

APPENDIX A – FIGURES AND RESULT TABLES

Result Table 1: Monthly Analysis of VOCs at Site 1 - Covesea ($\mu\text{g}/\text{m}^3$)

Components Identified using GC/MS	Long-Term EAL	Short-Term EAL	Odour Threshold Value	Odour Threshold Limit Value (8-hour)	Dec No-Fly	6-month mean
Acetic Acid	250	3700	43	25000*	0.0	0.0
Acetone	18100	362000	13900	2400000*	18.3	9.3
Benzene	16.25	208	32500	32000*	0.0	0.2
1-Butanol			90		9.5	0.5
Carbon Disulphide	64	100	650*	60000*	18.0	2.9
Carbon Tetrachloride	130	3900	280000	65000*	0.0	1.0
Cyclohexane	3500	105000	315000		7.7	58.1
Dichloromethane	700	3000	3420		6.6	6.5
1-4 dioxane	910	36600	30600		0.0	0.0
Ethylbenzene	4410	55200			0.0	0.0
Hexane	720	21600			226.6	115.6
Methyl isobutyl ketone			1900*	410000*	0.0	0.0
Napthalene	530	8000			0.0	0.0
Styrene	800	800	160	420000*	0.0	16.6
Trichlorofluoromethane	57100	714000			0.0	6.0
1,2,4-Trimethylbenzene	1250	37500			0.0	0.7
Toluene	1910	8000	644	375000*	6.9	76.5
M+p-Xylene	4410	66200	78		0.0	2.4
o-Xylene	4410	66200	78		0.0	0.5
TOTAL VOCs					418	401

*Odour threshold level taken from Ref. 12

Result Table 2: Monthly Analysis of VOCs at Site 2 - Crash Gate 4 ($\mu\text{g}/\text{m}^3$)

Components Identified using GC/MS	Long-Term EAL	Short-Term EAL	Odour Threshold Value	Odour Threshold Limit Value (8-hour)	Dec No-Fly	6-month mean
Acetic Acid	250	3700	43	25000*	0.0	0.0
Acetone	18100	362000	13900	2400000*	14.7	10.8
Benzene	16.25	208	32500	32000*	0.0	0.0
1-Butanol			90		5.9	0.6
Carbon Disulphide	64	100	650*	60000*	9.8	2.4
Carbon Tetrachloride	130	3900	280000	65000*	0.0	1.8
Cyclohexane	3500	105000	315000		6.3	1.9
Dichloromethane	700	3000	3420		0.0	7.0
1-4 dioxane	910	36600	30600		0.0	0.0
Ethylbenzene	4410	55200			0.0	0.0
Hexane	720	21600			160.7	238.7
Methyl isobutyl ketone			1900*	410000*	0.0	0.0
Napthalene	530	8000			0.0	0.0
Styrene	800	800	160	420000*	0.0	37.5
Trichlorofluoromethane	57100	714000			0.0	5.4
1,2,4-Trimethylbenzene	1250	37500			0.0	0.0
Toluene	1910	8000	644	375000*	0.0	146.1
M+p-Xylene	4410	66200	78		0.0	2.1
o-Xylene	4410	66200	78		0.0	0.7
TOTAL VOCs					287	702

*Odour threshold level taken from Ref. 12

Note: Results reported for VOCs with relevant assessment levels

Result Table 3: Monthly Analysis of VOCs at Site 3 - Stotfield Road, Lossiemouth ($\mu\text{g}/\text{m}^3$)

Components Identified using GC/MS	Long-Term EAL	Short-Term EAL	Odour Threshold Value	Odour Threshold Limit Value (8-hour)	Dec No-Fly	6-month mean
Acetic Acid	250	3700	43	25000*	0.0	0.0
Acetone	18100	362000	13900	2400000*	4.8	2.6
Benzene	16.25	208	32500	32000*	0.0	1.2
1-Butanol			90		0.0	41.0
Carbon Disulphide	64	100	650*	60000*	0.0	0.0
Carbon Tetrachloride	130	3900	280000	65000*	0.0	1.1
Cyclohexane	3500	105000	315000		3.9	11.9
Dichloromethane	700	3000	3420		0.0	2.1
1-4 dioxane	910	36600	30600		0.0	0.2
Ethylbenzene	4410	55200			0.0	1.1
Hexane	720	21600			10.4	6.5
Methyl isobutyl ketone			1900*	410000*	0.0	0.0
Napthalene	530	8000			13.3	3.3
Styrene	800	800	160	420000*	0.0	2.0
Trichlorofluoromethane	57100	714000			0.0	0.9
1,2,4-Trimethylbenzene	1250	37500			0.0	23.7
Toluene	1910	8000	644	375000*	0.0	96.9
M+p-Xylene	4410	66200	78		0.0	0.0
o-Xylene	4410	66200	78		0.0	9.0
TOTAL VOCs					346	411

*Odour threshold level taken from Ref. 12

Result Table 4: Monthly Analysis of VOCs at Site 4 - Westerfolds ($\mu\text{g}/\text{m}^3$)

Components Identified using GC/MS	Long-Term EAL	Short-Term EAL	Odour Threshold Value	Odour Threshold Limit Value (8-hour)	Dec No-Fly	6-month mean
Acetic Acid	250	3700	43	25000*	0.0	48.3
Acetone	18100	362000	13900	2400000*	8.9	6.5
Benzene	16.25	208	32500	32000*	0.0	0.2
1-Butanol			90		0.0	0.0
Carbon Disulphide	64	100	650*	60000*	4.1	1.6
Carbon Tetrachloride	130	3900	280000	65000*	0.0	1.0
Cyclohexane	3500	105000	315000		0.0	2.1
Dichloromethane	700	3000	3420		0.0	7.6
1-4 dioxane	910	36600	30600		0.0	1.0
Ethylbenzene	4410	55200			0.0	0.0
Hexane	720	21600			95.2	221.4
Methyl isobutyl ketone			1900*	410000*	0.0	0.9
Napthalene	530	8000			0.0	0.7
Styrene	800	800	160	420000*	0.0	37.0
Trichlorofluoromethane	57100	714000			0.0	2.7
1,2,4-Trimethylbenzene	1250	37500			0.0	0.6
Toluene	1910	8000	644	375000*	0.0	145.7
M+p-Xylene	4410	66200	78		0.0	2.4
o-Xylene	4410	66200	78		0.0	0.8
TOTAL VOCs					144	754

*Odour threshold level taken from Ref. 12

Note: Results reported for VOCs with relevant assessment levels

Result Table 5: Monthly Analysis of VOCs at Site 5 - RAF Kinloss ($\mu\text{g}/\text{m}^3$)

Components Identified using GC/MS	Long-Term EAL	Short-Term EAL	Odour Threshold Value	Odour Threshold Limit Value (8-hour)	Dec No-Fly	6-month mean
Acetic Acid	250	3700	43	25000*	0.0	0.0
Acetone	18100	362000	13900	2400000*	0.0	10.6
Benzene	16.25	208	32500	32000*	0.0	0.2
1-Butanol			90		0.0	1.4
Carbon Disulphide	64	100	650*	60000*	0.0	0.9
Carbon Tetrachloride	130	3900	280000	65000*	0.0	0.0
Cyclohexane	3500	105000	315000		0.0	1.8
Dichloromethane	700	3000	3420		0.0	5.2
1-4 dioxane	910	36600	30600		0.0	0.0
Ethylbenzene	4410	55200			0.0	0.0
Hexane	720	21600			0.0	219.2
Methyl isobutyl ketone			1900*	410000*	0.0	0.0
Napthalene	530	8000			0.0	0.0
Styrene	800	800	160	420000*	0.0	33.5
Trichlorofluoromethane	57100	714000			0.0	5.5
1,2,4-Trimethylbenzene	1250	37500			0.0	0.0
Toluene	1910	8000	644	375000*	0.0	131.0
M+p-Xylene	4410	66200	78		0.0	2.6
o-Xylene	4410	66200	78		0.0	0.6
TOTAL VOCs					0.0	600

*Odour threshold level taken from Ref. 12

Result Table 6: Monthly Analysis of VOCs at Site 6 - Glebe Road, Kinloss ($\mu\text{g}/\text{m}^3$)

Components Identified using GC/MS	Long-Term EAL	Short-Term EAL	Odour Threshold Value	Odour Threshold Limit Value (8-hour)	Dec No-Fly	6-month mean
Acetic Acid	250	3700	43	25000*	0.0	0.0
Acetone	18100	362000	13900	2400000*	0.0	6.9
Benzene	16.25	208	32500	32000*	0.0	0.2
1-Butanol			90		0.0	0.7
Carbon Disulphide	64	100	650*	60000*	0.0	1.1
Carbon Tetrachloride	130	3900	280000	65000*	0.0	0.0
Cyclohexane	3500	105000	315000		0.0	1.5
Dichloromethane	700	3000	3420		0.0	3.5
1-4 dioxane	910	36600	30600		0.0	0.0
Ethylbenzene	4410	55200			0.0	0.0
Hexane	720	21600			0.0	102.6
Methyl isobutyl ketone			1900*	410000*	0.0	0.0
Napthalene	530	8000			0.0	0.0
Styrene	800	800	160	420000*	0.0	20.6
Trichlorofluoromethane	57100	714000			0.0	3.0
1,2,4-Trimethylbenzene	1250	37500			0.0	0.0
Toluene	1910	8000	644	375000*	0.0	93.3
M+p-Xylene	4410	66200	78		0.0	3.7
o-Xylene	4410	66200	78		0.0	0.0
TOTAL VOCs					0	422

*Odour threshold level taken from Ref. 12

Note: Results reported for VOCs with relevant assessment levels

Result Table 7: 24 Hour VOC Analysis at Covesea and Stotfield Road in June 2004 ($\mu\text{g}/\text{m}^3$)

Components Identified using GC/MS	Long Term EAL	Odour Threshold Value	Short-Term EAL	Odour Threshold Limit Value (8-hour)	Covesea	Stotfield Road
Acetic Acid	250	40	3700	25000*	0.0	0.0
Acetone	18100	11038	362000	2400000*	147.7	90.6
Benzene	16	28113	208	32000*	0.0	0.0
1-Butanol		92			0.0	0.0
Butylbenzene		48267			0.0	0.0
Carbon Disulphide	64	32	100	60000*	0.0	0.0
Carbon Tetrachloride	130	260265	3900	65000*	0.0	0.0
Cyclohexane	3500	294976	105000		0.0	0.0
Dichloromethane	700	5043	3000		1083.9	652.5
1-4 dioxane	910	28553	36600		0.0	0.0
Ethylbenzene	4410		55200		0.0	0.0
Heptane	2370				100.0	0.0
Hexane	720		21600		379.5	190.1
Methyl isobutyl ketone		1960		410000*	0.0	0.0
Napthalene	530		8000		0.0	0.0
Pentane	7160				0.0	0.0
Styrene	800	144	800	420000*	0.0	0.0
Toluene	57100		714000		0.0	0.0
Trichlorofluoromethane	1250		37500		0.0	0.0
1,2, 4-Timethylbenzene	1910	600	8000	375000*	275.6	104.3
M+p- Xylene	4410	71	66200		0.0	0.0
o-Xylene	4410	71	66200		0.0	0.0
TOTAL VOCs					5489	2657

*Odour threshold level taken from Ref. 12.

Note: Results reported for VOCs with relevant assessment levels

Figure 1: Wind Rose for RAF Kinloss 1987 – 1996

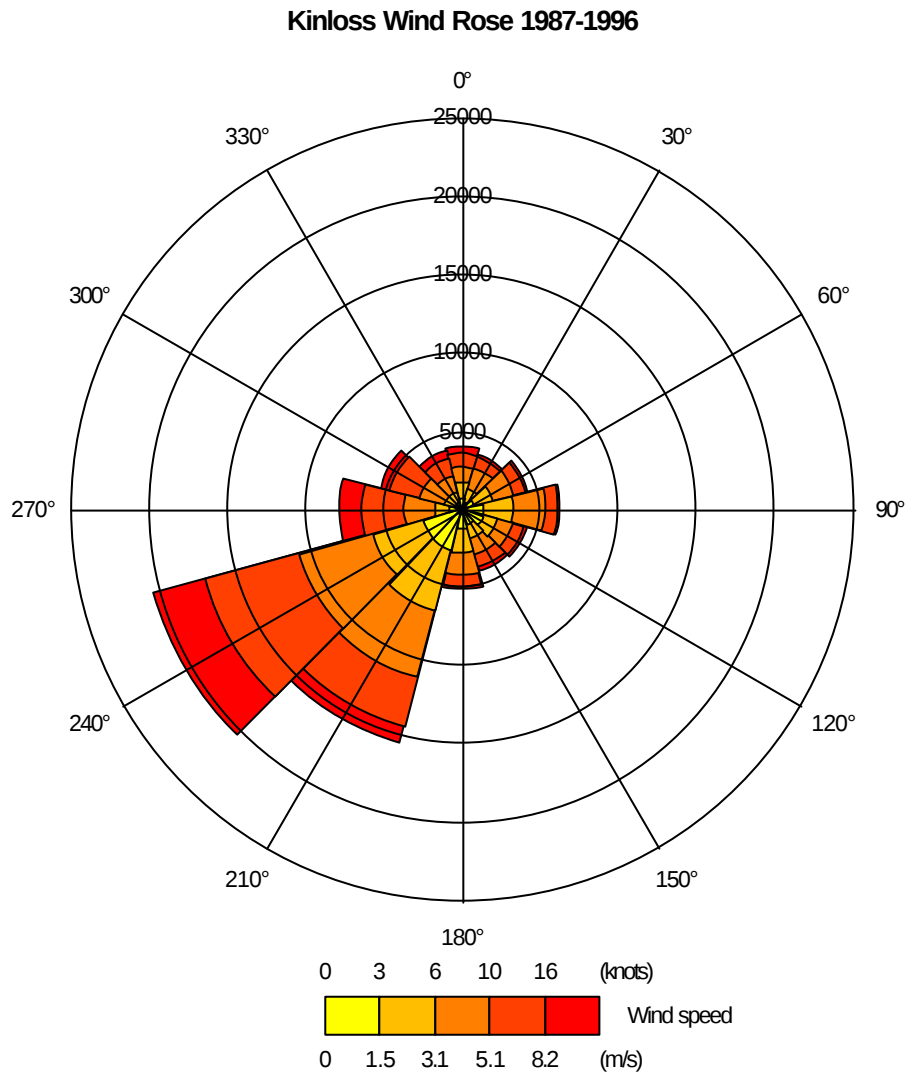


Figure 2: Wind Rose for RAF Kinloss 2002

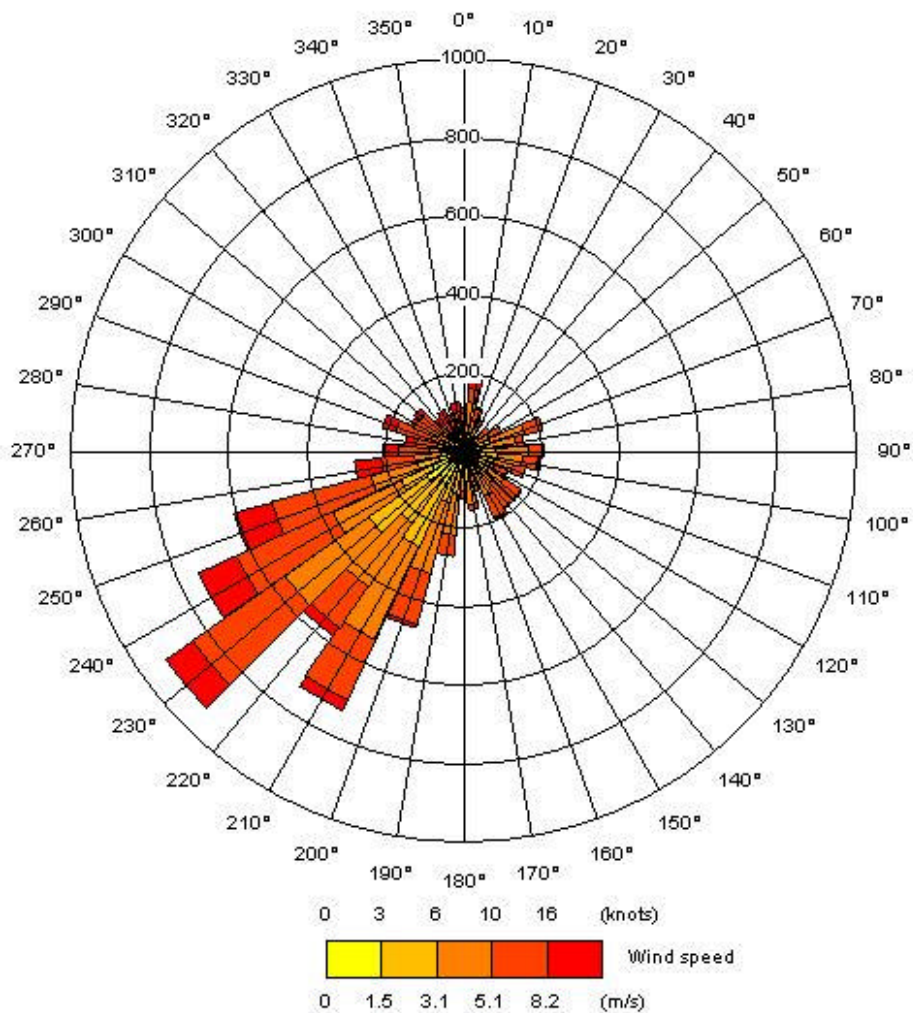


Figure 3: Wind Rose for RAF Kinloss 2003

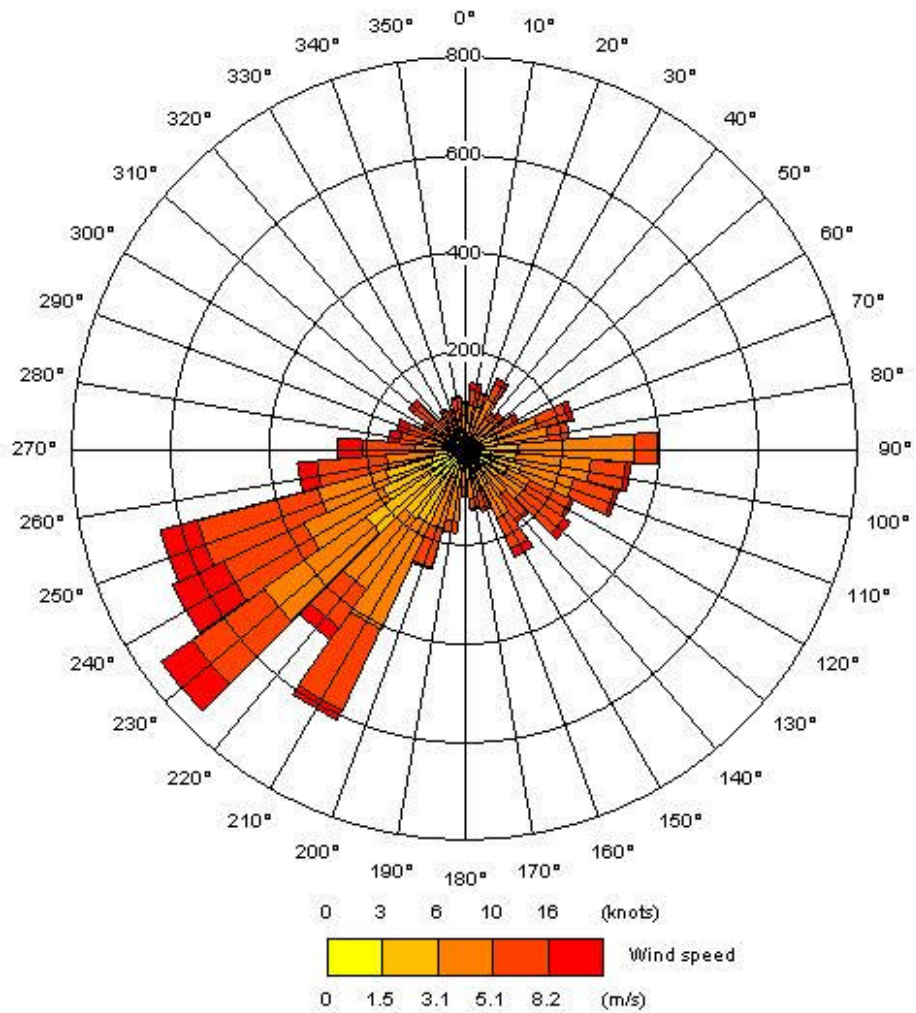


Figure 6 - Monthly Total NO₂ Concentration at Each Site (ug/m³)

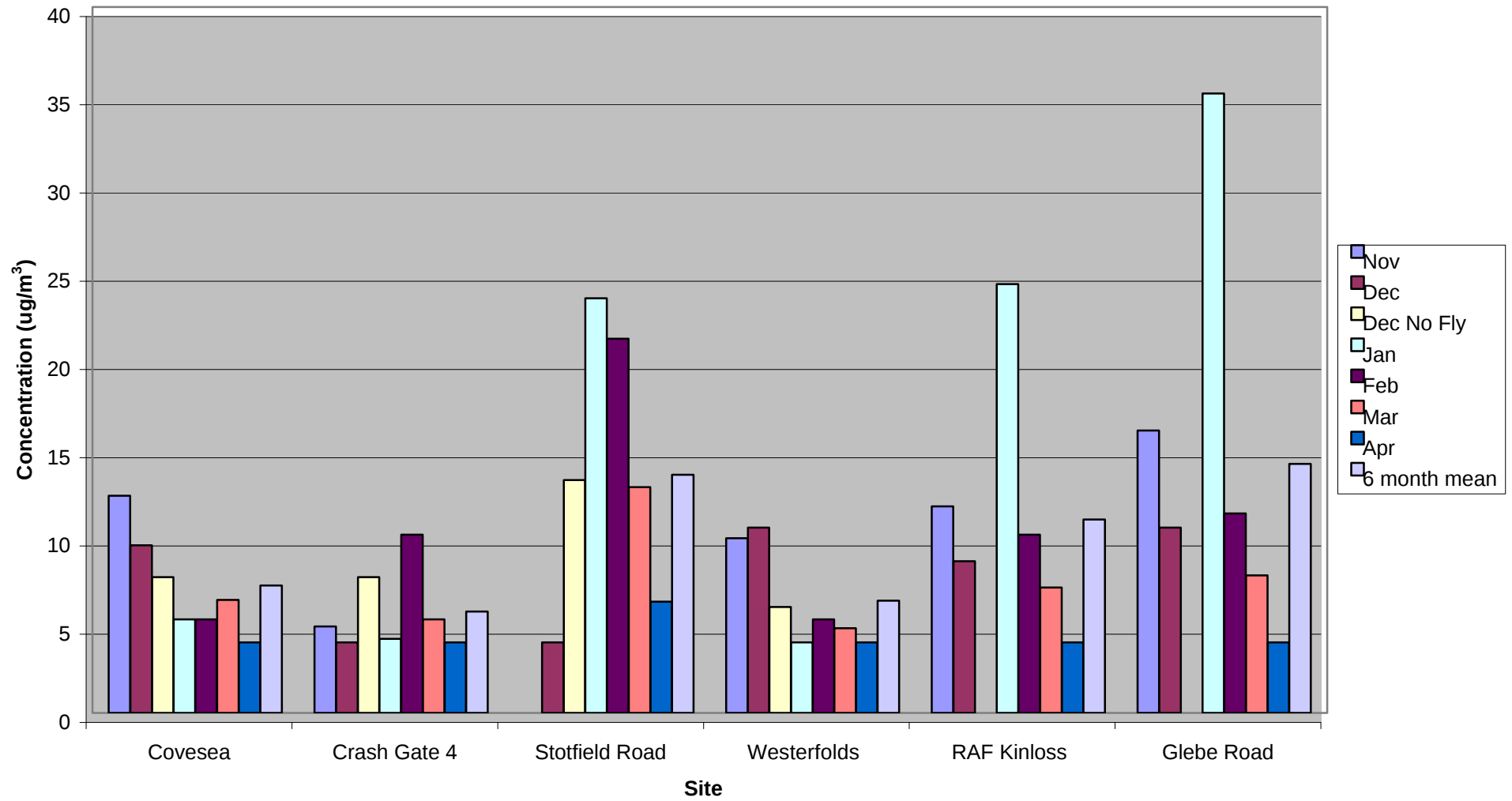


Figure 7 - Monthly Total VOC Concentration at Each Site ($\mu\text{g}/\text{m}^3$)

