

# Station Report - SP

by

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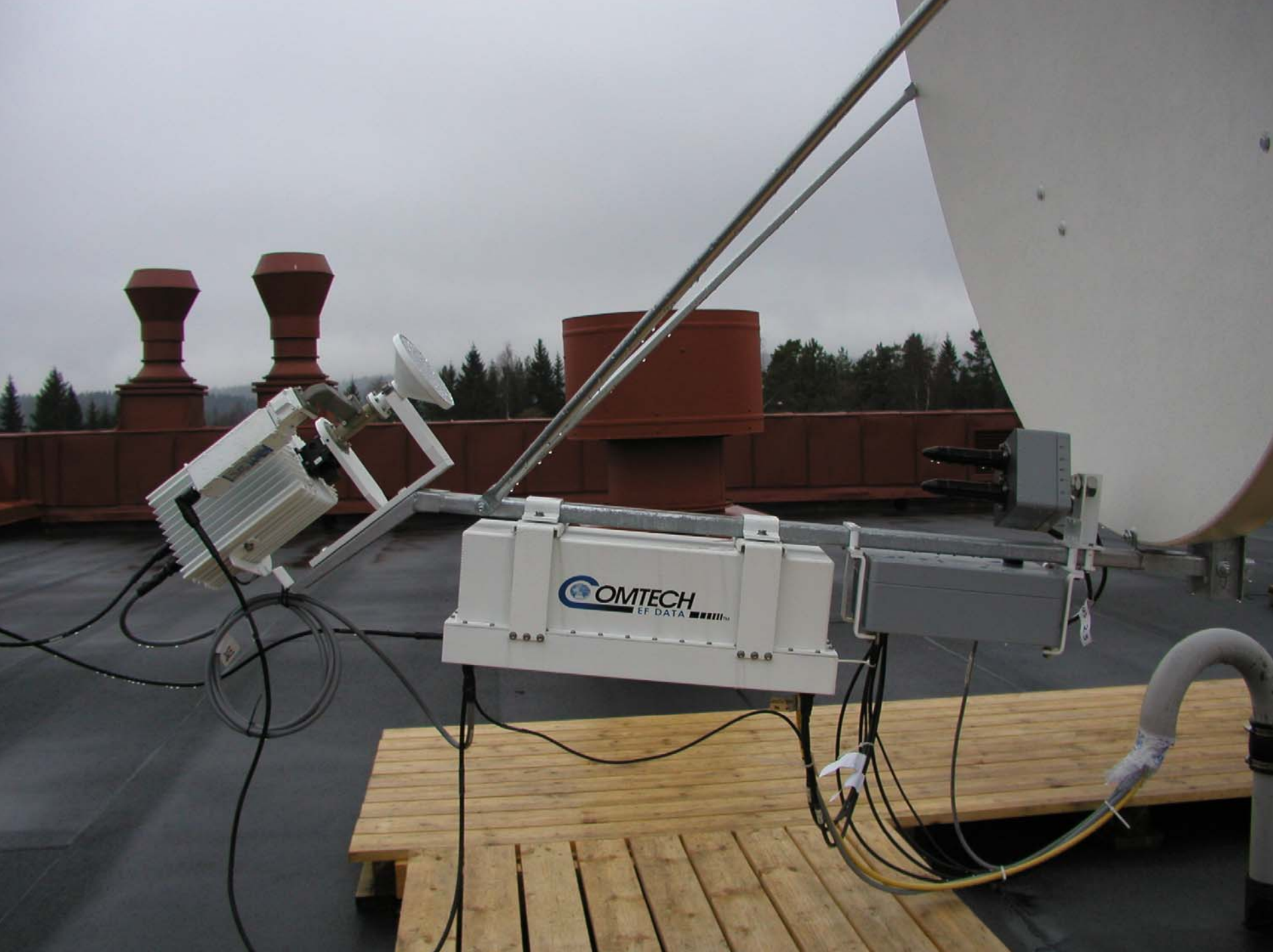
15<sup>th</sup> CCTF WG-meeting on TWSTFT  
17<sup>th</sup> to 19<sup>th</sup> September, 2007  
METAS, Bern, Switzerland











# TWSTFT at SP - activities since last year

- **TW-link between SP01 and PTB01 official UTC-link since April 2007**
  - Calibration of earlier GPSP3-link relative to TW-link resulted in a time step of UTC(SP) of -7.6 ns on MJD 53826
- **Change of serial communication between modem and transceiver from RS232 to RS485**
  - The earlier RS232 communication occasionally resulted in hanging of the modem to transceiver communication. This is now resolved with the new RS485 serial communication
- **Regular satellite simulator measurement during odd hours**
  - ca 50ps RMS for cable measurements
  - ca 1ns RMS measurements involving RF parts

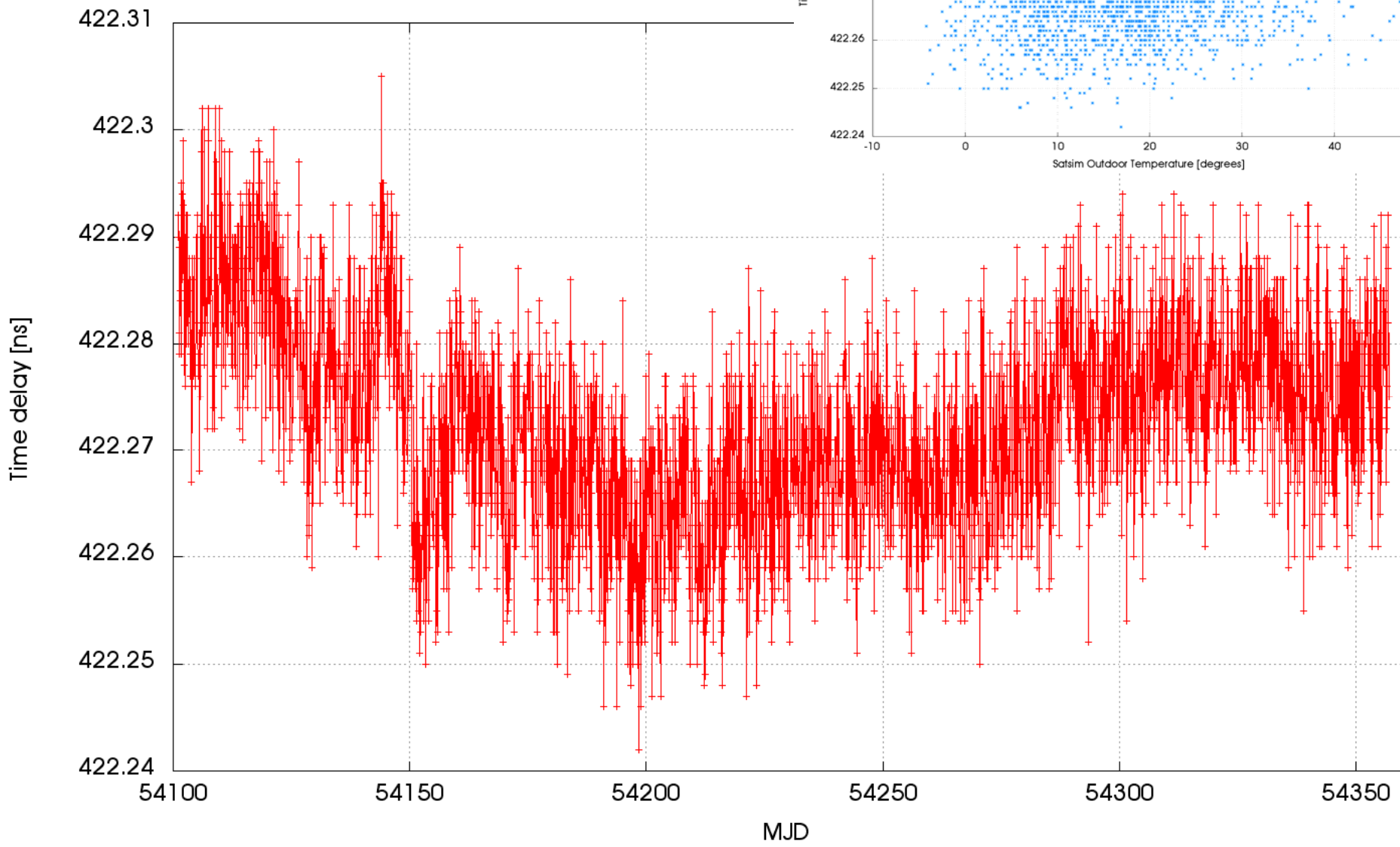


# TWSTFT at SP - planned activities

- **Removal of one of the fixed attenuators in the satellite simulator**
  - This will improve the received power of the complete system
  - Will most likely require new calibration values (EDSVAR)
  - The new values can be calculated using SATSIM measurements before and after change
- **Otherwise, the system has been stable without changes during the last year**

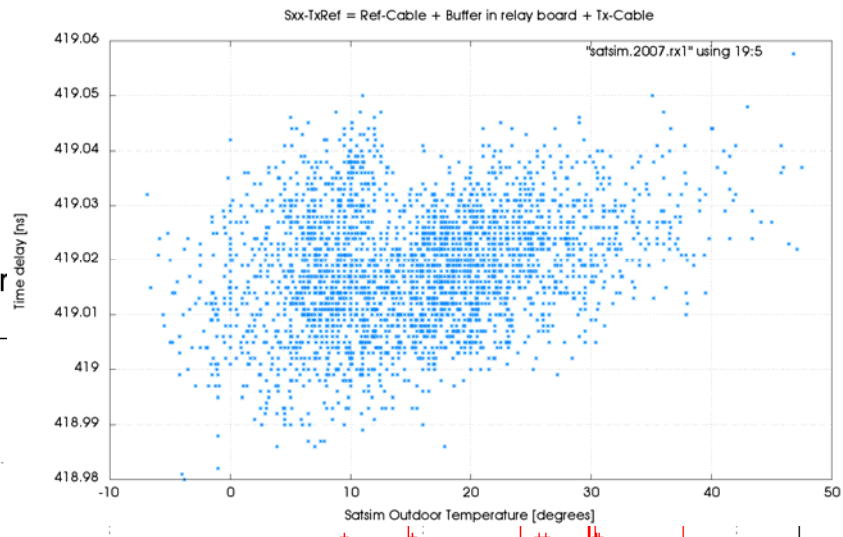
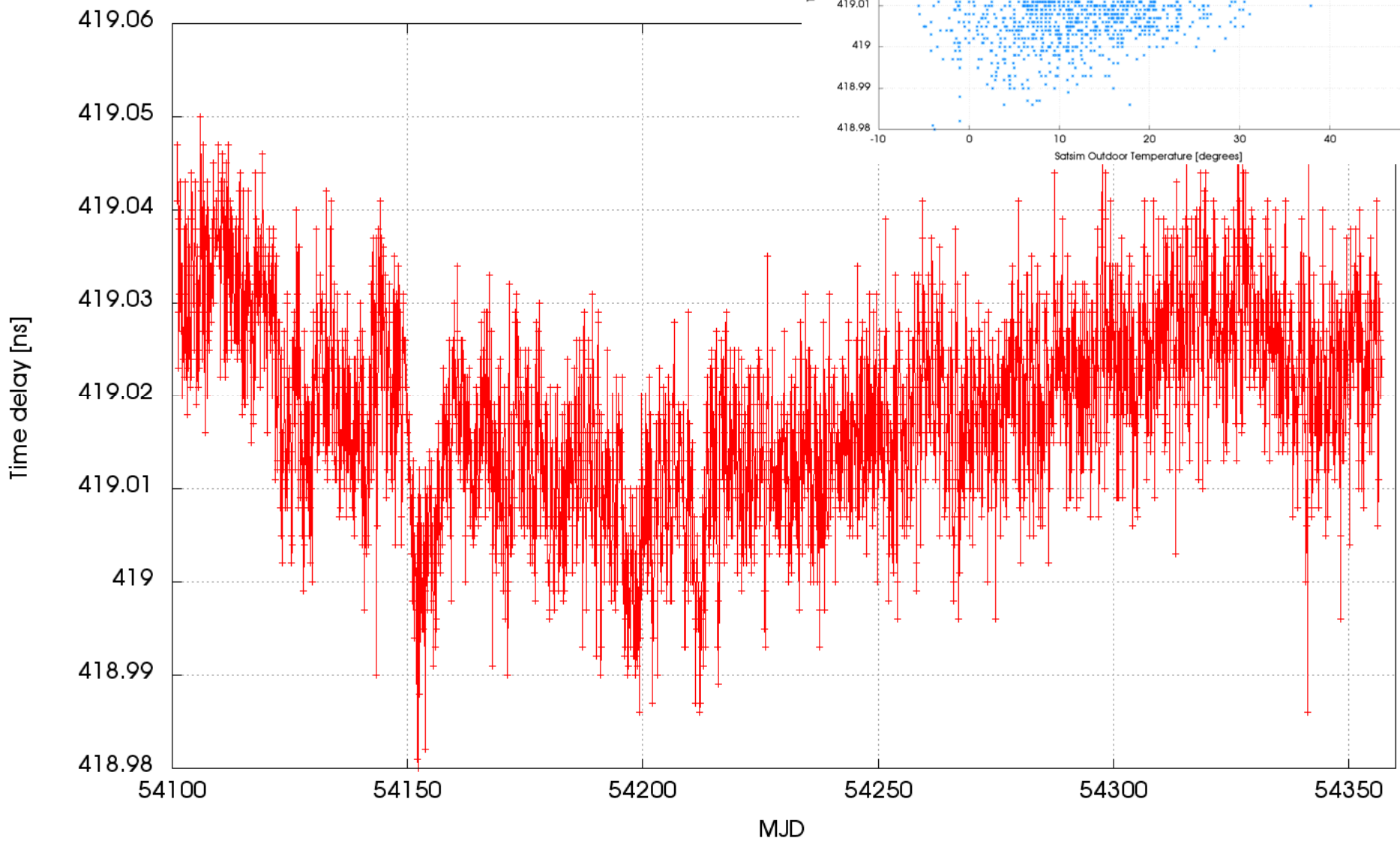
# SATSIM 1 Cable Tx+Rx

Sxx-70 = Tx-Cab



# SATSIM 2 Cable Ref + Tx

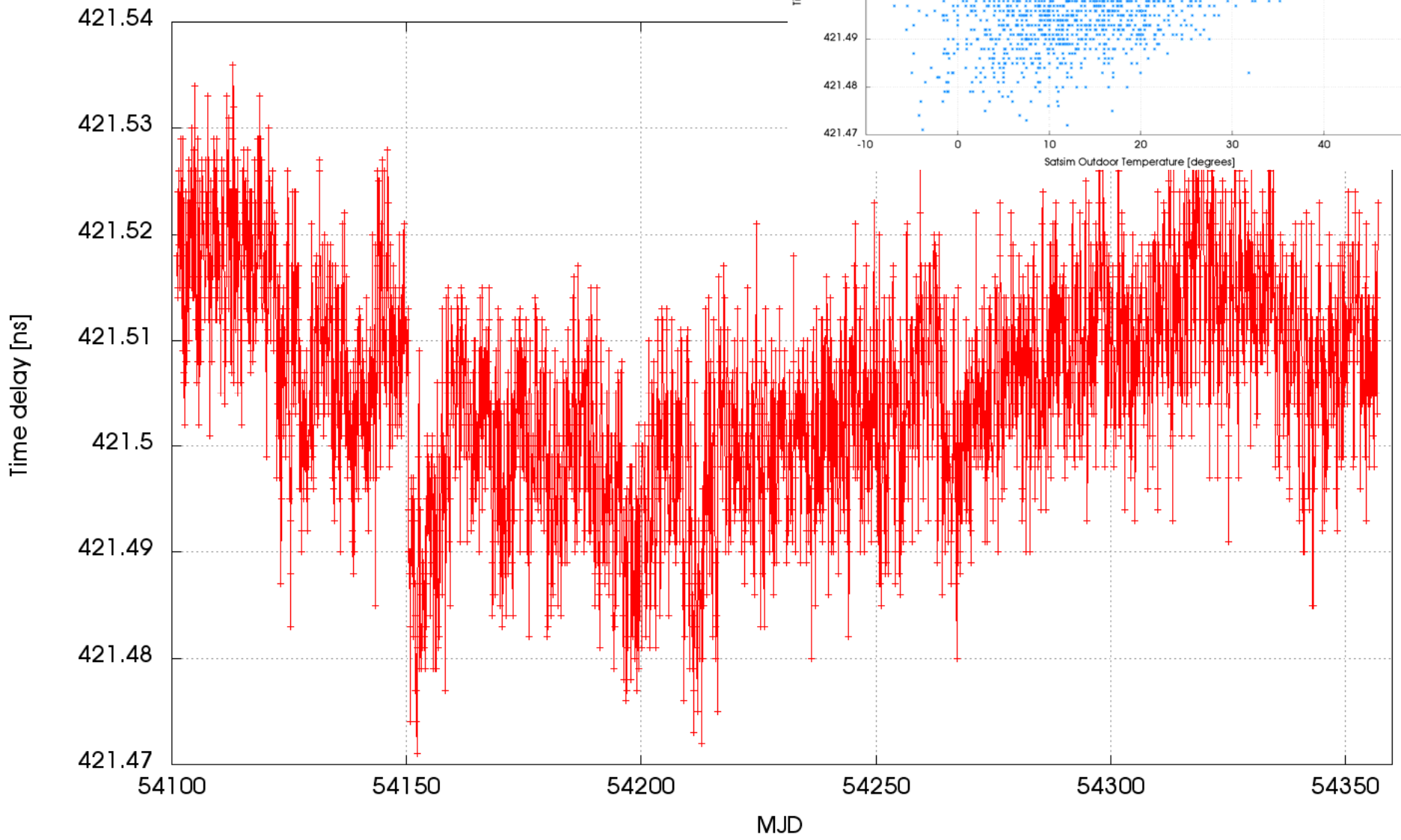
$$S_{xx-TxRef} = Ref-Cable + Buffer$$





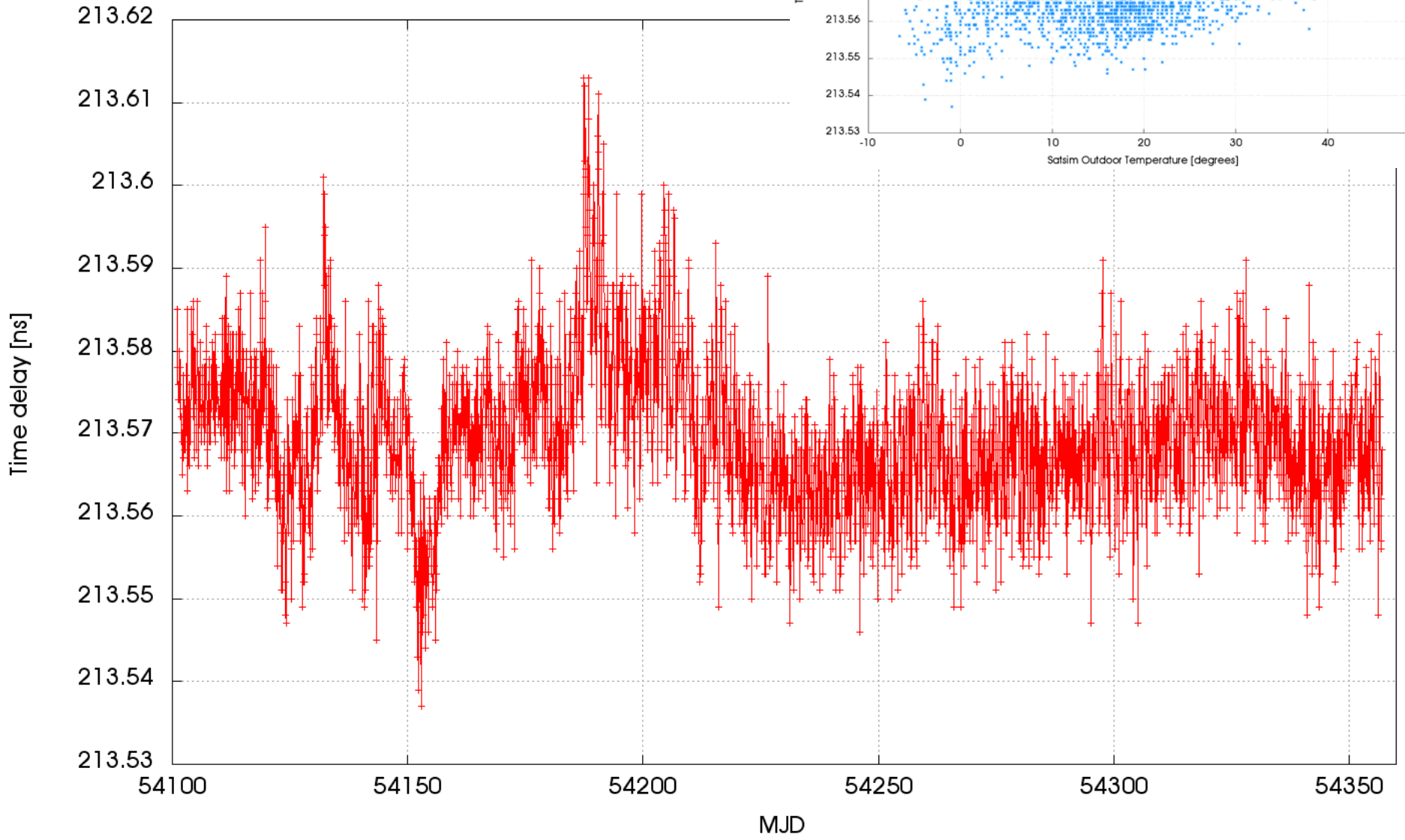
# SATSIM 3 Cable Ref + Rx

Sxx-RxRef = Ref-Cable + Buffer



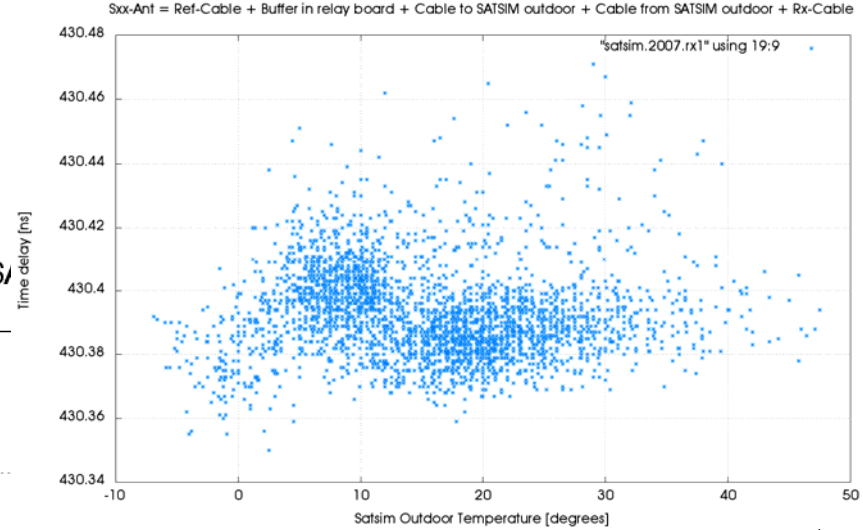
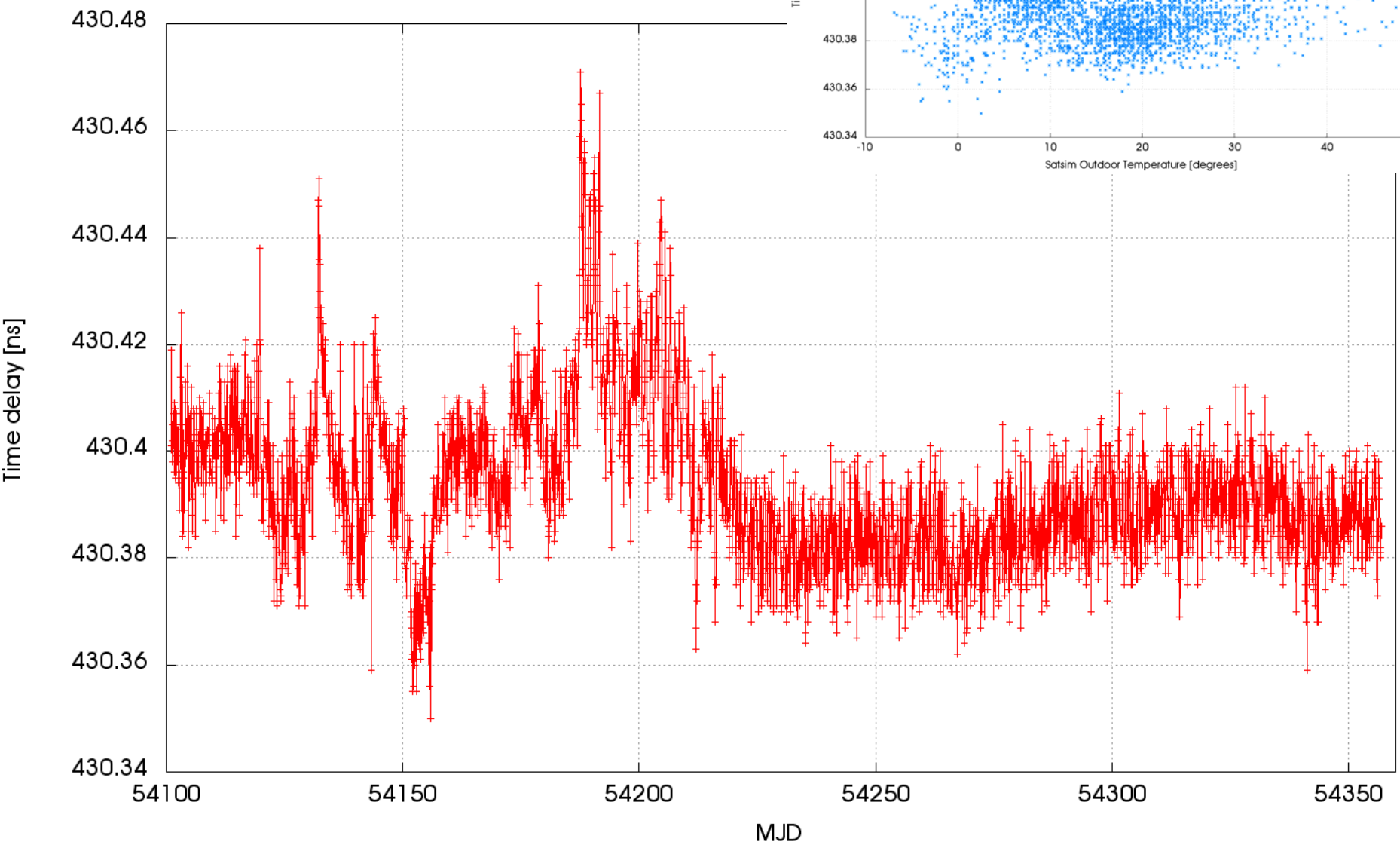
# SATSIM 4 Cable Ref+Satsim

Sxx-Ref = Ref-Cable + Buffer in realy



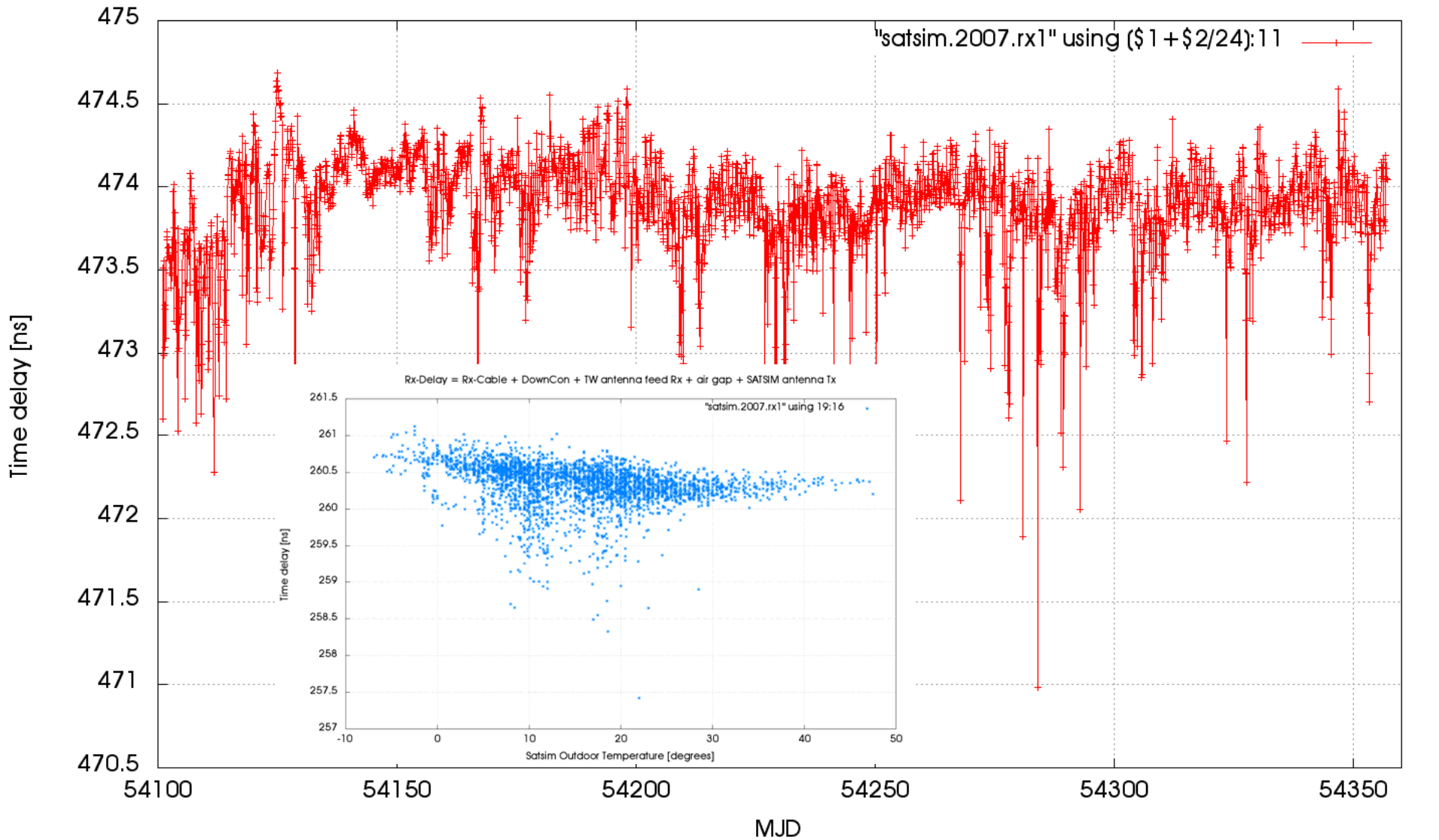
# SATSIM 5 Sxx-Ant

Sxx-Ant = Ref-Cable + Buffer in relay board + Cable to S



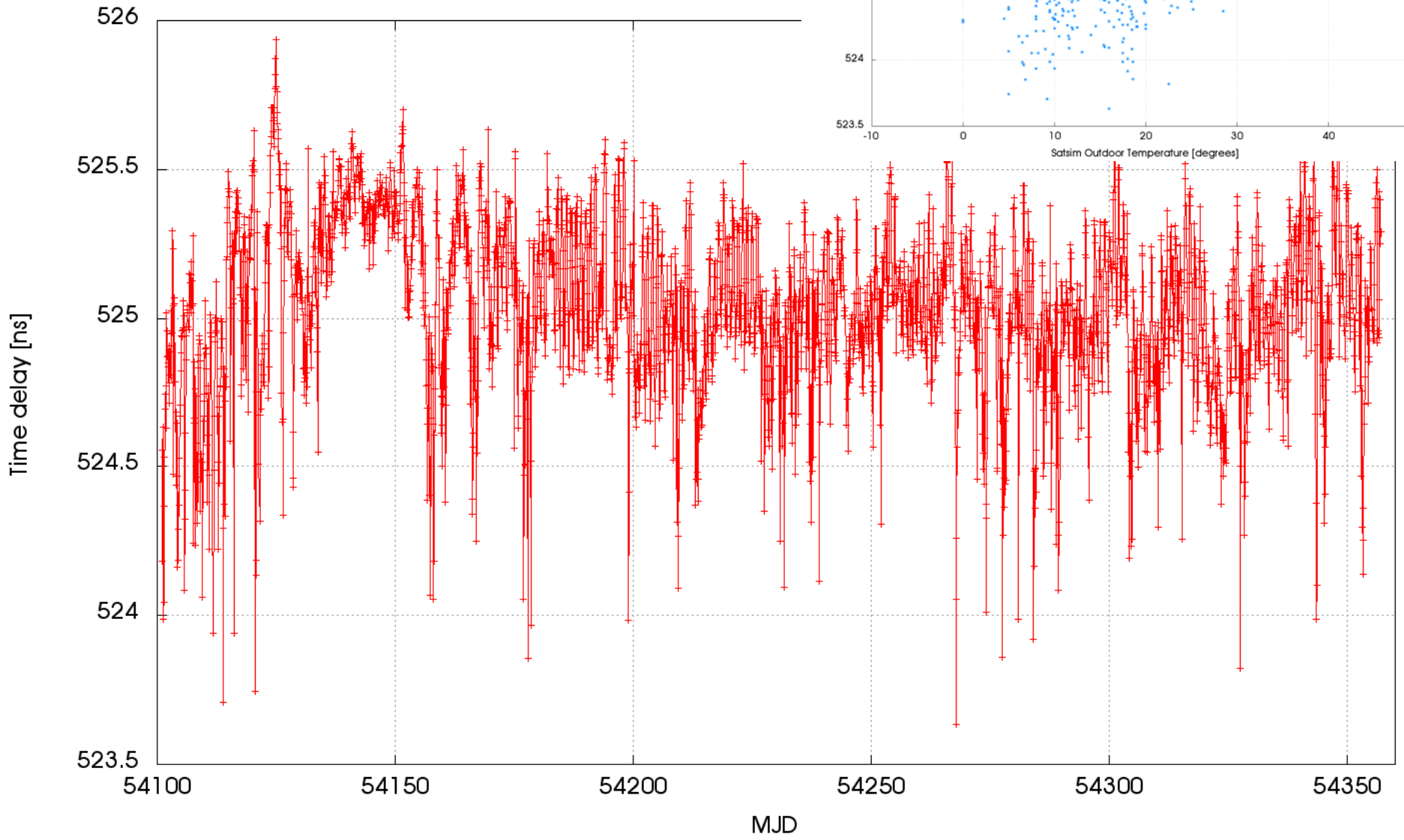
# SATSIM 6 Sxx-KuRef

Ref = Ref-Cable + Buffer in relay board + Cable to SATSIM outdoor + SATSIM antenna Tx + air gap + TW antenna feed Rx + Down



# SATSIM 7 Ku-Tx

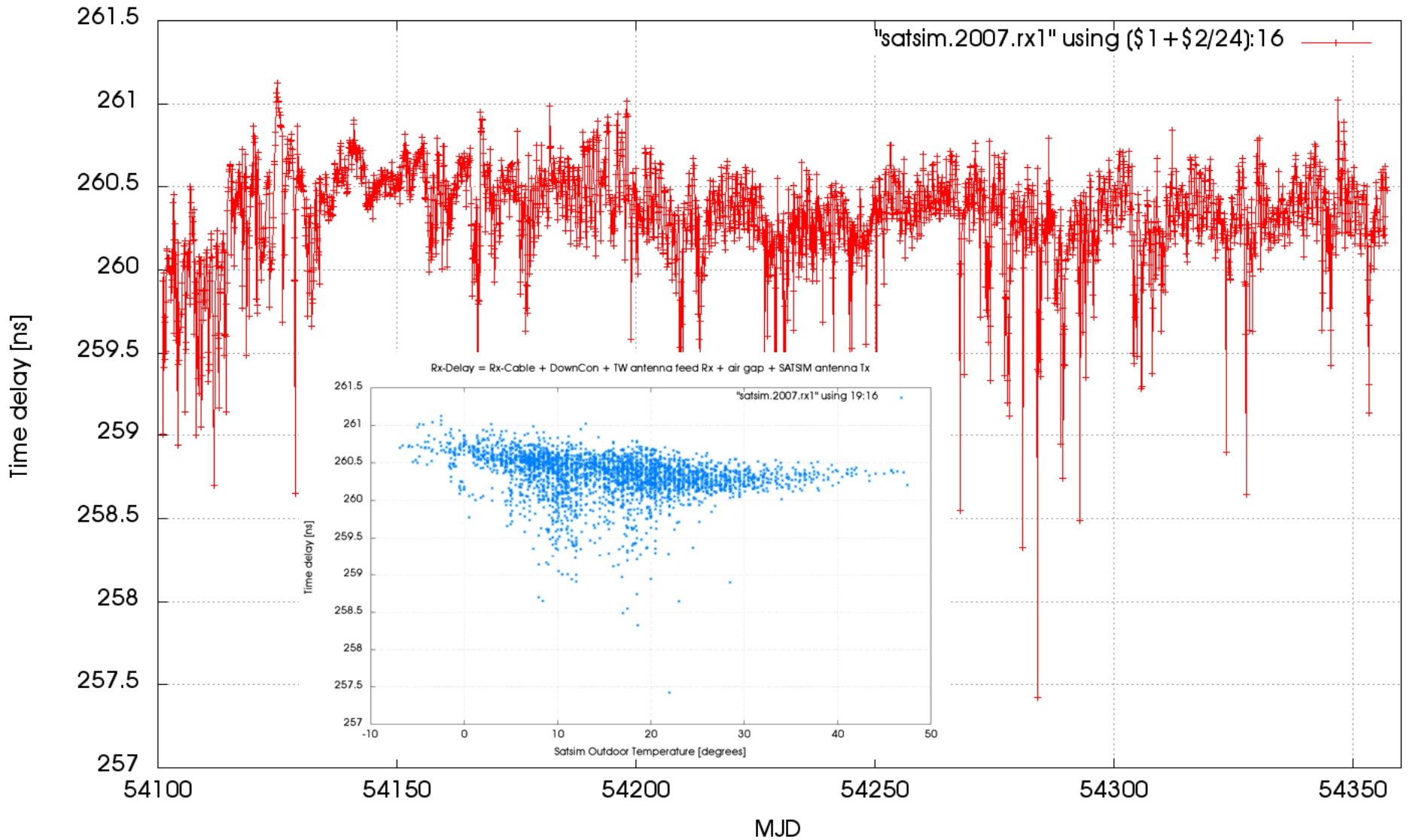
Tx-Cable + UpCon + TW antenna feed Tx + air gap + SATSIM antenna Rx





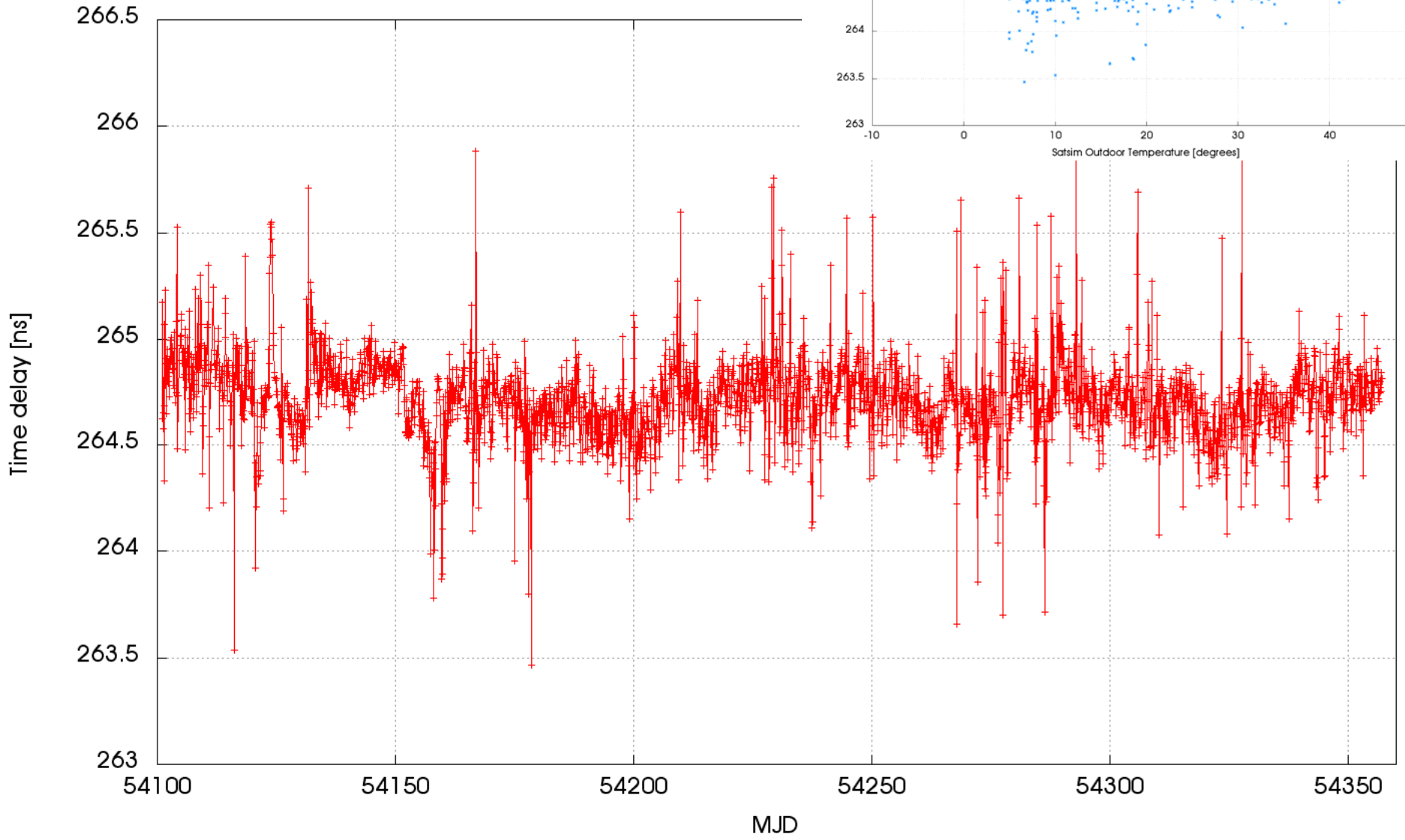
# SATSIM 8 Rx-Delay

Rx-Delay = Rx-Cable + DownCon + TW antenna feed Rx + air gap + SATSIM antenna Tx



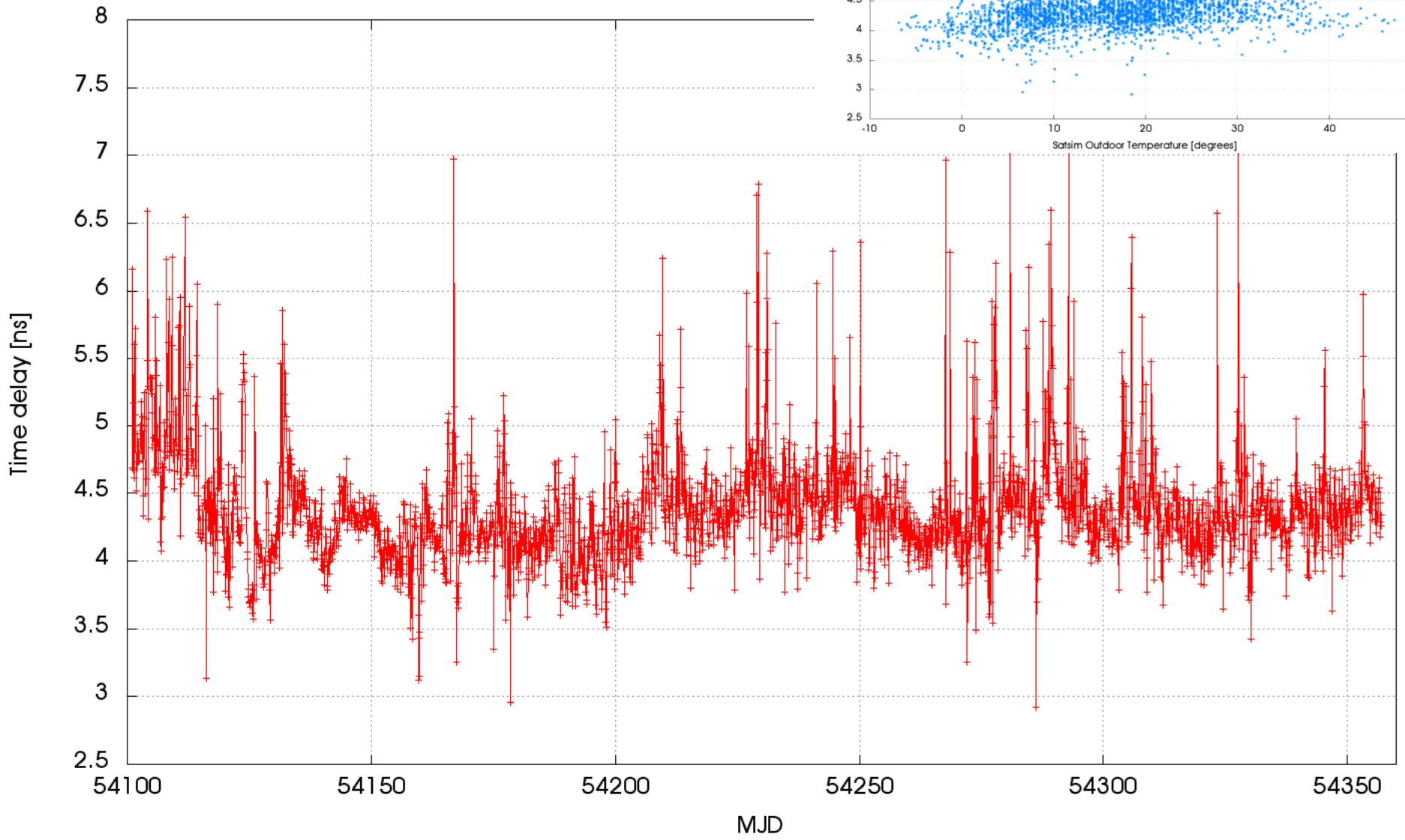
# SATSIM 9 Tx-Delay

Tx-Delay = Tx-Cable + UpCon + TW antenna



# SATSIM10 Tx-Rx-Delay

Tx-Rx Delay = Tx-Cable + UpCon + TW antenna feed Tx



# SP Receive Statistics 2007 in %

#Month	SP01	VSL01	NPL01	OP01	ROA01	IT02	OCA01	PTB01	NIST01	USNO01	CH01	TUG01	IPQ01	AOS01
2007:1	94.99	93.12	53.72	89.30	96.65	90.78	94.80	96.76	92.27	77.24	62.08	76.29	83.23	90.52
2007:2	91.41	80.92	32.80	87.53	94.74	95.46	93.64	92.04	92.21	54.18	0.00	0.00	80.96	94.51
2007:3	96.60	82.75	0.00	89.78	98.15	93.77	90.94	93.81	93.79	48.14	0.18	0.00	84.01	78.38
2007:4	97.04	74.06	0.25	90.53	97.62	90.82	96.68	95.26	94.97	81.72	25.18	0.00	77.68	0.00
2007:5	96.24	94.56	9.23	85.92	98.12	98.70	96.56	93.10	94.93	81.41	96.59	0.00	83.07	0.00
2007:6	91.47	80.31	8.45	78.41	92.93	94.05	88.41	90.18	85.92	76.61	91.05	0.00	78.28	78.48
2007:7	87.05	90.78	3.29	81.96	91.52	86.86	80.27	89.52	85.06	75.34	89.89	0.00	76.58	85.25
2007:8	94.16	92.72	7.12	39.42	97.26	98.07	39.98	97.41	93.82	80.86	96.73	0.00	83.36	11.85
2007:9	96.99	72.85	7.53	33.61	97.61	99.30	76.60	97.94	94.25	81.31	96.81	0.00	83.40	0.00
#time								SP01						
2007:1								96.39						
2007:2								89.64						
2007:3								93.93						
2007:4								94.03						
2007:5								89.07						
2007:6								90.63						
2007:7								93.41						
2007:8								92.75						
2007:9								93.85						

