

Vertical TEC over Ilorin- Preliminary Results

O.A. Oladipo, J.O. Adeniyi, P. Doherty,
S.M. Radicella, I.A. Adimula, and
A.O. Olawepo



University of Ilorin GPS Receiver



Geo-Latitude = 8.47°N

Geo Longitude = 4.68°E

Dip = 4.1°S



Installation of GPS Receiver at Ilorin





Calibrated Vertical TEC

$$\text{TECV}(\text{BR}) = [\text{TECR} - A (\text{BR} + \text{BS})] / M(\epsilon, h)$$

$$M(\epsilon, h) = \sec \{ \arcsin[(R_e \cos \epsilon)/(R_e+h)] \}$$

Bs Values – online Values

Br values - calculated using method described by **Charles S.**

Carrano (GPS-Scinda17 Manual)

$$V(\text{BR}) = \sum_i \text{Variance} [\text{TECV}(\text{BR})]_i$$

T 08 09 10 00021

152.2	17.3	0.08	100	0.25	100	51.1	-45.257	8.75	48.3	415	03
15.7	53.7	0.08	100	0.06	100	28.5	-15.693	8.26	33.0	219	11
209.0	41.1	0.05	100	0.09	100	39.6	-10.968	7.80	37.0	74	13
153.6	48.0	0.04	100	0.06	100	23.4	-39.747	7.35	22.6	305	19
342.0	38.7	0.13	100	0.10	100	39.7	-32.996	7.51	37.1	237	20
209.0	75.2	0.05	100	0.03	100	18.2	-21.402	7.51	18.5	146	23
11.1	31.0	0.09	100	0.14	100	48.1	-42.184	7.78	44.9	291	32
248.5	64.5	0.05	100	0.00	0	0.0	-0.000	0.00	0.0	0	120

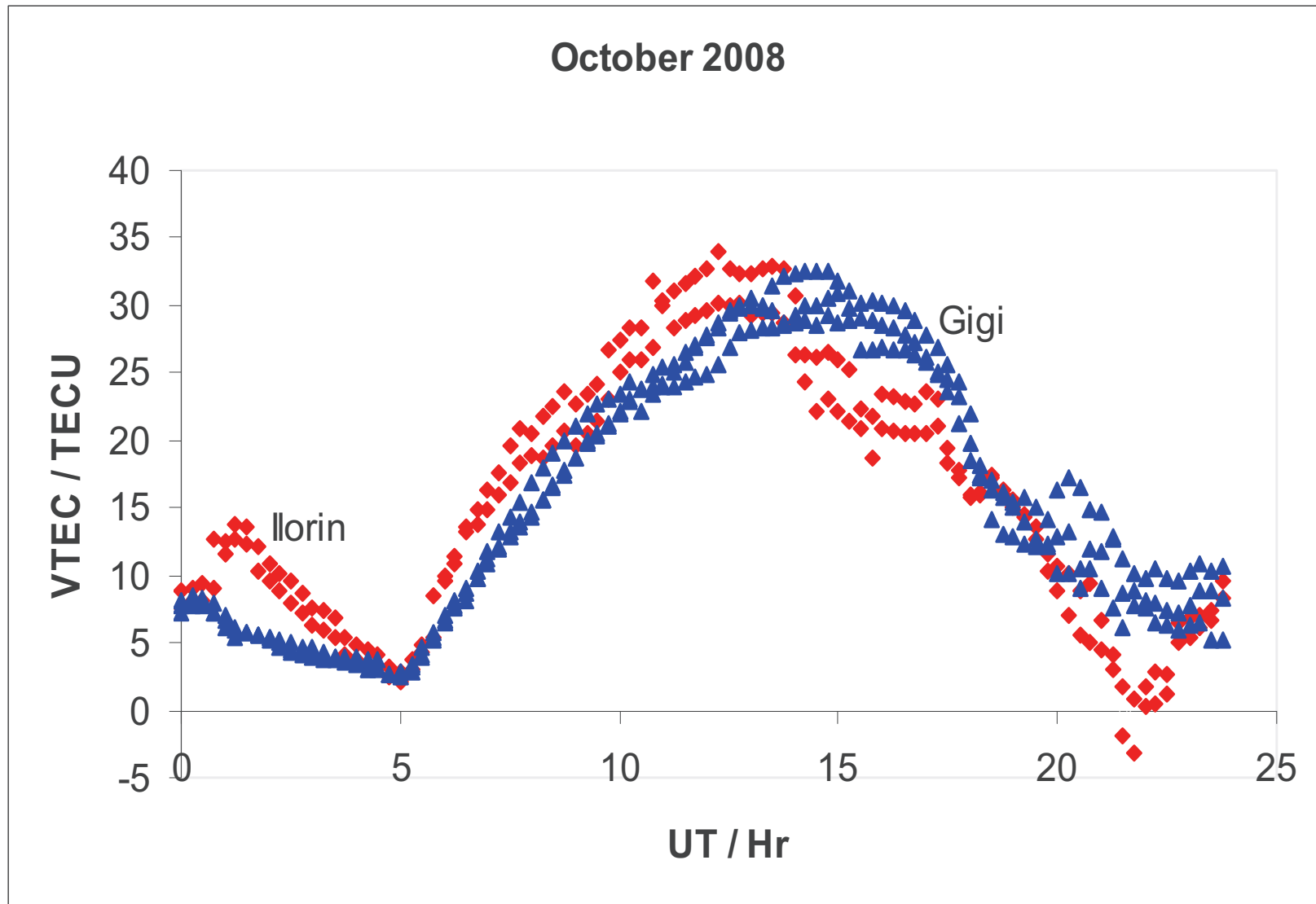
T 08 09 10 00081

152.2	16.9	0.09	100	0.25	100	50.6	-45.258	9.30	48.3	416	03
16.3	54.0	0.04	100	0.06	100	36.1	-15.705	7.37	33.0	220	11
209.3	41.6	0.05	100	0.08	100	39.9	-11.033	7.91	37.0	75	13
153.8	47.5	0.07	100	0.07	100	22.8	-39.764	7.23	22.6	306	19
342.5	38.5	0.07	100	0.09	100	37.0	-32.991	8.03	37.1	238	20
209.9	75.7	0.03	100	0.03	100	18.2	-21.417	7.55	18.5	147	23
11.5	30.7	0.11	100	0.13	100	45.1	-42.246	7.86	44.9	292	32
248.5	64.5	0.04	100	0.00	0	0.0	-0.000	0.00	0.0	0	120

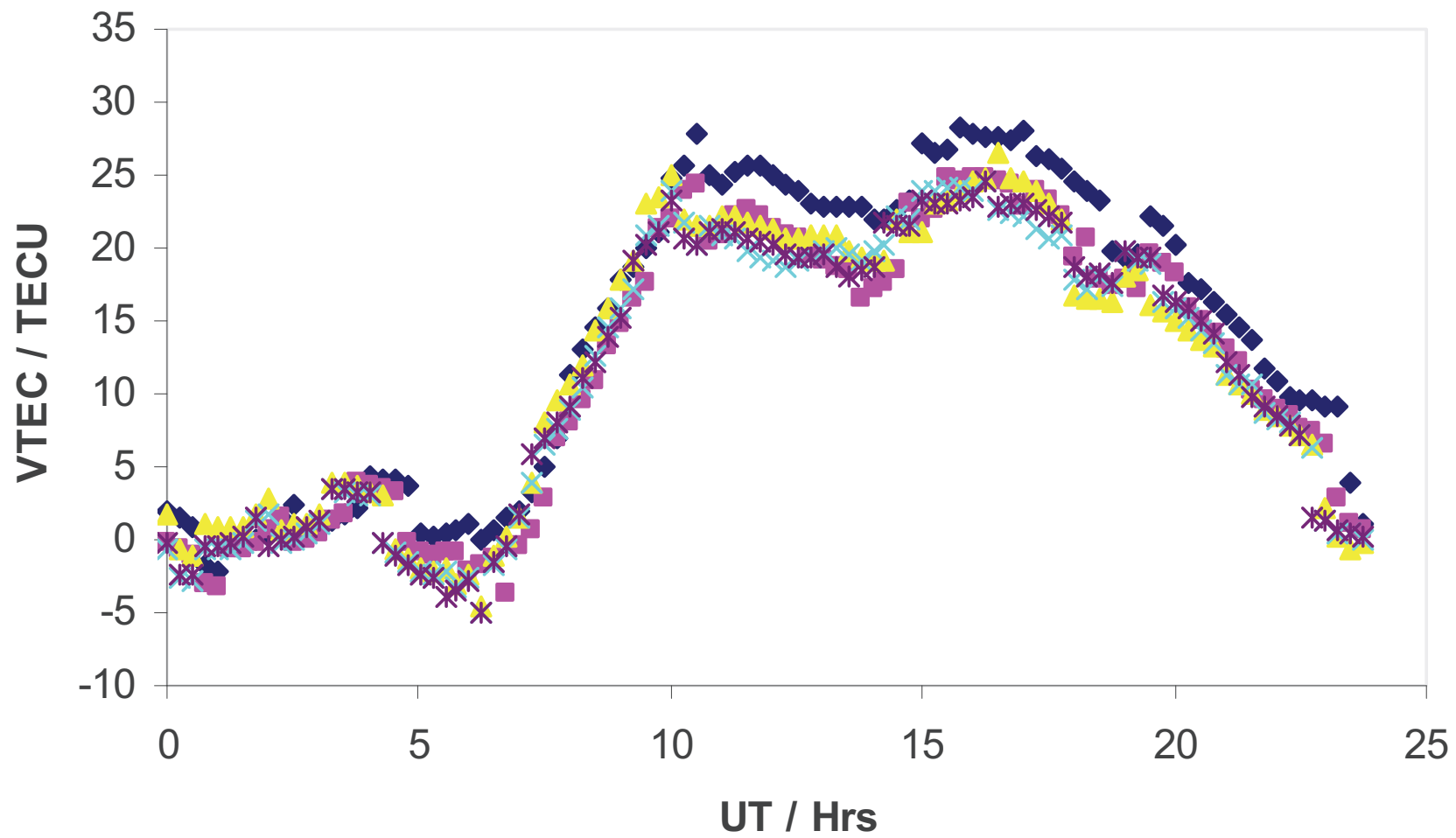
T 08 09 10 00141

152.2	16.6	0.17	100	0.25	100	51.1	-45.108	8.60	48.4	417	03
16.9	54.3	0.06	100	0.06	100	38.1	-15.726	7.18	33.0	221	11
209.5	42.0	0.04	100	0.08	100	37.7	-11.090	7.56	36.9	76	13
154.0	47.0	0.06	100	0.07	100	24.2	-39.731	7.60	22.6	307	19
343.1	38.4	0.08	100	0.09	100	33.2	-33.005	7.66	37.1	239	20
210.9	76.1	0.03	100	0.04	100	17.6	-21.421	7.85	18.5	148	23
11.9	30.5	0.09	100	0.12	100	47.0	-42.281	7.57	44.8	293	32
248.5	64.5	0.04	100	0.00	0	0.0	-0.000	0.00	0.0	0	120

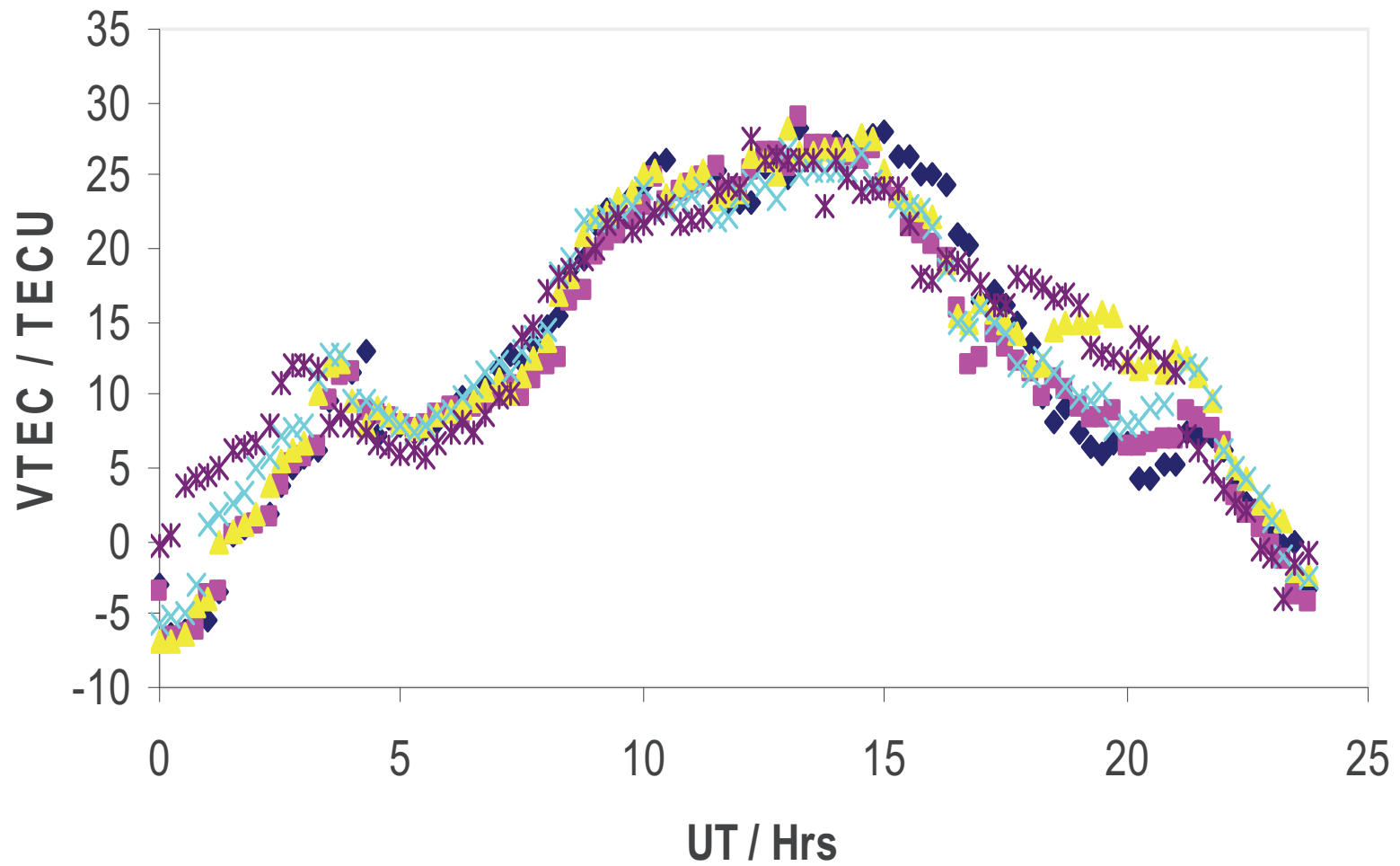
Sample Results: Comparison of Methods



June 2008



September 2008



December 2008

