob(JB):         | 0.620 |
| Kurtosis:      | 3.301 | Cond. No.         | 20.3  |



Sensor dht22@VW2017\_f07df1c508 with  
sensor dht22@VW2017\_93d73279dd

correlation report for temp (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c508 with project VW2017 sensor kit ID 93d73279dd  
Date of correlation report: Tue Dec 19 11:12:27 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time serie data from InFluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c508 sensor (column) temp: 71 db records, deleted 1 NaN records.  
Database table VW2017\_93d73279dd sensor (column) temp: 80 db records, deleted 1 NaN records.  
Collected 70 values in sample time frame (15m/0s) for the graph. Skipped 1 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_93d73279dd, sensor (column) temp:

number 70, min=22.80, max=24.30

avg=23.31, std dev= 0.47

R-squared (R²) with VW2017\_93d73279dd/temp: 0.9885

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c508/temp (dht22)-> best fit coefficients:

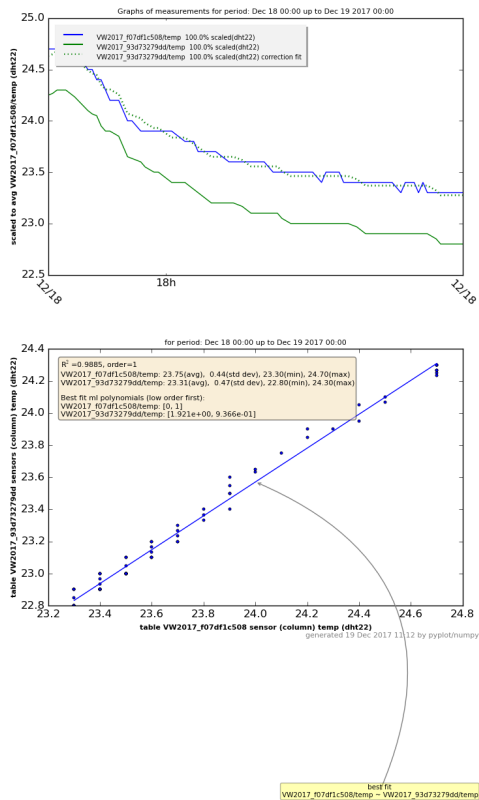
1.921e+00, 9.366e-01

Statistical summary linear regression for VW2017\_f07df1c508/temp with ['VW2017\_93d73279dd/temp']:

| OLS Regression Results |                        |                     |          |
|------------------------|------------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c508/temp | R-squared:          | 0.988    |
| Model:                 | OLS                    | Adj. R-squared:     | 0.988    |
| Method:                | Least Squares          | F-statistic:        | 5839.    |
| Date:                  | Tue, 19 Dec 2017       | Prob (F-statistic): | 1.16e-67 |
| Time:                  | 11:12:28               | Log-Likelihood:     | 114.55   |
| No. Observations:      | 70                     | AIC:                | -225.1   |
| Df Residuals:          | 68                     | BIC:                | -220.6   |
| Df Model:              | 1                      |                     |          |

|                        | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|------------------------|--------|---------|-------|-------|--------------------|
| VW2017_93d73279dd/temp | 1.9206 | 0.286   | 6.721 | 0.000 | 1.350 2.491        |

|                |        |                   |          |
|----------------|--------|-------------------|----------|
| Omnibus:       | 7.098  | Durbin-Watson:    | 1.243    |
| Prob(Omnibus): | 0.029  | Jarque-Bera (JB): | 5.619    |
| Skew:          | -0.582 | Prob(JB):         | 0.0602   |
| Kurtosis:      | 2.245  | Cond. No.         | 1.17e+03 |



Sensor dht22@VW2017\_f07df1c508 with  
sensor dht22@VW2017\_93d73279dd

correlation report for rh (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c508 with project VW2017 sensor kit ID 93d73279dd  
Date of correlation report: Tue Dec 19 11:12:29 CET 2017  
From date 2017-12-18 upto 2017-12-19 00:00  
Origin of measurement time series data from InfluxDB host: localhost  
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22  
Graphs based on data MYSQL from luchtmetingen on server localhost as user teus:  
Database table VW2017\_f07df1c508 sensor (column) rv: 70 db records, deleted 2 NaN records.  
Database table VW2017\_93d73279dd sensor (column) rv: 79 db records, deleted 2 NaN records.  
Collected 69 values in sample time frame (15m/0s) for the graph. Skipped 1 db records, could not find any value(s) in same sample interval.

Samples period: Dec 18 00:00 up to Dec 19 2017 00:00, interval timing 15m:0s.

Data from table/sheet VW2017\_93d73279dd, sensor (column) rv:

number 69, min=29.65, max=31.73

avg=30.57, std dev= 0.44

R-squared (R²) with VW2017\_93d73279dd/rv: 0.9169

Best fit linear single polynomial regression curve ( $A_0 * X^0 + A_1 * X^1$ ):

VW2017\_f07df1c508/rv (dht22)-> best fit coefficients:

6.601e+00, 7.601e-01

Statistical summary linear regression for VW2017\_f07df1c508/rv with ['VW2017\_93d73279dd/rv']:

| OLS Regression Results |                      |                     |          |
|------------------------|----------------------|---------------------|----------|
| Dep. Variable:         | VW2017_f07df1c508/rv | R-squared:          | 0.917    |
| Model:                 | OLS                  | Adj. R-squared:     | 0.916    |
| Method:                | Least Squares        | F-statistic:        | 739.3    |
| Date:                  | Tue, 19 Dec 2017     | Prob (F-statistic): | 6.48e-38 |
| Time:                  | 11:12:30             | Log-Likelihood:     | 61.144   |
| No. Observations:      | 69                   | AIC:                | -118.3   |
| Df Residuals:          | 67                   | BIC:                | -113.8   |
| Df Model:              | 1                    |                     |          |

|                      | coef   | std err | t     | P> t  | [95.0% Conf. Int.] |
|----------------------|--------|---------|-------|-------|--------------------|
| VW2017_93d73279dd/rv | 6.6009 | 0.855   | 7.723 | 0.000 | 4.895 8.307        |

|                |        |                   |          |
|----------------|--------|-------------------|----------|
| Omnibus:       | 22.318 | Durbin-Watson:    | 0.943    |
| Prob(Omnibus): | 0.000  | Jarque-Bera (JB): | 69.682   |
| Skew:          | -0.845 | Prob(JB):         | 7.39e-16 |
| Kurtosis:      | 7.624  | Cond. No.         | 2.15e+03 |

