Precision Time Network

Umut KETEN

GPS/GNSS outages

5G Rollout

EIE. EXECUTIVE INDUSTRY EVENTS
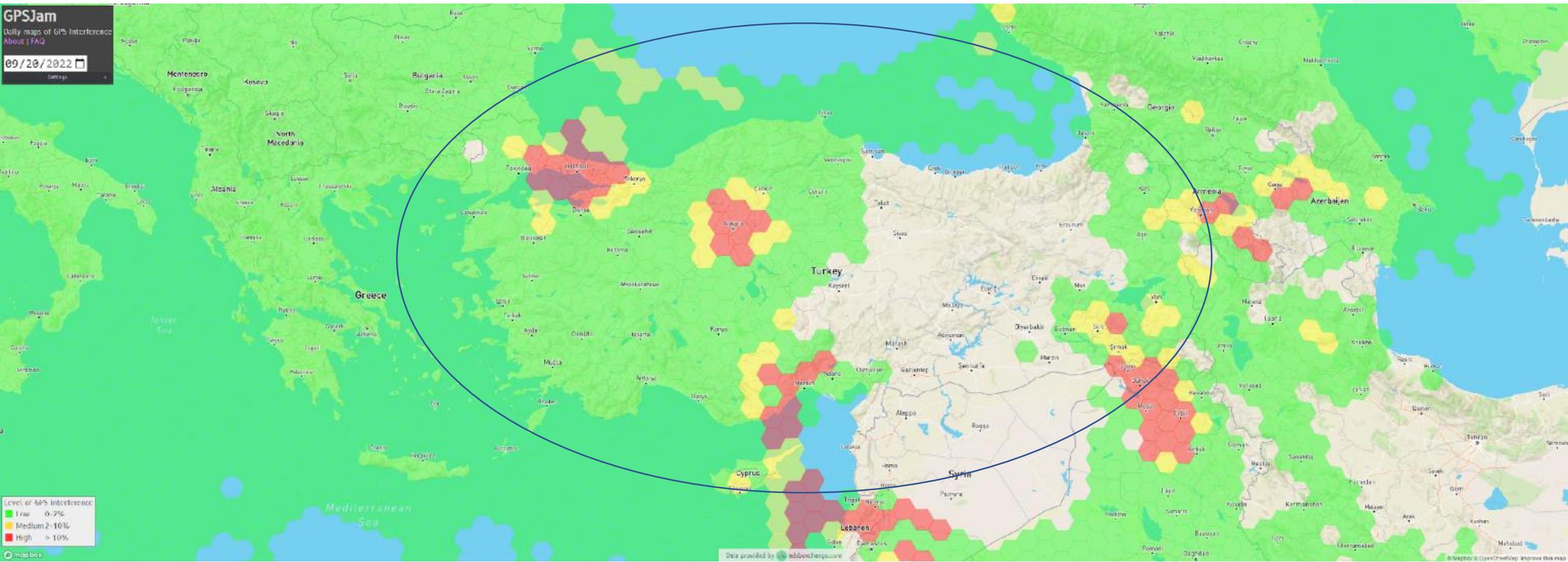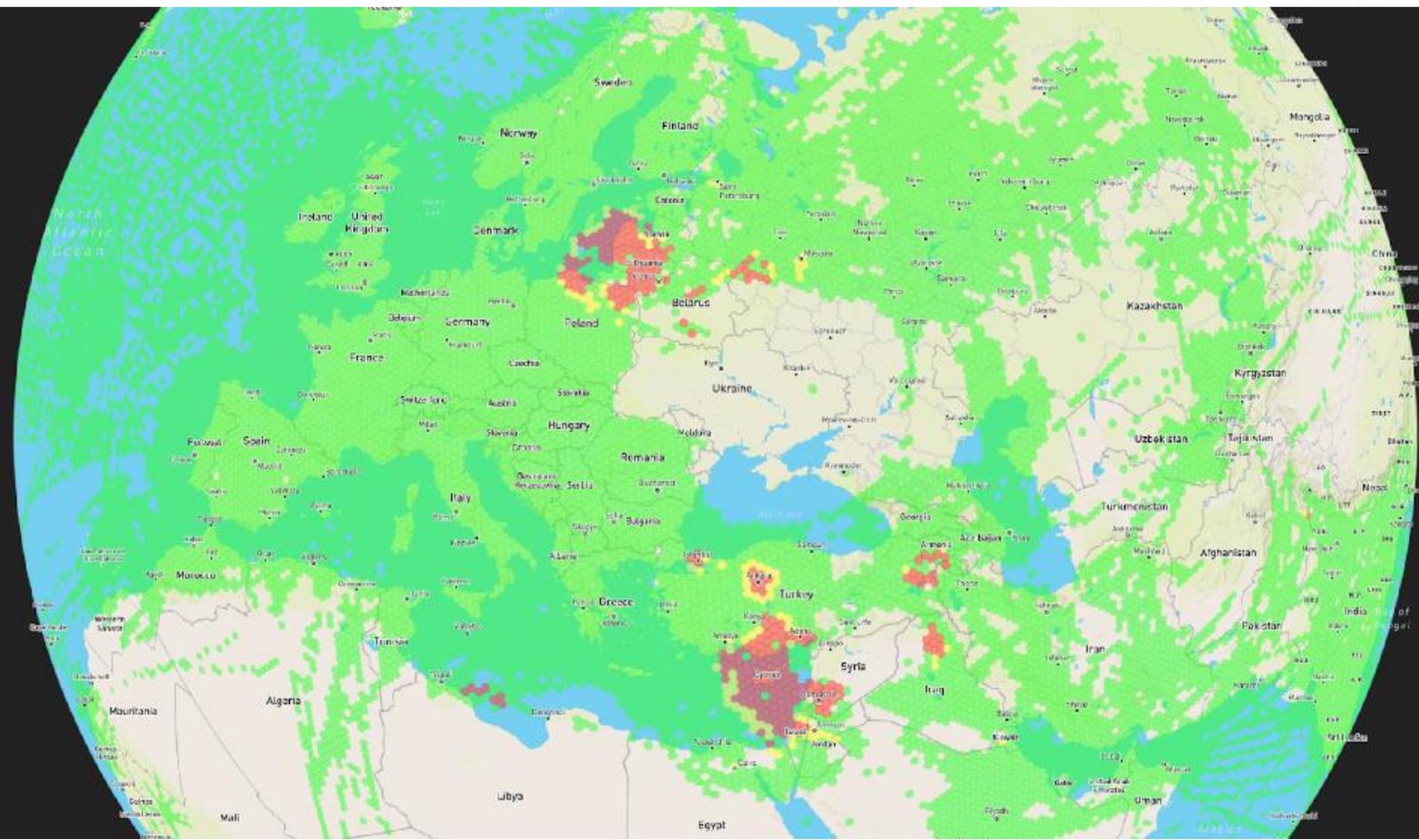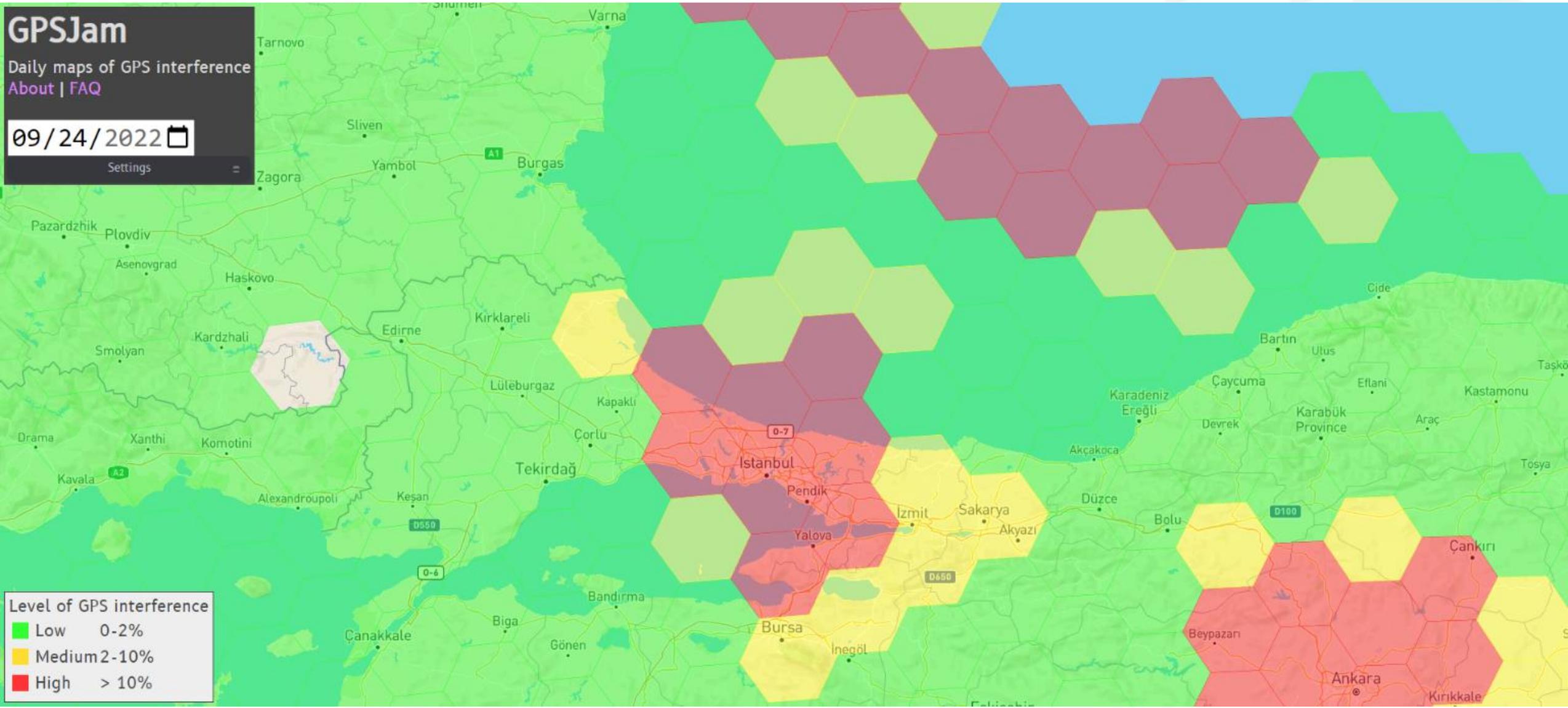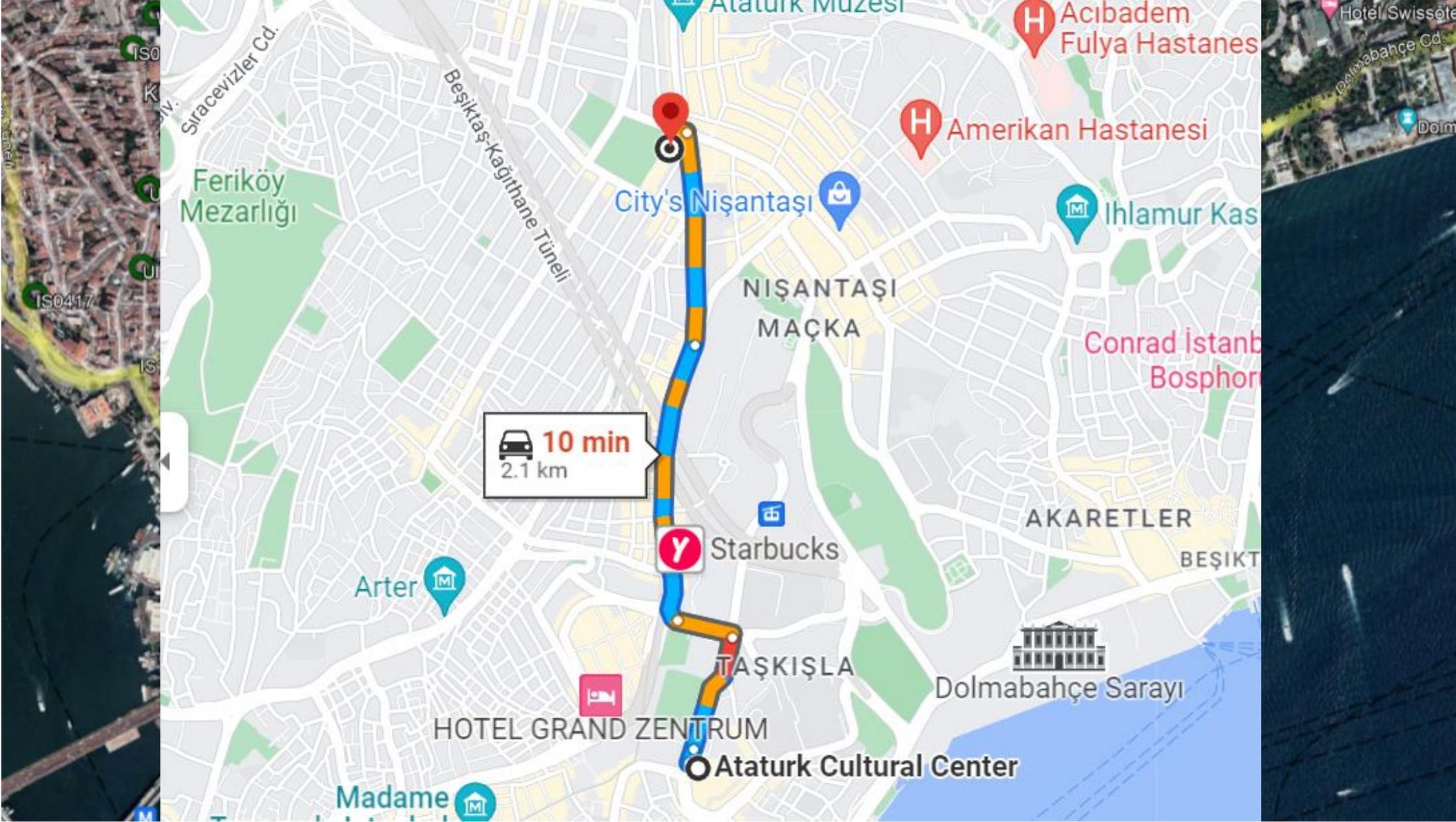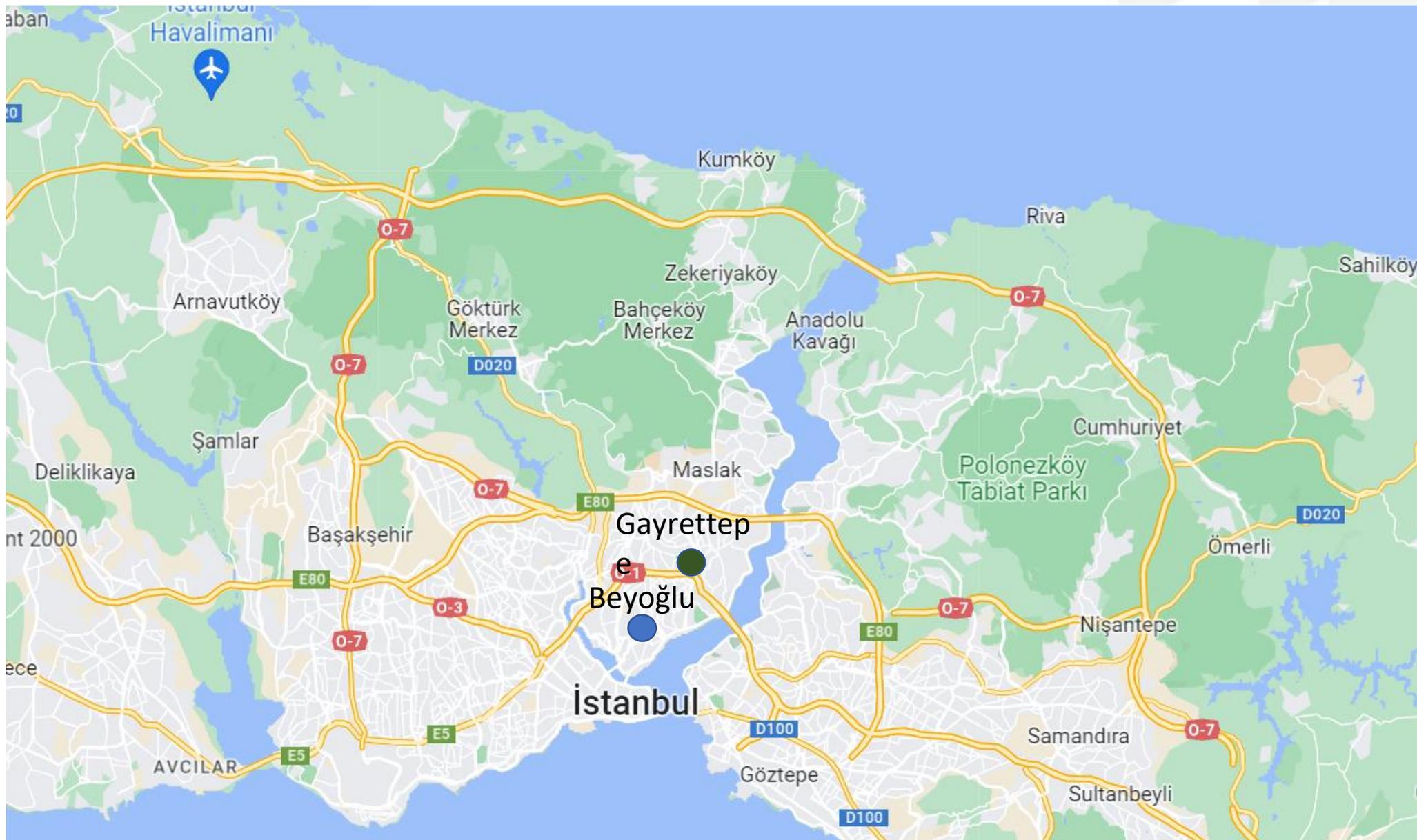
```
DSP PHASEDIFF:;
GIB9248
+++    GIB9248        2021-05-25 14:20:40
O&M    #58277
%%/*1883600893*/DSP PHASEDIFF:;%%
RETCODE = 0  Operation succeeded.

Display the phase offset between the active and standby reference clock sources
-------------------------------------------------------------------------------
Clock Source Type  Clock Source No.  Cabinet No.  Subrack No.  Slot No.  Phase Discrimination(ns)  Clock Source Active State  Suspicious State

GPS Clock          0                 0            0            7         0                         Activated                  Non-suspicious
Hybrid Clock       0                 0            0            7         -912                      Deactivated                Non-suspicious
(Number of results = 2)


---    END


DSP PHASEDIFF:;
GIB1592
+++    GIB1592        2021-05-25 14:20:40
O&M    #59312
%%/*1881313068*/DSP PHASEDIFF:;%%
RETCODE = 0  Operation succeeded.

Display the phase offset between the active and standby reference clock sources
-------------------------------------------------------------------------------
Clock Source Type  Clock Source No.  Cabinet No.  Subrack No.  Slot No.  Phase Discrimination(ns)  Clock Source Active State  Suspicious State

GPS Clock          0                 0            0            7         0                         Activated                  Non-suspicious
Hybrid Clock       0                 0            0            7         -1602                     Deactivated                Non-suspicious
(Number of results = 2)


---    END

DSP PHASEDIFF:;
GIS0182
+++    GIS0182        2021-05-25 14:20:40
O&M    #53625
%%/*1883600895*/DSP PHASEDIFF:;%%
RETCODE = 0  Operation succeeded.

Display the phase offset between the active and standby reference clock sources
-------------------------------------------------------------------------------
Clock Source Type  Clock Source No.  Cabinet No.  Subrack No.  Slot No.  Phase Discrimination(ns)  Clock Source Active State  Suspicious State

GPS Clock          0                 0            0            7         0                         Activated                  Non-suspicious
Hybrid Clock       0                 0            0            7         -761                      Deactivated                Non-suspicious
(Number of results = 2)


---    END

DSP PHASEDIFF:;
GIS0252
+++    GIS0252        2021-05-25 14:20:40
O&M    #25946
%%/*1883600897*/DSP PHASEDIFF:;%%
RETCODE = 0  Operation succeeded.

Display the phase offset between the active and standby reference clock sources
-------------------------------------------------------------------------------
Clock Source Type  Clock Source No.  Cabinet No.  Subrack No.  Slot No.  Phase Discrimination(ns)  Clock Source Active State  Suspicious State

GPS Clock          0                 0            0            7         0                         Activated                  Non-suspicious
Hybrid Clock       0                 0            0            7         -689                      Deactivated                Non-suspicious
```
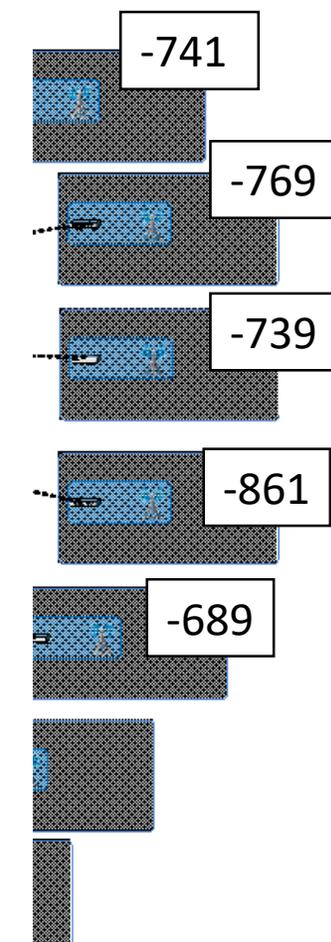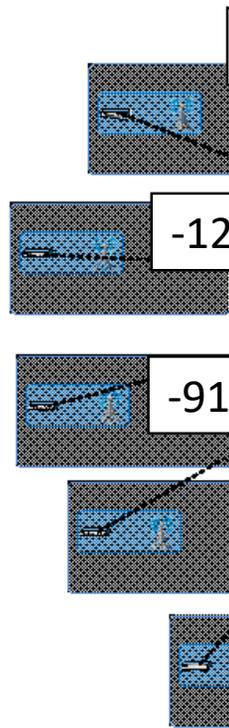
-741

-769

-739

-128

-861

-912

-689
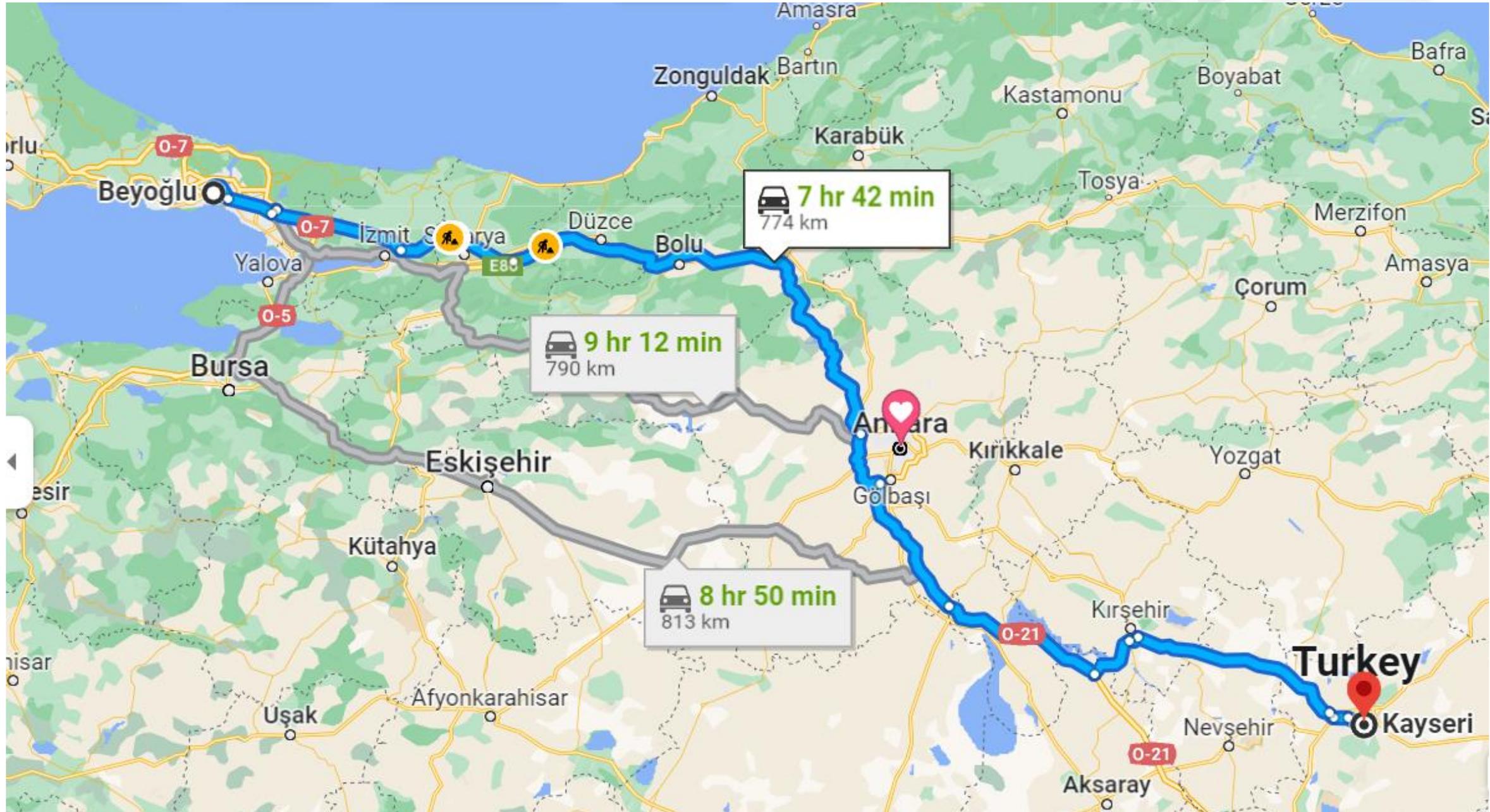
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+++    GIS0358           2022-09-27 15:49:25
O&M    #7862
%%/*1883602855*/DSP PHASEDIFF:;%%
RETCODE = 0  Operation succeeded.

Display the phase offset between the active and standby reference clock sources
---------------------------------------------------------------------------------
Clock Source Type  Clock Source No.  Cabinet No.  Subrack No.  Slot No.  Phase Discrimination(ns)  Clock Source Active State  Suspicious State

GPS Clock          0                 0            0            7         0                         Activated                  Non-suspicious
Hybrid Clock       0                 0            0            7         -87                       Deactivated                Non-suspicious
(Number of results = 2)


---    END


DSP PHASEDIFF:;
GIS0924
+++    GIS0924           2022-09-27 15:49:25
O&M    #23470
%%/*1883966994*/DSP PHASEDIFF:;%%
RETCODE = 0  Operation succeeded.

Display the phase offset between the active and standby reference clock sources
---------------------------------------------------------------------------------
Clock Source Type  Clock Source No.  Cabinet No.  Subrack No.  Slot No.  Phase Discrimination(ns)  Clock Source Active State  Suspicious State

GPS Clock          0                 0            0            7         0                         Activated                  Non-suspicious
Hybrid Clock       0                 0            0            7         -89                       Deactivated                Non-suspicious
(Number of results = 2)


---    END


DSP PHASEDIFF:;
GIS1405
+++    GIS1405           2022-09-27 15:49:25
O&M    #32215
%%/*1882306095*/DSP PHASEDIFF:;%%
RETCODE = 0  Operation succeeded.

Display the phase offset between the active and standby reference clock sources
---------------------------------------------------------------------------------
Clock Source Type  Clock Source No.  Cabinet No.  Subrack No.  Slot No.  Phase Discrimination(ns)  Clock Source Active State  Suspicious State

GPS Clock          0                 0            0            7         0                         Activated                  Non-suspicious
Hybrid Clock       0                 0            0            7         -69                       Deactivated                Non-suspicious
(Number of results = 2)


---    END


DSP PHASEDIFF:;
GIS1602
+++    GIS1602           2022-09-27 15:49:25
O&M    #47296
%%/*1883966996*/DSP PHASEDIFF:;%%
RETCODE = 0  Operation succeeded.

Display the phase offset between the active and standby reference clock sources
---------------------------------------------------------------------------------
Clock Source Type  Clock Source No.  Cabinet No.  Subrack No.  Slot No.  Phase Discrimination(ns)  Clock Source Active State  Suspicious State

GPS Clock          0                 0            0            7         0                         Activated                  Non-suspicious
Hybrid Clock       0                 0            0            7         -63                       Deactivated                Non-suspicious
(Number of results = 2)
```
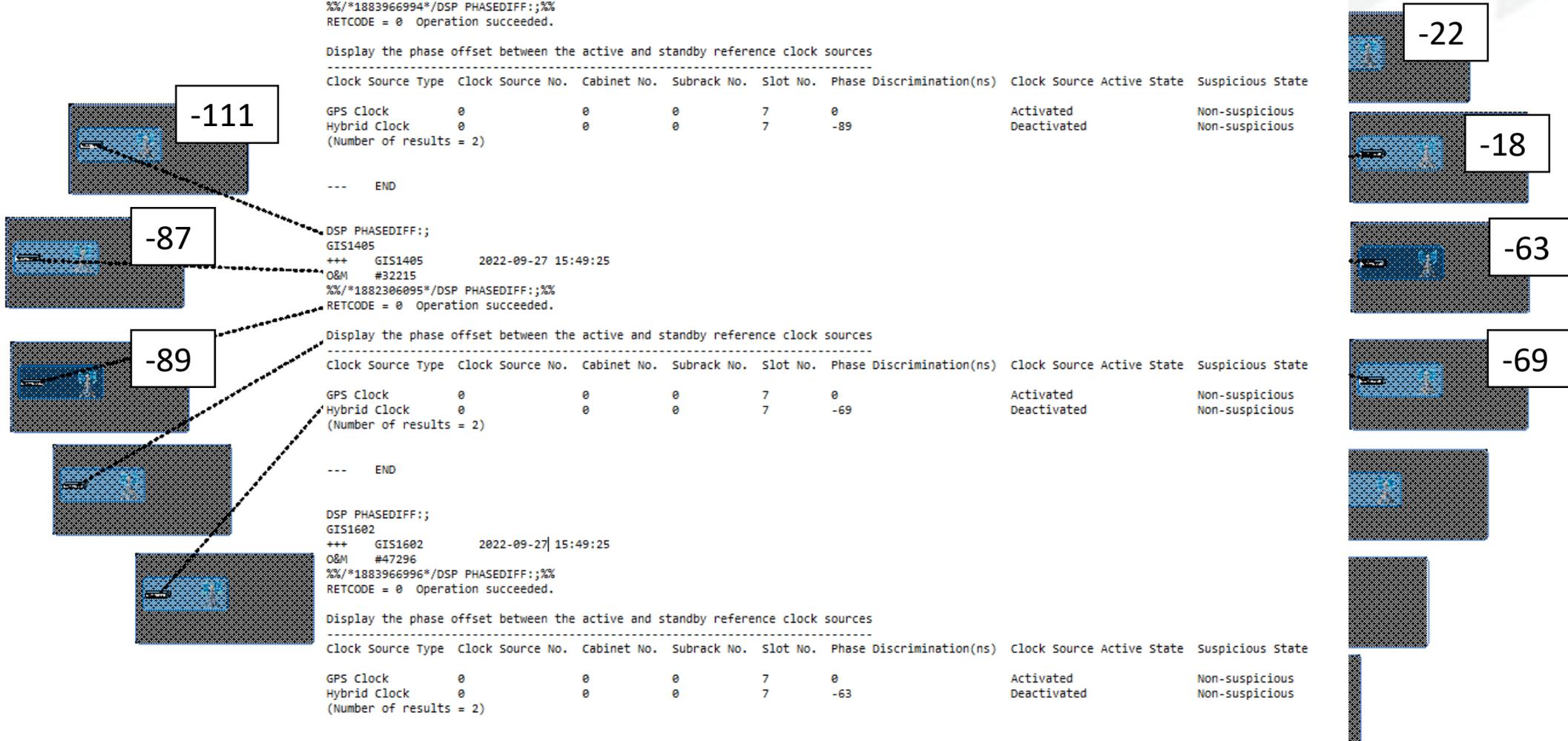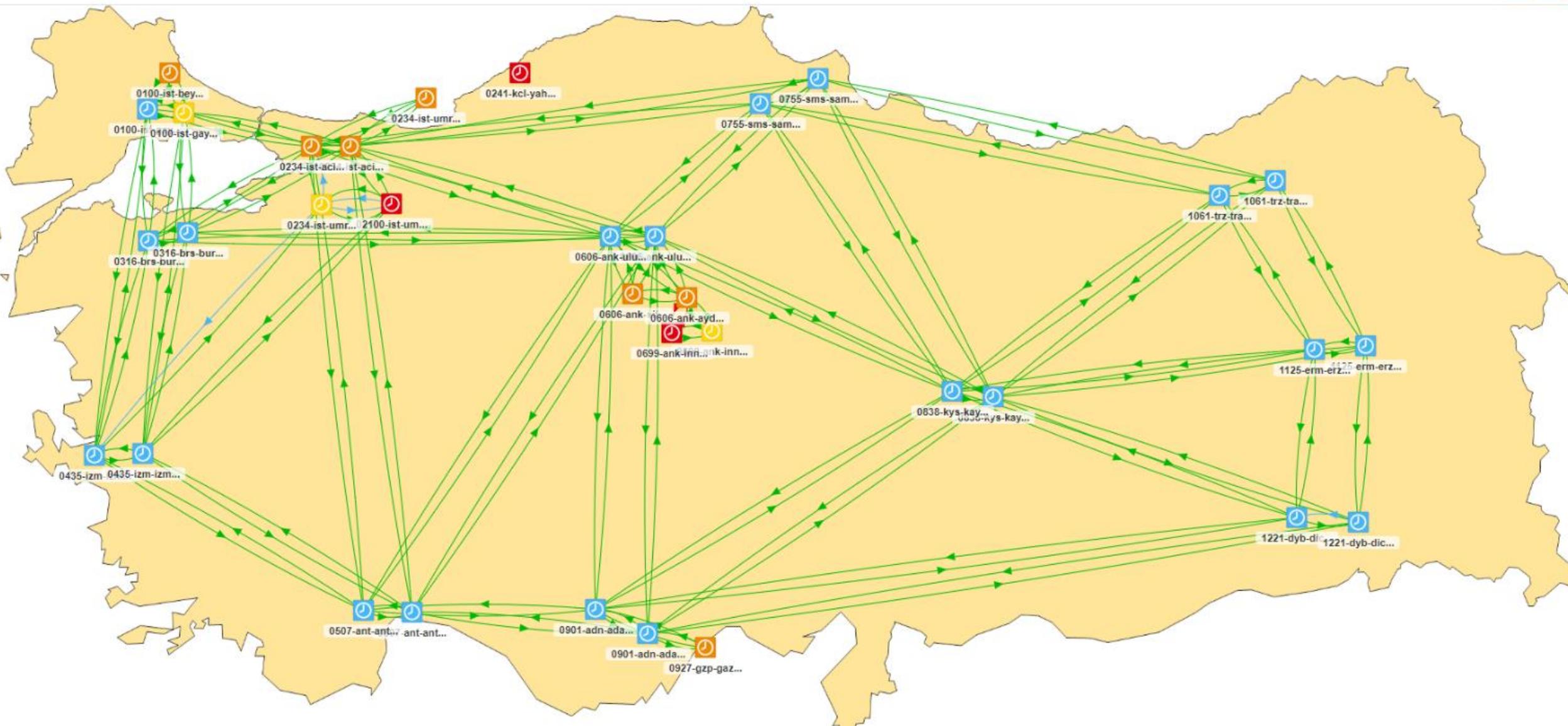
-22

-18

-63

-69

-111

-87

-89

Counter name / ID	topMinPhaseSyncError (M51362C1)	topAvgPhaseSyncError (M51362C2)	topMaxPhaseSyncError (M51362C3)
Full path	SMOD/TOPP-1/TOP_PhaseSync_Stats/topMinPhaseSyncError	SMOD/TOPP-1/TOP_PhaseSync_Stats/topAvgPhaseSyncError	SMOD/TOPP-1/TOP_PhaseSync_Stats/topMaxPhaseSyncError
Unit	nanoseconds	nanoseconds	nanoseconds
2022-08-05 11:45:00	-26	-22	-17
2022-08-05 11:30:00	-17	-9	-2
2022-08-05 11:15:00	-15	-10	-6
2022-08-05 11:00:00	-21	-14	-6
2022-08-05 10:45:00	-12	-10	-7
2022-08-05 10:30:00	-18	-11	12
2022-08-05 10:15:00	4	7	12
2022-08-05 10:00:00	-6	2	10
2022-08-05 09:45:00	-16	-9	-1
2022-08-05 09:30:00	-12	-7	-1
2022-08-05 09:15:00	-14	-10	-1
2022-08-05 09:00:00	-25	-20	-14
2022-08-05 08:45:00	-19	-9	10
2022-08-05 08:30:00			
2022-08-05 08:15:00			
2022-08-05 08:00:00			
2022-08-05 07:45:00			
2022-08-05 07:30:00			
2022-08-05 07:15:00			
2022-08-05 07:00:00			
2022-08-05 06:45:00			

Counter name / ID	topRxPhaseSyncMsg (M51362C0)	topMinPhaseSyncError (M51362C1)	topAvgPhaseSyncError (M51362C2)	topMaxPhaseSyncError (M51362C3)
Full path	SMOD/TOPP-1/TOP_PhaseSync_Stats/topRxPhaseSyncMsg	SMOD/TOPP-1/TOP_PhaseSync_Stats/topMinPhaseSyncError	SMOD/TOPP-1/TOP_PhaseSync_Stats/topAvgPhaseSyncError	SMOD/TOPP-1/TOP_PhaseSync_Stats/topMaxPhaseSyncError
Unit	packets	nanoseconds	nanoseconds	nanoseconds
2022-08-05 11:30:00	14399	-16	-4	8
2022-08-05 11:15:00	14398	-20	-15	-13
2022-08-05 11:00:00	14399	-24	-16	0
2022-08-05 10:45:00	14398	-14	0	13
2022-08-05 10:30:00	14399	7	14	39
2022-08-05 10:15:00	14398	21	32	39
2022-08-05 10:00:00	14399	-4	7	21
2022-08-05 09:45:00	14398	-25	-3	15
2022-08-05 09:30:00	14399	15	62	292
2022-08-05 09:15:00	14398	29	116	292
2022-08-05 09:00:00	14399	-11	16	29
2022-08-05 08:45:00	14398	-11	13	39
2022-08-05 08:30:00	14399	26	34	91
2022-08-05 08:15:00	14398	51	75	101
2022-08-05 08:00:00	14398	42	52	70
2022-08-05 07:45:00	14399	50	79	132
2022-08-05 07:30:00	14398	37	53	83
2022-08-05 07:15:00	14399	50	61	67
2022-08-05 07:00:00	14398	28	42	60
2022-08-05 06:45:00	14399	11	20	28
2022-08-05 06:30:00	14398	1	15	27
2022-08-05 06:15:00	14399	-1	12	26
2022-08-05 06:00:00	14398	0	5	13
2022-08-05 05:45:00	14399	-4	1	14
2022-08-05 05:30:00	14399	4	12	17
2022-08-05 05:15:00	14398	9	19	38
2022-08-05 05:00:00	14389	18	28	38

TT Motivation

EIE. EXECUTIVE INDUSTRY EVENTS

- GPS DEPENDENCY
- TROUBLESHOOTING
- OPERATIONAL CHALLENGES
- MONITORING
- SLA
- INVESTMENT & ROI
- HARDWARE DEPENDENCY