

Tool

Choose a directory for the datasheets and figures
C:\Users\ar6438ro\Desktop\Example

Choose where you want to get your data from
☒ local file
☐ online database

Choose a file
C:\Users\ar6438ro\Desktop\Example

Specify your username
user@example.com

Specify your password
SlbiBw78i3X2

Choose detectors (use the correct syntax)
L1N: 0123456
L2N: 1234567
L1S: 2345678
L2S: 3456789

Choose dates (use the correct syntax)
Dataset1:
12/16/2020 00:00 till 12/17/2020 23:59
12/23/2020 00:00 till 12/24/2020 23:59
Dataset2:
12/30/2020 00:00 till 12/31/2020 23:59

Choose what you want to plot
☒ scatterplots of speed, flow and density for each detector individually
☒ time series of speed, flow and density for each detector individually
☒ scatterplots of speed, flow and density for the entire database
☒ fitted models

Choose which models you want to fit to the data
☒ Greenshield (1935)
☒ Underwood (1961)

Execute

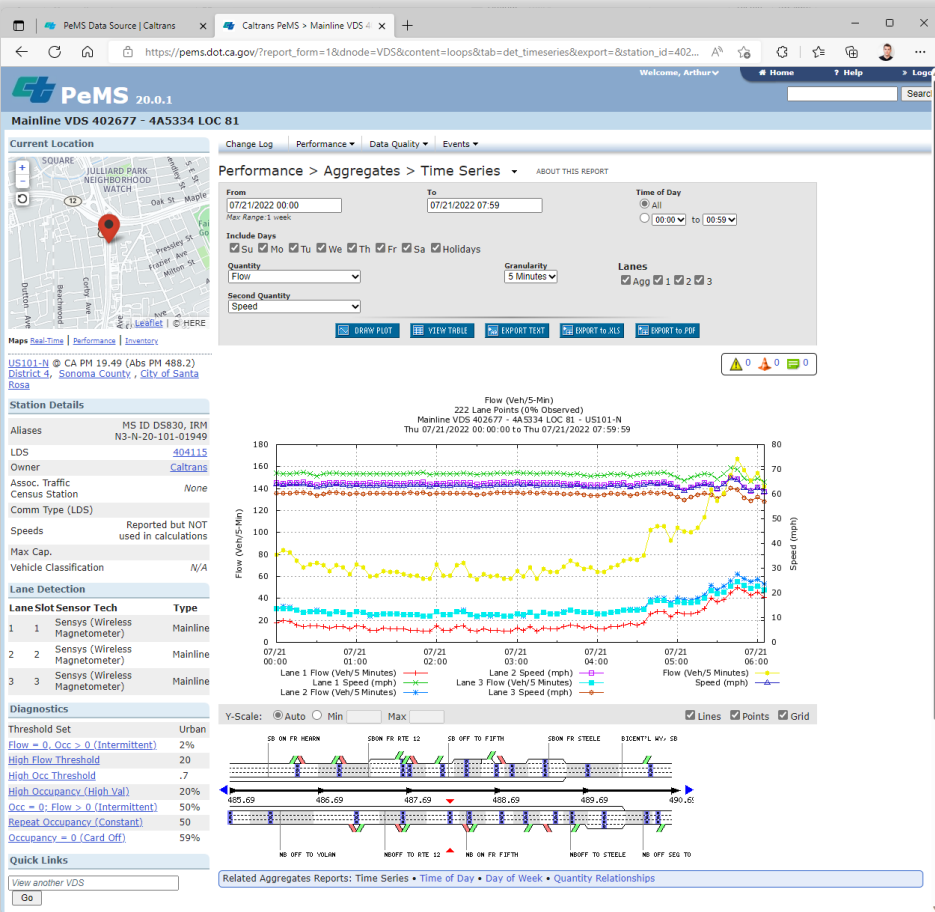
Status: waiting for execution
Progress: 0%

TDA

Traffic Dynamics Analyser (v1.0)

A brief user guide by Arthur Rohaert
Thursday the 25th of August, 2022

TDA extracts data from the PeMS database (Caltrans) and delivers datasheets.



The interface of the PeMS database

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lenity [veh/kwh]

veh/kwh

Occupancy

speed [km/how]

truck

lenity [veh/kwh]

veh/kwh

Occupancy

speed [km/how]

truck

lenity [veh/kwh]

veh/kwh

1

#####

LN

Routine

100

5.774949

2.591816

312

0.015

120.3789

0.592525

2.520492

288

0.015

114.2634

0.621445

1.770078

19

2

#####

LN

Routine

100

5.542063

2.887012

348

0.016

120.5399

0.725902

2.09451

240

0.012

114.5853

0.742396

1.888303

20

3

#####

LN

Routine

100

5.625194

2.488803

300

0.014

120.5399

0.868914

3.237396

372

0.019

114.9072

0.5680214

2.496338

21

4

#####

LN

Routine

100

5.859577

2.389251

288

0.014

120.5399

0.93515

3.032779

348

0.018

114.7462

0.797572

1.880708

22

5

#####

LN

Routine

100

6.098014

2.259829

276

0.014

120.218

0.621216

3.058517

348

0.019

113.7806

0.804672

2.458428

23

6

#####

LN

Routine

100

5.920796

2.702339

324

0.016

119.8961

0.629433

3.177468

360

0.02

113.7806

0.947002

2.012516

24

7

#####

LN

Routine

100

5.896051

2.204866

264

0.013

113.7352

0.593308

2.855663

324

0.017

113.4588

0.851392

1.468696

25

8

#####

LN

Routine

100

5.822548

2.91818

348

0.017

119.2524

0.583904

2.742119

312

0.016

113.7806

0.830547

1.92644

26

9

#####

LN

Routine

100

5.654862

2.289907

276

0.013

120.0571

0.713317

3.150614

360

0.018

114.2634

0.705146

1.227717

27

10

#####

LN

Routine

100

5.888126

2.078333

264

0.009

119.5743

0.500594

1.998204

228

0.012

114.1025

0.707676

1.955743

28

11

#####

LN

Routine

100

5.620311

1.601386

192

0.009

119.8961

0.594456

2.578732

288

0.015

113.9416

0.6799478

2.206852

29

12

#####

LN

Routine

100

5.724667

1.379461

168

0.008

120.218

0.74918

1.482818

168

0.01

113.2978

0.678942

1.767456

30

13

#####

LN

Routine

100

5.79991

1.895655

228

0.011

120.218

0.705124

2.103372

240

0.012

114.1025

0.798715

2.003227

31

14

#####

LN

Routine

100

5.642762

1.594963

192

0.009

120.3789

0.630088

2.21166

252

0.01

113.9416

0.6408976

1.872374

32

15

#####

LN

Routine

100

5.739994

1.39373

168

0.008

120.5399

0.948338

1.682698

192

0.01

114.2634

0.815995

1.319726

33

16

#####

LN

Routine

100

5.836107

2.398859

288

0.014

120.0571

0.632146

2.214788

252

0.014

113.7806

0.8205216

2.128737

34

17

#####

LN

Routine

100

5.98676

2.505529

300

0.015

119.7352

0.199585

2.742119

312

0.017

113.7806

0.786323

1.209749

35

18

#####

LN

Routine

100

5.98676

1.503317

180

0.009

119.7352

0.581075

1.893053

216

0.01

114.1025

0.569138

0.875222

36

19

#####

LN

Routine

100

5.836107

1.19943

144

0.007

120.0571

0.594838

1.682698

192

0.01

114.1025

0.6453079

1.858647

37

20

#####

LN

Routine

100

6.0109

1.49728

120

0.009

120.218

0.585963

1.780533

312

0.016

114.2634

0.935639

1.832122

38

21

#####

LN

Routine

100

5.642762

1.594963

192

0.009

120.3789

0.827166

2.707317

216

0.01

114.4244

0.614233

1.953656

39

22

#####

LN

Routine

100

6.051955

1.202654

144

0.008

119.7352

0.754459

1.509593

180

0.012

113.1969

0.9075862

0.660838

40

23

#####

LN

Routine

100

6.097026

1.803981

216

0.01

119.7352

0.650024

1.892245

252

0.01

113.4588

0.660387

1.211536

41

24

#####

LN

Routine

100

5.994066

1.5013

180

0.009

119.8961

0.886824

2.205543

192

0.012

114.1025

0.9361856

1.815879

42

25

#####

LN

Routine

100

5.394397

1.279463

156

0.007

120.218

0.633907

1.262023

144

0.008

114.1025

0.8083296

1.237119

43

26

#####

LN

Routine

100

5.47177

1.096537

132

0.006

120.3789

0.639027

1.577529

180

0.01

114.1025

0.8074884

1.114567

44

27

#####

LN

Routine

100

5.479085

1.095073

132

0.006

120.5399

0.607958

2.202021

264

0.014

114.4244

0.9699955

1.237119

45

28

#####

LN

Routine

100

6.0109

1.49728

120

0.009

120.218

0.609424

1.575223

132

0.007

114.1025

0.864683

1.013717

46

29

#####

LN

Routine

100

5.565648

0.893838

168

0.005

120.218

0.618885

1.90648

216

0.013

113.2978

0.826893

1.572144

47

30

#####

LN

Routine

100

5.724667

1.379461

168

0.008

120.218

0.5926074

1.687458

192

0.01

113.7806

0.748792

1.335484

48

31

#####

LN

Routine

100

6.018947

0.996852

120

0.006

120.3789

0.7563917

1.057633

120

0.008

113.4588

0.7923216

1.233838

49

32

#####

LN

Routine

100

6.018947

0.996852

120

0.006

120.3789

0.546649

1.262023

144

0.007

114.1025

0.602609

0.956693

50

33

#####

LN

Routine

100

6.0109

1.897187

120

0.006

120.218

0.633907

1.262023

144

0.008

114.1025

0.192703

0.669174

51

34

#####

LN

Routine

100

6.625133

1.811284

216

0.012

119.2524

0.659792

1.685074

192

0.01

113.9416

0.722059

1.601948

52

35

#####

LN

Routine

100

5.449824

1.100953

132

0.006

119.8961

0.6424355

1.158489

132

0.007

113.9416

0.6376172

1.335484

53

36

#####

LN

Routine

100

5.724667

0.698721

84

0.004

120.218

0.668991

1.053172

120

0.01

113.3285

0.703662

1.355719

54

37

#####

LN

Routine

100

6.114017

1.799144

216

0.01

120.0571

0.5827166

1.88771

216

0.01

114.4244

0.8356448

1.226074

55

38

#####

LN

Routine

100

5.994066

2.001733

240

0.012

119.8961

0.590284

2.203238

252

0.013

114.4244

0.85455

1.116236

56

39

#####

LN

Routine

100

6.405764

1.404885

168

0.009

119.5743

0.646591

2.106343

240

0.014

114.4244

0.660387

1.211536

57

40

#####

LN

Routine

100

5.449824

1.100953

132

0.006

119.8961

0.639027

1.577529

180

0.01

114.1025

0.1109285

1.712815

58

41

#####

LN

Routine

100

5.807755

1.894019

228

0.011

120.3789

0.564258

2.303961

264

0.013

114.5853

0.7410871

1.889117

59

42

#####

LN

Routine

100

5.73233

1.355953

168

0.008

120.3789

0.543767

1.984211

228

0.01

114.9072

0.7131897

1.967979

60

43

#####

LN

Routine

100

5.79991

1.895655

228

0.011

120.218

0.621875

2.140278

276

0.015

114.4244

0.8405728

1.427598

61

44

#####

LN

Routine

100

6.173279

1.259908

120

0.006

120.3789

0.619941

1.782837

204

0.01

114.4244

0.902526

1.10466

62

45

#####

LN

Routine

100

6.018947

1.495278

120

0.009

120.3789

0.621875

2.140274

276

0.015

114.4244

0.723146

1.074227

63

Sheet1

Accessibility Investigator

100%

The generated datasheet

TDA also fits the data to established traffic dynamics models and creates graphs of the data and the models.

AutoSave

data.xlsx

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Arthur Roohaet

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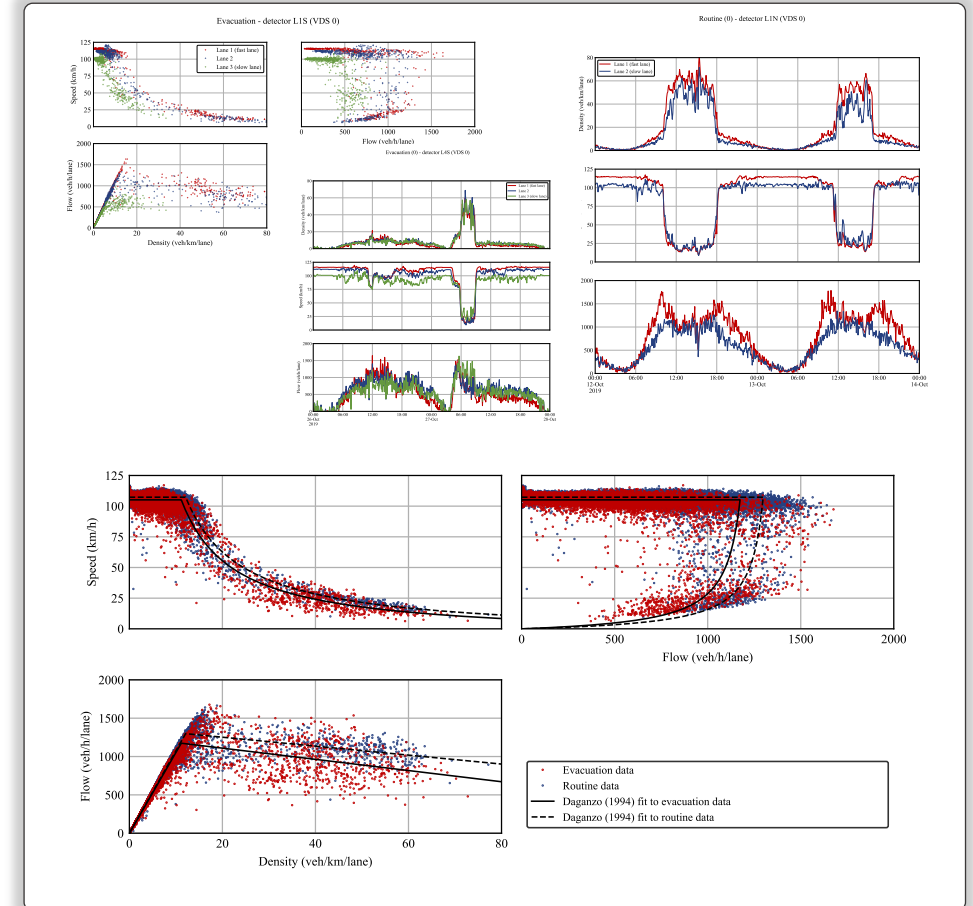
CommentsShare

Time

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
1	Time	Detector	Scenario	Health	Length	Vehicle	Occupancy	Speed	Flow	Vehicle	Occupancy	Speed	Flow	Vehicle	Occupancy	Speed	Flow	Vehicle	
2		LIN	Routine	100	5.787449	2.591816	312	0.015	120.3789	0	5.95122	2.502492	288	0.015	114.2634	0	6.214415	1.770078	19
3		LIN	Routine	100	5.542063	2.887012	348	0.016	120.5399	0	5.729265	2.09451	240	0.012	114.5853	0	7.43296	1.883503	20
4		LIN	Routine	100	5.625194	2.488803	300	0.014	120.5399	0	5.868914	3.237396	372	0.019	114.9072	0	5.608214	2.496338	27
5		LIN	Routine	100	5.859577	2.389251	288	0.014	120.5399	0	5.93515	3.032779	348	0.018	114.7462	0	7.97572	1.880708	20
6		LIN	Routine	100	6.098014	2.295829	276	0.014	120.218	0	6.21216	3.058517	348	0.019	113.7806	0	8.04672	2.485485	26
7		LIN	Routine	100	5.920796	2.702339	324	0.016	119.8961	0	6.294323	3.177466	360	0.02	113.2978	0	6.947002	2.015258	21
8		LIN	Routine	100	5.896051	2.204866	264	0.013	119.7352	0	5.953083	2.855663	324	0.017	113.4588	0	8.851392	1.468696	15
9		LIN	Routine	100	5.825548	2.91818	348	0.017	119.2524	0	5.834904	2.742119	312	0.016	113.7806	0	8.305477	1.92644	20
10		LIN	Routine	100	5.654862	2.298907	276	0.013	120.0571	0	5.713171	3.150614	360	0.018	114.2634	0	7.051468	2.127217	22
11		LIN	Routine	100	5.888126	2.207833	264	0.013	119.5743	0	6.005394	1.998204	228	0.012	114.1025	0	7.070576	1.555743	16
12		LIN	Routine	100	5.620131	1.601386	192	0.009	119.8961	0	5.934566	2.527612	288	0.015	113.9416	0	6.799478	2.206052	24
13		LIN	Routine	100	5.724667	1.397461	168	0.008	120.218	0	6.743918	1.482818	168	0.01	113.2978	0	6.79942	1.767456	19
14		LIN	Routine	100	5.799991	1.896555	228	0.011	120.218	0	5.705124	2.103372	240	0.012	114.1025	0	7.987115	2.003227	21
15		LIN	Routine	100	5.642762	1.594963	192	0.009	120.3789	0	6.330086	2.21166	252	0.014	113.9416	0	6.408976	1.872374	20
16		LIN	Routine	100	5.739994	1.39373	168	0.008	120.5399	0	5.942838	1.682698	192	0.01	114.1025	0	6.819595	1.319726	14
17		LIN	Routine	100	5.836107	2.398859	288	0.014	120.0571	0	6.321146	2.214788	252	0.014	113.7806	0	8.205216	1.218737	13
18		LIN	Routine	100	5.98676	2.505529	300	0.015	119.7352	0	6.199585	2.742119	312	0.017	113.7806	0	5.786323	1.209749	13
19		LIN	Routine	100	5.98676	1.503317	180	0.009	119.7352	0	5.810775	1.893035	216	0.011	114.1025	0	5.691378	0.878522	9
20		LIN	Routine	100	5.836107	1.19943	144	0.007	120.0571	0	5.942838	1.682698	192	0.01	114.1025	0	6.456309	1.858647	20
21		LIN	Routine	100	6.0109	1.49728	180	0.009	120.218	0	5.859663	2.730533	312	0.016	114.2634	0	5.935639	1.853212	20
22		LIN	Routine	100	5.642762	1.594963	192	0.009	120.3789	0	5.827166	1.88771	216	0.011	114.4244	0	6.14233	1.935856	21
23		LIN	Routine	100	6.651955	1.202654	144	0.008	119.7352	0	7.542459	1.590993	180	0.012	113.1369	0	9.079382	0.660838	7
24		LIN	Routine	100	6.097626	1.802981	216	0.011	119.7352	0	6.500241	1.692245	192	0.011	113.4588	0	6.603187	1.211536	13
25		LIN	Routine	100	5.994806	1.5013	180	0.009	119.8961	0	5.88624	2.208541	252	0.013	114.1025	0	9.361856	1.815879	19
26		LIN	Routine	100	5.394397	1.297643	156	0.007	120.218	0	6.339027	1.262023	144	0.008	114.1025	0	8.083296	1.237119	13
27		LIN	Routine	100	5.47177	1.096537	132	0.006	120.3789	0	6.339027	1.577529	180	0.01	114.1025	0	8.074884	1.114567	12
28		LIN	Routine	100	5.479085	1.095073	132	0.006	120.5399	0	6.067958	2.307201	264	0.014	114.4244	0	9.699955	1.237119	13
29		LIN	Routine	100	6.0109	1.49728	180	0.009	120.218	0	6.059424	1.155225	132	0.007	114.2634	0	9.864683	1.013717	10
30		LIN	Routine	100	5.565648	0.898368	108	0.005	120.218	0	6.81885	1.90648	216	0.013	113.7806	0	8.268963	1.572144	16
31		LIN	Routine	100	5.724667	1.397461	168	0.008	120.218	0	5.926074	1.687458	192	0.01	113.2978	0	7.48792	1.335484	14
32		LIN	Routine	100	6.018947	0.996852	120	0.006	120.3789	0	7.563917	1.057653	120	0.008	113.4588	0	9.729216	1.233398	13
33		LIN	Routine	100	6.018947	0.996852	120	0.006	120.3789	0	5.46649	1.262023	144	0.007	114.1025	0	6.026099	0.995669	10
34		LIN	Routine	100	6.0109	0.998187	120	0.006	120.218	0	6.339027	1.262023	144	0.008	114.1025	0	11.92703	0.670746	7
35		LIN	Routine	100	6.625133	1.811284	216	0.012	119.2524	0	6.527902	1.685074	192	0.011	113.9416	0	7.22059	1.661914	14
36		LIN	Routine	100	5.449824	1.100953	132	0.006	119.8961	0	6.042355	1.158489	132	0.007	113.9416	0	8.236712	1.335484	14
37		LIN	Routine	100	5.724667	0.698731	84	0.004	120.218	0	6.646591	1.053172	120	0.007	113.9416	0	10.32662	1.355719	14
38		LIN	Routine	100	6.114017	1.799144	216	0.011	120.0571	0	5.827166	1.88771	216	0.011	114.4244	0	8.156448	1.226024	13
39		LIN	Routine	100	5.994806	2.001733	240	0.012	119.8961	0	5.902844	2.202328	252	0.013	114.4244	0	9.85455	1.116236	12
40		LIN	Routine	100	6.405764	1.404985	168	0.009	119.5743	0	6.646591	2.106343	240	0.014	113.9416	0	6.603187	1.211536	13
41		LIN	Routine	100	5.449824	1.100953	132	0.006	119.8961	0	6.339027	1.577529	180	0.01	114.1025	0	11.09285	1.712815	18
42		LIN	Routine	100	5.807755	1.894019	228	0.011	120.3789	0	5.642458	2.303961	264	0.013	114.5853	0	7.410871	1.889117	20
43		LIN	Routine	100	5.73233	1.395593	168	0.008	120.3789	0	5.543767	1.984211	228	0.011	114.9072	0	7.113897	1.967979	21
44		LIN	Routine	100	5.799991	1.896555	228	0.011	120.218	0	6.218715	2.412074	276	0.015	114.4244	0	8.405728	1.427598	15
45		LIN	Routine	100	6.173279	1.295908	156	0.008	120.3789	0	6.169941	1.782837	204	0.011	114.4244	0	9.05256	1.10466	12
46		LIN	Routine	100	6.018947	1.495278	180	0.009	120.3789	0	6.218715	2.412074	276	0.015	114.4244	0	7.23146	2.07427	22

ReadyAccessibility Investigate

The generated datasheet



The graphs of density, speed and flow.

Tool

Choose a directory for the datasheets and figures

C:\Users\ar6438ro\Desktop\Example

Choose where you want to get your data from

☒ local file

☐ online database

Choose a file

C:\Users\ar6438ro\Desktop\Example

Specify your username

user@example.com

Specify your password

5lbiBw78!3X2

Choose detectors (use the correct syntax)

L1N: 0123456
L2N: 1234567
L1S: 2345678
L2S: 3456789

Choose dates (use the correct syntax)

Dataset1:
12/16/2020 00:00 till 12/17/2020 23:59
12/23/2020 00:00 till 12/24/2020 23:59
Dataset2:
12/30/2020 00:00 till 12/31/2020 23:59

Choose what you want to plot

☒ scatterplots of speed, flow and density for each detector individually

☒ time series of speed, flow and density for each detector individually

☒ scatterplots of speed, flow and density for the entire database

☒ fitted models

Choose which models you want to fit to the data

☒ Greenshield (1935)

☒ Underwood (1961)

Execute

Status: waiting for execution

Progress: 0%

Select a folder in which you want to save all the generated data

- ⚠ The tool will overwrite existing files in this folder.
- ⚠ An error will occur when one of those files is already opened somewhere else on the computer.

Choose where you want to obtain the data from. Either from a datasheet that is stored on the computer or directly from the PeMS database (online). Once you have downloaded the data for the first time, a datasheet will be saved in the chosen directory. The next time you want to generate figures for the same data, you can select this sheet.

Select the local file.

- ⚠ Only datasheets with the correct structure and same format can be uploaded.

The graphical user interface of the TDA tool

Tool

Choose a directory for the datasheets and figures

C:\Users\ar6438ro\Desktop\Example

Choose where you want to get your data from

☐ local file

☒ online database

Choose a file

C:\Users\ar6438ro\Desktop\Example

Specify your username

user@example.com

Specify your password

5lbiBw78!3X2

Choose detectors (use the correct syntax)

L1N: 0123456
L2N: 1234567
L1S: 2345678
L2S: 3456789

Choose dates (use the correct syntax)

Dataset1:
12/16/2020 00:00 till 12/17/2020 23:59
12/23/2020 00:00 till 12/24/2020 23:59
Dataset2:
12/30/2020 00:00 till 12/31/2020 23:59

Choose what you want to plot

☒ scatterplots of speed, flow and density for each detector individually

☒ time series of speed, flow and density for each detector individually

☒ scatterplots of speed, flow and density for the entire database

☒ fitted models

Choose which models you want to fit to the data

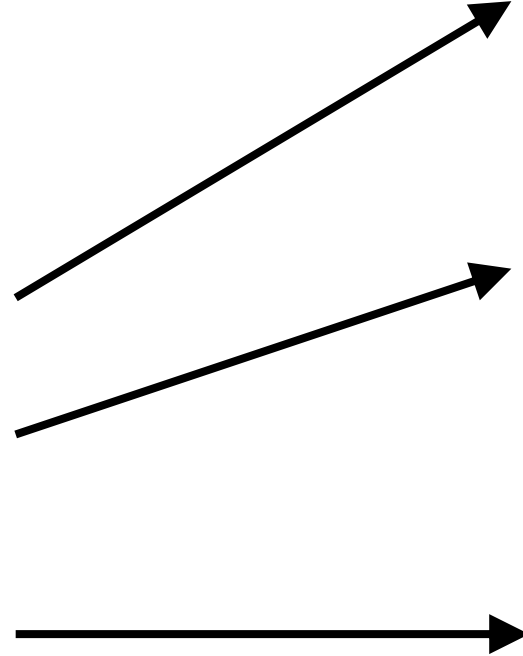
☒ Greenshield (1935)

☒ Underwood (1961)

Execute

Status: waiting for execution

Progress: 0%



Provide your username and your password of your PeMS account

Specify for which detectors you want to obtain data. Use the correct syntax.

- ⚠ Choose a unique name for all detectors (a combination of letters and numbers).
- ⚠ Separate this name from the id (VDS) with a colon.
- ⚠ Write the details for the next detector on a new line.

Specify for which dates you want to obtain data. Use the correct syntax.

- ⚠ Choose a unique name for a label (routine, evacuation, hurricane, mist, ...), followed by a colon.
- ⚠ Write the considered dates for this label on the following lines. Use the same format as provided by default: "mm/dd/yyyy hh:mm till mm/dd/yyyy hh:mm"
- ⚠ Separate different periods by line.

The graphical user interface of the TDA tool

Tool

5lbiBw78!3X2

Choose detectors (use the correct syntax)

L1N: 0123456
L2N: 1234567
L1S: 2345678
L2S: 3456789

Choose dates (use the correct syntax)

Dataset1:
12/16/2020 00:00 till 12/17/2020 23:59
12/23/2020 00:00 till 12/24/2020 23:59
Dataset2:
12/30/2020 00:00 till 12/31/2020 23:59

Choose what you want to plot

☒ scatterplots of speed, flow and density for each detector individually
☒ time series of speed, flow and density for each detector individually
☒ scatterplots of speed, flow and density for the entire database
☒ fitted models

Choose which models you want to fit to the data

☒ Greenshield (1935)
☒ Underwood (1961)
☒ Drake et al. (1965)
☒ Daganzo (1994)
☒ van Aerde & Rakha (1995)
☒ del Castillo & Benítez (1995)

Choose the range of the plots

Density (veh/km/lane)

80

Speed (km/h)

150

Flow (veh/h/lane)

2500

Choose the format for the figures

Click here to select a format

Execute

Status: waiting for execution

Progress: 0%

Select the plots you wish to generate

Select the models you want to fit to the obtained data.

Select the maximum values of the density, speed and flow that will be displayed in the figures.

- ⚠ Provide only numbers, use a decimal point if necessary.
- ⚠ Avoid letters, spaces, commas and other signs.

Select one of the suggested formats for the figures

Execute! An error will occur if:

- ⚠ the username and or password are wrong
- ⚠ the detectors or dates are not listed correctly
- ⚠ the input file has an incorrect format or structure.

The graphical user interface of the TDA tool